THE WORLD OF LAPP

Industrial Communication



LAPP

Legend

Industries


Automation


e-Mobility


Food & Beverage


Mechanical and Plant Engineering


Oil & Gas


Rail


Solar Energy


Wind Energy

Product charateristics


Suitable for outdoor use


Good chemical resistance


Flame-retardant



Wide clamping range


Halogen-free


Heat-resistant


Cold-resistant


Corrosion-resistant


Maximum vibration protection


Mechanical resistance


Assembly time


Low weight


Oil-resistant


Optimum strain relief


Space requirement


Cable chain


Cleanroom


Robust


Acid-resistant


Reliability


Integrated SKINTOP® cable gland


Voltage


Connector with standard housing unit


Interference signals



Temperature-resistant


Torsion-resistant


Torsion load



UV-resistant


Waterproof


Variety of approval certifications

Please note

The purpose of the icons is to provide you with a quick overview and a rough indication of the product features to which the corresponding information relates. You can find details of product characteristics in the “technical data” sections on the product pages.

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Optical transmission systems 305

Roots in Stuttgart – at home in the world!



A family company in the third generation – since 1959

Throughout our history, our values have determined who we are: customer-oriented, success-oriented, family-oriented and innovative. These are the values for which the Lapp family stands. **Now in the third generation.**



1st generation

Oskar and Ursula Ida Lapp invented ÖLFLEX®, founded the company and laid the foundation for the company's success today.



2nd generation

Siegbert and Andreas Lapp have driven growth and strengthened international expansion.



3rd generation

Matthias Lapp takes over as CEO,
Katharina Lapp joins the Supervisory Board.

All quality products at a glance

ÖLFLEX®



ÖLFLEX® has become synonymous with power and control cables. Our flexible and oil-resistant cables satisfy the highest demands and can withstand even the very toughest conditions.

UNITRONIC®



Our high-quality UNITRONIC® data network cables and field bus components provide a forward-looking solution for all applications in industrial machinery and plant engineering. From the transmission of simple control signals to field bus signals in complex network structures – we offer a dependable cabling and connection solution for almost every situation.

ETHERLINE®



Our ETHERLINE® branded products open up a secure, fast and reliable path to the future of Ethernet applications, e.g. PROFINET. The systems are made up of durable and robust cables and connection components for passive and active network technology, and deliver an effective solution for almost any application, particularly in an industrial environment.

HITRONIC®



HITRONIC® fibre optic cables make transmitting large data volumes easy: fault-free, bug-proof and at almost the speed of light. Even electromagnetic radiation does not interfere with the transmission. The HITRONIC® range includes the ideal solution for indoor or outdoor use, for demanding conditions and even for use in power chains.

EPIC®



EPIC® industrial connectors can be found everywhere in industrial machinery and plant engineering, for measuring, control and drives. EPIC® is a flexible system of housings, inserts and contacts: all extremely robust, absolutely safe and simplicity itself to assemble.

SKINTOP®



Simply feed in the cable and twist - that's it. Our SKINTOP® cable glands provide secure connections in no time. The universal systems are simple but effective. They secure and centre the cable, hermetically seal it and guarantee optimum strain relief.

SILVYN®



The universal range of SILVYN® protection and guidance systems protects cables effectively against dust and moisture, as well as mechanical, thermal and chemical influences. The versatile SILVYN® CHAIN range of energy supply chains also protects and guides cables in dynamic applications.

FLEXIMARK®



The requirement: permanent markings. The solution: FLEXIMARK®. These sophisticated systems mean that a clear overview inside a control cabinet is no longer just a pipe dream. From simple labels for manual marking through to electronic markings, the FLEXIMARK® range is guaranteed to last.



Our mission: keeping your industry alive!

Bringing industries to life – that is our purpose. Ever since Oskar Lapp invented the first industrially manufactured power and control cables, we have been providing individual solutions tailored to the needs of our customers.
Our goal: to help customers get the best out of their industry.



Industrial Communication made by LAPP.

The right solution for every application

Digitalisation is already leading to ever increasing data volumes in production halls. As a result, Ethernet, which has already become a standard in office environments, is also important in industrial environments. The challenge for industrial data cables lies in reliably transferring ever higher data rates in harsh industrial environments. The cables are often bent millions of times in cable chains or are exposed to corrosive substances and high temperatures.

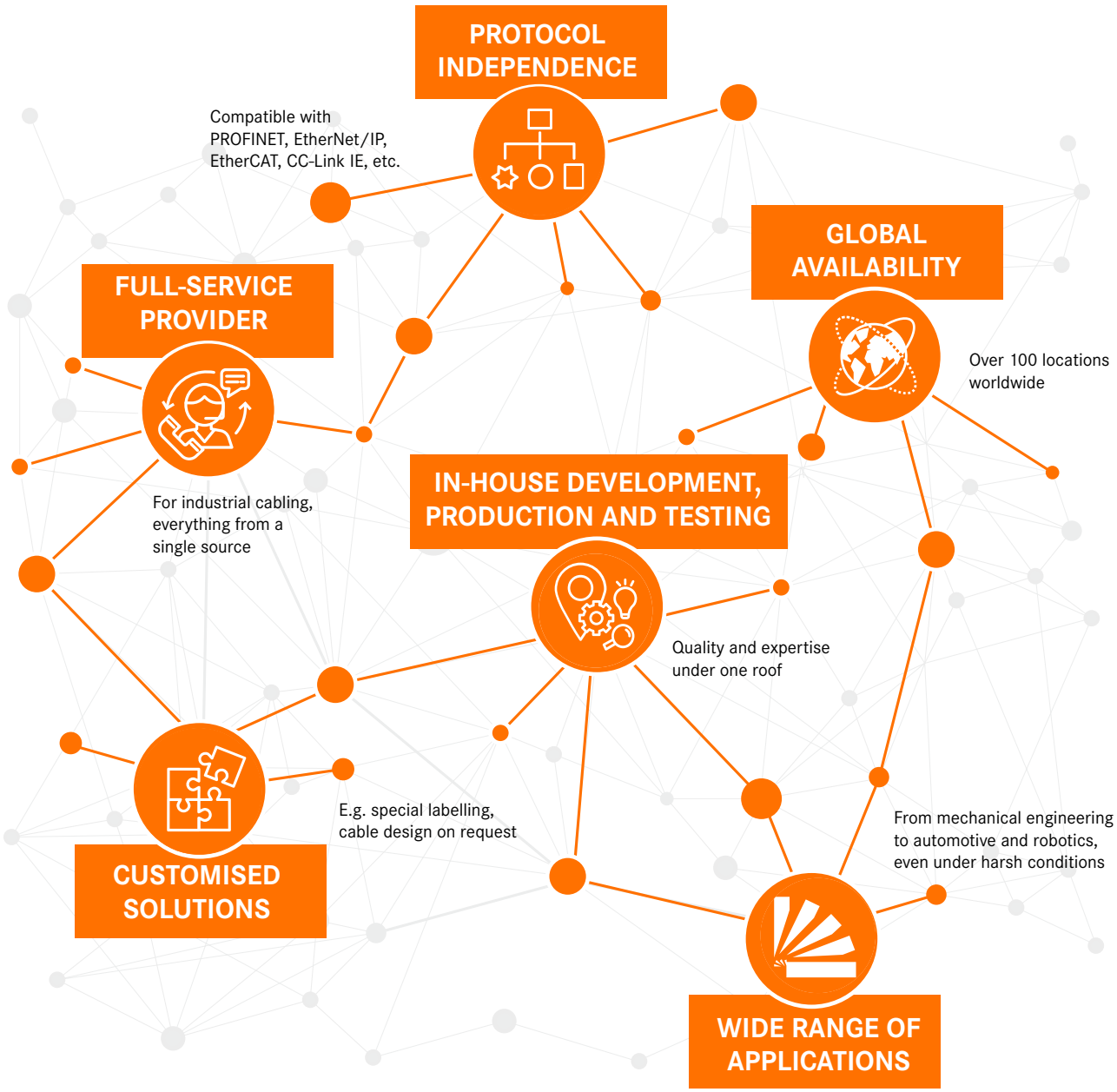
As we incorporate products into our customers' automation processes, we are constantly asked to supply innovative ideas to solve important future-oriented challenges. Therefore we offer our customers a wide array of components and system solutions for factory, building and process automation. Our data communication solutions include complete cabling and connectivity systems for integrated networking at the sensor/actuator and control level right through to the inventory management system.

Your benefits

- High availability of materials
- Switches and distribution boxes available in various designs
- Products for all protocol standards
- Protocol-independent expert know-how
- No MOQ on stocked articles
- Cables, patchcords or customer-specific assemblies
- Global availability at 40+ sites

www.lapp.com/en/de/e/000231

LAPP – your global partner for innovative connectivity solutions



Global manufacturing precision, delivered locally

LAPP operates a worldwide network of production sites and logistics hubs, manufacturing facilities and distribution centers. This global setup ensures that our products are always available and reach you quickly - wherever your business is located.

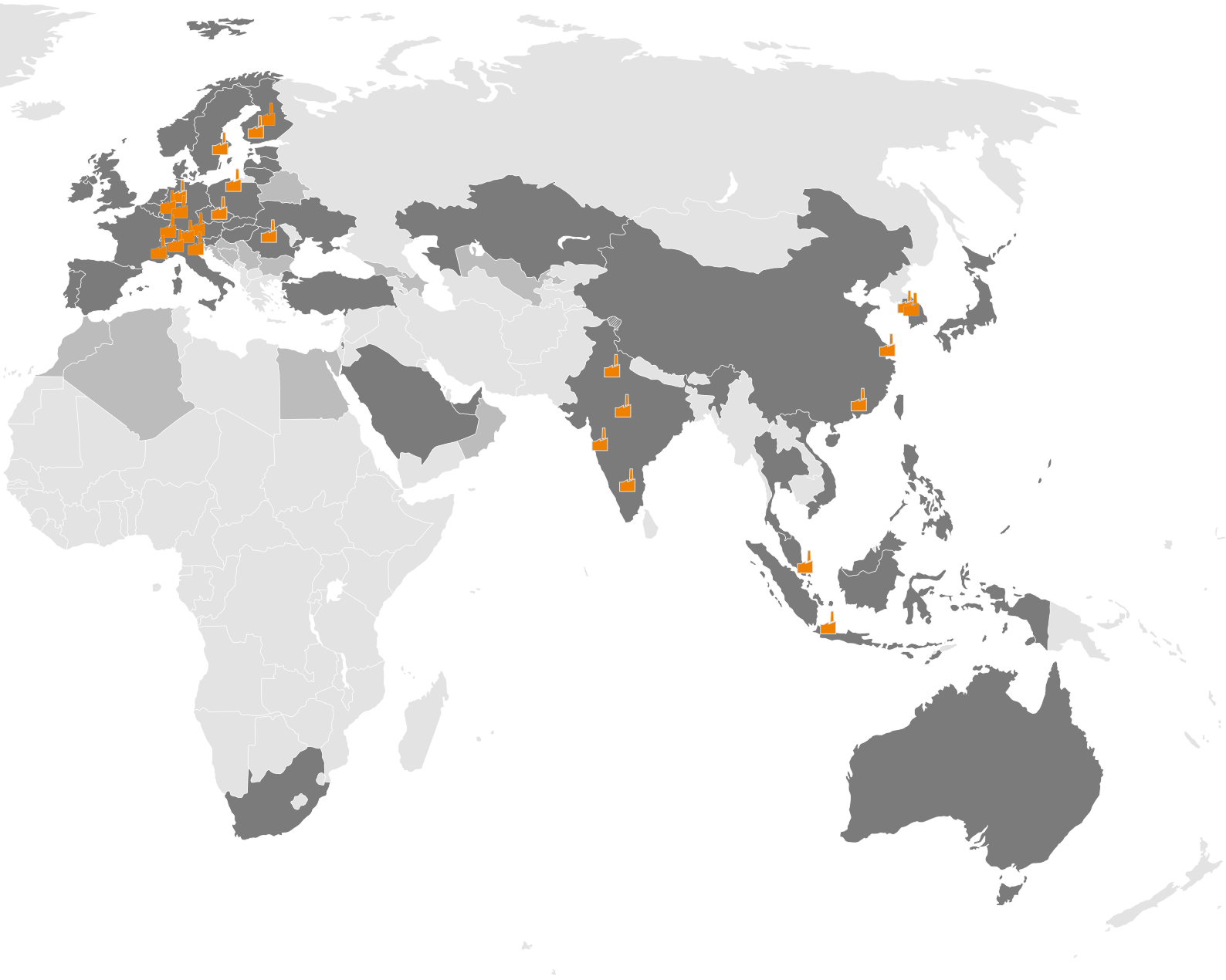
With cutting-edge equipment and modern production technologies, we deliver maximum precision and consistent product quality. Our know-how covers the entire value chain, from tooling and prototyping to cable assembly and comprehensive quality testing.

This integrated approach guarantees reliability and performance across all products - keeping your operations efficient and your connections strong.



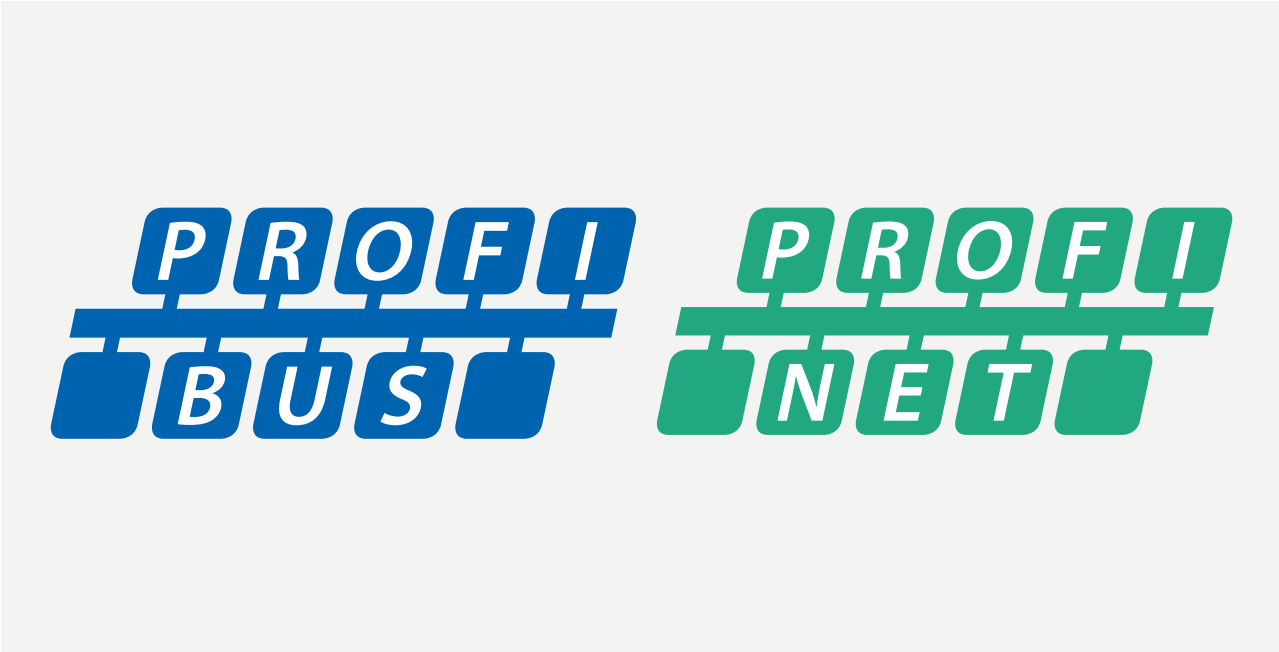
Legend

- Countries with own LAPP entities
- Countries with LAPP Representations
- LAPP Production Locations



Fast connect

Up to 50 % time saving in data connector assembly

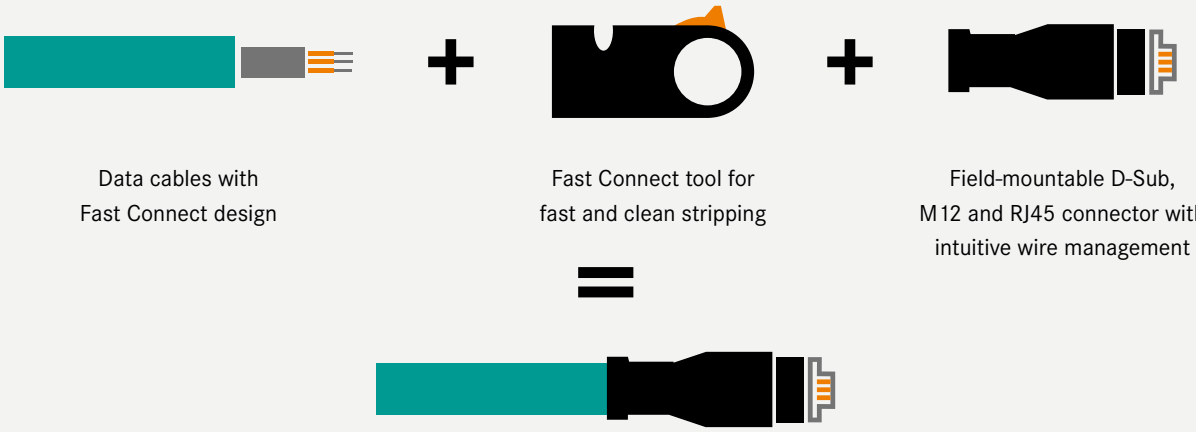


Our Fast Connect system
for PROFINET and PROFIBUS.
Industrial production and manufacturing environments require ever larger data volumes to be processed as quickly as possible. As a result, the demands on cabling also increase. This is because the products utilised must not only be designed for steadily growing data rates in the gigabyte range, but also be robust enough to ensure the reliability and operational safety of machines and systems.

The solution from LAPP
Our range of innovative Fast Connect data cables feature a special inner sheath and a cross separator instead of pair screening (Cat.6_A). This special cable design reduces assembly time by up to 50 %, while perfectly fulfilling all of the requirements for the shielding and application. Furthermore, there is no need to painstakingly remove the pair screening four times on Cat.6_A cables, as it is now possible to strip right down to the wire pairs using the right tool.



Perfectly compatible – Our Fast Connect components for Ethernet and fieldbus standards



Data cables with
Fast Connect design

Fast Connect tool for
fast and clean stripping

Field-mountable D-Sub,
M12 and RJ45 connector with
intuitive wire management

Benefits

- Up to 50 % time saving in assembly
- Perfect processing of EMC screening
- Specially coordinated components
- For Ethernet and fieldbus standards
- UL approval for the US market

How-to video

The step-by-step instruction
video can be found here:

www.youtube.com/watch?v=TmQ2NV5WS0A



LAPP Exploration Center

Discover our solution competence at the LAPP Exploration Center and benefit from our trainings and service offerings.

Learn how LAPP's connectivity solutions can optimise your industrial communication and create reliable, future-proof networks that boost your productivity and support the transformation to Industry 4.0.
The LAPP Exploration Center is more than just an application centre. In addition to proven industrial communication solutions, you will also find our latest developments and innovations there.

A place where...

... you can experience solutions and innovations first hand.
... we offer concentrated technical expertise.
... we provide you with an customer experience.

Innovations and technologies from LAPP

Take a look into the future with us

Experience our latest developments, such as the stationary monitoring device for data cables, ETHERLINE® GUARD, the patented zeroCM® technology, which reliably reduces leakage currents and contributes significantly to improved EMC in machines and systems.

In addition to new products, we also develop cutting-edge services such as eKanban – for intelligent and networked cable inventory management.

Take advantage of the opportunity to discuss the current challenges in your company with our experts.



Training programmes

Trainings with certified PROFINET experts

The LAPP Exploration Center offers a variety of trainings on different topics. These trainings are specifically tailored to the needs of your industry.

Benefit from the expertise of our officially certified PROFINET experts and enhance your solution skills with our training programmes.

Time frame
1 day
(½ day theory / ½ day practice)

Price
400.00 € plus VAT per person and training (incl. meals)

Target group
Developers, planners, installers and maintenance technicians

Language
All trainings are offered in German or English

Group size
Max. 8 persons

Interested?

Are you interested in a visit? Whether it's a full day including a workshop, a specialised training on industrial communication or a training tailored to your individual interests, we've got you covered. Just contact us!
exploration.center.global@lapp.com

Service offerings

Developing customised solutions for your industrial networks

Are you unsure how to implement the solution for your industrial communication application?

Would you like to conduct a proof of concept for the individual industrial communication solution developed with LAPP experts?

Do you want to know if the components you use for industrial communication will work seamlessly with the related LAPP products?

These and other services are available in our LAPP Exploration Center.



Our team will gladly assist you!

Our team is happy to advise you on the service offerings at the LAPP Exploration Center. Contact us:
exploration.center.global@lapp.com

Digital services

We’re here for you, no matter where you are.
We offer you sophisticated e-service solutions. Place quick and convenient orders with our digital services. This gives you more time for your core business. It’s entirely up to you to decide how to process your orders digitally.

LAPP Configurators

Fibre Optic configurator
Configure your customised fibre optic cable easily online. With our fibre optic configurator, you can put together the perfect fibre optic cable assembly in just a few steps – quickly, clearly and precisely tailored to your application.

Industrial Ethernet Finder
Quickly find the right Ethernet cables and connectors for your application. With the Industrial Ethernet Product Finder, you can easily and reliably select the ideal components for long-lasting and error-free network communication.

Patchcords & Cordset Finder
Find the ideal combination of cable and connector for your industrial application in just a few steps. LAPP’s Patchcord & Cordset Finder helps you to immediately select the right products, including technical data and certificates – quickly, intuitively and reliably for your machine cabling.

LAPP Online Shop

Your solution is just a click away. Our online shop offers you a user-friendly platform where you can quickly order over 20,000 of our standard items.

OCI Open Catalogue Interface

By using OCI, you can seamlessly transfer your orders from the LAPP Online Shop directly into your procurement system, ensuring data consistency and avoiding double entries for more efficient order processing.

LAPP eKanban

LAPP offers additional added value that goes far beyond high-quality products. Our eKanban system is the innovative all-round solution for digital cable inventory management.



Engineering systems and exchange formats

EPLAN, Zuken, Siemens, Cadenas, AmpereSoft, AUCOTEC, WSCADUniverse, BMEcat, ETIM. All at a detailed level.

EDI Electronic Data Interchange

Fast ordering processes and no more time-consuming manual check of order confirmations, delivery notes or invoices. With EDI, LAPP offers a standardised interface for the secure exchange of business documents between ERP systems.

E-Procurement

LAPP supports your goals in the digitalisation of your procurement processes and is happy to collaborate as a supplier in the e-Procurement platform of your choice – whether via WebEDI or full integration.

Product finders and configurators

Product configuration can be so simple. With finders and configurators from LAPP, you can compile a valid configuration for your personal application online at any time and order the products from our online shop.

MyLAPP

With MyLAPP, everything is designed for self-service: from tracking your orders to downloading documents, accessing service information and discovering special offers – all available 24/7, at any time and anywhere in the world.

LAPP Partner-Portal

Lapp Partner Portal PP50: it's all about efficiency! Manage the whole order and inventory process digitally and enhance your partner engagement with LAPP. Benefit from real-time stock and price information and digital approval workflows.

Act faster with the digital services from LAPP. Visit **www.lapp.com**


UNITRONIC LAN
ROHS
ART.2170614



UNITRONIC®

Data communication systems

Our high-quality UNITRONIC® data network cables and field bus components provide a forward-looking solution for all applications in industrial machinery and plant engineering. From transmission of simple control signals to field bus signals in complex network structures – we offer a dependable cabling and connection solution for almost every situation.

Application range

- Industrial machinery and plant engineering
- Sensors and actuating elements
- Appliances
- Measurement and control technology
- Automated production processes and industrial robots
- Bus systems
- Computing and communication systems

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Low frequency data transmission cables

UNITRONIC® colour codes
UNITRONIC® 100 52
UNITRONIC® 100 CY 52
DIN colour code
UNITRONIC® LiYY 54
UNITRONIC® LiYCY 55
UNITRONIC® LiYY (TP) 57
UNITRONIC® LiYCY (TP) 58
UNITRONIC® LiYY BK 59
UNITRONIC® LiYCY BK 61
UNITRONIC® LiYY (TP) BK 63
UNITRONIC® LiYCY (TP) BK 64
UNITRONIC® EB CY (TP) 65
UNITRONIC® LiYCY-CY 66
UNITRONIC® CY PiDY (TP) 67
UNITRONIC® ST 68
UNITRONIC® LiYD11Y 69
UNITRONIC® PUR CP 70
UNITRONIC® PUR CP (TP) 71
Low capacitance
UNITRONIC® Li2YCY (TP) 72
UNITRONIC® Li2YCY (TP) fine-wire 72
UNITRONIC® Li2YCYv (TP) 72
UNITRONIC® Li2YCY PiMF 74
Halogen-free UNITRONIC®
UNITRONIC® ROBUST 75
UNITRONIC® ROBUST C 76
UNITRONIC® ROBUST C (TP) 77
UNITRONIC® LiHH 78
UNITRONIC® LiHCH 79
UNITRONIC® LiHCH (TP) 80
UL/CSA-certified
UNITRONIC® LiYY A 81
UNITRONIC® LiYCY A 82
UNITRONIC® LiYCY (TP) A 83
UNITRONIC® 300 / UNITRONIC® 300 S 84
UNITRONIC® 300 STP 85
Highly flexible application
UNITRONIC® FD 86
UNITRONIC® FD CY 87
Highly flexible and UL/CSA-certified
UNITRONIC® FD Li2YCY (TP) A BE 88
UNITRONIC® FD P plus A 89
UNITRONIC® FD CP plus A 90
UNITRONIC® FD CP (TP) plus A 91
Computer cables (RE)
UNITRONIC® RE-2Y(ST)Yv S 92
UNITRONIC® RE-2Y(ST)Yv PiMF 94
Installation cable for industrial electronics
JE-Y(ST)Y...BD 95
JE-Y(ST)Y...BD EB 95
JE-LiYCY...BD 96
JE-LiYCY...BD EB 96

Telephone cables

Indoor cables
J-Y(ST)Y...LG Fire Alarm Cable 99
J-Y(ST)Y...LG Indoor Cable 100
J-H(ST)H...BD Fire Alarm Cable 101
J-H(ST)H...BD 102
Outdoor cables
A-2Y(L)2Y...ST III BD Telephone Outdoor Cable 103
A-2YF(L)2Y...ST III BD Outdoor Cable 103

Coaxial cables

Fixed installation and conditional flexible use
Coaxial - RG 104
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Coaxial cabels RGB 105

Bus systems with interface RS485/RS422

Fixed Installation
UNITRONIC® BUS LD 106
Continuous flexing application
UNITRONIC® BUS LD FD P 107

Bus system AS-Interface

Fixed Installation
UNITRONIC® BUS ASI 108
Continuous flexing application
UNITRONIC® BUS ASI FD 109

Bus system PROFIBUS-DP/FMS/FIP

Fixed Installation
UNITRONIC® BUS PB TRAY 110
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UNITRONIC® BUS PB Y 7-W FC BK 120
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Bus system PROFIBUS-PA

Fixed Installation
UNITRONIC® BUS PA 136

Bus system CAN / DeviceNet

DeviceNet - fixed installation
UNITRONIC® DeviceNet THICK + THIN 137
DeviceNet - continuous flexing application
UNITRONIC® DeviceNet FD THICK+THIN 138

CAN - Fixed installation and high flexibility application
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Bus systems for utility vehicles
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Bus system CAN / DeviceNet

Sub-D Bus-Connectors
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EPIC® DATA CAN Sub-D PRO 145
M12 Cordsets
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EPIC® DATA CAN M12 147
EPIC® DATA CAN M12/M12 147
EPIC® DATA CAN TR M12 148
EPIC® DATA CAN M12T 149
EPIC® DATA CAN CCR 149

Bus system ISOBUS

Flexible application
UNITRONIC® BUS IS 150

Bus system Foundation Fieldbus

Fixed Installation
UNITRONIC® BUS FF 151

Bus system CC-Link

Fixed / continuous flexing application
UNITRONIC® BUS CC 152
UNITRONIC® BUS CC FD P FRNC 153

Bus system SAFETY BUS

UNITRONIC® BUS SAFETY 154

Bus system INTERBUS (IBS)

Fixed Installation
UNITRONIC® BUS IBS 155

Bus system EIB

Fixed Installation
UNITRONIC® BUS EIB / KNX 156

Sensor/actuator cabling

Flexible / highly flexible applications
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UNITRONIC® SENSOR 158
UNITRONIC® SENSOR FD 159
UNITRONIC® ROBUST S/A FD 160
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M8 Field mountable connectors and wall ducts
EPIC® SENSOR M8 165
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Overview of the most common bus systems

AS-Interface (AS-I)
Developed to have an inexpensive alternative on the lower Fieldbus level (sensor/actuator) of Automation. Used very often in connection with Ethernet, PROFIBUS, CAN and DeviceNet™.

PROFIBUS
We distinguish between PROFIBUS DP and PROFIBUS PA. The DP variant dominates worldwide with a bit rate of 1.5 Mbit/s up to 12 Mbit/s PROFIBUS PA is the leader in Process Automation in Europe.

CAN/CANopen®
Originally developed for cars. Used in industry in an extremely broad range of applications.

DeviceNet™
Prior Fieldbussystem in North America. Developed by Allen Bradley (Rockwell Automation). Based on CAN.

Fieldbus Foundation™
Bus system for use in Process Automation.

SafetyBUS
Bus systems are developed especially for safety-relevant areas. They operate either completely independently (e.g: SaftyBUS p®) or are part of an overall system (e.g. PROFIsafe, INTERBUS® Saftety, DeviceNet™ Saftey etc.).

INTERBUS®
One of the first field bus systems used in the automotive industry.

European Installation Bus EIB/KNX®
Bus system for Building Automation. Operates primarily with low bit rate.

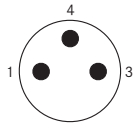
Other bus systems
For dedicated bus systems or modified system solutions based on standardized systems.

CAN = Controller Area Network
DeviceNet™ = registered trademark of Open Device Vendors Association (ODVA)
Fieldbus Foundation™ = registered trademark of Fieldbus Foundation™

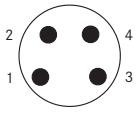
SafetyBUS p® = registered trademark of Pilz GmbH & Co. KG
INTERBUS® = registered trademark of Phoenix Contact GmbH & Co
Lapp Kabel is a member of the PROFIBUS user organisation e. V. (PNO)

Pin assignments

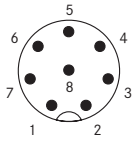
M8 pin assignments (IEC 61076-2-104)



3-pos.
A-coded for
Sensor/actuator
cabling

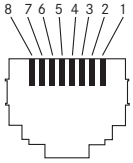


4-pos.
A-coded for
Sensor/actuator
cabling and
Industrial Ethernet



8-pos.
A-coded for
Sensor/actuator
cabling

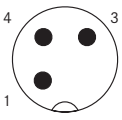
RJ45 pin assignment (IEC 60603-7)



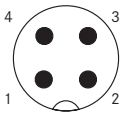
Connector pin assignments

TIA 568-A	TIA 568-B	PROFINET	RJ45	M12 D-coded	M12 X-coded	M8
White/Green	White/Orange	Yellow	1	1	1	1
Green	Orange	Orange	2	3	2	4
White/Orange	White/Green	White	3	2	3	2
Blue	Blue		4		8	
White/Blue	White/Blue		5		7	
Orange	Green	Blue	6	4	4	3
White/Brown	White/Brown		7		5	
Brown	Brown		8		6	

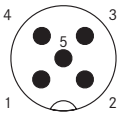
M12 pin assignments



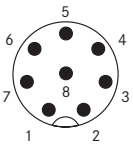
3-pos.
A-coded for
Sensor/actuator
cabling



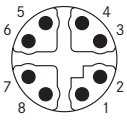
4-pos.
A-coded for
Sensor/actuator
cabling



5-pos.
A-coded for
Sensor/actuator
cabling



8-pos.
A-coded for
Sensor/actuator
cabling



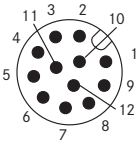
8-pos.
X-coded
for Industrial
Ethernet



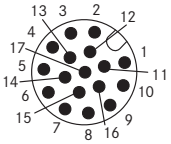
3+PE-pos.
S-coded
for power
supply



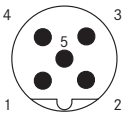
4-pos.
T-coded
for power
supply



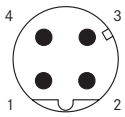
12-pos.
A-coded for
Sensor/actuator
cabling



17-pos.
A-coded for
Sensor/actuator
cabling



5-pos.
B-coded for
PROFIBUS



4-pos.
D-coded
for Industrial
Ethernet

Type designations for UNITRONIC® SENSOR



S/A cables e.g. item no. 22260339

Connection on left	Cable	Connection on right
AB- C4-	M12MS- 2.0PUR-	M12FA-2L

- AB- : Automation Bus
- C4- : Cordset (Number of pins (**4**))
- M12MS- : Connector/thread (**M12**), Connector/design (**straight connector**)
- 2.0PUR- : Cable length in m (**2.0 m**), Cable material – outer sheath (**PUR**)
- M12FA-2L : Connector/thread (**M12**), Connector/design (**angled socket**), Status display/number of LEDs (**2L**)

MS – straight connector
MA – angled connector
FS – straight socket
FA – angled socket
M8, M12, M16, M23 – thread
L – status display/LEDs
SH – screened version
HD – Hygienic Design
VA – stainless steel knurl
M12Y – M12 Y connector
B – bridged
3-, 4-, 5-, 8-, .. number of pins
A, AD, B, BI, C, CI – valve connector type
S – valve connector with Z diode
SV – valve connector with varistor
SVC – valve connector with varistor and commutator
SUP – valve connector with suppressor diode



mountable connector e.g. item no. 22260127

Connector				
AB-	C5-	M12	FS-	PG7-SH

- AB- : Automation Bus
- C5- : Connector (Number of pins (**5**))
- M12 : Connector/thread (**M12**)
- FS- : Connector/design (**straight connector**)
- PG7- : Cable connection/screw connection (**PG7**)
- SH : Screened version (**SH**)

MS – straight connector
MA – angled connector
FS – straight socket
FA – angled socket
P – piercing connection
SH – screened version
M8, M12, M16, M23 – thread
3-, 4-, 5-, 8-, .. number of pins
PG7, PG9, PG11, PG13 – cable connection
F0.34 (fast connection, max. 0.34 mm² cond. cross-sec.)
F0.75 (fast connection, max. 0.75 mm² cond. cross-sec.)
M16-0.5 (M16 flush-type conn. with 0.5 m PUR strand)
PG9-0.5 (PG9 flush-type conn. with 0.5 m PUR strand)
DSI – flush-type connector (rear wall mounting)
PO – flush-type connector (can be positioned)



S/A passive distributor box e.g. item no. 22260025

Box					
AB-	B8-	M12	L-	16-	10.0PUR

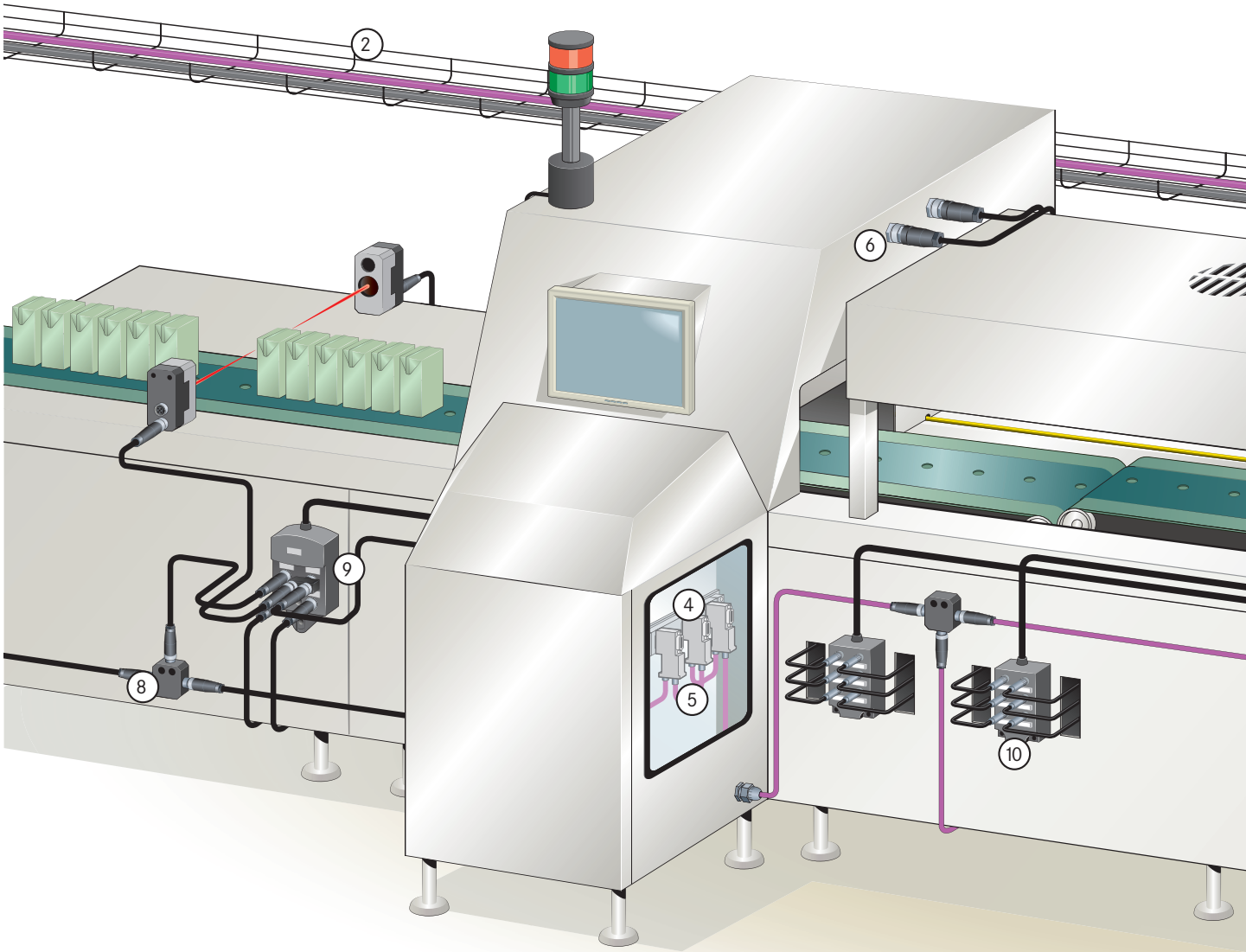
- AB- : Automation Bus
- B8- : Box (Number of slots (**8**))
- M12 : S/A connection/thread (**M12**)
- L- : Status display/LED signals (**L**)
- 16- : Number of inputs/outputs (**16**)
- 10.0PUR : Length of master cable in m (**10.0**), Cable material – outer sheath (**PUR**)

INFO: S/A box with **double** assignment → $\frac{\text{(number of inputs/outputs)}}{\text{(number of slots)}} = 2$

PUR – distributor box with perm. connected master cable (PUR)
C – distributor box with master cable conn. (pluggable screw connection)
M8L – distributor box with M8 slots and LED signals
M16 – distributor box with M16 master cable conn.
M12 – distributor box with M12 master cable conn.

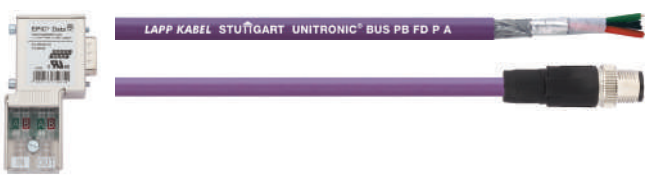
Further abbreviations:

AB-PC – Automation Bus Power Cable
AB-PB – Automation Bus PROFIBUS
AB-DN – Automation Bus DeviceNet™
AB-ASI – Automation Bus AS-Interface
AB-ASI-J – AS-Interface distributor



Data communication systems Overview

Bus systems

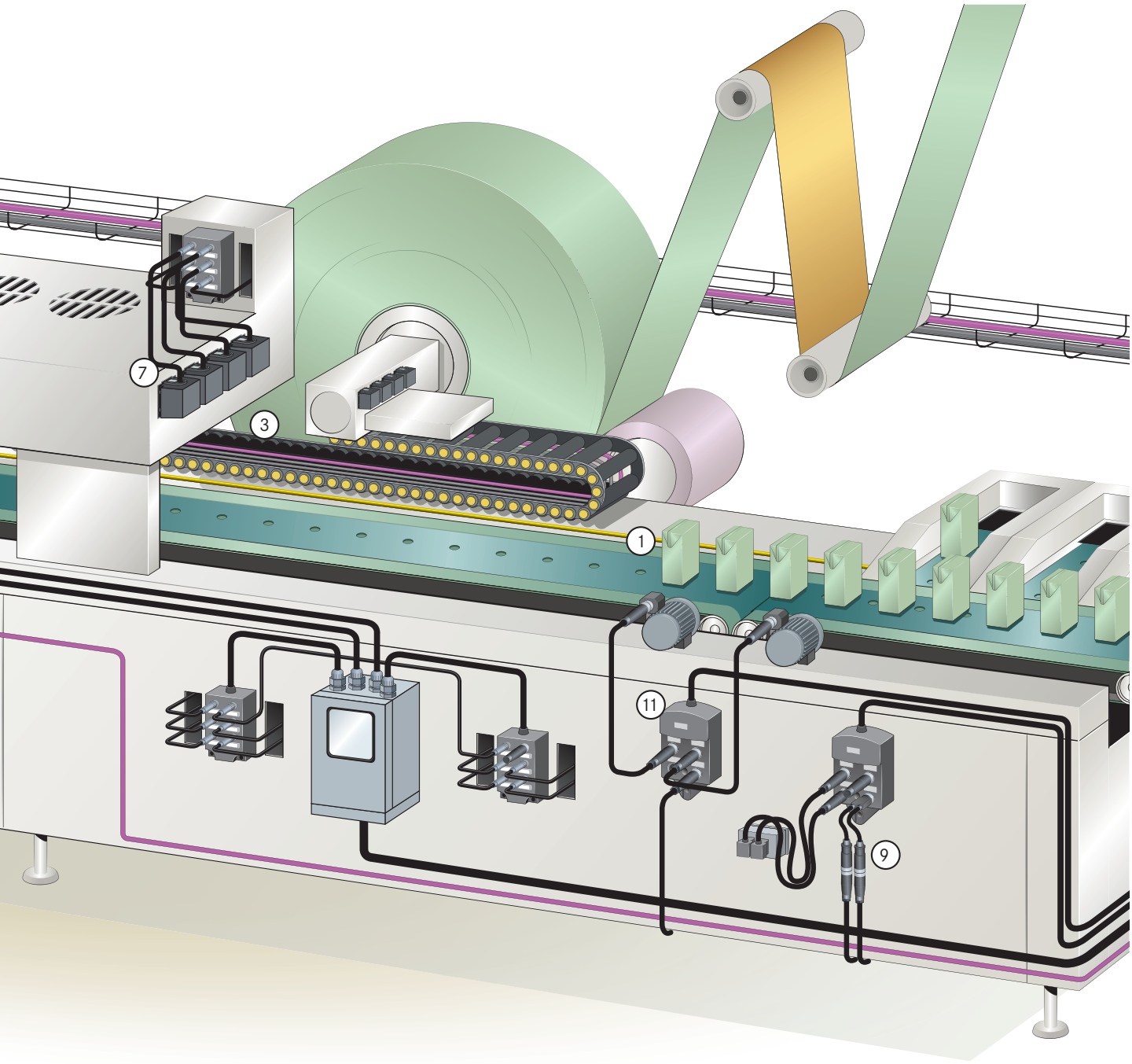


Support of all major fieldbus systems, among others PROFIBUS (DP and PA), CAN, DeviceNet™, CC-Link®, AS-Interface, ISOBUS, Foundation Fieldbus™, KNX®. Cables for in- and outdoor, extreme temperatures, fixed/flexible installation and high flexible application. M12- and Sub-D connectors, cordsets and accessories.

Sensor/actuator cabling



The complete range of M8-, M12- and valve connectors, cables, cordsets, matching distribution boxes and accessories. Available as shielded/unshielded version, optional LEDs, with different cable materials and connection technologies.



1. AS-interface cables
2. PROFIBUS cables (fixed installation)
3. PROFIBUS cables (highly flexible)
4. PROFIBUS Sub-D connector
5. PROFIBUS M12 cordsets
6. Sensor/actuator M12 connector
7. Valve connectors
8. Sensor/actuator T distributor
9. Sensor/actuator Y distributor
10. Sensor/actuator M8 distribution boxes
11. Sensor/actuator M12 distribution boxes

Quickfinder Bus cables

Bus system	Inst. area	Application/cabling	Outer sheath material	Approval
PROFIBUS DP (150 Ω)	indoor (UV = outdoor)	static	PVC	
				UL/CSA (CMX)
				UL/CSA (CMG)
				UL/CSA (PLTC-ER)
			H	UL/CSA (CM)
				UL/CSA (CMG)
			PUR	UL/CSA (CMX)
			ROBUST	
			PE	
			TPE	
			FEP	
		static/flexible	PVC	UL/CSA (CMG)
				UL/CSA (CMG)
			H	
		high flexible	PUR	
				UL/CSA (CMX)
				UL/CSA (CMX)
			PVC	UL/CSA (CMG)
			FRNC	UL/CSA (CMG)
		torsion	PUR	UL/CSA (CMX)
		festoon	PVC	UL/CSA (CMG)
	outdoor & burial	static	PVC	
			PVC/PE	
PROFIBUS PA (100 Ω)	indoor	static	PVC	
	indoor/outdoor	static	PVC	
				UL/CSA (CMG)
CAN CANopen® (120 Ω)	indoor	static	PVC	UL/CSA (CMX)
		static/flexible	PVC	UL/CSA (PLTC-ER)
		high flexible	PUR	UL/CSA (CMX)
	outdoor	static	PVC/PE	
DeviceNet™ (120 Ω)	indoor (UV = outdoor)	static	FRNC	UL/CSA (CMG) Germ. Lloyd
			PVC	UL/CSA (CMG)

Legend

*second outer sheath need to be removed before harnessing
**Standard Sub-D plug 9-pin
Please see detailed technical information on the data sheet (www.lapp.com/products)

7-W: 7-Wire: 7-stranded litz, dedicatet for vibrating machine parts
CAN: Controller Area Network
FC: **F**ast **C**onnect (cable construction for fast connector harnessing)
FD: high flexible (german – “Flexible Dauerbiegung”)
FRNC: Flame Retardant Not Corrosive

Characteristics	Article designation	Article number
	UNITRONIC® BUS PB	2170220
	UNITRONIC® BUS PB A	2170219
Fast **C**onnect, UV-resistant	UNITRONIC® BUS PB FC	2170820
105 °C temperature resistant	UNITRONIC® BUS PB 105	2170630
PLTC-ER approval for cable trays	UNITRONIC® BUS PB TRAY	2170856
Fast **C**onnect, halogen-free	UNITRONIC® BUS PB H FC	2170326
Fast **C**onnect, halogen-free, flame retardant	UNITRONIC® BUS PB FRNC FC	2170996
Fast **C**onnect, oil resistant	UNITRONIC® BUS PB P FC	2170330
higher chemical resistance, UV-resistant	UNITRONIC® BUS PB ROBUST	2170620
Fast **C**onnect, food & beverage industry, black, UV-resistant	UNITRONIC® BUS PB PE FC	2170333
food & beverage industry, black, UV-resistant	UNITRONIC® BUS PB PE	2170233
105 °C; temporary up to 120 °C	UNITRONIC® BUS PB 105 plus	2170635
180 °C heat resistant, -50 °C cold resistant	UNITRONIC® BUS PB HEAT 180	3031981
vibration resistant, UV-resistant	UNITRONIC® BUS PB 7-W A	2170824
Fast **C**onnect, vibration resistant, UV-resistant, black	UNITRONIC® BUS PB Y 7-W FC BK	2170310
Fast **C**onnect, vibration resistant, UV-resistant	UNITRONIC® BUS PB 7-W FC	2170826
vibration resistant, COMBI 3 x 1 mm^2	UNITRONIC® BUS PB COMBI 7-W	2170225
vibration resistant, halogen-free	UNITRONIC® BUS PB H 7-W	2170226
drag chain suitable, halogen-free, oil resistant	UNITRONIC® BUS PB FD P	2170222
drag chain suitable, halogen-free, oil resistant	UNITRONIC® BUS PB FD P A	2170822
Fast **C**onnect, drag chain suitable, oil resistant	UNITRONIC® BUS PB FD P FC	2170322
drag chain suitable, oil resistant, COMBI 3 x 1 mm^2	UNITRONIC® BUS PB FD P COMBI	2170227
drag chain suitable, oil resistant, COMBI 4 x 1.5 mm^2	UNITRONIC® BUS PB FD P HYBRID	2170495
drag chain suitable, oil resistant, UV-resistant, COMBI 4 x 1.5 mm^2	UNITRONIC® BUS PB FD Y HYBRID	2170882
Fast **C**onnect, drag chain suitable, halogen-free, flame retardant	UNITRONIC® BUS PB FD FRNC FC	2170997
torsion, halogen-free	UNITRONIC® BUS PB TORSION	2170332
cable trolley, festoon, UV-resistant	UNITRONIC® BUS PB FESTOON	2170338
UV-resistant, armoured, max. EMV-protection	UNITRONIC® BUS PB ARM	2170247
UV-resistant, burial, black	UNITRONIC® BUS PB Yv	2170223
UV-resistant, burial, black	UNITRONIC® BUS PB YY	2170236*
Fast **C**onnect, UV-resistant, burial, black	UNITRONIC® BUS PB BURIAL FC	2170323*
Ex area, blue	UNITRONIC® BUS PA BU	2170234
UV-resistant, black	UNITRONIC® BUS PA BK	2170235
Fast **C**onnect, Ex area, oil resistant, UV-resistant, blue	UNITRONIC® BUS PA FC (BU)	2170334
Fast **C**onnect, oil resistant, UV-resistant, black	UNITRONIC® BUS PA FC (BK)	2170335
vibration resistant	UNITRONIC® BUS CAN 1x2x0.22	2170260
	UNITRONIC® BUS CAN 2x2x0.22	2170261
	UNITRONIC® BUS CAN 1x2x0.34	2170263
	UNITRONIC® BUS CAN 2x2x0.34	2170264
	UNITRONIC® BUS CAN 1x2x0.5	2170266
	UNITRONIC® BUS CAN 2x2x0.5	2170267
	UNITRONIC® BUS CAN 1x2x0.75	2170269
	UNITRONIC® BUS CAN 2x2x0.75	2170270
PLTC-ER approval for cable tray	UNITRONIC® BUS CAN TRAY 2x2x0.34	2170857
drag chain suitable, oil resistant, halogen-free	UNITRONIC® BUS CAN FD P 1x2x0.25	2170272
	UNITRONIC® BUS CAN FD P 2x2x0.25	2170273
	UNITRONIC® BUS CAN FD P 1x2x0.34	2170275
	UNITRONIC® BUS CAN FD P 2x2x0.34	2170276
	UNITRONIC® BUS CAN FD P 1x2x0.5	2170278
	UNITRONIC® BUS CAN FD P 2x2x0.5	2170279
UV-resistant, burial, black	UNITRONIC® BUS CAN BURIAL 2x2x0.5	2170500
vibration resistant, halogen-free, UV-resistant	UNITRONIC® BUS DN THICK FRNC	2170340
	UNITRONIC® BUS DN THIN FRNC	2170341
vibration resistant, oil resistant, UV-resistant	UNITRONIC® BUS DN THICK Y	2170342
	UNITRONIC® BUS DN THIN Y	2170343

H: halogen-free
LD: Long Distance
P: PUR – Polyurethan – oil resistant
PA: Process Automation
PB: PROFIBUS
PE: Polyethylen: can be used in food & beverage industry
PROFIBUS PA: PROFIBUS for Process Automation, especially in hazardous areas
ROBUST: extended use: Water, chemical resistance, soap, tenside
vibration resistant: Vibration resistant because single core ist 7-wire stranded
Y: PVC – Polyvinylchorid

Quickfinder Bus cables [Continuation]

Bus system	Inst. area	Application/cabling	Outer sheath material	Approval
DeviceNet™ (120 Ω)	indoor (UV = outdoor)	high flexible	PUR	UL/CSA (CMX)
			PVC	UL/CSA (CMG)
AS-Interface (AS-I) (70 – 140 Ω)	indoor	static/flexible	EPDM (Rubber)	
			TPE	
			PVC	UL/CSA (CMG)
		high flexible	PUR	UL (AWM)
			TPE	UL (AWM) CSA
RS485, RS422 Bus systems (100 – 120 Ω)	indoor	static	PVC	
				UL/CSA (CMX)
		high flexible	PUR	
				UL/CSA (CMX)
Fieldbus Foundation™ (100 Ω)	indoor/outdoor	static/flexible	PVC	UL/CSA (CMG)
		static	PVC	UL/CSA (CMG)
CC-Link® (110 Ω)	indoor/outdoor	static/flexible	PVC	UL (CM) CLPA
	indoor	high flexible	PUR	UL (AWM)
SafetyBUS (120 Ω)	indoor	static	H	
		high flexible	PUR	
INTERBUS® (100 Ω)	indoor	static	PVC	
				UL/CSA (CMX)
			PUR	
		high flexible	PUR	
				UL/CSA (CMX)
	outdoor	static	PVC	
European Installation Bus EIB/KNX®	indoor	static	PVC	
			H	
			PVC	

Legend

7-W:	7-Wire: 7-stranded litz, dedicatet for vibrating machine parts
CAN:	Controller Area Network
FC:	**F**ast **C**onnect (cable construction for fast connector harnessing)
FD:	high flexible (german – “Flexible Dauerbiegung”)
FRNC:	Flame Retardant Not Corrosive
H:	halogen-free
LD:	Long Distance
P:	PUR – Polyurethan – oil resistant
PA:	Process Automation
PB:	PROFIBUS

Characteristics	Article designation	Article number
drag chain suitable, halogen-free, UV-resistant	UNITRONIC® BUS DN THICK FD P	2170344
	UNITRONIC® BUS DN THIN FD P	2170345
drag chain suitable, oil resistant, UV-resistant	UNITRONIC® BUS DN THICK FD Y	2170346
	UNITRONIC® BUS DN THIN FD Y	2170347
food & beverage industry, halogen-free	UNITRONIC® BUS ASI (G) YE	2170228
	UNITRONIC BUS ASI (G) 2X1.5 GY	21700230
	UNITRONIC® BUS ASI (G) BK	2170229
Long Distance (2.5 mm²), saving of power supplies	UNITRONIC® BUS ASI LD(G) YE 2x2.5	2170371
	UNITRONIC BUS ASI LD (G) GY 2X2.5	21700373
	UNITRONIC® BUS ASI LD(G) BK 2x2.5	2170372
oil resistant, cold flexible	UNITRONIC® BUS ASI (TPE) YE	2170230
	UNITRONIC® BUS ASI (TPE) BK	2170231
	UNITRONIC BUS ASI FD (TPE) A 2X1.5 GY	21700832
	UNITRONIC® BUS ASI (TPE) RD	2170232
oil resistant	UNITRONIC® BUS ASI (PVC) A YE	2170842
	UNITRONIC® BUS ASI (PVC) A BK	2170843
oil resistant	UNITRONIC® BUS ASI (PVC) A RD	2170844
drag chain, oil resistant, flame-retardant, halogen-free	UNITRONIC® BUS ASI FD P FRNC YE	2170357
	UNITRONIC BUS ASI FD P FRNC GY	21700359
	UNITRONIC® BUS ASI FD P FRNC BK	2170358
drag chain, Long Distance (2.5 mm²), saving of power supplies	UNITRONIC® BUS ASI LD FD P YE 2x2.5	2170318
	UNITRONIC BUS ASI LD FD P GY 2X2.5	21700319
drag chain suitable, oil resistant, 105 °C	UNITRONIC® BUS ASI FD (TPE) A YE	2170830
	UNITRONIC® BUS ASI FD (TPE) A BK	2170831
	UNITRONIC® BUS LD 1x2x0.22	2170236*
	UNITRONIC® BUS LD 2x2x0.22	2170323*
	UNITRONIC® BUS LD 3x2x0.22	2170236*
	UNITRONIC® BUS LD A 1x2x0.22	2170323*
drag chain suitable, oil resistant	UNITRONIC® BUS LD FD P 1x2x0.25	2170236*
	UNITRONIC® BUS LD FD P 2x2x0.25	2170323*
	UNITRONIC® BUS LD FD P 3x2x0.25	2170236*
drag chain suitable, oil resistant	UNITRONIC® BUS LD FD P A 1x2x0.25	2170323*
	UNITRONIC® BUS LD FD P A 2x2x0.26	2170236*
	UNITRONIC® BUS LD FD P A 3x2x0.27	2170323*
105 °C, UV-resistant, yellow	UNITRONIC® BUS FF 3	2170350
105 °C, UV-resistant, yellow	UNITRONIC® BUS FF 2	2170352
105 °C, UV-resistant, armoured, ++ EMV, yellow	UNITRONIC® BUS FF 3 ARM (YE)	2170351
105 °C, UV-resistant, armoured, ++ EMV, blue	UNITRONIC® BUS FF 3 ARM (BU)	2170353
UV-resistant	UNITRONIC® BUS CC	2170360
drag chain suitable, halogen-free, oil resistant,	UNITRONIC® BUS CC FD P FRNC	2170370
halogen-free, vibration resistant	UNITRONIC® BUS SAFETY	2170295
drag chain suitable, halogen-free	UNITRONIC® BUS SAFETY FD P	2170885
vibration resistant	UNITRONIC® BUS IBS	2170206**
vibration resistant	UNITRONIC® BUS IBS A	2170209**
vibration resistant, COMBI 3 x 1 mm²	UNITRONIC® BUS IBS P COMBI	2170208**
drag chain suitable	UNITRONIC® BUS IBS FD P	2170216**
drag chain suitable, COMBI 3 x 1 mm²	UNITRONIC® BUS IBS FD P COMBI A	2170818**
vibration resistant	UNITRONIC® BUS IBS Yv	2170207**
vibration resistant	UNITRONIC® BUS IBS Yv COMBI	2170217**
	UNITRONIC® BUS EIB	2170240
halogen-free	UNITRONIC® BUS EIB H	2170241
COMBI 3 x 1.5 mm²	UNITRONIC® BUS EIB COMBI	2170242

PE: Polyethylen: can be used in food & beverage industry
PROFIBUS PA: PROFIBUS for Process Automation, especially in hazardous areas

ROBUST: extended use: Water, chemical resistance, soap, tenside
vibration resistant: Vibration resistant because single core ist 7-wire stranded
Y: PVC – Polyvinylchorid

*second outer sheath need to be removed before harnessing
**Standard Sub-D plug 9-pin

MC: see current main catalogue
Please see detailed technical information on the data sheet (www.lapp.com/products)

Quickfinder Connector [UNITRONIC® BUS]

			EPIC® DATA PB Sub-D								EPIC® DATA PB Sub-D FC			
			35° Cable outlet		90° Cable outlet					180° Cable outlet	35° Cable outlet			
		Article number	21700507	21700506	21700504	21700503	21700529	21700543	21700542	21700505	21700511	21700513	21700514	21700515
PROFIBUS DP (150Ohm)	UNITRONIC® BUS PB 1x2x0,64	2170220	X	X	X	X	X	X	X	X				
	UNITRONIC® BUS PB A 1x2x0,64	2170219	X	X	X	X	X	X	X	X				
	UNITRONIC® BUS PB FC 1x2x0,64	2170820	X	X	X	X	X	X	X	X				
	UNITRONIC® BUS PB 105 1x2x0,64	2170630	X	X	X	X	X	X	X	X				
	UNITRONIC® BUS PB TRAY 1x2x0,64	2170856	X	X	X	X	X	X	X	X				
	UNITRONIC® BUS PB H FC 1x2x0,64	2170326									X	X	X	X
	UNITRONIC® BUS PB FRNC FC	2170996	X	X	X	X	X	X	X	X				
	UNITRONIC® BUS PB P FC 1x2x0,64	2170330									X	X	X	X
	UNITRONIC® BUS PB ROBUST 1x2x0,64	2170620	X	X	X	X	X	X	X	X				
	UNITRONIC® BUS PB PE FC 1x2x0,64	2170333									X	X	X	X
	UNITRONIC® BUS PB PE 1x2x0,64	2170233	X	X	X	X	X	X	X	X				
	UNITRONIC® BUS PB 105 plus	2170635	X	X	X	X	X	X	X	X				
	UNITRONIC® BUS PB HEAT 180 1x(2x0,64)	3031981	X	X	X	X	X	X	X	X				
	UNITRONIC® BUS PB 7-W A 1x2x0,64	2170824	X	X	X	X	X	X	X	X				
	UNITRONIC® BUS PB Y 7-W FC BK	2170310									X	X	X	X
	UNITRONIC® BUS PB 7-W FC 1x2x0,64	2170826									X	X	X	X
	UNITRONIC® BUS PB COMBI 7-W 1x2x0,64+3x1	2170225												
	UNITRONIC® BUS PB H 7-W 1x2x0,64	2170226	X	X	X	X	X	X	X	X				
	UNITRONIC® BUS PB FD P 1x2x0,64	2170222	X	X	X	X	X	X	X	X				
	UNITRONIC® BUS PB FD P A 1x2x0,64	2170822	X	X	X	X	X	X	X	X				
	UNITRONIC® BUS PB FD P FC 1x2x0,64	2170322									X	X	X	X
	UNITRONIC® BUS PB FD P COMBI 1x2x0,64+3x1	2170227												
	UNITRONIC® BUS PB FD P HYBRID 1x2x0,64+4x1,5	2170882												
	UNITRONIC® BUS PB FD Y HYBRID 1x2x0,64+4x1,5	2170882												
	UNITRONIC® BUS PB FD FRNC FC	2170997									X	X	X	X
	UNITRONIC® BUS PB TORSION 1x2x0,8	2170332	X	X	X	X	X	X	X	X				
	UNITRONIC® BUS PB FESTOON 1x2x0,64	2170338	X	X	X	X	X	X	X	X				
	UNITRONIC® BUS PB ARM 1x2x0,65	2170247												
	UNITRONIC® BUS PB Yv 1x2x0,64	2170223												
	UNITRONIC® BUS PB YY 1x2x0,64	2170236	X	X	X	X	X	X	X	X				
	UNITRONIC® BUS PB BURIAL FC 1x2x0,64	2170323	X	X	X	X	X	X	X	X				
CAN CANopen® (120Ohm)	UNITRONIC® BUS CAN 1x2x0,22	2170260												
	UNITRONIC® BUS CAN 2x2x0,22	2170261												
	UNITRONIC® BUS CAN 1x2x0,34	2170263												
	UNITRONIC® BUS CAN 2x2x0,34	2170264												
	UNITRONIC® BUS CAN 1x2x0,5	2170266												
	UNITRONIC® BUS CAN 2x2x0,5	2170267												
	UNITRONIC® BUS CAN 1x2x0,75	2170269												
	UNITRONIC® BUS CAN 2x2x0,75	2170270												
	UNITRONIC® BUS CAN TRAY 2x2x0,34	2170857												
	UNITRONIC® BUS CAN FD P 1x2x0,25	2170272												
	UNITRONIC® BUS CAN FD P 2x2x0,25	2170273												
	UNITRONIC® BUS CAN FD P 1x2x0,34	2170275												
	UNITRONIC® BUS CAN FD P 2x2x0,34	2170276												
	UNITRONIC® BUS CAN FD P 1x2x0,5	2170278												
	UNITRONIC® BUS CAN FD P 2x2x0,5	2170279												
	UNITRONIC® BUS CAN BURIAL 4x1x0,5	2170500												
Device Net (120Ohm)	UNITRONIC® BUS DN THICK FRNC	2170340												
	UNITRONIC® BUS DN THIN FRNC	2170341												
	UNITRONIC® BUS DN THICK Y	2170342												
	UNITRONIC® BUS DN THIN Y	2170343												
	UNITRONIC® BUS DN THICK FD P	2170344												
	UNITRONIC® BUS DN THIN FD P	2170345												
	UNITRONIC® BUS DN THICK FD Y	2170346												
	UNITRONIC® BUS DN THIN FD Y	2170347												

EPIC® DATA PB Sub-D FC					EPIC® DATA PB Sub-D PRO				EPIC® DATA PB M12				EPIC® DATA PB CCR	EPIC® DATA CAN Sub-D			EPIC® DATA CAN Sub-D PRO	EPIC® DATA CAN CCR
90° Cable outlet				180° Cable outlet			180° Cable outlet	90° Cable outlet	Plug, straight		Socket, straight							
21700502	21700501	21700547	21700546	21700544	21700563	21700562	21700566	21700565	22260653	22262078	22260646	22260889	21700641	21700537	21700536	21700538	21700591	21700641
					X	X	X	X	X	X	X	X	X					
					X	X	X	X	X	X	X	X	X					
					X	X	X	X					X					
					X	X	X	X	X	X	X	X						
					X	X	X	X	X	X	X	X						
X	X	X	X	X									X					
					X	X	X	X										
X	X	X	X	X									X					
X	X	X	X	X									X					
					X	X	X	X	X	X	X	X	X					
					X	X	X	X	X	X	X	X						
					X	X	X	X	X	X	X	X						
									X	X	X	X	X					
X	X	X	X	X					X	X	X	X						
X	X	X	X	X					X	X	X	X	X					
													X					
									X	X	X	X	X					
									X	X	X	X						
									X	X	X	X						
X	X	X	X	X					X	X	X	X						
X	X	X	X	X					X	X	X	X						
									X	X	X	X						
									X	X	X	X						
					X	X	X	X	X	X	X	X						
														X	X	X	X	X
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														X	X	X	X	X



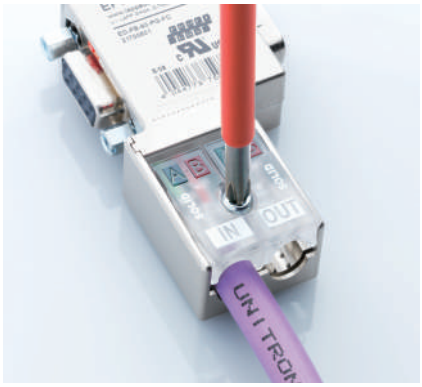
PROFIBUS Fast Connect – quick and easy system installation!

Personnel expenses represent a significant cost factor in machines or plants. The cabling has a notable share in this. With the Fast Connect system, the amount of time needed to perform this work can be drastically reduced. This is possible through perfectly matched components:



FC STRIP stripping tool
article number 21124030





1. Stripping with the FC STRIP stripping tool

- The special structure of the Fast Connect cables with an inner sheath makes it possible to use the Fast Connect STRIP stripping tool
- Reduction of connection times by removing outer sheath and braided screen in just one step
- Specification of the stripping length is not necessary
- Prevention of short circuits between screening and core due to preset stripping lengths

2. Contacting the cores

- Flexibility due to assembly of the optimal cable length on site
- Prevention of incorrect connections with transparent contact lid with imprinted colour coding
- Contact assignment can be inspected when closed
- Time and cost savings due to fast and simple connector assembly

3. Fixing and securing

- When the lid is closed, the precision blades create the contact with the cores
- The cable is automatically strain relieved
- A standard screwdriver can be used, no special tool needed

All components from one source

Connectors



Advantages/benefits

- New innovative insulation displacement terminals suitable for solid and flexible conductors
- Adjustable terminating resistor is integrated
- Improved EMC features due to metallised housing
- UL-certified (File E331560)
- Fully compatible with market standard
- Versions with additional programming and diagnostics interface (PG-port) are available

Properties

- For PROFIBUS FC standard cables, Ø 0.64 mm
- Cable outer diameter 5 to 8 mm
- Operating temperature: 0 °C to + 60 °C

Article designation	PG	Core type	Dimensions	Diagnostic LEDs	Article number
ED-PB-35-FC	no	solid or 7-wire	95 x 70 x 17 mm	no	21700511
ED-PB-35-PG-FC	yes	solid or 7-wire	95 x 70 x 17 mm	no	21700513
ED-PB-90-FC	no	solid or 7-wire	72 x 40 x 17 mm	no	21700502
ED-PB-90-PG-FC	yes	solid or 7-wire	72 x 40 x 17 mm	no	21700501
ED-PB-90-LED-FC	no	solid or 7-wire	72 x 40 x 17 mm	yes	21700547
ED-PB-90-PG-LED-FC	yes	solid or 7-wire	72 x 40 x 17 mm	yes	21700546
ED-PB-180-FC	no	solid or 7-wire	70 x 35 x 17 mm	no	21700544

Cables



Advantages/benefits

- High resistance against electromagnetic interference
- UL- approvals available
- UNITRONIC® PB FC cables can also be connected to EPIC® DATA connectors with screw connection

Properties

- The cables comply with the requirements of the PROFIBUS User Organization (PNO)
- Double shielding with copper braid and plastic-laminated aluminum foil

	Article designation	Approval	Sheath material	Temperature fixed installation	Feature	Article number
Fixed installation	UNITRONIC® BUS PB FC	UL/CSA CMG	PVC, violet	-40 °C to +80 °C	–	2170820
	UNITRONIC® BUS PB-H FC	UL/CSA CMG	halogen-free, violet	-25 °C to +70 °C	halogen-free	2170326
	UNITRONIC® BUS PB P FC	UL/CSA CMX	PUR, violet	-40 °C to +70 °C	abrasion-resistant sheath	2170330
	UNITRONIC® BUS PB PE FC	–	PE, black	-40 °C to +60 °C	for the food industry	2170333
	UNITRONIC® BUS PB FRNC FC	UL/CSA CMG	FRNC, violet	-30 °C to +80 °C	halogen-free/less fumes	2170853
	UNITRONIC® BUS PB BURIAL FC	–	PVC/PE, black	-40 °C to +60 °C	suitable for direct burial UV-resistant	2170323
Flexible installation	UNITRONIC® BUS PB 7-W FC	UL/CSA CMG	PVC, violet	-40 °C to +80 °C	–	2170826
	UNITRONIC® BUS PB Y 7-W FC BK	–	PVC, black	-40 °C to +80 °C	outdoors, UV-resistant	2170310
Highly flexible installation	UNITRONIC® BUS PB FD P FC	UL/CSA CMX	PUR, violet	-40 °C to +80 °C	suitable for drag chains	2170322
	UNITRONIC® BUS PB FD FRNC FC	UL/CSA CMX	FRNC, violet	-40 °C to +80 °C	suitable for drag chains halogen-free/less fumes	2170854

Tools



Advantages/benefits

- Outer sheath and copper braid removing in just one step
- Prevents damage on the cable
- Adaptation of almost all Fast Connect cables with positioning screws

Properties

- Two step stripping tool for Fast Connect cables
- For outer diameter 2.5 – 8.0 mm

Article designation	Art. no.
FC STRIP with blade	21124030
FC STRIP without blade	21124040
FC STRIP blade	21124041



Introduction

Time consuming and costly wiring with terminal blocks and decentralized cabinets is the past. Use UNITRONIC® SENSOR for your sensor/actuator wiring.

UNITRONIC® SENSOR is consistently focused on the modular system of proven M8 and M12 connections. Easy integration into the machine concept through compact dimensions of the components. The signals from the sensors and actuators are collected via trunk lines and transferred to the controller. Timesaving installation and maintenance in troubleshooting. Errors in the signal transmission can be diagnosed by the LEDs on sockets and distribution boxes. Particularly in large machinery and equipment, which will be dismantled again before delivery to the end-customer, the modular connector system pays off. Instead of having to reassemble everything – it's only putting together and tightening the M8 or M12 threads.

The system is characterized by a high reliability even under difficult environmental conditions. The high demands on material are validated through continuous testing. For example, the several million drag chain cycles of a cable are tested in LAPP's own test center in Stuttgart. Various chemical or vibration and shock resistances as well as the IP protection classes are tested in our own laboratory.

You can find the right sensor/actuator cordsets with our assembly finder on our website:
www.lapp.com/assemblyfinder







Sensor/actuator boxes

In standardized connection systems, sensor/actuator boxes enable connection with all commonly used sensors and actuators and are the solution for decentralizing small-scale I/O. Regardless of whether the installation is to be performed on profiles, on even surfaces or under challenging conditions, the assembly concept ensures flexibility and reduces installation costs. The devices enable two assembly directions and are suitable for all uses. The allocation of the connectors also ensures that assembly time is kept to a minimum even under challenging conditions.

Sensor/actuator cables

Do you need to perform quick cabling of sensors and actuators in the field? Not a problem – thanks to our comprehensive range of overmoulded cables with M8, M12 and valve connectors. Signal statuses can be monitored with ease by means of the sensor/actuator cable designs featuring LEDs. Screened cables comply with the requirements concerning increased EMC compatibility.

Sensor/actuator flush-type connectors and field mountable connectors

For the purpose of connecting devices, we recommend M12 flush-type connectors with integrated stranded wire for PCB connection. Use field mountable connectors for rapid configuration of individual cable lengths for M8 and M12 sensor/actuator cables. Whether you need a screw connection or a fast connection, we will deliver according to your requirements.



Field mountable connectors [M8]

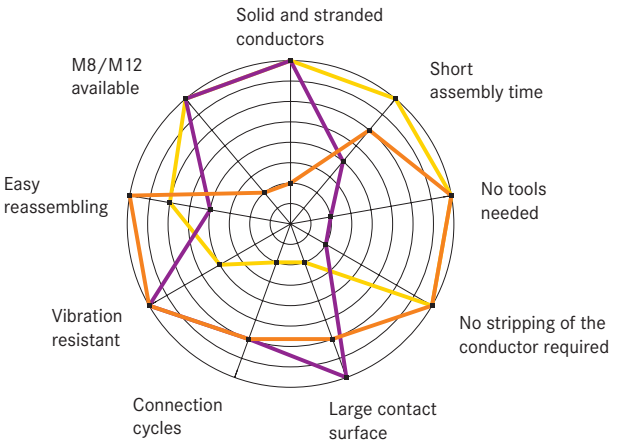
Connector M8 / Meterware for M8							Article designation	UNITRONIC® SENSOR	
								high flexible application	
								Lif9Y11Y	Lif9Y11Y
							Insulation material	PP/PUR	PP/PUR
							Dimension No. of cores x mm²	3x0.25	4x0.25
							Outer diameter (mm)	4.4	4.7
Number of contacts	Plug	Design	Connection type	ø (mm²)[1]	U (V)[2]	OD (mm)[3]	Article number	7038883	7038884
3- pin	Plug	Straight	Screw	0.14 – 0.5	60	3.5 – 5	22260120	X	
			IDC	0.08 – 0.25	30	2.5 – 5	22260993	X	
				0.25 – 0.5	60		22260985	X	
			Piercing	0.14 – 0.38	60	3 – 5	22260122	X	
		Angled	Screw	0.14 – 0.5	60	3.5 – 5	22262110	X	
		Straight, shielded				3.5 – 5.5	22262025	X	
	Socket	Straight	Screw	0.14 – 0.5	60	3.5 – 5	22260125	X	
			IDC	0.08 – 0.25		2.5 – 5	22260994	X	
				0.25 – 0.5			22260986	X	
			Piercing	0.14 – 0.38		3 – 5	22260124	X	
		Angled	Screw	0.14 – 0.5		3.5 – 5	22262112	X	
		Straight, shielded				3.5 – 5.5	22262026	X	
4-pin	Plug	Straight	Screw	0.14 – 0.5	30	3.5 – 5	22260121		X
			IDC	0.08 – 0.25		2.5 – 5	22260043		X
				0.25 – 0.5			22260044		X
			Piercing	0.14 – 0.38		3 – 5	22260123		X
		Angled	Screw	0.14 – 0.5		3.5 – 5	22262111		X
		Straight, shielded					22262027		X
	Socket	Straight	Screw	0.14 – 0.5	30	3.5 – 5	22260126		X
			IDC	0.08 – 0.25		2.5 – 5	22260045		X
				0.25 – 0.5			22260046		X
			Piercing	0.14 – 0.38		3 – 5	22260119		X
		Angled	Screw	0.14 – 0.5		3.5 – 5	22262113		X
		Straight, shielded		0.14 – 0.5		3.5 – 5.5	22262028		X

Legend

[1] Cross section
[2] Rated current
[3] Feasible outer diameter
*see www.lapp.com/products

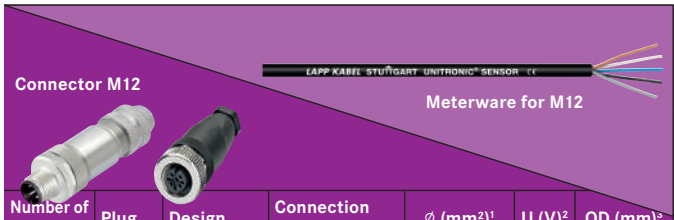
TECHNICAL DATA: M8

	M8	
Number of contacts	3	4
Coding	A-Standard	
Rated current	4 A	
Material contact	CuSn	
Protection class		
– Screw	IP67	
– IDC	IP65/IP67	
– Piercing	IP68	
Temperature range (Plug/Socket)		
– Screw	-40 °C to +85 °C	
– IDC	-25 °C to +85 °C	
– Piercing	-25 °C to +85 °C	
ETIM 5.0 Class	EC002062	





Field mountable connectors [M12]



Number of contacts	Plug	Design	Connection type	∅ (mm²)[1]	U (V)[2]	OD (mm)[3]	Article designation	UNITRONIC® SENSOR flexible applications				
								LifYY	LifYY	LifY11Y	LifY11Y	DESINA®
							Insulation material	PVC/PVC	PVC/PVC	PVC/PUR	PVC/PUR	PVC/PUR
							Dimension No. of cores x mm²	3x0.34	4x0.34	4x0.34	5x0.25	4x0.34
							Outer diameter (mm)	4.8	4.8	4.8	4.9	5.2
							Article number	7038859	7038860	7038861	7038862	0040434
4-pin	Plug	Straight	Screw	0.25 – 0.75	250	4 – 6	22260649	X	X	X		X
						6 – 8	22260995*					
			IDC	0.14 – 0.34	125	3.5 – 6	22260132	X	X	X		X
				0.34 – 0.75	250	4 – 8	22260134	X	X	X		X
		Angled	Screw	0.25 – 0.75	250	4 – 8	22260647	X	X	X		X
	Socket	Straight	Screw	0.25 – 0.75	250	4 – 8	22260640	X	X	X		X
						6 – 8	22260641*					
			IDC	0.14 – 0.34	125	3.5 – 6	22260131	X	X	X		X
				0.34 – 0.75	250	4 – 8	22260133	X	X	X		X
		Angled	Screw	0.25 – 0.75	250	4 – 8	22260636	X	X	X	X	X
5-pin	Plug	Straight	Screw	0.25 – 0.75	60	4 – 8	22260129	X	X	X	X	X
						6 – 8	22260651*					
		Straight, SKINTOP®					22260996*					
		Angled				4 – 6	22260130	X	X	X	X	X
						6 – 8	22260648*					
		Angled, SKINTOP®					22262023*					
		Straight, shielded					22260135*					
		Angled, shielded				4 – 6	22262108	X	X	X	X	X
	Socket	Straight	Screw	0.25 – 0.75	60	4 – 6	22260127	X	X	X	X	X
						6 – 8	22260644*					
		Straight, SKINTOP®					22260997*					
		Angled				4 – 6	22260128	X	X	X	X	X
						6 – 8	22260638*					
		Angled, SKINTOP®					22262024*					
		Straight, shielded					22260136*					
		Angled, shielded				4 – 6	22262109	X	X	X	X	X
8-pin	Plug	Straight, shielded	Screw	0.25 – 0.75	30	6 – 8	22260825*					
		Straight, shielded					22260826*					

Legend

[1] Cross section
[2] Rated current
[3] Feasible outer diameter

* Cables are available upon request. Alternatively we suggest to use connectors with a clamping range of 4 – 6 mm.
**see www.lapp.com/products

TECHNICAL DATA: M12

	M12		
Number of contacts	4	5	8
Coding	A-Standard		
Rated current			2 A
Material contact	CuSn		
Protection class			
– Screw	IP67		
– IDC	IP65/IP67		
– Piercing	IP68		

	M12
Temperature range (Plug/Socket)	
– Screw	-40°C to +85 °C
– IDC	-25°C to +85°C
– Piercing	-25°C to +85°C
ETIM 5.0 Class	EC002062

Field mountable connectors [M12]

Connector M12





Meterware for M12 suitable for drag chains

Number of contacts	Plug	Design	Connection type	∅ (mm²)[1]	U (V)[2]	OD (mm)[3]
4-pin	Plug	Straight	Screw	0.25 – 0.75	250	4 – 6
						6 – 8
			IDC	0.14 – 0.34	125	3.5 – 6
				0.34 – 0.75	250	4 – 8
		Angled	Screw	0.25 – 0.75	250	4 – 8
	Socket	Straight	Screw	0.25 – 0.75	250	4 – 8
						6 – 8
			IDC	0.14 – 0.34	125	3.5 – 6
				0.34 – 0.75	250	4 – 8
		Angled	Screw	0.25 – 0.75	250	4 – 8
5-pin	Plug	Straight	Screw	0.25 – 0.75	60	4 – 8
		Straight, SKINTOP®				6 – 8
		Angled				4 – 6
		Angled, SKINTOP®				6 – 8
		Straight, shielded				
		Angled, shielded				4 – 6
	Socket	Straight	Screw	0.25 – 0.75	60	4 – 6
		Straight, SKINTOP®				6 – 8
		Angled				4 – 6
		Angled, SKINTOP®				6 – 8
		Straight, shielded				
		Angled, shielded				4 – 6
8-pin	Plug	Straight, shielded	Screw	0.25 – 0.75	30	6 – 8
	Socket	Straight, shielded	Screw	0.25 – 0.75	30	6 – 8

Legend

[1] Cross section
[2] Rated current
[3] Feasible outer diameter



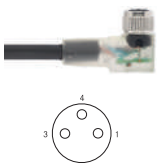
Article designation	UNITRONIC® SENSOR FD high flexible application					UNITRONIC® SENSOR FD shielded high flexible application		
	Lif9Y11Y	Li9fY11Y	Lif9Y11Y	Lif9Y11Y	Lif9Y11Y	Lif9YC11Y	Lif9YC11Y	Lif9YC11Y
Insulation material	PP/PUR	PP/PUR	PP/PUR	PP/PUR	PP/PUR	PP/PUR	PP/PUR	PP/PUR
Dimension No. of cores x mm²	3x0.34	4x0.34	5x0.25	5x0.34	8x0.25	3x0.34	4x0.34	5x0.34
Outer diameter (mm)	4.6	4.7	4.7	5.1	5.9	4.3	4.6	5.0
Article number	7038864	7038865	7038867	7038866	7038868	7038885	7038886	7038887
22260649	X	X						
22260995								
22260132	X	X						
22260134	X	X						
22260647	X	X						
22260640	X	X						
22260641								
22260131	X	X						
22260133	X	X						
22260636	X	X						
22260129	X	X						
22260651								
22260996								
22260130	X	X	X	X		X	X	X
22260648								
22262023								
22260135								
22262108	X	X	X	X		X	X	X
22260127	X	X	X	X				
22260644								
22260997								
22260128	X	X	X	X				
22260638								
22262024								
22260136								
22262109	X	X	X	X		X	X	X
22260825								
22260826								



TECHNICAL DATA: M12

	M12		
Number of contacts	4	5	8
Coding	A-Standard		
Rated current			2 A
Material contact	CuSn		
Protection class			
– Screw	IP67		
– IDC	IP65/IP67		
– Piercing	IP68		
Temperature range (Plug/Socket)			
– Screw	-40 °C to +85 °C		
– IDC	-25 °C to +85 °C		
– Piercing	-25 °C to +85 °C		
ETIM 5.0 Class	EC002062		

M8 Cordsets, A-coded [3-pin]

		 Free conductor end	 M8 socket straight	 M8 socket angled	 M8 socket angled, 2 LEDs
M8, 3-pin, PUR	**Length (m)**	**Article number**			
Free conductor end 	2	–	22260202	22260203	22260275
	5	–	22260200	22260201	22260276
	10	–	22260219	22260220	22260277
M8 plug straight  	0.3		22260206	22260210	22260214
	0.6		22260207	22260211	22260215
	1		22260208	22260212	22260216
	2	22260204	22260209	22260213	22260217
	5	22260205	22260938		
	10	22260218	22260935		
M8 plug angled  	2	22260053			
	5	22260987			
	10	22260055			

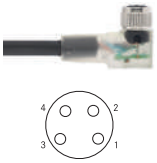
Other lengths and variants available upon request.

TECHNICAL DATA: M8, 3-PIN

	M8	M8 with LED
Number of contacts	3	3
Rated current (V)	60	24
Rated current	4 A	
Protection class	IP65/IP67/IP68	
Material contact	CuSn	
Material contact surface	Ni/Au	
Material gripping body	TPU, flame-retardant, self- extinguishing	
Material knurl M8	Zinc die-cast, nickel plated	
Core cross-section (mm²)	0.25	
Colour code	bn (1), bu (3), bk (4)	
Material outer sheath	PUR	
Colour outer sheath	black	
Suitable for drag chains	Yes	
Minimum bending radius		
– Fixed installation	5 x Outer diameter	
– Occasional flexing	10 x Outer diameter	
Temperature range		
– Plug/Socket	-25 °C to +90 °C	
– Fixed installation	-40 °C to +80 °C	
– Occasional flexing	-25 °C to +80 °C	
Flame retardant acc.	UL 1581 FT-2	
Halogen free acc.	DIN VDE 0472	
Approvals	UL: E249137	
ETIM 5.0 Class	EC001855	



M8 Cordsets, A-coded [4-pin]

		 Free conductor end	 M8 socket straight	 M8 socket angled	 M8 socket angled, 2 LEDs
M8, 4-pin, PUR	**Length (m)**	**Article number**			
Free conductor end 	2	-	22260309	22260311	
	5	-	22260310	22260312	22262076
	10	-	22260317	22260319	
M8 plug straight  	0.3		22260313	22260059	
	0.6		22260314	22260060	
	1		22260315	22260061	
	2	22260300	22260316	22260062	
	5	22260308	22260923		
	10	22260318	22260922		
M8 plug angled  	2	22260056			
	5	22260057			
	10	22260058			

Other lengths and variants available upon request.



TECHNICAL DATA: M8, 4-PIN

	M8	M8 with LED
Number of contacts	4	4
Rated current (V)	30	24
Rated current	4 A	
Protection class	IP65/IP67/IP68	
Material contact	CuSn	
Material contact surface	Ni/Au	
Material gripping body	TPU, flame-retardant, self- extinguishing	
Material knurl M8	Zinc die-cast, nickel plated	
Core cross-section (mm²)	0.25	
Colour code	bn (1), wh (2), bu (3), bk (4)	
Material outer sheath	PUR	
Colour outer sheath	black	
Suitable for drag chains	Yes	
Minimum bending radius		
– Fixed installation	5 x Outer diameter	
– Occasional flexing	10 x Outer diameter	
Temperature range		
– Plug/Socket	-25 °C to +90 °C	
– Fixed installation	-40 °C to +80 °C	
– Occasional flexing	-25 °C to +80 °C	
Flame retardant acc.	UL 1581 FT-2	
Halogen free acc.	DIN VDE 0472	
Approvals	UL: E249137	
ETIM 5.0 Class	EC001855	

M12 Cordsets, shielded, PUR, A-coded [3-, 4-, 5-, 8-pin]



Free conductor end



3-pin



4-pin



5-pin



8-pin

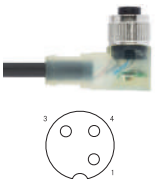
	M12, shielded, 3-, 4-, 5-, 8-pin, PUR	Length (m)	Article number			
M12 plug	M12 plug straight 	2	22260453	22260459	22260465	
		5	22260454	22260460	22260466	22260733
		10	22260455	22260461	22260467	22262189
	M12 plug angled 	2		22262125	22261004	
		5			22261005	
		10				
M12 socket	M12 socket straight 	2	22260450	22260456	22260462	
		5	22260451	22260457	22260463	22260863
		10	22260452	22260458	22260464	22262001
	M12 socket angled 	2	22260071	22260074	22260946	
		5	22260072	22260075	22260714	22260859
		10	22260073	22260076	22260991	

Other lengths and variants available upon request.

TECHNICAL DATA: M12, SHIELDED, 3-, 4-, 5-, 8-PIN

	M12 on free conductor end			
Number of contacts	3	4	5	8
Rated current (V)	250		60	30
Rated current	4 A			2 A
Protection class	IP65/IP67/IP68			
Material contact	CuSn			
Material contact surface	Ni/Au			
Material gripping body	TPU, flame-retardant, self- extinguishing			
Material knurl M12	Zinc die-cast, nickel plated			
Core cross-section (mm²)	0.34			0.25
Colour code	bn (1), bu (3), bk (4)	bn (1), wh(2), bu (3), bk (4)	bn (1), wh (2), bu (3), bk (4), gy (5)	wh (1), bn (2), gn (3), ye (4), gy (5), pk (6), bu (7), rd (8)
Material outer sheath	PUR			
Colour outer sheath	black			
Suitable for drag chains	Yes			
Minimum bending radius				
– Fixed installation	5 x Outer diameter			
– Occasional flexing	10 x Outer diameter			
Temperature range				
– Plug/Socket	-25 °C to +90 °C			
– Fixed installation	-40 °C to +80 °C			
– Occasional flexing	-25 °C to +80 °C			
Flame retardant acc.	UL 1581 FT-2			
Halogen free acc.	DIN VDE 0472			
Approvals	UL: E249137			
ETIM 5.0 Class	EC001855			

M12 Cordsets, A-coded [3-pin]

		 Free conductor end	 M12 socket straight	 M12 socket angled	 M12 socket straight, 2 LEDs	 M12 socket angled, 2 LEDs
M12, 3-pin, PUR	**Length (m)**	**Article number**				
Free conductor end 	2	-	22260257	22260258	22260252	22260253
	5	-	22260250	22260259	22260265	22260254
	10	-	22260251	22260260	22260266	22260255
M12 plug straight  	0.3		22260233	22260237		22260261
	0.6		22260234	22260238		22260262
	1		22260235	22260239		22260263
	2	22260221	22260236	22260240		22260264
	5	22260222				22260667
	10	22260249	22260920			
M12 plug angled  	2	22260223				
	5	22260224				
	10	22260256				

Other lengths and variants available upon request.



TECHNICAL DATA: M12, 3-PIN

	M12	M12 with LED
Rated current (V)	250	24
Rated current	4 A	
Protection class	IP65/IP67/IP68	
Material contact	CuSn	
Material contact surface	Ni/Au	
Material gripping body	TPU, flame-retardant, self- extinguishing	
Material knurl M12	Zinc die-cast, nickel plated	
Core cross-section (mm²)	0.34	
Colour code	bn (1), bu (3), bk (4)	
Material outer sheath	PUR	
Colour outer sheath	black	
Suitable for drag chains	Yes	
Minimum bending radius		
– Fixed installation	5 x Outer diameter	
– Occasional flexing	10 x Outer diameter	
Temperature range		
– Plug/Socket	-25 °C to +90°C	
– Fixed installation	-40 °C to +80 °C	
– Occasional flexing	-25 °C to +80 °C	
Flame retardant acc.	UL 1581 FT-2	
Halogen free acc.	DIN VDE 0472	
Approvals	UL: E249137	
ETIM 5.0 Class	EC001855	

M12 Cordsets, A-coded [4-pin]

M12, 4-pin, PUR	Length (m)	Free conductor end	M12 socket straight	M12 socket angled	M12 socket straight, 2 LEDs	M12 socket angled, 3 LEDs
		Article number				
Free conductor end 	2	-	22260322	22260324	22260344	22260326
	5	-	22260323	22260325	22260345	22260327
	10	-	22260343	22260341	22260346	22260340
M12 plug straight  	0.3		22260328	22260332		22260336
	0.6		22260329	22260333		22260337
	1		22260330	22260334		22260338
	2	22260320	22260331	22260335		22260339
	5	22260321	22260702	22262066		
	10	22260342	22260710	22260851		
M12 plug angled  	0.3		22260304			
	0.6		22260305			
	1		22260306	22260965		
	2	22260301	22260307	22260693		
	5	22260302				
	10	22260303				

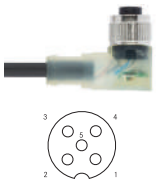
Other lengths and variants available upon request.

TECHNICAL DATA: M12, 4-PIN

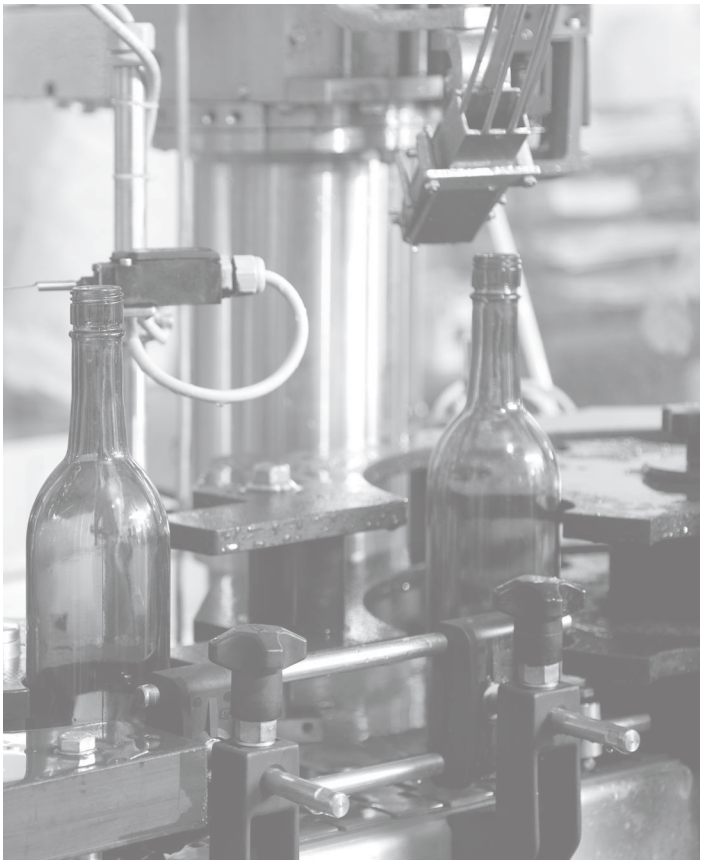
	M12	M12 with LED
Rated current (V)	250	24
Rated current	4 A	
Protection class	IP65/IP67/IP68	
Material contact	CuSn	
Material contact surface	Ni/Au	
Material gripping body	TPU, flame-retardant, self- extinguishing	
Material knurl M12	Zinc die-cast, nickel plated	
Core cross-section (mm²)	0.34	
Colour code	bn (1), wh (2), bu (3), bk (4)	
Material outer sheath	PUR	
Colour outer sheath	black	
Suitable for drag chains	Yes	

	M12	M12 with LED
Minimum bending radius		
– Fixed installation	5 x Outer diameter	
– Occasional flexing	10 x Outer diameter	
Temperature range		
– Plug/Socket	-25 °C to +90 °C	
– Fixed installation	-40 °C to +80 °C	
– Occasional flexing	-25 °C to +80 °C	
Flame retardant acc.	UL 1581 FT-2	
Halogen free acc.	DIN VDE 0472	
Approvals	UL: E249137	
ETIM 5.0 Class	EC001855	

M12 Cordsets, A-coded [5-pin]

		 Free conductor end	 M12 socket straight	 M12 socket angled	 M12 socket angled, 3 LEDs
M12, 5-pin, PUR	**Length (m)**	**Article number**			
Free conductor end 	2	-	22260404	22260406	22260408
	5	-	22260405	22260407	22260409
	10	-	22260415	22260418	22260416
M12 plug straight  	0.3		22260410	22260063	22260067
	0.6		22260411	22260064	22260068
	1		22260412	22260065	22260069
	2	22260400	22260413	22260066	22260070
	5	22260401	22260724		
	10	22260414	22260723		
M12 plug angled  	2	22260402			
	5	22260403			
	10	22260417			

Other lengths and variants available upon request.



TECHNICAL DATA: M12, 5-PIN

	M12	M12 with LED
Rated current (V)	60	24
Rated current	4 A	
Protection class	IP65/IP67/IP68	
Material contact	CuSn	
Material contact surface	Ni/Au	
Material gripping body	TPU, flame-retardant, self- extinguishing	
Material knurl M12	Zinc die-cast, nickel plated	
Core cross-section (mm²)	0.34	
Colour code	bn (1), wh (2), bu (3), bk (4), gn/ye (5)	
Material outer sheath	PUR	
Colour outer sheath	black	
Suitable for drag chains	Yes	
Minimum bending radius		
- Fixed installation	5 x Outer diameter	
- Occasional flexing	10 x Outer diameter	
Temperature range		
- Plug/Socket	-25 °C to +90 °C	
- Fixed installation	-40 °C to +80 °C	
- Occasional flexing	-25 °C to +80 °C	
Flame retardant acc.	UL 1581 FT-2	
Halogen free acc.	DIN VDE 0472	
Approvals	UL: E249141	
ETIM 5.0 Class	EC001855	

M12 Cordsets, A-coded [8-pin]

		 Free conductor end	 M12 socket straight	 M12 socket angled
M12, 8-pin, PUR	**Length (m)**	**Article number**		
Free conductor end 	2	-	22260726	22260141
	5	-	22260728	22260615
	10	-	22260729	22260616
M12 plug straight  	0.3		22260097	22260137
	0.6		22260098	22260138
	1		22260099	22260139
	2	22260091	22260042	22260140
	5	22260092		
	10	22260093		
M12 plug angled  	2	22260094		
	5	22260095		
	10	22260096		

Other lengths and variants available upon request.

TECHNICAL DATA: M12, 8-PIN

	M12
Rated current (V)	30
Rated current	2 A
Protection class	IP65/IP67/IP68
Material contact	CuSn
Material contact surface	Ni/Au
Material gripping body	TPU, flame-retardant, self-extinguishing
Material knurl M12	Zinc die-cast, nickel plated
Core cross-section (mm²)	0.25
Colour code	wh (1), bn (2), gn (3), ye (4), gy (5), pk (6), bu (7), rd (8)
Material outer sheath	PUR
Colour outer sheath	black
Suitable for drag chains	Yes
Minimum bending radius	
- Fixed installation	5 x Outer diameter
- Occasional flexing	10 x Outer diameter
Temperature range	
- Plug/Socket	-25 °C to +90 °C
- Fixed installation	-40 °C to +80 °C
- Occasional flexing	-25 °C to +80 °C
Flame retardant acc.	UL 1581 FT-2
Halogen free acc.	DIN VDE 0472
Approvals	UL: E249143
ETIM 5.0 Class	EC001855



Cordsets M8 on M12, A-coded [3-pin]



M12 socket
straight



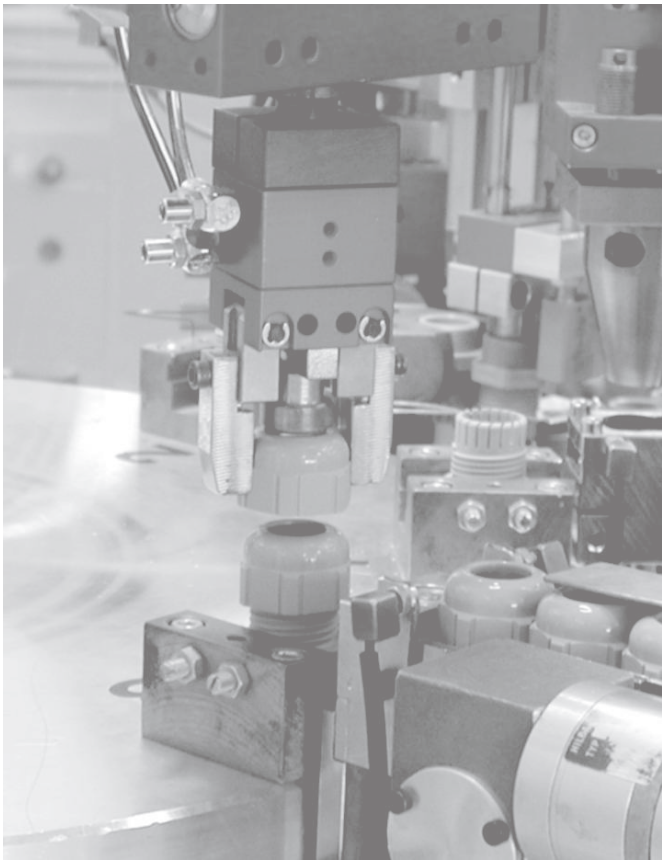

M12 socket
angled




M12 socket
angled, 2 LEDs

M8 on M12, 3-pin, PUR	Length (m)	Article number		
M8 plug straight  	0.3	22260241	22260245	22260271
	0.6	22260242	22260246	22260272
	1	22260243	22260247	22260273
	2	22260244	22260248	22260274

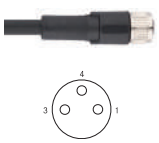
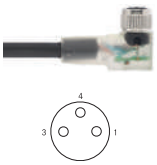
Other lengths and variants available upon request.



TECHNICAL DATA: M8 ON M12

	M8 on M12	M8 on M12 LED
Rated current (V)	60	24
Rated current	4 A	
Protection class	IP65/IP67/IP68	
Material contact	CuSn	
Material contact surface	Ni/Au	
Material gripping body	TPU, flame-retardant, self-extinguishing	
Material knurl	Zinc die-cast, nickel plated	
Core cross-section (mm²)	0.25	
Colour code	bn (1), bu (3), bk (4)	
Material outer sheath	PUR	
Colour outer sheath	black	
Suitable for drag chains	Yes	
Minimum bending radius		
– Fixed installation	5 x Outer diameter	
– Occasional flexing	10 x Outer diameter	
Temperature range		
– Plug/Socket	-25 °C to +90 °C	
– Fixed installation	-40 °C to +80 °C	
– Occasional flexing	-25 °C to +80 °C	
Flame retardant acc.	UL 1581 FT-2	
Halogen free acc.	DIN VDE 0472	
Approvals	UL: E249137	
ETIM 5.0 Class	EC001855	

Cordsets M12 on M8, A-coded [3-/4-pin]

		 M8 socket straight	 M8 socket angled	 M8 socket angled, 2 LEDs	 M8 socket straight (4-pin)
M12 on M8, 3-/4-pin, PUR	**Length (m)**	**Article number**			
M12 plug straight (3-pin)  	0.3	22260225	22260229	22260267	
	0.6	22260226	22260230	22260268	
	1	22260227	22260231	22260269	
	2	22260228	22260232	22260270	
M12 plug straight (4-pin)  	0.3				22260347
	0.6				22260349
	1				22260350
	2				22260348

Other lengths and variants available upon request.

TECHNICAL DATA: M12 ON M8

	M12 on M8	M12 on M8 with LED	M12 on M8
Number of contacts	3	3	4
Rated current (V)	60	24	30
Rated current	4 A		
Protection class	IP65/IP67/IP68		
Material contact	CuSn		
Material contact surface	Ni/Au		
Material gripping body	TPU, flame-retardant, self-extinguishing		
Material knurl	Zinc die-cast, nickel plated		
Core cross-section (mm²)	0.25		
Colour code	bn (1), bu (3), bk (4)		bn (1), wh (2), bu (3), bk (4)
Material outer sheath	PUR		
Colour outer sheath	black		
Suitable for drag chains	Yes		
Minimum bending radius			
- Fixed installation	5 x Outer diameter		
- Occasional flexing	10 x Outer diameter		
Temperature range			
- Plug/Socket	-25 °C to +90 °C		
- Fixed installation	-40 °C to +80 °C		
- Occasional flexing	-25 °C to +80 °C		
Flame retardant acc.	UL 1581 FT-2		
Halogen free acc.	DIN VDE 0472		
Approvals	UL: E249137		
ETIM 5.0 Class	EC001855		



Y-distributor, A-coded [M12 3-pin]



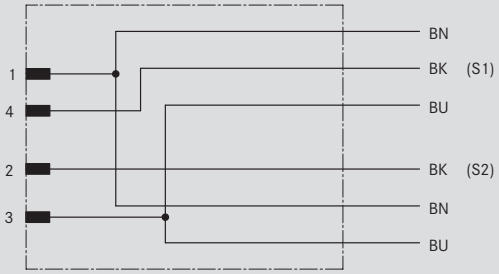
free conductor end

M12 3-pin, 2 x 3 x 0.34 mm²	Length (m)	Article number
	2	22260500
	5	22260513
	10	22260526

Other lengths and variants available upon request.

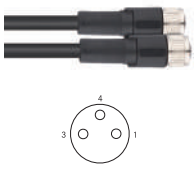
Please observe the technical information on the next page.

CIRCUIT DIAGRAM

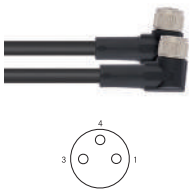


Y-distributor M12Y on free conductor end

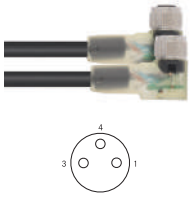
Y-distributor, A-coded [M12 3-pin]



2 x M8 socket straight



2 x M8 socket angled

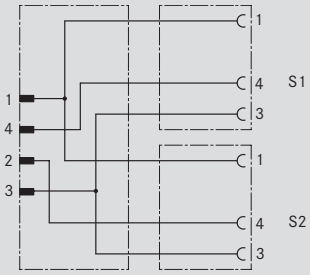


2 x M8 socket angled, 2 LEDs

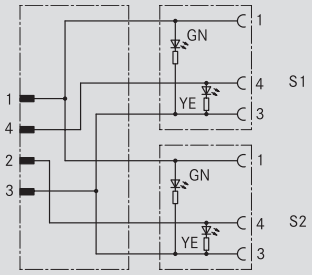
M12 3-pin, 2 x 3 x 0.25 mm²	Length (m)	Article number		
	0.3	22260514	22260518	22260522
	0.6	22260515	22260519	22260523
	1	22260516	22260520	22260524
	2	22260517	22260521	22260525

Other lengths and variants available upon request.

CIRCUIT DIAGRAM

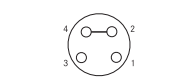


Y-distributor M12Y on M8



Y-distributor M12Y on M8 LED

Y-distributor, A-coded [M12 3-pin]



2 x M12 socket straight




2 x M12 socket angled

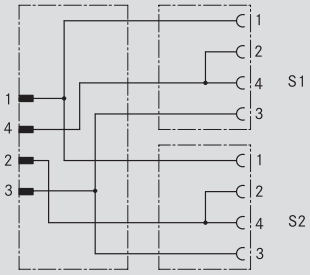



2 x M12 socket angled, 2 LEDs

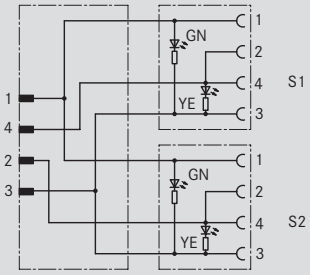
M12 3-pin, 2 x 3 x 0.34 mm²	Length (m)	Article number		
 	0.3	22260501	22260505	22260509
	0.6	22260502	22260506	22260510
	1	22260503	22260507	22260511
	2	22260504	22260508	22260512

Other lengths and variants available upon request.

CIRCUIT DIAGRAM



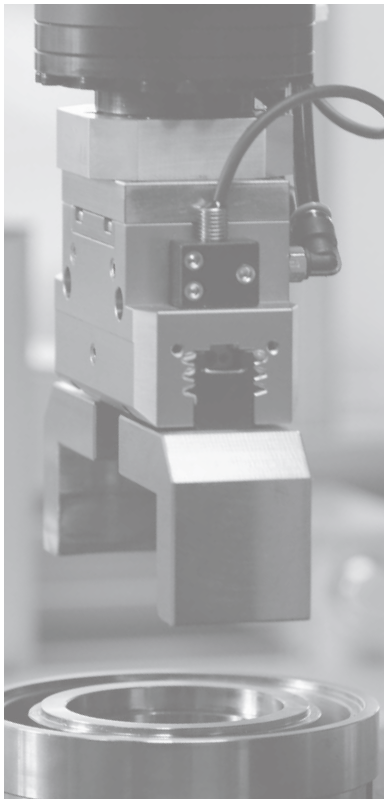
Y-distributor M12Y on M12



Y-distributor M12Y on M12 LED

TECHNICAL DATA: M12

	on free conductor end	on 2 x M8	on 2 x M8 with LED	on 2 x M12	on 2 x M12 with LED
Rated current (V)	250	60	24	250	24
Rated current	4 A				
Protection class	IP65/IP67/IP68				
Material contact	CuSn				
Material contact surface	Ni/Au				
Material gripping body	TPU, flame-retardant, self-extinguishing				
Material knurl	Zinc die-cast, nickel plated				
Colour code	bn (1), bu (3), bk (4)				
Material outer sheath	PUR				
Colour outer sheath	black				
Suitable for drag chains	Yes				
Minimum bending radius					
– Fixed installation	5 x Outer diameter				
– Occasional flexing	10 x Outer diameter				
Temperature range					
– Plug/Socket	-25 °C to +90 °C				
– Fixed installation	-40 °C to +80 °C				
– Occasional flexing	-25 °C to +80 °C				
Approvals	UL: E249137				
ETIM 5.0 Class	EC001855				



Valve connector cordsets [3-pin]



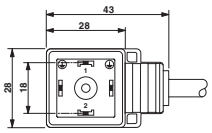
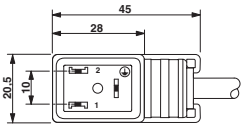
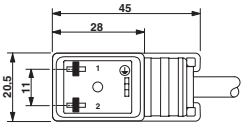
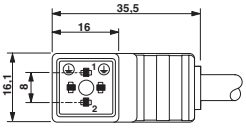
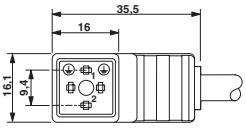


free conductor end





M12 plug, A-coded

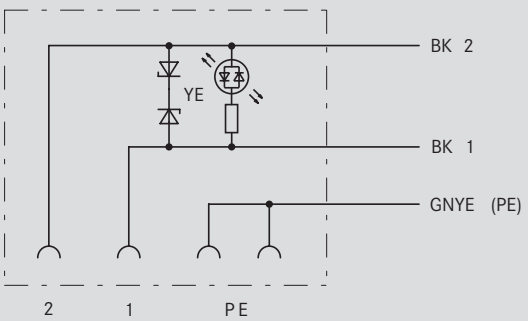
Design		Length (m)	Article number	Length (m)	Article number
Type A Z-Diode 1 LED		2.0	22260584	0.3	22260550
		5.0	22260576	0.6	22260551
		10.0	22260577	1.0	22260552
				2.0	22260553
Type B Z-Diode 1 LED		2.0	22260585	0.3	22260558
		5.0	22260578	0.6	22260559
		10.0	22260579	1.0	22260560
				2.0	22260561
Type BI Z-Diode 1 LED		2.0	22260586	0.3	22260554
		5.0	22260580	0.6	22260555
		10.0	22260581	1.0	22260556
				2.0	22260557
Type C Z-Diode 1 LED		2.0	22260587	0.3	22260566
		5.0	22260582	0.6	22260567
		10.0	22260583	1.0	22260568
				2.0	22260569
Type CI Z-Diode 1 LED		2.0	22260588		
		5.0	22260574		
		10.0	22260575		

Other lengths and variants available upon request.

TECHNICAL DATA

Valve connectors	on free conductor end	on M12
Rated current (V)	24	
Rated current	4 A	
Protection class	IP65/IP67	
Material contact	CuSn	
Material gripping body M12	TPU, flame-retardant, self-extinguishing	
Material knurl M12	Zinc die-cast, nickel plated	
Core cross-section (mm²)	0.75 (3-pin)	
Colour code	black with white numbers and green/yellow	
Material outer sheath	PUR	
Colour outer sheath	black	
Outer diameter (mm)	4.5 (3-pin)	
Suitable for drag chains	Yes	
Minimum bending radius		
– Fest verlegt	5 x Outer diameter	
– Occasional flexing	10 x Outer diameter	
Temperature range		
– Plug/Socket	-25 °C to +90 °C	
– Valve connector	-20 °C to +85 °C	
– Fixed installation	-40 °C to +80 °C	
– Occasional flexing	-20 °C to +80 °C	
Halogen free acc.	DIN VDE 0472	
ETIM 5.0 Class	EC001855	

CIRCUIT DIAGRAM



Valve connector 3-pin

Valve connector cordsets [5-pin]



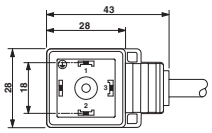


free conductor end



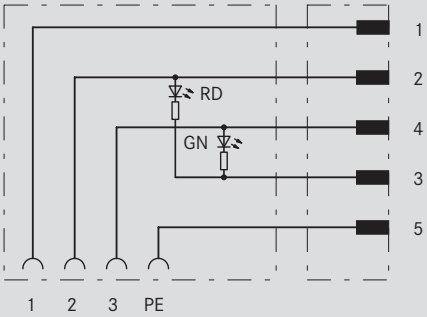


M12 plug, A-coded

Design		Length (m)	Article number	Length (m)	Article number
Type A for pressure switch 2 LEDs		2.0	22260589	0.3	22260573
		5.0	22260590	0.6	22260572
		10.0	22260591	1.0	22260571
				2.0	22260570

Other lengths and variants available upon request.

CIRCUIT DIAGRAM



Valve connector 5-pin (type AD) on M12

TECHNICAL DATA

Valve connectors	on free conductor end	on M12
Rated current (V)	24	
Rated current	4 A	
Protection class	IP65/IP67	
Material contact	CuSn	
Material gripping body M12	TPU, flame-retardant, self-extinguishing	
Material knurl M12	Zinc die-cast, nickel plated	
Core cross-section (mm²)	0.5 (5-pin)	
Colour code	black with white numbers and green/yellow	
Material outer sheath	PUR	
Colour outer sheath	black	
Outer diameter (mm)	5.3 (5-pin)	
Suitable for drag chains	Yes	
Minimum bending radius		
– Fest verlegt	5 x Outer diameter	
– Occasional flexing	10 x Outer diameter	
Temperature range		
– Plug/Socket	-25 °C to +90 °C	
– Valve connector	-20 °C to +85 °C	
– Fixed installation	-40 °C to +80 °C	
– Occasional flexing	-20 °C to +80 °C	
Halogen free acc.	DIN VDE 0472	
ETIM 5.0 Class	EC001855	





UNITRONIC® 100

Control and signal cable with small cross-sections

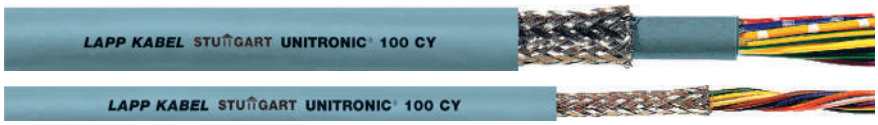


Info

- UNITRONIC® colour code with protective conductor

UNITRONIC® 100 CY

Screened control and signal cable with small cross-sections



Application range

- These control and signal cables are used in the milliampere range for computer systems, electronic control equipment, office machines, balances etc. and wherever the thinnest possible control cables are required.

Product features

UNITRONIC® 100

- Robust, flexible and resistant outer sheath
- Small outer diameter despite high number of cores
- Flame-retardant according IEC 60332-1-2
- 3 cores with earth wire (green-yellow) 2 cores (black/blue)

UNITRONIC® 100 CY

- Robust, flexible and resistant outer sheath
- Small outer diameter despite high number of cores
- Cable similar to UNITRONIC® 100, but with copper braiding
- Flame-retardant according IEC 60332-1-2
- 3 cores with earth wire (green-yellow) 2 cores (black/blue)

Norm references / Approvals

- Based on: VDE 0814 or VDE 0812

Product Make-up

UNITRONIC® 100

- Fine-wire/multi-wire (0.34 mm²) strand made of bare copper wires
- Core insulation made of PVC
- Outer sheath made of PVC
  Outer sheath colour: grey (RAL 7001)

UNITRONIC® 100 CY

- Fine-wire/multi-wire (0.34 mm²) strand made of bare copper wires
- Core insulation made of PVC
- Inner sheath made of PVC
- For the cross section of 0.14 mm², a polyester tape is used underneath the screen braiding instead of the inner sheath.
- Tinned-copper braiding
- Outer sheath made of PVC
  Outer sheath colour: grey (RAL 7001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
Refer to Appendix T7 for the UNITRONIC® colour codes

Mutual capacitance
Approx. 120 nF/km

Inductivity
approx. 0.7 mH/km

Conductor stranding
Stranded, fine-wire
0.34 mm²: 7-wire

Minimum bending radius
UNITRONIC® 100
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x outer diameter
UNITRONIC® 100 CY
Occasional flexing: 20 x outer diameter
Fixed installation: 6 x outer diameter

Protective conductor
Green-yellow

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® 100				
0028009	2 x 0,14	3	2.8	12
0028010	3 x 0,14	3.2	4.2	17
0028012	5 x 0,14	3.7	7	22
0028014	7 x 0,14	4	9.8	27
0028015	10 x 0,14	5	14	41
0028019	24 x 0,14	7.2	33.6	94
0028025	52 x 0,14	10	72.8	198
0028030	3 x 0,25	3.8	7.5	21
0028031	7 x 0,25	4.9	17.5	48
0028032	10 x 0,25	6.4	25	77
0028033	14 x 0,25	6.9	35	95
0028034	16 x 0,25	7.3	40	112
0028035	21 x 0,25	8.5	52.5	139
0028036	24 x 0,25	9	60	163
0028037	27 x 0,25	9.2	67.5	171
0028038	30 x 0,25	9.9	75	187
0028039	36 x 0,25	10.7	90	235
0028040	40 x 0,25	11.6	100	266
0028042	52 x 0,25	12.5	130	343
0028044	61 x 0,25	13.3	152.5	398
0028047	3 x 0,34	4.2	10.5	33
0028048	7 x 0,34	5.5	22.8	62
0028051	16 x 0,34	8.3	54.4	131

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® 100 CY				
0034006	2 x 0,14	3.7	12	20
0034007	3 x 0,14	3.9	13	28
0034008	4 x 0,14	4.1	14.3	33
0034009	5 x 0,14	4.4	15.5	38
0034010	7 x 0,14	4.7	20.3	49
0034011	10 x 0,14	5.7	34.3	66
0034012	14 x 0,14	6.3	32	80
0034013	16 x 0,14	6.6	40.9	90
0034016	27 x 0,14	8.1	70.6	148
0031031	3 x 0,25	5.4	20.2	48
0031066	4 x 0,25	5.7	24	61
0031067	5 x 0,25	6.3	29	72
0031032	7 x 0,25	6.7	37.6	82
0031033	10 x 0,25	8.2	48.8	129
0031034	14 x 0,25	8.7	64.6	147
0031068	2 x 0,34	5.6	20	45
0031048	3 x 0,34	5.8	24.1	62
0031069	4 x 0,34	6.4	29	65
0031070	5 x 0,34	6.9	42	95
0031049	7 x 0,34	7.3	50	106
0031050	10 x 0,34	9	67.7	167
0031052	16 x 0,34	10.5	95	219
0031060	52 x 0,34	17.6	336	629

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® LiYY

Data transmission cable with colour code acc. to DIN 47100



Benefits

- Space-saving installation due to small cable diameters
- Multifunctional application possibilities
- Depending on the quantity, the outer sheath can also be produced in other colours to match your application needs

Application range

- UNITRONIC® LiYY is also used as a control and signal cable in electronics of computer systems, electronic control equipment, office machines, balances, etc.
- Dry or damp rooms
- Occasional flexing

Product features

- Despite the large number of cores, LiYY data cables have small outer diameters
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- Based on VDE 0812

Product Make-up

- Fine-wire/multi-wire (0.34 mm²) strand made of bare copper wires
- Core insulation made of PVC
- Outer sheath made of PVC
  Outer sheath colour: pebble grey (RAL 7032)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
DIN 47100 without colour repetition, refer to Appendix T9

Mutual capacitance
Approx. 120 nF/km

Inductivity
approx. 0.65 mH/km

Conductor stranding
Stranded, fine-wire
0.34 mm²: 7-wire

Minimum bending radius
Occasional flexing: 10 x outer diameter
Fixed installation: 4 x outer diameter

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
UNITRONIC® LiYY				
0028202	2 x 0.14	3.2	2.7	13.2
0028203	3 x 0.14	3.4	4.05	16
0028204	4 x 0.14	3.6	5.4	18.9
0028205	5 x 0.14	3.9	6.72	22.2
0028207	7 x 0.14	4.2	9.45	28.4
0028208	8 x 0.14	4.9	10.2	35.2
0028210	10 x 0.14	5.2	13.5	41.2
0028212	12 x 0.14	5.6	16.2	48.4
0028214	14 x 0.14	5.8	18.9	52.9
0028216	16 x 0.14	6.1	21.6	59.1
0028220	20 x 0.14	7	27	70.8
0028225	25 x 0.14	7.8	33.6	87.2
0028236	36 x 0.14	8.6	48.6	126.8
0028237	37 x 0.14	8.9	49.7	118
0028240	40 x 0.14	9.3	54	139.1
0028250	50 x 0.14	10.4	67.5	170.9
0028256	56 x 0.14	10.7	78.4	187
0028302	2 x 0.25	3.8	4.8	18
0028303	3 x 0.25	4	7.2	22
0028304	4 x 0.25	4.3	9.6	26.2
0028305	5 x 0.25	4.7	12	31
0028306	6 x 0.25	5.1	14.4	39
0028307	7 x 0.25	5.1	16.8	42
0028308	8 x 0.25	6.2	19.2	49.2
0028310	10 x 0.25	6.8	24	58
0028312	12 x 0.25	7	28.8	67
0028314	14 x 0.25	7.3	33.6	75.3
0028316	16 x 0.25	7.7	38.4	84.3
0028318	18 x 0.25	8.1	43.2	93
0028320	20 x 0.25	8.6	48	102
0028325	25 x 0.25	9.6	60	134
0028330	30 x 0.25	10.3	72	155
0028332	32 x 0.25	10.7	76.8	164
0028336	36 x 0.25	11.1	86.4	182.2
0028337	37 x 0.25	11.4	88.8	185
0028340	40 x 0.25	12	96.1	200
0028350	50 x 0.25	12.9	120	257.1
0028402	2 x 0.34	4.2	6.6	25
0028403	3 x 0.34	4.4	9.9	31
0028404	4 x 0.34	4.8	13.1	43.2
0028405	5 x 0.34	5.5	16.5	53.8
0028406	6 x 0.34	5.9	19.6	55
0028407	7 x 0.34	5.9	22.8	62
0028408	8 x 0.34	7.1	26.1	73.1
0028410	10 x 0.34	7.6	32.6	82
0028412	12 x 0.34	7.8	39.1	102
0028414	14 x 0.34	8.2	45.7	109
0028416	16 x 0.34	8.7	52	127
0028420	20 x 0.34	9.6	65.2	159.3
0028421	21 x 0.34	10.4	68.6	167
0028425	25 x 0.34	11.2	81.6	190
0028430	30 x 0.34	11.6	98	226
0028436	36 x 0.34	12.5	118	284
0028440	40 x 0.34	13.5	131	317
0028450	50 x 0.34	15	163	407
0028502	2 x 0.50	4.7	9.6	30
0028503	3 x 0.50	5	14.4	39
0028504	4 x 0.50	5.6	19.2	49
0028505	5 x 0.50	6.1	24	65
0028507	7 x 0.50	6.9	33.6	82
0028508	8 x 0.50	8	38.4	90
0028510	10 x 0.50	8.6	48	117
0028512	12 x 0.50	8.9	58	133
0028516	16 x 0.50	10.2	77	170
0028520	20 x 0.50	11.4	96	214
0028525	25 x 0.50	12.7	120	265
0028530	30 x 0.50	13.2	144	304
0028540	40 x 0.50	15.8	192	392
0028602	2 x 0.75	5.1	14.4	48
0028603	3 x 0.75	5.6	21.6	57
0028604	4 x 0.75	6.1	28.8	69
0028605	5 x 0.75	6.9	36	78
0028607	7 x 0.75	7.5	50	112
0028608	8 x 0.75	8.7	58	126
0028610	10 x 0.75	9.4	72	149
0028612	12 x 0.75	10.1	86	176
0028616	16 x 0.75	11.2	115	218
0028620	20 x 0.75	12.4	144	274
0028625	25 x 0.75	14	180	320
0028702	2 x 1.00	5.6	19.2	55
0028703	3 x 1.00	5.9	29	70
0028704	4 x 1.00	6.4	38.4	79
0028705	5 x 1.00	7.3	48	98
0028802	2 x 1.50	6.2	29	74
0028803	3 x 1.50	6.8	43	89
0028804	4 x 1.50	7.4	58	105

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® LiYCY

Screened data transmission cable with colour code acc. to DIN 47100

Info

- CPR: Article number choice under www.lapp.com



Benefits

- Overall braid minimises electrical interference
- Multifunctional application possibilities

Application range

- Screened cables with small dimensions are suitable for use in computer systems, insturmentation technology, office equipment, balances.
- Dry or damp rooms

Product features

- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- Based on VDE 0812

Product Make-up

- Fine-wire/multi-wire (0.34 mm²) strand made of bare copper wires
- Core insulation made of PVC
- Tinned-copper braiding
- Outer sheath made of PVC
  Outer sheath colour: pebble grey (RAL 7032)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
DIN 47100 without colour repetition, refer to Appendix T9

Mutual capacitance
C/C: approx. 120 nF/km
C/S: approx. 160 nF/km

Inductivity
approx. 0.65 mH/km

Conductor stranding
Stranded, fine-wire
0.34 mm²: 7-wire

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 6 x outer diameter

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
UNITRONIC® LiYCY				
0034302	2 x 0.14	3.9	12	20
0034303	3 x 0.14	4.1	13	28
0034304	4 x 0.14	4.3	14.3	33
0034305	5 x 0.14	4.6	15.5	38
0034306	6 x 0.14	4.9	18.2	38
0034307	7 x 0.14	4.9	19	49
0034308	8 x 0.14	5.8	21.2	56
0034310	10 x 0.14	6.1	28.5	66
0034312	12 x 0.14	6.3	30.4	78
0034314	14 x 0.14	6.7	32	80
0034315	15 x 0.14	6.9	37.8	86
0034316	16 x 0.14	7	43	90
0034318	18 x 0.14	7.3	48.8	95
0034320	20 x 0.14	7.7	53.9	100
0034321	21 x 0.14	7.9	55.5	105
0034324	24 x 0.14	8.3	61	112
0034325	25 x 0.14	8.5	63	120
0034328	28 x 0.14	8.5	66.1	141
0034330	30 x 0.14	8.7	69	155
0034336	36 x 0.14	9.3	83	170
0034340	40 x 0.14	10.4	87.5	178
0034344	44 x 0.14	10.7	110.5	185
0034350	50 x 0.14	11.1	122.5	195
0034402	2 x 0.25	4.5	16	32
0034403	3 x 0.25	4.7	21	37

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
0034404	4 x 0.25	5	24	41.3
0034405	5 x 0.25	5.6	29	51.2
0034406	6 x 0.25	6	30	58
0034407	7 x 0.25	6	37	65
0034408	8 x 0.25	7.1	42	73
0034410	10 x 0.25	7.5	46	82
0034412	12 x 0.25	7.7	53	98
0034414	14 x 0.25	8	59	99
0034415	15 x 0.25	8.3	61	111
0034416	16 x 0.25	8.4	64	119
0034418	18 x 0.25	8.8	83	125
0034420	20 x 0.25	9.3	88	136
0034421	21 x 0.25	9.6	93	161
0034425	25 x 0.25	10.7	114	172
0034428	28 x 0.25	10.8	126	181.1
0034432	32 x 0.25	11.4	138	203
0034436	36 x 0.25	11.8	148	220
0034440	40 x 0.25	12.7	157	248
0034450	50 x 0.25	13.8	178	318
0034461	61 x 0.25	15	205	365.2
0034502	2 x 0.34	4.9	21	37
0034503	3 x 0.34	5.1	27	42
0034504	4 x 0.34	5.7	28	52
0034505	5 x 0.34	6.2	30	60
0034506	6 x 0.34	6.8	45	64
0034507	7 x 0.34	6.8	48	75
0034508	8 x 0.34	7.8	52	94
0034510	10 x 0.34	8.3	74	105
0034512	12 x 0.34	8.5	80	123
0034514	14 x 0.34	8.9	86	154
0034515	15 x 0.34	9.2	90	155
0034516	16 x 0.34	9.4	94	160
0034518	18 x 0.34	10.2	103	173
0034520	20 x 0.34	10.7	112	192
0034521	21 x 0.34	11.1	116	199.2
0034525	25 x 0.34	11.9	135	259
0034528	28 x 0.34	12	153	280
0034530	30 x 0.34	12.3	159	291.1
0034532	32 x 0.34	13	165	305
0034536	36 x 0.34	13.4	179	331
0034540	40 x 0.34	14.8	200	365
0034550	50 x 0.34	15.9	235	431
0034602	2 x 0.50	5.6	29	47
0034603	3 x 0.50	5.9	38	55
0034604	4 x 0.50	6.3	43	70
0034605	5 x 0.50	7	51	90
0034606	6 x 0.50	7.6	59	104
0034607	7 x 0.50	7.6	65	112
0034608	8 x 0.50	8.7	70	120
0034610	10 x 0.50	9.3	88	139
0034612	12 x 0.50	9.6	99	177
0034618	18 x 0.50	11.8	134	239
0034620	20 x 0.50	12.1	149	276
0034625	25 x 0.50	13.7	211	352
0034630	30 x 0.50	14.5	230	397
0034702	2 x 0.75	6	38	53
0034703	3 x 0.75	6.3	49	65
0034704	4 x 0.75	7	58	79
0034705	5 x 0.75	7.6	67	109
0034707	7 x 0.75	8.2	100	156
0034710	10 x 0.75	10.5	130	187
0034712	12 x 0.75	10.8	154	218
0034718	18 x 0.75	13	195	327
0034725	25 x 0.75	15.3	280	454
0034730	30 x 0.75	15.8	312	486
0034802	2 x 1.00	6.3	43	72
0034803	3 x 1.00	6.8	56	90
0034804	4 x 1.00	7.3	68	109
0034805	5 x 1.00	8	79	126
0034807	7 x 1.00	8.6	118	171
0034810	10 x 1.00	11.1	140	228
0034812	12 x 1.00	11.4	168	259
0034818	18 x 1.00	13.4	252	389
0034825	25 x 1.00	16.2	335	517
0034902	2 x 1.50	7.1	58	90
0034903	3 x 1.50	7.5	74	115
0034904	4 x 1.50	8.1	108	129
0034905	5 x 1.50	8.8	129	176
0034907	7 x 1.50	9.5	164	220
0034912	12 x 1.50	12.7	254	376
0034918	18 x 1.50	15.3	350	519
0034925	25 x 1.50	17.9	550	901

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® LiYY (TP)

Data transmission cable with colour code acc. to DIN 47100 and twisted pairs

Info

- TP = twisted pair
- CPR: Article number choice under www.lapp.com



Benefits

- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

Application range

- Electronic devices tend to leave little room for installing cables, meaning short travel distances and small bending radii are required. This cable ideally meets these requirements.
- Dry or damp rooms

Product features

- Twisted in pairs to reduce decoupling. As a result, additional screening is often not required.
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- Based on VDE 0812

Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation made of PVC
- TP structure
- Outer sheath made of PVC
  Outer sheath colour: pebble grey (RAL 7032)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
DIN 47100, refer to Appendix T9

Mutual capacitance
Approx. 120 nF/km

Inductivity
approx. 0.65 mH/km

Conductor stranding
Fine copper wire strands

Minimum bending radius
Occasional flexing: 10 x outer diameter
Fixed installation: 4 x Outer diameter

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of pairs and conductor cross section (mm²)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® LiYY (TP)				
0035101	2 x 2 x 0.14	4.5	5.4	25.5
0035102	3 x 2 x 0.14	5	8	32
0035103	4 x 2 x 0.14	5.6	10.7	38.5
0035104	5 x 2 x 0.14	5.8	13.4	45.5
0035105	6 x 2 x 0.14	6.3	16.1	51
0035108	10 x 2 x 0.14	8.1	26.9	77.5
0035110	12 x 2 x 0.14	8.3	32.3	94.5
0035113	16 x 2 x 0.14	9.2	43	110.5
0035160	2 x 2 x 0.25	5.7	9.6	38
0035161	3 x 2 x 0.25	6.3	14.4	48
0035162	4 x 2 x 0.25	7	19.2	59
0035163	6 x 2 x 0.25	7.9	28.8	80
0035164	8 x 2 x 0.25	9.3	38.4	98
0035170	2 x 2 x 0.5	7.3	19.2	72
0035171	3 x 2 x 0.5	8.1	28.8	83
0035172	4 x 2 x 0.5	8.8	38.4	115
0035174	8 x 2 x 0.5	12.3	76.8	206
0035175	10 x 2 x 0.5	13.3	96	247

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® LiYCY (TP)

Screened data transmission cable with colour code acc. to DIN 47100 and twisted pairs



Info

- TP = twisted pair
- Further dimensions/colours on request
- CPR: Article number choice under www.lapp.com

Benefits

- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)
- Overall braid minimises electrical interference

Application range

- Can be used multifunctional in electronics of computer systems, electronic control equipment, office machines, balances, etc.
- Dry or damp rooms

Product features

- Good protection against capacitive interference from electric fields (e.g. power cable)
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- Based on VDE 0812

Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation made of PVC
- TP structure
- Tinned-copper braiding
- Outer sheath made of PVC
  Outer sheath colour: pebble grey (RAL 7032)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
DIN 47100, refer to Appendix T9

Mutual capacitance
C/C: approx. 120 nF/km
C/S: approx. 160 nF/km

Inductivity
approx. 0.65 mH/km

Conductor stranding
Fine copper wire strands

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 6 x outer diameter

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Dimension and cross section in mm²	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® LiYCY (TP)				
0035131	2 x 2 x 0.14	5.3	18.5	39
0035141	3 x 2 x 0.14	5.8	23	48
0035132	4 x 2 x 0.14	6.2	26.6	54
0035133	6 x 2 x 0.14	7.1	48.5	85
0035150	8 x 2 x 0.14	8.2	53.7	97
0035134	10 x 2 x 0.14	8.7	59	110
0035135	12 x 2 x 0.14	8.9	66	142
0035136	16 x 2 x 0.14	10.2	79	154
0035142	20 x 2 x 0.14	11.3	97	184
0035137	25 x 2 x 0.14	12.5	113	238
0035800	2 x 2 x 0.25	6.3	28	54
0035801	3 x 2 x 0.25	7.1	39.6	68.5
0035802	4 x 2 x 0.25	7.6	44.9	81
0035803	6 x 2 x 0.25	8.5	69.5	115
0035804	8 x 2 x 0.25	10.3	76.9	130
0035805	10 x 2 x 0.25	11	102	158
0035806	12 x 2 x 0.25	11.3	120	190
0035807	16 x 2 x 0.25	12.5	146.5	238

Article number	Dimension and cross section in mm²	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
0035808	25 x 2 x 0.25	16.1	205	344
0035810	2 x 2 x 0.50	7.9	48.1	93
0035811	3 x 2 x 0.50	8.7	73.7	116
0035812	4 x 2 x 0.50	9.4	82	127
0035813	6 x 2 x 0.50	11.1	110	198
0035814	8 x 2 x 0.50	13.1	139	259
0035816	12 x 2 x 0.50	14.9	198.3	354
0035817	16 x 2 x 0.50	16.5	240	459
0035820	2 x 2 x 0.75	8.5	58	106
0035821	3 x 2 x 0.75	9.4	84	140
0035822	4 x 2 x 0.75	10.7	108	179
0035827	5 x 2 x 0.75	11.1	126	215
0035823	6 x 2 x 0.75	12.1	146	246
0035824	8 x 2 x 0.75	14.7	180	305
0035825	12 x 2 x 0.75	16.2	261	456
0035830	2 x 2 x 1.00	9	84	142
0035831	3 x 2 x 1.00	10	96	173
0035832	4 x 2 x 1.00	11.3	121	212
0035836	5 x 2 x 1.00	11.8	161	266

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® LiYY BK

Low-frequency data cable; Core colour code: DIN 47100; black / UV resistant / outdoor use



Info

- The classic for multi-functional use
- Further dimensions/colours on request
- CPR: Article number choice under www.lapp.com

Benefits

- Numerous dimensions available for wide range of applications
- Compact design enables small outer diameters despite high number of cores
- Classified fire behaviour according to EU Directive 305/2011 (BauPVO/CPR) with article number selection on the LAPP website

Application range

- Can be used universally at machine interfaces for many applications for data and signal transmission in the low-frequency range
- Suitable for computer systems, electronic control and regulation devices, office machines, scales, etc.
- For fixed installation
- Can be used in dry and damp environments
- Suitable for light mechanical stress.
- The PVC outer sheath is somewhat oil-resistant
- Suitable for outdoor use, subject to the temperature range

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
DIN 47100 without colour repetition, refer to Appendix T9

Mutual capacitance
Approx. 120 nF/km

Inductivity
approx. 0.65 mH/km

Minimum bending radius
Occasional flexing: 10 x outer diameter
Fixed installation: 4 x outer diameter

Test voltage
0.14 mm²: 1200 V
≥ 0.25 mm²: 1500 V

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
1030200	2 x 0.14	3.2	2.7	13
1030201	3 x 0.14	3.4	4.05	16
1030202	4 x 0.14	3.6	5.4	18
1030203	5 x 0.14	3.9	6.72	22
1030204	7 x 0.14	4.2	9.45	28
1030205	8 x 0.14	4.9	10.2	35
1030206	10 x 0.14	5.2	13.5	41
1030207	12 x 0.14	5.6	16.2	48
1030208	14 x 0.14	5.8	18.9	52
1030209	16 x 0.14	6.1	21.6	59
1030210	20 x 0.14	7	27	70
1030211	25 x 0.14	7.8	33.6	87
1030212	36 x 0.14	8.6	48.6	126
1030213	37 x 0.14	8.9	49.7	118
1030214	40 x 0.14	9.3	54	139
1030215	50 x 0.14	10.4	67.5	170
1030217	2 x 0.25	3.8	4.8	18
1030218	3 x 0.25	4	7.2	22
1030219	4 x 0.25	4.3	9.6	26
1030220	5 x 0.25	4.7	12	31
1030221	6 x 0.25	5.1	14.4	42
1030222	7 x 0.25	5.1	16.8	42
1030223	8 x 0.25	6.2	19.2	49
1030224	10 x 0.25	6.8	24	58
1030225	12 x 0.25	7	28.8	67
1030226	14 x 0.25	7.3	33.6	75
1030227	16 x 0.25	7.7	38.4	84
1030228	18 x 0.25	8.1	43.2	93
1030229	20 x 0.25	8.6	48	102
1030231	30 x 0.25	10.3	72	155
1030232	32 x 0.25	10.7	76.8	164
1030233	36 x 0.25	11.1	86.4	182
1030234	37 x 0.25	11.4	88.8	185
1030235	40 x 0.25	12	96.1	200
1030236	50 x 0.25	12.9	120	257
1030237	2 x 0.34	4.2	6.6	25
1030238	3 x 0.34	4.4	9.9	31
1030239	4 x 0.34	4.8	13.1	43

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
1030240	5 x 0.34	5.5	16.5	53
1030241	6 x 0.34	5.9	19.6	53
1030242	7 x 0.34	5.9	22.8	62
1030243	8 x 0.34	7.1	26.1	73
1030244	10 x 0.34	7.6	32.6	82
1030245	12 x 0.34	7.8	39.1	102
1030246	14 x 0.34	8.2	45.7	109
1030247	16 x 0.34	8.7	52	127
1030248	20 x 0.34	9.6	65.2	159
1030249	21 x 0.34	10.4	68.6	167
1030250	25 x 0.34	11.2	81.6	190
1030251	30 x 0.34	11.6	98	226
1030252	36 x 0.34	12.5	118	284
1030253	40 x 0.34	13.5	131	317
1030254	50 x 0.34	1	163	407
1030255	2 x 0.5	4.7	9.6	30
1030256	3 x 0.5	5	14.4	39
1030257	4 x 0.5	5.6	19.2	49
1030258	5 x 0.5	6.1	24	65
1030259	7 x 0.5	6.9	33.6	82
1030260	8 x 0.5	8	38.4	90
1030261	10 x 0.5	8.6	48	117
1030262	12 x 0.5	8.9	58	133
1030263	16 x 0.5	10.2	77	170
1030264	20 x 0.5	11.4	96	214
1030265	25 x 0.5	12.7	120	265
1030266	30 x 0.5	13.2	144	304
1030267	40 x 0.5	15.8	192	392
1030268	2 x 0.75	5.1	14.4	48
1030269	3 x 0.75	5.6	21.6	57
1030270	4 x 0.75	6.1	28.8	69
1030271	5 x 0.75	6.9	36	78
1030272	7 x 0.75	7.5	50	112
1030273	8 x 0.75	8.7	58	126
1030274	10 x 0.75	9.4	72	149
1030275	12 x 0.75	10.1	86	176
1030276	16 x 0.75	11.2	115	218
1030277	20 x 0.75	12.4	144	274
1030278	25 x 0.75	14	180	320
1030279	2 x 1	5.6	19.2	55
1030280	3 x 1	5.9	29	70
1030281	4 x 1	6.4	38.4	79
1030282	5 x 1	7.3	48	98
1030283	2 x 1.5	6.2	29	74
1030284	3 x 1.5	6.8	43	89
1030285	4 x 1.5	7.4	58	105

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® LiYCY BK

Low-frequency data cable; Core colour code: DIN 47100; black / UV resistant / outdoor use, screened

Info

- The classic for multi-functional use
- Further dimensions/colours on request
- CPR: Article number choice under www.lapp.com



Benefits

- Numerous dimensions available for wide range of applications
- Compact design enables small outer diameters despite high number of cores
- Resistant to electromagnetic interference thanks to copper braided screening with a high degree of coverage
- Classified fire behaviour according to EU Directive 305/2011 (BauPVO/CPR) with article number selection on the LAPP website

Application range

- Can be used universally at machine interfaces for many applications for data and signal transmission in the low-frequency range
- Suitable for computer systems, electronic control and regulation devices, office machines, scales, etc
- For fixed installation
- Can be used in dry and damp environments
- Suitable for light mechanical stress.
- The PVC outer sheath is somewhat oil-resistant
- Suitable for outdoor use, subject to the temperature range

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
DIN 47100 without colour repetition, refer to Appendix T9

Mutual capacitance
Approx. 120 nF/km

Inductivity
approx. 0.65 mH/km

Conductor stranding
Fine wire stranded of bare copper wires

Minimum bending radius
Occasional flexing: 10 x outer diameter
Fixed installation: 4 x outer diameter

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
1030450	2 x 0.14	3.9	12	20
1030451	3 x 0.14	4.1	13	28
1030452	4 x 0.14	4.3	14.3	33
1030453	5 x 0.14	4.6	15.5	38
1030454	6 x 0.14	4.9	18.2	38
1030455	7 x 0.14	4.9	19	49
1030456	8 x 0.14	5.8	21.2	56
1030457	10 x 0.14	6.1	28.5	66
1030458	12 x 0.14	6.3	30.4	78
1030459	14 x 0.14	6.7	32	80
1030460	15 x 0.14	6.9	37.8	86
1030461	16 x 0.14	7	43	90
1030462	18 x 0.14	7.3	48.8	104
1030463	20 x 0.14	7.7	53.9	116
1030464	21 x 0.14	7.9	55.5	121
1030466	25 x 0.14	8.5	63	149
1030467	28 x 0.14	8.5	66.1	153
1030468	30 x 0.14	8.7	69	158
1030469	36 x 0.14	9.3	83	183
1030470	40 x 0.14	10.4	87.5	210
1030471	44 x 0.14	10.7	110.5	225
1030472	50 x 0.14	11.1	122.5	195
1030473	2 x 0.25	4.5	16	32
1030474	3 x 0.25	4.7	21	37
1030475	4 x 0.25	5	24	41
1030476	5 x 0.25	5.6	29	51
1030477	6 x 0.25	6	30	58
1030478	7 x 0.25	6	37	60
1030479	8 x 0.25	7.1	42	73
1030480	10 x 0.25	7.5	46	82
1030481	12 x 0.25	7.7	53	98
1030482	14 x 0.25	8	59	99
1030483	15 x 0.25	8.3	61	111
1030484	16 x 0.25	8.4	64	124
1030485	18 x 0.25	8.8	83	143
1030486	20 x 0.25	9.3	88	136
1030487	21 x 0.25	9.6	93	161
1030488	25 x 0.25	10.7	114	172
1030489	28 x 0.25	10.8	126	181
1030490	32 x 0.25	11.4	138	203

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
1030491	36 x 0.25	11.8	148	220
1030492	40 x 0.25	12.7	157	248
1030493	50 x 0.25	13.8	178	318
1030494	61 x 0.25	15	205	365
1030495	2 x 0.34	4.9	21	37
1030496	3 x 0.34	5.1	27	42
1030497	4 x 0.34	5.7	28	52
1030498	5 x 0.34	6.2	30	66
1030499	6 x 0.34	6.8	45	64
1030500	7 x 0.34	6.8	48	76
1030501	8 x 0.34	7.8	52	94
1030502	10 x 0.34	8.3	74	105
1030503	12 x 0.34	8.5	80	123
1030504	14 x 0.34	8.9	86	154
1030505	15 x 0.34	9.2	90	155
1030506	16 x 0.34	9.4	94	160
1030507	18 x 0.34	10.2	103	173
1030508	20 x 0.34	10.7	112	192
1030509	21 x 0.34	11.1	116	199
1030510	25 x 0.34	11.9	135	259
1030511	28 x 0.34	12	153	280
1030512	30 x 0.34	12.3	159	291
1030513	32 x 0.34	13	165	305
1030514	36 x 0.34	13.4	179	331
1030515	40 x 0.34	14.8	200	365
1030516	50 x 0.34	15.9	235	431
1030517	2 x 0.5	5.6	29	47
1030518	3 x 0.5	5.9	38	55
1030519	4 x 0.5	6.3	43	70
1030520	5 x 0.5	7	51	79
1030521	6 x 0.5	7.6	59	90
1030522	7 x 0.5	7.6	65	99
1030523	8 x 0.5	8.7	70	135
1030524	10 x 0.5	9.3	88	139
1030525	12 x 0.5	9.6	99	177
1030526	18 x 0.5	11.8	134	239
1030527	20 x 0.5	12.1	149	276
1030528	25 x 0.5	13.7	211	352
1030529	30 x 0.5	14.5	230	397
1030530	2 x 0.75	6	38	53
1030531	3 x 0.75	6.3	49	65
1030532	4 x 0.75	7	58	79
1030533	5 x 0.75	7.6	67	109
1030534	7 x 0.75	8.2	100	112
1030535	10 x 0.75	10.5	130	187
1030536	12 x 0.75	10.8	154	218
1030537	18 x 0.75	13	195	327
1030538	25 x 0.75	15.3	280	454
1030539	30 x 0.75	15.8	312	486
1030540	2 x 1	6.3	43	72
1030541	3 x 1	6.8	56	90
1030542	4 x 1	7.3	68	109
1030543	5 x 1	8	79	126
1030544	7 x 1	8.6	118	162
1030545	10 x 1	11.1	140	228
1030546	12 x 1	11.4	168	259
1030547	18 x 1	13.4	252	389
1030548	25 x 1	16.2	335	517
1030549	2 x 1.5	7.1	58	90
1030550	3 x 1.5	7.5	74	115
1030551	4 x 1.5	8.1	108	129
1030552	5 x 1.5	8.8	129	176
1030553	7 x 1.5	9.5	164	220
1030554	12 x 1.5	12.7	254	376
1030555	18 x 1.5	15.3	350	519
1030556	25 x 1.5	17.9	550	901

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® LiYY (TP) BK

Low-frequency data cable; Core colour code: DIN 47100; black / UV resistant / outdoor use



Info

- The classic for multi-functional use
- TP = Twisted pair
- CPR: Article number choice under www.lapp.com

Benefits

- The conductor circuits are well decoupled thanks to the twisted pair (TP) with short lay lengths
- Compact design enables small outer diameters despite high number of cores
- Classified fire behaviour according to EU Directive 305/2011 (BauPVO/CPR) with article number selection on the LAPP website

Application range

- Can be used universally at machine interfaces for many applications for data and signal transmission in the low-frequency range
- Suitable for computer systems, electronic control and regulation devices, office machines, scales, etc.
- For fixed installation
- Can be used in dry and damp environments
- Suitable for light mechanical stress.
- The PVC outer sheath is somewhat oil-resistant
- Suitable for outdoor use, subject to the temperature range

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
DIN 47100 without colour repetition, refer to Appendix T9

Mutual capacitance
Approx. 120 nF/km

Inductivity
approx. 0.65 mH/km

Conductor stranding
Fine wire stranded of bare copper wires

Minimum bending radius
Occasional flexing: 10 x outer diameter
Fixed installation: 4 x outer diameter

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
1030400	2 x 2 x 0.14	4.5	5.4	25
1030401	3 x 2 x 0.14	5	8	32
1030402	4 x 2 x 0.14	5.6	10.7	38
1030403	5 x 2 x 0.14	5.8	13.4	45
1030404	6 x 2 x 0.14	6.3	16.1	51
1030405	10 x 2 x 0.14	8.1	26.9	77
1030407	16 x 2 x 0.14	9.2	43	110
1030408	2 x 2 x 0.25	5.7	9.6	38
1030409	3 x 2 x 0.25	6.3	14.4	48
1030410	4 x 2 x 0.25	7	19.2	59
1030411	6 x 2 x 0.25	7.9	28.8	80
1030412	8 x 2 x 0.25	9.3	38.4	98
1030413	2 x 2 x 0.5	7.3	19.2	72
1030414	3 x 2 x 0.5	8.1	28.8	83
1030415	4 x 2 x 0.5	8.8	38.4	115
1030416	8 x 2 x 0.5	12.3	76.8	206
1030417	10 x 2 x 0.5	13.3	96	247

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® LiYCY (TP) BK

Low-frequency data cable; Core colour code: DIN 47100; black / UV resistant / outdoor use, screened



Info

- The classic for multi-functional use
- TP = Twisted pair
- CPR: Article number choice under www.lapp.com

Benefits

- The conductor circuits are well decoupled thanks to the twisted pair (TP) with short lay lengths
- Resistant to electromagnetic interference thanks to copper braided screening with a high degree of coverage
- Compact design enables small outer diameters despite high number of cores
- Classified fire behaviour according to EU Directive 305/2011 (BauPVO/CPR) with article number selection on the LAPP website

Application range

- Can be used universally at machine interfaces for many applications for data and signal transmission in the low-frequency range
- Suitable for computer systems, electronic control and regulation devices, office machines, scales, etc.
- For fixed installation
- Can be used in dry and damp environments
- Suitable for light mechanical stress.
- The PVC outer sheath is somewhat oil-resistant
- Suitable for outdoor use, subject to the temperature range

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
DIN 47100 without colour repetition, refer to Appendix T9

Mutual capacitance
Approx. 120 nF/km

Inductivity
approx. 0.65 mH/km

Conductor stranding
Fine wire stranded of bare copper wires

Minimum bending radius
Occasional flexing: 10 x outer diameter
Fixed installation: 4 x outer diameter

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
1030600	2 x 2 x 0.14	5.3	18.5	39
1030601	4 x 2 x 0.14	6.2	26.6	54
1030602	6 x 2 x 0.14	7.1	48.5	81
1030603	10 x 2 x 0.14	8.7	59	110
1030604	12 x 2 x 0.14	8.9	66	142
1030605	16 x 2 x 0.14	10.2	79	154
1030606	25 x 2 x 0.14	12.5	113	238
1030607	3 x 2 x 0.14	5.8	23	48
1030608	2 x 2 x 0.14	11.3	97	184
1030609	8 x 2 x 0.14	8.2	53.7	97
1030610	2 x 2 x 0.25	6.3	28	51
1030611	3 x 2 x 0.25	7.1	39.6	68
1030612	4 x 2 x 0.25	7.6	44.9	81
1030613	6 x 2 x 0.25	8.5	69.5	115
1030614	8 x 2 x 0.25	10.3	76.9	130
1030615	10 x 2 x 0.25	11	102	158
1030616	12 x 2 x 0.25	11.3	120	190
1030617	16 x 2 x 0.25	12.5	146.5	238
1030618	25 x 2 x 0.25	16.1	205	344
1030619	2 x 2 x 0.5	7.9	48.1	93
1030620	3 x 2 x 0.5	8.7	73.7	116
1030621	4 x 2 x 0.5	9.4	82	127
1030622	6 x 2 x 0.5	11.1	110	198
1030623	8 x 2 x 0.5	13.1	139	259
1030624	12 x 2 x 0.5	14.9	198.3	354
1030625	16 x 2 x 0.5	16.5	240	459
1030626	2 x 2 x 0.75	8.5	58	106
1030627	3 x 2 x 0.75	9.4	84	140
1030628	4 x 2 x 0.75	10.7	108	169
1030629	6 x 2 x 0.75	12.1	146	246
1030630	8 x 2 x 0.75	14.7	180	290
1030631	12 x 2 x 0.75	16.2	261	456
1030632	5 x 2 x 0.75	11.1	126	215
1030633	2 x 2 x 1	9	84	142
1030634	3 x 2 x 1	10	96	173
1030635	4 x 2 x 1	11.3	121	212
1030636	5 x 2 x 1	11.8	161	266

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® EB CY (TP)

Screened data transmission cable with twisted pairs and blue outer sheath



Info

- Hazard protection type -i- is required where there is a risk of explosion
- CPR: Article number choice under www.lapp.com

Benefits

- Overall braid minimises electrical interference
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

Application range

- Reliable data transmission in intrinsically safe circuits
- In EMC-sensitive environments (electromagnetic compatibility)

Product features

- For intrinsically safe circuits (type of protection i - intrinsic safety) according to IEC 60079-14:2013 / EN 60079-14:2014 / VDE 0165-1:2014, section 16.2.2
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- Based on VDE 0812

Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation made of PVC
- TP structure
- Tinned-copper braiding
- Outer sheath made of PVC
  Outer sheath colour: sky blue (RAL 5015)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
DIN 47100, refer to Appendix T9

Mutual capacitance
C/C approx. 100 nF/km
C/S approx. 140 nF/km

Inductivity
approx. 0.65 mH/km

Conductor stranding
Strand, fine-wire in accordance with IEC 60228 Cl. 5

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 6 x outer diameter

Test voltage
2500 V

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of pairs and conductor cross section (mm²)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® EB CY (TP)				
0012620	2 x 2 x 0.75	8.7	58	106
0012621	3 x 2 x 0.75	9.6	84	140
0012622	4 x 2 x 0.75	10.9	108	179
0012624	6 x 2 x 0.75	12.3	146	246
0012626	10 x 2 x 0.75	16.1	220	392

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® LiYCY-CY

Screened data transmission cable with individually screened cores



Benefits

- Overall braid minimises electrical interference
- Individually screened cores minimise crosstalk between cables routed in parallel

Application range

- When a lossless transmission of data has to be guaranteed in fields with strong interference, cables with individually-screened cores and an additional overall screening are used
- Dry or damp rooms

Product features

- Wire-screen can be used as outer conductor
- The cable remains flexible despite multiple screening
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- Based on VDE 0812

Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation made of PVC
- Tinned-copper braiding for each core
- Inner sheath made of PVC over each screened core
- Tinned-copper braiding
- Outer sheath made of PVC
  Outer sheath colour: pebble grey (RAL 7032)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
DIN 47100, refer to Appendix T9

Mutual capacitance
Approx. 230 nF/km

Inductivity
Approx. 0.2 mH/km

Conductor stranding
Stranded conductor, fine-wire

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 7.5 x outer diameter

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
UNITRONIC® LiYCY-CY				
0032302	2 x 0.25	6.9	41.5	69
0032303	3 x 0.25	7.2	53	106
0032304	4 x 0.25	7.8	65	130
0032305	5 x 0.25	8.5	78	161

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® CY PiDY (TP)

Screened data transmission cable with copper-wrapped twisted pairs

Info

- PiDY = Pairs with copper wire wrapping and PVC sheath



Benefits

- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)
- Individually screened pairs and the overall braid minimise electrical interference

Application range

- Cable should be used in areas with high levels of electromagnetic interferences
- Data processing, process control systems, machining centres, security systems and electronics
- Suitable for the transmission with varying in frequency and voltage or sensitive signals
- For fixed installation and flexible use
- Dry or damp rooms

Product features

- The cable remains flexible despite multiple screening
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- Based on VDE 0812

Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation made of PVC
- Cores twisted into pairs
- Copper wrapping over pairs
- Inner sheath made of PVC over screened pairs
- Tinned-copper braiding
- Outer sheath made of PVC
  Outer sheath colour: pebble grey (RAL 7032)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
DIN 47100, refer to Appendix T9

Mutual capacitance
C/C: approx. 120 nF/km
C/S: approx. 160 nF/km

Inductivity
approx. 0.65 mH/km

Conductor stranding
Stranded conductor, fine-wire

Minimum bending radius
Fixed installation: 6 x outer diameter

Loop resistance
< 160 Ohm/km

Characteristic impedance
Approx. 65 Ohm

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Dimension and cross section in mm²	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
UNITRONIC® CY PiDY (TP)				
0034250	2 x 2 x 0.25	9.3	59.6	112
0034251	3 x 2 x 0.25	9.8	72.7	136
0034252	4 x 2 x 0.25	10.7	88.2	168
0034253	5 x 2 x 0.25	11.7	103.8	201
0034254	6 x 2 x 0.25	13.1	125.7	244
0034256	8 x 2 x 0.25	15.7	161	325
0034257	10 x 2 x 0.25	16.9	186.8	342
0034258	12 x 2 x 0.25	17.4	239.5	416
0034259	16 x 2 x 0.25	19.3	316.7	542

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® ST

Static screened data transmission cable similar to UL AWM 2092



Benefits

- Aluminium-laminated plastic foil static screen with tin-plated drain wire minimises the interference of high frequency, electromagnetic fields

Application range

- Especially designed for the transmission of the smallest measurement and control signals at minimal space requirements
- Internal wiring of electronic equipment
- For fixed and limited flexible installation
- For use in dry, damp and wet rooms

Product features

- Protection against interferences at medium and high frequencies by aluminium-laminated plastic foil, combination of flexibility and good screening (normal requirements)
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- Based on UL AWM Style 2092 / 2093

Product Make-up

- 7-wire tinned stranded copper conductor
- Core insulation made of polyethylene (PE)
- Plastic-laminated aluminium foil with tinned copper drain wire
- Outer sheath made of PVC, Colour of the outer sheath: Similar to Silver-grey/ RAL 7001

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
2 cores: black, transparent
3 cores: black, red, transparent

Mutual capacitance
C/C approx. 90 nF/km
C/S approx. 160 nF/km

Inductivity
approx. 0.65 mH/km

Minimum bending radius
Occasional flexing: 10 x outer diameter
Fixed installation: 6 x outer diameter

Characteristic impedance
Approx. 95 Ohm

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of conductors and AWG size	Conductor cross-section (mm²)	Core insulation material	Outer sheath material	Outer diameter [mm]	Copper index (kg/km)
UNITRONIC® ST						
0033000	2 x AWG 20/7	0.52	PE	PVC	5.2	17.2
0033001	3 x AWG 20/7	0.52	PE	PVC	5.3	23

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® LiYD 11Y

Data transmission cable with copper wrapping and PUR outer sheath



Benefits

- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Resistant to contact with many mineral oil-based lubricants, diluted acids, aqueous alkaline solutions and other chemical media

Application range

- Intended for use in industrial environments, where cables should have excellent mechanical and chemical resistance.
- Screened cables with small dimensions are suitable for use in computer systems, insturmentation technology, office equipment, balances.
- Can be used in dry or damp rooms
- Outdoor use is possible within the indicated operating temperature range

Product features

- PUR outer sheath, tear and notch-resistant, resistant to mineral oils and abrasion
- Low-adhesive surface
- Good UV-resistance
- Flame retardant according to IEC 60332-2-2
- Spiral versions with similar properties are also availabe: "UNITRONIC® SPIRAL"

Norm references / Approvals

- Based on VDE 0812

Product Make-up

- Extra-fine wire strand made of bare copper wires
- Core insulation made of PVC
- Wrapped with bare copper wires
- Outer sheath made of PUR
  Outer sheath colour: black (RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
DIN 47100 without colour repetition, refer to Appendix T9

Mutual capacitance
C/C approx. 140 nF/km
C/S approx. 150 nF/km

Inductivity
approx. 0.65 mH/km

Conductor stranding
Stranded, extra-fine wire

Minimum bending radius
Occasional flexing: 10 x outer diameter
Fixed installation: 6 x outer diameter

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
UNITRONIC® LiYD 11Y				
0033202	2 x 0.14	4.1	9.6	20
0033203	3 x 0.14	4.3	11	25
0033204	4 x 0.14	4.5	12	27
0033205	5 x 0.14	4.8	14.4	33
0033206	6 x 0.14	5.5	17.6	38
0033207	7 x 0.14	5.9	21.5	41
0033212	12 x 0.14	7.2	33.2	62
0033218	18 x 0.14	8	44.2	83
0033302	2 x 0.25	4.7	11.8	25
0033303	3 x 0.25	5.3	15.6	31
0033304	4 x 0.25	5.6	18.2	36
0033305	5 x 0.25	6	21.4	42
0033306	6 x 0.25	6.8	26.1	49
0033307	7 x 0.25	7.3	27.8	53
0033312	12 x 0.25	8.4	48.1	81
0033318	18 x 0.25	9.7	69	117

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® PUR CP

Screened data transmission cable with PUR outer sheath for harsh conditions



Benefits

- Data transmission cable with PUR sheath for increased mechanical stress, wear- and tear-resistant
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Overall braid minimises electrical interference

Application range

- Further development of the UNITRONIC® range for harsher ambient conditions where robust and screened cables in small dimensions are required.

Product features

- Low-adhesive surface
- PUR outer sheath is resistant to most oilsand hydraulic fluids
- Special notch and tear-resistance
- Good UV-resistance
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- Based on VDE 0812

Product Make-up

- Fine-wire/multi-wire (0.34 mm²) strand made of bare copper wires
- Core insulation made of PVC
- Tinned-copper braiding
- Outer sheath made of PUR
  Outer sheath colour: pebble grey (RAL 7032)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
DIN 47100, refer to Appendix T9

Mutual capacitance
C/C: approx. 120 nF/km
C/S: approx. 160 nF/km

Inductivity
approx. 0.65 mH/km

Conductor stranding
Stranded, fine-wire
0.34 mm²: 7-wire

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 6 x outer diameter

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
UNITRONIC® PUR CP				
0032801	3 x 0.25	4.7	21	40
0032802	4 x 0.25	5	24	44
0032803	5 x 0.25	5.6	29	55
0032804	7 x 0.25	6	37	68
0032805	10 x 0.25	7.5	46	85
0032806	12 x 0.25	7.7	59	91
0032812	4 x 0.34	5.7	28	49
0032813	5 x 0.34	6.2	30	60
0032821	3 x 0.50	5.9	38	70
0032822	4 x 0.50	6.3	43	80
0032824	7 x 0.50	7.6	65	115
0032830	2 x 0.75	6	38	67
0032836	12 x 0.75	10.8	154	225

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® PUR CP (TP)

Screened data transmission cable with PUR outer sheath and twisted pairs for harsh conditions

Info

- TP = twisted pair



Benefits

- Data transmission cable with PUR sheath for increased mechanical stress, wear- and tear-resistant
- Increased durability under harsh conditions thanks to robust PUR outer sheath
- Overall braid minimises electrical interference
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

Application range

- For harsh environmental conditions where robust and screened cables with small dimensions are necessary

Product features

- Low-adhesive surface
- PUR outer sheath is resistant to most oilsand hydraulic fluids
- Special notch and tear-resistance
- Good UV-resistance
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- Based on VDE 0812

Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation made of PVC
- TP structure
- Tinned-copper braiding
- Outer sheath made of PUR
  Outer sheath colour: pebble grey (RAL 7032)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
DIN 47100, refer to Appendix T9

Mutual capacitance
C/C: approx. 120 nF/km
C/S: approx. 160 nF/km

Inductivity
approx. 0.65 mH/km

Conductor stranding
Fine copper wire strands

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 6 x outer diameter

Temperature range
Occasional flexing: -5 °C to +70 °C
Fixed installation: -40 °C to +80 °C

Article number	Number of pairs and conductor cross section (mm²)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® PUR CP (TP)				
0032850	2 x 2 x 0.25	6.3	28	54
0032851	3 x 2 x 0.25	7.1	40	66
0032852	4 x 2 x 0.25	7.6	45	81
0032854	6 x 2 x 0.25	8.5	70	115
0032860	2 x 2 x 0.5	7.9	48	93
0032861	3 x 2 x 0.5	8.7	74	129
0032862	4 x 2 x 0.5	9.4	82	146
0032864	6 x 2 x 0.5	11.1	110	198

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® Li2YCY (TP)

Screened data transmission cable with PE core insulation, 7-wire strands and twisted pairs



Info
- Cables for RS485/RS422

UNITRONIC® Li2YCY (TP) fine-wire

Screened data transmission cable with PE core insulation, fine wire strands and twisted pairs



Info
- Cables for RS485/RS422

UNITRONIC® Li2YCYv (TP)

Screened data transmission cable with PE core insulation, reinforced outer sheath and twisted pairs



Info
- Cables for RS485/RS422

Benefits
- Overall braid minimises electrical interference
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

Application range
- Particularly suitable for wiring data systems with transmission rates up to 10 Megabits per second, and is qualified for the RS422 and RS485 interfaces.
- For fixed and limited flexible installation
- Can be used in dry or damp rooms
- Signal-, control- and measuring cable,for transmission of low, sensitive signals and high bit rates
- **UNITRONIC® Li2YCYv (TP)** with its reinforced, nominal/ minimum average wall thickness of at least 1.8 mm of the black outer sheath (Yv) is designed for indoor and outdoor use as well as for applications where a reinforced outer sheath may turn out to be advantageous

Product features
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals
- Based on VDE 0812

Product Make-up

UNITRONIC® Li2YCY (TP)
- 7-wire bare stranded copper conductor
- Core insulation made of polyethylene (PE)
- TP structure
- Tinned-copper braiding
- Outer sheath made of PVC
  Outer sheath colour: pebble grey (RAL 7032)

UNITRONIC® Li2YCY (TP) fine-wire
- Conductors: Finely stranded bare copper
- Core insulation made of polyethylene (PE)
- TP structure
- Tinned-copper braiding
- Outer sheath made of PVC
  Outer sheath colour: pebble grey (RAL 7032)

UNITRONIC® Li2YCYv (TP)
- 7-wire bare stranded copper conductor
- Core insulation made of polyethylene (PE)
- TP structure
- Tinned-copper braiding
- Wall thickness of the outer sheath is increased ("Yv")
- Outer sheath colour: black (RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
DIN 47100, refer to Appendix T9

Mutual capacitance
At 800 Hz: max. 60 nF/km

Inductivity
approx. 0.65 mH/km

Conductor stranding
UNITRONIC® Li2YCY (TP)
Stranded conductor, based on VDE 0881, 7-wire
UNITRONIC® Li2YCY (TP) fine-wire
Stranded conductor, fine-wire
UNITRONIC® Li2YCYv (TP)
Stranded conductor, based on VDE 0881, 7-wire

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 6 x outer diameter

Short-range crosstalk attenuation
Up to 1 MHz min. 50 dB
Up to 10 MHz min. 40 dB

Test voltage
Core/core: 2000 V
Core/screen: 1000 V

Characteristic impedance
100 ± 15 Ohm (> 1 MHz)

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of pairs and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® Li2YCY (TP)				
0031320	2 x 2 x 0,22	6.5	24.2	59
0031321	3 x 2 x 0,22	7.1	28.6	66
0031322	4 x 2 x 0,22	7.3	34.2	78
0031323	8 x 2 x 0,22	9.1	70	125
0031324	10 x 2 x 0,22	10.4	76	143
0031335	1 x 2 x 0,34	5.8	20	44
0031325	2 x 2 x 0,34	7.7	34.1	79
0031326	3 x 2 x 0,34	8.4	43	89
0031327	4 x 2 x 0,34	8.7	47	101
0031328	8 x 2 x 0,34	11	85.8	176
0031336	1 x 2 x 0,5	6.3	29	53
0031330	2 x 2 x 0,5	8.5	37	85
0031331	3 x 2 x 0,5	9.3	55	105
0031332	4 x 2 x 0,5	9.6	60	122
0031333	8 x 2 x 0,5	12.7	113.3	213
0031334	10 x 2 x 0,5	14.8	154	261
UNITRONIC® Li2YCY (TP) fine-wire				
0031370	1 x 2 x 0,25	5.7	14	38
0031371	2 x 2 x 0,25	6.9	28	43
0031372	3 x 2 x 0,25	7.5	39.6	64
0031373	5 x 2 x 0,25	8.3	50	93
UNITRONIC® Li2YCYv (TP) black for outdoor installation 7-wire				
0031350	2 x 2 x 0,22	8.1	24.2	79
0031351	3 x 2 x 0,22	8.7	28.6	93
0031352	4 x 2 x 0,22	8.9	34.2	100
0031353	8 x 2 x 0,22	10.7	70	156
0031354	10 x 2 x 0,22	12	76	185
0031365	1 x 2 x 0,34	7.4	20	69
0031355	2 x 2 x 0,34	9.3	34.1	102
0031356	3 x 2 x 0,34	10	43	117
0031357	4 x 2 x 0,34	10.3	52.8	130
0031358	8 x 2 x 0,34	12.6	85.8	206
0031366	1 x 2 x 0,5	7.9	29	79
0031360	2 x 2 x 0,5	10.1	37	120
0031361	3 x 2 x 0,5	10.9	55	142
0031362	4 x 2 x 0,5	11.2	60	160
0031363	8 x 2 x 0,5	13.9	113.3	251
0031364	10 x 2 x 0,5	16	148	303

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
TERMI-POINT® is a registered trademark of AMP
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® Li2YCY PiMF

Screened data transmission cable with PE core insulation and pairs in metalfoil



Benefits

- Data transmission cable with low capacitance, pair screening and overall copper braiding
- Particularly suitable for wiring data systems and controls in large industrial plants
- Individually screened pairs and the overall braid minimise electrical interference
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

Application range

- For enhanced requirements in near-end cross-talk attenuation and high electrical interference in the circuits
- Suitable for the transmission with varying in frequency and voltage or sensitive signals
- Can be used multifunctional in electronics of computer systems, electronic control equipment, office machines, balances, etc.
- For measurement value transmission and serial 2-wire interfaces
- Intended for limited flexible use, and for fixed installation in dry or damp interiors

Product features

- Flame-retardant according IEC 60332-1-2

Product Make-up

- 7-wire or fine-wire (from 1 mm²) strands made of bare copper wires
- Core insulation made of polyethylene (PE)
- Cores twisted into pairs
- Foil wrapping, static screening made of aluminium-laminated plastic film with copper drain wire for each pair
- Bare copper screen braiding
- Outer sheath made of PVC
  Outer sheath colour: pebble grey (RAL 7032)

Info

- Metal foil screened pairs

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
0.22 mm²-0.5 mm²:
according to DIN 47100, see table T9
1.0 mm²:
a-core: white, b-core: black

Mutual capacitance
At 800 Hz:
0.22 mm²: max. 70 nF/km
0.34 mm²: max. 70 nF/km
0.5 mm²: max. 75 nF/km
1.0 mm²: max. 85 nF/km

Inductivity
Approx. 0.4 mH/km

Conductor stranding
Stranded conductor, based on VDE 0881, 7-wire

Minimum bending radius
Occasional flexing: 20 x outer diameter
Fixed installation: 10 x outer diameter

Test voltage
Core/core: 2000 V
Core/screen: 1000 V

Characteristic impedance
approx. 85 Ohm (> 1 MHz)

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of pairs and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® Li2YCY PiMF				
7-wire				
0034040	2 x 2 x 0,22	7.7	33	75.4
0034041	3 x 2 x 0,22	8.1	42	86
0034042	4 x 2 x 0,22	8.7	50	99
0034043	8 x 2 x 0,22	10.9	85	161.4
0034044	10 x 2 x 0,22	12	100	186.4
0034045	2 x 2 x 0,34	9	43	70
0034046	3 x 2 x 0,34	9.4	55	85
0034047	4 x 2 x 0,34	9.8	64	103
0034048	8 x 2 x 0,34	12.9	127	191
0034060	2 x 2 x 0,5	9.9	51	96
0034061	3 x 2 x 0,5	10.4	66	116
0034062	4 x 2 x 0,5	11.3	71	141
0034063	5 x 2 x 0,5	11.8	92	180
0034064	8 x 2 x 0,5	14.5	153	271
0034065	10 x 2 x 0,5	16.6	182	327
Fine wire				
0034070	2 x 2 x 1	11.7	82	126
0034071	3 x 2 x 1	11.8	109	196
0034072	4 x 2 x 1	12.7	133	220
0034073	10 x 2 x 1	19.7	326	492

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
TERMI-POINT® is a registered trademark of AMP
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ECOLAB

UNITRONIC® ROBUST

Halogen-free data transmission cable with colour code acc. to DIN 47100 - resistant to a wide range of chemical media

Info

- Excellent weather resistance
- Good chemical resistance



Benefits

- Outstanding weather, ozone and UV resistance together with the wide temperature range enable versatile use for indoor and outdoor applications
- Resistant to contact with organic oils and the related emulsions as well as a multitude of plant, animal or synthetic-based greases and waxes
- Good resistance to ammonia compounds and bio-gases
- Good resistance to cold and hot water as well as water-soluble cleaning and cooling agents
- Well-suited to steam cleaning

Application range

- Machine tool building, medical technology, laundries, car washing equipment, chemical industry, composting plants, sewage works
- Food and beverage industry, especially for production and processing equipment of milk and meat products
- For data processing, measurement and control engineering, safety related systems and as electronics cable
- For indoor and outdoor use

Product features

- Good chemical resistance to ester-based hydraulic fluids
- Ozone, UV and weather-resistant according to EN 50396 and HD 605 S2
- Halogen-free as per IEC 60754-1, Low corrosivity/ acidity of combustion gases per IEC 60754-2, Low toxicity of comb. gases per EN 50305
- Low smoke density according to IEC 61034-2

Norm references / Approvals

- Based on VDE 0812
- Certified resistance to disinfection and cleaning solutions used in food and beverage industry

Product Make-up

- Fine-wire/multi-wire (0.34 mm²) strand made of bare copper wires
- Core insulation made of special halogen-free compound
- Outer sheath made of special TPE
- Outer sheath colour: Black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Core identification code
DIN 47100 without colour repetition, refer to Appendix T9

Mutual capacitance
C/C approx. 60 nF/km

Specific insulation resistance
> 20 GOhm x cm

Inductivity
approx. 0.65 mH/km

Conductor stranding
Stranded, fine-wire
0.34 mm²: 7-wire

Torsion movement in WTG
TW-0 & TW-2, refer to Appendix T0

Minimum bending radius
Occasional flexing: 10 x outer diameter
Fixed installation: 4 x outer diameter

Test voltage
At 0.14 mm²: 1200 V

Temperature range
Occasional flexing: -40°C to +90°C
Fixed installation: -50°C to +90°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® ROBUST				
1032000	2 x 0.14	3.2	2.8	15
1032001	3 x 0.14	3.4	4.2	17
1032002	4 x 0.14	3.6	5.6	21
1032003	5 x 0.14	3.9	7	25
1032004	7 x 0.14	4.2	9.8	30
1032005	8 x 0.14	4.9	11.2	40
1032006	10 x 0.14	5.2	14	41
1032007	12 x 0.14	5.6	16.8	50
1032009	16 x 0.14	6.1	22.4	63
1032011	25 x 0.14	7.7	35	95
1032012	2 x 0.25	3.8	4.8	21
1032013	3 x 0.25	4	7.2	25
1032014	4 x 0.25	4.3	9.6	31
1032015	5 x 0.25	4.7	12	38
1032016	7 x 0.25	5.1	16.8	47

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
1032017	8 x 0.25	6.2	19.2	66
1032018	10 x 0.25	6.8	24	71
1032019	12 x 0.25	7	28.8	81
1032021	16 x 0.25	7.7	38.4	104
1032024	25 x 0.25	9.5	60	151
1032025	2 x 0.34	4.2	6.5	29
1032026	3 x 0.34	4.4	9.8	32
1032027	4 x 0.34	4.8	13.1	41
1032028	5 x 0.34	5.5	16.3	52
1032030	7 x 0.34	5.9	22.9	65
1032031	8 x 0.34	7.1	26.1	90
1032032	10 x 0.34	7.6	32.6	93
1032033	12 x 0.34	7.8	39.2	107
1032035	16 x 0.34	8.7	52.2	138
1032038	25 x 0.34	11.2	81.6	213

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® ROBUST C

Halogen-free data transmission cable with colour code acc. to DIN 47100 - resistant to a wide range of chemical media



Info

- Excellent weather resistance
- Good chemical resistance

Benefits

- Outstanding weather, ozone and UV resistance together with the wide temperature range enable versatile use for indoor and outdoor applications
- Resistant to contact with organic oils and the related emulsions as well as a multitude of plant, animal or synthetic-based greases and waxes
- Good resistance to ammonia compounds and bio-gases
- Good resistance to cold and hot water as well as water-soluble cleaning and cooling agents
- Well-suited to steam cleaning

Application range

- Machine tool building, medical technology, laundries, car washing equipment, chemical industry, composting plants, sewage works
- Food and beverage industry, especially for production and processing equipment of milk and meat products
- For data processing, measurement and control engineering, safety related systems and as electronics cable
- For indoor and outdoor use

Product features

- Good chemical resistance to ester-based hydraulic fluids
- Ozone, UV and weather-resistant according to EN 50396 and HD 605 S2
- Halogen-free as per IEC 60754-1, Low corrosivity/ acidity of combustion gases per IEC 60754-2, Low toxicity of comb. gases per EN 50305
- Low smoke density according to IEC 61034-2

Norm references / Approvals

- Based on VDE 0812
- Certified resistance to disinfection and cleaning solutions used in food and beverage industry

Product Make-up

- Fine-wire/multi-wire (0.34 mm²) strand made of bare copper wires
- Core insulation made of special halogen-free compound
- Tinned-copper braiding
- Outer sheath made of special TPE
- Outer sheath colour: Black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Core identification code
DIN 47100 without colour repetition, refer to Appendix T9

Mutual capacitance
C/C approx. 60 nF/km
C/S approx. 100 nF/km

Specific insulation resistance
> 20 GOhm x cm

Inductivity
approx. 0.65 mH/km

Conductor stranding
Stranded, fine-wire
0.34 mm²: 7-wire

Torsion movement in WTG
TW-0 & TW-2, refer to Appendix T0

Minimum bending radius
Occasional flexing: 10 x outer diameter
Fixed installation: 4 x outer diameter

Test voltage
At 0.14 mm²: 1200 V

Temperature range
Occasional flexing: -40°C to +90°C
Fixed installation: -50°C to +90°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® ROBUST C				
1032050	2 x 0.14	3.9	9.3	25
1032051	3 x 0.14	4.1	10.8	28
1032052	4 x 0.14	4.3	13.5	34
1032053	5 x 0.14	4.6	15	38
1032055	7 x 0.14	4.9	19	46
1032056	8 x 0.14	5.8	22	60
1032057	10 x 0.14	6.1	25.8	63
1032058	12 x 0.14	6.3	28.9	70
1032061	25 x 0.14	8.4	56.1	128
1032062	2 x 0.25	4.5	12.7	33
1032063	3 x 0.25	4.7	16.3	40
1032064	4 x 0.25	5	18.8	46
1032065	5 x 0.25	5.6	22.5	57
1032067	7 x 0.25	6	28.6	69

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
1032068	8 x 0.25	7.1	33.6	92
1032069	10 x 0.25	7.5	42.8	101
1032070	12 x 0.25	7.7	47.7	111
1032073	25 x 0.25	10.6	86.5	202
1032074	2 x 0.34	4.9	15.7	44
1032075	3 x 0.34	5.1	20.4	54
1032076	4 x 0.34	5.7	23.6	66
1032077	5 x 0.34	6.2	28.2	78
1032079	7 x 0.34	6.8	36	95
1032080	8 x 0.34	7.8	45.3	127
1032081	10 x 0.34	8.3	53.9	137
1032082	12 x 0.34	8.5	60.7	152
1032084	16 x 0.34	9.4	77.9	191
1032086	25 x 0.34	11.9	115.7	288

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/ 100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ECOLAB

UNITRONIC® ROBUST C (TP)

Halogen-free data transmission cable with colour code acc. to DIN 47100 - resistant to a wide range of chemical media

Info

- Excellent weather resistance
- Good chemical resistance



Benefits

- Outstanding weather, ozone and UV resistance together with the wide temperature range enable versatile use for indoor and outdoor applications
- Resistant to contact with organic oils and the related emulsions as well as a multitude of plant, animal or synthetic-based greases and waxes
- Good resistance to ammonia compounds and bio-gases
- Good resistance to cold and hot water as well as water-soluble cleaning and cooling agents
- Well-suited to steam cleaning

Application range

- Machine tool building, medical technology, laundries, car washing equipment, chemical industry, composting plants, sewage works
- Food and beverage industry, especially for production and processing equipment of milk and meat products
- For data processing, measurement and control engineering, safety related systems and as electronics cable
- For indoor and outdoor use

Product features

- Good chemical resistance to ester-based hydraulic fluids
- Ozone, UV and weather-resistant according to EN 50396 and HD 605 S2
- Halogen-free as per IEC 60754-1, Low corrosivity/ acidity of combustion gases per IEC 60754-2, Low toxicity of comb. gases per EN 50305
- Low smoke density according to IEC 61034-2

Norm references / Approvals

- Based on VDE 0812
- Certified resistance to disinfection and cleaning solutions used in food and beverage industry

Product Make-up

- Fine-wire/multi-wire (0.34 mm²) strand made of bare copper wires
- Core insulation made of special halogen-free compound
- TP structure
- Tinned-copper braiding
- Outer sheath made of special TPE
  Outer sheath colour: black (RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Core identification code
DIN 47100 without colour repetition, refer to Appendix T9

Mutual capacitance
C/C approx. 60 nF/km
C/S approx. 100 nF/km

Specific insulation resistance
> 20 GOhm x cm

Inductivity
approx. 0.65 mH/km

Conductor stranding
Stranded, fine-wire
0.34 mm²: 7-wire

Torsion movement in WTG
TW-0 & TW-2, refer to Appendix T0

Minimum bending radius
Occasional flexing: 10 x outer diameter
Fixed installation: 4 x outer diameter

Test voltage
At 0.14 mm²: 1200 V

Temperature range
Occasional flexing: -40°C to +90°C
Fixed installation: -50°C to +90°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® ROBUST C (TP)				
1032100	2 x 2 x 0.14	5.3	16.1	31
1032101	3 x 2 x 0.14	5.8	19	38
1032102	4 x 2 x 0.14	6.2	23.1	46
1032103	5 x 2 x 0.14	6.4	27.2	54
1032104	6 x 2 x 0.14	7.1	31.3	63
1032105	8 x 2 x 0.14	8.2	43.4	90
1032106	10 x 2 x 0.14	8.7	50.9	93
1032107	12 x 2 x 0.14	8.9	56.6	102
1032108	2 x 2 x 0.25	6.3	22.7	43
1032109	3 x 2 x 0.25	7.1	28.9	56
1032110	4 x 2 x 0.25	7.6	38.3	72
1032111	5 x 2 x 0.25	7.9	45.1	85
1032112	6 x 2 x 0.25	8.5	48.7	96
1032113	8 x 2 x 0.25	10.3	64.3	135
1032114	2 x 2 x 0.34	7.1	27.6	56
1032115	3 x 2 x 0.34	7.8	38.8	74
1032116	4 x 2 x 0.34	8.4	47.5	90

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
1032117	5 x 2 x 0.34	8.8	58.2	110
1032118	1 x 2 x 0.5	5.6	20.1	37
1032119	2 x 2 x 0.5	7.9	40.3	72
1032120	3 x 2 x 0.5	8.7	51.7	91
1032121	4 x 2 x 0.5	9.4	64.1	112
1032122	5 x 2 x 0.5	10.3	76.6	141
1032123	6 x 2 x 0.5	11.1	91.7	170
1032124	8 x 2 x 0.5	13.1	123.2	238
1032125	10 x 2 x 0.5	14.5	146.4	247
1032126	2 x 2 x 0.75	8.5	48.4	84
1032127	3 x 2 x 0.75	9.4	68.9	114
1032128	4 x 2 x 0.75	10.7	86.2	149
1032129	6 x 2 x 0.75	12.1	131.9	225
1032130	8 x 2 x 0.75	14.7	168.2	315
1032131	2 x 2 x 1.0	9	64.1	98
1032132	3 x 2 x 1.0	10.4	83.5	135
1032133	4 x 2 x 1.0	11.3	105.7	168

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® LiHH

Halogen-free data transmission cable with colour code acc. to DIN 47100



Info

- For use within public buildings and industrial plants
- Further dimensions/colours on request
- CPR: Article number choice under www.lapp.com

Benefits

- Halogen-free: to protect human life and valuable assets in the event of a fire, through low smoke density and low amount of corrosive gases
- Low capacitance due to polyolefin-based insulation
- Small outer diameters despite a high number of cores

Application range

- Suitable for areas with a high density of people as well as high-value property that must be protected in the event of a fire
- For use within public buildings, transport systems and industrial plants
- For data processing, measurement and control engineering, safety related systems and as electronics cable
- Dry or damp rooms

Product features

- Flame-retardant according IEC 60332-1-2
- Low smoke zero halogen (LSZH)
- Halogen-free as per IEC 60754-1, Low corrosivity/ acidity of combustion gases per IEC 60754-2, Low toxicity of comb. gases per EN 50305
- Low smoke density according to IEC 61034-2

Norm references / Approvals

- Based on VDE 0812

Product Make-up

- Fine-wire/multi-wire (0.34 mm²) strand made of bare copper wires
- Core insulation made of special halogen-free compound
- Outer sheath made of special halogen-free compound
  Outer sheath colour: pebble grey (RAL 7032)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
DIN 47100 without colour repetition, refer to Appendix T9

Mutual capacitance
Approx. 80 nF/km

Inductivity
approx. 0.65 mH/km

Conductor stranding
Stranded, fine-wire
0.34 mm²: 7-wire

Minimum bending radius
Occasional flexing: 10 x outer diameter
Fixed installation: 6 x outer diameter

Test voltage
1200 V

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -30°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® LiHH				
0037104	6 x 0.14	4.4	8.1	25
0037120	2 x 0.25	4	4.8	22
0037121	3 x 0.25	4.2	7.2	25
0037122	4 x 0.25	4.5	9.6	28
0037124	6 x 0.25	5.3	14.4	39
0037125	7 x 0.25	5.3	16.8	42
0037126	8 x 0.25	6.4	19.2	50
0037128	12 x 0.25	7.2	28.8	67
0037140	2 x 0.34	4.4	6.5	28
0037141	3 x 0.34	4.6	9.8	30
0037142	4 x 0.34	5	13.1	40

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
0037143	5 x 0.34	5.7	16.3	44
0037147	12 x 0.34	8	39.2	97
0037150	2 x 0.5	4.9	9.6	31
0037151	3 x 0.5	5.2	14.4	37
0037152	4 x 0.5	5.8	19.2	45
0037153	5 x 0.5	6.3	24	58
0037154	7 x 0.5	7.1	33.6	72
0037160	2 x 0.75	5.3	14.4	41
0037162	4 x 0.75	6.3	28.8	60
0037165	12 x 0.75	10.4	86.4	165
0037171	3 x 1.0	6.1	28.8	57
0037172	4 x 1.0	6.6	38.4	67

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
TERMI-POINT® is a registered trademark of AMP
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® LiHCH

Screened halogen-free data transmission cable with colour code acc. to DIN 47100



Info

- For use within public buildings and industrial plants
- Further dimensions/colours on request
- CPR: Article number choice under www.lapp.com

Benefits

- Halogen-free: to protect human life and valuable assets in the event of a fire, through low smoke density and low amount of corrosive gases
- Low capacitance due to polyolefin-based insulation
- Overall braid minimises electrical interference

Application range

- Suitable for areas with a high density of people as well as high-value property that must be protected in the event of a fire
- For use within public buildings, transport systems and industrial plants
- For data processing, measurement and control engineering, safety related systems and as electronics cable
- For use in computer systems, instrumentation systems, office equipment, balances - wherever screened, halogen-free, small-diameter cables are needed.

Product features

- Flame-retardant according IEC 60332-1-2
- Low smoke zero halogen (LSZH)
- Halogen-free as per IEC 60754-1, Low corrosivity/ acidity of combustion gases per IEC 60754-2, Low toxicity of comb. gases per EN 50305
- Low smoke density according to IEC 61034-2

Norm references / Approvals

- Based on VDE 0812

Product Make-up

- Fine-wire/multi-wire (0.34 mm²) strand made of bare copper wires
- Core insulation made of special halogen-free compound
- Tinned-copper braiding
- Outer sheath made of special halogen-free compound
  Outer sheath colour: pebble grey (RAL 7032)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
DIN 47100 without colour repetition, refer to Appendix T9

Mutual capacitance
C/C approx. 80 nF/km
C/S approx. 120 nF/km

Inductivity
approx. 0.65 mH/km

Conductor stranding
Stranded, fine-wire
0.34 mm²: 7-wire

Minimum bending radius
Occasional flexing: 10 x outer diameter
Fixed installation: 6 x outer diameter

Test voltage
1200 V

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -30°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® LiHCH				
0037302	2 x 0.14	4.1	12	22
0037304	4 x 0.14	4.5	15.9	29
0037308	8 x 0.14	6	26	41
0037312	12 x 0.14	6.5	30.4	78
0037325	25 x 0.14	8.7	63	149
0037402	2 x 0.25	4.7	15	25
0037403	3 x 0.25	4.9	18	30
0037404	4 x 0.25	5.2	22	35
0037406	6 x 0.25	6.2	30	49
0037407	7 x 0.25	6.2	32	52
0037408	8 x 0.25	7.3	35	58
0037410	10 x 0.25	7.7	42	81
0037425	25 x 0.25	10.9	114	172
0037502	2 x 0.34	5.1	17	30
0037503	3 x 0.34	5.3	21	35
0037504	4 x 0.34	5.9	25	42
0037507	7 x 0.34	7	42	73
0037508	8 x 0.34	8	45	84
0037510	10 x 0.34	8.5	63	101
0037516	16 x 0.34	9.6	94	160

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
0037525	25 x 0.34	12.1	144	259
0037602	2 x 0.5	5.8	29	38
0037603	3 x 0.5	6.1	35	47
0037604	4 x 0.5	6.5	45	67
0037605	5 x 0.5	7.2	50	76
0037606	6 x 0.5	7.8	59	84
0037607	7 x 0.5	7.8	68	91
0037608	8 x 0.5	8.9	75	135
0037610	10 x 0.5	9.5	93	160
0037612	12 x 0.5	9.8	99	177
0037618	18 x 0.5	11.7	134	239
0037702	2 x 0.75	6.2	35	45
0037703	3 x 0.75	6.5	46	69
0037704	4 x 0.75	7.2	56	80
0037802	2 x 1.0	6.5	43	72
0037803	3 x 1.0	7	56	90
0037804	4 x 1.0	7.5	68	109
0037807	7 x 1.0	8.8	118	171
0037902	2 x 1.5	7.3	58	90
0037903	3 x 1.5	7.7	74	115

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
TERMI-POINT® is a registered trademark of AMP
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® LiHCH (TP)

Screened halogen-free data transmission cable with colour code acc. to DIN 47100 and twisted pairs



Info

- TP = twisted pair
- CPR: Article number choice under www.lapp.com

Benefits

- Halogen-free: to protect human life and valuable assets in the event of a fire, through low smoke density and low amount of corrosive gases
- Low capacitance due to polyolefin-based insulation
- Overall braid minimises electrical interference
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

Application range

- Suitable for areas with a high density of people as well as high-value property that must be protected in the event of a fire
- For use within public buildings, transport systems and industrial plants
- For data processing, measurement and control engineering, safety related systems and as electronics cable
- For use in computer systems, instrumentation systems, office equipment, balances - wherever screened, halogen-free, small-diameter cables are needed.

Product features

- Flame-retardant according IEC 60332-1-2
- Low smoke zero halogen (LSZH)
- Halogen-free as per IEC 60754-1, Low corrosivity/ acidity of combustion gases per IEC 60754-2, Low toxicity of comb. gases per EN 50305
- Low smoke density according to IEC 61034-2

Norm references / Approvals

- Based on VDE 0812

Product Make-up

- Fine-wire strand made of bare copper wires
- Core insulation made of special halogen-free compound
- TP structure
- Tinned-copper braiding
- Outer sheath made of special halogen-free compound
  Outer sheath colour: pebble grey (RAL 7032)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
DIN 47100 without colour repetition, refer to Appendix T9

Mutual capacitance
C/C approx. 80 nF/km
C/S approx. 120 nF/km

Coupling
At 1 kHz: approx. 300 pF/100 m

Inductivity
approx. 0.65 mH/km

Conductor stranding
Fine copper wire strands

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 6 x outer diameter

Test voltage
1200 V

Temperature range
Occasional flexing: -5°C to +70°C
Fixed installation: -30°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® LiHCH (TP)				
0038302	2 x 2 x 0.14	5.5	18.5	39
0038303	3 x 2 x 0.14	6	23	48
0038304	4 x 2 x 0.14	6.4	26.6	54
0038308	8 x 2 x 0.14	8.4	53.7	97
0038312	12 x 2 x 0.14	9.1	66	142
0038316	16 x 2 x 0.14	10.4	79	154
0038325	25 x 2 x 0.14	12.7	113	238
0038402	2 x 2 x 0.25	6.5	28	54
0038403	3 x 2 x 0.25	7.3	39.6	66
0038404	4 x 2 x 0.25	7.8	44.9	81
0038406	6 x 2 x 0.25	8.7	69.5	115
0038408	8 x 2 x 0.25	10.5	76.9	130
0038412	12 x 2 x 0.25	11.5	120	190

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
0038416	16 x 2 x 0.25	12.7	146.5	238
0038602	2 x 2 x 0.5	8.1	48.1	93
0038603	3 x 2 x 0.5	8.9	73.7	129
0038604	4 x 2 x 0.5	9.6	82	146
0038606	6 x 2 x 0.5	11.3	110	198
0038608	8 x 2 x 0.5	13.3	139	259
0038612	12 x 2 x 0.5	15.1	198.3	354
0038616	16 x 2 x 0.5	16.7	240	459
0038702	2 x 2 x 0.75	8.7	58	106
0038704	4 x 2 x 0.75	10.9	108	179
0038708	8 x 2 x 0.75	14.9	180	305
0038802	2 x 2 x 1.0	9.2	84	142
0038803	3 x 2 x 1.0	10.6	96	173
0038804	4 x 2 x 1.0	11.5	121	212

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® LiYY A

Data transmission cable with colour code acc. to DIN 47100 - UL/CSA recognized



Info

- A for Advanced
  here: UL and CSA certifications
- Further dimensions/colours on request

Benefits

- For various applications

Application range

- Wiring of devices, machines and plants intended for export to the North American market or countries where UL-/CSA certified cables are used.
- For the North American market

Product features

- Flame-retardant acc. to IEC 60332-1-2, UL VW-1 & CSA FT 1

Norm references / Approvals

- UL AWM Style 2464
- CSA AWM I/II A
- UL File No. E63634

Product Make-up

- Multi-wire strand made of tinned copper wires
- Core insulation made of PVC
- Outer sheath made of special PVC compound
  Outer sheath colour: Dark grey

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
DIN 47100 without colour repetition, refer to Appendix T9

Conductor stranding
AWG conductor sizes, 7 or 19 wires

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 4 x Outer diameter

Nominal voltage
UL/CSA: 300 V

Test voltage
1500 V

Temperature range
Occasional flexing: -5°C up to +70°C (UL: +80 °C)
Fixed installation (IEC): -40°C to +80°C
UL: max. +80°C

Article number	Number of cores and AWG per conductor	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
UNITRONIC® LiYY A				
0022403	3 x AWG26/7	3.8	4.2	18
0022404	4 x AWG26/7	4	5.6	23
0022405	5 x AWG26/7	4.3	7	25
0022408	8 x AWG26/7	5.1	11.2	34
0022412	12 x AWG26/7	5.8	16.8	47
0022416	16 x AWG26/7	6.3	22.4	58
0022421	21 x AWG26/7	7	29.4	63
0022502	2 x AWG24/7	4	4.6	20
0022505	5 x AWG24/7	4.8	11.5	32
0022508	8 x AWG24/7	5.7	18.4	46
0022512	12 x AWG24/7	6.6	27.6	64
0022602	2 x AWG22/7	4.8	6.8	32.8
0022603	3 x AWG22/7	5	10.2	35
0022604	4 x AWG22/7	5.4	13.6	45.9
0022605	5 x AWG22/7	5.9	17	55.8
0022607	7 x AWG22/7	6.4	23.3	68.9
0022608	8 x AWG22/7	6.9	27.2	75.5
0022612	12 x AWG22/7	8.2	40.8	103
0022616	16 x AWG22/7	9.1	54.4	131.2
0022624	24 x AWG22/7	11.6	81.6	190
0022632	2 x AWG20/7	5.3	11.2	40
0022642	2 x AWG19/19	5.6	15	48

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: Coil 152 m; Drum 305 m
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® LiYCY A

Screened data transmission cable with colour code acc. to DIN 47100 UL/CSA recognized



Info

- A for Advanced
  here: UL and CSA certifications
- Further dimensions/colours on request

Benefits

- Overall braid minimises electrical interference

Application range

- Wiring of devices, machines and plants intended for export to the North American market or countries where UL-/CSA certified cables are used.
- For the North American market

Product features

- Flame-retardant acc. to IEC 60332-1-2, UL VW-1 & CSA FT 1

Norm references / Approvals

- UL AWM Style 2464
- CSA AWM I/II A
- UL File No. E63634

Product Make-up

- Multi-wire strand made of tinned copper wires
- Core insulation made of PVC
- Tinned-copper braiding
- Outer sheath made of special PVC compound
  Outer sheath colour: Dark grey

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
DIN 47100 without colour repetition, refer to Appendix T9

Conductor stranding
AWG conductor sizes, 7 or 19 wires

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 6 x outer diameter

Nominal voltage
UL/CSA: 300 V

Test voltage
1500 V

Temperature range
Occasional flexing: -5°C up to +70°C (UL: +80 °C)
Fixed installation (IEC): -40°C to +80°C
UL: max. +80°C

Article number	Number of cores and AWG per conductor	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
UNITRONIC® LiYCY A				
0044602	2 x AWG26/7	4.3	15.6	25
0044604	4 x AWG26/7	4.7	18	30
0044652	2 x AWG24/7	4.7	17.6	29
0044655	5 x AWG24/7	5.5	28.5	44
0044658	8 x AWG24/7	6.4	31.1	61
0044662	12 x AWG24/7	7.3	51.8	96
0044702	2 x AWG22/7	5.5	17.6	44
0044703	3 x AWG22/7	5.7	21.2	49
0044704	4 x AWG22/7	6.1	27.3	59
0044705	5 x AWG22/7	6.6	30.8	63
0044707	7 x AWG22/7	7.1	46.4	87
0044712	12 x AWG22/7	8.9	66.8	120
0044716	16 x AWG22/7	9.8	83.9	145
0044721	21 x AWG22/7	11.3	109.4	204
0044732	2 x AWG20/7	6	24.4	41
0044733	3 x AWG20/7	6.3	29.9	47
0044735	5 x AWG20/7	7.3	49.2	91
0044738	8 x AWG20/7	9.1	70.8	102
0044746	2 x AWG19/19	6.3	27.9	66
0044850	7 x AWG18/19	8.9	93.2	160.8
0044851	10 x AWG18/19	11.5	130.9	200

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: Coil 152 m; Drum 305 m
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® LiYCY (TP) A

Screened data transmission cable with colour code acc. to DIN 47100 and twisted pairs - UL/CSA recognized

Info

- A for Advanced
  here: UL and CSA certifications
- Further dimensions/colours on request



Benefits

- Overall braid minimises electrical interference
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

Application range

- For the North American market
- Wiring of devices, machines and plants intended for export to the North American market or countries where UL-/CSA certified cables are used.

Product features

- Flame-retardant acc. to IEC 60332-1-2, UL VW-1 & CSA FT 1

Norm references / Approvals

- UL AWM Style 2464
- CSA AWM I/II A
- UL File No. E63634

Product Make-up

- Multi-wire strand made of tinned copper wires
- Core insulation made of PVC
- TP structure
- Tinned-copper braiding
- Outer sheath made of special PVC compound
  Outer sheath colour: Dark grey

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
DIN 47100 without colour repetition, refer to Appendix T9

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 6 x outer diameter

Nominal voltage
UL/CSA: 300 V

Test voltage
1500 V

Temperature range
Occasional flexing: -5 °C up to +70 °C (UL: +80 °C)
Fixed installation (IEC): -40 °C to +80 °C
UL: max. +80 °C

Article number	Number of cores and AWG per conductor	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
UNITRONIC® LiYCY (TP) A				
0066202	2 x 2 x AWG26/7	5.5	18	38
0066204	4 x 2 x AWG26/7	6.4	24	58
0066205	5 x 2 x AWG26/7	6.6	30	58
0066208	8 x 2 x AWG26/7	7.9	53	85
0066210	10 x 2 x AWG26/7	8.7	55	106
0066212	12 x 2 x AWG26/7	8.9	64	113
0066216	16 x 2 x AWG26/7	10.2	87	149
0066232	2 x 2 x AWG24/7	6.1	24.5	50
0066233	3 x 2 x AWG24/7	6.7	28.9	62
0066234	4 x 2 x AWG24/7	7.2	33.5	70
0066235	5 x 2 x AWG24/7	7.5	46.3	91
0066238	2 x 2 x AWG22/7	7.4	38	71
0066239	3 x 2 x AWG22/7	8.1	45.1	95
0066240	4 x 2 x AWG22/7	8.8	54.6	102
0066242	2 x 2 x AWG20/7	8.2	49.7	93
0066243	3 x 2 x AWG20/7	9.1	60.1	102
0066244	4 x 2 x AWG20/7	10.2	78.7	120
0066219	5 x 2 x AWG20/7	10.7	88.9	156
0066220	6 x 2 x AWG20/7	11.6	100.6	184
0066262	2 x 2 x AWG19/19	8.7	65.2	140
0066221	3 x 2 x AWG19/19	10	69.2	145

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: Coil 152 m; Drum 305 m
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® 300 / UNITRONIC® 300 S

Control and signal cables with small cross sections - UL/CSA listed



Info

- Designation of shielded version: Formerly "UNITRONIC® 300 CY", now "UNITRONIC® 300 S"
- Other sizes on request
- Especially for 20 AWG and 18 AWG: With standard core color code, up to 60 conductors producible/ With non-standard color code, e.g., green-yellow grounding conductor, up to 100 cores

Benefits

- Wide application range due to multiple certifications
- Cost-saving, easy installation due to omission of closed raceways (suitable for open wiring)

Application range

- Control and signal cables for internal and external wiring
- For the North American market
- On the basis of CMG, PLTC or ITC direct laying on cable tray in the USA, in conjunction with -ER (Exposed Run) for unprotected transition sections with a length of not more than 6 ft. each
- Thanks to the DIRECT BURIAL approval, direct burial of versions with the nominal conductor cross sections 18 AWG and 16 AWG is normatively permitted in the USA
- Torsion resistant up to ±150 °/m for the drip loop of wind turbine generators

Product features

- Oil-resistant according to UL OIL RES I
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

Norm references / Approvals

- USA: (UL) CMG [E130334], (UL) PLTC-ER (18 AWG + 16 AWG) [E216027], (UL) PLTC (>24 AWG) [E216027], (UL) ITC-ER (18 AWG + 16 AWG) [E196134], UL AWM Style 2464 [E100338], DIR BUR (18 AWG + 16 AWG)
- CAN: c(UL) CMG FT4 [E130334], CSA AWM I/II A/B FT1

Product Make-up

- Fine-wire strand made of tinned-copper wires
- Core insulation made of PVC compound
- UNITRONIC® 300 S: with overall foil tape wrapping, drain wire, tin-plated copper braiding (75 % coverage)
- Outer jacket: Specially Formulated PVC
- Color of the outer jacket: Dark gray (similar to RAL 7005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Core identification code
refer to Appendix T9

Conductor stranding
Fine wire

Torsion movement in WTG
TW-0 & TW-2, refer to Appendix T0

Minimum bending radius
During installation: 4 x cable diameter
Screened: 6 x outer diameter

Nominal voltage
according to UL: 300 V
IEC: not for power transmission

Test voltage
1500 V

Temperature range
Occasional flexing/ North America: -25°C to +105°C (AWM for USA: +80°C)
Fixed installation/ North America: -40°C to +105°C (AWM for USA: +80°C)

Article number	Article designation	Number of cores and AWG size	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® 300					
301602	UNITRONIC® 300	2 x AWG16	6.7	25	83
301802	UNITRONIC® 300	2 x AWG18	6.1	18.3	61
302006	UNITRONIC® 300	6 x AWG20	7.5	29.5	97
302015	UNITRONIC® 300	15 x AWG20	11.5	73.7	178
302020	UNITRONIC® 300	20 x AWG20	12.6	98.1	259
302025	UNITRONIC® 300	25 x AWG20	14.1	122.6	354
302204	UNITRONIC® 300	4 x AWG22	5	13.7	33
302210	UNITRONIC® 300	10 x AWG22	7	34.9	67
302215	UNITRONIC® 300	15 x AWG22	7.9	51.3	91
302220	UNITRONIC® 300	20 x AWG22	9	68.5	116
302225	UNITRONIC® 300	25 x AWG22	10.5	85.6	180
302410	UNITRONIC® 300	10 x AWG24	6.4	21.4	51
UNITRONIC® 300 S					
301602S	UNITRONIC® 300 S	2 x AWG16	7.6	50.6	101
301606S	UNITRONIC® 300 S	6 x AWG16	9.9	105.7	210
301802S	UNITRONIC® 300 S	2 x AWG18	6.8	37.2	75
301803S	UNITRONIC® 300 S	3 x AWG18	7.3	49.1	85
301804S	UNITRONIC® 300 S	4 x AWG18	7.9	59.6	104
301825S	UNITRONIC® 300 S	25 x AWG18	16.8	278.4	448
302002S	UNITRONIC® 300 S	2 x AWG20	6.3	28.3	60
302004S	UNITRONIC® 300 S	4 x AWG20	7.3	40.2	88
302006S	UNITRONIC® 300 S	6 x AWG20	8.4	55.1	119
302206S	UNITRONIC® 300 S	6 x AWG22	6.4	35.7	68

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com / Packaging size: Coil 152 m; Drum 305 m
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® 300 STP

Screened control and signal cables with small cross sections and twisted pairs - UL/CSA listed

Info

- Other sizes on request
- Especially for 20 AWG and 18 AWG: With standard core color code, up to 37 pairs producible/ With non-standard color code, e.g., with green-yellow grounding conductor, up to 50 pairs



Benefits

- Wide application range due to multiple certifications
- Cost-saving, easy installation due to omission of closed raceways (suitable for open wiring)
- Overall braid minimises electrical interference
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

Application range

- Control and signal cables for internal and external wiring
- For the North American market
- On the basis of CMG, PLTC or ITC direct laying on cable tray in the USA, in conjunction with -ER (Exposed Run) for unprotected transition sections with a length of not more than 6 ft. each
- Thanks to the DIRECT BURIAL approval, direct burial of versions with the nominal conductor cross-section 18 AWG in the USA
- Torsion resistant up to ±150 °/m for the drip loop of wind turbine generators

Product features

- Oil-resistant according to UL OIL RES I

Norm references / Approvals

- USA: (UL) CMG [E130334], (UL) PLTC-ER (18 AWG) [E216027], (UL) PLTC (>24 AWG) [E216027], (UL) ITC-ER (18 AWG) [E196134], UL AWM Style 2464 [E100338], DIR BUR (18 AWG)
- CAN: c(UL) CMG FT4 [E130334], CSA AWM I/II A/B FT1

Product Make-up

- Fine-wire strand made of tinned-copper wires
- Core insulation made of PVC
- TP structure
- Overall foil tape wrapping, drain wire, tin-plated copper braiding (75 % coverage)
- Outer jacket: Specially Formulated PVC, dark gray (similar to RAL 7005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Core identification code
Pair 1: black, red
Pair 2: black, white
Pair 3: black, green
Pair 4: black, blue
Pair 5: black, yellow
Pair 6: black, brown
Exception single-paired, 24-22 AWG: black, white

Torsion movement in WTG
TW-0 & TW-2, refer to Appendix T0

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 6 x outer diameter

Nominal voltage
according to UL: 300 V
IEC: not for power transmission

Test voltage
1500 V

Temperature range
Occasional flexing/ North America: -25°C to +105°C (AWM for USA: +80°C)
Fixed installation/ North America: -40°C to +105°C (AWM for USA: +80°C)

Article number	Number of pairs and AWG size	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
UNITRONIC® 300 STP				
302402STP	2 x 2 x 24 AWG	6.5	25.5	59
302403STP	3 x 2 x 24 AWG	6.8	31.1	65
302406STP	6 x 2 x 24 AWG	8.7	49.7	106
302201STP	1 x 2 x 22 AWG	5.1	19.1	39
302203STP	3 x 2 x 22 AWG	7.7	38.2	71
302206STP	6 x 2 x 22 AWG	9.6	70	125
302002STP	2 x 2 x 20 AWG	9.4	47.7	128
302003STP	3 x 2 x 20 AWG	10.5	68.2	161
302006STP	6 x 2 x 20 AWG	13.3	106.5	321
301801STP	1 x 2 x 18 AWG	6.8	37.8	106
301802STP	2 x 2 x 18 AWG	10.7	66.2	122
301806STP	6 x 2 x 18 AWG	14.6	153.1	324

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: Coil 152 m; Drum 305 m
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® FD

Highly flexible cable for cable chain use



Benefits

- Well-proven and reliable
- Optimized cable construction for cable chain use
- Cost-effective solution

Application range

- Automated production processes require data transmission cables that offer high flexibility and durability
- Suitable for use in measuring, control and regulating circuits
- Assembly lines, production lines, in all kinds of machines

Product features

- Low-adhesive surface
- Flame-retardant according IEC 60332-1-2
- Designed for more than 3 million bending/unbending cycles in cable chain applications

Norm references / Approvals

- Based on VDE 0812
- For travel distances up to 10 m
- For use in cable chains: Please comply with assembly guideline Appendix T3

Product Make-up

- Extra-fine wire strand made of bare copper wires
- Core insulation made of PVC
- Non-woven wrapping
- Outer sheath made of PVC
  Outer sheath colour: grey (RAL 7001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
DIN 47100, refer to Appendix T9

Mutual capacitance
C/C: approx. 100 nF/km

Inductivity
approx. 0.65 mH/km

Conductor stranding
Stranded, extra-fine wire

Minimum bending radius
Flexing: 5 x outer diameter
Fixed installation: 3 x outer diameter

Test voltage
1500 V

Temperature range
Flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® FD				
0027841	3 x 0.14	3.9	4.2	26
0027842	4 x 0.14	4.2	5.6	31
0027843	5 x 0.14	4.5	7	35
0027844	7 x 0.14	5.1	9.8	50
0027845	10 x 0.14	6.1	14	63
0027846	14 x 0.14	6.2	19.6	77
0027847	18 x 0.14	6.8	25.2	91
0027848	25 x 0.14	8.3	35	125
0027855	2 x 0.25	4.3	5	27
0027856	3 x 0.25	4.5	7.5	33
0027857	4 x 0.25	4.9	10	40
0027858	5 x 0.25	5.3	12.5	45
0027859	7 x 0.25	6.1	17.5	59
0027860	10 x 0.25	7.4	25	75
0027861	14 x 0.25	7.5	35	108
0027863	18 x 0.25	8.5	45	130
0027865	25 x 0.25	10.4	62.5	178
0027870	2 x 0.34	4.7	6.8	30
0027871	3 x 0.34	5	10.2	43
0027872	4 x 0.34	5.4	13.6	57
0027873	5 x 0.34	5.9	17	65
0027874	7 x 0.34	6.8	23.8	85
0027875	10 x 0.34	8.5	34	117
0027876	14 x 0.34	8.6	47.6	151
0027877	18 x 0.34	9.7	61.2	182
0027878	25 x 0.34	11.9	85	250

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® FD CY

Screened highly flexible data transmission cable with PVC outer sheath for cable chain use



Benefits

- Well-proven and reliable
- Optimized cable construction for cable chain use
- Cost-effective solution
- Overall braid minimises electrical interference

Application range

- Automated production processes require data transmission cables that offer high flexibility and durability, as well as excellent screening
- Suitable for use in measuring, control and regulating circuits
- Assembly lines, production lines, in all kinds of machines

Product features

- Low-adhesive surface
- Flame-retardant according IEC 60332-1-2
- Designed for more than 3 million bending/unbending cycles in cable chain applications

Norm references / Approvals

- Based on VDE 0812
- For travel distances up to 10 m
- For use in cable chains: Please comply with assembly guideline Appendix T3

Product Make-up

- Extra-fine wire strand made of bare copper wires
- Core insulation made of PVC
- Non-woven wrapping
- Tinned-copper braiding
- Outer sheath made of PVC
  Outer sheath colour: grey (RAL 7001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
DIN 47100, refer to Appendix T9

Mutual capacitance
C/C approx. 110 nF/km
C/S: approx. 110 nF/km

Inductivity
approx. 0.65 mH/km

Conductor stranding
Stranded, extra-fine wire

Minimum bending radius
Flexing: 7.5 x outer diameter
Fixed installation: 4 x Outer diameter

Test voltage
1500 V

Temperature range
Flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® FD CY				
0027411	3 x 0.14	4.5	14.1	37
0027412	4 x 0.14	4.8	15.5	42
0027413	5 x 0.14	5.1	18.3	47
0027414	7 x 0.14	5.7	27.6	55
0027416	10 x 0.14	6.7	39.3	63
0027418	14 x 0.14	6.8	45.3	96
0027420	18 x 0.14	7.4	54.1	105
0027422	25 x 0.14	8.9	68.4	163
0027425	2 x 0.25	4.9	14.9	39
0027426	3 x 0.25	5.1	18.8	46
0027427	4 x 0.25	5.5	21.3	53
0027428	5 x 0.25	5.9	31	71
0027429	7 x 0.25	6.7	39.6	75
0027431	10 x 0.25	8.2	53.9	100
0027434	14 x 0.25	8.3	64.2	120
0027436	18 x 0.25	9.1	78.4	167
0027438	25 x 0.25	11	101	221
0027440	2 x 0.34	5.3	16.1	47
0027441	3 x 0.34	5.6	28.7	55
0027442	4 x 0.34	6	35.7	76
0027443	5 x 0.34	6.5	39.1	80
0027444	7 x 0.34	7.4	52.7	104
0027446	10 x 0.34	9.1	67.4	115
0027448	14 x 0.34	9.2	85.3	132
0027450	18 x 0.34	10.3	99.7	225
0027452	25 x 0.34	12.5	155	327

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® FD Li2YCY (TP) A BE

Shielded, low-capacitance, twisted-pair PE/PVC data cable for cable chain/cable carrier, UL AWM for USA+CAN



Technical data

Core identification code
UNITRONIC® FD Li2YCY (TP) A BE:
DIN 47100, refer to Appendix T9

Mutual capacitance
Up to 0.5 mm²: 60 nF/km
Up to 1.0 mm²: 70 nF/km

Inductivity
approx. 0.65 mH/km

Conductor stranding
Fine wire
From 0.5 mm²: Finest wire/Conductor class 6 acc. to IEC 60228

Minimum bending radius
Flexing: 7.5 x outer diameter
Fixed installation: 4 x outer diameter

Loop resistance
Ohmic (DC) and loop/bidirectional @ 20 °C
0.14 mm² (26 AWG): 276.0 Ω/km;
0.25 mm² (24 AWG): 158.0 Ω/km;
0.34 mm² (22 AWG): 110.8 Ω/km;
0.5 mm² (21 AWG): 78.0 Ω/km;
0.75 mm² (19 AWG): 52.0 Ω/km;
1 mm² (18 AWG): 39.0 Ω/km

Temperature range
Flexing:
VDE: -5 °C to 70 °C
UL AWM: -5 °C to 80 °C
Stationary use:
VDE: -40 °C to 70 °C
UL AWM: -5 °C to 80 °C

Info

- Better priced than UNITRONIC® FD CP (TP) plus
- Low capacitance, AWM by UL for USA+CAN
- UNITRONIC® FD Li2YCY (TP) A B**E**: DIN 47100, refer to Appendix T9

Benefits

- Improved transmission characteristics thanks to low-capacitance core insulation and twisted pairs
- Cable specification optimized for use in cable chain/cable carrier in the USA, on the basis of NFPA 79, Section 12.9.2

Application range

- Suitable for use in measuring, control and regulating circuits
- Linear robots, automated handling equipment
- For use in chain/carrier: Please respect the assembly guidelines listed in Appendix T3

Product features

- Low capacitance
- EMC optimized thanks to overall copper braid shielding
- Flexibility for use inside cable chain/cable carrier
- Oil-resistant according to DIN EN 50290-2-22 (TM54)
- Flame-retardant acc. to IEC 60332-1-2, UL VW-1, Cable Flame Test, CSA FT 1

Norm references / Approvals

- Based on VDE 0812
- UL AWM Style 2570 80°C 1000V (external interconnection) for USA (UL File No.: E63634) and in line with NFPA 79, Section 12.9.2
- AWM I/II A/B 80°C 1000V acc. to CSA C22.2 No. 210-15 and certified by UL (cRU) for Canada
- EU conformity and mark with regard to the European RoHS Directive

Product Make-up

- Flexible conductor made of bare copper strands
- Low-capacitance PE core insulation
- Non-woven wrapping
- Tinned-copper braiding
- Outer sheath made of PVC
  Outer sheath colour: black (similar to RAL 9005)

Article number	Dimension and cross section in mm²	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
UNITRONIC® FD Li2YCY (TP) A BE				
0031377	1 x 2 x 0.14	4.3	11.2	23
0031378	2 x 2 x 0.14	5.9	19.4	42
0031379	3 x 2 x 0.14	6.2	23.4	47
0031380	4 x 2 x 0.14	6.7	27.1	57
0031381	5 x 2 x 0.14	7.3	37.4	68
0031382	6 x 2 x 0.14	7.5	49.4	86
0031383	8 x 2 x 0.14	8.8	54.8	109
0031384	10 x 2 x 0.14	10.1	60.1	120
0031385	12 x 2 x 0.14	9.8	61.6	150
0031386	1 x 2 x 0.25	4.7	14.9	27
0031387	2 x 2 x 0.25	6.6	32	57
0031388	3 x 2 x 0.25	7	38.4	72
0031389	4 x 2 x 0.25	7.6	43.2	85
0031390	5 x 2 x 0.25	8.5	51.5	92
0031391	6 x 2 x 0.25	8.8	71.8	114
0031392	8 x 2 x 0.25	10.3	74.4	145
0031393	10 x 2 x 0.25	11.8	90	182
0031394	14 x 2 x 0.25	12	111.2	213
0031395	25 x 2 x 0.25	16.3	310	310
0031396	1 x 2 x 0.34	5.1	18.1	36
0031397	2 x 2 x 0.34	7.3	41	69
0031398	3 x 2 x 0.34	8	52	93
0031399	4 x 2 x 0.34	8.7	59	106
0031400	5 x 2 x 0.34	9.7	67	136
0031401	6 x 2 x 0.34	10	86.2	165

Article number	Dimension and cross section in mm²	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
0031402	8 x 2 x 0.34	11.8	107.5	221
0031403	10 x 2 x 0.34	13.7	131.1	274
0031404	1 x 2 x 0.50	5.5	23	47
0031405	2 x 2 x 0.50	8.3	50	99
0031406	3 x 2 x 0.50	8.8	71.8	120
0031407	4 x 2 x 0.50	9.8	74.4	130
0031408	5 x 2 x 0.50	10.7	84.5	164
0031409	6 x 2 x 0.50	11.3	99.6	182
0031410	8 x 2 x 0.50	13.2	144.3	278
0031411	10 x 2 x 0.50	15.2	176	325
0031412	14 x 2 x 0.50	15.5	215.4	401
0031413	1 x 2 x 0.75	5.9	35	61
0031414	2 x 2 x 0.75	9	60	104
0031415	3 x 2 x 0.75	9.8	85.7	148
0031416	4 x 2 x 0.75	10.7	93.6	167
0031417	5 x 2 x 0.75	11.9	115	202
0031418	6 x 2 x 0.75	12.3	130.4	233
0031419	8 x 2 x 0.75	14.7	192.2	330
0031420	10 x 2 x 0.75	16.7	258	390
0031421	14 x 2 x 0.75	17	316.6	515
0031422	1 x 2 x 1.00	6.3	42	71
0031423	2 x 2 x 1.00	9.9	73	126
0031424	3 x 2 x 1.00	10.5	93.6	167
0031425	4 x 2 x 1.00	11.8	117.8	213
0031426	5 x 2 x 1.00	13.1	139	247

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® FD P plus A

Highly flexible data cable with PUR jacket and AWM certification for US & Canadian use

Info

- Flexible at low temperatures
- Low capacitance
- Halogen-free



Benefits

- Well-proven and reliable
- Wide temperature range for applications in harsh climatic environments
- UL AWM voltage rating 1000V in case of internal wiring allows for internal laying next to power cables with applied UL rating of 1kV
- In the USA inside of industrial machines, per NFPA 79, Section 12.9.2 (condition 3 under 12.9.2: Thru 1 mm² and <16 AWG)

Application range

- Highly flexible data cable with PUR outer sheath, meets the highest service life requirements, even under harsh climatic conditions
- Suitable for use in measuring, control and regulating circuits
- Cable chain use - in case of horizontal installation travel distances up to 100 m
- For use in chain/carrier: Please respect the assembly guidelines listed in Appendix T3

Product features

- PUR outer sheath, tear and notch-resistant, resistant to mineral oils and abrasion when used in cable chains
- Flame retardance ratings: IEC 60332-1-2, FT2 (Horizontal flame test)
- Halogen-free, has low capacitance and is flexible down to -40°C
- Oil-resistant
- Low-adhesive surface, resistant to hydrolysis and microbes, oil resistant

Norm references / Approvals

- Based on VDE 0812
- CRUus AWM certified by UL (UL: E63634): UL AWM Style 21576 and AWM A/B I/II

Product Make-up

- Extra-fine wire strand made of bare copper wires
- Core insulation: Based on Polyolefin
- Non-woven wrapping
- Outer sheath made of special PUR compound
  Outer sheath colour: grey (RAL 7001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Core identification code
DIN 47100, refer to Appendix T9

Mutual capacitance
C/C approx. 60 nF/km

Inductivity
approx. 0.65 mH/km

Conductor stranding
Stranded, extra-fine wire

Minimum bending radius
Flexing: 5 x outer diameter
Fixed installation: 3 x outer diameter

Test voltage
1500 V

Temperature range
Flexing: -40°C to +80°C
Fixed installation: -40°C to +80°C
cRUus AWM: max. +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® FD P plus A				
0028647	2 x 0.14	3.7	2.8	20
0028650	3 x 0.14	3.9	4.1	25
0028651	4 x 0.14	4.2	5.6	30
0028652	5 x 0.14	4.5	7	34
0028677	6 x 0.14	4.8	8.4	42
0028653	7 x 0.14	5.1	9.8	48
0028654	10 x 0.14	6.1	14	60
0028678	12 x 0.14	5.9	16.8	67
0028656	18 x 0.14	6.8	25.2	87
0028657	25 x 0.14	8.3	35	120
0028658	2 x 0.25	4.1	5	27
0028659	3 x 0.25	4.3	7.5	32
0028660	4 x 0.25	4.7	10	35
0028661	5 x 0.25	5	12.5	49
0028679	6 x 0.25	5.4	15	55
0028662	7 x 0.25	5.8	17.5	43
0028663	10 x 0.25	7	25	72
0028680	12 x 0.25	6.7	30	87
0028664	14 x 0.25	7.1	35	73
0028665	18 x 0.25	8	45	104
0028666	25 x 0.25	9.8	62.5	133
0028667	2 x 0.34	4.5	6.8	33
0028668	3 x 0.34	4.8	10.2	39
0028669	4 x 0.34	5.2	13.6	41
0028670	5 x 0.34	5.6	17	44
0028671	7 x 0.34	6.5	23.8	55
0028672	10 x 0.34	8	34	85
0028673	14 x 0.34	8.2	47.6	94
0028674	18 x 0.34	9	61.2	131
0028675	25 x 0.34	11	85	200

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® FD CP plus A

Screened highly flexible data transmission cable with PUR outer sheath - UL/CSA-approved



Info

- Flexible at low temperatures
- Low capacitance
- Halogen-free

Benefits

- Wide temperature range for applications in harsh climatic environments
- Overall braid minimises electrical interference
- UL AWM voltage rating 1000V in case of internal wiring allows for internal laying next to power cables with applied UL rating of 1kV
- In the USA inside of industrial machines, per NFPA 79, Section 12.9.2 (condition 3 under 12.9.2: Thru 1 mm² and <16 AWG)

Application range

- Suitable for use in measuring, control and regulating circuits
- For use in chain/carrier: Please respect the assembly guidelines listed in Appendix T3
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

Product features

- Halogen-free, has low capacitance and is flexible down to -40°C
- PUR outer sheath, tear and notch-resistant, resistant to mineral oils and abrasion when used in cable chains
- Low-adhesive surface, resistant to hydrolysis and microbes, oil resistant
- Flame retardance: IEC 60332-1-2, VW-1, FT2
- Designed for 5 up to 10 million bending/unbending cycles (constant flex) in cable chain

Norm references / Approvals

- CRUus AWM certified by UL (UL: E63634): UL AWM Style 21576 and AWM A/B I/II

Product Make-up

- Extra-fine wire strand made of bare copper wires
- Core insulation: Based on Polyolefin
- Non-woven wrapping
- Tinned-copper braiding
- Outer sheath made of special PUR compound
  Outer sheath colour: grey (RAL 7001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
DIN 47100, refer to Appendix T9

Mutual capacitance
C/C approx. 60 nF/km

Inductivity
approx. 0.65 mH/km

Conductor stranding
Stranded, extra-fine wire

Torsion movement in WTG
TW-0 & TW-2, refer to Appendix T0

Minimum bending radius
Flexing: 7.5 x outer diameter
Fixed installation: 4 x outer diameter

Test voltage
Core/core: 1500 V rms
Core/screen: 500 V

Temperature range
Flexing: -40°C to +80°C
Fixed installation: -40°C to +80°C

Article number	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® FD CP plus A				
11139600	3 X 0.14	4.5	14.1	36
11139601	4 X 0.14	4.8	15.5	40
11139602	5 X 0.14	5.1	18.3	45
11139603	7 X 0.14	5.7	27.8	67
11139604	10 X 0.14	6.7	39.3	87
11139605	14 X 0.14	6.8	45.3	62
11139606	18 X 0.14	7.4	54.1	74
11139607	25 X 0.14	8.9	68.4	157
11139608	2 X 0.25	4.7	14.9	38
11139609	3 X 0.25	4.9	18.8	45
11139610	4 X 0.25	5.3	21.3	52
11139611	5 X 0.25	5.6	31	69
11139612	7 X 0.25	6.4	39.6	76
11139613	10 X 0.25	7.6	53.9	98
11139614	14 X 0.25	7.9	64.2	120
11139615	18 X 0.25	8.6	78.4	142
11139616	25 X 0.25	10.4	101	213
11139617	2 X 0.34	5.1	18.1	40
11139618	3 X 0.34	5.4	28.7	61
11139619	4 X 0.34	5.8	35.7	60
11139620	5 X 0.34	6.2	39.1	70
11139621	7 X 0.34	7.1	52.7	103
11139622	10 X 0.34	8.6	67.4	148
11139623	14 X 0.34	8.8	85.8	166
11139624	18 X 0.34	9.8	99.7	190
11139625	25 X 0.34	11.8	155	260
11139626	2 X 0.14	4.3	11.2	33

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® FD CP (TP) plus A

Screened highly flexible data transmission cable with PUR outer sheath and twisted pairs - UL/CSA-approved

Info

- Flexible at low temperatures
- Low capacitance
- Halogen-free



Benefits

- Wide temperature range for applications in harsh climatic environments
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)
- UL AWM voltage rating 1000V in case of internal wiring allows for internal laying next to power cables with applied UL rating of 1kV
- In the USA inside of industrial machines, per NFPA 79, Section 12.9.2 (condition 3 under 12.9.2: Thru 1 mm² and <16 AWG)

Application range

- Suitable for use in measuring, control and regulating circuits
- Linear robots, automated handling equipment
- For use in chain/carrier: Please respect the assembly guidelines listed in Appendix T3
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

Product features

- Halogen-free, has low capacitance and is flexible down to -40°C
- PUR outer sheath, tear and notch-resistant, resistant to mineral oils and abrasion when used in cable chains
- Low-adhesive surface, resistant to hydrolysis and microbes, oil resistant
- Flame retardance: IEC 60332-1-2, VW-1, FT2
- Designed for 10 million alternating bending cycles and horizontal travel distances up to 100 meter

Norm references / Approvals

- CRUus AWM certified by UL (UL: E63634): UL AWM Style 21576 and AWM A/B I/II

Product Make-up

- Extra-fine wire strand made of bare copper wires
- Core insulation: Based on Polyolefin TP structure
- Non-woven wrapping
- Tinned-copper braiding
- Outer sheath made of special PUR compound
  Outer sheath colour: grey (RAL 7001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
DIN 47100, refer to Appendix T9

Mutual capacitance
Up to 0.5 mm²: 60 nF/km
Up to 1.0 mm²: 70 nF/km

Inductivity
approx. 0.65 mH/km

Conductor stranding
Stranded, extra-fine wire
From 0.5 mm²: extra-fine wire
according to IEC 60228 class 6

Torsion movement in WTG
TW-0 & TW-2, refer to Appendix T0

Minimum bending radius
Flexing: 7.5 x outer diameter
Fixed installation: 4 x outer diameter

Test voltage
Core/core: 1500 V rms
Core/screen: 500 V

Temperature range
Flexing: -40°C to +80°C
Fixed installation: -40°C to +80°C

Article number	Number of pairs and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® FD CP (TP) plus A				
11139499	8 x 2 x 0.34	11.8 mm	107.300 kg/km	221
11139501	2 x 2 x 0.14	5.9 mm	19.400 kg/km	42
11139502	3 x 2 x 0.14	6.2 mm	23.400 kg/km	47
11139503	4 x 2 x 0.14	6.7 mm	27.100 kg/km	57
11139504	5 x 2 x 0.14	7.3 mm	37.400 kg/km	68
11139505	6 x 2 x 0.14	7.5 mm	49.400 kg/km	86
11139506	8 x 2 x 0.14	8.8 mm	54.800 kg/km	109
11139507	10 x 2 x 0.14	10.1 mm	60.100 kg/km	120
11139508	2 x 2 x 0.25	6.6 mm	32.000 kg/km	57
11139509	3 x 2 x 0.25	7 mm	38.400 kg/km	72
11139510	4 x 2 x 0.25	7.6 mm	43.200 kg/km	85
11139511	5 x 2 x 0.25	8.5 mm	51.500 kg/km	92
11139512	6 x 2 x 0.25	8.8 mm	71.800 kg/km	91
11139513	8 x 2 x 0.25	10.3 mm	74.400 kg/km	145
11139514	10 x 2 x 0.25	11.8 mm	90.000 kg/km	182
11139515	14 x 2 x 0.25	12 mm	111.200 kg/km	213
11139516	2 x 2 x 0.34	7.3 mm	41.000 kg/km	69
11139517	3 x 2 x 0.34	8 mm	52.000 kg/km	93
11139518	4 x 2 x 0.34	8.7 mm	59.000 kg/km	106
11139519	6 x 2 x 0.34	10 mm	86.200 kg/km	165
11139520	10 x 2 x 0.34	13.7 mm	131.100 kg/km	274
11139521	2 x 2 x 0.5	8.3 mm	50.000 kg/km	99

Article number	Number of pairs and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
11139522	3 x 2 x 0.5	8.8 mm	71.800 kg/km	120
11139523	4 x 2 x 0.5	9.8 mm	74.400 kg/km	148
11139524	5 x 2 x 0.5	10.7 mm	84.500 kg/km	168
11139525	6 x 2 x 0.5	11.3 mm	99.600 kg/km	182
11139526	8 x 2 x 0.5	13.2 mm	144.300 kg/km	278
11139527	10 x 2 x 0.5	15.2 mm	176.000 kg/km	325
11139528	14 x 2 x 0.5	15.5 mm	215.400 kg/km	401
11139529	2 x 2 x 0.75	9 mm	60.000 kg/km	104
11139530	3 x 2 x 0.75	9.8 mm	85.700 kg/km	148
11139531	4 x 2 x 0.75	10.7 mm	93.600 kg/km	167
11139532	6 x 2 x 0.75	12.3 mm	130.400 kg/km	233
11139533	8 x 2 x 0.75	14.7 mm	192.200 kg/km	330
11139534	10 x 2 x 0.75	16.7 mm	258.000 kg/km	390
11139535	14 x 2 x 0.75	17 mm	316.600 kg/km	515
11139536	1 x 2 x 1	6.3 mm	42.000 kg/km	71
11139537	2 x 2 x 1	9.9 mm	73.000 kg/km	126
11139538	3 x 2 x 1	10.5 mm	93.600 kg/km	167
11139539	4 x 2 x 1	11.8 mm	117.800 kg/km	213
11139540	5 x 2 x 1	13.1 mm	139.000 kg/km	247
11139541	1 x 2 x 0.34	5.1 mm	20.000 kg/km	36
11139542	1 x 2 x 0.5	5.5 mm	22.000 kg/km	47
11139543	1 x 2 x 0.75	5.9 mm	34.000 kg/km	61
11139544	1 x 2 x 0.25	4.7 mm	14.000 kg/km	32

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® RE-2Y(ST)Yv S

Instrumentation cable with reinforced outer sheath



Benefits

- Aluminium-laminated plastic foil static screen with tin-plated drain wire minimises the interference of high frequency, electromagnetic fields
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)
- Low capacitance due to polyolefin-based insulation

Application range

- In measurement and control engineering
- Electrically intended for use when modern process computers have to process large volumes of data, e.g. high-capacity computer systems in waste incineration plants or sewage treatment plants
- These cables are suitable for fixed installation in dry or damp rooms and, in case of versions with a black outer sheath, also for outdoor use
- Thanks to reinforced, nominal/ minimum average wall thickness of the outer sheath of at least 1.8 mm, for applications, where a reinforced outer sheath may turn out to be advantageous

Product features

- Outer sheath colour: black for outdoor applications or blue for intrinsically safe systems
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- In the style of EN 50288-7

Product Make-up

- 7-wire bare stranded copper conductor, core insulation made of polyethylene (PE), cores twisted into pairs, pairs stranded in layers
- Complete stranding contains 1 core for communication (core colour orange); the communication core is omitted on single-pair versions
- Foil wrapping, static screening made of aluminium-laminated plastic film with tinned drain wire
- Reinforced outer sheath made of PVC
- Outer sheath colour: black (RAL 9005) or blue (RAL 5015)

Info

- CPR: Article number choice under www.lapp.com

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
a-core: black; b-core: white with consecutive numbers: 1-1, 2-2, 3-3, 4-4 etc.
Three-way version: black, white, red

Mutual capacitance
(guideline values at 800 Hz):
C/C: 0.5 mm²: max. 75 nF/km
(guideline values at 800 Hz):
C/C: 1.3 mm²: max. 100 nF/km

Conductor resistance
0.5 mm²: max. 39.2 ohm/km
1.3 mm²: max. 14.3 ohm/km

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 7.5 x outer diameter

Short-range crosstalk attenuation
At 60 kHz: min. 0.88 dB/km

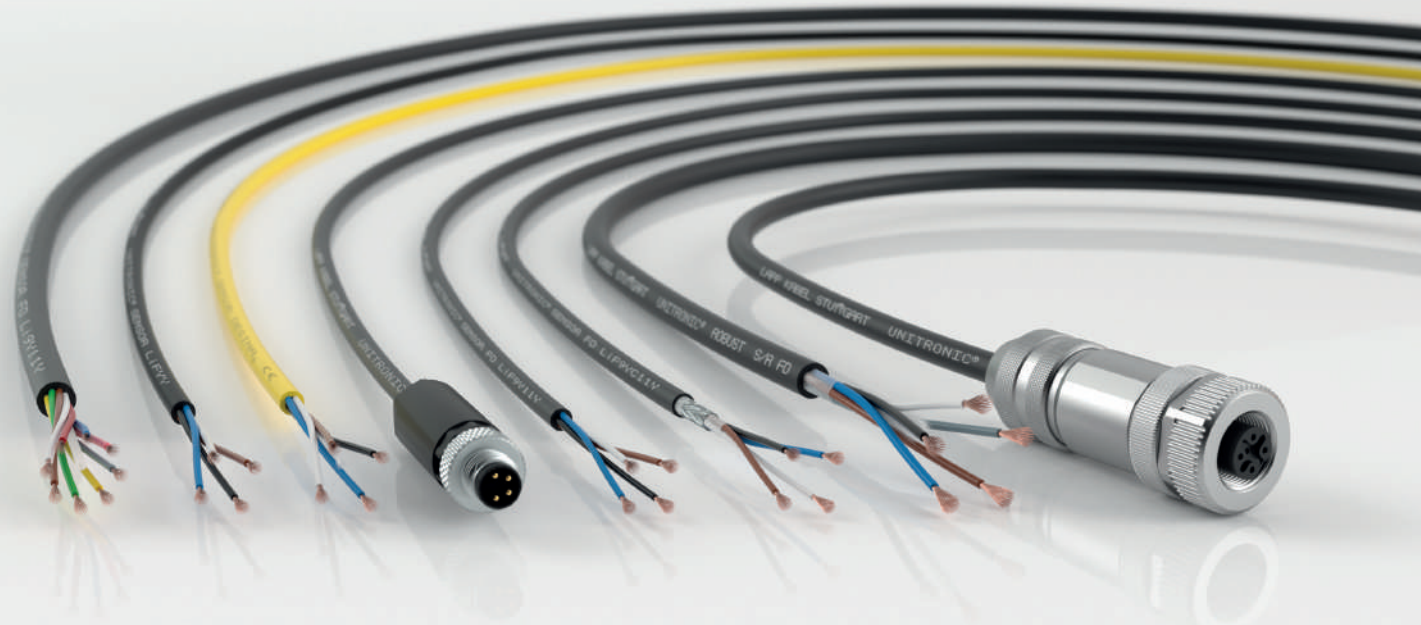
Test voltage
Core/core: 2000 V
Core/screen: 1000 V

Characteristic impedance
approx. 100 ohms

Temperature range
Occasional flexing: -5°C to +50°C
Fixed installation: -40°C to +80°C

Article number	Dimension and cross section in mm²	Outer sheath colour	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
0032413	4 X 2 X 0,5	black	11.1	50	148
1032401	2 X 2 X 0,5	blue	8.5	30	100
1032412	2 X 2 X 0,5	black	8.5	30	100
1032423	2 X 2 X 1,3	blue	10.2	62	160
1032431	2 X 2 X 1,3	black	10.2	62	160
1032440	1 X 2 X 0,5	blue	7.2	15	74
1032446	1 X 2 X 0,5	black	7.2	15	74
1032447	10 X 2 X 0,5	black	15.8	110	295
1032449	20 X 2 X 0,5	black	20	210	445
1032450	36 X 2 X 0,5	black	25.2	370	720
1032451	48 X 2 X 0,5	black	28.7	490	899
1032452	1 X 2 X 1,3	blue	8.4	31	107
1032453	4 X 2 X 1,3	blue	12.9	114	235
1032456	24 X 2 X 1,3	blue	25.2	684	978
1032457	1 X 2 X 1,3	black	8.4	31	107
1032458	4 X 2 X 1,3	black	12.9	114	235
1032459	8 X 2 X 1,3	black	16.4	218	387
1032460	12 X 2 X 1,3	black	18.2	322	524
1032461	24 X 2 X 1,3	black	25.2	684	978

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.


UNITRONIC®
UNITRONIC® ROBUST S/R FD

UNITRONIC® RE-2Y(ST)Yv PiMF

Instrumentation cable with reinforced outer sheath and pairs in metalfoil



Info

- CPR: Article number choice under www.lapp.com

Benefits

- Aluminium-laminated plastic foil static screen with tin-plated drain wire minimises the interference of high frequency, electromagnetic fields
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)
- Low capacitance due to polyolefin-based insulation

Application range

- In measurement and control engineering
- Electrically intended for use when modern process computers have to process large volumes of data, e.g. high-capacity computer systems in waste incineration plants or sewage treatment plants
- These cables are suitable for fixed installation in dry or damp rooms and, in case of versions with a black outer sheath, also for outdoor use
- Thanks to reinforced, nominal/ minimum average wall thickness of the outer sheath of at least 1.8 mm, for applications, where a reinforced outer sheath may turn out to be advantageous.

Product features

- Computer cable with screened pairs and reinforced outer sheath
- Outer sheath colour: black for outdoor applications or blue for intrinsically safe systems
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- In the style of EN 50288-7

Product Make-up

- 7-wire bare stranded copper conductor, core insulation made of polyethylene (PE), cores twisted into pairs, pair screening made of aluminium-laminated plastic foil with bare copper drain wire, PiMF marking using numbered foil, pairs stranded in layers
- Complete stranding contains 1 core for communication (core colour orange); the communication core is omitted on single-pair versions
- Aluminium-laminated plastic foil static screen with tinned drain wire
- Reinforced outer sheath made of PVC
- Outer sheath colour: black (RAL 9005) or blue (RAL 5015)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000104
ETIM 5.0/6.0 Class-Description: Control cable

Core identification code
a-core: black; b-core: white with consecutive numbers: 1-1, 2-2, 3-3, 4-4 etc.

Mutual capacitance
(at 800 Hz max):
C/C: 0.5 mm²: 75 nF/km
(at 800 Hz max):
C/C: 1.3 mm²: 100 nF/km

Inductivity
max. 0.75 mH/km

Conductor resistance
0.5 mm²: max. 39.2 ohm/km
1.3 mm²: max. 14.2 ohm/km

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 7.5 x outer diameter

Short-range crosstalk attenuation
At 60 kHz: min. 1.02 dB/km

Test voltage
Core/core: 2000 V
Core/screen: 600 V

Characteristic impedance
approx. 100 ohms

Temperature range
Occasional flexing: -5°C to +50°C
Fixed installation: -40°C to +80°C

Article number	Dimension and cross section in mm²	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
RE-2Y(ST)Yv PiMF 0.5 mm² blue				
0032438	2 x 2 x 0,50	10	35	128
0032442	12 x 2 x 0,50	16.7	161	325
0.5 mm² black				
0032448	2 x 2 x 0,50	10	35	128
0032449	4 x 2 x 0,50	11.6	60	170
0032450	8 x 2 x 0,50	14.4	121	261
0032451	10 x 2 x 0,50	15.9	136	285
0032453	16 x 2 x 0,50	19.1	212	430
1.3 mm² blue				
0032458	2 x 2 x 1,30	12.4	68	184
1.3 mm² black				
0032464	2 x 2 x 1,30	12.4	68	184
0032465	4 x 2 x 1,30	14.2	124	269
0032466	8 x 2 x 1,30	18.5	239	442
0032467	12 x 2 x 1,30	22.2	353	593

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/ 100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

JE-Y(ST)Y...BD

Static screened installation cable for industrial electronics

Info

- In accordance with DIN VDE 0815



JE-Y(ST)Y...BD EB

Static screened installation cable for industrial electronics

Info

- Blue version:
  Hazard protection type -i- is required where there is a risk of explosion



Benefits

- Perfect for cost-effective installation, e.g. connections with insulation displacement technology (IDC).
- Aluminium-laminated plastic foil static screen with tin-plated drain wire minimises the interference of high frequency, electromagnetic fields
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

Application range

- Connection cable for fixed installation in industrial control systems, as required in measurement, control, signalling and data applications
- Industrial electronics
- For fixed installation on and under plaster, in dry and damp rooms

Product features

- The 2-pair version (2x2x0.8) is twisted into a star quad
- Flame-retardant according IEC 60332-1-2
- JE-Y(ST)Y...BD EB:
  For intrinsically safe circuits (type of protection i - intrinsic safety) according to IEC 60079-14:2013 / EN 60079-14:2014 / VDE 0165-1:2014, section 16.2.2

Norm references / Approvals

- In accordance with DIN VDE 0815 type JE-Y(ST)Y...BD

Product Make-up

JE-Y(ST)Y...BD

- Solid bare copper conductor
- Core insulation made of PVC
- 2 cores twisted into a pair, and 4 pairs into units (for 2 x 2 x 0.8 as star quad cable)
- Foil wrapping,
  static screening made of aluminium-laminated plastic film with copper drain wire
- Outer sheath made of PVC
  Outer sheath colour: pebble grey (RAL 7032)

JE-Y(ST)Y...BD EB

- Solid bare copper conductor
- Core insulation made of PVC
- 2 cores twisted into a pair, and 4 pairs into units (for 2 x 2 x 0.8 as star quad cable)
- Foil wrapping,
  static screening made of aluminium-laminated plastic film with copper drain wire
- Outer sheath made of PVC
  Outer sheath colour: sky blue (RAL 5015)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000829
ETIM 5.0/6.0 Class-Description:
Signal-/telecommunications cable

Core identification code
according to VDE 0815,
refer to Appendix T10

Mutual capacitance
max. 100 nF/km

Coupling
approx. 200 pF/100 m

Inductivity
approx. 0.65 mH/km

Conductor stranding
Single-wire (solid conductor)
0.8 mm: 0.50 mm²

Minimum bending radius
Fixed installation: 6 x outer diameter

Test voltage
JE-Y(ST)Y...BD
Core/core: 500 V
Core/screen: 2000 V
JE-Y(ST)Y...BD EB
Core/Core: 1000 V
Core/screen: 2000 V

Loop resistance
max. 73.2 Ohm/km

Temperature range
Occasional flexing: -5°C to +50°C
Fixed installation: -30°C to +70°C

Article number	Number of cores and cable diameter (mm)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
JE-Y(ST)Y...BD				
0034190	2 x 2 x 0.8	6	25	60
0034191	4 x 2 x 0.8	8.5	45	96
0034192	8 x 2 x 0.8	11	85	158
0034193	12 x 2 x 0.8	13	126	225
0034194	16 x 2 x 0.8	14.5	166	290
0034195	20 x 2 x 0.8	16	206	350
0034197	40 x 2 x 0.8	22	407	660
JE-Y(ST)Y...BD EB, blue outer sheath				
0034120	2 x 2 x 0.8	6	25	60
0034121	4 x 2 x 0.8	8.5	45	100
0034122	8 x 2 x 0.8	11	85	165
0034123	12 x 2 x 0.8	13	126	240
0034125	20 x 2 x 0.8	16	206	360
0034126	32 x 2 x 0.8	20	327	555

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 100/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

JE-LiYCY...BD

Screened data transmission cable for industrial electronics



Info

- In accordance with DIN VDE 0815

JE-LiYCY...BD EB

Screened data transmission cable for industrial electronics



Info

- Blue version:
  Hazard protection type -i- is required where there is a risk of explosion

Benefits

- Overall braid minimises electrical interference
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

Application range

- Connection cable for use in electronics and in measurement, control and signal applications
- This cable is also used as a pulse and data transmission cable
- JE-LiYCY...BD has also proved to be an efficient connection cable for telephone systems, e.g. paging and intercom systems.
- For fixed installation on and under plaster, in dry and damp rooms

Product features

- The 2-pair version (2 x 2 x 0.5) is twisted into a star quad
- Flame-retardant according IEC 60332-1-2
- JE-LiYCY...BD EB:
  For intrinsically safe circuits (type of protection i - intrinsic safety) according to IEC 60079-14:2013 / EN 60079-14:2014 / VDE 0165-1:2014, section 16.2.2

Norm references / Approvals

- In accordance with DIN VDE 0815 type JE-LiYCY...BD

Product Make-up

JE-LiYCY...BD

- 7-wire bare stranded copper conductor
- Core insulation made of PVC
- 2 cores twisted into a pair, and 4 pairs into units (for 2 x 2 x 0.5 as star quad cable)
- Bundles twisted in layers, foil wrapping, screening braid made of tinned copper wires
- Outer sheath made of PVC
  Outer sheath colour: pebble grey (RAL 7032)

JE-LiYCY...BD EB

- 7-wire bare stranded copper conductor
- Core insulation made of PVC
- 2 cores twisted into a pair, and 4 pairs into units (for 2 x 2 x 0.5 as star quad cable)
- Bundles twisted in layers, foil wrapping, screening braid made of tinned copper wires
- Outer sheath made of PVC
  Outer sheath colour: sky blue (RAL 5015)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000829
ETIM 5.0/6.0 Class-Description: Signal-/telecommunications cable

Core identification code
according to VDE 0815, refer to Appendix T10

Mutual capacitance
max. 100 nF/km

Coupling
approx. 200 pF/100 m

Inductivity
approx. 0.65 mH/km

Conductor stranding
Multi-wire, 7 x 0.3mm

Minimum bending radius
Occasional flexing: 15 x outer diameter
Fixed installation: 5 x outer diameter

Test voltage
JE-LiYCY...BD
Core/core: 500 V
Core/screen: 2000 V
JE-LiYCY...BD EB
Core/Core: 1000 V
Core/screen: 2000 V

Loop resistance
max. 78.4 ohm/km

Temperature range
Occasional flexing: -5°C to +50°C
Fixed installation: -30°C to +70°C

Article number	Number of pairs and conductor cross section (mm²)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
JE-LiYCY...BD				
0034200	2 x 2 x 0.5	6.6	51	70
0034201	4 x 2 x 0.5	8.5	87	155
0034202	8 x 2 x 0.5	11.7	144	260
0034208	12 x 2 x 0.5	12.8	195	340
0034203	16 x 2 x 0.5	13.9	249	430
0034210	20 x 2 x 0.5	15.1	298	495
0034204	24 x 2 x 0.5	16.4	348	605
0034212	32 x 2 x 0.5	21	441	738
JE-LiYCY...BD EB, blue outer sheath				
0034220	2 x 2 x 0.5	6.6	51	95
0034221	4 x 2 x 0.5	8.5	87	155
0034222	8 x 2 x 0.5	11.7	144	260
0034223	12 x 2 x 0.5	12.8	193	340
0034224	16 x 2 x 0.5	13.9	249	430
0034225	20 x 2 x 0.5	15.1	298	495
0034226	24 x 2 x 0.5	16.6	348	605
0034227	32 x 2 x 0.5	21	441	738
0034228	40 x 2 x 0.5	21.7	531	845

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
MAXI-TERMI-POINT® is a registered trademark of AMP
Photographs and graphics are not to scale and do not represent detailed images of the respective products.




UNITRONIC BUS PB FD FRNC
LAPP KABEL STUTTGART

J-Y(ST)Y...LG Fire Alarm Cable

Installation cable in accordance with DIN VDE 0815 PVC; Shielded; Flexible



Benefits

- The conductor circuits are well decoupled thanks to the twisted pair (TP) with short lay lengths

Application range

- For use in control, regulating and measurement circuits
- For installation on, in or under plaster, in brickwork and in stationary concrete
- Can be used in dry and damp rooms
- The PVC outer sheath is somewhat oil-resistant

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000829
ETIM 5.0/6.0 Class-Description: Signal-/telecommunications cable

Core identification code
according to VDE 0815, refer to Appendix T10

Coupling
(800 Hz): K1: 80% ≤ 300 pF/100m

Conductor cross-section in
0.8 mm: 0.50 mm²
Cable attenuation/attenuation
0.8 mm: 1.1 dB/km

Minimum bending radius
Fixed installation: 10 x outer diameter

Test voltage
Core/core: 800 V
Core/screen: 800 V

Loop resistance
0.8 mm: max. 73.2 ohm/km

Temperature range
Occasional flexing: -5°C to +50°C
Fixed installation: -30°C to +70°C

Article number	Number of pairs and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
1708001	1 x 2 x 0,8	6	11	26
1708002	2 x 2 x 0,8	7	21	60
1708004	4 x 2 x 0,8	9	41	100
1708010	10 x 2 x 0,8	13.5	102	220

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 100/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

J-Y(ST)Y...LG Indoor Cable

Installation cable in accordance with DIN VDE 0815



Benefits

- Indoor telephone cables transmit analogue or digital signals
- Aluminium-laminated plastic foil static screen with tin-plated drain wire minimises the interference of high frequency, electromagnetic fields
- Decoupling of circuits by means of twisted-pair (TP) design (crosstalk effects)

Application range

- Connection cable for use in electronics and in measurement, control and signal applications
- In news and communication applications, the following connections can be installed: telephone, telefax, telex, standard modems for postal services; burglar and fire alarm systems (cf. fire alarm cables); communication and paging systems; access control, time and data control systems
- Can be used in dry and wet interiors for fixed installation on and under plaster

Product features

- The 2-paired versions = star quad cable design
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- In accordance with DIN VDE 0815 type J-Y(ST)Y...LG

Product Make-up

- Solid bare copper conductor
- Core insulation made of PVC
- Cores twisted in pairs, pairs twisted together, foil wrapping over cable core, static screen made of aluminium-laminated plastic film with copper drain wire
- Outer sheath made of PVC
  Outer sheath colour: pebble grey (RAL 7032)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000829
ETIM 5.0/6.0 Class-Description: Signal-/telecommunications cable

Core identification code
according to VDE 0815, refer to Appendix T10

Coupling
(800 Hz): K1: 80% ≤ 300 pF/100m

Conductor cross-section in
0.6 mm: 0.28 mm²
0.8 mm: 0.50 mm²

Cable attenuation/attenuation
0.6 mm: 1.7 dB/km
0.8 mm: 1.1 dB/km

Minimum bending radius
Fixed installation: 10 x outer diameter

Test voltage
Core/core: 800 V
Core/screen: 800 V

Loop resistance
0.6 mm: max. 130 ohm/km
0.8 mm: max. 73.2 ohm/km

Temperature range
Occasional flexing: -5°C to +50°C
Fixed installation: -30°C to +70°C

Article number	Number of double cores	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
J-Y(ST)Y...LG copper conductor 0.6 mm				
1591301	2	5.5	13	40
1591302	3	6.3	18	50
1591303	4	6.7	24	60
1591304	5	7.2	30	70
1591305	6	7.5	35	80
1591306	8	8	46	90
1591307	10	9	58	110
1591308	12	9.5	71	130
1591310	16	10.5	93	160
1591311	20	11	116	190
1591312	24	11.5	139	220
1591313	30	13	172	280
1591315	50	17	286	430
1591318	100	23	568	850

Article number	Number of double cores	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
J-Y(ST)Y...LG copper conductor 0.8 mm				
1591500	1	6	11	40
1591501	2	7	21	60
1591502	3	8.5	31	80
1591503	4	9	41	100
1591505	6	10.5	62	140
1591506	8	11.5	82	170
1591507	10	13	102	220
1591508	12	14	123	250
1591511	20	16.5	204	380

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 100/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

J-H(ST)H...BD Fire Alarm Cable

Installation cable; VDE 0815; Halogen-free compound; Shielded; Fixed Installation



Benefits

- Halogen free and highly flame retardant materials reduce the risk of flame propagation, high smoke density and toxic flue gases in the event of a fire
- The conductor circuits are well decoupled thanks to the twisted pair (TP) with short lay lengths

Application range

- For use in control, regulating and measurement circuits
- For installation on, in or under plaster, in brickwork and in stationary concrete
- Can be used in dry and damp rooms

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000829
ETIM 5.0/6.0 Class-Description: Signal-/telecommunications cable

Core identification code
according to VDE 0815, refer to Appendix T10

Coupling
max. 200 pF/100 m (at 800 Hz)

Conductor cross-section in
0.8 mm: 0.50 mm²
Cable attenuation/attenuation
0.8 mm: 1.1 dB/km

Minimum bending radius
Fixed installation: 6 x outer diameter

Test voltage
Core/core: 800 V
Core/screen: 800 V

Loop resistance
0.8 mm: max. 73.2 ohm/km

Temperature range
Occasional flexing: -5°C to +50°C
Fixed installation: -30°C to +70°C

Article number	Number of pairs and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
30017798	2 x 2 x 0,8	7	25	50

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 100/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

J-H(ST)H...BD

Telephone cable; VDE 0815; Halogen-free compound; Shielded; Flexible



Benefits

- Halogen free and highly flame retardant materials reduce the risk of flame propagation, high smoke density and toxic flue gases in the event of a fire
- The conductor circuits are well decoupled thanks to the twisted pair (TP) with short lay lengths

Application range

- For use in control, regulating and measurement circuits
- For installation on, in or under plaster, in brickwork and in stationary concrete
- Can be used in dry and damp rooms

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000829
ETIM 5.0/6.0 Class-Description: Signal-/telecommunications cable

Core identification code
according to VDE 0815, refer to Appendix T10

Coupling
max. 200 pF/100 m (at 800 Hz)

Conductor cross-section in
0.8 mm: 0.50 mm²
Cable attenuation/attenuation
0.8 mm: 1.1 dB/km

Minimum bending radius
Fixed installation: 6 x outer diameter

Test voltage
Core/core: 800 V
Core/screen: 800 V

Loop resistance
0.8 mm: max. 73.2 ohm/km

Temperature range
Occasional flexing: -5°C to +50°C
Fixed installation: -30°C to +70°C

Article number	Number of pairs and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
30017787	2 x 2 x 0,8	7	25	77
30017788	4 x 2 x 0,8	9.2	45	135

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 100/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

A-2Y(L)2Y...ST III BD Telephone Outdoor Cable



A-2YF(L)2Y...ST III BD Outdoor Cable



Application range

- External cables for telecommunication and data processing systems
- Do not install cables that are meant to be placed in ducts or for direct burial in areas exposed to fire hazards

Product features

- Outer sheath colour: black (RAL 9005)
- UV-resistant and laterally watertight
- Filled version (A-2YF(L)2Y...ST III BD) is addionally longitudinal watertight

Norm references / Approvals

- In accordance with DIN VDE 0816

Product Make-up

A-2Y(L)2Y...ST III BD Telephone Outdoor Cable

- Solid bare copper conductor
- Core insulation made of polyethylene (PE)
- 5 star-quads are twisted into each basic unit, which is then twisted together with the main unit to form the cable core
- Paper tape wrapping
- Laminated sheath with aluminium-coated plastic tape, PE outer sheath

A-2YF(L)2Y...ST III BD Outdoor Cable

- Similar to A-2Y(L)2Y, but with petroleum-jelly filling, laminated sheath made of aluminium-coated plastic tape, and black PE outer sheath

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000829
ETIM 5.0/6.0 Class-Description: Signal-/telecommunications cable

Core identification code
According to VDE 0816, refer to Appendix T10

Mutual capacitance
At 800 Hz: max. 52 nF/km

Coupling
K1: 98 % <400 pF/300 m
K9-12: 98 % < 100 pF/300 m

Conductor cross-section in
0.6 mm: 0.28 mm²
0.8 mm: 0.50 mm²

Cable attenuation/attenuation
A-2Y(L)2Y...ST III BD Telephone Outdoor Cable
At 800 Hz 0.6 mm: approx. 1.04 dB/km
At 800 Hz 0.8 mm: approx. 0.78 dB/km
A-2YF(L)2Y...ST III BD Outdoor Cable
At 800 Hz 0.6 mm: approx. 1.0 dB/km
At 800 Hz 0.8 mm: approx. 0.8 dB/km

Minimum bending radius
10 x outer diameter

Test voltage
Core/core: 500 V
Core/screen: 2000 V

Loop resistance
0.6 mm: 130 ohm/km
0.8 mm: 73.2 ohm/km

Temperature range
During installation: -20 °C to +50 °C
After installation: ≤ +70 °C

Article number	Number of double cores	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
A-2Y(L)2Y...STIII BD copper conductor 0.6 mm				
1591050	2	8.1	11	80
1591052	6	10.3	34	130
1591053	10	11.5	57	165
A-2Y(L)2Y...ST III BD copper conductor 0.8 mm				
1591150	2	8.6	20	100
1591151	4	10.9	40	160
1591152	6	11.5	60	175
1591153	10	13.5	101	235
1591154	20	17.3	201	390
A-2YF(L)2Y...ST III BD copper conductor 0.6 mm				
1591028	2	8.3	11	67
1591029	4	10.4	23	104
1591030	6	11	34	130
1591031	10	12.5	57	180
1591032	20	16	113	300
1591033	30	19	170	420
1591035	50	22.3	283	620
1591037	100	30.5	565	1225
A-2YF(L)2Y...ST III BD copper conductor 0.8 mm				
1591217	2	8.8	20	83
1591218	4	11.2	40	134
1591221	6	12	60	180
1591222	10	14	101	250
1591223	20	19.1	201	460
1591224	30	22	302	630
1591225	40	24	402	800
1591226	50	26	503	975
1591228	100	36	1005	1900

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Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
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Coaxial - RG



Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000019
ETIM 5.0/6.0 Class-Description: Coaxial cable

Dielectric constant
- Polyethylene (PE) 2.3-
Polyethylene, hollow (PE-ho) 1.5-
Polytetrafluoroethylene (PTFE) 2.1

Minimum bending radius
Fixed installation: 6 x outer diameter

Specifications and approvals
Similar to MIL-DTL17 H

Temperature range
Fixed installation: PE outer sheath:
-40°C to +80°C
Fixed installation: PVC outer sheath:
-40°C to +80°C
Fixed installation: fluoroplastic
-55°C to +250°C

Benefits

- Coaxial cables allow distortion-free and low-attenuation transmission of signals with a high bandwidth.
- High frequencies

Application range

- For applications with limited movements and for fixed installation in dry or damp interiors and outdoors
- For radio and computer systems, as well as all applications related to commercial radio-frequency technology and electronics

Product features

- Flame-retardant

Product Make-up

- Coaxial cables are significantly less sensitive to external interference due to their structure.

Article number	Article designation	Characteristic impedance in ohm	Capacity pF/m	Attenuation approx. dB/100 m at 200 MHz/400 MHz	Propagation rate (%)	Operating voltage 50 Hz eff. kV	Test voltage (kV)	Inner conductor material	Internal Ø	Dielectric material	Dielectric Ø	Outer conductor material	Outer cable sheath	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
Characteristic impedance: 50 ohm																
2170000	RG-58 C/U	50 +/- 2 Ω	101	24 / 33	66	2	5	CuLivz	0.9	PE	2.95	Cvz	PVC	4.95	19.1	38
2170001	RG-174 A/U	50 +/- 2 Ω	101	40 / 59	66	1.5	2	StCuLibl	0.48	PE	1.52	Cvz	PVC	2.80	5.4	12
2170002	RG-178 B/U	50 +/- 2 Ω	95	63 / 93	70	0.7	2	StCuLivs	0.3	PTFE	0.86	Cvs	FEP	1.91	4.4	9
2170003	RG-188 A/U	50 +/- 2 Ω	95	47 / 56	70	1.5	2	StCuLivs	0.51	PTFE	1.52	Cvs	PTFE	2.76	8.3	17.5
2170005	RG-213 /U	50 +/- 2 Ω	101	10 / 15	66	5	10	CuLibl	2.25	PE	7.25	Cbl	PVC	10.30	75.8	157
2170006	RG-214 /U	50 +/- 2 Ω	101	9 / 14	66	5	10	CuLivs	2.25	PE	7.25	CvsCvs	PVC	10.80	117.8	207
2170007	RG-223 /U	50 +/- 2 Ω	101	23 / 34	66	2	3	CuMvs	0.89	PE	2.95	CvsCvs	PVC	5.50	38.5	60
Characteristic impedance: 75 ohm																
2170016	RG-6 A/U	75 +/- 3 Ω	67	14 / 20	66	2	5	StCuMbl	0.72	PE	4.7	Cbl	PVC	8.40	72	120
2170009	RG-11 A/U	75 +/- 3 Ω	67	11 / 16	66	5	10	CuLivz	1.2	PE	7.3	Cbl	PVC	10.30	55.5	140
2170011	RG-11 A/U outdoor	75 +/- 3 Ω	67	11 / 16	66	5	10	CuLivz	1.2	PE	7.3	Cbl	PVC	12.10	55.5	170
2170012	RG-59 B/U	75 +/- 3 Ω	67	16.5/23	66	1.7	7	StCuMbl	0.6	PE	3.7	Cbl	PVC	6.15	25	57
2170010	RG-187 A/U	75 +/- 3 Ω	65	47 / 56	70	1.5	2	StCuLivs	0.31	PTFE	1.52	Cvs	PTFE	2.80	7.3	17
Characteristic impedance: 100 Ohm																
2170008	RG-62 A/U	93 +/- 5 Ω	43	15 / 19	75	0.8	2	StCuMbl	0.65	PE hollow	3.7	Cbl	PVC	6.15	26	52

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Multi coaxial cabels RG 59 B/U



Benefits

- In extended systems, the use of the RG 59 B/U multi-coaxial cable as a screened supply cable prevents an accumulation of individual cables running in parallel over long distances.
- This saves installation costs and provides greater mechanical protection for the each sensitive cable.

Product features

- Multi-coaxial cables provide an easier installation than individual installation

Product Make-up

- 2 x single coaxial cables type RG 59 B/U
- Twin cable
- PVC sheath
- Colour: black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000019
ETIM 5.0/6.0 Class-Description: Coaxial cable

Based on
Similar to MIL specification MIL-DTL17 H

Minimum bending radius
Fixed installation: 15 x outer diameter

Temperature range
Fixed installation: -40°C to +80°C

Article number	Number of single cables x RG type	Outer diameter mm	Copper index (kg/km)	Weight (kg/km)
Characteristic impedance: 75 ohm				
2170056	2 x RG 59 B/U	6.5 x 13.0	50	116

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
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Coaxial cabels RGB

Info

- Connecting Cable for Colour Monitors



Benefits

- Low attenuation ensures a longer transmission distance
- Transmission of the red (R), green (G) and blue (B) colour signals

Application range

- Colour monitor cable for PCs and CAD workstations, process visualisation
- For fixed installation in rooms (RGB CY..x Kx 0.4/1.8)
- For highly flexible applications in cable chains (energy supply chains) and continuously moving machine components (RGB-FD..x Kx 0.6L/2.4)

Product Make-up

- Conductor: tinned-copper wire
- Dielectric: cellular polyolefin
- Outer conductor: copper braiding or tinned-copper wire wrapping
- Red (R), green (G), blue (B) elements - for RGB 5 x Kx 0.4/1.8 red, green, blue, white, black
- PVC outer sheath
  FD Version with PUR outer sheath

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000019
ETIM 5.0/6.0 Class-Description: Coaxial cable

Mutual capacitance
60 nF/km

Minimum bending radius
15 x outer diameter

Characteristic impedance
75 Ohm

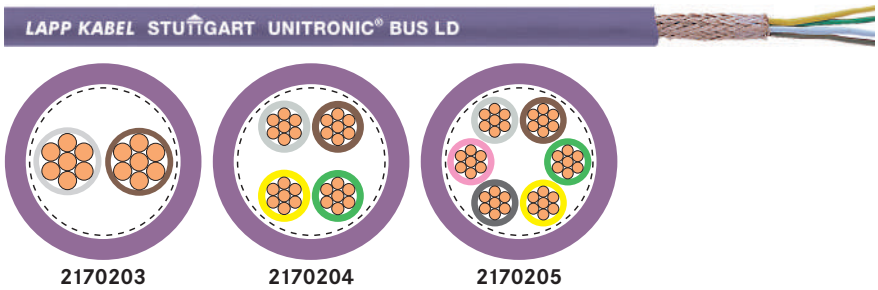
Temperature range
-10 °C to +80 °C
Occasional flexing: -5°C to +70°C

Article number	Article designation	Outer diameter mm	Copper index (kg/km)	Weight (kg/km)
Fixed Installation				
0034245	RGB CY 3 x Kx 0,4/1,8 + 3 x 0,25	8.0	51	97
0034246	RGB DY 5 x Kx 0,4/1,8	9.7	60	132
Flexible and highly flexible applications				
0034247	RGB-FD 3 x Kx 0,6L/2,4	10.8	29	100

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
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UNITRONIC® BUS LD

Flexible buscable with PVC outer sheath, for use in different bussystems



2170203 2170204 2170205

Info

- LD is a LAPP abbreviation for long distance

Benefits

- Suitable for multiple Bus systems based on RS485 / RS422

Application range

- For fixed installation
  Maximum electromagnetic screening
- Bus cables for bus systems such as e.g. Modbus, SUCOnet P, Modulink P, VariNet-P)
- Dry or damp rooms

Product features

- The stated bit rates result in the following cable lengths (maximum) of one bus segment:
- 9.6-93.75 kbit/s = 1200m
- 187.5 kbit/s = max. 1,000 m
- 500 kbit/s = max. 400 m

Norm references / Approvals

- UNITRONIC® BUS LD A:
  UL versions with certification:
  UL/CSA type CMX acc. to UL 444
  and CSA C22.2 no. 214-02
- Flame retardant acc. to IEC 60332-1-2

Product Make-up

- Stranded conductor, bare, 7-wire
- Core insulation: PE
- Colour code DIN 47100
- Overall screening of braided tinned-copper strands
- Outer sheath: PVC, violet (RAL 4001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Mutual capacitance
Flexible use: 10 x outer diameter

Peak operating voltage
(not for power applications) 250 V

Conductor resistance
(loop): max. 186 ohm/km

Minimum bending radius
Fixed installation: 8 x outer diameter

Test voltage
Core/core: 1500 V rms

Characteristic impedance
100 - 120 Ohm

Temperature range
Fixed installation: -40°C to +80°C
Flexing: -5°C to +70°C

Article number	Article designation	Number of pairs and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
for fixed installation					
2170203	UNITRONIC® BUS LD	1 x 2 x 0,22	5.7	18	37
2170204	UNITRONIC® BUS LD	2 x 2 x 0,22	7.1	28	45
2170205	UNITRONIC® BUS LD	3 x 2 x 0,22	7.2	37	72
For fixed installation - UL/CSA CMX certification					
2170803	UNITRONIC® BUS LD A	1 x 2 x 0,22	5.7	18	39

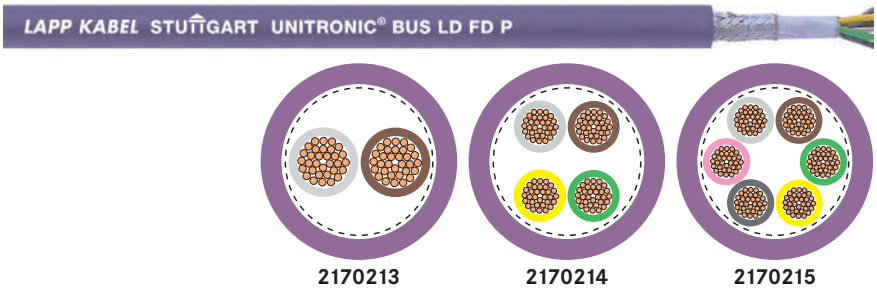
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Modubus is owned by the Modbus-IDA Organisation. SUCOnet P is a registered trademark of the Moeller Group. Modulink P is a registered trademark of Weidmüller GmbH & Co. VariNet is a registered trademark of Pepperl+Fuchs GmbH.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® BUS LD FD P

Highly flexible buscable with PUR outer sheath, for use in different bussystems

Info

- LD is a LAPP abbreviation for long distance



2170213 2170214 2170215

Benefits

- Suitable for multiple Bus systems based on RS485 / RS422
- PUR outer sheath, tear and notch-resistant, resistant to mineral oils and abrasion when used in cable chains
- Under consideration of the temperature range also suitable for outdoor use

Application range

- For highly flexible applications (cable chains, moving machine parts)
- Bus cables for bus systems such as e.g. Modbus, SUCOnet P, Modulink P, VariNet-P)

Product features

- The stated bit rates result in the following cable lengths (maximum) of one bus segment:
- 9.6-93.75 kbit/s = 1200m
- 187.5 kbit/s = max. 1,000 m
- 500 kbit/s = max. 400 m
- UV-resistant (but colour may change after some time)

Norm references / Approvals

- UNITRONIC® BUS LD FD P A: UL versions with certification: UL/CSA type CMX acc. to UL 444 and CSA C22.2 no. 214-02
- Flame-retardant according IEC 60332-1-2

Product Make-up

- Extra-fine wire strand made of bare copper
- Colour code DIN 47100
- Core insulation: PE
- Overall screening of braided tinned-copper strands
- Outer sheath: PUR, violet (RAL 4001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Mutual capacitance
(800 Hz) max. 60 nF/km

Peak operating voltage
(not for power applications) 250 V

Conductor resistance
(loop): max. 159.8 ohm/km

Minimum bending radius
Fixed installation: 6 x core diameter
One bend at end of core: 3 x cable diameter
Flexing: 15 x outer diameter

Test voltage
Core/core: 1500 V rms

Characteristic impedance
100 - 120 Ohm

Temperature range
Fixed installation: -40°C to +80°C
Flexing: -30°C to +70°C

Article number	Article designation	Number of pairs and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
For highly flexible applications					
2170213	UNITRONIC® BUS LD FD P	1 x 2 x 0,25	6	18	39
2170214	UNITRONIC® BUS LD FD P	2 x 2 x 0,25	7.9	33	65
2170215	UNITRONIC® BUS LD FD P	3 x 2 x 0,25	8	39	77
For highly flexible applications - with UL/CSA CMX certification					
2170813	UNITRONIC® BUS LD FD P A	1 x 2 x 0,25	6.2	18	39
2170814	UNITRONIC® BUS LD FD P A	2 x 2 x 0,25	8.3	33	65
2170815	UNITRONIC® BUS LD FD P A	3 x 2 x 0,25	8.4	39	77

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
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UNITRONIC® BUS ASI

AS-INTERFACE cables for networking systems in the field



Info

- "LD" = Long Distance

Benefits

- The new BUS ASI LD 2 x 2.5 (Long Distance) allows even modules located further away to be connected. AS-I power supplies can be reduced. The BUS ASI LD is downwards-compatible with version 1.5.
- The rubber versions are halogen-free

Application range

- Communication at sensor/actuator level
- Sensor-/actuator wiring
- For fixed installation as well as occasional flexing at free, non-continuously recurring movement without tensile load
- The TPE version has an oil-resistant outer sheath. It is suitable for wet areas, in particular in conjunction with water-soluble cooling lubricants

Product features

- Data and power are transmitted via an unscreened, geometrically coded two-core flat cable (protection against polarity reversal)
- The conductor is contacted by "piercing technology" within the ASI modules
- The sensors are connected to the ASI modules (coupling modules) using round cables (connection cables)

Norm references / Approvals

- ASI is standardised Europe-wide in EN 50295 and internationally in IEC 62026-2.
- PVC A version with UL/CSA (CMX) certification
- UL/CSA version: CMG c(UL)us or (UL)CL2 or AWM 300V FT4 certified

Product Make-up

- Conductor: fine-wire tinned-copper strands
- Core insulation: blue and brown
- Outer sheath:
  rubber (G), halogenfree
  thermoplastic elastomers (TPE)
  PVC
- Outer sheath: yellow (RAL 1023), black (RAL 9005), red (RAL 3000)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
Yellow: 300 V (not for power applications)
Black: 300 V (not for power applications)
Red: 300 V

Conductor resistance
1.5 mm²: max. 13.7 Ohm/km
2.5 mm²: max. 8.21 Ohm/km

Minimum bending radius
Fixed installation: 12 mm
Flexible use 24 mm

Test voltage
Core/core: 2000 V

Temperature range
Dependent on outer sheath material:
PVC: -30°C to +90°C
Other materials: -40°C to +85°C
During installation:
PVC -20 °C to +90 °C
Other materials:
-30 °C to +85 °C

Article number	Article designation	Outer sheath colour	Application	Number of cores and mm² per conductor	Copper index (kg/km)	Weight (kg/km)
Rubber/EPDM						
2170228	UNITRONIC® BUS ASI (G)	yellow	Data and power transmission	2 x 1,5	29	85
2170229	UNITRONIC® BUS ASI (G)	black	Transmission of 30 V DC auxiliary power	2 x 1,5	29	85
21700230	UNITRONIC® BUS ASI (G)	grey	Transmission of 48 V DC auxiliary power	2 x 1,5	29	67
2170371	UNITRONIC® BUS ASI LD (G)	yellow	Data and power transmission	2 x 2,5	48	85
2170372	UNITRONIC® BUS ASI LD (G)	black	Transmission of 30 V DC auxiliary power	2 x 2,5	48	85
21700373	UNITRONIC® BUS ASI LD (G)	grey	Transmission of 48 V DC auxiliary power	2 x 2,5	48	85
TPE						
2170230	UNITRONIC® BUS ASI (TPE)	yellow	Data and power transmission	2 x 1,5	29	64
2170231	UNITRONIC® BUS ASI (TPE)	black	Transmission of 30 V DC auxiliary power	2 x 1,5	29	64
2170232	UNITRONIC® BUS ASI (TPE)	red	Transmission of 230 V AC auxiliary power	2 x 1,5	29	64
PVC UL/CSA						
2170842	UNITRONIC® BUS ASI (PVC) A	yellow	Data and power transmission	2 x 1,5	29	70
2170843	UNITRONIC® BUS ASI (PVC) A	black	Transmission of 30 V DC auxiliary power	2 x 1,5	29	70
2170844	UNITRONIC® BUS ASI (PVC) A	red	Transmission of 230 V AC auxiliary power	2 x 1,5	29	70

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Lapp Kabel is a member of the AS-International Association
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UNITRONIC® BUS ASI FD

High flexible AS-INTERFACE cables for networking systems in the field

Info

- "FD" = suitable for cable chains
- "LD" = Long Distance



Benefits

- The new BUS ASI LD 2 x 2.5 (Long Distance) allows even modules located further away to be connected. AS-I power supplies can be reduced. The BUS ASI LD is downwards-compatible with version 1.5.
- For highly flexible applications (cable chains, moving machine parts)
- High oil-resistance

Application range

- Communication at sensor/actuator level
- Sensor-/actuator wiring

Product features

- PUR versions are halogen-free according to IEC 60754-1
- Flame-retardant according to IEC 60332-1-2, UL FT-2 flame test
- Data and power are transmitted via an unscreened, geometrically coded two-core flat cable (protection against polarity reversal)
- The conductor is contacted by "piercing technology" within the ASI modules
- The sensors are connected to the ASI modules (coupling modules) using round cables (connection cables)

Norm references / Approvals

- ASI is standardised Europe-wide in EN 50295 and internationally in IEC 62026-2.
- TPE variant: UL AWM Style 2103 CSA AWM II A/B
- PUR versions: UL AWM Style 20549 and 10586

Product Make-up

- Extra-fine wire, tinned copper strands
- Core insulation: halogen-free compound
- Outer sheath: TPE PUR
- Outer sheath: yellow (RAL 1023), black (RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
300 V (not for power applications)

Conductor resistance
1.5 mm²: max. 13.7 Ohm/km
2.5 mm²: max. 8.21 Ohm/km

Minimum bending radius
Fixed installation: 12 mm
Flexing without fixing: 24 mm
Flexing with fixing: 60 mm (15 x D)

Test voltage
Core/core: 2000 V

Temperature range
Fixed installation:
-40°C to +80°C (TPE +105°C)
Flexing without fixing:
-30 °C to +70 °C (TPE +105 °C)

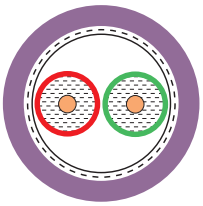
Article number	Article designation	Outer sheath colour	Application	Number of cores and mm² per conductor	Copper index (kg/km)	Weight (kg/km)
For highly flexible applications (cable chains, moving machine parts)						
2170357	UNITRONIC® BUS ASI FD P FRNC	yellow	Data and power transmission	2 x 1,5	29	64
2170358	UNITRONIC® BUS ASI FD P FRNC	black	Transmission of 30 V DC auxiliary power	2 x 1,5	29	64
21700359	UNITRONIC® BUS ASI FD P FRNC	grey	Transmission of 48 V DC auxiliary power	2 x 1,5	29	64
2170317	UNITRONIC® BUS ASI LD FD P	yellow	Data and power transmission	2 x 2,5	48	74
2170318	UNITRONIC® BUS ASI LD FD P	black	Transmission of 30 V DC auxiliary power	2 x 2,5	48	74
21700319	UNITRONIC® BUS ASI LD FD P GY	grey	Transmission of 48 V DC auxiliary power	2 x 2,5	48	74
For high flexible application - TPE UL/CSA (AWM)						
2170830	UNITRONIC® BUS ASI FD (TPE) A	yellow	Data and power transmission	2 x 1,5	29	64
2170831	UNITRONIC® BUS ASI FD (TPE) A	black	Transmission of 30 V DC auxiliary power	2 x 1,5	29	64
21700832	UNITRONIC® BUS ASI FD (TPE) A	grey	Transmission of 48 V DC auxiliary power	2 x 1,5	29	64

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
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UNITRONIC® BUS PB TRAY

PROFIBUS cable with PLTC-ER approval for unprotected use on cable trays





2170856

Info

- PLTC-ER (power limited tray cable - epxosed run)

Benefits

- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP
- PLTC-ER approval for open wiring between cable tray and industrial machines/plants acc. to NEC 725.154 (D)
- No additional protection of the cable needed

Application range

- For fixed installation or applications with occasional movements
- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).

Product features

- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply
  (cable type A, PROFIBUS-DP):
  93.75 kbit/s = 1200 m
  187.5 kbit/s = 1000 m
  500 kbit/s = 400 m
  1.5 Mbit/s = 200 m
  12.0 Mbit/s = 100 m
- UV-resistant UL SUN RES
- Flame retardant acc. UL 1685 - FT4 (vertical tray)

Norm references / Approvals

- C(UL)us Typ CMG (75°C) acc.to UL 444 / CSA 22.2
- UL Type PLTC-ER acc. to UL 13

Product Make-up

- Bare copper wire, 0,64 mm diameter
- Core colours: red, green
- Overall screening with copper braid and plastic-laminated aluminium foil
- PVC inner sheath and outer sheath
- Colour: violet (RAL 4001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Mutual capacitance
(1 kHz): max. 30 nF/km

Peak operating voltage
(not for power applications) 250 V

Impedance
150 +/- 15 Ohm

Conductor resistance
(loop): max. 110 ohm/km

Minimum bending radius
Fixed installation: 8 x outer diameter

Test voltage
Core/core: 2000 V

Characteristic impedance
150 ± 15 Ohm

Temperature range
Flexing: -10°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® BUS PB TRAY					
2170856	UNITRONIC® BUS PB TRAY	1x2x0,64	8.4	26	82

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
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Lapp Kabel is a member of the PROFIBUS user organisation (PNO)
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UNITRONIC® BUS PB

PROFIBUS cables for fixed applications

Info

- Lapp Kabel is a member of the PROFIBUS User Organisation (PNO)
- A for Advanced
  here: UL and CSA certifications
- CPR: Article number choice under www.lapp.com



Application range

- For fixed installation
  Maximum electromagnetic screening
- Dry or damp rooms
- Item nos. 2170233, 2170333, 2170820, 2170824, 2170826 are all UV-resistant

Product features

- These bus cables can be used for PROFIBUS-DP as well as for PROFIBUS-FMS and FIP
- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply
  (cable type A, PROFIBUS-DP):
  93.75 kbit/s = 1200 m
  187.5 kbit/s = 1000 m
  500 kbit/s = 400 m
  1.5 Mbit/s = 200 m
  12.0 Mbit/s = 100 m

Norm references / Approvals

- In accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC NET, also suitable for FIP (Factory Instrumentation Protocol)
- See below for UL certification type

Product Make-up

- FC: Fast Connect cable design
- P: Polyurethane
  H: Halogen-free
- PE: polyethylene outer sheath, black
- 7-W: 7-wire, e.g. for applications where vibrations occur
- COMBI: Data transmission and power supply in one cable

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Mutual capacitance
(800 Hz): max. 30 nF/km

Peak operating voltage
(not for power applications) 250 V

Conductor resistance
(loop): max. 186 Ohm/km.
see also datasheet

Minimum bending radius
Fixed installation: see data sheet

Test voltage
Core/core: 1500 V rms

Characteristic impedance
150 ± 15 Ohm

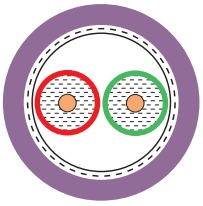
Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
Conventional cable makeup					
2170220	UNITRONIC® BUS PB	1 x 2 x 0.64	8	30.1	74
2170233	UNITRONIC® PB PE	1 x 2 x 0.64	8	30.1	57
2170226	UNITRONIC® BUS PB H 7-W	1 x 2 x 0.64	8	30.1	55
2170225	UNITRONIC® BUS PB COMBI 7-W	1 x 2 x 0,64 Ø + 3 x 1,0 mm²	9.8	59	92
Conventional cable makeup - UL/CSA CMX certification					
2170219	UNITRONIC® BUS PB A	1 x 2 x 0.64	8	30.1	57
Conventional cable makeup - UL/CSA CMG certification					
2170824	UNITRONIC® BUS PB 7-W A	1 x 2 x 0.64	8	30.1	55
Fast Connect					
2170333	UNITRONIC® BUS PB PE FC	1 x 2 x 0.64	8	26	67
Fast Connect - UL/CSA CMX certification					
2170330	UNITRONIC® BUS PB P FC	1 x 2 x 0.64	8	26	71
Fast Connect cable makeup - UL/CSA CMG certification					
2170820	UNITRONIC® BUS PB FC	1 x 2 x 0.64	8	26	84
2170826	UNITRONIC® BUS PB 7-W FC	1 x 2 x 0.64	8	26	67
2170326	UNITRONIC® BUS PB-H FC	1 x 2 x 0.64	8	26	72

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
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Lapp Kabel is a member of the PROFIBUS user organisation (PNO)
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UNITRONIC® BUS PB ROBUST

PROFIBUS cable - resistant to a wide range of chemical media





2170620

Info

- Excellent weather resistance
- Good chemical resistance

Benefits

- Robust PROFIBUS cable for use under harsh environmental conditions

Application range

- For use for PROFIBUS-DP or FIP in harsh industrial environments
- Fixed Installation

Product features

- Significantly extended use and application areas, water and chemical resistance for use in industrial conditions.
- High resistance to tensides, soaps etc.
- UV-resistant
- Flame-retardant according IEC 60332-1-2
- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply
  (cable type A, PROFIBUS-DP):
  93.75 kbit/s = 1200 m
  187.5 kbit/s = 1000 m
  500 kbit/s = 400 m
  1.5 Mbit/s = 200 m
  12.0 Mbit/s = 100 m

Product Make-up

- Solid and bare copper conductor
- Core insulation: cellular PE, O2Y(S)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: Specially formulated TPE, violet (RAL 4001)
- With conventional cable design

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Mutual capacitance
(1 kHz): approx. 28.5 nF/km

Peak operating voltage
(not for power applications) 250 V

Minimum bending radius
Fixed installation: 75 mm

Test voltage
Core/core: 1500 V rms
Core/screen: 1500 V

Characteristic impedance
(3 - 20 MHz): 150 ± 15 Ohm

Temperature range
-40°C to +80°C

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
for fixed installation					
2170620	UNITRONIC® BUS PB ROBUST	1 x 2 x 0.64	8	26	55

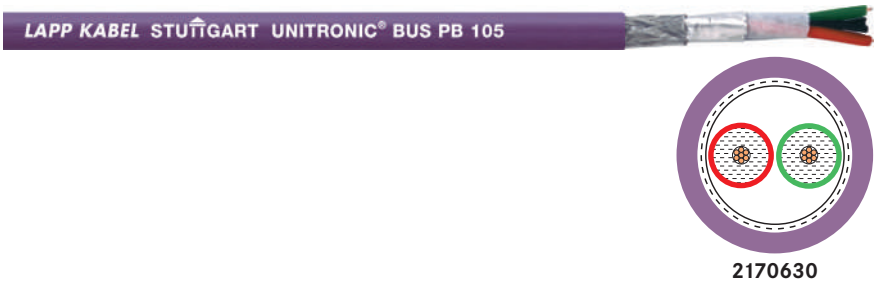
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
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UNITRONIC® BUS PB 105

PROFIBUS cable with an extended temperature range up to +105°C

Technical data

- **Classification ETIM 5/6**
  ETIM 5.0/6.0 Class-ID: EC000830
  ETIM 5.0/6.0 Class-Description: Data cable
- **Mutual capacitance**
  Approx. 28.5 nF/km
- **Peak operating voltage**
  max. 100 V (not for power applications)
- **Minimum bending radius**
  Fixed installation: 45 mm once
  Flexing: 65 mm
- **Test voltage**
  Core/core: 1500 V rms
  Core/screen: 1500 V
- **Characteristic impedance**
  (3 - 20 MHz): 150 ± 15 Ohm
- **Temperature range**
  -30°C to +105°C



2170630

Application range

- Cable has been designed for use in factory halls where temperatures up to max. 105°C may occur.

Product features

- High temperature resistance
- Flame-retardant according IEC 60332-1-2
- Oil-resistant

Product Make-up

- Stranded conductor, 7-wire, bare
- Conductor diameter: 0,64 mm (AWG24)
- Core insulation: PP
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: PVC, violet (RAL 4001)

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® BUS PB 105					
2170630	UNITRONIC® BUS PB 105	1 x 2 x 0.64	8	30.1	72

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Lapp Kabel is a member of the PROFIBUS user organisation (PNO)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® BUS PB 105 plus

PROFIBUS cable with an extended temperature range up to +105°C; short term +120°C

Technical data

- **Classification ETIM 5/6**
  ETIM 5.0/6.0 Class-ID: EC000830
  ETIM 5.0/6.0 Class-Description: Data cable
- **Mutual capacitance**
  (800 Hz): max. 30 nF/km
- **Peak operating voltage**
  (not for power applications) 250 V
- **Minimum bending radius**
  Fixed installation: 45 mm once
  Flexing: 65 mm
- **Test voltage**
  Core/core: 1500 V rms
  Core/screen: 1500 V eff.
- **Characteristic impedance**
  (3 - 20 MHz): 150 ± 15 Ohm
- **Temperature range**
  Fixed installation: -40°C to +105°C
  Short-term: up to +120 °C



2170635

Benefits

- No need for additional cable protection against high temperatures
- High temperature resistance

Application range

- For installation in hollow shaft between gear units and pitch system
- Suitable for fixed installation and occasionally flexible use in high temperature areas

Product features

- Permanent load up to +105°C, temporary load +120°C

Norm references / Approvals

- In accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC NET, also suitable for FIP (Factory Instrumentation Protocol)

Product Make-up

- Stranded conductor, 7-wire, bare
- Core insulation: polypropylene (PP)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: TPE, violet (RAL 4001)

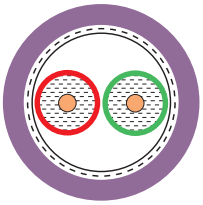
Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter [mm]	Copper index (kg/km)
UNITRONIC® BUS PB 105 plus				
2170635	UNITRONIC® BUS PB 105 plus	1x2x0,64	8	30.1

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UNITRONIC® BUS PB HEAT 180

PROFIBUS cable with an extended temperature range up to +180°C





3031981

Benefits

- No need for additional cable protection against high temperatures
- High temperature resistance

Application range

- Fixed Installation
- For use in high temperature areas with up to 180 °C

Product features

- High oil-resistance

Product Make-up

- Solid and bare copper conductor
- Wire insulation Fluorethylen
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: FEP, violet (RAL 4001)

Suitable connectors

- Sub-D Bus-Connectors

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Mutual capacitance
approx. 28 nF / km

Peak operating voltage
(not for power applications) 250 V

Minimum bending radius
Repeated: 7 x Outer Diameter
Single: 5 x Outer Diameter

Test voltage
3600 V DC (3 sec.)

Characteristic impedance
(3 - 20 MHz): 150 ± 15 Ohm

Temperature range
-50 to +180°C

Article number	Article designation	Number of pairs and conductor diameter (mm)	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® BUS PB HEAT 180				
3031981	UNITRONIC® BUS PB HEAT 180	1 x 2 x 0,64	21.7	64.1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
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UNITRONIC® BUS PB FRNC FC

FRNC PROFIBUS cable UL/CSA certified



Info

- FRNC = Flame Retardant Non Corrosive
  - Reduction of flame-propagation and density and toxicity of smoke gases in the event of fire
  - Minimisation of damage to buildings and production facilities
  - Safety for staff and in areas with high density of people

Benefits

- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP
- For use where the combination of a halogen-free outer sheath with properties similar to PUR and enhanced flame-retardance is required
- Fast Connect (FC) cable design

Application range

- This cable provides special advantages for use in sensitive areas where fire propagation must be avoided and the presence of toxic fumes would cause personal injury and damage to equipment.

Product features

- Halogen-free
- Vertical Tray Flame Test according to UL 1685
- Oil-resistant
- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply
  (cable type A, PROFIBUS-DP):
  93.75 kbit/s = 1200 m
  187.5 kbit/s = 1000 m
  500 kbit/s = 400 m
  1.5 Mbit/s = 200 m
  12.0 Mbit/s = 100 m

Norm references / Approvals

- UL/CSA-certified

Product Make-up

- Solid and bare copper conductor
- Core insulation: PE
- Inner sheath, screening foil and braiding
- Outer sheath: PUR, violet (RAL 4001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Certifications
UL/CSA (CM)

Mutual capacitance
Approx. 28.5 nF/km

Peak operating voltage
(not for power applications) 250 V

Minimum bending radius
80 mm

Test voltage
Core/core: 1500 V rms
Core/screen: 1500 V

Characteristic impedance
(3 - 20 MHz): 150 ± 15 Ohm

Temperature range
-30°C to +80°C

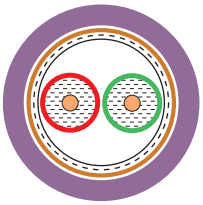
Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
Fixed Installation					
2170996	UNITRONIC® BUS PB FRNC FC	1 x 2 x 0.64	8	30.1	74

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
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Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® BUS PB ARM

Armored PROFIBUS cable for use in harsh industrial environments





2170247

Benefits

- EMC-optimised design

Application range

- For use for PROFIBUS-DP or FIP in harsh industrial environments
- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).

Product features

- Flame-retardant according IEC 60332-1-2
- UV-resistant

Product Make-up

- Solid and bare copper conductor
- Core insulation: cellular PE, O2Y(S)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Overlapping plastic tape
- Copper tape, welded longitudinally Outer sheath: PVC, violet (RAL 4001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Mutual capacitance
(800 Hz): max. 30 nF/km

Peak operating voltage
(not for power applications) 100 V

Minimum bending radius
Fixed installation: 7.5 x outer diameter
Fixed installation: 3.5 x cable diameter once

Test voltage
3600 V DC (3 sec.)

Characteristic impedance
150 ± 15 Ohm

Temperature range
-40°C to +70°C

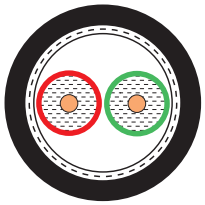
Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® BUS PB ARM					
2170247	UNITRONIC® BUS PB ARM	1 x 2 x 0.65	11.1	86.9	131

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
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UNITRONIC® BUS PB Yv

PROFIBUS cable with reinforced PVC outer sheath for outdoor/direct burial use





2170223

Benefits

- Rugged, UV-resistant and weatherproof
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

Application range

- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).

Product features

- Reinforced outer sheath made of PVC

Product Make-up

- Solid and bare copper conductor
- Foam Skin - core isolation (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: reinforced PVC, black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Mutual capacitance
(800 Hz): max. 30 nF/km

Peak operating voltage
(not for power applications) 250 V

Minimum bending radius
Fixed installation: 75 mm once
Fixed installation: 150 mm

Test voltage
Core/core: 1500 V rms
Core/screen: 1500 V

Characteristic impedance
150 ± 15 Ohm

Temperature range
Flexing: -5°C to +50°C
Fixed installation: -40°C to +80°C

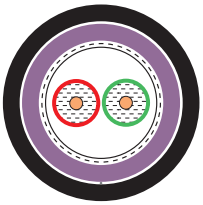
Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
Suitable for outdoor use and direct burial					
2170223	UNITRONIC® BUS PB Yv	1 x 2 x 0.64	9.4	30.1	106

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
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UNITRONIC® BUS PB YY

PROFIBUS cable with double PVC outer sheath for outdoor/direct burial use - Fast Connect cable make up





2170236

Benefits

- Rugged, UV-resistant and weatherproof
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

Application range

- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).

Product features

- Double PVC outer sheath

Product Make-up

- Solid and bare copper conductor
- Core insulation: PE
- Overall screening with copper braid and plastic-laminated aluminium foil
- Inner sheath: PVC, violet RAL (4001), outer diameter: 7.4 mm
- Outer sheath, PVC, black RAL (9005), outer diameter: 9.5 mm

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Mutual capacitance
(800 Hz): max. 30 nF/km

Peak operating voltage
(not for power applications) 250 V

Minimum bending radius
Fixed installation: 75 mm once
Fixed installation: 10 x outer diameter

Test voltage
Core/core: 1500 V rms
Core/screen: 1500 V

Characteristic impedance
150 ± 15 Ohm

Temperature range
Flexing: -5°C to +50°C
Fixed installation: -40°C to +80°C

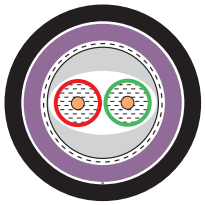
Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
Suitable for outdoor use and direct burial					
2170236	UNITRONIC® BUS PB YY	1 x 2 x 0.64	9.5	30.1	87

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
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UNITRONIC® BUS PB BURIAL FC

PROFIBUS cable with double outer sheath for outdoor/direct burial use





2170323

Benefits

- Fast Connect (FC) cable design
- Rugged, UV-resistant and weatherproof
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

Application range

- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).

Product features

- Second PE outer sheath

Product Make-up

- Solid and bare copper conductor
- Core insulation: foam skin, (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Inner sheath: PVC, violet RAL (4001), outer diameter: 8.0 mm
- Outer sheath, PE, black RAL (9005), outer diameter: 10.8 mm

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Mutual capacitance
(800 Hz): max. 30 nF/km

Peak operating voltage
(not for power applications) 100 V

Minimum bending radius
Fixed installation: 3.5 x cable diameter once
Fixed installation: 7.5 x outer diameter

Test voltage
3600 V DC (3 sec.)

Characteristic impedance
150 ± 15 Ohm

Temperature range
-40 °C to +60 °C

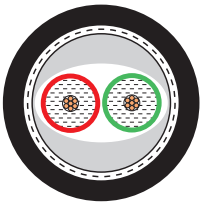
Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
Suitable for outdoor use and direct burial					
2170323	UNITRONIC® BUS PB BURIAL FC	1 x 2 x 0.64	10.8	26	115

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
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UNITRONIC® BUS PB Y 7-W FC BK

UV-resistant PROFIBUS cable for outdoor applications





2170310

Benefits

- Fast Connect (FC) cable design
- 7-W: 7-wire, e.g. for applications where vibrations occur
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

Application range

- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).

Product features

- UV-resistant and weather-resistant
- Resistant to acids, alkalis and certain oils at room temperature

Product Make-up

- Stranded conductor, 7-wire, bare
- Core insulation: foam skin, (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: PVC, black RAL (9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Mutual capacitance
(800 Hz): max. 30 nF/km

Peak operating voltage
(not for power applications) 250 V

Minimum bending radius
Fixed installation: 8 x outer diameter
Flexing: 15 x outer diameter

Test voltage
Core/core: 1500 V rms
Core/screen: 1500 V

Characteristic impedance
150 ± 15 Ohm

Temperature range
Flexing: -10°C to +70°C
Fixed installation: -40°C to +80°C

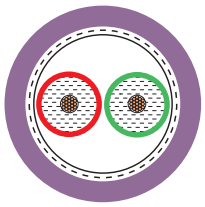
Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® BUS PB Y 7-W FC BK					
2170310	UNITRONIC® BUS PB Y 7-W FC BK	1 x 2 x 0.64	7.8	30.1	80

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
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UNITRONIC® BUS PB FD P

Halogenfree, highly flexible PROFIBUS cable





2170222

Benefits

- Due double screening it is suitable for installation in electromagnetically demanding areas
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP
- For use where the combination of a halogen-free outer sheath with properties similar to PUR and enhanced flame-retardance is required

Application range

- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).
- For highly flexible applications (cable chains, moving machine parts)
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

Product features

- Halogen-free
- Flame-retardant according IEC 60332-1-2
- Oil-resistant
- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply
  (cable type A, PROFIBUS-DP):
  93.75 kbit/s = 1200 m
  187.5 kbit/s = 1000 m
  500 kbit/s = 400 m
  1.5 Mbit/s = 200 m
  12.0 Mbit/s = 100 m

Product Make-up

- Stranded bare copper wire
- Core insulation: foam skin, (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: PUR, violet (RAL 4001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Mutual capacitance
(800 Hz): max. 30 nF/km

Peak operating voltage
(not for power applications) 250 V

Torsion movement in WTG (wind turbine generator)
TW-0 & TW-2, refer to Appendix T0

Minimum bending radius
65 mm

Test voltage
Core/core: 1500 V rms

Characteristic impedance
150 ± 15 Ohm

Temperature range
Flexing: -30°C to +70°C
Fixed installation: -40°C to +80°C

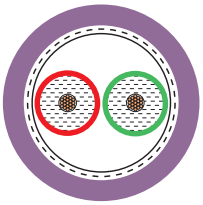
Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
For highly flexible applications (e.g. cable chains) - conventional cable assembly					
2170222	UNITRONIC® BUS PB FD P	1 x 2 x 0.64	8	30.1	64

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
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UNITRONIC® BUS PB FD P A

Halogenfree, highly flexible PROFIBUS cable - UL/CSA certified





2170822

Info

- A for Advanced
  here: UL and CSA certifications

Benefits

- For use where the combination of a halogen-free outer sheath with properties similar to PUR and enhanced flame-retardance is required
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

Application range

- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).
- For highly flexible applications (cable chains, moving machine parts)
- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)

Product features

- Halogen-free
- Flame-retardant according IEC 60332-1-2
- Oil-resistant
- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply
  (cable type A, PROFIBUS-DP):
  93.75 kbit/s = 1200 m
  187.5 kbit/s = 1000 m
  500 kbit/s = 400 m
  1.5 Mbit/s = 200 m
  12.0 Mbit/s = 100 m

Norm references / Approvals

- Certification: UL/CSA type CMX in accordance with UL 444 and CSA C22.2 no. 214

Product Make-up

- Stranded bare copper wire
- Core insulation: foam skin, (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: PUR, violet (RAL 4001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Mutual capacitance
(800 Hz): max. 30 nF/km

Peak operating voltage
(not for power applications) 250 V

Torsion movement in WTG (wind turbine generator)
TW-0 & TW-2, refer to Appendix T0

Minimum bending radius
65 mm

Test voltage
Core/core: 1500 V rms

Characteristic impedance
150 ± 15 Ohm

Temperature range
Flexing: -30°C to +70°C
Fixed installation: -40°C to +80°C

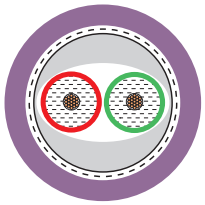
Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
Highly flexible application					
2170822	UNITRONIC® BUS PB FD P A	1 x 2 x 0.64	8	30.1	58

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
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UNITRONIC® BUS PB FD P FC

Halogenfree, highly flexible PROFIBUS cable - with fast connect cable make up, UL/CSA certified





2170322

Benefits

- Fast Connect (FC) cable design
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

Application range

- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).
- For highly flexible applications (cable chains, moving machine parts)

Product features

- Flame-retardant according IEC 60332-1-2
- Oil-resistant
- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply
  (cable type A, PROFIBUS-DP):
  93.75 kbit/s = 1200 m
  187.5 kbit/s = 1000 m
  500 kbit/s = 400 m
  1.5 Mbit/s = 200 m
  12.0 Mbit/s = 100 m

Norm references / Approvals

- Certification: UL/CSA type CMX in accordance with UL 444 and CSA C22.2 no. 214

Product Make-up

- Stranded bare copper wire
- Core insulation: foam skin, (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Fast connect inner sheath: PVC, nature
- Outer sheath: PUR, violet (RAL 4001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Mutual capacitance
(800 Hz): max. 30 nF/km

Peak operating voltage
(not for power applications) 250 V

Minimum bending radius
Flexing: 15 x outer diameter

Test voltage
3600 V DC (3 sec.)

Characteristic impedance
150 ± 15 Ohm

Temperature range
Flexing: -30°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
Highly flexible application					
2170322	UNITRONIC® BUS PB FD P FC	1 x 2 x 0.64	8	26	79

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
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UNITRONIC® BUS PB FD FRNC FC

Flame retardant, highly flexible PROFIBUS cable - with fast connect cable make up, UL/CSA certified



Benefits

- Fast Connect (FC) system
- For use where the combination of a halogen-free outer sheath with properties similar to PUR and enhanced flame-retardance is required
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

Application range

- For highly flexible use in energy supply chains or permanently moving machines and linear robots
- This cable provides special advantages for use in sensitive areas where fire propagation must be avoided and the presence of toxic fumes would cause personal injury and damage to equipment.

Product features

- Halogen-free
- Oil-resistant
- Vertical Tray Flame Test according to UL 1685
- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply (cable type A, PROFIBUS-DP):
  93.75 kbit/s = 1200 m
  187.5 kbit/s = 1000 m
  500 kbit/s = 400 m
  1.5 Mbit/s = 200 m
  12.0 Mbit/s = 100 m

Norm references / Approvals

- The cable is UL/CSA-certified (CM)

Product Make-up

- Stranded bare copper wire
- Core insulation: foam skin, (O2YS)
- Overall screening with copper braid and plastic-laminated aluminium foil
- Fast connect inner sheath: PVC, nature
- Outer sheath: PUR, violet (RAL 4001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Mutual capacitance
nom. 28 nF/km

Peak operating voltage
(not for power applications) 250 V

Minimum bending radius
Fixed installation: 10 x outer diameter
Flexing: 15 x outer diameter

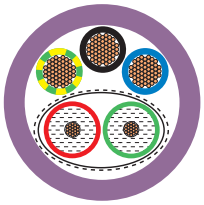
Test voltage
Core/core: 1500 V rms

Characteristic impedance
(3 - 20 MHz): 150 ± 15 Ohm

Temperature range
Flexing: -30°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter [mm]	Copper index (kg/km)
UNITRONIC® BUS PB FD FRNC FC				
2170997	UNITRONIC® BUS PB FD FRNC FC	1x2x0,64	8	26

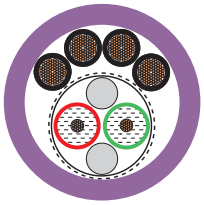
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
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2170227

UNITRONIC® BUS PB FD P COMBI

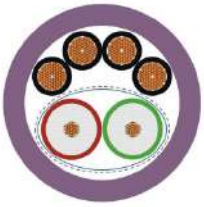
Highly flexible, halogenfree PROFIBUS HYBRID cables




2170495

UNITRONIC® BUS PB FD P HYBRID




2170875

UNITRONIC® BUS PB FD Y HYBRID



Benefits

- For use where the combination of a halogen-free outer sheath with properties similar to PUR and enhanced flame-retardance is required
- For highly flexible applications (cable chains, moving machine parts)
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

Application range

- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).

Product features

- HYBRID: cable for data transmission + power supply
- Flame-retardant according IEC 60332-1-2

Product Make-up

UNITRONIC® BUS PB FD P COMBI

- Fine-wire, bare copper strand
- 1x2x0.64: red, green
  3x1.0 (AWG18): grenn/yellow, black, blue
- Core insulation: PE
- Tin-plated copper wire braiding
- Outer sheath: PUR, violet (RAL 4001)

UNITRONIC® BUS PB FD P HYBRID

- Fine-wire, bare copper strand
- 1x2x0.64 : red, green
  4 x 1.5 (AWG16): black with white numbers
- Core insulation: PE
- Tin-plated copper wire braiding
- Outer sheath: PUR, violet (RAL 4001)

UNITRONIC® BUS PB FD Y HYBRID

Please find all information on article 2170882 in the data sheet.

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Mutual capacitance
(800 Hz): max. 30 nF/km

Peak operating voltage
(not for power applications) 100 V

UNITRONIC® BUS PB FD P HYBRID
Flexing: 15 x outer diameter

Test voltage
UNITRONIC® BUS PB FD P COMBI
Core/core: 600 V
UNITRONIC® BUS PB FD P HYBRID
Core/core: 600 V
Core/screen: 600 V

Characteristic impedance
150 ± 15 Ohm

Temperature range
UNITRONIC® BUS PB FD P COMBI
Flexing: -5°C to +50°C
Fixed installation: -40°C to +80°C
UNITRONIC® BUS PB FD P HYBRID
Flexing: -30°C to +60°C
Fixed installation: -40°C to +70°C

Article number	Article designation	Number of pairs and conductor diameter (mm)	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® BUS PB FD P COMBI					
2170227	UNITRONIC® BUS PB FD P COMBI	1 x 2 x 0.64 Ø + 3 x 1.0 mm²	10.1	59	125
UNITRONIC® BUS PB FD P HYBRID					
2170495	UNITRONIC® BUS PB FD P HYBRID	1 x 2 x 0.64 Ø + 4 x 1.5 mm²	11.3	89	148
UNITRONIC® BUS PB FD Y HYBRID					
2170882	UNITRONIC® BUS PB FD Y HYBRID	1 x 2 x 0.64 Ø +4 x 1,5 mm²	11.0	89	155

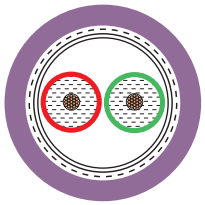
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
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UNITRONIC® BUS

UNITRONIC® BUS PB TORSION

Flame retardant, highly flexible PROFIBUS cable for torsion load





2170332

Benefits

- For use where the combination of a halogen-free outer sheath with properties similar to PUR and enhanced flame-retardance is required
- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP

Application range

- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).

Product features

- TORSION: for torsional stress, e.g. robot application; ± 180° per 1 m
- Halogen-free
- Flame-retardant according IEC 60332-1-2
- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply
  (cable type A, PROFIBUS-DP):
  93.75 kbit/s = 1200 m
  187.5 kbit/s = 1000 m
  500 kbit/s = 400 m
  1.5 Mbit/s = 200 m
  12.0 Mbit/s = 100 m

Norm references / Approvals

- Certification: UL type CMX in accordance with UL 444

Product Make-up

- Stranded bare copper wire
- Core insulation: PE
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: PUR, violet (RAL 4001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Mutual capacitance
(800 Hz): max. 30 nF/km

Peak operating voltage
(not for power applications)
300 V

Torsion movement in WTG (wind turbine generator)
Max. torsion load
± 180°/m

Minimum bending radius
Fixed installation: 4 x outer diameter
Flexing: 7.5 x outer diameter

Test voltage
3600 V DC (3 sec.)

Characteristic impedance
150 ± 15 Ohm

Temperature range
Operating temperature: -25°C to 75°C
Storage temp.: -40°C to 80°C

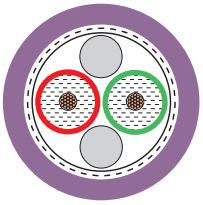
Article number	Article designation	Number of cores and mm² per conductor	Dimension and cross section in mm²	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
Highly flexible application						
2170332	UNITRONIC® BUS PB TORSION	1 x 2 x 0.38	1 x 2 x 0.38	8	31	66

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
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Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
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UNITRONIC® BUS PB FESTOON

PROFIBUS cable for cable trolley applications





2170331

Benefits

- Cables can be used for PROFIBUS-DP as well as PROFIBUS-FMS and FIP
- CL3 for installation on trays

Application range

- PROFIBUS DP (in accordance with DIN 19245 and EN 50170, e.g. for SIEMENS SIMATIC® NET, also suitable for FIP - Factory Instrumentation Protocol).

Product features

- FESTOON: for cable trolley (festoon)
- Based on the bit rates listed, in accordance with PNO specifications the following maximum cable lengths for a bus segment apply (cable type A, PROFIBUS-DP):
  93.75 kbit/s = 1200 m
  187.5 kbit/s = 1000 m
  500 kbit/s = 400 m
  1.5 Mbit/s = 200 m
  12.0 Mbit/s = 100 m

Norm references / Approvals

- With UL/CSA certification (CL3, SUN RES, Oil Res I)
- Flame-retardant according to CSA FT4 UL Vertical-Tray Flame Test
- Oil-resistant according to UL OIL RES I

Product Make-up

- Outer sheath: special PVC compound

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Mutual capacitance
(800 Hz): max. 30 nF/km

Peak operating voltage
600 V (not for power applications)

Minimum bending radius
Flexing: 70 mm
Fixed installation: 30 mm once

Test voltage
Core/core: 2000 V

Characteristic impedance
150 ± 15 Ohm

Temperature range
Flexing: -5°C to +70°C
Fixed installation: -40°C to +80°C

Article number	Article designation	Number of cores and mm² per conductor	Dimension and cross section in mm²	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
Highly flexible application						
2170338	UNITRONIC® BUS PB Festoon	1 x 2 x 0.64	1 x 2 x 0.64	8	26	64

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
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EPIC® DATA PB Sub-D

PROFIBUS connectors with screw terminals | REPEATER function | ATEX

Info

- Optional with LED diagnostic
- M12, REPEATER and ATEX version
- Versions with 2nd Sub-D interface



21700507



21700503



LED
21700529



21700520



21700505

Benefits

- Easy connection with tried-and-tested M12 / screw terminal technology
- Sensor/ ac
- Terminating resistor (integrated) can be switched
- ATEX version: For use within intrinsically-safe circuits in zone 2 areas with an explosion hazard (explosive gas atmosphere occurs only rarely and briefly)

Product features

- Max. transmission rate 12 Mbit/s possible
- Current consumption max. 12,5 mA (with LED 35 mA / REPEATER 100 mA)
- Supply voltage 4.75 - 5.25 V DC (supplied from the terminal)
- Terminating resistor "ON" - the outbound bus cable is disconnected

Norm references / Approvals

- IEC 61158, IEC 61784
- UL File No. E331560
- ATEX version: DIN EN 60079-0:2006, DIN 60079-15:2005 (category 3G zone 2)

Product Make-up

- D-Sub plug, 9-pin, fixing screws 4-40 UNC
- Improved electromagnetic compatibility (EMC) by metallized housing
- Versions with additional Sub-D interface for programming/diagnostic ('PG')
- For cable outer diameter: 5 8 mm / M12 B-coded cordsets
- LED Version indicate: bus operation - (green) station transmission - (blue) terminating resistor "on" - (orange)

Suitable cables

- UNITRONIC® BUS PB
- UNITRONIC® BUS PB M12
- UNITRONIC® BUS PB M12-M12

Suitable tools

- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001132
ETIM 5.0/6.0 Class-Description: D-Sub connector

Dimensions
54 mm x 40 mm x 17 mm - 35°
64 mm x 40 mm x 17 mm - 90°
68 mm x 40 mm x 17 mm - 180°
70 mm x 40 mm x 17 mm - M12
(LxWxH)

Connection type
Screwing
M12

IP

Protection rating
IP 20

Terminating resistor
150 Ω

Interfaces
Sub-D socket, 9-pin
Terminal blocks up to 1.0 mm² /M12
B-coded

Permissble ambient conditions
Operating temperature: -25°C to +85°C
*The max. temperature for UL is 60 °C

Article number	Article designation	Version	PG-Interface	Diagnostic LEDs	PU
35° cable outlet					
21700507	ED-PB-35		no	no	1
21700506	ED-PB-35-PG		yes	no	1
90° cable outlet					
21700504	ED-PB-90		no	no	1
21700503	ED-PB-90-PG		yes	no	1
21700529	ED-PB-90-PG-LED		yes	yes	1
180° (AX) cable outlet					
21700505	ED-PB-AX		no	no	1

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EPIC® DATA PB Sub-D FC

PROFIBUS Connectors Fast Connect



21700513



21700502



LED
21700546



21700544

Info

- New innovative insulation displacement terminals suitable for solid and flexible conductors (90° and 180° versions)
- Versions with 2nd Sub-D interface
- Optional with LED diagnostic

Benefits

- Quick installation with Fast Connect ('FC') technology
- Sensor/ ac
- No loose parts
- Visual bus connection control
- Terminating resistor (integrated) can be switched

Product features

- Fully compatible with market standard
- Max. transmission rate 12 Mbit/s possible
- Current consumption max. 12,5 mA (with LED 35 mA)
- Supply voltage 4.75 - 5.25 V DC (supplied from the terminal)
- Terminating resistor "ON" - the outbound bus cable is disconnected

Norm references / Approvals

- IEC 61158, IEC 61784
- UL File No. E331560

Product Make-up

- D-Sub plug, 9-pin, fixing screws 4-40 UNC
- Improved electromagnetic compatibility (EMC) by metallized housing
- Max. cable outer diameter: 8 mm
- Versions with additional Sub-D interface for programming/diagnostic ('PG')
- LED Version indicate:
  bus operation - (green)
  station transmission - (blue)
  terminating resistor "on" - (orange)

Suitable cables

- Bus system PROFIBUS-DP/FMS/FIP

Suitable tools

- FC STRIP stripping tool
- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001132
ETIM 5.0/6.0 Class-Description: D-Sub connector

Dimensions
95 mm x 70 mm x 17 mm - 35°
72 mm x 40 mm x 17 mm - 90°
70 mm x 35 mm x 17 mm - 180°
(LxWxH)

Connection type
Fast Connect

Protection rating
IP 20

Terminating resistor
150 Ω

Interfaces
Sub-D socket, 9-pin
PROFIBUS FC standard cable,
Ø 0.64 mm

Permissble ambient conditions
Operating temperature: -25°C to +85°C
*The max. temperature for UL is 60 °C

Article number	Article designation	PG-Interface	Diagnostic LEDs	PU
90° cable outlet for solid/ 7-/ 19-wire stranded conductor				
21700502	ED-PB-90-FC	no	no	1
21700501	ED-PB-90-PG-FC	yes	no	1
21700546	ED-PB-90-PG-LED-FC	yes	yes	1
180° (AX) cable outlet for solid/ 7-/ 19-wire stranded conductor				
21700544	ED-PB-AX-FC	no	no	1

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EPIC® DATA PB Sub-D PRO

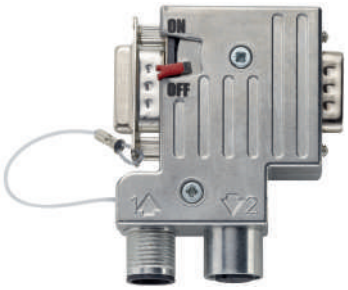
PROFIBUS Connectors full-metall M12 connection /spring type connection

Info

- For high mechanical stress
- High EMC protection



21700563



21700562

Benefits

- Optimum EMC protection
- Robust housing material for harsh environments
- No loose parts
- Cost-efficient due to quick installation (Plug & Play)
- Terminating resistor (integrated) can be switched

Product features

- Extended temperature range
- High mechnical strength (200 contact durability)
- Less transmission loss
- Max. transmission rate 12 Mbit/s possible
- Supply voltage 4.75 - 5.25 V DC (supplied from the terminal)

Norm references / Approvals

- IEC 61158, IEC 61784

Product Make-up

- D-Sub plug, 9-pin, fixing screws 4-40 UNC
- 360° shielding due full-metall housing (ZnAl)
- With additional Sub-D port for programming/diagnostic 'PG' (35° and 90° version)
- With EMC connector protection (PG port)
- M12 version: 5-pin connector, M12 B-coded

Suitable cables

- UNITRONIC® BUS PB M12
- UNITRONIC® BUS PB M12-M12]

Suitable tools

- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001132
ETIM 5.0/6.0 Class-Description: D-Sub connector

Dimensions
see technical data sheet

Connection type
M12 or
Internal spring type terminal

Protection rating
IP 30

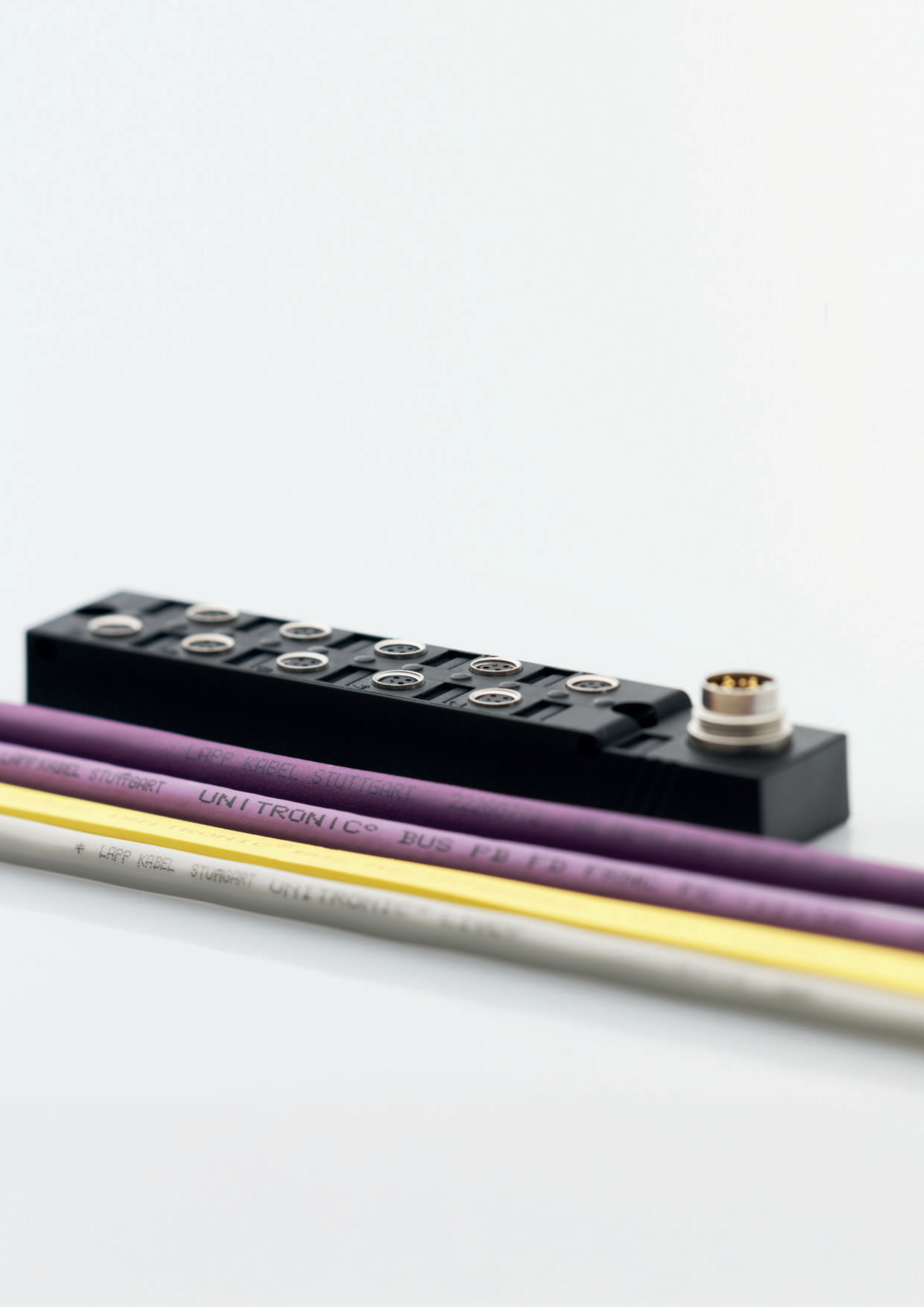
Terminating resistor
150 Ω

Interfaces
Sub-D socket, 9-pin
Spring terminal for solid conductors / M12 B-coded
0,08 - 0,5 mm² (AWG28 - AWG14)
Cable diameter: 8 - 9 mm

Permissble ambient conditions
Operating temperature:
-20°C to +70°C

Article number	Article designation	Connection type	PG-Interface	PU
EPIC® DATA PB Sub-D PRO				
21700563	ED-PB-AX-M12-PRO	M12	no	1
21700562	ED-PB-90-PG-M12-PRO	M12	yes	1
180° (AX) cable outlet				
21700566	ED-PB-AX-M12-PRO	Internal spring type	no	1

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LAPP KABEL STUTTGART
UNITRONIC BUS
LAPP KABEL STUTTGART

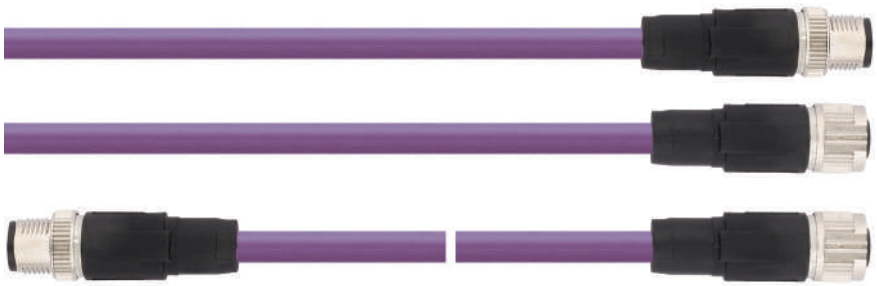
UNITRONIC® BUS PB M12 | M12-M12

PROFIBUS cable: M12 plug/socket on free conductor end

PROFIBUS Cable: M12 connector on M12 socket

Info

- Other types are available at www.lapp.com or on request



Benefits

- Cost efficient and rational wiring for PROFIBUS installations
- Space-saving due to compact dimensions
- Fast and easy error tracking

Application range

- Mechanical and plant engineering

Product features

- 2-core PROFIBUS cable, shielded
- Connector M12, B-coded with quick locking system
- Suitable for cable chain
- Including tag carrier

Norm references / Approvals

- UL-AWM-Style 21198 (80 °C / 300 V)

Product Make-up

- Core cross section: 0.25 mm²
- Core colours: red, green
- Outer sheath: PUR halogen-free, violett
- Outer diameter: 7.8 mm
- Shielded version
- Shielding is conducted over the knurl

Suitable connectors

- Sub-D Bus-Connectors
- EPIC® DATA PB M12
- EPIC® DATA PB M12/M12

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001855
ETIM 5.0/6.0 Class-Description: Sensor-actuator patch cord

Material
Contact: CuSn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

Protection rating
IP65/IP67

Ambient temperature (operation)
Plug/socket -25°C to +90°C
Fixed installation -40°C to +80°C
Flexing -30°C to +80°C
Cable chain application ≤ 70 °C

Coding
B - inverse

Rated current (A)
4 A

Article number	Article designation	Length (m)	Number of pins	Design	Rated voltage (V)	PU
Plug						
22260767	AB-PB-M12MS-2,0PUR	2	2	straight	250	1
22260768	AB-PB-M12MS-5,0PUR	5	2	straight	250	1
22260769	AB-PB-M12MS-10,0PUR	10	2	straight	250	1
22260956	AB-PB-M12MA-2,0PUR	2	2	angled	250	1
Socket						
22260770	AB-PB-2,0PUR-M12FS	2	2	straight	250	1
22260771	AB-PB-5,0PUR-M12FS	5	2	straight	250	1
22260772	AB-PB-10,0PUR-M12FS	10	2	straight	250	1
Plug on socket						
22260955	AB-PB-M12MS-0,2PUR-M12FS	0.2	2	straight-straight	250	1
22260773	AB-PB-M12MS-0,3PUR-M12FS	0.3	2	straight-straight	250	1
22260774	AB-PB-M12MS-1,0PUR-M12FS	1	2	straight-straight	250	1
22260775	AB-PB-M12MS-2,0PUR-M12FS	2	2	straight-straight	250	1
22260869	AB-PB-M12MS-3,0PUR-M12FS	3	2	straight-straight	250	1
22260776	AB-PB-M12MS-5,0PUR-M12FS	5	2	straight-straight	250	1
22260777	AB-PB-M12MS-10,0PUR-M12FS	10	2	straight-straight	250	1
22260907	AB-PB-M12MS-15,0PUR-M12FS	15	2	straight-straight	250	1
22260908	AB-PB-M12MS-20,0PUR-M12FS	20	2	straight-straight	250	1
22260079	AB-PB-M12MA-5,0PUR-M12FA	5	2	angled-angled	250	1
22260904	AB-PB-M12MA-10,0PUR-M12FA	10	2	angled-angled	250	1
22260905	AB-PB-M12MA-15,0PUR-M12FA	15	2	angled-angled	250	1

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Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
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EPIC® DATA PB M12

Field mountable M12 BUS-connectors, shielded for PROFIBUS



Benefits

- Quick and easy on-site assembly
- For creating of individual cable lengths
- Cost efficient and rational wiring for BUS installations
- Space-saving due to compact dimensions

Product features

- Screened version
- Connector M12, B-coded
- PG9- / PG11-thread
- Screw connection

Suitable cables

- Bus system PROFIBUS-DP/FMS/FIP
- UNITRONIC® BUS PB M12

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002062
ETIM 5.0/6.0 Class-Description: Sensor-actuator connector

Material
Contact: CuSn
Contact surface: Au
Contact carrier: PA66
Sealing: NBR
Knurl: Nickel-plated brass
Gripping body: Zinc die-cast, nickel-plated

Protection rating
IP 67

Ambient temperature (operation)
Plug/socket -40°C to +85°C

Coding
B - inverse (PROFIBUS)

Rated current (A)
4 A

Article number	Article designation	Number of pins	Conductor cross-section (mm²)	Cable diameter in mm	Rated voltage (V)	PU
Plug, straight						
22260653	AB-C5-M12MSB-PG9-SH-AU	5	0.25 - 0.75	6.0 - 8.5	60	1
22262078	AB-C5-M12MSB-PG11-SH-AU	5	0.25 - 0.75	8.0 - 10.0	60	1
Socket, straight						
22260646	AB-C5-M12FSB-PG9-SH-AU	5	0.25 - 0.75	6.0 - 8.5	60	1
22260889	AB-C5-M12FSB-PG11-SH-AU	5	0.25 - 0.75	8.0 - 10.0	60	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® DATA PB M12/M12

PROFIBUS M12 control cabinet feed-through, shielded



22262021

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002061
ETIM 5.0/6.0 Class-Description:
Sensor-actuator connector chassis

Material
Contact: CuZn
Contact surface: Au (gold)
Contact carrier: PA 66
Knurl: Nickel-plated brass
Sealing: FKM

Protection rating
IP 67

Ambient temperature (operation)
Plug/socket
-25 °C to +85 °C

Coding
B - inverse (PROFIBUS)

Rated current (A)
4 A

Benefits

- M12 connector on both sides
- Plug & Play for flexible connection solutions

Application range

- Mechanical and plant engineering

Product features

- For PROFIBUS applications
- Bipolar/screw mounting

Product Make-up

- 5-pin control cabinet feed-through, M12 B-coded
- M12 plug on M12 socket
- Screened version

Suitable cables

- UNITRONIC® BUS PB M12
- UNITRONIC® BUS PB M12-M12

Suitable connectors

- EPIC® DATA PB M12 352

Article number	Article designation	Number of pins	Rated voltage (V)	PU
Control cabinet feed through				
22262021	AB-C5-DSI-M12MSB-M12FSB-M16-SH	5	60	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® DATA PB TR M12

M12 Terminating resistor for PROFIBUS

Info

- Fully suitable for industrial use



22260722



22261001

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000448
ETIM 5.0/6.0 Class-Description:
Terminal resistor

Protection rating
IP65/IP67 (plug)
IP 67 (socket)

Ambient temperature (operation)
-25 °C to +90 °C (plug)
-40 °C to +85 °C (socket)

Contact material
CuSn

Coding
B - inverse (PROFIBUS)

Rated current (A)
4 A

Benefits

- Cost efficient termination of a bus systems
- Space-saving due to compact dimensions
- Robust design

Application range

- Mechanical and plant engineering

Product features

- 150 Ω terminating resistor for PROFIBUS

Product Make-up

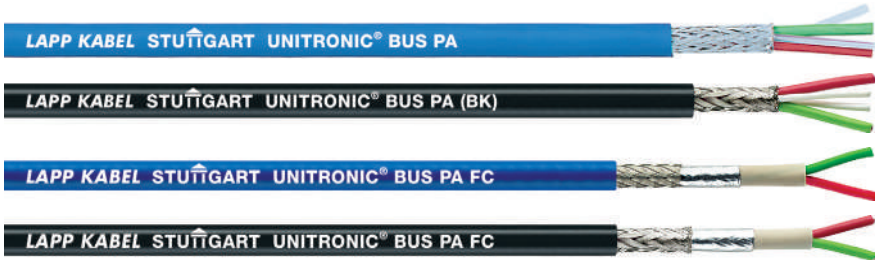
- Straight connector M12 with integrated termination resistor
- Straight connector M12, with integrated termination resistor, shielded

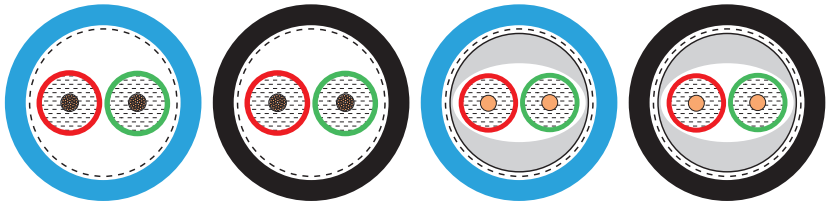
Article number	Article designation	Number of pins	Rated voltage (V)	PU
Plug, unshielded (terminating resistor)				
22260722	AB-C4-M12MS-PB-TR	4	60	5
Socket, shielded (terminating resistor)				
22261001	AB-C5-M12FS-PB-TR-SH	4	32	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® BUS PA

PROFIBUS cables for applications in manufacturing and process automation





2170234 2170235 2170334 2170335

Info

- PA = Process Automation
- Variant with UL/CSA CMG

Benefits

- FC (Fast Connect) version is oil and UV-resistant

Application range

- Process-automation application for connecting sensors and actuators - including areas with risks of explosion.
- Fixed Installation

Product features

- Bit rate = 31.25 kbit/s. Transmission technology RS485 also possible but bit rate is limited to 1.5 Mbit/s
- Maximum cable length is dependent on several factors (e.g. supply voltage, current demand).
- Technical Data: refer to the overview on "UNITRONIC® Bus Cables"
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- PROFIBUS® PA is standardised in EN 50170 as PROFIBUS® DP and PROFIBUS® FMS
- Transmission technology for PROFIBUS-PA in accordance with international standard IEC 61158-2
- FC variant with UL/CSA certification (CMG / PLTC)

Product Make-up

- UNITRONIC® BUS PA
  Stranded conductor
  Copper braiding
  Outer sheath: PVC, blue, (RAL 5015)
  intrinsically safe area, black (RAL 9005)
- UNITRONIC® BUS PA FC
  Bare copper wire
  Fast Connect inner sheath
  Cu-Geflecht
  Puter sheath: PVC, blue (RAL 5015), black (RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
(not for power applications) 250 V

Conductor resistance
(loop): max. 44 ohm/km

Minimum bending radius
Fixed installation: 10 x outer diameter

Test voltage
Core/core: 1500 V rms

Characteristic impedance
100 ± 20 Ohm

Temperature range
Fixed installation: -30°C to +80°C
During installation: -5°C to +50°C

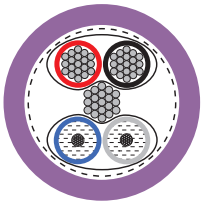
Article number	Article designation	Number of pairs and cable diameter per conductor in mm	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
Conventional cable makeup					
2170234	UNITRONIC® BUS PA (BU)	1 x 2 x 1,3	8	45	84
2170235	UNITRONIC® BUS PA (BK)	1 x 2 x 1,3	8	45	84
Fast Connect cable makeup - UL/CSA CMG certification					
2170334	UNITRONIC® BUS PA FC (BU)	1 x 2 x 1.00	8	45.5	103
2170335	UNITRONIC® BUS PA FC (BK)	1 x 2 x 1.00	8	45.5	103

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
SIMATIC® is a registered trademark of Siemens AG
Armoured
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® DeviceNet THICK + THIN

DeviceNet Buscable based on the CAN technology





2170340/2170341/2170342/2170343

Application range

- Fixed Installation
- DeviceNet™ connects industrial devices e.g. limit switches, photoelectric switches, valve islands, motor starters, drives, PLCs, etc.

Product features

- Resistant to oils
- Based on proven CAN (Controller Area Network) technology.
- Permissible cable lengths vary with the data rate and the cable thickness
- FRNC Version: Halogene free and flame retardant
- Refer to data sheet for more details

Norm references / Approvals

- CMG UL/CSA certification 75°C or PLTC, Sun Res
- FRNC variant additionally with Germanischer Lloyd certification

Product Make-up

- Tinned copper wire
- Core insulation: foam skin
- Tinned-copper braiding with drain wire
- Outer sheath: FRNC or PVC

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Core identification code
Data pair: light blue + white
Power supply: red + black

Mutual capacitance
(800 Hz): max. 39.8 nF/km

Peak operating voltage
300 V (not for power applications)

Conductor resistance
Thick (loop): max. 45 ohm/km
Thin (loop): max. 180 ohm/km

Minimum bending radius
Fixed installation: 15 x outer diameter

Test voltage
Core/core: 2000 V

Characteristic impedance
120 ohm

Temperature range
Fixed installation: -25°C to +80°C

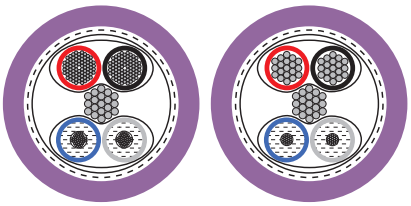
Article number	Article designation	Number of pairs and AWG size	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
Halogen-free					
2170340	UNITRONIC® BUS DN THICK FRNC	1x2xAWG18 + 1x2xAWG15	12.2	82.8	195
2170341	UNITRONIC® BUS DN THIN FRNC	1x2xAWG24 + 1x2xAWG22	6.9	33.4	69.5
PVC					
2170342	UNITRONIC® BUS DN THICK Y	1x2xAWG18 + 1x2xAWG15	12.2	88.4	192
2170343	UNITRONIC® BUS DN THIN Y	1x2xAWG24 + 1x2xAWG22	6.9	33.4	66.9

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
FRNC means Flame-Retardant, Non-Corrosive; and DeviceNet is a registered trademark of ODVA.
Lapp Kabel is a member of the PROFIBUS user organisation (PNO)
ECO is the cost-efficient version of article no. 2170342 and 2170343, with a slight modification to the outer sheath and UL/CSA-approved (CMG).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® DeviceNet FD THICK+THIN

High flexible DeviceNet Buscable based on the CAN technology





2170344/2170346 2170345/2170347

Application range

- For highly flexible applications
- DeviceNet™ connects industrial devices e.g. limit switches, photoelectric switches, valve islands, motor starters, drives, PLCs, etc.

Product features

- Based on proven CAN (Controller Area Network) technology.
- Permissible cable lengths vary with the data rate and the cable thickness
- Refer to data sheet for more details
- PUR (P) Version: Halogene free
  PVC (Y) Version: Flame retardant (UL FT4)
- UV-resistant (but colour may change after some time)

Norm references / Approvals

- PUR: UL/CSA-certified (CMX)
- PVC: UL/CSA CMG 75°C FT4 Sun Res Oil Res, at 2170346 also PLTC

Product Make-up

- Core insulation: PE
- Outer sheath of Polyurethan (PUR) or Polyvinylchlorid (PVC)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Core identification code
Data pair: light blue + white
Power supply: red + black

Mutual capacitance
(800 Hz): max. 39.8 nF/km

Peak operating voltage
300 V (not for power applications)

Conductor resistance
Thick (loop): max. 45 ohm/km
Thin (loop): max. 180 ohm/km

Minimum bending radius
Fixed installation: 7.5 x outer diameter
Flexing: 15 x outer diameter

Test voltage
Core/core: 2000 V

Characteristic impedance
120 ohm

Temperature range
PUR: -40°C to +80°C
PVC: -10°C to +80°C

Article number	Article designation	Number of pairs and AWG size	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
PUR					
2170344	UNITRONIC® BUS DN THICK FD P	1x2xAWG18 + 1x2xAWG15	12.2	94	184
2170345	UNITRONIC® BUS DN THIN FD P	1x2xAWG24 + 1x2xAWG22	6.9	33.4	67.7
PVC					
2170346	UNITRONIC® BUS DN THICK FD Y	1x2xAWG18 + 1x2xAWG15	12.2	94	195
2170347	UNITRONIC® BUS DN THIN FD Y	1x2xAWG24 + 1x 2xAWG22	6.9	33.4	69.8

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
DeviceNet is a registered trademark of ODVA
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® BUS CAN

CAN Buscables for fixed installation - UL/SCA certified



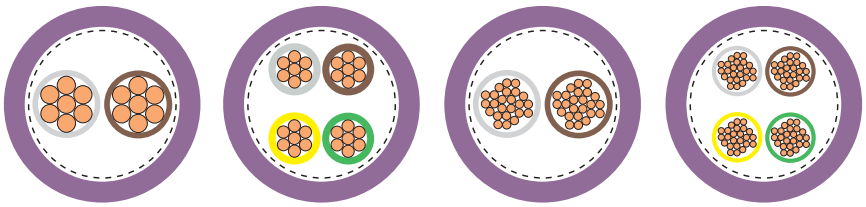
Info

- CAN = Controller Area Network

UNITRONIC® BUS CAN FD P

CAN Buscables for high flexible application - UL/SCA certified





2170260/2170263/ 2170266 | 2170261/2170264/ 2170267 | 2170269/2170272/ 2170275 | 2170270/2170273/ 2170276

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Mutual capacitance
(800 Hz) max. 40 nF/km

Peak operating voltage
UNITRONIC® BUS CAN
(not for power applications) 250 V
UNITRONIC® BUS CAN FD P
250 V (not for power transmission)

Conductor resistance
UNITRONIC® BUS CAN
(loop): max. 186 ohm/km
UNITRONIC® BUS CAN FD P
(loop): max. 159.8 ohm/km

Minimum bending radius
UNITRONIC® BUS CAN
Fixed installation: 8 x outer diameter
UNITRONIC® BUS CAN FD P
Flexing: 15 x outer diameter

Test voltage
Core/core: 1500 V rms

Characteristic impedance
120 ohm

Temperature range
UNITRONIC® BUS CAN
Fixed installation: -30°C to +80°C
Flexing: -5°C to +70°C
UNITRONIC® BUS CAN FD P
Fixed installation: -40°C to +80°C
Flexing: -30°C to +70°C

Application range

UNITRONIC® BUS CAN
- Fixed Installation

UNITRONIC® BUS CAN FD P
- For highly flexible applications

Product features

UNITRONIC® BUS CAN
- Maximum bit rate: 1 Mbit/s for 40 m segment length
- Larger conductor cross-section is necessary with increasing length. Refer to the table below (reference values from ISO 11898).
- ISO 11898 makes recommendations for the segment length, cable cross section and bit rate
- Flame-retardant according IEC 60332-1-2

UNITRONIC® BUS CAN FD P
- Halogen-free
- Maximum bit rate: 1 Mbit/s for 40 m segment length
- Larger conductor cross-section is necessary with increasing length. Refer to the table below (reference values from ISO 11898).
- ISO 11898 makes recommendations for the segment length, cable cross section and bit rate
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- Standardised internationally in ISO 11898
- UL/CSA type CMX (UL 444)

Product Make-up

UNITRONIC® BUS CAN
- 0.22 + 0.34 + 0.5: bare stranded conductor, 7-wire
  0.75: bare stranded conductor, fine-wire
- Core insulation: foam skin
- Colour-coded in accordance with DIN 47100
- Copper braid
- Outer sheath: PVC, violet (RAL 4001)

UNITRONIC® BUS CAN FD P
- Stranded bare conductor
- Core insulation: foam skin
- Copper braid
- Outer sheath: PUR, violet (RAL 4001)
- UV-resistant (but colour may change after some time)

Article number	Article designation	Number of pairs/conductor cross section (mm²)	Outer diameter [mm]	Conductor resistance	Copper index (kg/km)	Weight (kg/km)
for fixed installation						
2170260	UNITRONIC® BUS CAN	1 x 2 x 0,22	5.7	186	16.7	42
2170261	UNITRONIC® BUS CAN	2 x 2 x 0,22	7.6	186	34.8	68
2170263	UNITRONIC® BUS CAN	1 x 2 x 0,34	6.8	115	25	55
2170264	UNITRONIC® BUS CAN	2 x 2 x 0,34	8.5	115	46.4	88
2170266	UNITRONIC® BUS CAN	1 x 2 x 0,5	7.5	78	41.6	90
2170267	UNITRONIC® BUS CAN	2 x 2 x 0,5	9.6	78	59.4	106
2170269	UNITRONIC® BUS CAN	1 x 2 x 0,75	8.7	52	52.7	108
2170270	UNITRONIC® BUS CAN	2 x 2 x 0,75	11.5	52	80.6	142
For highly flexible applications (cable chains, moving machine parts)						
2170272	UNITRONIC® BUS CAN FD P	1 x 2 x 0,25	6.4	159.8	24	40
2170273	UNITRONIC® BUS CAN FD P	2 x 2 x 0,25	8.4	159.8	33	65
2170275	UNITRONIC® BUS CAN FD P	1 x 2 x 0,34	6.8	122	32.8	60
2170276	UNITRONIC® BUS CAN FD P	2 x 2 x 0,34	9.6	122	52.4	88
2170278	UNITRONIC® BUS CAN FD P	1 x 2 x 0,5	8	72.8	41.9	74
2170279	UNITRONIC® BUS CAN FD P	2 x 2 x 0,5	10.1	72.8	59.4	100

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com / Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® BUS CAN TRAY

CAN Bus cable with PLTC-ER approval - for open wiring between cable trays and industrial machines



Info

- CAN = Controller Area Network

Benefits

- PLTC-ER approval for open wiring between cable tray and industrial machines/plants acc. to NEC 725.154 (D)
- No additional protection of the cable needed

Application range

- Fixed Installation

Product features

- Maximum bit rate: 1 Mbit/s for 40 m segment length
- ISO 11898 makes recommendations for the segment length, cable cross section and bit rate
- UV-resistant UL SUN RES
- Oil-resistant according to UL OIL RES I
- Flame-retardant according to CSA FT4 UL Vertical-Tray Flame Test

Norm references / Approvals

- Standardised internationally in ISO 11898
- C(UL)us Typ CMG (75°C) acc.to UL 444 / CSA 22.2
- UL Type PLTC-ER acc. to UL 13

Product Make-up

- 7-wire bare stranded copper conductor
- Core insulation: foam skin
- Inner sheath: PVC
- Copper braid
- Outer sheath: PVC, violet (RAL 4001)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Mutual capacitance
(800 Hz) max. 40 nF/km

Peak operating voltage
(not for power applications) 250 V
Rated voltage: 600 V (UL)

Conductor resistance
(loop): max. 110,8 ohm/km

Minimum bending radius
Fixed installation: 8 x outer diameter
Flexing: 15 x outer diameter

Test voltage
Core/core: 2000 V

Characteristic impedance
120 ohm

Temperature range
Fixed installation: -40°C to +80°C
Flexing: -10°C to +70°C

Article number	Article designation	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
UNITRONIC® BUS CAN TRAY					
2170857	UNITRONIC® BUS CAN TRAY	2 x 2 x 0,34	7.5	35	81

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® BUS CAN BURIAL

CAN bus cable with double outer sheath for outdoor/direct burial use

Info

- Suitable for direct burial



Benefits

- Suitable for CAN communication according to ISO 11898
- Double-sheathed version, extremely tough, for installation without corrugated tubing
- Rugged, UV-resistant and weatherproof
- Diameter of inner sheath suitable for common connectors

Application range

- Useable for CAN based communication systems like CANopen
- Suitable for direct burial
- For outdoor applications
- For fixed installation or applications with occasional movements

Product Make-up

- Copper stranded 7x0,32
- Core insulation: PE
- Overall screening of braided tinned-copper strands
- Inner sheath: PVC, violet RAL (4001), outer diameter: 7.1 mm
- Outer sheath: PE, black RAL (9005), outer diameter: 9.0 mm

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Mutual capacitance
(1 kHz): max. 40 nF/km

Peak operating voltage
300 V (not for power applications)

Conductor resistance
(Loop): max. 74 Ohm /km

Minimum bending radius
Flexible use: 8 x Outer Diameter
Fixed Installation: 4 x Outer Diameter

Test voltage
Core/core: 1500 V rms

Characteristic impedance
120 ohm

Temperature range
Fixed installation: -40°C to +80°C

Article number	Article designation	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
UNITRONIC® BUS CAN BURIAL					
2170500	UNITRONIC® BUS CAN BURIAL 4x1x0,5	4 x 1 x 0,5	9	41.8	91

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® BUS HEAT 6722

CAN bus cable for utility vehicles



Info

- Designed according to ISO 6722
- Tested acc.to ECE-R 118.01

Benefits

- Star-quad stranding, thus less space requirement and weight
- Extended temperature range
- Good resistance to oil, petrol, acids and alkalis

Application range

- Suitable for connecting to of e.g. camera systems, enter-/ infotainment for passengers, ticketing systems
- For fixed, occassionally flexible and protected use inside of utility vehicles

Product features

- Halogen-free outer sheath
- Maximum bit rate: 1 Mbit/s for 40 m segment length
- Temperature class B on the basis of ISO 6722-1
- ISO 11898 makes recommendations for the segment length, cable cross section and bit rate
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- Standardised internationally in ISO 11898

Product Make-up

- Stranded bare conductor
- PUR outer sheath
- Colour: black
- UV-resistant (but colour may change after some time)
- Screening: wrapped with braided copper wires

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Mutual capacitance
40 nF/km (800 Hz)

Peak operating voltage
250 V (not for power transmission)

Conductor resistance
(loop): max. 159.8 ohm/km

Minimum bending radius
Flexing: 15 x outer diameter

Test voltage
Core/core: 1500 V rms

Characteristic impedance
120 ohm

Temperature range
Fixed installation: -40°C to +105°C
occasionally flexing: -30°C to +105°C

Article number	Article designation	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index [kg/km]	Weight [kg/km]
UNITRONIC® BUS HEAT 6722					
2170385	UNITRONIC® BUS HEAT 6722	1 x 4 x 0,25	6.45	26	46
2170386	UNITRONIC® BUS HEAT 6722	1 x 4 x 0,34	7.54	33	61
2170387	UNITRONIC® BUS HEAT 6722	1 x 4 x 0,5	8.36	41	70
2170388	UNITRONIC® BUS HEAT 6722	1 x 4 x 0,75	9.79	59	95

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® TRAIN

Bus cables - MVB and WTB - Electron beam cross-linked for high requirements in railway applications

Info

- Small outer diameters for maximum saving of space and weight
- Extremely low attenuation ≤ 5 MHz



Benefits

- Good chemical resistance
- Resistant to mechanical influences in harsh environmental conditions
- Extended temperature range
- Reduced flame spreading increases the protection against damage to persons and property in the event of a fire
- EMC-optimised design

Application range

- The communication systems WTB (wire train bus) and MVB (multifunction vehicle bus) make up the so-called TCN (train communication network)
- UNITRONIC® TRAIN bus cables are designed for use in TCN acc. IEC 61375
  MVB according IEC 61375-3-1
  WTB according IEC 61375-2-1
- For use in railway vehicles and buses, for fixed installations and applications where limited movement may occur
- Also applicable within oily environments and areas with increased ambient temperature

Product features

- Fire behaviour according to EN/IEC:
  - Halogen-free acc. to EN 60754-1
  - No corrosive gases acc. to EN 60754-2
  - No fluorine acc. to EN 60684-2
  - No toxic gases acc. to EN 50305
  - Low smoke density acc. to EN 61034-2
  - Flame-retardant acc. to EN 60332-1-2
  - No fl ame propagation acc. to EN 60332-3-25
- Fire behaviour according to NF:
  - Toxicity of gases acc. to NF X 70-100
  - Low smoke density acc. to NF X 10-702
  - No flame propagation acc. to NF C 32-070, Cat. C1 and C2
- Chemical properties:
  - Oil resistant acc. to EN 50264-1
  - Fuel resistant acc. to EN 50264-1
  - Acid resistant acc. to EN 50264-1
  - Alkali resistant acc. to EN 50264-1
  - Ozone resistant acc. to EN 50264-3-2

Norm references / Approvals

- EN 45545-2 HL1, HL2, HL3
- EN 50264-1

Product Make-up

- Stranded tinned 19-wire conductor
- Core insulation: Based on Polyolefin
- Outer sheath: electron beam cross-linked polymer-compound EM 104
- Outer sheath colour: Black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Flexing: 10 x outer diameter
Fixed installation: 6 x outer diameter

Test voltage
Core/core: 1000 V
Core/screen: 1000 V

Characteristic impedance
120 ohm (±10%)

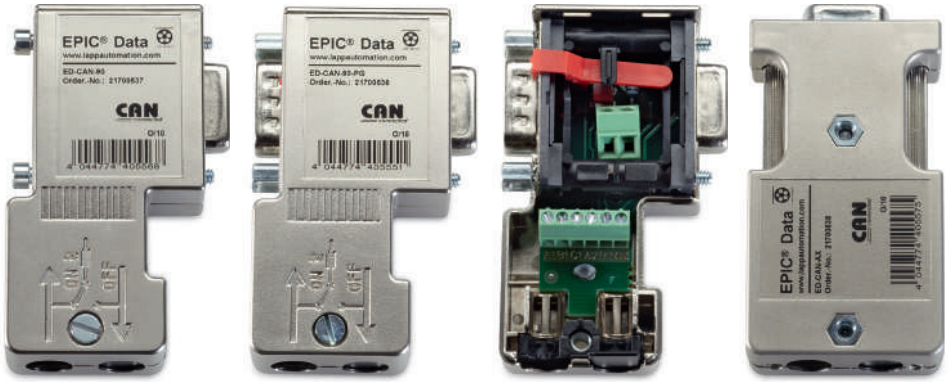
Temperature range
Fixed installation:
-45°C to +90°C
Occasional flexing: -35°C up to +90°C

Article number	Article designation	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)
Cables for MVB				
2173000	UNITRONIC® TRAIN MVB 1x2x0,5	1x2x0,5	7.6	29
2173001	UNITRONIC® TRAIN MVB 1x2x0,5+1x0,5	1x2x0,5+1x0,5	7.6	34
2173002	UNITRONIC® TRAIN MVB 2x2x0,5	2x2x0,5	8.3	40
2173003	UNITRONIC® TRAIN MVB 2x2x0,5+4x0,25	2x2x0,5+4x0,25	8.3	50
Cables for WTB				
2173004	UNITRONIC® TRAIN WTB 1x2x0,75	1x2x0,75	8.4	41

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® DATA CAN Sub-D

CAN Bus-Connectors with screw connection



21700537 | 21700536 | 21700536 | 21700538

Benefits

- Terminating resistor (integrated) can be switched
- Sensor/ ac
- No loose parts
- With additional 24 V DC output to supply external devices (90° version only)

Product features

- Max. transmission rate 1 Mbit/s possible
- Terminating resistor "ON" - the outbound bus cable is disconnected
- The integrated, connectable terminating resistor
  enable the CAN-Bus to be terminated or connected through
- Sub-D pin assignment:
  CAN Low = Pin 2
  CAN High = Pin 7
  CAN Gnd = Pin 3
  GND = Pin 6 (90° version only)
  CAN V+ = Pin 9 (90° version only)
  (shield = housing)

Norm references / Approvals

- UL File No. E331560

Product Make-up

- D-Sub plug, 9-pin, fixing screws 4-40 UNC
- Screw connection
- Improved electromagnetic compatibility (EMC) by metallized housing
- For cable outer diameter: 5 - 8 mm

Suitable cables

- Bus system CAN / DeviceNet

Suitable tools

- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001132
ETIM 5.0/6.0 Class-Description: D-Sub connector

Dimensions
60 mm x 40 mm x 17 mm - 90°
67,5 mm x 35 mm x 17 mm - 180°
(LxWxH)

Connection type
Screwing

Protection rating
IP 20

Terminating resistor
120 Ω

Interfaces
CAN bus station:
D-Sub socket, 9-pin
CAN bus cable:
6 terminal blocks for wires up to 0.8 mm²

Permissble ambient conditions
Operating temperature:
-25°C to +85°C
*The max. temperature for UL is 60 °C

Article number	Article designation	Cable outlet	PG-Interface	PU
Sub-D connector				
21700537	ED-CAN-90	90°	no	1
21700536	ED-CAN-90-PG	90°	yes	1
21700538	ED-CAN-AX	180° axial	no	1

DeviceNet is a registered trademark of ODVA
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DeviceNet CANopen

EPIC® DATA CAN Sub-D PRO

CAN Bus-Connectors full-metall

Info

- High EMC protection
- For cable diameters up to 10 mm



21700591

Benefits

- High flexibility by extended cable clamping range
- Cost-saving due to quick and easy installation
- Robust housing material for harsh environments
- For EMC critical environments

Product features

- Extended temperature range
- High mechnical strength (200 contact durability)
- Less transmission loss
- Bus termination is integrated
- Sub-D pin assignment:
  CAN Low = Pin 2
  CAN High = Pin 7
  CAN Gnd = Pin 3
  GND = Pin 6 (90° version only)
  CAN V+ = Pin 9 (90° version only)
  (shield = housing)

Product Make-up

- D-Sub plug, 9-pin, fixing screws 4-40 UNC
- 360° shielding due full-metall housing (ZnAl)
- External cable clamp connection (7 - 10 mm)
- 90° version: With additional Sub-D port for programming/diagnostic ('PG')
- 90° version: PG port with undetachable EMC Sub-D protection

Suitable cables

- UNITRONIC® DeviceNet THICK + THIN
- UNITRONIC® BUS CAN
- UNITRONIC® DeviceNet FD THICK+THIN
- UNITRONIC® BUS CAN FD P
- UNITRONIC® BUS CAN TRAY
- UNITRONIC® BUS HEAT 6722
- UNITRONIC® BUS CAN BURIAL

Suitable tools

- Kraftform® adjustable torque screwdriver/ Kraftform Kompakt® Set

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001132
ETIM 5.0/6.0 Class-Description: D-Sub connector

Dimensions
63 x 45 x 18 - 90°
81 x 36 x 15 - 180°
(LxWxH)

Connection type
Screwing

IP

Protection rating
IP 30

Terminating resistor
120 Ω

Interfaces
CAN-Bus station:
D-SUB socket, 9-pin
CAN-Bus cable:
- srew terminals for wires 0.14 - 0.5 mm²

Permissble ambient conditions
Operating temperature:
-20°C to +70°C

Article number	Article designation	Cable outlet	PG-Interface	PU
Sub-D connector				
21700591	ED-CAN-AX-PRO	180° axial	no	1

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Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® BUS CAN M12 | M12-M12

DeviceNet/CANopen Cable: M12 plug/socket on free conductor end
DeviceNet/CANopen Cable: M12 connector on M12 socket



Info

- Other types are available at www.lapp.com or on request

Benefits

- Cost-effective, efficient wiring of fieldbus and sensor/ actuator installations
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Robust design

Application range

- Mechanical and plant engineering

Product features

- 5-core DeviceNet/CANopen cable, shielded
- M12 connector, A-coded with quick-locking system
- Suitable for cable chain
- Including tag carrier

Norm references / Approvals

- UL-AWM-Style 21198 (80 °C / 300 V)

Product Make-up

- Signal line: 2 x 0.25 mm²
  Power supply: 2 x 0.34 mm²
  Drain wire: 1 x 0.34 mm²
- Core colours: red/black, blue/white
- Outer sheath: PUR halogen-free, violett
- Outer diameter: 6.7 mm
- Shielded version

Suitable connectors

- Sub-D Bus-Connectors
- EPIC® DATA CAN M12
- EPIC® DATA CAN M12/M12
- EPIC® DATA CAN TR M12
- EPIC® DATA CAN M12T
- EPIC® DATA CAN CCR

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001855
ETIM 5.0/6.0 Class-Description: Sensor-actuator patch cord

Material
Contact: CuSn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

Protection rating
IP65/IP67

Ambient temperature (operation)
Plug/socket -25°C to +90°C
Fixed installation -40°C to +80°C
Flexing -20°C to +70°C

Coding
A-standard

Rated current (A)
4 A

Article number	Article designation	Length (m)	Number of pins	Design	Rated voltage (V)	PU
Plug						
22260789	AB-DN-M12MS-2,0PUR	2	5	straight	60	1
22260790	AB-DN-M12MS-5,0PUR	5	5	straight	60	1
22260791	AB-DN-M12MS-10,0PUR	10	5	straight	60	1
22262004	AB-DN-M12MA-2,0PUR	2	5	angled	60	1
Socket						
22260792	AB-DN-2,0PUR-M12FS	2	5	straight	60	1
22260793	AB-DN-5,0PUR-M12FS	5	5	straight	60	1
22260794	AB-DN-10,0PUR-M12FS	10	5	straight	60	1
Plug on socket						
22260795	AB-DN-M12MS-0,3PUR-M12FS	0.3	5	straight-straight	60	1
22260796	AB-DN-M12MS-1,0PUR-M12FS	1	5	straight-straight	60	1
22260797	AB-DN-M12MS-2,0PUR-M12FS	2	5	straight-straight	60	1
22260798	AB-DN-M12MS-5,0PUR-M12FS	5	5	straight-straight	60	1
22260799	AB-DN-M12MS-10,0PUR-M12FS	10	5	straight-straight	60	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

DeviceNet CLPA CANopen

EPIC® DATA CAN M12

Field mountable M12 BUS-connectors shielded for DeviceNet/CANopen

Technical data

Connection type
Screwing

Material
Contact: CuSn
Contact surface: Au
Contact carrier: PA66
Sealing: NBR
Knurl: Nickel-plated brass
Gripping body: Zinc die-cast, nickel-plated

Protection rating
IP 67

Ambient temperature (operation)
Plug/socket -40°C to +85°C

Coding
A - Standard
(CANopen/DeviceNet/CC-Link)

Rated current (A)
4 A



22260135



22260136

Benefits

- Quick and easy on-site assembly
- For creating of individual cable lengths
- Cost efficient and rational wiring for BUS installations
- Space-saving due to compact dimensions

Product Make-up

- M12 plug, 5-pins, A-coded
- Screw connection
- PG9 thread
- Screened version

Article number	Article designation	Design	Number of pins	Cross-section in mm²	Cable diameter in mm	Rated voltage (V)	PU
Plug, straight							
22260135	AB-C5-M12MS-PG9-SH	screw	5	0.25 - 0.75	6.0 - 8.0	60	1
Socket, straight							
22260136	AB-C5-M12FS-PG9-SH	screw	5	0.25 - 0.75	6.0 - 8.0	60	1

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DeviceNet CANopen

EPIC® DATA CAN M12/M12

M12 control cabinet feed-through, shielded for CAN/DeviceNet/ S/A cabling

Technical data

Material
Contact: CuZn
Contact surface: Au (gold)
Contact carrier: PA 66
Knurl: Nickel-plated brass
Sealing: FKM

Protection rating
IP 67

Ambient temperature (operation)
Plug/socket
-25°C to +85°C

Coding
A - Standard
(CANopen/DeviceNet/CC-Link)

Rated current (A)
4 A



22262020

Benefits

- M12 connector on both sides
- Plug & Play for flexible connection solutions

Product features

- For CANopen/DeviceNet applications
- For sensor/actuator cabling
- Bipolar/screw mounting

Product Make-up

- 5-pin control cabinet feed-through, M12 A-coded
- M12 plug on M12 socket
- Screened version

Article number	Article designation	Number of pins	Rated voltage (V)	PU
Control cabinet feed through				
22262020	AB-C5-DSI-M12MS-M12FS-M16-SH	5	24	1

DeviceNet is a registered trademark of ODVA
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EPIC® DATA CAN TR M12

M12 Terminating resistor for DeviceNet/CANopen



22260766

Info

- Fully suitable for industrial use

Benefits

- Cost efficient termination of a bus systems
- Space-saving due to compact dimensions
- Robust design

Application range

- Mechanical and plant engineering

Product features

- 120 Ω terminating resistor for DeviceNet/CANopen

Product Make-up

- Straight connector M12 with integrated termination resistor

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000448
ETIM 5.0/6.0 Class-Description: Terminal resistor

Protection rating
IP65/IP67

Ambient temperature (operation)
-25°C to +90°C

Contact material
CuSn

Coding
A - Standard (CANopen/DeviceNet)

Rated current (A)
4 A

Article number	Article designation	Number of pins	Rated voltage (V)	PU
Plug, unshielded (terminating resistor)				
22260766	AB-C5-M12MS-DN-TR	5	60	5

DeviceNet is a registered trademark of ODVA
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DeviceNet CANopen

EPIC® DATA CAN M12T

M12 T parallel distributor for CAN/ DeviceNet/ S/A cabling

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002585
ETIM 5.0/6.0 Class-Description:
Passive sensor-actuator interface

Material
Contact: CuZn
Contact surface: Ni/Au
Contact carrier: TPU GF
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing
Sealing: NBR

Protection rating
IP65/IP67

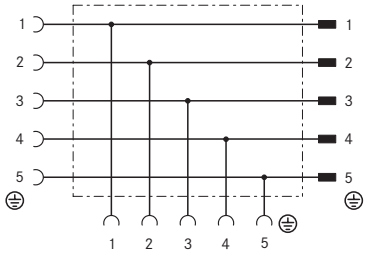
Ambient temperature (operation)
Plug/socket -25°C to +90°C

Coding
A - Standard
(CANopen/DeviceNet/CC-Link)

Rated current (A)
4 A



222607656



Benefits

- Cost-effective, efficient wiring of fieldbus and sensor/ actuator installations
- Space-saving due to compact dimensions
- Robust design

Product features

- For CANopen/DeviceNet applications
- PWIS-free

Product Make-up

- 5-pin parallel distributor
- M12 socket on M12 plug and M12 socket

Article number	Article designation	Number of pins	Rated voltage (V)	PU
T distributor				
22260765	AB-C5-M12T-2XM12FS DN	5	60	5

DeviceNet is a registered trademark of ODVA
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

DeviceNet CANopen

EPIC® DATA CAN CCR

Cable coupler round, shielded for e.g. sensor-actuator / PROFIBUS / CAN cables

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002925
ETIM 5.0/6.0 Class-Description:
Sensor-actuator adapting connector

Material
Contact: CuZn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: Zinc die-cast, nickel-plated

Protection rating
IP65/IP67

Ambient temperature (operation)
-40°C to +85°C

Rated current (A)
4 A



21700641

Benefits

- Time-saving assembly with IDC connection technology
- Optimum EMC protection with 360 ° shielding

Application range

- To extend existing cable systems
- Repairkit for damaged cables

Product features

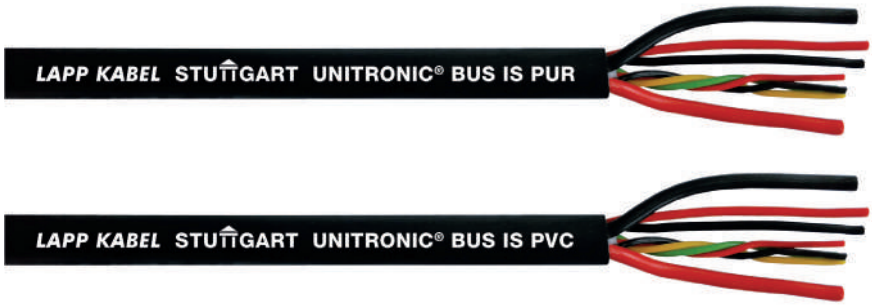
- 5-pin cable coupler round
- Screened version

Article number	Article designation	Number of pins	Cross-section in mm²	Cable diameter in mm	Rated voltage (V)	PU
Cable coupler round						
21700641	AB-C5-CCR-SH	5	0.14 - 0.50	5.0 - 9.7	60	1

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UNITRONIC® BUS IS

ISOBUS cables for use in agricultural vehicles



Info

- Lapp cable is member of the AEF - Agricultural Industry Electronics Foundation

Benefits

- Cable according ISOBUS standard (ISO 11783-2) for use in agricultural vehicles.
- HYBRID: cable for data transmission + power supply

Application range

- For outdoor applications
- Connection cable between tractor and pulled machinery

Product features

- Flame-retardant according to IEC standard 60332-1
- UV-resistant
- Resistant against oil, benzine and diesel
- PUR (Polyurethane) Version with increased robustness

Norm references / Approvals

- ISO 11783-2:2012

Product Make-up

- Fine-wired copper conductor of bare copper strands in line with conductor class 5 acc. IEC 60228
- 4x 0,5 mm² (red, yellow, black, green)
  2x 2,5 mm² (red, black)
  2x 6 mm² (red, black)
- Outer sheath: PUR and PVC, black (RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
60 V

Minimum bending radius
Fixed installation: 10 x outer diameter
Flexing: 15 x outer diameter

Test voltage
0,5 mm - 2,5 mm² core / core = 1,5 kV;
6 - 10 mm² core / core = 2,5 kV

Characteristic impedance
Characteristic impedance: 75 ohm

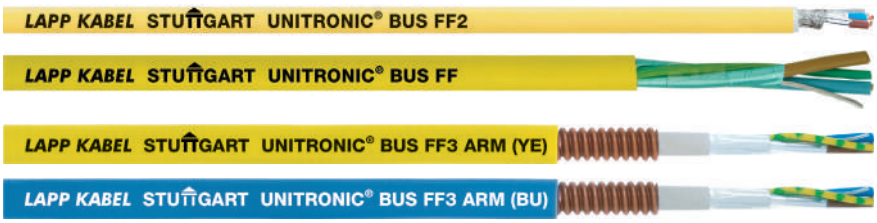
Temperature range
PUR: -40°C to +85°C
PVC: -30°C to +85°C

Article number	Article designation	Number of cores/pairs and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)
PUR				
2170561	UNITRONIC® BUS IS PUR 2x6+2x2,5+1x4x0,5	2x6+2x2,5+1x4x0,5	15.6	182.4
PVC				
2170560	UNITRONIC® BUS IS PVC	2x6+2x2,5+1x4x0,5	15.6	182.4

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® BUS FF

FOUNDATION Fieldbus cable for use in Process Automation - UL-verified



Benefits

- Cables meet the requirements of ISA/SP50 and the FOUNDATION™ field bus for the cable type A.

Application range

- FOUNDATION™ Fieldbus is used in intrinsically safe areas, especially in the field of Process Automation
- Fixed Installation

Product features

- UV-resistant
- Extended temperature range

Norm references / Approvals

- With UL/CSA certification (CMG/PLTC)

Product Make-up

- 2-core, not armoured, with device ground
- 3-core, unarmoured, with device ground
- 3-core, armoured (longitudinally welded, spiral corrugated copper sheath) with device ground
- Outer sheath: PVC, yellow
  Armoured Version: PVC, yellow and blue

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
300 V

Conductor resistance
≤ 24 Ohm/km

Minimum bending radius
15 x outer diameter

Test voltage
1500 V

Characteristic impedance
100 ± 20 Ohm at 31.25 kHz

Temperature range
-40 °C or -25 °C to +105 °C, see data sheet

Article number	Article designation	Number of pairs and cable diameter	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® BUS FF					
2170350	UNITRONIC® BUS FF 3	1x2x1.1 + 1x1.1 Ø	7.9	48.3	93
PVC - Armoured					
2170351	UNITRONIC® BUS FF 3 ARM (YE)	1x2x1.1 + 1x1.1 Ø	12.3	125	182
2170353	UNITRONIC® BUS FF 3 ARM (BU)	1x2x1.1 + 1x1.1 Ø	12.3	125	182
PVC					
2170352	UNITRONIC® BUS FF 2	1 x 2 x 1.1	7.9	39.7	82

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Foundation™ is a trademark of the Fieldbus Foundation
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® BUS CC

CC-Link bus cable for fixed installation - UL-verified



Info

- Lapp Kabel is a regular member of the user organisation CC-Link Partner Association (CLPA), Japan.

Benefits

- The CC-Link® system was developed by Mitsubishi Electric Automation, Japan.
- This CC-Link® bus cable has successfully passed the CC-Link® Conformance Test in Japan.

Application range

- CC-Link® (Control & Communication Link) = field bus network, for both control as well as information data to provide efficient, integrated factory and process automation.
- Fixed installation of the CC-Link® network

Product features

- Transmission rate in relation to the distance
- 156 kbit/s 1.200 m
  625 kbit/s 600 m
  2,5 Mbit/s 200 m
  5,0 Mbit/s 110-150 m
  10 Mbit/s 50-100 m
- Flame-retardant according to CSA FT4 UL Vertical-Tray Flame Test
- SUN RES acc. to UL 1581

Norm references / Approvals

- CM UL/CSA certification 75°C or PLTC Sun Res

Product Make-up

- Bare stranded copper wires
- Core insulation: PE
- Overall screening of braided tinned-copper strands
- Outer sheath: PVC, red (RAL 3000)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
300 V

Conductor resistance
11 ohm/1,000 ft. (305 m) at 20°C

Minimum bending radius
Fixed installation: 5 x outer diameter
Flexing: 8 x outer diameter

Test voltage
2000 V

Characteristic impedance
110 ohm at 1 MHz

Temperature range
-40°C to +70°C

Article number	Article designation	Number of cores and AWG size	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® BUS CC					
2170360	UNITRONIC® BUS CC	3 x 1 x AWG20	7.7	38.8	76.6

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
CC-Link® is a registered trademark of CC-Link Partner Association, Japan (CLPA)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® BUS CC FD P FRNC

CC-Link bus cable for high fleible applications - UL-verified



Info

- Lapp Kabel is a regular member of the user organisation CC-Link Partner Association (CLPA), Japan.

Benefits

- The CC-Link® system was developed by Mitsubishi Electric Automation, Japan.

Application range

- CC-Link® (Control & Communication Link) = field bus network, for both control as well as information data to provide efficient, integrated factory and process automation.
- For highly flexible applications (cable chains, moving machine parts)

Product features

- Transmission rate in relation to the distance
- 156 kbit/s 1.200 m
  625 kbit/s 600 m
  2,5 Mbit/s 200 m
  5,0 Mbit/s 110-150 m
  10 Mbit/s 50-100 m
- Halogen-free
- Flame-retardant according IEC 60332-1-2

Norm references / Approvals

- AWM 20233 80 °C 300V

Product Make-up

- Bare stranded copper wires
- Core insulation: PE
- Inner sheath: FRNC
- Overall screening of braided tinned-copper strands
- Outer sheath: PUR, red (RAL 3000)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Certifications
UL AWM Style 20233

Peak operating voltage
300 V

Conductor resistance
11 ohm/1,000 ft. (305 m) at 20°C

Minimum bending radius
Fixed installation: 4 x outer diameter
Moved: 10 x outer diameter

Test voltage
2000 V

Characteristic impedance
110 ohm at 1 MHz

Temperature range
-40°C to +80°C

Article number	Article designation	Number of cores and AWG size	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
UNITRONIC® BUS CC FD P FRNC					
2170370	UNITRONIC® BUS CC FD P FRNC	3 x 1 x AWG20	8.5	39.9	84

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
CC-Link® is a registered trademark of CC-Link Partner Association, Japan (CLPA)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® BUS SAFETY

SafetyBUS cables for transmission of safety-oriented datas



Benefits

- For serial transmission of safety-oriented data

Application range

- UNITRONIC® BUS SAEFTY - fixed Installation
  UNITRONIC® BUS SAEFTY FD P - highly flexible applications
- For systems such as SafetyBUS p®, based on the well-known CAN bus system

Product features

- The stated bit rates result in the following cable lengths (maximum) for a bus segment:
- 500 kbit/s = max.100 m
- 250 kbit/s = max. 250 m
- 125 kbit/s = max. 500 m
- 50 kbit/s = max. 1,000 m

Norm references / Approvals

- Flame retardant acc. to IEC 60332-1-2

Product Make-up

- Bare stranded copper wires
- Core insulation: foam skin
- Tin-plated copper wire braiding
- Outer sheath: halogen-free, flame-retardant compound
- Outer sheath: yellow

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Certifications
Version UNITRONIC® BUS SAFETY FC: AWM Style 2464 (80°C 300 V)

Mutual capacitance
(800 Hz): max. 45 nF/km

Peak operating voltage
(not for power applications) 250 V

Conductor resistance
(loop): max. 52 ohm/km

Minimum bending radius
Fixed installation:
5 x outer diameter

Test voltage
Core/core: 3000 V
Core/core: 1500 V (FD- version)

Characteristic impedance
120 ohm

Temperature range
UNITRONIC BUS SAFETY:
Fixed installation: -30°C to +80°C
UNITRONIC BUS SAFETY FD P:
Fixed installation -40°C to +80°C
Moved: -30 to +80°C

Article number	Article designation	Number of cores and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
Fixed Installation					
2170295	UNITRONIC® BUS SAFETY	3 x 0.75	7.6	49	68
For highly flexible applications					
2170885	UNITRONIC® BUS SAFETY FD P	3 x 0.75	7.8	49	68

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
SafetyBUS p® is a registered trademark of Pilz GmbH & Co.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® BUS IBS

INTERBUS cables for different applications



Benefits

- Applications:
  fixed Installation,
  high flexible use,
  outdoor use/direct burial

Application range

- Remote bus/ installation remote bus cable

Product features

- **UNITRONIC® BUS IBS**
  fixed installation
  UNITRONIC® BUS IBS Combi
  with power supply
  UNITRONIC® BUS IBS A
  UL-verified
- **UNITRONIC® BUS Yv**
  outdoor use/ direct burial
  UNITRONIC® BUS Yv Combi
  with power supply
- **UNITRONIC® BUS IBS FD P**
  fixed installation
  UNITRONIC® BUS IBS FD P Combi
  with power supply
  UNITRONIC® BUS IBS FD P Combi A
  UL-verified

Norm references / Approvals

- Refer to data sheet for more details
- According to DIN EN 61158

Product Make-up

- See data sheet

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
(not for power applications) 250 V

Conductor resistance
see data sheet

Minimum bending radius
Fixed installation: 8 x outer diameter
Flexing: 15 x outer diameter

Test voltage
Core/core: 1500 V rms

Characteristic impedance
100 Ohm

Temperature range
UNITRONIC® BUS IBS
fixed installation: -30°C to +80°C
flexing: -5°C to +70°C
UNITRONIC® BUS IBS FD P
fixed installation: -40°C to +80°C
flexing: -5°C to +70°C
UNITRONIC® BUS IBS Yv
Fest verlegt: -40°C to +70°C

Article number	Article designation	Number of pairs and mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/km)
Fixed Installation					
2170206	UNITRONIC® BUS IBS	3 x 2 x 0.22	7.2	37	72
2170208	UNITRONIC® BUS IBS P COMBI	3 x 2 x 0,22 + 3 x 1,0	7.9	60	85
Fixed installation - suitable for outdoor use and direct burial					
2170207	UNITRONIC® BUS IBS Yv COMBI	3 x 2 x 0.22	9.3	37	94
2170217	UNITRONIC® BUS IBS Yv COMBI	3 x 2 x 0,22 + 3 x 1,0	9.4	60	128
For fixed installation - UL CMX certification					
2170209	UNITRONIC® BUS IBS A	3 x 2 x 0.22	7.2	37	72
For highly flexible applications					
2170216	UNITRONIC® BUS IBS FD P	3 x 2 x 0.25	7.9	39	64
Highly flexible applications - with UL (CMX) certification					
2170818	UNITRONIC® BUS IBS FD P COMBI A	3 x 2 x 0,25 + 3 x 1,0	7.9	62	92

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
INTERBUS is a registered trademark of Phoenix Contact GmbH & Co.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® BUS EIB / KNX



Info

- EIB / European Installation Bus
- KNX/communication in building management
- CPR: Article number choice under www.lapp.com

Application range

- The product is designed for use in building management, e.g. for decentralised control of lighting, heating, air-conditioning, ventilation, energy management, blinds, time management, locking systems etc.
- The cable can be laid on or under plaster; in pipes, cable ducts; in dry, damp or wet environments.
- EIB installation mainly consists of sensors/command-transmitters (e.g. light barriers, switches, thermostats, infrared, wind meters, timers), and actuators (e.g. engines, heaters, ventilators, lights, blinds).
- KNX technology was formed from the merging of three established European bus standards: EIP, EHS (household appliances and consumer electronics) and Batibus (heating/ventilation/air conditioning)

Product features

- Serial data transmission
- EIB cable has been tested at 4 kV (1 min.) in a water bath

Product Make-up

- Screened installation cable based on type J-Y(ST)Y according to DIN VDE 0815
- **UNITRONIC® BUS EIB**
  Bare solid copper wire
  2x2x0,8: red and black, white and yellow
  Core insulation: PVC
  Overall aluminum foil
  Outer sheath: PVC, green (RAL 6017)
- **UNITRONIC® BUS EIBCOMBI**
  Bare solid copper wire
  Core insulation: PVC
  2x2x0,8: red and black, white and yellow
  3x1,5: brown, blue, green/yellow
  Overall aluminum foil
  Outer sheath: PVC, green (RAL 6017)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Mutual capacitance
(800 Hz) max. 100 nF/km

Peak operating voltage
(not for power applications) 250 V

Conductor resistance
(loop): max. 73.2 ohm/km

Minimum bending radius
Fixed installation:
5 x outer diameter

Test voltage
Core/core: 4000 V

Temperature range
Fixed installation: -30°C to +70°C

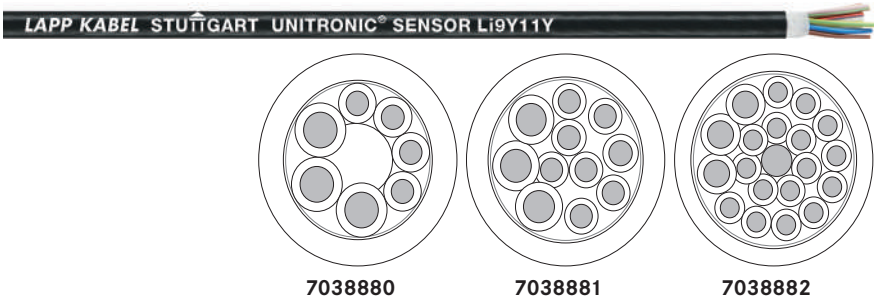
Article number	Article designation	Number of pairs and mm or mm² per conductor	Outer diameter [mm]	Copper index (kg/km)	Weight (kg/m)
PVC					
2170240	UNITRONIC® BUS EIB	2 x 2 x 0.8	6.6	21	54
2170242	UNITRONIC® BUS EIB COMBI	2 x 2 x 0,8 mm + 3 x 1,5 mm²	12.7	64	128
Halogen-free					
2170241	UNITRONIC® BUS EIB H	2 x 2 x 0.8	6.6	21	54

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 100/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® SENSOR master cable

Info

- Customised construction can be supported



7038880 7038881 7038882

Benefits

- Cost efficient and rational wiring for S/A boxes with detachable master cable connection
- Can be used universally for S/A installations

Application range

- Automation technology
- Mechanical engineering
- Plant engineering
- Tool shop
- Automotive industry

Product features

- Cores for Power Supply: 3 x 0.75 mm² and 3 x 1.0 mm²
- Cores for Signalling cable: 4 x 0.34 mm², 8 x 0.5 mm², 16 x 0.5 mm²
- Suitable for cable chain
- Halogen-free according to VDE 0472-815
- Flame-retardant according to UL 1581 FT-2

Norm references / Approvals

- UL-AWM-Style 21198 (80 °C / 300 V)
- UL-AWM-Style 21233 (80 °C / 1000 V)

Product Make-up

- Fine-wire, bare copper strand
- Single wire diameter: 0.34 mm² = (43 x 0.10 mm) 0.5mm² = (19 x 0.18 mm) 0.75 mm² = (21 x 0.205 mm) 1.0 mm² = (55 x 0.15 mm)
- Core insulation: PP
- Outer sheath: PUR, black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

Conductor stranding
Stranded conductor, fine-wire

Minimum bending radius
Flexing: 10 x outer diameter

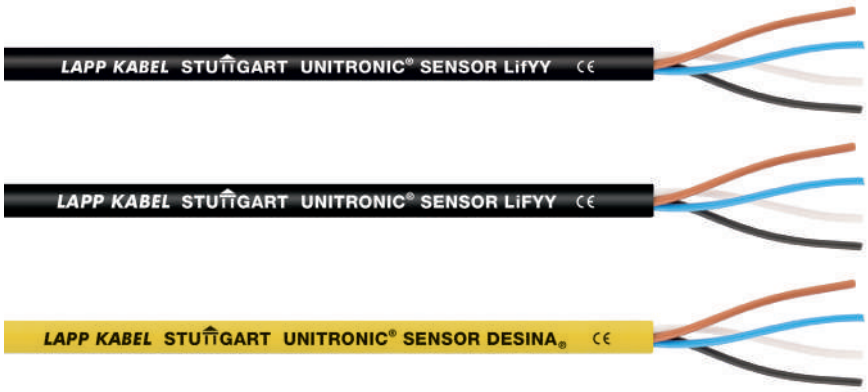
Temperature range
Fixed installation: -40°C to +80°C
Flexing: -5°C to +80°C

Article number	Article designation	Dimensions (mm²)	Outer diameter [mm]	Core/outer sheath material	Copper index [kg/km]
UNITRONIC® SENSOR COMBI					
7038880	Li9Y11Y	3 x 0.75 + 4 x 0.34	6.6	PP/PUR	34.5
7038881	Li9Y11Y	3 x 1.0 + 8 x 0.5	8.4	PP/PUR	67.2
7038882	Li9Y11Y	3 x 1.0 + 16 x 0.5	9.8	PP/PUR	105.6
68000963	Li9Y11Y	3G0,75 + 16x0,34	10.6	PP/PUR	8.1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Packaging size: Coil 100m
Cables are printed
Other variations are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
For detailed technical information please refer to the data sheet

UNITRONIC® SENSOR

Flexible cable for sensor/actuator cabling



Info

- Easy cable preperation
- UL recognized (LiFYY A)

Benefits

- Easy installation (through cable trays, tubes, cabinets)
- Easy stripping and processing
- Space-saving due to compact dimensions

Application range

- Automation technology
- Sensor/ actuator cabling

Product features

- Core colour code in accordance with DIN EN 50044
- Black version: UV-resistant
- For higher mechanical stress (LiFY 11Y/ Desina)

Norm references / Approvals

- UL recognized (LiFYY A)

Product Make-up

- Extra-fine wire strand made of bare copper wires
- Core insulation: PVC
- Colour-code:
  3-pin: bn, bu, bk
  4-pin: bn, wh, bu, bk
  5-pin: bn, wh, bu, bk, gy
- DESINA 4x0,34: bn, wh, bu, bk
- Outer sheath: PVC or PUR
- Sheath colour: black (RAL 9005)
- DESINA yellow (RAL 1021)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

Peak operating voltage
300 V (not for power applications)

Conductor stranding
Extra-fine wire acc. to VDE 0295, class 6/ IEC 60228 class 6

Minimum bending radius
Flexing: 15 x outer diameter
Fixed installation: 8 x outer diameter

Temperature range
PVC/PVC:
Fixed installation: -40°C to +80°C
Flexing: -5°C to +80°C
PVC/PUR:
Fixed installation: -30°C to +80°C
Flexing: -10°C to +80°C

Article number	Article designation	Dimensions (mm²)	Outer diameter [mm]	Core/outer sheath material	Colour	UL	Copper index [kg/km]
UNITRONIC® SENSOR PVC							
7038898	LiFYY	3x0.25	3.8	PVC/PVC	black		7.5
7038899	LiFYY	4x0.25	4.2	PVC/PVC	black		10.2
7038900	LiFYY	3 x 0.34	4.1	PVC/PVC	black		9.8
7038901	LiFYY	4 x 0.34	4.4	PVC/PVC	black		13
7038902	LiFYY	5 x 0.34	4.8	PVC/PVC	black		16
UNITRONIC® SENSOR PVC UL							
7038903	LiFYY A	3x0.25	4.3	PVC/PVC	black	yes	7.5
7038904	LiFYY A	4x0.25	4.6	PVC/PVC	black	yes	10.2
7038905	LiFYY A	3 x 0.34	4.4	PVC/PVC	black	yes	9.8
7038906	LiFYY A	4 x 0.34	4.8	PVC/PVC	black	yes	13
7038907	LiFYY A	5 x 0.34	5.2	PVC/PVC	black	yes	16
UNITRONIC® SENSOR PVC/PUR							
7038861	LiFY 11Y	4 x 0.34	4.8	PVC/PUR	black		13.1
7038862	LiFY 11Y	5 x 0.25	4.9	PVC/PUR	black		12
0040434	DESINA	4 x 0.34	5.2	PVC/PUR	yellow		13.5

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Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® SENSOR FD

High flexible cable for sensor/actuator cabling for use in cable chain, halogen-free

Info

- For increased mechanical stress and harsh operating conditions



Benefits

- Designs for highly flexible use
- Abrasion-resistant
- Wear-resistant
- Space-saving due to compact dimensions

Application range

- Automation technology
- Sensor/ actuator cabling
- Mechanical and plant engineering
- Assembly and production lines

Product features

- UV-resistant
- Halogen-free according to VDE 0472-815
- Flame-retardant according to IEC 60332-2-2, UL 1581 FT-2
- Suitable for cable chain
- Designed for 4 million alternating bending cycles and travel distances up to 10 m

Norm references / Approvals

- UL AWM Style 20549

Product Make-up

- Extra-fine wire strand made of bare copper wires
- Core insulation: PP
- Colour-code:
  3-pin: bn, bu, bk
  4-pin: bn, wh, bu, bk
  5-pin: bn, wh, bu, bk, gy
  8-pin: bn, wh, gn, ye, gy, pk, bu, rd
- Outer sheath: PUR, black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description: Flexible cable

Peak operating voltage
300 V (not for power applications)

Conductor stranding
Extra-fine wire acc. to VDE 0295, class 6/ IEC 60228 class 6

Minimum bending radius
Fixed installation: 5 x outer diameter
Flexing: 10 x outer diameter

Temperature range
Occasional flexing: -25°C to +80°C
Fixed installation: -40°C to +80°C

Article number	Article designation	Dimensions (mm²)	Outer diameter [mm]	Core/outer sheath material	Colour	Copper index [kg/km]
UNITRONIC® SENSOR FD						
7038867	LiF9Y11Y	5 x 0.25	4.7	PP/PUR	black	12
7038868	LiF9Y11Y	8 x 0.25	5.9	PP/PUR	black	19
7038864	LiF9Y11Y	3 x 0.34	4.6	PP/PUR	black	9.8
7038865	LiF9Y11Y	4 x 0.34	4.7	PP/PUR	black	13
UNITRONIC® SENSOR FD - optimized						
7038889	LiF9Y11Y	3x0.25	3.6	PP/PUR	black	7.5
7038890	LiF9Y11Y	4x0.25	3.8	PP/PUR	black	10.2
7038893	LiF9Y11Y	5 x 0.34	4.5	PP/PUR	black	16
UNITRONIC® SENSOR FD screened						
7038885	LiF9YC11Y	3 x 0.34	4.3	PP/PUR	black	19.1
7038886	LiF9YC11Y	4 x 0.34	4.6	PP/PUR	black	23.5
7038887	LiF9YC11Y	5 x 0.34	5	PP/PUR	black	27.5

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Other types of composition are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® ROBUST S/A FD

High flexible, halogen-free sensor/actuator cable - resistant to a wide range of chemical media



Info

- Good chemical resistance
- Excellent weather resistance
- Flexible at low temperatures

Benefits

- Outstanding weather, ozone and UV resistance together with the wide temperature range enable versatile use for indoor and outdoor applications
- Resistant against organic oils, emulsions, greases and waxes based on organic, animal or synthetic
- Good resistance to cold and hot water as well as water-soluble cleaning and cooling agents
- Well-suited to steam cleaning
- Good resistance to ammonia compounds and bio-gases

Application range

- Automation technology
- Machine tool building, medical technology, laundries, car washing equipment, chemical industry, composting plants, sewage works
- Food and beverage industry, especially for production and processing equipment of milk and meat products

Product features

- Good chemical resistance to ester-based hydraulic fluids
- Ozone, UV and weather-resistant according to EN 50396 and HD 605 S2
- Suitable for cable chain
- Torsion-resistant
- Halogen-free

Norm references / Approvals

- Certified resistance to disinfection and cleaning solutions used in food and beverage industry
- ECOLAB®
  Industry standard in the field of professional cleaning and disinfection in the food and beverage industry

Product Make-up

- Extra-fine wire strand made of bare copper
- Core insulation: PE
- Colour-code:
  3-pin: bn, bu, bk
  4-pin: bn, wh, bu, bk
  5-pin: bn, wh, bu, bk, gy
- Outer sheath made of special TPE
- Color of the outer jacket: Black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001578
ETIM 5.0/6.0 Class-Description:
Flexible cable

Core identification code
acc. to EN 60947-5-2

Conductor stranding
Extra-fine wire according to VDE 0295, class 6/IEC 60228 class 6

Minimum bending radius
Flexing: 5 x outer diameter
Fixed installation: 3 x outer diameter

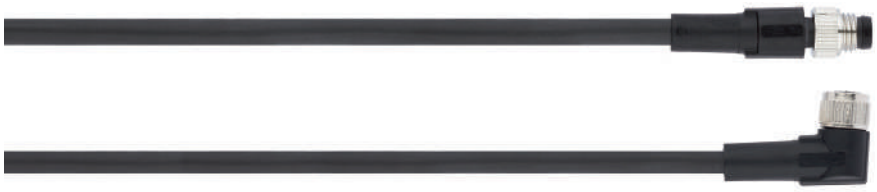
Temperature range
Flexing: -40°C to +90°C
Fixed installation: -50°C to +90°C

Article number	Article designation	Dimensions (mm²)	Outer diameter [mm]	Colour	Copper index [kg/km]
UNITRONIC® ROBUST S/A FD					
7038897	UNITRONIC® ROBUST S/A FD 4x0,25	4x0.25	4.9	black	10.2
7038895	UNITRONIC® ROBUST S/A FD 3x0,34	3 x 0.34	5	black	9.8
7038894	UNITRONIC® ROBUST S/A FD 4x0,34	4 x 0.34	5.4	black	13.1
7038896	UNITRONIC® ROBUST S/A FD 5x0,34	5 x 0.34	5.9	black	16

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Other types of composition are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® SENSOR M8

M8 plug/socket on free conductor end



Info

- Other types are available at www.lapp.com or on request

Benefits

- Cost-efficient due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Gold-plated contacts for low transfer resistance

Application range

- For increased mechanical stress and harsh operating conditions

Product features

- UV-resistant
- Good resistance to oils and chemicals
- PWIS and PVC free
- Suitable for cable chain
- Including tag carrier

Norm references / Approvals

- Halogenfree according to DIN VDE 0472
- UL File Number: E249137
- Flame-retardant according to UL 1581 FT-2

Product Make-up

- Core cross section: 0.25 mm²
- Colour-code:
  3-pin: bn (1), bu (3), bk (4)
  4-pin: bn (1), wh (2), bu (3), bk (4)
- Outer sheath: PUR, black

Suitable tools

- DATA STRIP stripping tool

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001855
ETIM 5.0/6.0 Class-Description: Sensor-actuator patch cord

Material
Contact: CuSn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

Minimum bending radius
Fixed installation: 5 x outer diameter
Flexing: 10 x outer diameter

Protection rating
IP65/IP67/IP68

Ambient temperature (operation)
Plug/socket -25°C to +90°C
Fixed installation -40°C to +80°C
Flexing -25°C to +80°C

Coding
A-standard

Rated current (A)
4 A

Article number	Article designation	Number of pins	Length (m)	Design	LED	Rated voltage (V)	PU
3-pin							
Plug							
22260204	AB-C3-M8MS-2,0PUR	3	2	straight	no	60	1
22260205	AB-C3-M8MS-5,0PUR	3	5	straight	no	60	1
22260218	AB-C3-M8MS-10,0PUR	3	10	straight	no	60	1
22260053	AB-C3-M8MA-2,0PUR	3	2	angled	no	60	1
22260987	AB-C3-M8MA-5,0PUR	3	5	angled	no	60	1
22260055	AB-C3-M8MA-10,0PUR	3	10	angled	no	60	1
Socket							
22260202	AB-C3-2,0PUR-M8FS	3	2	straight	no	60	1
22260200	AB-C3-5,0PUR-M8FS	3	5	straight	no	60	1
22260219	AB-C3-10,0PUR-M8FS	3	10	straight	no	60	1
22260203	AB-C3-2,0PUR-M8FA	3	2	angled	no	60	1
22260201	AB-C3-5,0PUR-M8FA	3	5	angled	no	60	1
22260220	AB-C3-10,0PUR-M8FA	3	10	angled	no	60	1
22260275	AB-C3-2,0PUR-M8FA-2L	3	2	angled	2 LEDs	24	1
22260276	AB-C3-5,0PUR-M8FA-2L	3	5	angled	2 LEDs	24	1
22260277	AB-C3-10,0PUR-M8FA-2L	3	10	angled	2 LEDs	24	1
4-pin							
Plug							
22260300	AB-C4-M8MS-2,0PUR	4	2	straight	no	30	1
22260308	AB-C4-M8MS-5,0PUR	4	5	straight	no	30	1
22260318	AB-C4-M8MS-10,0PUR	4	10	straight	no	30	1
22260056	AB-C4-M8MA-2,0PUR	4	2	angled	no	30	1
22260057	AB-C4-M8MA-5,0PUR	4	5	angled	no	30	1
22260058	AB-C4-M8MA-10,0PUR	4	10	angled	no	30	1
Socket							
22260309	AB-C4- 2,0PUR-M8FS	4	2	straight	no	30	1
22260310	AB-C4- 5,0PUR-M8FS	4	5	straight	no	30	1
22260317	AB-C4-10,0PUR-M8FS	4	10	straight	no	30	1
22260311	AB-C4- 2,0PUR-M8FA	4	2	angled	no	30	1
22260312	AB-C4- 5,0PUR-M8FA	4	5	angled	no	30	1
22260319	AB-C4-10,0PUR-M8FA	4	10	angled	no	30	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. / No copper surcharge.
Photographs and graphics are not to scale and do not represent detailed images of the respective products. / UL certifications can be found in the data sheet.

UNITRONIC® SENSOR M8-M8

M8 plug on M8 socket



Info

- Other types are available at www.lapp.com or on request

Benefits

- Cost-efficient due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Gold-plated contacts for low transfer resistance

Application range

- For increased mechanical stress and harsh operating conditions

Product features

- UV-resistant
- Good resistance to oils and chemicals
- PWIS and PVC free
- Suitable for cable chain
- Including tag carrier

Norm references / Approvals

- Halogenfree according to DIN VDE 0472
- UL File Number: E249137
- Flame-retardant according to UL 1581 FT-2

Product Make-up

- Core cross section: 0.25 mm²
- Colour-code:
  3-pin: bn (1), bu (3), bk (4)
  4-pin: bn (1), wh (2), bu (3), bk (4)
- Outer sheath: PUR, black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001855
ETIM 5.0/6.0 Class-Description: Sensor-actuator patch cord

Material
Contact: CuSn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

Minimum bending radius
Fixed installation: 5 x outer diameter
Flexing: 10 x outer diameter

Protection rating
IP65/IP67/IP68

Ambient temperature (operation)
Plug/socket -25°C to +90°C
Fixed installation -40°C to +80°C
Flexing -25°C to +80°C

Coding
A-standard

Rated current (A)
4 A

Article number	Article designation	Number of pins	Length (m)	Design	LED	Rated voltage (V)	PU
Plug on socket							
3-pin							
22260206	AB-C3-M8MS-0,3PUR-M8FS	3	0.3	straight-straight	no	60	1
22260207	AB-C3-M8MS-0,6PUR-M8FS	3	0.6	straight-straight	no	60	1
22260208	AB-C3-M8MS-1,0PUR-M8FS	3	1	straight-straight	no	60	1
22260209	AB-C3-M8MS-2,0PUR-M8FS	3	2	straight-straight	no	60	1
22260210	AB-C3-M8MS-0,3PUR-M8FA	3	0.3	straight-angled	no	60	1
22260211	AB-C3-M8MS-0,6PUR-M8FA	3	0.6	straight-angled	no	60	1
22260212	AB-C3-M8MS-1,0PUR-M8FA	3	1	straight-angled	no	60	1
22260213	AB-C3-M8MS-2,0PUR-M8FA	3	2	straight-angled	no	60	1
22260214	AB-C3-M8MS-0,3PUR-M8FA-2L	3	0.3	straight-angled	2 LEDs	24	1
22260215	AB-C3-M8MS-0,6PUR-M8FA-2L	3	0.6	straight-angled	2 LEDs	24	1
22260216	AB-C3-M8MS-1,0PUR-M8FA-2L	3	1	straight-angled	2 LEDs	24	1
22260217	AB-C3-M8MS-2,0PUR-M8FA-2L	3	2	straight-angled	2 LEDs	24	1

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No copper surcharge.
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UL certifications can be found in the data sheet.

UNITRONIC® SENSOR M8-M12

M8 plug on M12 socket

Info

- Other types are available at www.lapp.com or on request



Benefits

- Cost-efficient due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Gold-plated contacts for low transfer resistance

Application range

- For increased mechanical stress and harsh operating conditions

Product features

- UV-resistant
- Good resistance to oils and chemicals
- PWIS and PVC free
- Suitable for cable chain
- Including tag carrier

Norm references / Approvals

- Halogenfree according to DIN VDE 0472
- UL File Number: E249137
- Flame-retardant according to UL 1581 FT-2

Product Make-up

- Core cross section: 0.25 mm²
- Colour-code:
  3-pin: bn (1), bu (3), bk (4)
- Outer sheath: PUR, black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001855
ETIM 5.0/6.0 Class-Description:
Sensor-actuator patch cord

Material
Contact: CuSn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

Minimum bending radius
Fixed installation: 5 x outer diameter
Flexing: 10 x outer diameter

Protection rating
IP65/IP67/IP68

Ambient temperature (operation)
Plug/socket -25°C to +90°C
Fixed installation -40°C to +80°C
Flexing -25°C to +80°C

Coding
A-standard

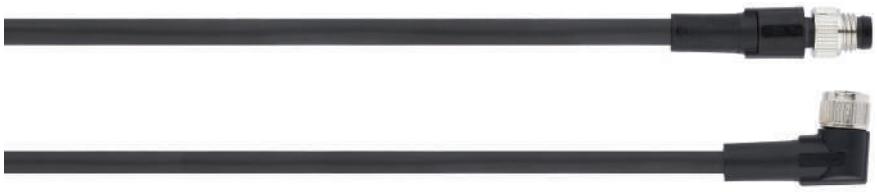
Rated current (A)
4 A

Article number	Article designation	Number of pins	Length (m)	Design	LED	Rated voltage (V)	PU
3-pin							
22260241	AB-C3-M8MS-0,3PUR-M12FS	3	0.3	straight-straight	no	60	1
22260242	AB-C3-M8MS-0,6PUR-M12FS	3	0.6	straight-straight	no	60	1
22260243	AB-C3-M8MS-1,0PUR-M12FS	3	1	straight-straight	no	60	1
22260244	AB-C3-M8MS-2,0PUR-M12FS	3	2	straight-straight	no	60	1
22260245	AB-C3-M8MS-0,3PUR-M12FA	3	0.3	straight-angled	no	60	1
22260246	AB-C3-M8MS-0,6PUR-M12FA	3	0.6	straight-angled	no	60	1
22260247	AB-C3-M8MS-1,0PUR-M12FA	3	1	straight-angled	no	60	1
22260248	AB-C3-M8MS-2,0PUR-M12FA	3	2	straight-angled	no	60	1
22260271	AB-C3-M8MS-0,3PUR-M12FA-2L	3	0.3	straight-angled	2 LEDs	24	1
22260272	AB-C3-M8MS-0,6PUR-M12FA-2L	3	0.6	straight-angled	2 LEDs	24	1
22260273	AB-C3-M8MS-1,0PUR-M12FA-2L	3	1	straight-angled	2 LEDs	24	1
22260274	AB-C3-M8MS-2,0PUR-M12FA-2L	3	2	straight-angled	2 LEDs	24	1

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No copper surcharge.
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UL certifications can be found in the data sheet.

UNITRONIC® SENSOR PVC M8

M8 plug/socket on free conductor end



Info

- Other types are available at www.lapp.com or on request

Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking

Application range

- For medium mechanical stress in dry conditions

Product features

- Partly oil and chemical resistant
- PWIS-free
- Including tag carrier

Norm references / Approvals

- Flame-retardant according to style 2464
- UL File Number: E249137

Product Make-up

- Core cross section: 0.25 mm²
- Colour-code:
  3-pin: bn (1), bu (3), bk (4)
  4-pin: bn (1), wh (2), bu (3), bk (4)
- Outer sheath: PVC, black

Suitable tools

- DATA STRIP stripping tool

Technical data

Material
Contact: CuSn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

Protection rating
IP65/IP67/IP68

Ambient temperature (operation)
Plug/socket -25°C to +90°C
Fixed installation -25°C to +80°C
Flexing -5°C to +80°C

Coding
A-standard

Rated current (A)
4 A

Article number	Article designation	Number of pins	Length (m)	Design	Rated voltage (V)	PU
3-pin						
Plug						
22260847	AB-C3-M8MS-2,0PVC	3	2	straight	60	1
22260665	AB-C3-M8MS-5,0PVC	3	5	straight	60	1
22260848	AB-C3-M8MS-10,0PVC	3	10	straight	60	1
Socket						
22262093	AB-C3-2,0PVC-M8FA	3	2	angled	60	1
22262081	AB-C3-5,0PVC-M8FA	3	5	angled	60	1
22260370	AB-C3-10,0PVC-M8FA	3	10	angled	60	1
4-pin						
Plug						
22262105	AB-C4-M8MS-2,0PVC	4	2	straight	30	1
22262106	AB-C4-M8MS-5,0PVC	4	5	straight	30	1
22262107	AB-C4-M8MS-10,0PVC	4	10	straight	30	1
Socket						
22260846	AB-C4-2,0PVC-M8FA	4	2	angled	30	1
22260845	AB-C4-5,0PVC-M8FA	4	5	angled	30	1
22260844	AB-C4-10,0PVC-M8FA	4	10	angled	30	1

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EPIC® SENSOR M8

Field mountable connectors M8



Benefits

- Easy connection with proven srew clamp connection
- For creating of individual cable lengths
- Quick and easy on-site assembly
- No special tools required for connecting the cables
- Time-saving assembly with IDC connection technology

Product features

- 3 and 4-pin version
- Version with piercing, insulation displacement contacts (IDC) or screw connection
- PWIS-free

Suitable cables

- UNITRONIC® SENSOR
- UNITRONIC® SENSOR FD
- UNITRONIC® ROBUST S/A FD

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002062
ETIM 5.0/6.0 Class-Description: Sensor-actuator connector

Material
Contact: CuZn
Contact surface: Au (gold)

Protection rating
IP 65/IP 67 (IDC)
IP 68 (piercing)
IP 67 (screw)

Ambient temperature (operation)
Plug/socket
-25°C to +80°C (IDC)
-25°C to +85°C (piercing)
-40°C to +85°C (screw)

Coding
A-standard

Rated current (A)
4 A

Article number	Article designation	Number of pins	Connection type	Cross-section in mm²	Cable diameter in mm	Rated voltage (V)	PU
Plug, straight							
22260993	AB-C3-M8MS-F0,25	3	IDC	0.08 - 0.25	2.5 - 5	60	1
22260985	AB-C3-M8MS-F0,5	3	IDC	0.25 - 0.5	2.5 - 5	60	1
22260043	AB-C4-M8MS-F0,25	4	IDC	0.08 - 0.25	2.5 - 5	30	1
22260044	AB-C4-M8MS-F0,5	4	IDC	0.25 - 0.5	2.5 - 5	30	1
22260122	AB-C3-M8MS-P	3	Piercing	0.14 - 0.38	3 - 5	60	1
22260123	AB-C4-M8MS-P	4	Piercing	0.14 - 0.38	3 - 5	30	1
22260120	AB-C3-M8MS	3	screw	0.14 - 0.5	3.5 - 5	60	1
22260121	AB-C4-M8MS	4	screw	0.14 - 0.5	3.5 - 5	30	1
Plug, straight shielded							
22262025	AB-C3-M8MS-M-0,34-SH	3	screw	0.14 - 0.5	3.5 - 5.5	60	1
22262027	AB-C4-M8MS-M-0,34-SH	4	screw	0.14 - 0.5	3.5 - 5	30	1
Plug, angled							
22262110	AB-C3-M8MA	3	screw	0.14 - 0.5	3.5 - 5	60	1
22262111	AB-C4-M8MA	4	screw	0.14 - 0.5	3.5 - 5	30	1
Socket, straight							
22260994	AB-C3-M8FS-F0,25	3	IDC	0.08 - 0.25	2.5 - 5	60	1
22260986	AB-C3-M8FS-F0,5	3	IDC	0.25 - 0.5	2.5 - 5	60	1
22260045	AB-C4-M8FS-F0,25	4	IDC	0.08 - 0.25	2.5 - 5	30	1
22260046	AB-C4-M8FS-F0,5	4	IDC	0.25 - 0.5	2.5 - 5	30	1
22260124	AB-C3-M8FS-P	3	Piercing	0.14 - 0.38	3 - 5	60	1
22260119	AB-C4-M8FS-P	4	Piercing	0.14 - 0.38	3 - 5	30	1
22260125	AB-C3-M8FS	3	screw	0.14 - 0.5	3.5 - 5	60	1
22260126	AB-C4-M8FS	4	screw	0.14 - 0.5	3.5 - 5	30	1
Socket, straight shielded							
22262026	AB-C3-M8FS-M-0,34-SH	3	screw	0.14 - 0.5	3.5 - 5.5	60	1
22262028	AB-C4-M8FS-M-0,34-SH	4	screw	0.14 - 0.5	3.5 - 5.5	30	1
Socket, angled							
22262112	AB-C3-M8FA	3	screw	0.14 - 0.5	3.5 - 5	60	1
22262113	AB-C4-M8FA	4	screw	0.14 - 0.5	3.5 - 5	30	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® SENSOR Flush-type M8



Benefits

- Flexible connection solutions for individual device concepts
- Simple installation in devices (e.g. cabinet)

Application range

- Connection of enclosures and cabinets

Product features

- M8 fastening thread
- Designs for front mounting
- PWIS-free

Product Make-up

- TPE single strands, l = 0.5 m
- Core cross section: 0.25 mm²

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002061
ETIM 5.0/6.0 Class-Description:
Sensor-actuator connector chassis

Material
Contact: CuSn
Contact surface: Ag

Protection rating
IP 67

Ambient temperature (operation)
Plug/socket
-25 °C to +85 °C

Coding
A-standard

Rated current (A)
4 A

Article number	Article designation	Number of pins	Rated voltage (V)	PU
Panel-mount connector male				
22260100	AB-C3-M8MS-0,5	3	60	1
22260101	AB-C4-M8MS-0,5	4	30	1
Panel-mount connector female				
22260102	AB-C3-M8FS-0,5	3	60	1
22260103	AB-C4-M8FS-0,5	4	30	1

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UNITRONIC® SENSOR M12 open-ended Cordsets

Info

- Other types are available at www.lapp.com or on request



Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Integrated vibration protection (mechanical lock-in)
- Gold-plated contacts for low transfer resistance

Application range

- For increased mechanical stress and harsh operating conditions

Product features

- UV-resistant
- Good resistance to oils and chemicals
- PWIS and PVC free
- Suitable for cable chain
- Including tag carrier

Norm references / Approvals

- Halogenfree according to DIN VDE 0472
- UL File Number: E249137
- Flame-retardant according to UL 1581 FT-2

Product Make-up

- Wire cross-section: 0.34mm² (8-pin: 0.25mm²)
- Colour-code:
  3-pin: bn (1), bu (3), bk (4)
  4-pin: bn (1), wh (2), bu (3), bk (4)
  5-pin: bn (1), wh (2), bu (3), bk (4), gn/ye (5)
  8-pin: wh (1), bn (2), gn (3), ye 4), gy (5), pk (6), bu (7), rd (8)
- Outer sheath: PUR, black

Suitable tools

- DATA STRIP stripping tool

Technical data

Classification
ETIM 5.0 Class-ID: EC001855
ETIM 5.0 Class-Description: Sensor-actuator patch cord

Material
Contact: CuSn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

Minimum bending radius
Fixed installation: 5 x outer diameter
Flexing: 10 x outer diameter

Protection rating
IP 65/IP 67/IP 68

Ambient temperature (operation)
Plug/socket: -25°C to +90°C
Fixed installation: -40°C to +80°C
Flexing: -25°C to +80°C

Coding
A-standard

Rated current (A)
4 A
2 A (8-pin)

		3-pins		4-pins		5-pins		8-pins	
		straight	angled	straight	angled	straight	angled	straight	angled
Product	**Length**	**Article number**							
Plug, unshielded	2.0m	22260221	22260223	22260320	22260301	22260400	22260402	22260091	22260094
	5.0m	22260222	22260224	22260321	22260302	22260401	22260403	22260092	22260095
	10.0m	22260249	22260256	22260342	22260303	22260414	22260417	22260093	22260096
Socket, unshielded	2.0m	22260257	22260258	22260322	22260324	22260404	22260406	22260726	22260141
	5.0m	22260250	22260259	22260323	22260325	22260405	22260407	22260728	22260615
	10.0m	22260251	22260260	22260343	22260341	22260415	22260418	22260729	22260616
Socket with LEDs, unshielded	2.0m	22260252	22260253	22260344	22260326	On request	22260408	---	---
	5.0m	22260265	22260254	22260345	22260327		22260409		
	10.0m	22260266	22260255	22260346	22260340		22260416		
Plug, shielded	2.0m	22260453	On request	22260459	On request	22260465	22261004	On request	On request
	5.0m	22260454		22260460		22260466	22261005		
	10.0m	22260455		22260461		22260467	On request		
Socket, shielded	2.0m	22260450	22260074	22260456	22260074	22260462	22260946	On request	On request
	5.0m	22260451	22260675	22260457	22260675	22260463	22260714	22260863	22260859
	10.0m	22260452	22260680	22260458	22260680	22260464	22260991	22262001	On request

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UL certifications can be found in the data sheet.

UNITRONIC® SENSOR M12 Cordsets



Info

- Other types are available at www.lapp.com or on request

Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Integrated vibration protection (mechanical lock-in)
- Gold-plated contacts for low transfer resistance

Application range

- For increased mechanical stress and harsh operating conditions

Product features

- UV-resistant
- Good resistance to oils and chemicals
- PWIS and PVC free
- Suitable for cable chain
- Including tag carrier

Norm references / Approvals

- Halogenfree according to DIN VDE 0472
- UL File Number: E249137
- Flame-retardant according to UL 1581 FT-2

Product Make-up

- Wire cross-section: 0.34mm² (8-pin: 0.25mm²)
- Colour-code:
  3-pin: bn (1), bu (3), bk (4)
  4-pin: bn (1), wh (2), bu (3), bk (4)
  5-pin: bn (1), wh (2), bu (3), bk (4), gn/ye (5)
  8-pin: wh (1), bn (2), gn (3), ye 4), gy (5), pk (6), bu (7), rd (8)
- Outer sheath: PUR, black

Technical data

Classification
ETIM 5.0 Class-ID: EC001855
ETIM 5.0 Class-Description: Sensor-actuator patch cord

Material
Contact: CuSn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

Minimum bending radius
Fixed installation: 5 x outer diameter
Flexing: 10 x outer diameter

Protection rating
IP 65/IP 67/IP 68

Ambient temperature (operation)
Plug/socket: -25°C to +90°C
Fixed installation: -40°C to +80°C
Flexing: -25°C to +80°C

Coding
A-standard

Rated current (A)
4 A
2 A (8-pin)

		Plug							
		3-pins		4-pins		5-pins		8-pins	
		straight	angled	straight	angled	straight	angled	straight	angled
Socket	**Length**	**Article number**							
straight	0.3m	22260233	On request	22260328	22260304	22260410	On request	22260097	On request
	0.6m	22260234		22260329	22260305	22260411		22260098	
	1.0m	22260235		22260330	22260306	22260412		22260099	
	2.0m	22260236		22260331	22260307	22260413		22260042	
angled	0.3m	22260237	On request	22260332	On request	22260063	On request	22260137	On request
	0.6m	22260238		22260333	22260692	22260064		22260138	
	1.0m	22260239		22260334	22260965	22260065		22260139	
	2.0m	22260240		22260335	22260693	22260066		22260140	
angled, LEDs	0.3m	22260261	On request	22260336	On request	22260067	On request	---	---
	0.6m	22260262		22260337		22260068			
	1.0m	22260263		22260338		22260069			
	2.0m	22260264		22260339		22260070			

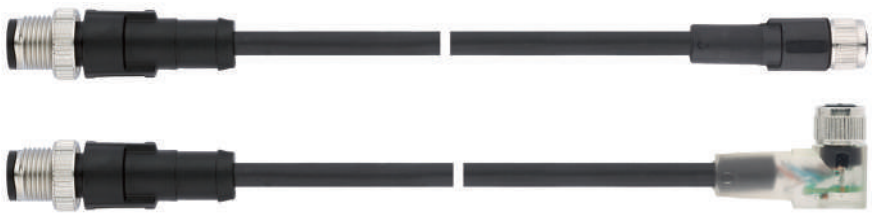
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
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UL certifications can be found in the data sheet.

UNITRONIC® SENSOR M12-M8

M12 plug on M8 socket

Info

- Other types are available at www.lapp.com or on request



Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Integrated vibration protection (mechanical lock-in)
- Gold-plated contacts for low transfer resistance

Application range

- For increased mechanical stress and harsh operating conditions

Product features

- UV-resistant
- Good resistance to oils and chemicals
- PWIS and PVC free
- Suitable for cable chain
- Including tag carrier

Norm references / Approvals

- Halogenfree according to DIN VDE 0472
- UL File Number: E249137
- Flame-retardant according to UL 1581 FT-2

Product Make-up

- Core cross section: 0.25 mm²
- Colour-code:
  3-pin: bn (1), bu (3), bk (4)
  4-pin: bn (1), wh (2), bu (3), bk (4)
- Outer sheath: PUR, black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001855
ETIM 5.0/6.0 Class-Description: Sensor-actuator patch cord

Material
Contact: CuSn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

Minimum bending radius
Fixed installation: 5 x outer diameter
Flexing: 10 x outer diameter

Protection rating
IP65/IP67/IP68

Ambient temperature (operation)
Plug/socket -25°C to +90°C
Fixed installation -40°C to +80°C
Flexing -25°C to +80°C

Coding
A-standard

Rated current (A)
4 A

Article number	Article designation	Length (m)	Design	LED	Rated voltage (V)	PU
Plug on socket						
3-pin						
22260225	AB-C3-M12MS-0,3PUR-M8FS	0.3	straight-straight	no	60	1
22260226	AB-C3-M12MS-0,6PUR-M8FS	0.6	straight-straight	no	60	1
22260227	AB-C3-M12MS-1,0PUR-M8FS	1	straight-straight	no	60	1
22260228	AB-C3-M12MS-2,0PUR-M8FS	2	straight-straight	no	60	1
22260229	AB-C3-M12MS-0,3PUR-M8FA	0.3	straight-angled	no	60	1
22260230	AB-C3-M12MS-0,6PUR-M8FA	0.6	straight-angled	no	60	1
22260231	AB-C3-M12MS-1,0PUR-M8FA	1	straight-angled	no	60	1
22260232	AB-C3-M12MS-2,0PUR-M8FA	2	straight-angled	no	60	1
22260267	AB-C3-M12MS-0,3PUR-M8FA-2L	0.3	straight-angled	2 LEDs	24	1
22260268	AB-C3-M12MS-0,6PUR-M8FA-2L	0.6	straight-angled	2 LEDs	24	1
22260269	AB-C3-M12MS-1,0PUR-M8FA-2L	1	straight-angled	2 LEDs	24	1
22260270	AB-C3-M12MS-2,0PUR-M8FA-2L	2	straight-angled	2 LEDs	24	1
4-pin						
22260347	AB-C4-M12MS-0,3PUR-M8FS	0.3	straight-straight	no	30	1
22260349	AB-C4-M12MS-0,6PUR-M8FS	0.6	straight-straight	no	30	1
22260350	AB-C4-M12MS-1,0PUR-M8FS	1	straight-straight	no	30	1
22260348	AB-C4-M12MS-2,0PUR-M8FS	2	straight-straight	no	30	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
UL certifications can be found in the data sheet.

EPIC® POWER M12L-M12L

M12 plug on M12 socket



Info

- Other types are available at www.lapp.com or on request

Benefits

- Ready-made connection assemblies to save time during installation
- Proven cable successfully tested for over 5 million bending cycles in cable chains and >2 million torsion cycle
- able design allows rotations with torsion angles of up to ± 180°/m
- Connectors are mechanically robust, insensitive to shock and vibration and therefore extremely reliable, thanks to the double overmoulding
- The mechanical L coding of the connector face prevents incorrect plugging with the mating connector

Application range

- For connecting the power supply of devices and machines with higher voltages and currents
- The cable design allows flexible, continuously flexing use in moving machine parts and in the cable chain
- Also suitable as the power supply in the PROFINET network (M12L is regarded as a standardised power interface)
- Can be used in dry, damp or wet interiors
- Suitable for medium mechanical stress
- The PVC outer sheath is resistant to acids and alkalis and has limited oil resistance

Technical data

Classification
ETIM 5.0 Class-ID: EC001855
ETIM 5.0 Class-Description: Sensor-actuator patch cord

Protection rating
IP65/IP67

Article number	Article designation	Length [mm]	Weight (kg/km)
44424060	EPIC® POWER M12LM4S-M12LF4S-PVC 2.5-0.3	0.3	0.077
44424061	EPIC® POWER M12LM4S-M12LF4S-PVC 2.5-1	1	0.001
44424062	EPIC® POWER M12LM4S-M12LF4S-PVC 2.5-1.5	1.5	0.276
44424063	EPIC® POWER M12LM4S-M12LF4S-PVC 2.5-2	2	0.36
44424064	EPIC® POWER M12LM4S-M12LF4S-PVC 2.5-3	3	0.525
44424065	EPIC® POWER M12LM4S-M12LF4S-PVC 2.5-3.5	3.5	0.611
44424066	EPIC® POWER M12LM4S-M12LF4S-PVC 2.5-5	5	0.835
44424067	EPIC® POWER M12LM4S-M12LF4S-PVC 2.5-7.5	7.5	1.242
44424068	EPIC® POWER M12LM4S-M12LF4S-PVC 2.5-10	10	1.67
44424069	EPIC® POWER M12LM4S-M12LF4S-PVC 2.5-15	15	2.49
44424070	EPIC® POWER M12LM4S-M12LF4S-PVC 2.5-20	20	3.32

Photographs and graphics are not to scale and do not represent detailed images of the respective products.


LAPP KABEL STUTTGART UNITRONIC® SENSOR FD LifYC11Y
LAPP KABEL STUTTGART UNITRONIC® SENSOR LifY11Y

UNITRONIC® SENSOR PVC M12 | M12-M12

M12 plug/socket on M12 plug/socket/free conductor end



Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking
- Gold-plated contacts for low transfer resistance
- Integrated vibration protection (mechanical lock-in)

Application range

- For medium mechanical stress in dry conditions

Product features

- Partly oil and chemical resistant
- Including tag carrier
- PWIS-free

Norm references / Approvals

- Flame-retardant according to style 2464
- UL File Number: E249137

Product Make-up

- Wire cross-section: 0,34 mm²
- Colour-code:
  3-pin: bn (1), bu (3), bk (4)
  4-pin: bn (1), wh (2), bu (3), bk (4)
  5-pin: bn (1), wh (2), bu (3), bk (4), gn/ye (5)
- Outer sheath: PVC, black

Suitable tools

- DATA STRIP stripping tool

Info

- Other types are available at www.lapp.com or on request

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001855
ETIM 5.0/6.0 Class-Description: Sensor-actuator patch cord

Material
Contact: CuSn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

Minimum bending radius
Fixed installation: 5 x outer diameter
Flexing: 10 x outer diameter

Protection rating
IP65/IP67

Ambient temperature (operation)
Plug/socket -25°C to +90°C
Fixed installation -40°C to +80°C
Flexing -25°C to +80°C

Coding
A-standard

Rated current (A)
4 A

Article number	Article designation	Number of pins	Length (m)	Design	Rated voltage (V)	PU
3-pin						
Socket						
22260080	AB-C3-2,0PVC-M12FS	3	2	straight	250	1
22260663	AB-C3-5,0PVC-M12FS	3	5	straight	250	1
22260081	AB-C3-10,0PVC-M12FS	3	10	straight	250	1
22262095	AB-C3-2,0PVC-M12FA	3	2	angled	250	1
22260661	AB-C3-5,0PVC-M12FA	3	5	angled	250	1
22262083	AB-C3-10,0PVC-M12FA	3	10	angled	250	1
Plug on socket						
22262096	AB-C3-M12MS-2,0PVC-M12FA	3	2	straight-angled	250	1
22262097	AB-C3-M12MS-5,0PVC-M12FA	3	5	straight-angled	250	1
22262098	AB-C3-M12MS-10,0PVC-M12FA	3	10	straight-angled	250	1
4-pin						
Socket						
22260688	AB-C4- 2,0PVC-M12FS	4	2	straight	250	1
22260689	AB-C4-5,0PVC-M12FS	4	5	straight	250	1
22260685	AB-C4-10,0PVC-M12FS	4	10	straight	250	1
22260841	AB-C4- 2,0PVC-M12FA	4	2	angled	250	1
22260678	AB-C4-5,0PVC-M12FA	4	5	angled	250	1
22260683	AB-C4-10,0PVC-M12FA	4	10	angled	250	1
Plug on socket						
22260832	AB-C4-M12MS-2,0PVC-M12FA	4	2	straight-angled	250	1
22260705	AB-C4-M12MS-5,0PVC-M12FA	4	5	straight-angled	250	1
22260833	AB-C4-M12MS-10,0PVC-M12FA	4	10	straight-angled	250	1
5-pin						
Socket						
22262099	AB-C5-2,0PVC-M12FS	5	2	straight	60	1
22262100	AB-C5-5,0PVC-M12FS	5	5	straight	60	1
22262101	AB-C5-10,0PVC-M12FS	5	10	straight	60	1
Plug on socket						
22262102	AB-C5-M12MS-2,0PVC-M12FA	5	2	straight-angled	60	1
22262103	AB-C5-M12MS-5,0PVC-M12FA	5	5	straight-angled	60	1
22262104	AB-C5-M12MS-10,0PVC-M12FA	5	10	straight-angled	60	1

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ECOLAB FDA

UNITRONIC® SENSOR HD M12

S/A cable: Hygienic Design for Food&Beverage

Info

- IP69 for high-pressure cleaning
- - 40 °C to + 105 °C



Benefits

- Hygienic Design for ideal cleaning results
- Guaranteed density by meeting the highest protection class
- Stainless steel knurl to ensure protection against corrosion
- Bright colors to detect contamination quickly

Application range

- Food production and packaging machinery
- Freezing plants, cold storage
- Washdown area with frequent contact with cleaning agents

Product features

- Suitable for cable chain
- 4-pin plug/socket M12 on free conductor end

Norm references / Approvals

- ECOLAB®
  Industry standard in the field of professional cleaning and disinfection in the food and beverage industry
- FDA 21 CFR 177.2600
  Special sealing element for food and beverage industry in North America

Product Make-up

- Wire cross-section: 0,34 mm²
- Colour-code:
  4-pin: bn (1), wh (2), bu (3), bk (4)
- Outer sheath: TPE halogen-free, grey (similar to RAL 7035)

Suitable tools

- DATA STRIP stripping tool

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001855
ETIM 5.0/6.0 Class-Description: Sensor-actuator patch cord

Material
Contact: CuSn
Contact surface: Ni/Au
Knurl: Stainless steel (V4A)
Gripping body: PP

Minimum bending radius
Fixed installation: 5 x outer diameter
Flexing: 10 x outer diameter

Protection rating
IP65/IP67/IP68/IP69

Ambient temperature (operation)
Fixed installation -40°C to +105°C
Flexing -25°C to +105°C

Coding
A-standard

Rated current (A)
4 A

Article number	Article designation	Number of pins	Length (m)	Design	Rated voltage (V)	PU
Plug						
22262040	AB-C4-M12MS-2,0TPE-HD	4	2	straight	250	1
22262041	AB-C4-M12MS-5,0TPE-HD	4	5	straight	250	1
22262060	AB-C4-M12MS-7,5TPE-HD	4	7.5	straight	250	1
22262042	AB-C4-M12MS-10,0TPE-HD	4	10	straight	250	1
22262061	AB-C4-M12MS-15,0TPE-HD	4	15	straight	250	1
Socket						
22262043	AB-C4-2,0TPE-M12FS-HD	4	2	straight	250	1
22262044	AB-C4-5,0TPE-M12FS-HD	4	5	straight	250	1
22262062	AB-C4-7,5TPE-M12FS-HD	4	7.5	straight	250	1
22262045	AB-C4-10,0TPE-M12FS-HD	4	10	straight	250	1
22262063	AB-C4-15,0TPE-M12FS-HD	4	15	straight	250	1
22262046	AB-C4-2,0TPE-M12FA-HD	4	2	angled	250	1
22262047	AB-C4-5,0TPE-M12FA-HD	4	5	angled	250	1
22262064	AB-C4-7,5TPE-M12FA-HD	4	7.5	angled	250	1
22262048	AB-C4-10,0TPE-M12FA-HD	4	10	angled	250	1
22262065	AB-C4-15,0TPE-M12FA-HD	4	15	angled	250	1
Plug on socket						
22262184	AB-C4-M12MS-0,3TPE-M12FS-HD	4	0.3	straight-straight	250	1
22262185	AB-C4-M12MS-0,6TPE-M12FS-HD	4	0.6	straight-straight	250	1
22262180	AB-C4-M12MS-1,0TPE-M12FS-HD	4	1	straight-straight	250	1
22262181	AB-C4-M12MS-2,0TPE-M12FS-HD	4	2	straight-straight	250	1
22262182	AB-C4-M12MS-5,0TPE-M12FS-HD	4	5	straight-straight	250	1
22262183	AB-C4-M12MS-10,0TPE-M12FS-HD	4	10	straight-straight	250	1

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No copper surcharge.
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EPIC® SENSOR M12

Field mountable connectors M12





Benefits

- For creating of individual cable lengths
- No special tools required for connecting the cables
- Time-saving assembly with IDC connection technology
- Easy connection with proven srew clamp connection

Product features

- 4, 5 and 8-pin version
- Screened and non-screened version
- Screw connection or insulation displacement contacts (IDC)
- PWIS-free

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002062
ETIM 5.0/6.0 Class-Description: Sensor-actuator connector

Material
Contact: CuZn
Contact surface: CuSnZn

Protection rating
IP 65/IP 67 (IDC)
IP 67 (screw)

Ambient temperature (operation)
Plug/socket
-25°C to +80°C (IDC)
-40°C to +85°C (screw)

Coding
A-standard

Rated current (A)
4 A
2 A (8-pin)

Article number	Article designation	Number of pins	Connection type	Cross-section in mm²	Cable diameter in mm	Rated voltage (V)	PU
Plug, straight							
22260132	AB-C4-M12MS-F0,34	4	IDC	0.14 - 0.34	3.5 - 6	125	1
22260134	AB-C4-M12MS-F0,75	4	IDC	0.34 - 0.75	4 - 8	250	1
22260649	AB-C4-M12MS-PG7	4	screw	0.25 - 0.75	4 - 6	250	1
22260995	AB-C4-M12MS-PG9	4	screw	0.25 - 0.75	6 - 8	250	1
22260129	AB-C5-M12MS-PG7	5	screw	0.25 - 0.75	4 - 6	60	1
22260651	AB-C5-M12MS-PG9	5	screw	0.25 - 0.75	6 - 8	60	1
22260996	AB-C5-M12MS-PG9-SKINTOP®	5	screw	0.25 - 0.75	6 - 8	60	1
Plug, straight shielded							
22260135	AB-C5-M12MS-PG9-SH	5	screw	0.25 - 0.75	6 - 8	60	1
22260825	AB-C8-M12MS-PG9-SH	8	screw	0.25 - 0.75	6 - 8	30	1
Plug, angled							
22260647	AB-C4-M12MA-PG7	4	screw	0.25 - 0.75	4 - 6	250	1
22260130	AB-C5-M12MA-PG7	5	screw	0.25 - 0.75	4 - 6	60	1
22260648	AB-C5-M12MA-PG9	5	screw	0.25 - 0.75	6 - 8	60	1
22262023	AB-C5-M12MA-PG9-SKINTOP®	5	screw	0.25 - 0.75	6 - 8	60	1
Plug angled, shielded							
22262108	AB-C5-M12MA-PG7-SH	5	screw	0.25 - 0.75	4 - 6	60	1
Socket, straight							
22260131	AB-C4-M12FS-F0,34	4	IDC	0.14 - 0.34	3.5 - 6	125	1
22260133	AB-C4-M12FS-F0,75	4	IDC	0.34 - 0.75	4 - 8	250	1
22260640	AB-C4-M12FS-PG7	4	screw	0.25 - 0.75	4 - 6	250	1
22260641	AB-C4-M12FS-PG9	4	screw	0.25 - 0.75	6 - 8	250	1
22260127	AB-C5-M12FS-PG7	5	screw	0.25 - 0.75	4 - 6	60	1
22260644	AB-C5-M12FS-PG9	5	screw	0.25 - 0.75	6 - 8	60	1
22260997	AB-C5-M12FS-PG9-SKINTOP®	5	screw	0.25 - 0.75	6 - 8	60	1
Socket, straight shielded							
22260136	AB-C5-M12FS-PG9-SH	5	screw	0.25 - 0.75	6 - 8	60	1
22260826	AB-C8-M12FS-PG9-SH	8	screw	0.25 - 0.75	6 - 8	30	1
Socket, angled							
22260636	AB-C4-M12FA-PG7	4	screw	0.25 - 0.75	4 - 6	250	1
22260128	AB-C5-M12FA-PG7	5	screw	0.25 - 0.75	4 - 6	60	1
22260638	AB-C5-M12FA-PG9	5	screw	0.25 - 0.75	6 - 8	60	1
22262024	AB-C5-M12FA-PG9-SKINTOP®	5	screw	0.25 - 0.75	6 - 8	60	1
Socket angled, shielded							
22262109	AB-C5-M12FA-PG7-SH	5	screw	0.25 - 0.75	4 - 6	60	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® SENSOR M12 V4A

Field mountable connectors M12 for Food & Beverage/ Outdoor



Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002062
ETIM 5.0/6.0 Class-Description:
Sensor-actuator connector

Material
Contact: CuZn
Contact surface: Au (gold)
Knurl: Stainless steel (V4A)

Protection rating
IP 67

Ambient temperature (operation)
Plug/socket -40°C to +85°C

Coding
A-standard

Rated current (A)
4 A

Benefits

- Stainless steel knurl to ensure protection against corrosion
- Quick and easy on-site assembly
- For creating of individual cable lengths
- Space-saving due to compact dimensions
- Easy connection with proven srew clamp connection

Application range

- Automation systems
- Conveyor and transport systems
- Food production and packaging machinery
- Version SKINTOP® for Outdoor applications

Product features

- 4-pin connector
- Screw connection
- PWIS-free

Article number	Article designation	Number of pins	Cross-section in mm²	Cable diameter in mm	Rated voltage (V)	PU
Plug, straight						
22262049	AB-C4-M12MS-PG7-VA	4	0.25 - 0.75	4 - 6	250	1
22262123	AB-C4-M12MS-PG7-VA-SKINTOP	4	0.25 - 0.75	4.0 - 6.5	250	1
Socket, straight						
22262050	AB-C4-M12FS-PG7-VA	4	0.25 - 0.75	4 - 6	250	1
22262124	AB-C4-M12FS-PG7-VA-SKINTOP	4	0.25 - 0.75	4.0 - 6.5	250	1
Socket angled						
22262051	AB-C4-M12FA-PG7-VA	4	0.25 - 0.75	4 - 6	250	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

DeviceNet CANopen

EPIC® SENSOR M12/M12

M12 control cabinet feed-through, shielded for CAN/DeviceNet/ S/A cabling



22262020

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002061
ETIM 5.0/6.0 Class-Description:
Sensor-actuator connector chassis

Material
Contact: CuZn
Contact surface: Au (gold)
Contact carrier: PA 66
Knurl: Nickel-plated brass
Sealing: FKM

Protection rating
IP 67

Ambient temperature (operation)
Plug/socket
-25°C to +85°C

Coding
A - Standard
(CANopen/DeviceNet/CC-Link)

Rated current (A)
4 A

Benefits

- Plug & Play for flexible connection solutions
- M12 connector on both sides

Product features

- For CANopen/DeviceNet applications
- For sensor/actuator cabling
- Bipolar/screw mounting

Product Make-up

- 5-pin control cabinet feed-through, M12 A-coded
- M12 plug on M12 socket
- Screened version

Article number	Article designation	Number of pins	Rated voltage (V)	PU
Control cabinet feed through				
22262020	AB-C5-DSI-M12MS-M12FS-M16-SH	5	24	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® SENSOR M12A screw connection

Field mountable connectors M12







Benefits

- High stability thanks to impact-resistant polyamide
- The service-friendly screw connection makes assembly possible without a special tool, and is suitable for connections which need to be detached again
- When connected, protection class IP 67 can be achieved
- Available in different designs and with different pole configurations

Application range

- Can be used universally at machine interfaces for many applications for data and signal transmission in the low-frequency range
- Typical application areas are sensors and actuators at field level
- Good oil and chemical resistance

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002062
ETIM 5.0/6.0 Class-Description: Sensor-actuator connector

Material
Contact material:
Copper alloy / Gold-plated
Contact surface material:
Au (gold)
Housing base material: Polyamide

Protection rating
IP 67

Ambient temperature (operation)
-25°C to +85°C

Coding
A-standard

Article number	Article designation	Number of pins	Connection type	Design
381166318	EPIC® SENSOR M12A F6 3 SR1220 4-8	3	Plug	Straight
381166319	EPIC® SENSOR M12A F6 4 SR1220 4-8	4	Plug	Straight
381166320	EPIC® SENSOR M12A F6 5 SR1220 4-8	5	Plug	Straight
381166321	EPIC® SENSOR M12A F6 8 SR1220 4-8	8	Plug	Straight
381166325	EPIC® SENSOR M12A D6 3 SR1220 4-8	3	Socket	Straight
381166326	EPIC® SENSOR M12A D6 4 SR1220 4-8	4	Socket	Straight
381166327	EPIC® SENSOR M12A D6 5 SR1220 4-8	5	Socket	Straight
381166328	EPIC® SENSOR M12A D6 8 SR1220 4-8	8	Socket	Straight
381166332	EPIC® SENSOR M12A F1 3 SR1220 4-8	3	Plug	Straight
381166333	EPIC® SENSOR M12A F1 4 SR1220 4-8	4	Plug	Angled
381166335	EPIC® SENSOR M12A F1 5 SR1220 4-8	5	Plug	Angled
381166337	EPIC® SENSOR M12A F1 8 SR1220 4-8	8	Plug	Angled
381166338	EPIC® SENSOR M12A D7 3 SR1220 4-8	3	Socket	Angled
381166339	EPIC® SENSOR M12A D7 4 SR1220 4-8	4	Socket	Angled
381166341	EPIC® SENSOR M12A D7 5 SR1220 4-8	5	Socket	Angled
381166343	EPIC® SENSOR M12A D7 8 SR1220 4-8	8	Socket	Angled

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EPIC® SENSOR M12A solder termination

Field mountable connectors M12







Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002062
ETIM 5.0/6.0 Class-Description: Sensor-actuator connector

Material
Contact material:
Copper alloy / Gold-plated
Contact surface material:
Au (gold)
Housing base material: Polyamide

Protection rating
IP 67

Ambient temperature (operation)
-25 °C to +85 °C

Coding
A-standard

Benefits

- High stability thanks to impact-resistant polyamide
- Solder termination is easy to implement, and creates a plug connection that is resistant to shock and vibrations
- When connected, protection class IP 67 can be achieved
- Available in different designs

Application range

- Can be used universally at machine interfaces for many applications for data and signal transmission in the low-frequency range
- Typical application areas are sensors and actuators at field level
- Good oil and chemical resistance

Article number	Article designation	Number of pins	Connection type	Design
381166322	EPIC® SENSOR M12A F6 12 SL1220 4-8	12	Plug	Straight
381166329	EPIC® SENSOR M12A D6 12 SL1220 4-8	12	Plug	Straight

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® SENSOR M12B screw termination

Field mountable connectors M12







Benefits

- High stability thanks to impact-resistant polyamide
- The service-friendly screw connection makes assembly possible without a special tool, and is suitable for connections which need to be detached again
- When connected, protection class IP 67 can be achieved
- Available in different designs

Application range

- For fieldbus communication in PROFIBUS®-based networks
- Good oil and chemical resistance

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002062
ETIM 5.0/6.0 Class-Description: Sensor-actuator connector

Material
Contact material:
Copper alloy / Gold-plated
Contact surface material:
Au (gold)
Housing base material: Polyamide

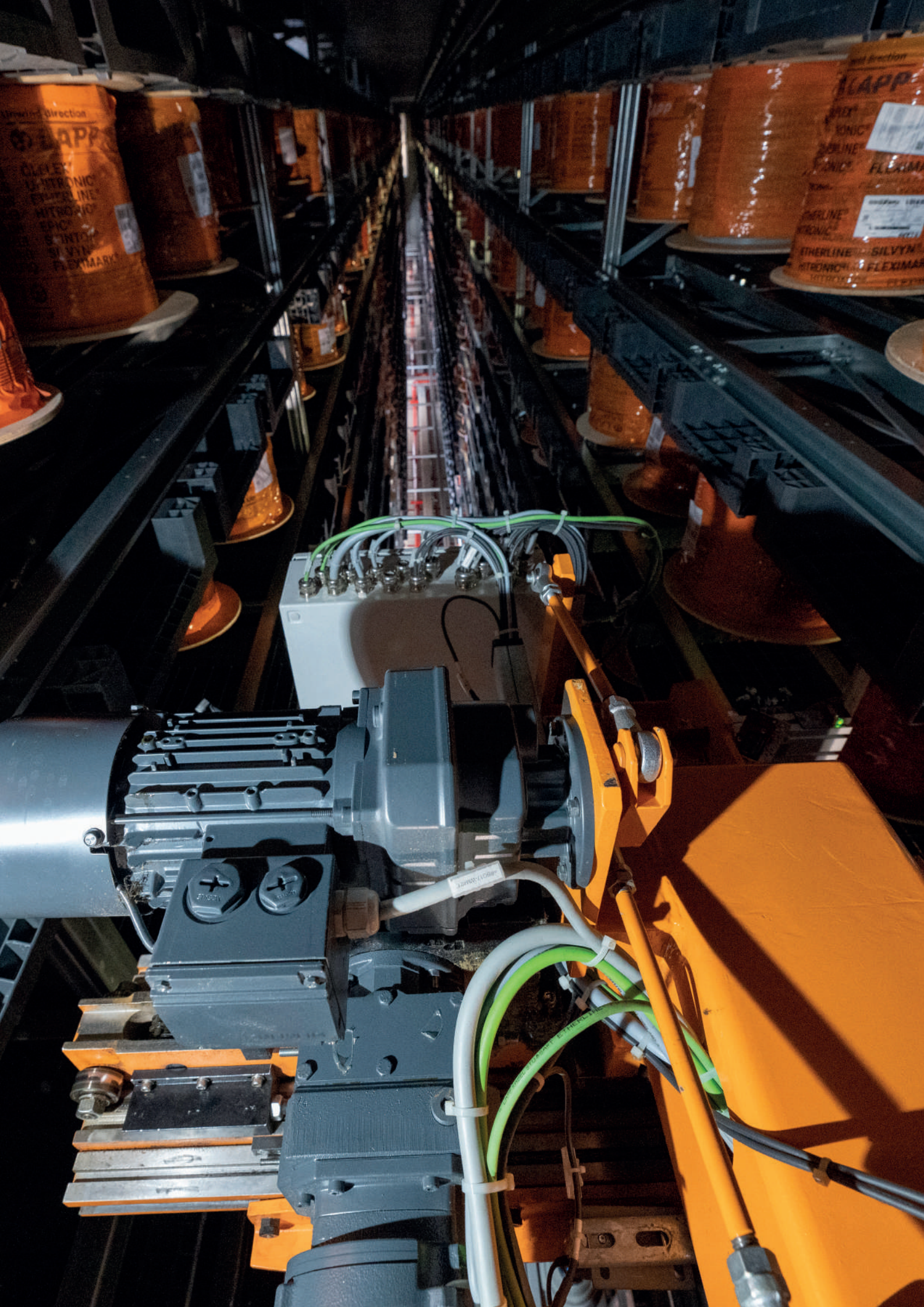
Protection rating
IP 67

Ambient temperature (operation)
-25°C to +85°C

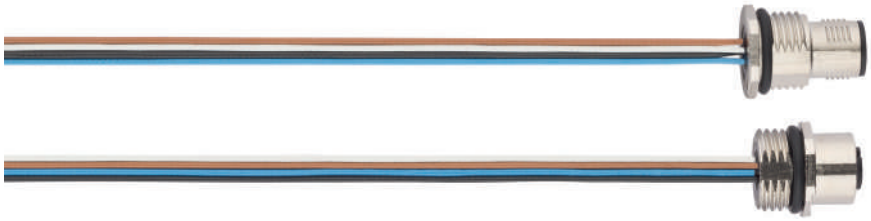
Coding
B-standard

Article number	Article designation	Number of pins	Connection type	Design
381166323	EPIC® SENSOR M12B F6 5 SR1220 4-8	5	Plug	Straight
381166330	EPIC® SENSOR M12B D6 5 SR1220 4-8	5	Socket	Straight
381166336	EPIC® SENSOR M12B F1 5 SR1220 4-8	5	Plug	Angled
381166342	EPIC® SENSOR M12B D7 5 SR1220 4-8	5	Socket	Angled

Photographs and graphics are not to scale and do not represent detailed images of the respective products.



EPIC® SENSOR Flush-type M12



Benefits

- Flexible connection solutions for individual device concepts
- Simple installation in devices (e.g. cabinet)
- Outside plugable with M12 connection, inside housing connected with fixed wires

Application range

- Connection of enclosures and cabinets

Product features

- With M12, M16 or PG9 fastening thread
- Designs for front and rear wall-mounting
- M12 connector, A-coded with quick-locking system
- PWIS-free
- Rear wall-mounting versions inclusive fitting nut

Norm references / Approvals

- UL File Number: E249137

Product Make-up

- TPE single strands, l = 0.5 m
- Wire cross-section: 0,34 mm²

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002061
ETIM 5.0/6.0 Class-Description: Sensor-actuator connector chassis

Material
Contact: CuZn
Contact surface: Au (gold)

Protection rating
IP 67

Ambient temperature (operation)
Plug/socket
-25°C to +85°C

Coding
A-standard

Rated current (A)
4 A

Article number	Article designation	Number of pins	Fastening thread	Rated voltage (V)	PU
Plug for front-mounting					
22260108	AB-C4-M12MS-M16-0,5	4	M16	250	1
22260106	AB-C5-M12MS-M16-0,5	5	M16	60	1
22260083	AB-C4-M12MS-M16-PO-0,5	4	M16 positionable	250	1
22260084	AB-C5-M12MS-M16-PO-0,5	5	M16 positionable	60	1
22260113	AB-C4-M12MS-PG9-0,5	4	PG9	250	1
22260112	AB-C5-M12MS-PG9-0,5	5	PG9	60	1
22260087	AB-C4-M12MS-PG9-PO-0,5	4	PG9 positionable	250	1
22260088	AB-C5-M12MS-PG9-PO-0,5	5	PG9 positionable	60	1
Plug for rear-mounting					
22260999	AB-C4-DSI-M12MS-M12-0,5	4	M12	250	1
22260117	AB-C4-DSI-M12MS-PG9-0,5	4	PG9	250	1
22260115	AB-C5-DSI-M12MS-PG9-0,5	5	PG9	60	1
Socket for front-mounting					
22260107	AB-C4-M12FS-M16-0,5	4	M16	250	1
22260105	AB-C5-M12FS-M16-0,5	5	M16	60	1
22260085	AB-C4-M12FS-M16-PO-0,5	4	M16 positionable	250	1
22260086	AB-C5-M12FS-M16-PO-0,5	5	M16 positionable	60	1
22260114	AB-C4-M12FS-PG9-0,5	4	PG9	250	1
22260111	AB-C5-M12FS-PG9-0,5	5	PG9	60	1
22260089	AB-C4-M12FS-PG9-PO-0,5	4	PG9 positionable	250	1
22260090	AB-C5-M12FS-PG9-PO-0,5	5	PG9 positionable	60	1
Socket for rear-mounting					
22260118	AB-C4-DSI-M12FS-PG9-0,5	4	PG9	250	1
22260116	AB-C5-DSI-M12FS-PG9-0,5	5	PG9	60	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

DeviceNet CANopen

EPIC® SENSOR M12 T-distributor

M12 T parallel distributor for CAN/ DeviceNet/ S/A cabling

Technical data

Material
Contact: CuZn
Contact surface: Ni/Au
Contact carrier: TPU GF
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing
Sealing: NBR

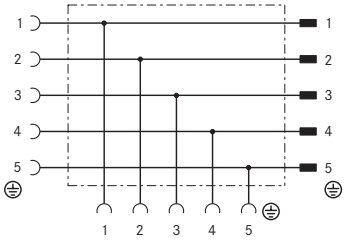
Protection rating
IP65/IP67

Ambient temperature (operation)
Plug/socket -25°C to +90°C

Coding
A - Standard
(CANopen/DeviceNet/CC-Link)

Rated current (A)
4 A





22260765

Benefits

- Cost-effective, efficient wiring of fieldbus and sensor/ actuator installations
- Space-saving due to compact dimensions
- Robust design

Product features

- PWIS-free

Product Make-up

- 5-pin parallel distributor
- M12 socket on M12 plug and M12 socket

Article number	Article designation	PU
T distributor		
22260765	AB-C5-M12T-2XM12FS DN	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

DeviceNet CANopen

EPIC® SENSOR CCR

Cable coupler round, shielded for e.g. sensor-actuator / PROFIBUS / CAN cables

Technical data

Material
Contact: CuZn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: Zinc die-cast, nickel-plated

Protection rating
IP65/IP67

Ambient temperature (operation)
-40°C to +85°C

Rated current (A)
4 A



21700641

Benefits

- Optimum EMC protection with 360 ° shielding
- Time-saving assembly with IDC connection technology

Application range

- To extend existing cable systems
- Repairkit for damaged cables

Product features

- 5-pin cable coupler round
- Screened version

Article number	Article designation	Number of pins	Cross-section in mm²	Cable diameter in mm	Rated voltage (V)
Cable coupler round					
21700641	AB-C5-CCR-SH	5	0.14 - 0.50	5.0 - 9.7	60

DeviceNet is a registered trademark of ODVA
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® SENSOR Valve

valve connector on free conductor end



Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking

Product features

- Suitable for cable chain
- With protective circuit (Z diode), PE-bridged (except type AD)
- With LED status indicator (yellow)
  With display switch state (2 LEDs, red/green)
- Including tag carrier
- PWIS-free

Product Make-up

- 3 or 5 x 0.5 mm²
- Core identification code:
  Black cores with white numbers +green/yellow
- Outer sheath: PUR halogen-free, black
- Outer diameter:
  4.5 mm (3 pins)
  5.3 mm (5 pins)

Suitable tools

- DATA STRIP stripping tool

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001855
ETIM 5.0/6.0 Class-Description:
Sensor-actuator patch cord

Material
Contact: CuSn
Contact surface: Ag

Protection rating
IP65/IP67

Ambient temperature (operation)
Valve connector -20°C to +85°C
Fixed installation -40°C to +80°C
Flexing -20°C to +80°C

Rated current (A)
4 A

Article number	Article designation	Number of pins	Length (m)	LED	Rated voltage (V)	PU
Valve connector type A (18 mm)						
22260584	AB-C3- 2,0PUR-A-1L-S	3	2	1 LED	24	1
22260576	AB-C3- 5,0PUR-A-1L-S	3	5	1 LED	24	1
22260577	AB-C3-10,0PUR-A-1L-S	3	10	1 LED	24	1
Valve connector type A (18mm) for pressure switch						
22260589	AB-C5-2,0PUR-AD-2L	5	2	2 LEDs	24	1
22260590	AB-C5-5,0PUR-AD-2L	5	5	2 LEDs	24	1
22260591	AB-C5-10,0PUR-AD-2L	5	10	2 LEDs	24	1
Valve connector type B (10 mm)						
22260585	AB-C3- 2,0PUR-B-1L-S	3	2	1 LED	24	1
22260578	AB-C3- 5,0PUR-B-1L-S	3	5	1 LED	24	1
22260579	AB-C3-10,0PUR-B-1L-S	3	10	1 LED	24	1
Valve connector type BI (11 mm)						
22260586	AB-C3- 2,0PUR-BI-1L-S	3	2	1 LED	24	1
22260580	AB-C3- 5,0PUR-BI-1L-S	3	5	1 LED	24	1
22260581	AB-C3-10,0PUR-BI-1L-S	3	10	1 LED	24	1
Valve connector type C (8 mm)						
22260587	AB-C3- 2,0PUR-C-1L-S	3	2	1 LED	24	1
22260582	AB-C3- 5,0PUR-C-1L-S	3	5	1 LED	24	1
22260583	AB-C3-10,0PUR-C-1L-S	3	10	1 LED	24	1
Valve connector type CI (9.4 mm)						
22260588	AB-C3- 2,0PUR-CI-1L-S	3	2	1 LED	24	1
22260574	AB-C3- 5,0PUR-CI-1L-S	3	5	1 LED	24	1
22260575	AB-C3-10,0PUR-CI-1L-S	3	10	1 LED	24	1

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Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
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UNITRONIC® SENSOR Valve-M12

valve connector on straight M12 plug



Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking

Product features

- Suitable for cable chain
- With protective circuit (Z diode), PE-bridged (except type AD)
- With LED status indicator (yellow)
  With display switch state (2 LEDs, red/green)
- Including tag carrier
- PWIS-free

Product Make-up

- 3 or 5 x 0.5 mm²
- Core identification code:
  Black cores with white numbers +green/yellow
- Outer sheath: PUR halogen-free, black
- Outer diameter:
  4.5 mm (3 pins)
  5.3 mm (5 pins)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001855
ETIM 5.0/6.0 Class-Description:
Sensor-actuator patch cord

Material
Contact: CuSn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

Protection rating
IP65/IP67

Ambient temperature (operation)
Valve connector -20°C to +85°C
Connector/socket -25°C to +90°C
Fixed installation -40°C to +80°C
Flexing -20°C to +80°C

Coding
A-standard

Rated current (A)
4 A

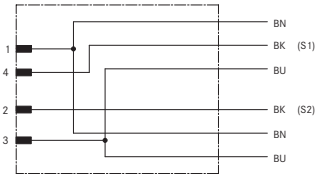
Article number	Article designation	Number of pins	Length (m)	LED	Rated voltage (V)	PU
Straight connector to valve connector type A (18 mm)						
22260550	AB-C3-M12MS-0,3PUR-A-1L-S	3	0.3	1 LED	24	1
22260551	AB-C3-M12MS-0,6PUR-A-1L-S	3	0.6	1 LED	24	1
22260552	AB-C3-M12MS-1,0PUR-A-1L-S	3	1	1 LED	24	1
22260553	AB-C3-M12MS-2,0PUR-A-1L-S	3	2	1 LED	24	1
Straight connector to valve connector type A (18mm) for pressure switch						
22260573	AB-C5-M12MS-0,3PUR-AD-2L	5	0.3	2 LEDs	24	1
22260572	AB-C5-M12MS-0,6PUR-AD-2L	5	0.6	2 LEDs	24	1
22260571	AB-C5-M12MS-1,0PUR-AD-2L	5	1	2 LEDs	24	1
22260570	AB-C5-M12MS-2,0PUR-AD-2L	5	2	2 LEDs	24	1
Straight connector to valve connector type B (10 mm)						
22260558	AB-C3-M12MS-0,3PUR-B-1L-S	3	0.3	1 LED	24	1
22260559	AB-C3-M12MS-0,6PUR-B-1L-S	3	0.6	1 LED	24	1
22260560	AB-C3-M12MS-1,0PUR-B-1L-S	3	1	1 LED	24	1
22260561	AB-C3-M12MS-2,0PUR-B-1L-S	3	2	1 LED	24	1
Straight connector to valve connector type BI (11 mm)						
22260554	AB-C3-M12MS-0,3PUR-BI-1L-S	3	0.3	1 LED	24	1
22260555	AB-C3-M12MS-0,6PUR-BI-1L-S	3	0.6	1 LED	24	1
22260556	AB-C3-M12MS-1,0PUR-BI-1L-S	3	1	1 LED	24	1
22260557	AB-C3-M12MS-2,0PUR-BI-1L-S	3	2	1 LED	24	1
Straight connector to valve connector type C (8 mm)						
22260566	AB-C3-M12MS-0,3PUR-C-1L-S	3	0.3	1 LED	24	1
22260567	AB-C3-M12MS-0,6PUR-C-1L-S	3	0.6	1 LED	24	1
22260568	AB-C3-M12MS-1,0PUR-C-1L-S	3	1	1 LED	24	1
22260569	AB-C3-M12MS-2,0PUR-C-1L-S	3	2	1 LED	24	1
Straight connector to valve connector type CI (9.4 mm)						
22260562	AB-C3-M12MS-0,3PUR-CI-1L-S	3	0.3	1 LED	24	1
22260563	AB-C3-M12MS-0,6PUR-CI-1L-S	3	0.6	1 LED	24	1
22260564	AB-C3-M12MS-1,0PUR-CI-1L-S	3	1	1 LED	24	1
22260565	AB-C3-M12MS-2,0PUR-CI-1L-S	3	2	1 LED	24	1

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UNITRONIC® SENSOR M12Y

M12 Y plug straight on 2x free conductor end





Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions

Product features

- 4-pin M12Y plug on free conductor end
- Including tag carrier
- PWIS-free
- Suitable for cable chain

Product Make-up

- 3 x 0.34 mm²
- Core colours: bn, bu, bk
- Outer sheath: PUR halogen-free, black

Suitable tools

- DATA STRIP stripping tool

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001855
ETIM 5.0/6.0 Class-Description: Sensor-actuator patch cord

Material
Contact: CuSn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

Protection rating
IP65/IP67/IP68

Ambient temperature (operation)
Plug/socket -25°C to +90°C
Fixed installation -40°C to +80°C
Flexing -25°C to +80°C

Coding
A-standard

Rated current (A)
4 A

Article number	Article designation	Length (m)	LED	Rated voltage (V)	PU
Y plug to 2 x free conductor end					
22260500	AB-C3-M12Y-2,0PUR	2	no	250	1
22260513	AB-C3-M12Y-5,0PUR	5	no	250	1
22260526	AB-C3-M12Y-10,0PUR	10	no	250	1

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UL certifications can be found in the data sheet.

UNITRONIC® SENSOR M12Y-M8

M12 Y plug straight on 2x M8 socket



UNITRONIC® SENSOR M12Y-M12

M12 Y plug straight on 2x M12 socket



Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001855
ETIM 5.0/6.0 Class-Description: Sensor-actuator patch cord

Material
Contact: CuSn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

Protection rating
IP65/IP67/IP68

Ambient temperature (operation)
Plug/socket -25°C to +90°C
Fixed installation -40°C to +80°C
Flexing -25°C to +80°C

Coding
A-standard

Rated current (A)
4 A

Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking

Product features

- 4-pin M12Y connector on 2 x M12 socket (4-pin), Pin 2+4 bridged
- 4-pin M12Y plug on 2 x M8 socket (3-pin)
- Including tag carrier
- PWIS-free
- Suitable for cable chain

Product Make-up

- M12Y-M8: 3 x 0.25 mm²
  M12Y-M12: 3 x 0.34 mm²
- Core colours: bn, bu, bk
- Outer sheath: PUR halogen-free, black

Article number	Article designation	Number of pins	Length (m)
UNITRONIC® SENSOR M12Y-M8			
22260514	AB-C3-M12Y-0,3PUR-M8FS	3	0.3
22260515	AB-C3-M12Y-0,6PUR-M8FS	3	0.6
22260516	AB-C3-M12Y-1,0PUR-M8FS	3	1
22260517	AB-C3-M12Y-2,0PUR-M8FS	3	2
22260518	AB-C3-M12Y-0,3PUR-M8FA	3	0.3
22260519	AB-C3-M12Y-0,6PUR-M8FA	3	0.6
22260520	AB-C3-M12Y-1,0PUR-M8FA	3	1
22260521	AB-C3-M12Y-2,0PUR-M8FA	3	2
22260522	AB-C3-M12Y-0,3PUR-M8FA-2L	3	0.3
22260523	AB-C3-M12Y-0,6PUR-M8FA-2L	3	0.6
22260524	AB-C3-M12Y-1,0PUR-M8FA-2L	3	1
22260525	AB-C3-M12Y-2,0PUR-M8FA-2L	2	2
UNITRONIC® SENSOR M12Y-M12			
22260501	AB-C3-M12Y-0,3PUR-M12FS-B	3	0.3
22260502	AB-C3-M12Y-0,6PUR-M12FS-B	3	0.6
22260503	AB-C3-M12Y-1,0PUR-M12FS-B	3	1
22260504	AB-C3-M12Y-2,0PUR-M12FS-B	3	2 m
22260505	AB-C3-M12Y-0,3PUR-M12FA-B	3	0.3
22260506	AB-C3-M12Y-0,6PUR-M12FA-B	3	0.6
22260507	AB-C3-M12Y-1,0PUR-M12FA-B	3	1
22260508	AB-C3-M12Y-2,0PUR-M12FA-B	3	2
22260509	AB-C3-M12Y-0,3PUR-M12FA-2L-B	3	0.3
22260510	AB-C3-M12Y-0,6PUR-M12FA-2L-B	3	0.6
22260511	AB-C3-M12Y-1,0PUR-M12FA-2L-B	3	1
22260512	AB-C3-M12Y-2,0PUR-M12FA-2L-B	3	2

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Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
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UL certifications can be found in the data sheet.

EPIC® SENSOR M8Y | M12Y

Y distributor M8 | M12



Benefits

- Cost-saving due to quick and easy installation
- Space-saving due to compact dimensions
- Fast and easy error tracking

Product features

- Design: Plug on 2x socket
- M12 design with screw hole
- PWIS-free

Product Make-up

- 22260600:
  M12, 3-pin+ PE, straight M12 plug on 2x straight M12 socket, pin 2+4 bridged
- 22260601:
  M12, 3-pin+ PE, straight M12 plug on 2x straight M12 socket
- 22260602:
  M12, 5-pin straight M12 plug on 2x 3-pin straight M8 socket, parallel distributor
- 22260603:
  M8, 4-pin M8 plug on 2x 3pin M8 socket
- 22260604:
  M8 plug on M8 socket, 3-pin parallel distributor

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002062
ETIM 5.0/6.0 Class-Description: Sensor-actuator connector

Material
Contact: CuZn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

Protection rating
IP65/IP67

Ambient temperature (operation)
Plug/socket -25°C to +90°C

Coding
A-standard

Rated current (A)
4 A

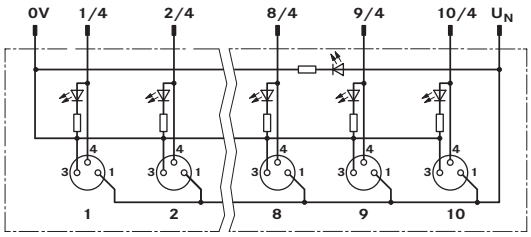
Article number	Article designation	Rated voltage (V)	PU
M12 Y distributor			
22260600	AB-C3-M12Y-2XM12FS B E	60	5
22260601	AB-C3-M12Y-2XM12FS E	60	5
22260602	AB-C5-M12Y-2XM12FS V	60	5
M8 Y distributor			
22260603	AB-C3-M8Y-2XM8FS	30	5
22260604	AB-C3-M8Y-2XM8FS V	60	5

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Distribution Box M8

Distribution box with M8 slots and master cable/connection M12/M16





Benefits

- Cost efficient and rational wiring of sensors and actuators
- Instead of numerous individual conductors, one master cable is laid to the control unit
- Hybrid cable for signal and power transmission
- There are no assembly costs as the master cable is already pre-assembled
- Suitable for cable chain

Product features

- Single-occupied boxes
- With fixed master cable or M12/M16 socket
- LEDs indicate the operating mode of the distributor and the status of the sensors
- PWIS-free

Norm references / Approvals

- E-File number: E75770

Product Make-up

- Core insulation: PVC
- Outer sheath: PUR, black

Suitable cables

- M12 master cable
  8-pos. 5/10 m: 22260615/22260616
- M16 master cable
  8-pos 5/10m: 22260607/22260608
  10-pos 5/10m: 22260609/22260610
  12-pos 5/10m: 22260611/22260612
  14-pos 5/10m: 22260613/22260614

Suitable tools

- Suitable tools are available upon request (e.g. M8 torque screwdriver)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002585
ETIM 5.0/6.0 Class-Description: Passive sensor-actuator interface

Protection rating
IP65/IP67

Ambient temperature (operation)
-30°C to +80°C
Fixed installation -40°C to +90°C
Flexing -5°C to 80°C

Material
Contact: CuZn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

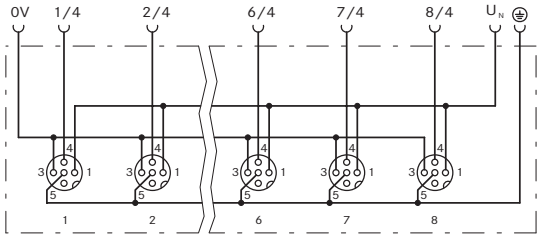
Article number	Article designation	Connection cable (No. of poles)	Length (m)	Number of slots	Status display
Fixed master cable					
22260028	AB-B6-M8L-6-5,0PUR		5	6	With LEDs
22260029	AB-B6-M8L-6-10,0PUR		10	6	With LEDs
22260030	AB-B8-M8L-8-5,0PUR		5	8	With LEDs
22260031	AB-B8-M8L-8-10,0PUR		10	8	With LEDs
22260032	AB-B10-M8L-10-5,0PUR		5	10	With LEDs
22260033	AB-B10-M8L-10-10,0PUR		10	10	With LEDs
M12 connection					
22260038	AB-B4-M8L-4-M12	8		4	With LEDs
22260039	AB-B6-M8L-6-M12	8		6	With LEDs
M16 connection					
22260034	AB-B4-M8L-4-M16	8		4	With LEDs
22260035	AB-B6-M8L-6-M16	10		6	With LEDs
22260036	AB-B8-M8L-8-M16	12		8	With LEDs
22260037	AB-B10-M8L-10-M16	14		10	With LEDs

Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Unoccupied slots must be covered with protective caps - ArtNo. 22260606 (M8); 22260605 (M12).

Distribution Box M12

Distribution box with M12 slots and master cable/mountable/M23 connection





Benefits

- Cost efficient and rational wiring of sensors and actuators
- Instead of numerous individual conductors, one master cable is laid to the control unit
- Hybrid cable for signal and power transmission

Product features

- With fixed master cable, mountable or M23 socket
- Single or double-occupied sensor/actuator box
- M12 quick-locking system, optional diagnostic LEDs (PNP)
- Suitable for cable chain
- PWIS-free

Norm references / Approvals

- E-File number: E75770

Product Make-up

- Core insulation: PVC
- Outer sheath: PUR, black

Suitable cables

- UNITRONIC® SENSOR master cable
- M23 connection cable: 10 m: 22260852; 15 m: 22260853; 30 m: 22260959

Suitable tools

- Suitable tools are available upon request (e.g. M8 torque screwdriver)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002585
ETIM 5.0/6.0 Class-Description:
Passive sensor-actuator interface

Protection rating
IP65/IP67 (M23 connection)
IP65/IP67/IP69

Ambient temperature (operation)
-25°C to +75°C (M23 connection)
-30°C to +90°C
Fixed installation -40°C to +90°C
Flexing -5 °C to +80 °C

Max. current rating per path
2 A

Current rating per slot
4 A

Article number	Article designation	Length (m)	Number of slots	Status display
Single-occupied boxes				
Fixed master cable				
22260010	AB-B4-M12-4-5,0PUR	5	4	no
22260011	AB-B4-M12-4-10,0PUR	10	4	no
22260014	AB-B8-M12-8-5,0PUR	5	8	no
22260015	AB-B8-M12-8-10,0PUR	10	8	no
22260018	AB-B4-M12L-4-5,0PUR	5	4	With LEDs
22260019	AB-B4-M12L-4-10,0PUR	10	4	With LEDs
22260970	AB-B6-M12L-6-5,0PUR	5	6	With LEDs
22260022	AB-B8-M12L-8-5,0PUR	5	8	With LEDs
22260023	AB-B8-M12L-8-10,0PUR	10	8	With LEDs
Field mountable				
22260005	AB-B4-M12-4-C		4	no
22260007	AB-B8-M12-8-C		8	no
22260001	AB-B4-M12L-4-C		4	With LEDs
22260003	AB-B8-M12L-8-C		8	With LEDs
M23 connection				
22260618	AB-B6-6-L-M23		6	With LEDs
22260619	AB-B8-8-L-M23		8	With LEDs
Double-occupied boxes				
Fixed master cable				
22260012	AB-B4-M12-8-5,0PUR	5	4	no
22260013	AB-B4-M12-8-10,0PUR	10	4	no
22260016	AB-B8-M12-16-5,0PUR	5	8	no
22260017	AB-B8-M12-16-10,0PUR	10	8	no
22260020	AB-B4-M12L-8-5,0PUR	5	4	With LEDs
22260021	AB-B4-M12L-8-10,0PUR	10	4	With LEDs
22260024	AB-B8-M12L-16-5,0PUR	5	8	With LEDs
22260025	AB-B8-M12L-16-10,0PUR	10	8	With LEDs
Field mountable				
22260006	AB-B4-M12-8-C		4	no
22260008	AB-B8-M12-16-C		8	no
22260002	AB-B4-M12L-8-C		4	With LEDs
22260004	AB-B8-M12L-16-C		8	With LEDs
M23 connection				
22260621	AB-B8-16-M23		8	no
22260620	AB-B8-16-L-M23		8	With LEDs

Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Unoccupied slots must be covered with protective caps - ArtNo. 22260606 (M8); 22260605 (M12).
UL certifications can be found in the data sheet.

UNITRONIC® SENSOR M16

M16 socket with connected master cable



Benefits

- Connecting cable for M8 boxes with 4 to 10 slots
- Instead of numerous individual conductors,one master cable is laid to the control unit
- Hybrid cable for signal and power transmission

Technical data

Classification
ETIM 5.0 Class-ID: EC001604
ETIM 5.0 Class-Description: Fieldbus, decentr. periphery - communication module

Material
Contact: CuZn
Contact surface: Ni/Au
Knurl: Nickel-plated brass
Gripping body: TPU, flame-retardant, self-extinguishing

Protection rating
IP67

Ambient temperature (operation)
Plug/socket -25°C to +90°C
Fixed installation -40°C to +90°C
Flexing -5°C to 80°C

Coding
A-standard

Rated current (A)
4 A

Article number	Article designation	Connector 1	Connector	Length (m)	Number of pins
22260607	AB-C8-5,0PUR-M16FA	Open end	M 16; Socket; Angled; A-coded; Number of contacts: 8	5	8
22260609	AB-C10-5,0PUR-M16FA	Open end	M 16; Socket; Angled; A-coded; Number of contacts: 8	5	10
22260611	AB-C12-5,0PUR-M16FA	Open end	M 16; Socket; Angled; A-coded; Number of contacts: 8	5	12
22260614	AB-C14-10,0PUR-M16FA	Open end	M 16; Socket; Angled; A-coded; Number of contacts: 8	10	14

Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs are not to scale and do not represent detailed images of the respective products.

UNITRONIC® SENSOR M12 Power

Power cable: M12 plug/socket on free conductor



Info

- Other types are available at www.lapp.com or on request

Benefits

- Cost-effective, efficient wiring of fieldbus and sensor/ actuator installations
- Space-saving due to compact dimensions
- Customise assembly of the free conductor end

Product features

- 4-core power cable
- M12 connector, A-coded with quick-locking system
- Including tag carrier
- Suitable for cable chain
- PWIS-free

Product Make-up

- 4 x 0.75 mm²
- 4-pin: bn (1), wh (2), bu (3), bk (4)
- Core insulation: PVC
- Outer sheath: PUR, black
- Outer diameter: 5.9 mm

Suitable tools

- DATA STRIP stripping tool

Suitable connectors

- EPIC® SENSOR M12

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001855
ETIM 5.0/6.0 Class-Description: Sensor-actuator patch cord

Material
Contact: CuSn
Contact surface: Ni/Au
Knurl: Zinc die-cast, nickel-plated
Gripping body: TPU, flame-retardant, self-extinguishing

Minimum bending radius
Flexing: 10 x outer diameter

Protection rating
IP65/IP67

Ambient temperature (operation)
Plug/socket -25 °C to +90 °C
Fixed installation -25 °C to +80 °C
Flexing -5 °C to +80 °C

Coding
A-standard

Rated current (A)
4 A

Article number	Article designation	Number of pins	Length (m)	Design	Rated voltage (V)	PU
Straight connector						
22260778	AB-PC4-M12MS-2,0PUR	4	2	straight	250	1
22260779	AB-PC4-M12MS-5,0PUR	4	5	straight	250	1
22260780	AB-PC4-M12MS-10,0PUR	4	10	straight	250	1
Straight socket						
22260781	AB-PC4-2,0PUR-M12FS	4	2	straight	250	1
22260782	AB-PC4-5,0PUR-M12FS	4	5	straight	250	1
22260783	AB-PC4-10,0PUR-M12FS	4	10	straight	250	1
Plug on socket						
22260784	AB-PC4-M12MS-0,3PUR-M12FS	4	0.3	straight-straight	250	1
22260785	AB-PC4-M12MS-1,0PUR-M12FS	4	1	straight-straight	250	1
22260786	AB-PC4-M12MS-2,0PUR-M12FS	4	2	straight-straight	250	1
22260787	AB-PC4-M12MS-5,0PUR-M12FS	4	5	straight-straight	250	1
22260788	AB-PC4-M12MS-10,0PUR-M12FS	4	10	straight-straight	250	1

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: inclusive of copper. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® POWER M12 60V

Field mountable M12 POWER connectors

Info

- DC high-power connector
  - 60 VDC / 12 A



22262010



22262012



22262011



22262013

Benefits

- Compact and standardized M12 design saves space and costs
- Fault proof connection through M12 T coding of the connector face
- Low voltage drop
- Safety use in field environment by high protection class

Application range

- Power Supply for small devices
- Tool shop
- Wiring of machines, tools, devices, appliances and control cabinets
- Suitable for use in measuring, control and regulating circuits

Product features

- Robust M12 circular connector with screw connection and knurled srew
- Screw-on terminals for different conductors

Product Make-up

- PVC Einzellitzen, L = 0,2 m (4 x AWG16)
- 4-pin: bn (1), wh (2), bu (3), bk (4)
- High quality gold-plated contacts
- For screw contacts: 0,75 mm² - 1,5 mm² (AWG 18 - AWG 16)

Suitable cables

- ÖLFLEX® FD 855 P
- (ÖLFLEX® FD 855 P: Example for harsh conditions)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002062
ETIM 5.0/6.0 Class-Description: Sensor-actuator connector

Material
Contact: CuZn
Contact surface: Au (gold)
Knurl: Zinc die-cast, nickel-plated
Gripping body: PA

Protection rating
IP 67

Ambient temperature (operation)
Plug/socket -40°C to +85°C

Coding
T - Power

Rated current (A)
12 A

Article number	Article designation	Design	Number of pins	Cable diameter in mm	Rated voltage (V)	PU
EPIC® POWER M12 60V						
Plug						
22262010	AB-C4-M12MST-PG11	straight	4	8.0 - 10.0	60	1
22262012	AB-C4-M12MAT-PG11	angled	4	8.0 - 10.0	60	1
Socket						
22262011	AB-C4-M12FST-PG11	straight	4	8.0 - 10.0	60	1
22262013	AB-C4-M12FAT-PG11	angled	4	8.0 - 10.0	60	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® POWER M12 60V flush-type connectors

Power cable: M12 plug/socket on free conductor



Info

- DC high-power connector
  - 60 VDC / 12 A

Benefits

- Safety use in field environment by high protection class
- Compact and standardized M12 design saves space and costs
- Low voltage drop
- Fault proof connection through M12 T coding of the connector face

Application range

- Power Supply for small devices Tool shop
- Wiring of machines, tools, devices, appliances and control cabinets
- Suitable for use in measuring, control and regulating circuits

Technical data

Classification
ETIM 5.0 Class-ID: EC002062
ETIM 5.0 Class-Description: Sensor-actuator connector

Material
Contact: CuZn
Contact surface: Au (gold)

Protection rating
IP67

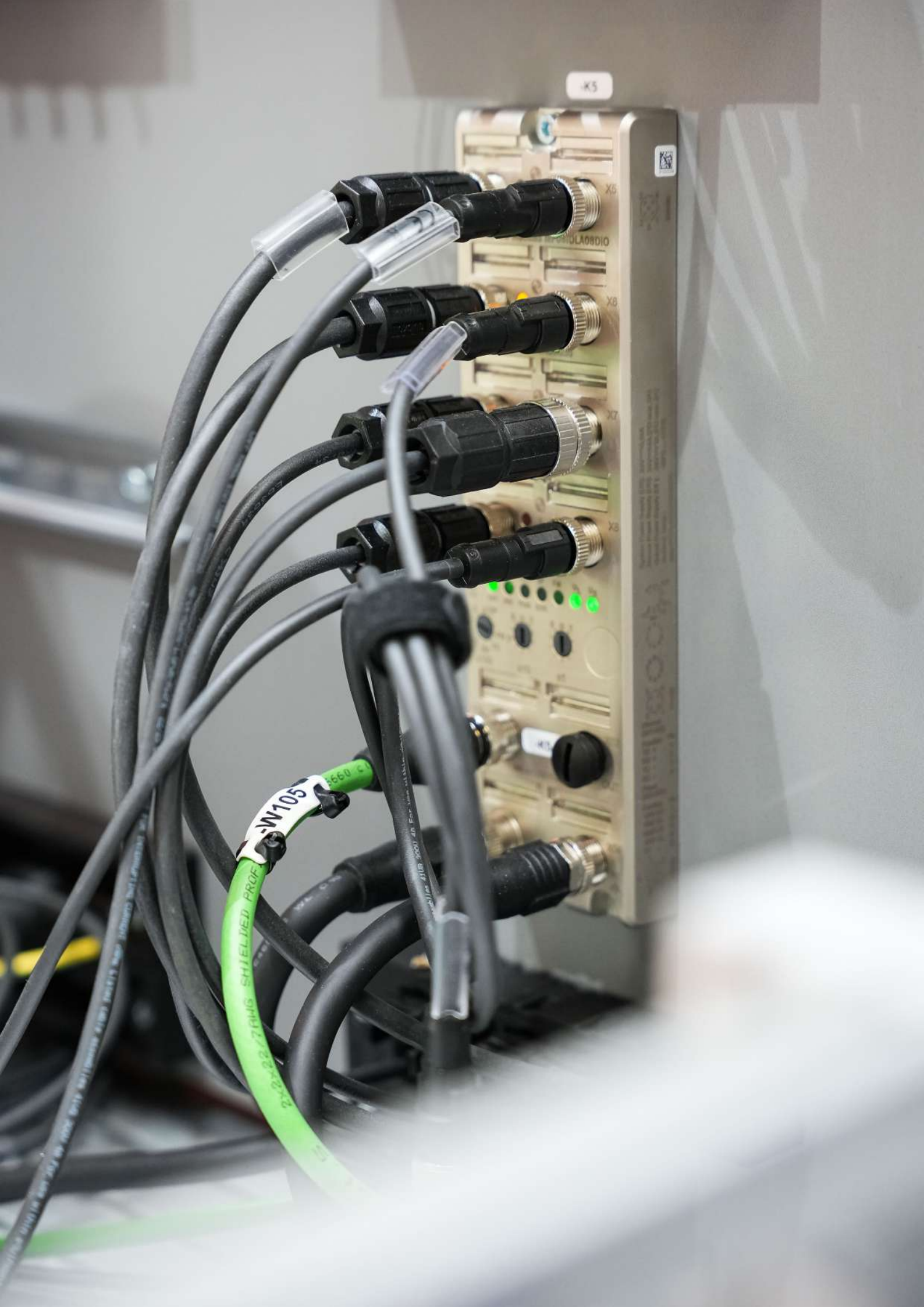
Ambient temperature (operation)
-40°C to +85°C

Coding
T - Power

Rated current (A)
12 A

Article number	Article designation	Number of pins	Length (m)	Design	Rated voltage (V)	PU
22262014	AB-C4-M12MST-M20-PO	4	0,2	M20	60	1
22262015	AB-C4-M12FST-M20-PO	4	0,2	M20	60	1

Unless specifi ed otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Photographs are not to scale and do not represent detailed images of the respective products.
M16 or M20 locknuts not included in delivery


-K5
X5
X6
X7
X8
-W105
SHIELDED PROF


-W15

UNITRONIC® ACCESS SP08 IOL

IO-Link master, single protocol



Info

- Easy Configuration via web-interface
- MADE IN GERMANY

Benefits

- Supports the Industrial Ethernet protocols PROFINET, EtherNet/IP, EtherCAT,
- Modbus TCP and CC-Link (article-dependent)
- IO-Link technology allows extended diagnostics of sensors and actuators through bidirectional communication, e.g. remote maintenance of devices
- Globally standardised IO-Link technology supports all common communication protocols
- Simplified commissioning and replacement of IO-Link devices thanks to automatic configuration and plug-and-play
- Digital signal transmission allows the use of unscreened standard cables
- Particularly suitable for harsh environments thanks to protection class IP 67
- Protection class IP 69K allows the use of high-pressure cleaners

Application range

- For data transmission of input and output signals as well as IO-Link signals from sensors and actuators to an Industrial Ethernet or IoT protocol
- For decentralised use at field level, outside of control cabinets
- For use with UNITRONIC® SENSOR M12 cables and ETHERLINE® M12 patch cables
- Metal housing is resistant to welding spatter
- For operating temperatures from -20°C to +60°C

Technical data

Industrial Protocols
PROFINET
ETHERNET/IP
ETHERCAT
MODBUS TCP
CC-LINK IE
IO-Link vers. 1.1.3 (Type A)

IoT Protocols
(REST)

Protection rating
IP69K

Ambient temperature (operation)
-25°C to +60°C

Supply voltage
24 V DC (20-30VDC) (SELV/PELV)

Digital Channels
Digital input: 8 x M12 A-coded
16 channels, Type 1 (IEC61131-2)
Digital output: 16 (Max 2A)

Dimension
200 x 60 x 31mm

Article number	Article designation	Valid Fieldbus or Ethernet System
381166712	UNITRONIC® ACCESS PN08IOLA08DIO	PROFINET,I/O-Link
381166713	UNITRONIC® ACCESS EIP08IOLA08DIO	ETHERNET/IP,I/O-Link
381166714	UNITRONIC® ACCESS EC08IOLA08DIO	EtherCAT,I/O-Link
381166715	UNITRONIC® ACCESS MTCP08IOLA08DIO	Modbus,I/O-Link
381166716	UNITRONIC® ACCESS CCL08IOLA08DIO	CC-Link IE,I/O-Link

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Photographs are not to scale and do not represent detailed images of the respective products.
Unused female connectors must be covered with protective caps (see accessoriers).

UNITRONIC® ACCESS MP08

Multiprotocol IO-Link Master or DIO version



Info

- Easy Configuration via web-interface
- Security (ACHILLES-tested, Syslog)

Benefits

- Multiprotocol combines several Industrial Ethernet and IoT-based protocols in one. This reduces the number of different devices and increases flexibility
- Multiprotocol enables a uniform and standardised system design and meets the requirements of international industries with just one device
- Support for various Industrial Ethernet protocols reduces the variety of parts in the warehouse and simplifies maintenance
- Digital signal transmission allows the use of unscreened standard cables
- Particularly suitable for harsh environments thanks to protection class IP 67
- Protection class IP 69K allows the use of high-pressure cleaners

Application range

- For communication between decentralised sensors and actuators at field level and a programmable logic controller at control level
- For decentralised use at field level, outside of control cabinets
- For use with UNITRONIC® SENSOR M12 cables and ETHERLINE® M12 patch cables
- Metal housing is resistant to welding spatter
- For operating temperatures from -40°C to +70°C

Technical data

Industrial Protocols
PROFINET
ETHERNET/IP
ETHERCAT
MODBUS TCP
CC-LINK IE
IO-Link vers. 1.1.3 (Type A)

IoT Protocols
(OPC UA, MQTT, CoAP, REST)

Protection rating
IP65/IP67 IP69k

Ambient temperature (operation)
-25°C to +70°C

Supply voltage
24 V DC (20-30VDC) (SELV/PELV)

Digital Channels
Digital input: 16 PNP, Type 1 (IEC61131-2)
Digital output: 16 P-swithing (Max 2A)

Dimension
200 x 60 x 31mm

Article number	Article designation	Number of ports
381166717	UNITRONIC® ACCESS MP08IOLA08DIO	8
381166718	UNITRONIC® ACCESS MP08DIO08DIO	8

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Photographs are not to scale and do not represent detailed images of the respective products.
Unused female connectors must be covered with protective caps (see accessoriers).

UNITRONIC® ACCESS HUB IO-LINK



Info

- Standardised interfaces
- Space-saving due to compact dimensions

Benefits

- IO-Link technology allows extended diagnostics of sensors and actuators through bidirectional communication, e.g. remote maintenance of devices
- Simplified commissioning and replacement of IO-Link devices thanks to automatic configuration and plug-and-play
- Globally standardised IO-Link technology supports all common communication protocols
- The power supply is provided via the IO-Link Master and does not require separate cabling and power supply units, which saves costs
- Digital signal transmission allows the use of unscreened standard cables
- Particularly suitable for harsh environments thanks to protection class IP 67
- Protection class IP 69K allows the use of high-pressure cleaners

Application range

- For connecting digital sensors and actuators to an IO-Link Master
- For decentralised use at field level, outside of control cabinets
- For use with UNITRONIC® SENSOR M12 cables
- Metal housing is resistant to welding spatter
- For operating temperatures from -40°C to +70°C

Technical data

Interface
IO-Link vers. 1.1.3 (Type A)
Supported Modes: 230.4 kBaud (COM 3)
Connections
8 x M12 A-coded I/O connection
1 x M12 A-coded IO-Link Class A connection

Protection rating
IP65/IP67 IP69k

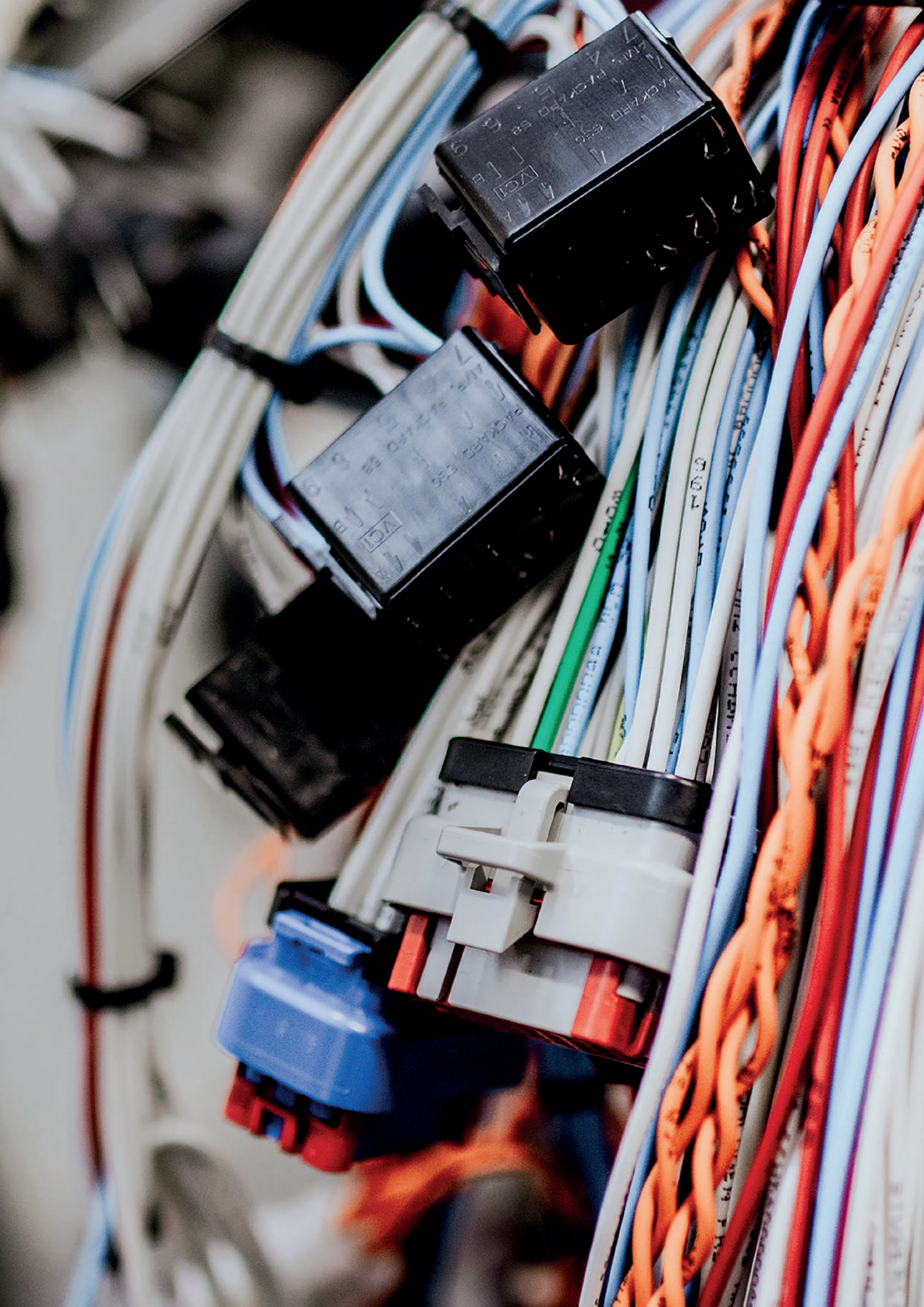
Ambient temperature (operation)
-40°C to +70°C

Supply voltage
24 V DC (20-30VDC) (SELV/PELV)
Digital Channels
Digital input: 16 PNP, Type 1 (IEC61131-2)
Digital output: 16 P-swithing (Max 350mA)

Dimension
159 x 60 x 31mm

Article number	Article designation	Number of ports
381166719	UNITRONIC® ACCESS IOL08DIO08DIO	8

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Photographs are not to scale and do not represent detailed images of the respective products.
Unused female connectors must be covered with protective caps (see accessoriers).





ETHERLINE®

Data communication systems for ETHERNET technology

Our ETHERLINE® branded products open up a secure, fast and reliable path to the future of Ethernet applications, e.g. PROFINET. The systems are made up of durable and robust cables and connection components for passive and active network technology, and deliver an effective solution for almost any application, particularly in an industrial environment.

Application range

- Industry and building networks
- Industrial machinery and plant engineering
- Automation technology
- Control engineering

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Industrial Ethernet

Active network components
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Industrial Ethernet, Cat.7

Cables for flexible applications
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PROFINET, Cat.5

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ETHERLINE® PN Cat.7 271
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ETHERLINE® PN Cat.7 FLEX 272
Type C - Cables for continuous flexing applications
ETHERLINE® TORSION Cat.7 273
ETHERLINE® PN Cat.7 FD 274

SINGLE PAIR ETHERNET

Cables for flexible applications
ETHERLINE® T1 FLEX 275
Cables for continuous flexing applications
ETHERLINE® T1 FD 276
Ethernet-APL
ETHERLINE® T1L - T1L FLEX 277

Industrial Ethernet

Industrial Ethernet for special applications
ETHERLINE® TRAIN 278
ETHERLINE® HEAT 6722 279
ETHERLINE® FIRE 280
ETHERLINE® ROBUST 281
ETHERLINE® ROBUST FR 282

Industrial Ethernet, Cat.6$_A$

RJ45 Connectors
EPIC® DATA RJ45 283
EPIC® DATA AX RJ45 Cat.6$_A$ IP68 284
Coloured Clips for ETHERLINE® Patchcords 284
EPIC® DATA RJ45F Cat.6$_A$ 285
EPIC® DATA HS RJ45F Cat.6$_A$ 285

Industrial Ethernet, Cat.5 / 5e

M12 Field mountable connectors and wall ducts
EPIC® DATA M12D 286
EPIC® DATA M12X 286

Access Kit

Industrial Communication Kits
ETHERLINE® ACCESS KIT PN6-RJ-1 287
ETHERLINE® ACCESS KIT PN5-RJ-1 287
ETHERLINE® ACCESS KIT PN5-M12-1 287
ETHERLINE® ACCESS KIT PN5-M12-2 288
ETHERLINE® ACCESS KIT IE5-RJ-1 288
ETHERLINE® ACCESS KIT PN5-1/ 288

Industrial Ethernet, Accessories

M12 Field mountable connectors and wall ducts
EPIC® DATA FT IE 289
EPIC® DATA CCR FA 289
EPIC® DATA M12-RJ45 290
Single Pair Ethernet connectors
EPIC® DATA SPE-6 FA M CS1 291
EPIC® DATA SPE-6 PCB F 291

Single Pair Ethernet patch cables
EPIC® DATA SPE-6 PC M-M CT001 292

Structured building cabling, Cat.5e
Cables for fixed installation
ETHERLINE® LAN 200 Cat.5e 294

Structured building cabling, Cat.6
Cables for fixed installation
ETHERLINE® LAN 350 Cat.6 295

Structured building cabling, Cat.6_A
Cables for fixed installation
ETHERLINE® LAN 500 Cat.6_A 296

Structured building cabling, Cat.7_A
Cables for fixed installation
ETHERLINE® LAN 1000 Cat. 7_A 297
ETHERLINE® LAN 1200 Cat.7_A 297
ETHERLINE® LAN 1600 Cat.7_A 298

Structured building cabling, Cat.7
Cables for fixed installation
UNITRONIC® LAN OUTDOOR 299

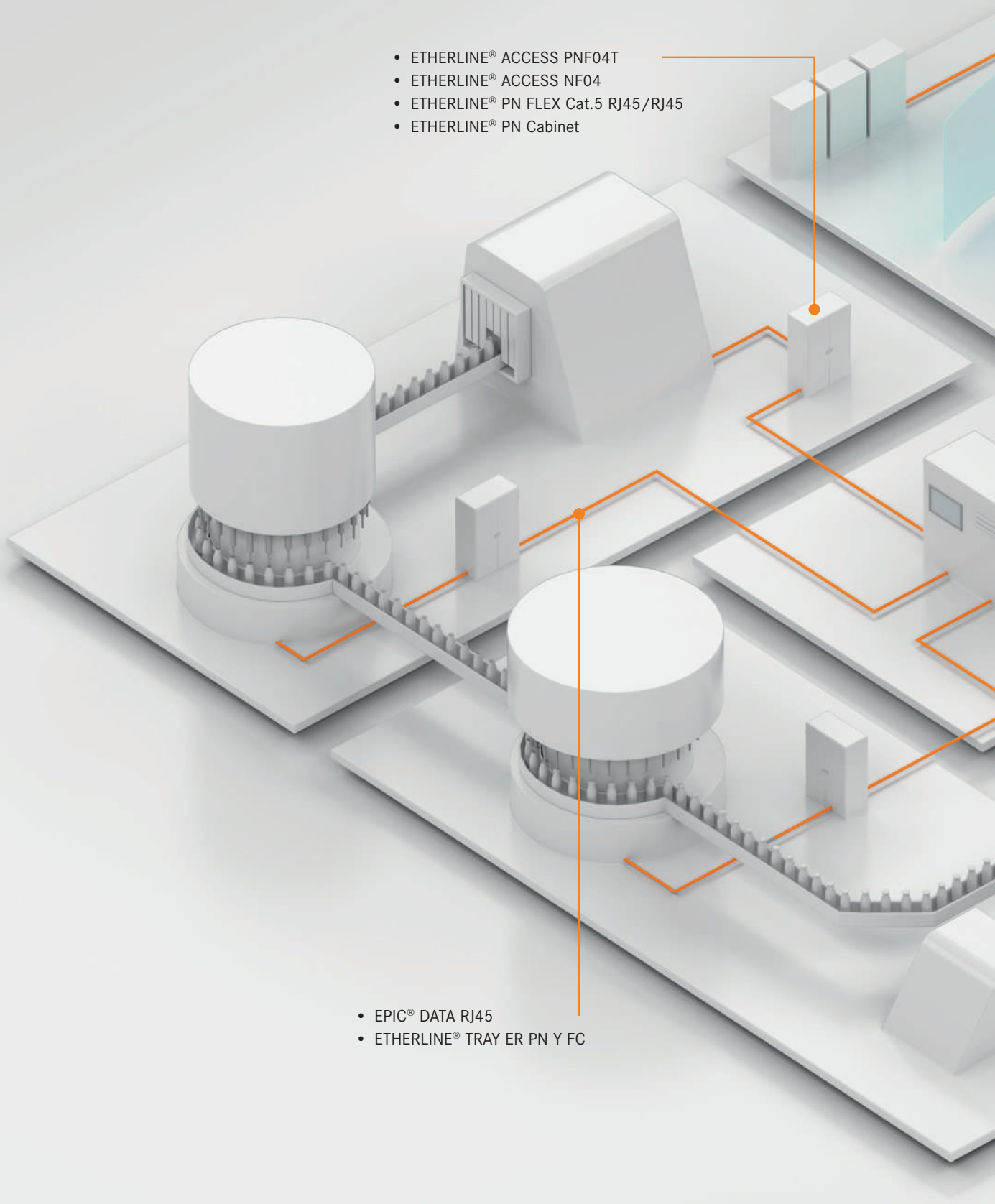
Structured building cabling, Special applications
Cables for flexible applications
UNITRONIC® LAN FLEX 300

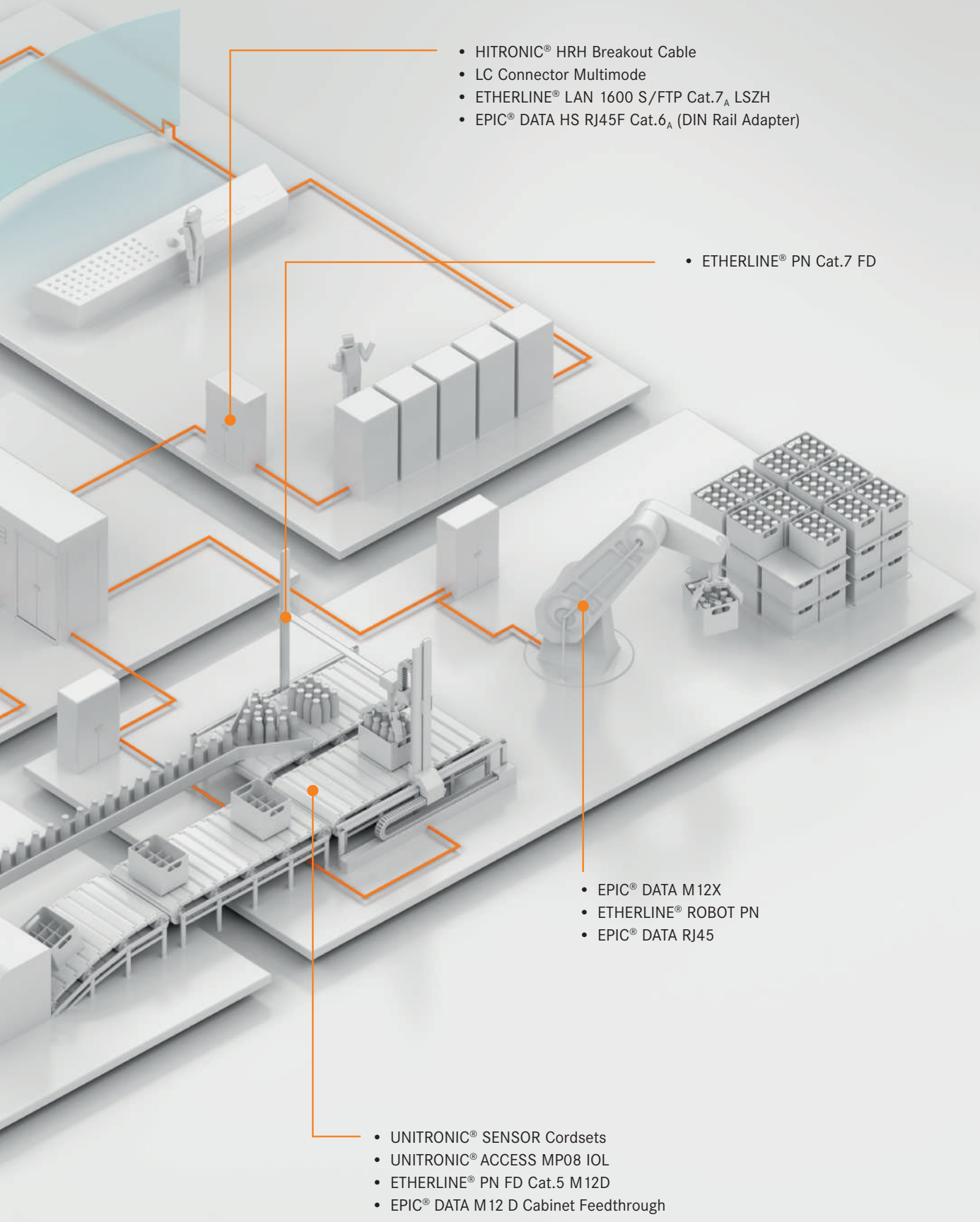
Industrial Ethernet, Cat.6_A
Patch cables for flexible applications
ETHERLINE® LAN Cat.6_A Patchcords 301

Structured building cabling Cat.5e, Cat.6 and Cat.6_A
RJ45 Connectors
Connector RJ45 CAT.6 Hirose TM21 303
EPIC® DATA RJ45 Crimp 303
EPIC® DATA RJ45 Plug Cat.5e FM45 field m. 304

Industrial Data Communication by LAPP.

The right solution for every application





- HITRONIC® HRH Breakout Cable
- LC Connector Multimode
- ETHERLINE® LAN 1600 S/FTP Cat.7_A LSZH
- EPIC® DATA HS RJ45F Cat.6_A (DIN Rail Adapter)

- ETHERLINE® PN Cat.7 FD

- EPIC® DATA M12X
- ETHERLINE® ROBOT PN
- EPIC® DATA RJ45

- UNITRONIC® SENSOR Cordsets
- UNITRONIC® ACCESS MP08 IOL
- ETHERLINE® PN FD Cat.5 M12D
- EPIC® DATA M12 D Cabinet Feedthrough

Data communication systems for ETHERNET technology

Overview

Ethernet is the leading standard for computer networks in office buildings. However, due to its widespread availability, reliability and performance, it is increasingly prevalent in industrial environments as well.
Our ETHERLINE® portfolio offers comprehensive solutions for your Ethernet network.
You can always rely on our high-quality products to avoid downtimes and expensive breakdowns.

LAPP places great importance on the most fitting products and strives to offer the best solution possible for your application.

Our large ETHERLINE® portfolio offers solutions for varied applications in industrial environments as well as for structured building cabling.

We offer matching field-mountable connectors and pre-assembled patch cables for your applications.

The portfolio is completed by our ETHERLINE® ACCESS products.
These robust, managed and unmanaged switches are the perfect network devices for a demanding industrial environment.

This allows us to provide you with end-to-end solutions from just one source.
Our products are thoroughly tested in our in-house laboratory to ensure that we can provide the quality that you have come to expect from us.









ETHERLINE® – Industrial Ethernet

- Resilient cabling solutions for demanding industrial Ethernet applications
- Compliance with international standards (e.g. PROFINET)
- Field-mountable connectors – quick assembly and reliable without special tools
- Pre-assembled patch cables with overmoulded connectors

ETHERLINE® LAN – Structured building cabling

- Cables ranging from Cat.5e up to Cat.7_A
- Transmission frequencies up to 1600 MHz
- Office patch cables complying with Cat.6_A
- Field-mountable connectors as well as accessories

ETHERLINE® ACCESS – Industrial communication

- Reliable and robust industrial Ethernet switches
- Easy construction of redundant networks with quick reconfiguration time of less than 20 ms
- High quality and availability of industrial networks

Type specification according to the PROFINET Guideline

PROFINET is an international standard for communication systems that defines the cabling within and between production islands. The PROFINET system specifies copper-based as well as fibre optic transmission media.

Its foundation, the 'PROFINET Cabling and Interconnection Technology Guideline', defines three cable types for copper-based cables. These types specify the exact structure and the mechanical and electrical properties. PROFINET-compliant cables can be distinguished by their cable marking that states the PROFINET compliance as well as their respective cable type according to the aforementioned guideline.

Number of pairs / Type of cable	Type A	Type B	Type C	Type R
Application	**For fixed installation**	**For flexible Installation**	**For special application**	**For robotic application**
2-pair (2x2)	AWG22/1	AWG22/7	AWG22/1…19	AWG22/19
4-pair (4x2)	min. AWG23/1	min. AWG23/7	min. AWG24/1…19	-

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Choosing the right cable material



Selection criterion Insulation and sheath materials

Every application makes its own demands of the cabling. The selection of the outer sheath material can be decisive in finding the suitable cable for an application.

To provide an overview of the properties of different sheath materials, the table (below left) lists four typical sheath materials that are used in PROFINET applications.

The technical tables and the appendix in the LAPP main catalogue provide a detailed overview of all the properties of the ETHERLINE® and HITRONIC® cables. www.lapp.com/products

Polyurethane (PUR) is used in cables and wires that are designed for permanent flexing, e. g. in drag chain applications or torsion applications. In this context, these cables must withstand high mechanical loads such as abrasion and lateral pressure.

Polyvinylchloride (PVC) is used in cables and wires that must meet requirements concerning resistance to chemical media or oil-resistance. PVC cables are also highly flame-retardant.

FRNC (flame-retardant non-corrosive) sheath materials are used wherever the absence of halogens is required in the context of a minor release of poisonous flue gas during a fire. These cables are frequently used as installation cables in the building infrastructure.

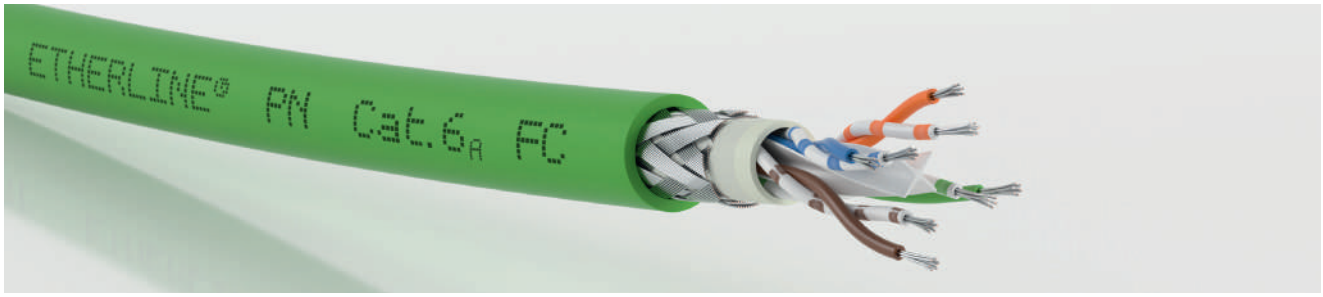
Polyethylene (PE) is normally used as a sheath material for cables that are suitable for direct burial. Further application areas include semi-permanent installation in water or outdoor applications. Together with carbon black (black sheath material), PE provides optimum protection against UV radiation.

Properties of insulation and sheathing of cables and wires

	PUR	PVC	FRNC	PE
Absence of halogens	+	--	+	+
Flame retardance	+	+	+	•
Low flue gas development	•	-	++	-
Low emissions of corrosive gases	•	--	++	•
Low flue gas toxicity	•	-	++	•
Abrasion resistance	++	+	-	•
Stripping	-	+	+	•
Oil-resistance	++	+	-	+
Acids	--	+	+	++

Legend: ++ = very good + = good • = moderate - = low -- = poor

Customized Fast Connect assembly solutions for data rates up to 10 Gbit/s



The challenge

In industrial production and manufacturing environments, ever larger data volumes must be processed within the shortest period of time. This results in increasing requirements for the cabling. This is because the products utilised must not only be designed for steadily growing data rates in the gigabyte range, but also be robust enough to ensure the reliability and operational safety of machines and systems.

The solution

As a systems supplier for connectivity solutions, we know precisely what is required in these situations. We can help you optimise your processes and offer you access to our comprehensive portfolio of innovative Fast Connect data cables. The Fast Connect structure facilitates assembly thanks to a specially-designed internal sheath and a cross separator instead of pair screening. Assembly time is reduced and all of the requirements for shielding and application are optimally fulfilled. There is no need for the time-consuming four-fold removal of the pair screening. With the appropriate tool, it is possible to directly strip down the cable to its twisted pairs. A proficient mechanic can remove both sheaths effortlessly on-site within five seconds.

Incidentally: To ensure faster identification, all of our Fast Connect data cables are marked with “FC” in the article designation.

	Article designation	Sheath material	Temperature range	Feature	Art. no.
fixed installation	ETHERLINE® PN Cat.6$_A$ Y FC 4x2xAWG23/1	PVC, green RAL6018	Fixed: -30 °C to +80 °C	Fast Connect, PROFINET	2170583
	ETHERLINE® PN Cat.6$_A$ FRNC FC 4x2xAWG23/1	PVC, green RAL6018	Fixed: -30 °C to +80 °C	Fast Connect, halogen-free, PROFINET	2170584
	ETHERLINE® PN Cat.6$_A$ P FC 4x2xAWG23/1	PUR, green RAL6018	Fixed: -40 °C to +80 °C	Fast Connect, halogen-free, PROFINET	2170585
flexible	ETHERLINE® PN Cat.6$_A$ Y FLEX FC 4x2xAWG23/7	PUR, green RAL6018	Fixed: -30 °C to +80 °C, Flexing: -30 °C to +75 °C	Fast Connect, PROFINET	2170586
	ETHERLINE® PN Cat.6$_A$ FRNC FLEX FC 4x2xAWG23/7	FRNC, green RAL6018	Fixed: -30 °C to +80 °C, Flexing: -30 °C to +75 °C	Fast Connect, halogen-free, PROFINET	2170587
highly flexible	ETHERLINE® PN Cat.6$_A$ P FD FC 4x2xAWG24/7	PUR, green RAL6018	Fixed: -40 °C to +80 °C, Flexing: -30 °C to +75 °C	Fast Connect, halogen-free, PROFINET	2170590
	ETHERLINE® PN Cat.6$_A$ Y FD FC 4x2xAWG24/7	PVC, green RAL6018	Fixed: -30 °C to +80 °C, Flexing: -30 °C to +75 °C	Fast Connect, PROFINET	2170591

Article designation	Item description	Minimum cable diameter	Maximum cable diameter	Art. no.
EPIC® DATA ED-IE-AXS-6A-B-20-FC	Straight RJ45 connector, as per EIA/TIA 568B	5.5 mm	10.0 mm	21700653
EPIC® DATA ED-IE-90-6A-B-20-FC	Straight RJ45 connector, as per EIA/TIA 568B	5.5 mm	10.0 mm	21700637
EPIC® DATA ED-IE-AX-M12X-6A-67-FC	Straight M12 X-coded connector	5.0 mm	9.7 mm	21700602
EPIC® DATA ED-IE-AX-M12XF-RM-6A-67-FC	Straight M12 X-coded flange coupler	5.0 mm	9.7 mm	21700622
FC STRIP VARIO	Stripping tool for Fast Connect cables with adjustable blade spacing	2.5 mm	8.0 mm	21124045

Legend: *see www.lapp.com/products

Assembling a Fast Connect cable for PROFINET Cat.6_A with RJ45

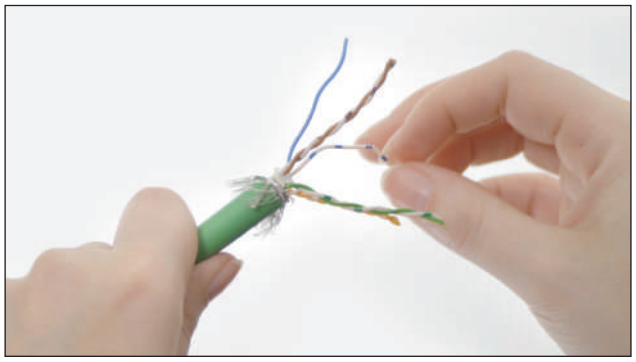
An experienced systems supplier, LAPP is your powerful partner in all aspects of assembly. You can get everything you need from one source: from the cable to the connector to the right tool for the job. All of this, of course, with the first-class quality that our brand provides.



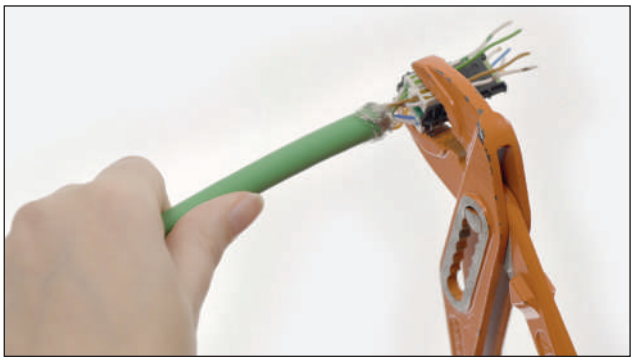
Step 1: Positioning
- Position the FC tool on the cable at least 50 mm from the end
- Close the tool around the cable
- Twist the tool around the cable three times



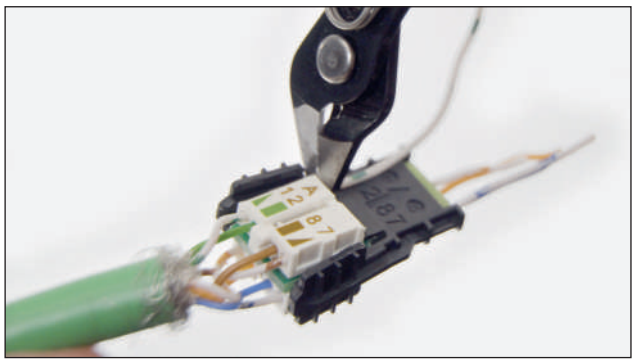
Step 2: Stripping
- Remove the cable insulation using the FC tool
- The braided shield is automatically shortened to 10 mm
- Fold back the braided shield towards the outer sheath



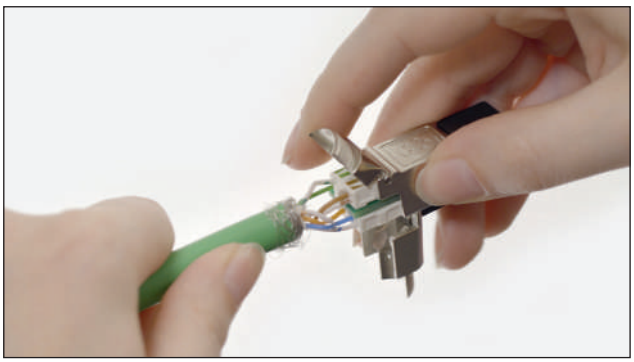
Step 3: Preparing cores
- Sort the core pairs
- Cut the cross-separator as close as possible at the sheath
- Untwist and smooth the core pairs



Step 4: Pressing core manager
- Matching the colours, insert the cores into the core manager
- Slide the core manager as close to the sheath as possible (maximum of 10 mm distance)
- Press the core manager with pliers



Step 5: Preparing connector
- Cut the protruding cores as flush as possible at the core manager
- Remove the installation tool (black plastic sleeve)



Step 6: Inserting core manager
- Insert core manager until the connector can be closed
- Press the half shells together and screw

Quickfinder cable

Automation area	Inst. Area	Category	Application/ cabling	halogenfree	Sheath material	Shielding	AWG	Outer diameter [mm]
Building 4-pairs	Indoor	Cat.5e	static		PVC	U/UTP	4x2xAWG24/1	5.1
						F/UTP	4x2xAWG24/1	6.2
						SF/UTP	4x2xAWG24/1	6.3
				X	LSZH	F/UTP	4x2xAWG24/1	6.3
						SF/UTP	4x2xAWG24/1	6.4
			flexible		PVC	F/UTP	4x2xAWG26/7	5.6
						SF/UTP	4x2xAWG26/7	6.0
				X	LSZH	F/UTP	4x2xAWG26/7	5.6
						SF/UTP	4x2xAWG26/7	6.0
				X	LSZH	U/UTP	4x2xAWG24/1	6.0
						F/UTP	4x2xAWG23/1	7.4
		Cat.6_A	static		PVC	S/FTP	4x2xAWG23/1	7.3
						F/UTP	4x2xAWG23/1	7.4
				X	LSZH	F/FTP	4x2xAWG23/1	7.3
						F/UTP	4x2xAWG23/1	7.4
		Cat.7	flexible		PVC	S/FTP	4x2xAWG26/7	6.5
				X	LSZH	S/FTP	4x2xAWG26/7	6.2
		Cat.7_A	static	X	LSZH	S/FTP	4x2xAWG23/1	
							2x(4x2xAWG23/1)	
							4x2xAWG23/1	7.5
							2x(4x2xAWG23/1)	2 x 7.5
							4x2xAWG23/1	7.5
							2x(4x2xAWG23/1)	2 x 7.5
							4x2xAWG22/1	8.2
	Outdoor, ground	Cat.7	static		(L)PE	S/FTP	4x2xAWG23/1	9.6
					PE		4x2xAWG23/1	7.7

Automation area	Inst. Area	Category	Application/ cabling	halogenfree	Sheath material	Shielding	AWG	Outer diameter [mm]
Industrial 2-pairs	Indoor	Cat.5e	static	X	H	SF/UTP	2x2xAWG24/1	6.1
					PVC	SF/UTP	2x2xAWG22/1	6.8
							2x2xAWG22/1	6.5
			flexible		PVC	SF/UTP	1x4xAWG26/7	4.8
				X	PUR	SF/UTP	1x4xAWG26/7	4.8
					H	SF/UTP	2x2xAWG26/7	5.9
			high flexible		PVC	SF/UTP	2x2xAWG22/7	6.5
				X	PUR	S/UTP	2x2xAWG26/19	6.2
						SF/UTP	1x4xAWG26/19	4.8
		Cat.5	high flexible	X	PUR	SF/UTP	2x2xAWG22/7	6.8
			torsion	X	PUR	SF/UTP	2x2xAWG22/19	6.8
	Indoor and outdoor	Cat.5	static		PVC	SF/UTP	2x2xAWG22/1	6.8
		Cat.5e	static	X	PUR	SF/UTP	2x2xAWG24/1	6.1
		Cat.5	flexible		PVC	SF/UTP	2x2xAWG22/7	6.8
		Cat.5e	flexible	X	FRNC	SF/UTP	2x2xAWG22/7	6.8
					PVC	SF/UTP	2x2xAWG22/7	6.5
		Cat.5	flexible	X	FRNC	SF/UTP	2x2xAWG22/7	6.5
		Cat.5e	flexible		TPE	SF/UTP	2x2xAWG22/7	6.5
				X	PUR	SF/UTP	2x2xAWG26/7	5.9
	Outdoor and ground	Cat.5	static		PVC/PE	SF/UTP	2x2xAWG22/1	9.8
		Cat.5e	static		PVC/PVC	SF/UTP	2x2xAWG22/1	7.7
Industrial 2-pairs hybrid	Indoor	Cat.5	flexible	X	FRNC	SF/UTP	2x2xAWG22/7 + 4x1.5	10.6

Legend: PN = PROFINET, cables acc. to PROFINET standard, *see www.lapp.com/products
Please see detailed technical information on the data sheet (www.lapp.com/products).

Characteristics	Approvals	Article designation	Article number
		ETHERLINE® LAN 200 Cat.5e U/UTP	2170950
		UNITRONIC® LAN 200 Cat.5e F/UTP	2170126
		ETHERLINE® LAN 200 Cat.5e SF/UTP	2170951
		ETHERLINE® LAN 200 Cat.5e F/UTP LSZH	2170952
		ETHERLINE® LAN 200 Cat.5e SF/UTP LSZH	2170953
		UNITRONIC® LAN 200 Cat.5e F/UTP FLEX	2170127
		UNITRONIC® LAN 200 Cat.5e SF/UTP FLEX	2170129
		UNITRONIC® LAN 200 Cat.5e F/UTP LSZH FLEX	2170172
		UNITRONIC® LAN 200 Cat.5e SF/UTP LSZH FLEX	2170139
Separation cross		ETHERLINE® LAN 350 Cat.6 U/UTP LSZH	2170955
Separation cross		ETHERLINE® LAN 350 Cat.6 F/UTP LSZH	2170956
		ETHERLINE® LAN 500 Cat.6_A S/FTP	2170960
Separation cross		ETHERLINE® LAN 500 Cat.6_A F/UTP	2170961
		ETHERLINE® LAN 500 Cat.6_A F/FTP LSZH	2170962
Separation cross		ETHERLINE® LAN 500 Cat.6_A F/UTP LSZH	2170963
		UNITRONIC® LAN 600 Cat.7 S/FTP Y FLEX	2170144
		UNITRONIC® LAN 600 Cat.7 S/FTP LSZH FLEX	2170142
		ETHERLINE® LAN 1000 Cat.7A	2170980
		ETHERLINE® LAN 1000 Cat.7A	2170981
Up to 1000 MHz		ETHERLINE® LAN 1000 Cat.7_A S/FTP LSZH	2170971
Up to 1000 MHz, DUPLEX		ETHERLINE® LAN 1000 Cat.7_A S/FTP LSZH DUPLEX	2170972
Up to 1200 MHz		ETHERLINE® LAN 1200 Cat.7_A S/FTP LSZH	2170974
Up to 1200 MHz, DUPLEX		ETHERLINE® LAN 1200 Cat.7_A S/FTP LSZH DUPLEX	2170975
Up to 1600 MHz		ETHERLINE® LAN 1600 Cat.7_A S/FTP LSZH	2170976
PE-AL outer sheath, direct burial		ETHERLINE® LAN 1000 Cat.7 S/FTP (L)PE	2170977
PE outer sheath		ETHERLINE® LAN 1000 Cat.7 S/FTP PE	2170978

Industrial Ethernet Systems	Characteristics	Approvals	Article designation	Article number
			ETHERLINE® H Cat.5e	2170280
PROFINET, EtherCAT©	Fast Connect	UL/CSA Type PLTC ER	ETHERLINE® TRAY ER PN Y FC	2170879
PROFINET, EtherCAT©		UL/CSA Type CMX	ETHERLINE® PN Cat.5e Y	2170891
EtherCAT©		UL/CSA Type CMX	ETHERLINE® Y EC FLEX Cat.5e	2170430
EtherCAT©		UL/CSA Type CMX	ETHERLINE® P EC FLEX Cat.5e	2170431
			ETHERLINE® H FLEX Cat.5e	2170283
PROFINET, EtherCAT®	Fast Connect	UL/CSA Type CMG	ETHERLINE® FESTOON PN Cat.5e	2170936
	Power chain	UL (AWM) 1000 V Rating	ETHERLINE® FD P Cat.5e	2170289
EtherCAT©		UL/CSA Type CMX	ETHERLINE® P EC FD Cat.5e	2170433
PROFINET, EtherCAT©	Power chain, Fast Connect	UL/CSA Type CMX, UL (AWM) 1000 V Rating	ETHERLINE® FD P FC Cat.5	2170894
PROFINET, EtherCAT©	Torsion	UL/CSA (AWM)	ETHERLINE® TORSION Cat.5	2170884
PROFINET, EtherCAT©	Fast Connect	UL/CSA Type PLTC and CMG	ETHERLINE® Y FC Cat.5	2170893
		UL (AWM) 1000 V Rating	ETHERLINE® P Cat.5e	2170281
PROFINET, EtherCAT©	Fast Connect	UL/CSA Type CMG	ETHERLINE® PN Cat.5 Y FLEX FC	2170886
PROFINET, EtherCAT©	Fast Connect	UL/CSA Type CMG	ETHERLINE® PN Cat.5e FRNC FLEX FC	2170890
PROFINET, EtherCAT©	Black UV res		ETHERLINE® Y Cat.5e BK	2170901
PROFINET, EtherCAT©	Application Marine, Fast Connect	UL/CSA Type PLTC and CMG Germanischer Lloyd, Lloyds Register of Shipping, ABS Europe Ltd Bureau Veritas, Det Norske Veritas (DNV)	ETHERLINE® MARINE FRNC FC	2170889
PROFINET, EtherCAT©	For hollow shaft between gear units and pitch system		ETHERLINE® Cat.5e 105 plus	2170636
		UL (AWM) 1000 V Rating	ETHERLINE® P FLEX Cat.5e	2170284
PROFINET, EtherCAT©	Steel armoured, black, UV resistant		ETHERLINE® Cat.5 ARM	2170496
PROFINET, EtherCAT®	Double sheath, black, UV resistant	UL/CSA Type CMG	ETHERLINE® PN Cat.5e YY	2170933
PROFINET	Hybrid	UL (AWM)	ETHERLINE® Cat.5 FRNC HYBRID	2170887

Quickfinder cable [Continuation]

Automation area	Inst. Area	Category	Application/ cabling	halogenfree	Sheath material	Shielding	AWG	Outer diameter [mm]
Industrial 4-pairs	Indoor	Cat.5e	static	X	H	SF/UTP	4x2xAWG24/1	6.3
					FRNC	F/UTP	4x2xAWG23/1	8.6
					H/H	SF/UTP	4x2xAWG24/1	6.3/8.3
			flexible	X	H	SF/UTP	4x2xAWG26/7	6.1
					PVC	SF/UTP	4x2xAWG26/7	6.4
		Cat.6	static	X	FRNC	SF/UTP	4x2xAWG22/1	10.6
	Indoor and outdoor	Cat.5e	static	X	PUR	SF/UTP	4x2xAWG24/1	6.3
			flexible		PUR	SF/UTP	4x2xAWG26/7	6.3
			highly flexible	X	PUR	S/UTP	4x2xAWG26/19	6.6
			highly flexible	X	PUR	S/UTP	4x2xAWG26/19	6.1
			highly flexible	X	PUR	S/UTP	4x2xAWG26/19	6.1
		Cat.6	highly flexible	X	PUR	SF/UTP	4x2xAWG26/19	7.8
	Indoor	Cat.6_A	static		PVC	S/FTP	4x2xAWG22/1	9.0
						SF/UTP	4x2xAWG23/1	8.7
				X	PUR	S/FTP	4x2xAWG22/1	9.0
						SF/UTP	4x2xAWG23/1	8.7
					H	S/FTP	4x2xAWG22/1	9.0
						SF/UTP	4x2xAWG23/1	8.7
			flexible		PVC	S/FTP	4x2xAWG23/7	9.0
						SF/UTP		8.9
							4x2xAWG26/7	7.6
				X	FRNC	S/FTP	4x2xAWG23/7	9.0
						SF/UTP		8.9
							4x2xAWG26/7	7.6
			highly flexible		PVC	S/FTP	4x2xAWG24/7	9.0
						SF/UTP	4x2xAWG24/7	8.9
							4x2xAWG26/19	8.8
				X	PUR	S/FTP	4x2xAWG24/7	8.9
						SF/UTP	4x2xAWG24/7	8.9
							4x2xAWG26/19	8.8
			torsion		PVC	S/FTP	4x2xAWG24/7	9.0
				X	PUR			
		Cat.7	static		PVC	S/FTP	4x2xAWG22/1	9.0
							4x2xAWG23/1	8.1
				X	PUR		4x2xAWG22/1	9.0
							4x2xAWG23/1	8.1
					H		4x2xAWG22/1	9.0
							4x2xAWG23/1	8.1
			flexible		PVC	S/FTP	4x2xAWG23/7	8.7
				X	PUR		4x2xAWG26/7	6.4
					H		4x2xAWG23/7	8.7
			highly flexible	X	PUR	SF/FTP	4x2xAWG24/7	9.4
			torsion	X	PUR	SF/FTP	4x2xAWG24/7	9.4
	Outdoor and ground	Cat.7	static		L(PE)	S/FTP	4x2xAWG23/1	9.6
					PE		4x2xAWG23/1	7.7

ISO/IEC-11801 (2002)	Construction (outdoor/indoor)
U/UTP	**U**nshielded/**U**nshielded **T**wisted **P**air
F/UTP	**F**oiled/**U**nshielded **T**wisted **P**air
S/UTP	**S**creened/**U**nshielded **T**wisted **P**air
SF/UTP	**S**creened+**F**oiled/**U**nshielded **T**wisted **P**air
S/FTP	**S**creened/**F**oiled **T**wisted **P**air

Legend

PN = PROFINET, cables acc. to PROFINET standard
*see www.lapp.com/products
Please see detailed technical information on the data sheet (www.lapp.com/products).

Industrial Ethernet Systems	Characteristics	Approvals	Article designation	Article number
			ETHERLINE® H Cat.5e	2170296
	Isolation integrity	PH120 acc. to EN50200	ETHERLINE® FIRE Cat.5e PH120	2170905
	Double sheath		ETHERLINE® H-H Cat.5e	2170298
			ETHERLINE® H FLEX Cat.5e	2170299
		UL/CSA Type CMG	ETHERLINE® Y FLEX Cat.5e	2170486
	functional integrity	PH120 acc. to EN50200	ETHERLINE® FIRE Cat.6 PH120	2170913
		UL (AWM) 1000 V Rating	ETHERLINE® P Cat.5e	2170297
		UL (AWM) 1000 V Rating	ETHERLINE® P FLEX Cat.5e	2170300
	Power chain	UL (AWM) 1000 V Rating	ETHERLINE® FD BK Cat.5	CE217489
	Power chain	UL (AWM) 1000 V Rating	ETHERLINE® FD P Cat.5e	2170489
	Power chain, bio-version	UL (AWM) 1000 V Rating	ETHERLINE® FD bioP Cat.5e	21704891
	Power chain	UL/CSA Type CMX	ETHERLINE® FD P Cat.6	2170488
PROFINET			ETHERLINE® Cat.6_A Y	2170464
	Fast Connect	UL/CSA Type CMG, PLTC	ETHERLINE® PN Cat.6_A Y FC	2170583
			ETHERLINE® Cat.6_A P	2170465
	Fast Connect	UL (AWM)	ETHERLINE® PN Cat.6_A P FC	2170585
			ETHERLINE® Cat.6_A H	2170466
	Fast Connect	UL/CSA Type CM	ETHERLINE® PN Cat.6_A FRNC FC	2170584
PROFINET		UL/CSA Type CMG	ETHERLINE® PN Cat.6_A Y FLEX	2170930
	Fast Connect	UL/CSA Type CMG	ETHERLINE® PN Cat.6_A Y FLEX FC	2170586
	Fast Connect	UL AWM 600 V	ETHERLINE® Cat.6A Y FLEX FC	2170588
		UL/CSA Type CMG	ETHERLINE® PN Cat.6_A FRNC FLEX	2170931
	Fast Connect	UL/CSA Type CM	ETHERLINE® PN Cat.6_A FRNC FLEX FC	2170587
	Fast Connect	UL AWM 300 V	ETHERLINE® Cat.6A FRNC FLEX FC	2170589
PROFINET	Power chain	UL/CSA Type CMX	ETHERLINE® FD Cat.6_A	2170485
		UL/CSA CMX	ETHERLINE® PN Cat.6A Y FD FC	2170591
		UL/CSA CMX	ETHERLINE® Cat.6A Y FD FC	2170593
		UL/CSA Type CMX, UL (AWM) 1000 V Rating	ETHERLINE® FD P Cat.6_A	2170484
		UL/CSA CMX	ETHERLINE® PN Cat.6A P FD FC	2170590
		UL/CSA CMX	ETHERLINE® Cat.6A P FD FC	2170592
PROFINET	Torsion	UL/CSA Type CMX	ETHERLINE® TORSION Y Cat.6_A	2170482
		UL/CSA Type CMX, UL (AWM) 1000 V Rating	ETHERLINE® TORSION P Cat.6_A	2170483
PROFINET			ETHERLINE® Cat.7 Y	2170474
		UL/CSA Type CMG	ETHERLINE® PN Cat.7 Y A	2170605
			ETHERLINE® Cat.7 P	2170475
		UL (AWM) 1000 V Rating	ETHERLINE® PN Cat.7 P A	2170607
			ETHERLINE® Cat.7 H	2170476
		UL (AWM)	ETHERLINE® PN Cat.7 FRNC A	2170606
PROFINET		UL/CSA Type CMG	ETHERLINE® PN Cat.7 Y FLEX A	2170608
		UL (AWM)	ETHERLINE® Cat.7 FLEX	2170934
PROFINET		UL/CSA Type CM	ETHERLINE® PN Cat.7 FRNC FLEX A	2170609
PROFINET	Power chain	UL/CSA CMX, UL AWM 1000 V	ETHERLINE® PN FD P Cat.7	2170487
PROFINET	Torsion	UL/CSA Type CMX	ETHERLINE® TORSION Cat.7	2170481
	PE-AL outer sheath, direct burial		ETHERLINE® LAN 1000 Cat.7 S/FTP (L)PE	2170977
	PE outer sheath		ETHERLINE® LAN 1000 Cat.7 S/FTP PE	2170978

Quickfinder Connector [ETHERLINE® Industrial 4-pairs]

				RJ45							
				Straight, latched				Straight, with cable gland			
			Colour coding	TIA 568 A	TIA 568 B	TIA 568 A	TIA 568 B	TIA 568 A	TIA 568 B	TIA 568 A	TIA 568 B
			Art. no.	21700600	21700601	21700615	21700616	21700652	21700653	21700654	21700655
Industrial 4-pairs, Cat.5/Cat.5e	Fixed installation	ETHERLINE® H Cat.5e	2170296			X	X			X	X
		ETHERLINE® FIRE Cat.5e PH120	2170905			X	X			X	X
		ETHERLINE® H-H Cat.5e	2170298			X	X			X	X
		ETHERLINE® P Cat.5e	2170297			X	X			X	X
	Flexible application	ETHERLINE® H FLEX Cat.5e	2170299			X	X			X	X
		ETHERLINE® Y FLEX Cat.5e	2170486			X	X			X	X
		ETHERLINE® P FLEX Cat.5e	2170300			X	X			X	X
		ETHERLINE® HEAT Cat.5e	2170850	X	X			X	X		
	Drag chain	ETHERLINE® FD P Cat.5e	2170489			X	X			X	X
	Light & sound technology	ETHERLINE® FD P BK Cat.5	CE217489			X	X			X	X
	Rail sector	ETHERLINE® TRAIN Cat.5e	2170907	X	X			X	X		
Industrial 4-pairs, Cat.6/Cat.6_A	Fixed installation	ETHERLINE® Cat.6_A Y	2170464	X	X			X	X		
		ETHERLINE® Cat.6_A P	2170465	X	X			X	X		
		ETHERLINE® Cat.6_A H	2170466	X	X			X	X		
		ETHERLINE® HEAT Cat.6_A	2170581	X	X			X	X		
		ETHERLINE® PN Cat.6A Y FC	2170583	X	X			X	X		
		ETHERLINE® PN Cat.6A FRNC FC	2170584	X	X			X	X		
		ETHERLINE® PN Cat.6A P FC	2170585	X	X			X	X		
	Flexible application	ETHERLINE® PN Cat.6_A Y FLEX	2170930	X	X			X	X		
		ETHERLINE® PN Cat.6_A FRNC FLEX	2170931	X	X			X	X		
		ETHERLINE® PN Cat.6A Y FLEX FC	2170586	X	X			X	X		
		ETHERLINE® PN Cat.6A FRNC FLEX FC	2170587	X	X			X	X		
		ETHERLINE® Cat.6A Y FLEX FC	2170588			X	X			X	X
		ETHERLINE® Cat.6A FRNC FLEX FC	2170589			X	X			X	X
	Drag chain	ETHERLINE® FD P Cat.6	2170488			X	X			X	X
		ETHERLINE® FD Cat.6_A	2170485	X	X			X	X		
		ETHERLINE® FD P Cat.6_A	2170484	X	X			X	X		
		ETHERLINE® PN Cat.6A P FD FC	2170590	X	X			X	X		
		ETHERLINE® PN Cat.6A Y FD FC	2170591	X	X			X	X		
		ETHERLINE® Cat.6A P FD FC	2170592			X	X			X	X
		ETHERLINE® Cat.6A Y FD FC	2170593			X	X			X	X
	Torsion	ETHERLINE® TORSION Y Cat.6_A	2170482	X	X			X	X		
		ETHERLINE® TORSION P Cat.6_A	2170483	X	X			X	X		
	Rail sector	ETHERLINE® TRAIN FLEX Cat.6_A	2170908	X	X			X	X		

Legende: X = Our recommendation, X* = Transmission properties limited by connector
*see www.lapp.com/products

RJ45						M12			Cable coupler	RJ45		M12	
Angled, with cable gland				RJ45 socket		X-coded, plug	X-coded, socket		Cable coupler round	Straight, with cable gland		X-coded plug	X-coded socket
TIA 568 A	TIA 568 B	TIA 568 A	TIA 568 B	TIA 568 A	TIA 568 B	T 568	T 568	T 568	T 568				
21700636	21700637	21700639	21700640	21700611	21700612	21700602	21700621	21700622	21700623	381166930	381166931	381166928	381166927
		X	X	X	X	X	X	X	X	X		X	X
		X	X	X	X	X	X	X	X			X	X
		X	X	X	X	X	X	X	X	X		X	X
		X	X	X	X	X	X	X	X	X		X	X
		X	X	X	X	X	X	X	X	X		X	X
		X	X	X	X	X	X	X	X	X		X	X
		X	X	X	X	X	X	X	X	X		X	X
X	X			X	X	X	X	X	X		X	X	X
		X	X										
		X	X										
X	X			X	X	X	X	X	X				
X	X			X	X	X	X	X	X		X	X	X
X	X			X	X	X	X	X	X		X	X	X
X	X			X	X	X	X	X	X		X	X	X
X	X			X	X	X	X	X	X		X	X	X
X	X			X	X	X	X	X	X		X	X	X
X	X			X	X	X	X	X	X		X	X	X
X	X			X	X	X	X	X	X		X	X	X
X	X			X	X	X	X	X	X		X	X	X
X	X			X	X	X	X	X	X		X	X	X
X	X			X	X	X	X	X	X		X	X	X
X	X			X	X	X	X	X	X		X	X	X
		X	X	X	X	X	X	X	X	X		X	X
		X	X	X	X	X	X	X	X	X		X	X
		X	X							X			
X	X			X	X	X	X	X	X		X	X	X
X	X			X	X	X	X	X	X		X	X	X
X	X			X	X	X	X	X	X		X	X	X
X	X			X	X	X	X	X	X		X	X	X
		X	X										
		X	X										
X	X			X	X	X	X	X	X		X	X	X
X	X			X	X	X	X	X	X		X	X	
X	X			X	X	X	X	X	X				

Quickfinder Connector [ETHERLINE® Industrial 4-pairs]

				RJ45							
				Straight, latched				Straight, with cable gland			
			Colour coding	TIA 568 A	TIA 568 B	TIA 568 A	TIA 568 B	TIA 568 A	TIA 568 B	TIA 568 A	TIA 568 B
			Art. no.	21700600	21700601	21700615	21700616	21700652	21700653	21700654	21700655
Industrial 4-pairs, Cat.7	Fixed installation	ETHERLINE® Cat.7 Y	2170474	X*	X*			X*	X*		
		ETHERLINE® Cat.7 P	2170475	X*	X*			X*	X*		
		ETHERLINE® Cat.7 H	2170476	X*	X*			X*	X*		
		ETHERLINE® PN Cat.7 Y A	2170605	X*	X*			X*	X*		
		ETHERLINE® PN Cat.7 FRNC A	2170606	X*	X*			X*	X*		
		ETHERLINE® PN Cat.7 P A	2170607	X*	X*			X*	X*		
	Flexible application	ETHERLINE® HEAT Cat.7	2170582	X*	X*			X*	X*		
		ETHERLINE® Cat.7 FLEX	2170934			X*	X*			X*	X*
		ETHERLINE® PN Cat.7 Y FLEX A	2170608	X*	X*			X*	X*		
		ETHERLINE® PN Cat.7 FRNC FLEX A	2170609	X*	X*			X*	X*		
	Drag chain	ETHERLINE® PN FD P Cat.7	2170487	X	X			X	X		
	Burial	UNITRONIC® LAN 1000 S/FTP Cat.7 (L)PE	2170198					X*	X*		
		UNITRONIC® LAN 1000 S/FTP Cat.7 PE	2170197					X*	X*		
	Food & beverage	ETHERLINE® ROBUST PN Cat.7	2170452	X*	X*			X*	X*		
		ETHERLINE® ROBUST Cat.7 FLEX	2170453	X*	X*	X*	X*	X*	X*	X*	X*
		ETHERLINE® ROBUST PN FR Cat.7	2170455	X*	X*			X*	X*		
		ETHERLINE® ROBUST FR Cat.7 FLEX	2170456	X*	X*	X*	X*	X*	X*	X*	X*
	Rail sector	ETHERLINE® TRAIN FLEX Cat.7	2170909	X*	X*			X*	X*		

Legende: X = Our recommendation, X* = Transmission properties limited by connector
*see www.lapp.com/products

RJ45						M12			Cable coupler	RJ45		M12	
Angled, with cable gland				RJ45 socket		X-coded, plug	X-coded, socket		Cable coupler round	Straight, with cable gland		X-coded plug	X-coded socket
TIA 568 A	TIA 568 B	TIA 568 A	TIA 568 B	TIA 568 A	TIA 568 B	T 568	T 568	T 568	T 568				
21700636	21700637	21700639	21700640	21700611	21700612	21700602	21700621	21700622	21700623	381166930	381166931	381166928	381166927
X*	X*			X*	X*	X*	X*	X*	X*		X	X	X
X*	X*			X*	X*	X*	X*	X*	X*		X	X	X
X*	X*			X*	X*	X*	X*	X*	X*		X	X	X
X*	X*			X*	X*	X*	X*	X*	X*		X	X	X
X*	X*			X*	X*	X*	X*	X*	X*		X	X	X
X*	X*			X*	X*	X*	X*	X*	X*		X	X	X
X*	X*			X*	X*	X*	X*	X*	X*		X	X	X
		X*	X*	X*	X*	X*	X*	X*	X*			X	X
X*	X*			X*	X*	X*	X*	X*	X*		X	X	X
X*	X*			X*	X*	X*	X*	X*	X*			X	X
X	X			X	X	X	X	X	X		X	X	X
X*	X*												
X*	X*					X*	X*	X*	X*				
X*	X*			X*	X*	X*	X*	X*	X*		X	X	X
X*	X*	X*	X*	X*	X*	X*	X*	X*	X*		X	X	X
X*	X*			X*	X*	X*	X*	X*	X*		X	X	X
X*	X*	X*	X*	X*	X*	X*	X*	X*	X*		X	X	X
X*	X*			X*	X*	X*	X*	X*	X*				

Quickfinder Connector [ETHERLINE® Industrial 2-pairs]

				RJ45							
				Straight, latched					Straight, with cable gland		
			Colour coding	PROFINET	TIA 568 A	TIA 568 B	TIA 568 A	TIA 568 B	PROFINET	TIA 568 A	TIA 568 B
			Art. no.	21700605	21700600	21700601	21700615	21700616	21700651	21700652	21700653
Industrial 2-pairs, Cat.5/Cat.5e	Fixed installation	ETHERLINE® PN Cat.5e Y	2170891	X					X		
		ETHERLINE® Y FC Cat.5	2170893	X					X		
		ETHERLINE® Cat.5e YY	2170933	X					X		
		ETHERLINE® H Cat.5e	2170280				X	X			
		ETHERLINE® P Cat.5e	2170281				X	X			
		ETHERLINE® TRAY ER PN Y FC	2170879	X					X		
	Flexible application	ETHERLINE® PN Cat.5 Y FLEX FC	2170886	X					X		
		ETHERLINE® PN Cat.5e FRNC FLEX FC	2170890	X					X		
		ETHERLINE® MARINE FRNC FC Cat.5	2170889	X					X		
		ETHERLINE® Y EC FLEX Cat.5e	2170430								
		ETHERLINE® P EC FLEX Cat.5e	2170431								
		ETHERLINE® H FLEX Cat.5	2170283				X	X			
		ETHERLINE® Y Cat.5e BK	2170901	X					X		
		ETHERLINE® Cat.5e 105 plus	2170636	X					X		
		ETHERLINE® P FLEX Cat.5e	2170284				X	X			
	Drag chain	ETHERLINE® FD P FC Cat.5	2170894	X					X		
		ETHERLINE® FD P Cat.5e	2170289				X	X			
	Burial	ETHERLINE® Cat.5 ARM	2170496	X					X		
	Food & beverage	ETHERLINE® ROBUST PN Cat.5	2170451	X					X		
		ETHERLINE® ROBUST PN FR Cat.5	2170454	X					X		
	Rail sector	ETHERLINE® TRAIN FLEX Cat.5e	2170906	X					X		
	Festoon	ETHERLINE® FESTOON PN Cat.5e	2170936	X					X		

Legende: X = Our recommendation, X* = Transmission properties limited by connector

RJ45									M12 Circular connector		
Straight, with cable gland		Angled, with cable gland					RJ45 socket		D-coded, socket	D-coded, plug	
TIA 568 A	TIA 568 B	PROFINET	TIA 568 A	TIA 568 B	TIA 568 A	TIA 568 B	TIA 568 A	TIA 568 B	TIA 568	PROFINET	TIA 568
21700654	21700655	21700638	21700636	21700637	21700639	21700640	21700611	21700612	22261016	21700647	21700648
		X					X	X	X	X	
		X					X	X	X	X	
		X					X	X	X	X	
X	X				X	X	X	X	X		X
X	X				X	X	X	X	X		X
		X					X	X	X	X	
		X					X	X	X	X	
		X					X	X	X	X	
		X					X	X	X	X	
									X		
									X		
X	X				X	X	X	X	X		X
		X					X	X	X	X	
		X					X	X	X	X	
X	X				X	X	X	X	X		X
		X					X	X	X	X	
X	X				X	X					
		X								X	
		X					X	X	X	X	
		X					X	X	X	X	
		X					X	X	X	X	
		X					X	X	X	X	

Quickfinder Connector [ETHERLINE® building cabling]

			RJ45			
			Straight, latched			
		Colour coding	TIA 568 A	TIA 568 B	TIA 568 A	TIA 568 B
		Art. no.	21700600	21700601	21700615	21700616
Cat.5e	ETHERLINE® LAN 200 F/UTP Cat.5e LSZH	2170952	X	X	X	X
	ETHERLINE® LAN 200 SF/UTP Cat.5e LSZH	2170953	X	X	X	X
	ETHERLINE® LAN 200 U/UTP Cat.5e	2170950			X	X
	ETHERLINE® LAN 200 SF/UTP Cat.5e	2170951	X	X	X	X
	UNITRONIC® LAN 200 F/UTP Cat.5e FLEX	2170127			X	X
	UNITRONIC® LAN 200 SF/UTP Cat.5e FLEX	2170129			X	X
	UNITRONIC® LAN 200 F/UTP Cat.5e LSZH FLEX	2170172			X	X
	UNITRONIC® LAN 200 SF/UTP Cat.5e LSZH FLEX	2170139			X	X
Cat.6	ETHERLINE® LAN 350 U/UTP Cat.6 LSZH	2170955			X	X
	ETHERLINE® LAN 350 F/UTP Cat.6 LSZH	2170956	X	X		
$Cat.6_A$	ETHERLINE® LAN 500 F/UTP $Cat.6_A$ LSZH	2170963	X	X		
	ETHERLINE® LAN 500 F/FTP $Cat.6_A$ LSZH	2170962	X	X		
	ETHERLINE® LAN 500 F/UTP $Cat.6_A$	2170961	X	X		
	ETHERLINE® LAN 500 S/FTP $Cat.6_A$	2170960	X	X		
Cat.7	UNITRONIC® LAN 600 S/FTP Cat.7 Y FLEX	2170144			X*	X*
	UNITRONIC® LAN 600 S/FTP Cat.7 LSZH FLEX	2170142			X*	X*
	ETHERLINE® LAN 1000 S/FTP Cat.7 (L)PE	2170977				
	ETHERLINE® LAN 1000 S/FTP Cat.7 PE	2170978				
$Cat.7_A$	ETHERLINE® LAN 1000 S/FTP $Cat.7_A$ LSZH	2170971	X*	X*		
	ETHERLINE® LAN 1200 S/FTP $Cat.7_A$ LSZH	2170974	X*	X*		
	ETHERLINE® LAN 1000 Cat.7A	2170980	X*	X*		
	ETHERLINE® LAN S/FTP 1600 $Cat.7_A$ LSZH	2170976	X*	X*		

Legende: X = Our recommendation, X* = Transmission properties limited by connector

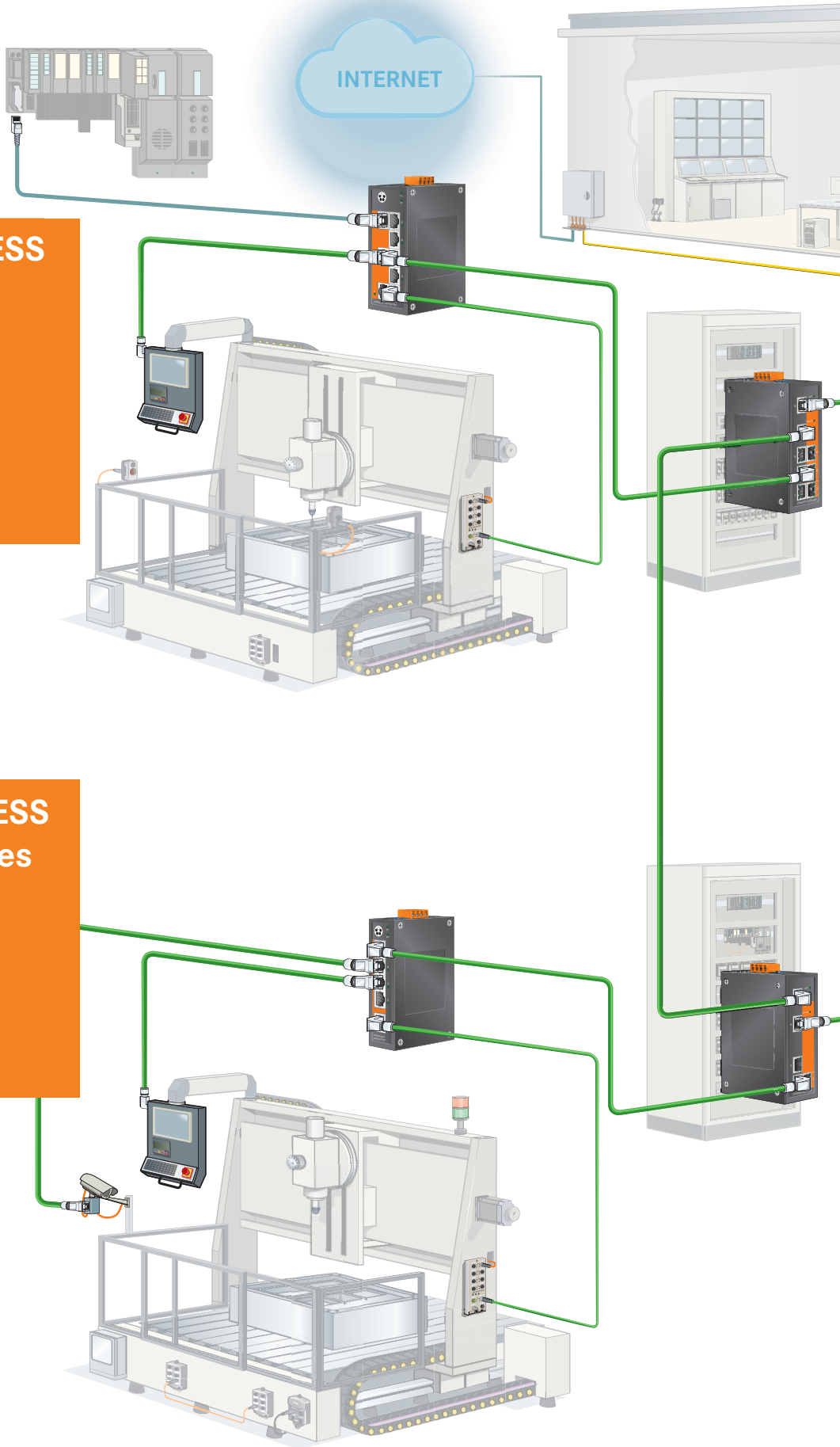
RJ45											
Straight, with cable gland				Angled, with cable gland				RJ45 socket		Straight, with cable gland	
TIA 568 A	TIA 568 B	TIA 568 A	TIA 568 B	TIA 568 A	TIA 568 B	TIA 568 A	TIA 568 B	TIA 568 A	TIA 568 B		
21700652	21700653	21700654	21700655	21700636	21700637	21700639	21700640	21700611	21700612	3B1166930	3B1166931
X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X
		X	X			X	X	X	X		
X	X	X	X	X	X	X	X	X	X	X	X
		X	X			X	X	X	X		
		X	X			X	X	X	X	X	
		X	X			X	X	X	X		
		X	X			X	X	X	X	X	
		X	X			X	X	X	X	X	X
X	X			X	X			X	X		X
X	X			X	X			X	X		X
X	X			X	X			X	X		X
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ETHERLINE® ACCESS Unmanaged

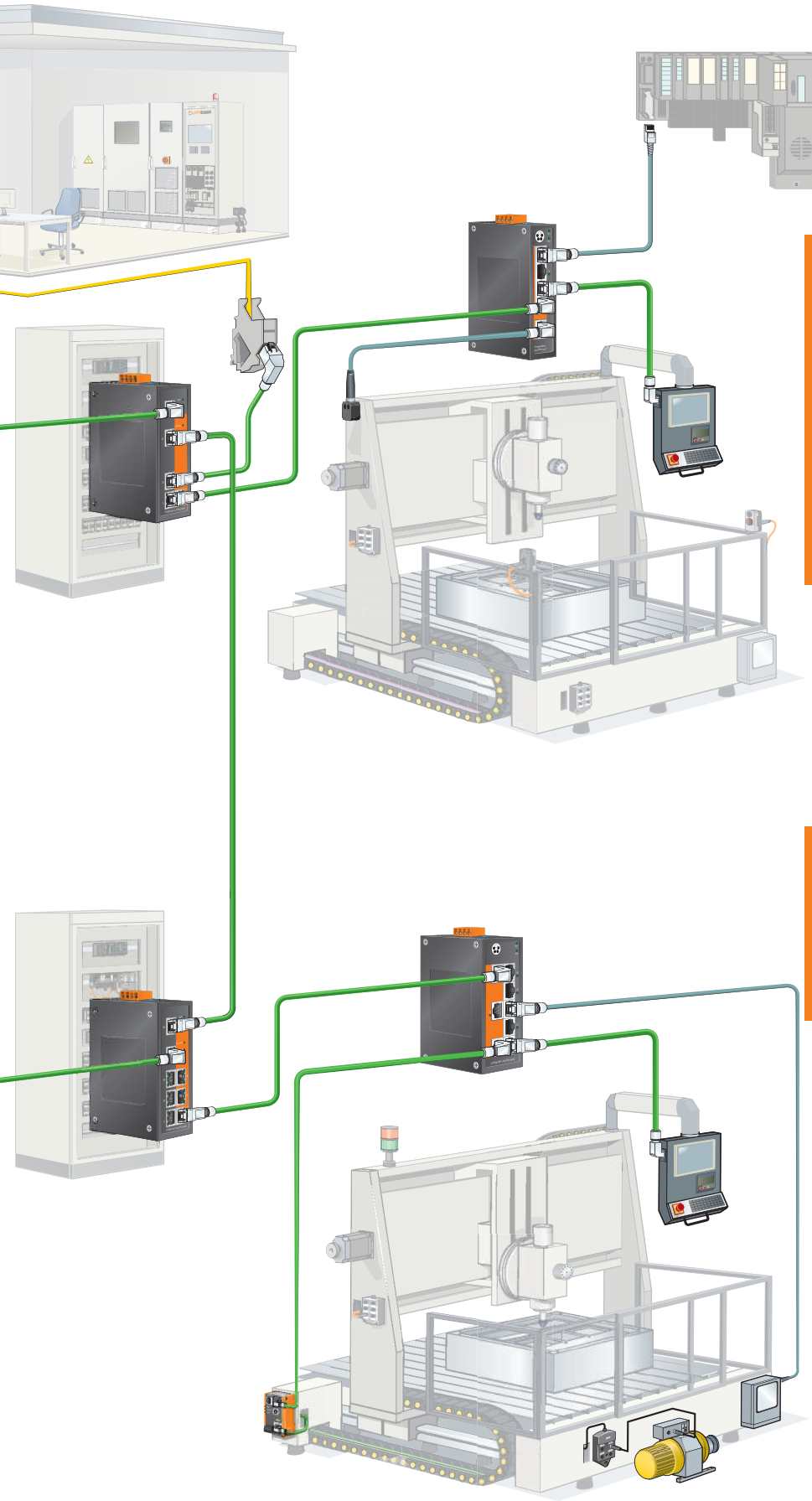
- 5, 8 or 16 ports
- 8-port Gigabit
- 4-port PoE
- 5, 8 or 16 ports, compact, with PROFINET CC-A
- 8 ports, IP 67, with PROFINET CC-A

UNITRONIC® ACCESS Remote I/O devices

- Digital module (multiprotocol)
- IO-Link master (multiprotocol)
- IO-Link master (single protocol)
- IO-Link hub



- Solutions for **SMART FACTORIES**



ETHERLINE® ACCESS Managed

- 6 and 8 ports
- Copper (RJ45) and/or fibre optic
- NAT router
- 4, 8 or 16 ports, compact, with PROFINET CC-B
- 8 ports, IP 67, with PROFINET CC-B

ETHERLINE® GUARD - Condition Monitoring

LAN or WLAN based configuration

LAPP PORTFOLIO

SWITCHES AND ROUTERS (ETHERLINE® ACCESS)

Centralised use - standard design (unmanaged)



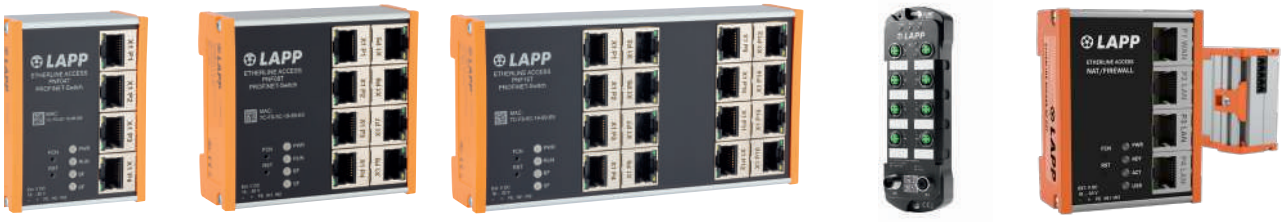
Centralised use - standard design (managed)



Decentralised use - compact design (unmanaged)



Decentralised use - compact design (managed)



MONITORING SOLUTIONS (ETHERLINE® GUARD)

Condition monitoring



REMOTE I/O DEVICES (UNITRONIC® ACCESS)

Digital modules (multi-protocol)



IO-Link



IO-Link master (multiprotocol)



IO-Link master (single protocol)



Product illustrations: The photographs and graphics are not to scale and are not detailed images of the respective products.


LAPP
LAN
DATA
PWR
STATUS
COM
P1 WAN
P2 LAN
P3 LAN
P4 LAN
PN

ETHERLINE® ACCESS NF

Industrial NAT router with firewall function

Info

- Compact design
- Tailor-made solution



21700141

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000734
ETIM 5.0/6.0 Class-Description: Network switch

power supply
DC 24 V (18-30 V DC)

Protection rating
IP20

Temperature range
-40 °C up to +75 °C

Benefits

- Compact design with high port density
- Reduced installation effort in existing networks
- Easy Configuration via web-interface
- Space saving and industrial grade DIN rail mounting

Application range

- Industrial networks

Product features

- NAT (Basic NAT, NAPT) and port forwarding
- Integrated Firewall feature
- RJ45 Ports: 10/100/1000 BaseT(X)

Norm references / Approvals

- UL 61010

Article number	Article designation	Type	number of ports	Feature	MTBF in years
ETHERLINE® ACCESS NF					
21700141	ETHERLINE® ACCESS NF04T	Managed	4 x RJ45	NAT	>14,01

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ETHERLINE® ACCESS UF

Industrial unmanaged Ethernet switches in compact design

Info

- Compact design



Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000734
ETIM 5.0/6.0 Class-Description: Network switch

power supply
DC 24 V (18-30 V DC)

Protection rating
IP20

Temperature range
-25 °C to +60 °C

Benefits

- Compact design with high port density
- PROFINET®enabled device (CC-A)
- Space saving and industrial grade DIN rail mounting

Application range

- Industrial networks

Product features

- Switches with 5, 8 and 16 ports
- RJ45 Ports: 10/100/1000 BaseT(X)

Norm references / Approvals

- UL 61010

Article number	Article designation	Type	number of ports	MTBF in years
ETHERLINE® ACCESS UF				
21700144	ETHERLINE® ACCESS UF05T	Unmanaged	5 x RJ45	>35,55
21700145	ETHERLINE® ACCESS UF08T	Unmanaged	8 x RJ45	>29,70
21700146	ETHERLINE® ACCESS UF16T	Unmanaged	16 x RJ45	>16,62

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ETHERLINE® ACCESS PNF

Industrial PROFINET® Switches in compact design



Info

- Compact design
- Compatible for PROFINET® networks

Benefits

- Compact design with high port density
- Easy Configuration via web-interface
- Space saving and industrial grade DIN rail mounting

Application range

- Industrial application
- PROFINET®-networks (CC-B)

Product features

- PROFINET® switches with 4, 8 and 16 ports
- PROFINET® Conformance Class B
- Prioritization of PROFINET® telegramms
- Neighbourhood detection LLDP
- RJ45 Ports: 10/100/1000 BaseT(X)

Norm references / Approvals

- UL 61010

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000734
ETIM 5.0/6.0 Class-Description: Network switch

power supply
DC 24 V (18-30 V DC)

Protection rating
IP20

Temperature range
-40°C up to +75°C

Article number	Article designation	Type	number of ports	Feature	MTBF in years
ETHERLINE® ACCESS PNF					
21700140	ETHERLINE® ACCESS PNF04T	Managed	4 x RJ45	for PROFINET	>15,21
21700142	ETHERLINE® ACCESS PNF08T	Managed	8 x RJ45	for PROFINET	>13,09
21700143	ETHERLINE® ACCESS PNF16T	Managed	16 x RJ45	for PROFINET	>9,64

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ETHERLINE® ACCESS M

Industrial managed Ethernet switches

Info

- Redundant power inputs
- Robust metal housing and DIN rail mounting
- Fanless maintenance free



Benefits

- Improve your total cost of ownership with faster installation and lower downtime
- Most flexible and globally present solutions from one hand

Product features

- Simple setup of redundant networktopologies with reconfiguration time < 20 ms
- RJ45 Ports: 10/100/1000 BaseT(X)
- Packet Buffer Size: 1 Mbit
- Supported protocols: HTTPS/SSL, SSH, TACACS+, RADIUS, SNTP Client, Ethernet IP, Modbus TCP
- Redundant Power Input: 24 VDC

Norm references / Approvals

- UL 61010
- Shock IEC 60068-2-27
- Freefall IEC60068-2-32
- Vibration IEC 60068-2-6

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000734
ETIM 5.0/6.0 Class-Description: Network switch

power supply
DC 24 V (18-30 V DC)

Protection rating
IP 40

Temperature range
-40°C up to +75°C

Article number	Article designation	Type	number of ports	Feature
Managed Switches with RJ45				
21700125	ETHERLINE® ACCESS M06T-2GEN	Managed	6 x RJ45	
21700126	ETHERLINE® ACCESS M08T-2GEN	Managed	8 x RJ45	
Managed Switches with SFP				
21700136	ETHERLINE® ACCESS M08T02SFP	Managed	8 x RJ45 + 2 x SFP	SFP Port
21700137	ETHERLINE® ACCESS M08T02GSFP	Managed	8 x RJ45 + 2 x SFP Gbit/s	SFP Port

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Accessories

- ETHERLINE® EC FD Cat.5e RJ45

ETHERLINE® ACCESS U

Industrial unmanaged Ethernet switches



Info

- Redundant power inputs
- Robust metal housing and DIN rail mounting

Benefits

- Improve your total cost of ownership with faster installation and lower downtime
- Most flexible and globally present solutions from one hand

Product features

- RJ45 Ports: 10/100/1000 BaseT(X)
- Packet Buffer Size: min. 1Mbit
- Broadcast storm protection
- Redundant Power Input: 24 VDC

Norm references / Approvals

- UL 61010
- Shock IEC 60068-2-27
- Freefall IEC60068-2-32
- Vibration IEC 60068-2-6

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000734
ETIM 5.0/6.0 Class-Description: Network switch

power supply
DC 24 V (18-30 V DC)

Protection rating
IP 30

Temperature range
-10°C to +60°C

Article number	Article designation	Type	number of ports	Feature
Unmanged switches with RJ45				
21700123	ETHERLINE® ACCESS U05T-2GEN	Unmanaged	5 x RJ45	
21700124	ETHERLINE® ACCESS U08T-2GEN	Unmanaged	8 x RJ45	
21700120	ETHERLINE® ACCESS U16T	Unmanaged	16 x RJ45	
Gigabit Unmanaged switches				
21700129	ETHERLINE® ACCESS U08GT	Unmanaged	8 x RJ45	Gigabit
21700153	ETHERLINE® ACCESS U04GTP01GT	Unmanaged	5x RJ45	Gigabit, PoE

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ETHERLINE® ACCESS U Basic

Industrial unmanaged Ethernet switches



Benefits

- Basic-Switch offers essential functions for industrial networks and is specially designed for cost-conscious Industrial Ethernet applications.
- Low-noise and maintenance-free as it is operated without fans.
- Robust housing ensures reliable operation even in harsh industrial environments and reduces downtime.
- Direct mounting on 35 mm top-hat rails speeds up installation and reduces the installation effort as no additional accessories are required.

Product features

See data sheet

Norm references / Approvals

See data sheet

Article number	Article designation	Type	number of ports
Basic Unmanaged switches			
7433507951	ETHERLINE® ACCESS U05T-E-T	Unmanaged	5
7433507954	ETHERLINE® ACCESS U08T-E-T	Unmanaged	8
Gigabit Unmanaged switches			
7433507952	ETHERLINE® ACCESS U05GT-E-T	Unmanaged	5
7433507955	ETHERLINE® ACCESS U08GT-E-T	Unmanaged	8

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ETHERLINE® ACCESS PN IP67

Industrial Managed switch PROFINET CC-B



Info

- Suitable for harsh industrial environment
- PROFINET Conformance Class B

Benefits

- With 8 ports (10/100Base-T(X)) for D-coded M12 connectors
- Particularly suitable for harsh environments thanks to protection class IP 67
- Prioritising PROFINET telegrams with real-time data
- Easy configuration and diagnosis via PROFINET or web interface
- Supports MRP (client), LLDP, DCP and SNMP, allows port mirroring, diagnostic alarms and detailed network statistics

Application range

- For use in PROFINET networks for automation technology (“Conformance Class B„)
- For decentralised use at field level, outside of control cabinets
- Can be used in an extended temperature range from-40 °C to +75 °C

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000734
ETIM 5.0/6.0 Class-Description: Network switch

power supply
DC 24 V (18-30 V DC)

Protection rating
IP 67

Temperature range
-40°C to +75°C

Article number	Article designation	Number of ports
ETHERLINE® ACCESS PN IP67		
21700147	ETHERLINE® ACCESS PN08M12	8

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ETHERLINE® ACCESS U IP67

Industrial Managed switch PROFINET CC-A



Info

- Suitable for harsh industrial environment
- PROFINET Conformance Class A

Benefits

- With 8 ports (10/100Base-T(X)) for D-coded M12 connectors
- Particularly suitable for harsh environments thanks to protection class IP 67
- Ready for use quickly with minimal installation effort

Application range

- For use in Ethernet-based networks in automation technology
- Also suitable for use in PROFINET networks (“Conformance Class A”)
- For decentralised use at field level, outside of control cabinets
- Can be used in an extended temperature range from -25°C +75°C

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000734
ETIM 5.0/6.0 Class-Description: Network switch

power supply
DC 24 V (18-30 V DC)

Protection rating
IP 20

Temperature range
-25°C +75°C

Article number	Article designation	Number of ports
ETHERLINE® ACCESS U IP67		
21700148	ETHERLINE® ACCESS U08M12	8

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ETHERLINE® GUARD

Condition monitoring device



21700150



21700151

Info

- Feedback of the expected service life via status LED
- For use in control cabinets (protection class IP 20)
- Suitable for integration into IIoT structures via MQTT interface

Benefits

- Increase plant availability through plannable machine downtimes. This reduces maintenance costs
- Simple commissioning with automated parameterisation (“teach-in” in just a few seconds)
- Does not require a new data cable or changes to the cable design; upgrading within the existing network structure is possible at any time
- Saves space owing to its unique and compact design
- Reliable IIoT communication thanks to the MQTT interface (for status/data evaluation, settings, WiFi configuration, updating, etc.)
- Available in two versions: cable-bound LAN version “PM03T” and wireless Wi-Fi version “PM02TWA”

Application range

- For use in Ethernet-based networks in automation technology
- For monitoring the service life of a data cable at risk of failure (e.g. functioncritical data cable in dynamic applications)
- Suitable for data cables according to transmission standard 100BASE-TX (up to 100 Mbit/s) according to IEEE 802.3
- Also suitable for EtherCAT, EtherNet/IP and 2-pair PROFINET applications
- For use in control cabinets (protection class IP 20)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000734
ETIM 5.0/6.0 Class-Description: Network switch

power supply
DC 24 V (18-30 V DC)

Protection rating
IP 30

Temperature range
-25°C to +65°C

Article number	Article designation	MTBF	number of ports
LAN			
21700150	ETHERLINE® GUARD PM03T	10.9 years	3 x RJ45
WI-FI			
21700151	ETHERLINE® GUARD PM02TWA	12.3 years	2 x RJ45 + 1 x SMA JACK

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

c UL us EtherNet/IP

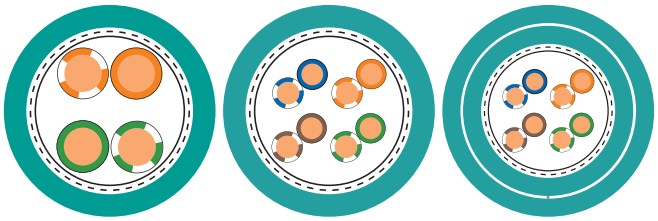
ETHERLINE® Cat.5e

Ethernet cable Category 5e, Class D for fixed installation - verified up to 100 MHz

Info

- Industrial Ethernet cable
- Cat.5e





2170280/2170281 | 2170296/2170297 | 2170298

Benefits

- Seamless communication from the sensor/actuator level to the Internet
- Screened against interference
- Can be used in dry or damp rooms
- Can be used for Industrial Ethernet in harsh industrial environments
- Cables with PUR jacket: 1000 V UL- rating for installation next to power cables

Application range

- 2pair: 10/100 Mbit/s for Industrial Ethernet
- 4pair: 10/100/1000 Mbit/s for Industrial Ethernet
- Suitable for EtherCAT and EtherNet/IP applications
- Industrial use
- Fixed Installation

Product features

- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference
- PUR outer sheath is highly resistant to mineral oils and abrasion
- Halogen-free outer sheath

Norm references / Approvals

- PUR versions: UL AWM Style 21576
- Flame retardant acc. to IEC 60332-1-2
- Halogenfree cables: halogenfree according to IEC 60754-1, IEC 60754-2
- PUR cables: halogenfree acc. to VDE 0472-815

Product Make-up

- Solid conductor
- Core insulation made of Polyolefine (PO)
- 2 or 4-pair version
- SF/UTP: braid of tinned copper wire and plastic laminated aluminum foil as overall screening
- Outer sheath as either PUR or LSZH
- Colour: water blue (similar to RAL 5021)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Fixed installation: 7.5 x outer diameter
Fixed installation: 8 x outer diameter (4 pair cable)

Test voltage
Core/core: 1000 V
Core/screen: 500 V

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-5

Temperature range
Fixed installation: -30°C to +80°C
During installation: -5°C to +50°C

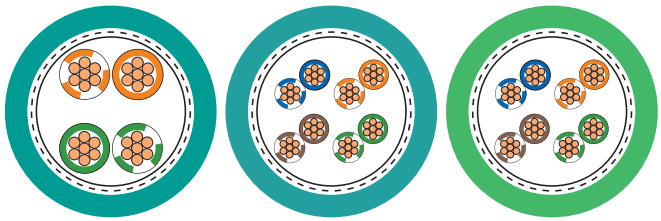
Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter mm	Copper index (kg/km)	Weight (kg/km)
2-pair version						
Halogen-free jacket						
2170280	ETHERLINE® H Cat.5e	2 x 2 x AWG24/1	1	5.6	22	45
PUR outer sheath, halogen-free						
2170281	ETHERLINE® P Cat.5e	2 x 2 x AWG24/1	1	5.8	22	45
4-pair version						
Halogen-free jacket						
2170296	ETHERLINE® H Cat.5e	4 x 2 x AWG24/1	1	6.1	32	54
2170298	ETHERLINE® H-H Cat.5e	4 x 2 x AWG24/1	1	6.1 / 8.1	32	80
PUR outer sheath, halogen-free						
2170297	ETHERLINE® P Cat.5e	4 x 2 x AWG24/1	1	6.1	32	62

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ETHERLINE® Cat.5e FLEX

Ethernet cable Category 5e, Class D for flexible use - verified up to 100 MHz





2170283/2170284 2170299/2170300 2170486

Info

- Industrial Ethernet cable
- Cat.5e
- Only for patch cable applications (max. 60 m)

Benefits

- Seamless communication from the sensor/actuator level to the Internet
- Screened against interference
- Can be used in dry or damp rooms
- Can be used for Industrial Ethernet in harsh industrial environments
- Cables with PUR jacket: 1000 V UL- rating for installation next to power cables

Application range

- 2pair: 10/100 Mbit/s for Industrial Ethernet
- 4pair: 10/100/1000 Mbit/s for Industrial Ethernet
- Suitable for EtherCAT and EtherNet/IP applications
- For flexible applications (7-wire stranded conductor)
- Only for patch cable applications (max. 60 m)

Product features

- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference
- PUR outer sheath is highly resistant to mineral oils and abrasion

Norm references / Approvals

- PUR cables: halogenfree acc. to VDE 0472-815
- PVC version with UL/CSA (CMG) certification
- PUR versions: UL AWM Style 21576
- Flame-retardant according IEC 60332-1-2
- Halogenfree cables: halogenfree according to IEC 60754-1, IEC 60754-2

Product Make-up

- Stranded conductor, bare, 7-wire
- Core insulation made of Polyolefine (PO)
- 2 or 4-pair version
- SF/UTP: braid of tinned copper wire and plastic laminated aluminum foil as overall screening
- Outer sheath as either PVC, PUR or LSZH
- Colour: water blue (similar to RAL 5021)
- PVC jacket colour: green (similar to RAL 6018)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Fixed installation: 8 x outer diameter
Flexing: 15 x outer diameter

Test voltage
Core/core: 1000 V
Core/screen: 500 V

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-5

Temperature range
cable with PUR jacket
Fixed installation: VDE -30°C to +80°C; UL/CSA -30°C to +80°C
flexing: VDE -5°C to +50°C; UL/CSA -5°C to +80°C
cable halogenfree compound
Fixed installation: -30°C to +80°C
flexing: -5°C to +60°C
cable with PVC jacket
Fixed installation: -40°C to +80°C
flexing: -10°C to +70°C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter mm	Copper index (kg/km)	Weight (kg/km)
2-pair version						
Halogen-free jacket						
2170283	ETHERLINE® H Flex Cat.5e	2 x 2 x AWG26/7	1	5.6	19	43
PUR outer sheath, halogen-free						
2170284	ETHERLINE® P Flex Cat.5e	2 x 2 x AWG26/7	1	5.6	19	45
4-pair version						
Halogen-free jacket						
2170299	ETHERLINE® H Flex Cat.5e	4 x 2 x AWG26/7	1	6.1	25	48
PUR outer sheath, halogen-free						
2170300	ETHERLINE® P Flex Cat.5e	4 x 2 x AWG26/7	1	6.1	25	54
PVC outer sheath						
2170486	ETHERLINE® Y Flex Cat.5e	4 x2 x AWG26/7	1	6.2	30	54

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

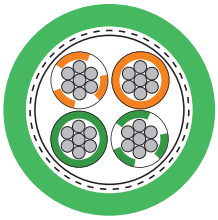
ETHERLINE® EC FLEX Cat.5e

Flexible use

Info

- For EtherCAT applications
- Cat.5e-Performance
- Only for patch cable applications (max. 60 m)





2170430/2170431

Benefits

- Can be used for Industrial Ethernet in harsh industrial environments
- Can be used in dry or damp rooms
- Lower space requirement

Application range

- Suitable for EtherCAT and EtherNet/IP applications
- For flexible applications (7-wire stranded conductor)
- Many applications with Industrial Ethernet, i.e. fixed installation and flexible use.
- For internal wiring of electric and electronic equipment in switch cabinets
- Only for patch cable applications (max. 60 m)

Product features

- PUR (Polyurethane) Version with increased robustness, UV- resistance and halogen free
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference

Norm references / Approvals

- Certification: UL/CSA type CMX in accordance with UL 444 and CSA C22.2 no. 214
- Flame-retardant according to UL VW1/ CSA FT1

Product Make-up

- Stranded tinned 7-wire conductor
- Core insulation: PE
- Insulation colour-codes: orange/white-orange; green/white-green
- Star quad
- SF/UTP: braid of tinned copper wire and plastic laminated aluminum foil as overall screening
- PVC or PUR jacket material
- Colour: green (based on RAL 6018)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
max. 100 V (not for power applications)

Minimum bending radius
Fixed installation: 4 x outer diameter
Flexing: 8 x outer diameter

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-5

Temperature range
Cable with PVC jacket
Fixed installation: -30°C to +80°C
Flexing: -5°C to +50°C
Cable with PUR jacket
Fixed installation: -40°C to +80°C
Flexing:-30°C to +50°C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter mm	Copper index (kg/km)	Weight (kg/km)
PVC outer sheath						
2170430	ETHERLINE® Y EC FLEX Cat.5e	1 x 4 x AWG26/7	1	4.8	20	32
PUR outer sheath, halogen-free						
2170431	ETHERLINE® P EC FLEX Cat.5e	1 x 4 x AWG26/7	1	4.8	20	31

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/ 100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ETHERLINE® SERVO DQ Y Cat.5e

Encoder cables for DRIVE-CLiQ® applications





2170938

Info

- Industrial Ethernet cable
- Cat.5e

Benefits

- Compliant with the open DRIVE-CLiQ® system interface
- Reduced cabling effort thanks to an additional core pair for the power supply of the rotary encoder
- Ideal protection against electromagnetic interference thanks to copper screening braiding with a high degree of coverage
- Cat.5e performance up to 100 Mbit/s

Application range

- For use as the servo drive supply in SIEMENS® SINAMICS-S120 drive systems
- For wiring the control unit and synchronous motor and/or rotary encoder with DRIVE-CLiQ® system interface
- For fixed installation and occasional flexing
- Can be used in dry and damp rooms
- The PVC outer sheath is resistant to acids and alkalis

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
max. 100 V (not for power applications)

Minimum bending radius
Fixed installation: 6 x outer diameter
Occasional flexing: 15 x outer diameter

Test voltage
Core/core: 700 V
Core/screen: 700 V

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-5

Temperature range
Fixed installation: -15°C to +80°C
flexing: -5°C to +70°C

Article number	Article designation	Number of pairs and AWG per conductor	Base material of outer sheath, shortname	Outer diameter mm	Copper index (kg/km)	Weight (kg/km)
PVC						
2170938	ETHERLINE® SERVO DQ Y Cat.5e	2x2x26/7AWG + 1x2x22/7AWG	PVC	6.5	33	58

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

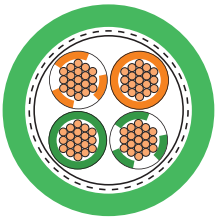
ETHERLINE® EC FD Cat.5e

Highly flexible application

Info

- For EtherCAT applications
- For highly flexible industrial applications
- Cat.5e-Performance





2170433

Benefits

- Can be used for Industrial Ethernet in harsh industrial environments
- Can be used in dry or damp rooms
- Lower space requirement

Application range

- Suitable for EtherCAT and EtherNet/IP applications
- For highly flexible applications (cable chains, moving machine parts)
- Many applications with Industrial Ethernet, e.g. EtherCat, i.e. fixed installation, flexible and highly flexible use
- For internal wiring of electric and electronic equipment in switch cabinets
- Only for patch cable applications (max. 60 m)

Product features

- Meets the requirements according to Cat. 5e and class D
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference

Norm references / Approvals

- UL/CSA type CMX in accordance with UL 444 and CSA C22.2 no. 214-02
- Flame-retardant according to UL VW1/ CSA FT1
- Halogen-free according to VDE 0472-815

Product Make-up

- Bare stranded copper wire, 26AWG
- Core insulation: PE
- Insulation colour-codes: orange/white-orange; green/white-green
- Star quad
- SF/UTP: braid of tinned copper wire and plastic laminated aluminum foil as overall screening
- Outer sheath: PUR compound, halogen-free
- Colour: green (based on RAL 6018)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
max. 100 V (not for power applications)

Minimum bending radius
Fixed installation: 4 x Outer diameter
Flexing: 16 x outer diameter

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-5

Temperature range
Fixed installation: -40°C to +80°C
Flexing: -30°C to +50°C

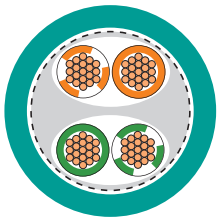
Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter mm	Copper index (kg/km)	Weight (kg/km)
ETHERLINE® EC FD Cat.5e						
2170433	ETHERLINE® P EC FD Cat.5e	1 x 4 x AWG26/19	1	4.8	20	36

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

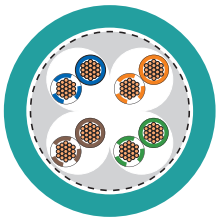
ETHERLINE® Cat.5e FD

Ethernet cable Category 5e, Class D for use in cable chain applications - verified up to 100 MHz





2170289



2170489

Info

- Industrial Ethernet cable
- For highly flexible applications
- Only for patch cable applications (max. 60 m)

Benefits

- Seamless communication from the sensor/actuator level to the Internet
- Screened against interference
- Can be used in dry or damp rooms
- Industrial use
- Cables with PUR jacket: 1000 V UL- rating for installation next to power cables

Application range

- 2pair: 10/100 Mbit/s for Industrial Ethernet
- 4pair: 10/100/1000 Mbit/s for Industrial Ethernet
- Only for patch cable applications (max. 60 m)
- Suitable for EtherCAT and EtherNet/IP applications
- Cable chain applications

Product features

- Premium screening against electromagnetic interference
- Halogen-free outer sheath
- Cables with PUR jacket: 1000 V UL- rating for installation next to power cables

Norm references / Approvals

- UL AWM Style 21576
- Flame-retardant according IEC 60332-1-2
- Halogen-free according to VDE 0472-815

Product Make-up

- Bare stranded copper wire, 26AWG
- Inner sheath: thermoplastic elastomer, halogen-free
- 2 or 4-pair version
- Screening: wrapped with braided tinned-copper wires
- PUR outer sheath
- Colour: water blue (similar to RAL 5021)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Fixed installation: 8 x outer diameter
Flexing: 15 x outer diameter

Test voltage
Core/core: 1000 V
Core/screen: 500 V

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-5

Temperature range
Fixed installation: VDE -30°C to +80°C; UL/CSA -30°C to +80°C
Flexing: VDE -5°C to +50°C; UL/CSA -5°C to +80°C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter mm	Copper index (kg/km)	Weight (kg/km)
2-pair version						
2170289	ETHERLINE® FD P Cat.5e	2 x 2 x AWG26/19	1	5.9	20	48
4-pair version						
2170489	ETHERLINE® FD P Cat.5e	4 x 2 x AWG26/19	1	6.3	27	56

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: Coil 100 m; Drum (500; 1000) m
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ETHERLINE® FD bioP Cat.5e

Highly flexible with outer sheath made of partially bio-based plastic

Info

- For highly flexible industrial applications
- Cat.5e-Performance





21704891

Benefits

- The sustainable variant with the bio-based outer sheath consists of more than 40% renewable raw materials (according to ASTM D6866). The product properties are the same as for the standard variant made of purely fossil raw materials
- The outer sheath made from partially bio-based plastic reduces dependence on fossil fuels and reduces the CO_2 footprint
- Fast information exchange through Ethernet technology. Cat. 5e performance up to 1000 Mbit/s
- For transmission of analogue and digital signals in the frequency range up to 100 MHz
- Ideal protection against electromagnetic interference thanks to copper screening braiding with a high degree of coverage
- UL/CSA certification according to technical data enables the product to be used in the North American market
- Halogen-free and flame-retardant materials reduce the possible hazards in the event of a fire
- Successfully tested for over 10 million bending cycles in cable chains

Application range

- Also suitable for EtherCAT and EtherNet/IP applications
- Especially for environments where electromagnetic compatibility (EMC) is required
- Suitable for patch cable assembly up to a cable length of 60 m
- Cable design allows highly flexible, continuously flexing use in moving machine parts and in the cable chain
- The bio-TPU outer sheath is insensitive to mineral-oil-based lubricants and resistant to many chemicals

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
max. 100 V (not for power applications)

Minimum bending radius
Fixed installation: 6 x outer diameter
Occasional flexing: 15 x outer diameter

Test voltage
Core/core: 700 V
Core/screen: 700 V

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-5

Temperature range
Fixed installation: -15°C to +80°C
flexing: -5°C to +70°C

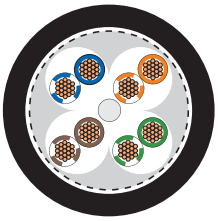
Article number	Article designation	Number of pairs and AWG per conductor	Number of cores	Copper index (kg/km)	Weight (kg/km)
21704891	ETHERLINE® FD bioP Cat.5e	4 x 2 x 26/19AWG	8	27	56

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ETHERLINE® Cat.5 FD BK

Ethernet cable Category 5e, Class D for installation in events - verified up to 100 MHz





CE217489

Info

- For highly flexible industrial applications
- Cat.5e-Performance
- Only for patch cable applications (max. 60 m)

Benefits

- Additional application options thanks to suitability for outdoor use, UV-resistant
- Good flexibility - easy installation with tight space requirements
- Screened against interference
- Easy to coil for mobile use

Application range

- IEEE 802.3: 10/100/1000Base-T IEEE 802.5: ISDN; FDDI; ATM
- Suitable for the transfer of audio signals (ETHERSOUND), light control signals (DMX over Ethernet), or for computer networking
- Only for patch cable applications (max. 60 m)
- Suitable for EtherCAT and EtherNet/IP applications
- 4pair: 10/100/1000 Mbit/s for Industrial Ethernet

Product features

- Specifically developed for road environments
- Suitable for outdoor use, UV-resistant
- PUR outer sheath is highly resistant to mineral oils and abrasion
- Premium screening against electromagnetic interference

Norm references / Approvals

- UL AWM Style 21576
- Flame retardant acc. to IEC 60332-1-2
- Halogen-free according to VDE 0472-815

Product Make-up

- Bare stranded copper wire, 26AWG (19 x 0.10), (0.14 mm²)
- Insulation: foam skin, max. core diameter 1.0 mm
- Twisting: 2 twisted-pair cores, stranding from 4 pairs
- Inner sheath: thermoplastic elastomer, halogen-free
- Screening: wrapped with braided tinned-copper wires
- Outer sheath: halogen-free PUR, black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Fixed installation: 10 x outer diameter
Flexing: 15 x outer diameter

Test voltage
Core/core: 1000 V
Core/screen: 500 V

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-6

Temperature range
Fixed installation: VDE -30°C to +80°C; UL/CSA -30°C to +80°C
Flexing: VDE -5°C to +50°C; UL/CSA -5°C to +80°C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter mm	Copper index (kg/km)	Weight (kg/km)
ETHERLINE® Cat.5 FD BK						
CE217489	ETHERLINE® FD P BK Cat.5	4x2xAWG26/19	1	6.3	27	54

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Standard lengths: (100; 500; 1000) m
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EtherNet/IP

ETHERLINE® H Flex Cat.5e Patch cables

Info

- Additional variants are available on request
- Based on 2170283



Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components

Application range

- Suitable for EtherCAT and EtherNet/IP applications
- Suitable for use in industrial applications
- For indoor use
- For flexible applications

Product features

- Meets the requirements according to Cat.5e and class D
- 2 pairs: 10/100 Mbit/s for Industrial Ethernet

Product Make-up

- Braided conductor, 2x2x AWG26/7
- Twisted pair construction permits largely interference-free operation (decoupling).
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: halogen-free, flameretardant compound, 5.6mm in diameter
- Colour: water blue (based on RAL 5021)

Technical data

Classification
ETIM 5.0/6.0: EC002599
Description: Patch cord copper (twisted pair) industry

Minimum bending radius
Flexing: 15 x outer diameter
Fixed installation: 6 x outer diameter

Protection rating
M12: IP 67
RJ45: IP 20

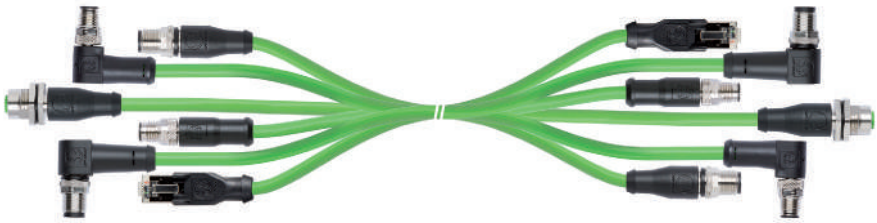
Temperature range
During installation: -5°C to +60°C
Fixed installation: -30°C to +80°C

Coding
M12: D-Standard

		RJ45	M12, plug, straight	M12, plug, angled	Open end
	Length	**Article number**			
RJ45	1.0m	2171091	2171085	2171878	On request
	2.0m	2171092	2171086	2171879	
	3.0m	2171093	2171087	2171880	
	5.0m	2171094	2171088	2171881	
M12, plug, straight	1.0m	2171085	2171073	On request	2171079
	2.0m	2171086	2171074		2171080
	3.0m	2171087	2171075		2171081
	5.0m	2171088	2171076		2171082
M12, plug, angled	1.0m	2171878	On request	On request	On request
	2.0m	2171879			
	3.0m	2171880			
	5.0m	2171881			

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Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Other lengths are available upon request.

ETHERLINE® EC FD Cat.5e Patch cables



Info

- Additional variants are available on request
- Based on 2170433

Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components

Application range

- Suitable for EtherCAT and EtherNet/IP applications
- Suitable for use in industrial applications
- For indoor use
- For highly flexible applications

Product features

- Meets the requirements according to Cat.5e and class D
- 2 pairs: 10/100 Mbit/s for Industrial Ethernet

Product Make-up

- Braided conductor, 2x2x AWG26/19
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PUR, 4.8mm in diameter
- Colour: green (based on RAL 6018)

Technical data

Classification
ETIM 5.0/6.0: EC002599
Description: Patch cord copper (twisted pair) industry

Minimum bending radius
Flexing: 8 x outer diameter
Fixed installation: 4 x outer diameter

Protection rating
M8: IP 67
M12: IP 67
RJ45: IP 20

Temperature range
During installation: -30°C to +50°C
Fixed installation: -30°C to +80°C

Coding
M8: A-Standard
M12: D-Standard

		RJ45	M12, plug, straight	M12, plug, angled	M12, socket, straight	M8, plug, straight	M8, plug, angled	Open end
	Length	Article number						
RJ45	1.0m	2171765	2171751	2171924	On request	2171758	On request	2171772
	2.0m	2171766	2171752	2171925		2171759		2171773
	5.0m	2171768	2171754	2171927		2171761		2171775
	10.0m	2171769	2171755	2171928		2171762		2171776
M12, plug, straight	1.0m	2171751	2171779	2171786	2171737	2171945	On request	2171793
	2.0m	2171752	2171780	2171787	2171738	2171946		2171794
	5.0m	2171754	2171782	2171789	2171740	2171948		2171796
	10.0m	2171755	2171783	2171790	2171741	2171949		2171797
M12, plug, angled	1.0m	2171924	2171786	2171907	2171744	On request	On request	2171871
	2.0m	2171925	2171787	2171908	2171745			2171872
	5.0m	2171927	2171789	2171910	2171748			2171874
	10.0m	2171928	2171790	2171911	2171749			2171875
M12, socket, straight	1.0m	On request	2171737	2171744	2171916	On request	On request	On request
	2.0m		2171738	2171745	2171917			
	5.0m		2171740	2171747	2171919			
	10.0m		2171741	2171748	2171920			
M8, plug, straight	1.0m	2171758	2171945	On request	On request	2171701	2171719	2171710
	2.0m	2171759	2171946			2171702	2171720	2171711
	5.0m	2171761	2171948			2171704	2171722	2171713
	10.0m	2171762	2171949			2171706	2171724	2171715
M8, plug, angled	1.0m	On request	On request	On request	On request	2171719	2171960	2171728
	2.0m					2171720	2171961	2171729
	5.0m					2171722	2171963	2171731
	10.0m					2171724	2171965	2171733

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Other lengths are available upon request.

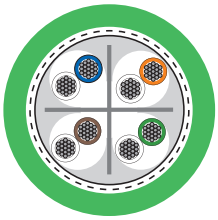
ETHERLINE® CAT.6 FD

Ethernet cable Category 6, Class E for use in cable chain applications - verified up to 250 MHz

Info

- Cat.6 for cable chain





2170488

Benefits

- Highly flexible data cable with PUR outer sheath, meets the highest service life requirements, even under harsh climatic conditions
- Premium screening against electromagnetic interference

Application range

- For use in cable chain and moving machinery parts in dry or damp rooms
- Only for patch cable applications (max. 60 m)
- Suitable for EtherCAT and EtherNet/IP applications
- Plant engineering, machinery manufacturing
- 4pair: 10/100/1000 Mbit/s for Industrial Ethernet

Product features

- PUR outer sheath is resistant to most oils and hydraulic fluids
- Cat.6 for cable chain
- Min. 1 million bending cycles in the cable chain

Norm references / Approvals

- UL/CSA type CMX (UL 444)
- Flame retardant acc. to IEC 60332-1-2

Product Make-up

- Stranded conductor, tinned
- AWG 26 (19-wire)
- PP core insulation
- Inner sheath: thermoplastic copolymer (FRNC)
- SF/UTP: braid of tinned copper wire and plastic laminated aluminum foil as overall screening
- PUR outer sheath, halogen-free
- Colour: green (based on RAL 6018)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
max. 100 V (not for power applications)

Minimum bending radius
Fixed installation: 4 x outer diameter
Flexing: 7.5 x outer diameter

Test voltage
700 V

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-6

Temperature range
Fixed installation: -40°C to +80°C
Flexing: -30°C to +70°C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter mm	Copper index (kg/km)	Weight (kg/km)
ETHERLINE® CAT.6 FD						
2170488	ETHERLINE® CAT.6 FD	4 x 2 x AWG26/19	1	7.8	31.7	63

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ETHERLINE® FD Cat.6 Patch cables



Info

- Additional variants are available on request
- Based on 2170488

Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components

Application range

- Continuous flexing applications
- Suitable for EtherCAT and EtherNet/IP applications
- Suitable for use in industrial applications
- For indoor use

Product features

- Meets the requirements according to Cat.6 and class E
- Suitable for cable chain applications

Product Make-up

- Braided conductor, 4x2x AWG26/19
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Outer sheath made of PUR, 7.8mm in diameter
- Colour: green (based on RAL 6018)

Technical data

Classification
ETIM 5.0 Class-ID: EC002599
ETIM 5.0 Class-Description: Patch cord copper (twisted pair) industry

Minimum bending radius
Flexing: 7.5 x outer diameter
Fixed installation: 4 x outer diameter

Protection rating
IP 67

Temperature range
Flexing: -30°C to +70°C
Fixed installation: -30°C to +80°C

Coding
M12: X-Standard

		M12, plug, straight	M12, socket, straight	Open end
					
	Length	Article number		
M12, plug, straight 	1.0m	2172238	2172208	2172247
	2.0m	2172239	2172209	2172248
	3.0m	2172240	2172210	2172249
	5.0m	2172241	2172211	2172250
	10.0m	2172243	2172213	2172252
M12, socket, straight 	1.0m	2172208	2172299	2172255
	2.0m	2172209	2172300	2172256
	3.0m	2172210	2172301	2172257
	5.0m	2172211	2172302	2172258
	10.0m	2172213	2172304	2172260

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Other lengths are available upon request.

EtherNet/IP

ETHERLINE® Cat.6$_A$ Flex Patch cables

Info

- Additional variants are available on request
- Based on 2170934



Benefits

- Only for patch cable applications (max. 60m)
- Plug & Play for flexible connection solutions

Application range

- Cat.6$_A$ qualified for 10Gbit/s
- M12 X-coded connectors, comp. with IEC 61076-2-109
- RJ45 connectors, comp. with IEC 60603-7-51

Product features

- Meets the requirements according to Cat.6$_A$ and Class E$_A$

Product Make-up

- Braided conductor, 4x2x AWG26/7
- Twisted pair construction permits largely interference-free operation (decoupling).
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference
- Outer sheath: PUR compound, halogenfree, 6.4mm in diameter
- Colour: green (based on RAL 6018)

Technical data

Classification
ETIM 5.0 Class-ID: EC002599
ETIM 5.0 Class-Description: Patch cord copper (twisted pair) industry

Minimum bending radius
Fixed installation: 4 x outer diameter
Flexing: up from 10 x outer diameter

Protection rating
M12: IP 67
RJ45: IP 20

Temperature range
Flexing: -30°C to +80°C (M12)
Flexing: -40°C to +70°C (RJ45)

Coding
M12: X-Standard

		RJ45	M12, plug, straight	M12, socket, straight	Open end
	Length	Article number			
RJ45	0.5m	2172362	2172380	2172389	2172371
	1.0m	2172363	2172381	2172390	2172372
	2.0m	2172364	2172382	2172391	2172373
	3.0m	2172365	2172383	2172392	2172374
	5.0m	2172366	2172384	2172393	2172375
	10.0m	2172368	2172386	2172395	2172377
	20.0m	2172370	2172388	2172397	2172379
M12, plug, straight	0.5m	2172380	2172326	2172335	2172317
	1.0m	2172381	2172327	2172336	2172318
	2.0m	2172382	2172328	2172337	2172319
	3.0m	2172383	2172329	2172338	2172320
	5.0m	2172384	2172330	2172339	2172321
	10.0m	2172386	2172332	2172341	2172323
	20.0m	2172388	2172334	2172343	2172325
M12, socket, straight	0.5m	2172389	2172335	2172344	2172353
	1.0m	2172390	2172336	2172345	2172354
	2.0m	2172391	2172337	2172346	2172355
	3.0m	2172392	2172338	2172347	2172356
	5.0m	2172393	2172339	2172348	2172357
	10.0m	2172395	2172341	2172350	2172359
	20.0m	2172397	2172343	2172352	2172361

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Other lengths are available upon request.

ETHERLINE® Cat.6$_A$ FLEX FC

Flexible with Fast Connect design, for applications with limited space and short transmission distances





2170588

Info

- Cat.6$_A$ qualified for 10 Gbit/s

Benefits

- The “Fast Connect” design, including inner sheath and cross separator, significantly reduces the cable assembly time, by eliminating the time-consuming removal of the pair screening. It also provides undiminished screening of the core pairs
- Additional protection against electromagnetic interference thanks to double overall screening made of aluminium-laminated foil and copper braided screening with a high degree of coverage (SF/UTP)
- UL certification according to technical data enables the product to be used on the North American market
- Fast information exchange through Ethernet technology
- Cat. 6$_A$ performance up to 10 Gbit/s
- For transmission of analogue and digital signals in the frequency range up to 500 MHz
- Available with robust PVC or halogen free FRNC outer sheath

Application range

- Also suitable for EtherCAT and EtherNet/IP applications
- The “FLEX” version with reduced conductor cross-section is suitable for applications with limited space
- For flexible use

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Fixed installation: 4 x outer diameter
Flexing: 8 x outer diameter

Test voltage
2kV

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-6

Temperature range
Fixed installation: -40°C to +80°C
to 60°C according to UL AWM
Occasional flexing: -5°C to +50°C

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter mm	Copper index (kg/km)	Weight (kg/km)
PVC					
2170588	ETHERLINE® Cat.6$_A$ Y FLEX FC	4 x 2 x 26/7AWG	7.6	29	72
FRNC					
2170589	ETHERLINE® Cat.6$_A$ FRNC FLEX FC	4 x 2 x 26/7AWG	7.6	29	73

Unless specifi ed otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the defi nition and calculation of copper-related surcharges.
Please fi nd our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ETHERLINE® Cat.6$_A$ FD FC

Highly flexible with Fast-Connect connection for permanently moving use in cable chain and short transmission distances

Info

- Cat.6$_A$ qualified for 10 Gbit/s





2170592

Benefits

- The “Fast Connect” design, including inner sheath and cross separator, significantly reduces the cable assembly time, by eliminating the time-consuming removal of the pair screening. It also provides undiminished screening of the core pairs
- Additional protection against electromagnetic interference thanks to double overall screening made of aluminium-laminated foil and copper braided screening with a high degree of coverage (SF/UTP)
- UL certification according to technical data enables the product to be used on the North American market
- Fast information exchange through Ethernet technology
- Cat. 6$_A$ performance up to 10 Gbit/s
- For transmission of analogue and digital signals in the frequency range up to 500 MHz
- Available with robust PVC or abrasion-resistant PU outer sheath
- Successfully tested for over 1 million bending cycles in cable chains

Application range

- Cable design allows highly flexible, continuously flexing use in moving machine parts and in the cable chain

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Fixed installation: 4 x outer diameter
Flexing: 8 x outer diameter

Test voltage
2kV

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-6

Temperature range
Fixed installation: -40°C to +80°C
to 60°C according to UL AWM
Occasional flexing: -5°C to +50°C

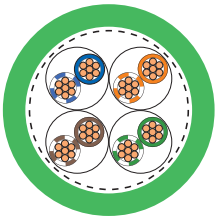
Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter mm	Copper index (kg/km)	Weight (kg/km)
2170592	ETHERLINE® Cat.6$_A$ P FD FC	4 x 2 x 26/19AWG	8.8	44	95
2170593	ETHERLINE® Cat.6$_A$ Y FD FC	4 x 2 x 26/19AWG	8.8	44	105

Unless specifi ed otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the defi nition and calculation of copper-related surcharges.
Please fi nd our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ETHERLINE® Cat.7 FLEX

Ethernet cable Category 7, Class F for flexible application





2170934

Info

- Space-saving installation due to small cable diameters
- Cat.7 qualified for 10Gbit/s

Benefits

- Can be used in dry or damp rooms
- Screened against interference
- Can be used for Industrial Ethernet in harsh industrial environments
- 4pair: 100Mbit/s up to 10 Gbit/s for Industrial Ethernet

Application range

- Wiring of machines, tools, devices, appliances and control cabinets
- Max. cable lenght for up to 10 Gbit/s is 60 m
- Suitable for EtherCAT and EtherNet/IP applications

Product features

- PUR outer sheath is highly resistant to mineral oils and abrasion
- Robust, halogen-free outer sheath
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference

Norm references / Approvals

- Halogen-free according to VDE 0472-815
- Electrical requirements acc. to IEC 61156-6
- AWM certification for USA and Canada
- UL AWM Style 21576
- Flame retardant acc. to IEC 60332-1-2

Product Make-up

- Stranded conductor, bare, 7-wire
- Core insulation made of polyethylene (PE)
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Outer sheath made of PUR
- Colour: green (based on RAL 6018)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Fixed installation: 4 x outer diameter
Flexing: 10 x outer diameter

Test voltage
Core/Core: 1000 V
Core/screen: 1000 V

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-6

Temperature range
Fixed installation: -50°C to +80°C
Flexing: -40°C to +80°C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter mm	Copper index (kg/km)	Weight (kg/km)
ETHERLINE® Cat.7 FLEX						
2170934	ETHERLINE® Cat.7 FLEX	4x2xAWG26/7	1	6.4	28	46

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

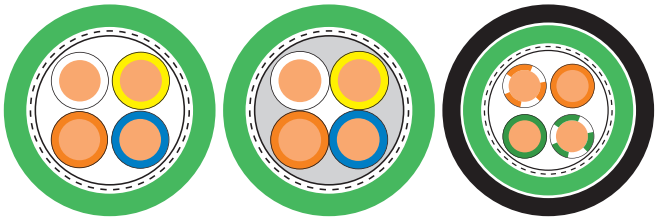
ETHERLINE® PN Cat.5

Ethernetcable for category 5, class D for fixed installation

Info

- CPR: Article number choice under www.lapp.com
- For PROFINET applications type A





2170891 | 2170893/2170879 | 2170933

Benefits

- Can be used in dry or damp rooms
- Screened against interference
- Can be used for Industrial Ethernet in harsh industrial environments
- 2pair: 10/100 Mbit/s for Industrial Ethernet

Application range

- For industrial secondary and tertiary cabling according to EN 50173-3 ISO/IEC 24702
- Wiring of machines, tools, devices, appliances and control cabinets
- Suitable for EtherCAT and EtherNet/IP applications
- ETHERLINE® TRAY ER PN Y FC: installation in open cable trays without any conduit

Product features

- Fixed Installation
- Cat.5-Performance
- FC: “Fast Connect” cable design
- ETHERLINE® Y FC, ETHERLINE® YY, ETHERLINE® TRAY ER PN Y FC : flame-retardant according to CSA FT-4

Norm references / Approvals

- Flame retardant acc. to IEC 60332-1-2
- ETHERLINE® Y FC with PLTC approbation and AWM Style 21694
- ETHERLINE® PN Cat.5e YY with UL CMG
- ETHERLINE® PN Cat.5e Y with UL CMX
- ETHERLINE® TRAY ER PN Y FC with PLTC ER approval

Product Make-up

- Version for outdoor use: Colour black (similar to RAL 9005)
- Solid bare copper wire AWG22
- Core insulation: PE
- Star quad
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: PVC
- Colour: green (based on RAL 6018)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
See data sheet

Test voltage
See data sheet

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-5

Temperature range
See data sheet

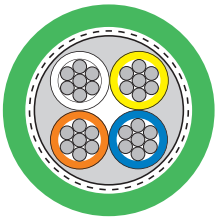
Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter mm	Copper index (kg/km)	Weight (kg/km)
conventional cable assembly						
2170891	ETHERLINE® PN Cat.5e Y	2 x 2 x AWG22/1	1.5	6.3	30.4	56
FC: “Fast Connect” cable design						
2170893	ETHERLINE® Y FC Cat.5	2 x 2 x AWG22/1	1.5	6.5	30.4	70
2170879	ETHERLINE® TRAY ER PN Y FC	2 x 2 x AWG22/1	1.5	6.5	30.4	70
Suitable for outdoor use, UV-resistant						
2170933	ETHERLINE® PN Cat.5e YY	2 x 2 x AWG22/1	1.5	7.7	30.4	62

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ETHERLINE® PN Cat.5 FLEX

Flexible use





2170886/2170890

Info

- CPR: Article number choice under www.lapp.com
- For PROFINET applications
- Flexible use

Benefits

- For PROFINET applications type B
- Can be used in dry or damp rooms
- Screened against interference
- Can be used for Industrial Ethernet in harsh industrial environments
- 2pair: 10/100 Mbit/s for Industrial Ethernet

Application range

- For industrial secondary and tertiary cabling according to EN 50173-3 ISO/IEC 24702
- Wiring of machines, tools, devices, appliances and control cabinets
- Suitable for EtherCAT and EtherNet/IP applications
- For flexible applications (7-wire stranded conductor)

Product features

- Flame-retardant according to CSA FT4 UL Vertical-Tray Flame Test
- Cat.5-Performance
- FRNC Version: Halogene free and flame retardant
- Fast Connect (FC) cable design

Norm references / Approvals

- The cable is UL/CSA-certified (CMG)
- ETHERLINE® PN Cat.5 Y FLEX FC: ECOLAB® Industry standard for innovation and efficiency in the field of professionllen cleaning and disinfection

Product Make-up

- Stranded tinned 7-wire conductor
- Core insulation: PE or PP
- Star quad
- Inner sheath made of PVC or FRNC
- Overall screening with copper braid and plastic-laminated aluminium foil
- PVC or FRNC jacket material
- Colour: green (based on RAL 6018)
- UV resistance SUN RES acc. to UL 13 §29.1
- Oil resistance acc. to EN 50290-2-22

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
FRNC cable:
fixed: 4 x outer diameter
during installation: 8 x outer diameter
PVC cable:
Fixed installation: 3 x outer diameter
Flexing: 7 x outer diameter

Test voltage
Core/core: 2000 V
Core/screen: 2000 V

Characteristic impedance
100 Ω ± 15%

Temperature range
cable halogenfree compound
Fixed installation: -25°C to +80°C
Moved: -25°C to +80°C
cable with PVC jacket
Fixed installation: -40°C to +80°C
Moved: -20°C to +60°C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter mm	Copper index (kg/km)	Weight (kg/km)
PVC jacket						
2170886	ETHERLINE® PN Cat.5 Y FLEX FC	2 x 2 x AWG22/7	1.5	6.5	31.3	67
FRNC outer sheath						
2170890	ETHERLINE® PN Cat.5e FRNC FLEX FC	2 x 2 x AWG22/7	1.5	6.5	31.2	65

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

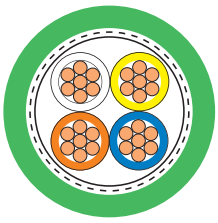
ETHERLINE® Cat.5e 105 plus

Ethernet cable Category 5e, Class D for flexible use

Info

- For PROFINET applications
- Extended temperature range
- Cat.5e-Performance





2170636

Benefits

- No need for additional cable protection against high temperatures
- High temperature resistance
- Industrial use
- Premium screening against electromagnetic interference
- 2pair: 10/100 Mbit/s for Industrial Ethernet

Application range

- For installation in hollow shaft between gear units and pitch system
- Suitable for fixed installation and occasionally flexible use in high temperature areas
- Suitable for EtherCAT and EtherNet/IP applications
- Wiring of machines, tools, devices, appliances and control cabinets

Product features

- Optimum EMC protection
- Permanent load up to +105°C, temporary load +120°C

Norm references / Approvals

- Electrical requirements acc. to IEC 61156-5
- Flame retardant acc. to IEC 60332-1-2

Product Make-up

- Stranded conductor, 7-wire, bare
- Core insulation: PE
- Colour-coded in accordance with PROFINET for Cat.5 apllications
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath: TPE-based
- Colour: green (based on RAL 6018)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Minimum bending radius
Fixed installation: 10 x outer diameter
Flexing: 15 x outer diameter

Characteristic impedance
100 Ω ± 15%

Temperature range
Fixed installation: -40°C to +105°C
occasionally flexing: -30°C to +105°C

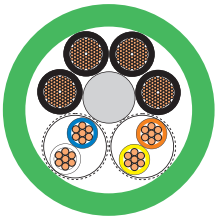
Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter mm	Copper index (kg/km)	Weight (kg/km)
ETHERLINE® Cat.5e 105 plus						
2170636	ETHERLINE® Cat.5e 105 plus	2x2xAWG22/7	1.5	6.2	30.4	59

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ETHERLINE® Cat.5 FRNC HYBRID

Hybrid cable for ethernet and power transmission





2170887

Info

- HYBRID: cable for data transmission + power supply
- Cat.5-Performance

Benefits

- Industrial use
- Screened against interference

Application range

- Industrial Ethernet cable
- 2pair: 10/100 Mbit/s for Industrial Ethernet
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference
- Suitable for EtherCAT and EtherNet/IP applications

Product features

- HYBRID: cable for data transmission + power supply
- Robust, halogen-free outer sheath

Norm references / Approvals

- UL AWM Style 21282
- Flame retardant acc. to IEC 60332-1-2

Product Make-up

- Cores for Power Supply 4 x 1.5 mm² (AWG16)
- Data transfer: braided conductor, 7-wire, bare
- Pair screening: wrapped with foil and braided copper wires
- Twisting: data pairs and power supply pairs twisted together
- Overlapping plastic tape
- FRNC outer sheath
- Colour: green (based on RAL 6018)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Minimum bending radius
Fixed installation: 5 x outer diameter
Occasional flexing: 10 x outer diameter

Test voltage
See data sheet

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-5

Temperature range
Operation: -20 °C to +70 °C

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter mm	Copper index (kg/km)	Weight (kg/km)
Flexible use					
2170887	ETHERLINE® Cat.5 FRNC HYBRID	2x2xAWG22/7 + 4x1.5	10.3	94.2	153

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ETHERLINE® MARINE FRNC FC Cat.5

Flexible application

Info

- Certified for maritime applications
- Flexible use in conjunction with light mechanical stress





2170889

Benefits

- Cable specially developed for maritime use with international DNV approval
- Flame-resistant, halogen free product that does not produce corrosive acids or hazardous gases in the event of a fire
- The “Fast Connect” design, including inner sheath and cross separator, significantly reduces the cable assembly time, by eliminating the time-consuming removal of the pair screening. It also provides undiminished screening of the core pairs
- Power over Ethernet-capable cable for simultaneous power and data supply of smaller network components with low energy requirements (e.g. IP cameras, wireless access points)
- High resistance to electromagnetic interference thanks to star quad stranding as well as double screening made of aluminium-laminated foil and high degree of copper screening braiding (SF/UTP)
- UL/CSA certification according to technical data enables the product to be used in the North American market
- Cat. 5 performance up to 100 Mbit/s
- For transmission of analogue and digital signals in the frequency range up to 100 MHz

Application range

- For flexible use in the PROFINET network (type B)
- Also suitable for EtherCAT and EtherNet/IP applications
- Listed as a Power Limited Tray Cable (PLTC) according to UL, for open installation on cable trays
- Suitable for light mechanical stress.
- Can be used in dry, damp or wet environments
- Suitable for outdoor use, subject to the temperature range

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Fixed installation: 3 x outer diameter
Flexing: 7.5 x outer diameter

Test voltage
Core/core: 1000 V
Core/screen: 500 V

Characteristic impedance
100 Ω ± 15%

Temperature range
Operating temperature: -25°C to +70°C
During installation: 0 °C to +50 °C

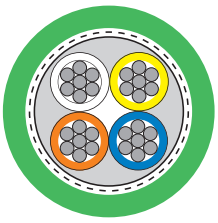
Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter mm	Copper index (kg/km)	Weight (kg/km)
ETHERLINE® MARINE FRNC FC Cat.5					
2170889	ETHERLINE® MARINE FRNC FC Cat.5	2 x 2 x 22/7AWG	6.5	32	68

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ETHERLINE® PN Cat.5e FD

Highly flexible application





2170894

Info

- Highly flexible application
- For PROFINET applications
- Cat.5e-Performance

Benefits

- Can be used in dry or damp rooms
- Screened against interference
- Can be used for Industrial Ethernet in harsh industrial environments
- 2pair: 10/100 Mbit/s for Industrial Ethernet

Application range

- Cable chain applications
- Wiring of machines, tools, devices, appliances and control cabinets
- Suitable for EtherCAT and EtherNet/IP applications

Product features

- PUR outer sheath is highly resistant to mineral oils and abrasion
- Optimized cable construction for cable chain use

Norm references / Approvals

- UL/CSA type CMX (UL 444)
- Flame-retardant according to UL VW1/CSA FT1
- Halogen-free according to VDE 0472-815

Product Make-up

- Fine-wire strand made of tinned-copper wires
- Star quad
- Colour-coded in accordance with PROFINET for Cat.5e applications
- Inner sheath: thermoplastic copolymer (FRNC)
- Overall screening with copper braid and plastic-laminated aluminium foil
- PUR outer sheath, halogen-free
- Colour: green (based on RAL 6018)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
8 x outer diameter

Test voltage
Core/core: 700 V
Core/screen: 700 V

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-5

Temperature range
Fixed installation: -30°C to +70°C
Flexing: -20°C to +60°C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter mm	Copper index (kg/km)	Weight (kg/km)
ETHERLINE® PN Cat.5e FD						
2170894	ETHERLINE® FD P FC Cat.5	2 x 2 x AWG22/7	1.5	6.5	31.3	61

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

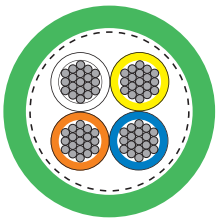
ETHERLINE® TORSION Cat.5e

Ethernetcable category 5, class D for high flexible applications

Info

- Industrial Ethernet Cable, 2-pair, suitable for torsion stress
- For PROFINET applications
- Cat.5e-Performance





2170888/2170884

Benefits

- Can be used in dry or damp rooms
- Screened against interference
- Can be used for Industrial Ethernet in harsh industrial environments
- Industrial Ethernet Cable, 2-pair, suitable for torsion stress
- 2pair: 10/100 Mbit/s for Industrial Ethernet

Application range

- Many applications with Industrial Ethernet, e.g. PROFINET, i.e. fixed installation, flexible use as well as TORSION.
- Wiring of machines, tools, devices, appliances and control cabinets
- Suitable for EtherCAT and EtherNet/IP applications

Product features

- Cable suitable for high torsion stress. Tested with more than 1 million bending cycles and a right/left movement of 180° per metre
- Outer sheath with high abrasion-resistance
- Broad usages due to halogen-free materials
- PUR outer sheath is highly resistant to mineral oils and abrasion

Norm references / Approvals

- UL AWM (Style 21161)
- Halogen-free according to VDE 0472-815
- Flame retardant acc. to IEC 60332-1-2

Product Make-up

- Stranded conductor, tinned
- AWG 22 (19-wire)
- PE core insulation
- Star quad
- Screening: wrapped with braided tinned-copper wires
- Non-woven wrapping
- PUR outer sheath, green (RAL 6018)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
max. 100 V (not for power applications)

Minimum bending radius
5 x outer diameter

Test voltage
700 V

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-6

Temperature range
-40°C to +80°C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter mm	Copper index (kg/km)	Weight (kg/km)
ETHERLINE® TORSION Cat.5e						
2170884	ETHERLINE® TORSION Cat.5	2 x 2 x AWG22/19	1.5	6.5	31.3	52

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ETHERLINE® FESTOON PN Cat.5e

Highly flexible application





2170936

Info

- Fast and easy cable preparation by FC inner sheath
- CAT.5e-Performance

Benefits

- The “Fast Connect” design, including inner sheath and cross separator, significantly reduces the cable assembly time, by eliminating the time-consuming removal of the pair screening. It also provides undiminished screening of the core pairs
- UL/CSA certification according to technical data enables the product to be used in the North American marke
- High resistance to electromagnetic interference thanks to star quad stranding as well as double screening made of aluminium-laminated foil and high degree of copper screening braiding (SF/UTP)
- Cat. 5e performance up to 100 Mbit/s
- For transmission of analogue and digital signals in the frequency range up to 100 MHz

Application range

- Specially designed for data and signal transmission in festoon systems (festoon suspension/cable trolley)
- For highly flexible, continuously flexing use in moving machine parts and in the cable chain in the PROFINET network (type C)
- Also suitable for EtherCAT and EtherNet/IP applications

Technical data

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Moved: 10 x outer diameter
Fixed installation: 4 x outer diameter

Test voltage
Core/core: 2000 V
Core/screen: 2000 V

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-6

Temperature range
Fixed installation: -40°C to +80°C
Flexing: -10°C to +70°C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter mm
ETHERLINE® FESTOON PN Cat.5e				
2170936	ETHERLINE® FESTOON PN Cat.5e	2 x 2 x AWG22/7	1.55	6.5

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

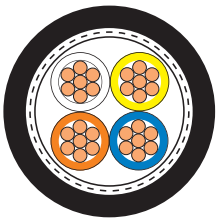
ETHERLINE® Y CAT.5e BK

Flexible application

Info

- For PROFINET applications
- Cat.5-Performance





2170901

Benefits

- UV and weather-resistant in black
- Can be used in dry or damp rooms
- Screened against interference
- Suitable for outdoor use, UV-resistant
- 2pair: 10/100 Mbit/s for Industrial Ethernet

Application range

- Many applications with Industrial Ethernet, e.g. PROFINET type B, i.e. fixed installation and flexible use.
- Wiring of machines, tools, devices, appliances and control cabinets
- Suitable for EtherCAT and EtherNet/IP applications

Product features

- PVC compound TM2 acc. to EN 50363-4-1
- Resistant to acids, alkalis and certain oils at room temperature
- Flame retardant acc. to IEC 60332-1-2

Product Make-up

- Stranded conductor, 7-wire, bare
- Core insulation: Based on Polyolefin
- Colour-coded in accordance with PROFINET for Cat.5 applications
- Star quad
- Overall screening with copper braid and plastic-laminated aluminium foil
- PVC outer sheath, black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Fixed installation: 10 x outer diameter
Flexing: 15 x outer diameter

Test voltage
Core/core: 1000 V
Core/screen: 500 V

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-5

Temperature range
Flexing: -10°C to +70°C
Fixed installation: -40°C to +80°C

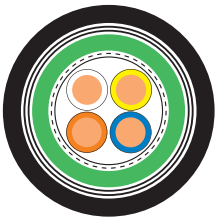
Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter [mm]	Core diameter in mm	Copper index (kg/km)	Weight (kg/km)
ETHERLINE® Y Cat.5e BK						
2170901	ETHERLINE® Y Cat.5e BK	2 x 2 x AWG22/7	6.2	1.5	30.4	59

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
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ETHERLINE® Cat.5 ARM

Fixed Installation





2170496

Info

- Industrial Ethernet cable
- Cat.5-Performance
- Suitable for outdoor use and direct burial

Benefits

- Can be used for Industrial Ethernet in harsh industrial environments
- EMC-optimised design
- With armouring for improved rodent protection
- Screened against interference
- 2pair: 10/100 Mbit/s for Industrial Ethernet

Application range

- Suitable for outdoor use, UV-resistant
- Suitable for direct burial
- PROFINET application Type C but for fixed installation
- Suitable for EtherCAT and EtherNet/IP applications

Product features

- Fast Connect (FC) cable design

Product Make-up

- Solid and bare copper conductor
- Core insulation: PE
- Colour-coded in accordance with PROFINET for Cat.5 apllications
- Star quad
- SF/UTP: braid of tinned copper wire and plastic laminated aluminum foil as overall screening
- Inner sheath made of PVC (green RAL6018)
  2 layer galvanzid steel tape
- Outer sheath made of black polyethylene (PE)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
During installation: 15 x outer diameter
Fixed installation: 10 x outer diameter

Test voltage
Core/core: 2000 V
Core/screen: 2000 V

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-5

Temperature range
During installation: -20°C to +60°C
Fixed installation: -40°C to +70°C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter mm	Copper index (kg/km)	Weight (kg/km)
Fixed Installation						
2170496	ETHERLINE® Cat.5 ARM	2 x 2 x AWG22/1	1.5	6.5 / 9.3	30.4	124

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
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ETHERLINE® ROBOT PN Cat.5e

Ethernetcable category 5, class D for high flexible applications

Info

- Industrial Ethernet Cable, 2-pair, suitable for robot application
- For PROFINET applications
- Cat.5-Performance





2170941

Benefits

- Variant “FC” with “Fast Connect” structure with inner sheath enables easy stripping and assembly of the cable
- Cable design in accordance with the PROFINET standard “Type R” for robotics applications
- Combines the essential cable chain, torsion and alternating bending properties in one cable
- Compatible with PROFINET-compliant components
- Special core stranding allows simultaneous bending and twisting (torsion angle up to ± 180° / m)
- Successfully tested for 5 million bending cycles in cable chains, 5 million torsion cycles and 1 million alternating bending cycles in the TicToc bending test
- High resistance to electromagnetic interference thanks to star quad stranding as well as double screening made of aluminium-laminated foil and high degree of copper screening braiding (SF/UTP)
- Low-capacitance core insulation for long transmission paths
- UL/CSA certification according to technical data enables the product to be used in the North American market

Application range

- Especially for highly flexible, constantly flexing use under torsional stress in industrial robots and handling devices in the PROFINET network (type R)
- Also suitable for EtherCAT and EtherNet/IP applications
- Can be used in dry, damp and, especially, harsh and oily environments
- The PUR outer sheath withstands high mechanical loads
- The PUR outer sheath is resistant to mineral oil-based lubricants and highly resistant to chemicals

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
max. 100 V (not for power applications)

Minimum bending radius
5 x outer diameter

Test voltage
2000 V

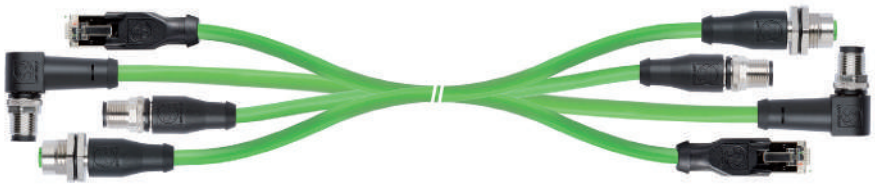
Characteristic impedance
nom. 100 Ω acc. to IEC 61156-6

Temperature range
Fixed: -40 °C up to +80 °C
Continous flexing: -20 °C up to +60 °C
UL: 80 °C

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter [mm]	Core diameter n mm	Copper index (kg/km)	Weight (kg/km)
ETHERLINE® ROBOT PN Cat. 5						
2170941	ETHERLINE® ROBOT PN FC Cat.5e	1 x 4 x 22/19AWG	1.55	6.8	35.6	66.4

Unless specifi ed otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the defi nition and calculation of copper-related surcharges.
Please fi nd our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
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ETHERLINE® PN Cat.5 Patch cables



Info

- Additional variants are available on request
- Based on 2170893

Benefits

- Non-permanent connections allow for easy change of equipment

Application range

- For PROFINET® applications type A
- Fixed installation
- Suitable for EtherCAT and EtherNet/IP applications
- Suitable for use in industrial applications
- For indoor use

Product features

- Meets the requirements according to Cat.5e and class D
- 2pair: 10/100 Mbit/s for Industrial Ethernet

Norm references / Approvals

- The cable is UL/CSA-certified (CMG)

Product Make-up

- Solid conductor, 2x2x AWG22/1
- Star quad
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PVC, 6.5mm in diameter
- Colour: green (based on RAL 6018)

Technical data

Classification
ETIM 5.0 Class-ID: EC002599
ETIM 5.0 Class-Description: Patch cord copper (twisted pair) industry

Minimum bending radius
During installation: 15 x outer diameter
Fixed installation: 10 x outer diameter

Protection rating
M12: IP 67
RJ45: IP 20

Temperature range
During installation: -20°C to +60°C
Fixed installation: -40°C to +80°C

Coding
M12: D-Standard

		RJ45	M12, plug, straight	M12, plug, angled	M12, socket, straight	Open end
	Length	Article number				
RJ45	1.0m	2171179	2171165	2171172	On request	2171186
	2.0m	2171180	2171166	2171173		2171187
	3.0m	2171181	2171167	2171174		2171188
	5.0m	2171182	2171168	2171175		2171189
	10.0m	2171183	2171169	2171176		2171190
	20.0m	2171184	2171170	2171177		2171191
M12, plug, straight	1.0m	2171165	2171001	2171013	2171151	2171007
	2.0m	2171166	2171002	2171014	2171152	2171008
	3.0m	2171167	2171003	2171015	2171153	2171009
	5.0m	2171168	2171004	2171016	2171154	2171010
	10.0m	2171169	2171005	2171017	2171155	2171011
	20.0m	2171170	2171006	2171018	2171156	2171012
M12, plug, angled	1.0m	2171172	2171013	On request	2171158	2171019
	2.0m	2171173	2171014		2171159	2171020
	3.0m	2171174	2171015		2171160	2171021
	5.0m	2171175	2171016		2171161	2171022
	10.0m	2171176	2171017		2171162	2171023
	20.0m	2171177	2171018		2171163	2171024
M12, socket, straight	1.0m	On request	2171151	2171158	On request	On request
	2.0m		2171152	2171159		
	3.0m		2171153	2171160		
	5.0m		2171154	2171161		
	10.0m		2171155	2171162		
	20.0m		2171156	2171163		

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Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Other lengths are available upon request.

Accessories

- Coloured Clips for ETHERLINE® Patchcords

ETHERLINE® PN Flex Cat.5 Patch cables

Info

- Additional variants are available on request
- Based on 2170886



Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components

Application range

- For PROFINET® applications type B
- Flexible applications
- Suitable for EtherCAT and EtherNet/IP applications
- Suitable for use in industrial applications
- For indoor use

Product features

- Meets the requirements according to Cat.5e and class D
- 2pair: 10/100 Mbit/s for Industrial Ethernet

Norm references / Approvals

- The cable is UL/CSA-certified (CMG)

Product Make-up

- Braided conductor, 2x2x AWG22/7
- Star quad
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PVC, 6.5mm in diameter
- Colour: green (based on RAL 6018)

Technical data

Classification
ETIM 5.0 Class-ID: EC002599
ETIM 5.0 Class-Description: Patch cord copper (twisted pair) industry

Minimum bending radius
Flexing: 15 x outer diameter
Fixed installation: 10 x outer diameter

Protection rating
M12: IP 67
RJ45: IP 20

Temperature range
Flexing: -20°C to +60°C
Fixed installation: -40°C to +80°C

Coding
M12: D-Standard

		RJ45	M12, plug, straight	M12, plug, angled	M12, socket, straight	Open end
							
	Length	Article number				
RJ45 	0.5m	2171228	2171214	2171221	2171293	2171235
	1.0m	2171229	2171215	2171222	2171294	2171236
	2.0m	2171230	2171216	2171223	2171295	2171237
	5.0m	2171232	2171218	2171225	2171297	2171239
	10.0m	2171233	2171219	2171226	On request	2171240
M12, plug, straight 	0.5m	2171214	2172192	2172196	2171200	2172194
	1.0m	2171215	2171025	2171037	2171201	2171031
	2.0m	2171216	2171026	2171038	2171202	2171032
	5.0m	2171218	2171028	2171040	2171204	2171034
	10.0m	2171219	2171029	2171041	2171205	2171035
M12, plug, angled 	0.5m	2171221	2172196	On request	On request	2172198
	1.0m	2171222	2171037			2171043
	2.0m	2171223	2171038			2171044
	5.0m	2171225	2171040			2171046
	10.0m	2171226	2171041			2171047
M12, socket, straight 	0.5m	2171293	2171200	On request	On request	On request
	1.0m	2171294	2171201			
	2.0m	2171295	2171202			
	5.0m	2171297	2171204			
	10.0m	On request	2171205			

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Other lengths are available upon request.

Accessories

- Coloured Clips for ETHERLINE® Patchcords

ETHERLINE® PN FD Cat.5 Patch cables



Info
- Additional variants are available on request
- Based on 2170894

Benefits
- For directly connecting two electric components
- Non-permanent connections allow for easy change of equipment

Application range
- For PROFINET® applications type C
- Continuous flexing applications
- Suitable for EtherCAT and EtherNet/IP applications
- Suitable for use in industrial applications
- For indoor use

Product features
- Meets the requirements according to Cat.5e and class D
- 2pair: 10/100 Mbit/s for Industrial Ethernet

Norm references / Approvals
- The cable is UL/CSA-certified (CMX)

Product Make-up
- Braided conductor, 2x2x AWG22/7
- Star quad
- Overall screening with copper braid and plastic-laminated aluminium foil
- Outer sheath made of PUR , 6.5mm in diameter
- Colour: green (based on RAL 6018)

Technical data

Classification
ETIM 5.0 Class-ID: EC002599
ETIM 5.0 Class-Description: Patch cord copper (twisted pair) industry

Minimum bending radius
Flexing: 8 x outer diameter
Fixed installation: 5 x outer diameter

Protection rating
M12: IP 67
RJ45: IP 20

Temperature range
Flexing: -20°C to +60°C
Fixed installation: -30°C to +70°C

Coding
M12: D-Standard

		RJ45	M8D Patchcords fehlen	M12, plug, angled	M12, socket, straight	Open end
	Length	Article number				
RJ45	0.5m	2171278	2171264	2171271	On request	2171285
	1.0m	2171279	2171265	2171272		2171286
	2.0m	2171280	2171266	2171273		2171287
	3.0m	2171281	2171267	2171274		2171288
	5.0m	2171282	2171268	2171275		2171289
	10.0m	2171283	2171269	2171276		2171290
M12, plug, straight	0.5m	2171264	2171121	2171122	2171250	2172201
	1.0m	2171265	2171049	2171061	2171251	2171055
	2.0m	2171266	2171050	2171062	2171252	2171056
	3.0m	2171267	2171051	2171063	2171253	2171057
	5.0m	2171268	2171052	2171064	2171254	2171058
	10.0m	2171269	2171053	2171065	2171255	2171059
M12, plug, angled	0.5m	2171271	2171122	On request	2171257	2172204
	1.0m	2171272	2171061		2171258	2171067
	2.0m	2171273	2171062		2171259	2171068
	3.0m	2171274	2171063		2171260	2171069
	5.0m	2171275	2171064		2171261	2171070
	10.0m	2171276	2171065		2171262	2171071
M12, socket, straight	0.5m	On request	2171250	2171257	On request	On request
	1.0m		2171251	2171258		
	2.0m		2171252	2171259		
	3.0m		2171253	2171260		
	5.0m		2171254	2171261		
	10.0m		2171255	2171262		

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Other lengths are available upon request.

Accessories
- Coloured Clips for ETHERLINE® Patchcords

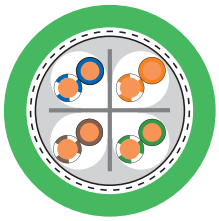
ETHERLINE® PN Cat.6$_A$ FC

Ethernet cable Category 6$_A$, Class E$_A$ for fixed installation with FC inner sheath - verified up to 500 MHz

Info

- Fast and easy cable preparation by FC inner sheath
- For PROFINET applications with 4 pairs
- CAT.6$_A$ qualified for 10Gbit/s





2170583/2170584/2170585

Benefits

- Can be used in dry or damp rooms
- Screened against interference
- Can be used for Industrial Ethernet in harsh industrial environments
- 4pair: 100Mbit/s up to 10 Gbit/s for Industrial Ethernet

Application range

- For industrial secondary and tertiary cabling according to EN 50173-3 ISO/IEC 24702
- Wiring of machines, tools, devices, appliances and control cabinets
- Suitable for EtherCAT and EtherNet/IP applications

Product features

- The oil-resistant PVC sheath enables usage in industrial environments
- Robust, halogen-free FRNC outer sheath
- PUR outer sheath is highly resistant to mineral oils and abrasion
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference

Norm references / Approvals

- PVC version with PLTC approval and c(UL) us CMX (75 °C)
- Flame retardant acc. to IEC 60332-1-2

Product Make-up

- Solid bare copper wire AWG23
- Core insulation made of polyethylene (PE)
- SF/UTP: braid of tinned copper wire and plastic laminated aluminum foil as overall screening, 2 cores stranded to pair, 4 pairs stranded to bundle with central cross
- Inner sheath: halogen-free compound
- Colour: green (based on RAL 6018)

Technical data

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Fixed installation: 8 x outer diameter

Test voltage
see data sheet

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-5

Temperature range
See data sheet

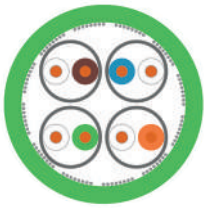
Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter mm	Copper index (kg/km)	Weight (kg/km)
PVC jacket						
2170583	ETHERLINE® PN CAT.6$_A$ Y FC	4x2xAWG23/1	1.5	8.7	53	98
Halogen-free jacket						
2170584	ETHERLINE® PN CAT.6$_A$ FRNC FC	4x2xAWG23/1	1.5	8.7	53	91
PUR outer sheath, halogen-free						
2170585	ETHERLINE® PN CAT.6$_A$ P FC	4x2xAWG23/1	1.5	8.7	53	99

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
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Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ETHERLINE® PN Cat.6$_A$

Ethernet cable Category 6$_A$, Class E$_A$ for fixed Installation - verified up to 500 MHz





2170464/2170465/2170466

Info

- For PROFINET applications with 4 pairs
- CAT.6$_A$ qualified for 10Gbit/s
- CPR: Article number choice under www.lapp.com

Benefits

- Fast information exchange through Ethernet technology
- Cat. 6$_A$ performance up to 10 Gbit/s
- Ideal protection against electromagnetic interference due to pair screening with aluminium compound foil and copper screening braiding as overall screening (S/FTP)
- Classified fire behaviour according to EU Directive 305/2011 (BauPVO/CPR) with article number selection on the LAPP website
- Available in 3 different sheath designs (PVC, PU, FRNC)

Application range

- For fixed installation in the PROFINET network (type A), due to solid conductor design
- Also suitable for EtherCAT and EtherNet/IP applications
- Can be used in dry, damp or wet interiors
- Suitable for many applications, depending on the sheath material

Technical data

Peak operating voltage
(not for power applications) 100 V

Minimum bending radius
Fixed installation: 10 x outer diameter

Test voltage
core/core: 700 V
core/screen: 700 V

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-5

Temperature range
See data sheet

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter mm	Copper index (kg/km)	Weight (kg/km)
PVC jacket						
2170464	ETHERLINE® CAT.6$_A$ Y	4 x 2 x AWG22/1	1.5	8.7	53	98
Halogen-free jacket						
2170466	ETHERLINE® PN CAT.6$_A$ H	4 x 2 x AWG22/1	1.5	8.7	53	91
PUR outer sheath, halogen-free						
2170465	ETHERLINE® PN CAT.6$_A$ P	4 x 2 x AWG22/1	1.5	8.7	53	99

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the defi nition and calculation of copper-related surcharges.
Please fi nd our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

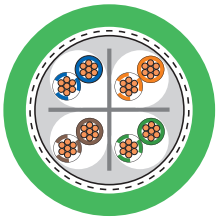
ETHERLINE® PN Cat.6$_A$ FLEX FC

Ethernet cable Category 6$_A$, Class E$_A$ for flexible use with FC inner sheath - verified up to 500 MHz

Info

- For PROFINET applications with 4 pairs
- CAT.6$_A$ qualified for 10Gbit/s
- Fast and easy cable preparation by FC inner sheath





2170586/2170587

Benefits

- Can be used in dry or damp rooms
- Screened against interference
- Can be used for Industrial Ethernet in harsh industrial environments
- 4pair: 100Mbit/s up to 10 Gbit/s for Industrial Ethernet

Application range

- For industrial secondary and tertiary cabling according to EN 50173-3 ISO/IEC 24702
- Wiring of machines, tools, devices, appliances and control cabinets
- Suitable for EtherCAT and EtherNet/IP applications
- For flexible applications (7-wire stranded conductor)

Product features

- CAT.6$_A$ for flexible application, qualified for 10Gbit/s
- Meets the requirements according to CAT.6$_A$, ISO/IEC 11801 and EN 50173
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference
- The oil-resistant PVC sheath enables usage in industrial environments
- Robust, halogen-free FRNC outer sheath

Norm references / Approvals

- UL c(UL)us CMX (75°C)
- Flame retardant acc. to IEC 60332-1-2

Product Make-up

- 7-wire bare stranded copper conductor
- Core insulation: PE
- SF/UTP: braid of tinned copper wire and plastic laminated aluminum foil as overall screening, 2 cores stranded to pair, 4 pairs stranded to bundle with central cross
- Inner sheath: halogen-free compound
- PVC or FRNC jacket material
- Colour: green (based on RAL 6018)

Technical data

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Flexing: 8 x outer diameter
Fixed installation: 4 x outer diameter

Test voltage
Core/Core: 1500 V AC
Core/Screen: 1000 V AC

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-5

Temperature range
PVC: Fixed: -30 °C up to +80 °C
Moving: -25 °C up to +70 °C
FRNC: Fixed: -25 °C up to +80 °C
Moved: -25 up to +80 °C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter mm	Copper index (kg/km)
PVC jacket					
2170586	ETHERLINE® PN CAT.6$_A$ Y FLEX FC	4x2xAWG23/7	1.5	8.9	57
Halogen-free jacket					
2170587	ETHERLINE® PN CAT.6$_A$ FRNC FLEX FC	4x2xAWG23/7	1.5	8.9	57

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ETHERLINE® PN Cat.6$_A$ FLEX

Ethernet cable Category 6$_A$, Class E$_A$ for flexible use - verified up to 500 MHz





2170930

Info

- For PROFINET applications with 4 pairs
- CAT.6$_A$ qualified for 10Gbit/s

Benefits

- Ideal protection against electromagnetic interference due to pair screening with aluminium compound foil and copper screening braiding as overall screening (S/FTP)
- UL certification according to technical data enables the product to be used on the North American market
- Fast information exchange through Ethernet technology
- Cat. 6$_A$ performance up to 10 Gbit/s
- For transmission of analogue and digital signals in the frequency range up to 500 MHz
- Available with robust PVC or halogen free FRNC outer sheath

Application range

- For flexible use in the PROFINET network (type B), due to stranded conductor design
- Suitable for all LAN networks and Ethernet applications up to 10GBase-T
- Can be used in dry, damp or wet environments
- Suitable for many applications, depending on the sheath material

Norm references / Approvals

- c(UL)us Listing Type CMG 75 °C acc. to UL 444 ECOLAB certified
- Flame retardant acc. to IEC 60332-1-2

Product Make-up

- 7-wire bare stranded copper conductor
- Core insulation: PE
- SF/UTP: braid of tinned copper wire and plastic laminated aluminum foil as overall screening, 2 cores stranded to pair, 4 pairs stranded to bundle with central cross
- PVC or FRNC jacket material
- Colour: green (based on RAL 6018)
- UL certification according to technical data enables the product to be used on the North American market

Technical data

Peak operating voltage
(not for power applications) 100 V

Minimum bending radius
Fixed installation: 10 x outer diameter

Test voltage
core/core: 700 V
core/screen: 700 V

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-5

Temperature range
See data sheet

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter mm	Copper index (kg/km)	Weight (kg/km)
PVC jacket					
2170930	ETHERLINE® PN Cat.6$_A$ Y FLEX 4x2x23/7	4 X 2 X 23/ 7AWG	8.8	48	92
2170931	ETHERLINE® PN Cat.6$_A$ FRNC FLEX 4x2x23/7	4 X 2 X 23/ 7AWG	8.8	48	87

Unless specifi ed otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/ 100 kg. Refer to catalogue appendix T17 for the defi nition and calculation of copper-related surcharges.
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

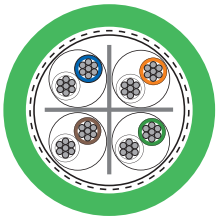
ETHERLINE® FD CAT.6$_A$

Ethernet cable Category 6$_A$, Class EA for highly flexible use with FC inner sheath - verified up to 500 MHz

Info

- CAT.6$_A$ for cable chain, qualified for 10Gbit/s
- For PROFINET applications with 4 pairs





2170485/2170484

Benefits

- For use in cable chains and moving machinery parts in dry or damp rooms
- 4pair: 100Mbit/s up to 10 Gbit/s for Industrial Ethernet
- Premium screening against electromagnetic interference
- Can be used for Industrial Ethernet in harsh industrial environments

Application range

- For highly flexible applications (e.g. cable chains)
- Wiring of machines, tools, devices, appliances and control cabinets
- Suitable for EtherCAT and EtherNet/IP applications

Product features

- PUR version is halogen-free according to VDE 0472-815
- Oil-resistant acc. IEC 60811-2-1
- CAT.6$_A$ for cable chain, qualified for 10Gbit/s
- Meets the requirements according to CAT.6$_A$, ISO/IEC 11801 and EN 50173
- Min. 2.5 million bending cycles in the cable chain

Norm references / Approvals

- Electrical requirements acc. to IEC 61156-6
- PUR cable is UL/CSA-certified (CMG)
- PUR versions: UL AWM Style 21576
- PVC cable is UL/CSA-certified (CM)
- Flame retardant acc. to IEC 60332-1-2

Product Make-up

- 7-wire tinned stranded copper conductor
- Core insulation: Based on Polyolefin
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Outer sheath: PUR/PVC
- Colour: green (based on RAL 6018)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Minimum bending radius
Fixed installation: 8 x outer diameter
Flexing: 15 x outer diameter

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-6

Temperature range
Cable with PUR jacket
Fixed installation: -40°C to +80°C
Flexing: -30°C to +70°C
Cable with PVC jacket
Fixed installation: -40°C to +80°C
Flexing: -10°C to +70°C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter mm	Copper index (kg/km)	Weight (kg/km)
PVC sheath						
2170485	ETHERLINE® FD CAT.6$_A$	4x2xAWG24/7	1.3	8.9	44	88
PUR outer sheath, halogen-free						
2170484	ETHERLINE® FD P CAT.6$_A$	4x2xAWG24/7	1.3	8.9	44	90

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
UL certifications can be found in the data sheet.

ETHERLINE® PN Cat.6$_A$ FD FC

Highly flexible with Fast-Connect connection for permanently moving use in cable chain





2170590/2170591

Info

- Cat.6$_A$ qualified for 10Gbit/s

Benefits

- The “Fast Connect” design, including inner sheath and cross separator, significantly reduces the cable assembly time, by eliminating the time-consuming removal of the pair screening. It also provides undiminished screening of the core pairs
- Additional protection against electromagnetic interference thanks to double overall screening made of aluminium-laminated foil and copper braided screening with a high degree of coverage (SF/UTP)
- Power over Ethernet-capable cable for simultaneous power and data supply of smaller network components with low energy requirements (e.g. IP cameras, wireless access points)
- UL/CSA certification according to technical data enables the product to be used in the North American market
- Fast information exchange through Ethernet technology
- Cat. 6$_A$ performance up to 10 Gbit/s
- For transmission of analogue and digital signals in the frequency range up to 500 MHz
- Available with robust PVC or abrasion-resistant PU outer sheath
- Successfully tested for over 1 million bending cycles in cable chains

Application range

- For highly flexible, continuously flexing use in moving machine parts and cable chains in the PROFINET network (type C), due to the extra-fine stranded conductor design
- Also suitable for EtherCAT and EtherNet/IP applications
- Can be used in dry, damp or wet environments
- Suitable for many applications, depending on the sheath material

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
max. 125 V (not for power appflicatfions)

Minimum bending radius
Fixed installation: 8 x cable diameter
Flexing: 15 x outer diameter

Test voltage
2kV

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-6

Temperature range
Fixed: -40°C to +80°C
Dynamic cont flex: -30°C to +50°C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter mm	Copper index (kg/km)	Weight (kg/km)
PUR						
2170590	ETHERLINE® PN Cat.6$_A$ P FD FC	4 x 2 x AWG24/7	1.05	8.9	52	106
PVC						
2170591	ETHERLINE® PN Cat.6$_A$ Y FD FC	4 x 2 x AWG24/7	1.05	8.9	52	106

Unless specifi ed otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the defi nition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

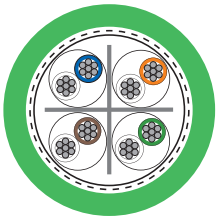
ETHERLINE® TORSION Cat.6$_A$

Highly flexible application

Info

- Industrial Ethernet Cable, 4-pair, suitable for torsion stress
- Cat.6$_A$ acc. to ISO/IEC 11801
- For PROFINET applications





2170482/2170483

Benefits

- Many applications with Industrial Ethernet, e.g. PROFINET, i.e. fixed installation, flexible use as well as TORSION.
- 4pair: 100Mbit/s up to 10 Gbit/s for Industrial Ethernet
- Premium screening against electromagnetic interference
- Can be used for Industrial Ethernet in harsh industrial environments

Application range

- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)
- Can be used for Industrial Ethernet in harsh industrial environments
- Suitable for EtherCAT and EtherNet/IP applications

Product features

- PUR version is halogen-free according to VDE 0472-815
- Oil-resistant acc. IEC 60811-2-1
- Cable suitable for high torsion stress. Tested with more than 1 million bending cycles and a right/left movement of 180° per metre.
- Meets the requirements according to CAT.6$_A$, ISO/IEC 11801 and EN 50173

Norm references / Approvals

- Electrical requirements acc. to IEC 61156-6
- PUR cable is UL/CSA-certified (CMG)
- PUR versions: UL AWM Style 21576
- PVC cable is UL/CSA-certified (CM)
- Flame retardant acc. to IEC 60332-1-2

Product Make-up

- 7-wire tinned stranded copper conductor
- Core insulation made of polyethylene (PE)
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Outer sheath: PUR/PVC
- Colour: green (based on RAL 6018)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Minimum bending radius
Fixed installation: 8 x cable diameter
Flexing: 15 x outer diameter

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-6

Temperature range
Cable with PUR jacket
Fixed installation: -40°C to +80°C
Flexing: -30°C to +70°C
Cable with PVC jacket
Fixed installation: -40°C to +80°C
Flexing: -10°C to +70°C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter mm	Copper index (kg/km)	Weight (kg/km)
PVC jacket						
2170482	ETHERLINE® TORSION Y CAT6$_A$	4 x 2 x AWG24/7	1.3	8.9	44	88
PUR outer sheath, halogen-free						
2170483	ETHERLINE® TORSION P CAT6$_A$	4 x 2 x AWG24/7	1.3	8.9	44	90

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
UL certifications can be found in the data sheet.

ETHERLINE® Cabinet Cat.6$_A$ Patchcords



Info

- Additional variants are available on request
- Based on 2170934

Benefits

- Rapid information exchange at up to 10 Gbit/s over 60 m thanks to Cat.6$_A$ Ethernet
- Cable assembled on both sides saves time and eliminates the potential for errors during on-site assembly
- The narrow RJ45 connector allows use in devices with a very high port density
- Cable design allows small bending radii and is optimal for space-saving installation in confined spaces
- Ideal protection against electromagnetic interference due to pair screening with aluminium compound foil and copper screening braiding as overall screening (S/FTP)
- UL/CSA certification according to technical data enables the product to be used in the North American market
- Durable, resistant product thanks to the outer sheath PU material that is resistant to abrasions, notches and cuts
- Halogen-free sheath compound to meet special fire safety requirements

Application range

- For control cabinet cabling in the PROFINET network
- Also suitable for EtherCAT and EtherNet/IP applications
- Can be used in dry rooms
- The PUR outer sheath is resistant to mineral oil-based lubricants and highly resistant to chemicals
- Flexible use at temperatures down to -40°C

Technical data

Classification ETIM 5/6
ETIM 5.0 Class-ID: EC002599
ETIM 5.0 Class-Description: Patch cord copper (twisted pair) industry

Minimum bending radius
Flexfing: 10 x outer dfiameter
Fixed finstaflflatfion: 4 x outer dfiameter

Protection rating
IP20

Temperature range
-40°C to +70°C

Article number	Article designation	Connector 1	Connector 2	Length m
ETHERLINE® CABINET Cat.6$_A$ Patchcords				
2170570	ETHERLINE® PN CABINET Cat.6$_A$ 0.25	RJ 45 Plug Straight	RJ 45 Plug Straight	0.25
2170551	ETHERLINE® PN CABINET Cat.6$_A$ 0.4	RJ 45 Plug Straight	RJ 45 Plug Straight	0.4
2170571	ETHERLINE® PN CABINET Cat.6$_A$ 0.5	RJ 45 Plug Straight	RJ 45 Plug Straight	0.5
2170552	ETHERLINE® PN CABINET Cat.6$_A$ 0.7	RJ 45 Plug Straight	RJ 45 Plug Straight	0.7
2170572	ETHERLINE® PN CABINET Cat.6$_A$ 1	RJ 45 Plug Straight	RJ 45 Plug Straight	1
2170573	ETHERLINE® PN CABINET Cat.6$_A$ 1.5	RJ 45 Plug Straight	RJ 45 Plug Straight	1.5
2170554	ETHERLINE® PN CABINET Cat.6$_A$ 1.8	RJ 45 Plug Straight	RJ 45 Plug Straight	1.8
2170574	ETHERLINE® PN CABINET Cat.6$_A$ 2	RJ 45 Plug Straight	RJ 45 Plug Straight	2
2170575	ETHERLINE® PN Cabinet Cat.6$_A$ 2,5	RJ 45 Plug Straight	RJ 45 Plug Straight	2.5
2170576	ETHERLINE® PN CABINET Cat.6$_A$ 3	RJ 45 Plug Straight	RJ 45 Plug Straight	3
2170577	ETHERLINE® PN CABINET Cat.6$_A$ 4	RJ 45 Plug Straight	RJ 45 Plug Straight	4
2170578	ETHERLINE® PN CABINET Cat.6$_A$ 5	RJ 45 Plug Straight	RJ 45 Plug Straight	5
2170579	ETHERLINE® PN CABINET Cat.6$_A$ 7.5	RJ 45 Plug Straight	RJ 45 Plug Straight	7.5
2170579	ETHERLINE® PN CABINET Cat.6$_A$ 10	RJ 45 Plug Straight	RJ 45 Plug Straight	10
2170579	ETHERLINE® PN CABINET Cat.6$_A$ 15	RJ 45 Plug Straight	RJ 45 Plug Straight	15
2170579	ETHERLINE® PN CABINET Cat.6$_A$ 20	RJ 45 Plug Straight	RJ 45 Plug Straight	20
21706020	ETHERLINE® PN CABINET Cat.6$_A$ 25	RJ 45 Plug Straight	RJ 45 Plug Straight	25

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Unless specifi ed otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Other lengths are available upon request.

Accessories

- Coloured Clips for ETHERLINE® Patchcords

ETHERLINE® TORSION Cat.6$_A$ Patch cables

Info

- Additional variants are available on request
- Based on 2170481



Benefits

- Non-permanent connections allow for easy change of equipment
- For directly connecting two electric components

Application range

- Suitable for torsional applications which are typical for the loop in wind turbine generators (WTG)
- Suitable for EtherCAT and EtherNet/IP applications
- Suitable for use in industrial applications
- For indoor use

Product features

- Meets the requirements according to Cat.6$_A$ and class E$_A$
- Suitable for torsion stress

Product Make-up

- Braided conductor, 4x2x AWG24/7
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Outer sheath made of PUR, 9.4mm in diameter
- Colour: green (based on RAL 6018)

Technical data

Classification
ETIM 5.0 Class-ID: EC002599
ETIM 5.0 Class-Description: Patch cord copper (twisted pair) industry

Minimum bending radius
Flexing: 15 x outer diameter
Fixed installation: 8 x outer diameter

Protection rating
IP 67

Temperature range
Flexing: -30°C to +70°C
Fixed installation: -30°C to +80°C

Coding
M12: X-Standard

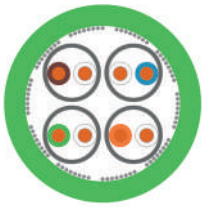
		M12, plug, straight	M12, socket, straight	Open end
					
	Length	Article number		
M12, plug, straight 	1.0m	2172264	2172278	2172271
	2.0m	2172265	2172279	2172272
	3.0m	2172266	2172280	2172273
	5.0m	2172267	2172281	2172274
	10.0m	2172268	2172282	2172275
M12, socket, straight 	1.0m	2172278	2172292	2172285
	2.0m	2172279	2172293	2172286
	3.0m	2172280	2172294	2172287
	5.0m	2172281	2172295	2172288
	10.0m	2172282	2172296	2172289

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Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Other lengths are available upon request.

ETHERLINE® Cat.7

Ethernet cable Category 7, Class F for fixed installation - verified up to 600 MHz





2170474/2170476/2170475

Info

- Industrial Ethernet cable
- For PROFINET applications with 4 pairs
- Cat.7 qualified for 10Gbit/s

Benefits

- Cat. 7 performance up to 10 Gbit/s.
- For transmission of analogue and digital signals in the frequency range up to 600 MHz
- Power over Ethernet-capable cable for simultaneous power and data supply of smaller network components with low energy requirements (e.g. IP cameras, wireless access points)
- Available with robust PVC outer sheath, abrasion-resistant PU outer sheath or halogen free FRNC outer sheat
- Ideal protection against electromagnetic interference due to pair screening with aluminium compound foil and copper screening braiding as overall screening (S /FTP)

Application range

- For fixed installation in the PROFINET network (type A)
- For structured building cabling according to EN 50173 and ISO/IEC 11801
- Also suitable for EtherCAT and EtherNet/IP applications

Technical data

Peak operating voltage
(not for power applications) 100 V

Minimum bending radius
Fixed installation: 10 x outer diameter

Test voltage
Core/core: 700 V
Core/screen: 700 V

Characteristic impedance
100 ± 5 Ω (>1MHz)

Temperature range
PVC/FRNC: -30 °C up to +80 °C
PUR: -40°C to +80°C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter mm	Copper index (kg/km)	Weight (kg/km)
PVC jacket						
2170474	ETHERLINE® CAT.7 Y	4 x 2 x AWG22/1	1.5	8.7	53	98
Halogen-free jacket						
2170476	ETHERLINE® CAT.7 H	4 x 2 x AWG22/1	1.5	8.7	53	91
PUR						
2170475	ETHERLINE® CAT.7 P	4 x 2 x AWG22/1	1.5	8.7	53	99

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the defi nition and calculation of copper-related surcharges.
Lapp Kabel is a member of the PROFIBUS user organisation (PNO)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

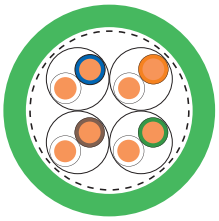
ETHERLINE® PN Cat.7

Ethernet cable Category 7, Class F for fixed installation - verified up to 600 MHz

Info

- Industrial Ethernet cable
- For PROFINET applications with 4 pairs
- Cat.7 qualified for 10Gbit/s





2170605/2170606/2170607

Benefits

- Can be used in dry or damp rooms
- Screened against interference
- Can be used for Industrial Ethernet in harsh industrial environments
- 4pair: 100Mbit/s up to 10 Gbit/s for Industrial Ethernet

Application range

- For industrial secondary and tertiary cabling according to EN 50173-3 ISO/IEC 24702
- Wiring of machines, tools, devices, appliances and control cabinets
- Suitable for EtherCAT and EtherNet/IP applications

Product features

- PUR outer sheath is highly resistant to mineral oils and abrasion
- Robust, halogen-free FRNC outer sheath
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference

Norm references / Approvals

- Flame retardant acc. to IEC 60332-1-2
- Oil-resistant acc. IEC 60811-2-1
- PVC version (UL) CL3 ST1 SUN RES FT4 acc. to. UL 13 c(UL)us CMG 75°C acc. to. UL 444 and CSA C22.2 No. 214

Product Make-up

- Solid bare copper wire AWG23
- Core insulation: foamed polyethylen (PE)
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Colour: green (based on RAL 6018)

Technical data

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Fixed installation: 8 x outer diameter

Test voltage
Core/core: 1500 V rms
Core/screen: 1500 V eff.

Characteristic impedance
100 ± 5 Ω (>1MHz)

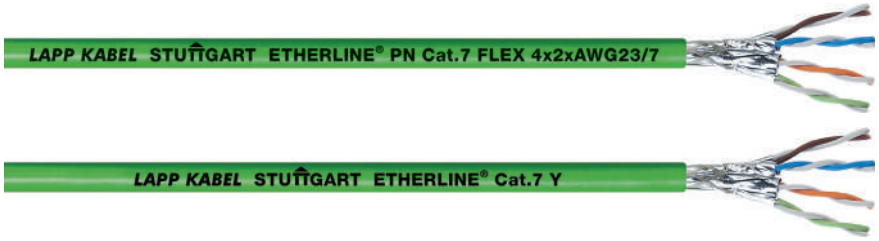
Temperature range
PVC/FRNC: -30 °C up to +80 °C
PUR: -40°C to +80°C

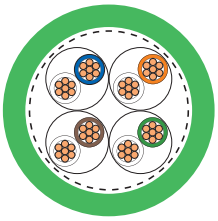
Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter mm	Copper index (kg/km)	Weight (kg/km)
ETHERLINE® PN Cat.7						
2170605	ETHERLINE® PN CAT.7 Y A	4 x 2 x AWG23/1	1.4	8.1	40	80
2170606	ETHERLINE® PN CAT.7 FRNC A	4 x 2 x AWG23/1	1.4	8.1	40	80
2170607	ETHERLINE® PN CAT.7 P A	4 x 2 x AWG23/1	1.4	8.1	40	80

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Lapp Kabel is a member of the PROFIBUS user organisation (PNO)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ETHERLINE® PN Cat.7 FLEX

Ethernet cable Category 7, Class F for flexible application - verified up to 600 MHz





2170609/2170608

Info

- Industrial Ethernet cable
- For PROFINET applications with 4 pairs
- Cat.7 qualified for 10Gbit/s

Benefits

- Can be used in dry or damp rooms
- Screened against interference
- Can be used for Industrial Ethernet in harsh industrial environments
- 4pair: 100Mbit/s up to 10 Gbit/s for Industrial Ethernet

Application range

- For industrial secondary and tertiary cabling according to EN 50173-3 ISO/IEC 24702
- Wiring of machines, tools, devices, appliances and control cabinets
- Suitable for EtherCAT and EtherNet/IP applications

Product features

- FRNC Version: Halogene free and flame retardant
- The oil-resistant PVC sheath enables usage in industrial environments
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference

Norm references / Approvals

- Flame retardant acc. to IEC 60332-1-2
- PVC version with UL CL3 ST-1 approval and CMG listing

Product Make-up

- 7-wire bare stranded copper conductor
- Core insulation: foamed polyethylen (PE)
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Colour: green (based on RAL 6018)

Technical data

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Fixed installation: 4 x outer diameter
Flexing: 8 x outer diameter

Test voltage
Core/core: 1500 V rms
Core/screen: 1500 V eff.

Characteristic impedance
100 Ω ± 5 Ohm (> 1 MHz)

Temperature range
Fixed installation: -30°C to +80°C
Occasional flexing: -5°C to +50°C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter mm	Copper index (kg/km)
ETHERLINE® PN Cat.7 FLEX					
2170609	ETHERLINE® PN CAT.7 FRNC FLEX A	4x2xAWG23/7	1.5	8.7	45
2170608	ETHERLINE® PN CAT.7 Y FLEX A	4x2xAWG23/7	1.5	8.7	45

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

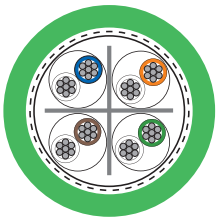
ETHERLINE® TORSION Cat.7

Highly flexible application

Info

- For Torsion applications (±180°)
- For PROFINET applications with 4 pairs
- Cat.7 qualified for 10Gbit/s





2170481

Benefits

- Many applications with Industrial Ethernet, e.g. PROFINET, i.e. fixed installation, flexible use as well as TORSION.
- 4pair: 100Mbit/s up to 10 Gbit/s for Industrial Ethernet
- Premium screening against electromagnetic interference
- Can be used for Industrial Ethernet in harsh industrial environments

Application range

- For industrial secondary and tertiary cabling according to EN 50173-3 ISO/IEC 24702
- Wiring of machines, tools, devices, appliances and control cabinets
- Suitable for EtherCAT and EtherNet/IP applications

Product features

- Halogen-free according to IEC 60754-1
- Oil-resistant acc. IEC 60811-2-1
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference
- Cable suitable for high torsion stress. Tested with up to 5 million bending cycles and a right/left movement of 180° per metre

Norm references / Approvals

- Electrical requirements acc. to IEC 61156-6
- UL/CSA-certified (CMX)
- UL AWM Style 21576
- Flame-retardant according IEC 60332-1-2

Product Make-up

- 7-wire tinned stranded copper conductor
- Core insulation made of polyethylene (PE)
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Outer sheath made of PUR
- Colour: green (based on RAL 6018)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Fixed installation: 8 x outer diameter
Flexing: 15 x outer diameter

Characteristic impedance
100 ± 5 Ohm (> 1 MHz)

Temperature range
Fixed installation: -40°C to +80°C
Flexing: -30°C to +70°C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter mm	Copper index (kg/km)	Weight (kg/km)
ETHERLINE® TORSION Cat.7						
2170481	ETHERLINE® TORSION Cat.7	4x2xAWG24/7	1.4	9.4	44	95

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
UL certifications can be found in the data sheet.

ETHERLINE® PN Cat.7 FD

Highly flexible application





2170487

Info

- For PROFINET applications with 4 pairs
- For Cable chain Applications
- Cat.7 qualified for 10Gbit/s

Benefits

- Cat. 7 performance up to 10 Gbit/s.
- For transmission of analogue and digital signals in the frequency range up to 600 MHz
- Successfully tested for over 3.0 million bending cycles in cable chains
- UL/CSA certification according to technical data enables the product to be used in the North American market
- Power over Ethernet-capable cable for simultaneous power and data supply of smaller network components with low energy requirements (e.g. IP cameras, wireless access points)
- Ideal protection against electromagnetic interference through pair shielding with aluminum composite foil and double overall shielding made of aluminum-clad foil and copper shielding braid with high coverage (SF/FTP)
- Fast information exchange through Ethernet technology

Application range

- For highly flexible, continuously flexing use in moving machine parts and in the cable chain in the PROFINET network (type C)
- Also suitable for EtherCAT and EtherNet/IP applications
- Can be used in dry and damp environments

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
(not for power applications) 100 V

Minimum bending radius
Fixed installation: 8 x outer diameter
Flexing: 15 x outer diameter

Characteristic impedance
100 ± 5 Ω (>1MHz)

Temperature range
Fixed installation: -40°C to +80°C
Flexfing: -10°C to +70°C
c(UL)us CMX: 75 °C
cRUus AWM: 80 °C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter mm	Copper index (kg/km)	Weight (kg/km)
ETHERLINE® PN Cat.7 FD						
2170487	ETHERLINE® PN Cat.7 FD P 4x2x24/7AWG	4 x 2 x AWG24/7	1.4	9.4	44	98

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
UL certifi cations can be found in the data sheet.

ETHERLINE® T1 FLEX

Single Pair Ethernet cable; Flexible; Ethernet; PROFINET® application: Type B

Info

- Single Pair Ethernet
- 1000BASE-T1 (IEEE 802.3bp) and other
- Flexible use





2170925

Benefits

- Fast information exchange thanks to future-proof Single Pair Ethernet (SPE) technology for a consistent and uniform network infrastructure right up to the field level
- Ethernet networking of the field devices enables real-time data collection and analysis as well as providing a wealth of additional information (big data) for process optimisation (e.g. predictive maintenance)
- Complete interoperability of field devices and systems from various manufacturers thanks to seamless connection to the Industrial Ethernet network
- For the transmission of analogue and digital signals in the frequency range up to 600 MHz and up to 40 m distance
- Single-paired cable design saves weight and space. Small bending radii and outer diameters are essential for connection to the field level
- Power over Data Line (PoDL)-capable cable according to IEEE 802.3bu for simultaneous power and data supply of SPE terminal devices with low energy requirements (up to 50 W)
- Ideal protection against electromagnetic interference thanks to double screening made of aluminium-laminated foil and copper screening braiding with high degree of coverage (SF/UTP)
- UL certification according to technical data enables the product to be used on the North American market

Application range

- For structured building cabling according to DIN EN 50173 and ISO/IEC 11801
- For Single Pair Ethernet (SPE) applications 100Base-T1 according to IEEE 802.3bw and 1000Base-T1 according to IEEE 802.3bp
- Also available as a Power Limited Tray Cable (PLTC) variant listed according to UL for open installation on cable trays
- For fixed installation and occasional flexing
- Can be used in dry and damp rooms
- Suitable for medium mechanical stress
- The PVC outer sheath is resistant to acids and alkalis and has limited oil resistance

Technical data

Peak operating voltage
125V (not intended to be used in sources, such as power grids) conjunction with low impedance

Minimum bending radius
Fixed installation: 4 × outer diameter
Occasional flexing: 8 × outer diameter

Test voltage
Core/core: 2000 V
Core/screen: 2000 V

Characteristic impedance
100 ± 5 Ω (>1MHz)

Temperature range
Fixed installation: -40 °C up to +80 °C
Occasional flexing: -10 °C up to +70 °C
UL: 75 °C acc. to UL 13 and UL 444
80 °C acc. to UL 758

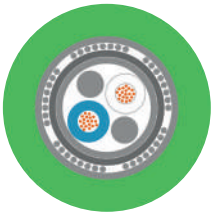
Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter mm	Copper index (kg/km)	Weight (kg/km)
ETHERLINE® PN Cat.7						
2170922	ETHERLINE® T1 PN FLEX Y 1x2x22/7AWG	1 x 2 x AWG22/7	1.55	5.5	20	43.3
2170924	ETHERLINE® T1 FLEX 1x2x22/7AWG	1 x 2 x AWG22/7	1.6	5.8	20	42
2170925	ETHERLINE® T1 FLEX Y 1x2x26/7AWG	1 x 2 x AWG22/7	1.05	4.6	11.9	30.1

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the defi nition and calculation of copper-related surcharges.
Lapp Kabel is a member of the PROFIBUS user organisation (PNO)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ETHERLINE® T1 FD

Single Pair Ethernet cable; Cable chain, Flexible; SF/UTP; PUR; Halogenfree





2170920

Info

- Single Pair Ethernet
- 100BASE-T1 (IEEE 802.3bw) and other
- Highly flexible

Benefits

- Fast information exchange thanks to future-proof Single Pair Ethernet (SPE) technology for a consistent and uniform network infrastructure right up to thefield level
- Ethernet networking of the field devices enables real-time data collection andanalysis as well as providing a wealth of additional information (big data) forprocess optimisation (e.g. predictive maintenance)
- Complete interoperability of field devices and systems from various manufacturers thanks to seamless connection to the Industrial Ethernet network
- Successfully tested for over 3.0 million bending cycles in cable chains
- For the transmission of analogue and digital signals in the frequency range up to 600 MHz and up to 40 m distance
- Single-paired cable design saves weight and space. Small bending radii and outer diameters are essential for connection to the field level
- Power over Data Line (PoDL)-capable cable according to IEEE 802.3bu for simultaneous power and data supply of SPE terminal devices with low energy requirements (up to 50 W)
- Ideal protection against electromagnetic interference thanks to double screening made of aluminium-laminated foil and copper screening braiding with high degree of coverage (SF/UTP)
- UL certification according to technical data enables the product to be used on the North American market

Application range

- For structured building cabling according to DIN EN 50173 and ISO/IEC 11801
- For Single Pair Ethernet (SPE) applications 100Base-T1 according to IEEE 802.3bw and 1000Base-T1 according to IEEE 802.3bp
- Cable design allows highly flexible, continuously flexing use in moving machine parts and in the cable chain
- Can be used in dry, damp and, especially, harsh and oily environments
- The PUR outer sheath withstands high mechanical loads
- The PUR outer sheath is resistant to mineral oil-based lubricants and highly resistant to chemicals

Technical data

Peak operating voltage
125V (not intended to be used in sources, such as power grids) conjunction with low impedance

Minimum bending radius
Fixed installation: 4 x outer diameter
Flexing: 8 x outer diameter

Test voltage
Core/core: 2000 V
Core/screen: 2000 V

Characteristic impedance
100 ± 5 Ω (>1MHz)

Temperature range
Fixed installation: -40°C to +80°C
Continuos flexing: -20 °C up to +60 °C
UL: 80 °C acc. to UL 758

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter mm	Copper index (kg/km)	Weight (kg/km)
ETHERLINE® T1 FD						
2170920	ETHERLINE® T1 FD P 1x2x26/19AWG	1 x 2 x AWG26/19	1.05	4.6	12.3	27.4

Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the defi nition and calculation of copper-related surcharges.
Lapp Kabel is a member of the PROFIBUS user organisation (PNO)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

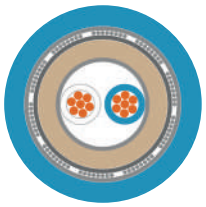
ETHERLINE® T1L - T1L FLEX

Shielded Ethernet APL data cable for the process industry, with Just “Fast Connected” design and UL approval

Info

- Industrial Ethernet cable
- For potentially explosive areas
- 10Base-T1-L according to IEEE 802.3cg





2170919

Benefits

- Ethernet Advanced Physical Layer (Ethernet-APL) enables data transmission via Ethernet up to the field level in potentially explosive environments in the process industry
- Fast and efficient transmission of large data volumes via Ethernet at 10 Mbit/s for bridging long distances (trunk length up to 1000 m or spurs up to 200 m)
- Complete interoperability of field devices and systems from various manufacturers thanks to seamless connection to the Industrial Ethernet network
- Ethernet networking of the field devices enables real-time data collection and analysis as well as providing a wealth of additional information (big data) for process optimisation (e.g. predictive maintenance)
- Ethernet APL supports the “intrinsically safe” ignition protection type and is based on the 2-WISE (2-Wire Intrinsically Safe Ethernet) concept according to IEC TS 60079-47. This achieves an explosion-protection technology with a high level of protection
- Power over Data Line (PoDL)-capable cable according to IEEE 802.3bu for simultaneous power and data supply of SPE terminal devices with low energy requirements (up to 50 W)
- The “Fast Connected” structure with inner sheath enables easy stripping and assembly of the cable
- Ideal protection against electromagnetic interference thanks to double screening made of aluminium-laminated foil and copper screening braiding with high degree of coverage (SF/UTP) UL/CSA certification according to technical data enables the product to be used in the North American market

Application range

- For structured building cabling according to DIN EN 50173 and ISO/IEC 11801
- Especially suitable for long transmission distances of up to 1000 m according to IEC 61156-13
- For Single Pair Ethernet (SPE) applications 10Base-T1L according to IEEE 802.3cg
- Especially for challenging applications in the process industry
- Listed as a Power Limited Tray Cable (PLTC) according to UL, for open installation on cable trays
- For fixed installation
- Can be used in dry and damp environments
- Suitable for medium mechanical stress
- The PVC outer sheath is resistant to acids and alkalis and has limited oil resistance

Technical data

Peak operating voltage
125V (not intended to be used in conjunction with low impedance sources, such as power grids)

Minimum bending radius
Fixed installation: 4 × outer diameter
Occasional flexing: 8 × outer diameter

Test voltage
Core/core: 2000 V
Core/screen: 2000 V

Characteristic impedance
100 ± 5 Ω (>1MHz)

Temperature range
Fixed installation: -40°C up to +80°C
Occasional flexing: -10°C up to +70°C
UL: 80°C acc. to UL 758

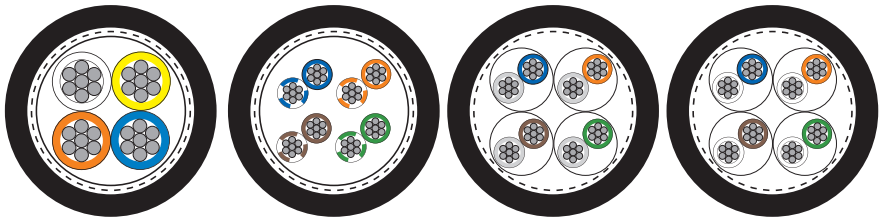
Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter mm	Copper index (kg/km)
ETHERLINE® T1L					
2170918	ETHERLINE® T1L FC Y 1x2x18/1AWG	1 x 2 x 18/1AWG	2.55	8	0.001
ETHERLINE® T1L FLEX					
2170919	ETHERLINE® T1L FLEX FC Y 1x2x18/7AWG	1 x 2 x 18/7AWG	2.55	8	0.001

Unless specifi ed otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the defi nition and calculation of copper-related surcharges.
Please fi nd our standard lengths at: www.lapp.com
Packaging size: coil ≤ 30 kg or ≤ 250 m, otherwise drum
Please specify the preferred type of packaging (e.g. 1 x 500 m drum or 5 x 100 m coils).
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ETHERLINE® TRAIN

Ethernet cables according to EN 50264-3-1 Type XM for high requirements in railway applications





2170906/2170910 | 2170907 | 2170908 | 2170909

Info

- Meets EN 50264-3-2 type XM and EN 45545-2
- Cat.5e Performance up to 100 / 1000 MBit/s
  Cat.6_A & Cat.7 qualified for 10 GBit/s

Benefits

- Good chemical resistance
- Resistant to mechanical influences in harsh environmental conditions
- Extended temperature range
- Reduced flame spreading increases the protection against damage to persons and property in the event of a fire

Application range

- For use in railway vehicles and buses, for fixed installations and applications where limited movement may occur
- Suitable for connecting to of e.g. camera systems, enter-/ infotainment for passengers, ticketing systems
- Also applicable within oily environments and areas with increased ambient temperature

Product features

- Fire behaviour according to EN/IEC:
  - Halogen-free acc. to EN 60754-1
  - No corrosive gases acc. to EN 60754-2
  - No fluorine acc. to EN 60684-2
  - No toxic gases acc. to EN 50305
  - Low smoke density acc. to EN 61034-2
  - Flame-retardant acc. to EN 60332-1-2
  - No fl ame propagation acc. to EN 60332-3-25
- Fire behaviour according to NF:
  - Toxicity of gases acc. to NF X 70-100
  - Low smoke density acc. to NF X 10-702
  - No flame propagation acc. to NF C 32-070, Cat. C1 and C2
- Chemical properties:
  - Oil resistant acc. to EN 50264-1
  - Fuel resistant acc. to EN 50264-1
  - Acid resistant acc. to EN 50264-1
  - Alkali resistant acc. to EN 50264-1
  - Ozone resistant acc. to EN 50264-3-2

Norm references / Approvals

- Electrical requirements acc. to IEC 61156-6
- EN 50264-1
- EN 45545-2 HL1, HL2, HL3

Product Make-up

- 7-wire tinned stranded copper conductor
- Core insulation: Based on Polyolefin
- Cat.5e: SF/UTP - copper braid and foil screening as overall screening
- Cat.6_A/Cat.7: S/FTP - copper braid as overall screening and pair screening with aluminium compound foil
- Outer sheath: electron beam cross-linked polymer-compound EM 104
- Outer sheath colour: Black

Technical data

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Flexing: 10 x outer diameter
Fixed installation: 8 x outer diameter

Test voltage
Core/core: 1000 V
Core/screen: 1000 V

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-6

Temperature range
Fixed installation:
-45°C to +90°C
Flexing: -35°C up to +90°C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter mm	Copper index (kg/km)	Weight (kg/km)
Cat.5e, 2-pair version						
2170906	ETHERLINE TRAIN FLEX Cat.5e 1x4x22/7 PE	1x4xAWG22/7	1.5	6.5	30	62
2170910	ETHERLINE TRAIN FLEX Cat.5e 1x4x0,5 PE	1x4x0,5/7	2	7.6	41	83
Cat.5e, 4-pair version						
2170907	ETHERLINE TRAIN Cat.5e 4x2x24/7 PE	4x2xAWG24/7	1.2	7.7	38	76
Cat.6_A						
2170908	ETHERLINE TRAIN FLEX Cat.6_A 4x2x24/7 PE	4x2xAWG24/7	1.4	8.4	38	75
Cat.7						
2170909	ETHERLINE TRAIN FLEX Cat.7 4x2x24/7 PE	4x2xAWG24/7	1.4	8.4	43	75

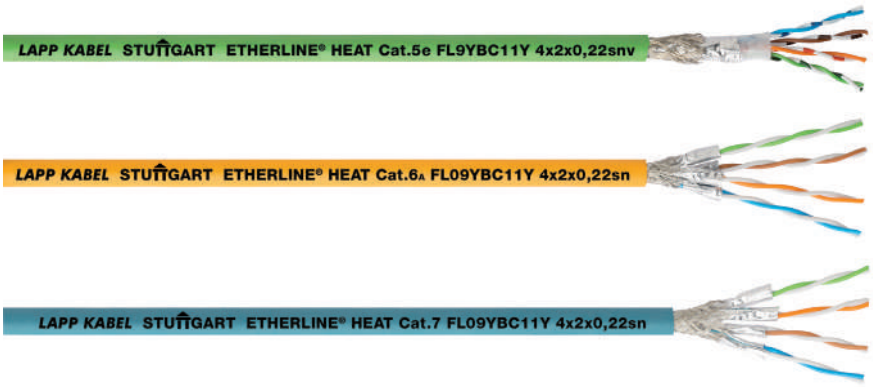
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/ 100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

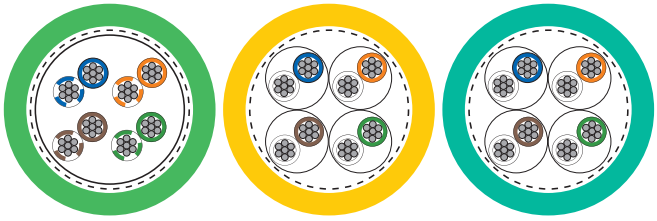
PROFINET EtherNet/IP

ETHERLINE® HEAT 6722

Info

- Designed according to ISO 6722
- Tested acc.to ECE-R 118.01
- For PROFINET applications





2170805 2170581 2170582

Benefits

- Easy to strip and dismantle
- Extended temperature range
- Good resistance to oil, petrol, acids and alkalis
- Abrasion and cut-resistant, halogen-free, oil-resistant
- Reduction of flame propagation, density and toxicity of smoke gases in event of fire

Application range

- For flexible applications (7-wire stranded conductor)
- For fixed, flexible and protected installations inside buses
- Suitable for connecting to of e.g. camera systems, enter-/ infotainment for passengers, ticketing systems
- 4pair: 100Mbit/s up to 10 Gbit/s for Industrial Ethernet

Product features

- Good chemical resistance
- Flame retardant acc. to ISO 6722-1
- Temperature class B on the basis of ISO 6722-1

Norm references / Approvals

- DIN/ISO 6722
- Electrical requirements acc. to IEC 61156-6
- Tested acc.to ECE-R 118.01
- LV 112-1, LV 212-2, LV 213-2

Product Make-up

- Stranded tinned 7-wire conductor
- Core insulation: Based on Polyolefin
- Colour-coded in accordance with EIA/TIA 568A and B
- Cat.5e: SF/UTP - copper braid and foil screening as overall screening
- Cat.6$_A$/Cat.7: S/FTP - copper braid as overall screening and pair screening with aluminium compound foil
- Outer sheath: PUR compound, halogen-free
- Outer sheath colour:
  Cat.5e green (RAL 6018)
  Cat.6$_A$ yellow (RAL 1003)
  Cat.7 blue (RAL 5021)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Flexing: 15 x outer diameter
Fixed installation: 10 x outer diameter

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-6

Temperature range
Fixed installation: -40 °C to +105 °C
Flexing: -30 °C to +105 °C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter mm	Copper index (kg/km)	Weight (kg/km)
ETHERLINE® HEAT 6722						
2170850	ETHERLINE® Cat. 5e FL9YBC11Y 4x2x0,22sn	4x2xAWG24/7	1.2	7.7	38	72
2170581	ETHERLINE® Cat. 6$_A$ FL09YBC11Y 4x2x0,22sn	4x2xAWG24/7	1.3	8.1	38	77
2170582	ETHERLINE® Cat. 7 FL09YBC11Y 4x2x0,22sn	4x2xAWG24/7	1.3	8.1	38	77

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

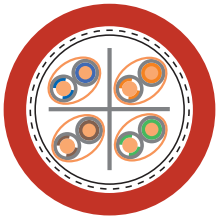
ETHERLINE® FIRE

Industrial Ethernet cable with insulation integrity





2170905



2170913

Info

- Insulation integrity for at least 120 minutes in the event of fire

Benefits

- Ensures that the cable can still transmit data during and after a fire for 120 min (according to EN50200)
- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference

Application range

- In industrial areas that use fire as a tool
- Highly combustible or fire-prone areas
- For fixed installation
- For indoor use

Product features

- Fire behaviour:
  - Halogen-free (IEC 60754-1 & EN50267-2-1)
  - Flame-retardant (IEC 60332-1)
  - Fire retardant (IEC 60332-3-24)
  - Low smoke density (IEC 61034-2)
  - Circuit integrity (EN50200); 120 min

Product Make-up

- Solid bare copper conductor
- Core insulation: Based on Polyolefin
- Each insulation will be wrapped with a special tape (anti-fire barrier)
- Twisting: 2 twisted-pair cores, stranding from 4 pairs
- Halogen-free and flame-retardant FRNC outer sheath, colour: red (similar to RAL3000)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Peak operating voltage
(not for power applications) 125 V

Minimum bending radius
Fixed installation: 15 x outer diameter

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-5

Temperature range
Fixed installation: -20°C to +70°C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter mm	Copper index (kg/km)	Weight (kg/km)
ETHERLINE® FIRE						
2170905	ETHERLINE® FIRE Cat.5e PH120	4 x 2 x AWG23/1	0.95	8.6	24	75
2170913	ETHERLINE® FIRE Cat.6 PH120	4 x 2 x AWG22/1	1.5	10.2	48	145

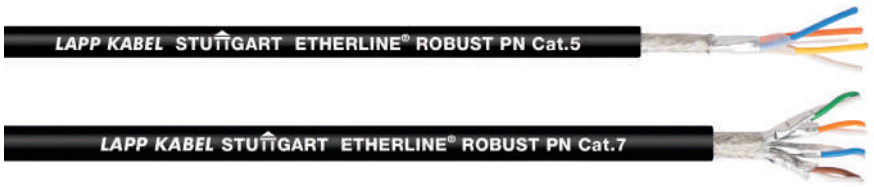
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
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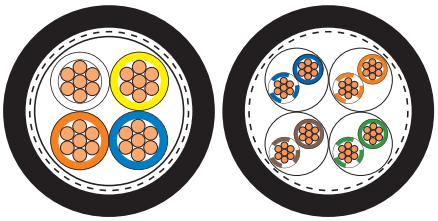
ETHERLINE® ROBUST

Flexible use

Info

- For PROFINET applications
- Good chemical resistance





2170451 2170452/2170453

Benefits

- Outstanding weather, ozone and UV resistance together with the wide temperature range enable versatile use for indoor and outdoor applications
- Resistant to contact with plant, animal or synthetic-based organic substances, oils, greases, waxes and the related emulsions
- Good resistance to ammonia compounds and bio-gases
- Good resistance to cold and hot water as well as water-soluble cleaning and cooling agents
- Well-suited to steam cleaning

Application range

- For flexible applications (7-wire stranded conductor)
- Machine tool building, medical technology, laundries, car washing equipment, chemical industry, composting plants, sewage works
- Food and beverage industry, especially for production and processing equipment of milk and meat products
- For industrial secondary and tertiary cabling according to EN 50173-3 ISO/IEC 24702

Product features

- UV-resistant according to ISO 4892-2
- Halogen-free materials
- Good chemical resistance to ester-based hydraulic fluids
- Ozone-resistant according to EN 50396
- Low smoke density according to IEC 61034-2

Product Make-up

- 7-wire bare stranded copper conductor
- Core insulation: Based on Polyolefin
- Screening: wrapped with braided tinned-copper wires
- Outer sheath made of special TPE
- Colour: black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Minimum bending radius
Fixed installation: 8 x outer diameter
Flexing: 10 x outer diameter

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-6

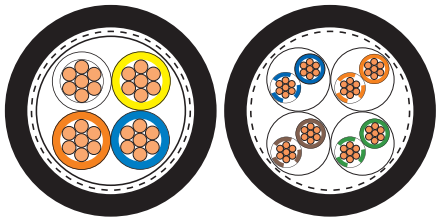
Temperature range
Fixed installation: -50°C to +80°C
Flexing: -40°C to +80°C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter mm	Copper index (kg/km)	Weight (kg/km)
PROFINET Cat.5e						
2170451	ETHERLINE® ROBUST PN Cat.5	2x2xAWG22/7	1.5	6.5	30.4	50
PROFINET Cat.7						
2170452	ETHERLINE® ROBUST PN Cat.7	4x2xAWG23/7	1.5	8.7	48	75
Industrial Ethernet Cat.7						
2170453	ETHERLINE® ROBUST Cat.7 FLEX	4x2xAWG26/7	1	6.2	27	36

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ETHERLINE® ROBUST FR





2170454 2170455/2170456

Info

- For PROFINET applications
- Flame-retardant

Benefits

- Outstanding weather, ozone and UV resistance together with the wide temperature range enable versatile use for indoor and outdoor applications
- Good resistance to cold and hot water as well as water-soluble cleaning and cooling agents
- Well-suited to steam cleaning

Application range

- For flexible applications (7-wire stranded conductor)
- Machine tool building, medical technology, laundries, car washing equipment, chemical industry, composting plants, sewage works
- Food and beverage industry, especially for production and processing equipment of milk and meat products
- For industrial secondary and tertiary cabling according to EN 50173-3 ISO/IEC 24702
- Suitable for EtherCAT and EtherNet/IP applications

Product features

- High-quality, double screening ensures high transmission reliability in areas with electromagnetic interference
- Flame retardance makes it suitable for indoor and outdoor installations
- 2pair: 10/100 Mbit/s for Industrial Ethernet
- 4pair: 100Mbit/s up to 10 Gbit/s for Industrial Ethernet
- Many applications with Industrial Ethernet, e.g. PROFINET type B, i.e. fixed installation and flexible use.

Norm references / Approvals

- UV-resistant according to ISO 4892-2
- Flame-retardant according IEC 60332-1-2
- Ozone-resistant according to EN 50396

Product Make-up

- 7-wire bare stranded copper conductor
- Core insulation: Based on Polyolefin
- Screening: wrapped with braided tinned-copper wires
- Outer sheath made of special TPE
- Colour: black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Minimum bending radius
Flexing: 10 x outer diameter
Fixed installation: 8 x outer diameter

Characteristic impedance
nom. 100 Ω acc. to IEC 61156-6

Temperature range
Fixed installation: -50°C to +80°C
Flexing: -40°C to +80°C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter mm	Copper index (kg/km)	Weight (kg/km)
PROFINET Cat.5e						
2170454	ETHERLINE® ROBUST PN FR Cat.5	2x2xAWG22/7	1.5	6.5	30.4	55
PROFINET Cat.7						
2170455	ETHERLINE® ROBUST PN FR Cat.7	4x2xAWG23/7	1.5	8.7	48	80
Industrial Ethernet Cat.7						
2170456	ETHERLINE® ROBUST FR Cat.7 FLEX	4x2xAWG26/7	1	6.2	27	40

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
PROFINET® is a registered trademark of the PNO (PROFIBUS user organisation)
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
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EPIC® DATA RJ45

Info

- Cat.6$_A$ acc. to ISO/IEC 11801
- Colour-coded assembly aid
- Installation without tools



Product features

- Field assembly Industrial Ethernet RJ45 connector
- Suitable for 10BASE-T / 100BASE-T / 1000BASE-T / 10GBASE-T
- Housing: zinc die-casting, grey
- 4 different angled cable outlets possible
- Suitable for use in industrial applications

Norm references / Approvals

- Cat.6$_A$ acc. to ISO/IEC 11801
- RJ45 acc. to IEC 60603-7-51
- UL-listed (E-File E353543)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001121
ETIM 5.0/6.0 Class-Description: Modular connector

Protection rating
IP 20

Ambient temperature (operation)
-40°C to +85°C

Article number	Design	Min. outer diameter (mm)	Max. outer diameter (mm)	Min. Core diameter in mm	Max. Core diameter in mm	PU	AWG solid	AWG 7-wire	AWG 19-wire
PROFINET colour-coding (2-pairs)									
21700605	Straight, latched	5	9	1	1.6	10	24 - 22	27 - 22	22*
21700651	Straight, screwed	5.5	10	1	1.6	1	24 - 22	27 - 22	22*
21700638	Angled, screwed	5.5	10	1	1.6	1	24 - 22	27 - 22	22*
colour-coded acc. to EIA/TIA 568A									
21700600	Straight, latched	5	9	1	1.6	10	24 - 22	27 - 22	
21700652	Straight, screwed	5.5	10	1	1.6	1	24 - 22	27 - 22	
21700636	Angled, screwed	5.5	10	1	1.6	1	24 - 22	27 - 22	
colour-coded acc. to EIA/TIA 568B									
21700601	Straight, latched	5	9	1	1.6	10	24 - 22	27 - 22	
21700653	Straight, screwed	5.5	10	1	1.6	1	24 - 22	27 - 22	
21700637	Angled, screwed	5.5	10	1	1.6	1	24 - 22	27 - 22	
colour-coded acc. to EIA/TIA 568A for small wire diameters									
21700615	Straight, latched	5	9	0.85	1.1	10	26 - 24	27 - 24	26*
21700654	Straight, screwed	5.5	10	0.85	1.1	1	26 - 24	27 - 24	26*
21700639	Angled, screwed	5.5	10	0.85	1.1	1	26 - 24	27 - 24	26*
colour-coded acc. to EIA/TIA 568B for small wire diameters									
21700616	Straight, latched	5	9	0.85	1.1	10	26 - 24	27 - 24	26*
21700655	Straight, screwed	5.5	10	0.85	1.1	1	26 - 24	27 - 24	26*
21700640	Angled, screwed	5.5	10	0.85	1.1	1	26 - 24	27 - 24	26*

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
An approval is necessary for 19-wire cables by Lapp Group
Approved cables: 2170289, 2170489 ETHERLINE® Cat.5e FD; CE217489 ETHERLINE® Cat.5 FD BK; 2170488 ETHERLINE® Cat.6 FD, Freigegebene Leitungen: 2170489 ETHERLINE® Cat.5e FD; CE217489 ETHERLINE® Cat.5 FD BK; 2170488 ETHERLINE® Cat.6 FD, 2170884 ETHERLINE® TORSION Cat.5

EPIC® DATA AX RJ45 Cat.6$_A$ IP68

RJ45 connector in IP68 housing


21700630


21700631


21700632


21700633

Info

- Cat.6$_A$ acc. to ISO/IEC 11801
- Installation without tools

Product features

- Housing: brass nickel plated
- Qualified for 10 Gigabit/s Ethernet
- Suitable for stranded cores with AWG27/7 -22/7 and for solid conductors with AWG26/1- 22/1

Norm references / Approvals

- UL-listed (E-File E353543)
- Cat.6$_A$ acc. to ISO/IEC 11801
- RJ45 acc. to IEC 60603-7-51

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002062
ETIM 5.0/6.0 Class-Description: Sensor-actuator connector

Protection rating
IP 68

Ambient temperature (operation)
-40°C to +85°C
circular housing: -40°C to +85°C

Article number	Article designation	PU
Protective housing (male) containing RJ45 connector (article 21700601)		
21700630	ED-IE-AX-RJ45-6$_A$-B-68-FC	1
Dust cap for Protective housing (male)		
21700631	ED-IE-AX-RJ45-AC-DC	10
Protective housing (female) containing RJ45 socket (article 21700612)		
21700632	ED-IE-RJ45F-6$_A$-B-68-FC	1
Dust cap for Protective housing (female)		
21700633	ED-IE-RJ45F-AC-DC	10

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Coloured Clips for ETHERLINE® Patchcords

Latch protection with colour coding; Polyoxymethylene; POM; white





Info

- Installation without tools
- Available in 11 different colors

Benefits

- Extends the latch of the RJ45 plug, thereby guaranteeing a better grip
- Serves for better colour identification on Ethernet cordsets when many lines of the same colour are used (e.g. in PROFINET network)
- Available in different colours

Application range

- For use in control cabinets
- For use with ETHERLINE® RJ45 cordsets from LAPP
- Especially for devices with a very high port density
- Especially for switches with deep inside sockets

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001121
ETIM 5.0/6.0 Class-Description: Modular connector

Protection rating
IP 20

Ambient temperature (operation)
-40°C to +70°C

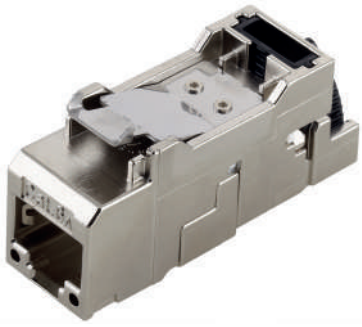
Article number	Article designation
2173014	IE-AC-RJ45-CCW
2173015	IE-AC-RJ45-CCR
2173016	IE-AC-RJ45-CCB
2173017	IE-AC-RJ45-CCY
2173018	IE-AC-RJ45-CCG
2173019	IE-AC-RJ45-CCB

Article number	Article designation
2173020	IE-AC-RJ45-CCO
2173021	IE-AC-RJ45-CCV
2173022	IE-AC-RJ45-CCG
2173023	IE-AC-RJ45-CCP
2173024	IE-AC-RJ45-CCB

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® DATA RJ45F Cat.6$_A$

RJ45 coupler



Info

- Cat.6$_A$ acc. to ISO/IEC 11801
- Installation without tools

Product features

- RJ45 according to IEC 60603-7-51
- Qualified for 10 Gigabit/s Ethernet
- Housing: zinc die-casting, grey
- Suitable for stranded cores with AWG27/7 -22/7 and for solid conductors with AWG26/1- 22/1
- Suitable for use in industrial applications
- Available with colour code T568A or T568B

Norm references / Approvals

- Cat.6$_A$ acc. to ISO/IEC 11801
- RJ45 acc. to IEC 60603-7-51
- UL-listed (E-File E353543)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001121
ETIM 5.0/6.0 Class-Description: Modular connector

Protection rating
IP 20

Ambient temperature (operation)
-40°C to +70°C

Article number	Article designation	Min. outer diameter (mm)	Max. outer diameter (mm)	Min. core diameter including insulation	Max. core diameter including insulation	PU
RJ45 coupler acc. to T568A						
21700611	ED-IE-AX-RJ45F-6$_A$-A-FC	5	9	0.9	1.6	24
RJ45 coupler acc. to T568B						
21700612	ED-IE-AX-RJ45F-6$_A$-B-FC	5	9	0.9	1.6	24

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® DATA HS RJ45F Cat.6$_A$

Rail mount adapter with RJ45 coupler

Product features

- Plastic housing including RJ45 coupler
- Suitable for use in industrial applications
- Colour: light grey (RAL 7035)
- Suitable for stranded cores with AWG27/7 -22/7 and for solid conductors with AWG26/1- 22/1

Norm references / Approvals

- RJ45 according to IEC 60603-7-51

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001121
ETIM 5.0/6.0 Class-Description: Modular connector

Protection rating
IP 20

Ambient temperature (operation)
-40°C to +70°C



Article number	Article designation	PU
DIN-rail adapter containing RJ45 socket acc. to T568A (article 21700611)		
21700613	EPIC DATA HS RJ45 F 10G A	5
DIN-rail adapter containing RJ45 socket acc. to T568B (article 21700612)		
21700614	EPIC DATA HS RJ45 F 10G B	5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® DATA M12D



21700647/21700648



22261016

Info

- Cat.5 acc. to ISO/IEC 11801
- Installation without tools

Product features

- Field assembly Industrial Ethernet connector
- Suitable for use in industrial applications
- Robust and vibrations- resistant
- Toolfree installation, small and compact design

Norm references / Approvals

- Cat.5 acc. to ISO/IEC 11801
- M12 D-coded acc. to IEC61076-2-101
- UL94-V0 HL3 R22/R24 according to EN 45545-2

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001121
ETIM 5.0/6.0 Class-Description: Modular connector

Protection rating
IP 67

Ambient temperature (operation)
-25°C to +85°C

Article number	Article designation	Min. outer diameter (mm)	Max. outer diameter (mm)	PU	AWG solid	AWG 7-wire
M12 D-coded plug, straight, colour coding acc. to PROFINET						
21700647	ED-IE-AX-M12D-5-PN-67-FC	6.2	9.7	1	26-22	26-22
M12 D-coded plug, straight, colour coding acc. to TIA 568						
21700648	ED-IE-AX-M12D-5-67	5	6.1	1	26-22	26-22
M12 D-coded socket, straight, TIA 568 colour coding						
22261016	AB-C4-M12FSD-SH	4	8	1	26-22	26-22

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® DATA M12X



21700602



21700621



21700622



44429476

Info

- Cat.6_A acc. to ISO/IEC 11801
- Installation without tools

Product features

- Field assembly Industrial Ethernet connector
- Qualified for 10 Gigabit/s Ethernet
- Suitable for use in industrial applications
- Robust and vibrations- resistant
- Housing: zinc die-casting, grey
- Toolfree installation, small and compact design

Norm references / Approvals

- Cat.6_A acc. to ISO/IEC 11801
- M12 X-coded acc. to IEC61076-2-109

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001121
ETIM 5.0/6.0 Class-Description: Modular connector

Protection rating
IP 67

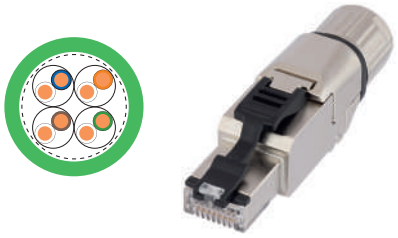
Ambient temperature (operation)
-40°C to +85°C

Article number	Article designation	Min. outer diameter (mm)	Max. outer diameter (mm)	Min. core diameter including insulation	Max. core diameter including insulation	PU	AWG solid	AWG 7-wire
M12 X-coded plug, straight								
381166928	ED-IE-AX-M12X-6_A-67-FC	5.5	9.0	0.9	1.6	1	24-22	27-22
M12 X-coded socket, straight								
381166927	ED-IE-AX-M12XF-6_A-67-FC	5.5	9.0	0.9	1.6	1	24-22	27-22
M12 X-coded socket, straight for wall mounting								
21700622	ED-IE-AX-M12XF-RM-6_A-67-FC	6.3	9.7	0.85	1.6	1	26-22	26-22
M12 X-coded plug, straight								
44429476	M12X8MSC	5.5	8.5			1	28-26	28-26

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ETHERLINE® ACCESS KIT PN6-RJ-1/Art. Nr. 21700135

Cat.7 fixed installation and RJ45 Cat.6_A connectors

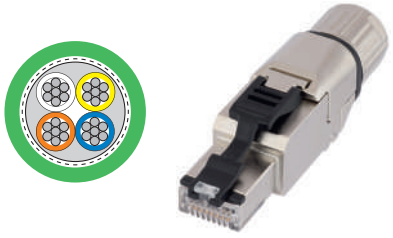


Cable ETHERLINE® PN Cat.7 Y		**Connector** ED-IE-AX-6_A-A-20-FC	
• Cat.7 • 4x2xAWG23/1 • PVC outer sheath • Feste installation • PROFINET® compliant		• RJ45, for strands AWG27/7- AWG22/7 • Cat.6_A • Tool-free assembly: Insulation displacement technology • PROFINET® colour coding • Metal housing	
Item no.	**Quantity**	**Item no.**	**Quantity**
2170605	500m	21700652	20 items

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ETHERLINE® ACCESS KIT PN5-RJ-1/Art. Nr. 21700132

PROFINET® Cat.5 flexible installation and RJ45 Cat.5 connectors



Cable ETHERLINE® PN Cat.5 Y FLEX FC		**Connector** ED-IE-AX-5-PN-20-FC	
• Cat.5 • 2x2xAWG22/7 • PVC outer sheath • Flexible installation • PROFINET® compliant		• RJ45, for strands AWG27/7-AWG22/7 • Cat.5 • Tool-free assembly: Insulation displacement technology • T568A colour coding • Metal housing	
Item no.	**Quantity**	**Item no.**	**Quantity**
2170886	500m	21700651	20 item

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ETHERLINE® ACCESS KIT PN5-M12-1/Art. Nr. 21700133

PROFINET® Cat.5 flexible installation and M12 connectors

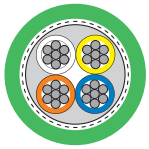


Cable ETHERLINE® PN Cat.5 Y FLEX FC		**Connector** ED-IE-AX-M12D-5-PN-67-FC	
• Cat.5 • 2x2xAWG22/7 • PVC outer sheath • Flexible installation • PROFINET® compliant		• M12D, for strands AWG solid: 24-22 and AWG 7 wire: 26-22 • Cat.5 • Tool-free assembly: Insulation displacement technology • PROFINET® colour coding	
Item no.	**Quantity**	**Item no.**	**Quantity**
2170886	500m	21700647	20 item

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ETHERLINE® ACCESS KIT PN5-M12-2/Art. Nr. 21700134

PROFINET® Cat.5 highly flexible installation and M12 connectors




Cable ETHERLINE® FD P FC Cat.5		Connector ED-IE-AX-M12D-5-PN-67-FC	
• Cat.5 • 2x2xAWG22/7 • PUR outer sheath • Flexible installation • PROFINET® compliant		• M12D, for strands AWG solid: 24-22 and AWG 7 wire: 26-22 • Cat.5 • Tool-free assembly: Insulation displacement technology • PROFINET® colour coding	
Item no.	**Quantity**	**Item no.**	**Quantity**
2170894	500m	21700647	20 item

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ETHERLINE® ACCESS KIT IE5-RJ-1/Art. Nr. 21700131

Cat.5e flexible installation, RJ45 connector and 8 port switches



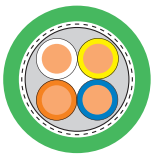


Cable ETHERLINE® Y FLEX Cat.5e		Connector ED-IE-AX-6$_A$-A-20-FC		Active network components ETHERLINE® ACCESS U08T	
• Cat.5e • 4x2xAWG26/7 • PVC outer sheath, UL type CMX approval		• RJ45, for strands AWG27/7-AWG22/7 • Cat.6$_A$ • Tool-free assembly: Insulation displacement technology • T568A colour coding • Metal housing • Unmanaged switch • 8 ports RJ45 (10/100 Mbit/s) • Redundant power supply • DIN rail assembly • Metal housing • Item no. Quantity Item no. • Metal housing		• Unmanaged switch • 8 ports RJ45 (10/100 Mbit/s) • Redundant power supply • DIN rail assembly • Metal housing	
Item no.	**Quantity**	**Item no.**	**Quantity**	**Item no.**	**Quantity**
2170486	500m	21700652	20 items	21700119	1 item

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ETHERLINE® ACCESS KIT PN5-1/Art. Nr. 21700130

PROFINET® Cat.5 fixed installation and 5 port switches

Cable ETHERLINE® Y FC Cat.5		Connector ETHERLINE® ACCESS U05T	
• Cat.5 • 2x2xAWG22/1 • PVC outer sheath, PLTC approval and AWM style 21694 • Fixed installation • PROFINET® compliant		• Unmanaged switch • 5 ports RJ45 (10/100 Mbit/s) • Redundant power supply • DIN rail assembly • Metal housing	
Item no.	**Quantity**	**Item no.**	**Quantity**
2170893	500m	21700118	1 item

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® DATA FT IE

Industrial Ethernet feed through



22262022

Product features

- Designs for front and rear wall-mounting
- M12 panel feed-throughs for direct connecting with PCB
- Can be used for Industrial Ethernet in harsh industrial environments
- Housing: zinc die-casting, grey

Norm references / Approvals

- M12 D-coded acc. to IEC 61076-2-101
  M12 X-coded acc. to IEC 61076-2-109
- M12 D-coded: Cat.5 acc. to ISO/IEC 11801
  M12 X-coded: Cat.6_A acc. to ISO/IEC 11801

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002061
ETIM 5.0/6.0 Class-Description: Sensor-actuator connector chassis

Protection rating
IP 67

Ambient temperature (operation)
-25°C to +85°C

Article number	Article designation
M12 feed through, socket on socket, D-coded	
22262022	AB-C4-DSI-M12FSD-M12FSD-M16-SH

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® DATA CCR FA

Cable coupler round

Info

- Installation without tools



Product features

- Field mountable cable coupler for data cables up to Cat.7_A
- Compact, round design
- Qualified for 10 Gigabit/s Ethernet
- Suitable for use in industrial applications
- Robust and vibrations- resistant
- Housing: zinc die-casting, grey

Norm references / Approvals

- Compliance to class FA up to 1000 MHz in connection with Cat.7_A cables
- Cat.7_A acc. to ISO/IEC 11801

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001121
ETIM 5.0/6.0 Class-Description: Modular connector

Protection rating
IP 67

Ambient temperature (operation)
Plug/socket -40°C to +85°C

Article number	Article designation	Min. outer diameter (mm)	Max. outer diameter (mm)	Min. core diameter including insulation	Max. core diameter including insulation	PU	AWG solid	AWG 7-wire
EPIC® DATA CCR FA								
21700623	EPIC® DATA CCR FA	5	9.7	0.85	1.6	1	26 - 22	26 - 22

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® DATA M12-RJ45

Control cabinet bushing



44429474



44429475



38119453



38119454

Info

- For panel mounting
- Installation without tools

Benefits

- Enables easy transition from M12 to RJ45
- When connected, protection class IP 67 can be achieved on the M12 side
- D-coded or x-coded available

Application range

- Designed as a control cabinet feed-through for connecting an M12 connection to an RJ45 patch cable
- For use with assembled data cables (M12D or M12X connector)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001121
ETIM 5.0/6.0 Class-Description: Modular connector

Protection rating
IP 67
IP 20

Ambient temperature (operation)
-25°C to +80°C

Article number	Article designation	Coding type	Connector format	Ethernet cable cat.
EPIC® DATA M12-RJ45				
44429474	EPIC® DATA M12X8FS-RJ45FS	X-Coded	M 12,RJ 45	Cat. 6_A
44429475	EPIC® DATA M12D4FS-RJ45FS	D-coded	M 12,RJ 45	Cat. 5
EPIC® DATA M12-RJ45 (Angled)				
38119453	EPIC® DATA M12X8FS-90-RJ45FS	X-coded	M 12,RJ 45	Cat.6_A
38119454	EPIC® DATA M12D4FS-90-RJ45FS	D-coded	M 12,RJ 45	Cat.5

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® DATA SPE-6 FA M CS1

Data connector; Ethernet; SPE; Plug; Straight



Info

- Single Pair Ethernet connector
- Crimp termination

Benefits

- Fast information exchange thanks to future-proof Single Pair Ethernet (SPE) technology for a consistent and uniform network infrastructure right up to the field level
- Compact design for use in restricted spaces
- Time-saving and simplified installation compared to conventional Ethernet connectors
- Connector face of the SPE connector in accordance with DIN EN IEC 63171-6
- Power over Data Line (PoDL)-capable connector according to IEEE 802.3bu for simultaneous power and data supply of SPE terminal devices with low energy requirements (up to 50 W)
- Crimp termination creates a vibration-proof connection, provides maximum contact protection between the contact and cable and is suitable for automated assembly

Application range

- For establishing a detachable Single Pair Ethernet connection
- Typical applications include control cabinets, industrial robots and field equipment
- For use with the SPE circuit board socket EPIC® DATA SPE-6 PCB F

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001121
ETIM 5.0/6.0 Class-Description: Modular connector

Protection rating
IP 20

Ambient temperature (operation)
-25°C to +85°C

Article number	Article designation	Min. outer diameter (mm)	Max. outer diameter (mm)
EPIC® DATA SPE-6 FA M CS1			
21700865	DATA SPE-6 FA M CS1	4.5	6

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® DATA SPE-6 PCB F

Data connector; Ethernet; SPE; Circuit board socket



Info

- Single Pair Ethernet connector
- PCB connection

Benefits

- Fast information exchange thanks to future-proof Single Pair Ethernet (SPE) technology for a consistent and uniform network infrastructure right up to the field level
- Compact design for use in restricted spaces
- Connector face of the SPE connector in accordance with DIN EN IEC 63171-6
- Power over Data Line (PoDL)-capable circuit board socket according to IEEE 802.3 bu for simultaneous power and data supply of SPE terminal devices with low energy requirements (up to 50 W)

Application range

- For connecting SPE connectors to a PCB inside active devices
- For use with the SPE connector EPIC® DATA SPE-6 FA M CS1
- For use with the SPE patch cable EPIC® DATA SPE-6 PC M-M CT001

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001121
ETIM 5.0/6.0 Class-Description: Modular connector

Protection rating
IP 20

Ambient temperature (operation)
-25°C to +85°C

Article number	Article designation
EPIC® DATA SPE-6 PCB F	
21700866	DATA SPE-6 PCB F

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® DATA SPE-6 PC M-M CT001

Control cabinet bushing



Info

- Pre-assembled Ethernet cable; SPE straight plug to SPE straight plug

Benefits

- Fast information exchange thanks to future-proof Single Pair Ethernet (SPE) technology for a consistent and uniform network infrastructure right up to the field level
- Single-paired cable design saves weight and space. Small bending radii and outer diameters are essential for connection to the field level
- The patch cable assembled on both sides saves time during installation and reduces or eliminates the potential for errors during on-site assembly
- Power over Data Line (PoDL)-capable patch cable according to IEEE 802.3bu for simultaneous power and data supply of SPE terminal devices with low energy requirements (up to 50 W)
- Ideal protection against electromagnetic interference thanks to double screening made of aluminium-laminated foil and copper screening braiding with high degree of coverage (SF/UTP)
- Secure hold and increased mechanical stability thanks to overmoulded connectors

Application range

- For establishing a detachable Single Pair Ethernet connection
- For Single Pair Ethernet (SPE) applications 100Base-T1 according to IEEE 802.3bw and 1000Base-T1 according to IEEE 802.3bp
- Typical applications include control cabinets, industrial robots and field equipment
- For use with the SPE circuit board socket EPIC® DATA SPE-6 PCB F
- For fixed installation and occasional flexing
- Can be used in dry rooms
- Suitable for medium mechanical stress

Technical data

Classification
ETIM 5.0 Class-ID: EC002599
ETIM 5.0 Class-Description: Patch cord copper (twisted pair) industry

Protection rating
IP 20

Ambient temperature (operation)
-25 °C to +85 °C

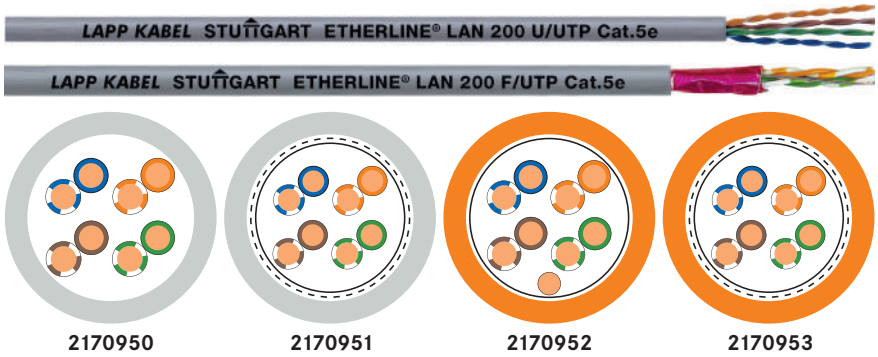
Article number	Article designation	Length (mm)	Connector 1 and 2	Cable dimension	Delivery Unit
EPIC® DATA M12-RJ45					
21700867	EPIC® DATA SPE-6 PC M-M 0.3m CT001	0.3 m	SPE Plug Straight	1 X 2 X 26 AWG	1
21700868	EPIC® DATA SPE-6 PC M-M 0.5m CT001	0.5 m	SPE Plug Straight	1 X 2 X 26 AWG	1
21700869	EPIC® DATA SPE-6 PC M-M 1m CT001	1 m	SPE Plug Straight	1 X 2 X 26 AWG	1
21700870	EPIC® DATA SPE-6 PC M-M 1.5m CT001	1.5 m	SPE Plug Straight	1 X 2 X 26 AWG	1
21700871	EPIC® DATA SPE-6 PC M-M 2m CT001	2 m	SPE Plug Straight	1 X 2 X 26 AWG	1
21700872	EPIC® DATA SPE-6 PC M-M 3m CT001	3 m	SPE Plug Straight	1 X 2 X 26 AWG	1
21700873	EPIC® DATA SPE-6 PC M-M 5m CT001	5 m	SPE Plug Straight	1 X 2 X 26 AWG	1
21700874	EPIC® DATA SPE-6 PC M-M 10m CT001	10 m	SPE Plug Straight	1 X 2 X 26 AWG	1

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Unless specifi ed otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Other lengths are available upon request.


ANT
DATA
LAPP
ETHERLINE® GUARD
PM02TWA
PWR
STATUS
WIFI
SET
GUARD
DATA

ETHERLINE® LAN 200 Cat.5e

Ethernet cable for Category 5e/ class D - verfied up to 200 MHz



2170950 2170951 2170952 2170953

Info

- CPR: Article number choice under www.lapp.com

Benefits

- LAN cables for structured building cabling according to EN 50173 and ISO/IEC 11801

Application range

- Areas where the end device density is very high
- For office wiring, administration and development buildings in the tertiary sector (floor wiring).
- Cable length in tertiary area (horizontal area, floor) should not exceed a length of 100 m in accordance with the ISO/IEC 11801 and EN 50173 standards (90 m in cable duct + 10 m in working area)

Product features

- Transfer of digital and analogue data signals
- IEEE 802.3: 10/100/1000Base-T
- Flame retardant acc. to IEC 60332-1-2

Norm references / Approvals

- LAN Cat.5e cables from Lapp Kabel for "Structured Cabling Systems" meet the requirements in accordance with EIA/TIA-568 and TSB36, as well as ISO/IEC 11801 or EN 50173 (Class D).

Product Make-up

- Solid conductor 4x2xAWG24/1
- U/UTP: no overall or pair screening
- F/UTP: foil screening as overall screening
- SF/UTP: braid of tinned copper wire and plastic laminated aluminum foil as overall screening
- Outer sheath either as PVC (grey RAL 7035) or LSZH (orange RAL 2003)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Minimum bending radius
during installation: 8 x outer diameter
Fixed installation: 4 x outer diameter

Characteristic impedance
100 Ω ± 15%

Temperature range
During installation: 0 °C to +50 °C
Fixed installation: -20°C to +60°C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter mm	Colour	Copper index (kg/km)	Weight (kg/km)
PVC							
2170950	ETHERLINE® LAN Cat.5e U/UTP 4x2xAWG24	4 x 2 x AWG24/1	0.9	5.1	grey	17	32
2170951	ETHERLINE® LAN Cat.5e SF/UTP 4x2xAWG24	4 x 2 x AWG24/1	1.05	6.3	grey	28	46
LSZH							
2170952	ETHERLINE® LAN Cat.5e F/UTP 4x2xAWG24 LSZH	4 x 2 x AWG24/1	1.05	6.3	orange	18	40
2170953	ETHERLINE® LAN Cat.5e SF/UTP 4x2xAWG24 LSZH	4 x 2 x AWG24/1	1.05	6.4	orange	28	46

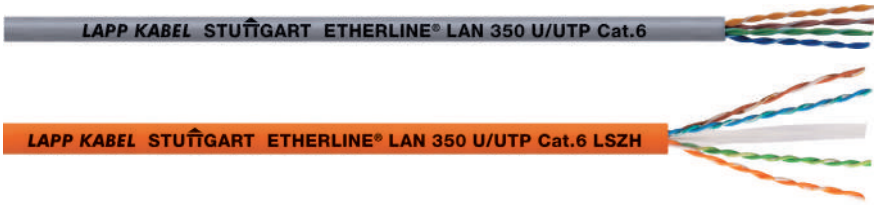
Copper price basis: EUR 100/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: Drum
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

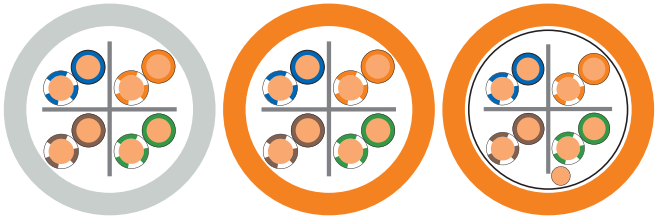
ETHERLINE® LAN 350 Cat.6

Ethernet cable for Category 6/ class E - verified up to 350 MHz

Info

- CPR: Article number choice under www.lapp.com





2170954 2170955 2170956

Benefits

- LAN cables for structured building cabling according to EN 50173 and ISO/IEC 11801

Application range

- Areas where the end device density is very high
- For office wiring, administration and development buildings in the tertiary sector (floor wiring).
- Cable length in tertiary area (horizontal area, floor) should not exceed a length of 100 m in accordance with the ISO/IEC 11801 and EN 50173 standards (90 m in cable duct + 10 m in working area)

Product features

- Transfer of digital and analogue data signals
- IEEE 802.3: 10/100/1000Base-T
  IEEE 802.5: ISDN; FDDI; ATM
- Flame retardant acc. to IEC 60332-1-2

Norm references / Approvals

- LAN CAT.6 cables from Lapp Kabel for "Structured Cabling Systems" meet the requirements in accordance with EIA/TIA-568 and TSB36, as well as ISO/IEC 11801 or EN 50173 (Class E - permanent link).
- Class E out of the standard ISO/IEC 11801 corresponds to CAT.6

Product Make-up

- Solid conductor
- U/UTP: no overall or pair screening, 2 cores stranded to pair, 4 pairs stranded to bundle with central cross
- F/UTP: Foil shielding as overall shielding, 2 cores stranded to pair, 4 pairs stranded to bundle with central cross
- Outer sheath either as PVC (grey RAL 7035) or LSZH (orange RAL 2003)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Minimum bending radius
during installation: 8 x outer diameter
Fixed installation: 4 x outer diameter

Characteristic impedance
100 Ω ± 15%

Temperature range
During installation: 0 °C to +50 °C
Fixed installation: -20°C to +60°C

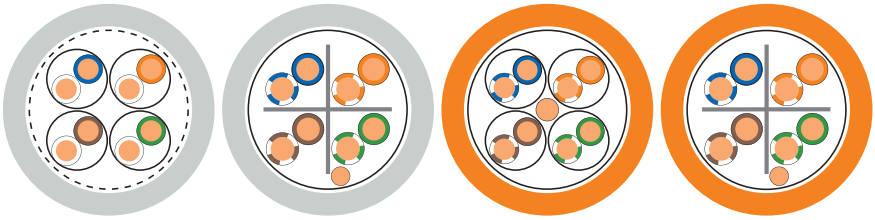
Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter mm	Colour	Copper index (kg/km)	Weight (kg/km)
LSZH							
2170955	ETHERLINE® LAN Cat.6 U/UTP 4x2xAWG24 LSZH	4 x 2 x AWG24/1	0.95	6.0	orange	18	40
2170956	ETHERLINE® LAN Cat.6 F/UTP 4x2xAWG23 LSZH	4 x 2 x AWG23/1	1.07	7.4	orange	19	52

Copper price basis: EUR 100/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: Drum
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ETHERLINE® LAN 500 Cat.6$_A$

Ethernet cable for Category 6$_A$/ class E$_A$ -verified up to 500 MHz





2170960 2170961 2170962 2170963

Info

- CPR: Article number choice under www.lapp.com

Benefits

- LAN cables for structured building cabling according to EN 50173 and ISO/IEC 11801

Application range

- Areas where the end device density is very high
- For office wiring, administration and development buildings in the tertiary sector (floor wiring).
- Cable length in tertiary area (horizontal area, floor) should not exceed a length of 100 m in accordance with the ISO/IEC 11801 and EN 50173 standards (90 m in cable duct + 10 m in working area)

Product features

- Transfer of digital and analogue data signals
- IEEE 802.3: 10/100/1000Base-T, 10GBase-T IEEE 802.5: ISDN; FDDI; ATM; cable sharing
- Flame retardant acc. to IEC 60332-1-2

Norm references / Approvals

- LAN Cat.6$_A$ cables from Lapp Kabel for "Structured Cabling Systems" meet the requirements in accordance with EIA/TIA-568 and TSB36, as well as ISO/IEC 11801 or EN 50173 (Class EA - permanent link).

Product Make-up

- Solid conductor 4x2xAWG23/1
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- F/UTP: Foil shielding as overall shielding, 2 cores stranded to pair, 4 pairs stranded to bundle with central cross
- F/FTP: aluminium compound foil as overall screening and pair screening
- Outer sheath either as PVC (grey RAL 7035) or LSZH (orange RAL 2003)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Minimum bending radius
during installation: 8 x outer diameter
Fixed installation: 4 x outer diameter

Characteristic impedance
100 Ω ± 15%

Temperature range
During installation: 0 °C to +50 °C
Fixed installation: -20°C to +60°C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter mm	Colour	Copper index (kg/km)	Weight (kg/km)
PVC							
2170960	ETHERLINE® LAN Cat.6$_A$ S/FTP 4x2xAWG23	4 x 2 x AWG23/1	1.28	7.3	grey	24	52
2170961	ETHERLINE® LAN Cat.6$_A$ F/UTP 4x2xAWG23	4 x 2 x AWG23/1	1.09	7.4	grey	24	52
LSZH							
2170962	ETHERLINE® LAN Cat.6$_A$ F/FTP 4x2xAWG23 LSZH	4 x 2 x AWG23/1	1.28	7.3	orange	22	54
2170963	ETHERLINE® LAN Cat.6$_A$ F/UTP 4x2xAWG23 LSZH	4 x 2 x AWG23/1	1.09	7.4	orange	24	56

Copper price basis: EUR 100/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: Drum
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ETHERLINE® LAN 1000 Cat. 7$_A$

Ethernet cable for Category 7$_A$/ class F$_A$ - verified up to 1000 MHz

Info

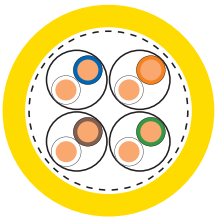
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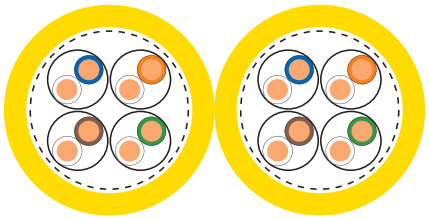
ETHERLINE® LAN 1200 Cat.7$_A$

Ethernet cable for Category 7$_A$/ class F$_A$ - verified up to 1200 MHz





2170971/2170974



2170972/2170975

Benefits

- LAN cables for structured building cabling according to EN 50173 and ISO/IEC 11801

Application range

- Areas where the end device density is very high
- For office wiring, administration and development buildings in the tertiary sector (floor wiring).
- Cable length in tertiary area (horizontal area, floor) should not exceed a length of 100 m in accordance with the ISO/IEC 11801 and EN 50173 standards (90 m in cable duct + 10 m in working area)

Product features

- Transfer of digital and analogue data signals
- IEEE 802.3: 10/100/1000Base-T, 10GBase-T IEEE 802.5: ISDN; FDDI; ATM; cable sharing IEEE 802.3at: suitable for PoE, VoIP
- Flame-retardant according IEC 60332-1-2
- No flame-propagation according to IEC 60332-3-25 (Flame spread on vertical cable or wire bundle)

Norm references / Approvals

- LAN Cat.7$_A$ cables from Lapp Kabel for "Structured Cabling Systems" meet the requirements in accordance with EIA/TIA-568 and TSB36 as well as ISO/IEC 11801 or EN 50173 (Class FA - permanent link).

Product Make-up

- Solid conductor 4x2xAWG23/1, duplex 2x(4x2xAWG23/1)
- Core insulation: PE
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Outer sheath: halogen-free, flame-retardant compound
- Colour: yellow (RAL 1021)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Minimum bending radius
during installation: 8 x outer diameter
Fixed installation: 4 x outer diameter

Characteristic impedance
100 Ω ± 15%

Temperature range
During installation: 0 °C to +50 °C
Fixed installation: -20°C to +60°C

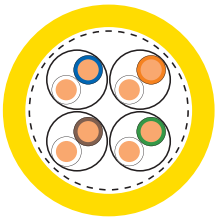
Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter mm	Colour	Copper index (kg/km)	Weight (kg/km)
ETHERLINE® LAN 1000 S/FTP Cat.7$_A$							
2170971	ETHERLINE® LAN 1000 Cat.7$_A$ 4x2xAWG23 LSZH	4 x 2 x AWG23/1	1.3	7.5	yellow	24	56
2170972	ETHERLINE® LAN 1000 Cat.7$_A$ 2x(4x2xAWG23) LSZH duplex	2x (4x2xAWG23/1)	1.3	15.2	yellow	48	113
ETHERLINE® LAN 1200 S/FTP Cat.7$_A$							
2170974	ETHERLINE® LAN 1200 Cat.7$_A$ 4x2xAWG23 LSZH	4 x 2 x AWG23/1	1.33	7.5	yellow	26	58
2170975	ETHERLINE® LAN 1200 Cat.7$_A$ 2x(4x2xAWG23) LSZH duplex	2x (4x2xAWG23/1)	1.33	15.2	yellow	52	114

Copper price basis: EUR 100/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: Drum
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ETHERLINE® LAN 1600 Cat.7$_A$

Data cable for Category 7$_A$/ class F$_A$ - verified up to 1600 MHz





2170976

Info

- CPR: Article number choice under www.lapp.com
- Verified up to 1600 MHz at max. 30m cable length (data centers)

Benefits

- LAN cables for structured building cabling according to EN 50173 and ISO/IEC 11801

Application range

- Mainly used where the terminal density is very high, e.g. for wiring office, administration and development buildings in the tertiary area (floor wiring).
- 1500 MHz: Cable length in tertiary area (horizontal area, floor) should not exceed a length of 100 m in accordance with the ISO/IEC 11801 and EN 50173 standards (90 m in cable duct + 10 m in working area)
- 1600 MHz: at max. 30m length (typical in data centers)

Product features

- Transfer of digital and analogue data signals
- IEEE 802.3: 10/100/1000Base-T, 10GBase-T IEEE 802.5: ISDN; FDDI; ATM; cable sharing IEEE 802.3at: suitable for PoE, VoIP
- Flame-retardant according IEC 60332-1-2
- No flame-propagation according to IEC 60332-3-25 (Flame spread on vertical cable or wire bundle)

Norm references / Approvals

- LAN Cat.7$_A$ cables from Lapp Kabel for “Structured Cabling Systems” meet the requirements in accordance with EIA/TIA-568 and TSB36 as well as ISO/IEC 11801 or EN 50173 (Class FA - permanent link).
- Exceeds the requirements of EN 50173 and ISO/IEC 11801 standards

Product Make-up

- Solid conductor 4x2xAWG22/1
- Core insulation: cellular polyolefin
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Outer sheath: halogen-free, flame-retardant compound
- Colour: yellow (RAL 1021)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Minimum bending radius
during installation: 8 x outer diameter
Fixed installation: 4 x outer diameter

Characteristic impedance
100 Ω ± 15%

Temperature range
During installation: 0 °C to +50 °C
Fixed installation: -20°C to +60°C

Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter mm	Colour	Copper index (kg/km)	Weight (kg/km)
ETHERLINE® LAN 1600 Cat.7$_A$							
2170976	ETHERLINE® LAN Cat.7$_A$ 1600 S/FTP 4x2xAWG22LSZH	4 x 2 x AWG22/1	1.56	8.2	yellow	34	71

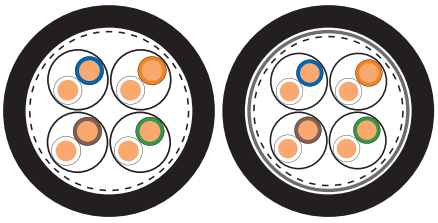
Copper price basis: EUR 100/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: Drum
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® LAN OUTDOOR

Ethernet cable for Category 7/ class F - verified up to 1000 MHz, for outdoor applications







2170978 2170977

Benefits

- LAN cables for structured building cabling according to EN 50173 and ISO/IEC 11801
- Suitable for outdoor use
- UV-resistant

Application range

- For outdoor use
- Cable length in tertiary area (horizontal area, floor) should not exceed a length of 100 m in accordance with the ISO/IEC 11801 and EN 50173 standards (90 m in cable duct + 10 m in working area)

Product features

- Transfer of digital and analogue data signals
- IEEE 802.3: 10/100/1000Base-T, 10GBase-T IEEE 802.5: ISDN; FDDI; ATM; cable sharing
- Backward compatible

Norm references / Approvals

- LAN Cat.7 cables from Lapp Kabel for "Structured Cabling Systems" meet the requirements in accordance with EIA/TIA-568 and TSB36, as well as ISO/IEC 11801 or EN 50173 (Class F - permanent link).

Product Make-up

- Solid conductor 4x2xAWG23/1
- Core insulation: PE
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Outer sheath: PE, black (L)PE additional with aluminum tape

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Minimum bending radius
during installation: 8 x outer diameter
Fixed installation: 4 x outer diameter

Characteristic impedance
100 Ω ± 15%

Temperature range
During installation: -10°C to +50°C
Fixed installation: -30°C to +70°C

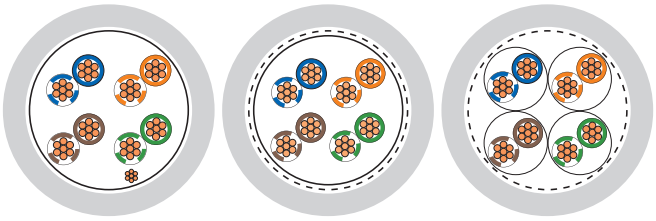
Article number	Article designation	Number of pairs and AWG per conductor	Core diameter in mm	Outer diameter mm	Colour	Copper index (kg/km)	Weight (kg/km)
For outdoor applications							
2170978	ETHERLINE® LAN Cat.7 S/FTP 4x2AWG23 PE	4 x 2 x AWG23/1	1.3	7.7	black	24	48
Suitable for direct routing underground, transversely waterproof							
2170977	ETHERLINE® LAN Cat.7 S/FTP 4x2AWG23 (L)PE	4 x 2 x AWG23/1	1.3	9.6	black	24	77

Copper price basis: EUR 100/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: Drum
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

UNITRONIC® LAN FLEX

Data cable for patchcable applications





2170127/2170172 2170129/2170139 2170144/2170142

Info

- Only for patch cable applications (max. 60 m)

Benefits

- For directly connecting two electric components
- Easy to assemble

Application range

- Indoor applications
- LAN connections
- Control cabinet wiring

Product features

- Good flexibility - easy installation with tight space requirements
- Flame retardant acc. to IEC 60332-1-2
  2170139: flame retardant acc. to IEC 60332-1-2 and IEC 60332-3-24

Product Make-up

- F/UTP: foil screening as overall screening
- SF/UTP: braid of tinned copper wire and plastic laminated aluminum foil as overall screening
- S/FTP: copper braid as overall screening and pair screening with aluminium compound foil
- Outer sheath either as PVC or LSZH (color grey RAL 7035)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000830
ETIM 5.0/6.0 Class-Description: Data cable

Minimum bending radius
during installation: 8 x outer diameter
Fixed installation: 4 x outer diameter

Mean characteristic Impedance
100 Ω ± 15%

Temperature range
Fixed installation: -20°C to +60°C
Flexing: 0°C to +50°C

Article number	Article designation	Number of pairs and AWG per conductor	Outer diameter mm	Copper index (kg/km)	Weight (kg/km)
PVC versions					
2170127	ETHERLINE® LAN Cat. 5e F/UTP 4x2xAWG24	4 x 2 x AWG26/7	5.6	13	28
2170129	ETHERLINE® LAN Cat.5e SF/UTP 4x2xAWG24	4 x 2 x AWG26/7	6.0	22	36
2170144	UNITRONIC LAN 600 S/FTP Cat.7 Y FLEX	4 x 2 x AWG26/7	6.5	22	39
Halogen-free versions					
2170172	ETHERLINE® LAN Cat.5e F/UTP 4x2xAWG24 LSZH	4 x 2 x AWG26/7	5.6	13	28
2170139	ETHERLINE® LAN Cat.5e SF/UTP 4x2xAWG24 LSZH	4 x 2 x AWG26/7	6.0	22	36
2170142	UNITRONIC LAN 600 S/FTP Cat.7 LSZH Flex	4 x 2 x AWG26/7	6.2	21	40

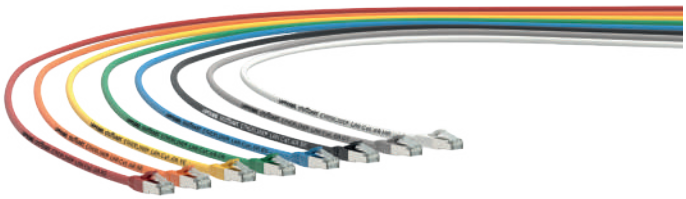
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Copper price basis: EUR 150/100 kg. Refer to catalogue appendix T17 for the definition and calculation of copper-related surcharges.
Please find our standard lengths at: www.lapp.com
Packaging size: Coil 100 m; Drum (500; 1000) m
Detailed data sheets are available upon request. Please specify the type/dimensions of the required cable.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

ETHERLINE® LAN Cat.6$_A$ Patchcords

Pre-assembled Ethernet cable

Info

- Suitable for Ethernet applications up to 10GBase-T



Benefits

- Rapid information exchange at up to 10 Gbit/s over 60 m thanks to Cat.6$_A$ Ethernet
- Cable assembled on both sides saves time and eliminates the potential for errors during on-site assembly
- The narrow RJ45 connector allows use in devices with a very high port density
- Ideal protection against electromagnetic interference due to pair screening with aluminium compound foil and copper screening braiding as overall screening (S /FTP)
- UL/CSA certification according to technical data enables the product to be used in the North American market
- With halogen free LSZH outer sheath to meet special fire protection requirements
- Versatile properties allow universal use, reduce the variety of parts and thus result in savings in logistics
- Available in different colours

Application range

- For structured building cabling according to DIN EN 50173 and ISO/IEC 11801
- Suitable for workplace cabling
- Can also be used in industrial control cabinets, taking electromagnetic stress into account
- Suitable for Ethernet applications up to 10GBase-T

Technical data

Minimum bending radius
5 x outer diameter

Protection rating
RJ45: IP 20

Temperature range
-20°C to +40°C

Article number	Article designation	Connector 1 and 2	Length m	Cable sheath colour
24441316	ETHERLINE® LAN Cat.6$_A$ 0,25 BK	RJ 45 Plug Straight	0.25	black
24441317	ETHERLINE® LAN Cat.6$_A$ 0,5 BK	RJ 45 Plug Straight	0.5	black
24441318	ETHERLINE® LAN Cat.6$_A$ 1,0 BK	RJ 45 Plug Straight	1	black
24441319	ETHERLINE® LAN Cat.6$_A$ 1,5 BK	RJ 45 Plug Straight	1.5	black
24441320	ETHERLINE® LAN Cat.6$_A$ 2,0 BK	RJ 45 Plug Straight	2	black
24441321	ETHERLINE® LAN Cat.6$_A$ 3,0 BK	RJ 45 Plug Straight	3	black
24441322	ETHERLINE® LAN Cat.6$_A$ 5,0 BK	RJ 45 Plug Straight	5	black
24441323	ETHERLINE® LAN Cat.6$_A$ 7,5 BK	RJ 45 Plug Straight	7.5	black
24441324	ETHERLINE® LAN Cat.6$_A$ 10,0 BK	RJ 45 Plug Straight	10	black
24441325	ETHERLINE® LAN Cat.6$_A$ 15,0 BK	RJ 45 Plug Straight	15	black
24441326	ETHERLINE® LAN Cat.6$_A$ 20,0 BK	RJ 45 Plug Straight	20	black
24441327	ETHERLINE® LAN Cat.6$_A$ 25,0 BK	RJ 45 Plug Straight	25	black
24441328	ETHERLINE® LAN Cat.6$_A$ 30,0 BK	RJ 45 Plug Straight	30	black
24441329	ETHERLINE® LAN Cat.6$_A$ 40,0 BK	RJ 45 Plug Straight	40	black
24441330	ETHERLINE® LAN Cat.6$_A$ 50,0 BK	RJ 45 Plug Straight	50	black
24441331	ETHERLINE® LAN Cat.6$_A$ 0,25 BU	RJ 45 Plug Straight	0.25	blue
24441332	ETHERLINE® LAN Cat.6$_A$ 0,5 BU	RJ 45 Plug Straight	0.5	blue
24441333	ETHERLINE® LAN Cat.6$_A$ 1,0 BU	RJ 45 Plug Straight	1	blue
24441334	ETHERLINE® LAN Cat.6$_A$ 1,5 BU	RJ 45 Plug Straight	1.5	blue
24441335	ETHERLINE® LAN Cat.6$_A$ 2,0 BU	RJ 45 Plug Straight	2	blue
24441336	ETHERLINE® LAN Cat.6$_A$ 3,0 BU	RJ 45 Plug Straight	3	blue
24441337	ETHERLINE® LAN Cat.6$_A$ 5,0 BU	RJ 45 Plug Straight	5	blue
24441338	ETHERLINE® LAN Cat.6$_A$ 7,5 BU	RJ 45 Plug Straight	7.5	blue
24441339	ETHERLINE® LAN Cat.6$_A$ 10,0 BU	RJ 45 Plug Straight	10	blue
24441340	ETHERLINE® LAN Cat.6$_A$ 15,0 BU	RJ 45 Plug Straight	15	blue
24441341	ETHERLINE® LAN Cat.6$_A$ 20,0 BU	RJ 45 Plug Straight	20	blue
24441342	ETHERLINE® LAN Cat.6$_A$ 25,0 BU	RJ 45 Plug Straight	25	blue
24441343	ETHERLINE® LAN Cat.6$_A$ 30,0 BU	RJ 45 Plug Straight	30	blue
24441344	ETHERLINE® LAN Cat.6$_A$ 40,0 BU	RJ 45 Plug Straight	40	blue
24441345	ETHERLINE® LAN Cat.6$_A$ 50,0 BU	RJ 45 Plug Straight	50	blue
24441346	ETHERLINE® LAN Cat.6$_A$ 0,25 GN	RJ 45 Plug Straight	0.25	green
24441347	ETHERLINE® LAN Cat.6$_A$ 0,5 GN	RJ 45 Plug Straight	0.5	green
24441348	ETHERLINE® LAN Cat.6$_A$ 1,0 GN	RJ 45 Plug Straight	1	green
24441349	ETHERLINE® LAN Cat.6$_A$ 1,5 GN	RJ 45 Plug Straight	1.5	green
24441350	ETHERLINE® LAN Cat.6$_A$ 2,0 GN	RJ 45 Plug Straight	2	green
24441351	ETHERLINE® LAN Cat.6$_A$ 3,0 GN	RJ 45 Plug Straight	3	green
24441352	ETHERLINE® LAN Cat.6$_A$ 5,0 GN	RJ 45 Plug Straight	5	green
24441353	ETHERLINE® LAN Cat.6$_A$ 7,5 GN	RJ 45 Plug Straight	7.5	green
24441354	ETHERLINE® LAN Cat.6$_A$ 10,0 GN	RJ 45 Plug Straight	10	green

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Article number	Article designation	Connector 1 and 2	Length m	Cable sheath colour
24441355	ETHERLINE® LAN Cat.6$_A$ 15,0 GN	RJ 45 Plug Straight	15	green
24441356	ETHERLINE® LAN Cat.6$_A$ 20,0 GN	RJ 45 Plug Straight	20	green
24441357	ETHERLINE® LAN Cat.6$_A$ 25,0 GN	RJ 45 Plug Straight	25	green
24441358	ETHERLINE® LAN Cat.6$_A$ 30,0 GN	RJ 45 Plug Straight	30	green
24441359	ETHERLINE® LAN Cat.6$_A$ 40,0 GN	RJ 45 Plug Straight	40	green
24441360	ETHERLINE® LAN Cat.6$_A$ 50,0 GN	RJ 45 Plug Straight	50	green
24441361	ETHERLINE® LAN Cat.6$_A$ 0,25 GY	RJ 45 Plug Straight	0.25	grey
24441362	ETHERLINE® LAN Cat.6$_A$ 0,5 GY	RJ 45 Plug Straight	0.5	grey
24441363	ETHERLINE® LAN Cat.6$_A$ 1,0 GY	RJ 45 Plug Straight	1	grey
24441364	ETHERLINE® LAN Cat.6$_A$ 1,5 GY	RJ 45 Plug Straight	1.5	grey
24441365	ETHERLINE® LAN Cat.6$_A$ 2,0 GY	RJ 45 Plug Straight	2	grey
24441366	ETHERLINE® LAN Cat.6$_A$ 3,0 GY	RJ 45 Plug Straight	3	grey
24441367	ETHERLINE® LAN Cat.6$_A$ 5,0 GY	RJ 45 Plug Straight	5	grey
24441368	ETHERLINE® LAN Cat.6$_A$ 7,5 GY	RJ 45 Plug Straight	7.5	grey
24441369	ETHERLINE® LAN Cat.6$_A$ 10,0 GY	RJ 45 Plug Straight	10	grey
24441370	ETHERLINE® LAN Cat.6$_A$ 15,0 GY	RJ 45 Plug Straight	15	grey
24441371	ETHERLINE® LAN Cat.6$_A$ 20,0 GY	RJ 45 Plug Straight	20	grey
24441372	ETHERLINE® LAN Cat.6$_A$ 25,0 GY	RJ 45 Plug Straight	25	grey
24441373	ETHERLINE® LAN Cat.6$_A$ 30,0 GY	RJ 45 Plug Straight	30	grey
24441374	ETHERLINE® LAN Cat.6$_A$ 40,0 GY	RJ 45 Plug Straight	40	grey
24441375	ETHERLINE® LAN Cat.6$_A$ 50,0 GY	RJ 45 Plug Straight	50	grey
24441376	ETHERLINE® LAN Cat.6$_A$ 0,25 OR	RJ 45 Plug Straight	0.25	orange
24441377	ETHERLINE® LAN Cat.6$_A$ 0,5 OR	RJ 45 Plug Straight	0.5	orange
24441378	ETHERLINE® LAN Cat.6$_A$ 1,0 OR	RJ 45 Plug Straight	1	orange
24441379	ETHERLINE® LAN Cat.6$_A$ 1,5 OR	RJ 45 Plug Straight	1.5	orange
24441380	ETHERLINE® LAN Cat.6$_A$ 2,0 OR	RJ 45 Plug Straight	2	orange
24441381	ETHERLINE® LAN Cat.6$_A$ 3,0 OR	RJ 45 Plug Straight	3	orange
24441382	ETHERLINE® LAN Cat.6$_A$ 5,0 OR	RJ 45 Plug Straight	5	orange
24441383	ETHERLINE® LAN Cat.6$_A$ 7,5 OR	RJ 45 Plug Straight	7.5	orange
24441384	ETHERLINE® LAN Cat.6$_A$ 10,0 OR	RJ 45 Plug Straight	10	orange
24441385	ETHERLINE® LAN Cat.6$_A$ 15,0 OR	RJ 45 Plug Straight	15	orange
24441386	ETHERLINE® LAN Cat.6$_A$ 20,0 OR	RJ 45 Plug Straight	20	orange
24441387	ETHERLINE® LAN Cat.6$_A$ 25,0 OR	RJ 45 Plug Straight	25	orange
24441388	ETHERLINE® LAN Cat.6$_A$ 30,0 OR	RJ 45 Plug Straight	30	orange
24441389	ETHERLINE® LAN Cat.6$_A$ 40,0 OR	RJ 45 Plug Straight	40	orange
24441390	ETHERLINE® LAN Cat.6$_A$ 50,0 OR	RJ 45 Plug Straight	50	orange
24441391	ETHERLINE® LAN Cat.6$_A$ 0,25 RD	RJ 45 Plug Straight	0.25	red
24441392	ETHERLINE® LAN Cat.6$_A$ 0,5 RD	RJ 45 Plug Straight	0.5	red
24441393	ETHERLINE® LAN Cat.6$_A$ 1,0 RD	RJ 45 Plug Straight	1	red
24441394	ETHERLINE® LAN Cat.6$_A$ 1,5 RD	RJ 45 Plug Straight	1.5	red
24441395	ETHERLINE® LAN Cat.6$_A$ 2,0 RD	RJ 45 Plug Straight	2	red
24441396	ETHERLINE® LAN Cat.6$_A$ 3,0 RD	RJ 45 Plug Straight	3	red
24441397	ETHERLINE® LAN Cat.6$_A$ 5,0 RD	RJ 45 Plug Straight	5	red
24441398	ETHERLINE® LAN Cat.6$_A$ 7,5 RD	RJ 45 Plug Straight	7.5	red
24441399	ETHERLINE® LAN Cat.6$_A$ 10,0 RD	RJ 45 Plug Straight	10	red
24441400	ETHERLINE® LAN Cat.6$_A$ 15,0 RD	RJ 45 Plug Straight	15	red
24441401	ETHERLINE® LAN Cat.6$_A$ 20,0 RD	RJ 45 Plug Straight	20	red
24441402	ETHERLINE® LAN Cat.6$_A$ 25,0 RD	RJ 45 Plug Straight	25	red
24441403	ETHERLINE® LAN Cat.6$_A$ 30,0 RD	RJ 45 Plug Straight	30	red
24441404	ETHERLINE® LAN Cat.6$_A$ 40,0 RD	RJ 45 Plug Straight	40	red
24441405	ETHERLINE® LAN Cat.6$_A$ 50,0 RD	RJ 45 Plug Straight	50	red
24441406	ETHERLINE® LAN Cat.6$_A$ 0,25 WH	RJ 45 Plug Straight	0.25	white
24441407	ETHERLINE® LAN Cat.6$_A$ 0,5 WH	RJ 45 Plug Straight	0.5	white
24441408	ETHERLINE® LAN Cat.6$_A$ 1,0 WH	RJ 45 Plug Straight	1	white
24441409	ETHERLINE® LAN Cat.6$_A$ 1,5 WH	RJ 45 Plug Straight	1.5	white
24441410	ETHERLINE® LAN Cat.6$_A$ 2,0 WH	RJ 45 Plug Straight	2	white
24441411	ETHERLINE® LAN Cat.6$_A$ 3,0 WH	RJ 45 Plug Straight	3	white
24441412	ETHERLINE® LAN Cat.6$_A$ 5,0 WH	RJ 45 Plug Straight	5	white
24441413	ETHERLINE® LAN Cat.6$_A$ 7,5 WH	RJ 45 Plug Straight	7.5	white
24441414	ETHERLINE® LAN Cat.6$_A$ 10,0 WH	RJ 45 Plug Straight	10	white
24441415	ETHERLINE® LAN Cat.6$_A$ 15,0 WH	RJ 45 Plug Straight	15	white
24441416	ETHERLINE® LAN Cat.6$_A$ 20,0 WH	RJ 45 Plug Straight	20	white
24441417	ETHERLINE® LAN Cat.6$_A$ 25,0 WH	RJ 45 Plug Straight	25	white
24441418	ETHERLINE® LAN Cat.6$_A$ 30,0 WH	RJ 45 Plug Straight	30	white
24441419	ETHERLINE® LAN Cat.6$_A$ 40,0 WH	RJ 45 Plug Straight	40	white
24441420	ETHERLINE® LAN Cat.6$_A$ 50,0 WH	RJ 45 Plug Straight	50	white
24441421	ETHERLINE® LAN Cat.6$_A$ 0,25 YE	RJ 45 Plug Straight	0.25	yellow
24441422	ETHERLINE® LAN Cat.6$_A$ 0,5 YE	RJ 45 Plug Straight	0.5	yellow
24441423	ETHERLINE® LAN Cat.6$_A$ 1,0 YE	RJ 45 Plug Straight	1	yellow
24441424	ETHERLINE® LAN Cat.6$_A$ 1,5 YE	RJ 45 Plug Straight	1.5	yellow
24441425	ETHERLINE® LAN Cat.6$_A$ 2,0 YE	RJ 45 Plug Straight	2	yellow
24441426	ETHERLINE® LAN Cat.6$_A$ 3,0 YE	RJ 45 Plug Straight	3	yellow
24441427	ETHERLINE® LAN Cat.6$_A$ 5,0 YE	RJ 45 Plug Straight	5	yellow
24441428	ETHERLINE® LAN Cat.6$_A$ 7,5 YE	RJ 45 Plug Straight	7.5	yellow
24441429	ETHERLINE® LAN Cat.6$_A$ 10,0 YE	RJ 45 Plug Straight	10	yellow
24441430	ETHERLINE® LAN Cat.6$_A$ 15,0 YE	RJ 45 Plug Straight	15	yellow
24441431	ETHERLINE® LAN Cat.6$_A$ 20,0 YE	RJ 45 Plug Straight	20	yellow
24441432	ETHERLINE® LAN Cat.6$_A$ 25,0 YE	RJ 45 Plug Straight	25	yellow
24441433	ETHERLINE® LAN Cat.6$_A$ 30,0 YE	RJ 45 Plug Straight	30	yellow
24441434	ETHERLINE® LAN Cat.6$_A$ 40,0 YE	RJ 45 Plug Straight	40	yellow
24441435	ETHERLINE® LAN Cat.6$_A$ 50,0 YE	RJ 45 Plug Straight	50	yellow

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Unless specifi ed otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Other lengths are available upon request.

Connector RJ45 Cat.6 Hirose TM21

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

Product features

- Fully screened
- Easy to handle
- Included: bend protection and guide plate
- Anti-kink protection: beige

Norm references / Approvals

- Cat.6acc. to ISO/IEC 11801



Article number	Article designation	Max. outer diameter (mm)	Min. core diameter including insulation	Max. core diameter including insulation	PU	AWG 7-wire
Connector RJ45 CAT.6 Hirose TM21						
CE6324	Connector RJ45 CAT.6 Hirose TM21	6.6	0.9	1	50	27-24

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Other colours are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® DATA RJ45 Crimp

Data connector

Technical data

Protection rating
IP 20

Ambient temperature (operation)
-40°C .. +55°C

Application range

see data sheet

Product features

- Easy cable connection thanks to insulation displacement technology.

Norm references / Approvals

- RJ45 according to IEC 60603-7-51

Product Make-up

see data sheet



Article number	Article designation	Max. outer diameter (mm)	Min. core diameter including insulation	Max. core diameter including insulation	PU	AWG 7-wire
EPIC® DATA RJ45 Crimp						
381166929	EPIC® DATA RJ45 6A 20	6.5	0.8	1.05	50	27-24

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® DATA RJ45 Plug Cat.5e FM45 field m.



Product features

- Allows assembly without special tools and creates a vibration-proof connection between contact and cable.
- For use with Cat.5e cables.
- For data transfer rates up to 100 MHz

Norm references / Approvals

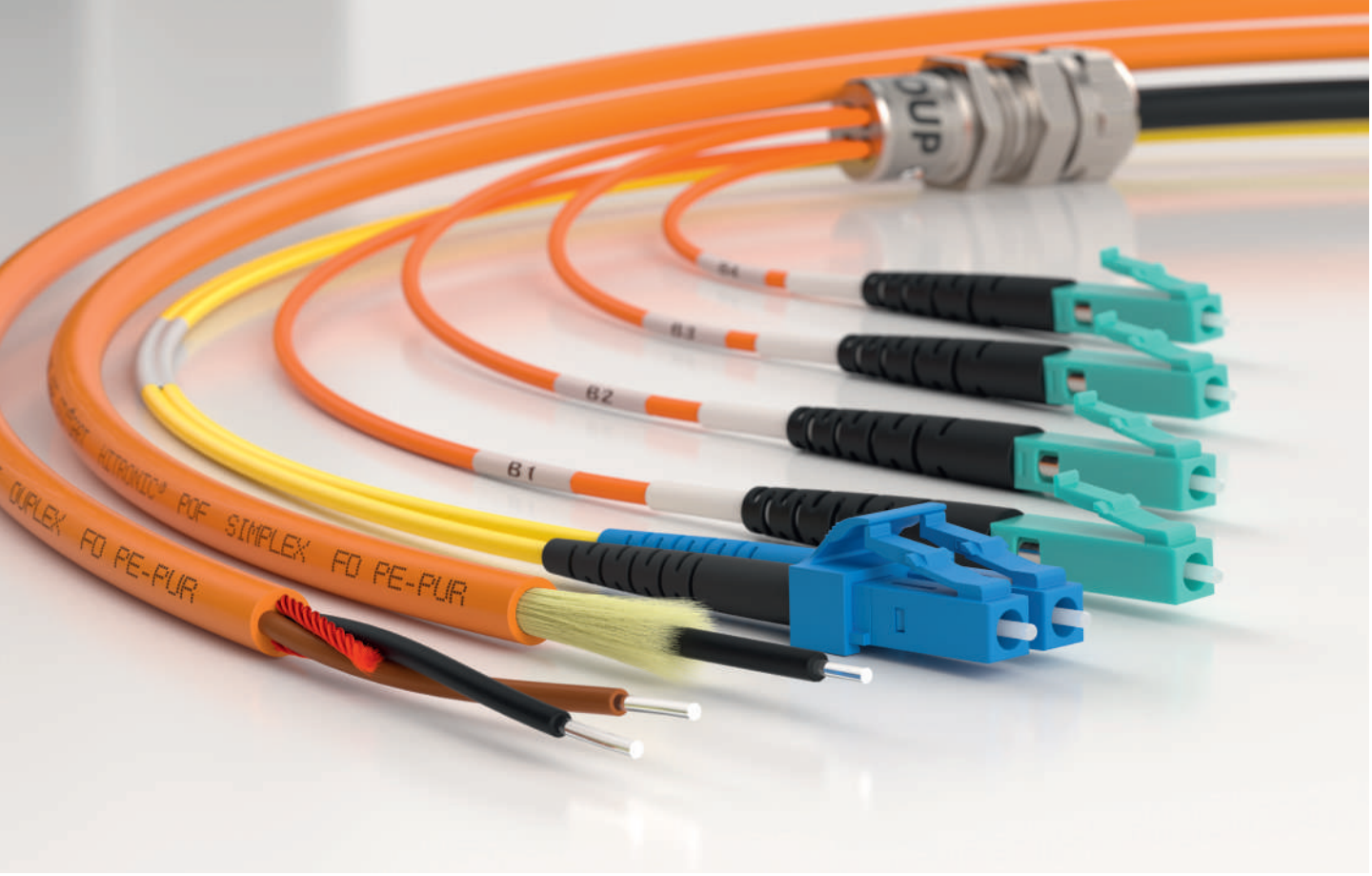
- Cat.5e acc. to ISO/IEC 11801

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002641
ETIM 5.0/6.0 Class-Description: Modular connector (industrial connector)

Article number	Article designation	Max. outer diameter (mm)	Min. core diameter including insulation	Max. core diameter including insulation	PU	AWG 7-wire
EIA/TIA standard (T568A or T568B)						
21700540	RJ45 Plug Cat.5e FM45 field m.	8	0.4	0.54	1	26-22

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Other colours are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.



HITRONIC®

Optical transmission systems

HITRONIC® fibre optic cables make transmitting large data volumes easy: fault-free, bug-proof and at almost the speed of light. Even electromagnetic radiation does not interfere with the transmission. The HITRONIC® range includes the ideal solution for indoor or outdoor use, for demanding conditions and even for use in cable chains.

Application range

- Telecommunications and network technology
- Industrial cabling and automation level
- Industrial machinery and plant engineering
- Data transmission under harsh conditions (mining and tunnel construction, oil and gas platforms, wind power plants)

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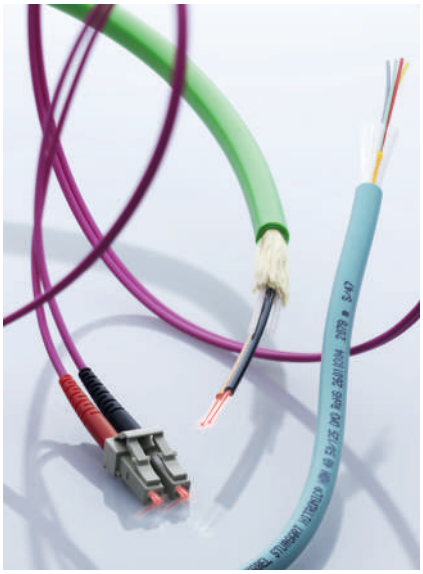
Fibre optic technology – General

The optical transmission of signals in fibre optic cables functions according to the principle of "total reflection". The reflection is attained by surrounding a light-conducting core with a sheath that is optically thinner – the light is totally reflected by the boundary surface of the sheath, enabling it to be guided through the fibre optic cable.

At a time when the demand for fast and secure communication networks is constantly growing, fibre optic cables are now an indispensable and irreplaceable communication medium.

Benefits of using fibre optic cables

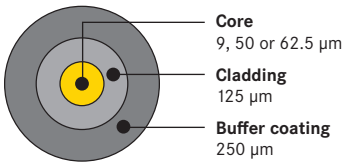
- Insensitivity to electromagnetic interference
- Electrical isolation of connected devices
- Low attenuation values
- Large transmission distances and high bandwidths
- Lightweight design
- Compact dimensions
- Can be installed in explosive environments
- High level of interception protection



GOF – Glass Optical Fibre

There are the following different types of fibres:

- Singlemode (SM) fibre, E9/125 OS2
- Multimode (MM) fibre, G62.5/125 OM1, G50/125 OM2 to OM4

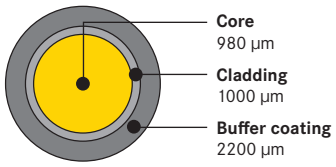


POF – Polymer Optical Fibre

- P980/1000

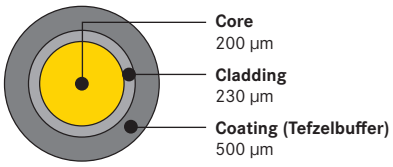
A distinction is made between the following application cases

- SIMPLEX (one buffered fibre)
- DUPLEX (two buffered fibres)



PCF – Plastic Cladded Fibre

- K200/230
- PCF – Plastic Cladded Fibre
- Also known as HCS (Hard Cladded Silica Optical Fibre)



Fibre type	max. attenuation [dB/km]				max. transmission length [m]				Colour
Wave length	650 nm	850 nm	1300 nm	1550 nm	650 nm	850 nm	1300 nm	1550 nm	
GOF Multimode OM1 62.5/125µm		3.5 (3.0)	1.5 (0.7)			100 Mbit/s: (550) 1 Gbit/s: (275) 10 Gbit/s: (33)	100 Mbit/s: (2.000) 1 Gbit/s: (550) 10 Gbit/s: (300)		Orange
GOF Multimode OM2 50/125µm		3.5 (2.5)	1.5 (0.7)			100 Mbit/s: (550) 1 Gbit/s: (550) 10 Gbit/s: (82)	100 Mbit/s: (2.000) 1 Gbit/s: (550) 10 Gbit/s: (300)		Orange
GOF Multimode OM3 50/125 µm		3.5 (2.5)	1.5 (0.7)			10 Gbit/s: (300) 40 Gbit/s: (100)	1 Gbit/s: (550) 10 Gbit/s: (300)		Water- blue
GOF Multimode OM4 50/125µm		3.5 (2.5)	1.5 (0.7)			10 Gbit/s: (550) 40 Gbit/s: (150)	1Gbit/s: (550) 10 Gbit/s: (300)		Violet
GOF Singlemode OS2 9/125µm (G652.D)			0.40 (0.35)	0.40 (0.21)		1 Gbit/s: 1.100 10 Gbit/s: 550 40 Gbit/s: 150 100 Gbit/s: 150	40 Gbit/s: (10.000)	40 Gbit/s: (40.000)	Yellow

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
For specific cable parameters see product pages or technical data sheets.

Colour-codes of fibres (loose tube) cabletypes

LAPP Standard	TIA/EIA-598 (Bellcore)	IEC60304 and DIN EN60794-1-1 (VDE0888-..)
1 red	1 blue	1 red
2 green	2 orange	2 green
3 blue	3 green	3 blue
4 yellow	4 brown	4 yellow
5 grey	5 grey	5 white
6 violet	6 white	6 grey
7 brown	7 red	7 brown
8 orange	8 black	8 violet
9 white	9 yellow	9 turquoise
10 pink	10 violet	10 black
11 black	11 pink	11 orange
12 turquoise	12 turquoise	12 pink

If fibre 13 – 24 are used in a loose tube design, the color sequence is repeated for fibre 13 – 24, but fibres are ring marked.

In terms of connectors, a distinction is made with regard to the fibre type and the application

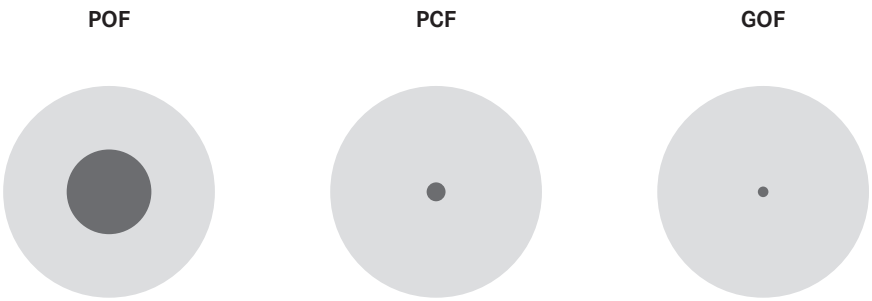
Connector for fibre type POF
- Very easy to handle. Configurable by means of crimp or clamp connection
- Connector with inner bore > 1 mm at a fibre diameter of 1000 µm and pin diameter (ferrule) of 2.5 mm
- Tailored tool set for straightforward field configuration

Connector for fibre type PCF
- Easy to handle. Configurable by means of crimp and cleave technology
- Connector with inner bore > 230 µm at a fibre diameter of 230 µm and pin diameter (ferrule) of 2.5 mm
- Tailored tool set for straightforward field configuration

Connector for fibre type GOF
- Handling requires existing knowledge. Assembly by means of bonding and polishing process
- Connector with inner bore > 125 µm at a fibre diameter of 125 µm and pin diameter (ferrule) of 2.5 mm or 1.25 mm (depending on connector type)
- Assembly by qualified staff
- The use of pre-assembled cables is recommended



Schematic size comparison of connector pin (2.5 mm) and hole (POF – PCF – GOF)



When comparing the different connector holes with regard to the fibre diameter, it becomes apparent that these are not interchangeable with one another. In other words, a PCF connector cannot be used for a POF cable. A PCF connector cannot be used for a POF cable as the fibre geometries and parameters are not compatible with one another.

Selection criteria

Basic information needed to select cable

1. Where is it used?
Indoor
Outdoor
Indoor/Outdoor (Universal)

2. Type of applications
Mining
Railway
Wind Turbines
Inside Machines
Production or Processing Plants
Telecommunications
Power chains
Vertical installation
Oil & gas platforms
On ships

3. Type of Fibres
GOF Single-mode 9/125 µm OS2
Multimode 62.5/125 µm OM1
Multimode 50/125 µm OM2
Multimode 50/125 µm OM3
Multimode 50/125 µm OM4
PCF (200/230)
POF (980/1000)

4. No. of Fibres
GOF 2, 4, 6, 8, 12, 24 ... n x 12 (depend on cable type)
POF 1 (SIMPLEX), 2 (DUPLEX)
PCF 1 (SIMPLEX), 2 (DUPLEX)

Cable designations for optical cables according to DIN VDE 0888

□ – □□□□□□

1 2 3 4 5 6

1. Product application area

A	Outdoor cable
AT	Outdoor cable, divisible
J	Indoor cable
U or A/J	Universal cable (for outdoor and indoor)

2. Buffered fibre type

B	Loose tube, unfilled
D	Loose tube, filled
V	Tight-buffered fibre

3. Cable construction (in the cable from inside to outside)

B	Armouring
F	Grease-filled
Q	Swelling tape, dry core
(L)	Aluminium tape
S	Optical cable with copper elements
(SR)	Corrugated steel tape
(ZN)	Non-metallic strain relief elements
(ZS)	metallic strain relief elements

4. Sheath materials

H	Halogen-free sheath
Y	PVC sheath
2Y	PE sheath
4Y	PA sheath
11Y	PUR sheath

5. Number of fibres

X	Number of fibres or number of loose tubes X numbers of fibres per loose tube

6. Fibre type/fibre dimensions

E	Single-mode fibre (glass core/glass cladding) 9/125 µm SM GOF (OS2)
G	Multimode fibre (glass core/glass cladding) 50/125 µm or 62.5/125 µm MM GOF (OM1, OM2, OM3, OM4)
K	Plastic cladded fibre (glass core/plastic cladding) 200/230 µm PCF
P	Polymer optical fibre (polymer core/polymer cladding) 980/1000 µm POF

7. Optical quality/transmission properties

Example 1: A-DQ(ZN)(SR)2Y 12G 50/125 OM3
Outdoor cable with corrugated steel tape armour and PE sheath, central loose tube, non-metallic strain relief made of glass yarns, 12 fibres, 50/125 µm OM3 multimode fibres

Example 2: J-V2Y(ZN)11Y 2P 980/1000
Plastic fibre-optic cable, two-fibre (DUPLEX), indoor cable with PE inner sheath, non-metallic strain relief, PUR outer sheath

Article number coding for cables

(not applicable to HITRONIC® BxK, HITRONIC® BTxK and accessories)

□□□□□□□□

A B C D1 D2

A. Group of fibres

6	GOF cables
7	GOF cables
8	POF/PCF cables

B. Installation area

0	Indoor
3	Universal, flexible
4	Universal
5	Universal, armoured
6	Outdoor
9	Outdoor, armoured

C. Type of fibres

0	POF 980/1000
1	GOF 62.5/125 OM1
2	GOF 50/125 OM2
3	GOF 50/125 OM3
4	GOF 50/125 OM4
7	PCF 200/230
9	GOF 9/125 OS2 (ITU-G652.D)

D. No. of fibres

01	SIMPLEX, 1 fibre
02	DUPLEX, 2 fibres
04	4 fibres
08	8 fibres
12	12 fibres
24	24 fibres
96	96 fibres
44	144 fibres

Example 1:
GOF outdoor cable,
HQN1500 24G 50/125 OM3 27600324

Example 2:
GOF armoured universal cable,
HUW1500 8E 9/125 OS2 27500908

Example 3:
POF cable,
POF SIMPLEX PE 28000001

Example 4:
POF cable,
POF DUPLEX PE-PUR 28020002

Example 5:
PCF outdoor cable,
PCF SIMPLEX Outdoor 28600701

Example 6:
PCF indoor cable,
PCF DUPLEX Indoor 28020702

www.lappkabel.de
HITRONIC SBX 6xLC-D TQ
Article: 29500800
Quantity: 1

Customized Pre-Assembled FO Cable Solutions

ÖLFLEX® CONNECT – Integrated Solutions made by LAPP

LAPP is offering an integrated solution with **ÖLFLEX® CONNECT** – cables assembled exactly to your requirements. Everything is possible – from traditional cable assemblies to industry standard servo connections right up to highly complex drag chain systems. With **ÖLFLEX® CONNECT** LAPP offers as well customized fibre optic system assemblies (FO trunks).

Customers can choose the right cable from the wide range of HITRONIC® fibre optic cables which can be assembled exactly as per customer specification.

By using factory assembled fibre optic cable solutions the installation for industry, telecommunication and office applications are significantly simplified.

Depending on the planning approach, time consuming connector installation or splicing at site can be avoided. Just lay the trunk system and simply plug it in with the factory pre-assembled connectors. **A plug & play solution from LAPP.**





Technical benefits

- No splice connections are necessary during installation. This saves time and costs for equipment and special tooling.
- Low attenuation values by factory preassembled plugs
- Trunk-system are easy to use without any further time consuming on-site processing
- Available with all major cable and connector types (LAPP HITRONIC® range)
- Ready to use fibre optic cabling system
- IP 68 metallic cable unit splitter for glass fibre (GOF) loose tube cables up to 48 fibres

In a few steps to a customized FO-trunk-system:

1. Determination of the required fibre type
- POF (980/1000)
- PCF (200/230)
- GOF (single-mode 9/125 OS2)
  (multimode 62,5/125 OM1)
  (multimode 50/125 OM2; OM3; OM4)

2. Selection of cable type and version
See HITRONIC® cable range
(POF, PCF and GOF and number of fibers)

3. Determination of the system length

4. Connector configuration
Selection of connector type – side 1 and 2

5. Cable pulling device
Selection cable pulling device side 1 and/or side 2

6. Specific requirements
Regarding packaging and marking

7. LAPP in-house
LAPP will check the technical feasibility and plausibility (fibre – cable – connector) and make a quotation

8. Easy ordering and fast shipping

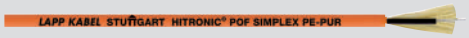
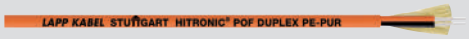
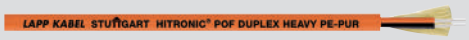
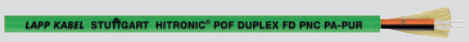
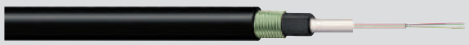
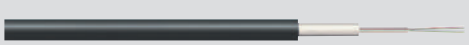
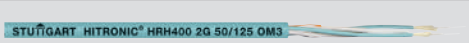
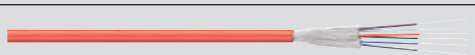
For questions about customized packaging and special issues we are happy to assist you.

Selection example:

Short designation:
TRUNK GOF HUN1500-4E9/125-SC/LC-85m

Description:
- Customized pre-assembled fibre optic cable solution
- Based on cable version HITRONIC® HUN 4E9/125 OS2
- Assembled at both ends with connectors
  - side 1: 2 x SC-duplex connector
  - side 2: 2 x LC-duplex connector
- Cable splitter unit IP68:
  - up to 24 fibres
  - M20 through hole
- Side 1 protected with a cable pulling device
  - outer diameter < 30 mm
- System length 85 m
- On disposable drum
- With test protocol

HITRONIC® Product Overview

Type of fibre	Cables	Article number	
POF	POF SIMPLEX PE	28000001	
	POF DUPLEX PE	28000002	
	POF SIMPLEX PE-PUR	28020001	
	POF DUPLEX PE-PUR	28020002	
	POF DUPLEX Heavy	28030002	
	POF SIMPLEX/DUPLEX FD PE-PUR	28320001/28320002	
	POF DUPLEX for PROFINET applications	28351002	
PCF	PCF SIMPLEX Outdoor	28600701	
	PCF DUPLEX Outdoor	28620702	
	PCF DUPLEX Indoor	28020702	
	PCF DUPLEX FD Universal	28320702	
	PCF DUPLEX for PROFINET applications	28351702	
GOF	HITRONIC® FIRE	27560304	
	HITRONIC® TORSION	26310302	
	HRM-FD Flexible	26300402	
	HDM Reel	26610404	
	HQN Outdoor	27600304	
	HVN Stranded Outdoor	26600324	
	HVN-Mini Outdoor (air blowable)	26609912	
	HQW Armoured Outdoor	27900304	
	HVW Armoured Stranded Outdoor	26900924	
	HQW-Plus Armoured Outdoor	27920304	
	HQA Aerial ADSS	26640912	
	HQA-Plus Aerial ADSS	26644912	
	HUN Universal	27400404	
	HUW Armoured Universal	27500304	
	HRH Breakout	26000302	
	HDH Mini Breakout	26010302	

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Connectors and adapters



POF Connector
F05 Simplex
Art. no.: 29150099



POF Connector
and Adapter HFBR
Art. no.: 29140099



POF Adapter F-SMA
Art. no.: 29430099



POF Connector F-SMA
and ST (BFOC)
Art. no.: 29135099



POF Connector SC-RJ
Art. no.: 29161097



POF Adapter ST (BFOC)
Art. no.: 29420099



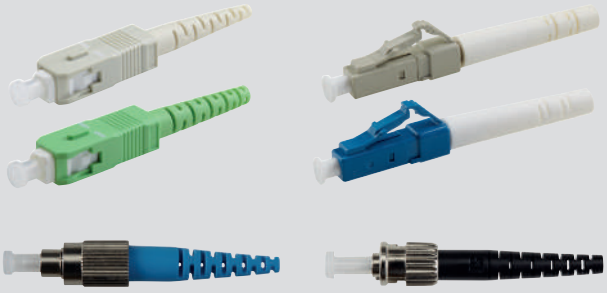
PCF Connector F-SMA and ST(BFOC)
Art. no.: 29136799



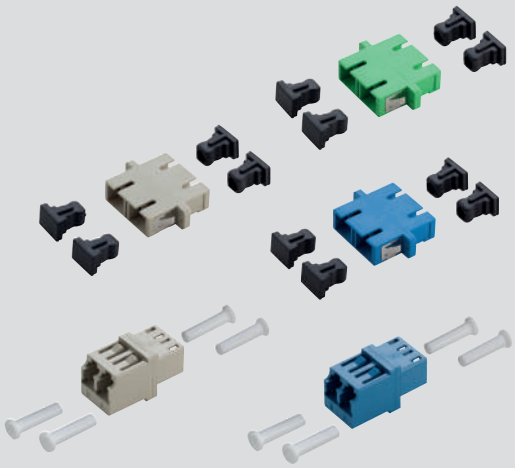
PCF Connector SC-RJ
Art. no.: 29166797



PCF Connector HFBR
Art. no.: 29140799



GOF Connector
Art. no.: 29110999



GOF Adapters
Art. no.: 29410999

Accessories



POF Assembly Sets
Art. no.: 29500001

POF Measurement Equipment
Art. no.: 29500094



PCF Assembly Sets
Art. no.: 29500701



PCF Cutting Tools
Art. no.: 29500711/29500712



GOF DUPLEX Patchcord
Art. no.: 29011402



GOF SIMPLEX Pigtail
Art. no.: 29310402



ÖLFLEX® CONNECT
Art.-Nr.: 74325966



EPIC® DATA FFC-LC starter kit
Art. no.: 38115790



EPIC® DATA FFC-SC starter kit
Art. no.: 38115795

Quickfinder

FO-fibre type	Cable type/standardisation (DIN VDE 0888)	Area of Installation	Cabling	Fibre Specification	No. of fibres	Outer sheath material
POF – Polymer Optical Fibre	J-V2Y 1P980/1000	Indoor (industrial & automation areas)	static	POF 980/100 µm	1 (SIMPLEX)	PE
	J-V2Y(ZN)11Y 1P980/1000				1 (SIMPLEX)	PUR
	J-V2Y 2P980/1000			POF 980/1000 µm	2 (DUPLEX)	PE
	J-V2Y(ZN)11Y 2P980/1000				2 (DUPLEX)	PUR
	J-V2Y(ZN)11Y 2P980/1000				2 (DUPLEX)	
	J-V2Y(ZN)11Y 1P980/1000 flex		highly flexible	POF 980/1000 µm	1 (SIMPLEX)	PUR
	J-V2Y(ZN)11Y 2P980/1000 flex				2 (DUPLEX)	
	J-V4Y(ZN)11Y 2P980/1000	Industry and automation PROFINET	static, Type B	POF 980/1000 µm	2 (DUPLEX)	PUR
	J-V4Y(ZN)Y 2P980/1000			POF 980/1000 µm	2 (DUPLEX)	PVC
	J-V4Y(ZN)11Y 2P980/1000 flex		highly flexible, Type C	POF 980/1000 µm	2 (DUPLEX)	PUR
PCF – Polymer Cladded Fibre	A-V(ZN)11Y 1K200/230	Outdoor	static	PCF 200/230 µm	1 (SIMPLEX)	PUR
	AT-VQ(ZN)HB2Y 2K200/230				2 (DUPLEX)	PE
	J-V(ZN)H11Y 2K200/230	Indoor	static	PCF 200/230 µm	2 (DUPLEX)	PUR
	A/J-V(ZN)H11Y 2K200/230 flex	Universal	highly flexible	PCF 200/230 µm	2 (DUPLEX)	PUR
	AT-V(ZN)YY 2K200/230	Industry and automation PROFINET	static, Type B	PCF 200/230 µm	2 (DUPLEX)	PVC
	AT-V(ZN)Y(ZN)Y 2K200/230 flex		highly flexible, Type C	PCF 200/230 µm	2 (DUPLEX)	PVC
	AT-V(ZN)Y(ZN)11Y 2K200/230 flex			PCF 200/230 µm	2 (DUPLEX)	PUR

Please see detailed technical information on the data sheet (www.lappgroup.com/products).
Multimode OM4 fibres are also available upon request for all GOF cables.

Product Benefits	Article designation	Article number
fibre sheath halogen-free, non-ageing, direct connector assembly	HITRONIC® POF SIMPLEX PE	28000001
PUR outer sheath halogen-free, flame-retardant, direct connector assembly	HITRONIC® POF SIMPLEX PE-PUR	28020001
fibre sheath halogen-free, non-ageing, direct connector assembly	HITRONIC® POF DUPLEX PE	28000002
PUR outer sheath halogen-free, flame-retardant, direct connector assembly	HITRONIC® POF DUPLEX PE-PUR	28020002
thicker outer sheath for increased mechanical resistance, halogen-free	HITRONIC® POF DUPLEX HEAVY PE-PUR	28030002
power chain, for highly flexible industrial applications, halogen-free outer sheath	HITRONIC® POF SIMPLEX FD PE-PUR	28320001
power chain, for highly flexible industrial applications, halogen-free outer sheath	HITRONIC® POF DUPLEX FD PE-PUR	28320002
PROFINET compliant Type B, PA fibre buffer, PUR outer sheath, halogen-free, for high mechanical or chemical stress in industrial environments	HITRONIC® POF DUPLEX PNB PA-PUR	28051002
PROFINET compliant Type B, PA fibre buffer, PVC outer sheath, for standard applications in industrial environments	HITRONIC® POF DUPLEX PNB PA-PVC	28052002
PROFINET compliant Type C, PA fibre buffer, PUR outer sheath, halogen-free, for flexible applications (power chain)	HITRONIC® POF DUPLEX FD PNC PA-PUR	28351002
PUR outer sheath, flame-retardant and halogen-free outer sheath, for direct connector assembly	HITRONIC® PCF SIMPLEX PUR Outdoor	28600701
compatible with all typical BUS systems, FRNC SIMPLEX sheath (diameter: 2.9 mm), PE outer sheath, low-smoke and halogen-free outer sheath, for direct connector assembly	HITRONIC® PCF DUPLEX FRNC-PE Outdoor	28620702
compatible with all typical BUS systems, FRNC SIMPLEX sheath (diameter: 2.9 mm), PUR outer sheath, low-smoke and halogen-free outer sheath, for direct connector assembly	HITRONIC® PCF DUPLEX FRNC-PUR Indoor	28020702
power chain, compatible with all typical BUS systems, for highly flexible industrial applications, FRNC SIMPLEX sheath (diameter: 2.2mm), halogen-free outer sheath, for direct connector assembly	HITRONIC® PCF DUPLEX FD FRNC-PUR	28320702
PROFINET compliant Type B, PVC SIMPLEX sheath (2.2 mm), PVC outer sheath, for standard applications in industrial environments, for direct connector assembly	HITRONIC® PCF DUPLEX PNB PVC-PVC	28052702
PROFINET compliant Type C, PVC SIMPLEX sheath (2.2 mm), PVC outer sheath, for flexible applications (power chain)	HITRONIC® PCF DUPLEX FD PNC PVC-PVC	28352702
PROFINET compliant Type C, PVC SIMPLEX sheath (2.2 mm), PUR outer sheath, halogen-free, for flexibe applications (power chain)	HITRONIC® PCF DUPLEX FD PNC PVC-PUR	28351702

Quickfinder [Continuation]

FO-fibre type	Cable type/standardisation (DIN VDE 0888)	Area of Installation	Cabling	Fibre Specification	No. of fibres	Max. tensile force (long-term) in [N]	Outer sheath material
GOF – Glass Opical Fibre	Outdoor Cable A-DQ(ZN)B2Y (loose tube, 4 – 24 fibres)	Outdoor	static	Multimode 50/125 µm OM3	4	1500	PE
					8		
					12		
					24		
				Multimode 50/125 µm OM2	4	1500	PE
					8		
					12		
					24		
				Multimode 62.5/125 µm OM1	4	1500	PE
					8		
					12		
					24		
				Singlemode 9/125 µm OS2	4	1500	PE
					8		
					12		
					24		
	Outdoor Cable A-DQ(ZN)B2Y (loose tube / multi tube, 8 – 48 fibres)	Outdoor, direct burial	static	Singlemode 9/125 µm OS2, G.657.A1	8	1500	PE
					12		
					24		
					2X12	2000	PE
					3X12		
					4X12		
					8	3000	PE
					12		
					24		
					2X12	4000	PE
					3X12		
					4X12		

Please see detailed technical information on the data sheet (see www.lapp.com/products).
Multimode OM4 fibres are also available upon request for all GOF cables.

Product Benefits	Article designation	Article number
compact, central loose tube, direct burial, UV resistance, halogen-free, rodent and moisture protection, watertight, low friction	HITRONIC® HQN1500 4 G 50/125 OM3	27600304
	HITRONIC® HQN1500 8 G 50/125 OM3	27600308
	HITRONIC® HQN1500 12 G 50/125 OM3	27600312
	HITRONIC® HQN1500 24 G 50/125 OM3	27600324
compact, central loose tube, direct burial, UV resistance, halogen-free, rodent and moisture protection, watertight, low friction	HITRONIC® HQN1500 4 G 50/125 OM2	27600204
	HITRONIC® HQN1500 8 G 50/125 OM2	27600208
	HITRONIC® HQN1500 12 G 50/125 OM2	27600212
	HITRONIC® HQN1500 24 G 50/125 OM2	27600224
compact, central loose tube, direct burial, UV resistance, halogen-free, rodent and moisture protection, watertight, low friction	HITRONIC® HQN1500 4 G 62.5/125 OM1	27600104
	HITRONIC® HQN1500 8 G 62.5/125 OM1	27600108
	HITRONIC® HQN1500 12 G 62.5/125 OM1	27600112
	HITRONIC® HQN1500 24 G 62.5/125 OM1	27600124
compact, central loose tube, direct burial, UV resistance, halogen-free, rodent and moisture protection, watertight, low friction	HITRONIC® HQN1500 4 E9/125 OS2	27600904
	HITRONIC® HQN1500 8 E9/125 OS2	27600908
	HITRONIC® HQN1500 12 E9/125 OS2	27600912
	HITRONIC® HQN1500 24 E9/125 OS2	27600924
compact, central loose tube, direct burial, UV resistance, halogen-free, rodent and moisture protection, watertight, low friction	HITRONIC® B3K A-DQ(ZN)B2Y 8 G657A1	26800908
	HITRONIC® B3K A-DQ(ZN)B2Y 12 G657A1	26800912
	HITRONIC® B3K A-DQ(ZN)B2Y 24 G657A1	26800924
	HITRONIC® B4K A-DQ(ZN)B2Y 2X12 G657A1	26801924
	HITRONIC® B4K A-DQ(ZN)B2Y 3X12 G657A1	26801936
	HITRONIC® B4K A-DQ(ZN)B2Y 4X12 G657A1	26801948
compact, central loose tube, direct burial, UV resistance, halogen-free, rodent and moisture protection, watertight, low friction	HITRONIC® BT4K A-DQ(ZN)B2Y 8 G657A1	26810908
	HITRONIC® BT4K A-DQ(ZN)B2Y 12 G657A1	26810912
	HITRONIC® BT4K A-DQ(ZN)B2Y 24 G657A1	26810924
	HITRONIC® BT6K A-DQ(ZN)B2Y 2X12 G657A1	26811924
	HITRONIC® BT6K A-DQ(ZN)B2Y 3X12 G657A1	26811936
	HITRONIC® BT6K A-DQ(ZN)B2Y 4X12 G657A1	26811948

Quickfinder [Continuation]

FO-fibre type	Cable type/standardisation (DIN VDE 0888)	Area of Installation	Cabling	Fibre Specification	No. of fibres	Max. tensile force (long-term) in [N]	Outer sheath material
GOF – Glass Opical Fibre	Outdoor Cable A-DQ(ZN)B2Y (loose tube, 12 – 144 fibres)	Outdoor	static	Multimode 50/125 µm OM2	24	1500	PE
					48		
				Multimode 62.5/125 µm OM1	24		
					48		
				Singlemode 9/125 µm OS2	12	1500	PE
					24		
					48		
					72	2000	
					96		
					144		
	Outdoor Cable A-DQ(ZN)2Y (stranded loose tubes, 12 – 144 fibres, compact)	Outdoor, MicroDuct systems	static, blowing technology	Singlemode 9/125 µm OS2	12	500	PE
					24		
					48		
					72		
					96	1200	
					144	1500	
	Armoured Outdoor Cable A-DQ(ZN)(SR)2Y (loose tube, 4 – 24 fibres)	Outdoor	static	Multimode 50/125 µm OM3	4	3000	PE
					8		
					12		
					24		
				Multimode 50/125 µm OM2	4	3000	PE
					8		
					12		
					24		
				Multimode 62.5/125 µm OM1	4	3000	PE
					8		
					12		
					24		
				Singlemode 9/125 µm OS2	4	3000	PE
					8		
					12		
					24		
	Universal Cable A/J-DQ(ZN)BH U-DQ(ZN)BH (loose tube, 4 – 24 fibres)	Indoor/Outdoor	static	Multimode 50/125 µm OM3	4	1500	LSZH
					8		
					12		
					24		
				Multimode 50/125 µm OM2	4	1500	LSZH
					8		
					12		
					24		
				Multimode 62.5/125 µm OM1	4	1500	LSZH
					8		
					12		
					24		
				Singlemode 9/125 µm OS2	4	1500	LSZH
					8		
					12		
					24		

Please see detailed technical information on the data sheet (www.lappgroup.com/products).
Multimode OM4 fibres are also available upon request for all GOF cables.

Product Benefits	Article designation	Article number
compact, stranded loose tubes, UV resistance, halogen-free, rodent and moisture protection, low friction, suitable for blowing technology	HITRONIC® HVN5000 2x12G 50/125 OM3	26600324
	HITRONIC® HVN5000 4x12G 50/125 OM3	26600348
	HITRONIC® HVN5000 2x12G 50/125 OM2	26600224
	HITRONIC® HVN5000 4x12G 50/125 OM2	26600248
compact, stranded loose tubes, UV resistance, halogen-free, rodent and moisture protection, low friction, suitable for blowing technology	HITRONIC® HVN1500 2x6 E9/125 OS2	26601912
	HITRONIC® HVN1500 2x12 E9/125 OS2	26601924
	HITRONIC® HVN1500 4x12 E9/125 OS2	26601948
	HITRONIC® HVN2000 6x12 E9/125 OS2	26601972
	HITRONIC® HVN2000 8x12 E9/125 OS2	26601996
	HITRONIC® HVN2000 12x12 E9/125 OS2	26601944
compact, stranded loose tubes, reduced dimensions, UV resistance, halogen-free, moisture protection, low friction, suitable for blowing technology	HITRONIC® HVN-Mini500 1x12 E9/125 OS2	26609912
	HITRONIC® HVN-Mini500 2x12 E9/125 OS2	26609924
	HITRONIC® HVN-Mini500 4x12 E9/125 OS2	26609948
	HITRONIC® HVN-Mini500 6x12 E9/125 OS2	26609972
	HITRONIC® HVN-Mini1200 8x12 E9/125 OS2	26609996
	HITRONIC® HVN-Mini1000 12x12 E9/125 OS2	26609944
compact, central loose tube, metallic armoured (corrugated steel tape), higher mechanical and chemical resistance, excellent rodent protection, halogen-free, UV resistance, moisture protected, watertight, low friction	HITRONIC® HQW3000 4 G 50/125 OM3	27900304
	HITRONIC® HQW3000 8 G 50/125 OM3	27900308
	HITRONIC® HQW3000 12 G 50/125 OM3	27900312
	HITRONIC® HQW3000 24 G 50/125 OM3	27900324
compact, central loose tube, metallic armoured (corrugated steel tape), higher mechanical and chemical resistance, excellent rodent protection, halogen-free, UV resistance, moisture protected, watertight, low friction	HITRONIC® HQW3000 4 G 50/125 OM2	27900204
	HITRONIC® HQW3000 8 G 50/125 OM2	27900208
	HITRONIC® HQW3000 12 G 50/125 OM2	27900212
	HITRONIC® HQW3000 24 G 50/125 OM2	27900224
compact, central loose tube, metallic armoured (corrugated steel tape), higher mechanical and chemical resistance, excellent rodent protection, halogen-free, UV resistance, moisture protected, watertight, low friction	HITRONIC® HQW3000 4 G 62.5/125 OM1	27900104
	HITRONIC® HQW3000 8 G 62.5/125 OM1	27900108
	HITRONIC® HQW3000 12 G 62.5/125 OM1	27900112
	HITRONIC® HQW3000 24 G 62.5/125 OM1	27900124
compact, central loose tube, metallic armoured (corrugated steel tape), higher mechanical and chemical resistance, excellent rodent protection, halogen-free, UV resistance, moisture protected, watertight, low friction	HITRONIC® HQW3000 4 E9/125 OS2	27900904
	HITRONIC® HQW3000 8 E9/125 OS2	27900908
	HITRONIC® HQW3000 12 E9/125 OS2	27900912
	HITRONIC® HQW3000 24 E9/125 OS2	27900924
compact, flexible, central loose tube, flame retardant, low smoke emission, UV resistance, halogen-free, rodent and moisture protection, watertight	HITRONIC® HUN1500 4 G 50/125 OM3	27400304
	HITRONIC® HUN1500 8 G 50/125 OM3	27400308
	HITRONIC® HUN1500 12 G 50/125 OM3	27400312
	HITRONIC® HUN1500 24 G 50/125 OM3	27400324
compact, flexible, central loose tube, flame retardant, low smoke emission, UV resistance, halogen-free, rodent and moisture protection, watertight	HITRONIC® HUN1500 4 G 50/125 OM2	27400204
	HITRONIC® HUN1500 8 G 50/125 OM2	27400208
	HITRONIC® HUN1500 12 G 50/125 OM2	27400212
	HITRONIC® HUN1500 24 G 50/125 OM2	27400224
compact, flexible, central loose tube, flame retardant, low smoke emission, UV resistance, halogen-free, rodent and moisture protection, watertight	HITRONIC® HUN1500 4 G 62.5/125 OM1	27400104
	HITRONIC® HUN1500 8 G 62.5/125 OM1	27400108
	HITRONIC® HUN1500 12 G 62.5/125 OM1	27400112
	HITRONIC® HUN1500 24 G 62.5/125 OM1	27400124
compact, flexible, central loose tube, flame retardant, low smoke emission, UV resistance, halogen-free, rodent and moisture protection, watertight	HITRONIC® HUN1500 4 E9/125 OS2	27400904
	HITRONIC® HUN1500 8 E9/125 OS2	27400908
	HITRONIC® HUN1500 12 E9/125 OS2	27400912
	HITRONIC® HUN1500 24 E9/125 OS2	27400924

Quickfinder [Continuation]

FO-fibre type	Cable type/standardisation (DIN VDE 0888)	Area of Installation	Cabling	Fibre Specification	No. of fibres	Max. tensile force (long-term) in [N]	Outer sheath material
GOF – Glass Opical Fibre	Armoured Universal Cable A/J-DQ(ZN)(SR)BH U-DQ(ZN)(SR)BH (loose tube, 4 – 24 fibres)	Indoor/Outdoor	static	Multimode 50/125 µm OM3	4	1500	LSZH
					8		
					12		
					24		
				Multimode 50/125 µm OM2	4	1500	LSZH
					8		
					12		
					24		
				Multimode 62.5/125 µm OM1	4	1500	LSZH
					8		
					12		
					24		
				Singlemode 9/125 µm OS2	4	1500	LSZH
					8		
					12		
					24		
	Breakout Cable J-V(ZN)HH (tight buffer, 2 – 12 fibres)	Indoor	static	Multimode 50/125 µm OM4	2	400	LSZH
					4	600	
					8	1200	
					12	1700	
				Multimode 50/125 µm OM3	2	400	LSZH
					4	600	
					8	1200	
					12	1700	
				Multimode 50/125 µm OM2	2	400	LSZH
					4	600	
					8	1200	
					12	1700	
				Multimode 62.5/125 µm OM1	2	400	LSZH
					4	600	
					8	1200	
					12	1700	
	Breakout Cable J-V(ZN)HH (tight buffer, 2 – 12 fibres)	Indoor	static	Singlemode 9/125 µm OS2	2	400	LSZH
					4	600	
					8	1200	
					12	1700	
	Mini Breakout Cable J-V(ZN)H (tight buffer, 2 – 12 fibres)	Indoor	static	Multimode 50/125 µm OM4	2	650	LSZH
					4		
					8	850	
					12		
				Multimode 50/125 µm OM3	2	650	LSZH
					4		
					8	850	
					12		
				Multimode 50/125 µm OM2	2	650	LSZH
					4		
					8	850	
					12		
				Multimode 62.5/125 µm OM1	2	650	LSZH
					4		
					8	850	
					12		

Please see detailed technical information on the data sheet (www.lappgroup.com/products).
Multimode OM4 fibres are also available upon request for all GOF cables.

Product Benefits	Article designation	Article number
metallic armoured (corrugated steel tape), excellent rodent protection, flame retardant, low smoke emission, halogen-free, moisture protection, watertight	HITRONIC® HUW1500 4 G 50/125 OM3	27500304
	HITRONIC® HUW1500 8 G 50/125 OM3	27500308
	HITRONIC® HUW1500 12 G 50/125 OM3	27500312
	HITRONIC® HUW1500 24 G 50/125 OM3	27500324
metallic armoured (corrugated steel tape), excellent rodent protection, flame retardant, low smoke emission, halogen-free, moisture protection, watertight	HITRONIC® HUW1500 4 G 50/125 OM2	27500204
	HITRONIC® HUW1500 8 G 50/125 OM2	27500208
	HITRONIC® HUW1500 12 G 50/125 OM2	27500212
	HITRONIC® HUW1500 24 G 50/125 OM2	27500224
metallic armoured (corrugated steel tape), excellent rodent protection, flame retardant, low smoke emission, halogen-free, moisture protection, watertight	HITRONIC® HUW1500 4 G 62.5/125 OM1	27500104
	HITRONIC® HUW1500 8 G 62.5/125 OM1	27500108
	HITRONIC® HUW1500 12 G 62.5/125 OM1	27500112
	HITRONIC® HUW1500 24 G 62.5/125 OM1	27500124
metallic armoured (corrugated steel tape), excellent rodent protection, flame retardant, low smoke emission, halogen-free, moisture protection, watertight	HITRONIC® HUW1500 4 E9/125 OS2	27500904
	HITRONIC® HUW1500 8 E9/125 OS2	27500908
	HITRONIC® HUW1500 12 E9/125 OS2	27500912
	HITRONIC® HUW1500 24 E9/125 OS2	27500924
halogen-free, flame-retardant, low smoke emission, easy to handle, highly flexible, suitable for direct connector assembly, SIMPLEX sheath diameter: 2.1 mm	HITRONIC® HRH400 2 G 50/125 OM4	26000402
	HITRONIC® HRH600 4 G 50/125 OM4	26000404
	HITRONIC® HRH1200 8 G 50/125 OM4	26000408
	HITRONIC® HRH1700 12 G 50/125 OM4	26000412
halogen-free, flame-retardant, low smoke emission, easy to handle, highly flexible, suitable for direct connector assembly, SIMPLEX sheath diameter: 2.1 mm	HITRONIC® HRH400 2 G 50/125 OM3	26000302
	HITRONIC® HRH600 4 G 50/125 OM3	26000304
	HITRONIC® HRH1200 8 G 50/125 OM3	26000308
	HITRONIC® HRH1700 12 G 50/125 OM3	26000312
halogen-free, flame-retardant, low smoke emission, easy to handle, highly flexible, suitable for direct connector assembly, SIMPLEX sheath diameter: 2.1 mm	HITRONIC® HRH400 2 G 50/125 OM2	26000202
	HITRONIC® HRH600 4 G 50/125 OM2	26000204
	HITRONIC® HRH1200 8 G 50/125 OM2	26000208
	HITRONIC® HRH1700 12 G 50/125 OM2	26000212
halogen-free, flame-retardant, low smoke emission, easy to handle, highly flexible, suitable for direct connector assembly, SIMPLEX sheath diameter: 2.1 mm	HITRONIC® HRH400 2 G 62.5/125 OM1	26000102
	HITRONIC® HRH600 4 G 62.5/125 OM1	26000104
	HITRONIC® HRH1200 8 G 62.5/125 OM1	26000108
	HITRONIC® HRH1700 12 G 62.5/125 OM1	26000112
halogen-free, flame-retardant, low smoke emission, easy to handle, highly flexible, suitable for direct connector assembly, SIMPLEX sheath diameter: 2.1 mm	HITRONIC® HRH400 2 E9/125 OS2	26000902
	HITRONIC® HRH600 4 E9/125 OS2	26000904
	HITRONIC® HRH1200 8 E9/125 OS2	26000908
	HITRONIC® HRH1700 12 E9/125 OS2	26000912
halogen-free, flame-retardant, low smoke emission, easy to handle, suitable for direct connector assembly, tight buffer fibre diameter: 900 µm	HITRONIC® HDH 2 G 50/125 OM4	26010402
	HITRONIC® HDH 4 G 50/125 OM4	26010404
	HITRONIC® HDH 8 G 50/125 OM4	26010408
	HITRONIC® HDH 12 G 50/125 OM4	26010412
halogen-free, flame-retardant, low smoke emission, easy to handle, suitable for direct connector assembly, tight buffer fibre diameter: 900 µm	HITRONIC® HDH 2 G 50/125 OM3	26010302
	HITRONIC® HDH 4 G 50/125 OM3	26010304
	HITRONIC® HDH 8 G 50/125 OM3	26010308
	HITRONIC® HDH 12 G 50/125 OM3	26010312
halogen-free, flame-retardant, low smoke emission, easy to handle, suitable for direct connector assembly, tight buffer fibre diameter: 900 µm	HITRONIC® HDH 2 G 50/125 OM2	26010202
	HITRONIC® HDH 4 G 50/125 OM2	26010204
	HITRONIC® HDH 8 G 50/125 OM2	26010208
	HITRONIC® HDH 12 G 50/125 OM2	26010212
halogen-free, flame-retardant, low smoke emission, easy to handle, suitable for direct connector assembly, tight buffer fibre diameter: 900 µm	HITRONIC® HDH 2 G 62.5/125 OM1	26010102
	HITRONIC® HDH 4 G 62.5/125 OM1	26010104
	HITRONIC® HDH 8 G 62.5/125 OM1	26010108
	HITRONIC® HDH 12 G 62.5/125 OM1	26010112

Quickfinder [Continuation]

FO-fibre type	Cable type/standardisation (DIN VDE 0888)	Area of Installation	Cabling	Fibre Specification	No. of fibres	Max. tensile force (long-term) in [N]	Outer sheath material
GOF – Glass Optical Fibre Cables for Special Applications	Fire-Resistant Cable Universal cable with special properties in case of fire A/J-DQ(ZN)BH(SR)H, U-DQ(ZN)BH(SR)H, armoured loose tube cable (4 – 24 fibres)	Universal (indoor and outdoor), safety area, tunnels	static	Multimode 50/125 µm OM3	4	1500	LSZH
					8		
					12		
					24		
				Multimode 50/125 µm OM2	4	1500	LSZH
					8		
					12		
					24		
				Multimode 62.5/125 µm OM2	4	1500	LSZH
					8		
					12		
					24		
				Singlemode 9/125 µm OS2	4	1500	LSZH
					8		
					12		
					24		
	Torsion-Resistant Breakout Cable A/J-V(ZN)H11Y flexible (tight buffer, 2 – 12 fibres)	Universal (indoor and outdoor), Torsion, flexible application	flexible (Torsion)	Multimode 50/125 µm OM2	2	600	PUR
					4	800	
					8	1600	
					12	2400	
				Multimode 62.5/125 µm OM1	2	600	PUR
					4	800	
					8	1600	
					12	2400	
	highly flexible drag chain Breakout cable A/J-V(ZN)H(ZN)11Y (tight buffer, 2 – 12 fibres)	Universal, industrial area	flexible, moving (drag chain)	Multimode 50/125 µm OM4	4	1000	PUR
				Multimode 50/125 µm OM3			
				Multimode 50/125 µm OM2			
				Multimode 62.5/125 µm OM1			
				Singlemode 9/125 µm OS2			
	Reelable Mini Breakout Cable A/ J-V(ZN)11Y flexible (tight buffer, 4, 6, 8 fibres)	Universal, industrial area, event technology	flexible (for frequent reeling)	Multimode 50/125 µm OM4	4	600	PUR
					6		
					8	700	
				Multimode 50/125 µm OM3	4	600	PUR
					6		
					8	700	
				Multimode 50/125 µm OM2	4	600	PUR
					6		
					8	700	
				Multimode 62.5/125 µm OM1	4	600	PUR
					6		
					8	700	

Please see detailed technical information on the data sheet (www.lappgroup.com/products).
Multimode OM4 fibres are also available upon request for all GOF cables.

Product Benefits	Article designation	Article number
Safety fire-resistant fibre optical cable with system integrity for 180 min, halogen-free, flame-retardant, low smoke emission cable sheath, metallic armoured (corrugated steel tape)	HITRONIC® FIRE 4G50/125 OM3	27560304
	HITRONIC® FIRE 8G50/125 OM3	27560308
	HITRONIC® FIRE 12G50/125 OM3	27560312
	HITRONIC® FIRE 24G50/125 OM3	27560324
Safety fire-resistant fibre optical cable with system integrity for 180 min, halogen-free, flame-retardant, low smoke emission cable sheath, metallic armoured (corrugated steel tape)	HITRONIC® FIRE 4G50/125 OM2	27560204
	HITRONIC® FIRE 8G50/125 OM2	27560208
	HITRONIC® FIRE 12G50/125 OM2	27560212
	HITRONIC® FIRE 24G50/125 OM2	27560224
Safety fire-resistant fibre optical cable with system integrity for 180 min, halogen-free, flame-retardant, low smoke emission cable sheath, metallic armoured (corrugated steel tape)	HITRONIC® FIRE 4G62.5/125 OM1	27560104
	HITRONIC® FIRE 8G62.5/125 OM1	27560108
	HITRONIC® FIRE 12G62.5/125 OM1	27560112
	HITRONIC® FIRE 24G62.5/125 OM1	27560124
Safety fire-resistant fibre optical cable with system integrity for 180 min, halogen-free, flame-retardant, low smoke emission cable sheath, metallic armoured (corrugated steel tape)	HITRONIC® FIRE 4E9/125 OS2	27560904
	HITRONIC® FIRE 8E9/125 OS2	27560908
	HITRONIC® FIRE 12E9/125 OS2	27560912
	HITRONIC® FIRE 24E9/125 OS2	27560924
Fibre optical cables for wind applications with defined movement, torsion with robust PUR sheath, breakout cable construction, SIMPLEX sheath diameter: 2.5 mm	HITRONIC® TORSION 2G50/125 OM2	26310202
	HITRONIC® TORSION 4G50/125 OM2	26310204
	HITRONIC® TORSION 8G50/125 OM2	26310208
	HITRONIC® TORSION 12G50/1225 OM2	26310212
Fibre optical cables for wind applications with defined movement, torsion with robust PUR sheath, breakout cable construction, SIMPLEX sheath diameter: 2.5 mm	HITRONIC® TORSION 2G62.5/125 OM1	26310102
	HITRONIC® TORSION 4G62.5/125 OM1	26310104
	HITRONIC® TORSION 8G62.5/125 OM1	26310108
	HITRONIC® TORSION 12G62.5/125 OM1	26310112
Fibre optical cable for flexible applications (power chain) for high mechanical stress in industrial envoronments, PUR outer sheath, breakout cable construction, SIMPLEX sheath dimension: 2.0 mm	HITRONIC® HRM-FD1000 4G50/125 OM4	26300404
	HITRONIC® HRM-FD1000 4G50/125 OM3	26300304
	HITRONIC® HRM-FD1000 4G50/125 OM2	26300204
	HITRONIC® HRM-FD1000 4G62.5/125 OM1	26300104
	HITRONIC® HRM-FD1000 4E9/125 OS2	26300904
Reelable fibre optical cable for events and plant engineering, tactical applications, with robust PUR outer sheath, mini-Breakout cable construction, tight buffer fibre diameter: 900µm	HITRONIC® HDM600 4G50/125 OM4	26610404
	HITRONIC® HDM600 6G50/125 OM4	26610406
	HITRONIC® HDM700 8G50/125 OM4	26610408
Reelable fibre optical cable for events and plant engineering, tactical applications, with robust PUR outer sheath, mini-Breakout cable construction, tight buffer fibre diameter: 900µm	HITRONIC® HDM600 4G50/125 OM3	26610304
	HITRONIC® HDM600 6G50/125 OM3	26610306
	HITRONIC® HDM700 8G50/125 OM3	26610308
Reelable fibre optical cable for events and plant engineering, tactical applications, with robust PUR outer sheath, mini-Breakout cable construction, tight buffer fibre diameter: 900µm	HITRONIC® HDM600 4G50/125 OM2	26610204
	HITRONIC® HDM600 6G50/125 OM2	26610206
	HITRONIC® HDM700 8G50/125 OM2	26610208
Reelable fibre optical cable for events and plant engineering, tactical applications, with robust PUR outer sheath, mini-Breakout cable construction, tight buffer fibre diameter: 900µm	HITRONIC® HDM600 4G62.5/124 OM1	26610104
	HITRONIC® HDM600 6G62.5/125 OM1	26610106
	HITRONIC® HDM700 8G62.5/125 OM1	26610108

POF selection table [Connector – Cable – Tools – Accessories]

	Cable – tools – accessories	Article no.	ST (BFOC)		FSMA			
			Crimp version	Clamp version	Crimp version		Clamp version	
			POF Connector ST(BFOC) Crimp 2.2	POF Connector ST(BFOC) Crimp 2.2	POF Connector FSMA Crimp 2.2	POF Connector FSMA Hex Crimp	POF Connector FSMA Crimp 2.2	POF Connector FSMA Hex Clamp
			Article no./PU	Article no./PU	Article no./PU		Article no./PU	
			29125099/4	29120099/4	29135099/4	29135089/4	29130099/4	29130089/4
			29125098/50	29120098/50	29135098/50	29135088/50	29130098/50	29130088/50
(compatible) Cables	HITRONIC® POF SIMPLEX PE	28000001	X	X	X	X	X	X
	HITRONIC® POF SIMPLEX PE-PUR	28020001	X	X	X	X	X	X
	HITRONIC® POF SIMPLEX FD PE-PUR	28320001	X	X	X	X	X	X
	HITRONIC® POF DUPLEX PE	28000002	X	X	X	X	X	X
	HITRONIC® POF DUPLEX PE-PUR	28020002	X	X	X	X	X	X
	HITRONIC® POF DUPLEX HEAVY PE-PUR	28030002	X	X	X	X	X	X
	HITRONIC® POF DUPLEX PNB PA-PUR	28051002	X	X	X	X	X	X
	HITRONIC® POF DUPLEX PNB PA-PVC	28052002	X	X	X	X	X	X
	HITRONIC® POF DUPLEX FD PE-PUR	28320002	X	X	X	X	X	X
	HITRONIC® POF DUPLEX FD PNC PA-PUR	28351002	X	X	X	X	X	X
Tool sets	Assembly Set POF Connector FSMA	29500001			X	X	(X)*	(X)*
	Assembly Set POF Connector ST(BFOC)	29500002	X	(X)*				
	Assembly Set POF Connector SC/SC-RJ	29500004						
Adapters	POF Adapter FSMA/4PC	29430099			X	X	X	X
	POF Adapter FSMA Hex/4PC	29430089			X	X	X	X
	POF Adaper ST (BFOC)/4PC	29420099	X	X				
	POF Adapter F05 SIMPLEX/4PC	29450099						
	POF Adapter HFBR4505 GY SIMPLEX/4PC	29440099						
	POF Adapter HFBR4515 BL SIMPLEX/4PC	29441099						
Individual accessories, tools, supplies	POF Buffered Fibre Stripper 2.2 mm	29500011	X	X	X	X	X	X
	POF Cable Stripper 3.6/6.0 mm	29500012	X (for cable)	X (for cable)	X (for cable)	X (for cable)	X (for cable)	X (for cable)
	POF Cable Stripper PA 2.2 mm	29500013	X (Alternative)	X (Alternative)	X (Alternative)	X (Alternative)	X (Alternative)	X (Alternative)
	POF Crimp Tool 2.5/3.0/4.5/4.95 mm	29500010	X		X	X		
	Strain relief element scissors	29500017	X	X	X	X	X	X
	Polishing film graining size 1000 (BL)	29500021	X	X	X	X	X	X
	Polishing film graining size 0.3 µm (WH)	29500022						
	Polishing film graining size 1 µm (GN)	29500023	X	X	X	X	X	X
	Polishing film graining size 5 µm (BR)	29500024	X	X	X	X	X	X
	Polishing glass plate 150x230 mm	29500020	X	X	X	X	X	X
	Polishing Disc POF ST(BFOC) Connector	29500032	X	X				
	Polishing Disc POF HFBR4501/4511 SIMPLEX	29500033						
	Polishing Disc POF SIMPLEX 2.2 mm	29500036						
	Polishing Disc POF FSMA Connector	29500031			X	X	X	X
	Polishing Disc POF F05 Connector	29500035						
	Polishing Disc POF HFBR4516 DUPLEX	29500034						
	Polishing Disc POF SC Connector	29500037						
	POF Cutter 2.2/1.0 mm Guillotine	29500014	X	X	X	X	X	X
	POF BufferedFibreCutter 2.2 mm manual	29500015	X (Alternative)	X (Alternative)	X (Alternative)	X (Alternative)	X (Alternative)	X (Alternative)
	POF BufferedFibreCutter 2.2 mm automatic	29500016	X (Alternative)	X (Alternative)	X (Alternative)	X (Alternative)	X (Alternative)	X (Alternative)
Optional test accessories	POF Optical Transmitter (TMR)	29500092	X	X	X	X	X	X
	POF Optical TMR Adapter HFBR, 650 nm	29500071						
	POF Optical TMR Adapter FSMA, 650 nm	29500072			X	X	X	X
	POF Optical TMR Adapter ST(BFOC), 650 nm	29500073	X	X				
	POF Optical TMR Adapter F05, 660 nm	29500074						
	POF Optical TMR Adapter HFBR, 660 nm	29500075						
	POF Optical TMR Adapter FSMA, 660 nm	29500076			X	X	X	X
	POF Optical TMR Adapter ST(BFOC), 660 nm	29500077	X	X				
	POF Optical Power Meter 660/850 nm	29500093	X		X	X	X	X
	POF Power Meter Adapter HFBR4501/4521	29500081						
	POF Power Meter Adapter FSMA	29500082			X	X	X	X
	POF Power Meter Adapter ST(BFOC)	29500083	X	X				
	POF Power Meter Adapter F05	29500084						
	POF Measuring Equiment Set 660/850 nm	29500094	X (Set: Transmitter, Power Meter)	X (Set: Transmitter, Power Meter)	X (Set: Transmitter, Power Meter)	X (Set: Transmitter, Power Meter)	X (Set: Transmitter, Power Meter)	X (Set: Transmitter, Power Meter)

* Includes tools that can be used on the clamp version.

SC-RJ	F05 SIMPLEX	HFBR-Connector Family								
Crimp version										
POF Connector SC-RJ Crimp 2.2	POF Connector F05 SIMPLEX	POF Connector HFBR4501	POF Connector HFBR4503	POF Connector HFBR4506	POF Connector HFBR4511	POF Connector HFBR4513	POF Connector HFBR4516	POF Connector HFBR4531	POF Connector HFBR4532	POF Connector HFBR4533
Article no./PU	Article no./PU	Article no./PU								
29161097/1	29150099/4	29140099/4	29141099/4	29142099/4	29143099/4	29144099/4	29145099/4	29146099/4	29147099/4	29148099/4
-	29150098/50	29140098/50	29141098/50	29142098/50	29143098/50	29144098/50	29145098/50	29146098/50	29147098/50	29148098/50
	X	X	X		X	X		X	X	X
	X	X	X		X	X		X	X	X
	X	X	X		X	X		X	X	X
X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X
X										
	X									
		X			X					
		X			X					
X	X	X	X	X	X	X	X	X	X	X
X (for cable)	X (for cable)	X (for cable)	X (for cable)	X (for cable)	X (for cable)	X (for cable)	X (for cable)	X (for cable)	X (for cable)	X (for cable)
X (Alternative)	X (Alternative)	X (Alternative)	X (Alternative)	X (Alternative)	X (Alternative)	X (Alternative)	X (Alternative)	X (Alternative)	X (Alternative)	X (Alternative)
		X	X	X	X	X	X			
X	X									
X	X		X	X	X	X	X			
X	X		X	X	X	X	X			
X	X		X	X	X	X	X			
X	X									
		X			X					
	X									
							X			
X										
X	X	X	X	X	X	X	X	X	X	X
X (Alternative)	X (Alternative)	X (Alternative)	X (Alternative)	X (Alternative)	X (Alternative)	X (Alternative)	X (Alternative)	X (Alternative)	X (Alternative)	X (Alternative)
X (Alternative)	X (Alternative)	X (Alternative)	X (Alternative)	X (Alternative)	X (Alternative)	X (Alternative)	X (Alternative)	X (Alternative)	X (Alternative)	X (Alternative)
	X	X								
		X								
	X									
		X								
	X	X								
		X								
	X									
	X (Set: Transmitter, Power Meter)	X (Set: Transmitter, Power Meter)								

PCF selection table [Connector – Cable – Tools – Accessories]

			ST (BFOC)	
			Clamp version	
			PCF Connector ST (BFOC) Clamp 3.0	PCF Connector ST (BFOC) Clamp 2.2
			Article no./PU	
Cable – tools – accessories		Article no.	29126799/4	29125799/4
			29126798/50	29125798/50
(compatible) Cables	HITRONIC® PCF SIMPLEX PUR, 2.9 mm	28600701	X	
	HITRONIC® PCF DUPLEX FRNC-PUR, 2.9 mm	28020702	X	
	HITRONIC® PCF DUPLEX FRNC-PE, 2.9 mm	28620702	X	
	HITRONIC® PCF DUPLEX PNB PVC-PVC, 2.2 mm	28052702		X
	HITRONIC® PCF DUPLEX FD FRNC-PUR, 2.2 mm	28320702		X
	HITRONIC® PCF DUPLEX FD PNC PVC-PUR, 2.2 mm	28351702		X
	HITRONIC® PCF DUPLEX FD PNC PVC-PVC, 2.2 mm	28352702		X
Tool sets	Assembly Set PCF Connector FSMA	29500701		
	Assembly Set PCF Connector ST(BFOC)	29500702	X	X
	Assembly Set PCF Connector SC/SC-RJ	29500704		
	Assembly Set PCF Connector HFBR4521	29500703		
Adapters	POF Adapter FSMA/4PC	29430099		
	POF Adapter FSMA Hex/4PC	29430089		
	POF Adaper ST (BFOC)/4PC	29420099	X	X
	POF Adapter F05 SIMPLEX/4PC	29450099		
	POF Adapter HFBR4505 GY SIMPLEX/4PC	29440099		
	POF Adapter HFBR4515 BL SIMPLEX/4PC	29441099		
Individual accessories, tools, supplies	PCF Buffered Fibre Stripper 0.5 mm (K200/230)	29500711	X	X
	POF Cable Stripper 3.6/6.0 mm	29500012	X	X
	POF Cable Stripper PA 2.2 mm	29500013		
	POF Crimp Tool 2.5/3.0/4.5/4.95 mm	29500010		
	PCF Cleaving Tool FSMA Connector	29500712		
	PCF Cleaving Tool ST(BFOC) Connector	29500713	X	X
	PCF Cleaving Tool HFBR4521 Connector	29500714		
	PCF Cleaving Tool SC Connector	29500715		
	Strain relief element scissors	29500017	X	X
	PCF Microscope Adapter FSMA SIMPLEX	29500771		
	PCF Microscope Adapter ST(BFOC) SIMPLEX	29500772	X	X
	PCF Microscope Adapter HFBR SIMPLEX	29500773		
	PCF Inspection Microscope (100x)	29500770	X	X
	Polishing film graining size 1000 (BL)	29500021		
	Polishing film graining size 0.3 µm (WH)	29500022	X (optional)	X (optional)
	Polishing film graining size 1 µm (GN)	29500023	X (optional)	X (optional)
	Polishing film graining size 5 µm (BR)	29500024	X (optional)	X (optional)
	Polishing glass plate 150x230 mm	29500020	X (optional)	X (optional)
	Polishing Disc POF ST(BFOC) Connector	29500032	X (optional)	X (optional)
	Polishing Disc POF HFBR4501/4511 SIMPLEX	29500033		
	Polishing Disc POF SIMPLEX 2.2 mm	29500036		
	Polishing Disc POF FSMA Connector	29500031		
	Polishing Disc POF F05 Connector	29500035		
	Polishing Disc POF HFBR4516 DUPLEX	29500034		
	Polishing Disc PCF HFBR4521 Connector	29500733		
	Polishing Disc POF SC Connector	29500037		
Optional test accessories	POF Optical Transmitter (TMR)	29500092	X	X
	POF Optical TMR Adapter HFBR, 650 nm	29500071		
	POF Optical TMR Adapter FSMA, 650 nm	29500072		
	POF Optical TMR Adapter ST(BFOC), 650 nm	29500073	X	X
	POF Optical TMR Adapter F05, 660 nm	29500074		
	POF Optical TMR Adapter HFBR, 660 nm	29500075		
	POF Optical TMR Adapter FSMA, 660 nm	29500076		
	POF Optical TMR Adapter ST(BFOC), 660 nm	29500077	X	X
	POF Optical Power Meter 660/850 nm	29500093	X	X
	POF Power Meter Adapter HFBR4501/4521	29500081		
	POF Power Meter Adapter FSMA	29500082		
	POF Power Meter Adapter ST(BFOC)	29500083	X	X
	POF Power Meter Adapter F05	29500084		
	POF Measuring Equiment Set 660/850 nm	29500094	X	X

FSMA		SC-RJ		HFBR 4521	
Clamp version		Clamp version		Clamp version	Crimp version
PCF Connector FSMA Clamp 3.0	PCF Connector FSMA Clamp 2.2	PCF Connector SC-RJ Clamp 3.0	PCF Connector SC-RJ Clamp 2.2	PCF Connector HFBR4521 Clamp 3.0	PCF Connector HFBR4521 BK SIMPLEX 2.2
Article no./PU		**Article no./PU**		**Article no./PU**	
29136799/4	29135799/4	29166797/1	29165797/1	29141799/4	29140799/4
29136798/50	29135798/50	–	–	29141798/50	29140798/50
X		X		X	
X		X		X	
X		X		X	
	X		X		
	X		X		X
	X		X		X
	X		X		X
X	X				
		X	X		
				X	
X	X				
X	X				
X	X	X	X	X	X
X	X	X	X	X	X
X	X				
				X	
		X	X		
X	X			X	X
X	X				
				X	X
X	X			X	X
X (optional)	X (optional)	X (optional)	X (optional)	X (optional)	X
X (optional)	X (optional)	X (optional)	X (optional)	X (optional)	X
X (optional)	X (optional)	X (optional)	X (optional)	X (optional)	X
X (optional)	X (optional)	X (optional)	X (optional)	X (optional)	X
X (optional)	X (optional)				
				X (optional)	X
		X (optional)	X (optional)		
X	X			X	X
X	X				
				X	X
X	X				
X	X			X	X
				X	X
X	X				
X	X			X	X

Quickfinder [GOF DUPLEX Patchcord]

Duplex Patchcord	GOF Connector		ST					SC		
		Length (m)	G 50 OM4	G50 OM3	G50 OM2	G62.5 OM1	OS2	G 50 OM4	G50 OM3	G50 OM2
	 ST	1	29022401	29022301	29022201	*	29022901	29021401	29021301	29021201
		2	29022402	29022302	29022202	29022102	29022902	29021402	29021302	29021202
		3	29022403	29022303	29022203	29022103	29022903	29021403	29021303	29021203
		5	29022405	29022305	29022205	*	29022905	29021405	29021305	29021205
		10	29022410	29022310	29022210	*	29022910	29021410	29021310	29021210
		15	*	*	*	*	*	29021415	*	*
		20	*	*	*	*	*	29021420	*	*
	 SC	1	*	*	*	*	*	29011401	29011301	29011201
		2	*	*	*	*	*	29011402	29011302	29011202
		3	*	*	*	*	*	29011403	29011303	29011203
		5	*	*	*	*	*	29011405	29011305	29011205
		10	*	*	*	*	*	29011410	29011310	29011210
	 LC	1	29032401	29032301	29032201	*	29032901	29031401	29031301	29031201
		2	29032402	29032302	29032202	29032102	29032902	29031402	29031302	29031202
		3	29032403	29032303	29032203	29032103	29032903	29031403	29031303	29031203
		5	29032405	29032305	29032205	29032105	29032905	29031405	29031305	29031205
		10	29032410	29032310	29032210	29032110	29032910	29031410	29031310	29031210
		15	*	*	*	*	*	*	*	*
		20	*	*	*	*	*	*	*	*
	 FC	1	*	*	*	*	*	*	*	*
		2	*	*	*	*	*	*	*	*
		3	*	*	*	*	*	*	*	*
		5	*	*	*	*	*	*	*	*
		10	*	*	*	*	*	*	*	*

Legend

Standard catalog article

Also longer variants possible upon request!

*Upon request.

			LC					FC				
	G62.5 OM1	OS2	G 50 OM4	G50 OM3	G50 OM2	G62.5 OM1	OS2	G 50 OM4	G50 OM3	G50 OM2	G62.5 OM1	OS2
	29021101	29021901	*	*	*	*	*	*	*	*	*	*
	29021102	29021902	*	*	*	*	*	*	*	*	*	*
	29021103	29021903	*	*	*	*	*	*	*	*	*	*
	29021105	29021905	*	*	*	*	*	*	*	*	*	*
	29021110	29021910	*	*	*	*	*	*	*	*	*	*
	*	*	*	*	*	*	*	*	*	*	*	*
	29021120	*	*	*	*	*	*	*	*	*	*	*
	*	29011901	*	*	*	*	*	*	*	*	*	*
	29011102	29011902	*	*	*	*	*	*	*	*	*	*
	*	29011903	*	*	*	*	*	*	*	*	*	*
	*	29011905	*	*	*	*	*	*	*	*	*	*
	*	29011910	*	*	*	*	*	*	*	*	*	*
		29031901	29033401	29033301	29033201	29033101	29033901	*	*	*	*	*
	29031102	29031902	29033402	29033302	29033202	29033102	29033902	*	*	*	*	*
	29031103	29031903	29033403	29033303	29033203	29033103	29033903	*	*	*	*	*
	*	29031905	29033405	29033305	29033205	29033105	29033905	*	*	*	*	*
	*	29031910	29033410	29033310	29033210	29033110	29033910	*	*	*	*	*
	*	*	*	29033315	*	*	*	*	*	*	*	*
	*	*	*	*	*	*	29033920	*	*	*	*	*
	*	*	*	*	*	*	*	29044401	29044301	29044201	*	29044901
	*	*	*	*	*	*	*	29044402	29044302	29044202	29044102	29044902*
	*	*	*	*	*	*	*	29044403	29044303	29044203	*	29044903
	*	*	*	*	*	*	*	29044405	29044305	29044205	*	29044905
	*	*	*	*	*	*	*	29044410	29044310	29044210	*	29044910

HITRONIC® POF SIMPLEX BUFFERED FIBRE

Polymer optical fibre as simplex buffered fibre version with PE sheath

Info

- Suitable for direct connector assembly

Benefits

- Transmission lengths up to 70 m
- Suitable for direct connector assembly
- Easy to handle
- No crosstalk
- EMC protection

Application range

- For optical signal transmission in industrial applications
- Very suitable for fixed installation in control cabinets, cable ducts, or pipes with low mechanical stress

Product features

- Lightweight
- High flexibility
- Halogen-free buffer tube

Product Make-up

- Polymer Optical Fibre (POF)
- PE buffer tube
- Without outer sheath
- Colour: black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

Dimensions
Buffered fibre: 2.2 mm

Fibre type
POF - P980/1000

Standard designation
J-V2Y

Optical fibre type
Core material: PMMA
Cladding material: fluoropolymers

Permissible bending radius
≥ 10 x outer diameter

Permissible tensile force
Fixed installation: 5 N
Short-term: 15 N

Temperature range
Operation: -55 °C to +85 °C
Installation: -10 °C to +50 °C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
HITRONIC® POF SIMPLEX PE					
28000001	HITRONIC® POF SIMPLEX PE	980/1000 POF	1	2.2	3.8

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

HITRONIC® POF SIMPLEX CABLE

Polymer optical fibre as simplex fibre cable version with PUR sheath for fixed or flexible application

Info

- Suitable for direct connector assembly



Benefits

- Optical data transmisson up to 70m
- Easy to handle
- No intereference by external fields
- No grounding problems
- Suitable for direct connector assembly

Application range

- For optical signal transmission in industrial applications
- As a link between moving parts
- FD cable version:
  for flexible applications (cable chains)

Product features

- Resistant to abrasion, oil, microbes and hydrolysis
- Adhesion-free
- Outer sheath flame-retardant and halogen-free
- FD cable version:
  5.000.000 bending cycles

Product Make-up

- Polymer Optical Fibre (POF)
- PE buffer tube
- Aramid yarns as strain relief
- PUR outer sheath
- Colour: orange (RAL 2003)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description:
Fibre optic cable

Dimensions
Buffered fibre: 2.2 mm
Cable: see table

Fibre type
POF - P980/1000

Standard designation
J-V2Y(ZN)11Y

Optical fibre type
Core material: PMMA
Cladding material: fluoropolymers

Permissible bending radius
≥ 10 x outer diameter

Permissible tensile force
Fixed installation: 100 N
Short-term: 600 N

Temperature range
Operation: -20 °C to +70 °C
Installation: -10°C to +50°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
HITRONIC® POF SIMPLEX PE-PUR					
28020001	HITRONIC® POF SIMPLEX PE-PUR	980/1000 POF	1	5.5	25
HITRONIC® POF SIMPLEX FD PE-PUR for draig chain application					
28320001	HITRONIC® POF SIMPLEX FD PE-PUR	980/1000 POF	1	6	30

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Please find our standard lengths at:www.lapp.com
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HITRONIC® POF DUPLEX BUFFERED FIBRES

Polymer optical fibre as duplex buffered fibres version with PE sheath



Info

- For direct connector assembly

Benefits

- Transmission lengths up to 70 m
- Suitable for direct connector assembly
- Easy to handle
- No crosstalk
- EMC protection

Application range

- For optical signal transmission in industrial applications
- Very suitable for fixed installation in control cabinets, cable ducts, or pipes with low mechanical stress
- Light mechanical stress
- Identification by white dots

Product features

- Halogen-free
- Lightweight
- High flexibility

Product Make-up

- Polymer Optical Fibre (POF)
- Twin cable
- PE buffer tube
- Without outer sheath
- Colour: black

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

Dimensions
Twin cable
2x2.2mm

Core identification code
Black/black with white dots

Fibre type
POF - P980/1000

Standard designation
J-V2Y

Optical fibre type
Core material: PMMA
Cladding material: fluoropolymers

Permissible bending radius
≥ 10 x outer diameter

Permissible tensile force
Fixed installation: 10 N
Short-term: 30 N

Temperature range
Operation: -55 °C to +85 °C
Installation: -10 °C to +50 °C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
HITRONIC® POF DUPLEX BUFFERED FIBRES					
28000002	HITRONIC® POF DUPLEX PE	980/1000 POF	2	2.2	7.6

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EtherNet/IP

HITRONIC® POF DUPLEX CABLE

Polymer optical fibre as duplex fibre cable version with PUR sheath for fixed or flexible application

Info

- For direct connector assembly



Benefits

- Optical data transmisson up to 70m
- Easy to handle
- No intereference by external fields
- No grounding problems
- Suitable for direct connector assembly

Application range

- For optical signal transmission in industrial applications
- FD cable version:
  for flexible applications (cable chains)

Product features

- Outer sheath flame-retardant and halogen-free
- Resistant to abrasion, oil, microbes and hydrolysis
- Adhesion-free
- FD cable version:
  5.000.000 bending cycles

Product Make-up

- Polymer Optical Fibre (POF)
- PE buffer tube
- Fibre colour coding: black, orange
- Aramid yarns as strain relief
- PUR outer sheath, orange (RAL 2003)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description:
Fibre optic cable

Dimensions
Buffered fibre: 2.2 mm
Cable: see table

Core identification code
Black, orange

Fibre type
2x
POF - P980/1000

Standard designation
J-V2Y(ZN)11Y

Optical fibre type
Core material: PMMA
Cladding material: fluoropolymers

Permissible bending radius
≥ 10 x outer diameter

Permissible tensile force
Fixed installation: 100 N (PE-PUR),
130 N (Heavy PE-PUR)
Short-term: 400 N

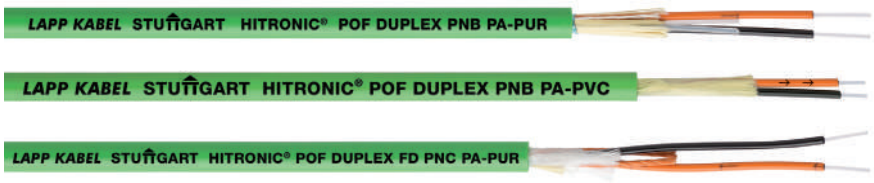
Temperature range
Operation: -40°C to +7 °C
(FD: -20°C to +70°C)
Installation: -10°C to +50°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
HITRONIC® POF DUPLEX PE-PUR					
28020002	HITRONIC® POF DUPLEX PE-PUR	980/1000 POF	2	5.5	27
HITRONIC® POF DUPLEX HEAVY PE-PUR					
28030002	HITRONIC® POF DUPLEX HEAVY PE-PUR	980/1000 POF	2	8	57
HITRONIC® POF DUPLEX FD PE-PUR for draig chain application					
28320002	HITRONIC® POF DUPLEX FD PE-PUR	980/1000 POF	2	6	30

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HITRONIC® POF cables for PROFINET Applications

Polymer optical fibre as duplex fibre cable version with PUR sheath for PROFINET applications type B or C



Info

- PROFINET compliant
  - Type B or Type C

Benefits

- Optical data transmisson up to 70m
- Easy to handle
- No intereference by external fields
- No grounding problems
- Suitable for direct connector assembly

Application range

- For optical signal transmission in industrial applications
- PROFINET / Industrial Ethernet
- At 100 Mbit/s: max 50 m cable length
- PROFINET type B: for fixed laying
- PROFINET type C: for flexible applications (cable chains)

Product features

- Cable version with PVC outer sheath: for standard applications in industrial environments
- Cable version with PUR outer sheath: for high mechanical or chemical stress in industrial environments
- PNB - PROFINET-Type B
- PNC - PROFINET-Type C
- FD - Highly flexible (cable chains)

Norm references / Approvals

- PUR compound: Oil-resistant acc. IEC 60811-2-1, DIN EN 50363-10-2

Product Make-up

- Polymer Optical Fibre (POF)
- PA buffer tube
- Fibre colour coding: black, orange (with arrow printing)
- Aramid yarns as strain relief
- Outer sheath material PUR or PVC (see article description)
- Outer sheath colour: green (RAL 6018)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

Dimensions
Buffered fibre: 2.2 mm
Cable: see table

Core identification code
Black, orange (with arrow printing)

Standard designation
J-V4Y(ZN)11Y 2P980/1000
J-V4Y(ZN)Y 2P980/1000
J-V4Y(ZN)11Y 2P980/1000 flex

Optical fibre type
Core material: PMMA
Cladding material: fluoropolymers

Permissible bending radius
≥ 10 x outer diameter

Permissible tensile force
see data sheet

Temperature range
Operation: -20 °C to +70 °C
Installation: -10°C to +50°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
POF DUPLEX - PROFINET TYPE B					
28051002	HITRONIC® POF DUPLEX PNB PA-PUR	980/1000 POF	2	8	56
28052002	HITRONIC® POF DUPLEX PNB PA-PVC	980/1000 POF	2	7.8	59
POF DUPLEX - PROFINET TYPE C					
28351002	HITRONIC® POF DUPLEX FD PNC PA-PUR	980/1000 POF	2	8	55

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Lapp Kabel is a member of the PROFIBUS user organisation (PNO)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

POF Connector and Adapter HFBR

Connector and adapters for polymer optical fibre cables, type HFBR family (HFBR4501/4503/4506/4511/4513/4516/4531/4532/4533)

Benefits

- Compatible with HP Versatile Link Connectors and Components series
- Different colours for channel coding

Application range

- Factory automation
- Medical equipment
- Telecommunications Switching Systems
- Automotive Networks
- Printed Circuit Board

Product features

- HFBR connector series for 2.2 mm POF with dust cap
- For crimping or clamping
- Simplex or Duplex variations

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001122
ETIM 5.0/6.0 Class-Description: Fibre optic connector



HFBR 4501



HFBR 4503



HFBR-4531



HFBR 4516

Article number	Article designation	Colour	PU
Connector HFBR-4501, Simplex, with Crimp Sleve			
29140099	POF Connector HFBR4501 GY Simplex /4PC	grey	4 piece
29140098	POF Connector HFBR4501 GY Simplex /50PC	grey	50 piece
Latching Connector HFBR-4503, Simplex, with Crimp Sleve			
29141099	POF Connector HFBR4503 GY Simplex /4PC	grey	4 piece
29141098	POF Connector HFBR4503 GY Simplex /50PC	grey	50 piece
Connector HFBR-4506, Duplex, with Crimp Sleve			
29142099	POF Connector HFBR4506 WH Duplex /4PC	white	4 piece
29142098	POF Connector HFBR4506 WH Duplex /50PC	white	50 piece
Connector HFBR-4511, Simplex, with Crimp Sleve			
29143099	POF Connector HFBR4511 BL Simplex /4PC	blue	4 piece
29143098	POF Connector HFBR4511 BL Simplex /50PC	blue	50 piece
Latching Connector HFBR-4513, Simplex, with Crimp Sleve			
29144099	POF Connector HFBR4513 BL Simplex /4PC	blue	4 piece
29144098	POF Connector HFBR4513 BL Simplex /50PC	blue	50 piece
Latching Connector HFBR-4516, Duplex, with Crimp Sleve			
29145099	POF Connector HFBR4516 GY Duplex /4PC	grey	4 piece
29145098	POF Connector HFBR4516 GY Duplex /50PC	grey	50 piece
Clamp Connector HFBR-4531, Simplex			
29146099	POF Connector HFBR4531 BK Simplex /4PC	black	4 piece
29146098	POF Connector HFBR4531 BK Simplex /50PC	black	50 piece
29146100	POF STECKER HFBR4531 BK SIMPLEX /1000ST	black	1000 pieces
Clamp and Latching Connector HFBR-4532, Simplex			
29147099	POF Connector HFBR4532 BK Simplex /4PC	black	4 piece
29147098	POF Connector HFBR4532 BK Simplex /50PC	black	50 piece
Clamp Connector HFBR-4533, Simplex			
29148099	POF Connector HFBR4533 BL Simplex /4PC	blue	4 piece
29148098	POF Connector HFBR4533 BL Simplex /50PC	blue	50 piece
HFBR4505 Adapters			
29440099	POF Adapter HFBR4505 GY Simplex /4PC	grey	4 piece
HFBR4515 Adapters			
29441099	POF Adapter HFBR4515 BL Simplex /4PC	blue	4 piece

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POF Connector F05 Simplex

Connector and adapter for polymer optical fibre cables, type F05, compatible with TOCP155K



F05 Simplex

Benefits

- Easy to assemble

Application range

- Digital audio
- Factory automation
- Office Automation (Smart House)

Product features

- F-05 (TOCP) SIMPLEX clamp connector for connecting to polymer optical fibre without crimping or gluing
- Snap-In Connector
- Suitable for 2.2 mm POF

Info

- Compatible with TOCP155K

Technical data

ETIM **Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001122
ETIM 5.0/6.0 Class-Description: Fibre optic connector

Article number	Article designation	Colour	PU
Connector F05 Simplex			
29150099	POF Connector F05 Simplex /4PC	black	4 piece
29150098	POF Connector F05 Simplex /50PC	black	50 piece
Adapter for Connector F05 Simplex			
29450099	POF Adapter F05 Simplex /4PC	black	4 piece

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POF Connector F-SMA and ST(BFOC)

Connector for polymer optical fibre cables, type FSMA and ST(BFOC)



FSMA



ST(BFOC)



Benefits

- As crimp or clamp version for easy assembling

Product features

- FSMA and ST(BFOC) connector with knurled nut or hexagonal nut for crimping, gluing or easy clamping
- Suitable for 2.2 mm POF
- Available for different cable diameters (2.2 mm and 6.0 mm)
- Connector including bend protection boot and dust cap
- Bend protection boot colour: 50% black and 50% red

Info

- FSMA and ST(BFOC) connectors for POF cable assembly

Technical data

ETIM **Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001122
ETIM 5.0/6.0 Class-Description: Fibre optic connector

Article number	Article designation	Boot colour	PU
FSMA Connectors with knurled nut for crimping			
29135099	POF Connector FSMA Crimp 2.2 /4PC	2 black, 2 red	4 piece
29135098	POF Connector FSMA Crimp 2.2 /50PC	25 black, 25 red	50 piece
29137099	POF Connector FSMA Crimp 6.0 /4PC	black	4 piece
29137098	POF Connector FSMA Crimp 6.0 /50PC	black	50 piece
FSMA Connectors with hexagonal nut for crimping			
29135089	POF Connector FSMA Hex Crimp 2.2 /4PC	2 black, 2 red	4 piece
29135088	POF Connector FSMA Hex Crimp 2.2 /50PC	25 black, 25 red	50 piece
29132089	POF Connector FSMA Hex Crimp 6.0 /4PC	black	4 piece
29132088	POF Connector FSMA Hex Crimp 6.0 /50PC	black	50 piece
FSMA Connectors with knurled nut for clamping			
29130099	POF Connector FSMA Clamp 2.2 /4PC	2 black, 2 red	4 piece
29130098	POF Connector FSMA Clamp 2.2 /50PC	25 black, 25 red	50 piece
FSMA Connectors with hexagonal nut for clamping			
29130089	POF Connector FSMA Hex Clamp 2.2 /4PC	2 black, 2 red	4 piece
29130088	POF Connector FSMA Hex Clamp 2.2 /50PC	25 black, 25 red	50 piece
ST(BFOC) Connectors for crimping			
29125099	POF Connector ST(BFOC) Crimp 2.2 /4PC	2 black, 2 red	4 piece
29125098	POF Connector ST(BFOC) Crimp 2.2 /50PC	25 black, 25 red	50 piece
ST(BFOC) Connectors for clamping			
29120099	POF Connector ST(BFOC) Clamp 2.2 /4PC	2 black, 2 red	4 piece
29120098	POF Connector ST(BFOC) Clamp 2.2 /50PC	25 black, 25 red	50 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

POF Connector SC-RJ

Connector for polymer optical fibre cables, type SC-RJ

Benefits

- Connectors for PROFINET Data Cabling
- As crimp version for easy assembling

Product features

- Connector set included two SC connectors, SC-RJ housing, two bending protection boots, dust caps
- Suitable for 2.2 mm POF
- Bend protection boot colour: 50% black and 50% red

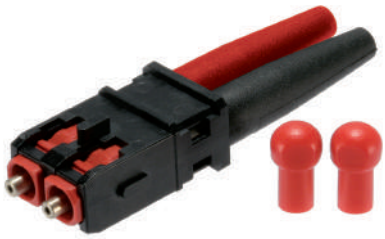
Info

- SC-RJ connectors for POF cable assembly
- Connectors for PROFINET Data Cabling

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001122
ETIM 5.0/6.0 Class-Description: Fibre optic connector

Certifications
SC-RJ complies with IEC61754-24



SC-RJ

Article number	Article designation	PU
POF Connector SC-RJ		
29161097	POF Connector SC-RJ Crimp 2.2	1 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

POF Adapter F-SMA

Adapter for connector type FSMA

Product features

- POF Adapter FSMA: version with two fixing nuts and lock wahser
- POF Adapter FSMA hexa: version with hexagonal flange, fixing nuts and lock wahser

Info

- Can be used for POF and PCF connector types

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000752
ETIM 5.0/6.0 Class-Description: Fibre optic coupler



F-SMA

Article number	Article designation	PU
FSMA Adapters		
29430099	POF Adapter FSMA /4PC	4 piece
29430089	POF Adapter FSMA Hex /4PC	4 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

POF Adapter ST (BFOC)

Adapter for connector type ST(BFOC)

Product features

- ST(BFOC) adapter with flange, fixing nuts and lock washer

Norm references / Approvals

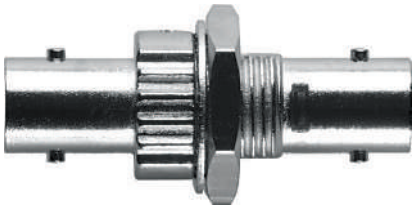
- ST comply with IEC standard 61754-2

Info

- Can be used for POF and PCF connector types

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000752
ETIM 5.0/6.0 Class-Description: Fibre optic coupler



ST(BFOC)

Article number	Article designation	PU
ST(BFOC) Adaptera		
29420099	POF Adapter ST (BFOC) /4PC	4 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

POF Assembly Sets

Tools for connector assembly of POF crimp connector versions: FSMA; ST(BFOC); SC/SC-RJ



Benefits

- Easy to handle
- Set includes all the necessary tools for connector assembly
- Suitable for on-site assembly

Product features

- Sets available for POF connector types FSMA and ST (BFOC) and SC / SC-RJ
- Contents: crimp tool, buffered fibre stripper, polishing disc FSMA, polishing film, cutter

Technical data

ETIM **Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC002609
ETIM 5.0/6.0 Class-Description: Accessories for optic fibre technique

Article number	Article designation	PU
Assembly Set for POF FSMA Connector		
29500001	Assembly Set POF Connector FSMA	1 piece
Assembly Set for POF ST(BFOC) Connector		
29500002	Assembly Set POF Connector ST(BFOC)	1 piece
Assembly Set for POF SC/SC-RJ Connector		
29500004	Assembly Set for POF Connector SC	1 piece

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POF Cutting Tools

Stripping tools for different sheath materials and cable diameters for POF cable and connector product range



29500014



29500015



29500011



29500013



29500017



29500010

Benefits

- Cutting tools for the POF cable and connector product range

Application range

- Cable stripper for different jacket materials and cable diameter

Product features

- Various tools for cutting buffered fibres (2.2mm)
  from very simple to version with automatic blade advance
- 29500011 - fibre stripper for PE buffer tube 2.2mm
- 29500013 - fibre stripper for PA buffer tube 2.2mm-2.3mm
- 29500012 - jacket stripper for cable diameter 3.6mm and 6.0mm
- Crimping tool suitable for the POF(PCF) connector program

Technical data

ETIM **Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001126
ETIM 5.0/6.0 Class-Description: Fibre optic cleaver

Article number	Article designation	PU
POF Bare Fibre Cutter		
29500014	POF Cutter 2.2/1.0mm Guillotine	5 pieces
29500015	POF BufferedFibreCutter 2.2mm manuel	1 piece
29500016	POF BufferedFibreCutter 2.2mm automatic	1 piece
POF Cable Stripper		
29500011	POF Buffered Fibre Stripper 2.2 mm (P980/1000)	1 piece
29500013	POF Cable Stripper PA 2.2mm	1 piece
29500012	POF Cable Stripper 3.6/6.0mm	1 piece
Strain relief element scissors		
29500017	Strain relief element scissors	1 piece
POF Crimping Tool		
29500010	POF Crimp Tool 2.5/3.0/4.5/4.95mm	1 piece

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POF Polishing tools and accessories

Polishing discs for different connector designs; polishing sheets; accessories

Benefits

- Easy to handle
- Suitable to POF Connector Assembly Sets

Product features

- Accessories for POF Assembly
- Polishing disc for various POF connector types
- Other versions are available upon request
- Polishing film with different graining size types for fibre end face treatment
- Polishing process:
  POF - Polishing Film 1000 (BU)
  Polishing Film 5µm (BN)
  Polishing Film 1µm (GN)
  PCF - Polishing Film 5 µm (BN)
  Polishing Film 1 µm (GN)
  Polishing Film 0.3 µm (WH)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001126
ETIM 5.0/6.0 Class-Description: Fibre optic cleaver



SC



ST(BFOC)



Article number	Article designation	PU
Polishing Disc for POF connector assembly		
29500031	Polishing Disc POF FSMA Connector	1 piece
29500032	Polishing Disc POF ST(BFOC) Connector	1 piece
29500033	Polishing Disc POF HFBR4501/4511 SIMPLEX	1 piece
29500034	Polishing Disc POF HFBR4516 DUPLEX	1 piece
29500035	Polishing Disc POF F05 Connector	1 piece
29500036	Polishing Disc POF Simplex 2.2mm	1 piece
29500733	Polishing Disc PCF HFBR4521 Connector	1 piece
29500037	Polishing Disc POF SC Connector	1 piece
Polishing film		
29500021	Polishing film graining size 1000 (BL)	10 pieces
29500024	Polishing film graining size 5 µm (BR)	10 pieces
29500023	Polishing film graining size 1 µm (GN)	10 pieces
29500022	Polishing film graining size 0.3 µm (WH)	10 pieces
Polishing accessories		
29500020	Polishing glass plate 150x230mm	1 piece

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POF Measurement Equipment

Measuring equipment set for wavelength range 660 nm and 850 nm; suitable for measuring assembled POF and PCF systems

Benefits

- Measuring Equiment Set for wavelenghts 660/850nm
- Suitable for the measurement of assemblied POF and PCF systems

Product features

- The mesasurement device is supplied without adaters. Please order separatly
- Optical Transmitter (TMR): wavelength dependent on interchangeable adapter
  - 650nm
  - 660nm
  - 850nm (on request)
- Optical Power Meter: for attenuation measurement of an assembled POF (PCF) systems adapted to Optical Transmitter (TMR)

Product Make-up

- Optical Transmitter with digital display, wavelength dependent on adapter, active interchangeable adapters are not included, please order separately
- Optical Power Meter with digital display, wavelength meter 660/850 nm, interchangeable adapters (receiver side) are not included, please order separately
- Measuring Set (29500089): Optical Transmitter and Power Meter as set in a black suitcase, interchangeable adapters are not included

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC002609
ETIM 5.0/6.0 Class-Description: Accessories for optic fibre technique

Article number	Article designation	PU
POF Measurement Equipment		
29500092	POF Optical Transmitter (TMR)	1 piece
POF TMR Adapter, wavelength 650nm		
29500071	POF Optical TMR Adapter HFBR, 650nm	1 piece
29500072	POF Optical TMR Adapter FSMA, 650nm	1 piece
29500073	POF Optical TMR Adapter ST(BFOC), 650nm	1 piece
POF TMR Adapter, wavelength 660nm		
29500074	POF Optical TMR Adapter F05, 660nm	1 piece
29500075	POF Optical TMR Adapter HFBR, 660nm	1 piece
29500076	POF Optical TMR Adapter FSMA, 660nm	1 piece
29500077	POF Optical TMR Adapter ST(BFOC), 660nm	1 piece
29500090	POF OPTICAL TMR ADAPTER SC-RJ, 660NM	1 piece
POF Optical Power Meter 660/850 nm		
29500093	POF Optical Power Meter 660/850 nm	1 piece
POF Power Meter Adapters		
29500081	POF Power Meter Adapter HFBR4501/4521	1 piece
29500082	POF Power Meter Adapter FSMA	1 piece
29500083	POF Power Meter Adapter ST(BFOC)	1 piece
29500084	POF Power Meter Adapter F05	1 piece
29500085	POF POWER METER ADAPTER SC-RJ	1 piece
POF Measuring Equiment Set without adapters		
29500094	POF Measuring Equiment Set 660/850nm	1 piece

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HITRONIC® PCF SIMPLEX Cable

Polymer Cladded Fibre as simplex fibre cable version for indoor or outdoor use, pur outer sheath; halogen-free

Info

- For direct connector assembly



Benefits

- Transmission lengths up to 500 m
- Suitable for direct connector assembly
- High mechanical strength
- UV-resistant
- EMC protection

Application range

- For data transmission in field bus systems, such as PROFIBUS, INTERBUS etc.
- Industrial environments

Product features

- Possible transmission wavelengths: 650 nm and 850 nm
- Outer sheath flame-retardant and halogen-free

Product Make-up

- Tight-buffered fibres
- Aramid yarns as strain relief
- PUR outer sheath
- Colour: black (RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

Dimensions
2.9mm

Fibre type
PCF - K200/230
PCF - Polymer Cladded Fibre

Minimum bending radius
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

Standard designation
A-V(ZN)11Y

Optical fibre type
Core material: glass
Cladding material: fluoropolymers

Permissible tensile force
Fixed installation: 200 N

Temperature range
Operation: -10°C to +60°C
Installation: -10°C to +50°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
HITRONIC® PCF SIMPLEX Cable					
28600701	HITRONIC® PCF SIMPLEX PUR Outdoor	200/230 PCF	1	2.9	7.5

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
The cables can also be supplied as pre-terminated fibre optic trunks.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

HITRONIC® PCF DUPLEX Cable

Polymer Cladded Fibre as duplex fibre cable version for indoor or outdoor use



Info

- For direct connector assembly

Benefits

- Transmission lengths up to 500 m
- Suitable for direct connector assembly
- Good resistance to oil, petrol, acids and alkalis
- High mechanical strength
- EMC protection

Application range

- For data transmission in field bus systems, such as PROFIBUS, INTERBUS etc.
- Industrial environments

Product features

- Possible transmission wavelengths: 650 nm and 850 nm
- Complies with requirements for all BUS systems
- Halogen-free outer sheath

Product Make-up

- Colour-coded, tight-buffered PCF sub-cable with FRNC sheath (2.9mm)
- Aramid yarns as strain relief
- PUR outer sheath (indoor); PE outer sheath (outdoor)
- Colour: orange (indoor); black (outdoor)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

Dimensions
Buffered fibre: 0.5mm
Single cable: 2.9 mm
Cable: see table

Core identification code
red, green

Fibre type
PCF - K200/230
PCF - Polymer Cladded Fibre

Minimum bending radius
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

Standard designation
PCF DUPLEX Indoor: J-V(ZN)H11Y 2K200/230
PCF DUPLEX Outdoor: A-VQ(ZN)HB2Y 2K200/230

Optical values
see data sheet

Optical fibre type
Core material: glass
Cladding material: fluoropolymers

Permissible tensile force
Fixed installation: 400 N (indoor); 500 N (outdoor)
Short-term: 1200 N (indoor); 1500 N (outdoor)

Temperature range
Operation: -20 °C to +70 °C
Installation: -10°C to +50°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
Indoor					
28020702	HITRONIC® PCF DUPLEX FRNC-PUR Indoor	200/230 PCF	2	8	53
Outdoor					
28620702	HITRONIC® PCF DUPLEX FRNC-PE Outdoor	200/230 PCF	2	10.5	89

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
The cables can also be supplied as pre-terminated fibre optic trunks.
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HITRONIC® PCF DUPLEX FD cables

Polymer Cladded Fibre as duplex fibre cable version for flexible applications, PUR outer sheath, halogen-free

Info

- Flexible PCF cable compatible with all BUS systems



Benefits

- Designed for use in cable chains
- Transmission lengths up to 500 m
- Suitable for direct connector assembly
- Good resistance to oil, petrol, acids and alkalis
- EMC protection

Application range

- For highly flexible applications
- For data transmission in field bus systems, such as PROFIBUS, INTERBUS etc.
- As a link between moving parts
- Industrial environments

Product features

- Possible transmission wavelengths: 650 nm and 850 nm
- Complies with requirements for all BUS systems
- Oil-resistant
- Outer sheath flame-retardant and halogen-free

Norm references / Approvals

- Halogen-free according to IEC 60754

Product Make-up

- Colour-coded, tight-buffered PCF sub-cable with FRNC sheath
- Sub cable outer diameter: 2.2mm
- Aramid yarns as strain relief
- PUR outer sheath
- Colour: orange (RAL 2003)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

Dimensions
Buffered fibre: 0.5mm
Single cable: 2.2 mm
Cable: 8.8mm

Core identification code
red, green

Fibre type
PCF - K200/230
PCF - Polymer Cladded Fibre

Minimum bending radius
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

Standard designation
A/J-V(ZN)H11Y

Optical fibre type
Core material: glass
Cladding material: fluoropolymers

Permissible tensile force
Fixed installation: 800 N
Short-term: 2000 N

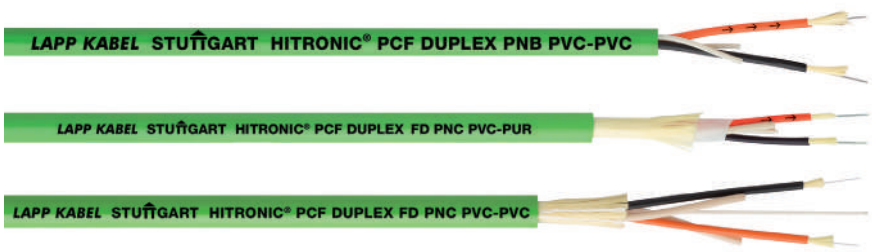
Temperature range
Operation: -20 °C to +70 °C
Installation: -10°C to +50°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
HITRONIC® PCF DUPLEX FD cables					
28320702	HITRONIC® PCF DUPLEX FD FRNC-PUR	200/230 PCF	2	8.8	63

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
The cables can also be supplied as pre-terminated fibre optic trunks.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

HITRONIC® PCF cables for PROFINET Applications

Polymer optical fibre as duplex fibre cable version with PCV or PUR sheath for PROFINET applications type B or C



Info

- PROFINET compliant
  - Type B or Type C
- For direct connector assembly

Benefits

- Optical data transmisson up to 500m
- Easy to handle
- No intereference by external fields
- No grounding problems
- Suitable for direct connector assembly

Application range

- PCF DUPLEX cabels for optical signal transmission in industrial applications
- PROFINET / Industrial Ethernet
- At 100 Mbit/s: max 100 m cable length
- PROFINET type B:
  for fixed laying
- PROFINET type C:
  for flexible applications (cable chains)

Product features

- Cable version with PVC outer sheath:
  for standard applications in industrial environments
- Cable version with PUR outer sheath:
  for high mechanical or chemical stress in industrial environments
- PNB - PROFINET-Type B
- PNC - PROFINET-Type C
- FD - Highly flexible (cable chains)

Norm references / Approvals

- PUR compound: oil resistant acc. to IEC 60811-2-1 and DIN EN 50363-10-2

Product Make-up

- Colour-coded, tight-buffered PCF sub-cable with PVC sheath
- Sub cable outer diameter: 2.2mm
- Aramid yarns as strain relief
- Outer sheath material PUR or PVC (see article description)
- Outer sheath colour: green (RAL 6018)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description:
Fibre optic cable

Dimensions
Buffered fibre: 0.5mm
Single cable: 2.2 mm
Cable: see table

Core identification code
Black, orange (with arrow printing)

Fibre type
PCF - K200/230
PCF - Polymer Cladded Fibre

Minimum bending radius
see data sheet

Standard designation
J-V(ZN)YY 2K200/230
J-V(ZN)Y(ZN)11Y 2K200/230 flex
J-V(ZN)Y(ZN)Y 2K200/230 flex

Optical fibre type
Core material: glass
Cladding material: fluoropolymers

Permissible tensile force
see data sheet

Temperature range
See data sheet

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
PCF DUPLEX - PROFINET TYPE B					
28052702	HITRONIC® PCF DUPLEX PNB PVC-PVC	200/230 PCF	2	7.2	55
PCF DUPLEX - PROFINET TYPE C					
28351702	HITRONIC® PCF DUPLEX FD PNC PVC-PUR	200/230 PCF	2	8.8	71
28352702	HITRONIC® PCF DUPLEX FD PNC PVC-PVC	200/230 PCF	2	8.8	76

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Lapp Kabel is a member of the PROFIBUS user organisation (PNO)
The cables can also be supplied as pre-terminated fibre optic trunks.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

PCF Connector HFBR

Connectors for polymer cladded optical fibre cables, type HFBR4521

Benefits

- Compatible with HP Versatile Link Connectors and Components series

Application range

- Factory automation
- Medical equipment
- Telecommunications Switching Systems

Product features

- HFBR4521 connector for 2.2 mm PCF cable diameter as crimp version
- HFBR4521 connector for 3.0 mm PCF cable diameter as clamp version
- HFBR4521 clamp connector compatible with Assemby Set PCF Connector HFBR4521

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001122
ETIM 5.0/6.0 Class-Description: Fibre optic connector



HFBR4521



HFBR4521

Article number	Article designation	Colour	PU
Connector HFBR4521 for 2.2 mm cables - crimp version			
29140799	PCF Connector HFBR4521 BK Simplex 2.2 /4PC	black	4 piece
29140798	PCF Connector HFBR4521 BK Simplex 2.2 /50PC	black	50 piece
Connector HFBR4521 for 3.0 mm cables - clamp version			
29141798	PCF Connector HFBR4521 Clamp 3.0 /50PC	black	50 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

PCF Connector F-SMA and ST(BFOC)

Connector for Polymer Claddes Fibre cables, type FSMA and ST(BFOC)

Benefits

- Easy to assemble
- Designed for field assembly
- Reusable as it can be removed

Product features

- Connectors for clamp and cleave assembly
- Available for different cable diameters (2.2mm and 3.0mm)
- Adapters available on request
- Bend protection boot colour: 50% black and 50% red

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001122
ETIM 5.0/6.0 Class-Description: Fibre optic connector



F-SMA



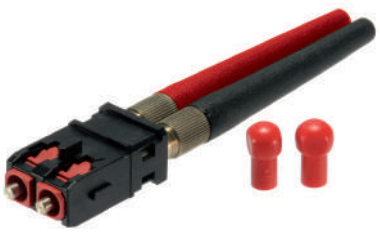
ST(BFOC)

Article number	Article designation	PU
Connector FSMA Clamp for 3.0 mm cables		
29136799	PCF Connector FSMA Clamp 3.0 /4PC	4 piece
29136798	PCF Connector FSMA Clamp 3.0 /50PC	50 piece
Connector FSMA Clamp for 2.2 mm cables		
29135799	PCF Connector FSMA Clamp 2.2 /4PC	4 piece
29135798	PCF Connector FSMA Clamp 2.2 /50PC	50 piece
Connector ST(BFOC) Clamp for 3.0 mm cables		
29126799	PCF Connector ST (BFOC) Clamp 3.0 /4PC	4 piece
29126798	PCF Connector ST (BFOC) Clamp 3.0 /50PC	50 piece
Connector ST(BFOC) Clamp for 2.2 mm cables		
29125799	PCF Connector ST (BFOC) Clamp 2.2 /4PC	4 piece
29125798	PCF Connector ST (BFOC) Clamp 2.2 /50PC	50 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

PCF Connector SC-RJ

Accessories for PCF cables, connector type SC-RJ for clamp and cleave assembly, PROFINET



SC-RJ

Benefits

- Easy to assemble
- Designed for field assembly
- Reusable as it can be removed

Product features

- Connector set included two SC connectors, SC-RJ housing, two bending protection boots, dust caps
- Connectors for clamp and cleave assembly
- Available for different cable diameters (2.2mm and 3.0mm)
- Bend protection boot colour: 50% black and 50% red

Info

- Connectors for PROFINET Data Cabling

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001122
ETIM 5.0/6.0 Class-Description: Fibre optic connector

Certifications
SC-RJ complies with IEC61754-24

Article number	Article designation	PU
PCF Connector SC-RJ		
29166797	PCF Connector SC-RJ Clamp 3.0	1 piece
29165797	PCF connector SC-RJ KLEMM 2,2	1 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

PCF Assembly Sets

Assembling set for PCF connecting types: FSMA, ST(BFOC), SC/SC-RJ, HFBR4521



Benefits

- Easy to handle
- Set includes all the necessary tools for connector assembly from clamp connector versions
- Suitable for on-site assembly

Product features

- Sets available for PCF clamp connector types FSMA, ST (BFOC), SC and HFBR4521
- Contents: stripper, cleave tool, kevlar scissor, cutter, microscope

Article number	Article designation	PU
Assembly Set For PCF FSMA Connectors		
29500701	Assemby Set PCF Connector FSMA	1 piece
Assembly Set For PCF ST(BFOC) Connectors		
29500702	Assemby Set PCF Connector ST(BFOC)	1 piece
Assembly Set For PCF HFBR4521 Connectors		
29500703	Assembly Set PCF Connector HFBR4521	1 piece
Assembly Set For PCF SC/SC-RJ Connectors		
29500704	Assemby Set PCF Connector SC	1 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

PCF Cutting Tools

Accessories for Polymer Claddes Fibre cables

Benefits

- Optimally coordinated tools for the PCF cable and connector product range
- For the processing of PCF fibres

Product features

- PCF cleaving tool for connector types:
  -FSMA
  -ST(BFOC)
  -HFBR4521
  -SC



29500711



29500712

Article number	Article designation	PU
PCF Buffered Fibre Stripper		
29500711	PCF Buffered Fibre Stripper 0.5mm (K200/230)	1 piece
PCF Fibre Cleaving Tool		
29500712	PCF Cleaving Tool FSMA Connector	1 piece
29500713	PCF Cleaving Tool ST(BFOC) Connector	1 piece
29500714	PCF Cleaving Tool HFBR4521 Connector	1 piece
29500715	PCF Cleaving Tool SC Connector	1 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

PCF Measurement Equipment

Inspection microscope for PCF connector types: FSMA; ST(BFOC); HFBR

Benefits

- Inspection Microscope with 200x magnification for connector inspection
- Easy to handle

Product features

- Interchangeable adapter for PCF connector types FSMA, ST(BFOC), HFBR
- Interchangeable adapters are not included in microscope, please order separately
- Other adapters available on request

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001685
ETIM 5.0/6.0 Class-Description:
Microscope for glass fibre



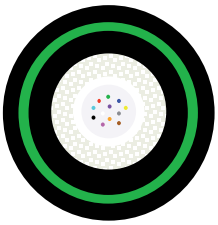
Article number	Article designation	PU
PCF Inspection Microscope (200x) without adapter		
29500770	PCF Inspection Microscope (200x)	1 piece
PCF Microscope Adapter For Connector Types		
29500771	PCF Microscope Adapter FSMA Simplex	1 piece
29500772	PCF Microscope Adapter ST(BFOC) Simplex	1 piece
29500773	PCF Microscope Adapter HFBR Simplex	1 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

HITRONIC® FIRE

Safety cable with central loose tube, LSZH inner and outer sheath, corrugated steel tape; halogen-free





Benefits

- Ensures that the fibres can still transmit data during and after a fire (according to IEC 60331-25)
- Suitable for installation in underground tunnels where fire safety is critical
- Additional sheath protects the fibres for use in harsh environments
- Armouring provides excellent protection against high mechanical stress and rodents
- UV-resistant longitudinally and laterally watertight

Application range

- In industrial areas that use fire as a tool
- Highly combustible or fire-prone areas
- For indoor and outdoor use
- Methods of Deployment: empty plastic pipes, ducts and trays

Product features

- Fire behaviour:
  - Halogen-free (IEC 60754-1)
  - Flame-retardant (IEC 60332-3-24)
  - Low smoke density (IEC 61034-1/2)
  - Circuit integrity (IEC 60331-25); Optical fibre cables
- Central loose tube with up to 24 fibres
- Colour-coded fibres
- Longitudinal watertight
- Outer sheath flame-retardant and halogen-free

Product Make-up

- Gel-filled loose tube
- Water-blocking reinforced glass yarn strain relief
- Corrugated steel tape armour
- LSZH inner and outer sheaths
- Colour: black (RAL 9005)

Info

- Fire-resistant for at least 180 minutes in the event of fire
- * Cable had been tested to withstand 180 min

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

Dimensions
Primary coated fibre: 250µm
Cable: see table

Core identification code
Fibre colour code see data sheet

Fibre type
GOF - Glass Optical Fibre

Standard designation
A/J-DQ(ZN)BH(SR)H

Optical values
see data sheet

Optical fibre type
Core material: glass
Cladding material: glass

Permissible bending radius
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

Permissible tensile force
Fixed installation: 1500 N
Short-term: 2200 N

Temperature range
Fixed installation: -30°C to +70°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
Multimode G50 OM4					
27560404	HITRONIC FIRE 4G 50/125 OM4	50/125 OM4	4	9.6	123
27560408	HITRONIC FIRE 8G 50/125 OM4	50/125 OM4	8	9.6	123
27560412	HITRONIC FIRE 12G 50/125 OM4	50/125 OM4	12	9.6	123
27560424	HITRONIC FIRE 24G 50/125 OM4	50/125 OM4	24	12.6	188
Multimode G 50 OM3					
27560304	HITRONIC® FIRE 4G 50/125 OM3	50/125 OM3	4	9.6	123
27560308	HITRONIC® FIRE 8G 50/125 OM3	50/125 OM3	8	9.6	123
27560312	HITRONIC® FIRE 12G 50/125 OM3	50/125 OM3	12	9.6	123
27560324	HITRONIC® FIRE 24G 50/125 OM3	50/125 OM3	24	12.6	188
Multimode G 50 OM2					
27560204	HITRONIC® FIRE 4G 50/125 OM2	50/125 OM2	4	9.6	123
27560208	HITRONIC® FIRE 8G 50/125 OM2	50/125 OM2	8	9.6	123
27560212	HITRONIC® FIRE 12G 50/125 OM2	50/125 OM2	12	9.6	123
27560224	HITRONIC® FIRE 24G 50/125 OM2	50/125 OM2	24	12.6	188
Multimode G 62.5 OM1					
27560104	HITRONIC® FIRE 4G 62.5/125 OM1	62.5/125 OM1	4	9.6	123
27560108	HITRONIC® FIRE 8G 62.5/125 OM1	62.5/125 OM1	8	9.6	123
27560112	HITRONIC® FIRE 12G 62.5/125 OM1	62.5/125 OM1	12	9.6	123
27560124	HITRONIC® FIRE 24G 62.5/125 OM1	62.5/125 OM1	24	12.6	188
Single-mode E 9 OS2					
27560904	HITRONIC® FIRE 4E 9/125 OS2	9/125 OS2	4	9.6	123
27560908	HITRONIC® FIRE 8E 9/125 OS2	9/125 OS2	8	9.6	123
27560912	HITRONIC® FIRE 12E 9/125 OS2	9/125 OS2	12	9.6	123
27560924	HITRONIC® FIRE 24E 9/125 OS2	9/125 OS2	24	12.6	188

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
The cables can also be supplied as pre-terminated fibre optic trunks.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Available on request with Multimode OM4 fibres.

HITRONIC® TORSION

Breakout cable specially designed to withstand high torsional stresses; PUR outer sheath

Info

- Torsion-resistant and very flexible



Benefits

- Designed to withstand high torsion in the windmill drip loop
- Suitable for field assembly
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

Application range

- For fixed and flexible installations, as well as for applications with torsional movements (e.g. machinery, wind turbines)
- Industrial environments
- In vertical installations
- As a link between moving parts
- For indoor and outdoor use

Product features

- Based on military norm MIL-C-85045
- Torsion-resistant and very flexible
- Outer sheath flame-retardant and halogen-free
- Mechanically robust

Product Make-up

- 2.5 mm tight-buffered sub-cable with LSZH sheath
- Aramid yarns as strain relief
- Central element
- PUR outer sheath
- Colour: black (RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

Dimensions
sub-cable: 2.5mm
Cable: see table

Core identification code
Details see datasheet

Fibre type
GOF - Glass Optical Fibre

Standard designation
A/J-V(ZN)H11Y

Optical values
see data sheet

Optical fibre type
Core material: glass
Cladding material: glass

Permissible bending radius
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

Temperature range
Fixed installation: -40°C to +70°C
Occasional flexing: -30°C to +70°C

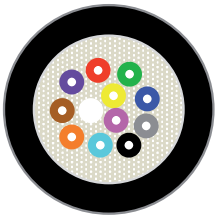
Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
Multimode G50 OM4					
26310402	HITRONIC TORSION 2G 50/125 OM4	50/125 OM4	2	8.4	54
26310404	HITRONIC TORSION 4G 50/125 OM4	50/125 OM4	4	8.4	54
26310408	HITRONIC TORSION 8G 50/125 OM4	50/125 OM4	8	11.6	95
26310412	HITRONIC TORSION 12G 50/125 OM4	50/125 OM4	12	14.7	122
Multimode G 50 OM3					
26310302	HITRONIC® TORSION 2G 50/125 OM3	50/125 OM3	2	8.4	54
26310304	HITRONIC® TORSION 4G 50/125 OM3	50/125 OM3	4	8.4	54
26310308	HITRONIC® TORSION 8G 50/125 OM3	50/125 OM3	8	11.6	95
26310312	HITRONIC® TORSION 12G 50/125 OM3	50/125 OM3	12	14.7	122
Multimode G 50 OM2					
26310202	HITRONIC® TORSION 2G 50/125 OM2	50/125 OM2	2	8.4	54
26310204	HITRONIC® TORSION 4G 50/125 OM2	50/125 OM2	4	8.4	54
26310208	HITRONIC® TORSION 8G 50/125 OM2	50/125 OM2	8	11.6	95
26310212	HITRONIC® TORSION 12G 50/125 OM2	50/125 OM2	12	14.7	122
Multimode G 62.5 OM1					
26310102	HITRONIC® TORSION 2G 62.5/125 OM1	62.5/125 OM1	2	8.4	54
26310104	HITRONIC® TORSION 4G 62.5/125 OM1	62.5/125 OM1	4	8.4	54
26310108	HITRONIC® TORSION 8G 62.5/125 OM1	62.5/125 OM1	8	11.6	95
26310112	HITRONIC® TORSION 12G 62.5/125 OM1	62.5/125 OM1	12	14.7	122
Single-mode E 9 OS2					
26310902	HITRONIC® TORSION 2E 9/125 OS2	9/125 OS2	2	8.4	54
26310904	HITRONIC® TORSION 4E 9/125 OS2	9/125 OS2	4	8.4	54
26310908	HITRONIC® TORSION 8E 9/125 OS2	9/125 OS2	8	11.6	95
26310912	HITRONIC® TORSION 12E 9/125 OS2	9/125 OS2	12	14.7	122

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Available on request with Multimode OM4 fibres.

HITRONIC® HDM Cable

Mini breakout/distribution cable designed for frequent reeling and unreeling, reelable





Info

- Mobile field cables

Benefits

- Suitable for field application
- Reelable for mobile use
- Very easy to install due to small dimensions, high flexibility, and small bending radius
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

Application range

- Light & sound technology
- For indoor and outdoor use
- Industrial environments
- TV broadcasts
  Camera technology
  Building monitoring
- Field application

Product features

- Based on military norm MIL-C-85045
- Highly flexible, reelable and tensile strength
- Colour-coded tight buffered fibres for easy channel identification
- Outer sheath halogen-free
- Mechanically robust

Product Make-up

- Up to 12 tight-buffered fibres (900µm)
- Colour-coded
- Aramid yarns as strain relief
- PUR outer sheath
- Colour: black (RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

Dimensions
tight-buffer (secondary coated fibre): 900µm
Cable: see table

Core identification code
Buffered-Fibre colour code see data sheet

Fibre type
GOF - Glass Optical Fibre

Standard designation
A/J-V(ZN)11Y

Optical values
see data sheet

Optical fibre type
Core material: glass
Cladding material: glass

Permissible bending radius
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

Temperature range
Fixed installation: -40°C to +70°C
Flexible use: -20°C to +60°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
Multimode G 50 OM4					
26610404	HITRONIC® HDM600 4G 50/125 OM4	50/125 OM4	4	5.5	24
26610406	HITRONIC® HDM600 6G 50/125 OM4	50/125 OM4	6	5.6	29
26610408	HITRONIC® HDM700 8G 50/125 OM4	50/125 OM4	8	6.2	36
Multimode G 50 OM3					
26610304	HITRONIC® HDM600 4G 50/125 OM3	50/125 OM3	4	5.5	24
26610306	HITRONIC® HDM600 6G 50/125 OM3	50/125 OM3	6	5.6	29
26610308	HITRONIC® HDM700 8G 50/125 OM3	50/125 OM3	8	6.2	36
Multimode G 50 OM2					
26610204	HITRONIC® HDM600 4G 50/125 OM2	50/125 OM2	4	5.5	24
26610206	HITRONIC® HDM600 6G 50/125 OM2	50/125 OM2	6	5.6	29
26610208	HITRONIC® HDM700 8G 50/125 OM2	50/125 OM2	8	6.2	36
Multimode G 62.5 OM1					
26610104	HITRONIC® HDM600 4G 62.5/125 OM1	62.5/125 OM1	4	5.5	24
26610106	HITRONIC® HDM600 6G 62.5/125 OM1	62.5/125 OM1	6	5.6	29
26610108	HITRONIC® HDM700 8G 62.5/125 OM1	62.5/125 OM1	8	6.2	36
Single-mode E 9 OS2					
26610904	HITRONIC® HDM600 4E9/125 OS2	9/125 OS2	4	5.5	24
26610906	HITRONIC® HDM600 6E9/125 OS2	9/125 OS2	6	5.6	29
26610908	HITRONIC® HDM700 8E9/125 OS2	9/125 OS2	8	6.2	36
26610912	HITRONIC® HDM700 12E9/125 OS2	9/125 OS2	12	6.7	49

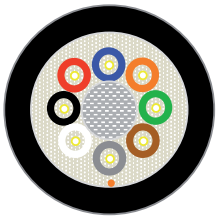
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
The cables can also be supplied as pre-terminated fibre optic trunks.
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EtherNet/IP

HITRONIC® HRM-FD Cable

flexible deivisible breakout cable designed for use in cable chains





Info

- Highly flexible cable for cable chain use

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

Dimensions
sub-cable: 2.0mm
Cable: see table

Core identification code
Details see datasheet

Fibre type
GOF - Glass Optical Fibre

Standard designation
A/J-V(ZN)H(ZN)11Y

Optical values
see data sheet

Optical fibre type
Core material: glass
Cladding material: glass

Permissible bending radius
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

Temperature range
Fixed installation: -40°C to +70°C
Flexible use: -20°C to +60°C

Benefits

- Designed for use in cable chains
- Suitable for field assembly
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

Application range

- For highly flexible industrial applications
- As a link between moving parts
- In vertical installations
- Industrial environments
- For indoor and outdoor use

Product features

- Based on military norm MIL-C-85045
- For use in cable chains and moving machinery parts in dry or damp rooms
- Outer sheath flame-retardant and halogen-free
- Mechanically robust

Product Make-up

- 2.0 mm tight-buffered sub-cable with LSZH sheath
- Aramid yarns as strain relief
- Central element
- PUR outer sheath
- Colour: black (RAL 9005)

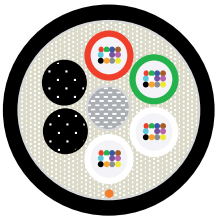
Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
Multimode G 50 OM4					
26300402	HITRONIC® HRM-FD800 2G 50/125 OM4	50/125 OM4	2	7.8	50
26300404	HITRONIC® HRM-FD1000 4G 50/125 OM4	50/125 OM4	4	7.8	50
26300408	HITRONIC® HRM-FD1400 8G 50/125 OM4	50/125 OM4	8	10.4	93
26300412	HITRONIC® HRM-FD1800 12G 50/125 OM4	50/125 OM4	12	13	98
Multimode G 50 OM3					
26300302	HITRONIC® HRM-FD800 2G 50/125 OM3	50/125 OM3	2	7.8	50
26300304	HITRONIC® HRM-FD1000 4G 50/125 OM3	50/125 OM3	4	7.8	50
26300308	HITRONIC® HRM-FD1400 8G 50/125 OM3	50/125 OM3	8	10.4	93
26300312	HITRONIC® HRM-FD1800 12G 50/125 OM3	50/125 OM3	12	13	98
Multimode G 50 OM2					
26300202	HITRONIC® HRM-FD800 2G 50/125 OM2	50/125 OM2	2	7.8	50
26300204	HITRONIC® HRM-FD1000 4G 50/125 OM2	50/125 OM2	4	7.8	50
26300208	HITRONIC® HRM-FD1400 8G 50/125 OM2	50/125 OM2	8	10.4	93
26300212	HITRONIC® HRM-FD1800 12G 50/125 OM2	50/125 OM2	12	13	98
Multimode G 62.5 OM1					
26300102	HITRONIC® HRM-FD800 2G 62.5/125 OM1	62.5/125 OM1	2	7.8	50
26300104	HITRONIC® HRM-FD1000 4G 62.5/125 OM1	62.5/125 OM1	4	7.8	50
26300108	HITRONIC® HRM-FD1400 8G 62.5/125 OM1	62.5/125 OM1	8	10.4	93
26300112	HITRONIC® HRM-FD1800 12G 62.5/125 OM1	62.5/125 OM1	12	13	98
Single-mode E 9 OS2					
26300902	HITRONIC® HRM-FD800 2E 9/125 OS2	9/125 OS2	2	7.8	50
26300904	HITRONIC® HRM-FD1000 4E 9/125 OS2	9/125 OS2	4	7.8	50
26300908	HITRONIC® HRM-FD1400 8E 9/125 OS2	9/125 OS2	8	10.4	93
26300912	HITRONIC® HRM-FD1800 12E 9/125 OS2	9/125 OS2	12	13	98

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The cables can also be supplied as pre-terminated fibre optic trunks.
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HITRONIC® HVN-Mini Cable

Mini outdoor cable designed for installation by air-blowing systems (Ducts)





Info

- Mobile field cables

Benefits

- Suitable for blowing into ducts
- Compact dimensions
- UV-resistant
  longitudinally and laterally watertight
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

Application range

- Backbone-Area, FTTH applications
- Telecommunications network
- WAN applications
- For installations by blowing
- Methods of deployment: for blowing or pulling into ducts

Product features

- Stranded loose tubes with up to 144 fibres (12 loose tubes with each 12 fibres)
- Colour-coded fibres and loose tubes
- Reduced dimensions
- Halogen-free, low-friction outer sheath
- UV-resistant

Product Make-up

- Up to 12 stranded gel-filled loose tubes
- Central GRP strength element
- Reinforced glass yarn strain relief
- PE outer sheath
- Colour: black (RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

Fibre type
GOF - Glass Optical Fibre
Single-mode
E9/125 OS2

Standard designation
A-DQ(ZN)2Y

Optical fibre type
Core material: glass
Cladding material: glass

Permissible bending radius
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

Temperature range
Fixed installation: -40°C to +70°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
Single-mode E 9 OS2					
26609912	HITRONIC® HVN-Mini500 1x12E 9/125 OS2	9/125 OS2	12	5.8	30
26609924	HITRONIC® HVN-Mini500 2x12E 9/125 OS2	9/125 OS2	24	5.8	30
26609948	HITRONIC® HVN-Mini500 4x12E 9/125 OS2	9/125 OS2	48	5.8	33
26609972	HITRONIC® HVN-Mini500 6x12E 9/125 OS2	9/125 OS2	72	5.8	33
26609996	HITRONIC® HVN-Mini1200 8x12E 9/125 OS2	9/125 OS2	96	7.2	52
26609944	HITRONIC® HVN-Mini1000 12x12E 9/125	9/125 OS2	144	8	80

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HITRONIC® HQN Outdoor Cable

Outdoor cable with central loose tube and non-metallic strain relief



Info

- For outdoor applications
- Suitable for direct burial

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description:
Fibre optic cable

Dimensions
Primary coated fibre: 250µm
Cable: see table

Core identification code
Fibre colour code see data sheet

Fibre type
GOF - Glass Optical Fibre

Standard designation
A-DQ(ZN)B2Y

Optical values
see data sheet

Optical fibre type
Core material: glass
Cladding material: glass

Permissible bending radius
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

Permissible tensile force
Fixed installation: 1500 N
Short-term: 3000 N

Temperature range
Fixed installation: -40°C to +70°C

Benefits

- Suitable for direct burial
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- UV-resistant
  longitudinally and laterally watertight
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)
- Suitable for blowing-in technic
  (low friction outer sheath)

Application range

- For outdoor use
- Campus backbone
- WAN applications
- Industrial environments
- Methods of Deployment: empty plastic pipes, ducts and trays
  Suitable for blowing-in technics

Product features

- Central loose tube with up to 24 fibres
- Colour-coded fibres
- Longitudinal watertight
- Rodent-protection
- Robust, halogen-free outer sheath

Product Make-up

- Glass fibres with primary coating
- Gel-filled loose tube
- Water-blocking reinforced glass yarn strain relief
- PE outer sheath
- Colour: black (RAL 9005)

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
Multimode G 50 OM4					
27600404	HITRONIC® HQN 1500 4G 50/125 OM4	50/125 OM4	4	7.3	40
27600408	HITRONIC® HQN 1500 8G 50/125 OM4	50/125 OM4	8	7.3	40
27600412	HITRONIC® HQN 1500 12G 50/125 OM4	50/125 OM4	12	7.3	40
27600424	HITRONIC® HQN 1500 24G 50/125 OM4	50/125 OM4	24	8.3	65
Multimode G 50 OM3					
27600304	HITRONIC® HQN 1500 4G 50/125 OM3	50/125 OM3	4	7.3	40
27600308	HITRONIC® HQN 1500 8G 50/125 OM3	50/125 OM3	8	7.3	40
27600312	HITRONIC® HQN 1500 12G 50/125 OM3	50/125 OM3	12	7.3	40
27600324	HITRONIC® HQN 1500 24G 50/125 OM3	50/125 OM3	24	8.3	65
Multimode G 50 OM2					
27600204	HITRONIC® HQN 1500 4G 50/125 OM2	50/125 OM2	4	7.3	40
27600208	HITRONIC® HQN 1500 8G 50/125 OM2	50/125 OM2	8	7.3	40
27600212	HITRONIC® HQN 1500 12G 50/125 OM2	50/125 OM2	12	7.3	40
27600224	HITRONIC® HQN 1500 24G 50/125 OM2	50/125 OM2	24	8.3	65
Multimode G 62.5 OM1					
27600104	HITRONIC® HQN 1500 4G 62.5/125 OM1	62.5/125 OM1	4	7.3	40
27600108	HITRONIC® HQN 1500 8G 62.5/125 OM1	62.5/125 OM1	8	7.3	40
27600112	HITRONIC® HQN 1500 12G 62.5/125 OM1	62.5/125 OM1	12	7.3	40
27600124	HITRONIC® HQN 1500 24G 62.5/125 OM1	62.5/125 OM1	24	8.3	65
Single-mode E 9 OS2					
27600904	HITRONIC® HQN 1500 4E 9/125 OS2	9/125 OS2	4	7.3	40
27600906	HITRONIC HQN 1500 6E 9/125 OS2	9/125 OS2	6	7.3	40
27600908	HITRONIC® HQN 1500 8E 9/125 OS2	9/125 OS2	8	7.3	40
27600912	HITRONIC® HQN 1500 12E 9/125 OS2	9/125 OS2	12	7.3	40
27600924	HITRONIC® HQN 1500 24E 9/125 OS2	9/125 OS2	24	8.3	65

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The cables can also be supplied as pre-terminated fibre optic trunks.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Available on request with Multimode OM4 fibres.

HITRONIC® HVN Outdoor Cable

Outdoor cable with stranded loose tubes and non-metallic strain relief



Info

- For outdoor applications
- Suitable for direct burial
- Telecommunication cable, high number of fibers (up to 144)

Benefits

- Suitable for direct burial
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- UV-resistant longitudinally and laterally watertight
- Suitable for blowing-in technic (low friction outer sheath)
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

Application range

- For outdoor use
- Campus backbone
- WAN applications
- Industrial environments
- Methods of Deployment: empty plastic pipes, ducts and trays

Product features

- Stranded loose tubes with up to 144 fibres (12 loose tubes with each 12 fibres)
- Colour-coded fibres and loose tubes
- Longitudinal watertight
- Rodent-protection
- Robust, halogen-free outer sheath

Product Make-up

- Up to 12 stranded gel-filled loose tubes
- Central GRP strength element
- Water-blocking reinforced glass yarn strain relief
- PE outer sheath
- Colour: black (RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

Dimensions
Primary coated fibre: 250µm
Cable: see table

Core identification code
Fibre colour code see data sheet

Fibre type
GOF - Glass Optical Fibre

Standard designation
A-DQ(ZN)B2Y

Optical values
see data sheet

Optical fibre type
Core material: glass
Cladding material: glass

Permissible bending radius
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

Temperature range
Fixed installation: -40°C to +70°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
Multfimode G 50 OM4					
26600424	HITRONIC® HVN5000 2x12G 50/125 OM4	50/125 OM4	24	11	64
26600448	HITRONIC® HVN5000 4x12G 50/125 OM4	50/125 OM4	48	11	84
Multimode G 50 OM3					
26600324	HITRONIC® HVN5000 2x12G 50/125 OM3	50/125 OM3	24	11	64
26600348	HITRONIC® HVN5000 4x12G 50/125 OM3	50/125 OM3	48	11	84
Multimode G 50 OM2					
26600224	HITRONIC® HVN5000 2x12G 50/125 OM2	50/125 OM2	24	11	64
26600248	HITRONIC® HVN5000 4x12G 50/125 OM2	50/125 OM2	48	11	84
Single-mode E 9 OS2					
26600924	HITRONIC® HVN5000 2x12E 9/125 OS2	9/125 OS2	24	11	64
26600948	HITRONIC® HVN5000 4x12E 9/125 OS2	9/125 OS2	48	11	84
26601912	HITRONIC HVN1500 1x12E 9/125 OS2	9/125 OS2	12	11	64
HVN Telecom Single-mode E 9 OS2					
26601924	HITRONIC® HVN1500 2x12E 9/125 OS2	9/125 OS2	24	10.5	89
26601948	HITRONIC® HVN1500 4x12E 9/125 OS2	9/125 OS2	48	10.5	91
26601972	HITRONIC® HVN2000 6x12E 9/125 OS2	9/125 OS2	72	10.8	97
26601996	HITRONIC® HVN2000 8x12E 9/125 OS2	9/125 OS2	96	11.9	121
26601944	HITRONIC® HVN2000 12x12E 9/125 OS2	9/125 OS2	144	14.3	183

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
The cables can also be supplied as pre-terminated fibre optic trunks.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Other models are available upon request.

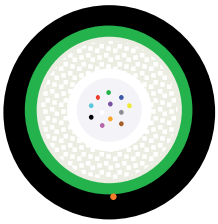
HITRONIC® HQW Armoured Outdoor Cable

Outdoor cable with corrugated steel tape, central loose tube, non-metallic strain relief

Info

- Cable with corrugated steel tape (CST) for increased mechanical stress





Benefits

- Armouring provides excellent protection against high mechanical stress and rodents
- Suitable for direct burial
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- UV-resistant longitudinally and laterally watertight

Application range

- For outdoor use
- Campus backbone
- WAN applications
- Industrial environments
- Methods of Deployment: empty plastic pipes, ducts and trays

Product features

- Central loose tube with up to 24 fibres
- Colour-coded fibres
- Longitudinal watertight
- Excellent rodent protection
- Robust, halogen-free outer sheath

Product Make-up

- Gel-filled loose tube
- Water-blocking reinforced glass yarn strain relief
- Corrugated steel tape armour
- PE outer sheath
- Colour: black (RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

Dimensions
Primary coated fibre: 250µm
Cable: see table

Core identification code
Fibre colour code see data sheet

Fibre type
GOF - Glass Optical Fibre

Standard designation
A-DQ(ZN)(SR)2Y

Optical values
see data sheet

Optical fibre type
Core material: glass
Cladding material: glass

Permissible bending radius
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

Permissible tensile force
Fixed installation: 3000 N
Short-term: 5000 N

Temperature range
Fixed installation: -40°C to +70°C

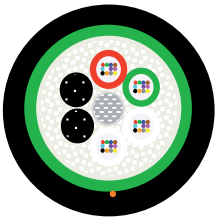
Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
Multimode G 50 OM4					
27900404	HITRONIC HQW3000 4G 50/125 OM4	50/125 OM4	4	9.6	88
27900408	HITRONIC HQW3000 8G 50/125 OM4	50/125 OM4	8	9.6	88
27900412	HITRONIC HQW3000 12G 50/125 OM4	50/125 OM4	12	9.6	88
27900424	HITRONIC HQW3000 24G 50/125 OM4	50/125 OM4	24	9.6	88
Multimode G 50 OM3					
27900304	HITRONIC® HQW3000 4G 50/125 OM3	50/125 OM3	4	9.6	88
27900308	HITRONIC® HQW3000 8G 50/125 OM3	50/125 OM3	8	9.6	88
27900312	HITRONIC® HQW3000 12G 50/125 OM3	50/125 OM3	12	9.6	88
27900324	HITRONIC® HQW3000 24G 50/125 OM3	50/125 OM3	24	9.6	88
Multimode G 50 OM2					
27900204	HITRONIC® HQW3000 4G 50/125 OM2	50/125 OM2	4	9.6	88
27900208	HITRONIC® HQW3000 8G 50/125 OM2	50/125 OM2	8	9.6	88
27900212	HITRONIC® HQW3000 12G 50/125 OM2	50/125 OM2	12	9.6	88
27900224	HITRONIC® HQW3000 24G 50/125 OM2	50/125 OM2	24	9.6	88
Multimode G 62.5 OM1					
27900104	HITRONIC® HQW3000 4G 62.5/125 OM1	62.5/125 OM1	4	9.6	88
27900108	HITRONIC® HQW3000 8G 62.5/125 OM1	62.5/125 OM1	8	9.6	88
27900112	HITRONIC® HQW3000 12G 62.5/125 OM1	62.5/125 OM1	12	9.6	88
27900124	HITRONIC® HQW3000 24G 62.5/125 OM1	62.5/125 OM1	24	9.6	88
Single-mode E 9 OS2					
27900904	HITRONIC® HQW3000 4E 9/125 OS2	9/125 OS2	4	9.6	88
27900908	HITRONIC® HQW3000 8E 9/125 OS2	9/125 OS2	8	9.6	88
27900912	HITRONIC® HQW3000 12E 9/125 OS2	9/125 OS2	12	9.6	88
27900924	HITRONIC® HQW3000 24E 9/125 OS2	9/125 OS2	24	9.6	88

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The cables can also be supplied as pre-terminated fibre optic trunks.
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HITRONIC® HVW Armoured Outdoor Cable

Outdoor cable with corrugated steel tape, stranded loose tubes and non-metallic strain relief





Info

- Cable with corrugated steel tape (CST) for increased mechanical stress

Benefits

- Armouring provides excellent protection against high mechanical stress and rodents
- Suitable for direct burial
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- UV-resistant
  longitudinally and laterally watertight

Application range

- Methods of Deployment: empty plastic pipes, ducts and trays
- For outdoor use
- Campus backbone
- WAN applications
- Industrial environments

Product features

- Stranded loose tubes with up to 144 fibres (12 loose tubes with each 12 fibres)
- Colour-coded fibres and loose tubes
- Longitudinal watertight
- Excellent rodent protection
- Robust, halogen-free outer sheath

Product Make-up

- Up to 12 stranded gel-filled loose tubes
- Water-blocking reinforced glass yarn strain relief
- Corrugated steel tape armour
- PE outer sheath
- Colour: black (RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

Dimensions
Primary coated fibre: 250µm
Cable: see table

Core identification code
Fibre colour code see data sheet

Fibre type
GOF - Glass Optical Fibre

Standard designation
A-DQ(ZN)(SR)2Y

Optical values
see data sheet

Optical fibre type
Core material: glass
Cladding material: glass

Permissible bending radius
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

Permissible tensile force
Fixed installation: 3000 N
Short-term: 5000 N

Temperature range
Fixed installation: -40°C to +70°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
Single-mode E 9 OS2					
26900924	HITRONIC® HVW3000 2x12E 9/125 OS2	9/125 OS2	24	10	98
26900948	HITRONIC® HVW3000 4x12E 9/125 OS2	9/125 OS2	48	12.5	148
26900972	HITRONIC® HVW3000 6x12E 9/125 OS2	9/125 OS2	72	16	215
26900996	HITRONIC® HVW3000 8x12E 9/125 OS2	9/125 OS2	96	16	222
26900944	HITRONIC® HVW3000 12x12E 9/125 OS2	9/125 OS2	144	18.5	261

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The cables can also be supplied as pre-terminated fibre optic trunks.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

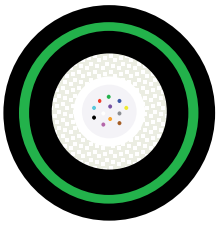
HITRONIC® HQW-Plus Armoured Outdoor Cable

Outdoor cable with corrugated steel tape, central loose tube, non-metallic strain relief and PE inner and outer sheath

Info

- Cable with corrugated steel tape (CST) for increased mechanical stress





Benefits

- Additional sheath protects the fibres for use in harsh environments
- Armouring provides excellent protection against high mechanical stress and rodents
- Suitable for direct burial
- UV-resistant longitudinally and laterally watertight

Application range

- For outdoor use
- Harsh industrial environment
- Campus backbone
- WAN applications
- Methods of Deployment: empty plastic pipes, ducts and trays

Product features

- Central loose tube with up to 24 fibres
- Colour-coded fibres
- Longitudinal watertight
- Excellent rodent protection
- Robust, halogen-free outer sheath

Product Make-up

- Gel-filled loose tube
- Water-blocking reinforced glass yarn strain relief
- Corrugated steel tape armour
- PE inner and outer sheaths
- Colour: black (RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

Dimensions
Primary coated fibre: 250µm
Cable: see table

Core identification code
Fibre colour code see data sheet

Fibre type
GOF - Glass Optical Fibre

Standard designation
A-DQ(ZN)B2Y(SR)2Y

Optical values
see data sheet

Optical fibre type
Core material: glass
Cladding material: glass

Permissible bending radius
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

Permissible tensile force
Fixed installation: 3000 N
Short-term: 5000 N

Temperature range
Fixed installation: -40°C to +70°C

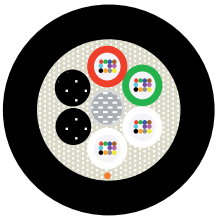
Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
Multimode G 50 OM4					
27920404	HITRONIC HQW-Plus3000 4G 50/125 OM4	50/125 OM4	4	9.6	95
27920408	HITRONIC HQW-Plus3000 8G 50/125 OM4	50/125 OM4	8	9.6	95
27920412	HITRONIC HQW-Plus3000 12G 50/125 OM4	50/125 OM4	12	9.6	95
27920424	HITRONIC HQW-plus3000 24G 50/125 OM4	50/125 OM4	24	12.6	135
Multimode G 50 OM3					
27920304	HITRONIC® HQW-Plus3000 4G 50/125 OM3	50/125 OM3	4	9.6	95
27920308	HITRONIC® HQW-Plus3000 8G 50/125 OM3	50/125 OM3	8	9.6	95
27920312	HITRONIC® HQW-Plus3000 12G 50/125 OM3	50/125 OM3	12	9.6	95
27920324	HITRONIC® HQW-Plus3000 24G 50/125 OM3	50/125 OM3	24	12.6	135
Multimode G 50 OM2					
27920204	HITRONIC® HQW-Plus3000 4G 50/125 OM2	50/125 OM2	4	9.6	95
27920208	HITRONIC® HQW-Plus3000 8G 50/125 OM2	50/125 OM2	8	9.6	95
27920212	HITRONIC® HQW-Plus3000 12G 50/125 OM2	50/125 OM2	12	9.6	95
27920224	HITRONIC® HQW-Plus3000 24G 50/125 OM2	50/125 OM2	24	12.6	135
Multimode G 62.5 OM1					
27920104	HITRONIC® HQW-Plus3000 4G 62.5/125 OM1	62.5/125 OM1	4	9.6	95
27920108	HITRONIC® HQW-Plus3000 8G 62.5/125 OM1	62.5/125 OM1	8	9.6	95
27920112	HITRONIC® HQW-Plus3000 12G 62.5/125 OM1	62.5/125 OM1	12	9.6	95
27920124	HITRONIC® HQW-Plus3000 24G 62.5/125 OM1	62.5/125 OM1	24	12.6	135
Single-mode E 9 OS2					
27920904	HITRONIC® HQW-Plus3000 4E 9/125 OS2	9/125 OS2	4	9.6	95
27920908	HITRONIC® HQW-Plus3000 8E 9/125 OS2	9/125 OS2	8	9.6	95
27920912	HITRONIC® HQW-Plus3000 12E 9/125 OS2	9/125 OS2	12	9.6	95
27920924	HITRONIC® HQW-Plus3000 24E 9/125 OS2	9/125 OS2	24	12.6	135

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

HITRONIC® HQA Aerial Cable

Outdoor self-supporting aerial cable with stranded loose tubes and non-metallic strain relief; ADSS cable type





Info

- ADSS - All Dielectric Self Supporting

Benefits

- Suitable for mild weather conditions
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- UV-resistant
  longitudinally and laterally watertight
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

Application range

- For outdoor use
- Hanging on poles
- Laying on poles
- Installation on building columns

Product features

- Stranded loose tubes with up to 96 fibres
- Colour-coded fibres and loose tubes
- Mechanical support members (central filler and aramid yarns)
- Robust, halogen-free outer sheath
- Span width up to 90m

Product Make-up

- Up to 8 stranded gel-filled loose tubes
- Central GRP strength element
- Aramid yarns as strain relief
- PE outer sheath
- Colour: black (RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

Dimensions
Primary coated fibre: 250µm
Cable: see table

Core identification code
Fibre colour code see data sheet

Fibre type
GOF - Glass Optical Fibre

Standard designation
A-DQ(ZN)2Y - ADSS
All-Dielectric Self-Supporting

Optical values
see data sheet

Optical fibre type
Core material: glass
Cladding material: glass

Permissible bending radius
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

Permissible tensile force
MAT: 2000 N
EDS: 800 N

Temperature range
Fixed installation: -40°C to +70°C
Occasional flexing: -30°C to +70°C

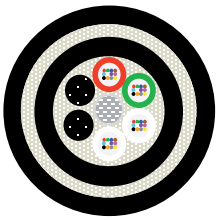
Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
Single-mode E 9 OS2					
26640912	HITRONIC® HQA800 6x2E 9/125 OS2	9/125 OS2	12	9.7	73
26640924	HITRONIC® HQA800 6x4E 9/125 OS2	9/125 OS2	24	9.7	73
26640948	HITRONIC® HQA800 6x8E 9/125 OS2	9/125 OS2	48	10.9	92
26640972	HITRONIC® HQA800 6x12E 9/125 OS2	9/125 OS2	72	10.9	94
26640996	HITRONIC® HQA800 8x12E 9/125 OS2	9/125 OS2	96	12.4	121

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Further cable versions are available on request.

HITRONIC® HQA-Plus Aerial Cable

Outdoor self-supporting aerial cable with stranded loose tubes, non-metallic strain relief and PE inner and outer sheath; ADSS cable type





Info

- ADSS - All Dielectric Self Supporting
- For harsh weather conditions

Benefits

- Designed to withstand harsh weather conditions
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- UV-resistant
  longitudinally and laterally watertight
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

Application range

- For long span widths
- Hanging on poles
- For outdoor use
- Laying on poles
- Installation on building columns

Product features

- Stranded loose tubes with up to 96 fibres
- Colour-coded fibres and loose tubes
- Mechanical support members (central filler and aramid yarns)
- Robust, halogen-free outer sheath
- Span width up to 250m

Product Make-up

- Up to 8 stranded gel-filled loose tubes
- Central GRP strength element
- Aramid yarns as strain relief
- PE inner and outer sheaths
- Colour: black (RAL 9005)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

Dimensions
Primary coated fibre: 250µm
Cable: see table

Core identification code
Fibre colour code see data sheet

Fibre type
GOF - Glass Optical Fibre

Standard designation
A-DQ2Y(ZN)2Y ADSS
All-Dielectric Self-Supporting

Optical values
see data sheet

Optical fibre type
Core material: glass
Cladding material: glass

Permissible bending radius
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

Permissible tensile force
MAT: 8000 N
EDS: 3200 N

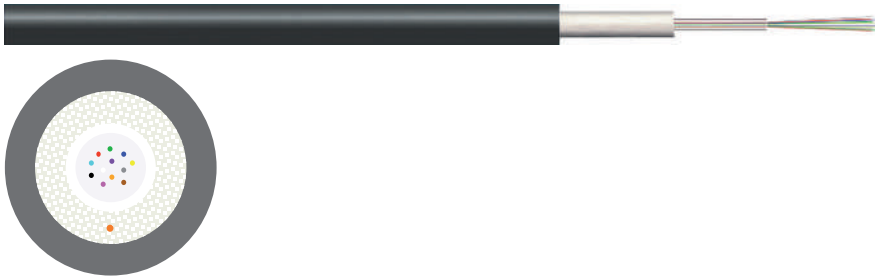
Temperature range
Fixed installation: -40°C to +70°C
Occasional flexing: -30°C to +70°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
Single-mode E 9 OS2					
26644912	HITRONIC® HQA-Plus3200 6x2E 9/125 OS2	9/125 OS2	12	12.8	132
26644924	HITRONIC® HQA-Plus3200 6x4E 9/125 OS2	9/125 OS2	24	12.8	132
26644948	HITRONIC® HQA-Plus3200 6x8E 9/125 OS2	9/125 OS2	48	13.7	151
26644972	HITRONIC® HQA-Plus3200 6x12E 9/125 OS2	9/125 OS2	72	13.7	153
26644996	HITRONIC® HQA-Plus3200 8x12E 9/125 OS2	9/125 OS2	96	15.3	188

Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Further cable versions are available on request.

HITRONIC® HUN Universal Cable

Universal cable with central loose tube and non-metallic strain relief



Benefits

- Flame retardance makes it suitable for indoor and outdoor installations
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- UV-resistant longitudinally and laterally watertight
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

Application range

- For indoor and outdoor use
- Campus backbone
- Industrial environments
- Methods of Deployment: empty plastic pipes, ducts and trays

Product features

- Central loose tube with up to 24 fibres
- Colour-coded fibres
- Longitudinal watertight
- Outer sheath flame-retardant and halogen-free
- Rodent-protection

Product Make-up

- Glass fibres with primary coating
- Gel-filled loose tube
- Water-blocking reinforced glass yarn strain relief
- LSZH outer sheath
- Colour: dark grey

Info

- CPR: Article number choice under www.lapp.com
- For indoor and outdoor use

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

Dimensions
Primary coated fibre: 250µm
Cable: see table

Core identification code
Fibre colour code see data sheet

Fibre type
GOF - Glass Optical Fibre

Standard designation
A/J-DQ(ZN)BH
U-DQ(ZN)BH

Optical values
see data sheet

Optical fibre type
Core material: glass
Cladding material: glass

Permissible bending radius
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

Permissible tensile force
Fixed installation: 1500 N
Short-term: 2000 N

Temperature range
Fixed installation: -30°C to +70°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
Multimode G 50 OM4					
27400404	HITRONIC® HUN1500 4G 50/125 OM4	50/125 OM4	4	7.3	53
27400408	HITRONIC® HUN1500 8G 50/125 OM4	50/125 OM4	8	7.3	53
27400412	HITRONIC® HUN1500 12G 50/125 OM4	50/125 OM4	12	7.3	53
27400424	HITRONIC® HUN1500 24G 50/125 OM4	50/125 OM4	24	8.3	60
Multimode G 50 OM3					
27400304	HITRONIC® HUN1500 4G 50/125 OM3	50/125 OM3	4	7.3	53
27400308	HITRONIC® HUN1500 8G 50/125 OM3	50/125 OM3	8	7.3	53
27400312	HITRONIC® HUN1500 12G 50/125 OM3	50/125 OM3	12	7.3	53
27400324	HITRONIC® HUN1500 24G 50/125 OM3	50/125 OM3	24	8.3	60
Multimode G 50 OM2					
27400204	HITRONIC® HUN1500 4G 50/125 OM2	50/125 OM2	4	7.3	53
27400208	HITRONIC® HUN1500 8G 50/125 OM2	50/125 OM2	8	7.3	53
27400212	HITRONIC® HUN1500 12G 50/125 OM2	50/125 OM2	12	7.3	53
27400224	HITRONIC® HUN1500 24G 50/125 OM2	50/125 OM2	24	8.3	60
Multimode G 62.5 OM1					
27400104	HITRONIC® HUN1500 4G 62.5/125 OM1	62.5/125 OM1	4	7.3	53
27400108	HITRONIC® HUN1500 8G 62.5/125 OM1	62.5/125 OM1	8	7.3	53
27400112	HITRONIC® HUN1500 12G 62.5/125 OM1	62.5/125 OM1	12	7.3	53
27400124	HITRONIC® HUN1500 24G 62.5/125 OM1	62.5/125 OM1	24	8.3	60
Single-mode E 9 OS2					
27400904	HITRONIC® HUN1500 4E 9/125 OS2	9/125 OS2	4	7.3	53
27400908	HITRONIC® HUN1500 8E 9/125 OS2	9/125 OS2	8	7.3	53
27400912	HITRONIC® HUN1500 12E 9/125 OS2	9/125 OS2	12	7.3	53
27400924	HITRONIC® HUN1500 24E 9/125 OS2	9/125 OS2	24	8.3	60

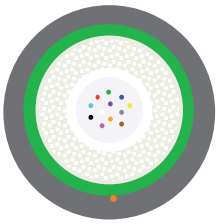
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
The cables can also be supplied as pre-terminated fibre optic trunks.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EtherNet/IP

HITRONIC® HUW Armoured Universal Cable

Universal cable with central loose tube, corrugated steel tape and non-metallic strain relief for applications with extended mechanical stress





Info

- CPR: Article number choice under www.lapp.com
- For indoor and outdoor use
- Cable with corrugated steel tape (CST) for increased mechanical stress

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

Dimensions
Primary coated fibre: 250µm
Cable: see table

Core identification code
Fibre colour code see data sheet

Fibre type
GOF - Glass Optical Fibre

Standard designation
A/J-DQ(ZN)(SR)H
U-DQ(ZN)(SR)H

Optical values
see data sheet

Optical fibre type
Core material: glass
Cladding material: glass

Permissible bending radius
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

Permissible tensile force
Fixed installation: 1500 N
Short-term: 2000 N

Temperature range
Fixed installation: -30°C to +70°C

Benefits

- Armouring provides excellent protection against high mechanical stress and rodents
- Flame retardance makes it suitable for indoor and outdoor installations
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- Water-resistant

Application range

- For indoor and outdoor use
- Campus backbone
- Industrial environments
- Methods of Deployment: empty plastic pipes, ducts and trays

Product features

- Outer sheath flame-retardant and halogen-free
- Central loose tube with up to 24 fibres
- Colour-coded fibres
- Longitudinal watertight
- Excellent rodent protection

Product Make-up

- Gel-filled loose tube
- Water-blocking reinforced glass yarn strain relief
- Corrugated steel tape armour
- LSZH outer sheath
- Colour: green (based on RAL 6018)

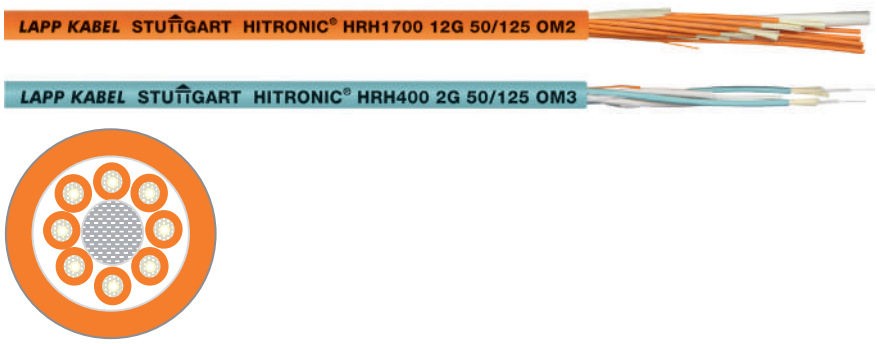
Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
Multimode G 50 OM4					
27500404	HITRONIC® HUW1500 4G 50/125 OM4	50/125 OM4	4	9.6	88
27500408	HITRONIC® HUW1500 8G 50/125 OM4	50/125 OM4	8	9.6	88
27500412	HITRONIC® HUW1500 12G 50/125 OM4	50/125 OM4	12	9.6	88
27500424	HITRONIC® HUW1500 24G 50/125 OM4	50/125 OM4	24	9.6	88
Multimode G 50 OM3					
27500304	HITRONIC® HUW1500 4G 50/125 OM3	50/125 OM3	4	9.6	88
27500308	HITRONIC® HUW1500 8G 50/125 OM3	50/125 OM3	8	9.6	88
27500312	HITRONIC® HUW1500 12G 50/125 OM3	50/125 OM3	12	9.6	88
27500324	HITRONIC® HUW1500 24G 50/125 OM3	50/125 OM3	24	9.6	88
Multimode G 50 OM2					
27500204	HITRONIC® HUW1500 4G 50/125 OM2	50/125 OM2	4	9.6	88
27500208	HITRONIC® HUW1500 8G 50/125 OM2	50/125 OM2	8	9.6	88
27500212	HITRONIC® HUW1500 12G 50/125 OM2	50/125 OM2	12	9.6	88
27500224	HITRONIC® HUW1500 24G 50/125 OM2	50/125 OM2	24	9.6	88
Multimode G 62.5 OM1					
27500104	HITRONIC® HUW1500 4G 62.5/125 OM1	62.5/125 OM1	4	9.6	88
27500108	HITRONIC® HUW1500 8G 62.5/125 OM1	62.5/125 OM1	8	9.6	88
27500112	HITRONIC® HUW1500 12G 62.5/125 OM1	62.5/125 OM1	12	9.6	88
27500124	HITRONIC® HUW1500 24G 62.5/125 OM1	62.5/125 OM1	24	9.6	88
Single-mode E 9 OS2					
27500904	HITRONIC® HUW1500 4E 9/125 OS2	9/125 OS2	4	9.6	88
27500908	HITRONIC® HUW1500 8E 9/125 OS2	9/125 OS2	8	9.6	88
27500912	HITRONIC® HUW1500 12E 9/125 OS2	9/125 OS2	12	9.6	88
27500924	HITRONIC® HUW1500 24E 9/125 OS2	9/125 OS2	24	9.6	88

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
The cables can also be supplied as pre-terminated fibre optic trunks.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Available on request with Multimode OM4 fibres.

EtherNet/IP

HITRONIC® HRH Breakout Cable

Divisible breakout cable for direct connector assembly; J-V(ZN)HH



Benefits

- Suitable for field assembly
- Universal cable for cabling of buildings
- Very easy to install due to compact design, high flexibility, and small bending radii
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

Application range

- For indoor use
- Tertiary cabling
- Structured cabling - backbone
- Methods of Deployment: laying in trunking, ducts, trays, empty plastic pipes, building riser, raised floors and plenums

Product features

- Installation cable with up to 12 Simplex cables
- Outer sheath flame-retardant and halogen-free
- Mechanically robust

Product Make-up

- 2.1 mm tight-buffered sub-cable with LSZH sheath (identified by numbers)
- Central GRP strength element
- Aramid yarns as strain relief
- LSZH inner and outer sheaths
- Colour: violet for OM4, aqua (RAL 6027) for OM3, orange (RAL 2003) for OM2 and OM1, yellow for Single-mode

Info

- CPR: Article number choice under www.lapp.com
- Breakout cable for direct connector assembly

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

Dimensions
tight-buffer (secondary coated fibre): 900µm
sub-cable: 2.1mm

Core identification code
Sub-cable: with black numbers

Fibre type
GOF - Glass Optical Fibre

Standard designation
J-V(ZN)HH

Optical values
see data sheet

Optical fibre type
Core material: glass
Cladding material: glass

Permissible bending radius
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

Temperature range
Fixed installation: -20°C to +70°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
Multimode G 50 OM4					
26000402	HITRONIC HRH400 2G 50/125 OM4	50/125 OM4	2	7	35
26000404	HITRONIC HRH600 4G 50/125 OM4	50/125 OM4	4	7	44
26000408	HITRONIC HRH1200 8G 50/125 OM4	50/125 OM4	8	9.7	77
26000412	HITRONIC HRH1700 12G 50/125 OM4	50/125 OM4	12	10.3	100
Multimode G 50 OM3					
26000302	HITRONIC® HRH400 2G 50/125 OM3	50/125 OM3	2	7	35
26000304	HITRONIC® HRH600 4G 50/125 OM3	50/125 OM3	4	7	44
26000308	HITRONIC® HRH1200 8G 50/125 OM3	50/125 OM3	8	9.7	77
26000312	HITRONIC® HRH1700 12G 50/125 OM3	50/125 OM3	12	10.3	100
Multimode G 50 OM2					
26000202	HITRONIC® HRH400 2G 50/125 OM2	50/125 OM2	2	7	35
26000204	HITRONIC® HRH600 4G 50/125 OM2	50/125 OM2	4	7	44
26000208	HITRONIC® HRH1200 8G 50/125 OM2	50/125 OM2	8	9.7	77
26000212	HITRONIC® HRH1700 12G 50/125 OM2	50/125 OM2	12	10.3	100
Multimode G 62.5 OM1					
26000102	HITRONIC® HRH400 2G 62.5/125 OM1	62.5/125 OM1	2	7	35
26000104	HITRONIC® HRH600 4G 62.5/125 OM1	62.5/125 OM1	4	7	44
26000108	HITRONIC® HRH1200 8G 62.5/125 OM1	62.5/125 OM1	8	9.7	77
26000112	HITRONIC® HRH1700 12G 62.5/125 OM1	62.5/125 OM1	12	10.3	100
Single-mode E 9 OS2					
26000902	HITRONIC® HRH400 2E 9/125 OS2	9/125 OS2	2	7	35
26000904	HITRONIC® HRH600 4E 9/125 OS2	9/125 OS2	4	7	44
26000908	HITRONIC® HRH1200 8E 9/125 OS2	9/125 OS2	8	9.7	77
26000912	HITRONIC® HRH1700 12E 9/125 OS2	9/125 OS2	12	10.3	100

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
The cables can also be supplied as pre-terminated fibre optic trunks.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Available on request with multi-mode OM4 fibres
(outer sheath colour violet).

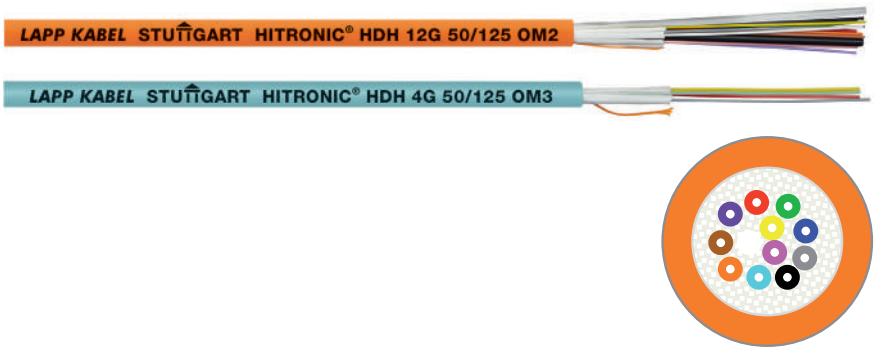
EtherNet/IP

HITRONIC® HDH Mini-Breakout Cable

Divisible indoor cable (distribution-style) with LSZH outer sheath, halogenfree; J-V(ZN)HH

Info

- CPR: Article number choice under www.lapp.com
- Mini breakout/distribution cable for direct connector assembly



Benefits

- Very easy to install due to small dimensions, high flexibility, and small bending radius
- Suitable for field assembly
- Universal cable for cabling of buildings
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

Application range

- For indoor use
- Tertiary cabling
- Structured cabling - backbone
- Methods of Deployment: laying in trunking, ducts, trays, empty plastic pipes, building riser, raised floors and plenums

Product features

- Up to 12 tight-buffered fibres (900µm)
- Colour-coded fibres
- Outer sheath flame-retardant and halogen-free
- Mechanically robust

Product Make-up

- Tight-buffered fibres
- Water-blocking reinforced glass yarn strain relief
- LSZH outer sheath
- Colour: aqua (RAL 6027) for OM3, orange (RAL 2003) for OM2 and OM1
- Available on request: single-mode OS2 (yellow) and multimode OM4 (violet)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

Dimensions
tight-buffer (secondary coated fibre): 900µm
Cable: see table

Core identification code
Buffered-Fibre colour code see data sheet

Fibre type
GOF - Glass Optical Fibre

Standard designation
J-V(ZN)H

Optical values
see data sheet

Optical fibre type
Core material: glass
Cladding material: glass

Permissible bending radius
Static: ≥ 15 x outer diameter
Dynamic: ≥ 20 x outer diameter

Temperature range
Fixed installation: -20°C to +70°C

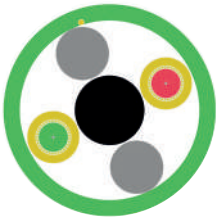
Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
HITRONIC® HDH Mini-Breakout Cable					
26010402	HITRONIC HDH 2G 50/125 OM4	50/125 OM4	2	6	34
26010404	HITRONIC HDH 4G 50/125 OM4	50/125 OM4	4	6.3	37
26010408	HITRONIC HDH 8G 50/125 OM4	50/125 OM4	8	7.5	57
26010412	HITRONIC HDH 12G 50/125 OM4	50/125 OM4	12	8.3	69
Multimode G 50 OM3					
26010302	HITRONIC® HDH 2G 50/125 OM3	50/125 OM3	2	6	34
26010304	HITRONIC® HDH 4G 50/125 OM3	50/125 OM3	4	6.3	37
26010308	HITRONIC® HDH 8G 50/125 OM3	50/125 OM3	8	7.5	57
26010312	HITRONIC® HDH 12G 50/125 OM3	50/125 OM3	12	8.3	69
Multimode G 50 OM2					
26010202	HITRONIC® HDH 2G 50/125 OM2	50/125 OM2	2	6	34
26010204	HITRONIC® HDH 4G 50/125 OM2	50/125 OM2	4	6.3	37
26010208	HITRONIC® HDH 8G 50/125 OM2	50/125 OM2	8	7.5	57
26010212	HITRONIC® HDH 12G 50/125 OM2	50/125 OM2	12	8.3	69
Multimode G 62.5 OM1					
26010102	HITRONIC® HDH 2G 62.5/125 OM1	62.5/125 OM1	2	6	34
26010104	HITRONIC® HDH 4G 62.5/125 OM1	62.5/125 OM1	4	6.3	37
26010108	HITRONIC® HDH 8G 62.5/125 OM1	62.5/125 OM1	8	7.5	57
26010112	HITRONIC® HDH 12G 62.5/125 OM1	62.5/125 OM1	12	8.3	69

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
The cables can also be supplied as pre-terminated fibre optic trunks.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.
Available on request with Multimode OM4 fibres.

HITRONIC® GOF cables for PROFINET Applications

Glass Optical Fibre as duplex fibre cable version with PUR sheath or LSZH compound for PROFINET applications type B or C





Info

- PROFINET compliant - Type B or Type C
- CPR: Article number choice under www.lapp.com

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000034
ETIM 5.0/6.0 Class-Description: Fibre optic cable

Dimensions
Buffered Fibre: 2.9 mm
Cable: see table

Core identification code
Black, orange (with arrow printing)

Standard designation
J-V(ZN)HH

Permissible bending radius
Without tensile load
15 x outer diameter
With tensile load 20 x outer diameter

Temperature range
Fixed installation: -20°C to +70°C

Benefits

- With non-metallic aramid yarns for strain relief
- Easy to handle
- No interereference by external fields
- Halogen free and highly flame retardant materials reduce the risk of flame propagation, high smoke density and toxic flue gases in the event of a fire.
- Cable version with PUR outer sheath: for high mechanical or chemical stress in industrial environments
- Classified fire behaviour according to EU Directive 305/2011 (BauPVO/CPR) with article number selection on the LAPP website

Application range

- PROFINET type B: for fixed laying
- PROFINET type C: For flexible applications (cable chains)
- PROFINET type C: Design allows rotations with torsion angles of up to ± 180°/m.
- For structured building cabling in the secondary and tertiary sector, according to
- EN 50173 and ISO/IEC 11801
- For fixed and protected installation in installation ducts, on cable trays, in the riser zone, in hollow ceilings and floors, as well as for short distances
- Can be used in dry rooms
- The outer sheath of the product and inner sheaths of both individual cables are made of halogen-free LSZH compound

Norms

- Flame-retardant acc. to IEC 60332-1-2
- Halogen-free acc to IEC 60754-1 & IEC 60754-2
- Low smoke density acc. to IEC 61034-1 & IEC 61034-2

Product Make-up

- Glass optical fiber
- 2 tight-buffered simplex units enclosed
- Fibre colour coding: black, orange (with arrow printing)
- Aramid yarns as strain relief
- Outer sheath materfial PUR or LSZH
- Outer sheath colour: green (RAL 6018)

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
HITRONIC® GOF DUPLEX PNB					
28052003	HITRONIC® GOF DUPLEX PNB 2G 62,5/125 OM1	62,5/125 OM1	2	9.2	72
28052004	HITRONIC® GOF DUPLEX PNB 2G 50/125 OM2	50/125 OM2	2	9.2	72
28052005	HITRONIC® GOF DUPLEX PNB 2G 50/125 OM3	50/125 OM3	2	9.2	72
28052006	HITRONIC® GOF DUPLEX PNB 2E 9/125 OS2	9/125 OS2	2	9.2	72
HITRONIC® GOF DUPLEX PNC					
28052007	HITRONIC® GOF DUPLEX PNC 2G 62,5/125 OM1	62,5/125 OM1	2	8.8	70
28052008	HITRONIC® GOF DUPLEX PNC 2G 50/125 OM2	50/125 OM2	2	8.8	70
28052009	HITRONIC® GOF DUPLEX PNC 2G 50/125 OM3	50/125 OM3	2	8.8	70
28052010	HITRONIC® GOF DUPLEX PNC 2E 9/125 OS2	9/125 OS2	2	8.8	70

Unless specifi ed otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.
Please fi nd our standard lengths at: www.lapp.com
Lapp Kabel is a member of the PROFIBUS user organisation (PNO)
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

GOF DUPLEX Patchcord

Optical patch cords with various types of connectors available in single-mode or multi-mode fibre version

Info

- Pre-assembled duplex tight-buffered optical fibre cables with durable ceramic ferrule connectors
- Other types are available at www.lapp.com or on request



OM4 OM3 OM2/OM1 OS2

Benefits

- To connect optical transmitter, receiver and terminal box
- “Plug & Play” connection between optical devices
- Non-permanent connections allow for easy change of equipment
- For direct connection between two active optical components

Application range

- For indoor use
- LAN connections
- Data Centers
- Distributor cabinet

Product features

- Outer sheath flame-retardant and halogen-free
- High flexibility
- Cable termination with durable ceramic ferrules
- Pre-assembled connectors:
  -Low insertion loss
  -High return loss

Norm references / Approvals

- LC comply with IEC standard 61754-20
- SC comply with IEC standard 61754-4
- ST comply with IEC standard 61754-2
- FC complies with IEC61754-13

Product Make-up

- Tight-buffered duplex cable with LSZH outer sheath
- Connector: LC, SC or ST
- Cable colour:
  violet for multimode OM4,
  turquoise for multimode OM3,
  orange for multimode OM2 and OM1,
  yellow for single-mode OS2
- Standard length: 2 m
- On request: 1 m, 3 m, 5 m and 10 m

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001263
ETIM 5.0/6.0 Class-Description: Fibre optic patch cord

Dimensions
Primary coated fibre: 250µm
tight-buffer (secondary coated fibre): 900µm
sub-cable: 1.9mm

Fibre type
GOF - Glass Optical Fibre

Standard designation
J-VH 2x1G/E...

Optical fibre type
Core material: glass
Cladding material: glass

Permissible bending radius
Static: ≥ 30 mm
Dynamic: ≥ 40 mm

Permissible tensile force
Fixed installation: 100 N

Temperature range
Fixed installation: -20°C to +60°C
Occasional flexing: -5°C to +50°C

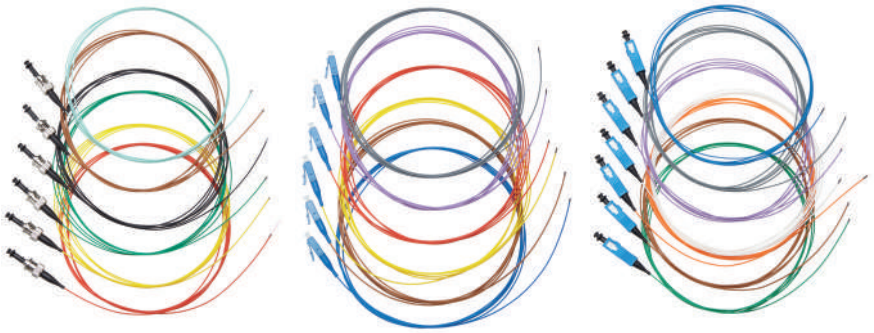
Article number	Article designation	PU
Multimode G 50 OM4		
29011402	GOF Duplex Patchcord SC/SC G50 OM4, 2m	1 piece
29021402	GOF Duplex Patchcord ST/SC G50 OM4, 2m	1 piece
29022402	GOF Duplex Patchcord ST/ST G50 OM4, 2m	1 piece
29031402	GOF Duplex Patchcord LC/SC G50 OM4, 2m	1 piece
29032402	GOF Duplex Patchcord LC/ST G50 OM4, 2m	1 piece
29033402	GOF Duplex Patchcord LC/LC G50 OM4, 2m	1 piece
29044402	GOF Duplex Patchcord FC/FC G50 OM4, 2m	1 piece
Multimode G 50 OM3		
29011302	GOF Duplex Patchcord SC/SC G50 OM3, 2m	1 piece
29021302	GOF Duplex Patchcord ST/SC G50 OM3, 2m	1 piece
29022302	GOF Duplex Patchcord ST/ST G50 OM3, 2m	1 piece
29031302	GOF Duplex Patchcord LC/SC G50 OM3, 2m	1 piece
29032302	GOF Duplex Patchcord LC/ST G50 OM3, 2m	1 piece
29033302	GOF Duplex Patchcord LC/LC G50 OM3, 2m	1 piece
29044302	GOF Duplex Patchcord FC/FC G50 OM3, 2m	1 piece
Multimode G 50 OM2		
29011202	GOF Duplex Patchcord SC/SC G50 OM2, 2m	1 piece
29021202	GOF Duplex Patchcord ST/SC G50 OM2, 2m	1 piece
29022202	GOF Duplex Patchcord ST/ST G50 OM2, 2m	1 piece
29031202	GOF Duplex Patchcord LC/SC G50 OM2, 2m	1 piece
29032202	GOF Duplex Patchcord LC/ST G50 OM2, 2m	1 piece
29033202	GOF Duplex Patchcord LC/LC G50 OM2, 2m	1 piece
29044202	GOF Duplex Patchcord FC/FC G50 OM2, 2m	1 piece
Multimode G 62.5 OM1		
29011102	GOF Duplex Patchcord SC/SC G62.5, 2m	1 piece
29021102	GOF Duplex Patchcord ST/SC G62.5, 2m	1 piece
29022102	GOF Duplex Patchcord ST/ST G62.5, 2m	1 piece
29031102	GOF Duplex Patchcord LC/SC G62.5, 2m	1 piece
29032102	GOF Duplex Patchcord LC/ST G62.5, 2m	1 piece
29033102	GOF Duplex Patchcord LC/LC G62.5, 2m	1 piece
29044102	GOF Duplex Patchcord FC/FC G62.5, 2m	1 piece
Single-mode E 9 OS2		
29011902	GOF Duplex Patchcord SC/SC E9 OS2, 2m	1 piece
29021902	GOF Duplex Patchcord ST/SC E9 OS2, 2m	1 piece
29022902	GOF Duplex Patchcord ST/ST E9 OS2, 2m	1 piece
29031902	GOF Duplex Patchcord LC/SC E9 OS2, 2m	1 piece
29032902	GOF Duplex Patchcord LC/ST E9 OS2, 2m	1 piece
29033902	GOF Duplex Patchcord LC/LC E9 OS2, 2m	1 piece
29033802	GOF DUPLEX Patchcord LC/LC 9/125 APC, 2m	1 piece
29039902	GOF DUPLEX Patchcord LC/SC-APC E9 OS2, 2m	1 piece

Other lengths and types of connectors are available with minimum quanity of 50 pcs.
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EtherNet/IP

GOF SIMPLEX Pigtail

12x assorted colour coded pigtails with various types of connectors (LC, ST, LC) with Singlemode OS2 and Multimode OM1, OM2, OM3, OM4 fibres



ST LC SC

Info

- Pre-assembled simplex tight-buffered optical fibre with a durable ceramic ferrule connector

Benefits

- Ease of installation and assembly
- Create a direct plug connection for installation cables with splicing
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

Application range

- For indoor use
- Connection to an end optical device

Product features

- High flexibility
- Cable termination with durable ceramic ferrules
- Set consisting of 12 colour-coded pigtails (red, green, blue, yellow, white, gray, brown, violet, turquoise, black, orange, pink)

Norm references / Approvals

- LC comply with IEC standard 61754-20
- SC comply with IEC standard 61754-4
- ST comply with IEC standard 61754-2

Product Make-up

- Tight buffered simplex fibres
- Connector: LC, SC or ST
- Colour-coded primary and secondary coatings
- Standard length: 2 m

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000748
ETIM 5.0/6.0 Class-Description: Pigtail

Dimensions
Primary coated fibre: 250µm
tight-buffer (secondary coated fibre): 900µm

Fibre type
GOF - Glass Optical Fibre

Standard designation
J-VH 1G/E...

Optical fibre type
Core material: glass
Cladding material: glass

Permissible tensile force
Fixed installation: 100 N

Temperature range
Fixed installation: -20°C to +60°C
Occasional flexing: -5°C to +50°C

Article number	Article designation	PU
Multimode G 50 OM4		
29310402	GOF Simplex Pigtail SC G50 OM4, 2m	12 piece
29320402	GOF Simplex Pigtail ST G50 OM4, 2m	12 piece
29330402	GOF Simplex Pigtail LC G50 OM4, 2m	12 piece
Multimode G 50 OM3		
29310302	GOF Simplex Pigtail SC G50 OM3, 2m	12 piece
29320302	GOF Simplex Pigtail ST G50 OM3, 2m	12 piece
29330302	GOF Simplex Pigtail LC G50 OM3, 2m	12 piece
Multimode G 50 OM2		
29310202	GOF Simplex Pigtail SC G50 OM2, 2m	12 piece
29320202	GOF Simplex Pigtail ST G50 OM2, 2m	12 piece
29330202	GOF Simplex Pigtail LC G50 OM2, 2m	12 piece
Multimode G 62.5 OM1		
29310102	GOF Simplex Pigtail SC G62.5, 2m	12 piece
29320102	GOF Simplex Pigtail ST G62.5, 2m	12 piece
29330102	GOF Simplex Pigtail LC G62.5, 2m	12 piece
Single-mode E 9 OS2		
29310902	GOF Simplex Pigtail SC E9 OS2, 2m	12 piece
29320902	GOF Simplex Pigtail ST E9 OS2, 2m	12 piece
29330902	GOF Simplex Pigtail LC E9 OS2, 2m	12 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

GOF Connector

Accessories for glass optical fibre cable, connector types LC, SC, ST and FC


LC


SC




FC

Benefits

- Ideal for assembling
- For assembly process: cable preparation/ glueing/crimping/polishing
- Assembly instructions can be found in the GOF assembly toolbox (not included in Lapp product range)
- Trained optical installers should be used in all connector assembly

Application range

- For connector assemblies in production or laboratory environment

Product features

- Connector sets include all needed parts for assembly

Norm references / Approvals

- LC comply with IEC standard 61754-20
- SC comply with IEC standard 61754-4
- ST comply with IEC standard 61754-2

Product Make-up

- Ferrule diameter:
  LC: 1.25mm (zirconia)
  SC, ST: 2.5mm (zirconia)
- Can be assembled with cables of 1.7mm-2.1mm diameter
- LC and SC connector sets available in green (single-mode APC), blue (single-mode PC) and grey (multimode)

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001122
ETIM 5.0/6.0 Class-Description: Fibre optic connector

Permissible tensile force
Tensile load 70N
Tensile strength after assembly
> 100N

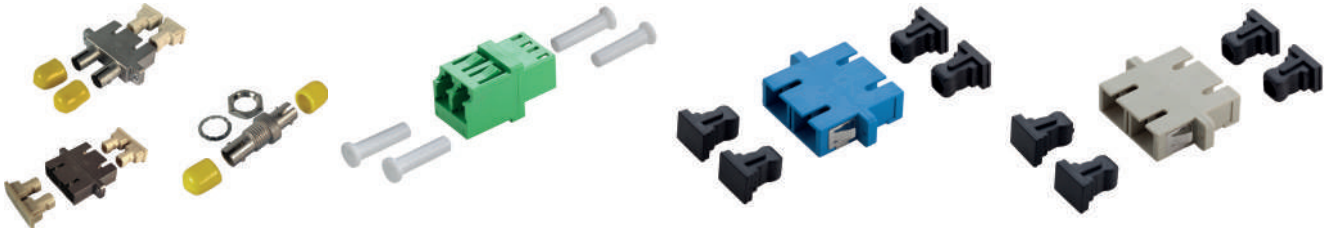
Temperature range
Operating
LC: -40°C to 75°C
SC: -40°C to 75°C
ST: -40°C to 85°C
Humidity 95%
Flammability UL 94 V-0

Article number	Article designation	PU
Singlemode		
29110999	GOF Connector SC Single-mode Blue /4PC	4 piece
29110998	GOF Connector SC Single-mode Blue /50PC	50 piece
29110989	GOF Connector SC Single-mode APC Green/ 4PC	4 piece
29110988	GOF Connector SC Single-mode APC Green/ 50PC	50 piece
29130999	GOF Connector LC Single-mode Blue /4PC	4 piece
29130998	GOF Connector LC Single-mode Blue /50PC	50 piece
29130989	GOF Connector LC Single-mode APC GR /4PC	4 piece
29130988	GOF Connector LC Single-mode APC GR/50PC	50 piece
29120999	GOF Connector ST Single-mode /4PC	4 piece
29120998	GOF Connector ST Single-mode /50PC	50 piece
29140999	GOF Connector FC Single-mode /4PC	4 piece
Multimode		
29110199	GOF Connector SC Multimode Beige /4PC	4 piece
29110198	GOF Connector SC Multimode Beige /50PC	50 piece
29130199	GOF Connector LC Multimode Beige /4PC	4 piece
29130198	GOF Connector LC Multimode Beige /50PC	50 piece
29130197	GOF Stecker LC Multimode BE-BK /50ST	50 piece
29120199	GOF Connector ST Multimode /4PC	4 piece
29120198	GOF Connector ST Multimode /50PC	50 piece
29140199	GOF Connector FC Multimode /4PC	4 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

GOF Adapters

Accessories for glass optical fibre cable, adapters for connector types LC, SC and ST



Product features

- The couplings connect the glass fibre connectors with the same or different connector types.

Norm references / Approvals

- LC comply with IEC standard 61754-20
- SC comply with IEC standard 61754-4
- ST comply with IEC standard 61754-2
- Comply with IEC, EIA/TIA standards

Product Make-up

- Zirconia sleeves
- LC and SC adapters available in green (single-mode APC), blue (single-mode PC) and grey (multimode)

Technical data

ETIM

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC000752
ETIM 5.0/6.0 Class-Description:
Fibre optic coupler

Attenuation
Attenuation (dB) < 0.2
Repeatability
1000 cycles (dB) < 0.2

Temperature range
Operating
LC, ST, SC: -40° up to +85°C
Humidity 95%
Flammability UL 94 V-0

Article number	Article designation	PU
Singlemode		
29410999	GOF Adapter Duplex SC Single-mode Blue /4PC	4 piece
29410989	GOF Adapter Duplex SC Single-mode APC Green /4PC	4 piece
29430999	GOF Adapter Duplex LC Single-mode Blue /4PC	4 piece
29430989	GOF Adapter Duplex LC Single-mode APC Green /4PC	4 piece
29420999	GOF Adapter Simplex ST(BFOC) Single-mode /4PC	4 piece
29421999	GOF Adapter Duplex ST-SC Single-mode /4PC	4 piece
Multimode		
29410199	GOF Adaper Duplex SC Multimode Beige /4PC	4 piece
29430199	GOF Adaper Duplex LC Multimode Beige /4PC	4 piece
29420199	GOF Adapter Simplex ST(BFOC) Multimode /4PC	4 piece
29421199	GOF Adaper Duplex ST-SC Multimode /4PC	4 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® DATA FFC-LC Assembly accessories

Spare components for EPIC® DATA FFC-LC starter kit, for easy assembly of FFC-LC connectors

Info

- Easy handling of Kevlar® fibres



Benefits

- Assembly accessories as useful equipment for easy assembly of Fibre Fast Connect LC connectors for GOF fibre optic cables
- Cable assembly set for secure insertion of the glass fibre into the connector and for simplified attachment of the strain relief by fastening the aramide fibres on the side
- Cable clamps for securing cables with diameters of 2 or 3 mm
- Fibre guide for secure insertion of the glass fibre into the connector and for attachment of the strain relief by manually fastening the aramide fibres
- Precise identification of the offset dimensions on the core using the markings on the fibre guide

Application range

- For field assembly of Fibre Fast Connect LC connectors for GOF fibre optic cables
- Can be used as replacement components for the EPIC® DATA FFC-LC starter kit

Technical data

ETIM **Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001122
ETIM 5.0/6.0 Class-Description: Fibre optic connector

Article number	Name	Product type	Assembly type	Fibre optic cable type	Type of plug connection
38115783	FFC-LC-CABLE-ASSEMBLY-SET	Fibre optic cable assembly accessories	Direct assembly	GOF	LC
38115785	FFC-LC-FIBRE-GUIDE	Fibre optic cable assembly accessories	Direct assembly	GOF	LC

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® DATA FFC-SC Assembly accessories

Spare components for EPIC® DATA FFC-SC starter kit, for easy assembly of FFC-SC connectors

Info

- Easy handling of Kevlar® fibres



Benefits

- Assembly accessories as useful equipment for easy assembly of Fibre Fast Connect SC connectors for GOF fibre optic cables
- Cable assembly set for secure insertion of the glass fibre into the connector and for simplified attachment of the strain relief by fastening the aramide fibres on the side
- Cable clamps for securing cables with diameters of 2 or 3 mm
- Fibre guide for secure insertion of the glass fibre into the connector and for attachment of the strain relief by manually fastening the aramide fibres
- Precise identification of the offset dimensions on the core using the markings on the fibre guide

Application range

- For field assembly of Fibre Fast Connect SC connectors for GOF fibre optic cables
- Can be used as replacement components for the EPIC® DATA FFC-SC starter kit

Technical data

ETIM **Classification ETIM 5/6**
ETIM 5.0/6.0 Class-ID: EC001122
ETIM 5.0/6.0 Class-Description: Fibre optic connector

Article number	Name	Product type	Assembly type	Fibre optic cable type	Type of plug connection
38115784	FFC-SC-CABLE-ASSEMBLY-SET	Fibre optic cable assembly accessories	Direct assembly	GOF	SC
38115786	FFC-SC-FIBRE-GUIDE	Fibre optic cable assembly accessories	Direct assembly	GOF	SC

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

EPIC® DATA FFC-LC starter kit
EPIC® DATA FFC-SC starter kit

Starter kit with field-configurable Fibre Fast Connect LC/SC connectors, fibre separator and fibre guide; available with or without cable assembly set





Info

- Easy handling of Kevlar® fibres

Benefits

- Starter kit as basic equipment with field-configurable Fibre Fast Connect connectors, fibre separator and fibre guide
- Highly precise fibre separator (cleaver) for shortening the glass fibres by means of a straight cut (PC) or slanting cut (UPC/APC). This achieves ideal return loss values
- The maintenance-free cleaver can be used up to 200 times and has a mechanical, visually readable counter
- The fibre clamp is used to hold the core in place and prevent the glass fibre from being pulled back
- With a red marking on the fibre clamp for an exact offset of the glass fibre
- Available with different cut types (APC, UPC or PC)
- Available in different GOF fibre categories (OM3/OM4 and OS2)
- Available as a set in the cable variant (diameter 2 or 3 mm) or core variant (diameter 0.25 or 0.90 mm)
- Available as a variant with or without cable assembly set

Application range

- For creating a pluggable glass fibre connection
- For field assembly of Fibre Fast Connect LC/SC connectors for GOF fibre optic cables

Technical data

ETIM

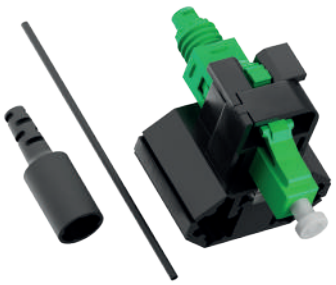
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001122
ETIM 5.0/6.0 Class-Description: Fibre optic connector

Article number	Name	Polishing description	Grinding contact surface	Optical cable, fibre category	Pieces / PU	Bending protection
LC						
38115789	FFC-LC-APC-OS2-0.25/0.9-20PCS-AS	angled physical contact	APC	OS2	20	Anti-kink sleeve for fibre assembly
38115790	FFC-LC-APC-OS2-2/3-20PCS-AS	angled physical contact	APC	OS2	20	Anti-kink sleeve for cable assembly
38115791	FFC-LC-UPC-OS2-0.25/0.9-20PCS-AS	ultra physical contact	UPC	OS2	20	Anti-kink sleeve for fibre assembly
38115792	FFC-LC-UPC-OS2-2/3-20PCS-AS	ultra physical contact	UPC	OS2	20	Anti-kink sleeve for cable assembly
38115837	FFC-LC-PC-OM3/OM4-0.25/0.9-20PCS-AS	physical contact	PC	OM3/4	20	Anti-kink sleeve for fibre assembly
38115838	FFC-LC-PC-OM3/OM4-2/3-20PCS-AS	physical contact	PC	OM3/4	20	Anti-kink sleeve for cable assembly
SC						
38115793	FFC-SC-APC-OS2-0.25/0.9-20PCS-AS	angled physical contact	APC	OS2	20	Anti-kink sleeve for fibre assembly
38115794	FFC-SC-APC-OS2-2/3-20PCS-AS	angled physical contact	APC	OS2	20	Anti-kink sleeve for cable assembly
38115795	FFC-SC-UPC-OS2-0.25/0.9-20PCS-AS	ultra physical contact	UPC	OS2	20	Anti-kink sleeve for fibre assembly
38115796	FFC-SC-UPC-OS2-2/3-20PCS-AS	ultra physical contact	UPC	OS2	20	Anti-kink sleeve for cable assembly
38115839	FFC-SC-PC-OM3/OM4-0.25/0.9-20PCS-AS	physical contact	PC	OM3/4	20	Anti-kink sleeve for fibre assembly
38115840	FFC-SC-PC-OM3/OM4-2/3-20PCS-AS	physical contact	PC	OM3/4	20	Anti-kink sleeve for cable assembly

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EPIC® DATA FFC Connectors

Field-configurable LC/SC connector for GOF fibre optic cables, available in different variants from the FFC system for simple and fast on-site assembly



LC Connector



SC Connector

Benefits

- The field-configurable LC/SC connectors for GOF fibre optic cables are prepared and tested at the factory so they are ready for on- site assembly
- FFC (Fibre Fast Connect) system for simple and fast assembly, even in restricted spaces. Complex process steps, special tools and a laboratory environment for assembly are no longer required
- With refraction index gel for constant and excellent optical values
- Serial numbers on the individual connectors ensure complete traceability.
- Connectors can be assembled up to 3 times, making them flexible to use
- Connector faces of the SC connector in accordance with DIN EN IEC 61754-4
- Connector faces of the LC connector in accordance with DIN EN IEC 61754-20.
- Available with different cut types (APC, UPC or PC)
- Available in different GOF fibre categories (OM3/OM4 and OS2)
- Available as a set in the cable variant (diameter 2 or 3 mm) or core variant (diameter 0.25 or 0.90 mm)

Application range

- For creating a pluggable glass fibre connection
- For use in backbone network areas
- For cabling buildings and data centres
- For use in control cabinets
- For use with the EPIC® DATA FFC-SC assembly accessories and the EPIC® DATA FFC-SC starter kit
- For use with the EPIC® DATA FFC-LC assembly accessories and the EPIC® DATA FFC-LC starter kit

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001122
ETIM 5.0/6.0 Class-Description: Fibre optic connector

Temperature range
Operating temperature: –25 °C to +70°C
Storage: –25 °C to +70 °C

Article number	Name	Polishing description	Grinding contact surface	Optical cable, fibre category	Pieces / PU	Bending protection
LC						
38115797	FFC-LC-APC-OS2-0.25/0.9-10PCS	angled physical contact	APC	OS2	10	Anti-kink sleeve for fibre assembly
38115798	FFC-LC-APC-OS2-2/3-10PCS	angled physical contact	APC	OS2	10	Anti-kink sleeve for cable assembly
38115799	FFC-LC-UPC-OS2-0.25/0.9-10PCS	ultra physical contact	UPC	OS2	10	Anti-kink sleeve for fibre assembly
38115800	FFC-LC-UPC-OS2-2/3-10PCS	ultra physical contact	UPC	OS2	10	Anti-kink sleeve for cable assembly
38115833	FFC-LC-PC-OM3/4-0.25/0.9-10PCS	physical contact	PC	OM3/4	10	Anti-kink sleeve for fibre assembly
38115834	FFC-LC-PC-OM3/4-2/3-10PCS	physical contact	PC	OM3/4	10	Anti-kink sleeve for cable assembly
SC						
38115801	FFC-SC-APC-OS2-0.25/0.9-10PCS	angled physical contact	APC	OS2	10	Anti-kink sleeve for fibre assembly
38115802	FFC-SC-APC-OS2-2/3-10PCS	angled physical contact	APC	OS2	10	Anti-kink sleeve for cable assembly
38115803	FFC-SC-UPC-OS2-0.25/0.9-10PCS	ultra physical contact	UPC	OS2	10	Anti-kink sleeve for fibre assembly
38115804	FFC-SC-UPC-OS2-2/3-10PCS	ultra physical contact	UPC	OS2	10	Anti-kink sleeve for cable assembly
38115835	FFC-SC-PC-OM3/4-0.25/0.9-10PCS	physical contact	PC	OM3/4	10	Anti-kink sleeve for fibre assembly
38115836	FFC-SC-PC-OM3/4-2/3-10PCS	physical contact	PC	OM3/4	10	Anti-kink sleeve for cable assembly

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HITRONIC® FO tool kit

Complete tool kit for preparing GOF fibre optic cables and connectors; with tools and cleaning agents and other accessories available individually



Benefits

- All common tools and cleaning agents as well as the necessary accessories for preparing GOF fibre optic cables and connectors under one article number
- Aramide shears with special cutting edge for easy cutting of aramide fibres
- Compact red light source with clearly visible light for continuity testing of fibre optic cables and for optical break or fault identification
- Fibre stripping pliers with die for common diameters for stripping the individual layers of the fibres
- Lint-free cleaning cloths and cleaning agents with a practical 3-way dispenser for simple and thorough cleaning of the fibres
- Tweezers and container for safe collection and storage of fibre residues
- Ferrule cleaner for safe and easy cleaning of 1.25 mm and 2.5 mm ferrules. Can be used for up to 800 cleaning operations
- Cleaning cartridge for removing dirt from the connector end surfaces with automatic feed after cleaning
- Stocked tool bag with an adjustable hip belt for optimum carrying comfort and several inner compartments for plenty of storage space

Application range

- For the correct assembly and installation of Fibre Fast Connect connectors on GOF fibre optic cables
- Tool bag only available fully filled Consumables can be re-purchased individually

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001122
ETIM 5.0/6.0 Class-Description: Fibre optic connector

Articl number	Name	Product type
38115778	FO-TOOL-KIT	FOC tool bag
38115779	FO-CLEANING-WIPES	FOC cleaning clothes
38115780	FO-CLEANING-LIQUID	FOC cleaning fluid
38115781	FO-ARAMID-SCISSORS	FOC aramid shears
38115782	FO-GOF-STRIPPING-TOOL	FOC fibre stripping tool
38115787	FO-FERRULE-CLEANER-LC/MU	FOC ferrule cleaner
38115788	FO-FERRULE-CLEANER-SC/ST/FC/E2000	FOC ferrule cleaner
38115841	FO-CONNECTOR-CLEANER	FOC connector cleaner
38115842	FO-CONNECTOR-CLEANER-REPLACEMENT	FOC connector cleaner spare cartridge
38115859	FO-RED-LIGHT-SOURCE	FOC red light source

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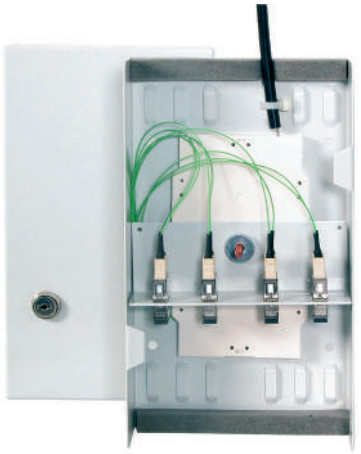
Splice Box Compact

Product features

- Panel mounting
- Lockable
- Max. capacity of 8 splicing cartridges or 4 splicing cartridges and one distribution plate
- Includes distributor plate for 8 ST couplings
- Includes distributor plate for 4 SC duplex couplings
- Dimensions (WxHxD): 265 x 150 x 55 mm
- Colour: light grey (RAL 7035)

Technical data

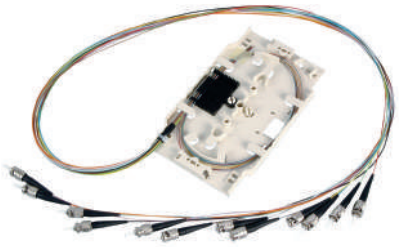
Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001130
ETIM 5.0/6.0 Class-Description: Patch panel fibre optic



Article number	Article designation	PU
Splice Box Compact		
CE9147	Splice Box Compact	1 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Accessories for splice boxes and wall-mounted rack



Product features

- Splicing cassette for up to 2 splicing protection holders
- Cover for splicing cartridge
- 12-fold splicing protection holder
- Splicing protection sleeve for ANT splicing device
- Blind cap instead of E2000 coupling
- Blind cap instead of ST coupling
- Dummy cap instead of SC duplex coupling

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001123
ETIM 5.0/6.0 Class-Description: Splice protection

Article number	Article designation	PU
Accessories for splice boxes and wall-mounted rack		
CE9914	Splicing cassette for up to 2 splicing protection holders	1 piece
CE9914D	Cover for splicing cartridge	1 piece
CE9916	12-fold splicing protection holder	1 piece
CE9913	Splicing protection sleeve for ANT splicing device	15 pieces
CE9918	Blind cap instead of ST coupling	10 pieces
CE9919	Blind cap instead of SC duplex coupling	10 pieces

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HITRONIC® SBX

Industrial splice boxes for splicing fibre optic cables

Info

- For different connector types in singlemode and multimode versions



Product features

- Mounting type on contract rail: TH35
- Three different cable inlets and positions on contract rail possible
- Available in 6x and 12x duplex adapter
- Plastic or metal version
- SC-RJ variants are suitable for PROFINET® applications

Technical data

Dimensions
Cable entry: M20 for 6-13 mm
Width: 35 mm
Height: 125 mm
Depth: 140 mm

Material
Housing / front plate: steel, galvanized, powder-coated, light gray RAL 7035
DIN rail adapter: nickel-plated sheet steel

Protection rating
IP20

Temperature range
Operation: -5°C to +55°C

Article number	Article designation	Housing material	Colour	PU
Multimode G50 OM4				
29500792	HITRONIC SBX 12xST-D MT PG150 G50 OM4	metal		1 piece
29500796	HITRONIC SBX 12xSC-D VT PG150 G50 OM4	plastic	violet	1 piece
29500805	HITRONIC SBX 12xLC-D VT PG150 G50 OM4	plastic	violet	1 piece
29500777	HITRONIC SBX 6xST-D MT PG150 G50 OM4	metal		1 piece
29500782	HITRONIC SBX 6xSC-D VT PG150 G50 OM4	plastic	violet	1 piece
29500788	HITRONIC SBX 6XSC-RJ BG PG150 G50 OM4	plastic	beige	1 piece
29500801	HITRONIC SBX 6xLC-D VT PG150 G50 OM4	plastic	violet	1 piece
Multimode G50 OM3				
29500791	HITRONIC SBX 12xST-D MT PG150 G50 OM3	metal		1 piece
29500795	HITRONIC SBX 12xSC-D TQ PG150 G50 OM3	plastic	turquoise	1 piece
29500804	HITRONIC SBX 12xLC-D TQ PG150 G50 OM3	plastic	turquoise	1 piece
29500776	HITRONIC SBX 6xST-D MT PG150 G50 OM3	metal		1 piece
29500781	HITRONIC SBX 6xSC-D TQ PG150 G50 OM3	plastic	turquoise	1 piece
29500787	HITRONIC SBX 6XSC-RJ BG PG150 G50 OM3	plastic	beige	1 piece
29500800	HITRONIC SBX 6xLC-D TQ PG150 G50 OM3	plastic	turquoise	1 piece
Multimode G50 OM2				
29500790	HITRONIC SBX 12xST-D MT PG150 G50 OM2	metal		1 piece
29500794	HITRONIC SBX 12xSC-D BG PG150 G50 OM2	plastic	beige	1 piece
29500803	HITRONIC SBX 12xLC-D BG PG150 G50 OM2	plastic	beige	1 piece
29500775	HITRONIC SBX 6xST-D MT PG150 G50 OM2	metal		1 piece
29500780	HITRONIC SBX 6xSC-D BG PG150 G50 OM2	plastic	beige	1 piece
29500786	HITRONIC SBX 6XSC-RJ BG PG150 G50 OM2	plastic	beige	1 piece
29500799	HITRONIC SBX 6xLC-D BG PG150 G50 OM2	plastic	beige	1 piece
Multimode G62,5 OM1				
29500774	HITRONIC SBX 6xST-D MT PG150 G62.5 OM1	metal		1 piece
29500785	HITRONIC SBX 6XSC-RJ BG PG150 G62.5 OM1	plastic	beige	1 piece
29500798	HITRONIC SBX 6xLC-D BG PG150 G62.5 OM1	plastic	beige	1 piece
29500799	HITRONIC SBX 6XSC-D BG PG150 G62.5 OM1	plastic	beige	1 piece
Singlemode E9/125 OS2				
29500793	HITRONIC SBX 12xST-D MT PG150 E9 OS2	metal		1 piece
29500797	HITRONIC SBX 12xSC-D BL PG150 E9 OS2	plastic	blue	1 piece
29500806	HITRONIC SBX 12xLC-D BL PG150 E9 OS2	plastic	blue	1 piece
29500778	HITRONIC SBX 6xST-D MT PG150 E9 OS2	metal		1 piece
29500783	HITRONIC SBX 6xSC-D BL PG150 E9 OS2	plastic	blue	1 piece
29500784	HITRONIC SBX 6xSC-D MT PG150 E9 OS2	metal		1 piece
29500789	HITRONIC SBX 6XSC-RJ BL PG150 E9 OS2	plastic	blue	1 piece
29500802	HITRONIC SBX 6xLC-D BL PG150 E9 OS2	plastic	blue	1 piece

Other types of connectors (e.g. LC, MTRJ, E2000) are available upon request.Judy Lim:This will not apply to Hitronic anymore, as LC will become a standard product and MTRJ/E2000 will be removed.
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EPIC® DATA TS

Din rail adapter for optical fibre



Product features

- Directly mountable on carrier acc. to DIN 50022 in industrial environment
- Available for breakout cables with clutch SC Simplex, SC-RJ and LC duplex
- Labeling for better identification
- Easy to install with srewdriver
- Suitable for GOF singlemode and multimode fibers
- Ideal for the industry due to it‘s compact design
- Colour: grey (RAL 7035)
- Material housing: PC-GFIO
- Loading force ≥ 100 N
- Extraction force: ≥ 40 N

Info

- Mountable carrier

Technical data

Classification ETIM 5/6
ETIM 5.0/6.0 Class-ID: EC001130
ETIM 5.0/6.0 Class-Description: Patch panel fibre optic

Protection rating
IP 20

Temperature range
-10 to + 60°C (operation)

Article number	Article designation	PU
EPIC® DATA TS		
29500762	EPIC DATA TS GOF LC-D MM	1 piece
29500763	EPIC DATA TS GOF LC-D SM	1 piece
29500760	EPIC DATA TS GOF SC MM	1 piece
29500761	EPIC DATA TS GOF SC SM	1 piece

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The following applies for the use of our products

The conformity of our products to the relevant European directives and compliance with the provisions contained therein shall be indicated by the CE marking.

The safety of our products is closely associated with how they are used. Knowledge of and adherence to the respective international/national standards of use (e.g. DIN VDE 0100; 0298) are mandatory. There are particular risks if installed improperly. This applies to all our products/items:

Processing must only be done by an authorised electrician! Otherwise, there is the risk of an electric shock or a fire ignited by electric current!

Safety

Without exception, our products are tested for application safety in accordance with defined standards and our own regulations, which complement the standards. Relevant legal requirements and safety regulations are also observed. Provided due care and attention is paid, the possibility of product-specific danger to the user may thus reasonably be excluded. Where products are used carelessly or incorrectly, however, considerable danger to persons and the environment may arise. For this reason, our cables must only be processed and/or used responsibly by trained electricians or specialists. This catalogue contains general information on the application of each product. Independent of such information, the application standards DIN VDE 0298 and DIN VDE 0891 for cables apply. Excerpts from these standards, as well as complementary selection and application tables, design and installation guidelines, are contained in the tables in the appendix to this catalogue. Our machines and installation tools are – where necessary – designed in accordance with the machine guidelines and display the CE identification mark. It must be noted, however, that our machines and installation tools must only be used by trained specialist personnel and for the purpose for which they were designed.

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