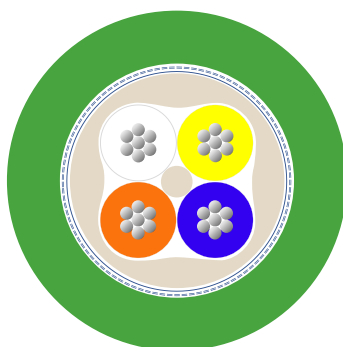


2170894	DATA SHEET	
valid from: 29.04.2025	ETHERLINE® FD P FC Cat. 5 1x4x22/7 AWG	

Application

Field of use:	Highly flexible Industrial Ethernet cable for generic cable system acc. to ISO/IEC 11801 and EN 50173. Suitable for continuous flexing, e.g. applications in drag chains and permanent moved machine parts. Meeting the transmission characteristics of IEC 61156-6, Category 5e and EN 50288-2-2. PROFINET® Type C acc. to the "PROFINET® Cabling and Interconnection Technology" guideline.
Performance:	quad, overall braid and foil screened quad cable (SF/UTQ), having a nominal impedance of 100 Ω, suitable for frequencies up to 500 MHz, supporting a bandwidth of 100 Mbit/s (e.g. 10BASE-T, 100BASE-T) over up to 100 m.
Characteristics:	the "Fast Connect" design allows easy stripping and assembly of the cable, flame retardant, oil resistant, UV resistant, halogen free, PWIS-free and largely resistant to acids, alkalis and certain oils
Applications:	PROFINET® Type C highly flexible cable for use in drag chain applications, EtherCAT, EtherNet/IP, PoE (IEEE 802.3af), PoE+ (IEEE 802.3at), 4PPoE (IEEE 802.3bt) and other



Design

Certification	E236660 c(UL)us CMX 75°C acc. to UL 444 and CSA C22.2 No. 214
Conductor	stranded tinned copper 22/7 AWG (nom. 0.34 mm ²) conductor diameter: nom. 0.75 mm
Insulation	PO (Polyolefine) core diameter: max. 1.5 mm
Core identification code	pair 1: white/blue, pair 2: yellow/orange
Stranding	cores stranded to star quad
Inner sheath	HFFR (Halogen free, flame retardant material) outer diameter: nom. 4.1 mm
Screen	plastic laminated aluminum foil on top: braid of tinned copper wires (coverage: nom. 85 %)
Outer sheath	TPU (Thermoplastic polyurethane) colour: green, similar RAL 6018 outer diameter: 6.5 mm ± 0.3 mm

Electrical properties at 20 °C

Loop resistance	max. 11.48 Ω/100 m
Test voltage	core/core: 700 V core/screen: 700 V
Rated voltage	300 V acc. to UL 444
Maximum operating voltage	125 V (not intended to be used in conjunction with low impedance sources, such as power grids)
Insulation resistance	min. 5 GΩ xkm
Mutual capacitance	nom. 52 nF/km
Transfer impedance	Grade 1 acc. to IEC 61156-6 1 MHz: ≤ 15 mΩ/m 10 MHz: ≤ 10 mΩ/m 30 MHz: ≤ 30 mΩ/m 100 MHz: ≤ 100 mΩ/m

Creator: KIOS / PDC	Document: DB2170894EN	Page 1 of 2
Released: ALTE / PDC	Version: 10	

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Coupling attenuation	Type I acc. to IEC 61156-6
	30 MHz: ≥ 85 dB
	100 MHz: ≥ 85 dB
	1000 MHz: ≥ 65 dB
Velocity of propagation	0,67c
Characteristic impedance	nom. 100 Ω acc. to IEC 61156-6

Transmission properties at 20°C

The transmission characteristics meet the requirements of IEC 61156-6 for category 5e and the requirements of the PROFINET Cabling and Interconnection Technology Guideline.

Frequency	(max.) Phase delay	(max.) Differential delay	(max.) Attenuation	(min.) TCL Level 1	(min.) EL TCTL Level 1	(min.) NEXT	(min.) PS NEXT	(min.) ACR-F	(min.) PS ACR-F	Char. Impedance	(min.) RL
f [MHz]	[ns/ 100 m]	[ns/ 100 m]	[dB/ 100 m]	[dB]	[dB]	[dB]	[dB]	[dB/ 100 m]	[dB/ 100 m]	[Ohm]	[dB]
4	552.0	20.0	6.0	34.0	23.0	56.3	53.3	52.0	49.0	—	23.0
10	545.4	20.0	9.5	30.0	15.0	50.3	47.3	44.0	41.0	—	25.0
16	543.0	20.0	12.1	28.0	10.9	47.2	44.2	39.9	36.9	—	25.0
20	542.0	20.0	13.5	27.0	9.0	45.8	42.8	38.0	35.0	—	25.0
30	540.6	20.0	16.7	25.2	5.5	43.1	40.1	34.5	31.5	—	23.5
62.5	538.6	20.0	24.8	22.0	—	38.4	35.4	28.1	25.1	—	20.7
100	537.6	20.0	32.0	20.0	—	35.3	32.3	24.0	21.0	100 ± 5	19.0

Mechanical and thermal properties

Minimum bending radius	fixed installation:	6× outer diameter
	continuous flexing:	8× outer diameter
Temperature range	fixed installation:	-30 °C up to +80 °C
	continuous flexing:	-20 °C up to +60 °C
	UL:	75 °C acc. to UL 444
Bending cycles and power chain operation parameters	bending radius:	≥ 8x outer diameter
	travel length:	≤ 5 m
	velocity:	≤ 3 m/s
	acceleration:	≤ 3 m/s²
	cycles:	≤ 3.000.000
Flammability	flame retardant acc. to IEC 60332-1-2 resp. EN 60332-1-2 VW-1 acc. to UL 1581 §1080	
Halogen free	acc. to IEC 60754-1 resp. EN 60754-1	
Oil resistance	acc. to EN 50363-10-2, table 2	
UV resistance	acc.to EN ISO 4892-2, method A (change of colour allowed)	

General requirements

This cable is conform to EU-Directive 2014/35/EU (Low Voltage Directive) and to EU-Directive 2011/65/EU (RoHS, Restriction of the use of certain hazardous substances).

Creator: KIOS / PDC	Document: DB2170894EN	Page 2 of 2
Released: ALTE / PDC	Version: 10	