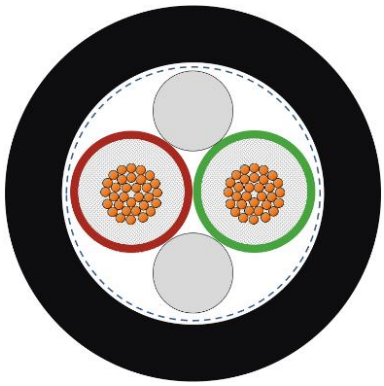
2170235	DATA SHEET	LAPP
valid from: 09.10.2025	UNITRONIC® BUS PA (BK) 1x2x1.3 mm	

Application

Field of use:	Data cable for PROFIBUS PA (Process Automation) fieldbus communication and automation technology according to IEC 61158-2.
Performance:	two-wire, screened cable (S/UTP), having a nominal impedance of 100 Ω (at 31.25 kHz), supporting a bandwidth of 31.25 kbit/s over distances up to 1000 m.
Characteristics:	flame retardant, UV resistant
Applications:	For use in explosive/hazardous areas. The bus cable can serve as an power supply for the bus nodes.



Design

Conductor	fine-wire stranded bare copper	
	cross section:	1.0 mm²
	conductor diameter:	nom. 1.3 mm
Insulation	foam-skin polyolefin	
	core diameter:	max. 2.6 mm
Core identification code	red and green	
Stranding	two cores stranded together with two fillers optional: wrapped by plastic tape (overlapping)	
Screen	braid of tinned copper wires (coverage 85 % ± 5 %)	
Outer sheath	PVC black, similar RAL 9005	
	outer diameter:	8.0 mm ± 0.3 mm

Electrical properties at 20 °C

Loop resistance	≤ 39 Ω/km	
Insulation resistance	≥ 5 GΩxkm	
Mutual capacitance	core/core:	nom. 60 nF/km (800 Hz)
	core/screen:	nom. 80 nF/km (800 Hz)
Inductance	31.25 kHz:	nom. 0.7 mH/km
Characteristic impedance	31.25 kHz:	100 Ω ± 20 %
	1 MHz:	nom. 80 Ω
Attenuation	7.8 kHz – 39 kHz:	≤ 3 dB/km
	100 kHz:	≤ 3.5 dB/km
	1 MHz:	≤ 12 dB/km
Velocity of propagation	nom. 0.79 c	
Transfer impedance	100 kHz:	≤ 20 mΩ/m
	1 MHz:	≤ 25 mΩ/m
	10 MHz:	≤ 125 mΩ/m
	30 MHz:	≤ 250 mΩ/m
Maximum operating voltage	IEC/EN:	300 V (not for power purposes)
Test voltage	core/core:	2500 V AC (1 min)
	core/screen:	2500 V AC (1 min)

Mechanical and thermal properties

Minimum bending radius	fixed: occasional flexing:	7.5 × outer diameter 10 × outer diameter
Temperature range	fixed installation: occasional flexing:	-40 °C up to +80 °C -5 °C up to +60 °C
Flammability	flame retardant acc. to. IEC 60332-1-2 resp. EN 60332-1-2	
Weather and UV resistance	acc. to EN 50525-1 §5.7.4.2	
General requirements	This cable is conform to the EU-Directive 2011/65/EU (RoHS, Restriction of the use of certain hazardous substances) and the LV-Directive 2014/35/EU (Low voltage Directive).	
Environmental information	These cables meet the substance-specific requirements of the EU Directive 2011/65/EU (RoHS).	