

UNITRONIC® BUS IBS FD P COMBI
3x2x0,25 mm² + 3x1,0 mm²
DB2170218
 valid from: 09.07.2012

Application

UNITRONIC® BUS IBS FD P COMBI is a high flexible data cable for the field-bus system INTERBUS, with a data transmission of 500kBit/s at a length of 400m. The field-bus cable is designed to the requirements of the bus-system INTERBUS, the transmission characteristics are conform to the system and guarantee a high operating security during data transmission. UNITRONIC® BUS IBS FD P COMBI is designed for high flexible use in power chains, linear robots and permanently moved machines with high lifetime requirements in dry and damp interiors and for rough industry surrounding. The outer sheath ensures low abrasion and also effects high resistance against mineral oil.

Applicable connectors: D-Sub-connector, 9 pin version; Round connector, 9 pin version (IP 65)

Design

Power supply cores	conductor	bare copper, ca. 65 x 0.15 mm, ca. 1.0 mm ²
	insulation	PE, core \varnothing ca. 1.7 mm
	number of cores	3
	core identification	red, blue, green/yellow
Data cores	conductor	bare copper, 32 x 0.1 mm, ca. 0.25 mm ²
	insulation	PE, core \varnothing ca. 1.0 mm
	stranding	2 cores stranded to pair
	number of pairs	3
	core identification	pair 1: white/brown; pair 2: green/yellow, pair 3: grey/pink
Overall stranding	3 pairs 0.25 mm ² and 3 cores 1.0 mm ² stranded to bundle	
Wrapping	non-woven tape (overlapping)	
Screening	braid of copper wire, tinned wire 0,10 mm – 0,15 mm, coverage 85 % \pm 5 %	
Sheath	PUR, halogen free, violet similar to RAL 4001, sheath thickness ca. 1.0 mm, outer \varnothing ca. 7.9 mm	

Electrical properties at 20° C

Power supply cores	conductor resistance	max. 19.5 Ω /km
	insulation resistance	min. 5 G Ω xkm
	operating peak voltage	450 V (not for power purposes)
	test voltage U _{eff}	core/core: 2000 V
Data cores	resistance (loop)	max. 159.8 Ω /km
	signal propagation time	0.66 c
	insulation resistance	min. 5 G Ω xkm
	mutual capacitance	ca. 60 nF/km (at 800 Hz)
	characteristic impedance	64 Hz: 110 Ω \pm 25 Ω > 1 MHz: 95 Ω \pm 15 Ω
	operating peak voltage	250 V (not for power purposes)
	test voltage	core/core: 1500 V core/screen: 1000 V

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f	Line attenuation max. [dB/100m]	Near-end cross-talk min [dB]
256 kHz	1.0	-
772 kHz	2.5	61
1 MHz	2.8	59
2 MHz	-	55
4 MHz	6.9	50
8 MHz	-	46
10 MHz	12.0	44
16 MHz	15.5	41
20 MHz	17.2	40

Mechanical and thermal properties

Temperature range	moved: -30 °C up to 70 °C
Minimum bending radius	moved: 120 mm
Flame retardance	flame retardant acc. to IEC 60332-1-2
General requirements	Dangerous and forbidden substances acc. to RoHS directive (2002/95/EG) are not allowed to the manufacturing.