UNITRONIC® BUS IBS FD P COMBI A 3x2x0,25 mm² + 3x1,0 mm²

DB2170818
valid from: 07.02.2013

Application

UNITRONIC® BUS IBS FD P COMBI A 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 A 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 environment. The outer sheath ensures low abrasion and also effects high resistance against mineral oil.

Approvals: c(UL)us CMX 75° C acc. to UL 444

Applicable connectors: D-Sub-connector, 9 pin version; Round connector, 9 pin version (IP 65 / 67)

Design

Power supply cores	conductor	bare copper, superfine-wire stranded, 56 x ⌀ ca. 0.15 mm, ca. 1.0 mm²
	insulation	PE, ⌀ ca. 1.7 mm
	colors	red, blue, yellow / green
Data cores	conductor	bare copper, superfine-wire stranded (single wire ⌀ ca. 0.10 mm), ca. 0.25 mm²
	insulation	PE, ⌀ ca. 1.1 mm
	colors	pair 1: white, brown; pair 2: green, yellow; pair 3: grey, pink (DIN 47100)
	stranding	2 cores twisted to pair
Stranding		pairs and cores stranded together with central filler
Wrapping		non-woven tape
Screening		braid of copper wire coverage ca. 85%
Wrapping		non-woven tape, applied longitudinal (optional)
Outer sheath		PUR, violet similar to RAL 4001 outer Ø: ca. 7.7 mm

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Electrical properties at 20° C

Power supply cores	conductor resistance	max. 19.5 Ω/km
	Insulation resistance	min. 5 GΩxkm
	operating voltage U_0 / U	300 / 500 V
	test voltage (50 Hz, 1 min.)	core / core: 1500 V
Data cores	conductor resistance (loop)	max. 159.8 Ω / Km
	rel. velocity of propagation	0.66 c
	insulation resistance	min. 5 GΩxkm
	mutual capacitance	max. 60 nF / km (at 800 Hz)
	characteristic impedance	64 Hz: 120 Ω ±20 % > 1 MHz: 100 Ω ±15 Ω
	operating peak voltage	250 V (not for power purposes)
	test voltage (50 Hz, 1 min.)	core / core: 1500 V core / screen: 1000 V

Transmission properties

f	line attenuation max. [dB / 100m]	near-end crosstalk attenuation min [dB]
256 kHz	1.5	-
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

Minimum bending radius	15 x cable ø
Temperature range	fixed installation: -40° C up to +80° C moved: -10° C up to +70° C
Flame propagation	flame retardant acc. to IEC 60332-1-2; VW-1 acc. to UL 1581, section 1080
EC directive	This cable is conform to ECD 2006 / 95 / EC (Low Voltage Directive)
General requirements	Dangerous and forbidden substances acc. to RoHS directive (2011 / 65 / EU) are not allowed to the manufacturing.