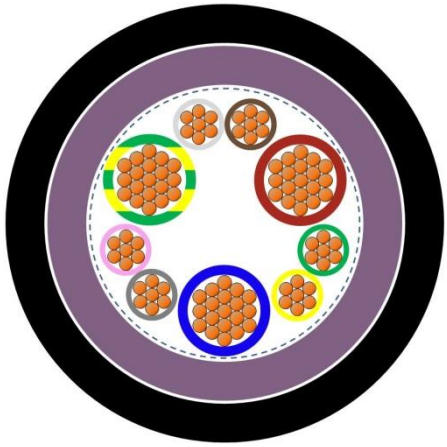
2170217	DATA SHEET	LAPP
valid from: 25.05.2023	UNITRONIC® BUS IBS Yv COMBI 3x2x0.22 mm² + 3x1.0 mm²	

Application

UNITRONIC® BUS Yv COMBI IBS is a data cable for the field-bus system INTERBUS, with integrated power supply cores in the cable for the bus logic of member (Installation remote bus cable). UNITRONIC® BUS Yv COMBI IBS is for a data transmission rate 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 Yv COMBI IBS is certified by the INTERBUS-CLUB.

The cable is intended for limited flexible use and for permanent installation in- and outdoor, as well as used in ground installation. By aboveground installation the outer sheath is resistant to atmospheric UV-irradiation.



Design

Conductor	data pair: stranded conductor: bare copper, 0.22 mm² multicore power pair: stranded conductor: bare copper, 1.0 mm²
Insulation	data pair: PE, core diameter nom. 1.0 mm power pair: PE, core diameter nom. 1.7 mm
Core identification code	data pair: white-brown, green-yellow, grey-pink power pair: red, blue, green/yellow
Stranding	data pairs twisted together with power supply cores with wrapping on top
Screen	braid of tinned copper wires
Outer sheath	internal outer sheath: PVC, violet (similar RAL 4001) outer diameter: max. 7.9 mm external outer sheath: PVC, black (similar RAL 9005) outer diameter: nom. 9.5 mm

Electrical properties at 20 °C

Conductor resistance	power cores: max. 19.5 Ω/km
Loop resistance	data cores: max. 186 Ω/km

Insulation resistance	min. 5 GΩxkm
Mutual capacitance	max. 60 nF/km (800Hz)
Characteristic impedance	110 Ω (±20Ω) (64 kHz) 95 Ω (±15Ω) (>1 MHz)
Attenuation	256 kHz max. 1,0 dB/100 m 772 kHz max. 2,5 dB/100 m 1 MHz max. 2,8 dB/100 m 4 MHz max. 6,9 dB/100 m 10 MHz max. 12,0 dB/100 m 16 MHz max. 15,5 dB/100 m 20 MHz max. 17,2 dB/100 m
Near-end cross-talk	772 kHz min. 61 dB 1 MHz min. 59 dB 2 MHz min. 55 dB 4 MHz min. 50 dB 8 MHz min. 46 dB 10 MHz min. 44 dB 16 MHz min. 41 dB 20 MHz min. 40 dB
Velocity of propagation	nom. 0.66 c
Transfer impedance	transfer impedance: max. 250 mΩ/m (30 MHz)
Maximum operating voltage	data pair: 250 V (not for power applications) power pair: 450 V (not for power applications)
Test voltage	conductor/conductor: 1500 V conductor/screen: 1000 V

Mechanical and thermal properties

Minimum bending radius	fixed installation: 8x outer diameter occasional flexing: 15x outer diameter
Temperature range	fixed installation: -30 °C up to +80 °C occasional flexing: -5 °C up to +70 °C
Flammability	flame retardant acc. to. IEC 60332-1-2 resp. EN 60332-1-2
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).
Environmental information	These cables meet the substance-specific requirements of the EU Directive 2011/65/EU (RoHS).