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Bus system flush-type plug, DeviceNet/CANopen, 5-pos., M12, shielded, A-coded, rear/screw mounting with M16 thread, with 0.5 m bus cable,  $2 \times 0.2$  mm²,  $2 \times 0.32$  mm²



# **Key Commercial Data**

Packing unit	1 STK
GTIN	4 046356 026598

#### Technical data

#### **Dimensions**

Length of cable	0.5 m
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#### Ambient conditions

Ambient temperature (operation)	-25 °C 85 °C (Plug / socket)
	-40 °C 85 °C (without mechanical actuation)
Degree of protection	IP67

#### General

Note	The electrical and mechanical data specified assume that the connector pair is correctly locked and mounted. If the connector is unlocked and if there is a danger of contamination, the connector must be sealed using a protective cap > IP54. Influences arising from litz wires, cables or PCB assembly must also be taken into consideration.
Rated current at 40°C	4 A
Rated voltage	60 V
Rated surge voltage	1.5 kV
Number of positions	5
Insulation resistance	$\geq$ 100 M $\Omega$
Coding	A - standard
Standards/regulations	M12 connector IEC 61076-2-101
Status display	No
Overvoltage category	II II



# Technical data

### General

Degree of pollution	3
Test voltage	2500 V
Insertion/withdrawal cycles	> 100
Torque	2 Nm 3 Nm (Installation-side)

### Material

Flammability rating according to UL 94	V0
Contact material	CuZn
Contact surface material	Ni/Au
Contact carrier material	PA 66
Material, knurls	Nickel-plated brass
Sealing material	FKM

# Standards and Regulations

Standard designation	M12 connector
Standards/regulations	IEC 61076-2-101
Flammability rating according to UL 94	V0

#### Cable

Cable type	CAN Bus/DeviceNet
Cable type (abbreviation)	920
UL AWM style	21198 (80°C/300 V)
Signal type/category	CANopen <sup>®</sup>
	DeviceNet™
Cable structure	2xAWG24/19+2xAWG22/19
Conductor cross section	2x 0.25 mm² (Data cable)
	2x 0.34 mm² (Power supply)
	1x 0.34 mm² (Drain wire)
AWG signal line	24
AWG power supply	22
Conductor structure signal line	19x 0.13 mm
Conductor structure, voltage supply	19x 0.15 mm
Core diameter including insulation	1.95 mm ±0.05 mm (Data cable)
	1.4 mm ±0.05 mm (Power supply)
Wire colors	Red-black, blue-white
Twisted pairs	2 cores to the pair
Type of pair shielding	Plastic-coated aluminum foil, aluminum side outside
Overall twist	2 pairs around a drain wire in the center to the core
Shielding	Tinned copper braided shield
Optical shield covering	80 %
External sheath, color	violet RAL 4001



# Technical data

### Cable

External cable diameter D	6.7 mm ±0,3 mm
Minimum bending radius, flexible installation	10 x D
Number of bending cycles	5000000
Bending radius	70 mm
Traversing path	4.5 m
Traversing rate	3 m/s
Acceleration	3 m/s²
Outer sheath, material	PUR
Material conductor insulation	Foamed PE (Data cable)
	PE (Power supply)
Conductor material	Tin-plated Cu litz wires
Insulation resistance	≥ 5 GΩ*km (Data cable)
	$\geq 5 \text{ G}\Omega^*\text{km}$ (Power supply)
Conductor resistance	$\leq$ 90.9 $\Omega$ /km (Data cable)
	$\leq$ 57.4 $\Omega$ /km (Power supply)
Cable capacity	nom. 40 pF/m (Data cable)
Wave impedance	120 Ω ±10 % (with 1 MHz)
Wave attenuation	≥ 0.0229 dB/m (with 1 MHz)
Nominal voltage, cable	≤ 300 V (Peak value, not for high-power applications)
Test voltage Core/Core	2000 V (50 Hz, 1 min.)
Test voltage Core/Shield	2000 V (50 Hz, 1 min.)
Flame resistance	UL 1581, Sec. 1060 (FT-1)
	IEC 60332-1
	in accordance with ISO 6722-1 5.22 (UN ECE-R 118.01)
Halogen-free	in accordance with DIN VDE 0472 part 815
	According to IEC 60754-1
Other resistance	Low adhesion
Ambient temperature (operation)	-40 °C 80 °C (cable, fixed installation)
	-20 °C 80 °C (cable, flexible installation)
	≤ 70 °C (cable, drag chain applications)
Ambient temperature (storage/transport)	-40 °C 80 °C

### Classifications

# eCl@ss

eCl@ss 4.0	27140815
eCl@ss 4.1	27140815
eCl@ss 5.0	27143423
eCl@ss 5.1	27143423



# Classifications

#### eCl@ss

eCl@ss 6.0	27143423
eCI@ss 7.0	27449001
eCl@ss 8.0	27440103

#### **ETIM**

ETIM 2.0	EC001297
ETIM 3.0	EC002061
ETIM 4.0	EC000830
ETIM 5.0	EC002061

# UNSPSC

UNSPSC 6.01	31251501
UNSPSC 7.0901	31251501
UNSPSC 11	31251501
UNSPSC 12.01	31251501
UNSPSC 13.2	31251501

# Approvals

Approva	ls
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Approvals

EAC

Ex Approvals

Approvals submitted

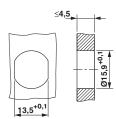
Approval details

EAC

Drawings



Dimensional drawing



Schematic diagram



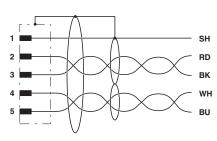
Pin assignment M12 male connector, 5-pos., A-coded, male side

Housing cutout for M16 fastening thread, mounting panel with feedthrough hole (alternatively with surface as protection against rotation)

Cable cross section



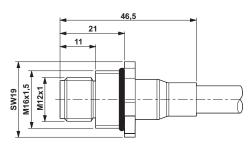
Circuit diagram



CAN Bus/DeviceNet [920]

Contact assignment of the M12 plug

#### Dimensional drawing



M12 flush-type plug

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