

1681978

https://www.phoenixcontact.com/us/products/1681978

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Sensor/actuator cable, 3-position, PUR halogen-free, black-gray RAL 7021, Plug straight M8, coding: A, on Socket angled M8, cable length: 3 m

## Your advantages

• Easy and safe: 100 % electrically tested plug-in components

#### Commercial data

Item number	1681978
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	BF01
Product key	BF1BBA
Catalog page	Page 188 (C-2-2019)
GTIN	4017918158637
Weight per piece (including packing)	62.6 g
Weight per piece (excluding packing)	49.76 g
Customs tariff number	85444290
Country of origin	DE



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## Technical data

#### Product properties

Product type	Sensor/actuator cable
Application	Standard
Number of positions	3
No. of cable outlets	1
Shielded	no
Coding	A
Insulation characteristics	
Overvoltage category	II
Degree of pollution	3

#### Material specifications

Flammability rating according to UL 94	НВ
Seal material	NBR
Material of grip body	TPU, hardly inflammable, self-extinguishing
Contact material	CuSn
Contact surface material	Ni/Au
Contact carrier material	TPU GF
Material for screw connection	Zinc die-cast, nickel-plated

### Electrical properties

Insulation resistance	≥ 100 MΩ
Nominal voltage U <sub>N</sub>	48 V AC
	60 V DC
Nominal current I <sub>N</sub>	4 A

### Mechanical properties

Mechanical data

Insertion/withdrawal cycles	≥ 100

### Signaling

Status display	No
Status display present	No

#### Connection data

Conductor connection

Tightening torque	0.2 Nm (M8 connectors)

#### Connector

Connection 1



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Туре	Plug straight M8
Number of positions	3
Coding type	A
Occupation 0	
Connection 2	
Type	Socket angled M8
	Socket angled M8

#### Cable/line

Cable length	3 m

### PUR halogen-free black [PUR]

Dimensional drawing



Cable weight	18 kg/km
UL AWM Style	20549 / 10493 (80°C/300 V)
Number of positions	3
Shielded	no
Cable type	PUR halogen-free black [PUR]
Conductor structure signal line	32x 0.10 mm
AWG signal line	24
Conductor cross section	3x 0.25 mm² (Signal line)
Wire diameter incl. insulation	1.17 mm ±0.02 mm
External cable diameter	3.60 mm ±0.15 mm
Outer sheath, material	PUR
External sheath, color	black-gray RAL 7021
Conductor material	Bare Cu litz wires
Material wire insulation	PP
Single wire, color	brown, blue, black
Thickness, insulation	≥ 0.21 mm (Core insulation)
Thickness, outer sheath	approx. 0.50 mm
Overall twist	3 wires, twisted
Length of twist, overall twist	40 mm
Max. conductor resistance	≤ 78 Ω/km (at 20 °C)
Insulation resistance	≥ 100 GΩ*km (at 20 °C)
Nominal voltage, cable	≤ 300 V
Test voltage	≥ 3000 V
Smallest bending radius, fixed installation	18 mm
Smallest bending radius, movable installation	36 mm



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Max. bending cycles	10000000
Bending radius	44 mm
Traversing path	10 m
Traversing rate	3 m/s
Acceleration	10 m/s²
Halogen-free	in accordance with DIN VDE 0472 part 815
Flame resistance	in accordance with UL 758/1581 FT2
	DIN EN 60332-2-2 (20 s)
Resistance to oil	in accordance with DIN EN 60811-2-1
Other resistance	hydrolysis and microbe resistant
	Highly resistant to acids, alkaline solutions and solvents
	Resistant to salt water
	partly UV-resistant (in accordance with DIN EN ISO 4892-2-A)
Special properties	Flexible cable conduit capable
	Silicone-free
	Free of substances which would hinder coating with paint or varnish
Ambient temperature (operation)	-40 °C 80 °C (cable, fixed installation)
	-25 °C 80 °C (Cable, flexible installation)

#### Environmental and real-life conditions

#### Ambient conditions

Degree of protection	IP65
	IP67
	IP68
Ambient temperature (operation)	-25 °C 90 °C (Plug / socket)
	-40 °C 80 °C (cable, fixed installation)
	-5 °C 80 °C (Cable, flexible installation)

## Standards and regulations

Standard designation	M8 connector
Standards/specifications	IEC 61076-2-104

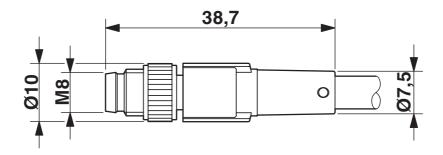


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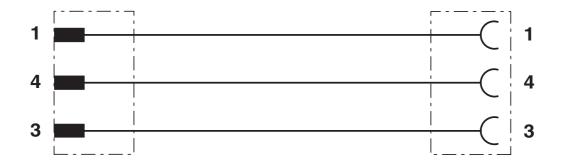
# Drawings

### Dimensional drawing



M8 x 1 male plug, straight version

### Circuit diagram

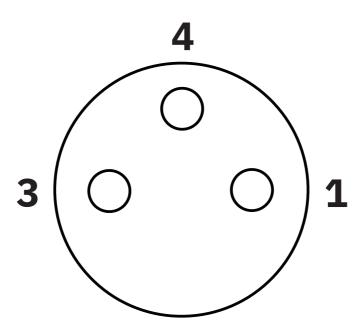




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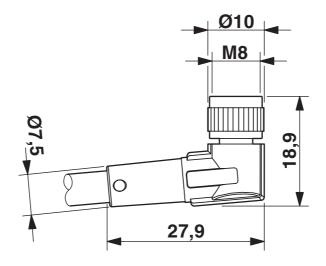
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### Schematic diagram



Pin assignment M8 socket, 3-pos., view female side

Dimensional drawing



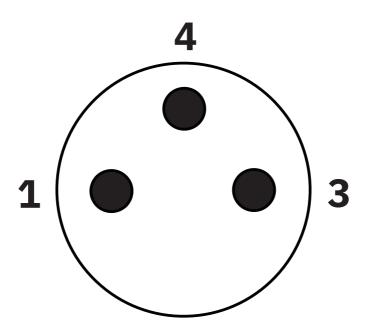
Socket M8 x 1, angled



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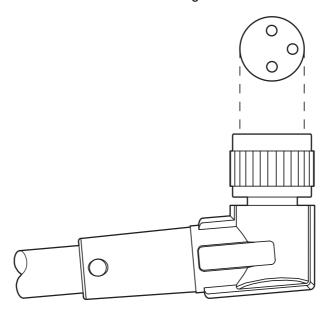
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## Schematic diagram



Pin assignment M8 plug, 3-pos., view male side

Schematic diagram



Layout of connector pin assignments



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## **Approvals**

To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/1681978

<u> </u>	<b>UL Listed</b> Approval ID: FILE E 221474				
		Nominal voltage U <sub>N</sub>	Nominal current I <sub>N</sub>	Cross section AWG	Cross section mm <sup>2</sup>
		60 V	4 A	-	-

•	<b>cUL Listed</b> Approval ID: FILE E 221474	1			
		Nominal voltage U <sub>N</sub>	Nominal current I <sub>N</sub>	Cross section AWG	Cross section mm <sup>2</sup>
		60 V	4 A	-	-

EAC	EAC-RoHS
LIIL	Approval ID: RU D-DE.HB35.B.00387

cULus Listed



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# Classifications

UNSPSC 21.0

#### **ECLASS**

ECLAS	SS-11.0	27060311
ECLAS	SS-12.0	27060311
ECLAS	SS-13.0	27060311
ETIM		
ETIM 9	9.0	EC001855
UNSPSC		

26121600



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# Environmental product compliance

EU RoHS			
Fulfills EU RoHS substance requirements	Yes, No exemptions		
China RoHS			
Environment friendly use period (EFUP)	EFUP-E		
	No hazardous substances above the limits		
EU REACH SVHC			
REACH candidate substance (CAS No.)	No substance above 0.1 wt%		



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#### Accessories

### PROT-M 8 FS-PA-CHAIN - Sealing cap

1430857

https://www.phoenixcontact.com/us/products/1430857

M8 sealing cap made of plastic with fixing band for sensor cables, for M8 plugs



#### UCT-WMT (23X4) - Conductor marker

0801453

https://www.phoenixcontact.com/us/products/0801453



Conductor marker, Sheet, white, unlabeled, can be labeled with: TOPMARK NEO, TOPMARK LASER, BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: insert, cable diameter range: 1.5 ... 35 mm, lettering field size:  $23 \times 4$  mm, Number of individual labels: 30



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#### UC-WMT (23X4) - Conductor marker

0819411

https://www.phoenixcontact.com/us/products/0819411



Conductor marker, Sheet, white, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, PLOTMARK, CMS-P1-PLOTTER, mounting type: insert, cable diameter range: 1.5 ... 35 mm, lettering field size: 23 x 4 mm, Number of individual labels: 24

#### US-WMT (23X4) - Cable marker

0828769

https://www.phoenixcontact.com/us/products/0828769



Cable marker, Card, white, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: slide-on, cable diameter range: 1.5 ... 35 mm, lettering field size: 23 x 4 mm, Number of individual labels: 56



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#### WMTW (23X4)R - Cable marker

0831004

https://www.phoenixcontact.com/us/products/0831004



Cable marker, Roll, white, unlabeled, can be labeled with: THERMOMARK E.300 (D)/600 (D), THERMOMARK ROLL 2.0, THERMOMARK ROLL, THERMOMARK ROLL X1, THERMOMARK ROLLMASTER 300/600, THERMOMARK X1.2, mounting type: insert, cable diameter range: 1.5 ... 35 mm, lettering field size: 23 x 4 mm, Number of individual labels: 3000

## PROT-M 8 MS-PA-CHAIN - Screw plug

1430860

https://www.phoenixcontact.com/us/products/1430860

M8 sealing cap made of plastic with fixing band for sensor cables, for M8 sockets





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#### B-STIFT - Marker pen

1051993

https://www.phoenixcontact.com/us/products/1051993



Marker pen, for manual labeling of unprinted Zack strips, smear-proof and waterproof, line thickness 0.5 mm

#### TSD 02 SAC - Torque screwdriver

1208487

https://www.phoenixcontact.com/us/products/1208487



Torque screwdriver, with preset torque of 0.2 Nm and 4 mm hexagonal drive for M8 connectors



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SAC BIT M8-D10 - Tool

1208461

https://www.phoenixcontact.com/us/products/1208461



Nut for assembling M8 connectors with longitudinal knurl and a knurl diameter of 10 mm, for 4 mm hexagonal drive  $\,$ 

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