

Sensor/actuator cable - SAC-3P-M12MS/1,5-PUR/M12FR-2LB



1668454

<https://www.phoenixcontact.com/pc/products/1668454>

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Sensor/actuator cable, 3-position, PUR halogen-free, black-gray RAL 7021, Plug straight M12, coding: A, on Socket angled M12, coding: A, with 2 LEDs, PIN 2+4 bridged, cable length: 1.5 m

Your advantages

- Easy and safe: 100% electrically tested plug-in components
- Convenient: increased machine availability thanks to quick and easy diagnostics

Commercial Data

Item number	1668454
Packing unit	1 pc
Minimum order quantity	1 pc
Sales Key	02
Product Key	BF1CBA
Catalog Page	Page 188 (C-2-2019)
GTIN	4017918137335
Weight per Piece (including packing)	51.3 g
Weight per Piece (excluding packing)	51.3 g
Customs tariff number	85444290
Country of origin	PL

Sensor/actuator cable - SAC-3P-M12MS/1,5-PUR/M12FR-2LB



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Technical Data

Product properties

Product type	Sensor/actuator cable
Number of positions	3
Application	Standard
No. of cable outlets	1
Shielded	no
Coding	A - standard

Insulation characteristics

Overvoltage category	II
Degree of pollution	3

Material specifications

Flammability rating according to UL 94	HB
Sealing 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

Contact resistance	$\leq 5 \text{ m}\Omega$
Insulation resistance	$\geq 100 \text{ M}\Omega$
Nominal voltage U_N	24 V DC
Nominal current I_N	4 A
Protective circuit	unwired

Mechanical properties

Mechanical data

Insertion/withdrawal cycles	≥ 100
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LED signaling

Status display	2 LEDs
Status display present	yes

Connection data

Conductor connection

Tightening torque	0.4 Nm (M12 connector)
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Connector

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Connection 1

Head design	Plug
Head cable outlet	straight
Head thread type	M12
Coding	A


Connection 2

Head design	Socket
Head cable outlet	angled
Head thread type	M12
Coding	A
Status indicator head	2 LEDs

Cable / line

Cable length	1.5 m
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PUR halogen-free black [PUR]

Dimensional drawing	
Cable weight	23 kg/km
UL AWM Style	20549
Number of positions	3
Shielded	no
Cable type	PUR halogen-free black [PUR]
Conductor structure signal line	42x 0.10 mm
AWG signal line	22
Conductor cross section	3x 0.34 mm ² (Signal line)
Wire diameter incl. insulation	1.27 mm ±0.02 mm (Signal line)
External cable diameter	3.85 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) approx. 0.5 mm (Outer cable sheath)
Overall twist	3 wires, twisted
Max. conductor resistance	max. 58 Ω/km (at 20 °C)

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Insulation resistance	≥ 100 GΩ*km (at 20 °C)
Nominal voltage, cable	≤ 300 V
Test voltage	≥ 3000 V
Smallest bending radius, fixed installation	19 mm
Smallest bending radius, movable installation	38 mm
Max. bending cycles	10000000
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	Highly resistant to acids, alkaline solutions and solvents hydrolysis and microbe resistant 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)

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

Standards/specifications	IEC 61076-2-101
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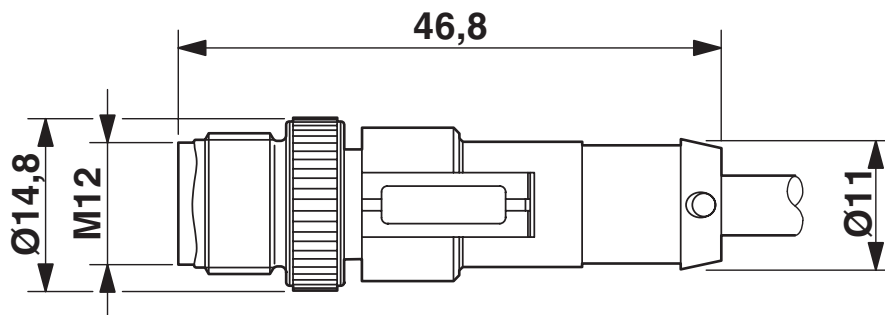
Sensor/actuator cable - SAC-3P-M12MS/1,5-PUR/M12FR-2LB

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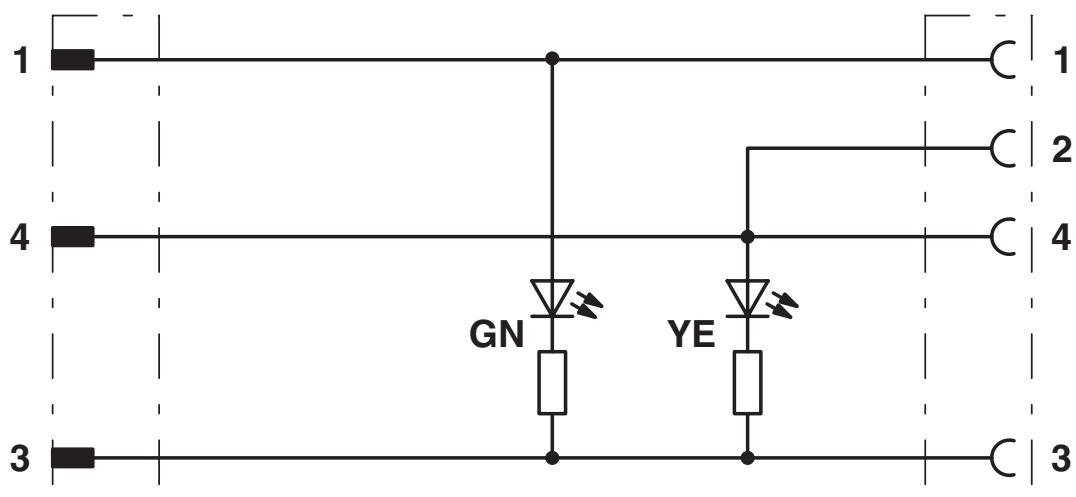
Drawings

Dimensional drawing



Plug, M12 x 1, straight, shielded

Circuit diagram

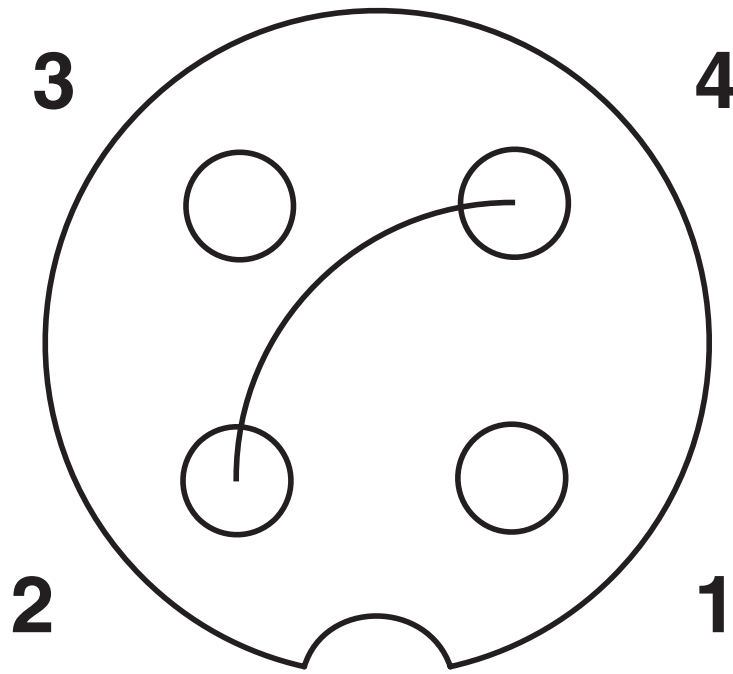


Sensor/actuator cable - SAC-3P-M12MS/1,5-PUR/M12FR-2LB

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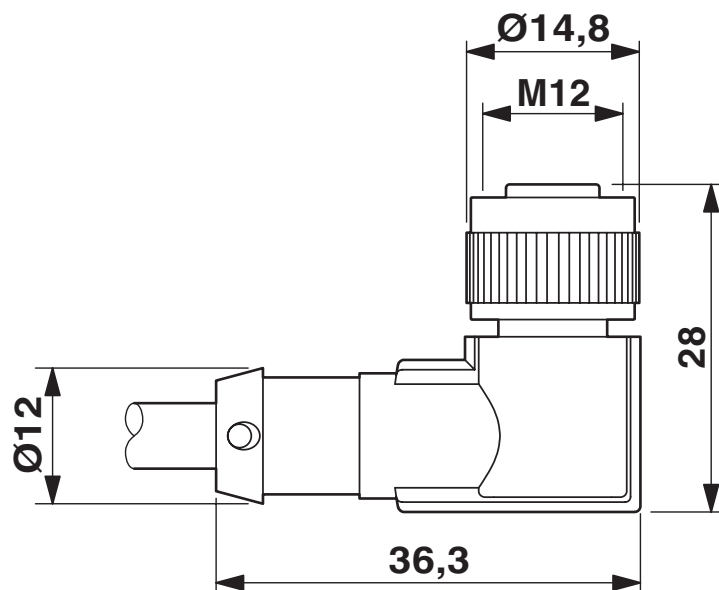
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Schematic diagram



Pin assignment M12 socket, 3-pos., PIN 2+4 bridged, A-coded, view female side

Dimensional drawing



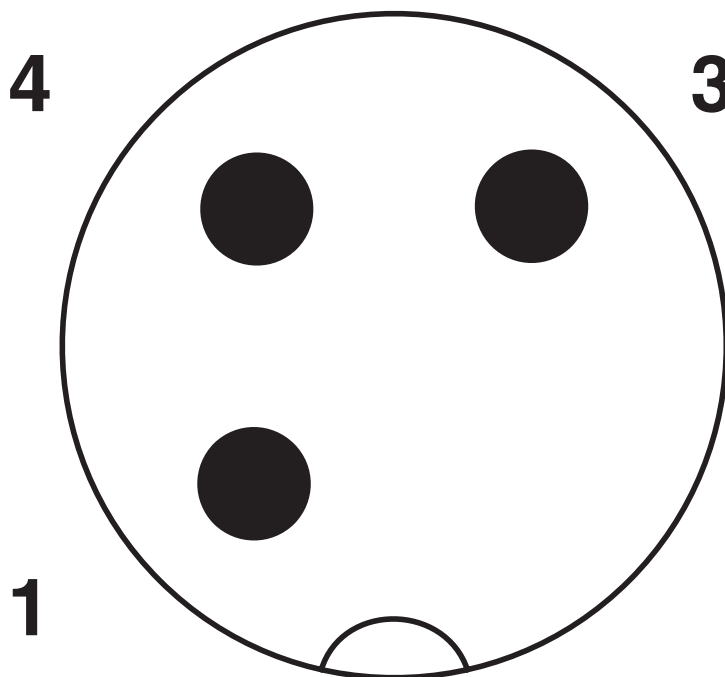
Socket M12 x 1, angled, with LED

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Schematic diagram



Pin assignment M12 plug, 3-pos., A-coded, view male side


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Approvals

 UL Listed Approval ID: FILE E 221474				
	Nominal Voltage U_N	Nominal Current I_N	Cross Section AWG	Cross Section mm^2
	24 V	4 A	-	-

 cUL Listed Approval ID: FILE E 221474				
	Nominal Voltage U_N	Nominal Current I_N	Cross Section AWG	Cross Section mm^2
	24 V	4 A	-	-

 EAC Approval ID: RU D-DE.HB35.B.00387	
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cULus Listed

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Classifications

ECLASS

ECLASS-9.0	27060311
ECLASS-10.0.1	27060311
ECLASS-11.0	27060311

ETIM

ETIM 8.0	EC001855
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UNSPSC

UNSPSC 21.0	26121600
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Environmental Product Compliance

China RoHS	Environmentally friendly use period: unlimited = EFUP-e
	No hazardous substances above threshold values

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Accessories

Sealing cap

Sealing cap - PROT-M12 FS-PA-CHAIN - 1430873

<https://www.phoenixcontact.com/pc/products/1430873>

M12 sealing cap made of plastic with fixing band, for sensor cables, for free M12 plugs



Locking clip

Locking clip - SAC-M12-EXCLIP-M - 1558988

<https://www.phoenixcontact.com/pc/products/1558988>

Locking clip for the pin side of sensor/actuator cables with M12 connector and M12 connectors for assembly, for knurl diameter: 15 mm or for Allen key with a wrench size of 14 mm, prevents the disconnection of plug-in connections without tools



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Insert label

Insert label - PABA WH/23 - 1013779

<https://www.phoenixcontact.com/pc/products/1013779>



Insert label, Strip, white, unlabeled, can be labeled with: CMS-P1-PLOTTER, mounting type: slide-on, cable diameter range: 1.5 ... 35 mm, lettering field size: 23 x 4 mm, Number of individual labels: 20

Insert label

Insert label - PABA YE/23 - 1013782

<https://www.phoenixcontact.com/pc/products/1013782>



Insert label, Strip, yellow, unlabeled, can be labeled with: CMS-P1-PLOTTER, mounting type: slide-on, cable diameter range: 1.5 ... 35 mm, lettering field size: 23 x 4 mm, Number of individual labels: 20

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Marker pen

Marker pen - B-STIFT - 1051993

<https://www.phoenixcontact.com/pc/products/1051993>



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

Screw plug

Screw plug - PROT-M12 MS-PA-CHAIN - 1430899

<https://www.phoenixcontact.com/pc/products/1430899>



M12 sealing cap with fixing band, for sensor cables, for free M12 sockets

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Locking clip

Locking clip - SAC-M12-EXCLIP-F - 1558991

<https://www.phoenixcontact.com/pc/products/1558991>



Locking clip for the socket side of sensor/actuator cables with M12 connector and M12 connectors for assembly, for knurl diameter: 15 mm or for Allen key with a wrench size of 14 mm, prevents the disconnection of plug-in connections without tools

Torque screwdriver

Torque screwdriver - TSD 04 SAC - 1208429

<https://www.phoenixcontact.com/pc/products/1208429>



Torque screwdriver, with preset torque of 0.4 Nm and 4 mm hexagonal drive for M12 connectors

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Torque screwdriver

Torque screwdriver - TSD-M 1,2NM - 1212224

<https://www.phoenixcontact.com/pc/products/1212224>



Torque screw driver, accuracy as per EN ISO 6789 standard, adjustable from 0.3 - 1.2 Nm

Adapter insert

Adapter insert - TSD-M SAC-BIT ADAPTER - 1212600

<https://www.phoenixcontact.com/pc/products/1212600>



Adapter bit for TSD-M...torque tools, E6.3-1/4" drive with 4 mm hexagon to accommodate SAC bits

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Tool

Tool - SAC BIT M12-D15 - 1208432

<https://www.phoenixcontact.com/pc/products/1208432>



Nut for assembling sensor/actuator cables with M12 connector and M12 connectors for assembly, with a knurl diameter of 15 mm, for 4 mm hexagonal drive

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