

# Sensor/actuator cable - SAC-5P-M12MS/1,5-PUR/M12FS



1681606

<https://www.phoenixcontact.com/de/produkte/1681606>

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Sensor/actuator cable, 5-position, PUR halogen-free, black-gray RAL 7021, Plug straight M12, coding: A, on Socket straight M12, coding: A, cable length: 1.5 m

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## Your advantages

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

# Sensor/actuator cable - SAC-5P-M12MS/1,5-PUR/M12FS



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## Commercial Data

Item number	1681606
Packing unit	1 pc
Minimum order quantity	1 pc
Sales Key	C1 - Sensor-Aktor-Kabel
Product Key	BF1CDA
Catalog Page	Page 201 (C-2-2019)
GTIN	4017918158118
Weight per Piece (including packing)	66,8 g
Weight per Piece (excluding packing)	66,8 g
Customs tariff number	85444290
Country of origin	PL

# Sensor/actuator cable - SAC-5P-M12MS/1,5-PUR/M12FS



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## Technical Data

### Product properties

Product type	Sensor/actuator cable
Number of positions	5
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
Cable gland material	Zinc die-cast, nickel-plated

### Electrical properties

Contact resistance	$\leq 5 \text{ m}\Omega$
Insulation resistance	$\geq 100 \text{ M}\Omega$
Nominal voltage $U_N$	48 V AC
	60 V DC
Nominal current $I_N$	4 A
Protective circuit	unwired

### Connection data

#### Conductor connection

Tightening torque	0.4 NmM12 connector
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### Connector

Insertion/withdrawal cycles	$\geq 100$
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#### Header 1

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

#### Header 2

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

## LED signaling

Status display	No
Status display present	No

## Cable / line

Cable length	1.5 m
Cable weight	33 kg/km
UL AWM Style	20549
Number of positions	5
Shielded	no
Cable type	PUR halogen-free black [PUR]
Conductor structure signal line	42x 0.10 mm
AWG signal line	22
Conductor cross section	5x 0.34 mm <sup>2</sup> (Signal line)
Wire diameter incl. insulation	1.27 mm ±0.02 mm (Signal line)
External cable diameter	4.55 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, white, blue, black, green-yellow
Thickness, insulation	approx. 0.5 mm
Max. conductor resistance	max. 58 Ω/km (at 20 °C)
Insulation resistance	≥ 16 GΩ*km (at 20 °C)
Nominal voltage, cable	300 V
Test voltage	3000 V
Smallest bending radius, fixed installation	23 mm
Smallest bending radius, movable installation	46 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 Resistant to salt water partly UV-resistant in accordance with DIN EN ISO 4892-2-A
Special properties	Flexible cable conduit capable Silicone-free

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	Free of substances which would hinder coating with paint or varnish
	flexible
Ambient temperature (operation)	-40 °C ... 80 °C (cable, fixed installation) -25 °C ... 80 °C (Cable, flexible installation)
Cable weight	35 kg/km

## Cable structure

Cable abbreviation	Li9Y11Y-HF
Cable type	PUR halogen-free black
External cable diameter	5.00 mm
Outer sheath, material	PUR
External sheath, color	black-gray RAL 7021
Conductor material	Bare Cu litz wires
Conductor structure signal line	42x 0.10 mm
AWG signal line	22
Material, filler	PP
Material wire insulation	PP
Thickness, insulation	≥ 0.21 mm (Core insulation)
Wire diameter incl. insulation	1.27 mm ±0.05 mm
Single wire, color	brown, blue, white, black, green/yellow
Overall twist	5 cores, twisted

## Electrical properties

Nominal voltage, cable	300 V
Test voltage, cable	3000 V
Conductor resistance	≤ 58 Ω/m
Cable insulation resistance	≥ 100 GΩ*km

## Mechanical properties

Number of bending cycles	4000000
Bending radius	50 mm
Traversing path	10 m
Traversing rate	3 m/s

## Bending cycles

Number of bending cycles	4000000
Bending radius	50 mm
Traversing path	10 m
Traversing rate	3 m/s

## Ambient conditions

Ambient temperature (operation)	-5 °C ... 80 °C (Cable, flexible installation) -40 °C ... 80 °C (cable, fixed installation)
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## Ambient conditions

IP65

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Degree of protection	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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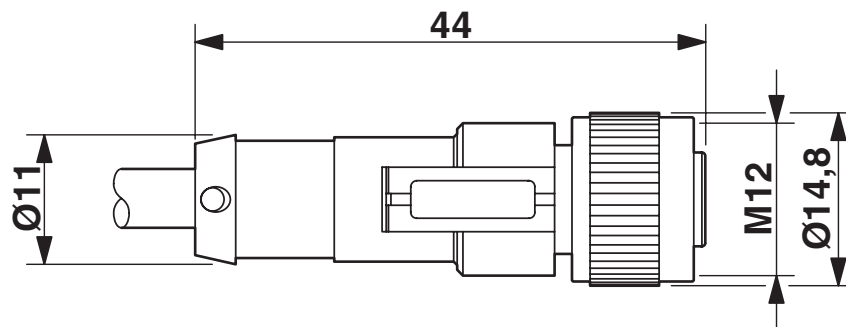
# Sensor/actuator cable - SAC-5P-M12MS/1,5-PUR/M12FS

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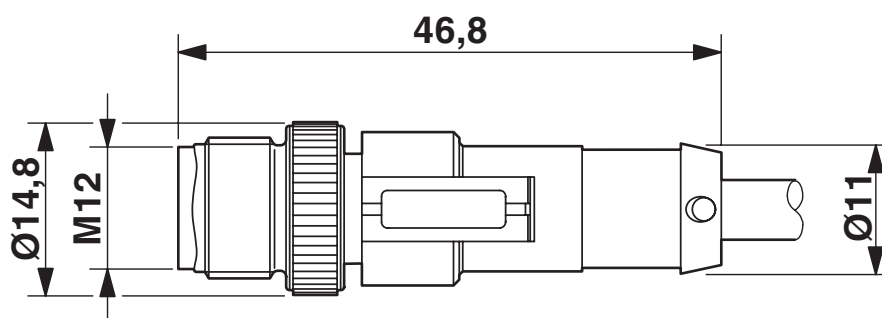
## Drawings

Dimensional drawing



M12 x 1 socket, straight

Dimensional drawing



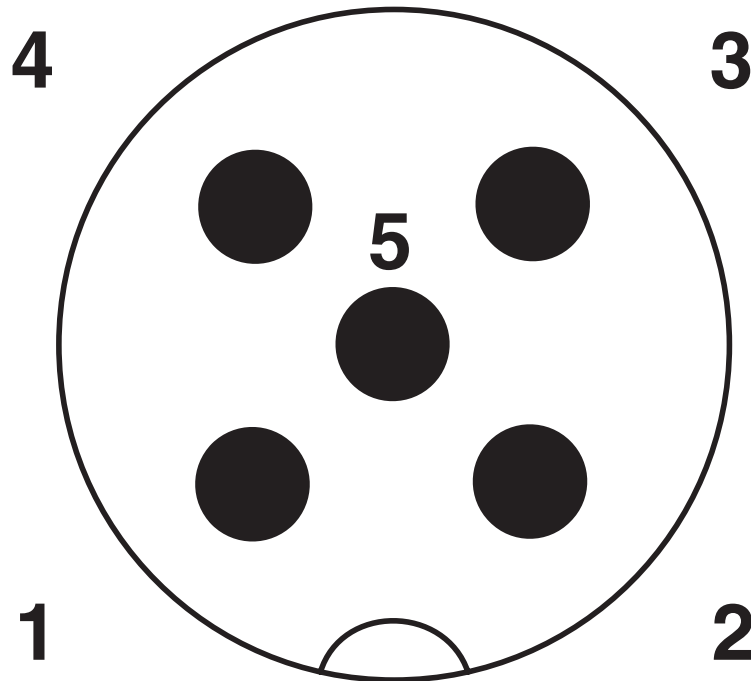
Plug, M12 x 1, straight, shielded

# Sensor/actuator cable - SAC-5P-M12MS/1,5-PUR/M12FS

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Schematic diagram



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

Circuit diagram



Contact assignment of the M12 plug and the M12 socket

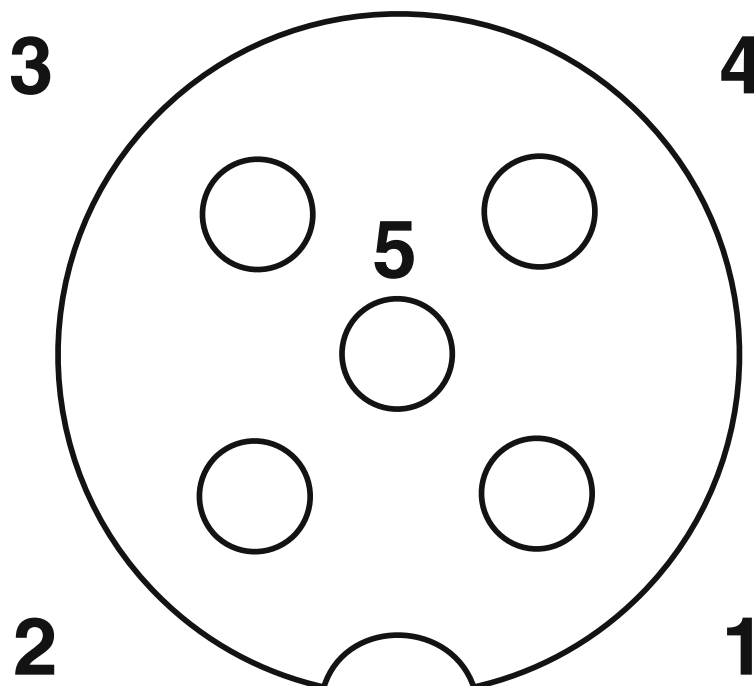


# Sensor/actuator cable - SAC-5P-M12MS/1,5-PUR/M12FS

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Schematic diagram



Pin assignment M12 socket, 5-pos., A-coded, socket side view

# Sensor/actuator cable - SAC-5P-M12MS/1,5-PUR/M12FS




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## Approvals

 <b>UL Listed</b> Approval ID: FILE E 221474				
	Nominal Voltage $U_N$	Nominal Current $I_N$	Cross Section AWG	Cross Section $\text{mm}^2$
	125 V	4 A	-	-

 <b>cUL Listed</b> Approval ID: FILE E 221474				
	Nominal Voltage $U_N$	Nominal Current $I_N$	Cross Section AWG	Cross Section $\text{mm}^2$
	125 V	4 A	-	-

 <b>EAC</b> Approval ID: RU D-DE.HB35.B.00387	
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<b>cULus Listed</b>
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# Sensor/actuator cable - SAC-5P-M12MS/1,5-PUR/M12FS



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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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# Sensor/actuator cable - SAC-5P-M12MS/1,5-PUR/M12FS



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## Environmental Product Compliance

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

# Sensor/actuator cable - SAC-5P-M12MS/1,5-PUR/M12FS



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## Accessories

### Sealing cap

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

<https://www.phoenixcontact.com/de/produkte/1430873>

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



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### Locking clip

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

<https://www.phoenixcontact.com/de/produkte/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



# Sensor/actuator cable - SAC-5P-M12MS/1,5-PUR/M12FS

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## Insert label

Insert label - PABA WH/23 - 1013779

<https://www.phoenixcontact.com/de/produkte/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

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## Insert label

Insert label - PABA YE/23 - 1013782

<https://www.phoenixcontact.com/de/produkte/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/de/produkte/1051993>



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

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## Screw plug

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

<https://www.phoenixcontact.com/de/produkte/1430899>



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

# Sensor/actuator cable - SAC-5P-M12MS/1,5-PUR/M12FS

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## Locking clip

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

<https://www.phoenixcontact.com/de/produkte/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

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## Torque screwdriver

Torque screwdriver - TSD 04 SAC - 1208429

<https://www.phoenixcontact.com/de/produkte/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/de/produkte/1212224>



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

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## Adapter insert

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

<https://www.phoenixcontact.com/de/produkte/1212600>



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

# Sensor/actuator cable - SAC-5P-M12MS/1,5-PUR/M12FS

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## Tool

Tool - SAC BIT M12-D15 - 1208432

<https://www.phoenixcontact.com/de/produkte/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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