

## Sensor/Actuator cable - SAC-5P- 1,5-PUR/M12FR - 1669851

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Sensor/Actuator cable, 5-position, PUR halogen-free, black-gray RAL 7021, free cable end, on Socket angled M12, A-coded, Cable length: 1.5 m

### Why buy this product

- ✓ Easy and safe: 100% electrically tested plug-in components
- ✓ Our standard: robust halogen-free PUR cable



### Key Commercial Data

|                                      |   |
|--------------------------------------|---|
| Packing unit                         | 1 STK   |
| GTIN                                 | <br>4 017918 134754 |
| GTIN                                 | 4017918134754   |
| Weight per Piece (excluding packing) | 62.300 g  |
| Custom tariff number                 | 85444290  |
| Country of origin                    | India   |

### Technical data

#### Dimensions

|  |       |
|--|-------|
| Length of cable                            | 1.5 m |
| Stripping length of the free conductor end | 50 mm |

#### Ambient conditions

|                                 |                                  |
|---------------------------------|----------------------------------|
| Ambient temperature (operation) | -25 °C ... 90 °C (Plug / socket) |
| Degree of protection            | IP65                             |
|                                 | IP67                             |
|                                 | IP68                             |

#### General

|                       |      |
|-----------------------|------|
| Rated current at 40°C | 4 A  |
| Rated voltage         | 60 V |

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## Technical data

### General

|                              |                               |
|------------------------------|-------------------------------|
| Number of positions          | 5                             |
| Insulation resistance        | ≥ 100 MΩ                      |
| Coding                       | A - standard                  |
| Standards/regulations        | M12 connector IEC 61076-2-101 |
| Status display               | No                            |
| Protective circuit/component | Unwired                       |
| Overvoltage category         | II                            |
| Degree of pollution          | 3                             |
| Insertion/withdrawal cycles  | ≥ 100                         |
| Torque                       | 0.4 Nm (M12 connector)        |

### Material

|  |   |
|--|---|
| Flammability rating according to UL 94 | HB  |
| Contact material                       | CuSn  |
| Contact surface material               | Ni/Au                                       |
| Contact carrier material               | TPU GF                                      |
| Material of grip body                  | TPU, hardly inflammable, self-extinguishing |
| Material, knurls                       | Zinc die-cast, nickel-plated                |
| Sealing material                       | NBR   |

### Standards and Regulations

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

### Cable

|   |   |
|---|---|
| Cable type                                    | PUR halogen-free black                  |
| Cable type (abbreviation)                     | PUR                                     |
| Cable abbreviation                            | Li9Y11Y                                 |
| UL AWM style                                  | 20549 / 10493 (80°C/300 V)              |
| Conductor cross section                       | 5x 0.34 mm <sup>2</sup> (Signal line)   |
| AWG signal line                               | 22                                      |
| Conductor structure signal line               | 42x 0.10 mm                             |
| Core diameter including insulation            | 1.27 mm ±0.02 mm (Signal line)          |
| Thickness, insulation                         | ≥ 0.21 mm                               |
| Wire colors                                   | brown, white, blue, black, green-yellow |
| Overall twist                                 | 5 wires around filler to the core       |
| External sheath, color                        | black-gray RAL 7021                     |
| Outer sheath thickness                        | approx. 0.7 mm                          |
| External cable diameter D                     | 5 mm ±0.15 mm                           |
| Smallest bending radius, fixed installation   | 25 mm                                   |
| Smallest bending radius, movable installation | 50 mm                                   |

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## Technical data

### Cable

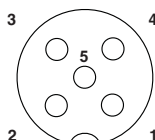
|                                 |   |
|---------------------------------|---|
| Number of bending cycles        | 4000000   |
| Bending radius                  | 50 mm   |
| Traversing path                 | 10 m  |
| Traversing rate                 | 3 m/s   |
| Acceleration                    | 10 m/s <sup>2</sup>   |
| Cable weight                    | 35 kg/km  |
| Outer sheath, material          | PUR   |
| Material conductor insulation   | PP  |
| Conductor material              | Bare Cu litz wires  |
| Insulation resistance           | ≥ 16 GΩ*km (at 20 °C)   |
| Conductor resistance            | max. 58 Ω/km (at 20 °C)   |
| Nominal voltage, cable          | 300 V   |
| Test voltage, cable             | 3000 V  |
| Special properties              | Flexible cable conduit capable                                      |
|                                 | Silicone-free   |
|                                 | Free of substances which would hinder coating with paint or varnish |
|                                 | Flexible  |
| Flame resistance                | in accordance with DIN UL-Style 20549                               |
| Halogen-free                    | in accordance with DIN VDE 0472 part 815                            |
| 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          |
| Ambient temperature (operation) | -40 °C ... 80 °C (cable, fixed installation)                        |
|                                 | -25 °C ... 80 °C (cable, flexible installation)                     |

### Environmental Product Compliance

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

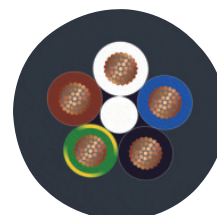
## Drawings

Schematic diagram



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

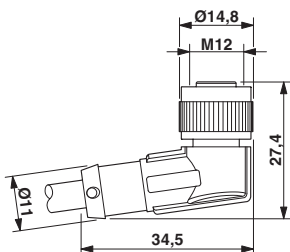
Cable cross section



PUR halogen-free black [PUR]

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Dimensional drawing



Circuit diagram



Contact assignment of the M12 sockets

M12 x 1 socket, angled

## Classifications

eCl@ss

|            |          |
|------------|----------|
| eCl@ss 4.0 | 27060306 |
| eCl@ss 4.1 | 27060306 |
| eCl@ss 5.0 | 27061801 |
| eCl@ss 5.1 | 27061801 |
| eCl@ss 6.0 | 27061801 |
| eCl@ss 7.0 | 27061801 |
| eCl@ss 8.0 | 27279218 |
| eCl@ss 9.0 | 27060311 |

ETIM

|          |          |
|----------|----------|
| ETIM 2.0 | EC000830 |
| ETIM 3.0 | EC001855 |
| ETIM 4.0 | EC001855 |
| ETIM 5.0 | EC001855 |
| ETIM 6.0 | EC001855 |

UNSPSC

|               |          |
|---------------|----------|
| UNSPSC 6.01   | 31251501 |
| UNSPSC 7.0901 | 31251501 |
| UNSPSC 11     | 31251501 |
| UNSPSC 12.01  | 31251501 |
| UNSPSC 13.2   | 31251501 |

## Approvals

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UL Listed / cUL Listed / EAC / cULus Listed

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## Approvals

Ex Approvals

### Approval details

|                    |  |   |               |
|--------------------|--|---|---------------|
| UL Listed          |  | <a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a> | FILE E 221474 |
|                    |  |   |               |
| Nominal current IN |  | 4 A   |               |
| Nominal voltage UN |  | 125 V   |               |

|                    |  |   |               |
|--------------------|--|---|---------------|
| cUL Listed         |  | <a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a> | FILE E 221474 |
|                    |  |   |               |
| Nominal current IN |  | 4 A   |               |
| Nominal voltage UN |  | 125 V   |               |

|     |  |               |
|-----|--|---------------|
| EAC |  | EAC-Zulassung |
|-----|--|---------------|

|              |  |
|--------------|--|
| cULus Listed |  |
|--------------|--|

## Accessories

Accessories

Conductor marking

Insert label - PABA WH/23 - 1013779



Insert label, Strip, white, unlabeled, can be labeled with: Plotter, Mounting type: Thread on, Cable diameter: 1.5-35 mm, Lettering field: 23 x 4 mm

## Sensor/Actuator cable - SAC-5P- 1,5-PUR/M12FR - 1669851

### Accessories

Insert label - PABA YE/23 - 1013782



Insert label, Strip, yellow, unlabeled, can be labeled with: Plotter, Mounting type: Thread on, Cable diameter: 1.5-35 mm, Lettering field: 23 x 4 mm

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Insert label - PABA WH/15 - 1013151



Insert label, Strip, white, unlabeled, can be labeled with: Plotter, Mounting type: Thread on, Cable diameter: 0.6-50 mm, Lettering field: 15 x 4 mm

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Insert label - PABA YE/15 - 1013698



Insert label, Strip, yellow, unlabeled, can be labeled with: Plotter, Mounting type: Thread on, Cable diameter: 0.6-50 mm, Lettering field: 15 x 4 mm

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Insert label - PABA RD/15 - 1013944



Insert label, Strip, red, unlabeled, can be labeled with: Plotter, Mounting type: Thread on, Cable diameter: 0.6-50 mm, Lettering field: 15 x 4 mm

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### Corrugated pipe

Protective hose - WP-PA HF 13,0 BK - 3240681



Polyamide protective hose, inflammability class V0, UV resistant

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## Sensor/Actuator cable - SAC-5P- 1,5-PUR/M12FR - 1669851

### Accessories

Protective hose - WP-PA HF-HB 13,0 BK - 3240839



Polyamide protective hose, inflammability class HB, UV resistant

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### Cutting tools

Diagonal cutter - CUTFOX-S VDE - 1212207



Diagonal cutter for copper and aluminum conductors, VDE 1000 V AC/ 1500 V DC-tested

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### Marker carrier cable

Conductor marker carrier - PATG 2/15 - 1013038



Conductor marker carrier, transparent, unlabeled, Mounting type: slide on, Cable diameter: 2-4 mm, Lettering field: 4 x 15 mm

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Conductor marker carrier - PATG 3/15 - 1013041



Conductor marker carrier, transparent, unlabeled, Mounting type: slide on, Cable diameter: 4-7 mm, Lettering field: 4 x 15 mm

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Conductor marker carrier - PATG 4/15 - 1013054



Conductor marker carrier, transparent, unlabeled, Mounting type: slide on, Cable diameter: 6-10 mm, Lettering field: 4 x 15 mm

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### Marker pen

## Sensor/Actuator cable - SAC-5P- 1,5-PUR/M12FR - 1669851

### Accessories

Marker pen - B-STIFT - 1051993



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

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### Protective cap

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

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



### Safety locking

Locking clip - SAC-M12-EXCLIP-F - 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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### Screwdriver tools

Adapter insert - TSD-M SAC-BIT ADAPTER - 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 - SAC BIT M12-D15 - 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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### Stripping tool



## Sensor/Actuator cable - SAC-5P- 1,5-PUR/M12FR - 1669851

### Accessories

Stripping tool - WIREFOX SAC-1 - 1212757



Stripping pliers, for halogen-free sensor/actuator cables (SAC cables), with PUR and PVC insulation, from  $\varnothing$  of 3.2 to 4.4 mm, any stripping length

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Stripping tool - WIREFOX SAC - 1212623



Stripping pliers, for halogen-free sensor/actuator cables (SAC cables), with PUR and PVC insulation, from  $\varnothing$  of 4.4 to 7 mm, any stripping length

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Stripping tool - WIREFOX 10 - 1212150



Stripping tool, for cables and conductors from 0.02 - 10 mm<sup>2</sup>, self-adjusting, stripping length of up to 18 mm, cutting capacity of up to 10 mm<sup>2</sup> stranded/1.5 mm<sup>2</sup> solid, replaceable stripping blade

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### Torque tool

Torque screwdriver - TSD 04 SAC - 1208429



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

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



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

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## Sensor/Actuator cable - SAC-5P- 1,5-PUR/M12FR - 1669851

### Accessories

Protective hose adapter - WP-CTA POM 13,0 BK - 1422884



Protective hose adapter, for corrugated hoses with a nominal size of 13 (10 x 13), corrugated in parallel