

# SAC-8P-P12MS/ 3,0-PUR/M12FS - Sensor/actuator cable



1649313

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Sensor/actuator cable, 8-position, PUR halogen-free, black-gray RAL 7021, Plug straight M12 Push Pull, coding: A, on Socket straight M12, coding: A, cable length: 3 m

## Your advantages

- Easy and safe: 100 % electrically tested plug-in components
- Save time, thanks to installation with push-pull fast locking

## Commercial data

|                                      |                                |
|--------------------------------------|--------------------------------|
| Item number                          | 1649313                        |
| Packing unit                         | 1 pc                           |
| Minimum order quantity               | 1 pc                           |
| Note                                 | Made to order (non-returnable) |
| Sales key                            | BF03                           |
| Product key                          | AF1CFA                         |
| GTIN                                 | 4067923182516                  |
| Weight per piece (including packing) | 22.22 g                        |
| Weight per piece (excluding packing) | 22.22 g                        |
| Customs tariff number                | 85444290                       |
| Country of origin                    | PL                             |

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## Technical data

### Product properties

|                      |                       |
|----------------------|-----------------------|
| Product type         | Sensor/actuator cable |
| Application          | Standard              |
| Number of positions  | 8                     |
| 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 | HB |
|----------------------------------------|----|

### Electrical properties

|                       |                            |
|-----------------------|----------------------------|
| Insulation resistance | $\geq 100 \text{ M}\Omega$ |
| Nominal voltage $U_N$ | 30 V AC                    |
|                       | 30 V DC                    |
| Nominal current $I_N$ | 2 A                        |

### Mechanical properties

#### Mechanical data

|                             |            |
|-----------------------------|------------|
| Insertion/withdrawal cycles | $\geq 100$ |
|-----------------------------|------------|

### Signaling

|                        |    |
|------------------------|----|
| Status display         | no |
| Status display present | no |

### Connection data

#### Conductor connection

|                   |                        |
|-------------------|------------------------|
| Tightening torque | 0.4 Nm (M12 connector) |
|-------------------|------------------------|

### Connector

#### Connection 1

|                     |                             |
|---------------------|-----------------------------|
| Type                | Plug straight M12 Push Pull |
| Number of positions | 8                           |
| Locking type        | Push Pull                   |
| Coding type         | A                           |

#### Connection 2

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|                     |                     |
|---------------------|---------------------|
| Type                | Socket straight M12 |
| Number of positions | 8                   |
| Coding type         | A                   |

## Cable/line

|              |     |
|--------------|-----|
| Cable length | 3 m |
|--------------|-----|

### PUR halogen-free black [PUR]

|                                               |                                                                                    |
|-----------------------------------------------|------------------------------------------------------------------------------------|
| Dimensional drawing                           |  |
| Cable weight                                  | 46 kg/km                                                                           |
| UL AWM Style                                  | 20549 / 10493 (80°C/300 V)                                                         |
| Number of positions                           | 8                                                                                  |
| Shielded                                      | no                                                                                 |
| Cable type                                    | PUR halogen-free black [PUR]                                                       |
| Conductor structure signal line               | 32x 0.10 mm                                                                        |
| AWG signal line                               | 24                                                                                 |
| Conductor cross-section                       | 8x 0.25 mm <sup>2</sup> (Signal line)                                              |
| Wire diameter incl. insulation                | 1.17 mm ±0.02 mm                                                                   |
| External cable diameter                       | 5.90 mm ±0.15 mm                                                                   |
| Outer sheath, material                        | PUR                                                                                |
| External sheath, color                        | black-gray RAL 7021                                                                |
| Conductor material                            | Bare Cu litz wires                                                                 |
| Material, filler                              | PE                                                                                 |
| Material wire insulation                      | PP                                                                                 |
| Single wire, color                            | white, brown, green, yellow, gray, pink, blue, red                                 |
| Thickness, insulation                         | ≥ 0.21 mm                                                                          |
| Thickness, outer sheath                       | approx. 0.80 mm                                                                    |
| Overall twist                                 | 8 wires around filler to the core                                                  |
| Max. conductor resistance                     | ≤ 78 Ω/km (at 20 °C)                                                               |
| Insulation resistance                         | ≥ 1 GΩ*km (at 20 °C)                                                               |
| Wave impedance                                | 100 Ω +15 % (with 1 MHz)                                                           |
| Cable capacity                                | ≤ 70 pF/m                                                                          |
| Nominal voltage, cable                        | ≤ 300 V                                                                            |
| Test voltage                                  | ≥ 3000 V                                                                           |
| Minimum bending radius, fixed installation    | 8 x D                                                                              |
| Minimum bending radius, flexible installation | 10 x D                                                                             |
| Smallest bending radius, fixed installation   | 48 mm                                                                              |

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|                                               |                                                                                                                                                                                                      |
|-----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Smallest bending radius, movable installation | 59 mm                                                                                                                                                                                                |
| Dynamic load capacity (bending)               | Max. bending cycles: 10000000, Bending radius: 59 mm, Traversing path: 10 m, Traversing rate: 3 m/s, Acceleration: 10 m/s <sup>2</sup>                                                               |
| Dynamic load capacity (torsion)               | Torsion: $\pm 180^\circ/\text{m}$ , Torsion cycles: $\geq 5000000$ , Torsional frequency: 35 cycles/min.                                                                                             |
| Halogen-free                                  | in accordance with DIN VDE 0472 part 815                                                                                                                                                             |
| Flame resistance                              | in accordance with UL 758/1581 FT2<br>According to 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<br>hydrolysis and microbe resistant<br>partly UV-resistant (in accordance with DIN EN ISO 4892-2-A)<br>Low adhesion<br>abrasion-resistant |
| Special properties                            | Flexible cable conduit capable<br>Silicone-free<br>Free of substances which would hinder coating with paint or varnish<br>flexible                                                                   |
| Ambient temperature (operation)               | -40 °C ... 80 °C (cable, fixed installation)<br>-25 °C ... 80 °C (Cable, flexible installation)                                                                                                      |

## Environmental and real-life conditions

### Ambient conditions

|                                 |                                                                                                                                    |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| Degree of protection            | IP65<br>IP67                                                                                                                       |
| Ambient temperature (operation) | -25 °C ... 85 °C (Plug / socket)<br>-40 °C ... 80 °C (cable, fixed installation)<br>-5 °C ... 80 °C (Cable, flexible installation) |

## Standards and regulations

|                          |                 |
|--------------------------|-----------------|
| Standard designation     | M12-Push-Pull   |
| Standards/specifications | IEC 61076-2-010 |

# SAC-8P-P12MS/ 3,0-PUR/M12FS - Sensor/actuator cable

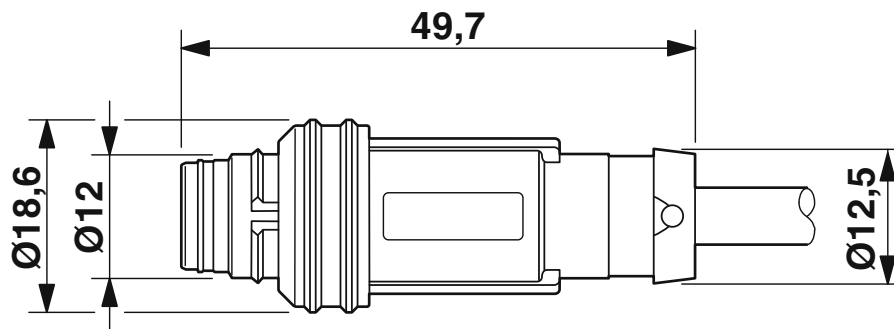


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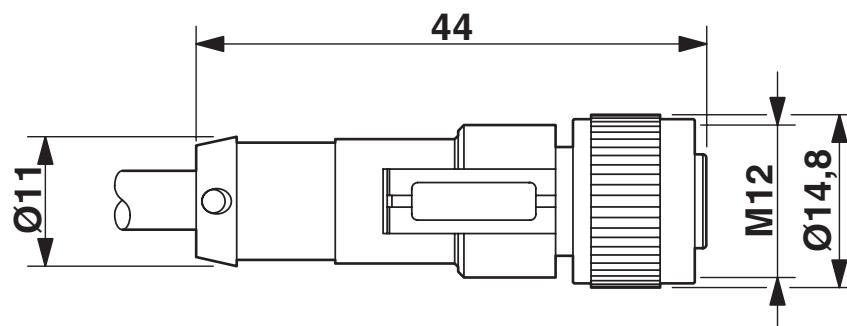
## Drawings

Dimensional drawing



M12 push-pull male connector, straight

Dimensional drawing



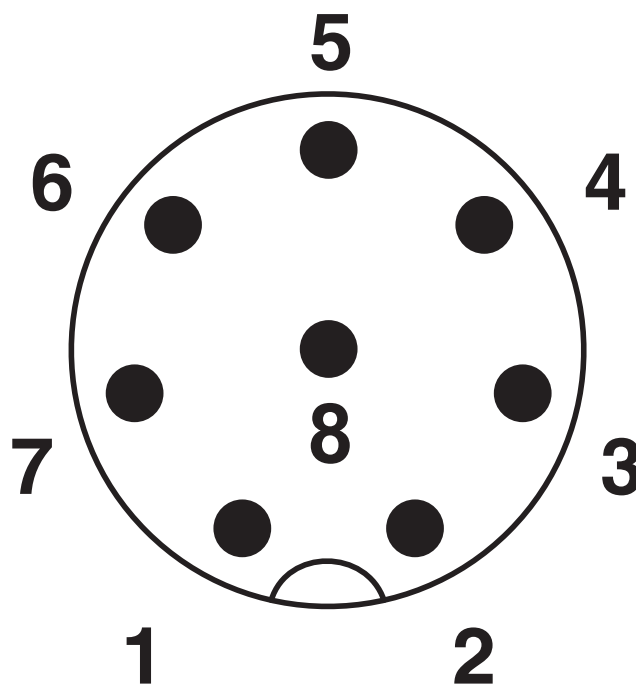
M12 x 1 socket, straight

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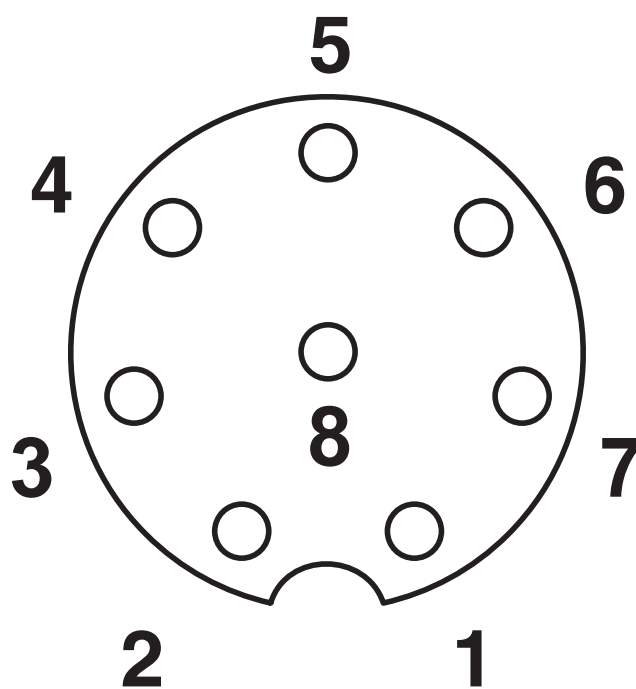
<https://www.phoenixcontact.com/us/products/1649313>

Schematic diagram



Pin assignment M12 plug, 8-pos., view plug side

Schematic diagram



Pin assignment M12 socket, 8-pos., A-coded, view female side

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Circuit diagram



Contact assignment of the M12 plug and the M12 socket

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-13.0 | 27060311 |
| ECLASS-15.0 | 27060311 |

### ETIM

|           |          |
|-----------|----------|
| ETIM 10.0 | EC001855 |
|-----------|----------|



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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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Phoenix Contact USA  
586 Fulling Mill Road  
Middletown, PA 17057, United States  
(+717) 944-1300  
[info@phoenixcon.com](mailto:info@phoenixcon.com)