# SAC-8P-M12MS SH BK/.../... - Sensor/actuator cable

1405839

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Sensor/actuator cable, 8-position, Plug straight M12, coding: A, on free cable end, cable length: Free input (0.2 ... 40.0 m)

## Commercial data

| | |
|---|---|
| Item number | 1405839 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Note | Made to order (non-returnable) |
| Sales key | BF17 |
| Product key | BF1IDD |
| Customs tariff number | 85444290 |
| Country of origin | US |

# Technical data

## Product properties

| | |
|---|---|
| Product type | Sensor/actuator cable |
| Application | Standard, U.S. cables |
| Number of positions | 8 |
| No. of cable outlets | 1 |
| Shielded | yes |
| Coding | A |

### Insulation characteristics

| | |
|---|---|
| Overvoltage category | II |
| Degree of pollution | 3 |

## Material specifications

| | |
|---|---|
| Flammability rating according to UL 94 | HB |
| Material of grip body | TPU, hardly inflammable, self-extinguishing |
| Contact material | CuZn |
| 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 $U_N$ | 30 V AC |
| | 30 V DC |
| Nominal current $I_N$ | 2 A |

## Mechanical properties

### Mechanical data

| | |
|---|---|
| Insertion/withdrawal cycles | ≥ 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 |

| | |
|---|---|
| Coding type | A |

Connection 2

| | |
|---|---|
| Type | free cable end |

## Cable/line

| | |
|---|---|
| Cable length | Free input (0.2 ... 40.0 m) |

PUR halogen-free black [PUR]

| | |
|---|---|
| Cable weight | 53 kg/km |
| UL AWM Style | 20549 / 10493 (80°C/300 V) |
| Number of positions | 8 |
| Shielded | yes |
| Cable type | PUR halogen-free black [PUR] |
| | PUR halogen-free black PUR |
| Conductor structure signal line | 32x 0.10 mm |
| AWG signal line | 24 |
| Conductor cross section | 8x 0.25 mm² (Signal line) |
| Wire diameter incl. insulation | 1.17 mm ±0.02 mm |
| External cable diameter | 5.90 mm ±0.2 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, green, yellow, gray, pink, blue, red |
| Thickness, insulation | approx. 0.20 mm |
| Thickness, outer sheath | approx. 0.50 mm |
| Overall twist | 8 wires around filler to the core |
| Shielding | Tinned copper braided shield |
| Optical shield covering | 85 % |
| Max. conductor resistance | ≤ 78 Ω/km (at 20 °C) |
| Insulation resistance | ≥ 1 GΩ*km (at 20 °C) |
| Nominal voltage, cable | ≤ 300 V AC |
| Test voltage | ≥ 3000 V AC (Spark test) |
| Test voltage Core/Shield | ≥ 2000.00 V AC (for 60 s) |
| Minimum bending radius, fixed installation | 5 x D |
| Minimum bending radius, flexible installation | 10 x D |
| Smallest bending radius, fixed installation | 30 mm |
| Smallest bending radius, movable installation | 59 mm |
| Max. bending cycles | 2000000 |
| Halogen-free | in accordance with DIN VDE 0472 part 815 |
| | according to IEC 60754-1 |
| Flame resistance | in acc. with UL FT-2 |
| | according to UL 758/1581 (horizontal) |
| | in accordance with UL 758/1581 FT2 |

| | |
|---|---|
| | According to DIN EN 60332-2-2 (20 s) |
| Resistance to oil | in accordance with IEC 60811-404 |
| Other resistance | hydrolysis and microbe resistant |
| | Resistant to salt water |
| | low-abrasion |
| | partly UV-resistant (in accordance with DIN EN ISO 4892-2-A) |
| Special properties | Flexible cable conduit capable |

PUR halogen-free yellow [240]

| | |
|---|---|
| Cable weight | 53 kg/km |
| UL AWM Style | 20549 |
| Number of positions | 8 |
| Shielded | yes |
| Cable type | PUR halogen-free yellow [240] |
| | PUR halogen-free yellow 240 |
| Conductor structure signal line | 32x 0.10 mm |
| AWG signal line | 24 |
| Conductor cross section | 8x 0.25 mm² |
| Wire diameter incl. insulation | 1.17 mm ±0.02 mm |
| External cable diameter | 5.90 mm ±0.2 mm |
| Outer sheath, material | PUR |
| External sheath, color | yellow |
| Conductor material | Bare Cu litz wires |
| Material wire insulation | PP |
| Single wire, color | white, brown, green, yellow, gray, pink, blue, red |
| Thickness, insulation | ≥ 0.21 mm |
| Thickness, outer sheath | approx. 0.50 mm |
| Overall twist | 8 wires around filler to the core |
| Length of twist, overall twist | 70 mm |
| Shielding | Braided copper wires |
| Optical shield covering | 85 % |
| Max. conductor resistance | 78 Ω/km (at 20 °C) |
| Insulation resistance | ≥ 1 GΩ*km (at 20 °C) |
| Nominal voltage, cable | ≤ 300 V AC |
| Test voltage | ≥ 3000 V AC (Spark test) |
| Test voltage Core/Shield | ≥ 2000.00 V AC (for 60 s) |
| Minimum bending radius, fixed installation | 5 x D |
| Minimum bending radius, flexible installation | 10 x D |
| Smallest bending radius, fixed installation | 30 mm |
| Smallest bending radius, movable installation | 59 mm |
| Max. bending cycles | 2000000 |
| Halogen-free | in accordance with DIN VDE 0472 part 815 |
| | in accordance with EN 50267-2-1 |
| Flame resistance | in accordance with UL 758/1581 FT2 |

| | |
|---|---|
| Resistance to oil | According to DIN EN 60811-2-1, 168 h at 100°C |
| | According to UL 758, 168 h at 60°C |
| Other resistance | hydrolysis and microbe resistant |
| | Resistant to salt water |
| | abrasion-resistant |
| | Low adhesion |

Black PVC 105°C [535]

| | |
|---|---|
| Cable weight | 58 kg/km |
| UL AWM Style | 2517 (105 °C / 300 V) |
| Number of positions | 8 |
| Shielded | yes |
| Cable type | Black PVC 105°C [535] |
| | Black PVC 105°C 535 |
| Conductor structure signal line | 32x 1.10 mm |
| AWG signal line | 24 |
| Wire diameter incl. insulation | 1.12 mm ±0.03 mm |
| External cable diameter | 6.30 mm ±0.2 mm |
| Outer sheath, material | PVC |
| External sheath, color | black |
| Conductor material | Tin-plated Cu litz wires |
| Material, filler | PP |
| Material wire insulation | PVC |
| Single wire, color | white, brown, green, yellow, gray, pink, blue, red |
| Overall twist | 8 wires around filler to the core |
| Shielding | Tinned copper braided shield |
| Optical shield covering | 85 % |
| Nominal voltage, cable | 300 V |
| Minimum bending radius, flexible installation | 12 x D |
| Smallest bending radius, movable installation | 76 mm |
| Flame resistance | FT1, VW-1 |
| Other resistance | UV resistant |

PVC yellow 105 °C [542]

| | |
|---|---|
| Cable weight | 58 kg/km |
| UL AWM Style | 2517 (105 °C / 300 V) |
| Number of positions | 8 |
| Shielded | yes |
| Cable type | PVC yellow 105 °C [542] |
| | PVC yellow 105 °C 542 |
| Conductor structure signal line | 32x 1.10 mm |
| AWG signal line | 24 |
| Wire diameter incl. insulation | 1.12 mm ±0.03 mm |
| External cable diameter | 6.30 mm ±0.2 mm |
| Outer sheath, material | PVC |

| | |
|---|---|
| External sheath, color | yellow |
| Conductor material | Tin-plated Cu litz wires |
| Material, filler | PP |
| Material wire insulation | PVC |
| Single wire, color | white, brown, green, yellow, gray, pink, blue, red |
| Overall twist | 8 wires around filler to the core |
| Shielding | Tinned copper braided shield |
| Optical shield covering | 85 % |
| Max. conductor resistance | max. 79.7 Ω/km (20 °C) |
| Insulation resistance | ≥ (550 M Ohms/m @ 500V) |
| Nominal voltage, cable | 300 V |
| Minimum bending radius, flexible installation | 12 x D |
| Smallest bending radius, movable installation | 76 mm |
| Flame resistance | FT1, VW-1 |
| Other resistance | UV resistant |

PVC gray 105 °C [544]

| | |
|---|---|
| Cable weight | 33 kg/km |
| UL AWM Style | 2517 (105 °C / 300 V) |
| Number of positions | 8 |
| Shielded | yes |
| Cable type | PVC gray 105 °C [544] |
| | PVC gray 105 °C 544 |
| Conductor structure signal line | 32x 1.10 mm |
| AWG signal line | 24 |
| Wire diameter incl. insulation | 1.12 mm ±0.03 mm |
| External cable diameter | 6.30 mm ±0.2 mm |
| Outer sheath, material | PVC |
| External sheath, color | gray |
| Conductor material | Tin-plated Cu litz wires |
| Material wire insulation | PVC |
| Single wire, color | white, brown, green, yellow, gray, pink, blue, red |
| Overall twist | 8 wires, twisted |
| Shielding | Tinned copper braided shield |
| Optical shield covering | 85 % |
| Max. conductor resistance | max. 79.7 Ω/km (20 °C) |
| Insulation resistance | ≥ (550 M Ohms/m @ 500V) |
| Nominal voltage, cable | 300 V |
| Minimum bending radius, flexible installation | 12 x D |
| Smallest bending radius, movable installation | 76 mm |
| Flame resistance | FT4 |
| Other resistance | UV resistant |

## Environmental and real-life conditions

Ambient conditions

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

## Standards and regulations

| | |
|---|---|
| Standard designation | M12 connector |
| Standards/specifications | IEC 61076-2-101 |

## Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/1405839

**UL Listed**
Approval ID: FILE E 221474

| | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $mm^2$ |
|---|---|---|---|---|
| | 30 V | 2 A | - | - |

**cUL Listed**
Approval ID: FILE E 221474

| | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $mm^2$ |
|---|---|---|---|---|
| | 30 V | 2 A | - | - |

**cULus Listed**

## Classifications

### ECLASS

| | |
|---|---|
| ECLASS-11.0 | 27060311 |
| ECLASS-12.0 | 27060311 |
| ECLASS-13.0 | 27060311 |

### ETIM

| | |
|---|---|
| ETIM 8.0 | EC001855 |

### UNSPSC

| | |
|---|---|
| UNSPSC 21.0 | 26121600 |

## Environmental product compliance

EU RoHS

| | |
|---|---|
| Fulfills EU RoHS substance requirements | Yes, No exemptions |

China RoHS

| | |
|---|---|
| Environment friendly use period (EFUP) | EFUP-50 |
| | An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required. |

EU REACH SVHC

| | |
|---|---|
| REACH candidate substance (CAS No.) | No substance above 0.1 wt% |

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