# SAC-8P-M12FS SH/.../... - Sensor/actuator cable

1522901

https://www.phoenixcontact.com/in/products/1522901

**PHŒNIX CONTACT**

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

## Your advantages

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

• Reliable signal transmission – 360° shielding in environments with electromagnetic interference

## Commercial Data

| | |
|---|---|
| Item number | 1522901 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Note | Made to Order (non-returnable) |
| Sales Key | BF1 |
| Product Key | BF1CMA |
| Catalog Page | Page 211 (C-2-2019) |
| Customs tariff number | 85444290 |
| Country of origin | PL |

## Technical Data

### Product properties

| | |
|---|---|
| Product type | Sensor/actuator cable |
| Number of positions | 8 |
| Application | Standard |
| 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 |
| Seal material | NBR |
| 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

| | |
|---|---|
| Contact resistance | ≤ 5 mΩ |
| Insulation resistance | ≥ 100 MΩ |
| Nominal voltage $U_N$ | 30 V AC |
| | 30 V DC |
| Nominal current $I_N$ | 2 A |
| Protective circuit | unwired |

### 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 2

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

## Cable/line

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

### PUR halogen-free black [PUR]

| Dimensional drawing | |
|---|---|
| |  |
| Shielded | yes |
| UL AWM Style | 20549 / 10493 (80°C/300 V) |
| Cable weight | 53 kg/km |
| Cable type | PUR halogen-free black |
| Short symbol | LiF9YC11Y |
| Cable type (abbreviation) | PUR |
| External cable diameter | 5.9 mm ±0.2 mm |
| Outer sheath, material | PUR |
| External sheath, color | black-gray RAL 7021 |
| Thickness, outer sheath | approx. 0.5 mm |
| Conductor material | Bare Cu litz wires |
| Conductor structure signal line | 32x 0.10 mm |
| AWG signal line | 24 |
| Conductor cross section | 8x 0.25 mm² (Signal line) |
| Material wire insulation | PP |
| Thickness, insulation | approx. 0.2 mm |
| Wire diameter incl. insulation | 1.17 mm ±0.02 mm |
| Single wire, color | brown, white, 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 AC |
| Test voltage Core/Shield | ≥ 2000 V AC (for 60 s) |
| Test voltage, cable | ≥ 3000 V AC (Spark test) |
| Cable resistance | ≤ 78 Ω/km (at 20 °C) |
| Cable insulation resistance | ≥ 1 GΩ*km (at 20 °C) |
| Minimum bending radius, fixed installation | 5 x D |

| | |
|---|---|
| Minimum bending radius, flexible installation | 10 x D |
| Number of bending cycles | 2000000 |
| Minimum bending radius, drag chain applications | 10 x D |
| Traversing path | 10 m |
| Traversing rate | 3 m/s |
| Acceleration | 10 m/s² |
| Halogen-free | in accordance with DIN VDE 0472 part 815 |
| | according to IEC 60754-1 |
| Resistance to oil | in accordance with IEC 60811-404 |
| 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) |
| 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 |
| Ambient temperature (operation) | -25 °C ... 80 °C (Cable, flexible installation) |
| | -40 °C ... 80 °C (cable, fixed installation) |

PUR halogen-free gray [280]

| Dimensional drawing | |
|---|---|
| |  |
| Shielded | yes |
| UL AWM Style | 20549 / 10493 (80°C/300 V) |
| Cable weight | 53 kg/km |
| Cable type | PUR halogen-free gray |
| Short symbol | LiY-FC11Y |
| Cable type (abbreviation) | 280 |
| External cable diameter | 5.9 mm ±0.2 mm |
| Outer sheath, material | PUR |
| External sheath, color | gray RAL 7001 |
| Thickness, outer sheath | approx. 0.5 mm |
| Conductor material | Bare Cu litz wires |
| Conductor structure signal line | 32x 0.10 mm |
| AWG signal line | 24 |
| Conductor cross section | 8x 0.25 mm² (Signal line) |

| | |
|---|---|
| Material wire insulation | PP |
| Thickness, insulation | approx. 0.2 mm |
| Wire diameter incl. insulation | 1.17 mm ±0.02 mm |
| Single wire, color | brown, white, 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 AC |
| Test voltage Core/Shield | ≥ 2000 V AC (for 60 s) |
| Test voltage, cable | ≥ 3000 V AC (Spark test) |
| Cable resistance | ≤ 78 Ω/km (at 20 °C) |
| Cable insulation resistance | ≥ 1 GΩ*km (at 20 °C) |
| Minimum bending radius, fixed installation | 5 x D |
| Minimum bending radius, flexible installation | 10 x D |
| Number of bending cycles | 2000000 |
| Minimum bending radius, drag chain applications | 10 x D |
| Traversing path | 10 m |
| Traversing rate | 3 m/s |
| Acceleration | 10 m/s² |
| Halogen-free | in accordance with DIN VDE 0472 part 815 |
| | according to IEC 60754-1 |
| Resistance to oil | in accordance with DIN EN 60811-404 |
| 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) |
| Other resistance | hydrolysis and microbe resistant |
| | Resistant to salt water |
| | low-abrasion |
| Special properties | Flexible cable conduit capable |
| Ambient temperature (operation) | -25 °C ... 80 °C (Cable, flexible installation) |
| | -40 °C ... 80 °C (cable, fixed installation) |

PVC black [PVC]

| | |
|---|---|
| Dimensional drawing |  |
| Note | The cable is not suitable for use with drag chains. |
| Shielded | yes |

| | |
|---|---|
| UL AWM Style | 2517 |
| Cable weight | 85 kg/km |
| Cable type | PVC black |
| Short symbol | LiYF-C-Y |
| Cable type (abbreviation) | PVC |
| External cable diameter | 7.7 mm ±0.2 mm |
| Outer sheath, material | PVC |
| External sheath, color | black RAL 9005 |
| Conductor material | Bare Cu litz wires |
| Conductor structure signal line | 32x 0.10 mm |
| AWG signal line | 24 |
| Conductor cross section | 8x 0.25 mm² (Signal line) |
| Material, filler | PVC |
| Material wire insulation | PVC |
| Thickness, insulation | ≥ 0.38 mm (Conductor insulation, signal line) |
| Wire diameter incl. insulation | 1.5 mm ±0.05 mm (Signal line) |
| Single wire, color | white, brown, green, yellow, gray, pink, blue, red |
| Overall twist | 8 wires around filler to the core, twisted in with additional Cu litz in the wire outer godet |
| Shielding | Tinned copper braided shield |
| Optical shield covering | 85 % |
| Nominal voltage, cable | 300 V |
| Test voltage, cable | 3000 V |
| Cable resistance | ≤ 78 Ω/km |
| Cable insulation resistance | ≥ 10 GΩ*km |
| Smallest bending radius, fixed installation | 38.5 mm |
| Smallest bending radius, movable installation | 77 mm |
| Resistance to oil | According to DIN EN 60811-2-1, 168 h at 80°C |
| Flame resistance | According to UL 758/1581 (Cable Flame) |
| | According to DIN EN 60332-1-2 (60 s) |
| Ambient temperature (operation) | -25 °C ... 105 °C (cable, fixed installation) |

## Environmental and real-life conditions

### Ambient conditions

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

## Standards and regulations

| | |
|---|---|
| Standards/specifications | IEC 61076-2-101 |

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## Drawings

### Dimensional drawing

44,5

Ø12

M12

Ø14,8
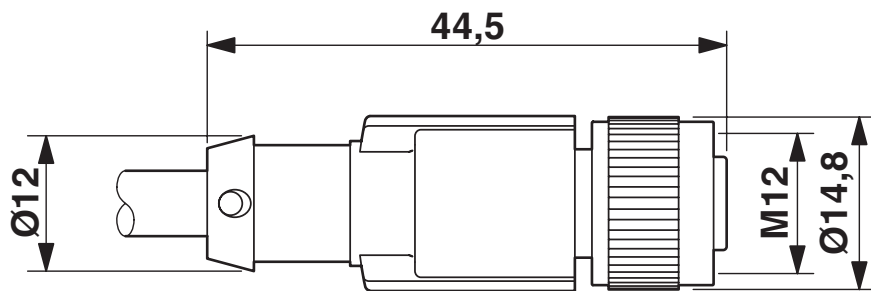
M12 x 1 socket, straight, shielded

### Circuit diagram

| | |
|---|---|
| 1 | WH |
| 2 | BN |
| 3 | GN |
| 4 | YE |
| 5 | GY |
| 6 | PK |
| 7 | BU |
| 8 | RD |
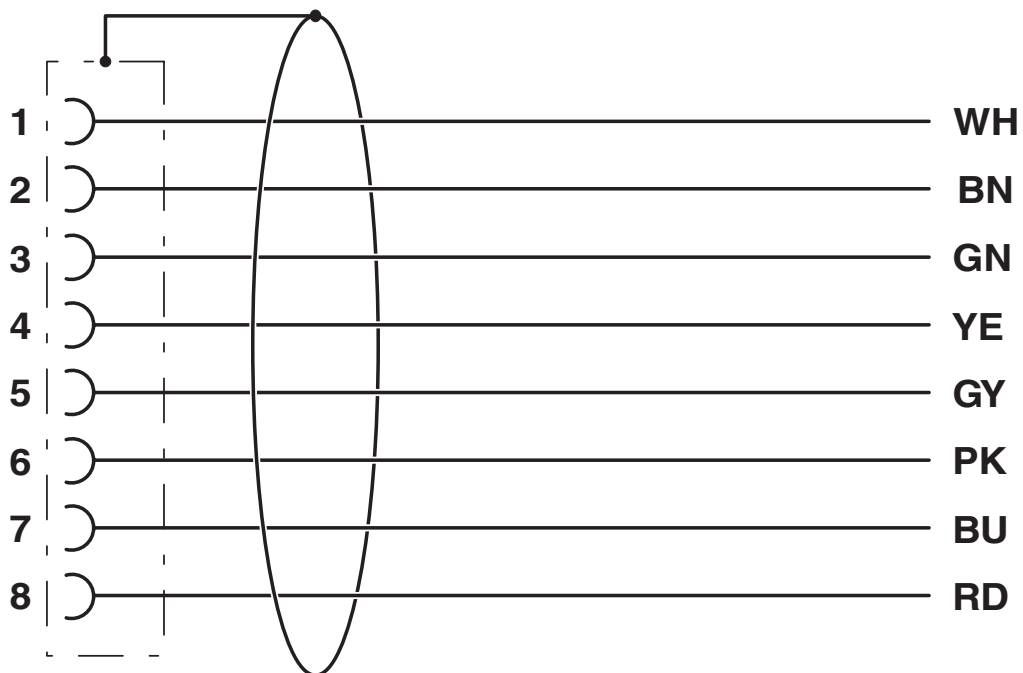
Schematic diagram
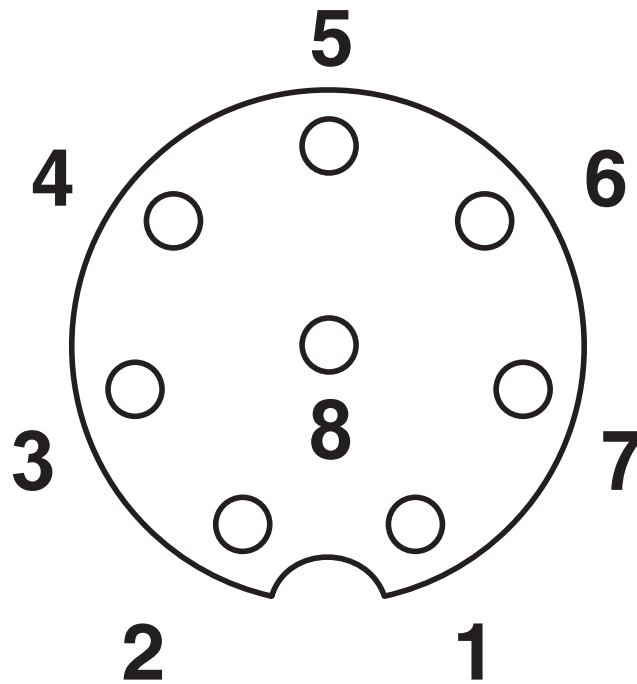


Pin assignment M12 socket, 8-pos., A-coded, view female side

## Approvals

### 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 | - | - |

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

# SAC-8P-M12FS SH/.../... - Sensor/actuator cable

## 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

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

## Accessories

### PABA WH/23 - Insert label

1013779

https://www.phoenixcontact.com/in/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

### PABA YE/23 - Insert label

1013782

https://www.phoenixcontact.com/in/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

# SAC-8P-M12FS SH/.../... - Sensor/actuator cable

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## B-STIFT - Marker pen

1051993

https://www.phoenixcontact.com/in/products/1051993

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

## CUTFOX-S VDE - Diagonal cutter

1212207

https://www.phoenixcontact.com/in/products/1212207

Diagonal cutter for hard (piano wire) and soft wires, VDE 1000 V AC/1500 V DC tested

# SAC-8P-M12FS SH/.../... - Sensor/actuator cable

## WIREFOX SAC-1 - Stripping tool

1212757

https://www.phoenixcontact.com/in/products/1212757

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

## WIREFOX SAC - Stripping tool

1212623

https://www.phoenixcontact.com/in/products/1212623

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

WIREFOX 10 - Stripping tool

1212150

https://www.phoenixcontact.com/in/products/1212150

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

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

1422884

https://www.phoenixcontact.com/in/products/1422884

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

# SAC-8P-M12FS SH/.../... - Sensor/actuator cable

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

3240681

https://www.phoenixcontact.com/in/products/3240681

Protective hose, material: PA 6, UV-resistant: yes, flexible, degree of protection: IP68, color: black, flammability rating in acc. with UL 94: V0, inner diameter: 10 mm, Total length: 50 m

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

3240839

https://www.phoenixcontact.com/in/products/3240839

Protective hose, material: PA 6, UV-resistant: yes, flexible, degree of protection: IP68, color: black, flammability rating in acc. with UL 94: HB, inner diameter: 10 mm, Total length: 50 m

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

1430899

https://www.phoenixcontact.com/in/products/1430899

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

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

1558991

https://www.phoenixcontact.com/in/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

TSD 04 SAC - Torque screwdriver

1208429

https://www.phoenixcontact.com/in/products/1208429

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

TSD-M 1,2NM - Torque screwdriver

1212224

https://www.phoenixcontact.com/in/products/1212224

Torque screw driver, accuracy as per EN ISO 6789 standard, adjustable from 0. 3 - 1.2 Nm

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

1212600

https://www.phoenixcontact.com/in/products/1212600

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

## SAC BIT M12-D15 - Tool

1208432

https://www.phoenixcontact.com/in/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