# SAC-4P-MS/ 2,0-28R SCO RAIL - Sensor/actuator cable

1407311

https://www.phoenixcontact.com/us/products/1407311

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Sensor/actuator cable, 4-position, PE-X halogen-free, black RAL 9005, shielded, Plug straight M12 SPEEDCON, coding: A, on free cable end, cable length: 2 m, For railway applications

## Your advantages

- Easy and safe: 100 % electrically tested plug-in components
- Securely locked by special vibration brake
- Resistant to temperature influences – tested for an extended temperature range and for resistance to temperature shocks
- Reliable signal transmission – 360° shielding in environments with electromagnetic interference

## Commercial data

| | |
|---|---|
| Item number | 1407311 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | BF03 |
| Product key | AF1CCA |
| GTIN | 4046356774277 |
| Weight per piece (including packing) | 127.6 g |
| Weight per piece (excluding packing) | 127.6 g |
| Customs tariff number | 85444290 |
| Country of origin | PL |

## Technical data

### Notes

| | |
|---|---|
| General | Further products with variable cable type and variable cable length can be found in the accessories section |

### Product properties

| | |
|---|---|
| Product type | Sensor/actuator cable |
| Application | Railway applications |
| Number of positions | 4 |
| 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 | V0 |
| Material of grip body | PA 6.6 |
| Contact material | CuSn |
| Contact surface material | Ni/Au |
| Contact carrier material | PA 6.6 |
| Material for screw connection | Zinc die-cast, nickel-plated |

### Electrical properties

| | |
|---|---|
| Insulation resistance | ≥ 100 MΩ |
| Nominal voltage $U_N$ | 48 V AC |
| | 60 V DC |
| Nominal current $I_N$ | 4 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 SPEEDCON |
| Number of positions | 4 |
| Locking type | SPEEDCON |
| Coding type | A |

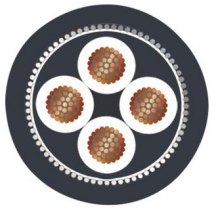
### Connection 2

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

## Cable/line

| | |
|---|---|
| Cable length | 2 m |

### Shielded black RADOX® [28R]

| | |
|---|---|
| Dimensional drawing |  |
| Cable weight | 56 kg/km |
| Number of positions | 4 |
| Shielded | yes |
| Cable type | Shielded black RADOX® [28R] |
| Conductor structure signal line | 19x 0.18 mm |
| AWG signal line | 20 |
| Conductor cross-section | 4x 0.5 mm² |
| Wire diameter incl. insulation | 1.43 mm |
| External cable diameter | 5.40 mm ±0.3 mm |
| Outer sheath, material | PE-X |
| External sheath, color | black RAL 9005 |
| Conductor material | Tin-plated Cu litz wires |
| Material wire insulation | PE-X |
| Single wire, color | white 1, white 2, white 3, white 4 |
| Overall twist | 4 wires, twisted |
| Optical shield covering | 85 % |
| Max. conductor resistance | ≤ 40.1 Ω/km |
| Nominal voltage, cable | 600 V AC (Core-ground, $U_0$) |
| | 1000 V AC (Core-ground, U) |
| | ≤ 720 V AC (core-ground) |
| | ≤ 1200 V AC (Core-ground, $U_m$) |

| | |
|---|---|
| | ≤ 900 V DC (Core-ground, $V_0$) |
| | ≤ 1500 V DC (Line-line) |
| Test voltage | 3500 V AC (50 Hz, 5 min.) |
| | 8400 V DC (50 Hz, 5 min.) |
| Minimum bending radius, fixed installation | 3 x D |
| Minimum bending radius, flexible installation | 4 x D |
| Smallest bending radius, fixed installation | 17 mm |
| Smallest bending radius, movable installation | 22 mm |
| Halogen-free | in accordance with EN 50267-2-1 |
| Flame resistance | IEC 60332-1-2 |
| | EN 50266 |
| | EN 50305, 9.1.2 |
| | NF C32-070, 2.1 |
| | NF C32-070, 2.2 |
| | UL 1685, 12 (FT4) |
| | in accordance with ISO 6722-1 5.22 (UN ECE-R 118.01) |
| Fume corrosiveness | EN 50267-2-2 |
| Fume toxicity | BS 6853 B.1 |
| | EN 50305, 9.2 |
| Concentration of fumes | BS 6853 D.8.7 |
| | EN 61034-2 |
| | UL 1685, 12 (FT4) |
| Resistance to oil | according to IRM 902, 72 h at 100 °C |
| Fire protection in rail vehicles | BS 6853 (Category Ia, Ib, II) |
| | GM/RT 2130 (Category Ia, Ib, II) |
| | EN 45545 (Risk level HL1 - HL3) |
| | DIN 5510 (Fire protection level 1, 2, 3, 4) |
| | NF F16-101 (Category A1, A2, B) |
| | NF F16-101 (Class C/F0) |
| | NFPA 130 |
| | UNI CEI 11170 (Risk level LR1 - LR4) |
| Other resistance | Resistance to fuels (according to IRM 903, 168 h at 70 °C) |
| Ambient temperature (operation) | -50 °C ... 120 °C (cable, fixed installation) |
| | -25 °C ... 90 °C (Cable, flexible installation) |

## Environmental and real-life conditions

### Ambient conditions

| | |
|---|---|
| Degree of protection | IP65 |
| Ambient temperature (operation) (male connector/female connector) | -40 °C ... 85 °C (Plug / socket) |

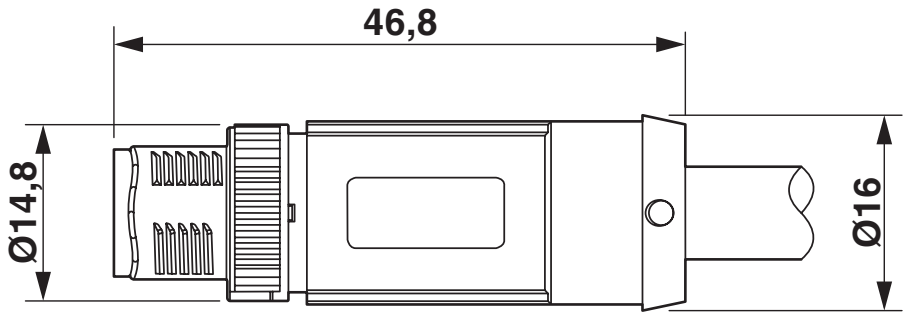
## Standards and regulations

### M12

| | |
|---|---|
| Standard designation | M12 connector |
| Standards/specifications | IEC 61076-2-101 |
| Standard designation | Shock, vibration |
| Standards/specifications | EN 50155 |

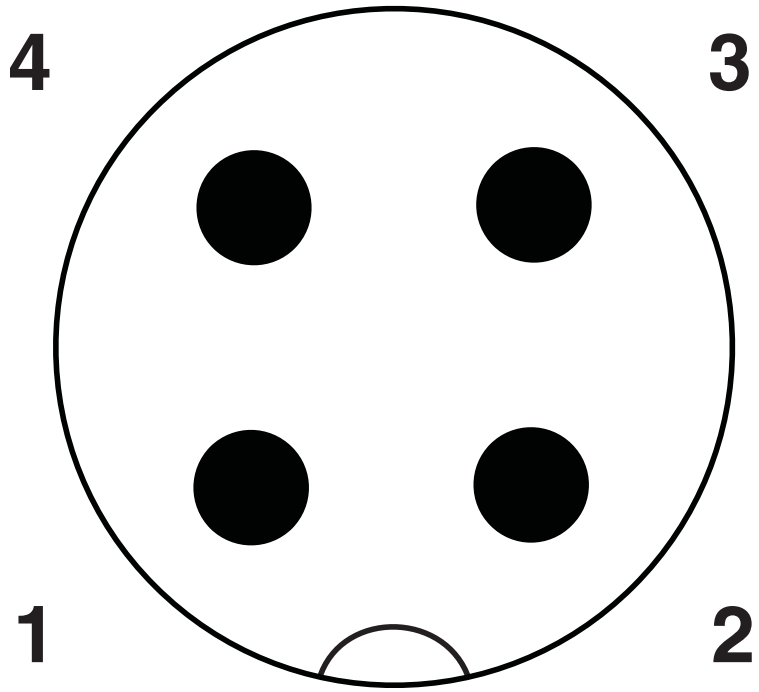
## Drawings

Dimensional drawing



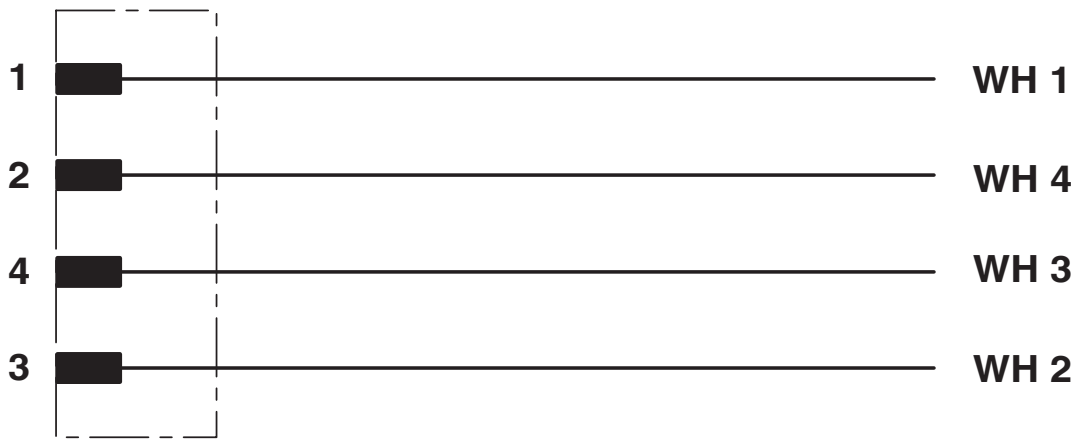

M12 SPEEDCON plug, straight, shielded

Schematic diagram




Pin assignment M12 plug, 4-pos., A-coded, view plug side

Circuit diagram




Contact assignment of the M12 plug

## Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/1407311

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

## Classifications

### ECLASS

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

### ETIM

| | |
|---|---|
| ETIM 10.0 | 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-E |
| | No hazardous substances above the limits |

EU REACH SVHC

| | |
|---|---|
| REACH candidate substance (CAS No.) | 6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol(CAS: 119-47-1) |
| SCIP | 6e5c714f-4156-4e46-950d-f91875a6b332 |

EF3.1 Climate Change

| | |
|---|---|
| CO2e kg | 0.892 kg CO2e |


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