

# SAC-4P-MR/10,0-28R SCO RAIL - Sensor/actuator cable



1407316

<https://www.phoenixcontact.com/us/products/1407316>

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Sensor/actuator cable, 4-position, PE-X halogen-free, black RAL 9005, shielded, Plug angled M12 SPEEDCON, coding: A, on free cable end, cable length: 10 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                          | 1407316       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1 pc          |
| Sales key                            | BF03          |
| Product key                          | AF1CCA        |
| GTIN                                 | 4046356774321 |
| Weight per piece (including packing) | 536.8 g       |
| Weight per piece (excluding packing) | 536.8 g       |
| Customs tariff number                | 85444290      |
| Country of origin                    | PL            |

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## Technical data

### 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 |
| Standards/regulations                  | PA 6.6                       |

### Electrical properties

|                       |                            |
|-----------------------|----------------------------|
| Insulation resistance | $\geq 100 \text{ M}\Omega$ |
| Nominal voltage $U_N$ | 48 V AC                    |
|                       | 60 V DC                    |
| Nominal current $I_N$ | 4 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

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|                     |                          |
|---------------------|--------------------------|
| Type                | Plug angled M12 SPEEDCON |
| Number of positions | 4                        |
| Locking type        | SPEEDCON                 |
| Coding type         | A                        |


## Connection 2

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

## Cable/line

|              |      |
|--------------|------|
| Cable length | 10 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 mm <sup>2</sup>                                                                                                                                                                                                  |
| 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 <sub>0</sub> )<br>1000 V AC (Core-ground, U)<br>≤ 720 V AC (core-ground)<br>≤ 1200 V AC (Core-ground, U <sub>m</sub> )<br>≤ 900 V DC (Core-ground, V <sub>0</sub> )<br>≤ 1500 V DC (Line-line) |
| Test voltage                    | 3500 V AC (50 Hz, 5 min.)<br>8400 V DC (50 Hz, 5 min.)                                                                                                                                                                  |

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|                                               |                                                            |
|-----------------------------------------------|------------------------------------------------------------|
| 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         |

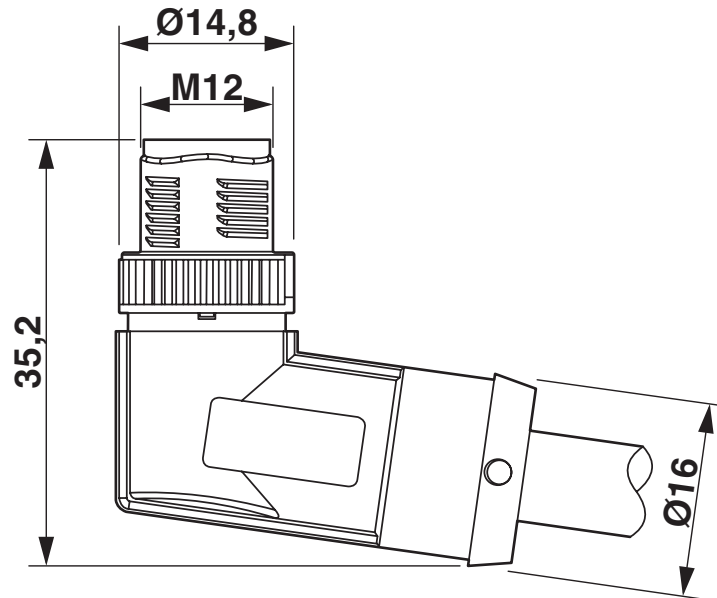
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## Drawings

Dimensional drawing



Plug M12 SPEEDCON, angled, shielded

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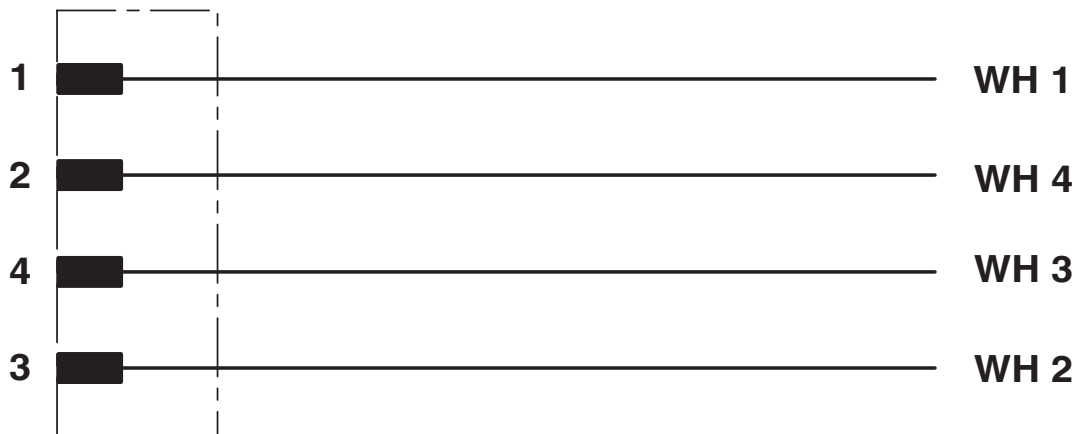
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Schematic diagram



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

Circuit diagram



Contact assignment of the M12 plug

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## Approvals

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**EAC-RoHS**

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

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## Classifications

### ECLASS

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

### ETIM

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

### UNSPSC

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

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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.) | 6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol(CAS: 119-47-1) |
| SCIP                                | af098663-0bdc-4900-a40f-c34d894fbaab                        |

### EF3.1 Climate Change

|         |               |
|---------|---------------|
| CO2e kg | 3.817 kg CO2e |
|---------|---------------|

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