

## Sensor/Actuator cable - SAC-3P- 5,0-28R/FR SCO RAIL - 1407307

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Sensor/Actuator cable, 3-position, PE-X halogen-free, black, shielded, free cable end, on Socket angled M12 SPEEDCON, A-coded, Cable length: 5 m, For railway applications

### Why buy this product

- Easy and safe: 100% electrically tested plug-in components
- Safety thanks to flame retardancy: PA 6.6 grip and radiation-cross-linked cables satisfy the most stringent requirements
- 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



### Key Commercial Data

|                                      |                                                                                                         |
|--------------------------------------|---------------------------------------------------------------------------------------------------------|
| Packing unit                         | 1 STK                                                                                                   |
| GTIN                                 | <br>4 046356 774239 |
| Weight per Piece (excluding packing) | 263.0 g                                                                                                 |
| Weight per piece (including packing) | 265.2 g                                                                                                 |
| Country of origin                    | Poland                                                                                                  |
| Note                                 | Made to Order (non-returnable)                                                                          |

### Technical data

#### Dimensions

|                 |     |
|-----------------|-----|
| Length of cable | 5 m |
|-----------------|-----|

#### Ambient conditions

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

#### General

|                       |       |
|-----------------------|-------|
| Rated current at 40°C | 4 A   |
| Rated voltage         | 250 V |
| Number of positions   | 3     |

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### Technical data

#### General

|                              |                               |
|------------------------------|-------------------------------|
| Insulation resistance        | ≥ 100 MΩ                      |
| Coding                       | A - standard                  |
| Standards/regulations        | M12 connector IEC 61076-2-101 |
|                              | Shock, vibration EN 50155     |
| Status display               | No                            |
| Protective circuit/component | Unwired                       |
| Overvoltage category         | II                            |
| Degree of pollution          | 3                             |
| Insertion/withdrawal cycles  | ≥ 100                         |
| Torque                       | 0.4 Nm (M12 connector)        |

#### Material

|                                        |                                                                                                                             |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Flammability rating according to UL 94 | V0                                                                                                                          |
| Contact material                       | CuSn                                                                                                                        |
| Contact surface material               | Ni/Au                                                                                                                       |
| Contact carrier material               | PA 6.6                                                                                                                      |
| Material of grip body                  | PA 6.6                                                                                                                      |
| Material, knurls                       | Zinc die-cast, nickel-plated                                                                                                |
| Sealing material                       | NBR                                                                                                                         |
| Standards/regulations                  | PA 6.6: Fire protection in rail vehicles - requirement sets R22, R23, and R24 acc. to DIN EN 45545-2 (Risk level HL1 - HL3) |

#### Standards and Regulations

|                                        |                  |
|----------------------------------------|------------------|
| Standard designation                   | M12 connector    |
| Standards/regulations                  | IEC 61076-2-101  |
| Standard designation                   | Shock, vibration |
| Standards/regulations                  | EN 50155         |
| Flammability rating according to UL 94 | V0               |

#### Cable

|                                            |                              |
|--------------------------------------------|------------------------------|
| Cable type                                 | Shielded black RADOX®        |
| Cable type (abbreviation)                  | 28R                          |
| Conductor cross section                    | 3x 0.5 mm²                   |
| AWG signal line                            | 20                           |
| Conductor structure signal line            | 19x 0.18 mm                  |
| Core diameter including insulation         | 1.43 mm                      |
| Wire colors                                | White 1, white 2, white 3    |
| Overall twist                              | 3 wires, twisted             |
| Shielding                                  | Tinned copper braided shield |
| External sheath, color                     | black                        |
| External cable diameter D                  | 5.3 mm ±0.3 mm               |
| Minimum bending radius, fixed installation | 3 x D                        |

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## Technical data

### Cable

|                                               |                                                          |
|-----------------------------------------------|----------------------------------------------------------|
| Minimum bending radius, flexible installation | 4 x D                                                    |
| Cable weight                                  | 51 kg/km                                                 |
| Outer sheath, material                        | PE-X                                                     |
| Material conductor insulation                 | PE-X                                                     |
| Conductor material                            | Tin-plated Cu litz wires                                 |
| Conductor resistance                          | ≤ 40.1 Ω/km                                              |
| Nominal voltage, cable                        | 600 V AC (Core-ground, U <sub>0</sub> )                  |
|                                               | 1000 V AC (Core-ground, U)                               |
|                                               | ≤ 720 V AC (core-ground)                                 |
|                                               | ≤ 1200 V AC (Core-ground, U <sub>m</sub> )               |
|                                               | ≤ 900 V DC (Core-ground, V <sub>0</sub> )                |
|                                               | ≤ 1500 V DC (core-core)                                  |
| Test voltage, cable                           | 3500 V AC (50 Hz, 5 min.)                                |
|                                               | 8400 V DC (50 Hz, 5 min.)                                |
| 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)                     |
| Flame resistance                              | EN 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)     |
| Halogen-free                                  | According to EN 50267-2-1                                |
| Resistance to oil                             | according to IRM 902, 72 h at 100 °C                     |
| Other resistance                              | Resistance to fuels according to IRM 903, 168 h at 70 °C |
| Concentration of fumes                        | BS 6853 D.8.7                                            |
|                                               | EN 61034-2                                               |
|                                               | UL 1685, 12 (FT4)                                        |
| Fume corrosiveness                            | EN 50267-2-2                                             |
| Fume toxicity                                 | BS 6853 B.1                                              |
|                                               | EN 50305, 9.2                                            |
| Ambient temperature (operation)               | -50 °C ... 120 °C (cable, fixed installation)            |
|                                               | -25 °C ... 90 °C (cable, flexible installation)          |

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### Classifications

#### eCl@ss

|            |          |
|------------|----------|
| eCl@ss 4.0 | 27060306 |
| eCl@ss 4.1 | 27060306 |
| eCl@ss 5.0 | 27061801 |
| eCl@ss 5.1 | 27061801 |
| eCl@ss 6.0 | 27061801 |
| eCl@ss 7.0 | 27061801 |
| eCl@ss 8.0 | 27279218 |
| eCl@ss 9.0 | 27060311 |

#### ETIM

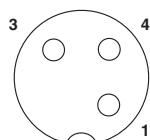
|          |          |
|----------|----------|
| ETIM 3.0 | EC001855 |
| ETIM 4.0 | EC001855 |
| ETIM 5.0 | EC001855 |

#### UNSPSC

|               |          |
|---------------|----------|
| UNSPSC 6.01   | 31251501 |
| UNSPSC 7.0901 | 31251501 |
| UNSPSC 11     | 31251501 |
| UNSPSC 12.01  | 31251501 |
| UNSPSC 13.2   | 31251501 |

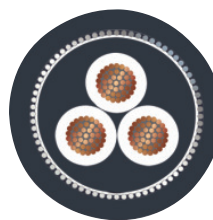
### Drawings

Schematic diagram



Pin assignment M12 socket, 3-pos., A-coded, view female side

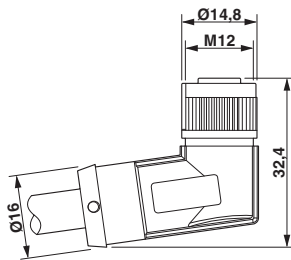
Cable cross section



Shielded black RADOX® [28R]

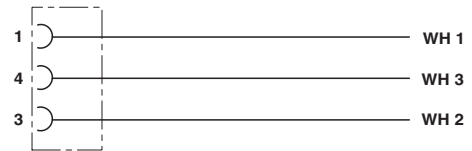
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Dimensional drawing



Socket M12-SPEEDCON, angled, shielded

Circuit diagram



Contact assignment of the M12 socket

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