

SAC-4P-M12MR/1,5-PVC/M12FR-3L - Sensor/actuator cable



1415648  
<https://www.phoenixcontact.com/us/products/1415648>

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Sensor/actuator cable, 4-position, PVC, black RAL 9005, Plug angled M12, coding: A, with 3 LEDs, on Socket angled M12, coding: A, with 3 LEDs, cable length: 1.5 m

Your advantages

- Easy and safe: 100 % electrically tested plug-in components
- Convenient: increased machine availability thanks to quick and easy diagnostics

Commercial data

|                                      |                     |
|--------------------------------------|---------------------|
| Item number                          | 1415648             |
| Packing unit                         | 1 pc                |
| Minimum order quantity               | 1 pc                |
| Sales key                            | BF03                |
| Product key                          | BF1CCA              |
| Catalog page                         | Page 196 (C-2-2019) |
| GTIN                                 | 4055626050164       |
| Weight per piece (including packing) | 72.7 g              |
| Weight per piece (excluding packing) | 72.7 g              |
| Customs tariff number                | 85444290            |
| Country of origin                    | PL                  |

# SAC-4P-M12MR/1,5-PVC/M12FR-3L - Sensor/actuator cable



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## Technical data

### Product properties

|                      |                       |
|----------------------|-----------------------|
| Product type         | Sensor/actuator cable |
| Application          | Standard              |
| Number of positions  | 4                     |
| No. of cable outlets | 1                     |
| Shielded             | no                    |
| 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                       | CuSn                                        |
| Contact surface material               | Ni/Au                                       |
| Contact carrier material               | TPU GF                                      |
| Material for screw connection          | Zinc die-cast, nickel-plated                |

### Electrical properties

|                       |                            |
|-----------------------|----------------------------|
| Insulation resistance | $\geq 100 \text{ M}\Omega$ |
| Nominal voltage $U_N$ | 24 V DC                    |
| Nominal current $I_N$ | 4 A                        |

### Mechanical properties

#### Mechanical data

|                             |            |
|-----------------------------|------------|
| Insertion/withdrawal cycles | $\geq 100$ |
|-----------------------------|------------|

### Signaling

|                        |        |
|------------------------|--------|
| Status display         | 3 LEDs |
| Status display present | Yes    |

### Connector

#### Connection 1

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

#### Connection 2

|      |                   |
|------|-------------------|
| Type | Socket angled M12 |
|------|-------------------|

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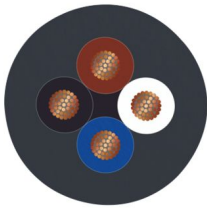
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|                     |   |
|---------------------|---|
| Number of positions | 4 |
| Coding type         | A |

## Cable/line

|              |       |
|--------------|-------|
| Cable length | 1.5 m |
|--------------|-------|

## PVC black [PVC]

|                                               |                                                                                    |
|-----------------------------------------------|------------------------------------------------------------------------------------|
| Dimensional drawing                           |  |
| Cable weight                                  | 40 kg/km                                                                           |
| UL AWM Style                                  | 2464 / 1729 (80 °C/300 V)                                                          |
| Number of positions                           | 4                                                                                  |
| Shielded                                      | no                                                                                 |
| Cable type                                    | PVC black [PVC]                                                                    |
| Conductor structure signal line               | 19x 0.15 mm                                                                        |
| AWG signal line                               | 22                                                                                 |
| Conductor cross section                       | 4x 0.34 mm² (Signal line)                                                          |
| Wire diameter incl. insulation                | 1.26 mm ±0.05 mm                                                                   |
| External cable diameter                       | 4.70 mm ±0.15 mm                                                                   |
| Outer sheath, material                        | PVC                                                                                |
| External sheath, color                        | black RAL 9005                                                                     |
| Conductor material                            | Bare Cu litz wires                                                                 |
| Material wire insulation                      | PVC                                                                                |
| Single wire, color                            | brown, white, blue, black                                                          |
| Thickness, insulation                         | ≥ 0.23 mm (Core insulation)                                                        |
| Thickness, outer sheath                       | ≥ 0.76 mm                                                                          |
| Overall twist                                 | 4 wires, twisted                                                                   |
| Max. conductor resistance                     | ≤ 57 Ω/km (at 20 °C)                                                               |
| Insulation resistance                         | ≥ 200 MΩ*km (at 20 °C)                                                             |
| Nominal voltage, cable                        | ≤ 300 V                                                                            |
| Test voltage                                  | ≥ 3000 V                                                                           |
| Minimum bending radius, fixed installation    | 5 x D                                                                              |
| Minimum bending radius, flexible installation | 10 x D                                                                             |
| Smallest bending radius, fixed installation   | 24 mm                                                                              |
| Smallest bending radius, movable installation | 47 mm                                                                              |
| Flame resistance                              | As per UL-Style 2464                                                               |
| Resistance to oil                             | according to DIN EN 60811-2-1, 168 h at 60 °C                                      |
| Ambient temperature (operation)               | -25 °C ... 80 °C (cable, fixed installation)                                       |

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|  |                                                 |
|--|-------------------------------------------------|
|  | -10 °C ... 80 °C (Cable, flexible installation) |
|--|-------------------------------------------------|

## Environmental and real-life conditions

|                                 |                                  |
|---------------------------------|----------------------------------|
| Ambient conditions              |                                  |
| Degree of protection            | IP65                             |
|                                 | IP67                             |
|                                 | IP68                             |
| Ambient temperature (operation) | -25 °C ... 90 °C (Plug / socket) |

## Standards and regulations

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

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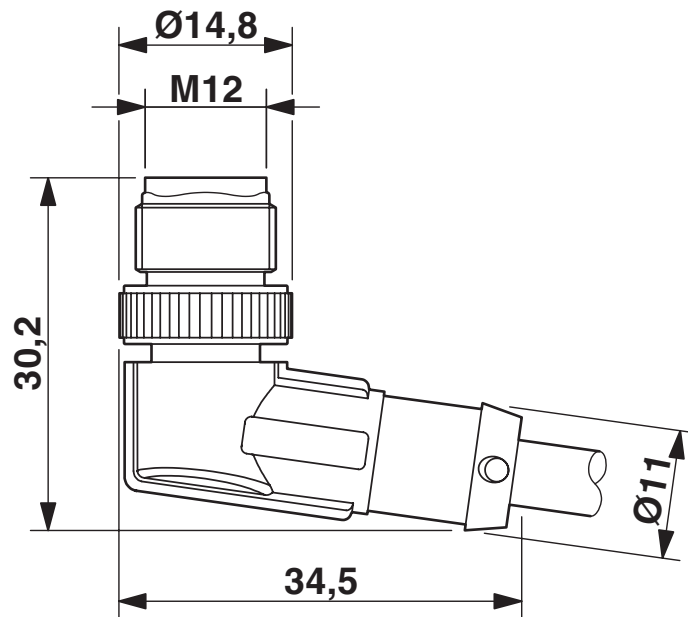


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## Drawings

Dimensional drawing



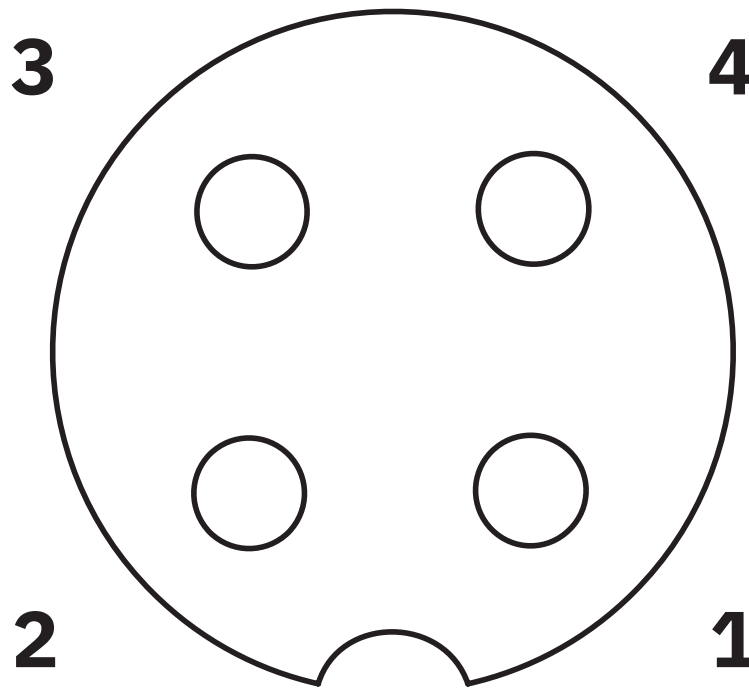
M12 x 1 male plug, angled

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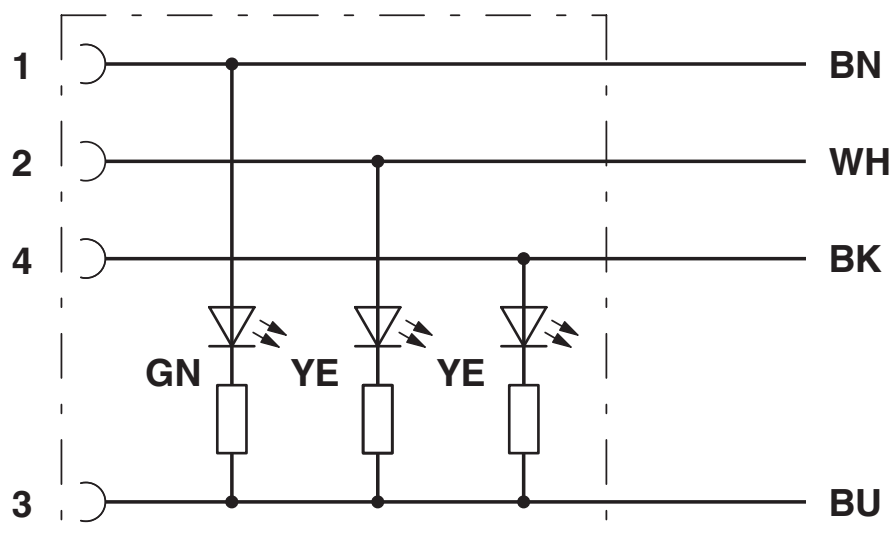
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Schematic diagram



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

Circuit diagram

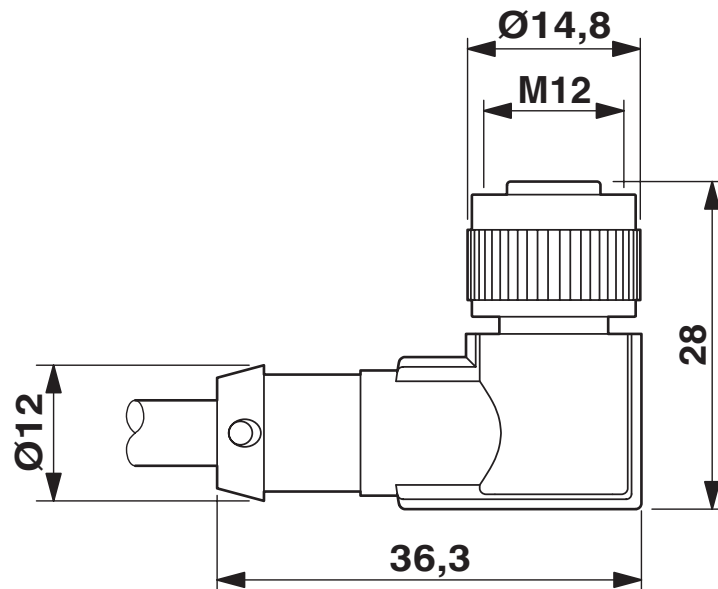


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Dimensional drawing



Socket M12 x 1, angled, with LED

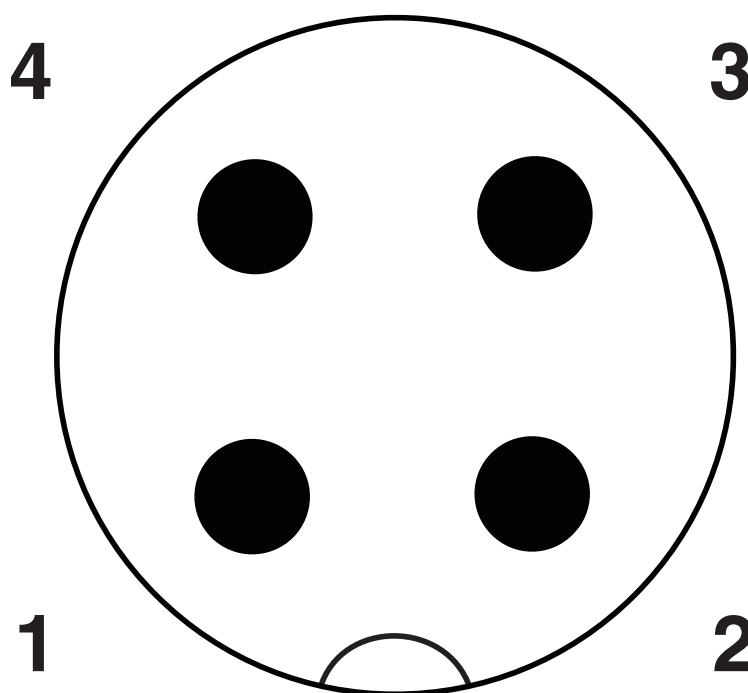
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Schematic diagram



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



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1415648>

|  |                                                |                                |                   |                               |
|--|------------------------------------------------|--------------------------------|-------------------|-------------------------------|
|  | <b>UL Listed</b><br>Approval ID: FILE E 221474 |                                |                   |                               |
|  | Nominal voltage U <sub>N</sub>                 | Nominal current I <sub>N</sub> | Cross section AWG | Cross section mm <sup>2</sup> |
|  | 24 V                                           | 4 A                            | -                 | -                             |

|  |                                                 |                                |                   |                               |
|--|-------------------------------------------------|--------------------------------|-------------------|-------------------------------|
|  | <b>cUL Listed</b><br>Approval ID: FILE E 221474 |                                |                   |                               |
|  | Nominal voltage U <sub>N</sub>                  | Nominal current I <sub>N</sub> | Cross section AWG | Cross section mm <sup>2</sup> |
|  | 24 V                                            | 4 A                            | -                 | -                             |

|  |                                                      |  |  |  |
|--|------------------------------------------------------|--|--|--|
|  | <b>EAC-RoHS</b><br>Approval ID: RU D-DE.HB35.B.00387 |  |  |  |
|  |                                                      |  |  |  |

|                     |
|---------------------|
| <b>cULus Listed</b> |
|---------------------|

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## Classifications

### ECLASS

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

### ETIM

|          |          |
|----------|----------|
| ETIM 9.0 | 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.)     | No substance above 0.1 wt%               |
| EF3.0 Climate Change                    |                                          |
| CO2e kg                                 | 0.535 kg CO2e                            |

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Phoenix Contact USA  
586 Fulling Mill Road  
Middletown, PA 17057, United States  
(+717) 944-1300  
[info@phoenixcon.com](mailto:info@phoenixcon.com)