

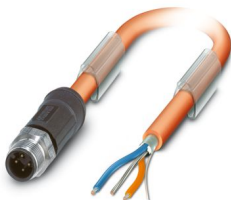
# SAC-4P-M12MS/ 5,0-960 VA - Bus system cable



1431186

<https://www.phoenixcontact.com/us/products/1431186>

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Bus system cable, FOUNDATION Fieldbus (31.25 kbps), 3-position, PVC, orange RAL 2003, shielded, Plug straight M12, coding: A, on free cable end, cable length: 5 m

## Commercial data

|                                      |               |
|--------------------------------------|---------------|
| Item number                          | 1431186       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1 pc          |
| Sales key                            | BF04          |
| Product key                          | AF1CCG        |
| GTIN                                 | 4046356431668 |
| Weight per piece (including packing) | 345.25 g      |
| Weight per piece (excluding packing) | 345.25 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         | Data cable preassembled |
| Application          | Process technology      |
| Sensor type          | FOUNDATION Fieldbus     |
| Number of positions  | 3                       |
| No. of cable outlets | 1                       |
| Shielded             | yes                     |
| Coding               | A                       |

### Insulation characteristics

|                      |    |
|----------------------|----|
| Overvoltage category | II |
| Degree of pollution  | 3  |

### Interfaces

|                      |                                 |
|----------------------|---------------------------------|
| Bus system           | FOUNDATION Fieldbus             |
| Signal type/category | FOUNDATION Fieldbus, 31.25 kbps |

### Signaling

|                        |    |
|------------------------|----|
| Status display         | no |
| Status display present | no |

### Electrical properties

|                                |            |
|--------------------------------|------------|
| Insulation resistance          | ≥ 100 MΩ   |
| Nominal voltage U <sub>N</sub> | 48 V AC    |
|                                | 60 V DC    |
| Nominal current I <sub>N</sub> | 4 A        |
| Transmission medium            | Copper     |
| Transmission speed             | 31.25 kbps |

### Mechanical properties

#### Mechanical data

|                             |       |
|-----------------------------|-------|
| Insertion/withdrawal cycles | ≥ 100 |
|-----------------------------|-------|

### Material specifications

|                                        |     |
|----------------------------------------|-----|
| Flammability rating according to UL 94 | HB  |
| Seal material                          | NBR |

### Connection data

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## Connection assignment

|                                                           |                        |
|-----------------------------------------------------------|------------------------|
| Contact   Color (signal designation)   Contact (optional) | 1 (Plug)   BU (DATA-)  |
|                                                           | 2 (Plug)   OG (DATA+)  |
|                                                           | 3 (Plug)   SR (shield) |

## Connector

### Connection 1

|                                 |                                                         |
|---------------------------------|---------------------------------------------------------|
| Type                            | Plug straight M12                                       |
| Number of positions             | 3                                                       |
| Coding type                     | A (Standard)                                            |
| Material                        | CuSn (Contact)                                          |
|                                 | Ni/Au (Contact surface)                                 |
|                                 | TPU GF (Contact carrier)                                |
|                                 | TPU, hardly inflammable, self-extinguishing (Grip body) |
| Ambient temperature (operation) | Stainless steel (Screw connection)                      |
|                                 | -25 °C ... 90 °C                                        |

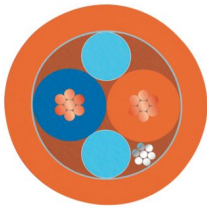
### Connection 2

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

## Cable/line

|              |     |
|--------------|-----|
| Cable length | 5 m |
|--------------|-----|

### FOUNDATION Fieldbus orange [960]

|                                 |                                                                                      |
|---------------------------------|--------------------------------------------------------------------------------------|
| Dimensional drawing             |  |
| Cable weight                    | 56.552 kg/km                                                                         |
| Number of positions             | 2                                                                                    |
| Shielded                        | yes                                                                                  |
| Cable type                      | FOUNDATION Fieldbus orange [960]                                                     |
| Conductor structure             | 2xAWG18/7 + 1xAWG20/7                                                                |
| Signal speed                    | 0.66 c                                                                               |
| Conductor structure signal line | 7x 0.40 mm                                                                           |
| AWG signal line                 | 18                                                                                   |
| Conductor cross section         | 2x 0.75 mm <sup>2</sup> (Signal line)                                                |
|                                 | 1x 0.5 mm <sup>2</sup> (Drain wire)                                                  |
| Wire diameter incl. insulation  | 2.24 mm ±0.05 mm                                                                     |
| External cable diameter         | 7.50 mm ±0.25 mm                                                                     |

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|                                             |                                                   |
|---------------------------------------------|---------------------------------------------------|
| Outer sheath, material                      | PVC                                               |
| External sheath, color                      | orange RAL 2003                                   |
| Conductor material                          | Tin-plated Cu litz wires                          |
| Material wire insulation                    | PO (Signal line)                                  |
| Single wire, color                          | blue, orange                                      |
| Thickness, insulation                       | 0.50 mm                                           |
| Thickness, outer sheath                     | 1.00 mm                                           |
| Twisted pairs                               | 2 cores to the pair                               |
| Overall twist                               | One pair with one drain wire and fillers for core |
| Optical shield covering                     | 100 %                                             |
| Max. conductor resistance                   | ≤ 19.35 Ω/km (Signal line)                        |
|                                             | 26 Ω/km (shield)                                  |
| Cable capacity                              | 147 pF/m (at 1 kHz, core/shield)                  |
|                                             | ≤ 3.94 pF/m (capacitance unbalance)               |
| Working capacitance                         | 78 nF (at 1 kHz)                                  |
| Cable impedance                             | 100 Ω ±20 % (At 31.25 kHz)                        |
| Nominal voltage, cable                      | 300 V                                             |
| Smallest bending radius, fixed installation | 75 mm                                             |
| Tensile strength                            | 260 N                                             |
| Shield attenuation                          | 3.00 dB/km (at 39 kHz)                            |
| Flame resistance                            | UL 1685 (CSA FT 4)                                |
|                                             | UL 1685 (vertical tray)                           |
|                                             | UL 1666 (riser)                                   |
| Special properties                          | UL standards PLTC-ER and ITC                      |
| Ambient temperature (operation)             | -40 °C ... 105 °C (cable, fixed installation)     |

## Environmental and real-life conditions

### Ambient conditions

|                      |       |
|----------------------|-------|
| Degree of protection | IP65  |
|                      | IP67  |
|                      | IP68  |
|                      | IP69K |

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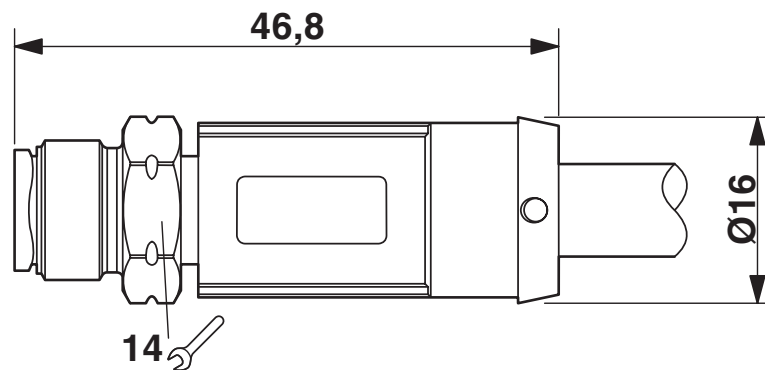


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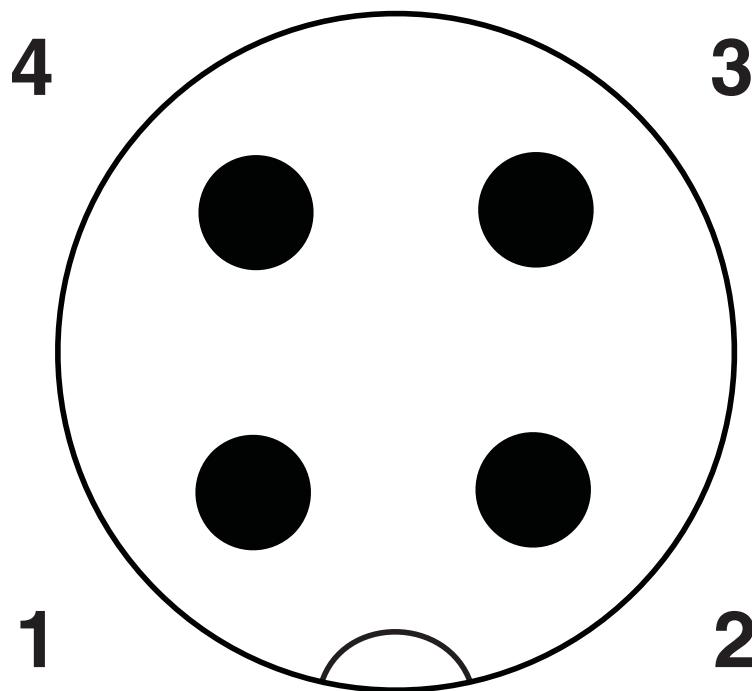
## Drawings

Dimensional drawing



Plug, M12 x 1, straight, shielded

Schematic diagram



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

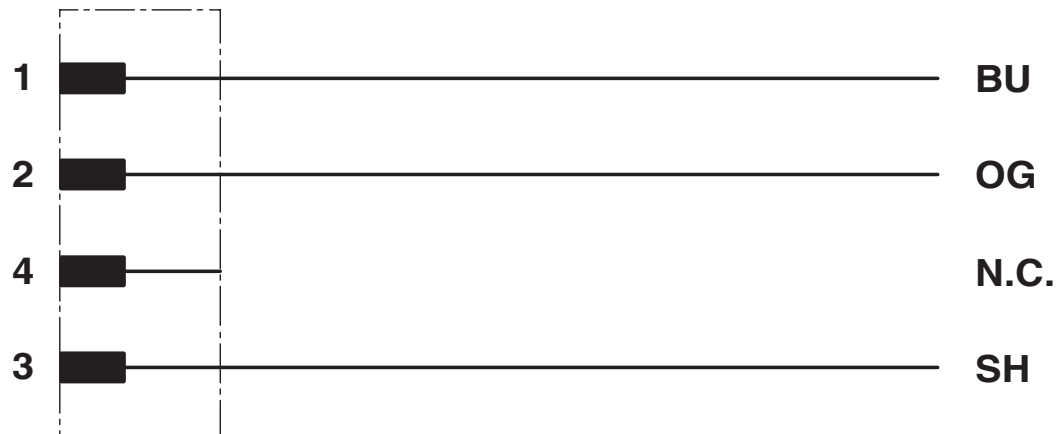
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Circuit diagram



Contact assignment of the M12 plug

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## Approvals

 To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1431186>



**EAC-RoHS**

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



**cULus Listed**

Approval ID: E221474

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-13.0 | 27060307 |
| ECLASS-15.0 | 27060307 |

### 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% |
|-------------------------------------|----------------------------|

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