

SAC-3P-M12MS/ 2,0-961/M12FS VA - Bus system cable



1419105  
<https://www.phoenixcontact.com/us/products/1419105>

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Bus system cable, PROFIBUS PA (31.25 kbps), 3-position, PVC, blue RAL 5015, shielded (Plastic-coated aluminum foil with a drain wire), Plug straight M12, coding: A, on Socket straight M12, coding: A, cable length: 2 m, For Ex area with high-grade steel knurl

Commercial data

|                                      |                     |
|--------------------------------------|---------------------|
| Item number                          | 1419105             |
| Packing unit                         | 1 pc                |
| Minimum order quantity               | 1 pc                |
| Sales key                            | BF04                |
| Product key                          | BF1CCG              |
| Catalog page                         | Page 430 (C-2-2019) |
| GTIN                                 | 4046356541725       |
| Weight per piece (including packing) | 165.4 g             |
| Weight per piece (excluding packing) | 169.4 g             |
| Customs tariff number                | 85444290            |
| Country of origin                    | PL                  |

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## Technical data

### Notes

|         |                                                                                                                   |
|---------|-------------------------------------------------------------------------------------------------------------------|
| General | For applications in circuits of intrinsic safety protection type "i".<br>Electrical values following EN 60079-14. |
|---------|-------------------------------------------------------------------------------------------------------------------|

### Product properties

|                      |                         |
|----------------------|-------------------------|
| Product type         | Data cable preassembled |
| Application          | Process technology      |
| Sensor type          | PROFIBUS PA             |
| 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           | PROFIBUS PA             |
| Signal type/category | PROFIBUS PA, 31.25 kbps |

### Signaling

|                        |    |
|------------------------|----|
| Status display         | No |
| Status display present | No |

### Electrical properties

|                       |         |
|-----------------------|---------|
| Nominal voltage $U_N$ | 48 V AC |
|                       | 60 V DC |
| Nominal current $I_N$ | 4 A     |
| Transmission medium   | Copper  |

### Mechanical properties

#### Mechanical data

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

### Material specifications

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

### Connection data

#### Pin assignment

1 (Plug) | OG (DATA+) | 1 (Socket)

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|                                                           |                                     |
|-----------------------------------------------------------|-------------------------------------|
| Contact   Color (signal designation)   Contact (optional) | 3 (Plug)   BU (DATA-)   3 (Socket)  |
|                                                           | 4 (Plug)   SR (shield)   4 (Socket) |

## 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 carriers)                          |
|                                 | TPU, hardly inflammable, self-extinguishing (Grip) |
|                                 | Stainless steel (Screw connection)                 |
| Ambient temperature (operation) | -25 °C ... 90 °C                                   |

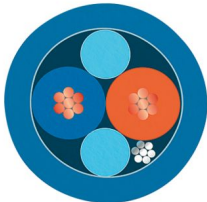
### Connection 2

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

## Cable/line

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

### Fieldbus FOUNDATION/PROFIBUS PA, blue [961]

|                     |                                                                                      |
|---------------------|--------------------------------------------------------------------------------------|
| Dimensional drawing |  |
| Cable weight        | 56.552 kg/km                                                                         |
| Number of positions | 2                                                                                    |
| Shielded            | yes                                                                                  |
| Cable type          | Fieldbus FOUNDATION/PROFIBUS PA, blue [961]                                          |
| Conductor structure | 2xAWG18/7 + 1xAWG20/7                                                                |
| Signal speed        | 0.66 c                                                                               |

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|                                             |                                                   |
|---------------------------------------------|---------------------------------------------------|
| 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                                  |
| Outer sheath, material                      | PVC                                               |
| External sheath, color                      | blue RAL 5015                                     |
| 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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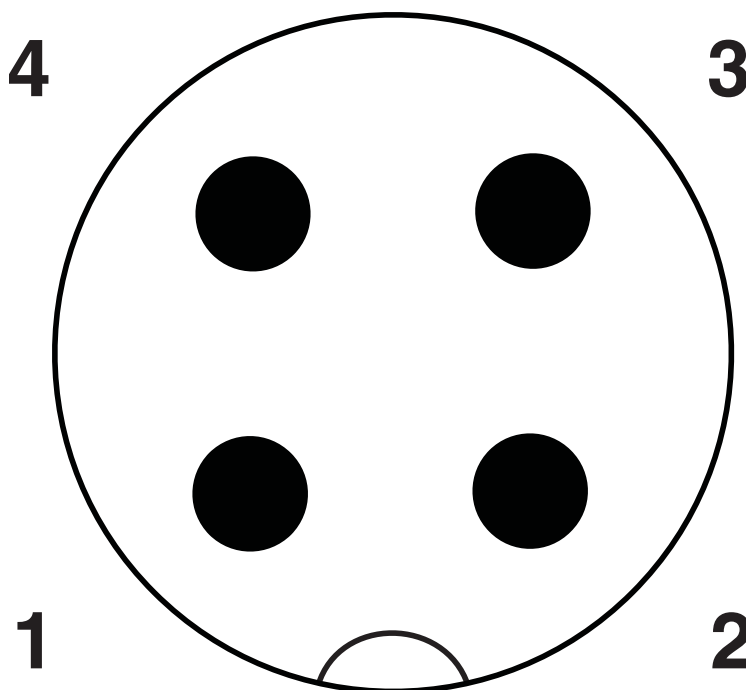


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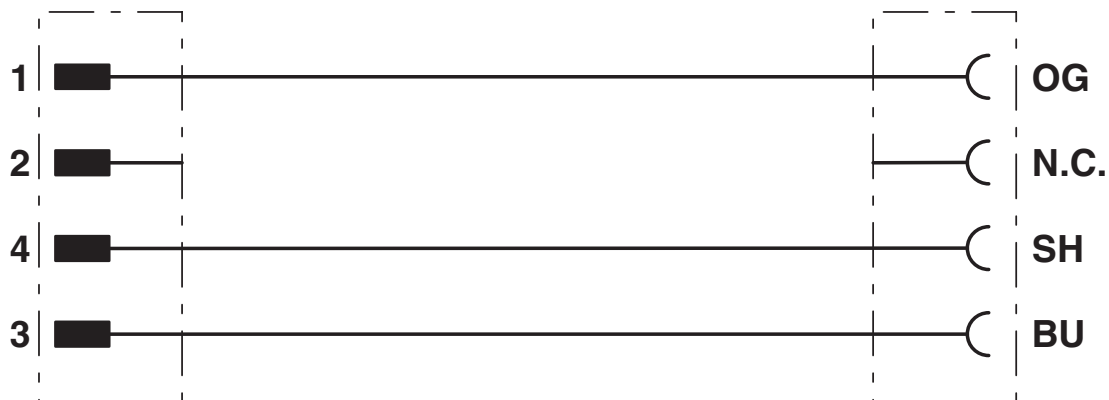
## Drawings

Schematic diagram



Pin assignment M12 plug, 3-pos., A-coded, view male side

Circuit diagram

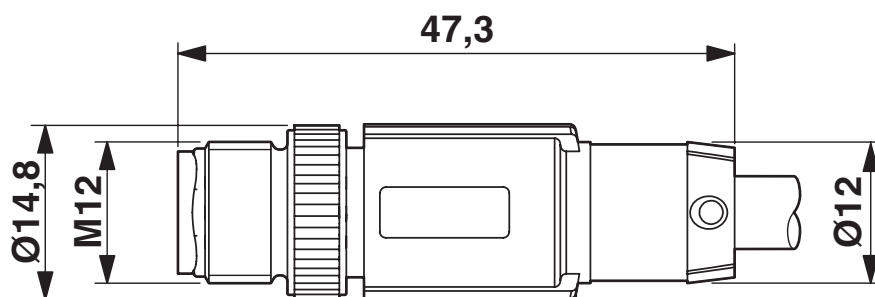


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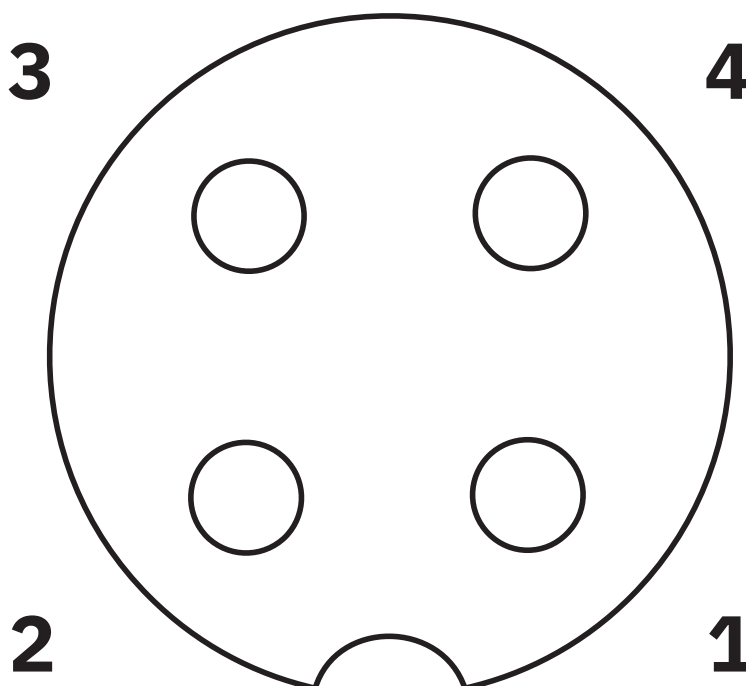
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Dimensional drawing



Plug, M12 x 1, straight, shielded

Schematic diagram



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

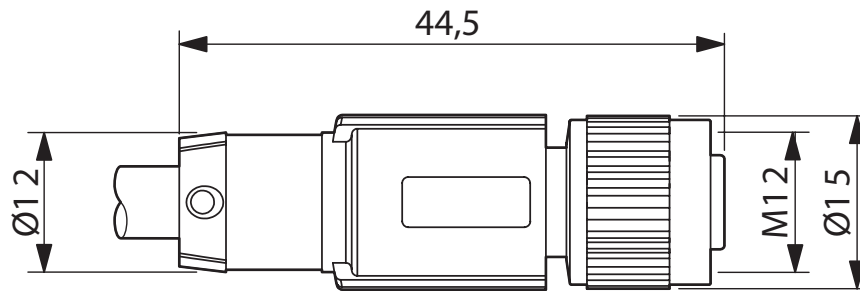
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Dimensional drawing



M12 x 1 socket, straight

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## Approvals

 To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1419105>



**EAC-RoHS**

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



**cULus Listed**

Approval ID: E221474

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-11.0 | 27060307 |
| ECLASS-12.0 | 27060307 |
| ECLASS-13.0 | 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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## Accessories

### TSD 04 SAC - Torque screwdriver

1208429

<https://www.phoenixcontact.com/us/products/1208429>



Torque screwdriver, with preset torque of 0.4 Nm and 4 mm hexagonal drive for M12 connectors

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### TSD-M 1,2NM - Torque screwdriver

1212224

<https://www.phoenixcontact.com/us/products/1212224>



Torque screw driver, accuracy as per EN ISO 6789 standard, adjustable from 0.3 - 1.2 Nm

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## TSD-M SAC-BIT ADAPTER - Adapter insert

1212600

<https://www.phoenixcontact.com/us/products/1212600>



Adapter bit for TSD-M...torque tools, E6.3-1/4" drive with 4 mm hexagon to accommodate SAC bits

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## SAC BIT M12-W14 - Tool

1212513

<https://www.phoenixcontact.com/us/products/1212513>



Nut for assembling sensor/actuator cables with M12 connector and M12 connectors for assembly, with a hexagonal knurl wrench size of 14 mm, with 4 mm hexagonal drive

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