

# SAC-3P-M12MR/ 2,0-961/M12FS VA - Bus system cable



1419113

<https://www.phoenixcontact.com/us/products/1419113>

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Bus system cable, PROFIBUS PA (31.25 kbps), 3-position, PVC, blue RAL 5015, shielded, Plug angled 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                          | 1419113       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1 pc          |
| Sales key                            | BF04          |
| Product key                          | AF1CCG        |
| GTIN                                 | 4046356541800 |
| Weight per piece (including packing) | 222.22 g      |
| Weight per piece (excluding packing) | 222.22 g      |
| Customs tariff number                | 85444290      |
| Country of origin                    | PL            |

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## Technical data

### Product properties

|                      |                         |
|----------------------|-------------------------|
| Product type         | Data cable preassembled |
| Application          | Process technology      |
| 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     |
| Transmission speed    | 31.25 kbps |

### Mechanical properties

#### Mechanical data

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

### Material specifications

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

### Connection data

#### Connection assignment

|   |                                     |
|---|-------------------------------------|
| Contact   Color (signal designation)   Contact (optional) | 1 (Plug)   OG (DATA+)   1 (Socket)  |
|   | 3 (Plug)   BU (DATA-)   3 (Socket)  |
|   | 4 (Plug)   SR (shield)   4 (Socket) |

### Connector

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## Connection 1

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

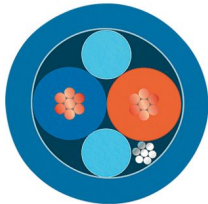
## Connection 2

|                                 |  |
|---------------------------------|--|
| Type                            | Socket straight M12  |
| Number of positions             | 3  |
| Coding type                     | A (Standard)   |
| Material                        | CuSn (Contact)<br>Ni/Au (Contact surface)<br>TPU GF (Contact carrier)<br>TPU, hardly inflammable, self-extinguishing (Grip body)<br>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   |
| Conductor structure signal line | 7x 0.40 mm   |
| AWG signal line                 | 18   |
| Conductor cross-section         | 2x 0.75 mm <sup>2</sup> (Signal line)<br>1x 0.5 mm <sup>2</sup> (Drain wire)         |

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|   |   |
|---|---|
| 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)<br>26 Ω/km (shield)                          |
| Cable capacity                              | 147 pF/m (at 1 kHz, core/shield)<br>≤ 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)<br>UL 1685 (vertical tray)<br>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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## Drawings

Dimensional drawing



M12 x 1 male plug, angled

Dimensional drawing



M12 x 1 socket, straight

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Schematic diagram



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

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Schematic diagram



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

Circuit diagram



Contact assignment of the M12 connector and the M12 socket

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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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