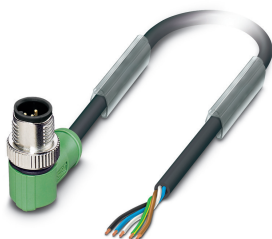


## Sensor/actuator cable - SAC-5P-MR SCO/.../... - 1523612

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Sensor/actuator cable, 5-position, Variable cable type, Plug angled M12 SPEEDCON, coding: A, on free cable end, cable length: Free input (0.2 ... 40.0 m)

### Your advantages

- ✓ Easy and safe: 100% electrically tested plug-in components
- ✓ Save time, thanks to installation with SPEEDCON fast locking system
- ✓ Flexible solutions - configurable materials with variable cable types and cable lengths



### Key Commercial Data

|                        |       |
|------------------------|-------|
| Packing unit           | 1 pc  |
| Minimum order quantity | 25 pc |

### Technical data

#### Dimensions

|  |                             |
|--|-----------------------------|
| Length of cable                            | Free input (0.2 ... 40.0 m) |
| Stripping length of the free conductor end | 50 mm                       |

#### Ambient conditions

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

#### General

|                       |              |
|-----------------------|--------------|
| Rated current at 40°C | 4 A          |
| Rated voltage         | 48 V AC      |
|                       | 60 V DC      |
| Number of positions   | 5            |
| Insulation resistance | ≥ 100 MΩ     |
| Coding                | A - standard |

# Sensor/actuator cable - SAC-5P-MR SCO/.../... - 1523612

## Technical data

### General

|                              |                               |
|------------------------------|-------------------------------|
| Standards/regulations        | M12 connector IEC 61076-2-101 |
| 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 | HB  |
| Contact material                       | CuSn  |
| Contact surface material               | Ni/Au                                       |
| Contact carrier material               | TPU GF                                      |
| Material of grip body                  | TPU, hardly inflammable, self-extinguishing |
| Material, knurls                       | Zinc die-cast, nickel-plated                |

### Line characteristics

|      |   |
|------|---|
| Note | This item is a sensor/actuator cable with a freely selectable cable type. The technical data for all possible cable types is listed in the table below. |
|------|---|

### Standards and Regulations

|  |                               |
|--|-------------------------------|
| Standards/specifications               | M12 connector IEC 61076-2-101 |
| Flammability rating according to UL 94 | HB                            |

### PUR/PVC gray [100]

|   |   |
|---|---|
| Cable type                                    | PUR/PVC gray                            |
| Cable type (abbreviation)                     | 100                                     |
| Cable abbreviation                            | LiYY-11Y                                |
| Conductor cross section                       | 0.34 mm <sup>2</sup>                    |
| AWG signal line                               | 22                                      |
| Conductor structure signal line               | 42x 0.10 mm                             |
| Core diameter including insulation            | 1.5 mm ±0.05 mm                         |
| Thickness, insulation                         | ≥ 0.3 mm (Core insulation)              |
|   | ≥ 0.38 mm (Outer cable sheath)          |
|   | approx. 0.35 mm (Inner sheath)          |
| Wire colors                                   | brown, white, blue, black, green-yellow |
| Overall twist                                 | 5 wires around filler to the core       |
| External sheath, color                        | gray RAL 7001                           |
| External cable diameter D                     | 5.9 mm ±0.2 mm                          |
| Smallest bending radius, fixed installation   | 29.5 mm                                 |
| Smallest bending radius, movable installation | 59 mm                                   |
| Number of bending cycles                      | 2000000                                 |
| Bending radius                                | 59 mm                                   |

## Sensor/actuator cable - SAC-5P-MR SCO/.../... - 1523612

### Technical data

#### PUR/PVC gray [100]

|                                 |  |
|---------------------------------|--|
| Traversing path                 | 5 m  |
| Traversing rate                 | 3 m/s  |
| Cable weight                    | 50 kg/km                                       |
| Outer sheath, material          | PUR  |
| Material, inner sheath          | PVC  |
| Material, filler                | PVC  |
| Material conductor insulation   | PVC  |
| Conductor material              | Bare Cu litz wires                             |
| Insulation resistance           | ≥ 100 MΩ*km (at 20 °C)                         |
| Conductor resistance            | max. 58 Ω/km (at 20 °C)                        |
| Nominal voltage, cable          | ≤ 300 V  |
| Test voltage, cable             | ≥ 3000 V                                       |
| Flame resistance                | As per UL-Style 2464                           |
| Ambient temperature (operation) | -25 °C ... 80 °C (cable, fixed installation)   |
|                                 | -5 °C ... 80 °C (cable, flexible installation) |

#### PUR, black, 5th conductor gray [115]

|   |                                 |
|---|---------------------------------|
| Cable type                                    | PUR, black, 5th conductor gray  |
| Cable type (abbreviation)                     | 115                             |
| Cable abbreviation                            | Li9Y11Y-HF                      |
| UL AWM style                                  | 20549 / 10493 (80°C/300 V)      |
| Conductor cross section                       | 5x 0.34 mm <sup>2</sup>         |
| AWG signal line                               | 22                              |
| Conductor structure signal line               | 42x 0.10 mm                     |
| Core diameter including insulation            | 1.27 mm ±0.02 mm                |
| Thickness, insulation                         | ≥ 0.21 mm                       |
| Wire colors                                   | Brown, white, blue, black, gray |
| Overall twist                                 | 5 cores, twisted                |
| External sheath, color                        | black-gray RAL 7021             |
| Outer sheath thickness                        | approx. 0.7 mm                  |
| External cable diameter D                     | 5 mm ±0.15 mm                   |
| Minimum bending radius, fixed installation    | 5 x D                           |
| Minimum bending radius, flexible installation | 10 x D                          |
| Number of bending cycles                      | 4000000                         |
| Bending radius                                | 50 mm                           |
| Traversing path                               | 10 m                            |
| Traversing rate                               | 3 m/s                           |
| Acceleration                                  | 10 m/s <sup>2</sup>             |
| Cable weight                                  | 35 kg/km                        |
| Outer sheath, material                        | PUR                             |
| Material, filler                              | PP                              |

## Sensor/actuator cable - SAC-5P-MR SCO/.../... - 1523612

### Technical data

PUR, black, 5th conductor gray [115]

|                                 |   |
|---------------------------------|---|
| Material conductor insulation   | PP  |
| Conductor material              | Bare Cu litz wires  |
| Conductor resistance            | ≤ 58 Ω/km   |
| Nominal voltage, cable          | ≤ 300 V   |
| Test voltage, cable             | ≥ 3000 V  |
| Special properties              | Flexible cable conduit capable                                      |
|                                 | Silicone-free   |
|                                 | Free of substances which would hinder coating with paint or varnish |
|                                 | flexible  |
| Other resistance                | partly UV-resistant in accordance with DIN EN ISO 4892-2-A          |
|                                 | hydrolysis and microbe resistant                                    |
|                                 | Resistant to salt water   |
|                                 | Low adhesion  |
|                                 | abrasion-resistant  |
| Flame resistance                | in accordance with DIN UL-Style 20549                               |
|                                 | in accordance with UL 758/1581 FT2                                  |
| Halogen-free                    | in accordance with DIN VDE 0472 part 815                            |
| Resistance to oil               | in accordance with DIN EN 60811-2-1                                 |
| Ambient temperature (operation) | -40 °C ... 80 °C (cable, fixed installation)                        |
|                                 | -25 °C ... 80 °C (cable, flexible installation)                     |

PUR halogen-free yellow [240]

|   |   |
|---|---|
| Cable type                                      | PUR halogen-free yellow                 |
| Cable type (abbreviation)                       | 240                                     |
| Cable abbreviation                              | Li9Y11Y                                 |
| UL AWM style                                    | 20549 / 10493 (80°C/300 V)              |
| Conductor cross section                         | 5x 0.34 mm <sup>2</sup>                 |
| AWG signal line                                 | 22                                      |
| Conductor structure signal line                 | 42x 0.10 mm                             |
| Core diameter including insulation              | 1.27 mm ±0.02 mm                        |
| Thickness, insulation                           | ≥ 0.21 mm                               |
| Wire colors                                     | brown, white, blue, black, green-yellow |
| Overall twist                                   | 5 wires around filler to the core       |
| Length of twist, overall twist                  | 55 mm                                   |
| External sheath, color                          | yellow                                  |
| Outer sheath thickness                          | approx. 0.7 mm                          |
| External cable diameter D                       | 5 mm ±0.15 mm                           |
| Minimum bending radius, fixed installation      | 5 x D                                   |
| Minimum bending radius, flexible installation   | 10 x D                                  |
| Number of bending cycles                        | 4000000                                 |
| Minimum bending radius, drag chain applications | 10 x D                                  |

## Sensor/actuator cable - SAC-5P-MR SCO/.../... - 1523612

### Technical data

#### PUR halogen-free yellow [240]

|                                 |   |
|---------------------------------|---|
| Traversing path                 | 10 m  |
| Traversing rate                 | 3 m/s   |
| Acceleration                    | 10 m/s <sup>2</sup>                             |
| Cable weight                    | 35 kg/km  |
| Outer sheath, material          | PUR   |
| Material conductor insulation   | PP  |
| Conductor material              | Bare Cu litz wires                              |
| Conductor resistance            | ≤ 58 Ω/km (at 20 °C)                            |
| Nominal voltage, cable          | ≤ 300 V   |
| Test voltage, cable             | ≥ 3000 V  |
| Other resistance                | hydrolysis and microbe resistant                |
|                                 | Resistant to salt water                         |
| Flame resistance                | in accordance with DIN UL-Style 20549           |
|                                 | in accordance with UL 758/1581 FT2              |
| Halogen-free                    | in accordance with DIN VDE 0472 part 815        |
| Resistance to oil               | in accordance with DIN EN 60811-2-1             |
| Ambient temperature (operation) | -40 °C ... 80 °C (cable, fixed installation)    |
|                                 | -25 °C ... 80 °C (cable, flexible installation) |

#### PUR irradiated halogen-free orange [150]

|   |   |
|---|---|
| Cable type                                    | PUR irradiated halogen-free orange      |
| Cable type (abbreviation)                     | 150                                     |
| Cable abbreviation                            | D12YSL11X-JB                            |
| Conductor cross section                       | 4x 0.34 mm <sup>2</sup> (Signal line)   |
|   | 1x 0.5 mm <sup>2</sup> (PE connection)  |
| AWG signal line                               | 22                                      |
| AWG power supply                              | 20                                      |
| Conductor structure signal line               | 42x 0.10 mm                             |
| Conductor structure, voltage supply           | 24x 0.15 mm                             |
| Wire colors                                   | Brown, blue, black, white, green/yellow |
| Overall twist                                 | 5 cores, twisted                        |
| External sheath, color                        | orange RAL 2003                         |
| External cable diameter D                     | 5.2 mm ±0.2 mm                          |
| Smallest bending radius, fixed installation   | min. 20 mm                              |
| Smallest bending radius, movable installation | min. 30 mm                              |
| Number of bending cycles                      | 5000000                                 |
| Bending radius                                | 52 mm                                   |
| Traversing path                               | 10 m                                    |
| Traversing rate                               | 3 m/s                                   |
| Outer sheath, material                        | PUR                                     |
| Material conductor insulation                 | PE                                      |

## Sensor/actuator cable - SAC-5P-MR SCO/.../... - 1523612

### Technical data

#### PUR irradiated halogen-free orange [150]

|                                 |   |
|---------------------------------|---|
| Conductor material              | Bare Cu litz wires  |
| Conductor resistance            | ≤ 57.5 Ω/km (with 0.34 mm <sup>2</sup> conductor cross section) |
|                                 | ≤ 39 Ω/km (with 0.5 mm <sup>2</sup> conductor cross section)    |
| Nominal voltage, cable          | 250 V (AC)  |
| Test voltage, cable             | 2000 V (50 Hz, 5 minutes)                                       |
| Special properties              | Silicone-free   |
|                                 | Irradiated  |
| Other resistance                | hydrolysis and microbe resistant                                |
|                                 | UV resistant  |
|                                 | Resistant to welding splashes                                   |
| Flame resistance                | DIN VDE 0472 part 804, test type B                              |
| Halogen-free                    | The cable is halogen-free                                       |
| Ambient temperature (operation) | -50 °C ... 105 °C (cable, fixed installation)                   |
|                                 | -40 °C ... 105 °C (cable, flexible installation)                |

#### PUR halogen-free orange [180]

|                                     |   |
|-------------------------------------|---|
| Cable type                          | PUR halogen-free orange                 |
| Cable type (abbreviation)           | 180                                     |
| Cable abbreviation                  | Li9YLi9Y-11Y                            |
| UL AWM style                        | 20549                                   |
| Conductor cross section             | 4x 0.34 mm <sup>2</sup> (Signal line)   |
|                                     | 1x 0.5 mm <sup>2</sup> (PE connection)  |
| AWG signal line                     | 22                                      |
| AWG power supply                    | 20                                      |
| Conductor structure signal line     | 42x 0.10 mm                             |
| Conductor structure, voltage supply | 28x 0.15 mm                             |
| Core diameter including insulation  | 1.27 mm ±0.02 mm (Signal line)          |
|                                     | 1.46 mm ±0.02 mm (PE connection)        |
| Thickness, insulation               | ≥ 0.21 mm (Signal line)                 |
|                                     | ≥ 0.21 mm (PE connection)               |
|                                     | approx. 0.65 mm (Outer cable sheath)    |
| Wire colors                         | brown, white, blue, black, green-yellow |
| Overall twist                       | 5 wires around filler to the core       |
| External sheath, color              | orange RAL 2003                         |
| External cable diameter D           | 5 mm ±0.15 mm                           |
| Cable weight                        | 36 kg/km                                |
| Outer sheath, material              | PUR                                     |
| Material conductor insulation       | PP                                      |
| Conductor material                  | Bare Cu litz wires                      |
| Insulation resistance               | ≥ 10 GΩ*km (at 20 °C)                   |
| Conductor resistance                | ≤ 58 Ω/km (Signal line)                 |

## Sensor/actuator cable - SAC-5P-MR SCO/.../... - 1523612

### Technical data

#### PUR halogen-free orange [180]

|                                 |  |
|---------------------------------|--|
|                                 | ≤ 39 Ω/km (PE connection)                |
| Nominal voltage, cable          | ≤ 300 V                                  |
| Test voltage, cable             | ≥ 3000 V                                 |
| Flame resistance                | in accordance with DIN UL-Style 20549    |
| Halogen-free                    | in accordance with DIN VDE 0472 part 815 |
| Ambient temperature (operation) | -25 °C ... 80 °C (Cable)                 |

#### PUR POWER 0.75 mm<sup>2</sup> black [186]

|   |  |
|---|--|
| Cable type                                    | PUR POWER 0.75 mm <sup>2</sup> black           |
| Cable type (abbreviation)                     | 186  |
| Cable abbreviation                            | LiY11Y   |
| Conductor cross section                       | 5x 0.75 mm <sup>2</sup> (power line)           |
| AWG signal line                               | 18   |
| Conductor structure signal line               | 42x 0.15 mm                                    |
| Core diameter including insulation            | 1.7 mm ±0.05 mm                                |
| Thickness, insulation                         | ≥ 0.23 mm (Core insulation)                    |
|   | ≥ 0.76 mm (Outer cable sheath)                 |
| Wire colors                                   | Brown, white, blue, black, gray                |
| Overall twist                                 | 5 wires around filler to the core              |
| External sheath, color                        | black-gray RAL 7021                            |
| External cable diameter D                     | 6.3 mm ±0.2 mm                                 |
| Smallest bending radius, movable installation | 63 mm  |
| Number of bending cycles                      | 2000000  |
| Bending radius                                | 63 mm  |
| Traversing path                               | 5 m  |
| Traversing rate                               | 3 m/s  |
| Acceleration                                  | 5 m/s <sup>2</sup>                             |
| Cable weight                                  | 67 kg/km                                       |
| Outer sheath, material                        | PUR  |
| Material conductor insulation                 | PVC  |
| Conductor material                            | Bare Cu litz wires                             |
| Insulation resistance                         | ≥ 1 MΩ*km (at 20 °C)                           |
| Conductor resistance                          | max. 26 Ω/km (at 20 °C)                        |
| Nominal voltage, cable                        | ≤ 300 V  |
| Test voltage, cable                           | ≥ 3000 V                                       |
| Flame resistance                              | in accordance with DIN UL-Style 20549          |
| Ambient temperature (operation)               | -25 °C ... 80 °C (cable, fixed installation)   |
|   | -5 °C ... 80 °C (cable, flexible installation) |

#### PUR halogen-free gray [280]

|                           |                       |
|---------------------------|-----------------------|
| Cable type                | PUR halogen-free gray |
| Cable type (abbreviation) | 280                   |

## Sensor/actuator cable - SAC-5P-MR SCO/.../... - 1523612

### Technical data

#### PUR halogen-free gray [280]

|                                     |  |
|-------------------------------------|--|
| Conductor cross section             | 0.34 mm <sup>2</sup>                           |
| AWG signal line                     | 22   |
| AWG power supply                    | 20   |
| Conductor structure signal line     | 42x 0.10 mm                                    |
| Conductor structure, voltage supply | 28x 0.15 mm                                    |
| Core diameter including insulation  | 1.55 mm (Signal line)                          |
|                                     | 1.65 mm (Protective conductor)                 |
| Thickness, insulation               | 0.39 mm (Signal line)                          |
|                                     | 0.37 mm (Protective conductor)                 |
|                                     | 0.65 mm (Outer cable sheath)                   |
| Wire colors                         | brown, white, blue, black, green-yellow        |
| Overall twist                       | 5 wires around filler to the core              |
| External sheath, color              | gray RAL 7001                                  |
| External cable diameter             | 5.20 mm  |
| Outer sheath, material              | PUR  |
| Material, filler                    | Fiberglass                                     |
| Material conductor insulation       | TPE  |
| Conductor material                  | Bare Cu litz wires                             |
| Ambient temperature (operation)     | -40 °C ... 80 °C (cable, fixed installation)   |
|                                     | -5 °C ... 80 °C (cable, flexible installation) |

#### PVC gray [500]

|                                    |   |
|------------------------------------|---|
| Cable type                         | PVC gray                                |
| Cable type (abbreviation)          | 500                                     |
| Cable abbreviation                 | LiYY                                    |
| Conductor cross section            | 0.34 mm <sup>2</sup>                    |
| AWG signal line                    | 22                                      |
| Conductor structure signal line    | 42x 0.10 mm                             |
| Core diameter including insulation | 1.45 mm ±0.02 mm                        |
| Thickness, insulation              | ≥ 0.23 mm (Core insulation)             |
|                                    | ≥ 0.76 mm (Outer cable sheath)          |
| Wire colors                        | brown, white, blue, black, green-yellow |
| Overall twist                      | 5 wires around filler to the core       |
| External sheath, color             | gray RAL 7001                           |
| External cable diameter D          | 5.9 mm ±0.15 mm                         |
| Cable weight                       | 51 kg/km                                |
| Outer sheath, material             | PVC                                     |
| Material, filler                   | PVC                                     |
| Material conductor insulation      | PVC                                     |
| Conductor material                 | Bare Cu litz wires                      |
| Insulation resistance              | ≥ 1 GΩ*km (at 20 °C)                    |



## Sensor/actuator cable - SAC-5P-MR SCO/.../... - 1523612

### Technical data

#### PVC gray [500]

|                                 |   |
|---------------------------------|---|
| Conductor resistance            | max. 58 Ω/km (at 20 °C)                         |
| Nominal voltage, cable          | ≤ 300 V (AC)                                    |
| Test voltage, cable             | ≥ 3000 V (AC)                                   |
| Flame resistance                | As per UL-Style 2464                            |
|                                 | according to UL 758/1581 FT1                    |
| Resistance to oil               | in accordance with DIN EN 60811-2-1             |
| Ambient temperature (operation) | -40 °C ... 80 °C (cable, fixed installation)    |
|                                 | -25 °C ... 80 °C (cable, flexible installation) |

#### PVC black 5th conductor gray [515]

|   |   |
|---|---|
| Cable abbreviation                            | LiYY  |
| UL AWM style                                  | 2464 / 1729 (80°C/300 V)                        |
| Conductor cross section                       | 5x 0.34 mm <sup>2</sup> (Signal line)           |
| AWG signal line                               | 22  |
| Conductor structure signal line               | 42x 0.10 mm                                     |
| Core diameter including insulation            | 1.45 mm ±0.02 mm                                |
| Thickness, insulation                         | ≥ 0.23 mm (Core insulation)                     |
|   | ≥ 0.76 mm (Outer cable sheath)                  |
| Wire colors                                   | Brown, white, blue, black, gray                 |
| Overall twist                                 | 5 wires around filler to the core               |
| Length of twist, overall twist                | 60 mm   |
| External sheath, color                        | black RAL 9005                                  |
| External cable diameter D                     | 5.9 mm ±0.15 mm                                 |
| Minimum bending radius, fixed installation    | 5 x D   |
| Minimum bending radius, flexible installation | 10 x D  |
| Cable weight                                  | 52 kg/km  |
| Outer sheath, material                        | PVC   |
| Material, filler                              | PP yarn   |
| Material conductor insulation                 | PVC   |
| Conductor material                            | Bare Cu litz wires                              |
| Insulation resistance                         | ≥ 100 MΩ*km (at 20 °C)                          |
| Conductor resistance                          | ≤ 58 Ω/km (at 20 °C)                            |
| Nominal voltage, cable                        | ≤ 300 V AC                                      |
| Test voltage, cable                           | ≥ 3000 V AC                                     |
| Flame resistance                              | According to UL 758/1581 (Cable Flame)          |
|   | according to UL 758/1581 FT1                    |
|   | According to DIN EN 60332-1-2 (60 s)            |
| Resistance to oil                             | according to DIN EN 60811-2-1, 168 h at 60 °C   |
| Ambient temperature (operation)               | -40 °C ... 80 °C (cable, fixed installation)    |
|   | -25 °C ... 80 °C (cable, flexible installation) |

#### PVC gray 5th conductor gray [520]

## Sensor/actuator cable - SAC-5P-MR SCO/.../... - 1523612

### Technical data

#### PVC gray 5th conductor gray [520]

|                                    |  |
|------------------------------------|--|
| Cable abbreviation                 | LiYY   |
| Conductor cross section            | 0.34 mm <sup>2</sup>                           |
| AWG signal line                    | 22   |
| Conductor structure signal line    | 42x 0.10 mm                                    |
| Core diameter including insulation | 1.45 mm ±0.02 mm                               |
| Thickness, insulation              | ≥ 0.23 mm (Core insulation)                    |
|                                    | ≥ 0.76 mm (Outer cable sheath)                 |
| Wire colors                        | Brown, white, blue, black, gray                |
| Overall twist                      | 5 wires around filler to the core              |
| Length of twist, overall twist     | 55 mm  |
| External sheath, color             | gray RAL 7001                                  |
| External cable diameter D          | 5.9 mm ±0.15 mm                                |
| Cable weight                       | 54 kg/km                                       |
| Outer sheath, material             | PVC  |
| Material, filler                   | PVC  |
| Material conductor insulation      | PVC  |
| Conductor material                 | Bare Cu litz wires                             |
| Insulation resistance              | ≥ 1 GΩ*km (at 20 °C)                           |
| Conductor resistance               | max. 58 Ω/km (at 20 °C)                        |
| Nominal voltage, cable             | ≤ 300 V  |
| Test voltage, cable                | ≥ 3000 V                                       |
| Flame resistance                   | As per UL-Style 2464                           |
| Ambient temperature (operation)    | -25 °C ... 80 °C (cable, fixed installation)   |
|                                    | -5 °C ... 80 °C (cable, flexible installation) |

#### PVC yellow [540]

|   |   |
|---|---|
| Cable type                                  | PVC yellow                              |
| Cable type (abbreviation)                   | 540                                     |
| Cable abbreviation                          | LiFYY                                   |
| Conductor cross section                     | 0.34 mm <sup>2</sup>                    |
| AWG signal line                             | 22                                      |
| Conductor structure signal line             | 43x 0.10 mm                             |
| Core diameter including insulation          | 1.45 mm ±0.02 mm                        |
| Thickness, insulation                       | approx. 0.23 mm (Core insulation)       |
|   | approx. 0.76 mm (Outer cable sheath)    |
| Wire colors                                 | brown, white, blue, black, green-yellow |
| Overall twist                               | 5 wires around filler to the core       |
| Length of twist, overall twist              | 70 mm                                   |
| External sheath, color                      | yellow                                  |
| External cable diameter D                   | 5.9 mm ±0.15 mm                         |
| Smallest bending radius, fixed installation | 29.5 mm                                 |

## Sensor/actuator cable - SAC-5P-MR SCO/.../... - 1523612

### Technical data

#### PVC yellow [540]

|   |   |
|---|---|
| Smallest bending radius, movable installation | 59 mm   |
| Outer sheath, material                        | PVC   |
| Material, filler                              | PVC   |
| Material conductor insulation                 | PVC   |
| Conductor material                            | Bare Cu litz wires                                  |
| Insulation resistance                         | $\geq 1 \text{ M}\Omega \cdot \text{km}$ (at 20 °C) |
| Conductor resistance                          | max. 58 $\Omega/\text{km}$ (at 20 °C)               |
| Nominal voltage, cable                        | $\leq 300 \text{ V}$ (AC)                           |
| Test voltage, cable                           | 3000 V  |
| Flame resistance                              | As per UL-Style 2464                                |
|   | according to UL 758/1581 FT1                        |
| Resistance to oil                             | in accordance with DIN EN 60811-2-1                 |
| Ambient temperature (operation)               | -40 °C ... 80 °C (cable, fixed installation)        |
|   | -25 °C ... 80 °C (cable, flexible installation)     |

#### PVC yellow 105 °C [542]

|                                    |   |
|------------------------------------|---|
| Cable type                         | PVC yellow 105 °C                                     |
| Cable type (abbreviation)          | 542   |
| Conductor cross section            | 0.34 mm <sup>2</sup>                                  |
| AWG signal line                    | 22  |
| Conductor structure signal line    | 42x 0.10 mm   |
| Core diameter including insulation | 1.55 mm $\pm 0.05$ mm                                 |
| Thickness, insulation              | $\geq 0.38$ mm (Core insulation)                      |
|                                    | $\geq 0.76$ mm (Outer cable sheath)                   |
| Wire colors                        | Brown, white, blue, black, gray                       |
| Overall twist                      | 5 wires around filler to the core                     |
| External sheath, color             | yellow  |
| External cable diameter D          | 5.9 mm $\pm 0.2$ mm                                   |
| Cable weight                       | 50 kg/km  |
| Outer sheath, material             | PVC   |
| Material conductor insulation      | PVC   |
| Conductor material                 | Bare Cu litz wires                                    |
| Insulation resistance              | $\geq 100 \text{ M}\Omega \cdot \text{km}$ (at 20 °C) |
| Conductor resistance               | max. 58 $\Omega/\text{km}$ (at 20 °C)                 |
| Nominal voltage, cable             | $\leq 300 \text{ V}$                                  |
| Test voltage, cable                | $\geq 3000 \text{ V}$                                 |
| Flame resistance                   | in accordance with UL-Style 2517                      |

#### Gray, highly flexible PUR [800]

|            |  |
|------------|--|
| Note       | Due to the extremely robust outer sheath, this cable should only be stripped in 5 cm increments. |
| Cable type | Gray, highly flexible PUR  |

## Sensor/actuator cable - SAC-5P-MR SCO/.../... - 1523612

### Technical data

Gray, highly flexible PUR [800]

|   |  |
|---|--|
| Cable type (abbreviation)                       | 800  |
| Cable abbreviation                              | LiF9Y11Y   |
| UL AWM style                                    | 20549  |
| Conductor cross section                         | 5x 0.34 mm <sup>2</sup> (Signal line)  |
| AWG signal line                                 | 22   |
| Conductor structure signal line                 | 42x 0.10 mm  |
| Core diameter including insulation              | 1.3 mm ±0.05 mm (Signal line)  |
| Wire colors                                     | Black, brown, blue, white, gray  |
| Overall twist                                   | 5 wires around filler to the core  |
| External sheath, color                          | gray RAL 7001  |
| External cable diameter D                       | 5.1 mm ±0.2 mm   |
| Minimum bending radius, fixed installation      | 4 x D  |
| Minimum bending radius, flexible installation   | 7.5 x D  |
| Number of bending cycles                        | 10000000   |
| Minimum bending radius, drag chain applications | 7,5 x D  |
| Traversing path                                 | 5 m  |
| Traversing rate                                 | 3.3 m/s  |
| Acceleration                                    | 5 m/s <sup>2</sup>   |
| Number of bending cycles                        | 15000000   |
| Bending radius                                  | 50 mm  |
| Traversing path                                 | 0.9 m  |
| Traversing rate                                 | 5 m/s  |
| Acceleration                                    | 30 m/s <sup>2</sup>  |
| Torsion force                                   | ± 360 °/m (1 000 000 torsion cycles)   |
| Cable weight                                    | 38 kg/km   |
| Outer sheath, material                          | PUR  |
| Material, filler                                | PE   |
| Material conductor insulation                   | PP   |
| Conductor material                              | Bare Cu litz wires   |
| Insulation resistance                           | ≥ 20 MΩ*km   |
| Conductor resistance                            | approx. 53 Ω/km  |
| Nominal voltage, cable                          | 300 V  |
| Test voltage, cable                             | 2000 V   |
| Special properties                              | Cable jacket is welding spark-resistant, recyclable, matt, low-adhesion, abrasion-resistant, flame-retardant, and self-extinguishing |
|   | Free from silicone and cadmium   |
|   | Free of substances which would hinder coating with paint or varnish  |
| Other resistance                                | Highly resistant to acids, alkaline solutions and solvents   |
|   | Silicone-free  |
| Flame resistance                                | in accordance with UL 758/1581 FT2   |
| Halogen-free                                    | in accordance with DIN VDE 0472 part 815   |

## Sensor/actuator cable - SAC-5P-MR SCO/.../... - 1523612

### Technical data

Gray, highly flexible PUR [800]

|                                 |   |
|---------------------------------|---|
| Resistance to oil               | in accordance with DIN EN 60811-2-1             |
| Ambient temperature (operation) | -40 °C ... 80 °C (cable, fixed installation)    |
|                                 | -25 °C ... 80 °C (cable, flexible installation) |

PUR halogen-free black [PUR]

|   |   |
|---|---|
| Cable type                                    | PUR halogen-free black  |
| Cable type (abbreviation)                     | PUR   |
| UL AWM style                                  | 20549   |
| Conductor cross section                       | 5x 0.34 mm <sup>2</sup> (Signal line)                               |
| AWG signal line                               | 22  |
| Conductor structure signal line               | 42x 0.10 mm   |
| Core diameter including insulation            | 1.27 mm ±0.02 mm (Signal line)                                      |
| Thickness, insulation                         | approx. 0.5 mm  |
| Wire colors                                   | brown, white, blue, black, green-yellow                             |
| External sheath, color                        | black-gray RAL 7021   |
| External cable diameter D                     | 4.55 mm ±0.15 mm  |
| Smallest bending radius, fixed installation   | 23 mm   |
| Smallest bending radius, movable installation | 46 mm   |
| Number of bending cycles                      | 10000000  |
| Bending radius                                | 50 mm   |
| Traversing path                               | 10 m  |
| Traversing rate                               | 3 m/s   |
| Acceleration                                  | 10 m/s <sup>2</sup>   |
| Cable weight                                  | 33 kg/km  |
| Outer sheath, material                        | PUR   |
| Material conductor insulation                 | PP  |
| Conductor material                            | Bare Cu litz wires  |
| Insulation resistance                         | ≥ 16 GΩ*km (at 20 °C)   |
| Conductor resistance                          | max. 58 Ω/km (at 20 °C)   |
| Nominal voltage, cable                        | 300 V   |
| Test voltage, cable                           | 3000 V  |
| Special properties                            | Flexible cable conduit capable                                      |
|   | Silicone-free   |
|   | Free of substances which would hinder coating with paint or varnish |
|   | flexible  |
| Other resistance                              | Highly resistant to acids, alkaline solutions and solvents          |
|   | hydrolysis and microbe resistant                                    |
|   | Resistant to salt water   |
|   | partly UV-resistant in accordance with DIN EN ISO 4892-2-A          |
| Flame resistance                              | in accordance with UL 758/1581 FT2                                  |
|   | DIN EN 60332-2-2 (20 s)   |

## Sensor/actuator cable - SAC-5P-MR SCO/.../... - 1523612

### Technical data

#### PUR halogen-free black [PUR]

|                                 |   |
|---------------------------------|---|
| Halogen-free                    | in accordance with DIN VDE 0472 part 815        |
| Resistance to oil               | in accordance with DIN EN 60811-2-1             |
| Ambient temperature (operation) | -40 °C ... 80 °C (cable, fixed installation)    |
|                                 | -25 °C ... 80 °C (cable, flexible installation) |

#### PVC black [PVC]

|   |   |
|---|---|
| Cable type                                    | PVC black                                       |
| Cable type (abbreviation)                     | PVC   |
| Cable abbreviation                            | LiYY  |
| UL AWM style                                  | 2464 / 1729 (80°C/300 V)                        |
| Conductor cross section                       | 5x 0.34 mm <sup>2</sup> (Signal line)           |
| AWG signal line                               | 22  |
| Conductor structure signal line               | 42x 0.10 mm                                     |
| Core diameter including insulation            | 1.45 mm ±0.02 mm                                |
| Thickness, insulation                         | ≥ 0.23 mm (Core insulation)                     |
| Wire colors                                   | brown, white, blue, black, green-yellow         |
| Overall twist                                 | 5 wires around filler to the core               |
| External sheath, color                        | black RAL 9005                                  |
| Outer sheath thickness                        | ≥ 0.76 mm                                       |
| External cable diameter D                     | 5.9 mm ±0.15 mm                                 |
| Minimum bending radius, fixed installation    | 5 x D   |
| Minimum bending radius, flexible installation | 10 x D  |
| Cable weight                                  | 51 kg/km  |
| Outer sheath, material                        | PVC   |
| Material conductor insulation                 | PVC   |
| Conductor material                            | Bare Cu litz wires                              |
| Insulation resistance                         | ≥ 200 MΩ*km (at 20 °C)                          |
| Conductor resistance                          | max. 58 Ω/km (at 20 °C)                         |
| Nominal voltage, cable                        | ≤ 300 V   |
| Test voltage, cable                           | ≥ 3000 V  |
| Flame resistance                              | As per UL-Style 2464                            |
|   | according to UL 758/1581 FT1                    |
| Resistance to oil                             | According to DIN EN 60811-2-1, 168 h at 90°C    |
| Ambient temperature (operation)               | -40 °C ... 80 °C (cable, fixed installation)    |
|   | -25 °C ... 80 °C (cable, flexible installation) |

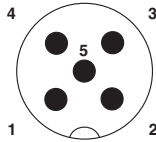
#### Environmental Product Compliance

|            |   |
|------------|---|
| China RoHS | Environmentally friendly use period: unlimited = EFUP-e |
|            | No hazardous substances above threshold values          |

### Drawings

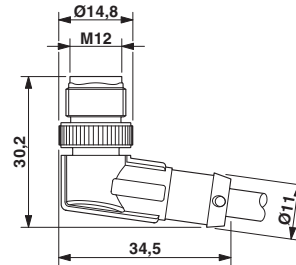
# Sensor/actuator cable - SAC-5P-MR SCO/.../... - 1523612

Schematic diagram



Pin assignment M12 male connector, 5-pos., A-coded, male side

Dimensional drawing



M12 x 1 male plug, angled

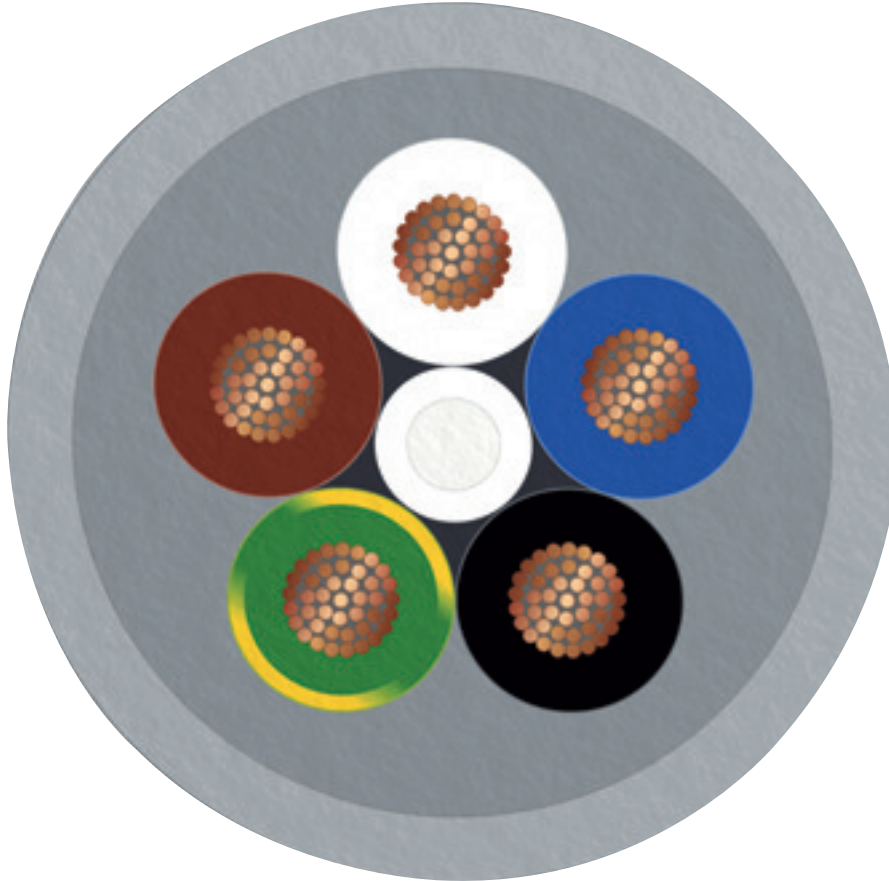
Circuit diagram



Contact assignment of M12 plug, with exception of conductor types 115, 186, 515, 520, and 800. Here, the fifth wire is gray and not green/yellow.

## Sensor/actuator cable - SAC-5P-MR SCO/.../... - 1523612

Cable cross section

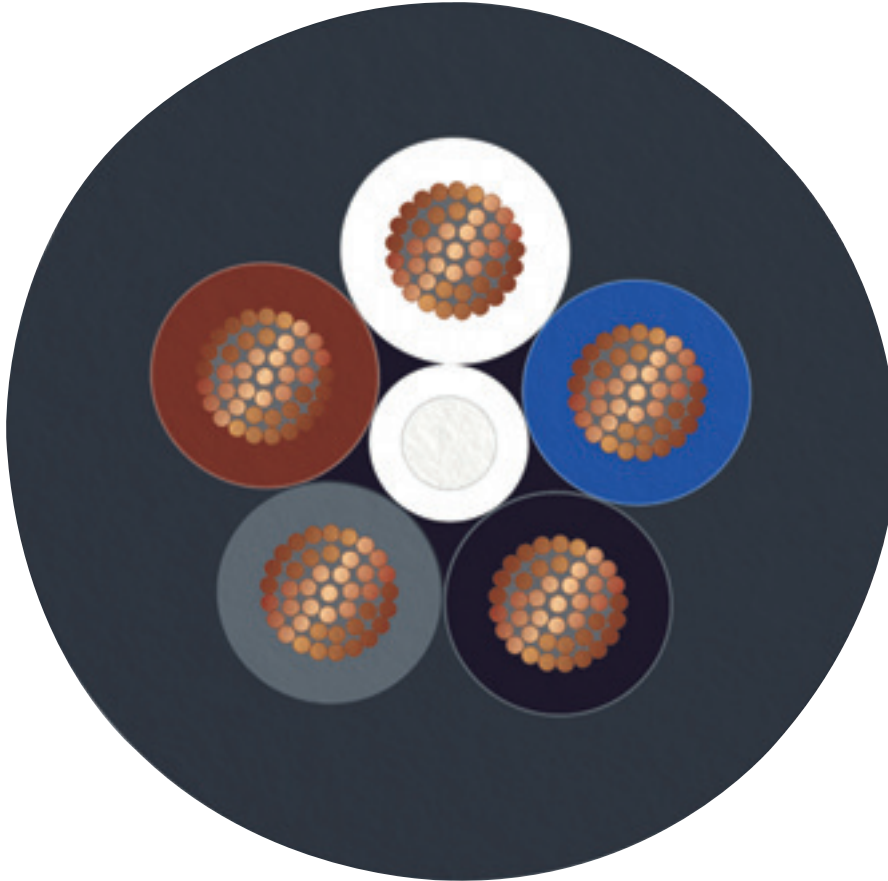


PUR/PVC gray [100]



## Sensor/actuator cable - SAC-5P-MR SCO/.../... - 1523612

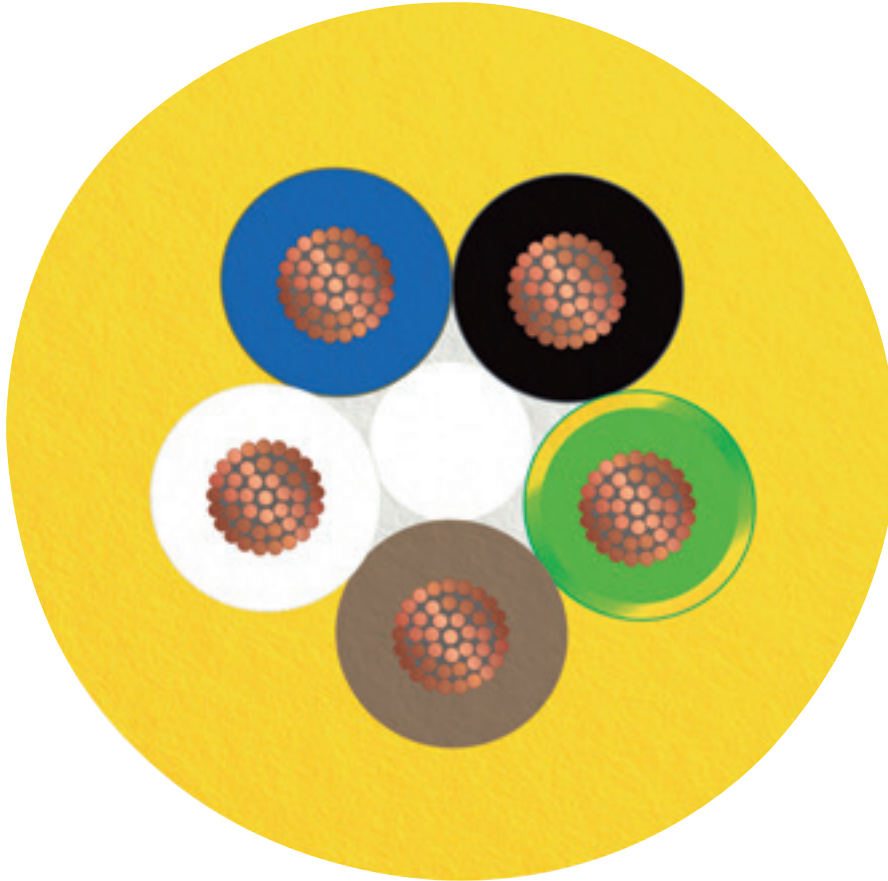
Cable cross section



PUR, black, 5th conductor gray [115]

## Sensor/actuator cable - SAC-5P-MR SCO/.../... - 1523612

Cable cross section



PUR halogen-free yellow [240]

## Sensor/actuator cable - SAC-5P-MR SCO/.../... - 1523612

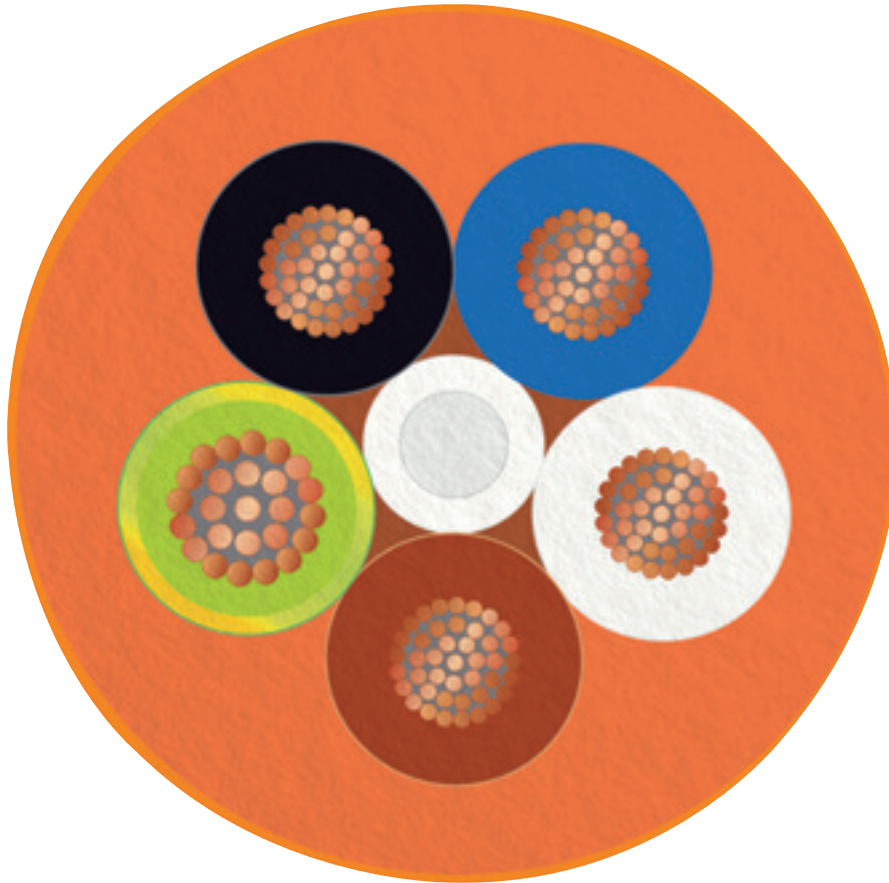
Cable cross section



PUR irradiated halogen-free orange [150]

## Sensor/actuator cable - SAC-5P-MR SCO/.../... - 1523612

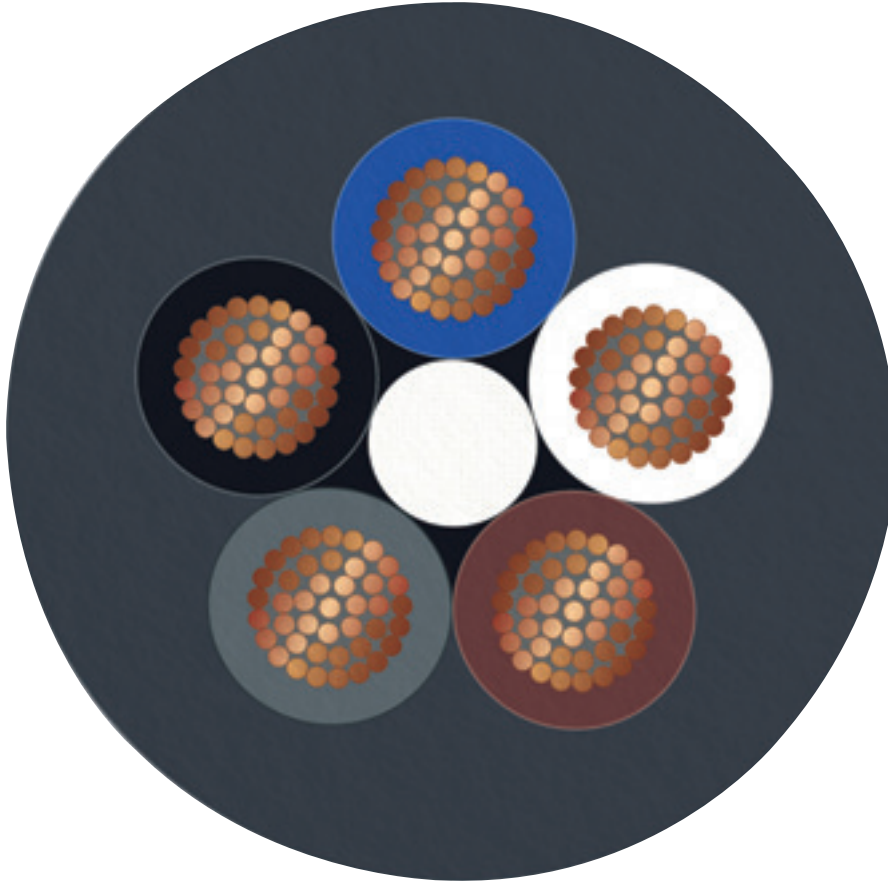
Cable cross section



PUR halogen-free orange [180]

## Sensor/actuator cable - SAC-5P-MR SCO/.../... - 1523612

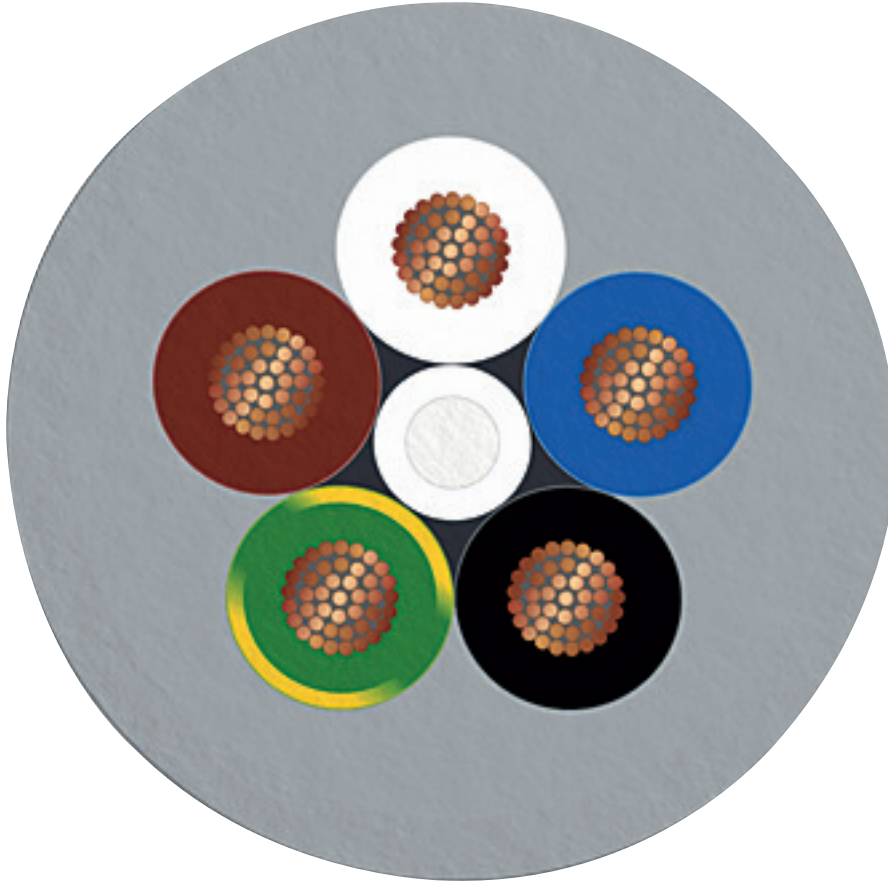
Cable cross section



PUR POWER 0.75 mm<sup>2</sup> black [186]

## Sensor/actuator cable - SAC-5P-MR SCO/.../... - 1523612

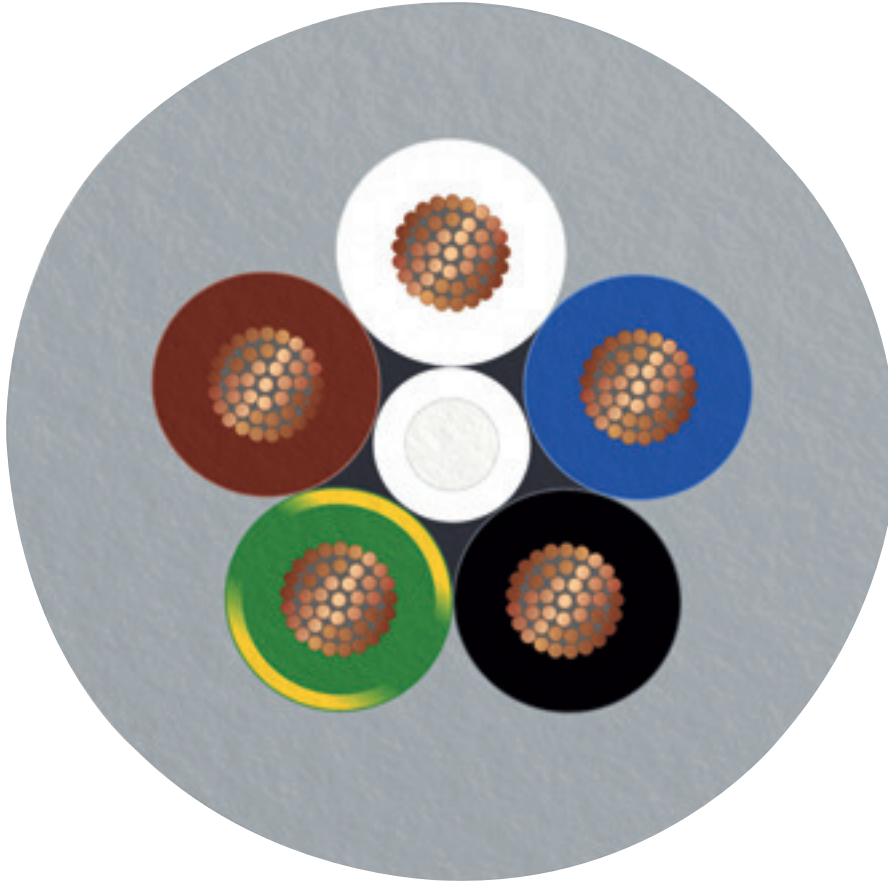
Cable cross section



PUR halogen-free gray [280]

## Sensor/actuator cable - SAC-5P-MR SCO/.../... - 1523612

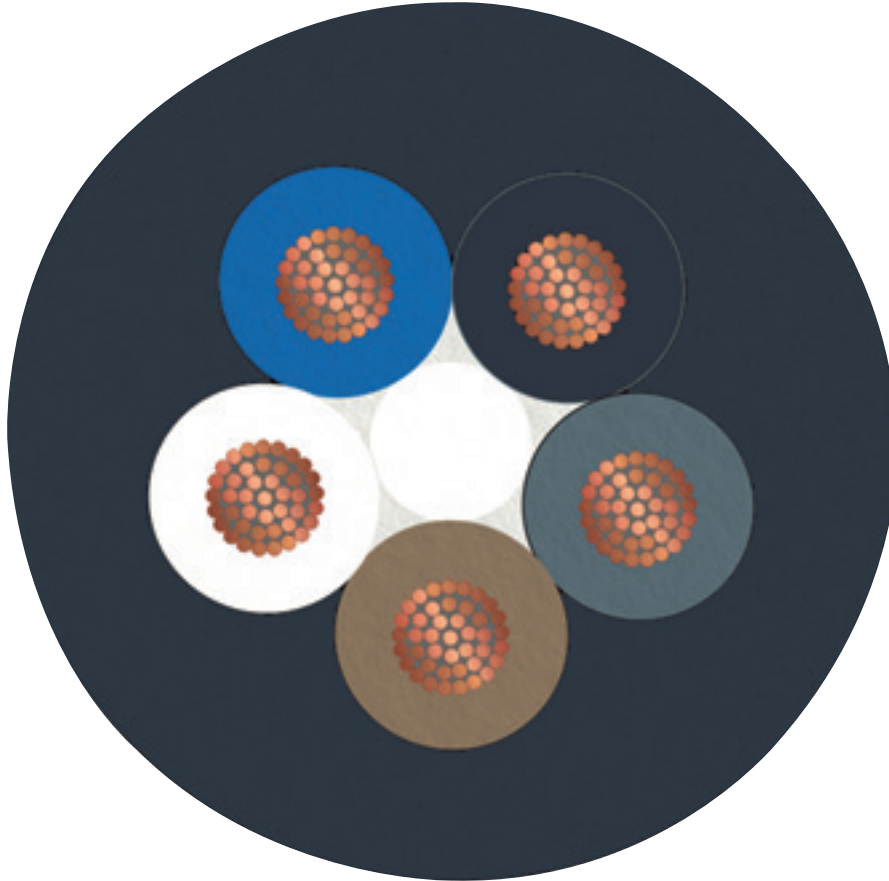
Cable cross section



PVC gray [500]

## Sensor/actuator cable - SAC-5P-MR SCO/.../... - 1523612

Cable cross section

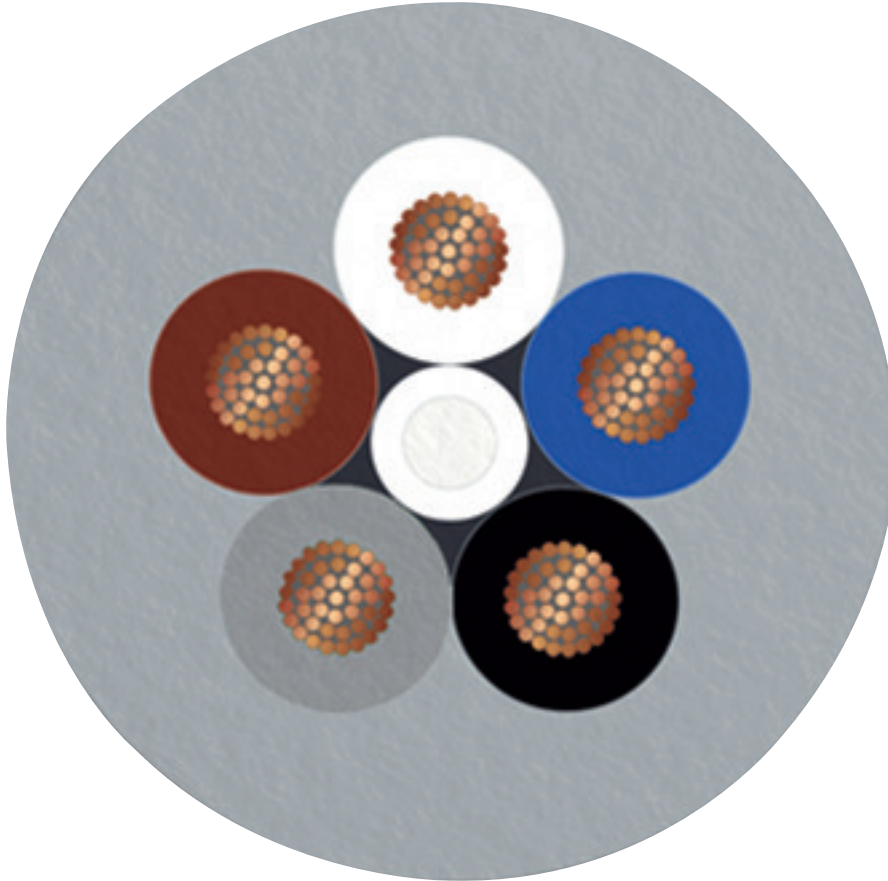


PVC black 5th conductor gray [515]



## Sensor/actuator cable - SAC-5P-MR SCO/.../... - 1523612

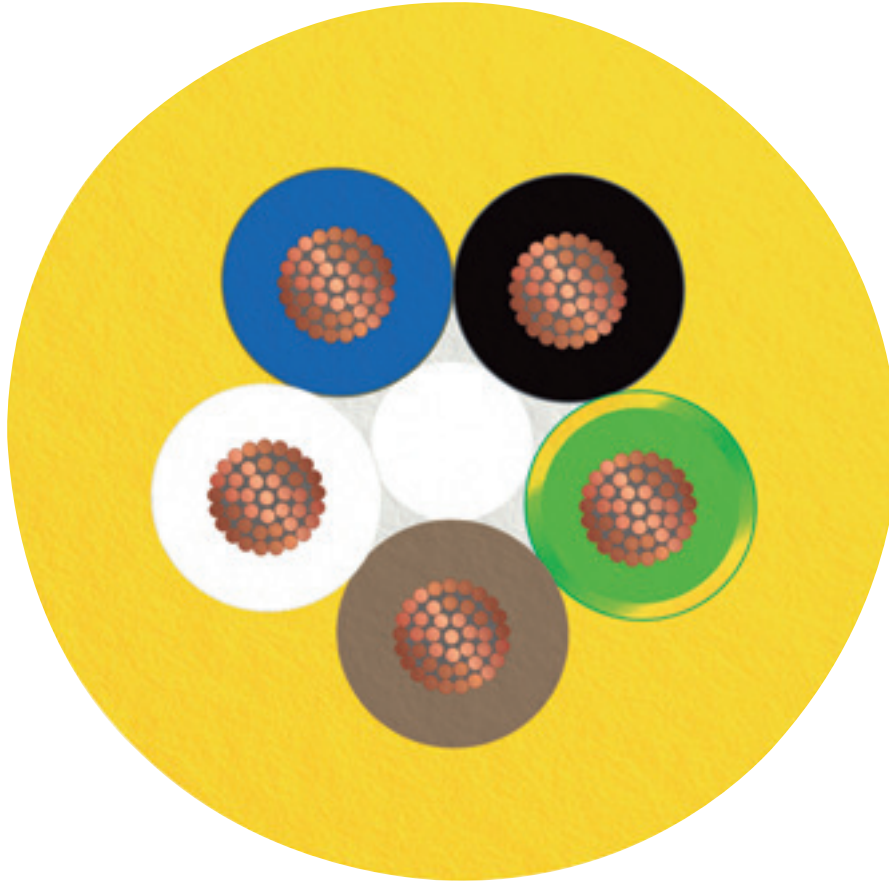
Cable cross section



PVC gray 5th conductor gray [520]

## Sensor/actuator cable - SAC-5P-MR SCO/.../... - 1523612

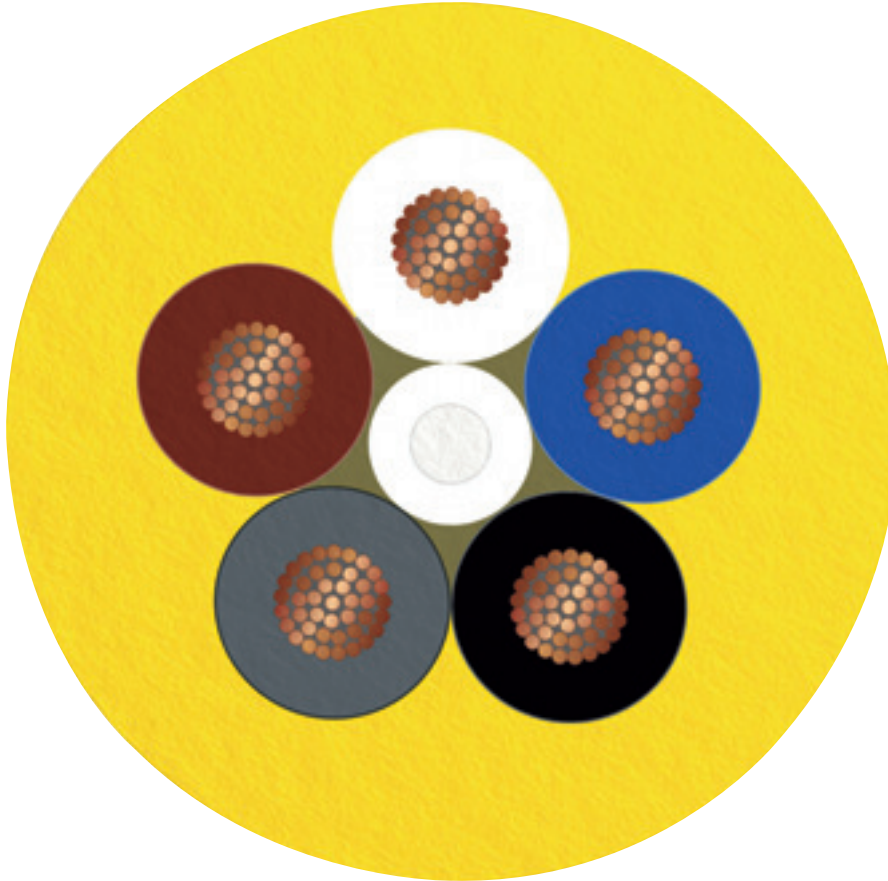
Cable cross section



PVC yellow [540]

## Sensor/actuator cable - SAC-5P-MR SCO/.../... - 1523612

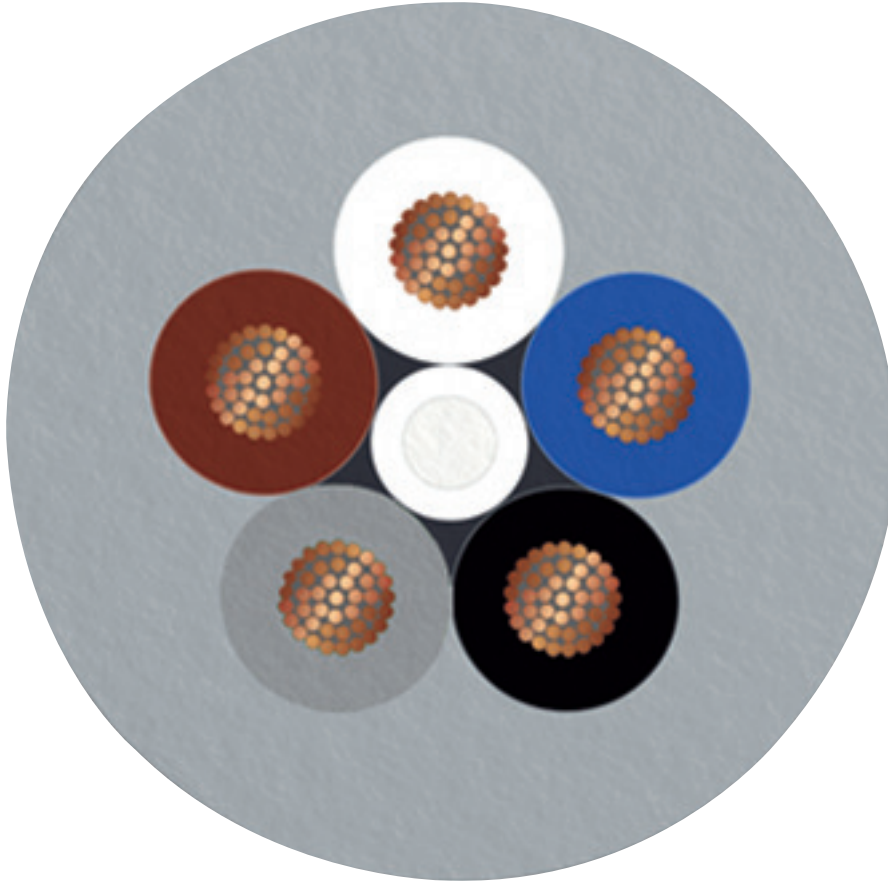
Cable cross section



PVC yellow 105 °C [542]

## Sensor/actuator cable - SAC-5P-MR SCO/.../... - 1523612

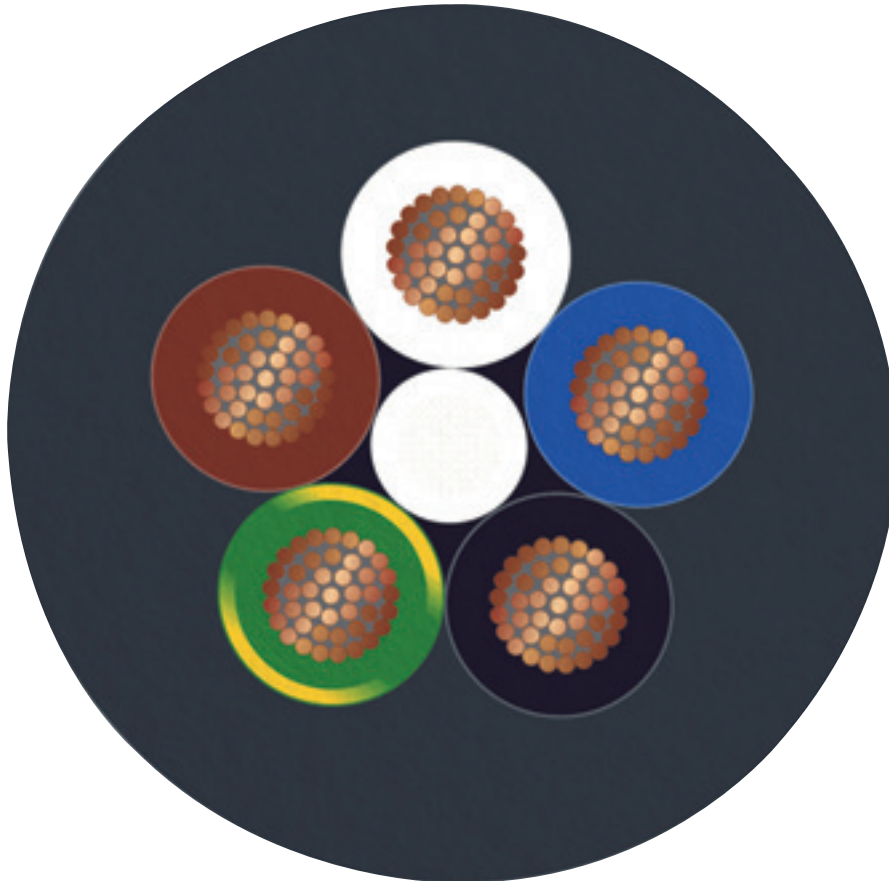
Cable cross section



Gray, highly flexible PUR [800]

# Sensor/actuator cable - SAC-5P-MR SCO/.../... - 1523612

Cable cross section



PVC black [PVC]

## Classifications

eCl@ss

|            |          |
|------------|----------|
| eCl@ss 4.0 | 27060306 |
| eCl@ss 4.1 | 27060306 |
| eCl@ss 5.0 | 27061801 |
| eCl@ss 5.1 | 27061800 |
| eCl@ss 6.0 | 27279200 |
| eCl@ss 7.0 | 27279218 |
| eCl@ss 9.0 | 27060311 |

ETIM

|          |          |
|----------|----------|
| ETIM 2.0 | EC000830 |
| ETIM 3.0 | EC001855 |
| ETIM 4.0 | EC001855 |

# Sensor/actuator cable - SAC-5P-MR SCO/.../... - 1523612

## Classifications

### ETIM

|          |          |
|----------|----------|
| ETIM 6.0 | EC001855 |
|----------|----------|

### UNSPSC

|               |          |
|---------------|----------|
| UNSPSC 6.01   | 31251501 |
| UNSPSC 7.0901 | 31251501 |
| UNSPSC 11     | 31251501 |
| UNSPSC 12.01  | 31251501 |
| UNSPSC 13.2   | 31251501 |
| UNSPSC 19.0   | 31251501 |

## Accessories

### Accessories

#### Conductor marking

Insert label - PABA WH/23 - 1013779



Insert label, Strip, white, unlabeled, can be labeled with: CMS-P1-PLOTTER, mounting type: thread on, cable diameter range: 1.5 ... 35 mm, lettering field size: 23 x 4 mm, Number of individual labels: 20

Insert label - PABA YE/23 - 1013782



Insert label, Strip, yellow, unlabeled, can be labeled with: CMS-P1-PLOTTER, mounting type: thread on, cable diameter range: 1.5 ... 35 mm, lettering field size: 23 x 4 mm, Number of individual labels: 20

#### Corrugated pipe

Protective hose - WP-PA HF 13,0 BK - 3240681



Polyamide protective hose, inflammability class V0, UV resistant

## Sensor/actuator cable - SAC-5P-MR SCO/.../... - 1523612

### Accessories

Protective hose - WP-PA HF-HB 13,0 BK - 3240839



Polyamide protective hose, inflammability class HB, UV resistant

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### Cutting tools

Diagonal cutter - CUTFOX-S VDE - 1212207



Diagonal cutter for hard (piano wire) and soft wires, VDE 1000 V AC/1500 V DC tested

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### Marker pen

Marker pen - B-STIFT - 1051993



Marker pen, for manual labeling of unprinted Zack strips, smear-proof and waterproof, line thickness 0.5 mm

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### Protective cap

Sealing cap - PROT-M12 FS-PA-CHAIN - 1430873



M12 sealing cap made of plastic with fixing band, for sensor cables, for free M12 plugs

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### Safety locking

Locking clip - SAC-M12-EXCLIP-M - 1558988



Locking clip for the pin side of sensor/actuator cables with M12 connector and M12 connectors for assembly, for knurl diameter: 15 mm or for Allen key with a wrench size of 14 mm, prevents the disconnection of plug-in connections without tools

## Sensor/actuator cable - SAC-5P-MR SCO/.../... - 1523612

### Accessories

#### Screwdriver tools

Adapter insert - TSD-M SAC-BIT ADAPTER - 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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Tool - SAC BIT M12-D15 - 1208432



Nut for assembling sensor/actuator cables with M12 connector and M12 connectors for assembly, with a knurl diameter of 15 mm, for 4 mm hexagonal drive

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#### Stripping tool

Stripping tool - WIREFOX SAC-1 - 1212757



Stripping pliers, for halogen-free sensor/actuator cables (SAC cables), with PUR and PVC insulation, from Ø of 3.2 to 4.4 mm, any stripping length

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Stripping tool - WIREFOX SAC - 1212623



Stripping pliers, for halogen-free sensor/actuator cables (SAC cables), with PUR and PVC insulation, from Ø of 4.4 to 7 mm, any stripping length

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Stripping tool - WIREFOX 10 - 1212150



Stripping tool, for cables and conductors from 0.02 - 10 mm<sup>2</sup>, self-adjusting, stripping length of up to 18 mm, cutting capacity of up to 10 mm<sup>2</sup> stranded/1.5 mm<sup>2</sup> solid, replaceable stripping blade

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#### Torque tool



## Sensor/actuator cable - SAC-5P-MR SCO/.../... - 1523612

### Accessories

Torque screwdriver - TSD 04 SAC - 1208429



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

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Torque screwdriver - TSD-M 1,2NM - 1212224



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

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Protective hose adapter - WP-CTA POM 13,0 BK - 1422884



Protective hose adapter, for corrugated hoses with a nominal size of 13 (10 x 13), corrugated in parallel

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