# imall

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Sensor/Actuator cable, 5-position, PP-EPDM halogen-free, Gray RAL 7035, Plug straight M12, A-coded, on Socket straight M12, A-coded, Cable length: 3 m, Hygienic design, with plastic knurl



#### Key commercial data

| Packing unit           | 0               |
|------------------------|-----------------|
| Minimum order quantity | 1               |
| GTIN                   | 4 046356 676533 |
| Custom tariff number   | 85444290        |
| Country of origin      | POLAND          |

#### Technical data

#### General data

| Rated current at 40°C           | 4 A                                               |
|---------------------------------|---------------------------------------------------|
| Rated voltage                   | 60 V                                              |
| Number of positions             | 5                                                 |
| Volume resistance               | $\leq 5 \text{ m}\Omega$                          |
| Insulation resistance           | $\geq$ 100 M $\Omega$                             |
| Length of cable                 | 3 m                                               |
| Ambient temperature (operation) | -40 °C 105 °C (Male connector / female connector) |

#### General characteristics

| Standards/regulations       | M12 plug-in connector IEC 61076-2-101 |
|-----------------------------|---------------------------------------|
| Coding                      | A - standard                          |
| Surge voltage category      | II                                    |
| Pollution degree            | 3                                     |
| Degree of protection        | IP65/IP68/IP69K                       |
| Insertion/withdrawal cycles | ≥ 100                                 |
| Torque                      | 0.4 Nm (M12 plug-in connector)        |
| Contact material            | CuSn                                  |



#### Technical data

#### General characteristics

| Contact surface material | Ni/Au |
|--------------------------|-------|
| Contact carrier material | PP    |
| Material of grip body    | PP    |
| Material, knurls         | PP    |
| Sealing material         | FKM   |
| Status display           | No    |

#### Conductor data

| Cable abbreviationLi9Y9YConductor cross section $5x 0.34 \text{ mm}^{a}$ (signal line)AWG signal line $22$ Conductor structure signal line $42x 0.10 \text{ mm}$ Core diameter including insulation $1.27 \text{ mm} \pm 0.02 \text{ mm}$ (signal line)Thickness, insulation $2.0.21 \text{ mm}$ (Core insulation)Wire colorsBrown, white, blue, black, grayOverall twist $5 \text{ cores}$ , twistedLength of twist, overall twist $55 \text{ mm}$ External sheath, colorGray RAL 7035Outer sheath thicknessApprox. 0.7 mmExternal cable diameter D $5 \text{ mm} \pm 0.15 \text{ mm}$ Minimum bending radius, fixed installation $5 x D$ Minimum bending radius, fixed installation $10 \times D$ Cable weight $34 \text{ kg/km}$ Outer sheath, materialPP-EPDMMaterial conductor insulationPPConductor materialBare Cu litz wiresConductor resistance $58 \Omega/km$ (At an ambient temperature of $20^{\circ}C$ )Nominal voltage, conductor $\leq 3000 V AC$ Test voltage, conductor $\geq 3000 V AC$ | Cable type                                    | Halogen-free PP gray                        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|---------------------------------------------|
| Conductor cross section $5x 0.34 \text{ mm}^2$ (signal line)AWG signal line $22$ Conductor structure signal line $42x 0.10 \text{ mm}$ Core diameter including insulation $1.27 \text{ mm} \pm 0.02 \text{ mm}$ (signal line)Thickness, insulation $2 0.21 \text{ mm}$ (Core insulation)Wire colorsBrown, white, blue, black, grayOverall twist $5 \text{ cores, twisted}$ Length of twist, overall twist $55 \text{ mm}$ External sheath, colorGray RAL 7035Outer sheath thicknessApprox. 0.7 mmExternal cable diameter D $5 \text{ mm} \pm 0.15 \text{ mm}$ Minimum bending radius, fixed installation $5 x D$ Cable weight $34 \text{ kg/km}$ Outer sheath, materialPP-EPDMMaterial conductor insulationPPConductor materialSare Cu litz wiresConductor resistance $58 \Omega/km$ (At an ambient temperature of $20^\circ$ C)Nominal voltage, conductor $< 3000 V AC$ Special propertiesFDA compliantHalogen-freein accordance with DIN VDE 0472 part 815                                              | Cable type (abbreviation)                     | 600                                         |
| 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   ≥ 0.21 mm (Core insulation)     Wire colors   Brown, white, blue, black, gray     Overall twist   5 cores, twisted     Length of twist, overall twist   55 mm     External sheath, color   Gray RAL 7035     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, fixed installation   10 x D     Cable weight   34 kg/km     Outer sheath, material   PP-EPDM     Material conductor insulation   PP     Conductor resistance   58 Ω/km (At an ambient temperature of 20°C)     Nominal voltage, conductor   ≤ 300 V AC     Test voltage, conductor   ≥ 3000 V AC     Special properties   FDA compliant     Halogen-free   in accordance with DIN VDE 0472 part 815                                      | Cable abbreviation                            | Li9Y9Y                                      |
| Conductor structure signal line $42x 0.10 \text{ mm}$ Core diameter including insulation $1.27 \text{ mm} \pm 0.02 \text{ mm}$ (signal line)Thickness, insulation $\geq 0.21 \text{ mm}$ (Core insulation)Wire colorsBrown, white, blue, black, grayOverall twist $5 \text{ cores, twisted}$ Length of twist, overall twist $55 \text{ mm}$ External sheath, colorGray RAL 7035Outer sheath thicknessApprox. 0.7 mmExternal cable diameter D $5 \text{ mm} \pm 0.15 \text{ mm}$ Minimum bending radius, fixed installation $5 x D$ Cable weight $34 \text{ kg/km}$ Outer sheath, materialPP-EPDMMaterial conductor insulationPPConductor material $58 \Omega/km$ (At an ambient temperature of 20°C)Nominal voltage, conductor $\leq 3000 V AC$ Special propertiesFDA compliantHalogen-freein accordance with DIN VDE 0472 part 815                                                                                                                                                                       | Conductor cross section                       | 5x 0.34 mm² (signal line)                   |
| Core diameter including insulation1.27 mm $\pm 0.02$ mm (signal line)Thickness, insulation $\geq 0.21$ mm (Core insulation)Wire colorsBrown, white, blue, black, grayOverall twist $5$ cores, twistedLength of twist, overall twist $55$ mmExternal sheath, colorGray RAL 7035Outer sheath thicknessApprox. 0.7 mmExternal cable diameter D $5 \text{ mm} \pm 0.15 \text{ mm}$ Minimum bending radius, fixed installation $5 \times D$ Cable weight $34 \text{ kg/km}$ Outer sheath, materialPP-EPDMMaterial conductor insulationPPConductor material $58 \Omega/km$ (At an ambient temperature of 20°C)Nominal voltage, conductor $\leq 3000 V AC$ Special propertiesFDA compliantHalogen-freein accordance with DIN VDE 0472 part 815                                                                                                                                                                                                                                                                   | AWG signal line                               | 22                                          |
| Thickness, insulation   ≥ 0.21 mm (Core insulation)     Wire colors   Brown, white, blue, black, gray     Overall twist   5 cores, twisted     Length of twist, overall twist   55 mm     External sheath, color   Gray RAL 7035     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, fixed installation   10 x D     Cable weight   34 kg/km     Outer sheath, material   PP-EPDM     Material conductor insulation   PP     Conductor material   Bare Cu litz wires     Conductor resistance   58 0/km (At an ambient temperature of 20°C)     Nominal voltage, conductor   ≤ 3000 V AC     Test voltage, conductor   ≥ 3000 V AC     Special properties   FDA compliant     Halogen-free   in accordance with DIN VDE 0472 part 815                                                                                                                                            | Conductor structure signal line               | 42x 0.10 mm                                 |
| Wire colorsBrown, white, blue, black, grayOverall twist5 cores, twistedLength of twist, overall twist55 mmExternal sheath, colorGray RAL 7035Outer sheath thicknessApprox. 0.7 mmExternal cable diameter D5 mm ±0.15 mmMinimum bending radius, fixed installation5 x DMinimum bending radius, flexible installation10 x DCable weight34 kg/kmOuter sheath, materialPP-EPDMMaterial conductor insulation58 Ω/km (At an ambient temperature of 20°C)Conductor resistance58 Ω/km (At an ambient temperature of 20°C)Nominal voltage, conductor> 3000 V ACTest voltage, conductorFDA compliantHalogen-freein accordance with DIN VDE 0472 part 815                                                                                                                                                                                                                                                                                                                                                            | Core diameter including insulation            | 1.27 mm ±0.02 mm (signal line)              |
| Overall twist     5 cores, twisted       Length of twist, overall twist     55 mm       External sheath, color     Gray RAL 7035       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, fixed installation     10 x D       Cable weight     34 kg/km       Outer sheath, material     PP-EPDM       Material conductor insulation     PP       Conductor material     Bare Cu litz wires       Conductor resistance     58 0/km (At an ambient temperature of 20°C)       Nominal voltage, conductor     ≤ 3000 V AC       Special properties     FDA compliant       Halogen-free     in accordance with DIN VDE 0472 part 815                                                                                                                                                                                                                                      | Thickness, insulation                         | ≥ 0.21 mm (Core insulation)                 |
| Length of twist, overall twist55 mmExternal sheath, colorGray RAL 7035Outer sheath thicknessApprox. 0.7 mmExternal cable diameter D5 mm ±0.15 mmMinimum bending radius, fixed installation5 x DMinimum bending radius, flexible installation10 x DCable weight34 kg/kmOuter sheath, materialPP-EPDMMaterial conductor insulationPPConductor materialBare Cu litz wiresConductor resistance58 Ω/km (At an ambient temperature of 20°C)Nominal voltage, conductor≤ 3000 V ACTest voltage, conductorFDA compliantHalogen-freein accordance with DIN VDE 0472 part 815                                                                                                                                                                                                                                                                                                                                                                                                                                        | Wire colors                                   | Brown, white, blue, black, gray             |
| External sheath, colorGray RAL 7035Outer sheath thicknessApprox. 0.7 mmExternal cable diameter D5 mm ±0.15 mmMinimum bending radius, fixed installation5 x DMinimum bending radius, flexible installation10 x DCable weight34 kg/kmOuter sheath, materialPP-EPDMMaterial conductor insulationPPConductor materialBare Cu litz wiresConductor resistance58 Ω/km (At an ambient temperature of 20°C)Nominal voltage, conductor< 300 V AC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Overall twist                                 | 5 cores, twisted                            |
| Outer sheath thicknessApprox. 0.7 mmExternal cable diameter D5 mm ±0.15 mmMinimum bending radius, fixed installation5 x DMinimum bending radius, flexible installation10 x DCable weight34 kg/kmOuter sheath, materialPP-EPDMMaterial conductor insulationPPConductor materialBare Cu litz wiresConductor resistance58 Ω/km (At an ambient temperature of 20°C)Nominal voltage, conductor≥ 3000 V ACTest voltage, conductorFDA compliantHalogen-freein accordance with DIN VDE 0472 part 815                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Length of twist, overall twist                | 55 mm                                       |
| External cable diameter D5 mm ±0.15 mmMinimum bending radius, fixed installation5 x DMinimum bending radius, flexible installation10 x DCable weight34 kg/kmOuter sheath, materialPP-EPDMMaterial conductor insulationPPConductor materialBare Cu litz wiresConductor resistance58 Ω/km (At an ambient temperature of 20°C)Nominal voltage, conductor≥ 300 V ACTest voltage, conductorFDA compliantHalogen-freein accordance with DIN VDE 0472 part 815                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | External sheath, color                        | Gray RAL 7035                               |
| Minimum bending radius, fixed installation5 x DMinimum bending radius, flexible installation10 x DCable weight34 kg/kmOuter sheath, materialPP-EPDMMaterial conductor insulationPPConductor materialBare Cu litz wiresConductor resistance58 Ω/km (At an ambient temperature of 20°C)Nominal voltage, conductor≤ 300 V ACTest voltage, conductor≥ 3000 V ACSpecial propertiesFDA compliantHalogen-freein accordance with DIN VDE 0472 part 815                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Outer sheath thickness                        | Approx. 0.7 mm                              |
| Minimum bending radius, flexible installation10 x DCable weight34 kg/kmOuter sheath, materialPP-EPDMMaterial conductor insulationPPConductor materialBare Cu litz wiresConductor resistance58 Ω/km (At an ambient temperature of 20°C)Nominal voltage, conductor≤ 300 V ACTest voltage, conductor≥ 3000 V ACSpecial propertiesFDA compliantHalogen-freein accordance with DIN VDE 0472 part 815                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | External cable diameter D                     | 5 mm ±0.15 mm                               |
| Cable weight34 kg/kmOuter sheath, materialPP-EPDMMaterial conductor insulationPPConductor materialBare Cu litz wiresConductor resistance58 Ω/km (At an ambient temperature of 20°C)Nominal voltage, conductor≤ 300 V ACTest voltage, conductor≥ 3000 V ACSpecial propertiesFDA compliantHalogen-freein accordance with DIN VDE 0472 part 815                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Minimum bending radius, fixed installation    | 5 x D                                       |
| Outer sheath, materialPP-EPDMMaterial conductor insulationPPConductor materialBare Cu litz wiresConductor resistance58 Ω/km (At an ambient temperature of 20°C)Nominal voltage, conductor≤ 300 V ACTest voltage, conductor≥ 3000 V ACSpecial propertiesFDA compliantHalogen-freein accordance with DIN VDE 0472 part 815                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Minimum bending radius, flexible installation | 10 x D                                      |
| Material conductor insulation   PP     Conductor material   Bare Cu litz wires     Conductor resistance   58 Ω/km (At an ambient temperature of 20°C)     Nominal voltage, conductor   ≤ 300 V AC     Test voltage, conductor   ≥ 3000 V AC     Special properties   FDA compliant     Halogen-free   in accordance with DIN VDE 0472 part 815                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Cable weight                                  | 34 kg/km                                    |
| Conductor material Bare Cu litz wires   Conductor resistance 58 Ω/km (At an ambient temperature of 20°C)   Nominal voltage, conductor ≤ 300 V AC   Test voltage, conductor ≥ 3000 V AC   Special properties FDA compliant   Halogen-free in accordance with DIN VDE 0472 part 815                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Outer sheath, material                        | PP-EPDM                                     |
| Conductor resistance   58 Ω/km (At an ambient temperature of 20°C)     Nominal voltage, conductor   ≤ 300 V AC     Test voltage, conductor   ≥ 3000 V AC     Special properties   FDA compliant     Halogen-free   in accordance with DIN VDE 0472 part 815                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Material conductor insulation                 | PP                                          |
| Nominal voltage, conductor   ≤ 300 V AC     Test voltage, conductor   ≥ 3000 V AC     Special properties   FDA compliant     Halogen-free   in accordance with DIN VDE 0472 part 815                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Conductor material                            | Bare Cu litz wires                          |
| Test voltage, conductor ≥ 3000 V AC   Special properties FDA compliant   Halogen-free in accordance with DIN VDE 0472 part 815                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Conductor resistance                          | 58 Ω/km (At an ambient temperature of 20°C) |
| Special properties FDA compliant   Halogen-free in accordance with DIN VDE 0472 part 815                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Nominal voltage, conductor                    | ≤ 300 V AC                                  |
| Halogen-free in accordance with DIN VDE 0472 part 815                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Test voltage, conductor                       | ≥ 3000 V AC                                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Special properties                            | FDA compliant                               |
| Ambient temperature (operation)   -40 °C 105 °C (cable, fixed installation)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Halogen-free                                  | in accordance with DIN VDE 0472 part 815    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Ambient temperature (operation)               | -40 °C 105 °C (cable, fixed installation)   |

#### Classifications

#### ETIM

| ETIM 3.0 | EC001855 |
|----------|----------|
| ETIM 4.0 | EC001855 |
| ETIM 5.0 | EC001855 |



#### Classifications

#### UNSPSC

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

#### eCl@ss

| eCl@ss 4.0 | 27060306 |
|------------|----------|
| eCl@ss 4.1 | 27060306 |
| eCl@ss 5.0 | 27061801 |
| eCl@ss 5.1 | 27061801 |
| eCl@ss 6.0 | 27061801 |
| eCl@ss 7.0 | 27061801 |

#### Drawings

#### Schematic diagram



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

#### Cable cross section



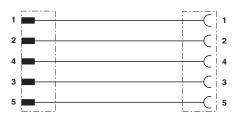
Halogen-free PP gray [600]

#### Schematic diagram



Pin assignment M12 socket, 5-pos., A-coded, socket side view

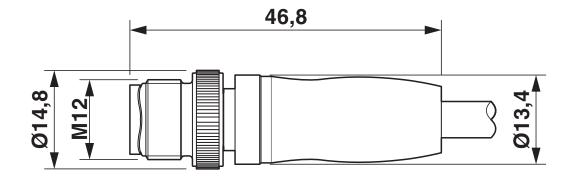
Circuit diagram



Contact assignment of the M12 connector and the M12 socket

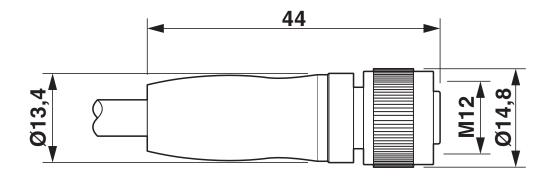


Dimensioned drawing





Dimensioned drawing





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