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Sensor/Actuator cable, 4-position, PUR halogen-free, black-gray RAL 7021, Plug angled M8, on Socket angled M12, A-coded, Cable length: 3 m

### **Key Commercial Data**

Packing unit	1

### Technical data

### **Dimensions**

	Length of cable	3 m
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### Ambient conditions

Degree of protection	IP65
	IP67
	IP68

### General

Rated current at 40°C	4 A
Rated voltage	30 V
Number of positions	4
Insulation resistance	$\geq 100 \text{ M}\Omega$
Coding	A - standard
Status display	No
Overvoltage category	П
Degree of pollution	3
Insertion/withdrawal cycles	≥ 100

#### Material

Flammability rating according to UL 94	НВ
Contact material	CuSn
Contact surface material	Ni/Au
Contact carrier material	TPU GF



## Technical data

### Material

Material of grip body	TPU, hardly inflammable, self-extinguishing
Material, knurls	Zinc die-cast, nickel-plated
Sealing material	NBR

### Standards and Regulations

Flammability rating according to UL 94	НВ
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### Cable

Cable type         PUR halogen-free black           Cable abbreviation         PUR           Cable abbreviation         LIBY11Y-HF           UL AWM style         20549           Conductor cross section         4x 0.25 mm² (Signal line)           AWG signal line         24           Conductor structure signal line         32x 0.10 mm           Core diameter including insulation         1.17 mm ±0.02 mm (Signal line)           Thickness, insulation         ≥ 0.21 mm (Core insulation)           Wire colors         brown, white, blue, black           Overall twist         4 wires, twisted           External sheath, color         black-gray RAL 7021           Outer sheath thickness         approx. 0.7 mm           External cable diameter D         4.4 mm ±0.15 mm           Smallest bending radius, fixed installation         22 mm           Smallest bending radius, movable installation         44 mm           Number of bending cycles         4000000           Bending radius         4 mm           Traversing path         10 m           Traversing rate         3 m/s           Acceleration         5 m/s²           Cable weight         P           Outer sheath, material         Bare Cu litz wires           I	Cabic	
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AWG signal line         24           Conductor structure signal line         32x 0.10 mm           Core diameter including insulation         1.17 mm ±0.02 mm (Signal line)           Thickness, insulation         ≥ 0.21 mm (Core insulation)           Wire colors         brown, white, blue, black           Overall twist         4 wires, twisted           External sheath, color         black-gray RAL 7021           Outer sheath thickness         approx. 0.7 mm           Stetenal cable diameter D         4.4 mm ±0.15 mm           Smallest bending radius, fixed installation         22 mm           Smallest bending radius, movable installation         44 mm           Number of bending cycles         4000000           Bending radius         44 mm           Traversing path         10 m           Traversing rate         3 m/s           Acceleration         5 m/s²           Cable weight         25 kg/km           Outer sheath, material         PP           Conductor insulation         PP           Conductor material         Bare Cu litz wires           Insulation resistance         ≥ 100 GΩ*km (at 20 °C)           Nominal voltage, cable         ≤ 300 V	UL AWM style	20549
Conductor structure signal line         32x 0.10 mm           Core diameter including insulation         1.17 mm ±0.02 mm (Signal line)           Thickness, insulation         ≥ 0.21 mm (Core insulation)           Wire colors         brown, white, blue, black           Overall twist         4 wires, twisted           External sheath, color         black-gray RAL 7021           Outer sheath thickness         approx. 0.7 mm           External cable diameter D         4.4 mm ±0.15 mm           Smallest bending radius, fixed installation         22 mm           Smallest bending radius, movable installation         44 mm           Number of bending cycles         4000000           Bending radius         44 mm           Traversing path         10 m           Traversing rate         3 m/s           Acceleration         5 m/s²           Cable weight         25 kg/km           Outer sheath, material         PUR           Material conductor insulation         PP           Conductor material         Bare Cu litz wires           Insulation resistance         ≥ 100 GΩ*km (at 20 °C)           Conductor resistance         max. 78 Ω/km (at 20 °C)           Nominal voltage, cable         ≥ 3000 V	Conductor cross section	4x 0.25 mm² (Signal line)
Core diameter including insulation         1.17 mm ±0.02 mm (Signal line)           Thickness, insulation         ≥ 0.21 mm (Core insulation)           Wire colors         brown, white, blue, black           Overall twist         4 wires, twisted           External sheath, color         black-gray RAL 7021           Outer sheath thickness         approx. 0.7 mm           External cable diameter D         4.4 mm ±0.15 mm           Smallest bending radius, fixed installation         22 mm           Smallest bending radius, movable installation         44 mm           Number of bending cycles         4000000           Bending radius         44 mm           Traversing path         10 m           Traversing rate         3 m/s           Acceleration         5 m/s²           Cable weight         25 kg/km           Outer sheath, material         PUR           Material conductor insulation         PP           Conductor material         Bare Cu litz wires           Insulation resistance         ≥ 100 GΩ*km (at 20 °C)           Conductor resistance         max. 78 Ω/km (at 20 °C)           Nominal voltage, cable         ≥ 3000 V	AWG signal line	24
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Wire colors         brown, white, blue, black           Overall twist         4 wires, twisted           External sheath, color         black-gray RAL 7021           Outer sheath thickness         approx. 0.7 mm           External cable diameter D         4.4 mm ±0.15 mm           Smallest bending radius, fixed installation         22 mm           Smallest bending radius, movable installation         44 mm           Number of bending cycles         4000000           Bending radius         44 mm           Traversing path         10 m           Traversing rate         3 m/s           Acceleration         5 m/s²           Cable weight         25 kg/km           Outer sheath, material         PUR           Material conductor insulation         PP           Conductor material         Bare Cu litz wires           Insulation resistance         ≥ 100 GΩ*km (at 20 °C)           Conductor resistance         max. 78 Ω/km (at 20 °C)           Nominal voltage, cable         ≤ 300 V           Test voltage, cable         ≥ 3000 V	Core diameter including insulation	1.17 mm ±0.02 mm (Signal line)
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Smallest bending radius, movable installation44 mmNumber of bending cycles4000000Bending radius44 mmTraversing path10 mTraversing rate3 m/sAcceleration5 m/s²Cable weight25 kg/kmOuter sheath, materialPURMaterial conductor insulationPPConductor materialBare Cu litz wiresInsulation resistance≥ 100 GΩ*km (at 20 °C)Conductor resistancemax. 78 Ω/km (at 20 °C)Nominal voltage, cable≤ 300 VTest voltage, cable≥ 3000 V	External cable diameter D	4.4 mm ±0.15 mm
Number of bending cycles 4000000  Bending radius 44 mm  Traversing path 10 m  Traversing rate 3 m/s  Acceleration 5 m/s²  Cable weight 25 kg/km  Outer sheath, material PUR  Material conductor insulation PP  Conductor material Bare Cu litz wires  Insulation resistance $\geq 100 \text{ G}\Omega^*\text{km}$ (at 20 °C)  Conductor resistance $\Rightarrow 300 \text{ V}$ Test voltage, cable $\Rightarrow 300 \text{ V}$	Smallest bending radius, fixed installation	22 mm
Bending radius 44 mm  Traversing path 10 m  Traversing rate 3 m/s  Acceleration 5 m/s²  Cable weight 25 kg/km  Outer sheath, material PUR  Material conductor insulation PP  Conductor material Bare Cu litz wires  Insulation resistance $\Rightarrow 100 \text{ G}\Omega^*\text{km}$ (at 20 °C)  Conductor resistance $\Rightarrow 300 \text{ V}$ Test voltage, cable $\Rightarrow 300 \text{ V}$	Smallest bending radius, movable installation	44 mm
Traversing path10 mTraversing rate3 m/sAcceleration $5 \text{ m/s}^2$ Cable weight $25 \text{ kg/km}$ Outer sheath, materialPURMaterial conductor insulationPPConductor materialBare Cu litz wiresInsulation resistance $\geq 100 \text{ G}\Omega^*\text{km}$ (at 20 °C)Conductor resistance $max. 78 \Omega/\text{km}$ (at 20 °C)Nominal voltage, cable $\leq 300 \text{ V}$ Test voltage, cable $\geq 3000 \text{ V}$	Number of bending cycles	4000000
Traversing rate 3 m/s  Acceleration 5 m/s²  Cable weight 25 kg/km  Outer sheath, material PUR  Material conductor insulation PP  Conductor material Bare Cu litz wires  Insulation resistance $\geq 100 \text{ G}\Omega^*\text{km}$ (at 20 °C)  Conductor resistance max. $78 \Omega/\text{km}$ (at 20 °C)  Nominal voltage, cable $\leq 300 \text{ V}$ Test voltage, cable $\geq 3000 \text{ V}$	Bending radius	44 mm
Acceleration $5 \text{ m/s}^2$ Cable weight $25 \text{ kg/km}$ Outer sheath, material PUR  Material conductor insulation PP  Conductor material Bare Cu litz wires  Insulation resistance $\geq 100 \text{ G}\Omega^*\text{km}$ (at 20 °C)  Conductor resistance $\text{max. 78 }\Omega/\text{km}$ (at 20 °C)  Nominal voltage, cable $\leq 300 \text{ V}$ Test voltage, cable $\geq 3000 \text{ V}$	Traversing path	10 m
Cable weight 25 kg/km  Outer sheath, material PUR  Material conductor insulation PP  Conductor material Bare Cu litz wires  Insulation resistance $\geq 100 \text{ G}\Omega^*\text{km}$ (at 20 °C)  Conductor resistance max. $78 \Omega/\text{km}$ (at 20 °C)  Nominal voltage, cable $\leq 300 \text{ V}$ Test voltage, cable $\geq 3000 \text{ V}$	Traversing rate	3 m/s
Outer sheath, materialPURMaterial conductor insulationPPConductor materialBare Cu litz wiresInsulation resistance $\geq 100 \text{ G}\Omega^*\text{km}$ (at 20 °C)Conductor resistance $\max. 78 \Omega/\text{km}$ (at 20 °C)Nominal voltage, cable $\leq 300 \text{ V}$ Test voltage, cable $\geq 3000 \text{ V}$	Acceleration	5 m/s <sup>2</sup>
Material conductor insulationPPConductor materialBare Cu litz wiresInsulation resistance $\geq 100 \text{ G}\Omega^*\text{km}$ (at 20 °C)Conductor resistancemax. 78 Ω/km (at 20 °C)Nominal voltage, cable $\leq 300 \text{ V}$ Test voltage, cable $\geq 3000 \text{ V}$	Cable weight	25 kg/km
Conductor material Bare Cu litz wires  Insulation resistance $\geq 100 \text{ G}\Omega^*\text{km}$ (at 20 °C)  Conductor resistance max. 78 $\Omega/\text{km}$ (at 20 °C)  Nominal voltage, cable $\leq 300 \text{ V}$ Test voltage, cable $\geq 3000 \text{ V}$	Outer sheath, material	PUR
Insulation resistance       ≥ 100 GΩ*km (at 20 °C)         Conductor resistance       max. 78 Ω/km (at 20 °C)         Nominal voltage, cable       ≤ 300 V         Test voltage, cable       ≥ 3000 V	Material conductor insulation	PP
Conductor resistance       max. 78 Ω/km (at 20 °C)         Nominal voltage, cable $\leq 300 \text{ V}$ Test voltage, cable $\geq 3000 \text{ V}$	Conductor material	Bare Cu litz wires
Nominal voltage, cable $\leq 300 \text{ V}$ Test voltage, cable $\geq 3000 \text{ V}$	Insulation resistance	≥ 100 GΩ*km (at 20 °C)
Test voltage, cable ≥ 3000 V	Conductor resistance	max. 78 Ω/km (at 20 °C)
-	Nominal voltage, cable	≤ 300 V
Special properties Flexible cable conduit capable	Test voltage, cable	≥ 3000 V
	Special properties	Flexible cable conduit capable



## Technical data

### Cable

	Silicone-free
	Free of substances which would hinder coating with paint or varnish
Flame resistance	in accordance with DIN UL-Style 20549
Halogen-free	in accordance with DIN VDE 0472 part 815
Resistance to oil	in accordance with DIN EN 60811-2-1
Other resistance	Highly resistant to acids, alkaline solutions and solvents
	hydrolysis and microbe resistant
	partly UV-resistant in accordance with DIN EN ISO 4892-2-A
Ambient temperature (operation)	-40 °C 80 °C (cable, fixed installation)
	-25 °C 80 °C (cable, flexible installation)

### Classifications

### 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

### **ETIM**

ETIM 2.0	EC000830
ETIM 3.0	EC001855
ETIM 4.0	EC001855
ETIM 5.0	EC001855

### UNSPSC

UNSPSC 6.01	31251501
UNSPSC 7.0901	31251501
UNSPSC 11	31251501
UNSPSC 12.01	31251501
UNSPSC 13.2	31251501

## Drawings



Schematic diagram



Pin assignment M8 plug, 4-pos., view male side

Schematic diagram



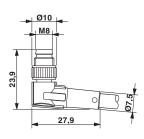
Pin assignment M12 socket, 4-pos., A-coded, view female side

Cable cross section



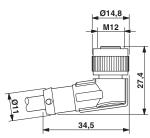
PUR halogen-free black [PUR]

Dimensional drawing



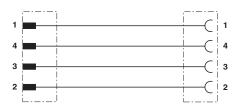
M8 x 1 male plug, angled version

Dimensional drawing



M12 x 1 socket, angled

Circuit diagram





### Schematic diagram



Layout of connector pin assignments

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