

## Sensor/actuator cable - SAC-4P-M12FR-2L/.../... - 1506561

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Sensor/actuator cable, 4-position, Variable cable type, free cable end, on Socket angled M12, A-coded, with 2 LEDs, cable length: Free input (0.2 ... 40.0 m)

### Your advantages

- ✓ Easy and safe: 100% electrically tested plug-in components
- ✓ Flexible solutions - configurable materials with variable cable types and cable lengths
- ✓ Convenient: increased machine availability thanks to quick and easy diagnostics

RoHS

### Key Commercial Data

Packing unit	1 pc
Minimum order quantity	25 pc

### Configuration

Cable type	PVC gray [500]
Length [m]	1

### 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)
Degree of protection	IP65
	IP67
	IP68

#### General

Rated current at 40°C	4 A
Rated voltage	24 V
	24 V DC

# Sensor/actuator cable - SAC-4P-M12FR-2L/.../... - 1506561

## Technical data

### General

Number of positions	4
Insulation resistance	$\geq 100 \text{ M}\Omega$
Coding	A - standard
Status display	2 LEDs
Protective circuit/component	Unwired
Overvoltage category	II
Degree of pollution	3
Insertion/withdrawal cycles	$\geq 100$

### 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
Sealing material	NBR

### 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.
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### Standards and Regulations

Flammability rating according to UL 94	HB
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### 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 $\pm$ 0.05 mm
Thickness, insulation	$\geq 0.3 \text{ mm}$ (Core insulation)
	$\geq 0.38 \text{ mm}$ (Outer cable sheath)
	approx. 0.35 mm (Inner sheath)
Wire colors	brown, white, blue, black
Overall twist	4 wires, twisted
External sheath, color	gray RAL 7001
External cable diameter D	5.2 mm $\pm$ 0.2 mm
Smallest bending radius, fixed installation	52 mm
Smallest bending radius, movable installation	52 mm
Number of bending cycles	200000

## Sensor/actuator cable - SAC-4P-M12FR-2L/.../... - 1506561

### Technical data

#### PUR/PVC gray [100]

Bending radius	52 mm
Traversing path	5 m
Traversing rate	3 m/s
Cable weight	39 kg/km
Outer sheath, material	PUR
Material, inner sheath	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 DIN UL-Style 20549
Ambient temperature (operation)	-25 °C ... 80 °C (cable, fixed installation)
	-5 °C ... 80 °C (cable, flexible installation)

#### PUR/PVC yellow [140]

Cable type	PUR/PVC yellow
Cable type (abbreviation)	140
Cable abbreviation	LiYY-11Y
UL AWM style	20549
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 $\pm 0.05 \text{ mm}$
Thickness, insulation	approx. 0.3 mm (Core insulation)
	$\geq 0.38 \text{ mm}$ (Outer cable sheath)
	approx. 0.35 mm (Inner sheath)
Wire colors	brown, white, blue, black
Overall twist	4 wires, twisted
External sheath, color	yellow
External cable diameter D	5.2 mm $\pm 0.2 \text{ mm}$
Smallest bending radius, fixed installation	52 mm
Smallest bending radius, movable installation	52 mm
Number of bending cycles	2000000
Bending radius	52 mm
Traversing path	5 m
Traversing rate	3 m/s
Cable weight	39 kg/km
Outer sheath, material	PUR
Material, inner sheath	PVC

## Sensor/actuator cable - SAC-4P-M12FR-2L/.../... - 1506561

### Technical data

#### PUR/PVC yellow [140]

Material conductor insulation	PVC
Conductor material	Bare Cu litz wires
Insulation resistance	$\geq 1 \text{ G}\Omega \cdot \text{km}$ (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 DIN UL-Style 20549
Ambient temperature (operation)	-25 °C ... 80 °C (cable, fixed installation)
	-5 °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-OB
Conductor cross section	4x 0.34 mm <sup>2</sup>
AWG signal line	22
Conductor structure signal line	19x 0.15 mm
Core diameter including insulation	1.05 mm $\pm$ 0.05 mm (Signal line)
Wire colors	brown, white, blue, black
Overall twist	4 wires, twisted
Length of twist, overall twist	27 mm
External sheath, color	orange RAL 2003
External cable diameter D	5.2 mm $\pm$ 0.2 mm
Smallest bending radius, fixed installation	min. 15 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
Torsion force	$\pm 360 \text{ }^\circ/\text{m}$
Outer sheath, material	PUR
Material conductor insulation	PE
Conductor material	Bare Cu litz wires
Conductor resistance	max. 57 $\Omega/\text{km}$
Nominal voltage, cable	320 V (AC)
Test voltage, cable	2500 V (50 Hz, 5 minutes)
Special properties	Silicone-free
	Irradiated
Halogen-free	The cable is halogen-free
Other resistance	hydrolysis and microbe resistant
	Resistant to welding splashes

## Sensor/actuator cable - SAC-4P-M12FR-2L/.../... - 1506561

### Technical data

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

Ambient temperature (operation)	-50 °C ... 105 °C (cable, fixed installation)
	-40 °C ... 105 °C (cable, flexible installation)

#### PUR irradiated halogen-free yellow [160]

Cable type	PUR irradiated halogen-free yellow
Cable type (abbreviation)	160
Conductor cross section	4x 0.34 mm <sup>2</sup> (Signal line)
AWG signal line	22
Conductor structure signal line	19x 0.15 mm
Core diameter including insulation	1.05 mm ±0.05 mm (Signal line)
Wire colors	brown, white, blue, black
Overall twist	4 wires, twisted
Length of twist, overall twist	27 mm
External sheath, color	yellow
External cable diameter D	5.2 mm ±0.2 mm
Smallest bending radius, fixed installation	min. 15 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
Torsion force	360 °/m
Outer sheath, material	PUR
Material conductor insulation	PE
Conductor material	Bare Cu litz wires
Conductor resistance	≤ 57 Ω/km
Nominal voltage, cable	320 V AC
Test voltage, cable	2500 V AC (50 Hz, 5 minutes)
Special properties	Silicone-free
	Irradiated
Flame resistance	DIN VDE 0472 part 804, test type B
Halogen-free	The cable is halogen-free
Other resistance	hydrolysis and microbe resistant
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	Li9Y-11Y
UL AWM style	20549
Conductor cross section	4x 0.34 mm <sup>2</sup> (Signal line)

## Sensor/actuator cable - SAC-4P-M12FR-2L/.../... - 1506561

### Technical data

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

AWG signal line	22
Conductor structure signal line	42x 0.10 mm
Core diameter including insulation	1.27 mm $\pm$ 0.02 mm (Signal line)
Thickness, insulation	$\geq$ 0.21 mm (Core insulation)
	approx. 0.8 mm (Outer cable sheath)
Wire colors	brown, white, blue, black
Overall twist	4 wires, twisted
External sheath, color	orange RAL 2003
External cable diameter D	4.7 mm $\pm$ 0.15 mm
Smallest bending radius, fixed installation	23.5 mm
Smallest bending radius, movable installation	47 mm
Number of bending cycles	4000000
Bending radius	47 mm
Traversing path	10 m
Traversing rate	3 m/s
Acceleration	10 m/s <sup>2</sup>
Cable weight	30 kg/km
Outer sheath, material	PUR
Material conductor insulation	PP
Conductor material	Bare Cu litz wires
Insulation resistance	$\geq$ 1 G $\Omega$ *km (at 20 °C)
Conductor resistance	max. 58 $\Omega$ /km (at 20 °C)
Nominal voltage, cable	$\leq$ 300 V
Test voltage, cable	$\geq$ 3000 V
Special properties	Free of substances which would hinder coating with paint or varnish
Flame resistance	in accordance with UL 758/1581 FT2
Halogen-free	in accordance with DIN VDE 0472 part 815
	in accordance with DIN EN 50267-2-1
Resistance to oil	in accordance with DIN EN 60811-2-1
Other resistance	Resistant to salt water
	hydrolysis and microbe resistant
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
Conductor cross section	4x 0.34 mm <sup>2</sup>
AWG signal line	22
Conductor structure signal line	42x 0.10 mm

## Sensor/actuator cable - SAC-4P-M12FR-2L/.../... - 1506561

### Technical data

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

Core diameter including insulation	1.27 mm ±0.02 mm
Thickness, insulation	≥ 0.21 mm (Core insulation)
	approx. 0.8 mm (Outer cable sheath)
Wire colors	brown, white, blue, black
Overall twist	4 wires, twisted
Length of twist, overall twist	49.5 mm
External sheath, color	yellow
External cable diameter D	4.7 mm ±0.15 mm
Smallest bending radius, fixed installation	23.5 mm
Smallest bending radius, movable installation	47 mm
Number of bending cycles	4000000
Bending radius	47 mm
Traversing path	10 m
Traversing rate	3 m/s
Acceleration	10 m/s <sup>2</sup>
Cable weight	30 kg/km
Outer sheath, material	PUR
Material conductor insulation	PP
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
Special properties	Flexible cable conduit capable
	Silicone-free
	Free of substances which would hinder coating with paint or varnish
Flame resistance	in accordance with DIN UL-Style 20549
	in accordance with FT1 as per UL 758
Halogen-free	in accordance with DIN VDE 0472 part 815
	in accordance with DIN EN 50267-2-1
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
Ambient temperature (operation)	-40 °C ... 80 °C (cable, fixed installation)
	-25 °C ... 80 °C (cable, flexible installation)

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

Cable type	PUR halogen-free gray
Cable type (abbreviation)	280
Cable abbreviation	Li9Y11Y
Conductor cross section	0.34 mm <sup>2</sup>

## Sensor/actuator cable - SAC-4P-M12FR-2L/.../... - 1506561

### Technical data

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

AWG signal line	22
Conductor structure signal line	42x 0.10 mm
Core diameter including insulation	1.27 mm $\pm$ 0.02 mm
Thickness, insulation	$\geq$ 0.21 mm (Core insulation)
	approx. 0.8 mm (Outer cable sheath)
Wire colors	brown, white, blue, black
Overall twist	4 wires, twisted
Length of twist, overall twist	49.5 mm
External sheath, color	gray RAL 7001
External cable diameter D	4.7 mm $\pm$ 0.15 mm
Smallest bending radius, fixed installation	23.5 mm
Smallest bending radius, movable installation	47 mm
Number of bending cycles	4000000
Bending radius	47 mm
Traversing path	10 m
Traversing rate	3 m/s
Acceleration	10 m/s <sup>2</sup>
Cable weight	30 kg/km
Outer sheath, material	PUR
Material conductor insulation	PP
Conductor material	Bare Cu litz wires
Insulation resistance	$\geq$ 100 M $\Omega$ *km
Conductor resistance	max. 58 $\Omega$ /km (at 20 °C)
Nominal voltage, cable	$\leq$ 300 V
Test voltage, cable	$\geq$ 3000 V
Special properties	Flexible cable conduit capable
	Silicone-free
	Free of substances which would hinder coating with paint or varnish
Flame resistance	in accordance with DIN UL-Style 20549
	in accordance with FT1 as per UL 758
Halogen-free	in accordance with DIN VDE 0472 part 815
	in accordance with DIN EN 50267-2-1
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
Ambient temperature (operation)	-40 °C ... 80 °C (cable, fixed installation)
	-25 °C ... 80 °C (cable, flexible installation)

#### PVC gray [500]

Cable type	PVC gray
Cable type (abbreviation)	500



## Sensor/actuator cable - SAC-4P-M12FR-2L/.../... - 1506561

### Technical data

#### PVC gray [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
Overall twist	4 wires, twisted
External sheath, color	gray RAL 7001
External cable diameter D	5.2 mm ±0.15 mm
Smallest bending radius, fixed installation	26 mm
Smallest bending radius, movable installation	52 mm
Cable weight	40 kg/km
Outer sheath, material	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 (AC)
Test voltage, cable	≥ 3000 V (AC)
Flame resistance	in accordance with FT1 as per UL 758
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 [540]

Cable type	PVC yellow
Cable type (abbreviation)	540
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 ±0.05 mm
Thickness, insulation	≥ 0.23 mm (Core insulation)
	≥ 0.76 mm (Outer cable sheath)
Wire colors	brown, white, blue, black
Overall twist	4 wires, twisted
External sheath, color	yellow
External cable diameter D	5.2 mm ±0.15 mm
Cable weight	40 kg/km

## Sensor/actuator cable - SAC-4P-M12FR-2L/.../... - 1506561

### Technical data

#### PVC yellow [540]

Outer sheath, material	PVC
Material conductor insulation	PVC
Conductor material	Bare Cu litz wires
Insulation resistance	$\geq 1 \text{ G}\Omega \cdot \text{km}$ (at 20 °C)
Conductor resistance	max. 58 $\Omega/\text{km}$ (at 20 °C)
Nominal voltage, cable	$\leq 300 \text{ V}$ (AC)
Test voltage, cable	$\geq 3000 \text{ V}$
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
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	1.55 mm $\pm 0.05 \text{ mm}$
Thickness, insulation	$\geq 0.38 \text{ mm}$ (Core insulation)
	$\geq 0.76 \text{ mm}$ (Outer cable sheath)
Wire colors	brown, white, blue, black
Overall twist	4 wires, twisted
External sheath, color	yellow
External cable diameter D	5.5 mm $\pm 0.2 \text{ mm}$
Cable weight	43 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	$\leq 58 \Omega/\text{km}$ (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
	in acc. to UL VW1
Ambient temperature (operation)	-25 °C ... 105 °C (cable, fixed installation)

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

Note	Due to the extremely robust outer sheath, this cable should only be stripped in 5 cm increments.
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# Sensor/actuator cable - SAC-4P-M12FR-2L/.../... - 1506561

## Technical data

Gray, highly flexible PUR [800]

Cable type	Gray, highly flexible PUR
Cable type (abbreviation)	800
Cable abbreviation	Li12YYTPE-HF
UL AWM style	20233
Conductor cross section	4x 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	brown, white, blue, black
Overall twist	4 wires, twisted
External sheath, color	gray RAL 7001
External cable diameter D	4.8 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	33.5 kg/km
Outer sheath, material	PUR
Material conductor insulation	PES
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
Flame resistance	according to IEC 60332-1-2
	according to UL 758/1581 VW-1
	according to UL 758/1581 FT1
Halogen-free	in accordance with DIN VDE 0472 part 815

# Sensor/actuator cable - SAC-4P-M12FR-2L/.../... - 1506561

## Technical data

Gray, highly flexible PUR [800]

Resistance to oil	According to HD 22.10
	in accordance with DIN EN 60811-404 (external sheath)
Other resistance	Highly resistant to acids, alkaline solutions and solvents
	Silicone-free
Ambient temperature (operation)	-40 °C ... 90 °C (cable, fixed installation)
	-30 °C ... 90 °C (cable, flexible installation)
	to 120 °C (for 3000 h)

PUR halogen-free black [PUR]

Cable type	PUR halogen-free black
Cable type (abbreviation)	PUR
Cable abbreviation	Li9Y11Y-HF
UL AWM style	20549 / 10493 (80°C/300 V)
Conductor cross section	4x 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
Overall twist	4 wires, twisted
External sheath, color	black-gray RAL 7021
Outer sheath thickness	approx. 0.5 mm
External cable diameter D	4.2 mm ±0.15 mm
Minimum bending radius, fixed installation	5 x D
Minimum bending radius, flexible installation	10 x D
Number of bending cycles	10000000
Minimum bending radius, drag chain applications	10 x D
Traversing path	10 m
Traversing rate	3 m/s
Acceleration	10 m/s <sup>2</sup>
Cable weight	30 kg/km
Outer sheath, material	PUR
Material conductor insulation	PP
Conductor material	Bare Cu litz wires
Insulation resistance	≥ 1 GΩ*km
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

# Sensor/actuator cable - SAC-4P-M12FR-2L/.../... - 1506561

## Technical data

### PUR halogen-free black [PUR]

	flexible
Flame resistance	in accordance with UL 758/1581 FT2
	DIN EN 60332-2-2 (20 s)
Halogen-free	in accordance with DIN VDE 0472 part 815
	in accordance with DIN EN 50267-2-1
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
	Low adhesion
	abrasion-resistant
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	4x 0.34 mm² (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
Overall twist	4 wires, twisted
External sheath, color	black RAL 9005
Outer sheath thickness	≥ 0.76 mm
External cable diameter D	5.2 mm ±0.15 mm
Minimum bending radius, fixed installation	5 x D
Minimum bending radius, flexible installation	10 x D
Cable weight	40 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	according to UL 758/1581 FT1
	According to UL 758/1581 (Cable Flame)

# Sensor/actuator cable - SAC-4P-M12FR-2L/.../... - 1506561

## Technical data

### PVC black [PVC]

	According to DIN EN 60332-1-2
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)

### PUR halogen-free black [PUR]

Cable type	PUR halogen-free black
Cable type (abbreviation)	PUR
Cable abbreviation	Li9Y11Y-HF
UL AWM style	20549
Conductor cross section	3x 0.25 mm²
AWG signal line	24
Conductor structure signal line	32x 0.10 mm
Core diameter including insulation	1.17 mm ±0.02 mm
Thickness, insulation	≥ 0.21 mm (Core insulation)
Wire colors	brown, blue, black
Overall twist	3 wires, twisted
Length of twist, overall twist	40 mm
External sheath, color	black-gray RAL 7021
Outer sheath thickness	approx. 0.5 mm
External cable diameter D	3.6 mm ±0.15 mm
Smallest bending radius, fixed installation	18 mm
Smallest bending radius, movable installation	36 mm
Number of bending cycles	10000000
Bending radius	44 mm
Traversing path	10 m
Traversing rate	3 m/s
Acceleration	10 m/s²
Cable weight	18 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	≤ 78 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
Flame resistance	in accordance with UL 758/1581 FT2
	DIN EN 60332-2-2 (20 s)

## Sensor/actuator cable - SAC-4P-M12FR-2L/.../... - 1506561

### Technical data

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

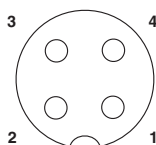
Halogen-free	in accordance with DIN VDE 0472 part 815
Resistance to oil	in accordance with DIN EN 60811-2-1
Other resistance	hydrolysis and microbe resistant
	Highly resistant to acids, alkaline solutions and solvents
	Resistant to salt water
	partly UV-resistant in accordance with DIN EN ISO 4892-2-A
Ambient temperature (operation)	-40 °C ... 80 °C (cable, fixed installation)
	-25 °C ... 80 °C (cable, flexible installation)

#### Environmental Product Compliance

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

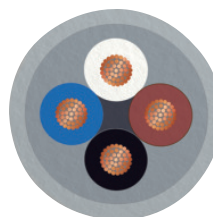
### Drawings

Schematic diagram



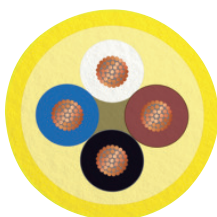
Pin assignment M12 socket, 4-pos., A-coded, view female side

Cable cross section



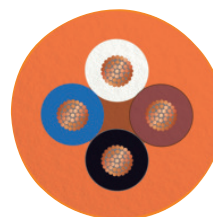
PUR/PVC gray [100]

Cable cross section



PUR/PVC yellow [140]

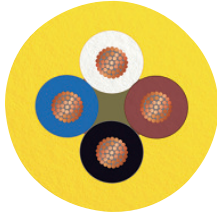
Cable cross section



PUR irradiated halogen-free orange [150]

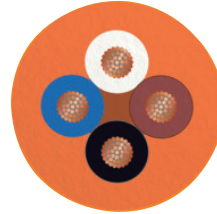
## Sensor/actuator cable - SAC-4P-M12FR-2L/.../... - 1506561

Cable cross section



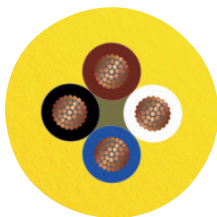
PUR irradiated halogen-free yellow [160]

Cable cross section



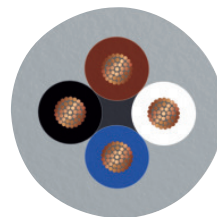
PUR halogen-free orange [180]

Cable cross section



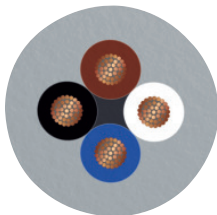
PUR halogen-free yellow [240]

Cable cross section



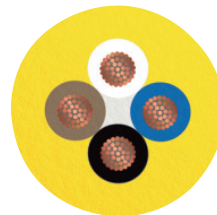
PUR halogen-free gray [280]

Cable cross section



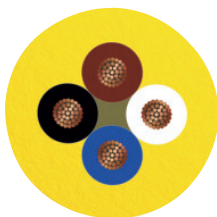
PVC gray [500]

Cable cross section



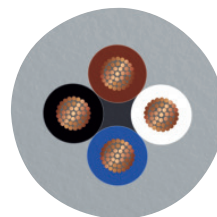
PVC yellow [540]

Cable cross section



PVC yellow 105 °C [542]

Cable cross section

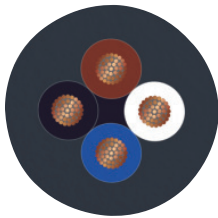


Gray, highly flexible PUR [800]



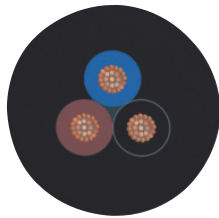
Sensor/actuator cable - SAC-4P-M12FR-2L/.../... - 1506561

Cable cross section



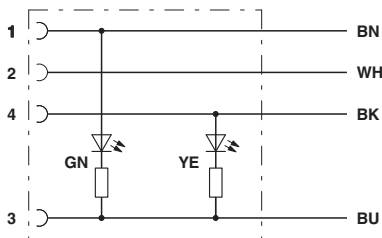
PVC black [PVC]

Cable cross section



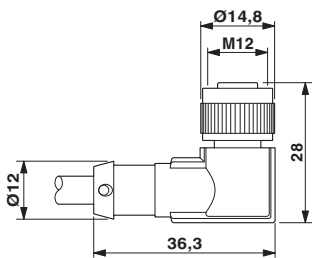
PUR halogen-free black [PUR]

Circuit diagram



Contact assignment of the M12 socket

Dimensional drawing



Socket M12 x 1, angled, with LED

Approvals


Approvals

Approvals

UL Listed / cUL Listed / cULus Listed


Ex Approvals

Approval details

UL Listed		<a href="http://database.ul.com/cgi-bin/XYVV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYVV/template/LISEXT/1FRAME/index.htm</a>	FILE E 221474
Nominal voltage UN	24 V		
Nominal current IN	4 A		

## Sensor/actuator cable - SAC-4P-M12FR-2L/.../... - 1506561

### Approvals

cUL Listed		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 221474
Nominal voltage UN		24 V	
Nominal current IN		4 A	

cULus Listed	
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