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Sensor/actuator cable, 3-position, Variable cable type, Plug straight M8, on Socket angled M12 SPEEDCON, A-coded, cable length: Free input (0.2 ... 40.0 m)



### Key Commercial Data

Packing unit	1 pc
Weight per Piece (excluding packing)	1.000 g
Custom tariff number	85444290
Country of origin	United States

### Technical data

#### Dimensions

Length of cable	Free input (0.2 40.0 m)
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	48 V AC
	60 V DC
Number of positions	3
Insulation resistance	$\geq$ 100 MΩ
Coding	A - standard
Standards/regulations	M12 connector IEC 61076-2-101

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### Technical data

#### General

	M8 connector IEC 61076-2-104
Status display	No
Protective circuit/component	unwired
Overvoltage category	Ш
Degree of pollution	3
Insertion/withdrawal cycles	≥ 100
Torque	0.4 Nm (M12 connector)
	0.2 Nm (M8 connectors)

### Material

Flammability rating according to UL 94	НВ
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	nsor/actuator cable with a freely selectable cable type. The r all possible cable types is listed in the table below.
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### Standards and Regulations

Standard designation	M12 connector
Standards/regulations	IEC 61076-2-101
Standard designation	M8 connector
Standards/regulations	IEC 61076-2-104
Flammability rating according to UL 94	НВ

### PVC yellow 105 °C [542]

Cable type	PVC yellow 105 °C
Cable type (abbreviation)	542
UL AWM style	2517 (105 °C / 300 V)
AWG signal line	24
Core diameter including insulation	1.12 mm ±0.03 mm
Wire colors	brown, blue, black
Overall twist	3 wires, twisted
External sheath, color	yellow
External cable diameter D	4.1 mm ±0.2 mm
Minimum bending radius, flexible installation	8 x D



### Technical data

## PVC yellow 105 °C [542]

Cable weight	21 kg/km
Outer sheath, material	PVC
Material conductor insulation	PVC
Conductor material	Tin-plated Cu litz wires
Insulation resistance	≥ (550 M Ohms/m @ 500V)
Conductor resistance	max. 79.7 Ω/km (20 °C)
Nominal voltage, cable	300 V
Flame resistance	FT4
Other resistance	UV resistant
Ambient temperature (operation)	-30 °C 105 °C (cable, fixed installation)

### Black PVC 105°C [535]

Cable type	Black PVC 105°C
Cable type (abbreviation)	535
UL AWM style	2517 (105 °C / 300 V)
AWG signal line	24
Conductor structure signal line	32x 1.10 mm
Core diameter including insulation	1.12 mm ±0.03 mm
Wire colors	brown, blue, black
Overall twist	3 wires, twisted
External sheath, color	black
External cable diameter D	4.1 mm ±0.2 mm
Minimum bending radius, flexible installation	8 x D
Cable weight	21 kg/km
Outer sheath, material	PVC
Material conductor insulation	PVC
Conductor material	Tin-plated Cu litz wires
Nominal voltage, cable	300 V
Flame resistance	FT4
Other resistance	UV resistant
Ambient temperature (operation)	-30 °C 105 °C (cable, fixed installation)

### PUR halogen-free yellow [240]

Cable type	PUR halogen-free yellow
Cable type (abbreviation)	240
Cable abbreviation	Li9Y11Y
UL AWM style	20549
Conductor cross section	3x 0.25 mm² (Signal line)



### Technical data

### PUR halogen-free yellow [240]

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
Wire colors	brown, blue, black
Overall twist	3 wires, twisted
Length of twist, overall twist	40 mm
External sheath, color	yellow
Outer sheath thickness	approx. 0.9 mm
External cable diameter D	4.4 mm ±0.15 mm
Minimum bending radius, fixed installation	5 x D
Minimum bending radius, flexible installation	10 x D
Number of bending cycles	400000
Minimum bending radius, drag chain applications	10 x D
Traversing path	10 m
Traversing rate	3 m/s
cceleration 10 m/s <sup>2</sup>	
Cable weight	24 kg/km
Outer sheath, material	PUR
Material conductor insulation PP	
Conductor material	Bare Cu litz wires
Insulation resistance	$\geq$ 1 GΩ*km (at 20 °C)
Conductor resistance	78 Ω/km (at 20 °C)
Nominal voltage, cable	
Test voltage, cable	≥ 3000 V AC (Spark test)
Flame resistance	in accordance with UL 758/1581 FT2
Halogen-free	in accordance with DIN VDE 0472 part 815
	According to EN 50267-2-1
Resistance to oil	According to DIN EN 60811-2-1, 168 h at 100°C
	According to UL 758, 168 h at 60°C
Other resistance	hydrolysis and microbe resistant
	Resistant to salt water
	abrasion-resistant
	Low adhesion
Ambient temperature (operation)	-40 °C 80 °C (cable, fixed installation)
	-25 °C 80 °C (cable, flexible installation)

PUR halogen-free black [PUR]



## Technical data

### PUR halogen-free black [PUR]

Cable type (abbreviation)       PUR         Cable abbreviation       Li9V11Y-HF         UL AWM style       20549         Conductor cross section       3x 0.25 mm²         AWG signal line       24         Conductor structure signal line       3zx 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         Smallest bending radius, fixed installation       18 mm         Smallest bending radius, movable installation       36 mm         Number of bending cycles       1000000         Bending radius       44 mm         Traversing rate       3 m/s         Acceleration       10 m/s <sup>4</sup> Coductor material       PP         Conductor material       Bare Cultz wires         Insulation resistance       2 78 D/Km (at 20 °C)         Conductor material       Bare Cultz wires         Insulat	Cable type	PUR halogen-free black
Cable abbreviation       LIPY11Y-HF         UL AWM style       20549         Conductor cross section       3x 0.25 mm³         AWG signal line       24         Conductor structure signal line       32x 0.10 mm         Core diameter including insulation       1.17 mm 4.0.22 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 sheath cable diameter D       3.6 mm ±0.15 mm         Smallest bending radus, fixed installation       18 mm         Smallest bending radus, mowable installation       36 mm         Number of bending cycles       10000000         Bending radus       44 mm         Traversing rafe       3 m/s         Acceleration       10 m         Traversing rafe       3 m/s         Cable weight       10 m/s*         Cable weight       10 m/s*         Cable weight       10 m/s*         Cable weight       200 GA'km (at 2		
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     40 mm       Length of twist, overall twist     40 mm       External sheath, color     black-grap RAL 7021       Outer sheath thickness     approx.0.5 mm       External sheath, color     36 mm ±0.15 mm       Smallest bending radius, fixed installation     18 mm       Smallest bending radius, movable installation     36 mm       Number of bending cycles     40 mm       Bending radius     44 mm       Traversing rate     3 m/s       Acceleration     10 m/s²       Cable weight     0 kag/km       Outer sheath, material     PUR       Material conductor insulation     PP       Conductor mesistance     2100 GPTkm (at 20 °C)       Conductor mesistance     2100 GPTkm (at 20 °C)       Conductor mesistance     2100 GPTkm (at 20 °C)       Condu		
Conductor orses 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         Smallest bending radius, fixed installation       18 mm         Smallest bending radius, movable installation       3 mm         Number of bending rydes       1000000         Bending radius       44 mm         Traversing rath       10 m         Traversing rate       3 m/s         Acceleration       10 m/s²         Cable weight       18 kg/km         Outer sheath, material       PUR         Material conductor insulation       9 m/s         Conductor material       Bare Cu litz wires         Insulation resistance       2 100 GO*km (at 20 °C)         Conductor rusterial       Silicone-free         In		
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   0 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 rath   10 m     Traversing rate   3 m/s     Acceleration   10 m/s²     Cable weight   18 kg/km     Outer sheath, material   Bare Cu Itz wires     Insulation resistance   ≥ 100 GO*/km (at 20 °C)     Conductor material   Bare Cu Itz wires     Insulation resistance   > 3000 V     Special properties   Flexible cable conduit capable     Flame resistance   Flexible cable conduit capable     Flame resistance   Flexible cable conduit capable     Flame resistance   Flexible cable conduit capable <td></td> <td></td>		
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       40 mm         Length of twist, overall twist       40 mm         External sheath, color       black-gray RAL 7021         Outer sheath thickness       approx.05 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/s <sup>a</sup> Cable weight       18 kg/km         Outer sheath, material       PUR         Material conductor insulation       PP         Conductor material       Bare Cu litz wires         Insulation resistance       2 100 GC*km (at 20 °C)         Conductor resistance       3 300 V         Secoia properties       Flexible cable conduit capable		
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 sheath, color     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 rate     3 m/s       Acceleration     10 m/s²       Cable weight     0 kg/km       Outer resistance     ≥ 100 GO'km (at 20 °C)       Conductor resistance     > 300 V       Special properties     Flaving cable cable conduit capable       Silicone-free     Flave resistance       Hadgen-free     In accordance with UI 758/1581 FT2		
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 cycles     10000000       Bending radius, movable installation     36 mm       Number of bending cycles     10000000       Bending radius     44 mm       Traversing rate     3 m/s       Acceleration     10 m/s <sup>2</sup> Cable weight     00 m/s <sup>2</sup> Outer sheath, material     PUR       Material conductor insulation     PP       Conductor material     Bare Cu Itz wires       Insulation resistance     2100 GG*km (at 20 °C)       Conductor resistance     300 V       Test voltage, cable     300 V       Special properties     Flexible cable conduit capable       Insulation resistance     100 KM (at 20 °C)       Rominal woltage, cable     3000 V       Spec		
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 rate       3 m/s         Acceleration       10 m/s <sup>a</sup> Cable weight       10 m/s <sup>a</sup> Cable weight       18 kg/km         Outer sheath, material       PUR         Material conductor insulation       PP         Conductor material       Bare Cult xwires         Insulation resistance       2 100 GO'km (at 20 °C)         Conductor resistance       2 800 V         Special properties       Flexible cable conduit capable         Silicone-free       Flexible cable conduit capable         Flame resistance       Silicone-free         In accordance with UL 758/1581 FT2       DIN EN 60332-2-2 (20 s)		
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       ≤ 78 0/km (at 20 °C)         Conductor resistance       ≤ 3000 V         Special properties       Flexible cable conduit capable         Issuance       Silicone-free         Flame resistance       in accordance with UL 758/1581 FT2         Insulation-free       in accordance with UN VDE 0472 part 815		
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     2 100 GΩ <sup>+</sup> km (at 20 °C)       Conductor material     S 300 V       Test voltage, cable     2 3000 V       Special properties     Flexible cable conduit capable       Silicone-free     Silicone-free       Insulation     Free of substances which would hinder coating with paint or varnish       Flame resistance     in accordance with UL 758/1581 FT2       IDN EN 60332-2-2 (20 s)     IN EN 60332-2-2 (20 s)       Halogen-free <td< td=""><td></td><td></td></td<>		
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/s <sup>a</sup> Cable weight       18 kg/km         Outer sheath, material       PUR         Material conductor insulation       PP         Conductor material       Bare Cu litz wires         Insulation resistance       2 100 GΩ <sup>x</sup> km (at 20 °C)         Conductor material       Silicone-free         Its voltage, cable       > 3000 V         Special properties       Flexible cable conduit capable         Silicone-free       Silicone-free         Itame resistance       in accordance with UL 758/1581 FT2         Itame resistance       in accordance with DIN VDE 0472 part 815		
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 resistance       ≥ 100 GΩ°km (at 20 °C)         Conductor resistance       ≤ 300 V         Test voltage, cable       > 3000 V         Special properties       Flexible cable conduit capable         Silicone-free       Silicone-free         Insulation resistance       Silicone-free         Insulation resistance       ≥ 100 GΩ°km (at 20 °C)         Conductor resistance       ≤ 300 V         Special properties       Flexible cable conduit capable         Silicone-free       Silicone-free         Internet setstance       in accordance with UL 758/1581 FT2 <t< td=""><td></td><td></td></t<>		
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     2 100 GΩ*km (at 20 °C)       Conductor resistance     3 300 V       Test voltage, cable     2 3000 V       Special properties     Flexible cable conduit capable       Flame resistance     in accordance with UL 758/1581 FT2       Ital alogen-free     in accordance with DIN VDE 0472 part 815		
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     ≤ 300 V       Special properties     Flexible cable conduit capable       Silicone-free     Silicone-free       Halogen-free     in accordance with UL 758/1581 FT2       DIN EN 60332-2-2 (20 s)     Halogen-free		
Smallest bending radius, movable installation     36 mm       Number of bending cycles     1000000       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       Special properties     Flexible cable conduit capable       Silicone-free     Silicone-free       Flame resistance     in accordance with UL 758/1581 FT2       Insulation     DIN EN 60332-2-2 (20 s)       Halogen-free     in accordance with DIN VDE 0472 part 815		
Number of bending cycles     1000000       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     ≤ 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 60322-22 (20 s)     in accordance with DIN VDE 0472 part 815	-	
Bending radius44 mmTraversing path10 mTraversing rate3 m/sAcceleration10 m/s²Cable weight18 kg/kmOuter sheath, materialPURMaterial conductor insulationPPConductor materialBare Cu litz wiresInsulation resistance> 100 GΩ*km (at 20 °C)Conductor resistance< 300 V		
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     Silicone-free       Insulatone resistance     in accordance with UL 758/1581 FT2       DIN EN 60332-2-2 (20 s)     In accordance with DIN VDE 0472 part 815		44 mm
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     Silicone-free       Flame resistance     in accordance with UL 758/1581 FT2       DIN EN 60332-2-2 (20 s)     Halogen-free		10 m
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     Silicone-free       Flame resistance     in accordance with UL 758/1581 FT2       DIN EN 60332-2-2 (20 s)     Halogen-free		3 m/s
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)       Conductor resistance     ≤ 300 V       Test voltage, cable     ≥ 3000 V       Special properties     Flexible cable conduit capable       Silicone-free     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)     Halogen-free       Halogen-free     in accordance with DIN VDE 0472 part 815	Acceleration	10 m/s <sup>2</sup>
Material conductor insulation     PP       Conductor material     Bare Cu litz wires       Insulation resistance     ≥ 100 GQ*km (at 20 °C)       Conductor resistance     ≤ 78 Ω/km (at 20 °C)       Conductor resistance     ≤ 300 V       Test voltage, cable     ≥ 3000 V       Special properties     Flexible cable conduit capable       Silicone-free     Silicone-free       Free of substances which would hinder coating with paint or varnish     in accordance with UL 758/1581 FT2       DIN EN 60332-2-2 (20 s)     Halogen-free       Halogen-free     in accordance with DIN VDE 0472 part 815	Cable weight	18 kg/km
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     Silicone-free       Flame resistance     in accordance with UL 758/1581 FT2       DIN EN 60332-2-2 (20 s)     DIN EN 60332-2-2 (20 s)	Outer sheath, material	PUR
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     Silicone-free       Flame resistance     in accordance with UL 758/1581 FT2       DIN EN 60332-2-2 (20 s)     DIN EN 60332-2-2 (20 s)       Halogen-free     in accordance with DIN VDE 0472 part 815	Material conductor insulation	PP
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     Silicone-free       Flame resistance     in accordance with UL 758/1581 FT2       DIN EN 60332-2-2 (20 s)     Halogen-free	Conductor material	Bare Cu litz wires
Nominal voltage, cable     ≤ 300 V       Test voltage, cable     ≥ 3000 V       Special properties     Flexible cable conduit capable       Silicone-free     Silicone-free       Flame resistance     in accordance with UL 758/1581 FT2       DIN EN 60332-2-2 (20 s)     DIN EN 60332-2-2 (20 s)       Halogen-free     in accordance with DIN VDE 0472 part 815	Insulation resistance	$\geq$ 100 GΩ*km (at 20 °C)
Test voltage, cable     ≥ 3000 V       Special properties     Flexible cable conduit capable       Silicone-free     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)       Halogen-free     in accordance with DIN VDE 0472 part 815	Conductor resistance	$\leq$ 78 $\Omega$ /km (at 20 °C)
Special properties     Flexible cable conduit capable       Special properties     Silicone-free       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)     DIN EN 60332-2-2 (20 s)       Halogen-free     in accordance with DIN VDE 0472 part 815	Nominal voltage, cable	≤ 300 V
Silicone-free       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)       Halogen-free       in accordance with DIN VDE 0472 part 815	Test voltage, cable	≥ 3000 V
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)       Halogen-free     in accordance with DIN VDE 0472 part 815	Special properties	Flexible cable conduit capable
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		Silicone-free
DIN EN 60332-2-2 (20 s)     Halogen-free   in accordance with DIN VDE 0472 part 815		Free of substances which would hinder coating with paint or varnish
Halogen-free in accordance with DIN VDE 0472 part 815	Flame resistance	in accordance with UL 758/1581 FT2
		DIN EN 60332-2-2 (20 s)
Resistance to oil in accordance with DIN EN 60811-2-1	Halogen-free	in accordance with DIN VDE 0472 part 815
	Resistance to oil	in accordance with DIN EN 60811-2-1



### Technical data

### PUR halogen-free black [PUR]

Other resistance	hydrolysis and microbe resistant	
Highly resistant to acids, alkaline solutions and solvent		
	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)	

### 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	
Cable type (abbreviation)	800	
Cable abbreviation	Li12YYTPE-HF	
UL AWM style	20233	
Conductor cross section	3x 0.25 mm² (Signal line)	
AWG signal line	24	
Conductor structure signal line	32x 0.10 mm	
Core diameter including insulation	1.2 mm ±0.05 mm (Signal line)	
Wire colors	brown, blue, black	
Overall twist	3 wires, twisted	
External sheath, color	gray RAL 7001	
External cable diameter D	4.3 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	1000000	
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	1500000	
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	24 kg/km	
Outer sheath, material	PUR	
Material conductor insulation	PES	



### Technical data

## Gray, highly flexible PUR [800]

Conductor material	Bare Cu litz wires
Insulation resistance	$\geq$ 20 MΩ*km
Conductor resistance	approx. 76 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	
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)

### **Environmental Product Compliance**

China RoHS	Environmentally Friendly Use Period = 50
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

## Drawings

#### Schematic diagram



Pin assignment M8 plug, 3-pos., view male side

### Schematic diagram

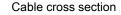


Pin assignment M12 socket, 3-pos., A-coded, view female side



Cable cross section

PVC yellow 105 °C [542]





PUR halogen-free yellow [240]

Cable cross section



Gray, highly flexible PUR [800]

Cable cross section



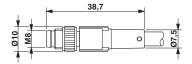
Black PVC 105°C [535]

Cable cross section



PUR halogen-free black [PUR]

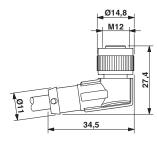
Dimensional drawing



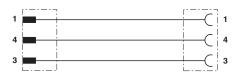
M8 x 1 male plug, straight version



### Dimensional drawing



Circuit diagram



Contact assignment of M8 plugs / M12 sockets

M12 x 1 socket, angled

### 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 8.0	27279218
eCl@ss 9.0	27060311

### ETIM

ETIM 3.0	EC001855
ETIM 4.0	EC001855
ETIM 5.0	EC001855
ETIM 6.0	EC001855

### UNSPSC

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

## Approvals

Approvals



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# Sensor/actuator cable - SAC-3P-M 8MS-FR SCO BK/.../... - 1405938

## Approvals

#### Approvals

UL Listed / cUL Listed / EAC / cULus Listed

Ex Approvals

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### Approval details

UL Listed	LISTED	http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm FILE E 221474		FILE E 221474
Nominal voltage UN			60 V	
Nominal current IN			4 A	

cUL Liste	d cust	http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm FILE E 221474	
Nominal voltage l	JN	60 V	
Nominal current I	N	4 A	

EAC	EAC	RU C- DE.Al30.B.00767

cULus Listed

### Accessories

Accessories

Protective cap



Accessories

Sealing cap - PROT-M 8 FS-PA-CHAIN - 1430857

M8 sealing cap made of plastic with fixing band for sensor cables, for M8 plugs



Screw plug - PROT-M12 MS-PA-CHAIN - 1430899

M12 sealing cap with fixing band, for sensor cables, for free M12 sockets



Safety locking

Locking clip - SAC-M12-EXCLIP-F - 1558991



Locking clip for the socket 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

Screwdriver tools

Tool - SAC BIT M8-D10 - 1208461



Nut for assembling M8 connectors with longitudinal knurl and a knurl diameter of 10 mm, for 4 mm hexagonal drive

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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### Accessories

#### 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

Torque tool

Torque screwdriver - TSD 02 SAC - 1208487



Torque screwdriver, with preset torque of 0.2 Nm and 4 mm hexagonal drive for M8 connectors

Torque screwdriver - TSD 04 SAC - 1208429



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

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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