

## Network cable - NBC-MS/ 2,0-94B/FS SCO - 1407464


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Network cable, Ethernet CAT5 (1 Gbps), 8-position, PUR, water blue RAL 5021, shielded, Plug straight M12 SPEEDCON / IP67, coding: A, on Socket straight M12 SPEEDCON / IP67, coding: A, cable length: 2 m



### Key Commercial Data

Packing unit	1 pc
GTIN	 4 046356 775854
GTIN	4046356775854

### Technical data

#### Dimensions

Length of cable	2 m
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#### Ambient conditions

Degree of protection	IP65
	IP67
Ambient temperature (operation)	-25 °C ... 90 °C (M12 connector)

#### General data

Note	Further products with variable cable type and variable cable length can be found in the accessories section
Rated current at 40°C	2 A
Rated voltage	48 V AC
	60 V DC
Number of positions	8
Signal type/category	Ethernet CAT5 (on the basis of IEC 11801), 1 Gbps
Standards/regulations	M12 connector IEC 61076-2-101
Contact material	CuSn
Contact carrier material	TPU GF
Contact surface material	Ni/Au

# Network cable - NBC-MS/ 2,0-94B/FS SCO - 1407464

## Technical data

### General data

Degree of protection	IP65/IP67
Transmission characteristics (category)	CAT5

### Characteristics head 1

Head type	Plug straight M12 SPEEDCON / IP67
No. of positions (pin connector pattern)	8
Coding	A (Standard)
Color	black
Material (component)	CuZn (Contact)
	Ni/Au (Contact surface)
	TPU GF (Contact carriers)
	TPU, hardly inflammable, self-extinguishing (Grip)
	Zinc die-cast, nickel-plated (Screw connection)
Insulation resistance	≥ 100 MΩ
Insertion/withdrawal cycles	≥ 100
Torque	0.4 Nm
Ambient temperature (operation)	-25 °C ... 90 °C
Shielded	yes
Outer sheath, material	PUR
External sheath, color	water blue RAL 5021
Type type, plug side	Plug straight
Type type, socket side	Socket, straight

### Characteristics head 2

Head type	Socket straight M12 SPEEDCON / IP67
No. of positions (pin connector pattern)	8
Coding	A (Standard)
Color	black
	black
Material (component)	CuZn (Contact)
	Ni/Au (Contact surface)
	TPU GF (Contact carriers)
	TPU, hardly inflammable, self-extinguishing (Grip)
	Zinc die-cast, nickel-plated (Screw connection)
Insulation resistance	≥ 100 MΩ
Insertion/withdrawal cycles	≥ 100
Torque	0.4 Nm
Ambient temperature (operation)	-25 °C ... 90 °C

### Standards and Regulations

Standards/specifications	M12 connector IEC 61076-2-101
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### Cable

## Network cable - NBC-MS/ 2,0-94B/FS SCO - 1407464

### Technical data

#### Cable

Cable type	Ethernet flexible CAT5, 4-pair
Cable type (abbreviation)	94B
UL AWM style	20963 (80°C/30 V)
Signal type/category	Ethernet CAT5 (IEC 11801), 1 Gbps
Cable structure	4x2xAWG26/7; SF/UTP
Conductor cross section	4x 2x 0.14 mm <sup>2</sup>
AWG signal line	26
Conductor structure signal line	7x 0.16 mm
Core diameter including insulation	0.96 mm
Wire colors	white/blue-blue, white/orange-orange, white/green-green, white/brown-brown
Twisted pairs	2 cores to the pair
Overall twist	4 pairs for core
Shielding	Aluminum-coated foil, tinned copper braided shield
Optical shield covering	70 %
External sheath, color	water blue RAL 5021
Outer sheath thickness	1.05 mm
External cable diameter D	6.4 mm ±0.2 mm
Minimum bending radius, fixed installation	4 x D
Minimum bending radius, flexible installation	8 x D
Tensile strength GRP	≤ 100 N
Cable weight	47 kg/km
Outer sheath, material	PUR
Material conductor insulation	Foamed PE
Conductor material	Bare Cu litz wires
Insulation resistance	≥ 500 MΩ*km
Loop resistance	≤ 290.00 Ω/km
Cable capacity	48 nF/km (at 1 kHz)
Wave impedance	100 Ω ±5 Ω (at 100 MHz)
Near end crosstalk attenuation (NEXT)	71.3 dB (with 1 MHz)
	62.3 dB (at 4 MHz)
	56.3 dB (at 10 MHz)
	53.2 dB (at 16 MHz)
	51.8 dB (at 20 MHz)
	48.9 dB (at 31.25 MHz)
	44.4 dB (at 62.5 MHz)
	41.3 dB (at 100 MHz)
Power-summated near end crosstalk attenuation (PSNEXT)	62.3 dB (with 1 MHz)
	53.3 dB (at 4 MHz)
	47.3 dB (at 10 MHz)
	44.2 dB (at 16 MHz)

## Network cable - NBC-MS/ 2,0-94B/FS SCO - 1407464

### Technical data

#### Cable

	42.8 dB (at 20 MHz)
	39.9 dB (at 31.25 MHz)
	35.4 dB (at 62.5 MHz)
	32.3 dB (at 100 MHz)
Attenuation	3.2 dB (with 1 MHz)
	6 dB (at 4 MHz)
	9.5 dB (at 10 MHz)
	12.1 dB (at 16 MHz)
	13.6 dB (at 20 MHz)
	17.1 dB (at 31.25 MHz)
	24.8 dB (at 62.5 MHz)
	32 dB (at 100 MHz)
Return loss (RL)	23 dB (at 4 MHz)
	24.1 dB (at 8 MHz)
	25 dB (at 10 MHz)
	25 dB (at 16 MHz)
	25 dB (at 20 MHz)
	23.6 dB (at 31.25 MHz)
	21.5 dB (at 62.5 MHz)
	20.1 dB (at 100 MHz)
Signal runtime	5.3 ns/m
Coupling resistance	≤ 100.00 mΩ/m (at 10 MHz)
Nominal voltage, cable	≤ 100 V
Test voltage Core/Core	700 V (50 Hz, 1 min.)
Test voltage Core/Shield	700 V (50 Hz, 1 min.)
Flame resistance	according to IEC 60332-1-2
Halogen-free	according to IEC 60754-1
Resistance to oil	according to EN 60811-2-1
Ambient temperature (operation)	-40 °C ... 80 °C (cable, fixed installation)
	-20 °C ... 80 °C (cable, flexible installation)
Ambient temperature (installation)	-20 °C ... 80 °C
Ambient temperature (storage/transport)	-20 °C ... 80 °C

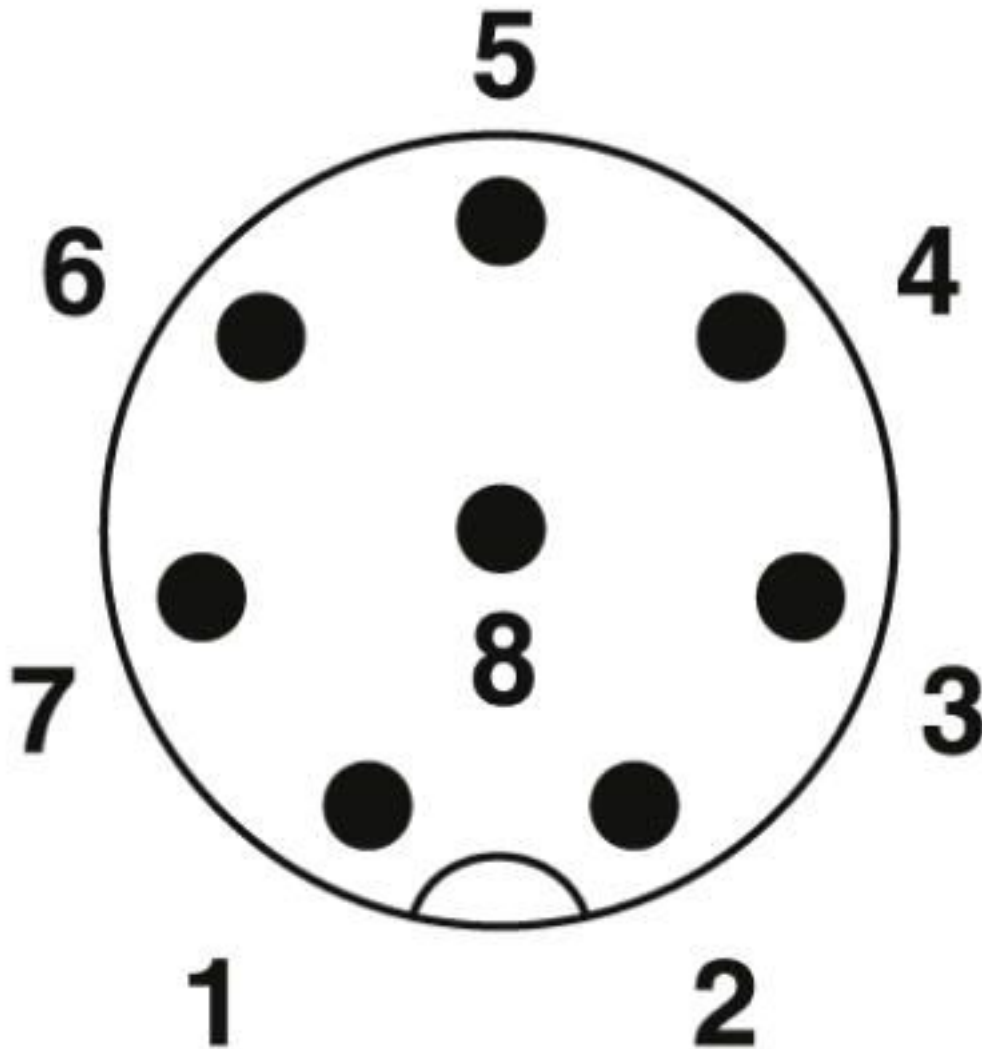
#### Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

#### Drawings

# Network cable - NBC-MS/ 2,0-94B/FS SCO - 1407464

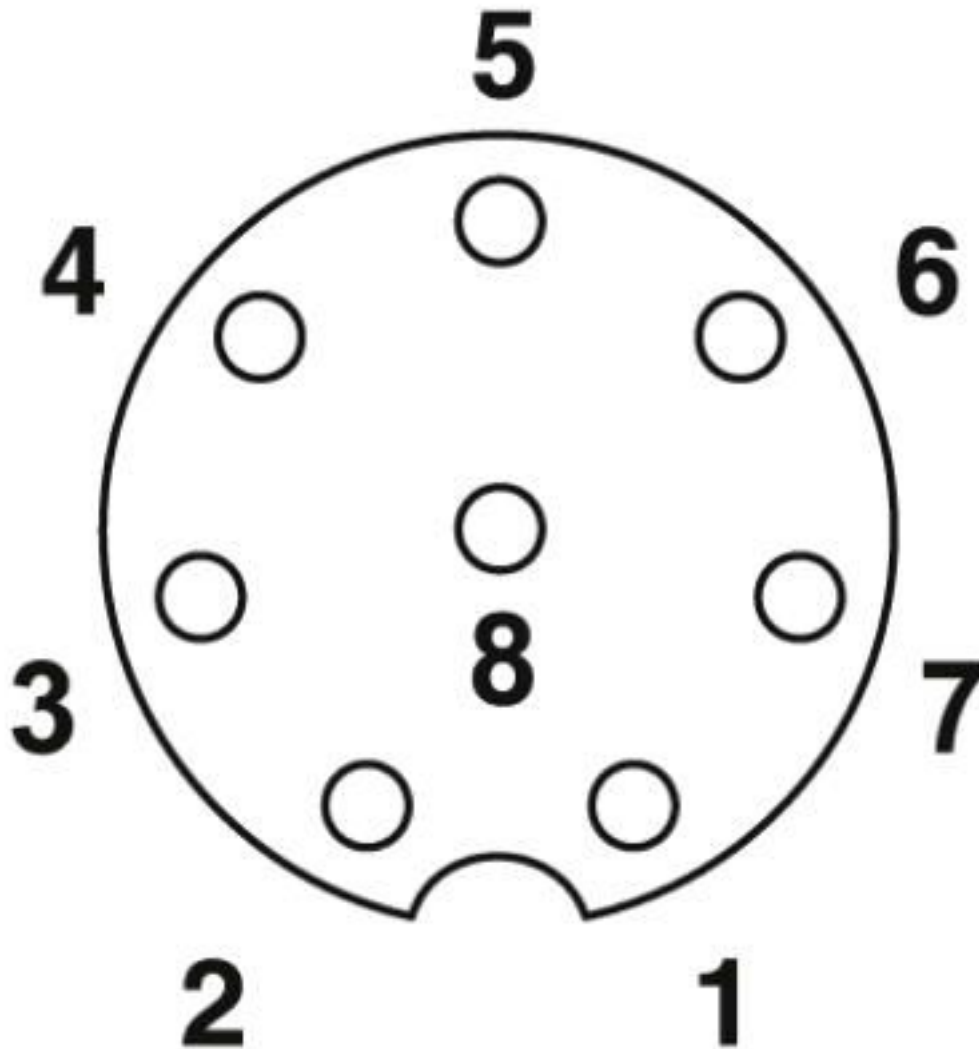
Schematic diagram



Pin assignment M12 plug, 8-pos., A-coded, view plug side

# Network cable - NBC-MS/ 2,0-94B/FS SCO - 1407464

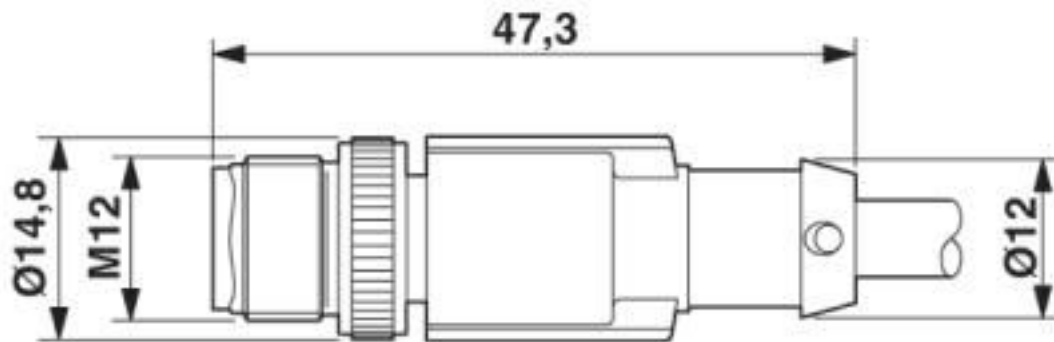
Schematic diagram



Pin assignment M12 socket, 8-pos., A-coded, view female side

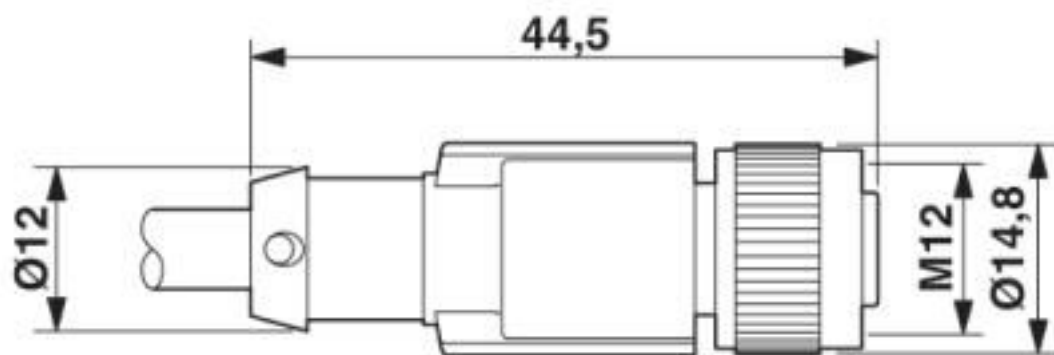
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Dimensional drawing



Plug, M12 x 1, straight, shielded

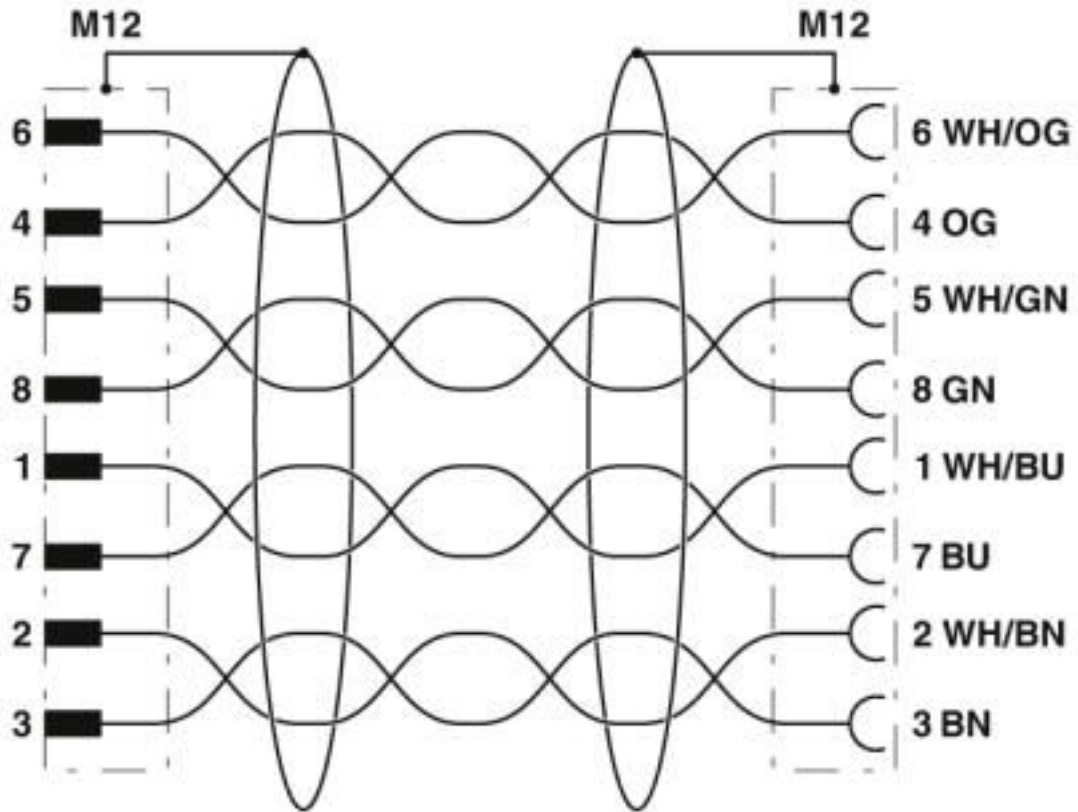
Dimensional drawing



M12 x 1 socket, straight, shielded

# Network cable - NBC-MS/ 2,0-94B/FS SCO - 1407464

Circuit diagram



Contact assignment of the M12 connector and the M12 socket



# Network cable - NBC-MS/ 2,0-94B/FS SCO - 1407464

Cable cross section



Ethernet flexible CAT5, 4-pair [94B]

## Classifications

eCl@ss

eCl@ss 10.0.1	27060308
eCl@ss 4.0	27060300
eCl@ss 4.1	27060300
eCl@ss 5.0	27061800
eCl@ss 5.1	27061800
eCl@ss 6.0	27279200
eCl@ss 7.0	27279218
eCl@ss 8.0	27279218
eCl@ss 9.0	27060308

# Network cable - NBC-MS/ 2,0-94B/FS SCO - 1407464

## Classifications

### ETIM

ETIM 3.0	EC001855
ETIM 4.0	EC001855
ETIM 5.0	EC002599
ETIM 6.0	EC001262
ETIM 7.0	EC001262

### UNSPSC

UNSPSC 6.01	31251501
UNSPSC 7.0901	31251501
UNSPSC 11	31251501
UNSPSC 12.01	31251501
UNSPSC 13.2	31251501
UNSPSC 18.0	26121604
UNSPSC 19.0	26121604
UNSPSC 20.0	26121604
UNSPSC 21.0	26121604

## Approvals

### Approvals

#### Approvals

UL Listed / cUL Listed / EAC-RoHS / cULus Listed

#### Ex Approvals

### Approval details

UL 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 335024
Nominal voltage UN	30 V		
Nominal current IN	1.5 A		

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 335024
Nominal voltage UN	30 V		

## Network cable - NBC-MS/ 2,0-94B/FS SCO - 1407464

### Approvals

Nominal current I <sub>N</sub>	1.5 A
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EAC-RoHS		RU D-DE.HB35.B.00387
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cULus Listed	
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### Accessories

#### Accessories

#### Data cable preassembled

Network cable - NBC-MS-MS SCO-IE/.../... - 1408676



Network cable, Ethernet CAT5 (1 Gbps), 8-position, Variable cable type, shielded, Plug straight M12 SPEEDCON / IP67, coding: A, on Plug straight M12 SPEEDCON / IP67, coding: A, cable length: Free input (0.2 ... 40.0 m)

Network cable - NBC-MS-MR SCO-IE/.../... - 1408667



Network cable, Ethernet CAT5 (1 Gbps), 8-position, Variable cable type, shielded, Plug straight M12 SPEEDCON / IP67, coding: A, on Plug angled M12 SPEEDCON / IP67, coding: A, cable length: Free input (0.2 ... 40.0 m)

Network cable - NBC-MS-FS SCO-IE/.../... - 1408659



Network cable, Ethernet CAT5 (1 Gbps), 8-position, Variable cable type, shielded, Plug straight M12 SPEEDCON / IP67, coding: A, on Socket straight M12 SPEEDCON / IP67, coding: A, cable length: Free input (0.2 ... 40.0 m)

Network cable - NBC-MS-FR SCO-IE/.../... - 1408650



Network cable, Ethernet CAT5 (1 Gbps), 8-position, Variable cable type, shielded, Plug straight M12 SPEEDCON / IP67, coding: A, on Socket angled M12 SPEEDCON / IP67, coding: A, cable length: Free input (0.2 ... 40.0 m)

## Network cable - NBC-MS/ 2,0-94B/FS SCO - 1407464

### Accessories

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Network cable - NBC-MR-MR SCO-IE/.../... - 1408666



Network cable, Ethernet CAT5 (1 Gbps), 8-position, Variable cable type, shielded, Plug angled M12 SPEEDCON / IP67, coding: A, on Plug angled M12 SPEEDCON / IP67, coding: A, cable length: Free input (0.2 ... 40.0 m)

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Network cable - NBC-MR-FS SCO-IE/.../... - 1408658



Network cable, Ethernet CAT5 (1 Gbps), 8-position, Variable cable type, shielded, Plug angled M12 SPEEDCON / IP67, coding: A, on Socket straight M12 SPEEDCON / IP67, coding: A, cable length: Free input (0.2 ... 40.0 m)

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Network cable - NBC-MR-FR SCO-IE/.../... - 1408649



Network cable, Ethernet CAT5 (1 Gbps), 8-position, Variable cable type, shielded, Plug angled M12 SPEEDCON / IP67, coding: A, on Socket angled M12 SPEEDCON / IP67, coding: A, cable length: Free input (0.2 ... 40.0 m)

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### Plug for cable screw gland

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

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



### Protective cap

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

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



### Safety locking

## Network cable - NBC-MS/ 2,0-94B/FS SCO - 1407464

### Accessories

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



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

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

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

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 04 SAC - 1208429



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

## Network cable - NBC-MS/ 2,0-94B/FS SCO - 1407464

### Accessories

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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