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Sensor/actuator cable - SAC-3P-MS/ 2,0-28R/FS SCO RAIL

1407309

https://www.phoenixcontact.com/gb/products/1407309

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Sensor/actuator cable, 3-position, PE-X halogen-free, black, shielded, Plug straight M12 SPEEDCON, coding: A, on Socket straight M12 SPEEDCON, coding: A, cable length: 2 m, For railway applications

Your advantages

- Easy and safe: 100% electrically tested plug-in components
- Securely locked by special vibration brake
- Resistant to temperature influences – tested for an extended temperature range and for resistance to temperature shocks
- Reliable signal transmission – 360° shielding in environments with electromagnetic interference

Commercial Data

Item number	1407309
Packing unit	1 pc
Minimum order quantity	1 pc
Sales Key	BF1CBA
Product Key	BF1CBA
Catalog Page	Page 130 (C-4-2013)
GTIN	4046356774253
Weight per Piece (including packing)	132.2 g
Weight per Piece (excluding packing)	132.2 g
Customs tariff number	85444290
Country of origin	PL

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Technical Data

Notes

General	Further products with variable cable type and variable cable length can be found in the accessories section

Product properties

Product type	Sensor/actuator cable
Number of positions	3
Application	Railway applications
No. of cable outlets	1
Shielded	yes
Coding	A - standard

Insulation characteristics

Overvoltage category	II
Degree of pollution	3

Material specifications

Color Handle area	black
Flammability rating according to UL 94	V0
Sealing material	NBR
Material of grip body	PA 6.6
Contact material	CuSn
Contact surface material	Ni/Au
Contact carrier material	PA 6.6
Cable gland material	Zinc die-cast, nickel-plated
Standards/regulations	PA 6.6: Fire protection in rail vehicles - requirement sets R22, R23, and R24 acc. to DIN EN 45545-2 (Risk level HL1 - HL3)

Electrical properties

Contact resistance	≤ 5 mΩ
Insulation resistance	≥ 100 MΩ
Nominal voltage U_N	48 V AC
	60 V DC
Nominal current I_N	4 A
Protective circuit	unwired

Connection data

Conductor connection

Tightening torque	0.4 NmM12 connector

Connector

Insertion/withdrawal cycles	≥ 100

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Connection 1

Head design	Plug
Head cable outlet	straight
Head thread type	M12
Head locking type	SPEEDCON
Coding	A

Head 2

Head design	Socket
Head cable outlet	straight
Head thread type	M12
Head locking type	SPEEDCON
Coding	A

LED signaling

Status display	No
Status display present	No

Cable / line

Cable length	2 m
Cable weight	51 kg/km
Number of positions	3
Shielded	yes
Cable type	Shielded black RADOX® [28R]
Conductor structure signal line	19x 0.18 mm
AWG signal line	20
Conductor cross section	3x 0.5 mm²
Wire diameter incl. insulation	1.43 mm
External cable diameter	5.3 mm ±0.3 mm
Outer sheath, material	PE-X
External sheath, color	black
Conductor material	Tin-plated Cu litz wires
Material wire insulation	PE-X
Single wire, color	White 1, white 2, white 3
Overall twist	3 wires, twisted
Max. conductor resistance	≤ 40.1 Ω/km
Nominal voltage, cable	600 V AC (Core-ground, U_0)
	1000 V AC (Core-ground, U)
	≤ 720 V AC (core-ground)
	≤ 1200 V AC (Core-ground, U_m)
	≤ 900 V DC (Core-ground, V_0)
	≤ 1500 V DC (core-core)
Test voltage	3500 V AC (50 Hz, 5 min.)
	8400 V DC (50 Hz, 5 min.)

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Minimum bending radius, fixed installation	3 x D
Minimum bending radius, flexible installation	4 x D
Halogen-free	According to EN 50267-2-1
Flame resistance	EN 60332-1-2
	EN 50266
	EN 50305, 9.1.2
	NF C32-070, 2.1
	NF C32-070, 2.2
	UL 1685, 12 (FT4)
	in accordance with ISO 6722-1 5.22 (UN ECE-R 118.01)
Resistance to oil	according to IRM 902, 72 h at 100 °C
Fire protection in rail vehicles	BS 6853 (Category Ia, Ib, II)
	GM/RT 2130 (Category Ia, Ib, II)
	EN 45545 (Risk level HL1 - HL3)
	DIN 5510 (Fire protection level 1, 2, 3, 4)
	NF F16-101 (Category A1, A2, B)
	NF F16-101 (Class C/F0)
	NFPA 130
	UNI CEI 11170 (Risk level LR1 - LR4)
Other resistance	Resistance to fuels according to IRM 903, 168 h at 70 °C
Ambient temperature (operation)	-50 °C ... 120 °C (cable, fixed installation)
	-25 °C ... 90 °C (Cable, flexible installation)

Cable structure

Cable type	Shielded black RADOX®
Outer sheath, material	PE-X
External sheath, color	black

Ambient conditions

Degree of protection	IP65
Ambient temperature (operation)	-40 °C ... 85 °C (Plug / socket)

Standards and regulations

Testing

Standards/regulations	PA 6.6: Fire protection in rail vehicles - requirement sets R22, R23, and R24 acc. to DIN EN 45545-2 (Risk level HL1 - HL3)

M12

Standards/specifications	IEC 61076-2-101

M12

Standards/specifications	EN 50155

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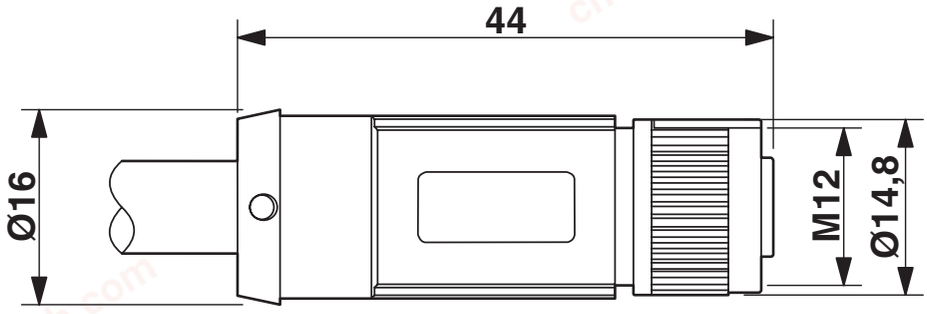
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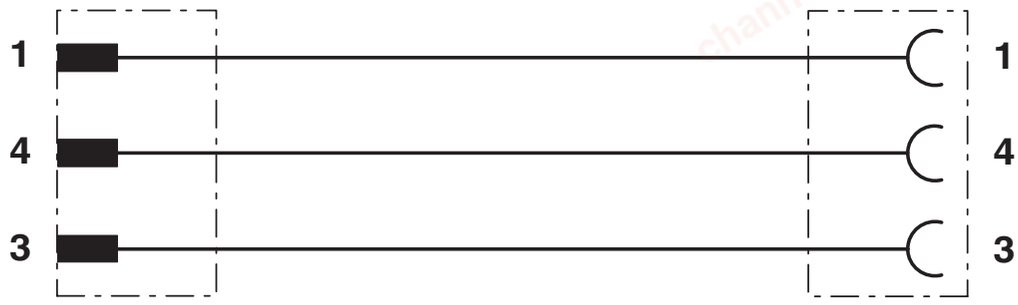
Drawings

Dimensional drawing



Socket M12-SPEEDCON, straight, shielded

Circuit diagram



Contact assignment of M8 plugs / M12 sockets

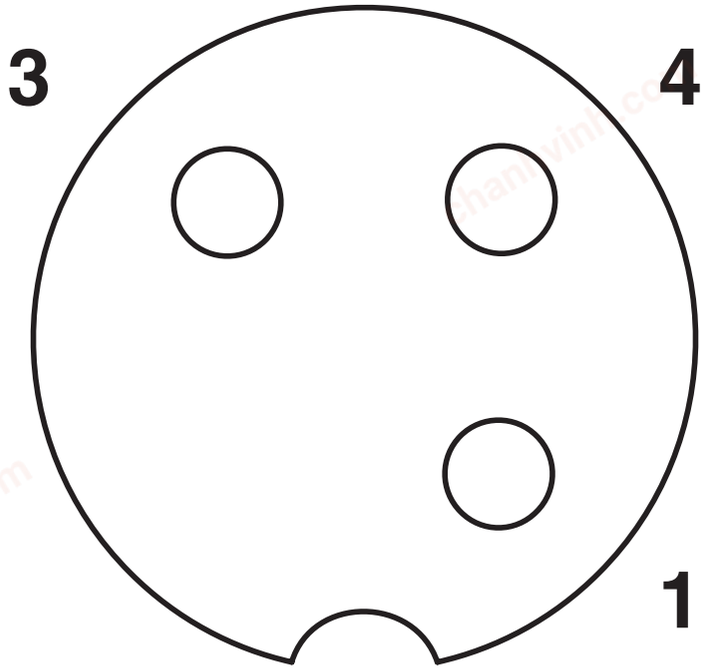
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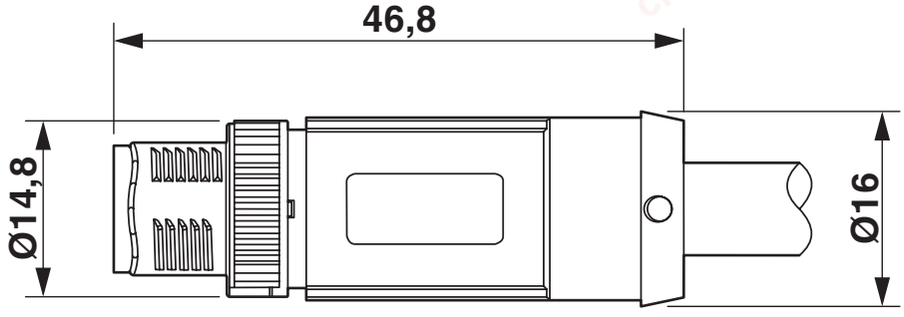
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Schematic diagram



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

Dimensional drawing



M12 SPEEDCON plug, straight, shielded

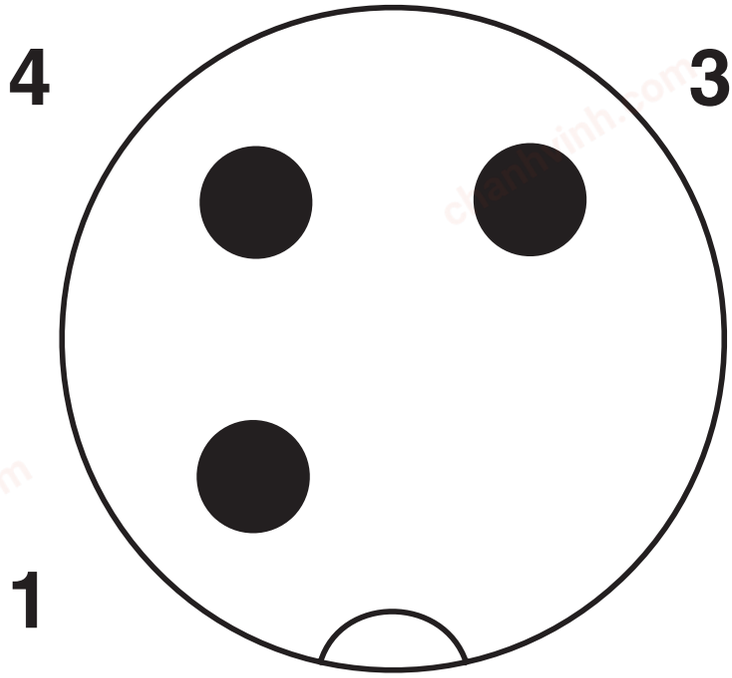
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Schematic diagram



Pin assignment M12 plug, 3-pos., A-coded, view male side

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Sensor/actuator cable - SAC-3P-MS/ 2,0-28R/FS SCO RAIL

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Approvals

EAC
Approval ID: RU C-DE.BL08.B.00286

EAC
Approval ID: RU D-DE.HB35.B.00387

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Classifications

ECLASS

ECLASS-9.0	27060311
ECLASS-10.0.1	27060311
ECLASS-11.0	27060311

ETIM

ETIM 8.0	EC001855

UNSPSC

UNSPSC 21.0	26121600

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Environmental Product Compliance

REACh SVHC	Dechlorane Plus

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

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Sensor/actuator cable - SAC-3P-MS/ 2,0-28R/FS SCO RAIL

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Accessories

Torque screwdriver

Torque screwdriver - TSD 04 SAC - 1208429

https://www.phoenixcontact.com/gb/products/1208429



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

Torque screwdriver

Torque screwdriver - TSD-M 1,2NM - 1212224

https://www.phoenixcontact.com/gb/products/1212224



Torque screw driver, accuracy as per EN ISO 6789 standard, adjustable from 0.3 - 1.2 Nm

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Sensor/actuator cable - SAC-3P-MS/ 2,0-28R/FS SCO RAIL

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Adapter insert

Adapter insert - TSD-M SAC-BIT ADAPTER - 1212600

https://www.phoenixcontact.com/gb/products/1212600



Adapter bit for TSD-M...torque tools, E6.3-1/4" drive with 4 mm hexagon to accommodate SAC bits

Tool

Tool - SAC BIT M12-D15 - 1208432

https://www.phoenixcontact.com/gb/products/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

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Sealing cap

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

https://www.phoenixcontact.com/gb/products/1430873

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



Locking clip

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

https://www.phoenixcontact.com/gb/products/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



Sensor/actuator cable - SAC-3P-MS/ 2,0-28R/FS SCO RAIL

1407309

https://www.phoenixcontact.com/gb/products/1407309

Screw plug

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

https://www.phoenixcontact.com/gb/products/1430899

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



Locking clip

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

https://www.phoenixcontact.com/gb/products/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



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Marker pen

Marker pen - B-STIFT - 1051993

https://www.phoenixcontact.com/gb/products/1051993



Marker pen, for manual labeling of unprinted Zack strips, smear-proof and waterproof, line thickness 0.5 mm

Cable marker carrier

Cable marker carrier - KMK HP (25X6) - 0830720

https://www.phoenixcontact.com/gb/products/0830720



Cable marker carrier, transparent, unlabeled, mounting type: Assembly with cable ties, cable diameter: ≥ 6 mm, lettering field size: 25 mm x 6 mm

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Sensor/actuator cable - SAC-3P-MS/ 2,0-28R/FS SCO RAIL

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Cable marker carrier

Cable marker carrier - KMK HP (29X8) - 0830721

https://www.phoenixcontact.com/gb/products/0830721



Cable marker carrier, transparent, unlabeled, mounting type: Assembly with cable ties, cable diameter: ≥ 6 mm, lettering field size: 29 x 8 mm

Cable marker

Cable marker - WMTB HF (40X12)R YE - 0830408

https://www.phoenixcontact.com/gb/products/0830408



Cable marker, Roll, yellow, unlabeled, can be labeled with: THERMOMARK ROLLMASTER 300/600, THERMOMARK X1.2, THERMOMARK ROLL X1, THERMOMARK ROLL 2.0, THERMOMARK ROLL, mounting type: Assembly with cable ties, cable diameter: ≥ 6 mm, lettering field size: 40 x 12 mm, Number of individual labels: 1000

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Sensor/actuator cable - SAC-3P-MS/ 2,0-28R/FS SCO RAIL

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Cable marker

Cable marker - WMTB HF (55X15)R YE - 0830410

https://www.phoenixcontact.com/gb/products/0830410



Cable marker, Roll, yellow, unlabeled, can be labeled with: THERMOMARK ROLLMASTER 300/600, THERMOMARK X1.2, THERMOMARK ROLL X1, THERMOMARK ROLL 2.0, THERMOMARK ROLL, mounting type: Assembly with cable ties, cable diameter: ≥ 6 mm, lettering field size: 55 x 15 mm, Number of individual labels: 1000

Cable marker

Cable marker - WMTB HF (55X25)R YE - 0830412

https://www.phoenixcontact.com/gb/products/0830412



Cable marker, Roll, yellow, unlabeled, can be labeled with: THERMOMARK ROLLMASTER 300/600, THERMOMARK X1.2, THERMOMARK ROLL X1, THERMOMARK ROLL 2.0, THERMOMARK ROLL, mounting type: Assembly with cable ties, cable diameter: ≥ 6 mm, lettering field size: 55 x 25 mm, Number of individual labels: 500

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Wire marking

Wire marking - UCT-WMCO 5,4 (23X8) - 0832105

https://www.phoenixcontact.com/gb/products/0832105



Wire marking, Sheet, white, unlabeled, can be labeled with: TOPMARK NEO, TOPMARK LASER, BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: clip on, cable diameter range: 4.7 ... 5.4 mm, lettering field size: 23 x 8 mm, Number of individual labels: 18

Wire marking

Wire marking - UCT-WMCO 6,1 (23X8) - 0832106

https://www.phoenixcontact.com/gb/products/0832106



Wire marking, Sheet, white, unlabeled, can be labeled with: TOPMARK NEO, TOPMARK LASER, BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: clip on, cable diameter range: 5.4 ... 6.1 mm, lettering field size: 23 x 8 mm, Number of individual labels: 18

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Wire marking

Wire marking - UCT-WMCO 6,8 (23X8) - 0832107

https://www.phoenixcontact.com/gb/products/0832107



Wire marking, Sheet, white, unlabeled, can be labeled with: TOPMARK NEO, TOPMARK LASER, BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: clip on, cable diameter range: 6.1 ... 6.8 mm, lettering field size: 23 x 8 mm, Number of individual labels: 15

Wire marking

Wire marking - UCT-WMCO 7,5 (23X8) - 0832108

https://www.phoenixcontact.com/gb/products/0832108



Wire marking, Sheet, white, unlabeled, can be labeled with: TOPMARK NEO, TOPMARK LASER, BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: clip on, cable diameter range: 6.8 ... 7.5 mm, lettering field size: 23 x 8 mm, Number of individual labels: 15

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Cable marker

Cable marker - WMTB-AL (40X15) - 0830524

https://www.phoenixcontact.com/gb/products/0830524



Cable marker, Aluminum label, aluminum color, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, mounting type: Assembly with cable ties, cable diameter: > 4.6 mm, lettering field size: 40 x 15 mm

Cable marker

Cable marker - WMTB-AL (60X15) - 0830525

https://www.phoenixcontact.com/gb/products/0830525



Cable marker, Aluminum label, aluminum color, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, mounting type: Assembly with cable ties, cable diameter: > 4.6 mm, lettering field size: 60 x 15 mm

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Cable marker

Cable marker - LS-WMTB-AL (40X15) - 0831501

https://www.phoenixcontact.com/gb/products/0831501



Cable marker, Aluminum label, aluminum color, unlabeled, can be labeled with: TOPMARK NEO, TOPMARK LASER, mounting type: Assembly with cable ties, cable diameter: > 4.6 mm, lettering field size: 40 x 15 mm, Number of individual labels: 16

Cable marker

Cable marker - LS-WMTB-AL (40X15) BK - 0831509

https://www.phoenixcontact.com/gb/products/0831509



Cable marker, Aluminum label, black, unlabeled, can be labeled with: TOPMARK NEO, TOPMARK LASER, mounting type: Assembly with cable ties, cable diameter: > 4.6 mm, lettering field size: 40 x 15 mm, Number of individual labels: 16

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Cable marker

Cable marker - LS-WMTB-AL (60X15) - 0831502

https://www.phoenixcontact.com/gb/products/0831502



Cable marker, Aluminum label, aluminum color, unlabeled, can be labeled with: TOPMARK NEO, TOPMARK LASER, mounting type: Assembly with cable ties, cable diameter: > 4.6 mm, lettering field size: 60 x 15 mm, Number of individual labels: 16

Cable marker

Cable marker - LS-WMTB-AL (60X15) BK - 0831510

https://www.phoenixcontact.com/gb/products/0831510



Cable marker, Aluminum label, black, unlabeled, can be labeled with: TOPMARK NEO, TOPMARK LASER, mounting type: Assembly with cable ties, cable diameter: > 4.6 mm, lettering field size: 60 x 15 mm, Number of individual labels: 16

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Cable marker

Cable marker - LS-WMTB-AL (100X15) - 0831503

https://www.phoenixcontact.com/gb/products/0831503



Cable marker, Aluminum label, aluminum color, unlabeled, can be labeled with: TOPMARK NEO, TOPMARK LASER, mounting type: Assembly with cable ties, cable diameter: > 4.6 mm, lettering field size: 100 x 15 mm, Number of individual labels: 8

Cable marker

Cable marker - LS-WMTB-AL (100X15) BK - 0831511

https://www.phoenixcontact.com/gb/products/0831511



Cable marker, Aluminum label, black, unlabeled, can be labeled with: TOPMARK NEO, TOPMARK LASER, mounting type: Assembly with cable ties, cable diameter: > 4.6 mm, lettering field size: 100 x 15 mm, Number of individual labels: 8

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