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Network cable - NBC-MSD/ 5,0-937/MSD SCO RAIL

1407343

https://www.phoenixcontact.com/gb/products/1407343

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Network cable, PROFINET CAT5 (100 Mbps), Ethernet CAT5 (100 Mbps), 4-position, shielded, Plug straight M12 SPEEDCON / IP65, coding: D, on Plug straight M12 SPEEDCON / IP65, coding: D, cable length: 5 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	1407343
Packing unit	1 pc
Minimum order quantity	1 pc
Sales Key	BF1CJN
Product Key	BF1CJN
Catalog Page	Page 133 (C-4-2013)
GTIN	4046356774598
Weight per Piece (including packing)	353 g
Weight per Piece (excluding packing)	353 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	Data cable preassembled
Number of positions	4
Application	Railway applications
No. of cable outlets	1
Shielded	yes
Coding	D - data

Insulation characteristics

Overvoltage category	II
Degree of pollution	3

Interfaces

Bus system	PROFINET
	Ethernet
Signal type/category	PROFINET CAT5 (IEC 11801), 100 Mbps
	Ethernet CAT5 (IEC 11801), 100 Mbps
	PROFINET CAT5 (IEC 11801), 100 Mbps
	Ethernet CAT5 (IEC 11801), 100 Mbps

LED signaling

Status display	No
Status display present	No

Electrical properties

Nominal voltage U_N	48 V AC
	60 V DC
Nominal current I_N	4 A
Transmission medium	Copper

Material specifications

Color Handle area	black
Flammability rating according to UL 94	V0
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

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Connector

Connection 1

Type	Plug straight M12 SPEEDCON / IP65
Number of positions	4
Coding type	D (Data)
Shielded	yes
Handle color	black
Material	CuSn (Contact)
	Ni/Au (Contact surface)
	PA 6.6 (Contact carriers)
	PA 6.6 (Grip)
	Zinc die-cast, nickel-plated (Screw connection)
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)
Insertion/withdrawal cycles	≥ 100
Contact resistance	≤ 5 mΩ
Insulation resistance	≥ 100 MΩ
Tightening torque	0.4 Nm
Degree of protection	IP65
Ambient temperature (operation)	-40 °C ... 85 °C

Connection 2

Type	Plug straight M12 SPEEDCON / IP65
Number of positions	4
Coding type	D (Data)
Shielded	yes
Handle color	black
Material	CuSn (Contact)
	Ni/Au (Contact surface)
	PA 6.6 (Contact carriers)
	PA 6.6 (Grip)
	Zinc die-cast, nickel-plated (Screw connection)
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)
Insertion/withdrawal cycles	≥ 100
Contact resistance	≤ 5 mΩ
Insulation resistance	≥ 100 MΩ
Tightening torque	0.4 Nm
Ambient temperature (operation)	-40 °C ... 85 °C

Cable / line

Cable length	5 m
Cable weight	70 kg/km
Number of positions	4

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Shielded	yes
Cable type	PROFINET RADOX® railway application CAT5 [937]
Signal speed	75 c
Conductor structure signal line	7x 0.25 mm
AWG signal line	22
Conductor cross section	4x 0.34 mm²
Wire diameter incl. insulation	approx. 1.5 mm
External cable diameter	6.6 mm ±0.4 mm
Outer sheath, material	PE-X
External sheath, color	black RAL 9005
Conductor material	silver-plated Cu litz wires
Material wire insulation	Foamed PE
Single wire, color	white-blue, orange-yellow
Thickness, outer sheath	approx. 1 mm
Overall twist	Star quad
Max. conductor resistance	≤ 54.4 Ω/km
Coupling resistance	200.00 mΩ/m (f ≤ 30 MHz)
Wave impedance	100 Ω ±5 Ω (f = 100 MHz)
Working capacitance	≤ 65 pF (core-core)
	≤ 100 pF (core-shield)
Nominal voltage, cable	300 V AC
Test voltage	2000 V AC (50 Hz, 5 minutes)
Minimum bending radius, fixed installation	6 x D
Near end crosstalk attenuation (NEXT)	73 dB (with 1 MHz)
	70 dB (at 4 MHz)
	65 dB (at 10 MHz)
	57 dB (at 31.5 MHz)
	52 dB (at 62.5 MHz)
	48 dB (at 100 MHz)
Return loss (RL)	25 dB (at 4 MHz)
	30 dB (at 10 MHz)
	30 dB (at 31.5 MHz)
	30 dB (at 62.5 MHz)
	28 dB (at 100 MHz)
Remote crosstalk attenuation (FEXT)	78 dB (with 1 MHz)
	77 dB (at 4 MHz)
	70 dB (at 10 MHz)
	65 dB (at 31.5 MHz)
	56 dB (at 62.5 MHz)
	48 dB (at 100 MHz)
Shield attenuation	2 dB (with 1 MHz)
	4.4 dB (at 4 MHz)
	7.4 dB (at 10 MHz)
	14 dB (at 31.5 MHz)

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	20 dB (at 62.5 MHz)
	26 dB (at 100 MHz)
	40 dB (30 MHz ≤ f ≤ 100 MHz)
Halogen-free	According to EN 50267-2-1
Flame resistance	EN 60332-1-2
	EN 50266
	EN 60332-3-25
	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 ... 90 °C (cable, fixed installation)
	-40 °C ... 90 °C (Cable, flexible installation)
Ambient temperature (installation)	-25 °C ... 90 °C
Signal type/category	PROFINET CAT5 (IEC 11801), 100 Mbps
	Ethernet CAT5 (IEC 11801), 100 Mbps

Ambient conditions

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

Standards and regulations

M12

Standards/specifications	IEC 61076-2-101

M12

Standards/specifications	EN 50155

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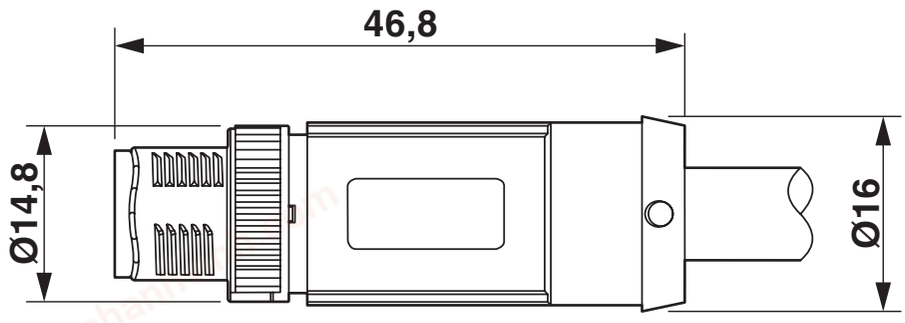
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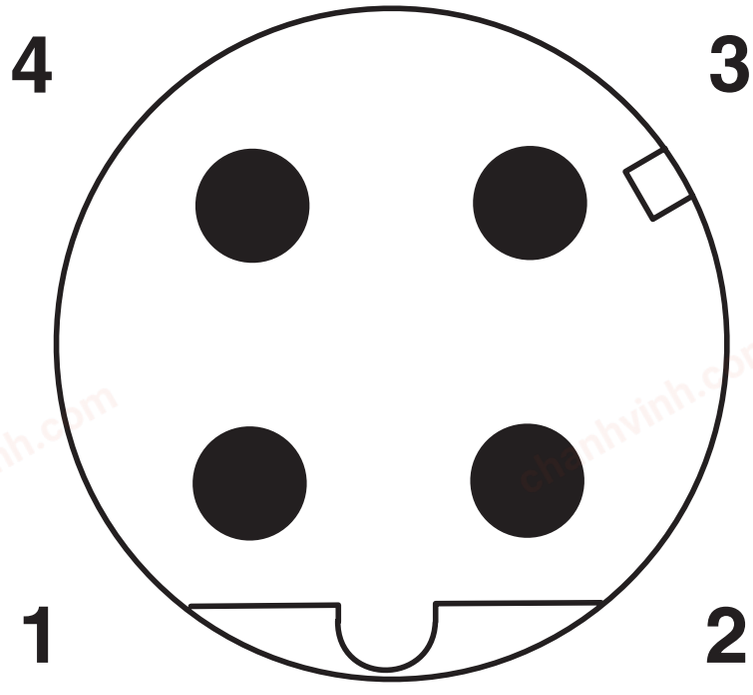
Drawings

Dimensional drawing



M12 SPEEDCON plug, straight, shielded

Schematic diagram



Pin assignment M12 male connector, 4-pos., D-coded, male side

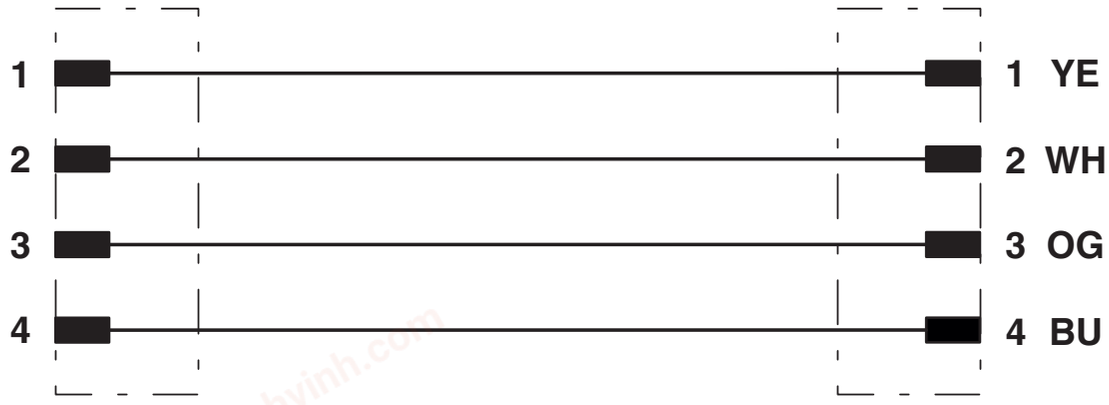
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Circuit diagram



Contact assignment of the M12 plugs

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Approvals

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

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Classifications

ECLASS

ECLASS-9.0	27060308
ECLASS-10.0.1	27060308
ECLASS-11.0	27060307

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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Accessories

Network cable

Network cable - NBC-MSD SCO RAIL/.../... - 1412178

https://www.phoenixcontact.com/gb/products/1412178



Network cable, PROFINET CAT5 (100 Mbps), Ethernet CAT5 (100 Mbps), 4-position, Variable cable type, shielded, Plug straight M12 SPEEDCON / IP65, coding: D, on free cable end, cable length: Free input (0.2 ... 40.0 m), For railway applications

Network cable

Network cable - NBC-MRD SCO RAIL/.../... - 1412179

https://www.phoenixcontact.com/gb/products/1412179



Network cable, PROFINET CAT5 (100 Mbps), Ethernet CAT5 (100 Mbps), 4-position, Variable cable type, shielded, Plug angled M12 SPEEDCON / IP65, coding: D, on free cable end, cable length: Free input (0.2 ... 40.0 m), For railway applications

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Network cable - NBC-MSD/ 5,0-937/MSD SCO RAIL

1407343

https://www.phoenixcontact.com/gb/products/1407343

Network cable

Network cable - NBC-MSD-MSD SCO RAIL/.../... - 1412177

https://www.phoenixcontact.com/gb/products/1412177



Network cable, PROFINET CAT5 (100 Mbps), Ethernet CAT5 (100 Mbps), 4-position, Variable cable type, shielded, Plug straight M12 SPEEDCON / IP65, coding: D, on Plug straight M12 SPEEDCON / IP65, coding: D, cable length: Free input (0.2 ... 40.0 m), For railway applications

Network cable

Network cable - NBC-FSD SCO RAIL/.../... - 1412181

https://www.phoenixcontact.com/gb/products/1412181



Network cable, PROFINET CAT5 (100 Mbps), Ethernet CAT5 (100 Mbps), 4-position, Variable cable type, shielded, free cable end, on Socket straight M12 SPEEDCON / IP65, coding: D, cable length: Free input (0.2 ... 40.0 m), For railway applications

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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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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



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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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Network cable - NBC-MSD/ 5,0-937/MSD SCO RAIL

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https://www.phoenixcontact.com/gb/products/1407343

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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Network cable - NBC-MSD/ 5,0-937/MSD SCO RAIL

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https://www.phoenixcontact.com/gb/products/1407343

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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