

1524310
<https://www.phoenixcontact.com/us/products/1524310>

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Network cable, PROFINET CAT5 (100 Mbps), EtherCAT® CAT5 (100 Mbps), 4-position, PVC/PVC, green RAL 6018, shielded (Aluminum-coated foil, tinned copper braided shield), Advanced Shielding Technology, Plug straight M12, coding: D / IP67, on free cable end, cable length: 5 m

Commercial data

Item number	1524310
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	BF04
Product key	BF1CJN
Catalog page	Page 264 (AX-2011)
GTIN	4046356021395
Weight per piece (including packing)	348.15 g
Weight per piece (excluding packing)	343.8 g
Customs tariff number	85444290
Country of origin	PL

Technical data

Notes

General	This product corresponds to the PROFINET Cabling and Interconnection Technology Guideline for PROFINET regulations, version 2.00, order no: 2.252, Chapter 10.1 Cord Sets for Balanced Cabling
General	Further products with variable cable type and variable cable length can be found in the accessories section
General	CMC - Conductor marker carrier - PATG

Product properties

Product type	Data cable preassembled
Application	Standard
Sensor type	PROFINET
Number of positions	4
Shielded	yes

Insulation characteristics

Overvoltage category	II
Degree of pollution	3

Interfaces

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

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
Transmission characteristics (category)	CAT5 (IEC 11801:2002)

Material specifications

Flammability rating according to UL 94	V0
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Connector

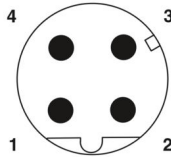
Connection 1

NBC-M12MSD/ 5,0-93B CMC - Network cable



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Dimensional drawing	 Pin assignment M12 male connector, 4-pos., D-coded, male side
Type	M12 Pin, straight, 4-position, AST, Keying: D
Number of positions	4
Shielded	yes
Signal type/category	EtherCAT [®] CAT5 (IEC 11801), 100 Mbps PROFINET CAT5 (IEC 11801)
Insertion/withdrawal cycles	≥ 100
Insulation resistance	≥ 100 MΩ
Overvoltage category	II
Degree of pollution	3
Tightening torque	0.4 Nm
Contact material	CuSn
Contact surface material	Ni/Au
Contact carrier material	PA 6.6
Material for screw connection	Zinc die-cast, nickel-plated
Seal material	FKM
Flammability rating according to UL 94	V0
Degree of protection	IP65 IP67
Ambient temperature (operation)	-25 °C ... 85 °C
Standard designation	M12 connector
Standards/regulations	IEC 61076-2-101

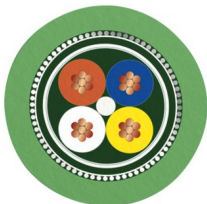
Connection 2

Type	free cable end
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Cable/line

Cable length	5 m
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PROFINET PVC stranded CAT5 [93B]

Dimensional drawing	
Cable weight	67 kg/km

NBC-M12MSD/ 5,0-93B CMC - Network cable



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UL AWM Style	21694
Number of positions	4
Shielded	yes
Cable type	PROFINET PVC stranded CAT5 [93B]
Conductor structure	1x4xAWG22/7, SF/TQ
Signal runtime	5.3 ns/m
Signal speed	0.66 c
Conductor structure signal line	7x 0.25 mm
AWG signal line	22
Conductor cross section	4x 0.34 mm ²
Wire diameter incl. insulation	1.55 mm
External cable diameter	6.50 mm ±0.2 mm
Outer sheath, material	PVC
External sheath, color	green RAL 6018
Conductor material	Tin-plated Cu litz wires
Material wire insulation	PE
Single wire, color	white, yellow, blue, orange
Thickness, outer sheath	approx. 0.90 mm
Overall twist	Star quad
Optical shield covering	85 %
Insulation resistance	≥ 500 MΩ*km
Coupling resistance	≤ 20.00 mΩ/m (at 10 MHz)
Loop resistance	≤ 120.00 Ω/km
Wave impedance	100 Ω ±15 Ω (at 100 MHz)
Nominal voltage, cable	600 V
Test voltage Core/Core	2000 V (50 Hz, 1 min.)
Test voltage Core/Shield	2000.00 V (50 Hz, 1 min.)
Minimum bending radius, fixed installation	3 x D
Minimum bending radius, flexible installation	7 x D
Smallest bending radius, fixed installation	20 mm
Smallest bending radius, movable installation	46 mm
Near end crosstalk attenuation (NEXT)	80 dB (with 1 MHz)
	76 dB (at 4 MHz)
	70 dB (at 10 MHz)
	65 dB (at 16 MHz)
	63 dB (at 20 MHz)
	60 dB (at 31.25 MHz)
	55 dB (at 62.5 MHz)
	50 dB (at 100 MHz)
Shield attenuation	2.1 dB (with 1 MHz)
	4 dB (at 4 MHz)
	6.3 dB (at 10 MHz)
	8 dB (at 16 MHz)
	9 dB (at 20 MHz)

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	11.4 dB (at 31.25 MHz)
	16.5 dB (at 62.5 MHz)
	21.3 dB (at 100 MHz)
Flame resistance	according to UL 1685 (CSA FT 4)
Resistance to oil	Resistant to oil to a limited extent
Other resistance	UV resistant (According to UL 1581, Section 1200)
Ambient temperature (operation)	-40 °C ... 70 °C (cable, fixed installation)
	-40 °C ... 70 °C (Cable, flexible installation)
Ambient temperature (installation)	-20 °C ... 60 °C

Environmental and real-life conditions

Ambient conditions

Degree of protection	IP65
	IP67

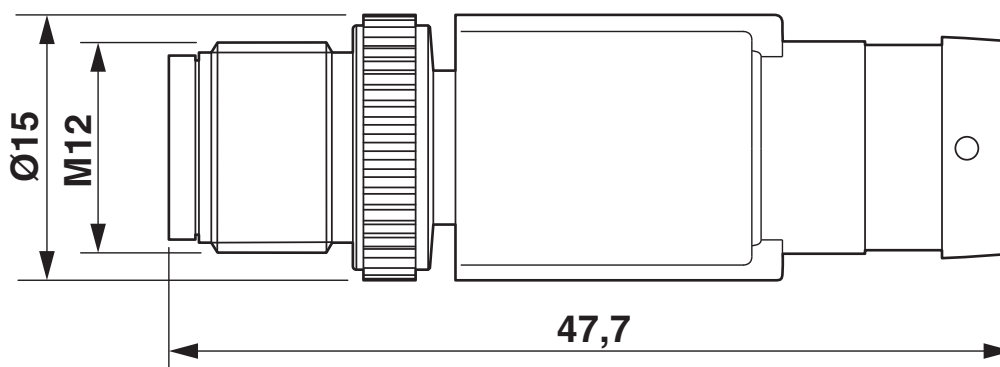
Standards and regulations

M12

Standard designation	M12 connector
Standards/specifications	IEC 61076-2-101

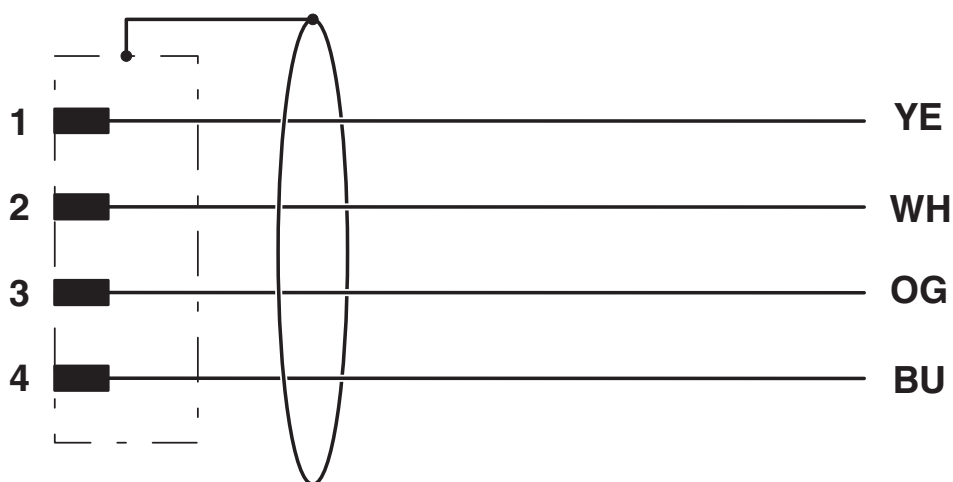
Drawings

Dimensional drawing



Plug, M12 x 1, straight, shielded

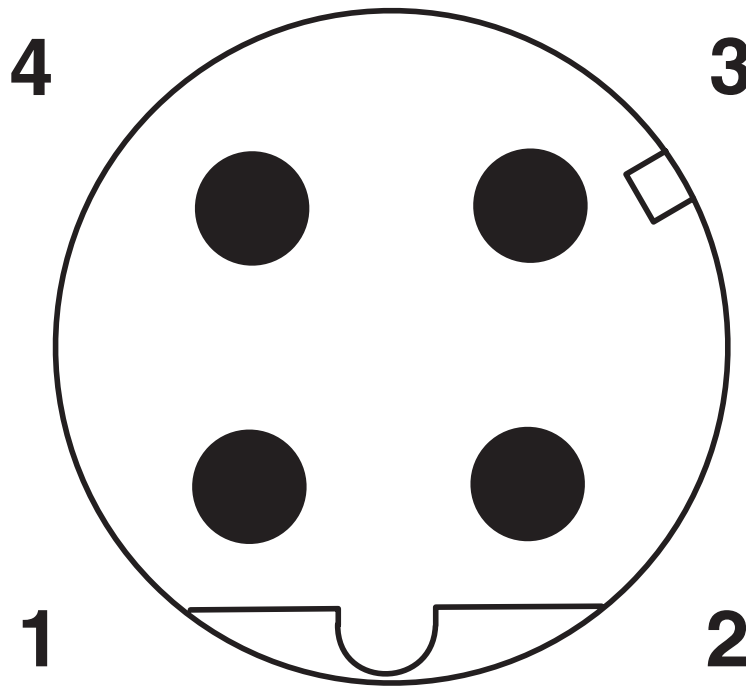
Circuit diagram



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Schematic diagram



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

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Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1524310>

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

	cULus Listed Approval ID: NBC-M12MSD Series			
	Nominal voltage U_N	Nominal current I_N	Cross section AWG	Cross section mm^2
	250 V	4 A	-	-

NBC-M12MSD/ 5,0-93B CMC - Network cable



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Classifications

ECLASS

ECLASS-11.0	27060307
ECLASS-12.0	27060307
ECLASS-13.0	27060307

ETIM

ETIM 9.0	EC001855
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UNSPSC

UNSPSC 21.0	26121600
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Environmental product compliance

EU RoHS	
Fulfills EU RoHS substance requirements	Yes, No exemptions
China RoHS	
Environment friendly use period (EFUP)	EFUP-E
	No hazardous substances above the limits
EU REACH SVHC	
REACH candidate substance (CAS No.)	No substance above 0.1 wt%

NBC-M12MSD/ 5,0-93B CMC - Network cable



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Accessories

NBC-MSD SCO-PN/.../... - Network cable

1408640

<https://www.phoenixcontact.com/us/products/1408640>

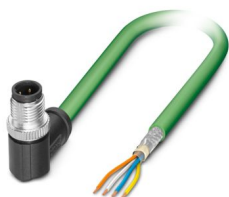


Network cable, PROFINET CAT5 (100 Mbps), EtherCAT® CAT5 (100 Mbps), 4-position, Plug straight M12 SPEEDCON, coding: D / IP67, on free cable end, cable length: Free input (0.2 ... 40.0 m)

NBC-MRD SCO-PN/.../... - Network cable

1408633

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Network cable, PROFINET CAT5 (100 Mbps), EtherCAT® CAT5 (100 Mbps), 4-position, Plug angled M12 SPEEDCON, coding: D / IP67, on free cable end, cable length: Free input (0.2 ... 40.0 m)

NBC-M12MSD/ 5,0-93B CMC - Network cable

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NBC-FSD SCO-PN/.../... - Network cable

1408623

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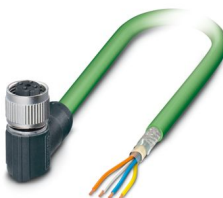


Network cable, PROFINET CAT5 (100 Mbps), EtherCAT[®] CAT5 (100 Mbps), 4-position, free cable end, on Socket straight M12 SPEEDCON, coding: D / IP67, cable length: Free input (0.2 ... 40.0 m)

NBC-FRD SCO-PN/.../... - Network cable

1408615

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Network cable, PROFINET CAT5 (100 Mbps), EtherCAT[®] CAT5 (100 Mbps), 4-position, free cable end, on Socket angled M12 SPEEDCON, coding: D / IP67, cable length: Free input (0.2 ... 40.0 m)

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PROT-M12 FS-PA-CHAIN - Sealing cap

1430873

<https://www.phoenixcontact.com/us/products/1430873>

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



SAC-M12-EXCLIP-M - Locking clip

1558988

<https://www.phoenixcontact.com/us/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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WP-CTA POM 13,0 BK - Protective hose adapter

1422884

<https://www.phoenixcontact.com/us/products/1422884>



Protective hose adapter, for corrugated hoses with a nominal size of 13 (10 x 13), corrugated in parallel

WP-PA HF 13,0 BK - Protective hose

3240681

<https://www.phoenixcontact.com/us/products/3240681>



Protective hose, material: PA 6, UV-resistant: yes, flexible, degree of protection: IP68, color: black, flammability rating in acc. with UL 94: V0, inner diameter: 10 mm, Total length: 50 m

NBC-M12MSD/ 5,0-93B CMC - Network cable

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WP-PA HF-HB 13,0 BK - Protective hose

3240839

<https://www.phoenixcontact.com/us/products/3240839>



Protective hose, material: PA 6, UV-resistant: yes, flexible, degree of protection: IP68, color: black, flammability rating in acc. with UL 94: HB, inner diameter: 10 mm, Total length: 50 m

SACC-M12MSD-4QO SH PN - Data connector

1411068

<https://www.phoenixcontact.com/us/products/1411068>



Data connector, PROFINET CAT5 (100 Mbps), 4-position, halogen-free, shielded, Plug straight M12, coding: D, Insulation displacement connection, knurl material: Zinc die-cast, nickel-plated, external cable diameter 5 mm ... 9.7 mm

NBC-M12MSD/ 5,0-93B CMC - Network cable

1524310

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SACC-M12MRD-4Q SH PN - Data connector

1554539

<https://www.phoenixcontact.com/us/products/1554539>

Data connector, PROFINET CAT5 (100 Mbps), 4-position, shielded, Plug angled M12, coding: D, Insulation displacement connection, knurl material: Brass, nickel-plated, external cable diameter 4 mm ... 8 mm



SACC-M12FSD-4QO SH PN - Data connector

1411071

<https://www.phoenixcontact.com/us/products/1411071>

Data connector, PROFINET CAT5 (100 Mbps), 4-position, halogen-free, shielded, Socket straight M12, coding: D, Insulation displacement connection, knurl material: Zinc die-cast, nickel-plated, external cable diameter 5 mm ... 9.7 mm



NBC-M12MSD/ 5,0-93B CMC - Network cable

1524310

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SACC-M12FRD-4Q SH PN - Data connector

1554542

<https://www.phoenixcontact.com/us/products/1554542>



Data connector, PROFINET CAT5 (100 Mbps), 4-position, shielded, Socket angled M12, coding: D, Insulation displacement connection, knurl material: Brass, nickel-plated, external cable diameter 4 mm ... 8 mm

SACC-CC-4QO SH PN - Conductor connector

1414416

<https://www.phoenixcontact.com/us/products/1414416>



Cable connector, PROFINET CAT5 (100 Mbps), 4-pos., halogen-free, shielded, insulation displacement connection, housing material: zinc die-cast, nickel-plated, outer cable diameter of 5 mm ... 9.7 mm

NBC-M12MSD/ 5,0-93B CMC - Network cable



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SACC-M12MSD-4PL SH PN - Connector

1424682

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Connector, PROFINET CAT5 (100 Mbps), 4-position, shielded, Plug straight M12, coding: D, Push-lock spring connection, knurl material: Zinc die-cast, nickel-plated, external cable diameter 4 mm ... 8 mm

SACC-M12MRD-4PL SH PN - Connector

1424684

<https://www.phoenixcontact.com/us/products/1424684>



Connector, PROFINET CAT5 (100 Mbps), 4-position, shielded, Plug angled M12, coding: D, Push-lock spring connection, knurl material: Zinc die-cast, nickel-plated, external cable diameter 4 mm ... 8 mm

NBC-M12MSD/ 5,0-93B CMC - Network cable



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SACC-M12FSD-4PL SH PN - Connector

1424683

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Connector, PROFINET CAT5 (100 Mbps), 4-position, shielded, Socket straight M12, coding: D, Push-lock spring connection, knurl material: Zinc die-cast, nickel-plated, external cable diameter 4 mm ... 8 mm

SACC-M12FRD-4PL SH PN - Connector

1424685

<https://www.phoenixcontact.com/us/products/1424685>



Connector, PROFINET CAT5 (100 Mbps), 4-position, shielded, Socket angled M12, coding: D, Push-lock spring connection, knurl material: Zinc die-cast, nickel-plated, external cable diameter 4 mm ... 8 mm

NBC-M12MSD/ 5,0-93B CMC - Network cable



1524310

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SACC-M12MSD-4CT-CM SH PN - Data connector

1422846

<https://www.phoenixcontact.com/us/products/1422846>



Data connector, PROFINET CAT5 (100 Mbps), 4-position, shielded, Plug straight M12, coding: D, Crimp connection, knurl material: Zinc die-cast, tin-plated, external cable diameter 4.5 mm ... 7.5 mm, without crimp contacts

SACC-M12MRD-4CT-CM SH PN - Data connector

1422847

<https://www.phoenixcontact.com/us/products/1422847>



Data connector, PROFINET CAT5 (100 Mbps), 4-position, shielded, Plug angled M12, coding: D, Crimp connection, knurl material: Zinc die-cast, tin-plated, external cable diameter 4.5 mm ... 7.5 mm, without crimp contacts

NBC-M12MSD/ 5,0-93B CMC - Network cable



1524310

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SACC-M12FSD-4CT-CM SH PN - Data connector

1422848

<https://www.phoenixcontact.com/us/products/1422848>



Data connector, PROFINET CAT5 (100 Mbps), 4-position, shielded, Socket straight M12, coding: D, Crimp connection, knurl material: Zinc die-cast, tin-plated, external cable diameter 4.5 mm ... 7.5 mm, without crimp contacts

SACC-M12FRD-4CT-CM SH PN - Data connector

1422849

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Data connector, PROFINET CAT5 (100 Mbps), 4-position, shielded, Socket angled M12, coding: D, Crimp connection, knurl material: Zinc die-cast, tin-plated, external cable diameter 4.5 mm ... 7.5 mm, without crimp contacts

NBC-M12MSD/ 5,0-93B CMC - Network cable



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VS-PN-RJ45-5-Q/IP20 - RJ45 connector

1658435

<https://www.phoenixcontact.com/us/products/1658435>



RJ45 connector, design: RJ45, degree of protection: IP20, number of positions: 4, 100 Mbps, CAT5, material: Plastic, connection method: Insulation displacement connection, cable outlet: straight, color: traffic grey A RAL 7042, PROFINET

CUC-IND-C1ZNI-S/R4IP8 - RJ45 connector

1421126

<https://www.phoenixcontact.com/us/products/1421126>



RJ45 connector, design: RJ45, degree of protection: IP20, number of positions: 8, 1 Gbps, CAT5, material: Metal, connection method: Insulation displacement connection, connection cross section: AWG 23- 22, cable outlet: straight, color: green, Ethernet/PROFINET

NBC-M12MSD/ 5,0-93B CMC - Network cable



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CUC-IND-C1ZNI-T/R4IP8 - RJ45 connector

1421128

<https://www.phoenixcontact.com/us/products/1421128>



RJ45 connector, design: RJ45, degree of protection: IP20, number of positions: 8, 1 Gbps, CAT5, material: Metal, connection method: Insulation displacement connection, connection cross section: AWG 23- 22, cable outlet: angled, Ethernet/PROFINET

CUC-IND-C1ZNI-B/R4IP8 - RJ45 connector

1421127

<https://www.phoenixcontact.com/us/products/1421127>



RJ45 connector, design: RJ45, degree of protection: IP20, number of positions: 8, 1 Gbps, CAT5, material: Metal, connection method: Insulation displacement connection, connection cross section: AWG 23- 22, cable outlet: angled, Ethernet/PROFINET

NBC-M12MSD/ 5,0-93B CMC - Network cable



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CUC-V14-C1ZNI-S/R4P8 - RJ45 connector

1422664

<https://www.phoenixcontact.com/us/products/1422664>



RJ45 connector, degree of protection: IP65/IP67, number of positions: 8, 1 Gbps, CAT5, material: Metal, connection method: IDC fast connection, connection cross section: AWG 23- 22, cable outlet: straight, Ethernet

CUC-V14-C1ZNI-T/R4P8 - RJ45 connector

1422667

<https://www.phoenixcontact.com/us/products/1422667>



RJ45 connector, degree of protection: IP65/IP67, number of positions: 8, 1 Gbps, CAT5, material: Metal, connection method: IDC fast connection, connection cross section: AWG 23- 22, cable outlet: angled, Ethernet

NBC-M12MSD/ 5,0-93B CMC - Network cable

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CUC-V14-C1ZNI-B/R4P8 - RJ45 connector

1422665

<https://www.phoenixcontact.com/us/products/1422665>



RJ45 connector, degree of protection: IP65/IP67, number of positions: 8, 1 Gbps, CAT5, material: Metal, connection method: IDC fast connection, connection cross section: AWG 23- 22, cable outlet: angled, Ethernet

TSD 04 SAC - Torque screwdriver

1208429

<https://www.phoenixcontact.com/us/products/1208429>



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

NBC-M12MSD/ 5,0-93B CMC - Network cable

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TSD-M 1,2NM - Torque screwdriver

1212224

<https://www.phoenixcontact.com/us/products/1212224>



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

TSD-M SAC-BIT ADAPTER - Adapter insert

1212600

<https://www.phoenixcontact.com/us/products/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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SAC BIT M12-D15 - Tool

1208432

<https://www.phoenixcontact.com/us/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

CUTFOX 12 - Cable-cutting tool

1212128

<https://www.phoenixcontact.com/us/products/1212128>



Cable cutter, for copper and aluminum up to 12 mm diameter (up to 35 mm²)

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CUTFOX-S VDE - Diagonal cutter

1212207

<https://www.phoenixcontact.com/us/products/1212207>



Diagonal cutter for hard (piano wire) and soft wires, VDE 1000 V AC/1500 V DC tested

VS-CABLE-STRIP-VARIO - Stripping tool

1657407

<https://www.phoenixcontact.com/us/products/1657407>



Stripping tool, for the multi-level stripping of shielded cables

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MICROFOX-SP-1 - Diagonal cutter

1212487

<https://www.phoenixcontact.com/us/products/1212487>



Electronic diagonal cutter, tapered head, without chamfer, with opening spring, non-reflective phosphate-treated surface, punched version

WIREFOX 4 - Stripping tool

1212156

<https://www.phoenixcontact.com/us/products/1212156>



Stripping tool, for cables and conductors (especially for rubber and silicone insulations) from 0.1 - 4 mm², self-adjusting, stripping length of up to 18 mm, cutting capacity of up to 10 mm² stranded/1.5 mm² solid, replaceable stripping blade

NBC-M12MSD/ 5,0-93B CMC - Network cable



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WIREFOX-E 4 - Stripping tool

1212704

<https://www.phoenixcontact.com/us/products/1212704>



Stripping tool, for cables and conductors (especially for rubber and silicone insulations) from 0.1 - 4 mm², self-adjusting, stripping length of up to 18 mm, cutting capacity of up to 10 mm² stranded/1.5 mm² solid, replaceable stripping blade

WIREFOX 10 - Stripping tool

1212150

<https://www.phoenixcontact.com/us/products/1212150>



Stripping tool, for cables and conductors from 0.02 - 10 mm², self-adjusting, stripping length of up to 18 mm, cutting capacity of up to 10 mm² stranded/1.5 mm² solid, replaceable stripping blade

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