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NBC-M12MSX/ 0,3-94F/R4AC - Network cable

1002933

https://www.phoenixcontact.com/in/products/1002933

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Network cable, Ethernet CAT6$_A$ (10 Gbps), CC-Link IE CAT6$_A$ (10 Gbps), 8-position, PUR halogen-free, water blue RAL 5021, shielded (Advanced Shielding Technology), Plug straight M12, coding: X / IP67, on Plug straight RJ45 / IP20, cable length: 0.3 m

Commercial data

Item number	1002933
Packing unit	1 pc
Minimum order quantity	25 pc
Note	Made to order (non-returnable)
Sales key	*****
Product key	AF1CMJ
GTIN	4055626465395
Weight per piece (including packing)	49.3 g
Weight per piece (excluding packing)	45.5 g
Customs tariff number	85444290
Country of origin	PL

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Technical data

Product properties

Product type	Data cable preassembled
Application	Standard
Sensor type	Ethernet
Number of positions	8
No. of cable outlets	1
Shielded	yes
Coding	X

Interfaces

Bus system	Ethernet
Signal type/category	Ethernet $CAT6_A$, 10 Gbps
	CC-Link IE $CAT6_A$, 10 Gbps

Signaling

Status display	no
Status display present	No

Electrical properties

Nominal voltage U_N	48 V AC
	60 V DC
Nominal current I_N	0.5 A
Transmission medium	Copper
Transmission characteristics (category)	$CAT6_A$

Connector

Connection 1

Type	Plug straight M12 / IP67
Number of positions	8
Coding type	X (Data)
Handle color	black
Material	CuZn (Contact)
	Ni/Au (Contact surface)
	PP (Contact carriers)
	TPU, hardly inflammable, self-extinguishing (Grip body)
	Zinc die-cast, nickel-plated (Screw connection)
Insertion/withdrawal cycles	≥ 100
Insulation resistance	≥ 100 MΩ
Degree of protection	IP67

Connection 2

Type	Plug straight RJ45 / IP20

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Number of positions	8
Handle color	gray
Material	CuSn (Contact)
	Ni/Au (Contact surface)
	PC (Contact carriers)
	PA (Housing)
Insertion/withdrawal cycles	≥ 750
Insulation resistance	≥ 100 MΩ
Tightening torque	0.4 Nm
Degree of protection	IP20
Ambient temperature (operation)	-25 °C ... 60 °C

Cable/line

Cable length	0.3 m

Ethernet 10 Gbit [94F]

Dimensional drawing	
Cable weight	42 kg/km
UL AWM Style	20963 (80°C/30 V)
Number of positions	8
Shielded	yes
Cable type	Ethernet 10 Gbit [94F]
Conductor structure	4x2xAWG26/7; S/FTP
Signal runtime	5.13 ns/m
Conductor structure signal line	7x 0.16 mm
AWG signal line	26
Conductor cross section	4x 2x 0.14 mm²
Wire diameter incl. insulation	1.04 mm
External cable diameter	6.40 mm ±0.2 mm
Outer sheath, material	PUR
External sheath, color	water blue RAL 5021
Conductor material	Bare Cu litz wires
Material wire insulation	Foamed PE
Single wire, color	white/blue-blue, white/orange-orange, white/green-green, white/brown-brown
Thickness, outer sheath	0.65 mm
Twisted pairs	2 cores to the pair

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Type of pair shielding	Aluminum-lined foil
Overall twist	4 pairs for core
Optical shield covering	70 %
Insulation resistance	≥ 500 MΩ*km
Loop resistance	≤ 290.00 Ω/km
Wave impedance	100 Ω ±5 Ω (at 100 MHz)
Cable capacity	47 nF/km
Nominal voltage, cable	≤ 100 V
Test voltage Core/Core	700 V (50 Hz, 1 min.)
Test voltage Core/Shield	700.00 V (50 Hz, 1 min.)
Minimum bending radius, fixed installation	4 x D
Minimum bending radius, flexible installation	8 x D
Smallest bending radius, fixed installation	26 mm
Smallest bending radius, movable installation	52 mm
Tensile strength	≤ 100 N
Near end crosstalk attenuation (NEXT)	75.3 dB (with 1 MHz)
	66.3 dB (at 4 MHz)
	61.8 dB (at 8 MHz)
	60.3 dB (at 10 MHz)
	57.2 dB (at 16 MHz)
	55.8 dB (at 20 MHz)
	54.3 dB (at 25 MHz)
	52.8 dB (at 31.25 MHz)
	48.4 dB (at 62.5 MHz)
	45.3 dB (at 100 MHz)
	40.8 dB (at 200 MHz)
	39.3 dB (at 250 MHz)
	38.1 dB (at 300 MHz)
	38.1 dB (at 400 MHz)
	38.1 dB (at 500 MHz)
Power-summated near end crosstalk attenuation (PSNEXT)	72.3 dB (with 1 MHz)
	63.3 dB (at 4 MHz)
	58.8 dB (at 8 MHz)
	57.3 dB (at 10 MHz)
	54.2 dB (at 16 MHz)
	52.8 dB (at 20 MHz)
	51.3 dB (at 25 MHz)
	49.9 dB (at 31.25 MHz)
	45.4 dB (at 62.5 MHz)
	42.3 dB (at 100 MHz)
	37.8 dB (at 200 MHz)
	36.3 dB (at 250 MHz)
	35.1 dB (at 300 MHz)
	33.3 dB (at 400 MHz)

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	31.8 dB (at 500 MHz)
Return attenuation (RL)	20 dB (with 1 MHz)
	23 dB (at 4 MHz)
	24.5 dB (at 8 MHz)
	25 dB (at 10 MHz)
	25 dB (at 16 MHz)
	25 dB (at 20 MHz)
	24.2 dB (at 25 MHz)
	23.3 dB (at 31.25 MHz)
	20.7 dB (at 62.5 MHz)
	19 dB (at 100 MHz)
	16.4 dB (at 200 MHz)
	15.6 dB (at 250 MHz)
	15.6 dB (at 300 MHz)
	15.6 dB (at 400 MHz)
	15.6 dB (at 500 MHz)
Shield attenuation	3.1 dB (with 1 MHz)
	5.7 dB (at 4 MHz)
	8 dB (at 8 MHz)
	8.9 dB (at 10 MHz)
	11.2 dB (at 16 MHz)
	12.6 dB (at 20 MHz)
	14.1 dB (at 25 MHz)
	15.8 dB (at 31.25 MHz)
	22.5 dB (at 62.5 MHz)
	28.7 dB (at 100 MHz)
	41.4 dB (at 200 MHz)
	46.6 dB (at 250 MHz)
	51.4 dB (at 300 MHz)
	60.1 dB (at 400 MHz)
	67.9 dB (at 500 MHz)
	≥ 80.00 dB (at 30 ... 100 MHz)
Halogen-free	according to IEC 60754-1
Flame resistance	according to IEC 60332-1-2
	in accordance with UN ECE-R 118.03
Resistance to oil	in accordance with DIN 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

Environmental and real-life conditions

Ambient conditions

	IP65 (M12 connector)

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Degree of protection	IP67 (M12 connector)
	IP20 (RJ45 connector)
Ambient temperature (operation)	-25 °C ... 90 °C (M12 connector)
	-20 °C ... 70 °C (RJ45 connector)

Standards and regulations

M12

Standard designation	M12 connector
Standards/specifications	IEC 61076-2-109

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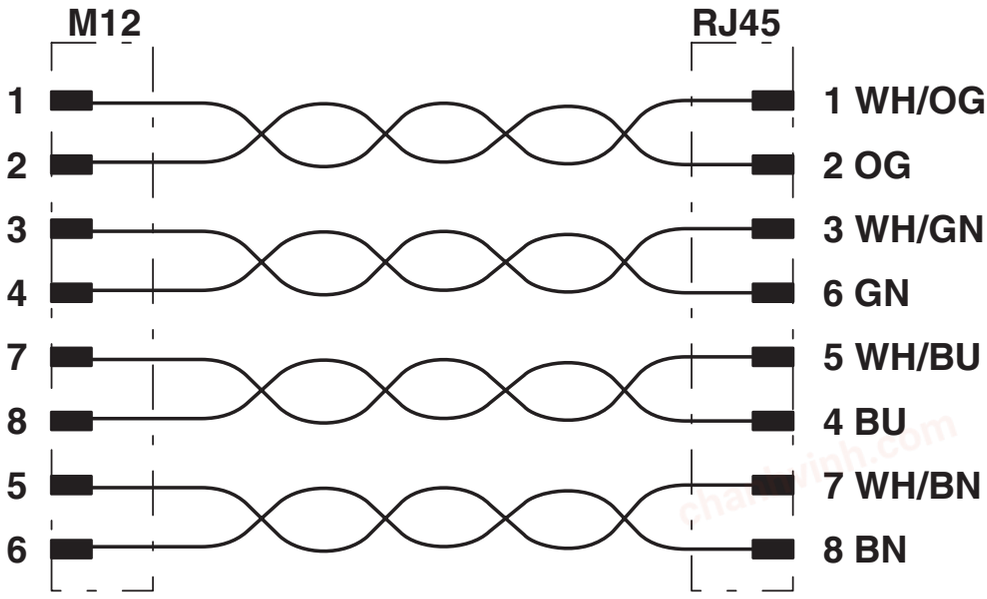
NBC-M12MSX/ 0,3-94F/R4AC - Network cable

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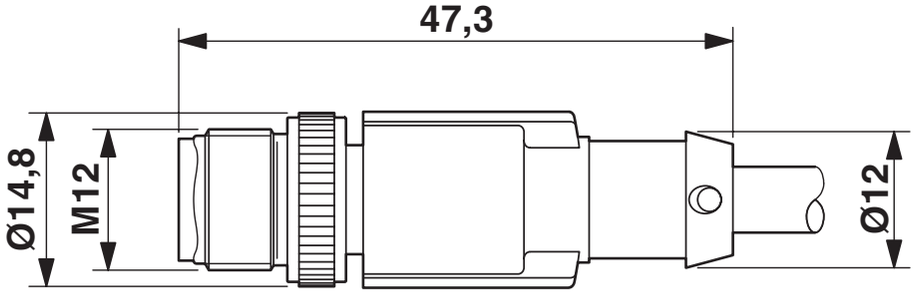
Drawings

Circuit diagram



Contact assignment of the M12 and RJ45 plug

Dimensional drawing



Plug, M12 x 1, straight, shielded

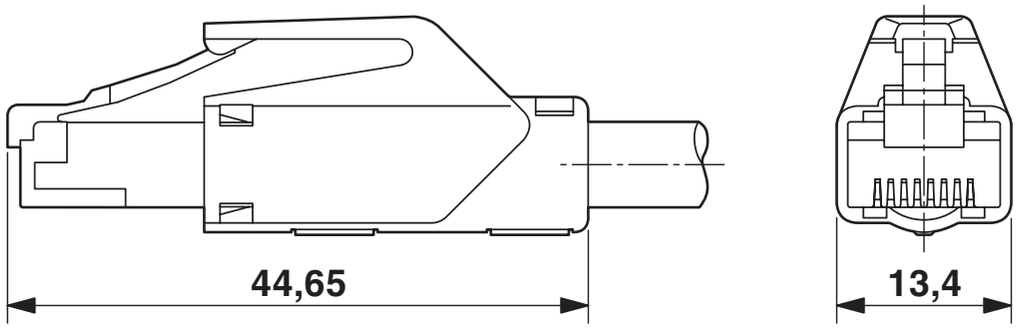
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Dimensional drawing



RJ45 connector, IP20

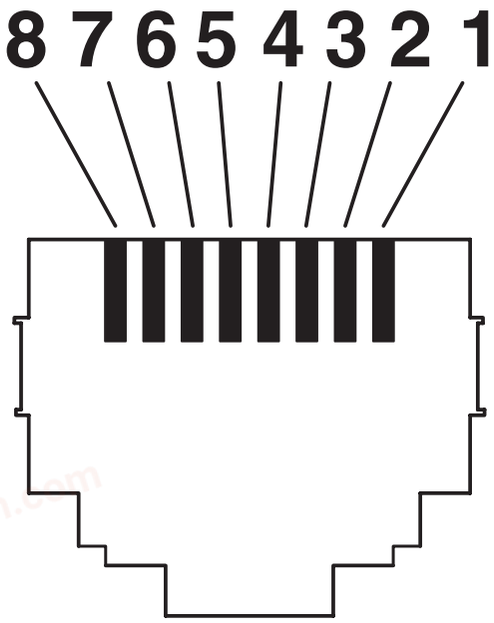
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Schematic diagram



Connector pin assignment plug RJ45

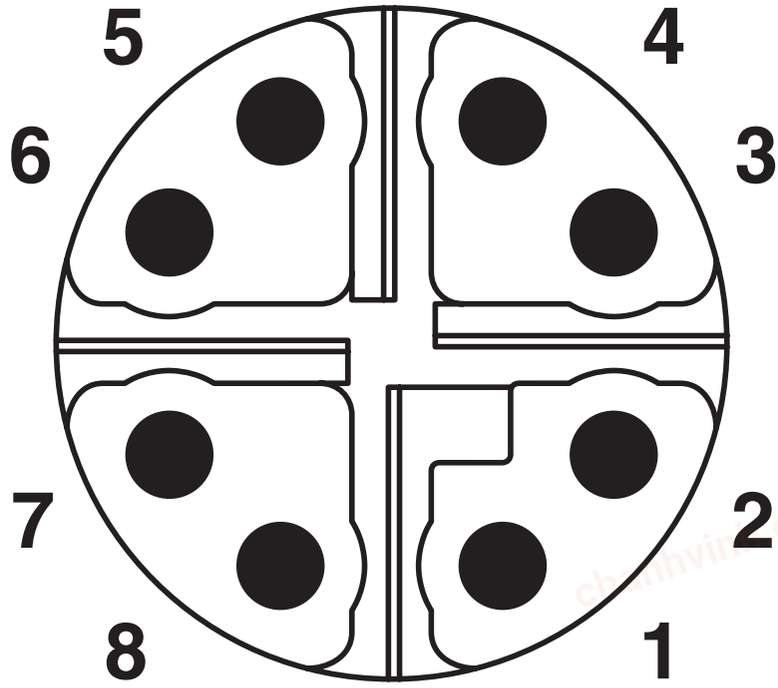
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Schematic diagram



Pin assignment of M12 plug, 8-pos., X-coded, pin side view

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Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/in/products/1002933

UL Listed
Approval ID: FILE E 335024

	Nominal voltage U_N	Nominal current I_N	Cross section AWG	Cross section mm^2
	30 V	0.5 A	-	-

cUL Listed
Approval ID: FILE E 335024

	Nominal voltage U_N	Nominal current I_N	Cross section AWG	Cross section mm^2
	30 V	0.5 A	-	-

cULus Listed

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Classifications

ECLASS

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

ETIM

ETIM 9.0	EC001855

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%

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Accessories

PROT-M12 FS-PA-CHAIN - Sealing cap

1430873

https://www.phoenixcontact.com/in/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/in/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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NBC-M12MSX/ 0,3-94F/R4AC - Network cable

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WP-CTA POM 13,0 BK - Protective hose adapter

1422884

https://www.phoenixcontact.com/in/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/in/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, inside diameter: 10 mm, Total length: 50 m

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NBC-M12MSX/ 0,3-94F/R4AC - Network cable

1002933

https://www.phoenixcontact.com/in/products/1002933

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

3240839

https://www.phoenixcontact.com/in/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, inside diameter: 10 mm, Total length: 50 m

SACC-M12MSX-8QO SH ETH - Data connector

1411043

https://www.phoenixcontact.com/in/products/1411043



Data connector, Ethernet CAT6$_A$ (10 Gbps), 8-position, halogen-free, shielded, Plug straight M12, coding: X, Insulation displacement connection, knurl material: Zinc die-cast, nickel-plated, external cable diameter 5 mm ... 9.7 mm

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NBC-M12MSX/ 0,3-94F/R4AC - Network cable

1002933

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SACC-M12FSX-8QO SH ETH - Data connector

1414586

https://www.phoenixcontact.com/in/products/1414586



Data connector, Ethernet CAT6$_A$ (10 Gbps), 8-position, halogen-free, shielded, Socket straight M12, coding: X, Insulation displacement connection, knurl material: Zinc die-cast, nickel-plated, external cable diameter 5 mm ... 9.7 mm

SACC-CC-8QO SH ETH - Conductor connector

1414412

https://www.phoenixcontact.com/in/products/1414412



Cable connector, Ethernet CAT6$_A$ (10 Gbps), 8-pos., halogen-free, shielded, insulation displacement connection, housing material: zinc die-cast, nickel-plated, outer cable diameter of 5 mm ... 9.7 mm

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NBC-M12MSX/ 0,3-94F/R4AC - Network cable

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VS-08-M12MS-10G-P SCO - Data connector

1417430

https://www.phoenixcontact.com/in/products/1417430



Data connector, Ethernet CAT6$_A$ (10 Gbps), 8-position, shielded, Plug straight M12 SPEEDCON, coding: X, Piercecon® fast connection, knurl material: Zinc die-cast, nickel-plated, external cable diameter 4 mm ... 8 mm

VS-08-M12MR-10G-P SCO - Data connector

1417443

https://www.phoenixcontact.com/in/products/1417443



Data connector, Ethernet CAT6$_A$ (10 Gbps), 8-position, shielded, Plug angled M12 SPEEDCON, coding: X, Piercecon® fast connection, knurl material: Zinc die-cast, nickel-plated, external cable diameter 4 mm ... 8 mm

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NBC-M12MSX/ 0,3-94F/R4AC - Network cable

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SACC-M12MSX-8CT-CL SH - Data connector

1422844

https://www.phoenixcontact.com/in/products/1422844



Data connector, Ethernet CAT6$_A$ (10 Gbps), PROFINET CAT6$_A$ (10 Gbps), 8-position, shielded, Plug straight M12, coding: X, Crimp connection, knurl material: Zinc die-cast, tin-plated, external cable diameter 6.5 mm ... 10 mm, without crimp contacts

SACC-M12MRX-8CT-CL SH - Data connector

1422845

https://www.phoenixcontact.com/in/products/1422845



Data connector, Ethernet CAT6$_A$ (10 Gbps), PROFINET CAT6$_A$ (10 Gbps), 8-position, shielded, Plug angled M12, coding: X, Crimp connection, knurl material: Zinc die-cast, tin-plated, external cable diameter 6.5 mm ... 10 mm, without crimp contacts

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VS-08-RJ45-10G/Q - RJ45 connector

1419001

https://www.phoenixcontact.com/in/products/1419001



RJ45 connector, design: RJ45, degree of protection: IP20, number of positions: 8, 10 Gbps, $CAT6_A$, material: Plastic, connection method: Insulation displacement connection, connection cross section: AWG 26- 24, cable outlet: straight, color: black, Ethernet

CUC-IND-C1ZNI-S/R4IE8 - RJ45 connector

1421607

https://www.phoenixcontact.com/in/products/1421607



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 26- 24, cable outlet: straight, color: green, Ethernet

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NBC-M12MSX/ 0,3-94F/R4AC - Network cable

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CUC-IND-C1ZNI-T/R4IE8 - RJ45 connector

1421877

https://www.phoenixcontact.com/in/products/1421877



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 26- 24, cable outlet: angled, Ethernet

CUC-IND-C1ZNI-B/R4IE8 - RJ45 connector

1421876

https://www.phoenixcontact.com/in/products/1421876



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 26- 24, cable outlet: angled, Ethernet

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NBC-M12MSX/ 0,3-94F/R4AC - Network cable

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CUC-V06-C1PGY-S/R4CEA:1 - RJ45 connector

1414406

https://www.phoenixcontact.com/in/products/1414406



RJ45 connector, design: RJ45, degree of protection: IP67, number of positions: 2, 10 Gbps, CAT6$_A$, material: Plastic, connection method: Crimp connection, connection cross section: AWG 24- 27, cable outlet: straight, color: gray, Ethernet/PROFINET

CUC-V06-C1PBK-S/R4CEA:1 - RJ45 connector

1414410

https://www.phoenixcontact.com/in/products/1414410



RJ45 connector, design: RJ45, degree of protection: IP67, number of positions: 8, 10 Gbps, CAT6$_A$, material: Plastic, connection method: Crimp connection, connection cross section: AWG 24- 27, cable outlet: straight, color: black, Ethernet/PROFINET

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VS-PPC-C1-RJ45-POBK-8I10G - RJ45 connector

1422205

https://www.phoenixcontact.com/in/products/1422205



RJ45 connector, degree of protection: IP65/IP67, number of positions: 8, 10 Gbps, $CAT6_A$, material: Plastic, connection method: Crimp connection, connection cross section: AWG 27- 24, cable outlet: straight, color: black, Ethernet

TSD 04 SAC - Torque screwdriver

1208429

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



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

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NBC-M12MSX/ 0,3-94F/R4AC - Network cable

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TSD-M 1,2NM - Torque screwdriver

1212224

https://www.phoenixcontact.com/in/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/in/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/in/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/in/products/1212128



Cable cutter, for copper and aluminum up to 12 mm diameter (up to 35 mm^2)

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CUTFOX-S VDE - Diagonal cutter

1212207

https://www.phoenixcontact.com/in/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/in/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/in/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/in/products/1212156



Stripping tool, for cables and conductors (especially for rubber and silicone insulations) from 0.1 - 4 mm^2, self-adjusting, stripping length of up to 18 mm, cutting capacity of up to 10 mm^2 stranded/1.5 mm^2 solid, replaceable stripping blade

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WIREFOX-E 4 - Stripping tool

1212704

https://www.phoenixcontact.com/in/products/1212704



Stripping tool, for cables and conductors (especially for rubber and silicone insulations) from 0.1 - 4 mm^2, self-adjusting, stripping length of up to 18 mm, cutting capacity of up to 10 mm^2 stranded/1.5 mm^2 solid, replaceable stripping blade

WIREFOX 10 - Stripping tool

1212150

https://www.phoenixcontact.com/in/products/1212150



Stripping tool, for cables and conductors from 0.02 - 10 mm^2, self-adjusting, stripping length of up to 18 mm, cutting capacity of up to 10 mm^2 stranded/1.5 mm^2 solid, replaceable stripping blade

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