chanhvinh.com

Network cable - NBC-M12MSD/ 2,0-93C

1416197

https://www.phoenixcontact.com/gb/products/1416197

Please be informed that the data shown in this PDF document is generated from our Online Catalog. Please find the complete data in the user documentation. Our General Terms of Use for Downloads are valid.



Network cable, PROFINET CAT5 (100 Mbps), EtherCAT® CAT5 (100 Mbps), 4-position, shielded (Advanced Shielding Technology), Plug straight M12 / IP67, coding: D, on free cable end, cable length: 2 m

Commercial Data

Item number	1416197
Packing unit	1 pc
Minimum order quantity	1 pc
Sales Key	BF1CJI
Product Key	BF1CJI
Catalog Page	Page 309 (PC-2011)
GTIN	4046356474702
Weight per Piece (including packing)	145.5 g
Weight per Piece (excluding packing)	145 g
Customs tariff number	85444210
Country of origin	PL

chanhvinh.com

Network cable - NBC-M12MSD/ 2,0-93C

1416197

https://www.phoenixcontact.com/gb/products/1416197

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

Product properties

Product type	Data cable preassembled
Number of positions	4
Application	Standard
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
	PROFINET CAT5 (IEC 11801), 100 Mbps
	EtherCAT® 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

Connector

Connection 1

Type	Plug straight M12 / IP67
Number of positions	4

chanhvinh.com

Network cable - NBC-M12MSD/ 2,0-93C

1416197

https://www.phoenixcontact.com/gb/products/1416197

Coding type	D (Data)
Handle color	black
Material	CuSn (Contact)
	Ni/Au (Contact surface)
	PA (Contact carriers)
	TPU, hardly inflammable, self-extinguishing (Grip)
	Zinc die-cast, nickel-plated (Screw connection)
	FKM (Seal)
Insertion/withdrawal cycles	≥ 100
Contact resistance	≤ 5 mΩ
Insulation resistance	≥ 100 MΩ
Tightening torque	0.4 Nm
Degree of protection	IP67
Ambient temperature (operation)	-25 °C ... 90 °C

Connection 2

Type	free cable end

Cable / line

Cable length	2 m
Cable weight	61 kg/km
Number of positions	4
Shielded	yes
Cable type	PROFINET drag chain CAT5 [93C]
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 mm²
Wire diameter incl. insulation	1.5 mm
External cable diameter	6.5 mm ±0.2 mm
Outer sheath, material	PUR
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. 0.9 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 1 ... 100 MHz)
Nominal voltage, cable	600 V (UL rating)

chanhvinh.com

Network cable - NBC-M12MSD/ 2,0-93C

1416197

https://www.phoenixcontact.com/gb/products/1416197

Test voltage Core/Core	2000 V (50 Hz, 1 min.)
Test voltage Core/Shield	2000 V (50 Hz, 1 min.)
Minimum bending radius, fixed installation	5 x D
Minimum bending radius, flexible installation	7.5 x D
Max. bending cycles	3000000
Tensile strength	≤ 150 N
Torsion force	± 30 °/m
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)
	11.4 dB (at 31.25 MHz)
	16.5 dB (at 62.5 MHz)
	21.3 dB (at 100 MHz)
Halogen-free	yes
Flame resistance	according to IEC 60332-1-2
Resistance to oil	in accordance with DIN EN 60811-2-1
Other resistance	UV resistant
Special properties	Electrical properties according to EN 50288-2-2
Ambient temperature (operation)	-40 °C ... 70 °C (cable, fixed installation)
	-40 °C ... 70 °C (Cable, flexible installation)
Ambient temperature (installation)	-20 °C ... 60 °C
Signal type/category	PROFINET CAT5 (IEC 11801), 100 Mbps
	EtherCAT® CAT5 (IEC 11801), 100 Mbps

Ambient conditions

Degree of protection	IP65
	IP67

Standards and regulations

M12

Standards/specifications	IEC 61076-2-101

chanhvinh.com

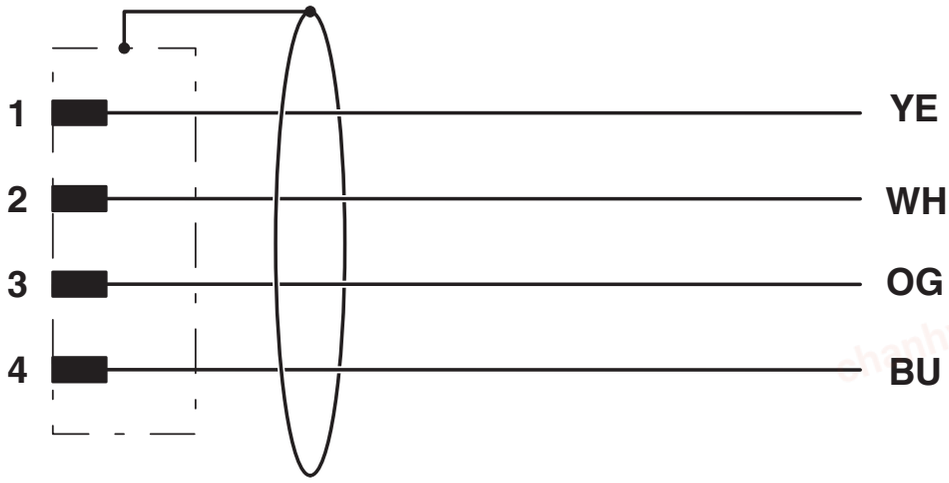
Network cable - NBC-M12MSD/ 2,0-93C

1416197

https://www.phoenixcontact.com/gb/products/1416197

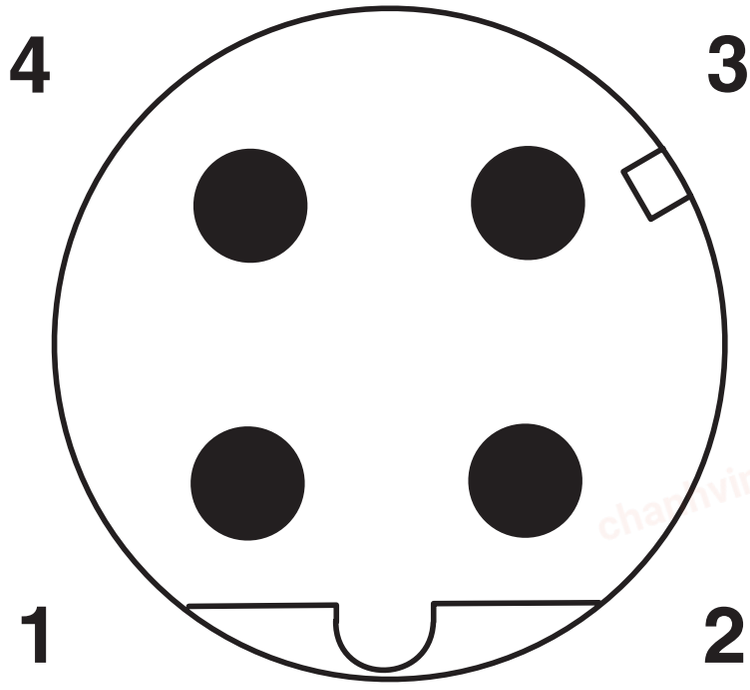
Drawings

Circuit diagram



Contact assignment of the M12 plug

Schematic diagram



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

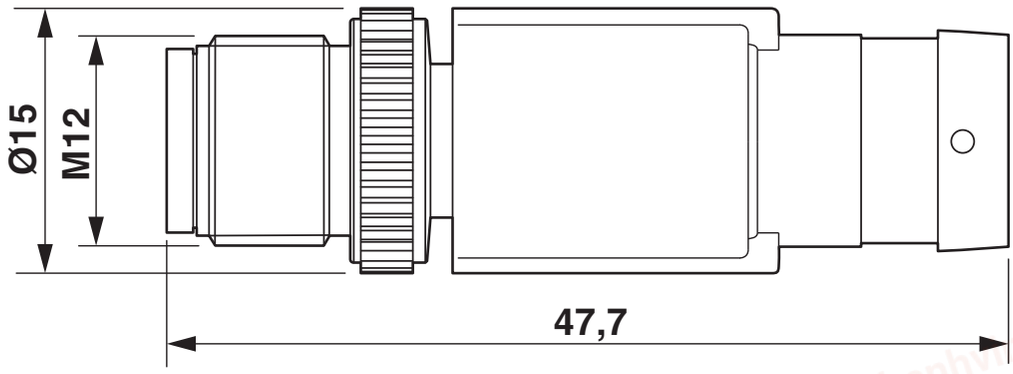
chanhvinh.com

Network cable - NBC-M12MSD/ 2,0-93C

1416197

https://www.phoenixcontact.com/gb/products/1416197

Dimensional drawing



Plug, M12 x 1, straight, shielded

chanhvinh.com

Network cable - NBC-M12MSD/ 2,0-93C

1416197

https://www.phoenixcontact.com/gb/products/1416197

Approvals

EAC
Approval ID: RU D-DE.HB35.B.00385

chanhvinh.com

chanhvinh.com

Network cable - NBC-M12MSD/ 2,0-93C

1416197

https://www.phoenixcontact.com/gb/products/1416197

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

chanhvinh.com

Network cable - NBC-M12MSD/ 2,0-93C

1416197

https://www.phoenixcontact.com/gb/products/1416197

Environmental Product Compliance

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

chanhvinh.com

Network cable - NBC-M12MSD/ 2,0-93C

1416197

https://www.phoenixcontact.com/gb/products/1416197

Accessories

Network cable

Network cable - NBC-MSD SCO-PN/.../... - 1408640

https://www.phoenixcontact.com/gb/products/1408640



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

Network cable

Network cable - NBC-MRD SCO-PN/.../... - 1408633

https://www.phoenixcontact.com/gb/products/1408633



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

chanhvinh.com

Network cable - NBC-M12MSD/ 2,0-93C

1416197

https://www.phoenixcontact.com/gb/products/1416197

Network cable

Network cable - NBC-FSD SCO-PN/.../... - 1408623

https://www.phoenixcontact.com/gb/products/1408623



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

Network cable

Network cable - NBC-FRD SCO-PN/.../... - 1408615

https://www.phoenixcontact.com/gb/products/1408615



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

chanhvinh.com

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

chanhvinh.com

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

chanhvinh.com

Network cable - NBC-M12MSD/ 2,0-93C

1416197

https://www.phoenixcontact.com/gb/products/1416197

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



chanhvinh.com

Network cable - NBC-M12MSD/ 2,0-93C

1416197

https://www.phoenixcontact.com/gb/products/1416197

Cable-cutting tool

Cable-cutting tool - CUTFOX 12 - 1212128

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



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

Diagonal cutter

Diagonal cutter - CUTFOX-S VDE - 1212207

https://www.phoenixcontact.com/gb/products/1212207



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

chanhvinh.com

Network cable - NBC-M12MSD/ 2,0-93C

1416197

https://www.phoenixcontact.com/gb/products/1416197

Stripping tool

Stripping tool - VS-CABLE-STRIP-VARIO - 1657407

https://www.phoenixcontact.com/gb/products/1657407

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



Diagonal cutter

Diagonal cutter - MICROFOX-SP-1 - 1212487

https://www.phoenixcontact.com/gb/products/1212487



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

chanhvinh.com

Network cable - NBC-M12MSD/ 2,0-93C

1416197

https://www.phoenixcontact.com/gb/products/1416197

Stripping tool

Stripping tool - WIREFOX 4 - 1212156

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

Stripping tool

Stripping tool - WIREFOX-E 4 - 1212704

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

chanhvinh.com

Stripping tool

Stripping tool - WIREFOX 10 - 1212150

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

Protective hose adapter

Protective hose adapter - WP-CTA POM 13,0 BK - 1422884

https://www.phoenixcontact.com/gb/products/1422884



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

chanhvinh.com

Network cable - NBC-M12MSD/ 2,0-93C

1416197

https://www.phoenixcontact.com/gb/products/1416197

Protective hose

Protective hose - WP-PA HF 13,0 BK - 3240681

https://www.phoenixcontact.com/gb/products/3240681



Protective hose, material: PA 6, filament: without, UV-resistant: yes, flexible, degree of protection: IP68, color: black, inflammability class in acc. with UL 94: V0, inner diameter: 10 mm, Total length: 50 m

Protective hose

Protective hose - WP-PA HF-HB 13,0 BK - 3240839

https://www.phoenixcontact.com/gb/products/3240839



Protective hose, material: PA 6, filament: without, UV-resistant: yes, flexible, degree of protection: IP68, color: black, inflammability class in acc. with UL 94: HB, inner diameter: 10 mm, Total length: 50 m

chanhvinh.com

Network cable - NBC-M12MSD/ 2,0-93C

1416197

https://www.phoenixcontact.com/gb/products/1416197

Data connector

Data connector - SACC-M12MSD-4QO SH PN - 1411068

https://www.phoenixcontact.com/gb/products/1411068



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

Data connector

Data connector - SACC-M12MRD-4Q SH PN - 1554539

https://www.phoenixcontact.com/gb/products/1554539



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

chanhvinh.com

Network cable - NBC-M12MSD/ 2,0-93C

1416197

https://www.phoenixcontact.com/gb/products/1416197

Data connector

Data connector - SACC-M12FSD-4QO SH PN - 1411071

https://www.phoenixcontact.com/gb/products/1411071



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

Data connector

Data connector - SACC-M12FRD-4Q SH PN - 1554542

https://www.phoenixcontact.com/gb/products/1554542



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

chanhvinh.com

Network cable - NBC-M12MSD/ 2,0-93C

1416197

https://www.phoenixcontact.com/gb/products/1416197

Conductor connectors

Conductor connectors - SACC-CC-4QO SH PN - 1414416

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

Data connector

Data connector - SACC-M12MSD-4PL SH PN - 1424682

https://www.phoenixcontact.com/gb/products/1424682



Data 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

chanhvinh.com

Network cable - NBC-M12MSD/ 2,0-93C

1416197

https://www.phoenixcontact.com/gb/products/1416197

Data connector

Data connector - SACC-M12MRD-4PL SH PN - 1424684

https://www.phoenixcontact.com/gb/products/1424684



Data 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

Data connector

Data connector - SACC-M12FSD-4PL SH PN - 1424683

https://www.phoenixcontact.com/gb/products/1424683



Data 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

chanhvinh.com

Network cable - NBC-M12MSD/ 2,0-93C

1416197

https://www.phoenixcontact.com/gb/products/1416197

Data connector

Data connector - SACC-M12FRD-4PL SH PN - 1424685

https://www.phoenixcontact.com/gb/products/1424685



Data 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

Data connector

Data connector - SACC-M12MSD-4CT-CM SH PN - 1422846

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

chanhvinh.com

Network cable - NBC-M12MSD/ 2,0-93C

1416197

https://www.phoenixcontact.com/gb/products/1416197

Data connector

Data connector - SACC-M12MRD-4CT-CM SH PN - 1422847

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

Data connector

Data connector - SACC-M12FSD-4CT-CM SH PN - 1422848

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

chanhvinh.com

Network cable - NBC-M12MSD/ 2,0-93C

1416197

https://www.phoenixcontact.com/gb/products/1416197

Data connector

Data connector - SACC-M12FRD-4CT-CM SH PN - 1422849

https://www.phoenixcontact.com/gb/products/1422849



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

RJ45 connector

RJ45 connector - VS-PN-RJ45-5-Q/IP20 - 1658435

https://www.phoenixcontact.com/gb/products/1658435



RJ45 connector, type: RJ45, degree of protection: IP20, number of positions: 4, 100 Mbps, CAT5 (IEC 11801:2002), material: PA, connection method: IDC fast connection, cable outlet: straight, color: traffic grey A RAL 7042, PROFINET

chanhvinh.com

Network cable - NBC-M12MSD/ 2,0-93C

1416197

https://www.phoenixcontact.com/gb/products/1416197

RJ45 connector

RJ45 connector - CUC-IND-C1ZNI-S/R4IP8 - 1421126

https://www.phoenixcontact.com/gb/products/1421126



RJ45 connector, type: RJ45, degree of protection: IP20, number of positions: 8, 1 Gbps, CAT5 (IEC 11801:2002), material: Zinc die-cast, connection method: IDC fast connection, connection cross section: AWG 23- 22, cable outlet: straight, color: green, PROFINET

RJ45 connector

RJ45 connector - CUC-IND-C1ZNI-T/R4IP8 - 1421128

https://www.phoenixcontact.com/gb/products/1421128



RJ45 connector, type: RJ45, degree of protection: IP20, number of positions: 8, 1 Gbps, CAT5 (IEC 11801:2002), material: Zinc die-cast, connection method: IDC fast connection, connection cross section: AWG 23- 22, cable outlet: angled, Ethernet/PROFINET

chanhvinh.com

Network cable - NBC-M12MSD/ 2,0-93C

1416197

https://www.phoenixcontact.com/gb/products/1416197

RJ45 connector

RJ45 connector - CUC-IND-C1ZNI-B/R4IP8 - 1421127

https://www.phoenixcontact.com/gb/products/1421127



RJ45 connector, type: RJ45, degree of protection: IP20, number of positions: 8, 1 Gbps, CAT5 (IEC 11801:2002), material: Zinc die-cast, connection method: IDC fast connection, connection cross section: AWG 23- 22, cable outlet: angled, Ethernet/PROFINET

RJ45 connector

RJ45 connector - CUC-V14-C1ZNI-S/R4P8 - 1422664

https://www.phoenixcontact.com/gb/products/1422664



Push-pull connector (version 14), die-cast zinc, with RJ45 connector insert, 8-pos., with IDC fast connection technology, for 1 and 7-wire cores, 23 ... 22 AWG, for cable diameter of 5.5 mm ... 10 mm

chanhvinh.com

Network cable - NBC-M12MSD/ 2,0-93C

1416197

https://www.phoenixcontact.com/gb/products/1416197

RJ45 connector

RJ45 connector - CUC-V14-C1ZNI-T/R4P8 - 1422667

https://www.phoenixcontact.com/gb/products/1422667



Push-pull connector (version 14), die-cast zinc, with RJ45 connector insert, 8-pos., with IDC fast connection technology, for 1 and 7-wire cores, 23 ... 22 AWG, for cable diameter of 5.5 mm ... 10 mm

RJ45 connector

RJ45 connector - CUC-V14-C1ZNI-B/R4P8 - 1422665

https://www.phoenixcontact.com/gb/products/1422665



Push-pull connector (version 14), die-cast zinc, with RJ45 connector insert, 8-pos., with IDC fast connection technology, for 1 and 7-wire cores, 23 ... 22 AWG, for cable diameter of 5.5 mm ... 10 mm

Phoenix Contact 2022 © - all rights reserved
https://www.phoenixcontact.com

PHOENIX CONTACT Ltd
Halesfield 13, Telford
Shropshire, TF7 4PG
01952 681700
info@phoenixcontact.co.uk