

IL PN BK DI8 DO4 2TX-PAC - Bus coupler



2703994

<https://www.phoenixcontact.com/pc/products/2703994>

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Inline, Bus coupler, PROFINET, RJ45 jack, Digital inputs: 8, 24 V DC, connection technology: 3-conductor, Digital outputs: 4, 24 V DC, 500 mA, connection technology: 3-conductor, transmission speed in the local bus: 500 kbps / 2 Mbps, degree of protection: IP20

Product description

The bus coupler with integrated I/Os is intended for use within a PROFINET network and represents the link to the Inline I/O system. Up to 61 Inline devices can be connected to the bus coupler. The bus coupler supports a maximum of 16 PCP devices.

Your advantages

- 2x Ethernet twisted pair according to 802.3 with auto negotiation and auto crossover
- Transmission speeds 100 Mbps
- IP parameter setting via PROFINET controller
- Connection to the PROFINET network via 8-pos. RJ45 jack
- Electrical isolation between Ethernet interface and logic
- Ethernet TCP/IP (100 Base-TX, management via SNMP)
- Connection of up to 61 other Inline devices
- Connection of a maximum of 16 PCP devices
- Supported protocols: SNMPv1, TFTP, PROFINET, LLDP, ICMP, and MRP (from firmware 3.21)
- PROFINET IRT (firmware 4.00 or later)
- Conformance with PROFINET specification V2.3 (firmware 4.00 or later)
- PROFINET Netload Class III (from firmware 4.00)
- 8 digital inputs, 4 digital outputs (on-board)
- Automatic detection of the transmission speed in the local bus (500 kbps or 2 Mbps)
- Approved for PROFI-safe applications

Commercial data

Item number	2703994
Packing unit	1 pc
Minimum order quantity	1 pc
Product key	DRI11A
GTIN	4046356041164
Weight per piece (including packing)	331.6 g
Weight per piece (excluding packing)	320 g
Customs tariff number	85176200
Country of origin	DE

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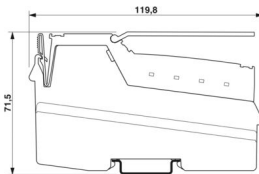


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Technical data

Dimensions

Dimensional drawing	
Width	80 mm
Height	119.8 mm
Depth	71.5 mm
Note on dimensions	Specifications with connectors

Notes

Note on application	
Note on application	Only for industrial use
Utilization restriction	
CCCex note	Use in potentially explosive areas is not permitted in China.

Interfaces

PROFINET	
Number of interfaces	2
Connection method	RJ45 jack
Note on the connection method	Auto negotiation and autocrossing
Transmission speed	100 Mbps (acc. to PROFINET standard)
Transmission physics	Ethernet in RJ45 twisted pair
Inline local bus	
Connection method	Inline data jumper
Transmission speed	500 kbps / 2 Mbps (automatic detection, no combined system)

System properties

System limits	
Number of supported devices	max. 63 (per station)
Number of local bus devices that can be connected	max. 61 (The on-board I/Os are two devices)
Number of devices with parameter channel	max. 16
Number of supported branch terminals with remote bus branch	0
PROFINET	
Device function	PROFINET device
Update rate	min. 1 ms (depending on the size of the bus system)

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2703994

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Module

ID code (hex)	none
Input address area	8 bit
Output address area	4 bit
Register length	16 bit

Input data

Digital:

Input name	Digital inputs
Description of the input	EN 61131-2 type 1
Number of inputs	8
Connection method	Inline connector
Connection technology	3-conductor
Input voltage	24 V DC
Input voltage range "0" signal	-30 V DC ... 5 V DC
Input voltage range "1" signal	15 V DC ... 30 V DC
Nominal input voltage U_{IN}	24 V DC
Nominal input current at U_{IN}	typ. 3 mA
Typical input current per channel	typ. 3 mA
Typical response time	approx. 500 μ s
Filter time	3 ms
Delay at signal change from 0 to 1	5 ms
Delay at signal change from 1 to 0	5 ms

Output data

Digital:

Output name	Digital outputs
Connection method	Inline connector
Connection technology	3-conductor
Number of outputs	4
Protective circuit	Short-circuit and overload protection; Freewheeling circuit in the output driver
Output voltage	24 V DC -1 V (At nominal current)
Maximum output current per module	max. 2 A
Nominal output voltage	24 V DC
Output current when switched off	max. 10 μ A (When not loaded, a voltage can be measured even at an output that is not set.)
Nominal load, inductive	12 VA (1.2 H, 48 Ω)
Nominal load, lamp	12 W
Nominal load, ohmic	12 W
Reverse voltage resistance to short pulses	Reverse voltage proof
Behavior with overload	Auto restart
Behavior with inductive overload	Output can be destroyed

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2703994

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Behavior at voltage switch-off	The output follows the power supply without delay
Signal delay	typ. 1.2 ms
Overcurrent shut-down	min. 0.7 A

Product properties

Product type	I/O component
Product family	Inline
Type	modular
No. of channels	12
Diagnostics messages	Short-circuit or overload of the digital outputs yes
	Sensor supply failure yes
	Failure of the actuator supply yes

Insulation characteristics

Overvoltage category	II (IEC 60664-1, EN 60664-1)
Pollution degree	2 (IEC 60664-1, EN 60664-1)

Electrical properties

Maximum power dissipation for nominal condition	4.6 W
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Potentials

Protective circuit	Surge protection (segment supply, main supply, bus coupler supply); Suppressor diode, 35 V DC
	Reverse polarity protection (segment supply, main supply, bus coupler supply); Suppressor diode, 35 V DC

Potentials: Bus coupler supply U_{BK} ; Communications power U_L (7.5 V) and the analog supply U_{ANA} (24 V) are generated from the bus coupler supply.

Supply voltage	24 V DC (via Inline connector)
Supply voltage range	19.2 V DC ... 30 V DC (including all tolerances, including ripple)
Current draw	max. 0.91 A (with max. number of connected I/O terminal blocks)
	typ. 138 mA

Potentials: Communications power (U_L)

Supply voltage	7.5 V DC
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Potentials: Supply of analog modules (U_{ANA})

Supply voltage	24 V DC
Supply voltage range	19.2 V DC ... 30 V DC (including all tolerances, including ripple)

Potentials: Main circuit supply (U_M)

Supply voltage	24 V DC (via Inline connector)
Supply voltage range	19.2 V DC ... 30 V DC (including all tolerances, including ripple)
Current draw	max. 8 A DC
	min. 3 mA (without connected peripherals)

Potentials: Segment circuit supply (U_S)

Supply voltage	24 V DC (via Inline connector)
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IL PN BK DI8 DO4 2TX-PAC - Bus coupler



2703994

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Supply voltage range	19.2 V DC ... 30 V DC (including all tolerances, including ripple)
Current draw	max. 8 A DC
	min. 3 mA (without connected peripherals)

Electrical isolation/isolation of the voltage ranges

Test voltage: PROFINET interface 1 / PROFINET interface 2	500 V AC, 50 Hz, 1 min
Test voltage: PROFINET interface 1 / communications power (U_{BK} , U_L , U_{ANA})	500 V AC, 50 Hz, 1 min
Test voltage: PROFINET interface 1 / I/O (U_M , U_S)	500 V AC, 50 Hz, 1 min
Test voltage: PROFINET interface 1 / functional ground	500 V AC, 50 Hz, 1 min
Test voltage: PROFINET interface 2 / communications power (U_{BK} , U_L , U_{ANA})	500 V AC, 50 Hz, 1 min
Test voltage: PROFINET interface 2 / I/O (U_M , U_S)	500 V AC, 50 Hz, 1 min
Test voltage: PROFINET interface 2 / functional ground	500 V AC, 50 Hz, 1 min
Test voltage: Communications power (U_{BK} , U_L , U_{ANA}) / I/O (U_M , U_S)	500 V AC, 50 Hz, 1 min
Test voltage: Communications power (U_{BK} , U_L , U_{ANA}) / functional ground	500 V AC, 50 Hz, 1 min
Test voltage: I/O (U_M , U_S) / functional ground	500 V AC, 50 Hz, 1 min

Connection data

Connection technology

Connection name	Inline connector
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Conductor connection

Connection method	Spring-cage connection
Conductor cross-section rigid	0.08 mm ² ... 1.5 mm ²
Conductor cross-section flexible	0.08 mm ² ... 1.5 mm ²
Conductor cross-section AWG	28 ... 16
Stripping length	8 mm

Inline connector

Connection method	Spring-cage connection
Conductor cross-section, rigid	0.08 mm ² ... 1.5 mm ²
Conductor cross-section, flexible	0.08 mm ² ... 1.5 mm ²
Conductor cross-section AWG	28 ... 16
Stripping length	8 mm

Environmental and real-life conditions

Ambient conditions

Ambient temperature (operation)	-25 °C ... 55 °C (observe derating)
Degree of protection	IP20
Air pressure (operation)	70 kPa ... 106 kPa (up to 3000 m above sea level)
Air pressure (storage/transport)	70 kPa ... 106 kPa (up to 3000 m above sea level)
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Permissible humidity (operation)	10 % ... 95 % (non-condensing)

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Permissible humidity (storage/transport)	10 % ... 95 % (non-condensing)
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Standards and regulations

Protection class	III (IEC 61140, EN 61140, VDE 0140-1)
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Mounting

Mounting type	DIN rail mounting
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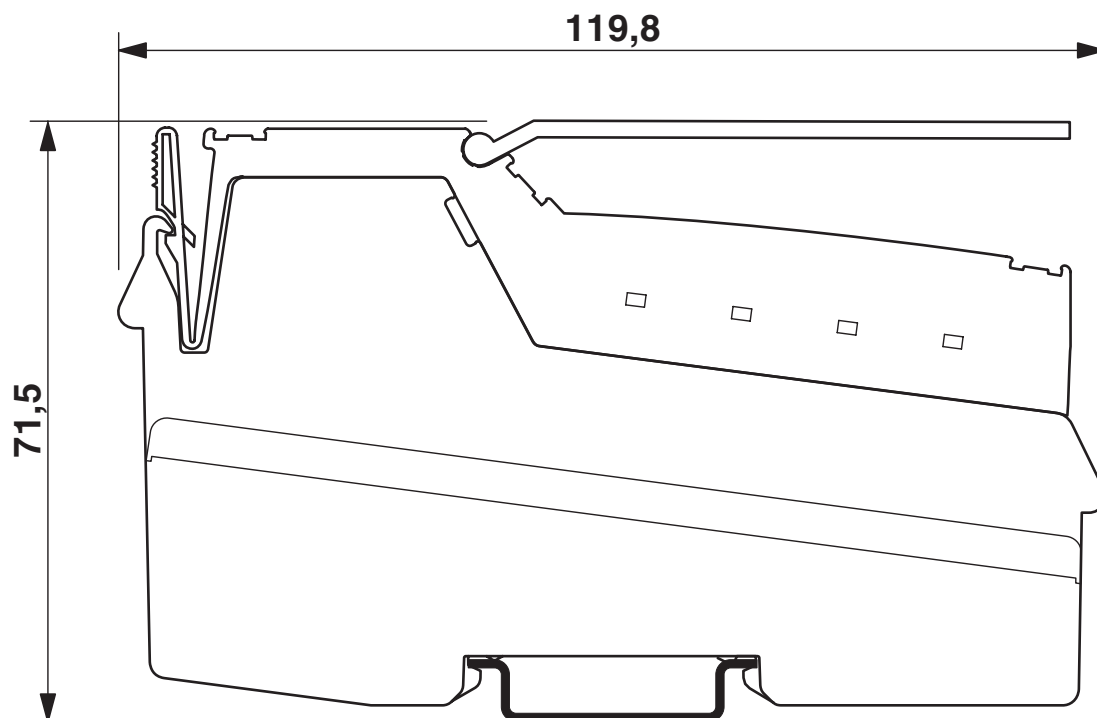
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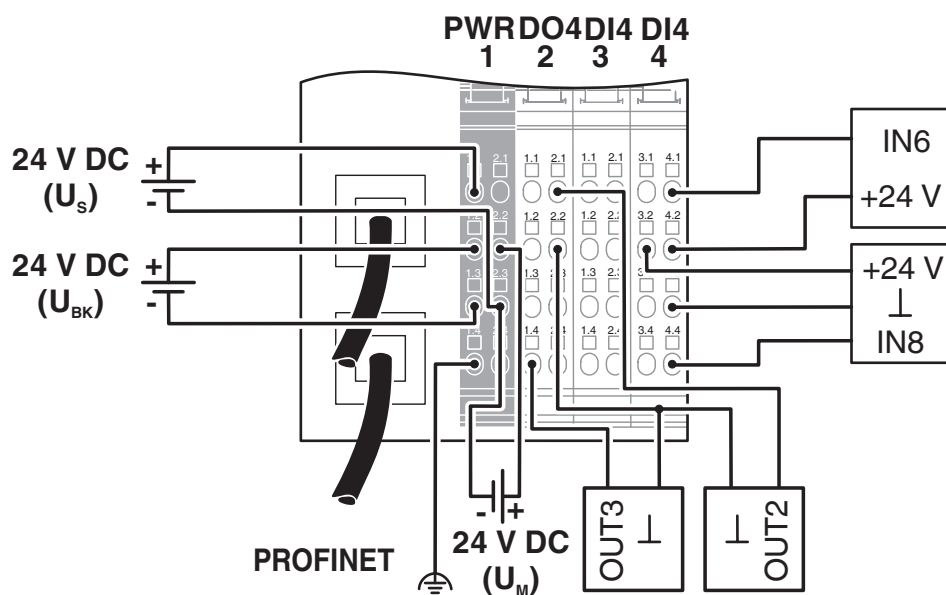


Drawings

Dimensional drawing



Connection diagram

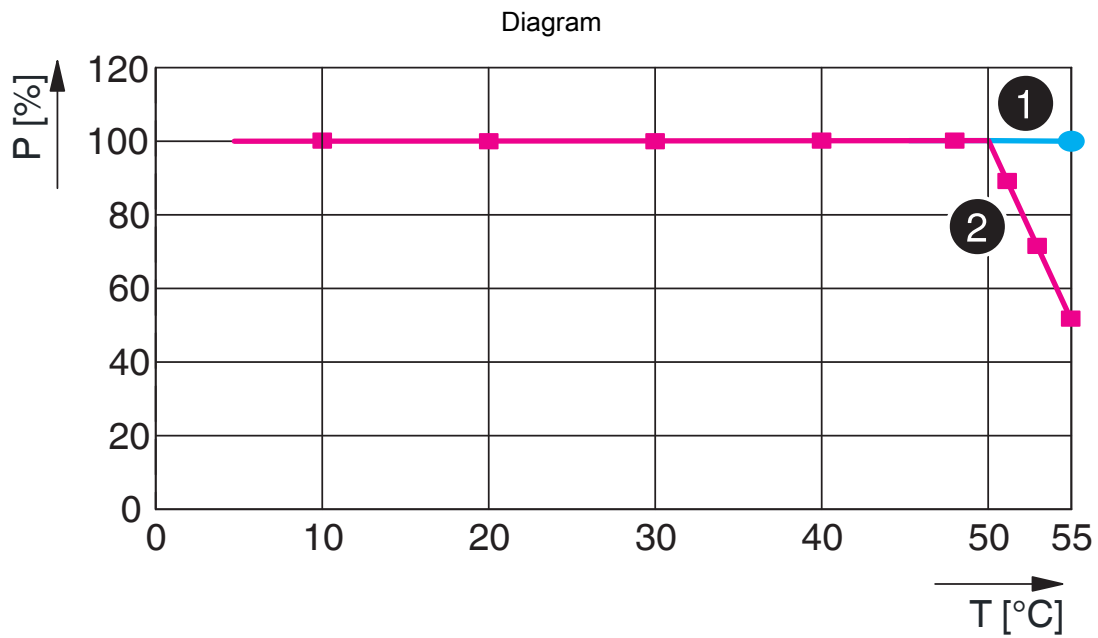


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Derating for different mounting positions

1 - Mounting on a horizontal DIN rail

2 - Other mounting positions

P [%] Power dissipation as a percentage

T [°C] Temperature in °C

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Approvals

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DNV GL

Approval ID: TAA00000BN



RINA

Approval ID: ELE121121XG

ABS

Approval ID: 22-2226444-PDA

PROFINET

Approval ID: Z10506



cULus Listed

Approval ID: E140324



BV

Approval ID: 20989_C1 BV



UL Listed

Approval ID: E199827

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Classifications

ECLASS

ECLASS-13.0	27242608
ECLASS-15.0	27242608

ETIM

ETIM 9.0	EC001604
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UNSPSC

UNSPSC 21.0	32151600
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Environmental product compliance

EU RoHS

Fulfills EU RoHS substance requirements	Yes
Exemption	7(a), 7(c)-I

China RoHS

Environment friendly use period (EFUP)	EFUP-25
	An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required.

EU REACH SVHC

REACH candidate substance (CAS No.)	Lead(CAS: 7439-92-1)
SCIP	ad0c7e4a-f3b0-4bbf-9667-399c1f5acb09

EF3.0 Climate Change

CO2e kg	12.23 kg CO2e
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Accessories

CLIPFIX 35 - End bracket

3022218

<https://www.phoenixcontact.com/pc/products/3022218>



Quick mounting end clamp for NS 35/7,5 DIN rail or NS 35/15 DIN rail, with marking option, width: 9.5 mm, color: gray

CLIPFIX 35-5 - End bracket

3022276

<https://www.phoenixcontact.com/pc/products/3022276>



Quick mounting end clamp for NS 35/7,5 DIN rail or NS 35/15 DIN rail, with marking option, with parking option for FBS...5, FBS...6, KSS 5, KSS 6, width: 5.15 mm, color: gray

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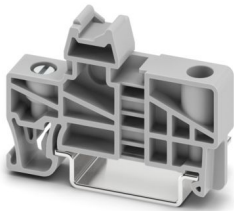
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E/UK - End bracket

1201442

<https://www.phoenixcontact.com/pc/products/1201442>

End bracket, material: PA, mounting type: NS 35/7,5, NS 35/15, color: gray



E/AL-NS 35 - End bracket

1201662

<https://www.phoenixcontact.com/pc/products/1201662>

End clamp, for end support of UKH 50 to UKH 240, is pushed onto DIN rail NS 35 and fixed with 2 screws, width: 10 mm, color: aluminum



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IL BKDIO-PLSET - Connector set

2878599

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Connector set, for Inline bus coupler with I/Os mounted in rows



IB IL FIELD 8 - Marking field

2727515

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Marking field, width: 48.8 mm



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EMT (62X46)R - Insert label

0800059

<https://www.phoenixcontact.com/pc/products/0800059>



Insert label, for marking Inline modules from Phoenix Contact, Roll, white, unmarked, can be labeled with: THERMOMARK E.300 (D)/600 (D), THERMOMARK ROLL 2.0, THERMOMARK ROLL, THERMOMARK ROLL X1, THERMOMARK ROLLMaster 300/600, THERMOMARK X1.2, mounting type: insert, Number of individual labels: 250, text field height: 46 mm, text field width: 62 mm

IB IL FIELD 2 - Marking field

2727501

<https://www.phoenixcontact.com/pc/products/2727501>

Marking field, width: 12.2 mm



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EMT (62X10)R - Insert label

0800057

<https://www.phoenixcontact.com/pc/products/0800057>



Insert label, for marking Inline modules from Phoenix Contact, Roll, white, unmarked, can be labeled with: THERMOMARK E.300 (D)/600 (D), THERMOMARK ROLL 2.0, THERMOMARK ROLL, THERMOMARK ROLL X1, THERMOMARK ROLLMaster 300/600, THERMOMARK X1.2, mounting type: insert, Number of individual labels: 500, text field height: 10 mm, text field width: 62 mm

FL PLUG RJ45 GR/2 - RJ45 connector

2744856

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RJ45 connector, design: RJ45, degree of protection: IP20, number of positions: 8, 1 Gbps, CAT5 (IEC 11801:2002), material: Plastic, connection method: Crimp connection, connection cross section: AWG 26- 24, cable outlet: straight, color: gray, Ethernet

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FL PLUG RJ45 GN/2 - RJ45 connector

2744571

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RJ45 connector, design: RJ45, degree of protection: IP20, number of positions: 8, 1 Gbps, CAT5 (IEC 11801:2002), material: Plastic, connection method: Crimp connection, connection cross section: AWG 26- 24, cable outlet: straight, color: green, Ethernet

FL CAT5 HEAVY - Data cable

2744814

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CAT5-SF/UTP cable (J-02YS(ST)C HP 2 x 2 x 24 AWG), heavy-duty installation cable, 2 x 2 x 0.22 mm², solid conductor, shielded, outer sheath: 7.8 mm diameter, inner sheath: 5.75 mm ± 0.15 mm diameter

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FL CAT5 FLEX - Installation cable

2744830

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By the meter, Installation cable, Ethernet CAT5 (100 Mbps), shielded, PUR halogen-free, water blue RAL 5021, 4-wire (2x2xAWG26/7, SF/UTP), color single wire: white/orange-orange, white/green-green, cable length: Free entry (1.0 ... 1000.0 m)

FL CRIMPTOOL - Assembly tool

2744869

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Crimping pliers, for assembling the RJ45 plugs FL PLUG RJ45..., for assembly on site

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DT-LAN-CAT.6+ - Surge protection device

2881007

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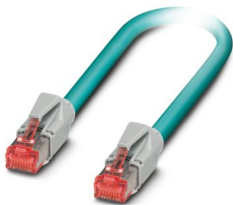


Surge protection in accordance with Class E_A (CAT6_A), for Gigabit Ethernet (up to 10 Gbps), token ring, FDDI/CDDI, ISDN, DS1. Suitable for Power over Ethernet (PoE++/4PPoE) "Mode A" and "Mode B". RJ45 intermediate plug with separate grounding cable and ground connection snap-on foot for NS 35 DIN rails. Products with similar requirements: DT-LAN-CAT.6A (2908726) und D-LAN-CAT.5-HC (2800763).

NBC-R4AC-R4AC-IE8/.../... - Network cable

1411842

<https://www.phoenixcontact.com/pc/products/1411842>



Network cable, degree of protection: IP20, number of positions: 8, 1 Gbps, CAT5, cable outlet: straight, Ethernet

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