

# FL SWITCH 2208 - Industrial Ethernet Switch



2702327

<https://www.phoenixcontact.com/in/products/2702327>

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Managed Switch 2000, 8 RJ45 ports 10/100 Mbps, PROFINET Conformance-Class B, Extended temperature range

## Your advantages

- DHCP client, DHCP server (pool-based and port-based), DHCP option 82
- Ambient temperature -40 °C ... 70 °C
- VLANs
- MRP (client and manager)
- RSTP
- Web-based management, SNMP
- Configuration memory
- Slim design
- Easy and fast startup and commissioning with the FL NETWORK MANAGER software
- Suitable for PROFINET and EtherNet/IP™ networks

## Commercial Data

|                                      |                     |
|--------------------------------------|---------------------|
| Item number                          | 2702327             |
| Packing unit                         | 1 pc                |
| Minimum order quantity               | 1 pc                |
| Sales Key                            | DNN                 |
| Product Key                          | DNN121              |
| Catalog Page                         | Page 306 (C-6-2019) |
| GTIN                                 | 4055626128931       |
| Weight per Piece (including packing) | 410 g               |
| Weight per Piece (excluding packing) | 230 g               |
| Customs tariff number                | 85176200            |
| Country of origin                    | DE                  |

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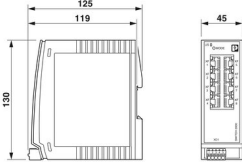


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## Technical Data

### Dimensions

|                     |  |
|---------------------|--|
| Dimensional drawing |  |
| Width               | 45 mm  |
| Height              | 130 mm   |
| Depth               | 119 mm   |

### Notes

|         |  |
|---------|--|
| General | Support by phone or on-site (fee is charged) |
|---------|--|

### Material specifications

|                  |                                |
|------------------|--------------------------------|
| Housing material | Polycarbonate fiber reinforced |
|------------------|--------------------------------|

### Mounting

|               |                   |
|---------------|-------------------|
| Mounting type | DIN rail mounting |
|---------------|-------------------|

### Interfaces

#### Ethernet (RJ45)

|                               |                                   |
|-------------------------------|-----------------------------------|
| Connection method             | RJ45                              |
| Note on the connection method | Auto negotiation and autocrossing |
| Transmission speed            | 10/100 Mbps                       |
| Transmission physics          | Copper                            |
| Transmission length           | 100 m (per segment)               |
| Signal LEDs                   | Data receive, link status         |
| No. of channels               | 8 (RJ45 ports)                    |

### Output data

#### Digital

|             |              |
|-------------|--------------|
| Output name | Alarm output |
|-------------|--------------|

### Product properties

|                |   |
|----------------|---|
| Type           | Book type   |
| Product type   | Switch  |
| Product family | Managed Switch 2000   |
| MTTF           | 494.02 Years (SN 29500 standard, temperature 25°C, operating cycle 21%) |

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|                    |   |
|--------------------|---|
|                    | 235.18 Years (SN 29500 standard, temperature 40°C, operating cycle 34.25%)  |
|                    | 29.73 Years (SN 29500 standard, temperature 70°C, operating cycle 100%)     |
| Special properties | Extended temperature range  |
| Signal delay       | ≥ 6.5 μs (Store and Forward mode, 10/100 Mbps, depending on the frame size) |

## Insulation characteristics

|                     |                |
|---------------------|----------------|
| Protection class    | III (VDE 0106) |
| Degree of pollution | 2              |

## Switch functions

|                                |  |
|--------------------------------|--|
| Diagnostic functions           | RMON History                                       |
|                                | LLDP (Link Layer Discovery Protocol)               |
|                                | SNMP-Traps   |
|                                | N:1-Portmirroring                                  |
|                                | ACD (Address Conflict Detection)                   |
|                                | SysLog   |
|                                | CRC-Surveillance                                   |
| Basic functions                | Store-and-forward switch, complies with IEEE 802.3 |
| Signal contact control voltage | typ. 24 V DC                                       |
| PROFINET conformance class     | Conformance-Class B                                |
| PROFINET device function       | PROFINET device                                    |
|                                | Fast Startup                                       |
| Filter functions               | Quality of Service (8 priority classes)            |
|                                | Class of Service                                   |
|                                | DiffServ/DSCP                                      |
|                                | Port-Priorisierung                                 |
|                                | VLAN (up to 32 VLANs)                              |
|                                | IGMP Snooping/Querier (v1/v2)                      |
|                                | Auto-Query-Port                                    |
|                                | Extended Multicast Filtering                       |
| IP parameterization            | DHCP-Client  |
|                                | DHCP Option 82 (Relay Agent)                       |
|                                | DHCP server (pool-based, port-based)               |
|                                | BootP  |
|                                | DCP (Discovery and Configuration Protocol)         |
| MAC address table              | 8k   |
| Management                     | Web-based management (HTTP/HTTPS)                  |
|                                | Role-based user management (LDAP, RADIUS)          |
|                                | SNMPv1/v2/v3                                       |
|                                | Command-line interface (Telnet, SSH)               |
| Redundancy                     | MRP (Media Redundancy Protocol)                    |
|                                | RSTP (Rapid Spanning Tree Protocol)                |
|                                | FRD (Fast Ring Detection)                          |

|                                  |   |
|----------------------------------|---|
|                                  | Large Tree Support  |
|                                  | LACP (Link Aggregation Control Protocol)  |
|                                  | PROFINET S2 system redundancy   |
| Status and diagnostic indicators | LEDs: US1, US2 (power supply), Fail (alarm contact), 2 LEDs per Ethernet port (Link/Activity and Speed) |
| Additional functions             | Transmission of MMS and GOOSE (IEC 61850-8-1)   |
|                                  | Transmission of Modbus/TCP  |
| Time synchronization             | SNTP (Simple Network Time Protocol)   |
| Security functions               |   |
| Port security                    | MAC-based, RADIUS (IEEE 802.1X), MAC Authentication Bypass  |
| Basic functions                  | Store-and-forward switch, complies with IEEE 802.3  |

## Electrical properties

|   |   |
|---|---|
| Local diagnostics                               | US1/2 Supply voltage US1, US2 Green LED   |
|   | FAIL Div. LED red   |
|   | LINK Link status Green LED  |
| Maximum power dissipation for nominal condition | 4.95 W ( $U_S = \text{Min}$ , $T_{\text{amb}} = \text{Max}$ , $DO_1 = \text{Max}$ ) |
| Test voltage                                    | 500 V DC  |
| Test section                                    | for one minute 500 V DC   |
| Transmission medium                             | Copper  |

## Supply

|                             |  |
|-----------------------------|--|
| Supply voltage (DC)         | 24 V DC (redundant)  |
| Supply voltage range        | 12 V DC ... 57 V DC  |
| Power supply connection     | via COMBICON, max. conductor cross section 1.5 mm <sup>2</sup>                     |
| Residual ripple             | 3.6 V <sub>PP</sub> (within the permitted voltage range)                           |
| Max. current consumption    | 1.3 A ( $U_S = \text{Min}$ , $T_{\text{amb}} = \text{Max}$ , $DO_1 = \text{Max}$ ) |
| Typical current consumption | 185 mA (at $U_S = 24 \text{ V DC}$ and 25 °C ambient temperature)                  |
| Current consumption         | 190 mA   |

## Function

|                                |              |
|--------------------------------|--------------|
| Signal contact control voltage | typ. 24 V DC |
|--------------------------------|--------------|

## Connection data

|                                   |   |
|-----------------------------------|---|
| Connection method                 | Push-in spring connection   |
| Note on the connection method     | Use only copper connecting cables providing the permitted temperature range (-40 °C ... 75 °C). |
| Conductor cross section, rigid    | 0.25 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>  |
| Conductor cross section, flexible | 0.25 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>  |
| Conductor cross section AWG       | 24 ... 16   |
| Stripping length                  | 9 mm  |

## Environmental and real-life conditions

### Ambient conditions

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|  |   |
|--|---|
| Degree of protection                     | IP20  |
| Ambient temperature (operation)          | -40 °C ... 70 °C  |
| Ambient temperature (storage/transport)  | -40 °C ... 85 °C  |
| Permissible humidity (operation)         | 10 % ... 95 % (non-condensing)  |
| Permissible humidity (storage/transport) | 10 % ... 95 % (non-condensing)  |
| Shock (operation)                        | 30g (EN 60068-2-27)   |
| Vibration (operation)                    | in acc. with IEC 60068-2-6: 5g, 150 Hz                                  |
| Air pressure (operation)                 | 80 kPa ... 110 kPa up to 2000 m above mean sea level (Without derating) |
| Air pressure (storage/transport)         | 79 kPa ... 108 kPa up to 2000 m above mean sea level (Without derating) |

## Standards and regulations

|   |     |
|---|-----|
| Free from substances that could impair the application of coating | Yes |
|---|-----|

## Approvals

|                       |  |
|-----------------------|--|
| Shipbuilding approval | Tested in accordance with IEC 60945 and IACS E10 |
|-----------------------|--|

### ATEX

|                |                          |
|----------------|--------------------------|
| Identification | □ II 3 G Ex ec IIC T4 Gc |
| Certificate    | DEMKO 16 ATEX 1709X      |

### IECEX

|                |                     |
|----------------|---------------------|
| Identification | Ex ec IIC T4 Gc     |
| Certificate    | IECEX ULD 16.0018 X |

### UL, USA/Canada

|                |       |
|----------------|-------|
| Identification | cULus |
|----------------|-------|

### UL Ex, USA / Canada

|                |   |
|----------------|---|
| Identification | Class I, Division 2, Groups A, B, C, and D, T4  |
|                | Class I, Zone 2, AEx ec IIC T4  |
|                | Ex ec IIC T4 Gc X   |
| Certificate    | E366272   |
| Note           | UL 60079-0 Ed. 6 / UL 60079-7 Ed. 5, CSA 22.2 No. 60079-0 Ed. 3 / CSA C22.2 No. 60079-7 Ed. 2 |

### EAC Ex

|                |                         |
|----------------|-------------------------|
| Identification | 2Ex e IIC T4 Gc X       |
| Certificate    | RU C-DE.HB49.B.00118/21 |

The following continue to apply for EAC Ex:

|                |   |
|----------------|---|
| Identification | При монтаже использовать подходящий допущенный корпус со степенью защиты не ниже IP66.  |
|                | На корпусе/шкафу управления должна быть размещена предупреждающая надпись, запрещающая открывать корпус или шкаф во взрывоопасной зоне. |
|                | Эксплуатация устройства допускается только при условии, что все оптические порты заняты подключенными                                   |

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|  |   |
|--|---|
|  | устройствами или закрыты прилагаемыми заглушками. |
|--|---|

## CCC / China-Ex

|                |                  |
|----------------|------------------|
| Identification | Ex ec IIC T4 Gc  |
| Certificate    | 2022122310115629 |

## Corrosive gas test

|                |                                  |
|----------------|----------------------------------|
| Identification | ISA S71.04.2013 G3 Harsh Group A |
|----------------|----------------------------------|

## UKCA Ex (UKEX)

|                |   |
|----------------|---|
| Identification | <input type="checkbox"/> II 3 G Ex ec IIC T4 Gc |
| Certificate    | PxCIMA22UKEX2702910X                            |

## DNV GL data

|             |   |
|-------------|---|
| Temperature | B   |
| Humidity    | B   |
| Vibration   | A   |
| EMC         | B   |
| Enclosure   | Required protection according to the Rules shall be provided upon installation on board |

## EMC data

|                                 |  |
|---------------------------------|--|
| Conformance with EMC directives | EN 61000-6-2 EN 61000-4-2 (ESD) Criterion B                    |
|                                 | EN 61000-6-2 EN 61000-4-3 (electromagnetic fields) Criterion A |
|                                 | EN 61000-6-2 EN 61000-4-4 (EFT burst) Criterion A              |
|                                 | EN 61000-6-2 EN 61000-4-5 (surge) Criterion B                  |
|                                 | EN 61000-6-2 EN 61000-4-6 (line noise immunity) Criterion A    |
|                                 | EN 61000-6-2 EN 61000-6-4 (interference) Class A               |
|                                 | EN 61000-6-2 EN 61000-6-4 (conducted interference) Class A     |
| Noise immunity                  | EN 61000-6-2   |
| Electromagnetic compatibility   | Conformance with EMC Directive 2014/30/EU                      |
| Noise emission                  | EN 61000-6-4   |

## System properties

### Functionality

|                 |  |
|-----------------|--|
| Basic functions | Store-and-forward switch, complies with IEEE 802.3 |
|-----------------|--|

## Signaling

|                |   |
|----------------|---|
| Status display | LEDs: US1, US2 (power supply), Fail (alarm contact), 2 LEDs per Ethernet port (Link/Activity and Speed) |
|----------------|---|

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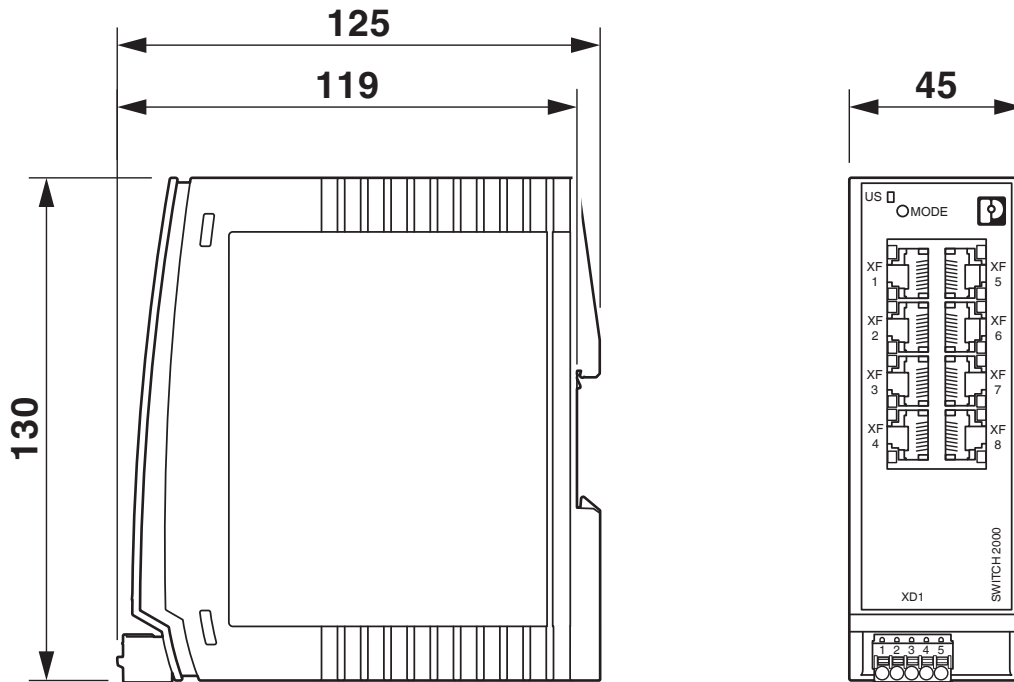
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## Drawings

Dimensional drawing



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## Approvals



**EAC**

Approval ID: RU\*-DE.\*.B.00741/19



**DNV GL**

Approval ID: TAA00000YV



**LR**

Approval ID: LR22250919TA



**NK**

Approval ID: TA19464M



**BV**

Approval ID: 48146/A1 BV



**UL Listed**

Approval ID: FILE E 238705



**cUL Listed**

Approval ID: FILE E 238705



**RINA**

Approval ID: ELE162721XG



**cUL Listed**

Approval ID: FILE E 238705



**UL Listed**

Approval ID: FILE E 238705



**cUL Listed**

Approval ID: FILE E 366272



**UL Listed**

Approval ID: FILE E 366272



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**IECEX**

Approval ID: IECEX ULD 16.0018X



**ATEX**

Approval ID: DEMKO 16 ATEX 1709X

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-11.0 | 19170401 |
| ECLASS-12.0 | 19170401 |
| ECLASS-13.0 | 19170401 |

### ETIM

|          |          |
|----------|----------|
| ETIM 8.0 | EC000734 |
|----------|----------|

### UNSPSC

|             |          |
|-------------|----------|
| UNSPSC 21.0 | 43222600 |
|-------------|----------|

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## Environmental Product Compliance

|            |  |
|------------|--|
| REACH SVHC | Lead 7439-92-1   |
| China RoHS | Environmentally Friendly Use Period = 50 years   |
|            | For information on hazardous substances, refer to the manufacturer's declaration available under "Downloads" |

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## Accessories

### SD FLASH 2GB - Program / configuration memory

2988162

<https://www.phoenixcontact.com/in/products/2988162>



Program and configuration memory, for extending the internal flash memory, pluggable, 2 GB.

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### FL NETWORK MANAGER BASIC - Network management software

2702889

<https://www.phoenixcontact.com/in/products/2702889>



SNMP-based software for easy commissioning and monitoring of network components such as switches, routers, and WLAN access points

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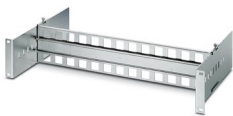
<https://www.phoenixcontact.com/in/products/2702327>

## FL DIN RA - DIN rail adapter

2891053

<https://www.phoenixcontact.com/in/products/2891053>

The FL DIN RA is installed in a standard, 19-inch rack (EIA-310-D, IEC 60297-3-100) to allow DIN rail mounted equipment to be rack mounted.



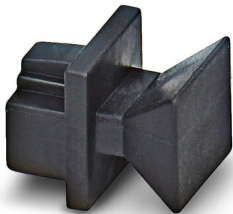
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## FL RJ45 PROTECT CAP - Dust protection

2832991

<https://www.phoenixcontact.com/in/products/2832991>

Dust protection caps for RJ45 socket



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## E/NS 35 N - End clamp

0800886

<https://www.phoenixcontact.com/in/products/0800886>

End clamp, width: 9.5 mm, color: gray



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## FK-MCP 1,5/ 5-ST-3,81GY35BD1-5 - PCB connector

1015782

<https://www.phoenixcontact.com/in/products/1015782>



PCB connector, nominal cross section: 1.5 mm<sup>2</sup>, color: light grey, nominal current: 8 A, rated voltage (III/2): 160 V, contact surface: Tin, type of contact: Socket, number of potentials: 5, number of rows: 1, number of positions: 5, number of connections: 5, product range: FK-MCP 1,5/...-ST, pitch: 3.81 mm, connection method: Push-in spring connection, conductor/PCB connection direction: 0 °, plug-in system: COMBICON MC 1,5, locking: without, mounting: without, type of packaging: packed in cardboard

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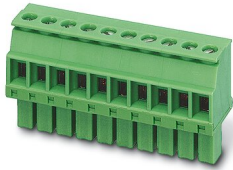
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<https://www.phoenixcontact.com/in/products/2702327>

## MCVW 1,5/ 5-ST-3,81GY7035BD2DO - PCB connector

1034096

<https://www.phoenixcontact.com/in/products/1034096>



PCB connector, nominal cross section: 1.5 mm<sup>2</sup>, color: light grey, nominal current: 8 A, rated voltage (III/2): 160 V, contact surface: Tin, type of contact: Socket, number of potentials: 5, number of rows: 1, number of positions: 5, number of connections: 5, product range: MCVW 1,5/...-ST, pitch: 3.81 mm, connection method: Screw connection with tension sleeve, screw head form: L Slotted, conductor/PCB connection direction: -90 °, plug-in system: COMBICON MC 1,5, locking: without, mounting: without, type of packaging: packed in cardboard

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## FL CAT5 PATCH 0,5 - Patch cable

2832263

<https://www.phoenixcontact.com/in/products/2832263>



Patch cable, CAT5, assembled, 0.5 m

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## FL CAT5 PATCH 1,0 - Patch cable

2832276

<https://www.phoenixcontact.com/in/products/2832276>



Patch cable, CAT5, assembled, 1 m

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## FL CAT5 PATCH 2,0 - Patch cable

2832289

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Patch cable, CAT5, assembled, 2 m



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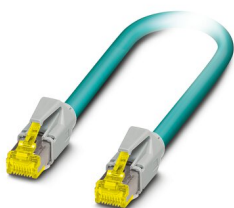
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## NBC-R4AC-R4AC-IE8A/.../... - Patch cable

1411854

<https://www.phoenixcontact.com/in/products/1411854>



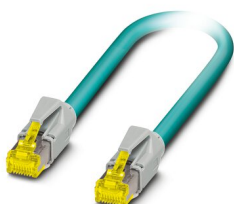
Patch cable, degree of protection: IP20, number of positions: 8, 10 Gbps, CAT6<sub>A</sub>, cable outlet: straight, Ethernet

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## NBC-R4AC/10G-R4AC/10G-94F/2,0 - Patch cable

1408360

<https://www.phoenixcontact.com/in/products/1408360>



Patch cable, CAT6<sub>A</sub>, 4-pair, shielded, connection not crossed (line), assembled at both ends with RJ45/IP20 connectors, outer sheath material: PUR, length: 2.0 m

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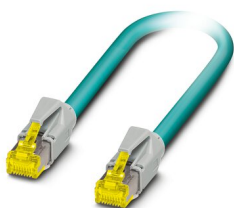
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## NBC-R4AC/10G-R4AC/10G-94F/3,0 - Patch cable

1408365

<https://www.phoenixcontact.com/in/products/1408365>



Patch cable, CAT6<sub>A</sub>, 4-pair, shielded, connection not crossed (line), assembled at both ends with RJ45/IP20 connectors, outer sheath material: PUR, length: 3.0 m

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## NBC-R4AC/1,0-93B/R4AC - Patch cable

1408968

<https://www.phoenixcontact.com/in/products/1408968>



Patch cable, degree of protection: IP20, cable length: 1 m, number of positions: 4, 100 Mbps, CAT5, material: PA 6.6, PROFINET

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## NBC-R4AC/2,0-93B/R4AC - Patch cable

1408969

<https://www.phoenixcontact.com/in/products/1408969>



Patch cable, degree of protection: IP20, cable length: 2 m, number of positions: 4, 100 Mbps, CAT5, material: PA 6.6, PROFINET

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## NBC-R4AC/5,0-93B/R4AC - Patch cable

1408970

<https://www.phoenixcontact.com/in/products/1408970>



Patch cable, degree of protection: IP20, cable length: 5 m, number of positions: 4, 100 Mbps, CAT5, material: PA 6.6, PROFINET

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## VS-08-RJ45-5-Q/IP20 - RJ45 connector

1656725

<https://www.phoenixcontact.com/in/products/1656725>



RJ45 connector, design: RJ45, degree of protection: IP20, number of positions: 8, 1 Gbps, CAT5, material: Plastic, connection method: Insulation displacement connection, connection cross section: AWG 26- 23, cable outlet: straight, color: traffic grey A RAL 7042, Ethernet

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