FL-PP-RJ45... / FL CAT5...

Ethernet patch panel



Data sheet
104622_en_09

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1 Description

The **FL-PP-RJ45... / FL CAT5...** Ethernet patch panels for DIN rail mounting represent the transition of the field cabling to the internal control cabinet cabling.

The patch panel is connected to the end device via the RJ45 jack using a preassembled patch cable. Preassembled patch cables in different connection lengths from 0.24 m to 20 m are available for this.

The field cabling is simply connected to spring, screw, or LSA connection terminal blocks, depending on the version. The respective terminal blocks are clearly labeled for connection in accordance with the Ethernet standards TIA 568 A and B, as well as PROFINET. This eliminates the need for time-consuming crimping of an RJ45 connector to the field cable.

Features

- CAT5e
- 8-pin assignment: 1:1
- 10/100/1000 Mbps
- Mounting on DIN rail
- Secure connection to ground potential
- PoE-capable in accordance with IEEE 802.3bt, type 4
- FL-PP-RJ45/RJ45-B with extended temperature range from -40°C ... 85°C
- Multiple options for securing field cables:
  - Spring connection terminal blocks
  - Screw connection terminal blocks
  - LSA connection terminal blocks
  - RJ45-RJ45 transition
- ATEX approval for the following patch panels:
  - FL-PP-RJ45-SCC
  - FL-PP-RJ45-SC
  - FL-PP-RJ45/RJ45
- Shipbuilding approval in accordance with DNV GL for the following patch panels:
  - FL-PP-RJ45-SCC
  - FL-PP-RJ45-SC
  - FL-PP-RJ45-LSA
  - FL-PP-RJ45/RJ45
  - FL CAT5 TERMINAL BOX

Observe these notes

Make sure you always use the latest documentation. It can be downloaded at phoenixcontact.com/products.

This document is valid for the products listed in section “Ordering data” on page 3.

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2 Ordering data

Products	Type	Item no.	Pcs./Pkt
Patch panel, one RJ45 jack to 8 spring connection terminal blocks (1:1 assignment), CAT5e, 10/100/1000 Mbps, DIN rail adapter, IP20, option of shield contacting to the DIN rail via jumpers	FL-PP-RJ45-SCC	2901642	1
Patch panel, one RJ45 jack to 8 screw connection terminal blocks (1:1 assignment), CAT5e, 10/100/1000 Mbps, DIN rail adapter, IP20, option of shield contacting to the DIN rail via jumpers	FL-PP-RJ45-SC	2901643	1
Patch panel, one RJ45 jack to 8 LSA connection terminal blocks (1:1 assignment), CAT5e, 10/100/1000 Mbps, DIN rail adapter, IP20, option of shield contacting to the DIN rail via jumpers	FL-PP-RJ45-LSA	2901645	1
Patch panel, two RJ45 jacks (1:1 assignment), CAT5e, 10/100/1000 Mbps, DIN rail adapter, IP20, option of shield contacting to the DIN rail via jumpers	FL-PP-RJ45/RJ45	2901646	1
Patch panel, narrow overall width, extended temperature range, two RJ45 jacks, 1:1 assignment, consistent shield, CAT5, 10/100 Mbps, DIN rail adapter, IP20	FL-PP-RJ45/RJ45-B	2904933	1
Patch panel, one RJ45 jack to 4 screw connection terminal blocks (assignment 1, 2, 3, 6), CAT5, 10/100 Mbps, DIN rail adapter, IP20, shield contacting to the DIN rail	FL CAT5 TERMINAL BOX	2744610	1

2.1 Accessories

Network isolator	Type	Item no.	Pcs./Pkt
Passive network isolator for electrical isolation in Ethernet networks, protects Ethernet devices from potential differences up to 4 kV			
Transmission speeds up to 100 Mbps, connection options for two RJ45 connectors	FL ISOLATOR 100-RJ/RJ	2313931	1
Transmission speeds up to 1 Gbps, connection options for two RJ45 connectors	FL ISOLATOR 1000-RJ/RJ	2313915	1
Transmission speeds up to 100 Mbps, Ethernet connection via two M12 female connectors (D-coded)	FL ISOLATOR 100-M12	2902985	1

Patch cable	Type	Item no.	Pcs./Pkt
Patch cable, CAT5, 100 Mbps, preassembled			
0.24 m	FL CAT5 PATCH 0,24	2700301	10
0.3 m	FL CAT5 PATCH 0,3	2832250	10
0.5 m	FL CAT5 PATCH 0,5	2832263	10
1 m	FL CAT5 PATCH 1,0	2832276	10
1.5 m	FL CAT5 PATCH 1,5	2832221	10
2 m	FL CAT5 PATCH 2,0	2832289	10
3 m	FL CAT5 PATCH 3,0	2832292	10
5 m	FL CAT5 PATCH 5,0	2832580	10
7.5 m	FL CAT5 PATCH 7,5	2832616	10
10 m	FL CAT5 PATCH 10,0	2832629	10
Patch cable, $CAT6_A$, 10 Gbps, 4-pair, shielded, connection not crossed (line), assembled at both ends with RJ45/IP20 connectors, outer sheath material: PUR			
2 m	NBC-R4AC/10G-R4AC/10G-94F/2,0	1408360	1
3 m	NBC-R4AC/10G-R4AC/10G-49F/3,0	1408365	1
Patch cable, $CAT6_A$, 10 Gbps, degree of protection: IP20, number of positions: 8, cable outlet: straight, configurable length	NBC-R4AC-R4AC-IE8A/.../...	1411854	1
Patch cable, PROFINET CAT5 (100 Mbps), EtherCAT® (100 Mbps), 4-pos., PVC/PVC, green RAL 6018, straight RJ45 connector / IP20, to straight RJ45 connector / IP20			
1 m	NBC-R4ACS/1,0-93B/R4ACS	1112817	1
2 m	NBC-R4ACS/2,0-93B/R4ACS	1112820	1

RJ45 connectors	Type	Item no.	Pcs./Pkt
RJ45 connector, 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, Ethernet			
Traffic gray A, RAL 7042	VS-08-RJ45-5-Q/IP20	1656725	1
Black	VS-08-RJ45-5-Q/IP20 BK	1658008	1
RJ45 connector, 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	VS-08-RJ45-10G/Q	1419001	1
RJ45 connector, degree of protection: IP20, number of positions: 4, 100 Mbps, CAT5, material: plastic, connection method: insulation displacement connection, cable outlet: straight, color: traffic gray A RAL 7042, PROFINET	VS-PN-RJ45-5-Q/IP20	1658435	1

Tools	Type	Item no.	Pcs./Pkt
Crimping pliers, for installing RJ45 connectors FL PLUG RJ45..., for on-site assembly	FL CRIMPTOOL	2744869	1
Actuation tool, for ST terminal blocks, also suitable for use as a bladed screwdriver, size: 0.4 x 2.5 x 75 mm, two-component handle, with non-slip grip	SZF 0-0,4X2,5	1204504	1
Stripping tool, for multi-stage stripping of shielded cables	VS-CABLE-STRIP-VARIO	1657407	1

3 Technical data

Ethernet interface	FL-PP-RJ45-SCC	FL-PP-RJ45-SC	FL-PP-RJ45-LSA	FL-PP-RJ45/RJ45	FL-PP-RJ45/RJ45-B	FL CAT5 TERMINAL BOX
Connection	Spring connection	Screw connection	LSA	RJ45	RJ45	Screw connection
Tightening torque	-	0.22...0.25 Nm	-	-	-	0.22...0.25 Nm
Cable diameter [mm]	6 ... 10	6 ... 10	6 ... 10	-	-	6 ... 10
Conductor cross-section [mm²]						
Rigid	0.2 ... 1.5	0.14 ... 1.5	0.128...0.325	-	-	0.14 ... 1.5
Flexible	0.2 ... 1.0	0.14 ... 1.0	0.128...0.325	-	-	0.14 ... 1.0
AWG	24 ... 16	26 ... 16	26 ... 22	-	-	26 ... 16
Pin assignment	1:1	1:1	1:1	1:1	1:1	1, 2, 3, 6
Connection	RJ45 CAT5e				RJ45 CAT5	
Transmission speed	10/100/1000 Mbps				10/100 Mbps	
Transmission length	100 m (incl. patch cables)					
Cable impedance	100 Ω					
Mating cycles	≤ 2500					

General data						
Degree of protection	IP20					
Weight	45 g	55 g	55 g	39 g	33 g	39 g
Dimensions W / H / D [mm]	29 x 90 x 53	29 x 90 x 53	29 x 90 x 53	29 x 90 x 53	22,5 x 78 x 44	25 x 90 x 52
Housing material	PVC/PA					
Current consumption	< 1 A					

Ambient conditions					
Ambient temperature					
Operation	-25°C ... 70°C			-40°C ... 85°C	-25°C ... 70°C
Mounting	-10°C ... 70°C			-40°C ... 85°C	-10°C ... 70°C
Storage/transport	-25°C ... 85°C			-40°C ... 85°C	-25°C ... 85°C
Max. permissible humidity (operation)	25% ... 95% (non-condensing)				
Vibration resistance according to IEC 60068-2-6	5g, 150 Hz, 2.5 h, in XYZ direction				
Shock test according to IEC 60068-2-27	25g, 11 ms period, half-sine shock pulse				

3.1 Conformity and approvals

	FL-PP-RJ45-SCC	FL-PP-RJ45-SC	FL-PP-RJ45-LSA	FL-PP-RJ45/RJ45	FL-PP-RJ45/RJ45-B	FL CAT5 TERMINAL BOX
Shipbuilding, DNV GL	Yes	Yes	Yes	Yes	No	Yes
Temperature	B	B	B	B	-	B
Humidity	A	A	A	A	-	A
Vibration	A	A	A	A	-	A
EMC	B	B	B	B	-	B
Enclosure	Required protection according to the Rules shall be provided upon installation on board				-	Required protection according to the Rules shall be provided upon installation on board
Corrosive gas test	ISA-S71.04-1985 G3 Harsh Group A					

Potentially explosive area

The following components are approved for use in potentially explosive areas:

– FL-PP-RJ45-SCC, 2901642
– FL-PP-RJ45-SC, 2901643
– FL-PP-RJ45/RJ45, 2901646

Follow the special installation instructions starting on page 8.

	FL-PP-RJ45-SCC	FL-PP-RJ45-SC	FL-PP-RJ45/RJ45
ATEX	II 3 G Ex ec IIC Gc	II 3 G Ex ec IIC Gc	II 3 G Ex ec IIC Gc
Manufacturer's declaration	PxCIF14ATEX2901642U	PxCIF14ATEX2901642U	PxCIF14ATEX2901642U

4 Safety regulations and installation notes

WARNING:
Observe the following safety notes when using the patch panel.

- Installation, operation, and maintenance may only be carried out by qualified electricians. Follow the installation notes as described.
- When installing and operating the device, observe the applicable regulations and safety directives (including national safety directives), as well as the generally recognized engineering rules. The safety technology data is provided in the packing slip and on the certificates (manufacturer's declaration, additional approvals where applicable).
- Also observe the requirements of EN 60079-14.
- Do not open or modify the component. Do not repair the component yourself, replace it with an equivalent component. Repairs may only be carried out by the manufacturer. The manufacturer is not liable for damage resulting from non-compliance.
- The IP20 degree of protection (IEC 60529/EN 60529) of the component is intended for a clean and dry environment. Do not subject the component to mechanical strain and/or thermal stress that exceeds the specified limits.

4.1 Power over Ethernet (PoE)

All patch panels are PoE-capable in accordance with IEEE 802.3bt, type 4. Connecting or disconnecting PoE cables under load will damage the contacts.

- Only connect and disconnect PoE cables when the voltage is disconnected.

4.2 Installation in zone 2 (only FL-PP-RJ45-SCC, FL-PP-RJ45-SC, and FL-PP-RJ45/RJ45)

The following components are approved for use in potentially explosive areas:

– FL-PP-RJ45-SCC, 2901642
– FL-PP-RJ45-SC, 2901643
– FL-PP-RJ45/RJ45, 2901646

WARNING:
Please make sure that the following notes and instructions are observed.

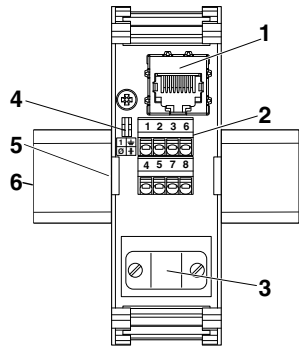
- The category 3 component is designed for installation in zone 2 potentially explosive areas.
- The product satisfies the requirements of the following standards:
  – EN IEC 60079-0
  – EN IEC 60079-7
- You will find detailed information in the attestation of conformity in accordance with 2014/34/EU, which is available on our website in the latest version.
- Use in potentially explosive areas is not permitted in China.
- Observe the specified conditions for use in potentially explosive areas!
- The component must be stopped and immediately removed from the potentially explosive area if it is damaged, was subjected to an impermissible load, stored incorrectly, or if it malfunctions.
- The item should be installed so that at least IP54 degree of protection is achieved in accordance with EN 60529. To this end, a suitable, approved housing that meets the requirements of EN IEC 60079-7 should be used.
- Only devices which are designed for operation in Ex zone 2 and are suitable for the conditions at the installation location may be connected to the circuits in zone 2.
- In potentially explosive areas, always disconnect the power before snapping the device onto the DIN rail or removing it from the DIN rail, or connecting or disconnecting the cables or the plug-in bridge.
- To ensure safe operation, the RJ45 connector must have a fully functioning locking clip. Repair any damaged male connectors immediately.

- Due to self-heating during operation, the Ethernet patch panels may be used with the current value given and at ambient temperatures of -25°C ... +70°C at the installation location of equipment, primarily control cabinets, for temperature class T4. When using the components in equipment of temperature classes T3 through T1, ensure that the highest temperature on the components does not exceed the operating temperature range.
- The DIN rail must be connected to protective ground.

5 FL-PP-RJ45-SCC with spring connection terminal blocks

5.1 Design

Figure 1 Function elements

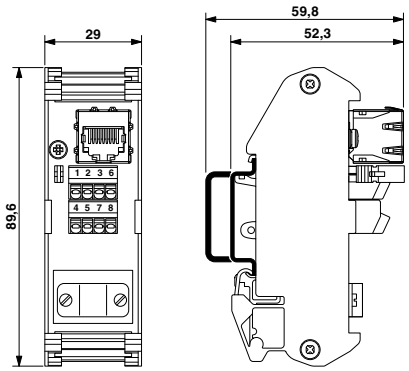


1 RJ45 jack (TP port)
2 Spring connection terminal blocks for field cabling
3 Strain relief with shield connection
4 Plug-in bridge for selecting the shield grounding
5 Universal snap-on foot for EN DIN rails
6 DIN rail

Mount the patch panel on a 35 mm DIN rail.

5.2 Dimensions

Figure 2 FL-PP-RJ45-SCC dimensions



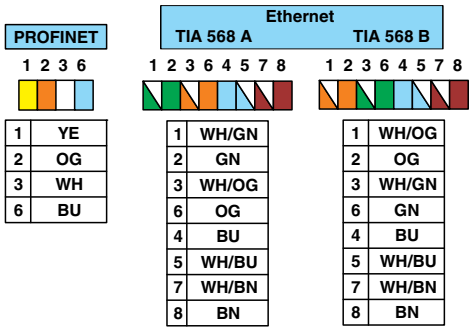
5.3 Connecting the Ethernet network

Twisted pair interface (TP port)

- Only use shielded twisted pair cables and corresponding shielded RJ45 connectors.
- Take the Ethernet patch cable which leads to the end device and has an RJ45 connector, and push it into the RJ45 jack (TP port) until the connector audibly snaps in.

Pin assignment and color coding

Figure 3 Ethernet (IEEE 802.3: TIA 568 A, TIA 568 B) and PROFINET



1	YE
2	OG
3	WH
6	BU

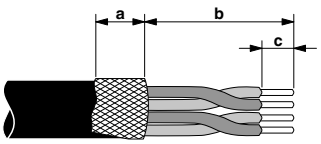
1	WH/GN
2	GN
3	WH/OG
6	OG
4	BU
5	WH/BU
7	WH/BN
8	BN

1	WH/OG
2	OG
3	WH/GN
6	GN
4	BU
5	WH/BU
7	WH/BN
8	BN

- YE = yellow
- OG = orange
- WH = white
- BU = blue
- GN = green
- BN = brown

Spring connection terminal blocks

Figure 4 Required stripping lengths



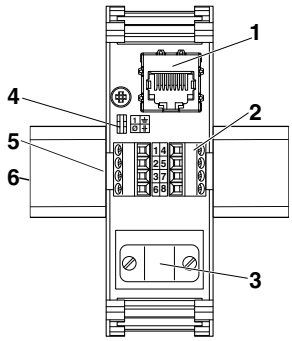
- a = 10 mm
- b = 40 mm
- c = 8 mm

- Remove the cable sheath in accordance with length b.
- Fold back 10 mm of the braided shield over the outer sheath.
- Remove the aluminum foil.
- Shorten wires 4, 5, 7, and 8 by 10 mm as required for the lower terminal block.
- Strip 8 mm off each single-core wire.
- Lay the shielding under the clip bracket of the strain relief and screw tight.
- Connect all single-core wires to the spring connection terminal blocks. If possible, make sure the single-core wires remain twisted up to the connection terminal blocks.

6 FL-PP-RJ45-SC with screw connection terminal blocks

6.1 Design

Figure 5 Function elements

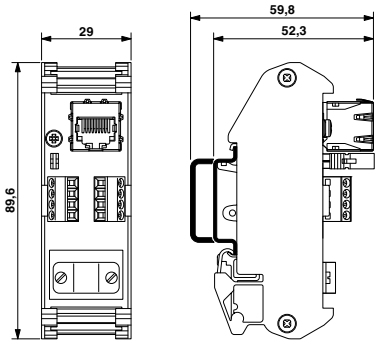


1 RJ45 jack (TP port)
2 Screw connection terminal blocks for field cabling
3 Strain relief with shield connection
4 Plug-in bridge for selecting the shield grounding
5 Universal snap-on foot for EN DIN rails
6 DIN rail

Mount the patch panel on a 35 mm DIN rail.

6.2 Dimensions

Figure 6 FL-PP-RJ45-SC dimensions



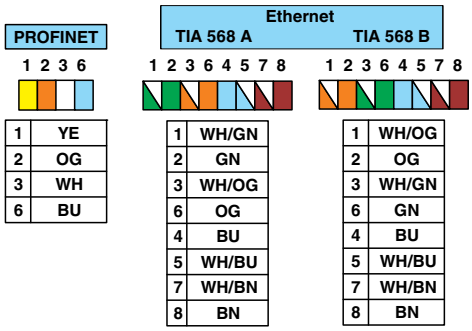
6.3 Connecting the Ethernet network

Twisted pair interface (TP port)

- Only use shielded twisted pair cables and corresponding shielded RJ45 connectors.
- Take the Ethernet patch cable which leads to the end device and has an RJ45 connector, and push it into the RJ45 jack (TP port) until the connector audibly snaps in.

Pin assignment and color coding

Figure 7 Ethernet (IEEE 802.3: TIA 568 A, TIA 568 B) and PROFINET



1	YE
2	OG
3	WH
6	BU

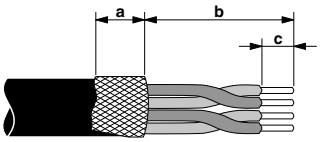
1	WH/GN
2	GN
3	WH/OG
6	OG
4	BU
5	WH/BU
7	WH/BN
8	BN

1	WH/OG
2	OG
3	WH/GN
6	GN
4	BU
5	WH/BU
7	WH/BN
8	BN

- YE = yellow
- OG = orange
- WH = white
- BU = blue
- GN = green
- BN = brown

Screw connection terminal blocks

Figure 8 Required stripping lengths



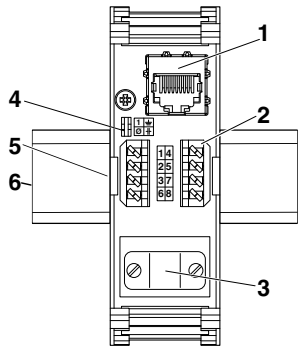
- a = 10 mm
- b = 35 mm
- c = 5 mm

- Remove the cable sheath in accordance with length b.
- Fold back 10 mm of the braided shield over the outer sheath.
- Remove the aluminum foil.
- Strip 5 mm off the single-core wires.
- Lay the shielding under the clip bracket of the strain relief and screw tight.
- Connect the single-core wires to the screw terminal blocks. If possible, make sure the single-core wires remain twisted up to the connection terminal blocks.

7 FL-PP-RJ45-LSA with LSA connection terminal blocks

7.1 Design

Figure 9 Function elements

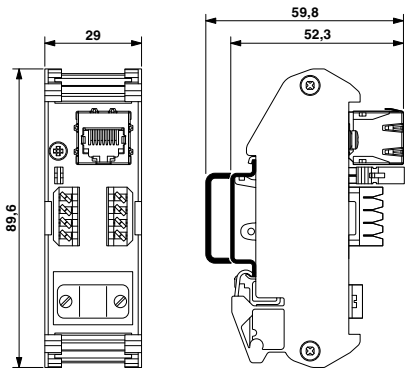


1 RJ45 jack (TP port)
2 LSA connection terminal blocks for field cabling
3 Strain relief with shield connection
4 Plug-in bridge for selecting the shield grounding
5 Universal snap-on foot for EN DIN rails
6 DIN rail

Mount the patch panel on a 35 mm DIN rail.

7.2 Dimensions

Figure 10 FL-PP-RJ45-LSA dimensions



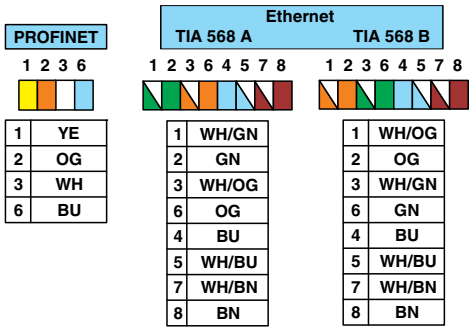
7.3 Connecting the Ethernet network

Twisted pair interface (TP port)

- Only use shielded twisted pair cables and corresponding shielded RJ45 connectors.
- Take the Ethernet patch cable which leads to the end device and has an RJ45 connector, and push it into the RJ45 jack (TP port) until the connector audibly snaps in.

Pin assignment and color coding

Figure 11 Ethernet (IEEE 802.3: TIA 568 A, TIA 568 B) and PROFINET



PROFINET	
1	YE
2	OG
3	WH
6	BU

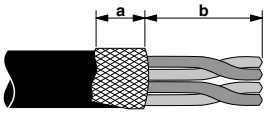
TIA 568 A	
1	WH/GN
2	GN
3	WH/OG
6	OG
4	BU
5	WH/BU
7	WH/BN
8	BN

TIA 568 B	
1	WH/OG
2	OG
3	WH/GN
6	GN
4	BU
5	WH/BU
7	WH/BN
8	BN

- YE = yellow
- OG = orange
- WH = white
- BU = blue
- GN = green
- BN = brown

LSA connection terminal blocks

Figure 12 Required stripping lengths



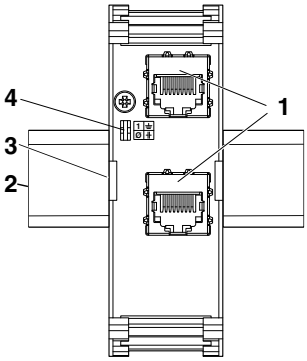
- a = 10 mm
- b = 50 mm

- Remove the cable sheath in accordance with length b.
- Fold back 10 mm of the braided shield over the outer sheath.
- Remove the aluminum foil.
- Lay the shielding under the clip bracket of the strain relief and screw tight.
- Connect the wire pairs to the LSA terminal strips using an LSA split-core tool.
  If possible, make sure the single-core wires remain twisted up to the terminal strips.
- Make sure the wires are flush with the terminal strip.

8 FL-PP-RJ45/RJ45 with RJ45 jack

8.1 Design

Figure 13 Function elements

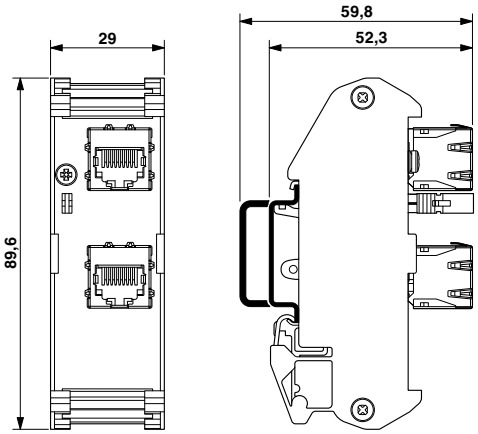


1 RJ45 jack (TP port)
2 DIN rail
3 Universal snap-on foot for EN DIN rails
4 Plug-in bridge for selecting the shield grounding

Mount the patch panel on a 35 mm DIN rail.

8.2 Dimensions

Figure 14 FL-PP-RJ45/RJ45 dimensions



8.3 Connecting the Ethernet network

The patch panel has two RJ45 Ethernet interfaces for connecting twisted pair cables.

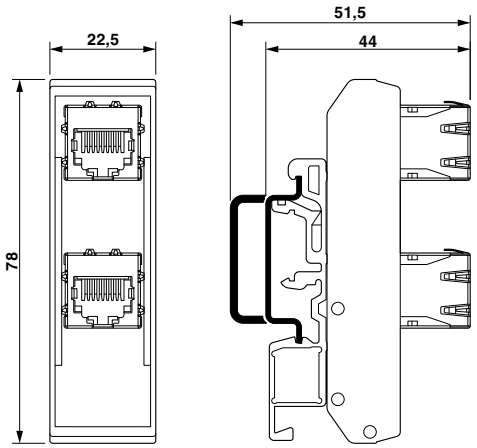
- Only use shielded twisted pair cables and corresponding shielded RJ45 connectors.
- Take the Ethernet patch cable which leads to the end device and has an RJ45 connector, and push it into the RJ45 jack (TP port) until the connector audibly snaps in.
- Push the field cable with the RJ45 connector into the second RJ45 jack until the connector audibly snaps in.

For the device to function correctly, it does not matter which port you assign for the incoming and outgoing cable.

9 FL-PP-RJ45/RJ45-B with RJ45 jack, narrow overall width

9.1 Dimensions

Figure 15 FL-PP-RJ45/RJ45-B dimensions



Mount the patch panel on a 35 mm DIN rail.

9.2 Connecting the Ethernet network

The patch panel has two RJ45 Ethernet interfaces for connecting twisted pair cables.

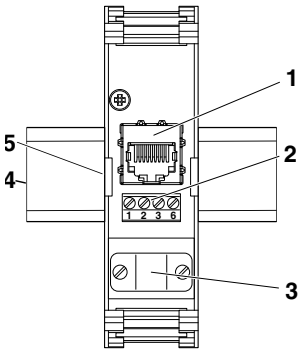
- Only use shielded twisted pair cables and corresponding shielded RJ45 connectors.
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- Push the field cable with the RJ45 connector into the second RJ45 jack until the connector audibly snaps in.

For the device to function correctly, it does not matter which port you assign for the incoming and outgoing cable.

10 FL CAT5 TERMINAL BOX with screw connection terminal blocks

10.1 Design

Figure 16 Function elements

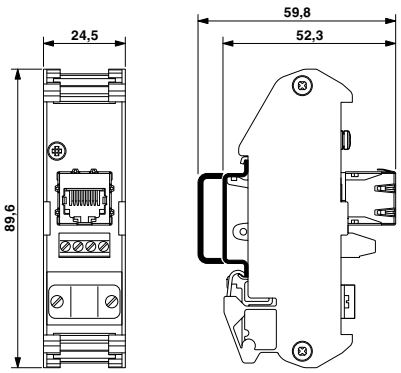


1 RJ45 jack (TP port)
2 Screw connection terminal blocks
3 Strain relief with shield connection
4 DIN rail
5 Universal snap-on foot for EN DIN rails

Mount the patch panel on a 35 mm DIN rail.

10.2 Dimensions

Figure 17 FL CAT5 TERMINAL BOX dimensions



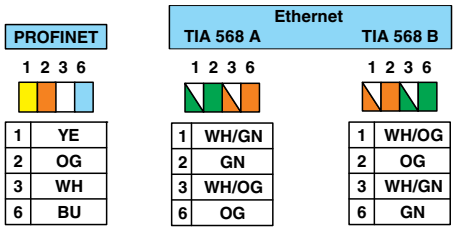
10.3 Connecting the Ethernet network

Twisted pair interface (TP port)

- Only use shielded twisted pair cables and corresponding shielded RJ45 connectors.
- Take the Ethernet patch cable which leads to the end device and has an RJ45 connector, and push it into the RJ45 jack (TP port) until the connector audibly snaps in.

Pin assignment and color coding

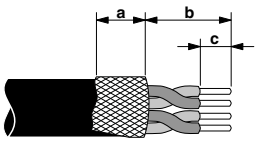
Figure 18 Ethernet (IEEE 802.3: TIA 568 A, TIA 568 B) and PROFINET



– YE = yellow
– OG = orange
– WH = white
– BU = blue
– GN = green

Screw connection terminal blocks

Figure 19 Required stripping lengths



– a = 10 mm
– b = 10 mm
– c = 5 mm

- Remove the cable sheath in accordance with length b.
- Fold back 10 mm of the braided shield over the outer sheath.
- Remove the aluminum foil.
- Strip 5 mm off the single-core wires.
- Lay the shielding under the clip bracket of the strain relief and screw tight.
- Connect the single-core wires to the screw terminal blocks. If possible, make sure the single-core wires remain twisted up to the connection terminal blocks.

11 Selecting the shield grounding

For the following patch panels, you can select the type of shield grounding with a plug-in bridge:

– FL-PP-RJ45-SCC
– FL-PP-RJ45-SC
– FL-PP-RJ45-LSA
– FL-PP-RJ45/RJ45

The plug-in bridge is inserted in the delivery state. The shielding is positioned directly on the ground potential (PE). In this configuration, there is a low-resistance electrical connection between the shield and ground potential.

If you remove the plug-in bridge, the shield is connected to the ground potential via an RC combination. A high-impedance resistor connected in parallel with a capacitor ensures that high-frequency interference is effectively dissipated to PE without creating a low-resistance electrical connection.

Single-sided grounding of the shield between two patch panels is best suited for suppressing electrical fields and ground loops.

With FL-PP-RJ45/RJ45-B, the shielding is **not** connected to the DIN rail.

With FL CAT5 TERMINAL BOX, the shielding is always connected to the DIN rail via the universal snap-on foot.

Figure 20 Shield connection directly to PE (default setting)

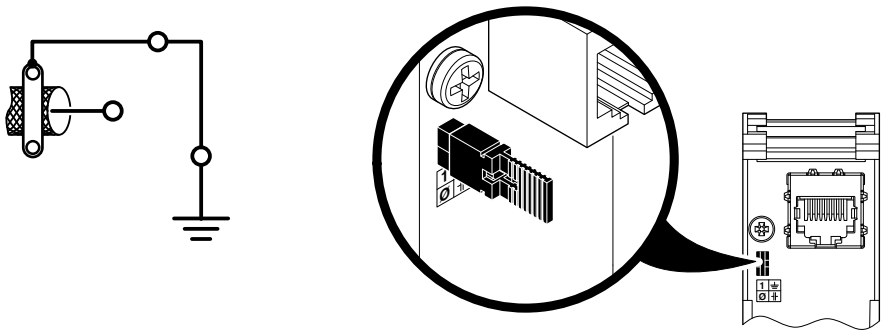
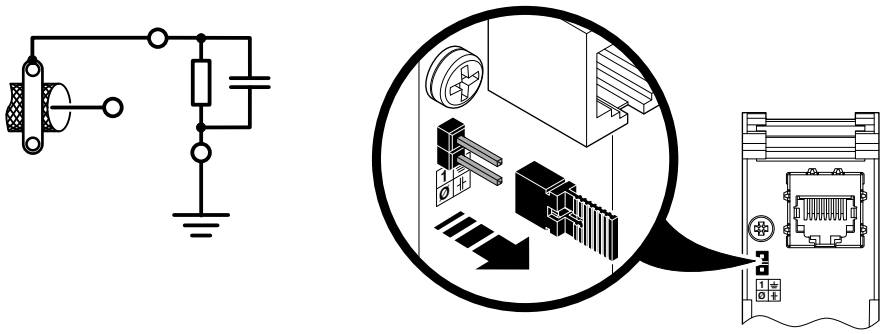


Figure 21 Shield connection via RC element to PE



12 Circuit diagrams

Figure 22 FL-PP-RJ45-SCC (2901642)
FL-PP-RJ45-SC (2901643)
FL-PP-RJ45-LSA (2901645)

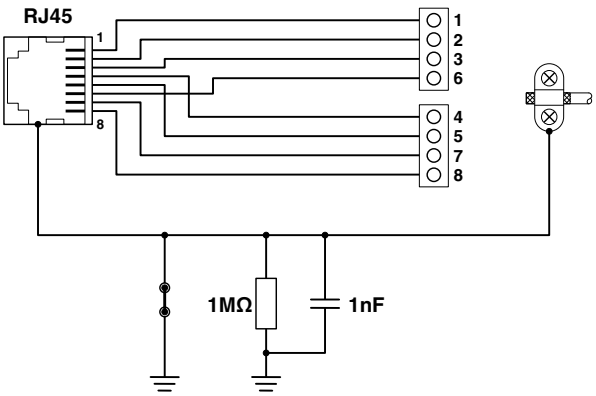


Figure 23 FL-PP-RJ45/RJ45 (2901646)

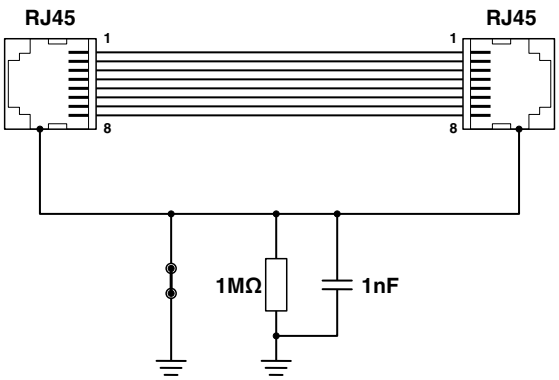


Figure 24 FL-PP-RJ45/RJ45-B (2904933)

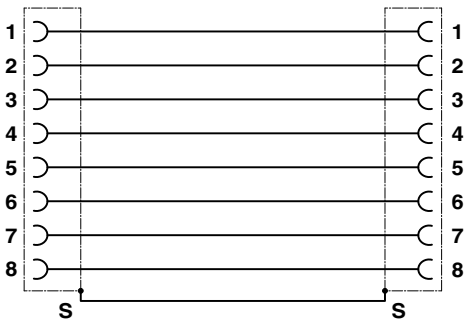
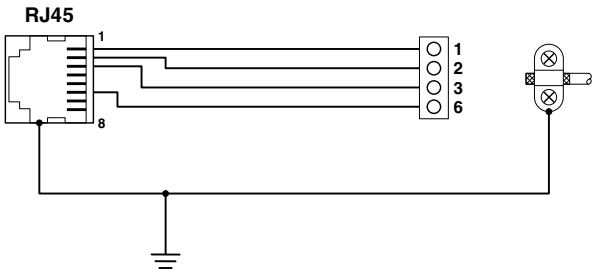


Figure 25 FL CAT5 TERMINAL BOX (2744610)



13 Disposal

The symbol with the crossed-out trash can indicates that this item must be collected and disposed of separately. Phoenix Contact or our service partners will take the item back for free disposal. For information on the available disposal options, visit www.phoenixcontact.com.