Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832
Email & Skype: info@chipsmall.com Web: www.chipsmall.com
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

FL HUB 8/16TX-ZF

Ethernet Hub With 8 or 16 RJ45 Ports

AUTOMATIONWORX

Data Sheet

7179_en_03

Description

The hub is used for quick and cost-effective Ethernet network expansion. It has 8 or 16 twisted pair ports, which can be connected to additional network segments or termination devices.

The Product Short Description supports Ethernet with 10 Mbps as well as with 100 Mbps.

The hub regenerates the received signal levels. The received data telegrams are send to the remaining ports.

For port 5, a port assignment switch is located on the hub. The transmit and receive cables are exchanged at port 5 by actuating the switch while polarity is maintained.

Application:

– Simple expansion of networks without configuration.

– Using a standard system cabling

Local Diagnostic and Status Indicators

Des.	Color	Meaning
PWR	Green	Supply voltage
COL	Yellow	Telegram collision
One LED per port		
	Green	Link active
	Yellow	Receiving telegrams

Please note that all devices connected to the hub are operated at the same data transmission rate.

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

A conversion table is available on the Internet at
www.download.phoenixcontact.com/general/7000_en_00.pdf.

This data sheet is valid for the products listed on the last page.

PHŒNIX CONTACT

INSPIRING INNOVATIONS

Ordering Data

Products

Description	Type	Order No.	Pcs./Pkt.
Ethernet hub with 8 ports	FL HUB 8TX-ZF	2832551	1
Ethernet hub with 16 ports	FL HUB 16TX-ZF	2832564	1

Accessories

Description	Type	Order No.	Pcs./Pkt.
Patch box 8 x RJ45 CAT5e pre-assembled, can be retrofitted	FL PBX 8TX	2832496	1
Patch box 6 x RJ45 CAT5e and 4 SC-RJ, glass pre-assembled, can be retrofitted	FL PBX 6TX/4FX	2832506	1
Patch cable, CAT 5, pre-assembled, 0.3 m long	FL CAT5 PATCH 0.3	2832250	10
Patch cable, CAT 5, pre-assembled, 0.5 m long	FL CAT5 PATCH 0.5	2832263	10
Patch cable, CAT 5, pre-assembled, 1.0 m long	FL CAT5 PATCH 1.0	2832276	10
Patch cable, CAT 5, pre-assembled, 1.5 m long	FL CAT5 PATCH 1.5	2832221	10
Patch cable, CAT 5, pre-assembled, 2.0 m long	FL CAT5 PATCH 2.0	2832289	10
Patch cable, CAT 5, pre-assembled, 3.0 m long	FL CAT5 PATCH 3.0	2832292	10
Patch cable, CAT 5, pre-assembled, 5.0 m long	FL CAT5 PATCH 5.0	2832580	10
Patch cable, CAT 5, pre-assembled, 7.5 m long	FL CAT5 PATCH 7.5	2832616	10
Patch cable, CAT 5, pre-assembled, 10.0 m long	FL CAT5 PATCH 10	2832629	10
Dust protection caps for RJ45 sockets	FL RJ45 PROTECT CAP	2832991	10

Technical Data

General Data

Function	Class II repeater/hub; in acc. with IEEE 802.3, IEEE 802.3u
Mode	Half duplex
Data processing	Bit re-timing
Maximum data telegram length	1522 Bytes
Housing dimensions FL HUB 8TX-ZF (width x height x depth) Housing dimensions FL HUB 16TX-ZF (width x height x depth)	45 mm x 99 mm x 112 mm 90 mm x 99 mm x 112 mm
Permissible operating temperature FL HUB 8TX-ZF Permissible operating temperature FL HUB 16TX-ZF	0°C to 60°C 0°C to 55°C
Permissible storage temperature	-25°C up to +70°C
Degree of protection	IP20, DIN 40050, IEC 60529
Class of protection	Class 3 VDE 0106; IEC 60536
Maximum humidity (operation)	100%
Maximum humidity (storage/transport)	95% not condensing
Air pressure (operation)	81 kPa to 108 kPa, 2,000 m above sea level
Air pressure (storage)	66 kPa to 108 kPa, 3,500 m above sea level
Preferred mounting position	Perpendicular to a standard DIN rail
Connection to protective	By snapping it onto a grounded DIN rail/via COMBICON (optional)
Weight	266 g, typical (8TX) 422 g, typical (16TX)

Supply Voltage

Connection	Via COMBICON; maximum conductor cross-section = 2.5 mm^2
Nominal value	24 V DC
Permissible ripple	3.6 V_{pp} within the permissible voltage range
Permissible voltage range	18 V DC to 32 V DC
Current consumption at nominal value of US	144 mA, typical (8TX) 230 mA, typical (16TX)

Supply Voltage (Continued)

Test voltage	500 V DC for 1 minute
Protection against polarity reversal	Present
Power consumption at nominal value of US	3.5 W, typical 5,5 W, typical

Interfaces

Ethernet interface in RJ45 format	
Number	8/16
Connection format	8-pos. RJ45 socket on the hub
Connection medium	Twisted pair cable with a conductor cross-section of 0.14 mm^2 bis 0.22 mm^2
Cable impedance	100 Ω
Transmission speed	10 Mbps and 100 Mbps, selectable
Maximum network segment expansion	100 m
Maximum delay	92 bit periods
Maximum extension of the collision domain during operation at a transmission rate of 100 Mbps	205 m

Mechanical Tests

Shock test in acc. with IEC 60068-2-27	30g
Vibration resistance in acc. with IEC 60068-2-6	Operation / storage / transport: 5g, criterion A
Free fall according to IEC 60068-2-32	1 m

Conformance With EMC Directives

Developed in acc. with IEC 61000-6.2	
Emitted interference acc. with EN 55022: 1998 + A1: 2000 + A2: 2003 (Interference voltage)	Class A (industrial applications)
Emitted interference acc. to EN 55011: 1998 + A1: 1999 + A2: 2002 (EMC protection)	Class A (industrial applications)
Noise immunity in acc. with EN 61000-4-2 (IEC 1000-4-2) (ESD)	Requirements in acc. with DIN EN 61000-6-2
Contact discharge	Test intensitiy 2, criterion B
Air discharge	Test intensitiy 3, criterion B
Indirect discharge	Test intensitiy 2, criterion B
Noise immunity in acc. with EN 61000-4-3 (IEC 1000-4-3) (electromagnetic fields)	Requirements in acc. with DIN EN 61000-6-2
	Test intensitiy 3, criterion A
Noise immunity in acc. with EN 61000-4-4 (IEC 1000-4-4) (Burst)	Requirements in acc. with DIN EN 61000-6-2
Data lines	Test intensitiy 2, criterion B
Voltage supply	Test intensitiy 3, criterion B
Noise immunity in acc. with EN 61000-4-5 (IEC 1000-4-5) (Surge)	Requirements in acc. with DIN EN 61000-6-2
Data lines	Test intensitiy 2, criterion B
Voltage supply	Test intensitiy 1, criterion B
Noise immunity in acc. with EN 61000-4-6 (IEC 1000-4-6) (conducted)	Requirements in acc. with DIN EN 61000-6-2
	Test intensitiy 3, criterion A

General Information

⚠️ **Warning**
Disregarding this warning may result in damage to equipment and/or serious personal injury. Only qualified personnel may start up and operate these devices. According to the safety instructions in this text, qualified personnel are persons who are authorized to start up, to ground, and to mark devices, systems, and equipment according to the standards of safety technology. In addition, these persons must be familiar with all warning instructions and maintenance measures in this text.

⚠️ **Warning**
The Product Short Description module is designed exclusively for SELV operation according to IEC 950 / EN 60950/VDE 0805.

Installation and Mounting/Removal

Install the Product Short Description on a clean DIN rail according to DIN EN 50 022 (Phoenix Contact: product NS 35…). To avoid contact resistance only use clean, corrosion-free DIN rails. Mount end clamps on both ends of the station in order to prevent the module from slipping on the DIN rail.

👉 Connect the DIN rail to protective earth ground using a grounding terminal block. The modules are grounded when they are snapped onto the DIN rail. Optionally the module can be grounded via a second COMBICON connector. Connect protective earth ground with low impedance.

Mounting:

1. Place the module onto the DIN rail from above. The upper holding keyway must be hooked onto the top edge of the DIN rail.
2. Push the module from the front towards the mounting surface.
3. Once the module has been snapped on properly, check that it is fixed securely on the DIN rail.

Removal:

1. Pull the locking latch down using a screwdriver, needle-nose pliers or similar.
2. Pull the bottom edge of the module away from the mounting surface.
3. Pull the module diagonally upwards away from the DIN rail.

Terminal Assignment
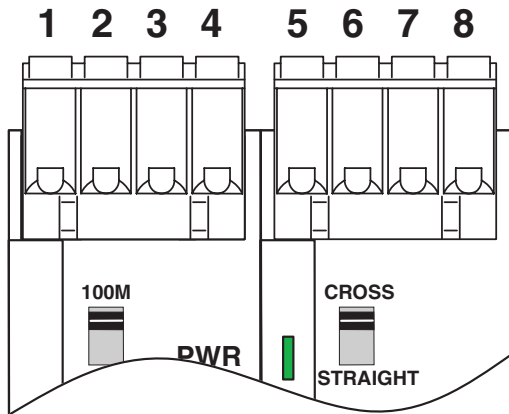
Terminal	Meaning
1	+24 V DC supply voltage (internally connected to terminal 3)
2	0 V DC (internally connected to terminal 4)
3	Supply voltage continuation
4	Continuation 0 V DC
5 - 8	Functional earth ground (optional)

Figure 1   Terminal Assignment

Connecting the Supply Voltage

Connect the supply voltage via terminal 1 (+24 V DC) and terminal 2 (0 V). Inside the module, terminal 1 is connected to terminal 3. Inside the module, terminal 2 is connected to terminal 4.

Use the internal voltage continuation for the connection of additional hubs only. In this context, please note that the maximum current carrying capacity of the connector of 12 A must not be exceeded.

Terminals 5 up to 8 are bridged inside the module and serve to connect functional earth ground (optional).
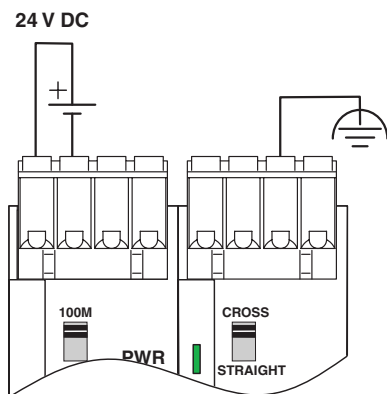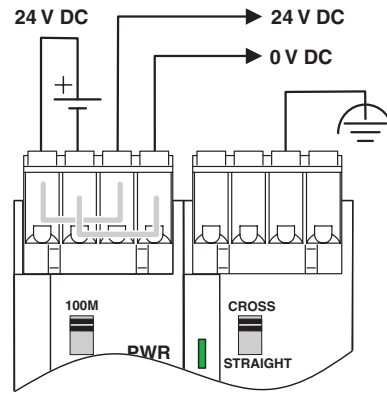

Figure 2   Connecting the supply voltage

Figure 3   Voltage continuation

Local Configuration Options

At the "10M - 100M" slide switch at the front you have the option to set the data transmission rate for the entire device and thus for all connected devices to the fixed value of 10 Mbps or 100 Mbps.

At the "CROSS - STRAIGHT" slide switch at the front you have the option to set the port assignment for port 5 between 1:1 (STRAIGHT) and cross-over (CROSS). For this reason, port 5 is particularly suitable as uplink port.

Switch "10M -100M" for data transmission rate

Switch Position	Data Transmission Rate
10M	10 Mbps (default)
100M	100 Mbps

Please note that the data transmission rate that is selected using the "10M - 100M" switch is only valid after a reset (power-up) of the device.

"STRAIGHT - CROSS" switch for cable type

Switch Position	Cable Type
STRAIGHT	Normal (default)
CROSS	Uplink

Functions of the Hub

– **Execute Segmentation**
  If more than 128 collisions occur in direct succession at one port, the receiving connection to this port is disabled.

– **Deactivate Segmentation**
  Per default the segmentation is deactivated if transmitting or receiving data without collision for the duration of 512 bit periods is possible.

– **Jabber**
  If a device is active for more than 64,000 bit periods, the hub deactivates the transmit and receive port. The ports are automatically re-enabled as soon as valid telegrams are received/transmitted again. The other ports are not deactiviated.

– **Cascading Hubs**
  Do not cascade more than **4** hubs in succession when operating at a data transmission rate of **10 Mbps**. Do not cascade more than **2** hubs in succession when operating at a data transmission rate of **100 Mbps**. In this context, the length of the connection cable between the hubs must not be longer than 5 m. The maximum extension of the collision domain when the hub is operated at a transmission rate of 100 Mbps must not exceed 205 m (Class II repeater).
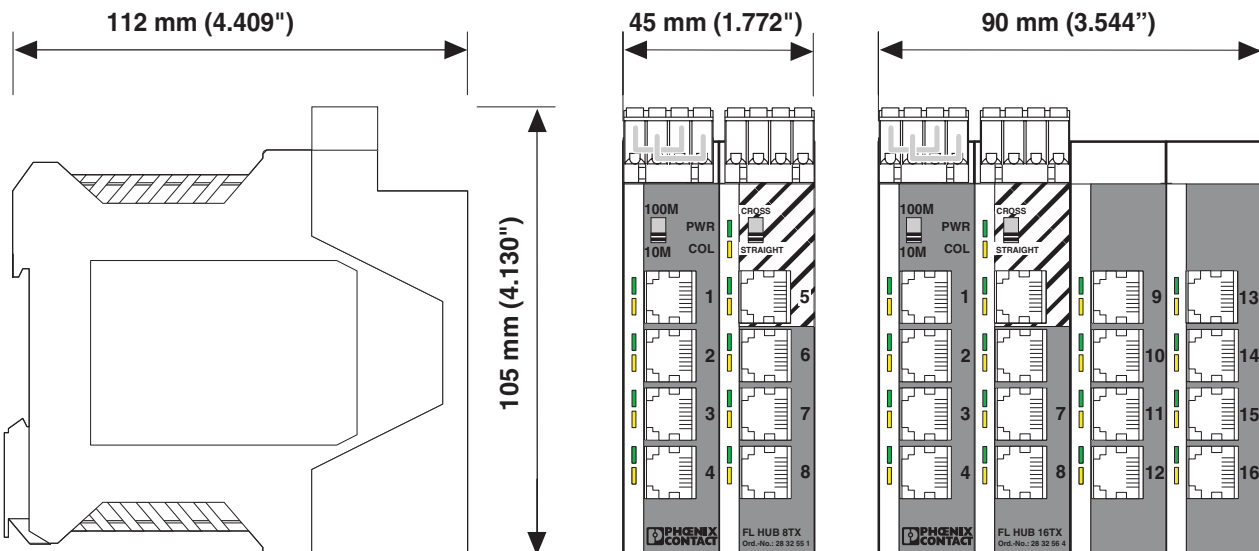
Housing Dimensions

Figure 4   Housing dimensions of the FL HUB 8TX-ZF or FL HUB 16TX-ZF