

## Hardware Installation Guide







### Unmanaged Fast Ethernet Switches

IE-SW-EL16-14TX-2FESFP (Part No. 2682160000)

#### 1. Introduction

Ethernet Switches from Weidmüller are designed with a very compact housing size and are fitted with a robust housing. To ensure reliable, error-free operation, and to prevent damage or injury, please read the operating instructions, all safety information provided in this document and any other safety information that were supplied with the product.

#### 2. Safety notice

	Switch off the electrical power before removing the power connection!
	The device heats up during operation. Allow the unit to cool down or use protection gloves when carrying out any work.
	The device may only be connected to the supply voltage shown on the product label. Higher voltage than specified will destroy the device. The device must be supplied by a SELV source as defined in the Low Voltage Directive 2014/35/EU and 2014/30/EU.
	Installation, commissioning and maintenance may only be performed by qualified electricians.
	Observe the operating instructions.
	<ul style="list-style-type: none"> <li>Indoor use and pollution degree II, it must be wiped with a dry cloth for clean up the device and label.</li> <li>Utilisation en intérieur et degré de pollution II, il faut l'essuyer avec un chiffon sec pour nettoyer l'appareil et son étiquette.</li> <li>Do not block air ventilation holes.</li> <li>Ne bloquez pas les orifices de ventilation.</li> <li>If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.</li> <li>Si l'appareil est utilisé d'une manière non spécifiée par le fabricant, la protection qu'il apporte peut se voir diminuée.</li> <li>Shall be mounted in the Industrial Control Panel and ambient temperature is not exceed 75 degrees C.</li> <li>Doit être monté dans le panneau de commande industriel et la température ambiante ne doit pas dépasser 75 degrés C.</li> </ul>

#### Intended use

The device is intended for the realization of communication networks within an industrial environment, it is intended to be used in a restricted access location. The device may only be used within the scope of the specified technical data. The device is intended to be mounted to a well-grounded mounting surface, such as a metal panel. Any other use may result in unintentional malfunction and damage. Observing the documentation is part of the intended use.

#### Environmental conditions

This equipment is intended to be used in a restricted access location. When planning the installation site make sure that the ambient temperature during operation will not exceed the temperature given in the technical data. Also make sure that the air flow will not be compromised by other devices. Ensure that the mounted and wired device is not exposed to any mechanical stress.

#### FCC compliance

This device complies with part 15 of FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

#### 3. Package Checklist

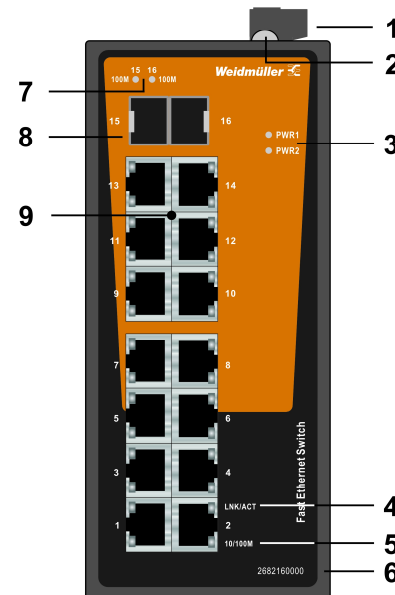
Your Ethernet Switch is shipped with the following items:

- Ethernet Switch
- Hardware Installation Guide (printed)
- 6-Pin Terminal connector
- Protective caps for RJ45 ports and SFP ports

#### 4. Panel Layouts

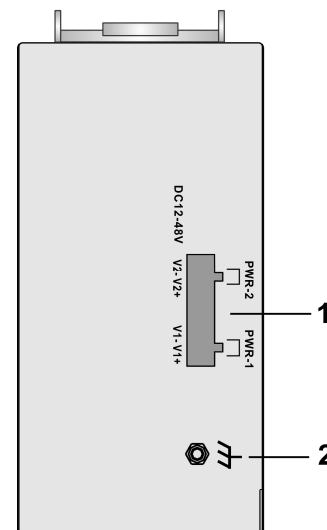
IE-SW-EL16-14TX-2FESFP

##### Front Panel View

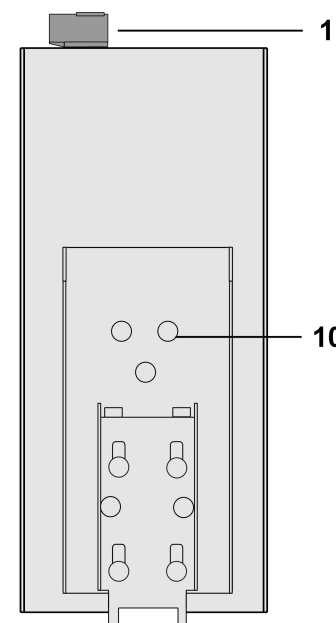


1. Terminal block for power input PWR1 / PWR2
2. Grounding screw / Frame ground (Note: The shielding ground of the LAN port is electrically connected to the grounding screw)
3. Power input LEDs (PWR1 / PWR2)
4. LAN port Link/Activity LED
5. LAN port Speed LED (Amber = 100 Mbps, Off = 10Mbps)
6. Article Number
7. SFP Port Link/Activity LED
8. SFP Slot 1000Base(X)
9. 10/100Base-T(X) ports
10. DIN-rail kit

##### Top Panel View

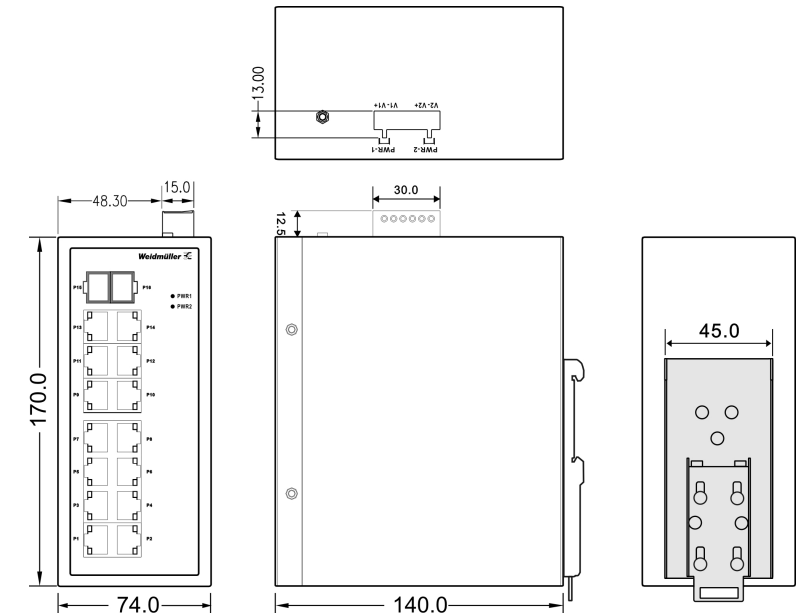


##### Rear Panel View



#### 5. Mounting Dimensions

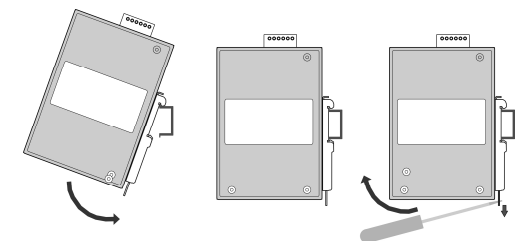
(units = mm)



#### 6. DIN-Rail Mounting

Slide the switch onto a DIN-rail and make sure that the switch's Din-rail clip clicks into the rail firmly.

**STEP 1:** Insert the top of the DIN-Rail into the slot just below the stiff metal spring.



**STEP 2:** The DIN-Rail attachment unit will snap into place as shown below.

To remove the DIN-rail from the Ethernet Switch, simply reverse Steps 1 and 2.

#### 7. Grounding Ethernet Switch




##### ATTENTION

- Grounding and wire routing help limit the effects of noise due to electromagnetic interference (EMI).
- the ground connection from the ground screw to the grounding surface prior to connecting devices.
- This product is intended to be mounted to a well-grounded mounting surface, such as a metal panel.
- The shielding ground of the RJ45 ports are electrically connected to the ground connection (screw).

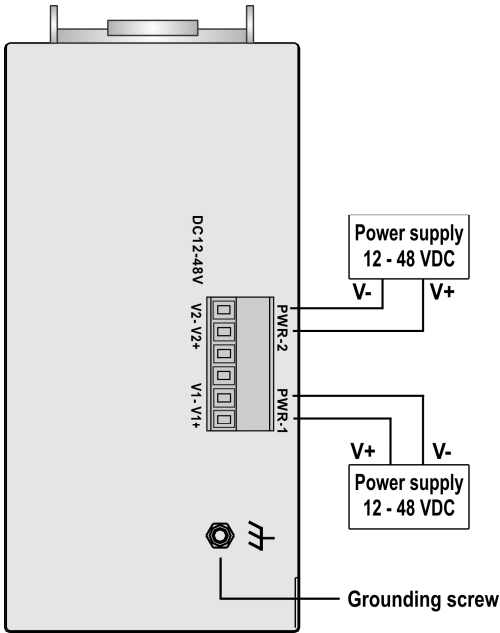
8. Wiring Redundant Power Inputs

The switch supports redundant power supply inputs. For wiring via 6-pin terminal connector please refer to below illustration.



**Warning / Avertissement**

- Take into consideration the following guidelines before wiring the device
  - Tenez compte des directrices suivantes avant de câbler l'appareil.
- Terminal block is mating with Plug and suitable for 12-24AWG. Torque value 4.5 lb-in.
  - Le bornier est compatible avec les connecteurs et convient pour 12-24AWG. Valeur de couple 4,5 lb-in.
- The temperature rating of the input connection cable should higher than 105°C.
  - La température de service nominale du câble d'entrée doit être supérieure à 105 °C.
- Supplied by SELV source evaluated by UL 61010-1 or 61010-2-201 power supply only.
  - Fourni par la source SELV évaluée uniquement par l'alimentation UL 61010-1 or 61010-2-201.



9. Communication Connections

Switch **IE-SW-EL16-14TX-2FESFP** is equipped with following communication interfaces:

- 14x
- 10/100Base-T(X) ports
- 2x
- 100Base-FX SFP slots to be used with SFP Transceivers (mini-GBIC)

Please only use cables suitable for the respective type of communication and ensure that signals are protected from possible interference.

9.1 10/100Base T(X) RJ45 Ports

The 10/100BaseT(X) ports located on Ethernet Switch's front panel are used to connect to Ethernet-enabled devices. Below we show pinouts for both MDI (NIC-type) ports and MDI-X (HUB/Switch-type) ports. Auto MDI-X ensures that both wiring-schemes are supported (Automatic crossover function).

10/100Base T(X) RJ45 Pinouts			
MDI Port Pinouts		MDI-X Port Pinouts	
Pin	Signal	Pin	Signal
1	Tx+	1	Rx+
2	Tx-	2	Rx-
3	Rx+	3	Tx+
6	Rx-	6	Tx-

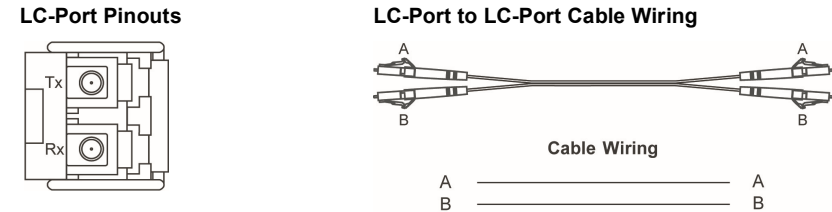
9.2 100Base-FX SFP (mini-GBIC) Fiber Port


The 100Base-FX type slots, require 100Base-FX SFP (mini-GBIC) fiber transceivers to work properly. Weidmüller provides transceiver models for various distance requirements.

Please only use SFP modules and cables that are compatible with each other to establish an optical connection.

LC-Port with separate Transmit and Receive Port:

Remember to connect the Tx (transmit) port of device I to the Rx (receive) port of device II, and the Rx (receive) port of device I to the Tx (transmit) port of device I





Note about possible loss of data packages in case of "Duplex mismatching"

If the switch's auto-negotiation port is connected to a non-negotiating device, then the switch will set its port transmission speed same as the connected device but is unable to correctly detect the duplex mode.

As result the port is set to the correct speed but is using always the half duplex mode as required by the IEEE 802.3u standard in such cases.

For correct transmission, the non-negotiating port must be set to half-duplex mode (speed can be either 10 Mbps or 100 Mbps, it always will be recognized automatically by an Auto-Negotiation-Device).

10. LED Indicators

The front panel of the Ethernet Switch contains several LED indicators. The function of each LED is described in the table below.

LED	Color	Status	Description
PWR1	Green	On	Power is being supplied to power input PWR1.
		Off	Power is not being supplied to power input PWR1.
PWR2	Green	On	Power is being supplied to power input PWR2.
		Off	Power is not being supplied to power input PWR2.
LNK/ACT (RJ45 LAN Ports)	Green	On	Port link is active.
		Off	Port link is inactive.
		Blinking	Transmitting data.
10/100M (RJ45 LAN Ports)	Amber	On	Port speed is 100 Mbps.
		Off	Port speed is 10 Mbps.
100M (Fiber Port 15-16)	Green	On	Port link is active.
		Off	Port link is inactive.
		Blinking	Transmitting data.

11. Specifications

Technology	
Standards	IEEE 802.3 for 10Base-T, IEEE 802.3u for 100BaseTX and 100BaseFX, IEEE 802.3x flow control
Processing Type	Store and Forward
MAC Table size	4K
Packet buffer size	2.75 Mbit
Backplane bandwidth	3.2 Gbps
Interfaces	
RJ45 Ports	10/100BaseT(X) auto negotiation speed, Full/Half duplex mode and auto MDI/MDI-X connection
Fiber optic Port	100BaseSFP slot
LED Indicators	PWR1, PWR2 (Power), LAN Port Link/Activity and Port speed, SFP Port Link/Activity
Power	
Input Voltage	24 V DC (12 - 48 V DC) ,2 redundant inputs
Input Current @24 VDC	0.34 A
Connection	One removable 6-pin terminal block, Wiring cable 12-24AWG
Overload Current Protection	Present
Reverse Polarity Protection	Present
Physical Characteristics	
Housing	IP30 protection, metal
Dimension (W x H x D)	74 x 170 x 140 mm (2.91 x 6.69 x 5.51 in)
Weight	1120 g
Installation	DIN-rail
Environmental conditions	
Operating Temperature	-40 to 75°C (-40 to 167°F)
Storage Temperature	-40 to 85°C (-40 to 185°F)
Ambient Relative Humidity	5 to 95% (non-condensing)
Altitude	up to 2000 m
Regulatory Approvals	
Safety	UL 61010-1; UL 61010-2-201
EMC	EN 55032, EN 55024, FCC Part 15 Subpart B Class A, IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV, IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m, IEC 61000-4-4 EFT: Power: 0.5 kV; Signal: 0.5 kV, IEC 61000-4-5 Surge: Power: 0.5 kV; Signal: 1 kV, IEC 61000-4-6 CS: 3 Vrms
Shock	IEC 60068-2-27
Free Fall	IEC 60068-2-31
Vibration	IEC 60068-2-6
MTBF	
Time	719.800 hrs
Database	Telcordia SR332
Warranty	
Time Period	5 years

Contact Information

Weidmüller Interface GmbH & Co. KG  
Klingenbergstraße 26, 32758 Detmold / Germany  
Phone +49 (0) 5231 14-0, Fax +49 (0) 5231 14-292083  
E-Mail [weidmueller@weidmueller.com](mailto:weidmueller@weidmueller.com), Internet [www.weidmueller.com](http://www.weidmueller.com)