# Weidmüller

## Hardware Installation Guide
## Unmanaged Fast Ethernet Switches

**IE-SW-ELB-05-5TX** (Part No.2828540000)
**IE-SW-ELB-08-8TX** (Part No.2828550000)

## 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. |
| 👤 | Installation, commissioning and maintenance may only be performed by qualified electricians. |
| 📖 | Observe the operating instructions. |
| ⚠ | ■ Indoor use and pollution degree 2, it must be wiped with a dry cloth for clean up the device and label. ■ If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired. ■ Shall be mounted in the Industrial Control Panel and ambient temperature is not exceed 60℃. |

**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.

## 3. Package Checklist

Your Ethernet Switch is shipped with the following items:
■ Ethernet Switch
■ Hardware Installation Guide (printed)
■ 2-Pin Terminal connector
■ Certificate of quality

## 4. Panel Layouts



IE-SW-ELB-05-5TX   IE-SW-ELB-08-8TX

1. Terminal block for power input PWR
2. Grounding screw
   Note: The shielding ground of the LAN port is electrically connected to the grounding screw.
3. Power input LEDs
4. 5/8 x 10/100Base-T(X)
5. LAN port Link/Activity LED
6. DIP Switch
7. DIN Rail
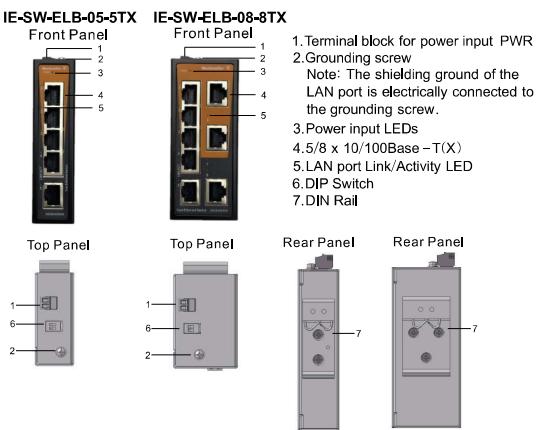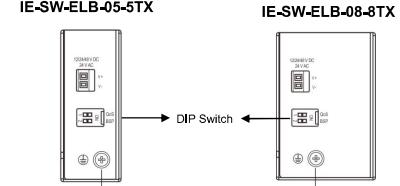
## 5. DIP Switch



| DIP Switch | Setting | Description | | |
|---|---|---|---|---|
| Quality of Service (QoS) | ON (Default) | Enable the Quality of Service to handle packet priorities in two WRR queues. QoS and ToS/DSCP priority mapping matrix in each queue | | |
| | | QoS 3bit priority | 7、6、5、4 | 3、2、1、0 |
| | | Queues | 1 | 0 |
| | | WRR | 16 | 1 |
| | OFF | Disable the Quality of service | | |
| Broadcast storm protection (BSP) | ON | Enables broadcast storm protection (only allow maximum of 200 broadcast packets per second) for each Ethernet port. | | |
| | OFF (Default) | Disables the broadcast storm protection | | |

## 6. Mounting Dimensions



IE-SW-ELB-05-5TX   (units = mm)

IE-SW-ELB-08-8TX   (units = mm)
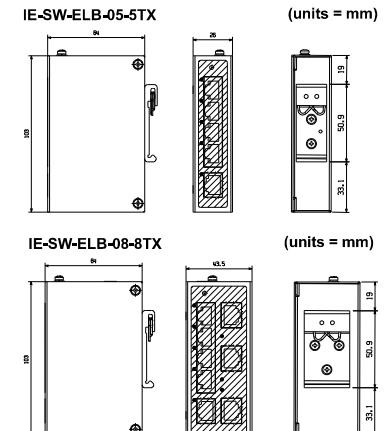
## 7. DIN-Rail Mounting

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

**Installation**

Step 1: Select the mounting position for the device and guarantee adequate space and heat dissipation.
Step 2: Clip the upper part of the rail holder to the DIN rail, push the the upper part of the device down slightly in the direction of arrow 1, push the front of the module toward the mounting surface until it audibly snaps into place in the direction of arrow 2.
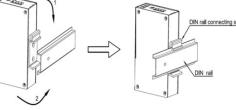
**Uninstallation**

Step 1: As shown in the following figure, press the device downward in the direction of arrow 1 until the bottom of the device is detached from the DIN rail.
Step 2: Rotate the device in the direction of arrow 2 until the device is removed from the DIN rail.
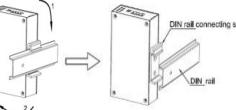


## 8. Grounding Ethernet Switch

⚠ **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).
■ Cross-sectional area of the grounding cable≥2.5mm²; Grounding resistance<5Ω

## 9. Wiring the Power Inputs

The switch power supply inputs which are located on the 2-pin terminal block. Refer to illustration below for correct wiring.

⚠ **Warning**
■ Take into consideration the following guidelines before wiring the device.
■ Terminal block is mating with Plug and suitable for 0.20-3.31mm². Torque value 0.508Nm.
■ The temperature rating of the input connection cable should higher than 105℃.
■ Supplied by SELV source evaluated by UL 61010-1 or 61010-2-201 power supply only.
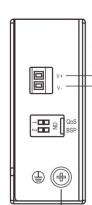


IE-SW-ELB-05-5TX   IE-SW-ELB-08-8TX
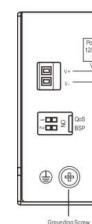
## 10. Communication Connections

Switch **IE-SW-ELB-05-5TX** is equipped with following communication interfaces:
5x    10/100Base-T(X) ports
Switch **IE-SW-ELB-08-8TX** is equipped with following communication interfaces:
8x    10/100Base-T(X) ports
Please only use cables suitable for the respective type of communication and ensure that signals are protected from possible interference.

### 10.1  10/100Base-T(X) RJ45 Ports

The 10/100Base-T(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 cross over function)

Each RJ45 Ethernet port independently supports auto-negotiation for recognizing the transmission speed 10 Mbps or 100 Mbps according to the IEEE802.3 standard. This means that some of connected Ethernet devices could operate at 10 Mbps, while at the same time other nodes are operating at 100 Mbps.

**10/100Base-T(X) RJ45 Pinouts**

| MDI Port Pinouts | | MDI-X Port Pinouts | | 8-pin RJ45 |
|---|---|---|---|---|
| Pin | Signal | Pin | Signal | |
| 1 | Tx+ | 1 | Rx+ | |
| 2 | Tx- | 2 | Rx- | |
| 3 | Rx+ | 3 | Tx+ | |
| 6 | Rx- | 6 | Tx- | |

⚠ **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).

## 11. 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 |
|---|---|---|---|
| PWR | Green | On | Power is being supplied to power input PWR |
| | | Off | Power is not being supplied to power input PWR |
| LNK/ACT | Green | On | Port's link is active. |
| | | Off | Port's link is inactive. |
| | | Blinking | Transmitting data. |

## 12. Specifications

| Technology | |
|---|---|
| Standards | IEEE 802.3 for 10Base-T IEEE 802.3u for 100Base-TX IEEE 802.3x for Flow Control IEEE 802.1p for Class of Service |
| Processing Type | Store and Forward |
| MAC Table size | 1K |
| Packet buffer size | 448 Kbit |
| **Interface** | |
| RJ45 Ports | 10/100Base-T(X) auto negotiation speed, F/H duplex mode and auto MDI/MDI-X connection |
| LED Indicators | PWR , LNK/ACT |
| **Power** | |
| Input Voltage | 9.6~60V DC or 18~30V AC |
| Input Current @24 VDC | IE-SW-ELB-05-5TX: 0.12A IE-SW-ELB-08-8TX: 0.13A |
| Connection | One removable 2-pin terminal block.Wiring cable 0.2-3.31mm² |
| Overload Current Protection | Present |
| Reverse Polarity Protection | Present |
| **Physical Characteristics** | |
| Housing | IP40 protection, metal |
| Dimension (W x H x D) | IE-SW-ELB-05-5TX: 26.0 x103 x 64 mm IE-SW-ELB-08-8TX: 43.5 x103 x 64 mm |
| Weight | IE-SW-ELB-05-5TX: 145 g IE-SW-ELB-08-8TX: 205 g |
| Installation | DIN-rail |
| **Environmental conditions** | |
| Operating Temperature | -10 to 60℃ |
| Storage Temperature | -40 to 85℃ |
| Ambient Relative Humidity | 5 to 95% (non-condensing) |
| Altitude | up to 2000 m |
| Pollution Degree | 2 |
| **Regulatory Approvals** | |
| Safety | EN 62368-1 |
| EMC | EN 55032, EN 55035, Class A, IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV; IEC 61000-4-3 RS: 80 MHz~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 60068-2-32 |
| Vibration | IEC 60068-2-6 |
| **MTBF** | |
| Time | IE-SW-ELB-05-5TX: 488,236 hrs IE-SW-ELB-08-8TX: 463,836 hrs |
| Database | Telcordia SR332 |
| **Warranty** | |
| Time Period | 5 years |