

Hardware Installation Guide

Managed Gigabit Ethernet Switch

IE-SW-AL12M-8GT-4GESFP (Part No. 2682340000)

1. Introduction

Ethernet Switches from Weidmüller are designed for industrial applications and 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

| | |
|---|--|
|  | 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"> Indoor use and pollution degree II, it must be wiped with a dry cloth for clean up the device and label. Utilisation en intérieur et degré de pollution II, il faut l'essuyer avec un chiffon sec pour nettoyer l'appareil et son étiquette. Do not block air ventilation holes. Ne bouchez pas les orifices de ventilation. If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired. Si l'appareil est utilisé d'une manière non spécifiée par le fabricant, la protection qu'il apporte peut se voir diminuée. Shall be mounted in the Industrial Control Panel and ambient temperature is not exceed 75 degrees C. Doit être monté dans le panneau de commande industriel et la température ambiante ne doit pas dépasser 75 degrés C. |
|---|---|

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

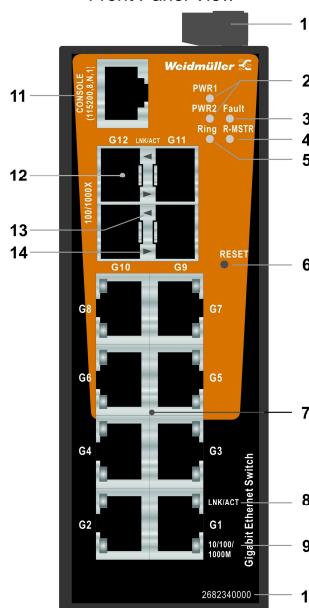
Your Ethernet Switch is shipped with the following items:

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

4. Panel Layouts

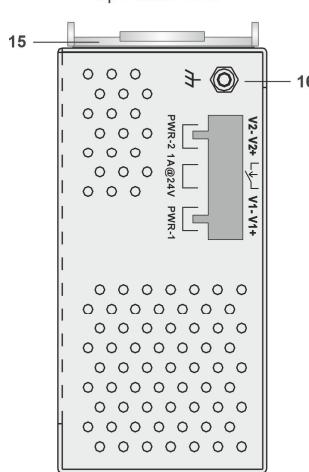
IE-SW-AL12M-8GT-4GESFP

Front Panel View

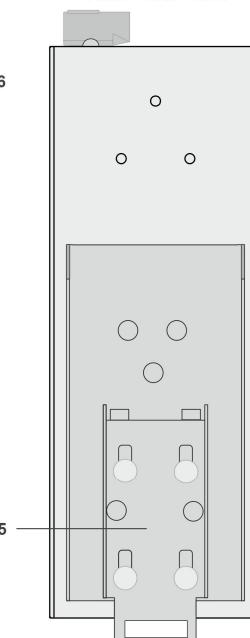


1. Terminal block for power input PWR1/PWR2 and fault relay (output)
2. Power Input LEDs (PWR1 / PWR2)
3. Fault LED (Power fault / Port link loss)
4. Ring Master Status LED
5. Ring Status LED
6. Reset Button
7. 8 x 10/100/1000Base-T(X) Ports
8. Link/Activity LED RJ45 port
9. LED for speed indication (Green = 1000 Mbps, Amber = 100 Mbps, Off = 10 Mbps)
10. Article Number
11. Serial Console Port (Baud Rate 115200 Bit/s, 8 Data Bit, No Parity, 1 Stop Bit)
12. 4 x 100/1000Base-X Ports (SFP Slots)
13. Link/Activity LED SFP port G10
14. Link/Activity LED SFP port G9
15. DIN-Rail kit
16. Grounding screw / Frame ground (Note: The shielding ground of the LAN port is electrically connected to the grounding screw)

Top Panel View



Rear Panel View

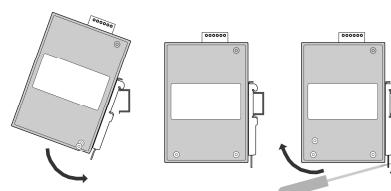


5. DIN-Rail Mounting

STEP 1: Place the mounting clip from above onto the mounting rail.

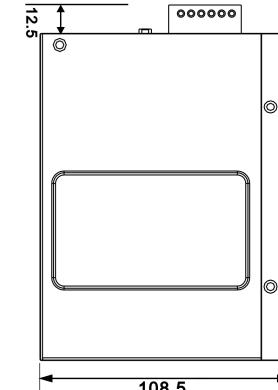
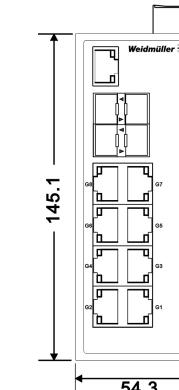
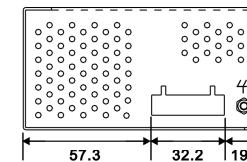
STEP 2: Press the device against the DIN rail until the fastening element engages on the mounting rail.

To remove the Ethernet Switch from the DIN-rail pull down the latch with a screwdriver then move the device away from the DIN rail and lift it up.



6. Mounting Dimensions

(units = mm)



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 and Fault Alarm Relay

The switch supports redundant power supply inputs and provides a fault alarm relay for detecting the user-configurable failure events

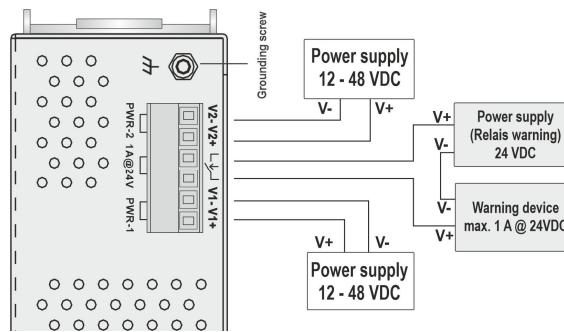
- Interruption of Power 1 or Power 2 and
- Link Loss of Ethernet Ports.



Warning / Avertissement

- Take into consideration the following guidelines before wiring the device
- Tenez compte des directives 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 ou 61010-2-201.

Refer to illustration below for correct wiring.



Behavior of fault alarm relay (can be triggered by configurable events power failure or port link down):

- Relay contact is closed if the device is powered-off.
- Relay contact is open if the device is powered-on and no alarm conditions exist (neither Power Failure Alarms nor Port Link Loss Alarms are activated (Web menu Warnings → Fault Relay Alarm)).
- Relay contact closes if any of an activated alarm condition happens.

9. Communication Connections

Switch **IE-SW-AL12M-8GT-4GESFP** is equipped with:

8 x 10/100/1000BASE-T(X) Ethernet ports (Auto MDI-X)
4 x 100/1000BASE-X Ports (SFP Slots)

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

9.1 10/100/1000BASE-T(X) RJ45 Ports

The 10/100/1000BASE-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 crossover function).

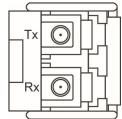
10/100/1000BASE-T(X) RJ45 Pinouts

| 8-Pin RJ45 Port | 10/100BASE-T(X) MDI/MDI-X | | | 1000BASE-T MDI/MDI-X | | |
|-----------------|---------------------------|---------------|---------------|----------------------|----------|------------|
| | Pin No. | MDI port | MDI-X port | Pin No. | MDI port | MDI-X port |
| | 1 | TD+(transmit) | RD+(receive) | 1 | BI_DA+ | BI_DB+ |
| | 2 | TD-(transmit) | RD-(receive) | 2 | BI_DA- | BI_DB- |
| | 3 | RD+(receive) | TD+(transmit) | 3 | BI_DB+ | BI_DA+ |
| | 4 | Not used | Not used | 4 | BI_DC+ | BI_DD+ |
| | 5 | Not used | Not used | 5 | BI_DC- | BI_DD- |
| | 6 | RD-(receive) | TD-(transmit) | 6 | BI_DB- | BI_DA- |
| | 7 | Not used | Not used | 7 | BI_DD+ | BI_DC+ |
| | 8 | Not used | Not used | 8 | BI_DC- | BI_DB- |

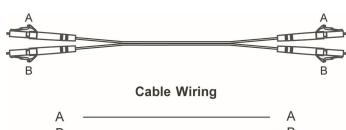
9.2 100/1000BASE-X SFP fiber optic port

The 100/1000BaseSFP type slots require either a 100BaseSFP or a 1000BaseSFP fiber transceiver (mini-GBIC) to work properly. Please only use SFP modules and cables that are compatible with each other to establish an optical connection.

LC-Port Pinouts:



LC-Port to LC-Port Cable Wiring



For a **LC-Port with separate Transmit and Receive Port** please remember to connect the Tx (transmit) port of Device-1 to the Rx (receive) port of Device-2, and the Rx (receive) port of Device-1 to the Tx (transmit) port of Device-2.

9.3 RS232 Console Port

The RS232 Interface with RJ45 connector can be used to access the switch console for configuration. Additional it can be applied with external Backup/Restore module IE-EBR-MODULE-RS232-ALM (Article no. 2682610000).

| Pinouts Serial Console Port: | | | |
|------------------------------|-----------|----------------|--------------------------|
| 8-Pin RJ45 Port | Pin No. | Pin Assignment | Communication Parameters |
| | 2 | RxD | Baud Rate: 115200 bps |
| | 3 | TxD | Data Bit: 8 |
| | 5 | GND | Parity: No |
| | 1, 4, 6-8 | not assigned | Stop Bit: 1 |
| | | | Flow Control: No |

10. User Management

10.1 Device Access (Login to Web Interface)

The Web interface of the Switch can be accessed via following factory default settings:

| | |
|-----------------------|--------------------------------------|
| IP address / Netmask: | 192.168.1.110 / 255.255.255.0 |
| User name: | admin |
| Password: | Detmold |

Connect the PC to any Ethernet port of the managed Switch and set the PC's IP address to a free one of range 192.168.1.0 / 255.255.255.0

Start a web browser and enter the IP address of the connected Switch into the browser's address line (<http://192.168.1.110>). After the appearance of prompt (login) enter the login credentials. After confirmation of your input with "OK" the home page of the switch will be displayed.

10.2 Reset Button (Behavior of Factory Default Settings)

- Pressing < 5 seconds: Reboot the switch (Warm Start) and sets IP to Factory Default IP.
- Pressing >= 5 seconds: Resets the switch configuration to Factory Default Settings.

Note: Behavior of reset button can be configured in the Web Interface (Menu Factory Default).

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 |
|-----------------------------|---------------|----------|--|
| PWR1 | Green | On | Power is supplied to power input PWR1. |
| PWR2 | Green | On | Power is supplied to power input PWR2. |
| R-MSTR (Ring Master) | Green | On | Is Ring Master of an enabled O-Ring. |
| Ring | Green | On | O-Ring redundancy is enabled. |
| Ring | Green | Blinking | Ring structure is broken (No redundancy). |
| FAULT | Amber | On | Fault Relay indication for Power failure and Port link loss. |
| LINK/ACT (Ports G1-G8) | Green | On | Port link is active. |
| LINK/ACT (Ports G1-G8) | Green | Off | Port link is inactive. |
| LINK/ACT (Ports G1-G8) | Green | Blinking | Data is transmitted. |
| 10/100/1000M (Ports G1-G8) | Green / Amber | Green | Port speed is set to 1000 Mbps. |
| 10/100/1000M (Ports G1-G8) | Green / Amber | Amber | Port speed is set to 100 Mbps. |
| 10/100/1000M (Ports G1-G8) | Green / Amber | Off | Port speed is set to 10 Mbps. |
| LINK/ACT (SFP Ports G9-G12) | Green | On | Port link is active. |
| LINK/ACT (SFP Ports G9-G12) | Green | Blinking | Data is transmitted. |

12. Disposal Information

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| | Observe the notes for proper disposal of the product. You can find the notes here: www.weidmueller.com/disposal . | |
|--|---|--|

13. Specifications

| Technology | |
|---------------------------|--|
| Ethernet Standards | IEEE 802.3 for 10BASE-T IEEE 802.3u for 100BASE-TX and 100BASE-FX IEEE 802.3ab for 1000BASE-T IEEE 802.3z for 1000BASE-X IEEE 802.3x for flow control IEEE 802.3az Energy-Efficient Ethernet IEEE 802.3ad for port trunk with LACP IEEE 802.1D for STP (Spanning Tree protocol) IEEE 802.1w for RSTP (Rapid Spanning Tree protocol) IEEE 802.1s for MSTP (Multiple Spanning Tree Protocol) IEEE 802.1p for Class of Service IEEE 802.1Q for VLAN Tagging IEEE 802.1X for Authentication IEEE 802.1AB for LLDP (Link Layer Discovery Protocol) |
| Processing Type | Store and Forward |
| MAC Table size | 8K |
| Packet buffer size | 4 Mbit |
| Backplane bandwidth | 24 Gbps |
| Jumbo frame support | Up to 9.6 kBytes |
| Interfaces | |
| RJ45 Ports | 8 x 10/100/1000BASE-T(X) auto negotiation speed, F/H duplex mode and auto MDI/MDI-X connection |
| Fiber optic ports | 4 x 100/1000BASE-X SFP slots |
| RS232 Console Port | RS232 Interface with RJ45 connector for Console access and useable with external Backup/Restore module |
| LED Indicators | PWR1, PWR2 (Power), Fault (Relay), Ring Master, Ring Status, Port Link/Activity and Speed |
| Relay Contact | Max. 1A @ 24 V DC for Power Failure and Port Link Loss |
| Power | |
| Input Voltage | 24 V DC (12 - 48 V DC), 2 redundant inputs |
| Power Consumption (typ.) | 13.0 Watts |
| Connection | Removable 6-pin terminal block, Wiring cable 12-24AWG |
| Overload Current Protect. | Present |
| Reverse Polarity Protect. | Present |
| Physical Characteristics | |
| Housing | IP30 protection, metal |
| Dimension (W x H x D) | 54.3 x 145.1 x 108.3 mm (2.13 x 5.71 x 4.26 inch.) |
| Weight | 762 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) |
| Operating 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: 1 kV; Signal: 1 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 | 551.478 hrs |
| Database | Telcordia SR332 |
| Warranty | |
| Time Period | 5 years |

Contact Information

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