Weidmüller

Hardware Installation Guide

Managed Gigabit Ethernet Switch

IE-SW-AL24M-16GT-8GESFP (Part No. 2682370000)

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.

⚠	• Indoor use and pollution degree II, it must be wiped with a dry cloth for clean up the device and label. o 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. o 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. o Si l'appareil est utilise d'une maniere non specifiee par le fabricant, la protection qu'il apporte peut se voir diminuee. • Shall be mounted in the Industrial Control Panel and ambient temperature is not exceed 75 degrees C. o 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.
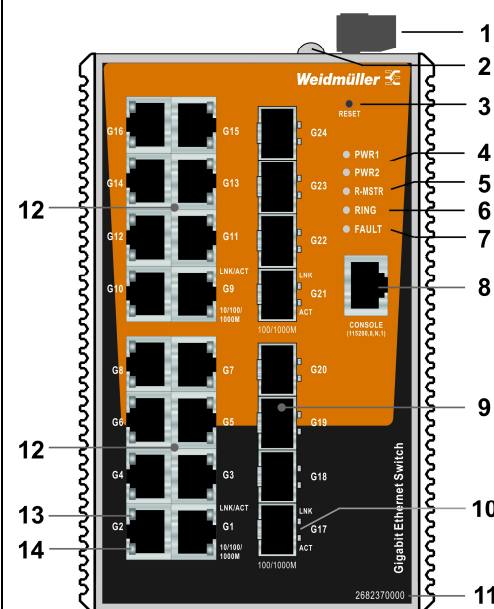
3. Package Checklist

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-AL24M-16GT-8GESFP
Front Panel View

1. Terminal block for power input PWR1/PWR2 and failure relay for power and port link loss (output)
2. Grounding screw / Frame ground (Note: The shielding ground of the LAN port is electrically connected to the grounding screw)
3. Reset Button
4. Power input LEDs (PWR1 / PWR2)
5. Ring Master Status LED
6. Ring Status LED
7. Fault LED (PWR1/PWR2 fault or port link loss)
8. Serial Console Port
9. 8 x 100/1000 Base-X Ports (SFP Slots)
10. SFP Port Link/Activity LEDs
11. Article Number
12. 16 x 10/100/1000Base-T(X) ports
13. RJ45 Port Link/Activity LED
14. LED for speed indication (Green=1000 Mbps, Amber=100 Mbps, Off=10 Mbps)
15. DIN-rail kit
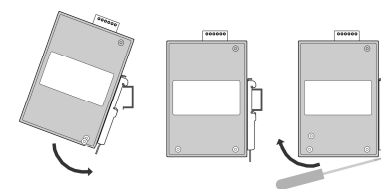
Top Panel View
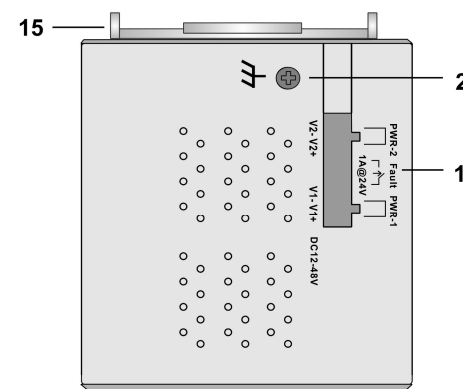
Rear Panel View
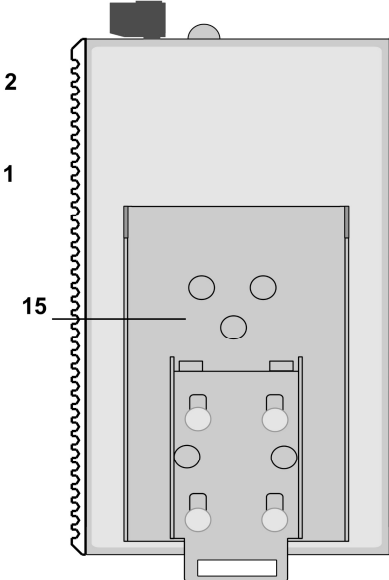
5. DIN-Rail Mounting

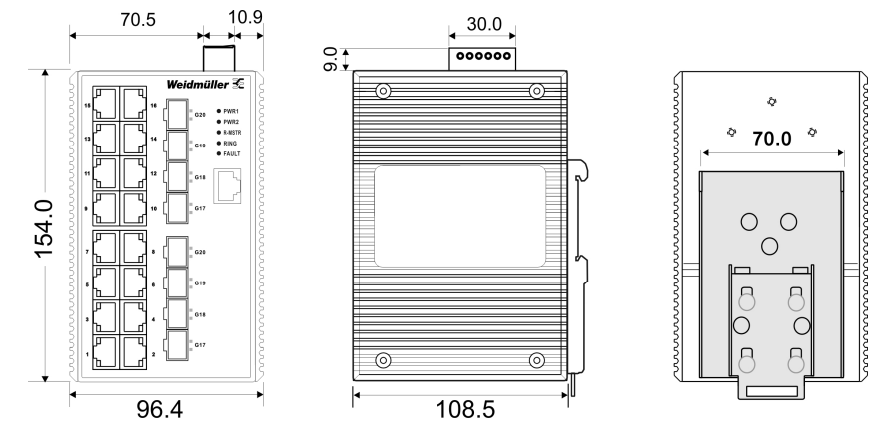**STEP 1**: Place the mounting clip from above onto the mounting rail.
STEP 2: Press the device against the DIN rail until the fastening element engages on the mounting rail.

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

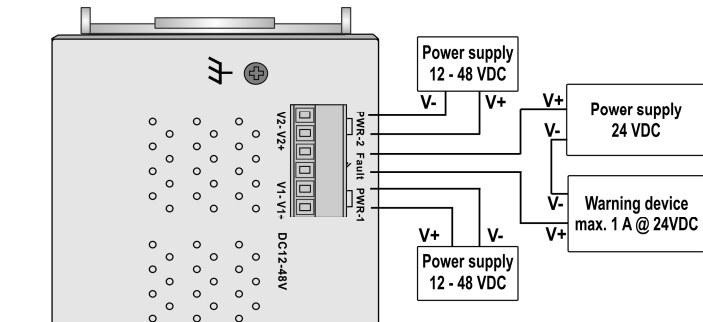|	
⚠	**ATTENTION** - Grounding and wire routing help limit the effects of noise due to electromagnetic interference (EMI). - the ground connection from the ground screw to the grounding surface prior to connecting devices. - This product is intended to be mounted to a well-grounded mounting surface, 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 o 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. o 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. o 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. o Fourni par la source SELV évaluée uniquement par l'alimentation UL 61010-1 or 61010-2-201.

Refer to illustration below for correct wiring.

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

- 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-AL24M-16GT-8GESFP** is equipped with:

16 x 10/100/1000BASE-T(X) Ethernet ports (Auto MDI-X)

8 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_DD-	BI_DC-

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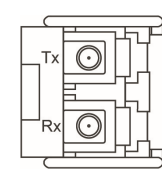
LC-Port Pinouts: **LC-Port to LC-Port Cable Wiring:**
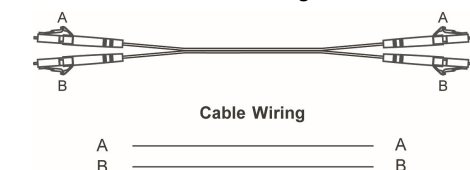
For a LC-Port with separate Transmit and Receive Port please remember to connect the Tx (transmit) port of Device-1 to the Rx (receive) port of Device-2, and the Rx (receive) port of Device-1 to the Tx (transmit) port of Device-2.

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 / Parity: No
		5	GND	Stop Bit: 1
		1, 4, 6-8	not assigned	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 <u>Factory Default Settings</u>.

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.
		Blinking	Ring structure is broken (No redundancy).
FAULT	Amber	On	Fault Relay indication for Power failure and Port link loss.
LNK/ACT (RJ45 Ports G1–G16)	Green	On	Port link is active.
		Off	Port link is inactive.
		Blinking	Data is transmitted.
10/100/1000M (RJ45 Ports G1–G16)	Green / Amber	Green	Port speed is set to 1000 Mbps.
		Amber	Port speed is set to 100 Mbps.
		Off	Port speed is set to 10 Mbps.
LNK/ACT (SFP Ports G17–G24)	Green	On	Port link is active.
		Blinking	Data is transmitted.

12. Disposal Information

 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	48 Gbps
Jumbo frame support	Up to 9.6 kBytes
Interfaces	
RJ45 Ports	16 x 10/100/1000BASE-T(X) auto negotiation speed, F/H duplex mode and auto MDI/MDI-X connection
Fiber optic ports	8 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 supply	
Input Voltage	24 V DC (12 - 48 V DC), 2 redundant inputs
Power Consumption (typ.)	20.0 Watts
Connection	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)	96.4 x 154.0 x 108.5 mm (3.8 x 6.06 x 4.27 inch)
Weight	1319 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	507.660 hrs
Database	Telcordia SR332
Warranty	
Time Period	5 years

Contact Information

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