Ethernet PoE Switch - Premium Line

IE-SW-PL06M-2TX-4PoE (Managed)

Hardware Installation Guide

Second Edition, October 2012
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Please note:
This document, the **detailed manual** and any further product information - if available - can be downloaded at the internet link:

http://www.weidmueller.com/downloads

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Overview

The IE-SW-PL06M-2TX-4PoE is a managed redundant Ethernet switch that comes standard with 4 10/100BaseT(X) 802.3at/af (PoE/PoE+) compliant Ethernet ports and 2 10/100BaseT(X) Ethernet ports. The PoE Switch provides up to 30 watts of power per PoE port, and allow power to be supplied to connected devices (such as surveillance cameras, wireless access points, and IP phones) when power is not readily available or cost-prohibitive to provide locally. The Ethernet switch supports a variety of management functions, including Turbo Chain, IEEE 1588 PTP, Turbo Ring, RSTP/STP, IGMP, VLAN, QoS, RMON, bandwidth management, and port mirroring. This PoE Switch is designed especially for security automation applications such as IP surveillance and gate of entry systems, which can benefit from a scalable backbone construction and Power-over-Ethernet support.

The switch can operate from 0 to 60°C and the rugged hardware design makes it perfect for ensuring that your Ethernet equipment can operate in critical industrial environments, and complies with FCC and CE standards.

Package Checklist

IE-SW-PLM-PoE-Switches are shipped with the following items. If any of these items are missing or damaged, please contact your customer service representative for assistance.

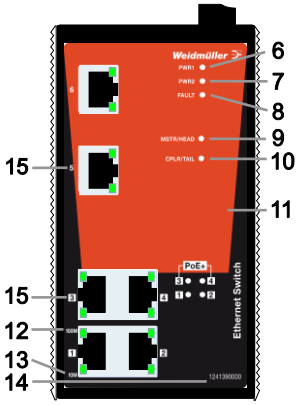
- 1 Ethernet Switch IE-SW-PL06M-2TX-4PoE
- Hardware Installation Guide (this guide)
- CD-ROM with User's Manual and Windows Utility (option)

  → Please download CD-ROM from Internet page http://www.weidmueller.com/downloads

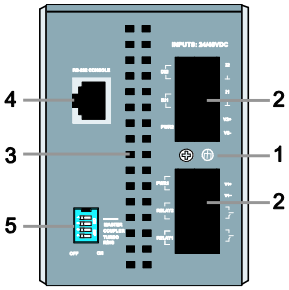
- RJ45 to DB9 console port cable
- Protective caps for unused ports

Panel Layout of IE-SW-PL06M-2TX-4PoE

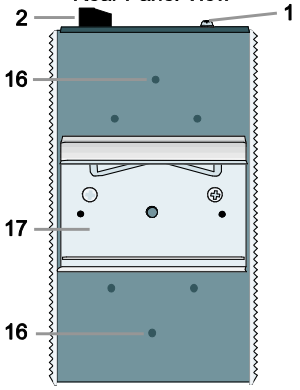
IE-SW-PL06M-2TX-4PoE
Front Panel View



Top Panel View

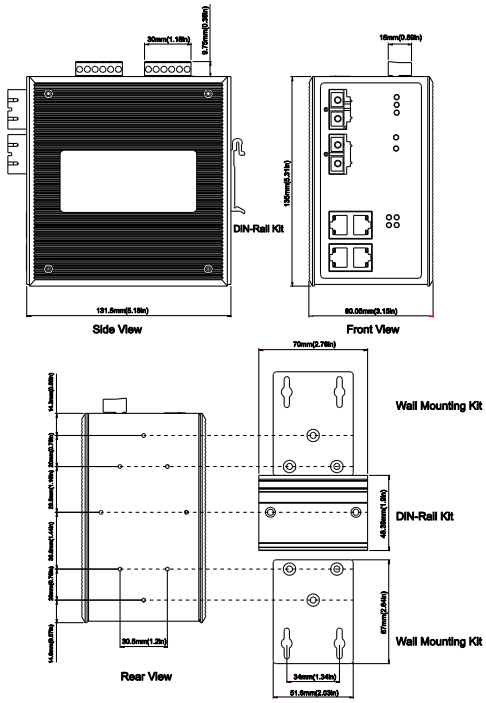


Rear Panel View



1. Grounding screw
2. Terminal block for power input PWR1/PWR2 and relay output
3. Heat dissipation orifices
4. Console port
5. DIP switches
6. Power input PWR1 LED
7. Power input PWR2 LED
8. Fault LED
9. MSTR/HEAD LED indicator
10. CPLR/TAIL LED indicator
11. Label
12. TP port's 100 Mbps LED
13. TP port's 10 Mbps LED
14. Article Number
15. 10/100 BaseT(X) Ports
16. Screw hole for wall mounting kit
17. DIN-Rail kit

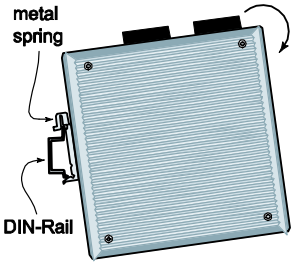
Mounting Dimensions



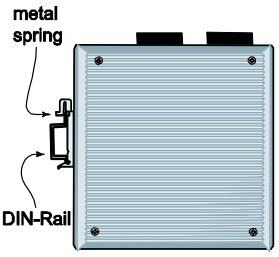
DIN-Rail Mounting

The aluminum DIN-Rail attachment plate should already be fixed to the back panel of the IE-SW-PL06M-2TX-4PoE when you take it out of the box. If you need to reattach the DIN-Rail attachment plate to the switch, make sure the stiff metal spring is situated towards the top, as shown by the following figures.

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 in the following illustration.



To remove the Ethernet switch from the DIN-Rail, simply reverse Steps 1 and 2 above.

Wiring Requirements

WARNING

Do not disconnect modules or wires unless power has been switched off or the area is known to be non-hazardous. The devices may only be connected to the supply voltage shown on the type plate. The devices are designed for operation with a Safety Extra-Low Voltage. Thus, they may only be connected to the supply voltage connections and to the signal contact with the Safety Extra-Low Voltages (SELV) in compliance with IEC60950-1/EN60950-1.

ATTENTION

This unit is a built-in type. When the unit is installed in another piece of equipment, the equipment enclosing the unit must comply with fire enclosure regulation IEC60950-1/EN60950-1 (or similar regulation).

ATTENTION

Safety First!

Be sure to disconnect the power cord before installing and/or wiring your Ethernet Switch.

Calculate the maximum possible current in each power wire and common wire. Observe all electrical codes dictating the maximum current allowable for each wire size.

If the current goes above the maximum ratings, the wiring could overheat, causing serious damage to your equipment.

Please read and follow these guidelines:

- Use separate paths to route wiring for power and devices. If power wiring and device wiring paths must cross, make sure the wires are perpendicular at the intersection point.

  NOTE: Do not run signal or communications wiring and power wiring through the same wire conduit. To avoid interference, wires with different signal characteristics should be routed separately.
- You can use the type of signal transmitted through a wire to determine which wires should be kept separate. The rule of thumb is that wiring that shares similar electrical characteristics can be bundled together.
- You should separate input wiring from output wiring.
- We advise that you label the wiring to all devices in the system.

Grounding the Ethernet Switch

Grounding and wire routing help limit the effects of noise due to electromagnetic interference (EMI). Run the ground connection from the ground screw to the grounding surface prior to connecting devices.

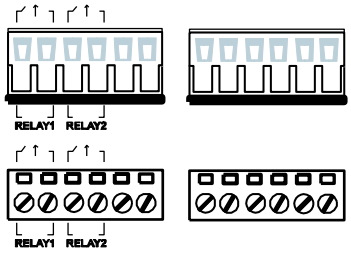
ATTENTION

This product is intended to be mounted to a well-grounded mounting surface such as a metal panel.

Wiring the Relay Contact

The IE-SW-PL06M-2TX-4PoE has two sets of relay outputs-relay 1 and relay 2. Each relay contact uses two contacts of the terminal block on the top panel. Refer to the next section for detailed instructions on how to connect the wires to the terminal block connector, and how to attach the terminal block connector to the terminal block receptor.

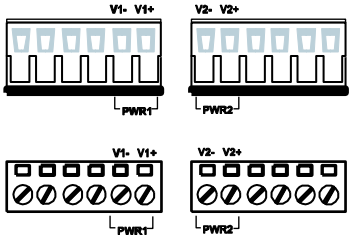
In this section, we illustrate the meaning of the two contacts used to connect the relay contact.



FAULT:
The two sets of relay contacts of the 6-pin terminal block connector are used to detect user-configured events. The two wires attached to the fault contacts form an open circuit when a user-configured event is triggered. If a user-configured event does not occur, the fault circuit remains closed.

Wiring the Redundant Power Inputs

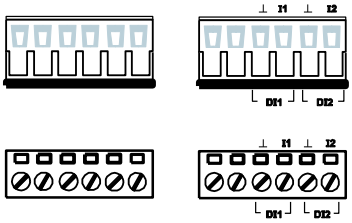
The IE-SW-PL06M-2TX-4PoE has two sets of power inputs—power input 1 and power input 2. The top two contacts and the bottom two contacts of the 6-pin terminal block connector on the top panel are used for the two digital inputs. The top and front views of one of the terminal block connectors are shown here.



STEP 1: Insert the negative/positive DC wires into the V-/V+ terminals, respectively.
STEP 2: To keep the DC wires from pulling loose, use a small flat-blade screwdriver to tighten the wire-clamp screws on the front of the terminal block connector.
STEP 3: Insert the plastic terminal block connector prongs into the terminal block receptor, which is located on the top panel.

Wiring the Digital Inputs

The IE-SW-PL06M-2TX-4PoE has two sets of digital inputs, DI 1 and DI 2. Each DI consists of two contacts of the 6-pin terminal block connector on the top panel, which are used for the two DC inputs. The top and front views of one of the terminal block connectors are shown here.



STEP 1: Insert the negative (ground)/positive DI wires into the ⊥/I1 terminals, respectively.
STEP 2: To keep the DI wires from pulling loose, use a small flat-blade screwdriver to tighten the wire-clamp screws on the front of the terminal block connector.
STEP 3: Insert the plastic terminal block connector prongs into the terminal block receptor, which is located on the Ethernet switch's top panel.

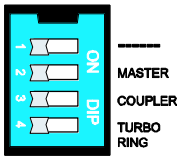
Turbo Ring DIP Switch Settings

The IE-SW-PL06M-2TX-4PoE is a plug-and-play managed redundant Ethernet switch. The proprietary Turbo Ring protocol was developed to provide better network reliability and faster recovery time. Turbo Ring's recovery time is less than 300 ms (**Turbo Ring**) or 20 ms (**Turbo Ring V2**) —compared to a 3- to 5-minute recovery time for commercial switches—decreasing the possible loss caused by network failures in an industrial setting.

There are 4 Hardware DIP Switches for Turbo Ring on the top panel that can help setup the Turbo Ring easily within seconds. If you do not want to use a hardware DIP switch to setup the Turbo Ring, you can use a web browser, telnet, or console to disable this function.

NOTE Refer to the ***Turbo Ring DIP Switch*** section and ***Using Communication Redundancy*** section in the User's Manual for detailed information about the settings and usage of ***Turbo Ring*** and ***Turbo Ring V2***.

IE-SW-PL06M-2TX-4PoE DIP Switches



The default setting for each DIP Switch is OFF. The following table explains the effect of setting the DIP Switch to the ON position.

"Turbo Ring" DIP Switch Settings

DIP 1	DIP 2	DIP 3	DIP 4
Reserved for future use.	ON: Enables this Ethernet Switch as the Ring Master.	ON: Enables the default "Ring Coupling" ports.	ON: Activates DIP switches 1, 2, 3 to configure "Turbo Ring" settings.

"Turbo Ring V2" DIP Switch Settings

DIP 1	DIP 2	DIP 3	DIP 4
ON: Enables the default "Ring Coupling (backup)" port.	ON: Enables this Ethernet Switch as the Ring Master.	ON: Enables the default "Ring Coupling" port.	ON: Activates DIP switches 1, 2, 3 to configure "Turbo Ring V2" settings.
OFF: Enables the default "Ring Coupling (primary)" port.	OFF: This Ethernet Switch will not be the Ring Master.	OFF: Do not use this Ethernet Switch as a ring coupler.	OFF: DIP switches 1, 2, 3 will be disabled.

NOTE You must enable the Turbo Ring function first before using the DIP switch to activate the Master and Coupler functions.

NOTE If you do not enable any of the Ethernet switches to be the Ring Master, the Turbo Ring protocol will automatically choose the switch with the smallest MAC address range to be the Ring Master. If you accidentally enable more than one switch to be the Ring Master, these switches will auto-negotiate to determine which one will be the Ring Master.

LED Indicators

The front panel of the IE-SW-PL06M-2TX-4PoE contains several LED indicators. The function of each LED is described in the following table:

LED	Color	State	Description
PWR1	AMBER	On	Power is being supplied to power input P1.
		Off	Power is **not** being supplied to power input P1.
PWR2	AMBER	On	Power is being supplied to power input P2.
		Off	Power is **not** being supplied to power input P2.
FAULT	RED	On	When a user-configured event is triggered.
		Off	When a user-configured event is not triggered.
MSTR/HEAD	GREEN	On	When the switch is set as the Master of the Turbo Ring, or as the Head of the Turbo Chain.
		Blinking	The switch has become the Ring Master of the Turbo Ring, or the Head of the Turbo Chain, after the Turbo Ring or the Turbo Chain is down.
		Off	When the switch is not the Master of this Turbo Ring or is set as the Member of the Turbo Chain.
CPLR/TAIL	GREEN	On	When the switch's coupling function is enabled to form a back-up path, or when it's set as the Tail of the Turbo Chain.
		Blinking	When the Turbo Chain is down.
		Off	When the switch disables the coupling function.
10M (TP)	GREEN	On	TP port's 10 Mbps link is active.
		Blinking	Data is being transmitted at 10 Mbps.
		Off	TP port's 10 Mbps link is inactive.
100M (TP)	GREEN	On	TP port's 100 Mbps link is active.
		Blinking	Data is being transmitted at 100 Mbps.
		Off	TP port's 100 Mbps link is inactive.
PoE+	AMBER	On	Power is being supplied to Powered Device (PD)
		Blinking	PoE port is in Power-Fail status
		Off	Power is **not** being supplied to Powered Device (PD)

Auto MDI/MDI-X Connection

The Auto MDI/MDI-X function allows users to connect the Ethernet switch's 10/100BaseTX ports to any kind of Ethernet device, without needing to pay attention to the type of Ethernet cable being used for the connection. This means that you can use either a *straight-through* cable or *cross-over* cable to connect the IE-SW-PL06M-2TX-4PoE to Ethernet devices.

Specifications

Technology	
Standards	IEEE802.3, 802.3u, 802.3x, 802.1D, 802.1w, 802.1Q, 802.1p, 802.1X, 802.3ad, IEEE 802.3af for PoE, IEEE 802.3at for PoE+
Protocols	IGMPv1/v2, GVRP, SNMPv1/v2c/v3, DHCP Server/Client, BootP, TFTP, SNTP, SMTP, RARP, GMRP, LACP, RMON, HTTP, HTTPS, Telnet, Syslog, DHCP Option 66/67/82, SSH, SNMP Inform, Modbus/TCP, LLDP, IEEE 1588 PTP, IPv6
MIB	MIB-II, Ethernet-Like MIB, P-BRIDGE MIB, Q-BRIDGE MIB, Bridge MIB, RSTP MIB, RMON MIB Group 1,2,3,9
Forwarding and Filtering Rate	148810 pps
Processing Type	Store and Forward
Flow Control	IEEE802.3x flow control, back pressure flow control
Interface	
RJ45 Ports	10/100BaseT(X) auto negotiation speed, F/H duplex mode, and auto MDI/MDI-X connection
Console	RS-232 (RJ45)
LED Indicators	PWR1, PWR2, FAULT, 10/100M (TP port), MSTR/HEAD and CPLR/TAIL, PoE
Relay Contact	Two relay outputs with current carrying capacity of 1A @ 24 VDC
DIP Switches	Master, Coupler, Turbo Ring, Reserve
Digital Input	Two inputs with the same ground, but electrically isolated from the electronics • For state "1": +13 to +30V • For state "0": -30 to +3V • Max. input current: 8 mA
Power	
Input Voltage	24/48 DC
Input Current	Max 7.5 VDC(supports up to 4 Ports at 30 watts per PoE port)
Overload current Protection	Present

Connection	2 removable 6-Contact terminal blocks
Reverse Polarity Protection	Present
Physical Characteristics	
Casing	IP30 protection, metal case
Dimensions (W x H x D)	80 x 135 x 131.5 mm(3.15 x 5.31 x 5.18 in)
Weight	1110g
Installation	DIN-Rail, Wall Mounting
Environmental	
Operating Temperature	0 to 60°C (32 to 140°F)
Storage Temperature	-40 to 85°C (-40 to 185°F)
Ambient Relative Humidity	5 to 95% (non-condensing)
Regulatory Approvals	
Safety	UL 508 (Pending)
EMI	FCC Part 15, CISPR (EN55022) class A
EMS	EN61000-4-2 (ESD), Level 3 EN61000-4-3 (RS), Level 3 EN61000-4-4 (EFT), Level 3 EN61000-4-5 (Surge), Level 3 EN61000-4-6 (CS), Level 3 EN61000-4-8
Shock	IEC60068-2-27
Freefall	IEC60068-2-32
Vibration	IEC60068-2-6
WARRANTY	5 years

Weidmüller gives a 5 year warranty on this product in accordance with the warranty terms as described in the general conditions of sale of the Weidmüller company which has sold the products to you. Weidmüller warrants to you that such products the defects of which have already existed at the time when the risk passed will be repaired by Weidmüller free of charge or that Weidmüller will provide a new, functionally equivalent product to replace the defective one. Safe where expressly described otherwise in writing in this catalogue/product description, Weidmüller gives no warranty or guarantee as to the interoperability in specific systems or as to the fitness for any particular purpose. To the extent permitted by law, any claims for damages and reimbursement of expenses, based on whatever legal reason, including contract or tort, shall be excluded. Where not expressly stated otherwise in this warranty, the general conditions of purchase and the expressive liability commitments therein of the respective Weidmüller company which has sold the products to you shall be applicable.

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