USER GUIDE

PSI-010-FT2G-P8G

Industrial Gigabit PoE+ Booster Switch

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1. General Information

1.1. Legal Information

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Under no circumstances shall Westermo be responsible for any loss of data or income or any special, incidental, and consequential or indirect damages howsoever caused.

More information about Westermo can be found at www.westermo.com.

1.2. About This Guide

This guide is intended for installation engineers and users of the Westermo products.

It includes information on safety and regulations, a product description, installation instructions and technical specifications.

2. Safety and Regulations

2.1. Warning Levels

Warning signs are provided to prevent personal injuries and/or damages to the product. The following levels are used:

Level of warning	Description	Consequence personal injury	Consequence material damage
WARNING	Indicates a potentially hazardous situation	Possible death or major injury	Major damage to the product
CAUTION	Indicates a potentially hazardous situation	Minor or moderate injury	Moderate damage to the product
NOTICE	Provides information in order to avoid misuse of the product, confusion or misunderstanding	No personal injury	Minor damage to the product
NOTE	Used for highlighting general, but important information	No personal injury	Minor damage to the product

Table 1. Warning levels

2.2. Safety Information

Before installation:

Read this manual completely and gather all information available on the product. Make sure it is fully understood. Check that your application does not exceed the safe operating specifications for the product.

> **SAFETY DURING INSTALLATION**
>
> The product must be installed and operated by qualified service personnel and installed into an apparatus cabinet or similar, where access is restricted to service personnel only.
>
> Before energising and connecting communication cables to the product, ensure a protective earthing conductor is first connected to the protective earthing terminal (only valid for metallic housings). Westermo recommends a cross-sectional area of at least 4 mm^2.
>
> If the product does not have a protective earthing terminal, then the DIN-rail must be connected to protective earth.
>
> Upon removal of the product, disconnect the product from the power supply and all other communication ports before disconnecting the protective earthing conductor, or the connection to earth via the DIN-rail.

> **HAZARDOUS VOLTAGE**
>
> Do not open an energised product. Hazardous voltage may occur when connected to a power supply.

> **PROTECTIVE FUSE**
>
> The power supply wiring must be sufficiently fused.
>
> It must be possible to disconnect manually from the power supply. Ensure compliance to national installation regulations.
>
> Replacing the internal fuse must only be performed by Westermo qualified personnel.

⚠️ **CLASS 1 LASER PRODUCT**
Do not look directly into a fibre optical port or any connected fibre, although the product is designed to meet the Class 1 Laser regulations and complies with 21 CFR 1040.10 and 1040.11.

⚠️ **HANDLING OF SFP TRANSCEIVERS**
SFP transceivers are supplied with plugs to avoid contamination inside the optical port. They are very sensitive to dust and dirt. If the fibre optic cable is disconnected from the product, a protective plug must be used on the transmitter/receiver. The protective plug must be kept on during transportation. The fibre optic cable must be handled the same way.

⚠️ **ELECTROSTATIC DISCHARGE (ESD)**
Prevent electrostatic discharge damage to internal electronic parts by discharging your body to a grounding point (e.g. use a wrist strap).

2.3. Care Recommendations

Follow the care recommendations below to maintain full operation of the product and to fulfill the warranty obligations:

• Do not drop, knock or shake the product. Rough handling above the specification may cause damage to internal circuit boards.
• Use a dry or slightly water-damp cloth to clean the product. Do not use harsh chemicals, cleaning solvents or strong detergents.
• Do not paint the product. Paint can clog the product and prevent proper operation.

If the product is used in a manner not according to specification, the protection provided by the equipment may be impaired.

If the product is not working properly, contact the place of purchase, the nearest Westermo distributor office or Westermo technical support.

2.4. Product Disposal

This symbol means that the product shall not be treated as unsorted municipal waste when disposing of it. It needs to be handed over to an applicable collection point for recycling electrical and electronic equipment.

By ensuring the product is disposed of correctly, you will help to reduce hazardous substances and prevent potential negative consequences to both the environment and human health, which could be caused by inappropriate disposal.

Figure 1. WEEE symbol for treatment of product disposal

2.5. Compliance Information

2.5.1. Agency Approvals and Standards Compliance

Type	Approval/Compliance
Railway Standard	• EN 50121-4, Railway signalling and telecommunications apparatus
EMC	• EMI: EN 50121-3-2, FCC Class A, EN/IEC 61000-6-4 • EMS: EN 50121-3-2/EN 50121-1, EN/IEC 61000-6-2 • EN/IEC 61000-4-2, EN/IEC 61000-4-3, EN/IEC 61000-4-4, EN/IEC 61000-4-5, EN/IEC 61000-4-6, EN/IEC 61000-4-8, EN/IEC 61000-4-9
Traffic	• E-mark E13

Table 2. Agency approvals and standards compliance

2.5.2. Simplified Declaration of Conformity

Hereby, Westermo declares that this product is in compliance with applicable EU directives and UK legislations. The full declaration of conformity and other detailed information is available at www.westermo.com/support/product-support.

Figure 2. The European Conformity and the UK Conformity Assessment markings

3. Product Description

3.1. Product Description

The PSI-010-FT2G-P8G is a high-performance industrial unmanaged Power over Ethernet switch. It combines the plug-and-play nature of an unmanaged device with the capability to supply power to high-power devices over long distances. With 8 copper ports providing up to 30 W PoE power output per port and a total power budget of 240 W, the possibilities for lean and simple installations are vast. Only one cable is required for both connectivity and power.

The switch can be connected to a larger network either by copper Gb-Ethernet or by fibre optic transceivers (SFPs). This offers flexibility for installations to reach both short and long distances by using any of the many SFPs in the Westermo portfolio. In addition, it also offers a cost-effective connection with the copper port. A fibre optic connection can be made outside the premises, as there is no electrical connection, allowing for diverse ground potentials.

Designed for harsh industrial environments, the switch is able to withstand extreme temperatures, vibrations, humidity, and electrical environments. The use of only industrial grade components contributes to ensure market leading mean time between failure (MTBF), maximized service life and reduced operational and life cycle costs.

The device is thoroughly tested by external test institutes to meet a rich selection of EMC, isolation, vibration and shock standards. These standards are all to the highest levels suitable for industrial environments and rail trackside applications.

3.2. Available Models

Art. no.	Model
3626-0130	PSI-010-FT2G-P8G

Table 3. List of available models

3.3. Hardware Overview
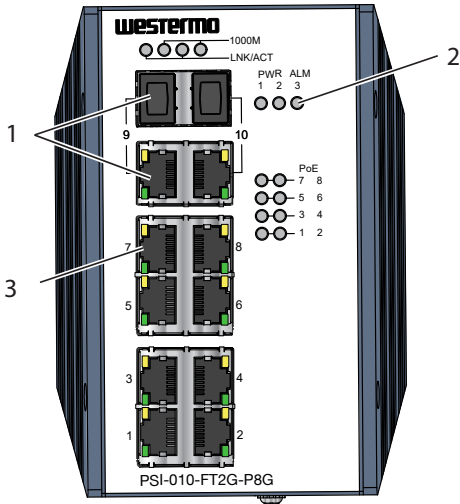
No.	Description	No.	Description
1	2 × RJ-45/SFP combo ports	2	LED indicators
3	8 × Ethernet TX ports (PoE+)		

Figure 3. Location of interface ports and LED indicators
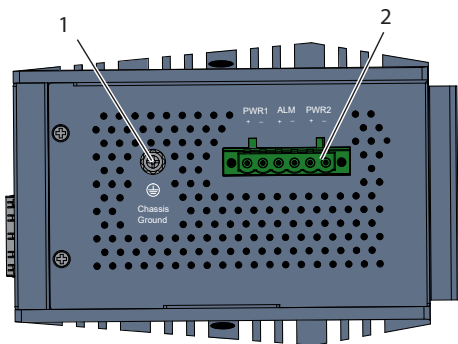
No.	Description	No.	Description
1	Protective earth	2	Power/Alarm port

The bottom side of the product includes one 6-pin removable terminal block connector (with 2 power input and 1 relay alarm output) . There is also a protective earth screw to prevent interference.

Figure 4. Location of interface ports, bottom view

3.4. Connector Information

3.4.1. Power/Alarm Input

Illustration	Position	Product marking	Direction	Description
	1	PWR1+	Input	Supply voltage
	2	PWR1-	Input	Common
	3	+ALM	Input	Alarm
	4	-ALM	Input	Alarm
	5	PWR2+	Input	Supply voltage
	6	PWR2-	Input	Common

Table 4. Power input

3.4.2. Wiring the Relay Output
The product provides relay output. The relay contacts are energized (open) for normal operation and will close under faulty condition such as Ethernet port link break.

3.4.3. Ethernet Connection TX

Illustration	Pin no.	Signal	Direction	Description
	1	TD+	In/Out	Transmitted/Received data
	2	TD-	In/Out	Transmitted/Received data
	3	RD+	In/Out	Transmitted/Received data
	4	-	-	Not connected
	5	-	-	Not connected
	6	RD-	In/Out	Transmitted/Received data
	7	-	-	Not connected
	8	-	-	Not connected
	Shield			Connected to PE

Table 5. Ethernet connection TX 1 to 10

Ports 9-10 are Ethernet combo ports, i.e, a port pair with one RJ45 and one SFP port. It is possible to use either the RJ45 port or the SFP port. Only one of the ports in the pair can be active at any given time.

3.5. SFP Transceivers
Each SFP slot can hold one SFP transceiver. See "*Transceiver User Guide 6100-0000*" for transceiver handling instructions, which also can be downloaded from the product support pages at www.westermo.com/support/product-support.

In the event of contamination, the optical connectors in the SFP transceivers should only be cleaned by the use of forced nitrogen and some kind of cleaning stick. Recommended cleaning fluids are methyl-, ethyl-, isopropyl- or isobutyl alcohol, hexane or naphtha.

3.6. LED Indicators

LED	Status	Description
PWR1	GREEN	Voltage present on PWR1
	OFF	Product has no power
PWR2	GREEN	Voltage present on PWR2
	OFF	Product has no power
ALM	RED	Power 1 or Power 2 disconnected
	OFF	Power 1 and Power 2 connected
PoE LEDs 1 to 8	YELLOW	Product is delivering PoE power
	OFF	No PD is attached
RJ-45 ports	GREEN	Link established
	BLINKING	Data traffic indication
	OFF	No link
	YELLOW ON	Link with speed 1 Gbps
	YELLOW OFF	Link with speed 10/100 Mbps
LNK/ACT	GREEN	Fibre port is attached with partner
	BLINKING	Fibre port is transmitting or receiving packets
	OFF	Fibre port link is inactive
1000M	YELLOW ON	Gigabit speed
	YELLOW OFF	100 Mbps speed

Table 6. LED indicators

3.7. Dimensions
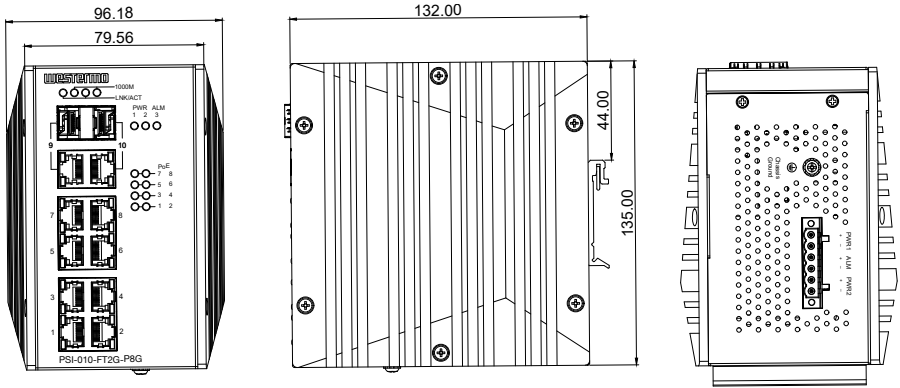
Dimensions are stated in mm.

Figure 5. Dimensional drawing

4. Installation

4.1. Wiring the Power Inputs

The product accepts 12 to 56 VDC power input and boosts to 54 to 56 VDC output for 802.3af /at standard PoE devices.

1. Insert the positive and negative wires of your DC supply into the V+ and V- contacts of the terminal block connect or. The acceptable wire range is 12 AWG.
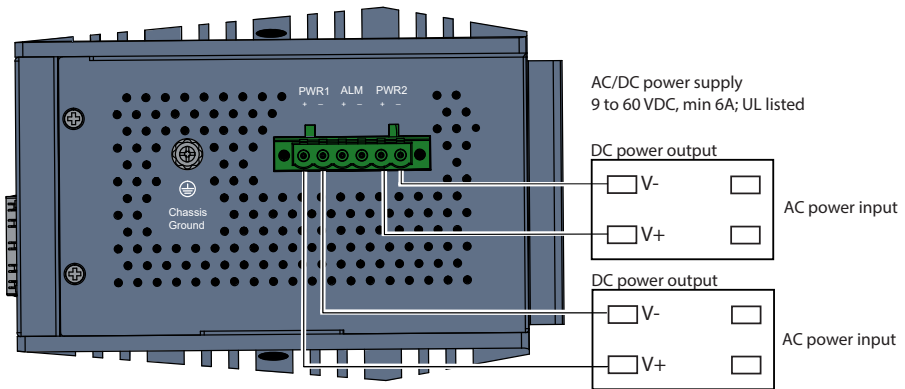2. Tighten the terminal screws to prevent loose DC wires.

Figure 6. Wiring the power inputs

4.2. Wiring Protective Earth

To ensure the system will not be damaged by noise or electric shock, make a direct connection between the product and protective earth to avoid system damage.

4.3. Wiring the Ethernet Ports

The product supports 8 ports with automatic MDI/MDI X crossover, a PoE Injector, and automatic 10/100 Mbps data rate sensing for 10Base T or 100Base TX connections. Automatic MDI/MDI X crossover allows you to connect to other switches, hubs, or workstations, without regard to using straight through or crossover cabling. Port 1 to 8 also provides PoE function that delivers 54 VDC power through the spare pairs to power the PD.

Connect one side of an Ethernet cable into any switch port and connect the other side to your attached device. The green LNK LED will light up when the cable is correctly connected. Refer to the LED Indicators information for descriptions of each LED indicator. Always make sure that the cables between the switches and attached devices (e.g. switch, hub, or workstation) are less than 100 metres (328 feet).

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4.4. Connecting Powered Device (PD)

Port 1 to 8 provide PoE inject function with maximum 30 W ability. To power up the powered device, use the straight or cross over Ethernet cable.

The product follows the IEEE802.3af /at alternative A mode connector assignment. Be sure the twisted pair cable is bound with the standard RJ- 45 pin.

If the RJ-45 is bound with the wrong pin number, the product will not recognize the PD and will not forward 54 VDC power to PD.

> **NOTICE**
> This product is designed for in building installation only and is not intended to be connected to exposed (outside plant) networks.

4.5. Mounting

This product should be mounted on a 35 mm DIN-rail, which is horizontally mounted inside an apparatus cabinet or similar. It is recommended that the DIN-rail is connected to ground.

1. Insert the upper end of the DIN-rail clip into the back of the DIN-rail track from its upper side.
2. Lightly, push the bottom of the DIN-rail clip into the track.
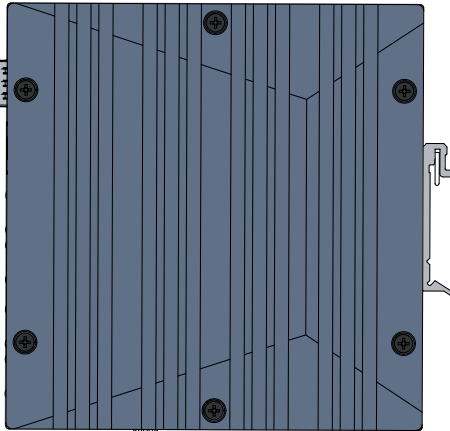3. Check if the DIN-rail clip is tightly attached to the track.

Figure 7. Mounting of product

5. Specifications

5.1. Interface Specifications

Technology	
Standard	IEEE 802.3u 10Base T Ethernet IEEE 802.3u 100Base TX Fast Ethernet IEEE 802.3ab 1000Base TX Gigabit Ethernet IEEE 802.3z 1000Base X Gigabit Ethernet IEEE 802.3af Power over Ethernet IEEE 802.3at High Power PoE with 2 Event classificaction IEEE 802.3x Flow control and back pressure

Network Performance	
Switch technology	Store and Forward technology
System throughput	23.8 mega packets per second, 64 bytes packet length
Transfer packet size	64 bytes to 1518 bytes
MAC address	16K MAC address table
Packet buffer	2 megabits shared packet buffer
Broadcast storm control	Default enabled Traffic threshold: 25 Mbps at 1000 Mbps; 10 Mbps at 100 Mbps; 1 Mbps at 10 Mbps
Jumbo frame	Up to 10K bytes
Transfer performance	14,880 pps at 10 Mbps, 148,800 pps at 100 Mbps, 1,488,100 pps at 1000 Mbps
Quality of service	Compliance with IEEE802.1p with WRR 8:4:2:1 for 4 queues - Highest/High/Low/Lowest Packets are classified as Highest (6,7), High (4,5), Low (0,3), Lowest (1,2), default Low (0)

Power over Ethernet (PoE)	
PoE	IEEE 802.3af/at, End Span wiring architecture
PoE forwarding conductor	RJ-45: V+(1,2), V- (3,6)
Power forwarding capability	IEEE 802.3af:15.4 W, IEEE 802.3 at:30 W
PoE system power budget	Power Budget Reserve by PD declaration. The power budget control system will reserve power for connected PD device. Once the latest PD device claimed power over the system surplus power budget, the highest port of PoE will not be active due to port order mechanism. System Power Budget: 240 W at 24 VDC/120 W at 12 VDC

Mechanical	
Installation	DIN-rail mounting
Case	Steel metal
Ingress protection	IP31
Dimension (mm)	96.18 (W) x 132 (D) x 1 35 (H) w/o DIN-rail clip
Installation	DIN-rail mounting
Weight	2 kg

Power requirement	
System power	Input voltage: 12 VDC or 24 VDC, variation range 12 to 56 VDC 2x DC power input with polarity reverse protection
Input range	12 to 56 VDC
Power consumption	12 V AF: PoE 120 W 24 V AT: PoE 240 W

Environmental	
Operating temperature	-40 to +75 °C
Operating humidity	0 to 95%, non condensing
Storage temperature	-40 to +85 °C, 0 to 90% humidity
Hi pot	2.25 KVDC for power to chassis ground, Ethernet port to chassis ground

Regulatory approvals	
Variation/Shock	IEC 6137
Free fall	IEC 60068 2 32 with package Note 1
Warranty	5 years

Westermo