SISTP1040-382B-LRT

Unmanaged Hardened Gigabit Ethernet PoE+ Switch with Low Voltage Input

(8) 10/100/1000Base-T Ports + (2) 100/1000Base-X SFP Slots

Install Guide

Part Number 33806

Revision D January 2024

Intellectual Property

Patented: https://www.lantronix.com/legal/patents/; additional patents pending.

Warranty

For details on the Lantronix warranty policy, go to http://www.lantronix.com/support/warranty.

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For a current list of our domestic and international sales offices, go to www.lantronix.com/about/contact.

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Revision History

Date	Rev	Comments
A	11/14/19	Initial release at v1.0.
B	12/10/19	Update DC power input information.
C	1/19/21	Change Power Supply from 25079 (EoL) to 25175.
D	1/3/24	Initial Lantronix rebrand. Add IEEE 802.3bt Power Input Ripple and Noise Specification. Update LTRX address, update Box and Device Labels, add DRBH-01 and applications. Update VDC input specifications.

Safety Warnings and Cautions

These products are not intended for use in life support products where failure of a product could reasonably be expected to result in death or personal injury. Anyone using this product in such an application without express written consent of an officer of Lantronix does so at their own risk and agrees to fully indemnify Lantronix for any damages that may result from such use or sale.

Attention: This product, like all electronic products, uses semiconductors that can be damaged by ESD (electrostatic discharge). Always observe appropriate precautions when handling.

Note: Emphasizes important information or calls your attention to related features or instructions.

Caution: Alerts you to a potential hazard that could cause loss of data or damage the system or equipment.

Warning: Alerts you to a potential hazard that could cause personal injury.

Contents

1. Product Description

This switch is an unmanaged full Gigabit Ethernet hardened PoE+ switch that complies with IEEE 802.3at and IEEE 802.3af. The switch has eight 10/100/1000Base-T PoE+ ports with two 100/1000 dual speed SFP slots. In many fields such as Solar, Vehicle, or Factory systems, there are no standard power input requirements of 52 to 57 volts for PoE devices. The SISTP1040-382B-LRT uses booster technology to let you deploy the PoE switches with power input of 12, 24, or 48~57 volts. It can still deliver up to 30 Watts on each PoE+ port. The two fiber uplink ports can also be used in a daisy chain for maximum network reliability. It has redundant input power connections to ensure safe reliable operation in temperatures between -40°C and +70°C. Lantronix hardened switches are certified to operate reliably in harsh environments such as those found on factory floors, outdoor enclosures or other hazardous environments.

Features

- Support Jumbo Frame up to 9K bytes
- Layer 2 wire-speed switching engine
- Ruggedized metal closure
- IEEE802.3az Energy Efficient Ethernet
- Fanless design
- Wide operating temperature range (-40°C to +70°C)
- Dual Power input
- Din Rail and Wall Mount options
- NDAA and TAA compliant

PoE Features:

- IEEE802.3at compliant
- IEEE802.3af compliant

Ordering Information

Model	Description
SISTP1040-382B-LRT	Hardened Unmanaged switch, (8) 10/100/1000Base-T PoE+ [100 m/328 ft.] ports + (2) 100/1000Base-X SFP slots, - 40 - + 70°C, 12, 24, or 48~57 VDC input; (Din Rail Bracket included)
WMBH-01	Wall Mount Brackets - Optional Accessory (sold separately)
DRBH-01	Din Rail Bracket - Optional Accessory (sold separately)
25175	Industrial DIN rail mounted power supply. Input: 90 – 264VAC, 127 - 370VDC; Output: 24 - 48VDC, 5.0A, 120 Watts. Operating Temp: -20°C to +70°C. Optional Accessory (sold separately)
SFPs	See Lantronix SFP webpage - Optional Accessory (sold separately)
OCA-P181610	18x16x10” Polycarbonate Enclosure - Optional Accessory (sold separately)

About This Manual

This manual describes how to install, configure, and troubleshoot the switch, including how to check switch status by reading the LEDs, reset the switch, install the switch, and troubleshoot the switch.

Related Manuals

- SISTP1040-382B-LRT Quick Start Guide, 33805
- Release Notes (version specific)

Specifications

Standards	IEEE 802.3, 802.3u, 802.3z, 802.3ae, 802.3x, 802.1p, 802.3az, 802.3af, 802.3at
Protocols	CSMA/CD
Technology	Store and Forward switching architecture
Switching Capacity	20 Gbps
Connectors	Eight 10/100/1000 Base-T RJ-45 and two 100/1000 Base-x SFP
MAC Address	4K MAC address table
Status LEDs	System, Power 1, Power 2, Port Status
Dimensions	Width: 1.7” [44 mm] x Depth: 5.1" [130 mm] x Height: 5.3” [135 mm]
Reset button	Reset the switch
Power Input / PoE Budget	12, 24, or 48~57 VDC; Redundant Input; Reverse power protection: • DC Input: 12VDC Total PoE Budget: 60 Watts 30 Watts output on 2 ports 15 Watts output on all 4 ports • DC Input: 24VDC Total PoE Budget: 120 Watts 30 Watts output on 4 ports 15 Watts output on all 8 ports • DC Input: 48~57VDC Total PoE Budget: 120 Watts 30 Watts output on 4 ports 15 Watts output on all 8 ports
Ingress Protection	IP30
Environment	-40 to +70°C operating temp. 5%– 90% humidity non-condensing
Weight	1.01 lbs. [0.46 kg]
Certifications	UL Listed; EMI: CE, FCC Part 15; Safety: IEC62368-1/EN62368-1
Compliant	Designed to Meet Class 1 Div 2 NDAA and TAA (*Please contact sales with certification needs)
Warranty	5 Years

Specifications

Port Configuration

Total Ports	RJ45 (10M/100M/1G)	Uplinks (100M/1G)	Console
10	8	2 SFP	--

Hardware Performance

Forwarding Capacity (Mpps)	Switching Capacity (Gbps)	Mac Table (K)	Jumbo Frames (Bytes)
14.88	20	4	9K

Environmental Range

Operating Temperature		Storage Temperature		Operating Humidity	Altitude	
Fahrenheit	Centigrade	Fahrenheit	Centigrade	5% to 95% non-condensing	Feet	Meters
-40 to 158	-40 to 70	-40 to 185	-40 to 85		<10000	<3000

Dimensions, Weight, Mounting

Dimension (WxHxD)		Weight		Mounting Type
Millimeter	Inches	Kilograms	Pounds	
44 x 135 x 130	1.7 x 5.3 x 5.1	0.56	1.25	DIN rail, Wall

Voltage and Frequency

Primary Power Supply - DC Input Voltage	
DC Operating Voltage	12, 24, or 48~57 VDC

PoE Power Capacity

Available PoE Power	Number of Ports that Support PoE (15.4W), PoE+ (30.0W)
60W@12VDC	Each of port 1 - 8 support PoE/ PoE+ within available PoE Power
120W@24VDC	Each of port 1 - 8 support PoE/ PoE+ within available PoE Power

Certifications

Regulatory Compliance	
EMS	EN61000-4-2 ESD, EN61000-4-3 RS, EN61000-4-4 EFT, EN61000-4-5 Surge, EN61000-4-6 CS, EN61000-4-8 PFMF
EMI	FCC Part 15 Class A, CE EN61000-3-2, EN61000-3-3
Safety	CE, IEC60950/EN60950, UL Listed

Mechanical Stability	
Vibration	IEC 60068-2-6
Shock	IEC 60068-2-27
Freefall	IEC 60068-2-32

EMI

FCC part 15 approval Class A

CE marking

CISPR22/EN55022 Class A

CISPR24/EN55024 Class A

VCCI Japan

EN61000-3-2 Ed.3.0 Amendment A1 1998 Amendment A2 1998 Class A

IEC 61000-3-3

Ed2: 2008 Electromagnetic Compatibility – Limitation of voltage fluctuation and flicker in low voltage supply systems for equipment rated up to 16A

Class C "

EMS

IEC 61000-4-2 ed1.2: 2001 : ESD Test level 3: 8kV contact, 15kV air

EN61000-4-5 Surge - Signal Ports : 1.0KV I/O Surge

Electrostatic Discharge Immunity

Basic Standard: IEC 61000-4-2:2008 (Edition 2.0)

Product Standard: EN 55024:2010/A1:2015

MTBF

725,632 Hrs.	Description: Top-level assembly. Environment: GB, GC - Ground Benign, Controlled. Temperature: 25.00°C.
156,510 Hrs.	Description: Top-level assembly. Environment: GB, GC - Ground Benign, Controlled. Temperature: 75.00°C.

DC Power Consumption

Non Load

Input:

Voltage	Unit	Current	Unit	Power	Unit
12VDC	V	0.387	A	4.644	W
24VDC		0.326		5.664	

DC :

Voltage	Unit	Current	Unit	Power	Unit
1.1	V	0.5	A	0.55	W
3.3		0.21		0.963	

Full Loading

60W PoE Load:

Input:

Voltage	Unit	Current	Unit	Power	Unit
12VDC (1)	V	6.67	A	80.4	W

DC:

Voltage	Unit	Current	Unit	Power	Unit
1.1	V	1.34	A	1.474	W
3.3		0.75		2.475	

120W PoE Load:

Input:

Voltage	Unit	Current	Unit	Power	Unit
24VDC (2)	V	6.67	A	160.8	W
24VDC (2)		2.9		139.2	

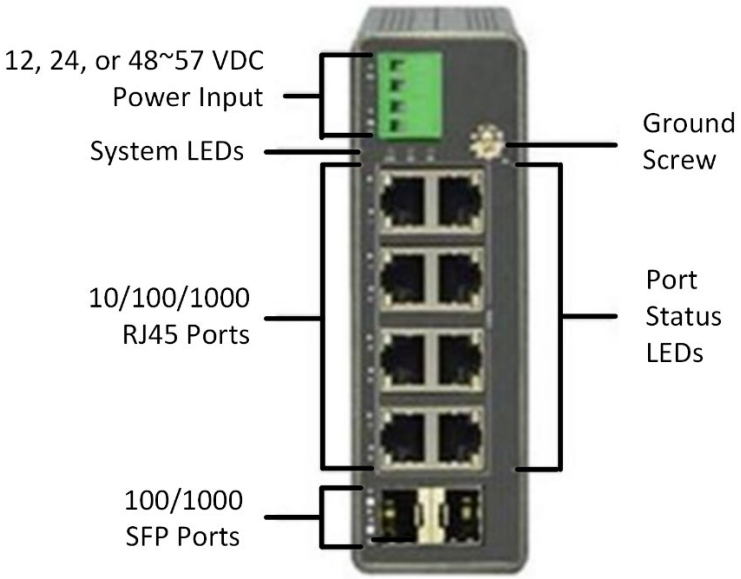
DC:

Voltage	Unit	Current	Unit	Power	Unit
1.1	V	1.34	A	1.474	W
3.3		0.74		2.442	

(1) Using Delta 915w power 12VDC as an input voltage. (2) Use EXTECH EAB-140 Programmable AC power supply, the output must be equipped with high withstand voltage capacitor filtering.

Front Panel

The switch front panel is shown and described below.



LED Descriptions

The front panel LEDs provide switch status checking and monitoring. The three LED types are:

Power LEDs: indicate if the switch is powered up correctly or not.

System LED: indicates if the system is ready or not.

Port Status LEDs: indicates the current status of each port. Users can check these LEDs to understand the port status.

See the PD manual for its LED descriptions.

The following tables describes the switch LED indicators.

Table 1: Power LEDs

LED	Color	State	Description
P1 Power1	Green	On	The switch is powered On correctly. Lit Green when Power on Switch is Ready.
		Off	The switch is not receiving power from Power1.
		Blinking	When POST is running.
P2 Power2	Green	On	The switch is powered On correctly.
		Off	The switch is not receiving power from Power2.

Table 2: System LED

LED	Color	State	Description
SYS System	Green	On	The switch is ready.
		Off	The switch is not ready.

Check the port status by reading the LED behaviors using the table below.

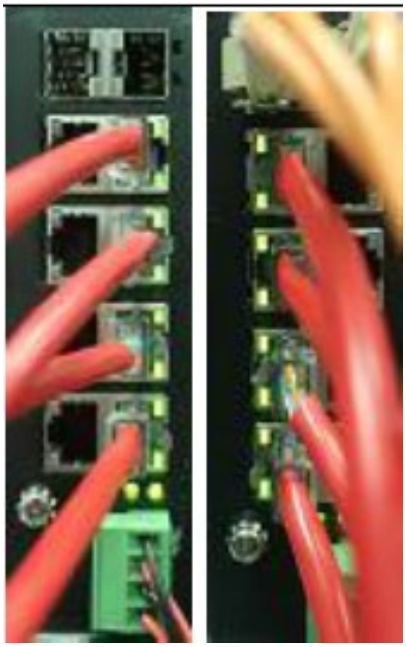
Table 3: Port Status LEDs

LED	Color	State	Description
RJ45 Ports (Left side)	Green	On	The port is enabled and established a link to connected device, and the connection speed is 1000Mbps.
	Green	Blinking	The port is transmitting/receiving packets, and the connection speed is 1000Mbps.
	Amber	On	The port is enabled and established a link to connected device, and the connection speed is 10/100Mbps.
	Amber	Blinking	The port is transmitting/receiving packets, and the connection speed is 10/100Mbps.
	---	Off	The port has no active network cable connected, or it has not established a link to a connected device. Or, the port may have been disabled via the switch user interface.
RJ45 Ports (Left side)	Green	On	The port is enabled and supplying power to connected device.
	Green	Blinking	An abnormal state, such as overload status, has been detected in the switch.
	Amber	Off	The port has no active network cable connected, or it is not connected to a PoE PD device. Or, the port may have been disabled via the switch user interface.
SFP Ports	Green	On	The port is enabled and has established a link to connected device, and the connection speed is 1000Mbps.
	Green	Blinking	The port is transmitting/receiving packets and the connection speed is 1000Mbps.
	Amber	On	The port is enabled and established a link to connected device, and the connection speed is 100Mbps.
	Amber	Blinking	The port is transmitting/receiving packets, and the connection speed is 100Mbps.
	---	Off	The port has no active network cable connected, or has not established a link to connected device. Or, the port may have been disabled via the switch user interface.

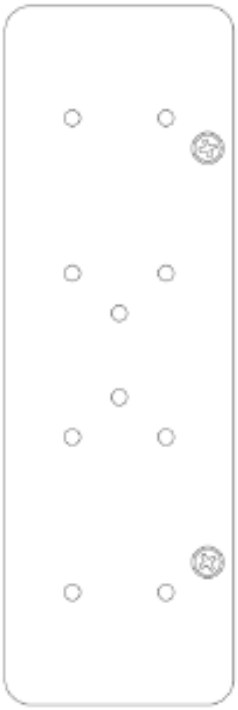
Table 4: Port LED Behavior

Port	LED	Color	Function
RJ45 Port 1~8	Link/ Act/ Speed	Green / Amber	LED off: port disconnected or link failed. Green LED on: 1G Link Present, No Activity. Amber LED on: 100M/10M Link Present, No Activity. Green blinking : 1G Activity. Port is sending or receiving data. Amber blinking : 100M/10M Activity. Port is sending or receiving data. POE Behavior: LED off : POE is Off Green LED on : POE is On Amber LED on: POE is abnormal
SFP: Ports 1-2	Link/ Act/ Speed	Green / Amber	LNK: Amber/Green (Two-color) LED off: port disconnected or link failed Amber LED on: link-up (100M) Green LED on: link-up (1G) Blinking: activity (receiving or transmitting data)

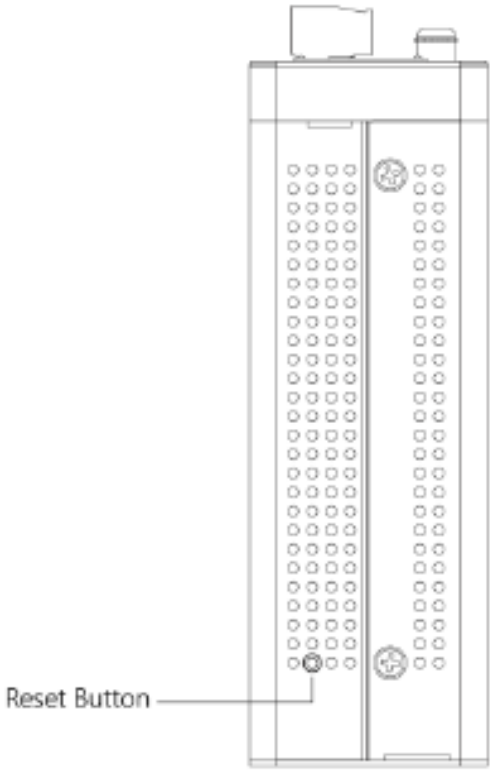
Port LED Example:

TP Link up at 1G speed SFP Link up at 1G Speed POE Light on	
Link up at 100M speed	 

Back Panel and Bottom Panel



Side Panel



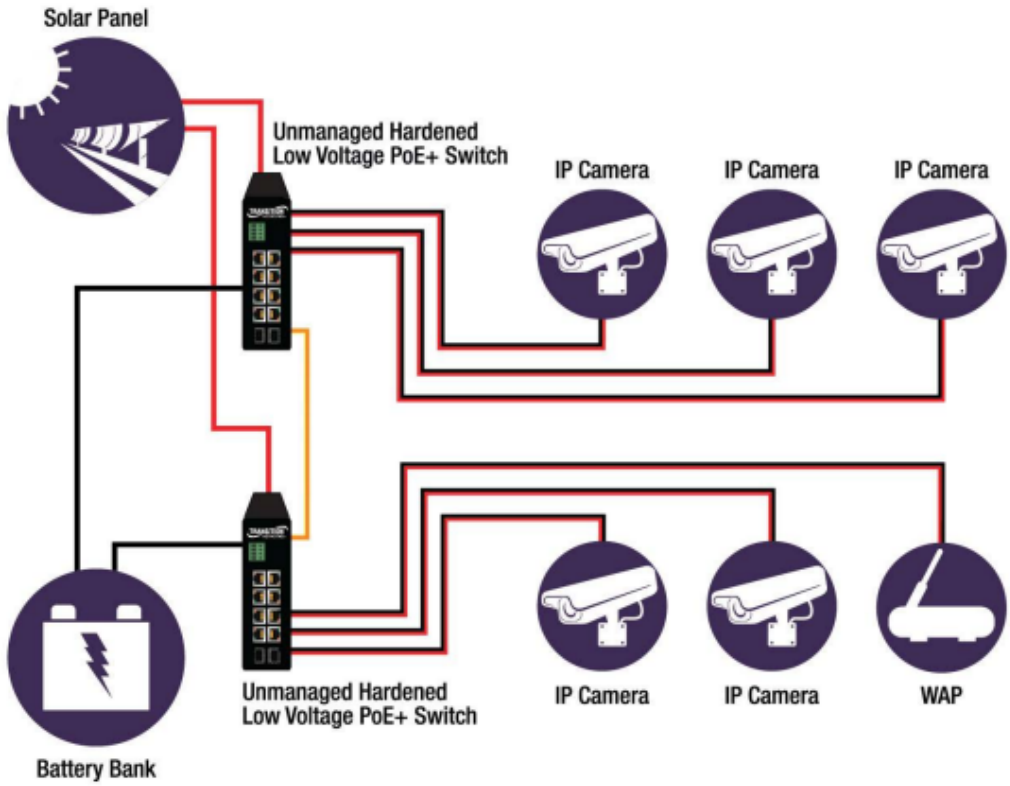
Bottom Panel

Reset Button

Press the recessed Reset button to reboot the switch.

Applications

- Vehicle Internet of Things
- Battery Bank/Solar Panel Powered PoE+
- IP surveillance, supplying power and data to IP cameras



2. Installing the Switch

Package Contents

Make sure you have received the following items. Contact your sales representative if any item is missing or damaged. Save the packaging for possible future use.

- One Switch
- One Terminal Block
- One Quick Start Guide
- One Mounting kit

Note: The switch is an indoor device. If you need to use it to connect outdoor devices such as outdoor IP cameras or outdoor WAPs with cable, then you must install an arrester on the cable between the outdoor device and the switch.

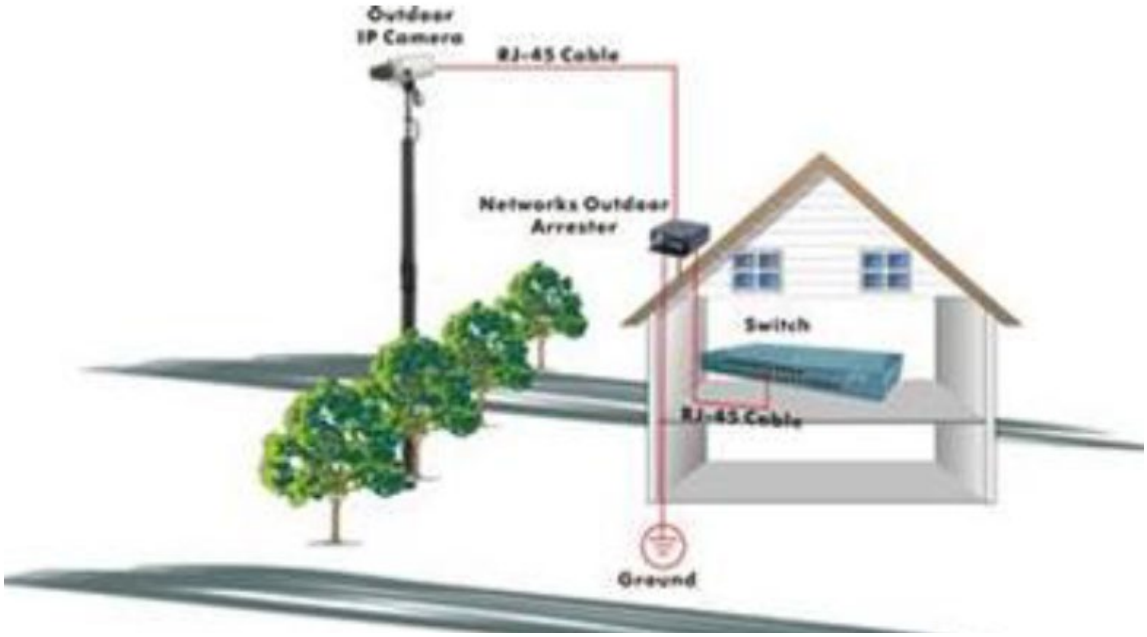


Fig. Addition an arrester between outdoor device and this switch

Switch Mounting Options

The switch can be installed in these ways:

- Wall mounted
- DIN Rail

Mounting the Switch on a DIN Rail

1. Attach the DIN Rail mounting kit to rear panel of the chassis. Insert screws and tighten with a screwdriver to secure the kit.

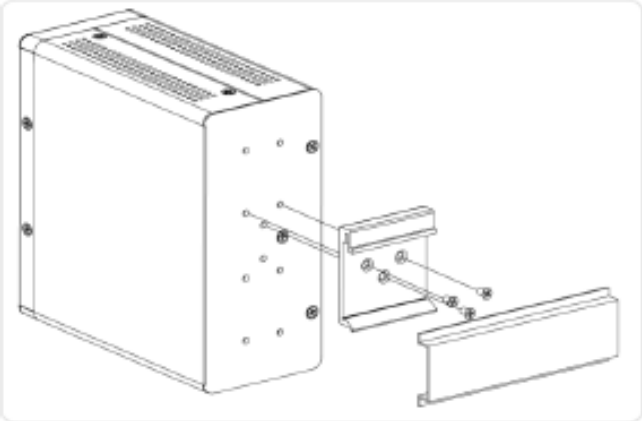


Figure: Attach DIN Rail Kit to the Switch

2. Insert the upper lip of the DIN rail into the DIN-rail mounting kit and press the switch towards the DIN rail until it snaps into place.

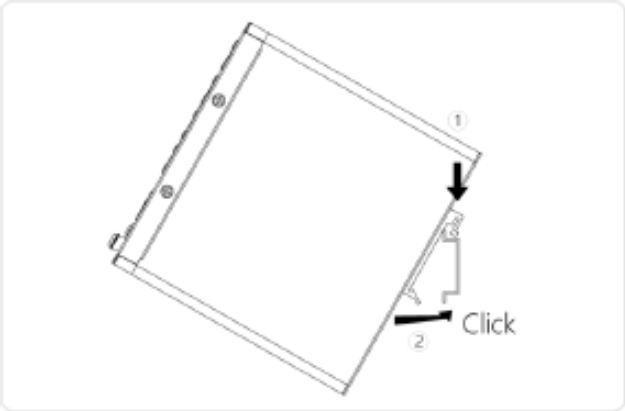
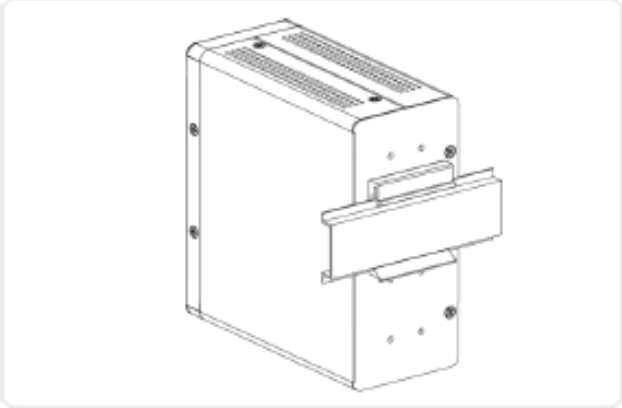


Figure: Insert switch to the DIN Rail

3. Make sure that the switch is attached securely to DIN Rail.



Mounting the Switch on Wall (Optional)

1. Attach the wall mounting plates to rear panel of the chassis. Insert screws and tighten with a screwdriver to secure the plates.

Figure: Attach Wall Mounting Plates to the Switch

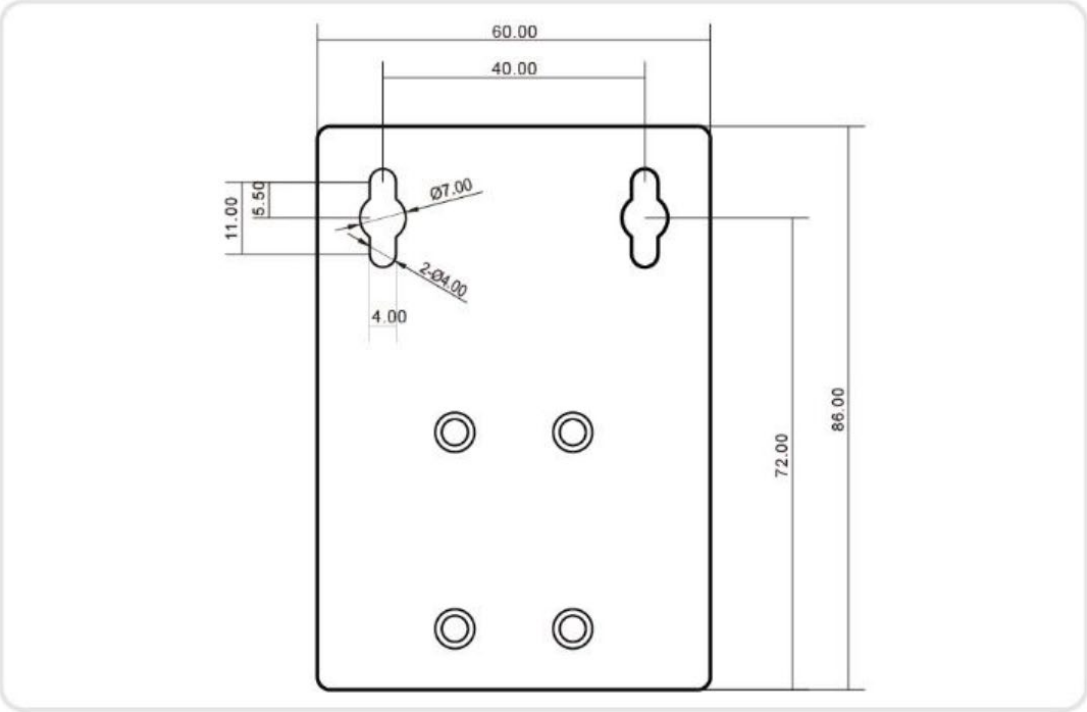


Figure: Wall Mount Plates Dimensions

2. Install user-supplied screws on the appropriate location on the wall.
3. Make sure that the switch is attached securely to wall.

Grounding

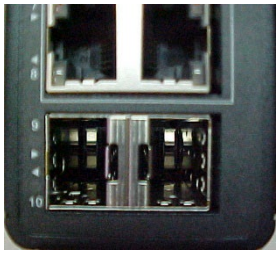
After the Switch is mounted and connected, the front panel grounding screw can be used for grounding. Grounding and wire routing help limit the effects of noise due to electromagnetic interference (EMI). Run the ground connection from the ground screw to the grounding surface before connecting devices.

ATTENTION: This case must be earth grounded. No DC input may be earth grounded. Use Isolated Power Supply.

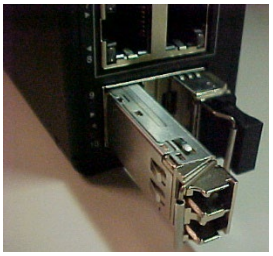
Installing SFP Modules

You can install or remove a mini-GBIC SFP module from an SFP port without having to power off the switch. The Switch lets you install a Small Form-Factor Pluggable (SFP) device of your choice to make a fiber connection via the 100/1000Base-X SFP Ports. See the Lantronix SFP page for SFP models. See the related SFP manual for safety precautions and warnings specific to your SFP model. The SFP ports should use UL Listed Optional Transceiver products, Rated 3.3Vdc, Laser Class 1.

1. Prepare a fiber optic cable with an appropriate connecter. **Warning**: The fiber optic port contains a Class 1 laser device. When the ports are disconnected, always cover them with the provided plug. Exposed fiber optic ports may cause skin or eye damage.



2. Remove a rubber plug from the Switch and position the SFP device at an SFP slot with the label facing correctly.
3. Carefully slide the SFP device into the slot, aligning it with the internal installation guides. Ensure that the SFP device is firmly seated against the internal mating connector.

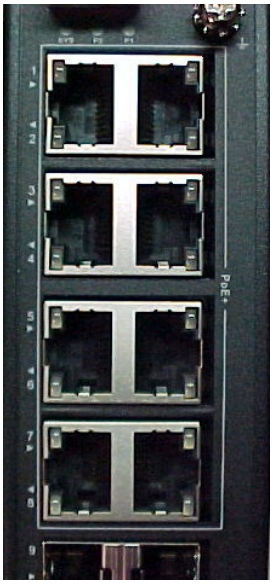


4. See the related SFP manual for operating information specific to your particular SFP model.
5. Connect the other end of the cable to the appropriate far end Ethernet port.

Note: After the cable is properly connected at both ends, the Switch LED should be functional. See LED Descriptions on page 11 for a description of LED operation.

See the related online SFP manual for operating information specific to your particular SFP model.

Connect PoE+ Ports via TP Copper Cable



The Switch also provides 10/100/1000Base-T.

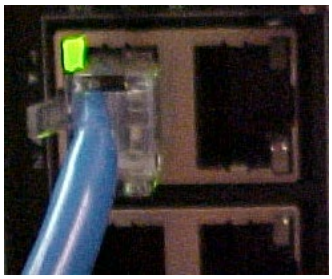
Supported cabling: PoE per IEEE 802.3af PoE supports Cat 3 and Cat 5. PoE per IEEE 802.3at PoE+ supports Cat 5. See "PoE / PoE+ Spec Comparison" on page 23 for more PoE/PoE+ information.

1. Prepare a twisted-pair copper cable.

2. Connect one end of the cable to the Switch.

3. Connect the other end of the cable to a PD, such as a WAP or IP camera.

Note: After the cable is properly connected at both ends, the Switch **SYS** LED should be functional. See LED Descriptions on page 11 for LED operation details.



PoE / PoE+ Spec Comparison

PoE Plus (PoE+) provides extended support for new end devices with higher power requirements. The IEEE 802.3at standard provides up to 30W of power to include newer end devices such as IEEE 802.11n wireless access points, security surveillance cameras, etc.

Property	802.3af PoE	802.3at PoE+
Power Available at PD	12.95 W	25.50 W
Max. Power from PSE	15.40 W	30.0 W
Voltage Range (at PSE)	44.0 – 57.0 V	50.0 – 57.0 V
Voltage Range (at PD)	37.0 – 57.0 V	42.5 – 57.0 V
Max. current	350 mA	600 mA per mode
Max. cable resistance	20 ohms (Cat 3)	12.5 ohms (Cat 5)
Power management	3 power class levels negotiated at 1st connection	4 power class levels negotiated at 1st connection or 0.1 W steps negotiated continuously
Supported cabling	Cat 3 and Cat 5	Cat 5
Supported modes	Mode A (endspan) and Mode B (midspan)	Mode A and Mode B

IEEE 802.3bt Power Input Ripple and Noise Specification

f< 500 Hz	V_{Noise}	V_{pp}	0.5
500 Hz to 150 kHz			0.2
150 kHz to 500 kHz			0.15
500 kHz to 1 MHz			0.1

Connecting DC Power

After the Switch is mounted, connected, and grounded, use the Terminal Block (Euro Block) to provide DC Power Inputs P1 and P2.

Caution: Connect the wires to the Terminal Block and connect the Terminal Block to the switch before connecting to the optional power supply.

Warning: connect the wires to the terminal block before plugging power into the Switch product.

1. Insert the negative/positive DC wires into the P1 and/or P2 **+** and **-** terminals, respectively.
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.
3. Insert the terminal block connector prongs into the terminal block receptor.
4. Check the SYS LED. If it is ON, the power connection is correct.

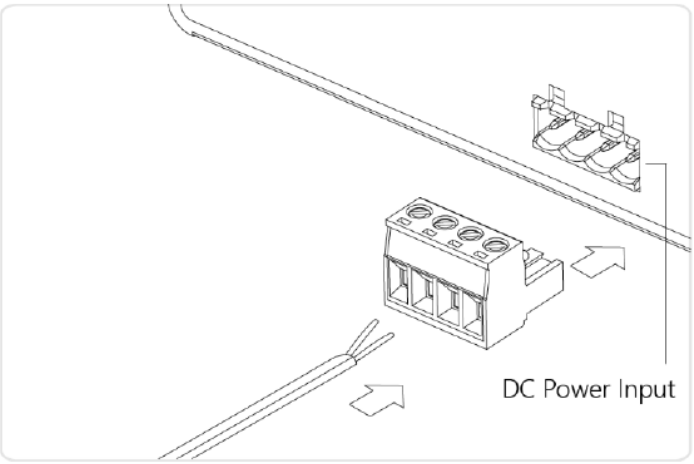


Figure: Connecting DC Power

ATTENTION

The switch case must be earth grounded.

No DC input may be earth grounded.

Use Isolated Power Supply.

3. Optional Power Supply 25175

25175 Features

- Variable AC input range
- Protected against Short Circuit, Overload, Over Voltage, Overheating
- Convection air cooling
- DIN rail mountable - can be mounted on a TS35 Standard DIN rail (TS35/7.5 or 15)
- Full load burn in test
- RoHS compliant

25175 Specifications

Output

Output Voltage	24VDC
Current Rating	5A
Power Rating	120 Watts
Ripple & Noise Max	120mVp-p
Voltage Range	24~28VDC
Voltage Tolerance	±1.0%
Line Regulation	±0.5%
Load Regulation	±1.0%
Setup, Rise Time	2500ms, 60ms
Hold Up Time	10ms

Input

Voltage Range	90 - 264VAC; 127 - 370VDC
Frequency Range	47~63Hz
Efficiency	88%
AC Current (Typical)	2.25A@115VAC; 1.3A@230VAC
Inrush Current (Cold)	20A@115VAC; 35A@230VAC
Leakage Current	<1mA@240VAC

Protection

Overload	105~130%
Overvoltage	29~33V
Over Temperature	Shut down o/p voltage, re-power on to recover

Dimensions

Width: 1.57” [40 mm] x Depth: 4.47” [113.5 mm] x Height: 4.94” [125.2 mm]

25175 Environment

Operating Temp: -20°C to +70°C

Storage Temp: -40°C to +85°C

Humidity: 20% to 95% (non-condensing)

Weight 1.32 lbs. [0.6 kg]

MTBF 456.3Khrs (MIL-HDBK-217F (2°5 C)

25175 Certifications

Safety: UL508, TUV 62368-1; IEC60068-2-6 (Vibration);

EMC Emission: EN55032(CISPR32), EN61204-3 Class B, EN61000-3-2, EN61000-3-3;

EMC Immunity: EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-8, EN61000-4-11, EN55024, EN61000-6-2, EN50082-2, EN61204-3, EAC TP TC 020

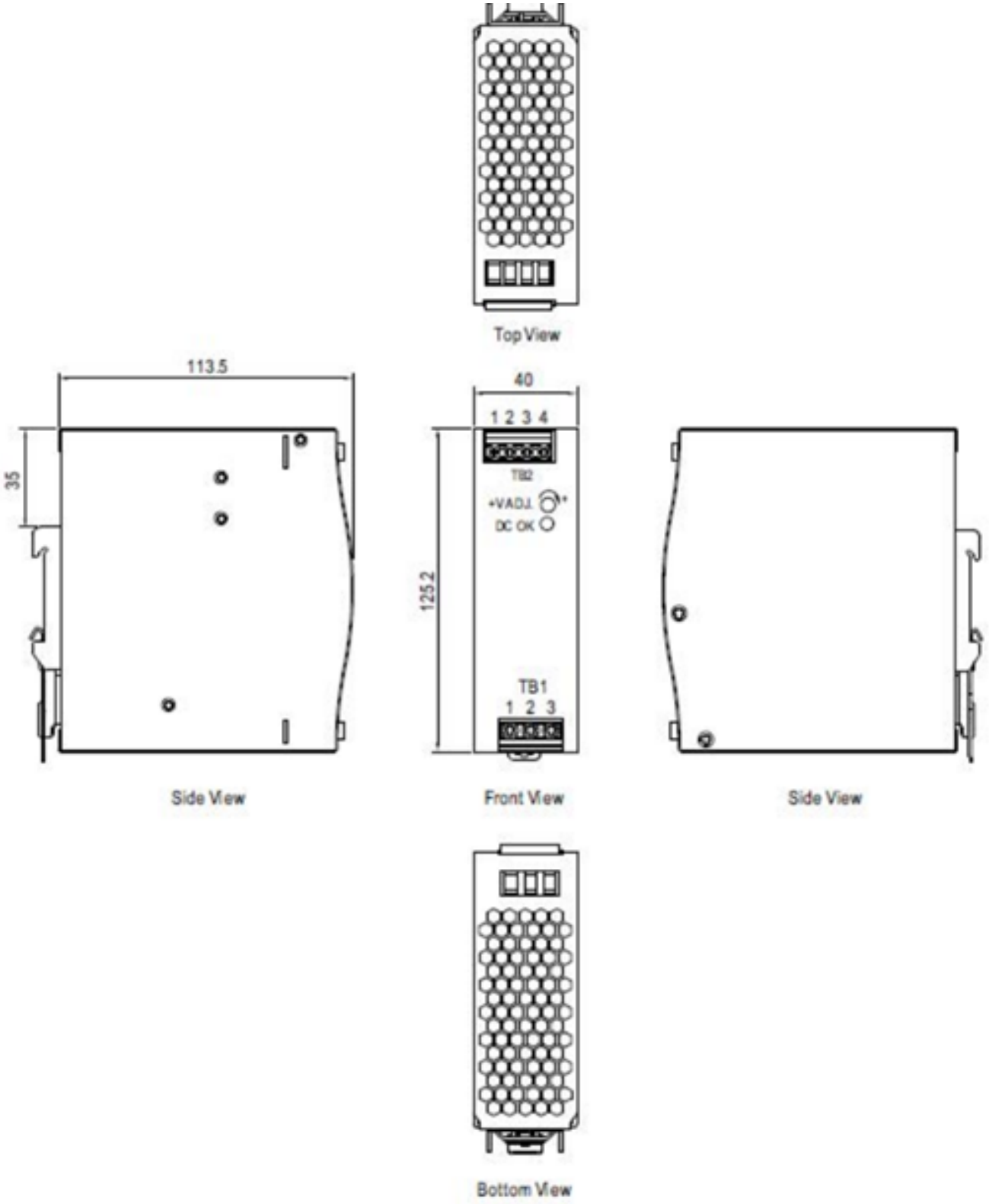
EN62368-1 IEC62368-1

Warranty 5 Years

Packaging typical:

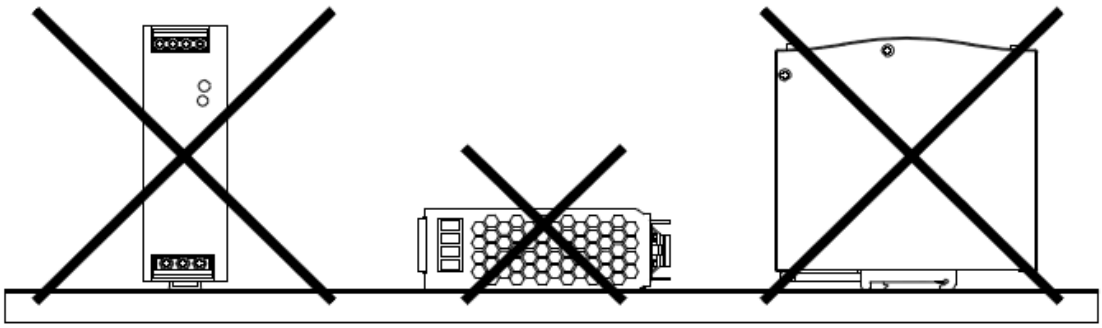
25175 Product Views with Dimensions

Dimensions are in mm.



25175 Installation

1. Always allow good ventilation clearances, 5mm left and right, 40mm above and 20mm below, around the unit in use to prevent it from overheating. Also, a 10-15 cm clearance must be kept when the adjacent device is a heat source.
2. The appropriate mounting orientation for the unit is vertical, the input terminals at the bottom and output on the top. Mounting orientations other than that, such as upside down, horizontal, or table-top mounting, is not allowed.



3. Use copper wire only, and recommended wires are shown as below.

AWG	18	16	14	12
Rated Current of Equipment (Amps)	7A	10A	15A	20A
Cross-section of Lead (mm^2)	0.8	1.3	2.1	3.3
Note: Current each wire carries should be de-rated to 80% of the current suggested above when using 5 or more wires connected to the unit.				

Make sure that all strands of each stranded wire enter the terminal connection and the screw terminals are securely fixed to prevent poor contact. If the power supply possesses multi-output terminals, make sure each contact is connected to wires to prevent too much current stress on a single contact.

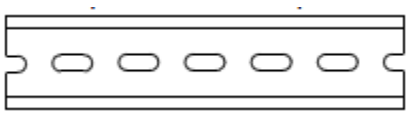
4. Use wires that can withstand temperatures of at least 80°C, such as UL1007.
5. Recommended wire strapping length is 5mm (0.197”).
6. Recommended screwdriver is 3mm, slotted type.

7. The recommended torque setting for terminals is: I/P = 7.5 kgf-cm (6.5 Lb-in) and O/P = 7.5 kgf-cm (6.5 Lb-in).

8. Suggested fuse and maximum number of the PSUs that can be connected to a circuit breaker at 230V:
Fuse: T4A/L250V, Circuit breaker C16 = 5, D16 = 10.

9. Mounting Instructions: Mount as shown in figure only, with input terminals down, or else sufficient cooling will not be possible. Admissible DIN rail ： TS35/7.5 or TS35/15.

For rail fastening：



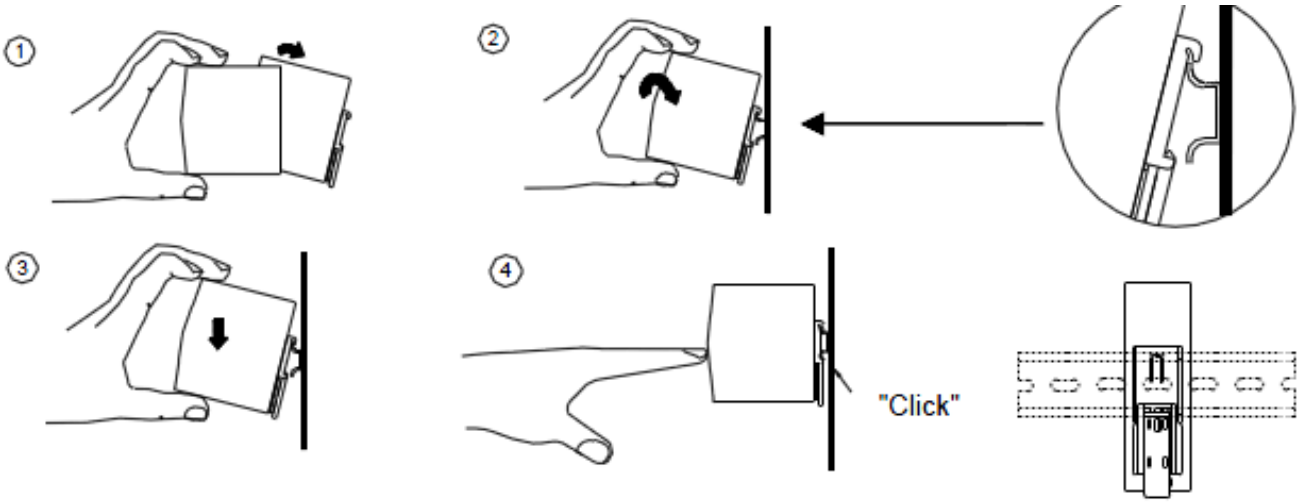
（a） Tilt the unit slightly rearwards.

（b） Fit the unit over top hat rail.

（c） Slide it downward until it hits the stop.

（d） Press against the bottom for locking.

（e） Shake the unit slightly to ensure the locking action.



10. For other information about the products, please refer to www.meanwell.com for more details.

Warning / Caution !!

1） Risk of electrical shock and energy hazard. All failure should be examined by a qualified technician. Please do not remove the case of the power supply by yourself!

2） Risk of electric arcs and electric shock (danger to life). Connecting both the primary and the secondary sides together is not allowed.

3） Risk of burn hazard. Do not touch the unit in operation and shortly after disconnection!

4） Risk of fire and short circuit. The openings should be protected from foreign objects or dripping liquids.

5） Only install the unit in a pollution degree 2 environment (see Note 1 below).

6） Please do not install the unit in places with high moisture or near the water.

7） The maximum operating temperature is 45°C; do not install the unit in places with high ambient temperature or near fire source.

8） The FG ( ) must be connected to PE (Protective Earth).

9） Output current and output wattage must not exceed the rated value on its specification.

10） Disconnect system from supply voltage. Before commencing any installation, maintenance or modification work: Disconnect your system from supply voltage. Make sure that inadvertent connection in circuit will be impossible!

11） For continued protection against risk of fire, replace only with same type and rating of fuse.

Pour ne pas compromettre la protection contre les risqué d'incendie, remplacer par un fusible de même type et de memes caractéristiques nominales.

Note 1: Pollution Degree 2 applies where there is only non-conductive pollution that might temporarily become conductive due to occasional condensation. Generally refers to dry, well-ventilated locations, such as control cabinets.

Terminal Pin Assignments

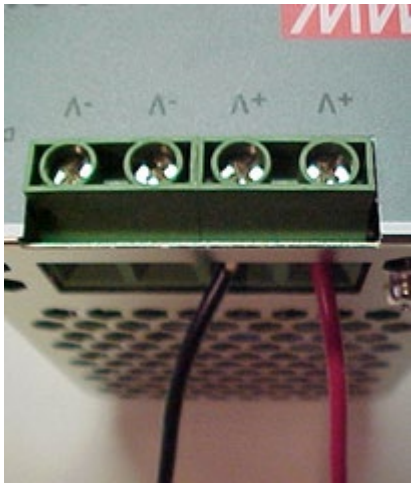
Terminal Pin No. Assignment (TB1)

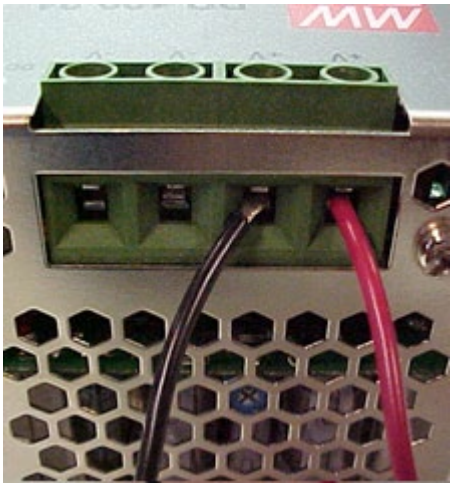
Pin No.	Assignment
1	FG ⏚
2	AC/N or DC -
3	AC/L or DC +

Terminal Pin No. Assignment (TB2)

Pin No.	Assignment
1,2	DC OUTPUT -V
3,4	DC OUTPUT +V

Install Views

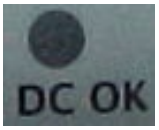




+V ADJ Screw

A small front panel hole provides access to a small Phillips screw; turn clockwise to increase or decrease voltage. Adjustable from 24V to 28VDC. No adjustment is usually needed. The 25175 power supply ships from the factory set to 24 VDC.

DC OK LED



Lights to indicate a DC OK condition (output 24 - 28VDC, 5.0A, 120 Watts).

4. Troubleshooting

General Troubleshooting

1. Make sure your switch model supports the feature or function attempted; see Features on page 6.
2. Check if the correct power cord is connected firmly to the switch and to the DC outlet socket. See Connecting DC Power on page 24.
3. Verify the Fiber and Ethernet cabling; see Installing SFP Modules on page 22 and Connect PoE+ Ports via TP Copper Cable on page 23.
4. Verify the install process; see chapter 2. Installing the Switch on page 18.
5. Make sure the connected devices are installed and running correctly to isolate the problem to the switch.
6. Press the RESET button; see the Reset Button on page 16.
7. Power cycle the switch.

LED Troubleshooting

The following table provides information for users to easily troubleshoot problems by taking actions based on the suggested solutions within.

Table: Troubleshooting Procedures

Symptom	Possible Cause	Suggested Solution
System LED is Off	The switch is not receiving power.	1. Check if correct power cord is connected firmly to the switch and to the DC outlet socket. 2. Perform power cycling the switch by unplugging and plugging the power cord back into the switch. 3. If the LED is still off, try to plug power cord into different DC outlet socket to make sure correct DC source is supplied.
Port (Left Side) Status LED is Off	The port is not connected, or the connection is not working.	1. Check if the cable connector plug is firmly inserted and locked into the port at both the switch and connected device. 2. Make sure the connected device is up and running correctly. 3. If the symptom still exists, try a different cable or different port to identify if it is related to the cable or specific port.
Port (Right Side) Status LED is Off	The port is not supplying power	1. Check if the cable connector plug is firmly inserted and locked into the port at both the switch and connected device. 2. Make sure the correct Ethernet cables are used. 3. If the symptom still exists, try different cable or different port, to identify if it is related to the cable or specific port.

PoE Modes and Compliance

PoE Deployment Environments A and B

IEEE802.3at-2009 defines two deployment environments in section 33.4.1:

Environment A: when both PSE and PD are located indoors, inside the same building. In this environment, there has to be electrical isolation between the PoE circuitry and the data circuitry inside a PSE. Multi-port PSE's can all share the same ground isolation. Environment A is therefore an indoor PSE –indoor PD environment (a.k.a. indoor/indoor).

Environment B: when the PSE and PD are not located in the same building. In this environment there needs to be electrical isolation between PoE and data, as well as between every port in a multi-port PSE. This isolation between ports requirement de facto determines a completely separate power supply per port, which makes multi-port PSEs for outdoor PD deployment impractical. Environment B is therefore an indoor PSE-outdoor PD (a.k.a. indoor/outdoor) or outdoor PSE-outdoor PD (a.k.a. outdoor/outdoor) environment.

This means only single-port PSE's should normally be used when PD's are deployed outdoors. In summary, the PD-PSE environment is one of these three combinations:

1. PoE Source is indoor; PD is indoor (Env. A)
2. PoE Source is indoor; PD is outdoor (Env. B)
3. PoE Source is outdoor; PD is outdoor (Env. B)

Option 3 is the most challenging environment since both the PD and PSE are installed outdoors.

Caution: The switch is an indoor device. If it is to be used with outdoor devices such as outdoor IP cameras or outdoor Wi-Fi APs, then you are strongly suggested to install a surge protector or surge suppressor in order to protect the switch. The switch is compliant with 802.3at in Environment A when using an isolated power supply. For 802.3at Environment B applications, i.e. building to building, copper to copper endpoint connections: 1) use an Ethernet network isolator module (PoE disabled), or 2) use mid-span injector (s), e.g. MIL-L100i, L1000i-at, between this switch's PSE port and link partner PD port.

Mode A vs. Mode B

Alternative A, also known as Mode A, uses the data pairs of an Ethernet link to deliver power. Data Pairs include pins 1,2 and 3,6. PSEs using Mode A supply a positive voltage to pins 1 and 2.

Alternative B, also known as Mode B, uses the spare pairs to deliver power. Spare Pairs include pins 4,5 and 7,8.

802.3af/at Standard "compliant" vs "compatible" PDs

Knowing the difference between PoE "compliant" and "compatible" devices can help avoid interoperability and connectivity issues. Compliant PoE devices and compatible PoE devices are not held to the same 802.3af/at standard:

- 802.3af/at "compliant" PDs fulfill the IEEE strict requirement to support both Mode A and Mode B power modes.
- 802.3af/at "compatible" PDs typically can provide power using only Mode B.

Typical PD Power Requirements

- 1.8 Watts: Lantronix' M/GE-ISW-SFP-01-PD (Class 1 Powered Device (0.44 Watts - 3.84 Watts).
- 13W: IP Camera, VoIP Phone, Wireless Access Point, Networked Audio.
- 30W: IP Telephone, WiMAX Access Point, PTZ Camera, Remote Computer Terminal.
- 60W : Door Access System, Video Phone, Thin Client.
- 100W: Digital Signage Display, Point-of-Sale System, LCD TV, Computer Monitor.
- 200W: Larger TV, Larger Display, Larger Monitor, Laptop.

After eliminating basic network factors, ask your PD vendor for the PD's power supply mode and polarities supported and exact power consumption.

Calculate PoE Power Budget

To calculate how many 802.3at devices the unit supports, divide the Total PoE Budget (130 Watts) by 30 Watts. To calculate the maximum number of 802.3af devices, divide the Total PoE Budget (130 Watts) by 15.4 Watts.

VoIP vs SIP

VoIP (Voice over IP) involves making or receiving phone calls over the Internet or internal networks.
SIP (Session Initiation Protocol) is an application layer protocol used to establish, modify, and terminate multimedia sessions such as VoIP calls. One difference is their scope. VoIP is not a discrete technology; it is a set of technologies used in modern telecom networks. SIP is a signaling protocol used within VoIP technology. Another difference is that VoIP sends only voice messages, while SIP can carry all media forms (not just voice messages).

Mixing POE and Non-POE Devices

You can mix POE and non-POE devices on the same POE switch (i.e., you can put PCs on the same POE switch as a SIP phone or a VOIP phone). The PSE (your switch) will only send power if requested by the PD.

Ethernet and PoE Intra-Building Cabling Warnings

1. Ethernet cables are intended for intrabuilding use only. Connecting your switch directly to Ethernet cables that run outside the building in which the switch is housed will void the user's warranty and could create a fire or shock hazard.
2. PoE cables are intended for intrabuilding use only. Connecting your switch directly to PoE cables that run outside the building in which the switch is housed will void the user's warranty and could create a fire or shock hazard.
3. For outdoor PoE applications, we recommend using Lantronix' SI-IES-1200-LRT Unmanaged Hardened PoE+ Injector or SI-IES-111D-LRT Unmanaged Hardened PoE+ Injector/Converter Use of any other PoE injector will void the user's warranty and could create a fire or shock hazard.

Legacy PD Detection / Capacitor Detection

Legacy PDs refers to powered devices manufactured before the IEEE standard was finalized and do not have the expected PD signature required by the PSE's detection signal. Such PDs usually feature large capacitance as the detection signature that does not completely comply with the 802.3af specs. By enabling this option, the switch will probe for legacy PDs and if a legacy PD is detected, the switch will provide power to the PD.

Troubleshooting PoE Problems

1. Get as much detail as possible regarding the symptom, including any system messages from the PoE switch. For example, does a PD not power up at all, or does it power up briefly and then power down?
2. Determine if the trouble occurred on initial installation or after the PD had been working normally.
3. If the trouble started after the PD was working, what changed? Did hardware or software change?
4. Verify that the port is not shut down, disabled, or errored.
5. Verify that the Ethernet cable from the PD to the switch port is good.
6. Verify that the total cable length from the switch front panel to the connected PD is not more than 100 meters. Some of the power from the switch port is dissipated in the cable due to wire resistance, especially on cables as long as 100 meters. Only the remaining power is available to the PD. The 100-meter limit for twisted-pair Ethernet cable assumes **a)** not more than four RJ-45 connection points in the transmission path, **b)** 90 meters of solid-strand Category 5 or 5e, and **c)** 10 meters of flexible multistrand cable (2-to-5 meters of multistrand Category 5 patch cords).
7. Verify that the PSE switch power budget can power the PD. If the switch power budget is depleted, additional PDs will not power-on when connected to a PoE port. Verify that the switch power budget (available PoE) is not depleted before or after the PD is connected. Verify that sufficient power is available for the PD type.
8. Verify if non-powered Ethernet devices can establish an Ethernet link on any port and that PoE devices do not power up on the same port.
9. Review alarms reported previously by system messages.
10. If a working IP Phone or WAP intermittently reloads or disconnects from inline power, verify all electrical connections from the switch to the PD. An unreliable connection results in power interruptions and intermittent PD operation, such as PD disconnects and reloads.
11. Check for changes in the electrical environment at the switch site. What is happening at the PD when the disconnect occurs? Check for error messages reported by the switch at the same time of the disconnect.
12. Verify that an IP Phone is not losing access just before a reload occurs (a network problem, not a PoE problem).
13. Pre-standard and post-standard VoIP phones may use different detection and connect / disconnect methods. Note that PD detection occurs when an Ethernet device is first connected to a PoE port. If a non-PoE device is connected to a PoE port, detection is deactivated. If the non-PoE device is later disconnected and replaced by a PD, the switch may not detect it immediately.
14. Verify that the PD is not causing an overcurrent condition on the port. Specifically: does the VoIP phone initially power on and then disconnect? If so, the problem may be an initial current surge that exceeds a current-limit threshold for the switch port. Some PDs may have excessive “surge in” current when first connected to a PoE port. The switch initially provides power to the port, and then quickly removes power due to a momentary overcurrent condition. The PD starts to power up, but then quickly powers down.
15. Most PoE switches have voltage and current regulators that detect an overcurrent threshold and disconnect power from the line. This prevents excessive current from being delivered by the PoE port, which could possibly result in damage to port-level components.
16. A variety of disturbances on the AC power line (mains) can cause odd PoE problems. The power supplies in various switches and PDs can react uniquely to AC input disturbances. AC disruption problems are usually temporary or one-time occurrences. For example, a specific switch or PD may reboot due to an AC power

problem, while other switches or PDs may show a greater immunity to the problem. This is a typical occurrence during lightning storms or AC power maintenance. In a worst-case scenario, a PoE power supply may appear to shut down, with no PoE output voltage to any port. It's possible the switch's Ethernet functions appear normal, and only the PoE functions are disrupted or degraded, or the switch may power down completely due to the AC disturbance. PDs may exhibit unusual behavior. In such cases, power cycle the switch (unplug the switch, wait at least three seconds, then plug it back in. This will ensure a total system reset that should restore normal operation.

17. Check if related features (e.g., LLDP mode, CDP mode) are enabled.

5. Related Information

This chapter provides Regulatory Agency, Cautions and Warnings, Troubleshooting, and related information.

Declaration of Conformity

Manufacture's Name: Lantronics, Inc.
Manufacture's Address: 48 Discovery, Suite 250, Irvine, CA 92618, USA
Declares that the products: SISTP1040-382B-LRT
Conforms to the following Product Regulations:
FCC Part 15 Class A, EN 55032:2015AC/AC:2016 Class A; EN61000-3-2:2014, EN61000-3-3:2013, AS/NZS CISPR 32:2015 Class A; EN 55024:2010/A1:2015
Directive 2014/30/EU, Low-Voltage Directive 2014/35/EU, IEC /EN 60950-1:2006+A2:2013, 2011/65/EU, EN 50581:2012
ANSI C63.4-2014, XISPR PUB. 22, FCC part 15 Subpart B, Canada Standard ICES-003 Issue 6 Class A
With the technical construction on file at the above address, this product carries the CE Mark
I, the undersigned, hereby declare that the equipment specified above conforms to the above Directive(s) and Standards(s).
Place: Irvine, California
Date: April 27, 2023
Signature: *Eric Bass*
Full Name: Eric Bass
Position: Vice President of Engineering

Cautions and Warnings

Definitions

Cautions indicate that there is the possibility of poor equipment performance or potential damage to the equipment. Warnings indicate that there is the possibility of injury to person.

Cautions and Warnings appear here and may appear throughout this manual where appropriate. Failure to read and understand the information identified by this symbol could result in poor equipment performance, damage to the equipment, or injury to persons.

Cautions

Do not ship or store devices near strong electrostatic, electromagnetic, magnetic, or radioactive fields.
Caution: When handling chassis devices observe electrostatic discharge precautions. This requires proper grounding (i.e., wear a wrist strap).
Caution: Copper based media ports, e.g., Twisted Pair (TP) Ethernet, USB, RS232, RS422, RS485, DS1, DS3, Video Coax, etc., are intended to be connected to intra-building *(inside plant)* link segments that are not subject to lightning transients or power faults. They are **not** to be connected to inter-building *(outside plant)* link segments that are subject to lightning.
Caution: **Do not** install the device in areas where strong electromagnetic fields (EMF) exist. Failure to observe this caution could result in poor device performance.
Caution: Read the installation instructions before connecting the chassis to a power source. Failure to observe this caution could result in poor performance or damage to the equipment.
Caution: Only trained and qualified personnel should install or perform maintenance on the device. Failure to observe this caution could result in poor performance or damage to the equipment.
Caution: Do not let optical fibers come into physical contact with any bare part of the body since they are fragile, and difficult to detect and remove from the body.
Caution: Do not bend any part of an optical fiber/cable to a diameter that is smaller than the minimum permitted according to the manufacturer's specification (usually about 65 mm or 2.5 in)!

Warnings

Warning: Use of controls, adjustments or the performance of procedures other than those specified herein may result in hazardous radiation exposure.
Warning: Visible and invisible laser radiation when open. **Do not** stare into the beam or view the beam directly with optical instruments. Failure to observe this warning could result in an eye injury or blindness.
Warning: DO NOT connect the power supply module to external power before installing it into the chassis. Failure to observe this warning could result in an electrical shock or death.
Warning: Select mounting bracket locations on the chassis that will keep the chassis balanced when mounted in the rack. Failure to observe this warning could allow the chassis to fall, resulting in equipment damage and/or possible injury to persons.

Warning: Do not work on the chassis, connect, or disconnect cables during a storm with lightning. Failure to observe this warning could result in an electrical shock or death.

High Risk Activities Disclaimer: Components, units, or third-party products used in the product described herein are NOT fault-tolerant and are NOT designed, manufactured, or intended for use as on-line control equipment in the following hazardous environments requiring fail-safe controls: the operation of Nuclear Facilities, Aircraft Navigation or Aircraft Communication Systems, Air Traffic Control, Life Support, or Weapons Systems ("High Risk Activities"). Lantronix and its supplier(s) specifically disclaim any expressed or implied warranty of fitness for such High Risk Activities.

Warning and Caution - Proper Installation and Operation (English)

These devices are open-type devices that are to be installed in an enclosure only accessible with the use of a tool, suitable for the environment. This equipment is suitable for use in Class I, Division 2, Groups A, B, C, and D or non-hazardous locations only. WARNING – EXPLOSION HAZARD. DO NOT DISCONNECT WHILE THE CIRCUIT IS LIVE OR UNLESS THE AREA IS FREE OF IGNITIBLE CONCENTRATIONS.

Avertissement et mise en garde - Installation et fonctionnement corrects (français)

Ces périphériques sont des périphériques de type ouvert qui doivent être installés dans un enceinte uniquement accessible à l'aide d'un outil, adapté à environnement. Cet équipement peut être utilisé dans la classe I, division 2, groupes A, B, C, et D ou des emplacements non dangereux seulement. AVERTISSEMENT - RISQUE D'EXPLOSION. NE PAS SE DÉCONNECTER LORSQUE LE CIRCUIT EST VIVANT OU À MOINS QUE LA ZONE NE SOIT LIBRE DE CONCENTRATIONS IGNIFIABLES.

Warning: This equipment is compliant with Class A of CISPR 32. In a residential environment this equipment may cause radio interference.

User Information

Caution: changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class A device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Test Standard: 47 CFR FCC Rules and Regulations Part 15 Subpart B, Class A Digital Device. ICES-003 Issue 6, Class A. The energy emitted by this equipment passed CISPR PUB. 22 and FCC Part 15 Subpart B and Canada Standard ICES-003 Issue 6.

These devices are open-type devices that are to be installed in an enclosure only accessible with the use of a tool, suitable for the environment.

RoHS, REACH and WEEE Compliance Statement

See https://www.lantronix.com/legal/rohs/

Electrical Safety Warnings

Electrical Safety

IMPORTANT: This equipment must be installed in accordance with safety precautions.

Elektrische Sicherheit

WICHTIG: Für die Installation dieses Gerätes ist die Einhaltung von Sicherheitsvorkehrungen erforderlich.

Elektrisk sikkerhed

VIGTIGT: Dette udstyr skal enstallers i overensstemmelse med sikkerhedsadvarslerne.

Elektrische veiligheid

BELANGRIJK: Dit apparaat moet in overeenstemming met de veiligheidsvoorschriften worden geïnstalleerd.

Sécurité électrique

IMPORTANT : Cet équipement doit être utilisé conformément aux instructions de sécurité.

Sähköturvallisuus

TÄRKEÄÄ : Tämä laite on asennettava turvaohjeiden mukaisesti.

Sicurezza elettrica

IMPORTANTE: questa apparecchiatura deve essere installata rispettando le norme di sicurezza.

Elektrisk sikkerhet

VIKTIG: Dette utstyret skal 41installers i samsvar med sikkerhetsregler.

Segurança eléctrica

IMPORTANTE: Este equipamento tem que ser instalado segundo as medidas de precaução de segurança.

Seguridad eléctrica

IMPORTANTE: La instalación de este equipo deberá llevarse a cabo cumpliendo con las precauciones de seguridad.

Elsäkerhet

OBS! Alla nödvändiga försiktighetsåtgärder måste vidtas när denna utrustning används.

Box and Device Labels

The Model number, Part Number (P/N), and Serial Number (S/N) are printed on the shipping box and on the bottom of the Switch. This information will be helpful when calling or emailing Technical Support.

Recording Model Information and System Information

After performing the troubleshooting procedures, and before calling or emailing Technical Support, please record as much information as possible to help the Technical Support Specialist.

1. Record the **Model Information** for your system.

   Serial Number: _____ Model: _____

   Software Revision: _____ Hardware Revision: _____

   Number of Ports: _____ Power Supply used: _____

2. Provide additional information to the Technical Support Specialist. See General Troubleshooting on page 32.

   Your Lantronix service contract number: _____

   A description of the failure: _____

   _____

   _____

   LED Status: _____

   _____

   Describe any action(s) already taken to resolve the problem (e.g., changing switch mode, rebooting, etc.):

   _____

   _____

   _____

   The serial and revision numbers of all involved Lantronix products in the network:

   _____

   _____

   A description of your network environment (layout, cable type, PoE / PoE+ / PoE++, PD, etc.): _____

   _____

   _____

   Network load and frame size at the time of trouble (if known): _____

   The device history (i.e., have you returned the device before, is this a recurring problem, etc.):

   _____

   _____

   Any previous Return Material Authorization (RMA) numbers: _____

Lantronix Corporate Headquarters

48 Discovery, Suite 250

Irvine, CA 92618, USA

Toll Free: 800-526-8766

Phone: 949-453-3990

Fax: 949-453-3995

Technical Support

Online: https://www.lantronix.com/technical-support/

Sales Offices

For a current list of our domestic and international sales offices, go to the Lantronix web site at www.lantronix.com/about/contact.