



LSS2200-8P

Managed Layer 2 Gigabit Ethernet PoE++ Switch

(8) 10/100/1000Base-T IEEE 802.3bt + (2) 10G/5G/2.5G/1G SFP+ Multi-Gig Slots

Install Guide

Part Number 33860
Revision D September 2023

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Revision History

Date	Rev.	Comments
2/27/23	B	FW v 1.6.0.0R6: add the ability to install a custom SSL certificate and private key via CLI commands. Add note to use HTTPS:// in web browsers. Add native VLAN ID (PVID) support for Trunk mode in Web UI. Update Digital I/O information. Add PVLAN Web page. Add ConsoleFlow On-premise support in Web UI and CLI. Add Virtual Cable Test webpage. Add File Transfer support in CLI. Show LLDP Neighbors table in Web UI. Note: If upgrading from v1.5.0.0R16 to v1.6.0.0R6, reload defaults and save or do a factory reset. Update LED and power supply information.
6/6/23	C	FW v 1.7.0.0R5: Add ConsoleFlow On-premise support. Update front panel DIO labeling. Updated OpenWRT.
9/8/23	D	FW v 2.0.0.0R4: Change ‘ConsoleFlow’ to ‘PercepXion’ (Cloud). Web UI: Add SSH Server, NFC enable, Syslog Config, Syslog download, and Audit Log web pages. Add User groups. Add Auto-Refresh button to Status pages. Add configurable Login timeout and add disk icon for one button Save in Web UI. CLI: Add configure SSH interface CLI commands. Update product label.

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1. Introduction

Product Description

The LSS2200-8P is a managed Layer 2+ Gigabit Ethernet switch offering eight (8) 1GBase-T interfaces with full IEEE 802.3bt 90W support, two (2) 10/5/2.5/1GBase-T multi-gigabit SFP+ slots, two (2) programmable Digital Input/Outputs with 12V power output, and one (1) RJ-45 console port. Through the LSS2200-8P Mobile App, the switch features Near Field Communications (NFC) support for simplified transfer of pre-configuration onto units prior to powering up and dispatching to install sites.

The LSS2200-8P switch offers 720W total PoE budget for powering LED lighting, high-powered security and surveillance cameras and other IP devices. Its small footprint and hardened temperature rating make it ideal for powering IP devices distributed throughout a building. The LSS2200-8P also incorporates Bluetooth Low Energy (BLE) for wireless CLI without requiring physical access to troubleshoot, configure or reset the device. Cloud management and APIs for integrating with building management systems make the switch very easy to deploy and manage. The embedded Smart Device Manager (SDM) software is easy to use and simplifies configuration, installation, and troubleshooting of devices to help lower construction and maintenance costs. The LSS2200-8P helps commercial building owners and managers improve building efficiency and enhance the tenant and guest experience within buildings.

The device comes pre-enabled with easy-to-use Lantronix PercepXion device management software for the Cloud, which allows users to find specific switches, check device properties and scan through telemetry status data in real time from anywhere.

The Lantronix PercepXion device manager provides cloud-based or On-premise control of your Lantronix LSS2200-8P PoE network switch. PercepXion provides a single pane of glass to deploy securely, monitor, and manage Lantronix network switches and connected IT equipment when purchased with the LS Series switch.

LEVEL™ Technical Services provides dedicated technical experts to assist with your unique solutions. Lantronix provides direct 24/7 phone support, a limited lifetime warranty, and full access to our technical resource center with purchase of Level Technical Services.

About This Manual

This manual describes how to install, connect, and troubleshoot the switch, including how to:

- Install the switch
- Check switch status by reading the LED indicators
- Reset the switch or to restore the switch to factory defaults
- Use a Web browser or the CLI to initially connect to the switch
- Troubleshoot the switch

Note that this manual may provide links to third party websites for which Lantronix is not responsible.

Related Manuals

- LSS2200-8P Quick Start Guide, 33859
- LSS2200-8P Web User Guide, 33861
- LSS2200-8P CLI Reference, 33862
- LSS2200-8P REST API User Guide, 33863
- LSS2200-8P MobileApp User Guide, 33870
- Release Notes (revision specific)

Ordering Information

SKU	Description
LSS2200-8P	Managed Layer 2 Hardened Gigabit Ethernet PoE++ Switch: (8)10/100/1000BASE-T IEEE 802.3bt ports, (2) 10G/5G/2.5G/1G SFP+ Multi-Gig Slots, (2) programmable Digital Input/Outputs with 12V power output, and one (1) RJ-45 console port. 54V-56VDC.
Optional Accessories (order separately)	
PercepXion	Centralized Management Software for Lantronix products. PercepXion is available as a cloud-based SAAS. Select an annual subscription model..
MobileApp	LSS2200-8P Android mobile application provides instant status and access to your remote equipment conveniently from your smartphone or tablet. Contact Lantronix Technical Support for the free download.
25172	Power Supply; 960W 48V 20A DIN Rail Power Supply (recommended for full PoE output). Input: 100-240 VAC, 80-370 VDC. Output: 960 Watts.
25160	Power Supply; Hardened DIN Rail Mounted (for low PoE budget applications); Input 90-264 VAC, 127-370 VDC. Output: 48~55 VDC, 10A, 480 Watts. See the 25160 product page.
SFPs	See the Lantronix SFP page .
OCA-P181610	Outdoor Cabinet Assembly; see https://www.lantronix.com/products/oca-p181610/
WMB-LSS	Wall mount bracket kit (optional)

Services (order separately)

CF-NWS-CLOUDSAAS-xYR	PercepXion Cloud Subscription x-Years (where x = 1, 3 or 5 year subscription)
CF-NWS-ONPREMISE-xYR	PercepXion On-Premise Subscription x-Years (where x=1, 3 or 5 year subscription)
LEVEL-x-yYEAR	Technical Support Services, Level 1, 2 or 3 and 1, 3 or 5 year subscription

Features

- (8) 10/100/1000Base-T PoE++ IEEE 802.3bt ports and (2) 10G/5G/2.5G/1G SFP+ Multi-Gig slots
- One Console port
- Two programmable digital input or output ports
- Supports BLE connection for remotely accessing the Console
- Operating temperature -40 to +65°C
- Near Field Communications (NFC) support for simplified transfer of pre-configuration onto units through Mobile App
- Dual 54V – 56V DC input with terminal block connectors
- Compatible with various PoE++ PDs and LED controllers
- DIN Rail or Table/Desk/Shelf mount; Wall mount brackets (optional)
- Supports Jumbo Frames up to 10K bytes
- DHCP Client, DHCP Relay, DHCP Snooping, DHCP Server
- LLDP (Link Layer Discovery Protocol)
- 802.1AB LLDP-MED Configuration
- Last Gasp
- Port Security
- Port Mirroring
- Syslog
- SSH Server

- Audit Log
- NFC enable
- Web management via HTTP/HTTPS, CLI/Telnet/SSH, SNMP V1/V2c/V3, PercepXion
- VLAN: Port Based VLAN, IEEE 802.1Q tag-based VLAN, MAC-based VLAN, Management VLAN
- Port VLAN Config: Access and Trunk port support
- Quality of Service: supports 8 hardware queues. Strict Priority and WRR, Ingress policer, Egress shaping and per port Rate control
- Default and Custom QoS Weight Distribution
- Spanning Tree: supports IEEE 802.1w RSTP
- Firmware Update via TFTP, SFTP, SCP, HTTP/HTTPS
- Static Routing
- Loop protection
- Network services supported: DHCP relay, NTP, DNS, LLDP
- CLI mechanism to upload new SSL certificate for web server
- PVLAN
- Virtual Cable Diagnostics
- CE/FCC
- UL 62368-1 certified
- 5-year Warranty
- TAA Compliant

PoE Features

- Compliant with IEEE 802.3bt PoE++
- Compliant with IEEE 802.3at PoE+
- Compliant with IEEE 802.3af PoE
- PoE Configuration
- PoE Scheduling
- PoE Force mode
- PoE Auto Power Reset
- Always on PoE
- Ultra-fast PoE

PercepXion Features

PercepXion integration provides:

- Cloud support
- Device configuration management
- Remote monitoring and diagnostics tools
- Device health dashboard and reporting
- Alarm notifications via email and text

Lantronix Provisioning Manager (LPM) Features

- Device Discovery: LPM discovers Lantronix IoT gateways and console managers on the local subnet, as well as specified remote subnets, and presents the results for the user to choose devices to perform an action on.
- Firmware Update: automatically update the firmware on all the selected devices in parallel.
- Configuration Update: update the configuration of multiple devices in parallel.
- Central Management Registration: LPM can automatically register the selected devices with the cloud management system to enable management of the devices via the cloud.

Specifications

Standards	IEEE 802.3 (Ethernet), IEEE 802.3u (Fast Ethernet), IEEE 802.3z (1 Gig Ethernet), IEEE 802.3ae (10GE), IEEE 802.3af/at/bt (PoE), IEEE 802.1Q (VLANs), IEEE 802.1AB (LLDP), IEEE 802.3x (flow control), IEEE 802.1w (Rapid Spanning Tree)
Network Interface	<ul style="list-style-type: none"> • Protocols: CSMA/CD • Full line rate non-blocking architecture • Connectors: (8) 10/100/1000Base-T PoE++ ports, (2) 10G/5G/2.5G/1G SFP+ slots, (1) Console RJ-45 port, (2) Digital Input/Outputs w/12VDC power output • MAC Address: 16K MAC address table • NFC (via LSS2200-8P Mobile App only) • BLE
Data Speed	TP : 10/100/1000Mbps SFP+ : 1G/SGMII/2.5G/5G/10G
10/100/1000Base-T Twisted Pair Port	Connector: RJ45 MDI/MDI-X selection: Automatic Cable specification: CAT5 UTP or better (CAT6 recommended)
Fiber Ports	Connectors: SFP+ Power: Level III 2.0W (SFF-8419, Rev 1.3) Modes: 1000Base-X, SGMII, 2.5GBase-X, 5GBase-X, 10GBase-X, USXGMII
RJ-45 Console port	CLI port Cisco Blue cable compliant pinning
MAC Addresses	16K MAC address table
Frame Buffer Memory	2Mbit shared buffer memory
Dimensions	Width: 3.313" [84.14 mm] x Depth: 5.125" [130.18 mm] x Height: 7.145" [181.48 mm]
DIP Switch	#1 - Enable/Disable PHO to PoE-Power interlock (see Note) #2 - Input 1 relay normal state (not active) #3 & 4 - PoE power down selection Note: for future use; the current default is disabled - do not change. (PHO is Disabled by default; do not override until fully supported).
Reset button	Reset the switch, Restore Factory defaults
LEDs	RJ-45 TP port LEDs, SFP Fiber port LEDs, System and BLE LEDs
Weight	2.9 Lbs. / 1.3 Kgs.
Power	<ul style="list-style-type: none"> • Input 46-56VDC redundant power inputs: • 46VDC for IEEE 802.3af • 52VDC for IEEE 802.3at • 54VDC for IEEE 802.3bt • Maximum Power Consumption: 750 Watts with full 802.3bt 90W load on all ports
DI/DO	Two programmable Digital I/O with 12V power output. Digital I/O can be used for dedicated PHO (PoE Hardware Override) to turn on or off banks of PoE ports in response to an external DI event (future release). (Note: PHO is Disabled by default; do not override until fully supported).

Digital I/O Isolation	<p>2250 VDC for DI/DOs and 1500 VDC for power output</p> <ul style="list-style-type: none"> • Input: <ul style="list-style-type: none"> ○ Vin low max.: 5.4V ○ Vin high min.: 7.2V ○ Vin max.: 34V ○ Current: 66uA typ (Vin 5.4/100K) ○ Isolation voltage: 2250VDC • Output: <ul style="list-style-type: none"> ○ Drive current 60mA max ○ Voltage: max. 34V ○ Isolation voltage: 2250VDC • Power supply: <ul style="list-style-type: none"> ○ 12V at 70mA maximum (Tolerance - Min 11.2V, Max. 13.2V) ○ Isolation 1500VDC
Environment	<p>Operating temp: -40 to +65°C Storage temp: -40 to +85 °C Operating Humidity: 5% to 95% (non-condensing) Altitude: 0 – 10,000 feet (with de-rating) IP31 Ingress Protection</p>
Power over Ethernet	<p>Maximum PoE budget 720 Watts (with 54-56VDC input only). 802.3bt 4PPoE 90W power delivery (720W budget), 46-56VDC input.</p>
Always-On PoE	<p>When enabled, during switch warm restart, it will continue providing PoE power to the PDs.</p>
Ultra-fast PoE	<p>Improves PoE startup time; it provides PoE output to attached PDs within approximately five seconds after a cold start.</p>
PD compatibility	<p>Compatible with IEEE 802.3af/at/bt devices; Force mode available for powering non-standard PDs.</p>
EMI	<p>FCC Class A; CE; UL62368-1</p>
Safety Compliance	<p>UL, cUL, CB 62368-1 2nd Edition</p>
Emission Compliance	<p>EN55032-2012 Class A</p>
Immunity Compliance	<p>EN55024-2010</p>
MTBF	<p>Telcordia SR332 Issue 2. Environment: Ground Benign, Controlled. Temperature: <u>30 °C</u> <u>85 °C</u> Failure Rate (FIT): 2.34 per Billion Hours 27.30 per Billion Hours MTBF: 427,983 Hours 36,635 Hours (48.86 Years) (4.18 Years)</p>
Warranty	<p>Standard Warranty: 5-year HW warranty, 1-year SW warranty Technical Services (LEVEL): Renewable 1-, 3-, or 5-year annual contracts</p>

NFC Flex Stamp Antenna

The switch provides NFC (Near Field Communication) support for setting configuration parameters without powering the switch. NFC allows simple, repeatable switch configuration with the user-friendly LSS2200-8P Mobile App on an Android-compatible mobile device prior to connecting or powering up the switch.

NFC antenna standards support includes ISO/IEC 14443 A / B (MIFARE), ISO/IEC 18092, JIS X 6319-4/FeliCa), NFCIP-1 / ECMA 3-40, and NFC Forum Tag 4.



MobileApp

The LSS2200-8P MobileApp provides a mobile interface via the BLE and NFC interfaces to connect to, configure, and diagnose the switch from an Android-based smartphone or tablet.

IP31 Ingress Protection

The switch provides IP31 rating per IEC 60529 / EN 60529 for solid ingress protection - 2.5mm, and liquid ingress protection (dripping water). See the IEC [webpage](#) for more IP ratings information.

PHO (PoE Hardware Override)

PHO provides a turn-off of the PoE power delivery in the event of an external trigger. **Note** that enabling the PHO function using DIP switch #1 dedicates both DIO interfaces to the PHO function. The CPU then no longer has any control over the DIOs; the CPU can then only monitor the status of the DIO/PHO function. See “[DIP Switch Settings](#)” on page 22 for more information. **Note:** When PHO is in use or is going to be used, the Ultra-Fast PoE function must be enabled. **Note:** PHO support will be provided in an upcoming release. PHO is disabled by default; do not change its settings until PHO is fully supported.

Expansion Slot

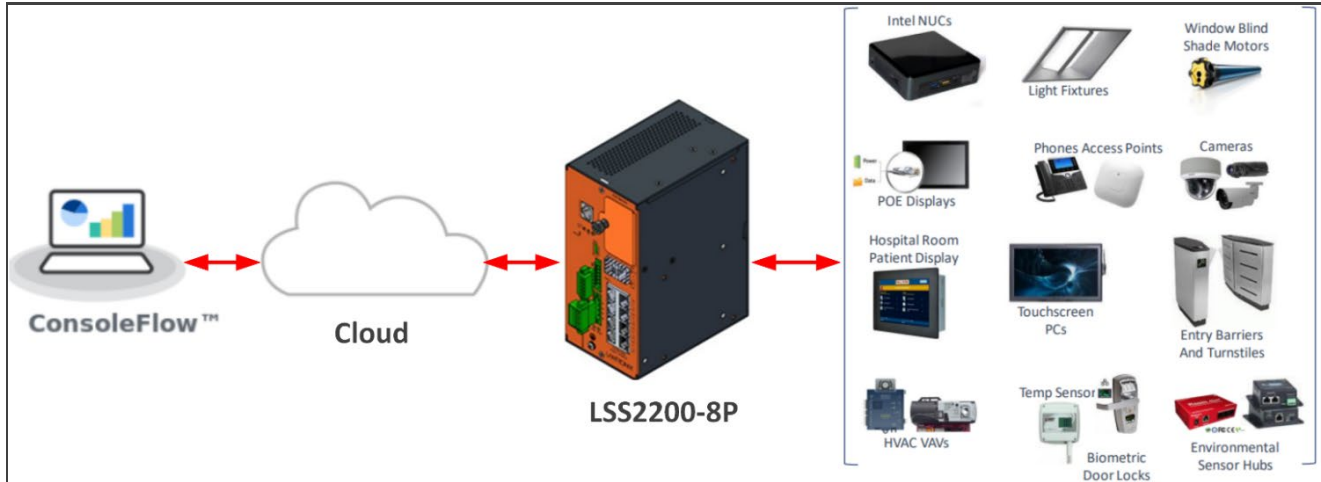
The expansion slot provides for field-replaceable and field-upgradable modules (for future use).

RESTful API

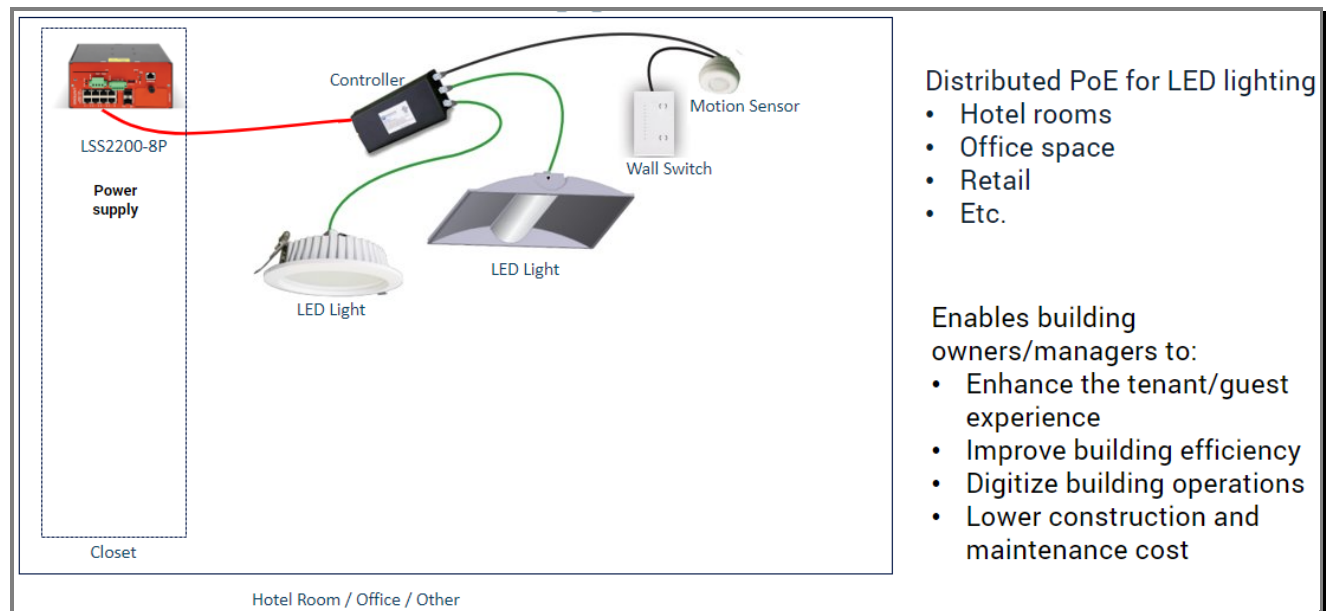
A REST API is available for managing the switch through external applications that can act as a REST client. The API supports the same configuration management and status monitoring capabilities that are available through the CLI and Web user interface, such as system information; system statistics; switch port and VLAN configuration, status and statistics; Digital IO port management; maintenance operations; and other functions.

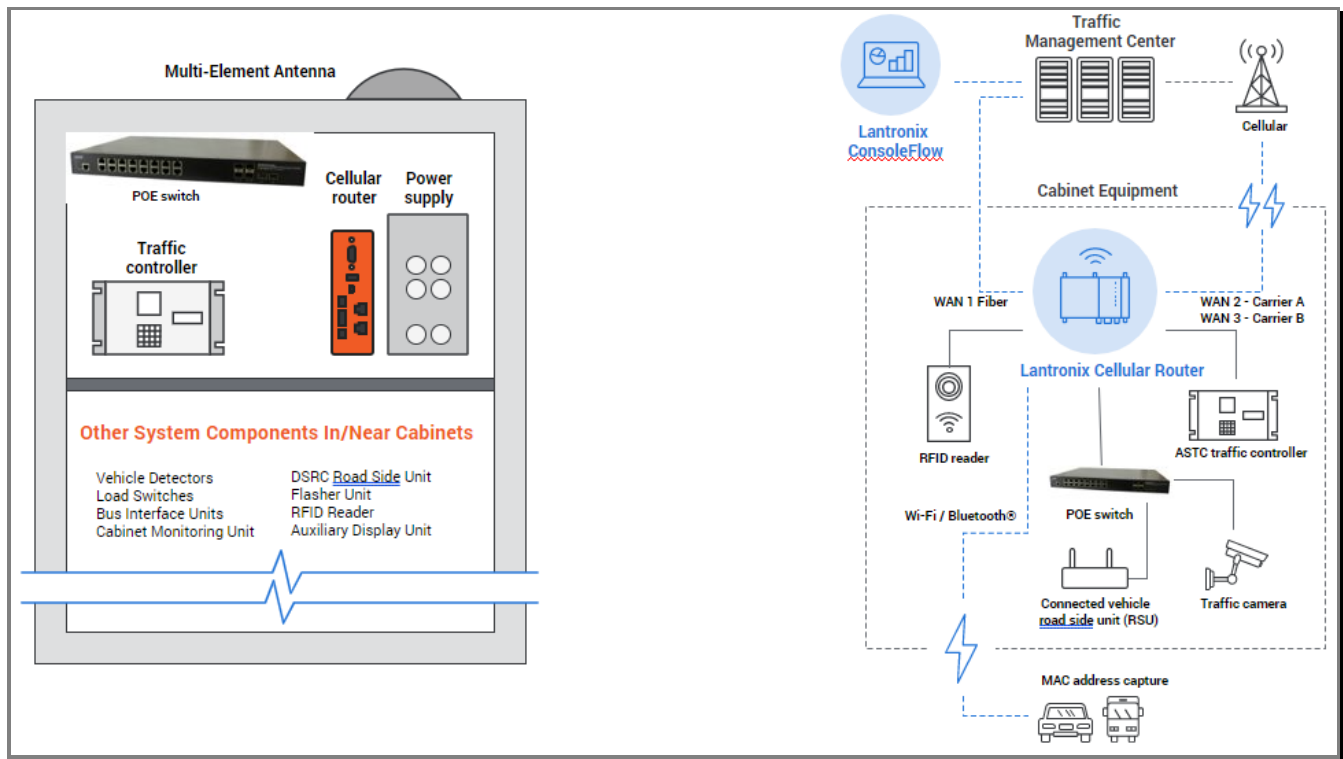
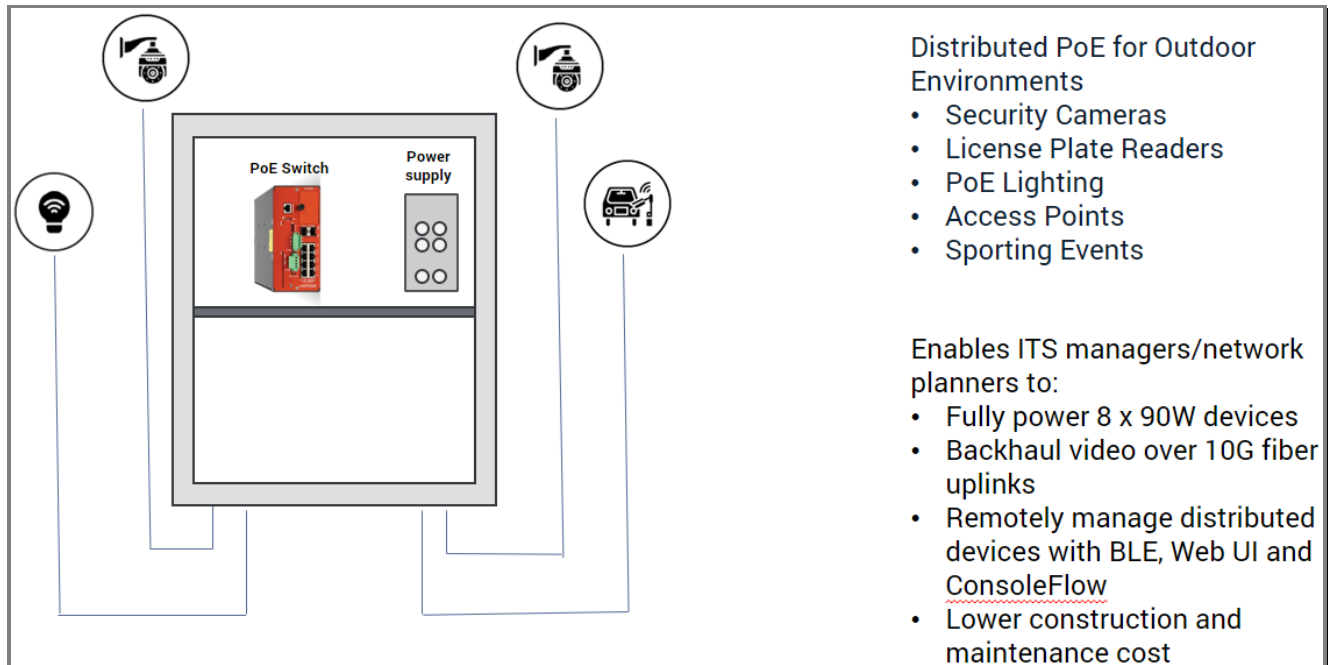
Applications

- Smart buildings for connection of high power PoE security cameras/WAPs/Private LTE
- Powering PoE lighting
- Security and Surveillance systems

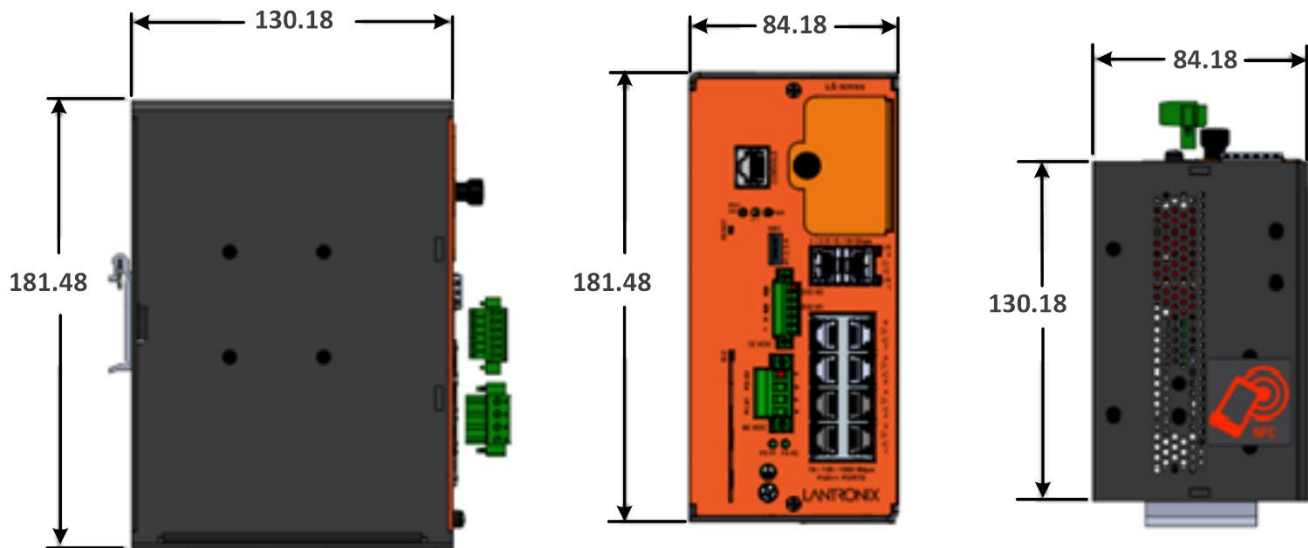


Distributed PoE for LED Lighting:



Traffic Management:**Distributed PoE for Outdoor Environments:**

Dimensions



Safety Information

Review the following Cautions and Warnings before starting to install the LSS2200-8P. Note that not all Cautions and Warnings apply to every switch environment and application.

Cautions and Warnings

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.



Warning: Do not open the chassis - No field serviceable parts.

Caution



While installing or servicing the switch, wear a grounding device and observe all electrostatic discharge precautions. Failure to observe this caution could result in damage to, or failure of the switch.

Warnings



Warning: Do not connect the switch to an external power source before installing it into its cabinet or mounting location. Failure to observe this warning could result in an electrical shock, even death.

Warning: Equipment grounding is vital to ensure safe operation. The installer must ensure that the switch is properly grounded during and after installation. Failure to observe this warning could result in an electric shock, even death.

Warning: A readily accessible, suitable National Electrical Code (NEC) or local electrical code approved disconnect device and branch-circuit protector must be part of the building's installed wiring to accommodate permanently connected equipment. Failure to observe this warning could result in an electric shock, even death.

Warning: Turn any external power source OFF and ensure that the switch is disconnected from the external power source before performing any maintenance. Failure to observe this warning could result in an electrical shock, even death.

Warning: Ensure that the disconnect device for the external power source is OPEN (*turned OFF*) before disconnecting or connecting the power leads to the switch. Failure to observe this warning could result in an electric shock, even death.

Warning: The switch has a provision for grounding. Equipment grounding is vital to ensure safe operation. The installer must ensure that the switch is properly grounded during and after installation. Failure to observe this warning could result in an electric shock, even death.

Warning: Because invisible radiation might be emitted from the aperture of the port when no fiber cable is connected, avoid exposure to radiation and do not stare into open apertures.

General Laser Safety Guidelines: When working around ports that support optical transceivers, observe the following safety guidelines to prevent eye injury:

- Do not look into unterminated ports or at fibers that connect to unknown sources.
- Do not examine unterminated optical ports with optical instruments.
- Avoid direct exposure to the beam.

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 installeres 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.

Säihköturvallisuus

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 installeres 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.

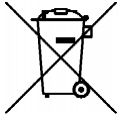
Elsäkerhet

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

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.

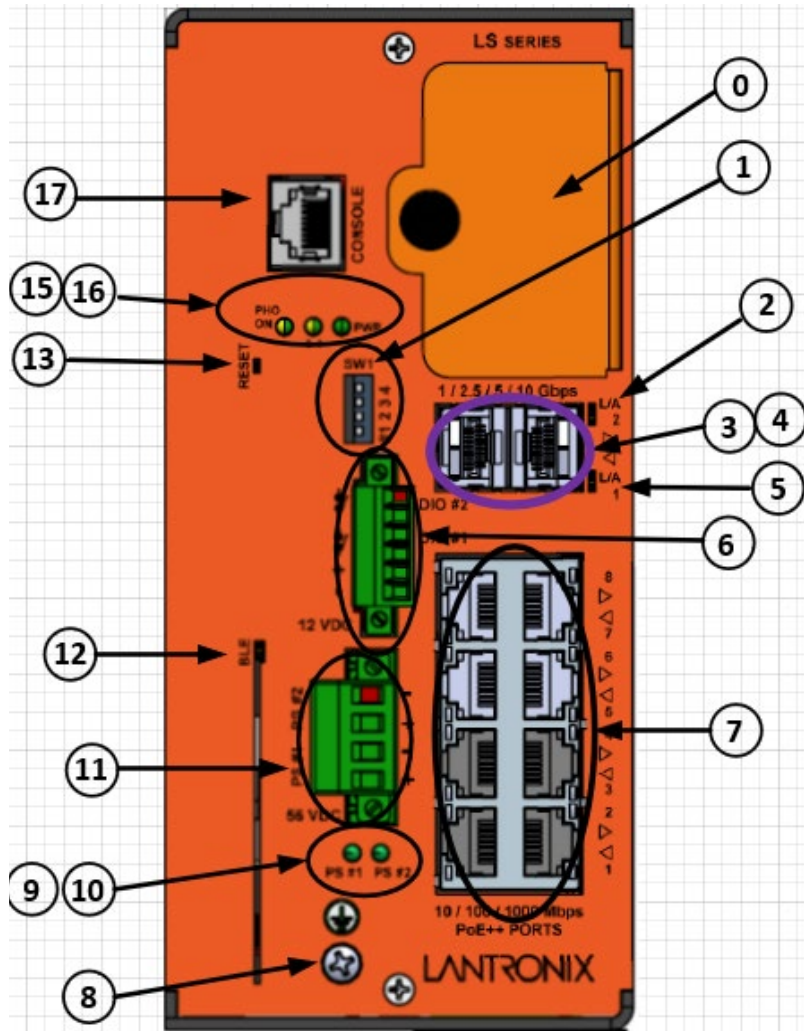
Recycling / Disposal



Do not discard electronic products in household trash! All waste electronics equipment should be recycled according to local regulations.

Information for the recycler: chassis are made of aluminum.

Front Panel



- ① Expansion slot/cover (for future use)
- ① SW1 : 4-position DIP Switch:
 - #1 - Enable/Disable PHO* to PoE Power interlock
 - #2 - Input 1 relay normal state (not active)
 - #3 & 4 - PoE power down selection
- ② L/A : Link Activity LED for SFP++ Port 2
- ③④ Port 9 & 10: Two 10/5/2.5/1G SFP++ Ports (SFP++ Port 1 & 2)
- ⑤ L/A : Link Activity LED for SFP++ Port 1
- ⑥ DIO1 & DIO2 : Digital Input/Output 1 & 2
- ⑦ Port 1 - 8 : 10/100/1000 PoE++ Ports
- ⑧ Ground screw
- ⑨ ⑩ PS #1 and PS #2: Power Supply 1 and 2 LEDs
- ⑪ 56 VDC +/- : Terminal connector for dual 56VDC input power
- ⑫ BLE : Bluetooth Low Energy LED & antenna slot
- ⑬ RESET : System reset button
- ⑭⑮⑯ PHO On LED, S1 LED, and P (Power) LED
- ⑰ CONSOLE Port

(* **Note:** PHO is currently Disabled by default; do not override until fully supported.)

RESET Button






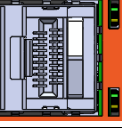


The RESET button is inset from the front panel. Use a thin object such as a paperclip to depress the button.

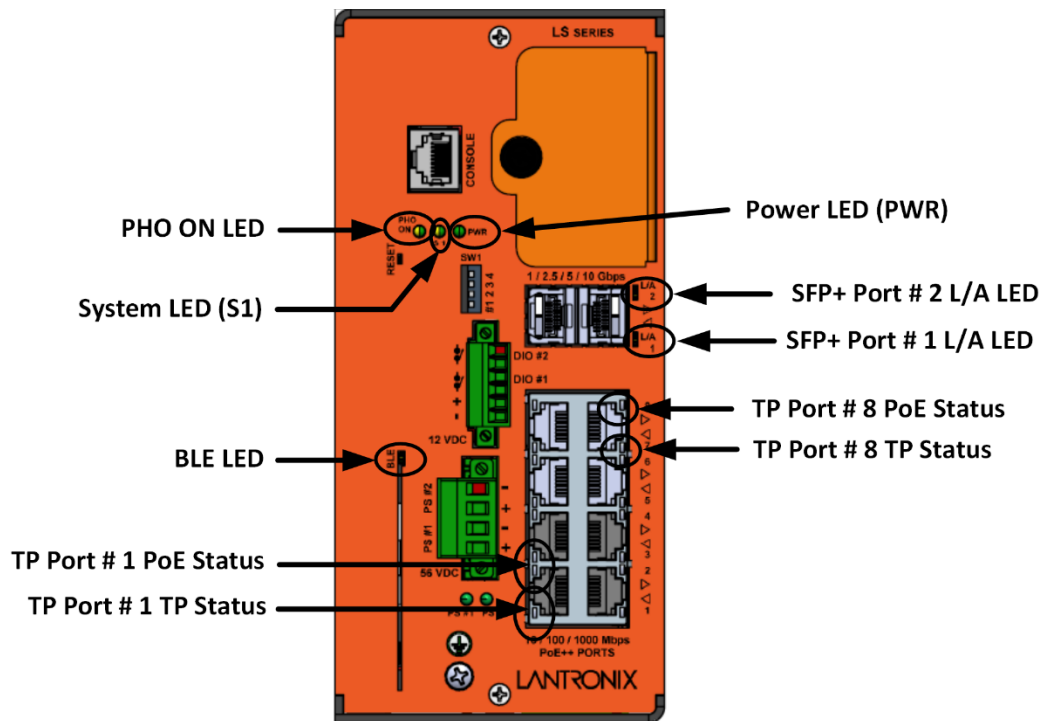
Press the front panel RESET button for 1-5 seconds to reset the switch.

Press the front panel RESET button for 10-20 seconds to restore the switch to its factory defaults.

LED Summary

Each port has one or more LEDs to indicate port and/or PoE status. The RJ-45 ports have two LEDs and the SFP+ ports have one LED. The front panel LEDs are described and shown below.

LED	Condition	Meaning
PHO ON 	LED green	On = PoE Hardware Override enabled. Off = PoE Hardware Override disabled. Note: PHO is currently disabled by default; do not override until fully supported.
S1 (System) LED 	LED green	On = connected to cloud. Blinking = re-establishing cloud connection.
	LED yellow	On = no cloud connection. Blinking = cloud provisioning in progress.
PWR (Power) LED 	LED green	On = Power on. At power up, Blinking = boot up or re-boot in progress. After successful boot, Blinking = Firmware update in progress.
BLE LED 	LED Off	BLE broadcast is disabled.
	LED Amber	BLE broadcast is enabled but BLE is not paired.
	LED Green	BLE is paired.
	LED Blinking Amber	BLE firmware update in progress.
Each RJ-45 TP port 	Left LED green	On = Link at 1G, Blinking = Link Activity.
	Left LED yellow	On = Link at 10Mbps or 100Mbps, Blinking = Link Activity.
	Right LED green	On = 802.3bt Powered, Blinking = Error.
	Right LED yellow	On = 802.3at or 802.3af Powered, Blinking = Error.
Each SFP Fiber port 	LED green	On = Link at 10G, Blinking = Link Activity.
	LED yellow	On = Link at 1G/2.5G/5G, Blinking = Link Activity.
PS #1 	LED green	On = Power from power supply PS #1. Off = No power from PS #1.
PS #2 	LED green	On = Power from power supply PS #2. Off = No power from PS #1.



Mounting Options

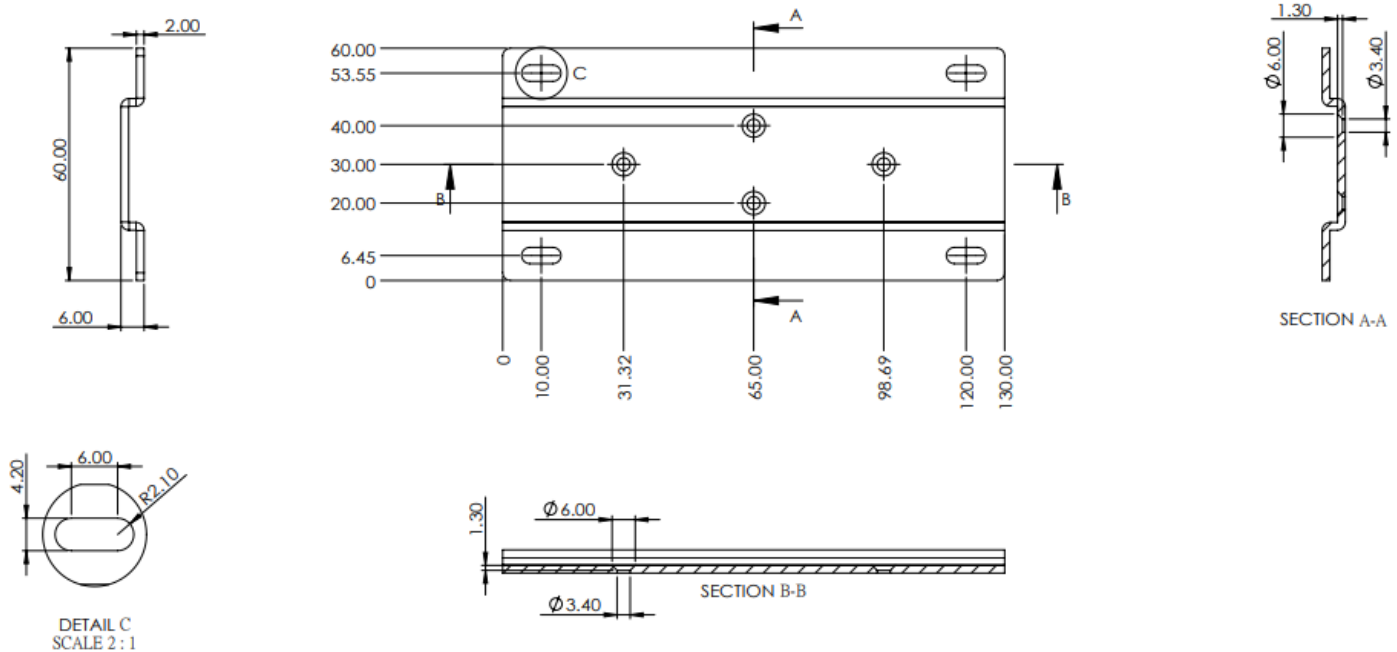
Note for all mounting options: Do not block air vents. A minimum of 1 inch clearance is required on all sides of the unit when mounting either vertically or horizontally. Do not stack heat-dissipating objects on top of the unit. Adequate clearance is required to access cable connections. Clearance is required to attach and mount the unit regardless of the mounting option used (DIN rail, desk or shelf, wall mount, etc.).

Mounting the Switch on a Table, Desk, Shelf or Other Flat Surface

Four adhesive-backed rubber feet are included in a poly bag. Remove them from the poly bag, remove the protective adhesive covering, and place the rubber feet as required.

Mounting the Switch on a Wall

A wall mount bracket kit (WMB-LSS, optional, sold separately) with two 4-40 x 1/4 screws included which can be used to attach the bracket to the switch. Note: Due to variation in mounting surfaces, mounting screws not provided. A drawing of the bracket is shown below.

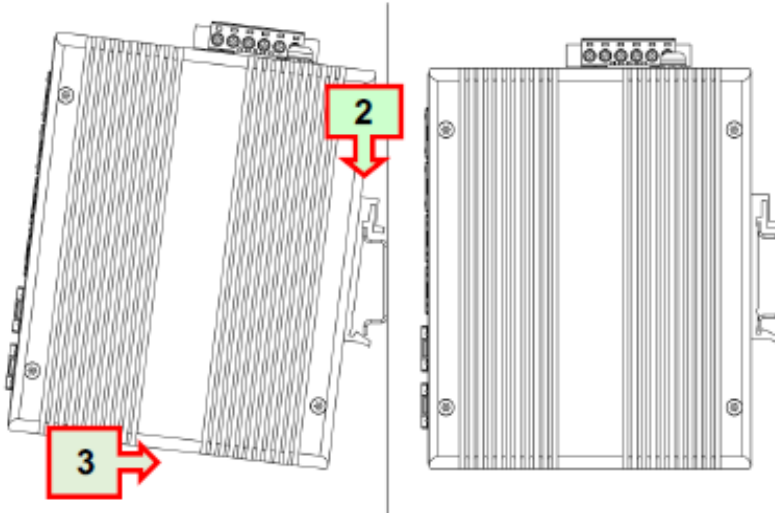


When mounting on a wall or other flat surface:

1. Consider device weight, grounding, power, cable limitations, wall structure, and suitable antenna location ahead of time. Note that the minimum of 1 inch clearance is not required if shelf mounting using the rubber feet.
2. Verify that the surface is sturdy and reliably grounded.
3. Attach the four adhesive rubber feet to the bottom of the switch.
4. Have appropriate screws on hand for mounting to desired type of wall surface.

DIN Rail Mount

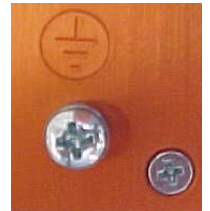
1. Attach DIN Rail bracket with screws provided and ensure screws are securely tightened prior to mounting.
2. Hook the unit over the DIN rail.
3. Push the bottom of the unit towards the DIN Rail until it snaps into place.



Grounding the LSS2200-8P

The front panel provides a grounding screw to be used for grounding the switch. Grounding and wire routing help limit the effects of noise due to EMI (electromagnetic interference). Run the ground connection from the ground screw to the grounding surface before connecting devices.

Note: Both the switch and Power Supply must have their ground terminals connected to earth ground.



ATTENTION:

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

ATTENTION

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

Connecting to the CONSOLE Port

The RJ-45 serial CONSOLE port on the switch front panel is used to connect to the switch for out-of-band console configuration. The command line interface can be accessed from a terminal or a PC running a terminal emulation program. Use the provided Cisco Blue RJ-45 to DB9 cable. See “[Connect and Log In to the Switch via the CLI](#)” on page 37.



Connecting to a Management Port

Use any RJ-45 PoE++ port on the switch front panel to connect the switch to a PC for web management. The management port lets you access, configure, and manage the switch via any current web browser. Connect the management port of the switch to the RJ45 port of the PC with an Ethernet cable (Cat 5 or better).

Installing SFP+ Modules

Note: see the related SFP device manual for important Safety warnings. See the Lantronix industrial [SFP page](#) for our line of SFP transceivers. See the [FOA webpage](#) for additional information. The Fiber Optic Association, Inc. is an international non-profit educational association chartered to promote professionalism in fiber optics through education, certification and standards. **Note:** The SFP+ ports should use EC 60825 Optional Transceiver products, Rated 3.3Vdc, Laser Class 1. Use [extended-temperature range SFPs](#) for hardened temperature environments.

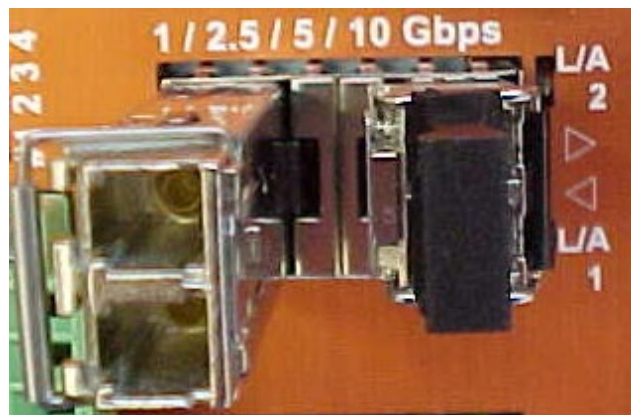
Before you begin installing SFP+ modules, observe these guidelines:

- Do not remove the rubber caps from the fiber-optic cable until you are ready to connect the cable. The plugs and caps protect the module ports and cables from contamination and ambient light.
- To prevent ESD damage, follow your normal circuit board and component handling procedures when connecting cables to the switch and other devices.

Caution: Removing and installing an SFP+ module can shorten its useful life. Do not remove and insert any SFP module more often than is absolutely necessary.

You can install or remove an SFP+ module from an SFP+ port without having to power off the switch.

1. Insert the SFP module into the SFP+ port.
2. Press firmly to ensure that the module seats into the connector.



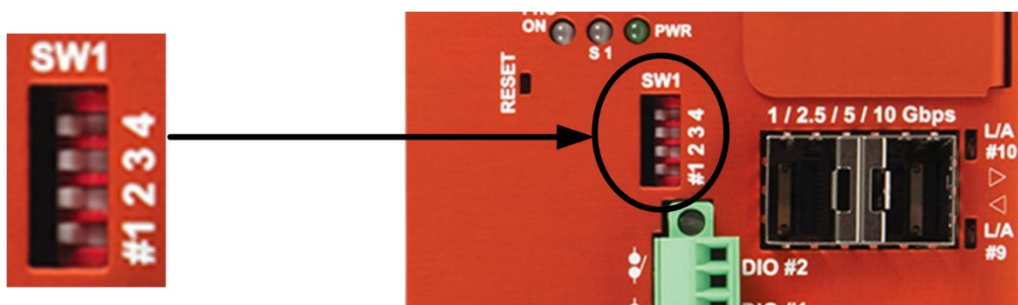
Installing an SFP+ Modules in SFP+ Ports

Removing SFP+ Modules

1. Attach an ESD-preventive wrist strap to your wrist and to a bare metal surface.
2. Disconnect the cable from the SFP+ module. For reattachment, note which cable connector plug is send (TX) and which is receive (RX).
3. Insert a dust plug into the optical ports of the SFP+ module to keep the optical interfaces clean.
4. If the module has a bale-clasp latch, pull the bale out and down to eject the module. If the latch is obstructed and you cannot use your finger, use a small, flat blade screwdriver or other long, narrow instrument to open the latch.
5. Grasp the SFP+ module and carefully remove it from the module slot.
6. Place the module in an antistatic bag or other protective environment.

DIP Switch Settings

The front panel 4-Position DIP Switch (SW1) is shown and described below. The figure below shows SW1 default settings.



The factory default setting is DIPs 1-4 set to (UP=1=OPEN=Left=default setting).

DIP #	Description	Position (Up = 1, Down =0)
1	Enable/Disable PHO to PoE-Power interlock.	<p>1 = PHO (PoE Hardware Override) function is Disabled (default). Leave in the Up (1) position.</p> <p>0 = PHO Enabled. PHO provides a turn-off of the PoE power delivery in the event of an external trigger. Note that enabling the PHO function using DIP switch #1 dedicates both DIO interfaces to the PHO function. The CPU then no longer has any control over the DIOs; the CPU can then only monitor the status of the DIO/PHO function. Note: Do not enable until this feature is fully supported. (PHO is currently Disabled by default; do not override until fully supported.)</p>
2	Input 1 relay normal state (not active)	<p>1 = Relay is normally open (default).</p> <p>0 = Relay is normally closed.</p>
3 and 4	PoE power down selection	<p>11 = Power down all TP ports. (default).</p> <p>10 = Power down just TP Ports 1-4.</p> <p>01 = Power down just TP Ports 5-8.</p> <p>00 = Power down just Expansion slots (not currently used)</p>

2. Installation

Package Contents

Carefully unpack the contents. Verify that you have received the following items. Contact your sales representative if any item is damaged or missing. Please save the packaging for possible future use.

- One switch
- Poly bag with a DIN rail bracket, two screws, and four rubber feet.
- One printed Quick Start Guide
- One support postcard

Note: A power supply is required and ordered separately. A second (back-up) power supply is optional (ordered and packaged separately).



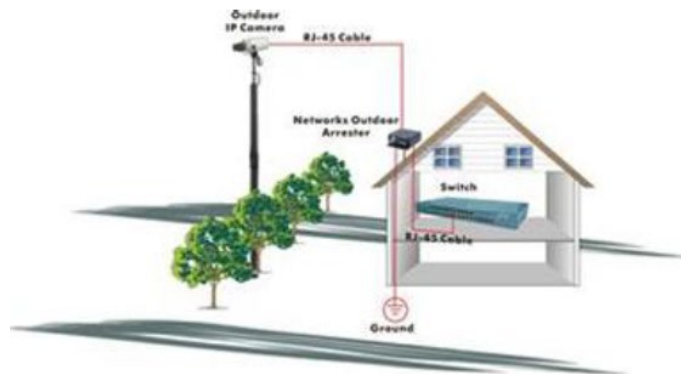
Additional Items

Not shipped but may be required: ESD-preventive cord with wrist strap, wire and wire crimper for chassis grounding, Ethernet cables, ratcheting torque flathead screwdriver that exerts up to 15 in-lb. (1.69 N-m) of pressure, a #1 and a #2 Phillips screwdriver.



Cautions:

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



Add an arrester between outdoor device and this switch

2. The marking information is located at the bottom of apparatus (IEC 62368-1).
3. The equipment is not suitable for use in locations where children are likely to be present.
4. Restricted access location.

Power Supply Information

Important: Read all power supply information and powering examples before proceeding.

The LSS2200-8P can be powered by these Lantronix power supply options:

- 25172 Weidmuller PRO MAX 960W 48V 20A DIN Rail Power Supply (recommended for full PoE output)
- 25160 Hardened 480W DIN Rail Mounted Power Supply

IEEE 802.3bt Power Input Ripple and Noise Specification

Ensure that the external supply(ies) being used meet these output requirements:

$f < 500$ 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

Power Input

The LSS2200-8P has a 4-pin terminal block that allows for two power inputs. The switch can be powered by a single isolated power supply that meets power input and total power output requirements, or it can be powered by dual isolated power supplies for redundant power. However, one power supply should never be used to power multiple PSE switches (see [Power Supply Isolation Requirement](#) on page 26).

The power input required is 46 – 56VDC, depending on the PoE output level required. Note that the input power must be set to the following voltage if **any** of the ports require the corresponding PoE levels:

IEEE 802.3af = min 46VDC
 IEEE 802.3at = min 52VDC
 IEEE 802.3bt = min 54VDC

Example: If **any** port is providing IEEE 802.3bt to a powered device, the power input must be at least 54VDC.

The recommended power supply for powering the LSS2200-8P and providing full power on all ports is part number 25172, Weidmuller Pro Max 960W 48V 20A power supply. The external power supply rating requirement for the switch is higher than the simple sum of the PoE PD requirements. The first 30W of power is immediately reserved for the LSS2200-8P. Also, there is an additional amount of power (called a “guardband”) required in excess of each PD’s power requirement. Use the chart below to determine the amount of power required:

PoE Class	Maximum PD input power draw	Maximum PSE output power source	Maximum power including guard band
0	13	15.4	16.2
1	3.84	4	4.2
2	6.49	7	7.4
3	13	15.4	16.2
4	25.5	30	31.2
5	40	45	48.6
6	51	60	65
7	62	75	81.8
8	71.3	90	97

Example: For a fully loaded system, add the LSS2200-8P system power required (30W) + qty 8 ports of 802.3bt power required (8 x 97W or 776W) = Total 806W.

Most power supplies have a de-rating curve for ambient temperatures above 50°C. Be sure to consider the power supply de-rating if used in environments over 50°C.

The overall thermal dissipation of all devices in the installation must also be accounted for. The LSS2200-8P is characterized in a still air (0 LFM) ambient environment of -40 to +65°C. Other heat sources may be specific to the actual application or installation and will contribute to the overall ambient temperature, which may require further de-rating for all devices. This is especially critical in a sealed enclosure, cabinet or confined space. As these factors are application-specific, additional attention should be given during evaluation and testing.

Setting the Power Supply Values in Switch Software

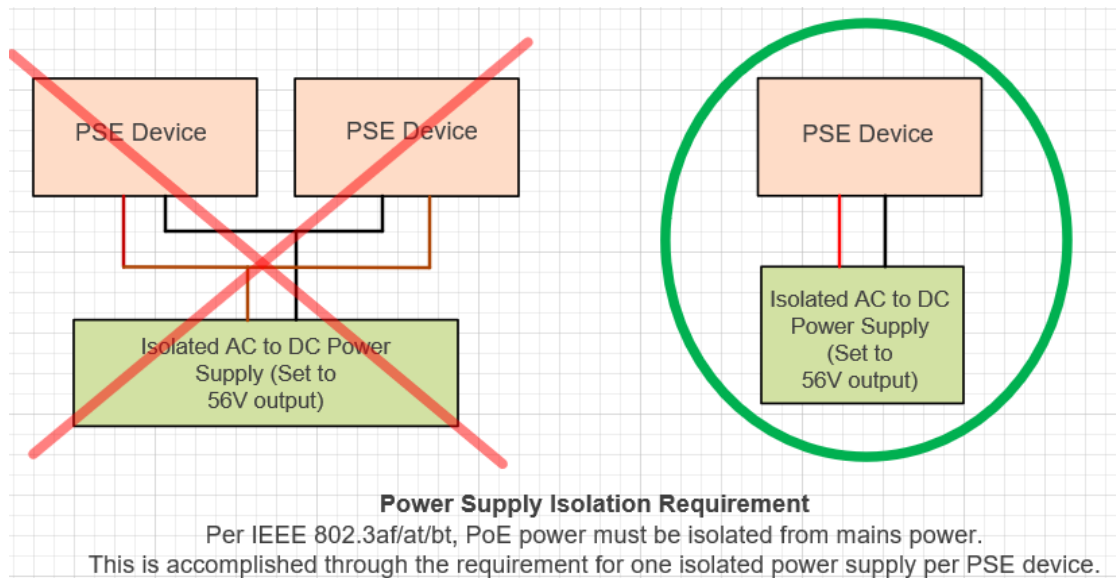
CAUTION: Always match the PSx input supply to the Power Supply 1 and Power Supply 2 software setting. Mismatching will cause the LSS2200-8P to think it can draw more power from the external supply than it is capable of providing and results could be detrimental.

Note: The power supply wattage value(s) must be manually set in the software by the user to match the connected external power supply(ies). The LSS2200-8P uses this wattage as the “PSE Power Available” to determine if enough power is available during PoE PD classification to power up connected PDs.

```
LSS2200-8P # show poe pse-status
PoE PSE Controller Status
=====
PS1 Connected:    connected
PS2 Connected:    disconnected
PSE Power Allocated: 0.000000
PSE Power Available: 870.000000
PSE Firmware Version: 1.3.0B9
LSS2200-8P # show poe pse-status
PoE PSE Controller Status
=====
PS1 Status:      Powered
PS2 Status:      Off
PSE Power Allocated: 0.000000
PSE Power Available: 0.000000
PSE Firmware Version: 1.3.0B9
LSS2200-8P # show poe pse-status
PoE PSE Controller Status
=====
PS1 Status:      Off
PS2 Status:      Powered
PSE Power Allocated: 62.200001
PSE Power Available: 645.000000
PSE Firmware Version: 1.3.0B9
LSS2200-8P #
```

Power Supply Isolation Requirement

Per IEEE 802.3af/at/bt, PoE power must be isolated from mains power. This is accomplished through the requirement for one isolated power supply per PSE device.



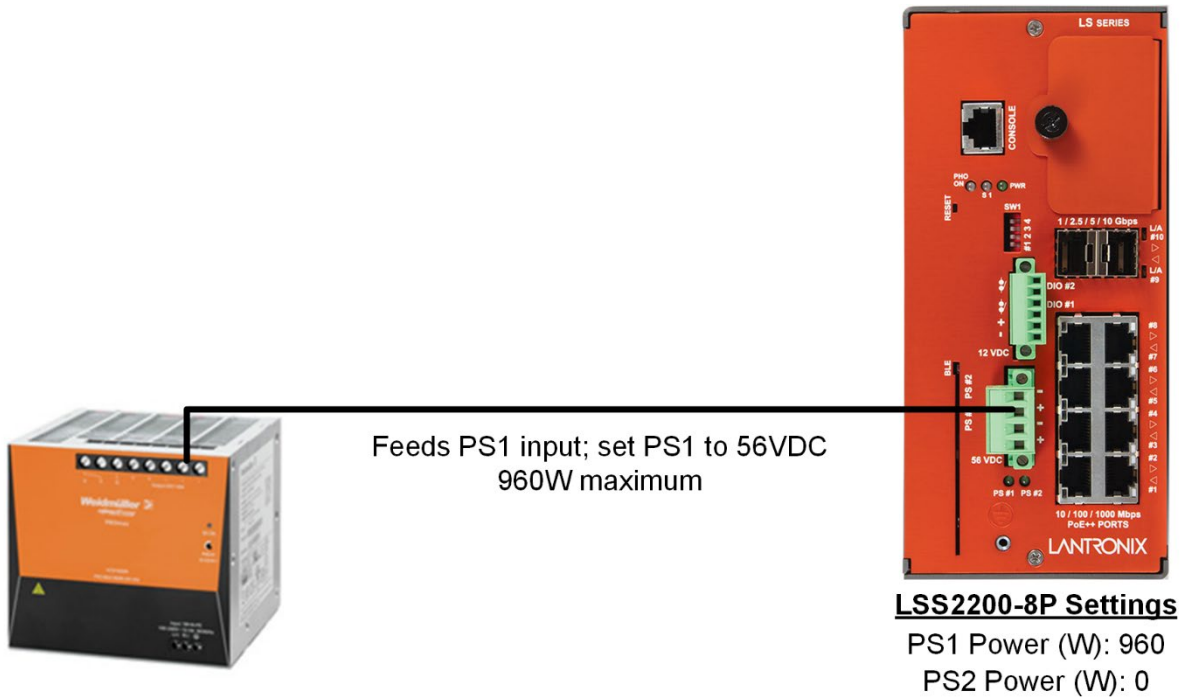
For More Power Input Information

For PoE power setup and status information see the LSS2200-8P Web User Guide.

For PoE power CLI command information see the LSS2200-8P CLI Reference.

Single Power Supply Applications

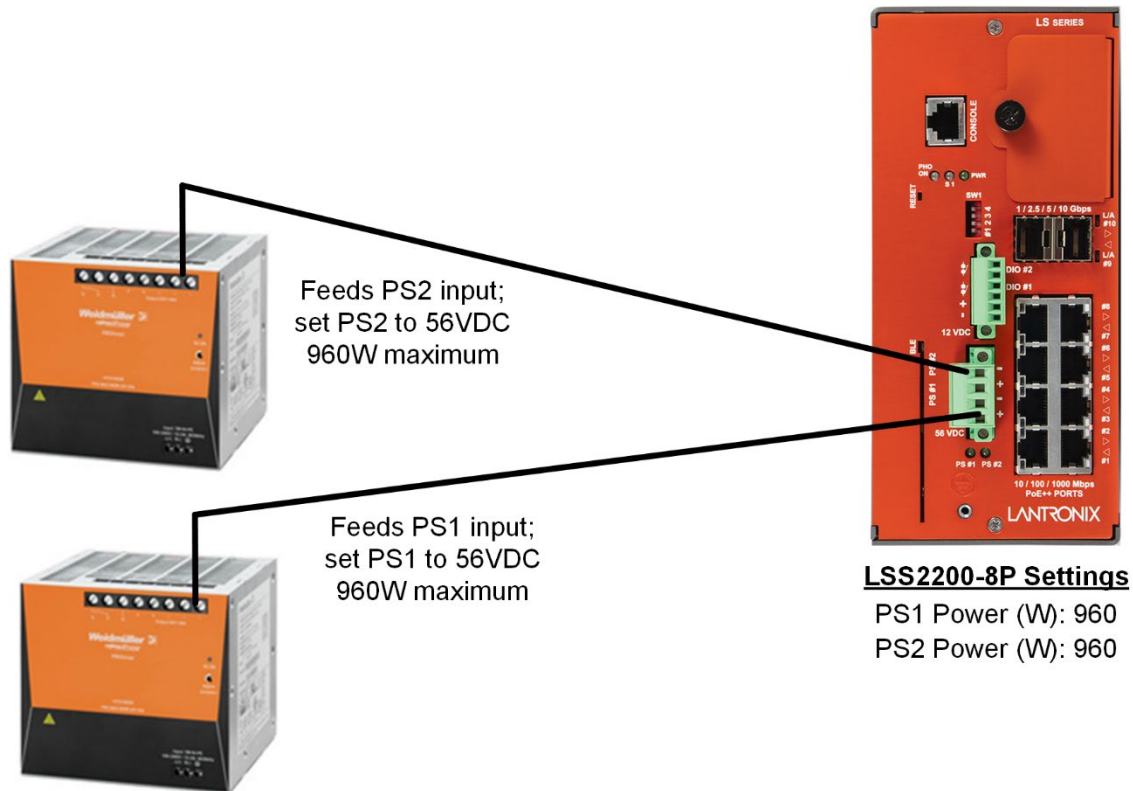
If using a single power supply, either terminal block input (PS #1 or PS #2) can be used to power the switch. In the case of power supply failure, there is no backup power, and the switch will cease to operate until power is restored.



Dual Power Supply Applications

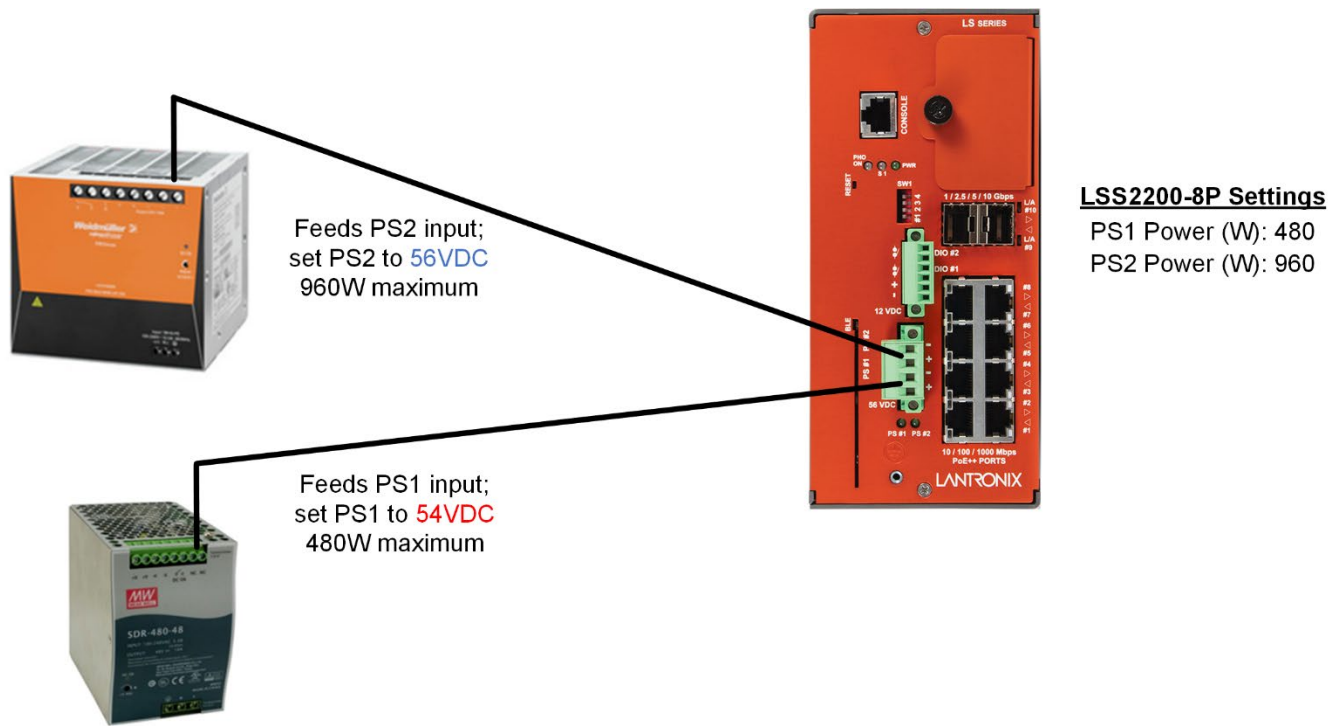
Same Power Rating on Each Supply

If using dual power supplies with the **same** power rating (wattage), the output voltage of each supply should be set to the same nominal voltage (within 0.5V) for current sharing. If there is a 2V difference in the setting of the power supplies, most (or all) of the power will be sourced from the higher voltage supply.



Different Power Ratings

If using dual power supplies with different power ratings (wattage), the higher wattage supply must be set as the primary supply (PS #2) and must be set at least 2V above the backup or lower wattage supply (PS #1). Most or all of the power will be sourced from the primary supply.



In the case of failure of the primary power supply, the switch will start drawing power from the backup supply and the new backup power budget will be evaluated by the switch. If the budget is in violation, the ports will be powered down by priority (low then high then critical priority) until the power budget is no longer in violation. Within each priority, ports will be powered down in order from lowest to highest port number. When the primary power source is restored, the primary power budget will go back into effect and any previously powered down ports will be restored if not in violation of the primary power budget.

25172 Weidmüller PRO MAX 960W 48V 20A

25172 Safety Notices and Warnings: This device is only intended for use as described in the operating instructions. See the power supply [product webpage](#).

25172 Dimensions and weight

Depth 150 mm (5.905 inches) x Height 130 mm (5.118 inches) x Width 140 mm (5.512 inches)

Net weight 3,950 g (8.7 Lbs.)



25172 Views

The 25172 ships from the factory set to 48V. Set the front panel Adjust screw to the voltage required for your application. See Power Supply Information on page 24 and [Power Input](#) on page 24 for more information.



25160 Power Supply

Hardened DIN Rail Mounted; Input 90-264 VAC, 127-370 VDC. Output: 48 ~ 55 VDC, 10A, 480 Watts. See the [25160 product](#) page.

25160 Features

- 94% High Efficiency
- 150% Peak Load
- Protected against Short Circuit, Overload, Over Voltage, Overheating
- Convection air cooling
- DIN rail mountable
- UL 508 approved
- Full load burn in test
- RoHS compliant

25160 Tech Specs

Output

- Output Voltage 48VDC
- Current Rating 5A
- Power Rating: 480 Watts
- Ripple & Noise Max: 120mVp-p
- Voltage Range 48~55VDC
- Voltage Tolerance $\pm 1.0\%$
- Line Regulation $\pm 0.5\%$
- Load Regulation $\pm 1.0\%$
- Setup, Rise Time 300ms, 60ms
- Hold Up Time 20ms

Input

- Voltage Range Switch Selectable: 90~264VAC, 127~370VDC
- Frequency Range: 47~63Hz
- Efficiency: 94%
- AC Current (Typical): 5A@115VAC, 2.5A@230VAC
- Inrush Current (Cold): 40A@115VAC, 80A@230VAC

Protection

- Overload: 110~160%
- Overvoltage: 57.6~64.8V

Environment

- Operating Temp.: -25°C to +70°C
- Storage Temp.: -40°C to +85°C
- Humidity: 20% to 90% (non-condensing)
- Weight: 3.53 lbs. [1.6 kg]
- MTBF: 112.9 Khrs

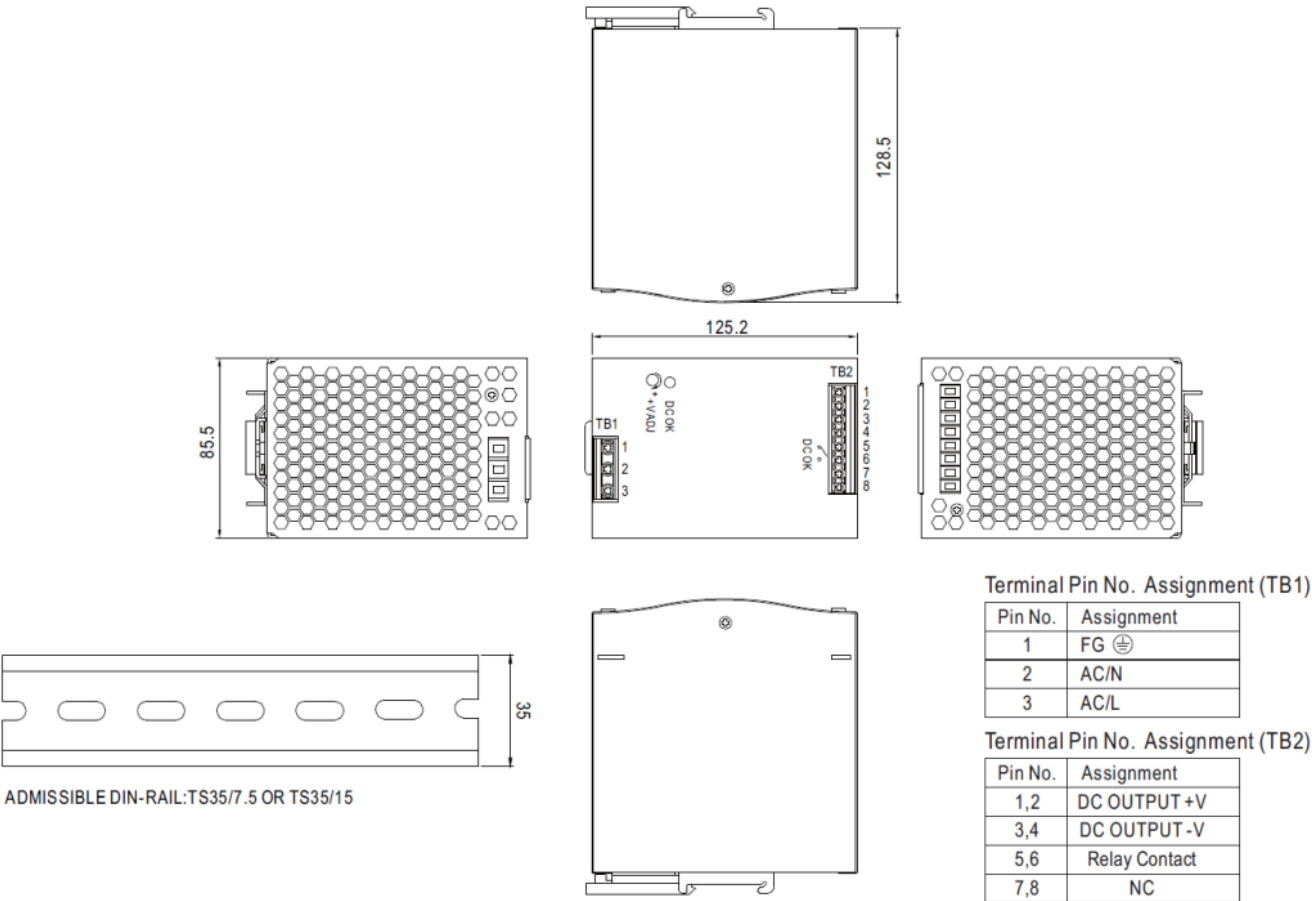
Certifications

- Safety: UL508, TUV EN60950-1; IEC60068-2-6 (Vibration)
- EMC Emission: EN55011, EN5032(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, SEMI F47, GL Approved
- Warranty: 5 Year



25160 Dimensions

Width: 3.37" [85.5 mm] x Depth: 5.06" [128.5 mm] x Height: 5.99" [152.2 mm]

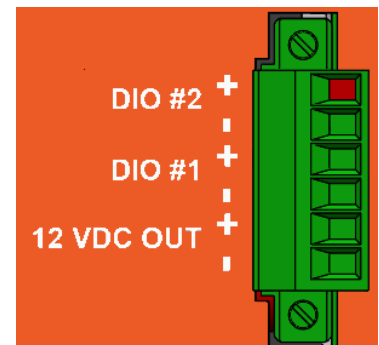
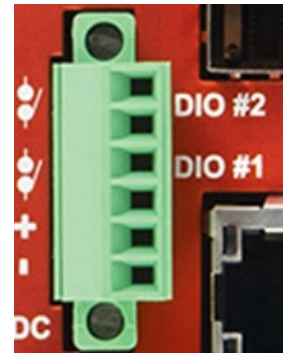


Digital I/O (DIO1 & DIO2) Terminal Block

The front panel terminal block provides two programmable Digital I/O with 12V power output. Digital I/O can be used for dedicated PHO (PoE Hardware Override) to turn on or off banks of PoE ports in response to an external DI event. (Note: PHO is currently Disabled by default; do not override until fully supported.)

The digital input and output terminal block provides two configurable DIOs for external events to be monitored (input) or provide internal events to external functions (output). The terminal block also provides a 12VDC supply output that can be used to energize the DIO circuits.

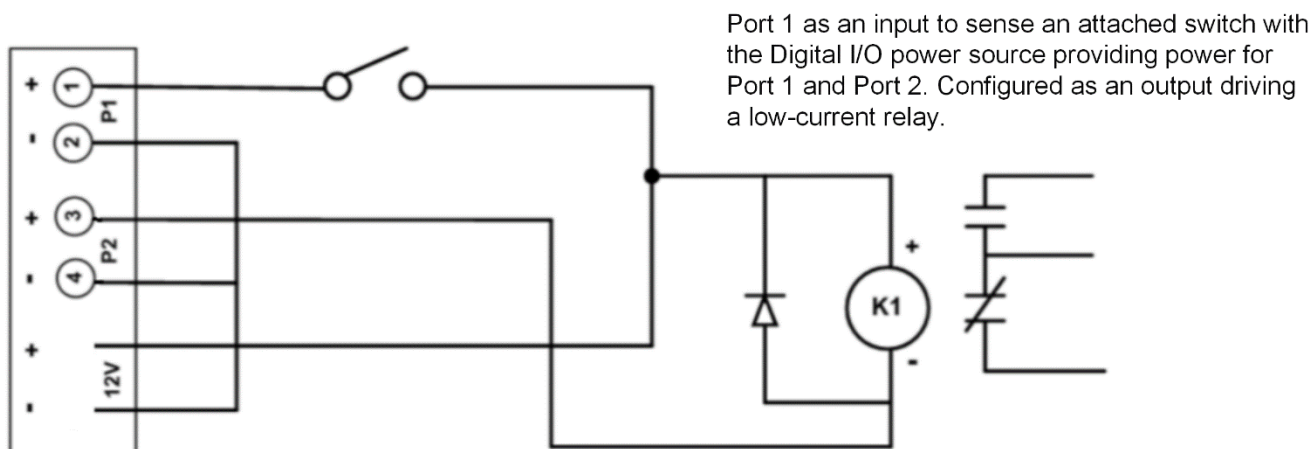
- 2 programmable Digital input or output ports
- Input:
 - Vin low max.: 5.4V
 - Vin high min.: 7.2V
 - Vin max.: 34V
 - Current: 66uA typical (Vin-5.4/100K)
 - Isolation voltage 2250VDC
- Output:
 - Drive current: max. 60mA
 - Voltage: max. 34V
 - Isolation voltage 2250VDC
- Power supply:
 - 12V at 70mA maximum (Tolerance - Min 11.2V, Max. 13.2V)
 - Isolation 1500VDC



The Digital I/O can be configured via the Web UI or the CLI. See the related manual for more information.

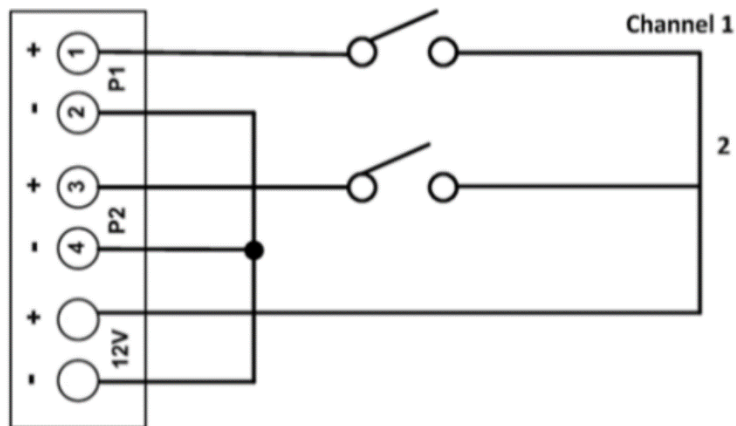
Example 1

This example has Port 1 as an input to sense an attached switch with the Digital I/O power source providing power for Port 1 and Port 2 configured as an output driving a low-current relay.



Example 2

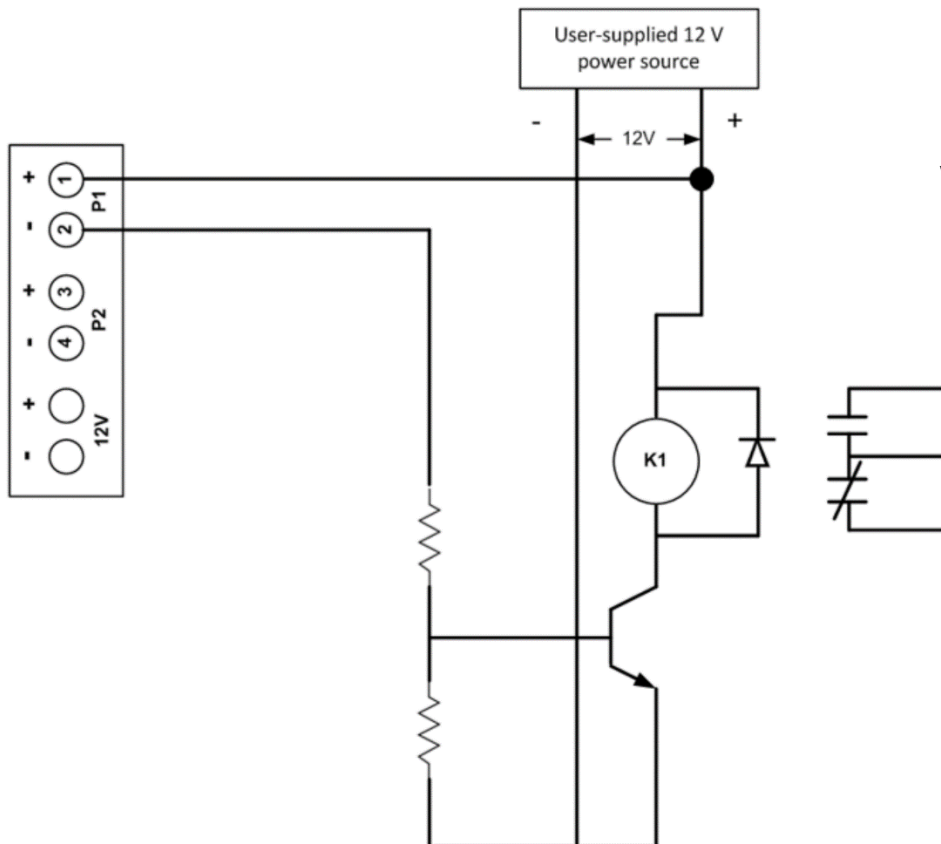
This example has both ports configured as digital inputs and connected to external switches with Digital I/O power source providing power to multiple ports.



Both ports configured as digital inputs and connected to external switches with Digital I/O power source providing power to multiple ports.

Example 3

This example has Port 1 driving a high-power relay with external power transistor and external power supply.



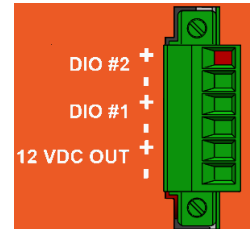
Port 1 driving a high-power relay with external power transistor and external power supply.

Troubleshooting DIO Issues

1. Ensure external power source is less than 34V
2. Verify the Electrical Specifications above.
3. Make sure the positive and negative leads are attached properly (the DIO input/outputs are polarity sensitive).
4. Make sure the connected devices are operating properly.
5. Set the Digital I/O Module configuration via the CLI or via the Web UI.
6. Contact Lantronix Technical Support.

While in Input mode, the Digital I/O senses presence or absence of DC voltage at its input + and input - contacts, and the functionality is polarity sensitive.

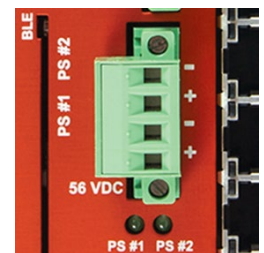
While in Output mode, the Digital I/O opens and closes a contact that is polarity sensitive.



Connecting to DC Power

The front panel terminal block allows connection of one or two supported 56VDC power supplies.

1. Make sure that you ground the enclosure before you install the terminal block connector into the switch.
2. Use wire size of 14 GA recommended.
3. Insert the negative DC power wire into the V- port on the terminal block connector and tighten the wire clamp screws.
4. Insert the positive DC power wire into the V+ port on the terminal block connector and tighten the wire clamp screws.
5. Insert the terminal block connector into the 4-pin terminal block on the network switch.
6. Tighten the terminal block screws to the switch.



Connecting the AC Power Cord

1. Connect the AC power cord to the AC power receptacle of Power Supply.
2. Connect the other end of the AC power cord to a known good AC power outlet.
3. Check the PS #1 and/or PS #2 LED. If it is On, the power connection is correct. If Off, check polarity.
4. Check the PWR LED. If it is On, the power connection is correct.

Last Gasp

The Last Gasp circuit provides a short up time during power failure for the CPU to generate SNMP traps or other message events to communicate the impending power failure to external management systems. This does not keep up the PoE power delivery.

Always On PoE

The Always On PoE feature allows a warm reboot of the switch without affecting the PoE output to attached PDs, providing continuous PoE power even during firmware upgrade.

The Always On PoE feature is enabled by default is not currently user-configurable.

3. Initial Switch Configuration

You can perform an initial configuration prior to power up using a web browser, using the Command Line Interface (CLI) or the NFC Configuration feature on the LSS2200-8P Mobile App.

Connect and Log In to the Switch Using a Web Browser

You can perform an initial configuration prior to power up using the NFC Configuration feature on the Mobile App (see LSS2200-8P Mobile App for details). Or, after powering up the switch for the first time, you can perform the initial switch configuration using a web browser (you must use <https://>). For managing other switch features, see the Web User Guide section for details.

To begin the initial configuration stage, you must reconfigure your PC's IP address and subnet mask to make sure the PC can communicate with the switch. The switch default IP address is 192.168.60.1, so the PC needs a different IP address in that subnet. The initial Username is [admin](#) and the initial Password is [ltrx-admin](#). You must change the password immediately after a successful initial Login or after a reboot.

Note that you must use [HTTPS://](https://) in web browsers.

See the LSS2200-8P Web User Guide for initial switch configuration, sign in, and web UI operation details.

Initial Switch Configuration Procedure:

1. Power up the PC that you will use for the initial configuration. Make sure the PC has the Ethernet RJ45 connector to be connected to the switch via standard Ethernet LAN cable.
2. Reconfigure the PC's IP address and Subnet Mask so that it can communicate with the switch.
3. Power up the switch to be initially configured and wait until it has finished its start-up processes. Startup is complete when the PWR LED changes from flashing green to solid green.
4. Connect the PC to any port on the switch using a standard Ethernet cable, and check the port LED on the switch to make sure the link status of the PC is OK.
5. Run your Web browser on the PC and enter <https://> and the factory default IP address (192.168.60.1) to access the switch Web UI. If your PC is configured correctly, the switch Sign in page displays.
6. Enter the factory default username ([admin](#)) and password ([ltrx-admin](#)) in the Login page and click "Login" to log into the switch. See the Web User Guide for more information.

Update Password

After a successful initial login, you are prompted to change the password as shown and described below. Note that all fields are required.

Username * : Enter the current Username.

Password * : Enter the current Password.

New Password * : Enter the new Password (minimum length 6 characters).

Confirm New Password * : Enter the new Password again; it must match the previous entry.

Click SIGN IN when all fields are complete. After a successfully initial login, it is recommended that you save to startup config at Maintenance > Save Startup Config. Otherwise the Update Password page will display again after a Reboot.

Connect and Log In to the Switch via the CLI

Access to the switch via the CLI is also protected by logon security system. You can log in to the switch with the default user name (**admin**) and password (**ltrx-admin**). You must change the password as soon as you initially log in.

1. Use the provided Cisco Blue RJ-45 to DB9 cable to connect a terminal or PC/terminal emulator to the switch port to access the CLI.
2. Attach the other end of the DB-9 cable to a PC running Telnet or a terminal emulation program.
3. Use Console port settings Baud rate: 115200bps, Data bit: 8, Parity: None, Stop bit: 1 Flow control: none.
4. After a successful initial login, you are prompted to change the password. Note that all fields are required.
5. Perform initial switch configuration using the CLI (Command Line Interface). See the CLI Reference for details.

CLI Login Procedure

```
LSS2200-8P login: admin <Enter>
LSS2200-8P login: ltrx-admin <Enter>
--: LSS2200-8P :--
LSS2200-8P login:
Login timed out Please press Enter to activate this console.

LSS2200-8P login: admin
Password:
--: EOS :--

*** Password change required ***
New password:
Confirm password:
Password change succeeded. Please login again.
Please press Enter to activate this console.
```

Note: wait about 20 seconds for the login to complete.

4. Troubleshooting

Basic Troubleshooting

1. Verify Ordering Information on page 6.
2. Verify Features on page 6.
3. Verify Specifications on page 8.
4. Verify power source and power supply operation; see IEEE 802.3bt Power Input Ripple and Noise Specification and Power Supply Information on page 24.
5. Check LED Summary on page 17.
6. Verify DIP Switch Settings on page 22.
7. If performing a function in the Web UI, try the function in the CLI, and vice versa.
8. Check for cabling issues; see “Connecting to the CONSOLE Port” on page 21 and “Connecting to a Management Port” on page 21.
9. Verify cable seating in the jack, missing or bent pins, etc.
10. Check for port connection issues; if a port is non-functional, check for hardware issues, configuration issues, and traffic issues.
11. For fiber, make sure you have the correct cable for the distances involved and the type of fiber port used (single mode, multi-mode). Make sure the ports that are connected together are both the same type.
12. Make sure that the port is not shut down by the administrator in software.
13. Check for duplex, speed, auto negotiation, and flow control port setting mismatches.
14. Try pressing the front panel RESET button; see RESET Button on page 16.
15. If the switch resets to defaults after switch power off, reload the configuration, and try a power reset again.
16. Check the LSS2000-8P product page for possible newer firmware; check the related Release Notes for enhancements or fixes to your problem.
17. Record Device and System Information on page 43.
18. Contact Lantronix Technical Support.

LED Troubleshooting

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

Symptom	Possible Cause	Suggested Solutions
PWR LED is Off	The switch is not receiving power.	1. Check if correct power cord is connected firmly to the switch and to the AC outlet socket. 2. Power cycle 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 AC outlet socket to make sure correct AC source is supplied.
S1 (System) LED is blinking	Cloud connection being re-established (green) or cloud provisioning in progress (yellow)	1. Wait for CF cloud connection or provisioning to complete. 2. If after a few minutes the S1 LED is not solidly lit, check your PercepXion ‘Configuration’ and ‘Connection’ settings in the web UI or the CLI. 3. Contact Technical Support for direction.
BLE LED is not as expected	BLE broadcast is disabled, or is enabled but not paired, or a BLE firmware update is in progress.	1. Wait for the BLE LED status to change. 2. If after a few minutes the BLE LED is not as expected, check your BLE settings in the web UI, CLI, and/or the LSS2200-8P Mobile App. 3. Contact Technical Support for direction.

RJ-45 TP port LED not as expected	Incorrect or unexpected speed, link activity, or power status	1. Wait for the LED status to change. 2. Check the port configuration settings and PoE configuration settings in the web UI or CLI. 3. Check the cable and connections for issues. 4. Contact Technical Support for direction.
SFP Fiber port LED not as expected	Incorrect or unexpected speed, link activity, or power status	1. Wait for the LED status to change. 2. Check the port configuration settings in the web UI or CLI. 3. Check the cable and connections for issues. 4. Contact Technical Support for direction.
PS #1 or PS #2 LED not as expected	DC input voltage too low or DC input voltage polarity incorrect.	1. Wait for the LED status to change. 2. Check the power supply connections. See the related power sections of this manual. Note that there are no power settings via web or CLI that can change the status of these LEDs. 3. Contact Technical Support for direction.

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 must 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 that only single-port PSEs should normally be used when PDs 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 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) 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.

Typical PD Power Requirements

- 1.8 Watts: Lantronix' M/GE-ISW-SFP-01-PD (Class 1 Powered Device (0.44 - 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 exact power consumption.

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 Lantronix 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 Lantronix 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.

PoE Troubleshooting

Basic Steps

Try these simple steps first:

- ☐ Verify that the PD accepts Power over Ethernet.
- ☐ Check the PoE cabling.
- ☐ Make sure PoE power is sufficient.
- ☐ Make sure that the switch port is properly connected to the PD.
- ☐ Check if PDs work on other PoE ports.
- ☐ Check if other PDs work on this PoE port.
- ☐ Check your RJ-45 outlet for power using a PoE AF/AT/BT tester.
- ☐ Verify the PoE parameter selections in the Web Ui or CLI.
- ☐ Check the port configuration parameters in the Web Ui or CLI.

Additional Steps

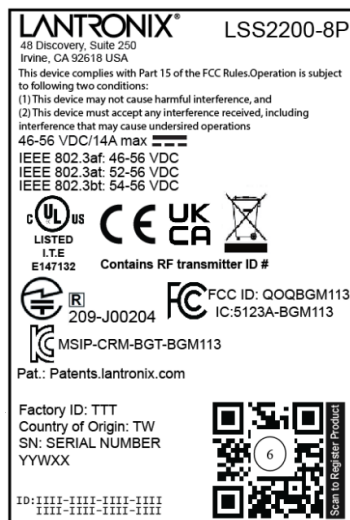
1. Identify how long the device was operational and what events may have occurred at the time of the error to help find the root cause (e.g., an IP phone that comes out of sleep and turns on fully may draw more power momentarily).
2. Determine if there is an issue with the PD drawing too much power; check the PD vendor documentation to determine why it exceeds the power it has negotiated with the switch.
3. Check the type and length of the cabling for any effect on the electrical characteristics and impact on the amount of power drawn on a port.
4. Investigate the power negotiation and confirm that the power requested by a device is also the amount of power that gets allocated. For example, using LLDP requires additional power budget for cabling between the PD and the PSE.
5. Use power measuring and testing equipment to determine if the PD overdraws the amount of power it gets allocated.

Advanced Steps

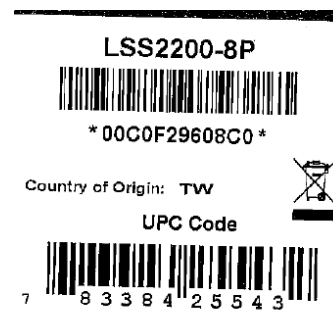
1. Get as much detail as possible regarding the symptom, including any system messages from the PoE switch.
For example, does a PD not power up at all, or does it power up briefly and then power down?
2. Determine if the trouble occurred on initial installation or after the PD had been working normally?
3. If the trouble started after the PD was working, what changed? Were there hardware or software changes?
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.
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 sufficient power is available for the PD type.
8. Review alarms reported previously by system messages.
9. 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.
10. 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.
11. Verify an IP Phone is not losing access just before a reload occurs (a network problem, not a PoE problem).

Device Label and Box Label

The labels can provide information to help the Tech Support Engineer:



Product Label



Package Label

Record Device and System Information

After performing the troubleshooting steps and before contacting us, please record the following information to help the Tech Support specialist resolve any issues.

1. Select the **System > System Info** menu path. From the CLI, use the **show** commands needed to gather the information below or as requested by the Tech Support Specialist.

2. Model Name: _____ Power Supply(ies): _____
Hardware Version: _____ Mechanical Version: _____
Firmware Version: _____ System Date: _____

3. Record the **LED** Status: _____

4. Provide additional information to your Tech Support Specialist. See the “Troubleshooting” section above.

Your Lantronix service contract number: _____

Describe the failure: _____

A description of any action(s) already taken to resolve the problem (e.g., changing 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, etc.): _____

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

Any previous Return Material Authorization (RMA) numbers: _____

RMA Form 02 Dec 2022

Return Material Authorization Request Form 2022

The address below is where the unit(s) will be returned to once completed:

<u>Customer Company</u>	
<u>Customer Street and Number</u>	
<u>Customer Town or City</u>	
<u>Customer State or County</u>	
<u>Customer ZIP or Post Code</u>	
<u>Customer Country</u>	
<u>Customer Contact Person</u>	
<u>Customer Phone Number</u>	
<u>Customer email</u>	
<u>Customer Tax code (VAT)</u>	

All submitted RMA requests must be accompanied by a detailed fault description. Ex. "No communication on the fiber port" or "Unit will not power on". All returned product must include the power supply that was in use at the time of failure. Not providing this information will delay your return significantly. ** Please read the **Notes** below on the second page** The completed form must be attached to the RMA Request ticket and submitted through the [Tech Support portal](#) for processing.

<u>Product Part Number</u>	
<u>Product Serial Number</u>	
<u>Fault Description</u>	

Notes:

1. If a unit when returned is found to be NO TROUBLE FOUND (NTF) a processing fee of \$50 will be charged (Plus sales tax for Minnesota based Customers). The equipment will not be returned until the invoice has been paid.
2. If product is manageable, please return the equipment with the login and password set to default, with configuration still loaded.
3. Repaired / replaced unit will normally have latest firmware for the unit. If there is a special requirement for specific firmware, please request in the ticket.
4. Proper Packaging:
 - The preferred method for returning items is each in its individual box and wrapping using the original box and packaging in which your equipment was sent and received in. If the original box is missing or damaged, any box that is of suitable size and in good condition may be used.
 - All products should be bagged individually. Static sensitive items (boards) must be bagged in static shielding (ESD Bag) packaging and properly surrounded with bubble wrap or packaging foam to ensure restriction in movement during transport.
 - Make sure the box is securely sealed using durable packaging tape.
 - When shipping in defective product the product must be properly packaged, any and all damage caused by improper packaging will void the warranty. The damaged product will be shipped back to the customer at the customer's expense unrepaired.

5. Related Information

Regulatory Agency Information

Certifications	Emissions: EN55032-2012 FCC Class A; CE; Immunity: EN55024-2010 Safety: UL62368-1
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EN 55035:2017/A11:2020
EN 55032:2015/A11:2020 Class A
FCC 47 CFR Part 15 Subpart B Class A

EN 55035:2017/A11:2020
EN 55032:2015/A11:2020
FCC Part 15 Subpart B Class A

Electrostatic Discharges (ESD): EN 61000-4-2 per EN 55035:2017
Continuous RF Electromagnetic Field Disturbances: EN 61000-4-3 per EN 55035:2017
RF Continuous Conducted Disturbances: EN 61000-4-6 per EN 55035:2017
Power Frequency Magnetic Field: EN 61000-4-8 per EN 55035:2017
Electrical Fast Transients / Burst (EFT/B): EN 61000-4-4 per EN 55035:2017
Surges: EN 61000-4-5 per EN 55035:2017
AC Voltage Dips and Interruptions: EN 61000-4-11 per EN 55035:2017
Radiated Emissions: EN 55032:2015/A11:2020 FCC Part 15 Subpart B, Class A
Conducted Emissions: EN 55032:2015/A11:2020

<u>Specification/Clause</u>	<u>Test Description</u>	<u>Base Standard</u>
EN 55035 / 4.2.1	Electrostatic discharges (ESD)	EN 61000-4-2
EN 55035 / 4.2.2.2	Continuous RF electromagnetic field disturbances	EN 61000-4-3
EN 55035 / 4.2.2.3	Continuous induced RF disturbances	EN 61000-4-6
EN 55035 / 4.2.3	Power frequency magnetic field	EN 61000-4-8
EN 55035 / 4.2.4	Electrical fast transients/burst (EFT/B)	EN 61000-4-4
EN 55035 / 4.2.5	Surges	EN 61000-4-5
EN 55035 / 4.2.6	Voltage dips and interruptions	EN 61000-4-11
EN 55035 / A.2 FCC 15.109	Radiated Emissions	EN 55016-2-3, ANSI C63.4
EN 55035 / A.3 FCC 15.107	Conducted Emissions	EN 55016-2-1, ANSI C63.4

Standard(s) Referenced for this Evaluation:

UL 62368-1, 2nd Edition, 2014-12-01 (Audio/video, Information and Communication Technology Equipment -Part 1: Safety Requirements)

CSA C22.2 No. 62368-1-14, 2nd Edition, 2014-12 (Audio/video, Information and Communication Technology Equipment -Part 1: Safety Requirements)

IEC 62368-1:2014 (Second Edition)EN62368-1:2014 +A11

Declaration of Conformity

Manufacture's Name : Lantronix, Inc.

Manufacture's Address : 48 Discovery, Suite 250, Irvine, CA 92618 U.S.A.

Declares that the products: ILS Series LSS2200-8P

Conforms to the following Product Regulations:

FCC Part 15 Class A, EN 55032:2012, EN 55024:2010

Directive 2014/30/EU, Directive 2015/863/EU

Low-Voltage Directive 2014/35/EU

IEC62368-1/EN62368-1

2011/65/EU EN 50581:2012

EN 55011: 2009 +A1: 2010 (Group 1, Class A)

EN 55024: 2010 / EN 61000-6-2: 2005

EN55022/EN61000-6-4 , EN55024/EN61000-6-2, IEC/EN61000-4-2, IEC/EN61000-4-3,

IEC/EN61000-4-4, IEC/EN61000-4-5, IEC/EN61000-4-6, IEC/EN61000-4-8,

IEC60068-2-27, IEC60068-2-32, and IEC60068-2-6

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 Directives and Standards.

Place: Irvine, California

Date: September 14, 2022

Signature: *Erik Bass*

Full Name: Eric Bass

Position: Vice President of Engineering

**Lantronix Corporate Headquarters**

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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.