LANTRONIX®

SM8TAT2SA-DC

DC-Powered Smart Managed Gigabit Ethernet PoE+ Switch
(8) 10/100/1000Base-T Ports + (2) 100/1000Base-X SFP Slots

Install Guide

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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Revision History

Date	Rev.	Comments
5/12/20	A	Initial SM8TAT2SA-DC release at HW v1.01, FW v1.02.1463, and PoE FW v 208-211.
7/28/20	B	FW v1.02.1471: fix Auto-Logout timeout function. FW v1.02.1474: fix IP Gateway setting issue. Update regulatory compliance information and DoC. FW v 1476: fix timeout and restore. FW v1.02.1409: change the feature name from "Soft Reboot" to "Always on PoE". Add grounding information.
8/25/23	C	v1.04.0095: Add SMTP feature and Maximum Frame Size (MTU) setting per System in Web UI Port Config. Change "Non-stop PoE" to "Always-On PoE". Support "copy startup-config to running-config" in Replace mode. Add timezone in syslog time format, add Always-On PoE in mib, and add and modify API commands. Fix issues with LLDP neighbor mgmt address and PoE Mode field issues. Initial Lantronix re-brand. Add IEEE 802.3bt Power Input Ripple and Noise Specification. Add PS 25104 UK DoC. Update contact information. Allow FW to upgrade from v1.02.1261 to v1.04.0059 in one step. Add new trap OID for ZTPOnboardtrap and add sysObjectID as third item in ZTP trap. Update ZTP procedure. Add self-signed certificate changes and add DHCP client mode option 66/67. Update to TLSv1.2 ciphers and add PoE Status to the Device Telemetry Data. See the Release Notes.

Disclaimer

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Operation of this equipment in a residential area is likely to cause interference, in which case the user, at his or her own expense, will be required to take whatever measures may be required to correct the interference.

Note: This equipment has been tested and found to comply with the limits for Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the 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 this user guide, may cause interference to radio communications. Operation of this equipment in a residential area is likely to cause interference, in which case the user will be required to correct the interference at his own expense.

User Information

Class A Equipment (Broadcasting and communication equipments for office work).

Seller and user shall be noticed that this equipment is suitable for electromagnetic equipments for office work (Class A) and it can be used outside home.

Changes or modifications made to this device that are not explicitly approved by Lantronix will void the user's authority to operate this device.

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Product Description

The Lantronix SM8TAT2SA-DC smart managed GbE PoE+ switch is the next-generation Ethernet switch offering powerful L2 features with better functionality and usability. It delivers the cost-effectively business and transports Ethernet services via fiber or copper connections.

The SM8TAT2SA-DC delivers 8 (10M/100M/1G) RJ45 with 8 PoE+ (supports 802.3 at/af and total up to 130W) ports and 2 GbE SFP ports. The SM8TAT2SA-DC provides high hardware performance and environment flexibility for SMBs and Enterprises. This DC-powered switch provides a cost-effective solution for power and data connectivity in a Service provider environment with +52 to +54VDC or -52 to -54VDC input.

The embedded Device Managed System (DMS) features make it easy to use, configure, install, and troubleshoot in video surveillance, wireless access, and other SMB and Enterprise applications. The SM8TAT2SA-DC is ideal to deliver management simplicity, better user experience, and lowest total cost of ownership.

About This Manual

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

- Install, connect, and power the switch
- Check switch status by reading the LED behavior
- Reset the switch or to restore the switch to factory defaults
- Use a Web browser or the CLI to initially configure the switch
- Troubleshoot the switch

Ordering Information

SKU	Description
SM8TAT2SA-DC	Smart Managed Switch, 8-Port Gigabit PoE+, 2-Port 100/1000 SFP; DC powered; +52 to +54VDC or -52 to -54VDC. Includes 19" rack mount brackets.
25105	Optional Industrial DIN Rail Mounted Power Supply – order separately. Input: 85-264 VAC, 124-370 VDC. Output: 48~55 VDC, 2.5A, 120 Watts.
25104	Optional Industrial DIN Rail Mounted Power Supply – order separately. Input: 85-264 VAC, 124-370 VDC. Output: 48 ~ 55 VDC, 5A, 240 Watts.
SFPs	See the full line of Lantronix at our SFP webpage – order separately.
RMSM8-02	23" Rack Mount Kit

Related Documentation

Visit the Lantronix Web site at www.lantronix.com/support/documentation for the latest documentation and the following additional documentation. Note that this manual may provide links to third party websites for which Lantronix is not responsible.

These manuals give specific information on how to install and operate switch functions:

- SM8TAT2SA-DC Quick Start Guide (33813)
- SM8TAT2SA-DC Install Guide (33814, this manual)
- SMxxTAT2SA Web User Guide (33717)
- SMxxTAT2SA CLI Reference (33718)
- SMxTAT2SA Unified API User Guide (33825)
- Release Notes (version specific)

Application Example

The SM8TAT2SA-DC is used in applications such as:

- IP surveillance, supplying power and data to IP cameras
- Connecting and remotely powering wireless access points
- Monitoring/managing attached powered devices from various vendors
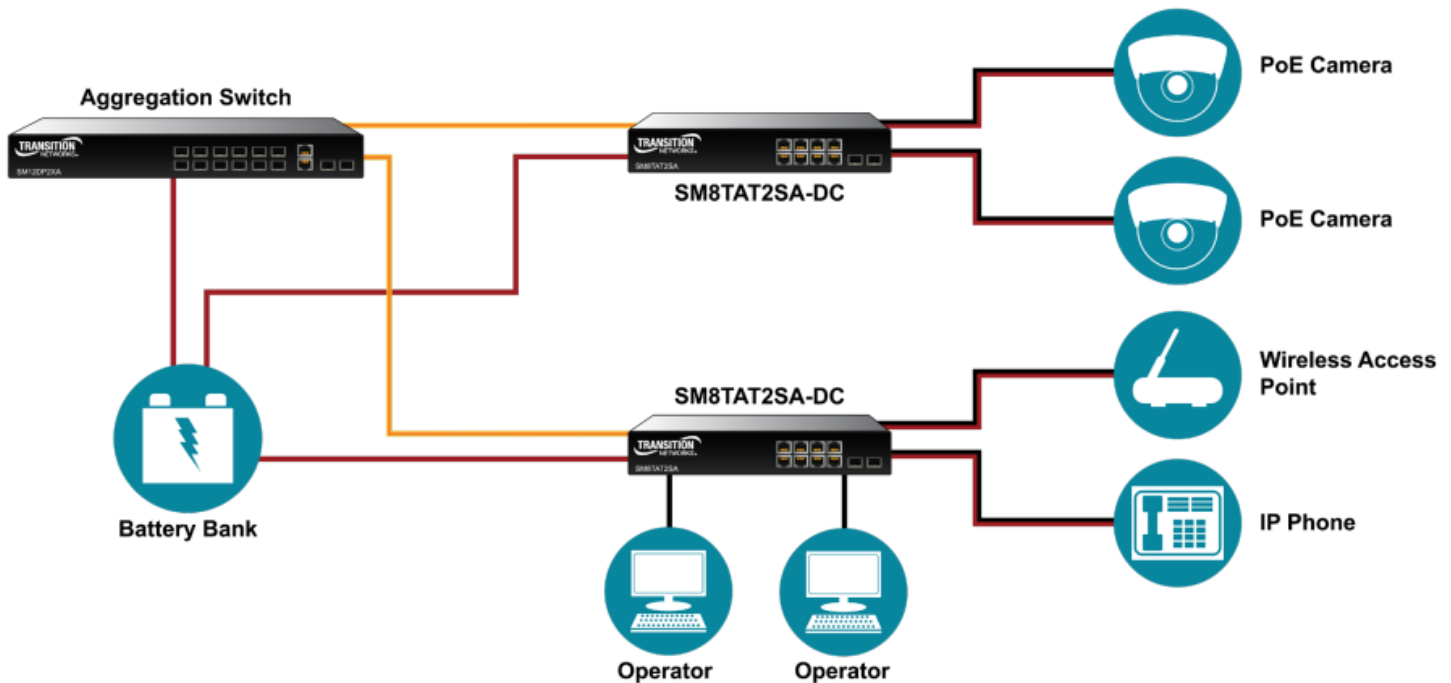
Features

- IPv6 Access Management
- Support Jumbo Frame up to 9K bytes
- Authentication – RADIUS, TACACS+
- DHCP Relay, DHCP Snooping, DHCP Server
- L2/L3/L4 ACLs Support MAC ACL, IP standard/extended ACL
- LLDP (Link Layer Discovery Protocol)
- IEEE 802.3az Energy Efficient Ethernet (EEE)
- IP Source Guard, Port Security
- Syslog
- Fanless Design
- SMTP (Simple Mail Transfer Protocol) client
- Single 48V-54VDC input via Terminal Block
- Commercial operating temperature: 0°C to +50°C
- PoE Budget: 130 Watts
- Optional Power Supplies: Lantronix 25105, 25104 (sold separately)
- CE/FCC/UL/cUL for EMI and Safety compliance
- Lifetime Warranty

PoE Features

- Compliant with IEEE 802.3at PoE+
- Compliant with IEEE 802.3af PoE
- PoE configuration
- Auto Power Reset (APR)

Device Management System (DMS)

- Graphical Monitoring – Topology view, Floor view, Map view
- Traffic Monitoring
- Troubleshooting – Network diagnostic, protection mechanism, performance and link management

Software Features

- Management: Web Management, SNMP V1/V2c/V3, Telnet, CLI
- Port Trunk: Supports IEEE 802.3ad port trunk with link aggregation control protocol (LACP) and static trunk
- Multicast: Support IGMP Snooping V1/V2, MVR, MLD Snooping V1/V2
- Quality of Service: Supports 8 hardware queues. Strict priority and WRR, Ingress policer, Egress shaping and per port rate limiting
- Spanning Tree: Supports IEEE 802.1s MSTP, IEEE 802.1w RSTP and IEEE 802.1D STP Compliant
- VLAN: Port Based VLAN, IEEE 802.1Q tag based, up to 4k VLAN entries, QinQ, MAC based VLAN, Private VLAN
- Firmware Update through TFTP and HTTP

Specifications

Port Configuration

Total Ports	RJ45 (10M/100M/1G)	Uplinks (100M/1G)	Telnet
SM8TAT2SA-DC = 10	8	2 SFP	Via any RJ45 port

Hardware Performance

Model	Forwarding Capacity (Mbps)	Switching Capacity (Gbps)	Mac Table (K)	Jumbo Frames (Bytes)
SM8TAT2SA-DC	14.88	20	8	9216

Environmental Range

Operating Temperature		Storage Temperature		Operating Humidity	Altitude	
Fahrenheit	Centigrade	Fahrenheit	Centigrade	10% to 90% non-condensing	Feet	Meters
32 to 122º	0 to 50º	-4 to +158º	-20 to +70º		< 10000	<3000

Dimensions, Weight, Mounting

Dimension (WxHxD)		Weight		Mounting Type
Millimeters	**Inches**	**Kilograms**	**Pounds**	
220x 44x 242	8.6x 1.7x 9.5	1.49 Kg. w/o Pkg. 1.90 Kg. w/Pkg.	3.30 Lbs. w/o Pkg 4.20 Lbs. w/Pkg.	19'' Rack Mount

Voltage and Frequency

Power Supply	
DC Operating Range	+52 to +54VDC or -52 to -54VDC

Power Supplied	
With PoE	PoE af/at mode: 48V (PoE functions) PoE at/af mode: <48V (PoE does not function)
Without PoE	System functions at 39V System fails at less than 39V
Cold boot	40V

MTBF

SM8TAT2SA-DC	GB, GC - Ground Benign, Controlled 25°C	674,242 Hrs.
	GB, GC - Ground Benign, Controlled 50°C	290,347 Hrs.

Certifications

Regulatory Compliance	
EMS	European Standard EN 55035: IEC 61000-4-2: Electrostatic discharge, Contact 4KV/ Air 8KV. IEC 61000-4-3: Radiated, RF electromagnetic fields (not in close proximity). IEC 61000-4-4: Electrical Fast Transient, DC 1KV, RJ45 0.5 KV. IEC 61000-4-5: Surge immunity, DC common mode 2KV, differential mode 1KV. RJ45 online 1KV. IEC 61000-4-6: Conducted Disturbances immunity, 3V/m. IEC 61000-4-8: Power frequency magnetic field immunity. IEC 61000-4-11: Voltage dips.
EMI	FCC Part 15 Class A
Safety	CE, LVD, UL/cUL Listed
Radiated and Conducted Emissions (from CE EMC Report)	European Standard EN 55032 Class A Australian Standard AZ/NZS CISPR 32 Class A
Radiated and Conducted Emissions (from FCC EMI Report)	ANSI C63.4:2014 with FCC Method 47 CFR Part 15; Subpart B, Class A Digital Device, CISPR PUB.22 and Canada Standard ICES-003 Issue 6, Class A
Harmonics	European Standard EN 61000-3.2

Voltage Fluctuations	European Standard EN 61000-3.3

Software Feature Descriptions

Layer 2 Switching	
Spanning Tree Protocol (STP)	● Standard Spanning Tree 802.1d ● Rapid Spanning Tree (RSTP) 802.1w ● Multiple Spanning Tree (MSTP) 802.1s
Trunking	● Link Aggregation Control Protocol (LACP) IEEE 802.3ad ● Static aggregation
VLAN	Supports up to 4K VLANs simultaneously (out of 4096 VLAN IDs). Port-based VLAN; 802.1Q tag-based VLAN; Protocol based VLAN; IP subnet-based VLAN; Private VLAN Edge (PVE); MAC-based VLAN; Q-in-Q (double tag) VLAN; GARP VLAN Registration Protocol (GVRP)
DHCP Relay	● Relay of DHCP traffic to DHCP server in different VLAN ● Works with DHCP Option 82
IGMP v1/v2 Snooping	IGMP limits bandwidth-intensive multicast traffic to only the requesters. Supports 1024 multicast groups.
IGMP Querier	IGMP querier is used to support a Layer 2 multicast domain of snooping switches in the absence of a multicast router
IGMP Proxy	IGMP snooping with proxy reporting or report suppression actively filters IGMP packets in order to reduce load on the multicast router
MLD v1/v2 Snooping	Delivers IPv6 multicast packets only to the required receivers
Multicast VLAN Registration	MVR uses a dedicated manually configured VLAN, called the multicast VLAN, to forward multicast traffic over Layer 2 network in conjunction with IGMP snooping
Security	
Secure Sockets Layer (SSL)	SSL encrypts the http traffic, allowing advanced secure access to the browser-based management GUI in the switch
IEEE 802.1X	● IEEE802.1X: RADIUS authentication, authorization and accounting, MD5 hash, guest VLAN, single/multiple host mode and single/multiple sessions ● Supports IGMP-RADIUS based 802.1X ● Dynamic VLAN assignment
Layer 2 Isolation Private VLAN Edge	PVE (also known as protected ports) provides L2 isolation between clients in the same VLAN. Supports multiple uplinks
Port Security	Locks MAC addresses to ports, and limits the number of learned MAC address
IP Source Guard	Prevents illegal IP address from accessing to specific port in the switch
RADIUS	Supports RADIUS authentication switch as a client
TACACS+	Up to 5 TACACS+ servers are supported
Storm Control	Prevents traffic on a LAN from being disrupted by a broadcast, multicast, or unicast storm on a port
DHCP Snooping	A feature acts as a firewall between untrusted hosts and trusted DHCP servers
Loop Protection	Prevents unknown unicast, broadcast, multicast loops in Layer 2 switching.

Quality of Service (QoS)	
Hardware Queue	Supports 8 hardware queues
Scheduling	• Strict priority and weighted round-robin (WRR) • Queue assignment based on DSCP and class of service
Classification	• Port based • 802.1p VLAN priority based
Rate Limiting	• Ingress policer • Egress shaping and rate control • Per port
Management	
Port Mirroring	Traffic on a port can be mirrored to another port for analysis with a network analyzer or RMON probe. Up to N-1 (N is Switch's Ports) ports can be mirrored to a single destination port. A single session is supported.
IEEE 802.1ab (LLDP)	Used by network devices for advertising their identities, capabilities, and neighbors on an IEEE 802ab local area network. Support LLDP-MED extensions.
Web GUI	Built-in switch configuration utility for browser-based device configuration
Dual Image	Independent primary and secondary images for backup while upgrading
UPnP	Universal Plug and Play enables device-to-device interoperability
DHCP Server	Support DHCP server to assign IP to DHCP clients
SNMP	SNMP v1, v2c, v3 with traps, and SNMP v 3 user-based security model (USM)
Firmware Upgrade	Web browser upgrade (HTTP/ HTTPs) and TFTP
NTP	Network Time Protocol (NTP) is a networking protocol for clock synchronization between computer systems over packet-switched
Other Management	HTTP/HTTPs; DHCP Client; Cable Diagnostics; Syslog; IPv6 Management; SMTP
Device Management System (DMS)	
Graphical Monitoring	**Topology view**: Support intuitive way to configure and manage switches and devices with visual relations. **Floor view**: Easily drag and drop PoE devices and help you to build smart workforces. **Map view**: Efficiently drag and drop devices and monitor surroundings on Google maps.
Find My Switch	The front panel LEDs flash for 15 seconds to visually identify the switch.
Traffic Monitoring	Display visual chart of network traffic of all devices and monitor every port at any time.
Troubleshooting	Network diagnostic between master switch and devices. Supports protection mechanism, such as rate-limiting to protect your devices from brute-force downloading.
Power over Ethernet (PoE)	
Port Configuration	Supports per port PoE configuration function
PoE Scheduling	Supports per port PoE scheduling to turn on/off the PoE powered devices (PDs).
Auto Power Reset	Automatically checks the link status of PDs, and reboots PDs if there are no responses.
Power Delay	The switch provides power to the PDs based on delay time when PoE switch boots up, in order to protect switch from misuse of the PDs

Power Consumption

DC power consumption measured after 60 minutes under full loading with wire speed forwarding.

DC 52V Input:

Device Status	Device Interface	DC Current Consumption (A)	DC Voltage (V)	DC Power Consumption (W)	BTU/Hr.
Non-loading	None	0.11	52	5.72	19.51
PoE Standby Mode	1G TP Port x8 1G SFP Port x2	2.66	52	138.32	471.67
PoE Full loading after 60 minutes	1G TP Port x8 1G SFP Port x2	2.66	52	138.32	471.67
Non- PoE Standby Mode	1G TP Port x8 1G SFP Port x2	0.17	52	8.84	30.14
Non-PoE Full loading after 60 minutes	1G TP Port x8 1G SFP Port x2	0.17	52	8.84	30.14

DC 54V Input:

Device Status	Device Interface	DC Current Consumption (A)	DC Voltage (V)	DC Power Consumption (W)	BTU/Hr.
Non-loading	None	0.11	54	5.94	20.26
PoE Standby Mode	1G TP Port x8 1G SFP Port x2	2.58	54	139.32	475.08
PoE Full loading after 60 minutes	1G TP Port x8 1G SFP Port x2	2.59	54	139.86	476.92
Non- PoE Standby Mode	1G TP Port x8 1G SFP Port x2	0.17	54	9.18	31.30
Non-PoE Full loading after 60 minutes	1G TP Port x8 1G SFP Port x2	0.17	54	9.18	31.30

Front and Back Panels

The SM8TAT2SA-DC front and back panels are shown and described below.

Front Panel

The SM8TAT2SA-DC front panel provides the switch LEDs, ports, and MODE/RESET pushbutton switch.
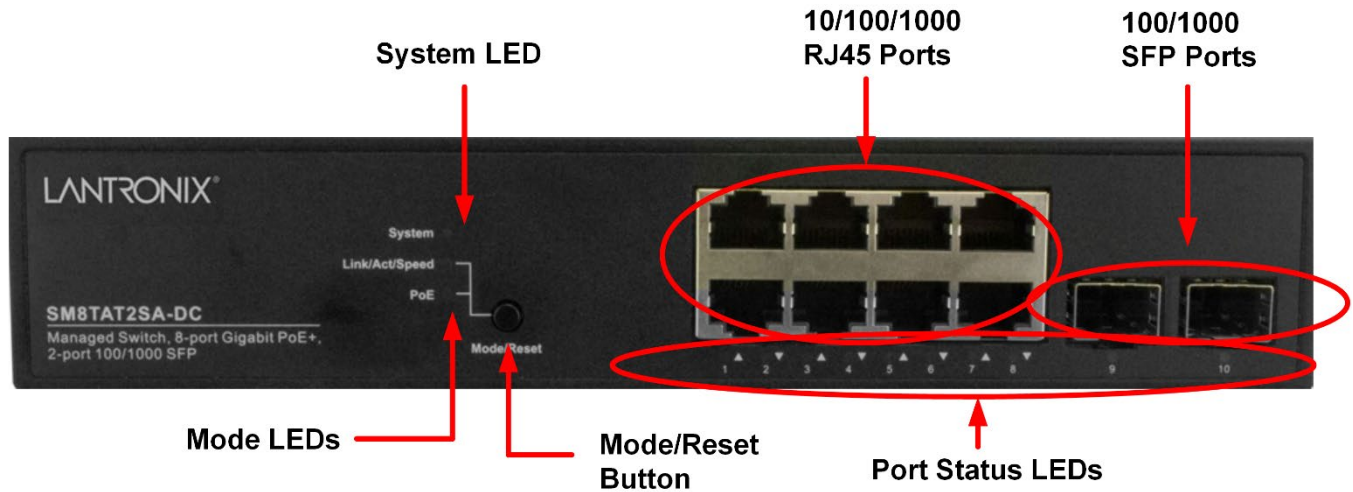
Back Panel

The SM8TAT2SA-DC back panel provides the +52 to +54VDC or -52 to -54VDC power input connection.
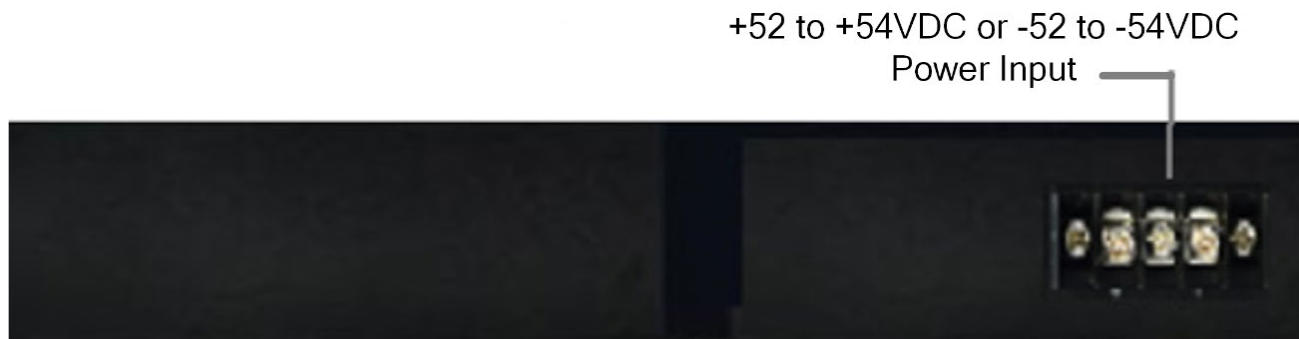
LED Descriptions

The LEDs on the front panel provide switch status checking and monitoring. The types of LEDs are as follows:

System LED

Indicates if the switch is powered up correctly, indicates if there is a system alarm triggered for troubleshooting.

Mode LEDs

Indicate the mode of all ports on the switch. You can press the **MODE/RESET** button sequentially to switch between the two modes (Link/Activity/Speed mode and PoE mode).

Port Status LEDs

Indicate the current status of each port. You can check these LEDs to understand the port status in different modes, after changing the mode by pressing **MODE/RESET** button.

The LED indicators are described in the following tables.

Table 1: System LED

LED	Color	State	Description
System	Green	On	The switch is powered ON correctly.
		Off	The switch is not receiving power.
	Red	On	An abnormal state, such as exceeding operating temperature range, was detected in the switch.

Table 2: Mode LEDs

LED	Color	State	Description
Link/Act/Speed	Green	On	The Port Status LEDs display link status, network activity, and speed of each port.
PoE	Green	On	The RJ45 Port Status LEDs are displaying PoE powering status of each port.

By pressing the **MODE/RESET** button for less than 2 seconds to change LED modes (Link/Act/Speed Mode or PoE Mode) you can check the port status by reading the LED behaviors per the table below.

Table 3: Port Status LEDs

When Link/Act/Speed Mode LED Lit			
LED	**Color**	**State**	**Description**
RJ45 Ports	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 is not established a link to connected device. Otherwise, the port may have been disabled through the switch user interface.
SFP Ports	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 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 it is not established a link to connected device. Otherwise, the port may have been disabled through the switch user interface.
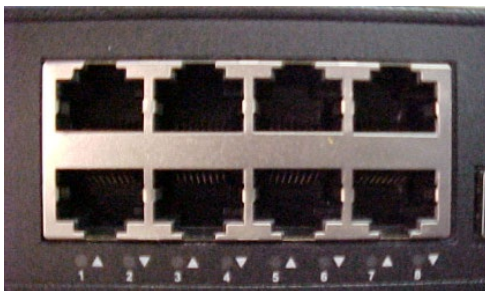
RJ45 Ports and LEDs
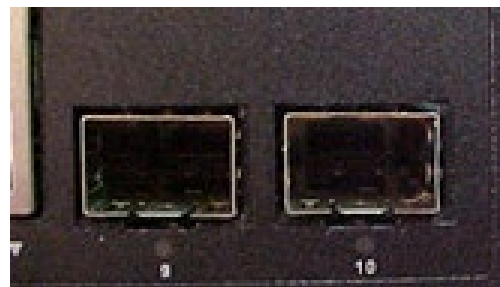
SFP Ports and LEDs

When PoE Mode LED Lit			
LED	**Color**	**State**	**Description**
RJ45 Ports	Green	On	The port is enabled and supplying power to connected device.
	Amber	On	An abnormal state, such as overload status, has been detected in the switch.
	--	Off	The port has no active network cable connected, or it is not connected a PoE PD device. Otherwise, the port may have been disabled through the switch user interface.

MODE/RESET Button

Pressing the front panel **MODE/RESET** button for a period of time lets you perform these tasks:

- **Change Port Status LED Mode**: to read the port status correctly in the two different modes (Link/Act/Speed mode or PoE mode).

- **Reset the Switch**: to reboot and get the switch back to the previous configuration settings saved. Note that there is also a *Non-Stop PoE (soft reboot)* feature allows the switch to reboot without affecting PoE port power via the Web UI or CLI.

- **Restore the Switch to Factory Defaults**: to restore the original factory default settings back to the switch.
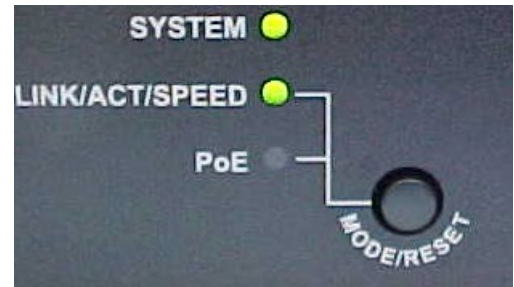
Note: Use the table below to determine which task is being performed by reading the LED behaviors while pressing and holding the MODE/RESET button. When the LED behavior displays correctly, release the button.

Table 4: MODE/RESET Button Descriptions

Task to Perform	**Press Button for**	**SYS LED Behavior**	**Port Status LED Behavior**
Change LED Mode	0 ~ 2 seconds	On Green	LED status will change based on the mode selected.
Reset the Switch	2 ~ 7 seconds	Blinking Green	ALL LEDs Off.
Restore to Defaults	7 ~ 12 seconds	Blinking Green	ALL LEDs stay On.

Press the **Reset** button until all port LEDs light, then release the **Reset** button. This will set the unit back to its factory default IP address; log back in to display the startup wizard (First Time Wizard).

Installation

This section describes switch mounting, grounding, cable connection, configuration, and power connection.
Caution: <u>Before</u> proceeding make sure you have read "Power Supply Warnings & Cautions !!"on page 23.

Package Checklist

Verify that the box contains the following items:

☐ One Ethernet Switch
☐ Two Rack Mount brackets
☐ Four rubber feet
☐ One printed Quick Start Guide
☐ One documentation postcard

Contact you sales representative if you have not received these items. Save the packaging for possible future use.

Rack Mount Safety Instructions

The instructions below (or similar) are intended for rackmount installation environments:

1. Elevated Operating Ambient: if installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may exceed room ambient. Install the equipment in an environment compatible with the maximum ambient temperature (Tma) specified.
2. Reduced Air Flow: install the equipment in a rack so that the amount of air flow required for safe operation is not compromised.
3. Mechanical Loading: Mount the equipment in the rack so that a hazardous condition does not occur due to uneven mechanical loading (weight distribution/rack balance).
4. Circuit Overloading: give consideration to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Consider all equipment nameplate ratings when addressing this concern.
5. Reliable Earthing: maintain reliable earthing of rack-mounted equipment; pay particular attention to supply connections other than direct connections to the branch circuit (e.g., use of power strips).
6. It is your responsibility to ensure that the final combination of equipment and rack complies with all applicable safety standards and local electric code requirements.

Rack Mount Dimensions

SM8TAT2SA-DC with Rack Mount Brackets
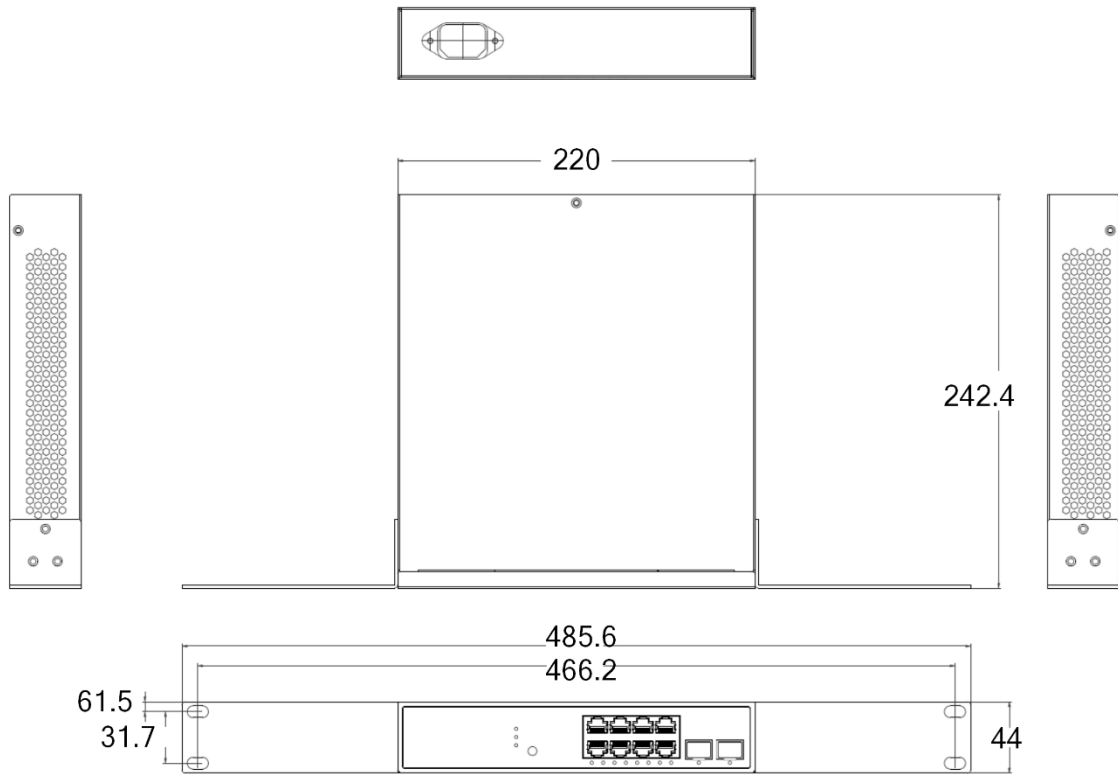
Rack Mount Brackets
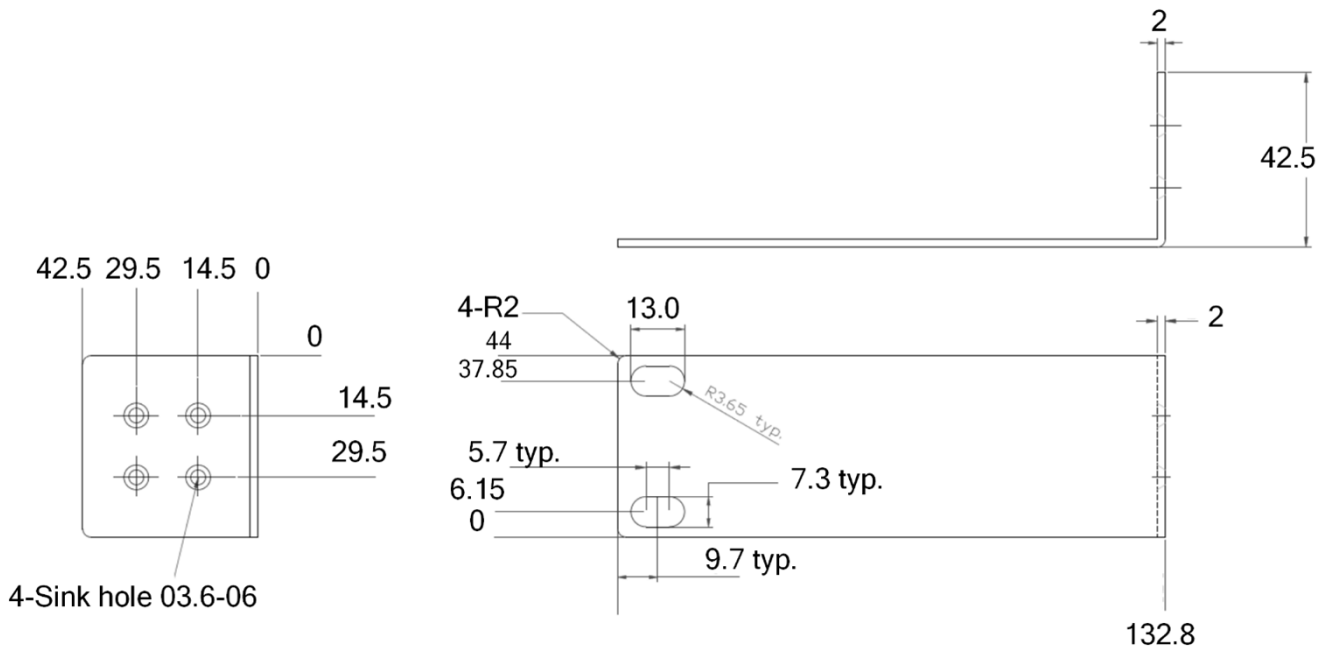
Rack Mounting

1. Attach the mounting brackets to both sides of the chassis. Insert screws and tighten then with a screwdriver to secure the brackets.
2. Place the switch in the rack. Align the oval holes in the brackets with the mounting holes in the rack posts.
3. Attach the brackets to the posts. Insert screws and tighten them.

Wall Mounting

Step 1: Install user-supplied screws on the appropriate location on the wall and be aware of the dimensional limitation of the screws.
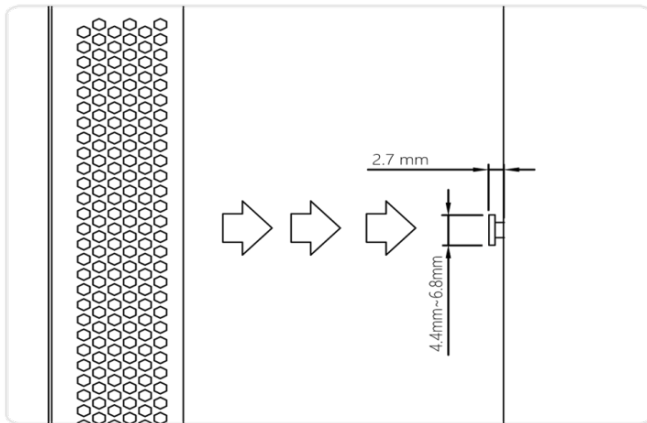
Install screws to the wall   **Attaching switch to the wall**
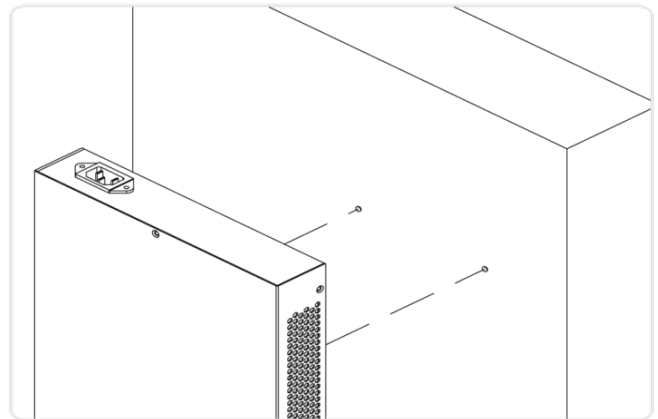
Step 2: Make sure that the switch is attached securely to wall.

Mounting the Switch on Desk or Shelf

Step 1: Verify that the workbench is sturdy and reliably grounded.

Step 2: Attach the four adhesive rubber feet to the bottom of the switch.
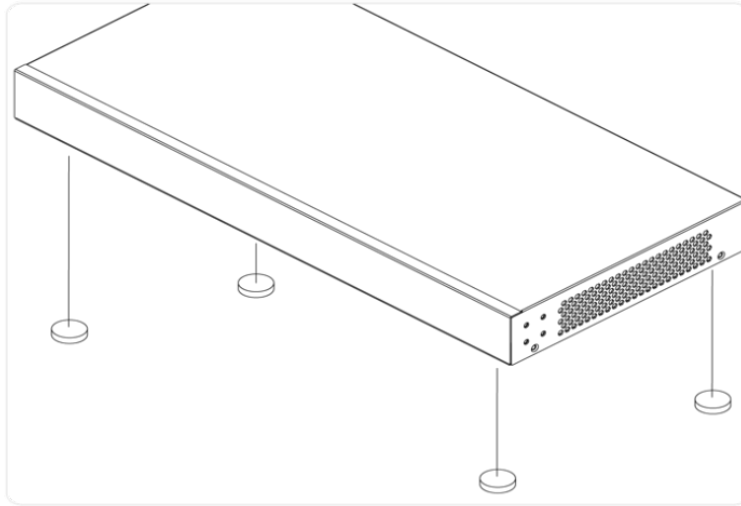
Attaching the Rubber Feet

Grounding

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

Refer to IEC 60417 for Graphical Symbols definitions. Refer to IEC 50 [3] for terminology definitions.

See ITU-T K.27 for Bonding configurations and earthing inside a telecommunications building.

See GR-1089-CORE for Electromagnetic compatibility and electrical safety—generic criteria for network telecommunications equipment.

ATTENTION: The SM8TAT2SA-DC case must be earth grounded for correct operation of internal transient protection circuitry.

Neither DC input polarity may be earth grounded. If DC power distribution bus has one side tied to earth ground, then the use of an isolated DC-DC power Supply between the DC power distribution bus and SM8TAT2SA-DC is required to ensure that the PoE ports are isolated from earth ground as required by IEEE802.3af/at/bt specification.

If it is not possible to use an isolated DC-DC power supply then all interconnected devices must be bonded to a common earth ground with all connection points within the same building.

See "PoE Deployment Environments A and B" on page 24.

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.

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.

SAFETY: Equipment Using -48V DC Power Supplies

Systems using -48V DC Power Supplies are intended for restricted access locations (dedicated equipment rooms, equipment closets, or similar) in accordance with Articles 110-5 (conductors), 110-6 (conductor sizes), 110-11 (deteriorating agents), 110-14 (terminations), and 110-17 (guarding against accidental contact of live parts) of the National Electric Code, American National Standards Institute (ANSI)/National Fire Protection Association (NFPA) 70.

* Connect equipment to a 48-V direct current (DC) power supply source that is electrically isolated from the AC source. The 48VDC source is to be reliable connected to earth.

CAUTION: A qualified electrician must perform all connections to DC power and to safety grounds. All electrical wiring must comply with applicable local or national codes and practices.

CAUTION: Before connecting safety ground or power cables to the connector, ensure that the power is removed from the DC circuit. To ensure that the power is off, locate the circuit breaker on the DC source circuit (usually at the power distribution of the battery distribution fuse bay). Switch the circuit breaker to the off position and, if available, install an approved safety locking device on the circuit breaker or switch.

CAUTION: While grounding techniques may vary, a positive connection to a safety (earth) ground is a requirement.

CAUTION: When installing the unit, the ground connection must always be made first and disconnected last to prevent an energy hazard.

CAUTION: Never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available.

CAUTION: The system chassis must be securely grounded to the rack cabinet frame. Do not attempt to connect power to the system until grounding cables are connected. Completed power and safety ground wiring must be inspected by a qualified electrical inspector. An energy hazard will exist if the safety ground cable is omitted or disconnected.

* Wire the unit with copper wire only, and unless otherwise specified, use 14 American Wire Gauge (AWG) wire, and protect it with a 7.2-amphere (A) minimum to a 20-A maximum protective device or a 25-A maximum protective device when used with 90ºC wire. (110.5 Conductors: A change to this rule clarifies that conductors are to be copper or aluminum unless otherwise restricted by the NEC. Aluminum can be used unless there's a specific requirement by the equipment listing or Code rule, such as 517.13(B)(1).

CAUTION: When stranded wiring is required, use approved wiring termination, such as closed-loop or spade-type with upturned lugs. These terminations should be the appropriate size for the wires and must be double crimped, one on the conductor and one on the insulation.

Ethernet Interface Connecting (RJ45 Ethernet)

The switch provides two types of electrical interfaces: RJ45 and optical (mini-GBIC). Connecting the Ethernet interface via RJ45:

- To connect to a PC, use a straight-through or a cross-over Ethernet cable.
- To connect the SM8TAT2SA-DC to an Ethernet device, use UTP (Unshielded Twisted Pair) or STP (Shielded Twisted Pair) Ethernet cables.

The RJ-45 connector pin assignments are shown below.
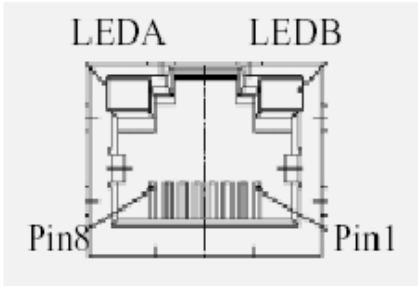
Pin	Assignment
1,2	T/Rx+,T/Rx-
3,6	T/Rx+,T/Rx-
4,5	T/Rx+,T/Rx-
7,8	T/Rx+,T/Rx-

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 PSE's 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) such as Lantronix' MIL-L100i or 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.

IEEE 802.3bt Power Input Ripple and Noise Specification

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

Ethernet Interface Connecting (Fiber, SFP)

For a 100 Mbps fiber port available, please prepare the LC connectors or SC connectors (with the use of an optional SC-to-LC adapter).

For the available 1000 Mbps fiber ports, use mini-GBIC SFPs. These accept plug-in fiber transceivers that typically have an LC style connector. They are available with multimode, single mode, long-haul or special-application transceivers.

Warning: Never attempt to view optical connectors that might be emitting laser energy. Do not power up the laser product without connecting the laser to the optical fiber and putting the cover in position, as laser outputs will emit infrared laser light at this point.

Caution: We strongly recommend that you do not install or remove the SFP module with fiber-optic cables attached to it because of the potential damage to the cables, the cable connector, or the optical interfaces in the SFP module. Disconnect all cables before removing or installing an SFP module.

For more information see the manual specific to your SFP on the Lantronix SFP webpage.

Fiber optics cable with LC duplex connector

Connect the optical fiber to the SFP socket

For More Information

The Fiber Optic Association (FOA) is an international non-profit educational organization that is chartered to promote professionalism in fiber optics through education, certification and standards.

Visual Inspection and Cleaning Of Connectors: https://www.thefoa.org/tech/ref/testing/test/scope.html

Testing & Troubleshooting Fiber Optic Systems: https://www.thefoa.org/tech/ref/contents.html#Test

Console Connection

A Console port is for local management by using a terminal emulator or a computer with terminal emulation software using these settings:

- DB9 connector connect to computer COM port
- Baud rate: 115200bps
- 8 Data bits, 1 Stop bit
- Priority: None
- Flow control: None

To connect the host PC to the console port, an RJ45 (male) connector-to-RS232 DB9 (female) connector cable is required. The RJ45 connector of the cable is connected to the Console port of the SM8TAT2SA-DC. The DB9 connector of the cable is connected to the PC COM port. The console cable pin assignments are shown below:
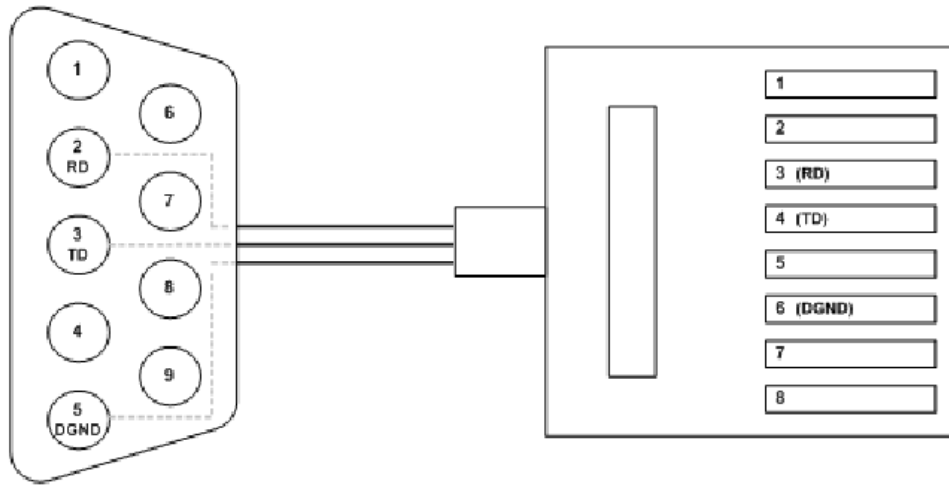
Host PC <------- DB9 Connector ------------------------------ Switch RJ45 Console Port

Power Supply Warnings & Cautions !!

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 (where there is only non-conductive pollution that might temporarily become conductive due to occasional condensation. Generally this refers to dry, well-ventilated locations, such as control cabinets).
6. Please do not install the unit in places with high moisture or near the water.
7. The maximum operating temperature is 60°C. Please 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.

Optional Power Supplies

The SM8TAT2SA-DC can be powered by either of two optional power supplies. Both the 25105 and 25104 power supplies are optional accessories that you must order separately.

Power Connection Warning: Connect the power supply to the switch first while powered off, and then connect the power supply to power. Otherwise catastrophic product failure may occur. **1.** Verify that power is off to the DC circuit that you are going to attach to the switch PoE DC-input connector. This can be either of the two power supplies (AC-input or DC-input) or site source DC. **2.** As an added precaution, place an appropriate safety flag and lockout device at the source power circuit breaker, or place a piece of adhesive tape over the circuit breaker handle to prevent accidental power restoration while you are working on the circuit.
Power Disconnection: To disconnect power from the switch after a successfully boot, follow these steps:
1. Turn off power to the switch. **2.** Disconnect the cables.

Warning: Only wire with insulation should extend from the connector. An exposed wire lead from a DC-input power source can conduct harmful levels of electricity. Be sure that no exposed portion of the DC-input power source wire extends from the connector(s) or terminal block(s).

Power Supply Specifications

Various power supply models are available from Lantronix. **Warning**: You must use an isolated power supply in order for Lantronix to honor the warranty. The power supplies that Lantronix makes available are:

□ Power Supply 25105
□ Power Supply 25104

Each power supply model is described on the following pages.

25105 Industrial DIN Rail Mounted Power Supply

For more information see the 25105 Product page.

Features (SDR-120-48)
91% High Efficiency
150% Peak Load
Protected against Short Circuit, Overload, Over Voltage, and Overheating
Convection air cooling
DIN rail mountable
UL 508 approved
Full load burn in test
RoHS compliant
MTBF 298.9 Khrs

Power Output
Output Voltage 48VDC
Current Rating 2.5A
Power Rating 120 Watts
Ripple & Noise Max 120mVp-p
Voltage Range 48~55VDC
Voltage Tolerance ±1.0%
Line Regulation ±0.5%
Load Regulation ±1.0%
Setup, Rise Time 1500ms, 60ms
Hold Up Time 20ms

Power Input
Voltage Range Switch Selectable
88~264VAC
124~370VDC
Frequency Range 47~63Hz
Efficiency 90.5%
AC Current (Typical)
1.4A@115VAC
0.7A@230VAC
Inrush Current (Cold) 35A@115VAC
70A@230VAC
Leakage Current <1.0mA@240VAC

Protection: Overload 110~150%. Overvoltage 56~65V. Over Temperature 95ºC ± 5ºC

Dimensions: Width: 1.57" [40 mm] x Depth: 4.47" [113.5 mm] x Height: 4.93" [125.2 mm]

Environment: Operating: -25°C to +70°C. Storage: -40°C to +85°C. Humidity: 20% to 95% (non-condensing)

Weight: 1.48 lbs. [0.67 kg]

Compliance: Safety: UL508, TUV EN60950-1, IEC60068-2-6 (Vibration) EMC Emission: EN55011, EN55022, CISPR22 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: Lifetime

Caution: Tying the output connection of the DC power supply to earth ground to create an earth referenced voltage power supply will violate the power supply isolation to earth ground requirements of IEEE 802.3af/at/bt.

If an earth grounded power supply is utilized, all connected equipment to this power source must then be tied to same local earth ground as the power supply source. Failure to maintain a common earth ground potential for all nodes on the power distribution network can cause equipment damage due to high voltage ground differences between the connected equipment. It is recommended that the power supply connections for PoE networks not be tied to earth ground.

25104 Industrial DIN Rail Mounted Power Supply

For more information see the [25104 Product page](#).

Description: Industrial DIN Rail Mounted Power Supply;
Input: 85-264 VAC, 124-370 VDC;
Output: 48~55 VDC, 5.0A, 240 Watts.

Features (SDR-240-48)
94% High Efficiency
150% Peak Load
Protected against Short Circuit, Overload, Over Voltage, and Overheating
Convection air cooling
DIN rail mountable
UL 508 approved
Full load burn in test
RoHS compliant
MTBF 169.3 Khrs

Power Output
Output Voltage 48VDC
Current Rating 5A
Power Rating 240 Watts
Ripple & Noise Max 120mVp-p
Voltage Range 48~55VDC
Voltage Tolerance ±1.0%
Line Regulation ±0.5%
Load Regulation ±1.0%
Setup, Rise Time 300ms, 60ms
Hold Up Time 20ms

Power Input
Voltage Range Switch
Selectable
88~132VAC
124~370VDC
Frequency Range 47~63Hz
Efficiency 94%
AC Current (Typical) 2.6A@115VAC
1.3A@230VAC
Inrush Current (Cold) 33A@115VAC
65A@230VAC

Protection: Overload 105~160%. Overvoltage 56~65V

Dimensions: Width: 2.48" [63 mm] x Depth: 5.26" [113.5 mm] x Height: 4.93" [125.2 mm]

Environment: Operating: -25°C to +60°C. Storage: -40°C to +85°C. Humidity: 20% to 95% (non-condensing)

Weight: 2.27 lbs. [1.03 kg]

Compliance Safety: UL508, TUV EN60950-1, IEC60068-2-6 (Vibration) EMC Emission: EN55022, CISPR22 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: Lifetime

Caution: Tying the output connection of the DC power supply to earth ground to create an earth referenced voltage power supply will violate the power supply isolation to earth ground requirements of IEEE 802.3af/at/bt.

If an earth grounded power supply is utilized, all connected equipment to this power source must then be tied to same local earth ground as the power supply source. Failure to maintain a common earth ground potential for all nodes on the power distribution network can cause equipment damage due to high voltage ground differences between the connected equipment. It is recommended that the power supply connections for PoE networks not be tied to earth ground.

Power Supply 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 DIN Rail fastening:

1. Tilt the unit slightly rearwards.
2. Fit the unit over top hat rail.
3. Slide it downward until it hits the stop.
4. Press against the bottom for locking.
5. Shake the unit slightly to check the locking action.
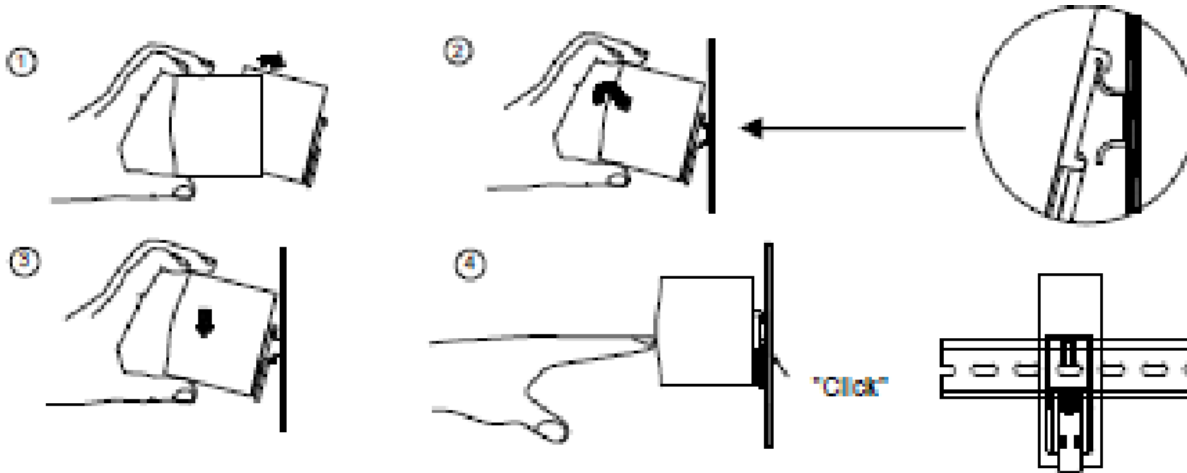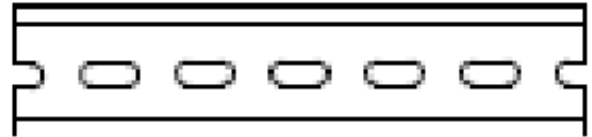
Power Supply Installation

Each power supply is a DIN rail power supply with a 150% peak load capability (3 seconds) and high efficiency of up to 94%. They can be mounted on a TS35 Standard DIN rail.

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 as shown below.

AWG	18	16	14	12	10
Rated Current of Equipment (Amps)	6A	6-10A	13-16A	16-25A	25-32A
Cross-section of Lead (mm^2)	0.75	1.00	1.5	2.5	4

Note 1. Current: each wire should be de-rated to 80% of the current suggested above when using 5 or more wires connected to the unit.
Note 2: The maximum allowable wire cross-sectional area for the terminal of the SDR-75 is 12AWG/2.5 mm^2.

4) 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, please

make sure each contact is connected to wires to prevent too much current stress on a single contact.

5）Use wires that can withstand temperatures of at least 80°C, such as UL1007.

6）Recommended wire strapping length is 5mm (0.197").

7）Recommended screwdriver is 4mm, slotted type.

8）The recommended torque setting for terminals is:
   □ SDR-120-24 I/P = 6.3 kgf-cm (5.5 Lb-in) and O/P = 8 kgf-cm (7 Lb-in)
   □ SDR-240-48 I/P = 5 kgf-cm (4.4 Lb-in) and O/P = 8 kgf-cm (7 Lb-in)

9）Suggested fuse and maximum number of the SDR PSUs that can be connected to a circuit breaker at 230V are:
   □ SDR-120-24 Fuse = T4A/L250V, C16 = 7, D16 = 14.
   □ SDR-240-48 Fuse = T5A/L250V, C16 = 4, D16 = 8.

Connecting Power

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

Insert the positive and negative wires into **+** and **-** contacts on the terminal block and tighten the wireclamp screws to prevent the wires from being loosened.

Note: See "Power Supply Warnings & Cautions !!", "Power Supply Installation", and "Power Supply Mounting Instructions" later in this manual for detailed information.

Note: Make all cable connections before connecting Power.

Note: The DC power should be connected to a well-fused power supply.

Connect Terminals to DC Power Source

The switch input range is 48 - 54VDC or negative 48 - 54VDC. To get full PoE output and meet the IEEE 802.3at standard, the input range must be 52-54VDC or negative 52-54VDC.

The SM8TAT2SA-DC will function with either power supply input polarity referenced to chassis ground or Earth ground or with a floating power supply not tied to Earth ground or chassis ground. **Note**: When using a power supply with one polarity tied to chassis or earth ground the PoE output voltage will also be referenced in the same way to chassis ground or earth ground. In this configuration the PoE voltage domain is not isolated from earth ground or chassis ground. This type of installation then requires the PD device to be isolated from chassis ground or earth ground. Or if the PD device is not isolated, then the chassis or earth voltage potential between the PD and SM8TAT2SA-DC must be maintained at the same voltage to eliminate the possibility of a voltage breakdown in the PD device or the SM8TAT2SA-DC.
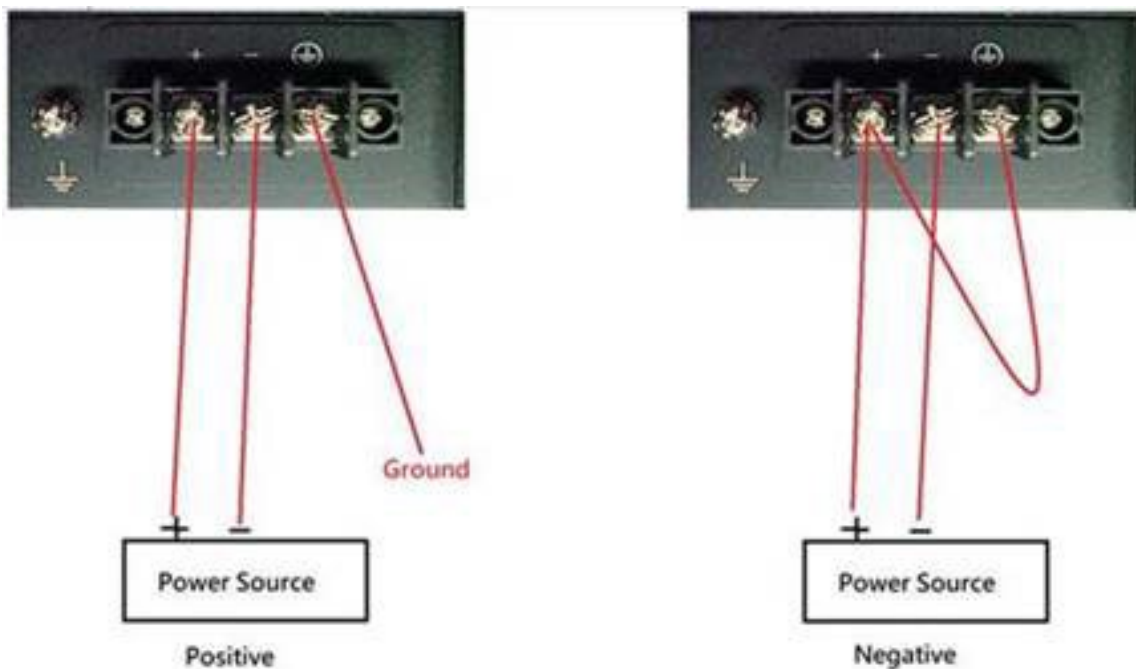
If both power supplies are in use and are required to provide enough power for the PoE connections that are in use, if one of the power supplies fails and there is not enough power to support all of the PoE ports that are in use, then PoE power will be fed to PoE ports with higher priority. If the ports have the same priority, the lower port number will be fed PoE power. Priority is set in the Web UI at PoE Management > PoE Configuration. See the Web User Guide for details.

IEEE Detection pulses are either 4-point or 2-point method. As with classification, a camera responding to either method might ignore one or the other. A non-response to a detection pulse means the source providing the power will interpret there is no device and will shut down the power. Sources providing power under the IEEE PoE standard are not required to generate both versions and there are known differences in how cameras will respond.

Initial Switch Configuration

Initial Switch Configuration via Web Browser

When you power up the switch the first time, a First Time Wizard displays. On subsequent power ups, you can perform the initial switch configuration using a web browser. See the Quick Start Guide for First Time Wizard information. For managing other switch features, see the Web User Guide for details.

For 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. After changing PC's IP address (for example, 192.168.1.250), then you can access the Web interface of the switch using the switch's default IP address as shown below.

The initial switch configuration via web browser procedure is as follows:

Note: The switch's factory default IP address is **192.168.1.77** and the factory default Subnet Mask is **255.255.255.0**.

1.   Power up the PC that you will use for the initial configuration. Make sure the PC has an Ethernet RJ45 connector to be connected to the switch via standard Ethernet LAN cable.

2.   Reconfigure the PC's IP address and Subnet Mask as below, 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.

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; enter the factory default IP address, so as to access the switch's Web interface.

If your PC is configured correctly, you will see the Login page of the switch as shown below.

Figure 11: Web Interface Login page

If you do not see the above login page, perform these steps:
-   Refresh the web page.
-   Check to see if there is an IP conflict issue.
-   Clean browser cookies and temporary internet files.
-   Check your PC settings again and repeat step 2.

6.   Enter the factory default username and password in login page.

7.   Click "Login" to log into the switch.

Note: The factory default Username and Password of the switch are both **admin**.

See the *SM8TAT2SA-DC Web User Guide* for more information.

Connect the Switch to Your Windows 10 PC

1.   On your Win 10 PC, go to Control Panel > Network and Internet.
2.   Click on Network and Sharing Center.
3.   Click on Change adapter settings.
4.   Select the first available Ethernet connection:
5.   Right click on it and go to Properties.
6.   On the Networking tab, select Internet Protocol Version 4(TCP/IPv4).
7.   Click on the Properties tab.
8.   Click the "Use the following IP address" button.
9.   Give the same IP subnet as the switch 192.168.1.5 (your switch is .77) and Subnet mask 255.255.255.0.
10. Click OK.
11. Connect your network cable from your PC to the switch.
12. In your web browser address bar type the IP for the switch (192.168.1.77) and hit Enter.
13. Enter the default User name (admin) and Password (admin) all lower case.

Initial Switch Configuration via CLI

The CLI (Command Line Interface) can be accessed via telnet or SSH. See the *CLI Reference* for more information.

Troubleshooting

If the switch fails, isolate and correct the fault by determining the answers to the following questions and then taking the indicated action. First isolate the problem to the SM8TAT2SA-DC by troubleshooting other network gear (e.g., other switches, IP cameras, WAPs, midspan injectors, etc.) to isolate the problem to the SM8TAT2SA-DC.

1. If the Green System LED is not lit check the following:
- □   Is the power source live and to spec?
- □   Is the power supply properly installed? Verify that you are using the right power supply. See Optional Power Supplies on page 27. Check connections between the switch, the power cord and the outlet.
- □   Are the power cables properly installed? Check for loose power connections, power losses or surges at power outlet. See the related section of this manual for details.

2. Check the port LEDs. If the green Link/Act/Speed LED is not lit, verify that the copper and fiber cable requirements are met. See Specifications on page 5.

3. If you are configuring a feature via the web GUI, try using the CLI, and vice versa.

4. Run the device Diagnostics; see the Web User Guide or the CLI Reference manual.

5. Try resetting to factory defaults and/or a system reset. See the Reset Button on page 10. See the Web User Guide or the CLI Reference manual.

6. Make sure that the function you are trying to use is supported. See Features on page 4.

7. Verify the install procedures were performed correctly as described in previous sections of this manual.

8. Check that the proper cable type is used and its length does not exceed specified limits. See Ethernet Interface Connecting (RJ45 Ethernet) on page 8 and Ethernet Interface Connecting (Fiber, SFP) on page 9.

9. Check for improper network topologies. Make sure that your network topology has no data path loops.

10. Diagnose via the LEDs: The Ethernet switch can be monitored via LEDs on the front panel to help identify problems. See LED Status Indicators on page 14.

11. If the LED indicators are normal with network cables connected properly but packet delivery still fails, check the status of Ethernet device configurations or status on the network. See the Web User Guide or the CLI Reference manual.

12. Check the port configuration. Make sure ports have not been put into a "blocking" state by Spanning Tree, GVRP, or LACP. The normal operation of the Spanning Tree, GVRP, and LACP features may put the port in a blocking state. Verify that the port has not been configured as disabled via software.

13. Check the device firmware version. Keep your products up to date by downloading the latest firmware. You must log in or create an account to download firmware.

14. If you forgot your password or cannot log in, physically connect ports 1 and 2 with an Ethernet cable and then reboot the system. This will bring system back to factory default settings.

15. If you still cannot resolve the problem, record the model and system information and contact Technical Support.

Troubleshooting PoE Problems

1. Note that this product is to be connected only to UL listed PoE networks and without routing to the outside plant.

2. Note that PoE devices initially draw more power during their boot up sequence than during normal operation.

3. Determine what the requested power was at the time of failure.

4. Identify how long the device was up 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).

5. 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.

6. 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.

7. 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.

8. Use power measuring and testing equipment to determine if the PD overdraws the amount of power it gets allocated.

9. Enable CDP awareness via the Web UI or the CLI. CDP (Cisco Discovery Protocol) is a Cisco-proprietary Layer 2 protocol that runs on most Cisco equipment and shares information about directly connected Cisco equipment. PoE switches with CDP enabled can recognize Cisco powered devices such as IP phones and WAPs. The actual power requirement can be advertised by the powered device, and the unused class power is returned to the switch power budget.

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.

Box Label and Device Label

The labels can provide information that can help the Tech Support Specialist.

Record Device and System Information

If possible, provide the running configuration, topology, and firmware version after performing the troubleshooting steps above. Before calling or emailing Tech Support, record as much information as possible in order to help the Tech Support Specialist:

MODEL: _____

S/N (Serial Number): _____

Firmware Version: _____ PoE FW Version: _____

LED Status:

_____

_____

Your Lantronix service contract number: _____

Describe the failure: _____

_____

_____

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

_____

_____

The model # and serial # of all other Lantronix products in the network: _____

_____

Describe your network environment (layout, cable type, cable distance, etc.): _____

_____

Any previous Return Material Authorization (RMA) numbers: _____

_____

List third party equipment in the network (e.g., PCs, servers, switches, routers, IP cameras, WAPs, SFPs, etc.):

_____

_____

_____

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 the equipment is operated in a commercial environment. The 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.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment is in accordance with the procedures are given in ANSI C.63.4-2014 and the energy emitted by this equipment was Passed CISPR PUB. 22, Part 15 Subpart B, Canada Standard ICES_003 Issue 6. Radiated and conducted emissions are compliance in Class A limits.

Innovation, Science and Economic Development Canada ICES-003 Compliance: *CAN ICES-3 (A)/NMB-3(A)* Class of ITE.

The equipment was Passed the test performed according to the following Standard:
EN55032:2015/AC:2016 Class A, EN 61000-3-2:2014, EN 6100-3-3:2013 and
EN55035:2017 (IEC 61000-4-2 Edition 2.0 2008-12,
IEC 61000-4-3 Edition 3.2 2010-04, IEC 61000-4-4 Edition 3.0 2012-04,
IEC 61000-4-5 Edition 3.1 2017-08, IEC 61000-4-6 Edition 4.0 2013-10,
IEC 61000-4-8 Edition 2.0 2009-09, IEC 61000-4-11 Edition 2.1 2017-05)
Australian Standard AS/NZS CISPR 32:2015 Class A.

Standard: 47 CFR FCC Rules and Regulations Part 15 Subpart B, Class A Digital Device; ICES-003 Issue 6 Class A.

RoHS, WEEE, and Environmental Programs

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

Declaration of Conformity

Manufacture's Name: Lantronics, Inc.
Manufacture's Address: 7535 Irvine Center Drive, Suite 100, Irvine, California 92618

Declares that the products:
SM8TAT2SA-DC

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
IEC /EN 62368-1
2011/65/EU EN 50581:2012
EN55032:2015/AC:2016 Class A, EN 61000-3-2:2014, EN 6100-3-3:2013 and
EN55035:2017 (IEC 61000-4-2 Edition 2.0 2008-12,
IEC 61000-4-3 Edition 3.2 2010-04, IEC 61000-4-4 Edition 3.0 2012-04,
IEC 61000-4-5 Edition 3.1 2017-08, IEC 61000-4-6 Edition 4.0 2013-10,
IEC 61000-4-8 Edition 2.0 2009-09, IEC 61000-4-11 Edition 2.1 2017-05)
Australian Standard AS/NZS CISPR 32:2015 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 Standard(s).

Place: Irvine, California
Date: June 30, 2023
Signature: *Eric Bass*
Full Name: Eric Bass
Position: Vice President of Engineering

PS 25104 UK Declaration of Conformity

LANTRONIX®

UK CA

UK DECLARATION OF CONFORMITY

Manufacturer's Name: LANTRONIX INC.
Manufacturer's Address: 48 Discovery, Suite 250, Irvine, CA 92618 USA
Product Name: Din-Rail Switching Power Supply
Model Number: SDR-240-X (X=24/48)

Manufacturer's Quality System:

TÜVRheinland® ISO 9001:2015 Certificate No. 74 300 4282   TUV Rheinland

Electrical Equipment Regulations 2016

- BS EN 62368-1:2014+A11:2017

Electromagnetic Compatibility Regulations 2016

- BS EN 55032:2015+A1:2020; BS EN IEC 61204-3:2018 Class B
- BS EN IEC 61000-3-2:2019
- BS EN 61000-3-3:2013+A1:2019
- BS EN 55035:2017+A11:2020,
- BS EN IEC 61204-3:2018
- BS EN IEC 61000-6-2:2019

UK SI 2012 No. 3032 for Restriction of Hazardous Substance (RoHS2) with exemption 7(c)-I and 6(c).
    1) 2011/65/EU Restriction of the use of Hazardous Substances in EEE (RoHS)
    2) 2015/863/EU Change of Annex II from 2011/65/EU
    3) Directive 2018/736/EU[7(c)-I] and 2018/741/EU[6(c)]
    BS EN IEC 63000 : 2018

Statement of Conformity: The product specified above meets the test requirements of the relevant legislation of United Kingdom, including the application of sound engineering practice.

Signature: _____   Date: December 6, 2022

Name: _____Fathi Hakam_____   Title: VP of Engineering

LANTRONIX®

Lantronix Corporate Headquarters

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Irvine, CA 92618, USA

Toll Free: 800-526-8766

Phone: 949-453-3990

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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.