Netway ®
SPECTRUM

Hardened Ethernet over Fiber PoE+ Switch with Optimized Lithium Iron Phosphate Battery Charger

Installation Guide

Models include:

NetWaySP3LWPX
- Includes one (1) Fiber Optic SFP 1G Link, 3-port PoE+ switch and power supply.
- NEMA4/4X, IP66 rated Outdoor enclosure.
- Accommodates one (1) 12V LiFePO$_4$ battery.

NetWaySP4LWPX
- Includes two (2) Fiber Optic SFP 1G Links, 4-port PoE+ switch and power supply.
- NEMA4/4X, IP66 rated Outdoor enclosure.
- Accommodates one (1) 12V LiFePO$_4$ battery.

NetWay4ELWPX
- Includes one (1) Fiber Optic SFP 1G Link, 4-port PoE+ switch and power supply.
- NEMA4/4X, IP66 rated Outdoor enclosure.
- Accommodates one (1) 12V LiFePO$_4$ battery.

NetWaySP8LWPX
- Includes two (2) Fiber Optic SFP 1G Links, 8-port PoE+ switch and power supply.
- NEMA4/4X, IP66 rated Outdoor enclosure.
- Accommodates one (1) 12V LiFePO$_4$ battery.

Altronix ®

More than just power.™

Table of Contents:

Overview:

Altronix Hardened Ethernet over Fiber PoE+ Switches with Optimized Lithium Iron Phosphate Battery Charger provide one (1) or two (2) 1Gb SFP (Fiber) ports, three (3), four (4) or eight (8) PoE (up to 15W) or two (2) PoE+ (up to 30W) ports passing data for PoE/PoE+ compliant devices. Outputs are also configurable for a single Hi-PoE (60W) port. These units are designed to support a single 12V LiFePO$_4$ **(Lithium Iron Phosphate)** battery for high storage and charge/discharge cycle life reliability.

Features:

Input:
- 115VAC, 60Hz, 2.5A or 230VAC, 50/60Hz, 1.3A.

Power Output:
- See *Configuration Chart* below for output ports.
- IEEE 802.3at (30W) and IEEE 802.3af (15W) compliant.
- 75W total power
  (**Note:** connected devices in total not to exceed 75W).
- Integral surge protection.

Fiber Port:
- One (1) or two (2) Gigabit SFP ports.
- Use with SFP module 1000Base-X (1Gb), compliant to Class 1 laser product (not included).

Ethernet Ports:
- 10/100/1000 Mbps ports.
- Connectivity: RJ45, auto-crossover.
- Wire type: 4-pair CAT5 or better structured cable.
- Distance: up to 100m.
- Speed: 10/100/1000 Mbps, half/full duplex, auto negotiation.

Battery Backup:
- Built-in charger for 12V LiFePO$_4$
  (Lithium Iron Phosphate) battery.
  Caution: Do not use lead acid or gel type batteries.
- Automatic switch over to stand-by battery when AC fails.

LINQ Technology:
- Remote network management allows for camera/device reset and monitoring.
- Provides local and/or remote access to critical information via LAN/WAN.
- Email and Windows Dashboard Alert notifications report real-time diagnostics.
- Event log tracks history.

LEDs:
- Individual **PoE On** LEDs for each port.
- Individual **IP Link status, 10/100/1000Base-T/active** LEDs for each port.
- **ALOS** LED indicates fiber connection for SFP port.
- **Heartbeat** LED indicates proper operation of the unit.

Applications:
- Provides PoE / PoE+ / Hi-PoE for cameras/devices.

Environmental:
- Operating Ambient Temperature:
  60W: –40ºC to 75ºC (–40ºF to 167ºF);
  75W: –40ºC to 70ºC (–40ºF to 158ºF);
- Relative Humidity: 85%, +/– 5%
- Storage Temperature:
  –40ºC to 85ºC (–40ºF to 185ºF).
- Operating Altitude: –304.8 to 2,000m.

Mechanical:
- NEMA4/4X, IP66 Rated enclosure for outdoor use.
- Accommodates one (1) 12V LiFePO$_4$
  (Lithium Iron Phosphate) battery.
- Dimensions (H x W x D approx.):
  17.53" x 15.3" x 6.67"
  (445.3mm x 388.6mm x 169.4mm).
- **Product Weight:** 15 lbs. (6.8 kg)
- **Shipping Weight:** 17.5 lbs. (7.9kg)

Accessories:
NetWaySP1A
- Ethernet over Fiber Media Converter/Repeater - for applications requiring an additional SFP (Fiber) port.

P1MM
- SFP multi-mode transceiver (distances up to 550m).

P1SM10
- SFP single mode transceiver (distances up to 10km).

P1AB2K
- SFP single strand single mode transceiver kit (distances up to 2km).

P1GCE
- SFP Copper Transceiver for use with CAT5e or better (distances up to 100m).

PMK2
- Pole Mount Kit for outdoor enclosures.

BTL125
- 12VDC 4.5AH Lithium Iron Phosphate Battery.

Configulration Chart:

Altronix Model Number	SFP Ports	PoE and PoE+ Ports (up to 30W)	Hi-PoE Ports (up to 60W)
NetWaySP3LWPX	1	3	1
NetWaySP4LWPX	2	4	Up to 2*
NetWay4ELWPX	1	4	1
NetWaySP8LWPX	2	8	Up to 2*

*Note: Units provide a total of 75W power. Thus, at any time, only one designated port can provide full 60W output. Please see **Port Configurations** *(pg. 4)* for details.

Enclosure Mounting and Installation:

Wiring methods shall be in accordance with the National Electrical Code/NFPA 70/ANSI, and with all local codes and authorities having jurisdiction. All units should be installed by a trained service personnel.

1. Remove backplane from enclosure prior to drilling. Do not discard hardware.
   Note: Make sure that hardware will not interfere with components of the circuit board.
2. Mark and drill desired inlets on the enclosure to facilitate wiring. Maximum NEMA type 4X rated fittings to be used are 0.5". Follow manufacturer's specifications for the appropriate size opening.
   Note: Inlets for conduit fittings should only be made on the bottom of the enclosure.
   UL Listed NEMA type 4X rated conduit connector/hubs shall be used for the appropriate size inlets.
3. Clean out the inside of enclosure before remounting circuit board.
4. Mounting NEMA4/4X rated enclosure *(Enclosure Dimensions, pg. 12)*:
   Wall mount: Mount unit in desired location. Mark and drill holes to line up with the top and bottom holes of the enclosure flange. Secure enclosure with appropriate fasteners (e. g. screws and anchors; bolts and locking nuts, etc.) that are compatible with mounting surface and are of sufficient length/construction to ensure a secure mount *(Fig. 9, pg. 11)*.
   Pole Mount: *Refer to Figs. 10-14, pg. 11*.
5. Mount backplane in enclosure with hardware.
6. To facilitate wire entry utilize weather-tight NEMA rated connectors *(supplied)*, bushings, and cable.

Installation:

1. Secure cabinet to earth ground. Connect AC power from overcurrent protective device circuit breaker (20A @ 115VAC, 60Hz; 16A @ 230VAC, 50/60Hz) to the terminals marked [L, N] on power supply board *(Fig. 1, pg. 4)*.
   Use 14AWG or larger for all power connections (Battery, DC output, AC input). Connect ground lug ⏚ to earth or green branch wire (12AWG min.).
   Keep power-limited wiring separate from non power-limited wiring by utilizing separate knockouts/ inlets. Minimum 0.25" spacing must be provided.
   CAUTION: Do not touch exposed metal parts. Shut branch circuit power before installing or servicing equipment. There are no user serviceable parts inside. Refer installation and servicing to qualified service personnel.
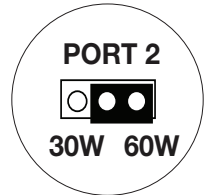

L   G   N
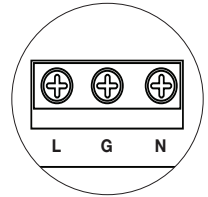
Fig. 1

2. **Port Configurations** *(Fig. 2, pg. 4; Fig. 6a, 7a, 8a, pg. 7-8)*:

NetWaySP4LWPX

Jumper	Jumper Position	Structured Cable Ports			
		1	2	3	4
PORT 2	30W	30W and Data		–	
PORT 3	30W	–		30W and Data	
PORT 2	60W	Data Only	60W and Data	–	
PORT 3	60W	–		60W and Data	Data Only

PORT 2

30W   60W

Fig. 2

NetWay4ELWPX

Jumper	Jumper Position	Structured Cable Ports			
		1	2	3	4
PORT 2	30W	30W and Data		–	
PORT 4	30W	–		30W and Data	
PORT 2	60W	Data Only	60W and Data	–	
PORT 4	60W	–		Data Only	60W and Data

NetWaySP8LWPX

Jumper	Jumper Position	Structured Cable Ports						
		1	2	3	4	5	6	7	8
PORT 4	30W	30W and Data				–			
PORT 6	30W	–				30W and Data			
PORT 4	60W	Data Only			60W and Data	–			
PORT 6	60W	–				Data Only	60W and Data	Data Only	

4. Connect structured cables from port marked [Port 1], [Port 2]... on NetWaySP board to PoE compliant cameras/edge devices *(Fig. 5-8, pg. 7-8)*.
   Note: All interconnected devices must be UL Listed.
5. Insert SFP module into port(s) marked [SFP], then connect cable to the SFP module on NetWaySP board to the corresponding input of an SFP switch *(Fig. 5-8, pg. 7-8)*.
6. **Battery Backup** (if desired): Connect one (1) 12V LiFePO$_4$ **(Lithium Iron Phosphate)** battery to terminals marked [+ BAT –] *(Fig. 3, pg. 5)*, carefully observing polarity.
   Use Altronix **BTL125** 12V/4.5AH Lithium Iron Phosphate battery.
   Note: When battery is not used, a loss of AC will result in the loss of output voltage.
   CAUTION: Do not use lead acid or gel type batteries.
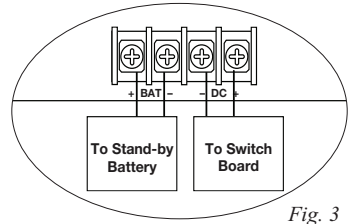7. Please ensure that the cover is secured with security bolt.

Fig. 3

Recommended Altronix SFP Modules:

Altronix P1MM, P1SM10, P1AB2K and P1GCE are hot-pluggable SFP fiber transceiver modules and are readily usable with all Altronix Spectrum fiber optic equipment for 1Gb transmission rates.

P1MM - For use with Multi-Mode Fiber for distances up to 550m.
P1SM10 - For use with Single-Mode Fiber for distances up to 10km.
P1AB2K - For use with Single Strand Single-Mode Fiber for distances up to 2km.
P1GCE - For use with CAT5e or better for distances up to 100m.

Configuring Units for Network Connection

Please be sure to visit altronix.com for latest firmware and installation instructions

Factory Default Settings
• IP Address: 192.168.168.168
• User Name: admin
• Password: admin

1. Set the static IP address for the laptop to be used for programming to the same network IP address as the NetwaySP. The default address of the NetwaySP is 192.168.168.168, E.I. 192.168.168.200.
2. Connect one end of the network cable to the network jack on the NetwaySP and the other to the network connection of the laptop.
3. Open a browser on the computer and enter "192.168.168.168" into the address bar.
   A dialog box Authentication Required will appear requesting both user name and password.
   Enter the default values here. Click on the button labeled **Log In**.
4. The status page of the NetWaySP will appear. Click on the tab labeled **Network Settings**.
   This will open the Network Setting screen. In this screen the MAC Address of the NetWaySP module will be found along with the Network Settings and Email Settings.

Network Settings:
In the IP Address Method field select the method that the IP Address for the NetWaySP will be obtained (STATIC or DHCP), then follow the appropriate steps.

Static:
   A. IP Address: Enter the IP address assigned to the NetWaySP by the network administrator.
   B. Subnet Mask: Enter the Subnet of the network.
   C. Gateway: Enter the TCP/IP gateway of the network access point (router) being used.
      Gateway configuration is required to properly receive emails from the device.
   D. HTTP Port: Enter the HTTP port number assigned to the NetWaySP module by the network administrator to allow remote access and monitoring. The default inbound port setting is 80. HTTP is not encrypted and unsecure. Even though HTTP can be used for remote access, it is recommended primarily for use with LAN connections.
   E. HTTPS Port: Enter the HTTPS port number assigned to the NetWaySP module by the network administrator to allow remote access and monitoring. The default inbound port setting is 443.
      Being encrypted and more secure, HTTPS is highly recommended for remote access.
   F. Click the button labeled **Submit Network Settings**.
      A dialog box will display "New network settings will take effect after the server is rebooted". Click **OK**.

DHCP:

A. After selecting DHCP in the IP Address Method field click the button labeled **Submit Network Settings**. A dialog box will display "New network settings will take effect after the server is rebooted". Click **OK**. Next, click on the button labeled **Reboot Server**. After rebooting the NetWaySP will be set in the DHCP mode. The IP address will be assigned by the router when the NetWaySP is connected to the network. It is recommended to have the assigned IP Address reserved to ensure continued access (see the network administrator).

B. Subnet Mask: When operating in DHCP, the router will assign the subnet mask values.

C. Gateway: Enter the TCP/IP gateway of the network access point (router) being used.

D. HTTP Port: Enter the HTTP port number assigned to the NetWaySP module by the network administrator to allow remote access and monitoring. The default inbound port setting is 80. HTTP is not encrypted and unsecure. Even though HTTP can be used for remote access, it is recommended primarily for use with LAN connections.

Secure Network Setup (HTTPS):

In order to setup HTTPS for a Secure Network Connection, a Valid Certificate and Key must be used. Certificates and Key should be in a ".PEM" format. Self Certifications should only be used for testing purposes as no actual authentication is being performed. In a Self-Certified mode, the connection will still state that it is unsecure. How to upload Certificate and Key to setup HTTPS:

1. Open Tab Labeled "Security"
2. Select Tab Labeled "Email/SSL"
3. Scroll to bottom under "SSL Settings"
4. Click "Select Certificate"
5. Browse and select valid Certificate to upload from server
6. Click "Select Key"
7. Browse and select valid Key to upload from server
8. Click "Submit Files"

Once the Certificate and Key is uploaded successfully you can proceed with setting up HTTPS in Network Settings.

A. HTTPS Port: Enter the HTTPS port number assigned to the NetWay4E module by the network administrator to allow remote access and monitoring. The default inbound port setting is 443. Being encrypted and more secure, HTTPS is highly recommended for remote access.

B. Click the button labeled **Submit Network Settings**. A dialog box will display "New network settings will take effect after the server is rebooted". Click **OK**.

Factory Reset Option:

1. Power the unit down. Allow approximately 30 seconds for the unit to power down completely.
2. Depress Factory Reset button on NetWaySP board while reapplying power to the unit *(Fig. 4, pg. 6)*. Continue holding the button until the LEDs on board go through the start up cycle, then release the button.
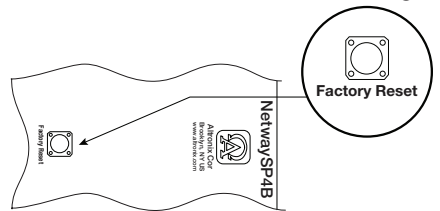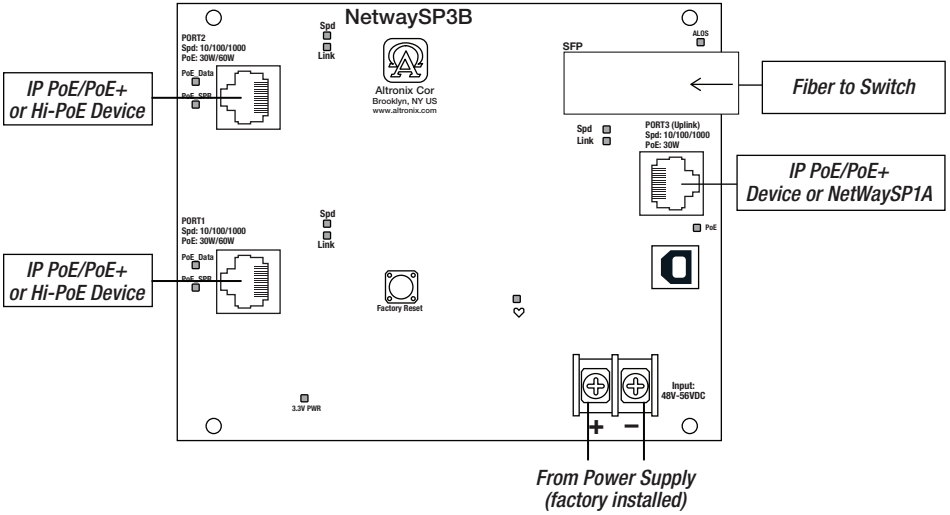3. The unit returns to the original factory settings.

Fig. 4

Factory Reset

Typical Application:
NetWaySP3LWPX

Fig. 5

NetwaySP3B

PORT2
Spd: 10/100/1000
PoE: 30W/60W

PORT1
Spd: 10/100/1000
PoE: 30W/60W

Spd
Link

PoE_Data
PoE_SPD

Factory Reset

3.3V PWR

Altronix Cor
Brooklyn, NY US
www.altronix.com

SFP

ALOS

PORT3 (Uplink)
Spd: 10/100/1000
PoE: 30W

Spd
Link

PoE

Input:
48V-56VDC
+ −

IP PoE/PoE+ or Hi-PoE Device

IP PoE/PoE+ or Hi-PoE Device

Fiber to Switch

IP PoE/PoE+ Device or NetWaySP1A

From Power Supply (factory installed)

Typical Application:
NetWaySP4LWPX

Fig. 6

Fig. 6a

NetwaySP4B

PWR   10/100/1000

PORT 1   PoE1
PORT 2   PoE2
PORT 3   PoE3
PORT 4   PoE4

PORT 2   60W/30W
PORT 3   60W/30W

60W   30W
Operation

1000
100   PORT1 PORT2

1000
100   PORT3 PORT4

SFP2 ALOS

SFP2 ALOS

SFP Port

SFP Port

Altronix Corp.
Brooklyn, NY US
www.altronix.com

Factory Reset

Input:
48V-56VDC
+ −

IP PoE/PoE+ Device

PoE/PoE+ or Hi-PoE Device

PoE/PoE+ or Hi-PoE Device

Fiber to the next Netway Spectrum Hardened PoE Switch

Fiber to Switch
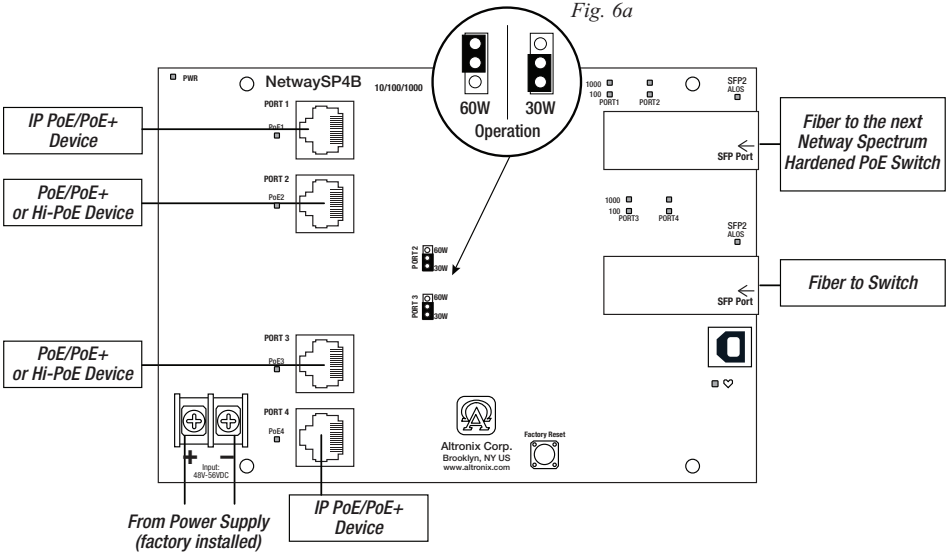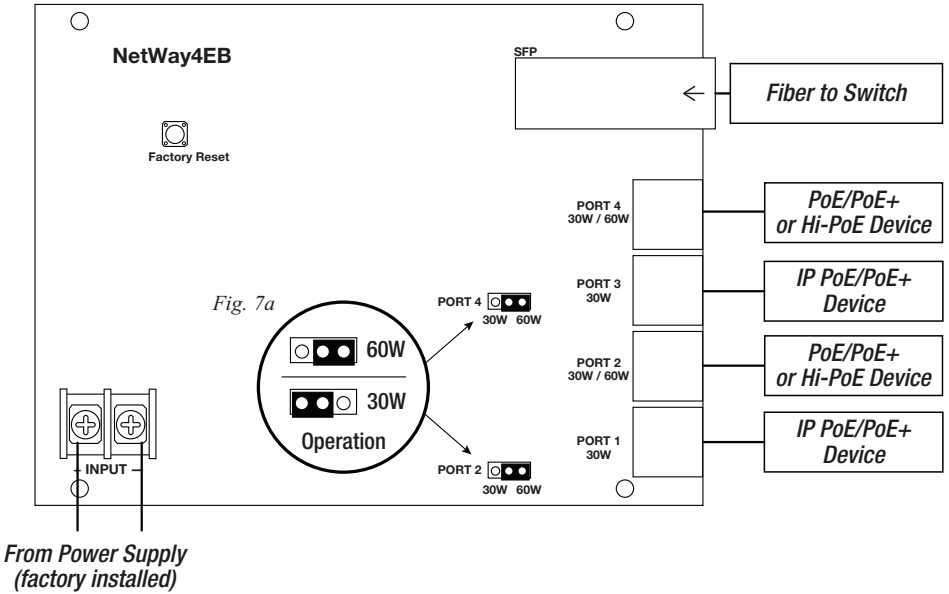
From Power Supply (factory installed)

IP PoE/PoE+ Device

Note: No limit to quantity of daisy-chained units.
Daisy chaining only limited to total bandwidth of 1Gbps.

Typical Application:
NetWay4ELWPX
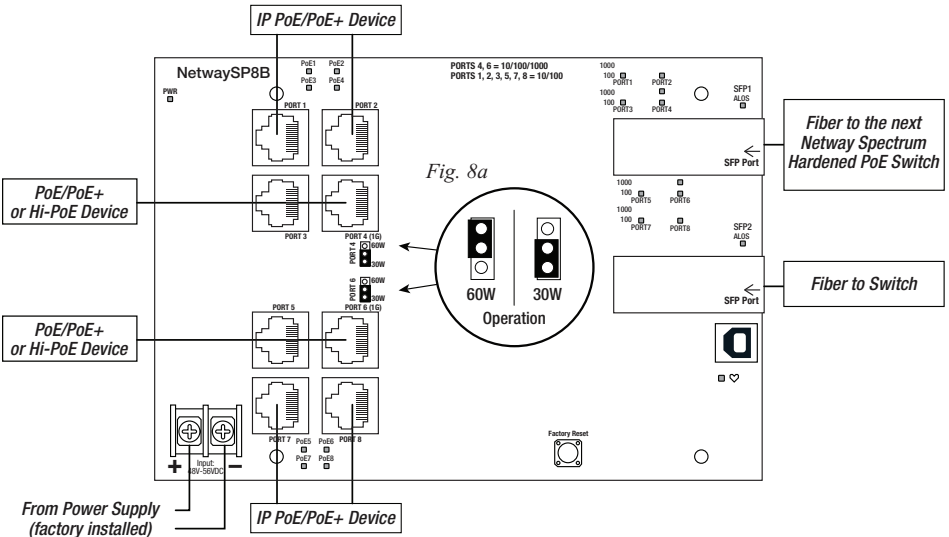
Fig. 7

NetWay4EB

SFP

← *Fiber to Switch*

Factory Reset

PORT 4
30W / 60W → *PoE/PoE+ or Hi-PoE Device*

PORT 3
30W → *IP PoE/PoE+ Device*

Fig. 7a

PORT 4
30W 60W

60W

30W

Operation

PORT 2
30W 60W

PORT 2
30W / 60W → *PoE/PoE+ or Hi-PoE Device*

PORT 1
30W → *IP PoE/PoE+ Device*

— INPUT —

*From Power Supply
(factory installed)*

Typical Application:
NetWaySP8LWPX

Fig. 8

IP PoE/PoE+ Device

NetwaySP8B

PWR

PoE1 PoE2
PoE3 PoE4

PORT 1   PORT 2

PORTS 4, 6 = 10/100/1000
PORTS 1, 2, 3, 5, 7, 8 = 10/100

1000
100   PORT1   PORT2

SFP1
ALOS

1000
100   PORT3   PORT4

*PoE/PoE+
or Hi-PoE Device*

PORT 3   PORT 4 (1G)

Fig. 8a

*Fiber to the next
Netway Spectrum
Hardened PoE Switch*

SFP Port

60W
30W

PORT 6
60W
30W
PORT 6 (1G)

60W   **30W**

Operation

1000
100   PORT5   PORT6

1000
100   PORT7   PORT8

SFP2
ALOS

*PoE/PoE+
or Hi-PoE Device*

PORT 5

Fiber to Switch

SFP Port

PORT 7   PoE5   PoE6   PORT 8
         PoE7   PoE8

Factory Reset

+   —
Input:
48V-56VDC

*From Power Supply
(factory installed)*

IP PoE/PoE+ Device

Note: No limit to quantity of daisy-chained units.
Daisy chaining only limited to total bandwidth of 1Gbps.

Notes:

Notes:

Wall Mount Installation

1- Place unit at desired location and secure with mounting screws *(not included) (Fig. 9, pg. 11)*.

Fig. 9
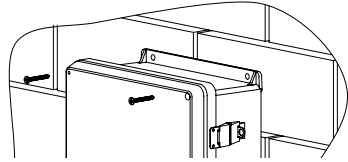
Pole Mounting Using Optional PMK2 Pole Mount Kit:

This installation should be made by qualified service personnel. This product contains no serviceable parts. PMK2 outdoor pole mount kit is designed to simplify the installation of Altronix outdoor rated power supplies and accessories housed in WP2 NEMA rated enclosures. PMK2 can be mounted on 2" to 8" (50.8mm to 203.2mm) diameter round or 5" (127mm) square poles. Brackets are designed for use with the Wormgear Quick Release Straps (two included).

1. Thread one (1) wormgear quick release strap through the slots on the back of a mounting bracket *(Fig. 10, pg. 11)*.
2. Once the desired height of the top Pole Mount bracket is achieved, tighten the straps down by sliding open end of the strap through the locking mechanism on the strap, then tighten the screw with flat head screwdriver or 5/16" hex socket driver *(Fig. 11, pg. 11 and Fig. 13, pg. 11)*.

Fig. 10
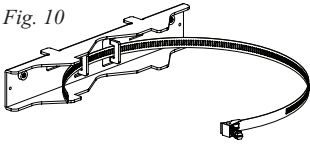
Fig. 11
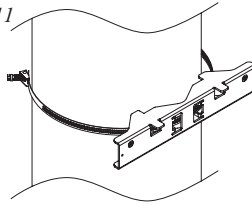
Fig. 12
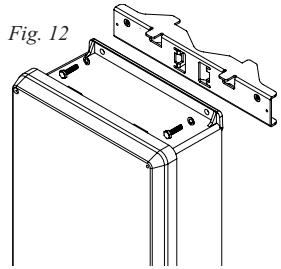
3. Attach the bottom bracket to the enclosure by inserting bolts through the flange of the enclosure and into the bracket, tightening bolts with a 7/16" hex socket *(Fig. 12, pg. 11)*.
4. Thread the second wormgear quick release strap through the slots on the back of the bottom mounting bracket *(Fig. 10, pg. 11)*.
5. Mount enclosure onto the top bracket by inserting bolts through flange of the enclosure and into the bracket, tightening bolts with a 7/16" hex socket *(Fig. 12, pg. 11)*.
6. Tighten the straps of the bottom bracket down by sliding the open end of the strap through the locking mechanism on the strap, then tighten screw with flat head screwdriver or 5/16" hex socket driver *(Fig. 11, pg. 11)*.
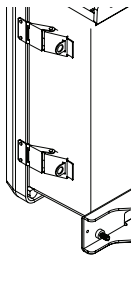7. Clip excess straps.
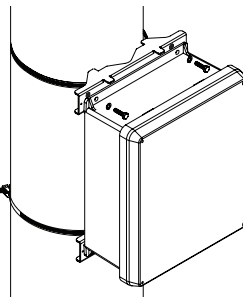
Fig. 13

Fig. 14
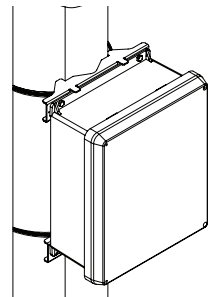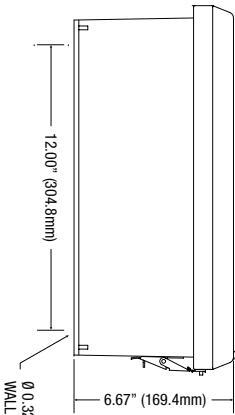2" to 8"(50.8mm to 203.2mm)
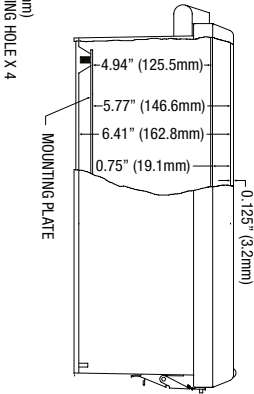diameter round pole

Fig. 14a
5" (127mm) square pole

Mechanical Drawing and Dimensions *(H x W x D approx.)*:
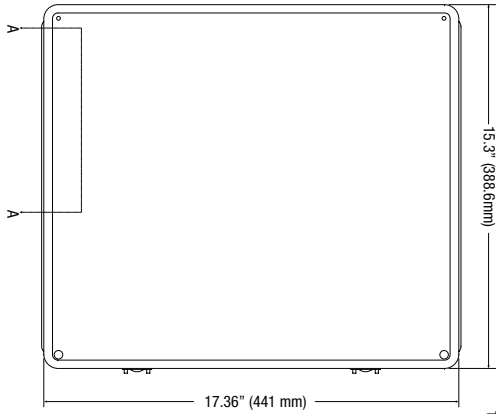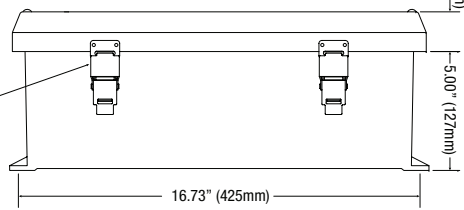## 17.53" x 15.3" x 6.67" (445.3mm x 388.6mm x 169.4mm)

END VIEW

12.00" (304.8mm)

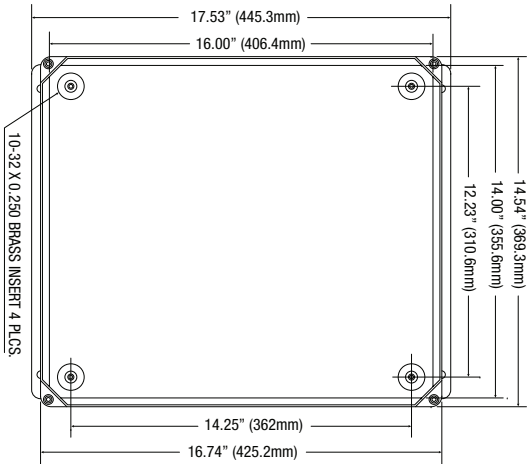6.67" (169.4mm)

Ø 0.32" (8.1mm)
WALL MOUNTING HOLE X 4

FRONT VIEW

15.3" (388.6mm)

17.36" (441 mm)

1.67" (42.4mm)

RIGHT SIDE VIEW

5.00" (127mm)

316 STAINLESS STEEL PADLOCK LATCH
ATTACHED WITH RIVETS. Ø 0.375 PADLOCK EYE

16.73" (425mm)

SECTION A-A

4.94" (125.5mm)
5.77" (146.6mm)
6.41" (162.8mm)
0.75" (19.1mm)

0.125" (3.2mm)

MOUNTING PLATE

FRONT VIEW COVER REMOVED

17.53" (445.3mm)
16.00" (406.4mm)

14.54" (369.3mm)
14.00" (355.6mm)
12.23" (310.6mm)

10-32 X 0.250 BRASS INSERT 4 PLCS.

14.25" (362mm)
16.74" (425.2mm)

Altronix is not responsible for any typographical errors.

MEMBER