eBridge™ PLUS

eBridge200WPM

Outdoor Managed Two Port Transceiver

Installation Guide

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CE

Altronix®

More than just power.™

Rev. 081214

Installing Company: _____ Service Rep. Name: _____

Address: _____ Phone #: _____

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Overview:

Altronix eBridge200WPM long range PoE Ethernet transceiver/media converter transmits data and power over Coax or Cat5 cable over distances that are 3 to 5 times greater than standard Ethernet. Upgrading existing Coax analog camera infrastructure to IP cameras is greatly simplified as well. Two PoE cameras/devices can be attached. eBridge200WPM/WPMH supports PoE, PoE+ or a single 60W device. eBridge200WPM/WPMH offers built-in IP management which allows for remote camera reset, monitoring and reporting via various IP protocols. No need to install remote AC mains power since these devices are simply powered from the low voltage PoE midspan/endspan equipment, such as Altronix NetWay midspans or eBridge100SPR.

Note: Ethernet maximum distance *(see Maximum Length of Coax Type vs. Camera Power/PoE Class, pg. 10)*.

Features:

Input:
- UL Listed LPS PoE Power Supply. See input options table below.

Power Output:
- 2-PoE/PoE+ ports rated up to 30W each or a single port rated up to 60W.
- Total Output Power: 60W max.

Ethernet:
- Link Distance: 500m max. (with Pace or eBridge100 series PoE receivers to eBridge200WPM) or 100m (with standard midspan or endspan to eBridge200WPM).
- Connectivity: RJ45, auto-crossover.
- Wire type: 4-pair Cat5 or better structured cable.
- Device Distance: 100m max. (eBridge200WPM to camera/device).
- Speed: 100BaseT, full duplex, auto negotiation.

Coax:
- Link Distance: 300m max.
- Connectivity: BNC, RG-59/U or similar.
- Speed: 100BaseT, full duplex, auto negotiation.

Environmental:
- Operating Temperature:
  60W over Cat5: – 40ºC to 75ºC (– 40ºF to 167ºF).
  60W over Coax: – 40ºC to 65ºC (– 40ºF to 149ºF).
  45W over Coax: – 40ºC to 75ºC (– 40ºF to 167ºF).
- Relative humidity: 20 to 85%, non-condensing.
- Storage temperature: – 40º to 75ºC (– 40º to 167ºF).

LED Indicators:
- Speed and Activity of Output ports.
- PoE ON the Spare Pair of Cat5
  PoE ON the Data Pair of Cat5.

Applications:
- Long range outdoor Cat5 or Coax PoE/PoE+/60W.
- Retrofit digital IP cameras in an analog CCTV installation (up to two (2) IP cameras expansion per analog camera).
- Works with Megapixel, HD720, HD1080 and VGA (SD) cameras *(see note, pg. 4)*.
- Upgrade deployed CCTV Coax to a digital network in Retail, Hospitality, Arenas, Casinos, Airports, Schools, Hospitals, Transportation, etc.

Mechanical:
- NEMA 4X, IP66 Rated enclosure for outdoor use.
- Dimensions (H x W x D approx.):
  9.5" x 7.32" x 4.92"
  (241.3mm x 185.9mm x 125mm).

Models:
eBridge200WPM:
Outdoor Managed Two Port Transceiver.

eBridge200WPMH:
Outdoor Managed Two Port Transceiver, enclosure with three (3) 5/8" wiring inlets, includes NEMA rated glands.

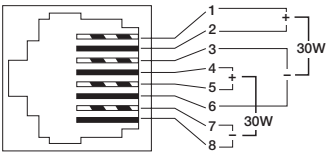
Input Power Options and Switch Setting:

Receiver	Input Power	Cat5 Wiring Configuration	Switch Setting	Link Distance
Midspan or Endspan	30W	2 pair	30W Cat or 60W COAX	100m
Pace1PRM, 4PRM, 8PRM or 16PRM	30W	Provided over 2 pair/2 pair on Cat5e	30W Cat or 60W COAX	500m
Pace1PRD*	60W	Provided over 4 pair on Cat5e	60W Cat	500m
eBridge100SPR**	60W	–	30W Cat or 60W COAX	300m
eBridge100RM, 400PCRM, 800PCRM or 1600PCRM	30W	–	30W Cat or 60W COAX	300m
NetWay1D***	60W	Provided over 4 pair on Cat5e	60W Cat	100m

* When used with NetWay1D.

** Use with UL Listed Class 2 or limited power source (such as NetWay1D).

*** *Carefully observe correct polarity when using non-Altronix product*

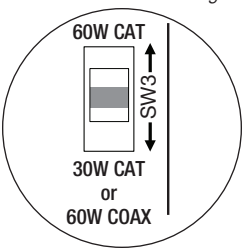


Installation Instructions:

Wiring methods shall be in accordance with the National Electrical Code/NFPA 70/ANSI, and with all local codes and authorities having jurisdiction. Wiring should be UL Listed and/or Recognized wire suitable for the application.

1. Remove circuit board from enclosure prior to drilling **eBridge200WPM** (do not discard hardware).
   Note: Take care to assure that hardware will not interfere with components of the circuit board.
2. **eBridge200WPM:** Mark and drill desired inlets on the enclosure to facilitate wiring *(Fig. 3, pg. 5).*
   Maximum UL Listed NEMA type 4X rated fittings to be used is 1/2", follow manufacturers 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.
   eBridge200WPMH is pre-drilled with three (3) inlet holes for wiring.
   Skip Step 2 if you have an eBridge200WPMH.
3. Clean out the inside of enclosure before remounting circuit board.
4. Mounting NEMA4/4X rated enclosure:
   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.) which are compatible with mounting surface and of sufficient length/construction to ensure a secure mount *(Fig. 16, pg. 15)*.
   Pole Mount: refer to detailed instructions on *page 15*.
   Note: All inlets for conduit fittings should be on the bottom of the enclosure.
5. Mount circuit board in enclosure with hardware.
6. To facilitate wire entry utilize weather tight NEMA rated connectors *(supplied)*, bushings, and cable.
7. Connect Coax from eBridge1SPR/100SPR (60W), eBridge100RM, eBridge400PCRM, eBridge800PCRM or eBridge1600PCRM (60W) receiver to connector marked [COAX INPUT] *(Fig. 5, pg. 6)*.
   Connect Cat5 from Pace1PRD (60W), Pace1PRM, Pace4PRM, Pace8PRM, Pace16PRM (30W) receiver, NetWay1D or Midspan or Endspan (30W) connector marked [CAT INPUT] *(Fig. 5, pg. 6)*

Fig. 1



8. Select input power SW3 on switch marked [60W CAT, 30W CAT or 60W COAX] *(refer to Input Power Options and Switch Settings on pg. 3, Fig. 1, pg. 4).*
9. Connect structured cable from one (1) 60W camera/device to RJ45 jack marked [Port 1] or connect two (2) individual structured cables from two (2) 30W cameras/devices to RJ45 jacks marked [Port 1], [Port 2] *(Fig. 5, pg. 6)*.
10. Please ensure that the cover is secured with latch and optional Altronix Lock1WP

Note: The eBridge is designed to accommodate Megapixel, HD720, HD1080 and VGA (SD) cameras. It is important to note that some high resolution and high frame rate cameras may demand faster headend processing ability, such as a PC graphics card to present a quality image. If the headend processing equipment is insufficient in speed, the image may show pixelation and latency. It is advisable to pretest system if unsure. Alternatively, frame rate and resolution may be reduced to accommodate system equipment.

Reset Factory Settings:

1. Power the unit down by removing coax or Cat5e wire from input.
2. Depress and hold down Reset button *(Fig. 2)* while reconnecting coax or Cat5e wire to input.
3. The Heartbeat LED to the left of the Reset button *(Fig. 2)* will flash twice indicating unit is reset to factory default.

Fig. 2

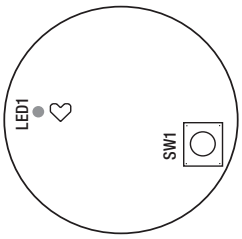
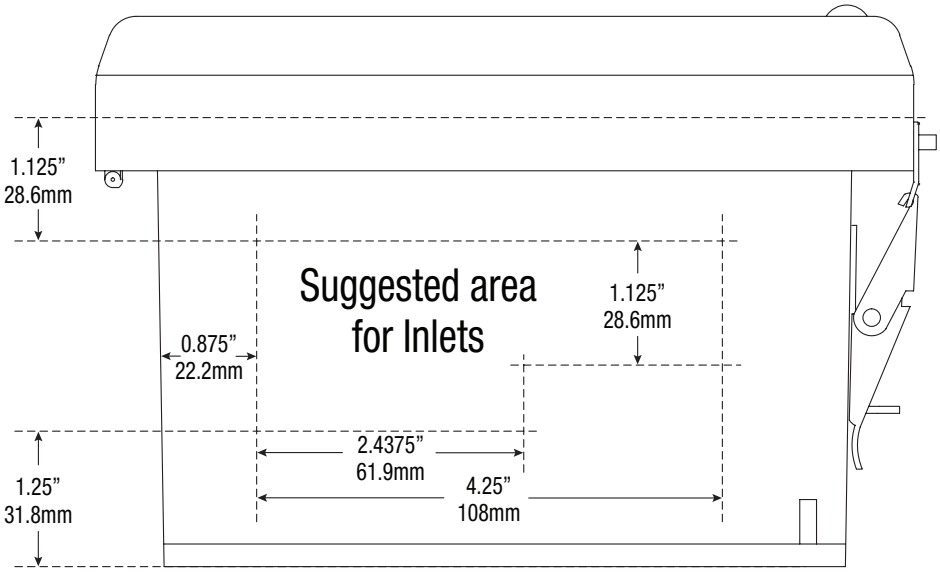


Fig. 3 - **Bottom of Enclosure**

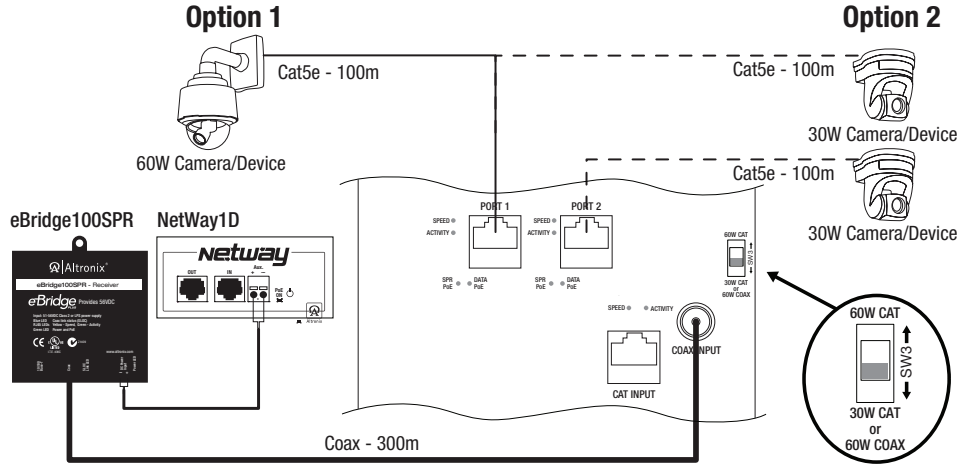


Technical Specifications:

Parameter	Description
Connections	BNC for Coax link. RJ45 for ethernet link.
Input Power Requirements	UL Listed LPS PoE Power Supply. See input options table *pg. 3*.
Indicators	Speed and Activity of Output ports. PoE ON the Spare Pair of Cat5. PoE ON the Data Pair of Cat5.
Environmental Conditions	Operating Ambient Temperature: UL60950-1 60W over Cat5: – 40ºC to 75ºC (– 40ºF to 167ºF). 60W over Coax: – 40ºC to 65ºC (– 40ºF to 149ºF). 45W over Coax: – 40ºC to 75ºC (– 40ºF to 167ºF). Relative humidity: 20 to 85%, non-condensing. Storage Temperature: – 40º to 75ºC (– 40º to 167ºF). Operating Altitude: – 304.8 to 2,000m.
Regulatory Compliance	UL/cUL Listed for Information Technology Equipment (UL 60950-1). CE European Conformity.
Weights (approx.)	Product: 3.7 lb. (1.68 kg) I Shipping: 5 lb. (2.27 kg)

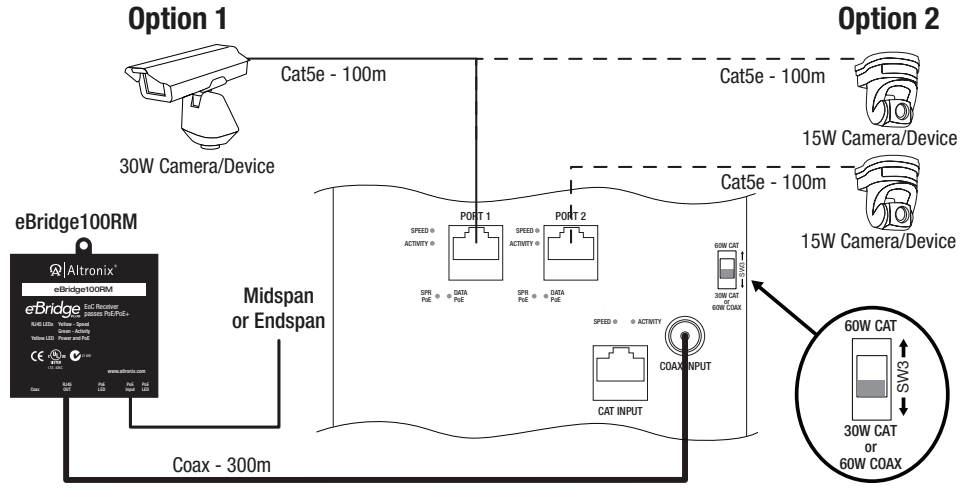
60W Coax Applications:

Fig. 4



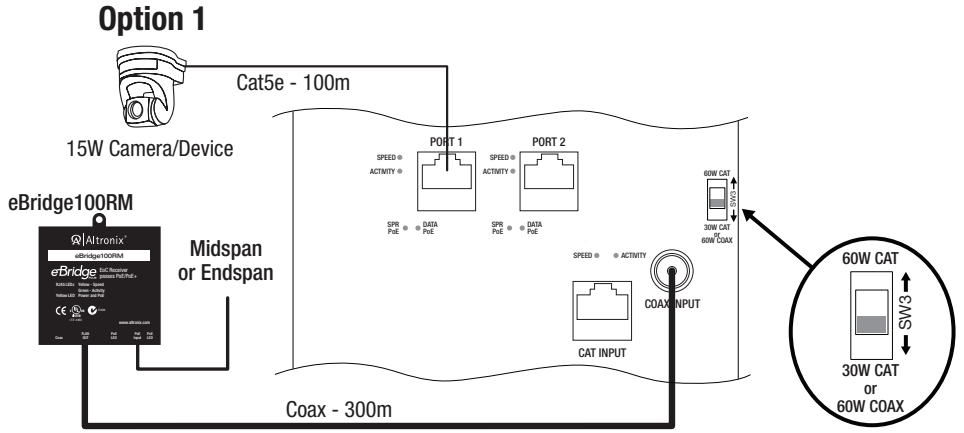
30W Coax Applications:

Fig. 5



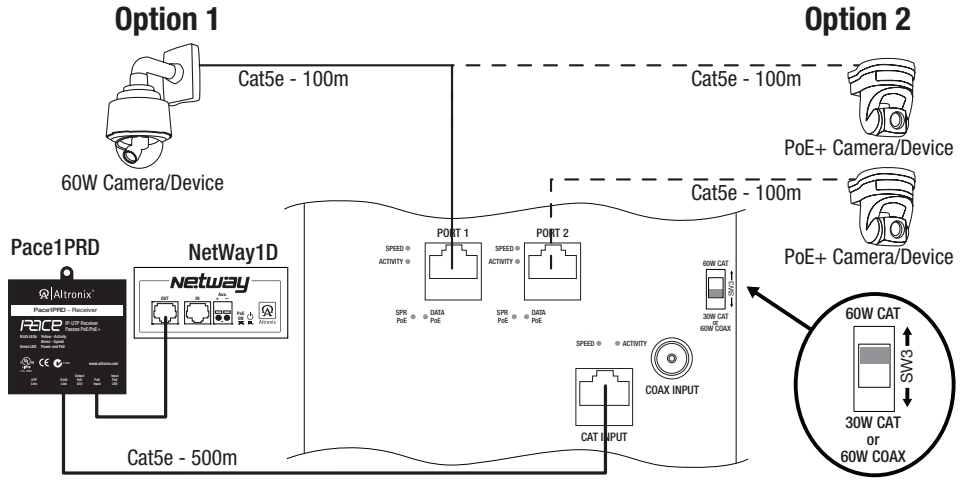
15W Coax Applications:

Fig. 6



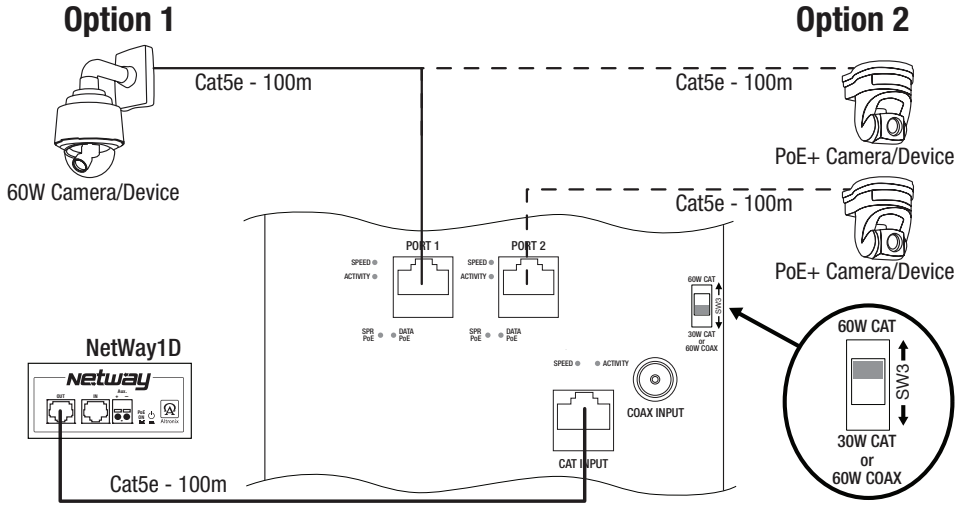
60W Cat5e Applications:

Fig. 7 - Data/Power Transmission from Headend up to 500m over Cat5e



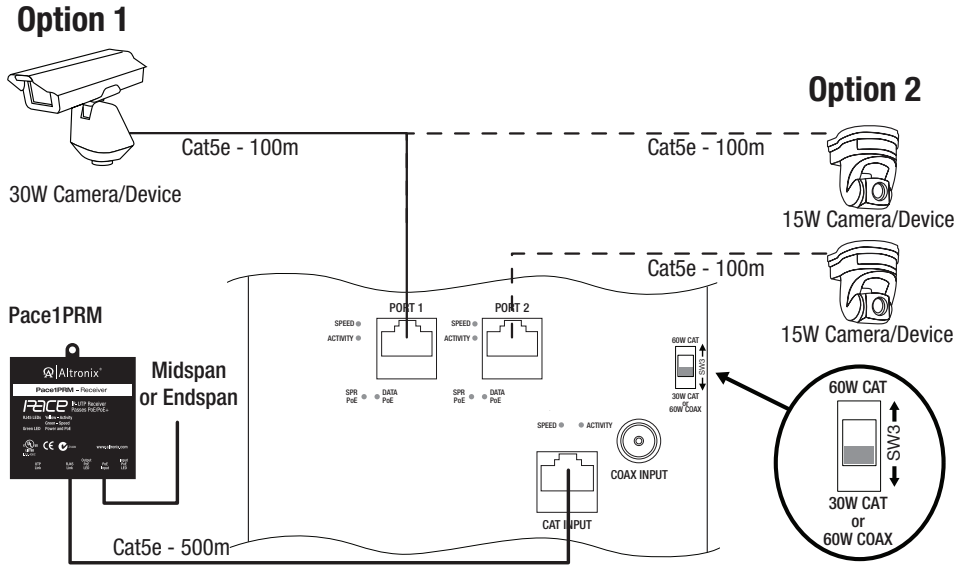
60W Cat5e Application:

Fig. 8 - Data/Power Transmission from Headend up to 100m over Cat5e



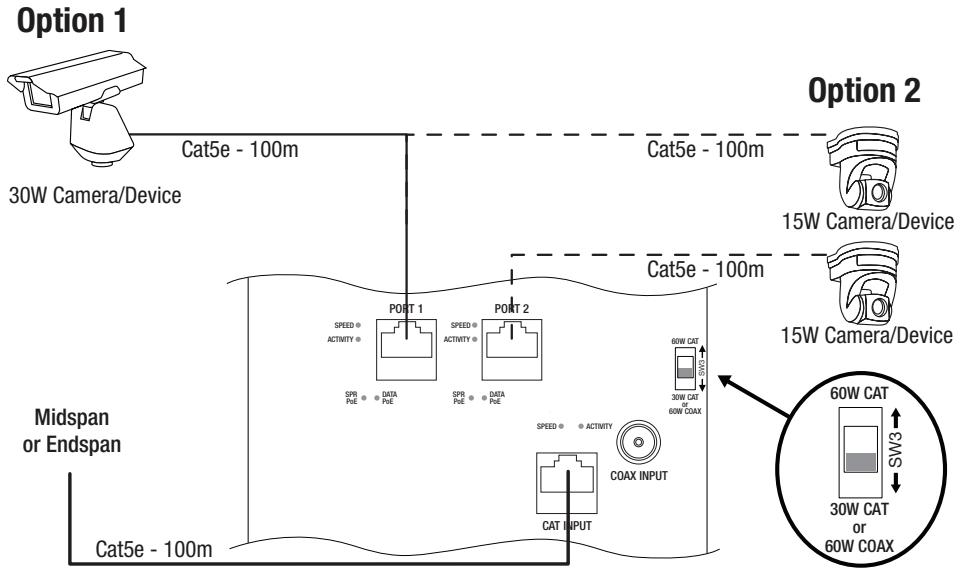
30W Cat5e Applications:

Fig. 9 - Data/Power Transmission from Headend up to 500m over Cat5e



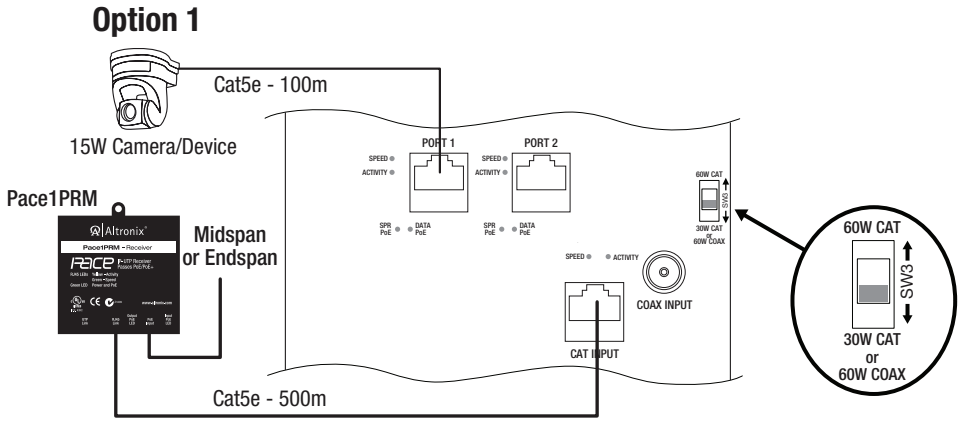
30W Cat5e Applications:

Fig. 10 - Data/Power Transmission from Headend up to 100m over Cat5e



15W Cat5e Applications:

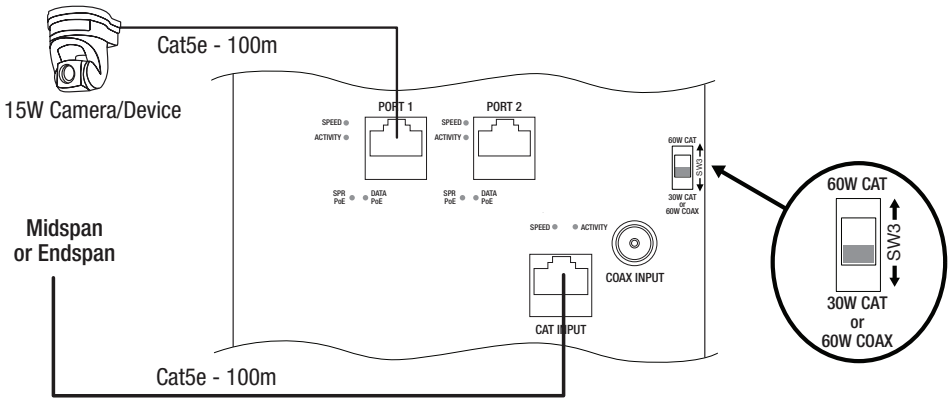
Fig. 11 - Data/Power Transmission from Headend up to 500m over Cat5e



15W Cat5e Applications:

Fig. 12 - Data/Power Transmission from Headend up to 100m over Cat5e

Option 1



Cable, Device Power, Data and Distance:

Cable Type	Total Power Consumption	Max. Data Distance	Max. Power Distance
RG59u/23awg	15W	300m	264m
RG59u/23awg	30W	300m	132m
RG59u/23awg	60W	300m	66m
RG59u/22awg	15W	300m	334m
RG59u/22awg	30W	300m	167m
RG59u/22awg	60W	300m	83m
RG59u/20awg	15W	300m	532m
RG59u/20awg	30W	300m	266m
RG59u/20awg	60W	300m	133m
RG59u/18awg	15W	300m	846m
RG59u/18awg	30W	300m	423m
RG59u/18awg	60W	300m	211m
Cat5e	15W	500m	846m
Cat5e	30W	500m	423m
Cat5e	60W	500m	211m

Note: Calculations based on 56VDC starting voltage from power source and accounts for a 10VDC voltage drop.

eBridge200WPM/WPMH User Interface and Programming:

Note: *A constant PC connection is not required for proper operation and is used as a local programming/ monitoring tool only.*

Step 1. Set Local Area Connection of your laptop to DHCP mode.

For Windows XP:

a. Open Network Connections by clicking **Start** button, then clicking Settings, then clicking **Network Connections**.
b. Right click the **Local Area Connection**. Click **Properties**. Administrator permission required. If you are prompted for an administrator password or confirmation, type the password or provide confirmation.
c. Double click **Internet Protocol** (TCP/IP) menu item.
d. Choose the **Obtain an IP address automatically** option.
e. Click **OK**. Close all windows.

For Windows Vista:

a. Open Network Connections by clicking the **Start** button Picture of the Start button, clicking **Control Panel**, clicking **Network and Internet**, clicking **Network and Sharing Center**, and then clicking **Manage Network Connections**.
b. Right click the **Local Area Connection** icon, and then click **Properties**. Administrator permission required. If you are prompted for an administrator password or confirmation, type the password or provide confirmation.
c. Click the **Networking** tab. Under this connection uses the following items, click either **Internet Protocol Version 4 (TCP/IPv4)** or **Internet Protocol Version 6 (TCP/IPv6)**, and then click **Properties**.
d. To specify IPv4 IP address settings, click **Obtain an IP address automatically**, and then click **OK**.
e. To specify IPv6 IP address settings, click **Obtain an IPv6 address automatically**, and then click **OK**.

For Windows 7:

a. Open Network Connections by clicking the **Start** button Picture of the Start button, clicking **Control Panel**, clicking **Network and Internet**, clicking **Network and Sharing Center**, and then clicking **Change Adapter Settings**.
b. Right click the **Local Area Connection** icon, and then click **Properties**. Administrator permission required. If you are prompted for an administrator password or confirmation, type the password or provide confirmation.
c. Click the **Networking** tab. Under this connection uses the following items, click either **Internet Protocol Version 4 (TCP/IPv4)** or **Internet Protocol Version 6 (TCP/IPv6)**, and then click **Properties**.
d. To specify IPv4 IP address settings, click **Obtain an IP address automatically**, and then click **OK**.
e. To specify IPv6 IP address settings, click **Obtain an IPv6 address automatically**, and then click **OK**.

Step 2. Connect a laptop or PC to the Ethernet port of the receiver, Midspan or Endspan powering your eBridge200WPM/WPMH. The eBridge200WPM/WPMH unit should be powered up at this moment.

Step 3. Open a browser window (it is necessary to update your browser software to the latest version so that the pages display and function correctly).

Step 4. Enter the eBridge200WPM/WPMH IP address (the default IP address is 192.168.168.168), or enter the eBridge200WPM/WPMH host name if in DHCP mode (default host name is "eBridge200WPM/WPMH1") into the address bar. Status page will be displayed.

Configuring eBridge200WPM/WPMH for Network Connection:

Since every Network Configuration is different, please check with your Network Administrator to see if your eBridge200WPM/WPMH should use static IP addresses, or DHCP assigned IP addresses and/an Inbound Port assignment prior to setting up network connection.

1. Click Network Settings link. You will be prompted for an administrative user name and password, type and submit the password.
   Note: Default User Name: admin
   Default Password: admin
2. Network Setup page will be displayed. You may now configure your eBridge200WPM/WPMH for network connection.

Fig. 13 - **NETWORK SETTING MENU**
This menu is for configuring the eBridge200WPM/WPMH units for a network connection.

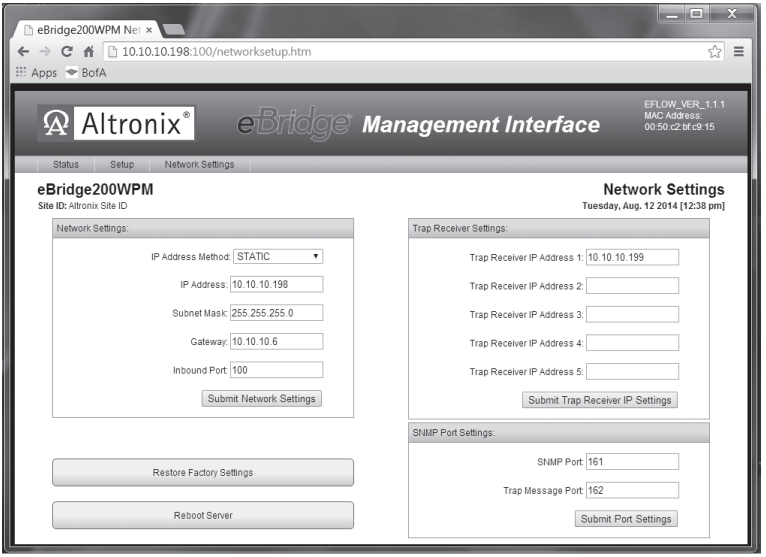
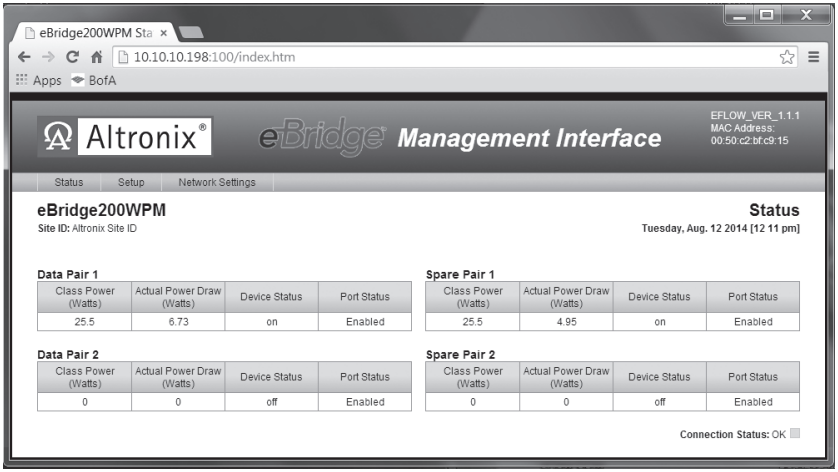


Fig. 14 - **SETUP MENU**
Setup Site ID, Date and TIme Disable/Enable Ports

Fig. 15 - **STATUS MENU**
Real time unit status



Network Type:

Static IP	User can set a fixed IP for network connection.
DHCP	DHCP server in LAN will automatically assign IP configuration for the network connection.
IP	This field shows the eBridge200WPM/WPMH current IP Address. A static IP address must be set manually. If DHCP this value will be assigned automatically.
Subnet Mask	This field shows the subnet mask for your network so the eBridge200WPM/WPMH will be recognized within the network. If DHCP is selected, this value will be assigned automatically.
Inbound Port	Port number for HTTP/WEB communication.
Host Name	Name of the eBridge200WPM/WPMH device on the LAN

Additional Information:

1. If using DHCP, all settings will be detected automatically.
   While DHCP is a useful tool for determining the network settings, if you set up your eBridge200WPM/WPMH in this manner its IP address may change at different times for different reasons, particularly after a power failure. If the IP address of the eBridge200WPM/WPMH changes, you may have difficulties accessing your eBridge200WPM/WPMH locally and/or remotely. It is strongly recommended that you connect via host name when unit is configured as DHCP. Please do not set the DHCP address issued to the eBridge200WPM/WPMH by the router as its static IP address unless you take specific steps that program your router to prevent such address conflicts.
2. If using a Static IP (recommended), you will need to input the information manually. In order for DDNS to work, you must enter valid data, compatible with your network, for all of the network setting fields: IP address, Subnet Mask, Inbound Port and Host Name.
3. If you are connecting through a router, make sure that you have 'opened up' all the required network ports in the port forwarding section of your router's setup options. That is, you have directed the router to send any incoming traffic using those IP ports to the LAN IP address of the eBridge200WPM/WPMH. Useful information about router port forwarding can be found at www.portforward.com. Different routers may use different terms for port forwarding function. For instance, D-Link calls it virtual server, Netopia calls it pinholes.

   The default port for eBridge200WPM/WPMH is: 80

   Note: Port 80 is the default port used for web browsing. Because of this, in order to prevent the average user from hosting a web server, most ISPs BLOCK traffic using port 80 from reaching the average site. If you only plan to monitor your eBridge200WPM/WPMH on a LAN, you can use port 80, and don't have to concern yourself with routers. However, if you desire remote access to your eBridge200WPM/WPMH, you MUST select functional ports and set up the port forwarding in your router. Other ports, such as 8080 and 8000, are sometimes blocked by ISPs as well. Which port(s) should be used? There are 65,535 valid IP ports to choose from.

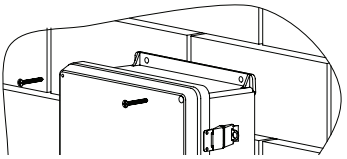
   These are broken down into three groups:
   - Well Known Ports 0 through 1023.
   - Registered Ports 1024 through 49151.
   - Dynamic and/or Private Ports 49152 through 65535.

So, rather than encounter a port conflict by choosing a port commonly used for another purpose (like port 25 for SMTP mail or port 448 for secure sockets), choose an 'unusual' port number. For example, add 50,000 to your house number: 50,123 is less likely to lead to a port conflict. For a list of the known and registered ports see http://www.iana.org/assignments/port-numbers.

Wall Mount Installation

1. Place unit at desired location and secure with mounting screws *(not included) (Fig. 16, pg. 15).*

Fig. 16



Pole Mounting Using Optional Pole Mount Kit PMK1 (not included):

This installation should be made by qualified service personnel. This product contains no serviceable parts. PMK1 is intended for use with Altronix outdoor rated power supplies or accessories housed in WP3 and WP4 enclosures. 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. 17, pg. 15).*
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. 17, pg. 15 and Fig. 18, pg. 15).*

Fig. 17

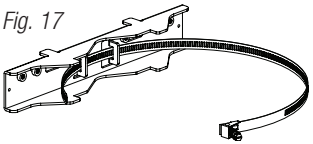


Fig. 18

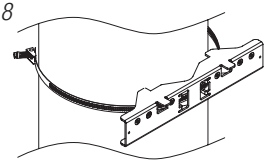
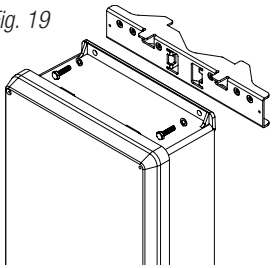


Fig. 19



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. 19, pg. 15).*
4. Thread the second wormgear quick release strap through the slots on the back of the bottom mounting bracket *(Fig. 20, pg. 15).*
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. 19, pg. 15).*
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. 17, pg. 15).*
7. Clip excess straps.

Fig. 20

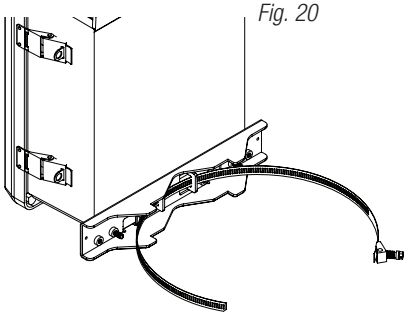


Fig. 21
2" to 8"(50.8mm to 203.2mm) diameter round pole

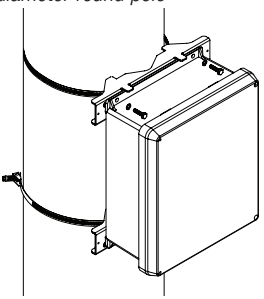
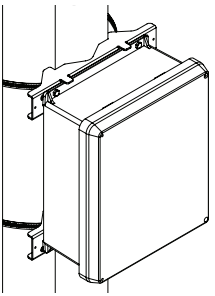
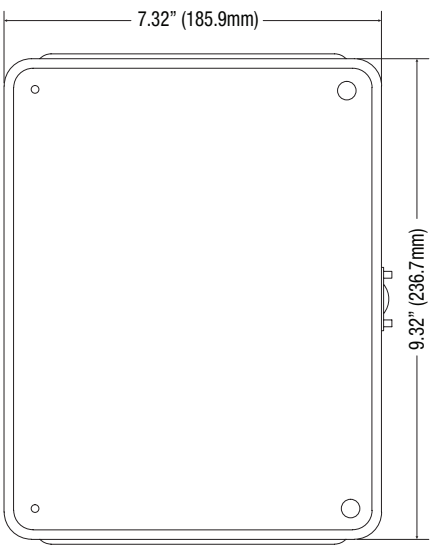


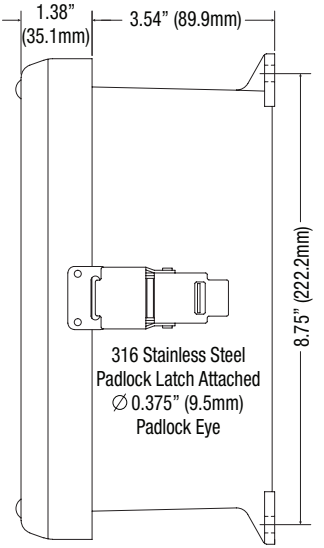
Fig. 21a
5" (127mm) square pole

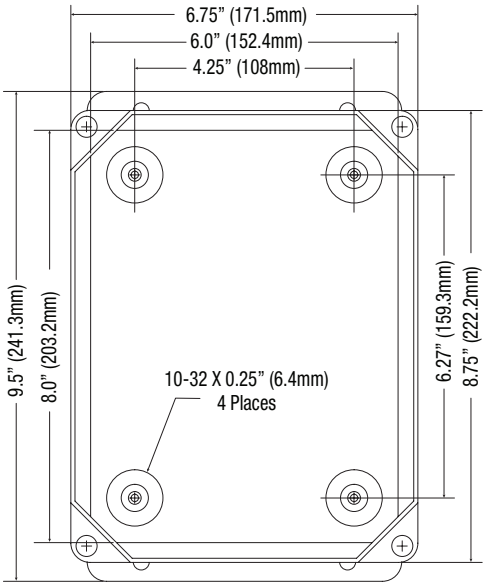


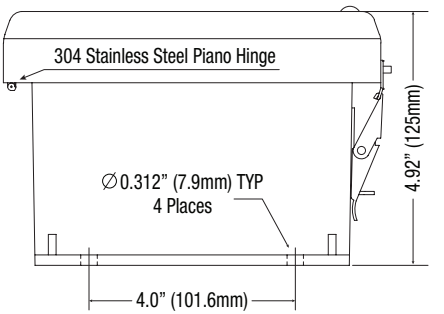
Mechanical Drawing and Dimensions (H x W x D approx.)**:**

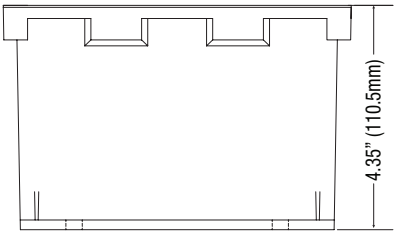
9.5" x 7.32" x 4.92" (241.3mm x 185.9mm x 125mm)











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