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Altronix Pace1PRM IP and PoE+ Receiver Over Extended Distance UTP or CAT5e Installation Guide

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Contents

Overview

Pace1PRM is a long range Ethernet receiver which transmits data at 100Mbps full duplex and power via a single twisted pair (UTP) or CAT5e or higher cable in a PoE(+) compliant format. Pace1PRM receiver is powered via a PoE midspan, such as the Altronix Netway series, or by an endspan. The receiver passes the PoE(+) compliant power over the cable to the Pace1PTM or Pace1ST transceiver which, in turn, passes this power to an enabled IP camera/device. These plug and play units facilitate cost-effective solutions for IP devices that need to be installed at distances greater than 100m. They also provide a simple way to replace legacy analog products with new IP devices over single twisted pair (UTP) or structured cable.

Features

Agency Listings:

- UL/cUL Listed for Information
  Technology Equipment (UL 60950-1).
- CE European Conformity.
- C-Tick compliant.

Input:

- Powered by midspan or endspan.
  PoE compliant to IEEE 802.3af (15W) and
  PoE+ compliant to IEEE 802.3at (30W)

Ethernet:

- Connectivity: RJ45, auto-crossover.
- Wire type: 4-pair CAT5 or 1 pair UTP structured cable.
- Distance: up to 500m.
- Speed: 10/100BaseT, half/full duplex, auto negotiation. PoE compliant to IEEE 802.3af (15W)
  and PoE+ compliant to IEEE 802.3at (30W) delivered to camera by Pace1PTM or Pace1ST.
  Power provided by Pace1PRM to Pace1PTM or Pace1ST by PoE protocol.
- Throughput is rated to pass 100Mbps of data at distances up to 500m. With proper headend equipment, this
  supports Megapixel, HD720, HD1080.

CAT5e or Higher:

- Distance: up to 500m @ 100Mbps
  (see Maximum Length of CAT5e Type or
  UTP vs. Camera Power/PoE Class, pg. 4).

UTP (Single Pair):

- Distance: up to 153m @ 100Mbps, up to 500m @ 10Mbps
  (see Maximum Length of CAT5e Type or

LED Indicators:

- Green – PoE ON (by respective RJ45 jack).
- Yellow and Green LED IP Link status, 10/100Base-T/active.

Environmental:

- **Operating Temperature:**
  Pace1PRM:
  – 20ºC to 49ºC (– 4ºF to 120.2ºF).
  Pace1PTM:
  For 15W: – 40ºC to 75ºC (– 40ºF to 167ºF).
  For 25W: – 40ºC to 70ºC (– 40ºF to 158ºF).
  For 30W: – 40ºC to 60ºC (– 40ºF to 140ºF).
  Pace1ST:
  For 15W: – 40ºC to 75ºC (– 40ºF to 167ºF).
  For 30W: – 40ºC to 49ºC (– 40ºF to 120ºF).
- **Storage Temperature:**
  – 40ºC to 75ºC (– 40ºF to 167ºF).
- Humidity: 20 to 85%, non-condensing.

Functions:

• Auto detection and protection of legacy non-PoE cameras/devices.

Applications:

- Extend Network link distance in an industrial environment over 700m.
- Retrofit digital IP cameras in an analog CCTV CAT5e wired installations.
- Works with Megapixel, HD720, HD1080, and VGA (SD) cameras.

Mechanical:

- Dimensions (W x L x H approx.):
  Pace1PRM:
  3.5” x 3.5” x 1” (88.9mm x 88.9mm x 25.4mm).

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. Pace1PTM and Pace1PRM are not intended to be connected to outside plant leads and should be installed indoors within the protected premises. Pace1PRM and Pace1PTM are intended for indoor use only.

1. **Pace1PRM installation:**
   - Secure unit to desired mounting surface with a proper fastening device utilizing the unit's mounting hole (Fig. 2a) Unit should be mounted in proximity to ethernet switch/network, NVR or video server.
   - Connect structured cable from ethernet midspan or endspan device to RJ45 jack marked [PoE Input] (Fig. 2)
   - CAT5e or higher: Connect CAT5e or higher to connector marked [RJ45 Link] (Fig. 2, pg. 3). UTP: Connect UTP to connector marked [UTP Link] (Fig. 2)

2. **Pace1PTM installation:**
   - Secure unit to desired mounting surface with a proper fastening device utilizing the case's mounting hole (Fig. 2a) Unit should be mounted in proximity of camera/device.
   - Connect structured cable from IP camera/device to RJ45 jack marked [PoE Out] (Fig. 2)
   - CAT5e or higher: Connect CAT5e or higher to connector marked [RJ45 Link] (Fig. 2) UTP: Connect UTP to connector marked [UTP Link] (Fig. 2)
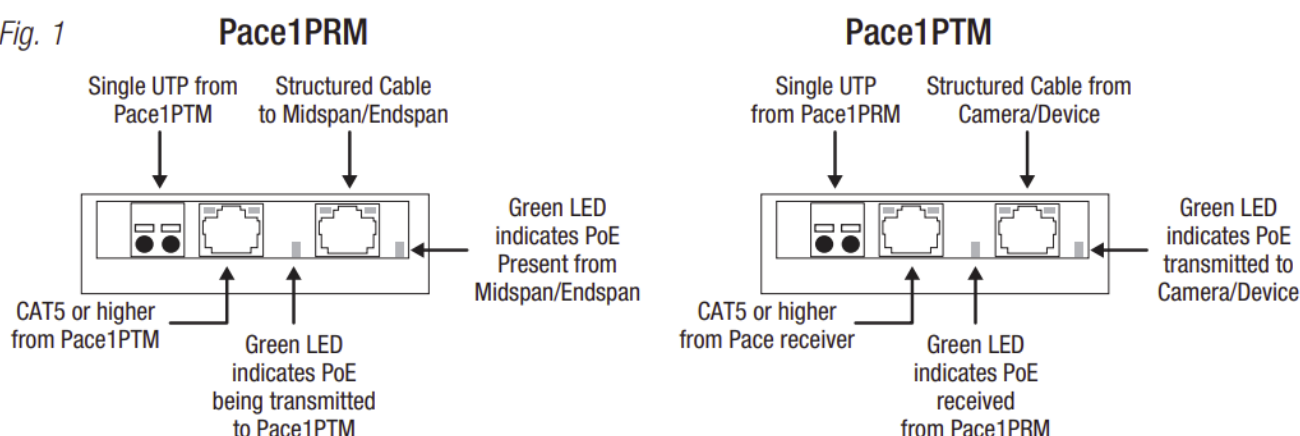
3. **Pace1ST installation:**
   - Secure unit to desired mounting surface with a proper fastening device utilizing the case's mounting hole (Fig. 3a, pg. 3). Unit should be mounted in the proximity of camera/device.
   - Connect structured cable from IP camera/device to RJ45 jack marked [IP Device] (Fig. 3)
   - Connect CAT5e or higher to the connector marked [Pace Receiver] from receiver (Pace1PRM) (Fig. 3)

Technical Specifications:

Parameter	Description	
Connections	RJ45 for ethernet link or single pair UTP.	
Input power requirements	Midspan or endspan port connected. PoE compliant to IEEE 802.3af (15W) and PoE+ compliant to IEEE 802.3at (30W)	
Indicators	Yellow (RJ45 connector): Green (RJ45 connector): Green :	On – Link, Off – No Link, Blinking – Activity. On – 100Base-TX, Off – 10Base-T. PoE Active.
Environmental Conditions	Operating Ambient Temperature (UL60950-1): Pace1PRM: – 20ºC to 49ºC (– 4ºF to 120.2ºF). Pace1PTM For 15W: – 40ºC to 75ºC (– 40ºF to 167ºF). For 25W: – 40ºC to 70ºC (– 40ºF to 158ºF). For 30W: – 40ºC to 60ºC (– 40ºF to 140ºF). Pace1ST: For 15W: – 40ºC to 75ºC (– 40ºF to 167ºF). For 30W: – 40ºC to 49ºC (– 40ºF to 120ºF). Relative Humidity: 20 to 85%, non-condensing. Storage Temperature: – 40ºC to 75ºC (– 40ºF to 167ºF). Operating Altitude: – 304.8 to 2,000m.	
Regulatory Compliance	UL/CUL Listed for Information Technology Equipment (UL 60950-1). CE European Conformity. C-Tick compliant.	
Weights (approx.)	Product: 0.25 lb. (0.11 kg)	Shipping: 0.42 lb. (0.19 kg).	

Fig. 1

Pace1PRM

Single UTP from Pace1PTM — Structured Cable to Midspan/Endspan

Green LED indicates PoE Present from Midspan/Endspan

CAT5 or higher from Pace1PTM — Green LED indicates PoE being transmitted to Pace1PTM

Pace1PTM

Single UTP from Pace1PRM — Structured Cable from Camera/Device

Green LED indicates PoE transmitted to Camera/Device

CAT5 or higher from Pace receiver — Green LED indicates PoE received from Pace1PRM

Note: Caution: once PoE connection is established between Pace1PRM and Pace1PTM (Pace1ST), disconnection from Pace1PTM (Pace1ST) will not disable the PoE output voltage on the Pace1PRM, although the Pace1PTM (Pace1ST) can be reconnected, caution should be taken not to connect the CAT5e or single UTP wiring from Pace1PRM to any non-PoE device.

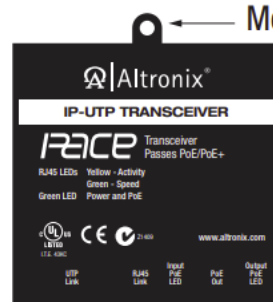**Single PoE Camera Connection Utilizing Pace1PRM and Pace1PTM:**

Fig. 2
Pace1PRM

Fig. 2a
Pace1PTM

Mounting Hole

PoE Camera

PoE+ over CAT5e up to 500m max.

100m max.

Powered Switch
or NetWay MidSpan
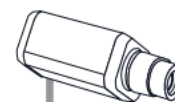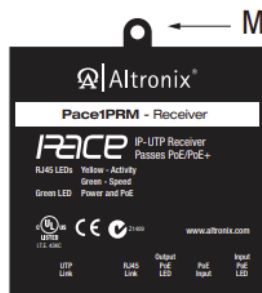
PoE compliant
100m max.

Legend:
— Structured Cable

Single PoE Camera Connection Utilizing Pace1PRM and Pace1ST:

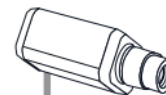Fig. 3   Pace1PRM

Mounting Hole

Fig. 3a

Pace1ST

PoE Camera

PoE+ over CAT5e up to 500m max.
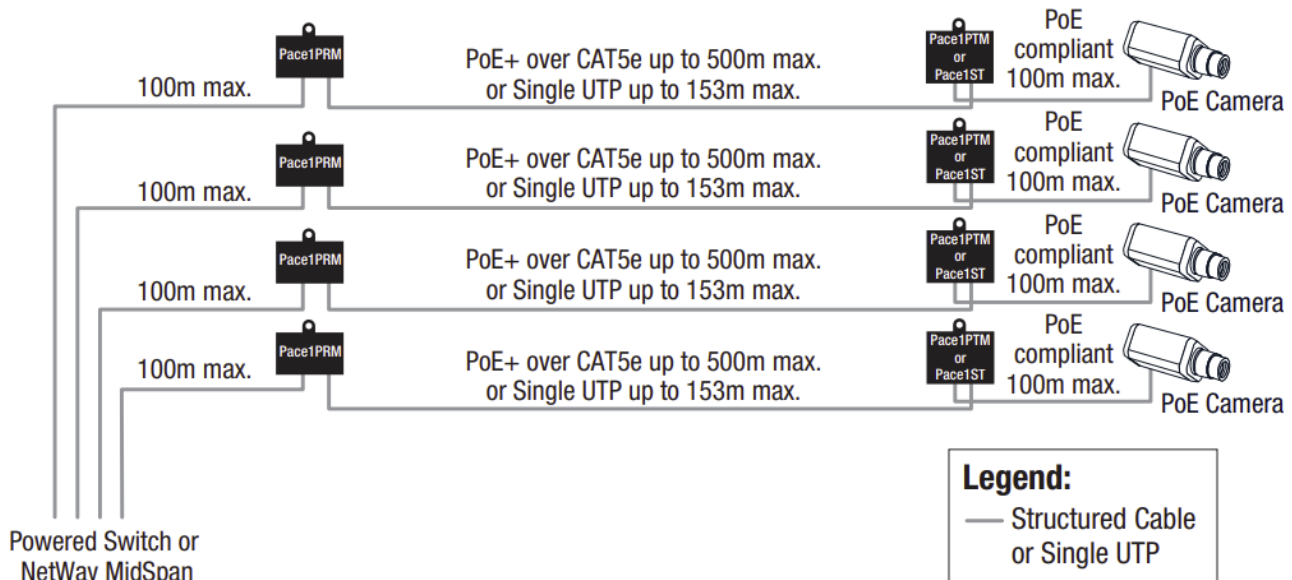
100m max.

Powered Switch
or MidSpan

PoE compliant
100m max.

Legend:
— Structured Cable

Multiple PoE Cameras Connection:

Fig. 4

Maximum Length of CAT5e Type or UTP vs. Camera Power/PoE Class:

Camera Power/PoE Class	Single UTP – 23AWG (Pace1PTM)	CAT5 or Higher (Pace1PTM & Pace1ST)
	Max. Length (meters)	
13W/0	153	500
4W/1	153	500
6.5W/2	153	500
13W/3	153	500
25W/4	153	423

Note: Higher gauge wiring will allow for longer distances.

Support

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Lifetime Warranty
IIPace1PRM Rev. 111413 l08U

Documents / Resources

References

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