



Pace1KT

Long Range Single Pair (UTP) Ethernet Adapter/Transceiver

Installation Guide



Overview:

Altronix Pace1KT is a long-range Ethernet adapter/transceiver that transmits data and power from Pace1KR or Pace4KR(Q) receivers via twisted pair (2-wire, UTP or shielded) in a PoE(+) compliant format. In addition to new SPE (UTP) Ethernet network installations for Surveillance-cameras/Security/Industrial/BMS/HVAC & Elevator Controllers, applications include upgrading of legacy networks, i.e. LONworks, RS485, 4-20ma Control Loops, etc. by using the existing two wire cabling, thus saving rip-out & reinstallation costs.

Operationally, Pace1KR or Pace4KR(Q) is connected to a PoE midspan/endspan switch at the headend and passes network data and power to the Pace1KT from the switch via UTP up to 1km (1,000m, 3,280 ft.) to a remote 10/100 PoE device, such as a camera. For non-PoE remote devices, data only is transmitted.

Features:

Agency Listings:

- UL/cUL Listed for Audio/Video, Information and Communication Technology Equipment (UL 62368-1).
- CE European Conformity.

Input:

- Powered by Pace KR receiver.
PoE compliant to IEEE 802.3af (15W) and PoE+ compliant to IEEE 802.3at (30W).

UTP Connection:

- Wire type: Twisted pair (2-wire, UTP or shielded).
- Speed: 10Mbps. Half/Full Duplex.
- Distance: 1km (1,000m, 3,280 ft.), 16/2 AWG or higher @ 10Mbps
(see *Maximum Length of Cable Type vs. Total Power Consumption*, pg. 4).

Ethernet Connection:

- Connectivity: RJ45, auto-crossover.
- Wire type: 4-pair CAT5e or higher.
- Distance: up to 100m from midspan to Pace1KR receiver (headend), 100m from PaceKT transceiver to device
- Speed: 10/100BaseT, half/full duplex, auto negotiation. PoE compliant to IEEE 802.3af (15W) and PoE+ compliant to IEEE 802.3at (25W) delivered to device by Pace KR receiver. Power provided by Pace KR receiver to Pace1KT by PoE protocol.*

Environmental:

- See *Technical Specifications*, pg. 3.

LED Indicators:

- Link LED (Nest to UTP link): Green, PoE Active
Link LED (Next to Ethernet link): Green,
Data transmission
- RJ45 jack:
Yellow LED IP Link active, 10Base-T.

Functions:

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

Applications:

- Upgrade LONworks, RS485, 4-20mA control loops to Ethernet over existing wire pair.
- Building Automation, Elevator Systems, HVAC, Lighting, Surveillance & Security.
- Utilize twisted pair for new installations or retrofit of IP devices over existing twisted pair cabling
- Extend Network link distance in an industrial environment over 1km (1,000m, 3,280 ft.).
- Works with Megapixel, HD720, HD1080 and VGA (SD) cameras with proper headend equipment.

Mechanical:

- Dimensions (W x L x H approx.):
2.27" x 2.65" x 1.12" (57.7mm x 67.2mm x 28.4mm)

*See note on Page 4.

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. Pace KR receivers and Pace1KT are not intended to be connected to outside plant leads and should be installed indoors within the protected premises. Pace KR receivers and Pace1KT are intended for indoor use only. Unit should not be mounted above 2 meters if attached by itself on an open wall.

1. Pace KR installation:

Follow installation instructions for your particular receiver.

Refer to the Installation Guide included with the receiver module.

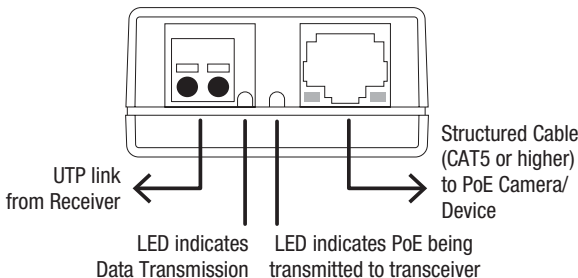
2. Pace1KT installation:

- Secure unit to the desired mounting surface with a proper fastening device utilizing the case's mounting hole (*Fig. 2a, pg. 3*). Unit should be mounted in the proximity of camera/device.
- Connect structured cable from IP camera/device to RJ45 jack marked [PoE Out] (*Fig. 2, pg. 3*).
- Connect UTP to the connector marked [+,-] from receiver (Pace1KR or Pace4KR(Q) (*Fig. 2, pg. 3*).

Technical Specifications:

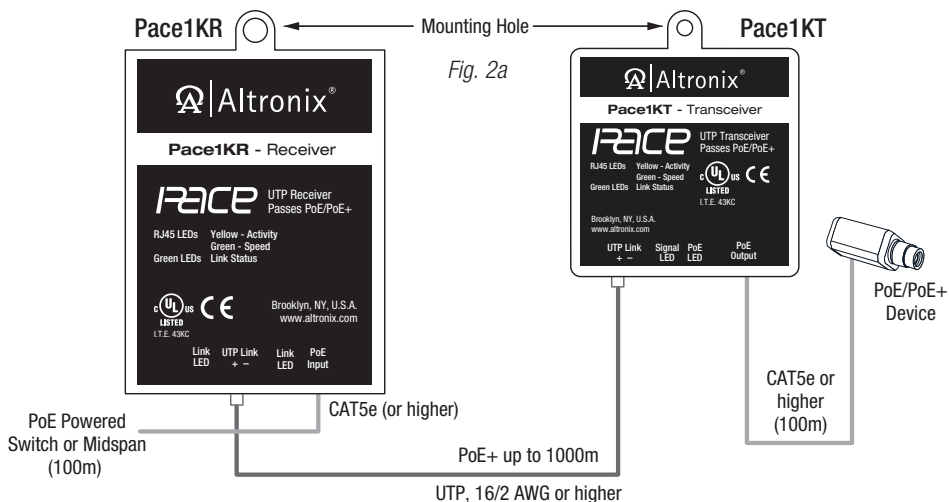
Parameter	Description
Connections	RJ45 for CAT5/6 or higher ethernet link. UTP (2-wire) screw terminals to interconnect receiver/transceiver
Input power requirements	Powered by Pace KR Receiver. PoE compliant to IEEE 802.3af (15W) and PoE+ compliant to IEEE 802.3at (25W)
Indicators	Yellow (RJ45 connector): On - Link, Off - No Link, Blinking - Activity. Green (RJ45 connector): On - 100Base-TX, Off - 10Base-T. Green Link LEDs: Link active
Environmental Conditions	Operating Ambient Temperature: For 15W: - 40°C to 75°C (- 40°F to 167°F). For 30W: - 40°C to 49°C (- 40°F to 120°F). Storage Temperature: - 40°C to 75°C (- 40°F to 167°F). Relative Humidity: 20 to 85%, non-condensing. Operating Altitude: - 304.8 to 2,000m.
Regulatory Compliance	UL/cUL Listed for Audio/Video, Information and Communication Technology Equipment (UL 62368-1). CE European Conformity.
Weights (approx.)	Product: 0.22 lb. (0.1 kg) Shipping: 0.4 lb. (0.18 kg)

Fig. 1 - Pace1KT



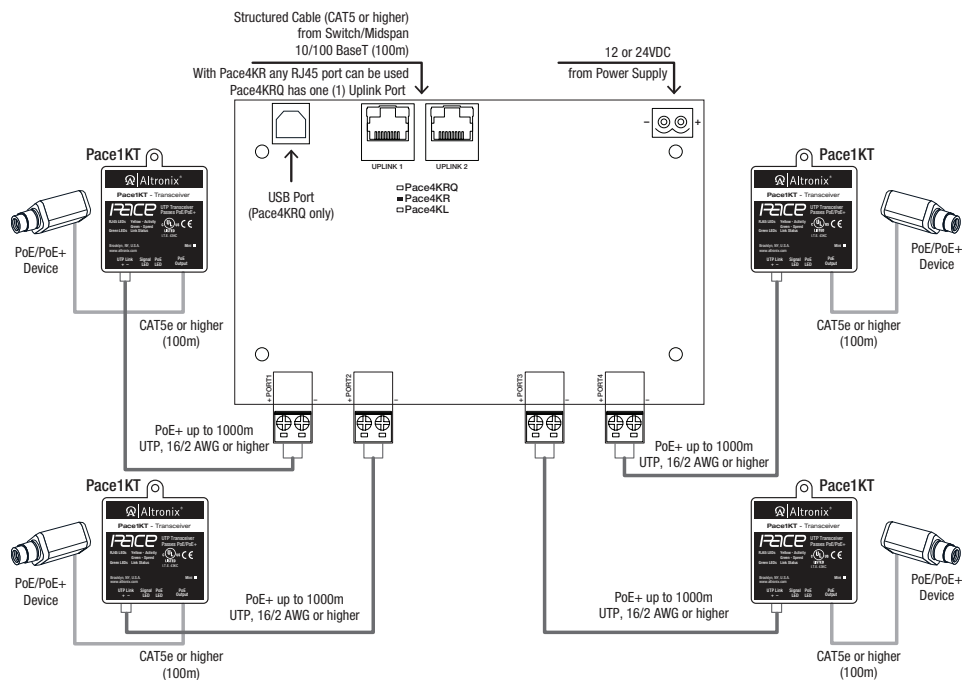
Single PoE Camera Connection:

Fig. 2



Multiple (up to 4) PoE Cameras Connection Utilizing Altronix Pace4KR(Q) and Pace1KT:

Fig. 3



Maximum Length of Cable Type vs. Total Power Consumption:

Wire type	Total Power Consumption	Max. Data Distance	Max. Power Distance
18 AWG (2-wire, UTP)	7.5W	1,000m (3,280 ft)	1,996m (6,548 ft.)
	15W	1,000m (3,280 ft)	998m (3,274 ft.)
	30W	1,000m (3,280 ft)	269m (882 ft)
16 AWG (2-wire, UTP)	7.5W	1,000m (3,280 ft)	3,169m (10,396 ft.)
	15W	1,000m (3,280 ft)	1,584m (5,196 ft.)
	30W	1,000m (3,280 ft)	427m (1,400 ft.)

Note: Calculations based on 56VDC starting voltage from power source and accounts for a 10VDC voltage drop. IEEE standards voltage range requirement for powered devices are:
PoE (15W) - 37VDC to 57VDC, PoE+ (30W) - 44VDC to 57VDC)

