Long Distance Ethernet Solution

Ethernet Media Adapters/ Power Splitters Kits

Models Include:

Pace1KRL12S

- Single Pair Ethernet Media Adapters Kit
- IEEE 802.3cg Ethernet, 10Base-T1L SPE over UTP
- 12VDC Power Output

Kit includes Pace1KR Receiver and Pace1KL12S Transceiver/Power Splitter

Pace1KRL24S

- Single Pair Ethernet Media Adapters Kit
- IEEE 802.3cg Ethernet, 10Base-T1L SPE over UTP
- 24VDC Power Output

Kit includes Pace1KR Receiver and Pace1KL24S Transceiver/Power Splitter

Installation Guide

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CE

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More than just power.™

Rev. 041024

Installing Company: _____ Service Rep. Name: _____

Address: _____ Phone #: _____

Overview:

Altronix Pace1KRL12S and Pace1KRL24S are SPE (Single Pair Ethernet) media adapters/splitters kits that enable connecting 10Base-T1L, IEE802.3cg compliant devices such as Security/Industrial/BMS/Elevators/HVAC Controllers and sensors, etc. to an Ethernet network. The kits provide T1L data & 12V or 24V power separately to power the remote device, thus eliminating the need for local power. Long distance headend to remote-end device cabling can be achieved to over 1km (1,000m, 3,280 ft.).

In addition to new SPE (UTP) Ethernet network installations, upgrading of legacy networks, i.e. LONworks, RS485, 4-20ma Control Loops, etc. can be achieved by using the existing two wire cabling, thus saving rip-out & reinstallation costs.

Operationally, the Pace1KR passes network data & POE power from the POE switch via twisted pair (2-wire, UTP or shielded) up to 1km (1,000m, 3,280 ft.) to the Pace1KL12S or Pace1KL24S, which then passes the T1L data to the device and separately provides 12V or 24V power to the device.

Features:

Agency Listings:

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

Input (Pace1KR Receiver):

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

Input (Pace1KL12S or Pace1KL24S Splitter):

- Powered by Pace1KR.

SPE (Single Pair Ethernet) Connection:

- Wire type: twisted pair (2-wire, UTP or shielded, 16/2 AWG or higher).
- Speed: 10Mbps
- Distance: > 1km (1,000m, 3,280 ft.).

Power Output:

- Pace1KL12S and Pace1KL24S: 20W.
- Available power depends on distance & wire gauge.
  (see Maximum Length of Cable Type vs. Total Power Consumption, pg. 4)

LED Indicators:

- **Pace1KR:**
  Link LED: Green, PoE Active (left of UTP link)
  Link LED: Green, Active Indicate Data transmission (Next to Ethernet link):
  Yellow and Green LED IP Link status, 10/100Base-T/active.
- **Pace1KL12S or Pace1KL24S:**
  Red LED: Output power ON.

Environmental:

- Operating and storage temperature: – 40ºC to 75ºC (– 40ºF to 167ºF).
- Relative humidity: 20 to 85%, non-condensing.

Applications:

- Provide SPE (single pair Ethernet) over UTP (twisted pair) or 16/2 AWG or higher wire up to 1km (1,000m, 3,280 ft.).
- Upgrade LONworks, RS485, 4-20mA control loops to Ethernet over existing wire pair.
- Extends Network link distance in an industrial environment and provides 12VDC or 24VDC to power compatible devices.
- Building Automation, Surveillance & Security, BMS & HVAC, Elevators.
- Utilize twisted pair for new installations or retrofit of IP devices over existing twisted pair cabling.

Mechanical:

- Dimensions (W x L x H approx.):
  3.8" x 2.5" x 1" (96.52mm x 63.5mm 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. Pace1KR and Pace1KL12S/Pace1KL24S are not intended to be connected to outside plant leads and should be installed indoors within the protected premises. Pace1KR and Pace1KL12S/Pace1KL24S are intended for indoor use only. Units should not be mounted above 2 meters if attached by itself on an open wall.

1. **Pace1KR installation:**
   a. Secure unit to the desired mounting surface with a proper fastening device utilizing the unit's mounting hole *(Fig. 1a, pg. 3)*. Unit should be mounted in proximity to ethernet switch/network, NVR or video server.
   b. Connect structured cable from ethernet midspan or endspan device to RJ45 jack marked [PoE Input] *(Fig. 1,2, pg. 3)*.
   c. **UTP / 2-wire:** Connect UTP to connector marked [+, –] *(Fig. 1,2, pg. 3)*.
2. **Pace1KL12S/Pace1KL24S installation:**
   a. Secure Pace1KL12S or Pace1KL24S to the desired mounting surface with a proper fastening device utilizing the unit's mounting hole *(Fig. 1a, pg. 3)*. Unit should be mounted in proximity to T1L device.
   b. Connect twisted pair (2-wire, UTP or shielded) or 16/2 AWG or higher wire from Pace1KR Receiver to [T1L Data Input +, –] terminal of Pace1KL12S or Pace1KL24S *(Fig. 1, 2, pg. 3)*.
   c. Connect twisted pair (2-wire, UTP or shielded) or 16/2 AWG or higher wire from T1L device's UTP Data Input to Pace1KL12S or Pace1KL24S connector marked [T1L Data Output +, –] *(Fig. 1, 2, pg. 3)*.
   d. Connect Power Input of T1L device to connector marked [12VDC Output +, –] on Pace1KL12S or [24VDC Output +, –] on Pace1KL24S *(Fig. 1, 2, pg. 3)*.

Fig. 1 - **Pace1KRL12S. Pace1KRL24S is similar with 24VDC power output**

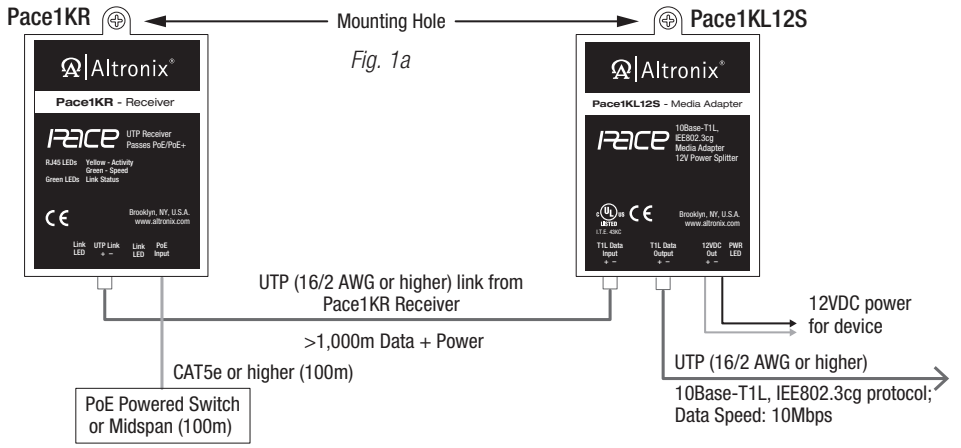
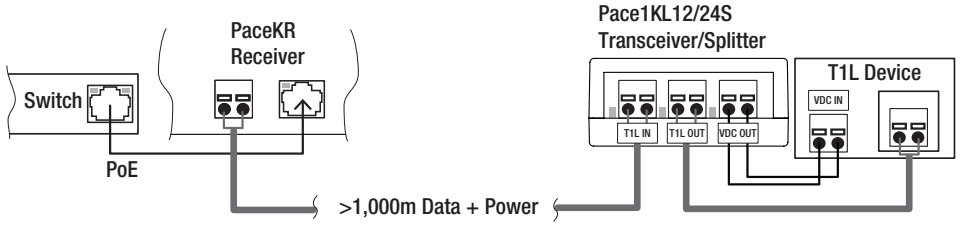


Fig. 1a

Typical Application:

Fig. 2



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	Midspan or endspan port connected to Pace1KR. PoE compliant to IEEE 802.3af (15W) and PoE+ compliant to IEEE 802.3at (25W)
Indicators	**Pace1KR:** Yellow (RJ45 connector): On - Link, Off - No Link, Blinking - Activity. Green (RJ45 connector): On - 100Base-TX, Off - 10Base-T. Green Link LEDs: Link active **Pace1KL12S/Pace1KL24S:** Red Power LED: Output power ON
Environmental Conditions	**Operating Ambient Temperature:** Pace1KR: – 20ºC to 49ºC (– 4ºF to 120.2ºF). Pace1KL12S/Pace1KL24S: – 40ºC to 75ºC (– 40ºF to 167ºF). **Storage Temperature:** – 40ºC to 75ºC (– 40ºF to 167ºF). **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: 0.4 lb. (0.18 kg) I Shipping: 1 lb. (0.45 kg).

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.)
	25W	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.)
	25W	1,000m (3,280 ft.)	427m (1,400 ft.)

Altronix is not responsible for any typographical errors.

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