OmniConverter® Single Pair Power over Ethernet

10Mbps 10BASE-T to 10BASE-T1L Converters

The OmniConverter Single Pair Power over Ethernet converters are IEEE 802.3cg compliant products that function as PoE injectors and Powered Devices. They convert 10BASE-T Ethernet to single-pair 10BASE-T1L Ethernet. They use single-pair Ethernet cabling (SPE) to extend the Ethernet link distance up to 1km.

The Single Pair Power over Ethernet converters feature one IEEE 802.3cg compliant 10BASE-T1L terminal or IEC 63171-2 SPE port and one 10BASE-T RJ-45 port supporting 10Mbps full-duplex data rates.

The following are the product configurations.

Product Name	Base Model #	10BASE-T Port	10T1L Port	
10T/LPS	2020	-	SPoE PSE	Auto Detects Classes 10 - 15 30/58VDC PD
10TPD/LPS	2030	PoE+ PD	SPoE PSE	Auto Detects Classes 10 - 15 30/58VDC PD
10TPS/LPD58	2045	PoE+ PSE	SPoE PD	Class 15 58 VDC PD models
10T/LPDS30	2050	-	SPoE PD	Class 12 30 VDC PD models with Splitter
10T/LPDS58	2055	-	SPoE PD	Class 15 58 VDC PD models with Splitter

The 10T/LPDS models feature an additional 2-pin terminal connector providing a DC output voltage of 12 or 24 volts to power low voltage devices.

The Single Pair Power over Ethernet converters achieve seamless Ethernet connectivity to IEEE 802.3cg compliant devices, such as field transmitters, building controllers or cameras. Bookend configurations support end-to-end Ethernet connectivity supporting a variety of powering options.

They are available as a standalone unit with or without integrated mounting brackets. They can be DIN-rail mounted using the optional DIN-rail mounting clip kit (8252-0). Models are available with an external 100 to 240VAC power adapter or with a 2-Pin DC terminal connector.

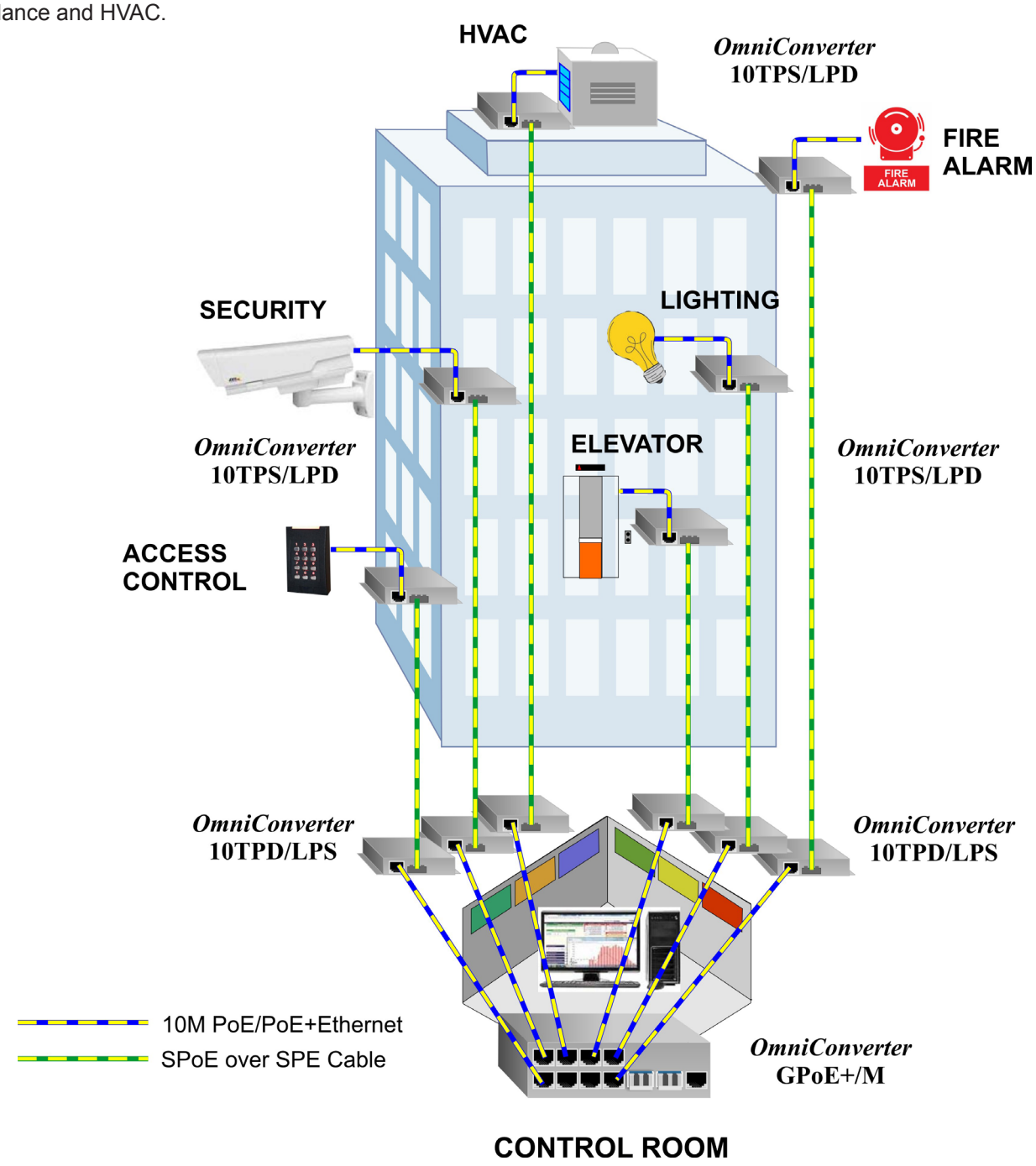
KEY FEATURES

- Unmanaged 10BASE-T to 10BASE-T1L Single-Pair Power over Ethernet converter
- IEEE 802.3cg single-pair Ethernet on terminal or IEC 63171-2 SPE connector
- Power over Ethernet
  - 10BASET – PoE+/PSE or PoE+/PD
  - 10BASE-T1L – SPoE/PSE or SPoE/PD
- Automatic detection of Class 10 through Class 15 PD devices
- 12VDC or 24VDC Power Splitter output
- AC to DC Power Adapter or 2-Pin DC terminal
- DIN-rail mount with optional brackets
- Commercial (0 to +50ºC), wide (-40 to +60ºC) and extended (-40 to +75ºC) operating temperature ranges
- TAA, BAA and NDAA compliant
- Made in the USA
- Free 24/7/365 Technical Support with lifetime warranty

APPLICATION EXAMPLES

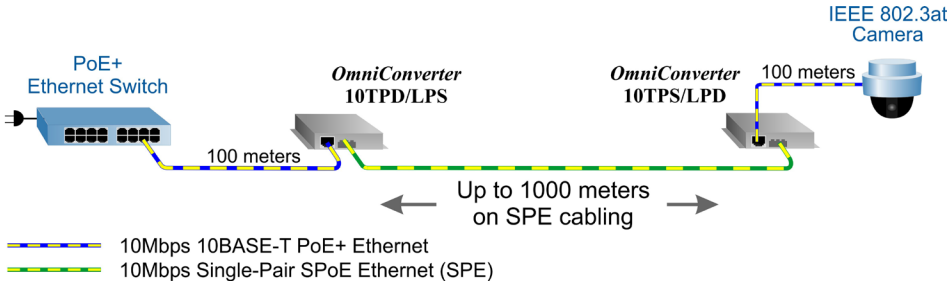
Building Automation Application

This example shows a Building Automation application using a combination of OmniConverter 10TPD/LPS and 10TPS/LPD to connect building systems back to a centralized control room. No external AC power is required for the modules since the 10TPD/LPS modules are powered by the GPoE+/M PoE+ switch and the 10TPS/LPD modules are powered over the SPE cable. Each building system is powered by PoE/PoE+ from the OmniConverter 10TPS/LPD modules. Systems controlled by the OmniConverter modules include Fire Alarm, Lighting, Elevator Control, Access Control to Floors, Security Surveillance and HVAC.



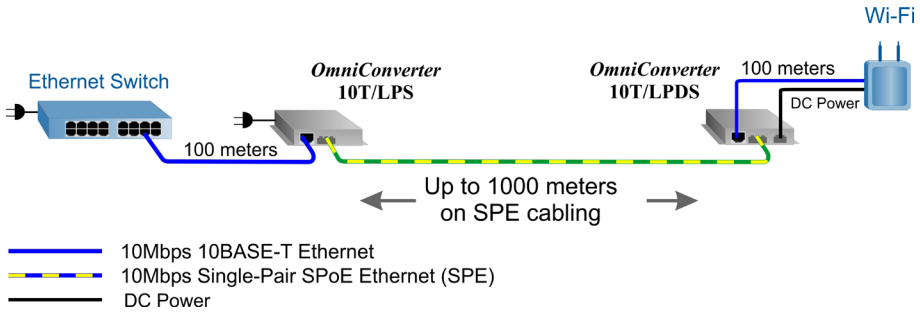
Extend Ethernet and Power up to 1200 meters using PD and SPoE Devices

In this example, the OmniConverter 10TPD/LPS is receiving power from a PoE+ Ethernet switch and delivering power (SPoE) across a SPE cabling to an OmniConverter 10TPS/LPD. The OmniConverter 10TPS/LPD is powering a IEEE 802.3at camera up to 100 meters in distance.



Extend Ethernet and power up to 1200 meters to a non PoE device

In this example, the OmniConverter 10T/LPS is delivering power (SPoE) across a SPE cabling to an OmniConverter 10T/LPDS. The 10T/LPDS is powering a Wi-fi access point using the 12V or 24V DC power out of the 10T/LPDS device splitter power port. This is useful when no external power is available at the far end.



SPECIFICATIONS

Description	**10T/LPS** 10BASE-T to 10BASE-T1L SPoE	**10TPD/LPS** 10BASE-T PD to 10BASE-T1L SPoE	**10TPS/LPD** 10BASE-T PoE+ to 10BASE-T1L PD	**10T/LPDS** 10BASE-T to 10BASE-T1L PD with Splitter
Base Model Number	2020	2030	2045	2050/2055
Standard Compliances	IEEE 802.3, IEEE 802.3cg	IEEE 802.3, IEEE 802.3cg, IEEE 802.3af, IEEE 802.3at	IEEE 802.3, IEEE 802.3cg, IEEE 802.3af, IEEE 802.3at	IEEE 802.3, IEEE 802.3cg
Regulatory Compliances (Pending)	Safety: UL 62368-1, UL 60950-1, IEC 62368-1, IEC 60950-1, CUL CSA C22.2 No. 60950-1, EN 60950-1:2006 CE Mark, UKCA EMI: FCC 47CFR, Part 15 Class A AS/NZS 3548, AS/NZS 4417.1 and AS/NZS 4417.2 ICES-003 Issue 3 EN 55032/CISPR 22 and EN55035 EN61000-3-2 VCCI V3/2001.04 (CISPR 22A:1997, Class A) EMC: IEC/EN61000-4-2, IEC/EN61000-4-3 IEC/EN61000-4-4, IEC/EN61000-4-5 IEC/EN61000-4-6, IEC/EN61000-4-8 IEC/EN61000-4-11 ACT: TAA, BAA, NDAA			
Environmental	REACH, RoHS and WEEE			
Frame Size	Up to 1518 bytes			
Port Types 10BASE-T: 10BASE-T1L:	RJ-45 3-Pin Terminal or IEC 63171 SPE/SPoE Connector Auto Detects Classes 10-15 30VDC/58VDC PD	RJ-45 PoE+/PD 3-Pin Terminal or IEC 63171 SPE/SPoE Connector Auto Detects Classes 10-15 30VDC/58VDC PD	RJ-45 PoE+/PSE 3-Pin Terminal or IEC 63171 SPE/PD Connector Class 15 PD	RJ-45 3-Pin Terminal or IEC 63171 SPE/PD Connector Splitter Output: 12 or 24VDC Model 2050: Class 12 PD Model 2055: Class 15 PD
Cable Types 10BASE-T: 10BASE-T1L:	Ethernet, EIA/TIA 568A/B, Cat 3 or better Single-Pair Ethernet (SPE) cable, IEC 61156-13 (fixed) or IEC 61156-14 (flexible) 18AWG cable or better			
AC Power Requirements (with AC/DC Adapters)	100 - 240VAC 50-60Hz, 0.91A @ 120VAC 2.1mm Barrel	N/A	N/A	N/A
DC Power Requirements (with DC Terminals)	+50 to +58VDC; 1.69A @ 56VDC 2 Pin Terminal	N/A	N/A	N/A
Dimensions (W x D x H)	without mounting brackets: 3.1" x 4.8" x 1.0" (78.7 mm x 121.9 mm x 25.4 mm) with mounting brackets: 3.8" x 4.8" x 1.0" (96.5 mm x 121.9 mm x 25.4 mm)			
Weight	Module Only: 1.0 lbs. (453.6 grams) Module w/ Adapter: 1.9 lbs. (852.6 grams)			
Operating Temperature	Commercial: 0 to 50°C Wide: -40 to 60°C Extended: -40 to 75°C Storage: -40 to 80°C			
Humidity	5 to 95% (non-condensing)			
Altitude	-100m to 4,000m (operational)			
MTBF (hours) Module Only: AC/DC Adapter:	1,233,000 100,000	995,000 N/A	1,557,000 N/A	1,935,000 100,000
Warranty	Lifetime warranty with 24/7/365 free Technical Support			

ORDERING INFORMATION

Step 1: Choose a Base Part Number (**2020**-c0-mpt)

OmniConverter 10T/LPS	
Model Number	**Description**
2020-c0-mpt	**10T/LPS** - 1 x 10BASE-T RJ-45 and 1 x 10BASE-T1L SPoE

Step 2: Choose a SPE Connector Type (2020-**c**0-mpt)

0 = 3-pin Terminal
2 = IEC 63171-2 SPE jack

Step 3: Choose a Mounting Option (2020-c0-**m**pt)

0 = Without integrated mounting brackets
1 = With integrated mounting brackets

Step 4: Choose a Power Option (2020-c0-m**p**t)

0 = Barrel Connector, No AC/DC Power Adapter provided
1 = External AC/DC Adapter, 100 - 240 VAC included, with US Power Cord
2 = External AC/DC Adapter, 100 - 240 VAC included, No Power Cord
8 = External AC/DC Adapter, 100 - 240 VAC included, PS JET/PSE Certified, with Japanese Power Cord
9 = Direct DC 2 pin terminal connector, no AC/DC power adapter

Step 5: Choose an Operating Temperature Option (2020-c0-mp**t**)

<leave blank> = Commercial temperature (0 to 50°C)
W = Wide temperature (-40 to 60°C)
Z = Extended temperature (-40 to 75°C)

Step 1: Choose a Base Part Number (**20xx**-c0-mpt)

OmniConverter 10TPD/LPS and 10TPS/LPD	
Model Number	**Description**
2030-c0-mpt	**10TPD/LPS** - 1 x 10BASE-T PD RJ-45 and 1 x 10BASE-T1L SPoE
2045-c0-mpt	**10TPS/LPD58** - 1 x 10BASE-T PoE+ RJ-45 and 1 x 10BASE-T1L PD (Class 15, 58VDC PD model)

Step 2: Choose a SPE Connector Type (20xx-**c**0-mpt)

0 = 3-pin Terminal
2 = IEC 63171-2 SPE jack

Step 3: Choose a Mounting Option (20xx-c0-**m**pt)

0 = Without integrated mounting brackets
1 = With integrated mounting brackets

Step 4: Power Option (20xx-c0-m**p**t)

0 = No external power input (Powered through the PD port)

Step 5: Choose an Operating Temperature Option (20xx-c0-mp**t**)

<leave blank> = Commercial temperature (0 to 50°C)
W = Wide temperature (-40 to 60°C)
Z = Extended temperature (-40 to 75°C)

ORDERING INFORMATION

Step 1: Choose a Base Part Number (**20xx**-cy-mpt)

OmniConverter 10T/LPDS	
Model Number	**Description**
2050-cy-mpt	**10T/LPDS30** - 1 x 10BASE-T RJ-45 and 1 x 10BASE-T1L 30 VDC (Class 12) PD with Splitter
2055-cy-mpt	**10T/LPDS58** - 1 x 10BASE-T RJ-45 and 1 x 10BASE-T1L 58 VDC (Class 15) PD with Splitter

Step 2: Choose a SPE Connector Type (20xx-**c**y-mpt)

0 = 3-pin Terminal
2 = IEC 63171-2 SPE jack

Step 3: Choose the Splitter Output Voltage (20xx-c**y**-mpt)

1 = 12VDC Terminal Connector
2 = 24VDC Terminal Connector

Step 4: Choose a Mounting Option (20xx-cy-**m**pt)

0 = Without integrated mounting brackets
1 = With integrated mounting brackets

Step 5: Power Option (20xx-cy-m**p**t)

0 = No external power input (Powered through the PD port)

Step 6: Choose an Operating Temperature Option (20xx-cy-mp**t**)

<leave blank> = Commercial temperature (0 to 50°C)
W = Wide temperature (-40 to 60°C)
Z = Extended temperature (-40 to 75°C)