OmniConverter® 10T/APS Single Pair Ethernet

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

The OmniConverter 10T/APS Single Pair Ethernet converters are 10BASE-T1L products that convert 10BASE-T Ethernet to 10BASE-T1L Ethernet. They are designed for digital instrumentation solutions used for industrial control processes. They utilize single-pair Ethernet cabling (SPE) to extend the Ethernet link distance up to 200 or 1000 meters depending on the model number.

The 10T/APS converters feature one 10BASE-T1L 3-pin terminal or IEC 63171-2 port and one 10BASE-T RJ-45 port supporting 10Mbps full-duplex data rates.

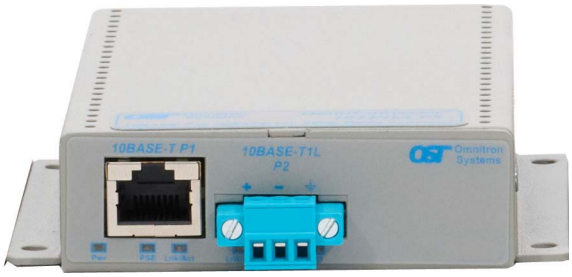
Omnitron 10T/APS converters are interoperable with Ethernet-APL Class A, C, 3 and 4 edge/field devices and act as a Power Source capable of delivering up to 56 watts, depending on the model number. The 10T/APS models 2022 and 2024 support 1.0V peak-to-peak signal amplitude voltage when connecting to Class A and C edge/field devices. Whereas the 2025 and 2027 models use Automatic Link negotiation to transmit 1.0V or 2.4V peak-to-peak signal amplitude voltage to the edge/field devices.

The following are the product configurations.

Product Name	Base Model #	Port 1	Port 2	
10T/APS	2022	10BASE-T	T1L/PSE 0.5W	Class A (1.0V)
10T/APS	2024	10BASE-T	T1L/PSE 1.0W	Class C (1.0V)
10T/APS	2025	10BASE-T	T1L/PSE 36W	Class 3 (1.0V/2.4V)
10T/APS	2027	10BASE-T	T1L/PSE 56W	Class 4 (1.0V/2.4V)

The 10T/APS converters are interoperable with Ethernet-APL Field Devices. The converters can connect to a spur or trunk segment.. A Spur segment has a maximum distance of 200 meters and data signal amplitude of 1.0 volt peak-to-peak. A Trunk segment has a maximum distance of 1000 meters and data signal amplitude of 2.4 volts peak-to-peak.

They are available as standalone units with integrated mounting brackets. They can be DIN-rail mounted using the optional DIN-rail mounting clip kit (8252-0). Models come with a 2-pin DC power terminal connector.



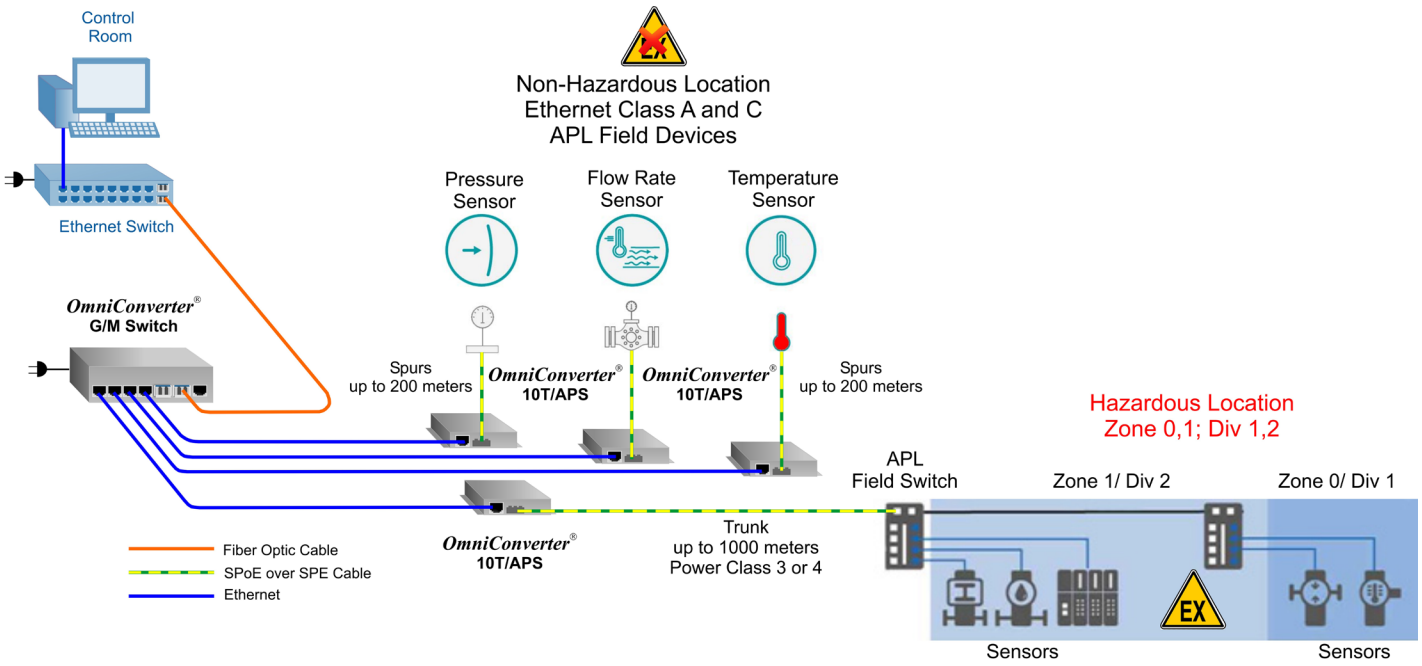
KEY FEATURES

- Unmanaged 10BASE-T to 10BASE-T1L converter
- 10BASE-TL1 supports 3-pin terminal or IEC 63171-2 connector
- 10BASE-TL1 port provides up to 56 watts to edge/field devices
- Interoperable with Class A, C, 3 and 4 edge/field devices with 1.0 V/2.4 V peak-to-peak signal amplitude options
- Supports Automatic Link Negotiation
- Supports Spur and Trunk connections
- 2-Pin DC Power terminal connector
- Integrated wall mount brackets
- DIN-rail mount
- 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 EXAMPLE

Industrial Process Automation

For applications where the industrial processing sensors exceed the copper Ethernet distance from the Environmental Control Room, an OmniConverter G/M Ethernet switch can be used to extend a fiber connection to within the copper distance of the sensors. The OmniConverter G/M extends a 10Mbps Ethernet copper connection to the 10T/APS, where the 10T/APS converters connect to the industrial processing sensors using SPE cabling. Three Ethernet APL Field Devices are connected up to 200 meters across a spur connection in a non-hazardous area. A fourth 10T/APS converter extends a trunk connection up to 1000 meters to an APL Field Switch in a hazardous area.



SPECIFICATIONS

Description	**10T/APS** 10BASE-T to 10BASE-T1L APS PSE			
Base Model Number	2022	2024	2025	2027
Standard Compliances	IEEE 802.3, 10BASE-T1L compliant			
Regulatory Compliances (Pending)	Safety: UL/ 62368-1, UL 60950-1, IEC 62368-1, IEC 60950-1, CUL CSA C22.2 No. 60950, 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			
PSE Mode	9.6 to 15 VDC for Class A edge/field devices	11.61 to 15 VDC for Class C edge/field devices	46 to 50 VDC for Class 3 edge/field devices	46 to 50 VDC for Class 4 edge/field devices
Port Types 10BASE-T: 10BASE-T1L:	RJ-45 3-Pin Terminal or IEC 63171 Connector Class A: 1.0 V peak-to-peak; 0.5 W	RJ-45 3-Pin Terminal or IEC 63171 Connector Class C: 1.0 V peak-to-peak; 1.0 W	RJ-45 3-Pin Terminal or IEC 63171 Connector Class 3: 1.0/2.4 V peak-to-peak, 36 W	RJ-45 3-Pin Terminal or IEC 63171 Connector Class 4: 1.0/2.4 V peak-to-peak, 56 W
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			
DC Power Requirements (with DC Terminals)	+9 to +15VDC; 0.222A @ 12VDC 2 Pin Terminal	+11.61 to +15VDC; 0.261A @ 12VDC 2 Pin Terminal	+46 to +50VDC; 1.359A @ 48VDC 2 Pin Terminal	+46 to +50VDC; 2.109A @ 48VDC 2 Pin Terminal
Dimensions (W x D x H)	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	Extended: -40 to 75°C Storage: -40 to 80°C			
Humidity	5 to 95% (non-condensing)			
Altitude	-100m to 4,000m (operational)			
MTBF (hours)	1,642,000	1,637,000	1,637,000	1,631,000
Warranty	Lifetime warranty with 24/7/365 free Technical Support			

Hazardous Area Use Disclaimer:
This product is not certified for use in hazardous (classified) locations, including Zone 0, Zone 1, or Zone 2 as defined by IEC 60079-10-1 or equivalent national standards. It is intended for installation in non-hazardous (safe) areas only.

The product supports interoperability with Ethernet-APL networks and devices, including those installed in hazardous zones, provided that all connections are made through certified intrinsically safe interfaces as part of a compliant system architecture.

When connecting to devices located in hazardous areas, appropriate energy-limiting devices, field switches, or barriers must be used to ensure compliance with all applicable safety standards.

ORDERING INFORMATION

Step 1: Choose a Base Part Number (202x-c0-19Z)

OmniConverter 10T/APS	
Model Number	**Description**
2022-c0-19Z	10T/APS - 1 x 10BASE-T RJ-45 and 1 x 10BASE-T1L APL, TL1/PSE **1.0V, Class A**, Direct DC input, Extended temperature (-40 to 75°C)
2024-c0-19Z	10T/APS - 1 x 10BASE-T RJ-45 and 1 x 10BASE-T1L APL, TL1/PSE **1.0V, Class C**, Direct DC input, Extended temperature (-40 to 75°C)
2025-c0-19Z	10T/APS - 1 x 10BASE-T RJ-45 and 1 x 10BASE-T1L APL, TL1/PSE **1.0/2.4V, Class 3**, Direct DC input, Extended temperature (-40 to 75°C)
2027-c0-19Z	10T/APS - 1 x 10BASE-T RJ-45 and 1 x 10BASE-T1L APL, TL1/PSE **1.0/2.4V, Class 4**, Direct DC input, Extended temperature (-40 to 75°C)

Step 2: Choose a SPE Connector Type (202x-c0-19Z)

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

Mounting Option (202x-c0-1pt)

1 = With integrated mounting brackets

Power Option (202x-c0-19Z)

9 = Direct DC input with 2-Pin Terminal Connector, no AC/DC Power Adapter

Operating Temperature Option (202x-c0-19Z)

Z = Extended temperature (-40 to 75°C)