T(P)ES-0016T

16 FE Unmanaged Ethernet Switch

OVERVIEW

Lantech T(P)ES-0016T is an unmanaged Ethernet switch featuring 16 10/100 Base-TX ports with M12 connectors. Designed with an IP54-rated enclosure, it provides reliable protection against dust and water, meeting the stringent reliability requirements of industrial rolling stock applications.

Redundant dual 24VI/24TVI input with max PoE budget; inrush current prevention and polarity reverse protection

T(P)ES-0016T supports dual power inputs with voltage ranges of 9–36VDC for the 24VI model and 16.8–56VDC for the 24TVI model. Featuring galvanic isolation between input power, PoE, and all Ethernet ports, the PoE variant delivers up to 120W from internal power. Its redundant power input design includes inrush current prevention and polarity reversal protection to ensure stable and reliable operation.

Sleep Mode & efficient PoE timer under Ignition-Off State

Compliant with ITxPT standards, the -IGN model features a 60-minute standby mode after ignition-off, maintaining network operation before entering sleep mode(0.048W)—preventing unnecessary reboots when power is restored.

The PoE ignition model also supports a configurable PoE timer, with a default delay of 10 minutes after ignition-off.

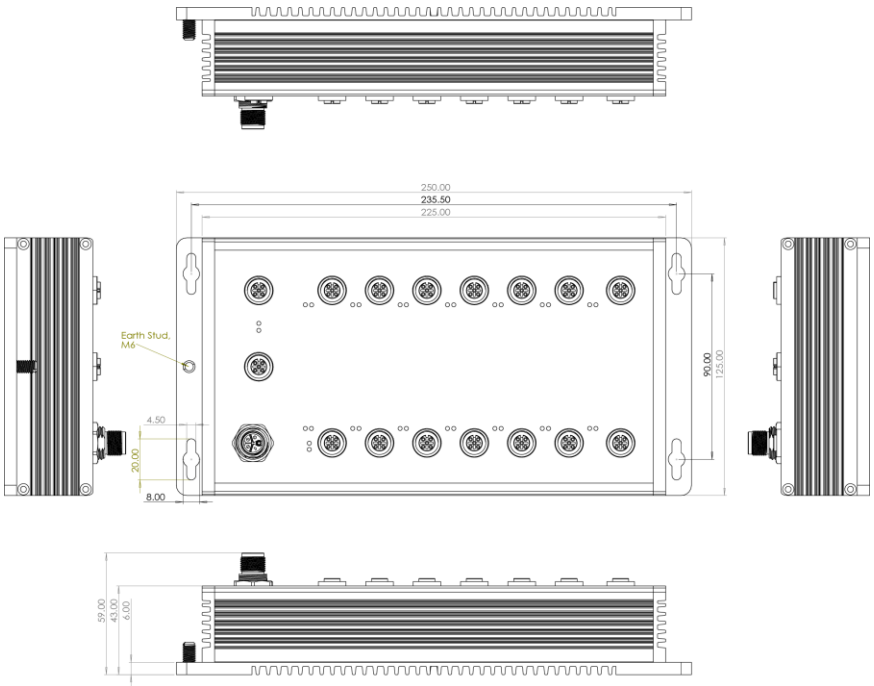
E-marking* certificate, ITxPT*; ISO 7637-2 compliant and extended working temperature; ISO 16750-2 P5A compliant

T(P)ES-0016T has passed rigorous industrial EMI, safety, and mechanical tests, including free-fall, shock, and vibration, ensuring reliable operation in harsh environments. The switch complies with ITxPT* public transport standards and ISO 7637-2, providing protection against high-voltage surges commonly encountered during vehicle crank starts.

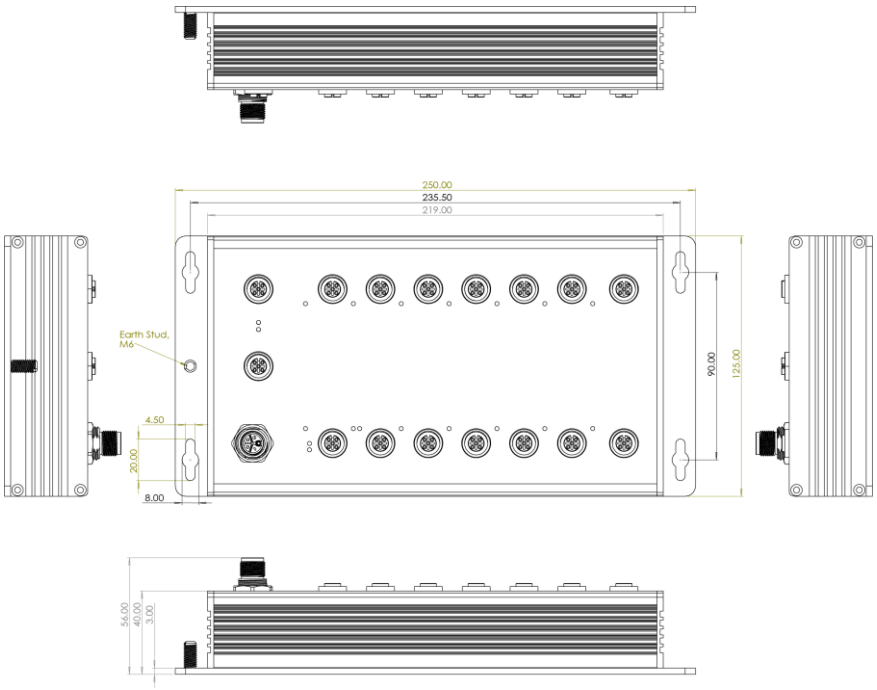
T(P)ES-0016T supports an extended operating temperature range of -40°C to 75°C (-IGN-E; -24TVI model). E-marking* certification makes it ideal for buses, carriages, and other vehicle applications, as well as industrial sites with 12V or 24V power where IP surveillance or VoIP connectivity is required. It also meets ISO 16750-2 P5A to resist motor pulse voltages, effectively minimizing the impact of high-frequency pulse voltages commonly generated by motor applications.

DIMENSIONS (unit=mm)

PoE model

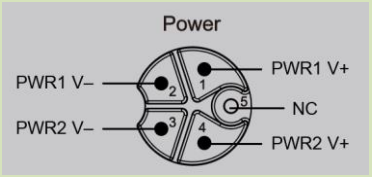
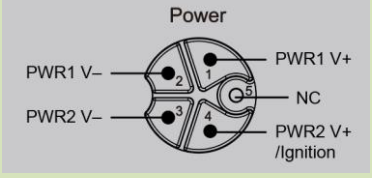


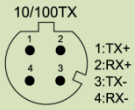
Non-PoE model



SPECIFICATIONS

Hardware Specification

IEEE Standard	IEEE802.3 10BASE-T Ethernet IEEE802.3u 100BASE-T Ethernet IEEE802.3ab 1000Base-T Ethernet IEEE802.3x Flow Control and Back Pressure IEEE802.3at/af Power over Ethernet (For PoE Model)
Transfer Rate	14,880pps for Ethernet port 148,800pps for Fast Ethernet port
Mac Address	8K MAC address table
Connector	10/100TX: 16 x M12, 4-pole D-coded connector, Female with auto MDI/MDI-X function Power connector: 1 x M12, 5-pole K coded, Male Non-IGN model  IGN model 

LED	Per unit: Power 1 (Green), Power 2 (Green), Ethernet: Link/Activity (Green) PoE: (Green)
PoE pin assignment	M12 port # 1~ # 16 support IEEE 802.3at/af End-point. Per port provides up to 30W 
Power Supply	Dual input 9~36VDC (24VI model) 16.8~56VDC (24TVI model)
Power Consumption	8W without PoE
Power Budget	Total 120W @ 24VDC
Operating Humidity	5% to 95% (Non-condensing)
Operating Temperature	-40˚C ~ 75˚C (-40˚F ~ 167˚F) (-IGN-E; -24TVI model)
Storage Temperature	-40˚C ~ 85˚C (-40˚F ~ 185˚F)
Case Dimension	Aluminum case, IP54 rated 250mm(W)x125mm(H)x59mm(D) (PoE models) 250mm(W)x125mm(H)x56mm(D) (Non-PoE models)
Weight	TBC
Installation	Wall Mount Design
EMC	FCC Part 15, Subpart B ICES-003 Issue 7, EN 55035:2017/A11:2020, EN 55032:2015/A11:2020, IEC 61000-4-2:2008, IEC 61000-4-3:2020,

	IEC 61000-4-4:2012, IEC 61000-4-5:2014+AMD1:2017 CSV, IEC 61000-4-6:2023, IEC 61000-4-8:2009, IEC 61000-6-2:2016, IEC 61000-6-4:2018, EN IEC 61000-6-2:2019, EN IEC 61000-6-4:2019, BS EN 55035:2017+A11:2020, BS EN 55032:2015+A11:2020
Stability Testing	EN 61373:2010 (Shock and Vibration)

Verifications & Report	EN 50155*:2021, EN 50121-4:2016/A1:2019, EN 50121-3-2:2016/A1:2019, EN 50124-1:2017, EN 45545-1, EN 45545-2 Fire & Smoke verification
Vehicle certificate	E24 marking* (24VI model),R118 ITxPT* labeled (24VI-IGN model)
MTBF	TBC

*Future release

**Optional

ORDERING INFORMATION

All model packages include M12 caps and wall mount brackets. All standard models are non-coating, optional coating models are available with –C model name; for push-pull inner-lock connector model add -PP

- **TPES-0016T-16-54-24VI-IGN-E..……..…….....P/N: 8361-100**
  16 10/100TX PoE at/af unmanaged Ethernet Switch w/M12 connectors; -40°C to 75°C; 9~36VDC dual input w/ PoE & Ethernet galvanic isolation; w/ignition
- **TPES-0016T-16-54-24VI-E..……..…….....P/N: 8361-1001**
  16 10/100TX PoE at/af unmanaged Ethernet Switch w/M12 connectors; -40°C to 75°C; 9~36VDC dual input; w/ PoE & Ethernet galvanic isolation；IP54 rated
- **TPES-0016T-16-54-24TVI-E..……..…….....P/N: 8361-1002**
  16 10/100TX PoE at/af unmanaged Ethernet Switch w/M12 connectors; -40°C to 75°C; 16.8~56VDC dual input; w/ PoE & Ethernet galvanic isolation；IP54 rated
- **TES-0016T-54-24VI-IGN-E..……..…….....P/N: 8361-1003**
  16 10/100TX unmanaged Ethernet Switch w/M12 connectors; -40°C to 75°C; 9~36VDC dual input w/ Ethernet galvanic isolation; w/ignition；IP54 rated
- **TES-0016T-54-24VI-E..……..…….....P/N: 8361-1004**
  16 10/100TX unmanaged Ethernet Switch w/M12 connectors; -40°C to 75°C; 9~36VDC dual input; w/ Ethernet galvanic isolation；IP54 rated
- **TES-0016T-54-24TVI-E..……..…….....P/N: 8361-1005**
  16 10/100TX unmanaged Ethernet Switch w/M12 connectors; -40°C to 75°C; 16.8~56VDC dual input; w/ Ethernet galvanic isolation；IP54 rated

OPTIONAL ACCESSORIES

M12 Connector & Cable

Connector

- **4106-00000097-001 ECONM12-05K(F)-S-180** — 5 pin M12 (Female) K-coded 180 degrees screw type connector for power supply
- **ECONM12-04D(M)-C-180** — 4 pin M12 (Male) D-coded 180 degree crimp type connector for data
- **ECONM12-08X(M)-SPEEDCON** — 8 pin M12 (Male) X-coded 180 degree crimp type connector for data, Ethernet CAT6A (10G), shielded, SPEEDCON

Cable

- **4106-00000096-001 ECABM12-05K(F)-90-1.5M** — 5 pin M12 (Female) K-coded 90 degrees 1.5M cable for power supply
- **ECAB124030MJS** — 4 pin M12 (Male) D-coded 180 degree RJ45 STP cable for data, 300cm
- **ECABM12X83MSTP** — 8 pin M12 (Male) X-coded 180 degree RJ45 STP cable for data, shielded, 300cm
- **ECONM12-05K(F) to MCP 6P-20CM CABLE** — 5 pin M12 (Female) K-coded 180 degree to 6 pin MCP power cable, 20cm (For ignition models)

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