T(P)ES-0105T

5 10/100TX + 1 10/100/1000T X coded (w/5 PoE at/af) EN50155

Ethernet Switch

- *IEEE802.3at/af up to 30W PoE output (PoE model)*
- *Dual power inputs 9~36V (24VI model) or 16.8~56V (24TVI model) with galvanic isolation between input power, PoE and Ethernet*
- *Wide Operating Temperature from -20° C ~70℃ for Standard Model ; -40℃ ~70℃ for -E Model*
- *IP44 aluminum housing for best heat dissipation and preventing moist ingress*
- *E-mark certificate for the vehicle; ISO16750-2 P5A compliant*
- *Ignition function (24VI-IGN model)*
- *EN50155 certificate for Railway*

OVERVIEW

Lantech T(P)ES-0105T is a 5 10/100 Base-TX + 1 10/100/1000 Base-T (with 5 ports 802.3at/af PoE ports) with M12 connectors unmanaged EN50155 Ethernet switch with IP44 rated protection which meets the high-reliability requirements demanded by industrial rolling stock applications.

Up to 5 PoE at/af ports and PoE galvanic isolation (PoE model)

Compliant with 802.3af/at standard, the PoE model is able to feed each PoE port up to 30 Watt at each PoE port for various IP PD devices.

PoE galvanic isolation up to 1.5KVDC to provide power input to PoE Ethernet ports insulation prevents cabling and grounding incidents from damaging the Ethernet switch itself.

Dual 24V input with max PoE budget and Inrush current protection

The TPES-0105T accepts 9~36VDC (24VI model) or 16.8~56VDC (24TVI model) dual input with galvanic isolation and PoE model can feed 54V output for PoE feeding with 55W budget. The inrush current on initial power up can be limited to lower than 10 x nominal current.

E-marking certificate, ISO 16750-2 compliant (24VI model)

The T(P)ES-0105T is designed to meet a critical network environment with IP44 enclosure and M12 connectors for protection against dust and water. It has passed harsh environmental testing to comply with Industrial EMI and Safety standards as well as stability testing such as Free fall, Shock, and vibration. Lantech T(P)ES-0105T can compliant with ISO 16750-2 P5A (12V system DC14V 87V/0.5Ω/400ms; 24V system DC28V 174V/2Ω/350ms) which protects the switch from being damaged by high voltage that could be found at vehicle cranky start.

For greater flexibility in the application, the T(P)ES-0105T supports an extended operating temperature range from -20°C ~70°C for Standard Model.

The E-marking certificate makes it the most suitable switch for bus, carriage, trams, and other vehicles application as well as for industrial areas where the power source is limited with 12V or 24V but has demand of IP surveillance or VoIP applications.

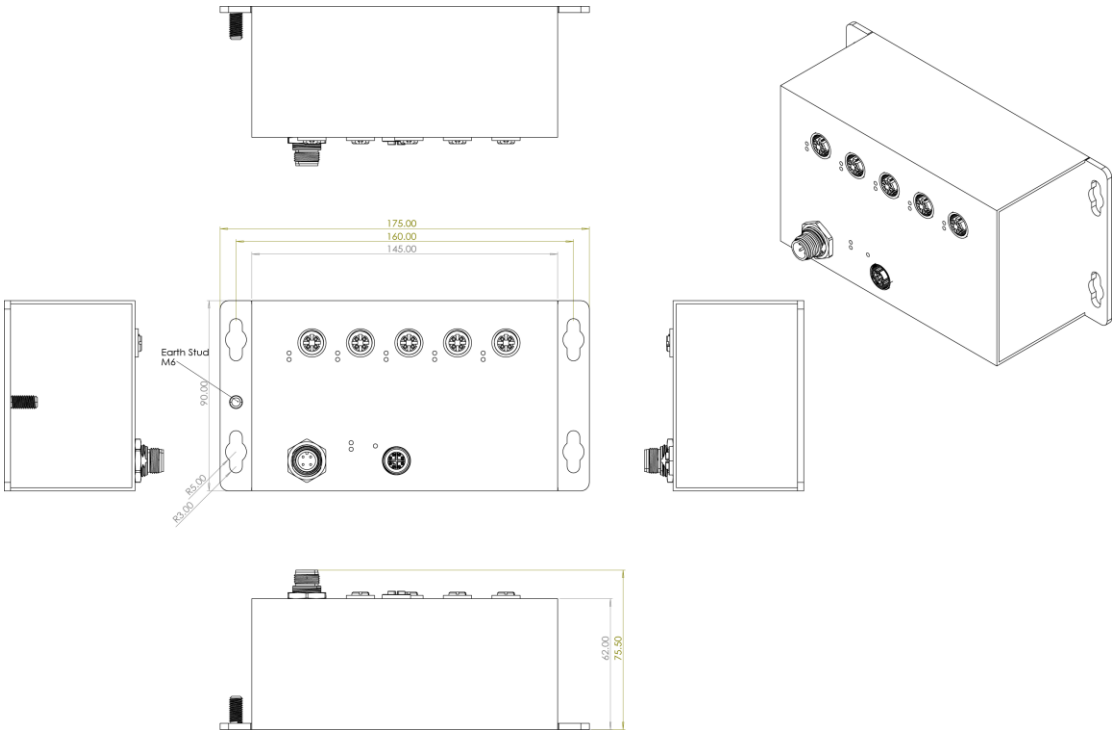
EN50155, EN45545-2; EN61373 compliance; High ESD protection

T(P)ES-0105T passed serious tests under extensive Industrial EMI and Safety standards. With EN45545-2 Fire & Smoke and EN50155 verification, the T(P)ES-0105T is the best switch for railway on-board/track side, vehicle, and mining applications.

FEATURES & BENEFITS

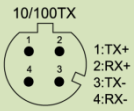
- 5 10/100TX + 1 10/100/1000T Unmanaged EN50155 Ethernet Switch with M12 connectors and IP44 rated protection
- Dual 9~36VDC input (24VI model)
- Dual 16.8~56VDC input (24TVI model)
- Galvanic isolation from power input/Ethernet ports to system 1.5KV
- Supports IEEE802.3at/af feeding power up to 30W per PoE port, provides total PoE budget of 55W (PoE model)
- Back-plane (Switching Fabric): 3 Gbps
- 8K MAC address table
- Wide Operating Temperature -20°C ~70°C for Standard Model; -40°C ~70°C for -E Model
- wall mount design
- E-mark certificate for the vehicle, ISO 16750-2 P5A compliant (24VI model)
- Overvoltage peaks 1.5 kV for 45μs (IEC60571)
- Ignition function (24VI-IGN model)
- Polarity protection present

DIMENSIONS (unit=mm)



SPECIFICATIONS

Hardware Specification	
IEEE Standard	IEEE802.3 10BASE-T Ethernet IEEE802.3u 100BASE-T Ethernet IEEE802.3x Flow Control and Back Pressure IEEE802.3at/af Power over Ethernet (PoE model)
Transfer Rate	14,880pps for Ethernet port 148,800pps for Fast Ethernet port
Mac Address	8K MAC address table
Connector	10/100TX: 5 x M12, 4-pole D-coded, Female with auto MDI/MDI-X function 10/100/1000T: 1 x M12, 8-pole X-coded, Female with auto MDI/MDI-X function Power connector: 1 x M12, 4-pole A coded, Male (1 x M12, 5-pole A coded, Male for IGN model)
LED	Per unit: Power 1 (Green), Power 2 (Green),

	Ethernet: Link/Activity (Green) PoE: (Green, PoE model)
PoE pin assignment (PoE model)	M12 port # 1~ # 5 support IEEE 802.3at/af End-point. Per port provides up to 30W  PoE pin assignment: P1,3: V+ P2,4: V-
Power Supply	Dual input 9~36VDC (24VI model) 16.8~56VDC (24TVI model)
Minimum/Maximal current	Minimum current: 0.15A at 24Vdc power input voltage without PoE load Maximal current: 2.5A at 24Vdc power input voltage with 55W PoE load
Power Budget (PoE model)	Total 55W @ 24VDC and above
Operating Humidity	5% to 95% (Non-condensing)
Operating Temperature	-20°C~70°C / -4°F~158°F (Standard model) -40°C~70°C / -40°F~158°F (-E model)
Storage Temperature	-40°C ~ 85°C (-40°F ~ 185°F)

Case Dimension	Aluminum case, 175mm(W)x75.5mm(H)x90mm(D)
Weight	600g
Installation	Wall Mount Design
EMC	FCC Part 15, Subpart B ICES-003 Issue7 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 BS EN 55035:2017+A11:2020 BS EN 55032:2015+A11:2020
Railway compliance	EN 50155:2021 EN 50121-4:2016/A1:2019 EN 50121-3-2:2016/A1:2019 EN 61373:2010
Fire Safety	EN45545-2
Vehicle certificate	E24 marking (24VI model)
MTBF	520,000 hrs (standards: IEC 62380)
Warranty	5 years

**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.

- **TPES-0105T-5-44-24VI …..……..…….....P/N: 8351-1369**
  5 10/100TX + 1 10/100/1000T w/5 PoE at/af EN50155 M12 Ethernet Switch w/ PoE galvanic isolation; 9~36VDC dual input; -20°C to 70°C; IP44 rated
- **TPES-0105T-5-44-24VI-E..……..…….....P/N: 8351-13691**
  5 10/100TX + 1 10/100/1000T w/5 PoE at/af EN50155 M12 Ethernet Switch w/ PoE galvanic isolation; 9~36VDC dual input; -40°C to 70°C; IP44 rated
- **TPES-0105T-5-44-24VI-IGN …..……..…….....P/N: 8351-13692**
  5 10/100TX + 1 10/100/1000T w/5 PoE at/af EN50155 M12 Ethernet Switch w/ PoE galvanic isolation & ignition; 9~36VDC dual input; -20°C to 70°C; IP44 rated
- **TPES-0105T-5-44-24VI-E-IGN.……..…….....P/N: 8351-13693**
  5 10/100TX + 1 10/100/1000T w/5 PoE at/af EN50155 M12 Ethernet Switch w/ PoE galvanic isolation & ignition; 9~36VDC dual input; -40°C to 70°C; IP44 rated
- **TPES-0105T-5-44-24TVI …..……..…….....P/N: 8351-13694**
  5 10/100TX + 1 10/100/1000T w/5 PoE at/af EN50155 M12 Ethernet Switch w/ PoE galvanic isolation; 16.8~56VDC dual input; -20°C to 70°C; IP44 rated
- **TPES-0105T-5-44-24TVI-E..……..…….....P/N: 8351-13695**
  5 10/100TX + 1 10/100/1000T w/5 PoE at/af EN50155 M12 Ethernet Switch w/ PoE galvanic isolation; 16.8~56VDC dual input; -40°C to 70°C; IP44 rated
- **TES-0105T-44-24VI …..……..…….....P/N: 8351-1368**
  5 10/100TX + 1 10/100/1000T EN50155 M12 Ethernet Switch w/ galvanic isolation; 9~36VDC dual input; -20°C to 70°C; IP44 rated
- **TES-0105T-44-24VI-E …..……..…….....P/N: 8351-13681**
  5 10/100TX + 1 10/100/1000T EN50155 M12 Ethernet Switch w/ galvanic isolation; 9~36VDC dual input; -40°C to 70°C; IP44 rated
- **TES-0105T-44-24VI-IGN...……..…….....P/N: 8351-13682**
  5 10/100TX + 1 10/100/1000T EN50155 M12 Ethernet Switch w/ galvanic isolation & ignition; 9~36VDC dual input; -20°C to 70°C; IP44 rated
- **TES-0105T-44-24VI-E-IGN ……..…….....P/N: 8351-13683**
  5 10/100TX + 1 10/100/1000T EN50155 M12 Ethernet Switch w/ galvanic isolation & ignition; 9~36VDC dual input; -40°C to 70°C; IP44 rated
- **TES-0105T-44-24TVI …..……..…….....P/N: 8351-13684**
  5 10/100TX + 1 10/100/1000T EN50155 M12 Ethernet Switch w/ galvanic isolation; 16.8~56VDC dual input; -20°C to 70°C; IP44 rated

- **TES-0105T-44-24TVI-E…….……..…….....P/N: 8351-13685**
  5 10/100TX + 1 10/100/1000T EN50155 M12 Ethernet Switch w/ galvanic isolation; 16.8~56VDC dual input; -40°C to 70°C; IP44 rated

OPTIONAL ACCESSORIES

M12 Connector & Cable

Connector

- **ECON120005PF** 5 pin M12 (Female) A-coded 180 degree crimp type connector for power supply
- **ECONM12-04A(F)-C-180** 4 pin M12 (Female) A-coded 180 degree crimp type connector for power supply
- **ECONM12-04D(M)-C-180** 4 pin M12 (Male) D-coded 180 degree crimp type connector for data

Cable

- **ECONM12-5P(F)70CM CABLE** 5 pin M12 (Female) A-coded 90 degree cable for power supply, 70cm
- **ECONM12-4P(F)1.5M CABLE** 4 pin M12 (Female) A-coded 90 degree cable for power supply, 150cm
- **ECAB124030MJS** 4 pin M12 (Male) D-coded 180 degree RJ45 STP cable for data, 300cm

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