# T(P)ES-0208T

## 8 10/100TX + 2 10/100/1000T X-coded EN50155 Ethernet Switch (w/8 PoE at/af)

### 24VI/24TVI/WVI model input


- *EN50155/50121-4 and EN45545-2 Fire & Smoke verification*
- *E-marking certificate for vehicle application (24VI model)*
- *Provides M12 connector with IP54 rated protection*
- *Galvanic PoE isolation; Support IEEE802.3at/af up to @30W PoE output w/8 PoE (-8 model)*
- *Dual 16.8~137.5VDC (WVI model) or 9~36VDC (24VI model) or 16.8~56VDC (24TVI model) input selection*
- *Inrush current prevention; polarity reverse protection*
- *ISO16750-2 P5A compliant*
- *Optional copper bypass in case of power failure (one pair)*
- *Wide Operating Temperature from -40℃ to 75℃*

## OVERVIEW

Lantech T(P)ES-0208T (IP54) is a 8 10/100TX + 2 10/100/1000T with M12 connector EN50155 (PoE) unmanaged Ethernet switch for IP54 rated protection, which meets the high reliability requirements demanded by industrial rolling stock applications.

***Up to @30W PoE+ output with 8 PoE ports (-8 model); Dual 24VI/24TVI/WVI input with max PoE budget; inrush current prevention and polarity reverse protection***

The TPES-0208T-8 (IP54) supports IEEE802.3at/af standard which can feed HI-power up to 30W at each PoE port (8 ports in total) for various IP PD devices. The total PoE budget is up to 80W. The redundant power input design prevents inrush current and safeguards against polarity reversal.

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.

***EN50155, EN50121-4, EN45545 verification; High reliability and extended working temperature***

The T(P)ES-0208T (IP54) is designed to meet with critical network environment with IP54 enclosure and M12 connectors for protection against dust and water. It has passed harsh environmental testing to comply with Rolling stock EMI and EMC, environmental shock & vibration and fire & smoke test with EN50155/EN50121-4 and EN45545-2 verification.

For a greater flexibility in application, the T(P)ES-0208T (IP54) supports an extended operating temperature range from -40°C to 75°C.

***E-marking certificate; ISO 16750-2 compliant***

The T(P)GS-0208T is designed to meet a critical network environment with an IP54 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. It is compliant with ISO 16750-2 P5A which protects the switch from being damaged by high voltage that could be found at vehicle cranky start.

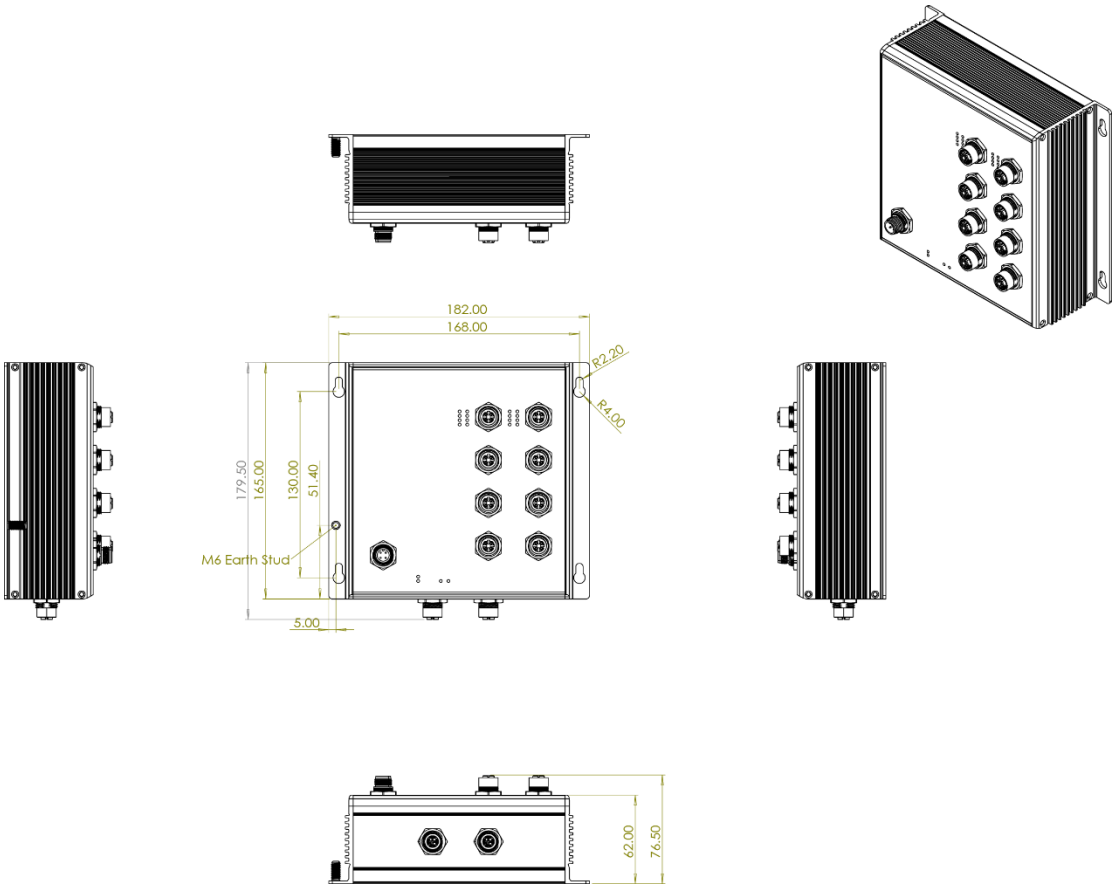
***Optional GigaT bypass***

The optional bypass relay is set to bypass the switch to the next one when power is off in order to protect the network from crashing. Lantech bypass caters to remain in bypass mode until the switch is completely booting up when power is back to avoid another network lost. (-BT model)

## FEATURES & BENEFITS

- 8 10/100TX EN50155 (PoE) Unmanaged Ethernet Switch with M12 connectors and IP54 rated protection
- PoE model: Supports IEEE802.3at/af feeding power up to 30W per PoE port(-8 model)
- Dual power input voltage 9~36VDC for 24VI model and can boost to 54V for PoE 802.3at/af at max 80W budget
- Dual power input voltage 16.8~56VDC for 24TVI model and can boost to 54V for PoE 802.3at/af at max 80W budget
- Dual power input voltage 16.8~137.5VDC for WVI model with PoE budget up to 80W
- Inrush current prevention; polarity reverse protection
- Back-plane (Switching Fabric): 5.6 Gbps
- 16K MAC address table
- Wide Operating Temperature (-40°C ~75°C)
- Din rail** and wall mount design
- Bypass protection** - Bypass failed switch caused by power failure, hanged or link down of switch to protect network (one pair)
- EN50155/50121-4/E-marking and EN45545-2 Fire & Smoke verification

## DIMENSIONS (unit=mm)



# SPECIFICATIONS

## Hardware Specification

| | |
|---|---|
| IEEE Standard | IEEE802.3 10BASE-T Ethernet<br>IEEE802.3u 100BASE-T Ethernet<br>IEEE802.3ab 1000Base-T<br>IEEE802.3x Flow Control and Back Pressure<br>IEEE802.3at/af Power over Ethernet |
| Transfer Rate | 14,880pps for Ethernet port<br>148,800pps for Fast Ethernet port<br>1,488,000pps for Gigabit Ethernet port |
| Mac Address | 16K MAC address table |
| Connector | 10/100TX: 8 x ports M12 4-pole D-coded with Auto MDI/MDI-X function<br>10/100/1000T: 2 x M12, 8-pole X-coded, Female with auto MDI/MDI-X function<br>Power connector: 1 x M12, 4-pole A-coded, Male |
| Network Cable | 10Base-T: 2-pair UTP/STP Cat. 3, 4, 5/ 5E/ 6 cable EIA/TIA-568 100-ohm (100m)<br>100Base-TX: 2-pair UTP/STP Cat. 5/ 5E/ 6 cable EIA/TIA-568 100-ohm (100m)<br>1000Base-TX: 2-pair UTP/STP Cat. 5/ 5E/ 6 cable EIA/TIA-568 100-ohm (100m) |
| LED | Per unit: Power 1 (Green), Power 2 (Green),<br>Ethernet: Link/Activity (Green)<br>PoE: Active (Green) |
| PoE pin assignment | -8 model:<br>M12 port # 1~ # 8 support IEEE 802.3at/af End-point. Per port provides up to 30W (-8 model) |
| Power Supply | WVI: Dual input 16.8V~137.5VDC<br>24VI: Dual input 9~36VDC<br>24TVI: Dual input 16.8~56VDC |
| Power Consumption | 10W without PoE load |
| Power Budget | Total 80W @ 24VDC and above<br>Higher PoE budget can be applied upon request. ** |
| Operating Humidity | 5% to 95% (Non-condensing) |
| Operating Temperature | -40˚C ~ 75˚C (-40˚F ~ 167˚F) |
| Storage Temperature | -40˚C ~ 85˚C (-40˚F ~ 185˚F) |
| Case Dimension | Aluminum case, IP54<br>182mm(W)x179.5mm(H)x76.5mm(D) |
| Weight | 700g |
| Installation | Wall Mount Design |
| EMC | FCC Part 15, Subpart B ICES-003 Issue 7,<br>EN 55035:2017/A11:2020,<br>EN 55032:2015/A11:2020,<br>IEC 61000-4-2:2008,<br>IEC 61000-4-3:2020,<br>IEC 61000-4-4:2012,<br>IEC 61000-4-5:2014+AMD1:2017 CSV,<br>IEC 61000-4-6:2023,<br>IEC 61000-4-8:2009,<br>IEC 61000-6-2:2016,<br>IEC 61000-6-4:2018,<br>EN IEC 61000-6-2:2019,<br>EN IEC 61000-6-4:2019,<br>BS EN 55035:2017+A11:2020,<br>BS EN 55032:2015+A11:2020 |
| Stability Testing | EN 61373:2010 (Shock and Vibration) |
| Verifications & Report | EN 50155:2021,<br>EN 50121-4:2016/A1:2019,<br>EN 50121-3-2:2016/A1:2019,<br>EN 45545-1, EN 45545-2 Fire & Smoke verification |
| Vehicle Certificate | E24 marking (UN ECE R10) (24VI model) |
| MTBF | TBC (IEEE 62830 standards) |
| Warranty | 5 years |
| Bypass** | One pair bypass module on GT Copper ports (P9 & P10) to pass to next switch in case of power failure |

**Optional

# ORDERING INFORMATION

All model packages include M12 caps and wall mount bracket. All standard models are non-coating, optional coating models are available with –C model name. Optional bypass models are available with –BT model name.

- **TPES-0208T-8-54-24VI……P/N: 8360-579**
  8 10/100TX + 2 10/100/1000T M12 IP54 rated EN50155 Unmanaged Ethernet Switch w/8 PoE at/af; -40°C to 75°C; 9~36VDC dual input w/ PoE galvanic isolation
- **TPES-0208T-8-54-24TVI……P/N: 8360-5791**
  8 10/100TX + 2 10/100/1000T M12 IP54 rated EN50155 Unmanaged Ethernet Switch w/8 PoE at/af; -40°C to 75°C; 16.8~56VDC dual input w/ PoE galvanic isolation
- **TPES-0208T-8-54-WVI……P/N: 8360-5792**
  8 10/100TX + 2 10/100/1000T M12 IP54 rated EN50155 Unmanaged Ethernet Switch w/8 PoE at/af; -40°C to 75°C; 16.8~137.5VDC dual input w/ PoE galvanic isolation
- **TES-0208T-54-24VI……P/N: 8360-5793**
  8 10/100TX + 2 10/100/1000T M12 IP54 rated EN50155 Unmanaged Ethernet Switch; -40°C to 75°C; 9~36VDC dual input w/ galvanic isolation
- **TES-0208T-54-24TVI……P/N: 8360-5794**
  8 10/100TX + 2 10/100/1000T M12 IP54 rated EN50155 Unmanaged Ethernet Switch; -40°C to 75°C; 16.8~56VDC dual input w/ galvanic isolation
- **TES-0208T-54-WVI……P/N: 8360-5795**
  8 10/100TX + 2 10/100/1000T M12 IP54 rated EN50155 Unmanaged Ethernet Switch; -40°C to 75°C; 16.8~137.5VDC dual input w/ galvanic isolation

# OPTIONAL ACCESSORIES

## M12 Connector & Cable

**Connector**

| | |
|---|---|
| **ECONM12-04A(F)-C-180** | 4 pin M12 (Female) A-coded 180 degree crimp type connector for power supply |
| **ECONM12-08X(M)-SPEEDCON** | 8 pin M12 (Male) X-coded 180 degree crimp type connector for data, Ethernet CAT6A (10G), shielded, SPEEDCON |

**Cable**

| | |
|---|---|
| **ECONM12-4P(F)1.5M CABLE** | 4 pin M12 (Female) A-coded 90 degree cable for power supply, 150cm |
| **ECABM12X83MSTP** | 8 pin M12 (Male) X-coded 180 degree RJ45 STP cable for data, shielded, 300cm |

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