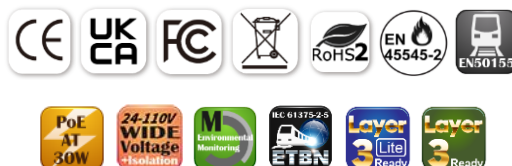


## T(P)ES-L5408MGTA

8 10/100TX + 4 1G/2.5G Copper (w/8 PoE) EN50155 OS3  
Managed Ethernet Switch; WVI / 24VI / 24TVI input



### OVERVIEW

Lantech T(P)ES-L5408MGTA is a high performance OS3 switch with 8 10/100TX + 4 1G/2.5G Copper. PoE model has 8 PoE 802.3af/at ports Ethernet which provides advanced security function for network aggregation deployment.

#### **Up to 8 PoE at/af ports w/advanced PoE management and PoE galvanic isolation; Ethernet power input galvanic isolation**

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. It supports advanced PoE management including PoE detection and scheduling. PoE detection can detect if the connected PD hangs then restart the PD; PoE scheduling is to allow pre-set power feeding schedule upon routine time table. Each PoE ports can be Enabled/disabled, get the voltage, current, Watt, and temperature info displayed on WebUI.

Galvanic isolation between power input and Ethernet power system, also the PoE galvanic isolation provides insulation between the power input to PoE Ethernet ports, preventing cabling and grounding incidents from damaging the Ethernet switch. The efficiency of the galvanically decoupled voltage converters can reach above 90%.

#### **Lantech OS3 Platform with complete L2 management and upgradable optional L3 & communication protocols**

The switch runs Lantech OS3 platform which is powerful with complete Layer 2 management features and optional upgradable for future expansion, such as Layer 3 Lite, Layer 3, IEC61375-2-5 (ETBN), etc. To learn more about the Lantech OS3 Platform, please refer to [Lantech OS3/OS4 Software Datasheet](#)

#### **Enhanced cybersecurity features with IEC 62443-4-1 certification**

Lantech OS3 platform is designed with high standard of cybersecurity to prevent the threats from network attack such as DDoS attacks. To ensure the safety and reliability of communication networks, Lantech develops our products

under strict international security standard and is certified with IEC 62443-4-1 network security standard. To learn more about Lantech cybersecurity software solution, please refer to [Lantech OS3/OS4 Software Datasheet](#)

#### ***Miss-wiring avoidance, node failure protection, Loop protection***

The switch also embedded several features for strong and reliable network protection in an easy and intuitive way. When the pre-set ring configuration failed or looped by miss-wiring, the switch being able to alert with the LED indicator and disable ring automatically. Node failure protection ensures the switches in a ring to survive after power breakout is back. The status can be shown in NMS when each switch is back. Loop protection is also available to prevent the generation of broadcast storm when a dumb switch is inserted in a closed loop connection.

#### ***User friendly GUI, Auto topology drawing, Enhanced Environmental Monitoring***

The user-friendly UI, innovative auto topology drawing and topology demo makes the switch much easier to get hands-on. The complete CLI enables professional engineer to configure setting by command line. It supports enhanced environmental monitoring for actual input voltage, current, ambient temperature and total power load.

#### ***Built-in IEC 61375-3-4 ECN (Ethernet Consist Network) to work with IEC61375-2-5 TBN***

Lantech OS3 Ethernet switches comply with IEC 61375-3-4 (ECN) standard. The support of Ethernet Consist Network allows interconnection between end devices located in single consist of train and interoperability with IEC61375-2-5 (TBN).

#### ***Editable configuration file; USB port for import/export configuration***

The configuration file of the switch can be imported and edited with word processor for the following switches to configure with ease. The USB port can import/export the configuration from/to USB dongle and also to upgrade firmware from USB dongle. TFTP/HTTP firmware upgrade is supported.

#### ***Event log & message; 2DI + 2DO; Factory default pin***

The switch provides 2DI and 2DO. When disconnection of the specific port was detected; DO will activate the signal LED to alarm. DI can integrate the sensors for events and DO will trigger the outside alarm and switch will send alert information to IP network with traps. The factory reset pin can restore the setting back to factory default.

#### ***Optional smart bypass protection on dual 1G/2.5G copper ports***

The bypass relay is set to bypass the switch to the next one when power is off to prevent network disruption. Lantech bypass caters to remain in bypass mode until the switch is completely booting up when power is back to avoid another network lost. Optional smart bypass (Up to two pairs) can be activated when switch encounters power failure. (-BT/-BBT model)

#### ***Dual WVI / 24VI / 24TVI input with max PoE budget and Inrush current protection***

The switch accept 16.8~137.5VDC (WVI model) ; 9~36VDC (24VI models) ; 16.8~56VDC (24TVI model) dual input with Ethernet and PoE galvanic isolation and PoE model can feed 54V output for PoE feeding with 80W budget(standard model) or 120W budget (120W model). The inrush current on initial power up can be limited lower than 10 x nominal current.

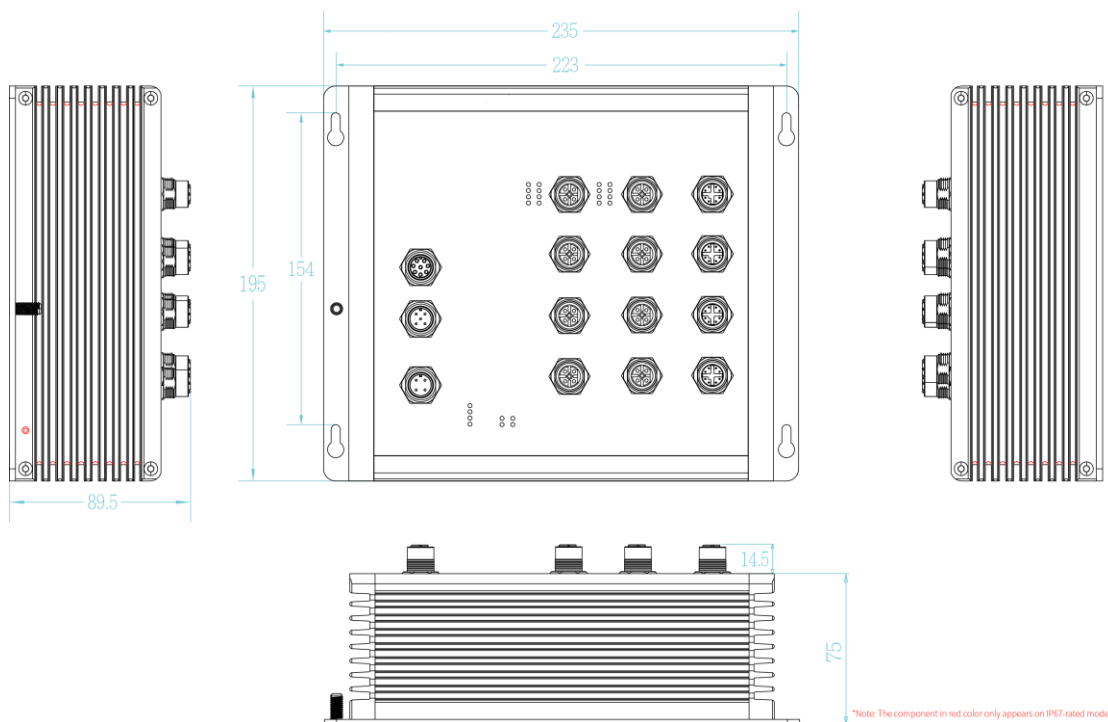
#### ***EN50155, EN45545-2; EN61373 compliance; Rugged design with high ESD protection***

The switch is designed to meet with critical network environment with IP54/IP67 aluminum enclosure and M12 connectors for water proof. The switch passed serious tests under extensive Industrial EMI and Safety standards. With EN45545-2 Fire & Smoke and EN50155 verification, it is best switch for railway on-board/track side, vehicle, and mining applications. For more usage flexibilities, the switch supports wide operating temperature from -40°C to 70°C (85°C operation for 10min), which is compliant with the EN50155 Operating Temperature Range Requirement

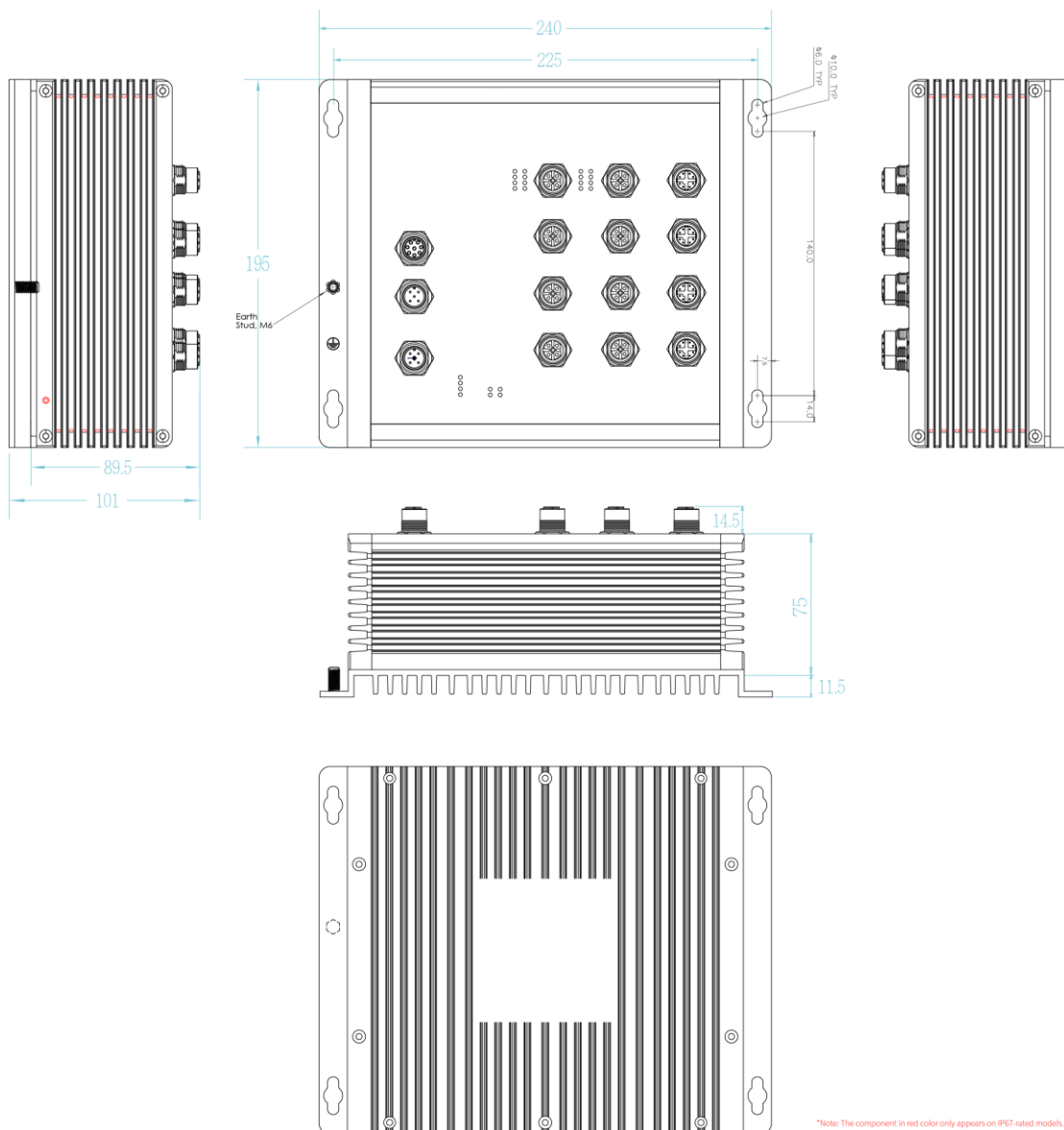
Class OT4.

## DIMENSIONS (unit=mm)

Standard model



120W model



## SPECIFICATIONS

### Hardware Specification

| Standards |  |
|-----------|--|
|           | IEEE802.3 10Base-T Ethernet                          |
|           | IEEE802.3u 100Base-TX                                |
|           | IEEE802.3ab 1000Base-T                               |
|           | IEEE802.3an 10GBase-T                                |
|           | IEEE802.3ae 10G Fiber                                |
|           | IEEE802.3x Flow Control and Back Pressure            |
|           | IEEE802.3ad Port trunk with LACP                     |
|           | IEEE802.1d Spanning Tree                             |
|           | IEEE802.1w Rapid Spanning Tree                       |
|           | IEEE802.1s Multiple Spanning Tree                    |
|           | IEEE802.3ad Link Aggregation Control Protocol (LACP) |
|           | IEEE802.1AB Link Layer Discovery Protocol (LLDP)     |
|           | IEEE802.1X User Authentication (Radius)              |
|           | IEEE802.1p Class of Service                          |
|           | IEEE802.1Q VLAN Tag                                  |
|           | IEEE802.3at/af Power over Ethernet                   |

|                     |   |
|---------------------|---|
| Switch Architecture | Back-plane (Switching Fabric): 21.6Gbps   |
| Mac Address         | 16K MAC address table   |
| Jumbo frame         | 10KB  |
| Connectors          | 10/100TX: 8 x M12 4-pole D-coded with Auto MDI/MDI-X function<br>1G/2.5G Copper: 4 x M12 8-pole X-coded with Auto MDI/MDI function<br>Power Input connector:<br>1x M12 4-pole A-coded Male (Standard model)<br>1x M12 4-pole T-coded Male (120W model)<br>Reset/Console/USB: 1 x M12 8-pole A-coded<br>DIDO: 1 x M12 5-pole A-coded |
| Network Cable       | 10Base-T: 2-pair STP Cat. 3, 4, 5/ 5E/ 6 cable<br>EIA/TIA-568 100-ohm (100m)<br>100Base-TX: 2-pair STP Cat. 5/ 5E/ 6 cable;<br>EIA/TIA-568 100-ohm (100m)<br>1000Base-T: 4-pair STP Cat5E/6 cable   |
| LED                 | Per unit: Power 1 (Green), Power 2 (Green),   |

\*Note: The component in red color only appears on IP67-rated models.

|                                |  |
|--------------------------------|--|
|                                | FAULT (Red); RM(Green)<br>10/100TX Ethernet port: Link/Activity (Green)<br>1G/2.5G copper: Link/Act (Yellow)<br>PoE: Link/Act (Green) (PoE model)  |
| DI/DO                          | 2 Digital Input (DI):<br>Level 0: -30~2V / Level 1: 10~30V<br>Max. input current:8mA<br>2 Digital Output (DO): Open collector to 80 VDC, 50mA  |
| Operating Humidity             | 5% ~ 95% (Non-condensing)  |
| Operating Temperature          | -40°C~70°C / -40°F~158°F (85°C operation for 10min.)   |
| Storage Temperature            | -40°C~85°C / -40°F~185°F   |
| Power Supply                   | Dual DC input<br>16.8~137.5VDC (WVI model) ;<br>9~36VDC (24VI model) ;<br>16.8~56VDC (24TVI model)<br>(PoE galvanic isolation for PoE models;<br>Ethernet galvanic isolation for all models) |
| PoE Budget (PoE model)         | 80W@24VDC (standard model)<br>120W@24VDC (-120W model)   |
| PoE pin assignment (PoE model) | M12 port #1~#8 (-8 model) support IEEE 802.3 at/af End-point, Alternative A mode   |
| Power Consumption              | Max. 14.9W exclude PoE load  |
| Case Dimension                 | IP54/IP67 model: Aluminum case<br>235mm(W)x195mm(H)x89.5mm(D) (Standard  |

|                               |  |
|-------------------------------|--|
|                               | model)<br>240mm(W)x195mm(H)x101mm(D) (-120W model)   |
| Weight                        | 2.65kgs  |
| Installation                  | Wall Mount   |
| EMI & EMS                     | FCC Part 15 Class A,<br>IEC/EN61000-6-2<br>CE EN55032 Class A<br>CE EN55024<br>CE EN61000-4-2 (ESD) Level 3<br>CE EN61000-4-3 (RS) Level 3<br>CE EN61000-4-4 (EFT) Level 3<br>CE EN61000-4-5 ED3 (Surge) Level 3<br>CE EN61000-4-6 (CS) Level 3<br>CE EN61000-4-8 (Magnetic field) Level 3 |
| Verifications                 | EN50155/EN50121-3-2/EN50121-4/IEC61373;<br>EN45545-1, EN 45545-2 Fire & Smoke verification   |
| Stability Testing             | EN61373 (Shock and Vibration)  |
| MTBF                          | 613,681hrs (standards: IEC 62380)  |
| Warranty                      | 5 years  |
| Bypass**                      | Up to two pairs bypass module on 1G/2.5G Copper ports to pass to next switch in case of power failure  |
| <b>Software Specification</b> |  |
| Lantech OS3 Platform          | <a href="#">Download Software Datasheet</a>  |

\*Future release  
\*\*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. For optional bypass add -BT (one pair); -BBT (two pairs) to end of model names. For 120W PoE budget add -120W to model name.

- **TPES-L5408MGTA-8-54-WVI.....P/N: 8361-538**  
8 10/100TX + 4 1G/2.5G Copper M12 X-coded; w/8 PoE at/af EN50155 OS3 Managed Ethernet Switch; 16.8~137.5V input; -40°C to 70°C; IP54 housing w/ PoE galvanic isolation
- **TPES-L5408MGTA-8-54-WVI-BT.....P/N: 8361-5381**  
8 10/100TX + 4 1G/2.5G Copper M12 X-coded; w/8 PoE at/af EN50155 OS3 Managed Ethernet Switch; 16.8~137.5V input ; -40°C to 70°C; IP54 housing w/ PoE galvanic isolation; one-pair copper bypass
- **TPES-L5408MGTA-8-54-WVI-BBT.....P/N: 8361-5382**  
8 10/100TX + 4 1G/2.5G Copper M12 X-coded; w/8 PoE at/af EN50155 OS3 Managed Ethernet Switch; 16.8~137.5V input ; -40°C to 70°C; IP54 housing w/ PoE galvanic isolation; two-pairs copper bypass
- **TES-L5408MGTA-54-WVI.....P/N: 8361-5383**  
8 10/100TX + 4 1G/2.5G Copper M12 X-coded; EN50155 OS3 Managed Ethernet Switch; 16.8~137.5V input; -40°C to 70°C; IP54 housing w/ galvanic isolation
- **TES-L5408MGTA-54-WVI-BT.....P/N: 8361-53831**  
8 10/100TX + 4 1G/2.5G Copper M12 X-coded; EN50155 OS3 Managed Ethernet Switch; 16.8~137.5V input ; -40°C to 70°C; IP54 housing w/ galvanic isolation; one-pair copper bypass
- **TES-L5408MGTA-54-WVI-BBT.....P/N: 8361-53832**  
8 10/100TX + 4 1G/2.5G Copper M12 X-coded; EN50155 OS3 Managed Ethernet Switch; 16.8~137.5V input ; -40°C to 70°C; IP54 housing w/ galvanic isolation; two-pairs copper bypass
- **TPES-L5408MGTA-8-67-WVI.....P/N: 8361-5386**  
8 10/100TX + 4 1G/2.5G Copper M12 X-coded; w/8 PoE at/af EN50155 OS3 Managed Ethernet Switch; 16.8~137.5V input; -40°C to 70°C; IP67 housing w/ PoE galvanic isolation
- **TPES-L5408MGTA-8-67-WVI-BT.....P/N: 8361-53861**  
8 10/100TX + 4 1G/2.5G Copper M12 X-coded; w/8 PoE at/af EN50155 OS3 Managed Ethernet Switch; 16.8~137.5V input ; -40°C to 70°C; IP67 housing w/ PoE galvanic isolation; one-pair copper bypass
- **TPES-L5408MGTA-8-67-WVI-BBT.....P/N: 8361-53862**  
8 10/100TX + 4 1G/2.5G Copper M12 X-coded; w/8 PoE at/af EN50155 OS3 Managed Ethernet Switch; 16.8~137.5V input ; -40°C to 70°C; IP67 housing w/ PoE galvanic isolation; two-pairs copper bypass
- **TES-L5408MGTA-67-WVI.....P/N: 8361-5385**  
8 10/100TX + 4 1G/2.5G Copper M12 X-coded; EN50155 OS3 Managed Ethernet Switch; 16.8~137.5V input; -40°C to 70°C; IP67 housing w/ galvanic isolation
- **TES-L5408MGTA-67-WVI-BT.....P/N: 8361-53851**  
8 10/100TX + 4 1G/2.5G Copper M12 X-coded; EN50155 OS3 Managed Ethernet Switch; 16.8~137.5V input ; -40°C to 70°C;

- IP67 housing w/ galvanic isolation; one-pair copper bypass

■ **TES-L5408MGTA-67-WVI-BBT.....P/N: 8361-53852**  
8 10/100TX + 4 1G/2.5G Copper M12 X-coded; EN50155 OS3 Managed Ethernet Switch; 16.8~137.5V input ; -40°C to 70°C; IP67 housing w/ galvanic isolation; two-pairs copper bypass
- **TPES-L5408MGTA-8-54-24VI.....P/N: 8361-53801**  
8 10/100TX + 4 1G/2.5G Copper M12 X-coded; w/8 PoE at/af EN50155 OS3 Managed Ethernet Switch; 9~36V input; -40°C to 70°C; IP54 housing w/ PoE galvanic isolation
- **TES-L5408MGTA-54-24VI.....P/N: 8361-53833**  
8 10/100TX + 4 1G/2.5G Copper M12 X-coded; EN50155 OS3 Managed Ethernet Switch; 9~36V input; -40°C to 70°C; IP54 housing w/ galvanic isolation
- **TPES-L5408MGTA-8-67-24VI.....P/N: 8361-53863**  
8 10/100TX + 4 1G/2.5G Copper M12 X-coded; w/8 PoE at/af EN50155 OS3 Managed Ethernet Switch; 9~36V input; -40°C to 70°C; IP67 housing w/ PoE galvanic isolation
- **TES-L5408MGTA-67-24VI.....P/N: 8361-53853**  
8 10/100TX + 4 1G/2.5G Copper M12 X-coded; EN50155 OS3 Managed Ethernet Switch; 9~36V input; -40°C to 70°C; IP67 housing w/ galvanic isolation
- **TPES-L5408MGTA-8-54-24TVI.....P/N: 8361-53802**  
8 10/100TX + 4 1G/2.5G Copper M12 X-coded; w/8 PoE at/af EN50155 OS3 Managed Ethernet Switch; 16.8~56V input; -40°C to 70°C; IP54 housing w/ PoE galvanic isolation
- **TES-L5408MGTA-54-24TVI.....P/N: 8361-53834**  
8 10/100TX + 4 1G/2.5G Copper M12 X-coded; EN50155 OS3 Managed Ethernet Switch; 16.8~56V input; -40°C to 70°C; IP54 housing w/ galvanic isolation
- **TPES-L5408MGTA-8-67-24TVI.....P/N: 8361-53864**  
8 10/100TX + 4 1G/2.5G Copper M12 X-coded; w/8 PoE at/af EN50155 OS3 Managed Ethernet Switch; 16.8~56V input; -40°C to 70°C; IP67 housing w/ PoE galvanic isolation
- **TES-L5408MGTA-67-24TVI.....P/N: 8361-53854**  
8 10/100TX + 4 1G/2.5G Copper M12 X-coded; EN50155 OS3 Managed Ethernet Switch; 16.8~56V input; -40°C to 70°C; IP67 housing w/ galvanic isolation

## OPTIONAL ACCESSORIES

### Software package

Please refer to the [software datasheet](#)

### M12 Connector & Cable

#### Connector

- **ECONM12-04A(F)-C-180** 4 pin M12 (Female) A-coded 180 degree crimp type connector for power supply
- **ECONM12-08A(M)-180** 8 pin M12 (Male) A-coded 180 degree crimp type connector for reset/console/USB
- **ECONM12-05A(M)-C-180** 5 pin M12 (Male) A-coded 180 degree crimp type connector for DI/DO
- **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
- **ECONM12-08M2-CONSOLE** 8 pin M12 (Male) A-coded 180 degree to RS232 cable for console, 150cm
- **ECABM12X83MSTP** 8 pin M12 (Male) X-coded 180 degree RJ45 STP cable for data, shielded, 300cm

#### Others

- **M12 to USB interface adapter** 8 pin M12 (Male) A-coded 180 degree M12 to USB 2.0 interface adapter, 8cm
- **USB 2.0 Ethernet Adapter** USB 2.0 to RJ45 Ethernet Adapter
- **ECONM12-08(M) TO DB9+USB2.0-1.5M CABLE** 8 pin M12 (Male) A-coded 180 degree M12 to USB2.0 to DB9 (Female) cable, 150cm

**Lantech Communications Global Inc.**  
www.lantechcom.tw  
info@lantechcom.tw

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