An IRIS Certification-certified company

www.lantechcom.tw

Lantech™

2020
PRODUCT GUIDE

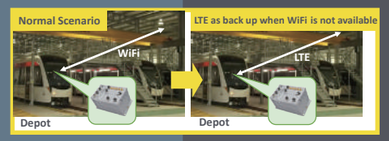
CASE REFERENCES

Developed by CAF, the train adopted Lantech switches for in-train CCTV, PIS, Wi-Fi hotspot & passenger entertainment system
Model: IES-5408T-43

HD Traffic Monitoring & Smart Control System in Southern Taiwan Science Park
Model: IPGS-6416XSFP-16-48V-E

CPTM Train Project in São Paulo
Model: IPES-5408T-67-72V/110V, IPES-5416T-8-67-72V/110V

ITS system in Medan & Surakarta: Installed in the node controllers and control centers
Model: IES-3408GSFP



CCTV, audio, and data transmission / backup via Lantech multifunction LTE + Wi-Fi router on Sydney Metro
Model: TWMR-5002-1L-1AC-WV

ABOUT LANTECH

With a long background in IP Ethernet products, Lantech brings the best network solutions for industrial and IP networks to the marketplace. The Lantech group is devoted to providing end user benefits & feature rich innovative high-quality networking solutions. We provide outstanding service and support to our world-wide partners & distribution network. Lantech provides high quality products with customer-focused services from our sales offices located in Taiwan, Germany, UK and Singapore.

Our core values are based on our firmware modularity development to meet with special requirement of projects as well as the continuous improvement of hardware to cope with different levels of certificate and criteria for various harden applications including rollingstock railway, trackside, vehicle, transportation, maritime, offshore, power substation, industrial surveillance. PoE(power over Ethernet) is one of key advantage solution which Lantech is good at DC-DC conversion built-in the switch and router that could have greater PoE budget and wider input voltage range.

Lantech products are successfully deployed around the world and used in all types of applications, including bus system in Spain, tram system in Finland, train in France and Germany, outdoor wireless surveillance system in Malaysia, military truck system in Vietnam, traffic networks in the UK and city surveillance system in Romania, etc.

As an IRIS-certified company, Lantech ensures that the quality of our products and services meets the high standards required by our customers worldwide and are suitable for use in the rail industry.

Quality Policy

Technical Innovation
Sustainable Improvements
Customer Satisfaction
Grow Responsibly with Suppliers

Safety Policy

Create Safety Awareness
Implement Safety Training
Guarantee Safe Operations
Provide Safe Products

afaq ISO 9001 Quality AFNOR CERTIFICATION

IRIS Certification

TAIWAN QUALITY 5 YEAR WARRANTY

*Industrial-grade products

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Hardened Ethernet Connections

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On-board Networking Switches for TCMS Communications

R-NAT &TTDP

R-NAT & TTDP are defined in IEC 61375 to build an Ethernet based TCN (Ethernet Consist Network) for TCMS (Train Control and Management System).

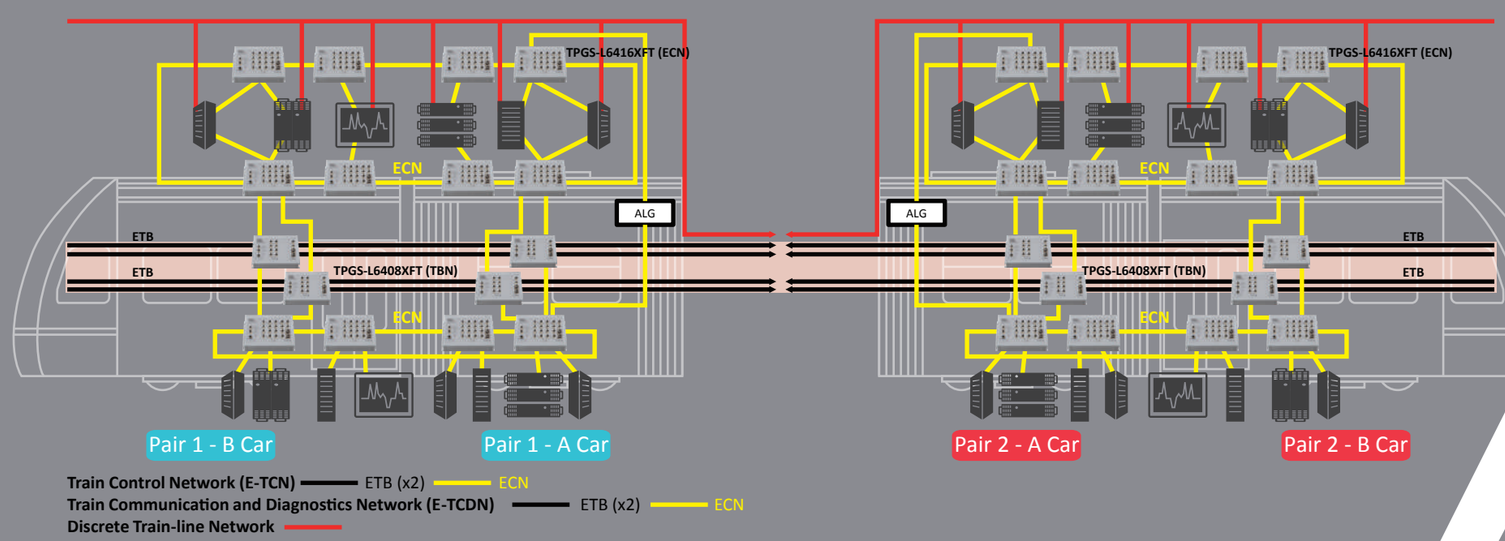
IEC 61375 2-5/3-4

The support of ECN (Ethernet Consist Network) allows interconnection between end devices located in single consist of train and interoperability with IEC 61375-2-5 (TBN).

10G Fiber or Copper

Lantech EN50155 Ethernet switches come with up to 6-port 10GbE speed uplink make the series so powerful for rail applications.

- Optional Railway Network Address Table (R-NAT) for OS4 models
- Smart Bypass Protection
- EN 50155:2017, EN 50121-4, EN 55032 and EN45545-2
- Wide Voltage Input 16.8~137.5VDC w/ Isolation
- Inrush Current Limit
- Up to 80W PoE w/PoE & System Isolation



Product Selection

TPGS-R6616XFT

16 10/100/1000T PoE at + 4 10G copper + 2 10G Q-ODC fiber OS4 EN50155 Managed Switch

TPES-L6424XFT

24 10/100TX (PoE at) + 2 10G copper + 2 10G Q-ODC fiber OS3 EN50155 Managed Switch

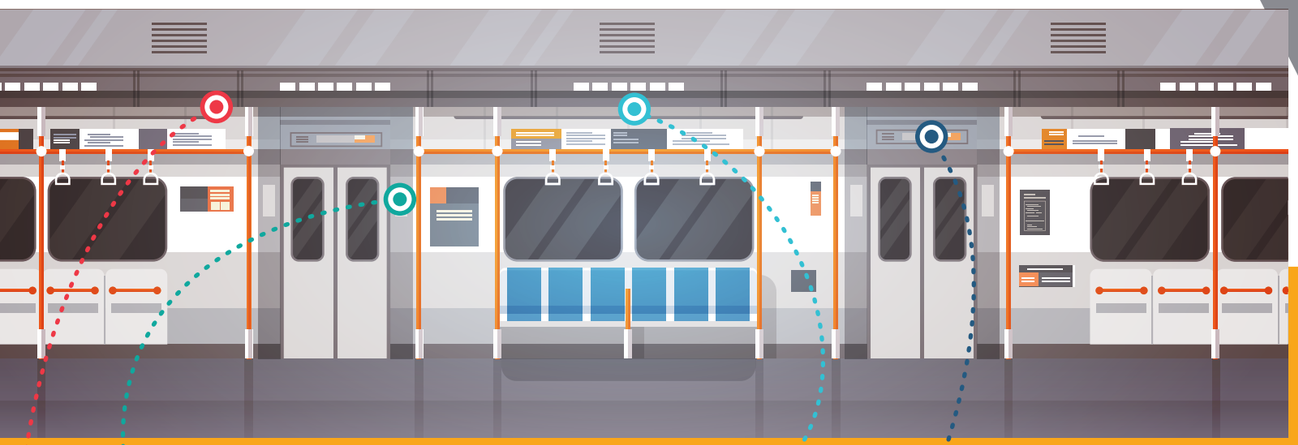
TPGS-L6416XFT

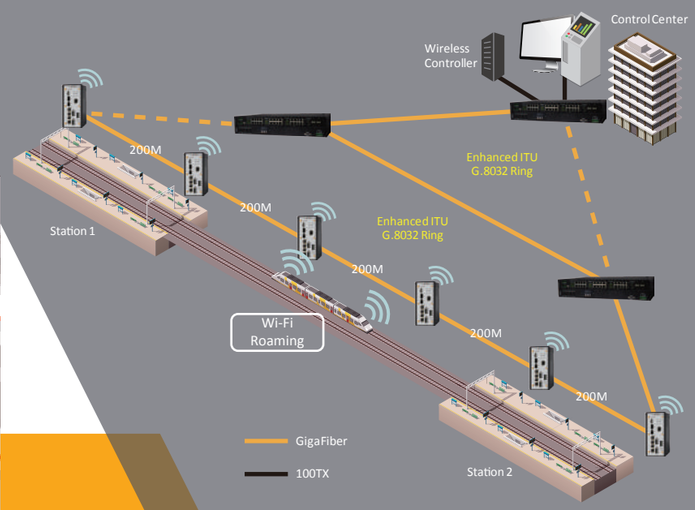
8 10/100/1000T PoE at + L2+ EN50155 Managed Switch

TPGS-L6408XFT

8 10/100TX PoE at + 4 10/100/1000T L2+ EN50155 Managed Switch

On-board / Trackside Networking Multi-function Routers





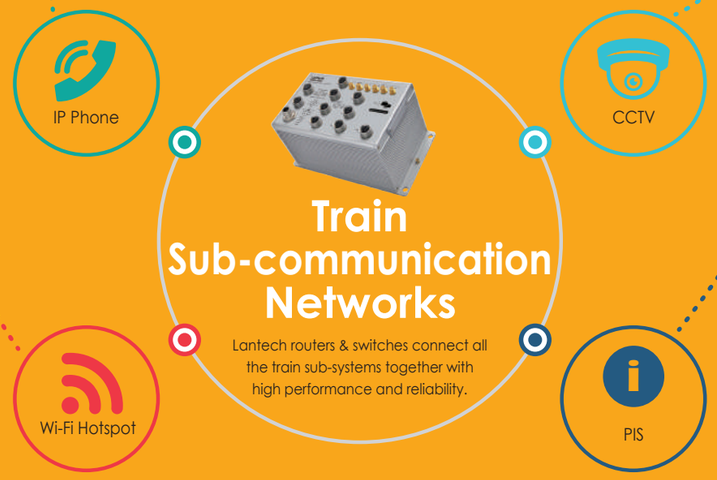
BEST FOR TRACKSIDE

802.11s
Wireless Mesh Network

MESH

&

Fiber Connection



Train Sub-communication Networks

Lantech routers & switches connect all the train sub-systems together with high performance and reliability.

Features at a glance

Lantech Multi-function Routers

Wi-Fi
- Wireless Roaming with 802.11k & v
- Advanced security & 16 SSIDs
- IEEE 802.11ac Dual Band Operation
- 802.11s Wireless Mesh Network

LTE
- Dual Concurrent LTE Design 4G/3G
- eSIM Chip Built-in

Software
- Multisite VPN, OpenVPN and Firewall
- Managed Switch Built-in
- Load Balancing

Hardware
- Galvanic Isolation, Wide Input Voltage
- USB Port for Configuration
- Optional EMMC Flash Storage**
- Ignition Sensing
- Serial Ports: Modbus Gateway

**Optional

Product Selection

TWMR-5208MGF

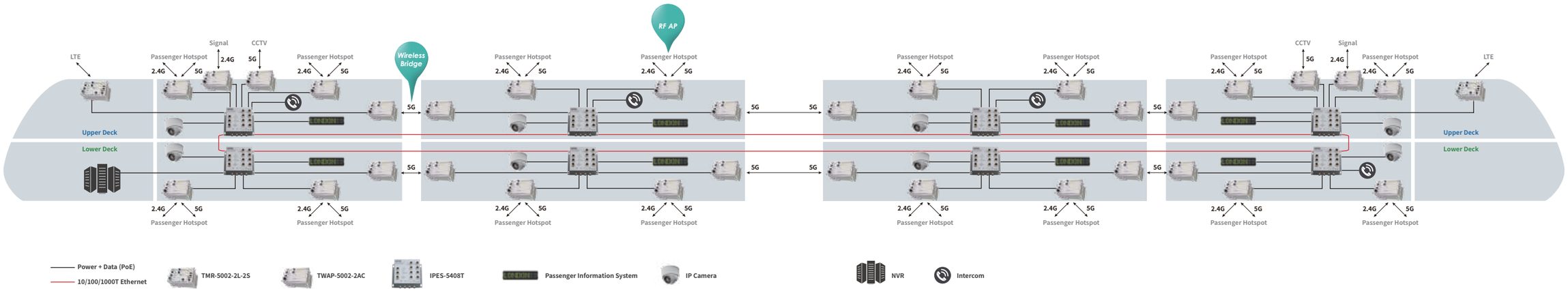
EN50155 Multifunction VPN Router w/1x WiFi 11ac
+ 1 LTE 4G + 8 GigaT + 2 1G/2.5G Fiber + 2 copper WAN

TWMR-5006

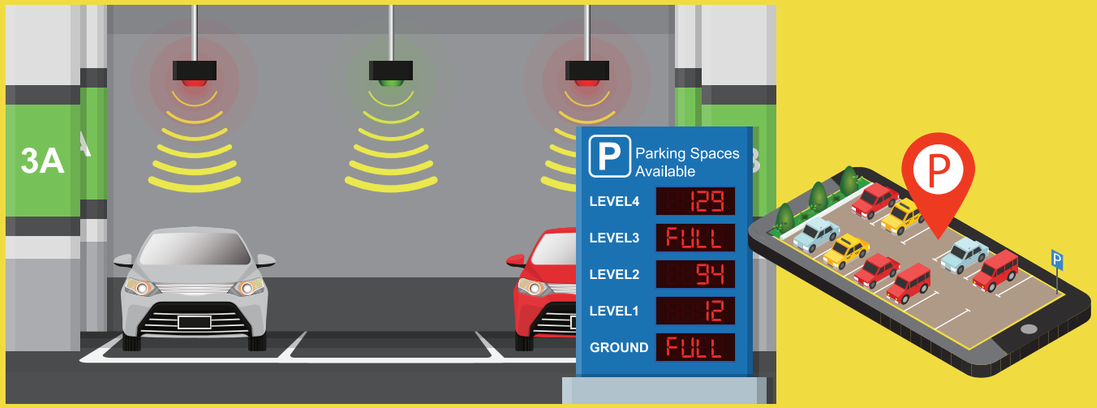
EN50155 Multifunction VPN Router
w/1x WiFi 11ac + 1 LTE 4G + 2 serial ports
+ 6 Gigabit X-coded Ethernet Switch

IWMR-3204DF

Industrial Multifunction VPN Router w/up to
2x WiFi 11ac + up to 2 LTE 4G + 2 serial ports
+ 4 Gigabit Ethernet + 2 Dual Speed SFP Switch



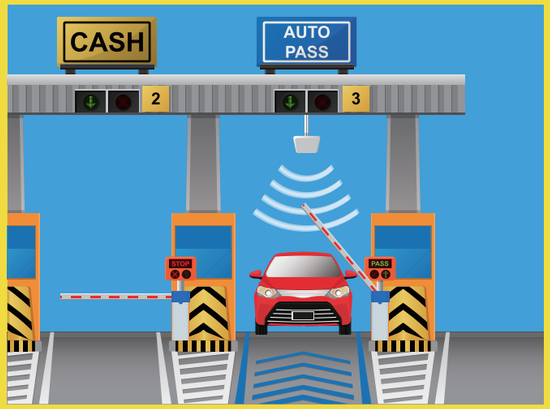
Intelligent Transportation System



√ Parking Guidance Info

√ Real-time Parking App

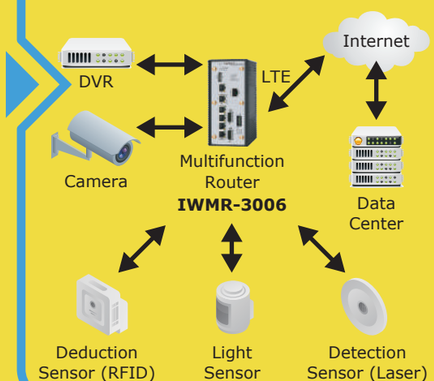
√ Surveillance



√ RFID Tolling System

√ Traffic Analysis

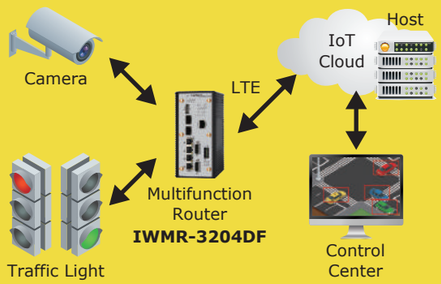
√ Traffic Monitoring

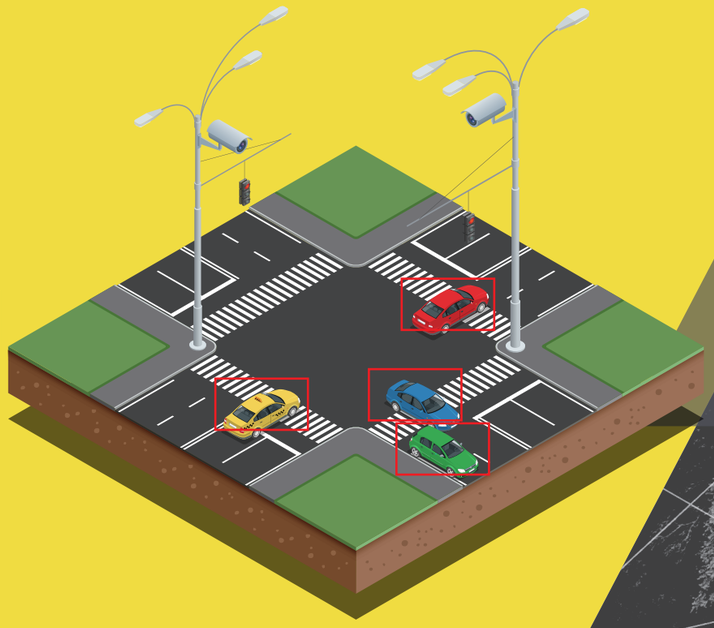


√ Traffic Light Control System

√ Traffic Analysis

√ Traffic Monitoring





Product Selection

IWMR-3204DF

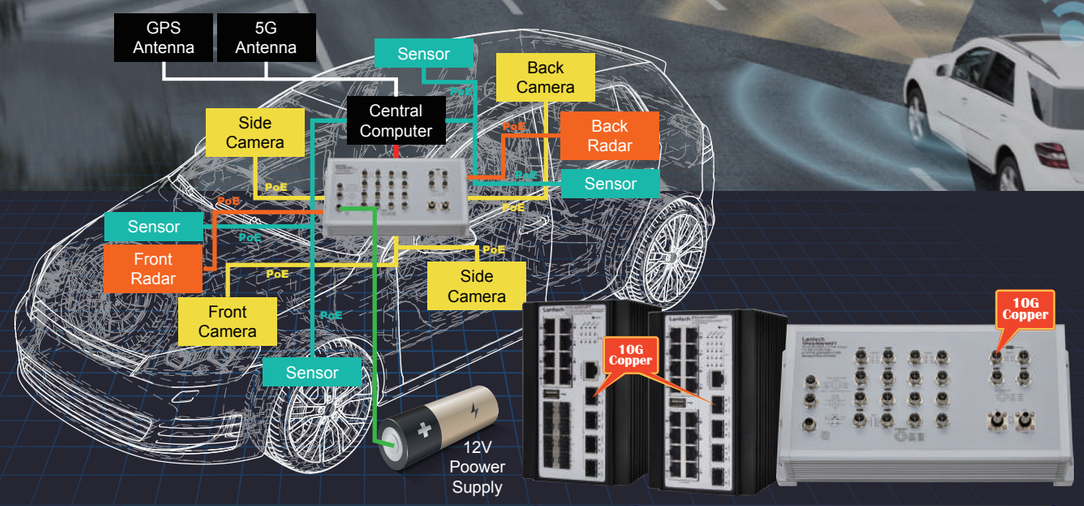
Industrial Multifunction VPN Router w/up to 2x WiFi 11ac + up to 2 LTE 4G + 2 serial ports + 4 Gigabit Ethernet + 2 Dual Speed SFP Switch

IPGS-3408GSFP

8 10/100/1000T PoE at + 4 1000M SFP L2+ Industrial Managed Ethernet Switch

Autonomous Car

"Data transmission between 4K/8K camera, 360 degree camera, sensor, radar, GPS and inertial measurement units"



Lantech DIN-Rail 10G Uplinks Managed Ethernet Switches

- 4 x 10G Uplinks Fiber or Copper*
- Optional L3/L3 lite Capacity
- USB Port for Backup and Configuration
- Built-in Power Converter (12VDC input / 24VDC input)
- Feed 30W Power – 802.3at Standard (PoE models)
- Configurable Power Budget (240W@48V; 120W@24V; 80W@12V)
- PoE Detection and Scheduling
- Built-in Environmental Monitoring
- Wide range operation temperature: -40~75°C/-40~167°F
- Fan-less design

*10G copper SFP: only used from 18V~57VDC power input, maximum two ports

Lantech EN50155 10G Uplinks Managed Ethernet Switches

- IP54/21-rated Aluminum Housing
- Inrush Current Limit
- L2+ or L3 Lite Management
- EN 50155 / EN 45545-2 Certified
- Wide Voltage 16.8~137.5VDC Isolated Input w/ PoE 80W Budget
- PoE Detection and Scheduling
- Built-in Environmental Monitoring
- Wide range operation temperature: -40~75°C/-40~167°F
- Fan-less design

Bus Communications System

Lantech Industrial 7-in-1 Multi-function Routers

- Wi-Fi 802.11ac
- LTE
- Storage
- PoE
- Gateway
- VPN
- Managed Switch

Lantech E-Marking Certified Ethernet Switches

E4

I(P)ES-0005B
5 10/100TX
(PoE at) EN50155
Unmanaged Switch

I(P)ES-0008B
8 10/100TX
(PoE at) EN50155
Unmanaged Switch

E13

IES-0016
16 10/100TX
Industrial
Unmanaged
Switch

I(P)GS-0008B
8 10/100/1000T
(PoE) Industrial
Unmanaged
Ethernet Switch

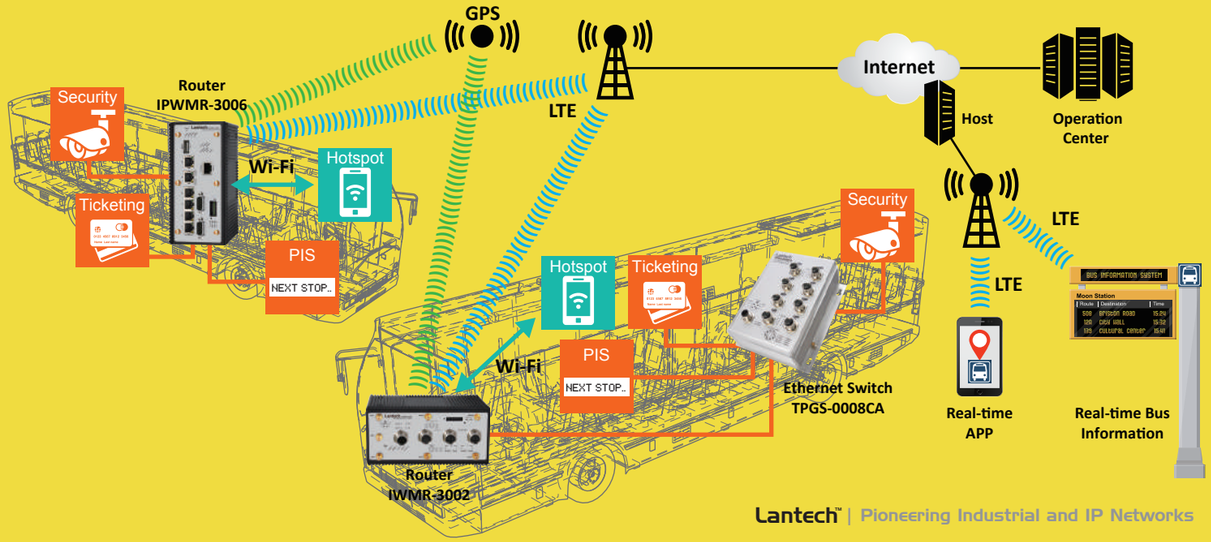
I(P)ES-0008B
8 10/100TX
(PoE) Industrial
Unmanaged
Ethernet Switch

Lantech ITxPT Compliant Ethernet Switches

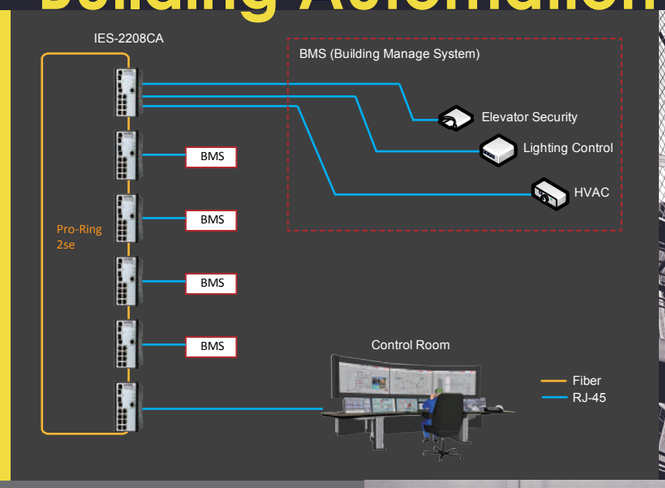
ITXPT INFORMATION TECHNOLOGY for PUBLIC TRANSPORT

T(P)GS-0008CA
8 10/100/1000T
(PoE at) EN50155
Unmanaged Switch

T(P)ES-0008CA
8 10/100TX
(PoE at) EN50155
Unmanaged Switch



Building Automation



Challenges

Historically, building owners in the market for a new Building Management Systems (BMS) have been forced to choose between one of several proprietary equipment manufacturers. Normally BMS equipment is fitted in compact wall mounted control cabinets that are distributed around the building, with most devices being DIN Rail mounted.

Our Solutions

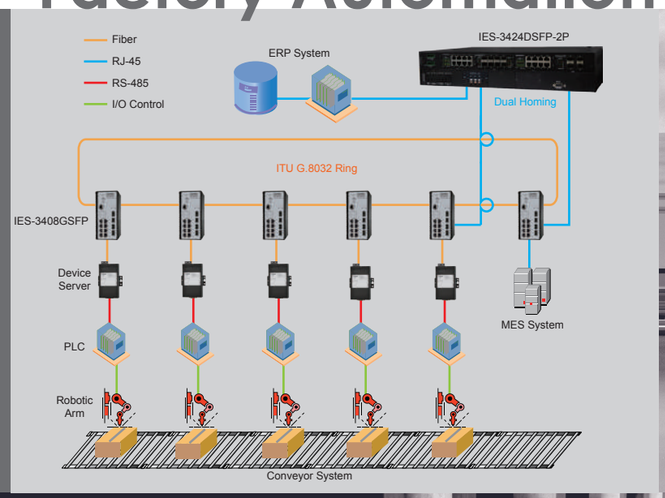
The use of TCP/IP for BMS system communications has brought about increased choice in selecting products from different vendors in the same BMS system and reducing the associated cabling and network hardware costs. For cable runs which exceed the 100 meter limitation of Cat5e or for links between different buildings, a fiber optic link is the ideal solution.

IES-2208CA

8 10/100TX + 2 10/100/1000T/
Dual Speed SFP Combo
Industrial Managed Switch

- 100M/1000M Dual Speed SFP Fiber
- Pro-Ring 2se covers Single-Ring Topology
- Wide operating temperature range from -40°C to 75°C

Factory Automation



Challenges

The most dynamic and challenging part for factory automation floor network is redundancy and real-time. Factory automation needs to be absolutely accurate because any interruption or delay could result in huge amount of lost, especially when the operation is non-stop, 7/24/365. On the other hand, to satisfy the rapid changing industry environment, manufacturing process must have high flexibility than before.

Our Solutions

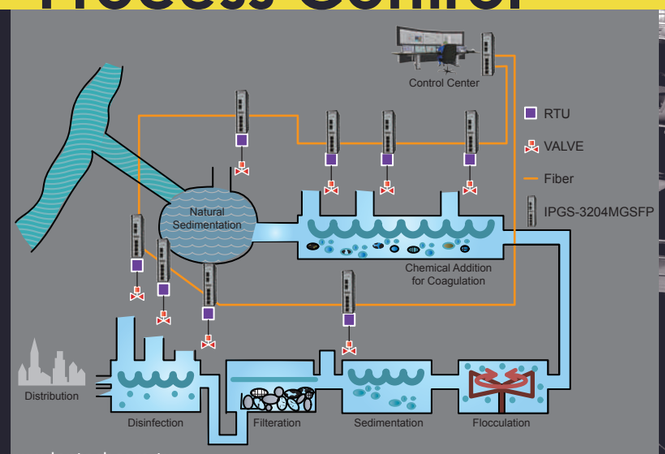
Based on IP protocol, managers are able to control equipments and transmit data to SCADA, where connects with database and then generate statistic data for monitoring the operating status. As the equipments are all utilizing IP protocol and connect to the Ethernet, it's easier to integrate and change configuration through Internet. By collocating with Ethernet switches, managers are able to monitor the status, detect the failure, and solve the problem immediately.

IES-3408GSFP

4 1000FX + 8 10/100TX
L2+ Managed Ethernet Switch

- Wide range dual DC powered input with galvanic isolation
- Enhanced G.8032 ring protection
- Wide operating temperature range from -40°C to 70°C

Process Control



Challenges

Water treatment process is essential for modern life to make water more acceptable and eliminating bad residues existing in many public sanitation systems then to return water back into natural environment without ecological impacts for the use of drinking water, industrial process, medical, hotel process and others.

Our Solutions

Using the industrial Ethernet network is the most convenient and reliable solution for water treatment system to connect with SCADA, PLC, water sensors, water bumps etc. Since the water treatment plant might cover huge floor space, the long transmission distance becomes one of the major considerations.

IGS-3204MGSFP

2 1G/2.5GSFP + 4 10/100TX
L2+ Managed Ethernet Switch

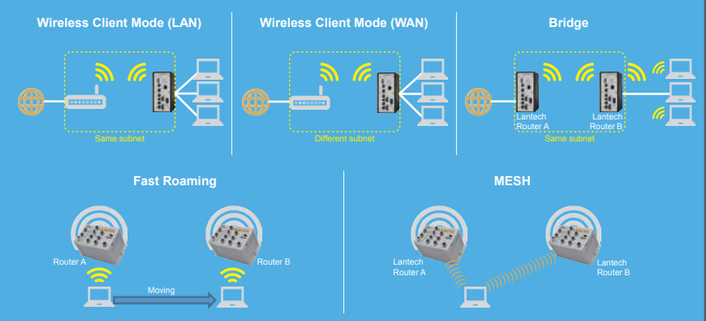
- Slim design
- Up to 2.5G Speed SFP Fiber
- Enhanced ITU G.8032 Ring
- USB port for backup & restore
- Wide operating temperature range from -40°C to 70°C

Why Choosing Lantech?

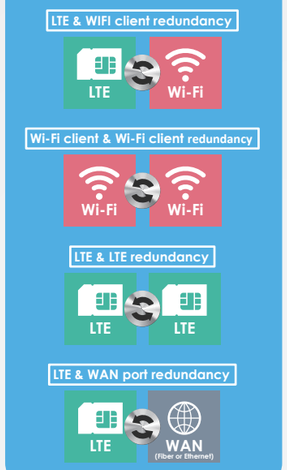
FEATURE HIGHLIGHTS OF MULTI-FUNCTION ROUTERS

01 7-in-1 Multifunction

02 5-in-1 Wireless Modes



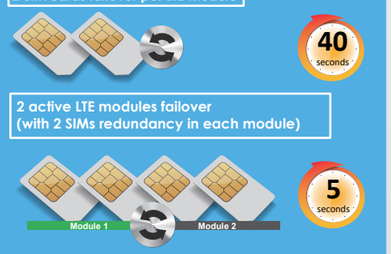
03 Highly Redundancy



04 Up to 2 WAN + 4 LAN Ports

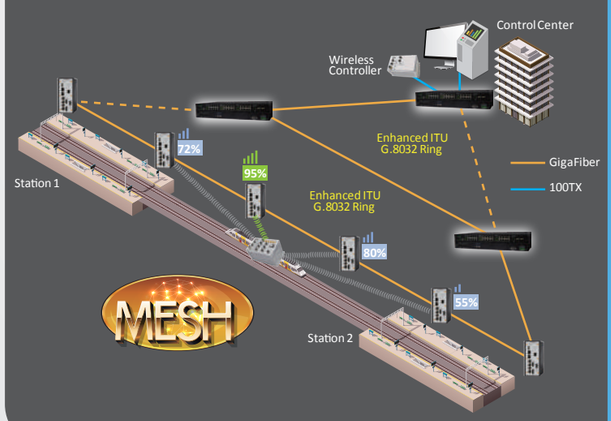
05 SIM Redundancy

2 SIM cards failover per LTE module



2 active LTE modules failover
(with 2 SIMs redundancy in each module)

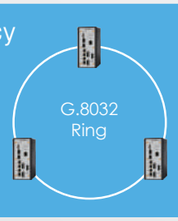
06 802.11s Wireless Mesh Network



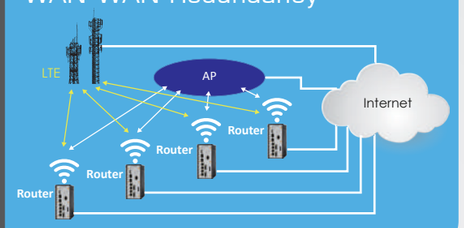
07 LAN Ethernet Ring Redundancy

on fiber

or on copper



08 WAN-WAN Redundancy



09 DDOS & Firewall

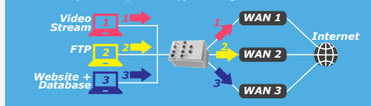
Lantech's DDOS protection can effectively block all kinds of DDoS attacks

- ✓ UDP Flood
- ✓ TCP SYN Flood
- ✓ ICMP Flood
- ✓ Ping of death
- ✓ Distributed HTTP flood
- ✓ BotNet (Zombie Network)
- ✓ Application level floods

10 Load balancing on WAN ports

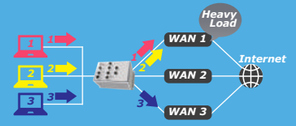
Fixed

Manually route by traffic type through fixed WAN link.



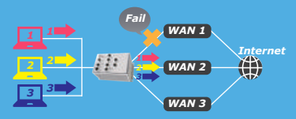
Priority

Routes connections through preferred WAN link while others stand-by. Sequentially activating other links if overflow occurs.



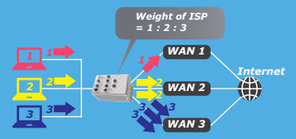
Fail Over

Routes connections through preferred WAN link while others stand-by. Sequentially activating another link if preferred link fails.



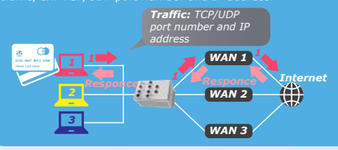
Weighted Round-Robin

Even distribution of the traffic over all working WAN links in circular order according to the specified weights.

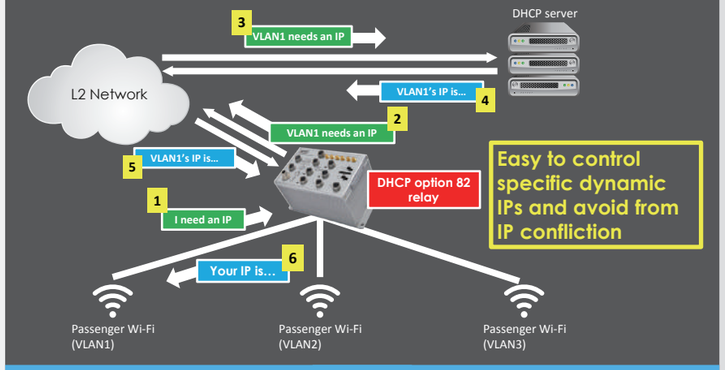


Custom Route

Routing through the selected WAN links for each specific traffic, ex: TCP/UDP port number and IP address.



11 Work as DHCP option 82 relay



Easy to control specific dynamic IPs and avoid from IP confliction

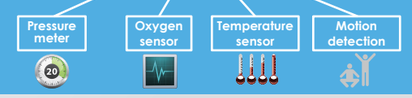
12 QoS on WAN

By port: Filter by applications
By protocol: Filter by protocol

13 Full VPN support

- OpenVPN
- IPSec
- Multi-site VPN
- L2TP over IPSec
- L2 over GRE
- IPGRE MDVPN

14 Customized controller software integrated with router



15 Built-in Managed Switch Function

Router + Managed Functions

- ✓ Port Management
- ✓ QoS
- ✓ VLAN
- ✓ Multicast
- ✓ Redundant Protection
- ✓ Security

No need to purchase extra switches for a small network

16 Supports IPv6

IPv6

- ✓ Resolve IP Address space exhaustion
- ✓ Elimination of NAT
- ✓ Makes routing more efficient.
- ✓ Simplified Network Configuration and easier to management

17 Support Dynamic Route

BGP OSPF EIGRP

Most competitors only support RIP

18 Integrated PoE Functions

PoE AT 30W

- PoE Detection: Monitoring power consumption, voltage, current and temperature in real time
- PoE Schedule: Customize the schedule to ON/OFF PoE
- Power Budget Management

19 Ignition sensing on 3000 series to extend the operation time when engine is off

Ignition Sensing

Engine is off → Extended operation time → Router shut down

20 Double isolation design to minimize the risk of surge, EFT at input, PoE and serial ports

DOUBLE ISOLATED

Surge EFT

Input PoE Serial

21 802.11AC 3Tx3R Wi-Fi

Multi-channel 3Tx3R Wi-Fi 11ac for maximum communication bandwidth

11AC 3T 3R

transmitters receivers

433Mbps x3 = 1.3Gbps

22 Optional eSIM (only 5008 series)

eSIM

23 Optional EMMC storage inside router

EMMC 8GB 16GB 32GB

24 LTE Status Timeline

To check the LTE status at a glance

25 Superior LTE Performance

Reliable brand

LTE module is powered by SIERRA WIRELESS

High compatibility

- **APAC model** for Asia & Oceania
- **EUNA model** for Europe & North America
- **WW model** for worldwide

Fast speed

Cat 4 = 150 Mbps

- **Downlink (Cat 6):** FDD: 300 Mbps TDD: 222 Mbps
- **Uplink (Cat 6):** FDD: 50 Mbps TDD: 26 Mbps

How To Find A Right Model?

WIFI, MOBILE, OR BOTH?

Model Name	Wi-Fi + LTE	LTE Only	Wi-Fi Only
	IPWMR-3XXX IWMR-3XXX TPWMR-5XXX TWMR-5XXX	IPMR-3XXX IMR-3XXX TPMR-5XXX TMR-5XXX	IPWAP-3XXX IWAP-3XXX TPWAP-5XXX TWAP-5XXX

	Multifunction Wi-Fi + LTE Routers		Multifunction LTE Mobile Routers		Multifunction Wi-Fi Routers	
	5000 Series	3000 Series	5000 Series	3000 Series	5000 Series	3000 Series
Aluminum case	●	-	●	-	●	-
SIM slots	Up to 4	Up to 4	Up to 4	Up to 4	-	-
SMA antenna connectors	Up to 9	Up to 7	Up to 9	Up to 7	Up to 9	Up to 7
802.11ac/a/b/g/n WiFi	●	●	-	-	●	●
Power inputs	16.8~137.5VDC (WV model)	9~60VDC (24V model)	16.8~137.5VDC (WV model)	9~60VDC (24V model)	16.8~137.5VDC (WV model)	9~60VDC (24V model)
WiFi WMM	●	●	-	-	●	●
Ignition sensing	-	●	-	●	-	●

Product Line-ups

4G LTE + Wi-Fi Multifunction Routers

T(P)WMR-5208MGF
EN50155 Multifunction VPN Router w/1 WiFi 11ac + 1 LTE 4G + 8 GigaT + 2 1G/2.5G Fiber
8 GT | 2 Q-ODC | 8 PoE | USB | 2 WAN

T(P)WMR-5208MGT
EN50155 Multifunction VPN Router w/1 WiFi 11ac + 1 LTE 4G + 8 GigaT + 2 1G/2.5G Copper
8 GT | 2 2.5GT | 8 PoE | USB | 2 WAN

T(P)WMR-5008
EN50155 Multifunction VPN Router w/1 WiFi 11ac + 1 LTE 4G + 8 GigaT Ethernet + 4 serial ports
8 GT | 8 PoE | USB | 2 Serial

T(P)WMR-5006
EN50155 Multifunction VPN Router w/1 WiFi 11ac + 1 LTE 4G + 2 serial ports + 6 GigaT
6 GT | 4 PoE | USB | 2 Serial

T(P)WMR-5004
EN50155 Multifunction VPN Router w/1 WiFi 11ac + 1 LTE 4G + 2 serial ports + 4 GigaT + 2WAN
4 GT | 4 PoE | USB | 2 Serial | 2 WAN

TWMR-5002
EN50155 Multifunction VPN Router w/1 WiFi 11ac + 1 LTE 4G + 2 serial ports + 2 GigaT (incl.1 PD)
2 GT | 1 PD | 2 Serial | USB

I(P)WMR-3204DF
Industrial Multifunction VPN Router w/up to 2 WiFi 11ac + up to 2 LTE 4G + 2 serial ports + 4 GigaT + 2 Dual Speed SFP
4 GT | 2 SFP | 4 PoE | USB | 2 Serial

I(P)WMR-3004DF
Industrial Multifunction VPN Router w/up to 2 WiFi 11ac + up to 2 LTE 4G + 2 serial ports + 4 GigaT + 2 Dual Speed SFP WAN
4 GT | 4 PoE | USB | 2 Serial | 2 WAN

I(P)WMR-3006
Industrial Multifunction VPN Router w/up to 2 WiFi 11ac + up to 2 LTE 4G + 2 serial ports + 6 GigaT
6 GT | 4 PoE | USB | 2 Serial

I(P)WMR-3004
Industrial Multifunction VPN Router w/up to 2 WiFi 11ac + up to 2 LTE 4G + 2 serial ports + 4 GigaT + 2WAN
4 GT | 4 PoE | USB | 2 Serial | 2 WAN

IWMR-3002
Industrial Multifunction VPN Router w/up to 2 WiFi 11ac + up to 2 LTE 4G + 2/4 serial ports + 2 GigaT
2 GT | 1 PD | 4 Serial | USB

4G LTE Multifunction Routers

T(P)MR-5208MGF
EN50155 Multifunction VPN Router w/2 LTE 4G + 8 GigaT + 2 1G/2.5G Fiber
8 GT | 2 Q-ODC | 8 PoE | USB | 2 WAN

T(P)MR-5208MGT
EN50155 Multifunction VPN Router w/2 LTE 4G + 8 GigaT + 2 1G/2.5G Copper
8 GT | 2 2.5G | 8 PoE | USB | 2 WAN

T(P)MR-5008
EN50155 Multifunction VPN Router w/2 LTE 4G + 8 GigaT Ethernet + 4 serial ports
8 GT | 8 PoE | USB | 2 Serial

T(P)MR-5006
EN50155 Multifunction VPN Router w/2 LTE 4G + 2 serial ports + 6 GigaT
6 GT | 4 PoE | USB | 2 Serial

T(P)MR-5004
EN50155 Multifunction VPN Router w/2 LTE 4G + 2 serial ports + 4 GigaT + 2WAN
4 GT | 4 PoE | USB | 2 Serial | 2 WAN

TMR-5002
EN50155 Multifunction VPN Router w/2 LTE 4G + 2 serial ports + 2 GigaT (incl.1 PD)
2 GT | 1 PD | 2 Serial | USB

I(P)MR-3204DF
Industrial Multifunction VPN Router w/2 LTE 4G + 2 serial ports + 4 GigaT + 2 Dual Speed SFP
4 GT | 2 SFP | 4 PoE | USB | 2 Serial

I(P)MR-3004DF
Industrial Multifunction VPN Router w/2 LTE 4G + 2 serial ports + 4 GigaT + 2 Dual Speed SFP WAN
4 GT | 4 PoE | USB | 2 Serial | 2 WAN

I(P)MR-3006
Industrial Multifunction VPN Router w/2 LTE 4G + 2 serial ports + 6 GigaT
6 GT | 4 PoE | USB | 2 Serial

I(P)MR-3004
Industrial Multifunction VPN Router w/2 LTE 4G + 2 serial ports + 4 GigaT + 2WAN
4 GT | 4 PoE | USB | 2 Serial | 2 WAN

IMR-3002
Industrial Multifunction VPN Router w/2 LTE 4G + 2/4 serial ports + 2 GigaT
2 GT | 1 PD | 4 Serial | USB

Wi-Fi Multifunction Routers

T(P)WAP-5208MGF
EN50155 Multifunction VPN Router w/2 WiFi 11ac + 8 GigaT + 2 1G/2.5G Fiber
8 GT | 2 Q-ODC | 8 PoE | USB | 2 WAN

T(P)WAP-5208MGT
EN50155 Multifunction VPN Router w/2 WiFi 11ac + 8 GigaT + 2 1G/2.5G Copper
8 GT | 2 2.5G | 8 PoE | USB | 2 WAN

T(P)WAP-5008
EN50155 Multifunction VPN Router w/2 WiFi 11ac + 8 GigaT Ethernet + 4 serial ports
8 GT | 8 PoE | USB | 2 Serial

T(P)WAP-5006
EN50155 Multifunction VPN Router w/2 WiFi 11ac + 2 serial ports + 6 GigaT
6 GT | 4 PoE | USB | 2 Serial

T(P)WAP-5004
EN50155 Multifunction VPN Router w/2 WiFi 11ac + 2 serial ports + 4 GigaT + 2WAN
4 GT | 4 PoE | USB | 2 Serial | 2 WAN

TWAP-5002
EN50155 Multifunction VPN Router w/2 WiFi 11ac + 2 serial ports + 2 GigaT (incl.1 PD)
2 GT | 1 PD | 2 Serial | USB

I(P)WAP-3204DF
Industrial Multifunction VPN Router w/2 WiFi 11ac + 2 serial ports + 4 GigaT + 2 Dual Speed SFP
4 GT | 2 SFP | 4 PoE | USB | 2 Serial

I(P)WAP-3004DF
Industrial Multifunction VPN Router w/2 WiFi 11ac + 2 serial ports + 4 GigaT + 2 Dual Speed SFP WAN
4 GT | 4 PoE | USB | 2 Serial | 2 WAN

I(P)WAP-3006
Industrial Multifunction VPN Router w/2 WiFi 11ac + 2 serial ports + 6 GigaT
6 GT | 4 PoE | USB | 2 Serial

I(P)WAP-3004
Industrial Multifunction VPN Router w/2 WiFi 11ac + 2 serial ports + 4 GigaT + 2WAN
4 GT | 4 PoE | USB | 2 Serial | 2 WAN

IWAP-3002
Industrial Multifunction VPN Router w/2 WiFi 11ac + 2/4 serial ports + 2 GigaT
2 GT | 1 PD | 4 Serial | USB

IWAP-3003
Industrial Multifunction VPN Router w/2 WiFi 11ac + 2/4 serial ports + 3 GigaT
2 GT | 1 PD | 4 Serial | USB

EN50155 NAT Routers

T(P)GR-5208MGF-2WAN
8 10/100/1000T + 2 1G/2.5G Q-ODC Fiber + 2 1G/2.5G WAN EN50155 L2+ Managed Ethernet Router
8 GT | 2 Q-ODC | 8 PoE | USB | 2 WAN

T(P)GR-5208MGT-2WAN
8 10/100/1000T + 2 1G/2.5G Copper + 2 1G/2.5G WAN EN50155 L2+ Managed Ethernet Router
8 GT | 2 2.5G | 8 PoE | USB | 2 WAN

Model name (P) = PoE model

Learn more about Lantech multifunction routers

5000 Series Routers

3000 Series Routers

Why Choosing Lantech?

FEATURE HIGHLIGHTS OF HARDENED & ROLLING STOCK ETHERNET SWITCHES

01 Optional Layer 3 Lite (L3L)

OS4 Platform
OS3 Platform

1. Inter-VLAN Routing

Route traffic between different VLAN by implementing a switch with routing function in the network.

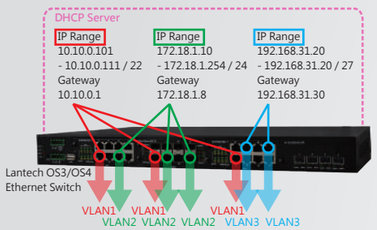
2. Router-on-a-stick

A type of routing configuration in which a single physical interface set as VLAN trunk port manages traffic between multiple VLANs from edge site.

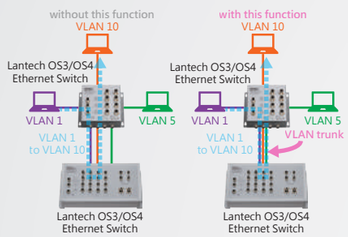
3. VRRP

Provides automatic assignment of available VLAN gateways to participating hosts and increases the availability and reliability of VLAN routing paths via automatic default gateway selections on different VLAN groups.

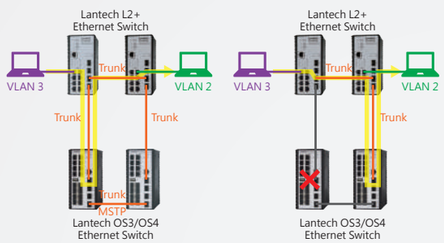
1. Inter-VLAN Routing



2. Router-on-a-stick



3. VRRP



Optional Layer 3

1. OSPF

Open Shortest Path First (OSPF) protocol is an Interior Gateway Protocol used to distribute routing information within a single Autonomous System.

2. RIP

Routing Information Protocol (RIP) is a dynamic routing protocol which uses hop count as a routing metric to find the best path between the source and the destination network.

3. PIM

Protocol-Independent Multicast (PIM) is a family of multicast routing protocols for Internet Protocol (IP) networks that provide one-to-many and many-to-many distribution of data over a LAN, WAN or Internet.

4. DVMRP

Distance Vector Multicast Routing Protocol (DVMRP) is a routing protocol used to share information between routers to facilitate the transportation of IP multicast packets among networks.

OS4 Platform
OS3 Platform

02

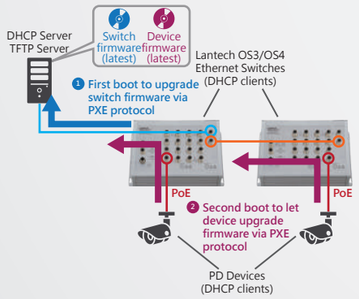
Software Advantage – Layer 2+

OS4 Platform
OS3 Platform

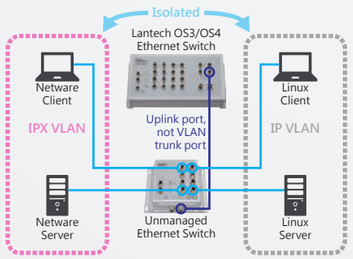
1. PXE
2. Protocol based VLAN
3. IPv6 Multicast
4. Subnet based VLAN

03

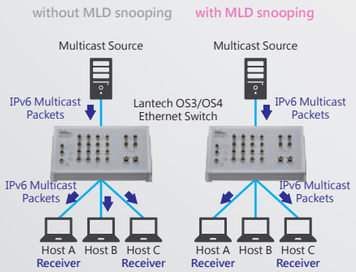
1. PXE



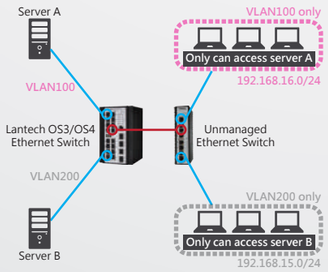
2. Protocol-based VLAN



3. IPv6 Multicast



4. Subnet-based VLAN

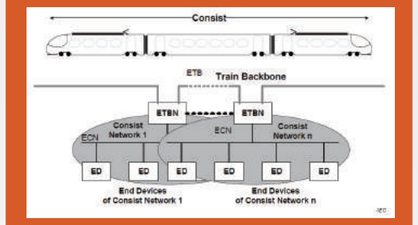


OS4 Platform
OS3 Platform

02

Optional TBN (IEC 61375-2-5) & built-in ECN (IEC 61375-3-4)

Backbone of train network which is responsible to exchange the data from each consist

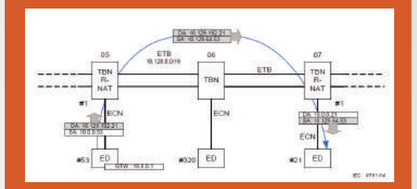


OS4 Platform
OS3 Platform

04

Optional R-NAT (IEC 61375-2-5)

If ED#53 will communicate with ED#21, it doesn't need to know the IP address of ED#21 but just need to know the IP address of TBN which is responsible to build physical connection with ED#21.



OS4 Platform

05

Real-time Environmental Monitoring

Real input voltage in routers & OS3/OS4 Ethernet switches

OS4 Platform
OS3 Platform

06

Wide Voltage (Isolated) 16.8~137.5VDC Power Input

(EN50155 Series)

Built-in Power Converter 12/24VDC boost up to 48VDC

(Industrial Series)

WIDE Voltage +Isolation

12V booster 48V

07

Compliance to Various Standards for Different Applications

Rolling Stocks	Vehicles	Power Substations	Maritime	Industrial & Outdoor
• EN 50155:2017 • EN 50121-4 • EN 55032 • EN 45545-2	• E-Marking • ITxPT	• IEC 61850-3 • IEEE 1613	• DNV	• IP30 rated to IP67 rated

08

Integrated PoE Functions

PoE AT 30W

PoE Detection

Monitoring power consumption, voltage, current and temperature in real time

PoE Schedule

Customize the schedule to ON/OFF PoE

PoE Budget Management

09

Smart Bypass Protection (Optional)

The bypass relay is set to bypass the switch to the next one when power is off or CPU hanged to prevent network disruption.

Switch 2 is power fail or CPU hanged

10

10GbE Connectivity

- To Fulfill Huge Bandwidth Requirement

11

Inrush Current Protection

The inrush current on initial power up can be limited lower than 10 x nominal current and for less than 1ms.

12

USB port to upload & download the configuration file

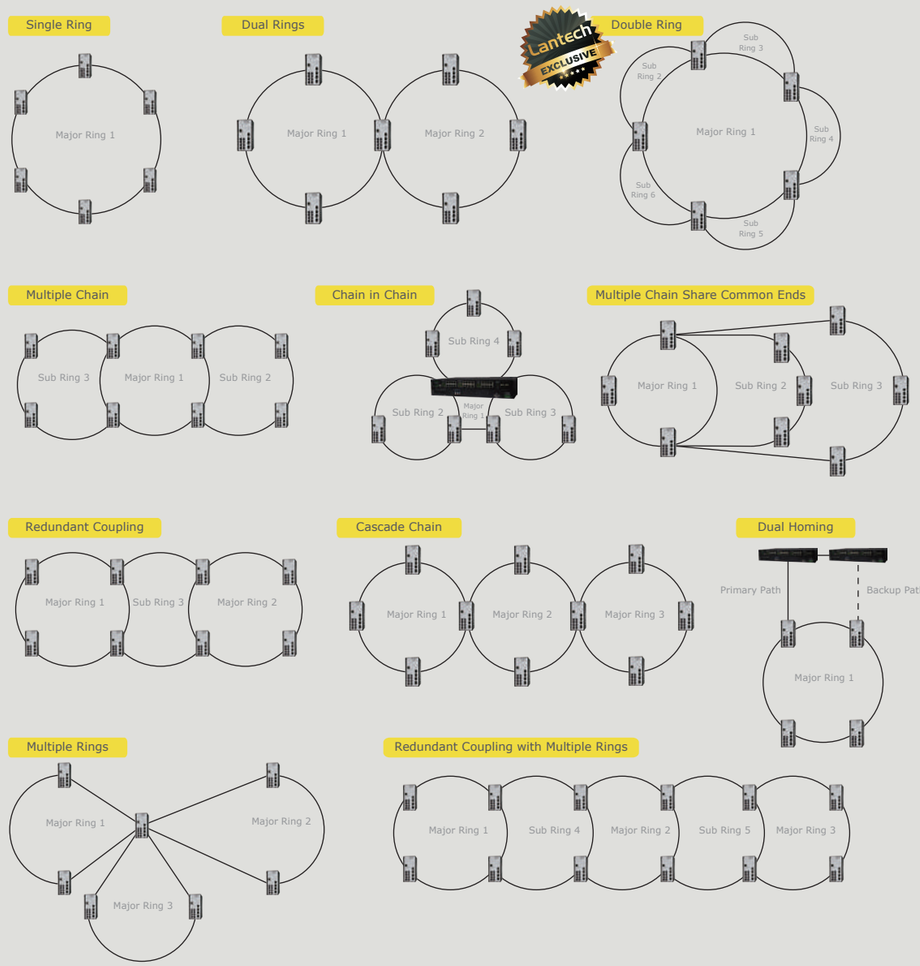
USB Restore &Backup

13

Enhanced ITU G.8032 Ring

OS4 Platform
OS3 Platform
OS2 Platform
OS1 Platform

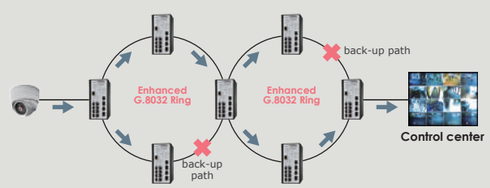
Established by ITU (International Telecommunication Unit), the G.8032 protocol is compatible with Ethernet standard and has been supported by many major Ethernet system providers. With our long background in IP Ethernet industry, Lantech is proud to present our enhanced ITU G.8032 ring which covers multicast & data recovery.



Lantech G.8032 ring has basic, auto, enhanced, multi-train mode.

Basic	Compliant with 3rd party ERPS switch, recovery time <100ms
Auto	Single ring auto-select each role
Enhanced	Support data/ multicast recovery <20ms in single ring
Multi-Train	Support auto dynamic coupling

Enhanced Ring for Multicast Recovery



What's the difference?

OS PLATFORM's COMPARISON

Complete management levels, L2+, L3 Lite, L3***

OS4 Platform	OS3 Platform	OS2 Platform	OS1 Platform
L2+ Dual image L3L** L3** TBN** ECN Hardware-NAT**	L2+ Dual image L3L** L3** TBN** ECN	L2+ Dual image	L2+

	Layer 3 Lite	Layer 2 +			Layer 2
	(L3L)	OS4/OS3	OS2	OS1	2000 series
TTDP (IEC 61375)	•				
R-NAT*	•				
IP based port	•				
VLAN routing	•				
VRRP	•				
Static Unicast Routing	•				
DHCP pool with per VLAN	•				
IP Source Guard	•				
MRP	•	•			
Protocol Based	•	•			
Subnet Based	•	•			
MLD Snooping	•	•			
Port Monitoring	•	•			
PXE application	•	•			
IP v6 DHCP Server (Basic)	•	•			
Dual Image	•	•	•		
ARP inspection	•	•		•	
BPDU Guard	•	•		•	
QinQ	•	•		•	
Remote admin (limitation of accessing way)	•	•	•	•	
GVRP	•	•	•	•	
SSL	•	•	•	•	
Login Security (TACACS+)	•	•	•	•	
Login Security (RADIUS)	•	•	•	•	
Dual Homing	•	•	•	•	
SSH	•	•	•	•	
CDP	•	•	•	•	
Topology View	•	•	•	•	
Environment Monitoring	•	•	•	•	
MSTP	•	•	•	•	
Loop Protection	•	•	•	•	
IGMP router port	•	•	•	•	
GMRP	•	•	•	•	
VLAN based QoS	•	•	•	•	
MAC based DHCP	•	•	•	•	
Option82 DHCP Relay	•	•	•	•	
Option 12/42/66	•	•	option 66 only	option 66 only	
DHCP Snooping	•	•	•	•	
Digital Input/Output	•	•	•	•	
Triggered by event of environment	•	•	•	•	
Triggered by event of SFP DDM	•	•	•	•	
Ping	•	•	•	•	
ARP	•	•	•	•	
QoS under 61375-3-4	•	•	•	•	
Proprietary redundant protocol	ITU-Ring Enhance mode	ITU-Ring Enhance mode	ITU-Ring Enhance mode	ITU-Ring Enhance mode	ProRing2se
ACL	Ingress only	Ingress only	Ingress Only	•	•
SNMP Trap	•	•	•	•	V1/V2c
Firmware upgrading	WEB/TFTP/FTP	WEB/TFTP/FTP	WEB/TFTP/FTP	WEB/TFTP/FTP	WEB/TFTP
Configuration file import/export	WEB/TFTP/FTP	WEB/TFTP/FTP	WEB/TFTP/FTP	WEB/TFTP/FTP	WEB/TFTP
G.8032 standard				•	
Auto Provision				•	

* Future release
** Optional
***Spec may vary by model

EN50155 10G Uplinks Managed Ethernet Switches

OS4 Platform

T(P)GS-R6616XFT
16 10/100/1000T (PoE at) +
4 10G copper + 2 10G Q-ODC fiber
EN50155 OS4 Managed Switch
6 10G | 16 GT | 16 PoE | USB

T(P)GS-R6616XT
16 10/100/1000T (PoE at)
+ 6 10G copper
EN50155 OS4 Managed Switch
6 10G | 16 GT | 16 PoE | USB

T(P)GS-R6416XFT
16 10/100/1000T (PoE at)
+ 2 10G copper + 2 10G Q-ODC
Fiber EN50155 OS4 Managed Switch
4 10G | 16 GT | 16 PoE | USB

T(P)GS-R6416XT
16 10/100/1000T (PoE at)
+ 4 10G copper
EN50155 OS4 Managed Switch
4 10G | 16 GT | 16 PoE | USB

T(P)GS-R6608XFT
8 10/100/1000T (PoE at) +
4 10G copper + 2 10G Q-ODC fiber
EN50155 OS4 Managed Switch
6 10G | 8 GT | 10 PoE | USB

T(P)GS-R6608XT
8 10/100/1000T (PoE at)
+ 6 10G copper
EN50155 OS4 Managed Switch
6 10G | 8 GT | 10 PoE | USB

T(P)GS-R6408XFT
8 10/100/1000T (PoE at) +
2 10G copper + 2 10G Q-ODC Fiber
EN50155 OS4 Managed Switch
4 10G | 8 GT | 10 PoE | USB

T(P)GS-R6408XT
8 10/100/1000T (PoE at)
+ 4 10G copper
EN50155 OS4 Managed Switch
4 10G | 8 GT | 10 PoE | USB

T(P)ES-R6616XFT
16 10/100TX (PoE at) +
4 10G copper + 2 10G Q-ODC fiber
EN50155 OS4 Managed Switch
6 10G | 16 TX | 16 PoE | USB

T(P)ES-R6616XT
16 10/100/1000T (PoE at)
+ 6 10G copper
EN50155 OS4 Managed Switch
6 10G | 16 TX | 16 PoE | USB

OS3 Platform

T(P)GS-L6416XFT
16 10/100/1000T (PoE at)+
2 10G Copper + 2 10G Q-ODC fiber
EN50155 OS3 Managed Switch
4 10G | 16 GT | 16 PoE | USB

T(P)GS-L6416XT
16 10/100/1000T (PoE at)
+ 4 10G Copper
EN50155 OS3 Managed Switch
4 10G | 16 GT | 16 PoE | USB

T(P)GS-L6408XFT
8 10/100/1000T (PoE at) +
2 10G Copper + 2 10G Q-ODC fiber
EN50155 OS3 Managed Switch
4 10G | 8 GT | 8 PoE | USB

T(P)GS-L6408XT
8 10/100/1000T (PoE at)
+ 2 10G Copper
EN50155 OS3 Managed Switch
4 10G | 8 GT | 8 PoE | USB

T(P)GS-L6216XT
16 10/100/1000T (PoE at)
+ 2 10G Copper
EN50155 OS3 Managed Switch
2 10G | 16 GT | 16 PoE | USB

T(P)GS-L6216XF
16 10/100/1000T (PoE at)
+ 2 10G Q-ODC fiber
EN50155 OS3 Managed Switch
2 10G | 16 GT | 16 PoE | USB

T(P)GS-L6208XT
8 10/100/1000T (PoE at)
+ 2 10G Copper
EN50155 OS3 Managed Switch
2 10G | 8 GT | 8 PoE | USB

T(P)GS-L6208XF
8 10/100/1000T (PoE at)
+ 2 10G Q-ODC fiber
EN50155 OS3 Managed Switch
2 10G | 8 GT | 8 PoE | USB

T(P)ES-L6424XFT
24 10/100TX (PoE at) +
2 10G copper + 2 10G Q-ODC fiber
EN50155 OS3 Managed Switch
4 10G | 24 TX | 24 PoE | USB

T(P)ES-L6424XT
24 10/100TX (PoE at)
+ 4 10G copper
EN50155 OS3 Managed Switch
4 10G | 24 TX | 24 PoE | USB

T(P)ES-L6416XFT
16 10/100TX (PoE at)+
2 10G Copper + 2 10G Q-ODC fiber
EN50155 OS3 Managed Switch
4 10G | 16 TX | 16 PoE | USB

T(P)ES-L6416XT
16 10/100TX (PoE at)
+ 4 10G Copper
EN50155 OS3 Managed Switch
4 10G | 16 TX | 16 PoE | USB

T(P)ES-L6408XFT
8 10/100TX (PoE at) +
2 10G Copper + 2 10G Q-ODC fiber
EN50155 OS3 Managed Switch
4 10G | 8 TX | 8 PoE | USB

T(P)ES-L6408XT
8 10/100TX (PoE at)
+ 4 10G Copper
EN50155 OS3 Managed Switch
4 10G | 8 TX | 8 PoE | USB

T(P)ES-L6216XT
16 10/100TX (PoE at)
+ 2 10G copper
EN50155 OS3 Managed Switch
2 10G | 16 TX | 16 PoE | USB

T(P)ES-L6216XF
16 10/100TX (PoE at)
+ 2 10G Q-ODC fiber
EN50155 OS3 Managed Switch
2 10G | 16 TX | 16 PoE | USB

T(P)ES-L6208XT
8 10/100TX (PoE at)
+ 2 10G copper
EN50155 OS3 Managed Switch
2 10G | 8 TX | 8 PoE | USB

T(P)ES-L6208XF
8 10/100TX (PoE at)
+ 2 10G Q-ODC fiber
EN50155 OS3 Managed Switch
2 10G | 8 TX | 8 PoE | USB

Learn more

Model name (P) = PoE model

EN50155 2.5G Uplinks Managed Ethernet Switches

OS4 Platform

T(P)GS-R5616MGFT
16 10/100/1000T (PoE at) + 4 1G/
2.5G copper + 2 1G/2.5G Q-ODC
fiber EN50155 OS4 Managed Switch
6 2.5G | 16 GT | 16 PoE | USB

T(P)GS-R5616MGT
16 10/100/1000T (PoE at)
+ 6 1G/2.5G copper
EN50155 OS4 Managed Switch
6 2.5G | 16 GT | 16 PoE | USB

T(P)GS-R5416MGFT
16 10/100/1000T (PoE at) + 2
1G/2.5G copper + 2 1G/2.5G Q-ODC
Fiber EN50155 OS4 Managed Switch
4 2.5G | 16 GT | 16 PoE | USB

T(P)GS-R5416MGT
16 10/100/1000T (PoE at)
+ 4 1G/2.5G copper
EN50155 OS4 Managed Switch
4 2.5G | 16 GT | 16 PoE | USB

T(P)GS-R5608MGFT
8 10/100/1000T (PoE at) + 4
1G/2.5G copper + 2 1G/2.5G Q-ODC
fiber EN50155 OS4 Managed Switch
6 2.5G | 8 GT | 10 PoE | USB

T(P)GS-R5608MGT
8 10/100/1000T (PoE at)
+ 6 1G/2.5G copper
EN50155 OS4 Managed Switch
6 2.5G | 8 GT | 10 PoE | USB

T(P)GS-R5408MGFT
8 10/100/1000T (PoE at) + 2 1G/
2.5G copper + 2 1G/2.5G Q-ODC
Fiber EN50155 OS4 Managed Switch
4 2.5G | 8 GT | 10 PoE | USB

T(P)GS-R5408MGT
8 10/100/1000T (PoE at)
+ 4 1G/2.5G copper
EN50155 OS4 Managed Switch
4 2.5G | 8 GT | 10 PoE | USB

T(P)ES-R5616MGFT
16 10/100TX (PoE at) + 4 1G/
2.5G copper + 2 1G/2.5G Q-ODC
fiber EN50155 OS4 Managed Switch
6 2.5G | 16 TX | 16 PoE | USB

T(P)ES-R5616MGT
16 10/100/1000T (PoE at)
+ 6 1G/2.5G copper
EN50155 OS4 Managed Switch
6 2.5G | 16 TX | 16 PoE | USB

OS3 Platform

T(P)GS-L5416MGFT
16 10/100/1000T (PoE at) + 2 1G/
2.5G Copper + 2 1G/2.5G Q-ODC
fiber EN50155 OS3 Managed Switch
4 2.5G | 16 GT | 16 PoE | USB

T(P)GS-L5416MGT
16 10/100/1000T (PoE at)
+ 4 1G/2.5G Copper
EN50155 OS3 Managed Switch
4 2.5G | 16 GT | 16 PoE | USB

T(P)GS-L5408MGFT
8 10/100/1000T (PoE at) + 2 1G/
2.5G Copper + 2 1G/2.5G Q-ODC
fiber EN50155 OS3 Managed Switch
4 2.5G | 8 GT | 8 PoE | USB

T(P)GS-L5408MGT
8 10/100/1000T (PoE at)
+ 2 1G/2.5G Copper
EN50155 OS3 Managed Switch
4 2.5G | 8 GT | 8 PoE | USB

T(P)GS-L5216MGT
16 10/100/1000T (PoE at)
+ 2 1G/2.5G Copper
EN50155 OS3 Managed Switch
2 2.5G | 16 GT | 16 PoE | USB

T(P)GS-L5216MGF
16 10/100/1000T (PoE at)
+ 2 1G/2.5G Q-ODC fiber
EN50155 OS3 Managed Switch
2 2.5G | 16 GT | 16 PoE | USB

T(P)GS-L5208MGT
8 10/100/1000T (PoE at)
+ 2 1G/2.5G Copper
EN50155 OS3 Managed Switch
2 2.5G | 8 GT | 8 PoE | USB

T(P)GS-L5208MGF
8 10/100/1000T (PoE at)
+ 2 1G/2.5G Q-ODC fiber
EN50155 OS3 Managed Switch
2 2.5G | 8 GT | 8 PoE | USB

T(P)ES-L5424MGFT
24 10/100TX (PoE at) + 2 1G/
2.5G copper + 2 1G/2.5G Q-ODC
fiber EN50155 OS3 Managed Switch
4 2.5G | 24 TX | 24 PoE | USB

T(P)ES-L5424MGT
24 10/100TX (PoE at)
+ 4 1G/2.5G copper
EN50155 OS3 Managed Switch
4 2.5G | 24 TX | 24 PoE | USB

T(P)ES-L5416MGFT
16 10/100TX (PoE at)+ 2 1G/
2.5G Copper + 2 1G/2.5G Q-ODC
fiber EN50155 OS3 Managed Switch
4 2.5G | 16 TX | 16 PoE | USB

T(P)ES-L5416MGT
16 10/100TX (PoE at)
+ 4 1G/2.5G Copper
EN50155 OS3 Managed Switch
4 2.5G | 16 TX | 16 PoE | USB

T(P)ES-L5408MGFT
8 10/100TX (PoE at) + 2 1G/
2.5G Copper + 2 1G/2.5G Q-ODC
fiber EN50155 OS3 Managed Switch
4 2.5G | 8 TX | 8 PoE | USB

T(P)ES-L5408MGT
8 10/100TX (PoE at)
+ 4 1G/2.5G Copper
EN50155 OS3 Managed Switch
4 2.5G | 8 TX | 8 PoE | USB

T(P)ES-L5216MGT
16 10/100TX (PoE at)
+ 2 1G/2.5G copper
EN50155 OS3 Managed Switch
2 2.5G | 16 TX | 16 PoE | USB

T(P)ES-L5216MGF
16 10/100TX (PoE at)
+ 2 1G/2.5G Q-ODC fiber
EN50155 OS3 Managed Switch
2 2.5G | 16 TX | 16 PoE | USB

T(P)ES-L5208MGT
8 10/100TX (PoE at)
+ 2 1G/2.5G copper
EN50155 OS3 Managed Switch
2 2.5G | 8 TX | 8 PoE | USB

T(P)ES-L5208MGF
8 10/100TX (PoE at)
+ 2 1G/2.5G Q-ODC fiber
EN50155 OS3 Managed Switch
2 2.5G | 8 TX | 8 PoE | USB

Learn more

Model name (P) = PoE model

EN50155 Rackmount Ethernet Switches

OS3 Platform

T(P)GS-L6408XFTR
8 10/100/1000T (PoE at) +
2 10G Copper + 2 10G Q-ODC fiber
EN50155 OS3 Managed Switch
4 10G | 8 GT | 8 PoE | USB

T(P)GS-L6408XTR
8 10/100/1000T (PoE at)
+ 4 10G Copper
EN50155 OS3 Managed Switch
4 10G | 8 GT | 8 PoE | USB

T(P)GS-L5408MGFTR
8 10/100/1000T (PoE at) + 2 1G/
2.5G Copper + 2 1G/2.5G Q-ODC
fiber EN50155 OS3 Managed Switch
4 2.5G | 8 GT | 8 PoE | USB

T(P)GS-L5408MGTR
8 10/100/1000T (PoE at)
+ 2 1G/2.5G Copper
EN50155 OS3 Managed Switch
4 2.5G | 8 GT | 8 PoE | USB

EN50155 Giga Uplinks Managed Ethernet Switches

OS3 Platform

T(P)GS-L5016T
16 10/100/1000T (PoE at)
EN50155 OS3 Managed Switch
16 GT | 16 PoE | USB

T(P)GS-L5012T
12 10/100/1000T (PoE at)
EN50155 OS3 Managed Switch
12 GT | 8 PoE | USB

T(P)ES-L5408T
8 10/100TX (PoE at) +
4 Giga Copper Uplinks
EN50155 OS3 Managed Switch
4 GT | 8 TX | 8 PoE | USB

Learn more

OS1 Platform

T(P)GS-5208GF
8 10/100/1000T (PoE at)
+ 2 1000FX
L2+ EN50155 Managed Switch
2 Q-ODC | 8 GT | 8 PoE

T(P)GS-5010T
10 10/100/1000T
(w/ 8 PoE at)
L2+ EN50155 Managed Switch
10 GT | 8 PoE

T(P)GS-5008T
8 10/100/1000T (PoE at)
L2+ EN50155 Managed Switch
8 GT | 8 PoE

T(P)ES-5416T
16 10/100TX (PoE at)
+ 4 10/100/1000T
L2+ EN50155 Managed Switch
4 GT | 16 TX | 16 PoE

T(P)ES-5408T
8 10/100TX (PoE at)
+ 4 10/100/1000T
L2+ EN50155 Managed Switch
4 GT | 8 TX | 8 PoE

T(P)ES-5424DFT
24 10/100TX (PoE at) +
2 10/100/1000T + 2 100/1000FX
L2+ EN50155 Managed Switch
2 GT | 2 Q-ODC | 24 TX | 24 PoE

T(P)ES-5424T
24 10/100TX (PoE at)
+ 4 10/100/1000T
L2+ EN50155 Managed Switch
4 GT | 24 TX | 24 PoE

I(P)GS-5008T
8 10/100/1000T (PoE at)
L2+ EN50155 Managed Switch
8 GT | 8 PoE

I(P)ES-5416T
16 10/100TX (PoE at)
+ 4 10/100/1000T
L2+ EN50155 Managed Switch
4 GT | 16 TX | 16 PoE

I(P)ES-5408T
8 10/100TX (PoE at)
+ 4 10/100/1000T
L2+ EN50155 Managed Switch
4 GT | 8 TX | 8 PoE

I(P)ES-5408S
8 10/100TX (PoE at)
+ 4 10/100/1000T
L2+ EN50155 Managed Switch
4 GT | 8 TX | 8 PoE

I(P)ES-5208DF
8 10/100TX (PoE at)
+ 2 100/1000FX
L2+ EN50155 Managed Switch
2 FX | 8 TX | 8 PoE

Model name (P) = PoE model

EN50155 Unmanaged Ethernet Switches

60W High Power PoE

Lantech increases the maximum PoE power available by utilizing all four pairs of the structured wiring. Lantech Ethernet PoE switches provide up to 60W per port, while also being backward compatible to 802.3at/af PoE standards. *Available in models: TPGS-0010T & TPGS-0208GF series

Ignition Sensing

Ignition sense allows you to delay power off your Ethernet switch with a designated time delay. *Available in models: 0008CA series

ITxPT Compliant

ITxPT is a Belgium-based association that supports the deployment of standards for onboard plug-and-play IT-systems applied to public transport. ITxPT compliant devices are tested in real operational conditions. This supports the adoption of plug-and-play systems by limiting the risks associated with the integration stage.
*Available models: 0008CA series

Product Line-ups

T(P)GS-0010T
10 10/100/1000T (8 PoE at)
EN50155 Unmanaged Switch
10 GT | 8 PoE

T(P)GS-0208GF
8 10/100/1000T (PoE at)
+ 2 1000FX
EN50155 Unmanaged Switch
2 Q-ODC | 8 GT | 8 PoE

T(P)GS-0008CA
8 10/100/1000T (PoE at)
EN50155 Unmanaged Switch
8 GT | 8 PoE

T(P)ES-0008CA
8 10/100TX (PoE at)
EN50155 Unmanaged Switch
8 TX | 8 PoE

I(P)ES-0208GF
8 10/100TX (PoE at)
+ 2 1000FX
EN50155 Unmanaged Switch
2 FX | 8 TX | 8 PoE

I(P)ES-0208T
8 10/100TX (PoE at)
+ 2 10/100/1000T
EN50155 Unmanaged Switch
2 GT | 8 TX | 8 PoE

I(P)ES-0008A
8 10/100TX (PoE at)
EN50155 Unmanaged Switch
8 TX | 8 PoE

I(P)ES-0008B
8 10/100TX (PoE at)
EN50155 Unmanaged Switch
8 TX | 8 PoE

I(P)ES-0005B
5 10/100TX (PoE at)
EN50155 Unmanaged Switch
5 TX | 5 PoE

IPES-0101T
1 10/100TX (PoE at)
+ 1 10/100TX
EN50155 Unmanaged Switch
2 TX | 1 PoE

Learn more

Model name (P) = PoE model

Industrial L3/10G (PoE) Ethernet Switches

10G Uplink & L3 Capacity

Lantech OS3 IP30 switch series have 10G uplinks and upgradable L3 capacity that is able to boost the outdoor network to higher bandwidth across different subnets.

Flexible Modularity & L3 Upgradable**

Lantech provides highly customized modular models to satisfy all kinds of needs, from 100TX to dual speed SFP. All 6000 series models are able to upgrade to Layer 3 (**optional).

USB Port for Backup and Configuration

With the special-designed USB port, backup / restore configuration is easier than ever! Simply plug in the USB thumb drive and the system will automatically detect and decide the action. No laptop or console needed.

Configurable Power Budget (PoE model)

To prevent over consumption that causes the system to become unstable, Lantech PoE switches are able to control the power budget by limiting the total power consumption for all connected PDs. Each port's power limit can be defined as well.

Feed 30W Power – 802.3at (PoE model)

IEEE802.3at standard is able to feed up to 30W at each PoE port, which is twice as the previous 802.3af standard. It's ideal for big power consumption devices such as PTZ IP cameras, High power wireless AP, etc.

Built-in Power Converter

Normally in vehicle environments, 48V power supply is not available. The built-in power converter is able to boost up from 12V (car), 24V (bus), and step down 110V, making the devices function well.

PoE Detection and Scheduling (PoE model)

PoE detection can detect if the connected PD hangs and then restart the PD; PoE scheduling allows pre-set power feeding schedule upon a routine time table. Each PoE port can be enabled/disabled, get the voltage, current, Watt, and temperature info displayed on WebUI. It saves both time and energy. Built-in power converter is able to boost up from 12V/24V, and step down from 110V (vary on models).

Product Line-ups OS3 Platform

I(P)GS-6300-2P
4 Modular-Slots
w/4/2 x1G/2.5G/10G SFP+
+ 2 10GT uplink
Industrial Managed Ethernet Switch
4 10G | Max 24GT | Max 28SFP | Max 24PoE | USB

I(P)GS-L6424XSFP
24 10/100/1000T (PoE at/af)
+ 4 1G/2.5G/10G SFP
Industrial Managed Ethernet Switch
4 10G | 24 GT | 24 PoE | USB

I(P)GS-6416XSFP
16 10/100/1000T (PoE at/af)
+ 4 1G/2.5G/10G SFP+
Industrial Managed Ethernet Switch
4 10G | 16 GT | 16 PoE | USB

I(P)GS-6488XSFP
8 10/100/1000T (PoE) + 8 100M/1G
SFP + 4 1G/2.5G/10G SFP+
Industrial Managed Ethernet Switch
4 10G | 8 GT | 8 SFP | 8 PoE | USB

Do you know?
Lantech switch can inject IP message to 3rd party CMS like Milestone for specific applications.

Do you know?
"P" in model name means PoE capacity.

Do you know?
OS3 series is able to upgrade to Layer 3 or L3L. (optional)

Model name (P) = PoE model

Industrial Managed (PoE) Ethernet Switches

Product Line-ups

OS3 Platform

I(P)GS-L5424MGSFP
24 10/100/1000T (PoE at/af)
+ 4 1G/2.5G SFP
Industrial Managed Ethernet Switch
Max 24GT | Max 18FX | Max 32SFP | Max 24PoE | USB

OS1 Platform

I(P)GS-5400-2P
4 Modular-Slots
L2+ Industrial Managed
Ethernet Switch
Max 24GT | Max 18FX | Max 32SFP | Max 24PoE | USB

OS1 Platform

I(P)GS-5424
24 10/100/1000T (PoE at/af)
+ 4 Dual Speed SFP L2+
Industrial Managed Ethernet Switch
24 GT | 4 SFP | 24 PoE | USB

OS1 Platform

IGS-5816-2P
8 10/100/1000T + 16 Dual Speed
SFP L2+ Industrial Managed
Ethernet Switch
8 GT | 16 SFP | USB

OS1 Platform

I(P)ES-3424DSFP-2P
24 10/100TX (PoE at/af)
+ 4 Dual Speed SFP L2+
Industrial Managed Ethernet Switch
4 SFP | 24 TX | 24 PoE | USB

OS1 Platform

I(P)GS-5416MGSFP
16 10/100/1000T (PoE at/af)
+ 4 1G/2.5G SFP L2+
Industrial Managed Ethernet Switch
4 SFP | 16 GT | 16 PoE | USB

OS1 Platform

I(P)GS-5488MGSFP
8 10/100/1000T (PoE) + 8 100M/1G
SFP + 4 1G/2.5G SFP L2+
Industrial Managed Ethernet Switch
12 SFP | 8 GT | 8 PoE | USB

OS1 Platform

I(P)GS-5408DFT
8 10/100/1000T (PoE) + 2 Dual
Speed SFP + 2 10/100/1000T L2+
Industrial Managed Ethernet Switch
2 SFP | 10 GT | 8 PoE | USB

OS1 Platform

I(P)GS-5408GSFP
8 10/100/1000T (PoE)
+ 4 1000M SFP L2+
Industrial Managed Ethernet Switch
4 SFP | 8 GT | 8 PoE | USB

OS1 Platform

I(P)GS-3408GSFP
8 10/100/1000T (PoE)
+ 4 1000M SFP L2+
Industrial Managed Ethernet Switch
4 SFP | 8 GT | 8 PoE

OS2 Platform

I(P)GS-3208GSFP
8 10/100/1000T (PoE)
+ 2 1000M SFP L2+
Industrial Managed Ethernet Switch
2 SFP | 8 GT | 8 PoE | USB

OS2 Platform

I(P)GS-3208C
8 10/100/1000T (PoE)
+ 2 10/100/1000T/Dual Speed SFP
Combo L2+ Industrial
Managed Ethernet Switch
2 Combo | 8 GT | 8 PoE | USB

OS2 Platform

I(P)GS-3204MGSFP
4 10/100/1000T (PoE)
+ 2 1G/2.5G SFP L2+
Industrial Managed Ethernet Switch
2 SFP | 4 GT | 4 PoE | USB

OS2 Platform

I(P)GS-3008
8 10/100/1000T (PoE)
L2+ Industrial
Managed Ethernet Switch
8 GT | 8 PoE

OS1 Platform

I(P)ES-3416DSFP
16 10/100TX (PoE)
+ 4 Dual Speed SFP L2+
Industrial Managed Ethernet Switch
4 SFP | 16 TX | 16 PoE

OS1 Platform

I(P)ES-5408DFT
8 10/100TX (PoE)
+ 2 10/100/1000T + 2 Dual Speed
SFP L2+ Industrial
Managed Ethernet Switch
2 SFP | 2 GT | 8 TX | 8 PoE

OS1 Platform

I(P)ES-3408GSFP
8 10/100TX (PoE)
+ 4 1000M SFP L2+
Industrial Managed Ethernet Switch
4 SFP | 8 TX | 8 PoE

2000 Series

I(P)ES-2208CB
8 10/100TX (PoE)
+ 4 10/100/1000T/Dual Speed
SFP Combo L2+ Industrial
Managed Ethernet Switch
2 Combo | 8 TX | 8 PoE

2000 Series

I(P)ES-2204F
4 10/100TX (PoE)
+ 2 100M SFP L2+
Industrial Managed Ethernet Switch
2 SFP | 4 TX | 4 PoE

Model name (P) = PoE model

Industrial Unmanaged (PoE) Ethernet

Built-in Power Converter

Normally in rolling stock and vehicle environments, 48V power supply is not available. The built-in power converter is able to boost up from 12V (car), 24V (bus), and step down 110V (train), making the devices function well.

Feed 30W Power – 802.3at (PoE model)

IEEE802.3at standard is able to feed up to 30W to each PoE port, which is twice as the previous 802.3af standard. It's ideal for big power consumption devices such as PTZ IP cameras, High power wireless AP, etc.

E-Marking Certified

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

Product Line-ups

I(P)GS-0208GSFP
8 10/100/1000T (PoE at/af)
+ 2 1000M SFP
Industrial Ethernet Switch
2 SFP | 8 GT | 8 PoE

I(P)GS-0208C
8 10/100/1000T (PoE at/af) +
2 10/100/1000T/Dual Speed SFP
Combo Industrial Ethernet Switch
2 Combo | 8 GT | 8 PoE

I(P)GS-0008B
8 10/100/1000T (PoE at/af)
Industrial Ethernet Switch
8 GT | 8 PoE

I(P)GS-0204DSFP
4 10/100/1000T (PoE)
+ 2 Dual Speed SFP
Industrial Ethernet Switch
2 SFP | 4 GT | 4 PoE

IPGS-0005T-4
5 10/100/1000T
w/ 4 PoE at/af
Industrial Ethernet Switch
5 GT | 4 PoE

IPGS-0101T
Industrial Gigabit Switch
with PoE 802.3at/af
2 GT | 1 PoE

I(P)ES-0208CA
8 10/100TX (PoE at/af) +
2 10/100/1000T/Dual Speed SFP
Combo Industrial Ethernet Switch
2 Combo | 8 TX | 8 PoE

IPES-0104GT-4
4 10/100TX PoE at/af +
1 10/100/1000T
Industrial Ethernet Switch
1 GT | 4 TX | 4 PoE

I(P)ES-0204DFT-4
4 10/100TX (PoE at/af) +
1 10/100/1000T + 1 Dual Speed SFP
Industrial Ethernet Switch
2 SFP | 4 TX | 4 PoE

I(P)ES-0008B
8 10/100TX (PoE)
Industrial Ethernet Switch
8 TX | 8 PoE

I(P)GC-0101DSFP
10/100/1000T
to 100/1000M SFP 802.3at
Industrial PoE Switch Converter
1 SFP | 1 GT | 1 PoE

Model name (P) = PoE model

Industrial IEC 61850-3 Ethernet Switches

IEC 61850-3 / IEEE 1613 Certified

The series complies with the strict substation-rated standard of IEC 61850-3 and IEEE 1613. It is able to help against electrical interference and meets communication requirements for network equipment used in power substations. For example, the switch was tested with high ESD of up to 8K (contact) and 15K (air).

Zero GOOSE Message Packet Loss

The series supports standardized GOOSE messages that ensure the most critical packets are transmitted. The manager is able to receive and react in unexpected accidents in real time without any packet loss.

IEC61850-90-4 switch data modeling

Lantech IEC 61850-3 model embeds a MMS server based on IEC61850-90-4 switch data modeling for power SCADA that allow power SCADA to control and monitor the switch without additional NMS.

Product Line-ups OS1 Platform

I(P)GS-5400-2P-PT
4 Modular Slots Industrial
L2+ IEC 61850-3
Managed (PoE) Switch
Max 24GT | Max 18FX | Max 32SFP | Max 24PoE | USB

I(P)GS-5424-PT
24 10/100/1000T (PoE)
+ 4 DualSpeed SFP IEC 61850-3
Managed Ethernet Switch
24 GT | 4 SFP | 24 PoE | USB

I(P)ES-3424DSFP-2P-PT
24 10/100TX (PoE)
+ 4 DualSpeed SFP IEC 61850-3
Managed Ethernet Switch
4 SFP | 24 TX | 24 PoE | USB

Do you know?

The series built-in MMS:

- IP address information
- Environmental Monitoring
- PoE status
- Port status
- Packet statistics

I(P)GS-5408DFT-PT
2 10/100/1000T + 2 100/1000 SFP
+ 8 10/100/1000T (PoE) IEC 61850-3
Industrial Managed Ethernet Switch
10 GT | 2 SFP | 8 PoE | USB

I(P)ES-5408DFT-PT
8 10/100TX (PoE) + 2 10/100/1000T
+ 2 Dual Speed SFP L2+
Industrial Managed Ethernet Switch
2 GT | 4 SFP | 8 TX

Model name (P) = PoE model

Industrial DNV Type Ethernet Switches

DNV Certified

DNV (Det Norske Veritas) is a certification that verifies maritime facilities comply for satisfactory operation in typical on-board environments. All the certified switches are designed to create a reliable solution for marine applications.

Strict EMC Tests

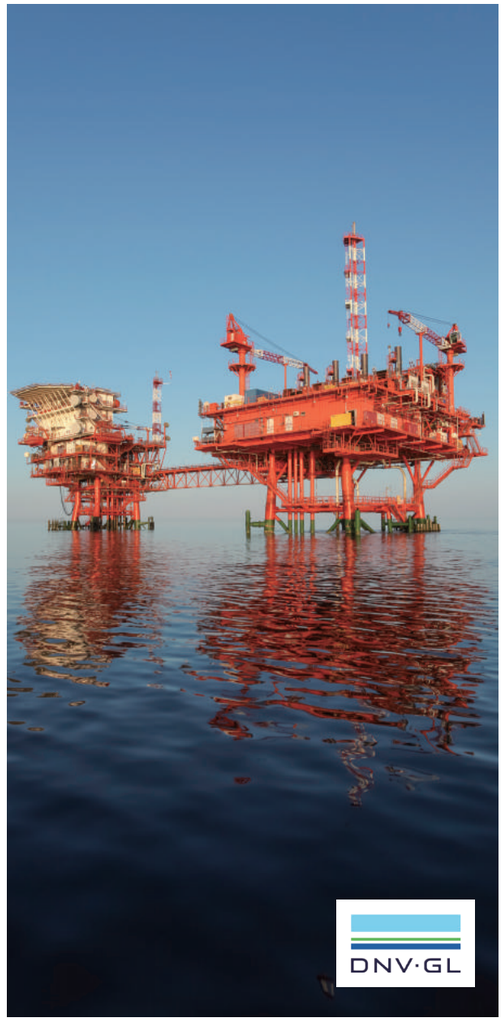
To meet the robustness that maritime applications required, Lantech DNV-certified switches passed several immunity tests, including conducted low frequency test, electrical transient/burst test, conducted radio frequency test, etc.

Prevent Compass Interference

In order to not interfere with a standard or with the steering magnetic compass installed for maritime applications, Lantech DNV-certified switches are tested for compass safe distance in accordance with IEC 60945.

Anti-Vibration

Three perpendicular plans (different frequency/ amplitude) are adopted to ensure the switches are able to function normally during and after intensive vibration in maritime environments.



Product Line-ups

LGS-2624C-DNV
20 10/100/1000T + 4 1000T/ 100/1000M SFP Combo + 2 100/ 1000M SFP L2+ Managed Switch
4 Combo | 20 GT | 2 SFP

IES-2208CA-DNV
8 10/100TX + 2 10/100/1000T/ Dual Speed SFP Combo
Industrial Managed Ethernet Switch
2 Combo | 8 TX

IES-2008B-DNV
8 10/100TX
Industrial Managed Ethernet Switch
8 TX

Do you know?
DNV GL is a globally leading quality assurance and risk management company founded in 1864 in Oslo, Norway.

Industrial Hazardous Ethernet Switches

UL Class 1 Division 2 Certified

Established by well-known Underwriters Laboratories (UL), "UL Class I Division II" is one of the most widely used safety certifications. All models are strictly tested by UL Class I Division II standard for group A, B, C, D, which covers most hazardous atmospheres.

ATEX Certified

The ATEX Directive 94/9/EC is a directive adopted by the European Union (EU) to facilitate free trade in the EU by aligning the technical and legal requirements in the Member States for products intended for use in potentially explosive atmospheres.

Non-sparking Components

To meet the standard of UL Class I Division II and ATEX, Lantech designs our hazardous series with an apparatus that normally has no arcing parts or thermal effects capable of ignition. Also, the components are hermetically sealed.

Non- incendive Design

Lantech hazardous series is incapable of igniting specified flammable gas–air or vapor–air mixture. The housing of a non-incendive component is not intended to exclude the flammable atmosphere or contain an explosion.

Product Line-ups

IES-2208CA (-ATEX)
8 10/100TX + 2 10/100/1000T/ Dual Speed SFP Combo
Industrial Managed Switch
2 Combo | 8 TX

IES-2008B (-ATEX)
8 10/100TX
Industrial Managed Ethernet Switch
8 TX

IES-0008T
8 10/100TX
Industrial Unmanaged Switch
8 TX

Do you know?
Lantech certified models provide up to Gigabit rapid speed and reliable Pro-Ring redundant protection.

Industrial Entry Ethernet Switches

IGS-0016
16 10/100/1000T
Industrial Unmanaged Switch

16 GT

IGS-0208GSFP
8 10/100/1000T + 2 1000M SFP
Industrial Unmanaged Switch

2 SFP | 8 GT

IGS-0204DSFP
4 10/100/1000T + 2 Dual Speed SFP
Industrial Unmanaged Switch

2 SFP | 4 GT

IGS-0008B
8 10/100/1000T
Industrial Unmanaged Switch

8 GT

IES-0208CA
8 10/100TX + 2 10/100/1000T/
Dual Speed SFP Combo
Industrial Unmanaged Switch

2 Combo | 8 TX

IES-0204DFT
4 10/100TX + 1 10/100/1000T
+ 1 Dual Speed SFP
Industrial Unmanaged Switch

1 SFP | 1 GT | 4 TX

IES-0204FT
4 10/100TX + 2 100FX
Industrial Unmanaged Switch

2 FX | 4 TX

IES-0104FT
4 10/100TX + 1 100FX
Industrial Unmanaged Switch

1 FX | 4 TX

IES-0016
16 10/100TX
Industrial Unmanaged Switch

16 TX

IES-0008B
8 10/100TX
Industrial Unmanaged Switch

8 TX

IES-0008T
8 10/100TX
Industrial Unmanaged Switch

8 TX

IES-0005T
5 10/100TX
Industrial Unmanaged Switch

5 TX

Industrial Converter Series

IPGC-0101DSFP
10/100/1000T to 100/1000M
SFP 802.3at Industrial
PoE Switch Converter

1 SFP | 1 GT | 1 PoE

IGC-0101DSFP
10/100/1000T to 100/1000M SFP
Industrial Switch Converter

1 SFP | 1 GT

IGS-022DSFP
1 100M/1000M SFP + 1 1000M SFP
Industrial Ethernet Switch Converter

2 SFP

Serial Devices

LSC-1102B
Ethernet to RS-232/ 422/ 485
Serial Device

1 Serial | 8 TX

LSC-0101U
USB to RS-422/485 Serial Device

1 Serial | USB

Central Managed Ethernet Switches

LPGS-2424C-240W
24 10/100/1000T + 4 1000T/
100/1000M SFP Combo L2 PoE af/at
Gigabit Managed Ethernet Switch

4 Combo | 24 GT | 24 PoE

LGS-2624C
20 10/100/1000T + 4 1000T/100/
1000M SFP Combo + 2 100/1000M
SFP L2+ Managed Switch

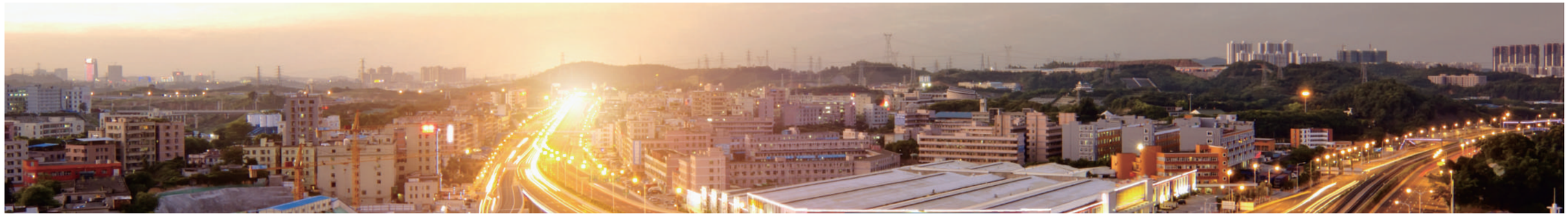
4 Combo | 20 GT | 2 SFP

PoE Series

POA-1000A
Single Port PoE Power Source
Injector IEEE802.3at/af PoE,
10/100/1000Mbps LAN

POA-100B
Single Port PoE Power Source
Injector IEEE802.3at/af PoE,
10/100Mbps LAN

POS-100A
Adjustable Output
Power Over Ethernet Splitter



Fiber Converters

CM-121
10/100/1000BaseT to 1000M SFP
Web Smart Fiber Media Converter

1 GT | 1 SFP

CM-022A
100/1000Base SFP to
100/1000Base SFP Media Converter

1 SFP | 1 SFP

CM-021DSFP
Gigabit Ethernet 10/100/1000Base-T
to 100/1000Base-X Media Converter

1 GT | 1 SFP

CM-011A
10/100TX to 100FX
Media Converter

1 TX | 1 SFP

MC-116-RPS
16 slots
Universal Media Converter Chassis

Supported Models: CM-121 | CM-022A | CM-011A

Products Naming Rule

TPES-R6416TA-8-PT-MM-XL-XAC-2S-67-12V-BB

- TP: I: Hardened (Industrial grade) / L: Non-industrial / T: EN50155 certified
- E: E: Major ports are 10/100TX Ethernet / G: Major ports are Giga Ethernet / W: Wireless
- S: S: Switch / C: Converter / Controller / R: Router / AP: Access Point / MR: Mobile Router
- P: P: PoE
- R: R: OS4 / L: OS3
- 6: 6: 10G uplinks / 5: 5: L2+ managed / 3: 3: L2+ managed / 2: 2: L2 managed / 1: 1: Smart managed / 0: 0: Unmanaged
- 6: # of uplink ports
- 4: # of major ports
- 16: Model version
- TA: C: Combo / F: Fiber / DF: Dual speed fiber / GF: Giga fiber / T/GT: Giga T / GSFP: 1000M SFP / DSFP: Dual speed SFP / DFT: Dual speed fiber + Giga T / AC: 802.11AC wireless / S: Compact size / XSFP(IP30): 1G/2.5G/10G SFP / MGSFP(IP30): 1G/2.5G SFP / XT: 1G/2.5G/5G/10G Copper / XF: 1G/2.5G/5G/10G Fiber / XFT: XT+ XF / MGT: 1G/2.5G Copper / MGF: 1G/2.5G Fiber / MGFT: MGT + MGF
- 8: # of PoE ports
- PT: PT: IEC 61850-3 compliance
- MM: SM/SX: Single mode fiber / MM/LX: Multi mode fiber / Q-ODC: Q-ODC connector / QSM: Single mode Q-ODC fiber / QMM: Multi mode Q-ODC fiber
- XL: 2L: 2 LTE modules / 1L: 1 LTE module / 2AC: 2 802.11AC modules / 1AC: 1 802.11AC module / WW: Worldwide LTE band / EUNA: Europe / North America LTE band / APAC: Asia Pacific LTE band
- XAC: AC=85~265VAC IEC320 / 2P=Dual embedded power
- 2S: 2 serial ports
- 67: 67: IP67 housing / 65: IP65 housing / 54: IP54 housing / 41: IP41 housing / 21: IP21 housing
- 12V: Input power: 12V=9.5~56VDC / 72V=50.4~90VDC / 110V=43~137.5VDC / HV=90~305VAC/120~430VDC / WV=16.8~137.5VDC / WVI=WV with isolation / LDC=36~85VDC
- BB: BB: 2-pairs bypass / B: 1-pair bypass / BT: 1-pair copper bypass / BBT: 2-pairs copper bypass / BF: 1-pair fiber bypass / BBF: 2-pairs fiber bypass

Accessories

ANT11000090

ANT11000091

ANT11000092

ANT11000041
ANT11000042
ANT11000051

ANT11000044
ANT11000045
ANT11000055

Multifunction Antenna

Part Number	Antenna Type	Band	Casing	Dimension	Gain
ANT11000091	5-in-1 2G/3G/4G MIMO (x2) GPS/GLONASS/GALILEO (x1) MIMO Dualband 802.11ac (x2)	2G/3G/4G MIMO: 698~960MHz, 1710~2170MHz, 2300~2700 MHz GPS/GLONASS/GALILEO (1575.42/1602MHz) Wi-Fi 2.4GHz / 5GHz (MIMO) x2	IP67, Screw Mount	Height 85.7mm x Diameter 145.6mm	3dBi
ANT11000092	6-in-1 2G/3G/4G MIMO (x2) GPS/GLONASS/GALILEO/BeiDou (x1) WiFi 2.4G/5GHz (x1) AM/FM (x1) DSRC 5.9GHz (x1)	2G/3G/4G MIMO: 698~960MHz, 1710~2170MHz, 2300~2700 MHz GPS/GLONASS/GALILEO/Bei Dou (1561/1575.42/1602MHz)	IP67, Screw Mount	176.2 x 84.5 x 70.8mm (LxWxH)	6dBi

Cellular Antenna

Part Number	Antenna Type	Band	Casing	Dimension	Gain
ANT11000041	2G/3G/4G dipo antenna EU type	791-960/ 1710~2170/ 2500~2700MHz	Plastic	162.2 x 19.6 x 13.5mm (LxWxH)	3dBi
ANT11000042	2G/3G/4G dipo antenna US type	704-960/1710~2170MHz	Plastic	162.2 x 19.6 x 13.5mm (LxWxH)	3dBi
ANT11000044	2G/3G/4G dipo antenna EU type	704-960/1710~2690MHz	Plastic	105 x 27 x 9.4mm (LxWxH)	1.6dBi
ANT11000045	2G/3G/4G dipo antenna US type	698-960/1710~2690MHZ	Plastic	105 x 27 x 9.4mm (LxWxH)	3dBi

Wi-Fi Antenna

Part Number	Antenna Type	Band	Casing	Dimension	Gain
ANT11000051	SMA dipo antenna	2.4/5GHz	Plastic	162.2 x 19.6 x 13.5mm (LxWxH)	3dBi (2.4GHz) 4dBi (5GHz)
ANT11000055	SMA dipo antenna	2.4/5GHz	Plastic	105 x 27 x 9.4mm (LxWxH)	6dBi (2.4GHz) 4dBi (5GHz)
ANT11000090	802.11ac 3x3 MIMO	2.4/5GHz	IP67, Screw Mount	Height 65.35mm x Diameter 147.5mm	5dBi

Antenna Base

Part Number	Description
ADA11000052	Magnetic antenna base for Wi-Fi, RP SMA Jack Base, Length : 1M
ADA11000053	Magnetic antenna base for 3G/4G, RP SMA Jack Base, Length : 1M

ADA11000052 / AD11000053

SFP (Mini-GBIC)

DDM SFP All SPF part no. with D have Diagnostic function

SFP 10Gbps

Part Number	Wavelength	LD	IO	LOS	Mode	Link	Temp.
8330-193D	850nm	VCSEL	AC/AC	TTL	Multi-mode	300m	-10~70°C
8330-194D	1310nm	DFB	AC/AC	TTL	Single-mode	10km	-10~70°C
8330-200D	1270nm	DFB	AC/AC	TTL	Single-mode	20km	-10~70°C
8330-201D	1330nm	DFB	AC/AC	TTL	Single-mode	20km	-10~70°C
8330-202D	1270nm	DFB	AC/AC	TTL	Single-mode	40km	-10~70°C
8330-203D	1330nm	DFB	AC/AC	TTL	Single-mode	40km	-10~70°C
8330-193D-E	850nm	VCSEL	AC/AC	TTL	Multi-mode	300m	-40~85°C
8330-194D-E	1310nm	DFB	AC/AC	TTL	Single-mode	10km	-40~85°C
8330-200D-E	1270nm	DFB	AC/AC	TTL	Single-mode	20km	-40~85°C
8330-201D-E	1330nm	DFB	AC/AC	TTL	Single-mode	20km	-40~85°C
8330-202D-E	1270nm	DFB	AC/AC	TTL	Single-mode	40km	-40~85°C
8330-203D-E	1330nm	DFB	AC/AC	TTL	Single-mode	40km	-40~85°C

SFP 2.5Gbps

Part Number	Wavelength	LD	IO	LOS	Mode	Link	Temp.
8330-262D	850 nm	VCSEL	AC/AC	TTL	Multi-mode	300m	-10~70°C
8330-263D	1310 nm	FP	AC/AC	TTL	Single-mode	2km	-10~70°C
8330-265D	1310 nm	DFB	AC/AC	TTL	Single-mode	15km	-10~70°C
8330-262D-E	850 nm	VCSEL	AC/AC	TTL	Multi-mode	300m	-40~85°C
8330-263D-E	1310 nm	FP	AC/AC	TTL	Single-mode	2km	-40~85°C
8330-265D-E	1310 nm	DFB	AC/AC	TTL	Single-mode	15km	-40~85°C

SFP 1.25Gbps

Part Number	Wavelength	LD	IO	LOS	Mode	Link	Temp.
8330-162	850 nm	VCSEL	AC/AC	TTL	Multi-mode	550m	-10~70°C
8330-163	1310 nm	FP	AC/AC	TTL	Multi-mode	2km	-10~70°C
8330-165	1310 nm	FP	AC/AC	TTL	Single-mode	10km	-10~70°C
8340-0591	1310 nm	DFB	AC/AC	TTL	Single-mode	40km	-10~70°C
8330-166	1550 nm	DFB	AC/AC	TTL	Single-mode	50km	-10~70°C
8330-169	1550 nm	DFB	AC/AC	TTL	Single-mode	60km	-10~70°C
8330-167	1550 nm	DFB	AC/AC	TTL	Single-mode	80km	-10~70°C
8330-170	1550 nm	DFB	AC/AC	TTL	Single-mode	120km	-10~70°C
8330-162-E	850 nm	VCSEL	AC/AC	TTL	Multi-mode	550m	-40~85°C
8330-163-E	1310 nm	FP	AC/AC	TTL	Multi-mode	2km	-40~85°C
8330-165-E	1310 nm	FP	AC/AC	TTL	Single-mode	10km	-40~85°C
8340-0591-E	1310 nm	DFB	AC/AC	TTL	Single-mode	40km	-40~85°C
8330-166-E	1550 nm	DFB	AC/AC	TTL	Single-mode	50km	-40~85°C
8330-169-E	1550 nm	DFB	AC/AC	TTL	Single-mode	60km	-40~85°C
8330-167-E	1550 nm	DFB	AC/AC	TTL	Single-mode	80km	-40~85°C
8330-170-E	1550 nm	DFB	AC/AC	TTL	Single-mode	120km	-40~85°C

SFP 125Mbps

Part Number	Wavelength	LD	IO	LOS	Mode	Link	Temp.
8330-060	1310nm	FP	AC/AC	TTL	Multi-mode	2km	-10~70°C
8330-065	1310nm	FP	AC/AC	TTL	Multi-mode	5km	-10~70°C
8330-061	1310nm	FP	AC/AC	TTL	Single-mode	30km	-10~70°C
8330-060-E	1310nm	FP	AC/AC	TTL	Multi-mode	2km	-40~85°C
8330-065-E	1310nm	FP	AC/AC	TTL	Multi-mode	5km	-40~85°C
8330-061-E	1310nm	FP	AC/AC	TTL	Single-mode	30km	-40~85°C

SFP 1000T

Part Number	Description
8330-168	10/100/1000Base-T, SFP, 100m, 3.3V, -10~70°C
8330-168-E	10/100/1000Base-T, SFP, 100m, 3.3V, -40~85°C

125Mbps/1.25Gbps Dual-rate

Part Number	Wavelength	LD	IO	LOS	Mode	Link	Temp.
8330-191	1310nm	FP	AC/AC	TTL	Single-mode	10km	-10~70°C
8330-191-E	1310nm	FP	AC/AC	TTL	Single-mode	10km	-40~85°C

BiDi SFP 1.25Gbps

Part Number	TX	LD	RX	IO	LOS	Link	Temp.
8330-197	1310nm	FP	1550nm	AC/AC	TTL	0.5km	-10~70°C
8330-195	1310nm	FP	1550nm	AC/AC	TTL	2km	-10~70°C
8330-188	1310nm	FP	1550nm	AC/AC	TTL	10km	-10~70°C
8330-186	1310nm	FP	1550nm	AC/AC	TTL	20km	-10~70°C
8330-180	1310nm	DFB	1550nm	AC/AC	TTL	40km	-10~70°C
8330-181	1310nm	DFB	1550nm	AC/AC	TTL	60km	-10~70°C
8330-184	1490nm	DFB	1550nm	AC/AC	TTL	80km	-10~70°C
8330-197-E	1310nm	FP	1550nm	AC/AC	TTL	0.5km	-40~85°C
8330-195-E	1310nm	FP	1550nm	AC/AC	TTL	2km	-40~85°C
8330-188-E	1310nm	FP	1550nm	AC/AC	TTL	10km	-40~85°C
8330-186-E	1310nm	FP	1550nm	AC/AC	TTL	20km	-40~85°C
8330-180-E	1310nm	DFB	1550nm	AC/AC	TTL	40km	-40~85°C
8330-181-E	1310nm	DFB	1550nm	AC/AC	TTL	60km	-40~85°C
8330-184-E	1490nm	DFB	1550nm	AC/AC	TTL	80km	-40~85°C
8330-198	1550nm	FP	1310nm	AC/AC	TTL	0.5km	-10~70°C
8330-196	1550nm	FP	1310nm	AC/AC	TTL	2km	-10~70°C
8330-189	1550nm	DFB	1310nm	AC/AC	TTL	10km	-10~70°C
8330-187	1550nm	DFB	1310nm	AC/AC	TTL	20km	-10~70°C
8330-182	1550nm	DFB	1310nm	AC/AC	TTL	40km	-10~70°C
8330-183	1550nm	DFB	1310nm	AC/AC	TTL	60km	-10~70°C
8330-185	1550nm	DFB	1490nm	AC/AC	TTL	80km	-10~70°C
8330-198-E	1550nm	FP	1310nm	AC/AC	TTL	0.5km	-40~85°C
8330-196-E	1550nm	FP	1310nm	AC/AC	TTL	2km	-40~85°C
8330-189-E	1550nm	DFB	1310nm	AC/AC	TTL	10km	-40~85°C
8330-187-E	1550nm	DFB	1310nm	AC/AC	TTL	20km	-40~85°C
8330-182-E	1550nm	DFB	1310nm	AC/AC	TTL	40km	-40~85°C
8330-183-E	1550nm	DFB	1310nm	AC/AC	TTL	60km	-40~85°C
8330-185-E	1550nm	DFB	1490nm	AC/AC	TTL	80km	-40~85°C

BiDi SFP 125Mbps

Part Number	TX	LD	RX	IO	LOS	Link	Temp.
8330-071	1310nm	FP	1550nm	AC/AC	TTL	2km	-10~70°C
8330-069	1310nm	FP	1550nm	AC/AC	TTL	20km	-10~70°C
8330-080	1310nm	FP	1550nm	AC/AC	TTL	40km	-10~70°C
8330-081	1310nm	FP	1550nm	AC/AC	TTL	60km	-10~70°C
8330-084	1310nm	FP	1550nm	AC/AC	TTL	80km	-10~70°C
8330-071-E	1310nm	FP	1550nm	AC/AC	TTL	2km	-40~85°C
8330-069-E	1310nm	FP	1550nm	AC/AC	TTL	20km	-40~85°C
8330-080-E	1310nm	FP	1550nm	AC/AC	TTL	40km	-40~85°C
8330-081-E	1310nm	FP	1550nm	AC/AC	TTL	60km	-40~85°C
8330-084-E	1310nm	FP	1550nm	AC/AC	TTL	80km	-40~85°C
8330-072	1550nm	FP	1310nm	AC/AC	TTL	2km	-10~70°C
8330-068	1550nm	FP	1310nm	AC/AC	TTL	20km	-10~70°C
8330-082	1550nm	DFB	1310nm	AC/AC	TTL	40km	-10~70°C
8330-083	1550nm	DFB	1310nm	AC/AC	TTL	60km	-10~70°C
8330-085	1550nm	DFB	1310nm	AC/AC	TTL	80km	-10~70°C
8330-072-E	1550nm	FP	1310nm	AC/AC	TTL	2km	-40~85°C
8330-068-E	1550nm	FP	1310nm	AC/AC	TTL	20km	-40~85°C
8330-082-E	1550nm	DFB	1310nm	AC/AC	TTL	40km	-40~85°C
8330-083-E	1550nm	DFB	1310nm	AC/AC	TTL	60km	-40~85°C
8330-085-E	1550nm	DFB	1310nm	AC/AC	TTL	80km	-40~85°C

Bracket

Part Number	Description
MBAK19002	L-Bracket that can change 90 degree of DIN rail mounting
MBAK19003	Wall mount bracket for 74 (W) x 105 (D) x 152 (H) mm / 74 (W) x 135 (D) x 152 (H) / 96 (W) x 105 (D) x 152 (H) mm Industrial Switches
MBAK19008	Wall mount bracket for 35 (W) x 105 (D) x 152 (H) mm / 43 (W) x 105 (D) x 152 (H) mm Industrial Switches
MBAK19004	19" Rack Mounting Kit for 74 (W) x 105 (D) x 152 (H) mm / 74 (W) x 135 (D) x 152 (H) mm Industrial Switches
MBAK19005	19" Rack Mounting Kit for 35 (W) x 105 (D) x 152 (H) mm Industrial Switches
MBAK19009	19" Rack Mounting Kit for 43 (W) x 105 (D) x 152 (H) mm Industrial Switches
MBAK19006	Side DIN Rail mounted fin for 74 (W) x 105 (D) x 152 (H) mm Industrial Switches
MBAK19007	Side DIN Rail mounted fin for 74 (W) x 135 (D) x 152 (H) mm Industrial Switches

Power Supply

Model	O/P voltage Adjustment	Loading (A)			Ripple Noise	Line Reg.	Load Reg.	Efficiency	Overvoltage Protection
		Min.	Rated	Max.					
MDR-20-5	4.75~5.5VDC	0A	3A	3A	80mVp-p	±1%	±1%	76.0%	5.75~6.75VDC
MDR-20-12	10.8~13.2VDC	0A	1.67A	1.67A	120mVp-p	±1%	±1%	80.0%	13.8~16.2VDC
MDR-20-24	13.5~16.5VDC	0A	1.34A	1.34A	120mVp-p	±1%	±1%	81.0%	17.25~20.25VDC
MDR-20-48	21.6~26.4VDC	0A	1A	1A	150mVp-p	±1%	±1%	84.0%	27.6~32.4VDC
MDR-40-5	5~6VDC	0A	6A	6A	80mVp-p	±1%	±1%	78.0%	6.25~7.25VDC
MDR-40-12	12~15VDC	0A	3.33A	3.33A	120mVp-p	±1%	±1%	86.0%	15.6~18VDC
MDR-40-24	24~30VDC	0A	1.7A	1.7A	150mVp-p	±1%	±1%	88.0%	31.2~36VDC
MDR-40-48	48~56VDC	0A	0.83A	0.83A	200mVp-p	±1%	±1%	88.0%	57.6~64.8VDC
NDR-75-12	12~14VDC	0A	6.3A	6.3A	80mVp-p	±0.5%	±1%	85.5%	14~17VDC
NDR-75-24	24~28VDC	0A	3.2A	3.2A	120mVp-p	±0.5%	±1%	88.0%	29~33VDC
NDR-75-48	48~55VDC	0A	1.6A	1.6A	150mVp-p	±0.5%	±1%	89.0%	56~65VDC
NDR-120-12	12~14VDC	0A	10A	10A	100mVp-p	±0.5%	±1%	85.5%	14~17VDC
NDR-120-24	24~28VDC	0A	5A	5A	120mVp-p	±0.5%	±1%	88.0%	29~33VDC
NDR-120-48	48~55VDC	0A	2.5A	2.5A	150mVp-p	±0.5%	±1%	89.0%	56~65VDC
NDR-240-24	24~28VDC	0A	10A	10A	150mVp-p	±0.5%	±1%	88.5%	29~33VDC
NDR-240-48	48~55VDC	0A	5A	5A	150mVp-p	±0.5%	±1%	90.0%	56~65VDC
NDR-480-24	24~28VDC	0A	20A	20A	150mVp-p	±0.5%	±1%	92.5%	29~33VDC
NDR-480-48	48~55VDC	0A	10A	10A	150mVp-p	±0.5%	±1%	92.5%	56~65VDC
AD1024-24F	+24VDC±10%	0A	1A	1A	150mVp-p	±1%	±1%	83.0%	40VDC Max
AD1024-24F-E	+24VDC±10%	0A	1A	1A	150mVp-p	±1%	±1%	83.0%	40VDC Max
AD1048-24F	+24VDC±10%	0A	2A	2A	150mVp-p	±1%	±1%	83.0%	27~30VDC
AD1048-24F-E	+24VDC±10%	0A	2A	2A	150mVp-p	±1%	±1%	83.0%	27~30VDC
AD1048-24FS	+24VDC±10%	0A	2A	2A	150mVp-p	±1%	±1%	83.0%	40VDC Max
AD1048-24FS-E	+24VDC±10%	0A	2A	2A	150mVp-p	±1%	±1%	83.0%	40VDC Max
AD1048-48F	+48VDC±10%	0A	1A	1A	250mVp-p	±1%	±1%	83.0%	52~57VDC
AD1048-48FS	+48VDC±10%	0A	1A	1A	250mVp-p	±1%	±1%	83.0%	60VDC Max
AD1072-24F	+24VDC±10%	0A	3A	3A	150mVp-p	±1%	±1%	81.0%	27~30VDC
AD1072-48F	+48VDC±10%	0A	1.5A	1.5A	250mVp-p	±1%	±1%	82.0%	52~56VDC
AD1120-24F	+24VDC±10%	0A	5A	5A	150mVp-p	±1%	±1%	81.0%	27~30VDC
AD1120-48F	+48VDC±10%	0A	2.5A	2.5A	550mVp-p	±1%	±1%	83.0%	52~56VDC
AD1240-24S	+24VDC±10%	0A	10A	10A	150mVp-p	±1%	±1%	83.0%	27~30VDC
AD1240-48S	+48VDC±10%	0A	5A	5A	250mVp-p	±1%	±1%	84.0%	52~56VDC
AD1360-24S	+24VDC±10%	0A	15A	15A	150mVp-p	±1%	±2%	82.0%	40VDC Max
AD1360-48S	+48VDC±10%	0A	7.5A	7.5A	250mVp-p	±1%	±2%	83.0%	52~56VDC
AD1500-24S	+24VDC±10%	0A	21A	21A	150mVp-p	±1%	±2%	84.0%	27~30VDC
AD1500-48S	+48VDC±10%	0A	10.5A	10.5A	250mVp-p	±1%	±2%	85.0%	52~56VDC

Note:
1. Each output can supply up to maximum current, but total loading cannot exceed rated output wattage.
2. Line regulation is measured from low line to high line at rated load.
3. Load regulation is measured from 20% to 100% of rated load at 110VAC input.
4. Ripple & Noise is measured by using a 0.1uF/630V metalized capacitor & a 47uF electrolytic capacitor parallel on the test point, at rated load and 110VAC input.
5. Efficiency is measured at rated load and 110VAC input.
6. Standard Operating Temperature: -20°C ~ 50°C / ambient, derating each output at 2.5% per degree from 50°C ~ 70°C
6. Wide Operating Temperature (-E model): -40°C* ~ 75°C / ambient, derating each output at 2.5% per degree from 50°C ~ 75°C, which means the output is 18 Watts at 75°C

*Note: Starting time of -E model is 1.5 to 2 seconds at -40°C

Cable

Part Number	Description	Pin Number	Type	Length	Gender
ECONM12-5P(F)70CM CABLE	A-coded 90° Power Cable	5	M12	0.7M	Female
ECONM12-5P(F)1.5M CABLE	A-coded 90° Power Cable	5	M12	1.5M	Female
ECONM23-5P(F)70CM CABLE	A-coded 90° Power Cable, Made in Taiwan	5	M23	0.7M	Female
ECONM23-5P(F)70CM CABLE-C	A-coded 90° Power Cable, Made in China	5	M23	0.7M	Female
ECONM23-5P(F)1.5M CABLE	A-coded 90° Power Cable, Made in Taiwan	5	M23	1.5M	Female
ECONM12-4P(F)1.5M CABLE	A-coded 90° Power Cable	4	M12	1.5M	Female
ECONM12-08M2-CONSOLE	A-coded 180° to RS232 cable for console	8	M12	1.5M	Male
ECABM12X83MSTP	X-coded Shielded Twisted Pair (STP) Cable	8	M12	3M	Male
ECAB124030MJS	D-coded Shielded Twisted Pair (STP) Cable	4	M12	3M	Male
ECABMO02-QOP2-3.0-MM-OM3	Q-ODC 2 plug/LC multimode fiber, MM-OM3	-	Q-ODC	3M	-

Connector

ECONM23-5P(F)-S-180

ECONM23-5P(F)-S-90

ECONM12-04A(F)-C-180

ECONM12-05A(F)-C-180

Part Number	Description	Pin Number	Type	Gender
ECONM23-5P(F)-S-180	A-coded 180° Screw Type Connector	5	M23	Female
ECONM23-5P(F)-S-90	A-coded 90° Screw Type Connector	5	M23	Female
ECONM12-05A(F)-C-180	A-coded 180° Crimp Type Connector	5	M12	Female
ECONM12-04A(F)-C-180	A-coded 180° Crimp Type Connector	4	M12	Female
ECONM12-08A(M)-180	A-coded 180° Crimp Type Connector	8	M12	Male
ECONM12-05A(M)-C-180	A-coded 180° Crimp Type Connector	5	M12	Male
ECONM12-08X(M)-SPEEDCON	X-coded 180° Crimp Type Connector (shielded, SPEEDCON)	8	M12	Male
ECONM12-04D(M)-C-180	D-coded 180° Crimp Type Connector	4	M12	Male

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