Lantech™
2018
PRODUCT GUIDE

Pioneering Industrial and IP Networks

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. Lantech provides outstanding service and support to our world-wide partners & distribution network. Lantech's core values are based on our development of class leading software and hardware products, which allow for the seamless delivery of a variety of applications and services in diverse network environments.

Lantech offers a complete range of hardened and non-hardened networking products in support of the global transition to all Ethernet services. Lantech products and solutions provide for the delivery of universal Ethernet services across various markets and applications.

Lantech provide high quality products with customer-focused services from our sales offices located in Taiwan, Germany, UK and Korea. Our products are available worldwide through a network of respected channel partners, these partners have been selected by meeting strict standards of technical knowledge & customer services. Lantech is able to provide cost effective high-performance solutions to any industrial IP network with ongoing support for our legacy products.

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

TAIWAN QUALITY
5 YEAR WARRANTY

*Industrial-grade products

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Our Quality Assurance

Technical innovation
Sustainable improvements
Customer satisfaction
Grow responsibly with suppliers

SGS

UKAS MANAGEMENT SYSTEMS
0005

On-board networking solution
for rail-train, metro and tram

Delivering the substantial operational and passenger communication data in a rolling stock application is crucial yet making it flexible for easy maintenance is biggest challenge for on-board network solutions.

Improving adaptability by LTDP
(Link Train Discovery Protocol)

Link Train Discovery Protocol minimizes the maintenance requirement by keeping the config files and topology in Lantech switch, thus automatically allocating the same IP addresses to devices when replaced with a new Lantech switch.

Wireless 11ac Dual RF AP for hot-spot
and bridge applications

Lantech offers the latest 11ac dual band and dual RF access points(AP) these units can enable hot-spot and bridge applications in one device.

L3 and IEC 61375 solutions

When the train network needs to operate across different subnets or manufacturers, the L3 or IEC61375 solution should be considered, particularly the IEC61375 solution that consists of R-NAT, TTDP and VRRP elements.
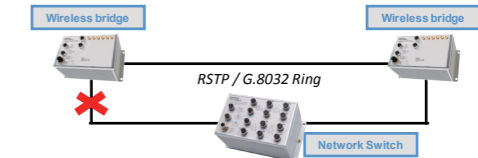
Between wired and wireless
redundancy

Lantech supports redundant Ethernet link between wireless AP and switch through RSTP or G.8032 ring and provides self-healing path at link failure.

RSTP / G.8032 Ring

Wireless bridge — Wireless bridge — Network Switch

TWDP Combined
with wireless bridges

Wireless bridge function is convenient for inter-car communications, this can be problematic if the SSID's need to be reconfigured when car / carriage is moved. TWDP can also match the SSID for the Lantech wireless access points.
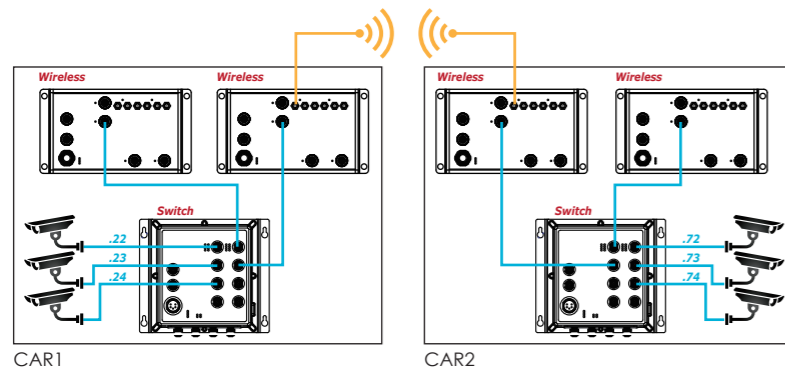
Smart DHCP functions

DHCP option 82 and relay agent function (port or vlan based DHCP distribution) can provide the same IP address on port based or vlan based configurations, where there is need to replace a device connecting to Lantech switch, this avoids any network disruption. The built-in DHCP Option 82 server offers the convenience of policy setting on the switch. Mac based DHCP server function assigns an IP address according to its MAC address to include unmanaged switches in the DHCP network.

Wireless — Wireless

Switch

.22
.23
.24

CAR1

Wireless — Wireless

Switch

.72
.73
.74

CAR2

Smart DHCP Server — Unmanaged Switch

Port 6
Port 2
Port-based DHCP

Mac-based DHCP

Uplink   Uplink

DHCP Relay Agent — DHCP Relay Agent

Port 7
Port 5
Port 3

VLAN1

VLAN2

Request / Assign
IP by Agent's ID and Port ID

Request / Assign
IP by Agent's ID and VLAN ID

Trackside networking solutions

In trackside applications, there are many factors to take into consideration, weather, electro-magnetic interference from overhead lines or third rail electrification, fiber optic connections & restricted cabinet sizes are just some of the obstacles to deploying the correct solution.

Wifi roaming < 50ms

The next generation of passenger Wi-FI hotspots and train operation information can utilize WI-FI roaming technology for track to train communications. Lantech's WI-FI roaming technology switching time is less than 50ms between on board communication to station AP or vice versa. This provides a seamless operation for the passengers using the onboard WI-FI & train operational data.

Control Center

TWC-5002 Controller

200M

Enhanced ITU G.8032 Ring

200M

Station 1

200M

Enhanced ITU G.8032 Ring

200M

200M

Onboard

200M

Station 2

— GigaFiber
— 100TX PoE
— 100TX
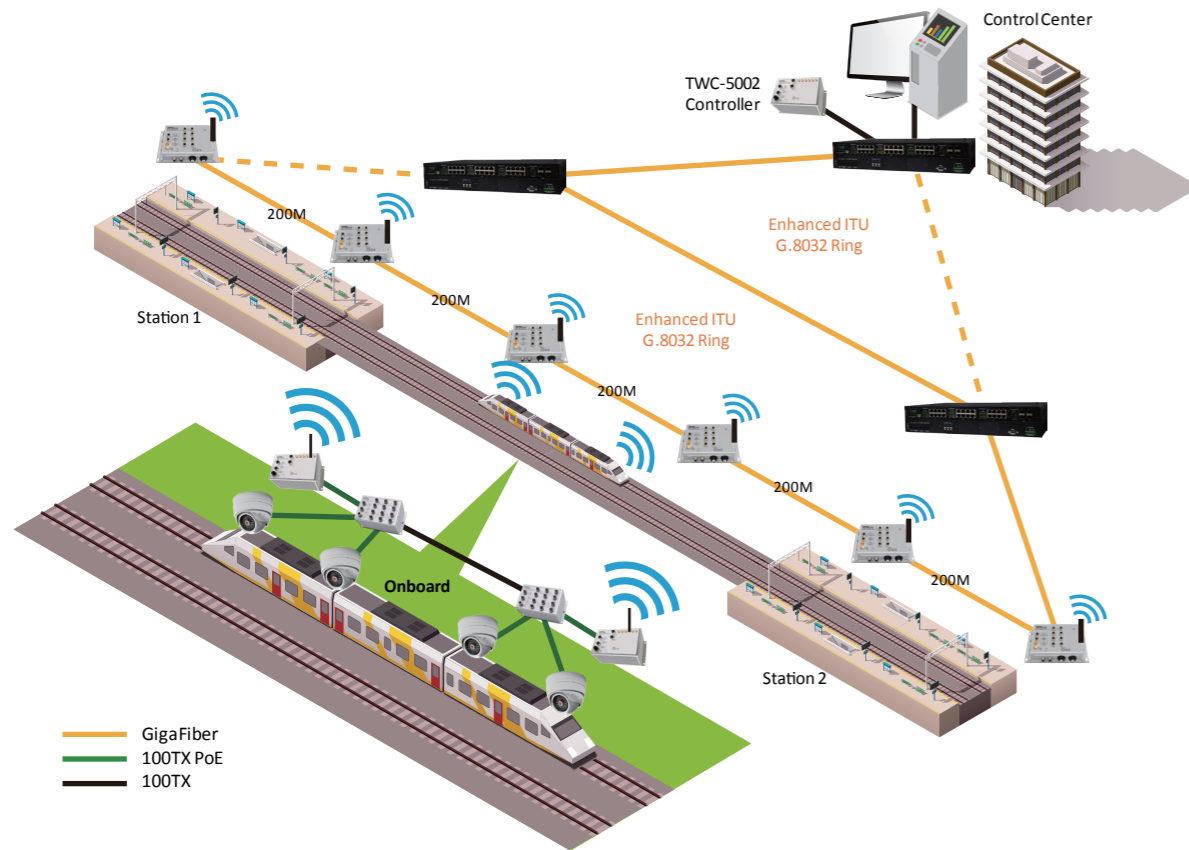
Multisite VPN & Firewall

The series support latest Multi-Site VPN function that is an efficient way for mesh tunneling. The registration is under cloud service and encrypted by SSH makes the connection easy and safe. It supports Multi-Site VPN, Open VPN , L2TP, IPsec and PPTP** for various VPN applications. The built-in Layer-4 firewall includes DoS*, SPI Firewall, IP address filter / Mac address filter* / TCP/UDP port number as well as IP and Mac address binding*

Air-teaming for wireless trunking and redundancy

For wireless hotspot, bandwidth requirement is a major factor for providing a good passenger experience, this is also a major requirement for wireless bridging. Lantech's wireless trunking can provide double the WI-FI bandwidth, and wireless redundancy to ensure a failover connection. The system can provide up to 100 simultaneous users per radio channel this maximizes the number of users & resources available.

Redundant Client   Redundant Client   Redundant Client   Redundant Client

Failover

When WLAN1 broken, the traffic will be transferred to WLAN 2 automatically

Fail   Fail

Aggregation

Combine multiple wireless links together

Redundant AP   **Ethernet LACP**   Redundant AP
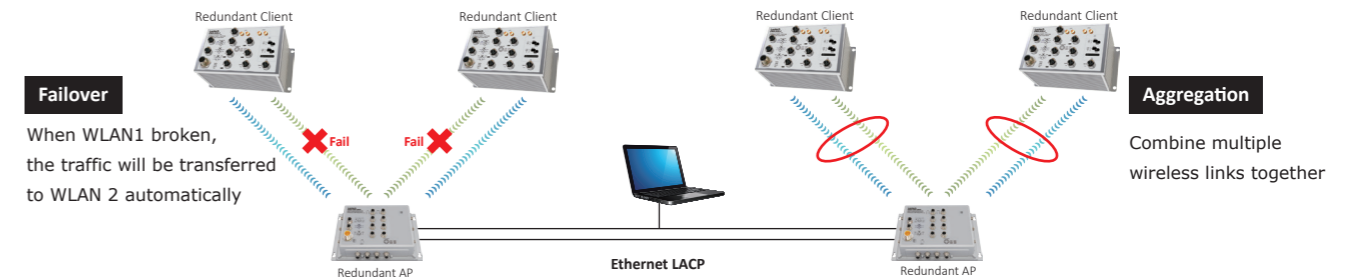
Highly integrated router including Wifi, NAT, PoE, fiber and bypass in IP67 housing

Lantech's TPWAP-5208MGF-2WAN series of managed switch routers can provide NAT, concurrent 11ac Wi-FI + LTE , POE switch w/fibre uplinks & bypass in one IP67 unit reducing the space required, while creating a robust network.
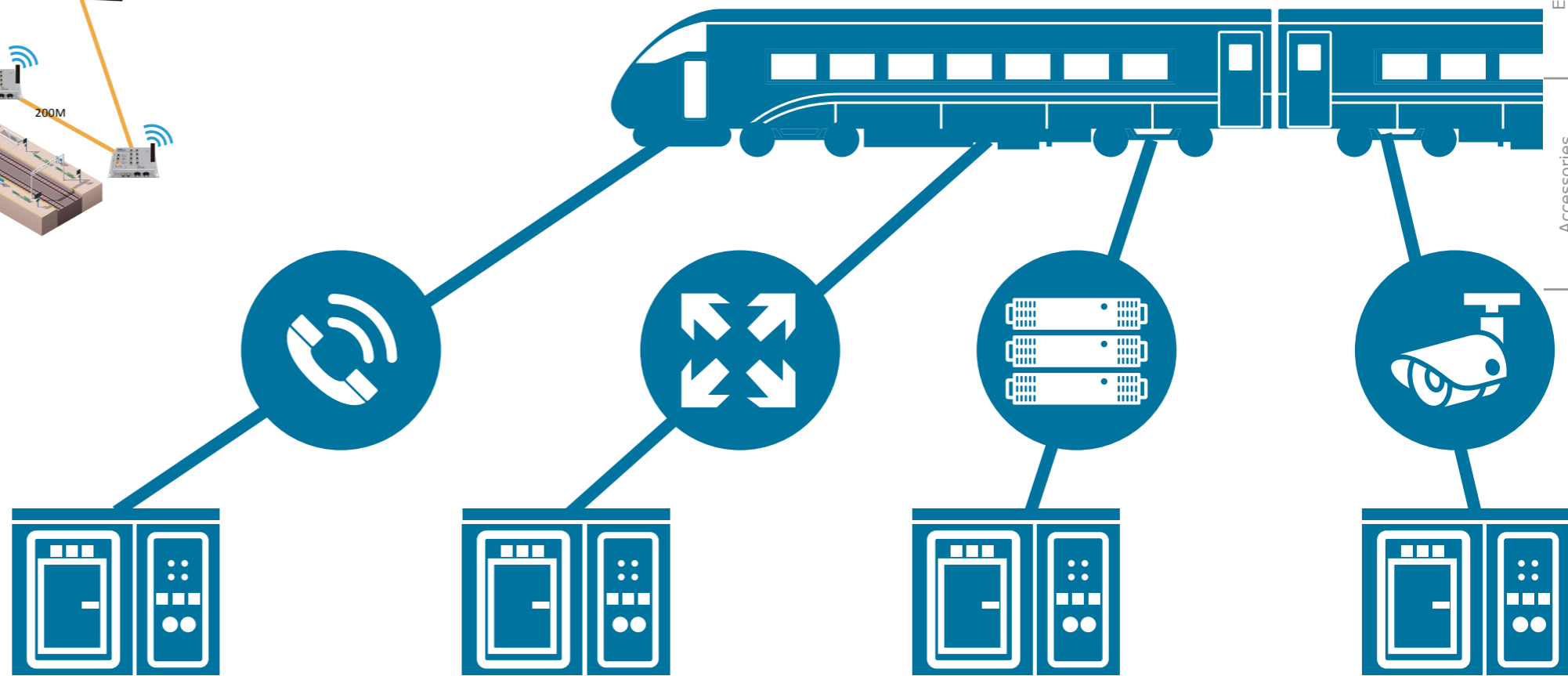
Standard / Basic / Full Package for Load balancing

With 8 different schemes for load balancing, Lantech routers can prioritize different data requirements with different paths for maximum performance of the bandwidth available.

STANDARD

Fixed
Manually route by traffic type through fixed WAN link.

Video Stream — FTP — Website + Database — ISP 1 / ISP 2 / ISP 3 — Internet

BASIC PACKAGE

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

Heavy Load — ISP 1 / ISP 2 / ISP 3 — Internet

Single WAN output

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

Fail — ISP 1 / ISP 2 / ISP 3 — Internet

FULL PACKAGE

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

Weight of ISP = 1 : 2 : 3 — ISP 1 / ISP 2 / ISP 3 — Internet

Fastest
Routes connections through the WAN link with lowest latency time.

ISP 1: Latency High
ISP 2: Latency Medium
ISP 3: Latency Low
others — ISP 1 / ISP 2 / ISP 3 — Internet

Concurrent multi-WAN output

Smallest Load
Routes connections through the WAN link with highest free bandwidth ratio*. The traffic load could be by downstream, upstream or total traffic.

ISP 1: 70% Used
ISP 2: 50% Used
ISP 3: 0% Used
others — ISP 1 / ISP 2 / ISP 3 — Internet

*The ratio = 1 - (traffic load / the capability of a WAN link).

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

Traffic: TCP/UDP port number and IP address
Responce — ISP 1 / ISP 2 / ISP 3 — Internet

Sticky Session
Bind all connections in an application session to particular WAN link. This ensures that all connections in the session are routed to the same WAN link. This is suitable for security services like online payment etc.

others — WAN1 / WAN2 / WAN3 — Internet

TWDP = Train Wireless Discovery Protocol
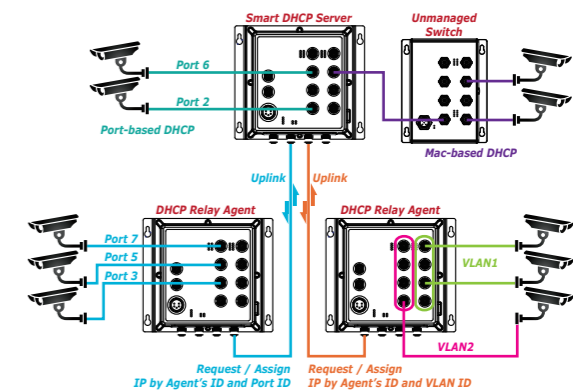
Wireless bridge function is convenient for inter-car communications, this can be problematic if the SSID's need to be reconfigured when car / carriage is moved. TWDP can also match the SSID for the Lantech wireless access points.

Auto IP Assignment

192.168.16.

10   11   12   13
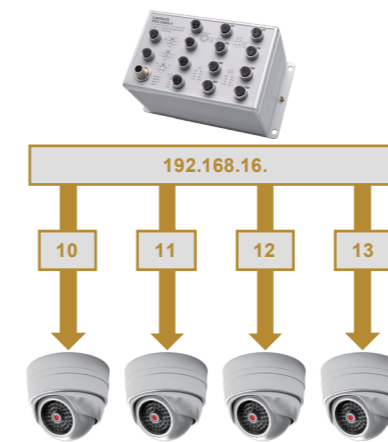
Ring Protection

Wireless bridge   Wireless bridge

G.8032 Ring

Network Switch

Wireless Redundancy (A)

AP (2AC)   AP (2AC)

AP (2AC)   AP (2AC)
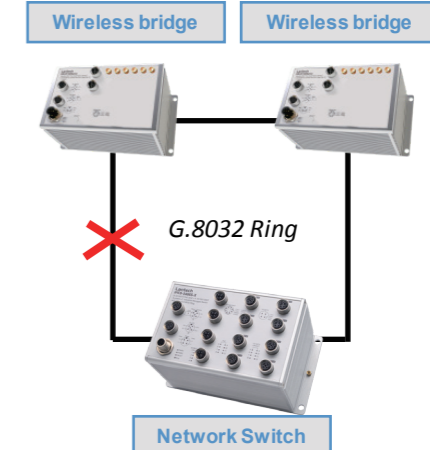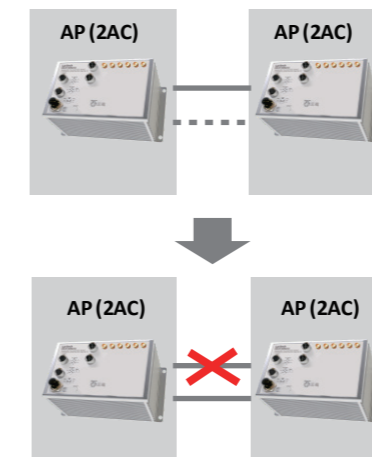
Wireless Redundancy (B)

AP   AP
AP   AP

AP   AP
AP   AP
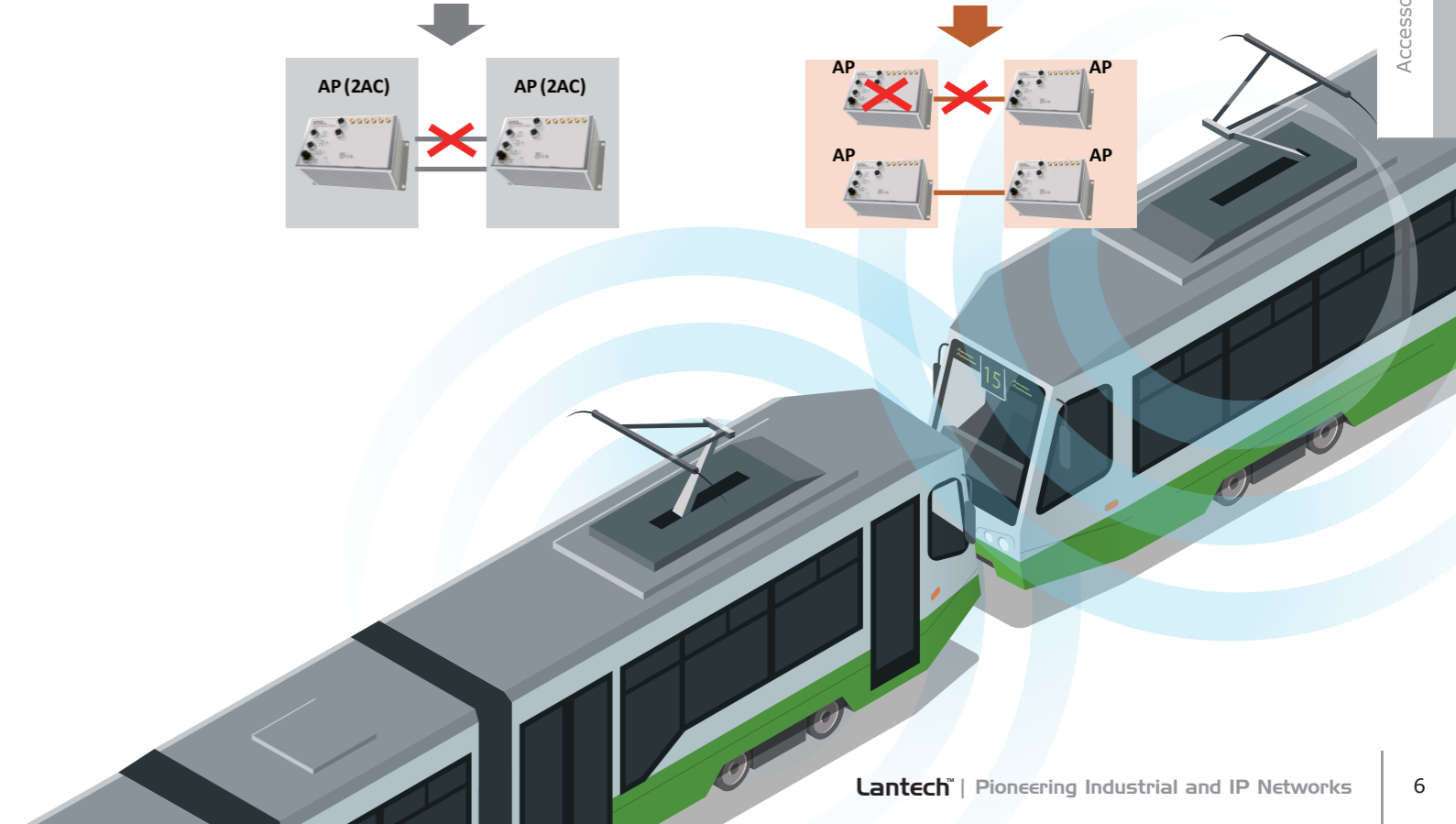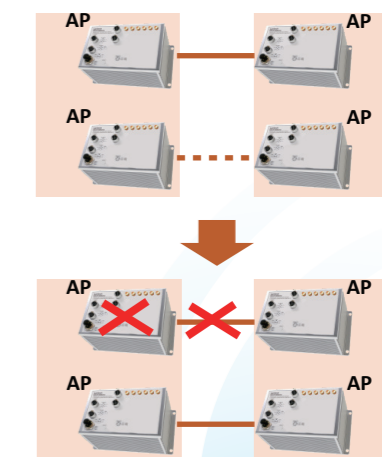
Vehicle Communication Solution

On board the modern Buses & Trams there are many IP systems as part of the on board communications for example IP cameras (Security Systems), PIS (Passenger Information Systems), PA / Intercom, automatic passenger counting systems, passenger WI-FI, passenger infotainment, real time video streaming & operational support systems for example Vehicle tracking and ticketing systems.

Lantech Communications have developed a series of ethernet switches, WIFI Access Points and LTE Routers to meet the current E-marking certificate for on onboard vehicle applications, Lantech Communications are able to provide a complete solution for your fleet.

PoE Booster

The network on board Buses & Trams has it's own challenges unlike standard industrial environments, this ranges from unstable power supply due to the conditions of when the vehicle starts the engine, the supply voltage to drop as low as 9Vdc when the starter motor is in operation, once the engine is started the same supply voltage can increase to 30Vdc when the alternator starts to recharge the battery, the equipment installed needs to be able to deal with such a large swing in supply voltage range, this also has an impact on any units providing POE (Power over Ethernet) this needs to remain constant at 48Vdc, the switch / router needs to be able to cope with these unique conditions. Lantech Industrial POE switches can operate with supply voltage as low as 9Vdc. Lantech offer a range of POE switches with an input supply voltage of 12/24Vdc & boost the voltage to 54Vdc for providing supply to POE devices of the application mentioned previously of moving vehicles. These switches are capable of operating in these harsh environments, while providing a stable supply voltage up to 30W (POE at) per port to powered devices (PD).

WI-FI and Mobile Routers

Lantech's range of WI-FI and mobile routers are designed with the latest VPN, WI-FI & LTE technology for real time IP surveillance, PIS, driver operation data & passenger WIFI applications, Lantech have developed a unique load- balancing scheme allowing dual concurrent WAN's to route the data traffic in a pre-designated route to ensure best performance. The routers have dual LTE Modules, with up to 4 SIM cards allowing for failover as well. There are many operational scenario's where this type of system can utilized, for example, the LTE side of the router can send real time data over one of the LTE modules, while video streaming can be sent over the other LTE module, this can also be programmed to send the video system & other data Via WIFI when available this could be when the vehicle arrives at a station or depot. Lantech have also developed a 4G LTE router with built in storage, this can be used to load / store content or application data for passenger WIFI or other systems.

Ignition Sensing Design

Other problems with on board bus & tram applications are, once the engine is switched off, the power to the network equipment could be removed, this would not allow any time for uploading the data from some of the system mentioned previously, this is where designing an ignition sensing circuit within the equipment can continue to supply power for a period of time before turning the systems off. Ignition sensing can also be utilized to provide power while the vehicle is in operation, but then be able to turn the equipment off once the ignition is turned off and save the battery from being drained during non-operational times. Lantech POE Products designed with Ignition sensing technology can delay the power feed to systems while the alternator starts to provide power, they will also ensure the systems are shut off when vehicle is not in operation, avoiding battery drain.

Certified and Rugged Design

Lantech E-marked Switches (POE & Non POE), Routers & Wireless access points meet ISO-7637 and other EMC/EMS specifications as tested in accredited LABs for vehicle applications. In order to meet the critical environments of a moving vehicle for example bus, Tram or emergency vehicle the products are protected in a IP30 or IP54 housing, these have passed extensive industrial EMI & safety standards. Part of these test include stability testing with freefall, shock & vibration tests passed. With a Wide operating temperature -40°C to +75°C this ensures the suitability to on-board vehicle applications and others as well.

Product Selection

Ethernet PoE Switches

IPGS-0008B
8 10/100/1000T PoE at/af Industrial Unmanaged Ethernet Switch

IPES-0008B-41
8 10/100TX PoE at/af EN50155 Unmanaged Ethernet Switch

IPES-0008B
8 10/100TX PoE at/af Industrial Unmanaged Ethernet Switch

Ethernet Switches

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

IES-0008B-41
8 10/100TX EN50155 Unmanaged Ethernet Switch

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

WiFi + LTE + Switch

IWMR-3006
Industrial Mulifunction VPN Router w/up to 2x WiFi 11ac + up to 2 LTE 4G + 2 serial ports + 6 Gigabit Ethernet port

IWMR-3002
Industrial Mulifunction VPN Router w/up to 2x WiFi 11ac + up to 2 LTE 4G + 2/4 serial ports + 2 Gigabit Ethernet(incl.1 PD)

WiFi + Switch

IPWAP-3006
Industrial 802.11ac Dual Radio Concurrent Wireless Access Point VPN Router w/ 4 x PoE Giga Switch

IWAP-3002
Industrial 802.11ac Dual Radio Concurrent Wireless Access Point VPN Router w/ 2 Gigabit Ethernet Ports (incl. 1 PD)

Combined Solutions between Switches and Surveillance CMS

Lantech 3/5 series ethernet switches are capable of integrating with VMS/CMS systems to provide notification messages in order to activate cameras to pre-set functions.

This can use the contact closure inputs built in to these units, or by software integration (Consult Factory).

Any unauthorized intrusion to the cabinet and switch's DIDO alarm is been triggered

Switch sends notification to Milestone software at remote center

notification

CMS controls camera to action

REC
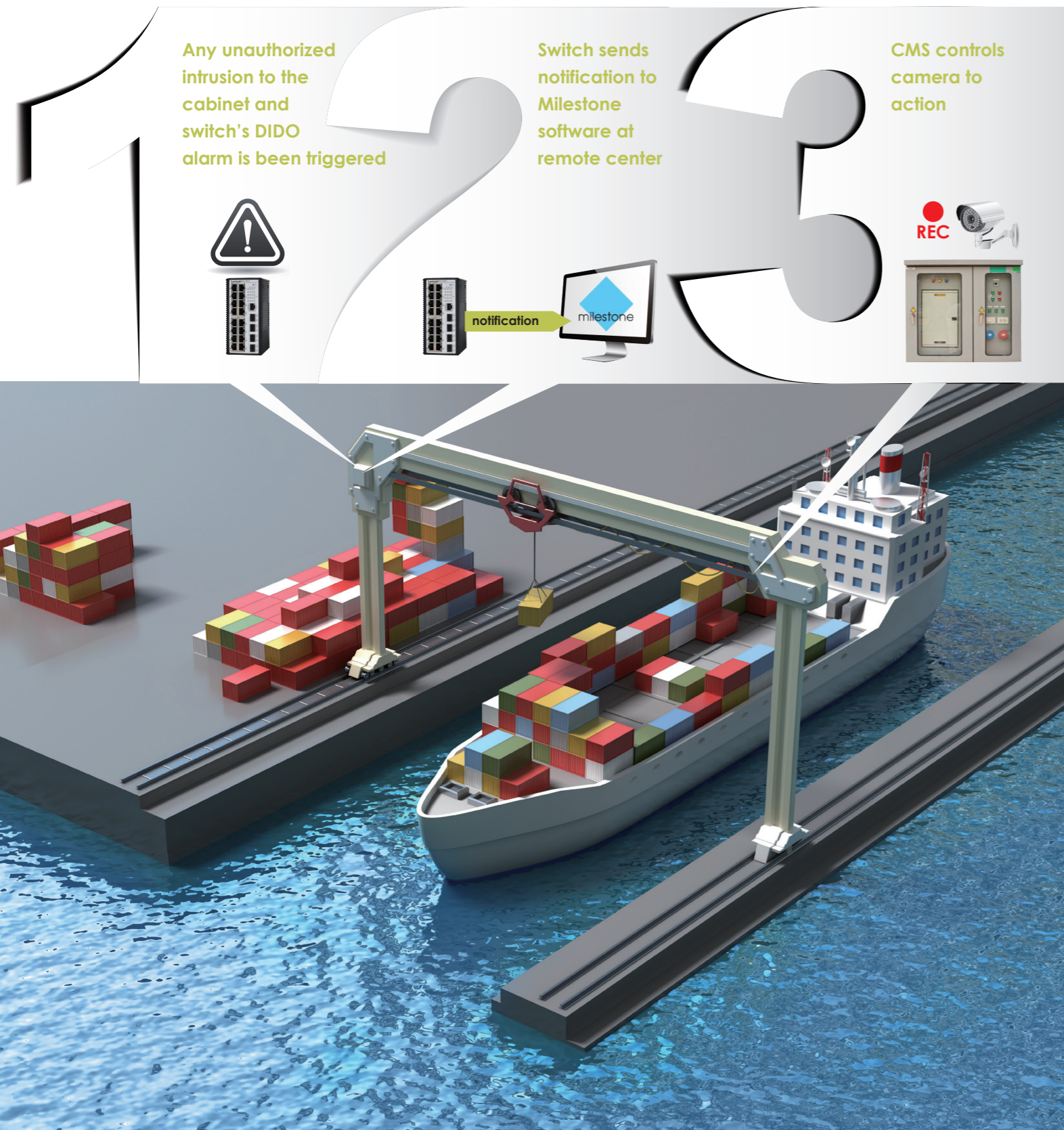
Lantech™ InstaView
Powerful and intuitive graphic monitoring / analysing tool

Lantech InstaView is a powerful and intuitive NMS (Network Management Software). Design with graphical concept, InstaView logic structure and all the key metrics are like SCADA can be graphically visualized. It provides the real time image of whole network. Users can easily monitor network health and quickly allocate problems by playing-back the topology.

- Intuitive & realistic network map edit
- Vivid link / flow monitoring
- Real-time event notification
- Distinct real-time network category analysis
- Traffic report and play back trouble shooting
- Centralized configuration and firmware management
- Auto Configuration Restore Technology**
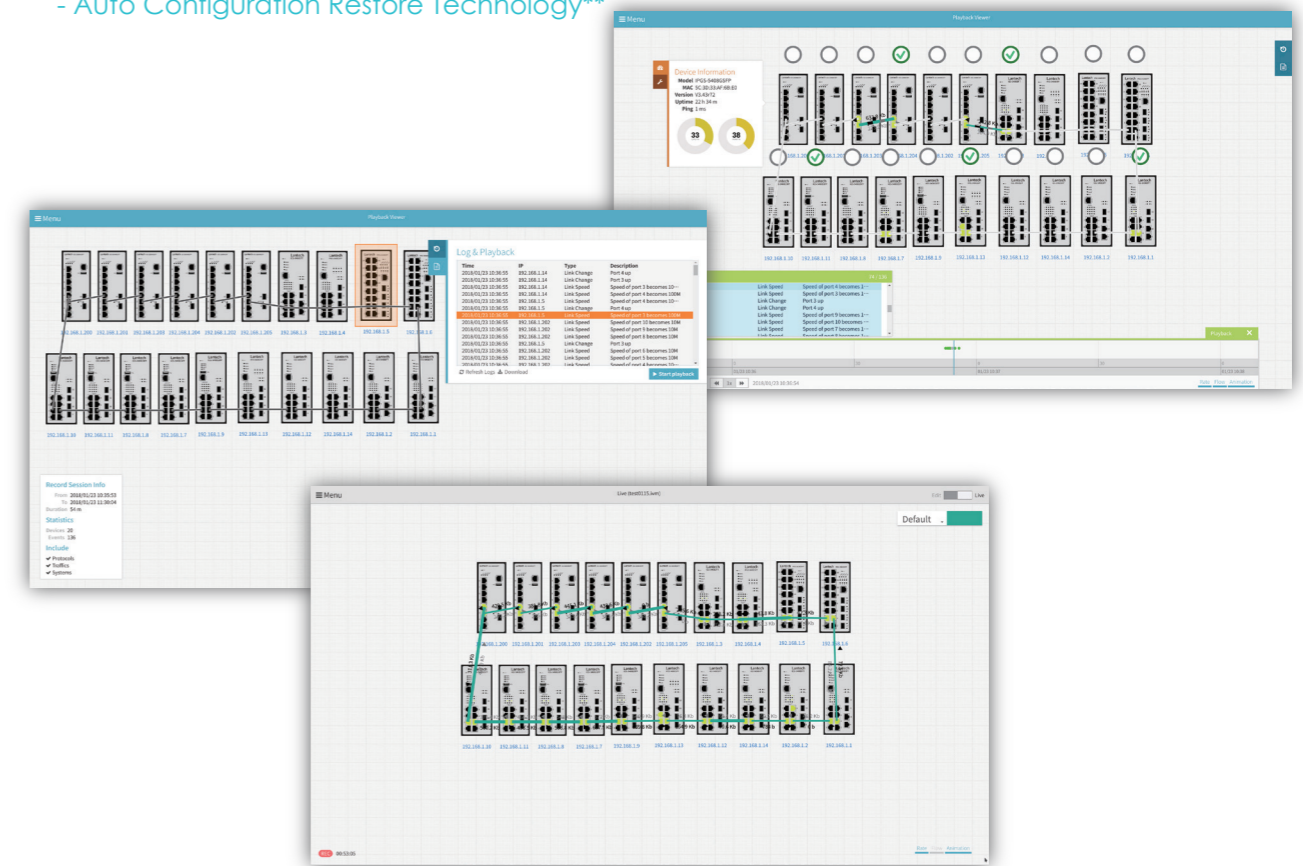
- **Centralized Configuration & Firmware Management**

   ↻ Auto Backup / Manual Restore Configuration

   🌐 Hyperlink to Each Switch Web UI for Setup

   💾 Copy Configuration to Other Switches

- **Auto Configuration Restore Technology****
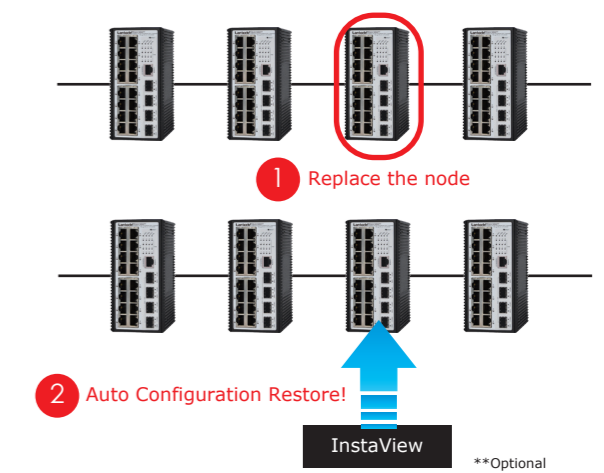
   ① Replace the node

   ② Auto Configuration Restore!

   InstaView   **Optional

Enhanced ITU G.8032 Ring

Innovative and Intuitive redundancy for next generation IP networks

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.

Single Ring

Dual Rings

Double Ring

Lantech EXCLUSIVE

Major Ring 1

Major Ring 1   Major Ring 2

Sub Ring 3
Sub Ring 2
Major Ring 1
Sub Ring 4
Sub Ring 6
Sub Ring 5

Multiple Chain

Chain in Chain

Multiple Chain Share Common Ends

Sub Ring 3   Major Ring 1   Sub Ring 2

Sub Ring 4
Sub Ring 2   Major Ring 1   Sub Ring 3

Major Ring 1   Sub Ring 2   Sub Ring 3

Redundant Coupling

Cascade Chain

Dual Homing

Major Ring 1   Sub Ring 3   Major Ring 2

Major Ring 1   Major Ring 2   Major Ring 3

Primary Path   Backup Path

Major Ring 1

Multiple Rings

Redundant Coupling with Multiple Rings

Major Ring 1   Major Ring 2

Major Ring 3

Major Ring 1   Sub Ring 4   Major Ring 2   Sub Ring 5   Major Ring 3

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

back-up path

Enhanced
G.8032 Ring   Enhanced
G.8032 Ring

Control center

back-up
path

Train-Ring

For auto coupling topology

During current train operation, train cars might need to be separated and reoriented due to more flexible operating requirement. When train cars are switched, re-configure network settings is normally required. Thus, railway operators need to have enough knowledge of Ethernet. This not only increases the cost of labor but also result in additional time. Lantech provides a new solution called "Train Ring", which can automatically recover the network within 50ms without reconfigure the settings!

Lantech Train Ring is evolved from traditional Coupling Ring. It eliminates the setting process, and will automatically identify the primary and backup path dynamically, without any configuration required. Lantech Train Ring allows train operators to rapidly change composition of trains with high efficiency and flexibility. Since all settings are done automatically, configuration errors and cost can be minimized.

Train Ring   "Auto ring coupling"

Primary Path

Backup Path
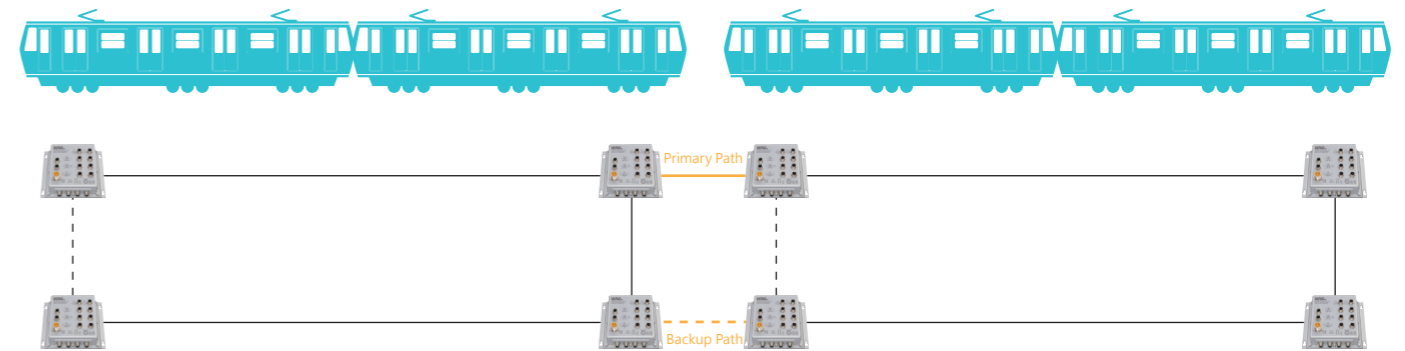
Link Train Discovery Protocol (LTDP)

Unattended Site Maintenance

An advantage of LTDP is, should an engineer needs to replace a switch, and this can be done without the need of a laptop computer. With other systems, the configuration file from the switch will need to be exported to the new switch via a laptop, this may not be available due to site location, staff availability or security requirements. With LTDP, this system creates a plug and play situation, once the new switch is installed it will automatically import the configuration file from the Master Switch.

Scenario: Node failure protection

Normal
Status

Node
Failure

Replace &
Auto Config
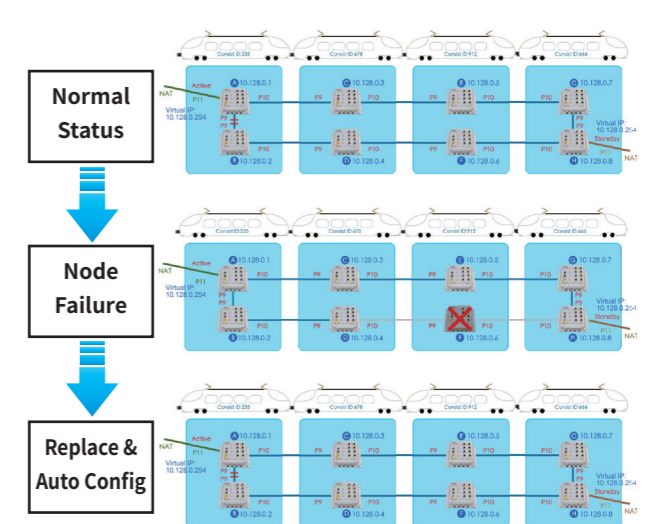
Managment Levels : Switches

Lantech industrial managed switches provides different management levels to satisfy all needs, from basic L2 management, to the most powerful L3 management models. You can select the most suitable series according to applications.

7000 series

L3 Management

6000 series

5000 series

L2⁺ Management
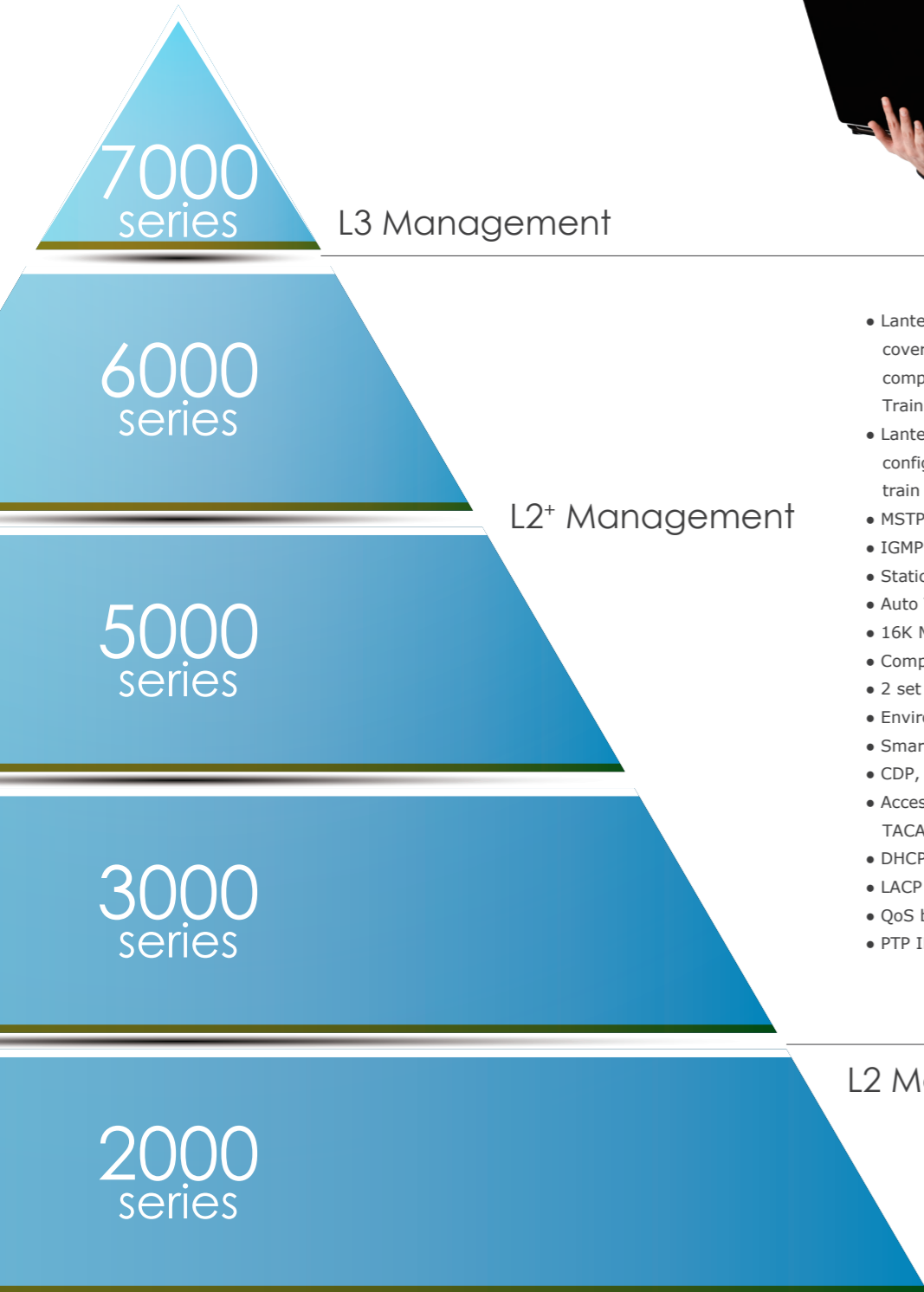
- Lantech Enhanced G.8032 Multiple Ring protection covering data & multicast, multiple VLAN is able to compatible with other brands core switches. Auto Ring, Train ring for auto configuration
- Lantech LTDP is able to provide switches AUTO configuration and allocate same IP address when train cars replaced or swapped.
- MSTP 8/16 MSTI
- IGMP V3, IGMP Router port
- Static Multicast forwarding
- Auto Topology View
- 16K MAC address
- Complete CLI for professional setting
- 2 set DI DO design
- Environmental Monitoring (Optional on some models)
- Smart Event log Trigger included SMS text
- CDP, IPV6 ready
- Access Control List ingress & egress L2 / L3, SSH, SSL, TACACS+
- DHCP Option82 server , option 66, Port / VLAN based
- LACP support up to 8 groups
- QoS by VLAN regardless the devices acknowledge
- PTP IEEE 1588 V2 hardware base

3000 series

L2 Management

2000 series

- IGMP V1, 2
- Static Multicast forwarding
- Pro-Ring II se < 20ms
- RSTP
- DLR Ring (IES-2008B)
- PoE model supports af/at up to 30W/Port

Optional 3000~7000 Switches Feature Highlights

Besides the advanced features that are built-in above 3000 series, Lantech offers optional feature sets that are good for special applications:

Support PXE / BootP to boot up switch with latest or certain firmware

Lantech Ethernet switch supports PXE / BootP protocol that can boot up switch with latest or certain firmware obtaining from the server and act as DHCP option 82 or Port based DHCP function to offer the same IP addresses on port base or VLAN base to devices.

QinQ, QoS QinQ and GVRP supported

Lantech Ethernet switch supports the QinQ, QoS QinQ, GVRP for large VLAN segmentation.

16 MSTI MSTP; MRP ring

Lantech Ethernet switch supports MSTP that allows RSTP over VLAN for redundant links with 8/16* MSTI. Media Redundancy Protocol (MRP) is a data network protocol standardized by the International Electro technical Commission as IEC 62439-2. It allows rings of Ethernet switches to overcome any single failure with recovery time much faster than achievable with Spanning Tree Protocol. It is suitable to most Industrial Ethernet applications.

IPv6 DHCP server

With IPv4, commonly home networks use private addresses that are non-routable on the public Internet and use address translation to convert to routable addresses when connecting to hosts outside the local network. Business networks typically had manually provisioned subnet prefixes. In IPv6 global addresses are used end-to-end, so even home networks need to distribute public, routable IP addresses to hosts.

Since it would not be practical to manually provision networks at scale, in IPv6 networking, DHCPv6 prefix delegation is used to assign a network address prefix and automate configuration and provisioning of the public routable addresses for the network. The way this works for example in case of a home network is that the home router uses DHCPv6 protocol to request a network prefix from the ISP's DHCPv6 server. Once assigned, the ISP routes this network to the customer's home router and the home router starts advertising the new addresses to hosts on the network by DHCPv6.

Protocol based VLAN

A protocol-based VLAN processes traffic based on protocol. You can use a protocol-based VLAN to define filtering criteria for untagged packets. Switches which support Protocol-based VLAN are configured with multiple mapping layer 3 protocol types to VLAN membership and 802.1p priority. Therefore, they are capable of filtering IP traffic from nearby end-stations using a particular protocol such as IP, IPX, ARP or whatever. Ethernet-type that you want in a HEX value.

IPv4/IPv6 Subnet based VLAN

In an IP subnet–based VLAN, all the end workstations in an IP subnet are assigned to the same VLAN. In this VLAN, users can move their workstations without reconfiguring their network addresses. IP subnet VLANs are based on Layer 3 information from packet headers. The switch makes use of the network-layer address (for example, the subnet address for TCP/IP networks) in determining VLAN membership. If a packet is untagged or priority tagged, the switch associates the packet with any matching IP subnet classification. If no IP subnet classification can be made, the packet is subjected to the normal VLAN classification rules of the switch. This IP subnet capability does not imply a routing function or that the VLAN is routed. The IP subnet classification feature affects only the VLAN assignment of a packet. Appropriate 802.1Q VLAN configuration must exist in order for the packet to be switched.

Dual Image Firmware

To choose which firmware to boot the switch / router in order to salvage the system if it is hanged.

Industrial Solutions

Lantech Advanced Features

Hardened Ethernet Connections

Ethernet Connections

Accessories

Industrial Wireless Mobile Routers
Load Balancing**, Dual Concurrent LTE, and 802.11ac WiFi.

Lantech wireless mobile routers aim to provide no-boundary network access. With the most rugged design, full Giga ports and the latest 802.11ac Wi-Fi transmission and integrated with PoE switch ports, Lantech is able to deliver a total networking solution for industrial transportation and vehicle applications.

Load Balancing** with 8 Mechanisms for Multiple WANs See Page 5
It supports load balancing for multiple WANs connections. There are eight schemes for load balance function: Fixed, Failover, Priority, Weight round-robin, Sticky session, Smallest load, Fastest, ,and Custom route.

802.11r Fast Roaming< 50ms*
Lantech WiFi mobile routers support 802.11r standard (Fast Basic Service Set Transition) to allow encryption keys to be stored on all of the APs in a network. With this standard the fast roaming time between Lantech APs can reach less than 50ms.

Galvanic Isolation, WV/ 12V Input; PD Supported
It provides galvanic isolation for WV model with dual wide range input (16.8~137.5V). It has options for 12V (9.5~56V) input range or by PD mode (powered device). With the isolated input 1.5KVA design, the mobile router can prevent surge , EFT, spike from damaging the main components.

Dual Concurrent LTE Design 4G/3G** for Resilience & GPS**
With dual LTE design, up to 4 SIM card slots, it can allow auto-swap, failover & failback from one service provide to another for non-stop connection. GPS support both US and Russian GLONASS systems.

Multisite VPN, OpenVPN, L2TP, PPTP**, IPSec and Firewall
The VPN function allows remote users to access private network under high encryption without much influence. It supports IPSec, multisite VPN, open VPN, L2TP, PPTP** and firewall SPI that can highly secure the network while remotely accessed. The built-in Layer-4 firewall includes DoS*, SPI Firewall, IP address filter / Mac address filter* / TCP/UDP port number as well as IP and Mac address binding*

2/4 port serial connection, Modbus / DNP3** gateway
It builds in 2/4 port serial connection for RS232 or RS422,485 in which RS422/485 has 2.5KV isolation protection. The built-in Modbus gateway can convert Modbus RTU/ASCII to Modbus TCP for device control. It also can support optional DNP3** gateway over serial ports

IEEE 802.11ac Dual Band Operation
With IEEE 802.11ac capability, the series can operate either 5GHz or 2.4GHz bands, offering the maximum speed of 1.3GMbps bandwidth. It is also compatible with 802.11g/n that can work with 2.4GHz for longer range transmission.

The WiFi 11ac supports AP/BRIDGE/AP Client modes can be diverse for most of wireless application. Client mode supports P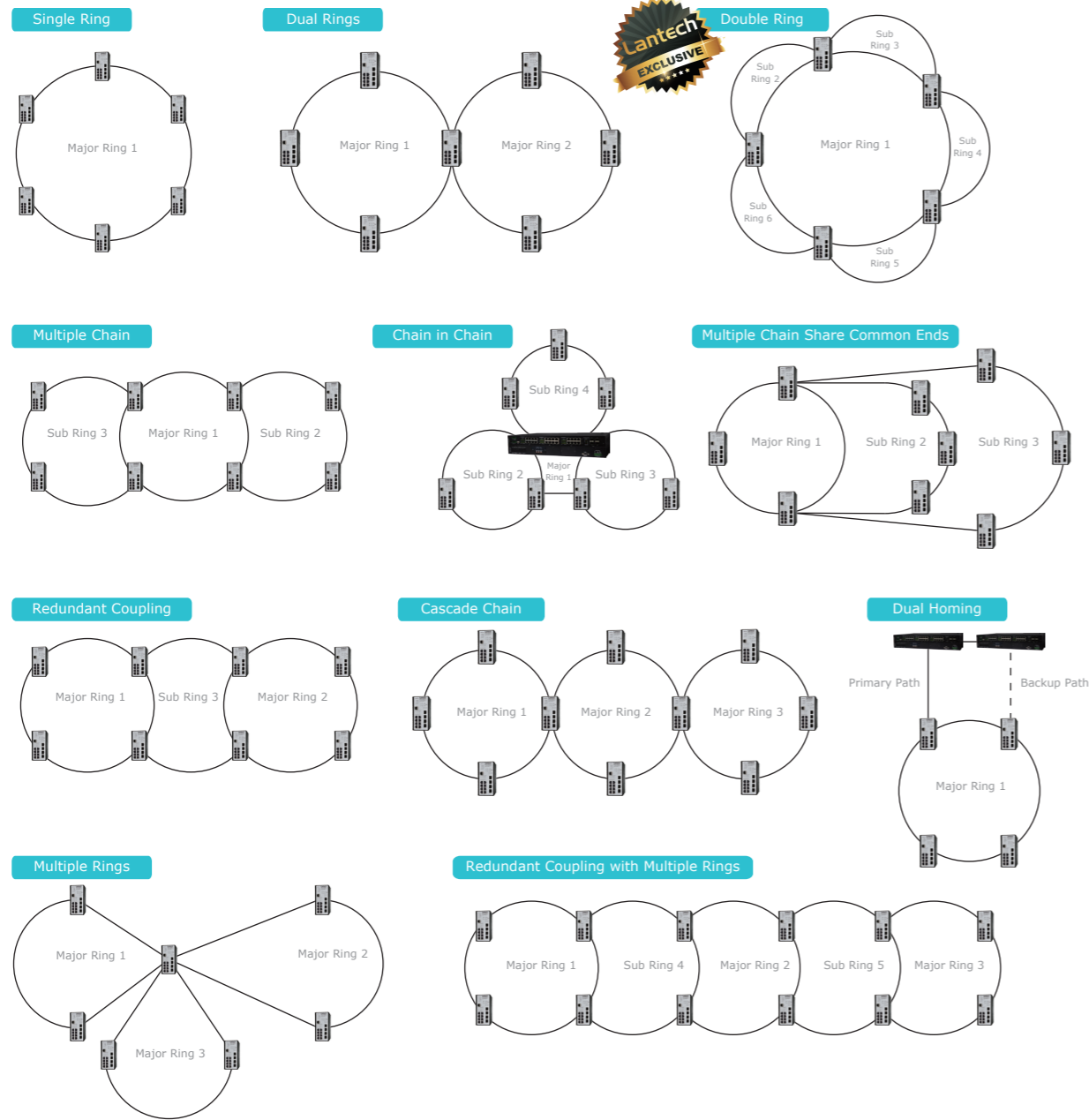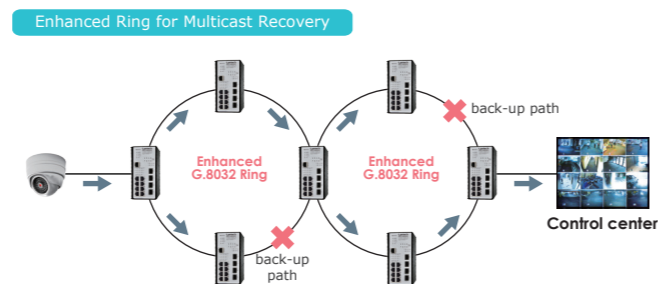MK** Caching and pre-authentication. Working with load-balancing** "Priority" mode, the AP client can enable router to transmit on WiFi with first priority.

Advanced security & 16 SSIDs
The security support standards including 64/128bits WEP, WPA/WPA2 PSK (TKIP, AES), 802.1x ensures the best security and active defense against security treads. Lantech TWMR-5002-1L-1AC-2S support up to 16 SSIDs, each SSID has its independent security and encryption.

Optional TWDP**(Train Wireless Discovery Protocol) for auto discovery, redundant ring & auto coupling See Page 6

Optional USB to microSD** for storage backup or multimedia resources

MIMO Technology with 3T3R
Lantech WiFi mobile router series adapts MIMO technology with smart antenna transmission and reception for 3T3R. With optional six external detachable omni antennas, it can have better Wi-Fi coverage that eliminate poor Wi-Fi signal. The device can support unlimited concurrent users.

USB or Optional N-Key or Config Server for Backup and Restore
The configuration file of Lantech mobile router can be exported in text file so that it can be edited and configured back to router with ease for mass deployment. The optional N-key RJ45 configurator or Config Server offers firmware upgrade, backup, configuration restore.

Industrial Wireless Product Portfolio

	Industrial WiFi Mobile Routers		Industrial Mobile Routers		Industrial WiFi Access Points	
	5000 Series	3000 Series	5000 Series	3000 Series	5000 Series	3000 Series
IP67 rated	●	-	●	-	●	-
IP65 rated	●	-	●	-	●	-
IP54 rated	●	-	●	-	●	-
IP30 rated	-	●	-	●	-	●
Aluminum case	-	-	-	-	●	-
Serial ports	Up to 4	Up to 4	Up to 4	Up to 4	-	-
SIM slots	Up to 4	Up to 4	Up to 4	Up to 4	-	-
M12 connectors	●	-	●	-	-	-
N-type antenna connectors	Up to 8 (IP67)	-	Up to 8 (IP67)	-	Up to 8 (IP67)	-
QMA/SMA antenna connectors	Up to 6 (IP65/54)	Uo to 6	Up to 6 (IP65/54)	Uo tp 6	Up to 6 (IP65/54)	Uo tp 6
802.11a/g/n/ac WiFi	●	●	●	●	●	●
Power inputs	16.8~137.5VDC (WV model) 9.5~60VDC (24V model)	45~56VDC (48V model) 9.5~60VDC (24V model)	16.8~137.5VDC (WV model) 9.5~60VDC (24V model)	45~56VDC (48V model) 9.5~60VDC (24V model)	16.8~137.5VDC (WV model) 9.5~60VDC (24V model)	45~56VDC (48V model) 9.5~60VDC (24V model)
Galvanic isolation 1.5KV	●	●	●	●	●	●
LTE/WiFi redundancy	●	●	●	●	●	●
Modbus gateway	●	●	●	●	●	●
WiFi WMM	●	●	-	-	●	●
Load balance	●	●	●	●	●	●
Multisite VPN, OpenVPN, IPSec, PPTP, L2TP	●	●	●	●	●	●
N-Key/USB/Config Server	●	●	●	●	●	●
DHCP server and client	●	●	●	●	●	●
Rate limiting	●	●	●	●	●	●
InstaView	●	●	●	●	●	●
InstaView Cloud	●	●	●	●	●	●

SPECIFICATIONS

		TWMR-5002	T(P)WMR-5006 T(P)WMR-5004-2WAN	T(P)WMR-5208T-2WAN	T(P)WMR-5208MGF-2WAN	IWMR-3002	IWMR-3004-2WAN	I(P)WMR-3006
Interface	10/100/1000T WAN	1WAN + 1LAN / 0WAN + 2LAN (M12, X-coded)	T(P)WMR-5004-2WAN: 2WAN + 4LAN/ T(P)WMR-5006: 0WAN + 6LAN (M12, X-coded)	2 (M12, X-coded)	2 (M12, X-coded)	1	2	0
	10/100/1000T			10 (M12, X-coded)	8 (M12, X-coded)	1	4	6
	1G or 2.5G Fiber	-	-	2 (Bayonet, QODC)		-	-	-
	802.3at/af PoE	PD	4 (PoE model)	8 (PoE model)	8 (PoE model)	PD	-	4 (PoE model)
	Relay	-	-	-	-	●	●	●
	DI/DO	2/2	2/2	2/2	2/2	2/2	2/2	2/2
	Console	M12,8p-A code	M12,8p-A code	M12,8p-A code	M12,8p-A code	RJ-45	RJ-45	RJ-45
	USB	●	●	●	●	●	●	●
Standard / Protocol	Cellular Standards	LTE/HSDPA/HSUPA/HSPA+/GSM/GPRS/EGPRS/EDGE						
	Wireless	IEEE 802.11ac/n/a 5GHz, Up to 1300Mbps IEEE 802.11g/n 2.4GHz, Up to 450Mbps 802.11a/g: OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 802.11n: OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 802.11ac: OFDM (BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM) SSID: 16 sets						
	AP mode	●	●	●	●	●	●	●
	Bridge mode	●	●	●	●	●	●	●
	AP client mode	●	●	●	●	●	●	●
	Protocal	PPPoE Client,DHCP server/client, Adjustable MTU, Port forwarding (NAPT), DMZ; NAT, SNTP, Firewall(Firewall(DoS*/SPI firewall; IP address filter / Mac address filter* / TCP/UDP port name ; IP Mac address binding*),VRRP**, DDNS*						
Power Input / PoE	12V/24V (9.5~60VDC)	●	●	●	●	●	●	●
	48V (45~56VDC)	-	-	-	-	●	●	●
	WV (16.8~137.5VDC)	●	●	●	●	-	-	-
Hardware Spec.	RS232/422/485	2 (M12, X-coded)	2 (M12, X-coded)	4(M12, X-coded)	4(M12, X-coded)	4 or 2 (DB-9)	2 (DB-9)	2 (DB-9)
	Serial Port & DIDO Isolation	RS422/485 2.5KV isolation; 8KV contact & 15KV air RS232 8KV contact and 15KV air ESD DIDO 3KV isolation						
	Serial Baud Rate	1Mps for RS232 ; 12Mbps for RS422/485						
	Bypass	-	-	●	●	●	-	-
	Mini-PCIe	2	2	3	3	3	3	3
	LTE / SIM No.	1/2	1/2	1/2 or 2/4	1/2 or 2/4	1/2 or 2/4	1/2 or 2/4	1/2 or 2/4
	WiFi No.	1	1	1 or 2	1 or 2	1 or 2	1 or 2	1 or 2
	Antenna Connectors	6 x QMA/SMA	6 x QMA/SMA	6 or 8-N type	6 or 8-N type	6 x SMA	6 x SMA	6 x SMA
Mechanism	Standard Operating Temperature -20°C~60°C / -4°F~140°F	●	●	●	●	●	●	●
	Wide Operating Temperature -40°C~75°C / -40°F~167°F	●	●	●	●	●	●	●
	IP Rating	IP65 / IP54	IP65 / IP54	IP67 / IP54	IP67 / IP54	IP30	IP30	IP30
	Case Dimension W x D x H (unit=mm)	178 x 99 x 103	178 x 99 x 103	285 x 193 x 91.2 (IP67) 252 x 179.5 x 91 (IP54)	285 x 199.7 x 91.2 (IP67) 252 x 186.2 x 91 (IP54)	74 x 105 x 152	74 x 105 x 152	74 x 105 x 152
	DIN Rail Installation	-	-	IP67 model	IP67 model	●	●	●
	Wall Mount Installation	●	●	●	●	Optional	Optional	Optional
	Ethernet port with management	-	Optional	Optional	Optional	-	-	Optional

*Future release **Optional

Industrial Mobile Routers

Dual Concurrent LTE + Load Balancing**.

Lantech delivers the next generation VPN router that supports dual LTE mobility + up to 4 serial ports (RS232,RS422,RS485) as well as up to 10 Giga ports. Harnessed with up to 1.6Ghz processor, 256Mbyte flash and 1Gbyte memory RAM, the series can boost your network performance and handle complicate applications.

- Dual Concurrent LTE Design 4G/3G** for Resilience & GPS**

- Load Balancing** with 8 Mechanisms for Multiple WANs   See Page 5

- Multisite VPN (L2TP, PPTP, IPSec, OpenVPN)

- Modbus Gateway, 2/4-port Serial Connection

- DIDO for Alarm & E-mail Notice

- IEEE802.3at PoE 30W; PD Supported

- Galvanic Isolation, WV (16.8~137.5VDC) or 12V (9.5~60VDC) input

- USB, Optional N-Key, or Config Server to restore configuration

- Optional USB to microSD** for storage backup or multimedia resources

SPECIFICATIONS		TMR-5002	T(P)MR-5006 T(P)MR-5004-2WAN	T(P)MR-5208T-2WAN	T(P)MR-5208MGF-2WAN	IMR-3002	IMR-3004-2WAN	I(P)MR-3006
Interface	10/100/1000T WAN	1WAN + 1LAN / 0WAN + 2LAN (M12, X-coded)	T(P)MR-5004-2WAN: 2WAN + 4LAN/ T(P)MR-5006: 0WAN + 6LAN (M12, X-coded)	2 (M12, X-coded)	2 (M12, X-coded)	1	2	0
	10/100/1000T			10 (M12, X-coded)	8 (M12, X-coded)	1	4	6
	1G or 2.5G Fiber	-	-	-	2 (Bayonet, QODC)	-	-	-
	802.3at/af PoE	PD	4 (PoE model)	8 (PoE model)	8 (PoE model)	PD	-	4 (PoE model)
	Relay	-	-	-	-	●	●	●
	DI/DO	2/2	2/2	2/2	2/2	2/2	2/2	2/2
	Console	M12,8p-A code	M12,8p-A code	M12,8p-A code	M12,8p-A code	RJ-45	RJ-45	RJ-45
	USB	●	●	●	●	●	●	●
Standard / Protocol	Cellular Standards	LTE/HSDPA/HSUPA/HSPA+/GSM/GPRS/EGPRS/EDGE						
	Protocal	PPPoE Client,DHCP server/client, Adjustable MTU, Port forwarding (NAPT), DMZ; NAT, SNTP, Firewall(Firewall(DoS*/SPI firewall; IP address filter / Mac address filter* / TCP/UDP port name ; IP Mac address binding*),VRRP**, DDNS*						
	Advanced Protocal	DHCP relay, Static routing, Multicast routing, Traffic shaping (ingress/Egress), OSPF, VRRP, Modbus						
Power Input / PoE	12V/24V (9.5~56/60VDC)	●	●	●	●	●	●	●
	WV (16.8~137.5VDC)	●	●	●	●	-	-	-
Hardware Spec.	RS232/422/485	2 (M12, X-coded)	2 (M12, X-coded)	4(M12, X-coded)	4(M12, X-coded)	4 or 2 (DB-9)	2 (DB-9)	2 (DB-9)
	Serial Port & DIDO Isolation			RS422/485 2.5KV isolation; 8KV contact & 15KV air RS232 8KV contact				
	Serial Baud Rate			1Mps for RS232 ; 12Mbps for RS422/485				
	Bypass	-	-	●	●	-	-	-
	Mini-PCIe	2	2	3	3	3	3	3
	LTE / SIM No.	2/4	2/4	3/6	3/6	2/4	2/4	2/4
	Antenna Connectors	6 x QMA/SMA	6 x QMA/SMA	6 or 8-N type	6 or 8-N type	6 x SMA	6 x SMA	6 x SMA
Mechanism	Standard Operating Temperature -20°C~60°C / -4°F~140°F	●	●	●	●	●	●	●
	Wide Operating Temperature -40°C~75°C / -40°F~167°F	●	●	●	●	●	●	●
	IP Rating	IP65 / IP54	IP65 / IP54	IP67 / IP54	IP67 / IP54	IP30	IP30	IP30
	Case Dimension W x D x H (unit=mm)	178 x 99 x 103	178 x 99 x 103	285 x 193 x 91.2 (IP67) 252 x 179.5 x 91 (IP54)	285 x 199.7 x 91.2 (IP67) 252 x 186.2 x 91 (IP54)	74 x 105 x 152	74 x 105 x 152	74 x 105 x 152
	DIN Rail Installation	-	-	IP67 model	IP67 model	●	●	●
	Wall Mount Installation	●	●	●	●	Optional	Optional	Optional
	Ethernet port with management	-	Optional	Optional	Optional	-	-	Optional

Industrial Wireless Access Points

High performance with "Load Balancing**" & Wireless Redundancy

Lantech industrial wireless AP series is for next generation hardened wireless solution, confirming to 802.11ac/a/g/n with up to 10-port Giga switch. The support of AP/Bridge/AP client modes can be diverse for most of wireless application. Client mode supports PMK** Caching and pre-authentication.

TWDP**(Train Wireless Discovery Protocol) for auto discovery, redundant ring & auto coupling   See Page 6

Load Balancing with 8 Mechanisms**   See Page 5

802.11r Fast Roaming< 50ms*

Galvanic Isolation, WV/12V Input; PD Supported

IEEE 802.11ac Dual Band Operation + Wireless Redundancy

IEEE802.3at PoE 30W/port; 80W Budget

Advanced Security, up to 16 SSIDs

MIMO Technology with 3T3R

Optional USB to microSD** for storage backup or multimedia resources

SPECIFICATIONS		TWAP-5002	T(P)WAP-5006 T(P)WAP-5004-2WAN	T(P)WAP-5208T-2WAN	T(P)WAP-5208MGF-2WAN	IWAP-3002	IWAP-3004-2WAN	I(P)WAP-3006
Interface	10/100/1000T WAN	1WAN + 1LAN / 0WAN + 2LAN (M12, X-coded)	T(P)WAP-5004-2WAN: 2WAN + 4LAN/ T(P)WAP-5006: 0WAN + 6LAN (M12, X-coded)	2 (M12, X-coded)	2 (M12, X-coded)	1	2	0
	10/100/1000T			10 (M12, X-coded)	8 (M12, X-coded)	1	4	6
	1G or 2.5G Fiber	-	-	-	2 (Bayonet, QODC)	-	-	-
	802.3at/af PoE	PD	4 (PoE model)	8 (PoE model)	8 (PoE model)	PD	-	4 (PoE model)
	Relay	-	-	-	-	●	●	●
	DI/DO	2/2	2/2	2/2	2/2	2/2	2/2	2/2
	Console	M12,8p-A code	M12,8p-A code	M12,8p-A code	M12,8p-A code	RJ-45	RJ-45	RJ-45
	USB	●				●		
Standard / Protocol	Cellular Standards	IEEE 802.11ac/n/a 5GHz, Up to 1300Mbps IEEE 802.11g/n 2.4GHz, Up to 450Mbps						
	Wireless	802.11a/g: OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 802.11n: OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 802.11ac: OFDM (BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM) SSID: 16 sets						
	AP mode	●	●	●	●	●	●	●
	Bridge mode	●	●	●	●	●	●	●
	AP client mode	●	●	●	●	●	●	●
	Protocal	PPPoE Client,DHCP server/client, Adjustable MTU, Port forwarding (NAPT), DMZ; NAT, SNTP, Firewall(Firewall(DoS*/SPI firewall; IP address filter / Mac address filter* / TCP/UDP port name ; IP Mac address binding*),VRRP**, DDNS*						
	Advanced Protocal	DHCP relay, Static routing, Multicast routing, Traffic shaping (ingress/Egress), OSPF, VRRP, Modbus						
Power Input / PoE	12V/24V (9.5~56/60VDC)	●	●	●	●	●	●	●
	WV (16.8~137.5VDC)	●	●	●	●	-	-	-
Hardware Spec.	RS232/422/485	2 (M12, X-coded)	2 (M12, X-coded)	4(M12, X-coded)	4(M12, X-coded)	4 or 2 (DB-9)	2 (DB-9)	2 (DB-9)
	Bypass	-	-	●	●	-	-	-
	Mini-PCIe	2	2	3	3	3	3	3
	WiFi No.	2	2	3	3	3	3	3
	Antenna Connectors	6 x QMA/SMA	6 x QMA/SMA	6 or 8-N type	6 or 8-N type	6 x SMA	6 x SMA	6 x SMA
Mechanism	Standard Operating Temperature -20°C~60°C / -4°F~140°F	●	●	●	●	●	●	●
	Wide Operating Temperature -40°C~75°C / -40°F~167°F	●	●	●	●	●	●	●
	IP Rating	IP65 / IP54	IP65 / IP54	IP67 / IP54	IP67 / IP54	IP30	IP30	IP30
	Case Dimension W x D x H (unit=mm)	178 x 99 x 103	178 x 99 x 103	285 x 193 x 91.2 (IP67) 252 x 179.5 x 91 (IP54)	285 x 199.7 x 91.2 (IP67) 252 x 186.2 x 91 (IP54)	74 x 105 x 152	74 x 105 x 152	74 x 105 x 152
	DIN Rail Installation	-	-	IP67 model	IP67 model	●	●	●
	Wall Mount Installation	●	●	●	●	Optional	Optional	Optional

*Future release **Optional

Lantech | Pioneering Industrial and IP Networks

Industrial Wireless Controllers

Compact, powerful, and rugged.

Lantech industrial wireless controller is a next generation hardened wireless controller that can manage 802.11ac/a/b/g/n APs with GigaLAN switch. The device offers advanced features like centralized user & AP management, authentication server, DHCP server, roaming management, redundancy and load balance with easy configuration as well as captive web portal for security authentication.

1500 APs Centralized AP Management up to 1500 APs

Server Authentication Server & DHCP Server

Roaming Management for L2 / L3 and L2 / L3* Tunneling

GIGABIT Built-in Two Gigabit Ports for LAN Connection

IP65/IP54 Case for Outdoor Installation

Captive Web Portal to Upload Page

Load Balance Controller and AP Redundancy & Load Balancing
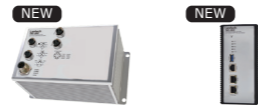
		TWC-5002	IWC-3002
HARDWARE FEATURES			
	10/100/1000T (X-coded M12)	2	-
	10/100/1000T (RJ45)	-	2
	USB	●	●
	DI/DO	2/2	2/2
	Console	M12	RJ-45
Power Input	24V (9.5~60VDC)	●	●
	WV (16.8~137.5VDC)	●	-
Mechanism	Standard Operating Temperature -20°C~60°C / -4°F~140°F	-	●
	Wide Operating Temperature -40°C~75°C / -40°F~167°F	●	●
	IP Rating	IP65 / IP54	IP30
	Case Dimension W x D x H (unit=mm)	178 x 99 x 103	74 X 105 X 152
	DIN Rail Installation	-	●
	Wall Mount Installation	●	Optional

EN50155 NAT Routers

Support 2x WAN ports for NAT, VRRP and Firewall

Lantech EN50155 NAT router supports two Gigabit WAN ports for NAT (Network Address Translation) function for Internet access.

It supports VRRP (Virtual Router Redundancy Protocol) function that helps to build the WAN redundancy.

The built-in Layer-4 firewall includes DoS*, SPI Firewall, IP address filter / Mac address filter* / TCP/UDP port number as well as IP and Mac address binding*

*Future Release

		T(P)GR-5010TA-2WAN	T(P)ER-5208TA-2WAN
HARDWARE FEATURES			
Interface	10/100/1000TX WAN	2 (X-coded)	2 (X-coded)
	10/100TX (M12)	-	8
	10/100/1000T (M12)	10 (X-coded)	2 (X-coded)
	802.3at/af PoE	8 (PoE model)	8 (PoE model)
	Console	A-coded	A-coded
	USB	●	●
	DI/DO	2/2	2/2
	Relay Contact	-	-
	Bypass	1-pair (Smart)**	1-pair (Smart)**
	Power Supply - M23	-	●
	Power Supply - M12	●	-
Power Input	24V (9.5~57VDC)	●	●
	WV (16.8~137.5VDC)	●	●
Mechanism	Wide Operating Temperature -40°C~75°C / -40°F~167°F	●	●
	IP Rating	IP67/IP54	IP67/IP54
	Case Dimension W x H x D (unit=mm) IP67	285 x 193 x 91.2	215 x 193 x 91.2
	IP54	252 x 179.5 x 91	182 x 179.5 x 91
	DIN Rail Installation (Optional)	Optional	Optional
	Wall Mount Installation	●	●
Certification	CE/FCC/RoHS/WEEE	●	●
	EN50155 & EN61373	●	●
	E-Marking	-	-
	EN45545-2 Fire & Smoke	●	●
SOFTWARE FEATURES			
	Management Level	L2+	L2+

EN50155 Layer 3 Ethernet Switches

Lantech optimizes the hardware of Layer 3 Ethernet switches, intergrating dynamic & static routing as well as redundancy protocols. Compared to software-based routers, Lantech Layer 3 switches are powerful and more durable without fans.

IEC-61375 for Train Applications (Optional)

IEC-61375 is a standardized communication protocol for train-consist network applications, that stipulates three elements, TTDP, R-NAT and VRRP. Lantech IEC-61375 series adds multiple train-ring topologies as well as smart bypass function and has selection of 10G uplink and high port counts of PoE.

OSPF, RIP v1/v2, Static & Dynamic Routing

The series supports hardware-based IPv4 routing for maximum performance. Routing protocols, such as OSPF, RIP v1/v2, static routes including VLAN routing and multicast routing are supported.

L3 VRRP Redundancy

The series supports VRRP(Virtual Router Redundancy Protocol), where use a virtual IP address to support a primary router and multiple backup router. The primary goal of VRRP is to allow a host device which has been configured with a fixed gateway to maintain network connectivity in case the primary gateway goes down.

		T(P)GS-7216XT	T(P)GS-7216XF	T(P)GS-7212XT	T(P)GS-7212XF	T(P)GS-7016T
SPECIFICATIONS						
Interface	10/100/1000T (M12 X-code)	16	16	12	12	16
	10/100/1G/2.5G/10G (M12 X-code)	2	-	2	-	-
	1G or 2.5G Fiber	-	-	-	-	-
	1G or 2.5G or 10G Fiber	-	2 (QODC)	-	2 (QODC)	-
	100/1000 SFP Fiber	-	-	-	-	-
	802.3at/af PoE	16 (PoE model)	16 (PoE model)	8 (PoE model)	8 (PoE model)	16 (PoE model)
	Console	M12	M12	M12	M12	M12
	USB	●	●	●	●	●
	DI/DO	2/2	2/2	2/2	2/2	2/2
	Relay Contact	-	-	-	-	-
	Bypass	1-pair	-	1-pair	-	2-pair/1-pair
	Power Supply - M23	●	●	●	●	●
Power Input	24V (9.5~60VDC)	●	●	●	●	●
	48V (45~56VDC)	-	-	-	-	-
	WV (9.5~137.5VDC)	●	●	●	●	●
	HV (85~265VAC/100~300VDC)	-	-	-	-	-
	AC (85~265VAC IEC320)	-	-	-	-	-
	LDC (36~75VDC)	-	-	-	-	-
Mechanism	Wide Operating Temperature -40°C~75°C / -40°F~167°F	●	●	●	●	●
	IP Rating	IP67/IP54	IP67/IP54	IP67/IP54	IP67/IP54	IP67/IP54
	Case Dimension W x H x D (unit=mm) IP67	285 x 193 x 91.2	285 x 199.7 x 91.2	285 x 193 x 91.2	285 x 199.7 x 91.2	285 x 186 x 91.2
	IP54	252 x 179.5 x 91	252 x 186.2 x 91	252 x 179.5 x 91	252 x 186.2 x 91	252 x 165 x 91
	DIN Rail Installation	Optional	Optional	Optional	Optional	Optional
	Wall Mount Installation	IP67 model	IP67 model	IP67 model	IP67 model	IP67 model
SOFTWARE FEATURES						
Management Level		L3	L3	L3	L3	L3
OSPF, RIP v1/v2		●	●	●	●	●
Static Routing		●	●	●	●	●
VRRP		●	●	●	●	●
IEC-61375, TTDP		Optional	Optional	Optional	Optional	Optional

EN50155 Ethernet Switches

Best for rolling stock applications. Reliable yet powerful.

Designed for railway and other rugged applications, Lantech EN50155 certified series provides rugged protection with up to IP67-rated housing with M12/M23 connection. Lantech delivers the most complete product line to satisfy all your needs – 5 to 24 ports, PoE/non-PoE, fiber/Giga T, and 12V/24V/72V/110V/WV power inputs.

IP67/65/54/41-rated Aluminum Housing

To against dust and water in harsh environment, Lantech designed the series with up to IP67-rated housing with aluminum. Aluminum is high thermal conductivity, non-magnetic, light weight, and oxidation resistance that ensure our products deliver high performance with the best stability.

10G Copper Uplink or Dual Speed Fiber

Lantech EN50155 switches provide 10G speed connectivity, including 10/100/1000T or dual speed fiber. No matter 100M or 1000M fiber is inserted, the dual speed fiber port is able to function well.

EN50155 / EN45545-2 Certified

These standards are defined to ensure the operation safety and environmental friendly for rolling stock applications.

LTDP & Smart DHCP

Lantech LTDP helps to maintain the same configuration when swapping switch to keep the same IP address for devices. The multiple-train ring enhances fast ring recovery time including dynamic train coupling for train car changes without re-setting.

IEEE802.3at PoE 30W/port, 60/80/150W High PoE Budget

All Lantech EN50155 PoE models supports IEEE802.3at standard and is able to feed up to 30W at each PoE port w/60/80/150W PoE budget.

Smart Bypass Protection

The bypass relay is set to bypass the switch to the next one when power is off in order to protect the network from crashing at daisy-chain topology. Lantech new Smart bypass caters to remain in bypass mode until the switch boots up completely, also will activate when detects CPU hang or LLDP lost.

Built-in Environmental Monitoring

All Lantech EN50155 managed switches are built-in environmental monitoring. Users can view the switch's ambient temperature, input voltage, and input current along with CPU and memory buffer in real time.

Complete Power Input Range

The series provides the most complete power input range in the market. Except the normal input spec, the 12V, 72V, 110V, and WV (=Wide Voltage) are also available to satisfy any industrial environment.
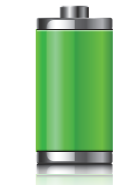
Galvanic Isolation/ WV/12V Input/ High PoE Budget

Full-Giga models provide galvanic isolation between DC input and case for WV (Wide Voltage) model. The WV model is designed with dual power input at 16.8-137.5VDC input.

Hardware One-step PTP**

Full-Giga models feature hardware-based one step PTP IEEE1588 v2 function which can allow all Gigabit ports to synchronize the network with precise accuracy.

E-marking Certified

The standard is defined for vehicles and certified for unmanaged models.

10G Copper / Fiber

Full Giga Management

HARDWARE FEATURES	T(P)GS-6416XT	T(P)GS-6416XFT	T(P)GS-6216XF	T(P)GS-6216XT	T(P)ES-6416XT	T(P)ES-6416XFT	T(P)GS-5216MGF	T(P)GS-5016T	T(P)GS-5012T	I(P)GS-5208GF	I(P)GS-5008T	HARDWARE FEATURES
10/100TX (M12)	-	-	-	-	16 (D-coded)	16 (D-coded)	-	-	-	-	-	10/100TX (M12)
10/100/1000T (M12)	16 (X-coded)	16 (X-coded)	16 (X-coded)	16 (X-coded)	-	-	16 (X-coded)	16 (X-coded)	16 (X-coded)	8 (X-coded)	8 (X-coded)	10/100/1000T (M12)
1000M Fiber (LC)	-	-	-	-	-	-	-	-	-	QODC x2/Bayonet x2	-	1000M Fiber (LC)
100M Fiber (LC)	-	-	-	-	-	-	-	-	-	-	-	100M Fiber (LC)
10/100/1G/2.5G/10G Copper	4(X-coded)	2(X-coded)	2(X-coded)	2(X-coded)	4(X-coded)	2(X-coded)	-	-	-	-	-	10/100/1G/2.5G/10G Copper
1G or 2.5G Fiber	-	-	-	-	-	-	QODC x2/Bayonet x2	-	-	-	-	1G or 2.5G Fiber
1G or 2.5G or 10G Fiber	-	2(Q ODC)	2(Q ODC)	-	-	2(Q ODC)	-	-	-	-	-	1G or 2.5G or 10G Fiber
802.3at/af PoE	16 / 8 (PoE model)	16 / 8 (PoE model)	16 / 8 (PoE model)	16 / 8 (PoE model)	16 / 8 (PoE model)	16 / 8 (PoE model)	16 / 8 (PoE model)	16 / 8 (PoE model)	12 / 8 (PoE model)	8 (PoE model)	8 (PoE model)	802.3at/af PoE
Console	M12	M12	M12	M12	M12	M12	M12	M12	M12	M12	M12	Console
USB	●	●	●	●	●	●	●	●	●	●	-	USB
DI/DO	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	4/3	4/3	DI/DO
Relay Contact	-	-	-	-	-	-	-	-	-	●	●	Relay Contact
Bypass**	2-pair/1-pair (Smart)	2-pair/1-pair (Smart)	2-pair/1-pair (Smart)	2-pair/1-pair (Smart)	2-pair/1-pair (Smart)	2-pair/1-pair (Smart)	2-pair/1-pair (Smart)	2-pair/1-pair (Smart)	2-pair/1-pair (Smart)	2-pair/1-pair	2-pair/1-pair	Bypass**
Power Supply - M23	●	●	●	●	●	●	●	●	●	-	-	Power Supply - M23
Power Supply - M12	-	-	-	-	-	-	-	-	-	-	-	Power Supply - M12
24V (9.5~57VDC)	-	-	-	-	-	-	-	-	-	●	●	24V (9.5~57VDC)
48V (45~56VDC)	-	-	-	-	-	-	-	-	-	-	-	48V
72V (50.4~90VDC)	-	-	-	-	-	-	-	-	-	-	-	72V (50.4~90VDC)
110V (43~137.5VDC)	-	-	-	-	-	-	-	-	-	-	-	110V
WV (16.8~137.5VDC)	●(PoE budget:150W)	●(PoE budget:150W)	●(PoE budget:150W)	●(PoE budget:150W)	●(PoE budget:150W)	●(PoE budget:150W)	●(PoE budget:150W)	●(PoE budget:150W)	●(PoE budget:150W)	●(PoE budget:80W)	●(PoE budget:80W)	WV (16.8~137.5VDC)
Wide Operating Temperature -40°C~75°C / -40°F~167°F	●	●	●	●	●	●	●	●	●	●	●	Wide Operating Temperature -40°C~75°C / -40°F~167°F
IP Rating	IP54	IP54	IP67/54	IP67/54	IP54	IP54	IP67/IP54	IP67/IP54	IP67/IP54	IP67/IP54	IP67/IP54	IP Rating
Dimensions W x H x D (unit=mm) IP67	-	-	285 x 199.7 x 91.2	285 x 199.7 x 91.2	-	-	285 x 199.7 x 91.2	285 x 186 x 91.2	285 x 186 x 91.2	215 x 186 x 91.2	215 x 186 x 91.2	IP67 Dimensions W x H x D (unit=mm)
IP65	-	-	-	-	-	-	-	-	-	-	-	IP65
IP54	340 x 165 x 91	340 x 165 x 91	252 x 186.2 x 91	252 x 186.2 x 91	340 x 165 x 91	340 x 165 x 91	252 x 186.2 x 91	252 x 165 x 91	252 x 165 x 91	182 x 165 x 91	182 x 165 x 91	IP54
IP41	-	-	-	-	-	-	-	-	-	-	-	IP41
DIN Rail Installation (Optional)	-	-	-	-	-	-	IP67 model	IP67 model	IP67 model	IP67 model	IP67 model	DIN Rail Installation (Optional)
Wall Mount Installation	●	●	●	●	●	●	●	●	●	●	●	Wall Mount Installation
CE/FCC/RoHS/WEEE	●	●	●	●	●	●	●	●	●	●	●	CE/FCC/RoHS/WEEE
EN50155 & EN61373	●	●	●	●	●	●	●	●	●	●	●	EN50155 & EN61373
E-Marking	-	-	-	-	-	-	-	-	-	-	-	E-Marking
EN45545-2 Fire & Smoke	●	●	●	●	●	●	●	●	●	●	●	EN45545-2 Fire & Smoke
SOFTWARE FEATURES												SOFTWARE FEATURES
Management Level	L2+	L2+	L2+	L2+	L2+	L2+	L2+	L2+	L2+	L2+	L2+	Management Level

Fast Ethernet Managed Switch

HARDWARE FEATURES	T(P)ES-5424T	T(P)ES-5424DFT	I(P)ES-5416T-X	I(P)ES-5416DF	I(P)ES-5416DFT	I(P)ES-5216DF	I(P)ES-5408T-X	I(P)ES-5408DFT-X	I(P)ES-5408S-X	I(P)ES-5208DF	I(P)ES-5208T-X
10/100TX (M12)	24	24	16	16	16	16	8	8	8	8	8
10/100/1000T (M12)	4 (X-coded)	2 (X-coded)	4 (X-coded)	-	2 (X-coded)	-	4 (X-coded)	2 (X-coded)	4 (X-coded)	-	2 (X-coded)
1000M Fiber (LC)	-	-	-	-	-	-	-	-	-	-	-
100M Fiber (LC)	-	-	-	-	-	-	-	-	-	-	-
100/1000 Dual Speed Fiber (LC)	-	QODC x2	-	Bayonet x4	Bayonet x2	Bayonet x2	-	QODC x2	-	2	-
1G or 2.5G Fiber	-	-	-	-	-	-	-	-	-	-	-
1G or 2.5G or 10G Fiber	-	-	-	-	-	-	-	-	-	-	-
802.3at/af PoE	16 / 8 (PoE model)	16 / 8 (PoE model)	16 / 8 (PoE model)	8 (PoE model)	16 / 8 (PoE model)	16 / 8 (PoE model)	8 (PoE model)	8 (PoE model)	8 (PoE model)	8 (PoE model)	8 (PoE model)
Console	M12	M12	M12	M12	M12	M12	M12	M12	M12	M12	M12
USB	-	-	-	-	-	-	-	-	-	-	-
DI/DO	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	2/2	1/1
Relay Contact	●	●	●	●	●	●	●	●	-	●	●
Bypass	2-pair/1-pair	1-pair	2-pair/1-pair	2-pair/1-pair	1-pair	1-pair	2-pair/1-pair	2-pair/1-pair	1-pair	1-pair	
Power Supply - M23							IPES-5408T			IPES-5208DF	IPES-5208T-X
Power Supply - M12	TES-5424T	TES-5424DFT	IES-5416T	IES-5416DF	IES-5416DFT	IES-5216DF	IES-5408T	IES-5408DFT		IES-5208DF	IES-5208T-X
Power Input											
24V (9.5~56VDC)	-	-	●(PoE budget 120W)	-	-	-	-	●(PoE budget 80W)	-	-	-
48V (45~56VDC)	-	-	-	-	-	-	-	(IPES-5408DFT)	-	-	-
72V (50.4~90VDC)	-	-	●(PoE budget 80W)	●(PoE budget 80W)	●(PoE budget 80W)	●(PoE budget 80W)	●(PoE budget 80W)	●(PoE budget 80W)	●(PoE budget 80W)	●(PoE budget 80W)	●(PoE budget 80W)
110V (43~137.5VDC)	-	-	●(PoE budget 80W)	●(PoE budget 80W)	●(PoE budget 80W)	●(PoE budget 80W)	●(PoE budget 80W)		●(PoE budget 80W)	●(PoE budget 80W)	●(PoE budget 80W)
WV (16.8~137.5VDC)	●(PoE 150W Budget)	●(PoE 150W Budget)	●(PoE 150W Budget)	●(PoE 150W Budget)	●(PoE 150W Budget)	●(PoE 150W Budget)	●(PoE 150W Budget)		●(PoE budget 80W)	●(PoE 150W Budget)	●(PoE 150W Budget)
Mechanism											
Wide Operating Temperature -40°C~75°C / -40°F~167°F	●	●	●	●	●	●	●	●	●	●	●
IP Rating	IP54	IP54	IP67/IP54	IP67/IP54	IP67/IP54	IP67/IP54	IP67/IP54	IP67/IP54	IP65/IP54	IP67/IP54	IP67/IP54
Dimensions IP67	-	-	285 x 193 x 91.2	285 x 192.5 x 91.2	285 x 193 x 91.2	285 x 192.5 x 91.2	215 x 193 x 91.2	215 x 199.7 x 91.2	-	215 x 192.5 x 91.2	215 x 193 x 91.2
Dimensions IP65	-	-	-	-	-	-	-	-	178 x 99 x 103	-	-
Dimensions IP54	340 x 165 x 91	340 x 165 x 91	252 x 179.5 x 91	252 x 179 x 91	252 x 179.5 x 91	252 x 178 x 91	182 x 179.5 x 91	182 x 186.2 x 91	178 x 99 x 103	182 x 179 x 91	182 x 179.5 x 91
Dimensions IP41	-	-	-	-	-	-	-	-	-	-	-
DIN Rail Installation (Optional)	-	-	IP67 model	IP67 model	IP67 model	IP67 model	IP67 model	IP67 model	-	IP67 model	IP67 model
Wall Mount Installation	●	●	●	●	●	●	●	●	●	●	●
Certification											
CE/FCC/RoHS/WEEE	●	●	●	●	●	●	●	●	●	●	●
EN50155 & EN61373	●	●	●	●	●	●	●	●	●	●	●
E-Marking	-	-	-	-	-	-	-	-	-	-	-
EN45545-2 Fire & Smoke	●	●	●	●	●	●	●	●	●	●	●
SOFTWARE FEATURES											
Management Level	L2+	L2+	L2+	L2+	L2+	L2+	L2+	L2+	L2+	L2+	L2+

Fast Ethernet Unmanaged Switch

HARDWARE FEATURES	T(P)GS-0010T	T(P)GS-0208GF	T(P)GS-0008T	T(P)GS-0008TS	I(P)ES-0208GF	I(P)ES-0208T	I(P)ES-0008A	I(P)ES-0008B	I(P)ES-0005B	IPES-0101T
10/100TX (M12)	-	-	-	-	8	8	8	8	5	2
10/100/1000T (M12)	10	8	8	8	-	2	-	-	-	-
1000M Fiber (LC)	-	QODC x2	-	-	Bayonet x2	-	-	-	-	-
100M Fiber (LC)	-	-	-	-	-	-	-	-	-	2
100/1000 Dual Speed Fiber (LC)	-	-	-	-	-	-	-	-	-	-
1G or 2.5G Fiber	-	-	-	-	-	-	-	-	-	-
1G or 2.5G or 10G Fiber	-	-	-	-	-	-	-	-	-	-
802.3at/af PoE	8 (PoE model)	8 (PoE model)	8 (PoE model)	8 (PoE model)	8 (PoE model)	8 (PoE model)	8 (PoE model)	8 (PoE model)	5 (PoE model)	1
Console	-	-	-	-	-	-	-	-	-	-
USB	-	-	-	-	-	-	-	-	-	-
DI/DO	-	-	-	-	-	-	-	-	-	-
Relay Contact	-	-	-	-	●	●	●	●	●	●
Bypass	-	-	-	-	-	-	-	-	-	-
Ignition Sensing (optional 24V model)	●	●	●	●	-	-	-	-	-	-
Power Supply - M23					IPES-0208GF	IPES-0208T				
Power Supply - M12					IES-0208GF	IES-0208T				
Power Input										
12/24V (9.5~56VDC)	●(PoE budget 60/96W)	●(PoE budget 60/96W)	●(PoE budget 60/96W)	●(PoE budget 60/96W)	●(PoE budget for 120W)	●(PoE budget for 120W)	●(PoE budget for 60/80/120W)	●(PoE budget for 60/80/120W)	●(PoE budget for 60/80/120W)	●(PoE budget for 120W)
48V (45~56VDC)	-	-	-	-	-	-	-	-	-	-
72V (50.4~90VDC)	-	-	-	-	●(PoE budget for 80W)	●(PoE budget for 80W)	●(PoE budget for 80W)	●(PoE budget for 80W)	●(PoE budget for 80W)	●(PoE budget for 80W)
110V (43~137.5VDC)	-	-	-	-	●(PoE budget for 80W)	●(PoE budget for 80W)	●(PoE budget for 80W)	●(PoE budget for 80W)	●(PoE budget for 80W)	●(PoE budget for 80W)
WV (16.8~137.5VDC)	●(PoE budget 150W)	●(PoE budget 150W)	●(PoE budget 150W)	●(PoE budget 96W)	-	-	-	-	-	-
Mechanism										
Wide Operating Temperature -40°C~75°C / -40°F~167°F	●	●	●	●	●	●	●	●	●	●
IP Rating	IP67/IP54	IP67/IP54	IP67/IP54	IP54/IP41	IP67/IP54	IP67/IP54	IP67/IP54	IP54/IP41	IP54/IP41	IP54/IP41
Dimensions IP67	215 x 193 x 91.2	215 x 199.7 x 91.2	215 x 186 x 91.2	-	215 x 192.5 x 91.2	215 x193 x 91.2	215 x 186 x 91.2	-	-	-
Dimensions IP65	-	-	-	-	-	-	-	-	-	-
Dimensions IP54	182 x 179.5 x 91	182 x 186.2 x 91	182 x 165 x 91	135 x 165 x 76.5	182 x 179 x 91	182 x 179.5 x 91	182 x 165 x 91	135 x 165 x 76.5	135 x 165 x 76.5	135 x 165 x 76.5
Dimensions IP41	-	-	-	135 x 165 x 76.5	-	-	-	135 x 165 x 76.5	135 x 165 x 76.5	135 x 165 x 76.5
DIN Rail Installation (Optional)	IP67 model	IP67 model	IP67 model	-	IP67 model	IP67 model	IP67 model	-	-	-
Wall Mount Installation	●	●	●	●	●	●	●	●	●	●
Certification										
CE/FCC/RoHS/WEEE	●	●	●	●	●	●	●	●	●	●
EN50155 & EN61373	●	●	●	●	●	●	●	●	●	●
E-Marking	●	●	●	●	●	●	●	●	●	●
EN45545-2 Fire & Smoke	●	●	●	●	●	●	●	●	●	●
SOFTWARE FEATURES										
Management Level	Unmanaged	Unmanaged	Unmanaged	Unmanaged	Unmanaged	Unmanaged	Unmanaged	Unmanaged	Unmanaged	Unmanaged

*Operating temperature for 72V / 110V model: -40°C~60°C / -40°F~140°F

Industrial Solutions · Lantech Advanced Features · Hardened Ethernet Connections · Ethernet Connections · Accessories

Industrial IEC 61850-3 Ethernet Switches

Made for power substation with highest protection level.

Lantech IEC 61850-3 series features high reliability and robustness for power substation automation applications that operate in extremely harsh environments. The series is built for real-time transmission of important packets and against severe electrical interference in power substations.

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 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).

RedBox: HSR and PRP Support

Followed IEC 62439-3 standard, High-availability Seamless Redundancy (HSR) and the Parallel Redundancy Protocol (PRP) provides the ultimate in network reliability for electric utility applications that demand high availability and very short switch over time. HSR provides zero recovery time in case of failure of one component, while PRP allows systems to overcome any single network failure without affecting the data transmission.

Zero GOOSE Message Packet Loss

The series support standardized GOOSE message that ensures the most critical packets are transmitted. Manager is able to receive and react for unexpected accidents in real time without any packet loss.

IEEE1588 PTP V2 (2-step & 1-step)

The hardware-based IEEE1588 PTP V2 function allows each port to synchronize the network with precise accuracy (End to End 2-step and Peer to Peer 2-step modes in Transparent Clock). It's one of the most critical requirements for power substation applications. Our new models support "One-step PTP".

Support IEC61850-90-4 switch data modeling with built-in MMS server

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.

	I(P)GS-5400-2P-PT	I(P)GS-5424-2P-PT	I(P)ES-3424DSFP-2P-PT	IES-5408DFT-PT	IPGS-5408DFT-PT	IGS-5408DFT-PT	IRX-3303C	
HARDWARE FEATURES								**HARDWARE FEATURES**
10/100TX (RJ45)	-	-	24	8	-	-	-	10/100TX (RJ45)
10/100/1000T (RJ45)	Max 24	24	-	-	10	10	-	10/100/1000T (RJ45)
100M Fiber	Max 18 (SC)	-	-	-	-	-	-	100M Fiber
1000M SFP	4	-	-	-	-	-	-	1000M SFP
100M/1000M Dual Speed SFP	Max 28	4	4	2	2	2	3	100M/1000M Dual Speed SFP
802.3at/af PoE	Max 24 (PoE model)	24 (PoE model)	24 (PoE model)	8	8	-	-	802.3at/af PoE
Console	Female DB-9	Female DB-9	Female DB-9	RJ45	RJ45	RJ45	RJ45	Console
USB for Automatic Backup and Configuration	●	●	●	●	●	●		USB for Automatic Backup and Configuration
DI/DO	2/2	2/2	2/2	2/2	2/2	2/2	2/2	DI/DO
Relay Contact	●	●	●	●	●	●	●	Relay Contact
45~56VDC	● (PoE model)	● (PoE model)	● (PoE model)	●	●	48~72VDC (DC model)	-	45~56VDC
9.5~60VDC	-	●	●	-	-		-	9.5~60VDC
12~56VDC	●	-	-	-	-	90~305VAC/120~430VDC (HV model)	●	12~56VDC
HV: 85~265VAC/100V~370VDC	●	IGS-5424-PT	IES-3424DSFP-PT	-	-		●	HV: 85~265VAC/100V~370VDC
LV: 36~75VDC	●	-	-	-	-		-	LV: 36~75VDC
Standard Operating Temperature -20°C~60°C / -4°F~140°F	●	●	●	●	●	●	●	Standard Operating Temperature -20°C~60°C / -4°F~140°F
Wide Operating Temperature -40°C~75°C / -40°F~167°F	-	-	●	●	●	●	●	Wide Operating Temperature -40°C~75°C / -40°F~167°F
IP Rating	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP Rating
Case Dimension W x D x H (unit=mm) — Standard Temp. Model	440 x 280 x 44	440 x 280 x 44	440 x 280 x 44	74 x 105 x 152	74 x 105 x 152	74 x 105 x 152	74 x 135 x 152	Standard Temp. Model — Case Dimension W x D x H (unit=mm)
Wide Temp. Model				96 x 105 x 152	96 x 105 x 152			Wide Temp. Model
DIN Rail Installation	-	-	-	●	●	●	●	DIN Rail Installation
Wall Mount Installation	-	-	-	Optional	Optional	Optional	Optional	Wall Mount Installation
19-inch Rack Mount	●	●	●	-	-	-	-	19-inch Rack Mount
CE/FCC	●	●	●	●	●	●	●	CE/FCC
RoHS/WEEE	●	●	●	●	●	●	●	RoHS/WEEE
IEC 62439-3 HSR/PRP	-	-	-	-	-	-	●	IEC 62439-3 HSR/PRP
IEC 61850-3/IEEE1613	●	●	Pending	●	●	●	●	IEC 61850-3/IEEE1613
SOFTWARE FEATURES								**SOFTWARE FEATURES**
Management Level	L2+ & MMS data modeling	L2+ & MMS data modeling	L2+ & MMS data modeling	L2+ & MMS data modeling	L2+ & MMS data modeling	L2+ & MMS data modeling	L2+	

L3 / 10G Ethernet Switches

Hardened, powerful solution with L3, L2+ and 10G uplink.

Lantech industrial center managed switches provide fully management functions for L3/L2+ with 19-inch rack mount installation, and also ensure the highest network redundancy. The modular high density design allows flexible configuration with 10 Gigabit speed aggregation points.

10G High Speed + Full Gigabit + 802.3at PoE

Lantech center switches are designed with huge bandwidth capacity that is able to transmit multiple HD videos at the same time. Compared to current Gigabit port, the 10G port delivers 10X bandwidth for increasing data throughput requirement. IEEE802.3at PoE models are also available, which can feed up to 30W at each port.

Flexible Modularity

Lantech provides highly customized modular models to satisfy all kinds of needs, from 100TX to dual speed SFP. All modules built in hardware PTP V2 for precise time synchronization.

Optional IEEE1588 PTP V2 (2-step & 1-step)

The hardware-based IEEE1588 PTP V2 function allows each port to synchronize the network with precise accuracy (End to End 2-step and Peer to Peer 2-step modes in Transparent Clock). It's one of the most critical requirements for power substation applications. Our new models support "One-step PTP".

USB Port for Automatic 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.

NEW 10G L3   NEW 10G

	IGS-7300-2P	IGS-6300-2P	IGS-5400-2P	IGS-5424	IGS-5816-2P	IES-3424DSFP-2P
HARDWARE FEATURES						
10/100/1000T (RJ45)	Max 24	Max 24	Max 24	24	8	-
10/100TX (RJ45)	-	-	-	-	-	24
100M SC Fiber	-	-	Max 18	-	-	-
10/100/1G/2.5G/10G Copper RJ45	Max 4	Max 4				
1G/2.5G/10G SFP	Max 4	4	-	-	-	-
100M/1000M SFP	Max 24	Max 28	Max 28	4	16	4
802.3at/af PoE	Max 24 (PoE model)	Max 24 (PoE model)	Max 24 (PoE model)	24 (PoE model)	-	24 (PoE model)
Console	Female DB-9	Female DB-9	Female DB-9	Female DB-9	Female DB-9	Female DB-9
USB for Automatic Backup and Configuration	●	●	●	●	●	●
DI/DO	2/2	2/2	2/2	2/2	2/2	2/2
Relay Contact	●	●	●	●	●	●
HV: 85~265VAC/100V~370VDC	●	●	●	●	●	●
AC: 85~265VAC IEC320	●	●	●	●	●	●
DC:12~57VDC	●	●	●	●	●	●
LDC: 36~75VDC	●	●	●	●	●	●
Standard Operating Temperature -20°C~60°C / -4°F~140°F	●	●	●	●	●	●
Wide Operating Temperature -40°C~85°C / -40°F~185°F	●	●	●	●	●	●
IP Rating	IP30	IP30	IP30	IP30	IP30	IP30
Case Dimension W x D x H (unit=mm)	440 x 325 x 44	440 x 325 x 44	440 x 325 x 44	440 x 325 x 44	440 x 325 x 44	440 x 325 x 44
19-inch Rack Mount	●	●	●	●	●	●
CE	●	●	●	●	●	●
FCC	●	●	●	●	●	●
ROHS/WEEE	●	●	●	●	●	●
SOFTWARE FEATURES						
Management Level	L3	L2+	L2+	L2+	L2+	L2+

Industrial Managed Ethernet Switches

Fast, powerful, and flexible networking solution.

Lantech SNMP managed switches offer advanced functions to cover most of the network requirements, including IPv6, DDM, SSH/SSL, TACAS+, ACL, IGMP v3, DHCP, etc. Each model also supports advanced ITU G.8032 or Pro-Ring system for redundancy. All the models are strictly tested with shock, vibration, EMC with IP30-rated protection for various industrial applications.

10G Uplink & L3 Capacity

Lantech 6000 IP30 switch series are with 10G uplink while 7000 series with L3 capacity that are able to boost the outdoor network to higher bandwidth and across different subnets.

USB Port for Automatic 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.

Full Gigabit Models for Fastest Transmission

Besides 1000T and 1000M SFP, Lantech designed full gigabit models to satisfy the requirement toward fast networking speed. IEEE802.3at PoE models are also available on next page.

NEW 10G L3   NEW 10G L3   NEW 10G   NEW 10G   NEW   NEW

		IGS-7488XSFP	IGS-7416XSFP	IGS-6488XSFP	IGS-6416XSFP	IGS-5488MGSFP	IGS-5416MGSFP	IGS-5408DFT
HARDWARE FEATURES								
	10/100/1000T (RJ45)	8	16	8	16	8	16	10
	10/100TX (RJ45)	-	-	-	-	-	-	-
	100M Fiber/SFP	-	-	-	-	-	-	-
	1000M SFP	-	-	-	-	-	-	-
	100M/1000M Dual Speed SFP	8	-	8	-	8	-	2
	10/100/1000T Dual Speed SFP Combo	-	-	-	-	-	-	-
	1G or 2.5G SFP	-	-	-	-	4	4	-
	1G or 2.5G or 10G SFP	4	4	4	4	-	-	-
	Console	RJ45	RJ45	RJ45	RJ45	RJ45	RJ45	RJ45
	USB for Automatic Backup and Configuration	●	●	●	●	●	●	●
	DI/DO	2/2	2/2	2/2	2/2	2/2	2/2	2/2
	Relay Contact	●	●	●	●	●	●	●
Power Input		9.5~60VDC	9.5~60VDC	9.5~60VDC	9.5~60VDC	9.5~60VDC	9.5~60VDC	36~72VDC
	Standard Operating Temperature -20°C~60°C / -4°F~140°F	●	●	●	●	●	●	●
	Wide Operating Temperature -40°C~75°C / -40°F~167°F	●	●	●	●	●	●	●
	IP Rating	IP30	IP30	IP30	IP30	IP30	IP30	IP30
	Case Dimension W x D x H (unit=mm)	74 x 134 x 152	74 x 134 x 152	74 x 134 x 152	74 x 134 x 152	74 x 134 x 152	74 x 134 x 152	74 x 105 x 152
	DIN Rail Installation	●	●	●	●	●	●	●
	Wall Mount Installation	Optional	Optional	Optional	Optional	Optional	Optional	Optional
	CE/FCC	●	●	●	●	●	●	●
	RoHS/WEEE	●	●	●	●	●	●	●
	EN50155	-	●	-	●	-	●	●
	UL Class I Division II	-	-	-	-	-	-	-
	ATEX	-	-	-	-	-	-	-
SOFTWARE FEATURES								
Management Level		L3	L3	L2+	L2+	L2+	L2+	L2+

Industrial Managed Ethernet Switches

Fast, powerful, and flexible networking solution.

Wide Range Input (18~72VDC / 9.5~60VDC)

The Lantech Managed Ethernet switch is designed with wide dual power supply at 18~72VDC / 9.5V~60VDC input. Some models support dual -48V input.

Digital Input / Digital Output

The DI/DO function can support additional open/close physical contact for designate applications besides port / power events. For example, when the switch was moved or stolen, DI/DO will send an email to pre-defined addresses as well as SNMP traps out immediately.
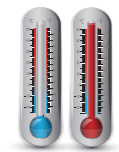
Tested for Extreme Temperature

To ensure the switches will not be damaged or malfunctions under the influence of extreme weather, the industrial managed series is designed with wider temperature tolerance up to -40°C~75°C.

Combined Solutions between Switches and Surveillance CMS (Optional)

Lantech 3/5 series ethernet switches are capable of integrating with VMS/CMS systems to provide notification messages in order to activate cameras to pre-set functions.

	IGS-5408DSFP	IGS-5408GSFP	IGS-3408DSFP	IGS-3408GSFP	IGS-3208C	IGS-3208GSFP	IGS-3008	IGS-3204MGSFP	IES-5408F	IES-5408DFT	IES-5408DSFP	IES-3307C	IES-3408GSFP	IES-3416DSFP	IES-2204F	IES-2008B	IES-2208CA
HARDWARE FEATURES																	
10/100/1000T (RJ45)	8	8	8	8	8	8	8	4	-	2	-	-	-	-	-	-	-
10/100TX (RJ45)	-	-	-	-	-	-	-	-	8	8	-	7	8	16	4	8	8
100M Fiber/SFP	-	-	-	-	-	-	-	-	4 Fiber	-	-	-	-	-	2 SFP	-	-
1000M SFP	-	4	-	4	-	2	-	-	-	-	-	-	4	4	-	-	-
100M/1000M Dual Speed SFP	4	-	4	-	-	-	-	-	-	2	4	-	-	-	-	-	-
10/100/1000T Dual Speed SFP Combo	-	-	-	-	2	-	-	-	-	-	-	3 (1 is 10/100TX combo)	-	-	-	-	2
1G or 2.5G SFP	-	-	-	-	-	-	-	2	-	2	-	4	-	-	-	-	-
Console	RJ45	RJ45	RJ45	RJ45	RJ45	RJ45	RJ45	RJ45	RJ45	RJ45	RJ45	RJ45	RJ45	RJ45	RJ45	RJ45	RJ45
USB for Automatic Backup and Configuration	●	●	-	-	●	●	-	●	-	-	-	●	-	-	-	-	-
DI/DO	2/2	2/2	2/2	2/2	2/2	2/2	-	-	2/2	2/2	2/2	2/2	2/2	2/2	-	-	-
Relay Contact	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Power Input	18~57VDC	18~57VDC / HV	18~57VDC	9.5~60VDC	9.5~60VDC	9.5~60VDC	9.5~60VDC	9.5~60VDC	18~56VDC	18~72VDC	18~57VDC / HV	9.5~60VDC	9.5~60VDC / HV	9.5~60VDC	9.6~60VDC	9~56VDC	9.5~60VDC
Standard Operating Temperature -20°C~60°C / -4°F~140°F	●	●	●	●	●	●	●	●	●	●	●	●	●	●	-40°C~70°C / -40°F~158°F	-40°C~70°C / -40°F~158°F	-40°C~70°C / -40°F~158°F
Wide Operating Temperature -40°C~75°C / -40°F~167°F	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
IP Rating	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30
Case Dimension W x D x H (unit=mm)	74 x 105 x 152	74 x 105 x 152	74 x 105 x 152	74 x 105 x 152	74 x 105 x 152	74 x 105 x 152	35 x 105 x 152	35 x 105 x 152	74 x 105 x 152	74 x 105 x 152	74 x 105 x 152	74 x 105 x 152	74 x 105 x 152	74 x 135 x 152	35 x 105 x 152	74 x 105 x 152	74 x 105 x 152
DIN Rail Installation	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Wall Mount Installation	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional
CE/FCC	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
RoHS/WEEE	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
EN50155	-	-	-	-	-	-	-	-	-	-	-	●	-	-	-	-	-
UL Class I Division II	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	●	●
ATEX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	● (-ATEX model)	● (-ATEX model)
SOFTWARE FEATURES																	
Management Level	L2+	L2+	L2+	L2+	L2+	L2+	L2+	L2+	L2+	L2+	L2+	L2+	L2+	L2+	L2	L2	L2

Industrial PoE Ethernet Switches

Durable, reliable, and complete PoE solution.

Fully compliant with IEEE802.3at/af PoE standard, Lantech industrial PoE series provides comprehensive PoE solution with durability and reliability. Al kinds of needs can be satisfied with our complete lineup, including unmanaged, managed, fiber uplink, SFP, combo, modular model, PoE mode A and PoE mode B.

10G Uplink & L3 Capacity

Lantech 6000 IP30 switch series are with 10G uplink while 7000 series with L3 capacity that are able to boost the outdoor network to higher bandwidth and across different subnets.

Feed 30W Power – 802.3at

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

Built-in Power Booster

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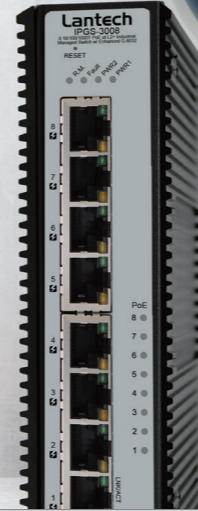
Prioritize Your PDs

Priority of PDs can be defined. When the total power consumption of all PoE ports was over the value of maximum power available, the switch will fulfill the power consumption of the high priority PDs to make sure these critical devices keep working.

Configurable Power Budget

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

PoE Management

The pre-set power feeding schedule is allowed via PoE scheduling function. Turns on/off a PD according to the user-defined routine time table is that easy. It's saving both time and energy.

		IPGS-7300-2P	IPGS-6300-2P	IPGS-5424	IPGS-5400-2P	IPES-3424DSFP-2P	IPGS-7416XSFP-16	IPGS-7488XSFP-8	IPGS-6488XSFP-8	IPGS-6416XSFP-16	IPGS-5488MGSFP-8	IPGS-5416MGSFP-16	IPGS-5408GSFP	IPGS-5408DFT
HARDWARE FEATURES														
	10/100/1000T (RJ45)	Max 24	Max 24	24	Max 24	-	8	16	8	16	8	16	8	10
	10/100TX (RJ45)	-	-	-	-	24	-	-	-	-	-	-	-	-
	100M Fiber	-	-	-	Max 18 (SC)	-	-	-	-	-	-	-	-	-
	1000M SFP	-	-	-	4	-	-	-	-	-	-	-	4	-
	10/100M/1G/2.5G/10G Copper RJ45	Max 4	Max 4	-	-	-	-	-	-	-	-	-	-	-
Interface	100M/1000M Dual Speed SFP	Max 24	Max 24	4	Max 28	4	8	-	8	-	8	-	-	2
	10/100/1000T Dual Speed SFP Combo	-	-	-	-	-	-	-	-	-	-	-	-	-
	1G or 2.5G SFP	-	-	-	-	-	-	-	-	-	-	4	4	-
	1G or 2.5G or 10G SFP	Max 4	Max 4	-	-	-	Max 4	Max 4	4	4	-	-	-	-
	802.3at/af PoE	Max 24	Max 24	24	Max 24	24	8	16	8	16	8	16	8	8
	802.3af PoE	-	-	-	-	-	-	-	-	-	-	-	-	-
	Console	Female DB-9	Female DB-9	Female DB-9	Female DB-9	Female DB-9	RJ45	RJ45	RJ45	RJ45	RJ45	RJ45	RJ45	RJ45
	PTP v2(optional)	●	●	●	●	●	●	●	●	●	●	●		
	USB for Automatic Backup and Configuration	●	●	●	●	●	●	●	●	●	●	●	●	●
	DI/DO	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2	2/2
	Relay Contact	●	●	●	●	●	●	●	●	●	●	●	●	●
Power Input	48VDC PoE from rear terminal block	●(PoE budget 720W)	●(PoE budget 720W)	●(PoE budget 720W)	●(PoE budget 720W)	●(PoE budget 720W)	●(PoE budget 240W)	●(PoE budget 240W)	●(PoE budget 240W)	●(PoE budget 240W)	●(PoE budget 240W)	●(PoE budget 240W)	●(PoE budget 240W)	●(PoE budget 240W)
	12/24VDC	System	System	System	System	System	●	●60W/120W	●60W/120W	●60W/120W	●60W/120W	●60W/120W	-	-
	72VDC	-	-	-	-	-	-	-	-	-	-	-	-	-
	HV: 85~264VAC/100~370VDC	System	System	-	System	-	-	-	-	-	-	-	-	-
	AC: 85~264VAC IEC320	System	System	-	System	-	-	-	-	-	-	-	-	-
	LDC: 36~85VDC	System	System	-	System	-	-	-	-	-	-	-	-	-
Mechanism	Standard Operating Temperature -20°C~60°C / -4°F~140°F	●	●	●	●	●	●	●	●	●	●	●	●	●
	Wide Operating Temperature -40°C~75°C / -40°F~167°F	●	●	-	●	●	●	●	●	●	●	●	●	●
	IP Rating	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30
	Case Dimension W x D x H (unit=mm) — Standard Temp. Model	440 x 325 x 44	440 x 325 x 44	440 x 325 x 44	440 x 325 x 44	440 x 325 x 44	74 x 135 x 152	74 x 135 x 152	74 x 135 x 152	74 x 135 x 152	74 x 135 x 152	74 x 135 x 152	74 x 105 x 152	74 x 105 x 152
	Case Dimension W x D x H (unit=mm) — Wide Temp. Model												96.3 x 105 x 152	96.3 x 105 x 152
	DIN Rail Installation						●	●	●	●	●	●	●	●
	Wall Mount Installation	19-inch Rack Mount	19-inch Rack Mount	19-inch Rack Mount	19-inch Rack Mount	19-inch Rack Mount	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional
Certification	CE	●	●	●	●	●	●	●	●	●	●	●	●	●
	FCC	●	●	●	●	●	●	●	●	●	●	●	●	●
	EN50155	-	-	-	-	-	-	-	-	-	-	-	●	●
	IEC 61850-3/IEEE1613	● (-PT model)	● (-PT model)	-	● (-PT model)	● (-PT model)	-	-	-	-	-	-	-	-
SOFTWARE FEATURES														
	Management Level	L3	L2+	L2+	L2+	L2+	L3	L3	L2+	L2+	L2+	L2+	L2+	L2+

Top Table

HARDWARE FEATURES	IPGS-3408GSFP	IPGS-3208GSFP	IPGS-3208C	IPGS-3204MGSFP	IPGS-3008	IPGS-0208GSFP	IPGS-0208C	IPGS-0008B	IPGS-0204DSFP	IPGS-0005T-4	IPGS-0101T	HARDWARE FEATURES
10/100/1000T (RJ45)	8	8	8	4	8	8	8	8	4	5	2	10/100/1000T (RJ45)
1000M SFP	4	2	-	-	-	2	-	-	-	-	-	1000M SFP
100M SFP	-	-	-	-	-	-	-	-	-	-	-	100M SFP
100M/1000M Dual Speed SFP	-	-	-	-	-	-	-	-	2	-	-	100M/1000M Dual Speed SFP
10/100/1000T Dual Speed SFP Combo	-	-	2	-	-	-	2	-	-	-	-	10/100/1000T Dual Speed SFP Combo
1G or 2.5G SFP	-	-	-	2	-	-	-	-	-	-	-	1G or 2.5G SFP
802.3at/af PoE	8	8	8	4	8	8	8	8	4	4	1	802.3at/af PoE
Console	RJ45	RJ45	RJ45	RJ45	RJ45	-	-	-	-	-	-	Console
USB for Automatic Backup and Configuration	-	●	●	●	-	-	-	-	-	-	-	USB for Automatic Backup and Configuration
DI/DO	2/2	2/2	2/2	-	-	-	-	-	-	-	-	DI/DO
Relay Contact	●	●	●	●	●	●	●	●	●	●	●	Relay Contact
48VDC	●(PoE 240W)	●(PoE 240W)	●(PoE 240W)	●(PoE 120W)	●(PoE 120W)	●(PoE 240W)	●(PoE 240W)	●(PoE 120W)	●(PoE 120W)	●(PoE 120W)	●(PoE 30W)	48VDC
12/24VDC	●(PoE 80W/120W)	●(PoE 80W/120W)	●(PoE 80W/120W)	●(PoE 80W/120W)	●(PoE 80W/120W)	●(PoE 80W/120W)	●(PoE 80W/120W)	●(PoE 80W/120W)	●(PoE 80W/120W)	●(PoE 80W/120W)	●(PoE 30W)	12/24VDC
Standard Operating Temperature -20°C~60°C / -4°F~140°F	●	●	●	●	●	●	●	●	●	●	●	Standard Operating Temperature -20°C~60°C / -4°F~140°F
Wide Operating Temperature -40°C~75°C / -40°F~167°F	●	●	●	●	●	●	●	●	●	●	●	Wide Operating Temperature -40°C~75°C / -40°F~167°F
IP Rating	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP Rating
Case Dimension W x D x H (unit=mm) — Standard Temp. Model / Wide Temp. Model	74 x 105 x 152 / 96.3 x 105 x 152	74 x 105 x 152	74 x 105 x 152	43 x 105 x 152	43 x 105 x 152	74 x 105 x 152	74 x 105 x 152	43 x 105 x 152	43 x 105 x 152	43 x 105 x 152	35 x 105 x 152	Case Dimension W x D x H (unit=mm)
DIN Rail Installation	●	●	●	●	●	●	●	●	●	●	●	DIN Rail Installation
Wall Mount Installation	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Wall Mount Installation
CE/FCC	●	●	●	●	●	●	●	●	●	●	●	CE/FCC
EN50155	-	-	-	-	-	-	-	-	-	-	-	EN50155
E-marking	-	-	-	-	-	-	-	-	●	-	-	E-marking
IEC 61850-3/IEEE1613	-	-	-	-	-	-	-	-	-	-	-	IEC 61850-3/IEEE1613
SOFTWARE FEATURES												**SOFTWARE FEATURES**
Management Level	L2+	L2+	L2+	L2+	L2+	Unmanaged	Unmanaged	Unmanaged	Unmanaged	Unmanaged	Unmanaged	Management Level

Bottom Table

HARDWARE FEATURES	IPES-3416DSFP	IPES-5408DFT	IPES-3408GSFP	IPES-3208C-4B	IPES-3208C	IPES-2208CB	IPES-2204F	IPES-0208CA	IPES-0104GT-4	IPES-0204DFT-4	IPES-0008B	IPGC-0101DSFP	HARDWARE FEATURES
10/100/1000T (RJ45)	-	-	-	-	-	-	-	-	1	-	-	1	10/100/1000T (RJ45)
10/100TX (RJ45)	16	8	8	8	8	8	4	8	4	4	8	-	10/100TX (RJ45)
1000M SFP	-	2	4	-	-	-	-	-	-	-	-	-	1000M SFP
100M SFP	-	-	-	-	-	-	2	-	-	-	-	-	100M SFP
100M/1000M Dual Speed SFP	4	2	-	-	-	-	-	-	-	2	-	1	100M/1000M Dual Speed SFP
10/100/1000T Dual Speed SFP Combo	-	-	-	2	2	2	-	2	-	-	-	-	10/100/1000T Dual Speed SFP Combo
802.3at/af PoE	16	8	8	8	8	8	4	8	4	4	8	1	802.3at/af PoE
Console	RJ45	RJ45	RJ45	RJ45	RJ45	RJ45	RJ45	-	-	-	-	-	Console
USB for Automatic Backup and Configuration	-	-	-	●	●	-	-	-	-	-	-	-	USB for Automatic Backup and Configuration
DI/DO	2/2	2/2	2/2	2/2	2/2	-	-	-	-	-	-	-	DI/DO
Relay Contact	●(POE 240W)	●(POE 240W)	●(POE 240W)	●(POE 240W)	●(POE 240W)	●(POE 240W)	●(POE 120W)	●(POE 240W)	●(POE120W)	●(POE120W)	●(POE120W)	●(POE 30W)	Relay Contact
48VDC	●	●	●	-	●	-	●	●	●	●	●	●	48VDC
12/24VDC	-	●(PoE 80W/120W)	●(PoE 80W/120W)	●(PoE 80W/120W)	-	●(PoE 80W/120W)	●(PoE 80W/120W)	●(PoE 80W/120W)	●(PoE 80W/120W)	●(PoE 80W/120W)	●(PoE 80W/120W)	●(POE 30W)	12/24VDC
Standard Operating Temperature -20°C~60°C / -4°F~140°F	●	●	●	●	●	●	●	●	●	●	●	●	Standard Operating Temperature -20°C~60°C / -4°F~140°F
Wide Operating Temperature -40°C~75°C / -40°F~167°F	●	●	●	●	●	●	●	●	●	●	●	●	Wide Operating Temperature -40°C~75°C / -40°F~167°F
IP Rating	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP30	IP Rating
Case Dimension W x D x H (unit=mm) — Standard Temp. Model / Wide Temp. Model	74 x 105 x 152	74 x 105 x 152	74 x 105 x 152	74 x 105 x 152	74 x 105 x 152	74 x 105 x 152	43 x 105 x 152 / 35 x 105 x 152	74 x 105 x 152	43 x 105 x 152 / 35 x 105 x 152	43 x 105 x 152 / 35 x 105 x 152	43 x 105 x 152	35 x 105 x 152	Case Dimension W x D x H (unit=mm)
DIN Rail Installation	●	●	●	●	●	●	●	●	●	●	●	●	DIN Rail Installation
Wall Mount Installation	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Wall Mount Installation
CE/FCC	●	●	●	●	●	●	●	●	●	●	●	●	CE/FCC
EN50155	-	●	-	-	-	-	-	-	-	-	-	-	EN50155
E-marking	-	-	-	-	-	-	-	-	-	-	●	-	E-marking
IEC 61850-3/IEEE1613	-	-	-	-	-	-	-	-	-	-	-	-	IEC 61850-3/IEEE1613
SOFTWARE FEATURES													**SOFTWARE FEATURES**
Management Level	L2+	L2+	L2+	L2	L2	L2	L2	Unmanaged	Unmanaged	Unmanaged	Unmanaged	Unmanaged	Management Level

Industrial DNV Type Ethernet Switches

Strictly tested for maritime applications.

Meet with the maritime test criteria in DNV type test, the series ensure the switches sustaining the harsh on-board environments often founded in ships, crafts, and offshore platforms. The wide product line provides the complete solution for maritime applications.

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.

Prevent Compass Interference

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

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.

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 environment.

		LGS-2624C-DNV	IES-2208CA-DNV	IES-2008B-DNV	IEC-0101FT-DNV	IES-0008T-DNV	IES-0005T-DNV
HARDWARE FEATURES							
Interface	10/100TX (RJ45)	-	8	8	1	8	5
	10/100/1000T (RJ45)	20	-	-	-	-	-
	100M Fiber	-	-	-	1 (SC/ST)	-	-
	Dual Speed SFP	2	-	-	-	-	-
	10/100/1000T/Dual Speed SFP Combo	4	2	-	-	-	-
	Console	RJ45	RJ45	RJ45	-	-	-
	Relay Contact	-	●	●	●	●	●
Power Input	12~48VDC	-	●	●	●	●	●
	100~240VAC	●	-	-	-	-	-
Mechanism	Standard Operating Temperature -20°C~60°C / -4°F~140°F	●	●	●	●	●	●
	Wide Operating Temperature -40°C~75°C / -40°F~167°F	●	●	●	●	●	●
	IP Rating	IP30	IP30	IP30	IP30	IP30	IP30
	Case Dimension W x D x H (unit=mm)	442 x 170 x 44	74 x 105 x 152	74 x 105 x 152	30 x 95 x 140	30 x 95 x 140	30 x 95 x 140
	DIN Rail Installation	-	●	●	●	●	●
	Wall Mount Installation	-	●	●	●	●	●
	19-inch Rack Mount	●	-	-	-	-	-
Certification	CE/FCC	●	●	●	●	●	●
	RoHS/WEEE	●	●	●	●	●	●
	DNV	●	●	●	●	●	●
	UL Class I Division II	-	-	-	●	●	●
SOFTWARE FEATURES							
	Management Level	L2+	L2+	L2+	Unmanaged	Unmanaged	Unmanaged

Industrial Hazardous Ethernet Switches

Guarantee safety in hazardous environments.

Gas, oil, and mine related environments are full with flammable gases, vapors, liquids and combustible dusts. We classified these areas as hazardous environments because disasters may be caused with only one small spark. To guarantee the safety of property and people, Lantech release a series of switches to fulfill this kind of applications. The series can be deployed in hazardous or explosive condition without increasing the risk of explosion or accelerating the damage if an accident occurs.

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 of the 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 design our hazardous series with apparatus that has no normally arcing parts or thermal effects capable of ignition. Also, the components are hermetically sealed.

Non- incendive Design

Lantech hazardous series is incapable of igniting the 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.

		IES-2208CA(-ATEX)	IES-2008B(-ATEX)	IEC-0101FT	IES-0008T	IES-0005T
HARDWARE FEATURES						
Interface	10/100TX (RJ45)	8	8	1	8	5
	10/100/1000T (RJ45)	-	-	-	-	-
	100M Fiber	-	-	1 (SC/ST)	-	-
	10/100/1000T/Dual Speed SFP Combo	2	-	-	-	-
	Console	RJ45	RJ45	-	-	-
	DI/DO	-	-	-	-	-
	Relay Contact	●	●	●	●	●
Power Input	12~36VAC	-	-	●	●	●
	12~48VDC	●	●	●	●	●
Mechanism	Standard Operating Temperature -20°C~60°C / -4°F~140°F	●	●	●	●	●
	Wide Operating Temperature -40°C~75°C / -40°F~167°F	●	●	●	●	●
	IP Rating	IP30	IP30	IP30	IP30	IP30
	Case Dimension W x D x H (unit=mm)	74 x 105 x 152	74 x 105 x 152	30 x 95 x 140	30 x 95 x 140	30 x 95 x 140
	DIN Rail Installation	●	●	●	●	●
	Wall Mount Installation	●	●	●	●	●
Certification	CE/FCC	●	●	●	●	●
	RoHS/WEEE	●	●	●	●	●
	UL Class I Division II	●	●	●	●	●
	ATEX	● (-ATEX model)	● (-ATEX model)	-	-	-
SOFTWARE FEATURES						
	Management Level	L2	L2	Unmanaged	Unmanaged	Unmanaged

Industrial Entry Ethernet Switches

Strictly tested for basic industrial networking requirements.

Lantech industrial entry switches are unmanaged models which are designed to meet the demands of industrial network for plug-and-play usage. Each model is in a robust IP30 housing and has been tested extensively to meet with industrial EMI/EMC standards.

Slim Design	Wide Range Dual Power Inputs	Tested for Extreme Temperature	Rugged IP30 Housing

First switch table

		IGS-0208GSFP	IGS-0204DSFP	IGS-0008B	IES-0208CA	IES-0204DFT
HARDWARE FEATURES						
Interface	10/100/1000T (RJ45)	8	4	8	-	-
	10/100TX (RJ45)	-	-	-	8	4
	100M Fiber	-	-	-	-	-
	1000M SFP	2	-	-	-	-
	Dual Speed SFP	-	2	-	-	1 (SFP)
	10/100/1000T/Dual Speed SFP Combo	-	-	-	2	-
	Relay Contact	●	●	●	●	●
Power Input		9-60VDC	9.5~56VDC	9~60VDC	9.5~56VDC	9.5~56VDC
Mechanism	Standard Operating Temperature -20°C~60°C / -4°F~140°F	●	●	●	●	●
	Wide Operating Temperature -40°C~75°C / -40°F~167°F (-E model)	●	●	●	●	●
	IP Rating	IP30	IP30	IP30	IP30	IP30
	Case Dimension W x D x H (unit=mm)	74 x 105 x 152	43 x 105 x 152	35 x 105 x 152	74 x 105 x 152	35 x 105 x 152
	DIN Rail Installation	●	●	●	●	●
	Wall Mount Installation	●	●	●	●	●
Certification	CE/FCC	●	●	●	●	●
	E-marking	-	-	●	-	-
	DNV	-	-	-	-	-
	UL Class I Division II	-	-	-	-	-
	EN60950-1	-	●	-	-	-
SOFTWARE FEATURES						
Management Level		Unmanaged	Unmanaged	Unmanaged	Unmanaged	Unmanaged

Second switch table

		IES-0204FT	IES-0104FT	IES-0008B	IES-0008T	IES-0005T
HARDWARE FEATURES						
Interface	10/100/1000T (RJ45)	-	-	-	-	-
	10/100TX (RJ45)	4	4	8	8	5
	100M Fiber	2 (SC)	1 (SC)	-	-	-
	1000M SFP	-	-	-	-	-
	Dual Speed SFP	-	-	-	-	-
	10/100/1000T/Dual Speed SFP Combo	-	-	-	-	-
	Relay Contact	●	●	●	●	●
Power Input		9~56VDC / 12~36 VAC (AC model)	9~56VDC / 12~36 VAC (AC model)	9~60VDC	9.5~56VDC / 12~36 VAC (AC model)	9~56VDC / 12~36 VAC (AC model)
Mechanism	Standard Operating Temperature -20°C~60°C / -4°F~140°F	●	●	●	●	●
	Wide Operating Temperature -40°C~75°C / -40°F~167°F (-E model)	●	●	●	●	●
	IP Rating	IP30	IP30	IP30	IP30	IP30
	Case Dimension W x D x H (unit=mm)	30 x 95 x 140	30 x 95 x 140	35 x 105 x 152	30 x 95 x 140	30 x 95 x 140
	DIN Rail Installation	●	●	●	●	●
	Wall Mount Installation	●	●	●	●	●
Certification	CE/FCC	●	●	●	●	●
	E-marking	-	-	●	-	-
	DNV	-	-	-	●	●
	UL Class I Division II	-	-	-	●	●
	EN60950-1	-	-	-	-	-
SOFTWARE FEATURES						
Management Level		Unmanaged	Unmanaged	Unmanaged	Unmanaged	Unmanaged

Industrial Converter Series

Convert connections with the most robust design.

Link Loss Forwarding (LLF) Support / Link Fault Pass (LFP) Support / Slim Design

		IEC-0101FT-SC	IEC-0101FT-ST	IPGC-0101DSFP	IGC-0101DSFP
HARDWARE FEATURES					
Interface	10/100/1000T (RJ45)	-	-	1	1
	10/100TX (RJ45)	1	1	-	-
	100M Fiber	1 (SC)	1 (ST)	-	-
	1000M SFP	-	-	-	-
	100M/1000M Dual Speed SFP	-	-	1	1
	802.3at/af PoE	-	-	1	-
	802.3af PoE	-	-	-	-
	Relay Contact	●	●	-	-
Power Input	12~36VAC	●(AC model)	●(AC model)	-	●
	9.5~57VDC	●	●	●	-
	18~72VDC	-	-	-	●
	-48VDC	-	-	●	●
Mechanism	Standard Operating Temperature -20°C~60°C / -4°F~140°F	●	●	●	●
	Wide Operating Temperature -40°C~75°C / -40°F~167°F	●	●	●	●
	IP Rating	IP30	IP30	IP30	IP30
	Case Dimension W x D x H (unit=mm)	30 x 95 x 140	30 x 95 x 140	35 x 152 x 105	35 x 152 x 105
	DIN Rail Installation	●	●	●	●
	Wall Mount Installation	Optional	Optional	Optional	Optional
Certification	CE/FCC	●	●	●	●
	RoHS/WEEE	●	●	●	●
	UL Class I Division II	●	●	-	-
	DNV	●	●	-	-
SOFTWARE FEATURES					
Management Level		Unmanaged	Unmanaged	Unmanaged	Unmanaged

Industrial / Serial Devices

Reliably connect your serial devices with IP-based network.

The Lantech serial device, which is able to convert at least one serial port (RS232/422/485) to Ethernet or USB connection, enables user to remotely manage and configure device servers via internet.

		IDS-2102A	LSC-0101U	LSC-1102B
HARDWARE FEATURES				
Interface	LAN	2 (10/100TX)	-	1 (10/100TX)
	Serial Ports	1 (RS-232/422/485)	1 (RS-422/485)	1 (RS-232) 1 (RS-422/485)
	USB	-	1	-
	DIP Switch	-	●	9/ 125µm
	Beeper	●	-	-
Power Input	12/24/48VDC	●	-	-
	12/24VDC, 500mA	-	-	●
	USB Bus Power (5V)	-	●	-
Mechanism	Operating Temperature -10°C~60°C / 14°F~140°F	●	-	-
	Operating Temperature -10°C~70°C / 14°F~158°F	-	-	●
	Operating Temperature 0°C~60°C / 32°F~140°F	-	●	-
	IP Rating	IP30	-	-
	Case Dimension W x D x H (unit=mm)	26 x 75 x 110	55 x 40 x 29	90 x 60 x 20
	DIN Rail Installation	●	-	●
	Wall Mount Installation	●	-	●
Certification	CE	●	●	●
	FCC	●	●	●
	RoHS	●	●	●
	WEEE	●	●	●

		IDS-2102A	LSC-1102B
SOFTWARE FEATURES			
	SNMP	●	-
	Web	●	●
	DS-Tool	●	-
	Telnet	-	●
	Protocols	ICMP, IP, TCP, UDP, DHCP, BootP, SSM, DNS, SNMP V1/V2c, SMTP, HTTPS	ARP, IP, ICMP, UDP, TCP, HTTP, DHCP, Telnet
	Security	HTTPS, SSH v2, SSL v3 (data encryption)*	Login Password
	Email notification	●	-
	SNMP Trap	●	-

*Optional

Central Managed Ethernet Switches

Powerful solution with large numbers of ports.

Lantech central managed switches provide fully management functions with large numbers of ports. With advanced SNMP and security function, Lantech central management switches are the best aggregation switches to connect with IP camera, setup box, VoIP phone / router, wireless equipments for MTU, transportation or surveillance applications.

		LPGS-2424C-240W	LGS-2624C	LES-3424DSFP
HARDWARE FEATURES				
Interface	10/100/1000T (RJ45)	24	20	-
	10/100TX (RJ45)	-	-	24
	10G SFP/1000M Dual Speed SFP	-	-	-
	100M/1000M Dual Speed SFP	-	2	4
	10/100/1000T/Dual Speed SFP Combo	4	4	-
	802.3 at/af PoE Injector	24	-	24
	Console	RJ45	RJ45	Female DB-9
Power Input	100~240VAC, 50/60Hz	●	●	●
	Redundant 12~48VDC Power	-	-	-
Mechanism	Operating Temperature 0°C~45°C / 32°F~113°F	-	-	●
	Operating Temperature 0°C~50°C / 32°F~122°F	●	-	-
	Operating Temperature -20°C~60°C / -4°F~140°F	-	●	-
	Case Dimension W x D x H (unit=mm)	440 x 310 x 44	442 x 170 x 44	440 x 280 x 44
	19-inch Rack Mount	●	●	●
Certification	CE	●	●	●
	FCC	●	●	●
	ROHS	●	●	●
	WEEE	●	●	●
SOFTWARE FEATURES				
Management	SNMP v1 v2c v3	v1 v2c	●	●
	Web browser	●	●	●
	Telnet	●	●	●
	Console	●	●	●
	SNTP	●	●	●
	SMTP	-	●	●
	System Log	●	●	●
	SNMP Trap	●	●	●
Redundancy	STP	●	●	●
	RSTP	●	●	●
	MSTP	-	●	●
	LLDP	●	●	●
Security	Port Security	●	●	●
	IP Security	●	●	●
	Login Security (RADIUS)	●	●	●
Applications	VLAN	●	●	●
	IGMP snooping v1 v2 / IGMP query	●	●	●
	IGMP snooping v3	●	●	●
	Port Trunk with LACP	●	●	●
	Quality of Service	●	●	●
	Class of Service	●	●	●
Others	Bandwidth Control (Rate Limiting)	●	●	●
	DHCP	●	●	●
	DNS Client	-	●	●
	TFTP Firmware Upgrade / Backup / Restore	●	●	●
	Configuration Upload and Download	●	●	●

PoE Series

Complete product line for non-industrial PoE applications.

Lantech PoE series includes fully-managed switches, splitters and injectors, providing a total PoE solution for our customers. Fully complies with IEEE 802.3at/af PoE standard, Lantech PoE series is equipped with IGMP query and snooping function for IGMP applications where can release the video network burden immediately.

		LPES-3424DSFP	POA-1000A	POA-100B	POS-100A
HARDWARE FEATURES					
Interface	10/100/1000T (RJ45)	-	1	-	-
	10/100TX (RJ45)	24	-	1	1
	100M/1000M Dual Speed SFP	4	-	-	-
	10/100/1000T/Dual Speed SFP Combo	-	-	-	-
	802.3at/af PoE Injector	24	1	1	-
	802.3af PoE Injector	-	-	-	-
	Console	Female DB-9	-	-	-
Power Input	100~240VAC, 50/60Hz	200W/370W	●	●	-
	48VDC	-	-	-	●
Mechanism	Operating Temperature 0°C~45°C / 32°F~113°F	●	-	-	-
	Operating Temperature -10°C~45°C / 14°F~113°F	-	●	●	●
	Case Dimension W x D x H (unit=mm)	440 x 280 x 44	145 x 60 x 40	145 x 60 x 40	55 x 80 x 31
	Wall Mount Installation	-	-	-	-
	10-inch Rack Mount	-	-	-	-
	19-inch Rack Mount	●	-	-	-
Certification	CE	●	●	●	●
	FCC	●	●	●	●
	ROHS	●	●	●	●
	WEEE	●	●	●	●
SOFTWARE FEATURES					
Management	SNMP v1 v2c v3	●	-	-	-
	Web browser	●	-	-	-
	Telnet	●	-	-	-
	Console	●	-	-	-
	SNTP	●	-	-	-
	SMTP	●	-	-	-
	System Log	●	-	-	-
	SNMP Trap	●	-	-	-
Redundancy	Pro-Ring I System	-	-	-	-
	STP/RSTP	●	-	-	-
	MSTP	●	-	-	-
	LLDP	●	-	-	-
Security	Port Security	●	-	-	-
	IP Security	●	-	-	-
	Login Security (RADIUS)	●	-	-	-
Applications	VLAN	●	-	-	-
	IGMP snooping v1 v2 / IGMP query	●	-	-	-
	IGMP snooping v3	●	-	-	-
	Port Trunk with LACP	●	-	-	-
	Quality of Service	●	-	-	-
	Class of Service	●	-	-	-
Others	Bandwidth Control (Rate Limiting)	●	-	-	-
	DHCP	●	-	-	-
	DNS Client	●	-	-	-
	TFTP Firmware Upgrade / Backup / Restore	●	-	-	-
	Configuration Upload and Download	●	-	-	-

Fiber Converters

Easy DIP-switch setting. Flexible chassis installation.

Lantech converter series provides the flexibility for the users to convert network connection between fiber port and RJ45 port. The universal media converter chassis for 16 converters is also available, which provides plug-and-play and hot-swappable features.

		CM-121	CM-022A	CM-021DSFP	CM-011A	MC-116-RPS
HARDWARE FEATURES						
Interface	10/100/1000T (RJ45)	1	-	1	-	Chassis with 16 slots for media converter
	10/100TX (RJ45)	-	-	-	1	
	100M Fiber	-	-	-	1	
	100/1000M SFP	-	-	1	-	
	1000M SFP	1	2	-	-	
Power Input	48VDC	-	-	-	-	●
	90~240VAC	-	-	-	-	●
	100~240VAC	●	●	●	●	-
Mechanism	Operating Temperature 0°C~50°C / 32°F~122°F	●	●	●	●	●
	Case Dimension W x D x H (unit=mm)	71 x 94 x 26	71 x 94 x 26	51 x 74 x 20	71 x 94 x 26	440 x 385 x 88
	19-inch Rack Mount	● with Chassis	● with Chassis	-	● with Chassis	●
Certification	CE	●	●	●	●	●
	FCC	●	●	●	●	●
	RoHS	●	●	●	●	●
	WEEE	●	●	●	●	●
SOFTWARE FEATURES						
Management Level		Smart	-	-	-	-

Product Naming Rule

*Applies to most of the Lantech products

TPES-5416DFT-PT-8-X-MM-XL-XAC-4S-67-12V-BB

7: L3 managed
6: L2+ managed w/10G
5: L2+ managed
3: L2+ managed
2: L2 managed
1: Smart managed
0: Unmanaged

S: Switch
C: Converter / Controller
R: Router
AP: Access Point
MR: Mobile Router

E: Major ports are 10/100TX Ethernet
G: Major ports are Giga Ethernet
W: Wireless

P: PoE

I: Hardened (Industrial grade)
L: Non-industrial
T: EN50155 certified

# of uplink ports
# of major ports
# of PoE ports

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
XF: 1G/2.5G/10G Fiber
XFT: GT + 1G/2.5G/10G Fiber
MGF: 1G/2.5G Fiber
MGFT: GT + 1G/2.5G Fiber

X-coded

SM: Single mode fiber
MM: Multi mode fiber
QODC: QODC connector

-PT: IEC61850-3 compliance
-M: Built-in hardware monitor

2L: 2 LTE modules
1L: 1 LTE module
2AC: 2 802.11AC modules
1AC: 1 802.11AC module

67: IP67 housing
65: IP65 housing
54: IP54 housing
41: IP41 housing

BB: 2-pair bypass
B: 1-pair bypass
BT: Copper bypass
BF: Fiber bypass

4S: 4 serial ports
2S: 2 serial ports

Input power:
12V=9.5~56VDC
72V=50.4~90VDC
110V=43~137.5VDC
HV=90~305VAC/120~430VDC
WV=16.8~137.5VDC
LDC=36~85VDC
AC=85~265VAC IEC320
2P=Dual embedded power

Accessories

High quality, reliable, and durable.

Find the best accessories for your Lantech products! You can get the specifically designed wireless antennas and accessories here. Lots of SFP modules are also available for the high performance integrated data link, with rugged industrial DIN rail power supply here. Various brackets give you the high flexibility of installation.

Wireless Antennas

ANT11000090 ANT11000091 ANT11000092 ANT11000041 ANT11000042 ANT11000051

Part Number	Antenna Type	Band	Casing	Dimension	Operating Temp.
ANT11000090	802.11ac 3x3 MIMO	2.4/5 GHz	IP67, Screw Mount	Height 65.35mm x Diameter 147.5mm	30°C~85°C
ANT11000091	Cellular (x2) GPS/Glonass (x1) MIMO Dualband 802.11ac (x2)	Cellular: 2G/3G/4G GPS/Glonass: 1575.42/1602MHz 2.4GHz / 5GHz (MIMO) x2	IP67, Screw Mount	Height 85.7mm x Diameter 145.6mm	40°C~85°C
ANT11000092	2G/3G/4G MIMO (x2) GPS/Glonass/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/Beidou: 1561/1575.42/1602MHz	IP67, Screw Mount	176.2 x 84.5 x 70.8mm (LxWxH)	40°C~85°C
ANT11000041	LTE EU type Antenna	791~960/1710~2170/2500~2700MHz	Plastic	162.23 x 19.57 x 13.5mm (LxWxH)	10°C~55°C
ANT11000042	LTE US type Antenna	704~960/1710~2170MHz	Plastic	162.23 x 19.57 x 13.5mm (LxWxH)	10°C~55°C
ANT11000051	Dipo Antenna	2.4/5 GHz	Plastic	162.23 x 19.57 x 13.5mm (LxWxH)	10°C~55°C

Wireless Accessories

Part Number	Description
ADA11000052	Magnetic Antenna Base (WiFi), RP SMA Jack, Black
ADA11000053	Magnetic Antenna Base (LTE), RP SMA Jack, Black
ADA11000080	N Plug to RP SMA Plug
ADA11000081	N Plug to SMA Plug

ADA11000052 / AD11000053

N-Key

The configuration file of Lantech industrial managed switches can be exported in text file so that it can be edited and configured back to router with ease for mass deployment. The optional N-key RJ45 configurator offers firmware upgrade, auto backup/ editable configuration restore without computer by adjusting the DIP switch.

SFP (Mini-GBIC)

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

SFP 10Gbps

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

SFP 2.5Gbps

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

Power Supply

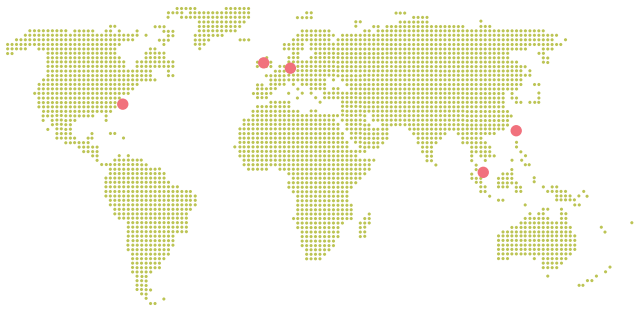| Model	O/P voltage Adjustment	Loading (A)			Ripple Noise	Line Reg.	Load Reg.	Efficiency	Overvoltage Protection
		Min.	Rated	Max.					
MDR-20-5	4.75~5.5VDC	0A	3A	3A	80mVp-p	±1%	±1%	76.0%	5.75~6.75VDC
MDR-20-12	10.8~13.2VDC	0A	1.67A	1.67A	120mVp-p	±1%	±1%	80.0%	13.8~16.2VDC
MDR-20-24	13.5~16.5VDC	0A	1.34A	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	±2%	±2%	82.0%	40VDC Max
AD1360-48S	+48VDC±10%	0A	7.5A	7.5A	250mVp-p	±2%	±2%	83.0%	52~56VDC
AD1500-24S	+24VDC±10%	0A	21A	21A	150mVp-p	±2%	±2%	84.0%	27~30VDC
AD1500-48S	+48VDC±10%	0A	10.5A	10.5A	250mVp-p	±2%	±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 / AD series power supply has no valid TUV certificates

Cable / Connector / Bracket

M23/M12 Accessories

Part Number	Type	Pin Number	Plug/IP-rated	Gender
ECON120005PF	Power Connector	5	M12	Female
ECONM12-08M-CAT5E3	GigaT RJ45 Cable (3M)	8	M12	Female
ECAB124030MJ	10/100TX RJ45 Cable (3M)	4	M12	Male
ECAB124030MJS	10/100TX RJ45 STP Cable (3M)	4	M12	Male
ECONM12-05M2-02-CONSOLE	Console Cable (3M)	5	M12	Male
ECONM12-5P(F)70CM CABLE	90° Power Cable (70cm)	5	M12	Female
ECONM23-5P(F)70CM CABLE	90° Power Cable (70cm)	5	M23	Female
ECONM23-5P(F)6M CABLE	90° Power Cable (6m)	5	M23	Female
ECONM23-5P(F)8.5M CABLE	90° Power Cable (8.5m)	5	M23	Female

Wall-mount Bracket MBAK19003

19 inch Bracket MBAK19004

L Bracket MBAK19002

Side DIN Rail Mounted Fin MBAK19006/19007

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
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 Switch
MBAK19005	19" Rack Mounting Kit for 35 (W) x 105 (D) x 152 (H) mm / 43 (W) x 105 (D) x 152 (H) mm Industrial Switch
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
MBAK19008	Wall mount bracket for for 35 (W) x 105 (D) x 152 (H) mm / 43 (W) x 105 (D) x 152 (H) mm Industrial Switch

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