Lantech™

2017

ON-BOARD / TRACKSIDE NETWORKING SOLUTIONS

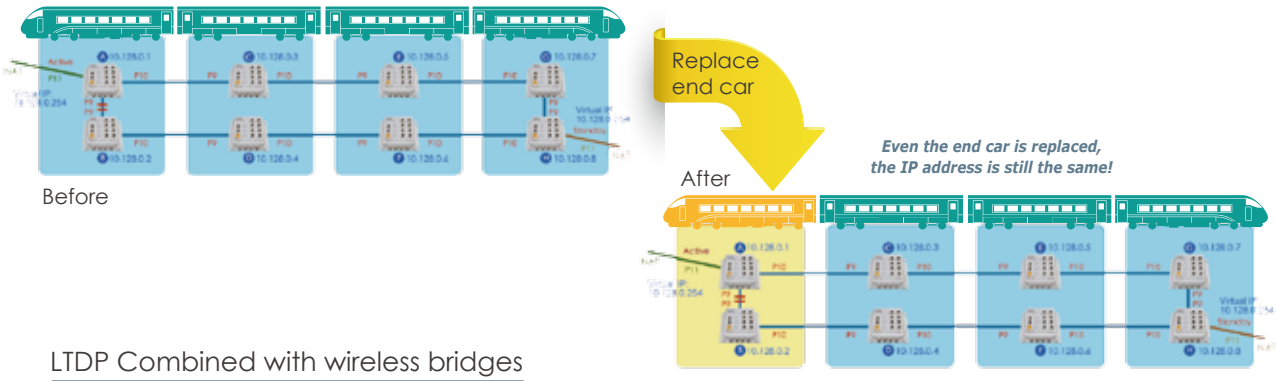
Pioneering Industrial and IP Networks

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

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

Improving adaptability by LTDP (Lantech Train Discovery Protocol)

Lantech Train Discovery Protocol can help to minimize the maintenance effort by keeping the config files and topology in each Lantech switch, thus automatically allocates same IP address to devices when replacing with a new Lantech switch.

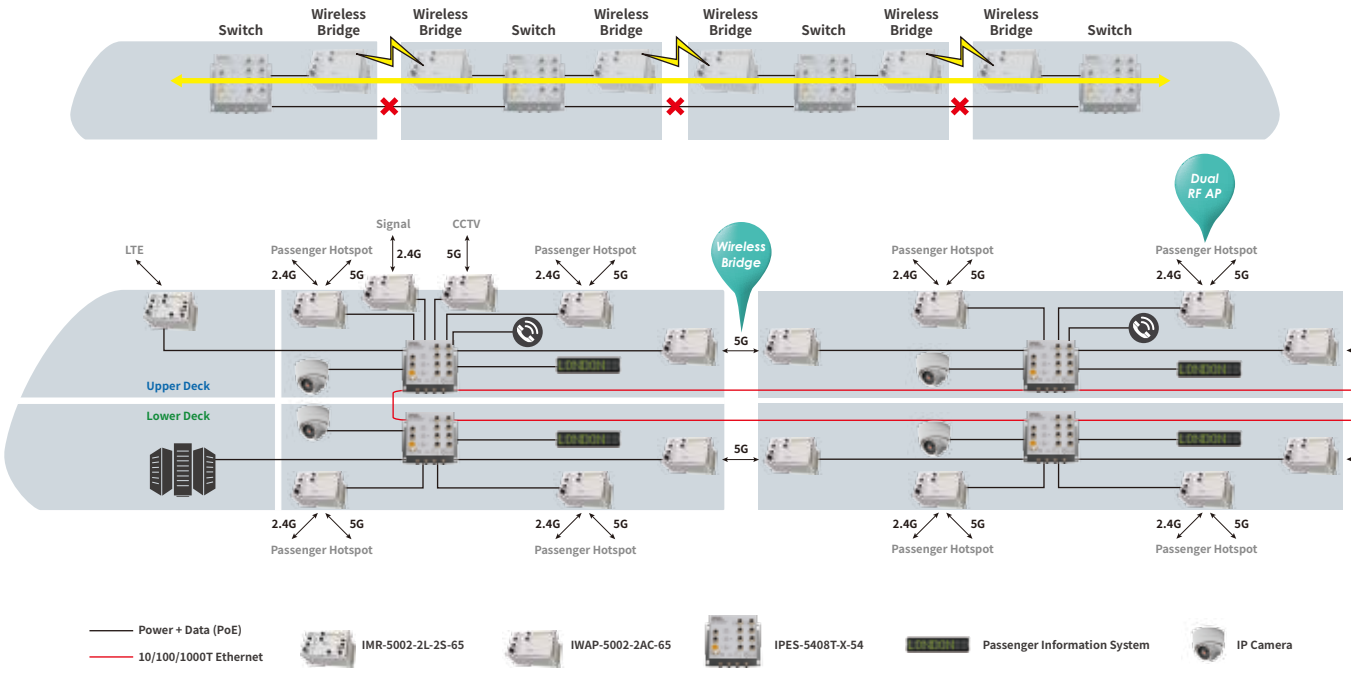


LTDP Combined with wireless bridges

Wireless bridge function is common and convenient for inter-car communications while could be troublesome if SSID need to be reconfigured when car shuffled. The LTDP can also match the SSID for Lantech wireless APs.

Between wired and wireless redundancy

With Lantech wireless AP, Lantech can offer the redundant solution between wired and wireless network.



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

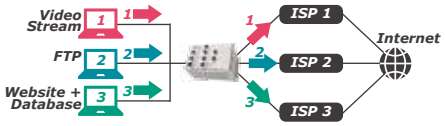
Lantech offers the latest 11ac dual band and dual RF AP that can enable hot-spot and bridge applications in one device.

Premium license for Load balancing

With 8 schemes of load balancing under premium license, Lantech routers can prioritize different flow in different path for maximum performance of bandwidth.

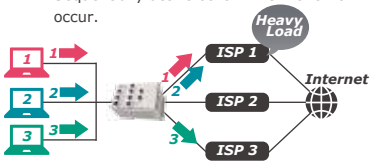
1 Fixed

Manually route by traffic type through fixed WAN link.



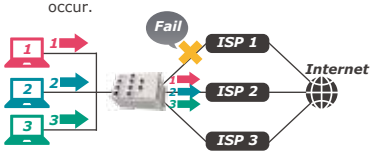
2 Priority

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



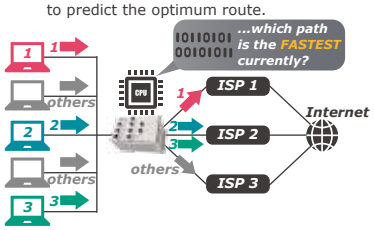
3 Fail Over

Routes connections through preferred WAN link while others stand-by. Sequentially active another link if preferred link fail occur.



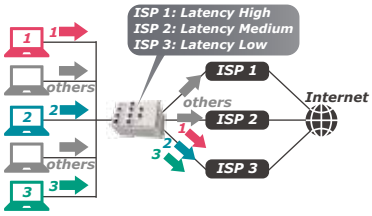
4 Best Route

Routes connections through the WAN link selected by our proprietary algorithm based on real-time link status to predict the optimum route.



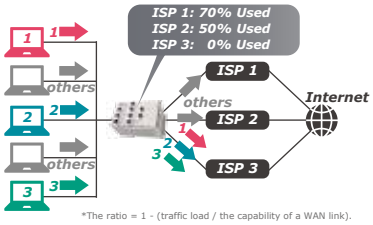
5 Fastest

Routes connections through the WAN link with lowest latency time.



6 Smallest Load

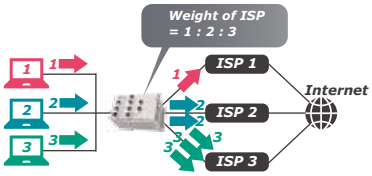
Routes connections through the WAN link with highest free bandwidth ratio*. The traffic load could be by downstream, upstream or total traffic.



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

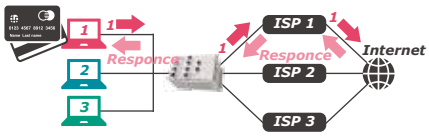
7 Weighted Round-Robin

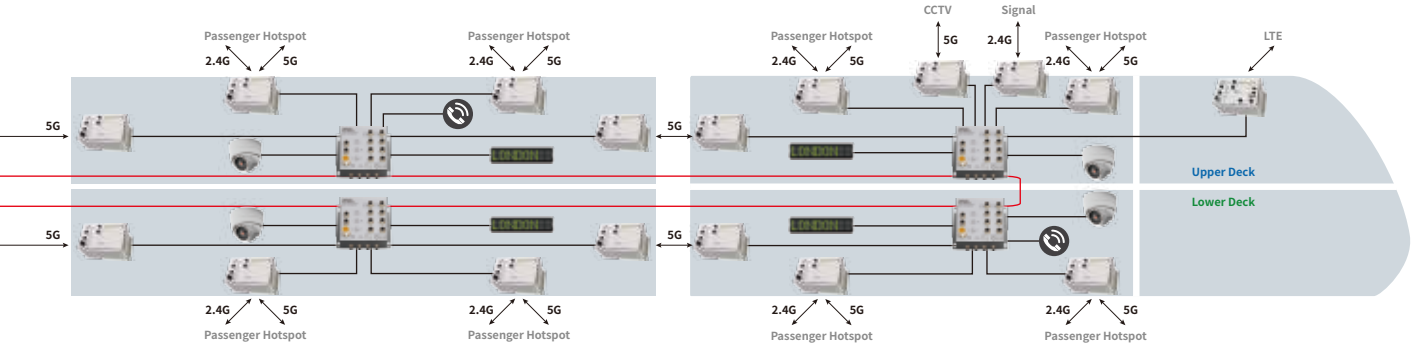
Evenly distribute the traffic over all working WAN links in circular order according to the specified weights.



8 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.

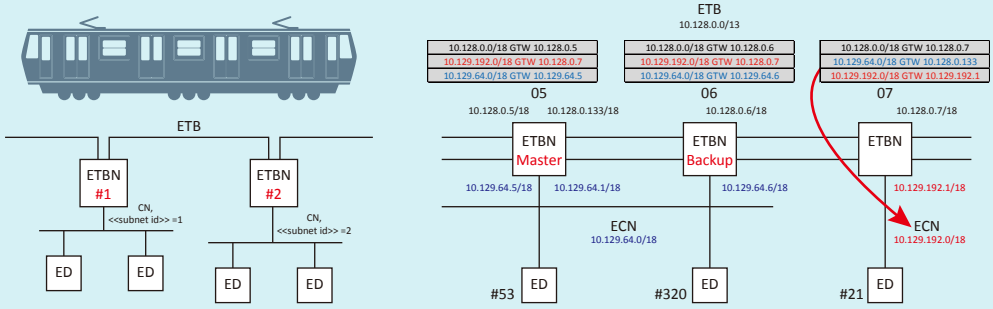




NVR Intercom

L3 and IEC 61375 solutions

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

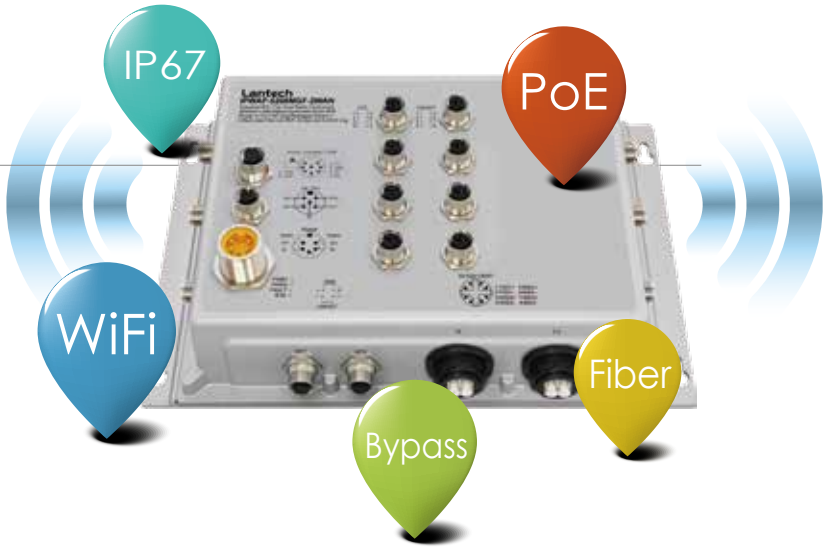


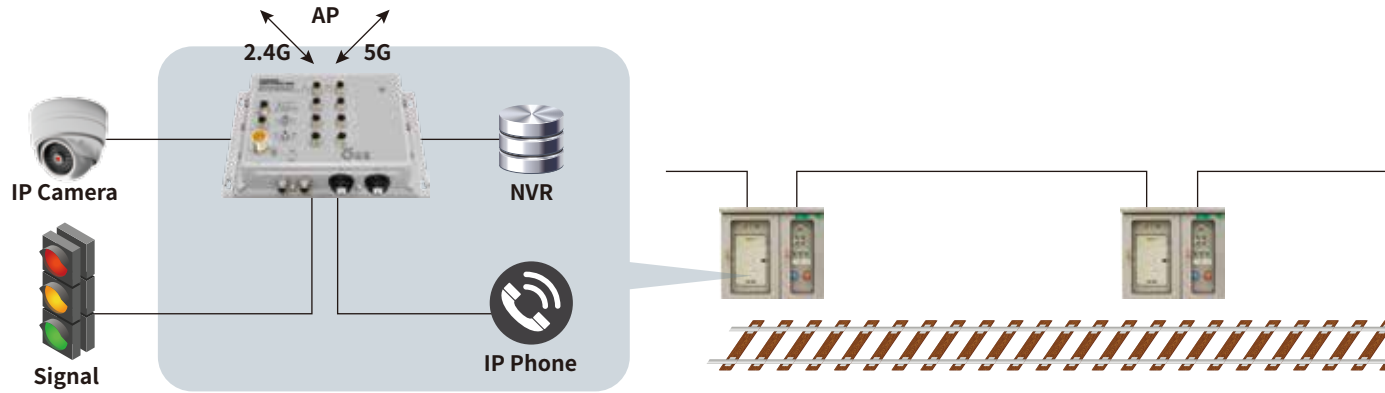
Trackside networking solutions

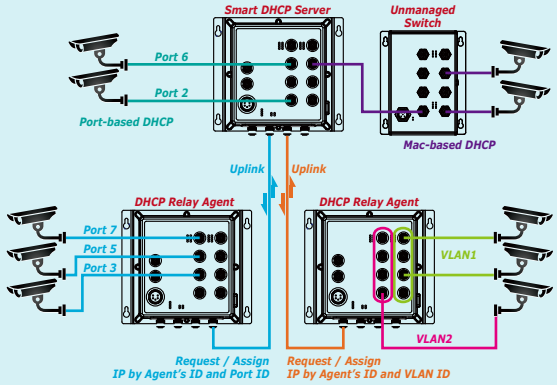
In most of trackside applications, harsh weather environment, electrified rail, fiber connection and small outdoor cabinet are the obstacles to deploy right solutions.

Highly integrated router including Wifi, NAT, PoE, fiber and bypass in IP67 housing

Lantech IPWAP-5208MGF-2WAN series can deliver NAT, concurrent 11ac wifi, PoE managed switch with fiber uplink + bypass in one IP67 device thus to save space and yet maintain robust network





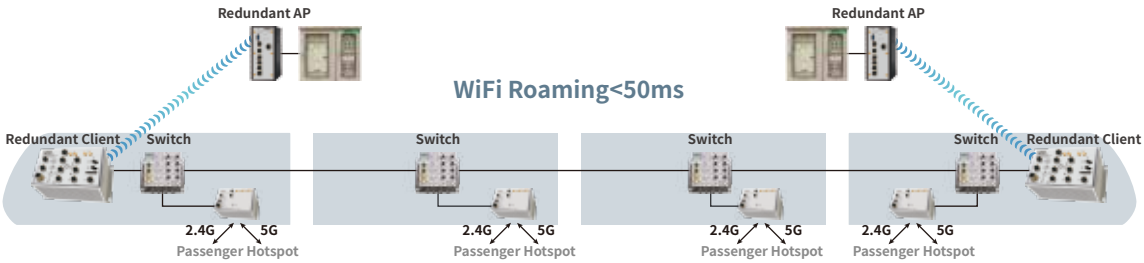


Smart DHCP functions

DHCP option 82 and relay agent function (port or vlan based DHCP distribution) can offer the same IP address on port base or vlan base where there is need to replace the new device connecting to Lantech switches to avoid 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 dumb switches in DHCP network.

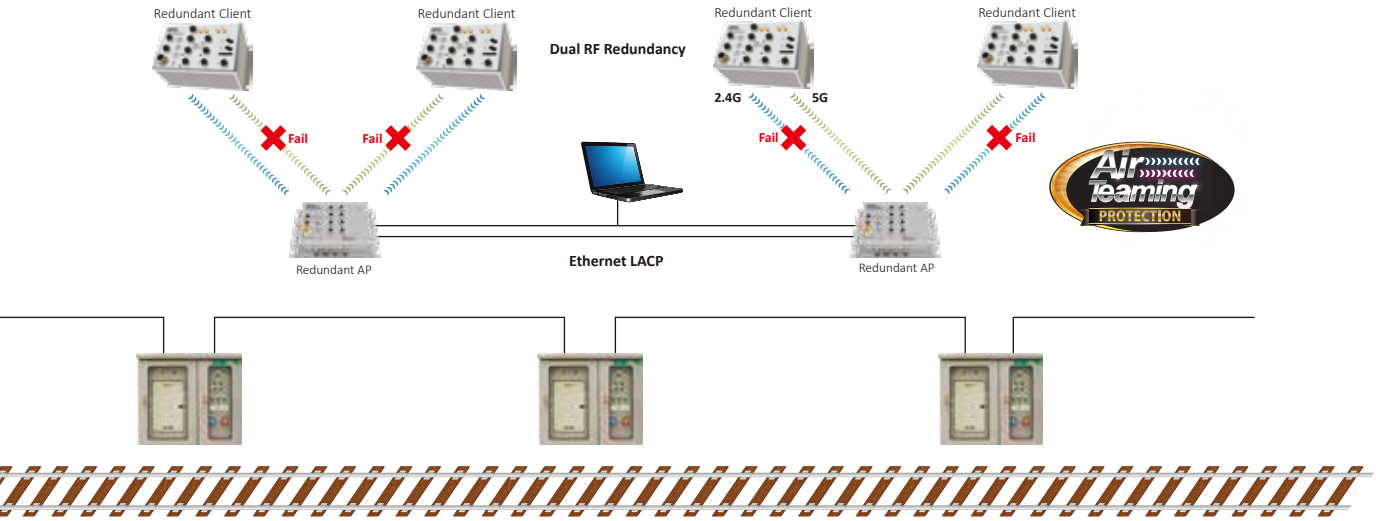
Wifi roaming < 50ms

The next generation wifi passenger hotspot and train operation info can be reachable with wifi roaming technology from on-board to trackside communications. Lantech wifi roaming < 50ms offers seamless wifi experience when passenger connection or data handover from on-board to station APs or vice versa.



Air-teaming for wireless trunking and redundancy

For wireless hot-spot, bandwidth calculation is the key for good passenger experience so is the wireless bridging. The wireless trunking can provide double wifi bandwidth while redundancy to ensure the failover connection. Concurrent 100 users per radio utilize the maximum user numbers and leverage the resources.



Lantech™ Train Discovery Protocol (LTDP)

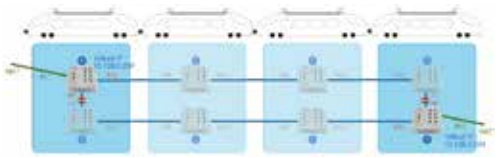
Innovative and Intuitive redundancy for next generation IP networks

In most of train application, many train cars will be shifted according to different destination, which often becomes a maintenance issue when any car changes. As the different car devices were set with different IP address that would need to migrate into the same IP without any manual setting to keep the original train network. With LTDP-aware DHCP server, Lantech EN50155 switches can discover the current IP addresses and enable the switch to exchange the IP address when any car is merged. LTDP can also react on the link failure or node failure to keep the original IP range and maintain the remaining network function until the replacement is in place. It can also keep the config file when switch is swapped.

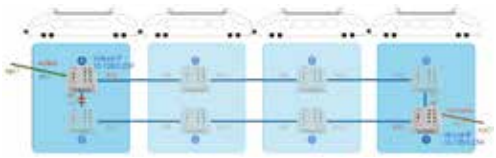
Default Gateway based on VRRP

For all scenarios, the default gateway of the whole train segment is 10.128.0.254. So in switch (A) and (H), we configure the virtual IP address to 10.128.0.254 and enable the Virtual Router Redundancy Protocol (VRRP).

BEFORE



AFTER



Port-Based DHCP for End Devices

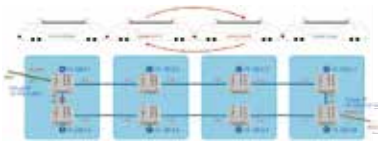
With port-based DHCP server enabled, the IP address will be predefined: (example as below)

Switch	Assigned IP based on Port Number
10.128.0.1	10.128.0.11~10.128.0.18
10.128.0.2	10.128.0.21~10.128.0.28
10.128.0.3	10.128.0.31~10.128.0.38
10.128.0.4	10.128.0.41~10.128.0.48
10.128.0.5	10.128.0.51~10.128.0.58
10.128.0.6	10.128.0.61~10.128.0.68
10.128.0.7	10.128.0.71~10.128.0.78
10.128.0.8	10.128.0.81~10.128.0.88

Scenario1: Swap two middle consists

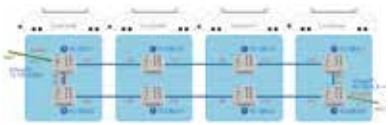
BEFORE

AFTER

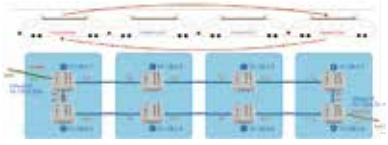


Scenario2: Swap two side consists

BEFORE

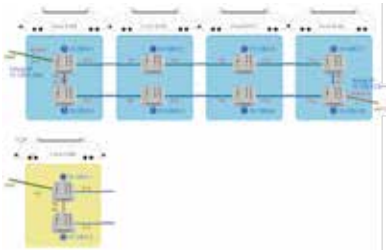


AFTER

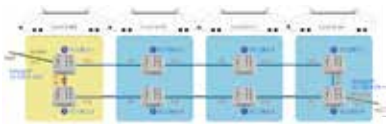


Scenario3: Replace top consist by new one

BEFORE

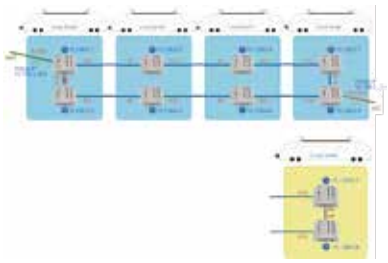


AFTER

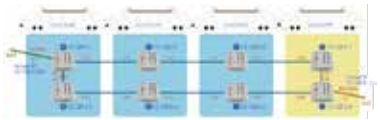


Scenario4:
Replace tail consist by new one

BEFORE

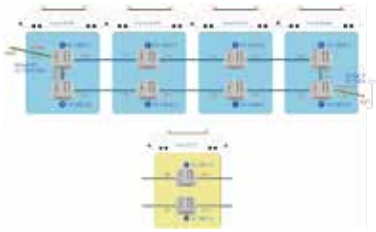


AFTER

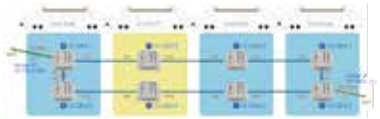


Scenario5:
Replace middle consist by new one

BEFORE

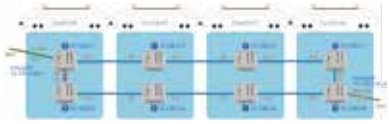


AFTER

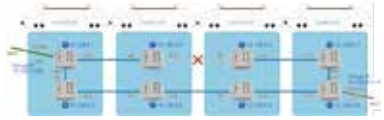


Scenario6:
Link failure protection

BEFORE

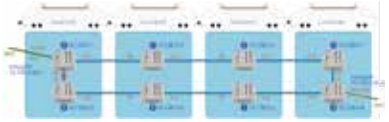


AFTER



Scenario7:
Node failure protection (other)

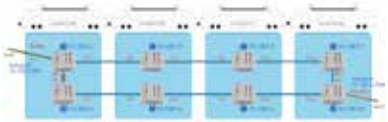
BEFORE



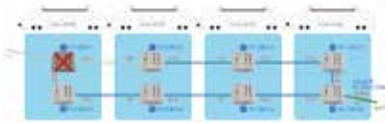
AFTER

Scenario8:
Node failure protection (Master)

BEFORE

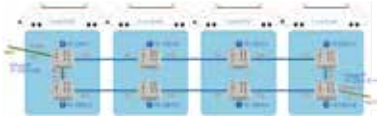


AFTER

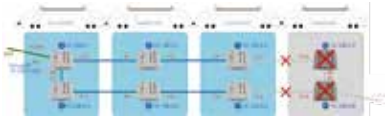


Scenario9:
Consist failure protection (Right side consist)

BEFORE



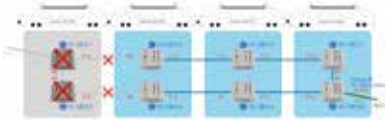
AFTER



Scenario10:
Consist failure protection (Left side consist)

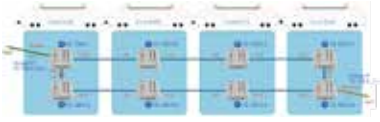
BEFORE

AFTER

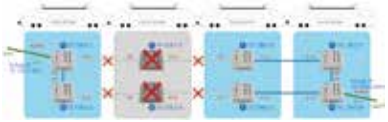


Scenario11:
Consist failure protection (Middle consist)

BEFORE



AFTER



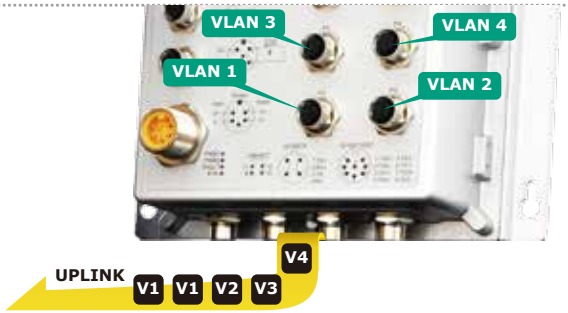
Feature Highlights

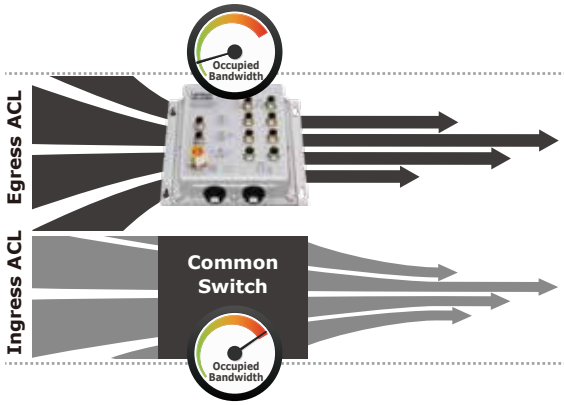
The most powerful and intuitive features.

Based on our long background in industrial IP network industry, Lantech developed our 3000~7000 series with several new features, making installation, maintenance, and monitoring much easier than other industrial switches on the market. We do care what our customers care, and dedicate to bring the best product to you.

Advanced QoS by VLAN

With advanced QoS, Lantech switch can tag QoS by VLAN then send QoS packets at set priority even when your devices do not support QoS.





Enhanced ACL Control

Most switch only filter packets at ingress ACL. Since the packets will pass through the switch thus increases the loading of switch. With enhanced ACL, Lantech switch can filter packets at egress & ingress, which means the multicast packets are controlled more efficiently with less bandwidth occupied.

Environmental Monitoring**

The optional environmental monitoring function(-M model) can view the switch system's ambient temperature, input voltage, input current along with CPU and memory buffer utilization status in real time. User can also set an alerting message if the status is over the limit by email, traps and SMS text.

Built-in RTC and User Friendly Event-Action Setup

Lantech 3000~7000 series build in RTC real time clock so that user can synchronize the time with PC first time and the switch will keep track of time itself as to record the current time whenever the event is happening. The intuitive setting for event and action has never been easier.

DDM Threshold Monitoring with dB Values***

The 3000~7000 series supports DMI interface that can correspond with DDM SFPs (Digital diagnostic monitor) to display the five parameters including optical output power, input power, temperature, laser bias current and transceiver supply voltage. Lantech converts TX power/RX power raw data to dB values for installer to easily calculate the fiber distance.

*Future release **Optional ***Optional DDM SFP required

Industrial Wireless Mobile Routers

		IWMR-5002-1L1AC-2S	I(P)WMR-5006-4-1L1AC-2S	I(P)WMR-5208T-2WAN-XLXAC	I(P)WMR-5208MGF-2WAN-XLXAC	IWMR-3002-XLXAC-2S	I(P)WMR-3006-4-XLXAC-2S
SPECIFICATIONS							
Interface	10/100/1000T WAN	1 (M12, X-coded)	2 (M12, X-coded)	2 (M12, X-coded)	2 (M12, X-coded)	1	2
	10/100/1000T	1 (M12, X-coded)	4 (M12, X-coded)	10 (M12, X-coded)	8 (M12, X-coded)	1	4
	1G or 2.5G Fiber	-	-	-	2 (M23,LC tpye)	-	-
	802.3at/af PoE	-	4 (PoE model)	8 (PoE model)	8 (PoE model)	-	4 (PoE model)
	DI/DO	2/2	2/2	2/2	2/2	2/2	2/2
	Relay	-	-	-	-	●	●
	Console	M12,8p-A code	M12,8p-A code	M12,8p-A code	M12,8p-A code	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 802.11b/g/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, DNZ proxy, Adjustable MTU, Port forwarding (NAPT) : virtual server, Port triggering, DMZ; NAT, SNTP, Firewall(DoS/SPI firewall; IP address filter/Mac address filter/Domain filter; IP Mac address binding, RIPv1/v2, DDNS					
	Advanced Protocal	DHCP relay, Static routing, Multicast routing, Traffic shaping (ingress/Egress), OSPF, VRRP, Modbus					
Power Input / PoE	12V/24V (9.5~60VDC)	●	●	●	●	●	●
	48V (45~56VDC)	-	-	-	-	●	●
	WV (16.8~137.5VDC)	●	●	●	●	-	-
	POE Feeding Power	●	● (non-PoE model)	-	-	●	-
Hardware Spec.	RS232/422/485	2 (M12, X-coded)	2 (M12, X-coded)	-	-	4 or 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
	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
	WiFi No.	1	1	1 or 2	1 or 2	1 or 2	1 or 2
	Antenna	6 x SMA	6 x SMA	6 or 8-N type	6 or 8-N type	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
	Case Dimension W x D x H (unit=mm)	178 x 99 x 97.5	178 x 99 x 97.5	285 x 190 x 84 /250 x 179.5 x 82	285 x 190 x 84 /250 x 179.5 x 82	74 x 105 x 152	74 x 105 x 152
	DIN Rail Installation	-	-	Optional	Optional	●	●
	Wall Mount Installation	●	●	●	●	Optional	Optional
	Ethernet port with management	-	Optional	Optional	Optional	-	Optional

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	4 (IP67) 2 (IP65/54)	4 or 2	4 (IP67) 2 (IP65/54)	4 or 2	-	-
SIM slots	Up to 4	Up to 4	Up to 4	Up to 4	-	-
M12 connectors	●	-	●	-	●	-
N-type antennas	6 (IP67)	-	2 (IP67)	-	6 (IP67)	-
SMA antennas	6 (IP65/54)	6	4 (IP65/54)	2	6 (IP65/54)	6
802.11a/b/g/n/ac WiFi	●	●	-	-	●	●
Power inputs	16.8~137.5VDC (WV model) 9.5~60VDC (12V model)	9.5~60VDC	16.8~137.5VDC (WV model) 9.5~60VDC (12V model)	9.5~60VDC	16.8~137.5VDC (WV model) 9.5~60VDC (12V model)	9.5~60VDC
Galvanic isolation 1.5KV	●	●	●	●	●	●
LTE/WiFi redundancy	●	●	●	●	●	●
Modbus gateway	●	●	●	●	●	●
WiFi WMM	●	●	-	-	●	●
Load balance	●	●	●	●	●	●
Multisite VPN, OpenVPN, IPSec, PPTP, L2TP	●	●	●	●	●	●
N-Key or USB backup	●	●	●	●	●	●
DHCP server and client	●	●	●	●	●	●
Rate limiting	●	●	●	●	●	●
InstaView	●	●	●	●	●	●
InstaView Cloud	●	●	●	●	●	●

Industrial Mobile Routers

		IMR-5002-XL-XS	I(P)MR-5006-4-XL-2S	I(P)MR-5208T-2WAN-XL	I(P)MR-5208MGF-2WAN-XL	IMR-3002-XL-XS	I(P)MR-3006-4-XL-2S
SPECIFICATIONS							
Interface	10/100/1000T WAN	1 (M12, X-coded)	2 (M12, X-coded)	2 (M12, X-coded)	2 (M12, X-coded)	1	2
	10/100/1000T	1 (M12, X-coded)	4 (M12, X-coded)	10 (M12, X-coded)	8 (M12, X-coded)	1	4
	1G or 2.5G Fiber	-	-	-	2 (M23,LC tpye)	-	-
	802.3at/af PoE	-	4 (PoE model)	8 (PoE model)	8 (PoE model)	-	4 (PoE model)
	Relay	-	-	-	-	●	●
	DI/DO	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
	USB	●	●	●	●	●	●
Standard / Protocol	Cellular Standards	LTE/HSDPA/HSUPA/HSPA+/GSM/GPRS/EGPRS/EDGE					
	Protocal	PPPoE Client,DHCP server/client, DNZ proxy, Adjustable MTU, Port forwarding (NAPT) : virtual server, Port triggering, DMZ; NAT, SNTP, Firewall(DoS/SPI firewall; IP address filter/Mac address filter/Domain filter; IP Mac address binding, RIPv1/v2, DDNS					
	Advanced Protocal	DHCP relay, Static routing, Multicast routing, Traffic shaping (ingress/Egress), OSPF, VRRP, Modbus					
Power Input / PoE	12V/24V (9.5~60VDC)	●	●	●	●	●	●
	48V (45~56VDC)	-	-	-	-	●	●
	WV (16.8~137.5VDC)	●	●	●	●	-	-
	POE Feeding Power	●	● (non-PoE model)	-	-	●	-
Hardware Spec.	RS232/422/485	2 (M12, X-coded)	2 (M12, X-coded)	-	-	4 or 2 (DB-9)	2 (DB-9)
	Serial Port & DIDO Isolation	RS422/485 2.5KV isolation; 8KV contact & 15KV air RS232 8KV contact ; 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
	LTE / SIM No.	2/4	2/4	3/6	3/6	2/4	2/4
	Antenna	4 x SMA	4 x SMA	6-N type	6-N type	4 x SMA	4 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
	Case Dimension W x D x H (unit=mm)	178 x 99 x 97.5	178 x 99 x 97.5	285 x 190 x 84 /250 x 179.5 x 82	285 x 190 x 84 /250 x 179.5 x 82	74 x 105 x 152	74 x 105 x 152
	DIN Rail Installation	-	-	Optional	Optional	●	●
	Wall Mount Installation	●	●	●	●	Optional	Optional
	Ethernet port with management	-	Optional	Optional	Optional	-	Optional

Industrial Wireless Controller

		I(P)WC-5006	I(P)WC-3006
HARDWARE FEATURES			
Interface	10/100/1000T WAN	2 (M12 X-Coded)	2
	10/100/1000T (X-coded M12)	4	
	10/100/1000T (RJ45)	-	4
	802.3at/af PoE	4 (PoE model)	4 (PoE model)
	Relay	-	●
	DI/DO	2/2	2/2
	Console	M12	RJ-45
Power Input	12V/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 97.5	74 X 105 X 152
	DIN Rail Installation	-	●
	Wall Mount Installation	●	Optional

Industrial Wireless Access Points

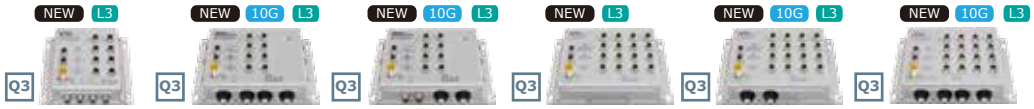
		IWAP-5002-XAC	I(P)WAP-5006-4-XAC	I(P)WAP-5208T-2WAN-XAC	I(P)WAP-5208MGF-2WAN-XAC	IWAP-3002-XAC	I(P)WAP-3006-4-XAC
SPECIFICATIONS							
Interface	10/100/1000T WAN	1 (M12, X-coded)	2 (M12, X-coded)	2 (M12, X-coded)	2 (M12, X-coded)	1	2
	10/100/1000T	1 (M12, X-coded)	4 (M12, X-coded)	10 (M12, X-coded)	8 (M12, X-coded)	1	4
	1G or 2.5G Fiber	-	-	-	2 (M23,LC tpye)	-	-
	802.3at/af PoE	-	4 (PoE model)	8 (PoE model)	8 (PoE model)	-	4 (PoE model)
	Relay	-	-	-	-	●	●
	DI/DO	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
	USB	●	●	●	●	●	●
Standard / Protocol	Wireless	IEEE 802.11ac/n/a 5GHz, Up to 1300Mbps IEEE 802.11b/g/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, DNZ proxy, Adjustable MTU, Port forwarding (NAPT) : virtual server, Port triggering, DMZ; NAT, SNTP, Firewall(DoS/SPI firewall; IP address filter/Mac address filter/Domain filter; IP Mac address binding, RIPv1/v2, DDNS					
	Advanced Protocal	DHCP relay, Static routing, Multicast routing, Traffic shaping (ingress/Egress), OSPF, VRRP, Modbus					
Power Input / PoE	12V/24V (9.5~60VDC)	●	●	●	●	●	●
	48V (45~56VDC)	-	-	-	-	●	●
	WV (16.8~137.5VDC)	●	●	●	●	-	-
	POE Feeding Power	●	● (non-PoE model)	-	-	●	-
Hardware Spec.	RS232/422/485	2 (M12, X-coded)	2 (M12, X-coded)	-	-	4 or 2 (DB-9)	2 (DB-9)
	Bypass	-	-	●	●	-	-
	Mini-PCIe	2	2	3	3	3	3
	WiFi No.	2	2	3	3	3	3
	Antenna	6 x SMA	6 x SMA	6 or 8-N type	6 or 8-N type	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
	Case Dimension W x D x H (unit=mm)	178 x 99 x 97.5	178 x 99 x 97.5	285 x 190 x 84 /250 x 179.5 x 82	285 x 190 x 84 /250 x 179.5 x 82	74 x 105 x 152	74 x 105 x 152
	DIN Rail Installation	-	-	Optional	Optional	●	●
	Wall Mount Installation	●	●	●	●	Optional	Optional

*Future release **Optional

Industrial Layer 3 Switches

			I(P)GS-7416XSFP-16	I(P)GS-7488XSFP-8	I(P)GS-7300-2P
HARDWARE FEATURES					
Interface	10/100/1000T (M12 X-code)		-	-	-
	10/100/1000T (RJ-45)		16	8	Max 24
	1G or 2.5G Fiber		-	-	-
	1G or 2.5G or 10G Fiber		Max 4	Max 4	Max 4
	100/1000 SFP Fiber		-	8	Max 24
	802.3at/af PoE		16 (PoE model)	8 (PoE model)	Max 24 (PoE model)
	Console		RJ45	RJ45	Female DB-9
	USB		●	●	●
	DI/DO		2/2	2/2	2/2
	Relay Contact		●	●	●
	Bypass		-	-	-
	Power Supply - M23				-
Power Input	12V/24V (9.5~60VDC)		●(PoE model)	●(PoE model)	-
	48V (45~56VDC)		●	●	●
	WV (9.5~137.5VDC)		-	-	-
	HV (85~265VAC/100~300VDC)		-	-	●
	AC (85~265VAC IEC320)		-	-	●
	LDC (36~75VDC)		-	-	●
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
	Case Dimension W x H x D (unit=mm)	PoE model	101.3 x 135 x 152	101.3 x 135 x 152	440 x 325 x 44
		Non PoE model	74 x 135 x 152	74x135x152	
	DIN Rail Installation		●	●	19-inch Rack Mount
	Wall Mount Installation		Optional	Optional	
SOFTWARE FEATURES					
Management Level			L3	L3	L3
OSPF, RIP v1/v2			●	●	●
Static Routing			●	●	●
VRRP			●	●	●

EN50155 Layer 3 Switches



		I(P)GS-7408T-8	I(P)GS-7408XF-8	I(P)GS-7408XFT-8	I(P)GS-7016T-16	I(P)GS-7216XF-16	I(P)GS-7416XF-16
SPECIFICATIONS							
Interface	10/100/1000T (M12 X-code)	12	8	10	16	16	16
	10/100/1000T (RJ-45)	-	-	-	-	-	-
	1G or 2.5G Fiber	-	-	-	-	-	-
	1G or 2.5G or 10G Fiber	-	4	2	-	2	4
	100/1000 SFP Fiber	-	-	-	-	-	-
	802.3at/af PoE	8 (PoE model)	8 (PoE model)	8 (PoE model)	16 (PoE model)	16 (PoE model)	16 (PoE model)
	Console	M12	M12	M12	M12	M12	M12
	USB	●	●	●	●	●	●
	DI/DO	2/2	2/2	2/2	2/2	2/2	2/2
	Relay Contact	-	-	-	-	-	-
	Bypass	2-pair/1-pair	2-pair/1-pair	2-pair/1-pair	2-pair/1-pair	2-pair/1-pair	2-pair/1-pair
	Power Supply - M23	●	●	●	●	●	●
Power Input	12V/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	Standard Operating Temperature -20°C~60°C / -4°F~140°F	●	●	●	●	●	●
	Wide Operating Temperature -40°C~75°C / -40°F~167°F	●	●	●	●	●	●
	IP Rating	IP67/IP54	IP67/IP54	IP67/IP54	IP67/IP54	IP67/IP54	IP67/IP54
	Case Dimension W x H x D (unit=mm) IP67 model	215 x 190 x 84	285 x 186.5 x 84	285 x 190 x 84	285 x 186 x 84	285 x 186.5 x 84	285 x 186.5 x 84
	Case Dimension W x H x D (unit=mm) IP54 model	180 x 179.5 x 82	250 x 178 x 82	250 x 179.5 x 82	250 x 165 x 82	250 x 178 x 82	250 x 178 x 82
	DIN Rail Installation	Optional	Optional	Optional	Optional	Optional	Optional
	Wall Mount Installation	●	●	●	●	●	●
SOFTWARE FEATURES							
Management Level		L3	L3	L3	L3	L3	L3
OSPF, RIP v1/v2		●	●	●	●	●	●
Static Routing		●	●	●	●	●	●
VRRP		●	●	●	●	●	●

Industrial EN50155 Switches

IEC-61375

		I(P)GS-6408XF-8	I(P)GS-6408XFT-8	I(P)GS-6408T-8	I(P)GS-6016T-16	I(P)GS-6216XF-16
HARDWARE FEATURES						
Interface	10/100/1000TX WAN	-	-	-	-	-
	10/100TX (M12)	-	-	-	-	-
	10/100/1000T (M12)	8 (X-coded)	10 (X-coded)	12 (X-coded)	16 (X-coded)	16 (X-coded)
	1000M Fiber (LC)	-	-	-	-	-
	100M Fiber (LC)	-	-	-	-	-
	100/1000 Dual Speed Fiber (LC)	-	-	-	-	-
	1G or 2.5G Fiber	-	-	-	-	-
	1G or 2.5G or 10G Fiber	QODC/LC x4	QODC/LC x2	-	-	QODC/LC x2
	802.3at/af PoE	8 (PoE model)	8 (PoE model)	8 (PoE model)	16 (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	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)
	Power Supply - M23	●	●	●	●	●
	Power Supply - M12	-	-	-	-	-
Power Input	12V/24V (9.5~57VDC)	●	●	●	●	●
	48V (45~56VDC)	-	-	-	-	-
	72V (50.4~90VDC)	-	-	-	-	-
	110V (43~137.5VDC)	-	-	-	-	-
	WV (16.8~137.5VDC)	●	●	●	●	●
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 186.5 x 84	285 x 190 x 84	285 x 190 x 84	285 x 186 x 84	285 x 186.5 x 84
	Case Dimension W x H x D (unit=mm) IP54	250 x 178 x 82	250 x 179.5 x 82	250 x 179.5 x 82	250 x 165 x 82	250 x 178 x 82
	Case Dimension W x H x D (unit=mm) IP43	-	-	-	-	-
	Case Dimension W x H x D (unit=mm) IP41	-	-	-	-	-
	DIN Rail Installation (Optional)	Optional	Optional	Optional	Optional	Optional
	Wall Mount Installation	●	●	●	●	●
Certification	CE/FCC/RoHS/WEEE	●	●	●	●	●
	EN50155 & EN61373	●	●	●	●	●
	E-Mark (E4)	-	-	-	-	-
	EN45545-2 Fire & Smoke	●	●	●	●	●
SOFTWARE FEATURES						
Management Level		L2+	L2+	L2+	L2+	L2+

Full Giga Management

NEW 10G Q2		NEW Q1	NEW Q1	NEW Q1	NEW Q1	NEW Q1
I(P)GS-6416XF-16	I(P)GS-5008T-X	I(P)GS-5408MGF-X	I(P)GS-5408MGFT-X	I(P)GS-5408T-8	I(P)GS-5016T-X	I(P)GS-5216MGF-16
-	-	-	-	-	-	-
-	-	-	-	-	-	-
16 (X-coded)	8 (X-coded)	8 (X-coded)	10 (X-coded)	12 (X-coded)	16 (X-coded)	16 (X-coded)
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	QODC/LC x4	QODC/LC x2	-	-	QODC/LC x2
QODC/LC x4	-	-	-	-	-	-
16 (PoE model)	8 (PoE model)	8 (PoE model)	8 (PoE model)	8 (PoE model)	8 (PoE model)	16 (PoE model)
M12	M12	M12	M12	M12	M12	M12
●	-	●	●	●	●	●
2/2	4/3	2/2	2/2	2/2	2/2	2/2
-	●	-	-	-	-	-
2-pair/1-pair (Smart)	2-pair/1-pair	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)
●	●	●	●	●	●	●
-	IGS-5008T-X	-	-	-	-	-
●	●	●	●	●	●	●
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
●	●	●	●	●	●	●
●	●	●	●	●	●	●
IP67/IP54	IP67/IP54	IP67/IP54	IP67/IP54	IP67/IP54	IP67/IP54	IP67/IP54
285 x 186.5 x 84	215 x 186 x 84	285 x 186.5 x 84	285 x 190 x 84	285 x 190 x 84	285 x 186 x 84	285 x 186.5 x 84
250 x 178 x 82	180 x 165 x 82	250 x 178 x 82	250 x 179.5 x 82	250 x 179.5 x 82	250 x 165 x 82	250 x 165 x 82
-	-	-	-	-	-	-
-	-	-	-	-	-	-
Optional	Optional	Optional	Optional	Optional	Optional	Optional
●	●	●	●	●	●	●
●	●	●	●	●	●	●
●	●	●	●	●	●	●
-	-	-	-	-	-	-
●	●	●	●	●	●	●
L2+	L2+	L2+	L2+	L2+	L2+	L2+

		Full Giga Management	Fast Ethernet Management			
		NEW Q1				NEW Q1
						
		I(P)GS-5416MGF-16	I(P)ES-5208DF	I(P)ES-5208T	I(P)ES-5208T-X	I(P)ES-5208TA-2WAN
HARDWARE FEATURES						
Interface	10/100/1000TX WAN	-	-	-	-	2 (X-coded)
	10/100TX (M12)	-	8	8	8	8
	10/100/1000T (M12)	16 (X-coded)	-	2	2 (X-coded)	2 (X-coded)
	1000M Fiber (LC)	-	-	-	-	-
	100M Fiber (LC)	-	-	-	-	-
	100/1000 Dual Speed Fiber (LC)	-	2	-	-	-
	1G or 2.5G Fiber	QODC/LC x4	-	-	-	-
	1G or 2.5G or 10G Fiber	-	-	-	-	-
	802.3at/af PoE	16 (PoE model)	8 (PoE model)	8 (PoE model)	8 (PoE model)	8 (PoE model)
	Console	M12	M12	M12	M12	M12
	USB	●	-	-	-	●
	DI/DO	2/2	1/1	1/1	1/1	2/2
	Relay Contact	-	●	●	●	-
	Bypass	2-pair/1-pair (Smart)	1-pair	1-pair	1-pair	2-pair/1-pair (Smart)
	Power Supply - M23	●	IPES-5208DF	IPES-5208T	IPES-5208T-X	●
	Power Supply - M12	-	IES-5208DF	IES-5208T	IES-5208T-X	-
Power Input	12V/24V (9.5~57VDC)	●	●	●	●	●
	48V (45~56VDC)	-	IPES-5208DF	IPES-5208T	IPES-5208T-X	-
	72V (50.4~90VDC)	-	●	●	●	-
	110V (43~137.5VDC)	-	●	●	●	-
	WV (16.8~137.5VDC)	●	-	-	-	●
Mechanism	Wide Operating Temperature -40°C~75°C / -40°F~167°F	●	●	●	●	●
	IP Rating	IP67/IP54	IP67/IP54	IP67/IP54/IP43	IP67/IP54	IP67/IP54
	Case Dimension W x H x D (unit=mm) IP67	285 x 186.5 x 84	215 x 186.5 x 84	215 x 190 x 84	215 x 190 x 84	215 x 190 x 84
	Case Dimension W x H x D (unit=mm) IP54	250 x 178 x 82	180 x 178 x 82	180 x 179.5 x 82	180 x 179.5 x 82	180 x 179.5 x 82
	Case Dimension W x H x D (unit=mm) IP43	-	-	203 x 187 x 84.4	-	-
	Case Dimension W x H x D (unit=mm) IP41	-	-	-	-	-
	DIN Rail Installation (Optional)	Optional	Optional	Optional	Optional	Optional
	Wall Mount Installation	●	●	●	●	●
Certification	CE/FCC/RoHS/WEEE	●	●	●	●	●
	EN50155 & EN61373	●	●	●	●	●
	E-Mark (E4)	-	-	-	-	-
	EN45545-2 Fire & Smoke	●	●	●	●	●
SOFTWARE FEATURES						
Management Level		L2+	L2+	L2+	L2+	L2+

		Fast Ethernet Management				
						
		I(P)ES-5416DF	I(P)ES-5416DFT	I(P)ES-5416T	I(P)ES-5416T-X-8	I(P)ES-5222T
HARDWARE FEATURES						
Interface	10/100/1000TX WAN	-	-	-	-	-
	10/100TX (M12)	16	16	16	16	22
	10/100/1000T (M12)	-	2	4	4 (X-coded)	2
	1000M Fiber (LC)	-	-	-	-	-
	100M Fiber (LC)	-	-	-	-	-
	100/1000 Dual Speed Fiber (LC)	LC x4	LC x2	-	-	-
	1G or 2.5G Fiber	-	-	-	-	-
	1G or 2.5G or 10G Fiber	-	-	-	-	-
	802.3at/af PoE	8 (PoE model)	8 (PoE model)	8 or 16 (PoE model)	8 (PoE model)	8 (PoE model)
	Console	M12	M12	M12	M12	M12
	USB	-	-	-	-	-
	DI/DO	1/1	1/1	1/1	1/1	1/1
	Relay Contact	●	●	●	●	●
	Bypass	2-pair/1-pair	1-pair	2-pair/1-pair	2-pair/1-pair	1-pair
	Power Supply - M23	●	●	●	●	●
	Power Supply - M12	IES-5416DF	IES-5416DFT	IES-5416T	IES-5416T-X	IES-5222T
Power Input	12V/24V (9.5~57VDC)	●	●	●	●	●
	48V (45~56VDC)	IPES-5416DF-8	IPES-5416DFT-8	IPES-5416T	IPES-5416T-X	IPES-5222T-8
	72V (50.4~90VDC)	●	●	●	●	●
	110V (43~137.5VDC)	●	●	●	●	●
	WV (16.8~137.5VDC)	-	-	-	-	-
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 186.5 x 84	285 x 190 x 84	285 x 190 x 84	285 x 190 x 84	285 x 190 x 84
	Case Dimension W x H x D (unit=mm) IP54	250 x 178 x 62	250 x 180 x 62	250 x 180 x 62	250 x 180 x 62	250 x 180 x 62
	Case Dimension W x H x D (unit=mm) IP43	-	-	-	-	-
	Case Dimension W x H x D (unit=mm) IP41	-	-	-	-	-
	DIN Rail Installation (Optional)	Optional	Optional	Optional	Optional	Optional
	Wall Mount Installation	●	●	●	●	●
Certification	CE/FCC/RoHS/WEEE	●	●	●	●	●
	EN50155 & EN61373	●	●	●	●	●
	E-Mark (E4)	-	-	-	-	-
	EN45545-2 Fire & Smoke	●	●	●	●	●
SOFTWARE FEATURES						
Management Level		L2+	L2+	L2+	L2+	L2+

NEW Q1






I(P)ES-5208MGF-8-2WAN	I(P)ES-5408DFT-X	I(P)ES-5408S-X	I(P)ES-5408T	I(P)ES-5408T-X	I(P)ES-5216DF
2 (X-coded)	-	-	-	-	-
8	8	8	8	8	16
-	2 (X-coded)	4 (X-coded)	4	4 (X-coded)	-
-	-	-	-	-	-
-	-	-	-	-	-
-	QODC/LC x2	-	-	-	LC x2
QODC/LC x2	-	-	-	-	-
-	-	-			-
8 (PoE model)	8 (PoE model)	8 (PoE model)	8 (PoE model)	8 (PoE model)	8 (PoE model)
M12	M12	M12	M12	M12	M12
●	-	●	-	-	-
2/2	1/1	2/2	1/1	1/1	1/1
-	●	-	●	●	●
2-pair/1-pair (Smart)	2-pair/1-pair	1-pair	2-pair/1-pair	2-pair/1-pair	1-pair
●	●	-	IPES-5408T	IPES-5408T-X	●
-	IES-5408DFT-X	●	IES-5408T	IES-5408T-X	IES-5216DF
●	●	●	●	●	●
-	IPES-5408DFT-X	-	IPES-5408T	IPES-5408T-X	IPES-5216DF-8
-	●	-	●	●	●
-	●	-	●	●	●
●	-	●	-	-	-
●	●	●	●	●	●
IP67/IP54	IP67/IP54	IP65/IP54	IP67/IP54/IP43	IP67/IP54/IP43	IP67/IP54
215 x 186.5 x 84	215 x 200 x 84	178 x 99 x 97.5	215 x 190 x 84	215 x 190 x 84	285 x 186.5 x 84
180 x 178 x 82	180 x 178 x 82		180 x 179.5 x 82	180 x 179.5 x 82	250 x 178 x 62
-	-		203 x 187 x 84.4	203 x 187 x 84.4	-
-	-		-	-	-
Optional	Optional	Optional	Optional	Optional	Optional
●	●	●	●	●	●
●	●	●	●	●	●
●	●	●	●	●	●
-	-	-	-	-	-
●	●	●	●	●	●
L2+	L2+	L2+	L2+	L2+	L2+

Fast Ethernet Unmanagement







I(P)ES-0005B	I(P)ES-0008A	I(P)ES-0008B	I(P)ES-0208T	I(P)ES-0208GF	I(P)ES-0208F	IPES-0101T
-	-	-	-	-	-	-
5	8	8	8	8	8	2
-	-	-	2	-	-	-
-	-	-	-	2	-	-
-	-	-	-	-	2	2
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
5 (PoE model)	8 (PoE model)	8 (PoE model)	8 (PoE model)	8 (PoE model)	8 (PoE model)	1
-	M12	-	M12	M12	M12	M12
-	-	-	-	-	-	-
-	-	-	-	-	-	-
●	●	●	●	●	●	●
-	-	-	-	-	-	-
-	●	-	IPES-0208T	IPES-0208GF	IPES-0208F	-
●	-	●	IES-0208T	IES-0208GF	IES-0208F	●
●	●	●	●	●	●	-
IPES-0005B	-	IPES-0008B	-	-	-	●
●	●	●	●	●	●	●
-	●	-	●	●	●	-
-	-	-	-	-	-	-
●	●	●	●	●	●	●
IP54/IP41	IP67/IP43	IP54/IP41	IP67/IP43	IP67/IP43	IP67/IP43	IP54/IP41
-	215 x 186 x 84	-	215 x 190 x 84	215 x 186.5 x 84	215 x 186.5 x 84	-
135 x 165 x 62	-	135 x 165 x 62	-	-	-	135 x 165 x 62
-	202 x 172 x 62.5	-	202 x 172 x 62.5	202 x 172 x 62.5	202 x 172 x 62.5	-
-	-	135 x 165 x 62	-	-	-	135 x 165 x 62
-	Optional	-	Optional	Optional		-
●	●	●	●	●	●	●
●	●	●	●	●	●	●
●	●	●	●	●	●	●
●	●	●	●	●	●	-
●	●	●	●	●	●	●
Unmanaged	Unmanaged	Unmanaged	Unmanaged	Unmanaged	Unmanaged	Unmanaged

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

Lantech Worldwide Offices

Taiwan

Lantech Communications Global, Inc.
7F, No.45, Lane 188, Ruiguang Rd.,
Neihu District, Taipei, Taiwan, 11491
Tel: +886-2-2799-5589
Fax: +886-2-2799-5579
info@lantechcom.tw
www.lantechcom.tw

Europe

Lantech Communications Europe GmbH
Philipp-Kachel-Str. 42a
63911 Klingenberg / Germany
Tel: +49-9372-50959-97
Fax: +49-9372-50959-99
sales@lantechcom.eu
www.lantechcom.eu

Singapore

Lantech Singapore
25 Bukit Batok Crescent
#10-07 THE ELITIST
Singapore 658066
Tel: +65-8822-5589
lim@lantechcom.tw

USA

Lantech Communications Global, Inc.
1013 Centre Road, Suite 403S
Wilmington, DE 19805

www.lantechcom.tw info@lantechcom.tw