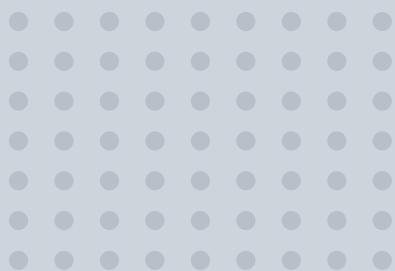


# VEHICLE COMMUNICATION NETWORK SOLUTIONS



# Designed for Smart Vehicle Applications

## Lantech Vehicle Switches and Routers

The smart vehicle communication network helps improve transportation efficiency, service productivity, safety and customer satisfaction. These are a core competency of enterprises in the future.

There are many IP systems on board modern vehicles 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 such as vehicle tracking and ticketing systems.

Lantech Communications has developed a series of Ethernet switches & multi-functional routers to meet the current E-marking / ITxPT standard for onboard vehicle applications. Lantech Communications is able to provide a complete solution to maximize your fleet efficiency and performance.

ITxPT,  
E-Mark &  
ISO 7637-5\*\*

Lantech networking devices meet these international standards for better safety in a vehicle environment.

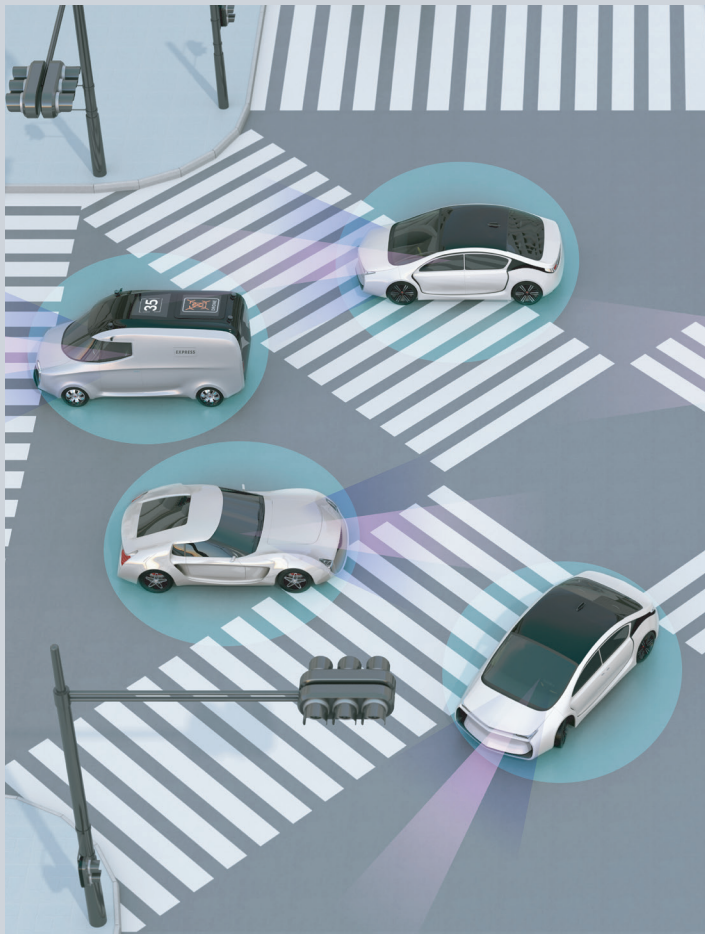
\*\*Optional

24VDC  
Booster

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

PoE  
at/af

Lantech PoE Ethernet switches are compliant to IEEE802.3at/af PoE standard. They are able to feed each PoE port up to 30 Watt per port for various IP PD devices.



### About Lantech

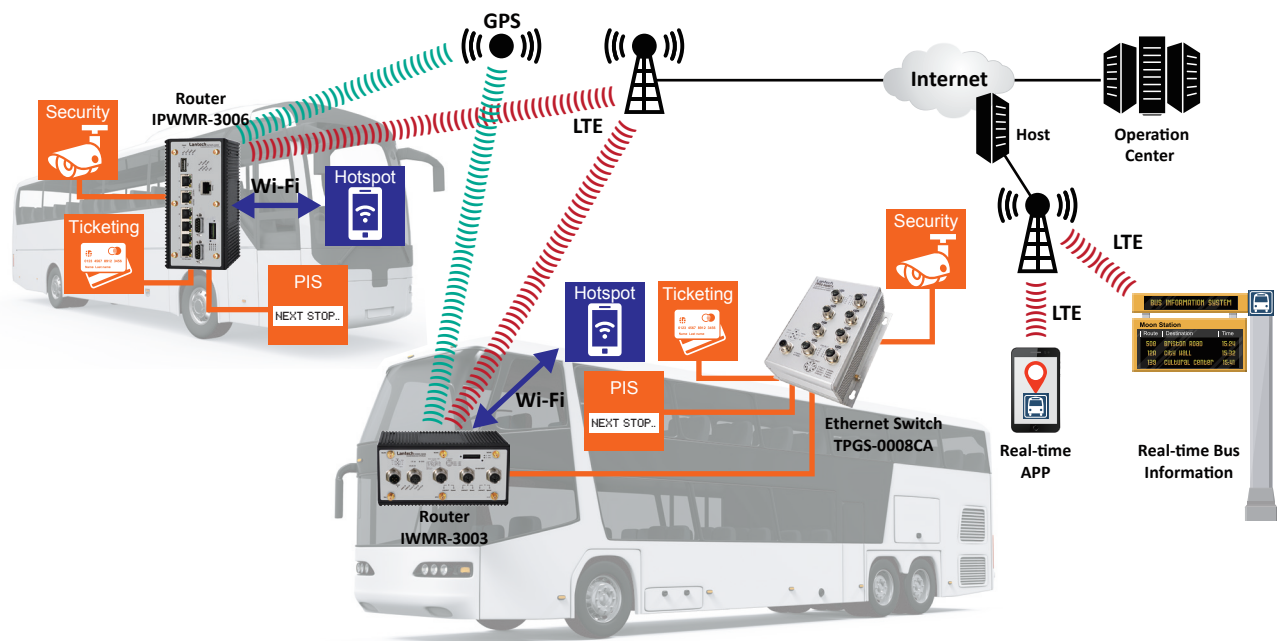
Lantech is an IRIS and ITxPT certified company focused on on-board EN50155 and E-Marking Ethernet switches and Wireless /LTE Routers development. Lantech is dedicated to transportation verticals where it covers onboard train/bus, stations, trackside, ITS and smart city. Lantech has been working together with key customers in effort to create up-to-date on-board passenger information, video security, track side data communications by providing rugged 10GbE, PoE Managed switches, LTE/ Wi-Fi Routers, ITxPT and E-mark certified solutions to fulfil various and critical requirements.



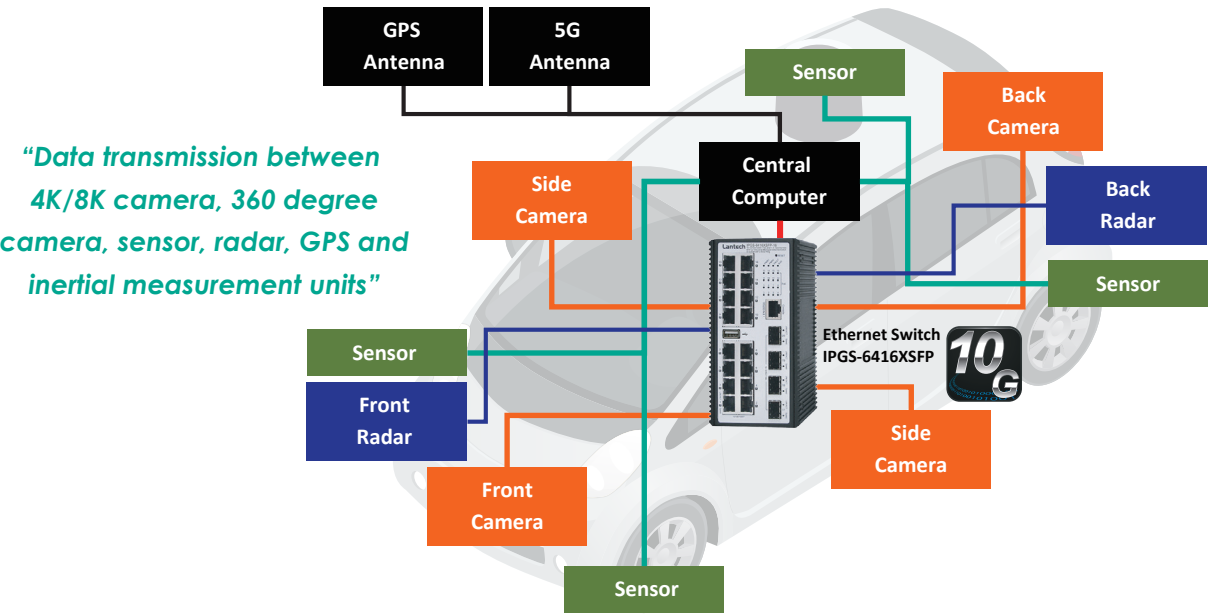
\*Industrial-grade products



# Applications Bus Communication



# Applications Autonomous Car



# Ethernet Switches FEATURE HIGHLIGHTS

**E13**

**E-marking Certified**

The E-mark is an EU certification for approved vehicles and vehicle components sold into the EU. The certified devices meet the basic requirements of safety and environmental protection.

**ITxPT Ready**

As an ITxPT member and a key supplier to the mass/public transportation industry, Lantech has access to the ITxPT platform for testing our wide range devices in real world operational conditions.

**ISO 7637-5\*\* Tested**

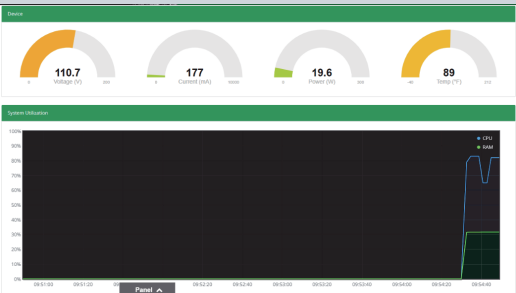
It's the enhanced definitions and verification methods for harmonization of pulse generators according to ISO 7637 that ensure the compatibility of conducted electrical transient of equipment installed on passenger cars and commercial vehicles.

\*\*Optional

**Real-time Environmental Monitoring**

The enhanced environmental monitoring can detect when the switch's overall temperature, total PoE load, voltage or current are abnormal and it can send syslog or e-mail as a notification.

**OS3 Platform**



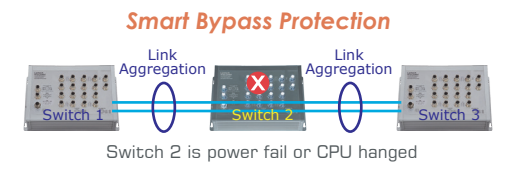
**Firmware System Protection**

The 4 mechanisms are designed to provide a more reliable firmware system: Boot Loader Protection, Dual Image, Rescue Mode, and NAND Flash Protection.

**OS3 Platform**

**Smart Bypass Protection (Optional)**

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



**802.3at/af PoE**

up to 30W per port

**Built-in power converter**

12/24VDC boost up to 48VDC

**10GbE connectivity** to fulfill huge bandwidth requirement

**Inrush current protection**

**Fan-less design**

**USB port** to upload & download the configuration file

# Ignition Design

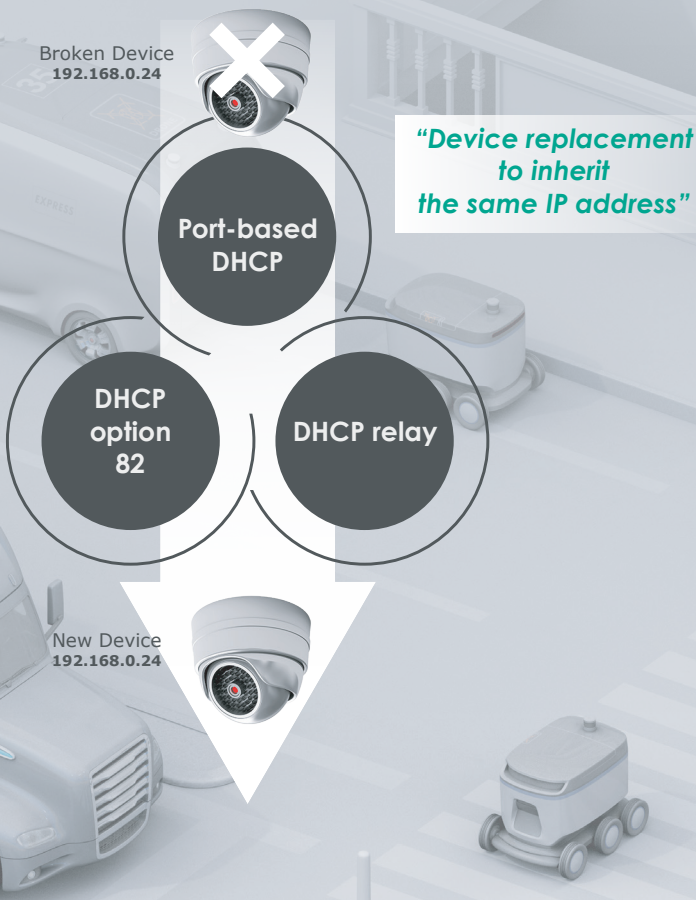
(IGN model)

When the vehicle has been stalled by the driver, some equipment in the car may still need to run for a while. With Lantech ignition switch, even if the engine on the vehicle has been turned off by the driver, the switch can still offer power to the equipment via PoE connection from the battery.



- 1. Engine is off
- 2. Extended operation time
- 3. Ethernet switch shut down

# DHCP for Easy Device Replacement



# Complete IGMP

The unique multicast protection under the enhanced G.8032 ring, can offer immediate self-recovery instead of waiting for the IGMP table timeout. Lantech Ethernet switches also support IGMPv3, GMRP, router port, MLD Snooping and static multicast forwarding binding by ports for video surveillance application.



# M12 10G Uplinks Managed Ethernet Switches

OS3 Platform			
 <b>T(P)ES-L6416XFT</b> 16 10/100TX (PoE at)+ 2 10G Copper + 2 10G Q-ODC fiber M12 OS3 Managed Switch 4 10G 16 TX 16 PoE USB	 <b>T(P)ES-L6416XT</b> 16 10/100TX (PoE at) + 4 10G Copper M12 OS3 Managed Switch 4 10G 16 TX 16 PoE USB	 <b>T(P)ES-L6408XFT</b> 8 10/100TX (PoE at) + 2 10G Copper + 2 10G Q-ODC fiber M12 OS3 Managed Switch 4 10G 8 TX 8 PoE USB	 <b>T(P)ES-L6408XT</b> 8 10/100TX (PoE at) + 4 10G Copper M12 OS3 Managed Switch 4 10G 8 TX 8 PoE USB
 <b>T(P)ES-L6216XT</b> 16 10/100TX (PoE at) + 2 10G copper M12 OS3 Managed Switch 2 10G 16 TX 16 PoE USB	 <b>T(P)ES-L6216XF</b> 16 10/100TX (PoE at) + 2 10G Q-ODC fiber M12 OS3 Managed Switch 2 10G 16 TX 16 PoE USB	 <b>T(P)ES-L6208XT</b> 8 10/100TX (PoE at) + 2 10G copper M12 OS3 Managed Switch 2 10G 8 TX 8 PoE USB	 <b>T(P)ES-L6208XF</b> 8 10/100TX (PoE at) + 2 10G Q-ODC fiber M12 OS3 Managed Switch 2 10G 8 TX 8 PoE USB

# M12 2.5G Uplinks Managed Ethernet Switches

OS3 Platform			
 <b>T(P)ES-L5416MGFT</b> 16 10/100TX (PoE at)+ 2 1G/ 2.5G Copper + 2 1G/2.5G Q-ODC fiber M12 OS3 Managed Switch 4 2.5G 16 TX 16 PoE USB	 <b>T(P)ES-L5416MGT</b> 16 10/100TX (PoE at) + 4 1G/2.5G Copper M12 OS3 Managed Switch 4 2.5G 16 TX 16 PoE USB	 <b>T(P)ES-L5216MGT</b> 16 10/100TX (PoE at) + 2 1G/2.5G copper M12 OS3 Managed Switch 4 2.5G 16 TX 16 PoE USB	 <b>T(P)ES-L5216MGF</b> 16 10/100TX (PoE at) + 2 1G/2.5G Q-ODC fiber M12 OS3 Managed Switch 4 2.5G 16 TX 16 PoE USB

# M12 Giga Uplinks Managed Ethernet Switches

OS1 Platform	
 <b>I(P)ES-5408T-X-IGN</b> 8 10/100TX (PoE at) + 4 10/100/1000T L2+ M12 Managed Switch 4 GT 8 TX 8 PoE	 <b>I(P)ES-5408T-D-IGN</b> 12 10/100TX (PoE at) L2+ M12 Managed Switch 12 TX 8 PoE














Model name (P) = PoE model









Learn more



M12 Unmanaged Ethernet Switches





Product Line-ups			
<div><div><div>E13</div><div>ITXPT</div><div>Information Technology &amp; Process Technology</div><div>(Pending)</div></div><div></div><div><div>Ignition Sensing</div></div></div> <div><b>T(P)ES-0216T</b> 16 10/100TX (PoE at) + 2 10/100/1000T M12 Unmanaged Switch</div> <div><div>2 GT</div><div>16 TX</div><div>16 PoE</div></div>	<div><div><div>E13</div><div>ITXPT</div><div>Information Technology &amp; Process Technology</div><div>(Pending)</div></div><div></div><div><div>Ignition Sensing</div></div></div> <div><b>T(P)ES-0212T</b> 12 10/100TX (PoE at) + 2 10/100/1000T M12 Unmanaged Switch</div> <div><div>2 GT</div><div>12 TX</div><div>12 PoE</div></div>	<div><div><div>E13</div><div>ITXPT</div><div>Information Technology &amp; Process Technology</div><div>(Pending)</div></div><div></div><div><div>Ignition Sensing</div></div></div> <div><b>T(P)ES-0210T</b> 10 10/100TX (PoE at) + 2 10/100/1000T M12 Unmanaged Switch</div> <div><div>2 GT</div><div>10 TX</div><div>10 PoE</div></div>	<div><div><div>E13</div><div>ITXPT</div><div>Information Technology &amp; Process Technology</div><div>(Pending)</div></div><div></div><div><div>Ignition Sensing</div></div></div> <div><b>T(P)ES-0016T</b> 16 10/100/1000T (PoE at) M12 Unmanaged Switch</div> <div><div>16 TX</div><div>16 PoE</div></div>
<div><div><div>E13</div><div>ITPT</div><div>Information Technology &amp; Process Technology</div></div><div></div><div><div>Ignition Sensing</div></div></div> <div><b>T(P)GS-0008CA</b> 8 10/100/1000T (PoE at) M12 Unmanaged Switch</div> <div><div>8 GT</div><div>8 PoE</div></div>	<div><div><div>E13</div><div>ITPT</div><div>Information Technology &amp; Process Technology</div></div><div></div><div><div>Ignition Sensing</div></div></div> <div><b>T(P)GS-0006CA</b> 6 10/100/1000T (PoE at) M12 Unmanaged Switch</div> <div><div>6 GT</div><div>6 PoE</div></div>	<div><div><div>E13</div><div>ITPT</div><div>Information Technology &amp; Process Technology</div></div><div></div><div><div>Ignition Sensing</div></div></div> <div><b>T(P)ES-0008CA</b> 8 10/100TX (PoE at) M12 Unmanaged Switch</div> <div><div>8 TX</div><div>8 PoE</div></div>	<div><div><div>E13</div><div>ITPT</div><div>Information Technology &amp; Process Technology</div></div><div></div><div><div>Ignition Sensing</div></div></div> <div><b>T(P)ES-0006CA</b> 6 10/100TX (PoE at) M12 Unmanaged Switch</div> <div><div>6 TX</div><div>6 PoE</div></div>
<div><div><div>E4</div></div><div></div></div> <div><b>I(P)ES-0208GF</b> 8 10/100TX (PoE at) + 2 1000FX M12 Unmanaged Switch</div> <div><div>2 FX</div><div>8 TX</div><div>8 PoE</div></div>	<div><div><div>E4</div></div><div></div></div> <div><b>I(P)ES-0208T</b> 8 10/100TX (PoE at) + 2 10/100/1000T M12 Unmanaged Switch</div> <div><div>2 GT</div><div>8 TX</div><div>8 PoE</div></div>	<div><div><div>E4</div></div><div></div></div> <div><b>I(P)ES-0008A</b> 8 10/100TX (PoE at) M12 Unmanaged Switch</div> <div><div>8 TX</div><div>8 PoE</div></div>	
<div><div><div>E4</div></div><div></div></div> <div><b>I(P)ES-0008B</b> 8 10/100TX (PoE at) M12 Unmanaged Switch</div> <div><div>8 TX</div><div>8 PoE</div></div>	<div><div><div>E4</div></div><div></div></div> <div><b>I(P)ES-0005B</b> 5 10/100TX (PoE at) M12 Unmanaged Switch</div> <div><div>5 TX</div><div>5 PoE</div></div>		

RJ45 Managed Ethernet Switches

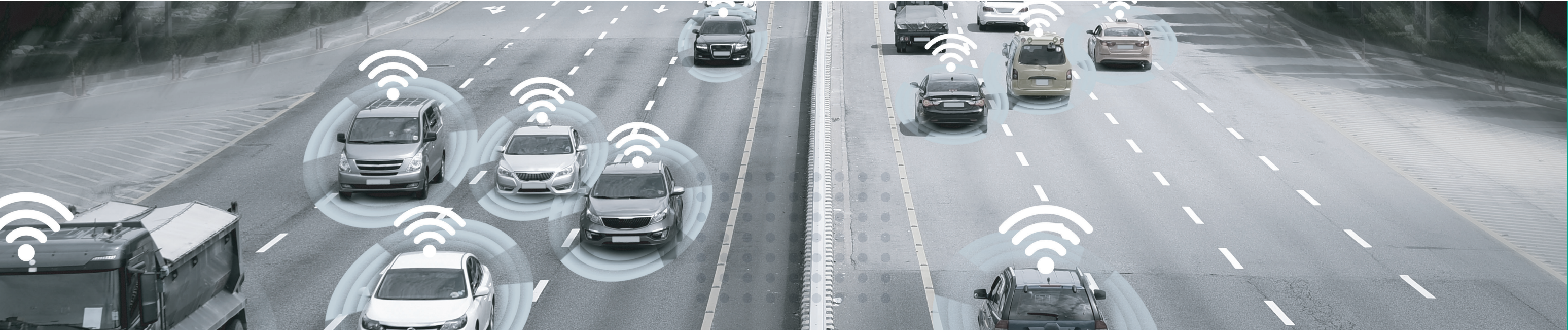
OS3 Platform		
<div><div><div>E13</div></div><div></div></div> <div><b>I(P)GS-6416XSFP</b> 16 10/100/1000T (PoE at/af) + 4 1G/2.5G/10G SFP+ Industrial Managed Ethernet Switch</div> <div><div>4 10G</div><div>16 GT</div><div>16 PoE</div><div>USB</div></div>	<div><div><div>E13</div></div><div></div></div> <div><b>I(P)GS-5416MGSFP</b> 16 10/100/1000T (PoE at/af) + 4 1G/2.5G SFP L2+ Industrial Managed Ethernet Switch</div> <div><div>4 2.5G</div><div>16 GT</div><div>16 PoE</div><div>USB</div></div>	<div><div><div>E13</div></div><div></div></div> <div><b>I(P)GS-5016</b> 16 10/100/1000T (PoE at/af) L2+ Industrial Managed Ethernet Switch</div> <div><div>16 GT</div><div>16 PoE</div><div>USB</div></div>
OS2 Platform		OS1 Platform
<div><div><div>E13</div></div><div></div></div> <div><b>I(P)GS-3008</b> 8 10/100/1000T (PoE at/af) L2+ Industrial Managed Ethernet Switch</div> <div><div>8 GT</div><div>8 PoE</div></div>	<div><div><div>E13</div></div><div></div></div> <div><b>I(P)ES-3416DSFP</b> 16 10/100TX (PoE at/af) + 4 Dual Speed SFP L2+ Managed Ethernet Switch</div> <div><div>4 SFP</div><div>16 TX</div><div>16 PoE</div></div>	<div><div><div>E13</div></div><div></div></div> <div><b>I(P)ES-3016</b> 16 10/100TX (PoE at/af) L2+ Industrial Managed Ethernet Switch</div> <div><div>16 TX</div><div>16 PoE</div></div>



RJ45 Unmanaged Ethernet Switches

Product Line-ups			
<div><div><div>E13</div></div><div></div></div> <div><b>I(P)GS-0016</b> 16 10/100/1000T (PoE at/af) Industrial Ethernet Switch</div> <div><div>16 GT</div><div>16 PoE</div></div>	<div><div><div>E13</div></div><div></div></div> <div><b>I(P)ES-0016</b> 16 10/100TX (PoE at/af) Industrial Ethernet Switch</div> <div><div>16 TX</div><div>16 PoE</div></div>	<div><div><div>E13</div></div><div></div></div> <div><b>I(P)GS-0008B</b> 8 10/100/1000T (PoE at/af) Industrial Ethernet Switch</div> <div><div>8 GT</div><div>8 PoE</div></div>	<div><div><div>E13</div></div><div></div></div> <div><b>I(P)ES-0008B</b> 8 10/100TX (PoE) Industrial Ethernet Switch</div> <div><div>8 TX</div><div>8 PoE</div></div>

Model name (P) = PoE model





# Multi-function Routers

## FEATURE HIGHLIGHTS



### 7-in-1 Multifunction

Lantech 7-in-1 multi-function VPN routers provide advanced features and powerful performance for future vehicle applications.



LTE

01



WiFi  
802.11ac

02



Gateway

03



PoE

04



Storage

05



VPN

06



Managed Switch

07



Built-in L2+ Managed Switch Function



EMMC Flash storage (Optional)



Graphical Wi-Fi & LTE signal strength



Ignition Sensing with ITxPT



5-in-1 Wireless Modes:  
AP Client/ Client/ Bridge/ Client Roaming/ MESH



Load Balancing with 5 Mechanisms



Serial Ports: Modbus Gateway



Multisite VPN, OpenVPN and Firewall



Dual Concurrent LTE Design 4G/3G  
w/ SIM Redundancy



Optional eSIM chip enables router  
with versatile data plans



IEEE 802.31ac Dual Band Operation



Support Routing Protocol:  
Static route / RIPv2 / OSPF / BGP / EIGRP



Environmental monitoring  
for inside router info& alerting



802.3at/af PoE  
up to 30W per port



Built-in power converter  
12/24VDC boost up to 48VDC (12V/24V models)



Isolation protection:  
Power input, serial and DI/DO



Support MQTT (Message Queuing Telemetry Transport)  
as a MQTT publisher



USB port to backup, restore the  
configuration file and upgrade firmware

# InstaAir

## Cloud Based Fleet Management System for Routers

InstaAir is the leading-edge, end-to-end cloud-based fleet management system for routers. This highly advanced system supports over-the-air device monitoring, configuration, and software upgrades anytime, anywhere. The powerful features provide current views of the entire device, and custom reports can be set up to monitor critical events and prevent device downtime.

### FEATURES

- Real-time Monitoring
- User Authentication
- Group
- Organization\*
- Zero-Touch Configuration
- GPS Fleet Management
- Remote actions
- Network Troubleshooting\*
- Notification\*
- Responsive Web

\*Future release

4G LTE + Wi-Fi Multifunction Routers				
 (Pending)	 (Pending)	 (Pending)	 (Pending)	 (Pending)
<b>I(P)WMR-3204DF</b> Industrial Multifunction VPN Router w/up to 2 WiFi 11ac + up to 2 LTE 4G + 2 serial ports + 4 GigaT + 2 Dual Speed SFP	<b>I(P)WMR-3004DF</b> Industrial Multifunction VPN Router w/up to 2 WiFi 11ac + up to 2 LTE 4G + 2 serial ports + 4 GigaT + 2 Dual Speed SFP WAN	<b>I(P)WMR-3006</b> Industrial Multifunction VPN Router w/up to 2 WiFi 11ac + up to 2 LTE 4G + 2 serial ports + 6 GigaT	<b>I(P)WMR-3004</b> Industrial Multifunction VPN Router w/up to 2 WiFi 11ac + up to 2 LTE 4G + 2 serial ports + 4 GigaT + 2WAN	<b>IWMR-3003(-M12)</b> Industrial Multifunction VPN Router w/up to 2 WiFi 11ac + up to 2 LTE 4G + 2/4 serial ports + 3 GigaT
4 GT, 2 SFP, 4 PoE, 2 USB, 2 Serial	4 GT, 4 PoE, 2 USB, 2 Serial, 2 WAN	6 GT, 4 PoE, 2 USB, 2 Serial	4 GT, 4 PoE, 2 USB, 2 Serial, 2 WAN	3 GT, 1 PD, 4 Serial, 2 USB
4G LTE Multifunction Routers				
 (Pending)	 (Pending)	 (Pending)	 (Pending)	 (Pending)
<b>I(P)MR-3204DF</b> Industrial Multifunction VPN Router w/2 LTE 4G + 2 serial ports + 4 GigaT + 2 Dual Speed SFP	<b>I(P)MR-3004DF</b> Industrial Multifunction VPN Router w/2 LTE 4G + 2 serial ports + 4 GigaT + 2 Dual Speed SFP WAN	<b>I(P)MR-3006</b> Industrial Multifunction VPN Router w/2 LTE 4G + 2 serial ports + 6 GigaT	<b>I(P)MR-3004</b> Industrial Multifunction VPN Router w/2 LTE 4G + 2 serial ports + 4 GigaT + 2WAN	<b>IMR-3003(-M12)</b> Industrial Multifunction VPN Router w/2 LTE 4G + 2/4 serial ports + 3 GigaT
4 GT, 2 SFP, 4 PoE, 2 USB, 2 Serial	4 GT, 4 PoE, 2 USB, 2 Serial, 2 WAN	6 GT, 4 PoE, 2 USB, 2 Serial	4 GT, 4 PoE, 2 USB, 2 Serial, 2 WAN	3 GT, 1 PD, 4 Serial, 2 USB
Wi-Fi Multifunction Routers				
 (Pending)	 (Pending)	 (Pending)	 (Pending)	 (Pending)
<b>I(P)WAP-3204DF</b> Industrial Multifunction VPN Router w/2 WiFi 11ac + 2 serial ports + 4 GigaT + 2 Dual Speed SFP	<b>I(P)WAP-3004DF</b> Industrial Multifunction VPN Router w/2 WiFi 11ac + 2 serial ports + 4 GigaT + 2 Dual Speed SFP WAN	<b>I(P)WAP-3006</b> Industrial Multifunction VPN Router w/2 WiFi 11ac + 2 serial ports + 6 GigaT	<b>I(P)WAP-3004</b> Industrial Multifunction VPN Router w/2 WiFi 11ac + 2 serial ports + 4 GigaT + 2WAN	<b>IWAP-3003(-M12)</b> Industrial Multifunction VPN Router w/2 WiFi 11ac + 2/4 serial ports + 3 GigaT
4 GT, 2 SFP, 4 PoE, 2 USB, 2 Serial	4 GT, 4 PoE, 2 USB, 2 Serial, 2 WAN	6 GT, 4 PoE, 2 USB, 2 Serial	4 GT, 4 PoE, 2 USB, 2 Serial, 2 WAN	3 GT, 1 PD, 4 Serial, 2 USB

1) M12 model does not support serial ports.  
2) Model name (P) = PoE model  
3) In a continuing effort to improve and advance technology, product specifications are subject to change without notice.





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