Lantech™

2009 Product Guide

Pioneering Industrial and IP Networks

Lantech Worldwide Offices

Lantech Taiwan
Lantech Communications Global Inc.

4F, No.262, Sec 6, Ming Chan E. Rd.
Neihu Dist, Taipei Taiwan, R.O.C.

Tel:+886-2-2633-9590
Fax:+886-2-2633-8261
www.lantechcom.tw
www.lantech.tw

Lantech Europe
Lantech Communications Europe GmbH

Philipp-Kachel-Str. 42a
63911 Klingenberg / Germany

Tel, +49 9372-9451-121
Fax: +49 9372 9451-112
www.lantech.eu
www.lantechcom.eu

Lantech USA
Lantech Communications, Inc.

6300E San Ignacio Ave,
San Jose, CA95119
USA

Tel:+1-408-578-7870
Fax:+1-408-578-7871
www.lantechcom.com

Lantech Korea
Lantech Communication Global Inc.

#1403, Renaissance Bldg.,
Seocho3-dong, Seocho-Ku,
SEOUL KOREA,137-876

Tel:+82-2-3273-3379
Fax:+82-2-3275-3912
www.lantech.kr

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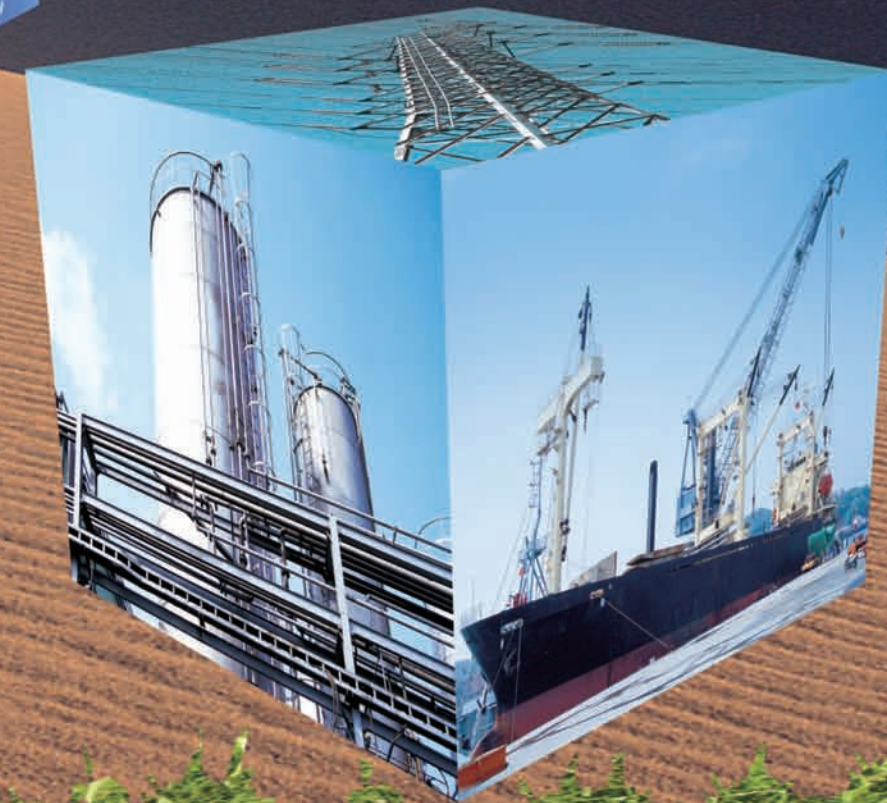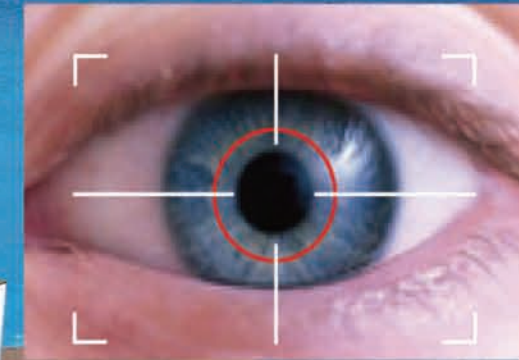
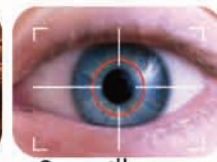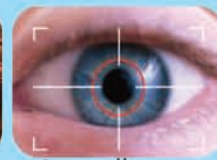Transportation Maritime area Power station Oil platform Airport FTTX Surveillance

Contents

About Lantech – "Pioneering Industrial and IP Networks"

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 feature rich, high quality networking solutions with outstanding service and support to our world-wide partners. Lantech's core competency is centered on our network software, which allows for the seamless delivery of a variety of applications and services in diverse network environments. Lantech products are integrated with Pro-Ring, our proprietary auto network recovery protocol, and Pro-View, a Windows utility for monitoring and configuring multiple switches at one time. Lantech is committed to providing our partners with the products, service and support necessary to help promote our brand in the marketplace.

Lantech offers a complete family of commercial and industrial grade 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 including:

Telecommunications
- FTTX
- IP Triple Play Services
- WiMax/WiFi backhaul

Industrial Automation
- Power and Energy
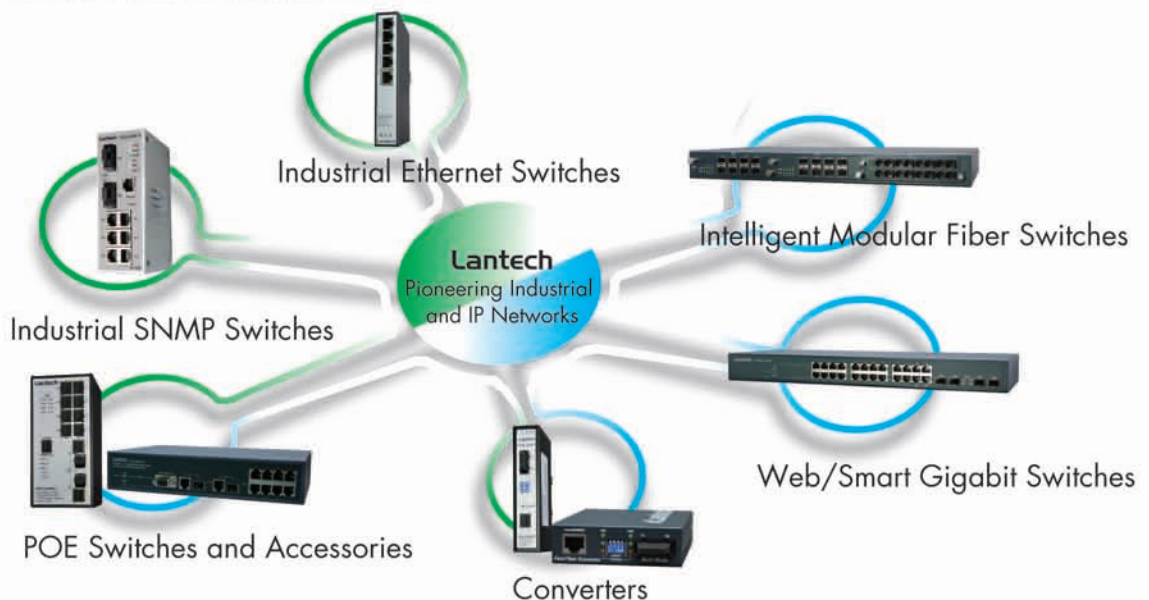- Oil and Gas
- Transportation
- Security and Surveillance

Utilities/Municipalities

Commercial/Enterprise

Lantech products are built in the manufacturing facility using lead-free (ROHS) processes and under ISO9001/2000 and ISO140001 Environmental Management Systems certifications. Prior to going to production, each product is tested for hardware functionality, network performance, OS performance, security, network protocol and network interoperability. Lantech products are extensively tested by Smartbits, IXIA/Chalet and Application packet generation tool to ensure switch performance and reliability under heavy traffic.

The same attention to quality, reliability and detail we use in our manufacturing and quality assurance processes is also how we approach all of our customer relationships. Lantech sales offices in the United States, Germany, Korea and Taiwan serve these customers as well as the company's global distribution channels.

By combining our outstanding products and services with knowledgeable and respected channel partners, Lantech is able to provide significant price-performance value to any Industrial or IP network. Lantech products are successfully transporting Ethernet services around the globe, including networks at The Taiwan Post Office, In-store Broadcasting Networks, Stanford University, CNN, Universitat Wurzburg, Korea U-city FTTX, Korea's Subway System, Thailand's Subway System, Japan's High-speed Railway and Israel's wireless backhaul network.

Industrial Ethernet Switches

Intelligent Modular Fiber Switches

Lantech
Pioneering Industrial
and IP Networks

Industrial SNMP Switches

Web/Smart Gigabit Switches

POE Switches and Accessories

Converters

Transportation & Surveillance Solution

With the increasing demand of surveillance on transportation applications, the need to use harden switch for surveillance network is ramping up. To monitor traffic, community, factory line, warehouse, pharmaceutical process, airport and many other places in order to improve the efficiency or prevent from intruders or record the crime sciences are the best applications for CCTV, IP CAM together with Industrial Switches.

However, to cope with gigantic image files flowing in the network not causing network jam is an important task in such applications. IGMP protocol could reduce network traffic dramatically by handling multicast packets effectively.

Please picture the surveillance network where implements 20-30 or maybe hundreds of IP-CAMs or analog CAM to send all the MPEG or H.264 real time image frames back to the central PC servers or DVRs, you of course don't want to flood all the high resolution images all over the network which could easily crash the network and lost the important images that really need to be restored. On the contrast, you also want to retrieve the important images remotely from the central upon request. The network technology you could use to utilize such surveillance network well is IGMP v2 or v3. IGMP v2 or v3 are the schemes to send the requested video streams to the target destination in the IP network.

IGMP is Internet Group Mutlicast Protocal that is good for One to Many video frame transmission in network.

IGMP v1 is defined by RFC1122, v2 by RFC2236 and v3 by RFC3376. The difference between v1,v2 and v3 is listed in the following table.

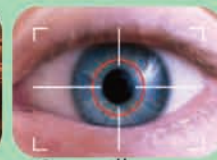|	RFC definition	Main difference
IGMP v1	1122	No Leave, use time out up to 5 minutes
IGMP v2	2236	Leave to notify Query
IGMP v3	3376	Multicast source filtering capability to IP multicast routing; Allows for specific Join and Leave to join specific source

IES-2206F-II   IES-2208C
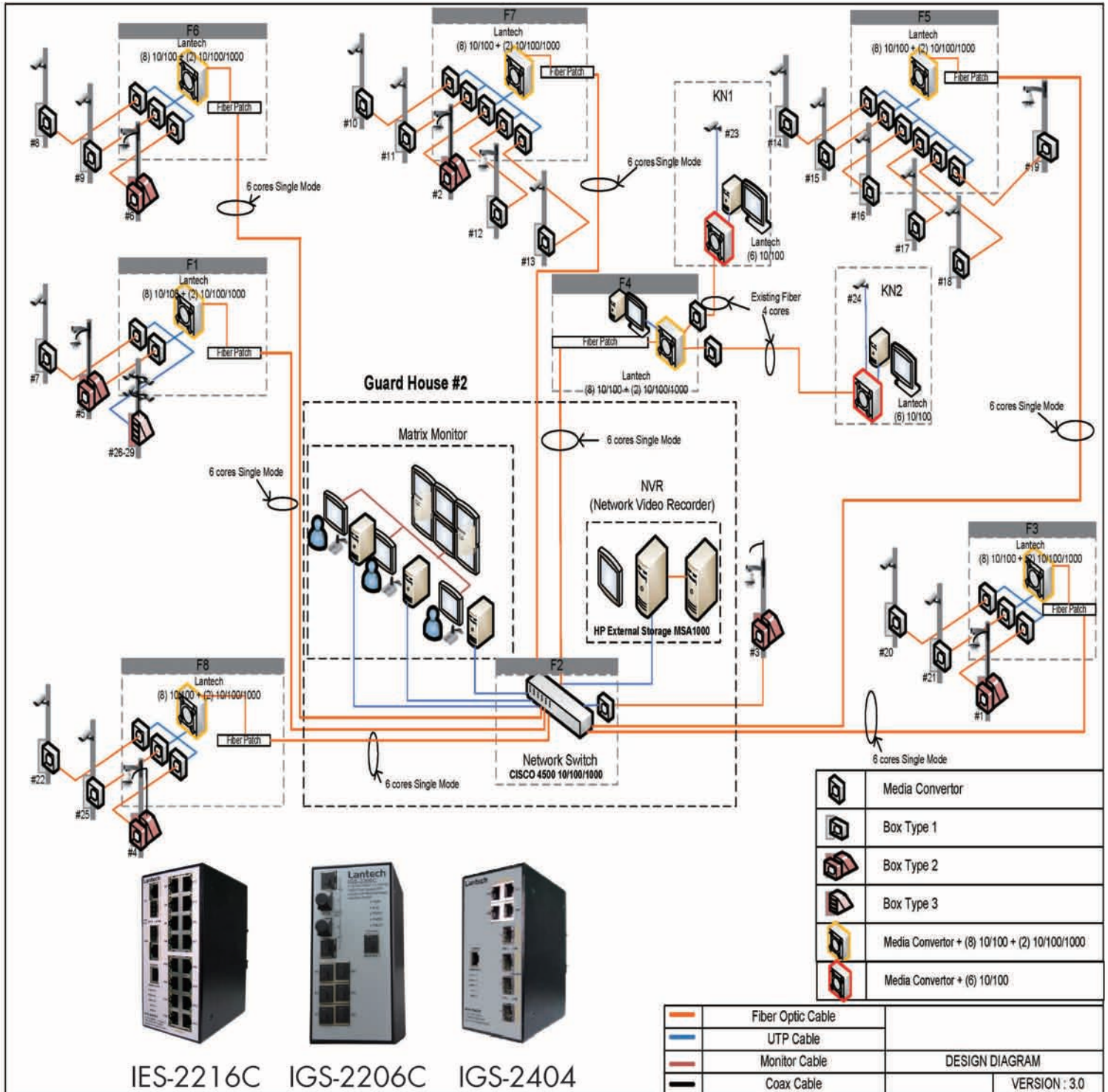
IP Multicast is an application where needs IGMP Query and IGMP Snooping. In IP Multica-sting network, a Query mode must be enabled first otherwise the switch would not know that group members exist.   Query mode is usually built in a L3 router. Lantech Industrial Switch is built-in with IGMP Query and Snooping mode to fill specific needs, so they are the best to be used in Transportation, Factory Automation, Warehouse, Traffic Control, Community Surveillance applications.

	Media Convertor
	Box Type 1
	Box Type 2
	Box Type 3
	Media Convertor + (8) 10/100 + (2) 10/100/1000
	Media Convertor + (6) 10/100

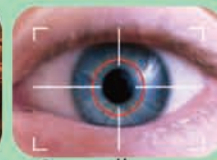|	
Fiber Optic Cable	
UTP Cable	
Monitor Cable	DESIGN DIAGRAM
Coax Cable	VERSION : 3.0

IES-2216C   IGS-2206C   IGS-2404
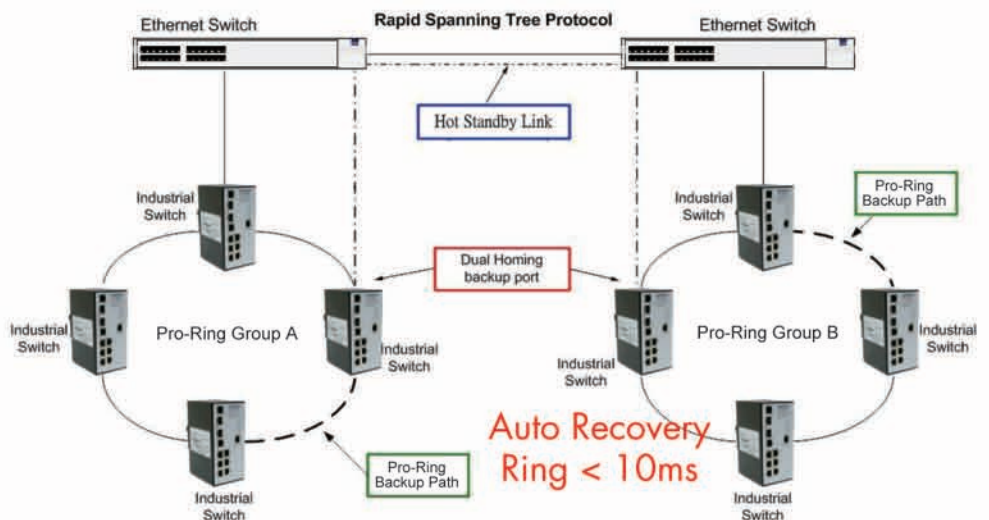
What is Industrial Switch

Industrial Switch is a term that comes from Factory automation, where they use Industrial PC's, PLC's (Programmable Logic Controllers), Control panels, and Device Servers (serial port connection) in control rooms and device networks. Given the importance of the internet, IT managers now want to connect all the Industrial PC's, PLC's, Control Panels, and Device Servers to the Ethernet network where they need an Ethernet Switch that can stand up to the various environmental challenges.

An Industrial Switch uses the same technology as commercial switches. The main differences are that the hardware is made with more durable components capable of withstanding a wider temperature operating range. Industrial Switches are typically in a different form-factor than a traditional 19" rack mount switch. Most Industrial Switches are capable of being DIN-Rail mounted, which is standard for mounting equipment in control room racks.

Due to the hardware characteristics of Industrial Switches, they are useful in other markets and applications. Any application that may be sensitive to dust, rain, wind or temperature is a perfect fit for Industrial Switches. These applications may include Transportation, Surveillance, ISP's, Telecom, Power Utilities, Sub-Stations and Oil Platforms. There are special software and hardware features used in different market segments. The most common software feature is a Ring architecture, which has evolved from the commercial RSTP protocol, but with a much faster recovery algorithm. Most Ring architectures will self heal in less than 300ms down to 10ms compared to a 3 second recovery time for RSTP.   The Ring topology is an advantage in surveillance systems or transportation applications where you could connect many cameras, DVR's, display monitors and switches. Lantech promotes its own Ring topology called Pro-Ring with either 300ms or 10ms recovery times depending on which model.   Besides the Pro-Ring feature, Lantech switches are built with IGMP Query & Snooping functions to handle big image flows in Industrial network applications.
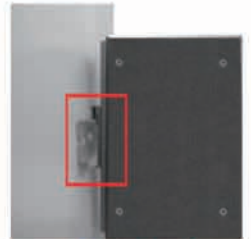
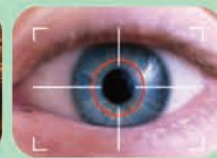**Din Rail mounting**

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Industrial Switch Market Segments

The Markets

Factory Automation

In Factory Automation applications, there is sometimes the need for Real Time protocols, which include ProfiNet by Siemens, EthernetIP by Rockwell, and ModBUS by Schneider. The Real Time protocols were developed by the need of PLC's connecting with robotic arms, conveyor belts and other automation devices. This created the need for switches to be compatible with Real Time protocols. Ethernet switches that support Real Time protocol are typically very expensive and mostly come from the original Real Time protocol vendors like Siemens, Rockwell and Hirschman. The factory automation market is very conservative and relies more on features than price. But for smaller factories, there is a demand for unmanaged Industrial switches and fiber Ethernet converters for simply passing data to the control rooms.

ISP / Telco for FTTX

In the ISP or Telecom markets where they need Industrial switches is in part because they need to place switches outside to connect with the FTTX network. For example, the outdoor switches are placed on top of a utility pole and via fiber they connect to homes and buildings. ISP's that use wireless backhaul need to configure their wireless network through a network switch. These switches are exposed to outdoor elements, creating the need for an Industrial Switch. In these applications, ISP's and Telecom providers will need cost-effective products with enterprise class software features like LAN, ACL, QinQ, MVR and MSTP. Real Time protocols are not as important to them as they will use routing from a control room switch which uses RSTP / MSTP in connection with all the outdoor Industrial Switches.
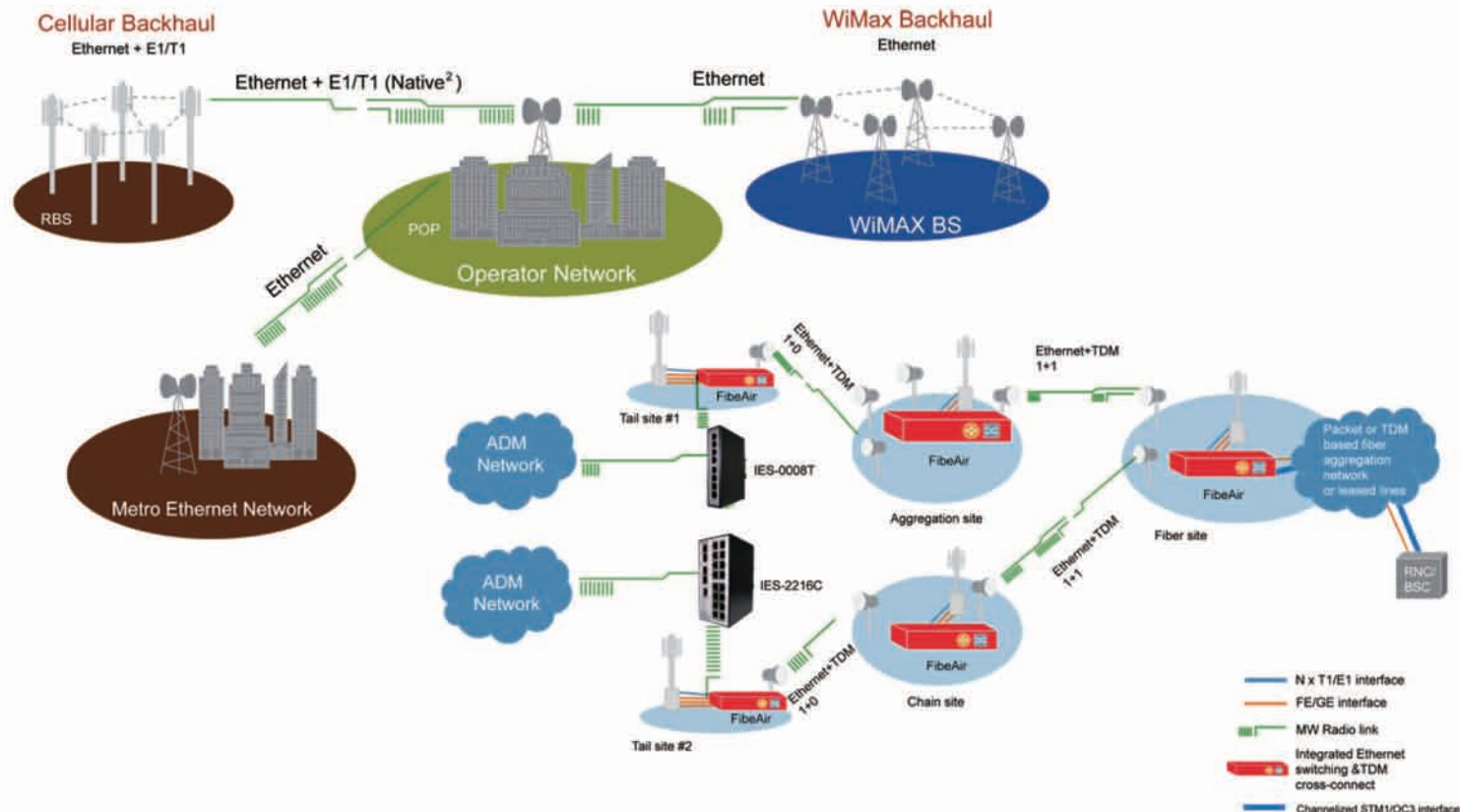
Power Station

In the Power station and substation markets, there is another standard called IEC61850-3 that addresses the heavy EMI interference commonly found in power station environments. IEC61850 was initiated in the late 1980s by major North American utilities under the technical auspices of EPRI (Electric Power Research Institute). The resulting standard that emerged is known as the Utility Communications Architecture 2.0 (UCA2.0) has become an international standard as IEC61850. IEC61850 certification includes testing for inductive load switching, lightening strikes, electrostatic discharges from human contact, radio frequency interference due to personnel using portable radio handsets, ground potential rise resulting from high current fault conditions within the substation, and a variety of other EMI phenomena commonly encountered in the substation environment.

Offshore Platform / Oil and Gas

Another Industrial Switch market segment is Marine applications. Marine applications have their own rugged environments. Products that have been tested for shock, vibration, excessive moisture, and erosion should have the DNV certification. Industrial switches will be used with other marine equipment, so it is important that the Industrial Switches avoid creating interference through EMI or DC conductive power systems, which can cause issues with compasses and other critical marine control equipment Industrial Switches can be used in any harsh environment, not just the applications mentioned above. The need to isolate dust, shock, vibration, moisture or temperature is involved in many applications.

IP67 / M12 Anti-Dust and Water Proof

Industrial switch hardware design is varied for different market segments. For example, IP 30 and IP67 case enclosure certifications are different depending upon the level of need for eliminating dust and moisture. RJ45 and M12 connectors are different depending on the different type of cables being used.

When selecting an Industrial Switch vendor, it is important to look at the hardware, software, and the needs of the vertical market application. Lantech products are designed for focus in the IP Transportation, IP Security and Surveillance, ISP and Telecom, and FTTx and Wifi/WIMAX backhaul markets. Lantech also has select models that have DNV certification for on-shore and off-shore Marine applications.
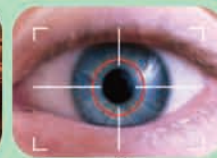
Lantech Marine Ethernet Switch Solutions with DNV Certification

Challenges of Maritime Application

Marine network applications are divided into two categories – One is On-shore, the other is Off-shore. On-shore applications include Lighthouse surveillance, Wind Power controlling and monitoring systems, Tide Power controlling and monitoring systems and surveillance. Off-shore applications include IP networking for Oil platforms, Battleships, Yachts, and Cruise Liners.

The challenges of marine network applications include coping with harsh environmental conditions. These conditions include extreme operating temperatures, heavy moisture, erosion, extensive shock and vibration. Also, extensive EMI can prevent some of the equipment used in the ship, especially the compass and navigation systems, from operating properly.

Harsh Environment

Problems caused by erosion, heavy moisture and extreme working temperatures are common in marine applications. Lantech's "Marine" Series Industrial Switches are designed to cope with those problems. Given the diversity of locations that switches may be used, Industrial Switches are needed for the various types of approvals under DNV classification.

DNV (Det Norske Veritas) Maritime Certification specifics the test criteria for all equipment used in Ships, High Speed and Light Water Craft as well as Off-shore oil platforms. The DNV Organization originated in Norway. Initially, DNV was to provide consulting services for managing the risk and quality control systems onboard ships. Today, DNV Maritime is recognized by 80 national maritime authorities in managing their risk for the "Tough" maritime environmental conditions. DNV Tests Directives

DNV maritime test directives are defined through the relevant EU-Directives, which include:
-The Marine Equipment Directive (MED)
-The Electromagnetic Compatibility Directive (EMC)
-The Low Voltage Directive (LVD)

DNV uses test categories to verify products for satisfactory operation in typical on-board environments. The test categories include:

Test Categories	Test Categories
Temperature Range	Performance Test
Humidity	Power Supply Test
Vibration with Frequency Range	Inclination Test
EMC	Insulation Resistance Test
Enclosure	High Voltage Test
Compass Safe Distance Test	Salt Mist Test
Acoustic noise and Alarm signal levels	Additional Tests

Type Approval Certificate for Ships, High Speed and Light Craft

DNV

Please refer to the detailed table of each Test Category as each test varies depending upon the different locations on board (Source: Standard for DNV Certification – No.2.4; APR, 2006). Lantech Industrial Ethernet Switches are used primarily for IP networks within the automotive and machinery instrument panels on board. As such, the colored columns are major applicable requirements.

Marine Ships- Tough Conditions

Marine ships, especially Battleships, are confronted with several challenges for on-board equipment.

Challenge I   Vibration

When a ship starts its engine, the vibration can cause equipment to fail. For battleships, the vibration caused by firing missiles is so intense, that it can cripple electronic equipment on-board ships. The vibration strain test that DNV carries out takes from 90 to 120 minutes and operates three perpendicular plans (different frequency / amplitude) to reveal the most possible ways to damage EUT tested devices. Through vibration tests, equipment can be assured to function normally during and after intense vibration.

Challenge II   High Voltage

Typically at the bottom of a ship, all ships have a high voltage room for distributing electricity to the ship. Under some circumstances, like when a missile is fired, the high voltage will be applied for a short period of time. DNV tests up to 1000V to the EUT for a period of one minute to ensure that the product is able to survive during a period of high voltage.

Challenge III   Conducted Radio Frequency Immunity and Emission

Generators on the ship supply power to all the equipment. However, a generator is constantly creating noise through the line, so it is important to discharge the electromagnetic disturbance to the earth. If not, the conducted emissions on the power supply port will exceed the limits. The DNV test carries out the frequency range as per CISPR 16-1,16-2 which is 200Hz – 9K Hz (Conducted Emission Test) and 9K Hz to 120K Hz (Radiated Emission Test).
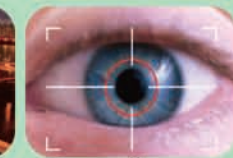
Wind Power and Tidal Power Generation with IP networks

Wind Power and Tidal Power generators are built on-shore by using Sea-wind and Sea-tide power to generate power. Sea wind power is more stable than other wind while Tide power is predicable. Wind power and tidal power are mostly used in European Countries such as Denmark, Spain, Portugal, and Iceland while tidal power is used in the U.K.   Both wind power and tidal power account for only 1% of the world's energy, but they are growing in today's world due to concerns about ecological and environmental protection.

What IP networks can do for Wind Power and Tidal Power Generation is mostly for Turbines monitoring/Data collection and Alarm notification through the Internet or through a local network. In such applications, fiber optic networks for long distance connections and enclosures to withstand salt mist are the most critical features.

Lantech's "Marine" Series of Industrial Ethernet Switch

Lantech's "Marine" Series of Industrial Ethernet Switch consists of control room switches and device-end switches, all which will be passed comprehensive DNV test criteria.   The product family table is as follows:

Control Room Switch/Media Converter		
Product Name	Description	Features
LES-2400-RPS	3 slot Modular 100M SNMP Switch + 2 Gigabit uplink switch with redundant power supply	Pro-Ring (fast recovery within 10ms) with Lantech Industrial Switch
Device-end / Edge Industrial Switches and Media Converters		
IES-2208F-DNV	8 port 10/100TX + 2 100M FX SNMP Switch	Pro-Ring 10ms ; Advanced SNMP with Windows - View utility
IES-2216C-DNV	16 10/100TX + 2 Giga/100M SNMP switch	Pro-Ring 10ms ; Advanced SNMP with Windows - View utility
IES-0008T-DNV	8 port 10/100TX switch	Plug-and-Play
IEC-0101FT-DNV	1 port 10/100TX to 1 port 100FX converter	LLF, LFP function

What extra benefits can Lantech deliver to marine ship applications ?

Besides the hardware elements to meet with strict marine ship / DNV certifications, Lantech brings a complete line of Ethernet solutions from the control room to the edge of the network. All switches include our Pro-Ring protocol (self healing, recovery in less than 10ms).   In a harsh network environment, the risk of network disconnection is much higher than in an office network. Lantech's marine solution is designed to reduce network downtime, and provides for fast, automatic recovery in the event of a loss of connectivity.

For more product information, please go to www.lantechcom.tw.

Korea Railway Control Room uses Lantech Industrial and Fiber Optic switches
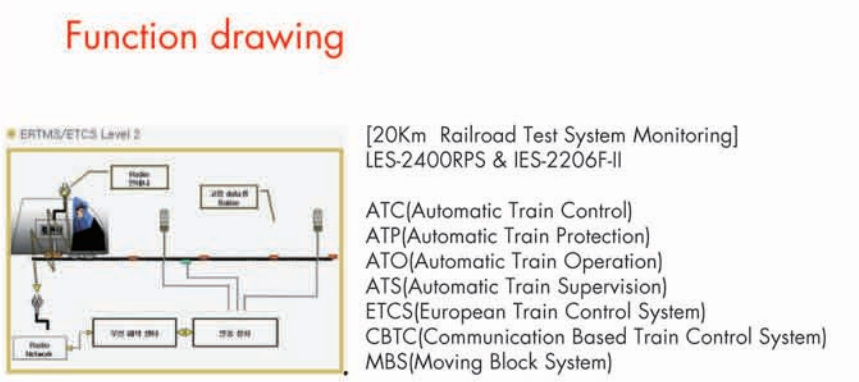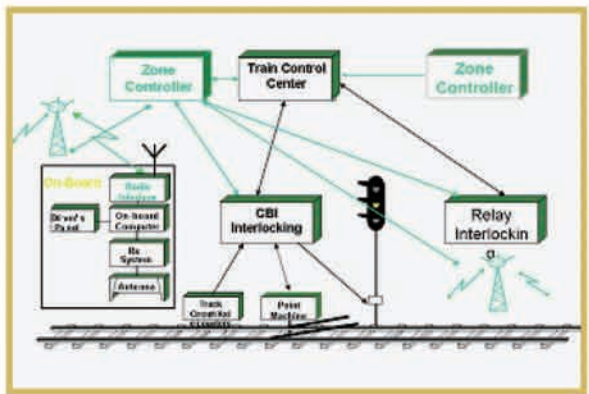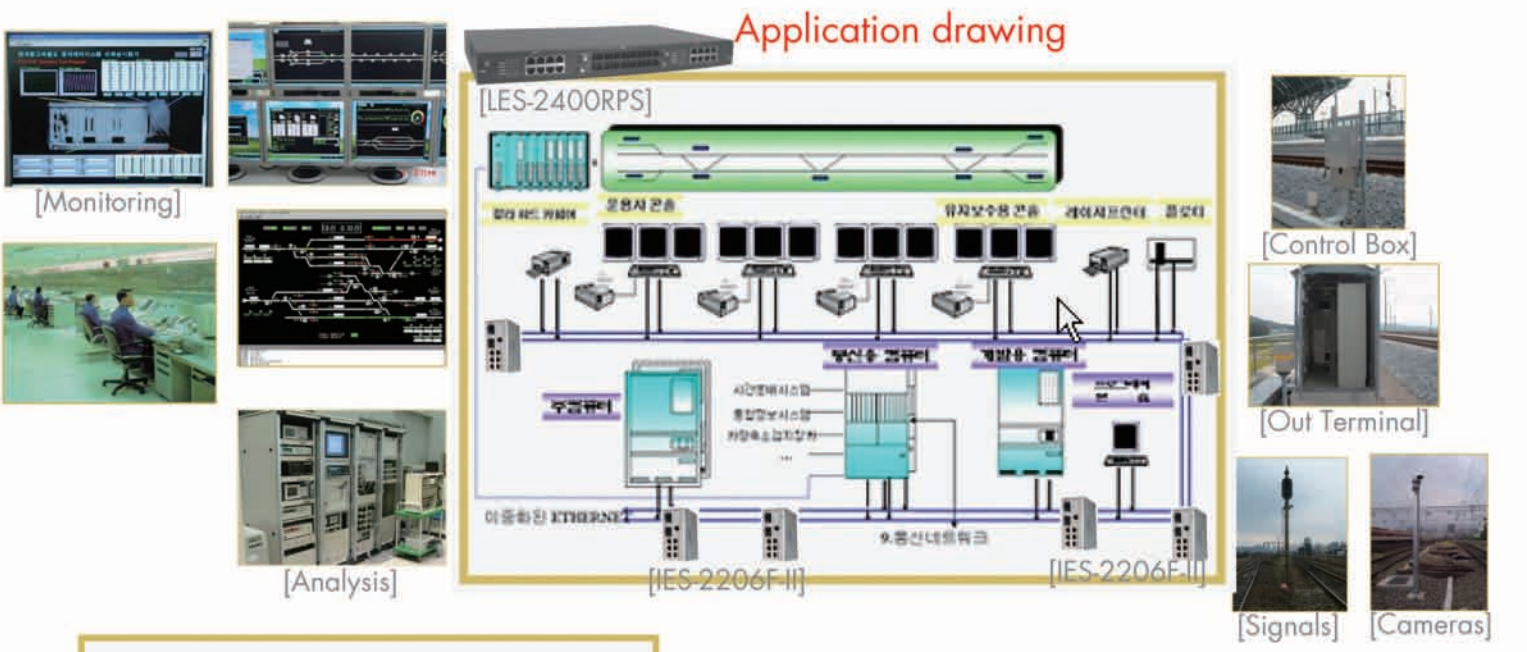
LES-2400-RPS

IES-2206F-II

Feb. 2009

In southern city of Korea, Korea Railway is updating their network system via IP, Lantech Industrial switches (IES-2206F II) and Fiber Optic switches (LES-2400-RPS) are implemented by offering the complete solution from end to end for Korea Railway. Lantech IES-2206F II are installed by fiber network with connection of Cameras, Signals, Outside Terminal and Control box , then to connect back to LES-2400-RPS where the control room is for analyzing and monitoring purpose.

"Lantech switches give total Ethernet solution for this project by providing unique Ring auto-recovery scheme less than 10ms from control room switch (LES-2400-RPS) to end switch (IES-2206F II); The flexibility of LES-2400-RPS is convenient for Korea Railway existing network, and we also like the redundant power supply option to prevent from power downtime." Said Mr. Kim in S company.

Please see the Korea Railway application drawing and function as below:

Application drawing

[Monitoring]

[LES-2400RPS]

[Control Box]

[Out Terminal]

[Analysis]

[IES-2206F-II]

[IES-2206F-II]

[Signals]　[Cameras]

Function drawing

[20Km Railroad Test System Monitoring]
LES-2400RPS & IES-2206F-II

ATC(Automatic Train Control)
ATP(Automatic Train Protection)
ATO(Automatic Train Operation)
ATS(Automatic Train Supervision)
ETCS(European Train Control System)
CBTC(Communication Based Train Control System)
MBS(Moving Block System)

Lantech with AXIS for Bangkok subway surveillance project

APR Taipei

Lantech Global Switch and AXIS IP camera are successfully installed in Bangkok subway depot areas for surveillance project. Lantech's business grade and industrial grade switches are used in this application. "Lantech provides good solutions for both in-door and out-door switches and converters to work with AXIS IP CAM, especially Lantech converter solution in which offers very useful function like Link Loss Forwarding to alert administrator about connection loss. We like the total solution and value added on the products, the PoE solution is really useful for this application also" said Mr. Sangon in Mcompany, Bangkok.

The Bangkok subway network implementing with Lantech IES-2206F & IEC-0101F is as follows:
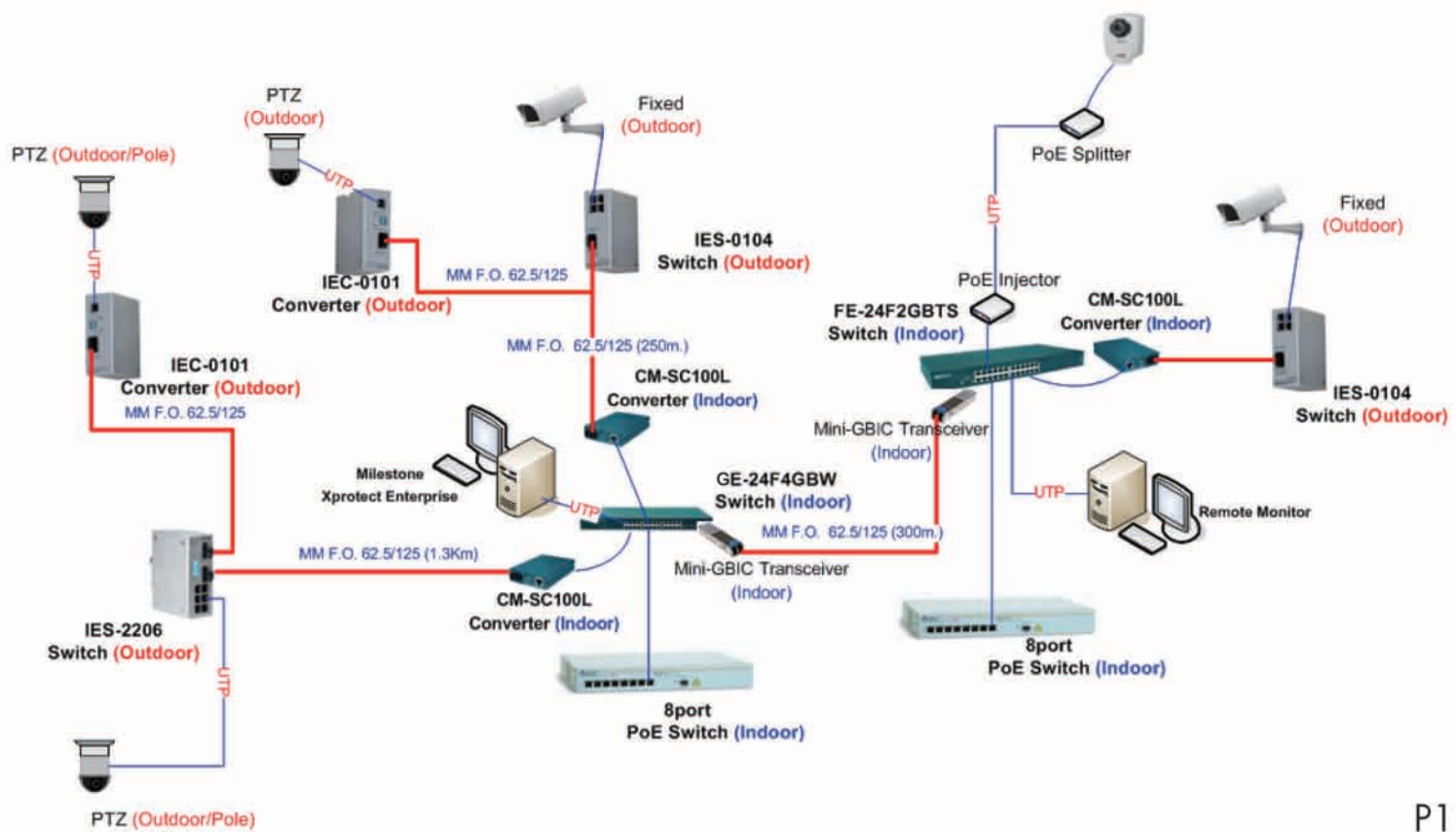
Military project in South Asia region

FEB, TAIWAN

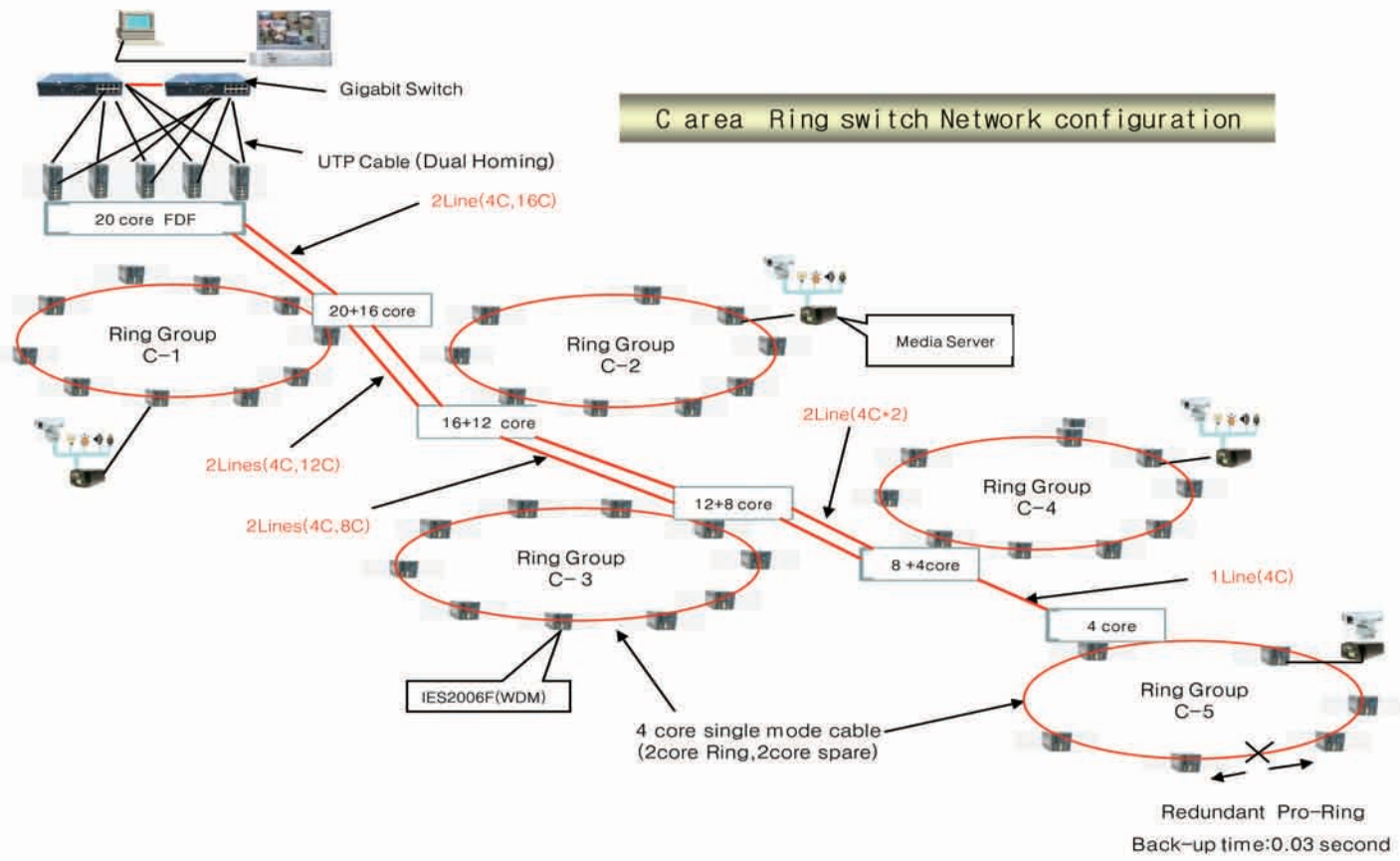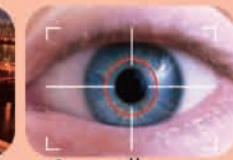LANTECHCOM GLOBAL announces another successful installation on 5 Army bases in Aerial Operation Headquarter in South Asia region.   The application is designed to use a few hundreds of Lantech IES2206F-WDM Industrial Switches, 6 x 10/100TX + 2 x 100WDM-FX to connect with outer block Surveillance systems to ensure the video streams are able to flow back to Surveillance Control Room without failure by functioning "Pro-Ring" Fast Recovery less than 300ms and Dual Homing redundant path to Core switches.

"I am pleased to use Lantech IES2206F-WDM Industrial Switches together with our panorama cameras and VOIP systems because they work seamlessly with Pro-Ring Fast recovery function. To my impression, Pro-Ring could recover faster than 300ms in this big network infrastructure and the compact size design is very easy for us to place all the devices together in small outdoor area" mentioned by Mr. Baramug of D company.

The application of 5 Army bases in this Military project is as follows:

C area Ring switch Network configuration

Gigabit Switch

UTP Cable (Dual Homing)

20 core FDF

2Line(4C,16C)

20+16 core

Ring Group C-1

Ring Group C-2

Media Server

2Line(4C*2)

16+12 core

Ring Group C-4

2Lines(4C,12C)

2Lines(4C,8C)

12+8 core

8 +4core

1Line(4C)

Ring Group C-3

4 core

IES2006F(WDM)

4 core single mode cable (2core Ring,2core spare)

Ring Group C-5

Redundant Pro-Ring
Back-up time:0.03 second

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Industrial SNMP Switches

Lantech Industrial SNMP Switch series are designed with 4 unique hardware features:

1. Supports 3000 VDC EFT Surge Protection and 4000 VDC ESD for Industrial area that has un-stable power and electrostatic discharge.
2. Extensive Industrial EMC / EMI and Safety certificates
3. Power polarity auto-reverse and protection
4. Extensive power input from 12V to 48V or 24V to 48V

Lantech Industrial SNMP Switch are built in with advanced SNMP functionality. The SNMP features are including MSTP, QinQ, QoS for 4 queues, 801.q VLAN, VLAN Stacking, IGMP snooping and query mode as well as SNTP and SMTP.

Lantech Industrial SNMP Switch supports Pro-Ring plus, fast network recovery scheme in less than 10ms over 250 switches. Couple Ring, Dual Ring ensure network recovery protection between Pro-Ring groups. Dual homing is to back up the Pro-Ring groups when connect to upper layer or core switch.

Lantech's LANTECH-View is free bundled, in which it monitors, auto-topology-drawing and configures up to 10 Lantech Industrial switches. Optional Lantech-View Pro can map up to 1000 nodes with auto-layout, configuration and discovery.

Lantech Industrial SNMP Switch's relay contact to alarm system can immediately notify of Power failure and/or Port down events. In case of events, Lantech Industrial SNMP Switch can immediately send an email to pre-defined addresses as well as trap message out.

DIDO for more alarm signals

PoE injector

DNV TYPE Approval for maritime

IES-2307C
7 10/100TX
+ 3 100/1000M
Dual Speed SFP Combo
SNMP Industrial Switches

IES-2206F-II
6 10/100TX
+2 100FX SNMP
Industrial Switch

IES-2208C
8 10/100TX
+2 10/100/1000T/
SFP Combo
(Giga SFP / 100 SFP)
Industrial Switch

IES-2208F
8 10/100TX
+2 100FX
Managed
Industrial Switch

IES-2216C/E
16 10/100TX
+2 10/100/1000T/
SFP Combo
(Giga SFP/100SFP)
Industrial Switch

IPES-2208C/E
8 10/100TX
+2 10/100/1000T/
Mini GBIC Combo
(Giga SFP / 100 SFP)
Industrial Switch

SNMP / Web Managed Features :
(Features are varied in different models)

Full Gigabit

- Pro-Ring plus, 10ms auto-recovery scheme within 250 switches ; Lantech-View for multiple switch configuration, topology drawing and auto-discovery IP address.
- SNMP v1,v2c,v3 / Web / Telenet / CLI management
- IEEE 802.1d STP; IEEE 802.1w RSTP; IEEE 802.1s MSTP
- IEEE 802.1p QoS, CoS, Port-base, Tag-base and Type of Service Priority, with 4 priority queues
- IGMP v1 & V2; IGMP Query and Snooping supported
- Mac address entries / filtering ; IP address security management; 802.1x / RADIUS
- Port-base VLAN, 802.1q Tag VLAN, GVRP, QinQ (Double VLAN Tag)
- Port trunk with LACP ; IEEE 802.1ab LLDP
- Bandwidth control with Ingress packet filter and Egress rate limit
- Broadcast / Multicast packet filter control
- SNMP Trap : Device cold start ; Power status ; Authentication failure ; Pro-Ring topology changed ; Port Link up / Port Link down
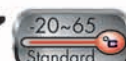
IGS-2404
4 10/100/1000T
+ 4 10/100/1000T/SFP L2
Managed Industrial Switch

IGS-2206C
6 10/100/1000T
+ 2 10/100/1000T/
Dual Speed SFP Combo
w/Pro-Ring Managed
Industrial Switch

IGS-2408C
8 10/100/1000T
with 4 100M/1000M
dual speed SFP combo
SNMP Industrial Switches

DUAL SPEED SFP x2
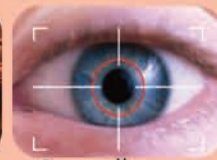
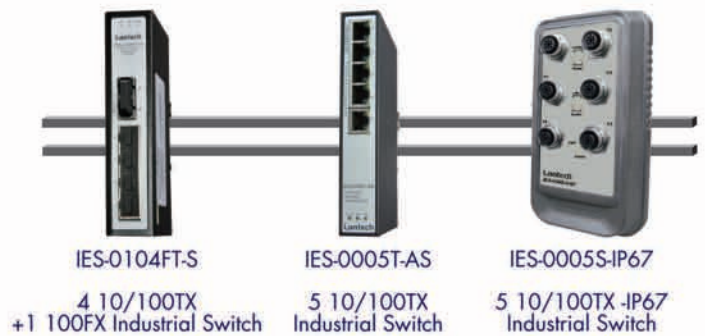10 ms Pro-Ring   Lantech-View   -20~65 Standard   -40~75 Extreme   5 Year Warranty

Industrial Smart Switches

Lantech Industrial Smart Switch series are newly designed to suit with factory automation market where only a few network management functions and "easy to operate" are requested. Lantech Industrial Smart Switch consists of two lines – IP67(M12) rugged switch and IP30 Industrial switch.

Besides all the hardware characteristic features for all Lantech Industrial Switch, Lantech Industrial Smart Switch features the followings:
1. Pro-Ring plus less than 10ms auto-recovery
2. Lantech-View, Windows Utility, for multiple switch configuration and monitoring
3. Port-base VLAN
4. CoS priority service
5. Port status monitoring
6. Link down and power failure alarm with relay contact
7. SNMP v1 & Traps

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

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

IES-0005S-IP67
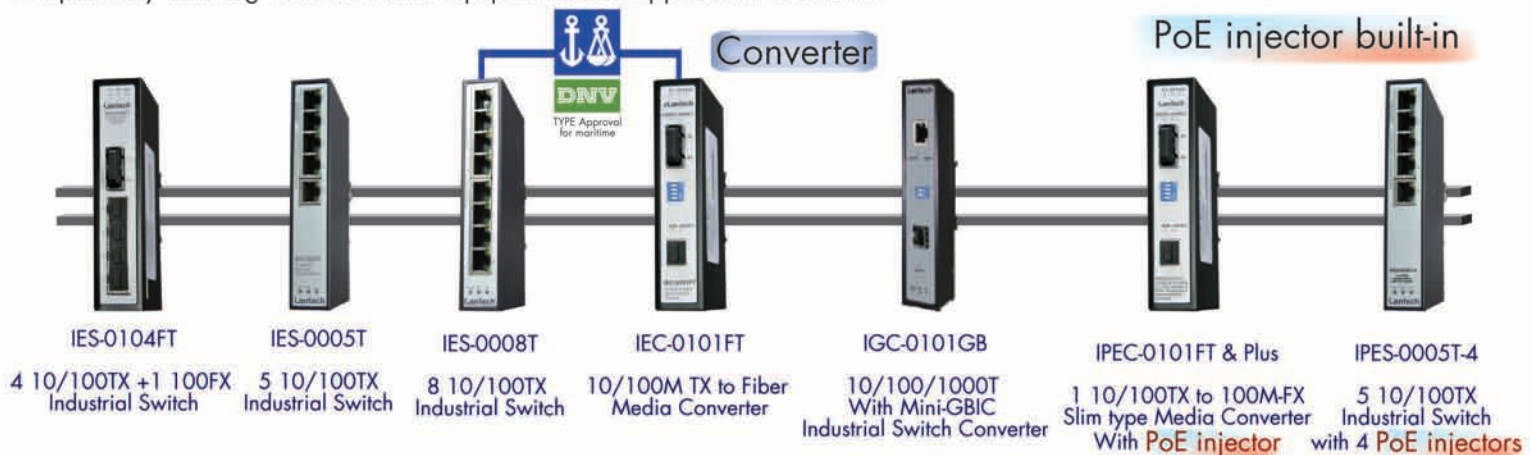5 10/100TX -IP67
Industrial Switch

Industrial Entry Switches

Lantech Industrial Entry Switch series are designed with 4 unique hardware features:

1. Supports 3000 VDC EFT Surge Protection and 4000 VDC ESD for Industrial area that has un-stable power and electrostatic discharge.
2. Extensive Industrial EMC / EMI and Safety certificates
3. Power polarity auto-reverse and protection
4. Extensive power input from 12V to 48V or 24V to 48V

Lantech Industrial Entry Switch's relay contact to alarm system can immediately notify of Power failure event. They are designed to meet with critical network environment with IP 30 enclosure and test extensively for performance, interoperability and compatibility with big network traffic equipments and application software.

Converter

PoE injector built-in

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

IES-0005T
5 10/100TX
Industrial Switch

IES-0008T
8 10/100TX
Industrial Switch

IEC-0101FT
10/100M TX to Fiber
Media Converter

IGC-0101GB
10/100/1000T
With Mini-GBIC
Industrial Switch Converter

IPEC-0101FT & Plus
1 10/100TX to 100M-FX
Slim type Media Converter
With PoE injector

IPES-0005T-4
5 10/100TX
Industrial Switch
with 4 PoE injectors
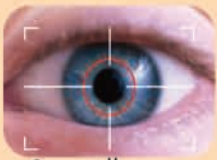
Lantech View

FREE BUNDLE EXCLUSIVE (10 NODE VERSION)

FOR LanTech SNMP Industrial Switch

"Lantech View"- - -
Windows-base management utility

Lantech View is a:

Smart tool for switch configuration
- Auto discovery devices

Pwoerful tool for switch configuration
- Configuration multiple switch con-currently

Conventient tool for switch monitoring
- Monitor multiple switches status easily

Useful tool to maintain switch firmware and configuration
- Upgrade firmware and backup configure file for multiple swiches at one time

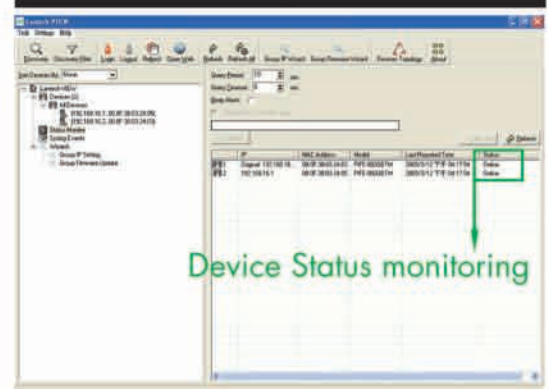**Smart** tool
for switch configuration
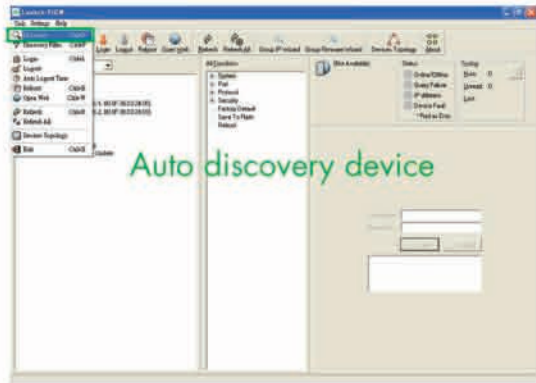
Auto discovery device
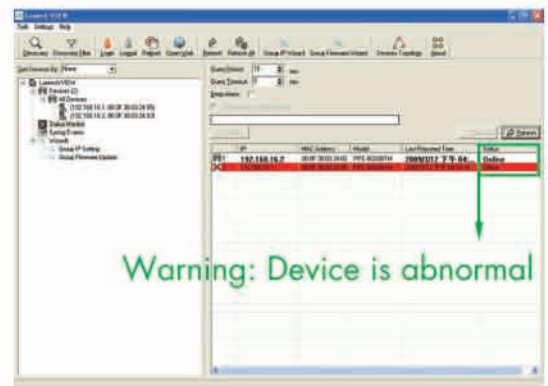
Pwoerful tool
for switch configuration
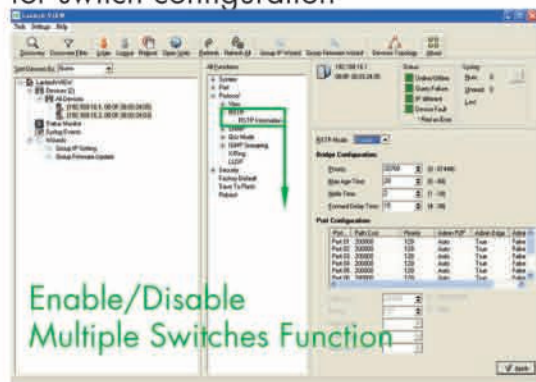
Enable/Disable
Multiple Switches Function
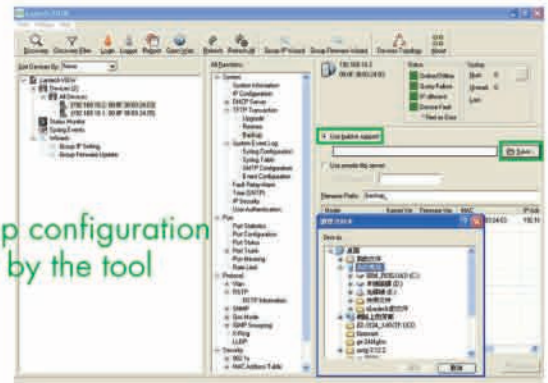
Conventient tool
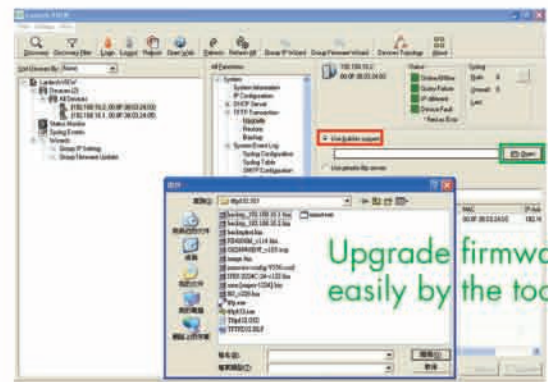for switch monitoring

Device Status monitoring

Warning: Device is abnormal

Useful tool
to maintain switch firmware and configuration

Backup configuration easily by the tool

Upgrade firmware easily by the tool
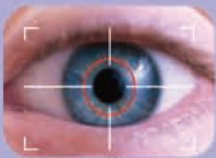
FTTX Technology & Market Outlook from 2008

Technology :

FTTX (Fiber to the Home/Curb/Node) is the ultimate broadband architecture for many ISPs and Telecoms. It is the technology recognized as future-proof for any advanced applications – IPTV, Triple Play, Surveillance, Medical Care, etc. There are two major deploy technologies for FTTX–PON (Passive Optical Network) & P2P (Active Ethernet Network). The current latest technology for PON is GPON while P2P is 10G. Here are the Pros & Cons for these two technologies:

Type	Pros	Cons
P2P	-Lower Cost CPE -Higher Upstream Bandwidth -Dedicated Bandwidth -Distance -Greater Flexibility to Evolve -Off the Shelf Equipment	-Active Components increase OPEX -Require LargeAmounts of Fiber -Require per subscriber fiber termination
PON	-Passive OSP, Lower OPEX -Shared Infrastructure -Dynamic Bandwidth Allocation(GPON)	-Lack of Interoperability -Higher cost CPE -Shorter Distance -Optical Budget

Source: FTTH Council

Many companies in the 1980's and 1990's went to PON because it could split the fiber signal into dedicated bandwidth (like a switch) while the old Ethernet only shared bandwidth (like a hub). Other devices were then added to the network for redundancy and reliability. The fiber goes from the PON to an optical network transport device (OLT, Optical Line Terminal), then from the OLT into a modem, then out of the modem via Ethernet into the gateway/router.

Now that Ethernet P2P can do GBE rings, as bandwidth usage increases, the P2P technology becomes more appealing. The ability to add PoE (Power-over-Ethernet) and reduce the need for back up batteries at the CPE device is another practical feature for P2P Ethernet. This gives the service provider the ability to remotely manage the network from a central location all the way down to the CPE device, and remotely reset the device if need be.

In current FTTX infrastructures, PON technology is mostly widely deployed by RBOCs (Regional Bell Operating Companies) like AT&T and Verizon for IPTV services, while P2P are mainly implemented by Municipalities, Power Utility Companies and CLECs (Competitive Local Exchange Carriers). The biggest challenge for PON is the problem of interoperability and the need to plan the network precisely at the initial installation of the infrastructure to avoid losing money as the network grows. On the contrary, P2P uses the Ethernet standard which has been in use for decades. Ethernet is cost-effective and has the ability to scale as the network needs grow. To cope with the large amount of fiber cable used in P2P FTTX, WDM technology is a good solution that is commonly used in Asia, mainly Japan, Korea and Taiwan.
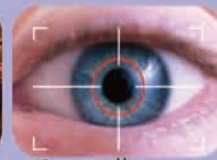
Bussiness White Paper

Market Outlook：

Today's FTTX market only accounts for 11% of the broadband markets in the world, yet Internet traffic demand is growing at a 33.4% CAGR. Every ISP and Telecom service provider are adapting FTTX as a competitive "weapon" to gain broadband service market share according to a 2008 report of the Institute of Information Industry of Taiwan.

North America is the fastest growing market in the world since 2007 because of Verizon's success with their FiOS IPTV service, which is quickly taking competitive cable TV subscribers. Other competitors are aggressively launching Triple Play services through FTTX.

Europe's infrastructure is mainly controlled by Municipalities and Power Utility Companies resulting in a slower development of FTTX due to the lack of mass-deployment. Currently, with municipalities and power utility companies continually investing in and supporting major telecom carriers, FTTX deployment is expected to ramp in the next few years.

Asia is the market leader for FTTX deployments with the highest penetration rate in the world. The leading countries are Japan, South Korea and Taiwan.

Please see the following table at a glance for FTTX in each region.

Region	N. America	Europe	Asia
Major Conductor	RBOC	CLEC, Muni/Utility	ILEC,CLEC
Development Environment	Confronted by CableTVs, Carriers are planning FTTX service to increase competitiveness and raise ARPU	Municipality and Power Utility construct fiber network to let CLEC lease the fiber network in which penetrates ILEC broadband markets	To strength countries' competitiveness, each government strategically develops FTTx infrastructure. With ILEC strong cooperation, Asia has became the booming market for FTTX
Development Status	RBOC strong promotion makes US as quickest growing country for FTTX	ILEC is speeding up FTTX infrastructure	xDSL becomes saturated and is replacing by FTTX
Leading Countries	US	France, Italy, Netherlands, Sweden, Denmark	Japan, South Korea, Taiwan
Leading Players	Verizon, AT&T	Muni/Utility, Free, KPN, FastWeb	NTT, KT, CHT
Technology	BPON, GPON	Ethernet P2P, GPON	EPON

Source : 2008 Institute for Information Industry

Lantech's Solution :

Lantech has been developing Ethernet Switch solutions for the past two decades. In order to offer complete FTTX P2P solutions, we are enhancing our product offering to meet the coming challenges in metro networks. These include the following features: Gigabit Ethernet Ring topologies that can self heal in less than 10ms by proprietary RSTP , IGMP Query and Snooping, VLAN QinQ (SuperVLAN), VLAN translation and VLAN matching, MSTP(Multiple Spanning Tree), ACL, IP source guard, and OAM (Operations, Administration and Maintenance) for large network demand.

Most of the FTTX applications are to provide Triple-Play or IPTV service for Digital Homes. IGMP Query and Snooping is very important for "Video on Demand" or "Movie on Demand" applications in big Metro-networks to release the heavy network utilization causing by the large video streams. In today's trends in the Digital Home, HD video could easy takes 8MB bandwidth to provide 864x480 resolution with 5.1CH and Dolby sound effects, so to provide IGMP Query and Snooping functionality is essential to avoid video lag for home users. In today's Metro networks, L2 switches are aggregated to handle IGMP query and snooping functions to ease the burden on the L3 core switches.
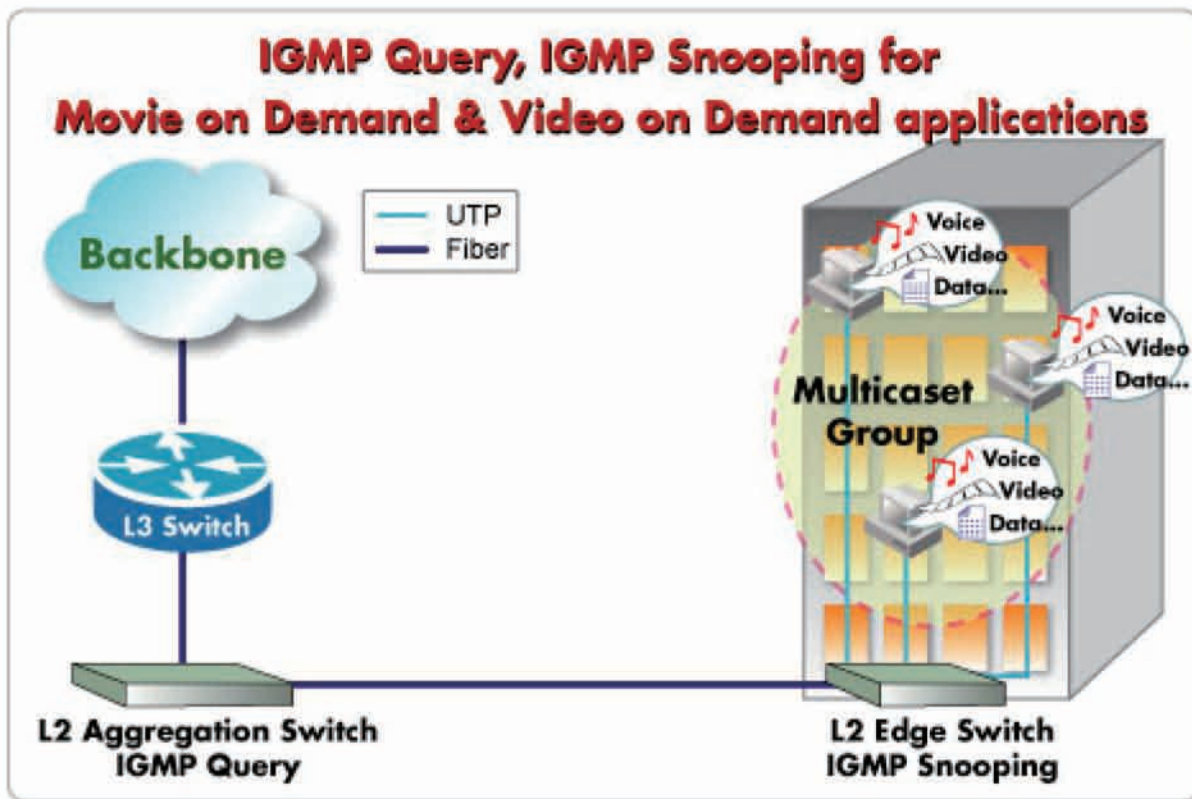
Super VLAN is another feature utilized in Metro LANs in which it can save IP v4 addresses by grouping sub-VLANs (customer port) in a Super VLAN(Host) and utilizing the default gateway IP address of the Super VLAN sharing the same IP subnet mask. Super VLANs in L2 switches provide enhanced security between customers (each home), by not allowing communication between the sub-VLANs, even they are located in the same LAN and have the same IP subnet mask. The configuration is simple as you assign each VLAN as a port based VLAN to each home (customer).

The ability to add another tag type on top of an 802.1q tag type is a desirable feature in L2 switches for Metro networks, especially for Triple-play services. The outer tag can be set for VoIP, Video or Data in each Super VLAN and Customer VLAN (sub-VLAN). The QoS bits are automatically copied from the edge switch to the tag set by the core switch, which helps the edge switch prioritize SAV traffic that is transmitted through the Core network.
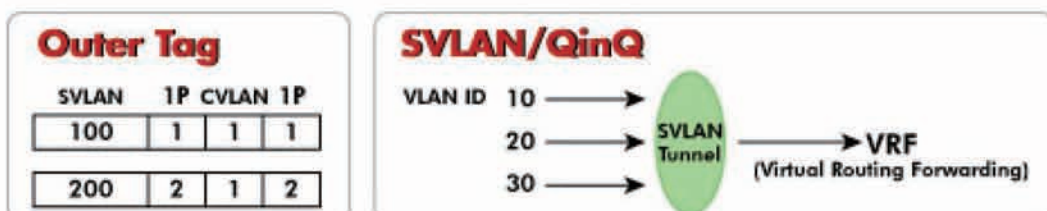
VLAN Mapping and Translation allows ISPs to deliver multiple services on separate customer interfaces or on a single customer interface. This isolates each of the services so that the ISP can troubleshoot CPE problems without affecting other services.

Pro-Ring or Auto Fast Recovery Ring Proprietary Topologies can help the network to recover from network connection failures within 10ms or less, and can also make the network system more reliable. The Pro-Ring algorithm is similar to the Spanning Tree Protocol (STP) and the Rapid STP (RSTP) algorithm but the recovery time is less than STP/RSTP. The picture below is a sample of the Pro-Ring application.
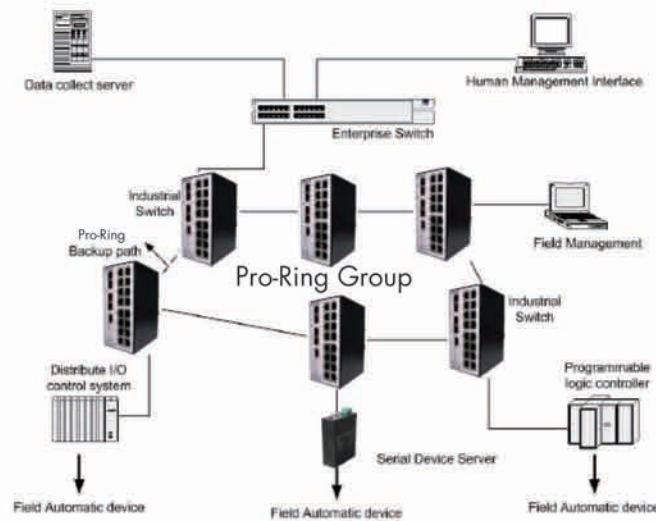
Coupling Ring is used to connect multiple Ring groups for more secure redundant backup paths. It can ensure the transmissions between two ring groups do not to fail. The following figure is a sample of a coupling ring application.
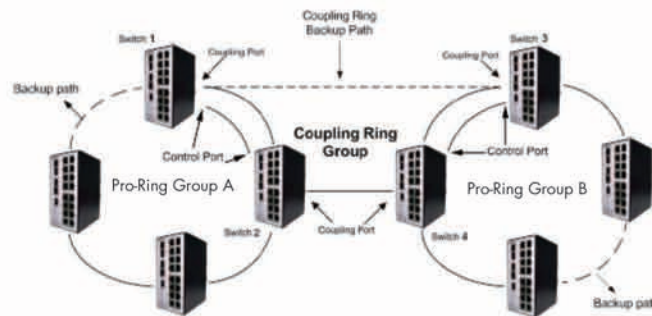
The Dual Homing function prevents connection loss between the Pro-Ring group and the upper level/core switch. You assign two ports to be the Dual Homing ports that are the backup ports in the Pro-Ring group. The Dual Homing function only works when the Pro-Ring function is active. Each Pro-Ring group only has only one Dual Homing port.

Auto provisioning can allow ISPs to mange "End-to-End" IP services through the auto-detection and upgrading of firmware for CPE devices. This allows ISPs to quickly troubleshoot and provide quality assure services to consumers.
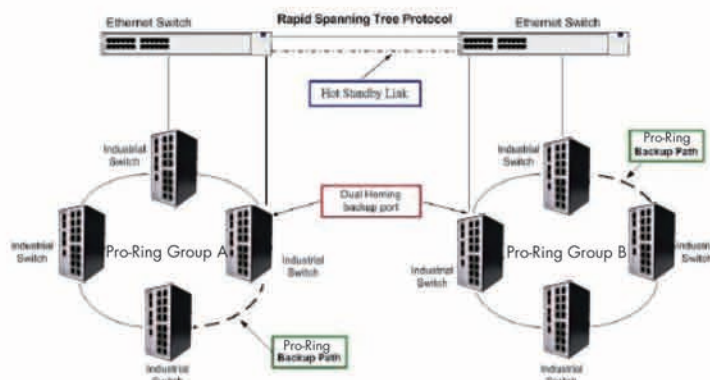
OAM :

OAM (Operations, Administration and Maintenance) is used in the Telecom/ISP link path monitoring and administration, which is now defined in the METRO Ethernet network with 802.1ah and 802.1ag. 802.1ah OAM is usually used in access networks while 802.1ag is used in aggregation and edge networks for connectivity OAM.

Lantech Product Matrix for FTTX

| Model Name	Description	Highlight Features	Application
Ethernet – Fiber Converter			
CM-011-SC	10/100TX to 100M FX	LLF, LFP, Duplex mode DIP switch	FTTB, FTTH, MTU
CM-021-GB	10/100/1000T to 1000M SFP	LLF, LFP	FTTB, FTTH, MTU
CM-011OAM-SC (2009)	10/100TX to 100M FX	LLF, LFP, OAM	FTTB, FTTH, MTU
CM-021OAM-GB (2009)	10/100/1000T to 1000SFP	LLF, LFP, Jumbo Frame, OAM	FTTB, FTTH, MTU
MC-216 Chassis	16-slot converter chassis	SNMP, 10/100/1000M	Central, Distribution, Access
MC-316 Chassis w/OAM (2009)	16-slot converter chassis	SNMP, OAM, 10/100/1000M	Central, Distribution

Model Name	Description	Highlight Features	Application
Access Switch / Distribution Switch			
LES-2224C-SFP	24x100M SFP SNMP L2 Switch	SNMP, RSTP, VLAN	FTTB, Access
LES-2400-RPS	3-slot 100M FX/SFP/UTP SNMP L2 Plus Switch	SNMP, RSTP, Pro-Ring, IGMP Query, Snooping	FTTB, Aggregation, Access
LGS-2300-RPS	3-slot 1000M SX/SFP/UTP SNMP L2 Plus Switch	SNMP, RSTP, Ring Proprietary, IGMP Query, Snooping	FTTB, Aggregation, Access
LGS-2207C	7 x GigaT + 2 GigaSFP/T combo SNMP L2 Plus Switch	SNMP, RSTP, Pro-Ring, IGMP Query, Snooping	FTTB, Aggregation, Access
LGS-2404	4 x GigaT + 4 Giga SFP SNMP L2 Switch	SNMP, RSTP, Pro-Ring, IGMP Query, Snooping	FTTB, Aggregation
IGS-2206C	6 x GigaT + 2 GigaSFP/T combo SNMP L2 Industrial Switch	Harden, SNMP, RSTP, Pro-Ring, IGMP Query, Snooping, Lantech-Vlew	Aggregation
IGS-2408C	8 x GigaT w/ 4 Giga SFP/ T combo SNMP L2 Industrial Switch	Harden, SNMP, RSTP, Pro-Ring, IGMP Query, Snooping, Lantech-View	Aggregation
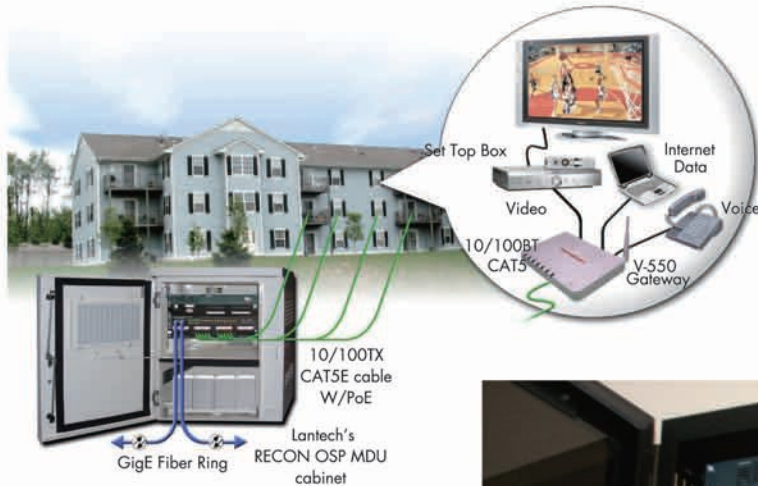
- Lantech's RECON cabinet at each apartment complex
- Giga fiber ring to each cabinet
- Lantech's IPES-2224C-24 POE Ethernet switch at each cabinet
    - Includes Lantech's fiber and patch panel equipment
- CAT5E cable from cabinet to each apartment unit
- Support for 24 to 48 apartment units per cabinet
- Lantech's power and battery equipment at each cabinet
- Power over Ethernet (PoE) to each apartment unit
- Lantech's V-550 Gateway at apartment unit
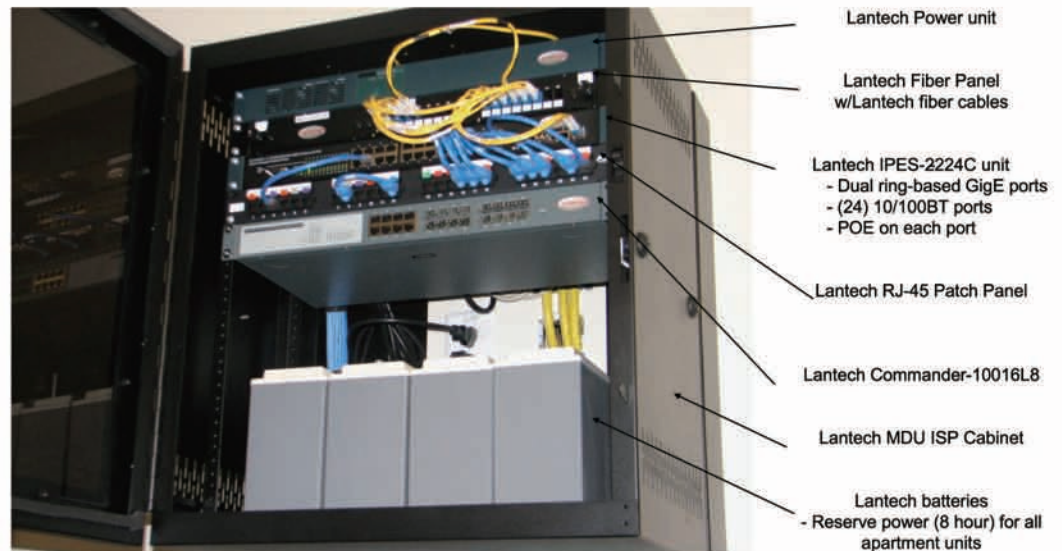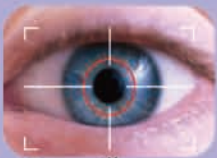
Lantech products are successfully implemented in Taiwan Military base island wide

Lantech products are successfully implemented in Taiwan Military base island wide

Taiwan military base is upgrading MICS system (Mobile Information & Communication System) throughout island for consecutive 3 years. The new infrastructure is IP-based for Telephony, Video, Surveillance and GPS timing applications in which they are built by Fiber optic, Wireless and xDSL connection.

Lantech's products are used in this projects are SNMP Fiber optic converter chassis (MC-216 TS-1000 chassis and CM-011-SC/ST), PoE switches (LPES-2224C-RPS and POS-100), L2 switches (LES-2224C). "We chose to use Lantech products because they provide complete solution for this project and all configurations can be made by CLI or Telnet, plus their support and service is superb. I specially like the features of PoE switches which they can be connected to redundant power, and this is very important for IP phone, wireless applications" said Randy in A company, a SI company for over 15 years.

Please see the partial network diagram as follows:

MICS Network

—	10/100Base-TX
—	Fiber
—	T1
—	Analog Line

Node-A001   L3 Switch   SIP Proxy   Terminal   PSTN (CO), local PABX, MISC and other external telephone lines

Radio Gateway   LPES-2224C-RPS   IISU

VoIP Gateway

POS-100   Recording System

MC-216 TS-1000   Wireless Broadband Router

WLAN

Lantech Gigabit Converter delivers FTTB application in South Europe

END TO END SOLUTION

CO   Out side Plant   Houses
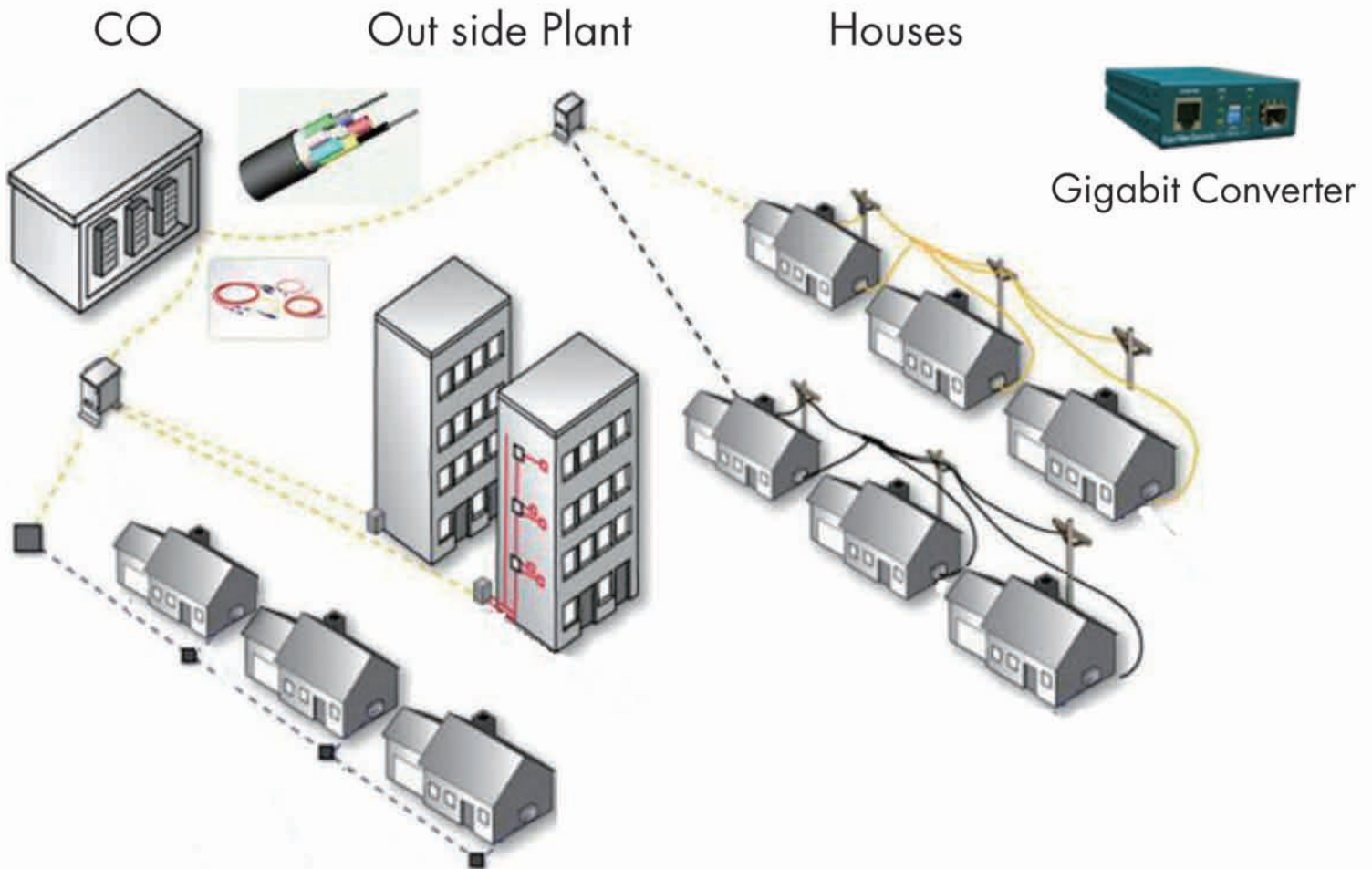
Gigabit Converter

Oct,2008

In South Europe, FTTX is chosen to be built by many Municipals for Next-Generation broadband Internet solution to catch up the path of other high penetration European countries for braodband connection.

Lantech's Gigabit Converter CM-021GB is chosen to be used in several pilot areas for FTTB where to place in the basement of building to connect with outside Fiber trunk.

"The reason why we use Lantech CM-021GB is that we find several pratical functions over other market products, for example, LLF (Link Loss Forwarding) to cut off one end connection when the other end is disconnected and tri-speed for UTP where can link with 10/100M or 1000M speed.

LLF function will immediatly alert Central if connection is lost and tri-speed is flexible for any demand"
said Mr. Chris in C company.
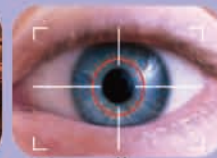
Lantech POE Splitters for Europe Triple Play Application

Nov 2008

All service providers or Telecoms are looking to provide a bundling of services to the residence (voice, video and data) to help increase revenue, profit and customer retention, FTTX is the best infrastructure for new generation broadband service.

Lantech PoE Splitters POS-100 are adapted widely in Europe Triple Play application for a Telco project with VOIP phone.

IPES–2224C–24

POS–100

"We chose to use Lantech POE Splitter POS-100 is because it is compact and easy to mount on wall, it provides flexibility of output voltage(5,7,9,12V) and 2 kinds of power diameter cables in which can suit perfectly with most of devices in the market. We even test with 15V output for some VOIP phones, it can also work." said Mr. Sierra in the S/I company.

Lantech POS-100 is fully compliant with IEEE 802.3af standard and can accept both End-point or Mid-span power source in which it can accept Pin assignment of 1,2,3,6 (Mid-Span) or 4,5,7,8 (End-point).

Its lightweight and Quad-voltage design provides superior cost-performance adva-ntage for any PoE application.
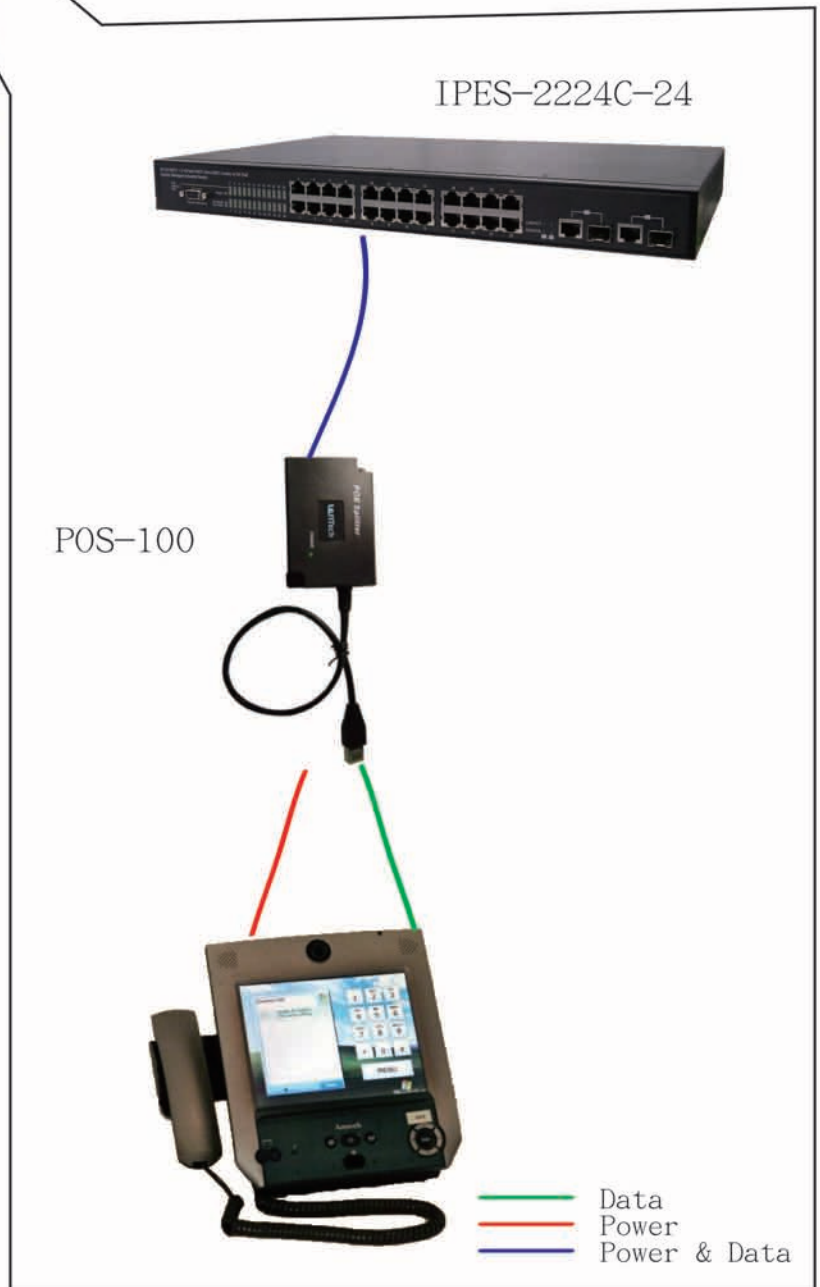
——— Data
——— Power
——— Power & Data

SNMP Managed Switch

Lantech SNMP series switches are Ture wire-speed hardware architecture to ensure your network performance. Lantech's built-in IGMP Query function is able to handle complicate multimedia application eliminating a L3 Query router. Lantech new advanced VLAN stacking (QinQ) / MSTP function can deployed at larger network for Telecom applications

All Gigabit Switch

LGS-2300-RPS
3 Slot Gigabit Modular L2 plus SNMP Switch

- 3-slots Gigabit Module Hot-swappable managed switch
- 48G Switching capacity; Redundant Power Supply (DC12 to 48V)
- Supports 8 –10/100/1000T module, 8-port Mini GBIC module, 4-port GigaT Copper & 4-port MINI GBIC module:
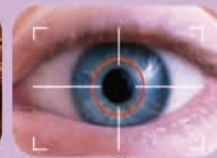- SNMP/RMON1/Telnet/CLI/Web management
- Supports Jumbo frame up to 10K
- SNMP v1,v2c; SNMP Trap
- Port Based VLAN /802 .1Q VLAN; 256VLAN groups
- Double Tag VLAN support**
- IEEE 802.1ab Link Layer Discovery Protocol(LLDP)
- QoS with 8 priority queues:
  1. Port based / Tag based
  2. IPv4 TOS; IPv4 DiffServe

- IEEE802.1d STP /802.1w Rapid STP/802.1s Multiple STP**
- IEEE802.3ad port trunk with LACP
- IGMP v1, v2, v3**
- Bandwidth control; Rate shaping
- Up to 10 IP Access Security; Mac address filtering; Static Mac filtering Multicast filtering
- IEEE 802.1x user authentication
- Simple Network Time Protocol (SNTP)
- SMTP supports for 2 email servers; each server supports up to 5 email addresses
- DHCP client and DHCP Server; DNS client
- Port security, Port mirror
- 256 ACL List*

LGS-2424C
24 10/100/1000T SNMP Switch w/4 Giga SFP Combo Uplink

- SNMP v1 and Web / Console Management
- 10K Jumbo Frame support
- 8K MAC address table
- IGMP snooping
- 48Gbps back-plane
- Port Based VLAN, Tag VLAN
- Port Trunk
- TFTP Firmware upgrade
- Supports CLI (Cisco-Link Command Line Interface)

- 500Kbytes memory buffer
- True non-blocking switching
- QoS; Class of Service for 4 priority queues
- Bandwidth Control for 256k per level
- Port Mirror
- Spanning Tree/Rapid STP
- SNMP Trap for Device cold start and Port link up/down
- IP access security

LGS-2207C
9 10/100/1000T L2 SNMP Switch with 2 Giga SFP Combo Uplink

- Pro-Ring Protocol to have less then 10ms Auto Network Recovery
- 8K MAC address table
- 18Gbps switch fabric and 26.7Mbps throughput
- 802.1p Class of Service (per port 4 queues, WRR: High: Mid-High: Mid-Low: Low (8:4:2:1)
- System log: 1000 records
- Spanning Tree Protocol STP/Rapid STP
- Broadcast Storm Filter
- System Trap
- SNTP, SMTP (6 mail accounts)
- SNMP/Web/Telnet/CLI/Menu Driven management

- DHCP Client / DHCP Relay / DHCP Server
- IGMP snooping v1,v2; IGMP Snooping and Query mode support for Multi-Media application
- Supports Port based VLAN / 802.1 Q Tag VLAN
- Double Tag VLAN for management * Optional
- Port trunk with LACP
- Port mirror and bandwidth control
- Supports GVRP(256 groups) functions
- Configuration up-load and down-load
- IP address management security
- TFTP firmware updatable

10 ms Pro-Ring

LGS-2404
4 10/100/1000 TX + 4 Giga SFP SNMP L2 Switch

- Pro-Ring Protocol to have less then 10ms Auto Network Recovery
- 8K MAC address table
- 18Gbps switch fabric and 26.7Mbps throughput
- 802.1p Class of Service (per port 4 queues, WRR: High: Mid-High: Mid-Low: Low (8:4:2:1)
- System log: 1000 records
- Spanning Tree Protocol STP/Rapid STP
- Broadcast Storm Filter
- System Trap
- SNTP, SMTP (6 mail accounts)
- SNMP/Web/Telnet/CLI/Menu Driven management
- DHCP Client / DHCP Relay / DHCP Server

- IGMP snooping v1,v2; Query mode support for Multi-Media application
- Supports Port based VLAN / 802.1 Q Tag VLAN; Double Tag VLAN for management *Optional
- Port based/Tag based QoS; IPv4 ToS/IPv4, IPv6 DiffServe
- Port trunk with LACP
- Port mirror and bandwidth control
- Supports GVRP(256 groups) functions
- Bandwidth control
- Configuration up-load and down-load**
- IP address management security
- TFTP firmware upgradable

10 ms Pro-Ring

Note: * Future Release
        ** Optional

SNMP Managed Switch

LES-2400-RPS
3 Slot 10/100M Modular
SNMP Switch
+ 2 Giga SFP Combo Uplink

10 ms
Pro-Ring

TYPE Approval
for maritime

- Pro-Ring Protocol to have less than 10ms
  Auto Network Recovery
- Supports 8 port 10/100TX and
  8 port 100FX modules
- High back-plane bandwidth 8.8Gbps
- Redundant Power Support (DC 12V to 48V)
- IGMP Snooping and Query support for
  Multi Media application
- Port mirror/Port security
- Port bandwidth control
- Supports GVRP function

- Redundant Power Support (DC 48V)
- SNMP/Web/Telnet/CLI management
- Port Based VLAN /802 .1Q VLAN
- IEEE802.3ad Port trunk with LACP
- IEEE 802.1p class of service
- DHCP client
- IEEE 802.1d Spanning tree protocol
- IEEE 802.1x user authentication

LES-2224C-SFP
24 x 100M SFP
SNMP Switch
+2 x 1000T/w
SFP Combo

- System Interface/Performance
  1.24x 100M SFP (LC) + 2 x 1000T/SFP combo ports
  2.Store-and-Forward Switching Architecture
  3.Back-plane (Switching Fabric): 8.8Gbps
  4.8K MAC Address Table
  5.Embedded 2Mbit packet memory
- Mechanical Housing
  1.19 inch 1u Alumium rack design
  2.No FAN
- QoS (Quality of Service)
  1.Support IEEE 802.1p Class of Service,
  2.Per port provides 4 priority queues
  3.Port Base, Tag Base, Mac Base
  4.DiffServ(IPv4/IPv6) Base

- Per Port Setting
  1.Port Security
  2.Maximum dynamic MAC address learned
  3.Flow control & Back pressure programmable
  4.Broadcast Storm controlling
  5.Ingress/Egress rate (64K/125K/256K)up to 100Mbps
- IGMP lay2/3
- 256 Multicast Address Table
- DHCP client supported
- CLI, Web, Telnet management interface
- FTP/TFTP firmware upgradable
- MIB supported: RFC1213, RFC1215, RFC1493, RFC1643,
  RFC1757, RFC2674 and private mib
- Protocol supported: IP, ARP, TCP, UDP, DHCP, DNS, TELNET,
  FTP, TFTP, SNMP, HTTP, NTP, SYSLOG, SMTP

LES-2224C
24 10/100TX L2 plus
SNMP Switch
+2 Giga SFP Combo Uplink

10 ms
Pro-Ring

- High back-plane bandwidth 8.8Gbps
- Port Based VLAN /802 .1Q VLAN
- Group stacking management up to 8 stacks
- IEEE 802.3ad Port trunk with LACP
- IEEE 802.3x flow control
- IEEE 802.1p QoS, per port 4 queues
- IGMP Query & Snooping support for Multi Media application
- Port mirror & Port security
- Broadcast storm filter
- IEEE 802.1d Spanning tree protocol
- Port bandwidth control
- Supports GVRP function
- DHCP client
- IEEE 802.1x user authentication to 8 authentication
- VLAN Stacking, ACL**

- SNTP and SMTP support
- SNMP/Web/Telnet/CLI management
- SNMP Trap support
- Provides QinQ, double tag VLAN
- Provides MVR (Multicast VLAN Registration)
- Supports LLDP to advise switch's link status

LES-2208
8 10/100TX L2 plus
SNMP Switch
+1 10/100/1000T
+1 Giga SFP Uplink

10 ms
Pro-Ring

- Pro-Ring Protocol to have less then 10ms
  Auto Network Recovery
- 5.6Gbps switch bandwidth
- 802.1p CoS, per port 4 queues
- IGMP snooping and Query mode support for
  Multi-Media application
- Port mirror and bandwidth control
- Supports GVRP function
- TFTP firmware update
- SNMP/Web/Telnet/CLI/Menu Driven management
- Per port band width control
- Management IP address security
- System log
- Port Based VLAN /802.1Q VLAN

- IEEE802.3ad Port trunk with LACP
- Spanning Tree Protocol/Rapid STP
- QoS for below method: Port based/Tag based
- IPv4 ToS/Ipv4, IPv6 DiffServe
- IEEE 802.1x user authentication
- Broadcast storm filter
- DHCP Client, Server
- SNTP and SMTP support
- MAC address security
- SNMP Trap support
- Configuration up-load and down-load
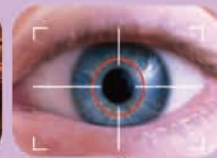- DC -48V Power model is available

Note: * Future Release
       ** Optional

Web / Smart Managed Switch

All Gigabit Switch

LGS-1424C
24 10/100/1000T Web
Switch w/ 4 Giga SFP Uplink

- 10K Jumbo Frame support
- 8K MAC address table
- Web Management
- IGMP snooping
- 48Gbps back-plane
- Port Based VLAN, Tag VLAN
- Port Trunk
- TFTP Firmware upgrade
- 500Kbytes memory buffer
- True non-blocking switching
- QoS; Class of Service
  for 4 priority queues
- Bandwidth Control
  for 256k per level
- Port Mirror
- Spanning Tree/Rapid STP

LGS-1104
4 10/100/1000T Web Switch
+ 1 Giga SFP Uplink

- 8K Jumbo Frame support
- 8K MAC address table
- Web Management
- DHCP client
- Port Based VLAN, Tag VLAN
- Port Trunk
- True non-blocking switching
- QoS; Class of Service
  with 4 priority queues
- Spanning Tree/
  Rapid Spanning Tree

Web UI for LGS-1424C

IGMP Configuration

IGMP Enabled ☐

Router Ports
1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐
9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 ☐ 14 ☐ 15 ☐ 16 ☐
17 ☐ 18 ☐ 19 ☐ 20 ☐ 21 ☐ 22 ☐ 23 ☐ 24 ☐

Unregistered IPMC Flooding enabled ☑

Current Page:1   Total Page:1

VLAN ID	IGMP Snooping Enabled
1	☑

Quick Search Vlan Entry, Vlan ID: [____] [Search]

[Apply] [Refresh] [FirstPage] [PrePage] [NextPage] [EndPage]

QoS Configuration

Port	Mode	Port Priority
1		
2		
23		
24		

Aggregation/Trunking Configuration

Group\Port	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Normal																								
Group 1																								
Group 2																								
Group 3																								
Group 4																								
Group 5																								
Group 6																								
Group 7																								
Group 8																								

RSTP System Configuration

System Priority	32768 ▾
Hello Time (1~10)	2
Max Age (6~40)	20
Forward Delay (4~30)	15
Force version	Normal ▾

LGS-1108C
8 10/100/1000T Web Switch
with Giga SFP Uplink

- 9K Jumbo Frame support
- 8K MAC address table
- Web Management
- DHCP Client
- Port Trunk
- Firmware update
- True Non-Blocking Switching
- QoS;
  Class of Service w/4 queues
- Spanning Tree/
  Rapid Spanning Tree

Note: * Future Release
      ** Optional
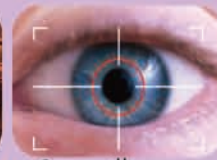
PoE(Power over Ethernet) Managed Switch

LPES-2224C-RPS
24 10/100TX SNMP Switch
+ 2 Giga SFP combo Uplink
with/ 24 POE injectors

- Built-in 200W AC power;
  End point insert mode remote power feeding
- High back-plane bandwidth 8.8Gbps
- Provides extra DC 48V input with redundant function and management power status through RS-232 port
- Rapid spanning tree IEEE802.1w
- IGMP snooping and IGMP Query mode for Multi-media application
- Port mirror and Bandwidth control
- Supports GVRP function
- Management by Web/SNMP/Telnet/Console/CLI

- System event log support
- Port Based VLAN /802 .1Q Tag VLAN
- IEEE802.3ad Port trunk with LACP
- Spanning tree protocol IEEE 802.1d
- IEEE 802.1p class of service
- IEEE 802.1x user authentication
- Broadcast storm filter
- DHCP client
- On line extra power supply testing through RS-232 port
- Supports SNTP
- TACACS+ **

**LPES-2224C-RPS
PoE Switch**

DC 48V Input   **AC Input**
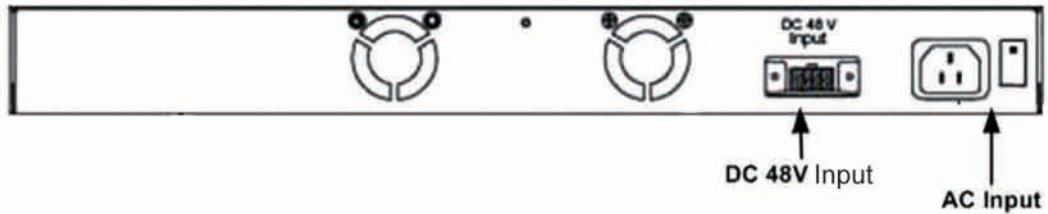
LPES-2208C-8
8 10/100 TX
+2 Giga/100M SFP Combo
with 8 POE Injector
SNMP Managed Switch

**10 ms
Pro-Ring**

- Pro-Ring Protocol auto recovery less than 300ms
- POE Power Management
- 802.1p CoS, per port 4 queues.
- IGMP snooping and Query mode support for Multi-Media application
- Supports GVRP function
- Broadcast storm filter
- TFTP firmware update
- SNMP/Web/Telnet/CLI/Menu Driven management
- Per port band width control
- Management IP address security; MAC address security

- System log for 1000 records
- Port Based VLAN /802 .1Q VLAN
- IEEE802.3ad Port trunk with LACP
- Port mirror and bandwidth control
- Spanning tree protocol
- STP / Rapid STP
- QoS for below method
- CPort based / Tag based
- CIPv4 ToS/ Ipv4, IPv6 DiffServe
- IEEE 802.1x user authentication
- DHCP Client, Server
- SNTP and SMTP support
- SNMP Trap support
- Configuration up-load and down-load**

POS-100
Single Port POE Data
and Power Splitter

- DIP Switch for adjusting 5v, 7.5v, 9v, 12v output
- 2 kinds of power jack cables to suit with various power jack diameters
- Short circuit protection
- For Wireless AP, Bluetooth AP, IP Camera, IP Telephones, remote power feeding application
- IEEE802.3af compliance
- Plug-and-Play
- Light weight and compact size
- Regulate output voltage by switch

POA-100A
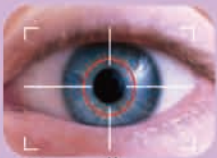Single Port POE Power Source
Injector with Internal Power

- IEEE 802.3af Fully Compliant
- No power feeding to non-802.3af PD
- Remote power feeding
- Short circuit protection
- Deliver power up to 100 meters
- Plug-and-Play
- Light weight and compact size
- Build in AC power supply

Note: * Future Release
** Optional

Converter Series

MC-216 TS1000
16 Slot SNMP Converter Chassis with Loopback

16 slots intelligent converter chassis

TS-1000 setting of Module 1

Central TS-1000 RJ45 port setting

Link	Speed	Duplex	Auto-Negotiation	Bandwidth Input Rate	Bandwidth Output Rate
Down	100 Mb	Half	Auto	10/100 Mbps	10/100 Mbps

☐ Central TS-1000 reset Default

Terminal TS-1000 module connect :　Down

[Apply]

Remote TS-1000 RJ45 port setting

Link	Speed	Duplex	Auto-Negotiation	Bandwidth Input Rate	Bandwidth Output Rate
"	"	"	"	"	"

☐ Terminal TS-1000 reset Default

[Apply]

Verify Test

☐ Embedded SSRAM BIST　FAIL

☐ In-Band Loop Back Test　FAIL

Please input The Value You Want To Check (****): 0

☐ Auto In-Band Loop Back Test　FAIL

[Test]

TS-1000 POA Setting

Power off Alarm (POA)　Disable

[Apply]

- CM-011B-SC Remote Managed Converter
- AC or DC power with redundant function
- Module Types: 10/100TX to 100FX ;
  10/100/1000T to Gigabit fiber;
  10/100/1000T to SFP
- Hot-swappable module design
- SNMP/ Web/Telnet/Console management
- Supports Simple Network Time Protocol (SNTP)
  to send email in case of events
- Power and Fan Detection and alert
- Event log and SNMP Trap support
- SNMP MIB II and private MIB supports
- HTTP, Telnet security
- IP address security for management station
- Web and TFTP firmware upgrade
- Link Lose Forwarding (LLF) to
  cut all link connection when one link is down
- Back-door password supports
- Remote management with CM-B100L
  managed converter series
- Link speed duplex,Auto Negotiation
- Bandwidth Input Rate
- Bandwidth Output Rate
- Lookback test to check remote
  converter SSRAM status
- In-Band loop back test for continuous check
- Remote converter power off alarm

Remote Converter

CM-011
100FX (100FX, ST, Mulit-Mode, 2km) to 10/100TX Converter

CM-011-SC
100FX (100FX, SC, Mulit-Mode, 2km) to 10/100TX Converter

CM-011-SC/30km
100FX (100FX, SC, Single-Mode, 30km) to 10/100TX Converter

CM-021GB
10/100/1000T to Gigabit Mini-GBIC Gigabit Converter

- Standalone and Chassis design
- Link Lose Forwarding (LLF) to cut all link connection when one link is down
- DIP Switch for Auto Negotiation Speed, Half/Full Duplex mode

- Standalone and Chassis design
- Link Lose Forwarding (LLF) to cut all link connection when one link is down
- DIP Switch for Auto Negotiation Speed, Half/Full Duplex mode

Model Name	Description
CM-011	100FX (100FX, ST, Mulit-Mode, 2km) to 10/100TX Converter
CM-011-SC	100FX (100FX, SC, Mulit-Mode, 2km) to 10/100TX Converter
CM-011-SC/60km (CM-SC100L (SC/60km))	100FX (100FX, SC, Single-Mode, 60km) to 10/100TX Converter
CM-011-SC/30km (CM-SC100L (SC/30km))	100FX (100FX, SC, Single-Mode, 30km) to 10/100TX Converter
CM-011-WDM13	WDM fiber Modular converter, 100FX (100FX, LC, Singal-Mode, 20km, Tx 1310nm, Rx 1550nm) to 10/100TX converter
CM-011-WDM15	WDM fiber Modular converter, 100FX (100FX, LC, Singal-Mode, 20km, Tx 1550nm, Rx 1310 nm) to 10/100TX converter

Model Name	Description
CM-021GB	10/100/1000T to Gigabit Mini-GBIC Gigabit Converter
(Accessory) 1000SX(LC/0.5KM) Tranceiver	1 port (Mini-GBIC SX, Multi-Mode, 0.5km) Tranceiver 3.3V
(Accessory) 1000LX(LC/10KM) Tranceiver	1 port (Mini-GBIC LX, Single-Mode, 10km) Tranceiver
(Accessory) 1000LX(LC/50KM) Tranceiver	1 port (Mini-GBIC LX, Single-Mode, 50km) Tranceiver
(Accessory) 1000LX(LC/80KM) Tranceiver	1 port (Mini-GBIC LX, Single-Mode, 80km) Tranceiver
(Accessory) Super 1000SX(LC /2KM) Tranceiver	1 port (Mini-GBIC SX, Multi-Mode, 2km) Tranceiver

Note: * Future Release
        ** Optional
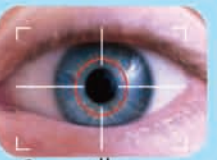
Accessory: DIN Rail Power

AD-Power series is rigid and compact design for space saving and industrial application. It supports power ready signal and ring diode circuit for redundant application as well as over-voltage, over-load and short circuit protection. Attentive design to be snapped on DIN rail or wall mounted by bracket fits most of installation requirement.   All models are RoHS compliant and meet with CE and UL 508 requirement.

Product: AD-1048-24FS | AD1024-24F
Output: 24VDC, 2A | 24VDC, 1A
Dimensions: 90(H) x 74(D) x 45(W)mm

- Universal AC Input Range
- DIN rail Snap On
- RoHS Compliance
- Bracket Mounting
- Convection Cooled
- 2-Year Warranty

-10~60 Standard

Product: AD1240-48S | AD1120-48F
Output: 48VDC, 5A | 48VDC, 2.5A
Dimensions: 110(H) x 121(D) x 75(W)mm

- Wide AC Input Range
- DIN rail Snap On
- RoHS Compliance
- Bracket Mounting
- Build-in fan Cooled
- 2-Year Warranty

-10~60 Standard

Accessory: Mini GBIC(SFP)

Lantech SFP transceiver series provides scalable and easy-to-deploy Gigabit or 100M Fiber Ethernet service in the network. They are compatible with major brand network switches in the market.

Model Name	Description
8330-162	MINI GBIC 1000SX (LC/0.5km) Transceiver; 1.25G, 850nm, Multimode
8330-165	MINI GBIC 1000LX (LC/10km) Transceiver; 1.25G, 1310nm, Singlemode
8330-166	MINI GBIC 1000LX (LC/50km) Transceiver;1.25G, 1550nm, Singlemode
8330-167	MINI GBIC 1000LX (LC/80km) Transceiver;1.25G, 1550nm, Singlemode
8330-168	MINI GBIC 10/100/1000T Transceiver
8330-163	Super MINI GBIC 1000SX (LC/2km) Transceiver; 1.25G, 1310nm,Multimode
8330-061	100Base LX 30KM, Single mode, LC transceiver
8330-060	100Base SX 2KM, Multi-mode, LC transceiver

-10~70 Standard

Lantech SFP transceivers with DDM(Digital Diagnostic Monitoring) MSA function are provided with voltage, temperature, TX power, RX power and laser bias current over the network.   DDM function enables central site to remote monitor each fiber link quality with ease.   All Lantech SFP with DDM are coded with "-D" after the standard part number.