

# **IPGS-5424**

# 24 10/100/1000T PoE + 4 DualSpeed SFP Industrial L2<sup>+</sup> Switch w/

# enhanced G.8032 Ring

- Support IEEE802.3at/af up to 30W per port
- Support dual power redundancy AC&DC
- PoE management incl. Detection and Scheduling



- Miss-wiring avoidance & Node failure protection (node failure protection)
- User friendly UI, including auto topology drawing and DDM threshold monitoring with dB values\*\*\*; Complete CLI
- Support LACP link aggregation, IGMP v3/router port, MLD snooping, DHCP server & DHCP Option82; Port based DHCP distribution, Mac based DHCP server, DHCP Snooping, QoS by VLAN, SSH v2/SSL, HTTPS, INGRESS/EGRESS ACL L2/L3, TACACS+\*\*, QinQ
- Protocol based VLAN; IPv4 Subnet based VLAN
- Environmental Monitoring for temp., voltage & current
- USB slot for edited restoration and auto backup















# **OVERVIEW**

Lantech IPGS-5424 is a high performance L2+ (Gigabit uplink) PoE managed Ethernet switch with 24 10/100/1000T PoE + 4 Dual Speed SFP. It delivers ITU G.8032 enhanced ring recovery less than 20ms in single ring while also supports train ring, enhanced mode, multiple VLAN model. The comprehensive QoS, QoS by VLAN, advanced security including INGRESS/EGRESS ACL L2/L3, TACACS+\*\*, SSH v2/SSL, Mac based DHCP server, DHCP Option 82, DHCP server, IGMPv1/v2/v3/router port, QinQ are supported and also required in large network.

Compliant with 802.3af/at standard, the Lantech IPGS-5424 is able to feed each PoE port up to 30 Watts@54 VDC providing the connected PD devices. Lantech IPGS-5424 supports advanced PoE management including PoE detection and scheduling. PoE detection can detect if the connected PD hangs then restart the PD: PoE scheduling is to allow pre-set power feeding schedule upon routine time table. Each PoE ports can be Enabled/disabled, get the voltage, current, Watt, and temperature info displayed on WebUI.

### Miss-wiring avoidance, Loop protection, Node failure protection

The IPGS-5424 also embedded several features for stronger

and reliable network protection in an easy and intuitive way. When the pre-set ring configuration failed or looped by misswiring, Lantech IPGS-5424 is able to alert with the LED indicator and disable ring automatically. Node failure protection ensures the switches in a ring to survive after power breakout is back. The status can be shown in NMS when each switch is back. This feature prevents the broken ring and keep ring alive without any re-configuration needed. Loop protection is also available to prevent the generation of broadcast storm when a dumb switch is inserted in a closed loop connection.

# Enhanced G.8032 ring, 16 MSTI MSTP; MRP ring

Lantech IPGS-5424 features enhanced G.8032 ring which can be self-healed in less than 20ms for single ring topology protection covering Multicast packets. It also supports various ring topologies that covers double ring, multi-chain (under enhanced ring), train ring, basic ring, multiple-VLAN ring and auto-ring by easy setup than others. The innovative auto-Ring configurator (auto mode) can calculate owner and neighbor in one step. It supports MSTP that allows RSTP over VLAN for redundant links with 16 MSTI.

MRP (Media Redundancy Protocol) can be supported for industrial automation networks.





### DHCP option 82 & Port based, Mac based DHCP, Option66, DHCP Snooping, IPv6 DHCP server

DHCP server can assign dedicated IP address by MAC or by port (Port based for single switch), it also can assign IP address by port for multiple switches with single DHCP option82 server. DHCP Snooping is supported. For the ending device which need to download file from TFTP server, DHCP Option66 server can offer IP address of TFTP server to DHCP client. Basic IPv6 DHCP service can be supported.

### QoS by VLAN for legacy devices

QoS by VLAN can allow switch to tag QoS by VLAN regardless the devices acknowledge QoS or not in which greatly enhance the bandwidth management in a network.

### QinQ, QoS and GVRP supported

It supports the QinQ, QoS and GVRP for large VLAN segmentation.

### IGMPv3, GMRP, router port, MLD Snooping, static multicast forwarding and multicast Ring protection

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

#### 802.1X security by MAC address

MAC-based port authentication is an alternative approach to 802.1x for authenticating hosts connected to a port. By authenticating based on the host's source MAC address, the host is not required to run a user for the 802.1x protocol. The RADIUS server that performs the authentication will inform the switch if this MAC can be registered in the MAC address table of switch

### Auto-provisioning for firmware/configuration update

The switch supports auto-provisioning for switch to auto-check the latest software image and configuration through TFTP server.

## User friendly GUI, Auto topology drawing

The user friendly UI, innovative auto topology drawing and topology demo makes IPGS-5424 much easier to get handson. The IPGS-5424 supports DMI interface that can correspond with DDM SFPs (Digital diagnostic monitor) to display the five parameters in Lantech's UI, including optical output power, input power, temperature, laser bias current and transceiver supply voltage\*\*\*. The TX power/RX power raw data is automatically converted to dB values for installer, making it easier to calculate the fiber distance. The complete CLI enables professional engineer to configure setting by command line.

### Editable configuration file; USB port for configuration upload & download

The configuration file of Lantech IPGS-5424 can be exported and edited with word processor for the other switches configuration with ease. The factory reset button can restore the setting back to factory default and built-in watchdog design can automatically reboot the switch when CPU is found dead.

The built-in USB port can have configuration upload & download by USB dongle.

### Event log & message; 2 DI / 2 DO

In case of event, the IPGS-5424 is able to send an email to pre-defined addresses as well as SNMP Traps our immediately. It provides 2 DI and 2 DO. When disconnection of the specific port was detected; DO will activate the signal LED to alarm. DI can integrate the sensors for events and DO will trigger the alarm while sending alert information to IP network with email

### Environmental monitoring for switch inside information

The environmental monitoring can detect switch overall temperature, voltage and current where can send the SNMP traps and email when abnormal.

#### Various dual power conversions redundancy; Relay contact alarm

Lantech IPGS-5424 supports dual power redundancies with isolated 100~240VAC/120~370VDC power conversion and isolated 36~75VDC power conversion or with non-isolated 12~60VDC power module to increase the network reliability. It also supports terminal block for connecting DC 48V PoE power source. Featured with relay contact alarm function, the IPGS-5424 is able to connect with alarm system in case of power failure. The IPGS-5424 also provides ±4000V EFT, ±4000V Surge and ±8000V ESD protection, which can reduce unstable situation caused by power line and Ethernet.

# Industrial hardened design for extended temperature

Lantech IGS-5424-PT features high reliability and robustness withstanding extensive EMI/RFI phenomenon, lighting surge, inductive load switching, high ESD, high fault current environment, environmental vibration and shocks usually found in factory, substation, steel automation, aviation, mining and process control. It is the best solution for Automation. transportation, surveillance, Wireless backhaul, Semiconductor factory and assembly lines.

Lantech IPGS-5424 can run under widely operational temperature (-40°C~75°C) in the harsh environment.

# **FEATURES & BENEFITS**

- 24 10/100/1000T + 4 Dual Speed SFP w/24 PoE 802.3af/at ports (Total 28 Ports Switch)
- Embedded 24 PoE ports IEEE802.3af/at function to feed power up to 30W@54V; 15W @ 48V per port for active operation
- PoE management including PoE detection and scheduling for PD (power devices)
- Back-plane (Switching Fabric): 56Gbps
- 16K MAC address table
- DDM to support SFP diagnostic function\*\*\*



- Automatically convert the raw data into dB values for TX power/RX power, making it easier to measure the fiber distance
- 10KB Jumbo frame supported on all ports
- User friendly UI, auto topology drawing, topology demo, complete CLI for professional setting
- Enhanced G.8032 Ring protection in 20ms for single ring
  - Support various ring/chain topologies, including dynamic coupling ring
  - Enhanced G.8032 ring configuration with ease
  - Auto ring configuration(auto mode) for single ring
  - Ring covers multicast on different ports
- Dual isolated power conversions for 1600V DC(36V~75V)
- Dual isolated power conversions for ±3000 V (85V~264VAC/120V~370VDC)
- Dual power supply terinal block for non-isolated power DC(12V~60V)
- Rear terminal block for PoE power source(DC48V)
- Provides EFT protection ±4000 VDC for power line.
- Supports ±8000 VDC Ethernet ESD protection
- LACP load balancing to distribute the load\*
- Built-in RTC (Real Time Clock) to keep track of time
- Supports IEEE 802.1p Class of Service, per port provides 8 priority queues Port base, Tag Base and Type of Service Priority
- IEEE 802.1d STP, IEEE 802.1w RSTP,802.1s MSTP VLAN redundancy
- 4K 802.1Q VLAN, Port based VLAN, GVRP, QinQ
- Supports IEEE 802.1ab LLDP, Cisco CDP; LLDP info can be viewed via Web/ Console
- DHCP server / client / DHCP Option 82 relay / DHCP Option 82 server; Port based DHCP server; DHCP Option 66; DHCP Snooping; basic IPv6 DHCP
- Mac based DHCP server to assign IP address that includes dumb switches in DHCP network
- MLD Snooping for IPv6 Multicast stream
- Bandwidth Control
  - Ingress packet filter and egress rate limit
  - Broadcast/multicast packet filter control
- Relay alarm output system events

# Miss-wiring avoidance

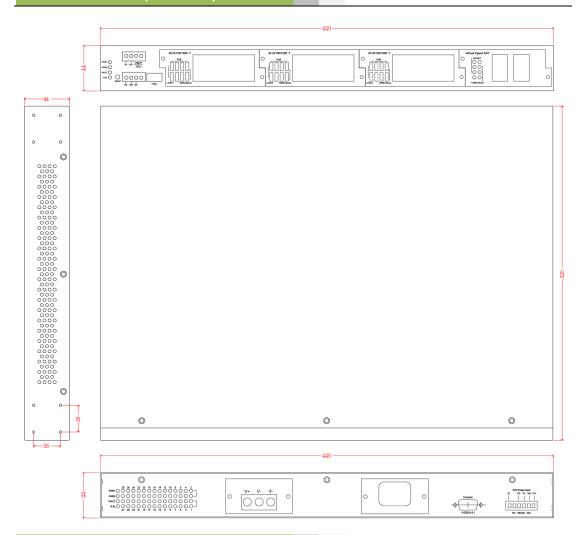
- LED indicator
- Email or traps notification

### Node failure protection

- Ensure the switches in a ring to survive after power breakout is back
- The status can be shown in NMS when each switch is back
- TFTP/HTTP firmware upgrade; USB for edited restoration and auto backup
- System Event Log and SNMP Trap for alarm support; 32 RMON counters
- Security
  - SSL/SSH v2/INGRESS/EGRESS ACL L2/L3
  - MAC address table: MAC address entries/Filter/MAC-Port binding
  - IP Security: IP address security management to prevent unauthorized intruder.
  - Management access control with priority
  - Login Security: IEEE802.1X/RADIUS
  - HTTPS for secure access to the web interface
  - TACACS+\*\*
- Static multicast forwarding forward reversed IGMP flow with multicast packets binding with ports for IP surveillance application
- IGMP router port to assign query in ring and for reversed multicast video flow
- Multicast VLAN registration\* for metro video
- IGMPv1,v2,v3 with Query mode for multi media;
  GMRP
- Factory reset button to restore setting to factory default
- Watchdog design to auto reboot switch CPU is found dead
- Diagnostic including Ping / ARP table / DDM information
- Environmental monitoring for system input voltage, current, ambient temperature
- Supports DIDO (Digital Input/Digital Output)
- IP30 metal housing with DIN rail and Wall-mount\*\* design
- Auto Provision to verify switch firmware with the latest or certain version



# **DIMENSIONS** (unit=mm)



# **SPECIFICATION**

Hardware S	Specification	Flash	128M Byte
IEEE Standards	IFFF 802 3 10Base-T Ethernet	MAC Address	16K MAC address table
ieee otaliaaras	IEEE 802.3u 100Base-TX Ethernet	Jumbo frame	10KB on all ports
	IEEE 802.3ab 1000Base-T Ethernet	PoE pin	RJ-45 port # 1~ # 24 support IEEE 802.3at/af End-
	IEEE 802.3z Gigabit Fiber	assignment	point. Per port provides up to 30W
	IEEE 802.3x Flow Control Capability		Positive (VCC+): RJ-45 pin 1,2.
	ANSI/IEEE 802.3 Auto-negotiation		Negative (VCC-): RJ-45 pin 3,6.
	IEEE 802.1Q VLAN	PoE input voltage	Input V Active Mode A
	IEEE 802.1p Class of Service	& Power feed	/Output V
	IEEE 802.1X Access Control	voltage	45~56V(af) 48V@15W
	IEEE 802.1D Spanning Tree		54~56V(at) 54V@30W
	IEEE 802.1w Rapid Spanning Tree	Connectors	24 10/100/1000T RJ-45 with auto MDI/MDI-X function
	IEEE 802.1s Multiple Spanning Tree		4 100M / 1000M Mini-GBIC : SFP sockets
	IEEE 802.3ad Link Aggregation Control Protocol		RS-232 console: Female DB-9
	(LACP)		USB for automatic backup and restore
	IEEE 802.1AB Link Layer Discovery Protocol (LLDP)	DDM	Conform to SFF-8472 to show diagnostic SFP with
	IEEE 802.1x User Authentication (Radius)		temperature, current, voltage, input and output power
	IEEE 802.3t/af Power Over Ethernet	Protocol	CSMA/CD
Switch	Back-plane (Switching Fabric): 56Gbps	LED	Per unit: Power 1 (Green), Power 2 (Green), Alarm
Architecture			(Red) ,R.M (Green)
Transfer Rate	14,880pps for Ethernet port		Link/Activity (Green), Full duplex/collision(Yellow)),
	148,800pps for Fast Ethernet port		MINI GBIC (Link/Activity )(Green)
CDU	1,488,000pps for Gigabit Ethernet / Gigabit Fiber port Marvell 800Mhz	Power Supply	AC model: 100~240V AC IEC320 conversion X1
CPU			DC model: 12~56VDC INPUT X1
RAM	256M Byte		



	PoE power: dual input for 45~56VDC Additional power socket (optional):		Enhanced G.8032 ring configuration with ease Cover multicast & data packets protection
	■ 100-240VAC, 120-370VDC ■ 36-75VDC ■ 100-240VAC IEC320 ■ 12-56VDC	User friendly UI	Auto topology drawing     Topology demo     DDM threshold monitoring with dB
Power Consumption	Full load: 30W/ Unload: 13W		values*** 4. Complete CLI supported
PoE Power Budget	Max. 720W at rear side with external dual 45~56VDC input (50-56VDC input is recommended for 802.3at 30W applications) Higher PoE budget can be applied upon request. **	PoE Management	PoE Detection to check if PD is hang up then restart the PD     PoE Scheduling to On/OFF PD upon
Relay Alarm	Provides one relay output for port breakdown, power fail and alarm.  Alarm Relay current carry ability: 1A @ DC24V		routine time table  3. Per-port PoE status including current, voltage, watt and temperature
DI/DO	2 Digital Input (DI): Level 0: -30~2V / Level 1: 10~30V Max. input current:8mA 2 Digital Output(DO): Open collector to 40 VDC, 200mA	Spanning Tree	Supports IEEE802.1d Spanning Tree and IEEE802.1w Rapid Spanning Tree, IEEE802.1s Multiple Spanning Tree 16 MSTI
Case Dimension Weight	19" Metal case,IP-30; 440mm(W)x325mm(D)x44mm(H) 2.9 kgs	Quality of Service	The quality of service determined by port, Tag and IPv4 Type of service, IPv4 Differentiated Services Code Points - DSCP
Operating Humidity	5%~95% (Non-condensing)	Class of Service	Support IEEE802.1p class of service, per port provides 8 priority queues
Operating Temperature	Standard: -20°C ~60°C -E model: -40°C ~75°C	QoS by VLAN	Tagged QoS by VLAN for all devices in the network
Storage Temperature	-40°C ~85°C	MLD Snooping	Support IPv6 Multicast stream
EMI	FCC Class A, CE EN61000-4-2 (ESD), CE EN61000-4-3 (RS), CE EN-61000-4-4 (EFT), CE EN61000-4-5 (Surge), CE EN61000-4-6 (CS), CE EN61000-4-8, CE EN61000-4-11, CE EN55032	IP Security	Supports 10 IP addresses that have permission to access the switch management and to prevent unauthorized intruder
Railway	Class A, CE EN55024 EN50121-4	Port Mirror	Support 3 mirroring types: "RX, TX and Both packet"
verification Safety	EN IEC 62368-1	IGMP	Support IGMP snooping v1,v2,v3; Supports IGMP static route; 1024 multicast groups; IGMP router port IGMP query; GMRP
Stability Testing  MTBF	IEC 60068-2-6: 2007 (Vibration) IEC 60068-2-27: 2008 (Shock) 586,450 hours (standards: IEC 62380)	Static MAC-Port Bridge	Static multicast forwarding forward reversed IGMP flow with multicast packets binding with ports for IP
Warranty Software S	5 years pecification		surveillance application
Management SNMP MIB	SNMP v1 v2c, v3/ Web/Telnet/CLI  MIB  MIBII  SNMP MIB  Bridge MIB  IF MIB  RMON MIB  Private MIB	Bandwidth Control	Support ingress packet filter and egress packet limit. The egress rate control supports all of packet type, the limit rates are 0~100Mbps.  Ingress filter packet type combination rules are Broadcast/Multicast/Flooded Unicast packet, Broadcast/Multicast packet, Broadcast packet only and all types of packet. The packet filter rate can be set from 0 to 100Mbps  The packet filter rate can be set an accurate value
VLAN	Port Based VLAN IEEE 802.1Q Tag VLAN (256 entries)/ VLAN ID (Up to 4K, VLAN ID can be assigned from 1 to 4096) GVRP, QinQ, QoS, Protocol based VLAN; IPv4	Network Security	through the pull-down menu for the ingress packet filter and the egress packet limit.  Support 10 IP addresses that have permission to access the switch management and to prevent
Port Trunk with LACP	Subnet based VLAN  LACP Port Trunk: 8 Trunk groups		unauthorized intruder.  802.1X access control for port based and MAC based authentication/MAC-Port binding
LLDP	Support LLDP to allow switch to advise its identification and capability on the LAN		Management access control with priority Ingress/Egress ACL L2/L3 SSL/ SSH v2 for Management
CDP	Cisco Discovery protocol for topology mapping		HTTPS for secure access to the web interface TACACS+** for Authentication
ITU G.8032	Support ITU G.8032 v2/2012 for Ring protection in less than 20ms for self-heal recovery (single ring enhanced mode)	Flow Control	Support Flow Control for Full-duplex and Back Pressure for Half-duplex
	Support various ring/chain topologies Includes train ring, auto ring, basic single ring, enhanced ring, multiple-VLAN ring	Protection	Miss-wiring avoidance     node failure protection     Loop protection



System Log	Support System log record and remote system log server	Diagnostic	Support Ping, ARP table and DDM information
		SNTP	Support SNTP to synchronize system clock in Internet
SNMP Trap	MP Trap  Up to 10 trap stations; trap types including:  1. Device cold start 2. Authorization failure 3. Port link up/link down 4. Dl/DO open/close 5. Typology change(ITU ring) 6. Power failure 7. Environmental abnormal	Environmental Monitoring Factory reset	Internal sensor to detect temperature, voltage and current and send SNMP traps and emails if any abnormal events  Factory reset button to restore back to factory default
		button & watch dog design	settings. Watch dog design can reboot switch automatically under certain circumstances
		Firmware Update	Supports TFTP firmware update, TFTP backup and restore; HTTP firmware upgrade
DHCP	Provide DHCP Client/ DHCP Server/DHCP Option 82/Port based DHCP; DHCP Snooping; DHCP Option 66; basic IPv6 DHCP server	USB Configuration backup and	Supports text editable configuration file for system quick installation to backup and restore USB dongle for automatic back up and editable
Mac based DHCP Server	Assign IP address by Mac that can include dumb switch in DHCP network	Auto Provision	To verify switch firmware with the latest or certain
DNS	Provide DNS client feature and support Primary and Secondary DNS server.		*Future Release  **Optional

\*\*\*Optional DDM SFP required

# ORDERING INFORMATION

For optional power supply, add +DC, +DCI, +AC, or +HV to the part number.

IPGS-5424-DC......P/N: 8380-601

24 10/100/1000T POE at/af + 4 Dual SFP L2 plus Industrial Switch

Built-in 1x 12~56VDC power module + 1x optional power socket + 1x 48VDC PoE power input; -20°C to 60°C

IPGS-5424-DC-E......P/N: 8380-6011

24 10/100/1000T POE at/af + 4 Dual SFP L2 plus Industrial Switch Built-in 1x 12~56VDC power module + 1x optional power socket + 1x 48VDC PoE power input; -40°C to 75°C

IPGS-5424-AC.....P/N: 8380-600

24 10/100/1000T POE at/af + 4 Dual SFP L2 plus Industrial Switch

Built-in 1x 100~240VAC IEC320 power conversion + 1x optional power socket + 1x 48VDC PoE power input; -20°C to 60°C

IPGS-5424-AC-E......P/N: 8380-6001

24 10/100/1000T POE at/af + 4 Dual SFP L2 plus Industrial Switch Built-in 1x 100-240VAC IEC320 power conversion + 1x optional power socket + 1x 48VDC PoE power input; -40°C to 75°C

# **OPTIONAL ACCESSORIES**

## **Power**

### EOTH000701

Isolation Power 100-240VAC, 120-370VDC 2.0A max, 47-63HZ



# EOTH000702

Isolation Power conversion 36-75VDC, 2.5A



### EOTH000703

Isolation Power 100-240VAC IEC320 socket, 2.0A max, 47-63HZ





#### FOTH000704

Power Input Module 12-56VDC, 2.5A



### **DIN Rail Power**

■ NDR-480 Series 480W Single Output Industrial Din Rail Power; 90-264VAC / 127-370VDC Input Range; Cooling by free air convection; RoHS2;

Operating Temp. -20°C~70°C (ambient, derating each output at 2.5% per degree from 50°C ~ 70°C)

■ NDR-240 Series 240W Single Output Industrial Din Rail Power; 90-264VAC / 127-370VDC Input Range; Cooling by free air convection; RoHS2;

Operating Temp. -20°C~70°C (ambient, derating each output at 2.5% per degree from  $50^{\circ}$ C ~  $70^{\circ}$ C)

■ NDR-120 Series 120W Single Output Industrial Din Rail Power; 90-264VAC / 127-370VDC Input Range; Cooling by free air convection; RoHS2;

 $Operating \ Temp. \ -20^{\circ}C \sim 70^{\circ}C \ (ambient, \ derating \ each \ output \ at \ 2.5\% \ per \ degree \ from \ 50^{\circ}C \sim 70^{\circ}C; \ For \ 115VAC, \ please \ refer \ to \ and \ and \ to \ and \$ 

derating curve on NDR-120 Series datasheet)

■ NDR-75 Series 75W Single Output Industrial Din Rail Power; 90-264VAC / 127-370VDC Input Range; Cooling by free air convection; RoHS2;

 $Operating \ Temp. \ -20^{\circ}C \sim 70^{\circ}C \ (ambient, \ derating \ each \ output \ at \ 2.5\% \ per \ degree \ from \ 50^{\circ}C \sim 70^{\circ}C; \ For \ 115VAC, \ please \ refer \ to \ and \ and \ to \ and \$ 

derating curve on NDR-120 Series datasheet)

# Mini GBIC (SFP)

8330-162-V1	MINI GBIC 1000SX (LC/MM/0.5KM) Transceiver	8330-187-V1	1.25Gbps BiDi SFP 20KM Transceiver (WDM 1550)
8330-163-V1	MINI GBIC 1000SX2 (LC/MM/2KM) Transceiver	8330-180-V1	1.25Gbps BiDi SFP 40KM Transceiver (WDM 1310)
8330-165-V1	MINI GBIC 1000LX (LC/SM/10KM) Transceiver	8330-182-V1	1.25Gbps BiDi SFP 40KM Transceiver (WDM 1550)
8340-0591-V1	MINI GBIC 1000LHX (LC/SM/40KM) Transceiver	8330-181-V1	1.25Gbps BiDi SFP 60KM Transceiver (WDM 1310)
8330-166-V1	MINI GBIC 1000XD (LC/SM/50KM) Transceiver	8330-183-V1	1.25Gbps BiDi SFP 60KM Transceiver (WDM 1550)
8330-169-V1	MINI GBIC 1000XD (LC/SM/60KM) Transceiver	8330-184-V1	1.25Gbps BiDi SFP 80KM Transceiver (WDM 1490)
8330-167-V1	MINI GBIC 1000ZX (LC/SM/80KM) Transceiver	8330-185-V1	1.25Gbps BiDi SFP 80KM Transceiver (WDM 1550)
8330-170-V1	MINI GBIC 1000EZX (LC/SM/120KM) Transceiver	8330-071-V1	125Mbps BiDi SFP 2KM (WDM 1310) Transceiver
8330-168-V1	MINI GBIC 10/100/1000T (100m) Transceiver	8330-072-V1	125Mbps BiDi SFP 2KM (WDM 1550) Transceiver
8330-060-V1	MINI GBIC 100Base (LC/MM/2KM) Transceiver	8330-069-V1	125Mbps BiDi SFP 20KM (WDM 1310) Transceiver
8330-065-V1	MINI GBIC 100Base (LC/MM/5KM) Transceiver	8330-068-V1	125Mbps BiDi SFP 20KM (WDM 1550) Transceiver
8330-061-V1	MINI GBIC 100Base (LC/SM/30KM) Transceiver	8330-080-V1	125Mbps BiDi SFP 40KM (WDM 1310) Transceiver
8330-197-V1	1.25Gbps BiDi SFP 0.5KM Transceiver (WDM 1310)	8330-082-V1	125Mbps BiDi SFP 40KM (WDM 1550) Transceiver
8330-198-V1	1.25Gbps BiDi SFP 0.5KM Transceiver (WDM 1550)	8330-081-V1	125Mbps BiDi SFP 60KM (WDM 1310) Transceiver
8330-195-V1	1.25Gbps BiDi SFP 2KM Transceiver (WDM 1310)	8330-083-V1	125Mbps BiDi SFP 60KM (WDM 1550) Transceiver
8330-196-V1	1.25Gbps BiDi SFP 2KM Transceiver (WDM 1550)	8330-084-V1	125Mbps BiDi SFP 80KM (WDM 1310) Transceiver
8330-188-V1	1.25Gbps BiDi SFP 10KM Transceiver (WDM 1310)	8330-085-V1	125Mbps BiDi SFP 80KM (WDM 1550) Transceiver
8330-189-V1	1.25Gbps BiDi SFP 10KM Transceiver (WDM 1550)	8330-191-V1	Dual Speed SFP 100M/1000M-LX 10KM Transceiver
8330-186-V1	1.25Gbps BiDi SFP 20KM Transceiver (WDM 1310)	All SFP# ended	with D are with DDM function

### Lantech Communications Global Inc.

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