

# IPES-3208C

8 10/100TX + 2 10/100/1000T/Dual Speed SFP Combo

L2 8 PoE at/af Industrial Managed Switch w/ Enhanced G.8032 Ring

- Support IEEE802.3at/af up to 30W per port
- PoE management incl. Detection and Scheduling
- Single G.8032 ring protection < 20ms with auto configuration
- Miss-wiring avoidance & Repowered auto ring restore (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, DHCP server & client, SSH/SSL, HTTPS, IPv6, SMS
- Environmental Monitoring for temp., voltage & current\*\*
- USB slot for edited restoration and auto backup



## OVERVIEW

Lantech IPES-3208C is a high performance L2 (Gigabit uplink) switch with 8 10/100TX + 2 10/100/1000T/Dual Speed SFP Combo w/8 PoE 802.3af/at Injectors which provides L2 wire speed and advanced security function for network aggregation deployment. It delivers ITU G.8032 enhanced ring recovery less than 20ms for single ring, comprehensive QoS, advanced security including SSH/SSL, IGMPv1/v2/v3/router port which are important features required in train and large network. It also supports Cisco Discovery Protocol (CDP) and LLDP for Ciscoworks to detect the switch info and show on L2 map topology.

Lantech IPES-3208C supports advanced PoE management including PoE detection and scheduling. PoE detection can detect if the connected PD is hang up 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.

The IPES-3208C 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 miss-wiring, Lantech IPES-3208C is able to alert with the LED indicator and send out an email, traps or a SMS text. Repowered auto ring restore function (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.

The user friendly UI, innovative auto topology drawing and topology demo makes IPES-3208C much easier to get hands-on. The switch also equips the RTC (real time clock) which can keep track of time always. The IPES-3208C 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.

Lantech IPES-3208C features enhanced G.8032 ring which can be self-healed in less than 20ms for single ring topology protection. 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. The ITU G.8032 Ring and RSTP can be co-existed in the same switch with different ports for the most flexible protection.

The configuration file of Lantech IPES-3208C can be exported in text file so that it can be edited and configured back to switch with ease for mass deployment. 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 USB slot allows user to backup/ editable restore

configuration.

The IPES-3208C DIDO function can support additional open/close physical contact for designate applications besides Port / Power events, for example, DIDO function can trigger alarm if the switch was moved or stolen. In case of events, the IPES-3208C will immediately send an email & SMS text message to pre-defined addresses as well as SNMP Traps out. It provides 2DI and 2DO while 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 and traps.

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

The Lantech IPES-3208C is designed with dual power supply at 48VDC. Featured with relay contact alarm function, the IPES-3208C is able to connect with alarm system in case of power failure. The IPES-3208C also provides  $\pm 2000V$  EFT and  $\pm 6000V$  ESD protection, which can reduce unstable situation caused by power line and Ethernet.

Lantech IPES-3208C features high reliability and robustness coping with extensive EMI/RFI phenomenon, 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, Semi-conductor factory and assembly lines.

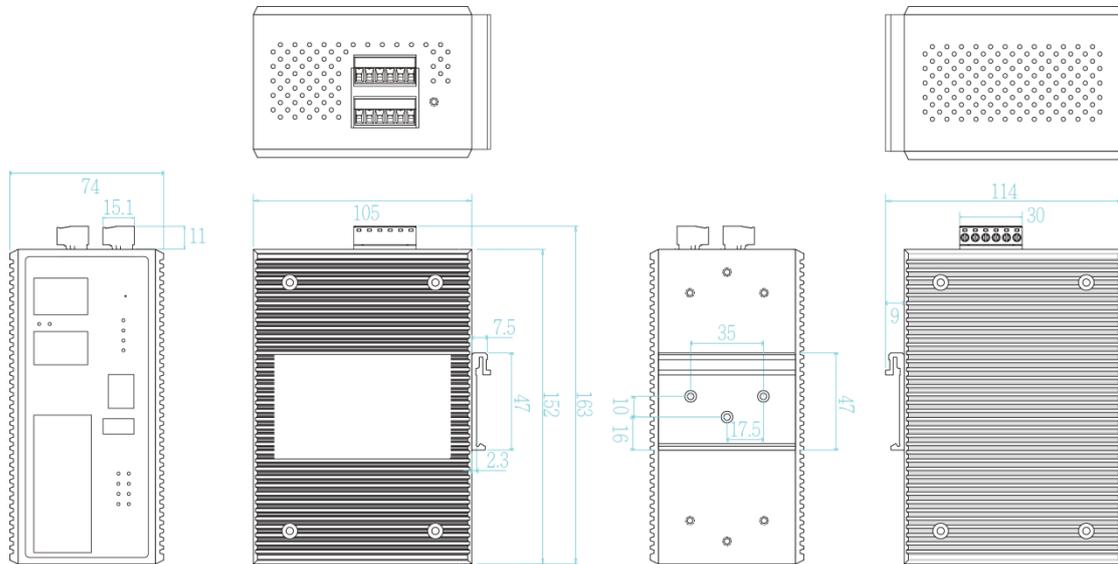
The -E model can be used in extreme environments with an operating temperature range of  $-40^{\circ}C$  to  $75^{\circ}C$ .

## FEATURES & BENEFITS

- **8 10/100TX + 2 10/100/1000T/Dual Speed SFP Combo w/8 PoE 802.3af/at Injectors (Total 10 Ports Switch)**
- **Embedded 8 PoE Injectors 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): 5.6Gbps**
- **8K 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*
- **User friendly UI, auto topology drawing, topology demo, complete CLI for professional setting**
- **Enhanced G.8032 Ring protection in 20ms < 256 switches**
  - *Support single ring topology*
  - *Auto ring configuration*
  - *Co-exist with RSTP on different ports*
- **Provides EFT protection  $\pm 2000$  VDC for power line.**
- **Supports  $\pm 6000$  VDC Ethernet ESD protection**
- **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/ Lantech™ InstaConfig\*\*/ Lantech™ InstaView\*\***
- **DHCP server / client**
- **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, traps, or SMS notification*
- **Repowered auto ring restore**
  - *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; Lantech™ InstaConfig\*\* for multiple upgrade; USB for edited restoration and auto backup**
- **System Event Log, SMTP Email alert, SMS mobile (text) and SNMP Trap for alarm support; 32 RMON counters**
- **Security**
  - *SSL/SSH*
  - *Port Security: 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*
- **Static multicast forwarding forward reversed IGMP flow (MVR) with multicast packets binding with ports for IP surveillance application**
- **Multicast static route for non- IGMP camera to prevent flooding; IGMP router port to assign query in ring and for reversed multicast video flow**
- **IGMPv1,v2,v3 with Query mode for multimedia; GMRP\*\***
- **Factory reset button to restore setting to factory default**
- **Watchdog design to auto reboot switch CPU is found dead**
- **Optional environmental monitoring for system input voltage, current, ambient temperature**

- Supports DIDO (Digital Input/Digital Output) design
- IP30 metal housing with DIN rail and Wall-mount\*\*

**DIMENSIONS (unit=mm)**



**SPECIFICATION**

Hardware Specification		
Standards	IEEE802.3 10Base-T Ethernet IEEE802.3u 100Base-TX IEEE802.3ab 1000Base-T Ethernet IEEE802.3z Gigabit fiber IEEE802.3x Flow Control and Back Pressure IEEE802.3ad Port trunk with LACP IEEE802.1d Spanning Tree IEEE802.1w Rapid Spanning Tree IEEE802.1s Multiple Spanning Tree IEEE802.3ad Link Aggregation Control Protocol (LACP) IEEE802.1AB Link Layer Discovery Protocol (LLDP) IEEE802.1X User Authentication (Radius) IEEE802.1p Class of Service IEEE802.1Q VLAN Tag IEEE802.3at/af Power over Ethernet	1000Base-TX: 2-pair UTP/STP Cat. 5/ 5E/ 6 cable EIA/TIA-568 100-ohm (100m)
Switch Architecture	Back-plane (Switching Fabric): 5.6Gbps	<b>Optical Cable</b> <b>1.25Gbps:</b> Multi mode: 0 to 550 m, 850 nm (50/125 μm); 0 to 2 km, 1310 nm (50/125 μm) Single mode: 0 to 10 km/ 30 km/ 40 km, 1310 nm (9/125 μm); 0 to 50 km/ 60 km/ 80km/ 120 km, 1550 nm (9/125 μm) <b>125Mbps:</b> Multi mode: 0 to 2 km/ 5 km, 1310 nm (62.5/125 μm) Single mode: 0 to 30 km, 1310 nm (62.5/125 μm) <b>WDM 1.25Gbps:</b> Single mode: 0 to 10 km/ 20 km/ 40 km/ 60 km, 1310 nm (9/125 μm); 0 to 80 km, 1490 nm (9/125 μm); 0 to 10 km/ 20 km/ 40 km/ 60 km/ 80 km, 1550 nm (9/125 μm) <b>WDM 125Mbps:</b> Single mode: 0 to 20 km/ 40 km/ 60 km/ 80 km, 1310 nm (9/125 μm); 0 to 20 km/ 40 km/ 60 km/ 80 km, 1550 nm (9/125 μm)
Transfer Rate	14,880pps for Ethernet port 148,800pps for Fast Ethernet port 1,488,000pps for Gigabit Ethernet / Gigabit Fiber port	<b>Protocol</b> CSMA/CD
CPU	Marvell 400Mhz	<b>LED</b> Per unit: Power 1 (Green), Power 2 (Green), Fault (Red), R.M.(Green) Ethernet port: Link/Activity (Green), Speed (Green); Mini-GBIC: Link/Activity (Green)
RAM	64M Byte	<b>DI/DO</b> 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
Flash	128M Byte	<b>Operating Humidity</b> 5% - 95% (Non-condensing)
Mac Address	8K MAC address table	<b>Operating Temperature</b> -20°C~60°C / -4°F~140°F (Standard model) -40°C~75°C / -40°F~167°F(-E model)
Connectors	10/100TX: 8 x ports RJ-45 with Auto MDI/MDI-X function 10/100/1000T/SFP Combo port: 2 x RJ-45 + 2 x 100/1000 SFP socket with DDM RS-232 connector: RJ-45 type USB for configuration editable restore/backup Power & Relay connector: 1 x 6-pole terminal block DIDO : 1 x 6-pole terminal block	<b>Storage Temperature</b> -40°C~85°C / -40°F~185°F
Network Cable	10Base-T: 2-pair UTP/STP Cat. 3, 4, 5/ 5E/ 6 cable EIA/TIA-568 100-ohm (100m) 100Base-TX: 2-pair UTP/STP Cat. 5/ 5E/ 6 cable EIA/TIA-568 100-ohm (100m)	<b>Power Supply</b> 45~57VDC <b>PoE Budget</b> 240W for 45~56V input

	(55V input is recommended for 802.3at 30W applications)	Quality of Service	The quality of service determined by port, Tag and IPv4 Type of service, IPv4 Differentiated Services Code Points - DSCP
PoE pin assignment	RJ-45 port # 1~#8 support IEEE 802.3at/af End-point, Alternative A mode. Per port provides 30W at 54~56VDC/15W at 48V~56VDC. Positive (VCC+): RJ-45 pin 1,2. Negative (VCC-): RJ-45 pin 3,6.	Class of Service	Support IEEE802.1p class of service, per port provides 8 priority queues
Power Consumption	10W	IP Security	Supports 10 IP addresses that have permission to access the switch management and to prevent unauthorized intruder.
Case Dimension	Metal case. IP-30, 74 (W) x 105 (D) x 152 (H) mm	Login Security	Supports IEEE802.1X Authentication/RADIUS
Weight	900 g	Port Mirror	Support 3 mirroring types: "RX, TX and Both packet"
Installation	DIN Rail and Wall Mount** Design	Network Security	Support 10 IP addresses that have permission to access the switch management and to prevent unauthorized intruder. 802.1X access control for port based and MAC based authentication/MAC-Port binding Management access control with priority 256 Policy based Access Control List SSL/ SSH for Management HTTPS for secure access to the web interface
EMI & EMS	FCC Class A, CE EN55022 Class A, CE EN55024, CE EN61000-4-2, CE EN61000-4-3, CE EN61000-4-4, CE EN61000-4-5, CE EN61000-4-6, CE N61000-4-8, EN61000-4-11	IGMP	Support IGMP snooping v1,v2,v3; Supports IGMP static route; 256 multicast groups; IGMP router port ; IGMP query; GMRP**
Stability Testing	IEC60068-2-32 (Free fall), IEC60068-2-27 (Shock), IEC60068-2-6 (Vibration)	MVR	Static multicast forwarding forward reversed IGMP flow (MVR) with multicast packets binding with ports for IP surveillance application
MTBF	704,552 hours	Bandwidth Control	Support ingress packet filter and egress packet limit. The egress rate control supports all of packet type. 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 an accurate value through the pull-down menu for the ingress packet filter and the egress packet limit.
Warranty	5 years	RTC	Built-in Real Time Clock to keep track of time always
<b>Software Specification</b>		Flow Control	Supports Flow Control for Full-duplex and Back Pressure for Half-duplex
Management	SNMP v1 v2c, v3/ Web/Telnet/CLI	System Log	Supports System log record and remote system log server
SNMP MIB	RFC 1215 Traps MIB*, RFC 1213 MIBII RFC 1158 MIBII RFC 1157 SNMP MIB*, RFC 1493 Bridge MIB*, RFC 1573 IF MIB RFC 2674 VLAN MIB, Partial RFC 1757 RMON, RFC 2674 Q-Bridge MIB*; Bridge MIB*, LLDP MIB* RSTP MIB* Private MIB	SMTP/Text SMS	Supports SMTP Server and 8 e-mail accounts for receiving event alert; can send SMS text alert via mobile
ITU G.8032	Support ITU G.8032 v2/2012 for single ring protection in less than 20ms for self-heal recovery (auto mode) Co-exist with RSTP on different ports	Relay Alarm	Provides one relay output for port breakdown, power fail and alarm. Alarm Relay current carry ability: 1A @ DC24V
PoE Management	1. PoE Detection to check if PD is hang up then restart the PD 2. PoE Scheduling to On/OFF PD upon routine time table	Protection	<ul style="list-style-type: none"> <li>■ Miss-wiring avoidance</li> <li>■ Repowered auto ring restore</li> <li>■ Loop protection</li> </ul>
Per Port PoE Status	On/ Off, voltage, current, watts, temperature	SNMP Trap	Up to 10 trap stations; trap types including: <ul style="list-style-type: none"> <li>● Device cold start</li> <li>● Authorization failure</li> <li>● Port link up/link down</li> <li>● DI/DO open/close</li> <li>● Typology change(ITU ring)</li> <li>● PoE ping failure</li> <li>● Power failure</li> <li>● Environmental abnormal**</li> </ul>
User friendly UI	<ul style="list-style-type: none"> <li>■ Auto topology drawing</li> <li>■ Topology demo</li> <li>■ Auto configuration for G.8032(auto mode) for single ring</li> <li>■ DDM threshold monitoring with dB values***</li> <li>■ Complete CLI for professional setting</li> </ul>	DHCP	Provide DHCP Client/ DHCP Server
Port Trunk with LACP	LACP Port Trunk: 8 Trunk groups/Maximum 10 trunk members	DNS	Provide DNS client feature and support Primary and Secondary DNS server.
LLDP	Supports LLDP to allow switch to advise its identification and capability on the LAN	SNTP	Supports SNTP to synchronize system clock in Internet
CDP	Cisco Discovery Protocol for topology mapping	Firmware Update	Supports TFTP firmware update, TFTP backup and restore; HTTP firmware upgrade; Lantech™ InstaConfig** for multiple upgrade
Environmental Monitoring**	System status for input voltage, current and ambient temperature to be shown in GUI and sent alerting if any abnormal status(-M models)	Configuration upload and	Supports text configuration file for system quick installation; Support factory reset button to restore all
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** (256 Groups)***, QinQ		
IPv6/4	Present		
Spanning Tree	Supports IEEE802.1d Spanning Tree and IEEE802.1w Rapid Spanning Tree, IEEE802.1s Multiple Spanning Tree		

download	settings back to factory default; USB for edited restoration and auto backup	CLI interface	*Future Release
l/alias	Each port allows an alphabetic string of 128-byte assigned as its own unique name via the SNMP or		**Optional ***Optional DDM SFP required

## ORDERING INFORMATION

- **IPES-3208C.....P/N: 8350-790**  
8 10/100TX + 2 10/100/1000T/Dual Speed SFP Combo w/8 PoE Mode A 802.3at/af 30W Managed Industrial Switch; -20°C to 60°C; Dual 45~57VDC
- **IPES-3208C-E.....P/N: 8350-791**  
8 10/100TX + 2 10/100/1000T/Dual Speed SFP Combo w/8 PoE Mode A 802.3at/af 30W Managed Industrial Switch; -40°C to 75°C; Dual 45~57VDC
- **IPES-3208C-M.....P/N: 8350-792**  
8 10/100TX + 2 10/100/1000T/Dual Speed SFP Combo w/8 PoE Mode A 802.3at/af 30W Managed Industrial Switch w/environmental monitoring; -20°C to 60°C; Dual 45~57VDC
- **IPES-3208C-M-E.....P/N: 8350-793**  
8 10/100TX + 2 10/100/1000T/Dual Speed SFP Combo w/8 PoE Mode A 802.3at/af Managed Industrial Switch w/environmental monitoring; -40°C to 75°C; Dual 45~57VDC

## OPTIONAL ACCESSORIES

### 48VDC DIN Rail Power for 802.3at Applications

- **AD1240-48S** 43.2~52.8VDC, 4.3A, Wide AC Input, Build-in fan Cooled, DIN Rail or Wall Mounted, RoHS, Operating Temp. -20°C~50°C (ambient, derating each output at 2.5% per degree from 50°C ~ 70°C)
- **AD1360-48S** 43.2~52.8VDC, 6.5A, Wide AC Input, Build-in fan Cooled, DIN Rail or Wall Mounted, RoHS, Operating Temp. -20°C~50°C (ambient, derating each output at 2.5% per degree from 50°C ~ 70°C)
- **AD1500-48S** 43.2~52.8VDC, 9A, Wide AC Input, Build-in fan Cooled, DIN Rail or Wall Mounted, RoHS, Operating Temp. -20°C~50°C (ambient, derating each output at 2.5% per degree from 50°C ~ 70°C)

### Mini GBIC (SFP)

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