IES-5408DFT

2 10/100/1000T + 2 100/1000 SFP + 8 10/100TX L2+ Industrial Managed Ethernet Switch w/ Enhanced G.8032 Ring

- *Enhanced G.8032 ring protection < 20ms for single ring. Supports auto mode, enhanced mode, train mode, multi-VLAN and basic mode; Enhanced G.8032 ring covers multicast packets; MSTP 16MSTI /RSTP; support MRP ring*
- *Miss-wiring avoidance & Node failure protection*
- *User friendly UI, including auto topology drawing; Complete CLI*
- *Support LACP link aggregation, IGMP v3/router port,*
- *DHCP server & DHCP Option82; DHCP Snooping; Port based DHCP distribution, Mac based DHCP server, QoS by VLAN, SSH v2/SSL, HTTPS, INGRESS/EGRESS ACL L2/L3, TACACS+**, QinQ*
- *Protocol based VLAN; IPv4 Subnet based VLAN*
- *Optional Environmental Monitoring** for temp., voltage and current (-M model)*
- *Wide range dual DC input from 18V~72V with galvanic isolation (-E model)*
- *USB port to backup, restore the configuration file and upgrade firmware*
- *EN50121-4/50121-5 verification*

OVERVIEW

Lantech IES-5408DFT is a high performance L2+ (Gigabit uplink) switch with 8 10/100TX + 2 10/100/1000T + 2 Dual Speed SFP which provides L2 wire speed and advanced security function for network aggregation deployment. It delivers ITU G.8032 enhanced ring recovery less than 20ms in single ring while also supports train ring, enhanced mode, multiple VLAN model with easy configuration. 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. It also supports Cisco Discovery Protocol (CDP) for Ciscoworks to detect the switch info and show on L2 map topology.

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

The IES-5408DFT 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 IES-5408DFT 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.

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 IES-5408DFT 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 each spanning tree for each 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 IES-5408DFT much easier to get hands-on. 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 IES-5408DFT 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 IES-5408DFT 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 and traps.

Optional environmental monitoring** for switch inside information (-M model)
The environmental monitoring can detect switch overall temperature, voltage and current where can send the SNMP traps, email alert when abnormal.

Wide range dual DC powered input with galvanic isolation; Relay contact alarm, High ESD protection
The Lantech IES-5408DFT is designed with wide range dual power input from 18V~72VDC with galvanic isolation. Featured with relay contact alarm function, the IES-5408DFT is able to connect with alarm system in case of power failure or port disconnection. The IES-5408DFT also provides ±2000V EFT/SURGE and ±4000 VDC (Contact) / ±8000 VDC (Air) Ethernet ESD protection, which can reduce unstable situation caused by power line and Ethernet.

Industrial hardened design for extended temperature operation
Lantech IES-5408DFT 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°C to 75°c.

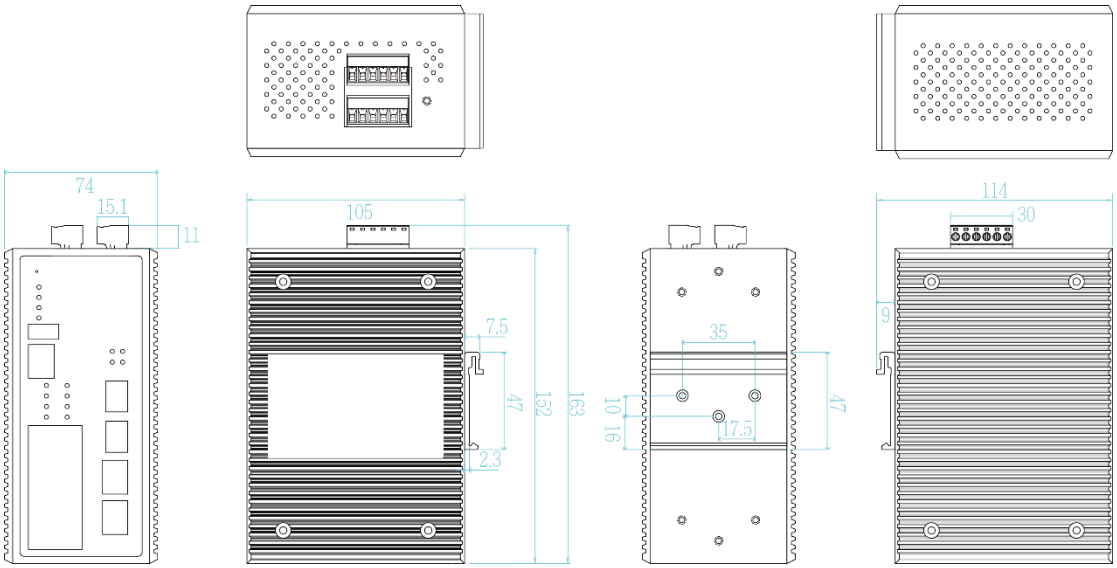
FEATURES & BENEFITS

- **8 10/100TX + 2 10/100/1000T + 2 Dual Speed SFP (Total 12 Ports Switch)**
- **Back-plane (Switching Fabric): 9.6Gbps**
- **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**
- **User friendly UI, auto topology drawing, topology demo, complete CLI for professional setting**
- **Enhanced G.8032 Ring recovery < 20ms in single ring**
  - *Support various ring/chain topologies, including train ring, enhanced ring, basic ring, auto ring & multiple VLAN ring*
  - *Enhanced G.8032 ring configuration with ease*
  - *Auto ring configuration (auto mode) for single ring*
  - *Covers multi-cast and data packets*
- **Provides EFT protection ±2000 VDC for power line.**
- **Supports ±4000 VDC (Contact) and ±8000 VDC (Air) 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 with 16 MSTI**
- **4K 802.1Q VLAN, Port based VLAN, GVRP, VLAN QinQ, QoS**
- **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; Port based DHCP server; DHCP**

Snooping; DHCP Option 66; basic IPv6 DHCP server

- **Mac based DHCP server to assign IP address**
- **Bandwidth Control**
  - *Ingress packet filter and egress rate limit*
  - *Broadcast/multicast packet filter control*
- **Relay alarm output system events**
- **Miss-wiring avoidance**
  - *LED indicator*
- **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**
- **Configuration backup and restoration**
  - *Supports text configuration file for system quick installation*
  - *USB port for upload / download configuration by USB dongle*
- **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.*
  - *TACACS+***
  - *Login Security: IEEE802.1X/RADIUS*
  - *HTTPS for secure access to the web interface*
- **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 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**
- **MLD Snooping for IPv6 Multicast stream**
- **Diagnostic including Ping / DDM information**
- **Supports 2DI / 2DO (2Digital Input/2Digital Output)**
- **Wide range dual input power from 18V to 56V with galvanic isolation**
- **Environmental monitoring** for system input voltage, current and ambient temperature (-M model)**
- **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 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
Switch Architecture	Back-plane (Switching Fabric): 9.6Gbps
Transfer Rate	14,880pps for Ethernet port 148,800pps for Fast Ethernet port 1,488,000pps for Gigabit Ethernet / Gigabit Fiber port
Mac Address	16K MAC address table
Jumbo frame	10KB
Connectors	10/100TX: 8 x ports RJ-45 with Auto MDI/MDI-X function 10/100/1000T: 2 x ports RJ-45 with Auto MDI/MDI-X function Mini-GBIC: 2 x 100/1000 SFP socket with DDM RS-232 connector: RJ-45 type USB x 1 Power & Relay connector: 1 x 6-pole terminal block DIDO : 1 x 6-pole terminal block
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) 1000Base-TX: 2-pair UTP/STP Cat. 5/ 5E/ 6 cable EIA/TIA-568 100-ohm (100m)
Optical Cable	**1.25Gbps:** 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) **125Mbps:** 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) **WDM 1.25Gbps:** 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) **WDM 125Mbps:** 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)
LED	Per unit: Power 1 (Green), Power 2 (Green), FAULT (Red), RM(Green) Ethernet port: Link/Activity (Green), Speed (Green); Mini-GBIC: Link/Activity (Green)
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
Operating Humidity	5% ~ 95% (Non-condensing)
Operating Temperature	-20°C~60°C / -4°F~140°F (Standard model) -40°C~75°C / -40°F~167°F(-E model)
Storage Temperature	-40°C~85°C / -40°F~185°F
Power Supply	18 to 72 VDC with galvanic isolation
Power Consumption	10W
Case Dimension	Metal case. IP-30, 74 (W) x 105 (D) x 152 (H) mm
Weight	900 g
Installation	DIN Rail and Wall Mount** Design
EMI & EMS	FCC Class A, CE EN55032, CE EN55011, CE EN61000-6-2, CE EN61000-6-4, CE EN61000-4-2, CE EN61000-4-3, CE EN61000-4-4, CE EN61000-4-5, CE EN61000-4-6, CE EN61000-4-8
	CE EN 61000-4-11 BS EN55032, BS EN55024, BS EN61000-4-2, BS EN61000-4-3, BS EN61000-4-4, BS EN61000-4-5, BS EN61000-4-6, BS EN61000-4-8
Stability Testing	IEC60068-2-32 (Free fall), IEC60068-2-27 (Shock), IEC60068-2-64 (Vibration)
Railway compliance	EN 50121-4 EN 50121-5
Safety	EN 60950-1 IEC/BS EN IEC 62368-1 2020/A11:2020
MTBF	830,589 hrs (standards: IEC 62380)
Warranty	5 years

Software Specification

Management	SNMP v1 v2c, v3/ Web/Telnet/CLI
SNMP MIB	MIB MIBII SNMP MIB Bridge MIB IF MIB RMON MIB Private MIB
ITU G.8032	Support ITU G.8032 v2/2012 for Ring protection in less than 20ms for self-heal recovery (single ring) Support various ring/chain topologies Includes train ring, auto ring, basic single ring, enhanced ring, multiple-VLAN ring Includes train ring & double ring 12 topologies etc Enhanced G.8032 ring configuration with ease. Protect multicast & unicast data
User friendly UI	■ Auto topology drawing ■ Topology demo ■ Auto configuration for G.8032(auto mode) for single ring ■ DDM threshold monitoring with dB values*** ■ Complete CLI for professional setting
Port Trunk with LACP	LACP Port Trunk: 8 Trunk groups
LLDP	Supports LLDP to allow switch to advise its identification and capability on the LAN
CDP	Cisco Discovery Protocol for topology mapping
Environmental Monitoring**	System status for input voltage, current and ambient temperature to be shown in GUI and sent alerting if any abnormal status (-M model)
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, Protocol based VLAN ; IPv4 Subnet based VLAN
MLD Snooping	Support IPv6 Multicast stream
RSTP/MSTP	Supports IEEE802.1d Spanning Tree and IEEE802.1w Rapid Spanning Tree, IEEE802.1s Multiple Spanning Tree with 16 MSTI
Quality of Service	The quality of service determined by port / CoS / ToS / VLAN / 61375-3-4
Class of Service	Support IEEE802.1p class of service, per port provides 8 priority queues
Login Security	Supports IEEE802.1X Authentication/RADIUS
Port Mirror	Support 3 mirroring types: “RX, TX and Both packet”
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 Ingress/Egress ACL L2/L3 SSL/ SSH v2 for Management HTTPS for secure access to the web interface TACACS+** for Authentication
IGMP	Support IGMP snooping v1,v2,v3; 1024 multicast groups; IGMP router port ; IGMP query; GMRP**
Static MAC-Port bridge	Static multicast forwarding forward reversed IGMP flow with multicast packets binding with ports for IP surveillance application
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.
Flow Control	Supports Flow Control for Full-duplex and Back Pressure for Half-duplex
System Log	Supports System log record and remote system log server
Relay Alarm	Provides one relay output for port breakdown, power fail and alarm. Alarm Relay current carry ability: 1A @ DC24V

Protection	■ Miss-wiring avoidance ■ Node failure protection ■ Loop protection
SNMP Trap	Up to 10 trap stations; trap types including: ● Device cold start ● Authorization failure ● Port link up/link down ● DI/DO open/close ● Typology change (ITU ring) ● Power failure ● Environmental abnormal**
DHCP	Provide DHCP Client/ DHCP Server/DHCP Option 82/Port based DHCP; DHCP Option 66; DHCP Snooping; basic IPv6 DHCP server
Mac based DHCP Server	Assign IP address by Mac
Diagnostic	Support Ping and DDM information
DNS	Provide DNS client feature
SNTP	Supports SNTP to synchronize system clock in Internet
Firmware Update	Supports TFTP firmware update, TFTP backup and restore; HTTP firmware upgrade
Configuration backup & restore	Supports text configuration file for system quick installation USB port for upload/download configuration by USB dongle
Auto Provision	To verify switch firmware with the latest or certain version

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

ORDERING INFORMATION

- **IES-5408DFT……P/N: 8350-502**
  2 10/100/1000T+2 100/1000 SFP + 8 10/100TX L2 +Industrial Managed Ethernet Switch w/USB slot; dual 18~72VDC input; -20°C to 60°C
- **IES-5408DFT-E……P/N: 8350-504**
  2 10/100/1000T+2 100/1000 SFP + 8 10/100TX L2 +Industrial Managed Ethernet Switch w/USB slot; dual 18~72VDC input ; -40°C to 75°C
- **IES-5408DFT-M……P/N: 8350-503**
  2 10/100/1000T+2 100/1000 SFP + 8 10/100TX L2 +Industrial Managed Ethernet Switch w/USB slot; w/environmental monitoring; dual 18~72VDC input; -20°C to 60°C
- **IES-5408DFT-M-E……P/N: 8350-505**
  2 10/100/1000T+2 100/1000 SFP + 8 10/100TX L2 +Industrial Managed Ethernet Switch w/USB slot; w/environmental monitoring; dual 18~72VDC input; -40°C to 75°C

OPTIONAL ACCESSORIES

DIN Rail Power

- **MDR-40 Series** 40W Single Output Industrial Din Rail Power; 85-264VAC / 120-370VDC Input Range; Cooling by free air convection; RoHS2 ; Operating Temp. -20°C~70°C (ambient, derating each output at 4% per degree from 60°C ~ 70°C)
- **MDR-20 Series** 20W Single Output Industrial Din Rail Power; 85-264VAC / 120-370VDC 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)

Mini GBIC (SFP)

- **8330-162-V1** MINI GBIC 1000SX (LC/MM/0.5KM) Transceiver
- **8330-163-V1** MINI GBIC 1000SX2 (LC/MM/2KM) Transceiver
- **8330-165-V1** MINI GBIC 1000LX (LC/SM/10KM) Transceiver
- **8340-0591-V1** MINI GBIC 1000LHX (LC/SM/40KM) Transceiver
- **8330-166-V1** MINI GBIC 1000XD (LC/SM/50KM) Transceiver
- **8330-169-V1** MINI GBIC 1000XD (LC/SM/60KM) Transceiver
- **8330-167-V1** MINI GBIC 1000ZX (LC/SM/80KM) Transceiver
- **8330-170-V1** MINI GBIC 1000EZX (LC/SM/120KM) Transceiver
- **8330-168-V1** MINI GBIC 10/100/1000T (100m) Transceiver
- **8330-060-V1** MINI GBIC 100Base (LC/MM/2KM) Transceiver
- **8330-065-V1** MINI GBIC 100Base (LC/MM/5KM) Transceiver
- **8330-061-V1** MINI GBIC 100Base (LC/SM/30KM) Transceiver
- **8330-197-V1** 1.25Gbps BiDi SFP 0.5KM Transceiver (WDM 1310)
- **8330-198-V1** 1.25Gbps BiDi SFP 0.5KM Transceiver (WDM 1550)
- **8330-195-V1** 1.25Gbps BiDi SFP 2KM Transceiver (WDM 1310)
- **8330-196-V1** 1.25Gbps BiDi SFP 2KM Transceiver (WDM 1550)
- **8330-188-V1** 1.25Gbps BiDi SFP 10KM Transceiver (WDM 1310)
- **8330-189-V1** 1.25Gbps BiDi SFP 10KM Transceiver (WDM 1550)
- **8330-186-V1** 1.25Gbps BiDi SFP 20KM Transceiver (WDM 1310)
- **8330-187-V1** 1.25Gbps BiDi SFP 20KM Transceiver (WDM 1550)
- **8330-180-V1** 1.25Gbps BiDi SFP 40KM Transceiver (WDM 1310)
- **8330-182-V1** 1.25Gbps BiDi SFP 40KM Transceiver (WDM 1550)

8330-181-V1	1.25Gbps BiDi SFP 60KM Transceiver (WDM 1310)
8330-183-V1	1.25Gbps BiDi SFP 60KM Transceiver (WDM 1550)
8330-184-V1	1.25Gbps BiDi SFP 80KM Transceiver (WDM 1490)
8330-185-V1	1.25Gbps BiDi SFP 80KM Transceiver (WDM 1550)
8330-071-V1	125Mbps BiDi SFP 2KM (WDM 1310) Transceiver
8330-072-V1	125Mbps BiDi SFP 2KM (WDM 1550) Transceiver
8330-069-V1	125Mbps BiDi SFP 20KM (WDM 1310) Transceiver
8330-068-V1	125Mbps BiDi SFP 20KM (WDM 1550) Transceiver
8330-080-V1	125Mbps BiDi SFP 40KM (WDM 1310) Transceiver
8330-082-V1	125Mbps BiDi SFP 40KM (WDM 1550) Transceiver
8330-081-V1	125Mbps BiDi SFP 60KM (WDM 1310) Transceiver
8330-083-V1	125Mbps BiDi SFP 60KM (WDM 1550) Transceiver
8330-084-V1	125Mbps BiDi SFP 80KM (WDM 1310) Transceiver
8330-085-V1	125Mbps BiDi SFP 80KM (WDM 1550) Transceiver
8330-191-V1	Dual Speed SFP 100M/1000M-LX 10KM Transceiver

All SFP# ended with D are with DDM function

Wall Mount Bracket

MBAK19003	Wall mount bracket for 74(W) x 105 (D) x 152 (H) mm / 96 (W) x 105 (D) x 152 (H) mm Industrial Ethernet switches
MBAK19004	19" Rack Mounting Kit for 74x105x152mm/74x135x152mm Industrial Ethernet Switch

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