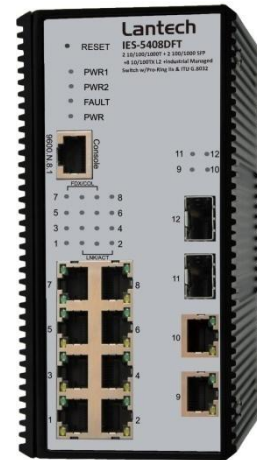


IES-5408DFT-PT

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

- IEC61850-3 & IEEE1613 compliance
- Goose monitoring; Built-in MMS server for power SCADA
- Enhanced G.8032 ring protection < 20ms for single ring. Supports auto mode, enhanced mode, train mode and basic mode; Enhanced G.8032 ring covers multicast packets; MSTP 8/16* MSTI /RSTP
- 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 & DHCP Option82 for Port/Vlan based DHCP distribution, Mac based DHCP server, QoS by VLAN, SSH/SSL, HTTPS, ACL, IPv6, SMS
- 1500VDC Isolated Power/9KB jumbo frame/ 2xDIDO



OVERVIEW

Lantech IES-5408DFT-PT is a high performance L2+ (Gigabit uplink) switch with 8 10/100TX + 2 10/100/1000T + 2 Dual Speed SFP that complies with IEC 61850-3 & IEEE 1613. It delivers ITU G.8032 enhanced ring recovery less than 20ms including train ring, enhanced mode for easy configuration and aggregation ring*, comprehensive QoS, QoS by VLAN, advanced security including ACL L2/L3, SSH/SSL, Mac based DHCP server, DHCP Option 82, DHCP server, IGMPv1/v2/v3/router port, QinQ* (double tag VLAN) 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.

The exclusive GOOSE monitoring function (IEC packet) can display the counter of GOOSE message transmitted and received by port. The built-in MMS (Manufacturing Messaging Specification) server can help power SCADA to monitor and control switch by data modeling.

The IES-5408DFT-PT 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-PT 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.

DHCP option 82 and relay agent function (Port/Vlan based DHCP distribution) can offer the same IP address on port base or VLAN base where there is need to replace the new device connecting to Lantech switches to avoid any network disruption. The built-in DHCP Option 82 server offers the convenience of policy setting on the switch. Mac based DHCP server function assigns an IP address according to its MAC address to include dumb switches in DHCP network.

The user friendly UI, innovative auto topology drawing and topology demo makes IES-5408DFT-PT much easier to get hands-on. The switch also equips the RTC (real time clock) which can keep track of time always. The IES-5408DFT-PT 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 IES-5408DFT-PT 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 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 8/16* MSTI.

The configuration file of Lantech IES-5408DFT-PT 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.

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.

The IES-5408DFT-PT 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

IES-5408DFT-PT 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 Lantech IES-5408DFT-PT has two isolated power inputs from DC18~72V and HV model offers one isolated 90~305VAC/120~430VDC power conversion. Featured with relay contact alarm function, the IES-5408DFT-PT is able to connect with alarm system in case of power failure. The IES-5408DFT-PT also provides ± 4 KV EFT, ± 4 KV surge and ± 8 KV contact / 15KV air ESD protections, which can reduce unstable condition caused by power line and Ethernet. It features high reliability and robustness coping with extensive EMI/RFI phenomenon, surge, inductive load switching environment usually found in substation, steel automation, mining and process control. Widely operational temperature capacity (standard model: -20°C~60°C / -E model: -40°C~75°C) ensures the IES-5408DFT-PT runtime through the harsh environment.

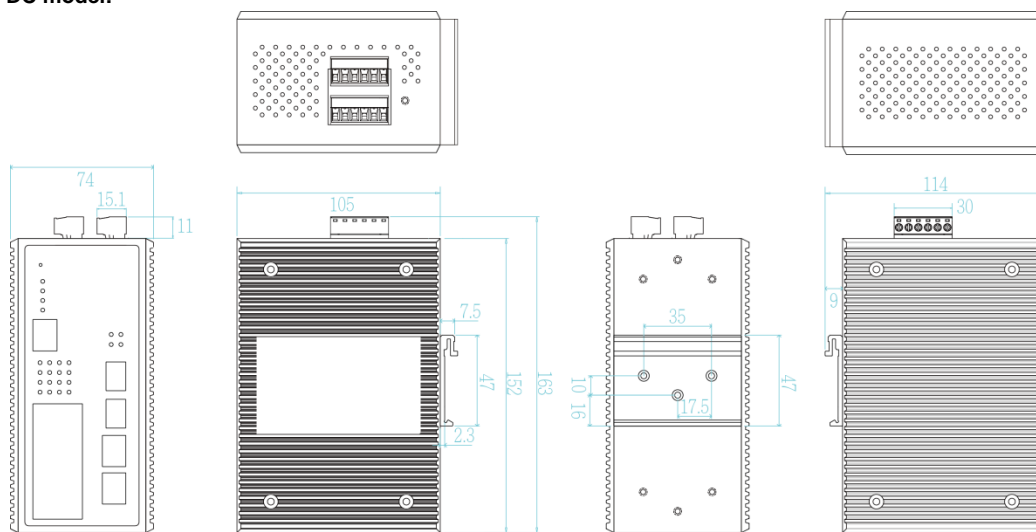
FEATURES & BENEFITS

- **System Interface/Performance**
 - 8 10/100TX + 2 10/100/1000T + 2 Dual Speed SFP (Total 12 Ports Switch)
 - IEC-61850 & IEEE1613 Compliance
 - Dual isolated power input (18~72VDC) or one isolated 90~305VAC/120~430VDC (HV model)
 - Back-plane (Switching Fabric): 9.6Gbps
 - 16K MAC address table
 - Widely operational temperature capacity (standard model: -20°C~60°C / -E model: -40°C~75°C)
 - Fan less design
- **Goose monitoring for port counter of Goose message (IEC packets)**
- **MMS server built-in for power SCADA monitoring/control**
- **Provides EFT protection ± 4 K VDC for power line**
- **Supports ± 8 K contact/ 15K air Ethernet ESD protection**
- **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 < 256 switches**
 - Support various ring/chain topologies, including train ring & aggregation ring*
 - Enhanced G.8032 ring configuration with ease
 - Auto ring configuration(auto mode) for single ring
 - Ring covers multicast on different ports
- **Aggregation ring for ring redundancy and bandwidth combination***
- **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/ Lantech™ InstaConfig**/ Lantech™ InstaView****
- **DHCP server / client / DHCP Option 82 relay / DHCP Option 82 server for Port/Vlan based DHCP distribution**
- **Mac based DHCP server to assign IP address that includes dumb switches in DHCP network**
- **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**
- **System Event Log, SMTP Email alert, SMS mobile (text) and SNMP Trap for alarm support; 32 RMON**

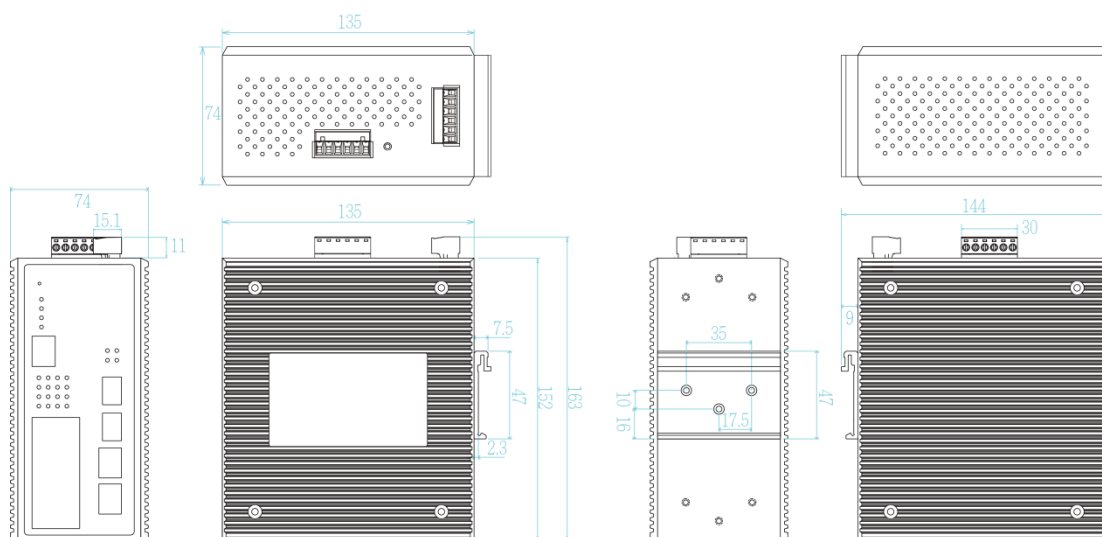
- counters
- **Security**
 - SSL/SSH/ACL L2&L3
 - Port Security: MAC address entries/Filter/MAC-Port binding
 - IP Security: IP address security management to prevent unauthorized intruder.
 - Management access control with priority
 - Login Security: IEEE802.1X/RADIUS
 - HTTPS for secure access to the web interface
- **Static multicast forwarding forward reversed IGMP flow 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**
- **Multicast VLAN Registration* for metro video**
- **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**
- **Supports DIDO (Digital Input/Digital Output)**
- **IP30 metal housing with DIN rail and Wall-mount** design**

DIMENSIONS (unit=mm)

DC model:



HV model:



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 IEEE1588 Precision Time Protocol v2
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
CPU	Marvell 800Mhz
RAM	256M Byte
Flash	128M Byte
Mac Address	16K MAC address table
Jumbo frame	10KB on all ports
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 Power & P-Fail connector: 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)
DDM	Conform to SFF-8472 to show diagnostic SFP with temperature, current, voltage, input and output power
Protocol	CSMA/CD

LED	Per unit: Power 1 (Green), Power 2 (Green), P-Fail (Red) 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	Dual isolated power input (18~72VDC) or one isolated 90~305VAC/120~430VDC (HV model)
Power Consumption	12W
Case Dimension	Metal case. IP-30, 74 (W) x 105 (D) x 152 (H) mm (DC model) 74 (W) x 135 (D) x 152 (H) mm (HV model)
Weight	900 g
Installation	DIN Rail and Wall Mount** Design
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 EN61000-4-8, EN61000-4-11
Stability Testing	IEC60068-2-32 (Free fall), IEC60068-2-27 (Shock), IEC60068-2-6 (Vibration), IEC60870-2-2, IEC60068-2-30
Power Automation	IEC 61850-3 IEEE 1613
MTBF	270,825 hrs
Warranty	5 years
Software Specification	
Management	SNMP v1 v2c, v3/ Web/Telnet/CLI
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 1643 EtherLike, Partial RFC 1757 RMON, RFC 2674 Q-Bridge MIB RFC 2790 Host Resource MIB LLDP MIB* RSTP MIB* Private MIB
ITU G.8032	Support ITU G.8032 v2/2012 for Ring protection in less than 20ms for self-heal recovery (basic mode) Support various ring/chain topologies Includes train ring & aggregation ring* Enhanced G.8032 ring configuration with ease Ring covers multicast on different ports
User friendly UI	<ul style="list-style-type: none"> ■ 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/Maximum 8 trunk members Aggregation ring for ring redundancy and bandwidth combination*
LLDP	Supports LLDP to allow switch to advise its identification and capability on the LAN
CDP	Cisco Discovery Protocol for topology mapping
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 up to 256 groups**, QinQ*, QOS QinQ*
IPv6/4	Present
Spanning Tree	Supports IEEE802.1d Spanning Tree and IEEE802.1w Rapid Spanning Tree, IEEE802.1s Multiple Spanning Tree
Quality of Service	The quality of service determined by port, Tag and IPv4 Type of service, IPv4 Differentiated Services Code Points - DSCP
Class of Service	Support IEEE802.1p class of service, per port provides 8 priority queues
QoS by VLAN	Tagged QoS by VLAN for all devices in the network
IP Security	Supports 10 IP addresses that have permission to access the switch management and to prevent unauthorized intruder.
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 256 Policy based Access Control List SSL/SSH for Management HTTPS for secure access to the web interface TACACS+* for Authentication
IGMP	Support IGMP snooping v1,v2,v3; Supports IGMP static route; 1024 multicast groups; IGMP router port ; IGMP query; GMRP*, QinQ*, QOS QinQ*
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.
RTC	Built-in Real Time Clock to keep track of time always
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
SMTP/Text SMS	Supports SMTP Server and 6 e-mail accounts for receiving event alert; can send SMS text alert via mobile
Relay Alarm	Provides one relay output for port breakdown, power fail and alarm. Alarm Relay current carry ability: 1A @ DC24V
Protection	■ Miss-wiring avoidance ■ Repowered auto ring restore ■ Loop protection
SNMP Trap	Up to 3 trap stations; trap types including: ● Device cold start ● Authorization failure ● Port link up/link down ● DI/DO open/close ● Environmental abnormal
DHCP	Provide DHCP Client/ DHCP Server/DHCP Option 82/Port based&VLAN based DHCP distribution (DHCP relay agent)
Mac based DHCP Server	Assign IP address by Mac that can include dumb switch in DHCP network
DNS	Provide DNS client feature and support Primary and Secondary DNS server.
SNTP	Supports SNTP to synchronize system clock in Internet
Goose Monitoring	Show individual Goose TX / RX counter (IEC packets)
IEC 61850-9-4	Built in MMS server for data modeling for power SCADA
Firmware Update	Supports TFTP firmware update, TFTP backup and restore; HTTP firmware upgrade; Lantech™ InstaConfig** for multiple upgrade
Configuration upload and download	Supports text configuration file for system quick installation; Support factory reset button to restore all settings back to factory default
IfAlias	Each port allows an alphabetic string of 128-byte assigned as its own unique name via the SNMP or CLI interface

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

ORDERING INFORMATION

- **IES-5408DFT-PT-HV.....P/N: 8350-507**
2 10/100/1000T+2x100/1000 SFP + 8 10/100TX L2 +Industrial Managed Switch w/ One 90~305VAC/120~430VDC isolated power conversion; -20°C to 60°C
- **IES-5408DFT-PT-HV-E.....P/N: 8350-508**
2 10/100/1000T+2x100/1000 SFP + 8 10/100TX L2 +Industrial Managed Switch w/ One 90~305VAC/120~430VDC isolated power conversion; -40°C to 75°C
- **IES-5408DFT-PT.....P/N: 8350-509**
2 10/100/1000T+2x100/1000 SFP + 8 10/100TX L2 +Industrial Managed Switch w/ Dual isolated DC power input 18V~72V; -20°C to 60°C
- **IES-5408DFT-PT-E.....P/N: 8350-510**
2 10/100/1000T+2x100/1000 SFP + 8 10/100TX L2 +Industrial Managed Switch w/ Dual isolated DC power input 18V~72V; -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)

- | | | | |
|--------------------|--|-------------------|---|
| ■ 8330-162X | MINI GBIC 1000SX (LC/0.5km) Transceiver | ■ 8330-169 | MINI GBIC 1000XD (LC/60km) Transceiver |
| ■ 8330-163X | MINI GBIC 1000SX2 (LC/2km) Transceiver | ■ 8330-167 | MINI GBIC 1000ZX (LC/80km) Transceiver |
| ■ 8330-165X | MINI GBIC 1000LX (LC/10km) Transceiver | ■ 8330-170 | MINI GBIC 1000EZ (120km) Transceiver |
| ■ 8340-0591 | MINI GBIC 1000LHX (LC/40km) Transceiver | ■ 8330-168 | MINI GBIC 10/100/1000T (100m) Transceiver |
| ■ 8330-166 | MINI GBIC 1000XD (LC/50km) Transceiver | | |
| ■ 8330-060 | 100Base FX 2KM, Multi-mode, LC Transceiver | | |
| ■ 8330-065 | 100Base FX 5KM, Multi-mode, LC Transceiver | | |
| ■ 8330-061 | 100Base LX 30KM, Single-mode, LC 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 switches
- MBAK19004** 19" Rack Mounting Kit for 74x105x152mm/74x135x152mm Industrial Switch

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