IES-4F16E-P-M2

Industrial Layer 2 Managed Gigabit PoE Switch with 4 SFP Slots and 16 PoE+ RJ45 Ports

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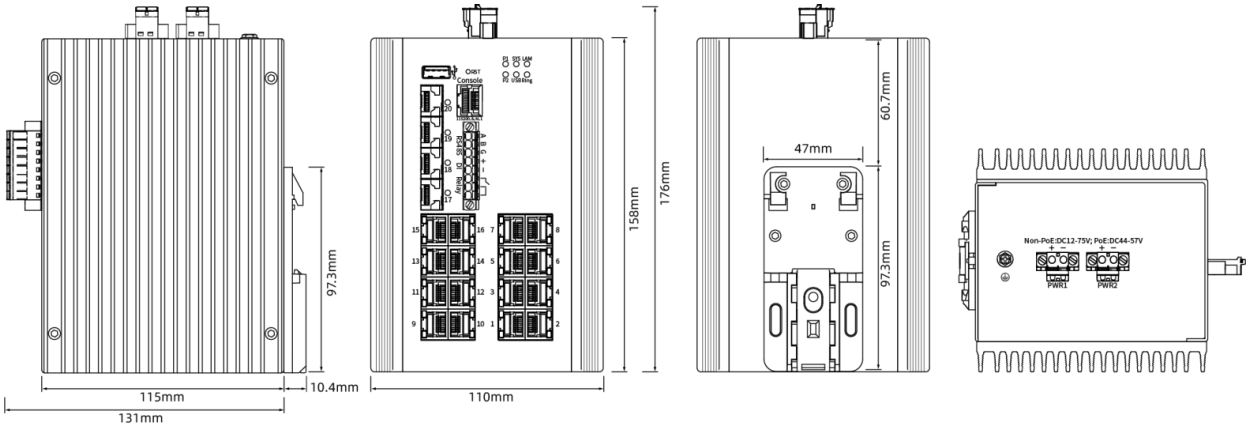
Key Features

- 16 × 10/100/1000Base-T ports and 4 × 1000Base-X SFP slots
- 16 built-in PoE+ ports compliant with IEEE 802.3af/at
- Supports USB zero-touch provisioning and upgrades
- Supports DI/DO/RS485 and Modbus data interfaces
- Supports G.8032 ERPS ring redundancy (recovery time <20ms)
- Supports IPv4/IPv6 static routing and DHCP Server
- Supports VLAN/VLAN Classification/QinQ/STP/RSTP/MSTP/Port Mirroring/DHCP/Multicast/ACL/IGMP/QoS/LLDP/802.1X/Dying Gasp/SFP DDM/IPv6 management/Web/SNMP/Telnet/TFTP and web-based upgrades
- 6KV surge protection; 8KV contact ESD and 15KV air-discharge ESD protection
- High EMC/EMI immunity for reliable operation in demanding electromagnetic environments
- IP40-rated, fanless DIN-rail design
- Operating temperature: -40°C to 75°C
- PoE power budget up to 240W at full load

Dimensions



Specifications	
Ethernet Interfaces	4 × 1G SFP slots and 16 × 10/100/1000BASE-T auto-negotiating PoE+ RJ45 ports
Console Interface	RJ45-568B Connector
USB Interface	USB2.0 Type A

Specifications	
Data Interface (removable 8-pin screw terminal block, 3.81mm pitch)	1 × RS485 Interface A: Data positive B: Data negative Serial device server: Transparent Modbus protocol forwarding Network side: Supports TCP in Client and Server modes Serial side: Supports RTU communication mode and serial transmission parameter settings
Data Interface (removable 8-pin screw terminal block, 3.81mm pitch)	Ground G: Ground
Data Interface (removable 8-pin screw terminal block, 3.81mm pitch)	1 × Digital Input (DI) +: Digital input signal + (state "1": open circuit or -30~+1V); maximum input current: 8mA -: Digital input signal - (state "0": +12V~+30V)
Data Interface (removable 8-pin screw terminal block, 3.81mm pitch)	1 × Alarm Output (DO) NO: Normally Open NC: Normally Closed
P1/P2: Power LEDs	On: Power supply normal; Off: No power input or power supply fault
S: System Status LED	On: Device operating normally Flashing: Device initialising Off: Device not powered or device fault
USB: USB Status LED	On: USB drive detected Flashing: Reading data from USB drive Off: USB drive not inserted or not detected
ALM: Alarm LED	On: Relay alarm output active Off: Device operating normally
Ring: ERPS Status LED	On: ERPS configuration active Off: ERPS disabled
17-20: Fibre Port LEDs	On: Link up Flashing: Data transmission or reception Off: Link down
1-16: PoE Port LEDs	Yellow (PoE) Green (Link/ACT)
1-16: PoE Port LEDs	On: PoE operating normally Off: No PoE output On: Link up Off: Link down Flashing: Data transmission or reception
Standards	IEEE 802.3 10Base-T Ethernet IEEE 802.3u 100Base-TX Ethernet IEEE 802.3ab 1000Base-T Ethernet IEEE 802.3z 1000Base-X Ethernet IEEE 802.3x Flow Control and Back Pressure IEEE 802.1D Spanning Tree Protocol IEEE 802.1w Rapid Spanning Tree Protocol IEEE 802.1Q VLAN ITU-T G.8032 ERPS IEEE 802.1X Port Authentication Network Control IEEE 802.1ab LLDP IEEE 802.3ad LACP IEEE 802.3af PoE IEEE 802.3at PoE+

Switching Performance	
Switching Capacity	52Gbps
Packet Forwarding Rate	77.376Mpps
MAC Address Table	16K
Packet Buffer	12Mbit
Jumbo Frame	Supports 10 KB
VLAN	4K
MDI/MDI-X	Supported
Watchdog	Supported
Forwarding Latency	<5us

Software Features	
Link Aggregation	Supports GE link aggregation Supports 2.5GE link aggregation Supports static link aggregation Supports dynamic link aggregation
Port Features	Supports IEEE 802.3x Flow Control Supports port traffic statistics Port isolation Supports storm control based on a percentage of port rate
PoE	Supports PD detection Supports priority management Supports per-port maximum power settings Supports alarm threshold settings Supports reserved power settings Supports 802.3af and 802.3at
MAC Address Table	Static MAC address management Dynamic MAC address management MAC address filtering Supports port- and VLAN-based MAC address limits Supports port- and VLAN-based MAC flapping detection
VLAN	Supports access, trunk and hybrid modes
VLAN Type	MAC-based VLAN; IP-based VLAN; Protocol-based VLAN
GVRP	Normal mode Fixed mode Forbidden mode
QinQ	Basic QinQ (Port-based QinQ) Flexible QinQ (VLAN-based QinQ) Flow-based QinQ
Port Mirroring	Many-to-one port mirroring
Layer 2 Redundancy Protocols	Supports STP, IEEE 802.1w RSTP and MSTP Supports G.8032 ERPS, including single-ring, interconnected sub-ring and multi-ring topologies Supports loop detection, including port-based and port+VLAN-based loop detection
Multicast	IGMP snooping
DHCP	Supports DHCP Client Supports DHCP Server Supports DHCP Snooping, trusted-port configuration, and configurable remote-id and circuit-id
ARP	ARP Entry Ageing
IPv4	Static Routing
IPv6	Static Routing
ACL	IP Standard ACL MAC Extended ACL IP Extended ACL Supports L2, L3 and L4 matching Supports IPv6 ACL
QoS	Supports QoS remarking and priority mapping Supports SP and WRR queue scheduling Ingress port-based rate limiting Egress port-based rate limiting Policy-based QoS
Security Features	Supports IEEE 802.1X, port-based and MAC-based authentication, and RADIUS Supports Port Security Supports IP Source Guard with IP/Port/MAC binding Supports ARP inspection and invalid-user ARP packet filtering Supports user access control for Telnet, SSH, HTTP and HTTPS Supports port isolation

Software Features	
Management and Maintenance	Supports LLDP link discovery Supports user management, login authentication and access privileges Supports SNMP v1/v2c/v3 Supports web management over HTTP 1.1 and HTTPS Supports Syslog with severity-based alarms Supports RMON Supports NTP Supports temperature monitoring Supports Ping, Traceroute and Dying Gasp Supports optical transceiver diagnostics (DDM) Supports copper cable diagnostics Supports remote configuration import/export via FTP/TFTP and local configuration import/export via USB drive Supports dual-partition switching Supports Telnet Server Supports Telnet Client Supports SSH Server Supports TACACS Supports sFlow network traffic analysis Supports TFTP and web-based firmware upgrades Supports TFTP Client Supports IPv6 management

Power Specifications	
Power Input Connector	Removable 2-pin screw terminal block, 5.08mm pitch, dual redundant inputs
Input Current	5.7A Max
Operating Voltage	44-57VDC(802.3af) 52-57VDC(802.3at)
Overcurrent Protection	Supported
Reverse-Polarity Protection	Supported
Power Consumption	Full load without PoE ≤20W PoE Budget ≤240W

Mechanical Specifications	
Enclosure	Metal
IP Rating	IP40
Weight	1.7kg
Mounting	DIN-rail mounting; wall mounting (optional)
Dimensions (W x H x D)	110x158x115mm
Cooling	Fanless design, natural convection
Temperature	Operating temperature: -40°C-75°C Storage temperature: -40°C-85°C
Humidity	Operating humidity: 10%-90%RH, non-condensing Storage humidity: 5%-95%RH, non-condensing

Reliability and Delivery	
MTBF	MTBF: 554412 hours Standard: Telcordia (Bellcore), GB
Warranty Period	3 years
Package Contents	Device: 1 unit Cables: Power cord (optional); power adapter (optional) Mounting hardware: Wall-mount brackets (optional); optical transceivers (optional) Documentation: User manual, warranty card and certificate of conformity
Optional Accessories	SFP module: Gigabit single-mode BiDi LC (SC): 20km, 40km, 60km or longer Gigabit single-mode dual-fibre LC: 20km, 40km, 60km or longer Gigabit multimode dual-fibre LC: 550m Power supply: Desktop or DIN-rail-mount