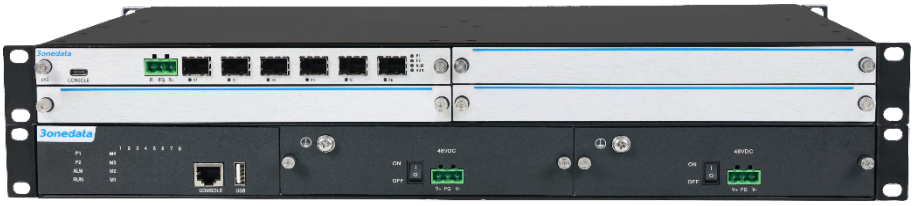
3onedata
Reliable Connections



MES5400 Series

19-inch 1U Rack Mounting

30-port Gigabit/10Gigabit Modular Layer 3 Industrial Ethernet Switch

- Support 1 embedded fixing: 10G daughter board (with 6*10G SFP+) and 3 expansion slots: Gigabit daughter board (support 8-port SFP daughter board or 8-copper-port daughter board)
- Support IEC 62439-3 HSR/PRP high reliability seamless redundancy and parallel redundancy, and all ports support IEEE 1588v2 PTP
- Support MRP ring network, reconfiguration time < 200ms
- Support RIP, OSPF, VRRP, BGP and other routing protocols
- Support IEC61850 MMS modeling and management, ensuring the efficient, reliable and standardized communication between substation devices
- Support -40~75℃ wide temperature operation, support level 4 electromagnetic compatibility protection, and conform to IEC 61850-3 and IEEE 1613 (substation) standards
- Support IP20 protection grade

Industrial Grade RPS IEC 61850

Introduction

MES5400 series products are 1U rack-mounted 30-port Gigabit/10Gigabit modular layer 3 industrial Ethernet switches. This series of products provides fixed 10G daughter boards and extended Gigabit daughter boards, and the 10G daughter board supports 10G SFP+; Gigabit daughter board supports Gigabit SFP and Gigabit RJ45. Support power supply daughter board solutions of 2*48VDC or 2*110~240VAC/DC, and adopt standard rack installation method, which is specially designed for extremely severe electromagnetic interference environment to meet the anti-interference requirements of power monitoring industry.

Network management system supports various network protocols and industrial standards, such as Static Routing, RIP, VRRP, NAT, STP/RSTP/MSTP, PTP, HSR/PRP, GMRP, EPRS, 802.1Q VLAN, QoS, Modbus TCP function, DHCP Server, DHCP Client, IGMP Static Multicast, LLDP, Port Trunking, Port Mirroring, etc. It also possesses complete management functions, including Port Configuration, Port Statistics, Port IP Binding, Access Control, 802.1X Authentication, Network Diagnosis, Rapid Configuration, Online Upgrading and so on; and supports CLI, HTTP, HTTPS, Telnet, SSH and other access methods. Network management system could bring you great user experience through its friendly interface design and easy and convenient operation.

The input power supply is two independent power supply circuits which can ensure the normal operation of the device when one power supply fails. When power supply or port has link failure, ALM indicator will be bright and send out alarm, meanwhile, alarm device connected to the relay will send out alarm for rapid scene troubleshooting. The hardware adopts fanless, low power consumption and wide temperature and voltage design, which has passed rigorous industrial standard tests, and suits the industrial scene environment with harsh requirements for EMC. It can be widely used in smart substation, smart grid, energy storage, photovoltaic, wind electricity, non-electric industry SCADA system and other industrial fields.

Features and Benefits

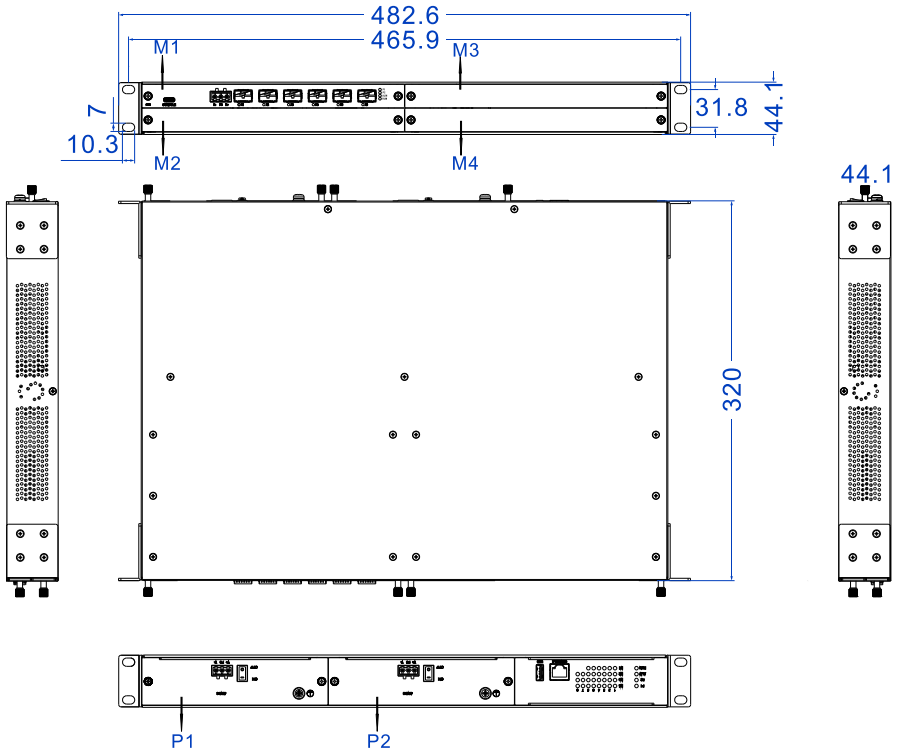
- Modular design, flexible selection to meet different bandwidth access requirements
- PRP/HSR can realize zero packet loss fault recovery of substation and process automation system
- IEC61850 MMS modeling and management ensures efficient, reliable and standardized communication between substation devices
- Precision Time Protocol (PTP), provide sub-microsecond synchronization accuracy to meet requirements for high-precision time synchronization
- SNMPv1/v2c/v3 is used for network management of various levels
- RMON can be used for efficient and flexible network monitoring
- QoS supports real-time traffic classification and priority setting

- LLDP can achieve automatic topology discovery, which is convenient for visual management
- DHCP server and DHCP client could be used for allocating IP address of different strategies
- DHCP Snooping can ensure DHCP client gets IP address from legal DHCP server
- DHCP relay function can realize IP address, gateway, DNS configuration cross network segment
- File management is convenient for the device rapid configuration and online upgrading
- Log information and log server can record user operation, system failure, system security and other information locally and remotely
- User privilege classification configuration can set user privilege level
- ACL can enhance the flexibility and security of the network, supporting bidirectional ACL IN and OUT.
- SSH configuration and HTTPS configuration can improve device's management security and guarantee data access security
- Ring, MRP, STP/RSTP/MSTP can achieve network redundancy, preventing network storm
- EPRS function can realize link backup and improve the reliability of network
- Relay alarm is convenient for troubleshooting of construction site
- Storm suppression can restrain broadcast, unknown multicast and unicast
- VLAN is used for simplifying network planning
- Port Trunking and LACP can increase network bandwidth and enhance the reliability of network connection to achieve optimum bandwidth utilization
- IGMP/MLD Snooping can be used for filtering multicast traffic to save the network bandwidth
- IGMP/MLD can be used to manage and maintain multicast members
- ARP could be used for MAC address resolution
- VRRP, RIP/RIPng, ISIS, OSPF/OSPFv3 and BGP can realize dynamic routing configuration
- PIM-DM and PIM-SM can be used to create and maintain multicast routing table entries and realize multicast routing forwarding
- NAT maps private IP address to the legal IP address of external network, which can slow the consumption of IP address space
- Loop detection could efficiently eliminate the influence caused by port loopback by detecting the existence of loopback
- IPDT can track IP device status and realize interaction with other applications
- Smart Link link backup, providing reliable and efficient backup and fast switching mechanism
- Network diagnosis and troubleshooting could be conducted via Ping, Traceroute, cable diagnosis, SFP DDMI
- Port mirroring can conduct data analysis and monitoring, which is convenient for online debugging
- Supports Modbus TCP monitoring, convenient for various integrated systems to monitor and manage device status

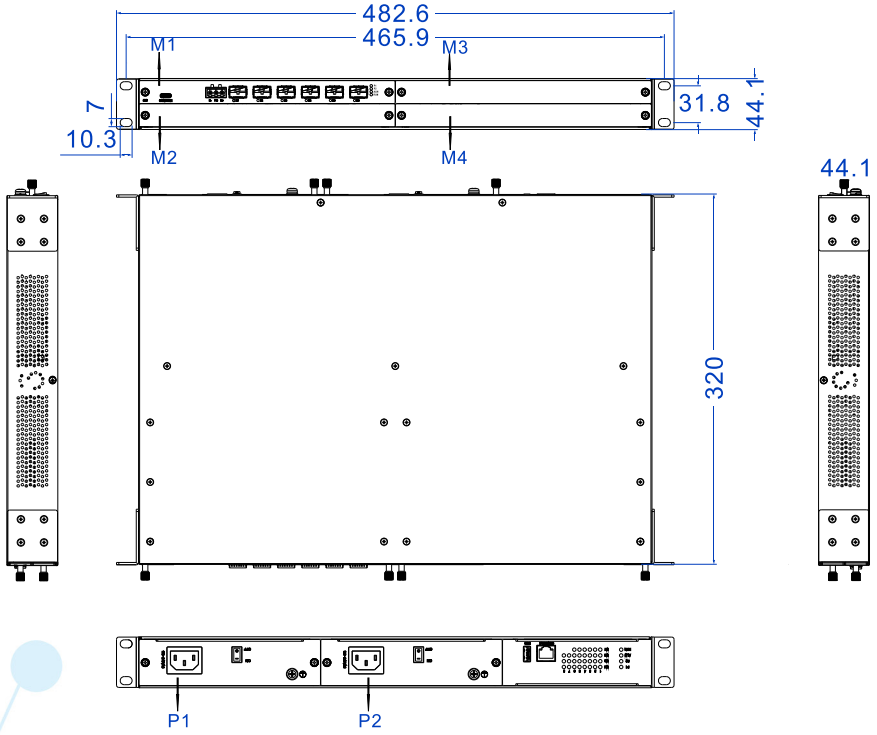
Dimension

Unit: mm

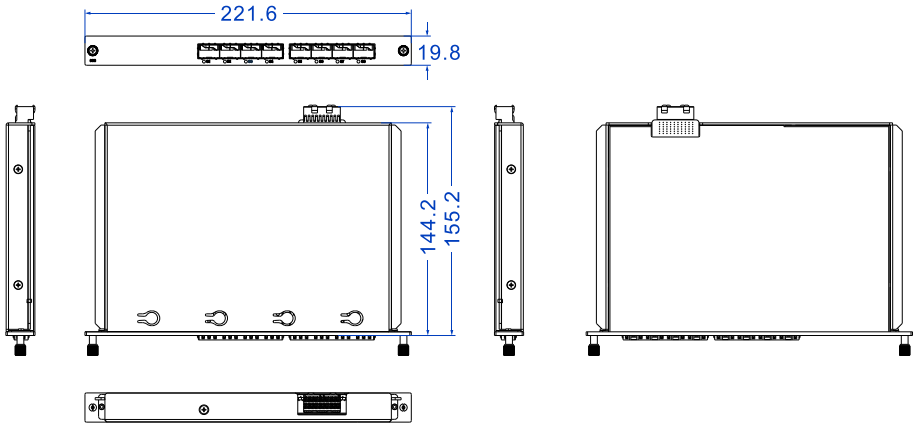
- MES5400-1U-MAIN-2LV



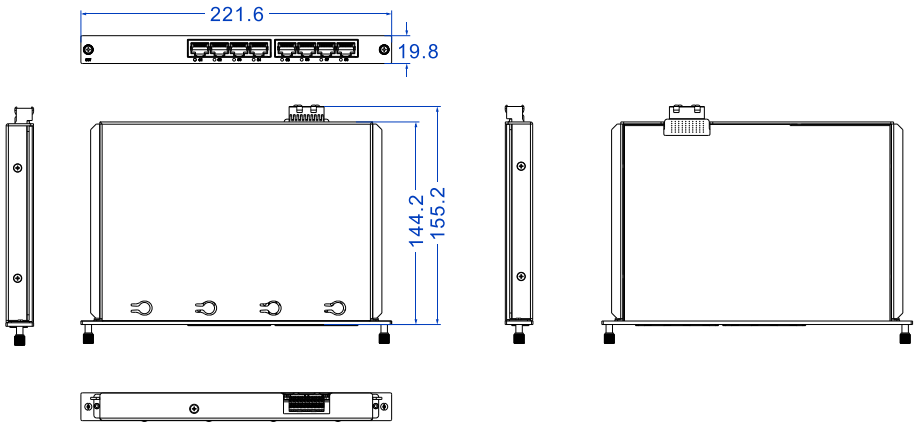
- MES5400-1U-MAIN-2HV



- MES5400-1U-8GS (daughter board)



- MES5400-1U-8GT (daughter board)



Specification

Standard & Protocol	IEEE 802.3 for 10Base-T IEEE 802.3u for 100Base-TX and 100Base-FX IEEE 802.3ab for 1000Base-T IEEE 802.3z for 1000Base-X IEEE 802.3ae for 10GBase-X IEEE 802.3x for Flow Control IEEE 802.1D for Spanning Tree Protocol IEEE 802.1w for Rapid Spanning Tree Protocol IEEE 802.1s for Multiple Spanning Tree Protocol ITU-T G.8032 for ERPS IEEE 802.1Q for VLAN IEEE 802.1AB for LLDP IEEE 802.3ad for LACP IEEE1588v2 for PTP IEEE 802.1 AS for clock synchronization

Management	SNMP v1/v2c/v3 centralized management devices, RMON, port mirroring, LLDP, DHCP Server, DHCP Relay, Modbus TCP monitoring, IEC61850 MMS, port speed limit, port isolation, port statistics, file management, online upgrade, log information, Syslog server
Security	User privilege classification, ACL, SSH/HTTPS protocol authorization, link flapping protection, port loopback detection, access control, SNMP, RMON, IPDT, IPv6DT, Smart-Link, NAT, port alarm, temperature alarm, power alarm, network load alarm
Switch Function	802.1Q VLAN, MAC, static aggregation, LACP, ARP, storm suppression
Unicast / Multicast	IGMP-Snooping, MLD-Snooping, GMRP, IGMP, MLD, PIM-SM, PIM-DM, IPv6-PIM-SM, IPv6-PIM-DM
Redundancy Technology	Ring, MRP, STP/RSTP/MSTP, HSR/PRP, ERPS
Routing Technique	RIP, RIPng, OSPF, OSPFv3, ISIS, VRRP, IPv6 VRRP, BGP
Troubleshooting	Ping, Traceroute, Network Cable Diagnosis, DDMI
Time Management	PTP, NTP Client, Time Zone Configuration
Interface	10Gigabit SFP+: 1G/2.5G/10G Base-X self-adaption or forced mode, SFP+ slot Gigabit SFP: 100/1000Base-X self-adaption or forced mode, SFP slot Gigabit copper port: 10/100/1000Base-T(X) self-adaption or forced mode, RJ45, Automatic Flow Control, Full/Half Duplex Mode self-adaption, MDI/MDI-X Autotuning CONSOLE: 2 CONSOLE ports, 1 RJ45 supporting CLI command line management port (RS-232); 1 Type-C supports CLI command line management port USB2.0: provide 1 Type-A USB 2.0 Female interface, and support external removable storage device Relay: Support 1 relay alarm output, adopt 3-pin 5.08mm pitch terminal blocks, the current carrying capacity is 2A@250VAC or 2A@30VDC
Indicator	Power indicator, running indicator, alarm indicator, interface indicator
Switch Property	Transmission mode: store and forward MAC address: 32K Cache: 24Mbit

	Backplane bandwidth: 110Gbps Switch delay: <10μs
Power Supply	DC products: ● Power input: 2*48VDC power inputs, support hot plugging and anti-reverse connection ● Connection mode: adopt 2*3-pin 5.08mm pitch terminal blocks witch switch AC products: ● Power supply input: 2*220VAC (110~240VAC/DC) power inputs ● Connection mode: adopt 2 three-phase power socket with switch
Power Consumption	DC products: ● No-load: 8.17W@48VDC ● Full-load: 14.41W@48VDC AC products: ● No-load: 7.65W@220VAC ● Full-load: 13.67W@220VAC
Working Environment	Working temperature: -40~75℃; 10G port only supports -40~50℃ Storage temperature: -40~85℃ Relative humidity: 5%~95% (no condensation)
Mechanical Structure	Housing: IP20 protection, metal Installation: 19-inch 1U rack mounting Dimension (W x H x D): ● MES5400-1U-MAIN-2LV: 482.6mm×44.1mm×320mm ● MES5400-1U-MAIN-2HV: 482.6mm×44.1mm×320mm ● MES5400-1U-8GS: 221.6mmx19.8mmx155.2mm ● MES5400-1U-8GT: 221.6mmx19.8mmx155.2mm Weight: ● MES5400-1U-MAIN-2LV: 5.020kg ● MES5400-1U-MAIN-2HV: 5.749kg ● MES5400-1U-8GS: 0.569kg ● MES5400-1U-8GT: 0.586kg
Industrial Standard	IEC 61000-4-2 (ESD, electronic static discharge), Level 4 ● Air discharge: ±15kV ● Contact discharge: ±8kV IEC 61000-4-4 (EFT, electrical fast transient pulses), Level 4 ● Power supply: ±4kV ● Copper port: ±2kV

	IEC 61000-4-5 (Surge), Level 4 ● Power supply: differential mode±2kV, common mode±4kV ● Copper port: differential mode±2kV, common mode±4kV Shock: IEC 60068-2-27 Free fall: IEC 60068-2-31 Vibration: IEC 60068-2-6 Overvoltage category: III Pollution level: 2 Insulation type: basic insulation
Authentication	CE, FCC, RoHS, IEC 61850-3, IEEE 1613, KEMA
Warranty	5 years

Ordering Information

Model	Total Ports	10Gigabit SFP+ Slot	Gigabit SFP Slot (optional)	Gigabit RJ45 Copper Port (optional)	Power Supply
MES5400-1U-MAIN-2LV	30	6 embedded slots	Up to 24	Up to 24	2 x 48VDC
MES5400-1U-MAIN-2HV	30	6 embedded slots	Up to 24	Up to 24	2 x 220VAC (110~240VAC/DC)

Accessories

Optional Accessories	Type	Specification	Applicable Slot
MES5400-1U-8GS	Gigabit Ethernet daughter board	8*100/1000Base-X, SFP slot	M2/M3/M4
MES5400-1U-8GT	Gigabit Ethernet daughter board	8*10/100/1000Base-T(X), RJ45	M2/M3/M4

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