

# Rugged M12 PoE Switch on Layer 3 Network with 24V PoE Booster

## MP614 Series

### Industrial 14G Layer 3 Managed M12 PoE Switch

MP614 is a cutting-edge M12 full Gigabit routing PoE switch that serves as the forefront solution for Layer 3 network control on rail public transportation systems, with railway certifications including EN50155 and EN45545. With 14 rugged Gigabit M12 ports, MP614 provides uninterrupted connectivity, of which 8 offer intelligent PoE/PoE+ and 2 support a link bypass function, ensuring seamless operation even in the event of device or power failure. Its power input options are versatile, including 24VDC low voltage Booster or 110VDC high voltage. Equipped with advanced Layer 3 routing protocols such as IP/VLAN routing, RIP, OSPF, VRRP, MP614 is fully compatible with your backbone network, enabling ultra-fast and bottleneck-free connectivity across all 14 Gigabit ports. To ensure comprehensive cybersecurity, MP614 features a state-of-the-art design that provides robust protection against external intrusion.



### Features & Benefits

#### Full Giga Switching and Ultra High Throughput

- **14-port Full-Giga** Ethernet with 8-port PoE and 2-port **link bypass** function
- **16K** MAC address table
- **1.5MBytes** packet buffer memory for H.264 burst
- **9K** jumbo frame
- Store and forward with non-blocking switch fabric

#### ITU-T G.8032 v1/v2 ERPS Ring Redundancy

- An ITU standard Ring redundancy Protocol
- Provide sub-50ms protection and recovery switching for Ethernet traffic
- **Interoperate** with 3rd party industrial switch and still remain fast recovery time
- Interoperate with commercial switch instead of STP/RSTP
- Efficient network interconnection and topology with **ERPS Chain, multiple chains**

#### Dynamic Routing with Redundancy Protection

- Support **RIPv2, OSPFv2** for intra-domain routing within an autonomous system
- **Unicast and multicast\* static routing** for efficient routing requirement
- Support **VRRP** to guarantee sustainable routing in single point of failure

#### Management Features

- Various configuration path including **WebGUI, CLI, SNMP and RMON**
- Support IEEE **1588v2 PTP** time management
- LLDP topology control
- Support USB for field side easy configuration and firmware update
- Software utility interface for LAN devices management
- NMS system for individual component monitoring in network management framework

#### IEC62443-4-2 Level 3 / 4 Cyber Security

- L2-L7 Access Control List (ACL), parsing up to 128bytes/packet
- DHCP Snooping, IP Source Guard, Dynamic ARP Inspection
- 802.1Q VLAN, Private VLAN
- Multi-Level user passwords
- HTTPS/SSH/SFTP, 256-bit AES encryption
- 802.1X MAB for non-802.1X compliant end devices
- RADIUS/TACACS+ centralized password authentication

#### Extreme PoE Capability

- Provides 8-port IEEE 802.3af/at compliance PoE, up to **30W** per port
- Up to **100W** system power budget at **70°C** operating temperature
- Complete PoE management including per-port **Power Budget Control, PoE Scheduling and PoE Status**
- Rugged **M12** connectors for harsh environment

#### Rugged Design for Surveillance in Rail, Rolling Stock application

- **EN50155/IEC61373** railway certification compliance
- **EN45545-2** Fire protection on railway vehicle
- Outstanding mechanical design: good heat dissipation and lightweight: 100W Power feeding even in **70°C**
- Wide range operating temperature from **-40 ~ 70°C**
- CE marking
- Emission: CISPR 22/ FCC part 15B class A



## Interfaces

### MP614

#### System LED

- 1 x Power
- 1 x System Status
- 1 x Ring Status
- 1 x ALM
- 14 x Ethernet Port
- 8 x PoE

#### Power Connector

- 1 x M12 4 pin A-Code

#### IEEE 802.3 af/at PoE

- 8-port 100/1000MBase-T M12 8-pin A-Code or X-Code

#### Ground Screw

#### Gigabit Ethernet

MP614:

- 6-port 100/1000MBase-T M12 8-pin A-Code or X-Code
- 2-port with Bypass Function (Port 13/14)

#### Easy System Management

- 1 x M12 8 pin A-Code
- USB for Configuration/Firmware update
- RS232 console



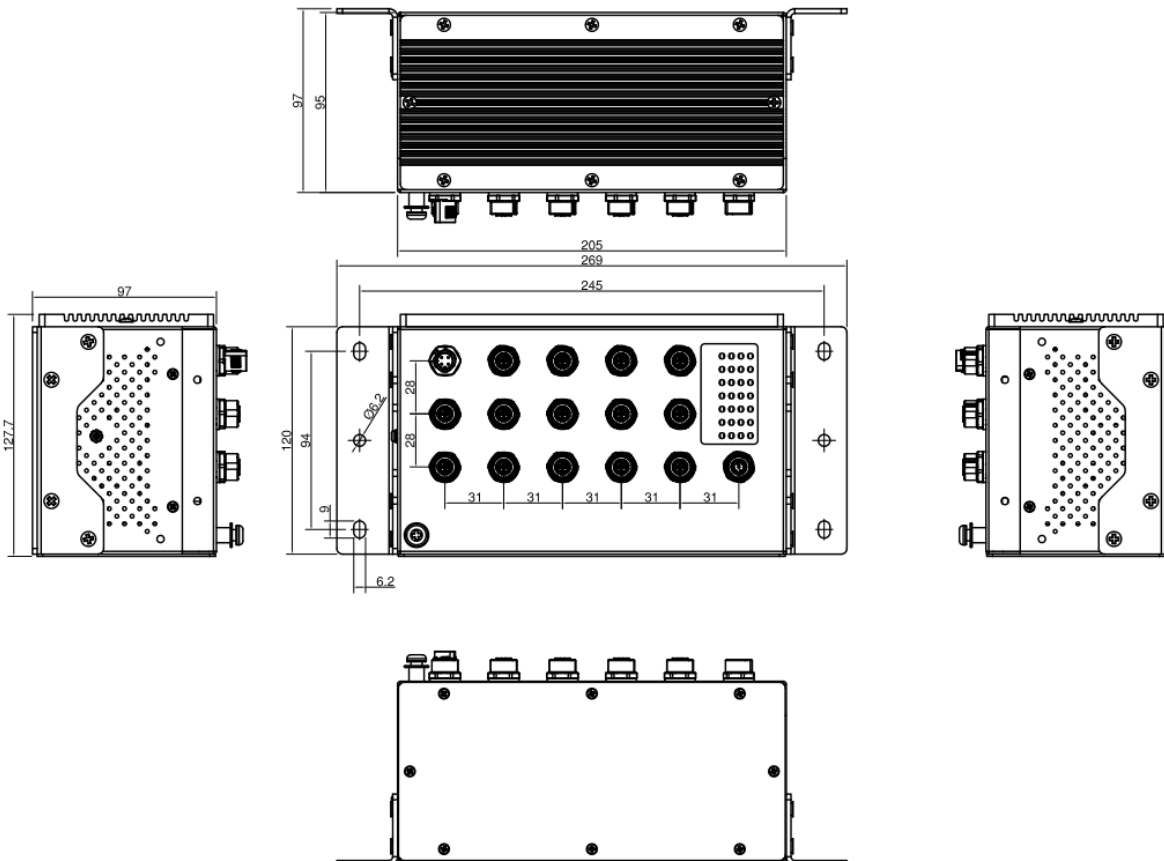
Wall Mount Screw Holes for Front/ Back Panel



## Dimensions

### MP614

(mm)



Technology	
<b>Standard</b>	IEEE 802.3af/at Power over Ethernet
	IEEE 802.3u 100Base-TX Fast Ethernet
	IEEE 802.3ab 1000Base-T Gigabit Ethernet Copper
	IEEE 802.3x Flow Control and back-pressure
	IEEE 802.1AB Link Layer Discovery Protocol (LLDP)
	IEEE 802.1p Class of Service (CoS)
	IEEE 802.1Q VLAN and GVRP
	IEEE 802.1Q Double Tag VLAN (QinQ)
	ITU-T G.8032 Ethernet ring protection switching (ERPS)
	IEEE 802.1D-2004 Rapid Spanning Tree Protocol (RSTP, 802.1w compatible)
	IEEE 802.1Q-2005 Multiple Spanning Tree Protocol (MSTP)
	IEEE 802.3ad Link Aggregation Control Protocol (LACP)
	IEEE 802.1X Port based Network Access Protocol
	IEEE 1588 Precision Time Protocol v1/v2

Performance & Scalability	
<b>Switch Technology</b>	Store and Forward Technology with 40Gbps Non-Blocking Switch Fabric Internal Packet Buffer: 1.5MBytes Forwarding rate: 20.83Mpps (14*1,488,000pps/port)
<b>Number of MAC Address</b>	16K
<b>Packet Buffer Memory</b>	1.5MBytes
<b>Jumbo Frame</b>	9216 Bytes
<b>Transfer performance</b>	100Base-TX: 148,800pps, 1000Base-TX: 1,488,000pps
<b>VLAN</b>	256 VLANs, VLAN ID: 1-4094
<b>IGMP Group</b>	512
<b>Class of Service</b>	8 Priority Queues per Port

Interface	
<b>Ethernet Port</b>	14 x 100/1000Base-T, M12 8 pin A/X-Code Female, Auto Negotiation, 8 ports (Port 1~8) IEEE 802.3af/at PoE+, 2 ports (Port 13/14) link bypass <b>Pin Definition:</b> 8 pin X-Code Female: #1 (D1+/PoE V+), #2 (D1-/PoE V+), #3 (D2+/PoE V-), #4 (D2-/PoE V-), #5 (D4+), #6 (D4-), #7 (D3-), #8 (D3+) 8 pin A-Code Female: #1 (D3-), #2 (D4+), #3 (D4-), #4 (D1-/PoE V+), (By MoQ Request) #5 (D2+/PoE V-), #6 (D1+/PoE V+), #7 (D3+), #8 (D2-/PoE V-) <b>Cable:</b> 1000 Base-T: 4-pair Cat.5E/Cat.6 FTP/STP cable, EIA/TIA 568B 100Ohm, 100Meters *Recommended uses FTP/STP cable for the railway on-board application
<b>System LED</b>	1 x PWR: Green On 1 x SYS: Ready: Green On, Firmware Updating: Green Blinking 1 x Ring: Off: Ring disabled, Green On: Ring normal (Not RPL Owner), Green Blinking: Ring normal (RPL Owner), Amber On: Ring abnormal, Amber Blinking: Ring port fail 1 x ALM: Red On 14/10 x Port: Link (Green On), Active (Green Blinking) 8 x PoE: Amber On
<b>Console</b>	1 x M12 8 pin A-Code Female RS232 Console Baud Rate: 115200.n.8.1 <b>Pin Definition:</b>
<b>USB</b>	#1 (TxD), #2 (RxD), #3 (Signal Ground), #5 (USB DATA+), #6 (USB DATA-), #7 (USB 5V), #8 (USB GND)
<b>Power Input</b>	M12 4 pin A-Code Male with polarity reverse protection <b>Pin Definition:</b> #1 (V+), #2 (V+), #3 (V-), #4 (V-)
<b>Watchdog</b>	Hardware-based 10 seconds timer

Power Requirement	
Operating Voltage	HV: 110VDC (77~137.5VDC) LV: 24VDC (16.8-30VDC) MV: 54VDC (46~57VDC) WV:24/48/110VDC(16.8~137.5VDC)
Reverse Polarity Protect	Yes
Input Current	1.10A@110V
Power Consumption	Max 14.3W@110VDC full traffic without PD loading, suggest to reserve 15% tolerance
PoE	
Power forwarding mode	Alternative A
PoE Power Budget	MP614-HV/WV/MV: Max.100W@70°C MP614-LV: Max.80W@70°C, Max.100W@60°C Per Port: Max. 30W
PoE Standard	IEEE 802.3af/at
Management	System/Port Power Budget Control, PD Alive Check, PoE Scheduling, PoE Status
Software	
Management Interface	CGI WebGUI, Command Line Interface (CLI), Telnet, SNMP
Time Management	NTP, IEEE 1588 Precision Time Protocol v1/v2
Network Management	IPv4/IPv6, SNMP v1/v2c/v3/Trap, MIBs, RMON, LLDP, DHCP server/client/Option 82, DHCP Snooping, TFTP, System Log, SMTP
Traffic Management	Flow Control, Port Trunk/802.3ad LACP, VLAN, Private VLAN, GVRP, GMRP, QinQ, QoS, IGMP Snooping v1/v2/v3, Rate Control, Storm Control, Port Mirror
Security	IEEE 802.1X/RADIUS, Private VLAN, ACL(MAC/IP filter), HTTPs/SSH secure login
Redundancy	Rapid Spanning Tree Protocol (RSTP)/Multiple Spanning Tree Protocol (MSTP) ITU-T G.8032 v1/v2 Ethernet Ring Protection Switching (ERPS) Virtual Router Redundancy Protocol (VRRP)
L3 Routing	Static/Dynamic IP Routing(64 entries), RIPv2, OSPFv2, Static Multicast Route*, VRRPv2
Mechanical	
Installation	Wall Mount
Enclosure Material	Steel Metal with Aluminum
Dimension	205 x 127.7 x 95mm (W x H x D) without Wall mount plate
Ingress Protection	IP31
Weight	3KG (device) / 3.5KG (full package)
Package	290(W)x220(L)x150(H)mm (package) 6pcs / carton 410(W)x 550(L)x490(H)mm (1.5KG)
Environmental	
Operating Temperature & Humidity	-40°C~70°C , 0%~95% Non- Condensing
Storage Temperature	-40°C~85°C
Hi-Pot Insulation	AC 1KV
MTBF	>485,000 hrs
Warranty	5 years
Standard	
Safety	IEC60950-1 Compliance
EMC	EN61000-6-2/EN61000-6-4
EMI	CISPR 22, FCC part 15B Class A
EMS	EN61000-4-2 ESD, EN61000-4-3 RS, EN61000-4-4 EFT, EN61000-4-5, EN61000-4-6 CS, EN61000-4-8 Magnetic Field
Railway	EN50155 includes EN50121-3-2 EMC/ IEC61373 Vibration and Shock for railway EN45545-2 Fire protection on railway vehicle



## Ordering Information

Model Name	Description
MP614-HV-X	Industrial 14G L3 Managed M12 X-code PoE Switch, 110VDC
MP614-LV-X	Industrial 14G L3 Managed M12 X-code PoE Switch, 24VDC
MP614-MV-X	Industrial 14G L3 Managed M12 X-code PoE Switch, 54VDC
MP614-WV-X	Industrial 14G L3 Managed M12 X-code PoE Switch, 24-110VDC
<b>Package List</b>	
	1 x Product Unit
	1 x Wall Mount Kit (2 x Wall mount plate)
	1 x Quick Installation Guide

**Note:** M12 A-code Connector can be produced by MoQ Request. Please contact our sales.



## Optional Accessory

Item	
USB-1-4	M12 A-code 4Gb USB disk for device configuration, firmware update
CBL-F9MM12A-1M	Console Cable DB9 Male to M12-A-code Male, 1Meter
MC-1-4	Field assembled M12 connector, 4-pin, A-code