510M12-POE Datasheet

Aiming to create better and safer working environments and life experiences through the products we deliver.

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Rugged PoE Switches for Mobile Vehicle Application

510M12-POE

Industrial 7+3G Smart M12 PoE Switch

510M12-POE is a fast and rugged industrial smart PoE switch designed for infotainment and intelligent surveillance systems on road and railway transport. Equipped with 3 Gigabit Ethernet ports and 7x100 Megabit PoE/PoE+ Ethernet power supply port. One of the Gigabit Ethernet ports also has PoE/PoE+ Ethernet power supply function and other two Gigabit Ethernet ports provide link bypass function for ensuring network connectivity even in case of device/power fault. The rugged design of IP31 and M12 connectors can withstand the harsh environments of shaking, vibration and extreme temperature. M12 USB port for field configuration and trouble shooting.

ERPS G.8032v2 | bypass | Cyber Security | PoE+ | EN50155

Full Giga Switching and Ultra High Throughput

- 10 Ethernet ports, including 7x100 Megabit Ethernet ports and 3x Gigabit Ethernet ports
- 8-port PoE, including 7x 100 Megabit ports and 1x Gigabit port
- 2 Gigabit ports with link bypass function
- 8K MAC address table
- 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

PoE Capability Description

- Supports 1 PoE PD port
- IEEE 802.3 AF standard PoE

Powerful PoE power supply efficiency

- 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

Enhanced Cyber Security

- 802.1X/RADIUS port access control
- Port MAC Security Learning
- Support private VLAN/IP security/port security
- HTTPs/SSH/ secure access to network management IP

Management Features

- Various configuration path including web, command line, Telnet, SNMPv1/v2c/v3 and RMON setting
- Support IEEE 1588v2 PTP time management
- LLDP topology control
- Modbus/TCP, Ethernet/IP for factory automation
- Support USB for field side easy configuration and firmware update
- Software utility interface for LAN devices management
- ANMS network management system

Rugged Design for Surveillance in Rail, Mobile Vehicle application

- EN50155/IEC61373 railway certification compliance
- Railway 110VDC (77~137.5V) carriage power supply design
- Lightweight mechanism design for good heat dissipation function
- High-efficiency heat dissipation designfor operating in -40~75°C environments
- Rugged M12 connectors for harsh environment

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Ordering Information

Model Name	Description
510M12-POE	10-Port Fully Managed Industrial IP67 Ethernet Switch, 3 RJ45 Ports 10/100Base-T(X), 7 RJ45 Ports 10/100Base-T(X), 8 RJ45 Ports Support POE/POE+, Support ITU-TG.8032, DIN-Rail, Dual Power Input 46-57VDC, -40°C-75°C
510M12-POE-WV	10-Port Fully Managed Industrial IP67 Ethernet Switch, 3 RJ45 Ports 10/100Base-T(X), 7 RJ45 Ports 10/100Base-T(X), 8 RJ45 Ports Support POE/POE+, Support ITU-TG.8032, DIN-Rail, Dual Power Input 17-137VDC, -40°C-75°C

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Technology	
Standard	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) 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 v2
Performance	
Switch Technology	Store and Forward Technology with Non-Blocking Switch Fabric
Number of MAC Address	8K
Packet Buffer Memory	1M bits
Jumbo Frame	9216 Bytes
Transfer performance	100Base-TX: 148,800pps, 1000Base-TX: 1,488,100pps
VLAN	256 VLANs
VLAN ID	1~4094
Class of Service	4 Priority Queues per Port
Watchdog	Hardware-based 10 seconds timer
Interface	
Ethernet Port	7 x 10/100BaseTX, M12 4 pin D-Code Female, Auto Negotiation, IEEE 802.3af/at PoE 3x 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 **Pin Definition:** 4 pin D-Code Female: #1 (TX+/PoE V+), #2 (RX+/PoE V-), #3 (TX-/PoE V+), #4 (RX-/PoE V-) (**510M12-POE-HV-X)** 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+) **(510M12-POE-HV-A)** 8 pin A-Code Female: #1 (D3-), #2 (D4+), #3 (D4-), #4 (D1-/PoE V+), #5 (D2+/PoE V-), #6 (D1+/PoE V+), #7 (D3+), #8 (D2-/PoE V-) **Cable:** 100 Base-TX: 2-pair Cat.5E / Cat.6 FTP/STP cable, EIA/TIA 568B 100-Ohm, 100Meters 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
System LED	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 10 x Port: Link (Green On), Active (Green Blinking) 8 x PoE Status: IEEE802.3af PoE Powered (Green On), IEEE802.3af PoE Detection (Green Blinking), IEEE802.3at PoE Powered (Blue On), IEEE802.3at PoE Detection (Blue Blinking)
Control Port RS232/USB	1 x M12 8 pin A-Code Female RS232 Console Baud Rate: 115200.n.8.1 **Pin Definition:** #1 (TxD), #2 (RxD), #3 (Signal Ground), #5 (USB DATA+), #6 (USB DATA-), #7 (USB 5V), #8 (USB GND)

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Power Input	M12 4 pin A-Code Male with polarity reverse protection **Pin Definition:** #1 (V+), #2 (V+), #3 (V-), #4 (V-)
Power Requirement	
Operating Voltage	110VDC (77~137.5VDC)
Reverse Polarity Protect	Yes
Input Current	1.10A@110V
Power Consumption	Max 15.4W@110VDC full traffic without PD loading, suggest to reserve 15% tolerance
POE	
Power forwarding mode	Alternative A
PoE Power Budget	System: Max.100W@70◦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
Network Management	IPv4/IPv6, SNMP v1/v2c/v3/Trap, MIBs, RMON, LLDP, DHCP server/client/Option 82, TFTP, System Log, SMTP
Traffic Management	Flow Control, Port Trunk/802.3ad LACP, VLAN, Private VLAN, GVRP, GMRP, QinQ, Class of Service, Traffic Prioritize, IGMP Snooping v1/v2/v3, Rate Control, Port Mirror
Security	IEEE 802.1X/RADIUS, Port MAC Secure Learning, Management IP
Redundancy	Rapid Spanning Tree Protocol (RSTP)/Multiple Spanning Tree Protocol (MSTP) ITU-T G.8032 v1/v2 Ethernet Ring Protection Switching (ERPS)
Mechanical	
Installation	Wall Mount
Enclosure Material	Metal, Aluminum
Dimension	198 mm x 158 mm x 105 mm (W x H x D) /without Wall mount plate 262 mm x 158 mm x 107 mm (W x H x D) / with Wall mount plate
Ingress Protection	IP31
Weight	3KG (device) / 3.5KG (full package)
Package	287 mm (W)x220 mm (L)x171mm (H) (package) 12pcs / carton 606 mm (W)x 473 mm (L)x557 mm (H) (1.5KG)
Environmental	
Operating Temperature & Humidity	-40◦C~70◦C , 0%~90% Non- Condensing
Storage Temperature	-40◦C~80◦C
Hi-Pot Insulation	AC 1.5KV
MTBF	>609,000 hours
Warranty	5 years

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Standard	
Safety	EN60950-1 Compliance
EMC	EN61000-6-2/EN61000-6-4
EMI	CISPR 22, FCC part 15B Class A
EMS	EN61000-4-2 ESD: 8KV(Air), 6KV(Contact) EN61000-4-3 RS: 20V/m(80M~1GHz), 10V/m(1.4G~2.1GHz), 5V/m(2.1G~2.5GHz) EN61000-4-4 EFT: 2KV (Power, Signal Port, GND) EN61000-4-5 Surge: Power: 2KV/1KV(Line to Ground/Line to Line), Signal Port: 2KV(Line to Ground) EN61000-4-6 CS: 10Vrms(Power, Signal Port) EN61000-4-8 Magnetic Field: 30A/m continues /300A for 1~3s
Railway	EN50155 includes EN50121-3-2 EMC/ IEC61373 Vibration and Shock for railway

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Function interface

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

Power Connector
- 1 x M12 4 pin A-Code

Ground

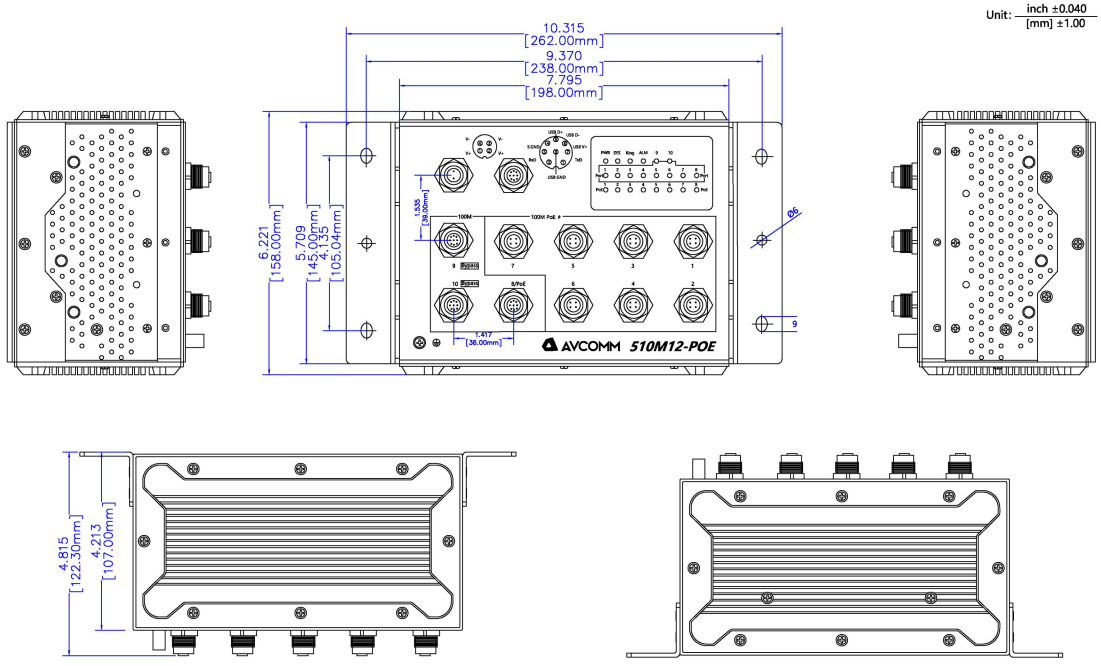
Gigabit link
- 3x 100/1000M
- M12 interface 8-pin A-Code or X-Code
- Port 8 with Gigabit PoE
- Port 9/10 with network bypass function

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

IEEE 802.3 af/at PoE
- 7x 10/100M M12 interface 4-pin

Wall Mount Screw Holes for Front/ Back Panel

Installation dimensions



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