Aquam8012A
8+4G/9+3G Port Layer 2 Managed EN50155 Industry Ethernet Switch

Overview

The Aquam8012A series switches, specially designed for rail industries, support up to 8 Fast Ethernet interfaces and 4 Gigabit uplink interfaces, support panel mounting, support a wide range of operation temperature(-40℃ to 75℃), and meets the EN50155, EN50121 and other rail transit industry standard. The switches support IP67 protection class to meet the requirements of dustproof and waterproof performance, and support M12 interface form to ensure the tightness and the firmness of the connection port, which especially suitable for application that are subject to high vibration and shock.

The Aquam8012A series switches support PoE function, support Isolated power supply of a wide range (Power input range is up to 24VDC-110VDC), provide 9 fast Ethernet M12 ports with 9 IEEE 802.3at PoE+ (compatible with IEEE802.3af) ports, and can be used to power up to 9 IEEE 802.3at compliant powered devices (PDs), eliminating the need for additional wiring. The switches are classified as power source equipment (PSE) and provide maximum PoE power up to 30 watts per port and a total of 60 watts for the whole PoE port.

Aquam8012A series Ethernet switches support DHCP protocols for automatic IP address assignment, and support DRP, DT Ring and RSTP ring network redundancy protocol for flexible networking in order to meet the market demand of railway.The switches can be widely used in PIS, CCTV, video monitoring system and train control system, also apply to any other industrial applications of harsh vibration and shock, and high EMC compatibility.

⟫ Key Features

Supports a maximum of 3 10/100/1000Base-TX and 9 10/100Base-TX ports or 4 10/100/1000Base-TX and 8

10/100Base-TX ports, and support a maximum 9 PoE ports.

Support optical Bypass function

Supports the selection of POE models and non-POE models

POE supports IEEE802.3af and IEEE802.3at standards, as well as a maximum of 9 POE ports

Supports M12 connectors for power port and interface ports

Supports DRP protocols and RSTP ring network redundancy protection

Supports rapid configuration and backup

Complies with the requirements of EN50155 and EN50121 industrial standards

IP67 protection class

⟫ Product Specifications

>Software Functions
-Switching

Supports VLAN,PVLAN,GVRP

Supports port trunking

Supports LACP(pending)

Supports port flow control

Supports speed limit, broadcast storm control

-Redundancy

Supports DRP, with the recovery time<20ms

Supports STP/RSTP/MSTP

DT-Ring/DT-Ring+

-Multicast

Supports IGMP-snooping

Supports static multicast

Supports GMRP(pending)

-Network Security

Supports MAC address binding with switch ports(pending)

Supports user classification

Supports IEEE 802.1x(pending)

Supports TACACA+(pending)

Supports RADIUS(pending)

Supports HTTPs/SSL, SFTP client(pending)

Supports SSH(pending)

-Service Quality

Supports ACL

Supports SP,WRR queue scheduling

-Management and Maintenance

Supports Console,Telnet,WEB management methods

Supports SNMPv1/v2c/v3,Kyvison centralized management

Supports RMON(pending)

Supports software upgrade by TFTP/HTTP

Supports IP/MAC conflict alarm, power supply alarm, port alarm, ring alarm

Supports port mirroring

Supports Syslog

Supports LLDP

-IP Management

Supports DHCP server/client/snooping option 82

-Clock management

Supports SNTP Client

-Characteristic function

Supports power failure bypass function(pending)

Supports Auto-Configuration Backup(pending)

>Technical Parameter
-Standard

IEEE 802.3i(10Base-T)

IEEE 802.3u(100Base-TX)

IEEE 802.3ab(1000Base-T)

IEEE 802.3at(PoE plus)

IEEE 802.3af(PoE)

IEEE 802.3x(Flow control)

IEEE 802.1p(Class of Service)

IEEE 802.1Q(VLAN)

IEEE 802.1w（RSTP）

IEEE 802.1X

-Switch Properties

Priority Queues 8

Number of VLANs 4094

VLAN ID 1-4093

Number of Multicast Groups 1024

MAC Table 8K

Packet Buffer 2Mbit

Packet Forwarding Rate 7.1Mpps

Switching Delay <10us

-Interface

Gigabit Port 10/100/1000Base-T(X), M12 connector

Fast Ethernet Port 10/100Base-T(X), M12 D-coded connector

Console Port RS232, M12 connector

USB M12 connector

-LED

LEDs on Front Panel

Running LED: Run

Alarm LED: Alarm

Power LED: PWR1,PWR

Interface LED: Link/ACT

POE LED: ACT(POE models only)

-Power Requirements

Power Input

Non-PoE models: 24VDC, 48VDC, 110VDC

PoE models: 24-110VDC

Power Terminal M12-4pin connector

Power Consumption

< 12W (non-PoE models)

< 80W (PoE models)

Overload Protection Support

Reverse Connection Protection Support

Redundancy Protection Support

-Physical Characteristics

Housing Metal

cooling Nature cooling,fanless

Protection Class IP67

Dimensions 142mm×100mm×110mm(H×W×D)

Weight <2Kg

Mounting panel mounting

-Environmental Limits

Operating Temperature -40 to +75°C

Storage Temperature -40 to +85°C

Ambient Relative Humidity 5 to 95% (non-condensing)

-Warranty

MTBF 733606h

Warranty Period 5 years

-Approvals

CE(pending),

LVD(pending),

EN50155(pending),

EN50121(pending),

EN45545(pending)

-Industrial Standard

EMI

FCC CFR47 Part 15,EN55022/CISPR22,Class A

EMS

IEC61000-4-2 (ESD) ±6kV (contact), ±8kV (air)

IEC61000-4-3 (RS) 20V/m (80MHz-2GHz)

IEC61000-4-4 (EFT) Power Port: ±2kV; Data Port: ±2kV

IEC61000-4-5 (Surge) Power Port: ±1kV/DM, ±2kV/CM

IEC61000-4-6 (CS) 10V (150kHz-80MHz)

IEC61000-4-8(Power frequency magnetic field)50Hz 100A/m

IEC61000-4-9(Pulsed magnetic field)300A/m

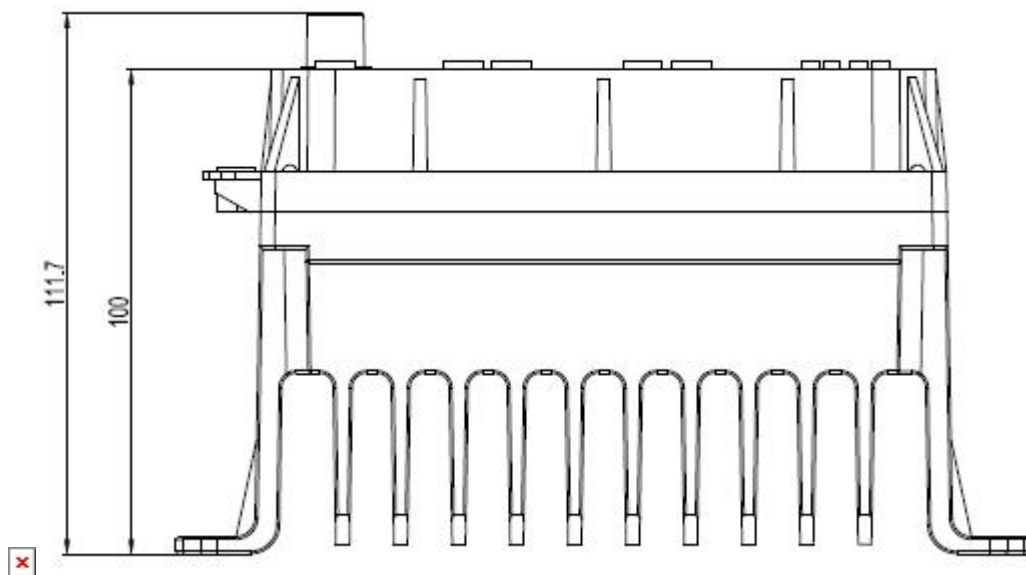IEC61000-4-29 (Voltage Short interruptions) 10ms 100%
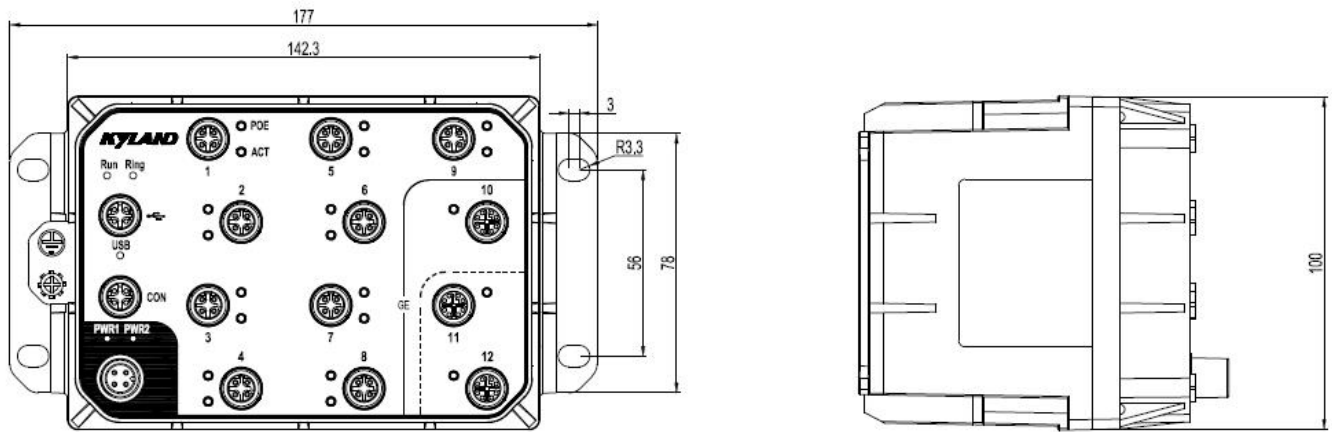
Safety

EN60950-1

Machinery

IEC61373 (Vibration and Shock)

IEC60068-2-32 (Free Fall)

⟩⟩ Mechanical Drawing

≫ Ordering Information

Aquam8012A-Ports-PS1-PS2

Ports	Description
3GE9T	3 X 10/100/1000BASE-T(X) M12 port; 9 X 10/100BASE-T(X) M12 port;
4GE8T	4 X 10/100/1000BASE-T(X) M12 port; 8 X 10/100BASE-T(X) M12 port;
3GE9P	3 X 10/100/1000BASE-T(X) M12 port; 9 X 10/100BASE-T(X) M12 PoE port;(pending)
4GE8P	4 X 10/100/1000BASE-T(X) M12 port; 8 X 10/100BASE-T(X) M12 PoE port; (pending)
9T	9 X 10/100BASE-T(X) M12 port;
9P	9 X 10/100BASE-T(X) M12 PoE port; (pending)
B-3GE9T	3GE models Gigabit ports support a pair of Bypass function; 3 X 10/100/1000BASE-T(X) M12 port; 9 X 10/100BASE-T(X) M12 port; (pending)
B-4GE8T	4GE models Gigabit ports support two pair of Bypass function; 4 X 10/100/1000BASE-T(X) M12 port; 8 X 10/100BASE-T(X) M12 port; (pending)
B-3GE9P	3GE models Gigabit ports support a pair of Bypass function; 3 X 10/100/1000BASE-T(X) M12 port; 9 X 10/100BASE-T(X) M12 PoE port; (pending)
B-4GE8P	4GE models Gigabit ports support two pair of Bypass function; 4 X 10/100/1000BASE-T(X) M12 port; 8 X 10/100BASE-T(X) M12 PoE port; (pending)
PS1-PS2	**Power Supply**
Non PoE models	
H5-H5	H5-H5=110VDC, redundant power input
L14-L14	L14-L14=48VDC, redundant power input
L13-L13	L13-L13=24VDC, redundant power input
PoE models	PoE models:
WV-WV	WV-WV=24-110VDC redundant power input(pending)

Accessories

M12-A-4P-F	Female cable connector with M12, A-Coding, 4 Pin; Power interface Connector
M12-A-4P-M	Male cable connector with M12, A-Coding, 4 Pin; Console or USB interface Connector
M12-D-4P-M	Male cable connector with M12, D-Coding, 4 Pin; 10/100/1000Base-TX interface Connector
M12-X-8P-M	Male cable connector with M12, X-Coding, 8 Pin; 10/100/1000Base-TX Connector
DT-XL-PWR-M12-XXX-3m	3m connecting line with M12 connector for power ports (from M12 to the exposed end); Power cable with M12 connector

Aquam8012A-1U
9+3G/8+4G port Layer 2 Gigabit Managed EN50155 Industrial Ethernet Switches

>> Overview

The Aquam8012A-1U series managed rack mountable onboard M12 switches, specially designed for rail industries, support up to 2 Gigabit copper ports and 8 10/100Base-TX ports. Aquam8012A-1U supports a wide range of operation temperature from -40°C to +75°C, and meets the EN50155, EN50121 and other rail industry standards. The switches support redundant ring protocols including DRP and RSTP, support VLAN and GVRP, flexible networking and partitioning, multicast, video multicast, and rich network management functions including SNMP. Aquam8012A-1U series can be widely deployed in onboard PIS, CCTV systems, and industrial applications asking for anti-vibration and high EMC performance.

>> Key Features

Supports a maximum of 2 10/100/1000Base-TX and 8 10/100Base-TX ports or 10 10/100Base-TX ports

Supports M12 connectors for interface ports

Supports DT-Ring protocols, supports DRP protocols and RSTP ring network redundancy protection

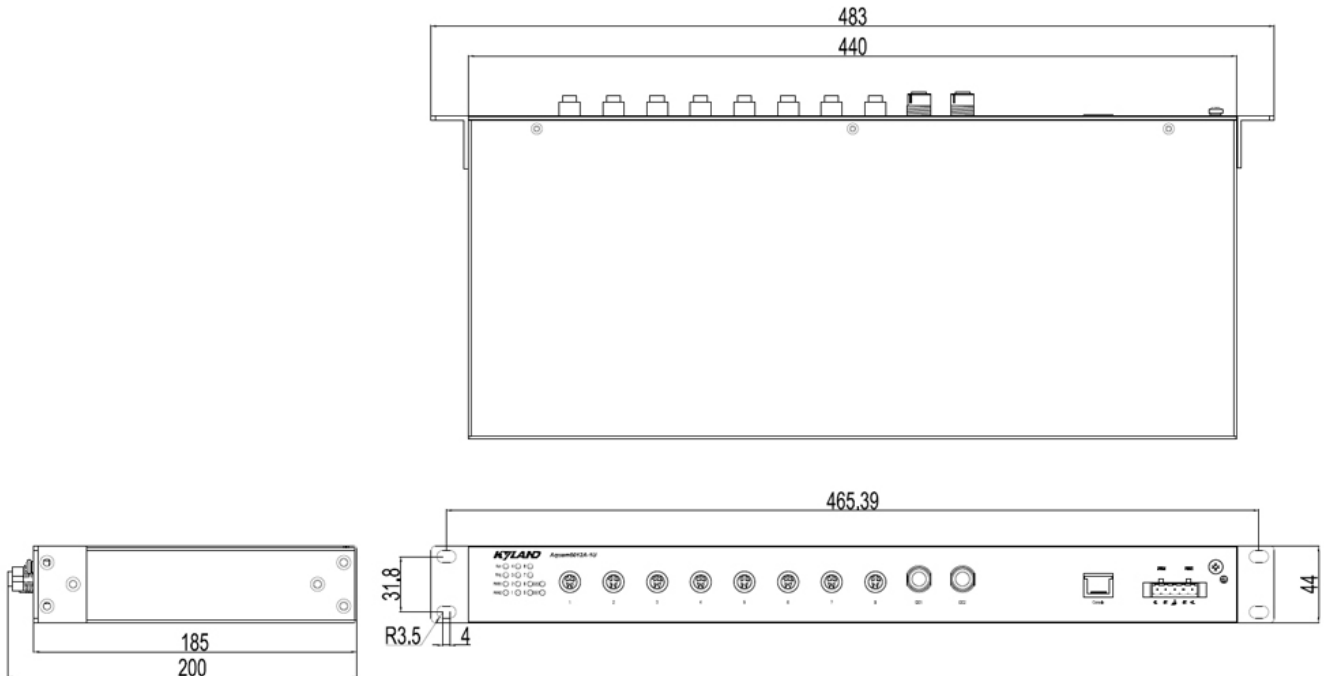Complies with the requirements of EN50155 and EN50121 industrial standards

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≫ Product Specifications

Software functions	Switching	Supports VLAN,PVLAN,GVRP Supports port trunk Supports LACP Supports port flow control Supports speed limit, broadcast storm control
	Redundancy	Supports DRP, with the recovery time<20ms Supports STP/RSTP/MSTP DT-Ring/DT-Ring+
	Multicast	Supports IGMP-snooping Supports static multicast Supports GMRP(pending)
	Network Security	Supports user classification Supports IEEE 802.1x Supports TACACA+ Supports RADIUS Supports HTTPs, SFTP client Supports SSH
	Service Quality	Supports ACL Supports SP,WRR queue scheduling
	Management and Maintenance	Supports Console, Telnet, WEB management methods Supports SNMPv1/v2c/v3,Kyvison centralized management Supports RMON Supports software upgrade by TFTP/HTTP Supports IP/MAC conflict alarm, power supply alarm, port alarm, ring alarm Supports port mirroring Supports Syslog Supports LLDP
	IP Management	Supports DHCP server/ client/snooping option 82
	Clock management	Supports SNTP Client

Product Specifications	Standards	IEEE 802.3i(10Base-T) IEEE 802.3u(100Base-TX) IEEE 802.3ab(1000Base-T) IEEE 802.3x(Flow control) IEEE 802.1p(Class of Service) IEEE 802.1Q(VLAN) IEEE 802.1w(RSTP) IEEE 802.1X
	Switch Properties	Priority Queues 8 Number of VLANs 4094 VLAN ID 1–4093 Number of Multicast Groups 64 MAC Table 8K Packet Buffer 4Mbit Packet Forwarding Rate 4.2Mpps Switching Delay <10us
	Interface Slots	Gigabit Port 10/100/1000Base-T(X), M12 connector (X-code) Fast Ethernet Port 10/100Base-T(X), M12 connector (D-code) Console Port RS232, RJ45 port
	LED	LED on front panel Running LED: Run Ring LED: Ring Power LED: PWR1, PWR2 Interface LED: Link/ACT
	Power Requirements	Power Input 110VDC(77-110VDC) Power Terminal 5-pin 5.08 mm-spacing Power Consumption < 15W Overload Protection Support Reverse Connection Protection Support Redundancy Protection Support
	Physical Characteristics	Housing Metal Cooling Nature cooling, fanless Protection Class IP40 Dimensions 483mm×44mm×185mm Weight <3kg Mounting 1U rack mountable
	Environmental Limits	Operating Temperature -40°C to +75°C Storage Temperature -40°C to +85°C Ambient Relative Humidity 5 ~ 95% (non-condensing)
	Warranty	MTBF 2299386 hrs Warranty 5 years
	Approvals	CE(pending),EN50155(pending),EN50121(pengding)
	Industry Standard	EMI FCC CFR47 Part 15,EN55022/CISPR22,Class A EMS IEC61000-4-2 (ESD) ±6kV (contact), ±8kV (air) IEC61000-4-3 (RS) 20V/m (80MHz-2GHz) IEC61000-4-4 (EFT) Power Port: ±2kV; Data Port: ±2kV IEC61000-4-5 (Surge) Power Port: ±1kV/DM, ±2kV/CM IEC61000-4-6 (CS) 10V (150kHz-80MHz) IEC61000-4-8(Power frequency magnetic field)50Hz 100A/m IEC61000-4-9(Pulsed magnetic field)300A/m IEC61000-4-29 (Voltage Short interruptions) 10ms 100% Safety EN60950-1 Machinery IEC61373 (Vibration and Shock) IEC60068-2-32 (Free Fall)

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Mechanical Drawing

Ordering Information

Aquam8012A-Ports-PS1-PS2
Port
10T   10 x 10/100BASE-T(X) M12 port
2GE8T   2 x 10/100/1000BASE-T(X) M12 port; 8 x 10/100BASE-T(X) M12 port;
PS1-PS2
H2-H2   110VDC(77-154VDC),   redundant power supplies

Accessories

M12-D-4P-M   100M port connector, M12, D-Coding, 4 Pin male, 10/100Base-TX interface Connector

M12-X-8P-M   Gigabit port connector, M12, X-Coding, 8 Pin male, 10/100/1000Base-TX Connector