

Aquam8612/8112

12+4G Port Layer3/2 Managed EN50155 Industrial Ethernet Switches



- Supports a maximum of 4 10/100/1000Base-TX with X-coded M12 connectors and 12 10/100Base-TX ports with D-coded M12 connectors.
- Supports up to 120W PoE/PoE+ (IEEE 802.3af/at) on all 12 10/100Base-TX PoE ports with devices' own 24VDC/110VDC power supplies, and a maximum of 240W PoE/PoE+ with an external 50-54VDC power supply.
- Supports optional bypass function
- Supports RSTP,DRP,MRP ring network redundancy protocols and VRRP
- Supports Layer 3 routing protocols such as static Routing, OSPF and RIP
- Complies with IEC61375 standard, supports TTDP (Train Topology Discovery Protocol)
- Complies with the requirements of EN50155 and EN50121 industrial standards
- IP65 protection class

Overview

The Aquam8612/8112 series Layer3/Layer2 EN50155 industrial Ethernet switches, specially designed for rail industries, support up to 12 Fast Ethernet interfaces and 4 Gigabit uplink interfaces, and meet the EN50155, EN50121 and other rail transit industry standards. The switches support IP65 protection class to meet the requirements of dustproof and waterproof performance, and the M12 interface ensures the tightness and the firmness of the port connection, which is especially suitable for applications that are subject to high vibration and shock.

The Aquam8612/8112 series EN50155 industrial Ethernet switches support up to 120W PoE/PoE+ (IEEE 802.3af, IEEE 802.3at). This power can be increased to 240 W by means of an electrically isolated external power supply, which is available separately. Different redundancy protocols and security mechanisms ensure high-availability and secure data communication. A passive bypass function guarantees that networks remain functional even at multiple points of failure. Further features of the switches, which can be put into operation according to the plug-and-play principle, include high shock and vibration resistance, almost complete insensitivity to electromagnetic interference and a temperature range of -40 °C to + 70 °C.

Diagnosis is possible via an internal hardware self-test, different IP/MAC conflict alarms and Syslog. Routing functions include Static Routing, Open Shortest Path First (OSPF), and Routing Information Protocol (RIP). Redundancy methods comprise Rapid Spanning Tree Protocol (RSTP), Distributed Redundancy Protocol (DRP), and Media Redundancy Protocol (MRP). The security mechanisms enable for example access control according to IEEE 802.1x, Secure Shell (SSH), and authentication via Radius servers. The Aquam8620/8120 EN50155 industrial Ethernet switches can be widely used in PIS, CCTV, video monitoring system and train control system. They also apply to any other industrial applications of harsh vibration and shock, and high EMC compatibility.

» Software Functions

Switching

Supports static VLAN, Private VLAN
Supports port flow control
Supports speed limit, Broadcast, Multicast, Unknown unicast storm control
Static and dynamic MAC addresses and MAC address aging

Redundancy

Supports VRRP
Supports RSTP (Rapid Spanning Tree Protocol)
Supports DRP with recovery time<20ms
Supports MRP (IEC62439-2)
Supports Link Aggregation (LACP, IEEE802.3ad)

Routing

Supports Static Routing (L3 Switch only)
Supports OSPF (L3 Switch only)
Supports RIP (L3 Switch only)

Multicast

Supports IGMP snooping
Supports GMRP
Supports PIM-SM, PIM-DM
Supports IGMP v2/v3

Network Security

Supports IEEE 802.1x(authentication and authorization)
Supports HTTPs/SSL
Supports SSH
Supports a local RADIUS server and also the forwarding of an authentication to an external RADIUS server.
Supports TACACS+
Unicast MAC Filtering

Service Quality

- ▼ Supports ACL
- ▼ Control and limit the data traffic for each port (as well dependent of the protocol)
- ▼ Supports 802.1p TOS/DiffServ, Supports SP, WRR queue scheduling

Management and Maintenance

- ▼ Supports Console, Telnet, WEB management methods
- ▼ Supports SNMP Management, SNMPv1/v2c/v3
- ▼ SNMPv3 supports DES and AES encryption
- ▼ Supports TCP/UDP, Ping, Trace route
- ▼ Supports upload/download for software and configuration by FTP/ TFTP/SFTP/HTTP/HTTPS
- ▼ Supports port mirroring and remote mirror port
- ▼ Supports LLDP and LLDP MIB (802.1ab)
- ▼ Supports the configuration of a maximum packet size (MTU)
- ▼ Supports ICMP, ICMP Router Discovery

Diagnosis

- ▼ Supports internal hardware self-test,
- ▼ Supports IP/MAC conflict alarm, power failure alarm, port alarm and ring alarm
- ▼ Supports Syslog, the maximum size of the log file needs to be specified

IP Management

Supports IPv4
Supports DHCP server/option12
Supports Port Security over DHCP
Supports DHCP-relay-agent/option 82
Supports BOOTP/Bootstrap Protocol
DHCP Relay Agent Information Option
DHCP Client
Supports DNS (L3 Switch only)
Supports ARP
Supports NAT, NAT (L3 Switch only)

Clock management

Supports SNTP client
Supports NTP client

Characteristic function

Supports bypass power failure bypass function
Supports IEC 61375 (ETB) (L3 Switch only)
Support TTDP, R-NAT (L3 Switch only)
Supports Auto-Backup and Configuration

MIB

- ▼ Public MIB: MIB-II, LLDP MIB, ifXTable, dot1dBridge, TTDP MIB, RSTP MIB, IGMP snooping MIB, MRP MIB, DRP MIB
- ▼ Private MIB: kylandPort, kylandDev, KylandAlarm, Private LLD, kylandUpdate, kylandUpdateCfg, kylandDownloadCfg

Technical Specification

Technical Parameter

Standard

- ▼ IEEE 802.3 10BASE-T specification
- ▼ IEEE 802.3x 10BASE-T full duplex
- ▼ IEEE 802.3u 100BASE-TX specification
- ▼ IEEE 802.3ab 1000BASE-T specification
- ▼ IEEE 802.3af
- ▼ IEEE802.3at

Switch Properties

Priority Queues	8
Number of VLANs	4K
VLAN ID	1~4094
Number of Multicast Groups	IPv4: 2K
Routing Table	IPv4: 4K
MAC Table	32K
Packet Buffer	32Mb
Packet Forwarding Rate	9.5Mpps
Switching Delay	<10us

Interface

Gigabit Port

- ▼ 10/100/1000Base-T(X) - M12 X-coded connector

Bypass

- ▼ 4 ports of the switch offer two Bypass function

Fast Ethernet Port

- ▼ 10/100Base-T(X) - M12 D-coded connector

Console Port RS232 - M12 A-coded connector

Alarm Contact M12 A-coded connector

USB M12 A-coded connector

LED

LEDs on Front Panel

- ▼ Running LED: Run
- ▼ Alarm LED: Alarm
- ▼ Power LED: PWR1, PWR2
- ▼ Interface LED: Link/ACT
- ▼ POE LED: ACT(POE models only)

Power Requirements

Power Input

- ▼ 24VDC/110VDC - M23 connector (for switch power supply)
- ▼ 50~54VDC - M12 connector (for additional isolated power supply)

Power Terminal

- ▼ M23 connector
- ▼ M12 connector for optional external power supply

Power Consumption

- ▼ PoE output: Integrated power supply provides 120W PoE output. Additional 120W can be increased by adding isolated external power supply.

▼ 120W@110VDC

▼ 80W@24VDC

Overload Protection Support

Reverse Connection Protection Support

Redundancy Protection Support

Physical Characteristics

Housing	Metal
Cooling	Nature cooling, fanless
Protection Class	IP65
Dimensions	189mm×270mm×91.3mm(H×W×D)
Weight	3.5Kg
Mounting	Wall mounting

Environmental Limits

Operating Temperature	-40 to +70°C
Storage Temperature	-40 to +85°C
Ambient Relative Humidity	5 to 95% (non-condensing)

Warranty

MTBF

- ▼ >300000h (calculation based on Telcordia (Bellcore) SR-332, Issue 2, September 2006)

Warranty Period 5 years

Approvals

CE, EN50155, EN45545

Industrial Standard

EMI

- ▼ FCC CFR47 Part 15,EN55022/CISPR22,Class A

EMS DIN EN 50121 / DIN EN 55022

Fire protection DIN EN 45545

Safety EN60950-1

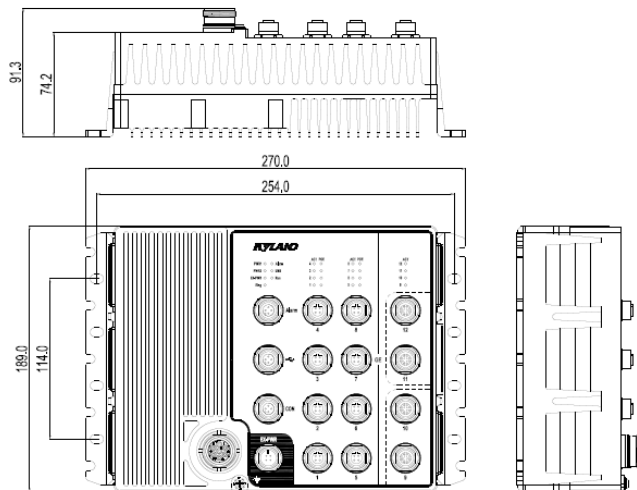
Machinery IEC61373 (Vibration and Shock)

IP65 Based on EN 60529

Protection class 2002/95/EG of the EU (RoHS)

Hazardous Matreial

Mechanical Drawing



Ordering Information

Aquam8x12-B-Ports-PS1-PS2

Code Definition	Ordering Codes
X:	
1	Layer 2 Switch
6	Layer 3 Switch
B:	
	4x 100M ports support 2 pairs of Bypass function; 4x 1000M ports support 2 pairs of Bypass function for Models with gigabit ports;
Ports	
12T	12x 10/100BASE-T(X) M12 ports;
4GE8T	4x 10/100/1000BASE-T(X) M12 ports; 8x 10/100BASE-T(X) M12 ports;
4T8P	4x 10/100BASE-T(X) M12 ports; 8x 10/100BASE-T(X) M12 PoE ports;
4GE8P	4x 10/100/1000BASE-T(X) M12 ports; 8x 10/100BASE-T(X) M12 PoE ports;
PS1-PS2 (Power Supply)	
H2-H2	110VDC(77-137.5VDC), redundant power inputs
L13-L13	24VDC(16.8-30VDC), redundant power inputs

Accessories

Accessory Model	Description	Note
M23-A-7P-F	Female cable connector with M23, A-Coding, 7 Pin	Power interface Connector
M12-A-4P-M	Male cable connector with M12, A-Coding, 4 Pin	Console or USB interface Connector
M12-A-4P-M	Male cable connector with M12, A-Coding, 4 Pin	Alarm connector
M12-D-4P-M	Male cable connector with M12, D-Coding, 4 Pin	10/100Base-TX interface Connector
M12-X-8P-M	Male cable connector with M12, X-Coding, 8 Pin	10/100/1000Base-TX Connector