Aquam8612/8112

8+4G port layer 3/2 managed PoE IP65 EN50155 switches



Overview

The Aquam8612/8112 series Layer3/Layer2 EN50155 industrial Ethernet switches, specially designed for rail industries, support up to 8 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 803.2af, 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). ETBN model type complies with IEC61375-2-3 and IEC61375-2-5, supporting TTDP, TTDB, TRDP functions with high performance NAT function.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.

Key Features

Supports a maximum of 4 10/100/1000Base-TX with X-coded M12 connectors and 8 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 ring network redundancy protocols

Supports Layer 3 routing protocols such as static Routing, OSPF, RIP and VRRP(L3 switch only)

Complies with IEC61375 standard, supporting TTDP, TTDB and TRDP(ETBN only)

Complies with the requirements of EN50155 and EN50121 industrial standards

Complies with the cybersecurity IEC62443-4-2

Supports Automatic Configuration Backup and Restore

IP65 protection class

Product Specifications

>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 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)

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 82/61/66/67

Supports BOOTP/Bootstrap Protocol

DHCP Relay Agent Information Option

DHCP Client

Supports DNS Relay (L3 Switch only)

Supports ARP

Supports NAT, NAPT (L3 Switch only)

-Clock management

Supports SNTP client

Supports NTP client

Supports PTPv2

-Characteristic function

Supports bypass power failure bypass function

Supports IEC 61375-2-5, IEC61375-2-3: TTDP, TRDP, TTDB functions (ETBN only)

Supports high performance NAT function (L3 Switch only)

Supports Automatic Configuration Backup and Restore

-MIB

Public MIB: MIB-II, LLDP MIB, ifXTable, dotldBridge, TTDP MIB, RSTP MIB, IGMP snooping 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

PoE Support IEEE803.2af

Support IEEE802.3at

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, POE models only))

Power Terminal

M23 connector

M12 connector for optional external power supply (POE models only)

Power Consumption

<18W@110VDC without PoE

<160W@110VDC with 120W PoE

PoE output

Integrated power supply provides 80/120W PoE output.

Additional 120W can be increased by adding isolated external power supply.

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°C to +70°C

Storage Temperature -40°C 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, FCC, EN50121, EN50155, EN45545: H6-H6

CE, FCC, EN50121, EN50155, EN45545, E mark: L2-L2

IEC 62368-1, EN 62368-1

-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)

IEC60068-2-32 (Free Fall)

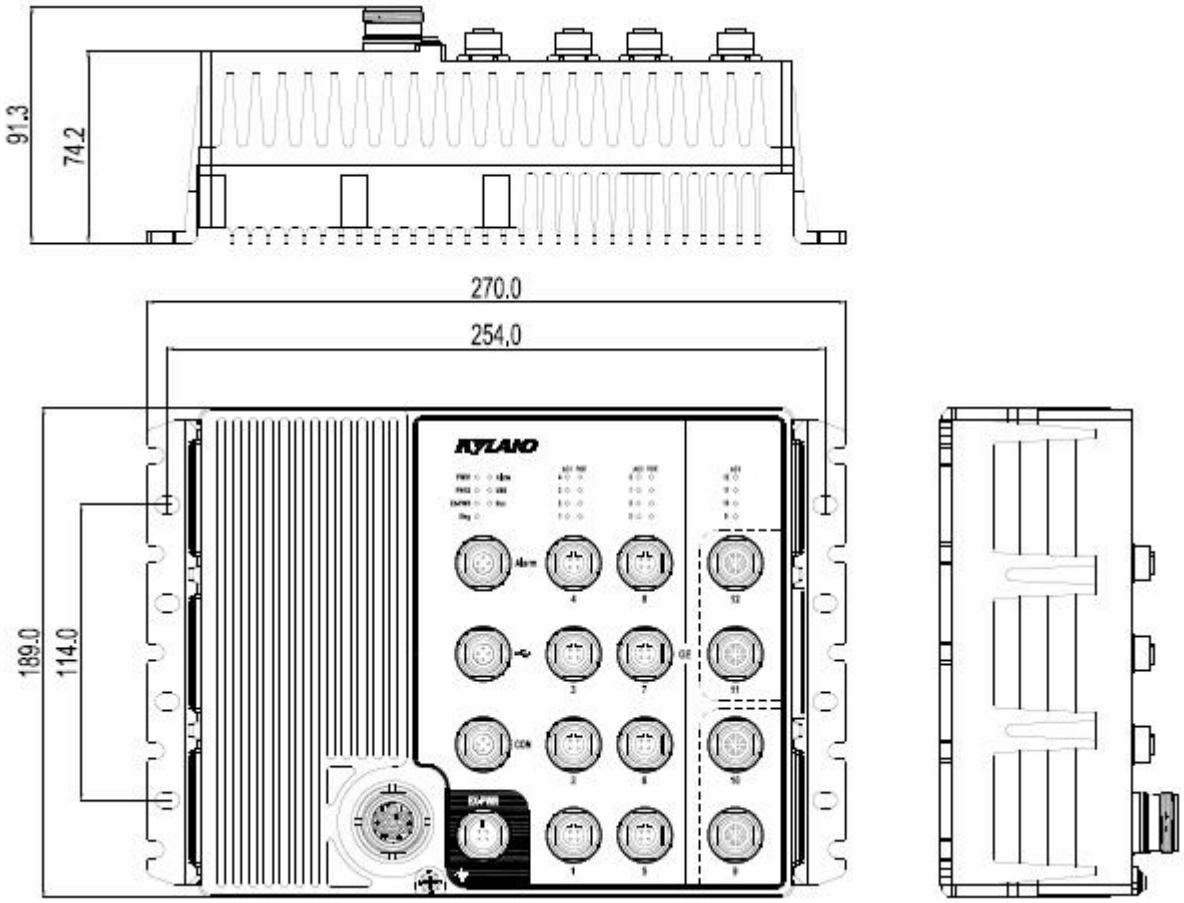
Protection class

IP65 Based on EN 60529

Hazardous Material

2002/95/EG of the EU (RoHS)

Mechanical Drawing



Ordering Information

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Product Model	Aquam8112-B-Ports-PS1-PS2
Code Definition	Ordering Codes
B:	4x 1000M ports support 2 pairs of Bypass function for Models with gigabit ports;
Ports:	4GE8T = 4x 10/100/1000BASE-T(X) M12 ports; 8x 10/100BASE-T(X) M12 ports; 4GE8P= 4x 10/100/1000BASE-T(X) M12 ports; 8x 10/100BASE-T(X) M12 PoE ports;
Product Model:	Aquam8112-Ports-PS1-PS2
Ports:	4GE8T = 4x 10/100/1000BASE-T(X) M12 ports; 8x 10/100BASE-T(X) M12 ports; 4GE8P= 4x 10/100/1000BASE-T(X) M12 ports; 8x 10/100BASE-T(X) M12 PoE ports; 8T = 8x 10/100BASE-T(X) M12 ports; 8P = 8x 10/100BASE-T(X) M12 PoE ports;

PS1-PS2 (Power Supply):	H6-H6=72-110VDC(50.4-137.5VDC), redundant power inputs L2-L2=24-48VDC(16.8-60VDC), redundant power inputs

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Product Model:	Aquam8612-Ports-PS1-PS2
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PS1-PS2 (Power Supply):	H6-H6=72-110VDC(50.4-137.5VDC), redundant power inputs L2-L2=24-48VDC(16.8-60VDC), redundant power inputs

Product Model	Aquam8612-NAT-B-Ports-PS1-PS2
Code Definition	Ordering Codes
B:	4x 1000M ports support 2 pairs of Bypass function for Models with gigabit ports;
Ports:	4GE8T = 4x 10/100/1000BASE-T(X) M12 ports; 8x 10/100BASE-T(X) M12 ports; 4GE8P= 4x 10/100/1000BASE-T(X) M12 ports; 8x 10/100BASE-T(X) M12 PoE ports;
Product Model:	Aquam8612-NAT-Ports-PS1-PS2
Ports:	4GE8T = 4x 10/100/1000BASE-T(X) M12 ports; 8x 10/100BASE-T(X) M12 ports; 4GE8P= 4x 10/100/1000BASE-T(X) M12 ports; 8x 10/100BASE-T(X) M12 PoE ports; 8T = 8x 10/100BASE-T(X) M12 ports; 8P= 8x 10/100BASE-T(X) M12 PoE ports;

PS1-PS2 (Power Supply):	H6-H6=72-110VDC(50.4-137.5VDC), redundant power inputs L2-L2=24-48VDC(16.8-60VDC), redundant power inputs

Product Model	Aquam8612-NAT-B-Ports-PS1-PS2-ETBN
Code Definition	Ordering Codes
NAT：	High performance NAT(1-1NAT, NAPT)
B:	4x 1000M ports support 2 pairs of Bypass function for Models with gigabit ports;
Ports:	4GE8T = 4x 10/100/1000BASE-T(X) M12 ports; 8x 10/100BASE-T(X) M12 ports; 4GE8P= 4x 10/100/1000BASE-T(X) M12 ports; 8x 10/100BASE-T(X) M12 PoE ports;
PS1-PS2:(Power Supply)	H6-H6=72-110VDC(50.4-137.5VDC), redundant power inputs L2-L2=24-48VDC(16.8-60VDC), redundant power inputs
ETBN:	TRDP, TTDP, TTDB functions

Accessories

Accessory Model	Description	Note
M23-5P-F-Crimp	Female cable connector with M23, 5 Pin，Crimp	Power interface Connector
M12-A-4P-F	Female cable connector with M12, A-Coding, 4 Pin	External power interface Connector
M12-A-4P-M	Male cable connector with M12, A-Coding, 4 Pin	Alarm, Console or USB interface 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 interface Connector
KyACB-USB-M12-A-4P-M	Automatic Configuration Backup tool with M12 connector	

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