

# Aquam8628/8128

## 24+4G Port Layer3/2 Managed EN50155 Industrial Ethernet Switches



- Supports a maximum of 4 10/100/1000Base-TX with X-coded M12 connectors and 24 10/100Base-TX ports with D-coded M12 connectors.
- Supports up to 120W PoE/PoE+ (IEEE 802.3af/at) on all 24 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 Aquam8628/8128 series Layer3/Layer2 EN50155 industrial Ethernet switches, specially designed for rail industries, support up to 24 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 Aquam8628/8128 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 Aquam8628/8128 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

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)

#### 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×380mm×91.3mm(H×W×D)
Weight	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
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### Approvals

CE, EN50155, EN45545

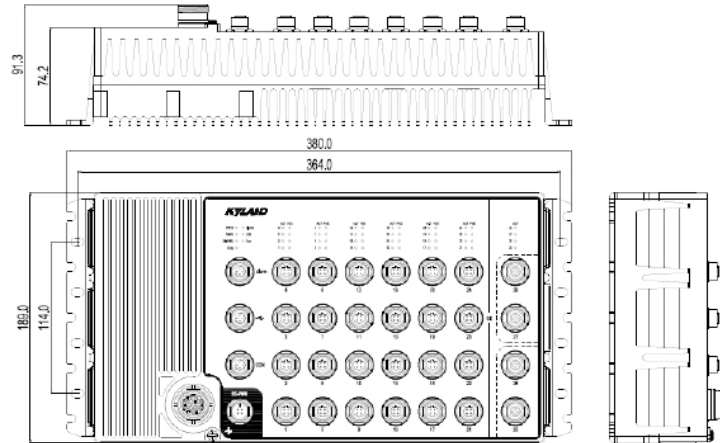
### Industrial Standard

#### 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) IEC60068-2-32 (Free Fall)
Protection class	IP65 Based on EN 60529
Hazardous Matreial	2002/95/EG of the EU (RoHS)

## Mechanical Drawing



## Ordering Information

### Aquam8X28-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	
24T	24x 10/100BASE-T(X) M12 ports
4GE24T	4 x 10/100/1000BASE-T(X) M12 ports; 24x 10/100BASE-T(X) M12 ports
24P	24 x 10/100BASE-T(X) M12 PoE ports
4GE16P	4 x 10/100BASE-T(X) M12 ports; 24x 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