



# 8022GX6-L3

## Datasheet

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



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## Layer 3 Switch with Cyber Security and Enhanced ERPS v2 for Critical Applications

### 8022GX6-L3

#### Industrial 22-port Full Gigabit Managed Ethernet Switch, 16GT+6GSFP

8022GX6-L3 series is designed for industrial environments requiring high security and high quality Ethernet/Fiber communication, such as industrial automation, road traffic control, etc. 8022GX6-L3 provides 22-port full-gigabit Ethernet including 16-port Gigabit RJ45 and 6-port 100M/1G/2.5G SFP. 8022GX6-L3 provides wire-speed switching, Cyber Security, network redundancy...L3+ management software features. Full Gigabit capability and rugged industrial design ensures system high performance and reliability in harsh environments. For convenient traffic control and zero packet loss data transmission, the switch offers contemporary management and security functions.



#### High performance CPU & Full Gigabit Switching

- Powerful 1.2GHz ARM Cortex-A9 processor
- Non-blocking switch fabric design
- 22-port Full Gigabit Ethernet ports, including 16 Gigabit RJ45 and 6 100/1000M/2.5G\* SFP.
- 8 flexible Class of Service(CoS) queues
- 16K MAC address table
- 9Kb Jumbo Frame
- Fiber ports support both 100M and 1000M SFP
- DDM function for fiber connectivity monitoring
- Up to 15Gbps Link Aggregation with 2.5G\* SFP
- Energy-Efficient Ethernet for power saving

#### IEC62443-4-2 Level 3 / 4 Cyber Security

- 802.1X/RADIUS port-based access control
- IP Security/Port Security
- HTTPs/SSH Management IP secure access
- Supports advanced cyber security features, 802.1X MAB, TACAS+, DHCP Snooping, IP Source Guard, Dynamic ARP Inspection, advanced Port Security & L2-L7 Access Control List

#### ITU ERPSv2 PLUS Ring Technology

- ITU G.8032 v1/v2 ERPS Ring Redundancy & HW-based CFM for quick acknowledgement while GbE copper link failure, providing 20ms recovery time and seamless restoration.
- ERPSv2 available to replace legacy Ring + Chain + Dual Homing
- Inter-Operability with 3rd party industrial switch and still remain fast recovery time.
- Support Enhanced RSTP for large ring network topology with up to 80 switches

#### L3+ Management Switch Features

- Various configuration paths, including WebGUI, CLI, SNMP, Modbus TCP, LLDP topology control
- Layer 3 Switch features include VLAN, QoS, LACP/Trunk, Rapid Spanning Tree protocol...etc
- IGMP Snooping v1/v2/v3, IGMP Query, 512 L2 Multicast Groups for video applications
- Built-in DHCP Server that automatically provides and assigns IP addresses, default gateways to clients

#### Industrial IoT LAN & Cloud Management

- Support Software Utilities:
  - ANMS Network Management System
  - AIAS for Configuration Management
- Support Modbus TCP for monitoring in field

#### Rugged Design for Wayside Network Switching with Wide Power Input Range

- 10~60V wide power range design with redundant power input
- Excellent heat dissipation design for operating in -40~75°C environments
- High level EMC protection exceeding traffic control and heavy industrial standards' requirements
- IEC 61000-6-2/4 Heavy Industrial Environment



## Ordering Information

Model Name	Description
<b>8022GX6-L3</b>	22-Port Layer3 Fully Managed Industrial Ethernet Switch, 16 RJ45 Ports 10/100/1000Base-T(X), 6 SFP Slots 1000BaseSFP+, DIN-Rail, Dual Power Input 10-60VDC, -40°C-85°C
<b>8022GX6-L3-PS</b>	8022GX6-L3, w/ 1 APS-30-24
<b>8022GX6-L3-2SX</b>	8022GX6-L3, w/ 2 AVC-SFP-SX
<b>8022GX6-L3-2SX-PS</b>	8022GX6-L3, w/ 1 APS-30-24 and 2 AVC-SFP-SX
<b>8022GX6-L3-2LX-10</b>	8022GX6-L3, w/ 2 AVC-SFP-LX-10
<b>8022GX6-L3-2LX-10-PS</b>	8022GX6-L3, w/ 1 APS-30-24 and 2 AVC-SFP-LX-10
<b>8022GX6-L3-2LX-40</b>	8022GX6-L3, w/ 2 AVC-SFP-LX-40
<b>8022GX6-L3-2LX-40-PS</b>	8022GX6-L3, w/ 1 APS-30-24 and 2 AVC-SFP-LX-40
<b>8022GX6-L3-4SX</b>	8022GX6-L3, w/ 4 AVC-SFP-SX
<b>8022GX6-L3-4SX-PS</b>	8022GX6-L3, w/ 1 APS-30-24 and 4 AVC-SFP-SX
<b>8022GX6-L3-4LX-10</b>	8022GX6-L3, w/ 4 AVC-SFP-LX-10
<b>8022GX6-L3-4LX-10-PS</b>	8022GX6-L3, w/ 1 APS-30-24 and 4 AVC-SFP-LX-10
<b>8022GX6-L3-4LX-40</b>	8022GX6-L3, w/ 4 AVC-SFP-LX-40
<b>8022GX6-L3-4LX-40-PS</b>	8022GX6-L3, w/ 1 APS-30-24 and 4 AVC-SFP-LX-40
<b>8022GX6-L3-6SX</b>	8022GX6-L3, w/ 6 AVC-SFP-SX
<b>8022GX6-L3-6SX-PS</b>	8022GX6-L3, w/ 1 APS-30-24 and 6 AVC-SFP-SX
<b>8022GX6-L3-6LX-10</b>	8022GX6-L3, w/ 6 AVC-SFP-LX-10
<b>8022GX6-L3-6LX-10-PS</b>	8022GX6-L3, w/ 1 APS-30-24 and 6 AVC-SFP-LX-10
<b>8022GX6-L3-6LX-40</b>	8022GX6-L3, w/ 6 AVC-SFP-LX-40
<b>8022GX6-L3-6LX-40-PS</b>	8022GX6-L3, w/ 1 APS-30-24 and 6 AVC-SFP-LX-40

Technology	
<b>Standard</b>	IEEE 802.3 10Base-T Ethernet
	IEEE 802.3u 100Base-TX Fast Ethernet
	IEEE 802.3u 100Base-FX Fast Ethernet Fiber
	IEEE 802.3ab 1000Base-T Gigabit Ethernet Copper
	IEEE 802.3z Gigabit Ethernet Fiber
	IEEE 802.3x Flow Control and back-pressure
	IEEE 802.3az (Energy Efficient Ethernet)
	IEEE 802.1p Class of Service (CoS)
	IEEE 802.1Q VLAN and GVRP
	IEEE 802.1AB Link Layer Discovery Protocol (LLDP)
	IEEE 802.1D-2004 Rapid Spanning Tree Protocol (RSTP)
	IEEE 802.1S Multiple Spanning Tree Protocol (MSTP)
	IEEE 801.1AX/802.3ad Link Aggregation Control Protocol (LACP)
	IEEE 802.1x Port based Network Access Protocol
	IEEE 1588 Precision Time Protocol v2
ITU-T G.8032 version 2 Ethernet ring protection switching(ERPSv2)	
Performance	
<b>Switch Technology</b>	Store and Forward Technology with Non-Blocking Switch Fabric Internal Packet Buffer: 4Mb Forwarding rate: 14.88Mpps/10-port (1,488,000pps/Gigabit port)
<b>CPU/RAM</b>	Cortex-A9, max. 1.2GHz, DDR3 2Gb
<b>Number of MAC Address</b>	16K
<b>Jumbo Frame</b>	9216 Bytes
<b>VLAN</b>	256 VLANs, VLAN ID 1-4094
<b>IGMP Groups</b>	512
<b>Traffic Prioritize</b>	8 Priority Queues per Port
Interface	
<b>Ethernet Port</b>	16 x 100/1000Base-T RJ45, Auto Negotiation, Auto MDI/MDIX, 6 x 100/1000M SFP, 2.5G SFP compliant(TBD)
<b>System LED</b>	2 x Power: Green On 1 x DO/Alarm: Red On
<b>Ethernet Port LED</b>	Link (Green On), Activity (Green Blinking), Speed 1000M(Amber On), Speed 100M (Off)
<b>SFP LED</b>	Port: Link (Green On), Activity (Green Blinking); 1000M: Speed 1000M (Amber On), Speed 100M (Off)
<b>Reset</b>	System Reboot(2-6 Seconds)/Default Settings Reset(over 7 Seconds)
<b>Console</b>	1 x RS232 in RJ45 for System Configuration. Baud Rate: 115200.n.8.1, Pin Define: 3: TxD, 6:RxD, 5:GND *Also available to support Pin Define: 3: RxD, 4:TxD, 6:GND (Configured by Internal Jumper)

<b>Digital Input, Digital Output</b>	4-Pin Removable Terminal Block Connector, 2-Pins for DI, 2-Pins for DO (Relay Alarm) 1x Digital Output: Dry Relay Output with 0.5A /24V DC 1x Digital Input: High: DC 11V~30V, Low: DC 0V~10V
<b>Power Input</b>	4-Pin Removable Terminal Block Connector for Redundant Power
<b>Power Requirement</b>	
<b>Input Voltage</b>	8022GX6-L3: 24VDC (10~60VDC) 8022GX6-L3-AC: 220VAC (90~264VAC) 8022GX6-L3-HVDC: 110VDC(43~160VDC)
<b>Reverse Polarity Protect</b>	Yes
<b>Input Current</b>	0.67A @ 24V
<b>Power Consumption</b>	Typical 16W@24V (16GT+6G SFP Activated, TBD) Max. 18W @60VDC full traffic, suggest to reserve 15% tolerance (TBD)
<b>Software</b>	
<b>Management</b>	WebGUI, Command Line Interface (CLI), IPv4/IPv6(RFC2460), Telnet, SNMP v1/v2c/v3, RMON, SNMP Trap, LLDP, DHCP Server/Client/Option 82, TFTP, System Log, SMTP
<b>Traffic Management</b>	Flow Control, Rate Control, Storm Control, CoS, QoS, RFC 2474 DiffServ
<b>Filter</b>	IGMP Snooping v1/v2/v3, IGMP Snooping Fast-Leave/Immediate-Leave, IGMP Query, GMRP, IEEE802.1Q VLAN, QinQ, GVRP, Private VLAN
<b>Security</b>	IEEE 802.1X/RADIUS, TLS v1.2, Access Control List (ACL, MAC/IP/ARP filter), HTTPs/SSH secure login, First login password management
<b>Advanced Security</b>	Advanced Security: TACACS+, Multi-user authentication, IEEE802.1x MAB, DHCP Snooping/IPSG, Dynamic ARP inspection, SFTP
<b>Redundancy</b>	ERPSv2 Plus, ITU-T G.8032 v1/v2 Ethernet Ring Protection Switching (ERPSv2), HW CFM, Loop Protection, Rapid Spanning Tree Protocol/Spanning Tree Protocol (RSTP/STP), Multiple Spanning Tree Protocol (MSTP) eRSTP (Enhanced Rapid Spanning Tree), up to 80 switches in one Ring
<b>Time Management</b>	NTP, IEEE 1588 Precision Time Protocol v2
<b>Layer 3/Router</b>	Dual WAN Interface Router: RIPv2, OSPFv2, Static Multicast Routing*, VRRPv2 NAT: 1-1 NAT, NAT (SNAT/DNAT), Port Forwarding, R-NAT*, TTDP* Firewall: Stateful Inspection Firewall, DMZ, Modbus TCP/UDP Deep Inspection* VPN: IPSec, OpenVPN, DMVPN*, PPTP*, L2TP*, GRE*, Encryption includes DES/ 3DES/ AES128 AES256
<b>Industrial IoT</b>	Modbus TCP, Ethernet/IP
<b>Utility</b>	Group Discovery & Configuration Utility, Network Management System (By Request)
<b>MIB</b>	ERPS MIB, MIB-II, Ethernet-like MIB*, P-BRIDGE MIB, Q-BRIDGE MIB, Bridge MIB, RMON MIB Group 1, 2, 3, 9*, Private MIB
<b>Diagnostic</b>	LLDP, Port Mirror, Ping, Port Statistic, Event Log

Mechanical	
<b>Installation</b>	DIN Rail
<b>Enclosure Material</b>	Steel Metal Additional Aluminum Side Heat Sink
<b>Dimension</b>	78 mm x155 mm x125 mm (W x H x D) / without DIN Rail Clip
<b>Ingress Protection</b>	IP31
<b>Weight</b>	~1285g without package
Environmental	
<b>Operating Temperature</b>	-40°C~75°C
<b>Humidity</b>	0%~95% Non- Condensing
<b>Storage Temperature</b>	-40°C~85°C
<b>MTBF</b>	>2,000,000 hours
<b>Warranty</b>	5 years
Standard	
<b>CE</b>	Heavy Industrial EN61000-6-2/EN61000-6-4 compliance
<b>FCC</b>	CISPR 22, FCC part 15B Class A Compliance

## Function interface

**22-port Full Gigabit Ethernet**

- 16-port 10/100/1000M RJ45
- 6-port 100/1000M SFP, 2.5G\* SFP compliant(TBD)

**Reset**

**RS232 Console, Ground**

**DI/DO Connector**

- 1 x 4-pin terminal block  
2-pin for DI  
2-pin for DO

**System LED**

- 2 x Power
- 1 x DO Alarm

**DIN Clip in back**

**Power Connector**

- 1 x 4-pin terminal block for redundant power input

## Installation dimensions

Unit: mm

