



AVCOMM®

8012GX2-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

8012GX2-L3

Industrial 12-port Full Gigabit Managed Ethernet Switch, 10GT+2GSFP

The 8012GX2-L3 is the first full Gigabit Managed Switch with Layer 3 routing functions. It gives you more flexibility in planning your large-scale IP network. 8012GX2-L3 supports various routing protocols such as IP/VLAN routing, RIP, OSPF, VRRP router redundancy, which are fully compatible with your backbone network. The 8012GX2-L3 provides 12-port full-gigabit Ethernet, including 10-port Gigabit RJ45 and 2-port 100M/1G SFP, the switch provides reliable IP network with high performance. Advanced Cyber Security and redundancy features of 8012GX2-L3 guarantee the fastest network recovery, zero packet loss data transmission, and high level of network protection against the hackers' attacks.



Full Gigabit Switching and Ultra-high Throughput

- 12-port Full Gigabit Ethernet with 10-port RJ45 and 2-port SFP
- 16K MAC address table
- 1.5MByte packet buffer memory for H.264 burst
- 9K bytes jumbo frame
- Store-and-forward with non-blocking switch fabric

Dynamic Routing with Redundancy Protection

- RIPv1&v2, OSPFv1&v2 for intra-domain routing within an autonomous system
- Efficient unicast/multicast static routing
- VRRP guarantees sustainable routing in a single point of failure

ITU-T G.8032 v1/v2 ERPS Ring Redundancy

- An ITU standard Ring redundancy Protocol
- Provide sub-50ms protection and recovery switching for Ethernet traffic
- Interoperate with 3rd party industrial switch and still remain fast recovery time
- Interoperate with commercial switch instead of STP/RSTP
- Efficient network interconnection and topology with ERPS Chain, multiple chains

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

- L2-L7 IPv4/IPv6 Access Control List (ACL)
- DHCP Snooping, IP Source Guard, Dynamic ARP Inspection
- 802.1Q VLAN, Private VLAN, Advanced Port Security
- Multi-Level user passwords
- HTTPS/SSH/SFTP, 256-bit encryption
- 802.1X MAB for non-802.1X compliant end devices
- RADIUS/TACACS+ centralized password authentication

Rugged Design for Wayside Surveillance

- EN50121-4 for railway trackside applications
- Top level EMC protection and excellent heat dissipation design for operating in -40°C~75°C environment
- IEC 61000-6-2/4 Heavy Industrial Environment

L3+ Management Features

- Various configuration paths, including WebGUI, CLI, SNMP and RMON
- IEEE 1588v1/v2 PTP time management
- LLDP topology control
- Software utility interface for LAN devices management
- NMS for individual component monitoring



Ordering Information

| Model Name | Description |
|-----------------------------|--|
| 8012GX2-L3 | 12-Port Layer3 Fully Managed Industrial Ethernet Switch, 10 RJ45 Ports 10/100/1000Base-T(X), 2 SFP Slots 1000BaseSFP+, DIN-Rail, Dual Power Input 12-48VDC, -40°C-75°C |
| 8012GX2-L3-PS | 8012GX2-L3, w/ 1 APS-30-24 |
| 8012GX2-L3-2SX | 8012GX2-L3, w/ 2 AVC-SFP-SX |
| 8012GX2-L3-2SX-PS | 8012GX2-L3, w/ 1 APS-30-24 and 2 AVC-SFP-SX |
| 8012GX2-L3-2LX-10 | 8012GX2-L3, w/ 2 AVC-SFP-LX-10 |
| 8012GX2-L3-2LX-10-PS | 8012GX2-L3, w/ 1 APS-30-24 and 2 AVC-SFP-LX-10 |
| 8012GX2-L3-2LX-40 | 8012GX2-L3, w/ 2 AVC-SFP-LX-40 |
| 8012GX2-L3-2LX-40-PS | 8012GX2-L3, w/ 1 APS-30-24 and 2 AVC-SFP-LX-40 |

| Technology | |
|---|---|
| Standard | 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 802.1p 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 802.1Q-2005 Multiple Spanning Tree Protocol (MSTP) |
| | IEEE 802.3ad Link Aggregation Control Protocol (LACP) |
| | IEEE 802.1x Port based Network Access Protocol |
| | IEEE 1588 Precision Time Protocol v1/v2 |
| | ITU-T G.8032 Ethernet ring protection switching(ERPS) |
| Performance | |
| Switch Technology | Store and Forward Technology with non-blocking Switch Fabric |
| Number of MAC Address | 16k |
| Packet Buffer Memory | 1.5MBytes |
| Jumbo Frame | 9216 Bytes |
| Transfer performance | 10Base-TX: 14,880pps, 100Base-TX/FX: 148,800pps, 1000Base-TX/FX: 1,488,100pps |
| VLAN | 256 VLANs |
| VLAN ID | 1~4094 |
| Class of Service | 8 Priority Queues per Port |
| Watchdog | Hardware-based 10 seconds timer |
| Interface | |
| Ethernet Port | 8012GX2-L3: 10 x 100/1000Base-T RJ45, Auto Negotiation, 2 x 100/1000M SFP, DDM |
| System LED | 2 x Power: Green On, 1 x DO/Alarm: Red On |
| Ethernet Port LED | Link (Green On), Active (Green Blinking), Speed 1000M(Amber On), Speed 100M(Off) |
| SFP LED | Link (Green On), Active (Green Blinking), Speed 1000M(Amber On), Speed 100M(Off) |
| Reset | System Reboot(2-6 Seconds)/Default Settings Reset(over 7 Seconds) |
| Console | 1 x RS232 in RJ45 for System Configuration. Baud Rate:115200.n.8.1 |
| Power Input, Digital Input, Digital Output | 8-Pin Removable Terminal Block Connector 4 Pins for Redundant Power 4 Pins for DI, DO (Relay Alarm) 1x Digital Output: Dry Relay Output with 0.5A /24V DC 1x Digital Input: DI with Photo-Coupler Isolation High: DC 11~30V Low: DC 0~10V |

| Power Requirement | |
|---------------------------------|---|
| Input Voltage | 24VDC (12~48VDC) |
| Reverse Polarity Protect | Yes |
| Input Current | 0.67A @ 24V |
| Power Consumption | Max 16.08W@24VDC full traffic, suggest to reserve 15% tolerance |
| Software | |
| Management Interface | CGI WebGUI, Command Line Interface (CLI), Telnet, SNMP |
| Time Management | NTP, IEEE 1588 Precision Time Protocol v1/v2 |
| Network Management | IPv4/IPv6, SNMP v1/v2c/v3/Trap, MIBs, RMON, LLDP, DHCP server/client/Option 82, TFTP, System Log, SMTP |
| Traffic Management | Flow Control, Port Trunk/802.3ad LACP, VLAN, Private VLAN, GVRP, GMRP, QinQ, QoS, IGMP Snooping v1/v2/v3, Rate Control, Storm Control, Port Mirror |
| Security | IEEE 802.1X/RADIUS, Private VLAN, ACL(MAC/IP filter), HTTPS/SSH secure login |
| Redundancy | Rapid Spanning Tree Protocol (RSTP)/Multiple Spanning Tree Protocol (MSTP) ITU-T G.8032 v1/v2 Ethernet Ring Protection Switching (ERPS) Virtual Router Redundancy Protocol (VRRP) |
| L3 Routing | Static/Dynamic IP Routing, VLAN Routing, RIP v1/v2(64 entries), OSPF v1/v2, IGMP and Multicast Routing (64 entries) |
| Mechanical | |
| Installation | DIN Rail |
| Enclosure Material | Steel Metal Additional Aluminum Side Heat Sink |
| Dimension | 78 mm x155 mm x125 mm (W x H x D) / without DIN Rail Clip |
| Ingress Protection | IP41 |
| Weight | ~1285g without package |
| Environmental | |
| Operating Temperature | -40°C~75°C |
| Humidity | 0%~95% Non- Condensing |
| Storage Temperature | -40°C~85°C |
| Hi-Pot Insulation | AC 1.5 KV |
| MTBF | >2,000,000 hours |
| Warranty | 5 years |
| Standard | |
| Safety | IEC60950-1 Compliance |
| EMC | EN61000-6-2/EN61000-6-4 |
| EMI | CISPR 22, FCC part 15B Class A |
| EMS | EN61000-4-2 ESD, EN61000-4-3 RS, EN61000-4-4 EFT, EN61000-4-5, EN61000-4-6 CS, EN61000-4-8 Magnetic Field |
| Railway | EN50121-4 |

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| 100Base FX | | |
|--------------------|----------------------|---------------------|
| Multi Mode | AVC-SFP-FX-SX (550m) | Wavelength: 850 nm |
| | AVC-SFP-FX-S (2km) | Wavelength: 1310 nm |
| Single Mode | AVC-SFP-FX-10 (10km) | Wavelength: 1310 nm |
| 1000Base FX | | |
| Multi Mode | AVC-SFP-SX (550m) | Wavelength: 850 nm |
| | AVC-SFP-LX-S (2km) | Wavelength: 1310 nm |
| Single Mode | AVC-SFP-LX-10 (10km) | Wavelength: 1310 nm |

Function interface

DIN Clip

System LED

- 2 x Power
- 1 x DO Alarm

Gigabit Fiber Ethernet

- 2-port 100/1000M SFP

Gigabit Ethernet

- 10-port 10/100/1000M RJ45

Integrated Power Connector

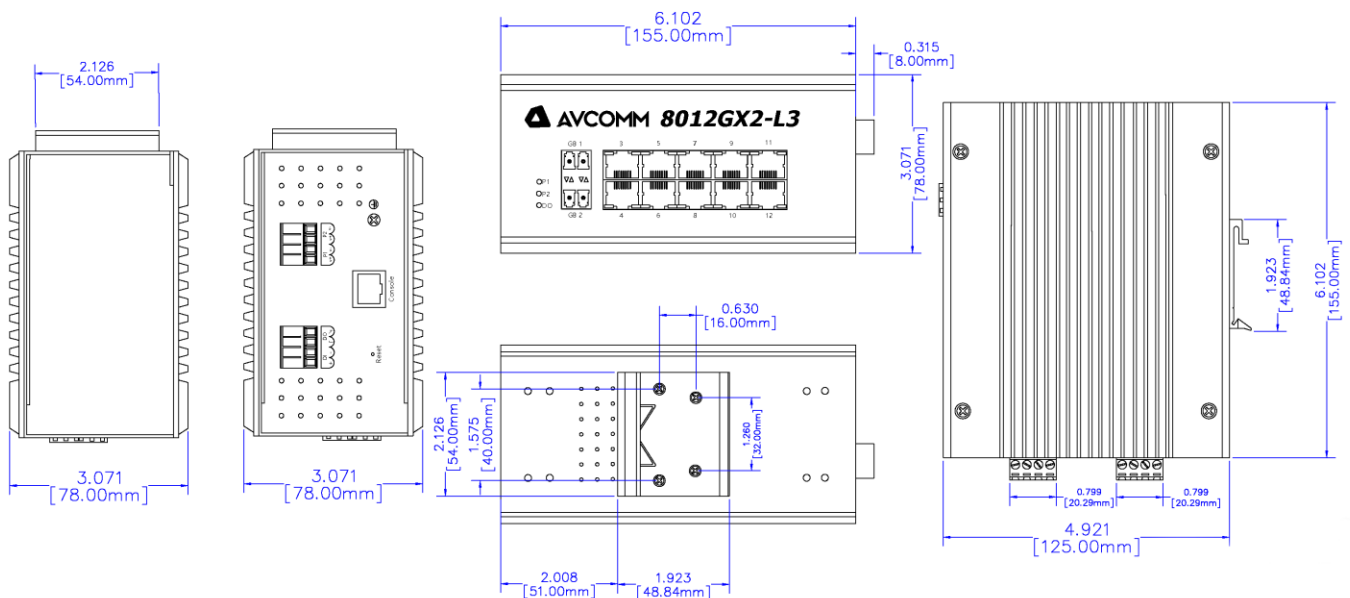
- 1 x 8-pin terminal block
- 4 pin for redundant power input
- 2 pin DI
- 2 pin DO
- Easy installation

Easy System Management

- RS232 console

Installation dimensions

Unit: mm



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