



8028MG4

Datasheet

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



AVCOMM Technologies, Inc

www.avcomm.us

Email: info@avcomm.us

Phone: (713) 933-4534

Address: 333 West Loop North, Suite 460
Houston, TX 77024
United States

Industrial L2/L3 Managed Ethernet Switch

8028MG4

8028MG4 is 1U rack-mount, high performance ruggedized Ethernet switches, supporting up to 28 Gigabit Ethernet ports, and Layer2 or Layer3 options. With flexible combination of Ethernet modular options for fiber and copper ports, it offers powerful features such as IEEE 1588v2 PTP, zero packet loss PRP/HSR redundant network protection, and designed to serve critical applications like Industrial Automation, Transportation and power utility substation.



**IEEE
1588v2 PTP**

- Modular design, support up to 28 Gigabit Ethernet ports
- Ethernet module options: 8 x 100/1000Base SFP ports, or 8 x 10/100/1000BaseT Copper ports, or 4 x 100/1000BaseSFP & 10/100/1000BaseT combo ports, or PRP/HSR module.
- 9K Jumbo frames
- L2/L3 wire-speed switching
- Network redundant LACP, Spanning tree STP, RSTP & MSTP, Parallel Redundancy Protocol (PRP), High-availability Seamless Redundancy (HSR)
- Advanced VLAN operations: IEEE 802.1ad/QinQ VLAN, VLAN tag add/remove/replace
- Private VLAN, port-based /tag-based/protocol-based VLAN
- Multicasting support IGMP v1/v2/v3, proxy & snooping
- IEEE 1588v2 PTP, IEEE C37.238 Power Profile
- Security: IEEE 802.1x authentication, RADIUS & TACACS+ AAA (pending)
- Policy-based traffic control engine for actions of Deny, Allow, Queue mapping, rate limit, mirror, or CoS remark on any combination of specific Layer -2 /Layer- 3 / Layer-4 patterns
- QoS (SPQ, WRR, SPQ+ WRR): Hierarchical per-port, per queue shaping & scheduling with bandwidth management
- IEC 61850-3 Edition 2 Class 2 / IEEE 1613 Class 2 certificated
- IEC 61850-3/ IEEE1613 UCAlug Level A Laboratory certificated
- Industrial grade and fanless design

L2 / L3

**Modular
Design**

**IEC 61850-3
IEEE 1613**

PRP / HSR



Ordering Information

Model Name		Description
8028MG4		28-Port industrial L2 managed ethernet switch, Slot WAN: 4 x 100/1000BaseSFP & 10/100/1000BaseT combo ports with or without PRP/HSR, Slot 1-3: 8 x 100/1000Base SFP ports, or 8 x 10/100/1000BaseT RJ45 ports, 19" rack mounting, AC/DC dual redundancy powers, -40°C to +85°C , IP30
8028MG4-L3		28-Port industrial L3 managed ethernet switch, Slot WAN: 4 x 100/1000BaseSFP & 10/100/1000BaseT combo ports with or without PRP/HSR, Slot 1-3: 8 x 100/1000Base SFP ports, or 8 x 10/100/1000BaseT RJ45 ports, 19" rack mounting, AC/DC dual redundancy powers, -40°C to +85°C , IP30
Module Options	AVC-PH-4C	Slot WAN, PRP/HSR Redbox module, 4 x10/100/1000TX+100/1000SFP combo port, with PTP
	AVC-4C	Slot WAN, Ethernet Combo module,4 x 10/100/1000TX+100/1000SFP combo port, with PTP
	AVC-8TX	Slot 1-3, 8 x 10/100/1000TX ports, with PTP
	AVC-8SFP	Slot 1-3, 8 x 100/1000SFP ports, with PTP
	AVC-PWR-LV	Power module, 24-48VDC (18-72VDC)
	AVC-PWR-HV	Power module, 100- 250VDC (88-300VDC), 110- 240VAC (85/264VAC)

Ethernet	
Ethernet Interface	Slot WAN: 4 x 100/1000BaseSFP & 10/100/1000BaseT combo ports, with or without PRP/HSR Slot 1-3: 8 x 100/1000Base SFP ports, or 8 x 10/100/1000BaseT Copper ports
Operating mode	Store and forward, L2 wire-speed/non-blocking switching engine
MAC addresses	16K
Jumbo frames	9K Bytes
Copper RJ45 Ports	
Speed	10/100/1000 Mbps
MDI/MDIX Auto-crossover	Support straight or cross wired cables
Auto-negotiating	10/100/1000 Mbps speed auto-negotiation; Full and half duplex
SFP Ports	
Port types supported	Gigabit fiber multimode, fiber single mode, fiber long-haul single mode
Fiber port connector	LC typically for fiber (depends on module)
Network Redundancy	
Fast failover protection rings	IEC 62439-3 Clause 4 Parallel Redundancy Protocol PRP
	IEC 62439-3 Clause 5 High Availability Seamless Ring HSR
Spanning Tree Protocol	IEEE 802.1D STP, IEEE 802.1w RSTP, IEEE 802.1s MSTP
	Ring Protection, recovery time < 20ms
	BPDU forwarding and filtering
Port Trunk	IEEE 802.3ad LAG: Static or Dynamic (LACP, Link Aggregation Control Protocol)
Bridge, VLANs & Protocols	
Flow control	IEEE 802.3x (Full Duplex) and Back-Pressure(Half Duplex)
Max VLANs	2048
VLAN Types	Port-based VLANs, IEEE 802.1Q tag-based VLANs, IEEE 802.1v protocol-based VLANs, IEEE 802.1ad Double Tagging (Q in Q) Private VLAN
VLAN operations	Attach/Remove/Replacement VLAN tag
MVR (Multicast VLAN Registration)	Yes
Multicast protocols	IGMP v1, v2 and v3 with up to 512 multicast groups
	IGMP snooping and querying, Immediate leave and leave proxy
Discovery Protocol	IEEE 802.1ab Link layer Discovery Protocol (LLDP)
PTP Precision Time Protocol	IEEE 1588v2 PTP Precision Time Protocol, IEEE C37.238 Power Profile
Traffic management engine & QoS	
Policy-based access control engine	Policy/profile-based Access Control List (ACL)
	Multi-layer ACL support
	Flexible combination of well-known fixed Layer 2/3/4 fields: - VLAN ID, Source/Destination MAC address, EtherType - Source/Destination IP address, IP protocol number - UDP or TCP, Source/Destination port number of TCP/UDP - DSCP or ToS value
	Actions per rule: Deny, Allow, Queue mapping, rate limit, mirror, CoS remark
	Max number of profiles per switch: 10
	Max number of rules per profile: 16

Number of queues per port	8
Scheduling schemes	SPQ, WRR, SPQ + WRR
Traffic Shaper	Hierarchical per port and per queue shaping & scheduling with bandwidth management
Traffic Policer	Ingress rate limit in 1K bps granularity TrTCM (Two Rate Three Color Marker) policer engine
IEC 61850 Message & Type	QoS(Quality of Service) Priority configuration for GOOSE, SV, PTPv2 frames
Management	
User Management interfaces	Console port; Cisco-like CLI (command line interface); Telnet (5 sessions) WEB-based Management (HTTP/HTTPs) SNMP v1, v2c, v3
Management Security	HTTPs, SSH Radius Client for Management (*pending); TACACS+ Client for Management (*pending) 3 levels of user authority management; use access events
IEC 61850 communication	IEC 61850-90-4 MMS bridge modeling (Server and Client) IEC 61850 Publishing and Subscribing GOOSE message transmissions Multicast Filtering management for IEC 61850 Publishing and Subscribing GOOSE messages
Upgrade & Restore	FTP for Configuration Import/Export, FTP for Firmware Upgrade USB configuration backup/restore, Firmware upgrade
Diagnostic	Syslog Port-based mirroring, Policy-based stream mirroring Ethernet Copper & SFP connection diagnostic, port utilization
SNTP	Yes
Security	
Port security	IP and MAC-based Access control; Policy-based Access control IEEE 802.1X authentication Network Access Control RADIUS Client for IEEE 802.1X
Storm Control	Multicast/Broadcast/Flooding Storm Control on per port and per VLAN basis
L3	
L3 routing	Static routing, RIPv1/RIPv2, OSPF, DVMRP, PIM-DM (*by request) VRRP
Power	
Power input options	AC/DC Dual Isolated redundancy powers
Input voltage (range)	110-250VDC (88-300VDC), 100-240VAC (85/264 VAC), 50Hz - 60Hz 24-48VDC (18-72VDC)
Power consumption	56W@85VAC (max) 53W@18VDC (max)
Indicators	
Power Status indication	Indication of power input status
Ethernet port indication	Link & Speed
Network protection indication	Protection Network status
Module service indication	Module status
Front & Rear panel indicators	Front & Rear panel indicators for system status, Ethernet port status, alarm status, power status

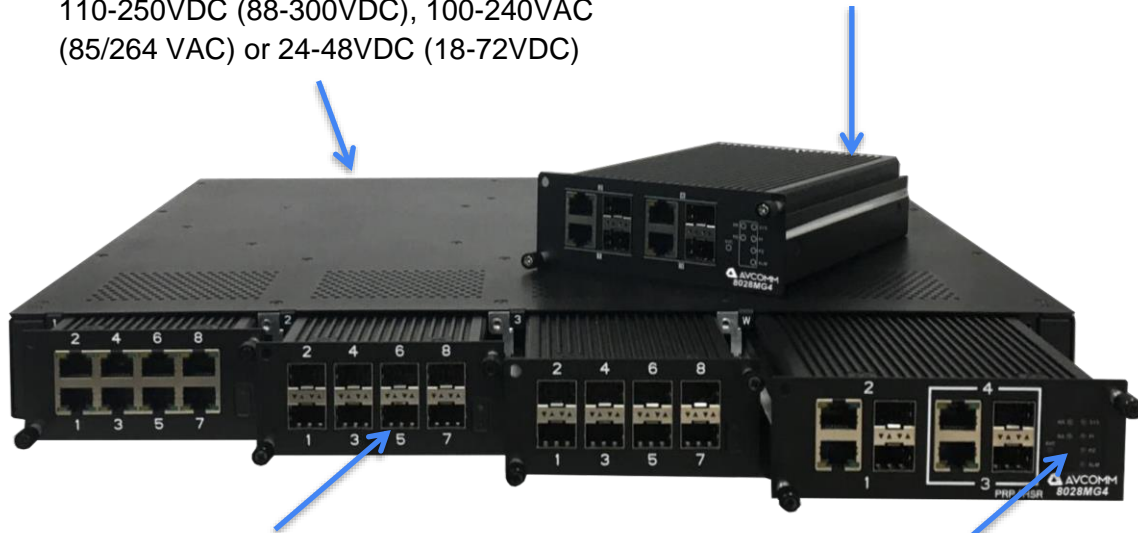
Alarm	
Alarm relay output	Dry Contact Relay output, max 30VDC/ 1A (+/- 10%) ; 125VDC/125VAC/0.24A (+/- 10%)
Alarm notification	Configurable alarm profile to enable Alarm LED, Alarm relay & SNMP traps
Environmental and Compliances	
Operating temperature	-40 to +85°C (compliant to IEC 61850-3)
Storage temperature	-40 to +85°C
Humidity	5 to 95% RH (non-condensing)
Vibration, shock & freefall	Vibration: IEC60068-2-6, IEC60068-2-27, IEC60068-2-31
Certification compliance	UL; CE/FCC; EN 50121-4; IEC 61850-3; IEEE 1613;
EMI	Radiated Emission: CISPR 22, EN55032 Class A
	Conducted Emission: EN55032 Class A
EMS	ESD: IEC61000-4-2
	Radiated RF (RS): IEC61000-4-3
	EFT: IEC61000-4-4
	Surge: IEC61000-4-5
	Conducted RF (CS): IEC61000-4-6
RoHS and WEEE	RoHS (Pb free) and WEEE compliant
MTBF	> 400,000 hours
Mechanical	
Ingress protection	IP30
Dimensions	435 (W) x 44 (H) x 390 (D) mm (maximum)
Weight	8.1 kg (maximum)
Installation option	19" rack mounting

Function interface

Power Connector

- AC/DC dual isolated redundancy powers 110-250VDC (88-300VDC), 100-240VAC (85/264 VAC) or 24-48VDC (18-72VDC)

Console port



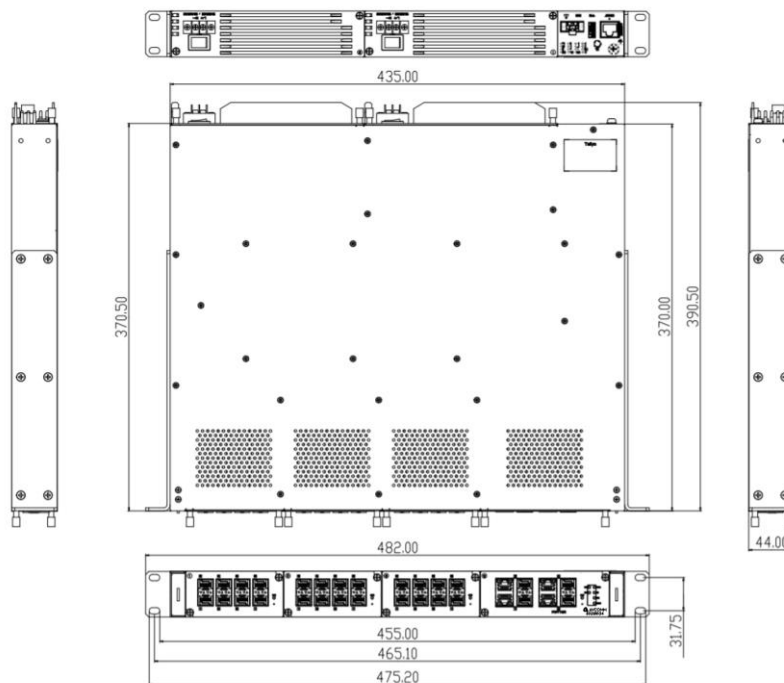
28-port Full Gigabit Ethernet

- Slot WAN: 4 x 100/1000BaseSFP & 10/100/1000BaseT combo ports
- Slot 1-3: 8 x 100/1000Base SFP ports, or 8 x 10/100/1000BaseT Copper ports

System LED

- System status
- Ethernet port status
- Alarm status
- Power status

Installation dimensions



Unit: mm