

Doc Type	Preliminary Datasheet	Model Name	HMG-2488G(E)P Series
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Overview

The HMG-2488GEP (extended temperature) and HMG-2488GP (standard temperature) are rugged Industrial rack mount Ethernet switches specifically designed to cater hardened industrial applications. These switches come with 24 x 10/100/1000-T(X) RJ-45 ports and 8 Gigabit/Fast Ethernet SFP ports to provide up to 32 ports of reliable Ethernet connectivity. This powerful switch uses **Made in the USA** CPU Platform; 64Gbps switch architecture and IP30 housing standard for maximum hardware product reliability. In addition, the enhanced software features support a variety of advanced Layer 2 functions including STP/RSTP/MSTP/ITU-T G.8032 ERPS and Ethernet Direct proprietary rings for redundant cabling, Layer 2 Ethernet IGMP, VLAN, Quality of Service, ACL, Security, IPv6, bandwidth control, port mirroring, cable diagnostic and Green Ethernet. The Direct-Ring, Direct-Chain and Join Ring provide less than 10 ms recovery time based on 250 nodes. The HMG-2488GEP and HMG-2488GP are ideal for industrial automation applications, Intelligent traffic systems, Smart Cities, Smart Buildings, Smart factories, Security and surveillance, process automation & utility market applications and more.

Features

High Performance Network Switching Technology

- Complies with IEEE standards
- Provides 24 x 10/100/1000Base-T(X) with RJ-45 connector with supporting of Green Ethernet IEEE802.3az EEE (Energy Efficient Ethernet)
- Provides 8 x 100/1000Base SFP slots with supporting of DDMI
- Supports various network redundant solutions, including Direct-Ring, Direct-Chain, Join-Ring, STP, RSTP, MSTP and ITU-T G.8032 ERPS
- Proprietary ultra high speed redundant technology with < 50ms recovery time @ 250 devices
- Supports IEEE1588 PTP V2 for precise time synchronization, to operate in Ordinary-Boundary, Peer to Peer Transparent Clock, End to End Transparent Clock, Master, Slave mode by each port
- Supports various network security solutions, Port and MAC based IEEE802.1X, RADIUS, ACL, TACACS+, HTTP/HTTPS, SSL/SSH v2
- Supports DHCP Server/Client/Relay/Snooping/Snooping option 82/Relay option 82
- Network traffic priority, QoS, Traffic classification QoS, CoS, bandwidth control for Ingress/Egress, broadcast storm control, DiffServ
- Supports IEEE802.1Q VLAN, MAC-based VLAN, IP Subnet-based VLAN, Protocol-based VLAN, VLAN translation, GVRP/MVRP
- Supports IGMP/MLD snooping V1/V2/V3, IGMP Filtering/Throttling, IGMP query, IGMP proxy reporting, MLD snooping
- Supports dynamic IEEE 802.3ad LACP Link Aggregation, Static Link Aggregation
- Supports RMON, MIB II, Port mirroring, Syslog, IEEE802.1ab LLDP for network monitoring
- Supports IPv6 Telnet server, ICMPv6
- Supports CLI, Web based management, SNMP v1/v2c/v3, Telnet server for management
- Supports firmware upgrade via TFTP & HTTP with redundant firmware option

Reliable Power Design

- Equipped with redundant power inputs, the power input options are:
 - Dual 110 to 220VAC/VDC
 - Single 24 to 48VDC, -48VDC + Single 110 to 220VAC/VDC
 - Dual 24 to 48VDC, -48VDC
- Power reverse polarity protection and overload current protection

Robust Industrial Design

- Hi-Pot protection and 4KV surge protection
- EN 61000-6-2 and EN 61000-6-4 certified to use in heavy industrial environment
- EN 50121-4 certified for Railway Applications (Track Side)
- Robust industrial design case complies with IP30 housing standard
- Supports operating temperature -10 to 60°C & extended temperature -40 to 80°C
- 19" Rack Mounting installation

Specifications:

Hardware		
Interface		
Total Ports	32	
RJ-45 Ports	24 x 10/100/1000Base-T(X) auto-negotiation speed, Full/Half duplex, auto MDI/MDI-X	
Fiber Ports	8 x 100/1000Base SFP slots	
Console Port	RS-232 (RJ-45 interface)	
LEDs	Per Unit	Power 1 (Green), Power 2 (Green), Act /Alarm(Green/Red), Ring Master (Green)
	RJ-45 Port	10/100 Link/Active (Green), 1000 Link/Active (Amber)
	Fiber Port	100 Link/Active (Green), 1000 Link/Active (Amber)
Alarm Contact	1A@24VDC	
Power Requirement		
Power Input	Various power input options: <ul style="list-style-type: none"> ■ Dual 110 to 220VAC/VDC ■ Single 24 to 48VDC, -48VDC + Single 110 to 220VAC/VDC ■ Dual 24 to 48VDC, -48VDC 	
Power Protection	Power reverse polarity protection and overload current protection	
Power Consumption	TBD	
Physical		
Dimensions	IP30 standard. TBD	
Installation	19" Rack Mounting	
Environmental		
Operating Temp	Regular: -10 to 60°C Extended: -40 to 80°C	
Storage Temp	-40 to 85°C	
Operating Humidity	5% to 95% RH (non-condensing)	
Technical		
Standards	IEEE 802.3 10Base-T Ethernet IEEE 802.3u 100Base-TX/100Base-FX IEEE 802.3ab 1000Base-T IEEE 802.3z Gigabit Fiber	

	IEEE 802.3x Flow Control IEEE 802.3ad Port trunk with LACP IEEE 802.3ac VLAN Tagging extension (Max. frame size extended to 1522 Bytes) IEEE 802.3az EEE (Energy Efficient Ethernet) IEEE 802.1D Spanning Tree IEEE 802.1w Rapid Spanning Tree IEEE 802.1s Multiple Spanning Tree IEEE 802.1p Class of Service (QoS) IEEE 802.1Q VLAN Tagging IEEE 802.1ad Stacked VLANs, Q-in-Q IEEE 802.1X User Authentication (Radius) IEEE 802.1AB LLDP ITU-T G.8032 / Y.1344 ERPS (Ethernet Ring Protection Switching)	
Network Media	10Base-T	2-pair UTP/STP Cat. 3, 4, 5/5e cables EIA/TIA-568 100Ω (100m)
	100Base-TX	2-pair UTP/STP Cat. 5/5e cables EIA/TIA-568 100Ω (100m)
	1000Base-T	4-pair UTP/STP Cat. 5/5e or above cables
	100/1000Base SFP	50/125um~62.5/125um (Multi-mode) 9/125um (Single-mode)
Protocols	CSMA/CD	
Switch Architecture	Backplane (Switch Fabric) 64Gbps (Full wire-speed)	
Data Processing	Store and Forward	
MAC Address Table	32K	
Jumbo Frame	14KB	
Regulatory Approvals		
EMC	CE, EN 61000-6-2, EN 61000-6-4	
EMI	FCC Part 15 Subpart B Class A, CE EN55022 Class A	
EMS	EN 61000-4-2 EN 61000-4-3 EN 61000-4-4 EN 61000-4-5 EN 61000-4-6, EN 61000-4-8	
Safety	UL 60950-1	
Railway Application (Track Side)	EN 50121-4 (Certified)	
Shock	IEC60068-2-27	
Vibration	IEC60068-2-6	
Free Fall	IEC60068-2-32	

Environmental	WEEE, RoHS
MTBF	TBD
Warranty	5 years
Software Specification	
Redundancy	<p>Direct-Ring, Direct-Chain, Join-Ring < 50ms recovery time (Each switch can configure up to 5 rings regardless of Direct-Ring, Direct-Chain, Join-Ring, and each ring can contents 250 units of switches), supports loop protection STP/RSTP/MSTP</p> <p>ITU-T G.8032 / Y.1344 ERPS with < 50ms recovery time (Single Ring, Sub-Ring, Multiple ring topology networks)</p> <p>Link Aggregation: Static supports up to 14 trunk groups Dynamic (IEEE 802.3ad LACP) supports up to 14 trunk groups Up to 8 ports per group</p>
VLAN	<p>VID 1 to 4094 VLAN group up to 4094 groups IEEE 802.1ad Q-in-Q MAC-based VLAN (256 entries) IP Subnet-based VLAN (128 entries) Protocol-based VLAN (Ethernet, SNAP, LLC), (128 entries) VLAN Translation (256 entries) GVRP (GARP VLAN Registration Protocol) MVR (Multicast VLAN Registration)</p>
QoS	<p>Port based and IEEE 802.1p based CoS QoS determined by port, per port 8 active priorities queues IP Precedence based Co, IP DSCP based CoS DiffServ (RFC 2474) Remarking</p>
Bandwidth Control	Ingress/Egress
Storm Control	Unicast, Broadcast, Multicast
IGMP/MLD Snooping	<p>IGMP Snooping v1/v2/v3, MLD Snooping v1/v2 Port Filtering Profile Throttling, Fast Leave Maximum Multicast Group: Up to 1022 entries Query / Static Router Port</p>
Security	<p>IEEE 802.1X (Port-based, MAC-based), RADIUS, TACACS+ 3.0 Supports ACL, no. of rules up to 256 entries HTTP/HTTPS, SSL, SSH v2 Local Authentication Remote Access Security: RADIUS, TACACS+ Management interface access filtering via Web, Telnet/SSH, CLI console</p>

Management	SNMP, Web, Telnet/SSH, CLI management TFTP/HTTP backup/restore configurations Firmware upgrade via TFTP/HTTP, supports dual firmware RMON I (1, 2, 3, 9 group), RMON II RFC1213 MIB II, Private MIB Supports UPnP, IP Source Guard, Port Mirroring Warning message sends to syslog, e-mail, alarm relay DNS Client, Proxy LLDP: LLDP-MED
System Log	Supports local system log and remote Syslog server
DHCP	Server, Client, Relay, Snooping Snooping option 82, Relay option 82
Time Management	IEEE1588 PTP V2: Ordinary-Boundary, Peer to Peer Transparent Clock, End to End Transparent Clock, Master, Slave NTP/SNTP Client
IPv6	IPv6 Management Telnet Server/ICMP v6 SNMP over IPv6, HTTP over IPv6, SSH over IPv6, IPv6 Telnet, IPv6 NTP (Client), IPv6 SNTP (Client), IPv6 TFTP, IPv6 QoS, IPv6 ACL (256 entries)
Green Ethernet	Supports IEEE802.3az EEE (Energy Efficient Ethernet): Management to optimize the power consumption Determine the cable length and lowering the power for ports work with short cable Lower the power for a port when there is no link LED Power Management: Adjustment on LEDs intensity
Cable Diagnostic (Copper ports only)	Shows physical status of the UTP cable, in order to get more accurate result the cable length suggestion is 7-140 meters

Ordering Information

HMG-2488GPZ1AC	Industrial Rack Mount 24 x 10/100/1000Base-T(X) + 8 x 100/1000Base SFP Full Gigabit Managed Ethernet Switch, -10 to 60°C, (IEEE 1588 PTP, Dual AC Power, -48VDC)
HMG-2488GPZ1AD	Industrial Rack Mount 24 x 10/100/1000Base-T(X) + 8 x 100/1000Base SFP Full Gigabit Managed Ethernet Switch, -10 to 60°C, (IEEE 1588 PTP, AC+DC Power, -48VDC)
HMG-2488GPZ1	Industrial Rack Mount 24 x 10/100/1000Base-T(X) + 8 x 100/1000Base SFP Full Gigabit Managed Ethernet Switch, -10 to 60°C, (, IEEE 1588 PTP, Dual DC Power, -48VDC)
HMG-2488GEPZ1AC	Industrial Rack Mount 24 x 10/100/1000Base-T(X) + 8 x 100/1000Base SFP Full Gigabit Managed Ethernet Switch, -40 to 80°C, (IEEE 1588 PTP, Dual AC Power, -48VDC)
HMG-2488GEPZ1AD	Industrial Rack Mount 24 x 10/100/1000Base-T(X) + 8 x 100/1000Base SFP Full Gigabit Managed Ethernet Switch, -40 to 80°C, (IEEE 1588 PTP, AC+DC Power, -48VDC)
HMG-2488GEPZ1	Industrial Rack Mount 24 x 10/100/1000Base-T(X) + 8 x 100/1000Base SFP Full Gigabit Managed Ethernet Switch, -40 to 80°C, (IEEE 1588 PTP, Dual DC Power, -48VDC)

