

**HMG-448G**

## Features

- High Performance Network Switching Technology**
  - ✓ Complies with IEEE 802.3, IEEE 802.3u, IEEE 802.3x, IEEE 802.1p, IEEE 802.1q, IEEE 802.1d, IEEE 802.1w, IEEE 802.1x, IEEE 802.3ad, IEEE 802.3z
  - ✓ Provides 4 x 10/100/1000Base-TX Ethernet ports with RJ-45 connector
  - ✓ Provides 4 SFP slots
  - ✓ RJ-45 ports support auto MDI/MDI-X crossover
  - ✓ Provides broadcast storm protection
  - ✓ Redundant X-Ring recovery time < 10 ms on full load
  - ✓ Supports Dual Homing – RSTP over X-ring
  - ✓ Supports Ring Coupling
  - ✓ SNMP for network management
  - ✓ IGMP snooping for multicast traffic
  - ✓ QoS/ToS to increase network packet determinism
  - ✓ VLAN for easy network planning
  - ✓ Event notification by e-mail, SNMP trap, Syslog & Relay output
  - ✓ Online Port Mirroring for online debugging
  - ✓ Supports IP security
  - ✓ Configurable by WEB browser
  - ✓ IntraVUE Network Management software compatible
- Robust Industrial Design**
  - ✓ Robust Aluminum case complying to IP-30 housing standard
  - ✓ Supports operating temperature -10 to 60°C
  - ✓ DIN-Rail, panel mount or desktop installation
  - ✓ High level of immunity to electromagnetic interference & power supply surges typically found in industrial plant environments or external curb side enclosures
- Reliable Power Design**
  - ✓ Wide range redundant power design
  - ✓ Equipped with redundant power inputs
  - ✓ Supports 12 to 48VDC redundant power with polarity reverse protection
  - ✓ Removable terminal block



## Overview

The Husky Series HMG-448G is a highly reliable and fault-tolerant Industrial 8-port Full Gigabit Managed Ethernet Switch. It has four 10/100/1000T Ethernet ports and four small form pluggable (SFP) ports which support Gigabit SX or LX depending on your existing network structure. The innovative SFP fiber slot design provides users with the flexibility to insert different fiber modules, either multi-mode or single-mode ones at various distances, whether you require typical 10km or overhaul 40km, 80km, and 120km. With its high performance switching device, HMG-448G offers redundant self-recovery mechanism in less than 10ms on full load which allows you to establish a redundant Ethernet network with a back-up ring topology. Dual Homing and Ring Coupling are supported to add reliability by securing the network with redundancy designs. HMG-448G also offers powerful network management functions, including SNMP, SMTP, STMP, Quality of Service, Class of Service, IGMP Snooping, LACP, DHCP, VLAN, RMON, Port Trunk, Port Mirror, User Authentication (Radius) and IP Security. The HMG-448G is equipped with a terminal block to provide dual power inputs with reverse polarity protection. Its IP-30 housing protection, wide operating temperature of -10 to 60°C, and DIN-Rail mounting is suitable for an industrial environment. The HMG-448G is a plug-and-play solution for your industrial Ethernet applications.

## Hardware Specifications

### Interface

**RJ-45 Ports:** 4 10/100/1000Base-TX auto-negotiation speed, Full/Half duplex, auto MDI/MDI-X

**Fiber Ports:** 4 SFP slots

**LEDs:** Per unit - Power (Green), Power 1 (Green), Power 2 (Green), Fault (Red), Master (Green)  
Per port - Link/Activity (Green), Speed (1000Mbps Green)  
SFP - Link/Activity (Green)

**Alarm:** Relay output for port break and power failure  
Current carry ability (1A at DC 24V)

**Power Input:** VDC 12-48V  
Redundant power with removable terminal block

**Power Protection:** ESD (Ethernet)  
Surge: 1500VDC  
Power Reverse Polarity

**Power Consumption:** 17 watts

**Dimensions:** IP-30 standard, 72 mm (W) x 152 mm (H) x 105 mm (D)

**Installation:** DIN-Rail, panel mounting or desktop

### Environmental

**Operating Temp:** -10 to 60°C

**Storage Temp:** -40 to 85°C (-40 to 185°F)

**Operating Humidity:** 5% to 90% RH (non-condensing)

## Technical Specifications

### Standard:

IEEE 802.3 10Base-T Ethernet  
IEEE 802.3u 100Base-TX  
IEEE 802.3ab 1000Base-T  
IEEE 802.3z Gigabit fiber  
IEEE 802.3x Flow Control and Back Pressure  
IEEE 802.3ad Port trunk with LACP  
IEEE 802.1d Spanning Tree/ IEEE802.1w Rapid Spanning Tree  
IEEE 802.1p Class of Service  
IEEE 802.1q VLAN Tag  
IEEE 802.1x User Authentication (Radius)

### RFC Standard:

RFC2030 SNMP, RFC 2821 SMTP, RFC 1215 Trap, RFC2233 MIBII,  
RFC 1157 SNMP MIB, RFC 1493 Bridge MIB, RFC 2674 VLAN MIB,  
RFC 2665 Ethernet like MIB, RFC 2819 RMON MIB, Private MIB

## Performance

### Data Transfer Rate:

14,880 pps for Ethernet port  
148,800 pps for Fast Ethernet port  
1,488,000pps for Gigabit Fiber Ethernet port

### MAC Address:

8k

### Memory Buffer:

4Mbytes

### System Log:

1000 records

### Back-plane:

16 Gbps

## Regulatory Approvals

### EMI:

FCC Class A

### EMS:

EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5,  
EN61000-4-6, EN61000-4-8, EN61000-4-11

### Safety:

UL, cUL, CE/EN60950

### Shock:

IEC60068-2-27

### Vibration:

IEC60068-2-6

## Management Specifications

### Redundancy:

STP, RSTP  
Dual Homing, Ring Coupling, Dual Ring\*  
X-Ring with recovery time < 10 ms

### Management Protocols:

SNMP v1/v2c/v3, RMON, SMTP, SNTP,  
IGMP v1/v2 & Query mode, DHCP/Client, TFTP

### MIB:

MIB-II, Bridge MIB, Ethernet like MIB, VLAN MIB, Private MIB

### Configuration:

Web interface management

### VLAN:

Port-based VLAN/Tag VLAN (256 entries)  
VLAN ID (Up to 4K)  
GVRP (256 Groups)  
Static VLAN groups up to 256, the VLAN ID can be assigned from 1 to 4094

### LLDP\*:

Supports LLDP to allow switch to advise its identification and capability on the LAN

### Quality of Service:

Hardware supports 4 queues per port

### Port Mirroring:

Online traffic monitoring on selected ports

### MAC IP Security:

Ingress and egress MAC address filter and static source MAC address lock,  
Dumping MAC address Table, Ingress/Egress MAC address security,

### Network Media:

10Base-T: 2-pair UTP/STP Cat. 3, 4, 5/ 5E cable  
EIA/TIA-568 100-ohm (100m)  
100Base-TX: 2-pair UTP/STP Cat. 5/ 5E cable  
EIA/TIA-568 100-ohm (100m)  
1000Base-TX: 2-pair UTP/STP Cat. 5/ 5E cable  
EIA/TIA-568 100-ohm (100m)

### Packet Filter:

Broadcast packet filtering  
-Number of MAC (50 Tables)  
-IP Address Security (10 Sections)

### Protocol Technology:

CSMA/CD

### Switching Architecture:

Store and Forward

### Local Configuration:

RJ-45 connector for RS-232 interface

### Port Statistics:

Supported

### Flow Control:

Full-duplex and Back Pressure for Half-duplex

### Packet Filter:

Broadcast/Multi-cast/Unknown Broadcast storm packet filter

### Transfer Packet Throughput:

14.88Mpps @ 64 bytes

### Free Fall:

IEC60068-2-32

### Class 1 DIV 2:

Pending\*

### DNV:

Pending\*

### Environmental:

WEEE, RoHS

### MTBF:

325,000 hrs based on Mil-Hdbk-217F, GB

### Warranty:

5 years

### IP Security:

10 IP address accounts for system management security for Web, SNMP and Telnet management security to prevent intruder

### IGMP Snooping:

v1 and v2, query mode, multicast group with 256 entries

### LACP Port Trunk:

4 Trunk groups/Maximum 4 trunk members

### Port Mirror:

Global system supports 3 mirroring types: "RX, TX and Both packet".

Maximum of 8 entries

### Class of Service:

Per port 4 queues

### Email Warning:

Pre-defined events

### SNMP Trap:

Cold start, link down, link up, authorization fail,

X-Ring topology Change, Power alarm trap, Trap station up to 3

### SMTP:

Up to 6 e-mail accounts

### Firmware Upgrade:

By TFTP