



## HMG-2428-EL2+

### Features

#### High Performance Network Switching Technology

- ✓ Complies with IEEE 802.3, IEEE 802.3u, IEEE802.3z, IEEE802.3ab, IEEE802.3x, IEEE802.3ad, IEEE802.1d, IEEE802.1w, IEEE802.1p, IEEE802.1Q, IEEE 802.1x, IEEE802.1ab
- ✓ Provides 24 x 10/100 Mbps Ethernet ports with RJ-45 connector
- ✓ Provides 2 x 10/100/1000T Mbps Ethernet ports with RJ-45 connector
- ✓ Provides 2 combo ports
- ✓ Provides broadcast storm protection
- ✓ IGMP snooping for multicast traffic
- ✓ QoS / ToS to increase network packet determinism
- ✓ VLAN for easy network planning
- ✓ Port trunking with flexible load distribution control and fail-over function
- ✓ Supports Web/ SNMP / Telnet / CLI configuration
- ✓ Easy management by Web GUI

#### Robust Industrial Design

- ✓ Metal case complying to IP-30 housing standard
  - ✓ Rack mount or desktop installation
- #### Reliable Power Design
- ✓ Equipped with Redundant power inputs and rear cable connection
  - ✓ Power input of AC 100~240V redundancy
  - ✓ Provides EFT protection 3000 VDC for power line
  - ✓ Supports 6000 VDC Ethernet ESD protection



### Overview

The Husky series HMG-2428-EL2+ is a high performance, powerful managed, stackable switch that offers a reliable connection to the network backbone and can interconnect a number of switches existing in a deployment that involves vast range of standards and protocols. HMG-2428-EL2+ is engineered with twenty four 10/100TX RJ-45 ports plus two small form pluggable (SFP) ports that supports Gigabit SX or LC depending on your existing network structure. Further to the superb hardware design, HMG-2428-EL2+ supports rear cable connection with redundant AC Power located in the front side of the switch for easy operation. HMG-2428-EL2+ supports advanced software features and the first in Industrial high port density rack mount switches with IEEE 802.1ab Link layer discovery protocol (LLDP) feature. LLDP is designed to allow Auto-discovery of LAN policies (such as VLAN, Layer 2 Priority and Diffserv settings) leading to plug and play networking. The latest software technology is incorporated in HMG-2428-EL2+ to support mission critical features such as LLDP, RSTP, STP, X-Ring, Dual Homing, Couple Ring Topology, Quality of Service, VLAN, RMON, DHCP, IGMP with Query mode for Multi Media Application, Port Mirroring, IP security, User Authentication and network management (SNMP/RMON/Telnet/Web/TFTP) to provide stability and interoperability. Strong software features provides advanced network analysis, management by name, management from single IP agent and stackable function, making HMG-2428-EL2+ the best choice for high port density enterprise managed switch.

### Hardware Specifications

#### Interface

**RJ-45 Ports:** 24 10/100Base-TX auto-negotiation speed, Full/Half duplex, auto MDI/MDI-X  
RS-232 console: 1 X RJ-45  
10/100TX: 24 x RJ-45

**Fiber Ports:** 2 combo ports

#### LEDs:

Per unit: Power 1 (Green), Power 2 (Green), Alarm (Red), R.M (Green)  
Gigabit Copper: Link/Activity (Green), Full duplex/collision(Yellow),  
MINI GBIC (Link/Activity)(Green)

**Power Input:** 2 x 100-240 VAC/100-240 VDC

**Power Consumption:** 60 Watts / 240V 50Hz

**Dimensions:** IP-30 standard, 440 mm (W) x 44 mm (H) x 280 mm (D)

**Installation:** Rack mount or desktop

#### Environmental

**Operating Temp:** -40 to 85°C

**Storage Temp:** -40 to 85°C (-40 to 158°F)

**Operating Humidity:** 5% to 95% RH (non-condensing)

## Technical Specifications

### Standard:

IEEE 802.3 10Base-T Ethernet  
IEEE 802.3u 100Base-TX / 100Base-FX  
IEEE 802.3z Gigabit fiber  
IEEE 802.3ab 1000Base-T  
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)  
IEEE 802.1ab LLDP

## 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

**Jumbo Frame:** 9K (for Gigabit Ports)

## 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  
EN61000-4-12, EN61000-6-2, EN61000-6-4

**Safety:** UL, cUL, CE/EN60950-1

**Shock:** IEC60068-2-27

## 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, SNTIP,  
IGMP v1/v2 & Query mode, DHCP/Client, TFTP

### Port Trunk:

Supports IEEE802.3ad with LACP function. Up to 13 trunk groups,  
trunk member up to 4 ports and includes 2 uplink ports

### LLDP:

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

**Spanning Tree:** STP, RSTP, MSTP\* and X-RSTP\*

### VLAN:

Support 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  
Provides Q in Q, double tag VLAN \*  
Provides MVR(Multicast VLAN Registration) \*

**Q in Q\*:** Provides Q in Q, double Tag VLAN

**MVR\*:** Provides Multicast VLAN Registration

### Quality of Service:

The quality of service determined by port, Tag and IPv4 Type of service,  
IPv4 Different Service

### RFC Standard:

RFC 3418 SNMP MIB, RFC 1213 MIBII, RFC 2011 MIB, RFC 1493 Bridge MIB  
RFC 2674 VLAN MIB, RFC 1215 Trap MIB, RFC 1643 Ethernet like  
RFC 1757, RSTP MIB, RMON1 (1,2,3,9), LLDP MIB, Private MIB

### Network Media:

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

**Protocol Technology:** CSMA/CD

**Switching Architecture:** Store and Forward

**MAC Address:** 8k

**Memory Buffer:** 4Mbytes

**Back-plane:** 8.8Gbps

**Transfer Packet Throughput:** 5.9Mpps @64bytes

**Vibration:** IEC60068-2-6

**Free Fall:** IEC60068-2-32, IEC61850-3, Zero packet loss(240~480V),  
IEEE1613 Class 2, IEC60870-2-2, IEC60068-2-30

**NEMA:** IEC-61850-3 compliant

**Environmental:** WEEE, RoHS

**MTBF:** 300,000 hrs based on Mil-Hdbk-217F, GB

**Warranty:** 5 years

**Class of Service:** Per port 4 queues

**Port-based Priority:** Supports 3 settings: "Disable, Low and High priority".  
When set to "Disable", the income packet will follow QoS policy;  
Otherwise, the packet will follow port priority setting to "High/Low" queue

### IGMP:

Supports IGMP V1 and V2 snooping.  
IGMP Snooping for Multi-Media application, IGMP group supports 256 groups

### Security:

Port Security : MAC address entries/filter  
IP Security: IP address security management to prevent unauthorized intruder.  
Login Security: IEEE802.1X/RADIUS

### Port Mirror:

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

**Bandwidth Control:** Support ingress packet filter and egress packet limit  
The egress rate control supports all of packet type and the limit rates are 0~100Mbps  
Ingress filter packet type combination rules are Broadcast/Multicast/Unknown  
Unicast packet, Broadcast/Multicast packet, Broadcast packet only and all of packet.  
The packet filter rate can be set from 0 to 100Mbps

**DHCP:** DHCP Client/ DHCP Server/ IP Relay functions  
DHCP Option 82(Relay agent) / DHCP Snooping\*

**DNS:** Provide DNS client feature and support Primary and Secondary DNS server\*

**SNMP Trap:** Cold start, link down, link up, authorization fail,  
X-ring topology Change, Power alarm trap, Trap station up to 3

**E-mail warning:** Pre-defined events

**SNTIP:** Support SNTIP to synchronize system clock in Internet

**Packet Filter:** Broadcast storm control

**Firmware upgrade:** By TFTP