HUG-828
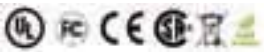## HUG-828E

Industrial Gigabit Unmanaged Ethernet Switch

Features

High Performance Network Switching Technology
✓ Complies with IEEE 802.3, IEEE 802.3u, IEEE 802.3ab, IEEE 802.3z
✓ Provides 8 x 10/100 Mbps Ethernet ports with RJ-45 connector
✓ Provides 2 x 10/100/1000T Mini-GBIC socket (Combo with 1000TX port)
✓ RJ-45 Port support auto MDI/MDI-X crossover
✓ Provides broadcast storm protection

Robust Industrial Design
✓ Robust Aluminum case complying to IP-31 housing standard
✓ Supports operating temperature -10 to 70°C & Extended temperature -40 to 80°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
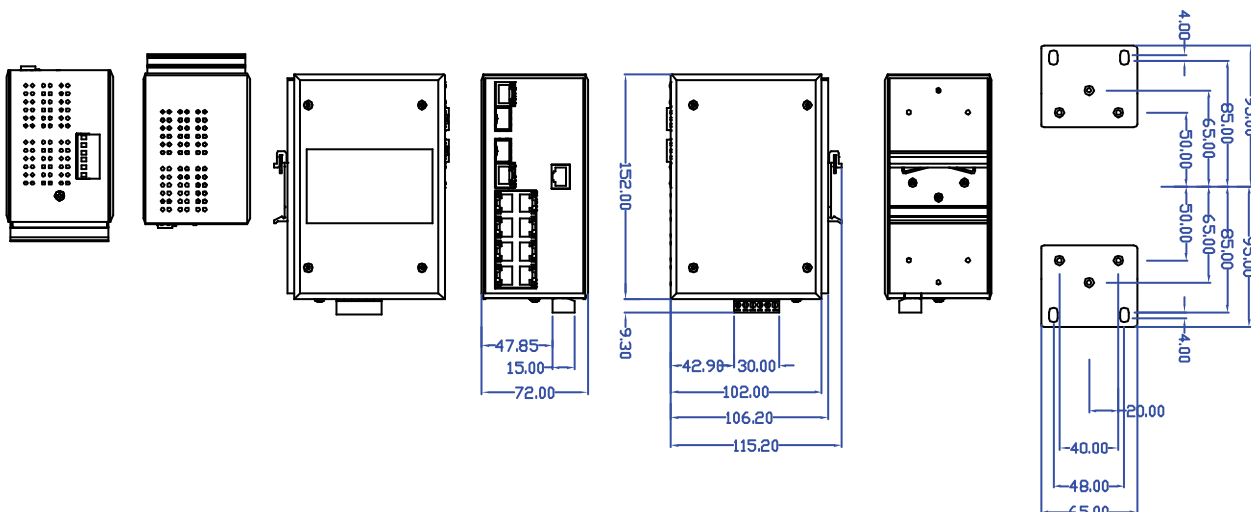
Reliable Power Design
✓ Wide range redundant power design
✓ Equipped with redundant power inputs
✓ Supports 24 to 48VDC redundant power with polarity reverse protection
✓ Terminal block present for master and slave power

Overview

The Husky series HUG-828 is a highly reliable and fault-tolerant Industrial 10-port Gigabit Unmanaged Ethernet Switch. It supports state of the art design with eight 10/100 Mbps Ethernet ports and two small form pluggable (SFP) ports that supports Gigabit SX or LX depending on your existing network structure. The innovative SFP fiber slot design provides user the flexibility to insert different fiber modules, either multi-mode or single-mode at various distances, whether you require typical 10km or overhaul 40 km, 80 km and 120 km distances. The HUG-828 is equipped with a terminal block to provide dual power inputs with reverse polarity protection. Its IP-31 housing protection, wide operating temperature of -10 to 70°C and DIN-Rail mounting is suitable for an industrial environment. The E version extends the temperature rating to -40 to 80°C. The HUG-828 is a plug-and-play solution for your Industrial Ethernet applications.

Dimensions

Hardware Specifications

Interface

RJ-45 Ports	8 10/100Base-TX auto-negotiation speed, Full/Half duplex, auto MDI/MDI-X
Fiber ports	2 10/100/1000T Mini-GBIC socket (Combo with 1000TX port)
LEDs	Per unit: Power (Green), Power 1 (Green), Power 2 (Green), Fault (Yellow), Master (Green) 8 port 10/100: Link/Activity (Green), Full duplex/Collision (Yellow) Mini GBIC: Link/Activity (Green) Giga Copper: Link/Activity (Green), speed (1000 Green)
Alarm	Relay output for port break and power failure Current carry ability (1A at DC 24V)
Power Input	VDC 24-48V Redundant power with polarity reverse protect function and removable terminal block
Power Protection	ESD (Ethernet) : Present Surge : 1500VDC Power Reverse Polarity: Present
Power Consumption	9.64 watts
Dimensions	IP-31 standard, 72 mm (W) x 152 mm (H) x 105 mm (D)
Installation	DIN-Rail, panel mounting or desktop

Environmental

Operating Temperature	Regular: -10 to 70°C Extended: -40 to 80°C
Storage Temperature	-40 to 85°C (-40 to 185°F)
Operating Humidity	5%~90% RH (Non-condensing)

Technology Specifications

Standard	IEEE 802.3 10Base-T Ethernet IEEE 802.3u 100Base-TX IEEE802.3ab 1000Base-T IEEE802.3z Gigabit fiber IEEE802.3x Flow Control and Back Pressure
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)

Protocol Technology	CSMA/CD
Switching Architecture	Store and Forward

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	5.6 Gbps
Transfer Packet Size	8.3 Mpps at 64 bytes

Regulatory Approvals

EMI	FCC Class A
EMS	EN6100-4-2 EN6100-4-3 EN6100-4-4 EN6100-4-5 EN6100-4-6 EN6100-4-8 EN6100-4-11
Safety	UL, cUL, CE/EN60950
Shock	IEC60068-2-27
Vibration	IEC60068-2-6
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

SFP Specifications

- Compliant with IEEE 802.3z Gigabit Ethernet Standard
- Single mode LX versions are compliant with Fiber Channel 100-SM-LC-L standard
- Multimode SX versions are compliant with Fiber Channel 100-M5-SN-I & 100-M6-SN-I
- Industry standard small form pluggable SFP package
- Duplex LC connector
- Single power supply 3.3V
- Class 1 laser product complies with EN 60825-1

Optical Specifications

Model	Fiber type (um)	Connector	Wavelength (um)	TX Power (min)	TX Power (Max)	Rx Power (Min)	Rx Power (Max)	Link Budget (dbm)	Distance (km)
SFP-SX-LC	Multi-mode 50/125	Duplex LC	850nm	-15dBm	-8dBm	-34dBm	-8dBm	19dBm	0.55 km
SFP-LX-LC-10	Single-mode 9/125	Duplex LC	1310nm	-15dBm	-8dBm	-34dBm	-8dBm	19dBm	10 km
SFP-LX-LC-40	Single-mode 9/125	Duplex LC	1310nm	-4dBm	-1dBm	-24dBm	-1dBm	20dBm	40 km
SFP-LX-LC-80	Single-mode 9/125	Duplex LC	1550nm	0dBm	5dBm	-24dBm	5dBm	24dBm	80 km

Ordering Information

HUG-828	Industrial 10-port Gigabit Unmanaged Ethernet Switch With 2 SFP port
HUG-828E	Industrial 10-port Gigabit Unmanaged Ethernet Switch With 2 SFP port, Extended Temperature -40 to 80°C
SFP-SX-LC	SFP 850nm Multimode transceiver, 0.55 km
SFP-LX-LC-10	SFP 1310nm Single mode transceiver, 10 km
SFP-LHX-LC-40	SFP 1550nm Single mode transceiver, 40 km
SFP-ZX-LC-80	SFP 1550nm Single mode transceiver, 80 km

Recommended Accessories

DR-4524	45W/2A DIN-Rail 24 VDC power supply
DR-7524	75W/3.2A DIN-Rail 24 VDC power supply
DR-120-24	120W/5A DIN-Rail 24 VDC power supply