



## HGW-1604SM

16 x 10/100/1000Base-Tx and 4 x 1000Base-X SFP  
Managed Industrial Switch

The HGW-1604SM is a 20 port Gigabit Ethernet managed Industrial Switch with 16x10/100/1000Base-Tx & 4x 100/1000Base-X ports, hardened for extreme operating temperatures: -40 to +75 Celsius. The managed switch supports a variety of Ethernet functions, including STP/RSTP/MSTP and multiple sub-Ring for redundant cabling, layer 2 Ethernet IGMP, VLAN, QoS, Security, bandwidth control, port mirroring and is housed in IP40 rated rugged metal housing designed to operate in difficult conditions, including mechanically and electrically extreme environments. All Industrial switches have strong surge protection (4kV~8kV) per port, depending on models and strict compliance with IEC and EN standards for industrial grade equipment.

### Features

- DC power input block 10-60V and secondary DC5V jack
- Extreme operating temperature: -40 to +75 Celsius
- Rugged IP40 rated metal casing with DIN rail bracket
- 16x 10/100/1000Base-T RJ-45 and 4x 100/1000Base-X SFP Fiber
- Reversed power polarity protection
- STP, RSTP, MSTP for redundant cabling
- DHCP Server/Client/Relay/Snooping
- QoS, CoS, bandwidth control for Ingress and Egress, Storm Control
- Dynamic IEEE 802.3ad LACP Link Aggregation, Static Link Aggregation
- Supports 8kV surge protection per port on all TP ports
- Supports IEEE 802.1Q Tag VLAN and port VLAN
- IGMP snooping V1/V2/V3, IGMP Filtering/ Throttling, IGMP query
- Port based and MAC based IEEE802.1X, RADIUS, ACL
- Software upgrade via TFTP and HTTP
- Port mirroring, System log, DNS, SNTP, LLDP
- Web based management, SNMP v1/v2, Telnet

### Specifications

<b>IEEE Standard</b>	IEEE 802.3 10Base-T Ethernet IEEE 802.3u 100Base-TX and 100Base-FX Fast Ethernet IEEE 802.3ab 1000Base-T and 1000Base-X Gigabit Eth. IEEE 802.3x Flow Control and Back Pressure
<b>Switch Architecture</b>	Back-plane (Switching Fabric): 52 Gbps
<b>Data Processing</b>	Store and Forward
<b>Flow Control</b>	IEEE 802.3x flow control, back pressure flow control
<b>Provides Broadcast Storm Protection</b>	Present
<b>MAC Address Table</b>	8K
<b>Packet Buffer Size</b>	4MB
<b>Ports</b>	8 x RJ-45 10/100/1000Base-Tx 2 x 100/1000Base-X SFP slot 10/100/1000Base-TX auto negotiation speed, Auto MDI/MDI-X function, Full/Half duplex
<b>Network Cable</b>	10Base-T: 2-pair UTP/STP Cat.5 cable 100Base-TX: 2-pair UTP/STP Cat. 5 cable 1000Base-T: 4-pair UTP/STP Cat. 5e cable EIA/TIA-568 100-ohm (100m)
<b>Protocols</b>	CSMA/CD
<b>LED</b>	Per unit: PWR (Green) LNK/ACT (Green - Fiber port status and activity) Per port: Link/Active (Green), Speed/100 (Yellow)
<b>Reverse Polarity Protection</b>	Present
<b>Overload Current Protection</b>	Present
<b>Power Supply</b>	Redundant Dual DC 12/24/48V (9.6~60VDC) Input power (Removable Terminal Block) Provide DC Power Jack for 5V/1A built-in input (no AC adapter included)
<b>Power Consumption</b>	<15W

<b>Alarm Relay Contact</b>	Relay outputs with current carrying capacity of 1 A @24VDC, NC
<b>Removable Terminal Block</b>	Provide 2 Redundant power, Alarm relay contact, 6 Pin
<b>Operating Temperature</b>	-40 ~ 75°C
<b>Operating Humidity</b>	5% to 95% (Non-condensing)
<b>Storage Temperature</b>	-40 ~ 85°C
<b>Housing</b>	Rugged Metal, IP40 Protection
<b>Dimensions</b>	132 x 70 x 160mm (D x W x H)
<b>Weight</b>	1.05kg
<b>Installation Mounting</b>	DIN Rail mounting or wall mounting
<b>EMI</b>	FCC Part 15 Subpart B Class A, CE EN 55022 Class A EN61000-6-4 – Emission for industrial environment
<b>EMS</b>	EN61000-6-2 – Immunity for Industrial environment EN61000-4-2 (ESD) Level 3, Criteria B EN61000-4-3 (RS) Level 3, Criteria A EN61000-4-4 (Burst) Level 3, Criteria A EN61000-4-5 (Surge) Level 3, Criteria B EN61000-4-6 (CS) Level 3, Criteria A EN61000-4-8 (Magnetic Field) Level 3, Criteria A
<b>Traffic control</b>	NEMA-TS2
<b>Rail Traffic</b>	EN50121-4
<b>Shock</b>	IEC 60068-2-27
<b>Freefall</b>	IEC 60068-2-32
<b>Vibration</b>	IEC 60068-2-6
<b>MTBF</b>	120,000Hrs
<b>Warranty</b>	3 years

## Software Specifications

### Topology

VLAN	IEEE 802.1q VLAN, up to 4094 IEEE 802.1q VLAN, up to 4094 Groups IEEE 802.1ad Q-in-Q MAC-based VLAN, up to 256 entries
Link Aggregation (Port Trunk)	Static (Hash with SA, DA, IP, TCP/UDP port), up to 5 trunk group Dynamic (IEEE 802.3ad LACP), up to 5 trunk group
Spanning Tree	IEEE802.1d STP IEEE802.1w RSTP IEEE802.1s MSTP
Multiple Ring	supports Sub-Ring type Recovery time <10ms The maximum number of devices allowed in a Ring supported ring is 250.
Loop Protection	Present

### QoS Features

Class of Service	IEEE802.1p 8 active priorities queues for per port
Traffic Classification	IEEE802.1p based CoS
QoS	IP Precedence based CoS IP DSCP based CoS QCL(QoS Control List): Frame Type, Source/Destination MAC, VLAN ID, PCP, DEI QCE(QoS Control Entry): Protocol, Source IP, IP Fragment, DSCP, TCP/UDP port number
Bandwidth Control for Ingress	Rate in steps :1 kbps / Mbps Range : 100 kbps to 1Gbps Rate Unit : bit
Bandwidth Control for Egress	Rate in steps : 1 kbps / Mbps Range : 100 kbps to 1Gbps Rate Unit : bit Per queue / Per port shaper
Storm Control	for Unicast, Broadcast, Multicast

DHCP	Server, Client, Relay, Snooping
IP Source Guard	
Port Mirroring	
Event Syslog	Syslog server (RFC3164) (Support 1 server)
Warning Message	System log, alarm relay
DNS	Client, Proxy
NTP	
LLDP (IEEE 802.1ab)	Link Layer Discovery Protocol LLDP-MED

### IP Multicasting Features

IGMP / MLD Snooping	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

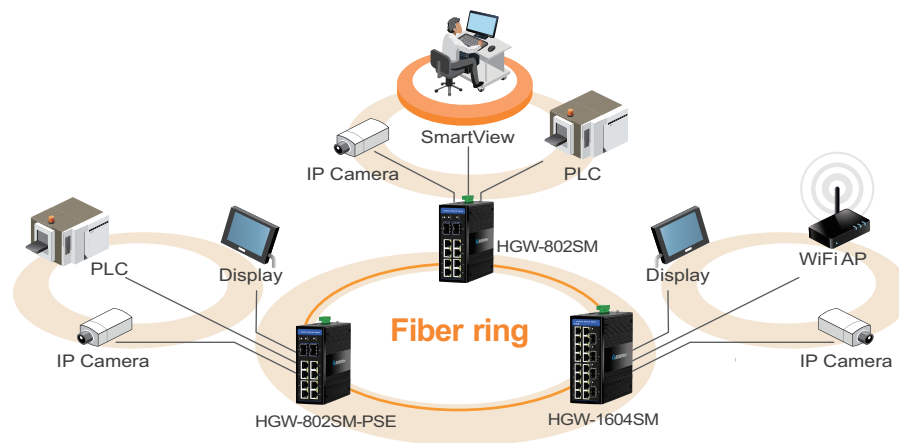
### Security Features

IEEE 802.1X	Port-Based MAC-Based
ACL	Number of rules : up to 256 entries for L2 / L3 / L4
RADIUS authentication & accounting	
User Name	Local Authentication
Password	Remote Authentication (via RADIUS)
Authentication	
Management Interface Access	Web, Telnet / RS-232 console
Filtering	

### Management Features

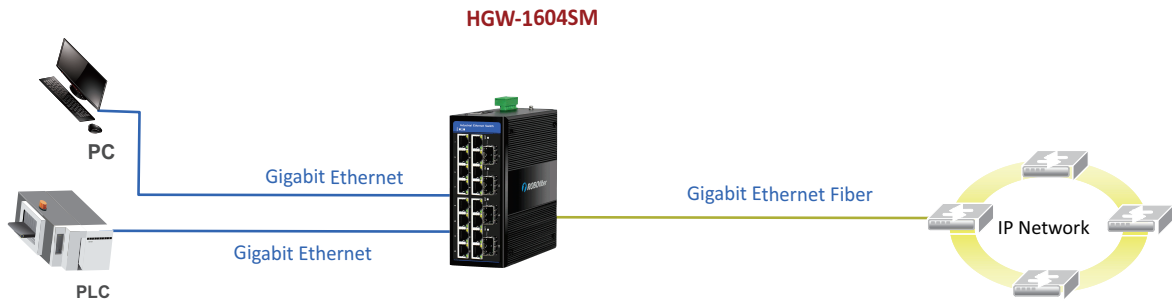
Web Based Management	
Telnet	Server
SNMP	V1, V2
SW & Configuration Upgrade	TFTP, HTTP firmware upgrade function

## Fiber Ring Application



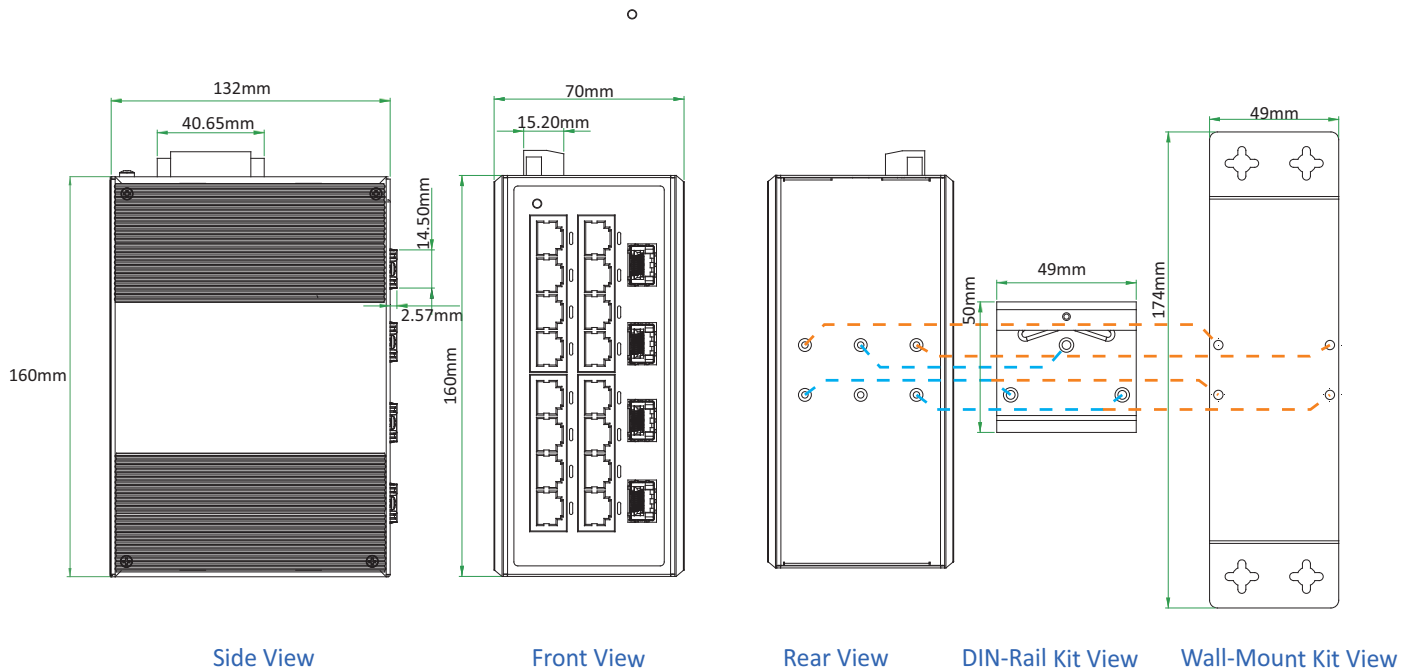
### HGW-1604SM Gigabit Ethernet Managed Switch Application

## Fiber Access Application



## HGW-1604SM Gigabit Ethernet Managed Switch Application

## Dimensions



## Ordering Information

Model Name	Description
HGW-1604SM	16x 10/100/1000Base-Tx to 4x 100/1000Base-X SFP Managed Industrial Switch Extreme Temp. (-40~75 Celsius)