SH-GM040R Series

L3 managed Industrial Switch

SH-GM040R Series managed industrial switch, supporting Layer 3 network management, and ERPS ring network, is designed for data communication in harsh environments. It features with fanless heat dissipation design, redundant circuit design, wide range of working environment temperature, high protection level, DIN-rail or rack mount installation, providing excellent industrial-grade quality, which guarantee the reliability and security of industrial networks. It is widely used for network access connectivity in the industries like transportation, telecommunication, security, bank, customs, harbor, power station, oilfield.

SH-GM040R series includes

10G rack-mounted sub-series, providing models with 4 ports of 10GBase-X and 16-24 ports of 1000Base-X or 10/100/1000Base-Tx , and PoE available; and

10G DIN-rail sub-series, providing models with 2/4 ports of 10GBase-X and 8 ports of 2.5GBase-Tx or 10/100/1000Base-Tx, and PoE available; and

Gigabit DIN-rail sub-series, providing models with 2/4 ports of 1000Base-X and 4/8 ports of 10/100/1000Base-Tx, and PoE available.

We also provide ODM service. Please contact us if you do not find the right models for your requirements.

Various dynamic routing protocols and management
✓ Support intra-domain routing protocols like OSPF, RIP, ISIS for different application.
✓ Support inter-domain routing protocol BGP.
✓ Support the control strategies like IP prefix list, routing map, IP ACL, etc..

Overall security control strategies and management
✓ Support 802.1x authentication, and MAC addresses filtering, to ensure the legitimacy of access users.
✓ Supports storm control function, to suppress and isolate the network storms.
✓ Support port mirroring, to monitor the optimized deployment and malicious attack.

Carrier-class QoS capability
✓ Supports 8 queues per port, SP (Strict Priority), WRR (Weighted Round Robin) and SP+WRR scheduling algorithms, to ensure the priority forwarding or bandwidth used for high-priority service flows.
✓ Support flow-based QoS, flow-based classification and speed limiting, and port-based bidirectional speed limiting, to meet the needs of multi-service identification, classification, and resource scheduling.

Simple and easy network management
✓ Support WEB management, provide user-friendly GUI.
✓ Supports CLI, Telnet, SNMP and other management methods, making management more convenient.

Ethernet Ring Protective Switching (ERPS) protocol for high network availability
✓ Ethernet ring network built through ERPS protocol simplifies deployment and provides redundant links. The failure recovery time <50ms, to ensure uninterrupted network.
✓ Support one-key configuration of ERPS ring network

High-performance network switching technology
✓ Comply with multiple IEEE802.3 Ethernet standards
✓ All ports provide the capability of line-speed Layer 2 switching without blocking.
✓ 16k MAC addresses for network and application.

Excellent industrial quality, suitable for extremely harsh environments
✓ Wide range of working temperature from -40℃ to +85℃, and 5%-95% relative humidity.
✓ Fanless design, to reduce the power consumption of the device, so the noise.
✓ Good protection design, like IP40 dust-proof design, lightning protection, anti-surge, anti-interference of fast pulse group, anti-static interference, etc..
✓ Support DIN-rail, wall-mounted, and desktop installations.
✓ LED indicators for instant monitoring of the performance status.

Well power protection design for reliable performance
✓ Support wide-voltage input
✓ Well protection design, anti-reverse connection, over-voltage protection and over-current protection.
✓ Dual power redundancy design for continuously power supply without network disconnection

Power over Ethernet
✓ Comply with multiple IEEE802.3at PoE+ and IEEE802.3af PoE standards
✓ Provides power and data communication over network cable, ideal solution for the application scenario where the traditional power is not available, simplifying and saving the cabling cost

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Technical Specification

General	
Ethernet Port	Connector: RJ45 2.5GBase-Tx available; or 10/100/1000Base-Tx available Full/half duplex auto negotiation MDI/MDI-X auto negotiation
Fiber Port	10GBase-X SFP+ available 1000Base-X SFP available
Console Port	RJ45 connector, RS232 protocol
Protocols	IEEE802.3, IEEE802.3i 10BASE-T, IEEE802.3u 100BASE-X, IEEE802.3z 1000Base-T, IEEE802.3ab 1000Base-X, IEEE802.3bz 2.5GBASE-T, IEEE 802.3ae 10GBase-X, IEEE802.3x Flow Control, IEEE802.3af PoE, IEEE802.3at PoE+
Switching Fabric	Bandwidth: 128G (10G models); 24G (Gigabit models) MAC address: 16K Buffer: 12M
Reach	10Base-Tx UTP cable: <250m over Cat3/4/5 or up 100Base-Tx UTP cable: <150m over Cat5/5e or up 1000Base-TX UTP cable: <100m over Cat5e/6 or up 2.5GBase-Tx STP cable: <100m over Cat6 or up Multi mode Fiber: <2km @1G, <300m @10G Single mode Fiber: <160km @1G, <100km @10G
PoE	IEEE802.3at and IEEE802.3af compliant Maximum power output: 30W each port Voltage input: DC48V~54V Pin: 1,2 (+) /3,6(-)
LED indicator	Power, TX Link/ACT, FX Link/ACT, System
Power	Connector: 6-pin crimp terminal block, Support dual power redundancy Voltage input for DIN-rail models: DC12~54V (non PoE model), DC48V-54V (PoE model) Voltage input for rack-mounted models: AC165V-265V
Environmental	Working temperature: -40°C~ +85 $^\circ$C Storage temperature: -40 $^\circ$C ~ +85 $^\circ$C Relative Humidity: 5~95% (no condensing)
Mechanical	Metal casing, fanless design Support DIN-rail or rack mounted installation Dimension: 483*200*44.5mm (SH-GM402400) / 483*300*44.5mm(other rack-mounted models) / 154*113*55mm (DIN-rail models) Weight: 3.75KG (SH-GM402400) / 4.5KG (rack-mounted models) / 1.4KG (DIN-rail models)
MTBF	100,000hrs
Protection	ESD: IEC 61000-4-2 level 3 for air discharge, and level2 for contact discharge Electrical fast burst: IEC 61000-4-4 level 2 for Ethernet ports Surge Immunity: IEC 61000-4-5 level 1 for Ethernet ports

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Based on Model			
Model	**Ports**	**Forwarding Rate**	**Power Consumption**
SH-GM402400R	4*10GBase-X SFP+, and 24*1000Base-X SFP	95.23Mpps	<36W
SH-GM481600R	4*10GBase-X SFP+, 8*Gigabit Combo, and 16*1000Base-X SFP	95.23Mpps	<36W
SH-GM400024R	4*10GBase-X SFP+, and 24*10/100/1000Base-Tx	95.23Mpps	<24W
SH-GM400024RT	4*10GBase-X SFP+, and 24*10/100/1000Base-Tx PoE	95.23Mpps	<24W*
SH-GM480016R	4*10GBase-X SFP+, 8*Gigabit Combo, and 16*10/100/1000Base-Tx	95.23Mpps	<27W
SH-GM480016RT	4*10GBase-X SFP+, 8*Gigabit Combo, and 16*10/100/1000Base-Tx PoE	95.23Mpps	<27W*
SH-GM200080R	2*10GBase-X SFP+, and 8*2.5GBase-Tx	59.52Mpps	<20W
SH-GM200080RT	2*10GBase-X SFP+, and 8*2.5GBase-Tx PoE	59.52Mpps	<20W*
SH-GM400208R	4*10GBase-X SFP+, 2*1000Base-X SFP, and 8*10/100/1000Base-Tx	74.4Mpps	<20W
SH-GM400208RT	4*10GBase-X SFP+, 2*1000Base-X SFP, and 8*10/100/1000Base-Tx PoE	74.4Mpps	<20W*
SH-GM400008R	4*10GBase-X SFP+, and 8*10/100/1000Base-Tx	71.43Mpps	<20W
SH-GM400008RT	4*10GBase-X SFP+, and 8*10/100/1000Base-Tx PoE	71.43Mpps	<20W*
SH-GM200008R	2*10GBase-X SFP+, and 8*10/100/1000Base-Tx	41.67Mpps	<20W
SH-GM200008RT	2*10GBase-X SFP+, and 8*10/100/1000Base-Tx PoE	41.67Mpps	<20W*
SH-GM0408R	4*1000Base-X SFP, and 8*10/100/1000Base-Tx	17.86Mpps	<15W
SH-GM0408RT	4*1000Base-X SFP, and 8*10/100/1000Base-Tx PoE	17.86Mpps	<15W*
SH-GM0208R	2*1000Base-X SFP, and 8*10/100/1000Base-Tx	14.88Mpps	<15W
SH-GM0208RT	2*1000Base-X SFP, and 8*10/100/1000Base-Tx PoE	14.88Mpps	<15W*
SH-GM0404R	4*1000Base-X SFP, and 4*10/100/1000Base-Tx	11.91Mpps	<15W
SH-GM0404RT	4*1000Base-X SFP, and 4*10/100/1000Base-Tx PoE	11.91Mpps	<15W*

The power consumption doesn't include PoE consumption.

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Layer 3 network management

Item	Specification
Switching Characteristics	
Port aggregation	Support static aggregation; Support dynamic aggregation (LACP)
Port characteristics	Support IEEE802.3x flow control; Support port traffic statistics Support storm suppression;
MAC address table	Comply with IEEE 802.1q standard; Support MAC address automatic learning and aging; Support static and dynamic MAC table entries; MAC address table: 16K
VLAN	Support 4094 VLANs; Support port-based VLAN; Support access port, trunk port, hybrid port
QinQ	Support port-based QinQ; Support vlan-based QinQ; Support flow-based QinQ;
Mirror	Support port-based two-way mirroring;
Spanning tree	Support STP; Support RSTP; Support MSTP
ERPS (G.8032)	Support single ring; Support tangent ring; Support intersecting rings; Support traffic balance
Layer 2 multicast	Support IGMP V1 Snooping;
Router Characteristics	
ARP	Support static ARP; Support dynamic ARP; Support ARP Proxy
Router Policy	Support IP Prefix-list; Support IP ACL; Support Router-Map
IPV4	Support static router; Support OSPF router protocol; Support RIP router protocol; Support ISIS router protocol; Support BGP router protocol
IPV6	Support management based on IPv6; Support mutiple IPv6 management address
Security Characteristics	
ACL	Support matching Layer 2 fields (MAC extended ACL); Support matching three-layer fields (IP standard ACL, IP extended ACL)

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QOS	Support QoS re-marking, priority mapping;
	Support SP, WRR and SP+WRR scheduling algorithms;
	Support entrance speed limit;
	Support export speed limit;
	Support Flow-based QoS;
	Support 8 queues per port
Dot1x	Support port-based authentication;
	Support MAC-based authentication;
	Support Radius service
Management Characteristics	
User Management	Support login certification
SNMP	Support SNMP v1
	Support SNMP v2c
	Support SNMP v3
RMON	Support statistics Group;
	Support history Group;
	Support alarm group;
	Support event group
Web Management	Support Web management;
	Support HTTP V1.1;
IPV4/IPV6	Support IPV4;
	Support IPV6
POE (only for PoE models)	Support 802.3af
	Support 802.3at
	Support power management (Class mode, energy saving mode, static mode)
Version upgrade	Support
Syslog	Support
Diagnosis	Support ping (ipv4);
	Support ping (ipv6);
	Support traceroute (ipv4);
	Support traceroute (ipv6)
Application Characteristics	
NTP	Support NTP Client
DHCP Client	Support DHCPv4 client;
	Support DHCPv6 client
DHCP Sever	Support DHCPv4 Sever;
	Support DHCPv6 Sever
DHCP Snooping	Support Trust port
TFTP	Support TFTP Client
Telnet	Support Telnet Server;
	Support Telnet Client

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DIP Switches configuration

SH-GM040R series provide 3 DIP switches for customization.

Function	Description	Example
Port isolation	The isolated ports cannot communicate with each other, which improves network security.	Set downstream ports to be isolated from each other.
Cross-device isolation (QINQ)	The same ports of two interconnected devices form a group (one connection), and ports in different groups cannot communicate.	Fiber optic media converter with multi-ports.
Port aggregation	If more than one port is interconnected between devices, port aggregation needs to be set up to increase bandwidth, provide link redundancy, and improve network availability. (Note: the two interconnected devices need to be configured peer-to-peer)	Set upstream ports to port aggregation.
Storm control	The port with storm control enabled will control the rate of received flooding packets (unknown multicast, multicast, broadcast), which avoids the spread of storms and improving network availability.	Set the downstream port to enable storm control.
Port mirroring	Mirror all the input/output packets of the mirroring source port to the mirroring destination port. Supports one-to-one mirroring (1 mirroring source port to 1 mirroring destination port) and one-to-many mirroring (multiple mirroring source ports to 1 mirroring destination port).	Set port 5 to be the mirroring source port, and port 1 to be the mirroring destination port
Port flow control	Port flow control is a network-wide strategy, which needs to be enabled on the entire network. When network congestion occurs, backpressure is applied hop-by-hop to the source port of the packet flow through flow control frames, so that no packet loss occurs on the entire network. This feature needs to be turned on with caution.	Enable flow control on all ports.
DHCP Trust port	When enabled, the DHCP server can only be deployed on the Trust port (not necessarily directly connected). This feature prevents DHCP spoofing.	Set the upstream port as the DHCP Trust port.
VLAN configuration	The upstream port is configured as a trunk port, and the downstream port is configured as an access port. Set the downstream port to different VLAN. Downstream ports of different VLANs cannot communicate with each other.	Set the downstream ports 1-4 as VLAN 10, the downstream ports 5-8 as VLAN 20, and the upstream port 9 as the trunk port.
Policy restart	To restart the device is restart automatically under the setting policy condition, eg: a) the port it linked up, but no packets are sent and received for a period of time; b)scheduled restart for 1 day. or other customized condition.	Set a timer period to restart the device.
.1x similar protocol	Support port and MAC address binding	secure access
Private Ring	Support the private ring network protocol SmartRing. As a leaf node switch, it cooperates with the root switch group ring. [Note 1]	Ring network application

Note 1: Leaf node switch and root switch group ring: It is a plug-and-play cost-effective ring group solution launched by our company according to market demand and for entry-level ring network application scenarios. The leaf is used for terminal access. The leaf node switch forms a ring topology, and the root switch spans between the ring topology and the aggregation switch, and can quickly complete the ring network topology deployment without configuration.

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Ordering Information

Model	Products & Description
SH-GM402400R	10G L3 managed industrial switch, 4*10GBase-X SFP+, and 24*1000Base-X SFP, AC165V~265V, 19" 1U Rack mount, -40~+85℃
SH-GM481600R	10G L3 managed industrial switch, 4*10GBase-X SFP+, 8*Gigabit Combo, and 16*1000Base-X SFP, AC165V~265V, 19" 1U Rack mount, -40~+85℃
SH-GM400024R	10G L3 managed industrial switch, 4*10GBase-X SFP+, and 24*10/100/1000Base-Tx, AC165V~265V, 19" 1U Rack mount, -40~+85℃
SH-GM400024RT	10G L3 managed industrial PoE switch, 4*10GBase-X SFP+, and 24*10/100/1000Base-Tx PoE, AC165V~265V, 19" 1U Rack mount, -40~+85℃
SH-GM480016R	10G L3 managed industrial switch, 4*10GBase-X SFP+, 8*Gigabit Combo, and 16*10/100/1000Base-Tx, AC165V~265V, 19" 1U Rack mount, -40~+85℃
SH-GM480016RT	10G L3 managed industrial PoE switch, 4*10GBase-X SFP+, 8*Gigabit Combo, and 16*10/100/1000Base-Tx PoE, AC165V~265V, 19" 1U Rack mount, -40~+85℃
SH-GM200080R	10G L3 managed industrial switch, 2*10GBase-X SFP+, and 8*2.5GBase-Tx, DC12V-54V, DIN rail, -40~+85℃
SH-GM200080RT	10G L3 managed industrial PoE switch, 2*10GBase-X SFP+, and 8*2.5GBase-Tx PoE, DC48V-54V, DIN rail, -40~+85℃
SH-GM400208R	10G L3 managed industrial switch, 4*10GBase-X SFP+, 2*1000Base-X SFP, and 8*10/100/1000Base-Tx, DC12V-54V, DIN rail, -40~+85℃
SH-GM400208RT	10G L3 managed industrial PoE switch, 4*10GBase-X SFP+, 2*1000Base-X SFP, and 8*10/100/1000Base-Tx PoE, DC48V-54V, DIN rail, -40~+85℃
SH-GM400008R	10G L3 managed industrial switch, 4*10GBase-X SFP+, and 8*10/100/1000Base-Tx, DC12V-54V, DIN rail, -40~+85℃
SH-GM400008RT	10G L3 managed industrial PoE switch, 4*10GBase-X SFP+, and 8*10/100/1000Base-Tx PoE, DC48V-54V, DIN rail, -40~+85℃
SH-GM200008R	10G L3 managed industrial switch, 2*10GBase-X SFP+, and 8*10/100/1000Base-Tx, DC12V-54V, DIN rail, -40~+85℃
SH-GM200008RT	10G L3 managed industrial PoE switch, 2*10GBase-X SFP+, and 8*10/100/1000Base-Tx PoE, DC48V-54V, DIN rail, -40~+85℃
SH-GM0408R	Gigabit L3 managed industrial switch, 4*1000Base-X SFP, and 8*10/100/1000Base-Tx, DC12V-54V, DIN rail, -40~+85℃
SH-GM0408RT	Gigabit L3 managed industrial PoE switch, 4*1000Base-X SFP, and 8*10/100/1000Base-Tx PoE, DC48V-54V, DIN rail, -40~+85℃
SH-GM0208R	Gigabit L3 managed industrial switch, 2*1000Base-X SFP, and 8*10/100/1000Base-Tx, DC12V-54V, DIN rail, -40~+85℃
SH-GM0208RT	Gigabit L3 managed industrial PoE switch, 2*1000Base-X SFP, and 8*10/100/1000Base-Tx PoE, DC48V-54V, DIN rail, -40~+85℃
SH-GM0404R	Gigabit L3 managed industrial switch, 4*1000Base-X SFP, and 4*10/100/1000Base-Tx, DC12V-54V, DIN rail, -40~+85℃
SH-GM0404RT	Gigabit L3 managed industrial PoE switch, 4*1000Base-X SFP, and 4*10/100/1000Base-Tx PoE, DC48V-54V, DIN rail, -40~+85℃