

**SICOM6000**24+4G Port Modular Layer3 Managed  
Industrial Ethernet Switch

CE, FCC, UL, RoHS

**Overview**

SICOM6000 series, Gigabit, modular, DIN-Rail layer 3 industrial Ethernet switch. Offers 4 Gigabit fiber/TP ports, 24 10/100M fiber/TP ports, 10 slots for 16 types of modules. It supports IEEE802.3, 802.3U, 802.3X, IEEE802.1Q, IEEE802.1P, IEEE802.1D, IEEE802.1W, IEEE802.1S, static routing, RIP v1/v2, OSPFv2, BEIGRP, BGPv4, and PIM-SM, PIM-DM, DVMRP etc.

SICOM6000 also comes with EMS industrial level 4 design and complies with IP40 protection class. Based on Kyvision3.0, CLI, WEB interface, it offers concentrated management. The state-of-the-art OPC software enables the switch's management embedded in various industrial systems.

**Features**

- Modular design, up to 4 GE (SFP) ports and 24 100Base TX/FX ports
- DT-Ring, recovery time < 50ms
- Support max 12 100Mbps fiber rings, 2 Gigabit fiber rings
- Support IGMP, TRUNK, Port Mirroring, QoS, VLAN
- Support SNTP (Simple Network Time Protocol), PTP (precision time protocol, IEEE1588)
- Support static routing, RIP v1/v2, OSPF v2, BEIGR, BGP v4
- Support PIM-SM, PIM-DM, DVMRP etc.
- 36Gbps Backplane bandwidth, hardware-based routing, wire-speed layer-3 switching and forwarding rate is up to 19.6Mpps
- Powerful ACL, hardware supports data filtering from L2-L7
- Auto-detection and control broadcasting storm. Support IGMP V1/V2/V3 message detection, effectively preventing broadcasting overflow
- Hyper terminal (CLI), TELNET, WEB management software, SNMP-based network management
- Support OPC supervision
- Flexible combination of ring, star and tangent network topology
- Able to monitor the flow, status of each port (RMON (statistics, history, alarm, event))
- EMC industrial level 4, complies with IEC61850 standard
- Uniform network management software of SICOM3000/3024/4000: Kyvision 3.0
- Wide operating temperature: -40 to 75°C (-40 to 167°F)
- Ribbed Aluminum housing for heat dissipation (patent), fanless
- IP40 protection class

**Functions****Layer 3 Switching Technology and Routing Function**

Large backplane bandwidth, hardware routing, wire-speed layer-3 switching; support static routing and dynamic routing such as RIP v1/v2, OSPF v2, BEIGRP, BGP v4 and so on; support various multicasting routing protocols such as PIM-SM, PIM-DM, DVMRP and so on.

**Redundant Ring Network (DT-Ring, RSTP)**

Each Ethernet port can be set as either an ordinary one or a redundant one. The users can freely choose to build a Gigabit or 100Mbps redundant ring network. The recovery time of DT-Ring is less than 50ms.

**Multi-Ring Coupling System (DT-Ring+)**

The DT-Ring+ protocol is able to realize double ring network redundant backup function and multi-chain network redundant function.

**PTP (Precision Time Protocol or IEEE1588)**

PTP is Precision Time Protocol and IEEE1588, within synchronous precision of the sub-microsecond range. It's used for limited network requiring the highest precision of time synchronization. No special needs for synchronous communication when distributing control tasks, making it possible to separate communication time mode from program operation time mode.

Being representative and open is another advantage of IEEE1588. Lots of controlling system suppliers have applied this standard in their products. With different devices manufacturers following the same standard, a solid synchronization is sustained among them.

**Broadcasting Storm Control**

When broadcasting and multicasting messages in the network reach a certain limitation, the network will be blocked. Our products are capable of eliminating those overfull messages.

**VLAN**

Based on the fact that data packets cannot be transmitted between different VLANs, one network will be divided by VLAN into multiple logical subnets to control the broadcast domain and segment flow as well as improve the reliability, security and manageability of the network. SICOM6000 series supports IEEE802.1q VLAN tag. It can be divided up into 4094 VLANs based on ports, while the VLAN section can be easily realized through Console or WEB Network Management Station.

**QoS Priority**

IEEE802.1p is the most popular priority scheme in LAN environment. With different port operation distributed with different levels of priorities, this function can configure port-based priority

**Alarm Function**

SICOM6000 series offers the alarm functions for power failure, port line and network. Through management software, all the alarm functions can be configured functionally. The alarming information is shown either through alarm contact or from management interface.

**Various Configurations for Working Mode of Ports**

SICOM6000 Series is able to configure the working mode of all TP ports through management: Full/half duplex, adaptive, enforced full/half duplex, 10/100M adaptive, enforced 100M full duplex for 100M fiber ports and enforced 1000M full duplex for 1000M fiber/TP ports.

**Port Rate Configuration**

SICOM6000 series is able to configure the rate of all ports through management as any integer multiple of 32 kbps.

**RMON Network Monitor**

RMON network management expands to the physical layer, making it possible to collect data of devices independently. The built-in monitor offers the limited ability to analyze the whole flow without occupying network resources (bandwidth). It supports four groups including statistics, history, alarm and event. Meanwhile, it permits the network management station to configure the grouping of multiple variables in the way of expression to enhance the effectiveness of transmitting management messages and to reduce the working load of the network management station, which will definitely satisfy your requirements of network segment monitoring function and enable you to manage a large network easily and effectively.

**IGMP to Improve Network Communication Efficiency**

IGMP is Internet Group Multicast Protocol. SICOM6000 Series offers IGMP monitoring and querying functions. Data packets can be transmitted only to multiple host computers which need them. This can prevent overloading and therefore solve the problems of occupied bandwidth when broadcasting.

**OPC Uniform Management of Network Devices**

In the SCADA software of industrial automation, OPC offers a bridge between hardware manufacturers and software developers. With the OPC Server interfaces provided by communication device suppliers and hardware producers, the software developers can get the information from hardware without having to worry about the differences between them and integrate all the information by the top level software for reference of decision-makers.

**Configuration of CLI/SNMP-based Network Management Software**

SICOM6000 Series support the configuration of CLI (command line) and SNMP-based network management software, enabling the users to configure the switches more flexible.

**Technical Specifications****Standard**

IEEE802.3  
IEEE 802.3u  
IEEE 802.3x  
IEEE802.3z  
IEEE802.3ab  
IEEE802.3ae  
IEEE802.3ad  
IEEE802.1p/q  
IEEE802.1d  
IEEE802.1w  
IEEE802.1x  
Store and forward switching mode

**Network**

Ring, chain, star and tangent ring network topology.

**Interface**

Gigabit fiber port: 4 × 1000Base-L/HX(SFP)  
Gigabit RJ45 port: 4 × 1000Base-TX(SFP)  
100M fiber port: 24 × 100Base-FX (FC/SC/ST connector)  
100M RJ45 port: up to 24 × 10/100Base-TX  
CONSOLE interface: RS232, RJ45  
Alarm contact: Relay output for power supply

**Performance**

Layer 3 forwarding rate: 9.6Mpps at line rate  
Switching mode: store and forward  
Backplane switching capacity: 32G  
Address table 16K  
Routing table 30K  
Queue buffer 64MB

**Service**

Management: Serial port, Telnet, CLI, SNMP v1/v2, Kyvision  
Diagnostics: LED  
Each port RMON(1,2,3,9 group)---(statistics, history, alarm and event)  
Port mirroring  
VLAN: Port-based VLAN, 802.1Q tag VLAN, Vlan Stacking (QinQ)  
Super Vlan, Private Vlan  
GVRP dynamic VLAN  
Configuration: TELNET, Hyper terminal, DHCP Server, DHCP Client and DHCP relay  
Security: 802.1x Port-Based Authentication System  
MPLS Martini solution  
QinQ double VLAN security  
Port Security  
IP ACL, MAC ACL, Vlan ACL  
Port+IP+MAC binding  
WEB interface user authentication  
Remote RADIUS  
TACACS+authentication  
User Classes and password protection  
Other service: Restrain broadcast storm, stop forwarding at critical point  
IGMP Snooping  
IGMP v1/v2/v3  
PIM-SM, OLINK&PIM-DM  
DVMRP  
GMRP  
Routing: Static routing  
RIP v1/v, OSPFv2, BEIGRP, BGPv4  
Anti-virus intelligent routing and forwarding  
Support policy routing basing on IP

**Power Requirements**

Power input: 24VDC (18-36VDC) dual redundant  
Power consumption: <30W

**Physical Characteristics**

Casing: IP40 protection  
Ribbed Aluminum housing fanless design  
Dimensions(WxHxD): 416x158x170mm (16.38x6.22x6.69 in.)  
Installation: DIN-Rail mounting

### Environmental Limits

Operating Temperature: -40 to 75°C (-40 to 167°F)  
Storage Temperature: -45 to 85°C (-49 to 185°F)  
Ambient Relative Humidity: 0 to 95% (non-condensing)

### EMC emitted immunity:

FCC CFR47 Part15: FCC CFR47 Part 15 Class A  
EN55022: EN55022 Class A  
UL60950,CE,FCC,ROHS

### Approvals

EMC interference immunity:  
IEC61000-4-2(ESD): ±8KV contact discharge, ±15KV air discharge  
IEC61000-4-3(RS): 10V/M (80-1000MHz)  
IEC61000-4-4(EFT): ±4KV power line, ±4KV data line  
IEC61000-4-5(Surge): ±4KV(line/earth), ±4KV (line/line)power line, ±2KV data line  
IEC61000-4-6(CS): 3V(10KHZ~150KHZ), 10V(150KHZ~80KHZ)

### MTBF

35 years

### Warranty

5 Years

## Ordering Information

Model	Description
SM6-Backboard	Backboard of SICOM6000 system, offering slots for 1 CPU module, 1 switching module, 1 Gigabit interface module, 1 power supply module and 6 service modules.
SM6-SW3	Switching module for SICOM6000
SM6-CPU	CPU module, managing SM6-SW3
SM6-POWER	power supply module, dual 24VDC
SM6-2GX	2 × 1000M Ethernet ports for SFP
SM6-4GX	4 × 1000M Ethernet ports for SFP
SM6-4TX	Interface module with 4 x 10/100-T/TX ports, RJ45
SM6-4FX-S-ST (SC)	Interface module with 4 x 100FX ports, ST/SC, single mode
SM6-4FX-M-ST (SC)	Interface module with 4 x 100FX ports, ST/SC, multimode
SM6-3TX-1FX-S-ST (SC)	Interface module with 3 x 10/100-T/TX ports and 1 x 100FX port, SC/ST, single mode
SM6-3TX-1FX-M-ST (SC)	Interface module with 3 x 10/100-T/TX ports and 1 x 100FX port, SC/ST, multimode
SM6-2TX-2FX-S-ST (SC)	Interface module with 2 x 10/100-T/TX ports and 2 x 100FX ports, SC/ST, singlemode
SM6-2TX-2FX-M-ST (SC)	Interface module with 2 x 10/100-T/TX ports and 2 x 100FX ports, SC/ST, multimode
SM6-1TX-3FX-S-ST (SC)	Interface module with 1 x 10/100-T/TX port and 3 x 100FX ports, SC/ST, single mode
SM6-1TX-3FX-M-ST (SC)	Interface module with 1 x 10/100-T/TX port and 3 x 100FX ports, SC/ST, multimode
SM-SFP-RJ45	SFP interface module with 1 x 1000M port, RJ45 connector
SM-SFP-LX/LC	SFP interface module with 1 x 1000M port, LC connector 10Km supported
SM-SFP-LH/LC-40	SFP interface module with 1 x 1000M port, LC connector 40Km supported
SM-SFP-LH/LC-80	SFP interface module with 1 x 1000M port, LC connector 80Km supported