IGS-803SM

8x 10/100/1000Base-T+ 3x 100/1000Base-X SFP Slot Managed Switch

IPv6 Ready   SmartView

EN50121-4   20-57V PoE Regulated

u-Ring   EN61000-6-2 EN61000-6-4

8

Industrial Ethernet Managed Switch

 IGS-803SM models are managed industrial grade Gigabit switches with 8 x 10/100/1000Base-T(X) ports and 3 SFP Gigabit/Fast Ethernet ports that provide stable and reliable Ethernet transmission. The Ethernet switches support a variety of management functions, including STP/RSTP/MSTP/ ITU-T G.8032 Ring and multiple u-Ring for redundant cabling , layer 2 Ethernet IGMP, VLAN, QoS ,Security ,IPv6, bandwidth control, port mirroring, cable diagnostic and Green Ethernet. Housed in rugged DIN rail or wall mountable enclosures, these switches are designed for harsh environments, such as industrial networking, security automation applications, intelligent transportation systems (ITS) and are also suitable for many military and utility market applications where environmental conditions exceed commercial product specifications. Standard operating temperature range models (-10 to 60℃) and wide operating temperature range models (-40 to 75℃) fulfill the special needs of industrial automation applications.

Features

- 8x 10/100/1000Base-T RJ-45 with 3x 100/1000Base-X SFP Fiber
- UL60950-1, CE, FCC, Rail Traffic EN50121-4 certified
- Industrial Grade EMS, EMI, EN61000-6-2, EN61000-6-4 certified
- Cable diagnostic, Measuring cable OK or broken point distance
- Supports Green Ethernet IEEE802.3az EEE (Energy Efficient Ethernet) management to optimize the power consumption
- STP, RSTP, MSTP, ITU-T G.8032 Ethernet Protection Ring (EPR) for redundant cabling
- Provide up to 5 instances that each supports u-Ring, u-Chain or Sub-Ring type for flexible uses, and maximum up to 5 Rings.
- u-Ring for Redundant Cabling, recovery time<10ms in 250 maximum devices
- DHCP client/Relay/Snooping/Snooping option 82/Relay option 82
- QoS, Traffic classification QoS, CoS, bandwidth control for Ingress and Egress, Storm Control, DiffServ

- IEEE802.1q VLAN, MAC based VLAN, IP subnet based VLAN, Protocol based VLAN, VLAN translation, MVR
- Dynamic IEEE 802.3ad LACP Link Aggregation, Static Link Aggregation
- IGMP snooping V1/V2/V3, IGMP Filtering/ Throttling, IGMP query, IGMP proxy reporting, MLD snooping V1/V2
- Security : Port based and MAC based IEEE802.1X, RADIUS, ACL, TACACS+, HTTP/HTTPS, SSL/SSH v2
- Software upgrade via TFTP and HTTP, redundant firmware to avoid in case of upgrade failure
- RMON, MIB II, Port mirroring, Event syslog, DNS, NTP/SNTP, IEEE802.1ab LLDP
- Supports IPv6 Telnet server /ICMP v6
- CLI, Web based management, SNMP v1/v2c/v3, Telnet server for management
- SmartView Management System support

Specifications

Standard		
	IEEE 802.3	10Base-T 10Mbit/s Ethernet
	IEEE 802.3u	100Base-TX, 100Base-FX, Fast Ethernet
	IEEE 802.3ab	1000Base-T Gbit/s Ethernet over twisted pair
	IEEE 802.3z	1000Base-X Gbit/s Ethernet over Fiber-Optic
	IEEE 802.1d	STP (Spanning Tree Protocol)
	IEEE 802.1w	RSTP (Rapid Spanning Tree Protocol)
	IEEE 802.1s	MSTP (Multiple Spanning Tree Protocol)
	ITU-T G.8032 / Y.1344	ERPS (Ethernet Ring Protection Switching)
	IEEE 802.1Q	Virtual LANs (VLAN)
	IEEE 802.1X	Port based and MAC based Network Access Control, Authentication
	IEEE 802.3ad	Link aggregation for parallel links with LACP(Link Aggregation Control Protocol)
	IEEE 802.3x	Flow control for Full Duplex
	IEEE 802.1ad	Stacked VLANs, Q-in-Q
	IEEE 802.1p	LAN Layer 2 QoS/CoS Protocol for Traffic Prioritization
	IEEE 802.1ab	Link Layer Discovery Protocol (LLDP)
	IEEE 802.3az	EEE (Energy Efficient Ethernet)
VLAN ID	4094 IEEE802.1Q VLAN VID	

Switch Architecture	Back-plane (Switching Fabric): 22Gbps
Data Processing	Store and Forward
Flow Control	IEEE 802.3x for full duplex mode Back pressure for half duplex mode
Network Connector	8 x RJ-45 10/100/1000Base-T auto negotiation speed, Auto MDI/MDI-X function, Full/Half duplex 3X 100/1000 Base-X dual speed mode SFP slot, with DDMI
Console	RS-232 (RJ-45)
Network Cable	UTP/STP above Cat. 5e cable
	EIA/TIA-568 100-ohm (100m)
Protocols	CSMA/CD
Reverse Polarity Protection	Present
Overload Current Protection	Present
CPU Watch Dog	Present
Power Supply	Redundant Dual DC 12/24/48V (9.6~60VDC) Input power (Removable Terminal Block)
Power Consumption	9.6W
LED	Per unit: Power 1 (Green), Power 2 (Green), Fault (Amber), CPU Act (Green), Ring Master (Yellow)
	Per RJ-45 port: 10/100 Link/Active (Green) 1000 Link/Active (Amber)
	SFP Fiber Per port: Link/Active (Green)

Specifications & design are subject to change without prior notice. Please visit CTC Union website for more details.

Specifications

Jumbo Frame	9.6KB
MAC Address Table	8K
Warning Message	System Syslog, SMTP/ e-mail event message, alarm relay
Alarm Relay Contact	Relay outputs with current carrying capacity of 1 A @24VDC
Removable Terminal Block	Provide 2 redundant power, alarm relay contact, 6 Pin
Operating Temperature	-10 ~ 60℃ (IGS-803SM) -40 ~ 75℃ (IGS-803SM-E)
Operating Humidity	5% to 95% (Non-condensing)
Storage Temperature	-40 ~ 85℃
Housing	Rugged Metal, IP30 Protection
Dimensions	106 x 72 x152 mm (D x W x H)
Weight	0.78kg
Installation Mounting	DIN Rail mounting or wall mounting
Certification	
EMC	CE
EMI (Electromagnetic Interference)	FCC Part 15 Subpart B Class A,CE EN55022 Class A

Railway Traffic	EN50121-4
Immunity for Heavy Industrial Environment	EN61000-6-2
Emission for Heavy Industrial Environment	EN61000-6-4
EMS (Electromagnetic Susceptibility) Protection Level	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 (PFMF, Magnetic Field) Field Strength: 300A/m, Criteria A
Safety	UL60950-1
Shock	IEC 60068-2-27
Freefall	IEC 60068-2-32
Vibration	IEC 60068-2-6
MTBF	404,589hrs (MIL-HDBK-217)
Warranty	5 years

Software Specifications

Topology		
VLAN	IEEE 802.1q VLAN,up to 4094 802.1Q VLAN VID	
	IEEE 802.1q VLAN,up to 4094 Groups	
	IEEE 802.1ad Q-in-Q	
	MAC-based VLAN,up to 256 entries	
	IP Subnet-based VLAN, up to 128 entries	
	Protocol-based VLAN(Ethernt, SNAP, LLC), up to 128 entries	
	VLAN Translation, up to 256 entries	
	MVR (Multicast VLAN Registration)	
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 u-Ring	up to 5 instances that each supports u-Ring, u-Chain or Sub-Ring type for flexible uses, and maximum up to 5 Rings. Recovery time <10ms The maximum number of devices allowed in a Ring supported ring is 250.	
Loop Protection	Present	
ITU-T G.8032 / Y.1344 ERPS (Ethernet Ring Protection)	Recovery time <50ms	
	Single Ring, Sub-Ring, Multiple ring topology network	
QoS Feature		
Class of Service	IEEE802.1p 8 active priorities queues for per port	
Traffic Classification QoS	IEEE802.1p based CoS	
	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 / fps / kfps	
	Range : 100 kbps to 1Gbps / 1fps to 3300kfps	
	Rate Unit : bit or frame	
Bandwidth Control for Egress	Rate in steps : 1 kbps / Mbps	
	Range : 100 kbps to 1Gbps	
	Rate Unit : bit	
	Per queue / Per port shaper	
DiffServ (RF 2474) Remarking		
Storm Control	for Unicast, Broadcast, Multicast	
IP Multicasting Feature		
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		
TACACS+ authentication & accounting, TACACS+ 3.0		
HTTPS, HTTP		
SSL / SSH v2		
User Name Password Authentication	Local Authentication	
	Remote Authentication (via RADIUS / TACACS+)	
Management Interface Access Filtering	Web, Telnet / SSH , CLI RS-232 console	
Management Features		
CLI		
Web Based Management		
Telnet	Server	
SNMP	V1, V2c, V3	
SW & Configuration Upgrade	TFTP, HTTP	
	Redundant firmware in case of upgrade failure	
RMON	RMON I (1, 2, 3, 9 group), RMON II	
MIB II	RFC 1213	
DHCP	Client	
	Relay	
	Snooping	
	Snooping option 82	
	Relay option 82	
IP Source Guard		
Port Mirroring		
Event Syslog	Syslog server (RFC3164) (Support 1 server)	
Warning Message	System syslog, e-mail, alarm relay	
DNS	Client, Proxy	
NTP / SNTP		
LLDP (IEEE 802.1ab)	Link Layer Discovery Protocol	
	LLDP-MED	
IPv6 Features		
IPv6 Management	Telnet Server/ICMP v6	
SNMP over IPv6		
HTTP over IPv6		
SSH over IPv6		
IPv6 Telnet Support		
IPv6 NTP / SNTP Support		
IPv6 TFTP Support		
IPv6 QoS		
IPv6 ACL	Number of rules: up to 256 entries	
	L2 / L3 / L4	
Others Features		
Green Ethernet	Supports IEEE802.3az EEE (Energy Efficient Ethernet) Management to optimize the power consumption	
	Determine the cable length and lowering the power for ports with short cables	
	Lower the power for a port when there is no link	
	LED Power Management :Adjustment LEDs intensity	
Cable Diagnostic	Measuring cable OK or broken point distance	

Application

Figure 1: Application Example

SmartView

PC · PLC · PLC · PC · PC · PLC · PC · PC

IGS-803SM

u-Ring

IGS-803SM · IGS-803SM

Figure 2: Multiple Rings

Ring 5 4 3 2 1 · Multiple Rings · **Master**
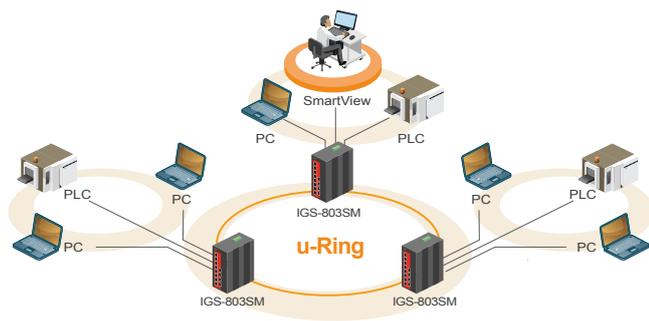
· Maximum up to 5 Ring
· 250 nodes expansion per ring

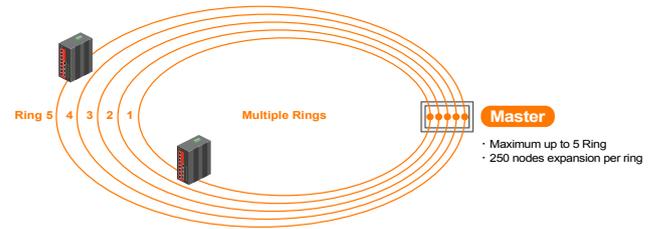### Figure 3: An illustration of u-Ring instances configured in Web interface

u-Ring Configuration · Auto-refresh ☐ Refresh

Delete	Instance	Type	Master	East		West	
				Port	Edge	Port	Edge
Delete	1	u-Ring ▼	☐	1 ▼		2 ▼	
Delete	2	u-Ring ▼	☐	4 ▼		3 ▼	
Delete	3	u-Ring ▼	☐	10 (Fiber2) ▼		11 (Fiber3) ▼	
Delete	4	Sub-Ring ▼	☐	6 ▼			
Delete	5	u-Chain ▼	☐	5 ▼	☐	9 (Fiber1) ▼	☐

Add New Instance

Save · Reset

Figure 4: u-Ring Type

Master

Port 3 · Port 5

Backup Path

Ring

Slave · Slave

Slave

u-Ring Type

Third Party Network

Backup Path

Slave · Edge · Edge · **Master**

Chain

Slave · Slave

Slave

Determining the backup path (u-Chain type)

Master

Backup Path · **Master**

Ring · Backup Path

Sub-Ring

A major ring and a Sub-Ring topology
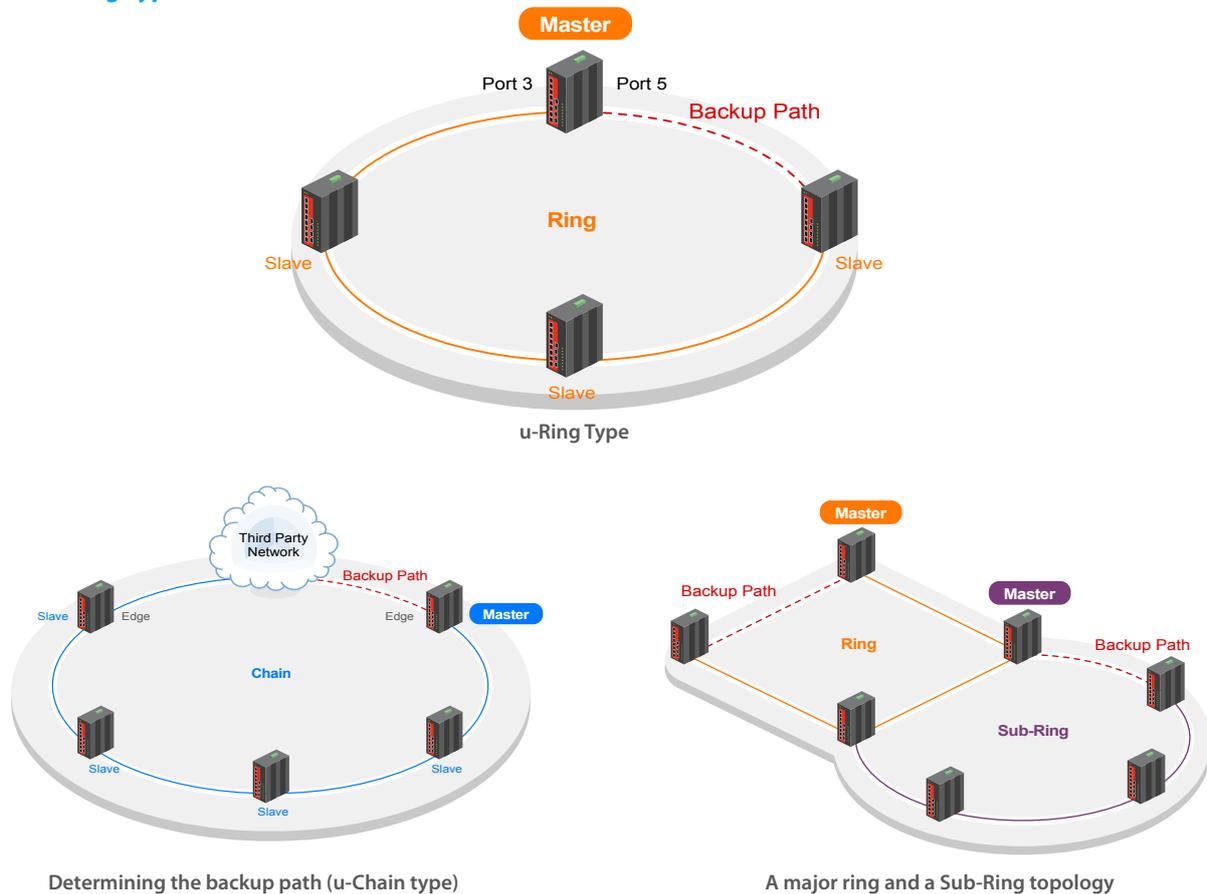
Figure 5: Ring Configuration Example

Ring Configuration Type
- ● u-Ring
- ■ Sub-Ring
- ▲ u-Chain

Ring Configuration Type

Combination of a ring and two Sub-Ring

Combination of a ring and four Sub-Ring

Dimensions

Side View   Front View   Rear View   DIN-Rail Kit View   Wall-Mount Kit View
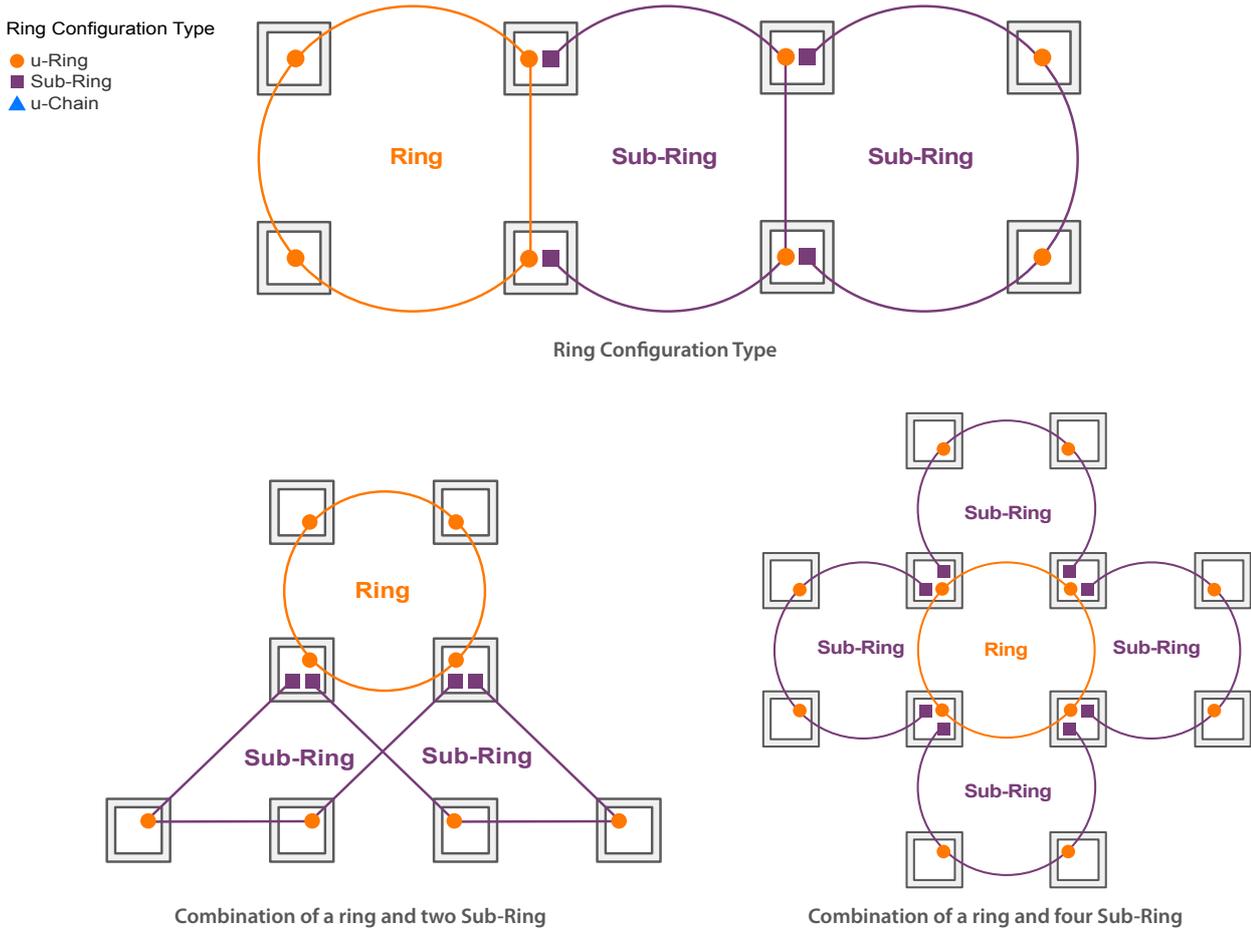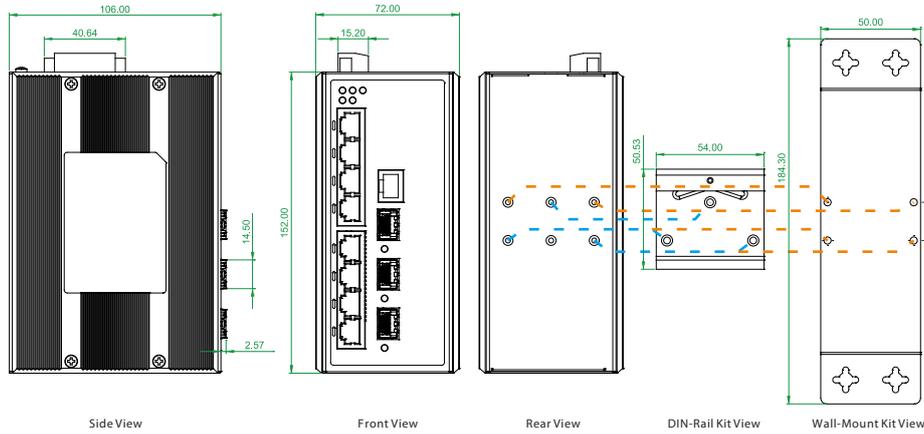
Ordering Information

Model Name	Description
IGS-803SM	8x 10/100/1000Base-T + 3x 100/1000Base-X SFP slot Managed Switch (-10~60˚C)
IGS-803SM-E	8x 10/100/1000Base-T + 3x 100/1000Base-X SFP slot Managed Switch (-40~75˚C)
Accessories	
DR-4524	Industrial Power, Input 85 ~ 264VAC, Output 24VDC, 48W, -10 ~ +50℃
MDR-40-24	Industrial Power, Input 85 ~ 264VAC, Output 24VDC, 40W, -20 ~ +70℃
SFP Transceiver	Compatible, Reliable, 5-year Warranty

Temperature

IGS-803SM – ☐

Example: IGS-803SM – E

| ISFP | – | M | 7 | 040 | – | 31 | – | E |

- ● E : -40~85℃
- Blank : 0~70℃

- ● Industrial SFP Transceiver
- ● M : Multi Mode
  S : Single Mode
  T : Copper
- ● 7 : GbE
  5 : FE
- ● Distance 002(2km), 020(20km), 040(40km)...
- ● Wavelength

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