

IGS-803SM-8PH24 & IGS-402SM-4PH24

◀ 8x GbE RJ45 + 1x 100/1000 SFP + 2x 100M/1G/2.5G SFP with 8x PoE 180W, 24/48VDC

▶ 4x GbE RJ45 + 1x 100/1000 SFP + 1x 100M/1G/2.5G SFP with 4x PoE 120W, 24/48VDC



- Supports IEEE 1588 PTP V2
- Supports u-Ring, ERPS, MSTP, RSTP, STP for redundant cabling
- EN50121-4, UL60950-1, NEMA-TS2, EN61000-6-2, EN61000-6-4, CE, FCC certified
- 24/48VDC (20~57VDC) redundant dual input power with built-in very high efficiency booster
- Auto checking and auto reset when PoE PD fail



These Gigabit Ethernet switch models are managed industrial grade L2 switches with 8/4 10/100/1000Base-T ports and 3/2 GbE/100M SFP ports which also supports PoE+/PSE and provide stable and reliable transmission. Housed in rugged DIN rail or wall mountable enclosures, these switches are designed for harsh environments, such as industrial networking. They are an ideal solution for Smart City, surveillance, Intelligent traffic control systems, production automation applications and support up to 8/4 PoE/PoE+ (IEEE 802.3af/IEEE 802.3at) ports which can provide 15.4/30watts power output per port for connecting with heavy-duty industrial PoE devices, such as PTZ IP surveillance cameras, high-performance wireless access points, digital signage and IP phones. (See Figure). Standard operating temperature range models (-10 to 60°C) and wide operating temperature range models (-40 to 75°C) fulfill the special needs of industrial automation applications.

Features

- Regulated PoE output voltage (52VDC) to stabilize PoE device, and guarantee delivery PoE power distance to 100meter (Figure 2)
- Provides 4/8 port IEEE 802.3af / 802.3at PoE output (30W per Port)
- Cable diagnostics, identifies opens/shorts distance
- Provides 5 ring instances that each can support μ-Ring, μ-Chain or Sub-Ring type for flexible uses. Supports up to 5 rings in one device
- μ-Ring for redundant cabling, recovery time<10ms in 250 devices
- Supports IEEE 1588 PTP V2 for precise time synchronization to operate in Ordinary-Boundary, Peer to Peer Transparent Clock, End to End Transparent Clock, Master, Slave mode by each port
- Provides SmartConfig for quick and easy mass Configuration*
- Supports SmartView for Centralized Management*

*Please see Chapter 1- **Software Management** for more details

Specifications

Standard	IEEE 802.3	10Base-T 10Mbit/s Ethernet	Data Processing Store and Forward	
	IEEE 802.3u	100Base-TX, 100Base-FX, Fast Ethernet		
	IEEE 802.3ab	1000Base-T Gbit/s Ethernet over twisted pair		Flow Control IEEE 802.3x for full duplex mode Back pressure for half duplex mode
	IEEE 802.3z	1000Base-X Gbit/s Ethernet over Fiber-Optic		
	IEEE 802.3cb	2.5GBase-X		Network Connector 4x 10/100/1000Base-T RJ-45 + 1x FE/GbE SFP slot+ 1x FE/GbE/2.5G SFP slot (IGS-402SM-4PH24) 8x 10/100/1000Base-T RJ-45 + 1x FE/GbE SFP slot + 2x FE/GbE/2.5G SFP slot (IGS-803SM-8PH24)
	IEEE 802.3af	PoE (Power over Ethernet)		
	IEEE 802.3at	PoE+ (Power over Ethernet enhancements)		PoE standard & RJ-45 pin assignment RJ-45 UTP port support Auto negotiation speed, Auto MDI/MDI-X function, SFP ports support 100/1000 or 2.5G with DDMI 4x IEEE 802.3af /IEEE 802.3at PoE+ (IGS-402SM-4PH24) 8x IEEE 802.3af /IEEE 802.3at PoE+ (IGS-803SM-8PH24) End-Span, Alternative A mode. Positive (V+) : RJ-45 pin 1, 2. Negative (V-) : RJ-45 pin 3, 6. Data (1,2,3,6,4,5,7,8)
	IEEE 802.1d	STP (Spanning Tree Protocol)		
	IEEE 802.1w	RSTP (Rapid Spanning Tree Protocol)		Console RS-232 (RJ-45)
	IEEE 802.1s	MSTP (Multiple Spanning Tree Protocol)		
	ITU-T G.8032 / Y.1344	ERPS (Ethernet Ring Protection Switching)		Network Cable UTP/STP above Cat. 5e cable EIA/TIA-568 100-ohm (100m)
	IEEE 802.1Q	Virtual LANs (VLAN)		
	IEEE 802.1X	Port based and MAC based Network Access Control, Authentication		Protocols CSMA/CD
	IEEE802.3ac	Max frame size extended to 1522Bytes		
	IEEE 802.3ad	Link aggregation for parallel links with LACP(Link Aggregation Control Protocol)		Reverse Polarity Protection Supported for power input
	IEEE 802.3x	Flow control for Full Duplex		
	IEEE 802.1ad	Stacked VLANs, Q-in-Q		Overload Current Protection Supported
	IEEE 802.1p	LAN Layer 2 QoS/CoS Protocol for Traffic Prioritization		
	IEEE 802.1ab	Link Layer Discovery Protocol (LLDP)		CPU Watch Dog Supported
	IEEE 802.3az	EEE (Energy Efficient Ethernet)		
Switch Architecture	Back-plane (Switching Fabric): 15Gbps (IGS-402SM-4PH24) 28Gbps (IGS-803SM-8PH24) Full wire-speed		Power Supply Redundant Dual DC 24/48V (20~57VDC) Input power (Removable Terminal Block) Built-in very high efficiency booster(94~97%) to rise up 52VDC for PoE output Regulated PoE output voltage (52VDC) to stabilize PoE device, and guarantee delivery PoE power distance to 100meter (Figure 2)	

Power Consumption	IGS-402SM-4PH24				
	Input Voltage	Total Power Consumption	Device Power Consumption	PoE Budget	Boost Efficiency
	24VDC	135.2W	7.5W	120W	94.0%
	48VDC	132.5W	9W	120W	97.2%
	IGS-803SM-8PH24				
	Input Voltage	Total Power Consumption	Device Power Consumption	PoE Budget	Boost Efficiency
	24VDC	200.2W	9.2W	180W	94%
	48VDC	195.1W	9.8W	180W	97%
PoE Power Budget	Maximum PoE Output power budget 30W / Per Port 120W (IGS-402SM-4PH24) 180W (IGS-803SM-8PH24)				
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) PoE Port LED 1 LED /per Port : • PoE Output Power On : ON (Green) • PoE Fault (Over Load, Short Circuit,Port failed at Startup) : Flash 1times /sec (Green) • PoE Output Power Off : Off				
Jumbo Frame	9.6KB				
IEEE802.3ac	Max frame size extended to 1522Bytes (allow Q-tag in packet)				
MAC Address Table	8K				
Memory Buffer	512K Bytes for packet buffer				
Device Memory	16M Bytes Flash ROM, 128M Bytes RAM				
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	Provides 2 redundant power, alarm relay contact, 6 Pin				
Operating Temperature	-10 ~ 60°C (IGS-402SM-4PH24, IGS-803SM-8PH24) -40 ~ 75°C (IGS-402SM-4PHE24, IGS-803SM-8PHE24)				
Operating Humidity	5% to 95% (Non-condensing)				

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 (Ethernet, SNAP, LLC), up to 128 entries VLAN Translation, up to 256 entries Private VLAN for port isolation GVRP (GARP VLAN Registration Protocol) 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	IEEE 802.1d STP IEEE 802.1w RSTP IEEE 802.1s MSTP
Multiple μ-Ring	up to 5 instances that each supports μ-Ring, μ-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	Supported
ITU-T G.8032 / Y.1344 ERPS (Ethernet Ring Protection)	Recovery time <50ms Single Ring, Sub-Ring, Multiple ring topology network
QoS Features	
Class of Service	IEEE 802.1p 8 active priorities queues for per port
Traffic Classification	IEEE 802.1p 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	100~1,000,000 when the "Unit" is "kbps" and 1~1,000 when the "Unit" is "Mbps"

Storage Temperature	-40 ~ 85°C
Housing	Rugged Metal, IP30 Protection, Fanless
Dimensions	106 x 62.5 x 135 mm (D x W x H) (IGS-402SM-4PH24) 106 x 72 x 152 mm (D x W x H) (IGS-803SM-8PH24)
Weight	0.715kg (IGS-402SM-4PH24) 0.96kg (IGS-803SM-8PH24)
Installation Mounting	DIN Rail mounting, or wall mounting (Optional)
MTBF	674,963 Hours (IGS-402SM-4PH24) 466,542 Hours (IGS-803SM-8PH24) (MIL-HDBK-217)
Warranty	5 years
Certification	
EMC	CE
EMI (Electromagnetic Interference)	FCC Part 15 Subpart B Class A, CE
Railway Traffic	EN50121-4
Traffic control	NEMA TS2
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

Bandwidth Control for Egress	100~1,000,000 when the "Unit" is "kbps" and 1~1,000 when the "Unit" is "Mbps" Per queue / Per port shaper
DiffServ (RF 2474) Remarking	
Storm Control	for Unicast, Broadcast, Multicast
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 L2 : Mac address SA/DA/VLAN L3: IP address SA/DA, Subnet L4: TCP/UDP
RADIUS authentication & accounting	
TACACS+ authentication & accounting, TACACS+ 3.0	
HTTPS, HTTP	Supported
SSL / SSH v2	Supported
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	Cisco® like CLI
Web Based Management	
Telnet	Supports for management and monitoring
SNMP	V1, V2c, V3
ModBus/TCP	Supports management and monitoring
SW & Configuration Upgrade	TFTP, HTTP Redundant firmware in case of upgrade failure
FTP client	Supports for upload/download configuration

RMON	RMON I (1, 2, 3, 9 group), RMON II
MIB	RFC1213 MIB II, Private MIB
UPnP	Supported
BOOTP	Supported
DHCP	Server, Client, Relay, Relay option 82, Snooping
RARP	Supported
IP Source Guard	Supported
Port Mirroring	Supported
Event Syslog	Syslog server (RFC3164)
Warning Message	System syslog, e-mail, alarm relay
DNS	Client, Proxy
IEEE1588 PTP V2	Supports 5 operating mode in each port : Ordinary-Boundary, Peer to Peer Transparent Clock, End to End Transparent Clock, Master, Slave
NTP, SNTP	Server/Client
LLDP (IEEE 802.1ab)	Link Layer Discovery Protocol LLDP-MED
IPv6 Features	
IPv6 Management	Telnet Server/ICMP v6
SNMP over IPv6	Supported
HTTP over IPv6	Supported
SSH over IPv6	Supported
IPv6 Telnet	Supported
IPv6 NTP, SNTP	Server/Client
IPv6 TFTP	Supported

IPv6 QoS	Supported
IPv6 ACL	Number of rules: up to 256 entries for L2 / L3 / L4 L2 : Mac address SA/DA/VLAN L3: IP address SIP, Subnet (32bit) L4: TCP/UDP
Others Features	
Green Ethernet	Supports IEEE 802.3az 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 UTP cable normal or broken point distance
Advanced PoE Management	
	PoE PD failure auto checking ,and auto reset when PD fail PoE port on/off weekly scheduling PoE Configuration PoE Enable/Disable Power limit by classification Power limit by management Power feeding priority Total PoE Power budge limitation (maximum 120W for IGS-402SM-4PH24, 180W for IGS-803SM-8PH24)

Application

Figure 1 : Application Example

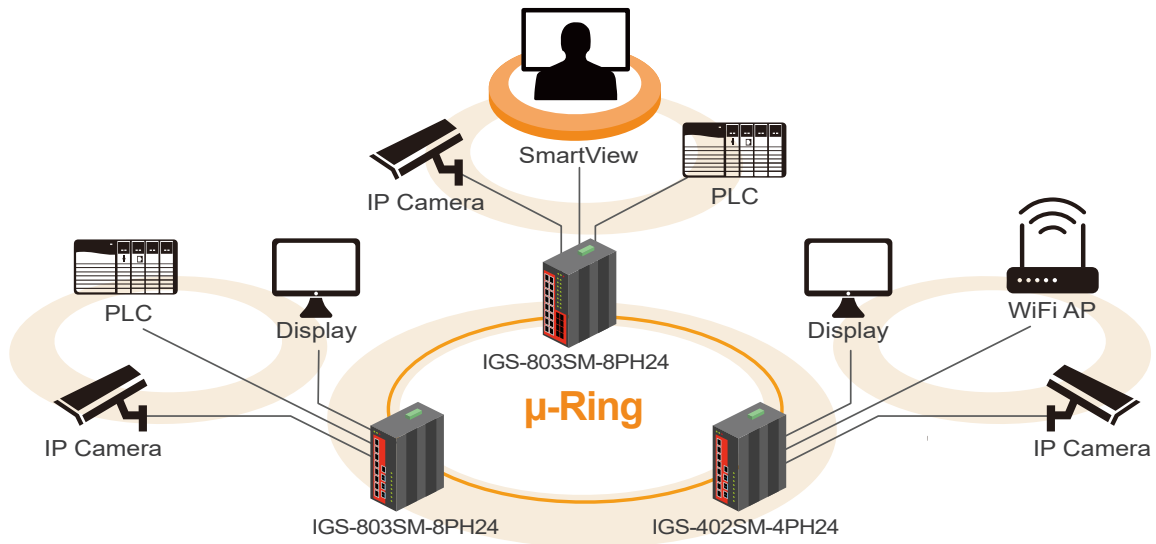
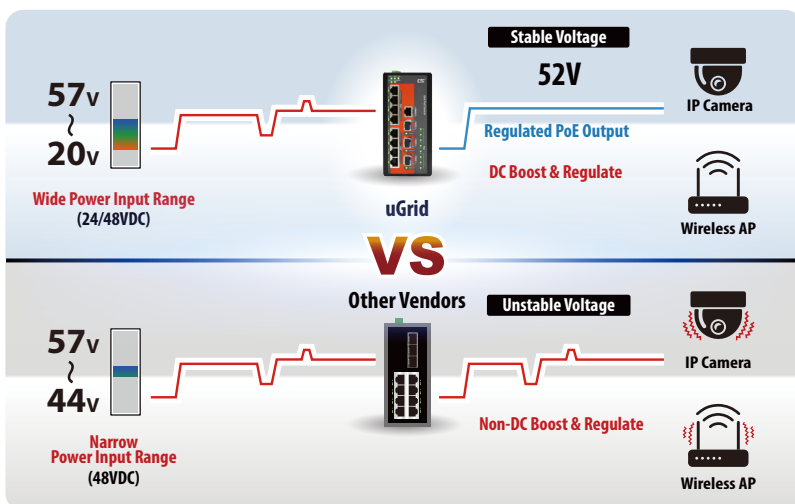


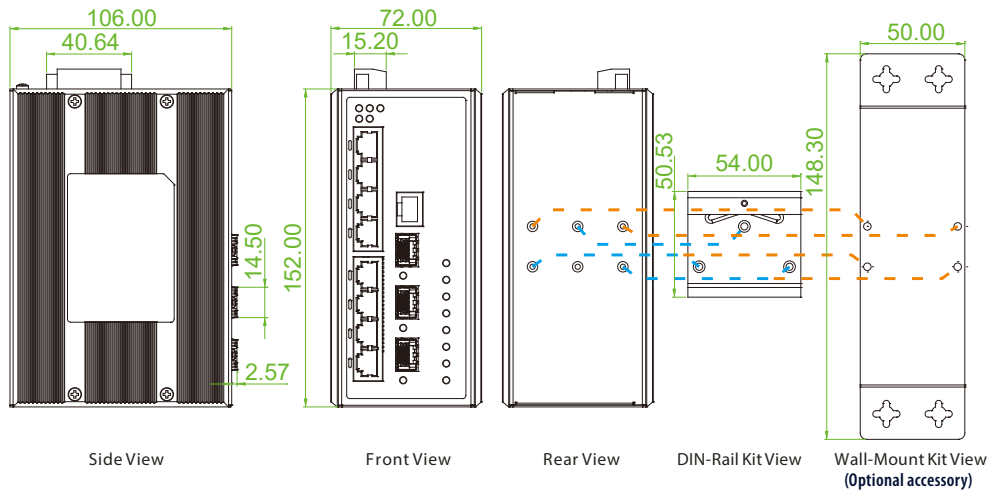
Figure 2 : High Efficiency Boost Technology for PoE



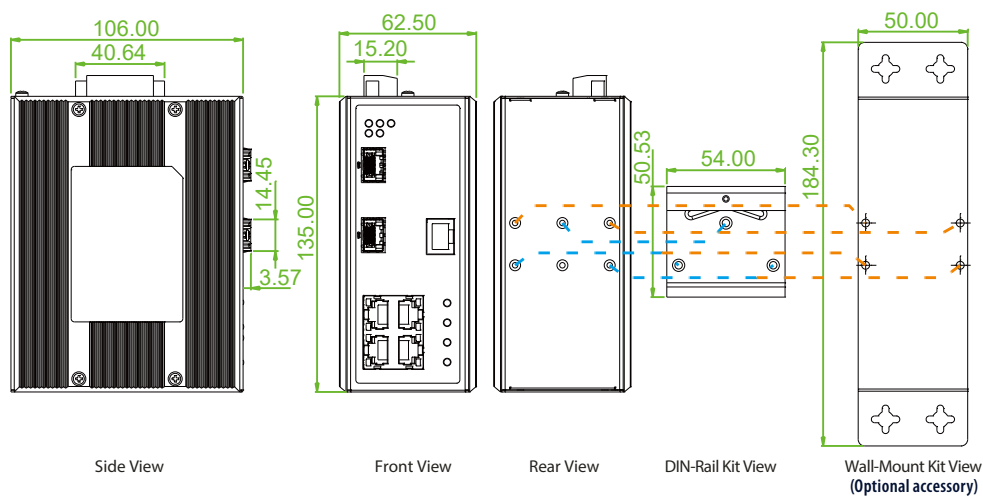
- Regulated PoE output voltage (52VDC) to stabilize PoE device
- Guarantee delivery PoE power distance to 100 meters
- Wide range input power 24/48VDC (20~57VDC)
- Built-in very high efficiency (94~97%) to boost PoE output voltage

Dimensions

► IGS-803SM-8PH24



► IGS-402SM-4PH24



Ordering Information

Model Name	Total Port	UTP		Fiber		PoE Port		Certification				Operating Temperature
		10/100/1000 Base-T	100/1000 Base-X	100/1000/2.5GBase-X	IEEE802.3at	Power Budget	Redundant	Railway EN50121-4	Traffic Control NEMATS2	Safety UL60950-1	CE, FCC EN61000-6-2 EN61000-6-4	
IGS-803SM-8PH24	11	8	1 SFP	2 SFP	8	180W	24/48VDC	V	V	V	V	-10~60°C
IGS-803SM-8PHE24	11	8	1 SFP	2 SFP	8	180W	24/48VDC	V	V	V	V	-40~75°C
IGS-402SM-4PH24	6	4	1 SFP	1 SFP	4	120W	24/48VDC	V	V	V	V	-10~60°C
IGS-402SM-4PHE24	6	4	1 SFP	1 SFP	4	120W	24/48VDC	V	V	V	V	-40~75°C

Optional Accessories

■ Package List

- IGS-803SM-8PH24 or IGS-402SM-4PH24 device
- Console cable (RJ-45 to DB9)
- Din Rail with screws
- Terminal block
- Protective caps for SFP ports

■ Wall Mount Kit

IND-WMK02 Wall Mount kit for Industrial product (Wide) (184 x 50mm)

■ Industrial SFP Transceiver

The ISFP series of industrial grade SFP modules have been fully tested with the series product for guaranteed compatibility and performance. The best performance can be guaranteed even in mission-critical applications.

ISFP-M7000-85-D(E)	Industrial SFP GbE 1000Base-SX, M/M, 500 meter, wave length 850nm, 7.5dB, LC, DDMI, -10~70°C (-40~85°C)
ISFP-S7020-31-D(E)	Industrial SFP 1000Base-LX, S/M, 20km, wave length 1310nm, 15dB, LC, DDMI, -10~70°C (-40~85°C)
ISFP-T7T00-00-E	Industrial SFP 10/100/1000Base-T UTP 100meter, -10~70°C (-40~85°C)
ISFP-M5002-31-D(E)	Industrial SFP 155M 100Base-FX, MM, 2km, wave length 1310nm, 12dB, LC, DDMI, -10~70°C (-40~85°C)
ISFP-S5030-31-D(E)	Industrial SFP 155M 100Base-FX, SM, 30km, 1310nm, 19dB, LC, DDMI, -10~70°C (-40~85°C)

■ Industrial Power Supply

NDR-120-48	Industrial Power, Input 90 ~ 264VAC/127 ~ 370VDC, Output 48VDC, 120W, -20 ~ +70°C (For IGS-402SM-4PH24)
NDR-240-48	Industrial Power, Input 90 ~ 264VAC/127 ~ 370VDC, Output 48VDC, 240W, -20 ~ +70°C (For IGS-803SM-8PH24)