4KV Surge protection

IGS-2408SM-24PH

24x 10/100/1000Base-T(X) + 8x 100/1000Base-X
SFP with 24x PoE+ Managed Switch

UL60950-1 CE FC EN50121-4 EN61000-6-2 EN61000-6-4 IPv6 SmartView μ-Ring IEEE 1588v2

CTC Industrial Rackmount PoE (Power over Ethernet) Switch IGS-2408SM-24PH is a hardened designed L2 managed Ethernet switch with PoE+/PSE for rigorous demands of centralized and critical applications. IGS-2408SM-24PH supports 24x 10/100/1000BaseTX PoE/PoE+ ports, plus 8 dual speed (100/1000Base-X) SFP fiber optical slots, thus providing up to 32 ports total for Ethernet connectivity. IGS-2408SM-24PH is an ideal solution for applications in Smart City, surveillance, Intelligent traffic control systems and production automation applications.

IGS-2408SM-24PH supports up to 24 PoE/PoE+ (IEEE 802.3af/IEEE 802.3at) ports which 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. The IGS-2408SM-24PH is designed especially for harsh outdoor cabinet applications with 4kV surge protection to ensure the uninterrupted reliability of PoE systems.

IGS-2408SM-24PH provides up to 10KB jumbo frame support, a 32K MAC address table and 4MB memory packet buffer. The switch also supports Link Aggregation (Dynamic IEEE 802.3ad LACP) with up to 16 trunk group (maximum 8 port per group) to increase bandwidth for providing high performance quick transfers of large amounts video, voice and data across a network.

IGS-2408SM-24PH supports a variety of Ethernet ring redundancy functions, including STP/ RSTP/MSTP/ERPS and enhanced μ-Ring/μ-Chain/Sub-Ring that provides less than 50ms recovery time with 250 nodes. Isolated power inputs also help to increase system reliability and the availability of your network backbone.

Features

- 24x 10/100/1000Base-T RJ-45 + 8x 100/1000Base-X SFP with 24x PoE+
- Maximum up to 24x IEEE 802.3af / 802.3at PoE+ output, 30W per port, 400W PoE power budget in total
- Redundant dual input power 48VDC (44~57VDC)
- Rugged metal, IP30 protection & Fanless design
- UL60950-1, EN60950-1, CE, FCC, Rail Traffic EN50121-4 certified
- Heavy industrial grade EMS, EMI, EN61000-6-2, EN61000-6-4 certified
- **4KV surge protection for RJ45 and SFP ports**
- STP, RSTP, MSTP, ITU-T G.8032 Ethernet Ring Protection Switching (ERPS) for network redundancy
- Provides 5 instances each can support μ-Ring, μ-Chain or Sub-Ring for flexible networking applications
- μ-Ring redundancy, recovery time <50ms in 250 devices
- DHCP Server/Client/Relay/Snooping/Relay option 82
- QoS, Traffic classification QoS, CoS, bandwidth control for Ingress and Egress, Storm Control, DiffServ
- IEEE 802.1q VLAN, MAC based VLAN, IP subnet based VLAN, Protocol based VLAN, VLAN translation, GVRP, 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
- Flexibility security: Port based and MAC based IEEE 802.1X, RADIUS, ACL, TACACS+, HTTP/HTTPS, SSL/SSH v2
- Software upgrade via TFTP and HTTP, redundant firmware to avoid in case of upgrade failure
- 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
- RMON, MIB II, Port mirroring, Event syslog, DNS, NTP 4.0, SNTP, IEEE 802.1ab LLDP
- CLI, Web based management, SNMP v1/v2c/v3, Telnet/SSH server for management
- Supports Modbus/TCP protocols for management
- Provides SmartConfig for quick and easy mass Configuration*
- Supports SmartView for Centralized Management*
  *Please see Chapter 1- **Software Management** for more details

Specifications

Standard				Standard		
	IEEE 802.3	10Base-T 10Mbit/s Ethernet			IEEE 802.1s	MSTP (Multiple Spanning Tree Protocol)
	IEEE 802.3u	100Base-TX, 100Base-FX, Fast Ethernet			ITU-T G.8032 / Y.1344	ERPS (Ethernet Ring Protection Switching)
	IEEE 802.3ab	1000Base-T Gbit/s Ethernet over twisted pair			IEEE 802.1Q	Virtual LANs (VLAN)
	IEEE 802.3z	1000Base-X Gbit/s Ethernet over Fiber-Optic			IEEE 802.1X	Port based and MAC based Network Access Control, Authentication
	IEEE 802.1d	STP (Spanning Tree Protocol)			IEEE 802.3ac	Max frame size extended to 1522Bytes
	IEEE 802.1w	RSTP (Rapid Spanning Tree Protocol)				

6-3

2019 v1.1
www.ctcu.com / sales@ctcu.com
Specifications & design are subject to change without prior notice. Please visit CTC Union website for more details.

Standard		
	IEEE 802.3ad	Link aggregation for parallel links with LACP(Link Aggregation Control Protocol)
	IEEE 802.3af	PoE (Power over Ethernet)
	IEEE 802.3at	PoE$^+$ (Power over Ethernet enhancement)
	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): 64Gbps (Full wire-speed)	
Data Processing	Store and Forward	
Network Connector	**SFP:** 8x 100/1000Base-X SFP socket Support DDMI	
	RJ45: 24x 10/100/1000Base-T RJ-45 Support Auto negotiation speed, Auto MDI/MDI-X function	
	PoE: 24x IEEE 802.3at /IEEE 802.3af PoE$^+$ End-Span, Alternative A mode. Maximum 30W per port, 400W PoE power budget in total	
	RJ45 Pin Assignment: PoE Positive (V+) : RJ-45 pin 1, 2. PoE Negative (V-) : RJ-45 pin 3, 6. Data (1,2,3,6,4,5,7,8)	
Console	RS-232 (RJ-45)	
Network Cable	UTP/STP Cat.5e cable or above	
	EIA/TIA-568 100-ohm (100m)	
Protocols	CSMA/CD	
Reverse Polarity Protection	For input power	
Overload Current Protection	Supported	
CPU Watch Dog	Supported	
Power Supply	Redundant dual input power 48VDC (44~57VDC) (Removable terminal block) (50~57VDC input is recommended for IEEE802.3at PoE$^+$ in 30W applications)	
Power Consumption	< 30W @50VDC without PoE load <445W @50VDC with 400W PoE load	
LED	Per unit: Power 1 (Green), Power 2 (Green), Act /Alarm (Green/Amber), Ring Master (Green)	
	P1~P24 Per RJ-45 port: 10/100 Link/Active (Green) 1000 Link/Active (Amber)	
	P25~P32 Per SFP Fiber port: Link/Active (Amber)	
	PoE port (P1~P24): PoE ON (Green)	

Jumbo Frame	10K Byte
MAC Address Table	32K
Memory Buffer	4M Bytes for packet buffer
Warning Message	System Syslog, SMTP/ e-mail event message, alarm relay
Alarm Relay Contact	Relay outputs with current carrying capacity of 1A @24VDC, 2-Pin removable terminal block
Operating Temperature	-40 ~ 75°C
Operating Humidity	5% to 95% (Non-condensing)
Storage Temperature	-40 ~ 85°C
Housing	Rugged Metal, IP30 Protection, Fanless
Dimensions	280x 440 x 44mm (D x W x H)
Weight	4.26kg
Installation Mounting	19" rack mount
MTBF	97,078 Hours (MIL-HDBK-217)
Warranty	5 years

Certification	
EMC	CE (EN55024, EN55032)
EMI (Electromagnetic Interference)	FCC Part 15 Subpart B Class A, CE
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, EN60950-1
Surge protection	4KV for RJ45 and SFP ports
Shock	IEC 60068-2-27
Freefall	IEC 60068-2-32
Vibration	IEC 60068-2-6

6

Industrial Central GbE PoE Switch IGS-2408SM-24PH

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
	GVRP (GARP VLAN Registration Protocol)
	MVR (Multicast VLAN Registration)
Link Aggregation (Port Trunk)	Static (Hash with SA, DA, IP, TCP/UDP port), up to 16 trunk group
	Dynamic (IEEE 802.3ad LACP), up to 16 trunk group
	Per group up-to 8 port
Spanning Tree	IEEE 802.1d STP, IEEE 802.1w RSTP, IEEE 802.1s MSTP

Multiple μ-Ring	Up to 5 instances each support μ-Ring, μ-Chain or Sub-Ring for flexible networking applications. Recovery time <50ms The maximum number of device is allowed 250 in a Ring.
Loop Protection	Supported
ITU-T G.8032 / Y.1344 ERPS (Ethernet Ring Protection)	Recovery time <50ms
	Single Ring, Sub-Ring, Multiple ring topology

QoS Features	
Class of Service	IEEE 802.1p 8 active priorities queues for per port
Traffic Classification QoS	IEEE 802.1p based CoS
	IP Precedence based CoS
	IP DSCP based CoS

2019 v1.1
www.ctcu.com / sales@ctcu.com
Specifications & design are subject to change without prior notice. Please visit CTC Union website for more details.
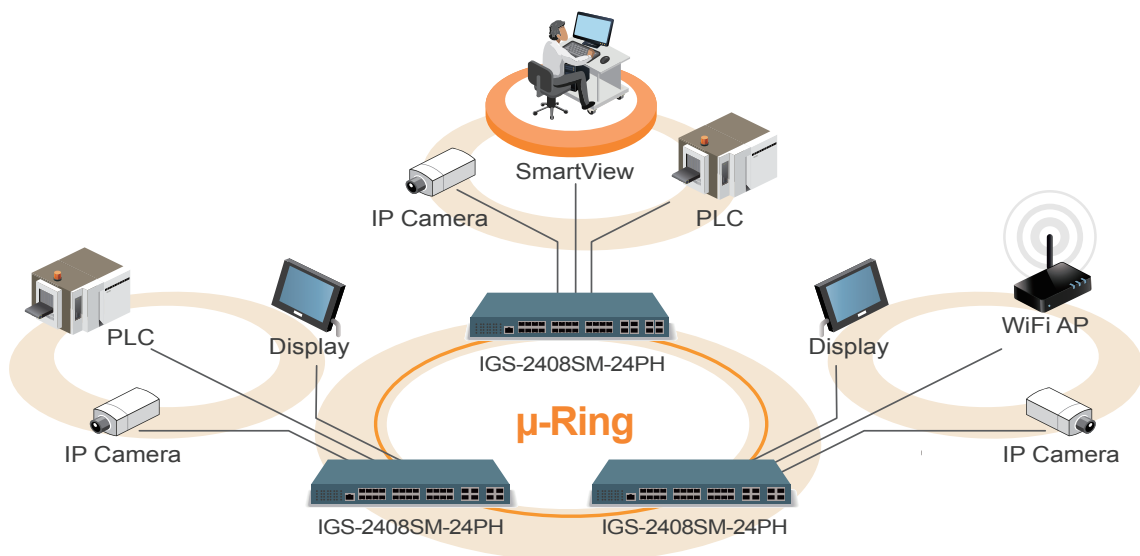**6-4**

Traffic Classification QoS	QCL(QoS Control List): Frame Type, Source/Destination MAC, VLAN ID, PCP, DEI Protocol, Source IP, IP Fragment, DSCP, TCP/UDP port number
Bandwidth Control for Ingress	Per port based
Bandwidth Control for Egress	Per port based
	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	Server
SNMP	V1, V2c, V3
Modbus/TCP	Support for management and monitoring
SW & Configuration Upgrade	TFTP, HTTP
	Redundant firmware in case of upgrade failure
RMON	RMON I (1, 2, 3, 9 group), RMON II
MIB	RFC1213 MIB II, Private MIB
UPnP	Supported

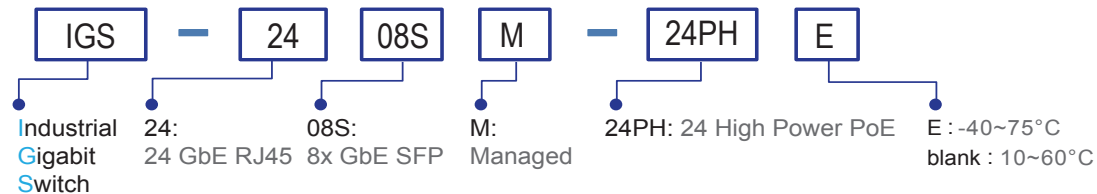|	
DHCP	Server, Client, Relay, Relay option 82 , Snooping
IP Source Guard	Supported
Mirroring	Local and Remote
Event Syslog	Syslog server (RFC3164) (Support 1 server)
Warning Message	System syslog, e-mail, alarm relay
DNS	Client, Proxy
IEEE1588 PTP V2	Supports 5 operating mode in each port : Ordinary-Boundary, Peer to Peer Transparent Clock, End to End Transparent Clock, Master, Slave
NTP V4.0, SNTP	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	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 SA/DA, Subnet L4 : TCP/UDP
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 Total PoE Power budge limitation management: Maximum 400W power budget Power feeding priority

Application

Figure : Application Example

IP Camera · SmartView · PLC · PLC · Display · Display · WiFi AP · IP Camera · IP Camera

IGS-2408SM-24PH

µ-Ring

IGS-2408SM-24PH · IGS-2408SM-24PH

Dimensions

Rear View

Front View

44.00

485.00

440.00

Top View

280.00

Side View
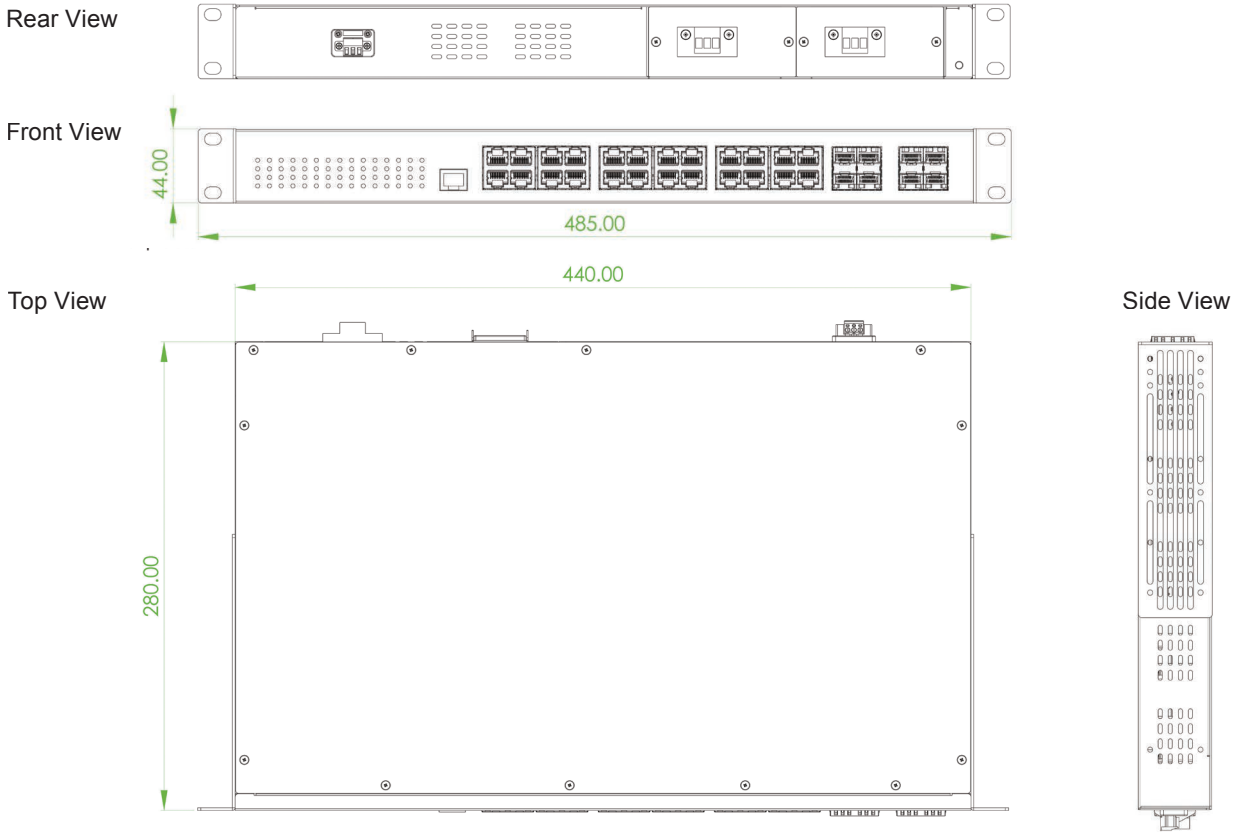
Ordering Information

| Model Name | Managed | Total Port | RJ45 Port | SFP Port | PoE port | | Input power | Certification | | | | Operating Temperature |
			10/100/1000 Base-T(X)	100/1000 Base-X	IEEE 802.3at	Power Budget	48VDC	Safety UL60950-1 EN60950-1	EN50121-4	EN61000-6-2 EN61000-6-4	CE, FCC	
IGS-2408SM-24PHE	V	32	24	8	24	400W	2	V	V	V	V	-40~75℃

Model Naming Rule

| IGS | — | 24 | 08S | M | — | 24PH | E |

Industrial **G**igabit **S**witch

24: 24 GbE RJ45

08S: 8x GbE SFP

M: Managed

24PH: 24 High Power PoE

E : -40~75℃

blank : 10~60℃

Optional Accessories

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

SFP Naming Rule

| ISFP | — | S | 7 | 040 | — | 31 | — | D | E |

Industrial SFP Transceiver

M: Multi Mode
S: Single Mode
T: UTP

9: 10G
7: GbE
5: FE

Distance
T00: (UTP)
000: (500m)
002: (2km)
020: (20km)
040: (40km)

Wavelength
00: UTP
85: 850nm
31:1310nm
55:1550nm
WA: TX/1310nm (Bidi mode A)
WB: TX/1550nm (Bidi Mode B)

D: DDMI
Blank: Non DDMI

E:-40~85℃
Blank:0~70℃

2019 v1.1
www.ctcu.com / sales@ctcu.com
Specifications & design are subject to change without prior notice. Please visit CTC Union website for more details.

6-6