Preliminary

IGS-2408SM

24x10/100/1000Base-T(X) + 8x 100/1000Base-X SFP Managed Switch

CTC Industrial Rackmount Ethernet Switch IGS-2408SM is a hardened design Layer 2 managed Ethernet switch for rigorous demands of centralize and critical applications. CTC Industrial Rackmount Ethernet Switch IGS-2408SM supports full Gigabit Ethernet come with 24 (10/100/1000BaseTX) RJ-45 port plus 8 dual speed (100/1000Base-X) SFP fiber optical slots, thus providing up to 32 ports of Ethernet connectivity. IGS-2408SM is an ideal solution of Industrial automation as smart city & surveillance, Intelligent traffic control systems and production automation applications.

IGS-2408SM provides 10KB jumbo frame, 32K MAC address table and 4MB memory buffer, moreover, the full Gigabit capability supports Link Aggregation (Dynamic IEEE 802.3ad LACP) up to 14 trunk groups (maximum 8port per group) to increase bandwidth for providing high performance and the ability to quickly transfer of large amounts video, voice, and data across a network.

IGS-2408SM supports a variety of Ethernet ring redundant functions, including STP/RSTP/MSTP/ERPS and enhanced µ-Ring/µ-Chain/ Sub-Ring provide less than 50ms recovery time 250 nodes and its redundant power input to increases system reliability and the availability of your network backbone.

Features

- 24x 10/100/1000Base-T RJ-45 + 8x100/1000Base-X SFP
- Redundant isolated 24/48VDC, or/and isolated 110/220VAC power inputs
- **Supports negative voltage power input**
- 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**
- **2.25K VDC Hi-pot isolation protection for Ethernet ports and power**
- 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
- IEEE802.1q 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 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
- Supports IEEE1588 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 V4.0, SNTP, IEEE802.1ab LLDP
- CLI, Web based management, SNMP v1/v2c/v3, Telnet server for management
- Supports Modbus/TCP protocols for management
- Provides SmartConfig for quick and easy mass Configuration*
- Supports SmartView for Centralized Management*
- Supporting Central EMS for management of up to 50 SmartView Server, and maximum up to 25,000 device*

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)

Standard	IEEE 802.1X	Port based and MAC based Network Access Control, Authentication
	IEEE802.3ac	Max frame size extended to 1522Bytes
	IEEE 802.3ad	Link aggregation for parallel links with LACP(Link Aggregation Control Protocol)
	IEEE802.3X	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)

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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
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 2x AC input power (-AA model) 1x AC input power (-A model) Redundant 1x AC and 1x DC input power (-AD model) Redundant 2x DC input power (-DD model) 1x DC input power (-D model) AC input power (A) : Isolated 110/220VAC (88VAC~264VAC) DC input power (D) : Isolated 24/48VDC (18~60VDC), Removable Terminal Block Supports negative voltage power input
Power Consumption	TBD
LED	Per unit: Power 1 (Green), Power 2 (Green), Act /Alarm (Green/Red), Ring Master (Green) P1~P24 Per RJ-45 port: 10/100 Link/Active (Green) 1000 Link/Active (Amber) P25~P32 Per SFP Fiber port: 100Base-X Link/Active (Green) 1000Base-X Link/Active (Amber)
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	-10 ~ 60°C (IGS-2408SM) -40 ~ 75°C (IGS-2408SM-E)
Operating Humidity	5% to 95% (Non-condensing)
Storage Temperature	-40 ~ 85°C
Housing	Rugged Metal, IP30 Protection, Fanless
Dimensions	TBD
Weight	TBD
Installation Mounting	19" rack mount
MTBF	TBD
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
Hi pot protection	DC 2.25KV for power to chassis ground, Ethernet port to chassis ground
4KV surge protection	Supported for RJ45 and SFP ports
Shock	IEC 60068-2-27
Freefall	IEC 60068-2-32
Vibration	IEC 60068-2-6

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 14 trunk group
	Dynamic (IEEE 802.3ad LACP), up to 14 trunk group
	Per group up-to 8 port
Spanning Tree	IEEE802.1d STP, IEEE802.1w RSTP, IEEE802.1s 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	IEEE802.1p 8 active priorities queues for per port
Traffic Classification QoS	IEEE802.1p based CoS
	IP Precedence based CoS
	IP DSCP based CoS

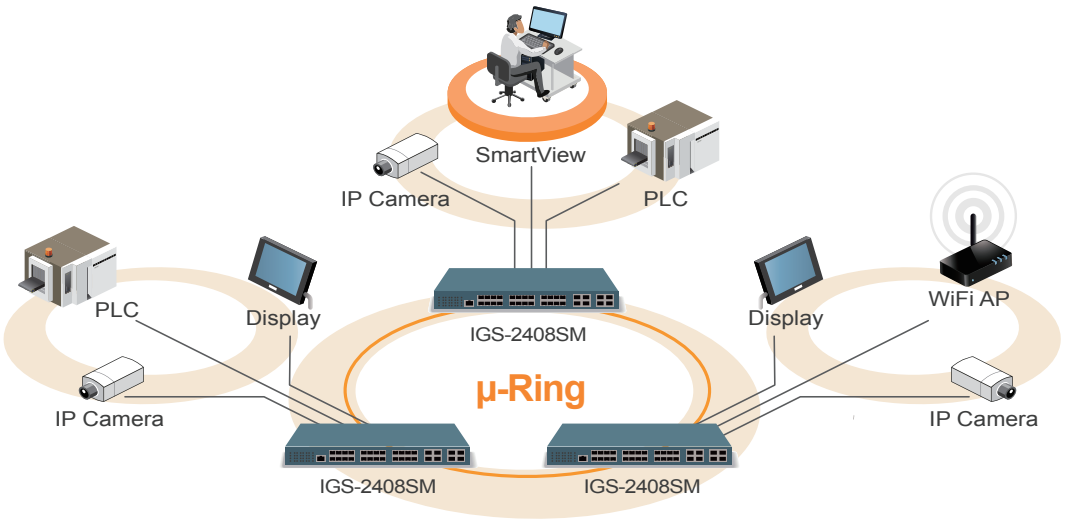
Traffic Classification QoS	QCL(QoS Control List): Frame Type, Source/ Destination MAC, VLAN ID, PCP, DEI Protocol, Source IP, IP Fragment, DSCP, TCP/UDP port number
Bandwidth Control for Ingress	Per port based
Bandwidth Control for Egress	Per port based Per queue / Per port shaper
DiffServ (RF 2474) 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
Warning Message	System syslog, e-mail, alarm relay
DNS	Client, Proxy
IP Source Guard	Supported
Mirroring	Local and Remote
Event Syslog	Syslog server (RFC3164) (Support 1 server)

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

Application

Figure : Application Example



Ordering Information

Model Name	Managed	Total Port	RJ45 Port	SFP Port	Input power		Certification				Operating Temerature
			10/100/1000 Base-T	100/1000 Base-X	24/48VDC	110/220V AC	Safety UL60950-1 EN60950-1	EN50121-4	EN61000-6-2 EN61000-6-4	CE, FCC	
IGS-2408SM-AA	V	32	24	8		2	V	V	V	V	-10~60℃
IGS-2408SM-A	V	32	24	8		1	V	V	V	V	-10~60℃
IGS-2408SM-AD	V	32	24	8	1	1	V	V	V	V	-10~60℃
IGS-2408SM-DD	V	32	24	8	2		V	V	V	V	-10~60℃
IGS-2408SM-D	V	32	24	8	1		V	V	V	V	-10~60℃
IGS-2408SM-E-AA	V	32	24	8		2	V	V	V	V	-40~75℃
IGS-2408SM-E-A	V	32	24	8		1	V	V	V	V	-40~75℃
IGS-2408SM-E-AD	V	32	24	8	1	1	V	V	V	V	-40~75℃
IGS-2408SM-E-DD	V	32	24	8	2		V	V	V	V	-40~75℃
IGS-2408SM-E-D	V	32	24	8	1		V	V	V	V	-40~75℃

Model Naming Rule

IGS – 24 – 08S – M – E – AA

- **IGS**: Industrial Gigabit Switch
- **24**: 24: 24 GbE RJ45
- **08S**: 08S: 8x GbE SFP
- **M**: M: Managed
- **E**: E : -40~75°C; blank : 10~60°C
- **AA**: AA : 2x AC; A : 1x AC; AD : 1x AC + 1x DC; DD : 2x DC; D : 1x DC
  (A: Isolated 110/220VAC power
  D : Isolated 24/48VDC power)

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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 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