



IGS-S2804TM

28x 100/1000Base-X SFP with 4x GbE Combo Managed Switch (Rack)



IGS-S2804TM is a industrial grade Ethernet Switch that is equipped with 28 gigabit SFP ports with 4 combo gigabit ports. The model is a fanless design with redundant, isolated power supplies (2 AC, 2 DC, AC + DC) and can be mounted in 19 inch EIA standard rack. This series offers various layer 2 Ethernet functions (IGMP, VLAN, QoS , Security, IPv6, bandwidth control, and port mirroring) and also support μ-Ring redundancy protocol that can establish 5 independent rings for flexible applications, especially when employed in backbone infrastructure. The switch can also be managed centrally and conveniently by CTC Union’s SmartView™ Element Management System and mass configured by SmartConfig™. Housed in rugged rack mountable enclosures, this model is certified with many industrial-grade standards and is ideal for deployments in harsh environments to deliver mission-critical network services. (See figure).

Features

- 28x GbE SFP with 4x Combo (SFP+RJ-45) Ethernet switch
- Redundancy isolated low voltage 24/48VDC, or/and isolated High voltage (110/220 VAC) power inputs
- Supports negative voltage power input with isolated RS-232 console port (for example in telecom system)
- Rugged metal, IP30 protection & Fanless design
- UL60950-1, CE, FCC, Rail Traffic EN50121-4 certified
- Heavy industrial grade EMS, EMI, EN61000-6-2, EN61000-6-4 certified
- STP, RSTP, MSTP, ITU-T G.8032 Ethernet Ring Protection Switching (ERPS) for redundant cabling
- Provides 5 instances that each can support μ-Ring, μ-Chain or Sub-Ring type for flexible uses. Supports up to 5 rings in one device (Please see CTC Union μ-Ring white paper for more details and more topology application)
- μ-Ring for Redundant Cabling, recovery time<50ms in 250 devices
- DHCP Server/Client/Relay/Snooping/Snooping option 82/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, SNTP, IEEE 802.1ab LLDP
- Supports IPv6 Telnet server /ICMP v6
- 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*

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

Specifications

Standard	IEEE 802.3	10Base-T 10Mbit/s Ethernet	VLAN ID	4094 IEEE 802.1Q VLAN VID
	IEEE 802.3u	100Base-TX, 100Base-FX, Fast Ethernet	Switch Architecture	Back-plane (Switching Fabric): 56Gbps (Full wire-speed)
	IEEE 802.3ab	1000Base-T Gbit/s Ethernet over twisted pair	Data Processing	Store and Forward
	IEEE 802.3z	1000Base-X Gbit/s Ethernet over Fiber-Optic	Network Connector	28x 100/1000Base-X SFP with 4x GbE Combo (UTP/ SFP)
	IEEE 802.1d	STP (Spanning Tree Protocol)	Network Connector	Port 25~28 GbE SFP support 1000M Port 21~24 GbE SFP/RJ45 UTP combo (dual speed 100/1000M)
	IEEE 802.1w	RSTP (Rapid Spanning Tree Protocol)	Network Connector	Port 1~20 GbE SFP support dual speed (100/1000M) SFP support 100/1000M dual speed with DDMI RJ-45 UTP port support 10/100/1000Base-T(X), Auto negotiation speed, Auto MDI/MDI-X function
	IEEE 802.1s	MSTP (Multiple Spanning Tree Protocol)	Console	RS-232 (RJ-45) Isolated RS-232 port grounding for negative voltage power system, or telecom application
	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)	Protocols	CSMA/CD
	IEEE 802.1X	Port based and MAC based Network Access Control, Authentication	Reverse Polarity Protection	Supported
	IEEE 802.3ad	Link aggregation for parallel links with LACP(Link Aggregation Control Protocol)		
	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)		

Overload Current Protection	Supported										
CPU Watch Dog	Supported										
Power Supply	Redundant 2x isolated High Voltage AC/DC input power (-AA model) Redundant 2x Isolated Low Voltage DC Input power (-DD model)										
Power Supply	Redundant 1x isolated Low Voltage DC and 1x High Voltage AC/DC input power (-AD model) Low Voltage DC (D): Isolated 24/48V (18~60VDC), Removable Terminal Block High voltage AC/DC (A): Isolated 110/220VAC (85VAC~264VAC) Supports negative voltage power input with isolated RS-232 console port (for example in telecom system)										
Power Consumption	<table border="1"> <thead> <tr> <th>Input Voltage</th> <th>IGS-S2804TM</th> </tr> </thead> <tbody> <tr> <td>24VDC</td> <td>33.1W</td> </tr> <tr> <td>48VDC</td> <td>33.4</td> </tr> <tr> <td>110VAC</td> <td>34.4W</td> </tr> <tr> <td>220VAC</td> <td>34.4W</td> </tr> </tbody> </table>	Input Voltage	IGS-S2804TM	24VDC	33.1W	48VDC	33.4	110VAC	34.4W	220VAC	34.4W
	Input Voltage	IGS-S2804TM									
	24VDC	33.1W									
	48VDC	33.4									
	110VAC	34.4W									
220VAC	34.4W										
LED	Per unit: Power 1 (Green), Power 2 (Green), Act /Alarm (Green/Red), Ring Master (Green) Per RJ-45 port: 10/100 Link/Active (Green) 1000 Link/Active (Yellow) SFP (P1~24) Fiber Per port: 100Base-X Link/Active (Green) 1000Base-X Link/Active (Yellow) SFP+ (P25~P28) Fiber Per port: 1000Base-X Link/Active (Amber)										
Jumbo Frame	10K										
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 1 A @24VDC, 2-Pin removable terminal block										
Operating Temperature	-10 ~ 60°C (IGS-S2804TM) -40 ~ 75°C (IGS-S2804TM-E)										
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 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	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 <50ms 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
QoS	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	Per port based
Bandwidth Control for Egress	Per port based Per queue / Per port shaper
DiffServ (RF 2474) Remarkings	

Storage Temperature	-40 ~ 85°C
Housing	Rugged Metal, IP30 Protection, Fanless
Dimensions	315 x 440 x 44 mm (D x W x H)
Weight	4.755kg (IGS-S2804TM-AA) 4.26kg (IGS-S2804TM-DD) 4.51kg (IGS-S2804TM-AD)
Installation Mounting	19" rack mount
MTBF	208,975 Hours (IGS-S2804TM-AA) 230,276 Hours (IGS-S2804TM-DD) 287,541 Hours (IGS-S2804TM-AD)
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
Shock	IEC 60068-2-27
Freefall	IEC 60068-2-32
Vibration	IEC 60068-2-6

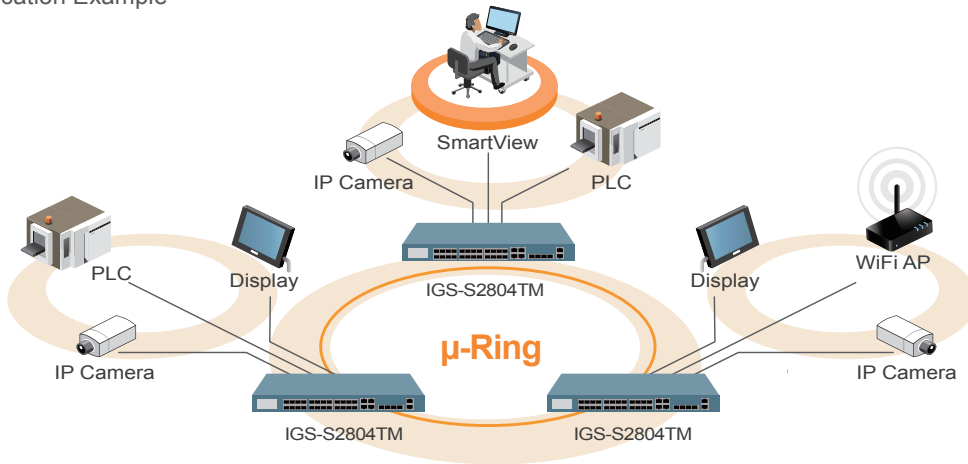
Storm Control	for Unicast, Broadcast, Multicast
IP Multicasting Features	
IGMP / MLD Snooping	IGMP Snooping v1, v2, v3 / MLD Snooping v1, v2 Port Filtering Profile
IGMP / MLD Snooping	Throttling, Fast Leave Maximum Multicast Group : up to 1022 entries Query / Static Router Port
Security Features	
IEEE 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	Web, Telnet / SSH , CLI RS-232 console
Filtering	
Management Features	
CLI	Cisco® like 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	RFC1213 MIB II, Private MIB
UPnP	Supported
DHCP	Server, Client, Relay, Relay option 82 , Snooping
IP Source Guard	Supported
Port Mirroring	Supported
Event Syslog	Syslog server (RFC3164) (Support 1 server)

Warning Message	System syslog, e-mail, alarm relay
DNS	Client, Proxy
IEEE 1588 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	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

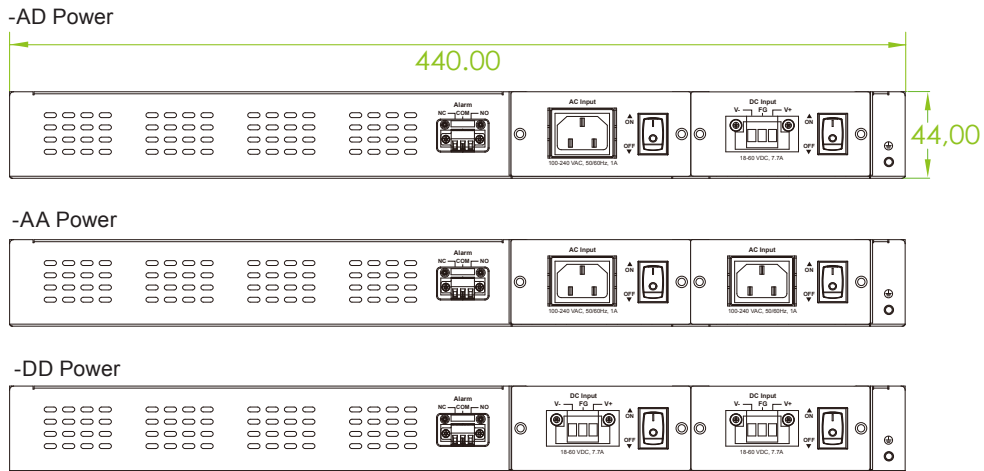
Application

Figure : Application Example

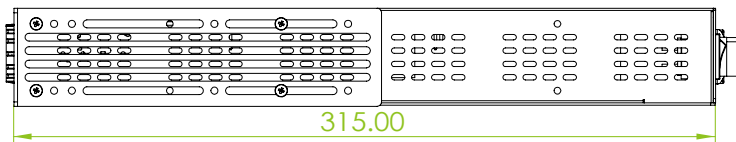


Dimensions

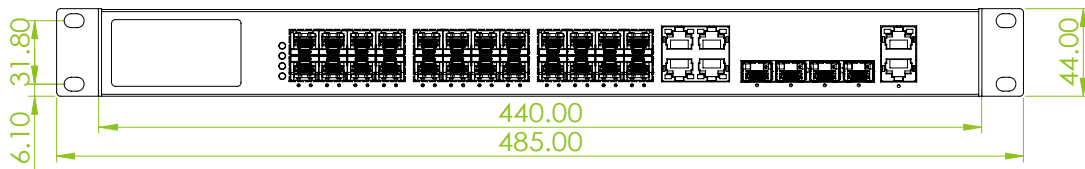
Rear View



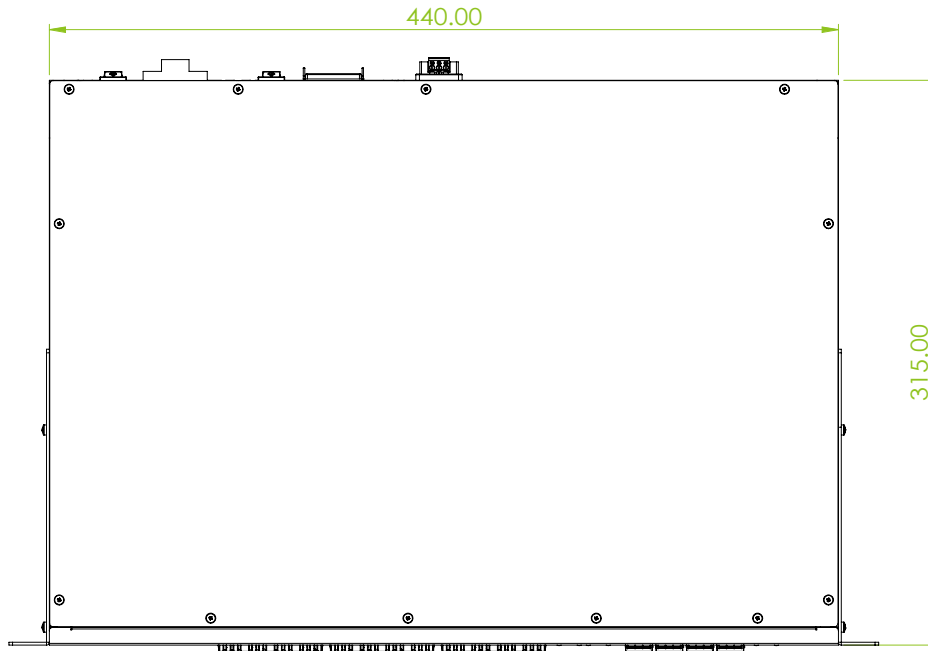
Side View



Front View



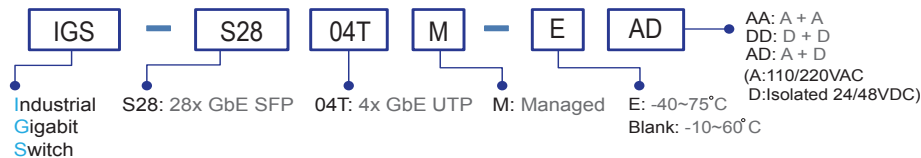
Top View



Ordering Information

Model Name	Managed	Total Port	SFP (1~20)	Combo Port (21~24)	Extension Port (25~28)	Input Power		Certification				Operating Temperature
			100/1000Base-X SFP	10/100/1000Base-T UTP or 100/1000Base-X SFP	1000 Base-X SFP	DC (Low Volt) isolated 24/48VDC	High Volt 110/240VAC	Railway EN50121-4	Safety UL60950-1	EN61000-6-2 EN61000-6-4	CE FCC	
IGS-S2804TM-AA	V	28	20	4	4 SFP	2	V	V	V	V	-10~60°C	
IGS-S2804TM-DD	V	28	20	4	4 SFP	2	V	V	V	V	-10~60°C	
IGS-S2804TM-AD	V	28	20	4	4 SFP	1	1	V	V	V	-10~60°C	
IGS-S2804TM-EAA	V	28	20	4	4 SFP	2	V	V	V	V	-40~75°C	
IGS-S2804TM-EDD	V	28	20	4	4 SFP	2	V	V	V	V	-40~75°C	
IGS-S2804TM-EAD	V	28	20	4	4 SFP	1	1	V	V	V	-40~75°C	

Model Naming Rule



Package List

- IGS-S2804TM device
- Console cable (RJ-45 to DB9)
- CD (SmartConfig, MIB file, Manual)
- Quick installation guide
- Rack mount ear with screws
- Power cord (for-A model)

Optional Accessories

Industrial SFP Transceiver

The ISFP series of industrial grade SFP modules have been fully tested with the product for guaranteed compatibility and performance. The best performance can be guaranteed even in mission-critical applications. (Please see CTC Union's Industrial SFP datasheet for more details and more items.)

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)

SFP Naming Rule

