c UL us LISTED   CE   FCC   EN50121-4   EN61000-6-2 EN61000-6-4   IPv6   SmartView   u-Ring   IEEE 1588 v2

NEW

IGS-S2804TM

28x 100/1000Base-X SFP with 4x GbE Combo

IGS-S2804TM is a industrial grade Ethernet Switch that is equipped with 28 gigabit SFP ports with 4 combo gigabit ports.The model is fan-less designs 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, The model complies with many industrial-grade standards and are ideal for deployments in harsh environments to deliver mission-critical network services.

Feature

- 28x 100/1000Base-X SFP with 4x Combo (SFP+RJ-45) Ethernet switch
- UL60950-1, CE, FCC, Rail Traffic EN50121-4 certified
- Redundancy isolated low voltage 24/48VDC, or/and isolated High voltage AC/DC (110/220 VAC/VDC) power inputs
- 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, u-Chain or Sub-Ring type for flexible uses (see Figure 7). Supports up to 5 rings in one device (see Figure 5).
- μ-Ring for Redundant Cabling, recovery time<10ms 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
- 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
- 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, IEEE802.1ab LLDP
- Supports IPv6 Telnet server /ICMP v6
- CLI, Web based management, SNMP v1/v2c/v3, Telnet server for management
- Provides SmartConfig for quick and easy mass configuration (Figure 4)
- Supports SmartView for Centralized Management (Figure 3)
- Supporting Central EMS for management of up to 50 SmartView Server, and maximum up to 25,000 device (Figure 2)

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 802.1ad	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)
VLAN ID	4094 IEEE802.1Q VLAN VID	
Switch Architecture	Back-plane (Switching Fabric): 56Gbps (Full wire-speed)	
Data Processing	Store and Forward	

Network Connector	28x 100/1000Base-X SFP with 4x GbE Combo (UTP/ SFP)	
Network Connector	RJ-45 UTP port support 10/100/1000Base-T(X) , Auto negotiation speed,Auto MDI/MDI-X function Port 1~24 GbE SFP support dual speed (100M/1000M) Port 25~28 GbE SFP support 1000M with DDMI	
Console	RS-232 (RJ-45)	
Network Cable	UTP/STP above Cat. 5e cable	
	EIA/TIA-568 100-ohm (100m)	
Protocols	CSMA/CD	
IEEE1588 PTP V2	Ordinary-Boundary, Peer to Peer Transparent Clock, End to End Transparent Clock, Master, Slave mode to operate in each port of these switch	
Reverse Polarity Protection	Present	
Overload Current Protection	Present	
CPU Watch Dog	Present	

Industrial Managed GbE Switch (Rack)

Power Supply	Redundant 2x isolated High Voltage AC/DC input power (-AA model) Redundant 2x Isolated Low Voltage DC Input power (-DD model) 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 (88VAC~264VAC) ,isolated 110/220DC (88~300VDC)

Power Consumption

Input Voltage	IGS-S2804TM
24VDC	33.1W
48VDC	33.4
110VAC/VDC	34.4W
220VAC/VDC	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)

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	98,870 Hours (IGS-S2804TM-AA) 108,647 Hours (IGS-S2804TM-DD) 102,230 Hours (IGS-S2804TM-AD)
Warranty	5 years

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

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 Protocal) 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 that each supports μ-Ring, u-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	Present
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	IEEE802.1p 8 active priorities queues for per port
Traffic Classification QoS	IEEE802.1p based CoS IP Precedence based GoS 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) 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
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	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	

| DHCP	Server, 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
IEEE1588 PTP V2	Master, Boundary, Slave Operating mode
	Operating in each port of these switch
NTP	

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 Support	
IPv6 TFTP Support	
IPv6 QoS	
IPv6 ACL	Number of rules: up to 256 entries
	L2 / L3 / L4

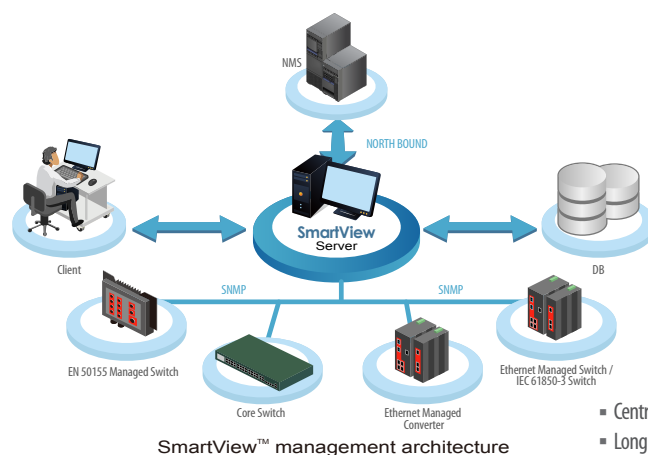## Application

▶ **Figure 1 :** Application Example
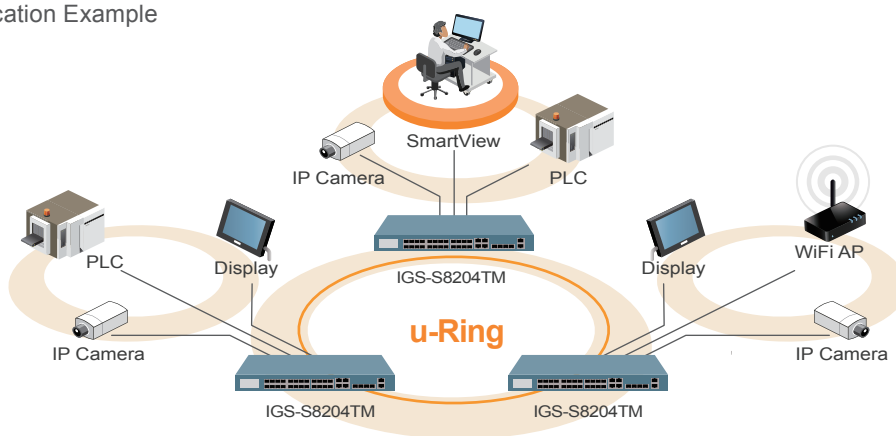
▶ **Figure 2 :** Central EMS allows central management of up to 50 SmartView™ servers
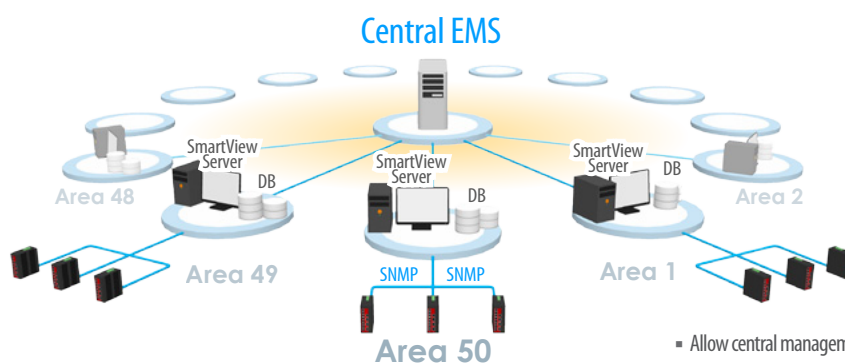
- Allow central management of up to 50 SmartView™ servers
- Allow up to 25,000 devices management
- Hierarchical Network Management Architecture
- Easy and rapid expansion of SmartView™ EMS

▶ **Figure 3 :** SmartView™

SmartView™ management architecture

- Centralized Network Management Platform
- Long term events storage (up to 1 year)
- Alarm trap and event log management
- Real-time visual representations
- Remote access control
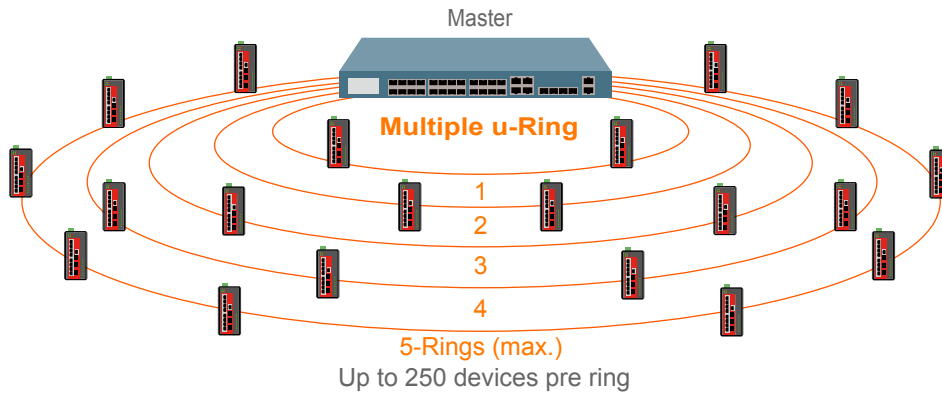- Traffic/performance monitoring and management

▶ **Figure 4 :** SmartConfig™ is a convenient configuration tool for mass deployment of switch products
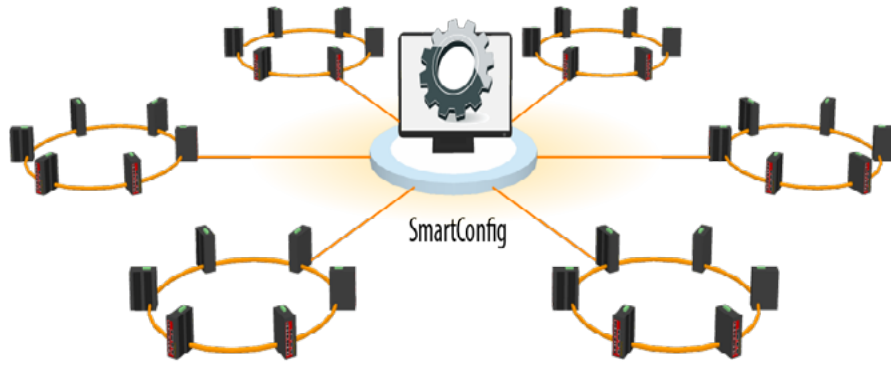
- Quick & Easy for mass configuration tool
- Multiple device auto discovery
- Group configuration, access
- Group firmware upgrade
- Export/Import Configuration

▶ **Figure 5 :** Multiple μ-Ring

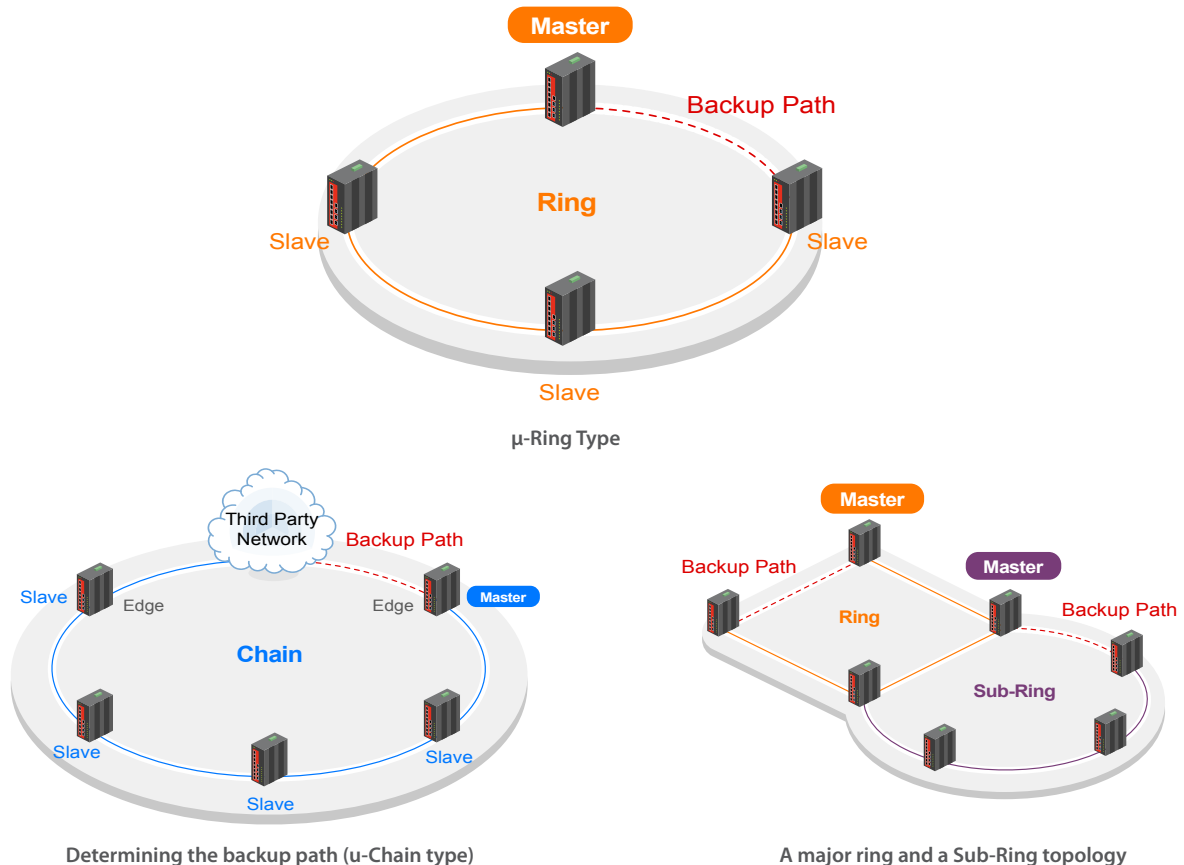▶ **Figure 6 :** Friendly to set μ-Ring configuration in Web

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 7 :** µ-Ring Type

µ-Ring Type

Determining the backup path (u-Chain type)

A major ring and a Sub-Ring topology

▶ **Figure 8 :** Ring Configuration Example

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

Combination of a ring and four Sub-Ring

Combination of a ring and two Sub-Ring

Ring Configuration Type

Cable Redundancy
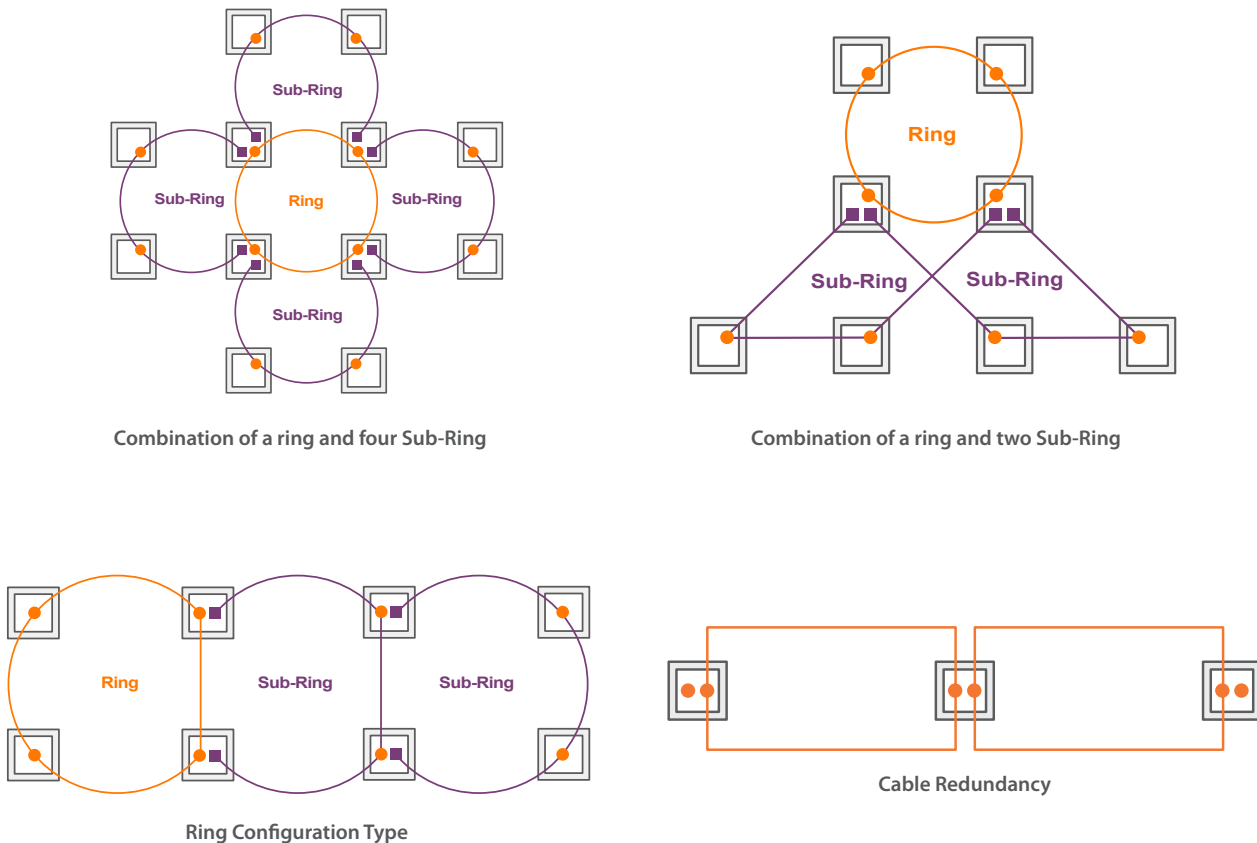
Industrial Managed GbE Switch (Rack)

Dimensions

Rear View

-AD Power

440.00

Alarm NC—COM—NO

AC Input
100-240 VAC, 50/60Hz, 1A
ON
OFF

DC Input
V- FG V+
18-60 VDC, 7.7A
ON
OFF

44.00

-AA Power

Alarm NC—COM—NO

AC Input
100-240 VAC, 50/60Hz, 1A
ON
OFF

AC Input
100-240 VAC, 50/60Hz, 1A
ON
OFF

-DD Power

Alarm NC—COM—NO

DC Input
V- FG V+
18-60 VDC, 7.7A
ON
OFF

DC Input
V- FG V+
18-60 VDC, 7.7A
ON
OFF

Side View

315.00

Top View

440.00

315.00

Front View

31.80

6.10

44.00

440.00

485.00

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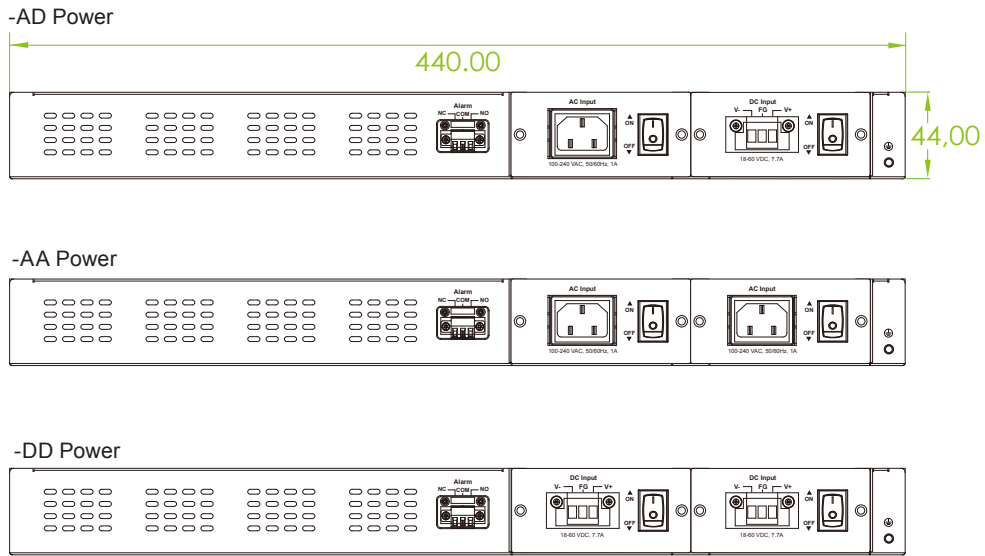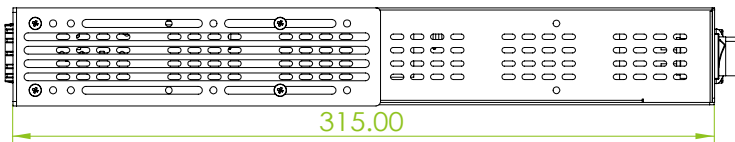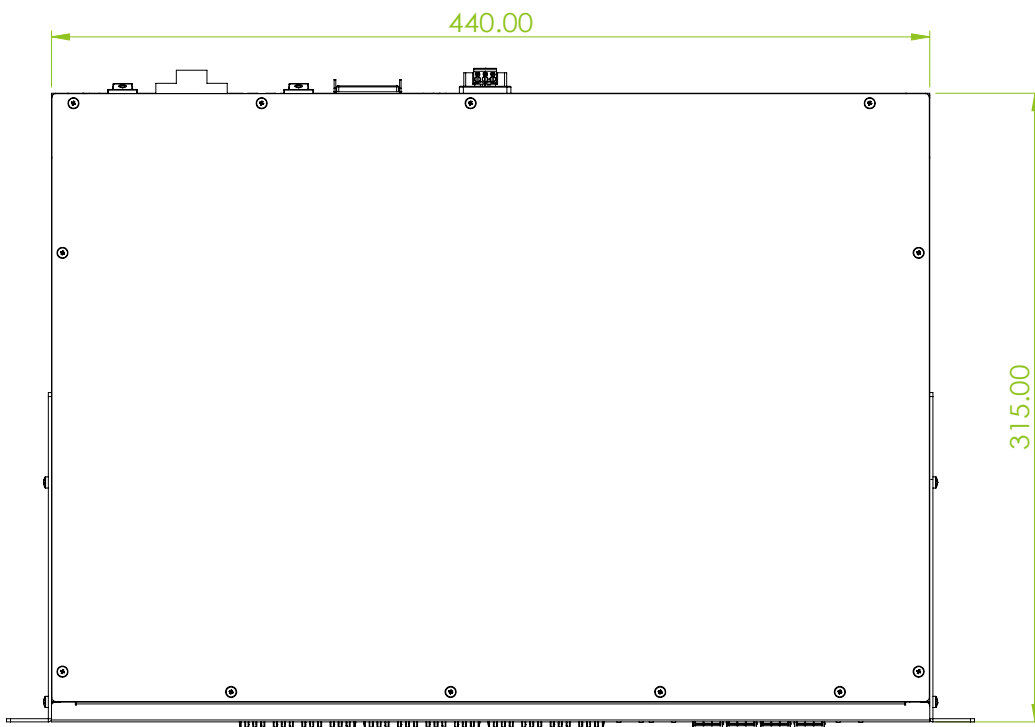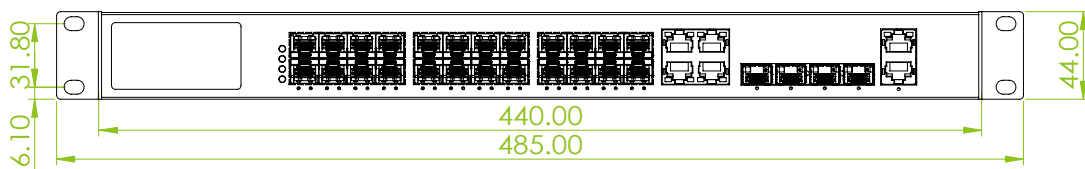
Ordering Information

Model Name	Managed	Total Port	SFP (1~20) 100/1000Base-X SFP	Combo Port (21~24) 10/100/1000 Base-T UTP or 100/1000Base-X SFP	Extension Port (25~28) 1000 Base-X SFP	Input Power DC (Low Volt) isolated 24/48VDC	Input Power High Volt 110/240VAC or 110/220VDC	Certification Railway EN50121-4	Certification Safety UL60950-1	Certification EN61000-6-2 EN61000-6-4	Certification CE FCC	Operating Temperture
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	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	V	-40~75°C

Model Naming Rule

IGS — S 28 04T M — E AD

AA: A + A
DD: D + D
AD: A + D
(A:110/220VAC or 110/220VDC
D:Isolated 24/48VDC)

Industrial Gigabit Switch

S: GbE SFP
28: 28x SFP
04T: 4x UTP
M: Managed
E: -40~75°C
Blank: -10~60°C
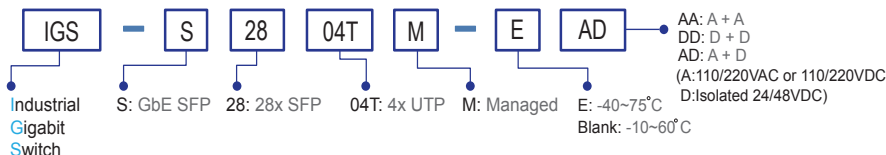
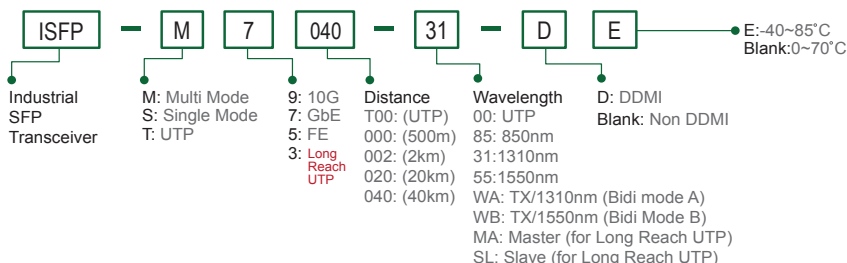## Optional Accessories

■ Industrial Power Supply

DR-4524	Industrial Power, Input 85 ~ 264VAC, Output 24VDC, 48W, -10 ~ +50°C
MDR-40-24	Industrial Power, Input 85 ~ 264VAC, Output 24VDC, 40W, -20 ~ +70°C

■ 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 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)
ISFP-T3T00-MA-(E)	Industrial SFP 100Mbps, long reach UTP (2 wire) (500meter) , Master, -10~70°C (-40~85°C)
ISFP-T3T00-SL-(E)	Industrial SFP 100Mbps, long reach UTP (2 wire) (500meter) , Slave, -10~70°C (-40~85°C)

SFP Naming Rule

ISFP — M 7 040 — 31 — D E

E:-40~85°C
Blank:0~70°C

Industrial SFP Transceiver

M: Multi Mode
S: Single Mode
T: UTP

9: 10G
7: GbE
5: FE
3: Long Reach UTP

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)
MA: Master (for Long Reach UTP)
SL: Slave (for Long Reach UTP)

D: DDMI
Blank: Non DDMI

Package List

- IGS-S8204TM device
- Console cable (RJ-45 to DB9)
- CD (SmartConfig, MIB file, Manual)
- Quickly installation guide
- Rack mount ear with screws
- Power cord (for-A model)