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CONNECTION TECHNOLOGY SYSTEMS

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IPS-3112-SE-8BT

8 x 1000/100/10MBase-T RJ-45 with
IEEE 802.3af/at/bt PoE injector +
4 x 1000/100MBase-X SFP
Managed Industrial PoE Switch

Description

The CTS IPS-3112-SE-8BT is a Layer 2 managed industrial switch designed for demanding environments that require reliable networking, efficient power management, and high-speed data transmission. With advanced redundancy, security, and management features, it ensures stable operation for critical applications.

Interface

Featuring four 100/1000M SFP slots and eight RJ-45 ports with 10/100/1000 Mbps speeds, the switch supports IEEE 802.3af/at/bt PoE, delivering up to 90W per port and a total power budget of 300W. An RS-232 console port allows easy configuration, while a digital output alarm relay enhances monitoring.

High-Power PoE with Intelligent Management

Supporting IEEE 802.3bt PoE++, the switch offers flexible power allocation, per-port power scheduling, and real-time diagnostics for stable device operation. This ensures efficient energy use while simplifying power distribution across connected devices.

Ideal Applications

With an operating temperature range of -40°C to 75°C and a durable aluminum housing, the switch is ideal for transportation, surveillance, automation, and public infrastructure. Its 24Gbps switching capacity, Layer 2 redundancy, and advanced traffic management ensure stable and efficient network performance.

Key Features

■ Gigabit SFP Fiber Uplinks

IPS-3112-SE-8BT is equipped with four 1000Base-X SFP slots, providing versatile fiber connectivity for long-distance data backhaul. The redundant uplink design ensures network reliability and enables smooth integration into existing Gigabit fiber infrastructures.

■ High-Power IEEE 802.3bt PoE++ Solution

Equipped with 8-port IEEE 802.3bt PoE++, the system delivers up to 90W per port with a 300W total budget. It provides stable and robust power for high-performance devices, including PTZ cameras and Wi-Fi 6/7 equipment.

■ Industrial Operating Temperature Range

Built with industrial-grade components, the device operates reliably within a wide temperature range of -40°C to 75°C. The IP30 aluminum housing and fanless design ensure stable performance in demanding indoor or outdoor environments.

■ Intelligent PoE Monitoring and Management

The management interface allows real-time tracking of PoE consumption and status. It supports advanced functions such as power scheduling and per-port priority settings to optimize energy efficiency and system reliability.

■ Comprehensive Layer 2 Management and Security

The switch supports a full suite of Layer 2 features, including VLAN translation, Q-in-Q, and advanced security protocols such as 802.1x RADIUS and DHCP Snooping. These features provide network administrators with granular control and protection against unauthorized access.

■ Robust Power Redundancy and Alarm System

Equipped with dual DC power inputs (48~57 VDC) and a digital output alarm relay, the device ensures maximum uptime. The system can immediately trigger alerts for power failures or port links down, allowing for rapid response to critical events.

■ Targeted Applications

• High-performance Gigabit fiber backhaul and 90W PoE++ infrastructure for intelligent transportation systems (ITS), Wi-Fi 6/7 wireless networks, and industrial automation in extreme-temperature environments.

Specification

Interface

Fiber Port
- 4 x 1000/100MBase-X SFP

RJ-45 Port
- 8 x 1000/100/10Base-T RJ-45 with IEEE 802.3af/at/bt PoE injector

Console Port
- 1 x RS-232 to RJ-45 Serial Port

Terminal Block
- 1 x Digital Output (Alarm Relay)
  Relay output with current carrying capacity of 1 A @ 24 VDC

Standards
- IEEE 802.3ab 1000Base-T
- IEEE 802.3z 1000Base-X
- IEEE 802.3u 100Base-TX
- IEEE 802.3u 100Base-FX
- IEEE 802.3 10Base-T
- IEEE 802.3x Flow Control
- IEEE 802.3ad LACP
- IEEE 802.1ab LLDP
- IEEE 802.1p Priority
- IEEE 802.1q Tag VLAN
- IEEE 802.1d STP
- IEEE 802.1w RSTP
- IEEE 802.1x Port-Based Network Access Control
- IEEE 802.3af Power over Ethernet
- IEEE 802.3at Power over Ethernet +
- IEEE 802.3bt Power over Ethernet ++
- ITU-T G.8032 Ethernet Ring Protection Switching *

H/W Specification

- MAC Address Table: 16K
- Non-Blocking Switching Fabric: 24Gbps
- Throughput @ 64Bytes: 17.85Mpps
- Packet Buffer: 1.5 MB
- Jumbo Frame: 12 KB
- Store and Forward Switching Mechanism
- Auto-Cross Over for MDI/MDIX in TP Ports
- Auto-Negotiation in TP Ports
- Full/Half Duplex Mode Operation

LED

- P1, P2, STA, ALM, Ring, Ring Master, COM, Link/Act/Speed, PoE

Forward/Filter Rate

- 1G Port: 1.488 Mpps (1,488,095 pps)
- 100M Port: 0.1488 Mpps (148,810 pps)
- 10M Port: 0.01488 Mpps (14,881 pps)

Power over Ethernet

- Total PoE Power Budget: 300W
- Max. PoE output (per port): 90W

Layer 2 Switch Features

Port Management
- State, Description, Media Type, Port Type, Speed, Duplex and Flow Control

Network Redundancy
- STP (Spanning Tree Protocol)
- RSTP (Rapid Spanning Tree Protocol)
- MSTP (Multiple Spanning Tree Protocol)
- Fast Ring v2/Chain Redundancy Protocols
- Static Port Trunking / Dynamic LACP Trunk
  Up to 6 Aggregation Groups, Max 8 Ports per Group
- ERPS *

VLAN
- IEEE 802.1q VLAN
  VLAN ID: 4094 IDs
  VLAN Concurrent Groups: 4K VLAN Groups
- Port-Based VLAN
- VLAN Translation
- Q-in-Q Double tag with Configurable Ether Type
- Selective Q-in-Q

QoS
- QoS based on 802.1p CoS and DSCP
- Scheduling Algorithm
  Weighted Round Robin (WRR)
  Strict Priority Queuing (SPQ)
- QoS Priority Queues: 8 Queues
- 802.1p P-bit & DSCP Remarking
- Port-Based Rate Limit (Ingress/Egress)

Multicast
- IGMP Snooping v1/v2/v3
- MLD Snooping v1/v2
- IGMP/MLD Fast Leave and Querier
- IGMP/MLD Snooping Group: 512/128 Groups
- IP Multicast Filter with Segment and Profile
- Static Multicast Group
- Multicast VLAN Registration (MVR)

IPv6 Feature
- IPv6 Over Ethernet (RFC 2464)
- IPv6 Addressing Architecture (RFC 4291)
- IPv6 Dual Stack (RFC 4213)
- ICMPv6 (RFC 4884)
- Path MTU Discovery for IPv6 (RFC 1981)
- Neighbour Discovery (RFC 4861)
- DHCPv6 Client

Layer 2 Protocol Tunnelling
- CDP, LLDP, STP, VTP, LACP, PAgP, UDLD

Access Control List
- Physical Port, Ether Type, MAC Address, VID, ToS/Traffic Class, Protocol Type, L4 Port and IP Address
- ACL Entries (IPv4: 64 Entries; IPv6: 32 Entries)

Security

- 802.1x RADIUS Authentication
  802.1x Port Base Access Control
  802.1x MAC Authentication Bypass (MAB)
  RADIUS-Assigned VLAN with Fallback Support
- RADIUS/TACACS+ Authentication for login username/password
- DHCP Snooping and DHCP Server Trust Port
- DHCP Snooping Relay Agent
  DHCPv4 Option 82 with Configurable circuit and Remote ID
  DHCPv6 Option 37/18 with Configurable interface and Remote ID
- IP Source Binding
- IP Source Guard
- Port Isolation
- Port Link Flap
- Port Linkup Delay
- Storm Control (Unknown Unicast/Multicast, Broadcast)
- MAC Limiter
- Loop Detection

Management

- Web: HTTP/HTTPS (TLS 1.3)
- CLI: Console/Telnet/SSH v2
- SNMP: v1, v2c, v3 (Traps supported)
- SNTP with Daylight Saving Time
- Layer 2 Control Protocol Filter
- LLDP

Upgrade/Restore
- Firmware Upgrade/Downgrade
  HTTP/HTTPS/FTP/TFTP
  DHCP Auto-provision via DHCPv4 Option 60/43 & DHCPv6 Option 16/17
- Configuration Upload/Backup
  HTTP/HTTPS/FTP/TFTP
  DHCP Auto-provision via DHCPv4 Option 60/43 & DHCPv6 Option 16/17
- Auto configure backup
  FTP/TFTP

PoE Management

- Configurable total PoE budget
- System/per port PoE off/on by schedule/manually
- PoE Usage Alarm Threshold
- PoE Inline Mode Auto, Fix, Force
- PoE Priority Critical/High/Low
- PoE Consumption History

Maintenance

Diagnostics
- Port Mirror
- ICMP Ping, Traceroute
- Event Log
- Port Link Flap Log
- Syslog
- SFP SFF-8472 DDMI Monitor
  Temp/Voltage/TX Bias/TX Power/RX Power
- CPU Temperature/Utilization
- Memory Statistics
- System Voltage
- Digital Output
  Event Trigger (Power 1/2 Down, Port Down)
- Cable Diagnostic

Power Requirement

Dual DC Input: 48~57 VDC **
(4-pin removable terminal block)
- Power Consumption: full-load ≤ 313W (1068 BTU/h)

Environmental Condition

- Operation: -40˚C ~ 75˚C
- Storage: -40˚C ~ 85˚C
- Humidity: 5% ~ 90%, Non-condensing

Dimension & Weight

- Size: 85.5 x 110 x 135 mm (W x D x H)
- Weight: 1.54 Kg
- Housing: Aluminium, IP30

Standards and Certifications

CE/FCC Class A
- Safety: EN/IEC 62368-1
- EMC: EN 55032 / EN 55035

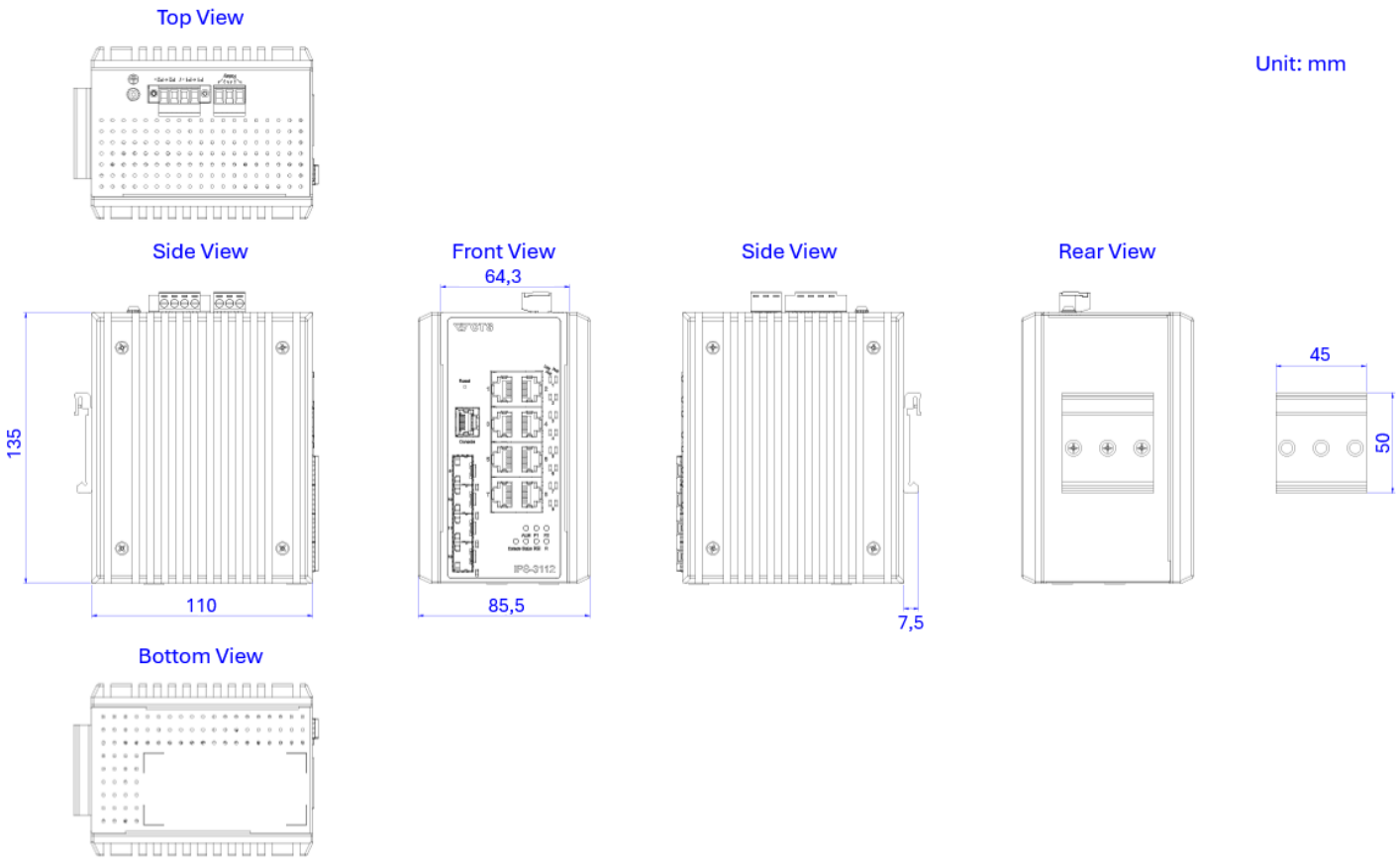
UKCA/RCM

RoHS 2.0

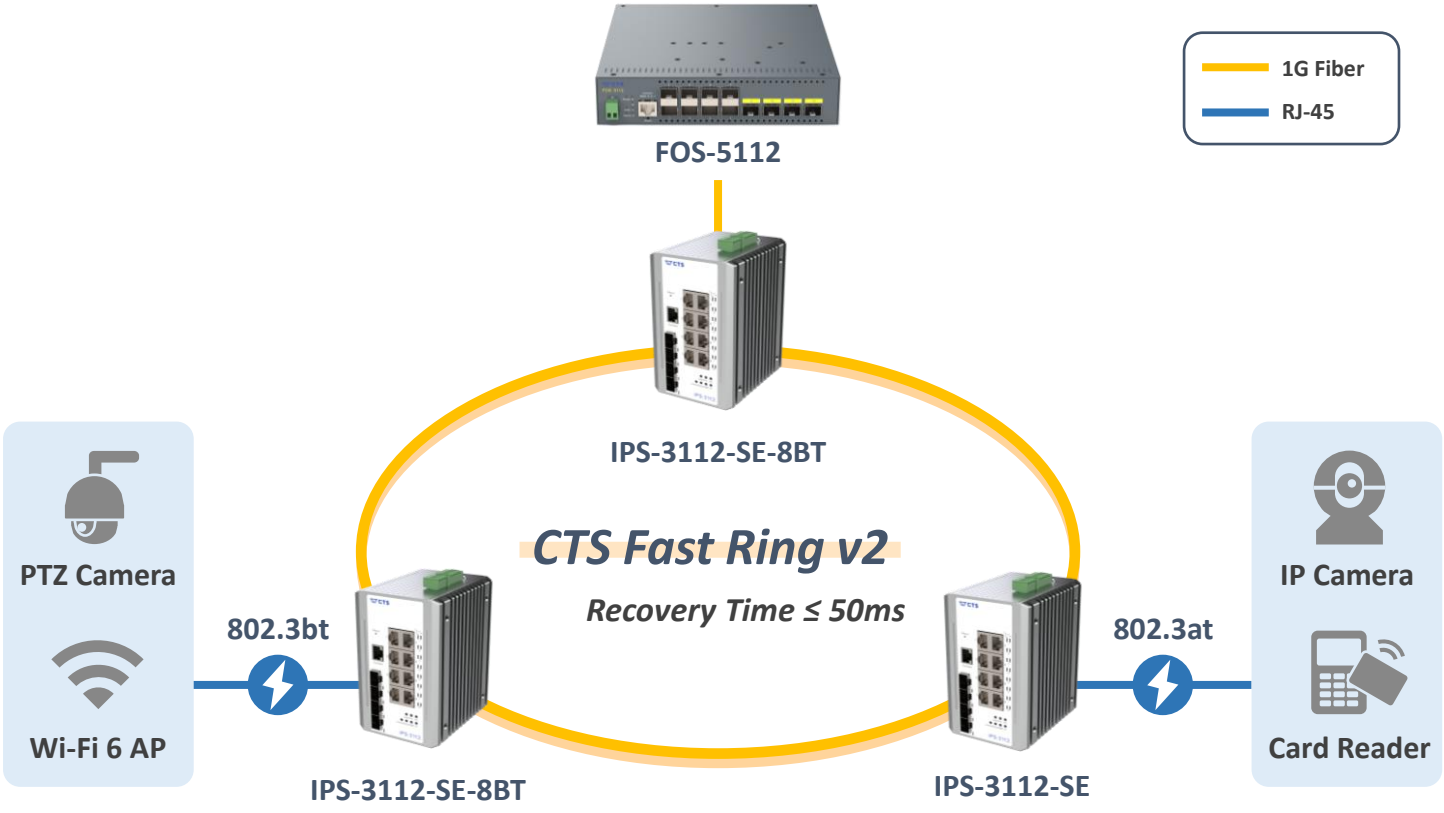
* Coming soon
** > 50VDC for 802.3at PoE+ and > 52VDC for 802.3bt PoE++ output recommended

Dimension

Unit: mm



Application Diagram



Order Information

Model	Fiber Port			TP Port		Support Power Source
	Speed	Type	Slots	Speed	Ports	
IPS-3112-SE-8BT	1000/100Mbps	SFP	4	1000/100/10Mbps	8 with 802.3af/at/bt Injector	2 x 48~57V DC with removable terminal block

Accessory

SFP-31-D

Model	Specification					
	Speed	Type	Connector	Distance	Wavelength	Operating Temperature
SFP-31FC-D	1000Mbps	MM	LC	550M	850nm	-40˚C ~ 85˚C
SFP-31FC(MM-02)-D	1000Mbps	MM	LC	2KM	1310nm	-40˚C ~ 85˚C
SFP-31FC(SM-10/20)-D	1000Mbps	SM	LC	10/20KM	1310/1310nm	-40˚C ~ 85˚C
SFP-31W2A(SM-10/20)-D	1000Mbps	WDM	LC	10/20KM	TX: 1310/1310nm RX: 1550/1550nm	-40˚C ~ 85˚C
SFP-31W2B(SM-10/20)-D	1000Mbps	WDM	LC	10/20KM	TX: 1550/1550nm RX: 1310/1310nm	-40˚C ~ 85˚C

Power Supply

Model	Output Voltage Range	Maximum Output Watt	Operating Temperature
SDR-480-48	48~55V	480W	-25˚C ~ 70˚C
SDR-240-48	48~55V	240W	-25˚C ~ 70˚C
SDR-120-48	48~55V	120W	-25˚C ~ 70˚C
SDR-75-48	48~55V	75W	-25˚C ~ 70˚C
NDR-480-48	48~55V	480W	-20˚C ~ 70˚C
NDR-240-48	48~55V	240W	-20˚C ~ 70˚C
NDR-120-48	48~55V	120W	-20˚C ~ 70˚C
NDR-75-48	48~55V	75W	-20˚C ~ 70˚C
MDR-60-48	48~56V	60W	-20˚C ~ 70˚C

NOTE: Please refer to the power supply datasheet for details regarding the operating temperature and derating curve. Subsequently, choose the suitable power supply based on your specific requirements and operating environment.

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