CTS
CONNECTION TECHNOLOGY SYSTEMS

www.ctsystem.com

IPS-5112-8BT

8 x 1000/100/10MBase-T RJ-45 with
IEEE 802.3af/at/bt PoE injector +
4 x 10/1GBase-X SFP+
Managed Industrial PoE Switch

Description

The CTS IPS-5112-8BT 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 10/1G SFP+ slots for high-speed uplinks 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 96Gbps switching capacity, Layer 2 redundancy, and advanced traffic management ensure stable and efficient network performance.

Key Features

■ High-Speed 10G Fiber Uplink

IPS-5112-8BT features four 10G SFP+ slots, providing high-bandwidth connectivity for backbone networks. This ensures smooth data transmission for bandwidth-demanding applications such as IP surveillance and high-speed wireless access points.

■ 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-bandwidth 10G fiber backhaul and 90W PoE++ infrastructure for intelligent transportation systems (ITS), Wi-Fi 6/7 wireless networks, and extreme-temperature industrial settings.

Specification

Interface

Fiber Port
- 4 x 10/1GBase-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 802.3ae 10GBase-R
- IEEE 802.3ab 1000Base-T
- IEEE 802.3z 1000Base-X
- IEEE 802.3u 100Base-TX
- 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: 96Gbps
- Throughput @ 64Bytes: 71.4Mpps
- 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

- 10G Port: 14.88 Mpps (14,880,952 pps)
- 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 ≤ 315W (1075 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

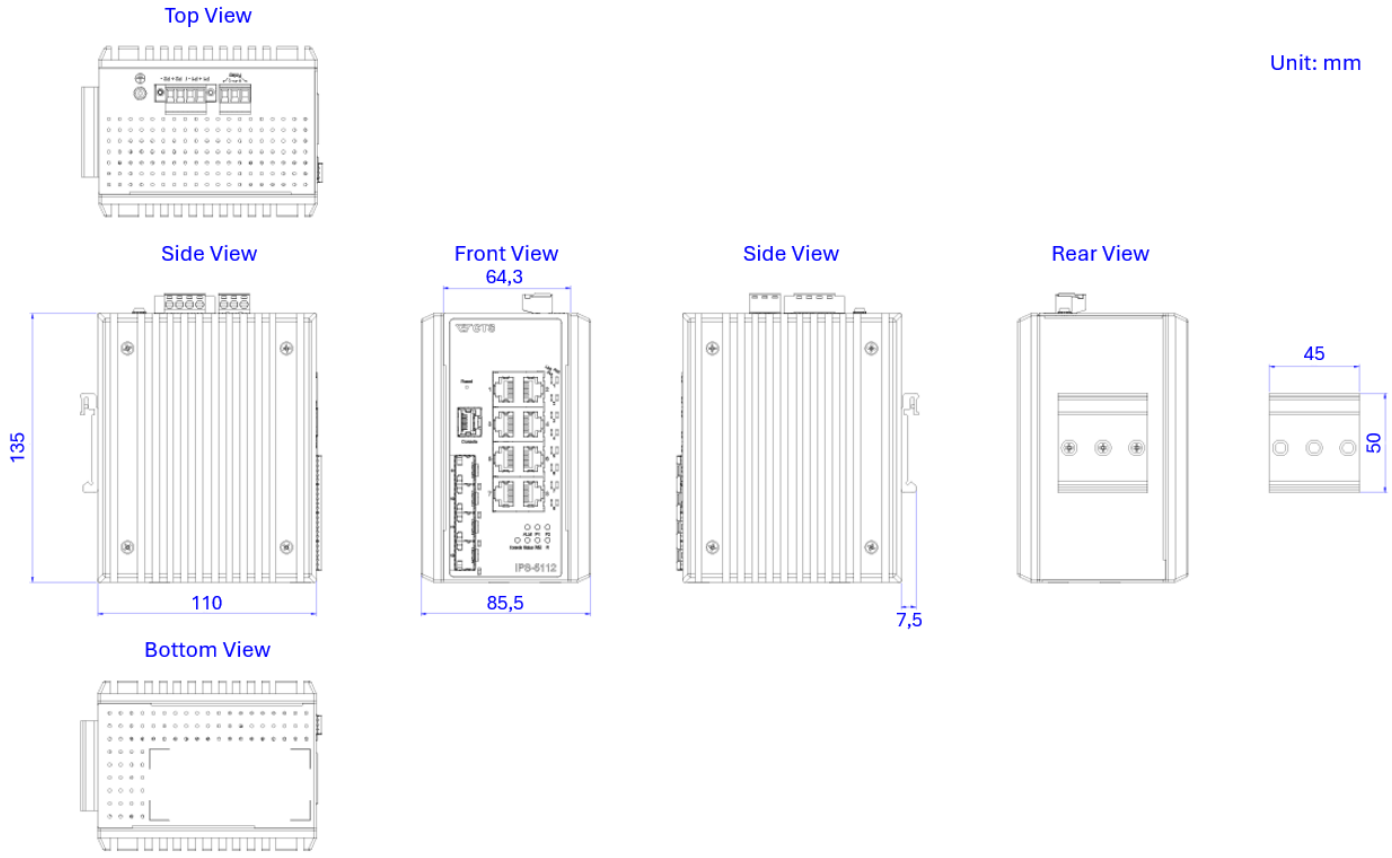
UKCA/RCM

RoHS 2.0

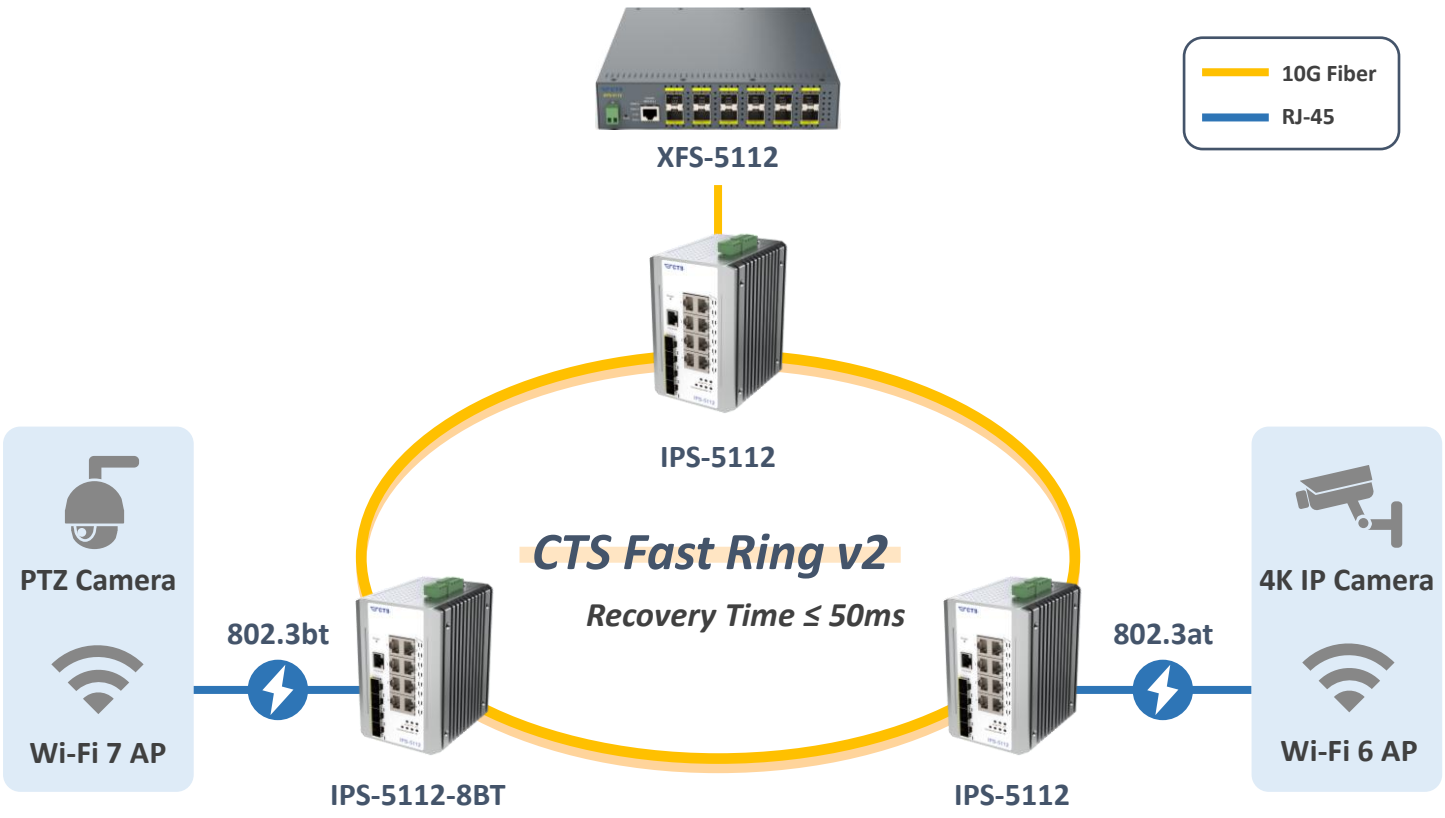
* Coming soon
** > 50VDC for 802.3at PoE+ and > 52VDC for 802.3bt PoE++ output recommended

Dimension

Unit: mm



Application Diagram



Order Information

Model	Fiber Port			TP Port		Support Power Source
	Speed	Type	Slots	Speed	Ports	
IPS-5112-8BT	10/1Gbps	SFP+	4	1000/100/10Mbps	8 with 802.3af/at/bt Injector	2 x 48~57V DC with removable terminal block

Accessory

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.

Connection Technology Systems Inc. (HQ)
Tel.: +886-2-2698-9661
E-mail: cts_esales@ctsystem.com
info@ctsystem.com
Sales Direct Line: +886-2-26989201

Connection Technology Systems NE AB
Tel: +46-31-221980
E-mail: info@ctsystem.se

Connection Technology Systems CE GmbH
Tel: +43 1 343 9553 50
E-mail: cts_ce@ctsystem.com

Connection Technology Systems Japan
Tel: +81-6-6450-8890
E-mail: cts_japan@ctsystem.com

Connection Technology Systems India Private Limited
E-mail: cts_in@ctsystem.com