EPS-5112-8BT

8 x 1000/100/10MBase-T RJ-45

with IEEE 802.3af/at/bt PoE++ Injector +

2 x 10G/5G/2.5G/1G/100M Base-T RJ-45 +

2 x 10G/1GBase-R SFP+

Managed Layer 2 PoE Switch

Description

Connection Technology Systems (CTS) EPS-5112-8BT is a layer 2 managed PoE switch equipped with 8 ports of 10/100/1000Base-T RJ-45 with IEEE 802.3af/at/bt PoE injector, 2 ports of 100M/1G/2.5G/5G/10GBase-T (compliant with NBase-T standard), and 2 ports of 1/10GBase-R SFP+. The SFP+ slots can accommodate a wide range of SFP/SFP+ transceivers including single-mode, multi-mode, and WDM.

As bandwidth demand soars to new heights, 2 x 100M/1G/2.5G/5G/10GBase-T ports allow users to get up to the speed of 2.5/5Gbps. The multi-speed interfaces hence facilitate various network settings and applications, pushing through the bottleneck of 1Gbps with the same, predominant UTP Cat 5e/6 cables in the most cost-effective approach possible.

The EPS-5112-8BT has 8 10/100/1000Base-T RJ-45 ports that support the IEEE 802.3bt PoE++ standard technology, it can provides PoE power output up to 90 watts of power by using all the four pairs of standard Ethernet cabling to deliver power with up to 1Gbps speed for each remote PoE compliant powered device (PD). Plus, EPS-5112-8BT is 8.5 inches in width, altogether making it the best solution for network infrastructure often hindered by scarce installation space.

For the VLAN functionality, VLAN Translation allows service providers to implement metro Ethernet services by translating the original VLAN ID to a new VLAN ID with different priorities for different customers, whereas Selective Q-in-Q enables operators to differentiate various types of users (home/enterprise) and service levels by encapsulating VLAN tags.

With multicast networking, the model supports IGMP snooping, IGMP fast leave, IGMP filtering, and MVR (Multicast VLAN Registration) to intelligently transmit multicast traffic and deliver the IPTV service.

Besides the CTS' unique Fast Redundancy (Fast Ring v2 / Chain protocols) that prompts better topology stability, EPS-5112-8BT also comes with intelligent diagnostics which deliver real-time SFP/SFP+ and CPU temperature/utilization monitoring and therefore identify possible link/system failures in advance. It simplifies network maintenance and improves connection reliability.

Furthermore, EPS-5112 is equipped with the Smart Fan function, enabling automatic fan speed control based on operating temperature, reduce consumption effectively.

EPS-5112-8BT can be easily operated with a web GUI, console, telnet CLI, and SNMP, optimizing the management experience.

Key Features

- **2 x 10G/5G/2.5G/1G/100MBase-T Multi-G Ports**

As bandwidth demand soars to new heights, 2 x 10G/5G/2.5G/1G/100MBase-T ports allow users to get up to the speed of 2.5/5Gbps. The multi-speed interfaces hence facilitate various network settings and applications, pushing through the bottleneck of 1Gbps with the same, predominant UTP Cat 5e/6 cables in the most cost-effective approach possible.

- **8 x 802.3bt PoE++ 90-watt PoE Ports**

The IEEE 802.3bt ideal solution can provides three times PoE++ power output more than the IEEE 802.3at PoE+ for high power consuming network PDs.

- **VLAN Functionality**

VLAN Translation allows service providers to implement metro Ethernet services by translating the original VLAN ID to a new VLAN ID with different priorities for different customers, whereas Selective Q-in-Q enables operators to differentiate various types of users (home/enterprise) and service levels by encapsulating VLAN tags.

- **Smart Fan With Auto-Speed Control**

Besides high quality fan to enhance heat dissipation, Smart Fan can adjust fan speed according to temperature to have better control of the device's power consumption and noise.

- **IPv4/IPv6 Dual Stack**

Support IPv6 management, packet forwarding, and MLD v1/v2 snooping.

- **Intelligent Diagnostics**

Greatly help network operators to monitor current CPU/memory utilization, power input voltage, system voltage, CPU temperature, and whether SFP/SFP+ transceiver parameter (e.g. temperature) is beyond or below the threshold.

- **IEEE 802.3ad Link Aggregation**

A cost-efficient way to increase bandwidth and reliability by grouping multiple links into one.

- **Multicast Networking**

Support IGMP snooping, IGMP fast leave, IGMP filtering, and MVR (Multicast VLAN Registration) to intelligently transmit multicast traffic and deliver IPTV service.

- **Targeted Applications**

- Power over Ethernet Implementations for SMBs and Enterprises.

Specification

■ Interface

RJ-45 Port
- 8 x 1000/100/10MBase-T RJ-45 with IEEE 802.3af/at/bt
  PoE++ injector
- 2 x 10G/5G/2.5G/1G/100MBase-T RJ-45

Fiber Port
- 2 x 10GBase-SR/LR SFP+ and compatible with 1000Base-X
  transceiver

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

Terminal Block
- 1 x Digital Input (Dry Contact)

Standards
- IEEE 802.3ae 10GBase-R
- IEEE 802.3an 10GBase-T
- IEEE 802.3bz 2.5G/5GBase-T (NBase-T)
- IEEE 802.3z 1000Base-X
- IEEE 802.3ab 1000Base-T
- IEEE 802.3u 100Base-TX
- IEEE 802.3 10Base-T
- IEEE 802.3x Flow Control
- IEEE 802.3ad Link Aggregation (LACP)
- IEEE 802.3ah OAM
- 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 ++

■ H/W Specification
- MAC Address Table: 16K
- Non-Blocking Switch Fabric: 96Gbps
- Throughput @ 64Bytes: 71.4Mpps
- Packet Buffer: 12Mbit
- Jumbo Frame: 12K Bytes
- 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
- Power, Status, COM, Link/Act/Speed, PoE

■ Ventilation
- Smart Fan
  1 x Speed auto-adjusting fan

■ Forward/Filter Rate
- 10G: 14,880,000/14,880,000pps
- 5G: 7,440,000/7,440,000pps
- 2.5G: 3,720,000/3,720,000pps
- 1G: 1,488,000/1,488,000pps
- 100M: 148,800/148,800pps
- 10M: 14,880/14,880pps

■ Power over Ethernet
- Total PoE budget: 200W

Per Port Power Pin Assignment
- IEEE 802.3af/at (mode A/end-span):
  1/2(-), 3/6(+)
  Max. PoE output Budget: 15/30W
- IEEE 802.3bt (4-pair mode, 4-pair mode mandatory):
  1/2(-), 3/6(+) & 4/5(+), 7/8(-)
  Max. PoE output Budget: 90W

■ Layer 2 Switch Features

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

Network Redundancy
- IEEE 802.1d Spanning Tree Protocol
- IEEE 802.1w Rapid 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

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 EtherType
- 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)

Specification

■ PoE Management
- System/per port PoE on/off
- PoE Usage Alarm Threshold
- PoE Port Start Up Sequence
- PoE Inline mode (Auto af/at, Auto bt, force, fix)
- PoE Priority, power on/off by schedule
- Statistics for Power/Energy Consumption

■ Security
- 802.1x RADIUS Authentication
  802.1x Port Base Access Control
  802.1x MAC Authentication Bypass (MAB)
  RADIUS-Assigned VLAN
- 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
- SNMP v1, v2c & v3 (Support Traps)
- Web (HTTP/HTTPS)
- CLI (Console/Telnet/SSHv2)
- SNTP with Daylight Saving Time
- Layer 2 Control Protocol Filter
- Static MAC Address Table
- LLDP
- CDP Monitor *

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

■ Maintenance
Diagnostic
- 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 Utilization/Temperature
- Memory Statistics
- FAN Speed
- System Voltage
- Digital Input (Normal Close/Open)
- Cable Diagnostics
- Port Loopback Test
- Ethernet OAM

■ Power Requirement
- AC Input: 100~240V, 50/60Hz, 2.5~1.2A
- Power Consumption: full-load ≤ 241W (822 BTU/h)

■ Environmental Condition
- Operation: 0˚C ~ 50˚C **
- Storage: -20˚C ~ 60˚C
- Humidity: 5% ~ 90%, Non-condensing

■ Dimension & Weight
- Size: 210 x 290 x 44 mm (W x D x H)
- Weight: 2.3 Kg

■ Standards and Certifications
CE/FCC Class A
- Safety: EN/IEC 62368-1
- EMC: EN 55032 / EN 55035
- ESD
  Air Discharge: +/- 8 kV
  Contact Discharge: +/- 4 kV
- EFT
  AC Input: +/- 1 kV
  Signal (RJ-45): +/- 0.5 kV
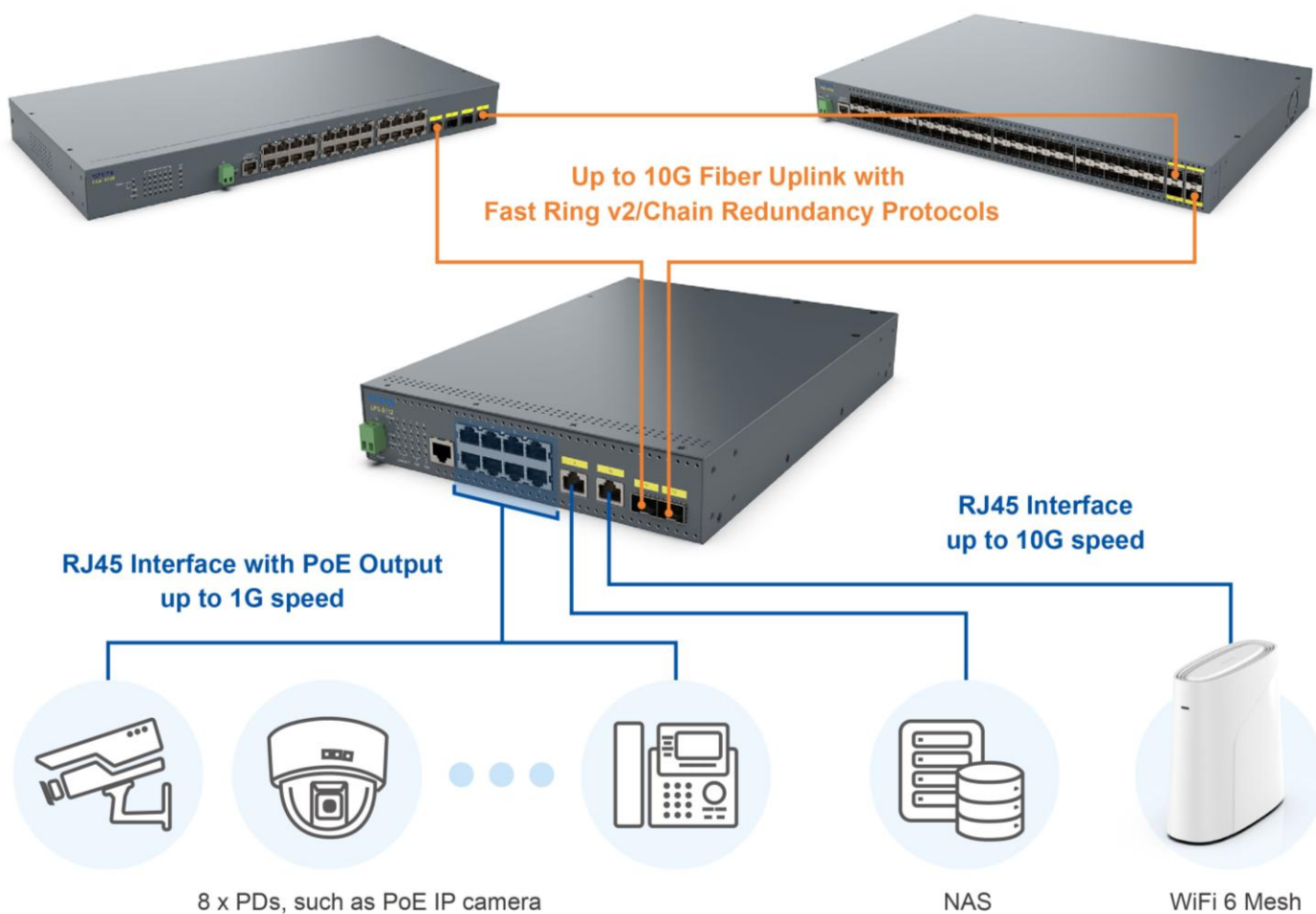- Surge Protection
  AC Input: +/- 2 kV
  Signal (RJ-45): +/- 1 kV

UKCA/RCM/VCCI

RoHS 2.0

* Coming soon

** Please use industrial SFP/SFP+ transceiver (operation
temperature can up to 85˚C) on SFP+ slots (port 11~12) when
EPS-5112-8BT is working under 45~50˚C.

Application Diagram

Up to 10G Fiber Uplink with
Fast Ring v2/Chain Redundancy Protocols

RJ45 Interface with PoE Output
up to 1G speed

RJ45 Interface
up to 10G speed

8 x PDs, such as PoE IP camera

NAS

WiFi 6 Mesh

Order Information

Model	Fiber Port			TP Port		Support Power Source
	Speed	Type	Slots	Speed	Ports	
EPS-5112-8BT-200W	10/1Gbps	SFP+	2	1000/100/10Mbps	8 with 802.3af/at/bt Injector	1 x Fixed Internal 100-240 VAC
				10G/5G/2.5G/1G/100Mbps	2	

Accessory

SFP-51

Model	Specification					
	Speed	Type	Connector	Distance	Wavelength	Operating Temperature
SFP-51FC	10Gbps	MM	LC	300M	850nm	0˚C ~ 70˚C
SFP-51FC(SM-10/20)	10Gbps	SM	LC	10/20KM	1310/1310nm	0˚C ~ 70˚C
SFP-51W2A(SM-10/20)	10Gbps	WDM	LC	10/20KM	TX: 1270/1270nm RX: 1330/1330nm	0˚C ~ 70˚C
SFP-51W2B(SM-10/20)	10Gbps	WDM	LC	10/20KM	TX: 1330/1330nm RX: 1270/1270nm	0˚C ~ 70˚C

SFP-31-DR

Model	Specification					
	Speed	Type	Connector	Distance	Wavelength	Operating Temperature
SFP-31FC-DR	100/1000Mbps	MM	LC	550M/2KM	1310nm	0˚C ~ 70˚C
SFP-31FC(SM-10)-DR	100/1000Mbps	SM	LC	10KM	1310nm	0˚C ~ 70˚C
SFP-31W2A(SM-10/20)-DR	100/1000Mbps	WDM	LC	10/20KM	TX: 1310/1310nm RX: 1550/1550nm	0˚C ~ 70˚C
SFP-31W2B(SM-10/20)-DR	100/1000Mbps	WDM	LC	10/20KM	TX: 1550/1550nm RX: 1310/1310nm	0˚C ~ 70˚C

* SFP-31-DR modules only support 1000Mbps on EPS-5112-8BT

SFP-31

Model	Specification					
	Speed	Type	Connector	Distance	Wavelength	Operating Temperature
SFP-31FC	1000Mbps	MM	LC	550M	850nm	0˚C ~ 70˚C
SFP-31FC(SM-10/20)	1000Mbps	SM	LC	10/20KM	1310/1310nm	0˚C ~ 70˚C
SFP-31W2A(SM-10/20)	1000Mbps	WDM	LC	10/20KM	TX: 1310/1310nm RX: 1550/1550nm	0˚C ~ 70˚C
SFP-31W2B(SM-10/20)	1000Mbps	WDM	LC	10/20KM	TX: 1550/1550nm RX: 1310/1310nm	0˚C ~ 70˚C

Accessory

SFP-31-D

Model	Specification					
	Speed	Type	Connector	Distance	Wavelength	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