



## Description

Connection Technology Systems (CTS) EPS-3128 is a layer 2 Gigabit PoE switch equipped with 24 10/100/1000Base-T ports featuring 30-watt 802.3at PoE+ and 4 Gigabit TP/SFP combo ports.

EPS-3128 provides complete functionality and reliable Power over Ethernet network solution with 240/480W total PoE budget for small businesses and enterprises.

EPS-3128 supports PoE scheduling, power budget allocating, priority functions for operator to control and manage all connected devices over IP PoE network.

With the support of reliable fast ring and chain protocol, recovery time is reduce to less than 50 milliseconds to ensure critical surveillance video uninterrupted.

Advanced features including Multicast IGMP, QoS classifications and rate limit control help service providers to deploy and manage network efficiently in order to deliver quality triple-play service.

In order to provide extra security, EPS-3128 comes with Q-in-Q feature. This feature enables operator to separate different services at layer 2 level regardless what VLAN setting end customers have.

With carrier-grade design while keeping user-friendly for administrators, EPS-3128 can be easily managed by web, console, telnet, SSH, SNMP v1/v2c/v3 and DHCP auto-provision.

## EPS-3128

24 x 1000/100/10MBase-T RJ-45  
with IEEE 802.3af/at PoE+ Injector +  
4 x 1G SFP/TP Combo Managed Switch

# Key Features

## ■ IPv4/IPv6 Dual Stack

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

## ■ Fast Recovery for Critical Redundant Network

Supports Fast Ring v2 and chain protocol, greatly reduce recovery time to less than 50 milliseconds and the ability to support up to 200 nodes.

## ■ IEEE 802.3af/at PoE/PSE

Supports IEEE 802.3af/at PoE/PSE feature to feed power to remote devices which facilitate deployment in power unreachable environment.

## ■ PoE Management

PoE Management features a diversity of functions such as alarm threshold, port priority, quick control, and schedule-based PoE. These features enable users to manage PoE more efficiently.

## ■ Multimedia Streaming Facilitated Functions

Support IGMP snooping, IGMP fast leave, IGMP filtering to intelligently transmit multicast traffic and deliver IPTV service.

## ■ VLAN Translation

Allow service providers to implement Metro Ethernet service by translates the original VLAN ID to new VLAN ID with different priority for different customers.

## ■ IEEE 802.3ad Link Aggregation

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

## ■ Targeted Applications

- PoE-enabled device deployments such as IP Surveillance or Wireless AP.

# Specification

## ■ Interface

### RJ-45 Port

- 24 x 1000/100/10MBase-T RJ-45 with IEEE 802.3af/at PoE+ injector

### Combo Port

- 4 x 1000/100Base-X SFP, or
- 4 x 1000/100/10Base-T RJ-45

### Console Port

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

### Standards

- IEEE 802.3z 1000Base-X
- IEEE 802.3ab 1000Base-T
- IEEE 802.3u 100Base-TX/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 +

## ■ H/W Specification

- MAC Address Table: 16K
- Non-Blocking Switch Fabric: 56 Gbps
- Throughput @ 64Bytes: 41.6 Mpps
- Packet Buffer: 1.5 MB
- Jumbo Frame: 9 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
- Surge Protection in Ethernet Port (for -LP models)

## ■ LED

- Power A/B , Status, 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

### Max. PoE Budget

- 240W @ 40°C, 210W at 50°C (EPS-3128-240W)
- 480W @ 40°C, 420W at 50°C (EPS-3128-480W)

### Per Port Power Pin Assignment

- IEEE 802.3af/at (mode A/end-span):  
1/2(-), 3/6(+)  
PoE output Budget per port: 15/30W

## ■ 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)
- Fast Ring v2/Chain Redundancy Protocols
- Static Port Trunking / Dynamic LACP Trunk
- Up to 14 Aggregation Groups, Max. 8 Ports per Group

### VLAN

- IEEE 802.1q VLAN
- VLAN ID: 4094 IDs
- VLAN Concurrent Groups: 2K VLAN Groups
- Port-Based VLAN
- VLAN Translation
- Q-in-Q Double tag with Configurable Ether Type

### 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

### 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: 128 Entries; IPv6: 64 Entries)

# Specification

## ■ PoE Management

- System/per port PoE on/off
- PoE Alarm Threshold
- Configurable PD Name
- PoE Priority, power on/off by schedule

## ■ Security

- 802.1x RADIUS Authentication
  - 802.1x Port Base Access Control
- 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
- PPPoE-IA Server Trust Port

## ■ Management

- Web: HTTP/HTTPS (TLS 1.2)
- CLI: Console/Telnet/SSH v2
- SNMP: v1, v2c, v3 (Traps supported)
- SNTP with Daylight Saving Time
- Layer 2 Control Protocol Filter
- Static MAC Address Table
- 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

## ■ 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 Utilization
- Memory Statistics

## ■ Power Requirement

- AC Input: 100~240V, 50/60Hz

### Power Consumption

- EPS-3128-240W: full-load ≤ 260W (887 BTU/h)
- EPS-3128-480W: full-load ≤ 500W (1706 BTU/h)

## ■ Environmental Condition

- Operation: 0°C ~ 50°C
- Storage: -20°C ~ 60°C
- Humidity: 5% ~ 90%, Non-condensing

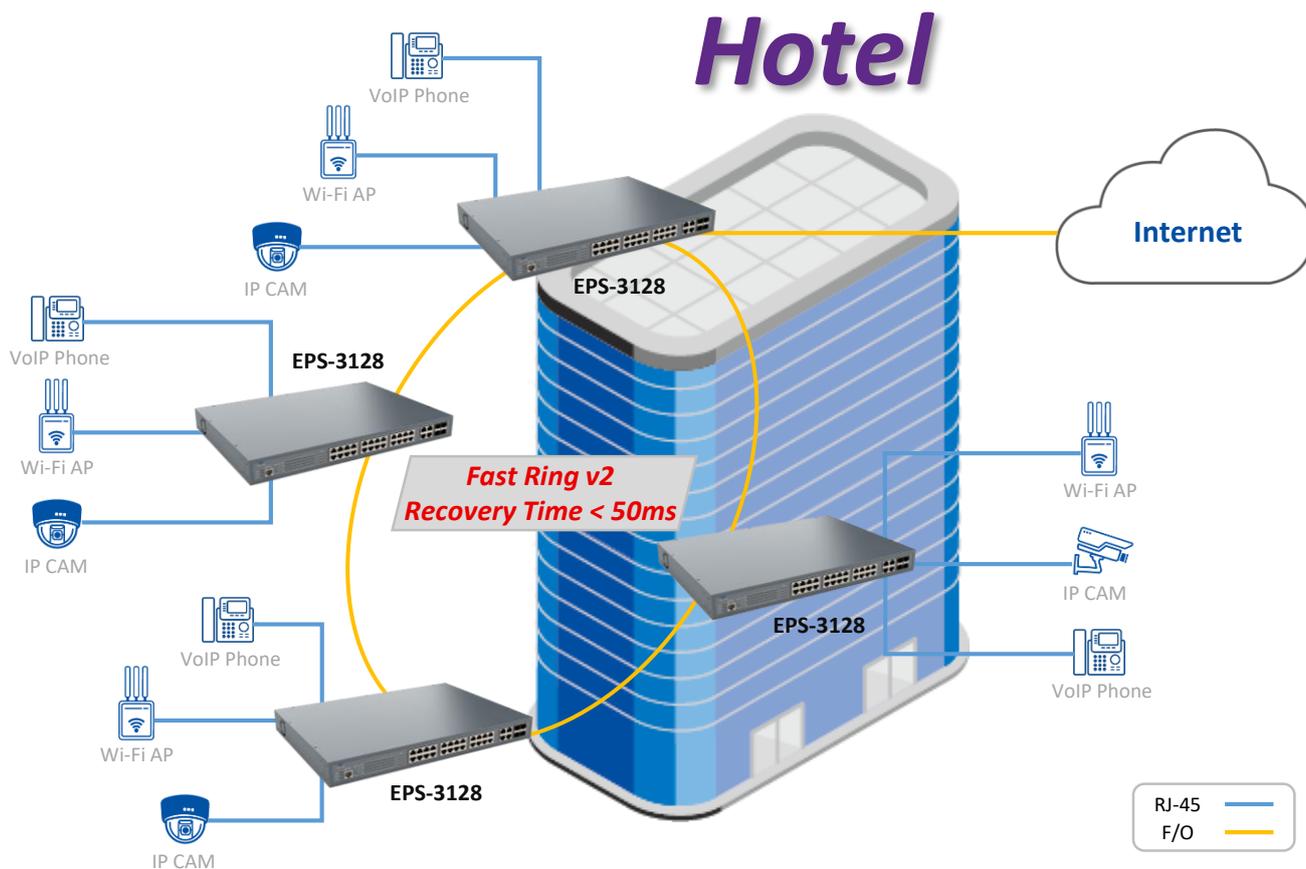
## ■ Dimension & Weight

- Size: 440 x 310 x 44 mm (W x D x H)
- Weight: 4.8 Kg

## ■ Standards and Certifications

- CE/FCC Class A, RoHS 2.0

# Application Diagram



## Order Information

Model	TP Port		SFP/TP Combo Port *			Support Power Source
	Speed	Ports	Speed	Type	Ports	
EPS-3128-240W	1000/100/10Mbps	24 x 802.3af/at	1000/100Mbps	SFP	4	1 x Fixed Internal 100-240 VAC
			1000/100/10Mbps	TP	4	
EPS-3128-480W	1000/100/10Mbps	24 x 802.3af/at	1000/100Mbps	SFP	4	1 x Fixed Internal 100-240 VAC
			1000/100/10Mbps	TP	4	
EPS-3128-240W-LP **	1000/100/10Mbps	24 x 802.3af/at	1000/100Mbps	SFP	4	1 x Fixed Internal 100-240 VAC
			1000/100/10Mbps	TP	4	
EPS-3128-480W-LP **	1000/100/10Mbps	24 x 802.3af/at	1000/100Mbps	SFP	4	1 x Fixed Internal 100-240 VAC
			1000/100/10Mbps	TP	4	

\* The combo port supports either TP (RJ-45) or SFP connectivity, but cannot operate both simultaneously.

\*\* Surge Protection in Ethernet Port.

# Accessory

## 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

Model	Specification					
	Speed	Type	Connector	Distance	Wavelength	Operating Temperature
SFP-31FC	1000Mbps	MM	LC	550M	850nm	0°C ~ 70°C
SFP-31FC(SM-10/20/40)	1000Mbps	SM	LC	10/20/40KM	1310/1310/1310nm	0°C ~ 70°C
SFP-31W2A(SM-10/20/40)	1000Mbps	WDM	LC	10/20/40KM	TX: 1310/1310/1310nm RX: 1550/1550/1550nm	0°C ~ 70°C
SFP-31W2B(SM-10/20/40)	1000Mbps	WDM	LC	10/20/40KM	TX: 1550/1550/1550nm RX: 1310/1310/1310nm	0°C ~ 70°C

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