CTS
CONNECTION TECHNOLOGY SYSTEMS

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# IPS-3106-SE

4 x 10/100/1000Base-T RJ-45 with
IEEE 802.3af/at PoE injector +
2 x 100/1000Base-X SFP Slot
Managed Industrial Switch

## Description

Connection Technology Systems (CTS) IPS-3106-SE Industrial PoE Switch is the 4 x 10/100/1000Base-T RJ-45 with 802.3af/at PoE injector + 2 x 100/1000Base-X SFP slot Industrial PoE Managed Switch.

The IPS-3106-SE switches the traditional twist-pair RJ-45 cable into various fiber optics media. It offers easy management of uplink port (2 x port fiber). The fiber optical port of IPS-3106-SE can support various connection distances via multi-mode fiber, single-mode fiber or Bi-directional single-mode fiber for the deployment to the control room, warehouse or factory.

The IPS-3106-SE Industrial PoE Switch is designed for deployment at industrial sites. With DIN-rail mounting, you can easily mount the Industrial PoE Switch at your sites such as factory or warehouse. The terminal blocks provide power redundancy to prevent any possible power outage and digital input/output to serve as an alarm.

The IPS-3106-SE Industrial PoE Switch provides perfect solution for delivering power over Ethernet for IP cameras, Wi-Fi access points or IP phones at an extended operating temperature (-40˚C ~ 75˚C) to withstand against harsh environment for better performance. The IPS-3106-SE is fully compliant with IEEE standards such as IEEE 802.3/802.3u/802.3ab/802.3z to ensure interoperability between network devices.

The IPS-3106-SE Industrial PoE Switch provides easy management ways via telnet CLI and SNMP. Combined with rich L2+ features and reliable management functions, the IPS-3106-SE will significantly help save OPEX (operational cost) for network administrators.

# Features

- **IEEE 802.3ad Link Aggregation**

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

- **Dual Power Input from DC 48V to 54V**

Two sets of power inputs ranging from DC 48V ~ 54V bring you the seamless transition of power supply in case of a sudden outage on either set of power inputs.

- **Compatible with IEEE 802.3af/at PoE+**

The support of IEEE802.3at/af PoE+ standard enables safe transfer of electrical power and the transmission of digital data over Ethernet cable.

- **Extended Operation Temperature -40˚C ~ 75˚C**

The extensive range ensures the reliable performance of mission-critical applications under extreme and rapidly changing temperatures.

- **All Aluminum Housing**

The aluminum housing material provides a remarkable strength-to-weight ratio, capable of undergoing an arduous operating environment yet still staying portably light-weight.

**Target Applications**

- **Point-to-Point Fiber Connectivity in Harsh Environment**
- **Long Distance IP surveillance Network Deployment**
- **Factory, Parking Lot, ITS, Smart City Network Deployment**

# Specification

## Interface
-Fiber Port
 2 x 100/1000Base-X SFP
-RJ-45 Port
 4 x 10/100/1000Base-T RJ-45 with IEEE 802.3af/at PoE injector
-Console Port
 1 x RS-232 to RJ-45 Serial Port
-Terminal Block
 1 x Digital Output (Alarm Relay)
 1 x Digital Input

## Standards
IEEE 802.3 10Base-T
IEEE 802.3u 100Base-TX/FX
IEEE 802.3ab 1000Base-T
IEEE 802.3z 1000Base-X
IEEE 802.3az EEE
IEEE 802.3x Flow Control
IEEE 802.3ad Link Aggregation
IEEE 802.1p Priority
IEEE 802.1q Tag VLAN
IEEE 802.1d STP
IEEE 802.1w RSTP
IEEE 802.1x Authentication Network Access control
IEEE 802.3af Power over Ethernet
IEEE 802.3at Power over Ethernet +

## H/W Specification
-MAC Address Table: 8K
-Non-Blocking Switching Fabric: 12Gbps
-Throughput @ 64Bytes: 8.928Mpps
-Packet Buffer: 4.1Mbit
-Jumbo Frame: 9K 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
-P1, P2, STA, ALM, Master, Ring, Link/Act, COM, PoE

## Forward/Filter Rate
10M: 14,880/14,880pps
100M: 148,800/148,800pps
1000M: 1,488,000/1,488,000pps

## Power over Ethernet
-Per Port Power Pin Assignment
 IEEE 802.3af/at (mode A/end-span):
  1/2(-), 3/6(+)
  max. PoE output Budget: 15/30W
-Total PoE Power Budget: 120W

## Layer 2 Switch Features
**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 EtherType

**QoS**
-QoS based on 802.1p CoS, VLAN 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)

**Network Redundancy**
-IEEE 802.1d Spanning Tree Protocol (STP)
-IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)
-Fast Ring v2/Chain Redundancy Protocols
-IEEE 802.3ad Link Aggregation (LACP)
algorithm of source / destination IP, MAC, L4 Port
-Static Port Trunking
-Up to 3 Aggregation Groups, 4 Ports per Group

**Multicast**
-IGMP Snooping v1/v2/v3
-IGMP Fast Leave and Querier
-MLD v1/v2 Snooping
-MLD Querier
-IGMP/MLD Snooping Group: 128/64 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, Protocol Type, L4 Port and IP Address
-ACL Entries (IPv4: 128 Entries, IPv6: 64 Entries)

## PoE Management
-System/per port PoE off and on
-PoE Inline Mode
 Auto af/at, shutdown, injector-30Watt
-PoE priority, on/off by schedule

## Security
-802.1x Port Base Access Control
-802.1x RADIUS Authentication
-802.1x TACACS+
-802.1x MAC Authentication Bypass
-RADIUS Based VLAN Assignment
-DHCP Option 82 Relay Agent
-DHCP Option 82 with Configurable Circuit and Remote ID
-DHCP Snooping and DHCP Server Trust Port
-IP Source Guard
-Port Isolation
-Storm Control
 Unknown Unicast/Unknown Multicast/Broadcast
-MAC Limiter
-Per VLAN Loop Detection

## Management
-SNMP v1, v2c & v3
-Web (HTTP/HTTPS)
-CLI (Console/Telnet/SSHv2)
-Port Configuration
 Speed/Duplex/Flow Control/Description
-NTP with Daylight Saving Time
-SNTP
-Layer 2 Control Protocol Filter
-Static MAC Address Table
-LLDP

## Maintenance
**Diagnostic**
-Port Mirror
-ICMP Ping
-Event log
-Syslog
-SFP SFF-8472 DDMI Monitor
 Temp/Volt/TX Bias/TX Power/RX Power
-CPU Temperature/Utilization
-Memory Statistics

**Upgrade/Restore**
-Firmware Upgrade/Downgrade
 HTTP/FTP/TFTP
 DHCP Auto-provision via DHCP Option 60/43
-Configuration Upload/Backup
 HTTP/FTP/TFTP
 DHCP Auto-provision via DHCP Option 60/43

## Power Requirement
Dual DC Input:
48~54VDC (4-pin removable terminal block)
Max. Power Consumption: 135W (460.6 BTU/h)

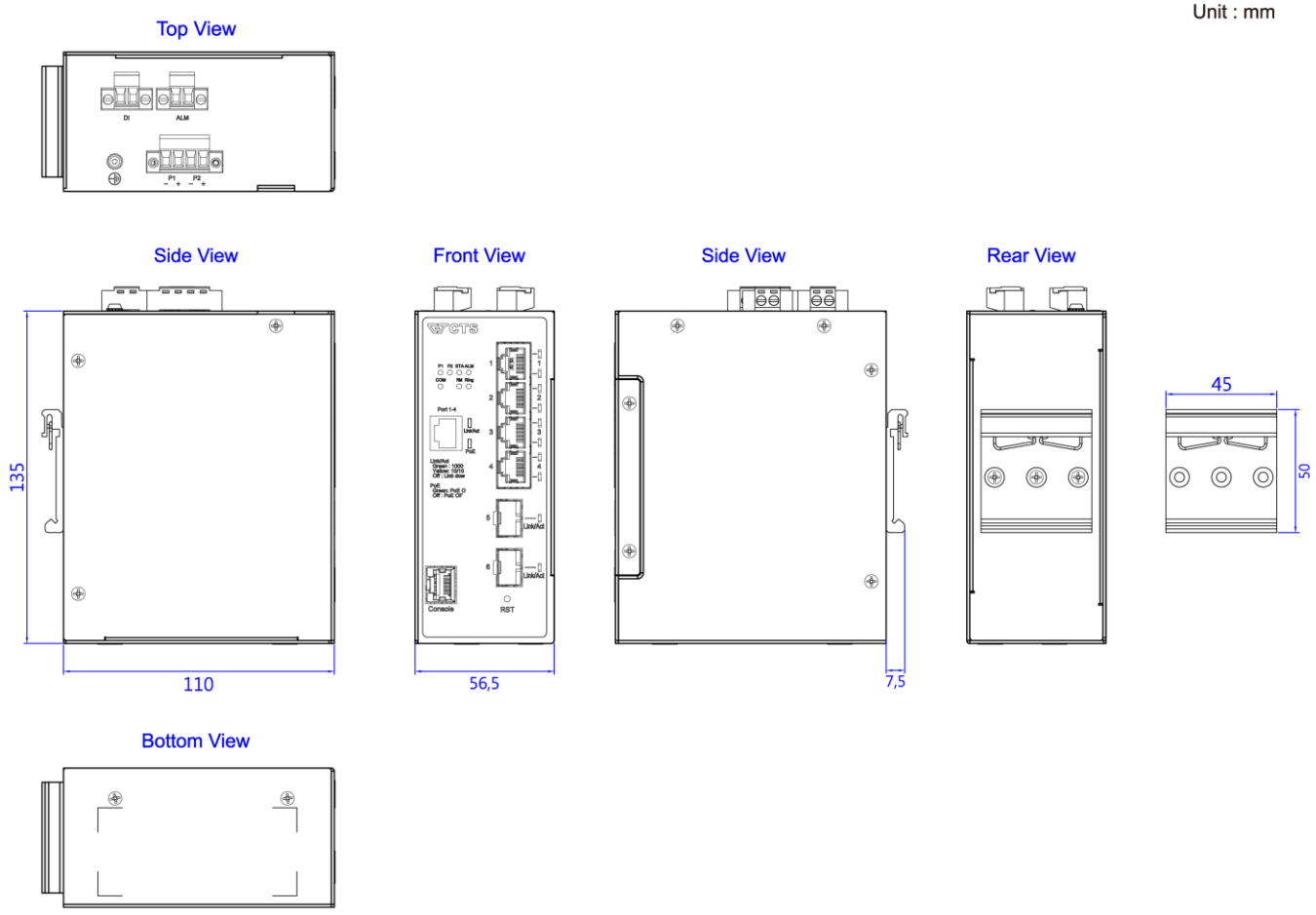
## Environmental Condition
Operation: -40˚C ~ 75˚C
Storage: -40˚C ~ 85˚C
Humidity: 5% ~ 90%, Non-condensing

## Dimension & Weight
Size: 56.5 x 110 x 135mm (W x D x H)
Weight: 0.57 Kg
Housing: Aluminium, IP30

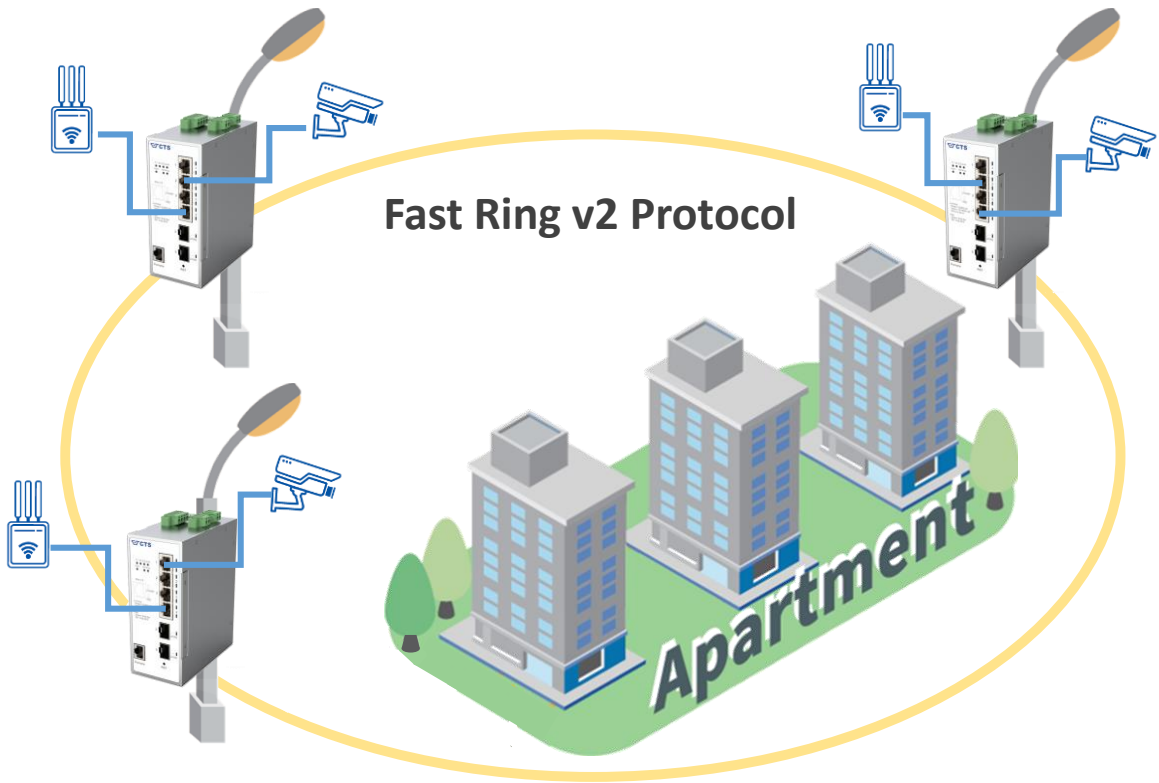
## EMC/Safety
FCC Class A, CE
ITU-T K.21
Shock: IEC 60068-2-27
Freefall: IEC 60068-2-32
Vibration: IEC 60068-2-6

# Dimension

Unit : mm




# Application Diagram



# Order Information

| Model | Fiber Port | | | TP Port | | Support Power Source |
|---|---|---|---|---|---|---|
| | Speed | Type | Slots | Speed | Ports | |
| IPS-3106-SE | 100/1000Mbps | SFP | 2 | 10/100/1000Mbps | 4 with 802.3af/at Injector | Dual 48~54V DC with 4-pin removable terminal block |

# Accessory

## SFP-31FC-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<br>RX: 1550/1550nm | -40˚C ~ 85˚C |
| SFP-31W2B(SM-10/20)-D | 1000Mbps | WDM | LC | 10/20KM | TX: 1550/1550nm<br>RX: 1310/1310nm | -40˚C ~ 85˚C |

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