ESW-5128

24 x 10/100/1000Base-T RJ-45 +

4 x 1/10GBase-R SFP+

Managed Ethernet Access Switch

Description

As technology revolutionizes at a pace faster than ever before, bandwidth always keeps improving due to heavy workloads. Connection Technology Systems (CTS) therefore launches ESW-5128 which is a Layer 2 access switch equipped with 24 x 10/100/1000Mbps RJ-45 and 4 x 1/10Gbps SFP+ ports. All SFP+ slots can accommodate a wide range of SFP/SFP+ transceivers including single-mode, WDM, or CWDM transceivers. ESW-5128 is perfect for service providers and enterprises who plan to implement FTTX Ethernet networks, with further spanning into triple-play service.

ESW-5128 delivers wire-speed throughput for data, voice, and IPTV services, using non-blocking 128Gbps switching fabric. 1+1 power supply design can provide seamless power changeover to reach sustainability of power if one of the power supplies failed.

Many service providers are extending their existing data service with triple-play service because it generates higher revenue returns by combining data, voice, and IPTV in one box. Advanced features including IGMP snooping, IGMP fast leave, IGMP filtering, various QoS classifications, and rate limit control, facilitate service providers to deploy and manageable network environment and deliver a successful triple-play service.

In order to provide customers extra security and separation, ESW-5128 has come with the Q-in-Q feature. This feature enables service providers to separate different customers at the Layer 2 level no matter what VLAN setting the end customer has.

Designed with a carrier-grade mindset, ESW-5128 can be easily managed by web interface, console, telnet CLI, SNMP, and DHCP auto-provision, which enables hassle-free management of great flexibility.

■ **Up to 10Gbps Uplink Speed**

Equipped with four 10G ports to fulfill the demand of higher bandwidth for traditional internet services and premium services.

■ **Cable Diagnosis for System Reliability**

Allow remote cable issue recognition and fault distance determination. The offered diagnosis delivers efficiency in troubleshooting and failure prevention since, among countless possible reasons for existing or potential defects, you can now rule out the irrelevant ones to conclude the fault investigation and therefore have your Ethernet cable ready for reliable operation.

■ **IPv4/IPv6 Dual Stack**

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

■ **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.

■ **Selective Q-in-Q**

Enable operators to differentiate various types of users (home/enterprise) & service level by encapsulating VLAN tags.

■ **IEEE 802.3ad Link Aggregation**

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

■ **Power Supply Redundancy**

By combining two power sources (2AC or 2DC or 1AC + 1DC), power redundancy can be well achieved.

■ **Fanless Design**

Under the fanless design, ESW-5128 can reduce the speed of dust accumulation and power consumption with zero noise.

■ **Intelligent Diagnosis Mechanism**

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

Target Applications
■ **Ethernet Service Implementations.**

■ Interface
-Fiber Port:
 4 x 10GBase-SR/LR SFP+
 Compatible with 1000Base-X transceiver
-Copper Port:
 24 x 10/100/1000Base-T RJ-45
-Console Port:
 1 x RS-232 to RJ-45 serial port
-Terminal Block
 1 x Digital Input (Dry contact)

■ Standards
IEEE 802.3 10Base-T
IEEE 802.3u 100Base-TX
IEEE 802.3ab 1000Base-T
IEEE 802.3z 1000Base-X
IEEE 802.3ae 10Gb/s Ethernet
IEEE 802.3ad Link Aggregation (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

■ H/W Specification
MAC Address Table: 16K
Non-blocking Switching Fabric: 128Gbps
Throughput @ 64Bytes: 95.2Mpps
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 A & B, Status, COM, Speed/Link/Act

■ Fan
-Fanless Design

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

■ Layer 2 Switch Features
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 802.1p CoS / 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)
-IEEE 802.3ad Link Aggregation (LACP)
-Static Port Trunking
-Up to 14 Aggregation Groups, 8 Ports per Group

Multicast
-IGMP Snooping v1/v2/v3
-IGMP Fast Leave and Querier
-MLD v1/v2 Snooping
-MLD Querier
-IGMP/MLD Snooping Group: 512/128 Groups
-IP Multicast Filter with Segment and Profile
-Static Multicast Group
-Multicast VLAN Replication (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)
-Neighbor Discovery (RFC 4861)
-DHCPv6 Client

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

Access Control List
-Physical port, Ether Type, MAC address, VID, ToS/DSCP, Protocol Type, L4 Port and IP address
-96 ACL entries

■ Security
-802.1x Port Base Access Control
-802.1x RADIUS Authentication
-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
-Loop Detection

■ Management
-SNMP v1,v2c & v3
 /Web/Telnet/HTTPS/SSHv2/CLI
-Text Base CLI Configure file
-Port Configuration
 Speed/Duplex/Flow Control/Description
-NTP with Daylight Saving Time
-Layer 2 Control Protocol filter
-Static MAC address Table
-LLDP

■ Maintenance
Diagnostic
-Port Mirror
-ICMP Ping
-Event log
-Syslog
-SFP SFF-8472 DDMI & threshold monitor
 Temp/Volt/TX bias/TX power/RX power
-CPU
 Temperature / Utilization
-Memory Statistics
-System Voltage
-Cable Diagnosis

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

■ Power Requirement
Input AC: 100V ~ 240V, 50/60Hz, 0.48 ~ 0.25A
Input DC: 48V (Range: 44 ~ 52V), 0.5A
Max. Power Consumption: 24W (81.8BTU/h)

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

■ Dimension & Weight
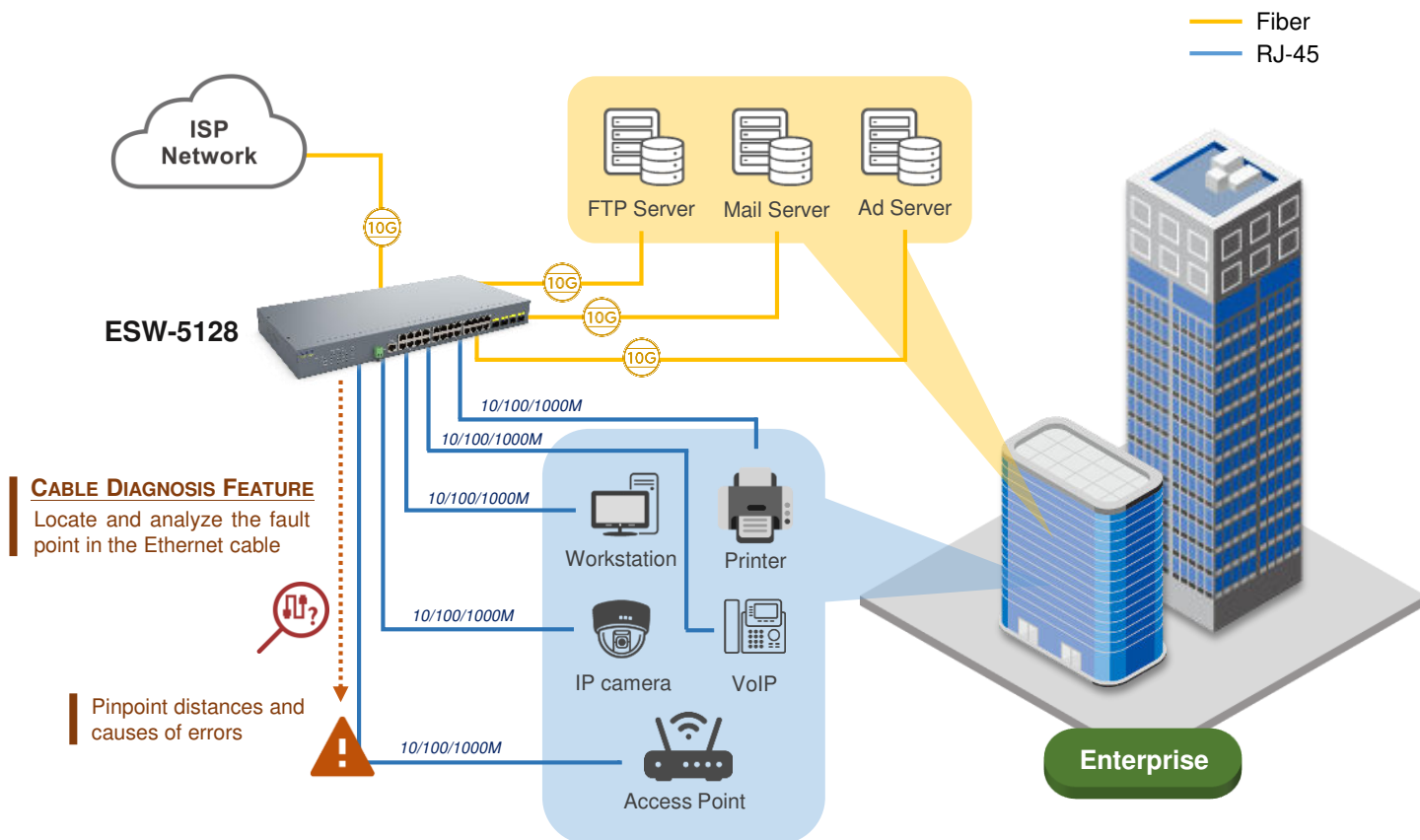Size: 440 x 231 x 44mm (W x D x H)
Weight (Max.): 3.17kg

■ EMC/Safety
FCC Class A, CE

* Under development function
** Future feature

Application Diagram

Fiber
RJ-45

ISP Network

10G

ESW-5128

FTP Server   Mail Server   Ad Server

10G

10G

10G

10/100/1000M

10/100/1000M

10/100/1000M

CABLE DIAGNOSIS FEATURE
Locate and analyze the fault point in the Ethernet cable

Workstation   Printer

10/100/1000M

IP camera   VoIP

Pinpoint distances and causes of errors

10/100/1000M

Access Point

Enterprise

Order Information

ESW-5128

Model	Fiber Port			TP Port		Support Power Source
	Speed	Type	Ports	Speed	Ports	
ESW-5128-1A	1/10Gbps	SFP+	4	10/100/1000Mbps	24	Fixed 1 Internal AC
ESW-5128-2A	1/10Gbps	SFP+	4	10/100/1000Mbps	24	Fixed 2 Internal AC
ESW-5128-1D	1/10Gbps	SFP+	4	10/100/1000Mbps	24	Fixed 1 Internal DC
ESW-5128-2D	1/10Gbps	SFP+	4	10/100/1000Mbps	24	Fixed 2 Internal DC
ESW-5128-1AD	1/10Gbps	SFP+	4	10/100/1000Mbps	24	Fixed 1 Internal AC and 1 Internal DC

Accessory

SFP-51

Model	Fiber Port					
	Speed	Type	Connector	Distance	Wavelength	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	Fiber Port					
	Speed	Type	Connector	Distance	Wavelength	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 ESW-5128

SFP-31

Model	Fiber Port					
	Speed	Type	Connector	Distance	Wavelength	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