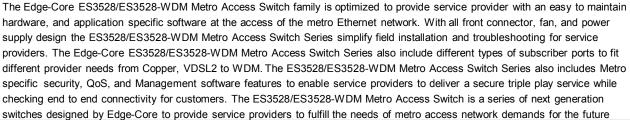


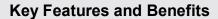
ES3528/ES3528-WDM

Layer 2 WDM Metro Access Switch

Product Overview



Network.



Flexible Uplink Options

The dual Combo Gigabit Ethernet ports allow copper or fiber connections depend on different network environment needs. The fiber connection uses SFP and can accommodate a wide range of transceivers, from 1000BASE-SX, 1000BASE-LX, to 1000BASE-LH. The ES3528/ES3528-WDM Metro Access Switch Series also includes 2 expansion slot to accommodate different types of modules from Gigabit Ethernet, GPON or **GEPON** connections

Easy to Maintain and Deploy for Service **Providers**

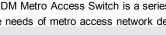
The ES3528/ES3528-WDM Metro Access Switch Series is built with 2 power supply slots to provide service provider with redundancy, and variety. Depend on the environment the ES3528/ES3528-WDM can either fit a DC power or AC power supply

Metro Ethernet Specific Software

The ES3528/ES3528-WDM Metro Access Switch Series was designed to fit within the Metro Ethernet, feature enhancement Such as 802.3ah, Q in Q, Carrier Class Rate-Limit, QoS, and subscriber isolation was added to help service providers deploy, manage, and secure their services.

Built to offer Triple Services

The ES3528/ES3528-WDM Metro Access Switch Series is built to help service provider offer data, voice, video within one network. With enhance multicast and QoS features service can offer services such as IPTV, VoIP, and Internet access within the same network and without interference from each other



Enhance Security features The ES3528/ES3528-WDM Metro Access Switch Series was designed to provide enhance security at the Metro Access and was built with Subscriber Security, Switch Security, and Network Security features to help secure the Metro Ethernet

Subscriber is where service provider delivers their service to, but usually many subscriber shares a common device. To prevent each subscriber network traffic from effecting each other the ES3528/ES3528-WDM Metro Access Series Switch provides Private VLAN, DHCP Snooping, IP Source Guard to help protect the subscriber from affecting each other and unwanted attacks.

To prevent the switch from unwanted attacks from CPU, the ES3528/ES3528-WDM Metro Access Switch Series also provided several features for Switch Security. The protection of CPU is crucial for the switch, if CPU is attacked control packets could be dropped resulting in network down. The ES3528/ES3528-WDM includes features such as Storm Control Protection, Port Security to help prevent CPU down. To ensure only valid traffic is allowed through the switch the ES3528/ES3528-WDM Metro Access Series Switch includes IEEE802.1x, L2/L3/L4 ACL to control traffic and validate traffic going through the switch.

Operation Administration Maintenance (OAM) for Ethernet

The services provider network is complex and large with huge user base, to help service provider isolate, maintain, and manage network traffic the ES3528/ES3528-WDM Metro Access Switch Series comes with OAM features to address the needs of the service provider and help maintain their network services

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ES3528/ES3528-WDM Product Specifications

Features

Physical Ports

24 10/100 BASE-TX ports (ES3528) 24 10/100 BASE-BX ports (ES3528-WDM) 2 Combo Gigabit Ethernet (RJ-45/SFP) ports

2 expansion slot for modules

1 RJ-45 craft port 1 RS-232 console port

Performance

Switching Capacity: 12.8Gbps Forwarding Rate: 9.5Mpps MAC Address Table Size: 16K Packet Buffer Size: 256Mb

Jumbo Frame:9K L2 Features

Auto-negotiation for port speed and duplex mode Flow Control: IEEE 802.3x & Back-Pressure

Spanning Tree Protocol:

- IEEE 802.1D Spanning Tree Protocol (STP)
- IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)
- IEEE 802.1s Multiple Spanning Tree Protocol (MSTP)

VLANs:

- 4K IEEE 802.1Q VLANs
- Port-based VLAN
- Protocol VLAN
- Private VAN
- GVRP
- Q-in-Q

Link Aggregation:

- Static Trunk,
- IEEE 802.3ad LACP
- Load Balancing
- Trunk groups: 12
- Trunk links: 2~8 for Ethernet port
- Trunk links: 2 for Combo Gigabit Ethernet port

IGIVIF.

- IGMP v1, v2, v3
- IGMP Snooping, Querier and Proxy*
- 255 IGMP Groups
- MVR

QoS Features

8 Priority Queues

Priority Queues Scheduling Scheme

- WRR
- Strict Priority
- WRR+Strict Priority Hybrid*

Traffic classification and priority management

- IEEE 802.1p
- IP Precedence/DSCP,
- TCP/UDP port number,

DiffServ

Rate Limiting

- Ingress/Egress
- 64Kbps~100Mbps for Ethernet port
- 1Mbps~1000Mbps for Gigabit port
- Per Port COS

Warranty

Limited lifetime warranty

Security

Port Security

IP Source Guard

DHCP Snooping

DHCP Option 82

IEEE 802.1X

■ Port-based

RADIUS authentication

- 2 servers
- Encryption: MD5, TLS, TTLS

TACACS+ authentication

HTTPS/SSH

Access Control List (ACL)

- IP-based
- MAC-based
- IP/MAC-based
- VLAN
- TCP/UDP port

Storm Control

- Broadcast
- Multicast
- Unknown Unicast

Management

Switch Management:

- CLI via console port or Telnet
- Web management
- SNMP v1, v2c, v3

Firmware & Configuration:

- Dual firmware configuration files
- Firmware Configuration upgrade via TFTP/FTP/Xmodem

server

RMON (groups 1,2,3 and 9)

SNTP (RFC2030)

Port Mirroring

Event/Error/System Log

System monitoring

Test and Performance Monitoring function IEEE802.3ah Ethernet in the First Mile*

Mechanical

Dimensions (H x W x D): 67x 436 x 253 mm (1.5RU)

Weight: 4.6 kg (10.1 lbs)

Power Requirement:

- AC Input: 100~240 V, 50~60 Hz, 2 A
- DC Input: ±36VDC~±72VDC

Power Consumption: Max. 35W LED Indicators: Power, Port status

Safety

CSA/NRTL (UL60950, CSA 22.2.No 60950-00)

TUV/GS (EN60950)

CB

Electromagnetic Compatibility

CE Mark

FCC Class A

VCCI Class A

Environmental Specifications

Temperature:

- IEC 68-2-14
- -20°C to 65°C (Standard Operating)
- -40°C to 70°C (Non-Operating)

MTBF

- 80,000hrs (min), at 40°C degree
- 150,000hrs (min) at 25 $^{\circ}$ C degree
- * Future Release

ES3528/ES3528-WDM Product Specification

Optional Accessory

ET4201-ZX

Model Number	Product Description
Metro Access Switch	
ES3528	24 10/100 BASE-TX Ports 2 Combo Gigabit Ethernet (RJ-45/SFP) 2 Expansion Slots Ethernet Metro Access Switch (Power Supply Not Included)
ES3528-WDM	24 10/100 BASE-BX Ports 2 Combo Gigabit Ethernet (RJ-45/SFP) 2 Expansion Slots WDM Metro Access Switch (Power Supply Not Included)
Metro Access Switch Components	
EM3528-Fan	ES3528 Metro Access Series Switch Fan
EM3528-AC	ES3528 Metro Access Switch AC Supply
EM3528-DC	ES3528 Metro Access Switch DC Supply (-36VDC~-72VDC)
EM3526V-1GTGB-Combo	RJ-45/SFP Combo module
Consumer Premises Equipment (CPE)	
EC3002	WDM CPE 1 10/100 BASE-FX port 1 10/100 BASE-TX port
EC3805F	Fast Ethernet FTTx CPE 4 10/100 Base TX RJ-45 LAN ports 1 100 Base-BX WAN port
SFP Transceiver	
ET4201-SX	SFP MM 850 nm, 3.3V 500m (SX)
ET4201-LX	SFP SM 1310 nm, 3.3V 10Km (LX)
ET4201-LHX	SFP SM 1310 nm, 3.3V 40Km (LHX)

SFP SM 1550 nm, 3.3V 80Km (ZX)