Edge-corE
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# ES3528M-SFP

## L2/L4 SFP Metro Access Switch

### Product Overview

The ES3528M-SFP is a model from the Edge-Core ES3528 Metro Access Switch Series, and features twenty four 100Base-X SFP slots, two 10/100/1000 RJ-45 ports and two SFP/RJ-45 Gigabit combo ports. The 24 SFP slots accept a wide variety of industry standard 100Base-X optical transceivers - both multimode and singlemode formats. The switch is housed in a slimline 1RU case. The ES3528-SFP (in common with all models in the Metro Access Switch series) includes Metro specific security, QoS, and Management software features to enable service providers to deliver a secure triple play service while checking end-to-end connectivity for customers.

Access Network

## Key Features and Benefits

### Flexible Uplink Options

The dual Combo Gigabit Ethernet ports support copper or fibre connections to suit different network environment needs. Mini-GBIC modules installed in the SFP slots are used for fibre network connectivity; a wide range of mimi-GBIC transceivers are available, including modules in 1000Base-SX, 1000Base-LX, and 1000Base-LH formats.

### Metro Ethernet Specific Software

The ES3528 Metro Access Switch Series is designed to meet the requirements of a modern Metro LAN; advanced management features such as 802.3ah, Q-in-Q, Carrier Class Rate-Limit, QoS, and Subscriber Isolation help providers deploy, manage, and secure their services.

### Built to Offer Triple Services

The ES3528-SFP, as with all models in the Metro Access Switch Series, is designed to help service providers offer data, voice, video within one network. With enhanced multicast and QoS features providers can offer services such as IPTV, VoIP, and Internet access within the same network and without interference from each other.

### Single IP Management for 36 Switches

An ES3528M-SFP switch is managed as a single object, and has a single IP address. Up to 36 ES3528M-SFP switches can be combined in one virtual stack, managed as a single object.

### Enhanced Security Features

The ES3528 Metro Access Switch Series is designed to provide enhance security at the Metro Access and was built with sophisticated Subscriber Security, Switch Security, and Network Security features to help secure the Metro Ethernet Network. Service providers deliver their services to individual subscriber customers, but usually many subscribers shares a common device. To prevent the network traffic supporting individual subscribers from effecting each other, ES3528 Metro Access Series switches provide Private VLAN, DHCP Snooping and IP Source Guard to help protect the subscriber from affecting each other and from unwanted attacks.

To prevent the switch from unwanted attacks from CPU, the ES3528 Metro Access Switch Series also provides additional features for Switch Security. Protection of the CPU is crucial for the switch; if the CPU is attacked control packets could be dropped resulting in network outages or even failure. ES3528 models include features such as Storm Control Protection and Port Security to guard against these eventualities.

To ensure only valid traffic is allowed through the switch the ES3528 Metro Access Series Switch supports IEEE 802.1x security and L2/L3/L4 ACL to control traffic and validate traffic going through the switch.

### Operation Administration Maintenance (OAM) for Ethernet

Typically, a services providers network is large, complex and supports a high volume user base. To help service providers isolate, maintain, and manage network traffic all ES3528 Metro Access Switch Series models are orovided with OAM features to address the needs of the service provider and help maintain their network services.

# ES3528M-SFP
# Product Specifications

## Physical Ports
24x 100 BASE-X SFP slots (for mini-GBIC modules)
2x 10/100/1000 Base-T ports
2x Combo Gigabit Ethernet (paired RJ-45/SFP) port arrays
1x RJ-45 Console port

## Performance
Switching Capacity: 12.8Gbps
Forwarding Rate: 9.6Mpps
MAC Address Table Size: 17K
Packet Buffer Size: 0.75MB
Jumbo Frame:10K (in Gigabit ports)

## Layer 2 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)
- BPDU Forwarding/BPDU Filtering

VLANs:
- 255 VLAN with 4K VLAN ID IEEE 802.1Q VLANs
- Port-based VLAN
- Protocol VLAN
- Private VLAN
- Voice VLAN
- GVRP
- Q-in-Q

Link Aggregation:
- Static Trunk,
- IEEE 802.3ad LACP
- Load Balancing
- Trunk groups: 8
- Trunk links: 2~8 for Ethernet port
- Trunk links: 2~4 for Combo Gigabit Ethernet port

IGMP:
- IGMP v1, v2, v3
- IGMP Snooping
- IGMP Immediate leave
- IGMP Throttling
- IGMP Filtering
- IGMP Leave Proxy
- MVR
- LLDP 802.1ab
- LLDP MED*

## QoS Features
4 Priority Queues
Priority Queues Scheduling Scheme
- WRR
- Strict Priority

Traffic classification and priority management
- IEEE 802.1p
- IP DSCP

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

## Security
Port Security
- Static
- Dynamic

IP Source Guard
DHCP Snooping, DHCP Snooping 82
RADIUS AAA
- 5 servers
- Encryption: MD5, TLS, TTLS

## Security (cont.)
TACACS AAA, TACACS 3.0
- 1 Server

IEEE 802.1X
- Port-based
- MAC-based Authentication*
- Auto VLAN Assignment
- Guest VLAN

HTTPS/SSH Access Control List (ACL)
- IP-based
- MAC-based
- IP/MAC-based
- VLAN
- TCP/UDP port

Storm Control
- Broadcast
- Multicast

Web Authentication
MAC Authentication

## 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/Xmodem server
RMON (groups 1,2,3 and 9)
SNTP (RFC2030), NTP
Port Mirroring
Event/Error/System Log
System monitoring
UPnP
Banner

## Mechanical
Dimensions (H x W x D): 44x 440 x 230 mm (1RU)
Weight: 3.5 kg (7.7 lbs)
Power Requirement:
- AC Input: 100~240 V, 50~60 Hz, 2 A

Power Consumption: Max. 54W
LED Indicators: Power, Port status

## Environmental Specifications
Temperature:
- IEC 68-2-14
- $0^0$ to $50^0$ (Standard Operating)
- $-40^0$ to $70^0$ (Non-Operating)

MTBF
- 25,000hrs (min), at $40^0$ degree
- 50,000hrs (min) at $25^0$ degree

## Safety
UL/CUL(UL60950-1, CSA60950-1); CB (IEC60950-1)

## Electromagnetic Compatibility
CE Mark, FCC Class A, VCCI Class A

## Warranty
Limited lifetime warranty

Contact Alloy for details of our wide range of multimode, singlemode and CDWN mini-GBIC Modules suitable for use with the Edge-Core ES3528M-SFP

** Check for availability*
*Specification are subject to change without notice*