

# Top of Rack Switch ES-4000G SERIES

24/48 PORT PLUS 4 X 10G SFP+ TOR SWITCHES



## Overview

LG-Ericsson ES-4052G/ES-4028G switches are the first in a family of Software Defined Networking ready platforms delivering high-capacity, wire speed performance for the Data Center. This switch family offers aggregation of high density 1U rack servers, as the data center transitions from 1GbE to 10GbE.

The ES-4052G/ES-4028G provides 24/48 ports of 1GbE network connectivity with 4 ports of 10G SFP+ for uplinks and offering features that are required for next generation data center design. The 4 uplinks can be used to connect to upstream switches or between racks for high performance rack to rack communication.

10G Ethernet is now the defacto technology for new data center deployments but there are large numbers of existing servers using 1G Ethernet which still need to be connected and deliver maximum performance. LG-Ericsson has switches designed to enhance both existing and new connections in the data center.

The ES-4052G/ES-4028G switches are designed with the density, performance, front-to-back cooling, and front port access configuration that make it ideal for aggregating a large number of Gigabit Ethernet links from servers into a smaller number of uplinks to aggregation-layer switches. The switch port density allows each switch to support a single rack or neighboring racks using the SFP+ connectors and cabling options.

Support for dual power supplies and hot swap fan trays enhance the already impressive reliability features of LG-Ericsson switches which are backed by a Lifetime Warranty.

## Applications

- High Performance 1G ToR Aggregator
- Software Defined Networking ready
- High Reliability Network designs

## Key Benefits

### High Performance

- 24 / 48 Port switch non-blocking design
- Embedded buffer size up to 6M

### High Availability

- Redundant power supplies
- Hot swap fan tray

### Advance Data Center HW Features

- Support hot aisle design
  - Front-to-back
- Simplify rack cabling
  - Network ports on front, PSUs/fans on back
- Energy Efficiency
  - PSUs up to 90% efficient
  - Variable speed fans

## Technical Specifications

### PHYSICAL PORTS

- 24 / 48 RJ-45 ports
- 4 SFP+ ports
- 1 RJ-45 Console port
- 1 RJ-45 Management port
- 2 PSU slots for removable power supplies
- 1 Fan Tray

### PERFORMANCE

|                              |                              |
|------------------------------|------------------------------|
| ES-4028G                     | ES-4052G                     |
| Packet Buffer - 3M           | Packet Buffer - 6M           |
| Switching Capacity - 128Gbps | Switching Capacity - 176Gbps |
| Forwarding Rate - 96 Mpps    | Forwarding Rate - 132Mpps    |
| MAC Address Table Size - 32K | MAC Address Table Size - 32K |

### L2 FEATURES

- Auto-negotiation for port speed and duplex mode
- Flow Control:
  - IEEE 802.3x for full duplex mode
  - Back-Pressure for half duplex mode
- Support spanning tree
  - Support IEEE 802.1D spanning tree
  - Support IEEE 802.1s multiple spanning tree
  - Support IEEE 802.1w rapid spanning tree
- VLANs support:
  - Supports 512 active VLANs
  - Supports IEEE 802.1Q VLANs
  - Port-based VLANs
  - MAC based VLANs
  - Protocol-based VLANs
- Support private VLAN edge
- GVRP
- Q-in-Q
- Supports IGMP
  - IGMP snooping v1/v2/v3
  - IGMP querier
  - IGMP immediate leave
- Supports multicast VLAN registration (MVR)
- Provides Link Aggregation
  - Support IEEE 802.3ad
  - Manual trunking

### SECURITY

- Supports L2/L3/L4 access control list
- User/Password protected system management terminal (SNMP, Telnet, Web)
- Static Port Security (MAC based)
- Dynamic Port Security (MAC based)
- Supports RADIUS authentication
- Support TACACS+ authentication
- MAC-based authentication
  - User Name Password Authentication
  - Local Authentication
- Remote Authentications via RADIUS/TACACS+
- Supports management interface access filtering
- SNMP
- Web
- Telenet
- Supports SSH v1.5/v2
- Supports HTTPS/SSL
- Supports IEEE 802.1x
  - Port-based
  - MAC-based security

### QOS FEATURES

- Provides 8 queues per port/ 128 groups per system
- Priority queue scheduling scheme: strict priority, WRR
- L2/L3/L4 Traffic Classification/ Priority Management
  - IEEE 802.1p (COS)
  - DSCP/TOS
  - TCP/UDP port number
  - Per port bandwidth management

### MANAGEMENT

- Switch Management:
  - CLI via console port or Telnet
  - WEB management
  - SNMP v1, v2c, v3
  - OpenFlow \*
- Supports BOOTP, DHCP for IP address assignment
- Supports SNMP
- Event/Error Log/Syslog
- Firmware & Configuration:
  - Dual firmware images
  - Firmware upgrade via TFTP server
  - Multiple configuration files
  - Configuration file upload/download via TFTP server
  - Supports RMON (groups 1, 2, 3 and 9)

### MECHANICAL

- Dimensions (H x W x D): 44 x 440 x 435mm (1RU)
- LED Indicators: Port, PS1, PS2, Diag, Mgmt
- ES-4028G - 6.4 Kg
- ES-4052G - 6.72 Kg

### SAFETY

- CSA/NRTL (UL1950, CSA 22.2.9.50)
- TUV/GS (EN60950)

### ELECTROMAGNETIC COMPATIBILITY

- CE Mark
- FCC Class A

### ENVIRONMENTAL SPECIFICATIONS

- Temperature:
  - IEC 68-2-14
  - 0° to 40° (Standard Operating)
  - -40° to 70° (Non-Operating)
- Humidity: 5% to 95% (Non-condensing)
- Vibration: IEC 68-2-36, IEC 68-2-6
- Shock: IEC 68-2-29
- Drop: IEC 68-2-32

\* Phase 2 release

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