

# Dimension ES-4024

## Managed Layer 3 Switch



The ES-4024 Ethernet switch brings a high level of security and traffic control to your network. With wire-speed Layer 2 and Layer 3 switching capability and resilient routing protocols, the ES-4024 enables hardware-based, IP layer network management that reduces backbone traffic and enhances performance of the overall network. 24 fast Ethernet ports, two GBIC uplink slots and an optional dual Gigabit stacking module provide resilient workgroup connectivity.

In addition to providing security, the ES-4024 is also capable of offering Quality of Service (QoS). The Layer 2 to Layer 3 filtering and IEEE 802.1x based authentication prevent unauthorized users from illegally accessing the network, while intelligent features such as DiffServ, Layer 4 wire-speed traffic classifier, and bandwidth limiting and multicasting ensure optimal network performance.

The IEEE 802 standard-based firmware provides a rich set of features and ensures interoperability with equipment from other vendors. The firmware includes advanced features such as IGMP snooping, broadcast storm control, and MAC address filtering, all of which enhance security and bandwidth utilization.

With its built-in web-based management, the ES-4024 offers an easy-to-use, platform-independent management and configuration facility. The ES-4024 supports standard Simple Network Management Protocol (SNMP) and can be managed via any standard-based management software. For text-based management, the ES-4024 can also be accessed via Telnet and through the console port.

### Benefits

#### Wire-speed Layer 2 to Layer 3 Switching

The ES-4024 supports MAC and IP switching in wire speed. Up to 12.8Gbps non-blocking switching capability provides high performance network tasks.

#### IP Routing and Service

The ES-4024 supports multiple IP domains, static routing, RIP v1/v2 and OSPF routing protocol, thus reducing backbone traffic and increasing IP switching efficiency. The ES-4024 supports DHCP server and relay.

#### Port Trunking Provides Higher Availability

The ES-4024 supports IEEE 802.3ad with load distribution control and fail-over recovery. With the exception of expansion slots, up to 8 ports can be aggregated for bandwidth up to 1600Mbps. No matter what modules are used for expansion slots, all traffic is aggregated based on MAC addresses, thus balancing the traffic load.

#### Clustering Simplifies Network Configuration and Management

A cluster design enables system administrators to configure and manage up to 8 units of the ES-4024 through a single IP address. This enables service providers to start with a minimal initial investment and add more equipments as customers increase. Network expansion may be accomplished without increasing management efforts.

#### VLAN Offers Both Security and Performance

The VLAN feature in the ES-4024 offers the benefits of both security and performance. VLAN, which is used to isolate traffic between different users provides better privacy and thus better security. Limiting broadcast traffic to within the same VLAN broadcast domain also enhances performance.

#### Rate Limitation Allows Service Differentiation

In order to fulfill the requirements of different customers, service providers need a network infrastructure that combines guaranteed performance and flexibility in service provisioning. Rate adaptation on subscriber ports allows increments of 1Kbps, enabling service providers to offer tiered service.

#### Access Control Enhances Network Security

The ES-4024 not only supports 802.1x port-based access control for subscriber authentication, it also allows system administrators to define a limited number of MAC addresses that can access the network from a particular port. This feature, which denies unauthorized devices from communicating through the switch, greatly enhancing network security. The ES-4024 also supports the ability to limit the number of users (MAC addresses) that can simultaneously access the network on a per-port basis, allowing service providers to offer flexible billing plans.

## Features & Specifications

### General

#### Standard

- IEEE 802.3 10BASE-T Ethernet (twisted-pair copper)
- IEEE 802.3u 100BASE-TX Fast Ethernet (twisted-pair copper)
- ANSI/IEEE 802.3 Auto-negotiation
- IEEE 802.3x Flow Control
- IEEE802.1p Priority Queues
- IEEE802.1Q VLAN
- IEEE802.1d Spanning Tree

#### Uplink Interface

- Two fixed GBIC slots
  - LED: LNK/ACT

#### Stacking Interface

- One stacking slot
- Modules: Dimensions: 118 x 110mm; Weight: 252g  
EM3024-S: Stacking module with 2x 1000Base-T ports
  - LED: No

#### Subscriber Interface

- 24 10/100 Base-TX interfaces
- Auto-negotiation
- Auto-MDIX
- Compliant with IEEE 802.3/3u
- Back pressure flow control for half duplex
- Flow control for full duplex (IEEE 802.3x)
- Connector: RJ-45

### Performance & Management

#### Switching

- Switching fabric: 12.8Gbps, non-blocking
- Wire speed IP switching
- 16K MAC addresses
- 16K IP addresses
- Frame size: 1522 bytes
- Forwarding frame: 802.3, 802.1q, Ethernet II, PPPoE
- Prevent the forwarding of corrupted packets

#### RSTP

- 802.1w rapid spanning tree protocol

#### VLAN

- Port-based VLAN
- IEEE 802.1Q tag-based VLAN, 4095 Max
- Support GVRP, automatic member registration

#### QoS

- IEEE 802.1p Priority Queues: 4 queues
- \*DiffServ Code Point to 802.1p mapping

#### Port Trunking

- IEEE802.3ad port trunking, static and dynamic (LACP) port trunking
- Fast Ethernet: three groups, up to 8 ports for each group
- Gigabit: one group

#### Security

- Static MAC address filtering/ forwarding
- Limited max. number of MAC addresses per port
- IEEE802.1x authentication
- IP filtering
- TCP/UDP filtering

#### Multicasting

- Support IGMP snooping
- \*DVMRP

#### Rate Limiting

- At 1 Kbps increment

#### Broadcast Storm

- Support broadcast storm control

#### Port Mirroring

- All ports support port mirroring

#### Scalability

- 8

#### Layer 3 Routing

- Multiple IP routing domain: up to 64 IP domains
- Static routing
- RIP v1/v2
- \*OSPF v2

#### Redundancy

- \*VRRP

#### IP Service

- DHCP server
- DHCP relay

## System Control

- Alarm/status surveillance
- OAM&P
  - Configuration management
  - Performance management
  - Status management
  - Security management
- Software upgrade and download via console, web, FTP
- System configuration restore and backup
- Self diagnostic

## Management

- CLI through console port and telnet
- RS-232C (DB-9) port for local management
- Web-based management
- Status display and event report from web-based management
- SNMP manageable
- Trap
- RMON 1, 2, 3, 9

## MIBs

- RFC1213 SNMP MIB II
- RFC2011 IP MIB
- RFC2012 TCP MIB
- RFC2013 UDP MIB
- RFC1493 Bridge MIB
- RFC1643 Ethernet MIB
- RFC1757 Four Group of RMON
- RFC2674 VLAN MIB

## Physical and Environmental

### Weight

- 5.4Kg

### Dimensions

- 440(L) x 300(D) x 44.5(H) mm

### LED and switch

- Power (green): on or off
- System (green)
  - Light off: System not ready or failed
  - Light on: System ready and running ok
  - Light flashing: System booting
- Alarm (red): on or off

- S1 (green):
  - Light off: stacking port disconnected or fail
  - Light on: Stacking port link ok
  - Light flashing: traffic go through stacking port
- S2: the same as S1
- 24x 10/100M Ethernet ports
- LNK/ACT: dual-color LED
  - Green light: 10M Ethernet
  - Amber light: 100M Ethernet
  - Light off: port disconnected or link-up failure
  - Light on: Ethernet link ok, color indicates of link is 10 or 100M
  - Blinking: activity
- FDX/COL: amber LED
  - Light on: full duplex
  - Light off: half duplex
- Light blinking: collision in half duplex

### Power Supply

- 100 - 240VAC 50/60Hz internal universal power supply

### Power Consumption

- 60W max.

### Operating Temperature

- 0°C ~ 45°C (32°F ~ 113°F)

### Operational Humidity

- 10% to 90% (Non-condensing)

### EMI

- FCC Part 15 Class A
- EN55022 Class A
- CE

### Safety

- UL 60950
- CSA C22.2 No. 60950 (Canada)
- EN60950

### Optional Module

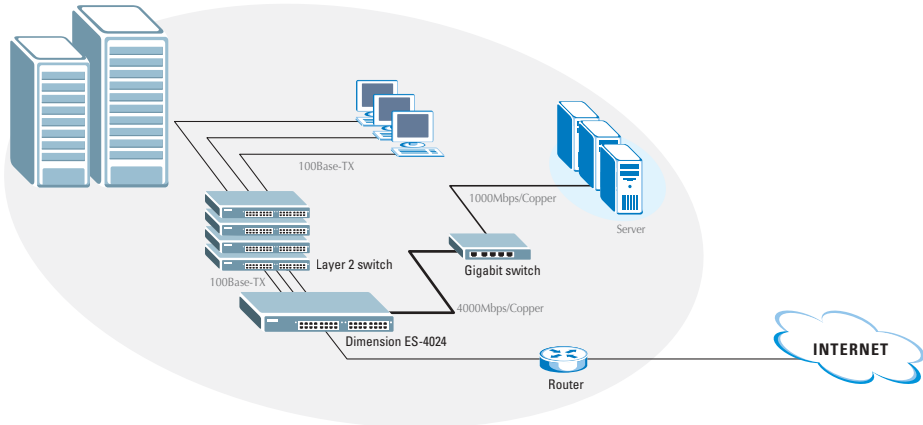
#### Stacking slot

- EM3024-S: Stacking module with 2x 1000Base-T ports
- Weight: 252g
- Dimensions: 118 x 110mm

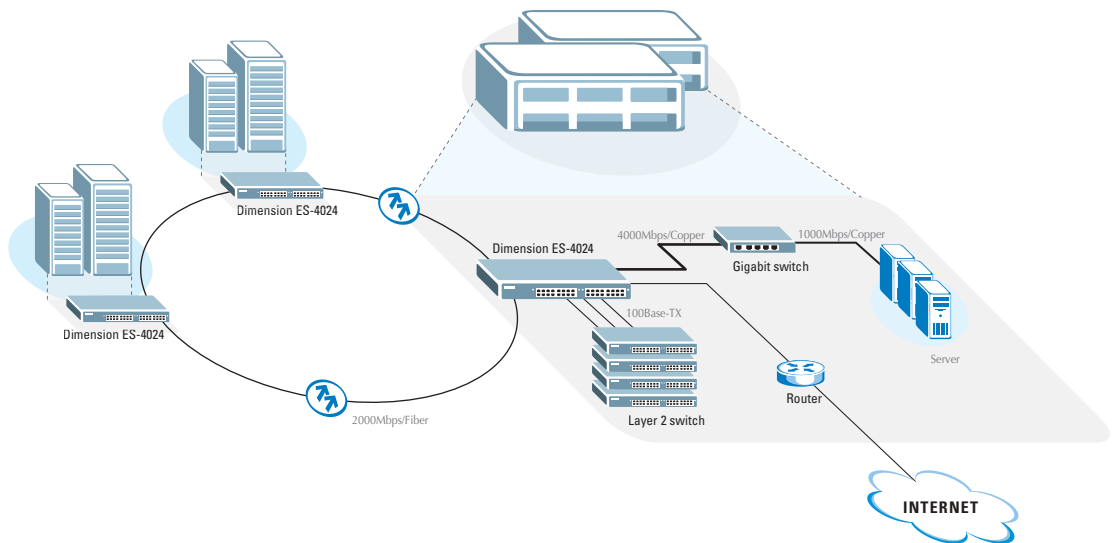
*\* For future release*

### Application Diagram

#### ES-4024 SMB Application



#### ES-4024 Campus Application



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