Multi-function Intelligent L2 Switch
Unleash Network Productivity

Benefits

Best fit for SMB & Campus for Convergence Network
ZyXEL ES-2000 Series is an entry-level, managed L2 Fast Ethernet Switch, and specially designed for SMB or Campus to empower multi-tasks in today’s dynamic network environment requiring capability over security, QoS and network management. Complete product portfolio with optimized port configuration (26/50 port), embedded two dual-personality GbE ports and Power over Ethernet (PoE) can easily find solution and fit in any network very easily.

High-Security Network Edge
The ES-2000 Series features wide range security functions to prevent unauthorized data access. 256 Static VLAN entry enables complicated VLANs portfolio for policy management. Full range 4K VLAN (4K PVID) are equipped as well. Besides central access authentication by 802.1x, it can further assigns VLAN and bandwidth per pre-defined attribute for valid user which greatly lifts flexibility over network management. In addition, extra support of MAC filtering, MAC freezing and Specific MAC forwarding, allow the network administrator to set security policy toward device MAC address. The ES-2000 Series is designed to offer comprehensive security features for enforcing security policies to the edge.

Intelligent Traffic Prioritization for Multi-Services
Multiple priority queues and scheduling mechanism, makes the ES-2000 Series easy to perform traffic prioritizing for delay-service applications. You can also customize DSCP settings to provide an end-to-end QoS environment. MVR ensures efficient transmission of multicasting stream on the network-wide multicast VLAN. For bandwidth management, the ES-2000 Series supports bandwidth increment of 64Kbps to give different bandwidth allocations. Moreover, with broadcast storm control, network can limit the broadcast packets once over pre-defined threshold which prevents the network outrage.
Specifications

Industry Standard-based Network Management
Managing the ES-2000 Series is simple through its iStacking™, SNMP, Web, telnet and RS-232 support. iStacking™, ZyXEL-exclusive clustering technology, allows administrators to manage up to 24 switches with one single IP. In addition, IT staff may opt for Web, CLI (Command Line Interface) or text-based configuration for their convenience and even encrypt the instructions using SSHv1/v2 and SSL. Thanks to these sophisticated functionalities, the IT staff is able to build a highly secure and efficient corporate network with minimum effort.

Installment Freedom by Power over Ethernet
The ES-2024PWR supports IEEE802.3af Power over Ethernet (PoE) to ease the installment in challenging space, such as ceiling or top of wall. Device compliant with IEEE802.3af, like WLAN AP, IP surveillance camera, etc, can get powered Ethernet connectivity through just single Cat-5 cable, with up to 100 meters of successful link distance. There is no need to use extra power adapter and you can walk away from the headache of how to set up the power line to devices. In addition, the ES-2024PWR supports intelligent power management via web GUI. You can set the priority levels of power-feeding over different ports to get the best use of power resource.

Performance

ES-2024A/ES-2024PWR
8.6Gbps non-blocking switching fabric
Flexible design for both Gigabit copper and Gigabit fiber connectivity
Switching Forwarding Rate 6.6Mpps
(1488000pps/1000Base-T/1000Base-X, 1488000pps/100Base-TX)
Wire-speed performance

ES-2048
13.6Gbps non-blocking switching fabric
Flexible design for both Gigabit copper and Gigabit fiber connectivity
Switching Forwarding Rate 10.1Mpps
(1488000pps/1000Base-T/1000Base-X, 1488000pps/100Base-TX)
Wire-speed performance

Traffic Management and QoS
IEEE 802.1p with 4 priority queues per port for different types of traffic. (ES-2024A/ES-2024PWR)
IEEE 802.1p with 8 priority queues per port for different types of traffic. (ES-2048)
WRR (Weighted Round Robin)/SPQ scheduling algorithm (ES-2024A/ES-2024PWR)
WFQ (Weighted Fair Queue)/SPQ scheduling algorithm (ES-2048)
DSCP to 802.1p priority mapping
IGMP snooping
MVR
Congestion control on all ports
Rate Limiting: Port-based bandwidth control, 64kbps granularity
Port-based egress traffic shaping
Broadcast Storm Control

MAC and Packet Buffer
ES-2024A/ES-2024PWR
8K MAC entries
256KB Packet Buffer
ES-2048
16K MAC entries
32MB Packet Buffer

Link Aggregation
IEEE 802.3ad LACP link aggregation compliant
Support static manually port trunking
Up to 3 aggregation groups, per group support up to 8 ports (ES-2024A/ES-2024PWR)
Up to 6 aggregation groups, per group support up to 8 ports (ES-2048)

Resilient Network
IEEE802.1w Rapid Spanning Tree Protocol (RSTP) provides rapid convergence of spanning tree independent of spanning-tree timer

User Security and Authentication
MAC filtering per port secures access to each port
Specific MAC forwarding per port: only specified MAC addresses can access the network (Port Security)
Limited MAC number per port
802.1x port-based security, prevent unauthorized client access to the network
IEEE 802.1Q tag-based and port-based VLAN
Support GVRP, automatic VLAN member registration
256 static VLAN, up to 4K dynamic VLAN
Full range 4K PVID support
Port-based VLAN & VLAN Isolation
MAC Freeze
Intrusion Lock

Standard Compliance
- IEEE 802.3 10Base-T Ethernet
- IEEE 802.3u 100 Base-Tx Ethernet
- IEEE 802.3ab 1000 Base-T Ethernet
- IEEE 802.3z
- IEEE 802.3x Flow control
- IEEE 802.1d Spanning tree protocol
- IEEE 802.1w Rapid Spanning tree protocol
- IEEE 802.1p Class of service, priority protocols
- IEEE 802.1Q VLAN tagging
- IEEE 802.1x Port Authentication
- IEEE 802.3ad LACP aggregation
- IEEE 802.3af Power over Ethernet

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**MIB Information**
- RFC1213 MIB II
- RFC1493 Bridge MIB
- RFC1643 Ethernet MIB
- RFC1757 RMON group 1, 2, 3, 9
- RFC2011 IP MIB
- RFC2012 TCP MIB
- RFC2013 UDP MIB
- RFC2233 ifVHCPacketGroup
- RFC2674 VLAN MIB
- RFC2925 PING-MIB and TRACEROUTE-MIB
- ZyXEL Private MIB for EMS management
* ES-2024PWR/ES-2048 will support in the future

**Network Administration Security**
- User name/password required for web/telnet/local console administrators
- Two level security by specific SNMP read/write community
- SSH v1/v2
- SSL/TLS

**Network Management**
- Supports ZyXEL iStacking™, up to 24 switches can be managed by one IP address
- Web-based management
- Telnet CLI
- SNMP v2c
- RS-232c Local console
- IP management: static IP or DHCP client
- DHCP Option 82 (ES-2048)
- RMON four RMON groups 1, 2, 3, 9 (history, statistics, alarms, and events) for enhanced traffic management, monitoring, and analysis
- Port mirroring: supports Source/Destination/Both port mirroring

**Hardware Specifications**
- Support of auto-negotiation
- Support of auto MDI/MDI-X
- Console: D-Sub 9 pin Female (DCE)
- Management: 1 out-of-band management RJ-45 port (ES-2048)

**ES-2024A**
- Ports: 24x10/100BASE-T, RJ-45 ports, and 2 dual-personality GbE ports (RJ-45 or SFP open slots)

**ES-2048**
- Ports: 48x10/100BASE-T, RJ-45 ports, and 2 dual-personality GbE ports (RJ-45 or SFP open slots)

**ES-2024PWR**
- Ports: 24x10/100BASE-T, RJ-45 Power over Ethernet (PoE) ports, and 2 dual-personality GbE ports (RJ-45 or SFP open slots)

**Power Requirements**
- Input voltage of AC: 100-240VAC, 50/60Hz
- Max power rating of AC:
  - 25Watt (ES-2024A)
  - 60Watt (ES-2048)
  - 200Watt (ES-2024PWR)

**Environmental Specifications**
- Operating temperature: 0˚C – 45˚C
- Storage temperature: -25˚C – 70˚C
- Operating humidity: 10% – 90% (non-condensing)

**Physical Specifications**
**ES-2024A (26 ports)**
- 24 x 10/100 ports + 2 x Dual-personality GbE ports
- Dimensions: 438 (W) x 173 (D) x 44.45 (H) mm
- Weight: 2.1Kg

**ES-2048 (50 ports)**
- 48 x 10/100 ports + 2 x Dual-personality GbE ports
- Dimensions: 438 (W) x 300 (D) x 44.45 (H) mm
- Weight: 4.0 Kg

**ES-2024PWR (26 ports)**
- 24 x 10/100 Power over Ethernet (PoE) ports + 2 x Dual-personality GbE ports
- Dimensions: 438 (W) x 270 (D) x 44.45 (H) mm
- Weight: 4.0 Kg

**Product Description**
**ES-2024A**
24-port Managed Layer 2 Fast Ethernet Switch, with Dual-personality Gigabit uplink

**ES-2048**
48-port Managed Layer 2 Fast Ethernet Switch, with Dual-personality Gigabit uplink

**ES-2024PWR**
24-port Managed Layer 2 Fast Ethernet Switch, with Power over Ethernet (PoE) support
### Operational Information

#### Transceiver (Optional)

<table>
<thead>
<tr>
<th>Model Name</th>
<th>Optical Receiver Sensitivity</th>
<th>Wavelength</th>
<th>Connector</th>
<th>Transmission Distance vs. Fiber Cable Specification</th>
<th>Operational Ranges</th>
<th>Supply Voltage</th>
<th>Max Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>SFP-SX</td>
<td>-17 dBm</td>
<td>850 nm</td>
<td>LC</td>
<td>Multi-Mode Fiber</td>
<td>62.5um</td>
<td>220 m</td>
<td>550 m</td>
</tr>
<tr>
<td>SFP-LX-10</td>
<td>-20 dBm</td>
<td>1310 nm</td>
<td>LC</td>
<td>Multi-Mode Fiber</td>
<td>50um</td>
<td>550 m</td>
<td>-</td>
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<tr>
<td>SFP-LHX1310-40</td>
<td>-23 dBm</td>
<td>1310 nm</td>
<td>LC</td>
<td>Single-Mode Fiber</td>
<td>9/10um</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SFP-ZX-80</td>
<td>-24 dBm</td>
<td>1550 nm</td>
<td>LC</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>80 km</td>
</tr>
</tbody>
</table>

For more product information, visit us on the web www.ZyXEL.com

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