



- Port-based and IEEE802.1Q Tagged VLAN (4K PVID)
- Intrusion lock, MAC Freeze, MAC filtering & Static MAC Forwarding for L1/L2 Security Protection
- 802.1x for Access Authentication and Management over VLAN and Bandwidth per Valid User's Attribute
- MVR Ensure Valid Transmission of Multicasting Stream on the Network-wide Multicast VLAN
- iStacking™ Clustering Technology, One IP Management for 24 Devices
- iManage™ Easy Management Tools (GUI, CLI & Text-based Configuration for Scripting)
- IEEE802.3af Power over Ethernet (PoE) Maximizes Installment Freedom (ES-2024PWR)
- Easy Web GUI for intelligent PoE power management (ES-2024PWR)



Managed Layer 2
Fast Ethernet Switch

ES-2000
SERIES

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 outage.

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,

Specifications

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

Performance

ES-2024A/ES-2024PWR

- 8.8Gbps non-blocking switching fabric
- Flexible design for both Gigabit copper and Gigabit fiber connectivity
- Switching Forwarding Rate 6.6Mpps (1488000pps/1000Base-T/1000Base-X, 148800pps/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, 148800pps/100Base-TX)
- Wire-speed performance

MAC and Packet Buffer

ES-2024A/ES-2024PWR

- 8K MAC entries
- 256KB Packet Buffer

ES-2048

- 16K MAC entries
- 32MB Packet Buffer

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

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

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)

Model Name	Optical Receiver Sensitivity	Wavelength	Connector	Transmission Distance vs. Fiber Cable Specification			Operational Ranges	
				62.5um Multi-Mode Fiber	50um Multi-Mode Fiber	9/10um Single-Mode Fiber	Supply Voltage	Max Current
SFP-SX	-17 dBm	850 nm	LC	220 m	550 m	-	3.15 ~ 3.45 V	300 mA
SFP-LX-10	-20 dBm	1310 nm	LC	550 m	550 m	10 km	3.15 ~ 3.45 V	300 mA
SFP-LHX1310-40	-23 dBm	1310 nm	LC	-	-	40 km	3.15 ~ 3.45 V	300 mA
SFP-ZX-80	-24 dBm	1550 nm	LC	-	-	80 km	3.15 ~ 3.45 V	300 mA