



The Ultimate L2+ Edge Switch for Multiple-play Applications

- 4GbE Uplink
- Backup Power System (BPS) Support
- Multi-layer (L2/L3/L4) ACL for Traffic Prioritization and Security Filtering
- IEEE 802.1p with Eight Priority Queues
- WFQ and SPQ Queuing Algorithms
- Port Security and enhanced IEEE 802.1x Port Authentication
- VLAN Stacking (Q-in-Q)
- Telnet, CLI and Web-based Management
- Full Power for simultaneous operation of 24 PoE Devices



Managed L2+ Fast Ethernet Switch

ES-3000
SERIES

Benefits

Premium Edge Switch for Service Provider and Enterprise Network

ZyXEL ES-3000 Series L2+ managed Ethernet Switch is designed for service providers and enterprise networks that demand the most stringent requirement over network resiliency, QoS and security protection. The ES-3000 Series offers premium features for excellent network performances and ensures network stability.

Robust and High- Availability System Design

The ES-3000 Series comes with comprehensive features to ensure round-the-clock operation of the network. With BPS support, power is supplied to the switch in case of an unexpected power outage. The IEEE802.3ad Link Aggregation feature reduces network downtime by providing redundant paths and bandwidth aggregation to critical connections. By utilizing unique design of 4G uplink, you own not only superb transmission bandwidth, but also extra-secured paths for critical transmission by aggregation of Gigabit ports. IEEE802.1w Rapid Spanning Tree Protocol (RSTP) allows immediate recovery from failed links by sending packets via the backup link.

Intelligent QoS for Multi-Service Optimization

Harnessing new cost-cutting IP applications (such as VoIP and video conferencing) in today's modern business environment makes a big difference in gaining the market advantage. The ES-3000 Series provides superior QoS capability to fully utilize the power of applications. Features like multi-layer (L2/L3/L4) ACL, eight priority queues, DSCP and WFQ scheduling algorithm allow you to maximize network bandwidth usage and provide quality of network services. With the support of MVR and IGMP snooping features, the ES-3000 Series enables successful IP multicasting transmission across multi-VLAN environment. In addition, the ES-3000 Series supports flexible bandwidth control with granularity of 64kbps which enables better bandwidth administration for network operators.

Complete, Multi-Layer Protection

The ES-3000 Series comes with 4-layered protection framework against network threats. Multi-layer (L2/L3/L4) ACL enables policy-based protection by setting (L2/L3/L4) parameters (such as the MAC, VLAN, IP, Protocol, TCP/UDP, and DSCP). The 4K VLAN range allows maximum administrative freedom in your network. For device access control, you can configure MAC freeze, MAC filtering and limit the number of MAC address learned on a port. Besides user authentication, IEEE 802.1x provides central network access management and offers further access control on VLAN, bandwidth and traffic priority queues. In addition, the intrusion lock feature on the ES-3000 Series is designed to prevent unauthorized access. Most importantly, support of VLAN Stacking (Q-in-Q) can be applied for enterprise-class L2VPN application. Thus, the ES-3000 Series allows you to implement a stricter layer1 to layer4 security policy.

Convenient, Hassle-free Network Management

The ZyXEL's exclusive iStacking™ technology allows you to manage a switch cluster (of up to 24 ZyXEL switches) through a single master ZyXEL switch. At the same time, various network management options are available, like Web, telnet and the console port are supported. Network administrators can choose to manage the switch using the friendly web-based configuration or the convenient text-based CLI (Command Line Interface.) Furthermore, the ES-3000 Series supports SNMP-based, centralized management software: NetAtlas Enterprise or NetAtlas Workgroup*. Thus switch maintenance can be done remotely. This helps reduce operation cost and greatly increase efficiency. For management security, use SSHv1/v2 and SSL to encrypt management sessions. Thanks to these sophisticated features, network administrators can set up powerful corporate networks and streamline their management efforts.

Specifications

Standard Compliance

- IEEE 802.3 10Base-T Ethernet
- IEEE 802.3u 100Base-Tx Ethernet
- IEEE 802.ab 1000Base-T Ethernet
- IEEE 802.3z 1000Base-X
- 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 (ES-3124PWR)
- IEEE 802.1ad VLAN Stacking

Performance

ES-3124/ES-3124PWR/ES-3124-4F

- 12.8Gbps non-blocking switching fabric
- Switching Forwarding Rate 9.6Mpps (1488000pps/1000Base-T/1000Base-X, 148800pps/100Base-TX)
- Wire-speed performance

ES-3148

- 17Gbps switching fabric
- Switching Forwarding Rate 13.1Mpps (1488000pps/1000Base-T/1000Base-X, 148800pps/100Base-TX)
- Wire-speed performance

MAC and Packet Buffer

- 16 K MAC entries
- 32 MB Packet Buffer

Traffic Management and QoS

- Rate Limiting: Rule-based/Port-based bandwidth control, 64kbps granularity
- Supports Dual-Rate-Three-Color
- Port-based egress traffic shaping
- Broadcast Storm Control
- Congestion control on all ports
- IEEE 802.1p with 8 priority queues per port for different types of traffic
- WFQ (Weighted Fair Queuing)/SPQ scheduling algorithm
- DSCP to 802.1p priority mapping
- Fast leave
- IGMP snooping
- MVR
- BPDU Transparency

Link Aggregation

- IEEE 802.3ad LACP link aggregation compliant
- Support static manually port trunking
- Up to 6 aggregation groups, per group support up to 8 ports

Resilient Network

- IEEE802.1w Rapid Spanning Tree Protocol (RSTP)
- MRSTP -Multiple RSTP
- BPS (Backup Power System)

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
- IP Filtering
- TCP/UDP Socket Filtering
- 802.1x port-based authentication, compensated assignment over VLAN and bandwidth for valid access
- 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
- VLAN Stacking (Q-in-Q)

Network Administration Security

- User name/password required for web/telnet/local console administrators
- Two level security by specific SNMP read/write community
- Multiple Log-in session
- Multiple access authorization management
- 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 v1, v2
- RS-232c Local console
- IP management: static IP or DHCP client
- 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
- Element Management Software (EMS) support for remote operation
EMS: 1. NetAtlas Enterprise
2. NetAtlas Workgroup

Intelligent ACL (L2/L3/L4 Access List Control)

- Based on MAC address
- Based on VLAN
- Based on IP address
- Based on Protocol type
- Based on TCP/UDP type
- Based on DSCP

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

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-3124

- 24 x 10/100Base-T, RJ-45 ports, 2 x 1000Base-T GbE ports and 2 dual-personality GbE ports (RJ-45 or SFP open slots)

ES-3148

- 48 x 10/100Base-T, RJ-45 ports, 2 x 1000Base-T GbE ports and 2 dual-personality GbE ports (RJ-45 or SFP open slots)

ES-3124PWR

- 24 x 10/100Base-T, RJ-45 Power over Ethernet ports, 2 x 1000Base-T GbE and 2 dual-personality GbE ports (RJ-45 or SFP open slots)

ES-3124-4F

- 24x10/100Base-T, RJ-45 ports, 2 x 1000Base-X SFP open slots and 2 dual-personality GbE ports (RJ-45 or SFP open slots)

Power Requirements

ES-3124/ES-3148/ES-3124-4F

- Input voltage of AC: 100-240VAC, 50/60Hz
- Max power rating of AC: 60 Watt
- Backup power supply into 12V DC

ES-3124PWR

- Input voltage of AC: 100-240VAC, 50/60Hz
- Max power rating of AC: 600 Watt
- Backup power supply into 12V DC

Environmental Specifications

- Operating temperature: 0°C ~ 45°C
- Storage temperature: -25°C ~ 70°C
- Operating humidity: 10% ~ 90%, (non-condensing)

Physical Specifications

ES-3124 (28 ports)

24-port Managed Layer 2+ Fast Ethernet Switch, with Dual-personality Gigabit uplink



- Dimensions: 438 (W) x 270 (D) x 44.45 (H) mm
- Weight: 3.6 Kg

ES-3148 (52 ports)

48-port Managed Layer 2+ Fast Ethernet Switch, with Dual-personality Gigabit uplink



- Dimensions: 438 (W) x 300 (D) x 44.45 (H) mm
- Weight: 4.2 Kg

ES-3124PWR (28 ports)

24-port Managed Layer 2+ Fast Ethernet Switch, with Power over Ethernet (PoE) support



- Dimensions: 438 (W) x 420 (D) x 44.45 (H) mm
- Weight: 6.8 Kg

ES-3124-4F (28 ports)

24-port Managed Layer 2+ Fast Ethernet Switch, with Four SFP Open Slots



- Dimensions: 438 (W) x 270 (D) x 44.45 (H) mm
- Weight: 3.6 Kg

* ES-3148 and ES-3124-4F will get EMS supported in the future

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

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

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