Data Communication    Optical Fiber    Tele Communication    IT Product & Services

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## FES-S6328-R2P

### *Copper Series L3+ 10G Routing Switch*

## Product Overview

The new developed FES copper series switches are FES next-generation 10G stackable routing switches that provide fixed gigabit access and 10GE uplink ports. FES Switches has advanced hardware and software architecture design. These switches provide high availability, scalability, security, energy efficiency, and ease of operation with innovative features such as **VSF (Virtual Switch Framework)**, IEEE 802.3 at optional and redundant power supplies. It is ideal for high-density aggregation or core layer in campus networks or SMB networks, as its high performance, availability and reliability.

The following models are available in the FES-S6328-R2P copper series switches.

| Appearance | Description |
|---|---|
| **FES-S6328-R2P** | • **20 x 10/100/1000BaseT + 4 x GE Combo (GT/SFP) + 4 x 10GE(SFP+)** <br> • **Fixed Redundant AC+AC Power supply** <br> • **1 console, 1 USB, 1 RJ45 management port** <br> • **1 Reset Button** <br> • **Forwarding performance: 95.23Mpps** <br> • **Switching capacity: 128Gbps** |
| **FES-S6328P-R2P** | • **20 x 10/100/1000BaseT + 4 x GE Combo (GT/SFP) + 4 x 10GE(SFP+)** <br> • **Fixed Single AC Power supply** <br> • **1 console, 1 USB, 1 RJ45 management port** <br> • **1 Reset Button** <br> • **PoE+ up to 375W** <br> • **Forwarding performance: 95.23Mpps** <br> • **Switching capacity: 128Gbps** |
| **FES-S6348-R2P** | • **48 x 10/100/1000BaseT + 4 x 10GE(SFP+)** <br> • **Fixed Redundant AC+AC Power supply** <br> • **1 console, 1 USB, 1 RJ45 management port** <br> • **1 Reset Button** <br> • **Forwarding performance: 131Mpps** <br> • **Switching capacity: 176Gbps** |

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# Key Features and Highlights

### Performance and Scalability

With high switching capacity, FES copper series support wire-speed L2/L3 forwarding and high routing performance for IPv4 and IPv6 protocols.

The 10Gigabit Ethernet connectivity of FES copper series switch is accomplished via a hot-pluggable 10 Gigabit SFP+ transceiver which supports distance up to 300 meters over multimode fiber and 10 to 40km over single-mode fiber (The distance depends the optical module chosen).

### VSF (Virtual Switch Framework)

Virtual Switch Framework can virtualize multiple FES switches into one logical device, achieving the sharing of information and data tables between different switches. The performance and ports density of virtualized device are greatly enlarged by times under VSF. VSF also simplifies management work for network administrator and provides more reliability.

### Rich L3 Features

FES copper series switches deliver high-performance, hardware based IP routing. RIP, OSPF and BGP provide dynamic routing by exchanging routing information with other Layer 3 switches and routers. With FES copper series, customers could easily achieve Policy based Route (PBR), which is important when they need multi exit application.

### Strong Multicast

FES copper series supports abundant multicast features. In Layer 2, such as IGMPv1/v2/v3 snooping and fast leave. L3 multicast protocols such as IGMPv1/v2/v3, PIM-DM, PIM-SM, PIM-SSM and even

MSDP. With Multicast VLAN Register (MVR), multicast receiver/sender control and illegal multicast source detect functions; FES copper series provides great application experience for customer.

### Easy High Reliability Network

MRPP is Multi-layer Ring Protection Protocol, which is FES's private fast Ethernet ring protocol. Comparing to spanning tree protocol, it has advantages of fast convergence, simple protocol calculation, less system resources cost and so on, which can improve the reliability of Ethernet network operation.

### Comprehensive QoS

With 8 queues per port, FES switches enable differentiated management of up to 8 traffic types. The traffic is prioritized according to IEEE802.1p, DSCP, IP precedence and TCP/UDP port number, giving optimal performance to real-time applications such as voice and video.

FES copper series switches also supports Bi-directional rate-limiting, per port or traffic class, preserves network bandwidth and allows full control of network resources.

### Enhanced Security

IEEE 802.1X port-based access control and MAC-based access control ensure all users are authorized before being granted access to the network.

Ingress/Egress Access Control Lists (ACLs) can be used to restrict access to sensitive network resources by denying packets based on L2/L3/L4 headers information. And for some services are based on time, the product can support time-based ACL to match the requirement.

Secure Shell (SSH) encrypts network management information via Telnet providing secure network management.

RADIUS Authentication enables centralized control of the switch and restricts unauthorized users from altering the configuration of the switch.

## Specifications:

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| Item | FES-S6328-R2P | FES-S6328P-R2P | FES-S6348-R2P |
|---|---|---|---|
| **Performance** | | | |
| **Switching Capacity** | 128Gbps | 128Gbps | 176Gbps |
| **Forwarding Rate** | 95.23Mpps | 95.23Mpps | 131Mpps |
| **Jumbo Frame** | 10K | 10K | 10K |
| **MAC Address** | 16K | 16K | 16K |
| **ARP Table** | 16K | 16K | 16K |
| **Routing Table** | 30K | 30K | 30K |
| **ACL Table** | 3K | 3K | 3K |
| **L3 Interface** | Max 1K | Max 1K | Max 1K |
| **Physical** | | | |
| **Dimension (W*H*D)** | 440mm x 44mm x 320mm | 440mm x 44mm x 320mm | 440mm x 44mm x 320mm |
| **Management port** | 1 x RJ45 Ethernet Management port<br>1x Console port<br>1x USB2.0 interface | | |
| **Power Supply** | Dual 50~60Hz AC:100~240VAC, | AC:100~240VAC, 50~60Hz | Dual AC: 100~240VAC, 50~60Hz |
| **Power Consumption** | <30W | <440W | <50W |
| **PoE** | NA | IEEE 802.3af<br>IEEE 802.3at<br>Total PoE power: 375W | NA |
| **Main Features** | | | |
| | IEEE802.3(10Base-T), IEEE802.3u(100Base-TX), IEEE802.3z(1000BASE-X), | | |
| | IEEE802.3ab(1000Base-T), IEEE802.3ae(10GBase), IEEE802.3x, IEEE802.3ak(10GBASE-CX4), | | |
| | Auto MDI/MDIX | | |
| | Port loopback detection | | |
| | LLDP and LLDP-MED | | |
| | UDLD | | |
| | 802.3ad LACP, max 128 group trunks with max 8 ports for each trunk | | |

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| **L1, L2 Features** | LACP load balance |
| | N:1 Port Mirroring |
| | RSPAN |
| | IEEEE802.1d(STP) |
| | IEEEE802.1w(RSTP) |
| | IEEEE802.1s(MSTP) |
| | Root Guard |
| | BPDU Guard |
| | BPDU Tunnel |
| | 802.1Q, 4K VLAN |
| | MAC VLAN, Voice VLAN, PVLAN, Protocol VLAN, Multicast VLAN |
| | QinQ, Flexible QinQ |
| | GVRP |
| | N:1 VLAN Translation |
| | Broadcast / Multicast / Unicast Storm Control |
| | IGMP v1/v2/v3 Snooping and L2 Query, IGMP Proxy, |
| | ND Snooping |
| | MLDv1/v2 Snooping |
| | Port Security |
| | Flow Control: HOL, IEEE802.3x |
| | Bandwidth Control |
| **L3 Features** | Static Routing, RIPv1/v2, OSPFv2, BGP4 OSPFv3, BGP4+ |
| | OSPF multiple process LPM Routing |
| | Policy-based Routing (PBR) for IPv4 and IPv6 VRRP |
| | URPF, ECMP BFD |
| | DVMRP, PIM-DM, PIM-SM, PIM-SSM, Any Cast RP, MSDP |
| | Static Multicast Route Multicast Receive Control Illegal Multicast Source Detect |
| | ARP Guard, Local ARP proxy, Proxy ARP, ARP Binding, Gratuitous ARP, ARP Limit |
| | Anti ARP Cheat, Anti ARP Scan |
| | DNS Client, DNS Relay |
| | GRE Tunnel |
| **IPv6** | 6to4 Tunnel, Configured Tunnel, ISATAP Tunnel, GRE Tunnel |
| | ICMPv6, ND, DNSv6 |
| | IPv6 LPM Routing, IPv6 Policy-based Routing (PBR) |
| | IPv6 VRRPv3, IPv6 URPF, IPv6 RA |
| | RIPng, OSPFv3, BGP4+ |
| | MLD Snooping, IPv6 Multicast VLAN |
| | MLDv1/v2, PIM-SM/DM for IPv6, IPv6 Any Cast RP, IPv6 ACL, IPv6 QoS |
| **QoS** | 8 Queues SWRR, SP, WRR, WDRR, SWDRR |
| | Traffic Classification Based on 802.1p COS, ToS, DiffServ DSCP, ACL, port number Traffic Policing |
| | PRI Mark/Remark |

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|---|---|
| **ACL** | IP ACL ,MAC ACL,IP-MAC ACL |
| | Standard and Expanded ACL Based on source/destination IP or MAC, IP Protocol, TCP/UDP port, DSCP, ToS, IP Precedence), VLAN, Tag/Untag, CoS |
| | Redirect and Statistics |
| | Rules can be configured to port, VLAN, VLAN routing interfaces Time Ranged ACL |
| **Security** | 802.1x AAA |
| | Port, MAC based authentication |
| | Accounting based on time length and traffic |
| | Guest VLAN and auto VLAN |
| | RADIUS for IPv4 and IPv6 |
| | TACACS+ for IPv4 and IPv6 |
| | MAB |
| **DHCPv4/v6 Traffic Monitor** | DHCP Server/Client for IPv4/IPv6 DHCP Relay/Option 82 |
| | DHCP Snooping/Option 82 |
| **Traffic Monitor** | sFlow Traffic Analysis |
| **Security Network Management** | CLI, WEB, Telnet, SNMPv1/v2c/v3 through IPv4 and IPv6 Syslog and external Syslog Server |
| | HTTP SSL |
| | SNMP MIB, SNMP TRAP, RMOM 1,2,3,9 FTP/TFTP |
| | SNTP/NTP |
| | Authentication by Radius/TACACS SSH v1/v2 |
| | Dual firmware images/ Configuration files 802.3ah OAM, 802.1ag OAM |
| **Data Center Features** | VSF (Virtual Switch Framework) |
| **Certificate** | ISO 9001:2015, FCC/21N1853, CE, RoHS, TL9000, ISO 14001:2015 |

## Order Information:

| Product | Description |
|---|---|
| **FES-S6328-R2P** | **10G Ethernet Routing Switch, 20 x 10/100/1000BaseT + 4 x GE Combo (GT/SFP) + 4 x10GE (SFP+), dual AC redundancy power supply.** |
| **FES-S6328P-R2P** | **10G PoE Ethernet Routing Switch, 20 x 10/100/1000BaseT + 4 x GE Combo (GT/SFP) + 4 x10GE (SFP+), One Fixed AC power supply. up to 375W for PoE** |
| **FES-S6348-R2P** | **10G Ethernet Routing Switch, 48 x 10/100/1000BaseT + 4 x 10GE(SFP+), dual AC Redundancy power supply.)** |