ZyXEL

Build a High Availability, Robust and Reliable Network— Meet the Challenge of Virtualization

- **High performance switching**
- **IPv4/IPv6 routing**
- **L3 advanced routing protocols, OSPF, DVMRP, VRRP and ECMP**
- **Optional modular 10 Gigabit Ethernet support**
- **Integrated Security**
  - **Multilayer-aware (L2/L3/L4) ACL for security protection and traffic optimization**
  - **Guest VLAN**
- **Advanced services**
  - **IGMP Snooping v1, v2, v3, MVR**
  - **sFlow, CPU protection**
- **High Availability**
  - **RSTP, MSTP, MRSTP, VRRP**
  - **Removable fan and power modules (XGS4700-48F)**

The ZyXEL XGS Series of L3 switches enable enterprise and SMB businesses to deploy high availability networks to meet the need to migrate to a virtualized and consolidated solution. The evolution to the virtualized network meets the increasing demands in server utilization and availability within the business today. The XGS4700 and XGS4500 Series compliments the network infrastructure of virtualization as both Series deliver not only robust, reliable enterprise-class L2/L3 switch features but are also designed to accomplish high-availability routing for better utilization of network bandwidth.

The ZyXEL XGS4700 Series consists of two models: XGS-4728F and XGS4700-48F. The XGS-4728F offers 24 dual-personality 1000BASE-T copper/SFP fiber ports, 2 built-in 12G Gigabit CX4 stacking interfaces and 1 open slot for the optional 10G Gigabit EM-422/412 uplink module which supports up to 2 10G transceivers. The XGS4700-48F offers 48 SFP Gigabit Ethernet ports plus 2 open slots for 2 10G Gigabit EM-422/412 uplink modules which support up to 4 10G transceivers.

The ZyXEL XGS4500 Series consists of two models: XGS-4528F and XGS-4526. Similar to the XGS-4728F, the XGS-4528F offers 24 Gigabit dual-personality ports along with 2 built-in 12G Gigabit stacking interfaces and 1 open slot for the optional 10G Gigabit EM-422/412 uplink module which supports up to 2 10G transceivers, while the XGS-4526 provides 20 Gigabit Ethernet ports, 4 Gigabit dual-personality ports and 1 open slot for the optional 10G Gigabit EM-422/412 uplink module which supports up to 2 10G transceivers.

Benefits

High-performance IPv6 and IPv4 routing

The ZyXEL XGS4700/XGS4500 Series provides businesses with a smooth migration path from IPv4 based networks to a full IPv6 infrastructure, providing investment protection for future network upgrades when a larger installation of connected devices is required. The XGS4700/XGS4500 Series utilizes the latest design technology to provide wire speed communication and full-dynamic IP routing features such as RIP, RIPv2 and OSPF as well as special features such as equal-cost, multi-path routing (ECMP) which load balances network traffic across multiple paths through the network that have the same costing. Packets can be delivered to the same device through different routing paths by designating the equal costs. Businesses can adopt basic static routing technology such as RIP and RIPv2 for small network routing applications or advanced routing protocols such as OSPF and ECMP for load balancing. These protocols are a critical part in the creation of fully resilient scalable networks.

XGS4700 Series
XGS4500 Series
24/48-port GbE L3 Switch with 10GbE Uplink

Optional 10G Gigabit uplink capability

The ZyXEL XGS4700/XGS4500 Series offers wire speed 10G Gigabit Ethernet uplink ports for campus networks or service providers to deliver high-bandwidth applications for congestion relief and smooth data delivery. With the 10 optional 10G Gigabit modules (CX4 and XFP interfaces), customers can easily integrate new elements into the existing networks and increase bandwidth at critical points of the network without having to go to the additional cost of purchasing whole new network switches.

Intelligent QoS for mission critical applications

In order to ensure the quality of multiple services on a converged network, adopting advanced traffic control technologies to manage different types of traffic flows is critical and necessary to businesses. The ZyXEL XGS4700/XGS4500 Series supports intelligent QoS features to regulate network traffic for the best performance. Taking advantage of Class of Service (CoS) and Differentiated Services Code Point (DSCP) support, network designers and administrators can easily classify and enable traffic prioritization for critical business applications such as VoIP and video conferencing. In addition, the XGS4700/XGS4500 Series also provides advanced bandwidth control with 64 kbps granularity and 8 hardware priority queues to bring better bandwidth administration to network operators.

High-level security for ultimate network protection

The ZyXEL XGS4700/XGS4500 Series works with an intelligent 3-tier security mechanism that offers complete data and management protection via a wide range of security features to protect subscriber data and deter unauthorized users through effective traffic administration.

The 802.1X Authentication and Port Security features provide the ability to stop unauthorized users from accessing the network, while Limited MAC Number by Port limits the total number of devices connected to a switch port, and thus significantly reducing the risk of unknown access from massively deployed wireless networks or hubs. To serve specific users such as guests or visitors to the business, the 802.1X Guest VLAN feature allows them to access the Internet via the Guest VLAN without entering the business's internal network.

The multilayer (L2/L3/L4) ACL suite of the XGS4700/XGS4500 Series has sophisticated rule-based control mechanisms that can be easily deployed based on actual network environments via a Web GUI or command-line interface to prevent illegitimate access. The rules can be defined to deny packets according to source and destination of MAC addresses, IP addresses or TCP/UDP ports.

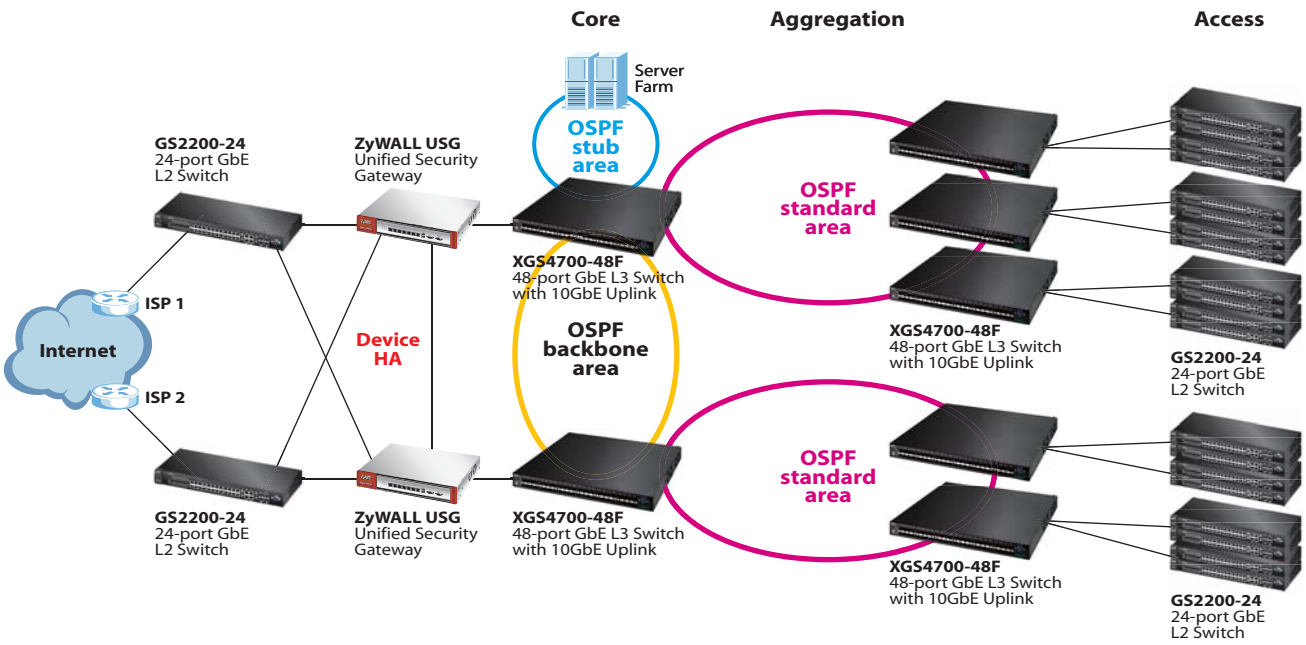
Robust and high-availability system design guarantees non-stop operations

The ZyXEL XGS4700/XGS4500 Series supports the VRRP routing protocol for resilience within the network to avoid the failure of transmission. The optional DC power source, called BPS, protects the device from internal AC power supply failures, while the IEEE 802.3ad Link Aggregation reduces network downtime by providing more packet paths and bandwidth aggregation to critical devices. The Gigabit connectivity not only gives superb transmission bandwidth, but also allows users to set up Gigabit aggregation for secured critical transmission. The IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) also allows immediate recovery from failed links by sending packets via a backup link path.

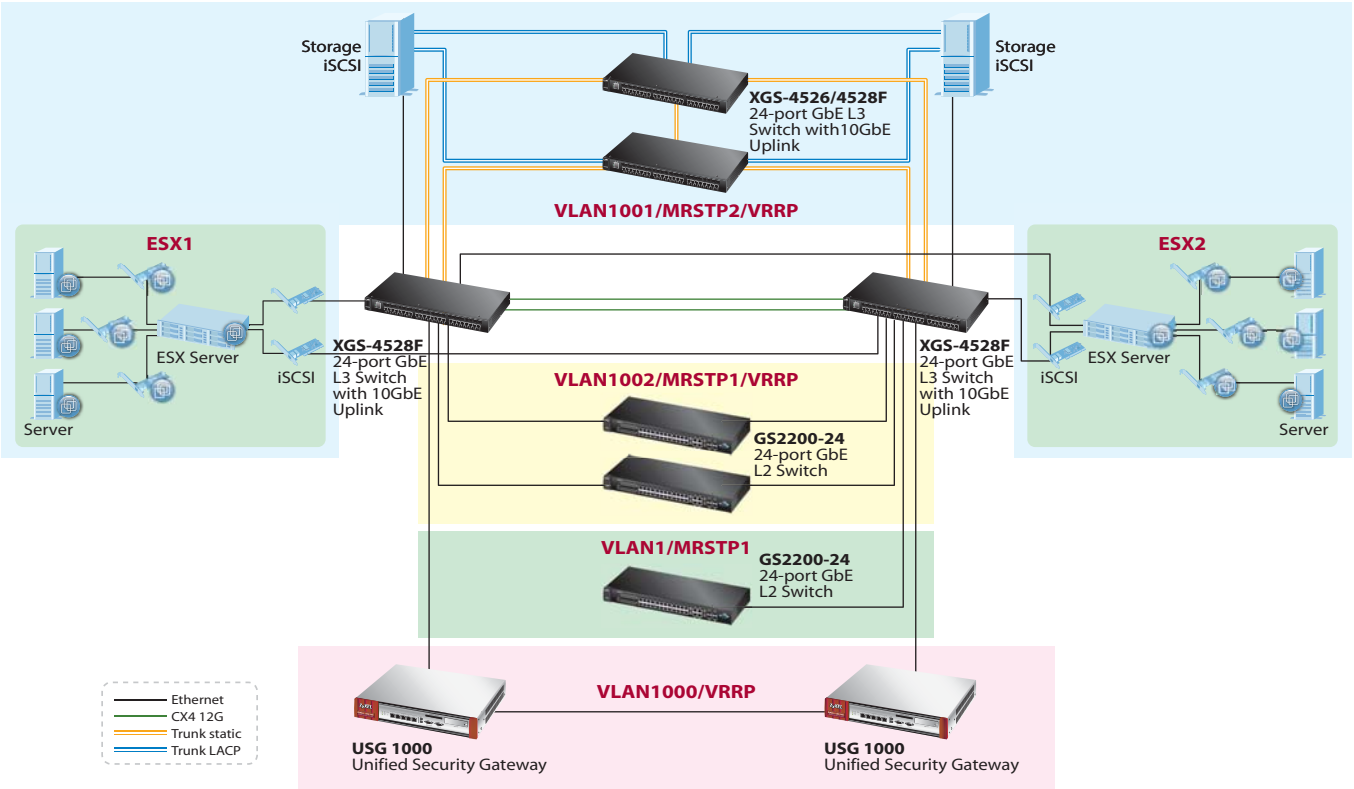
In addition, the XGS4700/XGS4500 Series supports CPU protection to provide the switch CPU with automatic protection against malicious network traffic trying to shut down the switch, which ensures priority/mission-critical tasks to be handled without interruption. The CPU protection feature enables the optimization of switch resources and also strengthens network protection considerably.

Key Applications

Single Site Campus

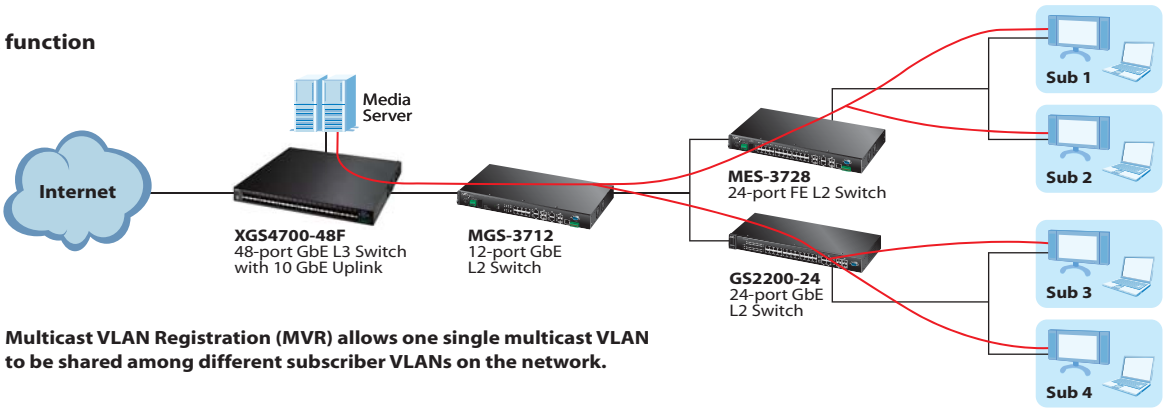


Virtualization



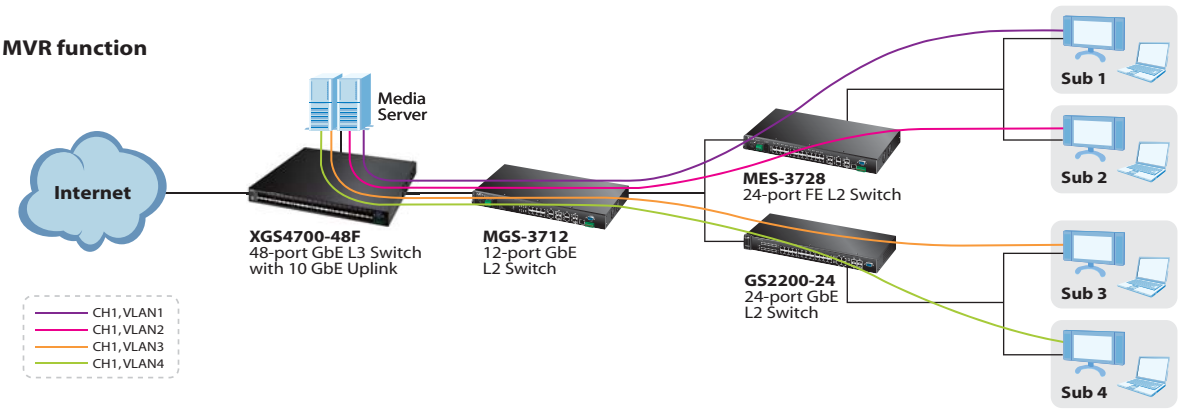
Hotel IPTV Service

With MVR function



Multicast VLAN Registration (MVR) allows one single multicast VLAN to be shared among different subscriber VLANs on the network.

Without MVR function



Specifications

Model	XGS4700-48F	XGS-4728F	XGS-4528F	XGS-4526
Product name	48-port GbE L3 Switch with 10GbE Uplink 	24-port GbE L3 Switch with 10GbE Uplink 	24-port GbE L3 Switch with 10GbE Uplink 	24-port GbE L3 Switch with 10GbE Uplink 
Port Density				
1000BASE-T	-	-	-	20
GbE Open SFP Slot	48	-	-	-
Dual personality GbE ports	-	24	24	4
10G expansion module slot	2	1	1	1
12G stacking port	-	2	2	-
Performance				
Switching capacity (Gbps)	192	144	144	96
Switching forwarding rate (Mpps)	143	100	100	71.4
Packet buffer (byte)	2M	2M	768K	768K
MAC address	32k	16k	8k	8k
IP address table	8K	8K	2K	2K
Routing entries	12K	8K	512	512
Routing domains	128	64	64	64
Certification				
Safety	ANSI/UL 60950-1 CSA 60950-1 EN 60950-1 IEC 60950-1			
Emission (EMC)	FCC Part15 (Class A) CE EMC (Class A)			
Others	EU RoHS Compliant			
Power Requirement				
Removable power module	Yes	-	-	-
Input voltage of AC	100 - 240 V AC, 50/60 Hz			
Input voltage of DC	-36 to -72 V DC	-36 to -72 V DC	-36 to -72 V DC	-
Physical Specifications				
Removable fan module	Yes	-	-	-
Item dimensions (WxDxH)(mm/in.)	440 x 424 x 44.5/ 17.52 x 16.70 x 1.75	438 x 310 x 44.5/ 17.24 x 12.20 x 1.75	438 x 310 x 44.5/ 17.24 x 12.20 x 1.75	438 x 310 x 44.5/ 17.24 x 12.20 x 1.75
Item weight (kg/lb.)	5.4/11.90	4.9/10.80	4.9/10.80	4.8/10.58
Packing dimensions (WxDxH)(mm/in.)	583 x 535 x 163/ 22.95 x 21.06 x 6.42	580 x 466 x 176/ 22.83 x 18.35 x 6.93	580 x 466 x 176/ 22.83 x 18.35 x 6.93	580 x 466 x 176/ 22.83 x 18.35 x 6.93
Packing weight (kg/lb.)	7.8/17.20	5.9/13.01	5.9/13.01	5.67/12.50
Environmental Specifications				
Operating temperature	0°C to 45°C/32°F to 113°F			
Storage temperature	-10°C to 70°C/14°F to 158°F			
Operating humidity	10% to 90% (non-condensing)			
Storage humidity	10% to 90% (non-condensing)			
MTBF (hr)	77,451	119,814	125,667	119,814
Heat dissipation (BTU/hr)	487.63	289.85	289.85	245.52

Features

Standard Compliance
- IEEE 802.3 10BASE-T Ethernet
- IEEE 802.3u 100BASE-Tx Ethernet
- IEEE 802.ab 1000BASE-T Ethernet
- IEEE 802.3x flow control
- IEEE 802.1D spanning tree protocol
- IEEE 802.1w rapid spanning tree protocol
- IEEE 802.1s multiple 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

Traffic Management and QoS
- Rate Limiting: Policy-based/Port-based bandwidth control, 64 kbps granularity
- Two Rate Three Color Marker (trTCM)
- CIR/PIR for bandwidth control
- Port-based egress traffic shaping
- Broadcast storm control
- IEEE 802.1p with 8 priority queues per port for different traffic types
- WFR (Weighted Fair Queue)/WRR (Weighted Round Robin)/SPQ scheduling algorithm
- DSCP/DSCP to 802.1p priority mapping
- IGMP/IGMP snooping v1, v2, v3
- IGMP throttling
- Support IGMP snooping fast leave
- Support IGMP snooping statistics
- Multicast VLAN Registration (MVR)
- Congestion control on all ports
- Selective QinQ

IP Routing and Service Features
IPv4
- Wire-speed IP forwarding
- RIP v1, v2
- OSPF
- Static routing
- DHCP server/relay
- OSPF summary address
- DVMRP, ECMP
- IP port moving
- VRRP

IPv6
- IPv6 over Ethernet
- IPv6 Addressing
- ICMPv6
- Dual Stack
- IPv6 static routing
- IPv6 MLD snooping proxy
- Neighbor discovery
- DHCPv6 relay

Link Aggregation
- IEEE 802.3ad LACP link aggregation
- Static manual port trunking
- Up to 12/24 aggregation groups (XGS-4728F, XGS-4528F, XGS-4526: 12; XGS4700-48F: 24), 8 ports per group randomly selected
- Link aggregation algorithm of source/destination IP address

Resilient Network
- IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)
- IEEE 802.1s Multiple Spanning Tree Protocol (MSTP)
- Backup Power System (BPS-120 for XGS-4728F, XGS-4528F, and XGS-4526)
- Redundant power (XGS4700-48F)
- Switch CPU Protection

User Security and Authentication
- IEEE 802.1Q tag-based and port-based VLAN
- Support GVRP, automatic VLAN member registration
- 1K static VLAN, up to 4K dynamic VLAN
- Full range 4K PVID support
- Port-base VLAN & VLAN isolation
- IP classification VLAN
- VLAN counter
- VLAN search
- VLAN translation
- VLAN MAC limit
- Intrusion Lock
- MAC freeze
- MAC search
- MAC filtering per port secures access to each port
- Port security
- Limited MAC number per port
- IP source guard
- Loop guard
- RADIUS MAC login
- IP filtering
- TCP/UDP socket filtering
- BPDU transparency
- 802.1X port-based authentication
- Enhanced 802.1X compensate assignment over VLAN and bandwidth
- TACACS+
- Layer 2 protocol tunneling
- Guest VLAN

Network Administration Security
- User name/password required for Web/Telnet/local console administrators
- Two-level security by specific SNMP read/write community
- Multiple login session
- Multiple access permission management
- SSH v1/v2
- SSL/TLS

Network Management
- ZyXEL iStackingTM, up to 24 switches managed by single IP address
- Web-based management
- Telnet CLI
- SNMP v1, v2c, v3
- RS-232c local console
- IP management: static IP or DHCP client
- RMON four RMON groups 1, 2, 3, 9 (history, statistics, alarms, and events)
- Port mirroring: source/destination/both port mirroring
- IEEE 802.1ag CFM
- IEEE 802.1AB LLDP
- Support transceiver DDMI information (including MIB)
- sFlow

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

Hardware
- 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

MIB Information
- RFC 1066 TCP/IP-based MIB
- RFC 1213, 1157 SNMP v2c/v3 MIB
- RFC 2011, 2012, 2013 SNMP v2 MIB
- RFC 1493 bridge MIB
- RFC 2674 bridge MIB extension
- RFC 1643 Ethernet MIB
- RFC 2358 Ethernet-like MIB
- RFC 1757 RMON group 1, 2, 3, 9
- RFC 2819, 2925 Remote Management MIB
- ZyXEL private MIB

Accessories

10-Gigabit Module (Optional)

Model	Features
EM-412 	• 2-port CX4 10 GbE module • Extended 10 GbE CX4 module for short distance deployment
EM-422 	• 2-slot XFP 10 GbE fiber module • Extended 10 GbE XFP module for long distance deployment

Backup Power System (Optional)

Model	Features
BPS-120 	• Up to 6 switches can be connected to one BPS-120 • Provides power to one switch without adding traffic, user interruption or switch reboot in case of any internal power supply failure on the switch. • Temperature, power and fan speed monitoring

FAN Module (Optional)

Model	Features
FAN4700-48F 	• Removable fan module for XGS4700-48F

Power Module

Model	Features
ACP4700-48F 	• Removable AC power module for XGS4700-48F • Requires 100 VAC to 240 VAC, 1.4 A power
DCP4700-48F 	• Removable DC power module for XGS4700-48F • Requires DC power supply input of -36 VDC to -72 VDC, 3 A Max no tolerance

Transceivers (Optional)

Speed	Model	Type	Description
10 Gigabit	FTLX8511D3 (XFP-SR)	LC connector	Multimode, up to 300 m reach
	FTLX1611M3 (XFP-ER)	LC connector	Singlemode, up to 40 km reach
	FTLX1412D3BCL (XFP-LR)	LC connector	Singlemode, up to 10 km reach
Gigabit	SFP-1000T	RJ-45 connector	Up to 100 m using standard Ethernet cable
	SFP-SX-D	LC connector	SFP SX 550 m commercial type transceiver, DDMI version
	SFP-LX-10-D	LC connector	SFP LX 10 km commercial type transceiver, DDMI version
	SFP-BX1310-10-D	LC connector	Bidirectional singlemode, up to 10 km reach, DDMI version*
	SFP-BX1490-10-D	LC connector	Bidirectional singlemode, up to 10 km reach, DDMI version*
	SFP-LHX1310-40-D	LC connector	SFP LHX 1310 wavelength 40 km commercial type transceiver, DDMI version
	SFP-ZX-80-D	LC connector	SFP ZX 80 km commercial type transceiver, DDMI version

**: Bi-directional SFP must be used in pairs (For example, connect 1 x SFP-BX1310-10-D and 1 x SFP-BX1490-10-D as a solution)*

ZyXEL

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

Copyright © 2012 ZyXEL Communications Corp. All rights reserved. ZyXEL, ZyXEL logo are registered trademarks of ZyXEL Communications Corp. All other brands, product names, or trademarks mentioned are the property of their respective owners. All specifications are subject to change without notice.

5-100-01012018 11/12