FS S5810 Series Switches Data Sheet

Contents

Product overview 3

Product highlights 4

Platform details 4

Platform benefits 10

Software requirements 11

Product specifications 11

Quality certification 13

Optics supported 13

Warranty, service and support 13

Ordering information 14

Additional information 14

Document history 14

Product overview

FS S5810 Series Switches are high-performance and strong-security 10G L3 enterprise switch with 760Gbps/2.56T switching capacity. FS S5810-20SQ and S5810-24XB-U are based on Broadcom® BCM56170, S5810-48SC is based on Broadcom® BCM56873.

The S5810-28FS aggregation switch is a managed Layer 3 multiservice switch with 8x 1G RJ45/SFP Combo ports. 4x 10G SFP+ uplink ports all allow any combination of up to 8 units S5810 series switches to be seamlessly interconnected and managed as a single device. This switch adopts cutting-edge Broadcom chips to deliver 136 Gbps switching capacity and 102 Mpps forwarding rate. It is packed with redundant hot-swappable power supplies and variable-speed axial fans for superior processing performance and network reliability. Boast advanced features, such as enhanced Layer 3 functionality, simplified management, flexible IPv6 capabilities, and diverse multicast protocols enterprise networks.

The S5810-48FS is a collection of next-gen multiservice switch, feartures 48x 1G SFP downlinks and 4x 10G SFP+ uplinks. It allows any combination of up to 8 units S5810 series switches to be seamlessly interconnected and managed as a single device. This switch adopts cutting-edge Broadcom chips to deliver 176 Gbps switching capacity and 132 Mpps forwarding rate. It is packed with redundant hot-swappable power supplies and variable-speed axial fans for superior processing performance and network reliability. Boast advanced features, such as enhanced Layer 3 functionality, simplified management, flexible IPv6 capabilities, and diverse multicast protocols.

The S5810-48TS-P features 48x 10/100/1000Mbps PoE ports and 4x 1G/10G uplink ports. It provides a max power budget of 740W for all PoE ports and up to 30W for every single PoE port respectively. All uplinks allow any combination of up to 8 units of S5810 series switches to be seamlessly interconnected and managed as a single device. It adopts cutting-edge Broadcom chips to deliver 176 Gbps switching capacity and 132 Mpps forwarding rate. It is packed with redundant hot-swappable power supplies and variable-speed axial fans for superior processing performance. Boast advanced features, such as enhanced Layer 3 functionality, simplified management, IPv6 capabilities, and diverse multicast protocols.

The S5810-28TS aggregation switch is a managed Layer 3 multiservice switch with 4x 10G SFP+ uplink ports all allow any combination of up to 8 units S5810 Series switches to be seamlessly interconnected and managed as a single device. This switch adopts cutting-edge Broadcom chips to deliver 136 Gbps switching capacity and 102 Mpps forwarding rate. It is packed with redundant hot-swappable power supplies and variable-speed axial fans for superior processing performance and network reliability. Boast advanced features, such as enhanced Layer 3 functionality, simplified management, flexible IPv6 capabilities, and diverse multicast protocols.

The S5810-48TS is a collection of next-gen multiservice switch, feartures 48x Gigabit RJ45 downlinks and 4x 10G SFP+ uplinks. It allows any combination of up to 8 units S5810 series switches to be seamlessly interconnected and managed as a single device. This switch adopts cutting-edge Broadcom chips to deliver 176 Gbps switching capacity and 132 Mpps forwarding rate. It is packed with redundant hot-swappable power supplies and variable-speed axial fans for superior processing performance and network reliability. Boast advanced features, such as enhanced Layer 3 functionality, simplified management, flexible IPv6 capabilities, and diverse multicast protocols.

Product highlights

- Broadcom Chip, Support Stacking on All Optical Ports
- 1+1 Hot-swappable Power Supplies and 2+1 Smart Fanss
- Support Layer 3 Features (RIP, OSPF, VRRP, etc.)
- Support WEB/CLI/SNMP/SSH for Flexible Operation
- Network Foundation Protection Policy (NFPP)
- Support SSH, ACL, AAA, 802.1X, RADIUS, TACACS+, etc. for Security
- IPv4/IPv6 Dual-Stack for Future Network Expansion
- Up to 48 PoE+ Ports, Total Budget 740W（Only for S5810-48TS-P Switch）

Platform details

Switch models and configurations

Figures 1 through 5 show the FS S5810 series switches.

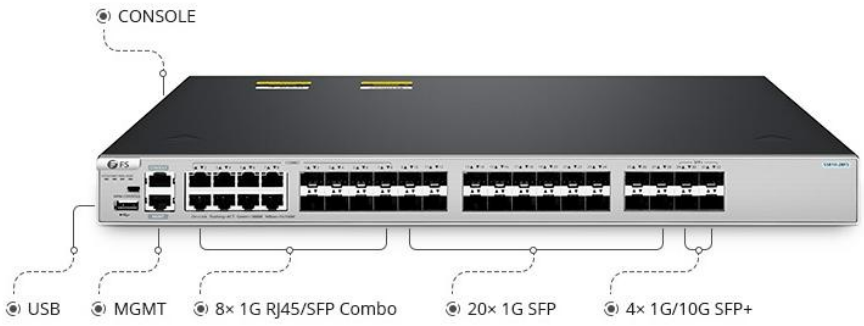

Figure 1.

S5810-28FS, 28-Port Gigabit Ethernet L3 Switch, 28 x 1Gb SFP, with 4 x 10Gb SFP+ Uplinks and 8 x 1G RJ45/SFP Combo Ports, Stackable Switch, Broadcom Chip

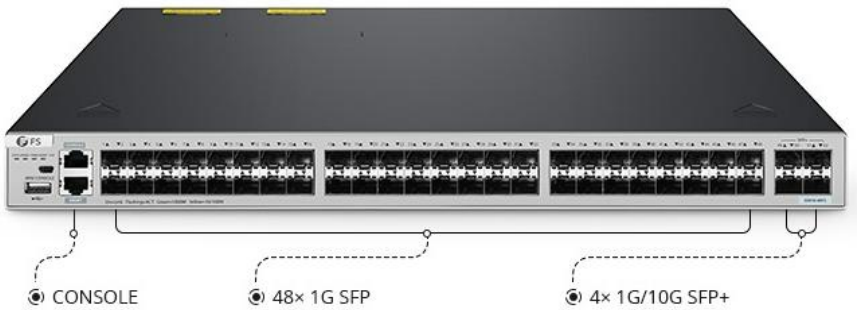

Figure 2.

S5810-48FS, 48-Port Gigabit Ethernet L3 Switch, 48 x 1Gb SFP, with 4 x 10Gb SFP+ Uplinks, Stackable Switch, Broadcom Chip

Platform details

Switch models and configurations

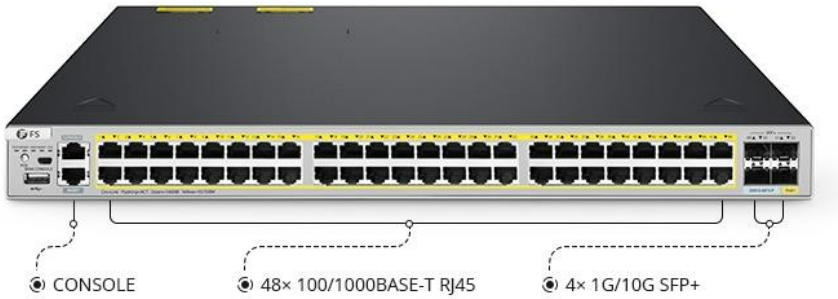

Figure 3.

S5810-48TS-P, 48-Port Gigabit Ethernet L3 PoE+ Switch, 48 x PoE+ Ports @740W, with 4 x 10Gb SFP+ Uplinks, Broadcom Chip

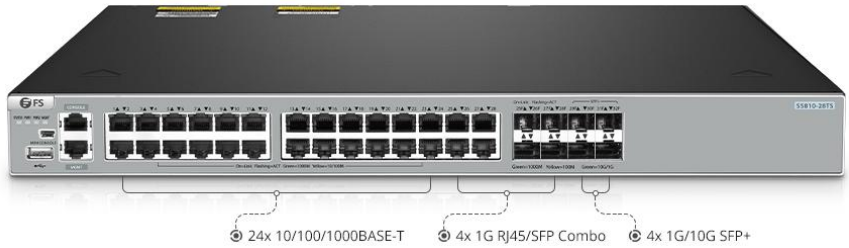

Figure 4.

S5810-28TS, 28-Port Gigabit Ethernet L3 Switch, 24 x Gigabit RJ45, 4 x Combo SFP Ports, with 4 x 10Gb SFP+ Uplinks, Broadcom Chip

Figure 5.

S5810-48TS, 48-Port Gigabit Ethernet L3 Switch, 48 x Gigabit RJ45, with 4 x 10Gb SFP+ Uplinks, Broadcom Chip

Switch configurations and port density

Table 1 shows the FS S5810 series configurations and port density.

Table 1. Switch configuration and port density

FS P/N	S5810-28FS	S5810-48FS	S5810-48TS-P	S5810-28TS	S5810-48TS
Description	28-Port Gigabit Ethernet L3 Switch, 28 x 1Gb SFP, with 4 x 10Gb SFP+ and 8 x 1G RJ45/SFP Combo	48-Port Gigabit Ethernet L3 Switch, 48 x 1Gb SFP, with 4 x 10Gb SFP+	48-Port Gigabit Ethernet L3 PoE+ Switch, 48 x PoE+ Ports @740W, with 4 x 10Gb SFP+	28-Port Gigabit Ethernet L3 Switch, 24 x Gigabit RJ45, 4 x Combo SFP Ports, with 4 x 10Gb SFP+	48-Port Gigabit Ethernet L3 Switch, 48 x Gigabit RJ45, with 4 x 10Gb SFP+
Port					
1G port density	28	48	48	28	48
10G port density	4	4	4	4	4
25G port density	-	-	-	-	-
40G port density	-	-	-	-	-
100G port density	-	-	-	-	-
10G port density with breakout cable	4	4	4	4	4
25G port density with breakout cable	-	-	-	-	-
40G port density with breakout cable	-	-	-	-	-
Management ports	1	1	1	1	1
Console port	1	1	1	1	1
USB port	1	1	1	1	1
Memory and processor					
Switch chip	BCM56342	BCM56340	BCM56340	BCM56170	BCM56170
CPU	ARM A9 Dual-Core CPU,1GHz	ARM A9 Dual-Core CPU,1GHz	ARM A9 Dual-Core CPU,1GHz	ARM A9 Dual-Core CPU,1GHz	ARM A9 Dual-Core CPU,1GHz
DRAM	1GB	1GB	1GB	1GB	1GB
SDRAM	1GB	1GB	1GB	1GB	1GB
Flash memory	512MB	512MB	512MB	512MB	512MB

FS P/N	S5810-28FS	S5810-48FS	S5810-48TS-P	S5810-28TS	S5810-48TS
Latency	2.704μs	6.54μs	1.11μs	200μs	200μs
Packet buffer	4MB	4MB	4MB	4MB	4MB

Note:

RJ45 ports can be used as 10/100/1000BASE-T ports for Ethernet connection.
SFP ports can be used for 100M/1G connection.
SFP+ports can be used for 1/10G connection.

Power supplies and fans

The FS S5810 Series switches ship with the dual 1+1 redundant power supply as default.
Table 2 provides more details on the FS S5810 series power supplies and fan specifications.

Table 2. Power supply and fan specifications

Description	S5810-28FS	S5810-48FS	S5810-48TS-P	S5810-28TS	S5810-48TS
Power supply	2x Hot-swappable Power Supplies (1+1 Redundancy)	2x Hot-swappable Power Supplies (1+1 Redundancy)	2x Hot-swappable Power Supplies (1+1 Redundancy)	2x Hot-swappable Power Supplies (1+1 Redundancy)	2x Hot-swappable Power Supplies (1+1 Redundancy)
Fan number	3x Built-in Fans (2+1 Redundancy)	3x Hot-swappable Fans (2+1 Redundancy)	3x Built-in Fans (2+1 Redundancy)	3x Built-in Fans (2+1 Redundancy)	3x Built-in Fans (2+1 Redundancy)
Airflow	Left-to-Right	Left-to-Right	Left-to-Right	Left-to-Right	Left-to-Right
Acoustic noise	<78dB	<78dB	<78dB	<78dB	<78dB
Maximum fan speed	All models in the series deploy variable-speed axial fans, which support intelligent speed adjustment based on the current ambient temperature.				
Max. power consumption	<55W	<100W	<880W(Full-load)	<45W	<45W
Power max rating	<55W	<100W	<880W(Full-load)	<45W	<45W
Input-voltage range and frequency	• Rated voltage range: 100-240VAC; 50-60Hz • Maximum voltage range: -AC input: 100-240VAC, 50-60Hz				
Input current	100-240VAC, 50-60Hz, 2A	100-240VAC, 50-60Hz, 3A Max	100-240VAC, 50-60Hz, 3.5AMax	100-240VAC, 50-60Hz	100-240VAC, 50-60Hz
Output ratings	70W	150W	500W	70W	150W

Description	S5810-28FS	S5810-48FS	S5810-48TS-P	S5810-28TS	S5810-48TS
Power cord rating	2A	3A	3.5A	-	-
PoE standard	-	-	IEEE 802.3af/at	-	-
PoE power budget	-	-	370W(Single-power); 740W(Dual- power)	-	-

Stacking

The FS S5810 Series switch models are designed for stacking switches as a single virtual switch, enabling customers to have a single management plane and control plane for up to 152 access ports.

Table 3 lists the supported stacking options.

Table 3. Supported stacking options

Part Name	S5810-28FS	S5810-48FS	S5810-48TS-P	S5810-28TS	S5810-48TS
Stacking ports	Last 4 uplink ports (4*10G)	Last 4 uplink ports (4*10G)	Last 4 uplink ports (4*10G)	Last 4 uplink ports (4*10G)	Last 4 uplink ports (4*10G)
Supported stack members	Support Up to 8 Units S5810 Series Stacking	Support Up to 8 Units S5810 Series Stacking	Support 8 Units Stacking	Support 8 Units Stacking	Support 8 Units Stacking
Maximum number of VSL links	6	8	4	4	4
Number of members	8	8	8	8	8

Note:

All 10G ports can be stacked by transceivers or DAC/AOC lines, supporting port mixing, each 10G port is a stack group.

Switch performance

Table 4 shows performance specifications for the FS S5810 series switches.

Table 4. Performance specifications

Performance for all S5810 Series Switches	S5810-28FS	S5810-48FS	S5810-48TS-P	S5810-28TS	S5810-48TS
Switching capacity	136 Gbps	176 Gbps	176 Gbps	136 Gbps	176 Gbps
Forwarding rate	102 Mpps	132 Mpps	132 Mpps	102 Mpps	132 Mpps
Total number of MAC addresses	64K	64K	64K	64K	64K
Total number of IPv4 routes (indirect routes)	12000	12000	12000	12000	12000
Total number of IPv4 host routes (direct routes and ARP)	10000	10000	10000	10000	10000
Total number of IPv6 routes (indirect routes)	6000	6000	6000	6000	6000
Total number of IPv6 host routes (direct routes and NDP)	2000	2000	2000	2000	2000
Total number of IPv4 multicast routes	12000	12000	12000	12000	12000
Total number of IPv6 multicast routes	6000	6000	6000	6000	6000
QoS ACL scale	-	-	-	-	-
Security ACL scale	3500 IPv4/v6rules	3500 IPv4/v6rules	3500 IPv4/v6rules	3500 IPv4/v6rules	3500 IPv4/v6rules
VLAN IDs	4000	4000	4000	4000	4000
STP virtual ports (port* VLANs) for MST	64	64	64	64	64
Total switched virtual interfaces (SVIs)	4K	4K	4K	4094	4094
Jumbo frame	9216 bytes	9216 bytes	9216 bytes	9216 bytes	9216 bytes

Platform benefits

Table 5 lists the software spotlights for the FS S5810 series switches.

Table 5. Software spotlights

Functionality	Description
Physical stacking for simplified management	Up to 8 units stacking Simplified network topology Fault recovery within milliseconds Hot swap without affecting normal operation of other devices
Sound security protection policies	Support hardware-based IPv6 ACLs Support hardware CPU protection mechanism Support DHCP snooping Support the IP-based Telnet access control Support the Secure Shell (SSH) and SNMPv3 Support Network Foundation Protection Policy (NFPP)
High reliability	Support Virtual Router Redundancy Protocol (VRRP) Support Rapid Link Detection Protocol (RLDP) Support Ethernet Ring Protection Switching (ERPS)(G.8032) Support Rapid Ethernet Uplink Protection Protocol (REUP) Support Bidirectional Forwarding Detection (BFD) Defend against up to 6 kV lightning Support Non-stop PoE (Only for S5810-48TS-P switch）
Perfect compatibility performance	With the standard protocol specified by IEEE802.3, which can form good intercommunication with other brand equipment at the forwarding level Compatible with standard protocols such as MSTP/OSPF/RIP/BGP/VRRP/SNMP/IS-IS/DHCP/NTP of other equipment
Easy network maintenance	Support SNMP (Managed by Zabbix), RMON, log and configuration backup Support Syslog, CLI, Web-based management, Telnet, etc.
IPv4/IPv6 dual-stack multi-layer switching	Support line-rate IPv4/IPv6 dual-stack multi-layer switching Support static routing, RIPv1/v2, OSPFv2, IS-IS, BGP4, RIPng, OSPFv3, IS-ISv6 and BGP4+
QoS	Support classifying and controlling various flows Support 802.1p, IP ToS, traffic filtering, SP, WRR Support flow bandwidth control, forwarding priority, and other flow policies
Strong multi-service support capability	Support the IPv4 and IPv6 multicast functions Support IGMP snooping, IGMP, MLD, PIM, MSDP Support IGMP source port and source IP check function
Energy efficiency	Hardware architecture to reduce energy consumption and noise Variable-speed axial fans to intelligently control the fan speed Support auto-power-down mode Support EEE energy-saving mode

Software requirements

The FS S5810 Series Switches run on FS OS Software version.

Table 6 lists the latest software requirements for the switch models.

Table 6. Latest software requirements

FS P/N	Description	Latest software requirements
S5810-28FS	S5810-28FS, 28-Port Gigabit Ethernet L3 Switch, 28 x 1Gb SFP, with 4 x 10Gb SFP+ Uplinks and 8 x 1G RJ45/SFP Combo Ports, Stackable Switch, Broadcom Chip	
S5810-48FS	S5810-48FS, 48-Port Gigabit Ethernet L3 Switch, 48 x 1Gb SFP, with 4 x 10Gb SFP+ Uplinks, Stackable Switch, Broadcom Chip	
S5810-48TS-P	S5810-48TS-P, 48-Port Gigabit Ethernet L3 PoE+ Switch, 48 x PoE+ Ports @740W, with 4 x 10Gb SFP+ Uplinks, Broadcom Chip	S5810 Series Switches FSOS 11.4_B74S4 Software
S5810-28TS	S5810-28TS, 28-Port Gigabit Ethernet L3 Switch, 24 x Gigabit RJ45, 4 x Combo SFP Ports, with 4 x 10Gb SFP+ Uplinks, Broadcom Chip	
S5810-48TS	S5810-48TS, 48-Port Gigabit Ethernet L3 Switch, 48 x Gigabit RJ45, with 4 x 10Gb SFP+ Uplinks, Broadcom Chip	

Product specifications

Table 7 shows the product specifications for the FS S5810 series switches.

Table 7. Product specifications

Description	S5810-28FS	S5810-48FS	S5810-48TS-P	S5810-28TS	S5810-48TS
Environmental					
Operating temperature	0 to 50°C (32 to 122°F)	0 to 50°C (32 to 122°F)	0 to 50°C (32 to 122°F)	0 to 50°C (32 to 122°F)	0 to 50°C (32 to 122°F)
Storage temperature	-40 to 70°C (-40 to 158°F)	-40 to 70°C (-40 to 158°F)	-40 to 70°C (-40 to 158°F)	-40 to 70°C (-40 to 158°F)	-40 to 70°C (-40 to 158°F)
Operating humidity	10% to 90% (Non-condensing)	10% to 90% (Non-condensing)	10% to 90% (Non-condensing)	10% to 90% (Non-condensing)	10% to 90% (Non-condensing)
Temperature alarm	Supported	Supported	Supported	Supported	Supported
Acoustic noise	<78dB	<78dB	<78dB	<78dB	<78dB

Description	S5810-28FS	S5810-48FS	S5810-48TS-P	S5810-28TS	S5810-48TS
Physical specifications					
Dimensions (HxWxD)	1.73''x17.32''x11.81'' (44x440x300mm)	1.73''x17.32''x13.39'' (44x440x340mm)	1.73''x17.32''x16.54'' (44x440x420mm)	1.73''x17.32''x11.02'' (44×440×280mm)	1.73''x17.32''x11.02'' (44×440×280mm)
Rack units (RU)	1U	1U	1U	1U	1U
Weight	9.26 lbs (4.2kg)	10.36 lbs (4.7kg)	13.45 lbs (6.1kg)	8.60 lbs (3.9kg)	9.26 lbs (4.2kg)
Distance	-	100M	-	-	-
Electrical					
Voltage (auto ranging)	100-240VAC	100-240VAC	100-240VAC	100-240VAC	100-240VAC
Frequency	50-60Hz	50-60Hz	50-60Hz	50-60Hz	50-60Hz
Current	2A	3A Max	3.5AMax	-	-
Power rating (maximum consumption)	70W	150W	500W	70W	150W
Mean-time between failures					
MTBF (hours)	>200K	>200K	>200K	>200K	>200K
Connectors					
Connectors and cabling	• 1G-T port: RJ-45 connector, Cat5E/Cat6/Cat6a UTP cabling • 1G SFP Ports: 1G SFP Single Mode or Multimode Module + Patch Cord; 1G DAC/AOC • 10G SFP ports: 10G SFP single-mode or multi-mode module + patch cord; 10G DAC/AOC • StackWise stacking port: Copper based FS StackWise cabling Ethernet management port: RJ-45 connector, Cat5 UTP cabling • Management console port: RJ-45 to DB9 cable for PC connection, 10G DAC/AOC connection stacking or 10G SFP single-mode multi-mode module + jumper				
Power connectors	• Customers can provide power to a switch by using the internal power at the back of the switch • Internal power supply connector: The internal power supply is an auto-ranging unit. It supports input voltages between 100 (115 for 1100WAC) and 240 VAC. Use the supplied AC power cord to connect the AC power connector to an AC power outlet				
Standards					
Standards	802.1s, 802.1w, 802.1x, 802.1d, 802.1p, 802.1q, RMON, SNMPV1 V2 V3				

Quality certification

At FS, our Quality Commitment lies in all aspects of processes, resources, and methods that enable us to build superior networks for our customers. Through a quality policy focusing on continuous improvement of products and services, we're able to achieve the highest levels of satisfaction for our customers. To that end, every FS employee is accountable for contributing to the value of the products and services we deliver.

Figures 6/7 shows some of the authoritative certifications obtained by FS S5810 Series Switches.

Figure 6. S5810-28FS/S5810-48FS/S5810-48TS-P

Figure 7. S5810-28TS/S5810-48TS

Optics supported

For details about the optical modules available, visit:
S5810-28FS: Transceivers DACs and AOCs Supported on S5810-28FS Switch
S5810-48FS: Transceivers DACs and AOCs Supported on S5810-48FS Switch
S5810-48TS-P: Transceivers DACs and AOCs Supported on S5810-48TS-P Switch

Warranty, service and support

FS S5810 Series Switches enjoy 5 years limited warranty against defects in materials or workmanship. For more information for FS Returns & Refunds policy, visit https://www.fs.com/policies/warranty.html or https://www.fs.com/policies/day_return_policy.html

FS provides a personal account manager, free professional technical support, and 24/7 live customer service to each customer.support.html

- Professional Lab: Test each product with the latest and advanced networking equipment.
- Free Technical Support: Provide free & tailored solutions and services for your businesses.
- 80% Same-day Shipping: Immediate shipping for in-stock items.
- Fast Response: Direct and immediate assistance from an expert.

For more information, visit https://www.fs.com/service/fs_support.html

Ordering information

Table 8 provides the ordering information for S5810 series switches.

Table 8. Ordering information

FS P/N	Product description
Switch hardware	
S5810-28FS	S5810-28FS, 28-Port Gigabit Ethernet L3 Switch, 28 x 1Gb SFP, with 4 x 10Gb SFP+ Uplinks and 8 x 1G RJ45/SFP Combo Ports, Stackable Switch, Broadcom Chip
S5810-48FS	S5810-48FS, 48-Port Gigabit Ethernet L3 Switch, 48 x 1Gb SFP, with 4 x 10Gb SFP+ Uplinks, Stackable Switch, Broadcom Chip
S5810-48TS-P	S5810-48TS-P, 48-Port Gigabit Ethernet L3 PoE+ Switch, 48 x PoE+ Ports @740W, with 4 x 10Gb SFP+ Uplinks, Broadcom Chip
S5810-28TS	S5810-28TS, 28-Port Gigabit Ethernet L3 Switch, 24 x Gigabit RJ45, 4 x Combo SFP Ports, with 4 x 10Gb SFP+ Uplinks, Broadcom Chip
S5810-48TS	S5810-48TS, 48-Port Gigabit Ethernet L3 Switch, 48 x Gigabit RJ45, with 4 x 10Gb SFP+ Uplinks, Broadcom Chip

Additional information

For more information about the S5810 Series Switches, contact your account manager or visit https://www.fs.com/search_result?keyword=S5810

Document history

New or revised topic	Described in	Date
Updates to FS S5810 Series Switches Data Sheet	Updated all	9/27/2022

Shenzhen (China)

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FS has several offices around the world. Addresses, phone numbers are listed on the FS Website at https://www.fs.com/contact_us.html

1000BASE-LX SFP 1310nm 10km DOM Transceiver

SFP1G-LX-31

Application

- Gigabit Ethernet Switches and Routers
- Fiber Channel Switch Infrastructure
- Ethernet/SDH/OTN Sonet
- Other Optical Links

Features

- Operating Data Rate up to 1.25Gbps
- 10km with 9/125 μm SMF
- Single 3.3V Power Supply and TTL Logic Interface
- Hot-Pluggable SFP Footprint Duplex LC Connector Interface
- Class 1 FDA and IEC60825-1 Laser Safety Compliant
- Built-in digital diagnostic functions, including optical power monitoring
- Commercial Temperature Range: 0~+70℃
- Extended Temperature Range: -5~85℃
- Industrial Temperature Range: -40~85℃
- Compliant with MSA SFP Specification
- Compliant with SFF-8472

Description

The SFP1G-LX-31 series single-mode transceivers are small form factor pluggable module for bi-directional serial optical data communications such as Gigabit Ethernet 1000BASE-LX and Fiber Channel 1x SM-LC-L FC-PI. It is with the SFP 20-pin connector to allow hot plug capability. This module is designed for single mode fiber and operates at a nominal wavelength of 1310nm.

The transmitter section uses a multiple quantum well 1310nm laser and is a class 1 laser compliant according to International Safety Standard IEC-60825. The receiver section uses an integrated InGaAs detector preamplifier (IDP) mounted in an optical header and a limiting post-amplifier IC. The SFP1G-LX-31 series are designed to be compliant with SFF-8472 SFP Multi-source Agreement (MSA).

Product Specifications

I. General Product Characteristics

Parameter	Symbol	Min	Typ.	Max	Unit
Bit Rate	BR			1.25	Gb/s
Max. Supported Link Length	L_{MAX}			10	km

II. Absolute Maximum Ratings

*Exceeding any one of these values may destroy the device immediately

Parameter	Symbol	Min	Max	Units
Storage Temperature	Ts	-40	+85	℃
Supply Voltage	Vcc	-0.5	3.6	V
Operating Relative Humidity		-	95	%
MTBF（-40~85℃）	1,000,000 Hours			

III. Optical and Electrical Characteristics

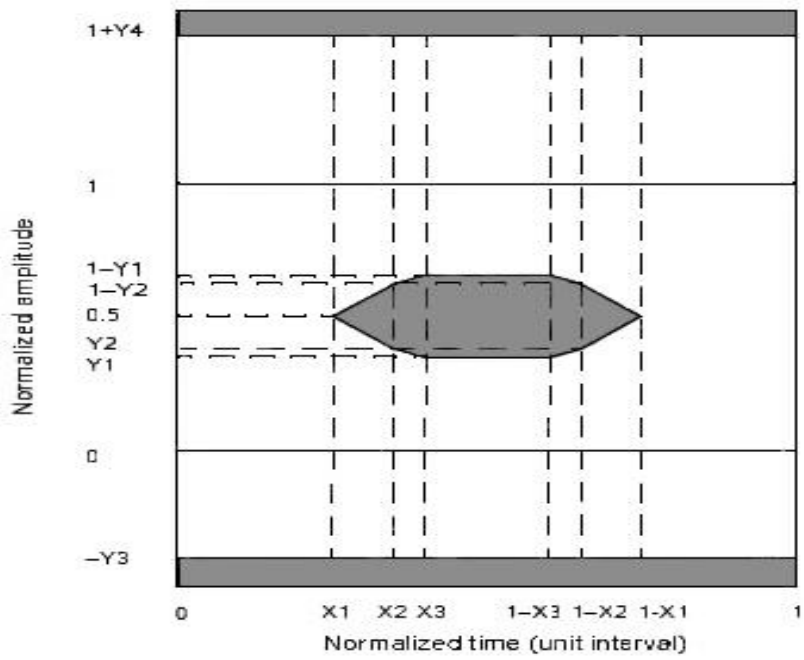
Parameter		Symbol	Min	Typ.	Max	Unit
9μm Diameter SMF		L		10		Km
Power Supply Voltage		V_{CC}	3.15	3.3	3.45	V
Power Supply Current		I_{CC}			300	Ma
Date Rate	**GBE**			1.25		Gbps
	FC			1.063		
Transmitter						
Center Wavelength		λC	1260	1310	1360	nm
Spectral Width (RMS)		Δλ			4	nm
Average Output Power*(note1)		Pout	-9.5		-3	dBm
Extinction Ratio*(note2)		ER	9			Db
Rise/Fall Time(20%～80%)		tr/tf			0.26	ps
Total Jitter*(note2)		TJ			0.43	UI
Output Optical Eye*(note2)		IEEE802.3z and ANSI Fiber Channel Compliant*(note4)				
TX_Disable Assert Time		t_off			10	us
Pout@TX Disable Asserted		Pout			-45	dBm

Receiver

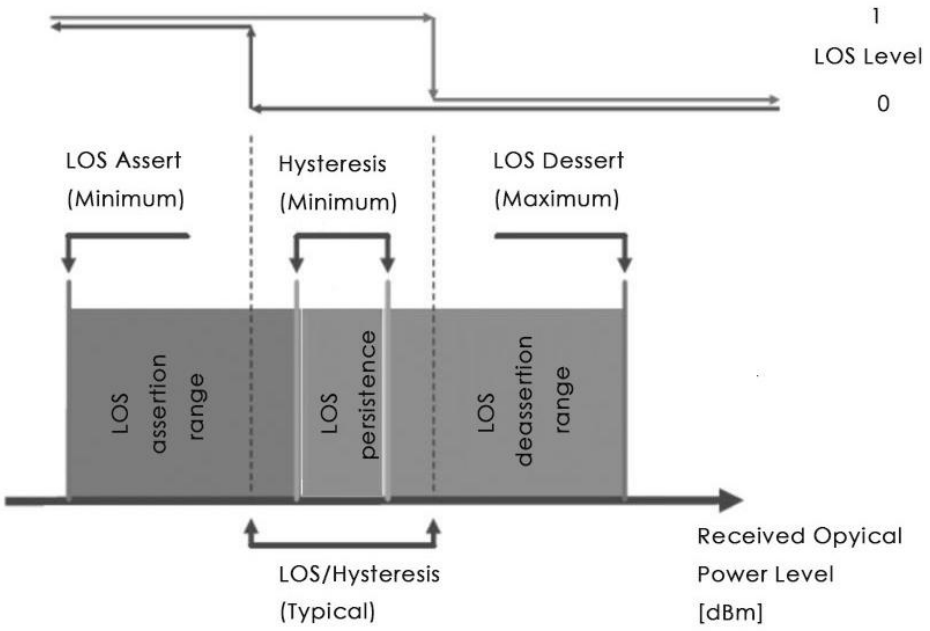
Center Wavelength	λC	1260		1600	nm
Receiver Sensitivity*(note3)	Pmin			-20	dBm
Receiver Overload	Pmax	-3			dBm
Return Loss		12			Db
LOS De-Assert	LOS_D			-22	dB
LOS Assert	LOS_A	-35			dBm
LOS Hysteresis*(note5)		0.5			Db

Notes:

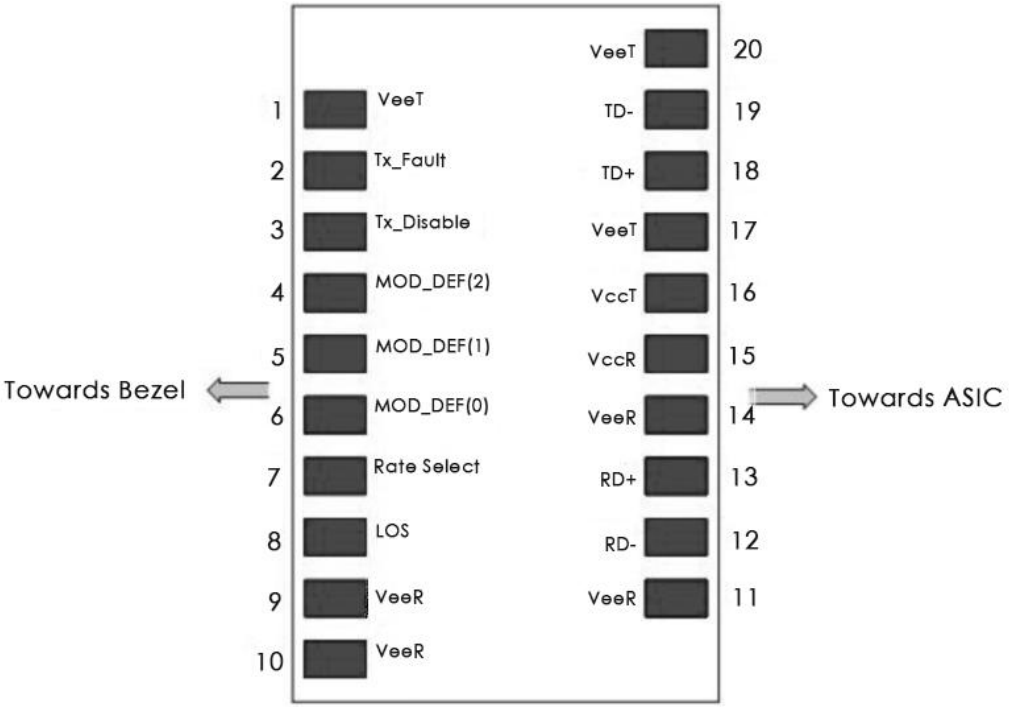
1. Output is coupled into a 9/125 μm single mode fiber.
2. Filtered, measured with a PRBS 27-1 test pattern @1.25Gbps
3. Minimum avera0ge optical power measured at BER less than 1E-12, with a 27-1 PRBS and ER=9 Db.
4. Eye Pattern Mask.



5.LOS Hysteresis



IV. Pin Description



Pin Num.	Name	Function	Plug Seq.	Notes
1	VeeT	Transmitter Ground	1	Note5
2	TX Fault	Transmitter Fault Indication	3	Note 1
3	TX Disable	Transmitter Disable	3	Note 2 Module disables on high or open
4	MOD-DEF2	SDA	3	Note 3 2 wire serial ID interface.
5	MOD-DEF1	SCL	3	Note 3 2 wire serial ID interface.
6	MOD-DEF0	MOD_ABS	3	Note 3 Grounded within the module.
7	Rate Select	Not Connect	3	Function not available
8	LOS	Loss of Signal	3	Note 4
9	VeeR	Receiver Ground	1	Note 5
10	VeeR	Receiver Ground	1	Note 5
11	VeeR	Receiver Ground	1	Note 5
12	RD-	Inv. Received Data Out	3	Note 6
13	RD+	Received Data Out	3	Note 7
14	VeeR	Receiver Ground	1	Note 5
15	VccR	Receiver Power	2	Note 7 3.3V ± 5%
16	VccT	Transmitter Power	2	Note 7 3.3V ± 5%
17	VeeT	Transmitter Ground	1	Note 5
18	TD+	Transmit Data In	3	Note 8
19	TD-	Inv. Transmit Data In	3	Note 8
20	VeeT	Transmitter Ground	1	Note 5

Notes:

1. TX Fault is an open collector/drain output, which should be pulled up with a 4.7K - 10KΩ resistor on the host board. Pull up voltage between 2.0V and VccT, R+0.3V. When high, output indicates a laser fault of some kinds. Low indicates normal operation. In low state, the output will be pulled to < 0.8V.

2. TX disable is an input that is used to shut down the transmitter optical output. It is pulled up within the module with a 4.7 – 10 KΩ resistor. Its states are: Low (0 – 0.8V): Transmitter on (>0.8, < 2.0V): Undefined High (2.0 – 3.465V): Transmitter Disabled Open: Transmitter Disabled

3. Mod-Def 0,1,2. These are the module definition pins. They should be pulled up with a 4.7 – 10 KΩ resistor on the host board. The pull-up voltage shall be VccT or VccR . Mod-Def 0 is grounded by the module to indicate that the module is present Mod-Def 1 is the clock line of two wire serial interface for serial ID Mod-Def 2 is the data line of two wire serial interface for serial ID

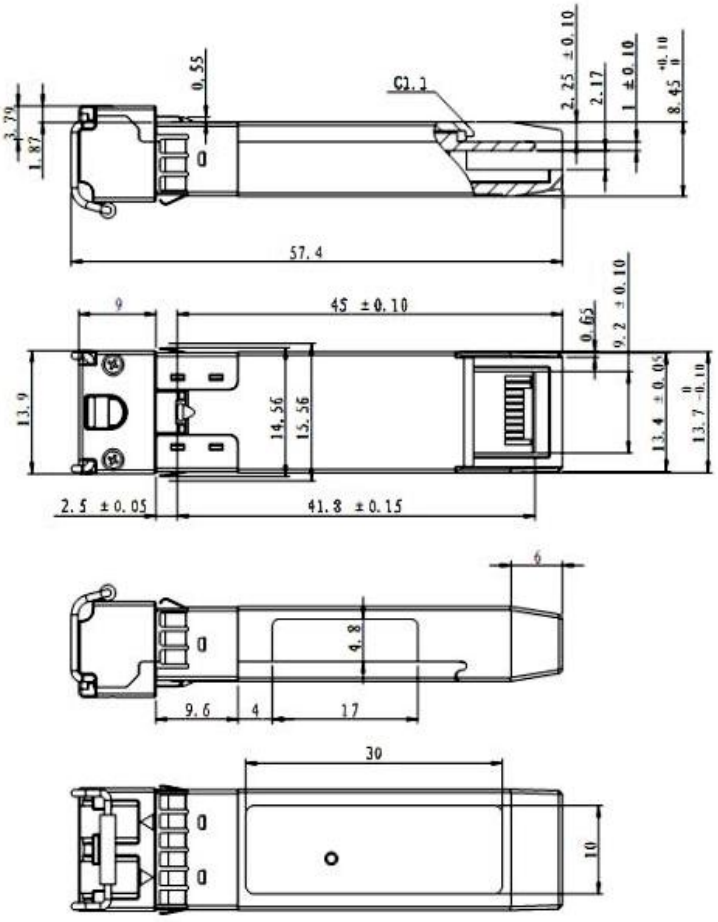
4. LOS (Loss of Signal) is an open collector/drain output, which should be pulled up with a 4.7K – 10KΩ resistor. Pull up voltage between 2.0V and VccT/R+0.3V. When high, this output indicates the received optical power is below the worst-case receiver sensitivity (as defined by the standard in use). Low indicates normal operation. In the low state, the output will be pulled to < 0.8V.

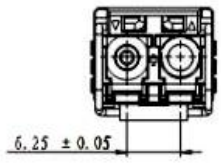
5. VeeR and VeeT may be internally connected within the SFP module.

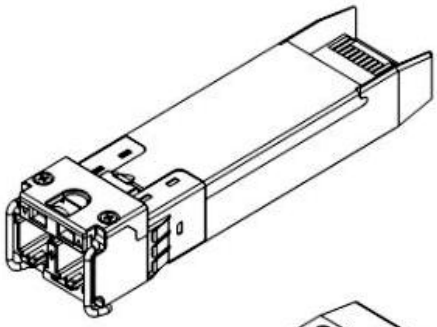
6. RD-/+: These are the differential receiver outputs. They are AC coupled 100Ω differential lines which should be terminated with 100Ω (differential) at the user SERDES. The AC coupling is done inside the module and is thus not required the host board. The voltage swing on these lines will be between 400 and 2000 mV differential (200 –1000 mV single ended) when properly terminated.

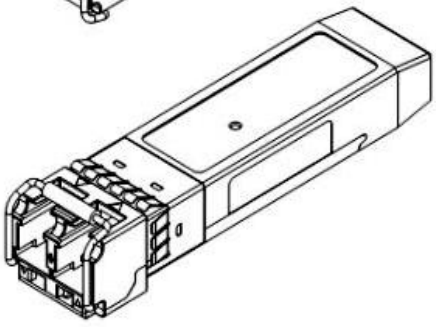
7. VccR and VccT are the receiver and transmitter power supplies. They are defined as 3.3V ±5% at the SFP connector pin. Maximum supply current is 300mA. The host board power supply filtering is in accordance with the SFF-8472 protocol. Inductors with DC resistance of less than 1 ohm should be used in order to maintain the required voltage at the SFP input pin with 3.3V supply voltage.When the recommended supply-filtering network is used, hot plugging of the SFP transceiver module will result in an inrush current of no more than 30mA greater than the steady state value. VccR and VccT is internally connected within the SFP transceiver module.
8. TD-/+: TD-/+: These are the differential transmitter inputs. They are AC-coupled, differential lines with 100Ωdifferential termination inside the module.The AC coupling is done inside the module and is thus not required on the host board. The inputs will accept differential swings of 400–2000mV (200–1000mV single- ended).

V. Mechanical Specifications







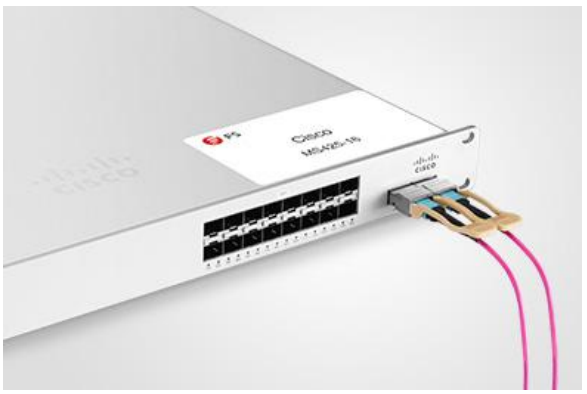


Test Center

I. Compatibility Testing

Each fiber optical transceiver has been tested in host device on site in FS Assured Program to ensure full compatibility with over 200 vendors.

Cisco Catalyst C9500-24Y4C



Cisco MS425-16

Brocade VDX 6940-144S

Dell EMC Networking Z9100-ON

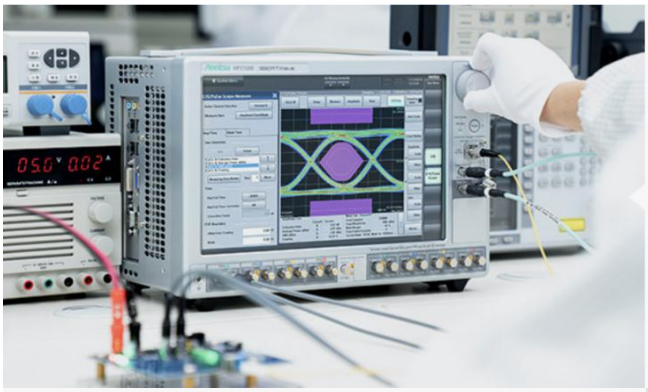
Force⑩tm S60-44T

HUAWEI S6720-30L-HI-24S

Above is part of our test bed network equipment. For more information, please click the Test Bed PDF. It will be updated in real time as we expand our portfolio.

II. Performance Testing

Each fiber optical transceiver has been fully tested in FS Assured Program equipped with world's most advanced analytical equipment to ensure that our transceivers work perfectly on your device.



1. TX/RX Single Quality Testing

Equipped with the all-in-one tester integrated 4ch BERT & sampling oscilloscope, and variable optical attenuator the input and output signal quality.

- Eye Pattern Measurements: Jitter, Mask Margin, etc
- Average Output Power
- OMA
- Extinction Ratio
- Receiver Sensitivity
- BER Curve

2. Reliability and Stability Testing

Subject the transceivers to dramatic in temperature on the thermal shock chamber to ensure reliability and stability of the transceivers.

- Commercial: 0℃ to 70℃
- Extended: -5℃ to 85℃
- Industrial: -40℃ to 85℃

3. Transfer Rate and Protocol Testing

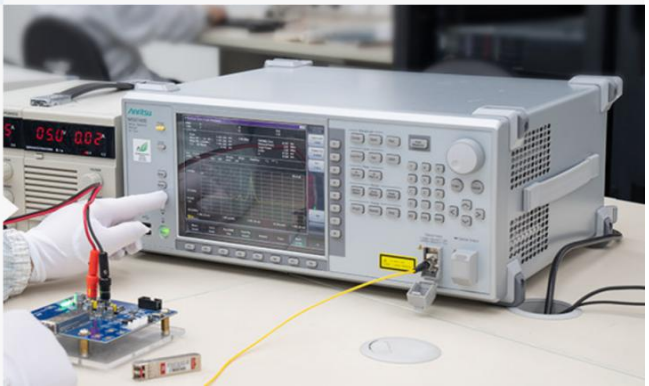
Test the actual transfer data rate and the transmission ability under different protocols with Networks Master Pro.

- Ethernet
- Fiber Channel
- SDH/SONET
- CPRI

4. Optical Spectrum Evaluation

Evaluate various important parameters with the Optical Spectrum Analyzer to meet the industry standards.

- Center Wavelength, Level
- OSNR
- SMSR
- Spectrum Width



Order Information

Part Number	Description
SFP1G-SX- 85	SFP, 1000BASE-SX, 850nm, MMF, 550m, LC, DOM
SFP1G-SX-31	SFP, 1000BASE-SX,1310nm, SMF, 2km, LC, DOM
SFP1G-LX-31	SFP, 1000BASE-LX,1310nm, SMF, 10km, LC, DOM
SFP1G-LX-31	SFP, 1000BASE-LX/LH,1310nm, SMF, 15km, LC, DOM
SFP1G-LX-31	SFP, 1000BASE-LX/LH,1310nm, SMF, 20km, LC, DOM
SFP1G-LH-31	SFP, 1000BASE-EX, 1310nm, SMF, 40km, LC, DOM
SFP1G-EX-55	SFP, 1000BASE-EX, 1550nm, SMF, 40km, LC, DOM
SFP1G-ZX-55	SFP, 1000BASE-EX, 1550nm, SMF, 60km, LC, DOM
SFP1G-ZX-55	SFP, 1000BASE-ZX, 1550nm, SMF, 80km, LC, DOM
SFP1G-EZX-55	SFP, 1000BASE-EZX, 1550nm, SMF, 100km, LC, DOM
SFP1G-EZX-55	SFP, 1000BASE-EZX, 1550nm, SMF, 120km, LC, DOM
SFP-GB-T	SFP, 10/100/1000Base-T, SERDES/SGMII Interface
SFP-GB-T	SFP, 10/100/1000Base-T, SERDES Interface

Note:

1G SFP transceiver module is individually tested on corresponding equipment such as Cisco, Arista, Juniper, Dell, Brocade and other brands, and passes the monitoring of FS.COM intelligent quality control system.

FS S3900 Series Switches Data Sheet

Contents

Product overview ---- 3

Product highlights ---- 4

Platform details ---- 5

Platform benefits ---- 13

Software requirements ---- 14

Product specifications ---- 14

Quality certification ---- 18

Optics supported ---- 18

Warranty, service and support ---- 18

Ordering information ---- 19

Additional information ---- 19

Document history ---- 19

Product overview

FS S3900 series switches are high-performance Gigabit Ethernet L2+/L3 Lite managed switches with 128Gbps/176Gbps switching capacity. They are ideal Gigabit access switches for SMB, enterprise, and campus networks.

FS S3900-R series switches is a next-generation aggregation 10GE switch with 24 or 48 1G ports and 4 or 6 10G uplinks. It is targeted at the IP MAN (metropolitan area network), government and enterprise networks. It supports functions such as powerful ACL, flexible QinQ, 1:1 or N:1 VLAN switching, Ethernet OAM, carrier-level QoS and industry-level 10GE Ethering, ensuring this switch series meets application requirements in all kinds of complicated sites.

The S3900-24T4S, 24-port Ethernet L2+ stackable switch has 24x Gigabit RJ45, with 4x 10Gb SFP+ Uplinks.
The S3900-48T4S, 48-port Ethernet L2+ stackable switch has 48x Gigabit RJ45, with 4x 10Gb SFP+ Uplinks.
The S3900-24F4S, 20-port Ethernet L2+ stackable switch has 20x 1Gb SFP, 4x Gigabit Combo, with 4x 10Gb SFP+ Uplinks.

S3900 Series switches adopt the most cutting-edge Broadcom chip, can provide 128/176 Gbps switching capacity and 95/130 Mpps forwarding rate. With 1 and 10 Gb connections and advanced QoS to the edge of the network, while maintaining simple management. The S3900 series is an ideal Gigabit access and aggregation switch, designed for small and medium-sized enterprises, enterprises, mid-market and branch networks, which can reduce the total cost of ownership.

S3900-24T4S-R is an advanced Layer 2 Plus (Layer 3 Lite) Gigabit managed stackable switches with 24x 10/100/1000BASE-T and 4x 10Gb SFP+ uplinks, dual redundant power supplies and the fanless design guarantees the switch always working silently, and ensures that the power supply of the switch will not be interrupted even if it fails, providing improved ease of use, highly secure business operations, improved sustainability, and a borderless network experience. S3900-24F4S-R is an advanced Layer 2 Plus (Layer 3 Lite) Gigabit managed stackable switches with 8x 1G RJ45/SFP Combo, 16x SFP ports, 4x 10G SFP+ uplinks, dual redundant power supplies and dual fans design guarantees the stable operation of the switch, providing improved ease of use, highly secure business operations, improved sustainability, and a borderless network experience. S3900-48T6S-R is an advanced Layer 2 Plus (Layer 3 Lite) Gigabit managed stackable switches with 48x 10/100/1000BASE-T and 6x 10Gb SFP+ uplinks, dual redundant power supplies and dual fans design ensures that the power supply of the switch will not be interrupted even if it fails, providing improved ease of use, highly secure business operations, improved sustainability, and a borderless network experience.

The S3900-R series switches support stacking capability with 1 and 10 Gigabit connectivity and advanced QoS to the network edge, while maintaining simple management. Ideal Gigabit access and aggregation switches designed for SMB, enterprise, midmarket, and branch office networks to provide lower total cost of ownership.

Product highlights

- Broadcom Chip, Support Up to 6 Units Stacking Between S3900 Series
- No Broadcom Chip, Support Stacking Between S3900-R Series
- 1+1 Redundant Power Supplies for S3900 Series
- Dual Power Supplies for S3900-R Series
- Support QoS, LACP, ACL, VLANs, DHCP, ERPS, etc.
- IPv4/IPv6 Dual Protocol Stack
- Support CLI/WEB/SNMP/SSH for Flexible Operation
- Network Monitoring through Sampled Flow (sFlow)
- Support SSH, ACL, 802.1X, RADIUS, TACACS+, etc. for Security
- Comprehensive Layer 2+ Functionality with No License Required

Platform details

Switch models and configurations

Figures 1 through 3 show the FS S3900 series switches.

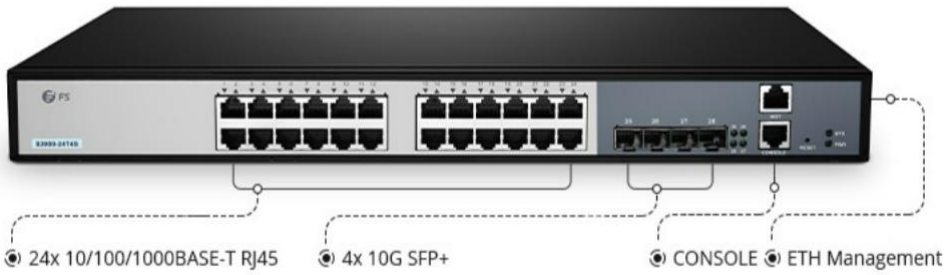


Figure 1.
S3900-24T4S, 24-Port Gigabit Ethernet L2+ Switch, 24 x Gigabit RJ45, with 4 x 10Gb SFP+ Uplinks, Stackable Switch, Broadcom Chip, Fanless

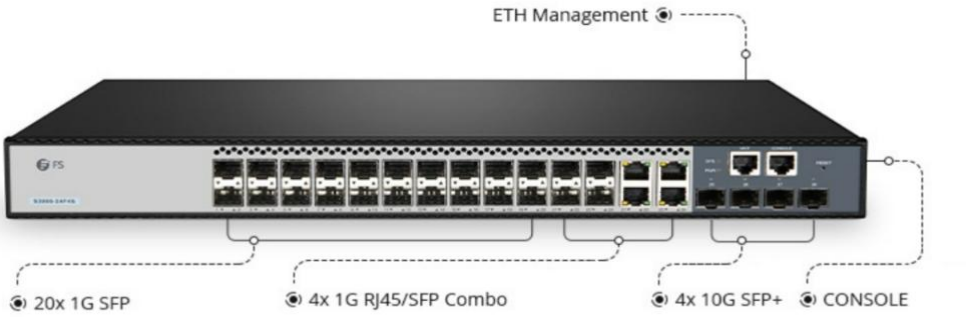


Figure 2.
S3900-24F4S, 20-Port Gigabit Ethernet L2+ Switch, 20 x 1Gb SFP, 4 x Gigabit RJ45/SFP Combo, with 4 x 10Gb SFP+ Uplinks, Stackable Switch, Broadcom Chip

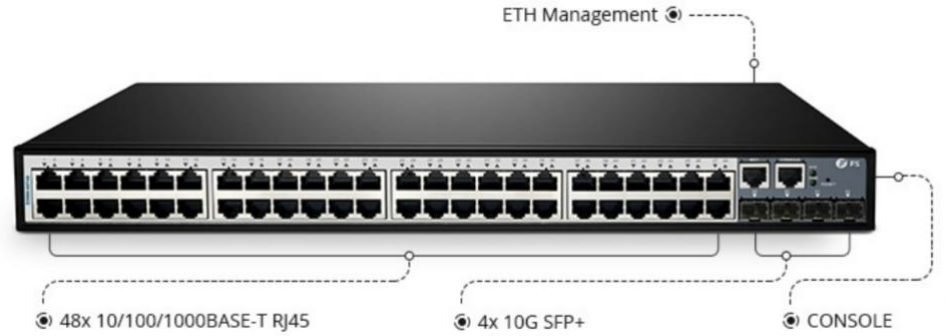


Figure 3.
S3900-48T4S, 48-Port Gigabit Ethernet L2+ Switch, 48 x Gigabit RJ45, with 4 x 10Gb SFP+ Uplinks, Stackable Switch, Broadcom Chip

Platform details

Switch models and configurations

Figures 4 through 6 show the FS 3900-R series switches.

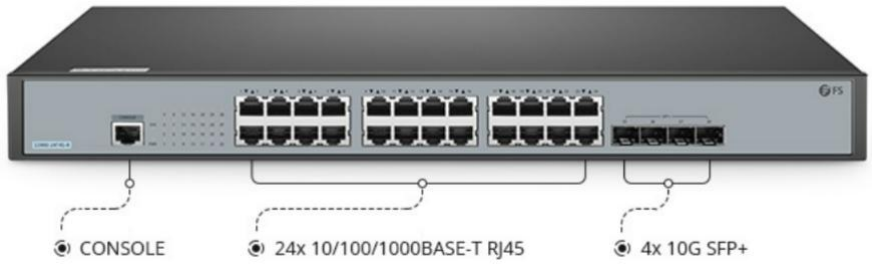


Figure 4.
S3900-24T4S-R, 24-Port Gigabit Ethernet L2+ Switch, 24 x Gigabit RJ45, with 4 x 10Gb SFP+ Uplinks, Stackable Switch, Fanless

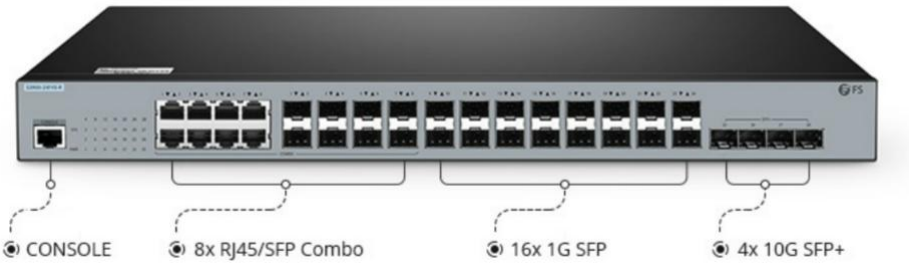


Figure 5.
S3900-24F4S-R, 16-Port Gigabit Ethernet L2+ Switch, 16x 1Gb SFP, with 8x Gigabit RJ45/SFP Combo, 4 x 10Gb SFP+ Uplinks, Stackable Switch

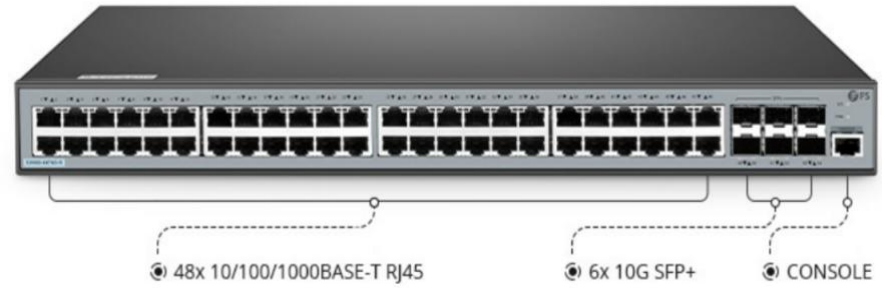


Figure 6.
S3900-48T6S-R, 48-Port Gigabit Ethernet L2+ Switch, 48 x Gigabit RJ45, with 6 x 10Gb SFP+ Uplinks, Stackable Switch

Switch configurations and port density

Table 1 shows the FS S3900 series configurations and port density.

Table 1. Switch configuration and port density of S3900 Series Switches

FS P/N	S3900-24T4S	S3900-24F4S	S3900-48T4S
Description	24-Port Gigabit Ethernet L2+ Lan Access Switch, 24 x Gigabit RJ45, with 4 x 10Gb SFP+	20-Port Gigabit Ethernet L2+ Lan Access Switch, 20 x 1Gb SFP, 4 x Gigabit RJ45/SFP Combo, with 4 x 10Gb SFP+	48-Port Gigabit Ethernet L2+ Lan Access Switch, 48 x Gigabit RJ45, with 4 x 10Gb SFP+
Port			
1G port density	28	28	52
10G port density	4	4	4
Combo Ports	-	4 (RJ45/SFP)	-
Management ports	1	1	1
Console port	1	1	1
Memory and processor			
Switch chip	BCM56150	BCM56151	BCM56150
OS	FSOS	FSOS	FSOS
RAM	128MB	128MB	128MB
DDRIII Capacity	512MB	512MB	512MB
Flash memory	64MB	64MB	64MB
Packet Buffer	1.5MB	1.5MB	1.5MB

Table 2. Switch configuration and port density of S3900–R Series Switches

FS P/N	S3900-24T4S-R	S3900-24F4S-R	S3900-48T6S-R
Description	24-Port Gigabit Ethernet L2+ Lan Access Switch, 24 x Gigabit RJ45, with 4 x 10Gb SFP+	16-Port Gigabit Ethernet L2+ Lan Access Switch, 16x 1Gb SFP, with 8x Gigabit RJ45/SFP Combo, 4 x 10Gb SFP+	48-Port Gigabit Ethernet L2+ Lan Access Switch, 48 x Gigabit RJ45, with 6 x 10Gb SFP+
Port			
10/100/1000BASE-T RJ45 port density	24	-	48
1G port density	-	16	-
Combo ports density	-	8 (RJ45/SFP)	-
10G port density	4	4	6
Console port	1	1	1
Memory and processor			
CPU	RTL9311-CG	RTL9301-CG	RTL9311-CG
OS	FSOS	FSOS	FSOS
RAM	256MB	256MB	512MB
Flash memory	16MB	16MB	16MB
Packet Buffer	1.5MB	1.5MB	2MB

Note:

RJ45 ports can be used as 10M/100M/1G ports for Ethernet connection. SFP ports are used for 1G connection. SFP+ ports can be used for 1/10G connection. RJ45/SFP Combo ports support one port active at a time.

Power supplies and fans

The FS S3900 Series switches ship with the dual AC power supply as default.

Table 3 through 4 provide more details on the FS S3900 series power supplies and fan specifications.

Table 3. Power supply and fan specifications of S3900 Series Switches

Description	S3900-24T4S	S3900-24F4S	S3900-48T4S
Power supply	1+1 redundant power supplies - internaL	1+1 redundant power supplies - internaL	1+1 redundant power supplies - internaL
Fan number	Fanless	2 built-in Fans	1 built-in Fan

Description	S3900-24T4S	S3900-24F4S	S3900-48T4S
Airflow	-	Front-to-Back	Left-to-Right
Acoustic noise	0dB	52dB	54dB
Maximum fan speed	-	13000 ±10%	13000 ±10%
Max. power consumption	21W	43W	45W
Power max rating	24W	60W	60W
Input-voltage range and frequency	• Rated voltage range: 100-240VAC; 50-60Hz		
Power supply efficiency	≥75%	≥75%	≥75%
Input current	0.8A	1.5A	1.5A
Output ratings	12V	12V	12V
Power-supply input receptacles	C13	C13	C13
Power cord rating	10A	10A	10A

Table 4. Power supply and fan specifications of S3900–R Series Switches

Description	S3900-24T4S-R	S3900-24F4S-R	S3900-48T6S-R
Power supply	2 built-in power supplies	2 built-in power supplies	2 built-in power supplies
Fan number	Fanless	2 built-in fans	2 built-in Fans
Airflow	-	Left-to-Right	Left-to-Right
Acoustic noise	0dB	45dB	45dB
Maximum fan speed	6200±10%	6200±10%	6200±10%
Max. power consumption	25W	41W	51W
Power max rating	36W*2	36W*2	78W*2
Input-voltage range and frequency	• Rated voltage range: 100-240VAC; 50-60Hz		
Power supply efficiency	≥84%	≥84%	≥82%

Description	S3900-24T4S-R	S3900-24F4S-R	S3900-48T6S-R
Input current	1.2A	1.2A	2A
Output ratings	12V	12V	12V
Output holdup time	≥10ms	≥10ms	≥10ms
Power-supply input receptacles	C13	C13	C13
Power cord rating	250V 10A	250V 10A	250V 10A

Stacking

The FS S3900 Series switch models are designed for stacking switches as a single virtual switch, enabling customers to have a single management plane and control plane for up to 384 access ports.

Table 5 through 6 list the supported stacking options.

Table 5. Supported stacking options of S3900 Series Switches

Part Name	S3900-24T4S	S3900-24F4S	S3900-48T4S
Stacking ports	Port 27~28	Port 27~28	Port 51~52
Supported stack members	Stack with same models with the same OS version	Stack with same models with the same OS version	Stack with same models with the same OS version
Maximum number of VSL links	2	2	2
Number of members	6	6	6

Table 6. Supported stacking options of S3900–R Series Switches

Part Name	S3900-24T4S-R	S3900-24F4S-R	S3900-48T6S-R
Stacking ports	Port 25~28	Port 25~28	Port 49~54
Supported stack members	Stack with other S3900-24F4S-R with the same OS version	Stack with other S3900-24T4S-R with the same OS version	Stack with same models with the same OS version
Maximum number of VSL links	2	2	2
Number of members	8	8	8

Switch performance

Table 7 through 8 show performance specifications for the FS S3900 series switches.

Table 7. Performance specifications of S3900 Series Switches

Performance for all S3900 Series Switches	S3900-24T4S	S3900-24F4S	S3900-48T4S
Switching capacity	128 Gbps	128 Gbps	176 Gbps
Forwarding rate	95 Mpps	95 Mpps	130 Mpps
Total number of MAC addresses	16000	16000	16000
Total number of IPv4 routes (indirect routes)	128	128	128
Total number of IPv4 host routes (direct routes and ARP)	512	512	512
Total number of IPv6 routes (indirect routes)	64	64	64
Total number of IPv6 host routes (direct routes and NDP)	256	256	256
QoS ACL scale	512	512	512
Security ACL scale	512	512	512
VLAN IDs	4000	4000	4000
STP virtual ports (port* VLANs) for MST	16 instance	16 instance	16 instance
Total switched virtual interfaces (SVIs)	32	32	32
Jumbo frame	9216 bytes	9216 bytes	9216 bytes

Table 8. Performance specifications of S3900-R Series Switches

Performance for all S3900 Series Switches	S3900-24T4S-R	S3900-24F4S-R	S3900-48T6S-R
Switching capacity	128 Gbps	128 Gbps	216 Gbps
Forwarding rate	95 Mpps	95 Mpps	162 Mpps
Total number of MAC addresses	16000	16000	32000
Total number of IPv4 routes (indirect routes)	502	502	502
Total number of IPv4 host routes (direct routes and ARP)	2040	2036	512
Total number of IPv6 routes (indirect routes)	132	129	152
Total number of IPv6 host routes (direct routes and NDP)	1000	2040	152
Total number of IPv4 multicast routes	1024	1024	1024
Total number of IPv6 multicast routes	1024	1024	1024
QoS ACL scale	1407	1150	2174
Security ACL scale	1407	1150	2174
VLAN IDs	4000	4000	4000
STP virtual ports (port* VLANs) for MST	28	28	54
Total switched virtual interfaces (SVIs)	63	63	63
Jumbo frame	9216 bytes	9216 bytes	9216 bytes

Platform benefits

Table 9 lists the software spotlights for the FS S3900 series switches.

Table 9. Software spotlights

Functionality	Description
VLAN	Support 4K Active VLAN Support GVRP Support Voice VLAN
Virtual stacking for simplified management	up to 6 units stacking (Only for S3900 Series) up to 8 units stacking (Only for S3900-R Series) Simplified network management Fault recovery within milliseconds All 10G ports support stacking
Sound security protection policies	Support Local/Radius Authentication Support Port-based Authentication Support Mac-based Authentication HTTPS and SSL (v3) Support DHCP snooping Support IP Source guard Support DoS Protection
High reliability and energy efficiency	Support IEEE 802.1D Spanning Tree Protocols (STPs) Support IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) Support IEEE 802.1s Multiple Spanning Tree Protocol (MSTP) Support BPDU Guard/filtering/transparent Support Root Guard Support Loopback Detection Hardware architecture to reduce energy consumption and noise Variable-speed axial fans to intelligently control the fan speed
Perfect compatibility performance	Support the spanning tree protocols (STPs) Support virtual router redundancy protocol (VRRP) Support rapid link detection protocol (RLDP) Support rapid Ethernet uplink protection protocol (REUP) Support bidirectional forwarding detection (BFD)
Perfect compatibility performance	Support IEEE802.3 standard protocols, enabling good interoperability with other brands of equipment at the forwarding level Compatible with standard protocols such as STP/RSTP/MSTP/SNMP/DHCP/NTP of other equipment based on public agreement Compatible with market main stream AP/camera/IP phone/optical module
Easy network maintenance	Support SNMP (Managed by Zabbix), RMON, HTTP, log Support Syslog, Web-based management, Telnet, SSH CLI style is similar to Cisco, easy to learn
IPv4/IPv6 dual-stack multi-layer switching	Support line-rate IPv4/IPv6 dual-stack multi-layer switching Support static routing
Access Control Lists (ACLs)	Robust L2/L3/L4 feature Support traffic statistics Support Global ACL Support IPv4/IPv6/MAC/ARP ACL
Varied Service Support Capability	Support IGMP snooping Support IPv6 Neighbor Discovery Support IPv6 DHCP Snooping

Software requirements

The FS S3900 Series Switches run on FS OS Software version.

Table 10 lists the latest software requirements for the switch models.

Table 10. Latest software requirements

FS P/N	Description	Latest software requirements
S3900-24T4S	S3900-24T4S, 24-Port Gigabit Ethernet L2+ Switch, 24 x Gigabit RJ45, with 4 x 10Gb SFP+ Uplinks, Stackable Switch, Broadcom Chip, Fanless	FSOS MR V0173 Software
S3900-24F4S	S3900-24F4S, 20-Port Gigabit Ethernet L2+ Switch, 20 x 1Gb SFP, 4 x Gigabit RJ45/SFP Combo, with 4 x 10Gb SFP+ Uplinks, Stackable Switch, Broadcom Chip	FSOS MR V0174 Software
S3900-48T4S	S3900-48T4S, 48-Port Gigabit Ethernet L2+ Switch, 48 x Gigabit RJ45, with 4 x 10Gb SFP+ Uplinks, Stackable Switch, Broadcom Chip	FSOS MR V0173 Software
S3900-24T4S-R	S3900-24T4S-R, 24-Port Gigabit Ethernet L2+ Switch, 24 x Gigabit RJ45, with 4 x 10Gb SFP+ Uplinks, Stackable Switch, Fanless	FSOS 2.2.0E 99013 Software
S3900-24F4S-R	S3900-24F4S-R, 16-Port Gigabit Ethernet L2+ Switch, 16x 1Gb SFP, with 8x Gigabit RJ45/SFP Combo, 4 x 10Gb SFP+ Uplinks, Stackable Switch	FSOS 2.2.0E 99013 Software
S3900-48T6S-R	S3900-48T6S-R, 48-Port Gigabit Ethernet L2+ Switch, 48 x Gigabit RJ45, with 6 x 10Gb SFP+ Uplinks, Stackable Switch	FSOS 2.2.0E 99729 Software

Note:
Since the V1.7.2 version of the software upgrades SSH and SSL to the latest one, a large number of new files have been added, makingthe size of the new version exceed the size limit of the 1.7.1 version of the software. Therefore, it is not possible to directly upgrade fromversion V.1.7.1 to version V1.7.2.The specific steps to upgrade are as follows：
-Upgrade from software version V1.7.1 to V1.7.2, you need to upgrade to the S3900-48T4S-UPGRADE.bin version transition, and then upgrade to the official version S3900-48T4S-MR-V0172.bin.
- The software version V1.7.1 is upgraded to V1.7.3, V1.7.4, and V1.7.5, all of which need to be upgraded to the official version of V1.7.2 first, and then upgraded to V1.7.3, V1.7.4, and V1.7.5.
- When uploading the latest software version, please make sure that only the current software version exists in the switch file, otherwise the upload will fail.

For upgrade details, refer to S3900 Series Switches FSOS Software Release Notes

Product specifications

Table 11. Product specifications of S3900 Series Switches

Table 11 through 12 show the product specifications for the FS S3900 series switches.

Description	S3900-24T4S	S3900-24F4S	S3900-48T4S
Environmental			
Operating temperature	32° F to 122° F (0°C to 50°C)	32° F to 113° F (0°C to 45°C)	32° F to 113° F (0°C to 45°C)
Storage temperature	-40° F to 158° F (-40°C to 70°C)	-40° F to 158° F (-40°C to 70°C)	-40° F to 158° F (-40°C to 70°C)
Operating humidity	5% to 90% (Non-condensing)	5% to 90% (Non-condensing)	5% to 90% (Non-condensing)
Storage humidity	10% to 90% (Non-condensing)	10% to 90% (Non-condensing)	10% to 90% (Non-condensing)
Temperature alarm	Not Supported	Not Supported	Not Supported
Acoustic noise	0dB	52dB	54dB
Physical specifications			
Dimensions (HxWxD)	1.73"x17.32"x11.02" (44x440x280mm)	1.73"x17.32"x11.02" (44x440x280mm)	1.73"x17.32"x12.99" (44x440x330mm)
Rack units (RU)	1U	1U	1U
Weight	8.76 lbs (3.975kg)	9.41 lbs (4.27kg)	10.8 lbs (4.9kg)
Distance	100M	100M	100M
Electrical			
Voltage (auto ranging)	100-240VAC	100-240VAC	100-240VAC
Frequency	50-60Hz	50-60Hz	50-60Hz
Current	0.8A Max	0.8A Max	0.8A Max
Power rating (maximum consumption)	24W	60W	60W

Description	S3900-24T4S	S3900-24F4S	S3900-48T4S
Mean-time between failures			
MTBF (hours)	>100000	>100000	>100000
Connectors			
Connectors and cabling	• 1/10GBASE-T ports: RJ-45 connectors, 4-pair Cat5E/Cat6/Cat6a UTP cabling • SFP transceivers: LC fiber connectors (single-mode or multimode fiber) • SFP+ transceivers: LC fiber connectors (single-mode or multimode fiber) • FS StackWise stacking ports: copper-based FS StackWise cabling • Ethernet management port: RJ-45 connectors, 4-pair Cat5 UTP cabling • Management console port: RJ-45-to-DB9 cable for PC connections		
Power connectors	• Customers can provide power to a switch by using the internal power at the back of the switch • Internal power supply connector: The internal power supply is an auto-ranging unit. It supports input voltages between 100 (115 for 1100WAC) and 240 VAC. Use the supplied AC power cord to connect the AC power connector to an AC power outlet		
Standards			
Standards	802.1x, AAA, RMON, SNMPV1 V2 V3, HTTP Telnet, SSH		

Table 12. Product specifications of S3900-R Series Switches

Description	S3900-24T4S-R	S3900-24F4S-R	S3900-48T6S-R
Environmental			
Operating temperature	32° F to 122° F (0°C to 50°C)	32° F to 122° F (0°C to 50°C)	32° F to 122° F (0°C to 50°C)
Storage temperature	-4° F to 158° F (-20°C to 70°C)	-4° F to 158° F (-20°C to 70°C)	-4° F to 158° F (-20°C to 70°C)
Operating humidity	10% to 90% (Non-condensing)	10% to 90% (Non-condensing)	10% to 90% (Non-condensing)
Storage humidity	5% to 95% (Non-condensing)	5% to 95% (Non-condensing)	5% to 95% (Non-condensing)
Temperature alarm	Supported	Supported	Supported
Acoustic noise	0dB	40dB	40dB
Dimensions (HxWxD)	1.73''x17.32''x7.09'' (44x440x180mm)	1.73''x17.32''x11.02'' (44x440x280mm)	1.73''x17.32''x11.02'' (44x440x280mm)
Rack units (RU)	1U	1U	1U

Description	S3900-24T4S-R	S3900-24F4S-R	S3900-48T6S-R
Weight	5.73 lbs (2.6kg)	8.82 lbs (4kg)	9.48lbs (4.3kg)
Distance	100M	100M	100M
Electrical			
Voltage (auto ranging)	100-240VAC	100-240VAC	100-240VAC
Frequency	50-60Hz	50-60Hz	50-60Hz
Current	1.2A	1.2A	2A
Mean-time between failures			
MTBF (hours)	>50,000	>50,000	>50,000
Connectors			
Connectors and cabling	• 1/10GBASE-T ports: RJ-45 connectors, 4-pair Cat5E/Cat6/Cat6a UTP cabling • SFP transceivers: LC fiber connectors (single-mode or multimode fiber) • SFP+ transceivers: LC fiber connectors (single-mode or multimode fiber) • FS StackWise stacking ports: copper-based FS StackWise cabling • Ethernet management port: RJ-45 connectors, 4-pair Cat5 UTP cabling • Management console port: RJ-45-to-DB9 cable for PC connections		
	• Customers can provide power to a switch by using the internal power at the back of the switch • Internal power supply connector: The internal power supply is an auto-ranging unit. It supports input voltages between 100 (115 for 1100WAC) and 240 VAC. Use the supplied AC power cord to connect the AC power connector to an AC power outlet		
Standards			
Standards	802.1x, AAA, RMON, SNMPV1 V2 V3, HTTP Telnet, SSH		

Quality certification

At FS, our Quality Commitment lies in all aspects of processes, resources, and methods that enable us to build superior networks for our customers. Through a quality policy focusing on continuous improvement of products and services, we're able to achieve the highest levels of satisfaction for our customers. To that end, every FS employee is accountable for contributing to the value of the products and services we deliver.

Figures 4 shows some of the authoritative certifications obtained by FS S3900 Series Switches.

Figure 7.

Optics supported

For details about the optical modules available, visit：

S3900-24T4S/S3900-24F4S/S3900-48T4S: Transceivers DACs and AOCs Supported on S3900 Series Switches

Warranty, service and support

FS S3900 Series Switches enjoy 4 years limited warranty against defects in materials or workmanship. For more information for FS Returns & Refunds policy, visit https://www.fs.com/policies/warranty.html or https://www.fs.com/policies/day_return_policy.html

FS provides a personal account manager, free professional technical support, and 24/7 live customer service to each customer.

- Professional Lab: Test each product with the latest and advanced networking equipment.
- Free Technical Support: Provide free & tailored solutions and services for your businesses.
- 80% Same-day Shipping: Immediate shipping for in-stock items.
- Fast Response: Direct and immediate assistance from an expert.

For more information, visit https://www.fs.com/service/fs_support.html

Ordering information

Table 13 provides the ordering information for S3900 series switches.

Table 13. Ordering information

FS P/N	Product description
Switch hardware	
S3900-24T4S	S3900-24T4S, 24-Port Gigabit Ethernet L2+ Switch, 24 x Gigabit RJ45, with 4 x 10Gb SFP+ Uplinks, Stackable Switch, Broadcom Chip, Fanless
S3900-24F4S	S3900-24F4S, 20-Port Gigabit Ethernet L2+ Switch, 20 x 1Gb SFP, 4 x Gigabit RJ45/SFP Combo, with 4 x 10Gb SFP+ Uplinks, Stackable Switch, Broadcom Chip
S3900-48T4S	S3900-48T4S, 48-Port Gigabit Ethernet L2+ Switch, 48 x Gigabit RJ45, with 4 x 10Gb SFP+ Uplinks, Stackable Switch, Broadcom Chip
S3900-24T4S-R	S3900-24T4S-R, 24-Port Gigabit Ethernet L2+ Switch, 24 x Gigabit RJ45, with 4 x 10Gb SFP+ Uplinks, Stackable Switch, Fanless
S3900-24F4S-R	S3900-24F4S-R, 16-Port Gigabit Ethernet L2+ Switch, 16x 1Gb SFP, with 8x Gigabit RJ45/SFP Combo, 4 x 10Gb SFP+ Uplinks, Stackable Switch
S3900-48T6S-R	S3900-48T6S-R, 48-Port Gigabit Ethernet L2+ Switch, 48 x Gigabit RJ45, with 6 x 10Gb SFP+ Uplinks, Stackable Switch

Additional information

For more information about the S3900 Series Switches, contact your account manager or visit https://www.fs.com/search_result?keyword=S3900

Document history

New or revised topic	Described in	Date
Updates to FS S3900 Series Switches Data Sheet	Updated all	11/11/2022

Shenzhen (China)

Address: 24F, Yingfeng Center, Haitian 2nd Rd, Nanshan District, Shenzhen
Tel: +86 (755) 8357 1351
Email: sales@feisu.com

Wuhan (China)

Address: 9-14F, Optical Valley Software Park A7, Guanshan Ave, Wuhan
Tel: +86 (027) 8808 9195
Email: sales@feisu.com

Delaware (United States)

Address: 380 Centerpoint Blvd, New Castle, DE 19720, United States
Tel: +1 (888) 468 7419
Email: us@fs.com

Birmingham (United Kingdom)

Address: Regus Edmund House, 12-22 Newhall Street, Birmingham, B3 3AS
Tel: +49 (0) 8165 4099 260
Email: uk@fs.com

Munich (Germany)

Address: NOVA Gewerbepark Building 7, Am Gfild 7,85375 Neufahrn bei Munich, Germany
Tel: +49 (0) 8165 4099 260
Email: de@fs.com

Melbourne (Australia)

Address: 57-59 Edison Rd, Dandenong South, VIC 3175, Australia
Tel: +61 3 9693 3488
Email: au@fs.com

Singapore

Address: 30A Kallang Pl, #11-10/11/12 Singapore 339213
Tel: +65 6443 7951
Email: sg@fs.com

Tokyo (Japan)

Address: JS Progress Building, 4-1-23 Heiwajima, Ota-ku, Tokyo 〒143-0006
Tel: 03-5826-8305
Email: jp@fs.com

FS has several offices around the world. Addresses, phone numbers are listed on the FS Website at https://www.fs.com/contact_us.html

FHD-1UFMT-N Fixed Enclosure

High-density solution to manage fiber termination, connections, and patching for all applications

FHD 1U Fixed Rack Mount Enclosure

FHD 1U Fixed Rack Mount Enclosure provides a flexible and modular system for easy field termination of connectors, splicing, or installation of pre-terminated plug-n-play solutions. And they're designed to maxmize the density while minizes rack space in a frame or cabinet setting. These economical enclosures are ideal for data centers and enterprise applications.

Standards Compliance

- TIA/EIA-568-C.3
- ISO9001 Certificate
- WEEE Certificate
- RoHS Compliant
- REACH Compliant

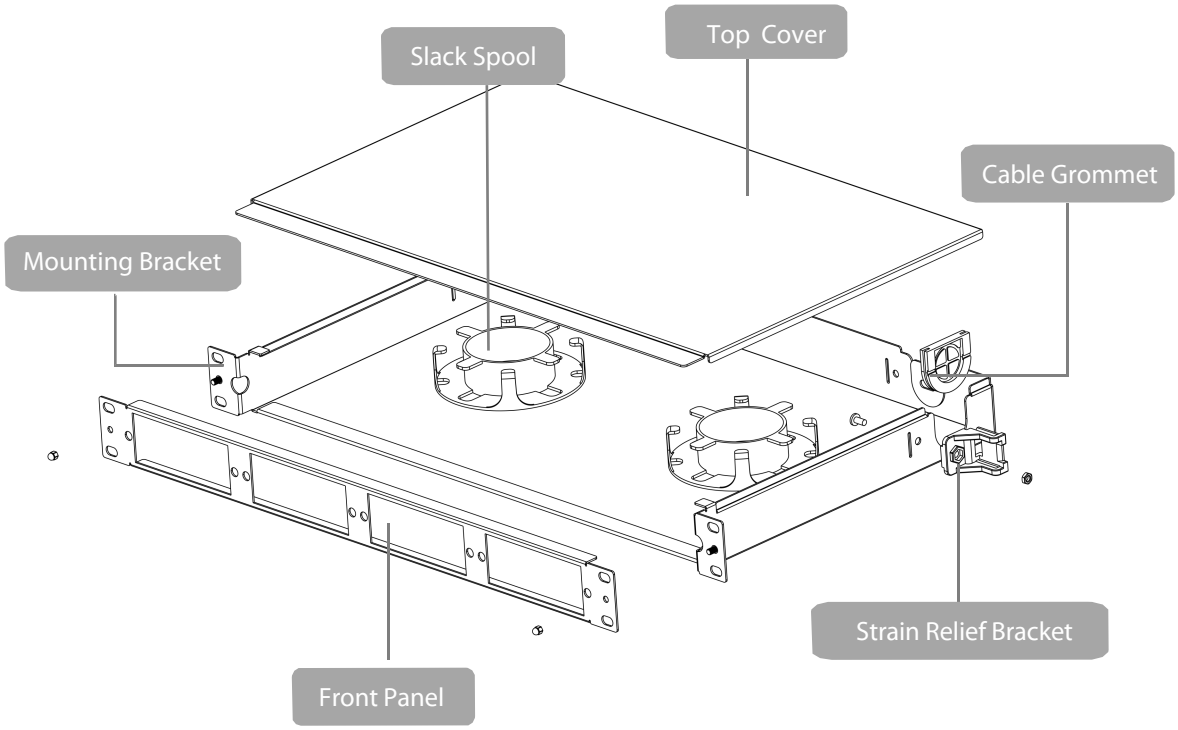
Features

- Up to 144 Fibers (LC) or 1,152 Fibers (MTP®-24)
- Compatible with All FHD Cassettes, Panels and Splice Trays
- Modular Design Accepts up to Four FHD Panels/Cassettes
- Removable Top Cover Simplifies Cable Management
- Side and Rear Cable Entry Brings More Options to Route Cable
- Mounts to standard EIA 19" Racks

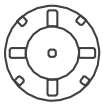
Product Specification	
#ID	#96427
Pic.	
Part Number	FHD-1UFMT-N
No. of Rack Spaces	1U
Fiber Count	Up to 144 Fibers (LC) or 1,152 Fibers (MTP®-24)
Product Type	Fixed Enclosure
Cable Entry Direction	Side and Rear Cable Entry
Top Cover Removable	Yes, Tool-less by Hand
Loaded	Unloaded
Material	Steel, Powder-coated Black
Mounting Type	Rack Mount
Installation	Standard EIA 19" Rack Rails
Dimensions (HxWxD)	1.73"x19.00"x11.17" (44.0x482.6x283.6mm)
Application	Accepts Four FHD Panels/Cassettes

Environmental Characteristics	
Operating Temperature	-25°C to 50°C
Storage Temperature	-40°C to 65°C
Installation temperature	0°C to 50°C
Salt Mist Cyclic Test	48H

Assembly Structure Illustration



Accessories List


Slack Spool x2


Strain Relief Bracket x2


Cable Grommetx4


Adhesive Cable Entry Clip x2


Loop Cable Tie Mount x2

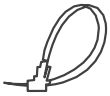

Plastic Rivet x4


Screw Package x1


M4*8 Screw x4 and M4 Nut x8


M6*15 Screw x4 and M6 Nut x4


Cable Tie x6


Nylon Cable Tie x4


Screwdriver x1

FHD Enclosure Capacity

Description	#ID	Part Number	Capacity	Fiber Count
FHD 1U Sliding Rack Mount Enclosure	#70361	FHD-1UFCE	4 ports	144F
FHD 2U Sliding Rack Mount Enclosure	#73205	FHD-2UFCE	8 ports	288F
FHD 4U Sliding Rack Mount Enclosure	#73206	FHD-4UFCE	12 ports	432F
FHD 1U Fixed Rack Mount Enclosure	#96427	FHD-1UFMT-N	4 ports	144F
FHD 1U Modular Rack Mount Enclosure	#70419	FHD-1U-CMP400	4 ports	144F
FHD 1U Blank Rack Mount Enclosure	#72910	FHD-FPP5DRL	4 ports	144F

Fiber Enclosure Loading List

I. Fiber Adapter Panel

Description	#ID (OS2)	#ID (OM4)
24F, 12x LC Duplex Fiber Adapter Panel	#35488	#51284
12F, 6x SC Duplex Fiber Adapter Panel	#35484	#41998
12x MTP® Key Up to Key Down Fiber Adapter Panel	#35510	#35510
8x MTP® Key Up to Key Up Fiber Adapter Panel	#52022	#52022
6-Port FHD Multimedia Modular Panel with 6x Plastic Clips	#66602	#66602

II. MTP/MPO Cassette

Description	#ID (OS2)	#ID (OM4)
8F, MTP®-8 to 4x LC Duplex Cassette	#68401	#68402
12F, MTP®-12 to 6x LC Duplex Cassette, Type A	#57016	#57017
12F, MTP®-12 to 6x LC Duplex Cassette, Type AF	#57037	#57038
24F, 2x MTP®-12 to 12x LC Duplex Cassette, Type A	#57341	#57342
24F, 2x MTP®-12 to 12x LC Duplex Cassette, Type AF	#68540	#68541
36F, 3x MTP®-12 to 12x LC Duplex Cassette, Type A	#105333	#105335
36F, 3x MTP®-12 to 12x LC Duplex Cassette, Type AF	#105334	#105336
24F, MTP®-24 to 12x LC Duplex Cassette, Type A	#57023	#57024
24F, MTP®-24 to 12x LC Duplex Cassette, Type AF	#68549	#68550

* MTP® is a registered trademark of US Conec Ltd.

* The US Conec MTP® connectors are fully compliant with the MPO standards.

Product Application

I. Patch Cord Connections

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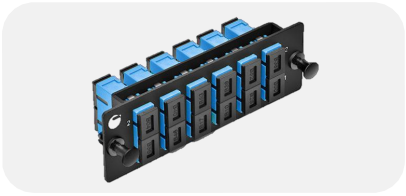

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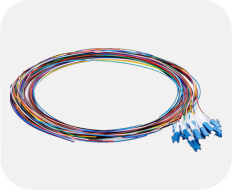
Item No.	#ID	Description
1	#40234	1m (3ft) SC UPC to SC UPC Duplex Single Mode Fiber Patch Cable
2	#35484	6x SC Duplex, 12 Fibers OS2 Single Mode FHD Fiber Adapter Panel
3	#96427	1U Rack Mount FHD High Density Fiber Enclosure

II. Fiber Optic Splicing



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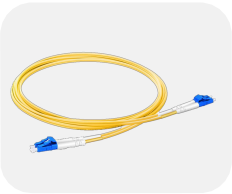
Item No.	#ID	Description
1	#42459	1m (3ft) 12 Fibers LC/UPC 9/125 Single Mode Color-Coded Fiber Optic Pigtail
2	#64246	24 Fibers Optical Splice Tray for FHD Fiber Enclosure
3	#96427	1U Rack Mount FHD High Density Fiber Enclosure
4	#35488	12x LC Duplex, 24 Fibers OS2 Single Mode FHD Fiber Adapter Panel
5	#68294	1m (3ft) Grade B LC UPC to LC UPC Duplex OS2 Fiber Patch Cable

III. MTP Cabling Management


①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④


⑤

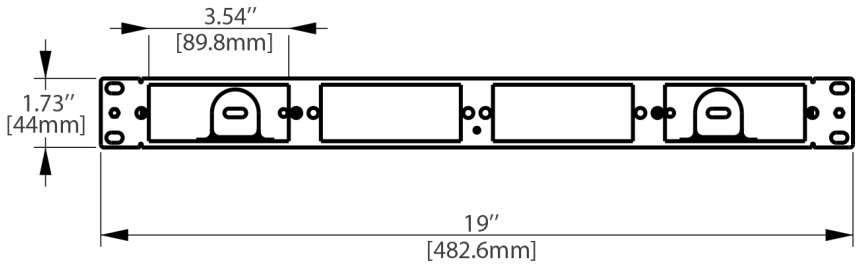
Item No.	#ID	Description
1	#68294	1m (3ft) Grade B LC UPC to LC UPC Duplex OS2 Fiber Patch Cable
2	#57341	2x MTP®-12 to 12x LC Duplex, Type A, 24 Fibers OS2 FHD MTP®/MPO Cassette
3	#68102	5m (16ft) MTP® Female 12 Fibers OS2 9/125 Single Mode Trunk Cable, Type A
4	#68540	2x MTP®-12 to 12x LC Duplex, Type AF, 24 Fibers OS2 FHD MTP®/MPO Cassette
5	#96427	1U Rack Mount FHD High Density Fiber Enclosure

Note:

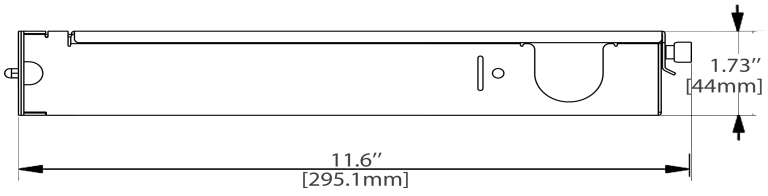
The basic application and matching products for the enclosure are shown for reference.

Product Specifications

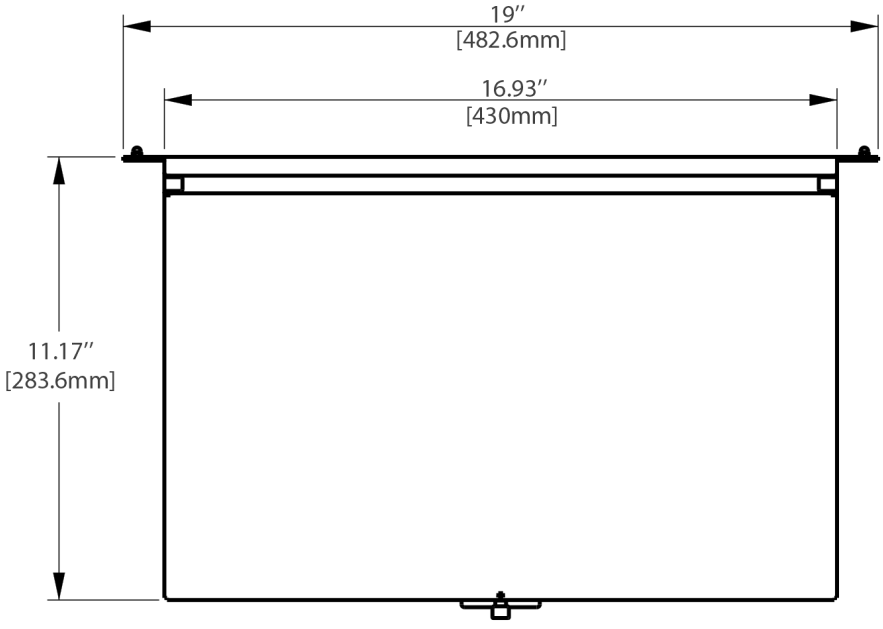
Front View



Side View



Top View



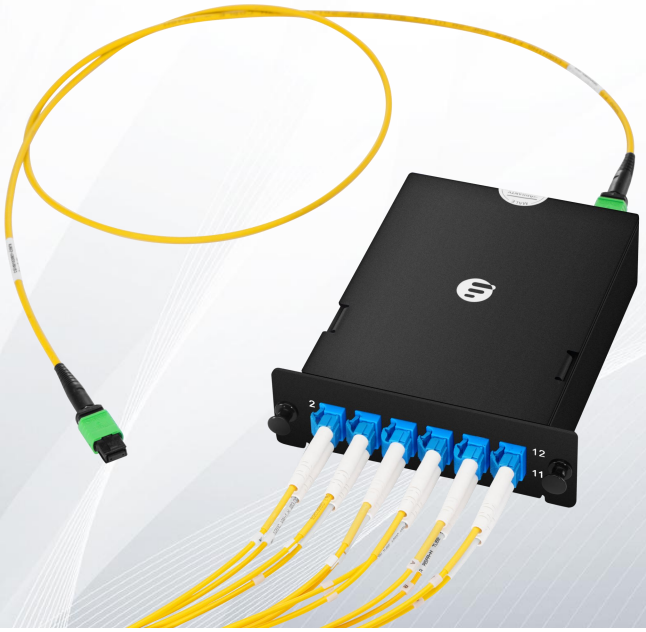
Dimensions are in inches. (Dimensions in parentheses are in millimeters).

https://www.fs.com

FHD MTP® 12/24 Cassettes Datasheet

HIGH DENSITY

Pre-terminated Modular Cassette System



Description

FHD Fiber Optic MTP® Cassettes consist of pre-terminated LC, SC, MDC or MTP® adapters for quick and easy deployment in high density applications and provide efficient utilization of rack space and design flexibility. The cassettes interconnect with high-density fiber cable assemblies for quick connection of remote or data center applications.

Features

- High-density modular design, up to 144 fibers (LC) in 1U for efficient utilization.
- Pre-terminated cassette for improved reliability and quick deployment.
- High performance connectors to achieve a low loss optical budget.
- Plug-N-play modules allow fast installation of multiple fiber links.
- Offered in a wide range of performance and pola-rity configurations.
- The corning fiber compliant to Telcordia, EIA/TIA and IEC standards.

I. Product Constructions

Fiber Count	12 Fibers/24 Fibers/36 Fibers/48 Fibers
Fiber Mode	Multimode: OM3 50/125μm OM4 50/125μm OM5 50/125μm Single Mode: OS2 9/125μm
Front Connector	Multimode: LC/SC Duplex with UPC Polish MTP® Adapter(s) with Male Ferrules (pins) and UPC Polish Single Mode: LC/SC Duplex with UPC/APC Polish MDC Duplex with UPC Polish MTP® Adapter(s) with Male Ferrules (pins) and APC Polish
Rear Connector	Multimode: MTP® Adapter(s) with Male Ferrules (pins) and UPC Polish Single Mode: MTP® Adapter(s) with Male Ferrules (pins) and APC Polish
Polarity Type	Type A/AF/B1/B2/Universal
Material	Aluminium (AL5052)
Dimensions (HxWxD)	1.38"x4.29"x4.64" (35x109x118mm), 1.38"x4.29"x6.22" (35x109x158mm)

II. Performance Properties

Rear Connector	US Conec MTP®
Insertion Loss	Multimode: Stand IL 0.6dB max. Ultra Low IL 0.35dB Max. Single Mode: Stand IL 0.75dB Max. Ultra Low IL 0.35dB Max.
Return Loss	Multimode: ≥20dB Single Mode: ≥60dB
Connector Durability	US Conec MTP® Connector Meets TIA/EIA-568.C.3A.4.9 Durability: 500 Mating Cycles

Note:

The US Conec MTP® connectors are fully compliant with the MPO standards, achieving higher performance levels when compared to generic MPO connectors.

III. Performance Properties

Front Connector	LC/SC/MDC Duplex or MTP® Adapter(s)
Fiber Mode	Multimode/Single Mode
Material of Sleeve	Zirconia Ceramic
Insertion Loss	Multimode: UPC ≤0.2dB UPC (Pigtail) ≤0.3dB Single Mode: APC ≤0.3dB UPC ≤0.2dB UPC (Pigtail) ≤0.3dB
Return Loss	Multimode: UPC ≥30dB Single Mode: APC ≥60dB UPC ≥50dB

IV. Environmental Characteristics

Operating Temperature	-10℃-60℃
Storage Temperature	-10℃-60℃

Standards Compliance

- ISO9001 Certificate
- RoHS Compliant
- ISO14001 Compliant

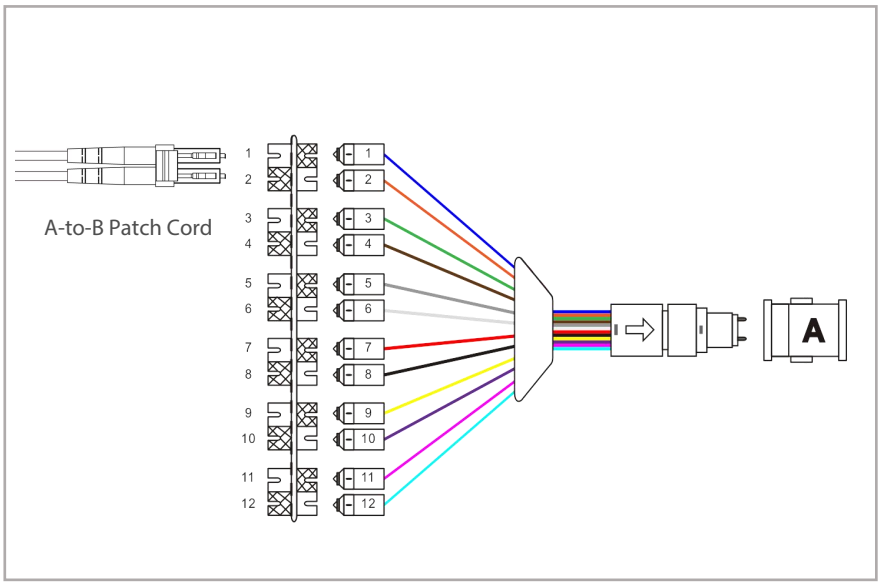
Polarity Illustration

In any installation, it is important to ensure that the transmitter at one end matches the corresponding receiver at the other end. FS provides a number of intelligent solutions that can help you manage and optimize your network and its connectivity.

I. MTP® -12 Cassette, Type A

Port Labeling	2	4	6	8	10	12
	1	3	5	7	9	11

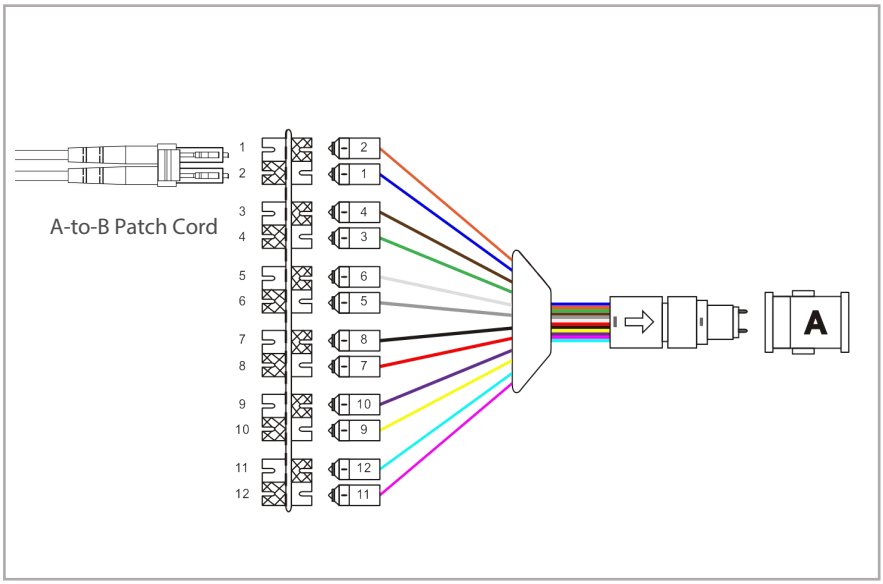
Inner Sequence	2	4	6	8	10	12
	1	3	5	7	9	11



II. MTP® -12 Cassette, Type AF

Port Labeling	2	4	6	8	10	12
	1	3	5	7	9	11

Inner Sequence	1	3	5	7	9	11
	2	4	6	8	10	12

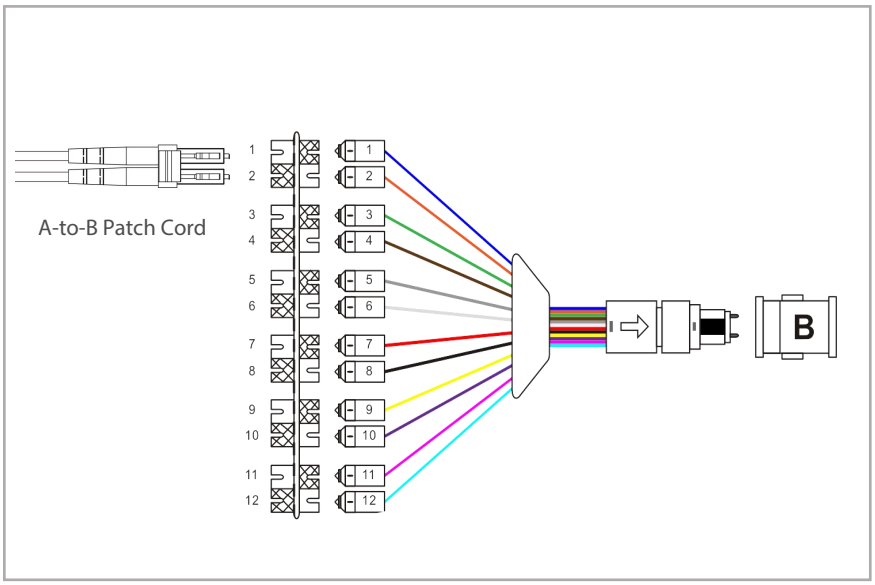


Note: Type A and Type AF are used as a pair in a two cassette method A link.

III. MTP® -12 Cassette, Type B1

Port Labeling	2	4	6	8	10	12
	1	3	5	7	9	11

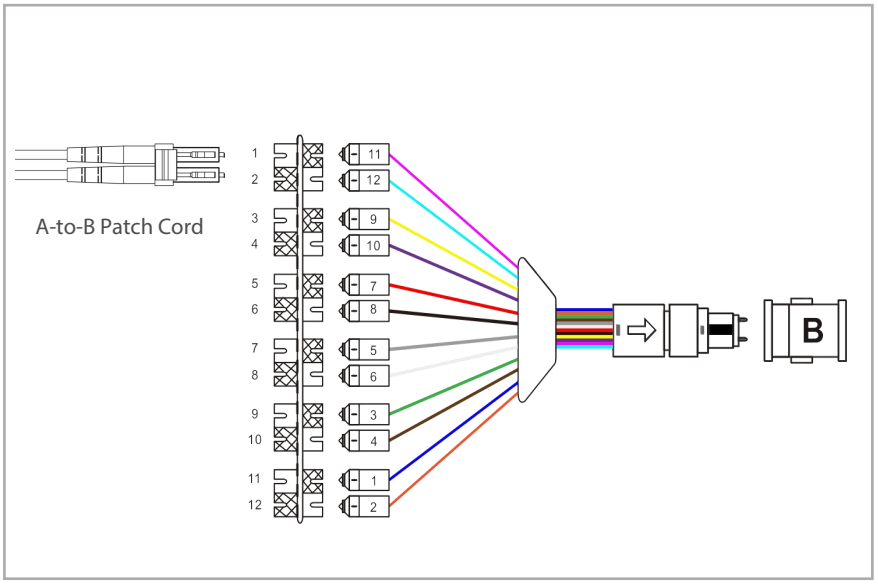
Inner Sequence	2	4	6	8	10	12
	1	3	5	7	9	11



IV. MTP® -12 Cassette, Type B2

Port Labeling	2	4	6	8	10	12
	1	3	5	7	9	11

Inner Sequence	12	10	8	6	4	2
	11	9	7	5	3	1

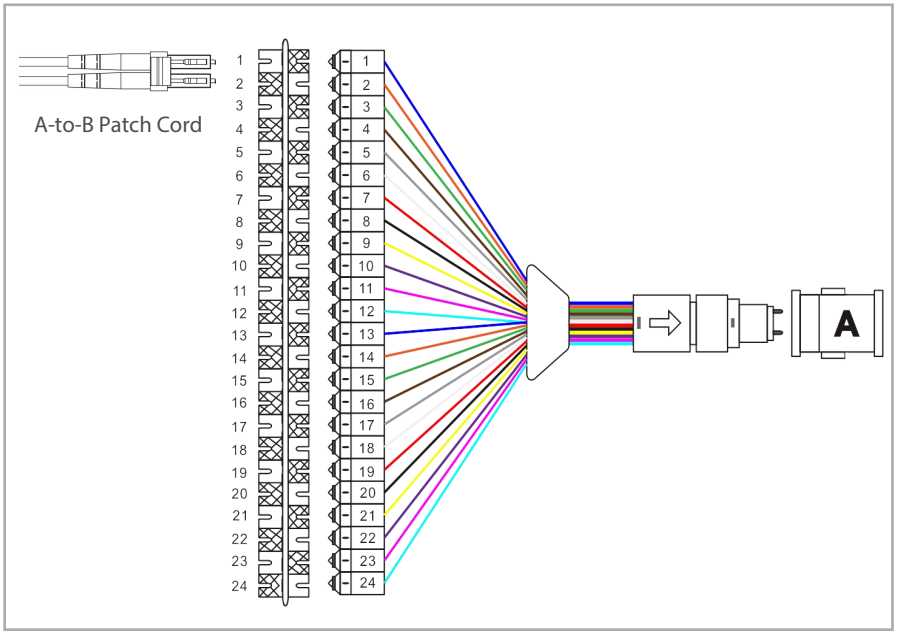


Note: Type B1 and Type B2 are used as a pair in a two cassette method B link.

VI. MTP® -24 Cassette, Type A

Port Labeling						
	14	16	18	20	22	24
	13	15	17	19	21	23
	2	4	6	8	10	12
	1	3	5	7	9	11

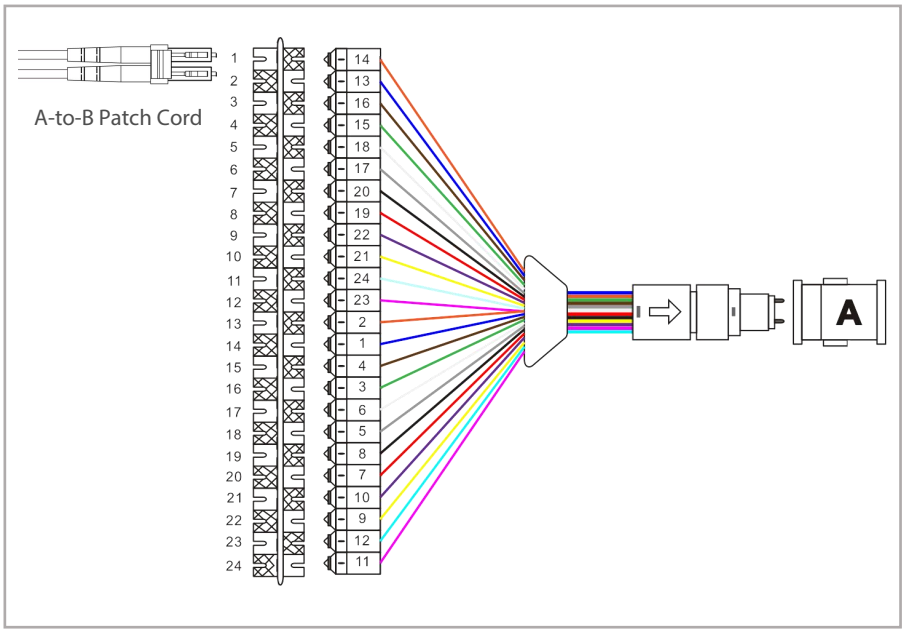
Inner Sequence						
	14	16	18	20	22	24
	13	15	17	19	21	23
	2	4	6	8	10	12
	1	3	5	7	9	11



VIII. MTP® -24 Cassette, Type AF

Port Labeling						
	14	16	18	20	22	24
	13	15	17	19	21	23
	2	4	6	8	10	12
	1	3	5	7	9	11

Inner Sequence						
	1	3	5	7	9	11
	2	4	6	8	10	12
	13	15	17	19	21	23
	14	16	18	20	22	24

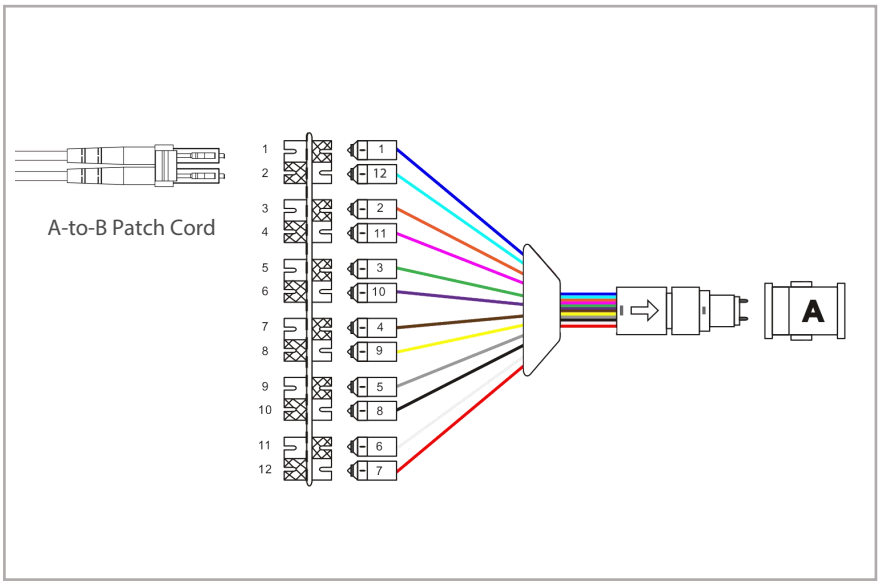


Note: Type A and Type AF are used as a pair in a two cassette method A link.

V. Universal

Port Labeling	2	4	6	8	10	12
	1	3	5	7	9	11

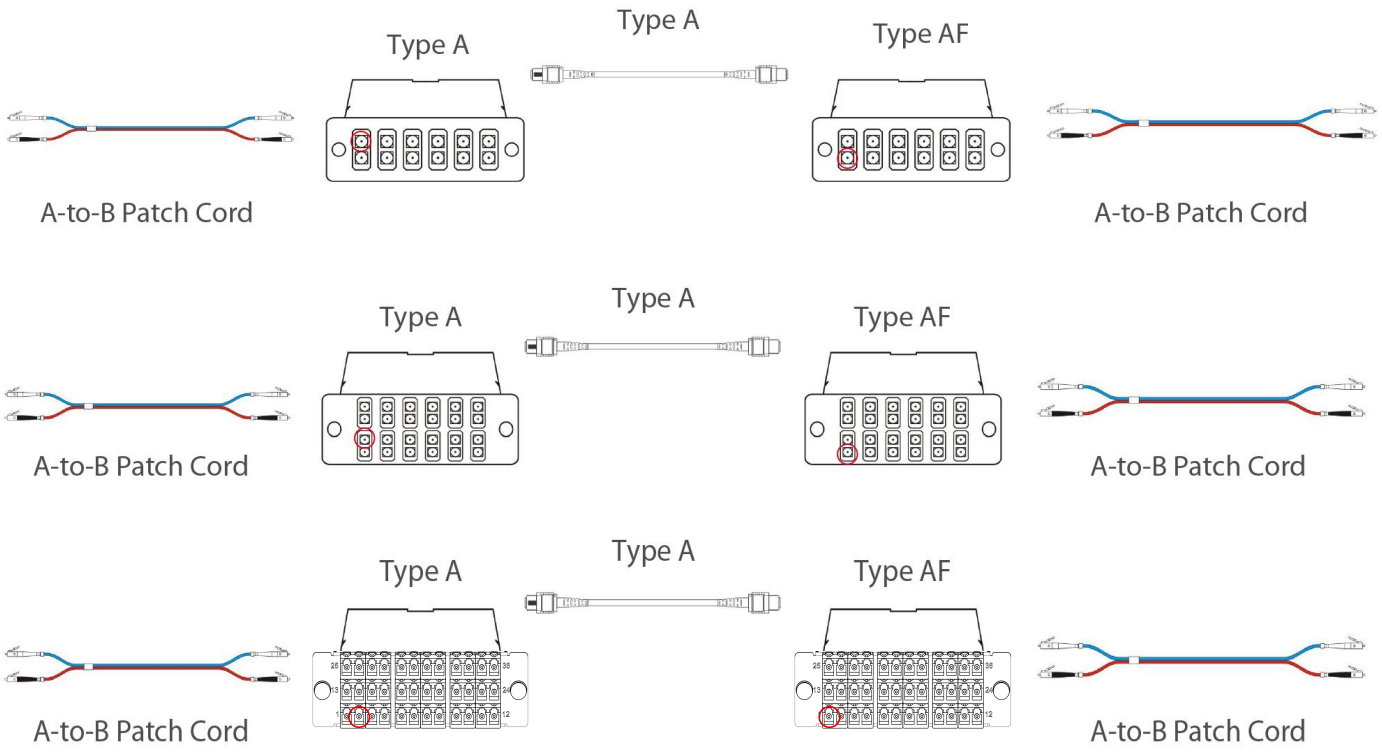
Inner Sequence	12	11	10	9	8	7
	1	2	3	4	5	6



Note: One universal polarity cassette is used on each end in a method B link, and this link enable moves, adds and changes without polarity concerns.

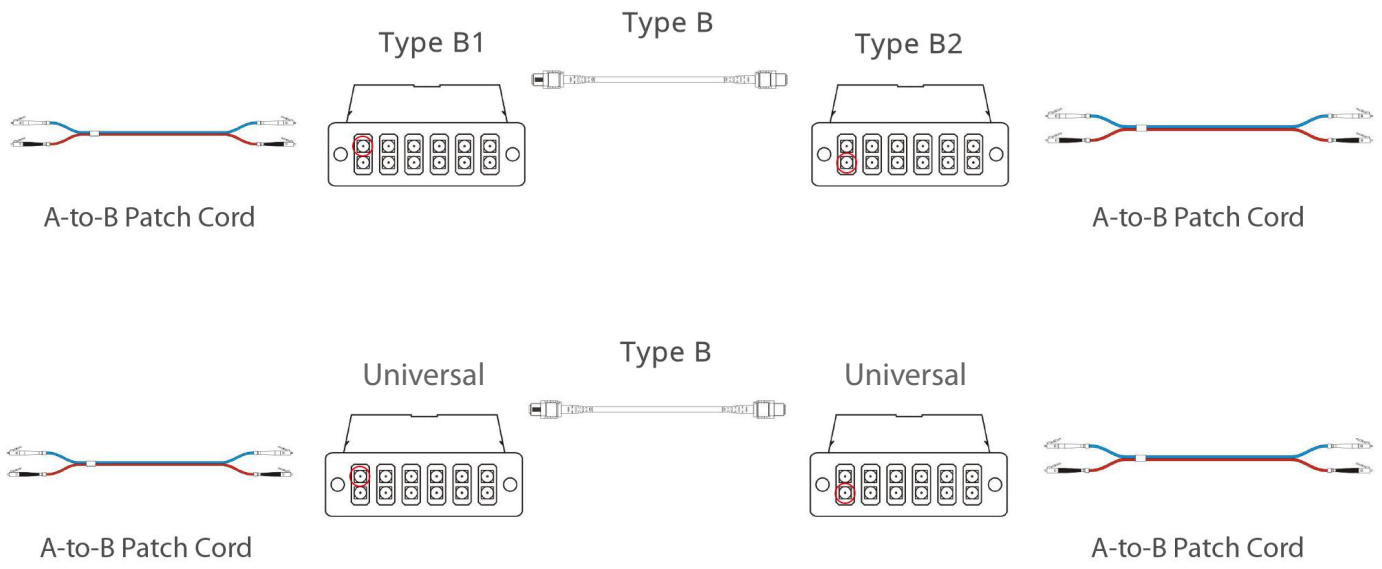
VII. Method for Achieving Fiber Polarity

1. Connectivity Method A for Duplex Signals



Note: The transmission of the signal is P2 in and P1 out.

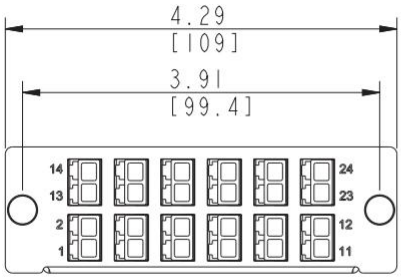
2. Connectivity Method B for Duplex Signals

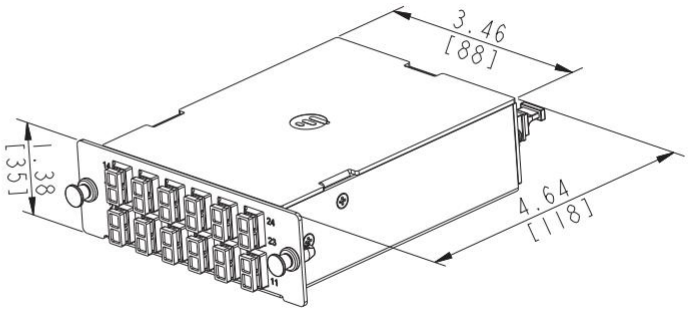


Note: The transmission of the signal is P2 in and P1 out.

Layout and Dimensions

• 12/24F LC & 12F SC Cassette

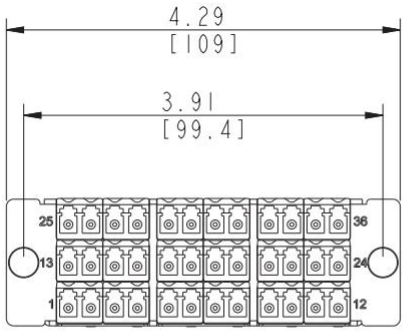


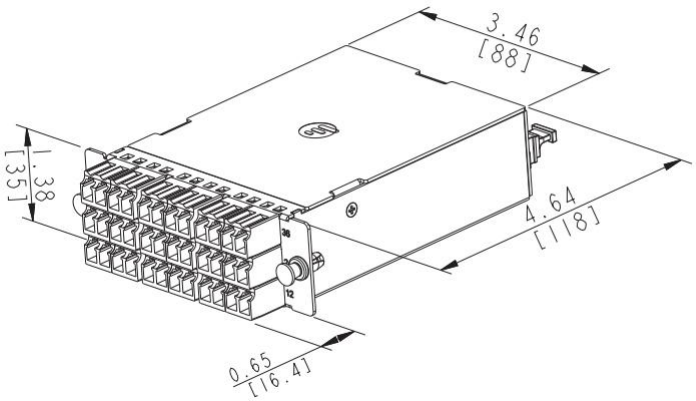


Note:

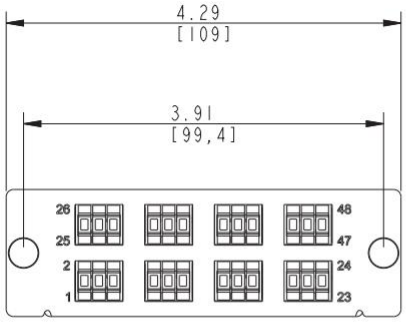
12F/24F LC and 12F SC Cassettes are of the same dimensions.

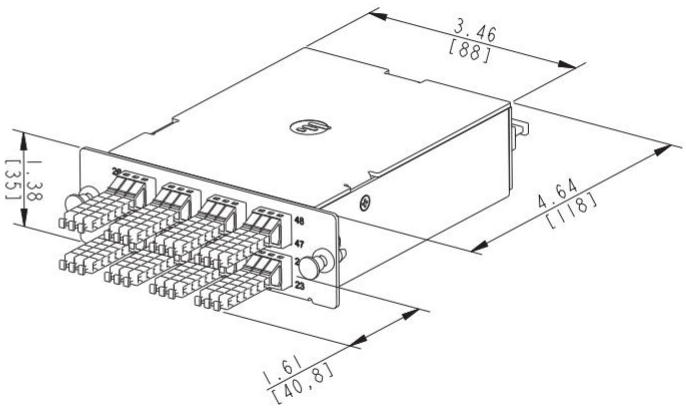
• 36F LC Cassette





• 48F MDC Cassette

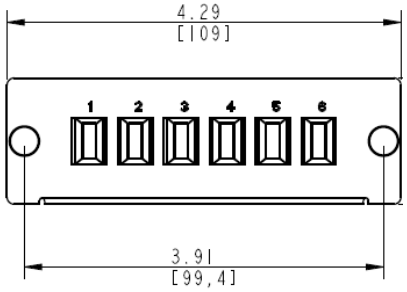


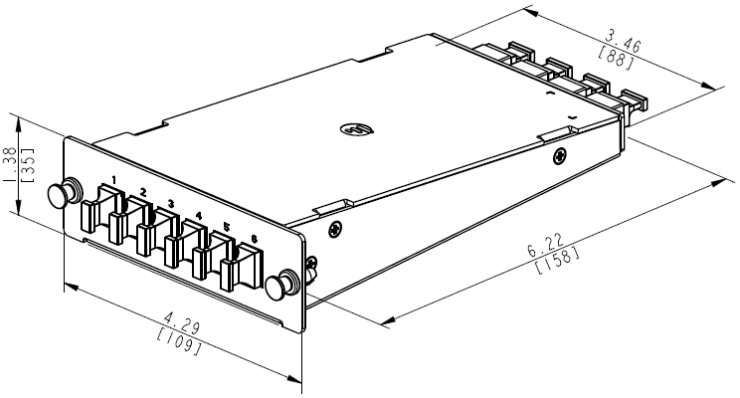


Dimensions are in inches. (Dimensions in parentheses are in millimeters).

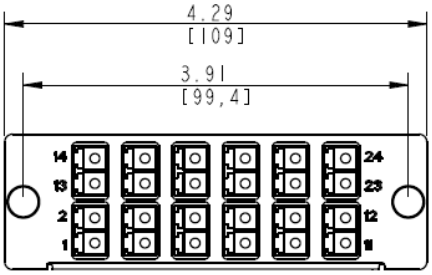
Layout and Dimensions

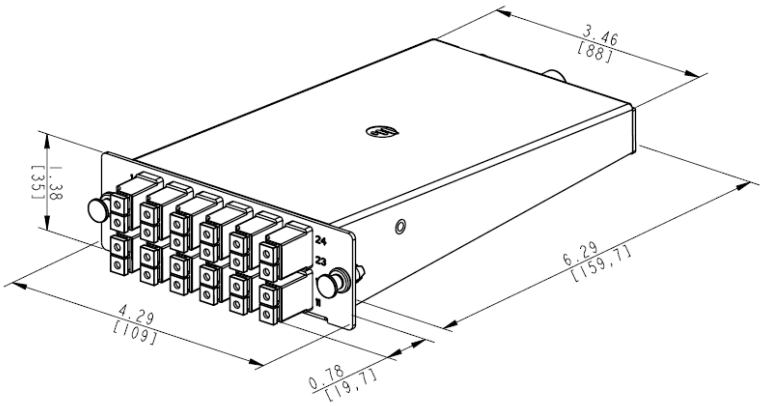
• **12/24F MTP® -MTP® Cassette**





• **Fiber Splice Cassette**





Dimensions are in inches. (Dimensions in parentheses are in millimeters).

Ordering Information

A	B	C	D	E	F	G	H	I
Fiber Count	Rear Connector	Fiber Mode	Front Connector	Polish Type	Insertion Loss(dB)	Polarity	Front Color	Rear Color
12F	MTP®-12	OS2	LC Duplex	UPC	Elite 0.35	Type A	Blue	Black
24F	MTP®-24	OM3	SC Duplex	APC	Standard 0.6/0.75	Type AF	Aqua	
36F		OM4	MDC Duplex			Type B1	Black	
48F		OM5				Type B2	Lime Green	
						Universal		

Note:

Type B: Multimode cassettes only

Universal: MTP®-12 cassettes and some MTP®-24 Cassettes

SC Adapter: 12-Fiber only

MTP Connector (Single Mode): APC polish as default

MTP Connector (Multimode): UPC polish as default

Hot Products

ID	Description
#57016	MTP®-12 to 6x LC Duplex, 12 Fibers OS2 Single Mode FHD MTP® Cassette, Type A
#57017	MTP®-12 to 6x LC Duplex, 12 Fibers OM4 Multimode FHD MTP® Cassette, Type A
#174246	MTP®-12 to 6x LC Duplex, 12 Fibers OM5 Multimode FHD MTP® Cassette, Type A
#57023	MTP®-24 to 12x LC Duplex, 24 Fibers OS2 Single Mode FHD MTP® Cassette, Type A
#57024	MTP®-24 to 12x LC Duplex, 24 Fibers OM4 Multimode FHD MTP® Cassette, Type A
#174250	MTP®-24 to 12x LC Duplex, 24 Fibers OM5 Multimode FHD MTP® Cassette, Type A
#57341	2x MTP®-12 to 12x LC Duplex, 24 Fibers OS2 Single Mode FHD MTP® Cassette, Type A
#57342	2x MTP®-12 to 12x LC Duplex, 24 Fibers OM4 Multimode FHD MTP® Cassette, Type A
#174248	2x MTP®-12 to 12x LC Duplex, 24 Fibers OM5 Multimode FHD MTP® Cassette, Type A
#105333	3x MTP®-12 to 18x Shuttered LC Duplex, 36 Fibers OS2 Single Mode FHD MTP® Cassette, Type A
#105335	3x MTP®-12 to 18x Shuttered LC Duplex, 36 Fibers OM4 Multimode FHD MTP® Cassette, Type A
#147014	4x MTP®-12 to 8x 3-Port MDC Duplex, 48 Fibers OS2 Single Mode FHD MTP® Cassette, Type A

ID	Description
#167162	MTP®-24 to 3x MTP ® -8, 24 Fibers OS2 Single Mode FHD MTP® Cassette, Universal
#167163	2x MTP®-12 to 3x MTP ® -8 , 24 Fibers OM4 Multimode FHD MTP® Cassette, Universal
#167161	4x MTP®-6x MTP ® -8, 48 Fibers OM4 Multimode FHD MTP® Cassette, Universal
#178125	12x LC Duplex, 24 Fibers OS2 Single Mode FHD Splice Cassette, Universal
#178124	12x LC Duplex , 24 Fibers OM4 Multimode FHD Splice Cassette, Universal

* More products information please click >

Matching Products

ID	Description
#96427	1U Rack Mount FHD High Density Fiber Enclosure Unloaded, Holds up to 4x FHD Cassettes or Panels
#70361	Upgrading 1U Rack Mount FHD High Density Slide-out Fiber Enclosure Unloaded
#73205	Upgrading 2U Rack Mount FHD High Density Slide-out Fiber Enclosure Unloaded
#73206	Upgrading 4U Rack Mount FHD High Density Slide-out Fiber Enclosure Unloaded
#50550	2-Door 2-Adapter Panel Wall Mount Fiber Enclosure
#70419	1U Rack Mount FHD Modular Fiber Enclosure Panel, Holds up to 4x FHD Cassette or Panels
#68299	LC UPC to LC UPC Duplex 0.15dB IL OM4 Multimode PVC (OFNR) 2.0mm BIF Fiber Optic Patch Cable
#40191	LC UPC to LC UPC Duplex OS2 Single Mode PVC (OFNR) 2.0mm Fiber Optic Patch Cable
#68018	1m (3ft) MTP® Female, 12F OS2, Type B, Elite, Plenum (OFNP)
#68041	1m (3ft) MTP® Female, 24F OM4, Type A, Elite, Plenum (OFNP)
#72166	LC UPC to LC UPC Flat Clip Uniboot Duplex OS2 PVC (OFNR) 2.0mm BIF Fiber Optic Patch Cable
#72170	LC UPC to LC UPC Flat Clip Uniboot Duplex OM4 PVC (OFNR) 2.0mm BIF Fiber Optic Patch Cable
#105341	Fiber/Copper Connector Insertion & Extraction Tool for LC/SC/MU/MT-RJ/RJ45 Connectors
#130963	1m (3ft) MDC UPC to MDC UPC Uniboot Duplex OS2 Single Mode Fiber Patch Cable 2.0mm
#68107	10m (33ft) MTP®-12 (Female) to MTP®-12 (Female) OM4 Multimode Elite Trunk Cable, 12 Fibers, Type A, Plenum (OFNP)
#31012	Customized 24-144 Fibers MTP®-24 OS2 Single Mode Elite Trunk Cable, Yellow
#68047	1m (3ft) MTP® Female to 4 LC UPC Duplex 8 Fibers Type B Plenum (OFNP) OM4 50/125 Multimode Elite Breakout Cable

Note: 36F fiber casstess are not recommended to fit in FHD series wall mount enclosure (#50550).

https://www.fs.com

MTP®/MPO Trunk Cables Datasheet

IDEAL FOR DATA CENTER HIGH DENSITY CABLING SYSTEM

Designed for data center applications requiring quick infrastructure deployment such as main, horizontal, and zone distribution areas.

MTP®/MPO Trunk Cables

MTP®/MPO trunk multifiber cable assemblies facilitate rapid deployment of high density backbone cabling in data centers and other high fiber environments, reducing network installation or reconfiguration time and cost. They are used to interconnect cassettes, panels or ruggedized MTP®/MPO fanouts, spanning MDA, HDA and EDA zones.

Standards Compliance

- RoHS, CE (EN 50575 CPR) and ISO9001 Compliant
- EIA/TIA, Telecocordia GR-326-CORE Standards
- IEC61754-7
- TIA 605-4 (FOCIS 5)
- YD/T1272.5

Features

- US Conec MTP® connector, Senko MPO Plus® premium connector
- SMF-28® Ultra optical fiber, Corning Clearcurve® OM3/OM4 fiber, YOFC Maxband® OM5 fiber
- OS2, OM3, OM4, OM5 available
- 0.35dB elite low loss connector
- Factory terminated and tested
- Allow easy migration from 10GbE to 40GbE or 100GbE
- Pulling eyes are provided as an option to protect the fiber ends during installation

Technical Specification

Construction	Description
Fiber Count	8-144 Fibers
Fiber Mode	Single Mode: OS2 9/125μm Multimode: OM3/OM4/OM5 50/125μm
Fiber Brand	OS2: SMF-28® Ultra optical fiber OM3/OM4: Corning ClearCurve® fiber OM5: YOFC Maxband® fiber
Connector Type	MTP® Female, Male; MPO Female, Male
Connector Brand	US Conec MTP®, Senko MPO Plus®
Polarity	Type A, Type B, Type C
Cable Jacket Ratings	Plenum (OFNP) Low Smoke Zero Halogen (LSZH) Riser (PVC)
Cable Type	Bunch

Color Codes	MTP®	MPO
Cable Jackets	OS2: Yellow OM3: Aqua OM4: Magenta OM5: Lime Green	OS2: Yellow OM3: Aqua OM4: Magenta OM5: Lime Green
Connectors	OS2: Green OM3/OM4: Aqua OM5: Lime Green	OS2: Green OM3/OM4: Aqua OM5: Lime Green
Boots	8 Fibers: Grey 12 Fibers: Black 24 Fibers: Red	8/12/24 Fibers: Black

Technical Specification

Physical Properties	Description
Cable Diameter*	3.0mm
Breakout Length	0.5/0.3m
Minimum Bend Radius	Single Mode: 10.0mm, Multimode: 7.5mm
Operating Temperature	-10°C to 70°C (14 to 158 ℉)
Storage Temperature	-40°C to 85°C (-40 to 185 ℉)

* Please kindly note that the cable diameter of standard single MTP®/MPO cable is 3.0mm, and as for cables with different bundles, the trunk diameter is different, as shown below.

Bundle Count	MTP®/MPO-12	MTP®/MPO-24	Trunk Diameter
2 Bundles*	24 Fibers	48 Fibers	7.2mm
3 Bundles	36 Fibers	72 Fibers	9.3mm
4 Bundles	48 Fibers	96 Fibers	9.5mm
6 Bundles	72 Fibers	144 Fibers	11.7mm
8 Bundles	96 Fibers	/	12.01mm
12 Bundles	144 Fibers	/	17.3mm

* The "bundle" means a combination of several fibers. For example, as for MTP®/MPO-12 cables, 2 bundles mean 24 Fibers (2x 12F); for MTP®/MPO-24 cables, 2 bundles mean 48 Fibers (2x 24F).

Technical Specification

Optical Properties	Description
Attenuation (dB/km)	Single Mode: ≤0.32 at 1310nm, ≤0.18 at 1550nm OM3/OM4 Multimode: ≤2.3 at 850nm, ≤0.6 at 1300nm OM5 Multimode: ≤2.3 at 850nm, ≤1.7 at 953nm, ≤0.6 at 1300nm
Insertion Loss (dB)	Single Mode: ≤0.35, Multimode: ≤0.35
Return Loss (dB)	Single Mode: UPC Polish: ≥50, APC Polish: ≥60 Multimode: ≥20
Wavelength (nm)	Single Mode: 1310/1550, Multimode: 850/1300

Transmission Distance

Multimode fiber backbone cabling distances for 10 Gbps, 40 Gbps, and 100 Gbps applications.

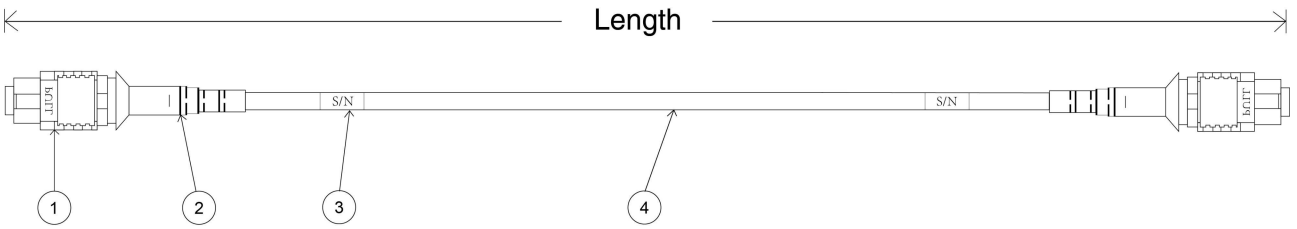
Backbone Application	Standard Specified Max. Distance		
	OM3	OM4	OM5
10GBASE-SR (850nm)	300m (984ft)	400m (1312ft)	400m (1312ft)
40GBASE-SR4	100m (328ft)	150m (492ft)	150m (492ft)
40GBiDi	100m (328ft)	150m (492ft)	200m (689ft)
40GBASE-eSR4	300m (984ft)	400m (1312ft)	400m (1312ft)
40G SWDM4	240m (787ft)	350m (1148ft)	440m (1444ft)
100GBASE-SR10	100m (328ft)	150m (492ft)	150m (492ft)
100GBASE-SR4	70m (230ft)	100m (328ft)	100m (328ft)
100GBASE-eSR4	200m (689ft)	300m (984ft)	300m (984ft)
100G SWDM4	75m (246ft)	100m (328ft)	150m (492ft)

Direct Interconnect

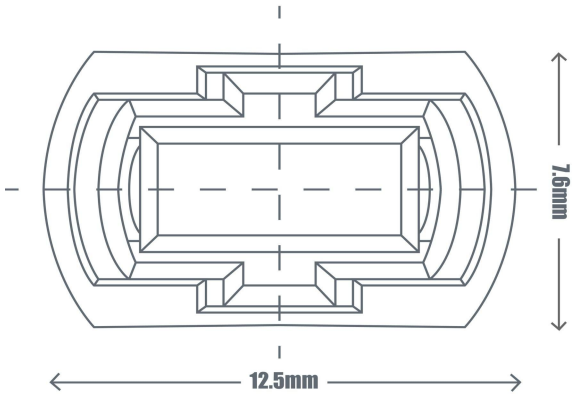
For use in connecting directly into QSFP+, QSFP 28, CFP, CXP, QSFP-DD or OSFP transceivers.

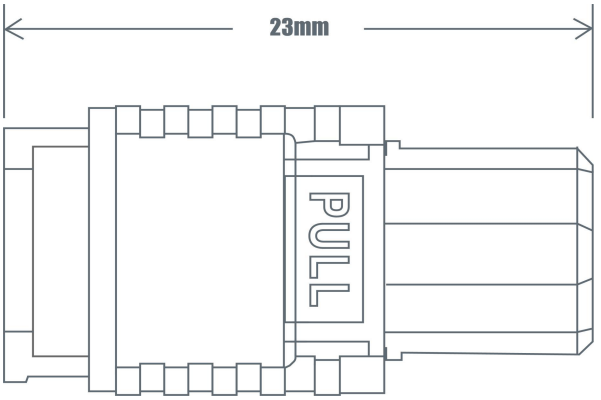
Transceiver	Form Factor	Media	Transmission Distance	Number of Fibers	Connector
QSFP-SR4-40G	QSFP+	MMF	100m (OM3), 150m (OM4)	8	MTP/MPO-12
QSFP-PIR4-40G	QSFP+	SMF	2km (OS2)	8	MTP/MPO-12
QSFP-CSR4-40G	QSFP+	MMF	400m (OM4)	8	MTP/MPO-12
QSFP-PLR4-40G	QSFP+	SMF	10km (OS2)	8	MTP/MPO-12
QSFP28-SR4-100G	QSFP28	MMF	70m (OM3), 100m (OM4)	8	MTP/MPO-12
QSFP28-PIR4-100G	QSFP28	SMF	500m (OS2)	8	MTP/MPO-12
QSFP28-ESR4-100G	QSFP28	MMF	200m (OM3), 300m (OM4)	8	MTP/MPO-12
QSFP28-PSM4-100G	QSFP28	SMF	2km (OS2)	8	MTP/MPO-12
Q28-100/112G-SR4	QSFP28	MMF	100m (OM4)	8	MTP/MPO-12
QSFP28-ISR4-100G	QSFP28	MMF	70m (OM3), 100m (OM4)	8	MTP/MPO-12
CFP-SR10-100G	CFP	MMF	100m (OM3), 150m (OM4)	20	MTP/MPO-24
CXP-SR10-100G	CXP	MMF	100m (OM3), 150m (OM4)	20	MTP/MPO-24
QDD-DR4-400G-Si	QSFP-DD	SMF	500m (OS2)	8	MTP/MPO-12
QSFPDD-PLR4-400G	QSFP-DD	SMF	10km (OS2)	8	MTP/MPO-12
QSFPDD-XDR4-400G	QSFP-DD	SMF	2km (OS2)	8	MTP/MPO-12
OSFP800-XDR8-B2	OSFP	SMF	2km (OS2)	16	Dual MTP/ MPO-12
OSFP800-PLR8-B2	OSFP	SMF	10km (OS2)	8	Dual MTP/ MPO-12

Technical Drawing



① MTP®/MPO Connector ② Connector Boot ③ Serial Number Label ④ Cable Jacket 3.0mm OD





Fiber Optic Cleaning

US Conec IBC™ MPO Connectors Cleaner

Characteristics

- For cleaning ferrules pinned or non-pinned.
- Designed for cleaning the ferrule end-faces of MTP®/MPO connectors.
- Narrow design reaches tightly spaced MTP®/MPO adapters.
- Cost effective tool for cleaning fiber end-faces without the use of alcohol.

NEOCLEAN®-R2 Fiber Optic Cassette Cleaner

Characteristics

- Effective on a variety of contaminates including dust and oils.
- Widely used in optical network maintenance, engineering or equipment
- Cassette tapes are available for replacement after 400+ cleaning operations to ensure low cleaning cost.

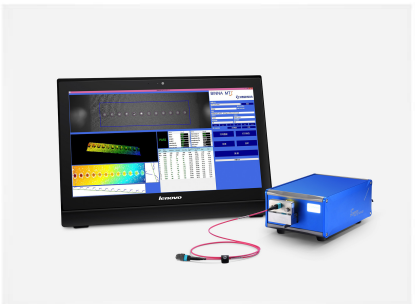
ID	Description
#106327	US Conec IBC™ Brand Cleaner MPO II, for 8/12/24 Fibers MPO Connectors (525+ Times)
#106397	US Conec IBC™ Brand Cleaner MTP®-16, for 16 Fibers MPO Connectors (525+ Times)
#91449	NEOCLEAN®-R2 Fiber Optic Cassette Cleaner for SC/FC/ST/LC/MPO Connectors (400+ Times)

Test Center

Comprehensive performance testing system ensures more secure operation and keeps more stable and reliable data connection. 3D interferometer provides verification of MTP®/MPO polishing process, and making all parameters of the polished MT ferrule complies and exceeds industry standards. Clean optical connectors are paramount in providing a reliable, high-performance fiber optic infrastructure.

Professional Test Equipment

Test Assured Program



3D Interferometer Test

End-Face Inspection

Test Report of IL & RL

Hot Products

ID	Description
#68017	1m (3ft) MTP® Female, 12F OM4, Type B, Elite, Plenum (OFNP)
#68041	1m (3ft) MTP® Female, 24F OM4, Type A, Elite, Plenum (OFNP)
#116390	1m (3ft) MTP® Female, 12F OM5, Type B, Elite, Plenum (OFNP)
#68018	1m (3ft) MTP® Female, 12F OS2, Type B, Elite, Plenum (OFNP)
#72421	1m (3ft) MTP® Female, 24F OS2, Type A, Elite, Plenum (OFNP)

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42U 800x1100mm GR800-Series Network & Server Cabinet

As a server cabinet, suggesting distance between the front rail and rear rail is 850mm.
As a network cabinet, suggesting distance between the front rail and rear rail is 700mm.

Premium Muti-Use Cabinet for Data Center

GR800-series cabinet is the ideal solution for secure high-density server and networking applications in IT environments, which is packed with features designed to simplify rack equipment installations and rack equipment maintenance: top-panel cable routing ports, perforated doors to promote efficient airflow, adjustable mounting rails and more.

Key Features

1. Perforated Door

Provide massive ventilation for server and networking equipment.

2. Top Panel

Easy access for overhead cabling with six brush-covered cable openings.

3. Side Panel

Locking removable side panels improve ease of installation.

4. Mounting Rail

Vertical mounting rails can be adjusted in half-inch (12.7mm) increments.

5. Grounding System

Grounded to the cabinet frame and protect people and device.

6. Casters & Leveling Feet

Allow cabinet roll to the final installation location and adjust and level it on uneven surfaces.

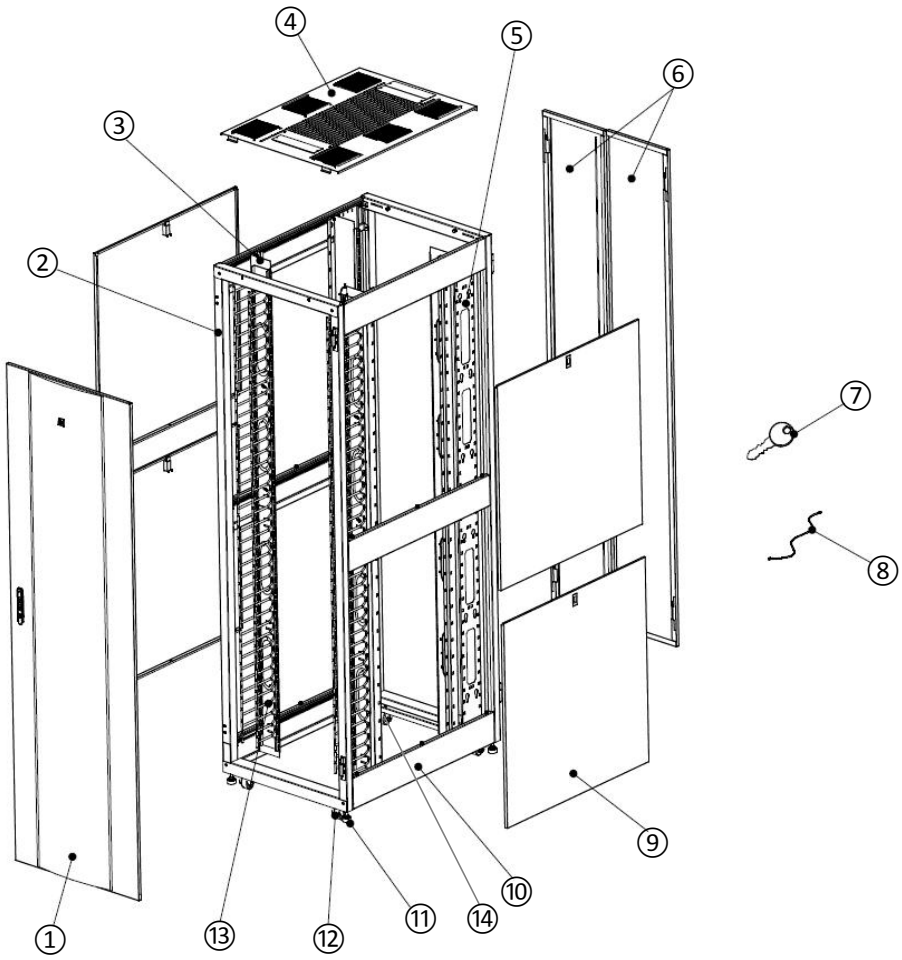
Technical Specification

Product Type	Multi-Use Cabinet
Number of Rack Spaces	42U
Maximum Height	80.19" (2036.94mm)
Maximum Width	31.50" (800.00mm)
Maximum Depth	43.31" (1100.00mm)
Maximum Device Depth (with PDU Bracket)	33.46" (850.00mm)
Minimum Device Depth	7.48" (190.00mm)
Rack-Mount Width	19.02" (483.00mm)
Color	Black
Front Door	Perforated
Rear Door	Split Perforated
Static Load on Leveling Feet	3307lbs (1500kg)
Rolling Load on Casters	2205lbs (1000kg)
PDU Bracket	2pcs
Vertical Cable Manager	1 Set (2pcs)
19" EIA Square Mounting Holes	√
Adjustable Mounting Depth	√
Grounding Wire	Front and back door frames, top panel and side panels

Compliant

ANSI/EIA RS-310-D, IEC297-2, DIN 41491;
PART1, DIN41494; PART 7, GB/T3047.2-92, ETSI Standard

Assembly Structure Illustration

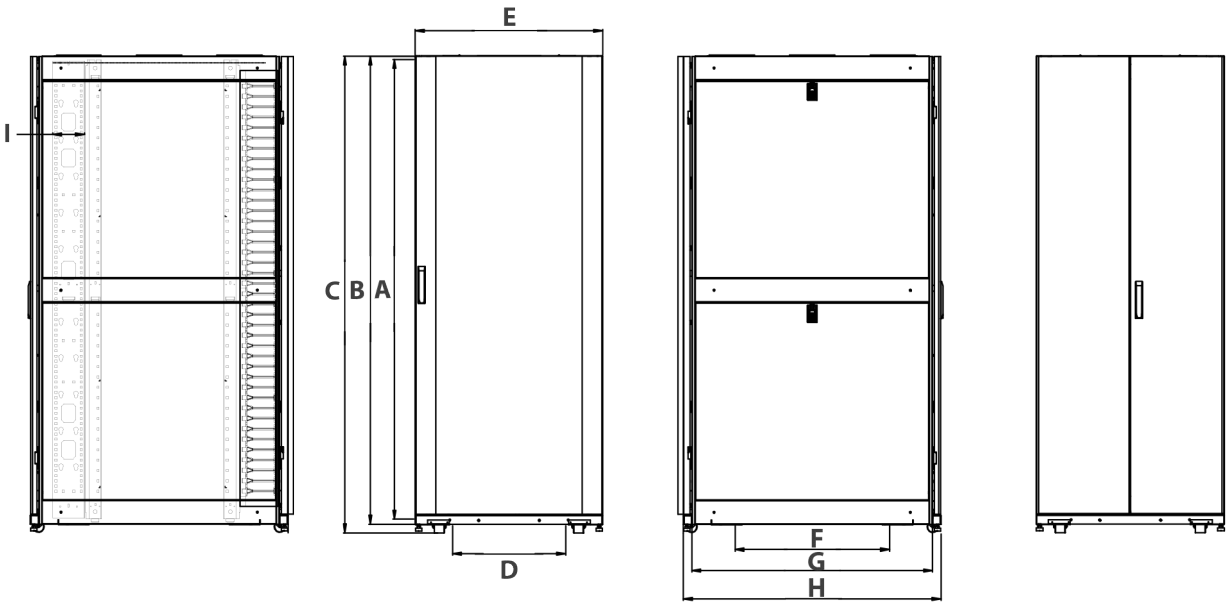


①	Perforated Front Door (x1)	⑧	Grounding Wire (x8)
②	Welded Frame (x2)	⑨	Lockable Side Panel (x4)
③	Adjustable Mounting Rail (x4)	⑩	Beam (x6)
④	Top Panel (x1)	⑪	Leveling Feet (x4)
⑤	PDU Bracket (x2)	⑫	Rolling Caster (x4)
⑥	Split Rear Door (x1)	⑬	Vertical Cable Manager (x2)
⑦	Swing Handle Lock with Key (x2)	⑭	Stabilization Bracket (x4)

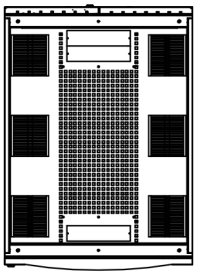
Accessories

- Allen Wrench (x1)
- Phillips-head Screwdriver (x1)
- Hex Screwdriver Bit (x1)
- M6 Screw, Nut and Cup Washer (x50)
- Phillips-head Screwdriver Bit (x1)
- Assembly Instruction (x1)

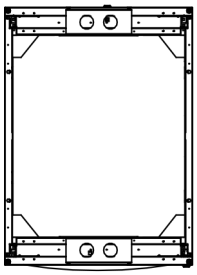
Layout and Dimensions



Overall Front Side Rear



Top



Bottom (Optional)

Height	
A - Rail Height	77.28'' (1963.00mm)
B - Height (Overall)	78.74'' (2000.00mm)
C - Height (With Casters)	80.19'' (2036.94mm)
Width	
D - Rail Width	19.02'' (483.00mm)
E - Width (Overall)	31.50'' (800.00mm)
Depth	
F - Maximum Rail Depth	25.98'' (660.00mm)
G - Frame Depth	40.51'' (1029.00mm)
H - Depth (Overall)	43.31'' (1100.00mm)
I - PDU Bracket Depth	5.33'' (135.50mm)

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0U Single-Phase Monitored PDU

Deliver and manage reliable power to electronic equipment, servers, and network/telecom devices

Overview

Power status can be monitored over the RS485 Com interface, or locally by using the LCD hot swapping display to warn of potential overloads. It supports user-specified alarm notification thresholds and enables the data center managers can evaluate energy usage trends and ensure maximum uptime. It perfectly suited for high-density IT environments and ideal for data centers, server rooms and network wiring closets.

Benefits

- 10ft (3m) Power Cord
- 42 Total Outlets
- Aluminium Alloy Housing
- 0U Vertical Rackmount
- Dedicated to Data Center Operation

Technical Specification

CHARACTERISTICS

	PDU-2PE42I-VMO
Physical	
PDU Type	Monitored
Phase	Single-phase
Socket	36 IEC320 C13 & 6 C19
Plug	IEC60309 32A 2P+E
Cord length	10ft (3m)
Material	Aluminium Alloy
Indicators	Power LED
No. of Rack Spaces	0U
Dimensions (HxWxD)	74.0"x 2.20"x 1.75" (1879x 56x 44.5mm)
Weight	9.69kg
Mounting Method	Vertical
Power	
Rating Current	32A
Rating Voltage	230V
Frequency Compatibility	50/60Hz
Performance	
Load Capacity	7.36kW
Surge Protection	No
Screws	Included
Color	Black
Warranty	
Warranty	1 Year

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The information in this document is subject to change without notice. FS has made all efforts to ensure the accuracy of the information, but all information in this document does not constitute any kind of warranty.

Rittal – The System.

Faster – better – everywhere.

DK 7000.630

Canalina di alimentazione nel contenitore in plastica

Stato: 6/02/2023 (Fonte: rittal.com/it-it)

ENCLOSURES | POWER DISTRIBUTION | CLIMATE CONTROL | IT INFRASTRUCTURE | SOFTWARE & SERVICES

FRIEDHELM LOH GROUP

DK 7000.630 - Canalina di alimentazione nel contenitore in plastica

Canaline di allacciamento 230 Volt, impiego illimitato anche di spine angolate, grazie alla disposizione longitudinale degli alveoli.

Caratteristiche

Nr. d'ord.	DK 7000.630
Descrizione prodotto	Presa multipla con 8 slot per Schuko (tipo F, CEE 7/4). La presa multipla può essere montata sul telaio dell'armadio in verticale oppure nel profilato posteriore da 482,6 mm (19"). Nel profilato da 482,6 mm (19") è richiesto uno spazio di installazione maggiore di 2 HE. Le prese sono disposte a 45°, quindi si possono utilizzare facilmente anche delle spine angolate. Il cavo è integrato con terminali di collegamento. La presa multipla è provvista di morsetti esterni per una messa a terra separata.
Materiale	Plastica
Parti incluse nella fornitura	Cavo di connessione Viti di fissaggio 2 rondelle dentellate Dadi a gabbia M6, conduttivi Dadi
Esecuzione	Senza interruttore
Prese di alimentazione	8 x D, Schuko (tipo F, CEE 7/3)
Lunghezza cavo di connessione	2 m
Cavo di connessione (tipo)	H05VV-F3G1,5 con terminali di collegamento
Tensione nominale di esercizio	230 V AC, 50 Hz
Tensione nominale	230 V AC, 50 Hz
Corrente nominale (max.)	16 A
Connessione elettrica	Capicorda
Possibili installazioni	TE 7000, profilato posteriore 482,6 mm (19") (> 2 HE) TE 7000, sul profilo in senso verticale

Caratteristiche

Colore presa elettrica	Nero
Confezione	1 pz.
Peso/Conf.	0,92 kg
Quota di rame (kg / pezzo)	0
Codice tariffa doganale	85369095
EAN	4028177438569
ETIM 7.0	EC000330
ECLASS 8.0	27142604

Approvazioni

Certificati	EAC
Spiegazioni	Dichiarazione di conformità

FS S3400 Series Switches Data Sheet

Contents

Product overview 3

Product highlights 3

Platform details 4

Platform benefits 9

Software requirements 10

Product specifications 10

Quality certification 12

Optics supported 12

Warranty, service and support 12

Ordering information 13

Additional information 13

Document history 13

Product overview

Full gigabit Ethernet PoE+ switches are the new-generation intelligent access switches designed for enterprise networks, which can be used as Ethernet Power Sourcing Equipment (PSE). They can automatically identify the connected devices whether compatible with IEEE 802.3af or IEEE 802.3at standard and supply power for them.

S3400-24T4SP is equipped with 24x 10/100/1000BASE-T ports, 4 x 10Gb SFP+, and 24x RJ45 ports that support both IEEE 802.3af PoE and IEEE 802.3at PoE+ (up to 30W per port) for powering attached IP phones, wireless access points, or other standards-compliant PoE and PoE+ end network devices.
S3400-24T4SP is a next-generation aggregation 10GE switch. It is targeted at the IP MAN (metropolitan area network), government and enterprise networks, Internet café, and diskless working environment. It supports functions such as powerful ACL, flexible QinQ, 1:1 or N:1 VLAN switching, Ethernet OAM, carrier-level QoS, and industry-level 10GE Ether-ring, ensuring this switch series meets application requirements in all kinds of complicated sites. It also supports layer-3 routing protocol.

S3400-24T4FP is equipped with 24x 10/100/1000BASE-T ports, 4x 1Gb RJ45/SFP combo, and 24x RJ45 ports that support both IEEE 802.3af PoE and IEEE 802.3at PoE+ (up to 30W per port) for powering attached IP phones, wireless access points, or other standards-compliant PoE and PoE+ end network devices. 4x RJ45/SFP combo ports meet the different network expand needs.

S3400-48T4SP is equipped with 48x 10/100/1000BASE-T ports, 4x 1Gb SFP/10Gb SFP+ uplinks, and 48x RJ45 ports that support both IEEE 802.3af PoE and IEEE 802.3at PoE+ (up to 30W per port) for powering attached IP phones, wireless access points, or other standards-compliant PoE and PoE+ end network devices. 4x SFP+ uplink ports are provided to support connections to higher layer devices.

These access switches deliver a compact, cost-effective solution for the carrier's IP MAN and enterprise networks. Based on the high-performance hardware and FSOS platform, it supports functions such as ACL, QinQ, and QoS. Its simple management mode and flexible installation can meet the requirement of any complicated scenario.

Product highlights

- Support WEB/SNMP/SSH for Flexible Operation
- Network Monitoring through Sampled Flow (sFlow)
- Support SSH, ACL, AAA, 802.1X, RADIUS, TACACS+, etc. for Security
- Support ERPS, QoS, L2 Multicast Functions, DHCP Server, RIP, OSPFv2

Platform details

Switch models and configurations

Figures 1 through 3 show the FS S3400 series switches.

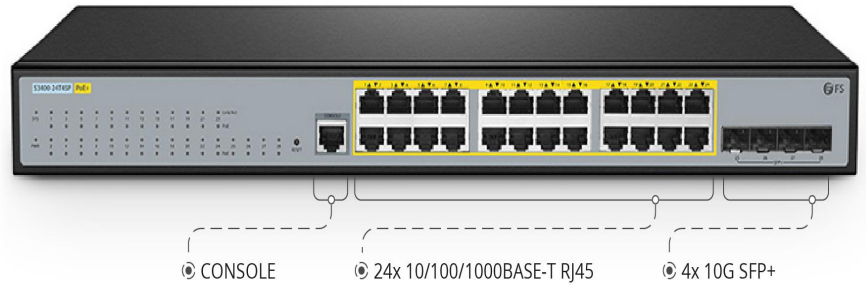

Figure 1.
S3400-24T4SP, 24-Port Gigabit Ethernet PoE Switch, 24 x PoE Ports @370W, with 4 x 10Gb SFP+ Uplinks, Support BVSS

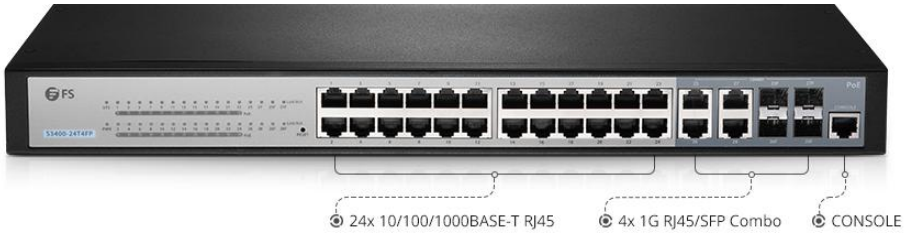

Figure 2.
S3400-24T4FP, 24-Port Gigabit Ethernet L2+ PoE+ Switch, 24 x PoE+ Ports @370W, with 4 x 1Gb Combo Uplinks, Support ERPS

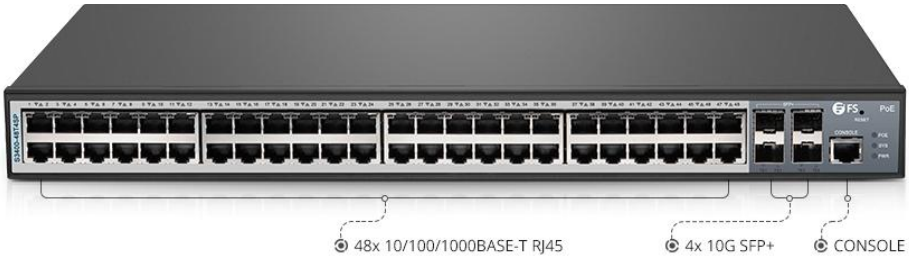

Figure 3.
S3400-48T4SP, 48-Port Gigabit Ethernet L2+ PoE+ Switch, 48 x PoE+ Ports @370W, with 4 x 10Gb SFP+ Uplinks, AC+DC Power Supplies

Switch configurations and port density

Table 1 shows the FS S3400 series configurations and port density.

Table 1. Switch configuration and port density

FS P/N	S3400-24T4SP	S3400-24T4FP	S3400-48T4SP
Description	S3400-24T4SP, 24-Port Gigabit Ethernet PoE Switch, 24 x PoE Ports @370W, with 4 x 10Gb SFP+ Uplinks, Support BVSS	24-Port Gigabit Ethernet L2+ PoE+ Switch, 24 x PoE+ Ports @370W, with 4 x 1Gb Combo Uplinks, Support ERPS	48-Port Gigabit Ethernet L2+ PoE+ Switch, 48 x PoE+ Ports @370W, with 4 x 10Gb SFP+ Uplinks, AC+DC Power Supplies
Port			
1G port density	24	28	48
10G port density	4	-	4
Management ports	1	1	1
Console port	1	1	1
USB port	1	-	-
Memory and processor			
Switch chip	RTL9301	RTL8382M	VSC7448
CPU	RTL9301	MIPS-4KEc	MIPS
RAM	-	128MB	256MB
DRAM	256MB	-	256MB
Flash memory	32MB	16MB (NOR)	16MB
Latency	Max: 4.28us; Min: 3.29us	Max: 3.89us; Min: 3.28us	Max: 92.2us; Min: 3.82us
Packet buffer	1.5MB	0.5MB	4MB

Note:

RJ45 ports can be used as 100M/1/2.5/5/10G ports for Ethernet connection, does not support 1G-T copper transceivers.

SFP+ ports can be used for 1/10G connection.

Power supplies and fans

Table 2 provides more details on the FS S3400 series power supplies and fan specifications.

Table 2. Power supply and fan specifications

Description	S3400-24T4SP	S3400-24T4FP	S3400-48T4SP
Power supply	1 Bulid-in	1 Built-in	2 (1AC+1DC)
Fan number	1+1 redundant fans	3 Built-in	4 Built-in
Airflow	Left-to-Right	Left-to-Right	Left-to-Right
Acoustic noise	37.5dB	45dB	51.8dB
Maximum fan speed	6000RPM±10%	6000RPM±10%	6200RPM±10%
Max. power consumption	408W	400W	400W
Power max rating	400W	370W	370W
Input-voltage range and frequency	AC: 100V-240V,50-60Hz	100-240VAC,50/60Hz	AC: 100-240V, 50-60Hz, 6.5A DC: 36-72V, 1.7A
Power supply efficiency	≥91%	≥91%	≥90%
Input current	6A	6A	6.5A
Output ratings	54V DC 12V DC	48V DC	AC: 53.5V, 7.5A DC: 48V (802.3af)/50V (802.3at), 4A
Output holdup time	≥10ms	≥10ms Min	≥10ms Min
Power-supply input receptacles	C13	C13	C13
Power cord rating	250V 10A	250V 10A	250V 10A
PoE standard	IEEE 802.3af/at/bt	IEEE 802.3af/at	IEEE 802.3af/at
PoE power budget	370W	370W	370W

Stacking

The FS S3400 Series switch models are designed for stacking switches as a single virtual switch.

Table 3 lists the supported stacking options.

Table 3. Supported stacking options

Part Name	S3400-24T4SP	S3400-24T4FP	S3400-48T4SP
Stacking ports	2	-	-
Supported stack members	16	-	-
Maximum number of VSL links	16	-	-
Number of members	16	-	-

Switch performance

Table 4 shows performance specifications for the FS S3400 series switches.

Table 4. Performance specifications

Performance for all S5860 Series Switches	S3400-24T4SP	S3400-24T4FP	S3400-48T4SP
Switching capacity	128 Gbps	56 Gbps	176 Gbps
Forwarding rate	96 Mbps	56 Gbps	132 Mpps
Total number of MAC addresses	16382	8K	32K
Total number of IPv4 routes (indirect routes)	128	128	500
Total number of IPv4 host routes (direct routes and ARP)	384	384	1500
Total number of IPv6 routes (indirect routes)	64	64	118
Total number of IPv6 host routes (direct routes and NDP)	185	185	384
Total number of IPv4 multicast routes	509	509	2048
Total number of IPv6 multicast routes	509	509	1024
QoS ACL scale	1295	1295	2048
Security ACL scale	1295	1295	2048
VLAN IDs	4000	4000	4000
STP virtual ports (port* VLANs) for MST	28	28	52
Total switched virtual interfaces (SVIs)	63	63	10
Jumbo frame	9K	9K	9K

Platform benefits

Table 5 lists the software spotlights for the FS S3400 series switches.

Table 5. Software spotlights

Functionality	Description
Sound Security Protection Policies	Support to provide equipment-level security and level-based command line protection Support IEEE 802.1x, Radius and TACACS+ perfect security authentication mechanisms Support storm/multicast/unicast limit Support perfect ring detection mechanism Support port isolation, port security, MAC Sticky, DHCP-Snooping, and IP + MAC + Port binding Support SSH V1/2, HTTPS and SSL Support IP Source Guard, DoS Protection , Anti-attack from DDoS, TCP's SYN Flood and UDP Flood Support L2/L3/L4 ACL flow identification and filtration Support Ingress Egress Statistics Support IPv4/IPv6/MAC/ARP ACL
QoS	Support priority retagging and complicated flow classification Support to provide flexible bandwidth control policies Support multiple queue schedule algorithms such as SP, WRR and "SP + WRR" Support 802.1p, COS, DiffServ, DSCP, Tail-Drop and WRED Support Flow Monitoring and Traffic Shaping
Easy Network Maintenance	Support CLI via console port or Telnet Support Web management Support SNMP v1, v2c, v3 Support firmware upgrade and configuration file upload/download via TFTP/HTTP/FTP server Support dual images (SPAN, RSPAN), multiple configuration files Support firmware auto upgrade RMON Support MIB II, NTP, Ping, Traceroute and ZTP(Zero Touch Provisioning) Support LLDP (802.1ab)
IPv4/IPv6 Dual Protocol Stack	Support IPv4/IPv6 Dual Protocol Stack Support Unicast/Multicast IPv6 Address Type Support ICMPv6 Support IPv6 Neighbor Discovery and Snooping Support Manual Configuration Support IPv6 DHCP Snooping and MLD Snooping
High Reliability	Support IEEE 802.1D Spanning Tree Protocol (STP) Support IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) Support IEEE 802.1s Multiple Spanning Tree Protocol (MSTP) Support BPDU Guard/filtering/transparent Support Root Guard and Loopback detection Support FTP, TFTP and SFTP
Strong Multi-Service Support Capability	Support 4K Active VLAN, voice VLAN, IEEE 802.1Q VLAN, Private VLAN and VLAN translation Support GVRP, QinQ & Selective QinQ Support IGMP Snooping, Link aggregation, DHCP, EAPS and ERPS Support Broadcast/Multicast/ Unknown Unicast Storm Control Support 5 multicast VLANs Port mirroring and remote port mirror (RSPAN) Support Non-Spanning Tree Loopback detection Support Dynamic Arp Inspection, UDLD, OAM, CFM and Y1731 Support ISSU (In-Service Software Upgrade)

Software requirements

The FS S3400 Series Switches run on FS OS Software version.

Table 6 lists the latest software requirements for the switch models.

Table 6. Latest software requirements

FS P/N	Description	Latest software requirements
S3400-24T4SP	S3400-24T4SP, 24-Port Gigabit Ethernet PoE Switch, 24 x PoE Ports @370W, with 4 x 10Gb SFP+ Uplinks, Support BVSS	-
S3400-24T4FP	S3400-24T4FP, 24-Port Gigabit Ethernet L2+ PoE+ Switch, 24 x PoE+ Ports @370W, with 4 x 1Gb Combo Uplinks, Support ERPS	FSOS V2.2.0D 88680 Software
S3400-48T4SP	S3400-48T4SP, 48-Port Gigabit Ethernet L2+ PoE+ Switch, 48 x PoE+ Ports @370W, with 4 x 10Gb SFP+ Uplinks, AC+DC Power Supplies	FSOS V2.0.2J 95262 Software

Product specifications

Table 7 shows the product specifications for the FS S3400 series switches.

Table 7. Product specifications

Description	S3400-24T4SP	S3400-24T4FP	S3400-48T4SP
Environmental			
Operating temperature	-4° F to 149° F(-20°C to 65°C)	32° F to 122° F(0°C to 50°C)	14° F to 122° F (-10°C to 50°C)
Storage temperature	-4° F to 158° F(-20°C to 70°C)	-4° F to 158° F(-20°C to 70°C)	-40° F to 158° F (-40°C to 70°C)
Operating humidity	10% to 90% (Non-condensing)	10% to 90% (Non-condensing)	10% to 90% (Non-condensing)
Storage humidity	5% to 95% (Non-condensing)	5% to 95% (Non-condensing)	5% to 95% (Non-condensing)
Temperature alarm	/	/	/
Acoustic noise	37.5dB	45dB	51.8dB
Physical specifications			
Dimensions (HxWxD)	1.73"x17.32"x8.27" （44x440x210mm）	1.77"x17.32"x11.41" (45x440x290mm)	1.75" x 17.37" x 11.04" (44.4x441.2x208.4mm)
Rack units (RU)	1 RU	1 RU	1 RU
Weight	4.15kg	3.50kg	4.3kg

Description	S3400-24T4SP	S3400-24T4FP	S3400-48T4SP
Distance	100M	100M	100M
Electrical			
Voltage (auto ranging)	100-240VAC	100-240VAC	100-240VAC
Frequency	50-60Hz	50/60Hz	50/60Hz
Current	7A	6A	6.5A
Power rating (maximum consumption)	28W (POE is not included)	400W	400W
Mean-time between failures			
MTBF (hours)	>50,000	>50,000	>50,000
Connectors			
Connectors and cabling	• 1/10GBASE-T ports: RJ-45 connectors, 4-pair Cat5E/Cat6/Cat6a UTP cabling • SFP transceivers: LC fiber connectors (single-mode or multimode fiber) • SFP+ transceivers: LC fiber connectors (single-mode or multimode fiber) • SFP28 transceivers: LC fiber connectors (single-mode or multimode fiber) • QSFP+ transceivers: MPO and LC fiber connectors (single-mode or multimode fiber)QSFP28 transceivers: • MPO and LC fiber connectors (single-mode or multimode fiber) • FS stacking ports: No need for dedicated stacking cables, FS compatible cables or modules can be used for stacking • Ethernet management port: RJ-45 connectors, 4-pair Cat5 UTP cabling • Management console port: RJ-45-to-DB9 cable for PC connections		
Power connectors	• Customers can provide power to a switch by using the internal power at the back of the switch • Internal power supply connector: The internal power supply is an auto-ranging unit. It supports input voltages between 100 (115 for 1100WAC) and 240 VAC. Use the supplied AC power cord to connect the AC power connector to an AC power outlet		
Standards			
Standards	802.1s, 802.1w, 802.1x, 802.1ad, 802.1d, 802.1p, 802.1q, RMON, SNMPV1 V2 V3		

Quality certification

At FS, our Quality Commitment lies in all aspects of processes, resources, and methods that enable us to build superior networks for our customers. Through a quality policy focusing on continuous improvement of products and services, we're able to achieve the highest levels of satisfaction for our customers. To that end, every FS employee is accountable for contributing to the value of the products and services we deliver.

Figures 4 shows some of the authoritative certifications obtained by FS S3400 Series Switches.

Figure 4.

Optics supported

For details about the optical modules available, visit：

S3400-24T4SP: -
S3400-24T4FP: -
S3400-48T4SP: -

Warranty, service and support

FS S3400 Series Switches enjoy 4 years limited warranty against defects in materials or workmanship. For more information for FS Returns & Refunds policy, visit https://www.fs.com/policies/warranty.html or https://www.fs.com/policies/day_return_policy.html

FS provides a personal account manager, free professional technical support, and 24/7 live customer service to each customer.

- Professional Lab: Test each product with the latest and advanced networking equipment.
- Free Technical Support: Provide free & tailored solutions and services for your businesses.
- 80% Same-day Shipping: Immediate shipping for in-stock items.
- Fast Response: Direct and immediate assistance from an expert.

For more information, visit https://www.fs.com/service/fs_support.html

Ordering information

Table 8 provides the ordering information for S3400 series switches.

Table 8. Ordering information

FS P/N	Product description
Switch hardware	
S3400-24T4SP	S3400-24T4SP, 24-Port Gigabit Ethernet PoE Switch, 24 x PoE Ports @370W, with 4 x 10Gb SFP+ Uplinks, Support BVSS
S3400-24T4FP	S3400-24T4FP, 24-Port Gigabit Ethernet L2+ PoE+ Switch, 24 x PoE+ Ports @370W, with 4 x 1Gb Combo Uplinks, Support ERPS
S3400-48T4SP	S3400-48T4SP, 48-Port Gigabit Ethernet L2+ PoE+ Switch, 48 x PoE+ Ports @370W, with 4 x 10Gb SFP+ Uplinks, AC+DC Power Supplies

Additional information

For more information about the S3400 Series Switches, contact your account manager or visit

https://www.fs.com/search_result?keyword=S3400

Document history

New or revised topic	Described in	Date
Updates to FS S3400 Series Switches Data Sheet	Updated all	11/17/2022

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