![CTS - Connection Technology Systems logo]

XFS-5112

12-port 10G/1GBase-X SFP+ L2+ Managed Fiber Switch

User's Guide

Version: 1.0

Revision History

Version	Date	Changes
1.0	8/11/2025	First release.

FCC Warning

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with this user's guide, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

CE Mark Warning

This is a Class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

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Table of Contents

About this manual

In this user's guide, it will not only clearly introduce CTS XFS-5112 Managed Switch but tell you how to install this Managed Switch with detailed instructions.

Organization of the Manual

- Chapter 1 "Introduction" describes the features of the Managed Switch
- Chapter 2 "Installing the Managed Switch"
- Chapter 3 "Operation"
- Chapter 4 "Maintenance"

1

Introduction

CTS's Managed Switch is designed to meet the emerging FTTX & Metro Ethernet requirements. Its low profile appearance with 1U height and the standard 8.5-inch rack-mounted size achieve high density within a single rack. With 12 fiber ports to be deployed, the Managed Switch provides the best performance and price ratio.

1.1 Overview of XFS-5112

The XFS-5112 is a 12-port 10G managed fiber switch designed for high-performance aggregation and fiber access applications. It features 12 10G/1G SFP+ ports, one RS-232 console port, and a digital input via terminal block for monitoring external contact closures.

The switch delivers non-blocking performance with 240Gbps switching capacity and 178.5Mpps forwarding rate. It supports 32K MAC addresses, a 16Mbit packet buffer, and jumbo frames up to 12K bytes.

Power options include 1 x AC input, 1 x DC input, or 1 x AC input combined with an external 12V R7B DC adapter, offering flexible installation in diverse environments. The compact 1U design with front-facing ports allows for easy deployment in space-constrained applications.

Standard Layer 2 switching, VLAN, redundancy, and management capabilities are supported for seamless integration into fiber-based Ethernet networks.

1.2 Key Features

- **Interface**
  Fiber Port
  - 12 x 10/1GBase-X SFP+
  Console Port
  - 1 x RS-232 to RJ-45 Serial Port
  Terminal Block
  - 1 x Digital Input (Dry Contact)
  Standards
  - IEEE 802.3ae 10GBase-R
  - IEEE 802.3z 1000Base-X
  - IEEE 802.3x Flow Control
  - IEEE 802.3ad Link Aggregation
  - IEEE 802.3ah OAM *
  - IEEE 802.1ab LLDP
  - IEEE 802.1p Priority
  - IEEE 802.1q Tag VLAN
  - IEEE 802.1d STP
  - IEEE 802.1w RSTP
  - IEEE 802.1s MSTP
  - IEEE 802.1x Port-Based Network Access Control
  - ITU-T G.8032 Ethernet Ring Protection Switching *
- **H/W Specification**
  - MAC Address Table: 32K
  - Non-Blocking Switch Fabric: 240Gbps
  - Throughput @ 64Bytes: 178.5Mpps
  - Packet Buffer: 16Mbit
  - Jumbo Frame: 12K Bytes
  - Store and Forward Switching Mechanism
  - Full/Half Duplex Mode Operation
- **LED**
  - Power, Status, COM, Link/Act/Speed
- **Forward/Filter Rate**
  - 10G: 14,880,000/14,880,000pps
  - 1G: 1,488,000/1,488,000pps
- **Layer 2 Switch Features**
  Port Management
  - State, Description, Media Type, Port Type, Speed, Duplex and Flow Control
  Network Redundancy
  - IEEE 802.1d Spanning Tree Protocol (STP)
  - IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)
  - IEEE 802.1s Multiple Spanning Tree Protocol (MSTP)
  - Fast Ring v2/Chain Redundancy Protocols
  - Static Port Trunking / Dynamic LACP Trunk
    Up to 6 Aggregation Groups, Max 8 Ports per Group
  - ERPS *
  VLAN
  - IEEE 802.1q VLAN
    VLAN ID: 4094 IDs

VLAN Concurrent Groups: 4K VLAN Groups
- Port-Based VLAN
- VLAN Translation
- Q-in-Q Double tag with Configurable Ether Type
- Selective Q-in-Q

QoS
- QoS based on 802.1p CoS and DSCP
- Scheduling Algorithm
  Weighted Round Robin (WRR)
  Strict Priority Queuing (SPQ)
- QoS Priority Queues: 8 Queues
- 802.1p P-bit & DSCP Remarking
- Port-Based Rate Limit (Ingress/Egress)

Multicast
- IGMP Snooping v1/v2/v3
- MLD Snooping v1/v2
- IGMP/MLD Fast Leave and Querier
- IGMP/MLD Snooping Group: 512/128 Groups
- IP Multicast Filter with Segment and Profile
- Static Multicast Group
- Multicast VLAN Registration (MVR)

IPv6 Feature
- IPv6 Over Ethernet (RFC 2464)
- IPv6 Addressing Architecture (RFC 4291)
- IPv6 Dual Stack (RFC 4213)
- ICMPv6 (RFC 4884)
- Path MTU Discovery for IPv6 (RFC 1981)
- Neighbour Discovery (RFC 4861)
- DHCPv6 Client

Layer 2 Protocol Tunnelling
- CDP, LLDP, STP, VTP, LACP, PAgP, UDLD

Access Control List
- Physical Port, Ether Type, MAC Address, VID, ToS/Traffic Class, Protocol Type,
  L4 Port and IP Address
- ACL Entries (IPv4: 128 Entries; IPv6: 64 Entries)

Advanced
- Static Routing *

- **Security**
  - 802.1x RADIUS Authentication
    802.1x Port Base Access Control
    802.1x MAC Authentication Bypass (MAB)
    RADIUS-Assigned VLAN with Fallback Support
  - RADIUS/TACACS+ Authentication for login username/password
  - DHCP Snooping and DHCP Server Trust Port
  - DHCP Snooping Relay Agent
    DHCPv4 Option 82 with configurable Circuit and Remote ID
    DHCPv6 Option 37/18 with configurable Interface and Remote ID
  - IP Source Binding
  - IP Source Guard
  - Port Isolation
  - Port Link Flap
  - Port Linkup Delay

- Storm Control (Unknown Unicast/Multicast, Broadcast)
- MAC Limiter
- Loop Detection

■ **Management**
- SNMP v1, v2c & v3 (Support Traps)
- Web (HTTP/HTTPS)
- CLI (Console/Telnet/SSHv2)
- SNTP with Daylight Saving Time
- Layer 2 Control Protocol Filter
- LLDP
  Upgrade/Restore
- Firmware Upgrade/Downgrade
  HTTP/HTTPS/FTP/TFTP
  DHCP Auto-provision via DHCPv4 Option 60/43 & DHCPv6 Option 16/17
- Configuration Upload/Backup
  HTTP/HTTPS/FTP/TFTP
  DHCP Auto-provision via DHCPv4 Option 60/43 & DHCPv6 Option 16/17
- Auto configure backup
  FTP/TFTP

■ **Maintenance**
  Diagnostic
- Port Mirror
- ICMP Ping
- Event log
- Syslog
- SFP SFF-8472 DDMI Monitor
  Temp/Voltage/TX Bias/TX Power/RX Power
- CPU Utilization/Temperature
- Memory Statistics
- System Voltage
- Digital Input (Normal Closed/Open)
- Port Lookback Test *
- Ethernet OAM *

■ **Power Requirement**
- AC Input: 100~240V, 50/60Hz, 0.3~0.1A
- DC Input: 48V, 0.6A
- External DC Input: 12V, 3.33A (R7B adapter)
- Power Consumption: full-load < 28.8W (98 BTU/h)

■ **Environmental Condition**
- Operation: 0°C ~ 50°C
- Storage: -20°C ~ 60°C
- Humidity: 5% ~ 90%, Non-condensing

■ **Dimension & Weight**
- Size: 210 x 230 x 44 mm (W x D x H)
- Weight: 1.7 Kg

■ **Standards and Certifications**
  CE/FCC Class A
- Safety: EN/IEC 62368-1
- EMC: EN 55032 / EN 55035
- ESD
  Air Discharge: +/- 8 kV
  Contact Discharge: +/- 4 kV

- EFT
    AC input: +/- 1 kV
    DC input: +/- 0.5 kV
-Surge Protection
    AC input: +/- 2 kV
    DC input: +/- 0.5 kV
UKCA/RCM/VCCI
RoHS 2.0

* Coming soon

1.3 Front & Rear Panels
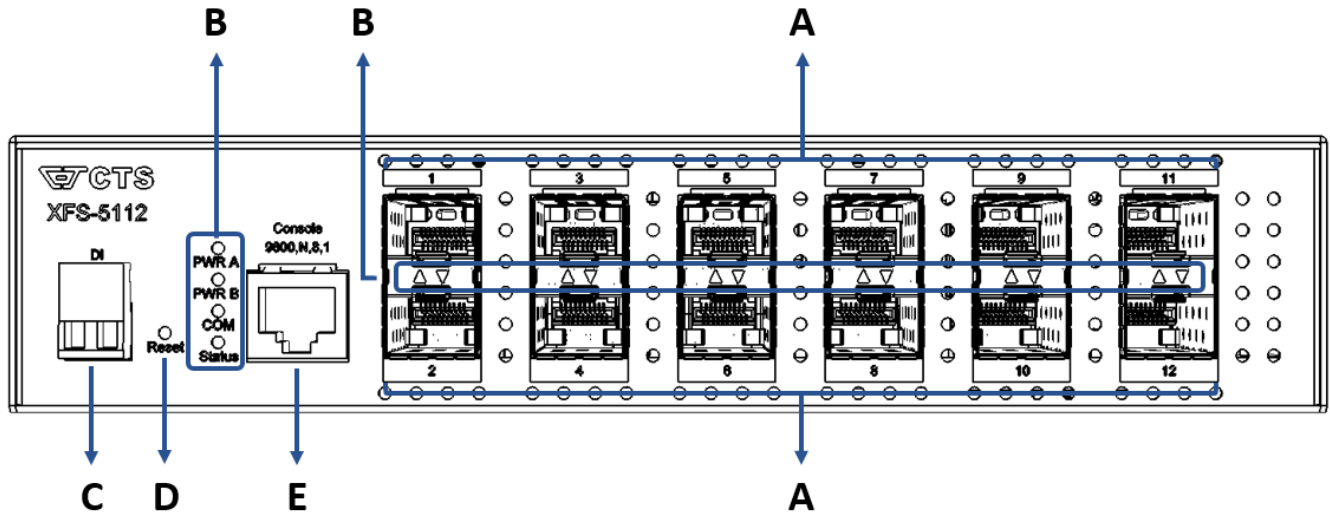## 1.3.1 Front Panel

Figure 1-1. XFS-5112 Managed Switch Front Panel

The interfaces on the front panel of the Managed Switch are described below:

A. 12 x 10G/1GBase-X SFP+ slots (Ports 1-12)

B. LEDs:
- Includes PWR A LED, PWR B LED, COM LED, Status LED, and LEDs of Fiber 1~12 ports. For more details on LEDs description, please refer to Section 1.4 LED Definitions.

C. Digital Input (Dry Contact)
- A voltage-free connector that is used to decide whether the trigger occurs or not by detecting its open/close status. The configuration is as follows:
  - Open: Logic Level 0
  - Close: Logic Level 1

D. Reset Button
- Press the reset button for more than 5 seconds until the STA LED lights up in orange, then release it to restart the system.
- Press the reset button for more than 10 seconds, then release it to reset the system. The system will restart with default settings.

E. Console Port
- An asynchronous serial console port supports the RS-232 electrical specification. The console port can be used to manage the device, and the serial console port settings should be configured as 9600, N, 8, 1.

1.3.2 Rear Panel

The Managed Switch provides three different power combinations:

- XFS-5112-1A: One fixed Internal 100-240V AC Power Module
- XFS-5112-1D: One fixed Internal 48V DC Power Module
- XFS-5112-1AE: One fixed Internal 100-240V AC Power Module and One fixed External 12V DC Power Module (via R7B adapter)

Users can select the appropriate power configuration based on their requirements.
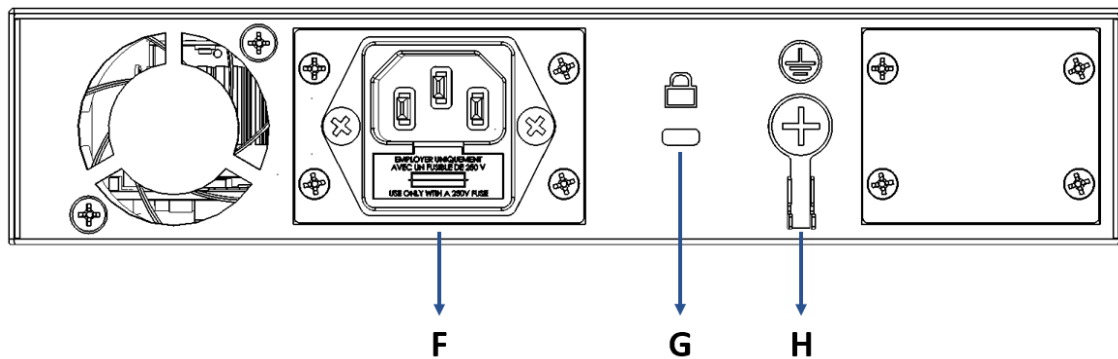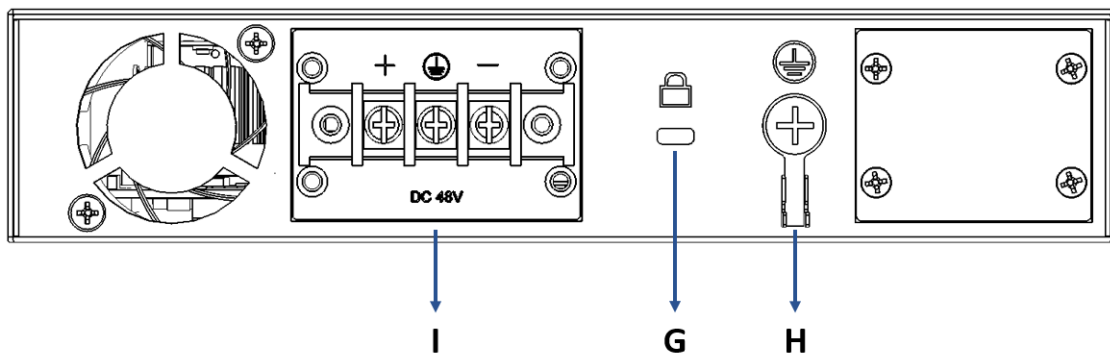

Figure 1-2. Rear Panel of XFS-5112-1A
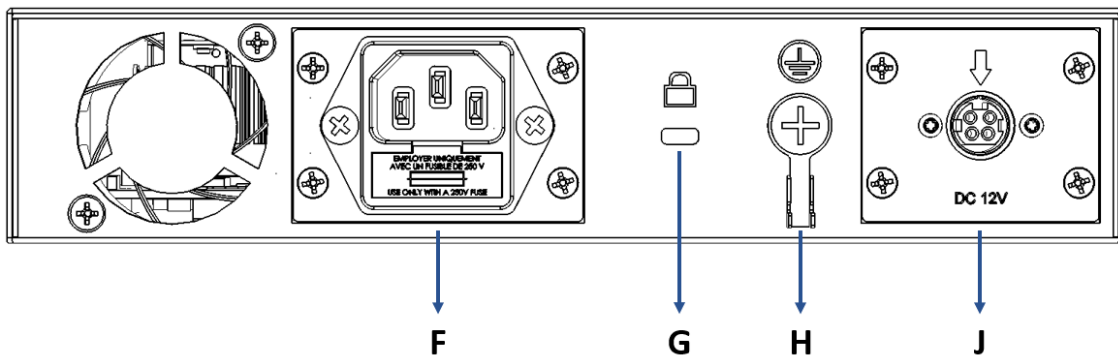

Figure 1-3. Rear Panel of XFS-5112-1D

Figure 1-4. Rear Panel of XFS-5112-1AE

The interface on the rear panel of the Managed Switch is described below:

F. Internal AC Power module and Connector
- AC power connection: 100-240 VAC, 50/60 Hz, 0.3-0.1 A
- Fuse: rated 250V, 3.15A (For replacement instructions, please refer to Section 4.2)

G. Kensington Lock Slot

H. Ground Screw (For more information, please refer to Section 2.4)

I. Internal DC Power module and Connector
- DC power connection: 48 VDC, 0.6 A

J. External DC Power module and Connector
- DC power connection: 12 VDC, 3.33 A
- Connect via R7B adapter

1.4 LED Definitions

The real-time operational status can be monitored through a set of LED indicators located on the front panel of the managed switch
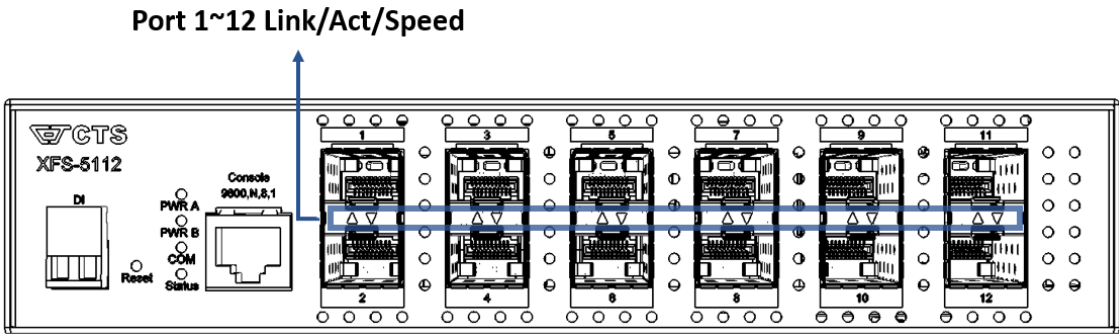

Figure 1-5. LED indicators of XFS-5112

Power LED

The power status of the Managed Switch is indicated by the Power LED on the front panel of the device.

LED	Color	Operation
Power	OFF	No fixed-in power module exists or power is off.
	Green	Lit when power module is in normal operation.
	Orange	Fixed-in power module is no longer receiving power or DC output fails.

Status LED

The Managed Switch status is indicated by the Status LED on the front panel of the device.

LED	Color	Operation
Status	Green	Lit when the device is in normal operation.
	Orange	**Lit** when the device is currently booting up. *Press the reset button for more than 5 seconds until the STA LED lights up in orange, then release it to restart the system.
		Blinks when the device is resetting to default settings. *Press the reset button for more than 10 seconds, then release it to reset the system. The system will restart with default settings.

COM LED

The console status is indicated by the COM LED on the front panel of the device.

LED	Color	Operation
COM	OFF	Either the console port is not activated or no session exists.
	Green	Lit when the console port is activated and the session exists.

SFP+ 1~12 Port LEDs

LED	Color	Operation
Link/ACT/ Speed	OFF	No connection exists.
	Orange	Lit when Fiber 1Gbps port link is up.
		Rapidly blinking when Fiber port is receiving and transmitting data at the speed of 1Gbps.
	Blue	Lit when Fiber 10Gbps port link is up.
		Rapidly blinking when Fiber port is receiving and transmitting data at the speed of 10Gbps.
		Slowly blinking in every 1 second when Fiber port is in loop.

1.5 Cable Specifications

The following table contains various cable specifications for the Managed Switch. Please make sure that you use the proper cable when connecting the Managed Switch.

Cable Type	Description
1000BASE-SX	Multi-mode fiber module (550m)
1000BASE-LX	Single-mode fiber module (10km)
1000BASE-LH	Single-mode fiber module (30km/50km)
1000BASE-ZX	Single-mode fiber module (80km)
SFP Transceiver	SFP Transceiver for 1000BASE-SX Multi-mode fiber module (550m) SFP Transceiver for 1000BASE-LX Single-mode fiber module (10km) SFP Transceiver for 1000BASE-LH Single-mode fiber module (30km/50km) SFP Transceiver for 1000BASE-ZX Single-mode fiber module (80km)
10GBASE-SR	Multi-mode fiber module (26m or 400m)
10GBASE-LR	Single-mode fiber module (10km)
10GBASE-ER	Single-mode fiber module (40km)
10GBASE-LRM	Multi-mode fiber module (220m)

2

Installation

To properly install the Managed Switch, please follow the procedures listed below. These procedures will be respectively described in detail in the following sections.

- ■ Installation Requirements
- ■ Checking the Package Contents
- ■ Installing the Managed Switch
- ■ Grounding the Managed Switch
- ■ Powering on the Managed Switch
- ■ Connecting the Managed Switch to the Network
- ■ Installing and Removing SFP/SFP+ Modules
- ■ Connecting the Switch to Console Port

2.1 Installation Requirements

Basic requirements for installation are as follows:

- ■ Environmental conditions
  - ● One power outlet
  - ● Proper ventilation
  - ● Proper isolation to electrical noise, radio, etc.
- ■ Required SFP/SFP+ Transceiver
- ■ Rack mounting tools

2.2 Checking the Package Contents

Unpack the package carefully and check the package contents. The package should contain the following items:

- ● One set of the Managed Switch
- ● 19-inch rack-mounting kit:
  - - 1 x Long mounting bracket and 2 x regular mounting brackets
  - - Screws
- ● Four rubber feet with adhesive backing
- ● Console RS-232 cable with RJ-45 connector
- ● Quick Guide (A5 paper with QR code on it)
- ● AC power cord (For models with AC power module only)
- ● External power supply, R7B adapter (For models with external DC power input only)
- ● Two-switch combine kit for 19-inch rack-mounting. *(Optional)*
  - - 4 x └┘-shaped fixed pieces
  - - Screws

If any item is found missing or damaged, please contact your local sales representative for support or replacement.

2.3 Installing the Managed Switch

You can install the Managed Switch on a flat surface or mount it in a standard 19-inch network equipment rack.

> ⚠️ **CAUTION**
>
> **To prevent any damage or failure of the Managed Switch, please DO NOT block the ventilation holes.**

Use the following guidelines when choosing a place to install the switch:

- Firm and steady flat surface.

- Proper power outlet location, not too far from the device.

- Visually inspect the power cord or the wires to ensure that it is secured to the AC or DC power connector.

- Make sure that there is proper heat dissipation from and adequate ventilation around the switch. Do not place heavy objects on the Managed Switch.

2.3.1 Desktop Installation

The switch can be placed in any flat and steady surface with proper air ventilation. Four rubber feet with adhesive backing are provided for this kind of installation.

Procedures

❶ Attach rubber feet on the bottom at each corner of the device.

❷ Select a flat and steady surface to place the switch.

❸ Allow adequate space for ventilation between the device and the objects around it.

2.3.2 Rack Installation

Either you can install an 8.5-inch switch or two 8.5-inch switches in a standard 19-inch network equipment rack. In the following sections, we will take a Managed Switch for example to separately demonstrate how to mount it or them in this size of rack space.

⚠️ **WARNING!**

Please mount the Switch firmly in rack, otherwise it may fall and cause the system damage and possible injury to personnel.

2.3.2.1 Install a Managed Switch in a Rack

To install one set of the Managed Switch in a single rack space, you need the 19-inch rack-mount kit supplied with the switch. Just follow the procedures listed below for step-by-step instructions to install your switch in this rack space:

Step 1. Attach the supplied rack mounting brackets to the switch:

   1.1. Attach the supplied regular mounting bracket to one side of the switch that you would like to install in the rack. (See Figure 2-1)

   1.2. Attach the supplied long mounting bracket to the other side of the switch. (See Figure 2-1)

Step 2. Insert the screws provided in the rack-mount kit through each bracket and into the bracket mounting holes in the switch. (See Figure 2-1)
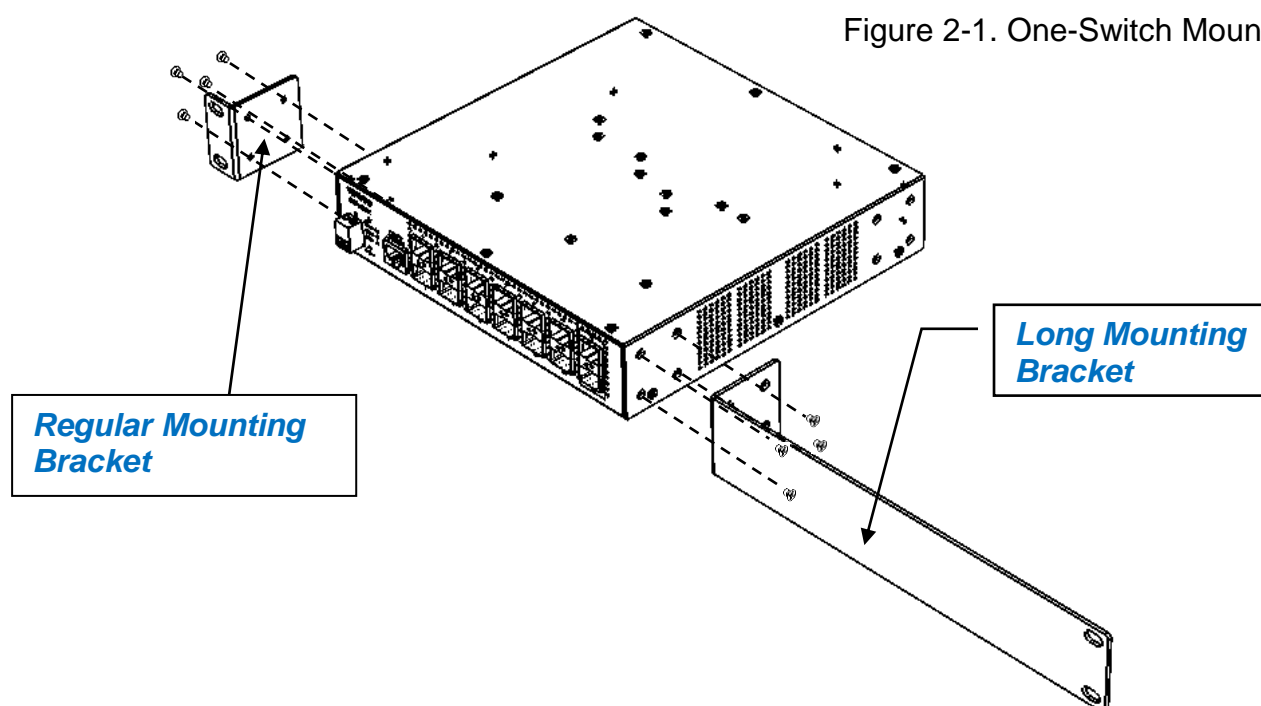

Figure 2-1. One-Switch Mounting

Regular Mounting Bracket

Long Mounting Bracket

Step 3. Then, tighten the screws with the screwdriver to secure each bracket.

Step 4. Align the mounting holes in the brackets with the desired holes in the rack, and insert screws through each bracket and into the rack.

Step 5. Then, tighten the screws with the screwdriver to secure mounting brackets to the rack.

Step 6. Please ensure that the ventilation holes are not blocked.

2.3.2.2 Install Two Managed Switches in a Rack Using the Combine Kit

To install two sets of the 8.5-inch Managed Switch in a single rack space, you need the 19-inch rack-mount kit as well as the combine kit, supplied with the switch. Also follow the procedures listed below for step-by-step instructions to install your switches in this rack space:

Step 1. On the switch that will be mounted on the left side of the rack space, do the following:

    1.1. Refer to Section 2.3.2.1 to attach the supplied regular mounting bracket to the left side of this switch.

    1.2. Insert the screws provided in the rack-mount kit through the bracket and into the bracket mounting holes in the switches.

    1.3. Tighten the screws with the screwdriver to secure the bracket.

    1.4. On the right side of the switch, attach one ⌴-shaped fixed piece by inserting the screws provided in the combine kit through this fixed piece and into the mounting holes in the switch. (See Figure 2-2)

    1.5. Repeat the same manners as we had mentioned in Step 1.4 to install another ⌴-shaped fixed piece on the same side of this switch. (See Figure 2-2)
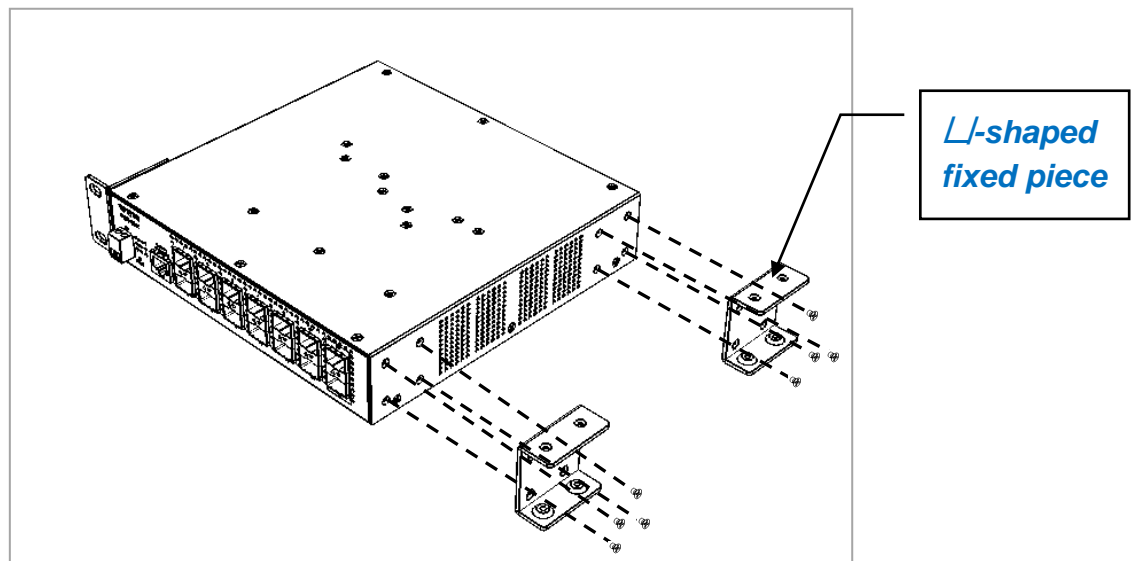

⌴-shaped fixed piece

Figure 2-2. Install the ⌴-shaped fixed pieces for two-switch mounting

    1.6. Tighten the screws with the screwdriver to secure each middle mount to the right side of the switch.

Step 2. On the other switch that will be mounted on the right side of the rack space, do the following:

    2.1. Also refer to Section 2.3.2.1 to attach the supplied regular mounting bracket to the right side of this switch.

    2.2. Insert the screws provided in the rack-mount kit through the bracket and into the bracket mounting holes in the switches.

    2.3. Tighten the screws with the screwdriver to secure the bracket.

2.4. On the left side of the switch, attach one ⊔-shaped fixed piece in the reverse direction by inserting the screws provided in the combine kit through this fixed piece and into the mounting holes in the switch. (See Figure 2-3)

2.5. Repeat the same manners as we had mentioned in Step 2.4 to install another ⊔-shaped fixed piece on the same side of the switch. (See Figure 2-3)
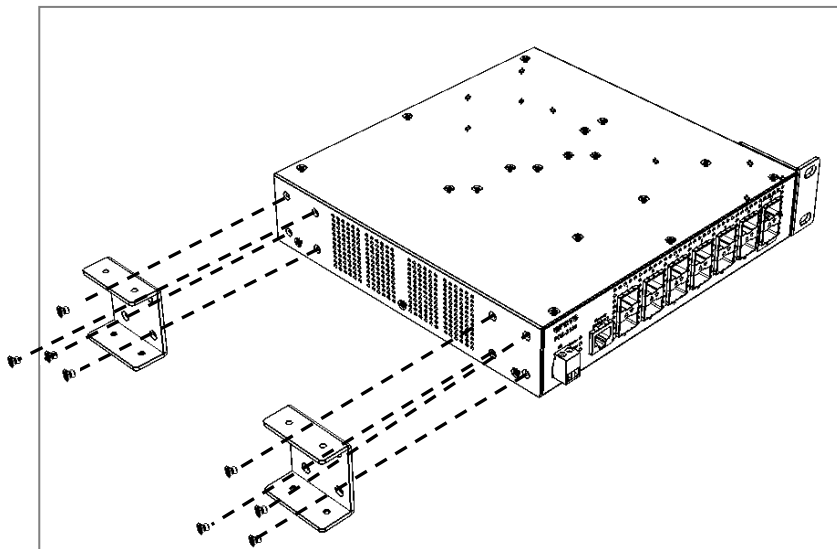

Figure 2-3. Install the ⊔-shaped fixed pieces in the reverse direction for two-switch mounting

2.6. Tighten the screws with the screwdriver to secure each middle mount to the left side of the switch.

Step 3. Align the holes of the middle mount described in Step 1 on the left switch with the holes of the middle mount described in Step 2 on the right switch, and then lock them together carefully.

Step 4. Insert the screws provided in the combine kit through the holes into each middle mount. (See Figure 2-4)
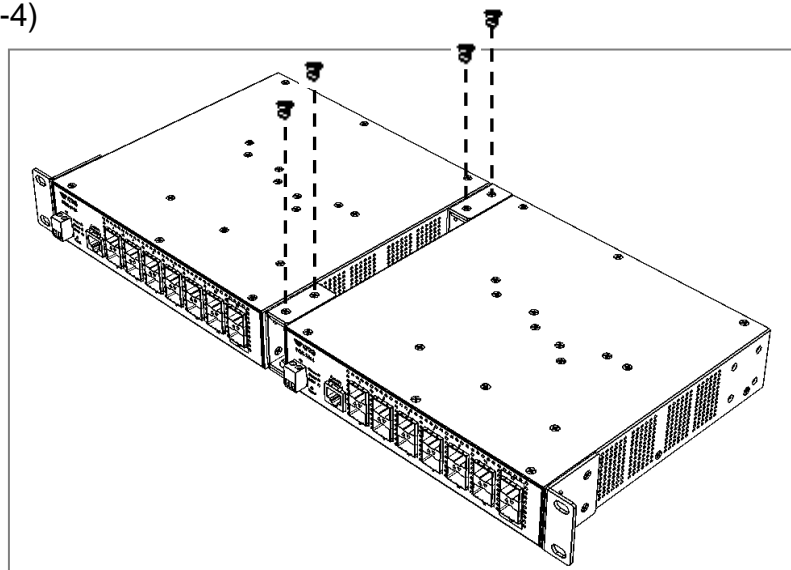

Figure 2-4. Screw the locked switches for two-switch mounting

Step 5. Tighten the screws with the screwdriver to secure each middle mount.

Step 6. Align the mounting holes in the regular brackets on both sides (the left side of the left switch and the right side of the right switch) with the desired holes in the rack, and insert the screws through each bracket and into the rack.

Step 7. Tighten the screws with the screwdriver to secure mounting brackets to the rack.

2.3.2.3 Install a Single/Two Managed Switches in a Rack Using 19-inch Rack-mount Bracket

Besides the mounting methods we previously mentioned, to install one or two sets of the Managed Switches in a single rack space; alternatively, you can use the 19-inch rack-mount bracket supplied with the switch. Also follow the procedures listed below for step-by-step instructions to install your switch/switches in this rack space:

Step 1. On the switch that will be mounted on the left side of the rack space, do the following:

    1.1. Four bracket mounting holes for 19-inch rack-mount bracket are located at the bottom of each switch. (See Figure 2-5). Align these holes of this switch with the mounting holes on the most left side of the bracket you purchase.
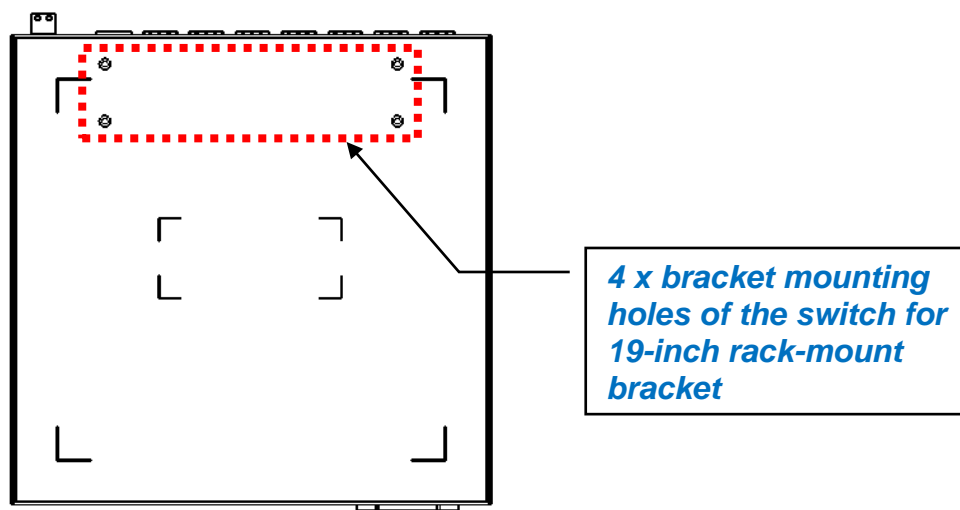

4 x bracket mounting holes of the switch for 19-inch rack-mount bracket

Figure 2-5. Bracket mounting holes located at the bottom of the switch

    1.2. Insert the screws provided in the 19-inch rack-mount bracket through this bracket and into the bracket mounting holes at the bottom of the switch. (See Figure 2-6)
    1.3. Tighten the screws with the screwdriver to secure this bracket.

Step 2. On the other switch that will be mounted on the right side of the rack space, do the following:

    2.1. Also align four bracket mounting holes located at the bottom of this switch with the mounting holes on the most right side of the bracket you purchase.
    2.2. Insert the screws provided in the 19-inch rack-mount bracket through this bracket and into these bracket mounting holes of the switch. (See Figure 2-6)
    2.3. Tighten the screws with the screwdriver to secure this bracket.
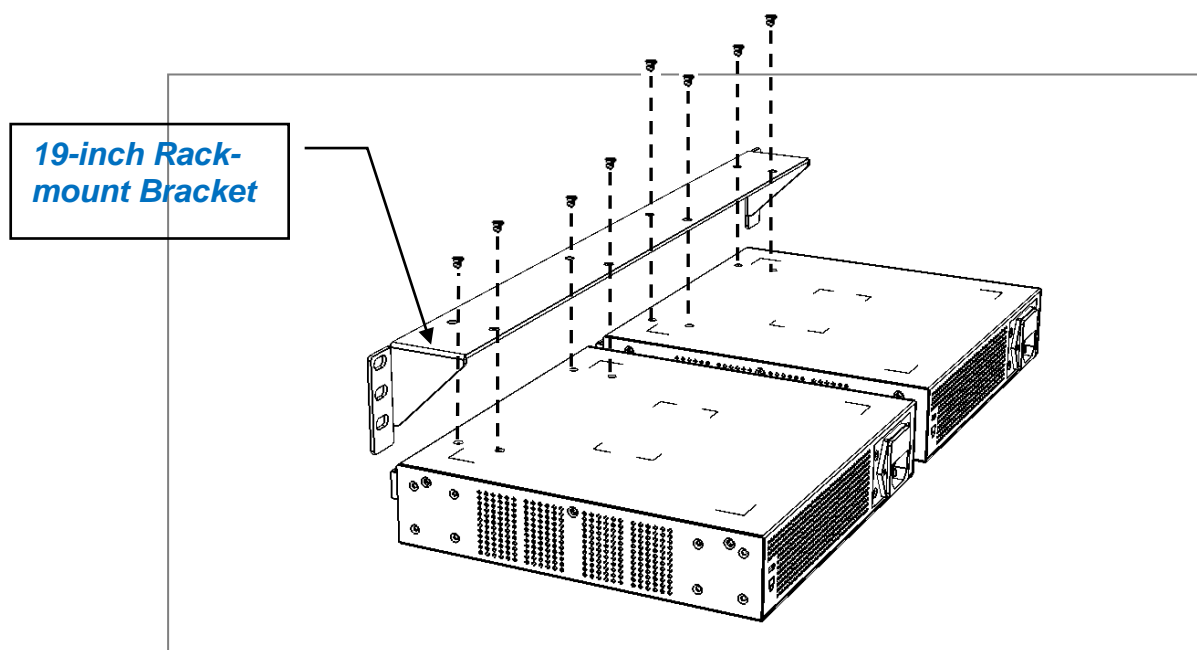
19-inch Rack-mount Bracket

Figure 2-6. Install the19-inch rack-mount bracket for two-switch mounting

Step 3. Align the mounting holes on both sides of this 19-inch rack-mount bracket with the desired holes in the rack, and insert the screws through this bracket and into the rack.

Step 4. Tighten the screws with the screwdriver to secure this bracket with the switch/switches to the rack.

2.4 Grounding the Managed Switch

Grounding helps to limit the effects of noise due to electromagnetic interference (EMI). Be sure to install the ground connection from the ground screw to the grounding surface before connecting devices.
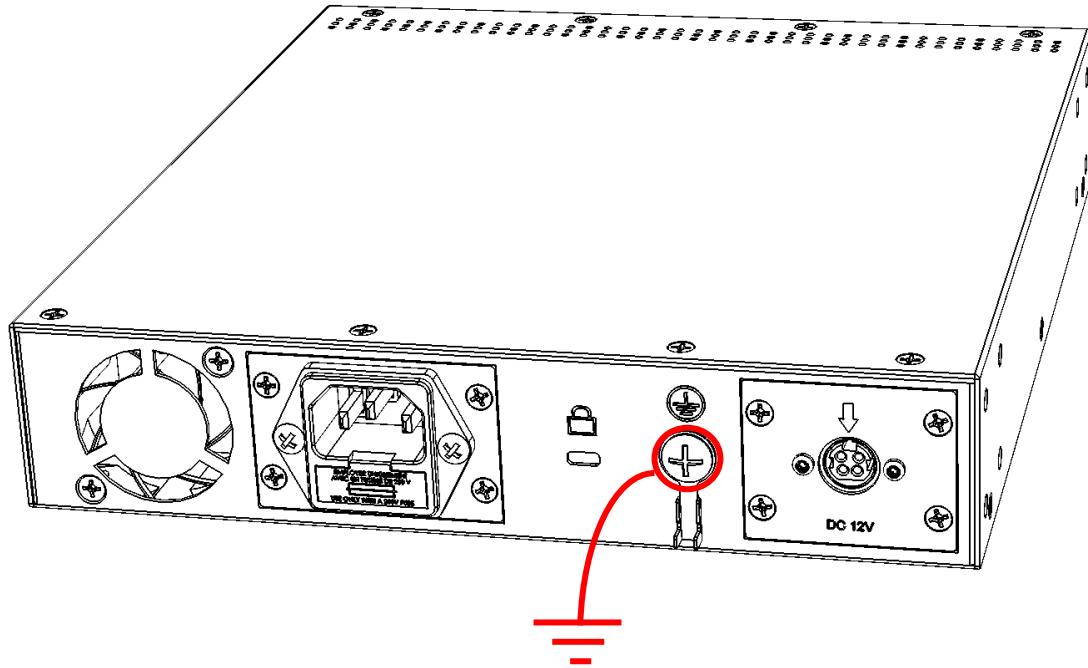

Figure 2-8 Grounding Wiring for XFS-5112-1AE

2.5 Powering on the Managed Switch

The Managed Switch can be used with AC power supply 100-240VAC, 50/60 Hz, 0.3~0.1A, DC power supply 48VDC, 0.6A or external DC power supply 12VDC, 0.33A (R7B adapter). After the Managed Switch is turned on, the Power LED indicators should light in green color. For more details about the power LED description, please refer to Section 1.4 LED Definitions.

Power Failure
In the event of power failure, unplug the power that is plugged into the switch at the back of the device. When power is resumed, plug the power back to the switch.

2.6 Connecting the Managed Switch to the Network

Connect to Network

The Managed Switch has 12 SFP+ ports on the front panel. These SFP+ ports can be plugged with 1000Base-X SFP Fiber transceiver or 10GBase-R SFP+ Fiber transceiver. The connection of the fiber port must be matched, i.e. Transmitter to Receiver, and vice versa.

2.7 Installing and Removing SFP/SFP+ Modules
2.7.1 Installing SFP/SFP+ Modules

To connect the fiber transceiver and LC/SC cable, use the following guidelines:

1. Position the SFP/SFP+ transceiver with the handle on top.
2. Locate the triangular marking in the slot and align it with the bottom of the transceiver.
3. Insert the SFP/SFP+ transceiver into the slot until it clicks into place.
4. Make sure the module is seated correctly before sliding the module into the slot. A click sounds when it is locked in place.

Note: If you are attaching fiber optic cables to the transceiver, continue with the following step. Otherwise, repeat the previous steps to install the remaining SFP/SFP+ transceivers in the device.

1. Remove the protective plug from the SFP/SFP+ transceiver.

Note: Do not remove the dust plug from the transceiver if you are not installing the fiber optic cable at this time. The dust plug protects hardware from dust contamination.

2. Insert the fiber cable into the transceiver. The connector snaps into place and locks.

3. Repeat the previous procedures to install any additional SFP/SFP+ transceivers in the switch. The fiber port is now set up.

2.7.2 Removing SFP/SFP+ Modules

To disconnect an LC/SC connector, use the following guidelines:

1. Press down and hold the locking clips on the upper side of the optic cable.

2. Pull the optic cable out to release it from the transceiver.

3. Hold the handle on the transceiver and pull the transceiver out of the slot.

2.8 Connecting the Switch to Console Port

The switch supports a secondary means of management. By connecting the RJ-45 to RS232 serial cable between a COM port on your PC (9-pin D-sub female) and the switch's RJ-45 (RJ-45) port, a wired connection for management can be established.

To terminal or PC   To console port

3

Operation

A built-in management module of Managed Switch provides users flexible interfaces to configure, control and monitor the system remotely and locally. To know the further information about the operation of Managed Switch, please refer to XFS-5112 Network Management User's Manual for the detailed management functions and required installation and operation procedures.

3.1 Network Management

The following is a list of management options available in this Managed Switch:

- Local Console Management
- Telnet Management
- SNMP Management
- Web Management

Local Console Management

Users may connect a Terminal or PC running the Terminal Emulation program (such as Putty or Tera Term) with the following serial console port settings, to the Managed Switch console port directly via RS-232 cable to configure, control and monitor the system. This is often referred to as Out-Of-Band management.

Baud rate:	9600
Data bits:	8
Parity:	none
Stop bits:	1
Flow control:	none

Console management is useful when there is no network connection to the Switch, for instance configuring the Managed Switch for the first time.

Telnet Management

Telnet is done through the network. Once there is a network connection to the Managed Switch, users can use Telnet to configure, control and monitor the system. Using the network connection to manage is often referred to as In-Band-Management.

SNMP Management

SNMP is also In-Band-Management and requires a network connection to the Managed Switch. The Managed Switch private Management Information Bases (MIB) is provided for SNMP-based network management program to configure, control and monitor the system.

Web Management

Web Management is done over the network. Once the Managed Switch is available on the network, you can login and monitor the status of it through a web browser remotely or locally. Web management in the local site, especially for the first time use of the Managed Switch to set up the needed IP, can also be done through one of the SFP/SFP+ ports located on the front panel of the Managed Switch. A converter and direct RJ-45 LAN cable connection between a PC and the Managed Switch are required for this management.

4

Maintenance

This Managed Switch is easy to maintain. The procedures are suggested when you would like to identify faults, perform hardware replacement and do the firmware upgrade.

4.1 Fault Identification

Identifying faults can greatly reduce the times required to find problem and solution. Users may perform local check or remote check to find the problems.

4.1.1 Local Check

Users can perform local check by observing LED indicators status or check system setup and configuration through console connection.

● When the whole system fails to function,

　　1.　Check Power LED status
　　2.　Check Power connection
　　3.　Reset power

● When certain network link fails to function,

　　1.　Locate the port of the switch
　　2.　Check LINK/ACT/Speed LED of the port
　　3.　Check Status LED of the port
　　4.　Check cable connection between the port and the connected device
　　5.　Reset power

● When local Console fails to function,

　　1.　Check COM LED status
　　2.　Check Console port connection
　　3.　Check Console configuration
　　4.　Reset power

4.1.2 Remote Check

Users may check the Managed Switch through SNMP manager remotely. For detailed procedures, please refer to the Network Management User's Manual.

4.2 Hardware Replacement Procedures

⚠ **WARNING!**

The Managed Switch contains no user-serviceable parts.

Only Fuse replacement is supported. Internal service or disassembly is prohibited.

DO NOT, UNDER ANY CIRCUMSTANCES, open and attempt to repair it.

Failure to observe this warning could result in personal injury or death from electrical shock.

Failure to observe the above warning will immediately void any Warranty.

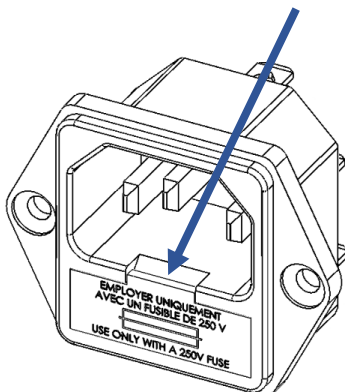## 4.2.1 Replace the Fuse in the AC Power Module

⚠ **WARNING!**

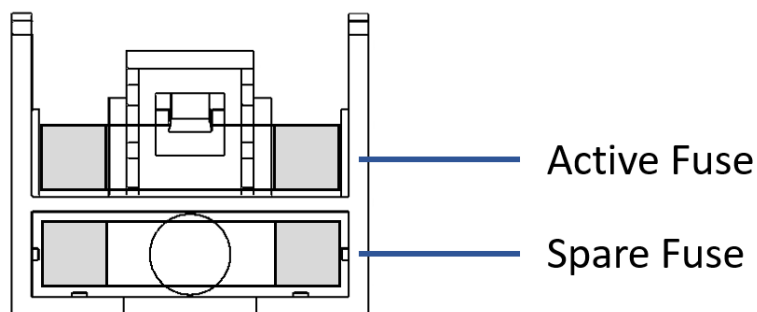**Only skilled person can replace the fuse in the AC Power Module.**

Procedure:

1. Power off the Switch and unplug the AC power cord from the power inlet.
2. Open the Fuse holder by pulling out the tray located on the AC power inlet.
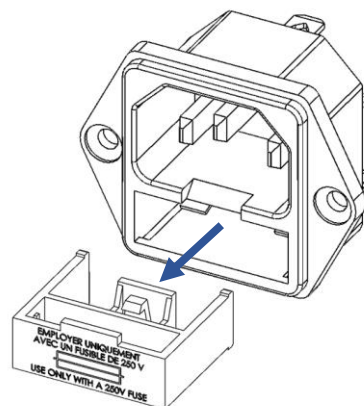
3. Identify the Fuse Slots.
    - The upper slot holds the active fuse
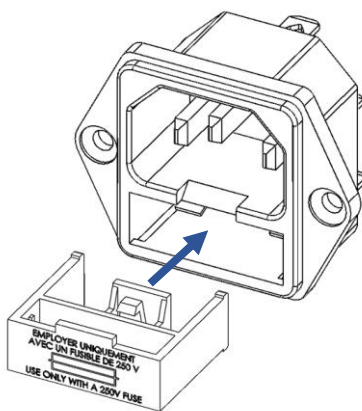   - The lower slot holds the spare fuse (If present)

4. Remove the fuse from the upper slot
    - Do not place the blown fuse into the spare slot, as it may cause confusion during future replacement.

5. Insert a new fuse rated at 250V, 3.15A.
    - If a spare fuse is stored in the lower slot, you may move it to the upper slot.

6. Close the fuse holder tray by pushing it back into the inlet securely.

7. Reconnect the AC power cord and power on the switch.

4.3 Firmware Upgrade

This Managed Switch may perform the firmware upgrade when required. The latest firmware can be obtained from your sales representative. For the detailed upgrade procedures, please refer to XFS-5112 Network Management User's Manual.