



SM3300-28FX Installation Manual

Maipu Communication Technology Co., Ltd

No. 16, Jiuxing Avenue

Hi-tech Park

Chengdu, Sichuan Province

People's Republic of China - 610041

Tel: (86) 28-85148850, 85148041

Fax: (86) 28-85148948, 85148139

URL: [http:// www.maipu.com](http://www.maipu.com)

Email: overseas@maipu.com

All rights reserved. Printed in the People's Republic of China.

No part of this document may be reproduced, transmitted, transcribed, stored in a retrieval system, or translated into any language or computer language, in any form or by any means, electronic, mechanical, magnetic, optical, chemical, manual or otherwise without the prior written consent of Maipu Communication Technology Co., Ltd.

Maipu makes no representations or warranties with respect to this document contents and specifically disclaims any implied warranties of merchantability or fitness for any specific purpose. Further, Maipu reserves the right to revise this document and to make changes from time to time in its content without being obligated to notify any person of such revisions or changes.

Maipu values and appreciates comments you may have concerning our products or this document.

Please address comments to:

Maipu Communication Technology Co., Ltd

No. 16, Jiuxing Avenue

Hi-tech Park

Chengdu, Sichuan Province

People's Republic of China - 610041

Tel: (86) 28-85148850, 85148041

Fax: (86) 28-85148948, 85148139

URL: [http:// www.maipu.com](http://www.maipu.com)

Email: overseas@maipu.com

Content

Chapter 1 Product Introduction	4
1.1 Product Features and Advantages	4
1.2 Physical Features	4
1.3 Hardware Features	5
1.3.1 Front Board of Switch	5
1.3.2 Back Board of SM3300-28FX	5
1.3.3 LED Indicators Instruction	6
1.3.4 Port description on the front pannel	7
1.4 Service Features	8
Chapter 2 Preparations for Installation	11
2.1 Security Notice	11
2.2 Examine Installation Location	11
2.2.1 Temperature/Humidity	11
2.2.2 Neatness.....	12
2.2.3 Static Free	13
2.2.4 Anti-jamming	13
2.2.5 Anti-lightning.....	14
2.3 Check Device and Accessories	14
2.4 Tools for Installation	14
Chapter 3 Installation	15
3.1 Preparing for Installation	15
3.1.1 Preparation Tool	15
3.1.2 Check the cabinet.....	15
3.2 Installation Step	15
3.3 Cable	16
3.3.1 Connect to Switch Console Port.....	16
3.4 Connect to Ground	16
3.5 Connect to Power	17
Chapter 4 Cable Description	18

4.1	Ethernet Interface Cable.....	18
4.2	Ethernet Optical Interface Cable	18
4.3	Console Cable.....	19
Chapter 5 Failure Handling		20
5.1	Power System Failure	20
5.2	Configuration System Failure	20
5.3	Failure Handling on No Displaying	20
5.4	Failure Handling on Displaying Invalid Characters	20

Chapter 1 Product Introduction

SM3300-28FX applies to various Ethernet access scenarios. Based on high-performance hardware of a new generation and the intelligent CPU, the SM3300-28FX provides abundant and flexible service features, ensuring operability, manageability, and expansibility. The SM3300-28FX withstands lightning strikes and bears excellent security features. It also supports strong RTCT、UDLD、Attack Prevention.



1.1 Product Features and Advantages

1. Powerful device stability

- Low power consumption and fanless make the switch working stably under -20°C to $+50^{\circ}\text{C}$. Provide ports with 4 KV lightning protection capabilities. It supports FlexLink and LACP.

2. Complete network security

- It supports 2K L2-L4 basic/ extended/ self-defined ACL, 802.1x and MAC authentication, DHCP snooping and IP Source Guard.

3. Abundant Services

- It supports port-based/selective QinQ, 1:1 and N:1 VLAN Swap, up to 1k multicast group, IGMP Snooping v1/v2/v3, Fast-leave, Cross-vlan multicast, DHCP Option82 and PPPoE+

4. Perfect Maintenance

- It supports SNMP/Telnet/SSH/WEB/VCT test, 802.3ah and Loopback detect, LLDP neighbor detect.

1.2 Physical Features

The meaning of indicator in front board of SM3300-28FX Ethernet Switch is as in following table:

Table 1-1 System features of SM3300-28FX Fast Ethernet Switch

Item	Description
Console	RJ45,EIA/TIA-232
1000M Ethernet interface	1000M Ethernet port (RJ45)
1000M Ethernet SFP	1000M Ethernet SFP(SFP)
10G Ethernet SFP	10G Ethernet SFP(SFP)
FLASH	16Mbytes
SDRAM	512Mbytes
Size (WxDxH)	440mm*280mm*44mm
Weight	<3KG
Input voltage	AC: 90~264V, 47~67Hz
Temperature	-20℃-50℃
Humidity	10-90%
Max power consumption	≤60W
MTBF	80,000 hours

1.3 Hardware Features

1.3.1 Front Board of Switch



Picture 1-1 The front board of SM3300-28FX

Front board of SM3300-28FX has 4*GE Combo ports (4*RJ-45 and 4*SFP ports), 20*10/100Base-X SFP ports, 4*1G/10G Base-X SFP+ ports, 1 *Console port, 36*LED lights.

1.3.2 Back Board of SM3300-28FX

Back board of SM3300-28FX switch includes power supply hub and ground wire end. As below:



Picture 1-2 Back board of SM3300-28FX switch

1.3.3 LED Indicators Instruction

Front board light indicators of SM3300-28FX contain port indicators and system status indicators, the meanings of light indicators are the same, instruction as below:

1.3.3.1 Port Indicator Instruction

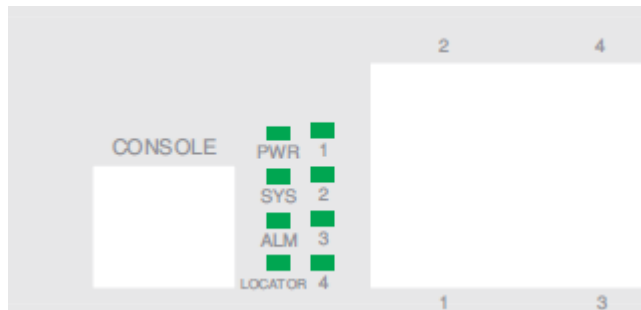


Picture 1-3 SM3300-28FX LED

Table 1-2 Port indicator instruction of SM3300-28FXSwitch

Panel remark	Indicator	Status	Meanings
1-4 (100M/1G Combo)	Combo indicator	Off	Port links failure
		On	Port links successful
		Flick	Port links successful, send or receive data
5-24 (100M/1G)	Port LINK/ACT indicator	Off	Port links failure
		On	Port links successful
		Flick	Port links successful, send or receive data
25-28 (1G/10G)	Port LINK/ACT indicator	Off	Port links failure
		On	Port links successful
		Flick	Port links successful, send or receive data

1.3.3.2 Status Indicator Instruction



Picture 1-4 SM3300-28FX LED

Table 1-3 Port indicator instruction of SM3300-28FX

Indicator	Panel	Status	Meaning
-----------	-------	--------	---------

	indicator		
PWR	Power	On	Power on
		Off	Power off
SYS	System	Flicker	System operation normal
		Always on/off	System operation abnormal
ALM	Alarm	On	System Alarm
		Off	System normal
LOCATOR	Stack	On	Stacking state
		Off	Non stacking state

1.3.4 Port description on the front panel

Table1-4 Port description on the front panel

Port type	Specification
RJ-45	100/1000Mbps Adaptive MDI/MDI-X Cable type auto adaptive Category 5 unshielded twisted pair (UTP): 100/1000M SFP of Combo ports support 100/1000Mbps auto adaptive
SFP	SFP-SX-L transceiver: 1000Base-SX SFP (850nm, MMF, 550m) SFP-LX-L transceiver: 1000Base-LX SFP Interface Card Module (1310nm, SMF, 10km or MMF, 550m) SFP-LX-20-L transceiver: 1310nm light, 9/125um single-mode fiber: 20km SFP-LX-40 transceiver: 9/125um single-mode fiber: 40km SFP-LH-70-L transceiver: 9/125um single-mode fiber: 70km SFP-LH-120-L transceiver: 9/125um single-mode fiber: 120km
SFP-GT	SFP-GT Module: 1000Base-T SFP Interface Card Module, RJ-45 interface
SFP-FX	SFP-FX: 100Base-FX SFP Interface Card Module (1310nm, MMF, 2KM), LC interface

	<p>SFP-FL: 100Base-FL SFP Interface Card Module (1310nm, SMF, 15KM), LC interface</p> <p>SFP-FL-40: 100Base-FL SFP Interface Card Module (1310nm, SMF, 40KM), LC interface</p> <p>SFP-FL-80: 100Base-FL SFP Interface Card Module (1550nm, SMF, 80KM), LC interface</p>
--	---

1.4 Service Features

Table1-5 Service features of SM3300-28FX

Service	Realization
VLAN	<p>4K VLAN entries.</p> <p>Port-based and Protocol -based VLAN</p> <p>Port-isolation in a VLAN</p> <p>Port QinQ and selective QinQ</p> <p>1:1 and N:1 VLAN switching</p>
MAC	<p>16K MAC address</p> <p>Aging time and add/remove static MAC</p> <p>MAC Black Hole</p> <p>Port MAC Limit</p> <p>Disable MAC address learning on port or channel-group</p>
Multicast	<p>2K L2 multicast groups</p> <p>IGMPv1/v2/v3 Snooping</p> <p>IGMP Filter/Fast leave/cross-VLAN duplication</p> <p>MLDv2/MLDv2 Snooping</p>
Broadcast storm suppression	Broadcast packet number can be configured
STP	STP/RSTP/MSTP

Ethernet channel	Support 8 aggregation group
Bandwidth control	Support sending and receiving control respectively, particle size is 64K
Mirror	Support interface and traffic mirroring
QoS	<p>8 CoS queues per port;</p> <p>Per-port, per CoS drop profiles;</p> <p>Port level shaping;</p> <p>Q level shaping;</p> <p>Traffic shaping available on CPU queues;</p> <p>Programmable priority to CoS queue mapping;</p> <p>Provide two levels of drop precedence per queue</p> <p>SP, WRR, DRR</p>
ACL	<p>Up to 2K ACL items can be configured</p> <p>Support based on source MAC address, destination MAC address, source IP address, destination IP address, Layer 4 port, protocol type, VLAN, Ethernet frame protocol, CoS information flow classification</p> <p>Support for tag-based priority stream packet redirection, flow mirroring</p>
Upgrading	Support Xmodem, FTP and TFTP protocol to realize upgrading
Management	<p>Supports MP.Link collection management and remote upgrading (client)</p> <p>Supports command-line interface(CLI)</p> <p>Support Telnet remote configuration</p>

	Supports SNMP management Support WEB management
Security	Support password gathering authentication of administrator Support interface lock, number of MAC address of each interface can be restricted. Support 802.1x
Maintenance	Supports debug information output Support PING Supports system log

Chapter 2 Preparations for Installation

2.1 Security Notice

To avoid device damaging and bodily injured caused by unsuitable operation, please follow these notices:

- **Before cleaning switch, pull out the plug of switch. Do not wipe it with wet cloth and liquid.**
- **Do not locate switch near water or humid place, and prevent water and humidity entering switch.**
- **Do not locate switch on unstable case or desk. Falling may cause severe damage to switch.**
- **Keep the ventilation of the room and the switch.**
- **Switch can work normally under correct power pressure. Please affirm the power pressure of switch is the same as that marked.**
- **To avoid the danger of electricity attacking, do not open the cabinet shell though the switch is power off.**

2.2 Examine Installation Location

No matter where SM3300-28FX Fast Ethernet Switch is installed, in cabinet or on desk, following conditions must be satisfied.

2.2.1 Temperature/Humidity

To guarantee normal working and life span of the switch, certain temperature and humidity can be maintained in the equipment room. If the humidity is too high, the insulating of insulating material may be not good, even creepage and sometimes may cause the change of mechanical performance and rustiness of metal parts. If the related humidity is low, the insulated gasket will be shrinkable which will cause the looseness of

captive screw. In the dry climate, electrostatics may be caused which is harmful for the CMOS circuit of switch. The higher the temperature is, the more dangerous it is. It will greatly reduce the reliability of the switch, and long-term high temperature will affect the life span of the switch. Overhigh temperature may accelerate the aging of the insulated materials.

Table 2-1 The temperature and humidity requirements

Temperature		Humidity	
Long-term	Short-term	Long-term	Short-term
15°C-30°C	0°C-50°C	40%-65%	10%-90%

Note:

1. **short-term means working no more than 48h less than 15 days a year;**
2. **The critical working environment means the possible temperature and humidity when there is no air-conditional. It should be recovered in 5h.**

2.2.2 Neatness

Dust is harmful for the operation of the switch. The dust in the room fell on the equipment may cause the absorption of the electrostatics, which may influence the life span of the switch and cause the communication failure. The requirement for the dust and the grain size is as following:

Table 2-2 The requirement for the dust in switching room

The maximum diameter(um)	0.5	1	3	5
The maximum thickness (the number of grain per m ³)	1.4×10 ⁷	7×10 ⁵	2.4×10 ⁵	1.3×10 ⁵

Besides dust, switching room also strictly requires the content of salt, acid, and sulfide. This harmful gas may accelerate the rusting and aging of some parts. Such harmful gas must be prevented as SO₂, H₂O, NO₂, NH₃, and CL₂. The restricted value is as following:

Table 2-3 The limitation of harmful gas

Gas	Average(mg/m ³)	Maximum(mg/m ³)
SO ₂	0.2	1.5

H2S	0	0.03
NO2	0.04	0.15
NH3	0.05	0.15
Cl2	0	0.3

2.2.3 Static Free

SM3300-28FX makes a lot of consideration in anti-static, but static electricity over a certain tolerance limit will disruptive the circuit even the whole switch.

In the network connected by the switch, electrostatic induction mainly from two aspects: the outdoor high-voltage power lines, lightning and other external electric field; indoor environment, flooring materials, the whole structure of the internal system. In order to prevent electrostatic damage, we should:

Equipment and floor ground connection;

Anti-Indoor dust;

Maintain proper temperature and humidity conditions;

When touch the circuit board, user should wear anti-static wrist strap and overalls;

The demolition of the circuit board face up on an anti-static working surface or an anti-static bag;

Avoid direct touching circuit components.

2.2.4 Anti-jamming

Switch may receive the jamming from exterior system. This jamming influences devices through capacitance coupling, inductance coupling, electromagnetic wave radiation, common impedance (including grounding system) coupling and conducting wire (power wire, cable and outputting wire). Pay attention to the followings:

- **AC power supply uses TN system, and the plug adopts single-phase three-line power supply with protecting earth wire (PE) for filtering circuit to filtrate the jamming of electricity network.**

- **The location the switch works must be far away from high power wireless launcher, radar launcher and high frequency and current devices.**

- **Adopts electromagnetism shield when necessary, such as adopting shield cable to be interface cable.**

2.2.5 Anti-lightning

SM3300-28FX makes a lot of consideration in anti-lightning, but lightning over a certain tolerance limit will disruptive the circuit even the whole switch.

Users should:

- Ensure chassis is well connected to the ground
- AC power outlet is well connected to the ground

2.3 Check Device and Accessories

Under the Confirm the required Installation environment, you can open the box. However, before the formal installation, you need to carefully check the packing list of the device within the box of equipment and accessories are complete.

2.4 Tools for Installation

Tools needed:

- **Cross screwdriver**
- **Antistatic wrist strap**
- **Wire stripper**

Cable needed:

- **Power cable**
- **Console cable**
- **RJ-45 connector reticle**

Device needed:

- **Configuration terminal (can be PC)**

Chapter 3 Installation

3.1 Preparing for Installation

3.1.1 Preparation Tool

- Cross screwdriver
- Antistatic wrist strap
- Wire stripper

Cable needed:

- Power cable
- Console cable
- RJ-45 connector reticle

Device needed:

- Configuration terminal (can be PC)

3.1.2 Check the cabinet

Switch can install in the 19" standard cabinet. Device should be installed in frame.

Generally, one switch should install in one frame.

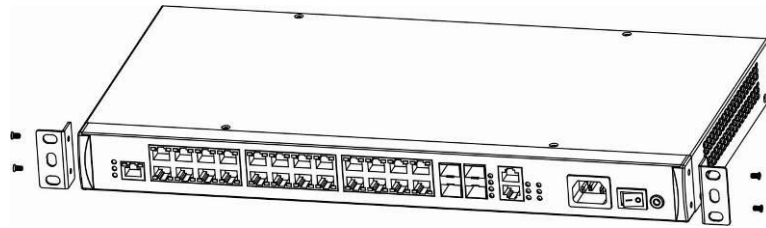
3.2 Installation Step

Switch can install in the 19" standard cabinet. The process of installation is as following::

Step 1: Examine grounding and stability of the cabinet. Use screw to fasten hanger to the two sides of the front board and back board of the switch;

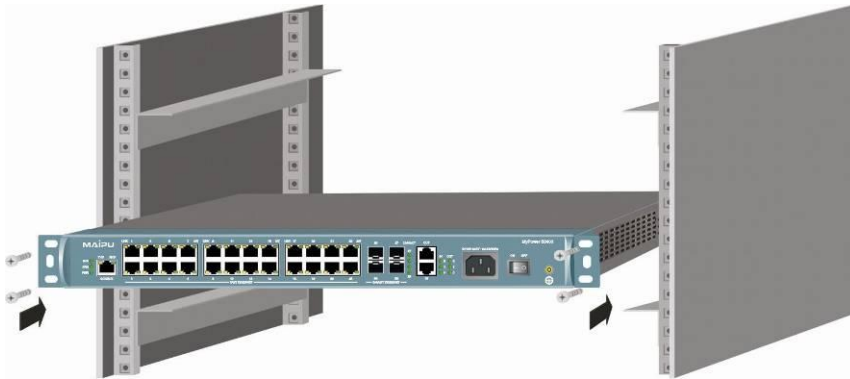
Step 2: Locate switch on the salver of the cabinet. Move it to the suitable location along with the slide of the switch. Keep some space between switch and the slide.

Step 3: Fasten hanger to the fixed slide of the cabinet to guarantee the bracket of each slot and hanger of the switch are fastened to the cabinet



Picture 3-1 Installation Picture

Step 4: The hanger of the switch is not used to bear the load but fasten. Switch is installed in a 19" cabinet. There must be slides in chassis (fastened in frame) to support switch



Picture 3-2 Installation Picture

Note

The heaviest device should be installed near the bottom of the cabinet.

For cooling, there should be 1U distance between two installed devices.

3.3 Cable

This chapter describes how to connect cable to switch.

3.3.1 Connect to Switch Console Port

There is a EIA/TIA-232 console port on SM3300-28FX switch. User can use this port to configure the switch.

Step1: A character terminal which can be a RS-232

Step2: Connect RS-232 port to console port

3.4 Connect to Ground

SM3300-28FX Switch well-connected can protect switch from lightning and jamming,

user must correctly connect the ground carefully.

AC switching power supply in the switch is connected with communication noise filter, which is directly connected to the chassis carefully, make induction, leakage electricity can safely into the earth, and improves overall EMI characteristics. For the external network connection, such as the E1 interface, PSTN and other cable series with the lightning voltage, ground can provide protection.

Use a thick wire and connect the points with the earth, grounding resistance is less than 4 ohms. If the switch is installed in the cabinet, the cabinet also has to take the land required.

3.5 Connect to Power


SM3300-28FX switch can support 100V and 240V with 50/60Hz AC power.

Power input: (100~240VAC, 50~60Hz)

1: For AC,

Step1: grounding connection

Step2: Connect switch power outlet to the power socket

 Caution: Cut off the electricity before installing 48V power wire. The above operation with electricity is forbidden.

Chapter 4 Cable Description

4.1 Ethernet Interface Cable

SM3300-28FX switch cable is 8-core unshielded twisted pair. 1, 2 is for sending and 3, 6 is for receiving.

Table 4-1 RJ45 through line Cat5

RJ45	Signal	Direction	RJ45	Description	Length
1	TX0+	—>	1	1 twisted	2m
2	TX0-	—>	2	pair	
3	RX0+	<—	3	2 twisted	
6	RX0-	<—	6	pair	
4	48V	—>	4	3 twisted	
5	48V	—>	5	pair	
7	0V	<—	7	4 twisted	
8	0V	<—	8	pair	

Table 4-2 RJ45 cross-wire Cat5

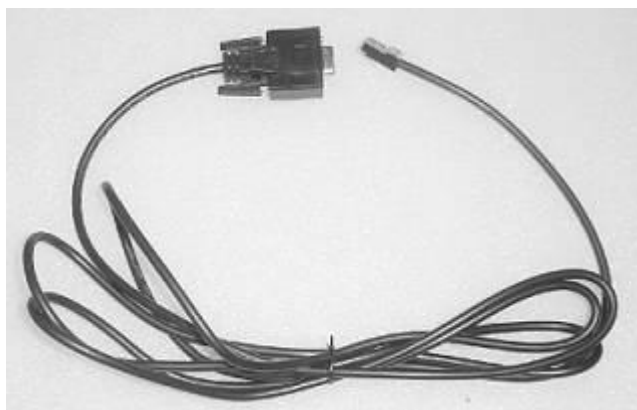
RJ45	Signal	Direction	RJ45	Description	Length
1	TX+	—>	3	1 twisted pair	2m
2	TX-	—>	6		
3	RX+	<—	1	2 twisted pair	
6	RX-	<—	2		
4	48V	—>	7	3 twisted pair	
5	48V	—>	8		
7	0V	<—	4	4 twisted pair	
8	0V	<—	5		

4.2 Ethernet Optical Interface Cable

SM3300-28FX fiber is SM or MM LC interface.

4.3 Console Cable

Console cable is a shield cable of 9 cores. One end is crimped RJ-45 connector, which is inserted to Console interface; the other end is a connector with DB-9 (holes). The Console cable is as the following picture:



Picture 4-1 The picture of Console cable

Table 4-3 Connecting of Console

RJ45	Signal	Direction	DB9	Length
1	CTS	—>	8	3m
2	DSR	—>	6	
3	RXD	—>	2	
4	GND	---	5	
5	---	---	---	
6	TXD	<—	3	
7	DTR	<—	4	
8	RTS	<—	7	
	---	---	1	
	---	---	9	

Chapter 5 Failure Handling

5.1 Power System Failure

SM3300-28FX Fast Ethernet Switch can check the power system failure according to the power indicator on the front board: when the power system works normally, the power indicator keeps on; if it is off, please examine as following:

- **The correct connection of power wire.**
- **The matching of power supply of switch and power required.**

5.2 Configuration System Failure

After The power of SM3300-28FX Fast Ethernet Switch is on, if the system works normally, the booting information will be displayed in configuration terminal; if there is failure in configuration system, it will display nothing or illegible characters.

5.3 Failure Handling on No Displaying

After the power is on, if the configuration terminal displays nothing, please examine the device as following:

- **The power works normally.**
- **The correct connection of Console cable**

If there is no problem in above examination, maybe there is something wrong with the parameter configuration of the terminal (such as hyperterminal) or the configuration cable.

5.4 Failure Handling on Displaying Invalid Characters

If illegible characters are displayed, parameter configuration of terminal (such as hyperterminal) is incorrect. Please affirm parameter

configuration of terminal (such as hyperterminal): baud rate is “9600”, data bit is “8”, and parity check is “none”, stop bit is “1”, flow control is “none”, and choose terminal emulation as “auto-detect”.