

# **DES-7200 Series**

## **Quick Installation Guide**

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**D-Link<sup>®</sup>**

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## DES-7200 Series Quick Installation Guide

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## **Product Overview**

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D-Link Corporation introduces high-density multi-service IPv6 core router switch DES-7200 by sparing great efforts, after the release of the multi-service 10,000M core router switch DES-7200 being applicable to the backbone Ethernet. DES-7200, as a multi-service IPv6 10,000M core router switch of the new generation, provides powerful defense ability while ensuring high performance and large capacity. It also boasts the ability of service addition and expansion on demand, thus satisfying the design requirements of equal emphasis on service and performance. Currently, two models are available, DES-7206 and DES-7210, which offer ten vertical slots and six horizontal slots respectively.

The DES-7210 series multi-service Ipv6 10,000M core router switch provides users with high-speed non-blocking data switching. With powerful switching and routing functions and secure intelligent technologies, it can be used together with various series of D-Link switches to provide users with complete end-to-end solutions. It is ideal for large-scale network core backbone and heavy traffic node switch. By expanding with high-performance multi-service cards, the DES-7200 series switches support policy routing and IPV6, and satisfies customers' flexible and complex application requirements.

### **Applications:**

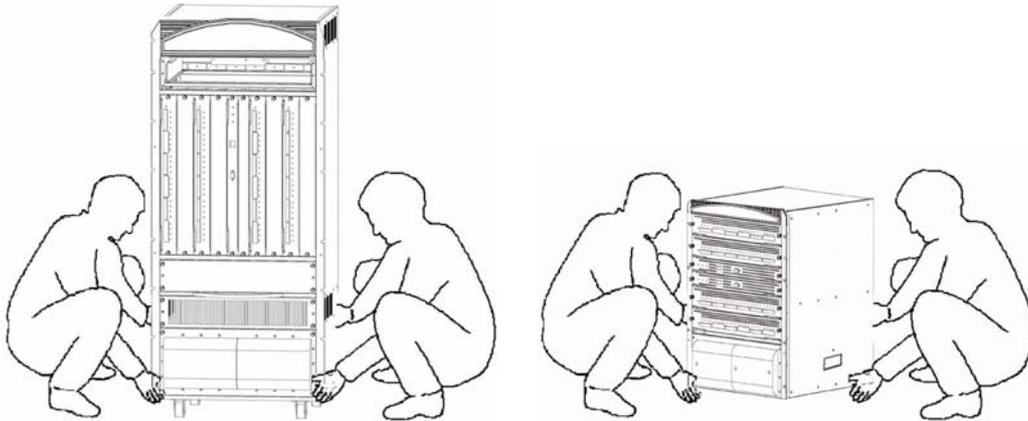
- Core layers of such enterprise networks of educational, financial and governmental organizations
- Running environment that needs powerful routing function and carrier-class security & reliability
- High-layer switching of enterprise networks with high bandwidth and 10G needs
- Enterprise environment that needs to provide high QoS assurance for various applications

## **Safety Precautions for Removing**

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The DES-7210/7206 is large and heavy. When you handle them, please pay attention to the following requirement:

- Avoid moving the equipment frequently.
- At least two persons are needed to move the equipment. Do not attempt to move the equipment by one person only.
- Keep balanced in moving the equipment, and avoid injuring your leg and feet or spraining your waist.
- Turn off all power supplies and unplug all power cables before you can remove the equipment.
- First remove all the line cards, fan tray, and power module from the chassis before you can move the DES-7210/7206 by using the handles on both sides, to avoid any damage.



**Correctly Moving the DES-7210 and DES-7206**



Do not move the equipment by grasping the panel, power supply handle, ventilation holes of the chassis, as they are not designed to bear the weight of the entire equipment. Failing to do so may cause damage or even injure yourself.

## Preparation Before Installation

### Temperature and Humidity Requirements

To ensure the normal working and a prolonged useful life of the DES-7210/7206, appropriate temperature and humidity must be maintained in the equipment room.

If the equipment room has temperature and humidity that do not meet the requirements for a long time, the equipment may be damaged.

**Temperature and Humidity Requirements of the DES-7210/7206**

Temperature		Relative Humidity	
Long-term condition	Short-term condition	Long-term condition	Short-term condition
0°C-45°C	0°C-45°C	40%-65%	10%-90%



1. The ambient temperature and humidity are measured at the point that is 1.5m above the floor and 0.4m before the equipment when there is no protective plate in front or back of the equipment rack.
2. The short-term working condition applies where the continuous working period does not exceed 48 hours and the accumulative total period within a year does not exceed 15 days.

### Static Discharge Damage Prevention

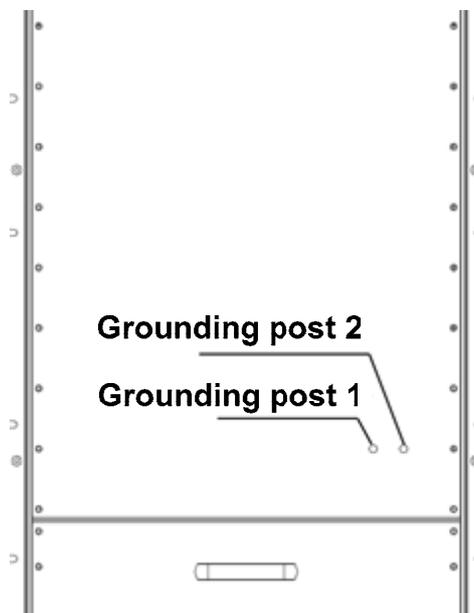
To prevent damage from static electricity, you must pay attention to the following:

1. Proper grounding of the equipment and floor
2. Dust prevention measures are taken in the room.

3. An appropriate humidity is maintained.
4. Always wear an anti-static wrist strap when you touch any circuit board.
5. Try to hold a circuit board by its edges. Do not touch any components or the PCB.
6. Do not let any clothes touch a circuit board. An antistatic wrist strap can only prevent static electricity from human damaging the circuit board, but cannot prevent any static electricity on clothes.

## **System Grounding Requirements**

A good grounding system is the basis for the stable and reliable operation of the DES-7210/7206. It is the chief condition to prevent lightning stroke and resist interference. Please carefully check the grounding conditions on the installation site according to the grounding requirements, and perform grounding properly as needed.



**Grounding of the DES-7210/7206**

The system cables must ensure the normal working of the equipment. Before you connect the cables, please carefully read the following precautions.

## **Power Requirements**

When the DES-7210/7206 uses the AC power supply:

AC input voltage: 90Vac~264Vac, 47Hz~63Hz

Power: 1200W/2000W

When the DES-7210/7206 uses the DC power supply:

DC input voltage: DC - 36Vdc ~ -75Vdc

Power: 1200W/2000W

Please refer to following table to evaluate the total system requirement:

DES-7200 Series Modules	Maximum Power Consumption (W)
7200-CM1	30
7200-CM2	30
7200-24G	75
7200-24	85
7200-48	100
7200-2XG	75
7200-24P	85+15.4*N (N indicates the PoE port being used, of which the value is less than 24)
7200-48P	100+15.4*N (N indicates the PoE port being used, of which the value is less than 48)



**Note**

The DES-7210/7206 provides 1+1 redundancy of power supply. You are recommended to use multiple power supplies for the equipment to ensure its continuous and stable working by avoiding the impact of unexpected power failures on the equipment. However, you must note that the redundancy power supplies must be of the same type; a mix of power supplies is not allowed.

## Requirements of Installation Tools

### List of Installation Tools

<b>Common tools</b>	Cross screwdriver, straight screwdriver, related electric and optical cables Bolts, diagonal pliers, straps
<b>Special-purpose tools</b>	Anti-static tool
<b>Meter</b>	Multimeter

## Installation Site Requirements

The DES-7210/7206 must be used indoors. To ensure the normal working and a prolonged useful life of the equipment, the installation site must meet the following requirements.

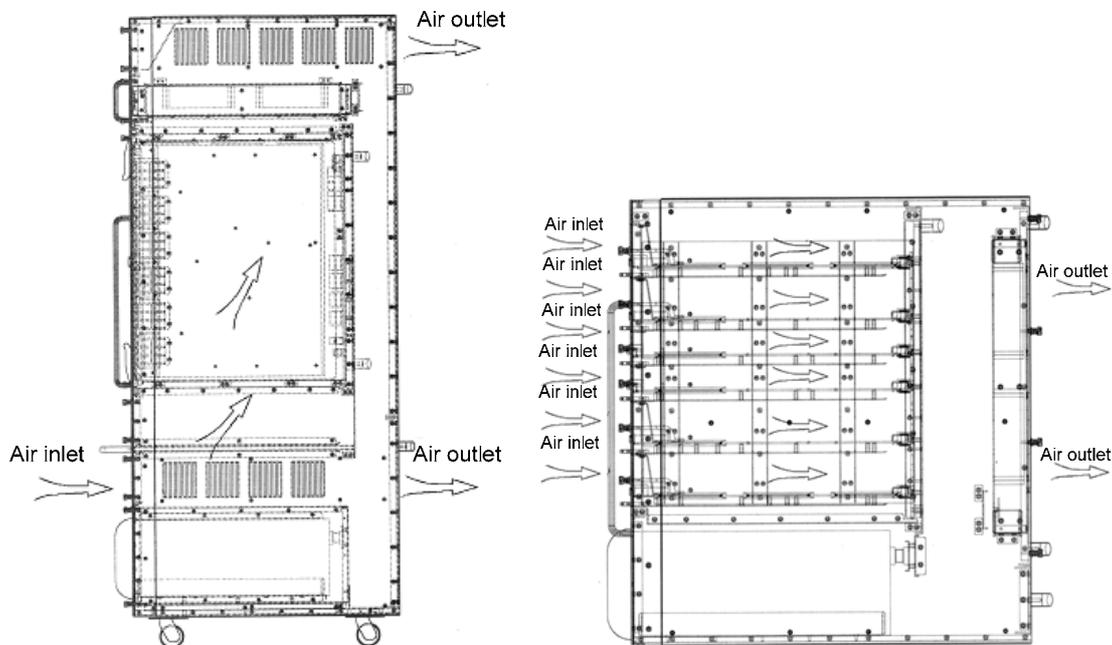
### Requirements for Rack Mounting

If you plan to mount the DES-7210/7206 in a frame, you must verify that the frame meets the following conditions:

- Install the switch in an open cabinet as much as possible. If you install the switch inside a closed cabinet, please make sure that the cabinet has a good ventilation and heat dissipation system.
- Make sure that the cabinet is firm enough to bear the weight of the DES-7210/7206 and its installation accessories.
- Make sure that the dimensions of the cabinet spare certain space for the installation of the front, rear, left and right panels of the DES-7210/7206 for the sake of heat dissipation.
- The frame should be properly grounded.

### Ventilation Requirements

Following figure shows the ventilation requirements of the DES-7210/7206. You must ensure that sufficient spacing is reserved at the ventilation openings to ensure the normal working of ventilation. After various cables have been connected, they should be arranged into bundles or placed on the cabling rack, to avoid blocking the air inlets.



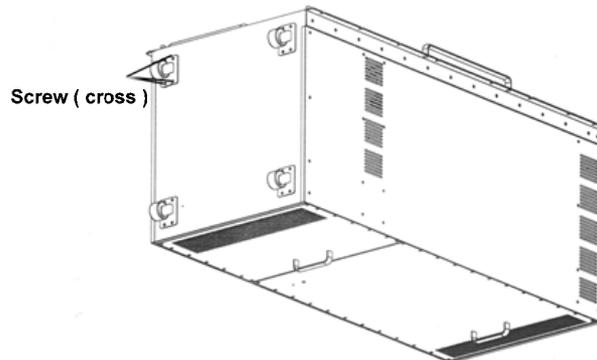
Ventilation of the DES-7210 and DES-7206

## Mounting the DES-7210/7206 into the Cabinet

Verify the following before installation:

The cabinet has been fastened properly and various modules in the frame have been installed. There should be no obstacles for installation in the frame and in the surrounding. The equipment to be installed is ready, and has been moved to a place of easy handling and close to the frame.

Before you mount the DES-7210 into the cabinet, you should first remove the four wheels from its bottom, as shown in Figure 3-1:



**Removing the Wheels from the DES-7210**

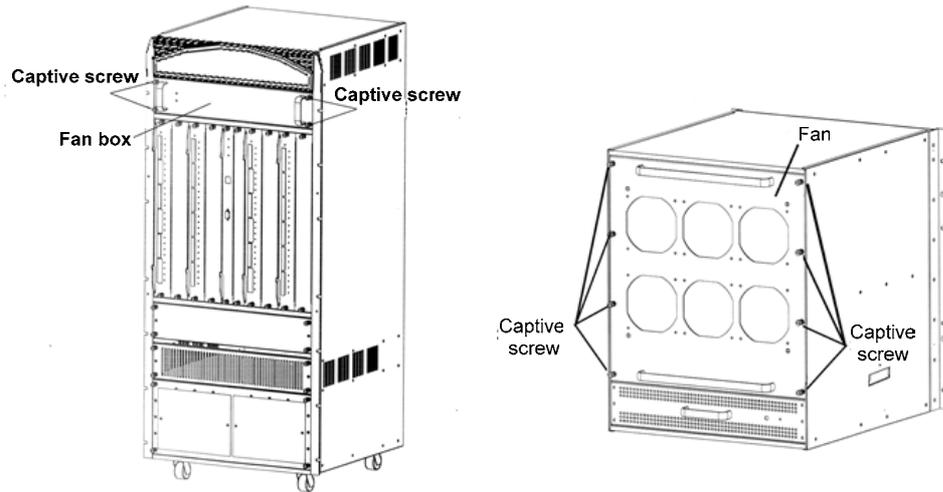
### **Simple Installation Steps:**

1. Levelly lift the DES-7210/7206 by two persons on both sides, and slowly move it to the front of the frame.
2. Levelly lift the DES-7210/7206 to a position slightly higher than the tray or the slide rail of the cabinet, put the equipment onto the tray or the slide rail, and push it into the cabinet.
3. Fasten the DES-7210/7206 onto the cabinet with screws. There are fastening notches on both the left and right of the front panel on the equipment frame. Use screws to fasten them to the fastening bracket of the cabinet. After fastened, the equipment should be stable and still in the cabinet.

## Installing the Fan Tray

The DES-7210/7206 provides a ventilation system, 7210-FAN for DES-7210, and 7206-FAN for DES-7206. Install the fan tray by performing the following steps:

1. Remove the blank panel of the fan tray by loosening the captive screws with a straight screwdriver and the cross screws with a cross screwdriver.
2. Push the fan into the cabinet along the guide rail.
3. Tighten the captive screws with a straight screwdriver. Figure 3-2 and Figure 3-3 show the installed fan tray

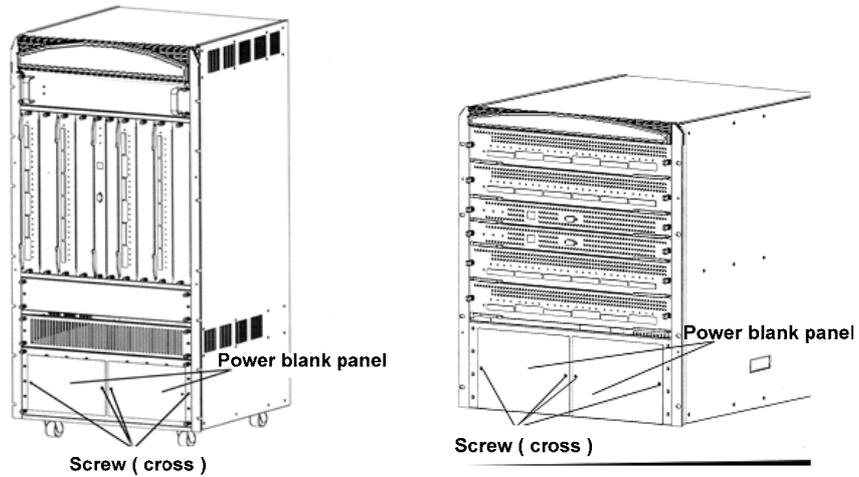


**Installing the Fan Tray of the DES-7210 and DES-7206**

### **Installing the Power Supply**

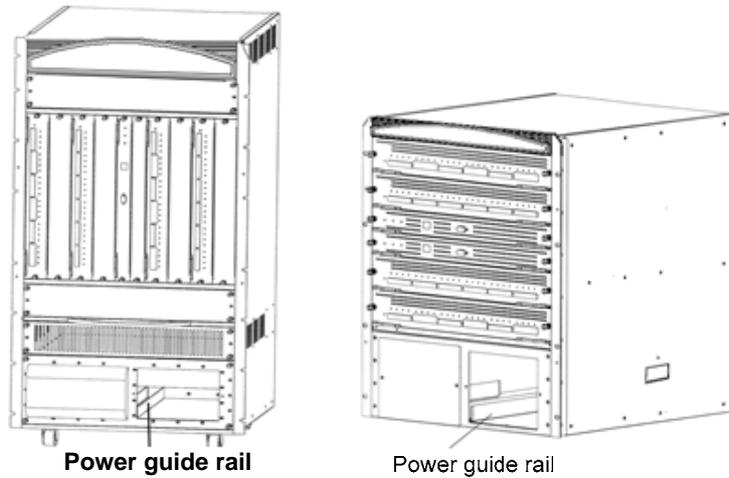
The DES-7210/7206 system provides AC and DC power, which can be installed in the same way by performing the following steps:

1. Remove any blank panel of the power module by loosening the two cross screws with a cross screwdriver, as shown in Figure 3-4 and 3-5.



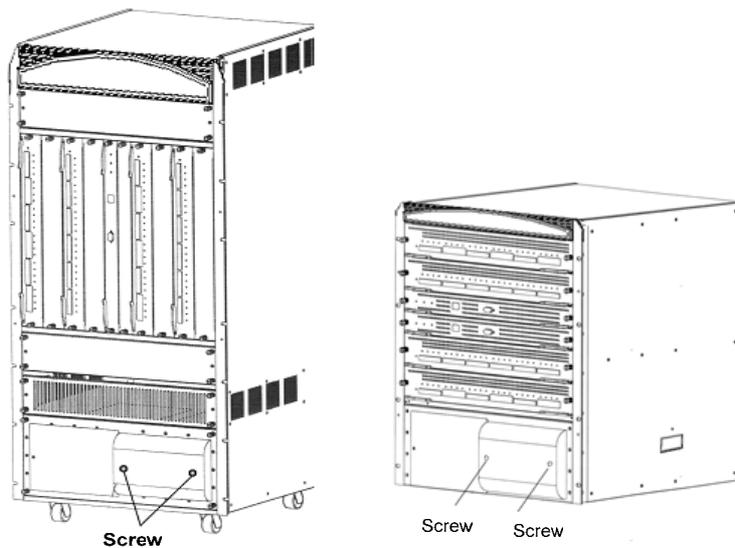
**Installing the Power Supply of the DES-7210 and DES-7206**

2. Insert the power supply module into the cabinet along the guide rail, as shown in Figure 3-6 and Figure 3-7:



### Installing the Power Supply of the DES-7210 and DES-7206

3. Tighten the screws on both sides of the power supply by using a straight screwdriver, as shown in Figure 3-8 and Figure 3-9.

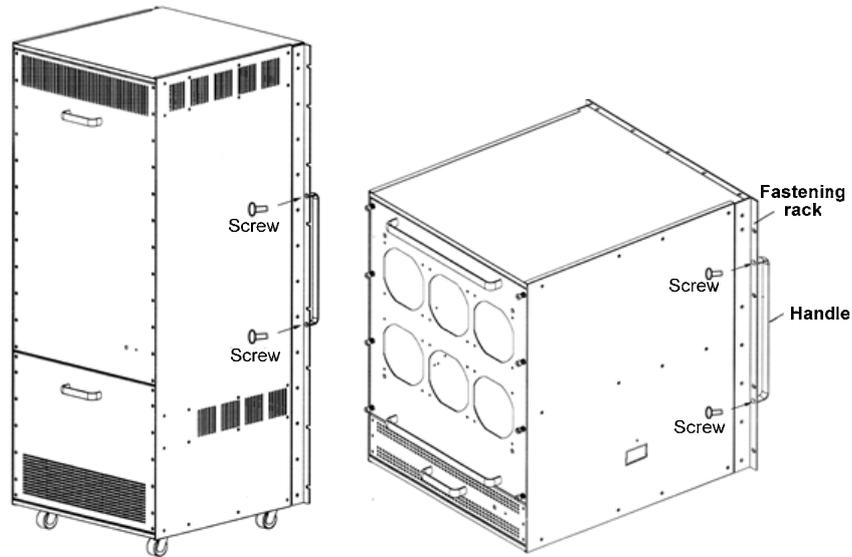


### Installing the Power Supply of the DES-7210 and DES-7206

## Installing the Handle

For easy handling of the system, the DES-7210/7206 chassis is provided with a handle, which can be installed by performing the following steps:

1. Align the handle with the sunk hole on the fastening bar;
2. Tighten the cross M4 sunk screws provided with the unit, as shown in Figure 3-10 and Figure 3-11.

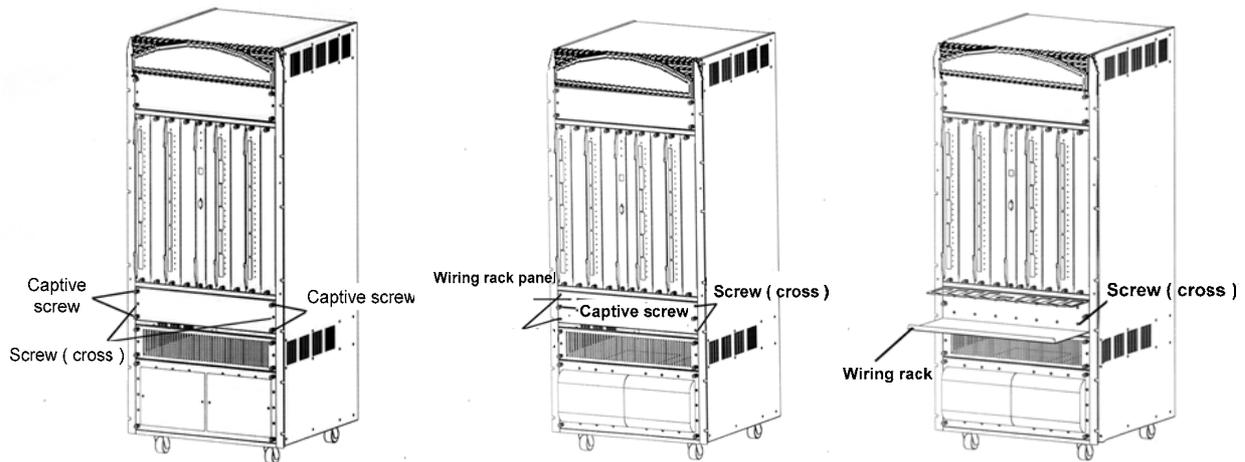


**Installing the Handle of the DES-7210 and DES-7206**

### **Installing the Cabling Rack of the DES-7210**

The cabling rack of the DES-7210 can be performed by performing the following steps:

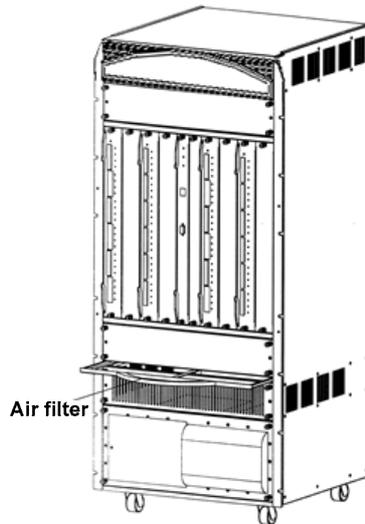
1. Remove the blank panel of the tracing rack by loosening the captive screws with a straight screwdriver and the cross screws with a cross screwdriver.
2. Install the panel of the tracing rack by tightening the two captive screws with a straight screwdriver and the four cross screws with a cross screwdriver.
3. Fasten the cabling rack by using the cross M3 screws provided. (The cabling rack is available in two sizes, and you can select the appropriate one)



**Installing the Cabling Rack of the DES-7210**

### **Installing the Air Filter of the DES-7210**

Simply push the air filter of the DES-7210 into the cabinet along the guide rail.



### Installing the Air Filter of the DES-7210

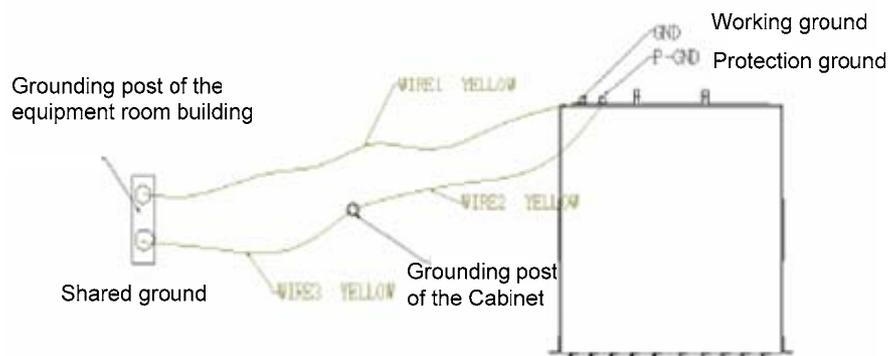


You are recommended to install the air filter as the last step of the chassis installation.

### Connecting the System Ground

A working ground GND and a protection ground PGND are installed on the back of DES-7210/7206. GND is directly connected to the ground bar of the equipment room. If a digital grounding bar and an analog grounding bar exist in the equipment room, the GND is connected to the former.

PGND is connected to a grounding terminal on the cabinet and then the grounding terminal is connected to the grounding bar of the equipment room. If a digital grounding bar and an analog grounding bar exist in the equipment room, the PGND is connected to the latter.



Grounding diagram

### Connection of grounding posts on the DES-7210/7206 back

#### Precautions

- The sectional area of the grounding cable should be determined according to the possible maximum current. Cables of good conductor should be used.
- Do not use bare wire.

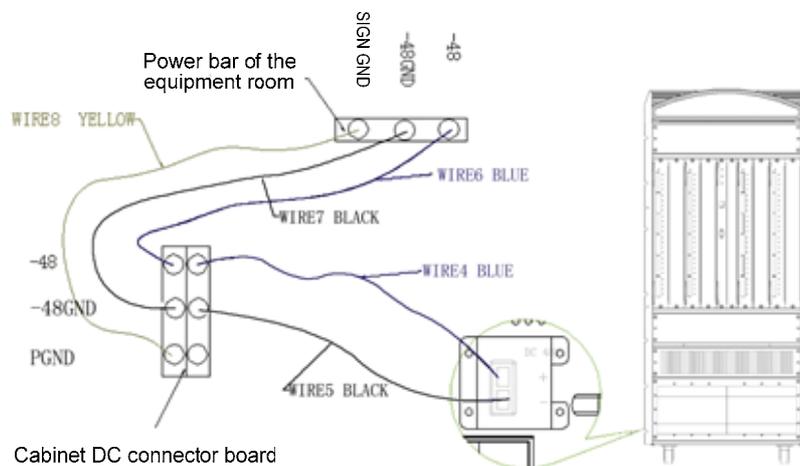
- The grounding resistance for combined grounding should be less than 1Ω.

### Simple Grounding Steps

1. Release the nut on the rear grounding post of the equipment.
2. Lock the terminal of the grounding cable to the grounding pole.
3. Tighten the nut.
4. Connect the related terminals according to the above steps and the wiring diagram.

## Connecting the DC Power Supply to the Power Module

Connect the related DC power cable according to the ID on the P6800E-DC panel of the DC power module and the location requirement. as shown in the following diagram.



**Schematic Diagram for the Connection of the DC Power Cable**

### Precautions

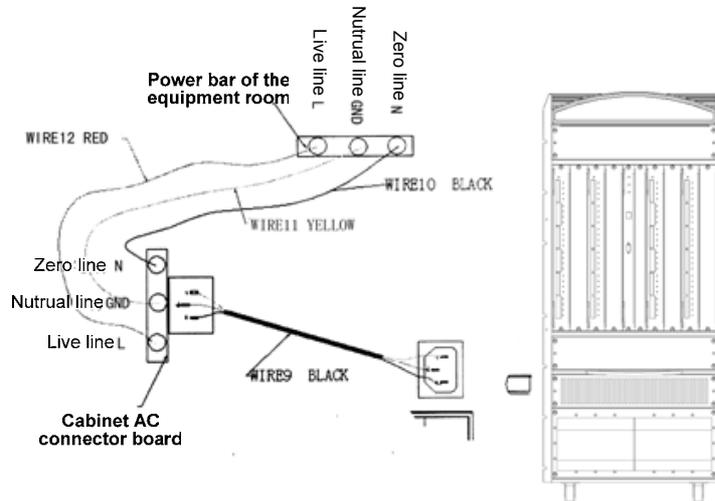
- Before connecting the power supply, you must verify that the external power supply provided matches the power module installed of this equipment.
- Before connecting the power cable, you must make sure that the switch of the power module is at the OFF position.
- The power cables of various colors must be connected to the appropriate wiring posts.
- You must ensure that the power cables connected are in good contact.

### Simple Connection Steps

1. Remove the protection cover of the DC wiring terminal.
2. Lock the power cable to the appropriate terminal according to the identification, and tighten the pressing screw.
3. Put on the protection cover and tighten the screw.
4. Connect the other end of the power cable to the corresponding socket or connector.

## Connecting the AC Power Supply to the Power Module

Connect the related AC power cable according to the ID on the panel of the AC power module and the location requirement, as shown in the following diagram.



Schematic Diagram for the Connection of the AC Power Cable

### Precautions

- Before connecting the power supply, you must verify that the external power supply provided matches the power module installed of this equipment.
- Before connecting the power cable, you must make sure that the switch of the power module is at the OFF position.
- The power cable with a standard 3-pin connector should be used for connection.
- You must ensure that the power cables connected are in good contact.

### Simple Connection Steps

1. Insert the plug of the power cable into the power module.
2. Connect the other end of the power cable to the corresponding socket or connector.

## Connecting the Cable of the Management Module

1. Connect the end of the Ethernet cable with the RJ45 connector to the Ethernet port of the equipment management module (7210/7200-CM1), and the other end to the NM or control terminal.
2. Connect the end of the standard DB9 serial cable with the RS-232 serial port to the RS-232 serial port of the equipment management module, and the other end to the NM or control terminal.



Note

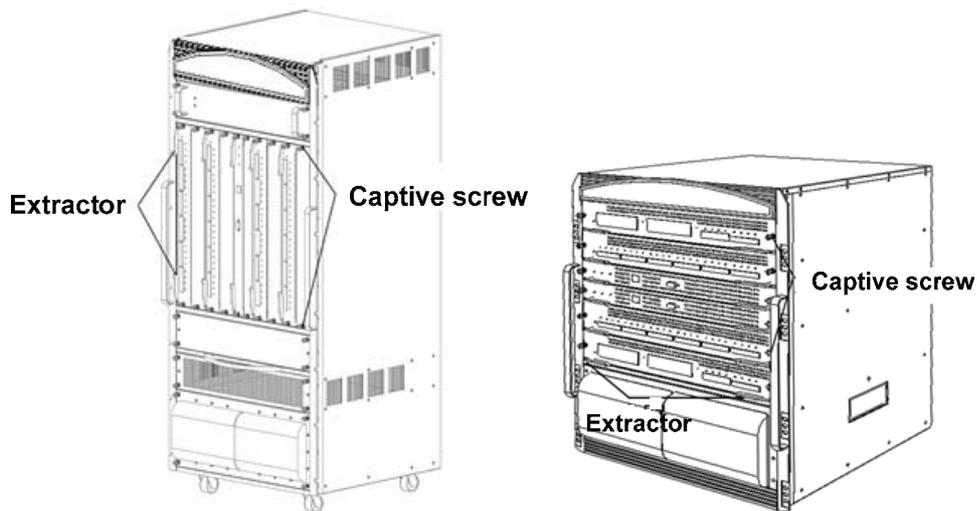
The DES-7210/7206 system must have at least one management module to work normally.

## Removing Boards from the DES-7210/7206

1. Unplug all cables/fibers such as optical fibers and RJ45 twisted pairs from the panel.
2. Tighten two captive screws on the panel.
3. Draw out the board by holding the ejector with both hands, as shown in Figure 3-18 and Figure 3-20.



1. Always wear an anti-static wrist strap before plugging/unplugging a board.
2. Do not hold the edge of the PCB or collide the components on the PCB.



Components of DES-7210 and DES-7206

## Installing Boards on the DES-7210/7206

1. Remove the appropriate component card or blank panel according to 3.14.
2. Replace it with the appropriate card and insert into the guide rail.
3. Push the card into position by using the ejector, and tighten the two captive screws on the card with a straight screwdriver.



1. Do not hold the edge of the PCB or collide the components on the PCB.
2. When you plug/unplug a PCB module, use the ejector, instead of forcedly.

## Installation Check

- Verify if the external power supply matches the distribution panel of the cabinet.
- After the equipment is installed, check if the front/back cabinet doors can be closed.
- Verify that the cabinet has been fastened completely, and does not move or tilt.
- Verify that the equipment has been installed in the cabinet, and all the cables have been fastened to the cabinet.
- Verify that the optical fibers and twisted pairs match the interfaces.
- Verify that the cables have been bound properly.

- Verify that the power cables are in good contact and comply with the safety requirements.
- Verify that the power module has been fastened onto the equipment with the two screws on the panel.
- Turn on the power switch and verify that the power module can work normally.

## **Unpacking Inspection Requirements**

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### **Checking Goods**

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#### **1. DES-7210/7206 chassis carton**

- Whether various panels of the equipment have been installed and adjusted properly
- Wheels
- Screws
- Documentation
- Packing list

#### **2. DES-7210/7206 accessories carton**

- Whether the power module of the equipment is the required AC or DC module
- Cabling rack (only for DES-7210)
- Air filter (only for DES-7210)
- Handle of the equipment
- Fan tray
- Power cable (for AC power configuration only)
- Screws
- Documentation
- Packing List

#### **3. Module carton**

It contains the modules, packing list and documentation of the DES-7210/7206.



**Note**

The above lists the items of a normal delivery, which may differ from the actual delivery. All depend on the purchasing contract. Please check your goods carefully against the packing list or purchasing contract. If you have any questions or there are any errors, please contact your distributor.

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