



User guide  
**Series SC 3570**

This is a product approved by Anatel, the approval number can be found on the product label.

**For more information, consult the Anatel website:** <https://www.gov.br/anatel/pt-br>

### **Data protection and security**

Observe local laws regarding the protection and use of such data and the regulations that prevail in the country.

The aim of data protection legislation is to prevent infringements of individual privacy rights based on the misuse of personal data.

### **Processing of personal data**

This system uses and processes personal data such as passwords, detailed call records, network addresses and customer data records, for example.

### **Guidelines that apply to Intelbras employees**

» Intelbras employees are subject to safe trading practices and data confidentiality under the terms of the company's work procedures.

» It is imperative that the following rules are observed to ensure that statutory provisions relating to services (be they in-house services or remote administration and maintenance) are strictly followed. This preserves the client's interests and provides additional personal protection.

### **Guidelines controlling data processing**

» Ensure that only authorized persons have access to customer data.

» Use password assignment facilities, without allowing any exceptions. Never share passwords with unauthorized persons.

» Ensure that no unauthorized person can process (store, change, transmit, disable or erase) or use customer data.

» Prevent unauthorized persons from gaining access to data media, for example, backup disks or protocol printouts.

» Ensuring that data media that are no longer needed are completely destroyed and that documents are not stored or left in generally accessible places.

» Working together with the client builds trust.

### **Misuse and hacking**

» Access passwords allow access and alteration of any facility, such as external access to the company's system to obtain data. of misuse.

**Important:** This product does not have encryption. Intelbras does not access, transfer, capture, or carry out any other type of processing of personal data from this product, with the exception of data necessary for the operation of the product itself.

***All images in this document are for illustrative purposes only.***

***AC power supplies, DC power supplies are sold separately and are not included with the product.***

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# Preparing for installation

This document is applicable to the following Ethernet switches:

**Table 1 Switch series and models**

| Switch series         | Model             |
|-----------------------|-------------------|
| SC 3570 switch series | SC 3570-24G-4X    |
|                       | SC 3570-48G-6X    |
|                       | SC 3570-24GP-4X   |
|                       | SC 3570-48GP-6X   |
|                       | SC 3570-24S-8G-4X |
|                       | SC 3570-48S-6X    |

## Safety recommendations

To avoid any equipment damage or bodily injury caused by improper use, read the following safety recommendations before installation. Note that the recommendations do not cover every possible hazardous condition.

- Before cleaning the switch, remove all power cords from the switch. Do not clean the switch with wet cloth or liquid.
- Do not place the switch near water or in a damp environment. Prevent water or moisture from entering the switch chassis.
- Do not place the switch on an unstable case or desk. The switch might be severely damaged in case of a fall.
- Ensure good ventilation of the equipment room and keep the air inlet and outlet vents of the switch free of obstruction.
- Make sure the power input voltage is as required by the power supply.
- To avoid electrical shocks, do not open the chassis while the switch is operating or when the switch is just powered off.
- During switch installation, wear an ESD wrist strap. Make sure the strap makes good skin contact and is reliably grounded.

# Examining the installation environment

To ensure correct operation of your switch, make sure the installation environment meets the requirements listed in [Table 2](#).

**Table 2** Checking list for the installation environment

| Item                             | Requirements                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ventilation and heat dissipation | <p><b>⚠ CAUTION:</b></p> <p>To ensure correct operation of your device, make sure the installation environment is adequately ventilated to prevent the switch from overheating.</p> <ul style="list-style-type: none"><li>• Ensure a minimum clearance of 10 cm (3.94 in) around the chassis.</li><li>• Do not install the device near a heat source, for example, a stove or heater.</li><li>• Ensure air ventilation in the installation environment.</li><li>• Do not block the ventilation holes in the device or power adapter.</li></ul>                                                                                                                                                                                                                                                                                             |
| Anti-moisture                    | <p><b>⚠ CAUTION:</b></p> <p>Water or moisture might damage the circuits of the device.</p> <ul style="list-style-type: none"><li>• Do not place the device near water or in a damp environment.</li><li>• Install the switch in a clean, dry, and ventilated place where temperature is controlled in a stable range.</li><li>• Make sure the installation environment is free from water leakage or condensation. If required, install a dehumidification device (such as an air conditioner with a dehumidification function or a dedicated dehumidifier).</li><li>• Do not operate the device under or near the water source, such as the wash basin, laundry room, or areas with high humidity.</li><li>• Do not touch the device with wet hands.</li></ul>                                                                            |
| Temperature/humidity             | <p>For correct operation and long service life of your switch, maintain the temperature and humidity in the equipment room at acceptable ranges.</p> <ul style="list-style-type: none"><li>• Lasting high relative humidity can cause poor insulation, electricity leakage, mechanical property change of materials, and metal corrosion.</li><li>• Lasting low relative humidity can cause washer contraction and ESD and cause issues including loose mounting screws and circuit failure.</li><li>• High temperature can accelerate the aging of insulation materials and significantly lower the reliability and lifespan of the switch.</li></ul> <p>For the temperature and humidity requirements of the switch, see technical specifications in <i>Intelbras SC 3570 Switch Series Hardware Information and Specifications</i>.</p> |
| Lightning protection             | <p><b>⚠ CAUTION:</b></p> <p>Ground the switch correctly and verify the grounding. For more information, see "<a href="#">Grounding the switch</a>."</p> <ul style="list-style-type: none"><li>• If you ground the switch by using a grounding strip, make sure the grounding resistance of the grounding strip in the equipment room is less than 1Ω.</li><li>• If you ground the switch by using a grounding conductor buried in the earth ground, make sure the grounding resistance of the grounding conductor in the ground is less than 10Ω.</li><li>• Route the signal cables along indoor walls, bury the cables in the earth ground, or thread the cables through steel tubes. Install a signal lightning arrester with a nominal discharge current for a</li></ul>                                                                |

| Item                     | Requirements                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                          | <p>corresponding network interface.</p> <ul style="list-style-type: none"> <li>Keep the signal cables far from power cords and lightning rod down conductors.</li> <li>As a best practice, route power cords indoors. If an AC power cord is routed from outdoors, connect the AC power cord first to a power lightning arrester before leading it to the AC power port on the switch. Make sure the power lightning arrester has a nominal discharge current and the total length of the power cord from the power lightning arrester to the power port on the switch is less than 5 m (16.40 ft).</li> <li>Ground the switch, rack, independent power supplies, and lightning arresters separately.</li> <li>You must ground optical fibers with reinforcing metal stiffener from outdoors on an optical distribution frame (ODF) or fiber splice enclosure.</li> </ul> |
| Cable routing            | <p><b>⚠ CAUTION:</b></p> <p>Do not run an Ethernet cable and power cord in parallel.</p> <ul style="list-style-type: none"> <li>Route different types of cables separately.</li> <li>Keep power cords a minimum of 5 cm (1.97 in) away from other cables.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| ESD prevention           | <ul style="list-style-type: none"> <li>Ground the switch correctly.</li> <li>To avoid ESD damage to the device or FRUs, always wear an ESD wrist strap when you install or remove the device or FRUs.</li> <li>Make sure the wrist strap has good skin contact and is reliably grounded.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Cleanliness              | For more information, see " <a href="#">Cleanliness</a> ."                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Corrosive gas prevention | The installation site must be free from corrosive gases such as acid gases and alkaline gases. For more information, see " <a href="#">Corrosive gas limit</a> ."                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| EMI                      | <ul style="list-style-type: none"> <li>If AC power is used, use a single-phase three-wire power receptacle with protection earth (PE) to filter interference from the power grid.</li> <li>Keep the device far away from radio transmitting stations, radar stations, and high-frequency devices.</li> <li>Use electromagnetic shielding, for example, shielded interface cables, when necessary.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

## Cleanliness

Dust buildup on the chassis might cause electrostatic adsorption and dust corrosion, resulting in poor contact of metal connectors and contact points. This might shorten the device's lifetime and even cause device failure in the worst case. [Table 3](#) describes the switch requirement for cleanliness.

**Table 3 Switch requirement for cleanliness**

| Substance      | Particle diameter      | Concentration limit                          |
|----------------|------------------------|----------------------------------------------|
| Dust particles | $\geq 0.5 \mu\text{m}$ | $\leq 1.8 \times 10^7 \text{ particles/m}^3$ |

To maintain cleanliness in the equipment room, follow these guidelines:

- Keep the equipment room away from pollution sources. Do not smoke, eat, or drink in the equipment room.

- Use double-layer glass in windows and seal doors and windows with dust-proof rubber strips. Use screen doors and window screens for doors and windows open to the outside and make sure the external windows are air tight.
- Use dustproof materials for floors, walls, and ceilings and use wallpaper or matt paint that does not produce powders.
- Clean the equipment room regularly and clean the air filters of the rack each month.
- Wear ESD clothing and shoe covers before entering the equipment room, keep the ESD clothing and shoe covers clean, and change them frequently.

## Corrosive gas limit

Corrosive gases can accelerate corrosion and aging of metal components. Make sure the corrosive gases do not exceed the concentration limits as shown in [Table 4](#).

**Table 4 Corrosive gas concentration limits**

| Gas              | Average concentration (mg/m <sup>3</sup> ) | Maximum concentration (mg/m <sup>3</sup> ) |
|------------------|--------------------------------------------|--------------------------------------------|
| SO <sub>2</sub>  | 0.3                                        | 1.0                                        |
| H <sub>2</sub> S | 0.1                                        | 0.5                                        |
| Cl <sub>2</sub>  | 0.1                                        | 0.3                                        |
| HCl              | 0.1                                        | 0.5                                        |
| HF               | 0.01                                       | 0.03                                       |
| NH <sub>3</sub>  | 1.0                                        | 3.0                                        |
| O <sub>3</sub>   | 0.05                                       | 0.1                                        |
| NO <sub>x</sub>  | 0.5                                        | 1.0                                        |

### CAUTION:

As a best practice, control the corrosive gas concentrations in the equipment room at their average values. Make sure the corrosive gas concentrations do not exceed 30 minutes per day at their maximum values.

To control corrosive gases, use the following guidelines:

- As a best practice, do not build the equipment room in a place with a high concentration of corrosive gases.
- Make sure the equipment room is not connected to sewer, vertical shaft, or septic tank pipelines and keep it far away from these pipelines. The air inlet of the equipment room must be away from such pollution sources.
- Use environmentally friendly materials to decorate the equipment room. Avoid using organic materials that contains harmful gases, such as sulfur or chlorine-containing insulation cottons, rubber mats, sound-proof cottons, and avoid using plasterboards with high sulfur concentration.
- Place fuel (diesel or gasoline) engines separately. Do not place them in the same equipment room with the device. Make sure the exhausted air of the engines will not flow into the equipment room or towards the air inlet of the air conditioners.
- Place batteries separately. Do not place them in the same room with the device.
- Employ a professional company to monitor and control corrosive gases in the equipment room regularly.

# Examining the installation site

Before you install the switch, verify that the installation site meets the installation requirements. The switch can operate correctly in an A1 or A2 installation site. Availability issues might occur if you install the switch in an A3, B1, B2, or C installation site.

**Table 5 Installation sites**

| Category                                    | Definition                                                                                                                                                                                                                    | Example                                                                                                                                                                                                                                                                     |
|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A1: indoor controlled environment           | <ul style="list-style-type: none"> <li>Indoor environments where temperature and humidity are controlled.</li> <li>Completely enclosed or shielded indoor environments.</li> </ul>                                            | Central equipment rooms, IDC equipment rooms, mobile cabins with air conditioners, outdoor air conditioner cabinets, and heat exchanger cabinets.                                                                                                                           |
| A2: indoor partially controlled environment | <ul style="list-style-type: none"> <li>Indoor environments where temperature and humidity are partially controlled.</li> <li>Incompletely enclosed or shielded places.</li> <li>Places far from pollution sources.</li> </ul> | Simple equipment rooms, ordinary houses, garages, corridors, and direct ventilation cabinets far from pollution sources, houses without direct exposure to sunlight or rain, railway station platforms, and stadiums.                                                       |
| A3: indoor uncontrolled environment         | <ul style="list-style-type: none"> <li>Indoor environments where temperature and humidity are uncontrolled.</li> <li>Incompletely enclosed or shielded places.</li> <li>Places near pollution sources.</li> </ul>             | Simple equipment rooms, ordinary houses, garages, corridors, and direct ventilation cabinets near pollution sources, houses without direct exposure to sunlight or rain, railway station platforms, stadiums, uncleaned rooms after decoration, and rooms under decoration. |
| B1: outdoor general environment             | <ul style="list-style-type: none"> <li>Unshielded places where the temperature and humidity are not controlled.</li> <li>Places far from pollution sources.</li> </ul>                                                        | Completely exposed outdoor places far from pollution sources.                                                                                                                                                                                                               |
| B2: harsh environment                       | <ul style="list-style-type: none"> <li>Unshielded places where the temperature and humidity are not controlled.</li> <li>Sea environments or outdoor land environments near pollution sources.</li> </ul>                     | Islands, ships, and completely exposed outdoor places near pollution sources.                                                                                                                                                                                               |
| C: special environments                     | Special application environments                                                                                                                                                                                              | Buried, underwater, or undersea environments and manholes.                                                                                                                                                                                                                  |

**Table 6 Pollution sources**

| Category                                                                                         | Radius range          |
|--------------------------------------------------------------------------------------------------|-----------------------|
| Saline water areas such as oceans and saline lakes                                               | ≤ 3.7 km (2.30 miles) |
| Serious pollution sources such as metallurgic plants, coal mines, and heat and power plants      | ≤ 3 km (1.86 miles)   |
| Medium pollution sources such as chemical factories, rubber plants, and electroplating factories | ≤ 2 km (1.24 miles)   |
| Light pollution sources, such as food factories, tanneries, and heating boilers                  | ≤ 1 km (0.62 miles)   |

# Checking power distribution or power supply environment

**Table 7 Requirements for power distribution or power supply environment**

| Item                        | Requirements                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Preparation                 | The power supply must be available before you install the switch.                                                                                                                                                                                                                                                                                                                                                                      |
| Voltage                     | The voltage provided to the switch must be within the operating voltage range. For the operating voltage range, see <i>Intelbras SC 3570 Switch Series Hardware Information and Specifications</i> .                                                                                                                                                                                                                                   |
| Power receptacle and cables | <ul style="list-style-type: none"><li>• If the external power supply system provides an AC power outlet, prepare a country-specific AC power cord yourself. Make sure the PE wire of the AC power supply is grounded reliably.</li><li>• If the external power supply system provides a DC distribution box, prepare DC power cords yourself.</li><li>• Do not use the power cord provided with the switch on other devices.</li></ul> |

## Laser safety

### **WARNING!**

The switch is Class 1 laser device. Disconnected optical fibers or transceiver modules might emit invisible laser light. Do not stare into beams or view directly with optical instruments when the switch is operating.

## Installation tools

No installation tools are provided with the switch. Prepare the following tools yourself as required:

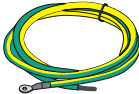
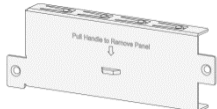
- ESD wrist strap
- Flat-blade screwdriver
- Phillips screwdriver
- Needle-nose pliers
- Marker

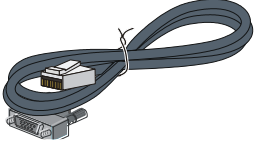
## Installation accessories

Before installation, make sure you have all the required installation accessories. If an installation accessory is damaged or lost, purchase a new one by using the BOM code in [Table 8](#).

**Table 8 Installation accessories**

| Code | Description                                                                         | Quantity         | Applicable device models |
|------|-------------------------------------------------------------------------------------|------------------|--------------------------|
| N/A  | Front mounting kit, including a pair of front mounting brackets and eight M4 screws | 1 pair, provided | All models               |

| Code | Description                                                                                                      | Quantity                                                                                             | Applicable device models                                                |
|------|------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|
|      |                                 |                                                                                                      |                                                                         |
| N/A  | M6 screw and cage nut<br>       | User supplied                                                                                        | All models                                                              |
| N/A  | Rubber feet<br>                 | Four, provided                                                                                       | All models                                                              |
| N/A  | Grounding cable<br>             | 1, provided                                                                                          | All models                                                              |
| N/A  | Grounding screw<br>             | 1, provided                                                                                          | All models                                                              |
| N/A  | Power module filler panel<br>  | 1, provided                                                                                          | SC 3570-24G-4X<br>SC 3570-48G-6X<br>SC 3570-24S-8G-4X<br>SC 3570-48S-6X |
| N/A  | Power module filler panel<br> | 1, provided                                                                                          | SC 3570-24GP-4X<br>SC 3570-48GP-6X                                      |
| N/A  | AC power cord<br>             | 1, provided for the switch with a built-in power supply<br>1, provided with removable power supplies | All models                                                              |
| N/A  | DC power cord<br>             | 1, provided with DC power supplies                                                                   | SC 3570 series                                                          |
| N/A  | AC power cord bail latch<br>  | 1, provided with the CA-70A12 and PSR75-12A power supplies                                           | SC 3570-24G-4X<br>SC 3570-48G-6X<br>SC 3570-24S-8G-4X<br>SC 3570-48S-6X |
|      | The appearance of the bail latch                                                                                 |                                                                                                      |                                                                         |

| Code     | Description                                                                                                    | Quantity                                                                                                                           | Applicable device models           |
|----------|----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|
|          | might differ.                                                                                                  |                                                                                                                                    |                                    |
| 04042967 | DB9-to-RJ45 console cable<br> | 1, optional                                                                                                                        | All models                         |
| 0404A1EE | USB-to-RJ45 console cable<br> | 1, optional                                                                                                                        | All models                         |
| N/A      | Releasable cable tie<br>      | 1, provided with the PSR180-56A, PSR360-56A, PSR720-56A, PSR1110-56A, PSR600-54A-B, PSR920-54A-B, and PSR1600-54A-B power supplies | SC 3570-24GP-4X<br>SC 3570-48GP-6X |

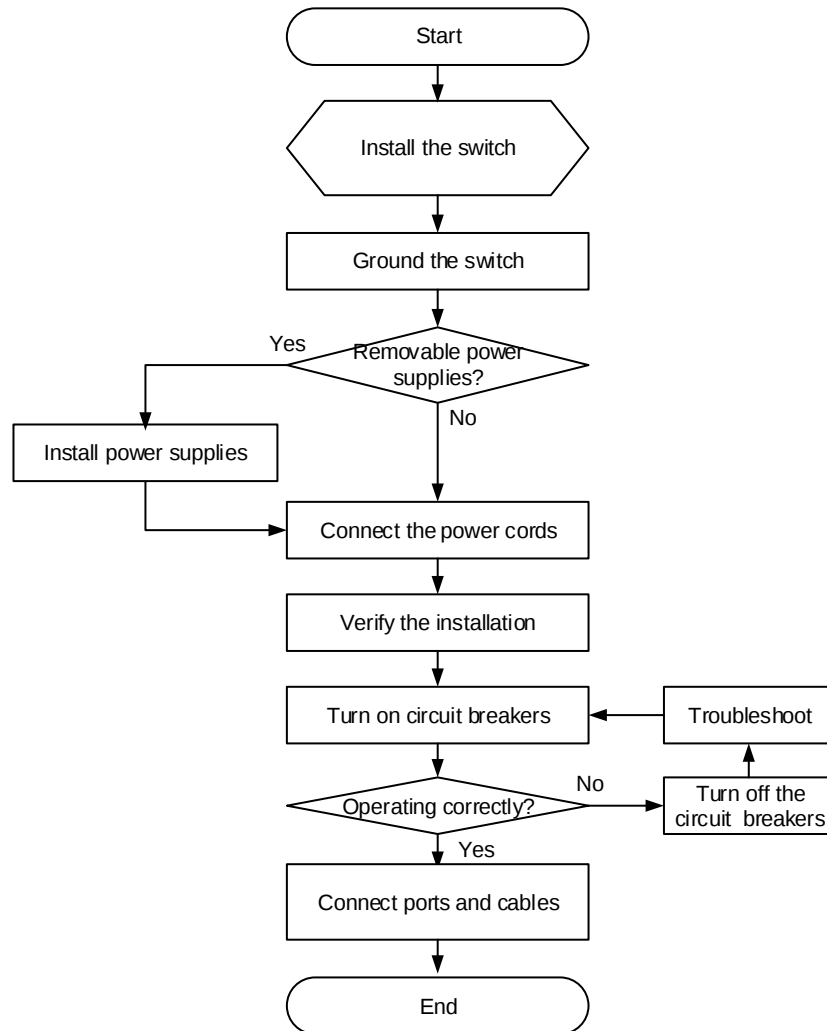
# Installing the switch



## CAUTION:

Keep the tamper-proof seal on a mounting screw on the chassis cover intact, and if you want to open the chassis, contact Intelbras for permission. Otherwise, Intelbras shall not be liable for any consequence.

**Figure 1 Hardware installation flow**



# Installing the switch in a 19-inch rack

## Installation methods

**Table 9 Installation methods**

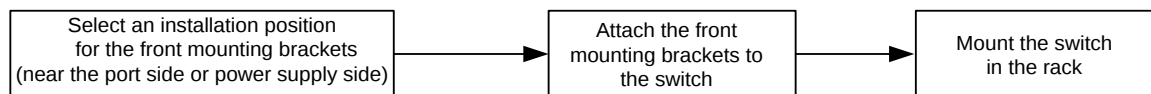
| Applicable switch models                                                                                      | Installation method           | Requirements and guidelines                                                                                           | Installation procedure                                                             |
|---------------------------------------------------------------------------------------------------------------|-------------------------------|-----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| SC 3570-24G-4X<br>SC 3570-48G-6X<br>SC 3570-24S-8G-4X<br>SC 3570-48S-6X<br>SC 3570-24GP-4X<br>SC 3570-48GP-6X | Using front mounting brackets | Select an installation position for the front mounting brackets as required: near the power supply side or port side. | See " <a href="#">Rack-mounting the switch by using front mounting brackets.</a> " |

**! IMPORTANT:**

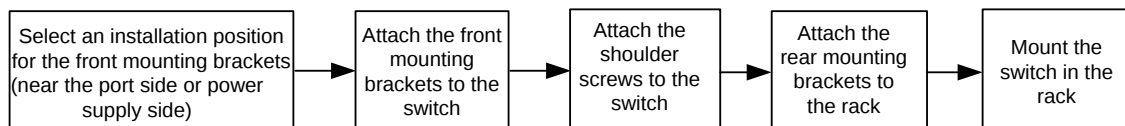
For the rack doors to close easily after switch installation, make sure the distance requirements described in [Table 9](#) are met.

## Installation procedure at a glance

**Figure 2 Procedure for installing the switch in a 19-inch rack by using front mounting brackets**



**Figure 3 Procedure for installing the switch in a 19-inch rack by using front and rear mounting brackets**



**NOTE:**

If a rack shelf is available, you can put the switch on the rack shelf, slide the switch to an appropriate location, and attach the switch to the rack by using the mounting brackets.

## Rack-mounting the switch by using front mounting brackets

The installation procedures are the same for the SC 3570 series. The following uses the SC 3570-48S-6X as an example.

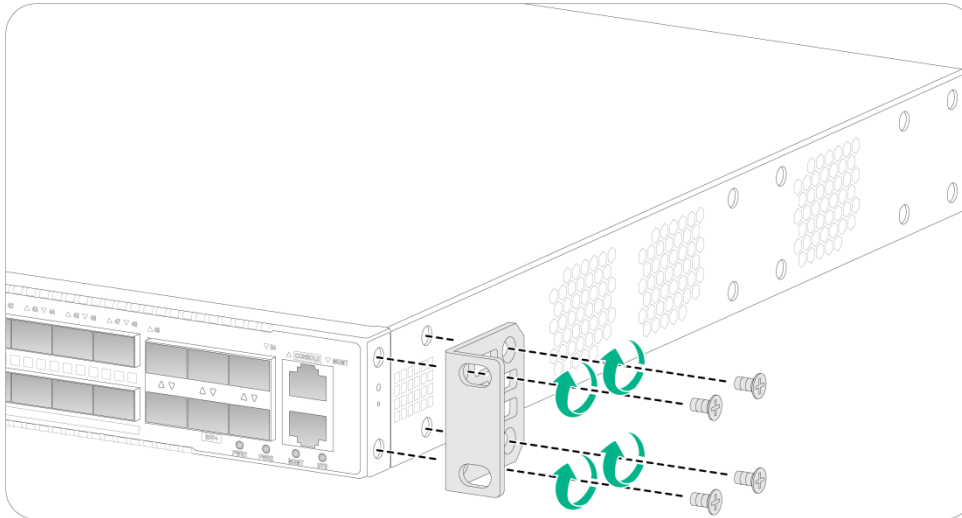
### Attaching the front mounting brackets to the switch

The switch has one mounting position near the network ports and the other mounting position near the power supplies for the front mounting brackets. Select one position as needed.

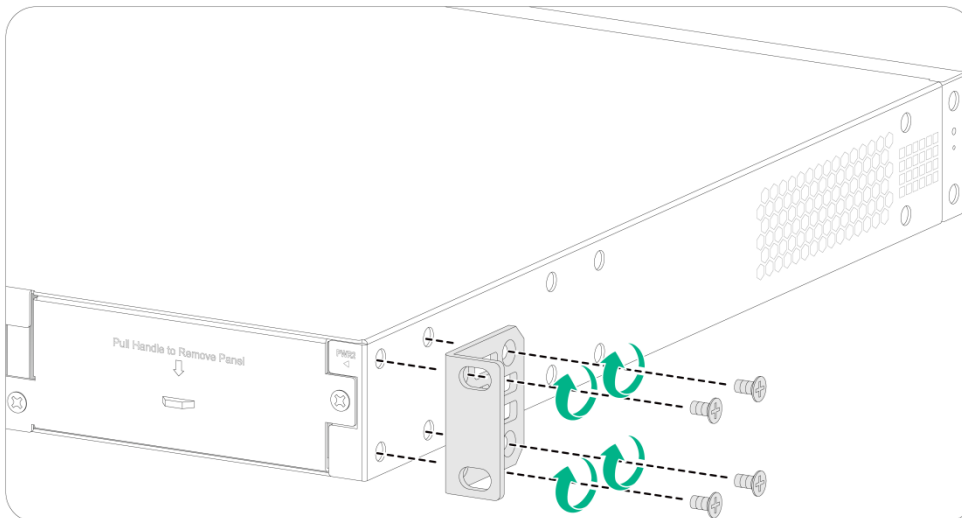
To attach the front mounting brackets to the chassis:

1. Place the wide flange of the mounting bracket against the chassis side panel. Align the mounting bracket installation holes with the screw holes in the chassis.
  - o To install the mounting brackets at the port-side mounting position, see [Figure 4](#).
  - o To install the mounting brackets at the power supply-side mounting position, see [Figure 5](#).
2. Fasten the M4 screws to secure the mounting bracket to the switch. As a best practice, use a torque of 12 kgf-cm (1.18 Nm) to fasten the M4 screws.
3. Attach the front mounting bracket to the other side of the chassis in the same way.

**Figure 4 Attaching the front mounting brackets to the port-side mounting position**



**Figure 5 Attaching the front mounting brackets to the power supply-side mounting position**



## Mounting the switch in the rack

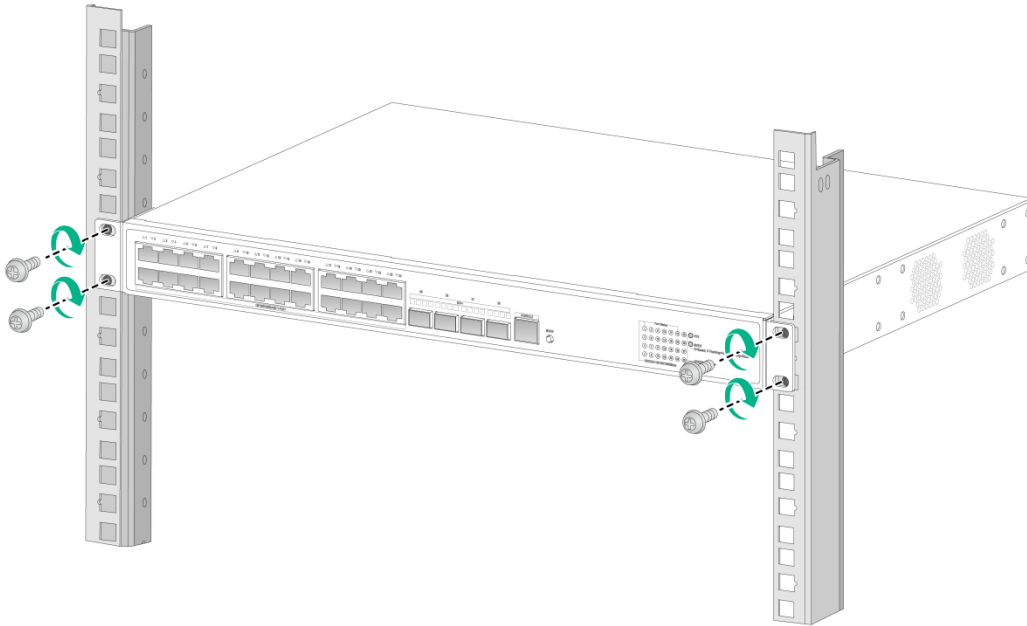
This task requires two people.

To mount the switch in the rack:

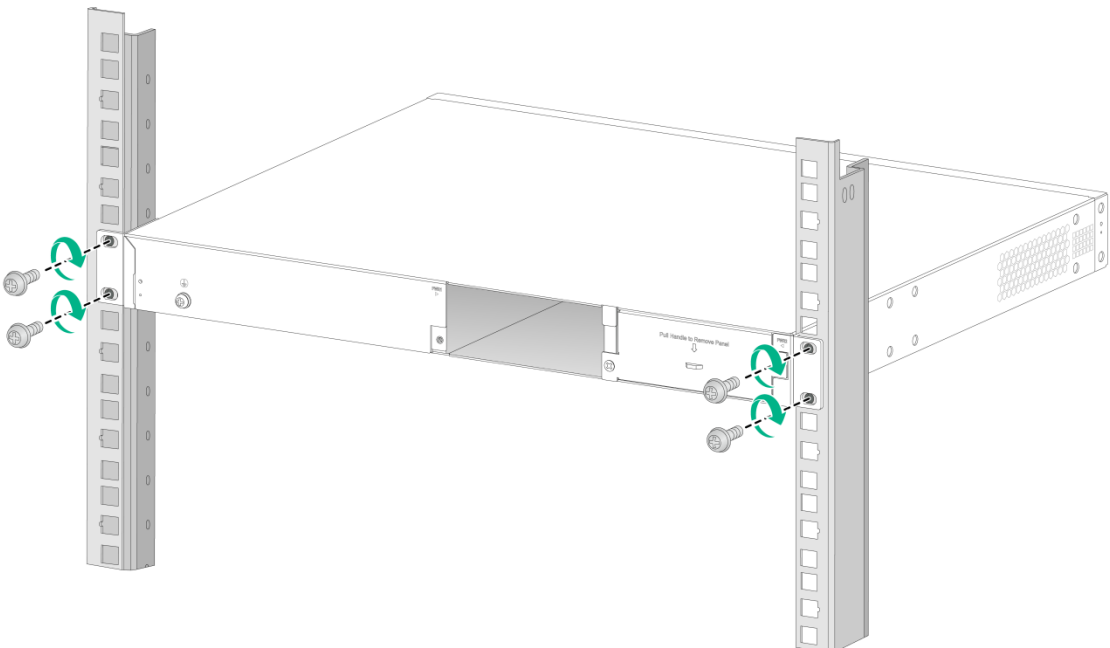
1. Wear an ESD wrist strap and make sure it makes good skin contact and is reliably grounded.
2. Verify that the front mounting brackets have been securely attached to the switch chassis. See "[Attaching the front mounting brackets to the switch](#)."

3. Attach cage nuts to the front rack posts.
4. One person supports the bottom of the switch, and moves the switch to an appropriate position based on the installation positions of the front mounting brackets.
5. Another person uses user supplied M6 screws and cage nuts to attach the mounting brackets to the rack and verifies that the brackets are level and secure. As a best practice, use a torque of 30 kgf-cm (2.94 Nm) to fasten the M6 screws.

**Figure 6 Mounting the switch in the rack (port-side mounting position for the front mounting brackets)**



**Figure 7 Mounting the switch in the rack (power supply-side mounting position for the front mounting brackets)**



# Mounting the switch on a workbench

---

## ⚠ IMPORTANT:

- Reserve a minimum clearance of 10 cm (3.9 in) around the chassis for heat dissipation.
  - Do not place heavy objects on the switch.
- 

To mount the switch on a workbench:

1. Verify that the workbench is sturdy and reliably grounded.
2. Place the switch with bottom up, and clean the round holes in the chassis bottom with dry cloth.
3. Attach the rubber feet to the four round holes in the chassis bottom.
4. Place the switch with upside up on the workbench.

# Grounding the switch

---

## ⚠ WARNING!

- Correctly connecting the grounding cable is crucial to lightning protection and ESD and EMI protection. You must connect the grounding cable correctly and reliably for the switch.
- 

The power input end of the switch has a noise filter, whose central ground is directly connected to the chassis to form the chassis ground (commonly known as PGND). You must securely connect this chassis ground to the earth to minimize the potential for system damage, maximize the safety at the site, and minimize EMI susceptibility of the system.

Select a grounding method based on the installation environment.

---

## NOTE:

The power and grounding terminals in this section are for illustration only.

---

# Grounding the switch by using a grounding strip

---

## ⚠ CAUTION:

- Connect the grounding cable to the grounding strip in the equipment room. Do not connect it to a fire main or lightning rod.
  - To guarantee the grounding effect and avoid switch damage, use the grounding cable provided with the switch to connect the switch to a grounding strip in the equipment room.
- 

If a grounding strip is available at the installation site, use the grounding cable provided with the switch to connect the switch to the grounding strip.

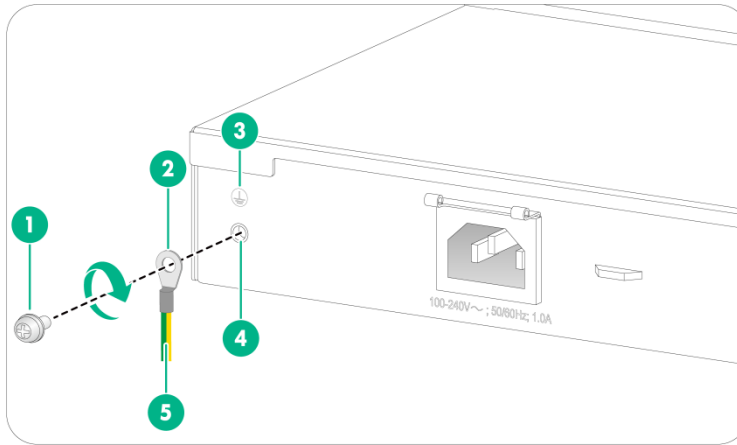
## Connecting the grounding cable to the chassis

1. Remove the grounding screw from the grounding hole in the chassis.
2. Use the grounding screw to attach the ring terminal of the grounding cable to the grounding screw hole. Fasten the screw. As a best practice, use a torque of 5 kgf-cm (0.49 Nm) to fasten the grounding screw.

**! IMPORTANT:**

Orient the grounding cable as shown in [Figure 8](#) so that you can easily install or remove the removable components.

**Figure 8 Connecting the grounding cable to the chassis**



(1) Grounding screw

(2) Ring terminal

(3) Grounding sign

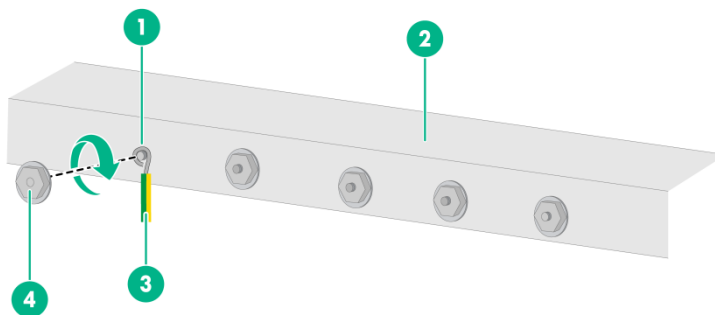
(4) Grounding hole

(5) Grounding cable

### Connecting the grounding cable to a grounding strip

1. Use needle-nose pliers to bend the bare metal part to the shape as shown in [Figure 9](#). Make sure the bended part can securely attached to the grounding post on the grounding strip.
2. Attach the bended part of the grounding cable to the grounding post and use the hex nut to fasten the bended part to the post.

**Figure 9 Connecting the grounding cable to a grounding strip**



(1) Grounding post

(2) Grounding strip

(3) Grounding cable

(4) Hex nut

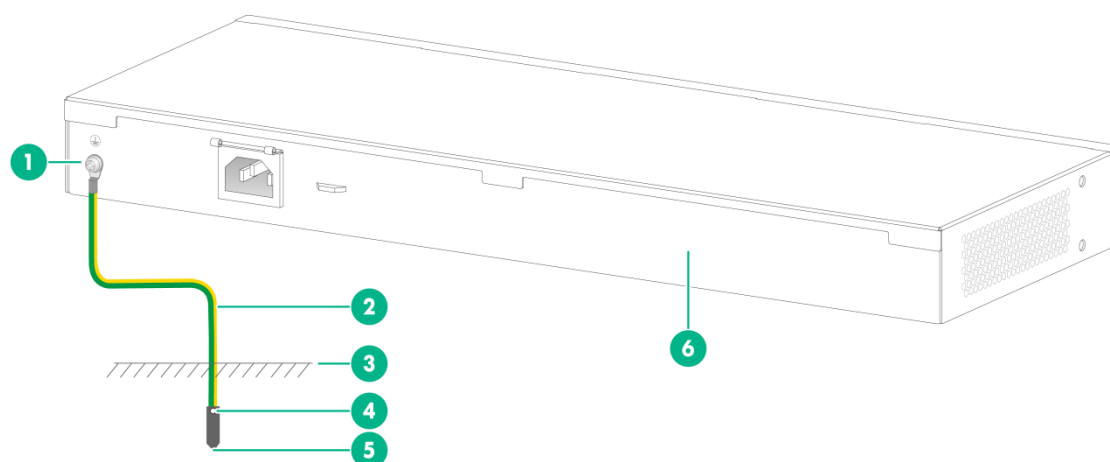
## Grounding the switch by using a grounding conductor buried in the earth ground

If the installation site does not have grounding strips, but earth ground is available, hammer a 0.5 m (1.64 ft) or longer angle iron or steel tube into the earth ground to act as a grounding conductor.

The dimensions of the angle iron must be a minimum of 50 × 50 × 5 mm (1.97 × 1.97 × 0.20 in). The steel tube must be zinc-coated and its wall thickness must be at least 3.5 mm (0.14 in).

Weld the yellow-green grounding cable to the angel iron or steel tube and treat the joint for corrosion protection.

**Figure 10 Grounding the switch by burying the grounding conductor into the earth ground**



|                     |                         |                        |
|---------------------|-------------------------|------------------------|
| (1) Grounding screw | (2) Grounding cable     | (3) Earth              |
| (4) Welding point   | (5) Grounding conductor | (6) Chassis rear panel |

## Verifying the connection after grounding the switch

- If you ground the switch by using a grounding strip, perform the following tasks:
  - a. Use a multimeter to measure the resistance between the switch grounding terminal and grounding point, and make sure the resistance is less than 0.1Ω.
  - b. Use a grounding resistance tester to measure the grounding resistance of the grounding strip, and make sure the grounding resistance is less than 1Ω.
- If you ground the switch by using a grounding conductor buried in the earth ground, perform the following tasks:
  - a. Use a multimeter to measure the resistance between the switch grounding terminal and grounding point, and make sure the resistance is less than 0.1Ω.
  - b. Use a grounding resistance tester to measure the grounding resistance of the angle iron in the ground, and make sure the grounding resistance is less than 10Ω. For locations with high soil resistivity, sprinkle some resistance reducer to reduce soil resistivity or replace soil around the grounding strip with soil with lower resistance.

## Installing and removing a power supply

**Table 10 Power supply installation method**

| Power supply model                 | Installation method                           |
|------------------------------------|-----------------------------------------------|
| CA-70A12<br>PSR75-12A<br>PSR150-D1 | See "Installing/removing a power supply (1)." |
| PSR180-56A<br>PSR360-56A           | See "Installing/removing a power supply (2)." |

| Power supply model                                                                       | Installation method |
|------------------------------------------------------------------------------------------|---------------------|
| PSR560-56D<br>PSR720-56A<br>PSR1110-56A<br>PSR600-54A-B<br>PSR920-54A-B<br>PSR1600-54A-B |                     |

The SC 3570 switch series provides two power supply slots. You can install one or two power supplies for the switch as required. For the power supplies available for the switch and their specifications, see *Intelbras SC 3570 Switch Series Hardware Information and Specifications*.

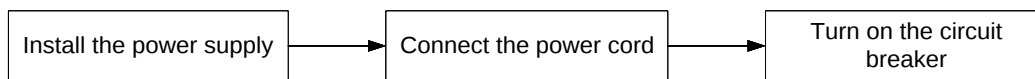
The SC 3570-24G-4X, SC 3570-48G-6X, SC 3570-24S-8G-4X-GL, SC 3570-48S-6X, SC 3570-24GP-4X, and SC 3570-48GP-6X switches are shipped with power supply slot PWR1 empty and power supply slot PWR2 installed with a filler panel.

The SC 3570-24G-4X, SC 3570-48G-6X, SC 3570-24S-8G-4X-GL, SC 3570-48S-6X, SC 3570-24GP-4X, and SC 3570-48GP-6X switches support shipment with power supplies installed. If you hope that the switch is shipped with the purchased power supplies installed, contact the Intelbras sales personnel.

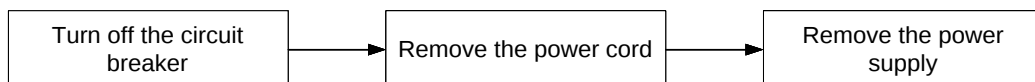
#### **⚠ WARNING!**

- To avoid bodily injury or switch damage, strictly follow the procedures in [Figure 11](#) and [Figure 12](#) to install and remove a power supply.
- You must provide a circuit breaker for each power supply.

**Figure 11 Installation procedure**



**Figure 12 Removal procedure**



#### **⚠ CAUTION:**

- To prevent damage to the power supply and the connectors on the backplane, insert the power supply gently. If you encounter a hard resistance when inserting the power supply, pull out the power supply and insert it again. Make sure the power supply has a good contact with the connectors.
- When the switch has two power supplies working in 1+1 redundancy, removing one power supply does not affect system operation. If the switch has only one power supply, removing the power supply causes power down of the switch.
- If you are not to install a new power supply after removing the old one, install a filler panel in the slot in time.
- Use a torque of 5 kgf-cm (0.49 Nm) to fasten the captive screws on a power supply.

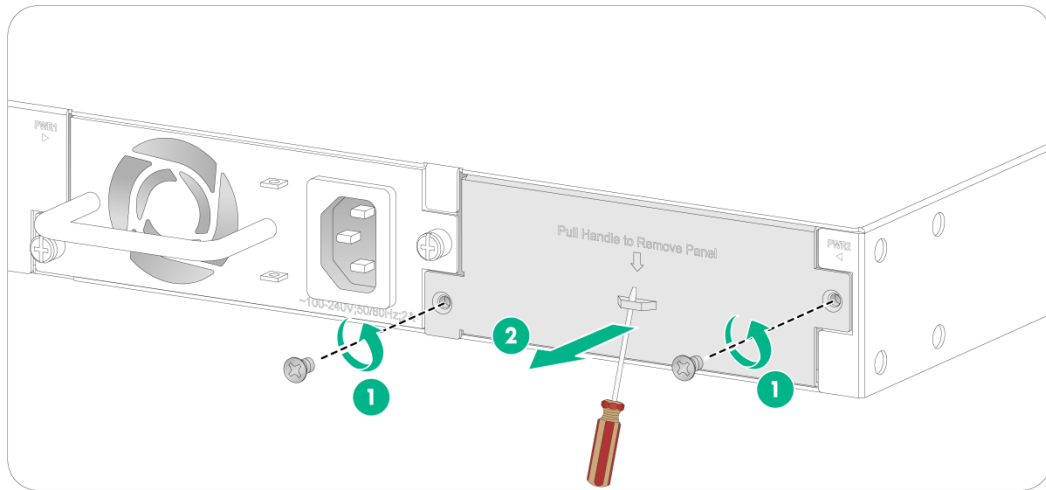
# Installing/removing a power supply (1)

This section applies to the CA-70A12, PSR75-12A, and PSR150-D1 power supplies, which use a similar installation/removal procedure. A PSR75-12A power supply is used as an example.

## Installing a power supply

1. Wear an ESD wrist strap and make sure it makes good skin contact and is reliably grounded.
2. Remove the filler panel from the target power supply slot as follows:
  - a. Remove the screws from the filler panel.
  - b. Use a flathead screwdriver to remove the filler panel.

**Figure 13 Removing the filler panel**

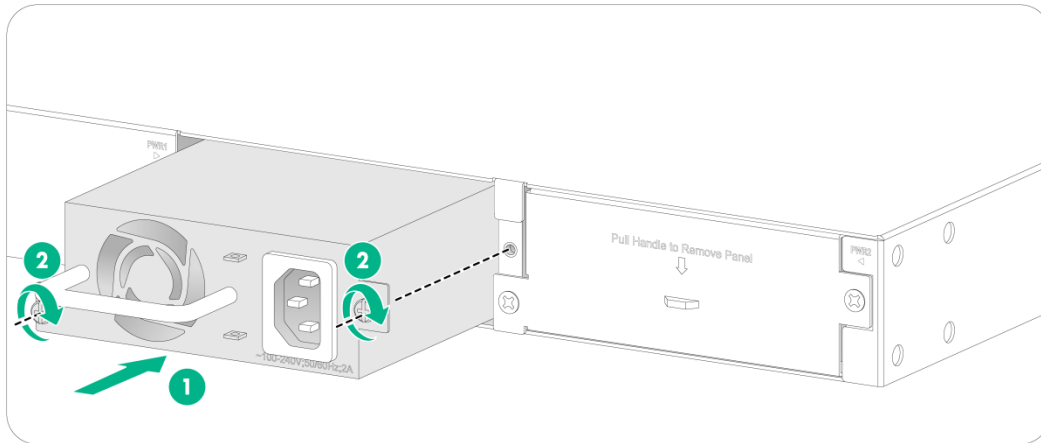


3. Unpack the power supply and verify that the power supply model is correct.
4. Correctly orient the power supply with the power supply slot (use the letters on the power supply faceplate for orientation), grasp the handle of the power supply with one hand and support its bottom with the other, and slide the power supply slowly along the guide rails into the slot (see callout 1 in [Figure 14](#)).
5. Fasten the captive screws on the power supply with a Phillips screwdriver to secure the power supply in the chassis (see callout 2 in [Figure 14](#)). If the captive screw cannot be tightly fastened, verify the installation of the power supply.

As a best practice, use a torque of 5 kgf-cm (0.49 Nm) to fasten the captive screws.

6. Install the filler panel over the empty power supply slot to prevent dust and ensure good ventilation if you install only one power supply.

**Figure 14 Installing a power supply**

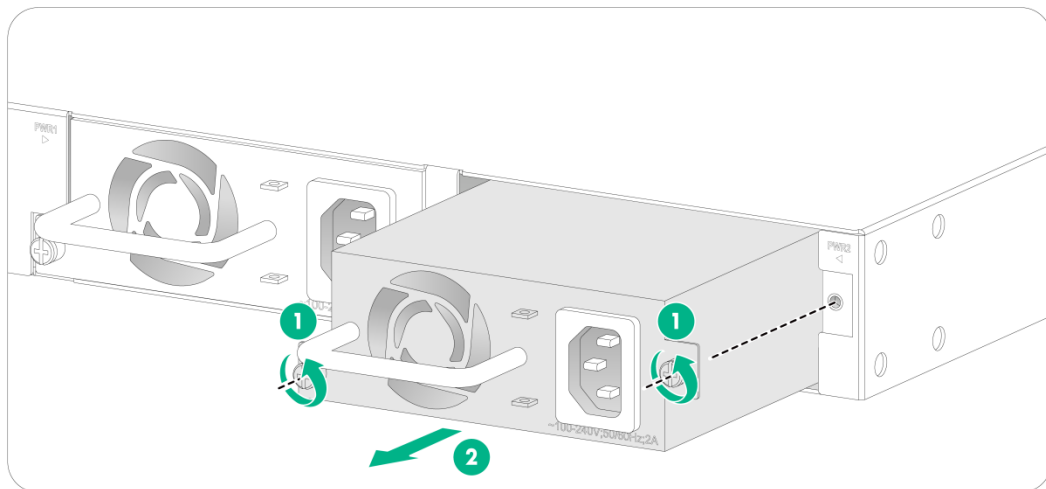


### Removing a power supply

1. Wear an ESD wrist strap and make sure it makes good skin contact and is reliably grounded.
2. Disconnect the power cord.
3. Loosen the captive screws on the power supply with a Phillips screwdriver until they are completely disengaged.
4. Grasp the handle of the power supply with one hand and pull it out a little, support the bottom with the other hand, and pull the power supply slowly along the guide rails out of the slot.

Put away the removed power supply in an antistatic bag or the power supply package bag for future use.

**Figure 15 Removing a power supply**



## Installing/removing a power supply (2)

This section applies to the PSR180-56A, PSR360-56A, PSR560-56D, PSR720-56A, PSR1110-56A, PSR600-54A-B, PSR920-54A-B, and PSR1600-54A-B power supplies, which use a similar installation/removal procedure. A PSR360-56A power supply is used as an example.

### Installing a power supply

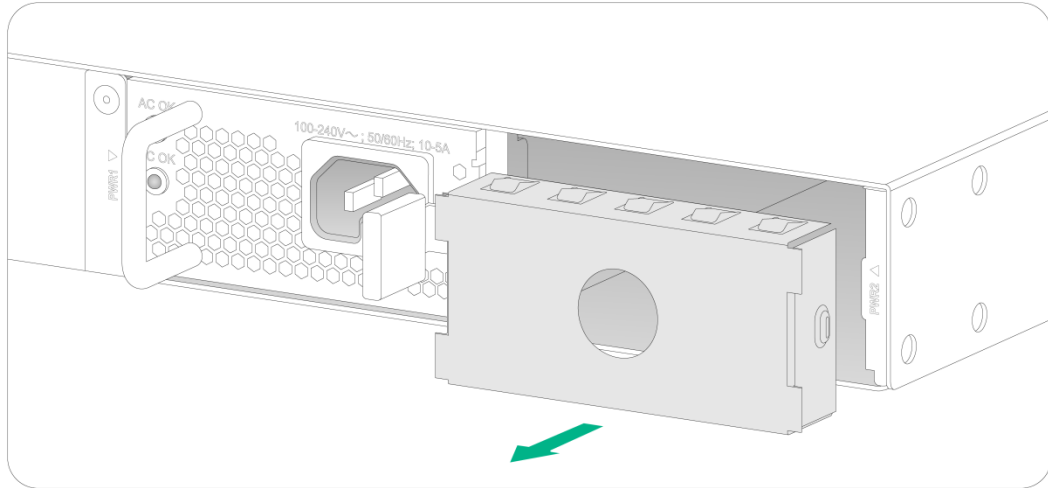
1. Wear an ESD wrist strap. Make sure the strap makes good skin contact and is reliably grounded.

2. Remove the filler panel, if any, from the target power supply slot.

Put your forefinger into the hole in the filler panel and then pull the filler panel out of the slot gently.

Keep the removed filler panel secure for future use.

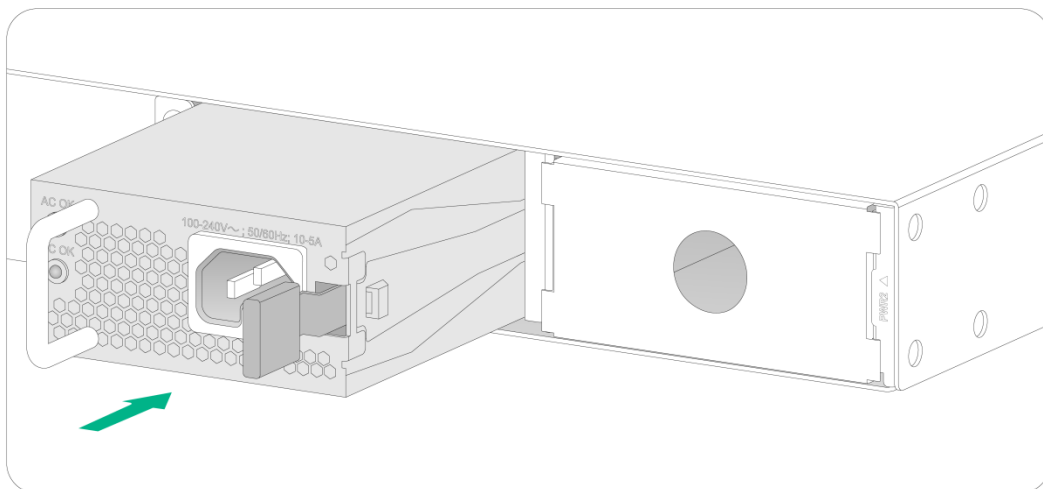
**Figure 16 Removing the filler panel from the target power supply slot**



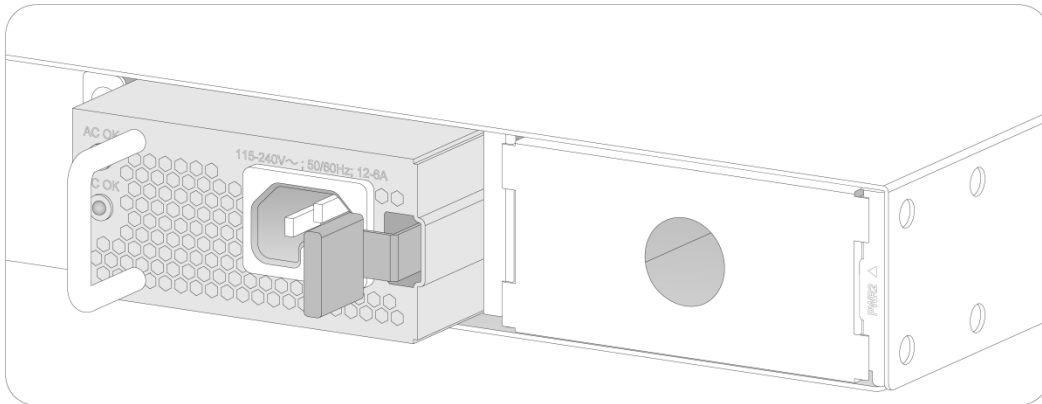
3. Unpack the power supply. Make sure the power supply model is as required.  
Keep the packaging box and packaging bag for the power supply secure for future use.
4. Correctly orient the power supply. Make sure the lettering on the power supply is upward.
5. Align the power supply with the power supply slot. Grasping the handle of the power supply with one hand and supporting its bottom with the other, slide the power supply slowly into the slot along the guide rails until the latch of the power supply clicks into the slot.

To prevent damage to the power supply or the connectors on the backplane, insert the power supply gently. If you encounter a hard resistance when inserting the power supply, pull out the power supply and insert it again.

**Figure 17 Installing a power supply**



**Figure 18 Installation completed**



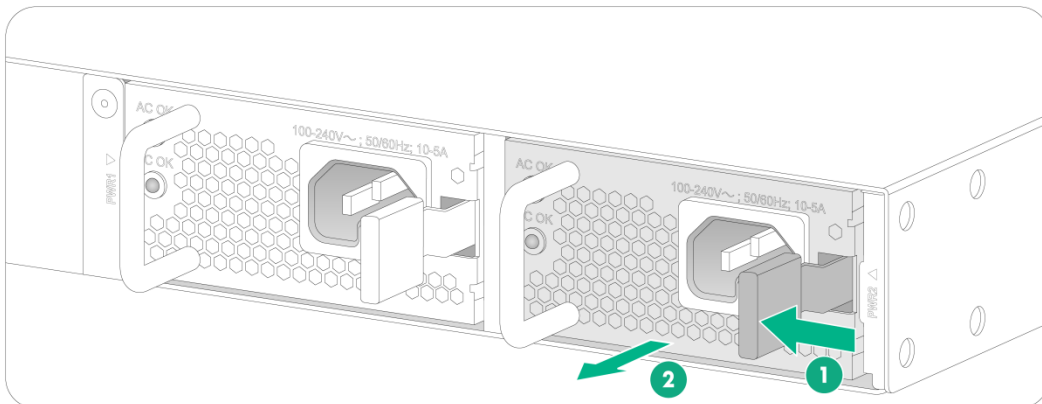
**NOTE:**

The PSR1110-56A power supply, including its handle, adds 64 mm (2.52 in) to chassis depth.

**Removing a power supply**

1. Wear an ESD wrist strap and make sure it makes good skin contact and is reliably grounded.
  2. Disconnect the power cord.
  3. Press the latch towards the handle, and pull the power supply along the guide rails until it is part-way out.
  4. Grasp the handle of the power supply with one hand, support the bottom with the other hand, and pull the power supply slowly along the guide rails out of the slot.
- Keep the removed power supply in an antistatic bag or the power supply package bag for future use.
5. Install the filler panel to prevent dust and ensure good ventilation if no power supply is installed in the slot.

**Figure 19 Removing the power supply**



# Connecting the power cord

## ⚠ CAUTION:

- CA-70A12 and PSR75-12A power supplies use C13 power cords, and PSR180-56A, PSR360-56A, PSR720-56A, PSR1110-56A, PSR600-54A-B, PSR920-54A-B, and PSR1600-54A-B power supplies use C15 power cords (used in high temperature). Do not mix power cords for different power supplies.
- Provide a circuit breaker for each power supply and make sure the circuit breaker is off before installation.

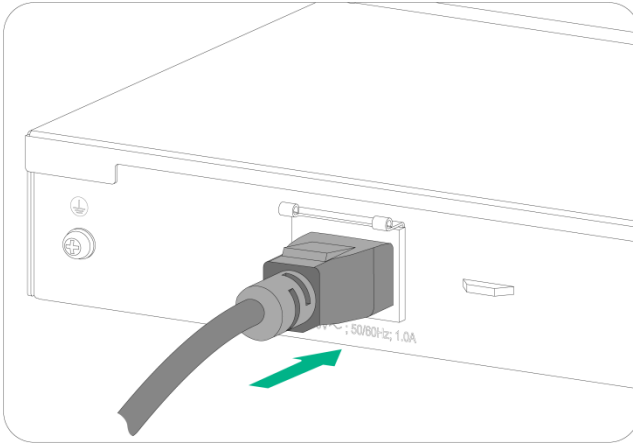
**Table 11 Power cord connection procedures at a glance**

| Power supply model                      | Available power source                     | Connection procedure reference                                                                                                                |
|-----------------------------------------|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Built-in power supply                   | AC power source                            | <a href="#">Connecting the power cord for a built-in power supply</a>                                                                         |
| CA-70A12                                | AC power source                            | <a href="#">Connecting the power cord for a CA-70A12 or PSR75-12A power supply</a>                                                            |
| PSR75-12A                               |                                            |                                                                                                                                               |
| PSR150-D1                               | –48 VDC power source in the equipment room | <a href="#">Connecting the power cord for a PSR150-D1 or PSR560-56D</a>                                                                       |
|                                         | RPS800-A or RPS1600-A                      |                                                                                                                                               |
| PSR560-56D                              | –48 VDC power source in the equipment room | <a href="#">Connecting the power cord for a PSR150-D1 or PSR560-56D</a>                                                                       |
|                                         | RPS1600-A                                  |                                                                                                                                               |
| PSR180-56A                              | AC power source                            | <a href="#">Connecting the power cord for a PSR180-56A, PSR360-56A, PSR720-56A, PSR1110-56A, PSR600-54A-B, PSR920-54A-B, or PSR1600-54A-B</a> |
|                                         | 240 V HVDC power source                    |                                                                                                                                               |
| PSR360-56A/PSR720-56A/PSR1110-56A       | AC power source                            |                                                                                                                                               |
| PSR600-54A-B/PSR920-54A-B/PSR1600-54A-B | AC power source                            |                                                                                                                                               |
|                                         | 240 V HVDC power source                    |                                                                                                                                               |

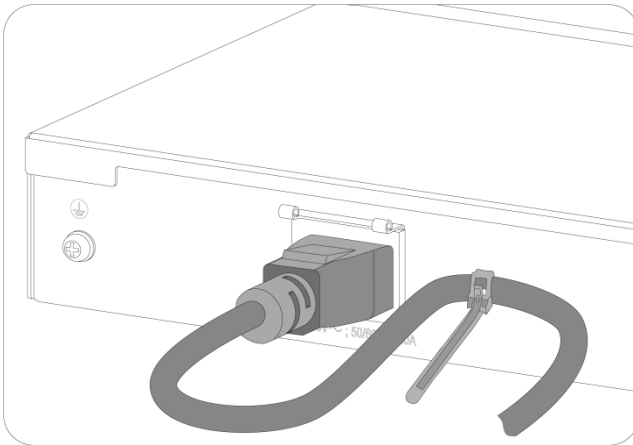
## Connecting the power cord for a built-in power supply

1. Wear an ESD wrist strap. Make sure the strap makes good skin contact and is reliably grounded.
2. Plug the female connector of the power cord into the power receptacle on the power supply, as shown in [Figure 20](#).
3. Use a cable tie to secure the power cord to the handle of the power supply, as shown in [Figure 20](#).
4. Connect the other end of the power cord to an AC power source.

**Figure 20 Connecting the power cord for a built-in power supply(1)**



**Figure 21 Connecting the power cord for a built-in power supply(2)**



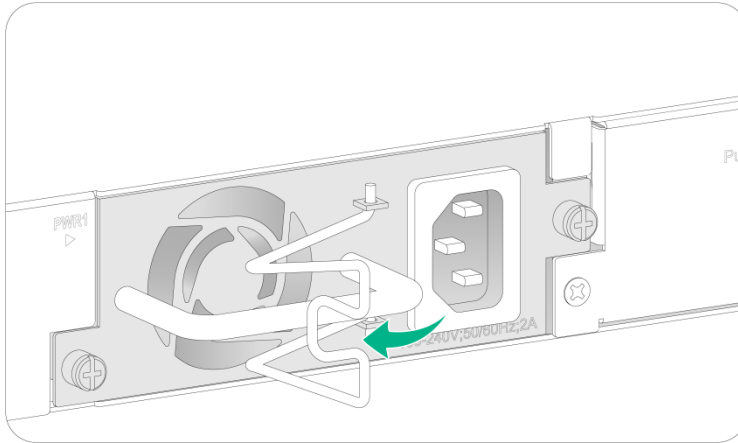
## Connecting the power cord for a CA-70A12 or PSR75-12A power supply

The power cord connection procedure is similar for the CA-70A12 and PSR75-12A power supplies. The following procedure connects the power cord for a PSR75-12A power supply.

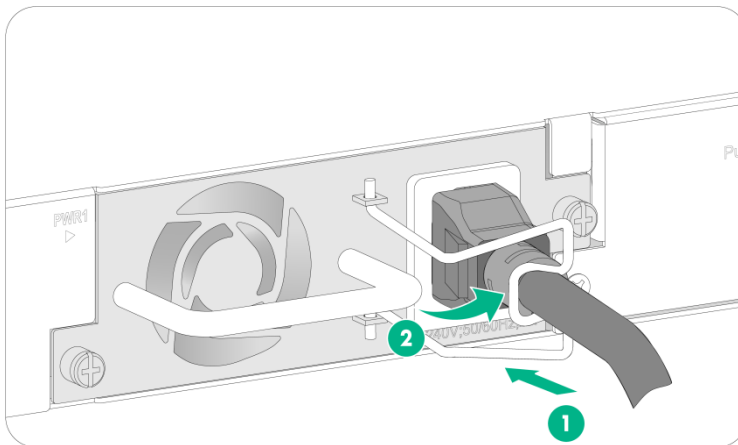
To connect the power cord for a PSR75-12A power supply:

1. Wear an ESD wrist strap and make sure it makes good skin contact and is reliably grounded.
2. Attach the power cord retainer clip (supplied with the power supply) into the two holes next to the AC-input power receptacle on the power supply, and pull the retainer clip leftwards (see [Figure 22](#)).
3. Connect the female connector of the AC power cord supplied with the power supply to the power receptacle (see callout 1 in [Figure 23](#)).
4. Pull the retainer clip rightwards to secure the connector to the AC-input power receptacle (see callout 2 in [Figure 23](#)).
5. Connect the other end of the power cord to an AC power source.

**Figure 22 Connecting a power cord (1)**



**Figure 23 Connecting a power cord (2)**



## Connecting the power cord for a PSR150-D1 or PSR560-56D power supply

### **⚠ CAUTION:**

- Connect the other ends of the wires for a PSR150-D1 power supply to a –48 VDC power source, with the negative wire (– or L–) to the negative terminal (–) and the positive wire (+ or M/N) to the positive terminal (+).
- To use a –48 VDC power source to supply power to the power supply, use the DC power cord supplied with the power supply.
- To use an Intelbras RPS (–54 VDC) to supply power to the power supply, use a compatible RPS power cord to connect the RPS to the power supply.
- The power cord color code scheme in [Figure 24](#) is for illustration only. The cable delivered for your country or region might use a different color scheme. When you connect the power cord, always identify the polarity symbol on its wires.

The power cord connection procedure is the same for the PSR150-D1 and PSR560-56D power supplies. The following procedure uses a PSR150-D1 power supply as an example.

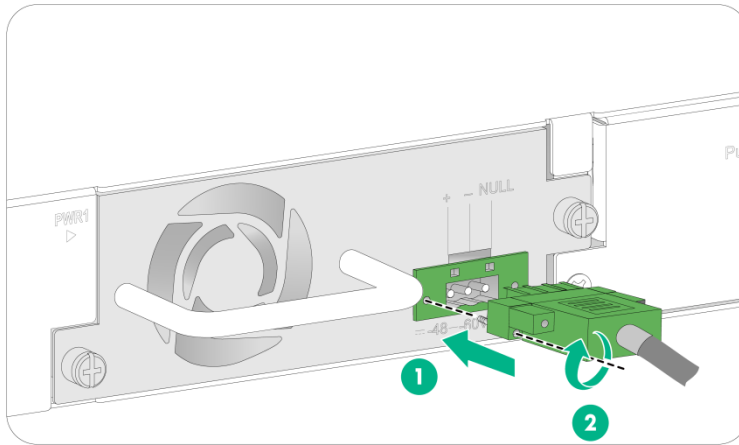
To connect the power cord for a PSR150-D1 power supply:

1. Wear an ESD wrist strap and make sure it makes good skin contact and is reliably grounded.
2. Unpack the power cord, correctly orient the plug at one end of the cable with the power receptacle on the power supply, and insert the plug into the power receptacle (see callout 1 in Figure 24).

The power receptacle is foolproof. If you cannot insert the plug into the receptacle, re-orient the plug rather than use excessive force to push it in.

3. Tighten the screws on the plug with a flat-blade screwdriver to secure the plug in the power receptacle (see callout 2 in Figure 24).
4. Connect the two wires at the other end of the power cord to a –48 VDC power source or an RPS.

**Figure 24 Connecting the power cord for a PSR150-D1 power supply**



## Connecting the power cord for a PSR180-56A, PSR360-56A, PSR720-56A, PSR1110-56A, PSR600-54A-B, PSR920-54A-B, or PSR1600-54A-B power supply

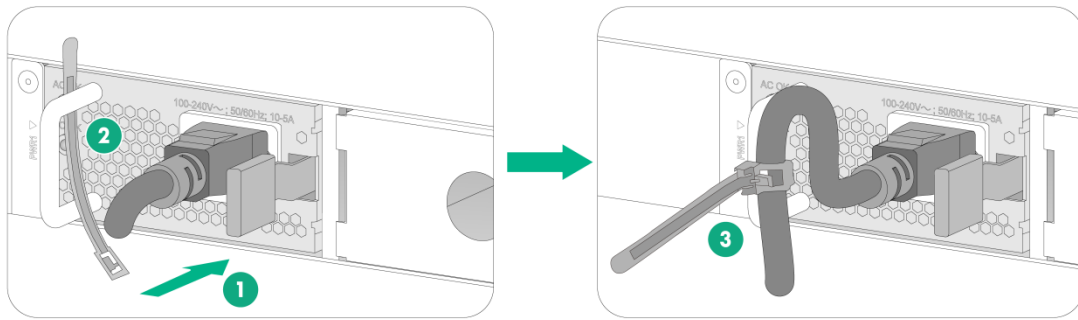
The power cord connection procedure is the same for the PSR180-56A, PSR360-56A, PSR720-56A, PSR1110-56A, PSR600-54A-B, PSR920-54A-B, and PSR1600-54A-B power supplies. The following procedure uses a PSR360-56A power supply as an example.

To connect the power cord for a PSR360-56A power supply:

1. Wear an ESD wrist strap and make sure it makes good skin contact and is reliably grounded.
2. Plug the female connector end of the power cord into the input socket of the power supply (see callout 1 in Figure 20).
3. Use a cable tie to secure the power cord to the handle of the power supply (see callout 2 and callout 3 in Figure 20).
4. Connect the other end of the power cord to a power source.

For a PSR360-56A, PSR720-56A, or PSR1110-56A power supply, you can connect the power cord only to an AC power source. For a PSR180-56A, PSR600-54A-B, PSR920-54A-B, or PSR1600-54A-B power supply, you can connect the power cord to an AC or HVDC power source.

**Figure 25 Connecting the power cord for a PSR360-56A power supply**



## Verifying the installation

Before powering on the switch, verify the following items:

- There is enough space around the switch for heat dissipation.
  - The rack or workbench on which the switch is mounted is stable.
  - The grounding cable is securely connected.
  - The power source specifications are as required by the device.
  - The power cords are correctly connected.
  - If part of the network cable for a port is routed outdoors, verify that a network port lightning protector is used for the port.
  - If a power line is routed from outdoors, verify that a surge protected power strip is used for the switch.
- 
-

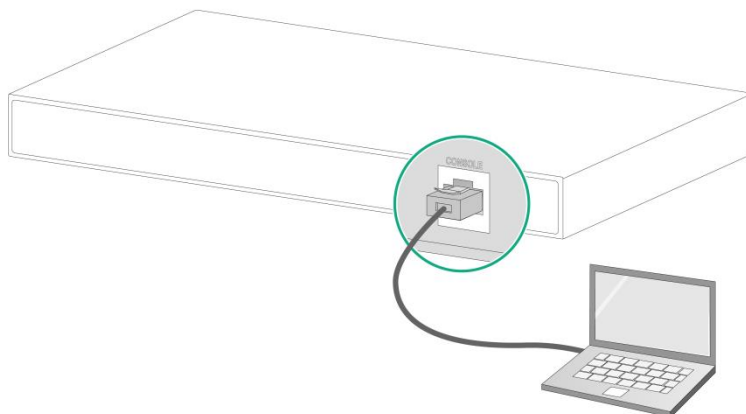
# Accessing the switch for the first time

## Connecting the switch to a configuration terminal

The SC 3570 series switches provide a serial console for connecting to a configuration terminal.

In [Figure 26](#), the switch is connected to a configuration terminal (PC as an example) from the serial console port.

**Figure 26** Connecting the switch to a configuration terminal



As shown in [Table 12](#), two types of console cables can be used for connecting the switch to a configuration terminal.

**Table 12** Connection methods and console cables

| Connection method                            | Console cable type        | Configuration terminal-side connector | Switch-side connector |
|----------------------------------------------|---------------------------|---------------------------------------|-----------------------|
| Using the serial console port for connection | DB9-to-RJ45 console cable | DB-9 female connector                 | RJ-45 connector       |
|                                              | USB-to-RJ45 console cable | USB connector                         | RJ-45 connector       |

The signal pinout for a DB9-to-RJ45 console cable depends on the vendor of the cable. To avoid abnormal configuration terminal display, use a serial console cable provided by Intelbras. For more information, see [Table 8](#). To prepare a serial console cable yourself, make sure the signal pinout for the RJ-45 connector is the same as that shown in [Table 13](#).

## Connecting a DB9-to-RJ45 console cable

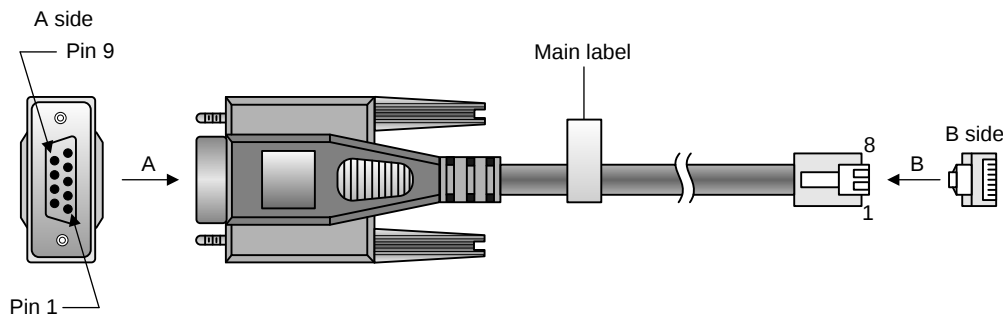
### **⚠ CAUTION:**

Follow these guidelines when you connect a DB9-to-RJ45 console cable:

- Identify the mark on the serial console port and make sure you are connecting to the correct port.
- The serial ports on PCs do not support hot swapping. To connect a PC to an operating switch, first connect the PC end. To disconnect a PC from an operating switch, first disconnect the switch end.

A DB9-to-RJ45 console cable is an 8-core shielded cable, with a crimped RJ-45 connector at one end for connecting to the serial console port of the switch, and a DB-9 female connector at the other end for connecting to the serial port on the console terminal.

**Figure 27 DB9-to-RJ45 console cable**



**Table 13 DB9-to-RJ45 console cable signal pinout**

| RJ-45 | Signal | DB-9 | Signal |
|-------|--------|------|--------|
| 1     | RTS    | 8    | CTS    |
| 2     | DTR    | 6    | DSR    |
| 3     | TXD    | 2    | RXD    |
| 4     | SG     | 5    | SG     |
| 5     | SG     | 5    | SG     |
| 6     | RXD    | 3    | TXD    |
| 7     | DSR    | 4    | DTR    |
| 8     | CTS    | 7    | RTS    |

To connect the switch to a configuration terminal (for example, a PC) through a DB9-to-RJ45 console cable:

1. Plug the DB-9 female connector of the DB9-to-RJ45 console cable to the serial port on the PC.
2. Connect the RJ-45 connector to the serial console port on the switch.

## Connecting a USB-to-RJ45 console cable

### ⚠ IMPORTANT:

- To use a USB-to-RJ45 console cable to connect the switch to a configuration terminal, first download and install the USB-to-RJ45 console driver on the configuration terminal and then connect the USB-to-RJ45 console cable to the configuration terminal.
- If you have connected a USB-to-RJ45 console cable to the configuration terminal before driver installation, you must remove and reconnect the USB-to-RJ45 console cable to the configuration terminal.

The following installs the driver on the Windows system. To install the driver on other operating systems, see the installation guide in the driver compression package named by the corresponding operating system.

To connect the switch to the configuration terminal through a USB-to-RJ45 console cable.

# Setting terminal parameters

To configure and manage the switch through the console port, you must run a terminal emulator program, such as TeraTermPro, on your configuration terminal. You can use the emulator program to connect a network device, a Telnet site, or an SSH site. For more information about the terminal emulator programs, see the user guides for these programs.

Configure the terminal parameters as follows:

- **Bits per second**—9,600.
- **Data bits**—8.
- **Parity**—None.
- **Stop bits**—1.
- **Flow control**—None.

## Starting the switch

### Pre-start checklist

Before powering on the switch, verify the following items:

- The power cord is correctly connected.
- The input power voltage is as required by the switch.
- The console cable is correctly connected.
- The PC has started, and the terminal parameters have been correctly configured.

### Powering on the switch

During the startup process, you can access Boot ROM menus to perform tasks such as software upgrade and file management. The Boot ROM interface and menu options differ with software versions. For more information about Boot ROM menu options, see the software-matching release notes for the device.

After the startup process is completed, you can access the CLI to configure the switch.

For more information about the configuration commands, see the configuration guides and command references for the switch.

# Setting up an IRF fabric (Stacking)

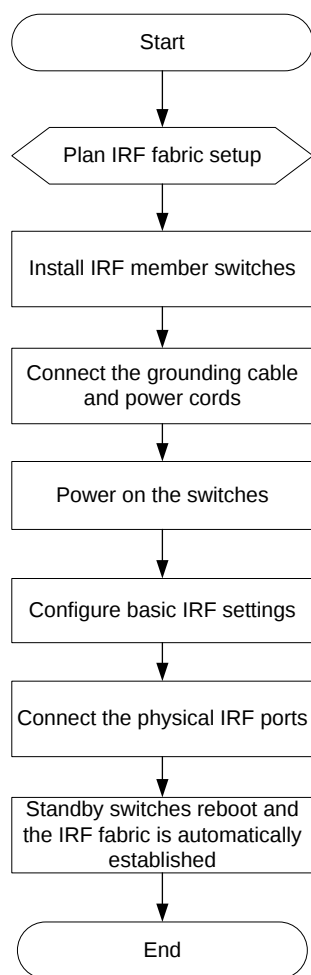
You can use Intelbras IRF technology to connect and virtualize SC 3570 switches into a large virtual switch called an "IRF fabric" for flattened network topology, and high availability, scalability, and manageability.

A SC 3570 switch can set up an IRF fabric only with switches from the same switch series.

All IRF member devices must run the same software image version. Make sure the software auto-update feature is enabled on all member devices.

## IRF fabric setup flowchart

**Figure 28 IRF fabric setup flowchart**



To set up an IRF fabric:

| Step                     | Description                                                                                                                                                                                                                                                                    |
|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Plan IRF fabric setup | Plan the installation site and IRF fabric setup parameters: <ul style="list-style-type: none"><li>Planning IRF fabric size and the installation site</li><li>Identifying the master switch and planning IRF member IDs</li><li>Planning IRF topology and connections</li></ul> |

| Step                                        | Description                                                                                                                                          |
|---------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                             | <ul style="list-style-type: none"> <li>Identifying physical IRF ports on the member switches</li> <li>Planning the cabling scheme</li> </ul>         |
| 2. Install IRF member switches              | See "Installing the switch in a 19-inch rack" or "Mounting the switch on a workbench."                                                               |
| 3. Connect grounding cables and power cords | See "Grounding the switch" and "Connecting the power cord."                                                                                          |
| 4. Power on the switches                    | N/A                                                                                                                                                  |
| 5. Configure basic IRF settings             | See the IRF configuration guide for the switch series.                                                                                               |
| 6. Connect the physical IRF ports           | <p>Connect physical IRF ports on switches.</p> <p>All switches except the master switch automatically reboot, and the IRF fabric is established.</p> |

## Planning IRF fabric setup

This section describes issues that an IRF fabric setup plan must cover.

### Planning IRF fabric size and the installation site

Choose switch models and identify the number of required IRF member switches, depending on the user density and upstream bandwidth requirements. The switching capacity of an IRF fabric equals the total switching capacities of all member switches.

Plan the installation site depending on your network solution, as follows:

- Place all IRF member switches in one rack for centralized high-density access.
- Distribute the IRF member switches in different racks to implement the ToR access solution for a data center.

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#### NOTE:

For the maximum IRF member devices supported by the switch, see the release notes that come with the switch.

---

### Identifying the master switch and planning IRF member IDs

Determine which switch you want to use as the master for managing all member switches in the IRF fabric.

An IRF fabric has only one master switch. You configure and manage all member switches in the IRF fabric at the CLI of the master switch. IRF member switches automatically elect a master.

You can affect the election result by assigning a high member priority to the intended master switch. For more information about master election, see the configuration guides and command references for the switch.

Prepare an IRF member ID assignment scheme. An IRF fabric uses member IDs to uniquely identify and manage its members, and you must assign each IRF member switch a unique member ID.

# Planning IRF topology and connections

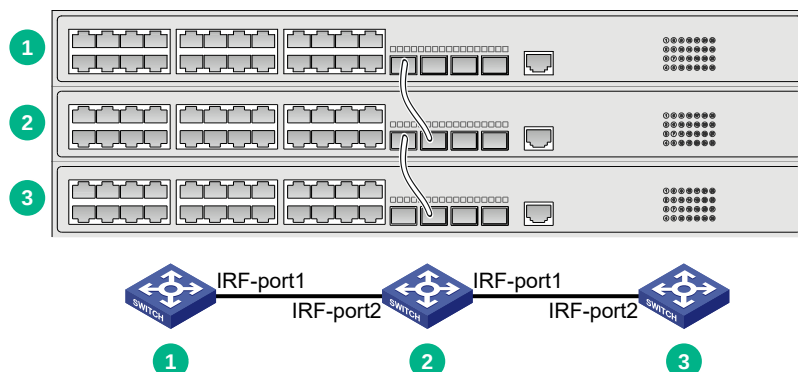
You can create an IRF fabric in daisy chain topology or more reliable ring topology. In ring topology, the failure of one IRF link does not cause the IRF fabric to split as in daisy chain topology. Instead, the IRF fabric changes to a daisy chain topology without interrupting network services.

You connect the IRF member switches through IRF ports, the logical interfaces for the connections between IRF member switches. Each IRF member switch has two IRF ports: IRF-port 1 and IRF-port 2. To use an IRF port, you must bind a minimum of one physical port to it.

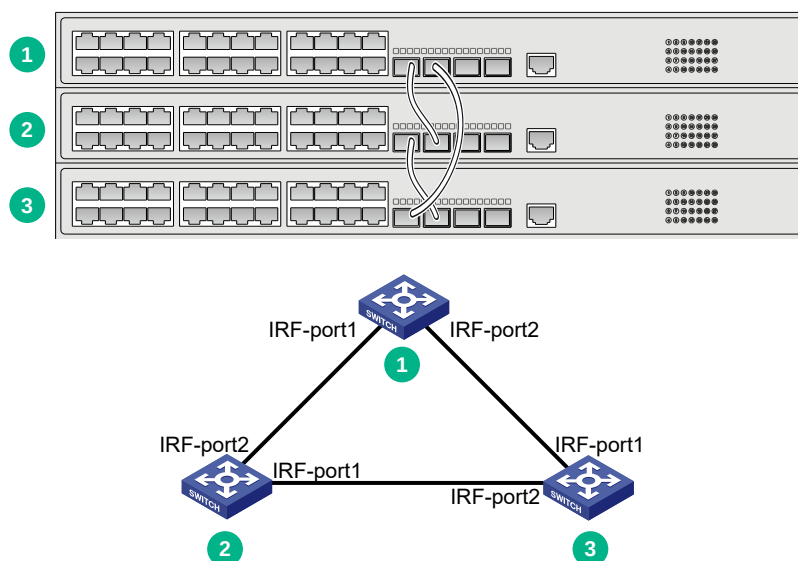
When connecting two neighboring IRF member switches, you must connect the physical ports of IRF-port 1 on one switch to the physical ports of IRF-port 2 on the other switch. See [Table 14](#) for the available IRF physical ports. You can bind several IRF physical ports to an IRF port for increased bandwidth and availability.

[Figure 29](#) and [Figure 30](#) show the topologies of an IRF fabric made up of three SC 3570 switches. The IRF port connections in the two figures are for illustration only, and more connection methods are available.

**Figure 29 IRF fabric in daisy chain topology**



**Figure 30 IRF fabric in ring topology**



# Identifying physical IRF ports on the member switches

Identify the physical IRF ports on the member switches according to your topology and connection scheme.

Table 14 shows the physical ports that can be used for IRF connection and the port use restrictions.

**Table 14 Candidate physical IRF ports and their use restrictions**

| Chassis                                                                | Candidate physical IRF ports                                                                                                                          | Use restrictions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SC 3570-48S-6X                                                         | <ul style="list-style-type: none"><li>SFP+ ports on the front panel</li><li>SFP ports</li></ul>                                                       | <ul style="list-style-type: none"><li>Physical ports on interface modules and the front panel can be bound to the same IRF logical interface.</li><li>All physical ports to be bound to an IRF logical interface must have the same data rate.</li><li>A 10/100/1000BASE-T autosensing Ethernet port or SFP port can be used as an IRF physical port only when it operates at 1 Gbps.</li><li>A 100BASE-TX/1000BASE-T/2.5GBASE-T autosensing Ethernet port can be used as an IRF physical port only when it operates at 2.5 Gbps.</li><li>An SFP+ port can be used as an IRF physical port only when it operates at 10 Gbps.</li><li>For a switch that has six SFP+ ports, use the four SFP+ ports with the highest numbers as IRF ports. For a switch that has four SFP+ ports, use the two SFP+ ports with the highest numbers as IRF ports. Using these ports as IRF ports can prevent issues such as IRF split, because IRF protocol packets from these ports can be forwarded in a queue with a higher priority.</li></ul> |
| SC 3570-24G-4X<br>SC 3570-48G-6X<br>SC 3570-24GP-4X<br>SC 3570-48GP-6X | <ul style="list-style-type: none"><li>SFP+ ports on the front panel</li><li>10/100/1000BASE-T autosensing Ethernet ports on the front panel</li></ul> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

## Planning the cabling scheme

Use the following cables to connect the IRF physical ports on the switch:

- 10/100/1000BASE-T autosensing Ethernet port**—Category 5 or above twisted-pair cable.
- 100BASE-TX/1000BASE-T/2.5GBASE-T autosensing Ethernet port**—Category 5e or above twisted-pair cable.
- SFP port**—GE SFP fiber transceiver module and optical fiber, GE SFP copper transceiver module and twisted pair cable or GE SFP cable. For the available transceiver models and cables, see ports in *Intelbras SC 3570 Switch Series Hardware Information and Specifications*.
- SFP+ port**—SFP+ fiber transceiver module and optical fiber or SFP+ cable. For the available transceiver models and cables, see ports in *Intelbras SC 3570 Switch Series Hardware Information and Specifications*.

For a short-distance IRF connection in an equipment room, use a twisted pair/SFP+/SFP cable.

For a long-distance IRF connection, use transceiver modules and optical fibers.

The following subsections describe several Intelbras recommended IRF connection schemes by using SFP+ cables and SFP+ transceiver modules and fibers. All these schemes use a ring topology.

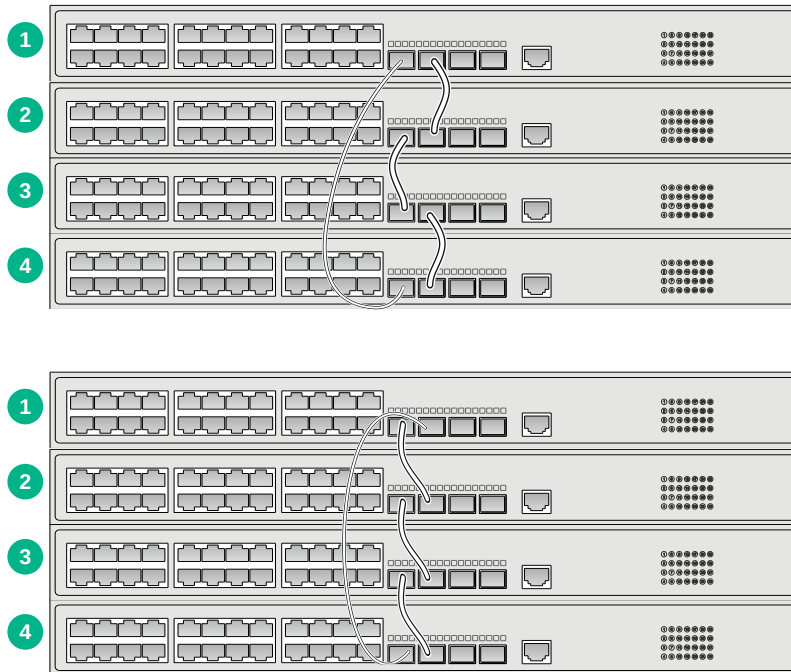
**! IMPORTANT:**

In these schemes, all physical IRF ports are located on the same side. If physical IRF ports are on different sides, you must measure the distance between them to select an appropriate cable.

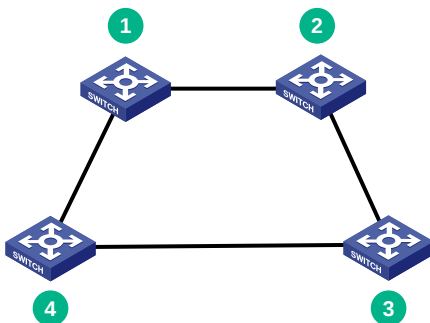
### Connecting the IRF member switches in one rack

Connect the IRF member switches (4 switches in this example) in a rack as shown in [Figure 31](#). The switches in the ring topology (see [Figure 32](#)) are in the same order as connected in the rack.

**Figure 31 Connecting the switches in one rack**



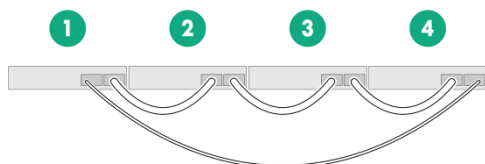
**Figure 32 IRF fabric topology**



## Connecting the IRF member switches in a ToR solution

You can install IRF member switches in different racks side by side to deploy a top of rack (ToR) solution.

Figure 33 ToR cabling



## Configuring basic IRF settings

After you install the IRF member switches, power on the switches, and log in to each IRF member switch to configure their member IDs, member priorities, and IRF port bindings.

Follow these guidelines when you configure the switches:

- Assign the master switch higher member priority than any other switch.
- Bind physical ports to IRF port 1 on one switch and to IRF port 2 on the other switch. You perform IRF port binding before or after connecting IRF physical ports depending on the software release.
- To bind the ports on an interface module to an IRF port, you must install the interface module first.
- Execute the `display irf configuration` command to verify the basic IRF settings.

For more information about configuring basic IRF settings, see IRF configuration in the configuration guide for the switch.

## Connecting the physical IRF ports

Connect the IRF member switches as planned.

Wear an ESD wrist strap when you connect cables or transceiver modules and fibers. For how to connect them, see *Intelbras Transceiver Modules and Network Cables Installation Guide*.

## Verifying the IRF fabric setup

To verify the basic functionality of the IRF fabric after you finish configuring basic IRF settings and connecting IRF ports:

1. Log in to the IRF fabric through the console port of any member switch.
2. Create a Layer 3 interface, assign it an IP address, and make sure the IRF fabric and the remote network management station can reach each other.
3. Use Telnet, web, or SNMP to access the IRF fabric from the network management station. (See the configuration guides and command references for the switch.)
4. Verify that you can manage all member switches as if they were one node.
5. Display the running status of the IRF fabric by using the commands in [Table 15](#).

**Table 15 Displaying and maintaining IRF configuration and running status**

| Task                                                                  | Command                          |
|-----------------------------------------------------------------------|----------------------------------|
| Display information about the IRF fabric.                             | <b>display irf</b>               |
| Display all members' IRF configurations that take effect at a reboot. | <b>display irf configuration</b> |
| Display IRF fabric topology information.                              | <b>display irf topology</b>      |

**NOTE:**

To avoid IP address collision and network problems, configure a minimum of one multi-active detection (MAD) mechanism to detect the presence of multiple identical IRF fabrics and handle collisions. For more information about MAD detection, see IRF configuration in the configuration guides for the switch.

# Maintenance and troubleshooting

## Power supply failure

### Removable power supply failure

The SC 3570 switch series uses removable power supplies.

- **SC 3570-24G-4X, SC 3570-48G-6X, SC 3570-24S-8G-4X, and SC 3570-48S-6X**—You can observe the power supply status LEDs (PWR1 and PWR2) on the switch to identify power supply failure.
- **SC 3570-24GP-4X and SC 3570-48GP-6X**—You can observe the power supply status LEDs (PWR1 and PWR2) on the switch in combination with the status LEDs on the power supplies to identify power supply failure.

#### Symptom

The status LED indicates a power supply failure.

#### Solution

To resolve the issue:

1. Verify that the power supply model is as required by the switch.
2. Verify that the power supply is securely installed in the switch.
3. Verify that the power cord is connected correctly.
4. Verify that the power source is operating correctly.
5. Verify that the electrical outlet is operating correctly.
6. Verify that the operating temperature of the switch is in an acceptable range and the power supply has good ventilation.
7. If the issue persists, contact Intelbras Support.

To replace a power supply, see "[Installing and removing a power supply](#)."

## Fan tray failure

#### Symptom

The system status LED on the switch indicates a fan tray failure.

#### Solution

When a fan tray issue occurs, contact Intelbras Support.

## Configuration terminal display issues

If the configuration environment setup is correct, the configuration terminal displays booting information when the switch is powered on. If the setup is incorrect, the configuration terminal displays nothing or garbled text.

# No display

## Symptom

The configuration terminal does not have display when the switch is powered on.

## Solution

To resolve the issue:

1. Verify that the power supply is supplying power to the switch correctly.
2. Verify that the console cable is correctly connected.
3. Verify that the console cable does not have any issues and the terminal settings are correct.
4. If the issue persists, contact Intelbras Support.

# Garbled display

## Symptom

The display on the configuration terminal is garbled.

## Solution

To resolve the issue:

1. Verify that the following settings are configured for the terminal:
  - **Baud rate**—9,600.
  - **Data bits**—8.
  - **Stop bits**—1.
  - **Parity**—None.
  - **Flow control**—None.
2. If the issue persists, contact Intelbras Support.

## Warranty term

It is expressly stated that this contractual guarantee is granted subject to the following conditions:

1. All parts, pieces and components of the product are guaranteed against any manufacturing defects that may occur, for a period of 3 (three) years – 3 (three) months of legal warranty and 33 (thirty-three) months of contractual warranty -, counted from the date of delivery of the product to the Consumer, as stated on the product purchase invoice, which is an integral part of this Term throughout the national territory. This contractual warranty includes the free exchange of parts, pieces and components that present manufacturing defects, including the labor used in this repair. If no manufacturing defect is found, but rather defect(s) arising from inappropriate use, the Consumer will bear these expenses.
2. Installation of the product must be carried out in accordance with the Product Manual and/or Installation Guide. If your product requires installation and configuration by a qualified technician, look for a suitable and specialized professional, as the costs of these services are not included in the value of the product.
3. In the event that the Consumer requests home assistance, he or she must go to the nearest Authorized Service to consult the technical visit fee. If it is found necessary to remove the product, the costs resulting from transport and security to and from the product are the responsibility of the Consumer.
4. In the event that the Consumer requests home assistance, he or she must go to the nearest Authorized Service to consult the technical visit fee. If it is found necessary to remove the product, the resulting expenses, such as transport and security to and from the product, are the responsibility of the Consumer.
5. The guarantee will completely lose its validity in the occurrence of any of the following hypotheses: a) if the defect is not manufacturing, but caused by the Consumer or by third parties outside the manufacturer; b) if damage to the product arises from accidents, accidents, acts of nature (lightning, floods, landslides, etc.), humidity, voltage in the electrical network (overvoltage caused by accidents or excessive fluctuations in the network), installation/use in disagreement with the user manual or resulting from natural wear and tear of parts, pieces and components; c) if the product has been influenced by a chemical, electromagnetic, electrical or animal nature (insects, etc.); d) if the product's serial number has been tampered with or erased; e) if the equipment has been tampered with.
6. This warranty does not cover loss of data, therefore, it is recommended, if applicable to the product, that the Consumer makes a regular backup copy of the data contained in the product.
7. Intelbras is not responsible for the installation of this product, nor for any attempts at fraud and/or sabotage in its products. Keep the software and applications used up to date, if applicable, as well as the necessary network protections to protect against intrusions (hackers). The equipment is guaranteed against defects within its normal conditions of use, and it is important to be aware that, as it is electronic equipment, it is not free from fraud and scams that could interfere with its correct functioning.

The contractual guarantee of this term is complementary to the legal one, therefore, Intelbras S/A reserves the right to change the general, technical and aesthetic characteristics of its products without prior notice.

These being the conditions of this complementary Warranty Term, Intelbras S/A reserves the right to change the general, technical and aesthetic characteristics of its products without prior notice.

## Termo de garantia

Fica expresso que esta garantia contratual é conferida mediante as seguintes condições:

1. Todas as partes, peças e componentes do produto são garantidos contra eventuais defeitos de fabricação, que porventura venham a apresentar, pelo prazo de 3 (três) anos – sendo 3 (três) meses de garantia legal e 33 (trinta e três) meses de garantia contratual –, contado a partir da data de entrega do produto ao Senhor Consumidor, conforme consta na nota fiscal de compra do produto, que é parte integrante deste Termo em todo o território nacional. Esta garantia contratual compreende a troca gratuita de partes, peças e componentes que apresentarem defeito de fabricação, incluindo a mão de obra utilizada nesse reparo. Caso não seja constatado defeito de fabricação, e sim defeito(s) proveniente(s) de uso inadequado, o Senhor Consumidor arcará com essas despesas.
2. A instalação do produto deve ser feita de acordo com o Manual do Produto e/ou Guia de Instalação. Caso seu produto necessite a instalação e configuração por um técnico capacitado, procure um profissional idôneo e especializado, sendo que os custos desses serviços não estão inclusos no valor do produto.
3. Na eventualidade de o Senhor Consumidor solicitar atendimento domiciliar, deverá encaminhar-se ao Serviço Autorizado mais próximo para consulta da taxa de visita técnica. Caso seja constatada a necessidade da retirada do produto, as despesas decorrentes de transporte e segurança de ida e volta do produto ficam sob a responsabilidade do Senhor Consumidor.
4. Na eventualidade de o Senhor Consumidor solicitar atendimento domiciliar, deverá encaminhar-se ao Serviço Autorizado mais próximo para consulta da taxa de visita técnica. Caso seja constatada a necessidade da retirada do produto, as despesas decorrentes, como as de transporte e segurança de ida e volta do produto, ficam sob a responsabilidade do Senhor Consumidor.
5. A garantia perderá totalmente sua validade na ocorrência de quaisquer das hipóteses a seguir: a) se o vício não for de fabricação, mas sim causado pelo Senhor Consumidor ou por terceiros estranhos ao fabricante; b) se os danos ao produto forem oriundos de acidentes, sinistros, agentes da natureza (raios, inundações, desabamentos, etc.), umidade, tensão na rede elétrica (sobretensão provocada por acidentes ou flutuações excessivas na rede), instalação/uso em desacordo com o manual do usuário ou decorrentes do desgaste natural das partes, peças e componentes; c) se o produto tiver sofrido influência de natureza química, eletromagnética, elétrica ou animal (insetos, etc.); d) se o número de série do produto tiver sido adulterado ou rasurado; e) se o equipamento tiver sido violado.
6. Esta garantia não cobre perda de dados, portanto, recomenda-se, se for o caso do produto, que o Consumidor faça uma cópia de segurança regularmente dos dados que constam no produto.
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