



# **Intelbras PSR450 Power Module Series User Manual**

# Intelbras PSR450 Power Module Series User Manual

## Overview

PSR450 power module series include PSR450-12A, PSR450-12A1, PSR450-12AHD, and PSR450-12D. The PSR450-12A, PSR450-12A1, and PSR450-12AHD power modules support AC and high-voltage DC inputs, and the PSR450-12AHD supports 240V/336V high-voltage DC input. The PSR450-12D supports DC input. They can provide a maximum output of 450 W. The PSR450-12A provides power module-side intake and port-side exhaust airflows. The PSR450-12A1, PSR450-12AHD, and PSR450-12D provides port-side intake and power module-side exhaust airflows.

The power modules provide the following features:

- **Self-protection**—The power modules provide output overvoltage, output current limiting, output short circuit, overtemperature, and input undervoltage protections. See the following table for the protection and auto-recovery features of the power Rated input current modules.
- **Redundancy**—Two power modules can be connected in parallel to achieve 1+1 redundancy and load sharing.
- **Hot swapping**—You can remove one of the two power modules in 1+1 redundancy while the device is operating.

Protection function	Protection state	Support for auto-recovery
Output overvoltage protection	The power module does not supply power, and the power module status LED is steady red.	No. Power supply can restore only when you reconnect the power cord to the power source
Output current limiting protection	The power module does not supply power, and the power module status LED is steady red.	Power supply restores after the output current decreases to an acceptable range.
Output short circuit protection	The power module does not supply power, and the power module status LED is steady red.	Power supply restores after the output current decreases to an acceptable range.
Overtemperature protection	The power module does not supply power, and the power module status LED is steady red.	Power supply restores after the output current decreases to an acceptable range.
Input undervoltage protection	The power module does not supply power, and the power module status LED is flashing red.	Power supply restores after the output current decreases to an acceptable range.

## Technical specifications

Whether the power module supports high-voltage DC input depends on the device model. For information, see hardware information and specifications for the device.

Item		Specifications	
		PSR450-12A/PSR450- 12A1	PSR450-12AHD
AC input	Rated input voltage	100 to 240 VAC @ 50 or 60 Hz	100 to 240 VAC @ 50 or 60 Hz
	Rated input current	6 A	6 A
	Max input voltage	90 to 290 VAC @ 47 to 63 Hz	90 to 290 VAC @ 47 to 63 Hz
	Max input current	7 A	7 A
High-voltage DC input	Rated input voltage	240 VDC	240 to 380 VDC
	Rated input current	3 A	3 A
	Max input voltage	180 to 320 VDC	180 to 400 VDC
	Max input current	3.5 A	3.5 A
Output voltage		12 V/3.3 V	12 V/3.3 V
Output current		37.5 A (12 V)/2 A (3.3 V)	37.5 A (12 V)/2 A (3.3 V)
Max output power		450 W	450 W
Dimensions (H × W × D)		40.2 × 50.5 × 221 mm (1.58 × 1.99 × 8.70 in)	40.2 × 50.5 × 221 mm (1.58 × 1.99 × 8.70 in)
Operating temperature		−10°C to +55°C (14°F to 131°F)	−10°C to +55°C (14°F to 131°F)
Relative humidity		5% to 95%	5% to 95%

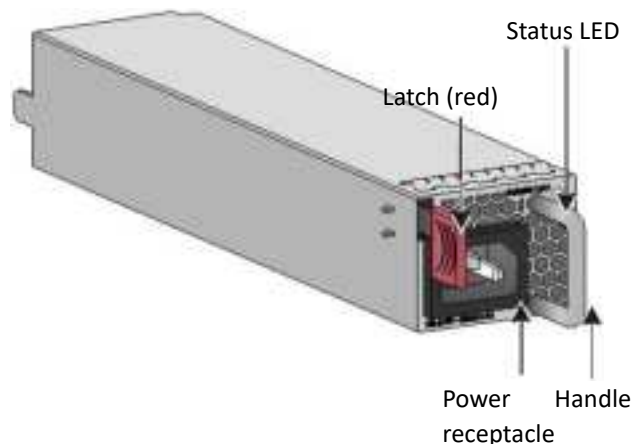
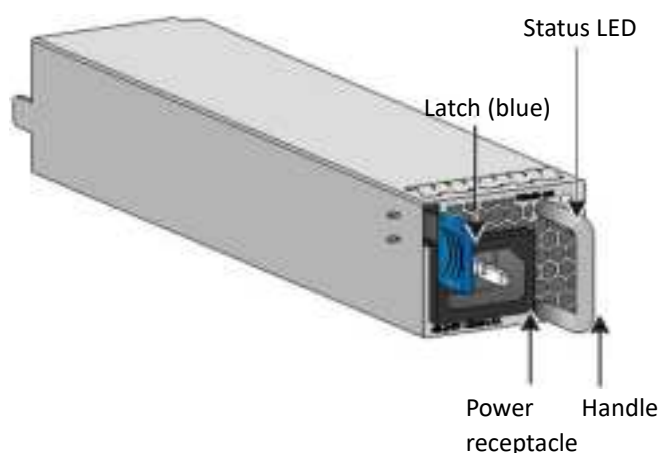
Item		Specifications
		PSR450-12D
AC input	Rated input voltage	48 to -60 VDC
	Rated input current	12 A (48 VDC) 10 A (60 VDC)
	Max input voltage	-36 to -72 VDC
	Max input current	15 A
Output voltage		12 V/3.3 V
Output current		37.5 A (12 V)/2 A (3.3 V)
Max output power		450 W
Dimensions (H × W × D)		40.2 × 50.5 × 221 mm (1.58 × 1.99 × 8.70 in)
Operating temperature		-10°C to +55°C (14°F to 131°F)
Relative humidity		5% to 95%

## Views

A blue latch indicates power module-side intake and port-side exhaust airflows. A red latch indicates port-side intake and power module-side exhaust airflows.

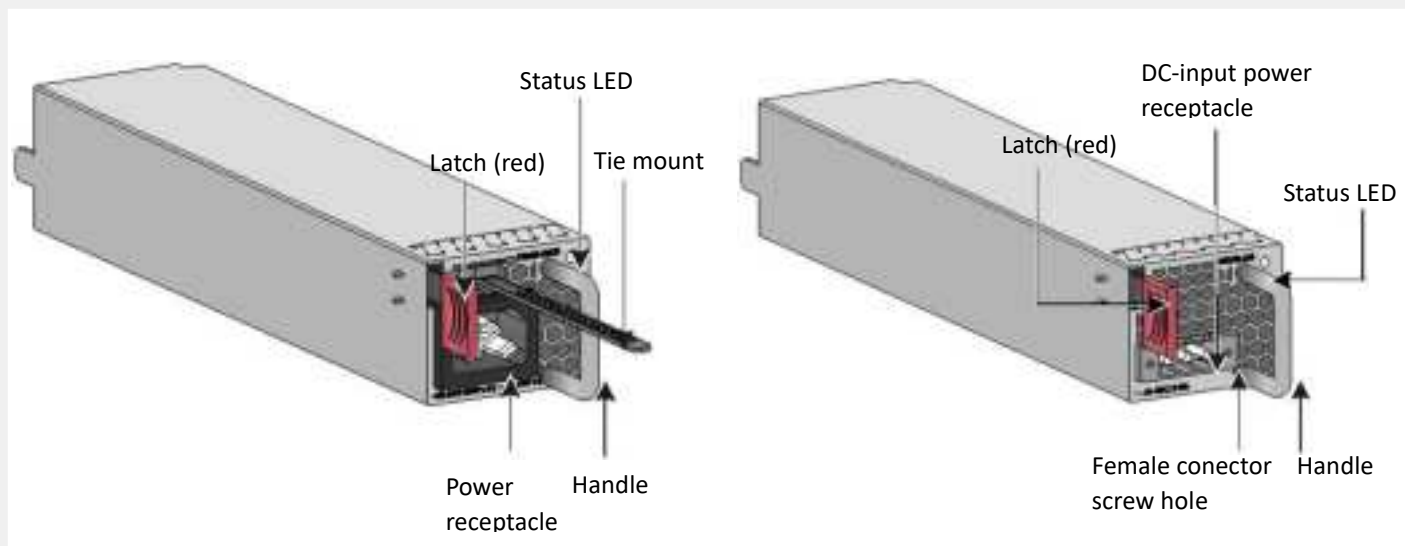
PSR450-12A

PSR450-12A1



PSR450-12AHD

PSR450-12D



## LEDs

The power module has a status LED on its front panel.

The following table provides the LED description.

LED status	Description
Steady green	The power module is operating correctly.
Flashing green	The power module has power input but is not installed in the device.
Steady red	
Red/Green flashing alternatively	The power module has generated an alarm for power problems (such as output overcurrent, output overload, and overtemperature), but has not entered protection state.
Flashing red	<ul style="list-style-type: none"> <li>The power module does not have power input. If two power modules are installed and only one power module has power input, the status LED of the power module that does not have power input flashes red.</li> <li>The power module is in input undervoltage protection</li> </ul>
Off	The power module does not have power input.

## Safety guidelines

To prevent device damage and bodily injury, follow these restrictions and guidelines when you install or remove the power module:

- Before you install a power module, make sure its airflow direction is as required.
- Do not install power modules that provide different airflow directions on the same device.
- Always wear an ESD wrist strap and make sure it makes good skin contact.
- Before installing a power module, make sure the voltage of the power source is as required by the power module, and the output voltage of the power module is as required by the device.
- Do not touch any bare cables or terminals.
- Do not place the power module in a wet area, and prevent liquid from flowing into the power module.
- To avoid power module damage, do not open the power module. When the internal circuits or components of the power module fail, contact Intelbras Support

## Tools

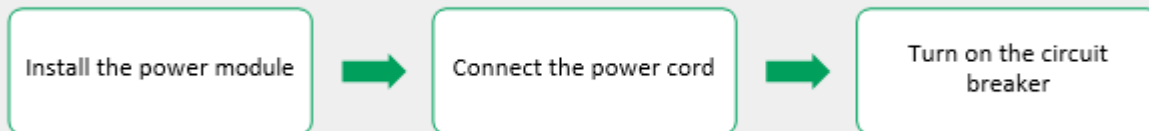
No ESD wrist strap is provided with the power module. Prepare it yourself.

## Installing and removing the power module

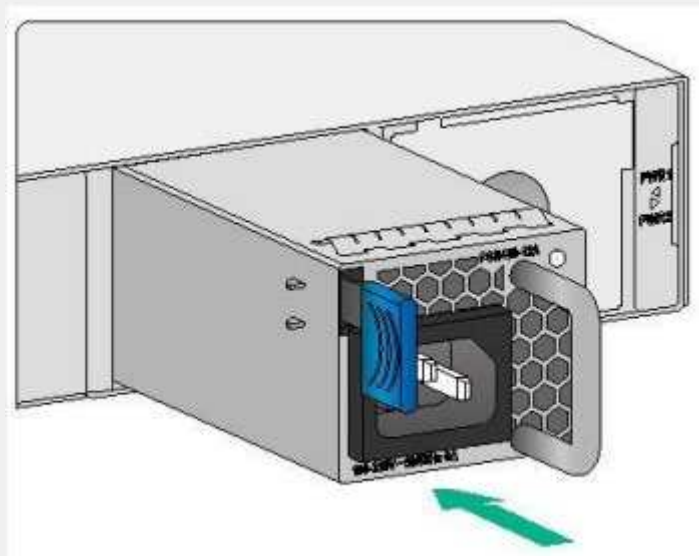
- The installation and removal procedures for the PSR450 power modules are similar. The following procedures use a PSR450-12A power module as an example
- Make sure the power module is compatible with the device. For information about the compatibility matrix between power modules and the device, see the installation guide for the device.

## 1 Installing the power module

To avoid bodily injury or device damage, follow the steps in the following figure to install the power module.



- ① Wear an anti-static wrist strap, make sure that the anti-static wrist strap is in good contact with the skin, and confirm that the anti-static wrist strap is well grounded.
- ② Remove the filler panel, if any, from the target power module slot. Keep the removed filler panel secure for future use.
- ③ Unpack the power module and verify that the power module model is as required. Keep the power Module package secure for future use.
- ④ Correctly orient the power module. Holding the power module handle with one hand and supporting the power module bottom with the other, slide the power module along the guide rails into the slot until you hear a click.



- Make sure the power module makes good contact with the backplane of the device.
- The power module slot has a disorientation rejection structure. If you cannot insert the power module into the slot, re-orient the power module rather than use excessive force to push it in.

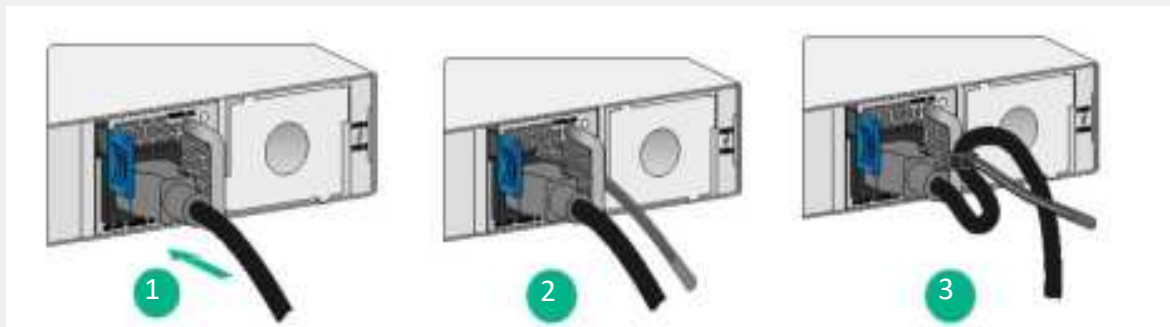
## 2 Connecting the power cord

- Make sure each power cord has a separate circuit breaker.
- Turn off the circuit breaker before connecting the power cord.
- For a PSR450-12D power module, the power cord connector and the receptacle form a disorientation rejection structure. If you cannot insert the connector into the receptacle, the orientation might be wrong. Re-orient the connector rather than use excessive force to push it in.

### ① Connect and secure the power cord to the power module

#### PSR450-12A/PSR450-12A1 power module

For a PSR450-12A or PSR450-12A1 power module, connect the female connector of the power cord to the power receptacle on the power module, and then use a cable tie to secure the power cord to the handle of the power module.





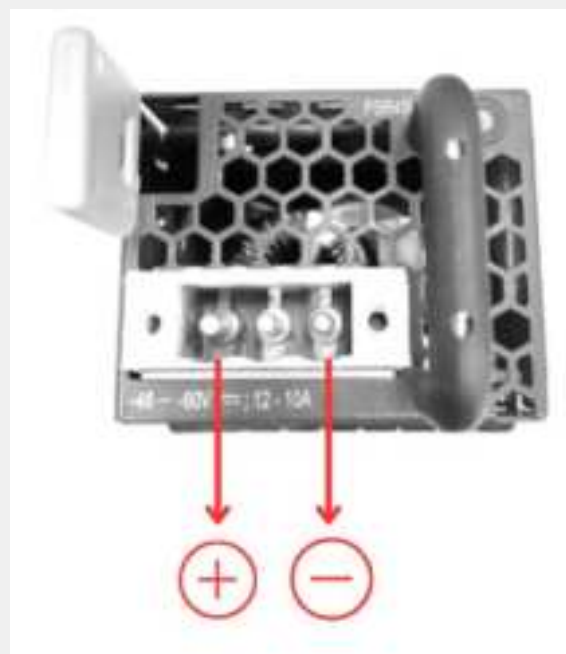
### PSR450-12AHD power module PSR450-12AHD

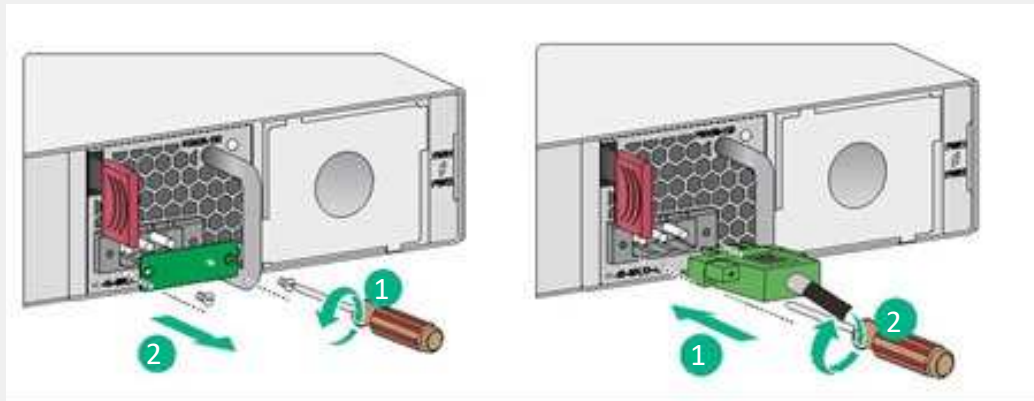
For a PSR450-12AHD power module, slide the cable clamp onto the tie mount, connect the female connector of the power cord to the power receptacle on the power module, and then close the cable clamp and slide it forward until it is flush against the edge of the female connector.



### PSR450-12D power module PSR450-12D

For a PSR450-12D power module, use a flat-head screwdriver to loosen the screws on the protection cover over the power receptacle and then remove the cover. Connect the female connector of the power cord to the power receptacle on the power module, and then fasten the screws on the connector.



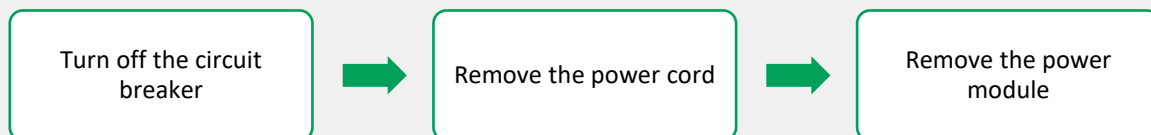


To prevent the power cord from falling off, use a removable cable tie to secure the power cord to the power module handle. For the securing method, see "PSR450-12A/PSR450-12A1 power module."

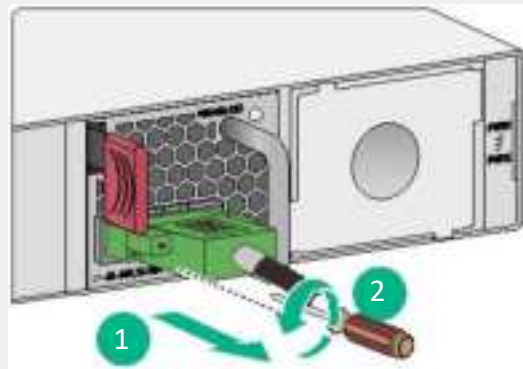
- ② Connect the other end of the power cord to an AC or DC power source, and then turn on the circuit breaker.
- ③ Examine the LED on the power module. If the LED is steady green, the power cord is connected correctly. If the LED is off or red, examine the installation and troubleshoot the problems until the LED becomes steady

### 3 Removing the power module

To avoid bodily injury or device damage, follow the steps in the following figure to remove the power module.

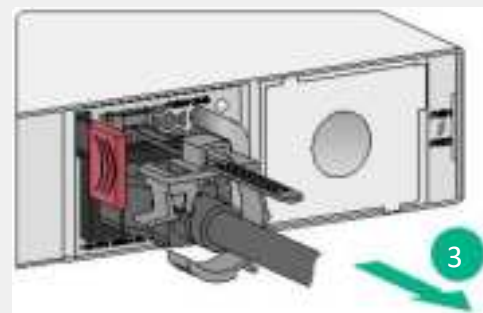
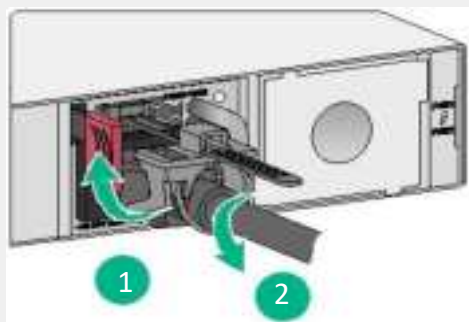


- ① Turn off the circuit breaker for the power feed to the power module.
- ② Wear an ESD wrist strap, and make sure the strap makes good skin contact and is reliably grounded.
- ③ Loosen the removable cable tie, and remove the power cord connector from the power module.



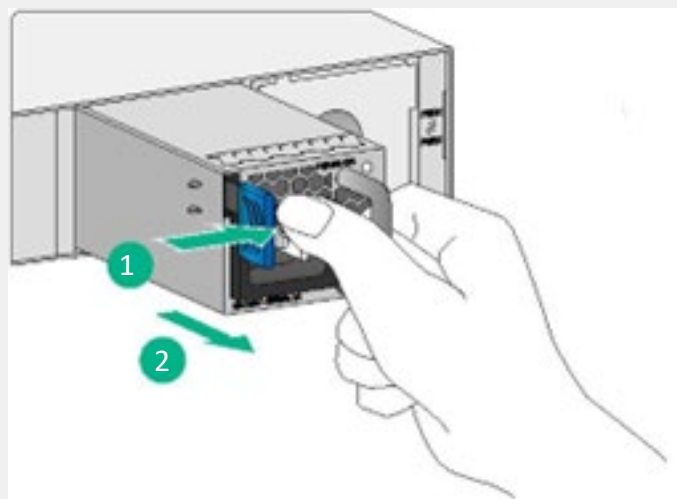
For a PSR450-12D power module, use a flat-head screwdriver to loosen the screws on the connector, and then remove the power cord connector from the power module.

For a PSR450-12AHD power module, release the jaw of the cable clamp and open the cable clamp, and then remove the power cord connector from the power module.



④ Hold the handle of the power module with one hand, press the latch on the power module to the right module with your thumb, and pull the power module part way out of the slot. Supporting the power bottom with one hand, slowly pull the power module out of the slot along the guide rails with the other

⑤ Put the removed power module on an antistatic mat or in its initial package.



If you are not to install a power module in the slot, install a filler panel in the slot to prevent dust from entering the chassis.

Box content: 1 x power supply, 1 x 2 meters Brazil standard power cable

Compatible with: SC 5525 Series, SC 5530 Series.