



Instalation guide
Series SI 3100

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, fan modules and expansion cards are sold separately, according to availability, and are not included with the product.

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1 Preparing for installation

CAUTION:

If the switch is used in a manner not specified by the manufacturer, the protection provided by the switch may be impaired.

Safety recommendations

WARNING!

When the ambient temperature exceeds 60°C (140°F), the outer surface temperature of the switch might exceed 70°C (158°F). You must install the switch in a restricted access area. To avoid burns, take protective measures when working with the switch.

To avoid bodily injury or damage to the switch, read the following safety recommendations carefully before working with the switch. 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.
- Ensure adequate ventilation for the switch and keep the protective vents of the switch unblocked.
- Make sure the power source voltage meets the requirements of the switch.
- To avoid electrical shocks, do not open the chassis while the switch is operating. As a best practice, do not open the chassis even if the switch is powered off.
- When installing the switch, always wear an ESD wrist strap. Make sure the wrist strap makes good skin contact and is reliably grounded.

NOTE:

The switch is a class A device and might cause radio interference in a residential area. Take adequate measures as required.

Examining the installation site

The switch must be installed on a DIN rail. Make sure the DIN rail is strong enough to support the switch and its accessories.

To ensure correct operation and prolong service life of your switch, make sure the installation site has a good ventilation system and meets the following requirements.

Humidity

To ensure correct operation and long service life of your switch, maintain the ambient humidity at the acceptable ranges. For the humidity requirements of the switch, see ["Technical specifications."](#)

- Lasting high relative humidity can cause poor insulation, electricity leakage, mechanical property change of materials, and metal corrosion.
- Lasting low relative humidity can cause washer contraction and ESD and cause problems including loose mounting screws and circuit failure.

EMI

All electromagnetic interference (EMI) sources, from outside or inside of the switch and application system, adversely affect the switch in the following ways:

- A conduction pattern of capacitance coupling.
- Inductance coupling.
- Electromagnetic wave radiation.
- Common impedance (including the grounding system) coupling.

To prevent EMI, use the following guidelines:

- If AC power is used, use a single-phase three-wire power receptacle with protection earth (PE) to filter interference from the power grid.
- Keep the switch far away from radio transmitting stations, radar stations, and high-frequency devices.
- Use electromagnetic shielding, for example, shielded interface cables, when necessary.
- To prevent signal ports from getting damaged by overvoltage or overcurrent caused by lightning strikes, route interface cables only indoors.

Laser safety

WARNING!

The switch is a 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:

- Flat-head screwdriver
- Phillips screwdriver
- ESD wrist strap
- Needle-nose pliers
- Diagonal pliers
- Cable crimping tool

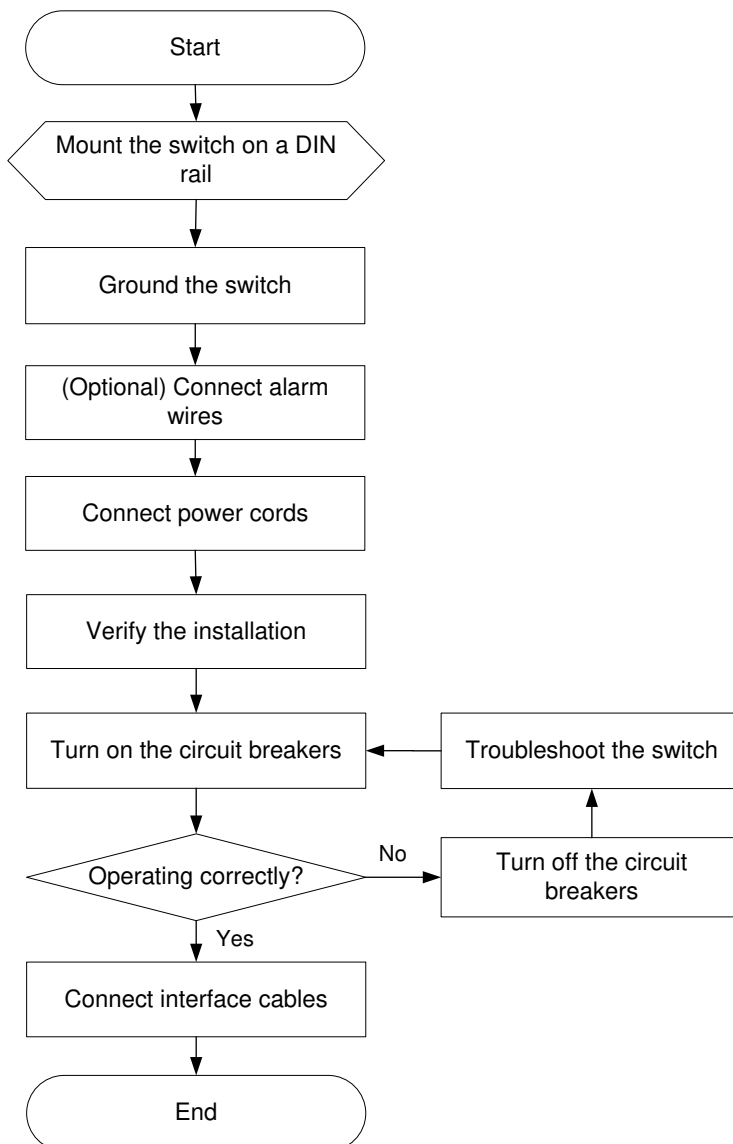
2 Installing the switch

⚠ CAUTION:

- The switch can be used only indoors.
- As a best practice, place the switch in an environment with the mechanical class not above 4M4. Use a cabinet with the IP rating of IPX1 or higher for installing the switch.
- 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.

Installation flowchart

Figure2-1 Installation flowchart

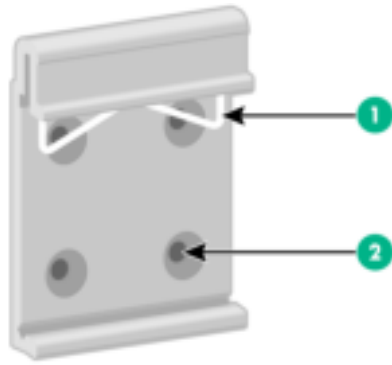


Mounting the switch on a DIN rail

DIN rail mounting bracket

The switch comes with a DIN rail mounting bracket installed on it.

Figure2-2 DIN rail mounting bracket



(1) Metal spring

(2) Screw hole

Installing the switch on a DIN rail

1. Wear an ESD wrist strap. Make sure the wrist strap makes good skin contact and is reliably grounded.
2. As shown by callout 1 in [Figure2-3](#), position the switch so that the spring of the DIN rail mounting bracket compresses against the upper edge of the DIN rail.
3. Rotate the switch down toward the DIN rail until the DIN rail mounting bracket clicks.

Figure2-3 Installing the switch on a DIN rail



Connecting the grounding cable

⚠ WARNING!

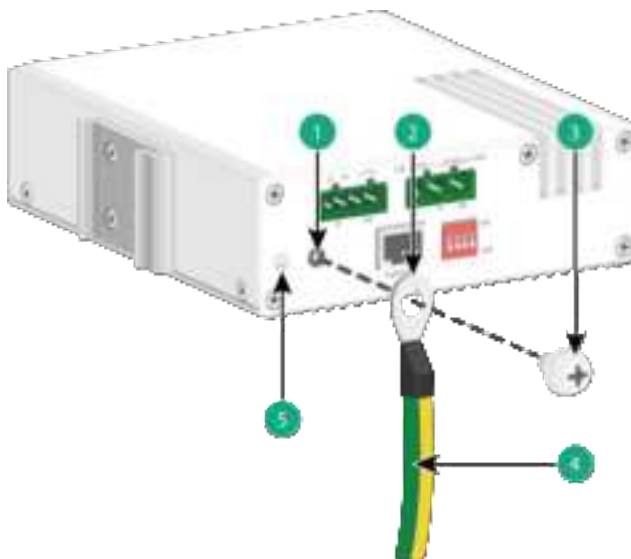
Correctly connecting the grounding cable for the switch is crucial to lightning protection and EMI protection.

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 so the faradism and leakage electricity can be safely released to the earth to minimize EMI susceptibility of the switch.

To connect the grounding cable for the switch:

1. Remove the grounding screw from the switch.
2. Use the grounding screw to attach the ring terminal of the grounding cable to the grounding screw hole. Fasten the screw.
3. Connect the other end of the grounding cable to the grounding system.

Figure2-4 Connecting the grounding cable for the switch



(1) Grounding screw hole	(2) Ring terminal of the grounding cable
(3) Grounding screw	(4) Grounding cable
(5) Grounding sign	

Wiring external alarms

⚠ CAUTION:

- To avoid connection mistakes, identify the positive (+) and negative (-) marks above the alarm connector.
- Before wiring external alarms, make sure the switch is reliably grounded and is powered off.

The switch comes with an alarm connector installed on it. The alarm connector is used for connecting alarm signals to the switch. Before connecting wires to the alarm connector, remove the alarm connector.

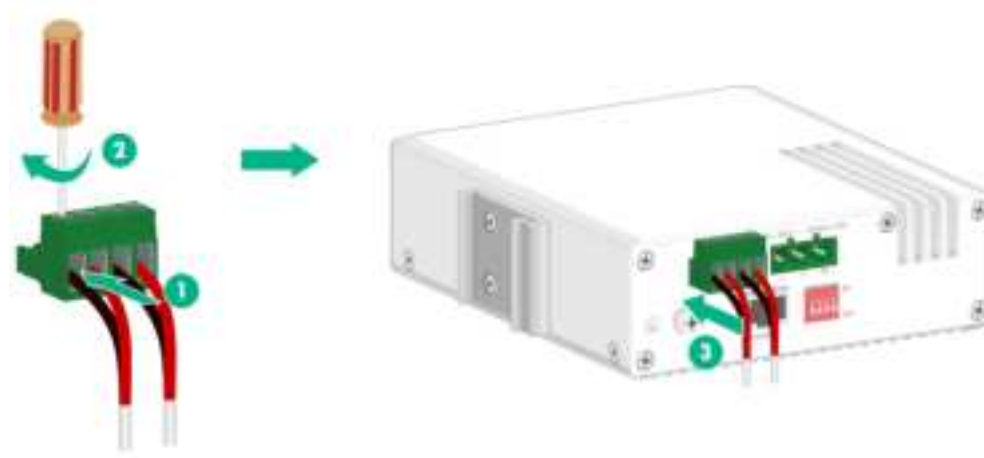
No alarm input and alarm output wires are provided with the switch. Prepare compatible copper wires yourself as required. As a best practice, use AWG23 to AWG12 wires and AWG23 to AWG16 wires for the SI 3100-8G-4S and SI 3100-8GP-4S switches, respectively.

The alarm output connection (DO) outputs alarms by closing or opening the relay contact. It has a current carrying capacity of 1 A/24 VDC and does not support power supply to the connected device.

Wiring external alarms for an SI 3100-8G-4S switch

1. Remove the alarm connector.
2. Position the alarm connector upside up. Then insert the alarm input and output wires into the alarm connector as shown by callout 1 in [Figure2-5](#).
If you orient the alarm connector upside down, you cannot install it on the switch.
3. Use a flat-head screwdriver to fasten the screws at the top of the alarm connector to secure the wires to the connector, as shown by callout 2 in [Figure2-5](#).
The recommended torque is 6 lb.in (0.68 Nm).
4. Attach the alarm connector to the switch, as shown by callout 3 in [Figure2-5](#).
5. Connect the other ends of the input and output wires to an external device.

Figure2-5 Wiring external alarms for an SI 3100-8G-4S switch



NOTE:

The wire colors in the preceding figure are for illustration only.

Wiring external alarms for an SI 3100-8GP-4S switch

1. Use a flat-head screwdriver to loosen the screws on the alarm connector and then remove the alarm connector.
2. Position the alarm connector upside up. Then insert the alarm input and output wires into the alarm connector as shown by callout 1 in [Figure2-6](#).
If you orient the alarm connector upside down, you cannot install it on the switch.
3. Use a flat-head screwdriver to fasten the screws at the bottom of alarm connector to secure the wires to the connector, as shown by callout 2 in [Figure2-6](#).
The recommended torque is 1.7 lb.in (0.19 Nm).
4. Attach the alarm connector to the switch. Then use a flat-head screwdriver to fasten the screws on the alarm connector to secure the connector to the switch.
5. Connect the other ends of the input and output wires to an external device.

Figure2-6 Wiring external alarms for an SI 3100-8GP-4S switch



NOTE:

The wire colors in the preceding figure are for illustration only.

Connecting power cords

⚠ WARNING!

- Make sure each power cord has a separate circuit breaker.
 - Before connecting a power cord, make sure the circuit breaker for the power cord is turned off.
-

An SI 3100-8G-4S switch supports AC power input. An SI 3100-8GP-4S switch supports DC power input. They use a terminal block to connect a power cord.

The switch is shipped with a terminal block connected to each power receptacle.

No power cord is provided with the switch. Prepare compatible copper power wires yourself as required. As a best practice, use AWG26 to AWG12 power wires and AWG18 to AWG16 power wires for the SI 3100-8G-4S and SI 3100-8GP-4S switches, respectively.

Connecting an AC power cord for an SI 3100-8G-4S switch

⚠ WARNING!

Before connecting or removing the AC power cord from the AC power receptacle, turn off the circuit breaker for the power cord.

To connect an AC power cord for an SI 3100-8G-4S switch:

1. Remove the terminal block from the power receptacle.
2. Verify that the switch is disconnected from the power source.
3. Orient the terminal block with upside up and identify the "L", "N", and "PE" connections on the terminal block.
If you orient the terminal block upside down, you cannot insert it into the power receptacle.
4. As shown by callout 1 in [Figure2-7](#), insert the AC wires into the terminal block, with the live wire, natural wire, and the PE wire inserted into the "L", "N", and "PE" connections, respectively.
5. As shown by callout 2 in [Figure2-7](#), use a flat-head screwdriver to fasten the screws of the terminal block to secure the wires to the terminal block.
The recommended torque is 6 lb.in (0.68 Nm).
6. As shown by callout 3 in [Figure2-7](#), connect the terminal block to the AC power receptacle.

7. Turn on the circuit breaker and observe the power status LED on the front panel. If the LED is on, power is being supplied to the switch correctly.

Figure2-7 Connecting an AC power cord for an SI 3100-8G-4S switch



NOTE:

The wire colors in the preceding figure are for illustration only.

Connecting a DC power cord for an SI 3100-8GP-4S switch

⚠ CAUTION:

- As a best practice, use an Intelbras DG-240-55 industrial power supply for an SI 3100-8GP-4S switch.
 - To avoid connection mistakes, identify the positive (+) and negative (-) marks above the DC power receptacle for the terminal block connection.
-

To connect a DC power cord for an SI 3100-8GP-4S switch:

1. Using a flat-head screwdriver, loosen the screws on the terminal block connected to the power receptacle. Then remove the terminal block.
2. Verify that the switch is disconnected from the power source.
3. Orient the terminal block with upside up and identify the positive (+) and negative (-) connections on the terminal block.
If you orient the terminal block upside down, you cannot insert it into the power receptacle.
4. As shown by callout 1 in [Figure2-8](#), insert the wires into the terminal block, with the positive wire to the positive connection and negative wire to the negative connection.
5. As shown by callout 2 in [Figure2-8](#), use a flat-head screwdriver to fasten the screws of the terminal block to secure the wires to the terminal block.
The recommended torque is 1.7 lb.in (0.19 Nm).
6. As shown by callout 3 in [Figure2-8](#), connect the terminal block to the DC power receptacle. Then use a flat-head screwdriver to fasten the screws on the block to secure the block to the power receptacle.

7. Connect the other ends of the wires to an Intelbras DG-240-55 industrial power supply. Then observe the power status LED on the front panel. If the LED is on, power is being supplied to the switch correctly.

Figure2-8 Connecting a DC power cord for an SI 3100-8GP-4S switch



NOTE:

- The wire colors in the preceding figure are for illustration only.
 - The SI 3100-8GP-4S switch supports dual DC power feeds. You can use two Intelbras DG-240-55 industrial power supplies connected in parallel for the switch to achieve 1+1 redundancy.
-

Verifying the installation

After you complete the installation, verify the following information:

- There is enough space around the switch for heat dissipation.
- The DIN rail is securely installed.
- The grounding cable is connected correctly.
- The power source is as required by the switch.
- The power cords are correctly connected.
- If an interface 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.

3 Accessing the switch for the first time

To access the switch for the first time, use a console cable to connect a configuration terminal (a PC for example) to the console port on the switch.

Connecting a terminal to the console port

⚠ CAUTION:

- Identify the marks for the ports and make sure you are connecting the designated ports.
- 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 serial console cable is a shielded cable, with an M12 connector at one end for connecting to the console port on the switch, and a DB-9 female connector at the other end for connecting to the 9-pin serial port on the configuration terminal.

Figure3-1 Serial console cable



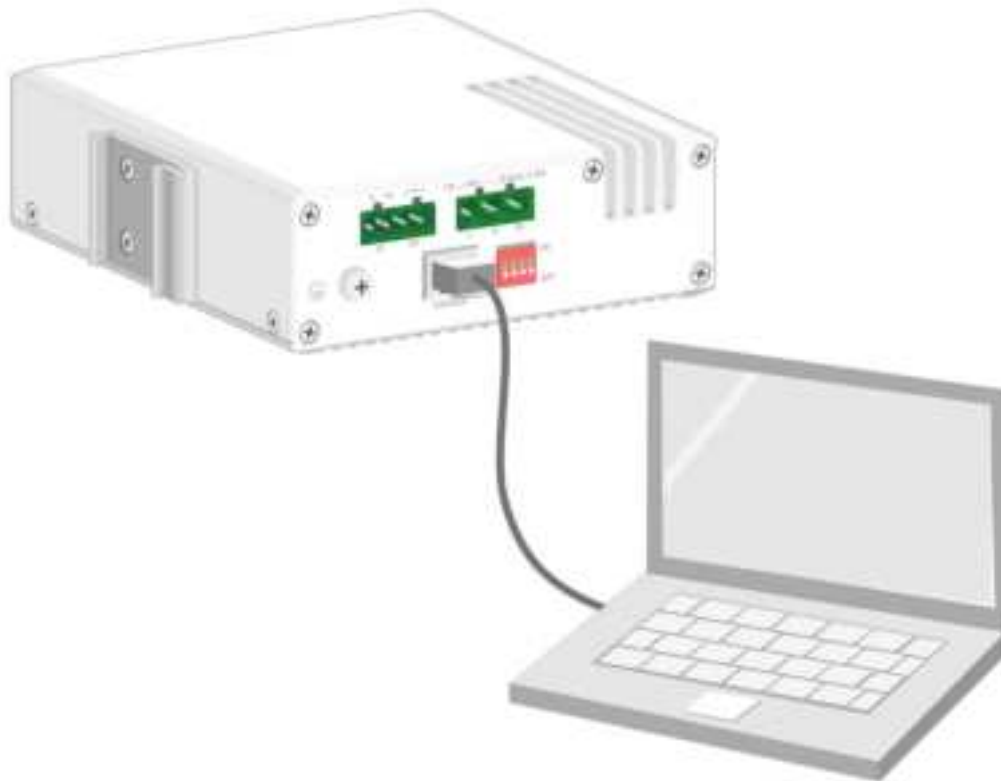
Table3-1 Serial console cable pinouts

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 a terminal (a PC for example) to the serial console port on the switch:

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

Figure3-2 Connecting the console port on the switch to a PC



Setting terminal parameters

To configure and manage the switch through the console port, you must run a terminal emulator program, TeraTermPro or PuTTY, on your PC. For more information about the terminal emulator programs, see the user guides for these programs.

Run the terminal emulator program on our PC and set 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-startup checklist

Before powering on the switch, verify that the following conditions are met:

- The power cord is correctly connected.
- The power source voltage is as required by the switch.
- The console cable is correctly connected.
- The configuration terminal (a PC, for example) has started, and the terminal parameters have been set correctly.

Powering on the switch

To power on the switch, connect the power cord to a power source and then turn on the circuit breaker.

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 vary by software version. For more information about Boot ROM menu options, see the software-matching release notes for the device.

After the startup completes, you can access the CLI to configure the switch. For more information about the configuration commands and CLI, see the configuration guides and command references for the switch series.

4 Setting up an IRF fabric (Stacking)

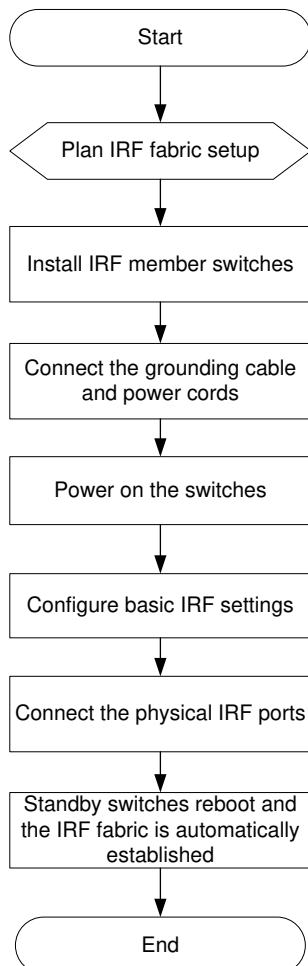
The SI 3100-8G-4S and SI 3100-8GP-4S switches support the Intelbras Intelligent Resilient Framework (IRF) technology. IRF technology can virtualize multiple physical devices at the same layer into one virtual fabric called an "IRF fabric" to provide flattened network topology, and high availability, scalability, and manageability.

The SI 3100-8G-4S and SI 3100-8GP-4S switches can form an IRF fabric only with switches of the same model.

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

Figure4-1 IRF fabric setup flowchart



To set up an IRF fabric:

Step	Description
1. Plan IRF fabric setup	Plan the following items for setting up an IRF fabric: • IRF fabric size • Installation scheme • Master switch • IRF member IDs • IRF physical ports • Fabric topology • IRF connection scheme
2. Install IRF member switches	See " Mounting the switch on a DIN rail. "
3. Connect the grounding cable and power cords	See " Connecting the grounding cable " and " Connecting power cords. "
4. Power on the switches	N/A
5. Configure basic IRF settings	See IRF configuration in <i>Virtual Technologies Configuration Guide</i> in the set of configuration guides for the switch series.
6. Connect the IRF physical ports	Connect IRF physical ports on the IRF member switches. All switches except the master switch automatically reboot, and the IRF fabric is established.

Planning IRF fabric setup

Plan the following items for setting up an IRF fabric:

- [IRF fabric size](#)
- [Installation scheme](#)
- [Master switch](#)
- [IRF member IDs](#)
- [IRF physical ports](#)
- [Fabric topology](#)
- [IRF connection scheme](#)

IRF fabric size

The switching capacity of an IRF fabric equals the total switching capacities of all member switches. Determine the number of IRF member switches based on the network access demands and uplink requirements.

Installation scheme

Determine the installation scheme for the switches based on your network solution:

- 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.

NOTE:

An IRF fabric is highly scalable. You can easily add new member devices to an IRF fabric after the fabric is set up.

Master switch

IRF uses two member roles: master and standby. When devices form an IRF fabric, they elect a master to manage and control the IRF fabric, and all the other devices back up the master. An IRF fabric has only one master switch. When the master device fails, the other devices automatically elect a new master.

Determine which switch you want to use as the master. You can affect the election result by assigning a high member priority to the intended master switch. For more information about the master election, see IRF configuration in *Virtual Technologies Configuration Guide* in the set of configuration guides for the switch series.

IRF member IDs

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.

IRF physical ports

You connect the IRF member switches through IRF interfaces, the logical interfaces for the connections between IRF member switches. Each IRF member switch has two IRF interfaces: IRF-interface 1 and IRF-interface 2. To use an IRF interface, 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-interface 1 on one switch to the physical ports of IRF-interface 2 on the other switch.

The 10/100/1000BASE-T autosensing Ethernet ports and SFP ports on the switch can be used as IRF physical ports. Determine which of these ports are used as IRF physical ports based on your network topology and connection scheme.

The switch can provide GE IRF connections through physical ports, and you can bind several IRF physical ports to an IRF interface for increased bandwidth and availability.

Fabric topology

You can create an IRF fabric in daisy chain topology or more reliable ring topology. In ring topology (as shown in [Figure4-2](#)), the failure of one IRF link does not cause the IRF fabric to split as in daisy chain topology (as shown in [Figure4-3](#)). Instead, the IRF fabric changes to a daisy chain topology without interrupting network services. As a best practice, use a ring topology to create an IRF fabric.

Figure4-2 IRF fabric in ring topology

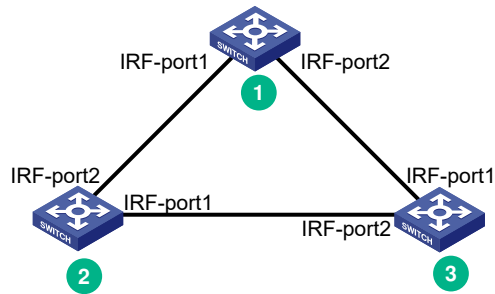
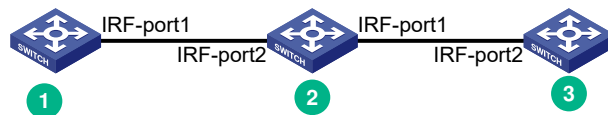


Figure4-3 IRF fabric in daisy chain topology



IRF connection scheme

The cables used for IRF connection depends on the port type.

- **10/100/1000BASE-T autosensing Ethernet port**—Category 5 or above twisted pair cable.
- **SFP port**—SFP transceiver module and fiber or SFP cable. For the available models, see "[SFP port](#)." An SFP cable has a limited length. When the IRF member devices are distant from each other, use SFP modules and optical fibers for connection.

As a best practice, use a ring topology to set up an IRF fabric. The following figures show examples of IRF connection schemes of four switches in a ring topology.

Figure4-4 Switches installed in one rack and interconnected in a ring topology

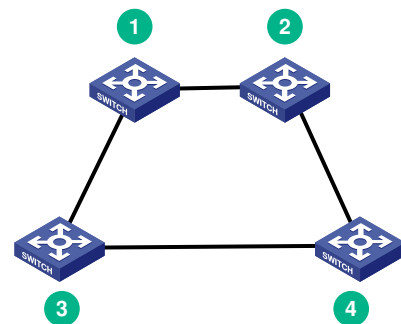
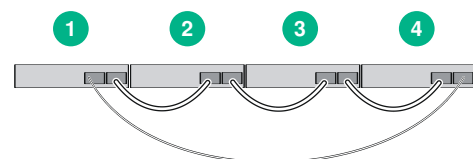


Figure4-5 Switches installed on top of adjacent racks and interconnected in a ring topology



Configuring basic IRF settings

After you install the IRF member switches, power on and log in to each member switch to configure basic IRF settings, including the member ID, member priority (affecting the result of the master selection), and bindings between IRF interfaces and IRF physical ports.

For information about logging in to the switch, see login management configuration in *Fundamentals Configuration Guide* in the set of configuration guides for the switch series.

For information about configuring basic IRF settings, see IRF configuration in *Virtual Technologies Configuration Guide* in the set of configuration guides for the switch series.

Connecting the IRF physical ports

CAUTION:

Wear an ESD wrist strap when you connect the IRF physical ports. Make sure the strap makes good skin contact and is reliably grounded.

Use twisted pair cables, SFP cables, or SFP transceiver modules and fibers to connect the IRF member switches based on the network topology and cabling scheme. For information about connecting the transceiver modules and cables, see *Intelbras Transceiver Modules and Network Cables Installation Guide*.

Accessing the IRF fabric

The IRF fabric appears as one device after it is formed. You configure and manage all IRF members at the CLI of the master. All settings you have made are automatically propagated to the IRF members.

The following methods are available for accessing an IRF fabric:

- **Local login**—Log in through the console port of any member device.
- **Remote login**—Log in at a Layer 3 interface on any member device by using methods including Telnet and SNMP.

When you log in to an IRF fabric, you are placed at the CLI of the master, regardless of at which member device you are logged in.

Verifying the IRF fabric status

Execute **display** commands in any view to verify the IRF fabric status.

Table4-1 Display and maintenance commands for IRF

Task	Command
Display IRF fabric information.	display irf
Display basic IRF settings for each member device.	display irf configuration
Display IRF fabric topology information.	display irf topology

NOTE:

IRF split occurs when an IRF fabric breaks up into multiple IRF fabrics because of IRF link failures. The split IRF fabrics operate with the same IP address. IRF split causes routing and forwarding problems on the network. To quickly detect a multi-active collision, configure a minimum of one MAD mechanism.

5 Maintenance and troubleshooting



WARNING!

An SI 3100-8G-4S switch must be installed, used, and maintained in an area restricted only for trained and qualified technical engineers.

Power failure

An SI 3100-8G-4S switch has an AC power receptacle. An SI 3100-8GP-4S switch uses two DC power receptacles. A power status LED is provided for each power input line to indicate the power input status.

Table5-1 AC power input status LED

Mark	Status	Description
PWR	Steady green	Normal AC power input
	Off	Abnormal or no AC power input

Table5-2 DC power input status LED

Mark	Status	Description
PWR	Steady green	Normal DC power input
	Off	Abnormal or no DC power input

Abnormal or no AC power input

Symptom

The PWR LED for the AC power supply is off.

Resolution

To resolve the issue:

1. Verify that the AC power cord is connectedly correctly. Make sure the AC power receptacle on the switch and the AC power outlet are in good condition.
2. Verify that the external AC power system is operating correctly.
3. Verify that the operating temperature of the switch is in an acceptable range, and adequate ventilation is provided for the switch.
Over-temperature can cause the power supply to stop working and enter self-protection mode.
4. If the issue persists, contact Intelbras Support.

Configuration terminal display issues

No display on the configuration terminal

Symptom

The switch starts up but the configuration terminal does not have any display.

Resolution

To resolve the issue:

1. Verify that the power supply is supplying power correctly to the switch.
2. Verify that the console cable is connected correctly.
3. Verify that the console cable is in good condition.
4. Verify that the terminal settings are correct.
5. If the issue persists, contact Intelbras Support.

Garbled display on the configuration terminal

Symptom

The configuration terminal displays garbled texts.

Resolution

To resolve the issue:

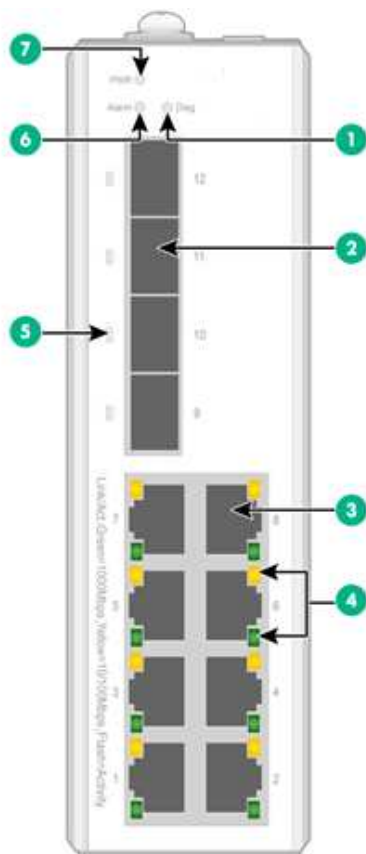
1. Verify that the configuration terminal settings are correct, as follows:
 - o **Baud rate**—9,600.
 - o **Data bits**—8.
 - o **Parity**—None.
 - o **Stop bits**—1.
 - o **Flow control**—None.
2. If the issue persists, contact Intelbras Support.

6 Appendix A Chassis views and technical specifications

Chassis views

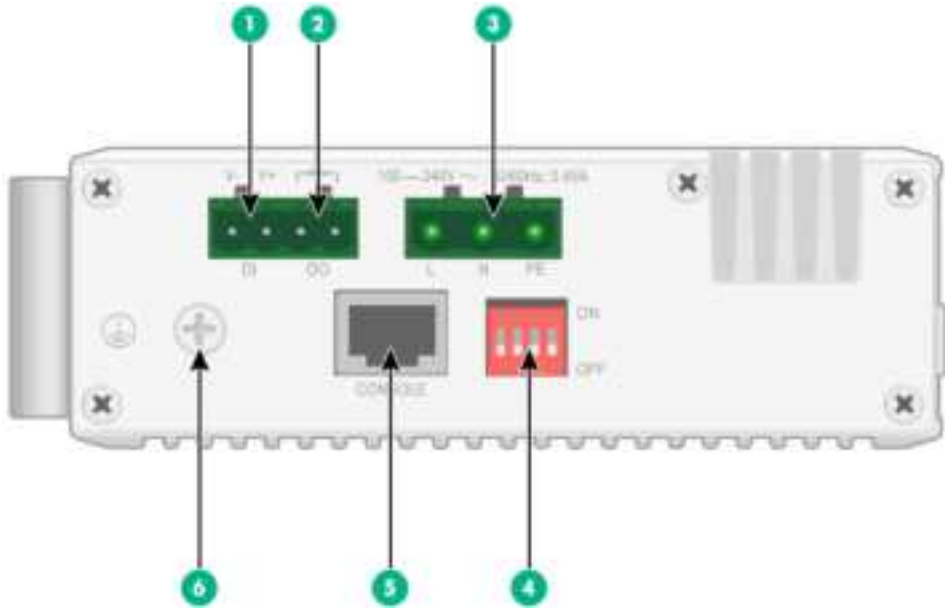
SI 3100-8G-4S

Figure6-1 Front panel



(1) Diag LED	(2) SFP port
(3) 10/100/1000BASE-T autosensing Ethernet port	
(4) 10/100/1000BASE-T autosensing Ethernet port LEDs	
(5) SFP port LED	(6) Alarm LED
(7) Power status LED (PWR)	

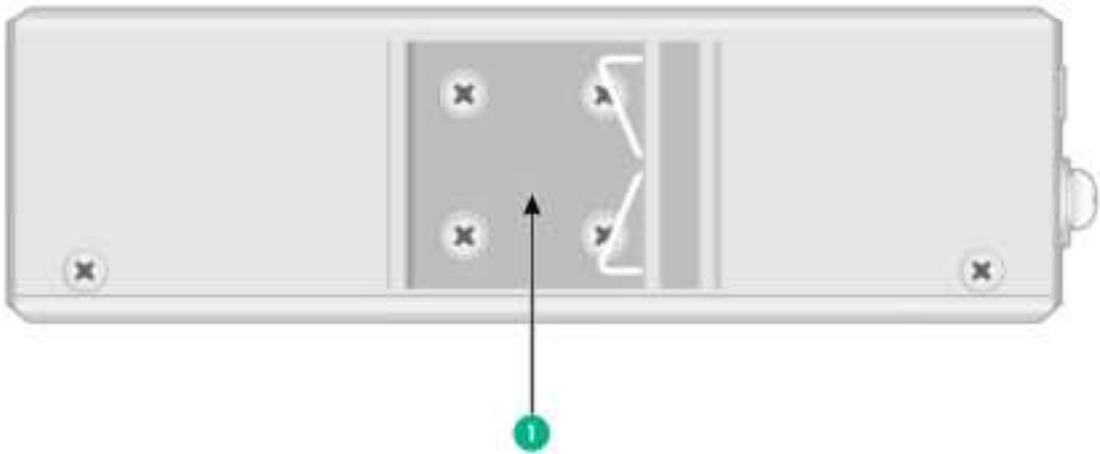
Figure6-2 Top panel



(1) Alarm input connection (DI)	(2) Alarm output connection (DO)
(3) AC power receptacle	
(4) DIP switch (1: Traffic control; 2: Broadcast suppression; 3: Link aggregation; 4: RRPP)	
(5) Console port	(6) Grounding screw

CAUTION:
The SI 3100-8G-4S switch has a caution label on the top panel, indicating that no alarm cable and power cord are provided with the switch. Use only a copper alarm cable and power cord for the switch.

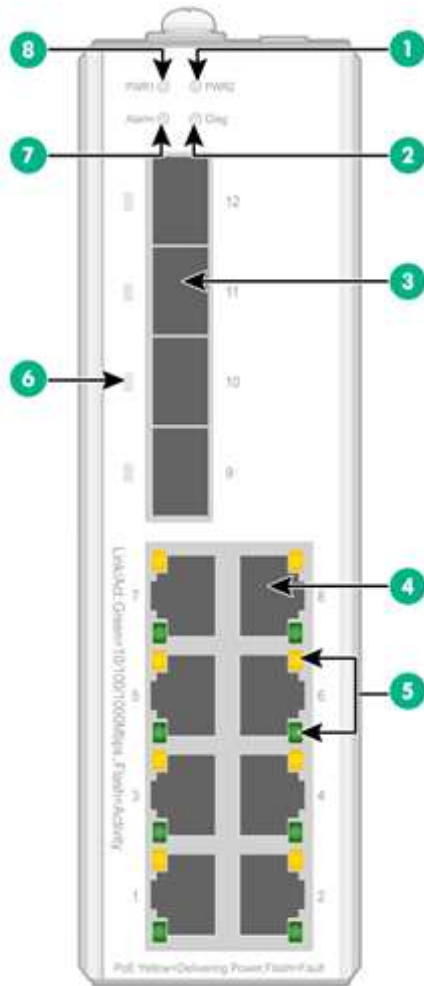
Figure6-3 Rear panel



(1) DIN rail mounting bracket

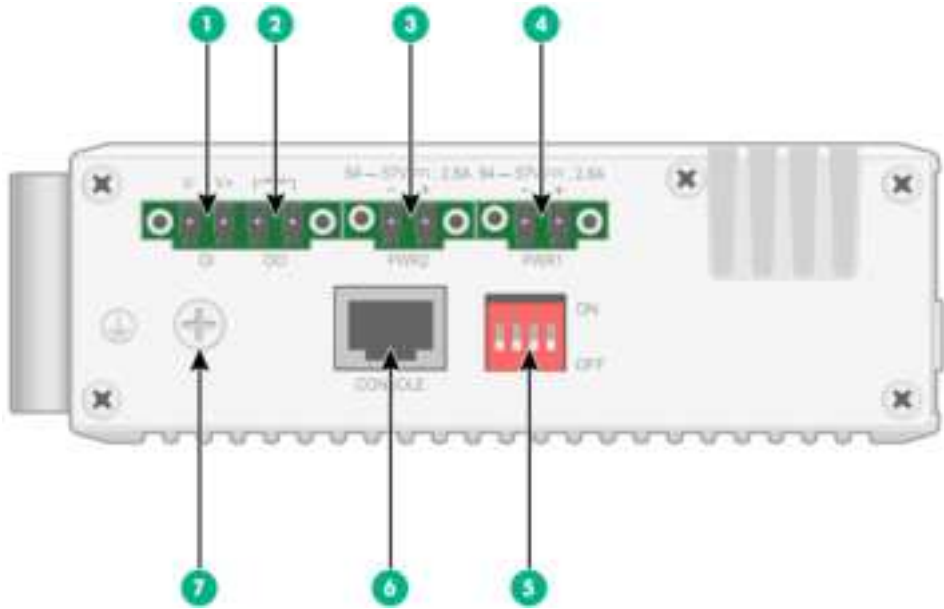
SI 3100-8GP-4S

Figure6-4 Front panel



(1) PWR2 status LED	(2) Diag LED
(3) SFP port	(4) 10/100/1000BASE-T autosensing Ethernet port
(5) 10/100/1000BASE-T autosensing Ethernet port LEDs	
(6) SFP port LED	
(7) Alarm LED	(8) PWR1 status LED

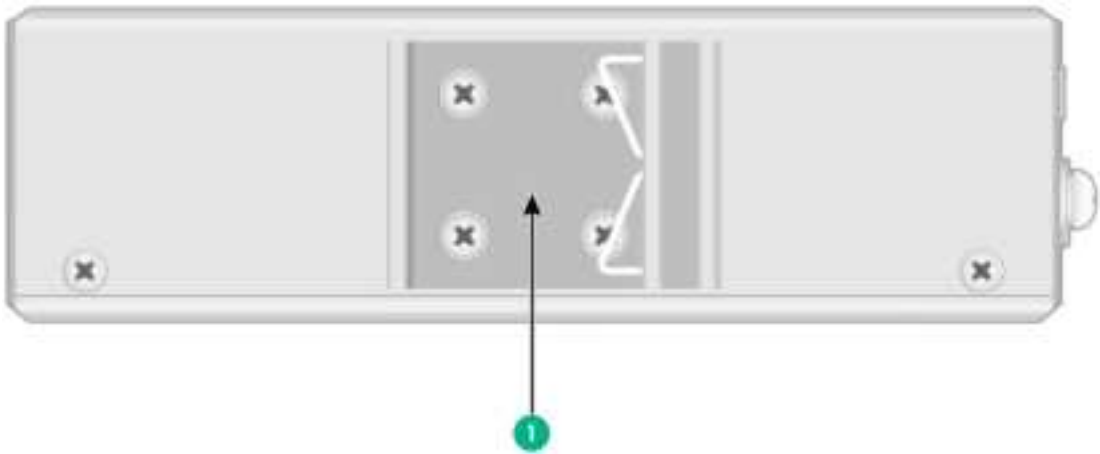
Figure6-5 Top panel



(1) Alarm input connection (DI)	(2) Alarm output connection (DO)
(3) DC power receptacle 2 (PWR2)	(4) DC power receptacle 1 (PWR1)
(5) DIP switch (1: Traffic control; 2: Broadcast suppression; 3: Link aggregation; 4: RRPP)	
(6) Console port	(7) Grounding screw

CAUTION:
The SI 3100-8GP-4S switch has a caution label on the top panel, indicating that no alarm cable and power cord are provided with the switch. Use only a copper alarm cable and power cord for the switch.

Figure6-6 Rear panel



(1) DIN rail mounting bracket

Technical specifications

Table6-1 Technical specifications

Item	SI 3100-8G-4S	SI 3100-8GP-4S
Dimensions (H × W × D)	149 × 44 × 129.8 mm (5.87 × 1.73 × 5.11 in)	149 × 44 × 129.8 mm (5.87 × 1.73 × 5.11 in)
Weight	≤ 1 kg (2.20 lb)	≤ 1 kg (2.20 lb)
Console port	1	1
10/100/1000BASE-T autosensing Ethernet port	8	8 (PoE capable)
SFP port	4	4
Alarm input (DI)	The system detects exceptions of the connected device based on the input voltage changes on the alarm input connection. - State: 1: +13 to +30 V 0: -30 to +3 V - Max. input current: 8 mA	
Alarm output (DO)	Uses a relay for output, with a current carrying capacity of 1A @ 24 VDC The relay outputs alarms by opening or closing the contact.	
DIP switch	1: Enabling or disabling traffic control on the ports 2: Enabling or disabling broadcast suppression on the ports 3: Enabling or disabling link aggregation on ports 9 and 10 4. Enabling or disabling RRPP on ports 11 and 12	
Input voltage	- Rated voltage range: 100 to 240 VAC @ 50 or 60 Hz - Max voltage range: 85 to 264 VAC @ 45 to 65 Hz	- Rated voltage range: 54 to 57 VDC - Max voltage range: 54 to 57 VDC
Max. PoE power per port	N/A	30 W
Total PoE power	N/A	125 W
Minimum power consumption	7 W	- Single DC input: 11 W - Dual DC inputs: 14 W
Maximum power consumption (including PoE power consumption)	12 W	- Single DC input: 141 W - Dual DC inputs: 144 W
Melting current of power supply fuse	6.3 A/250 V	8 A/125 V
Cooling system	Natural cooling without fan trays	
Operating altitude	-60 to +5000 m (-196.85 to +16404.20 ft) The maximum acceptable temperature decreases by 0.33°C (32.59°F) for every 100 m (328.084 ft) increase in altitude from 0 m (0 ft).	
Operating humidity	5% RH to 95% RH, noncondensing	
Ingress protection rating	IP41	IP40
Pollution degree	Degree 2. The switch is for indoor use only.	

Item	SI 3100-8G-4S	SI 3100-8GP-4S
Safety compliance	UL 61010, UL 60950-1, EN 60950-1, IEC 60950-1, GB4943, IEC 62368-1, UL 62368-1, EN 62368-1	

7 Appendix B Ports and LEDs

Ports

Console port

Table7-1 Console port specifications

Item	Specification
Connector type	RJ-45
Compliant standard	EIA/TIA-232
Transmission baud rate	9600 bps (default) to 115200 bps
Services	• Provides connection to an ASCII terminal. • Provides connection to the serial port of a local terminal (PC for example) running a terminal emulation program.

10/100/1000BASE-T autosensing Ethernet port

Table7-2 10/100/1000BASE-T autosensing Ethernet port specifications

Item	Specification
Connector type	RJ-45
Rate and duplex mode	• 10 Mbps, half/full-duplex • 100 Mbps, half/full-duplex • 1000 Mbps, full-duplex
Auto MDI/MDI-X	Supported
Transmission medium and max transmission distance	100 m (328.08 ft) over category-5 or above twisted pair cable
Compliant standard	IEEE 802.3i, 802.3u, 802.3ab

SFP port

Table7-3 GE SFP transceiver modules and cables available for the SFP ports

GE SFP transceiver module and cable	Central wavelength (nm)	Connect or	Cable/Fiber type and diameter (μm)	Modal bandwidth (MHz × km)	Max transmission distance
SFP copper transceiver module					
SFP-GE-T	N/A	RJ-45	Twisted pair cable	N/A	100 m (328.08 ft)
SFP-GE-T-D	N/A	RJ-45	Twisted pair cable	N/A	100 m (328.08 ft)
SFP fiber transceiver module					
SFP-GE-SX-M M850-A	850	LC	Multi-mode, 50/125	500	550 m (1804.46 ft)
				400	500 m (1640.42 ft)
			Multi-mode, 62.5/125	200	275 m (902.23 ft)
				160	220 m (721.78 ft)
SFP-GE-SX-M M850-D	850	LC	Multi-mode, 50/125	500	550 m (1804.46 ft)
				400	500 m (1640.42 ft)
			Multi-mode, 62.5/125	200	275 m (902.23 ft)
				160	220 m (721.78 ft)
SFP-GE-LX-SM 1310-A	1310	LC	Single-mode, 9/125	N/A	10 km (6.21 miles)
			Multi-mode, 50/125	500 or 400	550 m (1804.46 ft)
			Multi-mode, 62.5/125	500	550 m (1804.46 ft)
SFP-GE-LX-SM 1310-D	1310	LC	Single-mode, 9/125	N/A	10 km (6.21 miles)
SFP-GE-LX10-SM1310	1310	LC	Single-mode, 9/125	N/A	10 km (6.21 miles)
SFP-GE-LH40-SM1310	1310	LC	Single-mode, 9/125	N/A	40 km (24.86 miles)
SFP-GE-LH40-SM1310-D	1310	LC	Single-mode, 9/125	N/A	40 km (24.86 miles)
SFP-GE-LH40-SM1550	1550	LC	Single-mode, 9/125	N/A	40 km (24.86 miles)
SFP-GE-LH80-SM1550	1550	LC	Single-mode, 9/125	N/A	80 km (49.71 miles)
SFP-GE-LH80-SM1550-D	1550	LC	Single-mode, 9/125	N/A	80 km (49.71 miles)
SFP-GE-LH100-SM1550	1550	LC	Single-mode, 9/125	N/A	100 km (62.14 miles)
SFP-GE-LX-SM 1310-BIDI	TX: 1310 nm RX: 1490 nm	LC	Single-mode, 9/125	N/A	10 km (6.21 miles)

GE SFP transceiver module and cable	Central wavelength (nm)	Connector	Cable/Fiber type and diameter (μm)	Modal bandwidth (MHz × km)	Max transmission distance
SFP-GE-LX-SM 1490-BIDI	TX: 1490 nm RX: 1310 nm	LC	Single-mode, 9/125	N/A	10 km (6.21 miles)
SFP cable					
SFP-STACK-Kit	N/A				1.5 m (4.92 ft)



IMPORTANT:

The SFP-GE-LX-SM1310-BIDI and SFP-GE-LX-SM1490-BIDI transceiver modules must be used in pairs.

NOTE:

- As a best practice, use Intelbras transceiver modules and cables for the switch.
- The Intelbras transceiver modules and cables are subject to change over time. For the most recent list of Intelbras transceiver modules and cables, contact Intelbras marketing staff or technical support.

LEDs

Power status LED

An SI 3100-8G-4S switch provides an AC power receptacle and uses a power status LED to indicate the power input status. [Table7-4](#) provides the description of the power status LED on the SI 3100-8G-4S switch.

An SI 3100-8GP-4S switch provides two DC power receptacles and uses a power status LED for each receptacle to indicate the power input status. [Table7-5](#) provides the description of the power status LEDs on the SI 3100-8GP-4S switch.

Table7-4 Description of the power status LED on the SI 3100-8G-4S switch

LED mark	Status	Description
PWR	Steady green	Normal AC power input
	Off	Abnormal or no AC power input

Table7-5 Description of the power status LEDs on the SI 3100-8GP-4S switch

LED mark	Status	Description
PWR	Steady green	Normal DC power input
	Off	Abnormal or no DC power input

Alarm LED

The switch provides an alarm input connection on the top panel and can detect changes of the digital input voltage. When the digital input voltage exceeds the acceptable range, the system uses the alarm LED to indicate the exception.

Table7-6 Alarm LED description

LED mark	Status	Description
Alarm	Steady red	A digital input exception has been detected.
	Off	No exception has been detected.

Diag LED

The switch provides a Diag LED on the front panel to indicate the system operating status.

Table7-7 Diag LED description

LED mark	Status	Description
Diag	Steady red	The switch has failed the POST, or an alarm condition such as MAC chip overtemperature has occurred.
	Off	The switch has passed the POST and is operating correctly.

SFP port LED

Table7-8 SFP port LED description

Status	Description
Steady green	A link is present on the port.
Flashing green	The port is sending or receiving data.
Off	No link is present on the port.

10/100/1000BASE-T autosensing Ethernet port LED (SI 3100-8G-4S)

Table7-9 10/100/1000BASE-T autosensing Ethernet port LED description

Green LED	Yellow LED	Description
Steady on	Off	A link is present on the port and the port is operating at 1000 Mbps.
Flashing	Off	The port is sending or receiving data at 1000 Mbps.
Off	Steady on	A link is present on the port and the port is operating at 10/100 Mbps.
Off	Flashing	The port is sending or receiving data at 10/100 Mbps.
Off	Off	No link is present on the port or a link failure has occurred.

NOTE:

For the green and yellow LEDs for a 10/100/1000BASE-T autosensing Ethernet port, only one of them is on or flashing at a time.

10/100/1000BASE-T autosensing Ethernet port LED (SI 3100-8GP-4S)

An SI 3100-8GP-4S switch provides a green and a yellow LED for each 10/100/1000BASE-T autosensing Ethernet port. The green and yellow LEDs indicate the data rate and PoE power supply status of the port, respectively.

Table7-10 10/100/1000BASE-T autosensing Ethernet port LED description

LED	Status	Description
Green LED	Steady on	A link is present on the port and the port is operating at 10/100/1000 Mbps.
	Flashing	The port is sending or receiving data at 10/100/1000 Mbps.
	Off	No link is present on the port, or a link failure has occurred.
Yellow LED	Steady on	A PD is connected to the port and the port is supplying power to the PD correctly.
	Flashing	A PD is connected to the port but the port is not supplying power correctly to the PD.
	Off	No PD is connected to the port, or PoE is not enabled on the port.

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 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.
7. A Intelbras não se responsabiliza pela instalação deste produto, e também por eventuais tentativas de fraudes e/ou sabotagens em seus produtos. Mantenha as atualizações do software e aplicativos utilizados em dia, se for o caso, assim como as proteções de rede necessárias para proteção contra invasões (hackers). O equipamento é garantido contra vícios dentro das suas condições normais de uso, sendo importante que se tenha ciência de que, por ser um equipamento eletrônico, não está livre de fraudes e burlas que possam interferir no seu correto funcionamento.

A garantia contratual deste termo é complementar à legal, portanto, a Intelbras S/A reserva-se o direito de alterar as características gerais, técnicas e estéticas de seus produtos sem aviso prévio.

Sendo estas as condições deste Termo de Garantia complementar, a Intelbras S/A se reserva o direito de alterar as características gerais, técnicas e estéticas de seus produtos sem aviso prévio.