solaredge

Installation Guide

Firefighter Gateway

Version 1.6

March 2025

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Important Notice

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If the RS485 communication between the firefighter gateway and the SolarEdge inverter(s) is disconnected for any reason (including fire), the firefighter gateway LCD will display "No Communication" or "Partial Com.". In this case, the firefighter gateway cannot be relied upon to disconnect the SolarEdge PV harvesting system.

The images contained in this document are for illustrative purposes only and may vary depending on product models.

Emission Compliance

This equipment has been tested and found to comply with the limits applied by the local regulations.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no   guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, you are encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna

- Increase the separation between the equipment and the receiver

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected

- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by the party responsible for compliance may void the user's authority to operate the equipment.

Revision history

Version	Date	Description
1.6	March 2025	• Updated when the Firefighter Gateway should be used as a leader.
1.5	October 2022	• Use of the terms Leader/Follower replaces that of Master/Slave. • Update regarding gateway safety considerations.
1.4	March 2019	• Removed mention of Safety and Monitoring Interfaces. • Added a note about the he maximum length of the wire between the Firefighter Gateway and the stop button.

HANDLING AND SAFETY INSTRUCTIONS

Safety Symbols Information

The following safety symbols are used in this document. Familiarize yourself with the symbols and their meaning before installing or operating the system.

> ⚠ **WARNING**
>
> • Denotes a hazard. It calls attention to a procedure that, if not correctly performed or adhered to, could result in **injury or loss of life**. Do not proceed beyond a warning note until the indicated conditions are fully understood and met.
>
> • Dénote un risque: il attire l'attention sur une opération qui, si elle n'est pas faite ou suivi correctement, pourrait causer des blessures ou un danger de mort. Ne pas dépasser une telle note avant que les conditions requises soienttotallement comprises et accomplies.

> △ **CAUTION**
>
> • Denotes a hazard. It calls attention to a procedure that, if not correctly performed or adhered to, could result in damage or destruction of the product. Do not proceed beyond a caution sign until the indicated conditions are fully understood and met.
>
> • Dénote un risque: il attire l'attention sur une opération qui, si elle n'est pas faite ou suivi correctement, pourrait causer un dommage ou destruction de l'équipement. Ne pas dépasser une telle note avant que les conditions requises soient totallement comprises et accomplies.

> **NOTE**
>
> Denotes additional information about the current subject.

> **❗ IMPORTANT**
>
> Denotes information about safety issues.

Disposal requirements under the Waste Electrical and Electronic Equipment (WEEE) regulations:

🗑Discard this product according to local regulations or send it back to SolarEdge.

About this guide

This user guide is intended for Photovoltaic (PV) system owners, installers, technicians, maintainers and integrators who use the SolarEdge power harvesting system. This guide describes the process of installing and configuring the SolarEdge firefighter gateway (also referred to as SolarEdge gateway). This guide assumes that the SolarEdge power harvesting system is already installed and commissioned. For additional information about how to install and commission the SolarEdge power harvesting system, refer to the relevant inverter installation guide.

Chapter 1: Introducing the SolarEdge Firefighter Gateway

Overview

The firefighter gateway provides centralized safety management of SolarEdge systems. If the firefighter gateway is properly installed and fully functional, firefighters can halt production of a SolarEdge photovoltaic (PV) power harvesting system and have visual acknowledgment that the installation outputs a safe DC voltage. The power production can be stopped either manually through an emergency stop button or automatically through a Fire Alarm Control Panel system. This stops the AC production and reduces string DC voltage to a safe voltage using the unique SafeDC™ feature. Although DC voltage can be reduced directly from the inverter or by shutting off the AC voltage, using the firefighter gateway provides a clear indication of DC voltage shutdown. The firefighter gateway enables shutting off the installation from a distance of up to 1,000m, while getting visual feedback that the PV installation is safe.
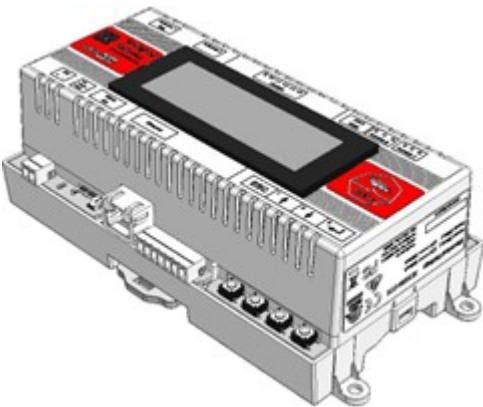
Figure 1: The SolarEdge Firefighter Gateway

Figure 2: Example of SolarEdge firefighter gateway connections
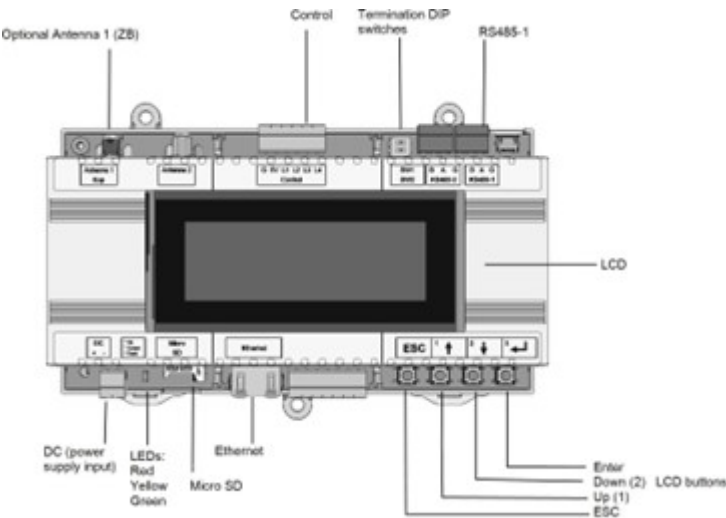
Firefighter Gateway Interfaces

Figure 3: Firefighter gateway interfaces

LCD and LCD-Menu Buttons

The LCD screen displays status information of the system and various menus for configuration options. The LCD panel and buttons are used during the following processes:

- **Operational mode**: The LCD panel allows checking for proper system operation. Refer to Status Screens - Operational Mode on page 29 for a description of this option.

- **Setup mode**: Upon installation, an installer may perform basic configurations described in Configuration Menu Options on page 33.

- **Error messages**: In the event of a problem, an error message may be displayed on the LCD panel. For more information, refer to Errors and Troubleshooting on page 56.

Use the four user buttons to control the LCD panel menus:

- **Esc:** Moves the cursor (>) to the beginning of the currently displayed parameter; goes to the previous menu, and cancels a value change with a long press (until **Aborted** is displayed).

- **Up (1)** and **Down (2)**: Moves the cursor from one menu option to another, moves among the characters of a displayed parameter, and toggles between possible characters when setting a value.

- **:** Selects a menu option and accepts a value change with a long press (until **Applied** is displayed).

Communication Connectors

- **Antenna1**: used for optional wireless ZigBee or Wi-Fi antenna connection (refer to Additional Connection Options on page 28.

- **RS485-1** and RS485-2: used for connecting external devices to the gateway (refer to Connecting the Firefighter Gateway to the Installation on page 18).

- **Ethernet**: enables connecting the SolarEdge gateway to the SolarEdge monitoring platform through an Ethernet switch/router (refer to Creating an Ethernet (LAN) Connection on page 24). The Ethernet switch/router should be connected to the Internet.

LEDs

The Firefighter Gateway has three LED indicators, as follows:

- **OK (Green)** Indicates if the Commercial gateway is powered

- **Comm (Communication, Yellow)**: Blinks when monitoring information is received from another SolarEdge device in the installation.

- **Fault (Red)**: Indicates that there is an error. For more information, contact SolarEdge support.

All LEDs are ON while the Firefighter Gateway is being configured and during power up

Other Interfaces

- **Control**: used for connection to an external emergency stop button (refer to Connecting Emergency Stop Button or Fire Alarm Control on page 49)

> **NOTE**
>
> The maximum length of the wire between the Firefighter Gateway and the stop button should be 2m / 6.5ft.

- **DC**: used for the power supply input.

- **SW1**: RS485-1 termination

- **Micro SD**: used for field software upgrade

- **LEDs**: All LEDs are ON while the SolarEdge gateway is powered up or configured.

Chapter 2: Installing the Firefighter Gateway

Transport and Storage

Transport the gateway in its original packaging, without exposing it to unnecessary shocks. If the original package is no longer available, use a similar box, which can be closed fully.

Store the gateway in a dry place where ambient temperatures are -40°C (-40°F) to +60°C (140°F).

Package Contents

- Firefighter Gateway

- 100-240VAC to 12VDC (50 Hz/60 Hz) power supply with an interchangeable AC plug (US, EU, AU)

- Accessory kit including:
  - Three 3-pin terminal blocks
  - One 6-pin terminal block

Installation Equipment

Standard tools can be used during the installation of the Firefighter Gateway. The following is a recommendation of the equipment needed for installation:

- Emergency stop button (recommended: a button with a locking feature, which stays mechanically locked in the off position until turning it clockwise to release it), or a fire alarm control system with relay output interface

- DIN rails

- Drill and 4mm diameter bits

- Three twisted wires or four-wire twisted pair cable (wire cross-section area: 0.2- 1mm²/ 24-18AWG (a CAT5 cable may be used); Maximum nodes: 32; Maximum distance between devices: 1km / 3300ft.)

- For installing the communication options: CAT5/6 Ethernet cable

Installation Guidelines

The following requirements apply when locating and mounting the gateway:

- The gateway is suitable for mounting indoors only. For outdoor installation, use an external outdoor enclosure (not provided by SolarEdge).

- The gateway must always remain in an ambient temperature of-20°C (-4°F) to +60°C (140°F).

- Protect the gateway from dust, wet conditions, corrosive substances and vapors.

- Cable specifications:

Cable specifications

Connection Type	Cable Type	Maximum Length
RS485 communication bus (per RS485 port)	Three twisted wires or 4-wire twisted pair cable (two twisted pairs). Recommended wire size: 20 AWG / 0.52 mm2	1,000m (3,330 ft)
Ethernet	CAT5/6	100m (325 ft).

NOTE

If using a cable longer than 10m/33ft in areas where there is a risk of induced voltage surges by lightning, it is recommended to use external surge protection devices. For details refer to: https://knowledge-center.solaredge.com/sites/kc/files/lightning_surge_protection.pdf.

If a grounded metal conduit is used for routing the communication wires, there is no need for a lightning protection device.

Installation Workflow

The following provides an overview of the workflow for installing and setting up the Firefighter Gateway:

- Mounting the Firefighter Gateway **[X-REF]** P 16

- Connecting the Firefighter Gateway to the SolarEdge installation **[x-ref] p 18**

- Configuring the Firefighter Gateway and inverters **[X-REF]** P 18

- Using the Firefighter Gateway to connect the installation to the monitoring server **[X-REF P 18]**

Mounting and Connecting the Firefighter Gateway

The gateway can be installed on a wall or on a DIN rail.

To mount the Commercial Gateway on a wall:

1. Determine the mounting location. Leave clearance from all sides of the gateway for cover opening, cable connection and routing.

2. Position the device on the wall, mark points through the mounting tabs and drill holes using a 4mm diameter drill bit.

3. Mount the unit using screw anchors and screws (use 3.5mm diameter screws, 20mm minimum length, not provided by SolarEdge).
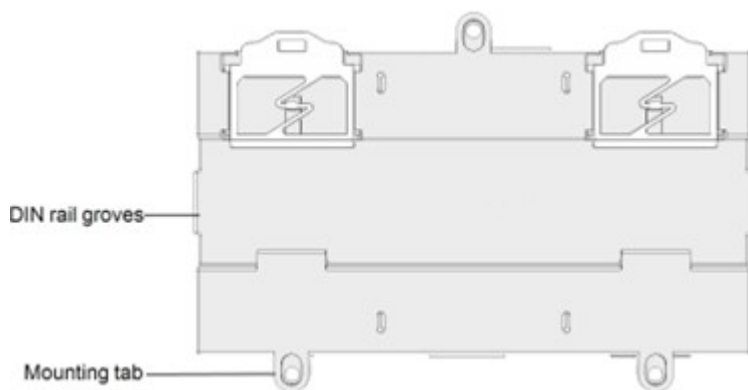

Figure 4: Firefighter Gateway mounting tabs

To mount the Commercial Gateway on a DIN rail:

Press the gateway upwards and snap it into the upper and lower edges of the DIN rail.
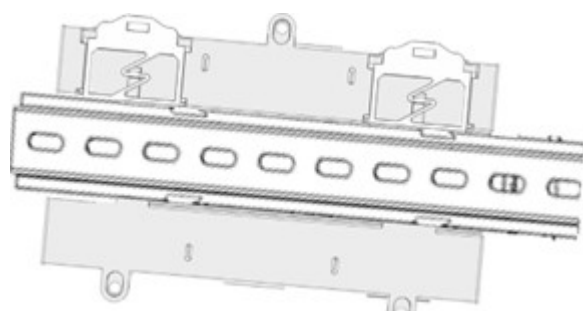
Figure 5: Firefighter Gateway mounted on a DIN rail

Connecting the Firefighter Gateway to AC

For connecting to the power, use the supplied power supply:

1. Connect the power supply cable connector to the connector labeled DC on the Firefighter Gateway (see Figure 3).

2. Connect the power supply to the AC mains. The LEDs are lit momentarily to indicate power connection (see Figure 3).

NOTE

If you use a non-SolarEdge power supply, check that it has 12Vdc/1A output ratings, and that it is certified to UL/CSA/IEC60950-1 2ed standards. Limited Power Source output, NEC class 2. Verify the power supply polarity as marked on the gateway.

Chapter 3: Connecting the Firefighter Gateway to the Installation

The Firefighter Gateway connects to the PV system installation using the RS485 communication option. The RS485 option enables creating a chain (bus) of up to 31 follower SolarEdge devices, connected to one leader, which can be another SolarEdge device or the Firefighter Gateway.

NOTE

Only SolarEdge devices (inverters, Commercial Gateways (CCGs) and Dataloggers) are allowed on the RS485 communication bus.
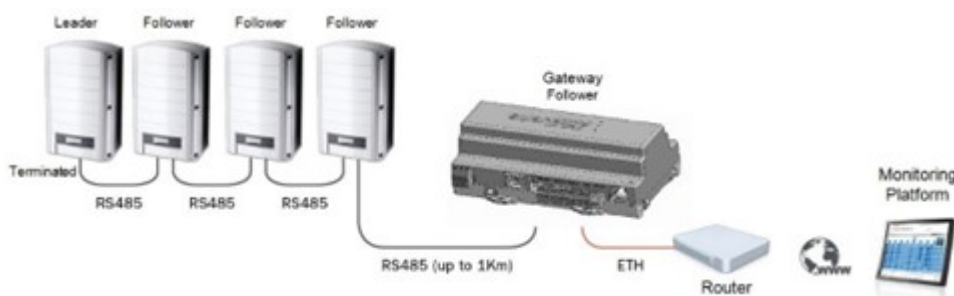
Figure 6: Example of RS485 connection

The following sections describe how to connect the RS485 bus and how to configure its components.

Creating an RS485 Bus Connection

To connect the RS485 communication bus between inverters and the Firefighter Gateway:

1. Use one of the supplied 3-pin terminal blocks. Loosen the screws and insert the wire ends into the A, B and G pins. For connections longer then 10m use twisted pair wires for A and B wires.
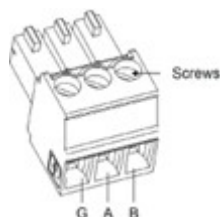
Figure 7: 3-pin terminal block

2. Connect the 3-pin terminal block to the designated RS485-1 port on the Firefighter Gateway.

> **NOTE**
>
> RS485-1 is configured as SolarEdge device by default, therefore RS485- 1 is used as the RS485 bus connection point.

3. If the Firefighter Gateway is at the end of the RS485 chain, terminate the Firefighter Gateway by switching a termination DIP switch to ON. The switches in the SolarEdge Firefighter Gateway are marked SW1 for the RS485-1 port termination (and SW2), as shown below:
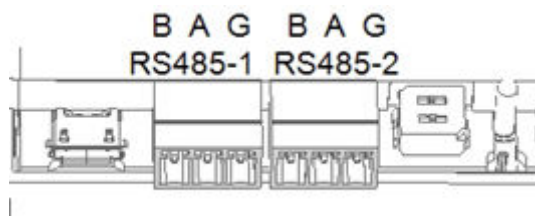
Figure 8: RS485 connectors and termination switches

4. Open the inverter cover as described in their manual.

5. Remove the seal from one of the openings in communication gland #2 of the inverter and insert the cable through the opening.

6. Pull out the 9-pin RS485 terminal block connector, as shown below:
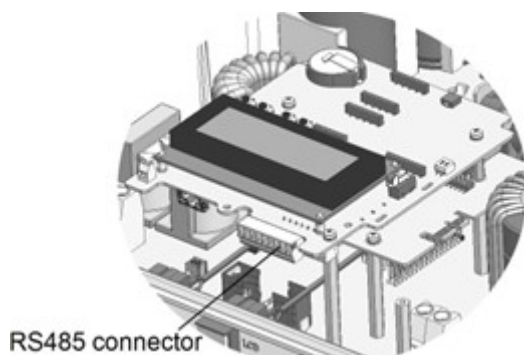
Figure 9: The RS485 terminal block in the inverter

7. Loosen the screws of pins B, A and G on the left of the RS-485 terminal block.
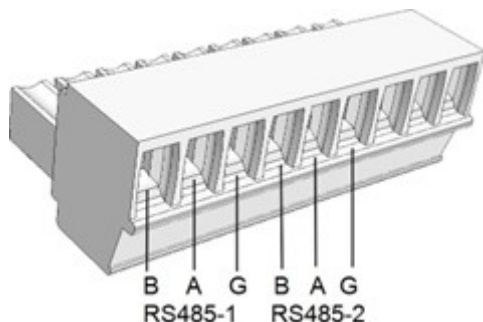
Figure 10: RS485 terminal block

8. Insert the wire ends into the G, A and B pins shown above. You can use any color wire for each of the A, B and G connections, if the same color wire is used for all A pins, the same color for all B pins and the same color for all G pins.

9. Connect all B, A and G pins in all inverters. The following figure illustrates this connection schema (the illustration applies to inverters):
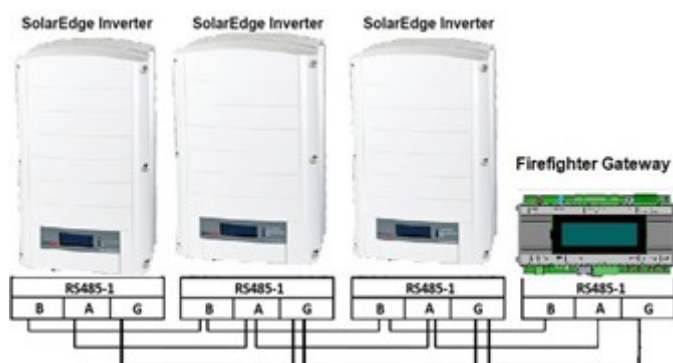
Figure 11: Connecting SolarEdge Inverters in a chain

> **NOTE**
> - Do not cross-connect B, A and G wires.
> - Do not insert wires into RS485-2 pins.

10. Tighten the terminal block screws.

11. Push the RS485 terminal block firmly all the way into the communication board.

12. Terminate the inverters at the two ends of the chain by switching a termination DIP-switch inside the inverter to ON (move the switch to the top). The switch is located on the communication board and is marked **SW7**.
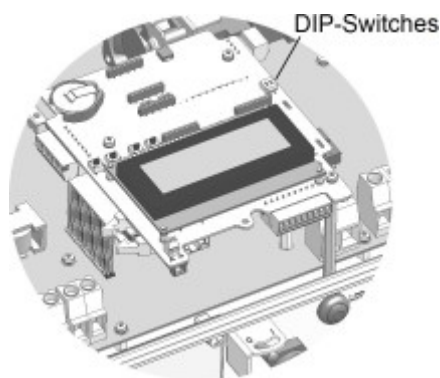
Figure 12: RS485 termination switch

> **NOTE**
>
> Use Firefighter Gateway as a leader only if it is used as a communication **extender** for RS485. In other cases, configure it as a follower.

To configure the RS485 communication bus with SolarEdge inverters:

By default, all SolarEdge devices are pre-configured as followers on the RS485-1 port. Followers can be further configured using the **RS485-X Conf** option in the Communication menu.

One device must be set as the leader on the RS485 bus. Any SolarEdge device may be the leader (Firefighter Gateway, inverter). If you connect the installation to the SolarEdge monitoring platform, the device used to connect to the server must be the leader.

To configure the leader device:

1. Press the Enter button until the following message is displayed:

    Please enter
    Password
    ****

2. Use the three-right most LCD buttons to type in the following password: 12312312. The following menu is displayed:

    Language <Eng>
    Communication
    Remote Shutdown
    Power Control
    Display
    Maintenance
    Information

3. Short press the arrow buttons to scroll to the Communication menu. Press the Enter button to select it.

4. Select **Server** > **RS485-X** Conf (X=1 or 2 depending on the specific physical port connection) to communicate with different external devices.

5. To configure the leader, select the following in the LCD menus:

   - **Communication**> **RS485-1 Conf** > **Device Type** > **SolarEdge**

   - **RS485-1 Conf** > **Protocol** > **Leader**

   - **RS485-1 Conf** > **Follower Detect**

   The system starts automatic detection of the SolarEdge follower inverters connected to the leader Firefighter Gateway. The Firefighter Gateway should report the correct number of followers. If not, verify the connections and terminations. Verify that only one leader is configured on the bus.

6. Close the inverter cover and start power production.

7. On the firefighter gateway main status screen, verify that **Dev. On**, **Dev. Safe** and **Max Vdc** values are set according to your setup. That is, if you connected three followers:

   - Dev. On = 3/3

   - Dev. Safe = 0/3

   - Max Vdc = Voltage of the follower with highest DC voltage

   PV Normal Operation
   003/003 Dev. ON
   000/003 Dev. Safe
   Max. VDC: 150V

   The PV installation is now connected to the firefighter gateway. Power production can now be stopped at emergencies.

8. Test the Emergency system shutdown as described in Emergency System Shutdown on page 39.

Verifying the Connection

1. After connection, a message similar to the following appears in the main status screen (see also Initial Status on page 29):

   <Status>
   XXX/YYY Dev. ON
   Max. VDC: 750V

2. 1. Assuming that the system is producing power, check:

   - XXX – number of devices that are connected to the gateway

   - YYY – number of inverters that are connected and ON

   - ZZZ=0 - number of devices in Safe mode, that is, disconnected or shut down

3.   If **No Communication** or **Partial Com.** appear in the first line, refer to Troubleshooting the RS485 Communication, below.

Troubleshooting the RS485 Communication

1. If No Communication is displayed on the SolarEdge Firefighter Gateway, perform the following:

    - Verify that the RS485 cable is connected to all inverters. Check the connections between the first inverter in the chain and the other inverters.

    - Verify that one of the devices is defined as the leader and that followers were detected, as described above.

2. If Partial Com. is displayed on the firefighter gateway, one or more inverters are disconnected from the bus. Perform the following:

    - Verify that the RS485 cable is connected to all inverters.

    - Check the Server Communication Status screen of all the inverters. The following should appear:

      Server: RS485
      Status: OK

3. If the message Leader Not Found appears, check the connections to the leader device and fix if required.

4. If after follower detection the number of followers displayed in the leader under RS485-X Conf è Follower Detect is smaller than the actual number of followers, use one of the following methods to identify missing followers and troubleshoot connectivity problems:

    - Use the Long Follower Detect to retry connecting to followers.

    - Analyze the Follower List to check for missing followers, and check their connection.

      Refer to: https://knowledge-center.solaredge.com/sites/kc/files/ troubleshooting_undetected_RS485_devices.pdf

Creating an Ethernet (LAN) Connection

This communication option enables using an Ethernet connection to connect the to the monitoring platform through a LAN.

Ethernet cable specifications:

- Cable type – a shielded Ethernet cable (Cat5/5E STP) may be used

- Maximum distance between the and the router – 100m/330ft.

> **NOTE**
>
> - If using a cable longer than 10m / 33ft in areas where there is a risk of induced voltage surges by lightning, it is recommend to use external surge protection devices.
> - For details, refer to: https://knowledge-center.solaredge.com/sites/kc/files/lightning_surge_protection.pdf
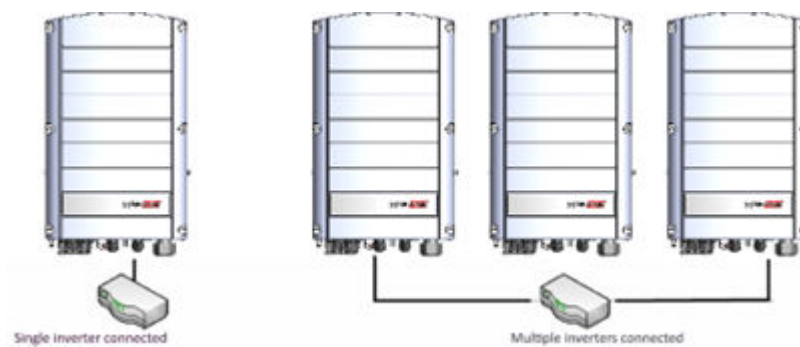
Figure 13: Example of Ethernet connection

To connect the Ethernet cable:

1. Remove the cover.

2. Open the communication gland #1.

> ⚠️ **CAUTION**
>
> The gland includes a rubber waterproof fitting, which should be used to ensure proper sealing.

3. Remove the plastic seal from one of the large openings.

4. Remove the rubber fitting from the gland and insert the CAT5/6 cable through the gland and through the gland opening in the [MISSING]

5. Push the cable into the cut opening of the rubber fitting.

Figure 14: Rubber fitting

CAT5/6 standard cables have eight wires (four twisted pairs), as shown in the diagram below. Wire colors may differ from one cable to another. You can use either wiring standard, as long as both sides of the cable have the same pin-out and color-coding.

Wiring standards

RJ45 Pin#	Wire Color [1]		10Base-T Signal
	T568B	T568A	100Base-TX Signal
1	White/Orange	White/Green	Transmit+
2	Orange	Green	Transmit-
3	White/Green	White/Orange	Receive+
4	Blue	Blue	Reserved
5	White/Blue	White/Blue	Reserved
6	Green	Orange	Received-
7	White/Brown	White/Brown	Received
8	Brown	Brown	Received

[1]The connection does not support RX/TX polarity change. Supporting crossover Ethernet cables depends on the switch capabilities.

6.

Figure 15: Standard cable wiring

Use a pre-crimped cable to connect via gland #1 to the RJ45 plug on the inverter's communication board or, if using a spool of cable, connect as follows:

a. Insert the cable through gland #1.

b. Remove the cable's external insulation using a crimping tool or cable cutter and expose eight wires.

c. Insert the eight wires into an RJ45 connector, as described in Figure 15.

d. Use a crimping tool to crimp the connector.

e. Connect the Ethernet connector to the RJ45 port on the board.

Additional Connection Options

Creating a Wireless ZigBee Connection

This communication option enables using a ZigBee connection to connect one or several devices to the monitoring platform. The ZigBee device is provided with a user manual, which should be reviewed prior to connection. It is available on the SolarEdge website under Zigbee at: https://www.solaredge.com/en/products/communication.

Creating a Wi-Fi Connection

This communication option enables using a Wi-Fi connection for connecting the device to the monitoring platform. The Wi-Fi Plug-in kit can be purchased separately and assembled during system installation. The Wi-Fi Plug-in kit is provided with a user manual, which should be reviewed prior to connection. It is available on the SolarEdge under Wi-Fi at: https://www.solaredge.com/en/products/communication.

Creating a Wireless ZigBee Connection

Creating a Wi-Fi Connection

Chapter 4: LCD – Status Screens and Setup Options

This chapter describes the LCD display of the SolarEdge Firefighter Gateway. The LCD screen displays status information of the Firefighter Gateway and various menus for configuration.

Status Screens - Operational Mode

During normal operation pressing the Enter button turns on the LCD backlight. The backlight is active for 30 seconds by default. This duration is configurable, as described in Display on page 37.

Additional presses display the following screens one after the other.

Initial Status

This screen displays the communication and safety status of components in the system:

< Status >
XXX/VVV Dev. ON

ZZZ/YYY Dev. Safe
Max. VDC: 750V

- **Status**: can be one of the following system stages:

  - **PV Normal Operation**

  - **PV Shutting Down** – appears when pressing the emergency stop button

  - **PV Reducing Voltage** – appears during emergency stop

  - **PV System Safe** – appears when the system reaches 120 V after pressing the emergency stop button

  - **No Communication** – indicates that the follower devices are disconnected from the leader

  - **Partial Com.** – indicates the number of communicating devices (inverters) out of the total number of devices in the installation

- **XXX/YYY Dev. ON**: The number of operational inverters out of the total number of inverters in the installation

- **ZZZ/YYY Dev. Safe**: Number of inverters that reached the safety threshold voltage or below, out of the total number of inverters in the installation

- **Max. Vdc**: Real-time maximum DC voltage for the entire installation

ID Status

This screen displays the ID of the Firefighter Gateway and the software version:

ID: ######## ##
DSP1: 1.0210
CPU: 0003. 19xx
Country: ESP

Server Communication Status

Server: LAN   <S_OK>
Status: <OK>
  xxxxxxxx
< ERROR MESSAGE >

> **NOTE**
>
> If the connection method is CDMA (referred to as "Cellular" in the status screens) or GSM, the server screen is replaced with the Cellular or GSM status screens (see Status Screens - Operational Mode on page 29 and GSM Status o n page 32).

- **Server**: The method of connection to the SolarEdge monitoring platform.

  - **LAN**

- RS232

- **RS485** (only applicable for follower SolarEdge devices on the RS485 bus)

- **ZigBee** (only applicable for follower ZigBee devices)

- **Wi-Fi**

- **None**

- **S_OK**: The connection to the SolarEdge monitoring platform is successful (should appear only if the inverter is connected to the server).

- **Status**: Displays OK if the established successful connection and communication with the specified server port/ (LAN, RS485, Wi-Fi or ZigBee Plug-in).

- **xxxxxxxx**: Eight-bit Ethernet communication connection status: A string of 1s and 0s is displayed. 1 indicates OK, 0 indicates an error. For a list of possible errors and how to troubleshoot them, refer to on page 56. For a list of the possible errors and how to troubleshoot them, refer to Errors and Troubleshooting on page 56.

- **Error message**, according to failure. Refer to: https://knowledge-center.solaredge.com/ sites/kc/files/se-inverter-installation-guide-error-codes.pdf.

IP Status

This screen describes the Ethernet configuration: IP, Mask, TCP Gateway and MAC address (Media Access Control) of the Firefighter Gateway.

IP_192.68.2.119
MSK 255.255.255.0
GW 192.168.2.1
MAC 0-27-02-00-39-36

ZigBee Status

This screen describes the ZigBee configuration:

PAN: XXXXX
CH: XX/XXXX RSSI:<L>
ZigBee Ready

- **RSSI:** The receive signal strength indication of the closest ZigBee in the system. L = low, M = medium, H = high and (-) = no signal.

- **PAN ID**: The ZigBee transceiver PAN ID (Personal Area Network Identification), the ID uniquely represents a device in a Zigbee network.

- **Ch.:** The ZigBee transceiver channel.

- **ID**: The ZigBee transceiver ID.

- **MID**: The Leader ID of the coordinator (leader) ZigBee Plug-in. This field is shown only in devices with router (follower) ZigBee cards, and after a successful ZigBee association. If a ZigBee Plug-in is not connected, a **No ZigBee** message is displayed instead of the **MID** field.

- **ZigBee Ready**: This field is shown only in devices with ZigBee router transceivers (followers), in a multi-point (MP) protocol configuration. If a ZigBee transceiver is not physically connected, a **No ZigBee** message is displayed.

Wi-Fi Status

This screen describes the Wi-Fi configuration:

IP: 192.168.2.119
GW: 192.168.2.1
SSID: XXXXXXXX
RSSI: <l/ M/H/→

- **IP**: The DHCP provided address

- **GW**: The gateway IP address

- **SSID**: Service Set Identifier - the name of a wireless local area network (WLAN). All wireless devices on a WLAN must employ the same SSID in order to communicate with each other.

- **RSSI**: The receive signal strength indication of the closest Wi-Fi in the SolarEdge system. L = low, M = medium, H = high and - = no signal.

GSM Status

If a GSM Plug-in is connected, this screen replaces the Server status screen:

Server: Cell   <S_OK>
Status: <OK>
MNO: <xxxxxx> Sig: 5
 <Error message>

- **Server**: The method of communication to the SolarEdge monitoring platform. Should display **Cell**.

- **Status**: Displays OK if the inverter established a successful physical connection to the modem.

- **S_OK**: The last communication to the SolarEdge monitoring platform was successful (appears if the inverter is connected to the platform). If S_OK is not displayed, refer to Status Screens - Operational Mode on page 29.

- **MNO**: The mobile network operator name

- **Sig**: The signal strength, received from the modem. A value between 0-5, (0 = no signal; 5 = excellent signal)

- **Error message**: per communication connection status failure

Communication Ports Status

This screen presents the communication port (RS485-1/2 or ZigBee), and the devices connected to them, with details about the number, type, and protocol.

- **##**: The total number of followers detected on the specific port

- **Dev**: The type of device that was configured to a specific port (based on the port's functionality), as follows:

  - **SE**: SolarEdge device (default)

  - **LGR**: Non-SolarEdge logger

  - **MLT**: Multiple devices, such as meters and batteries

  - **HA**: Home automation devices (for Smart Energy)

- **PROT**: The protocol type to which the port is set:

- **For a SolarEdge device:**

Protocols for SolarEdge devices

RS485 protocol	ZigBee protocol
S: SolarEdge follower	
M: SolarEdge leader	
	P2P: ZigBee point-to-point
	MPM: ZigBee multipoint leader (for the ZigBee gateway or for load management by the inverter)
	MPS: ZigBee multipoint follower (for a ZigBee router card)

- For electricity meters, refer to the application note - Connecting an Electricity Meter to SolarEdge Devices at: **[link to superseded app note: https://knowledge-center.solaredge.com/sites/kc/files/connecting-revenue-grade-meter-to-solaredge-devices.pdf - PLEASE SUGGEST ANOTHER APP NOTE TO LINK TO]**

- SS: SunSpec - for a non-SolarEdge logger (monitoring and control)

Configuration Menu Options

This section describes basic Firefighter Gateway configuration options.

To enter Setup mode:

1. Verify that the SolarEdge Firefighter Gateway is connected to a power outlet.

2. Press the Enter button until the following message is displayed:

   Please enter
    Password
   ****

The Firefighter Gateway is now in Setup mode and all its LEDs are lit. The Firefighter Gateway automatically exits Setup mode if no buttons are pressed for more than 2 minutes.

3.   Use the three-right-most LCD buttons to type in the following password: 12312312. The following message is displayed:

Language <Eng>
Communication
Remote Shutdown
Power Control
Display
Maintenance
Information

Language

1.   Select the **Language** option to set the language in which the LCD should display.

2.   Confirm your language selection in the confirmation screen: Toggle to **YES** and press **Enter**.

Communication

Select the Communication option to define and configure:

- The communication option used by the Firefighter Gateway to communicate with the SolarEdge monitoring platform.

- The communication option used to communicate between multiple SolarEdge devices or other external non-SolarEdge devices, such as energy meters or loggers.

> **NOTE**
>
> The Server menu shows only the communication options installed in the Firefighter Gateway.

The following shows a hierarchical tree of the menu options in the Communication menu. For detailed information about all the configuration options, refer to the Communication Options Application Note at: https://knowledge-center.solaredge.com/sites/kc/files/solaredge-communication_options_application_note_v2_250_and_above.pdf

Communication [1,2]

```
S e r v e r < L A N >
L A N C o n f
```

RS485–1Conf<S> RS485–2 Conf<S>
ZigBeeConf<S>
Wi-FiConf<N/A>
Cellular Conf
Slave Detect

Server

LAN
RS485
Zigbee
Wi-Fi
Cellular
None

LAN Conf:

IP Config
SetDHCP<en>
SetIP
Set Mask
SetGateway
SetDNS
SetServerAddr
SetServerPort
Modbus TCP<Dis>

RS485-X Conf.

DeviceType<SE>
Protocol<M>
Device ID <1>
Slave Detect <#>
Cluster SLV Detect
LongSlaveDetect<#>
SlaveList<#>
Multi-Inv. Set

ZigBee Conf. (enabled only if the ZigBee internal card is connected):

DeviceType<SE>
Protocol<MPS>
DeviceID<1>
PAN ID
Scan Channel
Load ZB Defaults

Wi-Fi Conf (enabled only if the internal card is connected):

_____

[1]If ZigBee is connected, the Wi-Fi Conf menu is not displayed. If ZigBee is not connected, ZigBee Conf and Wi-Fi Conf are both displayed with <N/A> and their menus are not accessible.
[2]When using the SolarEdge GSM products, RS232 Conf menu is unavailable.

S c a n N e t w o r k s
S e t k e y
L o a d   D e f a u l t s

GPIO Conf:

D e v i c e   T y p e   < R R C R >

Power Control

Power control options are detailed in the Power Control Application Note: https://knowledge-center.solaredge.com/sites/kc/files/application_note_power_control_configuration.pdf

Remote Shutdown

Select Remote Shutdown to set the following:

L 1 P o l a r i t y < N o r m .>
L 2 P o l a r i t y < N o r m .>
S a f e V d c < 1 2 0 V >
C l r   A l a r m   M o d e < M >
C l e a r   A l a r m

For detailed information refer to Connecting and Configuring an Emergency Stop Button to the Gateway on page 51.

Display

Select **Display** to set the following:

L C D   O n   T i m e   < 3 0 >

- **Temperature**: Select Celsius or Fahrenheit units.
- **LCD On Time <30>**: The number of seconds that the LCD backlight is ON after pressing the LCD light button. Set a value within the range of 10-120 seconds.
- **TLM On Time <15>**: The number of minutes that the LCD backlight is ON while viewing the Telemetry window. Set a value within the range of 1-120 minutes.

Maintenance

Select Maintenance to set the following options:

D a t e   a n d   T i m e
F a c t o r y   R e s e t

F W   U p g r a d e

- Date and Time: Set the internal real-time clock. If connected to the SolarEdge monitoring platform, the date and time are set automatically and only time zone should be set.

- Factory Reset: Performs a general reset to the default device settings.

- FW Upgrade: Perform a software upgrade by using an SD card. For details, see Software Upgrade using SD/MicroSD card - Application Note: https://knowledge-center.solaredge.com/sites/kc/files/upgrading_an_inverter_using_micro_sd_card.pdf

Information

Select **Information** to display the following options:

V e r s i o n s
E r r o r L o g
W a r n i n g l o g
H a r d w a r e I D s

- **Versions:** Displays firmware versions:

  - **ID:** The ID.

  - **DSP** 1: The DSP digital control board firmware version

  - **CPU:** The communication board firmware version

    > **NOTE**
    >
    > Make sure to have these numbers ready when you contact SolarEdge Support.

- **Error Log:** Displays the last five errors.

- **Warning Log:** Displays the last five warnings.

- **Hardware IDs:** Displays the following HW serial numbers (if exist, and connected to the inverter):

  - **ID:** the inverter's ID

  - **RGM1 (Revenue Grade Meter):** Energy Meter with Modbus Connection

  - **RGM2:** A second external Energy Meter with Modbus Connection

  - **ZB:** ZigBee MAC address

- **Cell:** MEID (CDMA) or IMEI (GSM)

- **WiFi:** Wi-Fi MAC address

Chapter 5: Emergency System Shutdown

In emergencies, use the emergency stop button to stop power production. Use this procedure also to test the PV system shutdown using the Firefighter Gateway.

To stop PV harvesting system power production:

1. On the firefighter gateway, press the Enter button to light up the LCD and display the main status screen. Check that a message like the following appears, and that the first line does NOT display "No Communication" or "Partial Com".

   P V   N o r m a l   O p e r a t i o n
   0 0 3 / 0 0 3 D e v . O N
   0 0 0 / 0 0 3 D e v . S a f e
   M a x . V D C : 1 5 0 V

   > ⚠️ **WARNING**
   >
   > If the RS485 communication between the firefighter gateway and inverters is disconnected for any reason (including damage to cables caused by a fire), the firefighter gateway LCD will display "No Communication" or "Partial Com". In this case, the firefighter gateway CANNOT be relied upon to disconnect the SolarEdge PV harvesting system.

2. Press the emergency stop button. The PV system starts the shutdown sequence.

3. On the firefighter gateway LCD, check the main status screen. A message like the following should appear:

   P V   S h u t t i n g   D o w n
   0 0 1 / 0 0 3 D e v . O N
   0 0 2 / 0 0 3 D e v . S a f e
   M a x . V d c : 1 5 0 V

   The status changes to PV Reducing Voltage. When the firefighter gateway is configured as leader the shutdown is immediate, but the safe indication will take 3 to 5 minutes until the inverter capacitors are discharged.

   Upon reaching safety voltage (default: 120V), the "PV System Safe" message appears on the Firefighter Gateway LCD.

> ⚠️ **WARNING**
>
> If the communication between the firefighter gateway and the inverters is not available during the shutdown sequence, the following message appears on the LCD: "System Failed to Shutdown". If this occurs:
>
> 1. Shutdown the AC power to the inverters.
>
> 2. Wait 3 to 5 minutes until the capacitors are discharged.

On the inverters LCD display, the following message appears upon reaching safe voltage:

```
F i r e f i g h t e r
R e m o t e   S h u t d o w n
```

> 📝 **NOTE**
>
> The Maintenance menu in the inverters LCD includes a Clear Alarm option that appears only in remote shutdown. This enables clearing the remote shutdown state for a specific device if required.

4. Disconnect the AC power to the inverters.

To regain system normal operation:

1. Release the emergency stop button.

2. Turn ON the AC power.

3. Do one of the following:

   - If you set the **Clear Alarm Mode** in the firefighter gateway to **Automatic** (refer to Connecting and Configuring an Emergency Stop Button to the Gateway on page 51), check the firefighter gateway main status screen displays the status **PV Normal Operation**.

   - If you set the **Clear Alarm Mode** in the firefighter gateway to Manual, do the following:

     - Enter Setup mode, as described in enter Setup mode: on page 33.

     - Select **Fire Safety** > **Clear Alarm** > **Yes**. The following is displayed:

       ```
       C l e a r i n g   A l a r m . . .
       ```

     - If the alarm was cleared, the following is displayed:

       ```
       A l a r m   C l e a r e d
       ```

       If Failed is displayed, check that you have unlocked the emergency stop button.

4. On the firefighter gateway LCD, check the main status screen. A message like the following should appear:

```
P V   N o r m a l   O p e r a t i o n
0 0 3 / 0 0 3 D e v . O N
0 0 0 / 0 0 0 D e v .
S a f e M a x . V D C : 1 6 4 V
```

5. If there is no communication between follower inverters and the leader gateway, clear the alarm from the inverter, as follows:

   a. Enter Setup mode in the inverter LCD menu.

   b. Select **Maintenance** > **Clear Alarm**.

Chapter 6: Setting Up Monitoring through the Firefighter Gateway (Optional)

Communication Dataflow

The SolarEdge site information can be accessed remotely using the SolarEdge monitoring platform. In order to transfer monitoring data from a SolarEdge site to the SolarEdge monitoring platform, a communications connection must be established. Communications are not required for power harvesting - they are required only when using the Monitoring platform.

Any SolarEdge device can serve as the connection point. This chapter describes how to set up this connection with the FFG serving as the connection point to the monitoring platform. The FFG should be the leader on an RS485 bus.

Communication Options

The following types of communication can be used to transfer the monitored information from the inverter to the monitoring platform through the Firefighter Gateway.

Only communication products offered by SolarEdge are supported.

Ethernet

Ethernet is used for a LAN connection. For connection instructions refer to Creating an Ethernet (LAN) Connection on page 44.

RS485

RS485 is used for the connection of multiple SolarEdge devices on the same bus in a leader-follower configuration. RS485 can also be used as an interface to external devices, such as meters and third-party data loggers.

- RS485-1: Enables the connection of multiple devices (inverters/Firefighter Gateway) over the same bus, such that connecting only one device to the Internet is sufficient to provide communication services for all the devices on the bus.

- RS485-2: Enables connection of multiple SolarEdge devices and of non-SolarEdge devices over the same bus.

For connection instructions refer to Creating an RS485 Bus Connection on page 18.

Wi-Fi

This communication option enables using a Wi-Fi connection for connecting to the monitoring platform.

The Wi-Fi option requires a Wi-Fi Plug-in and an external antenna, available from SolarEdge in a kit, which can be purchased separately and assembled during system installation. The Wi-Fi Plug-in kit is provided with a user manual, which should be reviewed prior to connection. For details, see: **https://knowledge-center.solaredge.com/sites/kc/files/se_wifi_communication_solution_installation_guide.pdf [This installation guide is superseded. Please suggest another doc.]**

Cellular (GSM, CDMA)

This wireless communication option (purchased separately) enables using a cellular connection to connect one or several devices (depending on the data plan used) to the monitoring platform. The GSM/CDMA Plug-in is provided with a user manual, which should be reviewed prior to connection. For details, see: https://knowledge-center.solaredge.com/sites/kc/files/cellular_gsm_installation_guide_for_inverters_with_setapp.pdf

ZigBee

To mount the ZigBee Plug-in in the Firefighter Gateway, see "Mounting the ZigBee Plug-in in the Firefighter Gateway" on page 48.

Smart Energy Management - wireless connection to one or several Smart Energy products, which automatically divert PV energy to home appliances. For details, see **https://www.solaredge.com/products/device-control#/. [Please provide an updated link]**

The ZigBee Plug-in for Smart Energy is provided with an installation guide, which should be reviewed prior to connection. **For details, see: https://www.solaredge.com/sites/default/files/se-device-control-zigbee-module-installation-guide.pdf [Links to superseded docs]**

To mount the ZigBee Plug-in in the Firefighter Gateway, see Mounting the ZigBee Plug-in in the Firefighter Gateway on page 48.

Creating an Ethernet (LAN) Connection

Overview

This communication option enables using an Ethernet connection to connect the SolarEdge Firefighter Gateway to the monitoring platform through a LAN. The SolarEdge Firefighter Gateway has an RJ45 connector for Ethernet communication.
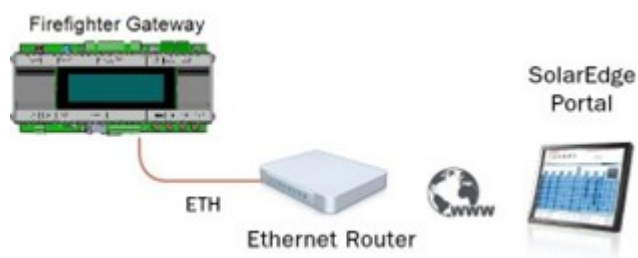
Figure 17: Example of Ethernet connection

Ethernet Communication Configuration Options

The following is a description of the options to configure the Ethernet (LAN) port settings.

Communication:

```
S e r v e r < L A N >
L A N C o n f
R S 4 8 5 – 1 C o n f < S >
R S 4 8 5 – 2  C o n f < S >
Z i g B e e  C o n f < S >
W i - F i C o n f < N / A >
C e l l u l a r  C o n f
S l a v e  D e t e c t
```

LAN Conf:

```
I P  C o n f i g
S e t D H C P < e n >
S e t I P
S e t  M a s k
S e t  G a t e w a y
S e t D N S
S e t S e r v e r  A d d r
S e t S e r v e r  P o r t
M o d b u s  T C P < D i s >
```

- **IP Config:** Displays the current IP configuration of the Firefighter Gateway, as shown below. If DHCP is used, this screen reflects the parameters retrieved from the DHCP server. If manual settings are used, the screen shows the last manually input configurations.

  ```
  I P  0 . 0 . 0 . 0
  M S K  2 5 5 . 2 5 5 . 2 5 5 . 0
  G W  1 9 2 . 1 6 8 . 0 . 1
  D N S  0 . 0 . 0 . 0
  ```

- **Set DHCP** <En > If the LAN connection between the Firefighter Gateway and the SolarEdge Monitoring Platform has a DHCP server, enable this option by setting it to Enable (default). If this option is enabled, then the DHCP server automatically configures the IP, Subnet Mask, default gateway and DNS. If not, set them manually.

- **Set IP**: Enables setting the IP of the default gateway according to the LAN settings:

  - Use the Up and Down buttons to adjust the value of each IP address octet.

  - Long press the Enter button (until Applied message appears) – apply the value

  - Long press the Esc button (until Aborted message appears) – erase all characters

  ```
  S e t u p  I P
  1 9 2 . 1 6 8 . 2 . 7
  ```

- **Set Mask**: Set the subnet mask of the SolarEdge Firefighter Gateway according to the LAN settings.

- **Set Gateway**: Set the default gateway address of the SolarEdge Firefighter Gateway according to the LAN settings.

- **Set DNS**: Set the DNS of the SolarEdge Firefighter Gateway according to the LAN settings.

- **Set Server Addr**: Set the IP address of the SolarEdge monitoring platform. This option is predefined in the SolarEdge Firefighter Gateway to specify the SolarEdge monitoring platform IP address and does not normally need configuration.

- **Set Server Port**: Set the port through which to connect to the SolarEdge monitoring platform. This option is predefined in the Firefighter Gateway to specify the SolarEdge monitoring platform IP port and normally does not need configuration.

> **NOTE**
>
> If your LAN has a firewall, you must verify that the address and port configured in the **Set Server Addr** and the **Set Server Port** fields are not blocked. You may need to configure it to enable the connection to the following address:
>
> Destination Address: prod.solaredge.com
>
> Port: 22222

Connecting and Configuring LAN

To connect the Ethernet cable to the router/switch:

1. Use a pre-crimped cable or use a crimper to prepare an RJ45 communication connector on both ends of a standard CAT5/6 cable: Insert the eight wires into the RJ45 connector. CAT5/6 standard cables have eight wires (four twisted pairs), as shown in the diagram below. Wire colors may differ from one cable to another. You can use either wiring standard, as long as both sides of the cable have the same pin-out and color-coding. See Figure 18 below.

Wire

2. Connect one end of the Ethernet cable to the RJ45 plug at the router or Ethernet gateway that is connected to the Internet.

3. Thread the other end through a gland and connect to the Firefighter Gateway Ethernet connector.
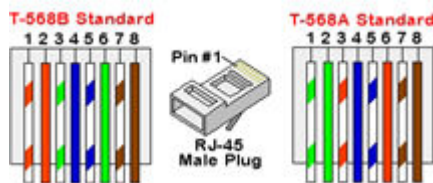
4. Verify that the yellow communication LED turns ON.

Figure 18: Standard cable wiring

To configure Ethernet communication to the SolarEdge monitoring platform:

Define the device connected to the monitoring platform as the leader device. The server communication method is configured by default to **LAN with DHCP enabled.** If a different setting is required, follow the steps below:

1. Enter Setup mode, as described in: To enter Setup mode: on page 33.

2. Set the Firefighter Gateway as the leader of the RS485 bus and perform follower detection as described in Creating an RS485 Bus Connection on page 18.

3. To configure the LAN to Static IP select the following in the LCD menus on the Firefighter Gateway:

   - Communication > Server > LAN

   - LAN Conf > Set DHCP > <Dis>

4. Set the IP, subnet mask, gateway DNS, server address, and server port as necessary using the LCD User buttons. Refer to the Ethernet Communication Configuration Options on page 44.

5. Verify the that the status field in the Server Communication Status window displays S_OK:

   ```
   Server:LAN   <S_OK>
   Status:      <OK>

       xxxxxxx

   <ERROR MESSAGE>
   ```

6. Exit the Setup mode.

Appendix A: Mounting the ZigBee Plug-in in the Firefighter Gateway

📝 **NOTE**

You need to purchase separately the ZigBee Plug-in.

1. Turn the inverter Safety Switch (if applicable) to OFF.

2. Turn the inverter ON/OFF switch to OFF.

3. Disconnect the AC to the inverter by turning OFF the circuit breakers on the distribution panel. Wait at least 5 minutes for the capacitors to discharge.

4. Open the Firefighter Gateway cover.

5. Unscrew the nut and washer on the ZigBee Plug-in.

6. Connect the ZigBee Plug-in in a Firefighter Gateway board as shown below, and ensure that:

   - The antenna connector at the end of the ZigBee Plug-in goes through the bracket

   - All pins are correctly positioned in the Firefighter Gateway socket and no pins are left out of their socket
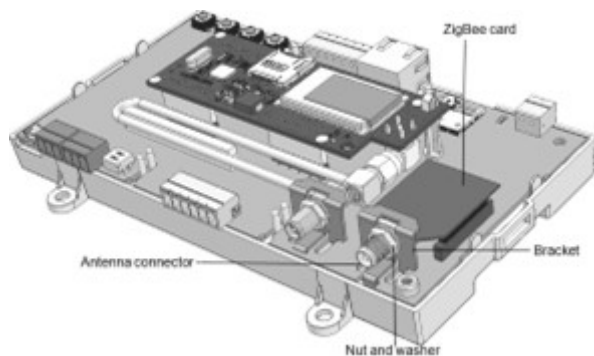
   - The card is firmly in place

Figure 19: ZigBee Plug-in on a Firefighter Gateway board

7. Screw in the nut and washer on the ZigBee Plug-in

8. Connect the antenna.

9. Replace the Firefighter Gateway cover.

Appendix B: Connecting Emergency Stop Button or Fire Alarm

Overview

An external emergency stop button (not supplied by SolarEdge) should be connected to the firefighter gateway, to shut down the PV system in case of emergency. Pressing the

emergency stop button starts the shutdown sequence of the PV system. Preferably, use a button with a locking feature that stays mechanically locked in the off position until you turn it clockwise a quarter turn to unlock and release it. The firefighter gateway can also be connected to a fire alarm control unit that has a relay output. The relay output of the fire alarm control has the same functionality as the button. You can connect both a stop button and a relay together to the same Firefighter Gateway, or two stop buttons or two relays.
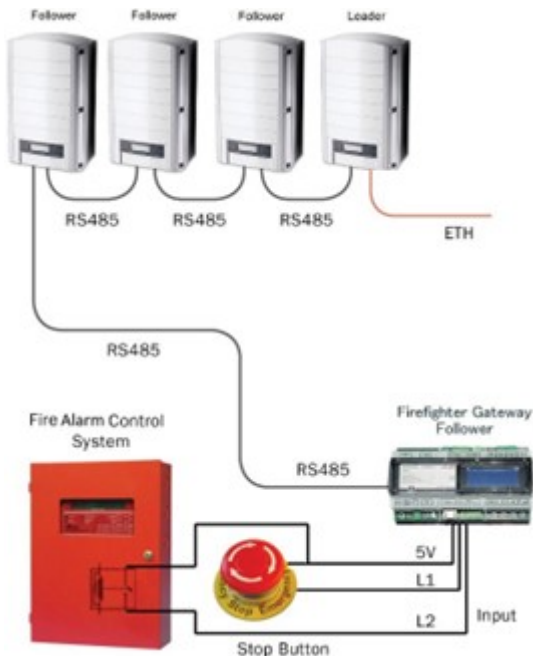

Figure 20: Example of the emergency stop button and fire alarm system connection

The emergency stop button(s) or relay(s) connect to the L1 or L2 ports on the Control connector of the gateway, between 5V and L1 / L2 / both. In the following sections, the instructions refer to L1, however applies to L2 as well.
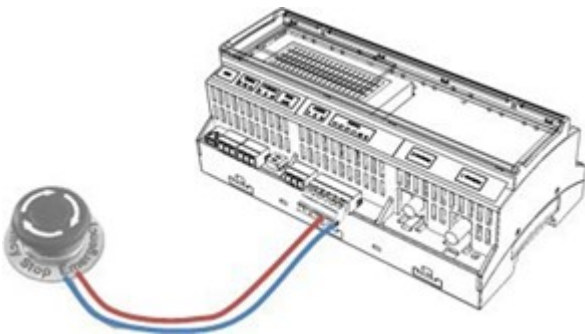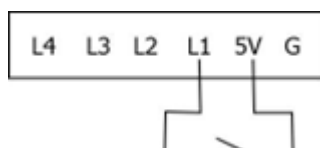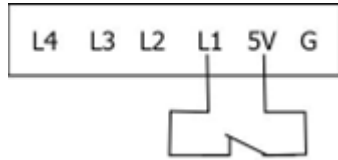

Figure 21: Emergency stop button connection

There are two types of contact states in Emergency Stop buttons/relays:

- **Normally open (NO)** – the contacts are open until closed by operation of the switch. This type of switch should be connected in the following manner:

This installation is safe when L1/L2 has 5V input, and active with L1/L2 is not connected. This is considered Normal polarity in the configuration screen.

- **Normally closed (NC)** – the contacts are closed until opened by operation of the switch. This type of switch should be connected in the following manner:


This installation is safe when L1/L2 is not connected and active when L1/L2 is 5V. This is considered Reverse polarity in the configuration screen.

- If you connect more than one firefighter gateways to the same emergency stop button, they should connect to the same grounding, as in the following example:
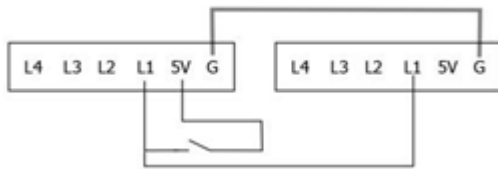
- In some fire alarm control systems, the switch is grounded internally. This type of switch should be connected in the following manner, sharing ground between the control system and the Firefighter Gateway.
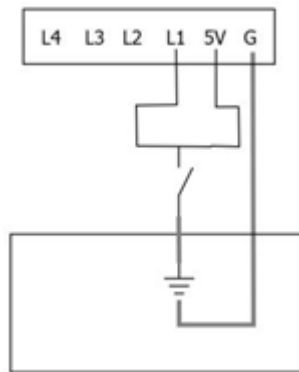
In these cases, a Normally Open relay will connect L1/L2 to ground for safety, and when active, L1/L2 is 5V. This will be configured as a reverse polarity switch.

Connecting and Configuring an Emergency Stop Button to the Gateway

1. Depending on the button/relay type, connect L1/L2, 5V and Ground as described above. Use wire size 20 AWG/ 0.52mm2: Insert the ends of wires into the ports of the supplied 6-pin terminal block.
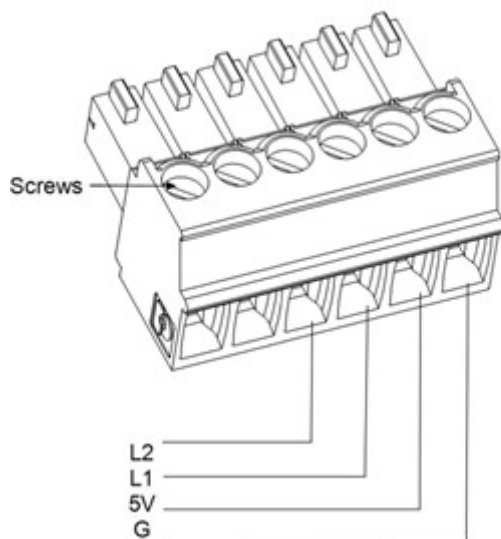
Figure 22: 6-pin Terminal Block

2. Insert the terminal block into the Control connector on the firefighter gateway.

3. Verify that the SolarEdge gateway is connected to a power outlet.

4. Press the Enter button until the following message is displayed:

P l e a s e   e n t e r
P a s s w o r d
* * * * * * * *

5. Use the three-right most LCD buttons to type in the following password: 12312312. The following menu is displayed:

L a n g u a g e < E n g >
C o m m u n i c a t i o n
R e m o t e   S h u t d o w n
P o w e r   C o n t r o l
D i s p l a y
M a i n t e n a n c e
I n f o r m a t i o n

6. Short-press the up/down buttons to scroll to the Remote Shutdown menu. Press the Enter key to select it. The remote shutdown parameters are displayed:

L 1 P o l a r i t y < N o r m . >
L 2 P o l a r i t y < N o r m . >
S a f e V d c < 1 2 0 V >
C l r   A l a r m   M o d e < M >
C l e a r   A l a r m

7. Set the following:

- **L1/L2 Polarity**: The lines polarity - Normal (default) or Reverse
  - Normal – safety will be activated when L1/L2 has 5V

- Reverse – Safety will be activated when L1/L2 is connected to ground or not connected.

- **Safe Vdc**: Threshold value for safe Vdc: When the maximum DC voltage (of all connected devices) reaches this threshold, the PV system will be considered safe and the display will show Safe DC in the main gateway status screen. You may set the threshold in the range between 30 -120V (default 120V)

- **Clr Alarm Mode**: Select the method to return to normal operation as soon as the emergency stop button is released:

  - Automatic (default) – when releasing the stop button or relay, the system immediately returns to normal power production.

  - Manual – when releasing the stop button or relay, the system will not return to normal operation unless the user manually clears the alarm by selecting **Clear Alarm** (below). Use this option if the button does not have the locking feature, the relay in the control system may open unexpectedly, or if the user requires this added step.

- **Clear Alarm**: Used to allow normal operation. Appears only if the Clr Alarm Mode parameter (above) is set to Manual, and the installation is in remote safety shutdown.

Appendix C: Inserting the GSM Modem in the Firefighter Gateway

> **NOTE**
>
> You need to purchase separately the GSM modem.

To turn off the inverter, disconnect the AC and insert a SIM card:

1. Turn the inverter Safety Switch (if applicable) to OFF.

2. Turn the inverter ON/OFF switch to OFF.

3. Disconnect the AC to the inverter by turning OFF the circuit breakers on the distribution panel. Wait at least 5 minutes for the capacitors to discharge.

4. Open the Firefighter Gateway cover.

5. If there is no SIM card installed in the modem, insert one into the slot on the GSM modem.

Figure 23: Inserting the SIM card into the GSM modem

To install the GSM modem in the Firefighter Gateway:

1. Insert the top of the plastic spacer through the opening in the GSM modem, as shown in Figure 24.
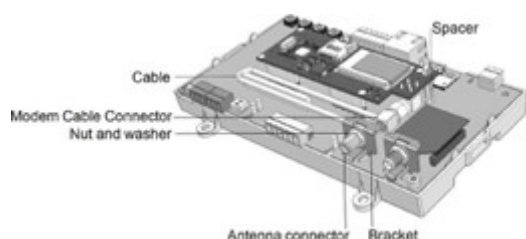

Figure 24: GSM modem on a Firefighter Gateway board

2. Connect one end of the cable to the GSM modem connector.

3. Remove the nut and the washer from the other end of the cable and insert the cable through the bracket on the Firefighter Gateway board.

4. Re-attach and tighten the nut and washer.

5. Place the GSM modem on the Firefighter Gateway board and ensure that:

   • The three rows of pins are correctly positioned in the Firefighter Gateway sockets and no pins are left out of their socket

   • The GSM modem is firmly in place on the Firefighter Gateway board

6. Connect the antenna to the antenna connector.

7. Replace the Firefighter Gateway cover.

8. Power on Replace the Firefighter Gateway cover.

9. AC.

10. Check that all the GSM modem LEDs are lit. If not, refer to Errors and Troubleshooting on page 56.
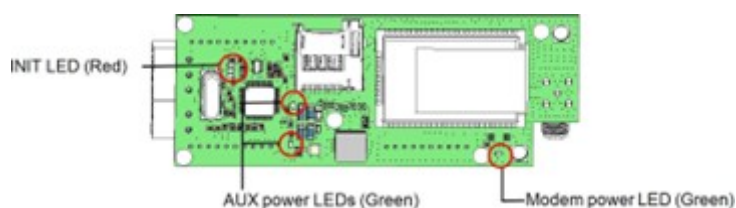

Figure 25: GSM modem LEDs

Appendix D: Errors and Troubleshooting

This appendix describes general system problems, and how to troubleshoot them. For further assistance, contact SolarEdge Support.

Troubleshooting Communication

Troubleshooting Ethernet Communication

When using Ethernet communication, use the Server Communication Status window to identify the location of the error:

```
Server:LAN      <S_OK>
Status:         <OK>
   xxxxxxxx
<ERROR MESSAGE>
```

xxxxxxxx is a string of 1s and 0s showing an eight-bit communication connection status. 1 indicates OK and 0 indicates an error.

Troubleshooting error messages

Bit Location	Error Message	Cause and Troubleshooting
1st	LAN Disconnected	Physical connection fault. Check the cable pin- out assignment and cable connection. Refer to Creating an Ethernet (LAN) Connection on page 44.
2nd	DHCP Failed, or Invalid DHCP Config	IP settings issue. Check the router and configuration. Consult your network IT.
3rd	Gateway Ping Failed	Ping to router failed. Check the physical connection to the switch/router. Check that the link LED at the router /switch is lit (indicating phy- link). If OK - contact your network IT, otherwise replace the cable or change it from cross to straight connection.
4th	G Server Ping Failed	Ping to google.com failed. Connect a laptop and check for internet connection. If internet access is unavailable, contact your IT admin or your internet provider. For Wi-Fi networks, ensure that username and password are as defined in the internet provider AP/router.
5th	Server x Ping Failed	Ping or connection to SolarEdge server failed. Check the SolarEdge server address, under LAN Conf submenu: Address: prod.solaredge.com Port: 22222
6th		
7th		
8th	Tcp Connect. Failed	Check with your network administrator whether a firewall or another device is blocking transmission.

1. If **No Communication** is displayed on the SolarEdge Firefighter Gateway, perform the following:
   - Verify that the RS485 cable is connected to all inverters. Check the connections between the first inverter in the chain and the other inverters.

- Verify that one of the devices is defined as the leader and that followers were detected, as described above.

2. If **Partial Com.** is displayed on the firefighter gateway, one or more inverters are disconnected from the bus. Perform the following:

   - Verify that the RS485 cable is connected to all inverters.

   - Check the Server Communication Status screen of all the inverters. The following should appear:

     S e r v e r : R S 4 8 5
     S t a t u s : O K

3. If the message **Leader Not Found** appears, check the connections to the leader device and fix if required.

4. If after follower detection the number of followers displayed in the leader under **RS485-X Conf > Follower Detect** is smaller number of followers, use one of the following methods to identify missing followers and troubleshoot connectivity problems:

   - Use the **Long Follower Detect** to retry connecting to followers.

   - Analyze the **Follower List** to check for missing followers and check their connection.

For details, see: https://knowledge-center.solaredge.com/sites/kc/files/troubleshooting_undetected_RS485_devices.pdf

Addition Troubleshooting

1. Check that the modem or hub/router is functioning properly.

2. Check that the connection to the internal connector on the communication board is properly done.

3. Check that the selected communication option is properly configured.

4. Use a method independent of the SolarEdge device to check whether the network and modem are operating properly. For example, connect a laptop to the Ethernet router and connect to the Internet.

5. Check whether a firewall or another type of network filter is blocking communication.

Appendix E: Mechanical Specifications
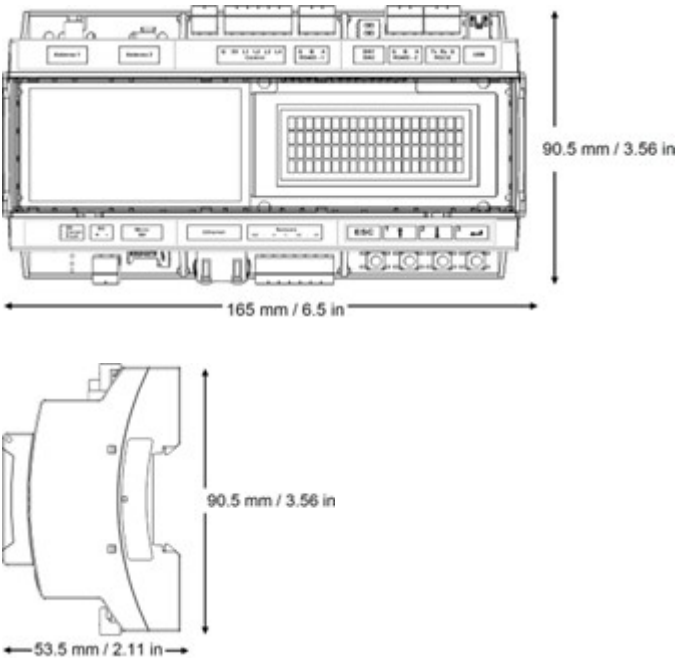
Firefighter Gateway Technical Specifications

Technical specification

Power	Description	Units
Power Supply – DIN Rail	Included, 100–240 VAC, EU/UK/US/AU interchangeable 2-pin plug	
Supply Voltage	9-14	Vdc
Connector Type	Terminal block	
Power Consumption	<2	W
Communication Interfaces	**Type**	
Ethernet Interface	10/100-BaseT	
Wireless Connections	ZigBee Plug-in[1], GSM[1,2]	
Fire Alarm Control Panel Interface	2 alarm inputs, 5V, GND[3]	
SolarEdge Inverters	RS485	
Environmental		

Power	Description	Units
Operating Temperatures	-20 to 60 / -4 to 140	°C / °F
Protection Rating	IP20 Indoor	
Mechanical		
Mounting Type	DIN rail/ Wall mount	
Dimensions (L x W x H)	161.6 x 90 x 62 / 6.36 x 3.54 x 2.44	mm / inches
Weight	< 0.5 / 1.1	kg/lbs
Standard Compliance		
Safety	Standard Compliance UL60950-1, IEC 60950-1	
EMC	FCC Part 15 class B, IEC 61000-6-2, IEC 61000-6-3	

[1]Sold separately - see individual product specs for support locations
[2]EU only
[3]Emergency stop button is not supplied by SolarEdge