solaredge

Installation Guide

Cellular Plug-in
for Inverters with SetApp

Version 1.1

Version History

Version 1.0 (initial release)- January 2019

Version 1.1- January 2019

- Modified Technical Specifications modem size

solaredge

Contents

Disclaimers

Important Notice

Please note: This product is intended to provide remote shutdown of the SolarEdge PV harvesting system, to enable safer access to a building in the event of fire. This product DOES NOT reduce the risk of fire or protect firefighters or others accessing a building in the event of a fire.

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.

FCC Compliance

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. 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.

solaredge

Support and Contact Information

If you have technical problems concerning SolarEdge products, please contact us:

USA and Canada: 1 510 498 3200

Fax: +1 (530) 273-2769

Email: ussupport@solaredge.com.

Support Center: https://www.solaredge.com/us/service/support

Before contact, make sure to have the following information at hand:

- Model and serial number of the product in question.

- The error indicated on the Inverter SetApp mobile application or on the monitoring platform or by the LEDs, if there is such an indication.

- System configuration information, including the type and number of modules connected and the number and length of strings.

- The communication method to the SolarEdge server, if the site is connected.

- The inverter software version as appears in the status screen.

About This Guide

This manual describes how to install and set up Cellular communication in a SolarEdge inverter.

SolarEdge offers the Cellular communication option for connection of the SolarEdge inverter to the SolarEdge monitoring server.

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 installation guide.

This guide includes the following chapters:

- Chapter 1: "System Compatibility Check and Upgrade" on page 10 describes how to check the inverter SW version and upgrade if required.

- Chapter 2: "Cellular Plug-in and Antenna Installation" on page 1, describes how to mount, connect and verify the connection of the Cellular Plug-in and antenna.

- Chapter 3: "Configuring Cellular Communication " on page 18 describes, how to set up the cellular communication option in the inverter, and check the communication.

solaredge

- *Technical Specifications - Cellular Plug-in* on page 27, provides the electrical and mechanical specifications of the SolarEdge Cellular Plug-in.

For further information, datasheets and the most up-to-date certifications for various products in different countries, please visit the SolarEdge website: www.solaredge.com.

solaredge

Chapter 1: System Compatibility Check and Upgrade

Software Requirements

To use the Cellular communication option, the communication board firmware (CPU) version must be 4.2.XX or higher(three phase inverters) or 4.4.xx or higher (single phase inverters).

→ To check the inverter CPU version and upgrade firmware using SetApp:

1. Access SetApp and select **Commissioning ➔ Information**

2. If required, upgrade to the latest available firmware :select **Maintenance➔Firmware Upgrade**, and follow the instructions on the screen.

Chapter 2: Cellular Plug-in and Antenna Installation

This chapter describes how to install a Cellular Plug -in and antenna in each of a SolarEdge devices that will communicate with the SolarEdge monitoring platform.

When using multiple SolarEdge inverters in the same site, a cellular modem must be installed in each inverter.
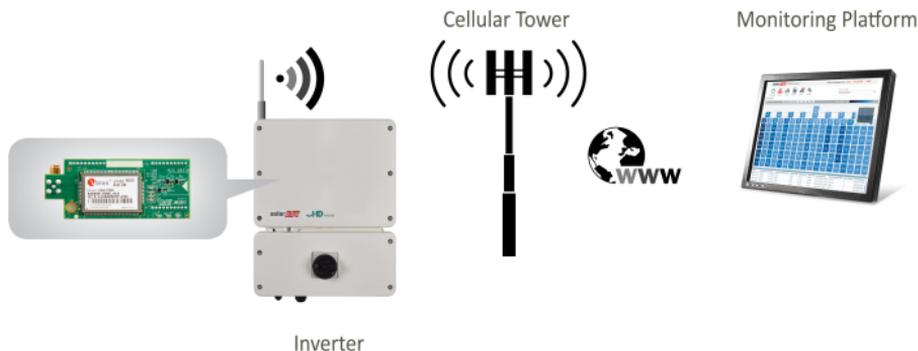
Figure 1: Cellular Plug-in connection diagram

Package Contents

▰ Cellular Plug-in

▰ Antenna and mounting clip with antenna cable

Clipping the Antenna to the inverter

1. Power off the inverter:

   a. Turn the inverter ON/OFF/P switch to OFF. Wait 5 minutes for the capacitors to discharge.

   b. Turn the Safety Switch to OFF.

   c. Disconnect the AC to the inverter by turning OFF the circuit breakers on the distribution panel.

2. Insert the clip from the bottom of the inverter between the bracket and the inverter rear side.

3. Route the antenna cable upwards along the inner fins or the inverter side, by threading the clip and RF cable from the bottom of the inverter between the bracket and the inverter's rear side.
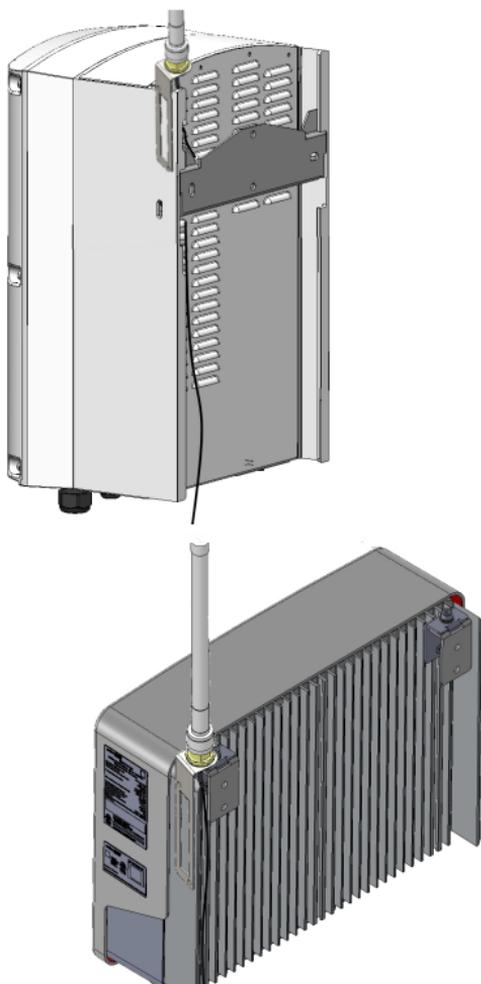
Figure 2: Routing the antenna cable

4. Clip the antenna vertically to the heatsink fins or the inverter side.

5. Pass the antenna cable between the mounting bracket and the rear side of the inverter or along the heatsink fins.

6. Open the communication gland at the bottom of the inverter.

7. Remove the rubber seal from the gland and insert the cable through the gland body and the opened connection of the inverter.

8. Insert the rubber seal with the cable into the gland body and reconnect the gland to the inverter. Tighten the sealing gland.

9. Pull the excess cable into the inverter so that the cable can be attached to the inverter communication board (see *Figure 4*). The cable connects to the cellular Plug-in as described in the next section.

solar edge

Connecting the Antenna to a Vertical Surface using a Bracket

For connecting the antenna to a vertical surface (i.e. a wall), use a bracket with the following recommended dimensions (not supplied by SolarEdge):

≈ 0.15"/4 mm

≈ 1.5"/40 mm

≈ 2.5"/60 mm
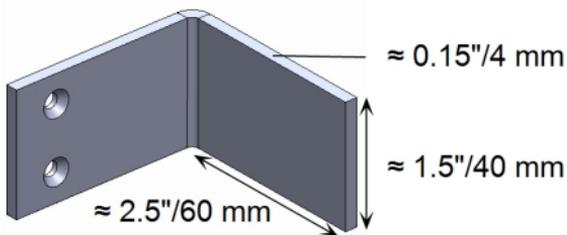
Figure 3: Example of antenna bracket

1. Drill two holes in the surface and attach the bracket to it with two screws.

2. Clip the antenna onto the bracket. Make sure the antenna is vertical.

Installing the Plug-In in the Inverter

NOTE

If the Cellular Plug-in is pre-installed in the inverter, this step is not required.

1. Remove the inverter cover as described in its manual.

→ To Install the Plug-in in the inverter:

1. Locate the Plug-in in its place on the communication board, as shown in *Figure 4*.

   follow these guidelines:

   - ✎ Plug in the Plug-in making sure that all pins are correctly positioned in the Plug-in connector, and no pins are left out of the connector.

   - ✎ Make sure that the Plug-in is firmly in place.

2. Connect the antenna cable to the cellular Plug-in and tighten manually (as shown in Figure 3).
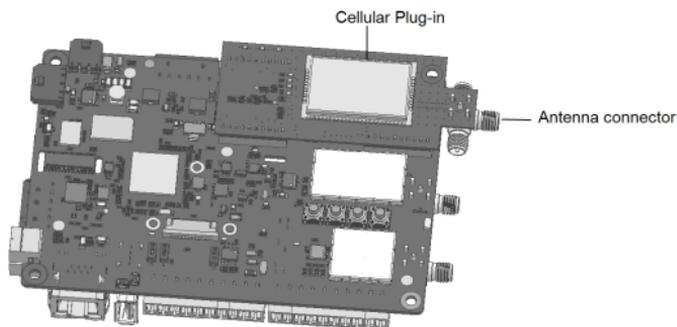
Figure 4: Installed Plug-in and antenna connector

3. Turn the AC ON.

solar**edge**

> WARNING!
>
> ELECTRICAL SHOCK HAZARD. Do not touch
> uninsulated wires when the inverter cover is
> removed.
>
> AVERTISSEMENT!
>
> *RISQUE D'ÉLECTROCUTION, ne touchez pas les fils*
> *non isolés lorsque le couvercle de l'onduleur est*
> *retiré*.

4. Check that all the cellular Plug-in LEDs are lit. If not, refer
   to "Configuring Cellular Communication " on page 18
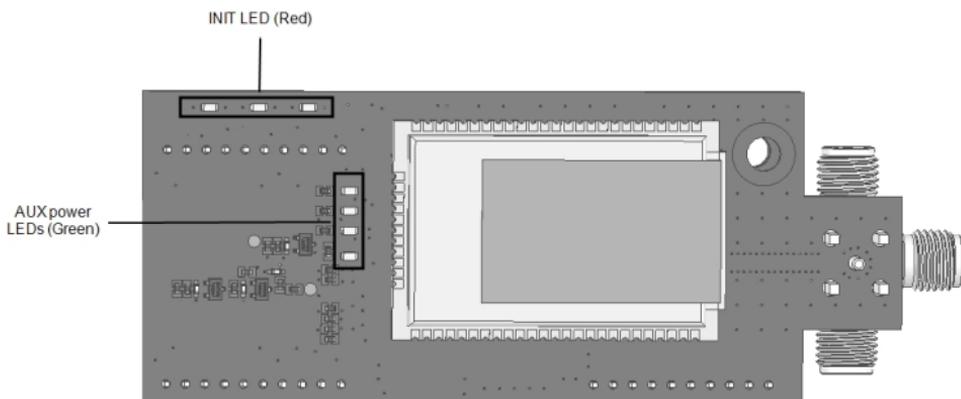
Figure 5: Cellular Plug-in LEDs

Chapter 3: Configuring Cellular Communication

This chapter describes how to configure the inverter to use cellular communication, verify the connection and troubleshoot problems.

Configuring the Inverter

1. Ensure you have installed the Plug-in and antenna. For instructions see"Cellular Plug-in and Antenna Installation" on page 11 .

2. Activate, commission and configure the inverter (except for communication) according to the Inverter Installation Guide.

3. Access SetApp and select **Communication➔Server ➔Cellular**
   A blue check mark appears in the Cellular row indicating that a connection has been established.

solar**edge**

Verifying the Connection and Viewing Communication Status

You view error messages on the Status screen.

The Cellular Plug-in communicates with the SolarEdge monitoring platformcontinuously and every 5 minutes sends all monitoring data accumulated since last communication.

→ To access the SetApp Status screen:

1. Do one of the following:

- ◢ During first time Commissioning and configuration: From the **Commissioning** menu select **Status**. The main inverter Status screen is displayed (see on the following page)

- ◢ If the inverter has already been activated and commissioned - open SetApp and follow the instructions on the screen (scan the inverter bar-code; move the ON/OFF/P switch to P position (for less than 5 sec) and release.

  The mobile device creates a Wi-Fi connection with the inverter and displays the inverter main Status screen.

solar edge

Status

Inverter		
SN 07318000C		

Power	**Voltage**	**Frequency**
100 kW	277 Vac	60.9 Hz

⏱ **P_OK: 138 of 141** Optimizers Connected	**S_OK** Server Connected Cell

Status Production	⚠ **Switch** OFF

CosPhi	**Limit**	**Country**
1.00	No Limit	USA2

Voltage	**Temp**	**Fan**
850 Vdc	156 F	OK

⚠ Switch Off. Production disabled ❯

Commissioning

Figure 6: SetApp Status screen

2. Verify that **S_OK** (inverter established a successful physical connection to the monitoring platform) and **Cell** (the method of communication to the SolarEdge monitoring platform) appear on the Status screen.

3. If required you can view the:

- mobile network operator name (MNO) on the Communication menu.
- The Signal strength received from the cellular Plug-in(Sig) on the Status screen *Figure 6*. The strength is displayed as a value between 0-5, (0 = no signal, 5 = excellent signal).

Viewing Error Messages and Troubleshooting

The Inverter is not Starting Up

If the inverter is not starting up, the Plug-in may have been installed in an inverter with an incompatible CPU software version.

Check if the Plug-in is installed, remove it and upgrade the inverter as described in *System Compatibility Check and Upgrade* on page 10 .

You view error messages on the SetApp screen. To access the SetApp Status screen see *Viewing Error Messages and Troubleshooting* on page 22.

Error message	Description	Troubleshooting
Cellular Plug-in detected	The internal Plug-in is not communicating with the communication board.	Check that the Cellular Plug- in is installed properly: All the pins are inserted in the correct location and not shifted.
Not activated	The cellular Plug-in is not activated for use.	Contact SolarEdge support

Error message	Description	Troubleshooting
Not registered	The Cellular Plug - in is not registered to a network provider.	• Check antenna connection or change antenna location. • Contact SolarEdge support.
No signal	No cellular signal is received.	• Check antenna connection or change antenna location. • Check that the cable is connected properly to both Plug-in and antenna • Contact SolarEdge support.

Error message	Description	Troubleshooting
DNS Failed	The DNS request that was forwarded to the cellular network provider has failed, or there is a problem in the DNS registration on the SolarEdge server.	Contact SolarEdge support.
TCP Connect. Failed	Connection to the SolarEdge server has failed.	Contact SolarEdge support.
S_OK is not displayed	Communication with the SolarEdge monitoring server is not established.	Verify that none of the above errors appear. To force communication with the server, scroll to the Communication menu and re-select Cellular.

Plug-in LED Indications

Function	LED functionality	Description	Troubleshooting
AUX Power LEDs	All LEDs are OFF	The Plug-in is not connected properly	Check that the Plug-in is installed properly: All the pins are inserted in the correct location and not shifted.
		The Plug-in is damaged	Contact SolarEdge support
	The green Plug-in power LED is ON, but one or more of the other LEDs is OFF	The Plug-in is damaged	Contact SolarEdge support

solaredge

Chapter 3: Configuring Cellular Communication

Function	LED functionality	Description	Troubleshooting
Init LEDS	Red LED is blinking slowley	Communication between Plug-in and main board is established	Indication only
	Orange ON	The Plug is registered to a cellular network	Indication only
	Green ON	The Plug-in is connected to the Internet	Indication only

Cellular Plug-in Installation Guide MAN-01-00556-1.1

solaredge

Technical Specifications - Cellular Plug-in

Electrical			Min.	Typ.	Max.	Units
Operating frequency range	CDMA 800	Modem transmit	824	-	849	MHz
		Modem receive	869	-	894	MHz
	CDMA 1900	Modem transmit	1850	-	1910	MHz
		Modem receive	1930	-	1990	MHz
Receiver input sensitivity (Forward link RF level@ FER < 0.5%)			-106	-107	-	dBm
Maximum transmit power			24			dBm
Antenna connector			RP-SMA			
Power consumption @transmit			2.5			W

Mechanical		
Modem dimensions (L x W)	Through-Hole: 3.9 x 1.25 / 78.3 x 32.2	in/mm
Operating temperature	-40 to +185 / -40 to +85	°F/°C
Compliance		
EMC and Radio	FCC class B, Parts 15, 22, 24;	
Safety	UL, UL60950	
RoHS	Yes	

If you have technical queries concerning our products, please contact our support through SolarEdge service portal:
www.solaredge.com/service/support

US & Canada (+1)	(0) 510 498 3200
Worldwide (+972)	(0) 073 240 3118
Fax (+1)	(0) 530 273-2769
Email	ussupport@solaredge.com

solar**edge**