

English

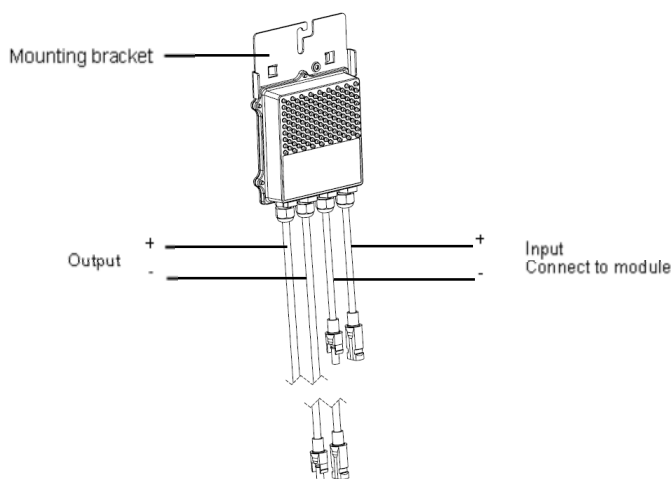
English

SolarEdge System Quick Installation Guide

For full installation and safety details, refer to the SolarEdge Installation Guide. Make sure you read, fully understand and follow the detailed instructions in it prior to each installation. Failure to do so may result in injury or loss of life and damage to the equipment.

Connecting Power Optimizers to Modules

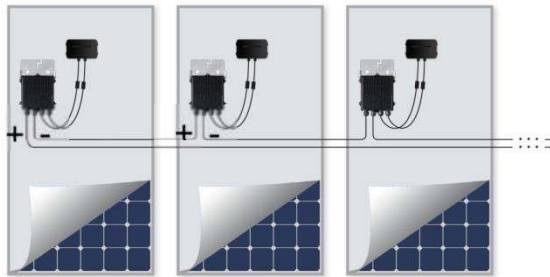
- 1 Mount the power optimizers in a shaded location near the PV modules, on the structure or racking to which the module is attached, using both mounting holes. If possible, avoid mounting power optimizers in locations where they will be exposed to direct sunlight. Make sure that each power optimizer is positioned within reach of each module's cables. To allow proper heat dissipation, maintain a 1" / 2.5 cm clearance distance between the power optimizer and other surfaces.
- 2 Attach each power optimizer to the rack using the M6 (1/4") or M8 (5/16") bolts, nuts and washers.
- 3 To benefit from the physical mapping of the installation in the SolarEdge monitoring portal, record each power optimizer's serial number and location: Peel off its removable barcode sticker and stick it on the mapping template, or scan the barcode with the SolarEdge iPhone Site Mapper app. Upload the map to the SolarEdge website, using the site registration form.
 - ☐ Connect the Plus (+) output connector of the module to the Plus (+) input connector of the power optimizer.
 - ☐ Connect the Minus (-) output connector of the module to the Minus (-) input connector of the power optimizer.

**NOTE**

Images are for illustration purposes only. Refer to the label on the product to identify the plus and minus input and output connectors.

Connecting Power Optimizers to a String

- 1 Connect the power optimizer outputs in series: Connect the Minus (-) output connector of the string's first power optimizer to the Plus (+) output connector of the string's second power optimizer. Connect the rest of the optimizers in the string in the same manner.
 - ☐ The minimum and maximum string length should be according to the power optimizer datasheet.
 - ☐ Strings do not have to be of equal length.



- 2 Verify proper connection of power optimizers: Before the inverter is turned ON, each power optimizer produces 1V safety-voltage, which should be verified for each string using a voltmeter. The voltage on a string is the number of modules multiplied by 1V, with a deviation of 10mV per module. Make sure the modules are exposed to sunlight during this process.



NOTE

If several strings are connected in parallel, verify voltage for each string separately

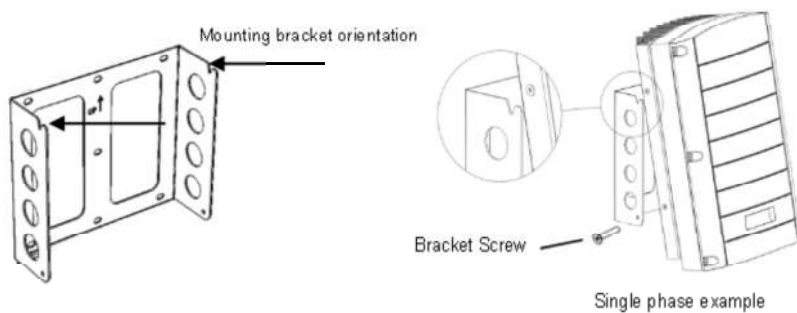
Mounting the Inverter

- 1 Make sure that the inverter ON/OFF switch at the bottom of the inverter is switched OFF before and during the installation, and that the AC circuit breaker is OFF.
- 2 Install the mounting bracket (Type 1 or Type 2, see below) on the wall. Make sure to leave clearance areas to allow for heat dissipation:
 - ☐ 20 cm / 8" to the top and bottom of the inverter
 - ☐ 10 cm / 4" to the right and left of the inverter
 - ☐ When installing inverters one above of the other, leave at least 40 cm / 16" between inverters.
 - ☐ When installing inverters side by side, follow these clearance specifications:

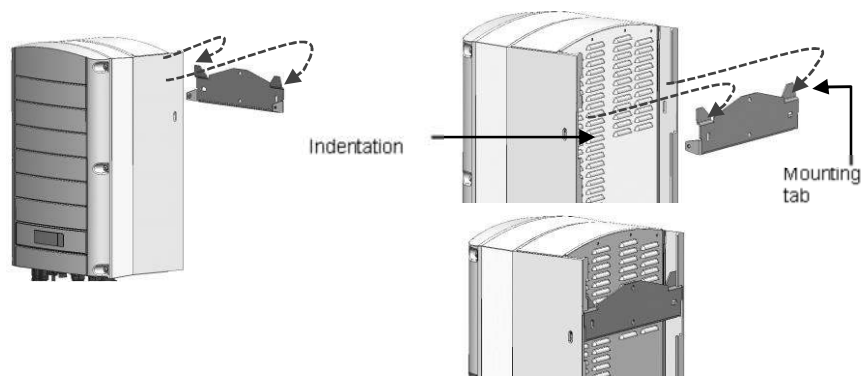
	Single Phase Inverters	Three Phase Inverters
Locations where the yearly average high temperature is below 25°C	20 cm / 8" between inverters	20 cm / 8" between inverters
Locations where the yearly average high temperature is above 25°C		40 cm / 16" between inverters



- ☐ Type 1 - with the U-shaped indentations facing up, and the “UP” marking in correct orientation



- ☐ Type 2 - Ensure that the flat side of the bracket is at the bottom.

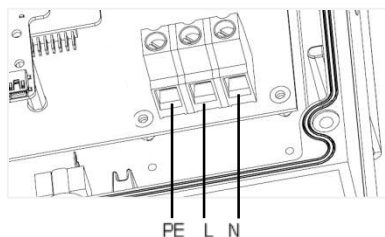


- 3 Hang the inverter on the bracket: Lift the inverter from the sides, or hold it at the top and bottom of the inverter to lift the unit into place
 - ☐ Type 1 bracket - Use the screws at the top of the inverter. Let the inverter lay flat against the wall or pole.
 - ☐ Type 2 bracket - Align the two indentations in the inverter enclosure with the two triangular mounting tabs of the bracket, and lower the inverter until it rests on the bracket evenly.
- 4 Secure the inverter to the bracket using the two supplied screws.

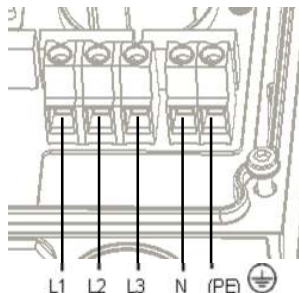
Connecting the AC and the Strings to the Inverter

- 1 Use an M6 Allen key to open the inverter's six cover screws and remove the cover.
- 2 Connect the AC cable to the AC connection terminal block found in the lower right hand corner of the inverter. Connect the PE (grounding) wire first.

Single Phase Inverter	
Wire type	Connect to terminal
Protective Earth	PE
Line	L
Neutral	N



Three Phase Inverter	
Wire type	Connect to terminal
Line 1	L1
Line 2	L2
Line 3	L3 (feeds the internal power supply)
Protective Earth	PE
Neutral	N



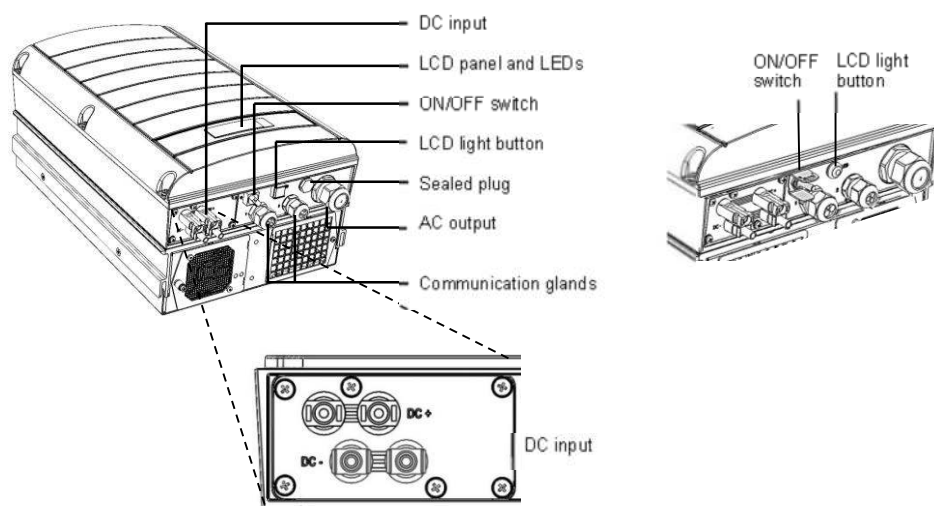
NOTE

If power control is enabled, the order of grid lines connection to the inverter is important. A 120deg phase difference between L1 to L2 and between L2 to L3 should be kept (L1-L2-L3 and not, for example L1-L3-L2). If the grid lines are not in this order, an error will be displayed on the LCD and the inverter will not produce power.

- 3 Verify that the wires are fully inserted and cannot be pulled out easily, and that there are no unconnected wires.

- 4 Connect the DC connectors of each string to the DC+ and DC- connectors according to the labels on the inverter.

Example of inverters with two types of interface



English

Commissioning and Activating the Installation

- 1 Verify that the inverter ON/OFF switch is OFF. Turn ON the AC breaker.

**WARNING!**

ELECTRICAL SHOCK HAZARD. Do not touch uninsulated wires when the inverter cover is removed.

- 2 Activate the inverter according to the activation instructions supplied in the inverter package.
- 3 Verify that the inverter is configured to the proper country: Press the LCD light button until reaching the ID status screen:

```
ID : ##### #
DSP1 / 2 : 1 . 0 2 1 0 / 1 . 0 0 3 4
CPU : 0 0 0 2 . 0 1 1 1
Country : United Kingdom
```

- 4 Verify the following in the LCD display:

```
Vac [ v ]   Vdc [ v ]   Pac [ w ]
240 . 7     14 . 1     0 . 0
P _ O K :   0 0 0 / 0 0 0   < S _ O K >
                        O F F
```

- ☐ Vac: Specifies the grid voltage.
- ☐ Vdc[V]: Shows the total string voltage (1V for each power optimizer properly connected in series).
- ☐ Pac: AC power production. At this stage, it should be 0w.

- ☐ P_OK: Specifies the number of properly connected power optimizers.
 - ☐ S_OK: Indicates the status of the connection to the SolarEdge monitoring server.
- 5 If required, perform the following before closing the inverter cover:
- ☐ Country settings or inverter configuration using the internal LCD user buttons: Enter the menus by pressing ENTER for five seconds and then input the password 12312312.
 - ☐ Communication connections—refer to Setting up Communication on page 9
- 6 Close the inverter cover and secure it by tightening the screws with a torque of 9.0 N*m/ 6.6 lb*ft. For proper sealing, first tighten the corner screws and then the two central screws.

**WARNING!**

ELECTRICAL SHOCK HAZARD. Before proceeding to the next step, make sure that the inverter cover is closed!

High DC voltage will be present in the inverter following the next step!

Pairing Power Optimizers to the Inverter

- 1 Verify that the inverter ON/OFF switch is OFF.
- 2 Press and hold down the inverter LCD light button for about 10 seconds. The following message is displayed:

```
Keep holding button
for pairing, release
to enter menu...
Remaining: 3 sec
```

Keep holding for 5 seconds until the following is displayed:

```
Pairing
Turn Switch To On
```

- 3 Turn the inverter ON/OFF switch to ON within 5 seconds. If you wait longer than 5 seconds the inverter exits the pairing mode. The following message is displayed indicating that the inverter is performing the pairing.

```
Pairing
Remaining [sec]: 180
```

- 4 Wait for the completion of the pairing (remaining seconds is 0). If pairing fails, an error is displayed. In this case, repeat the pairing steps. If the problem persists, contact SolarEdge Support. When pairing succeeds, the following message is displayed:

```
Pairing
Pairing Completed
```

- 5 At the end of the pairing process, the system will start producing power (may take a few minutes depending on your country regulations). Verify on the LCD screen that the number next to P_OK equals the number of installed Power optimizers. It may take up to 20 minutes until all the power optimizers are indicated.

**IMPORTANT SAFETY FEATURE**

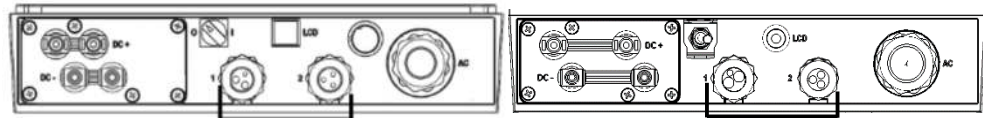
After switching the inverter ON/OFF switch to ON, there is HIGH DC VOLTAGE.

After switching the inverter ON/OFF switch to OFF, wait for the LCD to indicate that the DC voltage is safe before opening the cover or disconnecting the strings.

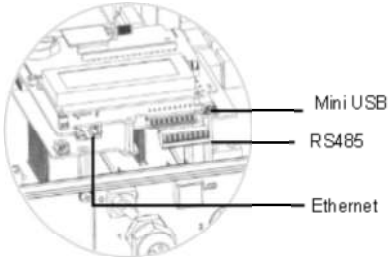
Setting up Communication

Two communication glands are used for connection of the various inverter communication options. Each gland has three openings. The table below describes the functionality of each opening. Unused openings should remain sealed.

Gland#	Opening	Functionality	Cable Size (diameter)
1(PG 16)	One small	External antenna cable (ZigBee, Wi-Fi)	2-4 mm
	Two large	Ethernet connection (CAT5/6)	4.5-7 mm
2 (PG 13.5)	All three	RS485, power reduction, electricity meter	2.5-5 mm



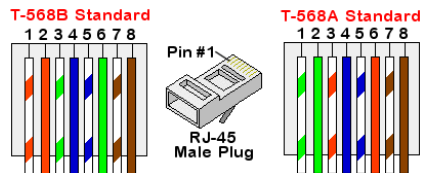
The inverter has an RJ45 connector for Ethernet communication, and a 9-pin terminal block connector for RS485/ RS232 communication.



Creating an Ethernet (LAN) connection

- 1 Make sure that the ON/ OFF switch at the bottom of the inverter is turned OFF.
- 2 Remove the seal from one of the two large openings in communication gland #1 and insert an Ethernet CAT5/6 cable through the opening.

	RJ45 Pin #	Color	
		T568B Standard	T568A Standard
	1	White/Orange	White/Green
	2	Orange	Green
	3	White/Green	White/Orange
	4 and 5	Blue + White/Blue	Blue + White/Blue
	6	Green	Orange
	7 and 8	Brown + White/Brown	Brown + White/Brown
	Aluminum shield		



- 3 Use a pre-terminated cable to connect via gland no.1 to the RJ45 plug on the inverter's communication board, or, if using a cable drum, connect as follows:
 - ☐ Insert the cable through gland no.1.
 - ☐ Insert the eight wires into an RJ45 connector, as described in the figure above.
 - ☐ Use a crimping tool to crimp the connector.
 - ☐ Connect the Ethernet connector to the RJ45 plug on the inverter's communication board.
- 4 For the switch/router side, use a pre-terminated cable or use a crimping tool to prepare an RJ45 communication connector: Insert the eight wires into the RJ45 connector, maintaining the same color coding and pinout on both sides of the Ethernet cable.
- 5 Connect the cable's RJ45 connector to the RJ45 port of the Ethernet switch or router.
- 6 Inverters are configured by default to LAN. If reconfiguration is required:
 - ☐ Make sure the ON/OFF switch is OFF.
 - ☐ Turn ON the AC to the inverter by turning ON the circuit breaker on the main distribution panel.

**WARNING!**

ELECTRICAL SHOCK HAZARD. Do not touch uninsulated wires when the inverter cover is removed.

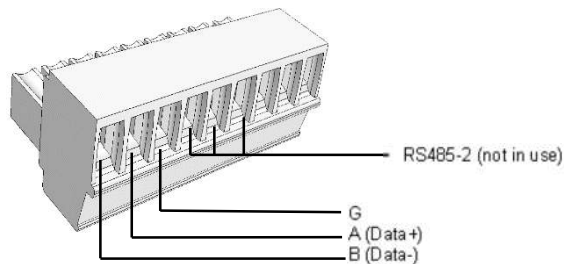
- ☐ Use the user buttons to configure the connection.

Creating an RS485 connection

NOTE

If an electricity meter is connected to your inverter using the RS485 port, this port cannot be used to create an RS485 bus between inverters.

- 1 Remove the seal from one of the openings in communication gland #2 and insert the wire through the opening.
- 2 Pull out the 9-pin RS485/RS232 terminal block connector, and loosen the screws of pins B, A and G on the left of the RS485 terminal block.



- 3 Insert the ends of wires into the G, A and B pins. Use four- or six-wire twisted pair cable for this connection. You can use any color wire for each of the A, B and G connections, as long as 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. For creating an RS485 bus - connect all B, A and G pins in all inverters.
- 4 Tighten the terminal block screws, and push it firmly all the way into the communication board.
- 5 Terminate the first and last inverters in the chain by switching a termination DIP switch inside the inverter to ON (move the left switch to the top). The switch is located on the communication board and is marked SW7.
- 6 To connect to the SolarEdge monitoring portal, designate a single inverter as the connection point between the RS485 bus and the monitoring server. This inverter will serve as the master inverter. Connect the master to the monitoring portal via one of the wireless communication options.

Using the optional ZigBee/Wi-Fi communication options

Refer to the ZigBee/ Wi-Fi kit user manuals.

Support and Contact Information

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Refer to the SolarEdge Installation Guide for detailed installation and safety instructions.