

solaredge

**SolarEdge
Device Control
ZigBee Module
Installation Guide**

Version 1.1

Disclaimers

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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 AC circuit breaker 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 or its antenna.
- 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.

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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 manual describes how to install and set up the Device Control ZigBee™ Module for Device Control network management.

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.

The guide includes the following chapters:

-
- **Chapter 1: Introducing the Device Control ZigBee** describes the SolarEdge ZigBee module functionality and connection.
- **Chapter 2: Installing the ZigBee Module and Antenna** describes how to mount, connect and verify the connection of the ZigBee module.
- **Chapter 3: Configuring ZigBee Communication** describes how to set up the Device Control network manager.
- **Appendix A: Technical Specifications** provides the electrical and mechanical specifications of the Device Control ZigBee Module.

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

Support and Contact Information

If you have technical queries concerning our products, please contact us:

| | | |
|----------------|------------------|--|
| US & Canada | 1877-360-5292 | support@solaredge.us |
| Germany | 089-4545-9730 | support@solaredge.de |
| France | 0800-917410 | support@solaredge.fr |
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| United Kingdom | 0800-028-1183 | |
| Greece | 00800-125574 | |
| New Zealand | 0800-144-875 | |
| South Africa | 0800-982-659 | |
| Israel | 073-240-3118 | |
| Worldwide | +972-73-240-3118 | |
| Fax | +972-73-240-3117 | |

Before contacting SolarEdge, ensure you have the product serial number as appears on the label.

Chapter 1: Introducing the Device Control ZigBee Module

Overview

ZigBee is an open global standard for wireless technology designed to use low-power digital radio signals for personal area networks. ZigBee is used for connection between several SolarEdge devices. Device Control uses the ZigBee Home Automation protocol with up to 10 devices inter-connected in a master-slave configuration where the Device Control ZigBee Module is the master. Device Control products include:


- Immersion Heater Controller
- Plug-In Socket with Metering
- Switch with Metering
- Dry Contact Switch

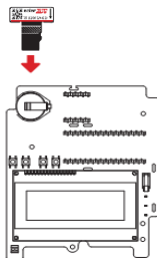
Package Contents

- ZigBee module
- Antenna
- Mounting clip with RF cable
- SE card
- This installation guide

Inverter Software Upgrade

Use the SE card supplied with the ZigBee module. If the communication board in your inverter does not have an SE card slot, use an SD card and contact SolarEdge support for the upgrade files.

- 1** Verify that the AC breaker connected to the inverter is OFF.
- 2** Open the inverter cover as described in its manual.
- 3** Insert the SE/SD card into the slot labeled  on the communication board.
- 4** Close the inverter cover and turn the AC on. If upgrade is required, it starts automatically.
- 5** Wait for the message "Done" to appear on the LCD.
- 6** Verify the correct version as described above.



Chapter 2: Installing the ZigBee Module and Antenna

Install the module in the inverter which will act as the Device Control network manager.

Installing the Antenna and Cable

- 1 Connect the antenna to the mounting clip.

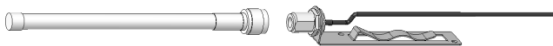
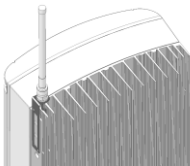


Figure 1: Connecting the antenna to the mounting clip

- 2 Attach the mounting clip with the antenna vertically to the top of the inverter. You may attach the clip to the heat sink fins or the inverter side.

Single phase inverter



Three phase inverter

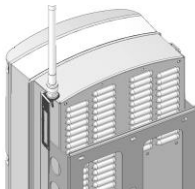


Figure 2: Antenna mounted on the inverter

If not mounting the antenna on the inverter top, install the clip on the wall using two screws (not supplied). The antenna must be vertical and far from metal surfaces (including the inverter side).

- 3 Route the antenna cable along the inner fins or the inverter side, in the bracket. Make sure the cable is not hanging loose outside the inverter enclosure.



Figure 3: Routing the antenna cable (Three phase inverter)

- 4 Disconnect the AC power to the inverter and wait 5 minutes.
- 5 Open the inverter cover as described in the appropriate manual.
- 6 Open the gland numbered 1 at the bottom of the SolarEdge inverter.

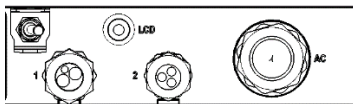


Figure 4: Inverter sealing glands

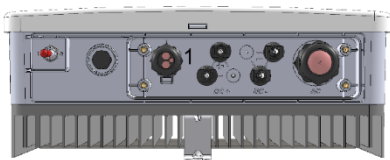


Figure 5: Inverter sealing glands for HD-Wave inverters

- 7 Remove the rubber seal from the gland and insert the RF cable through the gland cover and the opened connection of the inverter.
- 8 Push the cable into the cut opening of the rubber seal.

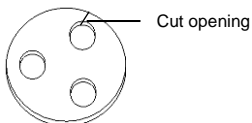


Figure 6: Rubber seal

- 9 Insert the rubber seal with the cable into to the gland body and reconnect the gland to the inverter. Tighten the sealing gland.
- 10 Insert the excess of cable length into the inverter until the cable can be tightly attached to the inverter side.

Mounting the Module in the Inverter

- 1 Connect the ZigBee module in its place on the communication board, as shown in Figure 9.



Figure 7: ZigBee Module

- 2** Follow these guidelines:
 - Use the marking on the communication board to plug in the ZigBee module with the correct orientation.
 - Insert the ZigBee module such that all pins are correctly positioned in the communication board socket, and no pins are left out of their socket.
 - Make sure that the module is firmly in place.
- 3** Install the two cable holders on the communication board.
- 4** Route the cable towards the ZigBee module while snapping it into the two cable holders at the side of the communication board.
- 5** Connect the RF cable to the ZigBee module and tighten manually.

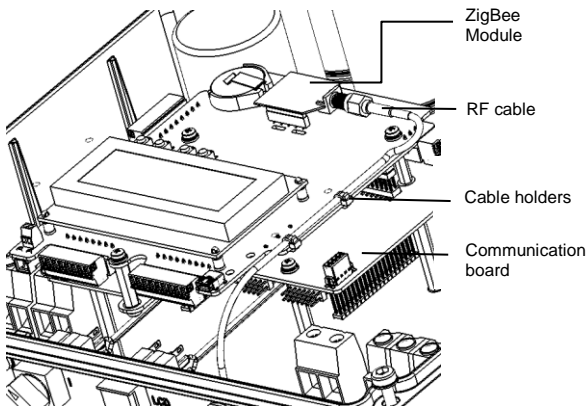


Figure 8: ZigBee and RF cable on the communication board

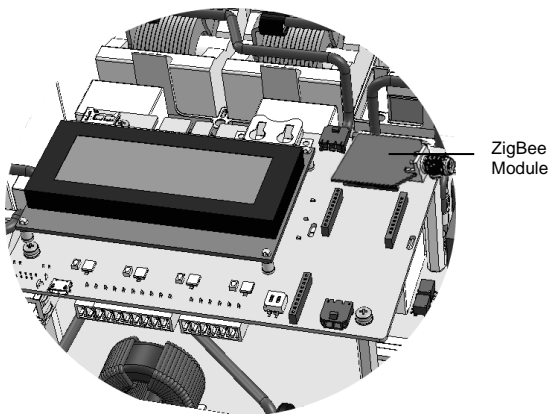


Figure 9: ZigBee on HD-Wave Communication Board

- 6** Close the SolarEdge inverter cover as described in the inverter installation guide. Check for proper cover fastening to ensure sealing.
- 7** Turn ON AC power to the inverter.
- 8** Turn the inverter ON/OFF switch to ON.

Chapter 3: Configuring ZigBee Communication

This section describes ZigBee communication configuration in 1Ph/3Ph inverters and in HD-Wave inverters.

Configuring ZigBee in 1Ph/3Ph Inverters using the LCD Light Button

Use the LCD button to toggle through the informative status screens, and for communication setup.

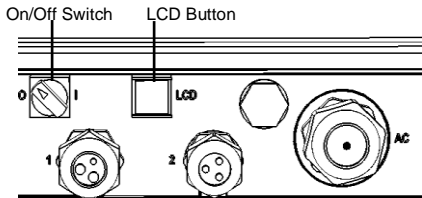


Figure 10: Inverter connector panel

- 1 Verify that the inverter ON/OFF switch is OFF.
- 2 Press the LCD Light button once to turn ON the backlight. If the inverter worked properly before this action, the following message is displayed:

```
DC VOLTAGE NOT SAFE
DO NOT DISCONNECT
VDC : 72.0
```

This message is displayed until the DC is below the safety voltage threshold. The default safety voltage is 50 V.

- 3 Access the Setup mode: Press and hold down the LCD button until the following message is displayed:

```
Keep holding button
For pairing, release
To enter menu ...
Remaining 3 sec
```

- 4 Release the button within 3 seconds to access the Setup Mode.
- 5 When using setup menus, short press to scroll down to the next menu option and long press to select the item. You can use the Exit option in these menus to move up one menu level.

```
Language
Communication
Information
Maintenance
Exit
```

- 6 Scroll down to the **Communication** submenu and select it. (Some of the menu items may vary depending on device and configuration).

```
Server < LAN >
LAN Conf
RS485 - 1 Conf < S >
RS485 - 2 Conf < >
ZigBee Conf < >
RS232 Conf
Slave Detect
```

- 7 Scroll down and select the **ZigBee Conf** submenu. If **Zigbee Conf <N/A>** appears, and the ZigBee Conf submenu is not accessible, the ZigBee module is not installed correctly.

```
Device Type < S E >
Protocol < P 2 P >
Device ID < 1 >
PAN ID
Scan Channel
Load ZB Defaults
Slave Detect
```

- 8 Select:

- **Device Type** ➔ **HA** (HomeAutomation)
- **Protocol** ➔ **HAM** (HomeAutomation)

```
Device Type < H A >
Protocol < H A M >
PAN ID
Scan Channel
Load ZB Defaults
```

- 9 Exit the Setup mode by selecting the **Exit** option in each submenu screen or wait for the device to automatically exit Setup mode.

This concludes the module configuration using the LCD button. When the HA Device Type is selected, a **Device Manager** menu item will appear in the main configuration menu.

```
Country < I t a l y >
Communication
Device Manager
Power
Display
Maintenance
Information
```


Configuring the ZigBee Module in HD-Wave Inverters

Use the LCD buttons to toggle through the informative status screens, and for communication setup. These buttons are at the front, under the LCD screen.

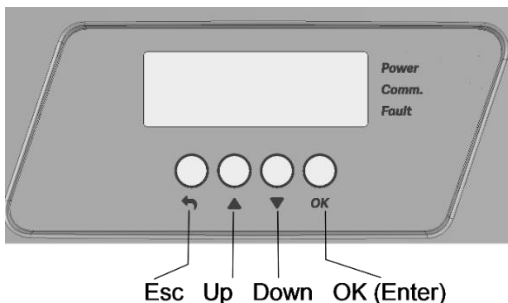


Figure 11: Inverter connector panel

- 1 Verify that the inverter ON/OFF switch is OFF.
- 2 Enter the inverter Setup mode:
 - SolarEdge 1Ph/3Ph inverters - Press the Enter button for 5-10 seconds and release. Enter the password 12312312.
 - SolarEdge HD-Wave inverter - Press the OK button for 5-10 seconds and release. Enter the password 12312312 (Up=1, Down=2, OK=3: Up → Down → OK → Up → Down → OK → Up → Down).
- 3 Scroll down to the Communication sub-menu and press Enter to select it. The Communication menu is displayed (Some of the menu items may vary depending on configuration).

- 4** Scroll down and select the **ZigBee Conf** submenu. If **Zigbee Conf <N/A>** appears, and the ZigBee Conf submenu is not accessible, the ZigBee module is not installed correctly.

```
D e v i c e   T y p e < S E   >
P r o t o c o l < P 2 P >
D e v i c e   I D < 1 >
P A N   I D
S c a n   C h a n n e l
L o a d   Z B   D e f a u l t s
S l a v e   D e t e c t
```

- 5** Select:

- **DeviceType** → **HA** (HomeAutomation)
- **Protocol** → **HAM** (HomeAutomation)

```
D e v i c e   T y p e < H A >
P r o t o c o l < H A M >
P A N   I D
S c a n   C h a n n e l
L o a d   Z B   D e f a u l t s
```

- 6** Exit the Setup mode by selecting the **Exit** option in each submenu screen or wait for the device to automatically exit Setup mode. This concludes the module configuration using the LCD button.

When the HA Device Type is selected, a **Device Manager** menu item will appear in the main configuration menu.

```
C o u n t r y   < I t a l y >
L a n g u a g e < E n g >
C o m m u n i c a t i o n
D e v i c e   M a n a g e r
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
```

Adding Devices to the ZigBee Network

Add Device Control products to the network as described in the Device Control installation guides. For further details, see:

- **Immersion Heater Controller:**
<http://www.solaredge.com/sites/default/files/se-device-control-immersion-heater-controller-installation-guide.pdf>
- **Plug-In Socket with Metering:**
<http://www.solaredge.com/sites/default/files/se-device-control-plugin-socket-installation-guide.pdf>
- **Switch with Metering:**
<http://www.solaredge.com/sites/default/files/se-device-control-switch-installation-guide.pdf>
- **Dry Contact Switch:**
<http://www.solaredge.com/sites/default/files/se-device-control-dry-contact-switch-installation-guide.pdf>
- **Device Control ZigBee Module:**
<http://www.solaredge.com/sites/default/files/se-device-control-zigbee-module-installation-guide.pdf>

When selecting "Add devices" a rotating star and a message "Adding Devices" will appear.

If the message "ZigBee Module Not Ready. Try again." appears, this means that the module is still initializing and you should wait and then try to add devices again.

```
Z i g B e e   M o d u l e   N o t  
R e a d y .  
T r y   A g a i n .
```

Appendix A: Technical Specifications

| Functional | | |
|---|--|-------|
| Number of devices in a Device Control network | Up to 10 | |
| Communications with monitoring portal | Single inverter installation - Ethernet / GSM*; Multiple inverter installation - RS485 and Ethernet / ZigBee / Wi-Fi / GSM* | |
| RF Performance | | Unit |
| Transmit power | 11.8 | dBm |
| Receiver sensitivity | -102 | dBm |
| Antenna gain | 5 | dBi |
| Operating frequency range | 2.4-2.5 | GHz |
| Outdoor (LOS) range | 400 / 1300 | m/ft |
| Indoor range** | 50 / 160 | m/ft |
| Standard Compliance | | |
| Safety | IEC60950, UL60950 | |
| EMC approvals | ETSI (Europe), ACMA (Australia), Telec (Japan) | |
| Installation Specifications | | Unit |
| Antenna, mounting bracket and RF cable | Included | |
| Dimensions (H x W x D) | 22.0 x 32.9 x 4.1 / 0.9 x 1.3 x 0.2 | mm/in |
| Protection rating | IP65 (IP20 / indoor rated when installed inside Control and Communication Gateway) | |

*Not to be used with SolarEdge data plan

** Approximate values, may differ depending on specific installation conditions

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please contact our support through SolarEdge service portal:
<http://www.solaredge.com/groups/support/services>

| | |
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