

Power Reduction Interface Installation Manual

This manual describes how to install and set up the SolarEdge Power Reduction Interface (PRI) in a SolarEdge installation. The PRI connects an RRCR (Radio Ripple Control Receiver) to a SolarEdge inverter in order to limit the output of all the inverters in the installation, according to local codes.

What's in the Box

Make sure all of the items listed below are included in your box.

- Power Reduction Interface
- 12V Power Supply
- Wall mount bracket
- Terminal Blocks for cables
- This manual

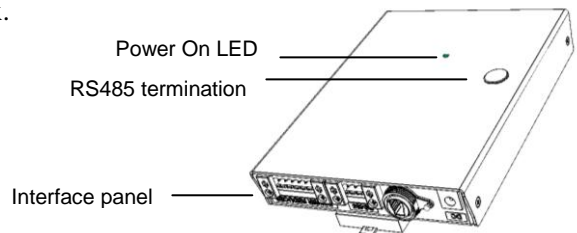


Figure 1 – Power Reduction Interface

Mounting the Power Reduction Interface

The PRI is equipped with a standard DIN-rail mount, and an adapter for wall mounting.

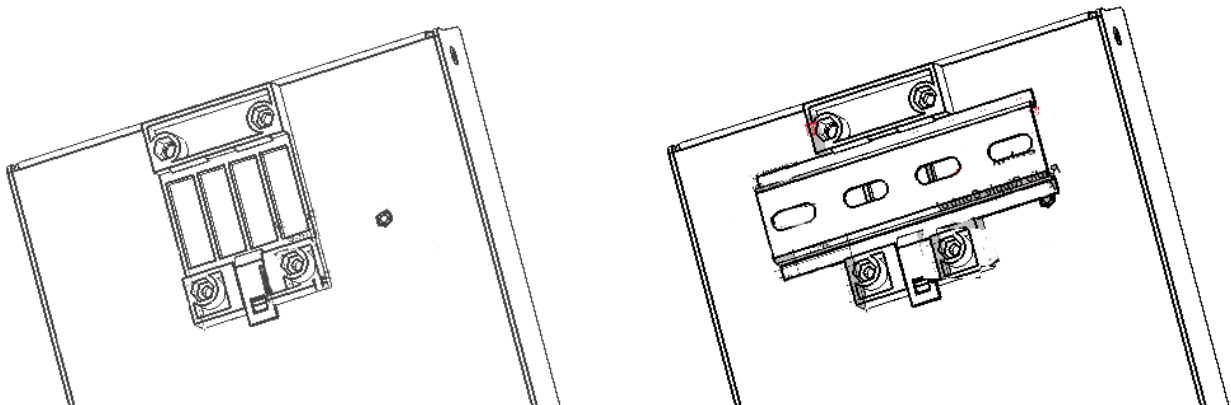


Figure 2 – Built-in DIN rail mount (left); with wall mount adaptor attached (right);

► To mount the Power Reduction Interface on a DIN rail:

- 1** For DIN rail mounting, first insert the upper thread by placing the groove in the mount over the DIN rail, tilting it slightly toward the wall, then aligning it vertically until the lower thread snaps into place and locks.
- 2** To dismount the interface, press the tip at the bottom of the DIN rail mount to release the locks, then tilt the interface towards the wall and pull up.

► To mount the Power Reduction Interface on a wall:

- 1** Hang the wall mount adaptor on the wall using 2 screws (not included).
- 2** Hang the PRI on the wall mount as if mounting on a DIN rail (see section above).

Connecting the Power Reduction Interface

The PRI connects the RRCR to a SolarEdge inverter. These are the PRI's interfaces:

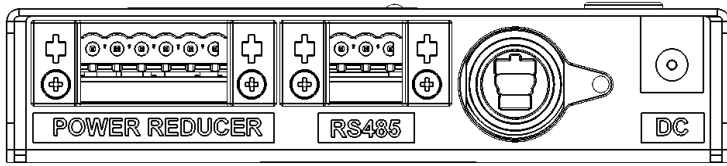


Figure 3: PRI Interfaces: RRCR input, RS485 bus connection, USB connector and Power Supply (DC)

▶ Connect to the RRCR:

- The PRI has a 6-port terminal block for connecting to the RRCR. The pin assignment is as follows: **GND 5V 1 2 3 4**, where GND and 5V provide a reference voltage for the RRCR relays, if required, and 1, 2, 3 and 4 are relay interfaces. If the RRCR has 3 output relays, connect relays 2, 3 and 4. Consult the wiring diagram below for common RRCR connection – this requires splitting the 5V to each of the relays:

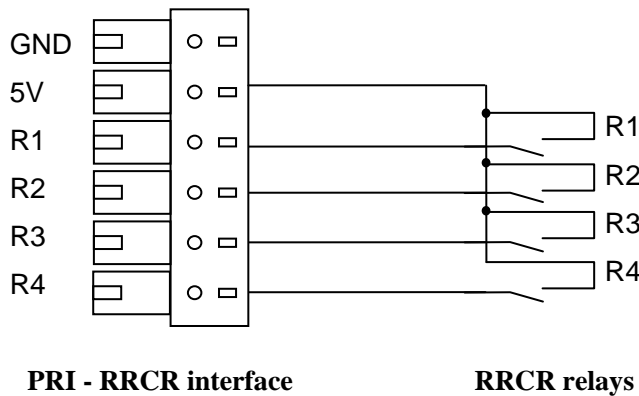


Figure 4: PRI-RRCR connection

- Use 12-30 AWG (0.2-2.5 mm) cables.

▶ Connect to the power supply:

- Use the supplied 12V Power Supply.

▶ Connect to a SolarEdge inverter:

- You can connect to any SolarEdge inverter in a multi-inverter installation, as long as all of the inverters are interconnected.
- Turn the inverter DC off using its power switch.
- The pin assignment is as follows: **D+ D- GND**. Use 12-30 AWG (0.2-2.5 mm) cables and connect to a vacant RS485 interface in the inverter, as specified in the *SolarEdge Installation Manual*. The pin assignment in the inverter's RJ11 connector is as follows: pin 2 – DC-, pin 3 – DC+, pin 6 – GND. See Figure 5 for connector pin ordering.
- Perform Slave Detection using the inverter's controls or the Inverter Configuration Tool. The PRI will appear as an additional inverter.



Figure 5: Inverter RS485 RJ11 pin assignment

Using the Power Reduction Interface

The PRI is preconfigured to this standard configuration:

| L1 | L2 | L3 | L4 | Active Power |
|----|----|----|----|--------------|
| 1 | 0 | 0 | 0 | 100% |
| 0 | 1 | 0 | 0 | 60% |
| 0 | 0 | 1 | 0 | 30% |
| 0 | 0 | 0 | 1 | 0% |
| 0 | 0 | 0 | 0 | 0% |

No configuration is required if this is the mapping used by the RRCR. As long as it is turned on and connected to the RRCR, the PRI immediately regulates the inverters' power output.

NOTE:

1. The PRI saves the last power reduction state in its memory. It will retain its output until its input state (RRCR output) changes.
2. The inverter saves its last power reduction state in its memory. If disconnected from the PRI it will retain its last power reduction state until powered off.

► To configure the Power Reduction Interface:

NOTE:
This is not required unless the relay states used are different from the default settings (see above).

- 1 Connect a USB cable (not supplied) to the PRI USB interface and to a computer.
- 2 Open the Inverter Configuration Tool (found on the SolarEdge website).

NOTE:
Consult the *Inverter Configuration Tool Software Guide* for general usage instructions for this tool.

- 3 The PRI will appear on the device list with its serial number followed by (RRCR) (See Figure 6). Select it to open its control table:

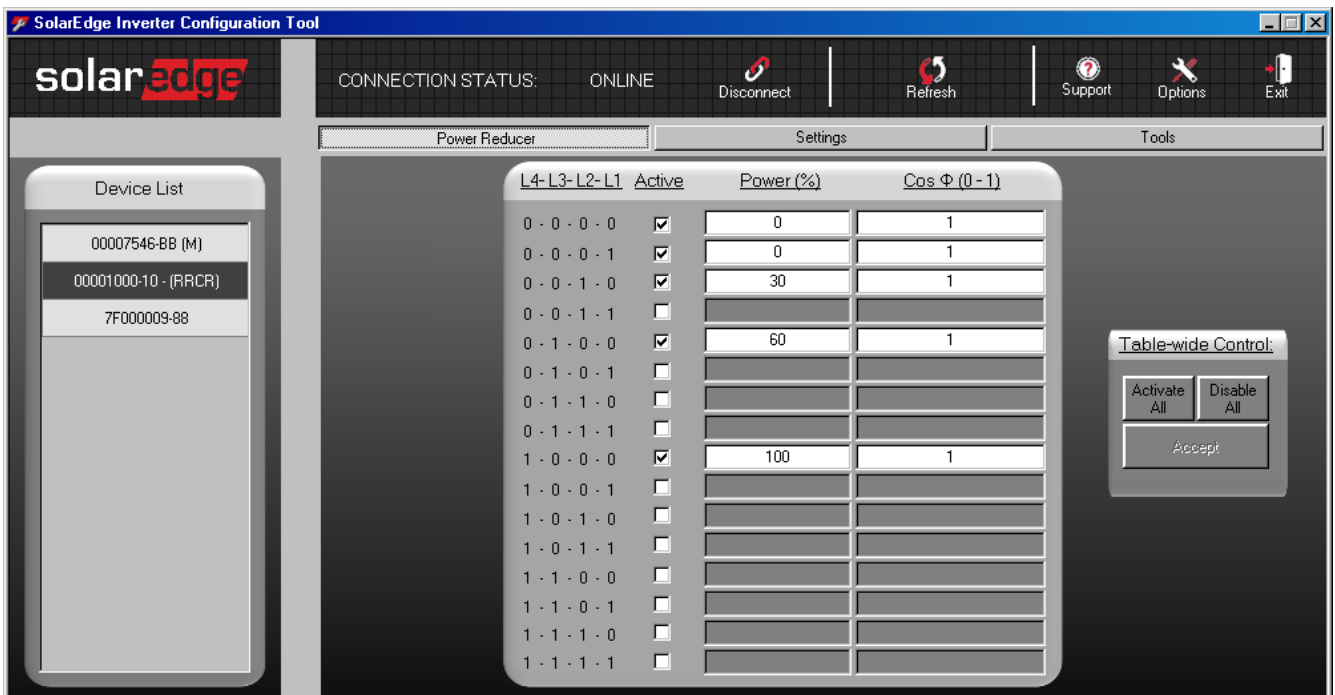


Figure 6: PRI screen in the Inverter Configuration Tool

- 3 The table shows the available relay states (L4 through L1), and for each state the following:
 - **‘Active’ checkbox** which corresponds to allowed states. Uncheck any state which is not used.
 - **Power (%)** – The active power, in percentage of nameplate inverter AC power, permitted on each state.
 - **Cos Φ (0-1)** – The $\cos \phi$ parameter which correlates to the ratio between real (active) power and apparent (reactive) power. Values can be any real number from 0 to 1. $\cos \phi$ equals to 1 for a full real load. Use the relation $|P| = |S| |\cos \phi|$ to relate $\cos \phi$ to the *power factor* where P =real power, S =apparent power, and P/S is the power factor.
- 4 The Table-wide Control box to the right of the table enables these functions:
 - **Activate All** - checks all the states as ‘Active’.
 - **Disable all** - unchecks all the states as ‘Not active’.
 - **Accept** – Saves the entire table to the PRI.
- 5 The **Settings** tab allows monitoring the communication status of the RS485 (PRI↔inverter) and USB (PRI↔computer) links.
- 7 The **Tools** tab allows viewing firmware version, upgrading the firmware and setting the built-in Real Time Clock.

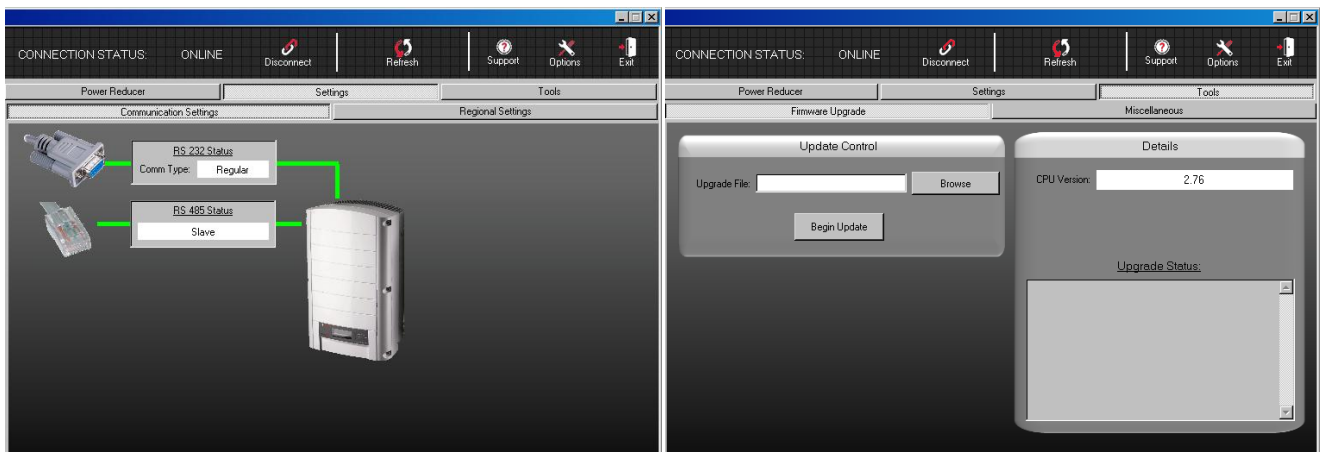


Figure 7: Settings→Communication, and Tools→Firmware Upgrade tabs



NOTE:

A CPU version ≥ 2.76 is required for the inverter to communicate with the PRI. DSP version ≥ 0.91 is additionally required in 3-phase inverters. Upgrade your firmware if you have older versions installed. Contact support@solaredge.com for details.

You may refer to the *SolarEdge Installation Guide* for detailed instructions on SolarEdge inverter installation and connectivity.



Support and Contact Information

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

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