Viewing and Setting Inverter Grid Protection Values

Contents

Revision History

- Version 1.3: updated compatible CPU versions

- Version 1.2: Added section on how to view and set grid protection values via SetApp

- Version 1.1: Added section on how to view and set grid protection values via the Monitoring Platform

- Version 1.0: Initial release

Introduction

This document describes how to view and set grid protection values via SetApp, via the inverter display and via the Monitoring Platform.

⚠️ **WARNING!**

Setting the grid protection values is prohibited unless explicitly approved by the grid operator. This feature is offered to you as a convenience, and SolarEdge disclaims all responsibility for any implications of modifying the grid values of the inverter. SolarEdge will in no event be liable to you, any customer or any third party in connection with these changes.

Viewing and Modifying Grid Protection Settings via SetApp

You can use SetApp to view or modify grid protection values, or restore defaults.

→ **To access the grid protection settings:**

1. From the SetApp main menu, select **Maintenance -> Grid Protection.** A pop-up message box requires you to enter a password in order to modify the grid protection settings. Contact SolarEdge Support to obtain this password.

2. Enter the password and tap on the **Agree** button. The Grid Protection page appears as shown in the figure below:

Grid Protection
Vgrid Max.
Vgrid Min.
Fgrid Max.
Fgrid Min.
Grid Monitoring TIme (GRM)

3. Select one of the following settings for viewing and modification:

Setting	Description
Vgrid Max.	Maximum acceptable grid voltage for the installed inverters. ▰ V - maximum voltage [V] ▰ ms - trip time, in milliseconds. The trip time indicates the time after which the inverter should disconnect from the grid if the grid voltage is out of range. Tap on the **Edit** button to modify the thresholds.
Vgrid Min.	Minimum acceptable grid voltage for the installed inverters. ▰ V - minimum voltage [V] ▰ ms - trip time, in milliseconds. The trip time indicates the time after which the inverter should disconnect from the grid if the grid voltage is out of range. Tap on the **Edit** button to modify the thresholds.
Fgrid Max.	Maximum acceptable grid frequency for the installed inverters. ▰ F - maximum frequency [Hz] ▰ ms - trip time, in milliseconds. The trip time indicates the time after which the inverter should disconnect from the grid if the grid frequency is out of range. Tap on the **Edit** button to modify the thresholds.
Fgrid Min.	Minimum acceptable grid frequency for the installed inverters. ▰ F - minimum frequency [Hz] ▰ ms - trip time, in milliseconds. The trip time indicates the time after which the inverter should disconnect from the grid if the grid frequency is out of range. Tap on the **Edit** button to modify the thresholds.
Grid Monitoring Time (GRM)	The required number of milliseconds during which the voltage and frequency must be within the threshold range before the inverter can reconnect to to the grid.

4. Tap on the **Done** button to save the modified settings.

Viewing and Modifying Grid Protection Settings via the Inverter Display

You can use the inverter display to view and set grid protection values.

> **NOTE**
>
> It is highly recommended to ensure that all the inverters at the site have CPU version 3.22xx or 3.24xx and above (but not version 4.x.xxx). For inverters with CPU version 4.x.xxx, refer to the Via SetApp chapter). If required, upgrade the CPU software. To check the CPU version, see Checking an Inverter Communication Board Firmware (CPU) Version

Checking an Inverter Communication Board Firmware (CPU) Version

→ To check a communication board firmware (CPU) version:

1. Short - press the LCD light button until the following screen is displayed:

2. Check the CPU version number. If required, upgrade the inverter software as described in upgrading_an_inverter_using_micro_sd_card.pdf

Viewing and Modifying Grid Protection Settings

→ To view grid protection values via the inverter display:

1. Enter Setup mode: Press and hold down the LCD light button located at the bottom of the inverter, and release after 5 seconds; the various inverter menu screens are displayed.

2. Short-press the LCD light button to toggle between the menu screens.

3. Long press to select **Maintenance ➔ Grid Protection**

```
Date and Time
Reset Counters
Factory Reset
SW Upgrade SD-Card
AFCI <En>
Manual AFCI Test
Diagnostics
Optimizer Conf.
Grid Protection
Exit
```

The Grid Protection menu is displayed:

```
View
Set
```

4. Select **View**. A list showing grid protection values is displayed. Each press on the external LCD light button moves to the next screen of parameters of that inverter. For example:

```
ID: 5000FF01-50
VgMax1:261.5V,150ms
VgMax2:250.0V,580.0s
VgMin1:187.0V,150ms
```

```
ID: 5000FF01-50
VgMin2:103.0V,580.0s
FgMax1:50.5Hz,145ms
FgMax2:52.5Hz,600.0s
```

```
ID: 5000FF01-50
FgMin1:47.5Hz,145ms
FgMin2:47.5Hz,600.0s
GRM Time: 60.0s
```

ID: The inverter serial number, appears as a header in the sequential screens.

Vg<min, max> <1, 2>: The minimum and maximum grid voltage thresholds (Volts) and the trip time in milliseconds or seconds. The trip time indicates the time after which the inverter should disconnect from the grid if the grid voltage is out of range.

Fg<min, max> <1, 2>: The minimum and maximum grid frequency thresholds (Hz) and the trip time in milliseconds or seconds. The trip time indicates the time after which the inverter should disconnect from the grid if the grid frequency is out of range.

GRM Time: Grid monitoring time - the duration (seconds) that the grid voltage and frequency have to be within the range (min. and max. thresholds) before the inverter can reconnect to the grid. For example, if the GRM time is set to 60 seconds, the inverter checks that the grid is within the voltage and frequency ranges for 60 seconds before reconnecting to the grid.

→ To set grid protection values via the SolarEdge inverter display:

Setting the values requires entering a password, using the internal user buttons. This procedure involves opening the inverter cover.

1. Contact SolarEdge Support to obtain this password.

2. Open the inverter cover as described in the SolarEdge Installation Guide.

> ⚠ WARNING!
>
> ELECTRICAL SHOCK HAZARD. Do not touch uninsulated wires when the inverter cover is removed.

3. Enter Setup mode as described in the SolarEdge Installation Guide.

4. Select **Maintenance ➔ Grid Protection ➔ Set**. A screen requiring a password is displayed:

```
Please enter
 Password
********
```

5. Enter the password provided by SolarEdge Support. The grid protection value setting menu is displayed:

```
VgMax1<261V,150ms>
VgMax2 <250V,580s>
VgMin1<187V,150ms>
VgMin1 <103V,580s>
FgMax1<50Hz,145ms>
FgMax2 <100Hz,600s>
FgMin1<47Hz,145ms>
FgMin2 <0Hz,600s>
GRM Time <60.0s>
```

6. Select one of the entries, for example VgMax1. A screen showing the grid protection value and the Hold Time (trip time) displayed:

```
VgMax1 <261.5V>
Hold Time <150ms>
```

7. Set the required values. For example: VgMax1: 372.45V and Hold Time : 1.1 seconds

```
VgMax1
[V]
372.45
```

```
VgMax1
[ms]
1120
```

Viewing and Modifying Grid Protection Settings via the Monitoring Platform

You can set grid protection values, or restore defaults.

This feature is available via the Monitoring Platform for the supported inverter CPU versions listed below, when the inverter country setting is set to one of the supported countries. To enable this feature for your account, contact SolarEdge support.

- For inverters with LED display: 3.22xx or 3.24xx and above.
- For inverters with SetApp: 4.45.xxx and above.

If all inverters at the site do not have the required CPU version, the feature will be disabled. If at least one of the inverters at the site has the required CPU version, the feature will be enabled and grid settings will be saved in the supported inverters.

Accessing Grid Protection Settings

→ To access the grid protection settings:

1. Log in to the monitoring platform (monitoring.solaredge.com) using your user name and password.

2. In the main window in the **Site Name** column click the required site name.
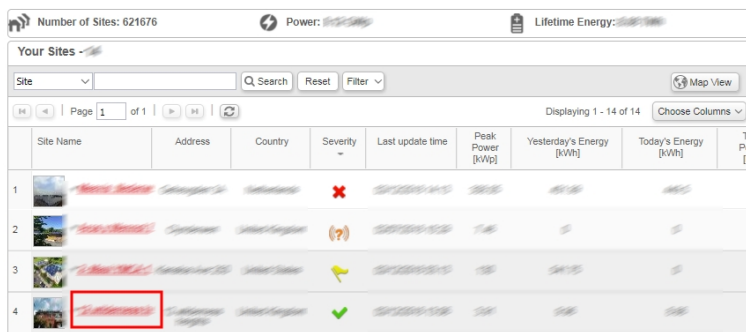
3. Click [Admin] , then **Grid Settings**.The Dashboard view appears.

Setting Grid Protection Values

→ To set grid protection values:

1. Access grid protection settings .

2. Select **Apply custom grid settings**. The Grid Protection Values table appears.
   The values displayed in the table are the current grid protection values that were retrieved from all inverters on site.
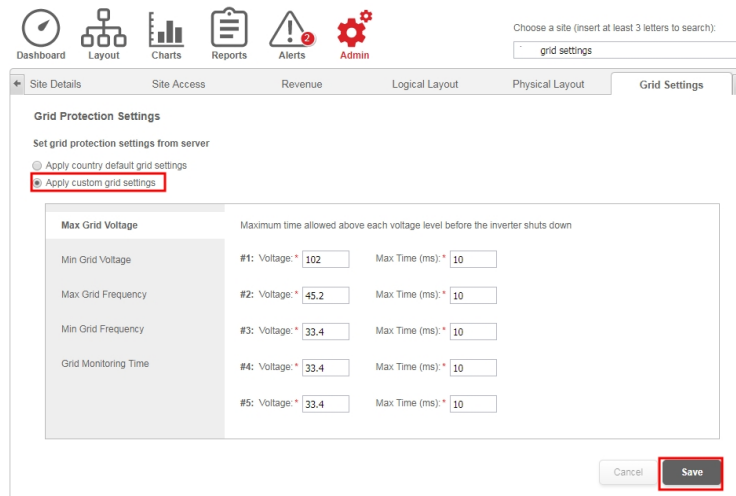
3. Set required grid protection values then click **Save**:
   Enter values in required fields:

🚩 Voltage - between 0-400 Volt, 0.1V accuracy

🚩 Frequency - 40-70Hz, 0.01Hz accuracy

🚩 Time - 10-600000 milliseconds

💬 **NOTE**

If required, click Cancel to return to the previously set grid protection values.

4. A confirmation message appears. Click **Yes**. The **Setting status** table appears.

5. Check the **Status** column in the Inverter **Settings Status** table to ensure the change was successful for all inverters at the site. Other status are:

🚩 **No communication** - no communication between the inverter and the Monitoring Platform.

🚩 **Pending** - grid settings update is in process.

🚩 **Success** - grid settings were successfully applied.

🚩 **Not Supported** - the inverter CPU version is 3.23xx or lower than 3.22xx, to enable this feature for this inverter upgrade its CPU version.
   For more information see Checking an Inverter Communication Board Firmware (CPU) Version.

🚩 **Failed** - grid settings were not applied. If it failed click **Retry** and if fails again contact support.

Restoring Default Grid Protection Values

→ To restore default grid protection values:

1. Access grid protection settings .
2. If no changes were made (locally or remotely), the default country settings are used.
   If changes were made, you can restore country default grid settings by selecting **Apply country default grid settings** and clicking **Save**.

Viewing Event Logs

In the event log you can view whether grid protection values are default or custom and the grid protection value status.

→ To view an event log

In the **Grid Settings** tab, in the **Settings status** table click the Log icon 📝 of the inverter which settings log you want to view. The Settings log appears.

Support and Contact Information

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

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

Country	Phone	E-Mail
Australia (+61)	1800 465 567	support@solaredge.net.au
APAC (Asia Pacific)(+972)	073 240 3118	support-asia@solaredge.com
Belgium (+32)	0800-76633	support@solaredge.be
China (+86)	21 6212 5536	support_china@solaredge.com
DACH & Rest of Europe (+49)	089 454 59730	support@solaredge.de
France (+33)	0800 917410	support@solaredge.fr
Italy (+39)	0422 053700	support@solaredge.it
Japan (+81)	03 6262 1223	support@solaredge.jp
Netherlands (+31)	0800-7105	support@solaredge.nl
New Zealand (+64)	0800 144 875	support@solaredge.net.au
US & Canada (+1)	510 498 3200	ussupport@solaredge.com
United Kingdom (+44)	0800 028 1183	support-uk@solaredge.com
Republic of Ireland (+353)	1-800-901-575	
Greece (+49)	89 454 59730	support@solaredge.com
Israel (+972)	073 240 3122	
Middle East & Africa (+972)	073 240 3118	
South Africa (+27)	0800 982 659	
Turkey (+90)	216 706 1929	
Worldwide (+972)	073 240 3118	

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.