

How to Access Grid Interface Protection Settings or Reports

Overview

Some utilities require specific Grid Interface Protection (GIP) settings. OutBack inverters can be configured to meet these settings. Some inspectors need documentation of the Interface settings to ensure they comply with local code. This application note will review how to access and record Grid Interface Protection settings for this purpose.

Scope

This document covers the following inverter products with firmware version 001.006.063 or higher:

- GS4048A
- GS8048A
- FXR (A)

The inverter must be accompanied by one of the following system display products:

- MATE3s firmware version 001.004.002 or higher
- MATE3 firmware version 003.017.000 or higher

This application note shows how to output a predefined report using the capabilities of the MATE 3s. It also shows where to find these settings in the MATE3, MATE3s and AXS Port products and provides a convenient form for manually recording these settings. Unfortunately, there is no reporting function in MATE3 or AXS Port products.

Both the MATE3 and MATE3s support the import of these settings, based on your local jurisdiction, using a Grid Interface Protection or .gip file. The settings, via a .gip file, for local jurisdictions can be found here:

<http://outbackpower.com/resources/ul-1741-grid-support/ul-1741-sa-gs>

For instruction on how to use these files please watch the video “How to: Upload a GIP File to FXR/Radian Inverter” on YouTube.

Solution

Grid Interface Protection information can be saved and exported as a report (MATE3s only) or found in the MATE3, MATE3s, and AXS Port products. Note: Grid Interface Protection settings are sensitive and should only be accessed by qualified personnel.

Procedure

Procedure for exporting Grid Interface Protection settings using the MATE3s

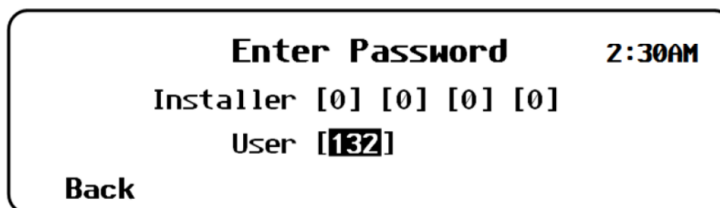
- Establish an installer password.
- Enter **Grid Interface Protection** menu.
- Export PREPA File.

To establish an installer password from the default setting:

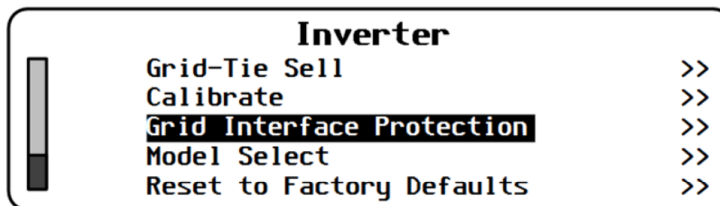
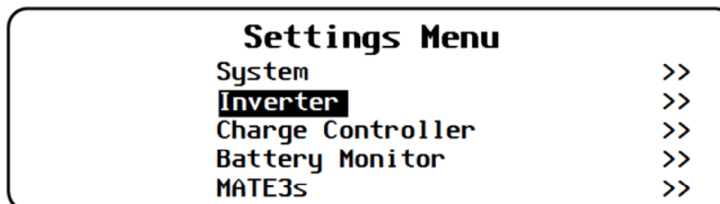
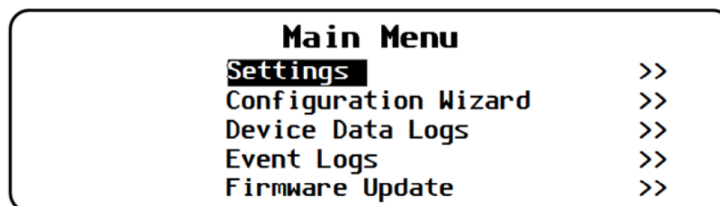
1. Bring up the **Enter Password** screen using the **LOCK** navigation key.
2. Enter the default installer password **1732** to bring up the **Main Menu**.
3. From the **Main Menu**, enter the **Settings** menu.
4. From the **Settings** menu, enter the **System** menu.
5. From the **System** (Configuration) menu, enter the **Installer Settings** menu.
6. In the **Installer Settings** menu, select **Change**.

To Enter the Grid Interface Protection menu:

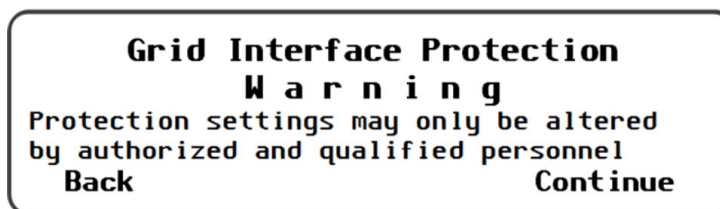
1. Enter the changed installer password.



2. Enter the **Main Menu** and proceed to **Settings Menu** and **Inverter**.

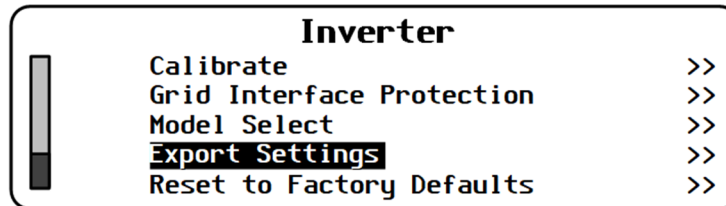


3. Enter the **Grid Interface Protection** menu. The Interface settings are located here. Settings may only be altered by qualified and authorized personnel.



To Export the PREPA File:

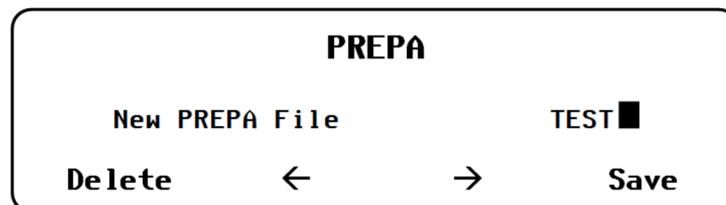
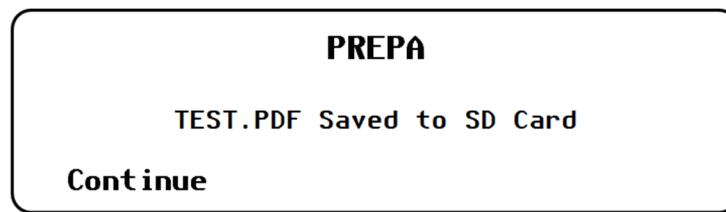
1. Enter *Export Settings*.



2. Select *PREPA*.



3. Ensure an SD card is inserted in the MATE3s. Enter a name for the file and select **<Save>**.



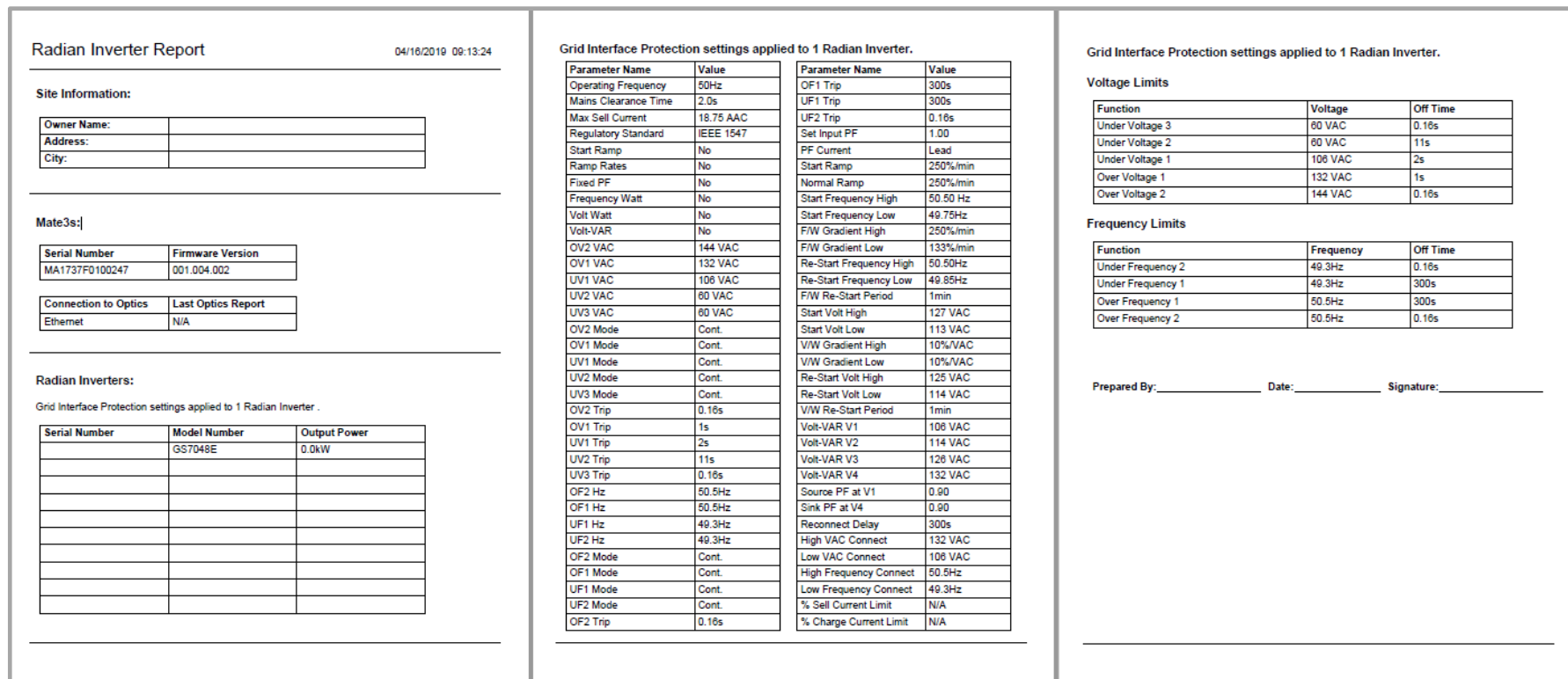


Figure 1 Example report created from MATE3s

Procedure for finding and manually recording Grid Interface Protection settings using MATE3, MATE3s, and AXS Port

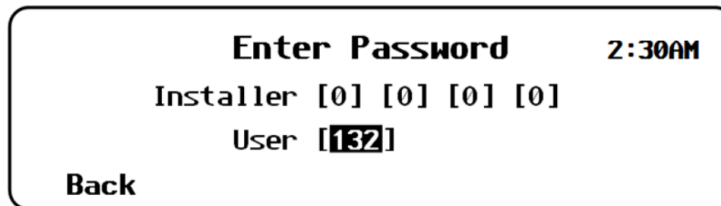
- Establish an installer password.
- Enter **Grid Interface Protection** menu.
- Enter **Grid Support** menu and document any needed items.

To establish an installer password from the default setting:

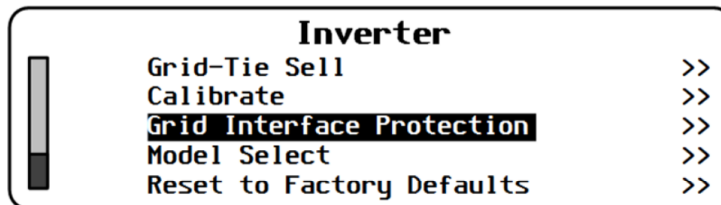
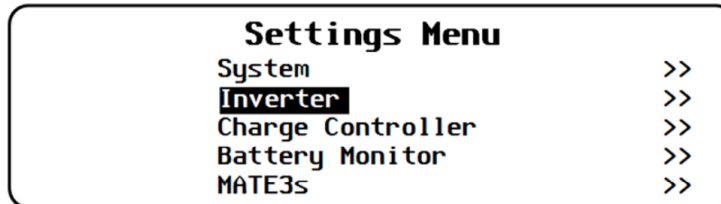
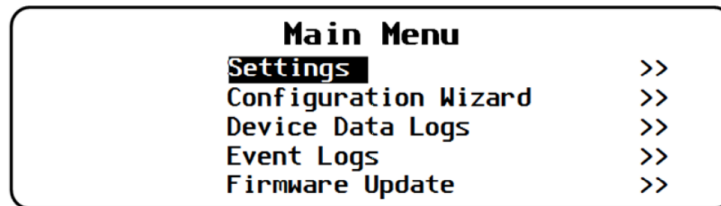
1. Bring up the **Enter Password** screen using the **LOCK** navigation key.
2. Enter the default installer password **1732** to bring up the **Main Menu**.
3. From the **Main Menu**, enter the **Settings** menu.
4. From the **Settings** menu, enter the **System** menu.
5. From the **System** (Configuration) menu, enter the **Installer Settings** menu.
6. In the **Installer Settings** menu, select **Change Installer Password**.
7. Change the password to a usable entry that is different from the default setting. Record the new password.
8. Cycle the power to the MATE3 or MATE3s. This can be accomplished by simply disconnecting and reconnecting the communications cable.

To Enter the Grid Interface Protection Menu:

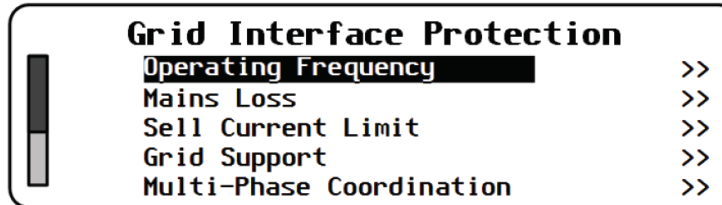
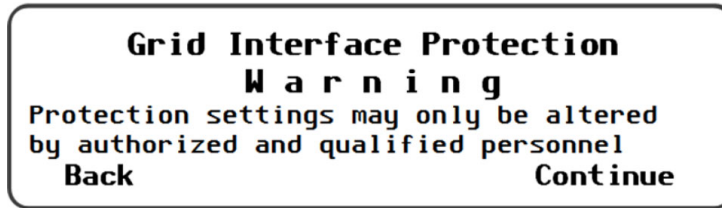
1. Enter the changed installer password.



2. Enter the **Main Menu** and proceed to **Settings Menu** and **Inverter**.



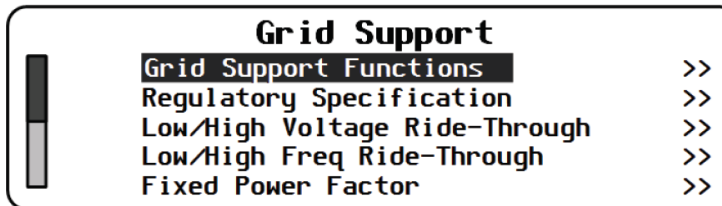
- Enter the **Grid Interface Protection** menu. The Interface settings are located here. Settings may only be altered by qualified and authorized personnel.



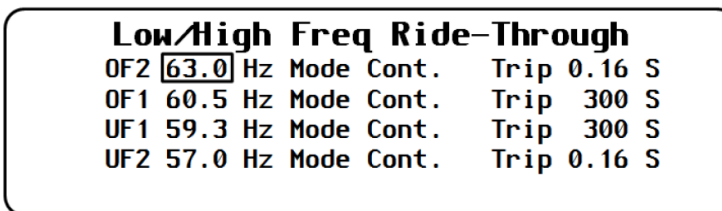
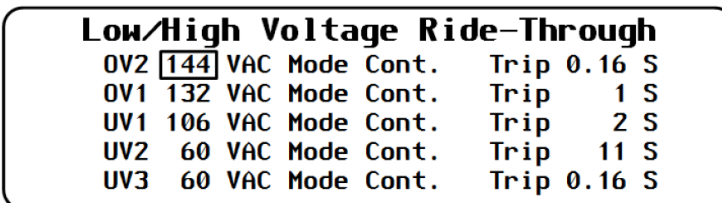
To Enter the Grid Support Menu:

- From the **Grid Interface Protection** menu, select **Grid Support**.

This menu contains many of the Grid Interface Protection related settings that may need to be documented for the authority having jurisdiction.



These are examples of two of the menus and values that may be documented.



Exceptions or Precautions

This applications note covers how to find settings that may need to be documented for system approval.

Both the MATE3 and MATE3s support the import of these settings, based on the local jurisdiction, using a Grid Interface Protection or .gip file. The settings, via a .gip file, for local jurisdictions can be found here:

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About OutBack Power

OutBack Power is a leader in advanced energy conversion technology. OutBack products include true sine wave inverter/chargers, maximum power point tracking charge controllers, and system communication components, as well as circuit breakers, batteries, accessories, and assembled systems.

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Other

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Grid Interface Protection Settings (Grid Support Settings)

Below is a form showing what settings are supported and in which menu area the setting can be found. OutBack recommends printing the form and using the space provided to manually record the settings.

Site Information:

Owner Name:	
Address:	
City:	

MATE3, MATE3s or AXS Port:

Item	Record Here	Menu Location
Serial Number		<i>System Settings</i>
Firmware Version		<i>System Settings</i>
Connection to OPTICS RE		<i>System Settings</i>

Radian Inverters:

Serial Number <i>(System Settings)</i>	Model Number <i>(Firmware Versions)</i>	Output Power (Nameplate)
		kW
		kW
		kW
		kW
		kW

Grid Interface Protection Settings



Parameter Name	Record Here	Menu Location
Operating Frequency		<i>Grid Interface Protection</i>
Mains Clearance Time		<i>Mains Loss</i>
Max Sell Current		<i>Grid Interface Protection</i>
Regulatory Standard		<i>Regulatory Specification</i>
Start Ramp		<i>Grid Support Functions</i>
Ramp Rates		<i>Grid Support Functions</i>
Fixed PF		<i>Grid Support Functions</i>
Frequency Watt		<i>Grid Support Functions</i>
Volt Watt		<i>Grid Support Functions</i>
Volt-VAR		<i>Grid Support Functions</i>
OV2 VAC	VAC	<i>Low/High Voltage Ride-Through</i>
OV1 VAC	VAC	<i>Low/High Voltage Ride-Through</i>
UV1 VAC	VAC	<i>Low/High Voltage Ride-Through</i>
UV2 VAC	VAC	<i>Low/High Voltage Ride-Through</i>
UV3 VAC	VAC	<i>Low/High Voltage Ride-Through</i>
OV2 Mode		<i>Low/High Voltage Ride-Through</i>
OV1 Mode		<i>Low/High Voltage Ride-Through</i>
UV1 Mode		<i>Low/High Voltage Ride-Through</i>
UV2 Mode		<i>Low/High Voltage Ride-Through</i>
UV3 Mode		<i>Low/High Voltage Ride-Through</i>
OV2 Trip	s	<i>Low/High Voltage Ride-Through</i>
OV1 Trip	s	<i>Low/High Voltage Ride-Through</i>
UV1 Trip	s	<i>Low/High Voltage Ride-Through</i>
UV2 Trip	s	<i>Low/High Voltage Ride-Through</i>
UV3 Trip	s	<i>Low/High Voltage Ride-Through</i>
OF2 Hz	Hz	<i>Frequency Ride-Through</i>
OF1 Hz	Hz	<i>Frequency Ride-Through</i>
UF1 Hz	Hz	<i>Frequency Ride-Through</i>
UF2 Hz	Hz	<i>Frequency Ride-Through</i>
OF2 Mode		<i>Frequency Ride-Through</i>
OF1 Mode		<i>Frequency Ride-Through</i>
UF1 Mode		<i>Frequency Ride-Through</i>
UF2 Mode		<i>Frequency Ride-Through</i>
OF2 Trip	s	<i>Frequency Ride-Through</i>

Grid Interface Protection Settings



Parameter Name	Record Here	Menu Location
OF1 Trip	s	<i>Frequency Ride-Through</i>
UF1 Trip	s	<i>Frequency Ride-Through</i>
UF2 Trip	s	<i>Frequency Ride-Through</i>
Set Input PF		<i>Fixed Power Factor</i>
PF Current		<i>Fixed Power Factor</i>
Start Ramp	% Amps/min	<i>Ramping</i>
Normal Ramp	% Amps/min	<i>Ramping</i>
Start Frequency High	Hz	<i>Frequency-Watt</i>
Start Frequency Low	Hz	<i>Frequency-Watt</i>
F/W Gradient High	%Pm/Hz	<i>Frequency-Watt</i>
F/W Gradient Low	%Pm/Hz	<i>Frequency-Watt</i>
Re-Start Frequency High	Hz	<i>Frequency-Watt</i>
Re-Start Frequency Low	Hz	<i>Frequency-Watt</i>
F/W Re-Start Period	Min	<i>Frequency-Watt</i>
Start Volt High	VAC	<i>Volt-Watt</i>
Start Volt Low	VAC	<i>Volt-Watt</i>
V/W Gradient High	%Pm/VAC	<i>Volt-Watt</i>
V/W Gradient Low	%Pm/VAC	<i>Volt-Watt</i>
Re-Start Volt High	VAC	<i>Volt-Watt</i>
Re-Start Volt Low	VAC	<i>Volt-Watt</i>
V/W Re-Start Period	Min	<i>Volt-Watt</i>
Volt-VAR V1	VAC	<i>Volt/VAr</i>
Volt-VAR V2	VAC	<i>Volt/VAr</i>
Volt-VAR V3	VAC	<i>Volt/VAr</i>
Volt-VAR V4	VAC	<i>Volt/VAr</i>
Source PF at V1		<i>Volt/VAr</i>
Sink PF at V4		<i>Volt/VAr</i>
Reconnect Delay	s	<i>Reconnect Parameters</i>
High VAC Connect	VAC	<i>Reconnect Parameters</i>
Low VAC Connect	VAC	<i>Reconnect Parameters</i>
High Frequency Connect	Hz	<i>Reconnect Parameters</i>
Low Frequency Connect	Hz	<i>Reconnect Parameters</i>
% Sell Current Limit	N/A	N/A
Charge Current Limit	N/A	N/A

Grid Interface Protection Settings



Voltage Limits

Function	Voltage (Record here)	Off Time (Record here)	Menu Location
Under Voltage 3	VAC	s	<i>Low/High Voltage Ride-Through</i>
Under Voltage 2	VAC	s	<i>Low/High Voltage Ride-Through</i>
Under Voltage 1	VAC	s	<i>Low/High Voltage Ride-Through</i>
Over Voltage 1	VAC	s	<i>Low/High Voltage Ride-Through</i>
Over Voltage 2	VAC	s	<i>Low/High Voltage Ride-Through</i>

Frequency Limits

Function	Frequency (Record here)	Off Time (Record here)	Menu Location
Under Frequency 2	Hz	s	<i>Frequency Ride-Through</i>
Under Frequency 1	Hz	s	<i>Frequency Ride-Through</i>
Over Frequency 1	Hz	s	<i>Frequency Ride-Through</i>
Over Frequency 2	Hz	s	<i>Frequency Ride-Through</i>

Prepared By: _____ Date: _____ Signature _____