Application Note – Sunsynk & Giter

Sunsynk & Giter Application Note

The following guide explains the set-up and configurations of the Giter 48V Li-ion battery with the Sunsynk 5kW and 8kW Inverter models.
Please ensure that the Inverters and batteries are updated to the latest firmware version. Giter 48V: V 1.03 and Sunsynk 5kW: 3367, E41C and Sunsynk 8kW: 6006, E41C

Figure 1: COM2 port for Giter Battery

Figure 2: BMS CAN port for Sunsynk Inverter

Required Parts

- Sunsynk Inverter (5kW or 8kW)
- Giter Battery (48V)
- CAN communication cable
- Battery power cables (size depends on the inverter/battery sizing)
- Fuses (depends on the maximum current of the system)
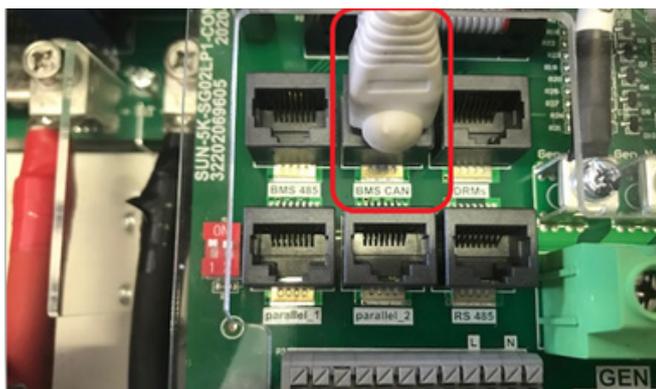
CAN Communication Cable Connection

- Please connect the CAN cable into the COM2 port of the master battery as indicated on Figure 1.
- Connect the inverter side of the CAN cable to the BMS CAN port of the inverter as shown on Figure 2.
- It is strongly recommended that the CAN communication cable is purchased from Segen, the cable is shielded and offers more protection against electromagnetic noise that could interfere with the communications.
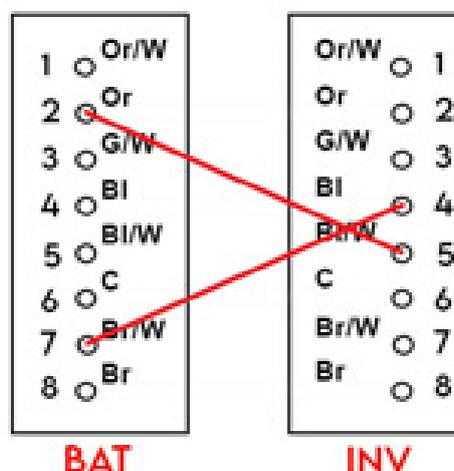- The pinouts for cable can be seen in Figure 3.

Figure 3: Pinouts for Giter-Sunsynk CAN Cable

Giter Battery Dip Switch Settings

The following DIP switch settings must be used:

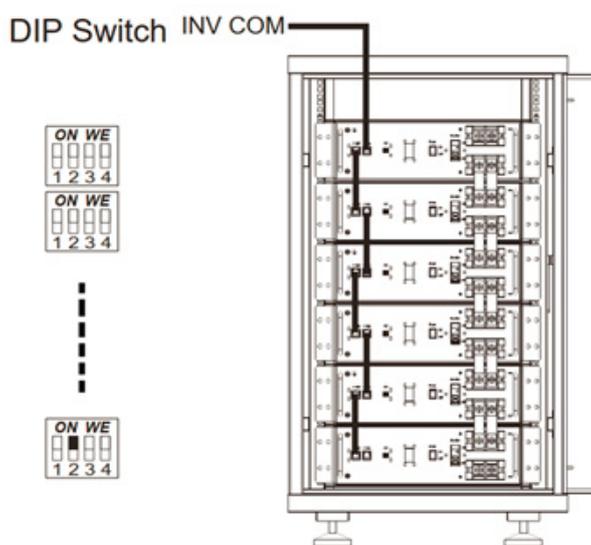| Number of Batteries	Battery 1	Battery 2	Battery 3	Battery 4	Battery 5	Battery 6
1 x Giter 48V	ON WE 1 2 3 4					
2 x Giter 48V	ON WE 1 2 3 4	ON WE 1 2 3 4				
3 x Giter 48V	ON WE 1 2 3 4	ON WE 1 2 3 4	ON WE 1 2 3 4			
4 x Giter 48V	ON WE 1 2 3 4	ON WE 1 2 3 4	ON WE 1 2 3 4	ON WE 1 2 3 4		
5 x Giter 48V	ON WE 1 2 3 4	ON WE 1 2 3 4	ON WE 1 2 3 4	ON WE 1 2 3 4	ON WE 1 2 3 4	
6 x Giter 48V	ON WE 1 2 3 4	ON WE 1 2 3 4	ON WE 1 2 3 4	ON WE 1 2 3 4	ON WE 1 2 3 4	ON WE 1 2 3 4

DIP Switch   INV COM

Figure 4: Parallel operation of Giter Batteries

Parallel Operation

- Up to six batteries can be paralleled. When connecting batteries in parallel please refer to Figure 4 and the table above for the DIP switch settings.
- Please set the DIP switches of the batteries according to the table above.
- Failure to set the DIP switches correctly will result in incorrect settings and miscommunication.
- The parallel communication cables and busbar links are included with each battery.
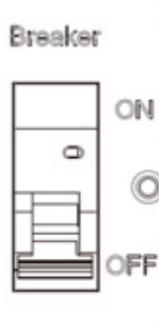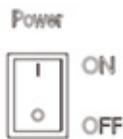
Figure 6: Power Button/ Breaker on Giter batteries

Figure 5: LED indicator lights on Giter and rocker switch

This indicator will not affect the systems performance.

Figure 7: LED Indicator Light

Figure 8: Settings page of Sunsynk Inverter

Switching on the system

- Ensure that the inverter, the grid supply, the PV and the load is switched off.
- The grid and PV supply must be isolated until the battery settings and communications are set-up successfully, failure to do this could result in the Giter batteries being damaged.
- Switch on the breaker of each battery individually, refer to Figure 6.
- Enable the internal BMS of the batteries by pressing the rocker switch on until the green battery indicator comes on, refer to Figure 7.
- Please wait for the outer ring of the green battery indicator to stop flashing after 3 seconds. Once the batteries have stopped flashing constantly, the outer light will now flash every 10-15 seconds. This means the battery is now on.
- The following LED indicator may appear refer to Figure 7 in new installation with multiple batteries.
- This is due to the batteries having different charge levels and may also appear when the batteries are charged to 100% SoC.

Interfacing with the Inverter

- Please switch on the inverter by its power button.
- The inverter settings are configured on the touch screen LCD of the inverter.
- The screen should come on when a power source is connected i.e., PV, Grid or Battery. Figure 8 is an image of how the parameters appear on the Sunsynk inverter.

Giter Battery Dip Switch Settings

This tab allows the user to enter details such as the time, display name etc. Please ensure that the correct time settings are entered as this could influence the functionality of the inverter especially if timed settings will be use.

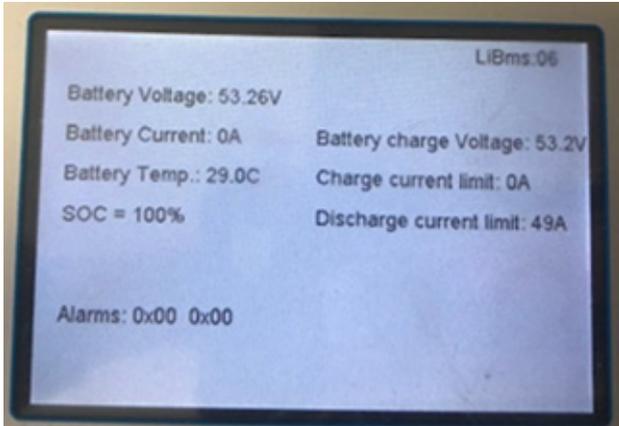## Battery Communication on the inverter's Li-BMS Screen
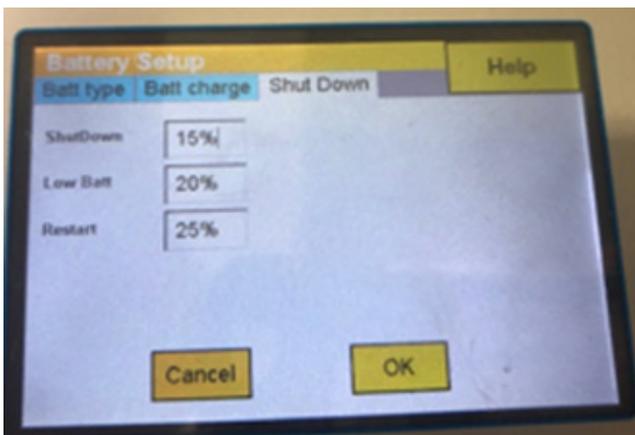

Figure 9: Li BMS Settings

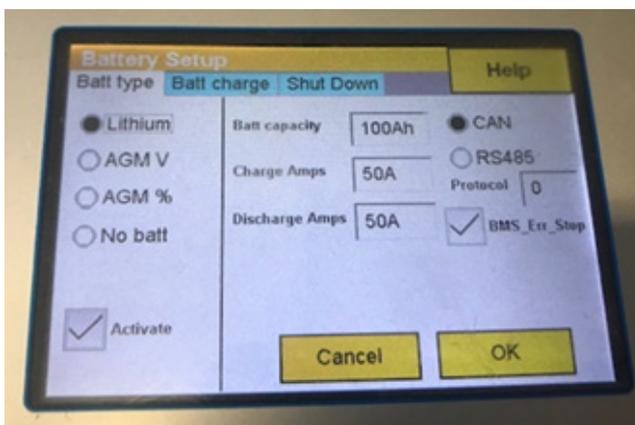*Figure 10: Battery Setup - Shut Down settings*

Figure 11: Battery Setup - Batt Type settings

- Click on the setting button and then click on Li-BMS
- If a screen as seen in Figure 9 appears then BMS communication is correct.
- If it is incorrect this screen will not be displayed, and you will need to check your DIP switch settings and CAN communication cable.
- Go to the "Battery" section under the settings menu. Press "Shut Down" and enable the Shut Down settings. Refer to figure 10
- Set "Shut down" to 15%, "Low Batt" at 20%, "Restart" at 25% as shown in Figure 3.
- These settings are for on-grid mode only and the DoD is confirmed to be a maximum of 85%. The maximum DoD of 85% is due to the BMS communication between the Sunsynk-to-Giter combination.
- Ensure that the Grid box is ticked in System mode settings to enable grid-mode.
- For off-grid mode the batteries will have a DoD is confirmed to be a maximum of 80%. The maximum DoD of 80% is due to the BMS communication between the Sunsynk-to-Giter combination.
- Refer to installation manual for detail on further instructions.
- On the "Batt type" tab, select the "Lithium" tick box. Refer to figure 11
- Thereafter, input the capacity of the battery as well as the charge/discharge currents according to the battery bank.
- For the protocol, please ensure that you follow the notes on the compatibility table as per manual.
- Then tick "BMS_Err_Stop" as shown in Figure 11.

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System Mode inverter settings

The "System Mode" page is where the installer can program the charge and discharge times. These settings are dependent on the application and purpose that the system will serve. For further details please visit the manual. Figure 12 is an illustration of what each box does and how it can be utilized.
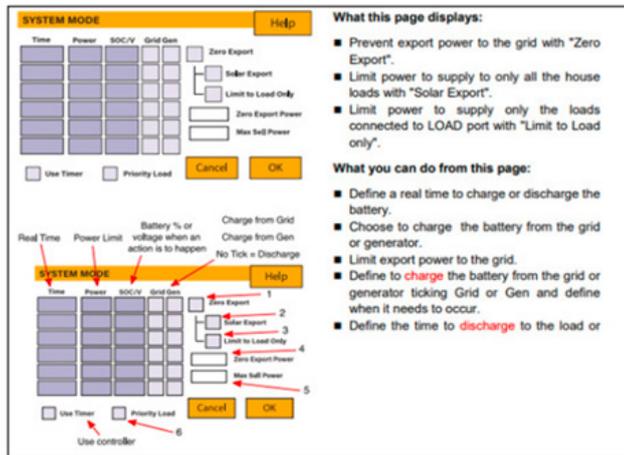
System Mode Settings

Figure 12: System Mode Settings

1. Tick this box if you're not allowed to export power back to the grid
2. Tick this box if you wish to export your solar power back to the grid.
3. Tick this box if you only want to supply power to the load side of the inverter.
4. Zero export power is the amount of power flowing from the grid to the inverter. Set this value to 20 – 100W to force the inverter to always take this amount of power from the grid to minimize nuisance tripping "Reverse Power Detection" of sensitive prepaid electricity meters.
5. This controls the maximum overall power, both to the load and grid ports combined. It is set to low if an over current fault occurs.
6. Tick this box if you wish that the solar panels prioritize power to the load. But if you untick the solar will prioritize the power to charge the batteries.

The SegenSolar portal has a System Designer tool which allows you to create your systems. Please speak to your account manager if you require training on how to use the System Design tool. The design tool will allow you to create a quote quickly and easily with all the necessary components.

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