

StorEdge™ Inverter Wiring Guide & On Site Checklist for Australia

Revision History

- Version 1.0 – initial version

This document is a battery wiring guide and contains an on-site checklist with steps for post-installation verification of a StorEdge system for the following batteries:

- LG Chem RESU7H/RESU10H



CAUTION

For proper battery performance, the LG Chem battery should remain connected to the StorEdge Inverter and in charging mode. Extended battery disconnection may result in deep discharge and damage the battery. If the battery must be disconnected, first turn OFF the LG battery circuit breaker switch and then the auxiliary power switch. For complete battery installation and commissioning instructions, see the LG Chem installation guide.

For more details, please refer to the StorEdge Installation Guide supplied with the StorEdge Inverter. For additional assistance contact SolarEdge Support (refer to the Support and Contact Information section on [page 11](#)).

Wiring Guide

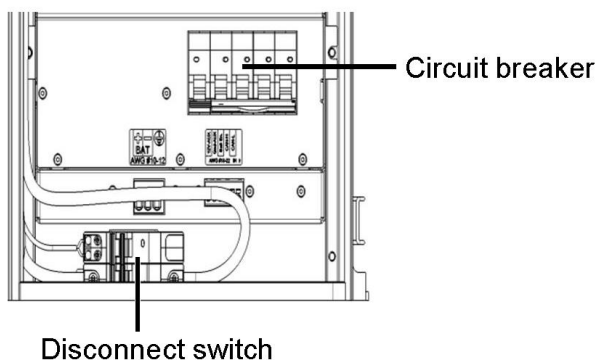


WARNING!

The LG Chem battery must be powered off before wiring.

LG Chem batteries are available with either of the following two types of powering mechanism design:

With the disconnect switch (requires Firmware version 3.24xx or later)



With the auxiliary power switch

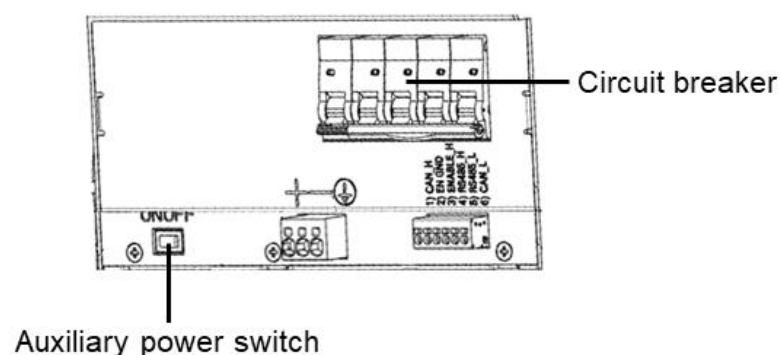


Figure 1: LG Chem Disconnect/Auxiliary Power Switch and Circuit Breaker

→ To power off the battery:

- 1. Turn off the circuit breaker.
- 2. Turn off the disconnect/auxiliary power switch.

→ To power on the battery:

- 1. Turn on the disconnect/auxiliary power switch.
- 2. Turn on the circuit breaker.

Wiring Types and Connectors

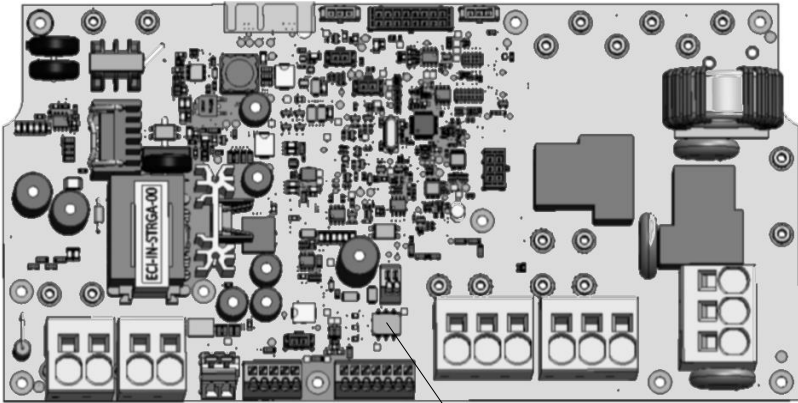
To connect the battery to the StorEdge Inverter, use the following wiring types and connectors:

Recommended Cable Type (min-max cross section)	SolarEdge Connector	LG Chem RESU7H/RESU10H Battery Connector
DC: 6 mm ² (2.5-6 mm ²), 600V insulated Ground/PE: 6-10mm ² , 600V insulated	BAT DC +	DC +
	BAT DC -	DC -
		Ground
Control and monitoring: 5-wire shielded twisted pair cable, 0.2 mm ² (0.2-1.5 mm ²), 600V insulated. CAT5 600V insulated can also be used.	En (enable)	ENABLE_H
	V+	Not connected
	B- (RS485)	RS485_L
	A+ (RS485)	RS485_H
	G (RS485) or Thermal (depending on inverter type)	EN_G

Wiring Diagrams – Connecting Batteries to the StorEdge Inverter

The diagrams on the following pages illustrate the connection of batteries to the StorEdge system. The following table will help you find the appropriate wiring diagram for your system configuration. Pay attention to whether the battery DIP switch setup on the communication unit main board has 2 or 3 switches.

Battery Type	Connected to	Wiring Diagram
LG Chem RESU7H/RESU10H	StorEdge Inverter with 2 DIP Switches	See Figure 2 on page 3
	StorEdge Inverter with 3 DIP Switches	See Figure 3 on page 4



Connecting the LG Chem RESU7H/RESU10H to a StorEdge Inverter with Two DIP Switches and SolarEdge Meter

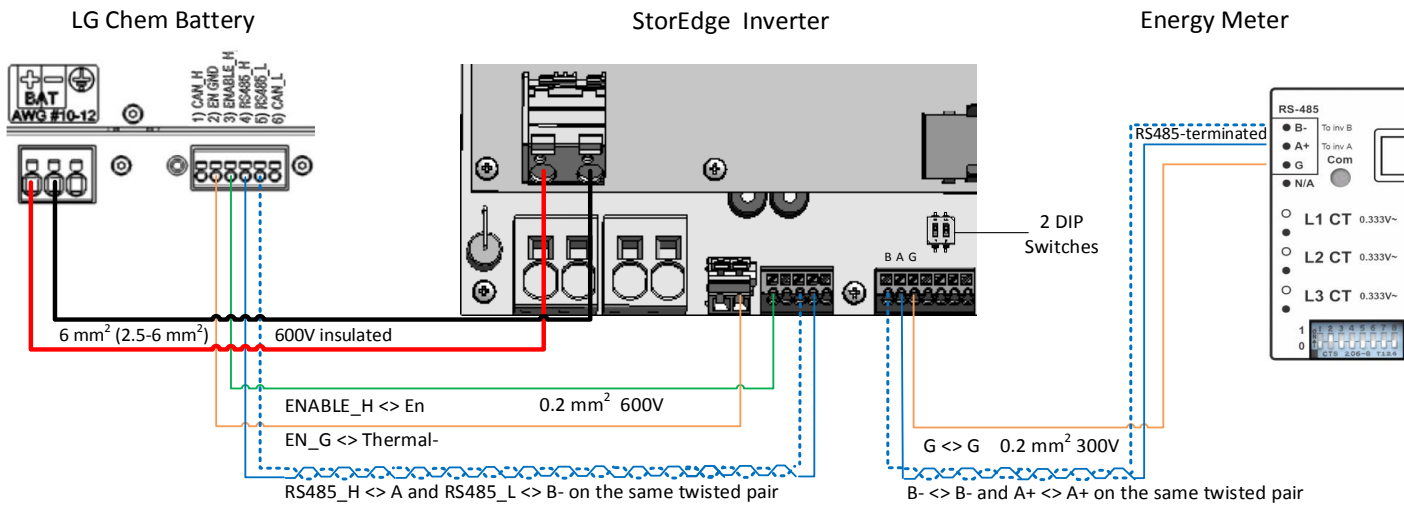


Figure 2: Connecting the LG Chem RESU7H/RESU10H to a StorEdge Inverter with Two DIP Switches and SolarEdge Meter

Connecting the LG Chem RESU7H/RESU10H to a StorEdge Inverter with Three DIP Switches and SolarEdge Meter

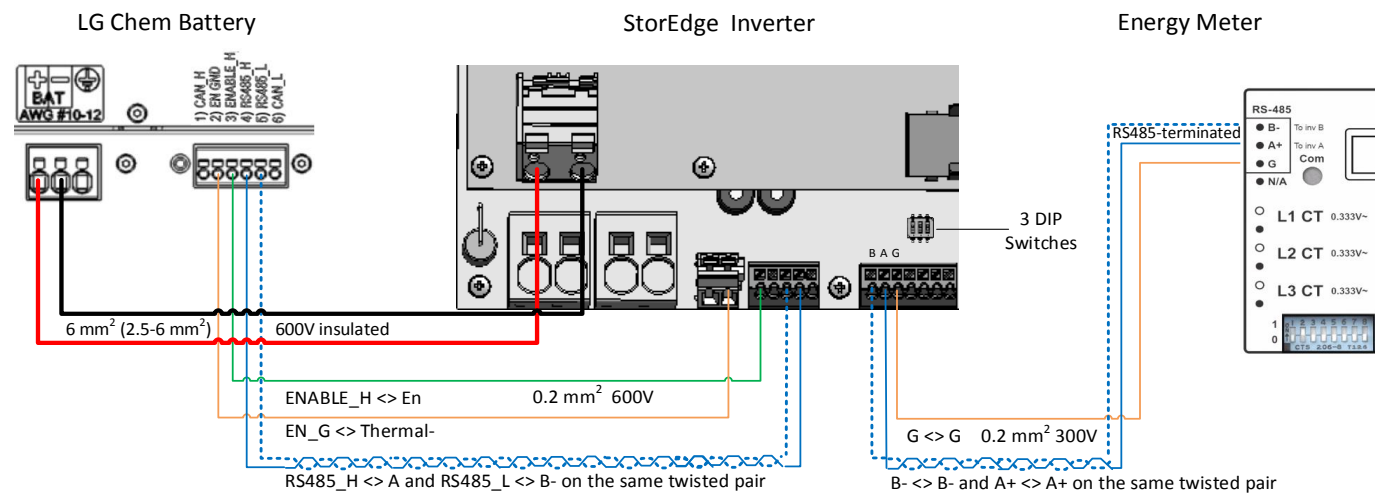


Figure 3: Connecting the LG Chem RESU7H/RESU10H to a StorEdge Inverter with Three DIP Switches and SolarEdge Meter

Wiring Diagrams – Connecting Two LG Batteries

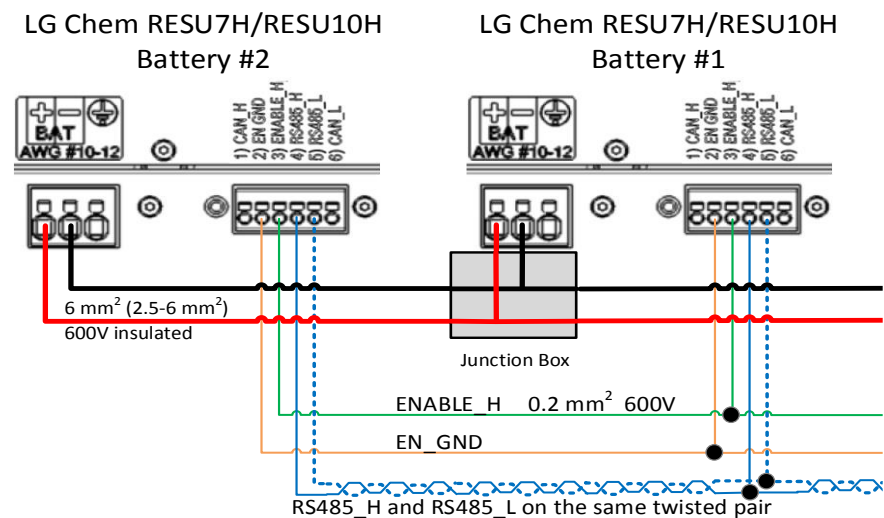
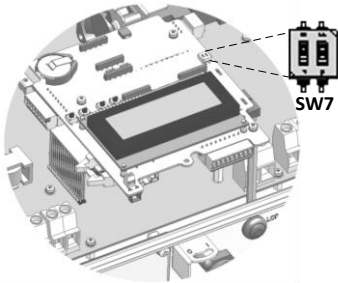


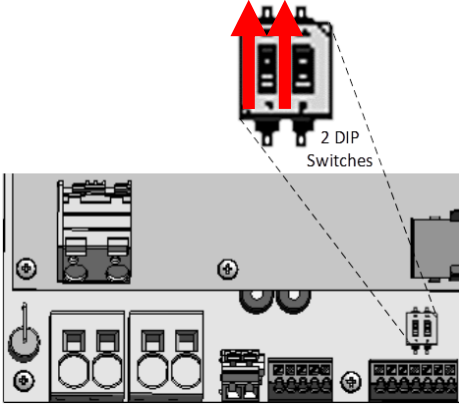
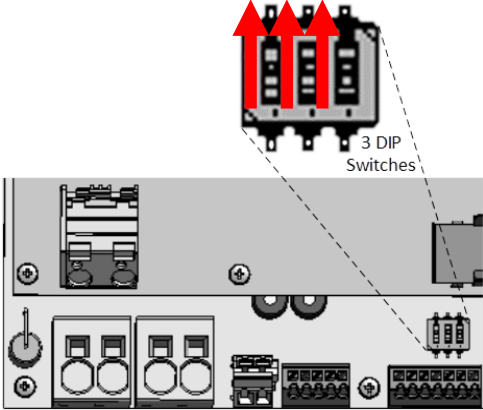
Figure 4: Connecting Two LG Chem RESU7H/RESU10H Batteries

Switch Settings

Setting the DIP Switches on the Inverter Communication Board

<div>Set DIP switch SW7</div> <div></div>	
RS485-1	RS485-2
For RS485-1 connections, use DIP Switch 1 (leftmost): * ON (up): Terminated (no meter installed) * OFF (down): Not terminated (meter is installed)	For RS485-2 connections, use DIP Switch 2 (rightmost): * ON (up): Terminated (no meter installed) * OFF (down): Not terminated (meter is installed)

Setting the DIP Switches on the Inverter Connection Unit Main Board (with Two or Three DIP Switches)

<div></div>		<div></div>		
DIP Switch 1 (leftmost)	DIP Switch 2 (rightmost)	DIP Switch 1 (leftmost)	DIP Switch 2 (center)	DIP Switch 3 (rightmost)
ON (up)	ON (up)	ON (up)	ON (up)	ON (up)

Post Installation Verification and Configuration

Follow the checklist below to verify that the system is properly connected and configured. The checklist is suitable for a backup system with a single StorEdge Inverter, a single battery, and a single SolarEdge Modbus Meter installed at the grid connection point.

For other system configurations, follow the steps in the StorEdge Installation Guide supplied with the StorEdge Inverter.

Step	Verification Action	Checked
1	Installation and Wiring	
1.1	Verify that the distance between components complies with the distances detailed in the supplied installation guide.	<input type="checkbox"/>
1.2	Take a photograph of the battery connection area and send to SolarEdge support (useful for future debugging if necessary).	<input type="checkbox"/>
1.3	Take a photograph of the connection area of the StorEdge Inverter and send it to SolarEdge support.	<input type="checkbox"/>
1.4	Take a photograph of the installation and send it to SolarEdge support.	<input type="checkbox"/>
1.5	Verify that the battery splash cover is closed.	<input type="checkbox"/>
1.6	Verify that the backed-up loads panel is wired (relevant for backup systems only).	<input type="checkbox"/>
1.7	Verify that the StorEdge Inverter's DIP switches are configured as shown on page 6.	<input type="checkbox"/>
1.8	Verify that all DC, communication and AC cabling connections are completed as follows:	
1.8.1	Check AC wiring and circuit breaker.	<input type="checkbox"/>
1.8.2	Check string DC input voltage. Expect 1V per optimiser in the string.	<input type="checkbox"/>
1.8.3	Verify that grounding is properly connected in the battery and inverter.	<input type="checkbox"/>
1.8.4	Check the DC wiring to the battery, according to the wiring diagram you selected from the table on page 6. Check the connections and verify that all are securely connected.	<input type="checkbox"/>
1.8.5	Check connections to the battery and the switch setup as described earlier in this document.	<input type="checkbox"/>
1.8.6	Check connections to the meter. If no meter is connected, the inverter's RS485 bus must be terminated using the DIP switches (see page 6).	<input type="checkbox"/>
1.8.7	Check that a 9V battery is installed in the StorEdge Inverter.	<input type="checkbox"/>
1.8.8	Check connection to the Internet with one of the following options: Ethernet, Wi-Fi, Cellular, ZigBee Module. The connection status displayed should be S_OK. Note: For inverters with a built-in cellular communication option, Ethernet or ZigBee Module can be used as an alternative if the cellular service does not meet operational requirements.	<input type="checkbox"/>

2	Activation and Firmware Upgrade			
	2.1	Turn the inverter ON/OFF switch to OFF and make sure it's OFF during the entire upgrade process.		<input type="checkbox"/>
	2.2	LG Chem Batteries (primary and secondary): Switch both Auxiliary power supply and Circuit breaker switch ON.		<input type="checkbox"/>
	2.3	Turn the AC to the inverter OFF.		<input type="checkbox"/>
	2.4	Verify that the serial number on the activation card supplied with the inverter matches the serial number of the inverter.		<input type="checkbox"/>
	2.5	Insert the activation card to the designated slot located on the inverter communication board.		<input type="checkbox"/>
	2.6	Turn ON the AC to the inverter to start activation.		<input type="checkbox"/>
	2.7	Turn ON the AC to the inverter to start activation.		<input type="checkbox"/>
	2.8	Wait until the LCD indicates that the inverter activation process is completed.		<input type="checkbox"/>
	2.9	Turn the AC to the inverter OFF.		<input type="checkbox"/>
	2.10	Remove the activation card from the inverter.		<input type="checkbox"/>
	2.11	Download the latest firmware version available at: https://www.solaredge.com/storedge/firmware to a microSD card.		<input type="checkbox"/>
	2.12	Insert the microSD card with the upgrade file to the designated slot located on the inverter communication board.		<input type="checkbox"/>
	2.13	Turn the AC to the inverter ON.		<input type="checkbox"/>
	2.14	Wait until the LCD indicates that the file was uploaded to the inverter and the battery. Note: The firmware is upgraded first on the inverter, and then on the battery. When the battery firmware update is in process, the ON light will blink.		<input type="checkbox"/>
3	RS485 Configuration Verification (for one Battery and one Export + Import meter)			
	3.1	If not already OFF, switch OFF the StorEdge Connection Unit switch (for StorEdge inverter).		<input type="checkbox"/>
	3.2	Switch the inverter ON/OFF switch to OFF.		<input type="checkbox"/>
	3.3	Devices		
	3.3.1	Enter Setup mode and select Communication > RS485-1 Conf > Multi Devices		<input type="checkbox"/>
	3.4	Meter		
	3.4.1	Select Communication > RS485-1 > Meter 2 > Meter ID: 2, Device Type <MTR>, Protocol <WN>, CT Rating (as per CT label), Device ID <2>, Meter Function (E+I).		<input type="checkbox"/>
	3.4.2	Verify Device Type > Revenue Meter		<input type="checkbox"/>
	3.4.3	Verify Protocol > Meter		<input type="checkbox"/>
	3.4.4	Verify that the CT value matches the value that appears on the CT label: CT Rating > <xxxxA>.		<input type="checkbox"/>
	3.4.5	If CT resets to 0, check the communication with the meter.		<input type="checkbox"/>

3.5	Battery			
	3.5.1	<p>Select Communication > RS485-1 > Battery 1 > Protocol (LG Battery).</p> <p>Select Communication > RS485-1 > Battery 1 > Battery ID (15).</p> <p>If installing two batteries, ensure that each battery has a different part number – thus ensuring that each battery will have a different Battery ID. The part number is printed on a label on the control panel of the battery. Battery with part number RXXXXXXXXXSEG1XXXXXXXXXX and ID 15 is the master battery.</p> <p>Battery with part number RXXXXXXXXXSEG2XXXXXXXXXX and ID 14 is the secondary battery.</p> <p>To configure the second battery:</p> <p>Select Communication > RS485-1 > Battery 2 > Battery ID (14).</p>	<div>> Device Type <BAT> Protocol <LG> Device ID <15> Battery Info<Test></div> <div>> Device Type <BAT> Protocol <LG> Device ID <14> Battery Info <></div>	<input type="checkbox"/>
3.6	Optional: RS485 Expansion Kit			
	3.6.1	For a system with multiple inverters that has a single RS485 bus only, install and configure an RS485 Expansion Kit. Refer to the RS485 Expansion Kit Installation Guide. http://www.solaredge.com/files/pdfs/RS485_expansion_kit_installation_guide.pdf	<input type="checkbox"/>	
4	RS485 Connection Verification			
Press the inverter external LCD light button to display the status screens one after the other until a screen like the following is displayed:				
4.1	Check the RS485 communication status: <ul style="list-style-type: none">Verify that the number under Prot displays the number of configured devices.Verify that the number under ## displays the number of communicating devices.	<div>Dev Prot ## RS485 - 1<MLT><03><03></div>	<input type="checkbox"/>	
4.2	Check the meter(s): In the meter(s) status screen check that the status is OK. If Comm. Error appears, refer to the troubleshooting section in the supplied installation guide.	<div>Export Meter Status: OK Power [W]: x.xxxx Energy [Wh]: x.xxxx</div>	<input type="checkbox"/>	
4.3	Check meter AC and CT connections including CT direction: Connect the meter to power supply. Check the LEDs: when configured as export/import meter: green=import, red=export. To verify whether the CT direction is correct, turn the inverter ON/OFF switch to OFF, and check the export screen. If the screen indicates "export", the CT direction should be reversed.		<input type="checkbox"/>	
5	Battery Self-test			
The test is available in CPU version 3.24xx and higher (but not in version 4.x.xxx). If two batteries are installed, the active battery will be tested first, and then the standby battery. If the active battery fails the test, the test will stop and the standby battery will not be tested.				
5.1	Verify that AC is ON.		<input type="checkbox"/>	
5.2	Turn the inverter ON/OFF switch to ON.		<input type="checkbox"/>	
5.3	Make sure the Connection Unit is ON.		<input type="checkbox"/>	

5.4	<p>Enter Setup mode and select Maintenance → StorEdge Self-Test → Start Test. The battery charges and discharges within approximately two minutes to check performance.</p> <p>During the test, the following message is displayed:</p> <div><pre>Short test in progress... Any button to stop</pre></div> <p>Upon the test completion, the following message is displayed:</p> <div><pre>Self-test completed successfully Any button to cont.</pre></div> <p>If an error message is displayed during the test, use the following table to resolve the error.</p> <table><tr><th>Error</th><th>Solution</th></tr><tr><td>Bat 1 charge failed</td><td>Check that the power and communication cables between the battery and inverter are properly connected.</td></tr><tr><td>Bat 1 discharge failed</td><td>Check that the power and communication cables between the battery and inverter are properly connected.</td></tr><tr><td>Low SOE</td><td>Charge the battery to 20 percent SOE at least.</td></tr><tr><td>Battery comm. error</td><td>Check that the communication cables between the battery and inverter are properly connected.</td></tr><tr><td>Turn switch to On</td><td>Turn the inverter ON/OFF switch to ON.</td></tr></table>	Error	Solution	Bat 1 charge failed	Check that the power and communication cables between the battery and inverter are properly connected.	Bat 1 discharge failed	Check that the power and communication cables between the battery and inverter are properly connected.	Low SOE	Charge the battery to 20 percent SOE at least.	Battery comm. error	Check that the communication cables between the battery and inverter are properly connected.	Turn switch to On	Turn the inverter ON/OFF switch to ON.	<div></div>
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Battery comm. error	Check that the communication cables between the battery and inverter are properly connected.													
Turn switch to On	Turn the inverter ON/OFF switch to ON.													
6	Battery Connection Check													
6.1	<p>Scroll through the menus until you reach the battery status screen. Check the BSN (battery serial number), ID (15 for LG), SOE (battery capacity in percentage), PWR (charge/discharge power), and the Status (Charging/Discharging, Idle, Init or Fault).</p>	<div>BSN: 6572b81 ID: 15 SOE: 97% PWR: 0W Status: Idle</div>	<div></div>											
7	Battery Firmware Version Check													
7.1	<p>Switch OFF the inverter and wait 3 minutes.</p>		<div></div>											
7.2	<p>Select Communication > RS485-1 > Battery 1 > Battery Info</p>	<div>SN: 6572b81 Model: R11163P3SSEG1 Nameplate[kWH]: 7.0 FW Ver.: DCDC 5.2.3</div>	<div></div>											

8	Setup StorEdge Operating Mode		
	8.1	Turn ON the inverter.	<input type="checkbox"/>
	8.2	Use the status screens to check charge or discharge according to the current condition.	<input type="checkbox"/>
	8.3	Set up the operating mode according to one of the following options:	
		Maximize Self Consumption	
		7.3.1 Select Power Control > Energy Manager > Energy Control > Max self-Consume	<input type="checkbox"/>
		Charge/Discharge Profile Programming	
9	7.3.2	Select Power Control > Energy Manager > Energy Control > Time of Use	<input type="checkbox"/>
	Battery State of Energy (SOE) Check		
	9.1	Turn ON the inverter.	<input type="checkbox"/>
	9.2	Check battery's SOE value on the inverter display. If the SOE is below 10%, immediately check that the inverter is successfully charging the battery.	<input type="checkbox"/>
10	9.3	If the battery does not charge: * Record the date of manufacture, which is embedded in the part number. The part number is printed on a label on the control panel of the battery XXXXXXXXXXXXYYMMDDXXX, Example: R15563P3SSEG1 170328 032, YY=17 MM=03 DD=28 * Contact your LG Chem regional customer service representative for assistance.	<input type="checkbox"/>
	Basic System Operation (optional)		
	10.1	Turn the AC power to the inverter OFF, and verify that the inverter has switched to backup mode.	<input type="checkbox"/>
	10.2	Turn the AC power to the inverter ON, and verify that the inverter is operating properly.	<input type="checkbox"/>

Support and Contact Information

Australia (+61)	1800 465 567	support@solaredge.net.au
APAC (Asia Pacific) (+972)	073 2403118	support-asia@solaredge.com
Benelux	NL (+31): 0800-7105 BE (+32): 0800-76633	support@solaredge.nl support@solaredge.be
China (+86)	21 6212 5536	support_china@solaredge.com
France (+33)	0800 917 410	support@solaredge.fr
DACH and Rest of Europe (+49)	089 454 59730	support@solaredge.de
Italy (+39)	0422 053700	support@solaredge.it
Japan (+81)	03 6262 1223	support@solaredge.jp
New Zealand (+64)	0800 144 875	support@solaredge.net.au
United Kingdom (+44)	0800 028 1183	support-uk@solaredge.com
US & Canada (+1)	510 498 3200	ussupport@solaredge.com
Greece (+49)	89 454 59730	support@solaredge.com
Israel (+972)	073 240 3122	
Middle East & Africa (+972)	073 2403118	
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:

- Inverter and power optimiser model numbers
- Serial number of the product in question
- The error indicated on the inverter screen or on the SolarEdge monitoring portal, 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 monitoring portal, if the site is connected
- Inverter software version as appears in the ID status screen.