StorEdge^{TM} Solution Applications with the StorEdge Interface and LG Chem Batteries – Connection and Configuration (Europe, APAC, South Africa)

Revision History

- Version 2.1 (December 2018)
  - Added the requirement to perform a battery self-test on page 10.
  - Added *Additional Capacity and Power with Multiple Inverters* on page 12.
  - Added *Appendix C – Powering the LG Chem Battery off and on* on page 19.
- Version 2.0 – removed Tesla batteries, added LG batteries
- Version 1.0 – initial version, using Tesla batteries

Contents

Introduction

StorEdge Solution with the StorEdge Interface can be used for various applications that enable energy independence for system owners, by utilizing a battery to store power and supply power as needed. The StorEdge Solution is based on and managed by the SolarEdge inverter for both PV and battery management, and is compatible with LG Chem High Voltage Batteries.

This document describes two of the main StorEdge Solution applications[1]:

- Maximize self-consumption – the battery is automatically charged and discharged to meet consumption needs and reduce the amount of electricity purchased from the grid
- Charge/discharge profile programming – the system operates according to a configurable charge/discharge profile, for example for time of use arbitrage (charge the battery from PV/grid when tariffs are low and discharge it when tariffs are high)

These applications can be used together with the export limitation application. For details on export limitation, refer to https://www.solaredge.com/sites/default/files/feed-in_limitation_application_note.pdf.

Overview

System Components

The StorEdge Solution is comprised of the following components:

- **Single Phase SolarEdge Inverter** – the inverter manages battery and system energy in addition to its traditional functionality as a DC-optimized PV inverter; in some configurations, an AC-coupled SolarEdge inverter is used instead. The StorEdge solution is supported by SolarEdge single phase inverters, including the Single Phase Inverter with HD-Wave Technology

  > **NOTE**
  >
  > Any single phase inverter manufactured from week 40 2014 and with CPU version 3.xxxx or higher and DSP1 version 1.210.7xx or higher may be used; inverter firmware upgrade is required, and can be downloaded at: https://www.solaredge.com/storedge/firmware

- **StorEdge Interface** – provides safe and reliable connectivity between the battery and the inverter. The StorEdge solution is supported by the following StorEdge Interface units:

  - SESTI-S4: StorEdge Interface for the Single Phase Inverter with HD-Wave Technology
  - SESTI-S1 and SESTI-S2: StorEdge Interface for other SolarEdge single phase inverters

- **SolarEdge Energy Meter** – used by the inverter for import/export or consumption readings, and manages the battery charge/discharge accordingly; the meter readings are displayed in the monitoring platform.

  > **NOTE**
  >
  > System management for maximize self-consumption or charge/discharge profile programming is determined by the number of phases read by the inverter, combined, i.e. if there is a CT (current transofrmer) on one phase, management will be done for that phase only. If there are CTs on all three phases, the three phases will all be managed together, for example import on one phase can be cancelled out by export on another phase.

- **LG Chem RESU7H/RESU10H Battery** – a DC-coupled battery designed to work with the StorEdge solution.

System Configurations

The configurations described in the application note are the following:

Use Case	Description
Basic Configuration	This configuration is based on one of each of the StorEdge components and is suitable for most residential systems.
Large Residential PV Systems	For residential sites with large PV systems, two single phase inverters may be installed. One inverter manages the battery and functions as a PV inverter, and the second inverter is used for production of the additional PV power.

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[1] The system applications and configurations described in this document do not provide backup power.

Use Case	Description
Additional Capacity and Power with Multiple Inverters (requires CPU version 3.24XX and above)	For three-phase installations where additional capacity and power with multiple inverters is needed. In this case up to three inverters, each connected to the PV, and three batteries may be installed. Each battery connects through a separate StorEdge interface to the inverter, and each inverter manages the battery and the PV connected to it. The inverter connected to the meter operates as the system manager.
AC Coupling using a SolarEdge Three Phase Inverter	For sites that require a three phase inverter, or already have a three phase SolarEdge inverter installed, the StorEdge single phase system can be AC-coupled to the three phase inverter, i.e. the single phase inverter used to manage the battery is connected to the AC output of the three phase inverter.
AC Coupling using a non-SolarEdge Inverter	For sites with an already installed PV system with a non-SolarEdge inverter, the StorEdge system can be AC-coupled to the existing inverter, i.e. the SolarEdge inverter used to manage the battery is connected to the AC output of the existing inverter.

For configurations with more than one SolarEdge inverter, the inverters are connected to each other with RS485, with one inverter configured as the master and connected to the SolarEdge monitoring server.

Compatibility Information

The following table lists the StorEdge applications that can be used for each system configuration:

System Configuration	Mode of Operation			
	Maximize Self-consumption	Charge/Discharge Profile Programming	Zero Export Limitation	Non-Zero Export Limitation
Basic Configuration	✓	✓	✓	✓
Large Residential PV Systems	✓	✓	✓	✓
Additional Capacity and Power with Multiple Inverters	✓	✓	✓	✓
AC coupling using a SolarEdge Three Phase Inverter	✓	✓ (CPU version 3.24XX and above)		✓
AC coupling using a non-SolarEdge Inverter	✓	✓ (CPU version 3.24XX and above)		✓

Related Documentation

For detailed installation and configuration instructions of the system components refer to the following installation guides:

■ StorEdge Interface installation:

https://www.solaredge.com/sites/default/files/storedge_interface_installation_with_LG_and_HD_wave.pdf

■ Inverter installation:

Single Phase Inverter with HD-Wave Technology Installation Guide:

https://www.solaredge.com/sites/default/files/se_hd_wave_inverter_installation_guide.pdf

Single Phase Inverters Installation Guide:

https://www.solaredge.com/sites/default/files/se-inverter-installation-guide.pdf

■ Energy Meter installation:

https://www.solaredge.com/sites/default/files/solaredge-meter-installation-guide.pdf

- Wiring guide and onsite checklist:

  https://www.solaredge.com/sites/default/files/storedge_interface_wiring_quick_guide_and_on_site_checklist_for_lg_batteries.pdf

- Charge/discharge profile programming:

  https://www.solaredge.com/sites/default/files/storedge_charge_discharge_profile_programming.pdf

- Export limitation:

  https://www.solaredge.com/sites/default/files/feed-in_limitation_application_note.pdf

System Connection

The following diagrams illustrate the connection of the system components when using the basic configuration: one battery and one StorEdge Interface. The following diagrams contain enlarged segments of this diagram. For further information see the *StorEdge Interface Wiring Guide & On Site Checklist:*

https://www.solaredge.com/sites/default/files/storedge_interface_wiring_quick_guide_and_on_site_checklist_for_lg_batteries.pdf

Figure 1: Basic Configuration
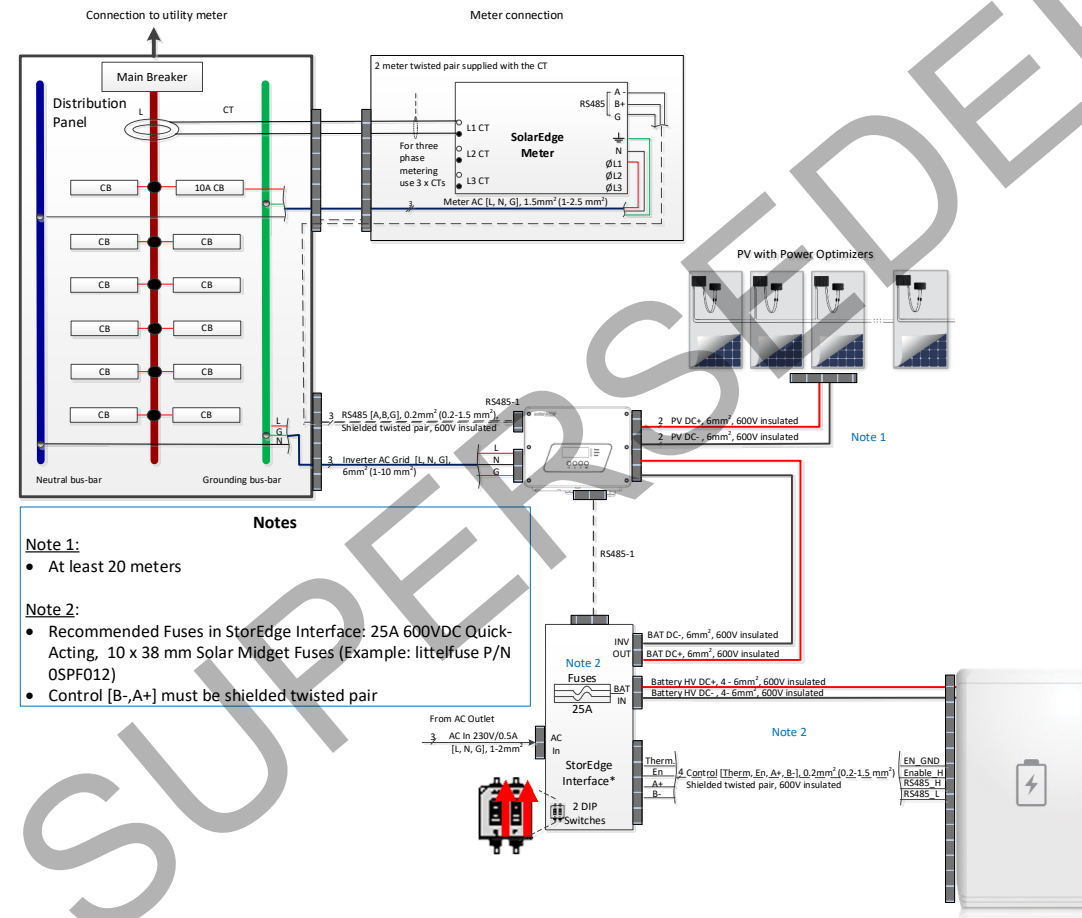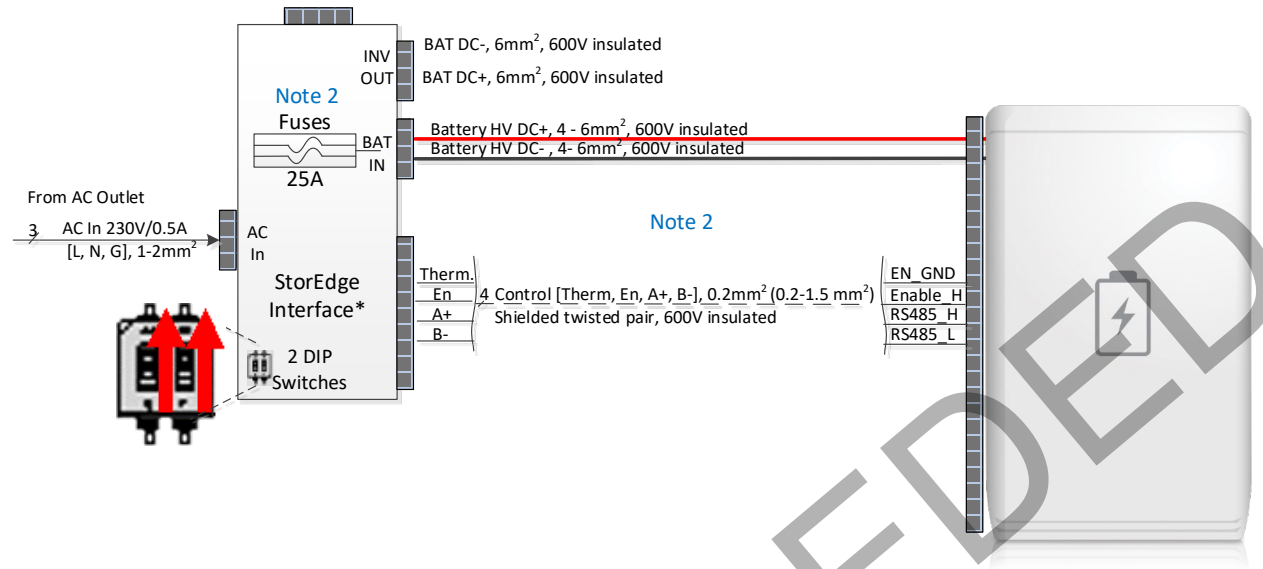
Figure 2: Basic Configuration, Battery - StorEdge Interface Connection
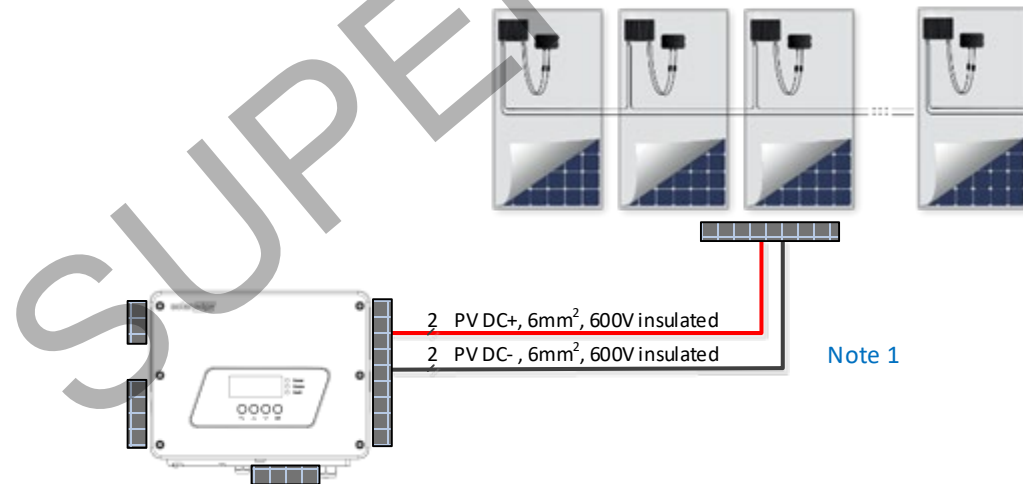
Figure 3: Basic Configuration, Inverter - Power Optimizer Connection
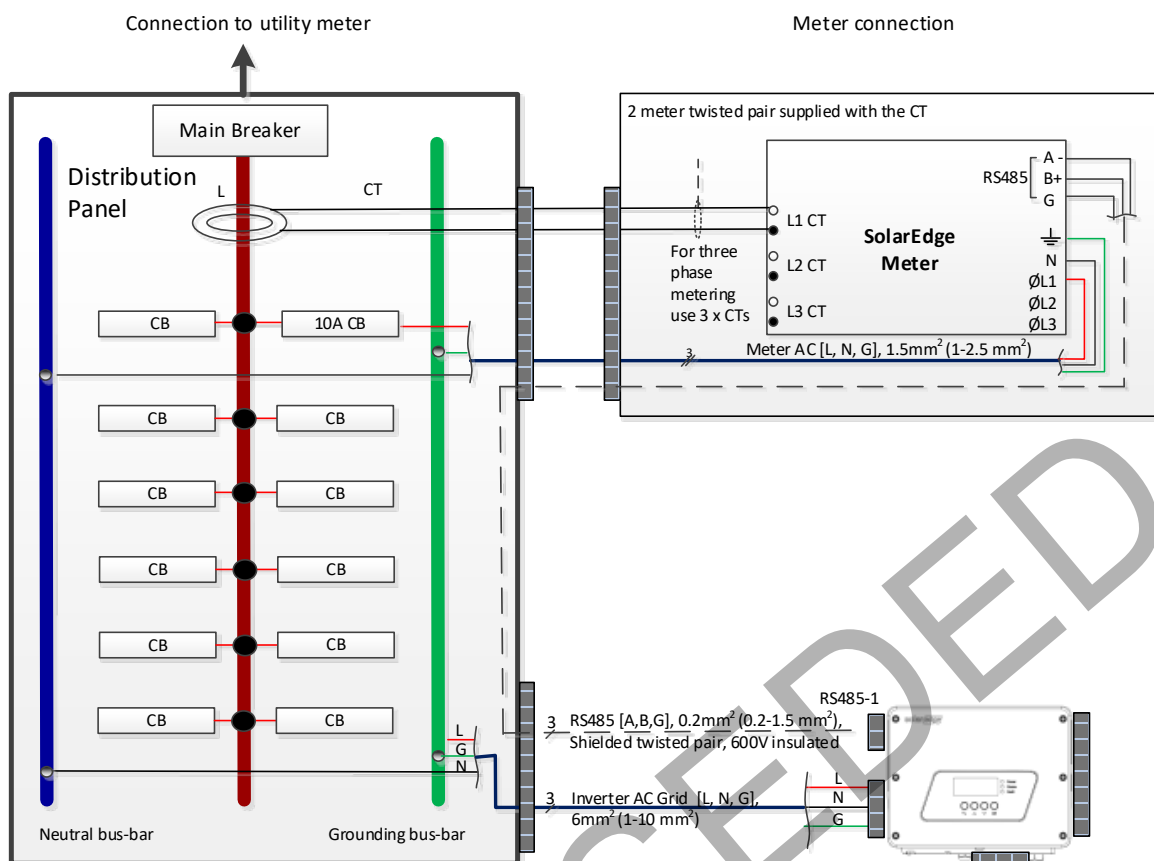
Figure 4: Basic Configuration, Inverter - Main Breaker and Meter Connection

Table 1: Notes for Basic Configuration Diagram

Note	Description
Note 1	• Maximum 20 meters
Note 2	• Recommended StorEdge Interface fuses: 25A 600VDC Quick-Acting, 10 x 38 mm Solar Midget Fuses (Example: Littelfuse P/N 0SPF012) • Control [B-, A+] must be shielded twisted pair

System Configuration Options and Setup

There are various StorEdge system configurations, suitable for different PV systems user needs.

Some system configurations have multiple SolarEdge inverters. The inverters are connected to each other with RS485 and appear under a single site in the monitoring platform.

This section describes each of these configurations, and the required system setup via the inverter LCD and internal buttons and via the monitoring platform (where applicable).

Basic Configuration

This configuration is based on one of each of the StorEdge components and is suitable for most residential systems.
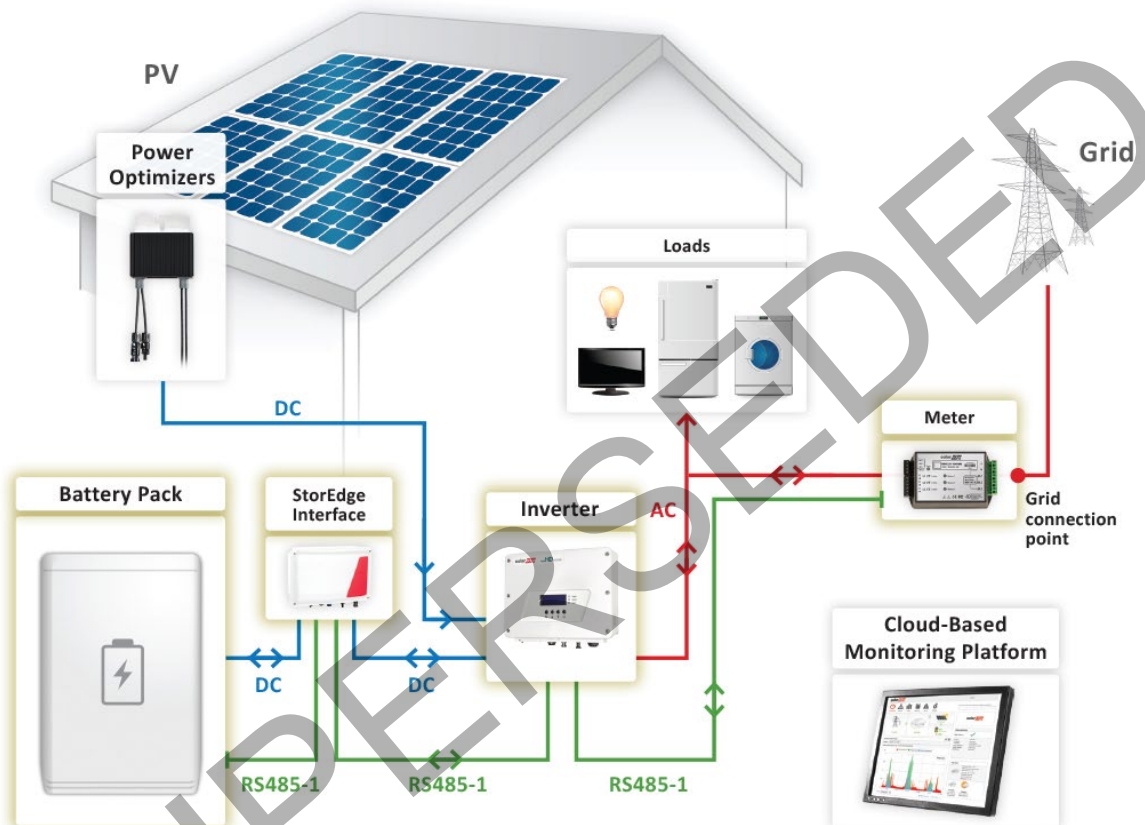
Figure 5: Basic Configuration

► **To connect and configure the meter and the battery:**

1   Depending on your battery model, turn on the battery's auxiliary power switch or the disconnect switch. For details, see Appendix C - Powering the LG Chem Battery off and on on page 19.

2   Turn the battery Circuit Breakers ON.

3   Make sure the wiring is connected according to the diagram above

4   If a firmware upgrade is required, see the *StorEdge Interface Wiring Guide & On Site Checklist*: https://www.solaredge.com/sites/default/files/storedge_interface_wiring_quick_guide_and_on_site_checklist_for_lg_batteries.pdf

5   Check the Communication status screen and verify that the battery and the meter are properly connected and configured

```
            Dev  Prot  ##
RS485-1<MLT><02><02>
ZigBee  <--><--><-->
```

- If Dev is not "MLT", the system is not pre-configured and requires full configuration. Proceed with step 8 below.
- If ## < 02, the meter and/or the battery are not configured correctly. Check the configuration. Proceed with step 7 below.

- If Prot < 02, the meter and/or the battery is not communicating correctly. Check the configuration and wiring connection.
- If Prot = 02 – the battery and meter are configured and communicating properly. Proceed with step 7 below.

6 Check that the meter CT rating is set to the correct value as appears on the CT label in order to complete the meter setting. To check, select **Communication → RS485-1 Conf → Device type → Multi Devices → Meter 2 → Device Type → Revenue Meter**. The meter configuration screen is displayed. Configure the meter:

  a. Check that the CT value is set as it appears on the CT label. If it is not configured correctly, check the communication as described in section below: *To verify communication*.

  If communication is verified, skip steps 8 to 10 and proceed with system application configuration for maximize self-consumption or for charge/discharge profile programming as described below.

7 Select **Communication → RS485-1 Conf → Device Type→ Multi-devices**. A list of devices is displayed.

8 Select **Meter 2**. The meter configuration screen is displayed. Configure the meter:

  a. Select **Device Type → Revenue Meter**

  b. Check that the CT value is set as it appears on the CT label. To check, select **CT Rating → <xxxxA>.** If it is not configured correctly, use the up/down arrows to set each character, press <Enter> to set the character and move to the next one, then long press on <Enter> to set the value.

  c. Select **Meter Func.** and select the function according to the meter CT(s) location:

  i. **Export + Import**: meter CT(s) at grid connection point (as shown in the diagram above)

  ii. **Consumption**: meter CT(s) at load consumption point

9 Select **Battery 1**. The battery configuration screen is displayed. Configure the battery:

  a. Select **Device Type →Battery Pack**

  b. Select the battery protocol: **LG Battery**, and **ID: 15**

10 After configuring the meter and the battery proceed with system application configuration for maximizing self-consumption or for charge/discharge profile programming.

► **To maximize self-consumption:**

- Select Power Control → Energy Manager → Energy Ctrl → Max Self-Consume.

► **To set up Charge/Discharge Profile Programming:**

1 Select **Power Control → Energy Manager → Energy Ctrl → Time of Use**.

2 Select **Storage Ctrl→ AC Charge Lim → Limit Type**, and set one of the following limits:

  a. Set %PV to enter a limit as a percentage of year-to-date energy production.

  b. Set kWh to enter a fixed annual energy limit.

  c. Set None to unlimit the charging.

3 Profile loading can be done remotely from the monitoring platform. Refer to *Appendix A – Creating a Charge/Discharge Profile* on page 17 for information on creating a charge/discharge profile.

  a. In the monitoring platform, click the Admin icon and select the Energy Manager tab.

  b. Select **Set profile from server** check box.

  c. Select **Apply this profile** and select the profile name from the drop-down list. The profile is applied to all inverters in the site.

  d. Click **Save**. The Energy Manager window displays:

  i. In the Storage mode column: "Storage Profile" (if you applied a profile)

  ii. In the Storage profile name column: The specific profile that was applied to the site, as reported by each inverter.

► **To verify communication:**

After connecting and configuring a communication option, perform the following steps to check that the connection to the monitoring server has been successfully established.

1 Turn on the AC to the inverter by turning ON the circuit breaker on the main distribution panel.

2 Wait for the inverter to connect to the SolarEdge monitoring platform. This may take up to two minutes.

3 Push the OK / LCD button several times, until you see the communication screen on the LCD panel:

```
Vac[V]  Vdc[V]  Pac[W]
230.2   18.4     0
P_OK: 000/000  <S_OK>
                   OFF
```

S_OK: Indicates that the connection to the SolarEdge monitoring platform is successful.

4   For additional verification, refer to Appendix B – Verifying StorEdge Functionality on page 18.

► To test the battery:

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.

1   Verify that AC is ON.

2   Turn the inverter ON/OFF switch to ON.

3   Make sure the Connection Unit is ON.

4   Enter Setup mode and select **Maintenance → StorEdge Self-Test → Start Test**. The battery charges and discharges within approximately two minutes to check performance. During the test, the following message is displayed:

```
Short test in
progress...

Any button to stop
```

Upon the test completion, the following message is displayed:

```
Self-test completed
successfully

Any button to cont.
```

If an error message is displayed during the test, use the following table to resolve the error.

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.

Large Residential PV Systems

For residential sites with large PV systems, two single phase inverters may be installed. One inverter manages the battery and functions as a PV inverter, and another inverter is used for production of the additional PV power.

The two inverters can optionally be connected to different phases.

For StorEdge interface installations with two Single Phase Inverters with HD-Wave Technology, both inverters require CPU version 3.2186 and above. If an upgrade is needed, refer to the StorEdge and Device Control Firmware Updates page at: https://www.solaredge.com/storedge/firmware
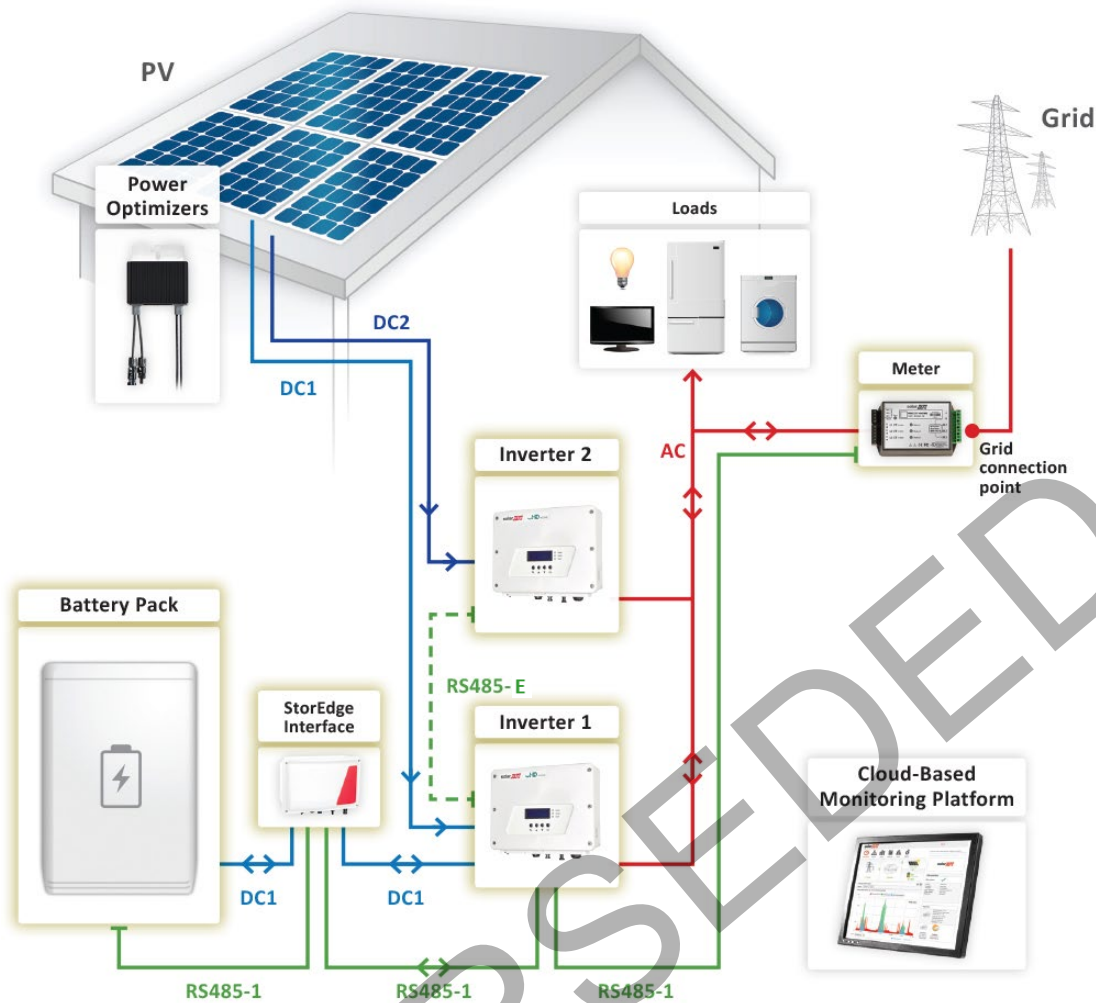
Figure 6: Large residential PV systems

► To configure the system:

1 Configure inverter 1, meter and battery as described in the *Basic Configuration*.
2 After configuring the meter and the batteries proceed with system application configuration for inverter 1:
    a. For charge/discharge profile programming, as described in the basic configuration, or
    b. To maximize self-consumption:
        Select **Power Control ➔ Energy Manager ➔ Energy Ctrl ➔ Max Self-Consume**
3 Inverter 2 requires the same CPU version as inverter 1.

► To configure Inverter Master-Slave communication:

1 Connect inverter 1 RS485 Expansion port to inverter 2 RS485-1 port using an RS485 twisted pair cable. Terminate both sides.
2 In Inverter 1, select **Communication ➔ RS485-E Conf ➔ Enable**. Press Enter to continue.
3 Select **Protocol ➔ Master**
4 Select **Slave Detect**. Verify that the inverter reports the correct number of slaves.
5 Inverter 2 does not require communication configuration.

► To verifying communication:

• Verify communication as described in the Basic Configuration section.

► To test the battery:

• Test the battery as described in the Basic Configuration section.

Additional Capacity and Power with Multiple Inverters

For sites where additional capacity and power with multiple inverters is needed, up to three inverters with three StorEdge interfaces and three batteries may be installed. Each battery connects through a separate StorEdge interface to an inverter, and each inverter manages the battery and the PV connected to it. The inverter connected to the meter operates as the system manager.

For these installations, both inverters require CPU version 3.24XX and above. If an upgrade is needed, refer to the StorEdge and Smart Energy Firmware Updates page at: https://www.solaredge.com/aus/storedge/firmware.

If the inverter connected to the battery only has a single RS485 bus, installation of an RS485 Plug-in is required. Refer to the RS485 Plug-in Installation Guide at: http://www.solaredge.com/files/pdfs/RS485_expansion_kit_installation_guide.pdf.
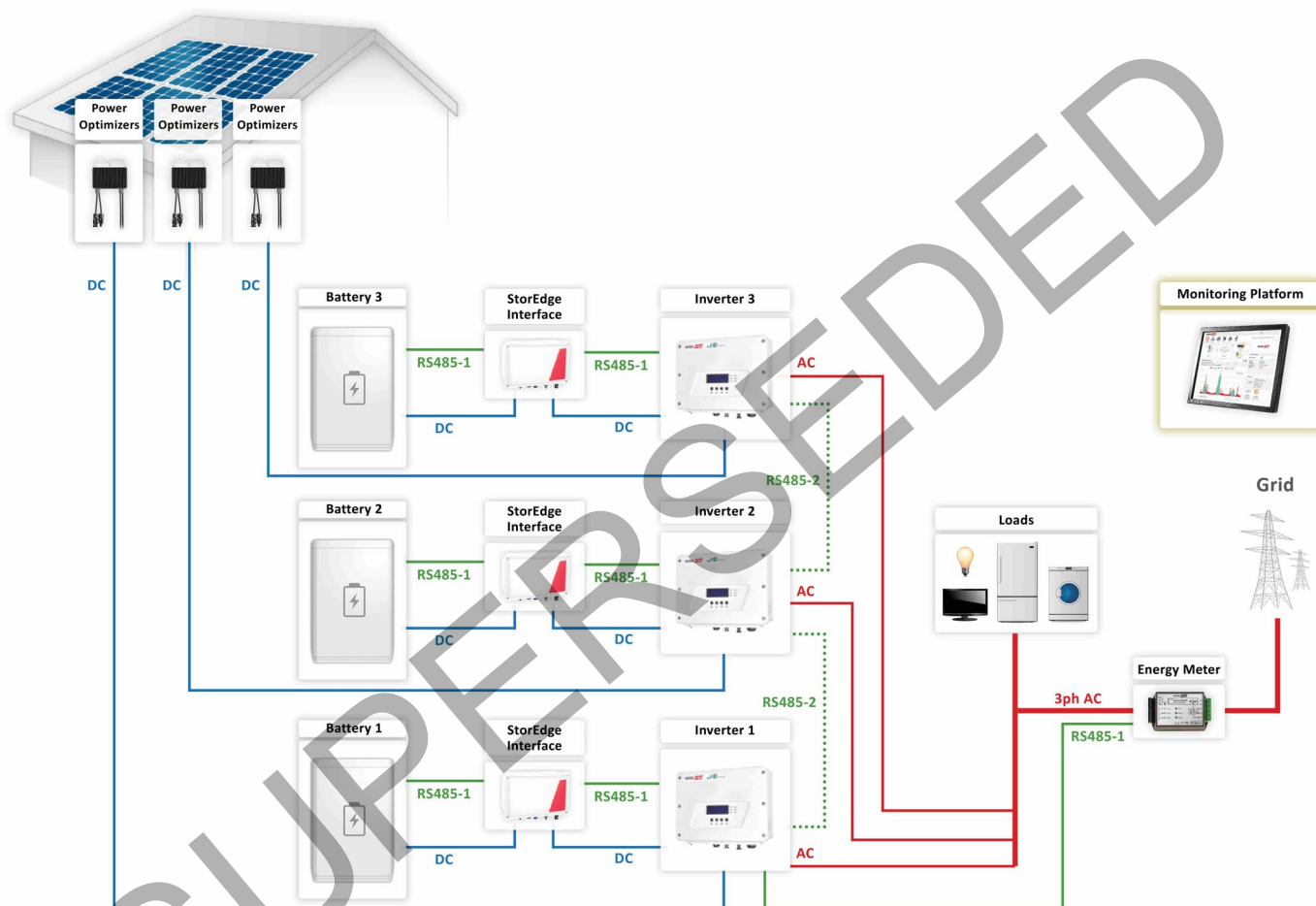

Figure 7: Additional Capacity and Power with Multiple Inverters

► To configure RS485 communication:

1 If needed, install the RS485 Plug-in in the StorEdge inverter. If there is an RS485-2 port in the inverter, use it instead of the expansion kit. The RS485-E port in the following instructions refers either to the Expansion port or to the RS485-2 port.

2 Connect the Inverter 1 RS485-E port to the Inverter 2 RS485-E port using an RS485 twisted pair cable. Make sure to terminate both sides.

3 Configure the Inverter 2 RS485-E port: Select **Communication → RS485-E Conf → Enable.**

4 Configure the Inverter 1 RS485-E port:

    a.   Select **Communication → RS485-E Conf → Enable**. Press **Enter** to continue.

    b.   Select **Protocol → Master.**

    c.   Select **Slave Detect** on Inverter 1. Verify that the inverter reports the correct number of secondary inverters.

► **To configure the system:**

1 Configure the meter and battery of Inverter 1 as described in the Basic Configuration section.

2 Configure the battery of Inverter 2 as described in the Basic Configuration section.

3 Make sure that the meter is not configured on Inverter 2:

a. Select **Communication → RS485-1 Conf → Device Type → Multi-devices**.

b. Select **Meter2 → Meter Type → None**.

► **To set up Smart Energy Management:**

• After configuring the meter and battery, proceed with maximizing self-consumption or charge/discharge profile programming as described in the Basic Configuration section. Repeat this configuration for each of the inverters.

► **To verify communication:**

• Verify communication of both inverters as described the Basic Configuration section.

► **To test the battery:**

• Test the battery as described in the Basic Configuration section.

AC Coupling using a SolarEdge Three Phase Inverter

For sites that require a three phase inverter, or already have a three phase SolarEdge inverter installed, the StorEdge system can be AC-coupled to the three phase inverter. A StorEdge AC Coupled inverter is used to manage the battery and is connected to the AC output of the three phase inverter.

For StorEdge interface installation with an Single Phase Inverter with HD-Wave Technology, both inverters require CPU version 3.2186 and above. If an upgrade is needed, refer to the StorEdge and Smart Energy Firmware Updates page at: https://www.solaredge.com/storedge/firmware

NOTE
The StorEdge AC Coupled inverter does not work with power optimizers or as a standard solar PV inverter.

NOTE
Charge/discharge profile programming is not applicable to StorEdge AC coupled systems.
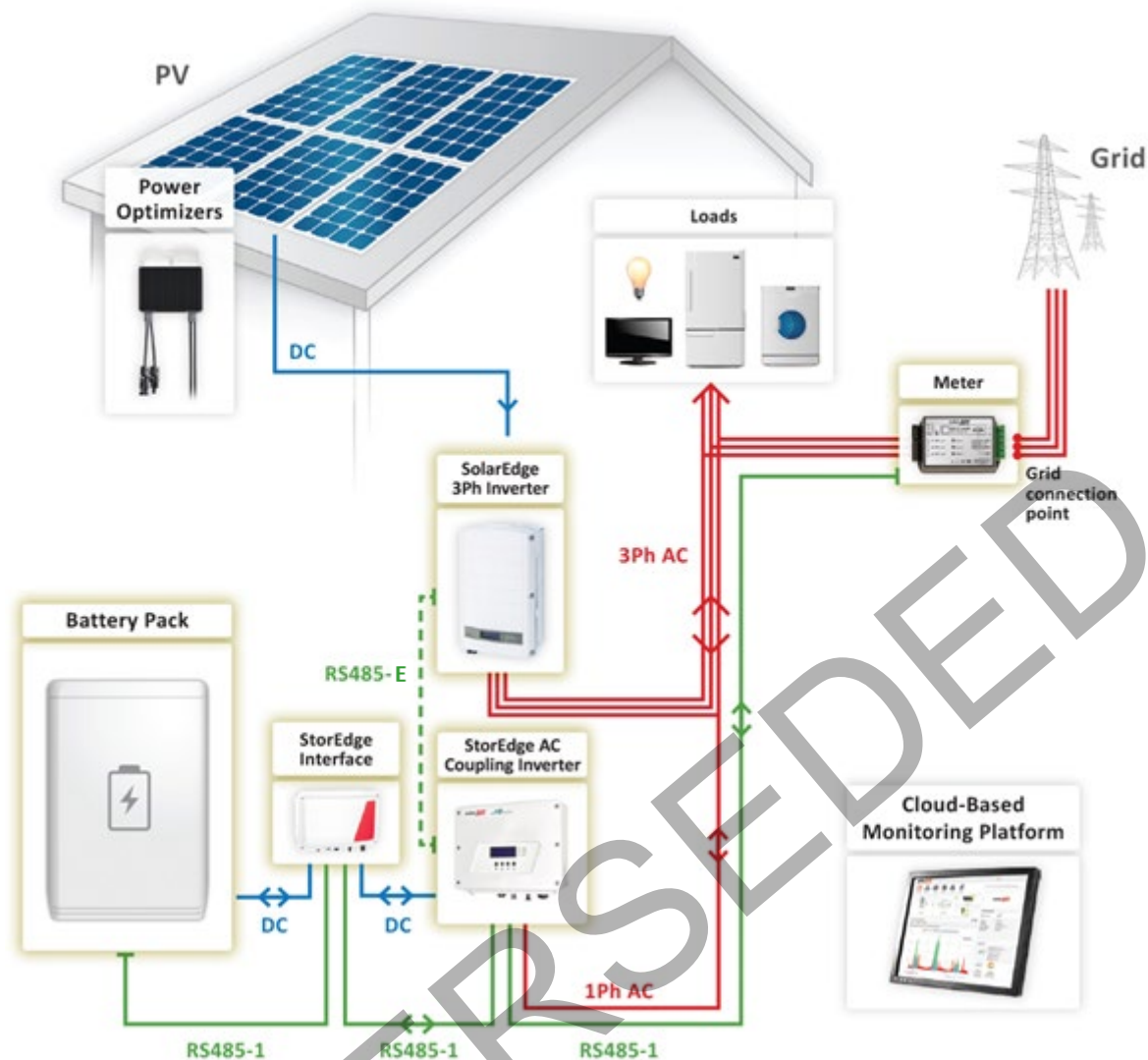
Figure 8: AC Coupling System Using a Three Phase Inverter

► To configure the Meter and the Battery:

- Configure the meter and battery from the single phase inverter as described in the Basic Configuration section.

► To set up Maximize Self-consumption:

1 Select **Power Control ➔ Energy Manager ➔ Energy Ctrl ➔ Max Self-Consume**
2 Continue setup as described in the basic configuration.

► To configure Inverter RS485 communication:

1 Install an RS485 Expansion Kit in the three phase inverter.
2 Connect the single phase inverter's RS485 Expansion port to the three phase inverter's RS485 port using an RS485 twisted pair cable. Make sure to terminate both sides.
3 The three phase inverter does not require communication configuration.
4 Configure the single phase inverter with the RS485 Expansion port:
    a. Select **Communication ➔ RS485-E Conf ➔ Enable**. Press <Enter> to continue.
    b. Select **Protocol ➔ Master.**
    c. Select **Slave Detect**. Verify that the inverter reports the correct number of slaves.

► To verify communication:

- Verify communication as described in the Basic Configuration section.

► **To test the battery:**

- Test the battery as described in the Basic Configuration section.

AC Coupling using a non-SolarEdge Inverter

For sites with an already installed PV system with a non-SolarEdge inverter, the StorEdge system can be AC-coupled to the existing inverter. The StorEdge AC Coupled inverter is used to manage the battery and is connected to the AC output of the three phase inverter.

> **NOTE**
> The StorEdge AC Coupled inverter does not work with power optimizers or as a standard solar PV inverter.

> **NOTE**
> Charge/discharge profile programming is not applicable to StorEdge AC coupled systems.

In this configuration, an additional meter is connected. The additional meter is used to measure PV production of the existing inverter and to enable monitoring of system production, consumption and self-consumption; the meter is not required for system operation, only for full system monitoring.
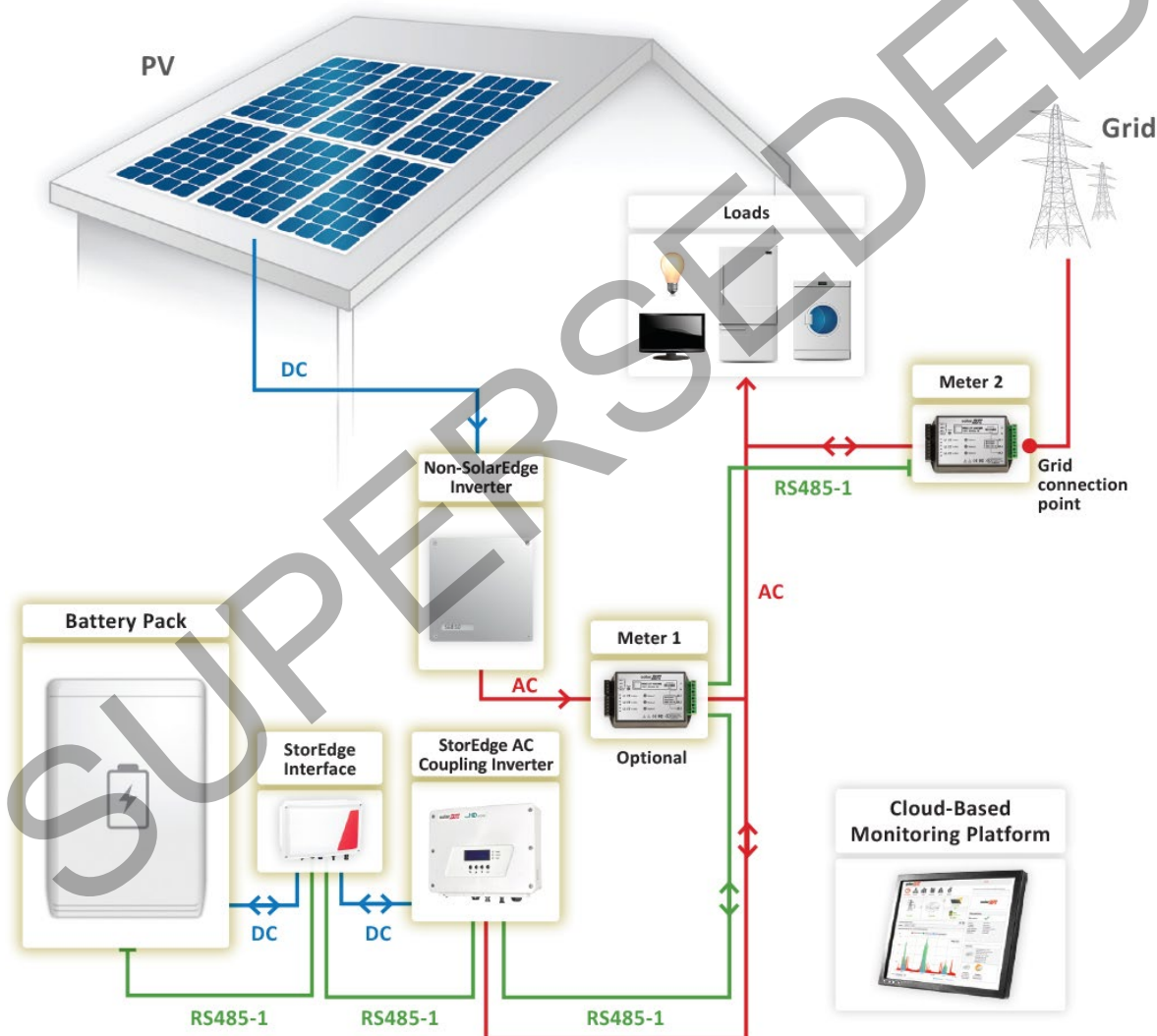

Figure 9: Non-SolarEdge PV systems

► **To configure Meter 2 and the Battery:**

1 Connect the two meters to the same RS485 communication bus as described in Appendix B of the Meter Installation Guide
https://www.solaredge.com/sites/default/files/solaredge-meter-installation-guide.pdf

2 Configure the meter and battery as described in the Basic Configuration section.

▶ **To configure Meter 1 (Non-SolarEdge Inverter Production Meter)[2]:**

1 The meter is pre-configured to address 2. Using the DIP switches, configure the meter to address 1:
Set DIP switch 1 (the leftmost switch) to 1, and all other switches to 0.
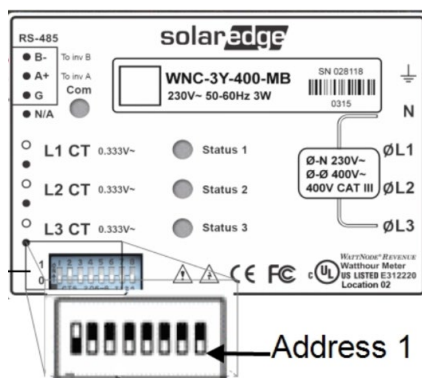
2 Select **Communication** ➔ **RS485-1 Conf** ➔ **Device Type** ➔ **Multi-devices**. A list of devices is displayed.

3 Select **Meter 1**. The meter configuration screen is displayed. Configure the meter:

  a. Select **Device Type** ➔ **Revenue Meter**

  b. Set the CT value that appears on the CT label: **CT Rating** ➔ **<xxxxA>** (use the up/down arrows to set each character, press Enter to set the character and move to the next one, long press on Enter to set the value)

  c. Select **Meter Func** ➔ **Non-SE Production**

After configuring the meters and the battery, proceed with system application configuration:

- For charge/discharge profile programming, as described in the Basic Configuration section, or
- To maximize self-consumption:

  Select **Power Control** ➔ **Energy Manager** ➔ **Energy Ctrl** ➔ **Max Self-Consume**

▶ **To verify communication:**

- Verify communication as described in the Basic Configuration section.

▶ **To test the battery:**

- Test the battery as described in the Basic Configuration section.

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[2] The meter is required to measure maximum self-consumption power on loads, derived from production of grid, inverter and Non-StorEdge inverter,

Appendix A – Creating a Charge/Discharge Profile

A charge/discharge profile is created from a yearly calendar, repeated for 20 years as long as no profile changes are made. The yearly calendar is divided into segments, with one of seven charge/discharge modes assigned to each segment.

A profile comprises three components:

1   A daily profile type: defines the charge/discharge modes throughout a day. Different day types may be defined, for example, winter weekday, spring weekday, weekend, holiday, etc.

2   A seasonal profile: defines weekly profiles to use during specified periods of the year. These periods must cover the entire year. A typical use case is creating seasonal profiles corresponding to the seasonal changes of electricity rates.

3   Special day type: defines dates that should have a specific daily profile instead of the profile defined for the relevant period. For example, if you defined a seasonal profile from Dec. 15 to Jan. 15 but want the system to have a different daily profile for New Years, define a special day. Special days can be set as one-time events or as recurring events.

> **NOTE**
> Charge/discharge profile programming is not applicable to StorEdge AC coupled systems.

Charge/Discharge Modes

Mode	Description	Example Use case
Solar power only	No battery charging/discharging; for using the system without StorEdge capabilities	To avoid excess battery charge/discharge and prolong battery life
Charge from clipped solar power	If PV production > inverter maximum production for self-consumption and grid export (up to the grid export limit and never more than inverter nameplate power), charge the battery	When grid export tariff and PV production are high; for example, during the summer and peak daytime production
Charge from solar power	Charge battery from PV production until it is full, and only then use PV production for self-consumption and grid export	When import rate and PV production are low; for example, during the winter and afternoon
Charge from solar power and grid	Charge battery from PV production and grid power (if needed) until it is full. Only then use PV production for self-consumption and grid export	When import rate is low and when AC charge is allowed by local regulations
Discharge to maximize export	If PV production < inverter maximum production (nameplate or limited power), discharge battery for self-consumption and grid export until the inverter reaches its power limit	When grid export tariff is high and PV production is not enough for self-consumption and grid export
Discharge to minimize import	If PV production < consumption, discharge battery only for self-consumption, not for grid export	When grid export is not allowed
Maximize self-consumption	Use PV production for self-consumption, then charge/discharge battery as needed to maximize self-consumption	When grid export tariffs are low or export is not allowed; reduce grid dependency

Table 2: Charge/Discharge Modes

Creating a Profile

This procedure can be completed before the system is installed or connected to the monitoring platform, that is, the site was defined in the monitoring platform but not connected.

► **To create a profile:**

- Perform steps 1-9 in the procedure, "To create a storage profile" in the application note: *Charge/Discharge Profile Programming through the Monitoring platform – Application Note*, at:
  https://www.solaredge.com/sites/default/files/storedge_charge_discharge_profile_programming.pdf

Appendix B – Verifying StorEdge Functionality

After system installation and configuration is completed, verify that the system is properly operating:

► **Verify the meter function:**

1 Make sure other power sources (e.g. non-SolarEdge PV inverter) are not producing power.

2 Verify the AC is ON.

3 When using StorEdge interface SESTI-S1, turn the StorEdge Interface ON/OFF switch to ON.

4 Check the meter installed at the grid connection point:

    a. Turn the inverter ON/OFF switch to OFF.

    b. Connect loads on one of the measured phases.

    c. Press the external LCD light button to display the Import or Export meter status screen, and check that the import or export power is greater than zero:

```
Import Meter
Status:       <OK/Error>
Power[W]:        xxxxx.x
Energy[Wh]:     xxxxx.x
```

    d. Press the LCD light button to display the Export meter status screen, and check that the Export power is equal to zero. If it is not equal to zero check the CT direction on all connected phases.

► **Verify maximized self-consumption:**

1 Verify the inverter ON/OFF switch is ON.

2 Turn on as many loads as needed so that consumption will be greater than the inverter's maximum AC power. In the inverter LCD check that the Meter status screen is displaying import power greater than zero.

3 Press the inverter LCD light button to display the Smart Energy Management and the Battery status screens, and check that:

    a. **State** = Discharging (assuming consumption > PV production, inverter maximum AC power > PV production)

    b. **PWR** > 0

```
BSN:  XXXXXXXX  ID:24
SOE:  89%        PWR:  2W
Total:  <x>Wh
State:  Discharging
```

4 While the PV modules are exposed to sunlight, verify that the battery is charging properly:

    a. Minimize consumption by turning off all the load circuit breakers, except for the inverter.

    b. In the inverter LCD check that the Meter status screen is displaying import power close to zero.

    c. Press the external LCD light button to display the Battery status screen, and check that:

        i. **State** = Charging

        ii. **SOE** percentage is increasing

        iii. **PWR** > 0

```
BSN:  XXXXXXXX  ID:24
SOE:  89%        PWR:  2W
Total:  <x>Wh
State:  Charging
```
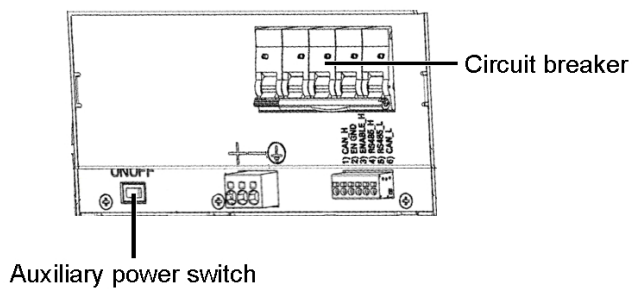
Appendix C – Powering the LG Chem Battery off and on

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):

Circuit breaker
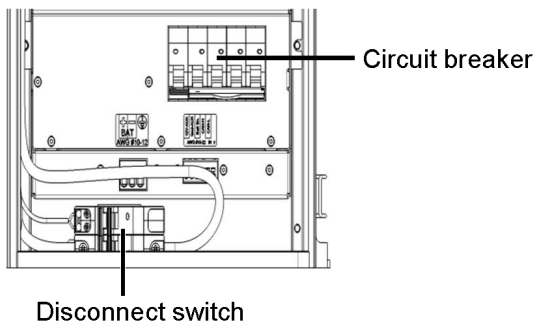
Disconnect switch

- With the auxiliary power switch:

Circuit breaker

Auxiliary power switch

► **To power off the battery:**

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

► **To power the battery back on:**

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

SolarEdge Support Contact Information

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