StorEdge Three Phase Inverter - System Configurations

Version History

- **Version 1.2 (November 2020)**
  - Editorial changes

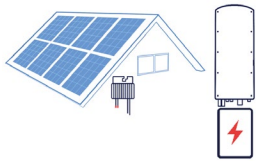
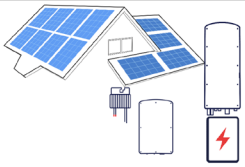
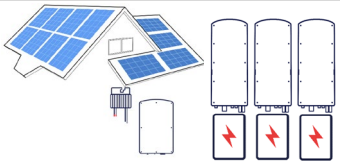
Introduction

The StorEdge solution with the StorEdge three phase inverter 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. This Solution is based on and managed by the StorEdge three phase inverter for both PV and battery management. This document describes the supported system configurations and compatible battery models.

Compatible Batteries

Battery Manufacturer	Compatible Models	Available with Firmware ≥ 4.11.xx
LG Chem	RESU3.3, RESU6.5, RESU10, RESU13	✓
BYD	Battery-Box LV 3.5, LV 7, 10.5, LV 14	✓
	Battery-Box Premium LVS 4.0, LVS 8.0, LVS 12.0, LVS 16.0, LVS 20.0, LVS 24.0	✓

System Configurations

Use Case		AC-Coupling	DC-Coupling	Availability	Further Details
The Smart StorEdge Configuration		Not applicable	✓	✓	Page 3
More PV-Power with additional SolarEdge PV-Inverter(s)		✓	✓	✓	Page 4
More Battery-Power with up to three StorEdge Inverters		✓	✓	planned Feb. 2021*	Page 5
Retrofitting using a Third-party Power Source		✓	✓	✓	Page 6

* Subject to change without notice. Refer to the inverter firmware release notes to stay updated on the supported versions: https://www.solaredge.com/setapp-inverters-firmware.

SolarEdge Smart Energy products can be used with any of the above system configurations.

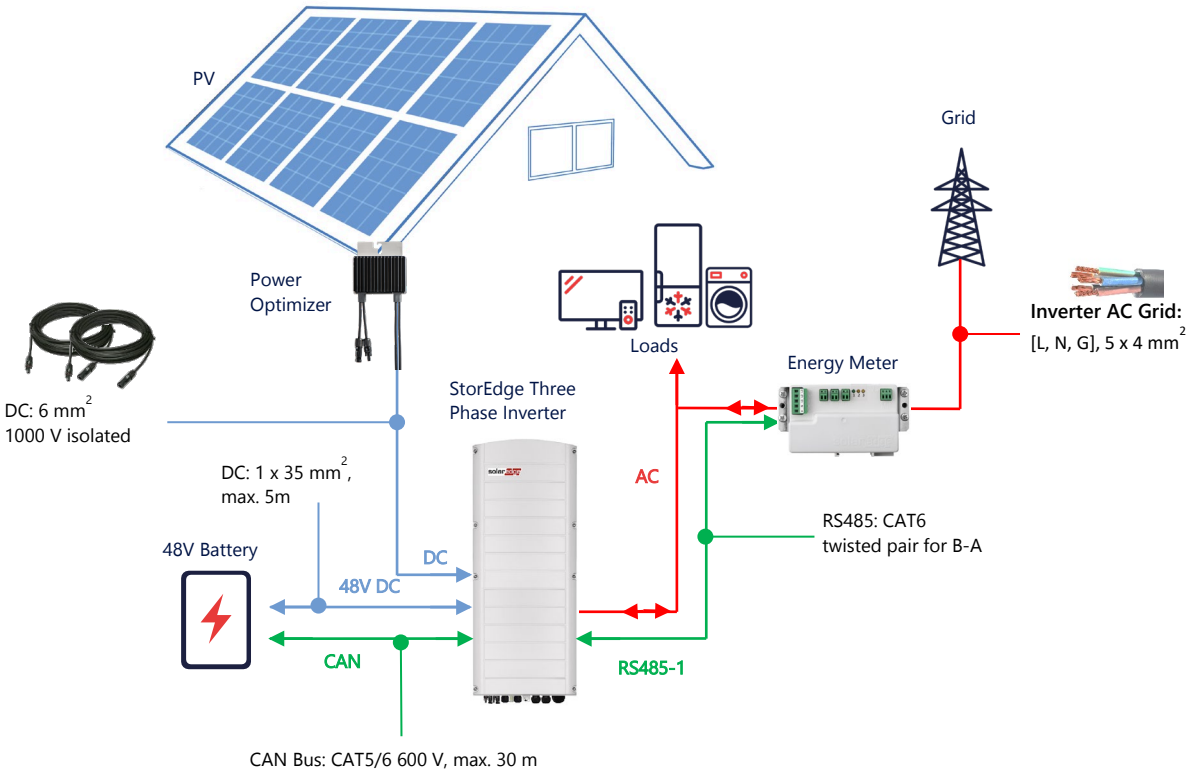
Installation Equipment List

Below is a list of recommended installation equipment:

- For battery mounting and connection:
  - Crimping tool for ring cable lugs and a pair of ring cable lugs, narrow, 35mm²
  - Shrinking tools
  - RJ45 plug and RJ45 crimping tool for communication cabling of the LG Chem RESU
- For inverter mounting and connection:
  - Drill for inverter mounting bracket installation
  - Appropriate mounting hardware (stainless bolts, nuts, washers, etc.)
  - Allen screwdriver for 5mm screws of the inverter cover and inverter side screws
  - Wire cutters, wire strippers
  - Standard, isolated flat-head screwdrivers set and watchmaker-precision screwdriver set
  - Allen screwdriver for M5/M6/M8 screw types
  - Voltmeter with Current clamp

Cabling and Accessories

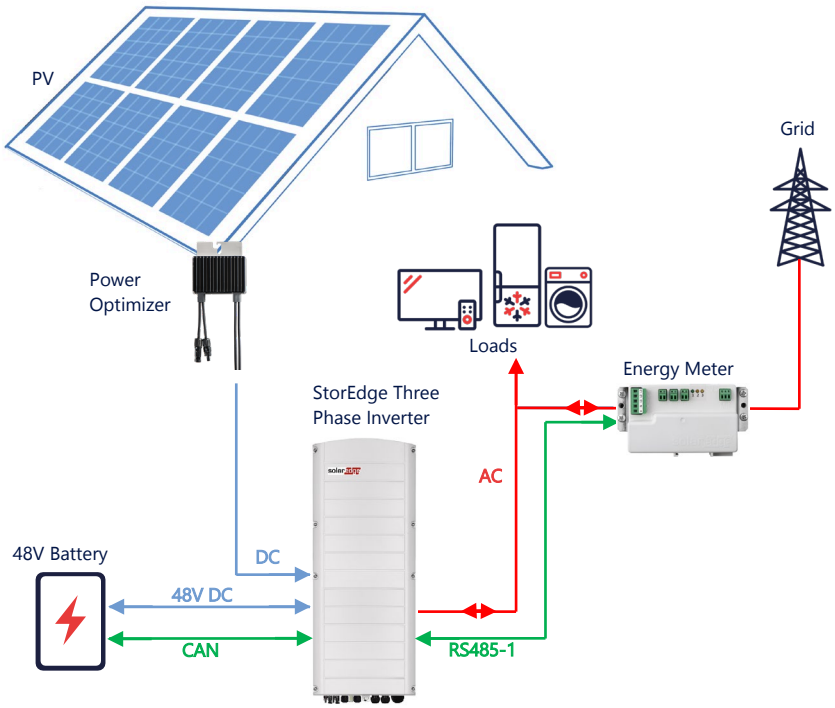
The following cable types are recommended.



System Configuration Options

DC-Coupled Smart StorEdge Configuration

This configuration is based on one StorEdge three phase inverter and is suitable for most residential systems.
The main components are: a StorEdge three phase inverter, a SolarEdge Energy Meter, a compatible 48V Battery and Power Optimizers.



Configuration using SetApp

→ **Set up communication with the Energy Meter**

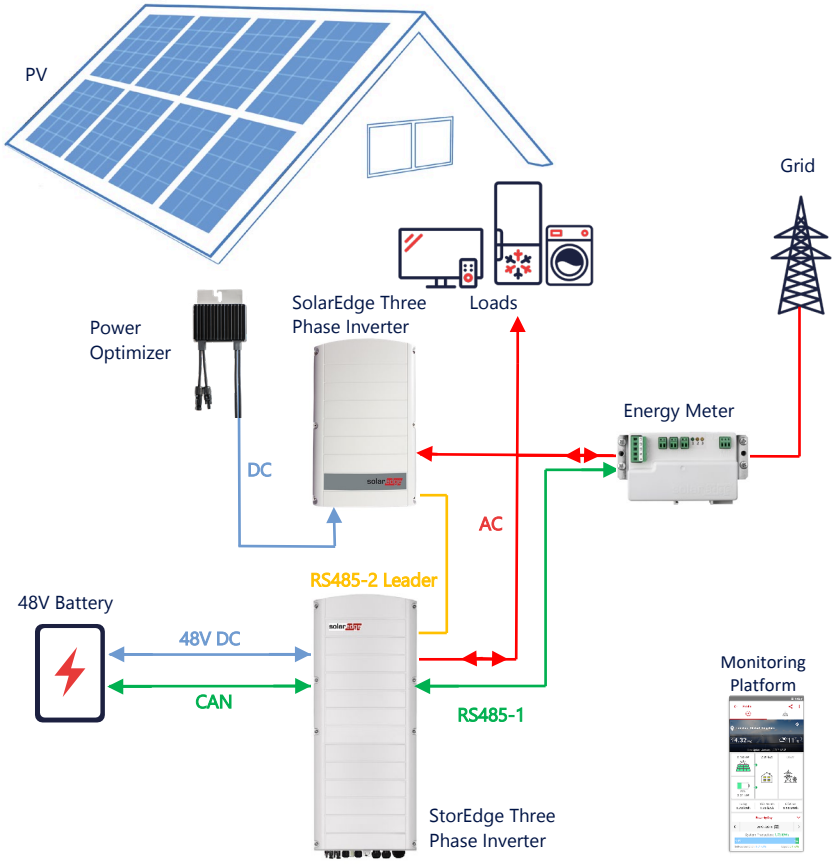
1. Open SetApp and select **Commissioning > Site Communication**.
2. From the **Site Communication** screen, select **RS485-1 > Protocol > Modbus (Multi-Device)**.
3. Return to the previous screen and select **Add Modbus Device > Meter 1**.
4. Select following Meter 1 parameters:
   - **Meter Function > Export+Import (E+I)**
   - **Meter Protocol > SolarEdge**
   - **Device ID > 2**
   - **CT Rating >** [set according to the rating of the CT in use]

→ **Set up communication with the battery**

1. From the **Commissioning** screen, select **Site Communication > CAN >** [your battery model].
2. Run a self-test:
   - Select **Commissioning > Maintenance > Diagnostics > Self-Test > Battery Self-Test > Run Test**.
   - Check that the test results are successful.
3. Configure Maximize Self-consumption (MSC):
   - Select **Commissioning > Power Control > Energy Manager > Energy Control > Maximum Self Consumption (MSC)**.

AC-Coupling using a SolarEdge PV-Inverter

For sites that already have a SolarEdge inverter installed, the StorEdge three phase inverter can be AC-coupled to an existing SolarEdge PV-inverter.



In addition to the AC-coupling, the StorEdge three phase inverter can also be equipped with PV power optimizers.

Configuration using SetApp

1. Set up communication with the Energy Meter and battery, as explained in *DC-Coupled Smart StorEdge Configuration* on page *3*.
2. Set your StorEdge three phase inverter as the Leader:
   - Select **Commissioning > Site Communication > RS485-2 > Protocol > SolarEdge Leader**.
   - Select **RS485-2 > Follower Detect.**
   - Check that the Follower is detected.

Connection to Monitoring Platform

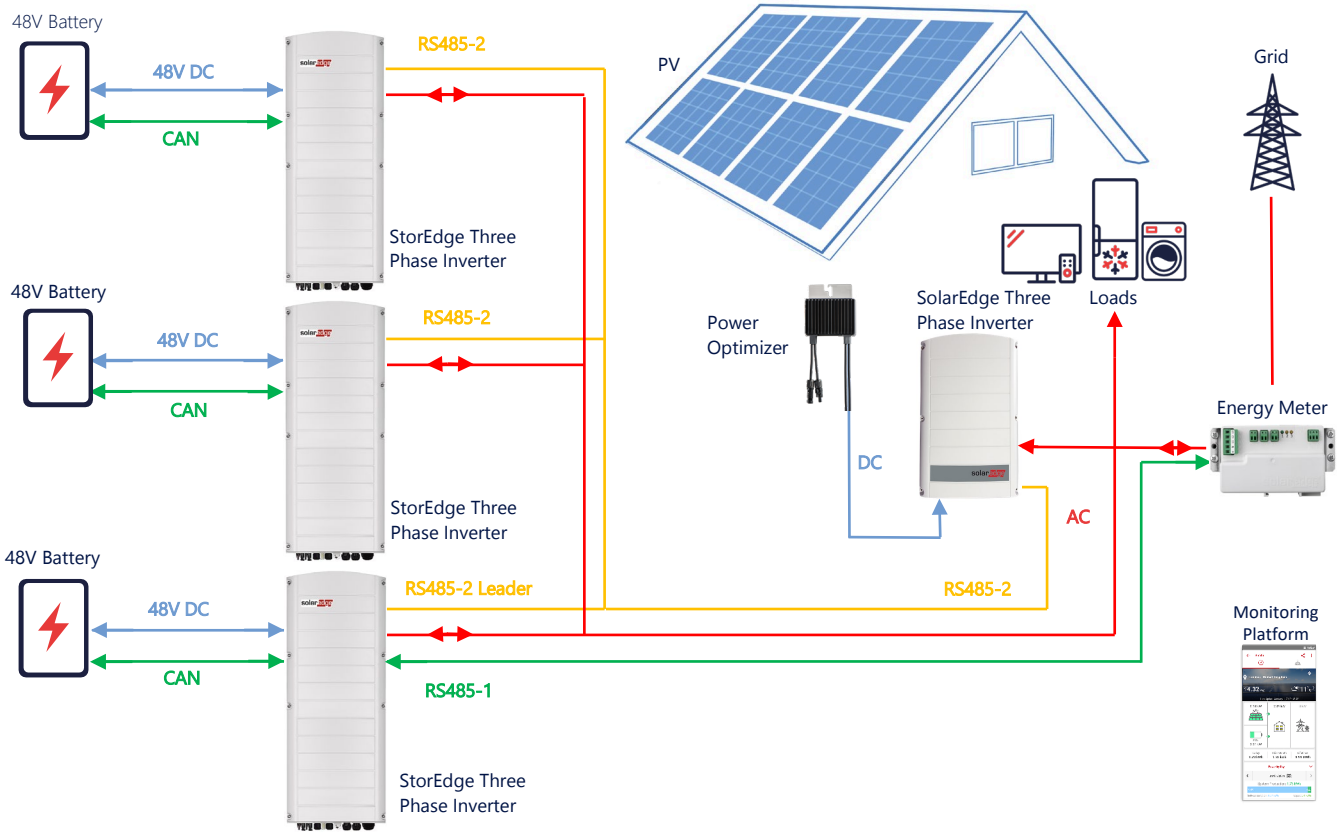
- Make sure the StorEdge three phase inverter is connected to monitoring platform. For details, see the installation guide.

AC-Coupling with up to Three StorEdge Three Phase Inverters

NOTE

To be supported in an upcoming Firmware-Version of higher than 4.11.22, expected by February 2021*.

For sites that require additional storage capacity and power, up to three StorEdge inverters can be used, each connected to a single battery. The batteries connected to each StorEdge inverter can vary. For example, Inverter 1 is connected to a LG Chem RESU 13 battery, and Inverter 2 and Inverter 3 are connected to a BYD LVS 16.0 battery.



The up to three StorEdge Inverters can also have Power Optimizers or can be AC-Coupled to a non-SolarEdge power source, as explained in the below use case.

Configuration using SetApp

1. Set up communication with the Energy Meter and battery, as explained in *DC-Coupled Smart StorEdge Configuration* on page *3*.
2. Set the StorEdge three phase inverter connected to the Energy Meter as the Leader:
   - Select **Commissioning > RS485-2 > Protocol > SolarEdge Leader**.
   - Select **RS485-2 > Follower Detect.**
   - Check that all Followers are detected.

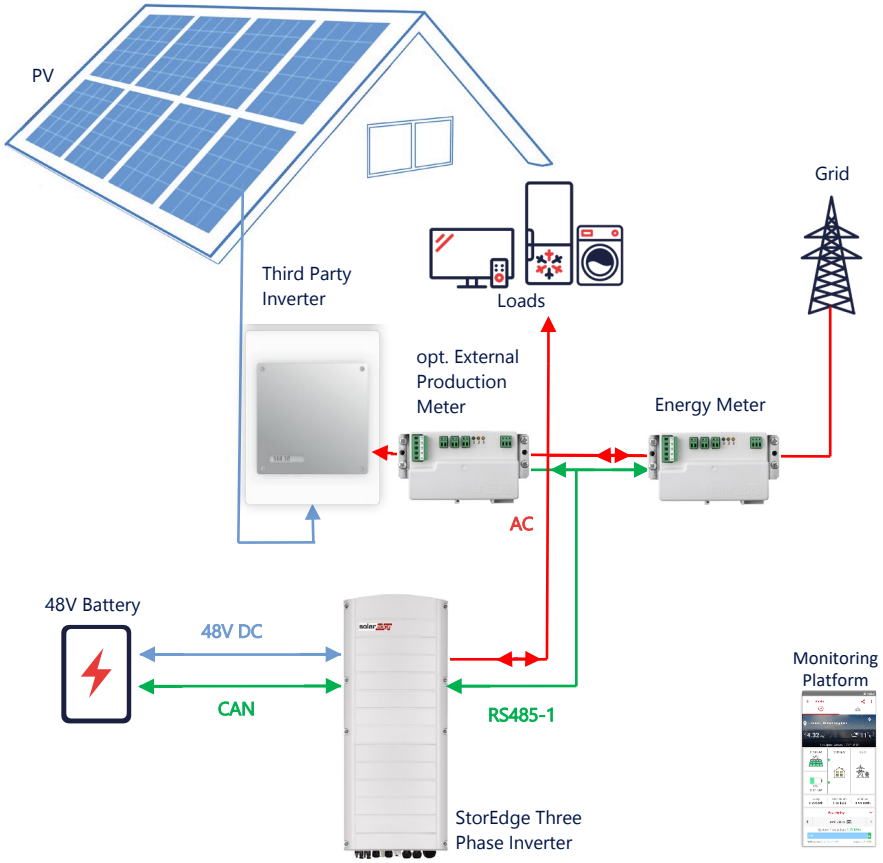
Connection to Monitoring Platform

- Make sure the Leader StorEdge three phase inverter is connected to monitoring platform. For details, see the installation guide.

* Subject to change without notice. Refer to the inverter firmware release notes to stay updated on the supported versions: https://www.solaredge.com/setapp-inverters-firmware.

AC-Coupling using a Third-party Power Source

For sites that already have a power source, e.g. a third-party solar inverter or a CHP Unit, the StorEdge Three Phase Inverter can be AC-coupled to an existing power source.



In addition to the AC-Coupling, the StorEdge three phase inverter can also be equipped with PV power optimizers.

Configuration using SetApp

→ **Set up communication with the Energy Meter**

1. Open SetApp and select **Commissioning > Site Communication**.
2. From the **Site Communication** screen, select **RS485-1 > Protocol > Modbus (Multi-Device)**.
3. Return to the previous screen and select **Add Modbus Device > Meter**.
4. Select the following Meter 2 parameters:
   - **Meter Function > External Production**
   - **Meter Protocol > SolarEdge**
   - **Device ID > 1**
   - **CT Rating >** [set according to the rating of the CT in use]

→ **Set up communication with the battery**

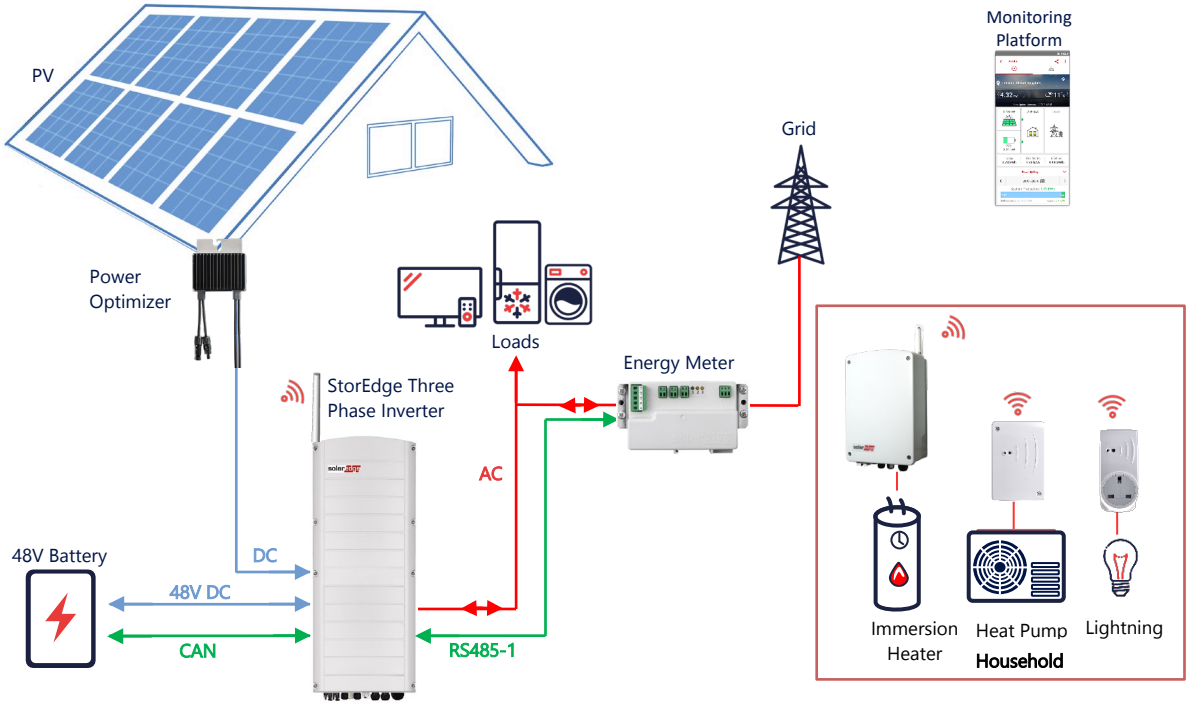
Set up communication with the battery, as explained in *DC-Coupled Smart StorEdge Configuration* on page *3*.

Connection to Monitoring Platform

- Make sure the StorEdge three phase inverter is connected to monitoring platform. For details, see the installation guide.

Combination with Smart Energy Products

SolarEdge Smart Energy products can be used with any of the above system configurations.



Configuration using SetApp

1. Set up communication with the Energy Meter and battery, as explained in *DC-Coupled Smart StorEdge Configuration* on page *3*.
2. Configure you Smart Energy devices, as explained in the installation guide that comes with the device, or visit our SolarEdgePV YouTube channel.

Connection to Monitoring Platform

- Make sure the StorEdge three phase inverter is connected to monitoring platform. For details, see the installation guide.

Compatibility Information

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

	Maximize Self-consumption	StorEdge Profile Programming**	Export Limitation	Zero Export Limitation
Smart StorEdge Configuration	✓	✓	✓	✓
Smart Energy	✓	✓	✓	×*
AC-Coupled StorEdge Systems	✓	×	✓	×*

* These applications require a certain amount of Export power in order to work, due to the control accuracy of Smart Energy components or external power sources.

** For further information on profile programming with StorEdge systems, refer to the following application note: https://www.solaredge.com/sites/default/files/storedge_charge_discharge_profile_programming.pdf

Support Contact Information

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

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

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 product 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 product's software version as it appears in the status screen.