EG4® HYBRID SERIES

RAPID SHUTDOWN WIRING GUIDE

VERSION 1.0 | INFORMATION SUBJECT TO CHANGE WITHOUT NOTICE.

1. SAFETY

1.1 SAFETY INSTRUCTIONS

International safety regulations have been strictly observed in the design and testing of the inverter. Before beginning any work, carefully read all safety instructions, and always observe them when working on or with the unit. The installation must follow all applicable national or local standards and regulations.

WARNING:

To reduce the risk of injury, read all instructions.

Incorrect installation may cause:

- Injury or death to the installer, operator or third party
- Damage to the inverter or other attached equipment

DANGER:

Hazardous Voltage Circuits!

1.2 IMPORTANT SAFETY NOTIFICATIONS

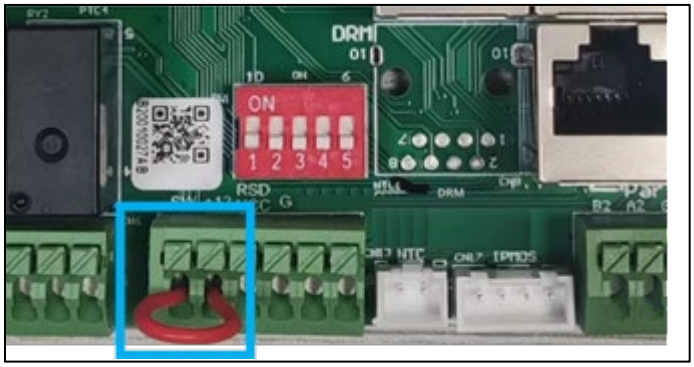
There are various safety concerns that must be carefully observed before, during, and after the installation, as well as during future operation and maintenance. The following are important safety notifications for the installer and any end users of this product under normal operating conditions.

1. **Beware of high PV voltage.** Please install an external DC disconnect switch or breaker and ensure it is in the “off” or “open” position before installing or working on the inverter. Use a voltmeter to confirm there is no DC voltage present to avoid electric shock.
2. **Do not make any connections or disconnections (PV, battery, grid, communication, etc.) while the inverter is operating.**
3. An installer should make sure to be well protected by reasonable and professional insulative equipment [e.g., personal protective equipment (PPE)].
4. Before installing, operating, or maintaining the system, it is important to inspect all existing wiring to ensure that it meets the appropriate specifications and conditions for use.
5. All warning labels and nameplates on the inverter should be clearly visible and must not be removed or covered.
6. The installer should consider the safety of future users when choosing the inverter’s correct position and location as specified in this manual.
7. Please keep children from touching or misusing the inverter and relevant systems.

2. INTRODUCTION

This guide includes a set of wiring instructions for Rapid Shut Down (RSD) switches for EG4 Hybrid series inverter interface board(s). Upon receiving the inverter, locate the small red jumper wire on the RSD terminals. This jumper closes the circuit for the inverter(s) built-in RSD feature.

Breaking this connection will activate the RSD!

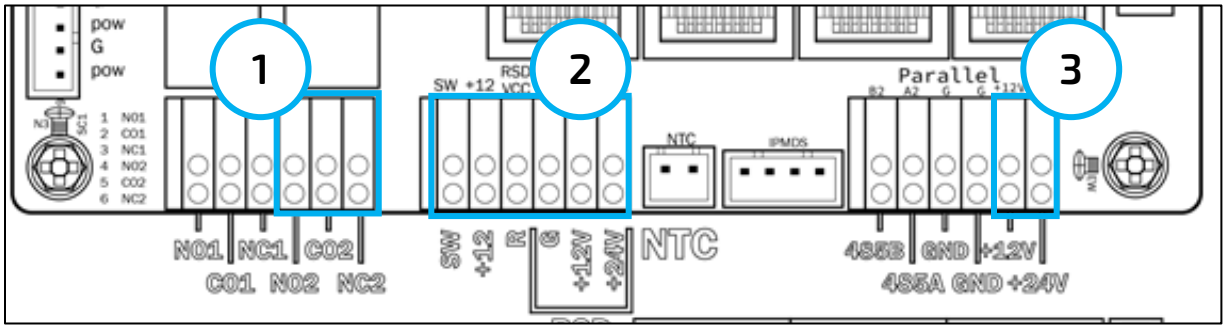


3. RSD SYSTEM WIRING INSTRUCTIONS

IMPORTANT:

If the interface board shown does not match the inverter or if the board isn't labeled, please contact the distributor for assistance.

The terminal locations for wiring with the interface board are shown in the figure below:



- Terminals 4 through 6 of the left terminal block (see callout "1" above) and terminals 1 through 6 of the center terminal block ("2" shown above) can be used for RSD wiring.
- Additionally, terminals 5 and 6 ("3" shown above) on the right terminal block can be used for the unique wiring needs of certain RSD modules.

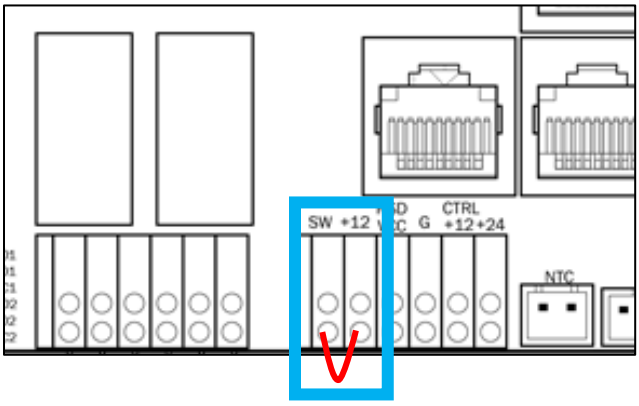
Before performing any wiring, please ensure the inverter and all other system components are not energized!

SINGLE INVERTER DEFAULT RSD WIRING

IMPORTANT:

If the interface board shown does not match the inverter or if the board isn't labeled, please contact the distributor for assistance.

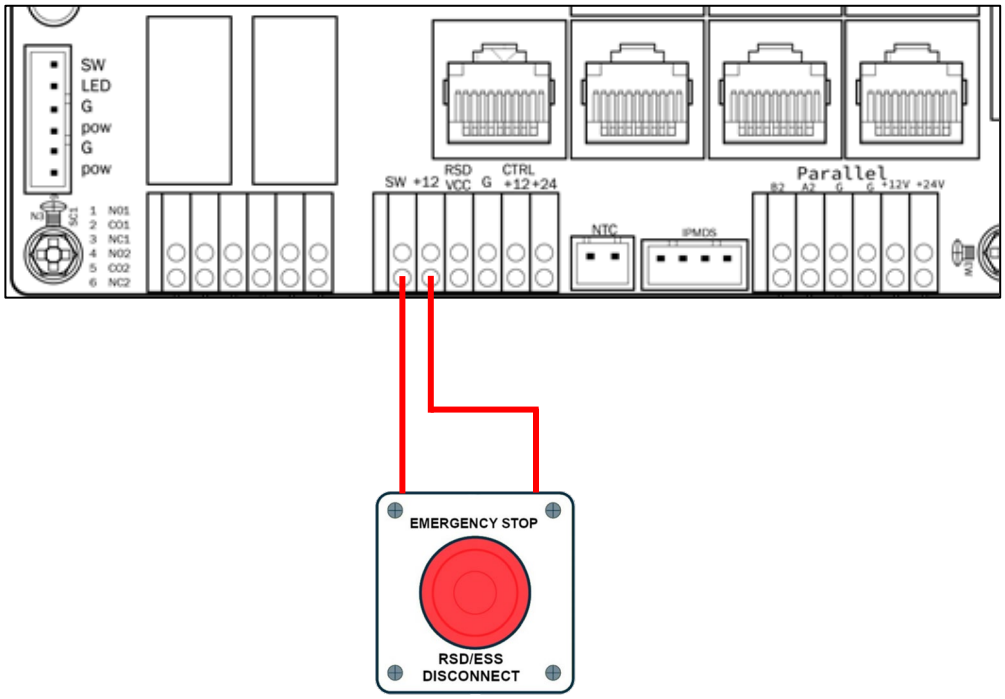
When using a single inverter with a built-in RSD switch, the short circuit jumper connecting terminals 1 and 2 of the center terminal block must remain in place, as shown in the blue box below, otherwise the RSD function will be affected.



SINGLE INVERTER WITH EXTERNAL RSD SYSTEM WIRING

Connecting an external RSD switch to a single inverter can be accomplished by using the steps below:

1. The emergency switch should be a NC (Normally Closed) switch.
2. Connect the switch to the board as shown below, using terminals 1 and 2 of the center terminal block.

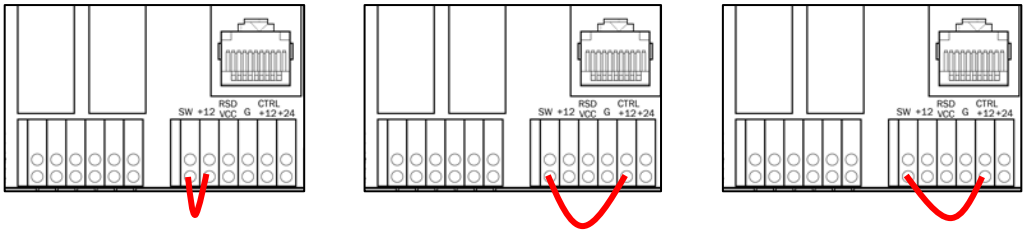


PARALLEL INVERTERS DEFAULT RSD WIRING

The terminal locations for wiring the board are shown in the figure(s) below:

1. Configure one inverter as the master unit, then mark the unit with a label.
2. Keep the master unit's RSD wiring in its original state from the manufacturer. The default orientation will only trigger the RSD switch on the master unit if rapid shutdown is required
3. RSD wiring instruction for slave units is shown below:
    a. Change the short circuit jumper on the center terminal block from terminals 1 and 2 to terminals 1 and 5.

Master **Slave #1** **Slave #2**

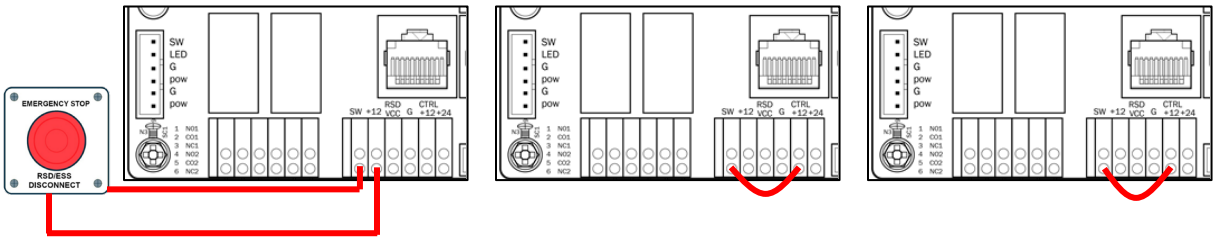


IMPORTANT:

If the interface board shown does not match the inverter or if the board isn't labeled, please contact the distributor for assistance.

PARALLEL INVERTER WITH EXTERNAL RSD SYSTEM WIRING

1. Connect the emergency switch to the master unit.
2. Remove the existing short circuit jumper on the master unit, then connect terminals 1 and 2 on the center terminal block to the emergency switch.
3. RSD wiring instruction for slave units is shown below:
    a. Change the short circuit jumper on the center terminal block from terminals 1 and 2 to terminals 1 and 5.



3.1 TIGO RSD MODULE WIRING & BATTERY INTEGRATION

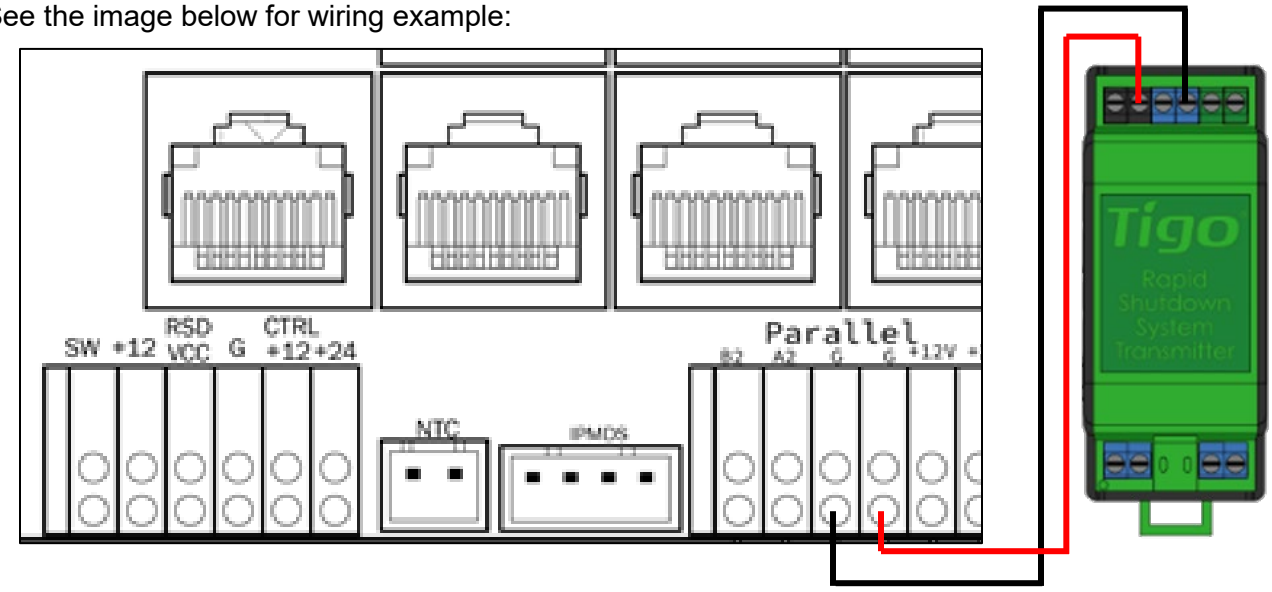
TIGO RSD MODULE WIRING WITH 12V POWER

To install a Tigo RSD module, first remove the original RSD module, then connect the Tigo module to terminals 3 and 4 of the center terminal block. Also note, the connection steps are the same for both master and slave inverters.

IMPORTANT:

If the interface board shown does not match the inverter or if the board isn't labeled, please contact the distributor for assistance.

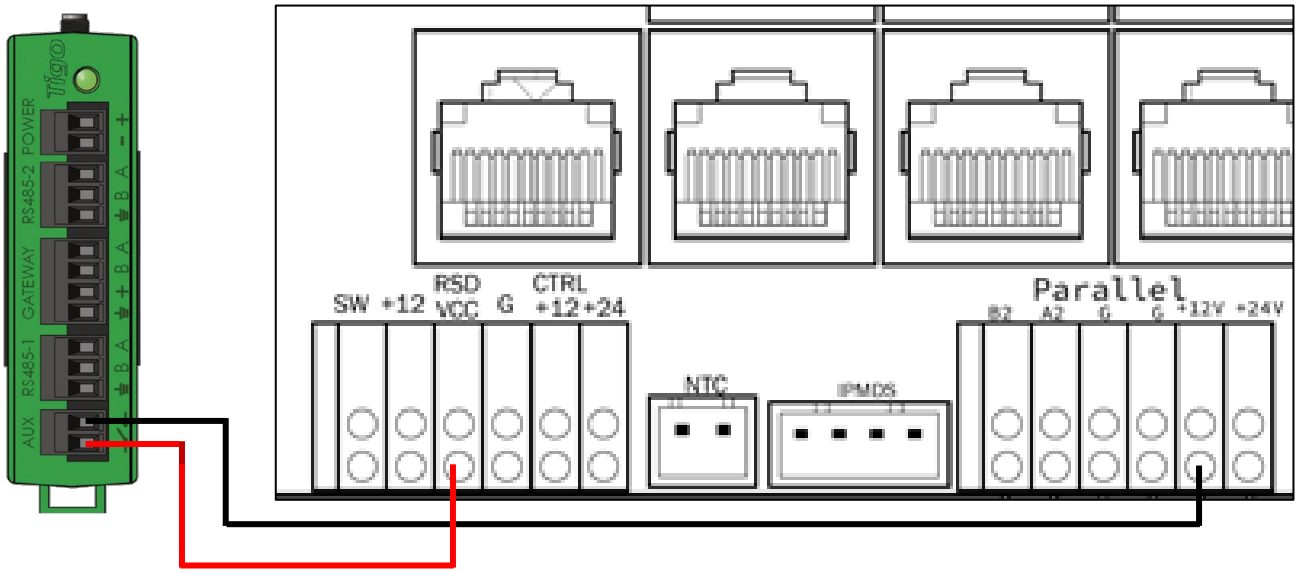
See the image below for wiring example:



TIGO RSD MODULE WIRING SOLUTION WITH 24V POWER SUPPLY

To install a Tigo RSD module, first remove the original RSD module, then connect the Tigo module to terminals 3 and 5 of the center terminal block. Also note, the connection steps are the same for both master and slave inverters.

See the image below for wiring example:



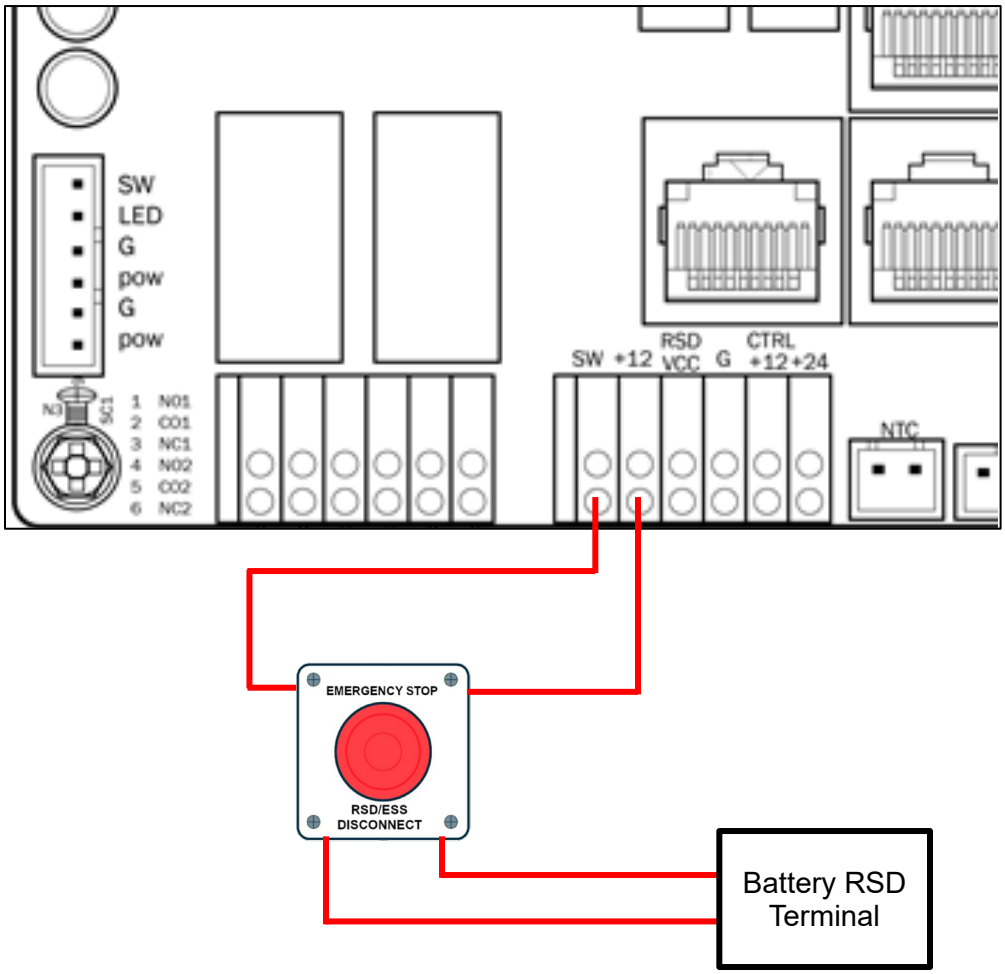
IMPORTANT:

If the interface board shown does not match the inverter or if the board isn't labeled, please contact the distributor for assistance.

RSD SYSTEM BATTERY INTEGRATION DESCRIPTION

If the battery's BMS protocol does not support RSD activation via CAN protocol, users will need to connect an external RSD switch to enable battery RSD functionality using CAN. It is recommended to use a DPDT-NC (Double Pole Double Throw 1 Normally Closed 2 Normally Open) switch to control the RSD system. 2 NO connects to the Battery and 1 NC to the inverter

See the image below for wiring example:



IMPORTANT:

If the interface board shown does not match the inverter or if the board isn't labeled, please contact the distributor for assistance.

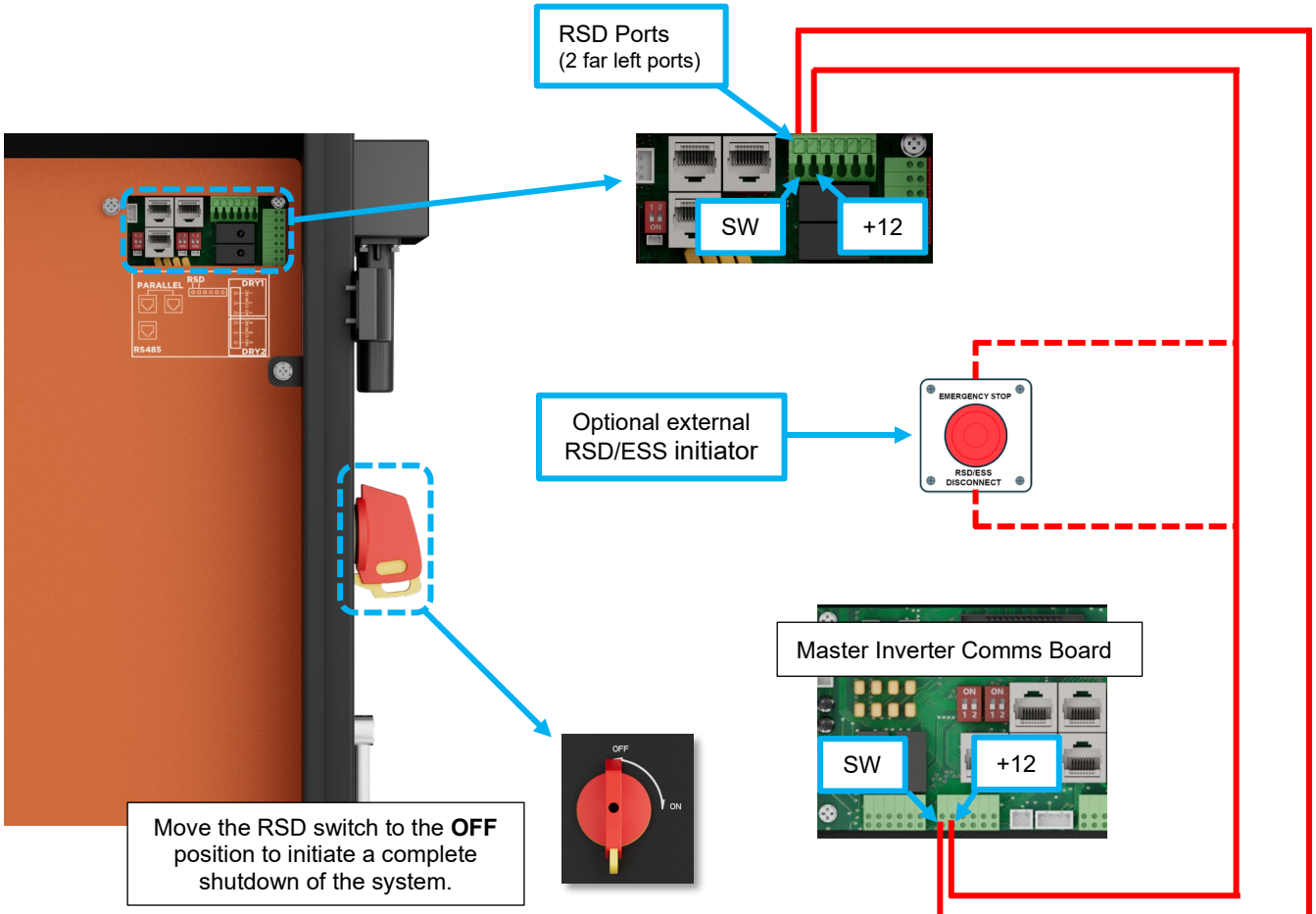
4. RAPID SHUTDOWN & ESS DISCONNECT WITH GRIDBOSS

GridBOSS supports a rapid shutdown system that complies with 2017 and 2020 NEC 690.12, and ESS Disconnect that complies with NEC 706.15 requirements. The rapid shutdown switch on the right side of GridBOSS, when used, will initiate total system shutdown including the inverters, Smart Ports, Supported Batteries, and PV (if properly equipped). When connecting GridBOSS to EG4® hybrid inverters, the RSD wiring only needs to connect to the master inverter. When using an external RSD/ESS initiator, it is installed inline between the inverter and GridBOSS as shown in the image below.

NOTE:

When using supported EG4 batteries in closed-loop communications with the inverter, the RSD also initiates ESS Disconnect.

The system can utilize an external RSD/ESS initiator(switch) that can be placed near the service entrance and in full sight of first responders. If installing an external RSD/ESS initiator, it must use normally closed contacts for emergency shutdown.



IMPORTANT:

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