

Savant Power Storage 20 [100A]

Quick Reference Guide

Box Contents

- (1) Savant Power Inverter (PS-INV-12.5KW-100A-XX)
- (8) Power Storage 20 Battery (PS20-BATT-20KWH)
- (1) Savant Power Director
- (1) Battery Crate (8 x Modules)
- (1) Conduit Nipple Kit
- (1) Mounting & Installation Kit
 - (4) M5x12 Screws
 - (4) M5x10 Screws
 - (4) M10 Expansion Screws
 - (4) M6 Expansion Anchor Screw

Specifications

Environmental

Temperature	Inverter: -13°F to 131°F (-25°C to 55°C) Battery: 32°F to 113°F (0°C to 45°C)
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Humidity	0% to 95% Relative Humidity (non condensing)
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Altitude	Less than 9842 ft
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Rating	NEMA4X
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Dimensions and Weights

Height	Length	Depth	Weight
85.4 in (216.92 cm)	25.6 inch (65.02 cm)	12.2 inch (30.988 cm)	600 lbs (272.15 kg)

Inverter Power

Maximum Output Current	Grid Transfer Time	Maximum Surge Output	Maximum Passthrough Per Inverter
12.5 kW	< 70ms	35 kVA, 20 ms 21 kVA, 10s	100A

Battery Power

Battery Capacity	52 Ah / 20 kWh
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Maximum Power	12.5kW
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Standards

Wi-Fi	2.4 GHz IEEE 802.11 b/g/n
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Regulatory

Safety and Emissions	FCC Part 15 Class B
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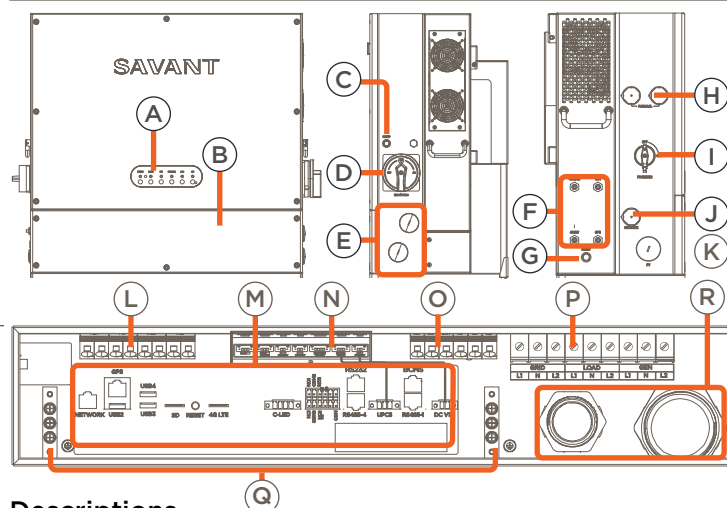


Contains FCC ID:	2AA9B10
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Certifications	UL 1741 SA, UL 1741 PCS, UL9540, UL 1973, UL 1642, UL 1998, CSA 22.2
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RoHs	Compliant
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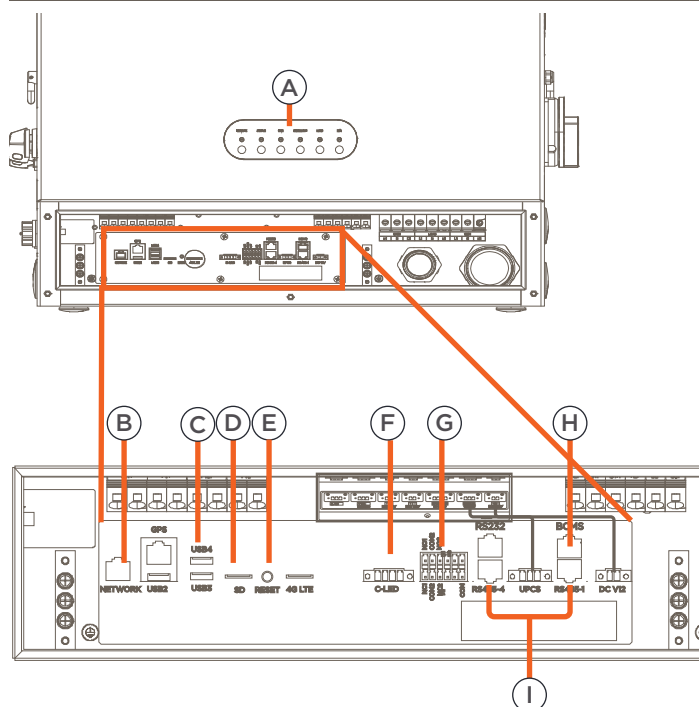
Inverter Front Panel Right Panel Left Panel



Descriptions

A	Inverter Status LEDs	See Inverter Status LEDs.
B	Inverter Front Panel	Remove panel to reveal inverter wiring area.
C	ON/OFF Button	Power on or off the Savant Power Storage.
D	Grid Switch	Connect or disconnect the Grid input.
E	Conduit Knock-outs	Knockouts for AC Conductor Conduits.
F	Antennas	Wi Fi, GPS, 4G Main, and 4G DIV Antennas
G	Reset Button	Press to reset inverter status.
H	Parallel	Inputs used to parallel multiple inverters.
I	Reset Button	Press to reset inverter.
J	Battery & Communication Caps	Waterproof caps.
K	Network	RJ-45 LAN connection.
L	PV Inputs	MPPT Inputs.
M	I/O Ports	See Inverter I/O Ports.
N	Inverter Wiring	Pre-installed inverter wiring.
O	Battery Inputs	Battery power inputs.
P	GRID, LOAD, & GEN Connections	Grid, Load, and Generator connections.
Q	Ground	Inverter & battery grounding connections.
R	Rear-Entry Conduit Knockouts	Knockouts for AC Conductor Conduits.

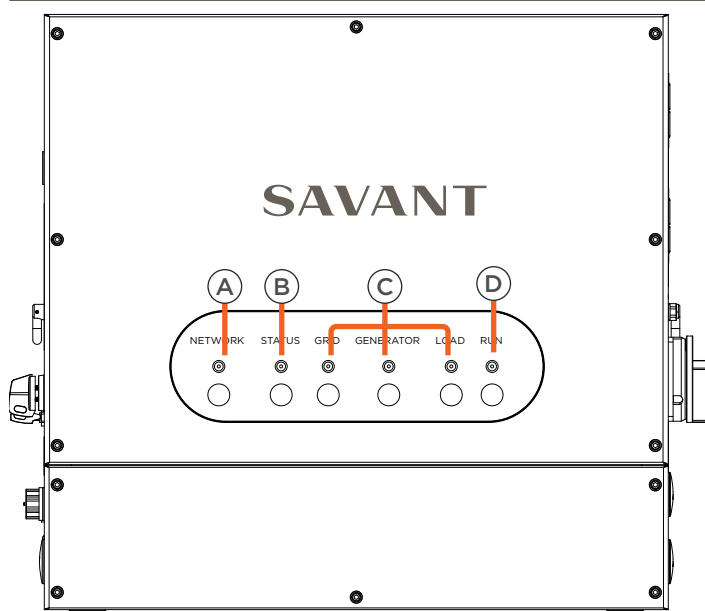
Inverter I/O Ports



Front Input/Outputs

A	Status LED Table	See the Status LED table
B	Network	RJ45 connection for wired internet connection
C	USB Ports	Used for local software updating.
D	SD	Enables local data collection without internet connection.
E	Reset	Reset button to reset inverter status.
F	CLED	Power input for LEDs.
G	GPIO Ports	See section 3.7 of the Savant Power Storage 20 Installation Guide .
H	BCMS	Battery Monitor System Communication Port
I	RS-485Port	See section 3.9.2 of the Savant Power Storage 20 Installation Guide .

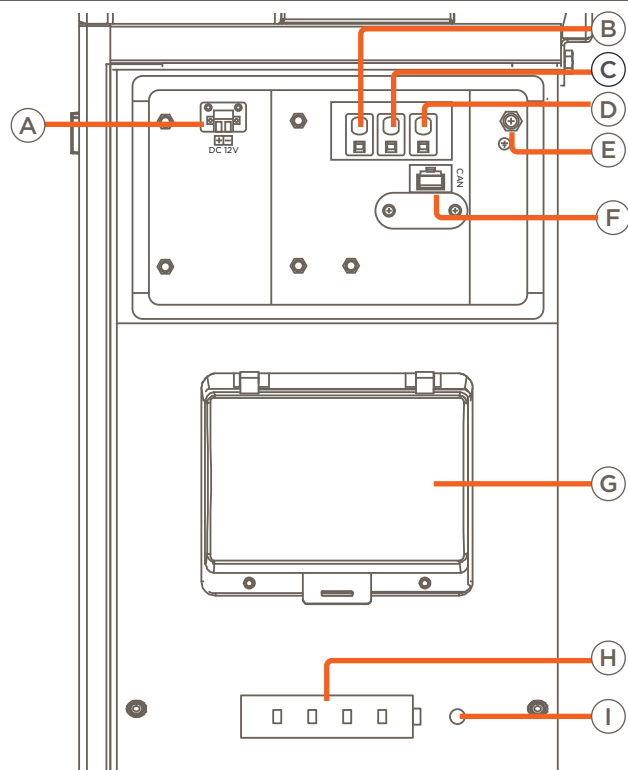
Inverter Status LEDs



Status LEDs & Inverter States

	<p>Solid Red: Energy management unit startup in progress.</p> <p>Blinking Red: Ready for network connection.</p> <p>Blinking Green: Wi-Fi network and password detected, or Ethernet cable detected, connecting to router.</p> <p>Solid White: Connecting to the Internet.</p> <p>Solid Green: Internet connected successfully.</p>
A Network	<p>Blinking Blue: System updating.</p> <p>Blinking Red: Communication fault between energy management unit and battery system, inverter unit, or PV unit.</p> <p>Solid Red: Energy management unit internal communication fault.</p> <p>Blinking Green: System is turned off by energy management unit.</p> <p>Solid Green: System running normally.</p>
B Status	<p>On: Grid, Generator, or Load power is operating normally.</p> <p>Off: No power input</p> <p>Blinking: Grid, Generator, or Load power is operating outside nominal parameters.</p>
C Power	<p>Solid Green: Inverter/PV charging unit running normally</p> <p>Solid Red: Inverter unit fault.</p> <p>Solid Yellow: PV charging unit fault, or system into over-temperature protection.</p> <p>Blinking Yellow: Inverter/PV charging unit alarming.</p> <p>Blinking Green: Inverter unit/PV charging unit updating.</p>
D Run	

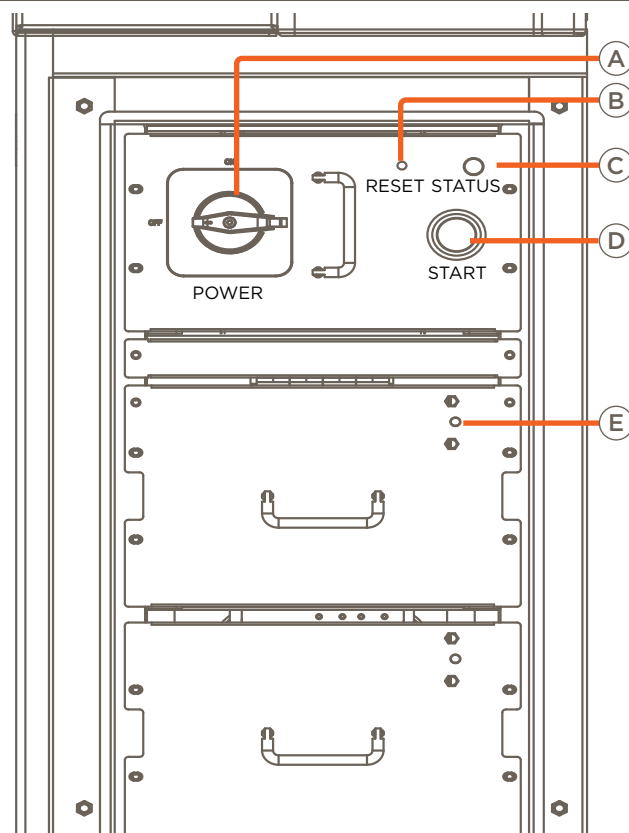
Battery Status Panel



Battery Status Panel I/O & Status LEDs

(A)	12V & GND	Battery enclosure power & ground connections.
(B)	REF	Battery reference connection.
(C)	BAT-	Battery negative connection.
(D)	BAT+	Battery positive connection.
(E)	Ground	Ground connection to Power Storage 20
(F)	CAN	CANBUS Port to communicate with the Savant inverter.
(G)	Fuse Box	Overcurrent protection for battery modules.
(H)	System SoC	Total system State of Charge in 25% increments.
(I)	Battery System Status Indicator	<p>Blinking Yellow: Battery System is starting up or an update in progress.</p> <p>Blinking Blue: Battery System is in Self-Inspecting mode.</p> <p>Solid Green: Running normally.</p> <p>Solid Yellow: An alarm has been raised.</p> <p>Solid Red: A fault has been detected.</p>

Battery Access Panel

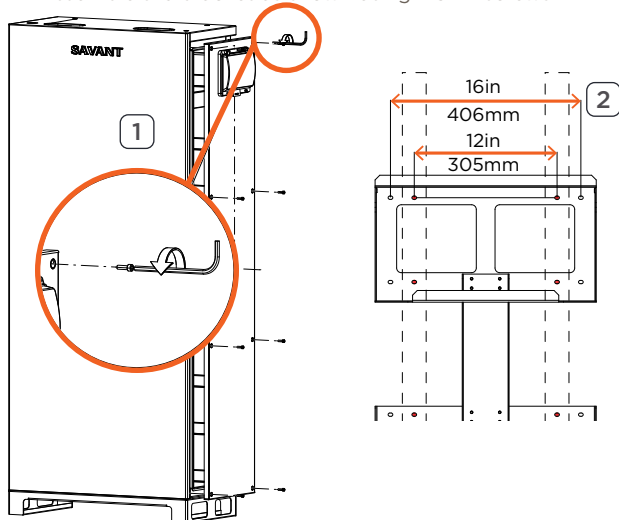


Battery Status Panel I/O & Status LEDs

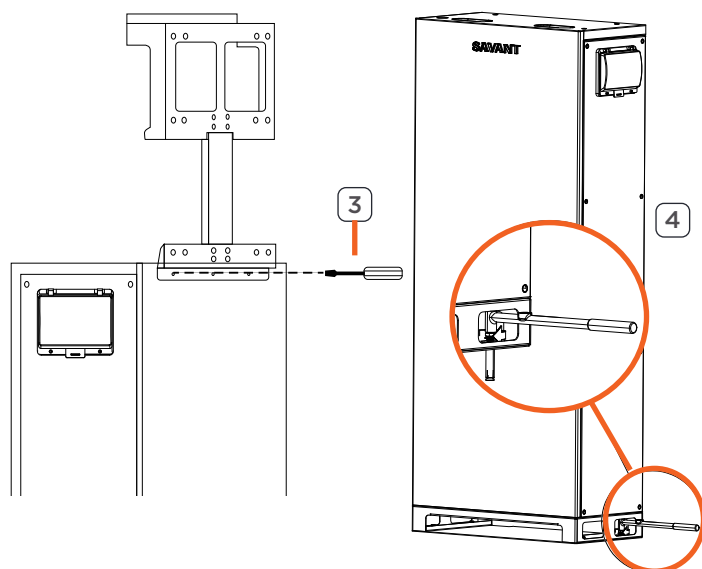
(A)	Power Switch	Toggle ON or OFF all batteries.
(B)	Reset Button	Press to restart battery system.
(C)	Status LED	<p>Blinking Yellow: Startup or upgrade in progress</p> <p>Blinking Blue: Self-inspecting</p> <p>Solid Green: Running normally</p> <p>Solid Yellow: Alarming</p> <p>Solid Red: Protection/Fault</p>
(D)	Start Button	Press to start battery system.
(E)	Battery Status LED	<p>Blinking Yellow: Startup or upgrade in progress</p> <p>Blinking Blue: Battery Module is in Self-Inspecting mode.</p> <p>Solid Green: Running normally.</p> <p>Solid Yellow: An alarm has been raised.</p> <p>Solid Red: A fault has been detected.</p>

Bracket Installation

1. Open the battery enclosure with a PH2 Philips screwdriver and remove the accessories kit.
2. Assemble the bracket as shown using M5x12 screws.



3. Attach the bracket to the back side of the battery system with M5x12 machine screws. Tighten to 3 N·m (26.55 lb-in) torque.
4. Drill a 0.47 in (12mm) hole with a 2.76 in (70mm) depth into the floor. Embed the anchor expansion bolts and affix the cabinet to the ground.



5. Install the bracket on the wall with M6x50 tapping screws.

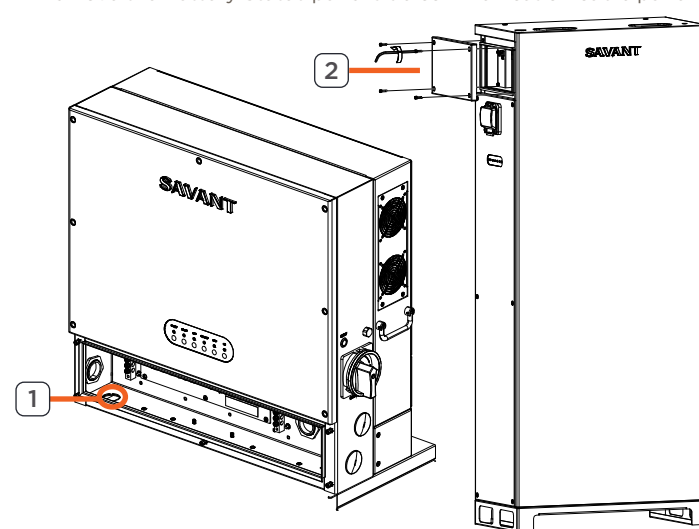


IMPORTANT NOTES:

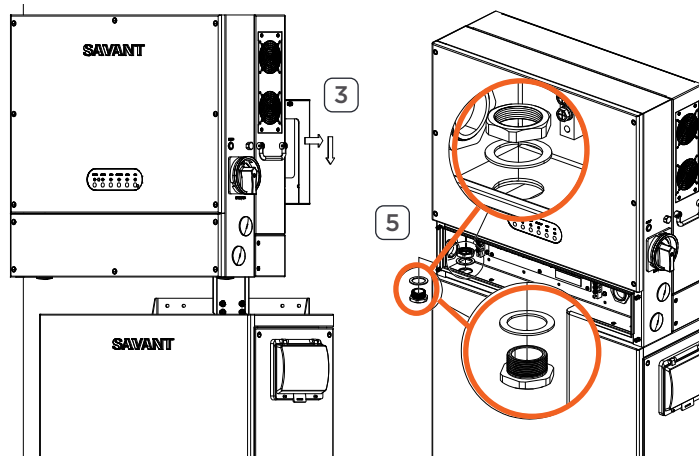
- When installing it on a concrete wall, properly drill into the wall with M6x50 expansion anchor screws.
- If Savant Power Inverter is installed separately from battery system, install the bracket on a surface capable of supporting its weight using M6x50 tapping screw. Then hang Savant Power inverter on the bracket, and fasten it with M4x16 screws.

Inverter Installation

6. Remove the battery seal cap marked **BAT/COM** on the bottom left of the Savant Power Inverter.
7. Remove the Battery Status panel side communication cable panel.

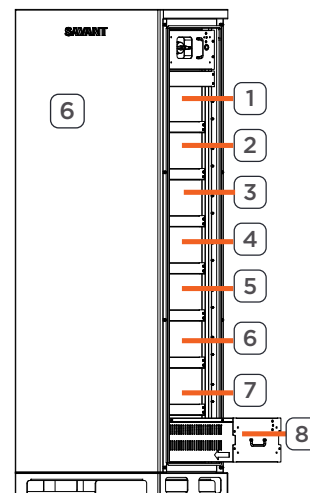


8. Hang the inverter on the bracket.
9. Fasten the Savant Power Inverter and the bracket with M5x12 machine screws. (Torque: 3 N·m).
10. Fasten Savant Power Inverter and the battery cabinet with conduit and screw kit, as shown.



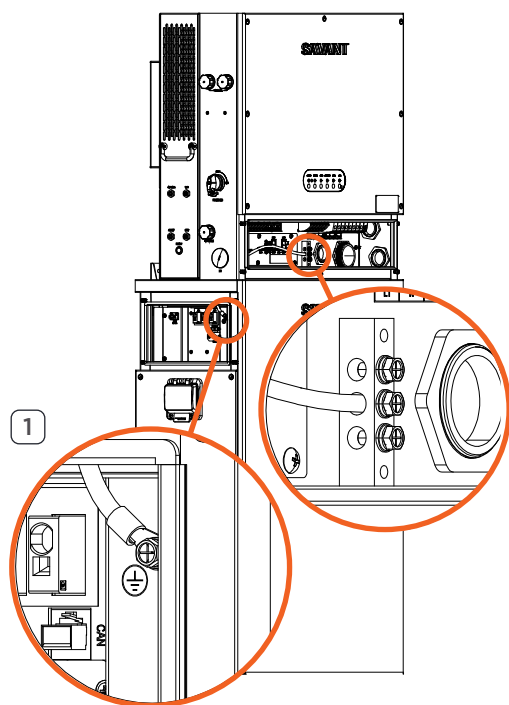
11. Gently plug in each battery module from the bottom up. Fasten the modules on both sides using M4x8 screws (Torque: 1.2 N·m).

NOTE: Mark number 1-8 on labels of each battery module before installation and plug them into the cabinet in reverse numerical order. Always keep batteries ordered as they are first installed.

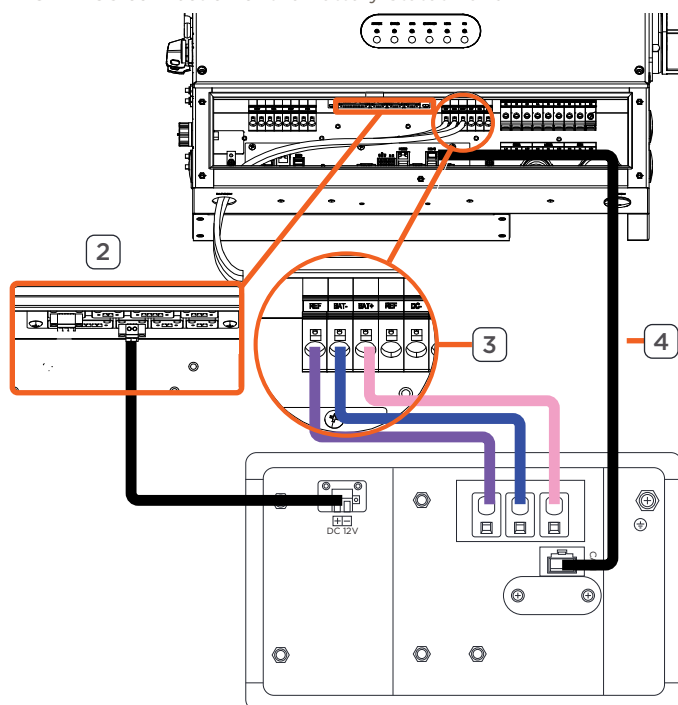


Wiring

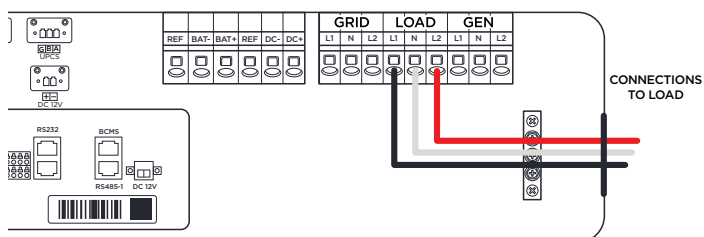
1. Connect battery system to the Savant Power Inverter with ground wire.



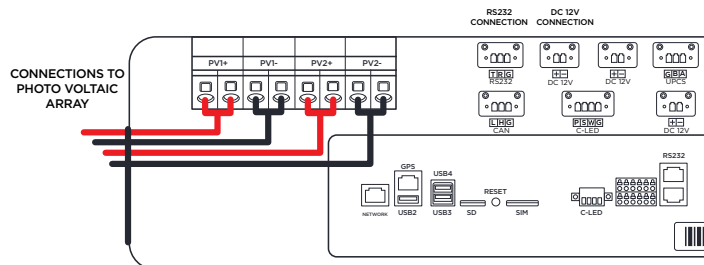
2. Make the REF, BAT-, BAT+ connections from the inverter through the conduit to the corresponding connections on the battery access panel through the conduit.
3. Connect the DC 12V wire between the inverter and the battery access panel.
4. Connect the BCMS port of the Savant Power Inverter to the CANBUS connection of the Battery Status Panel.



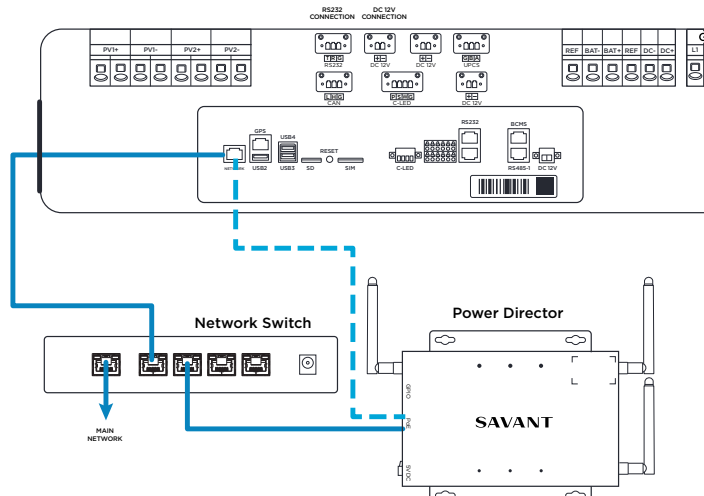
5. Make all connections between the inverter and the electrical system. Generator, and Load connections. For more information, see the [Savant Power Storage 20 Deployment Guide](#).



6. (Optional) Connect Savant Power Storage 20 to photovoltaic array.



7. Connect Savant Power Storage 20 to the same network switch as the Power Director or the network port of the Power Director itself using a CAT5 or higher Ethernet cable.



More Information

To continue deployment and configure the Savant Power Storage 20, see the following documentation.

[Savant Power Storage App Setup Guide](#)



[Savant Power Storage 20 Installation Guide](#)

