

Energizer[®] ***SOLAR***

Force D/A Hybrid Inverter

Quick Install Guide

Notice

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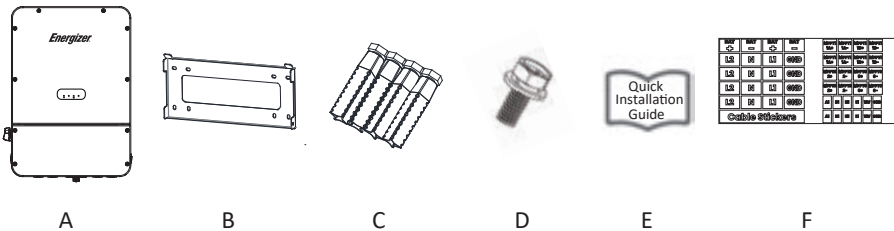
2. Only certified electricians are allowed to operate the device. Operation personnel must wear proper personal protective equipment (PPE).
3. Before installing the device, check that the package contents are intact and complete against the packing list. If any damage is found or any component is missing, contact your dealer.
4. The device damage caused by the violation of instructions in this document is not covered under warranty.
5. The cable colors involved in this document are for reference only. Select cables in accordance with local cable specifications.

NOTE: This manual describes the assembly, installation, commissioning, maintenance and troubleshooting of the following Energizer Solar Force D/A model(s).

Force 3.8DC	Force 5.7DC	Force 7.6DC	Force 9.6DC	Force 11.4DC
Force 3.8AC	Force 5.7AC	Force 7.6AC	Force 9.6AC	Force 11.4AC

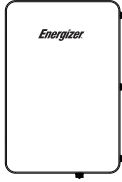
1 Packing List

1.1 Hybrid Inverter Package Box

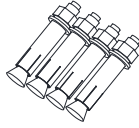


OBJ	QTY	Inverter	OBJ	QTY	DESC
A	1	Bracket	D	1	Set Screw
B	1	Expansion Bolt	E	1	Quick Installation Guide
C	4	M8*60	F	1	Cable Sticker

1.2 Energizer Solar Gateway Package Box



A



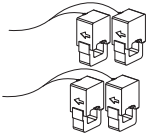
B



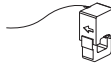
C



D



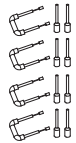
E



F



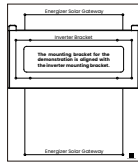
G



H



I



J

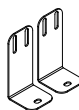
OBJ	QTY	DESC	OBJ	QTY	DESC
A	1	Energizer Solar Gateway	F	1	100A Current Transformer
B	4	Sleeve Expansion Bolt M8*60	G	1	E-STOP
C	4	Waterproof Gasket	H	4	120Ω Terminating Resistor
D	1	Smart WiLAN	I	2	Label
E	4	250A Current Transformer	J	1	Installation Paperboard

1.3 Battery Package Box

For PM :



A



B



C



D



E



F



G



H



I



J



K



L



M



N

OBJ	QTY	DESC	OBJ	QTY	DESC
A	6	Set Screw	H	4	Expansion Tube & Expansion Screw
B	2	Fixing Bracket	I	1	Waterproof Cover
C	4	Footstand	J	1	RJ45
D	1	Communication Cable (BMS-inverter) (9.8ft)	K	1	Junction Box
E	1	Grounding Cable (9.8ft)	L	2	Plug
F	1	DC Output Cable (9.8ft)	M	1	Cable Gland
G	1	Quick Installation Guide	N	1	PM

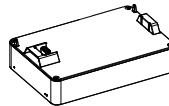
For PS :



A



B



C

OBJ	QTY	DESC	OBJ	QTY	DESC
A	2	Set Screw	C	1	PS
B	1	Quick Installation Guide			



Safety Goggles



Steel Toe Boots



Dust Mask



Helmet



Insulating Gloves



Phillips-Head Screwdriver



Flat-Head Screwdriver



Wire Stripper



Electric Drill



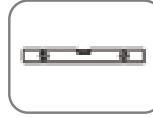
Adjustable Wrench



Hex Wrench Set



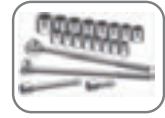
Hole Punch



Level



Tape



Sleeve



Multimeter



Phone



DANGER:

Special care must be taken to protect personal safety.

PPE must be worn during transfer and installation.

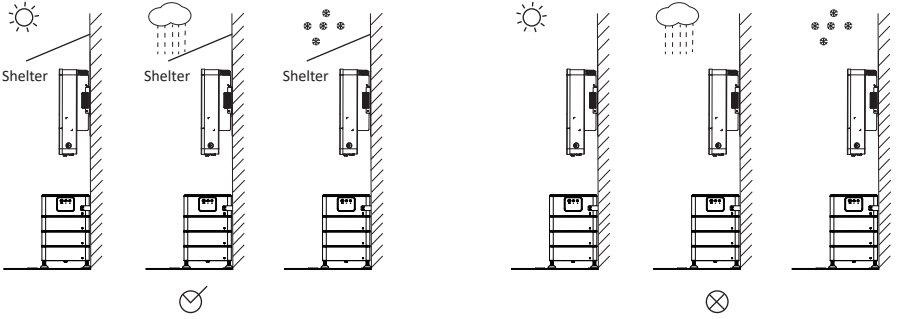


WARNING:

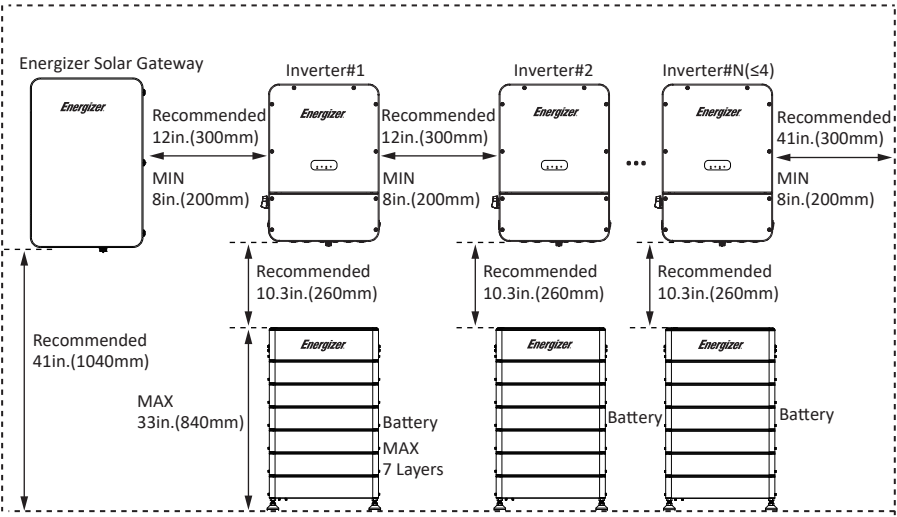
Please use proper protective measures, such as foam or protective cloth, keep the equipment well protected from hard objects that may damage their exterior appearance or body during handling and installation.

3 Installation Steps

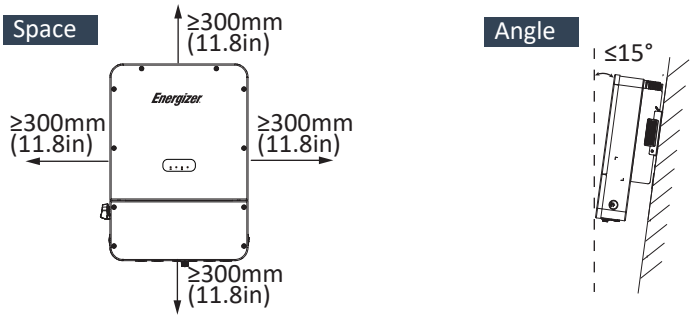
3.1 Installation Environment



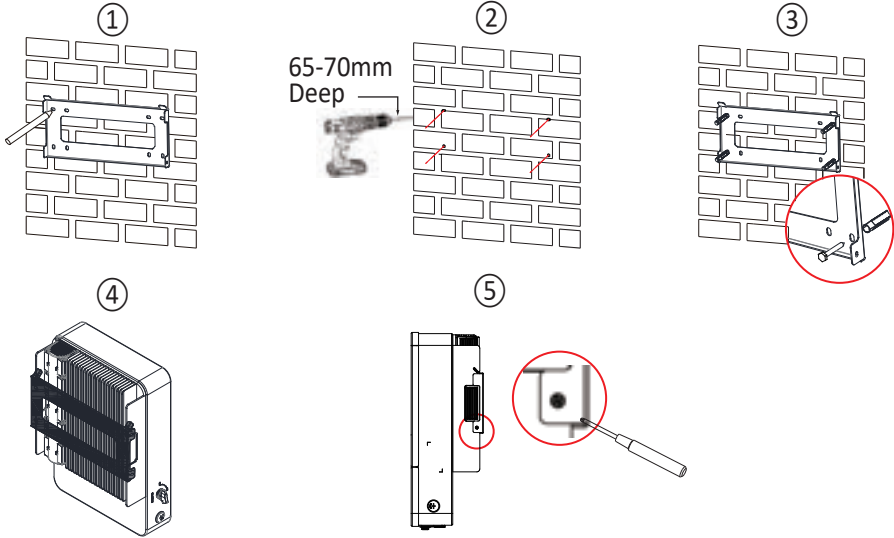
3.2 System Installation Space



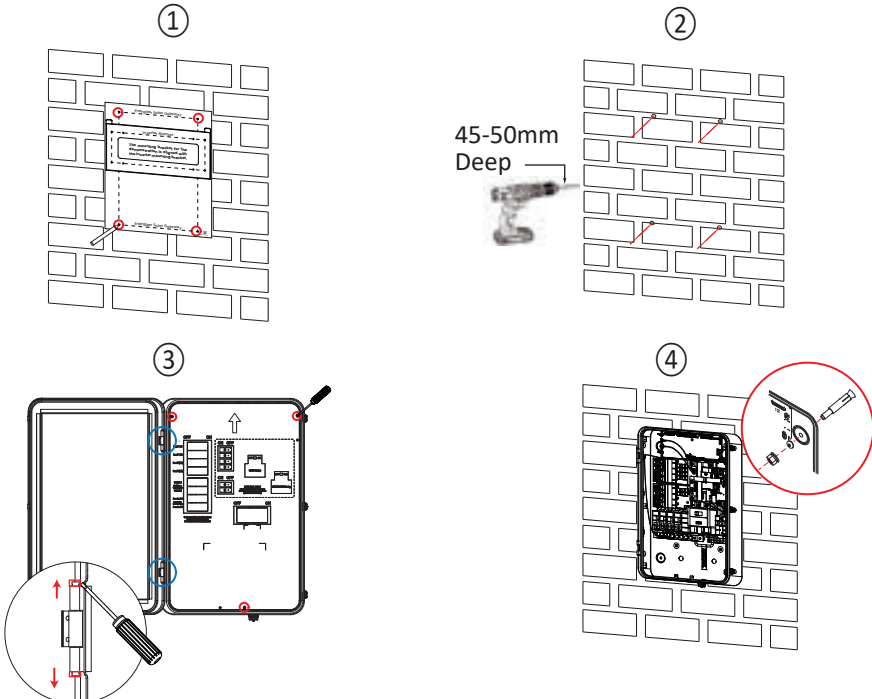
3.3 Inverter Installation



Steps

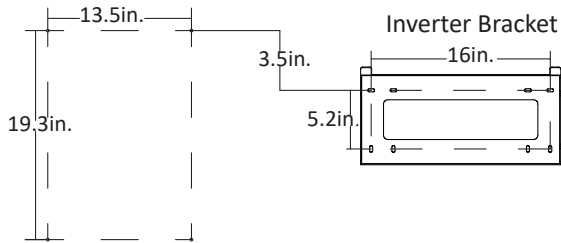


3.4 Energizer Solar Gateway Installation



Suggestion: the height difference between the highest installation holes of the Energizer solar gateway and the highest installation holes of the inverter bracket is 3.5in. (89.3mm).

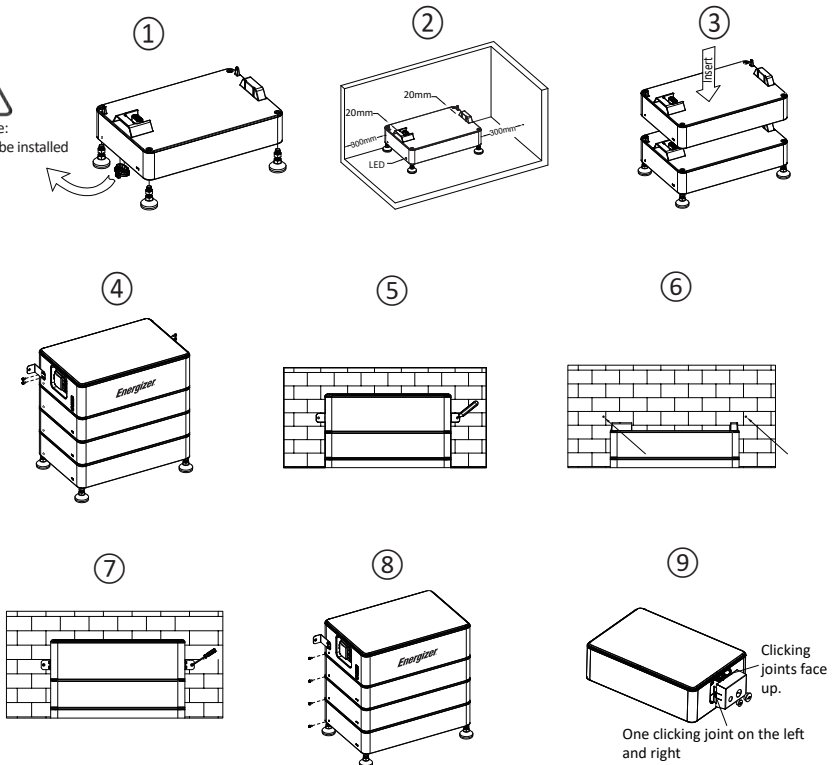
Installation Holes of the Energizer Solar Gateway



3.5 Battery Installation



Notice:
must be installed

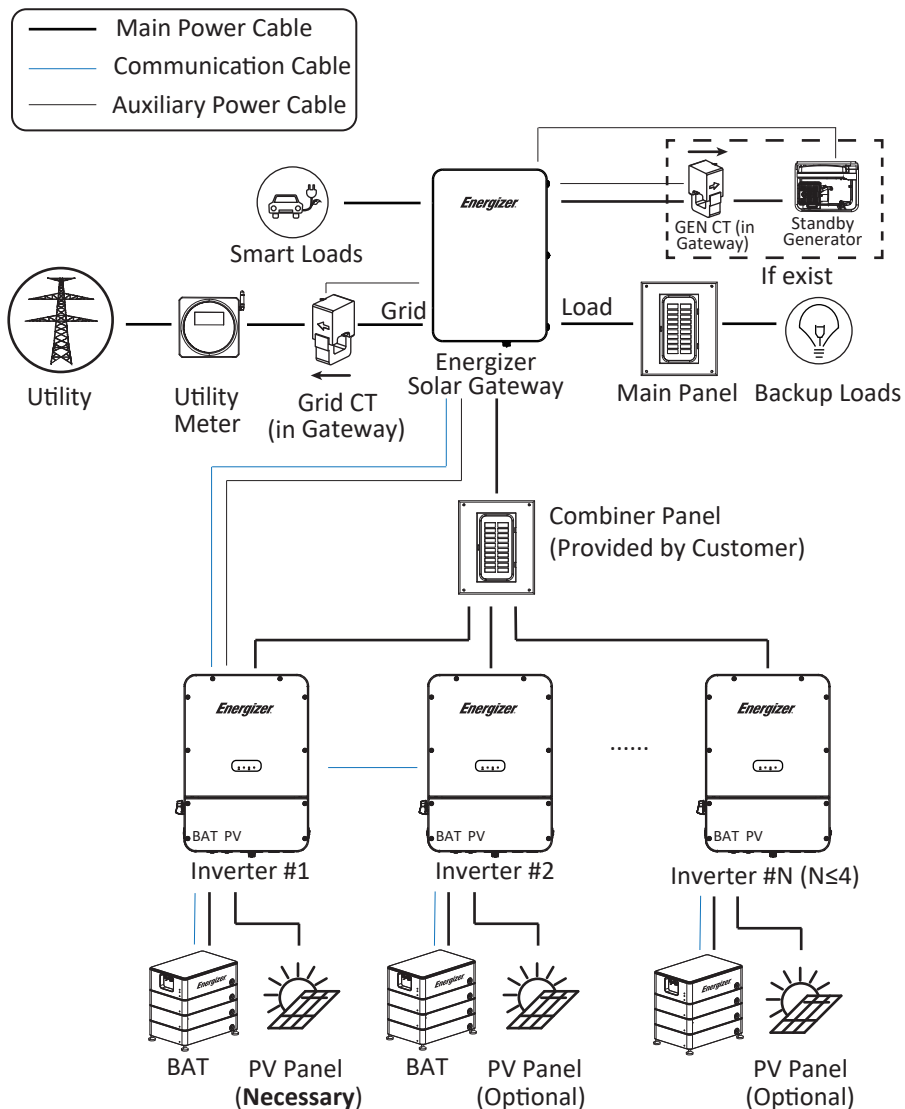


4 System Wiring Diagram

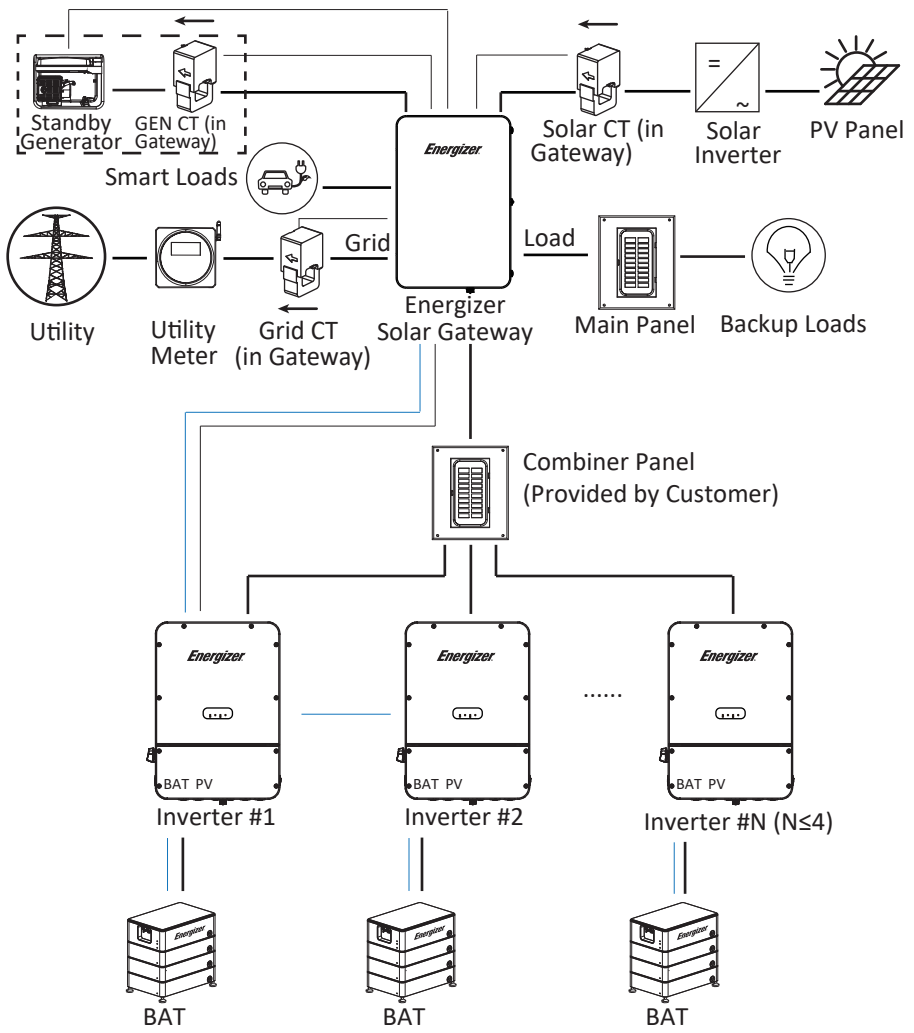
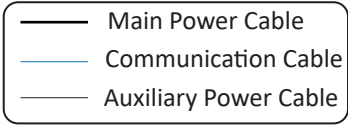
Note: in a parallel connection mode, the paralleled inverters need to be of the same model, and the batteries also need to be of the same model and capacity.

4.1 Whole-home Backup

Whole-home Backup (DC Couple)

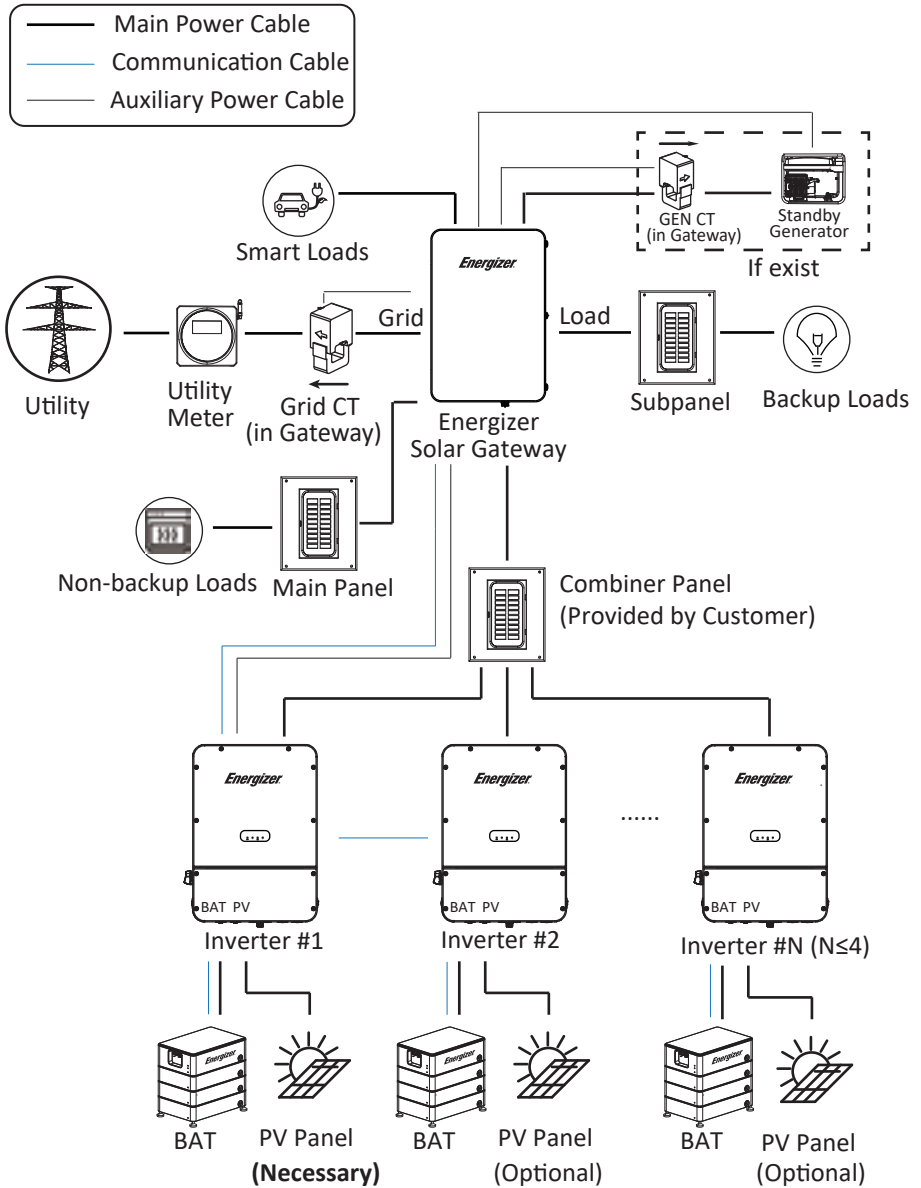


Whole-home Backup (AC Couple)

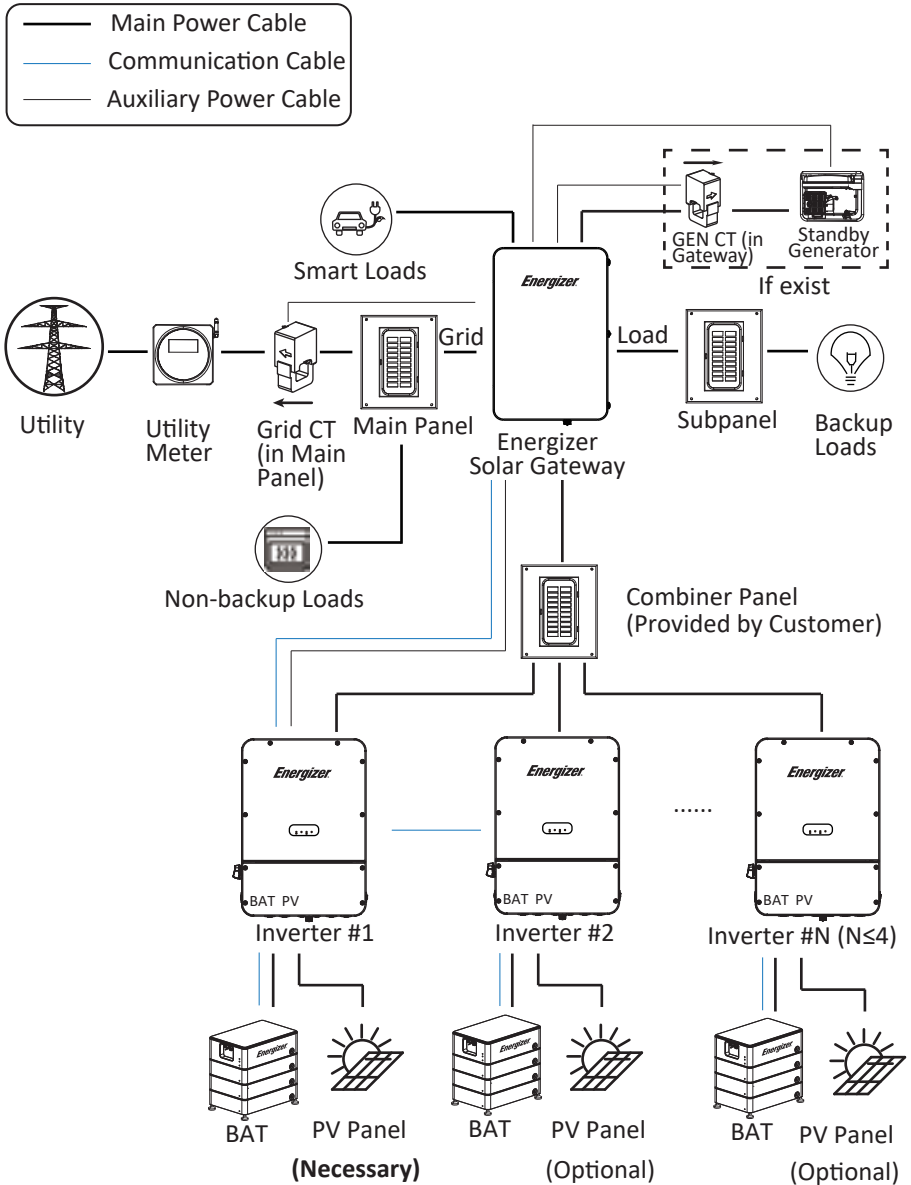


4.2 Partial-home Backup

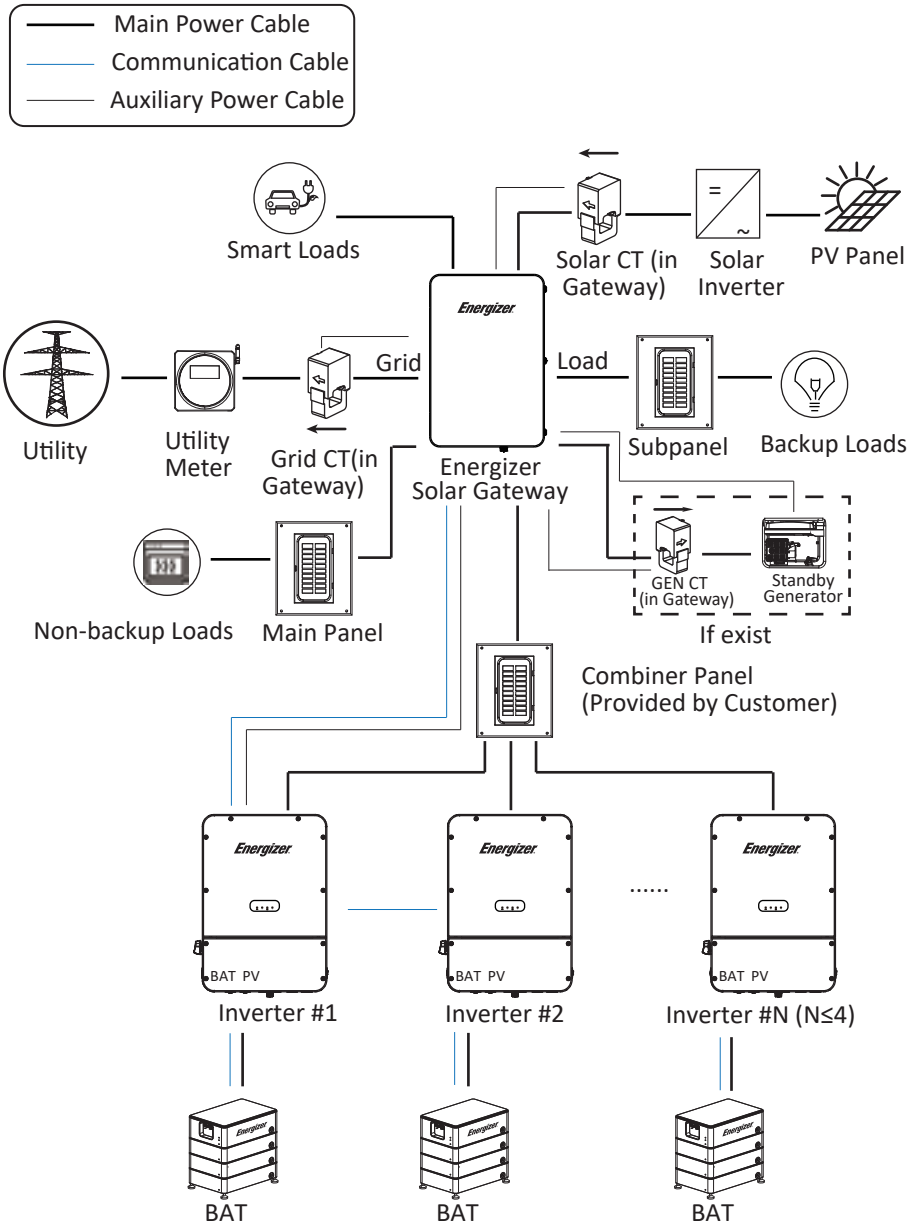
Partial-home Backup (DC Couple) (Energizer Solar Gateway as Service Panel)



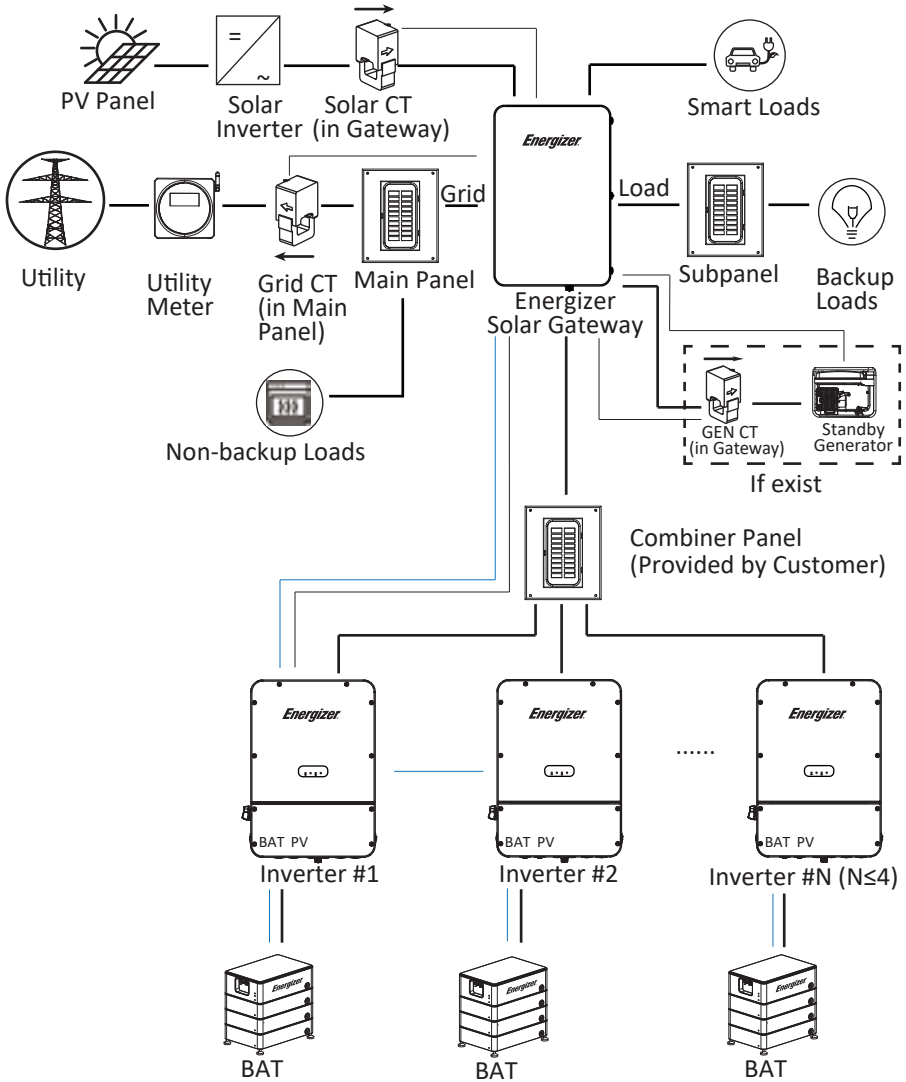
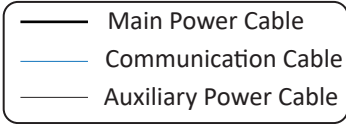
Partial-home Backup (DC Couple) (Energizer Solar Gateway not as Service Panel)



Partial-home Backup (AC Couple) (Energizer Solar Gateway as Service Panel)

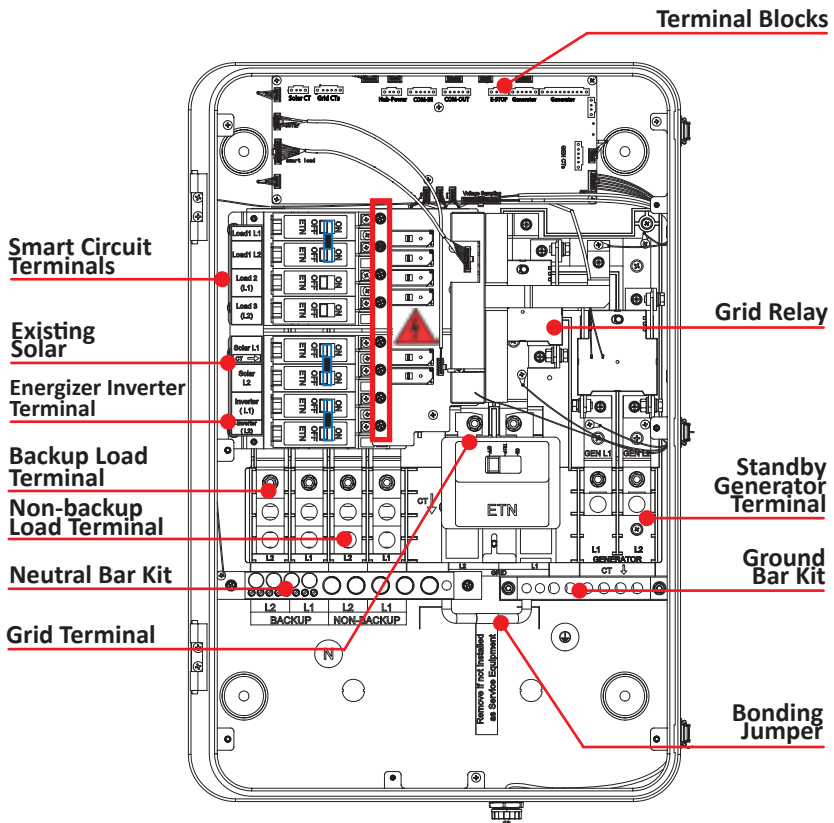



Partial-home Backup (AC Couple) (Energizer Solar Gateway not as Service Panel)



5 System Wiring Steps

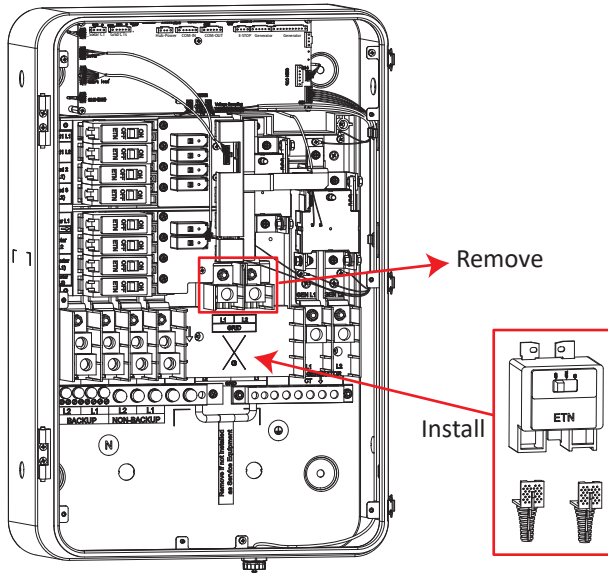
5.1 Energizer Solar Gateway Overview



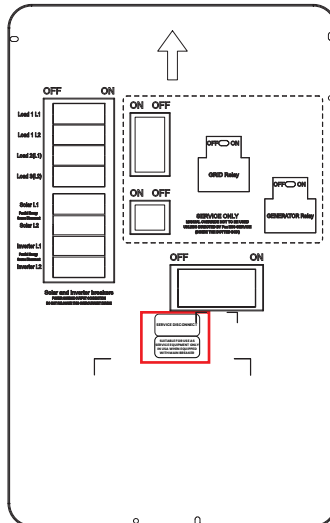
DANGER:  The framed screws are live. There is risk of electric shock. Disconnect units before servicing.

5.2 Is the Energizer Solar Gateway Installed as Service Panel?

- ① When the Energizer solar gateway is used as the service panel,
 - a. main breaker and line side barriers (Eaton TICS300C) need to be installed;

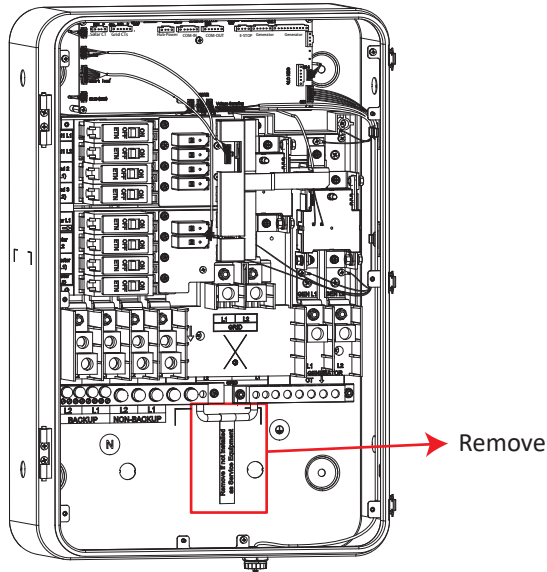


- b. labels of “SERVICE DISCONNECT” and “SUITABLE FOR USE AS SERVICE EQUIPMENT ONLY IN USA WHEN EQUIPPED WITH MAIN BREAKER” shall be applied to the black protection cover.



Black Protection Cover

- ② When the Energizer solar gateway is not used as the service panel, bonding jumper needs to be removed.



③ Recommended Breaker Models

Circuit	Compatitable Breaker
Smart Circuit (Back-fed breaker) (Optional)	CH230, CH235, CH240, CH245, CH250, CH260, CH270, CH280, CHF230, CHF235, CHF240, CHF245, CHF250, BR230, BR240, BR250, BR260, BR270, BR280, BR290, BRH230, BRH240, BRH250, BRH260, BRH270, BRH280, BRH290, BR170, BR160, BR150, BR140, BR130, BRH170, BRH160, BRH150, BRH140, BRH130
Existing Solar (Branch breaker)	CH230, CH235, CH240, CH245, CH250, CH260, CH270, CH280, CHF230, CHF235, CHF240, CHF245, CHF250, BR230, BR240, BR250, BR260, BR270, BR280, BR290, BRH230, BRH240, BRH250, BRH260, BRH270, BRH280, BRH290,
Energizer Inverter (Branch breaker)	CH230, CH235, CH240, CH245, CH250, CH260, CH270, CH280, CHF230, CHF235, CHF240, CHF245, CHF250, BR230, BR240, BR250, BR260, BR270, BR280, BR290, BRH230, BRH240, BRH250, BRH260, BRH270, BRH280, BRH290,
Grid (Main breaker) (Optional)	CSR2100, CSR2125N, CSR2150N, CSR2175N, CSR2200N, BW2100, BW2125, BW2150, BW2175, BW2200, BWH2100N, BWH2125N, BWH2150N, BWH2175N, BWH2200N

④ NEC 2023 Requirement of Current rating:

1.705.12 (b)(1): bus bar rating shall not less than main breaker rating + breaker of other power source (125% of power source output)

2.705.12 (b)(2): only two power sources: primary power source is located on opposite end of other power source. bus bar rating x 120% shall not less than main breaker rating + breaker of another power source (125% of power source output).
Need following marking:

POWER SOURCE OUTPUT CONNECTION. DO NOT RELOCATE THIS OVERCURRENT DEVICE

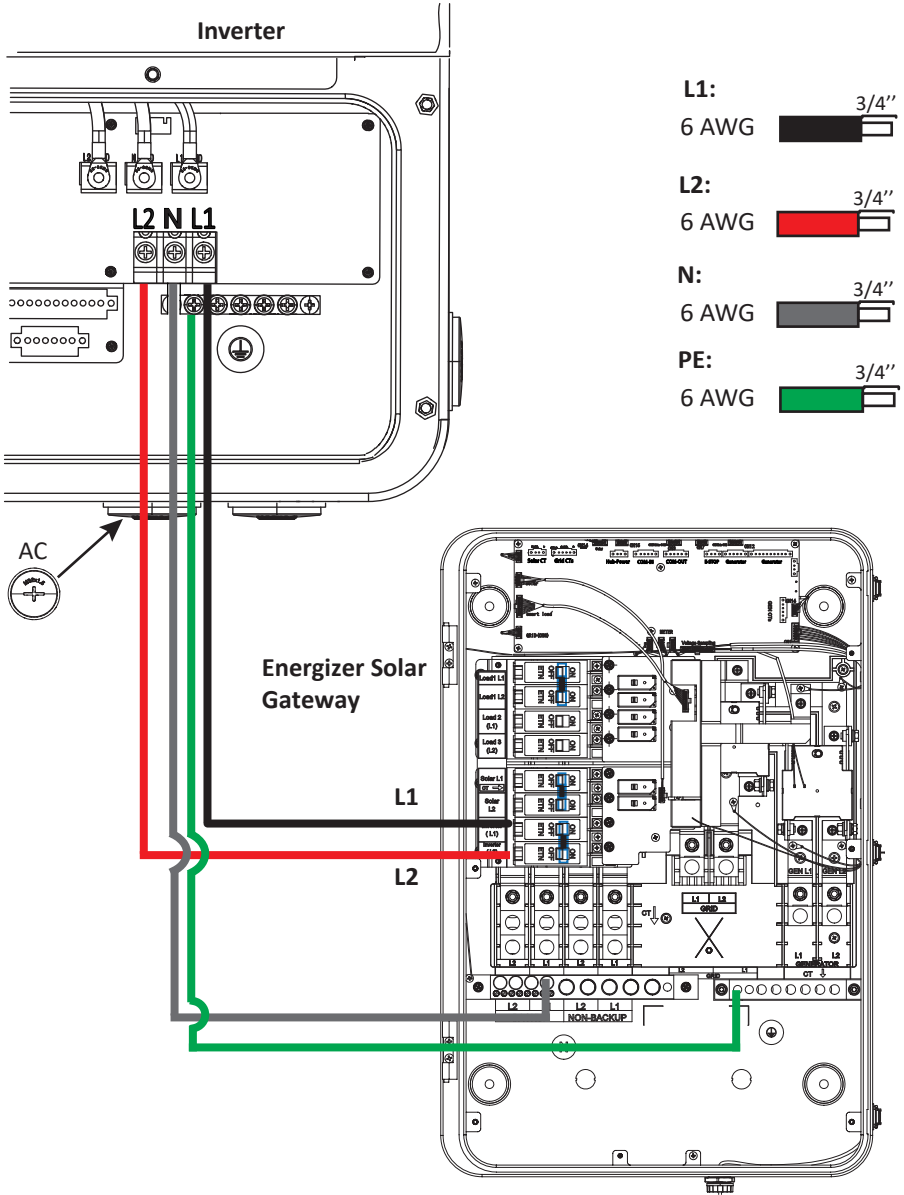
3.705.12 (b)(3): The sum of overcurrent protection device excluding main breaker shall not more than bus bar rating. And main breaker shall not more than bus bar rating. Need following marking:

WARNING:

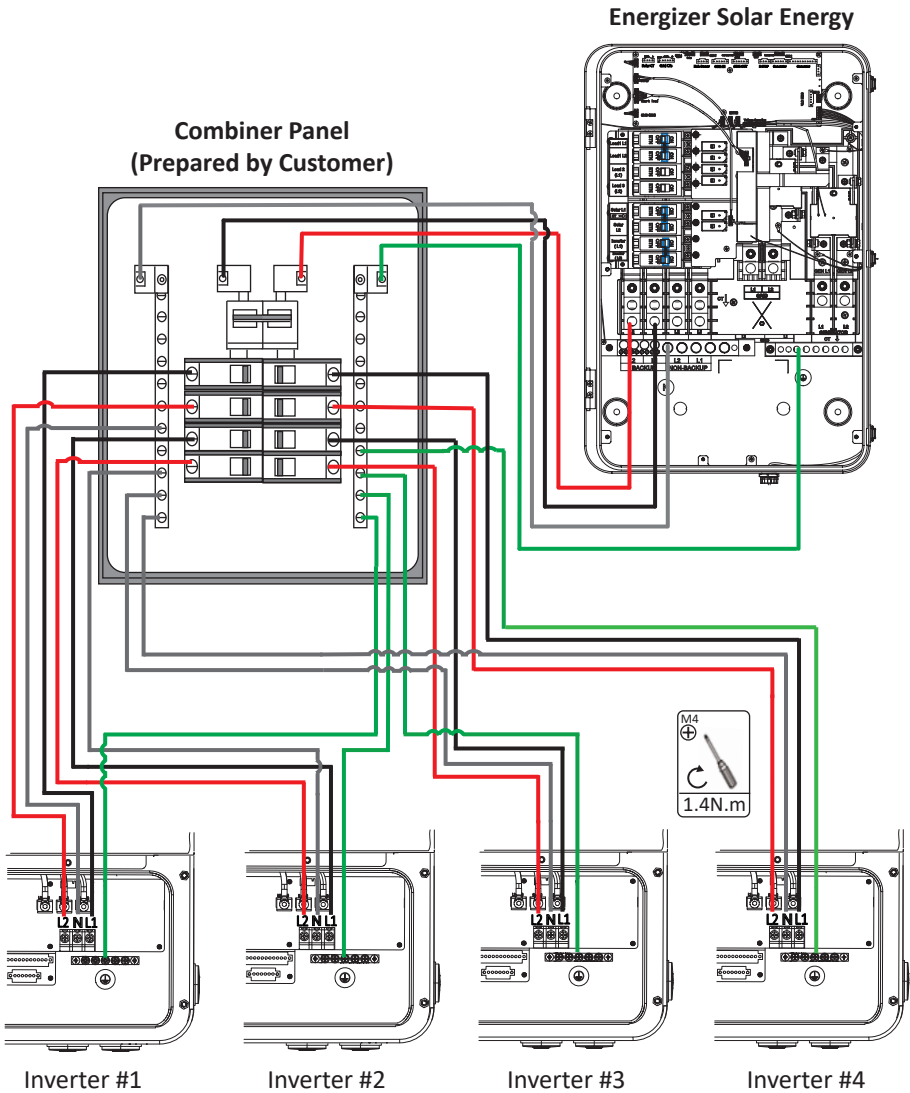
THIS EQUIPMENT FED BY MULTIPLE SOURCES. TOTAL RATING OF ALL OVERCURRENT DEVICES EXCLUDING MAIN SUPPLY OVERCURRENT DEVICE SHALL NOT EXCEED AMPACITY OF BUSBAR.

5.3 Energizer Solar Gateway Power Cable Wiring

- The Inverter Connections to the Energizer Solar Gateway (One Energizer Inverter)



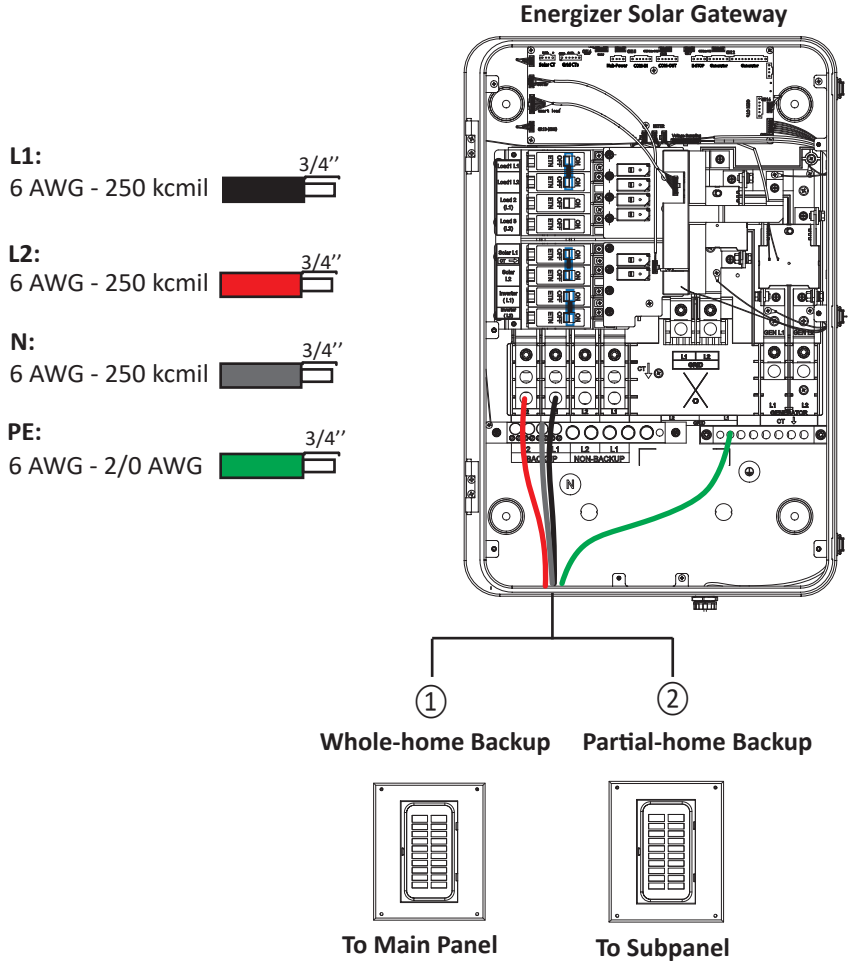
- The Inverter Connections to the Energizer solar gateway (2 to 4 Energizer Inverters)






No. of Parellel Inverters	Minimum Wire Gauge (Combiner Panel-Energizer Solar Gateway)
2 Inverters	2 AWG
3 Inverters	2/0 AWG
4 Inverters	4/0 AWG

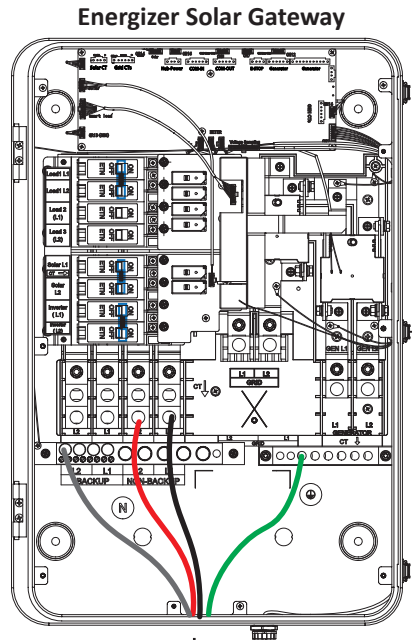
Number of Parellel Inverters	Wire Gauge (Combiner Panel—Inverter)
2 Inverters	6 AWG
3 Inverters	6 AWG
4 Inverters	6 AWG

• Backup Loads Connections to the Energizer Solar Gateway

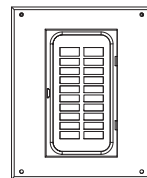


- Non-backup Loads Connections to the Energizer Solar Gateway

- L1:**
6 AWG - 250 kcmil  3/4"
- L2:**
6 AWG - 250 kcmil  3/4"
- N:**
6 AWG - 250 kcmil  3/4"
- PE:**
6 AWG - 2/0 AWG  3/4"







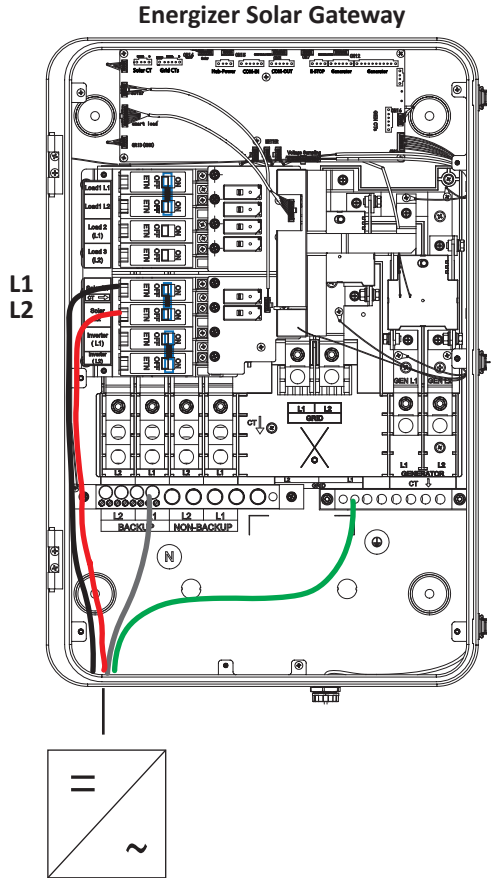
Partial-home Backup



To Main Panel

- The Existing Solar Inverter Connections to the Energizer Solar Gateway or Main Panel (Optional)

- L1:**
6 AWG - 1/0 AWG 
- L2:**
6 AWG - 1/0 AWG 
- N:**
6 AWG - 2/0 AWG 
- PE:**
6 AWG - 2/0 AWG 



To Existing Solar Inverter

NOTE:



The conditions for connecting the existing solar inverter to the main panel are: the system has only one Energizer inverter, no generator, and the power rating of the existing solar inverter is below the Energizer inverter's power rating.

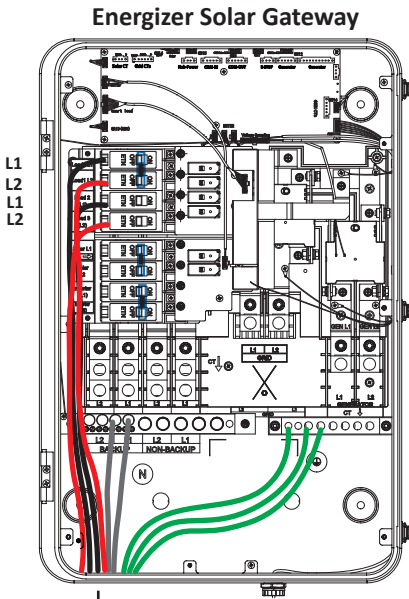
• The Smart Loads Connections to the Energer Solar Gateway (Optional)

L1:
6 AWG - 1/0 AWG  3/4"

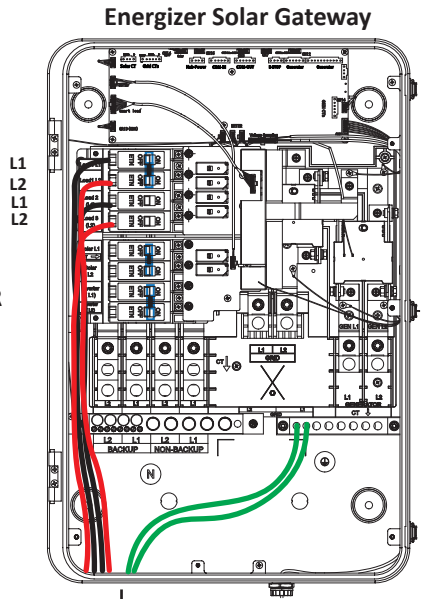
N:
6 AWG - 2/0 AWG  3/4"

L2:
6 AWG - 1/0 AWG  3/4"

PE:
6 AWG - 2/0 AWG  3/4"



OR







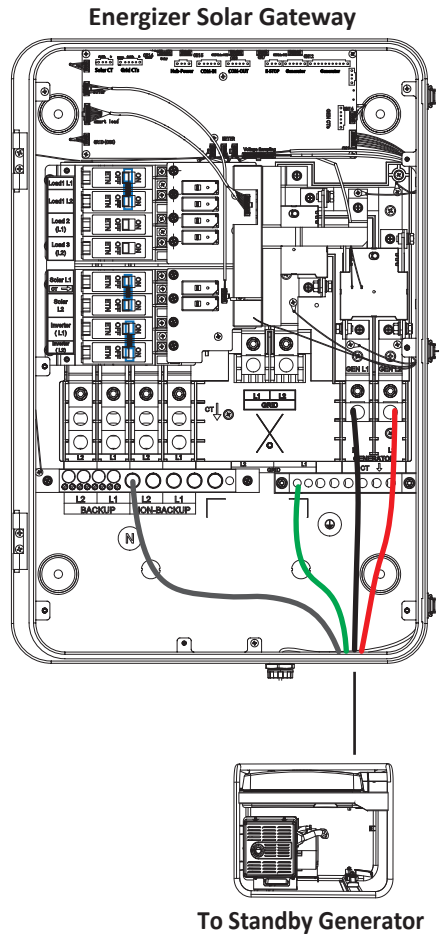
To 3 Smart Loads (240V, 120V, 120V)



To 2 Smart Loads (240V, 240V)

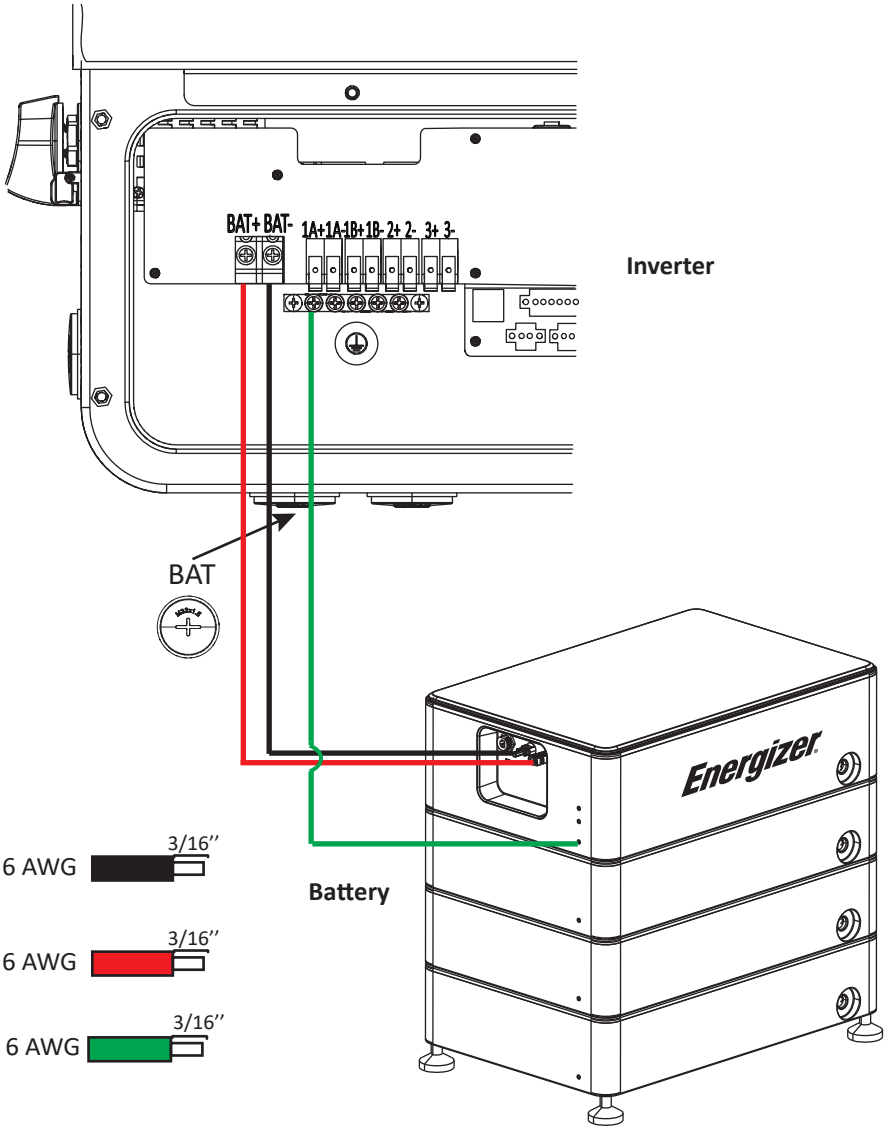
• The Standby Generator Connections to the Energizer Solar Gateway (Optional)

- L1:**
 6 AWG - 250 kcmil  3/4"
- L2:**
 6 AWG - 250 kcmil  3/4"
- N:**
 6 AWG - 250 kcmil  3/4"
- PE:**
 6 AWG - 2/0 AWG  3/4"



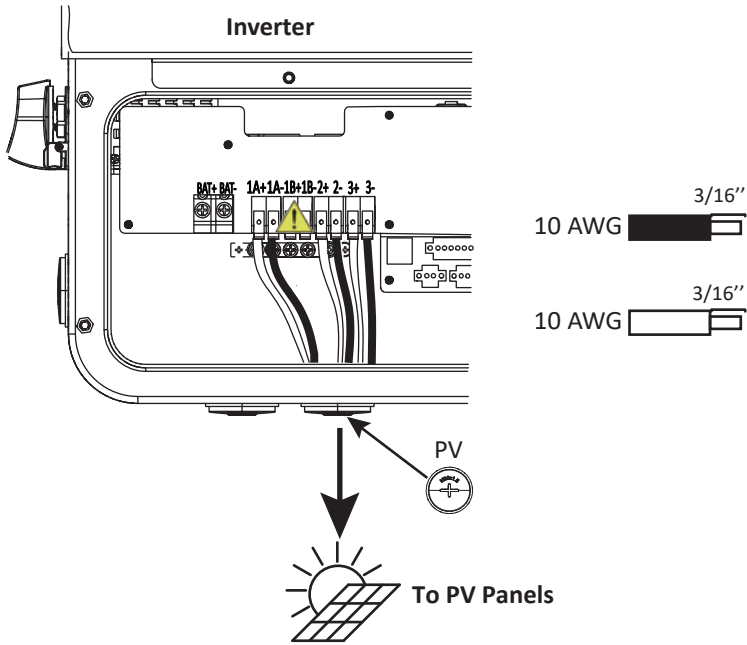
5.4 Inverter Power Cable Wiring

- The Battery Connections to the Inverter



- The PV Panels Connections to the Inverter

Turn off the DC switch before connection.



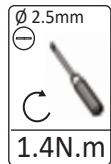
If there are ≤ 3 PV strings, 3 PV strings are preferentially connected to terminals 1A+, 1A-, 2+, 2-, 3+, 3-.

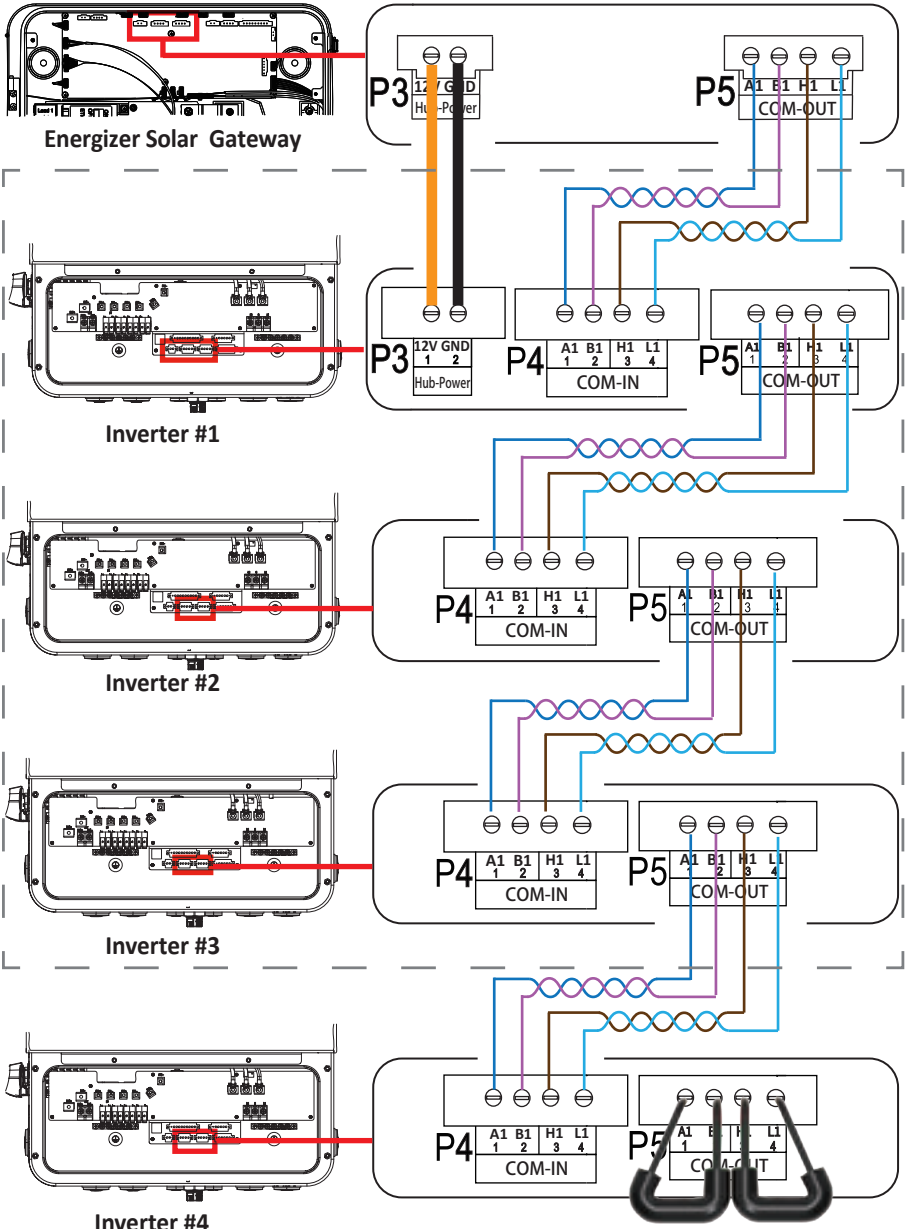
If there are 4 PV strings, the number of PV panels connected to terminals 1A+, 1A- needs to be the same as that connected to terminals 1B+, 1B-.

5.5 Energizer Solar Gateway Wiring (Communication & Auxiliary Power)

- The Inverter Connections to the Energizer Solar Gateway (1 to 4 Inverters)

 16 AWG	 16 AWG
 24-16 AWG	 24-16 AWG
 24-16 AWG	 24-16 AWG





Energizer Solar Gateway

Inverter #1

Inverter #2

Inverter #3

Inverter #4

(Two resistors are in Energizer Solar Gateway package box)

NOTE:

① In the last inverter in the communication chain, plug the 4-pin P5 socket with two terminating 120Ω resistors.

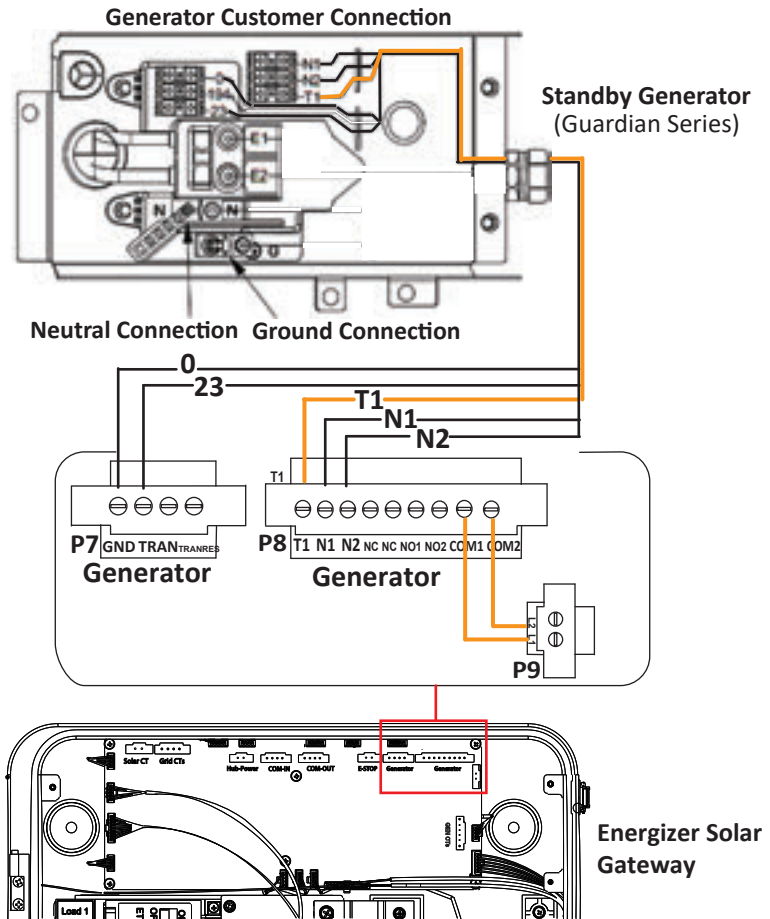


② The twisted cables use shielded twisted pair with drain wire.

③ The maximum cable lengths between Energizer solar gateway and Inverter #1, between inverters, and between the battery and inverter are 50m, 5m, and 50m, respectively .

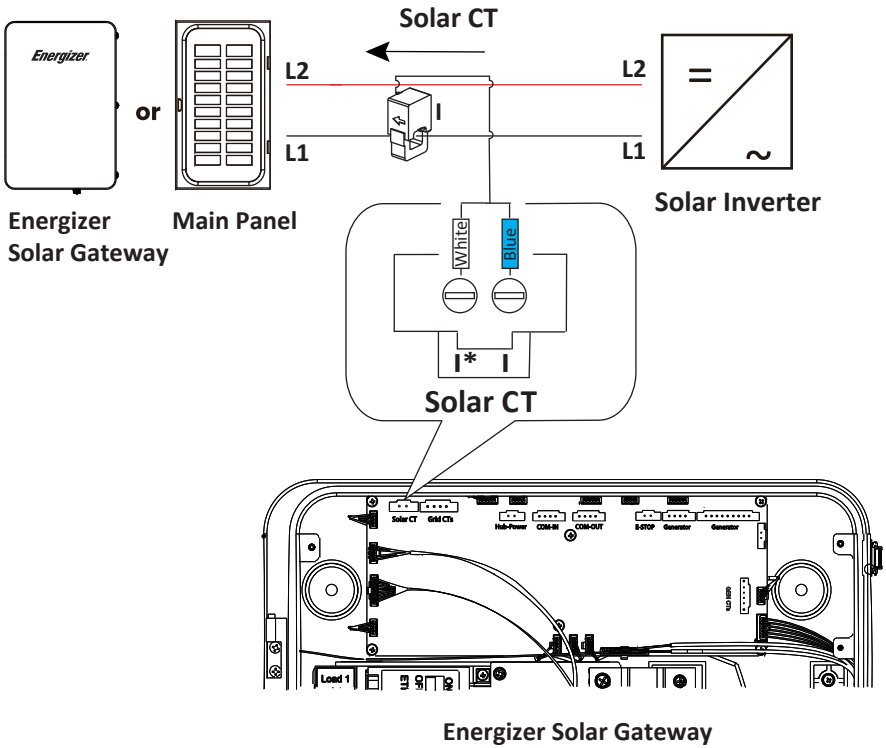
- The Energizer Solar Gateway Connections to the Standby Generator (Optional)

 16 AWG  24-16 AWG



5.6 CT Wiring

- Solar CT Wiring between Energizer Solar Gateway and Solar Inverter

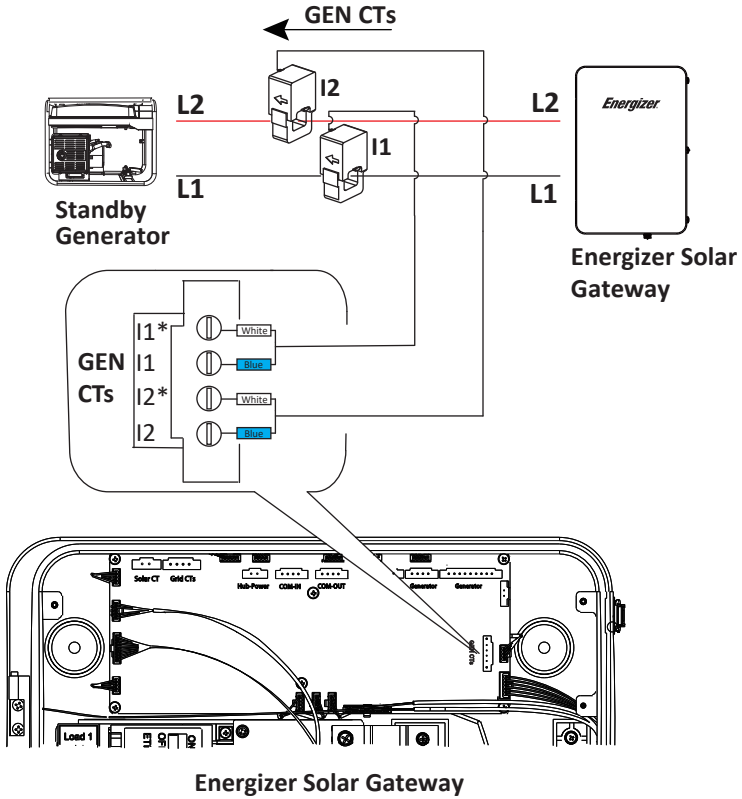


NOTE:



The condition for installing the solar CT in main panel is that the system has only one Energizer inverter and no generator. Please refer to SLD for CT location.

• GEN CTs Wiring between Standby Generator and Energizer Solar Gateway

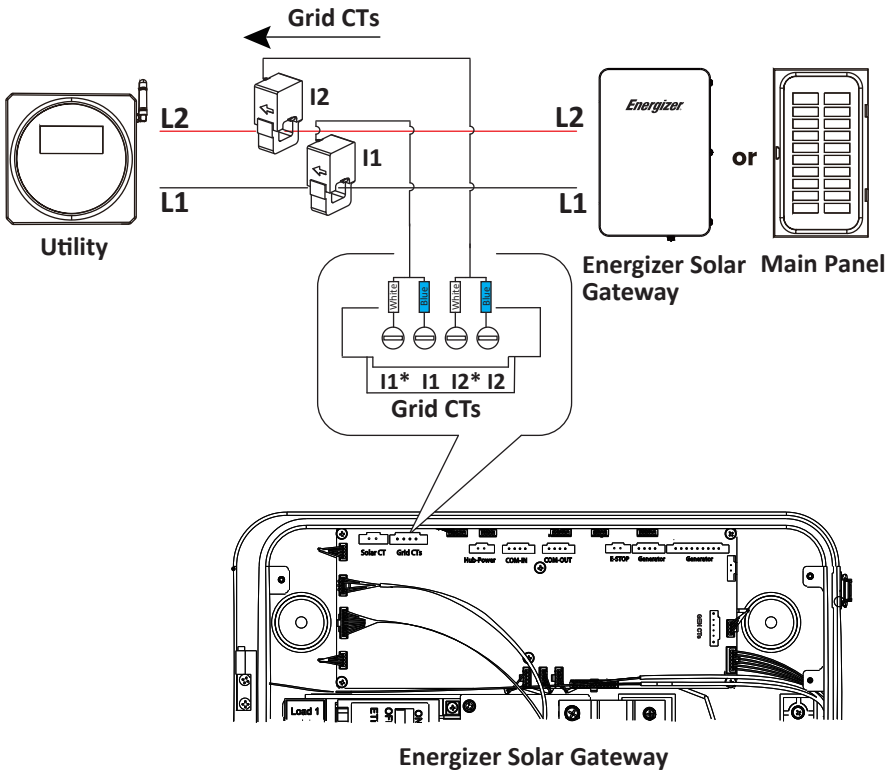


NOTE:



The GEN CTs are installed in Energizer solar gateway. Please refer to SLD for CTs location.

• Grid CTs Wiring between Utility and Energizer Solar Gateway

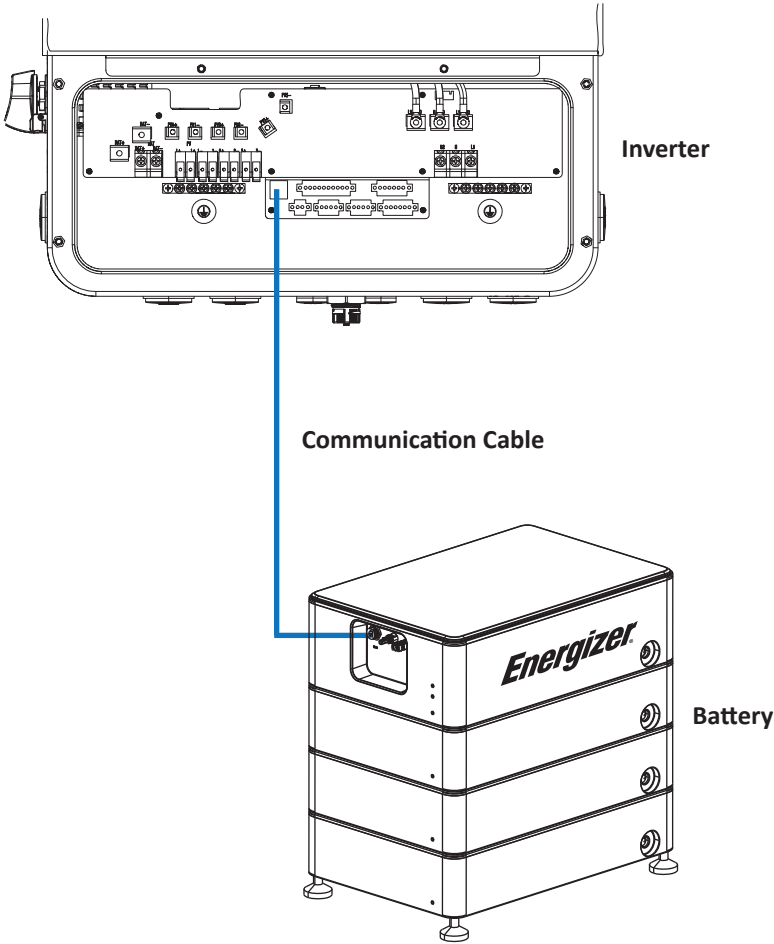


NOTE:

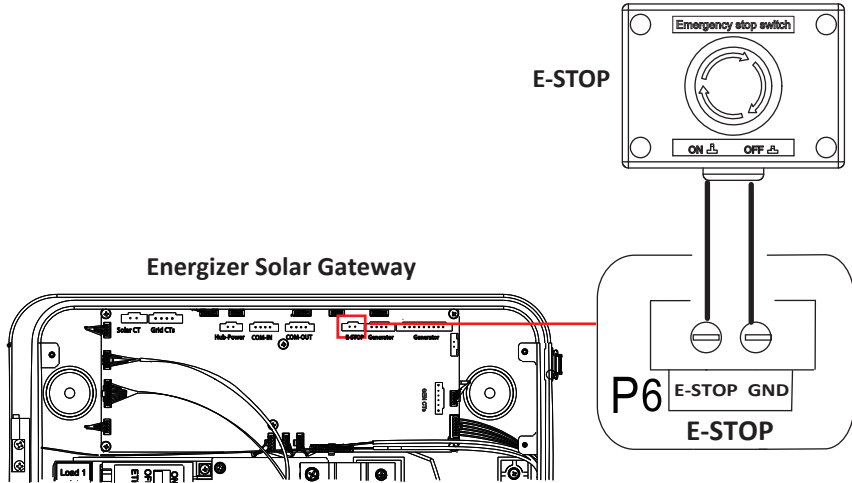


The condition for installing Grid CTs in main panel is partial home with Energizer solar gateway not as service panel. Please refer to SLD for CTs location.

5.7 Battery Communication Wiring



5.8 E-STOP Wiring



Step 1: remove the jumper on the P6 socket of the **Energizer Solar Gateway**.

Step 2: connect the pins 1 and 2 of the P6 to the E-STOP.

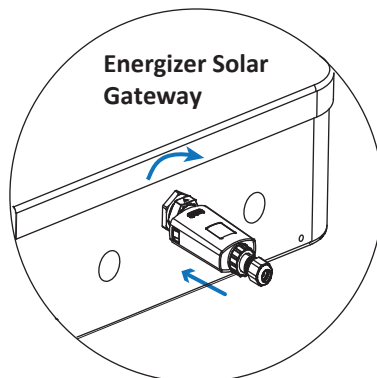


WARNING:

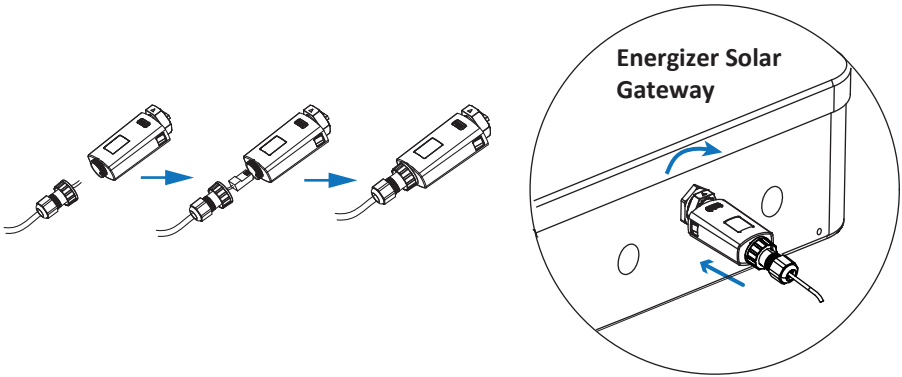
Do not remove the jumper on the P6 socket of the **Energizer inverter**.

5.9 Smart WiLAN Connection

· WiFi Installation: connect the Smart WiLAN to the **Energizer Solar Gateway**.



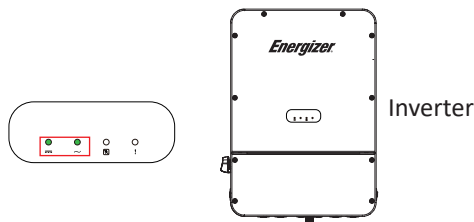
- LAN Installation: insert the network cable into the Smart WiLAN, and connect the Smart WiLAN to the **Energizer Solar Gateway**.



6 System Turn on

Please refer to the following steps to switch on the system.

1. Ensure all cables are connected properly.
2. Turn on the PV/DC switch on the inverter (Only for New System), and AC breakers.
3. (Case 1) Normal mode: When there is PV and grid access, turn on DC switch of the battery first, then press "POWER" button of the battery.
 (Case 2) Black Start: When there is no PV and grid access, turn on DC switch of the battery first, then press "POWER" button of the battery, then press and hold "B-Start" button and release it after 10s.
4. Check if green lights on the inverter are solid on.



In case you need to turn off the system, please refer to the following steps:

1. Turn off the PV/DC switch, battery, AC breakers and off-grid breaker of the Energizer solar gateway.
2. Wait 5 minutes before you open the upper cover of the inverter (in case of repair).

Please scan the QR code below to download the Energizer Solar Connect app.





United States of

America 888
Prospect Street, Suite
200 La Jolla
California 92037
+1 424 254 5544

Europe

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