SOLINTEG C&I Battery Introduction

EBR-A Series

V 1.0

2024/8/8

www.solinteg.com

INTEGRATE SOLAR INTELLIGENTLY

CONTENTS

01
Overview

Brief Introduction

High-voltage LiFePO4 Battery

EBR-A series is a convenient, safe, efficient high-voltage LiFePO4 battery module, featuring high performance, reliability, and eco-friendliness.

Intelligent BMS

The integrated Battery Management System (BMS) provides comprehensive protection against over-discharge, overcharge, over-current, and extreme temperatures. It automatically manages charge and discharge states while balancing the current and voltage of each cell.

Functionalities for C&I Application

EBR-A series is a storage battery system designed for C&I applications. It features a 100A charge/discharge current, supports up to 8 battery clusters in parallel, expanding the storage capacity to 601.44kWh, which makes it the ideal choice for your energy storage needs.

Excellent Module Specifications

Module Capacity	Module Energy	Nominal Voltage
105Ah	**5.37kWh**	**51.2V**

Highlights

Flexible Combination&Matching

Support 6-14 modules connected in one cluster

Great Voltage Adaptability

307.2 - 716.8V battery voltage range

Powerful Parallel Connection Functionality

Up to 8 clusters connected in parallel with Paraller Box

Various Capacity Options

Providing 32.2 - 601.44kWh capacity range with up to 100A charging/discharging current

Long Lifespan with 10-year Warranty

Support up to 240MWh throughput on 75kWh*, or enjoying a 10-year warranty and after-sales services

Cell-level Detection

cell-level protection and passive equalization technology for precise cell status

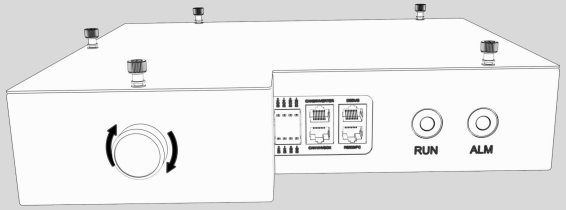
Remote Configuration

Remote settings and maintainance through Solinteg IntegHub

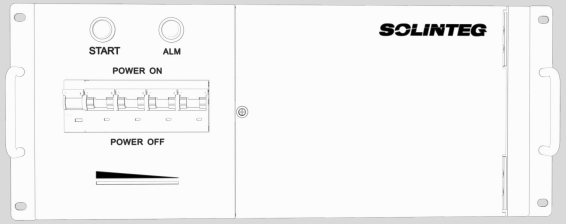
*For Single cluster, reach at least an aggregate energy throughput of energy of system (kWh) * 3.2 MWh. For Multi-clusters, support energy of system (kWh) * 3.2 * 0.98 MWh.

Components & Appearance

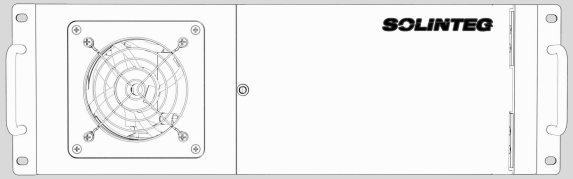
Paralller Box



Controller



Battery Module

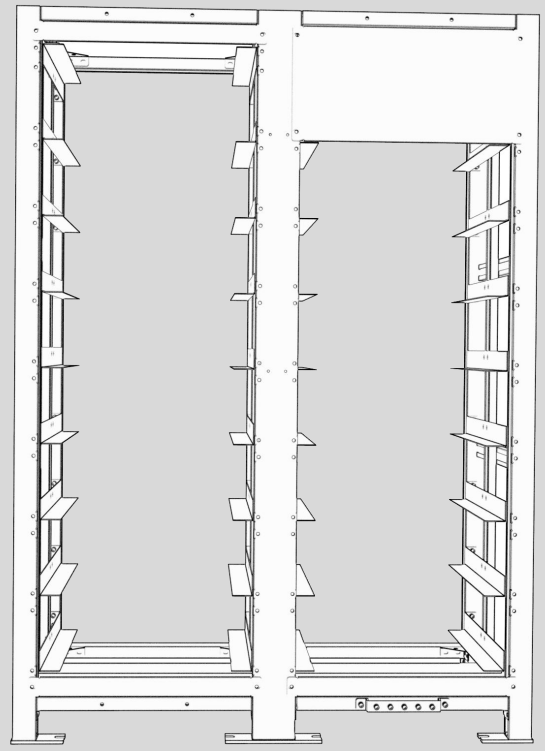


Due to the startup voltage (250 VDC) of Controller, it is recommended to use starting from 6 battery modules.

EBR-S75-A

Different numbers of battery modules will utilize different types of rack.

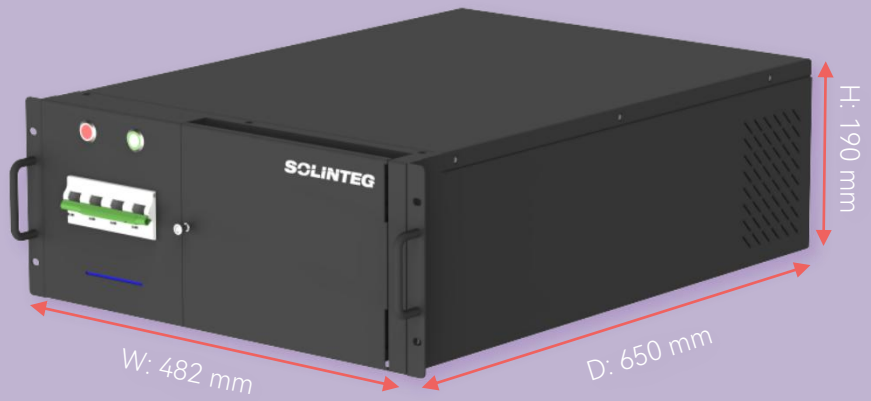
Rack EBR-R-A8



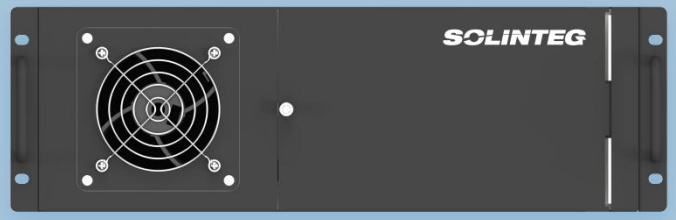
Components & Appearance

Controller: EBR-C-A

Weight: 23kg

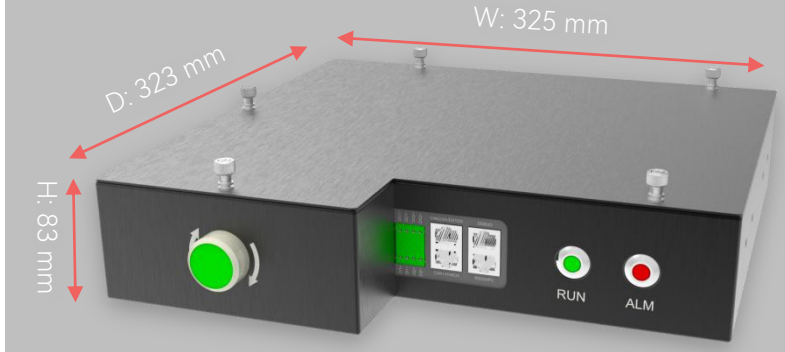


Battery Module: EBR-B5K3-A

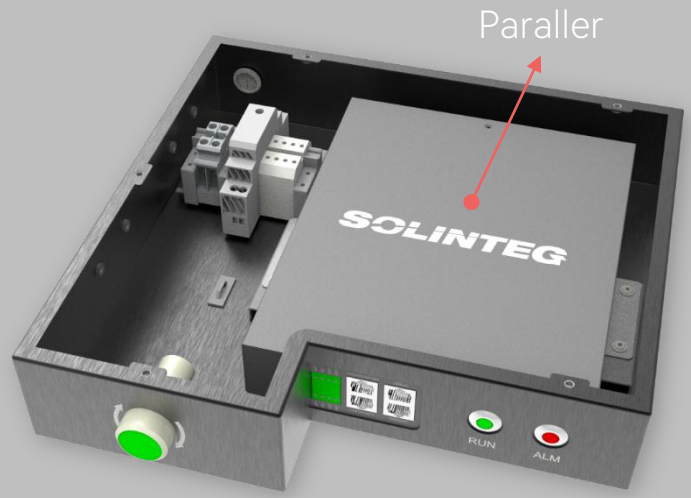


Weight: 49kg

Paraller Box



Weight: 6kg



02
Key Parameters

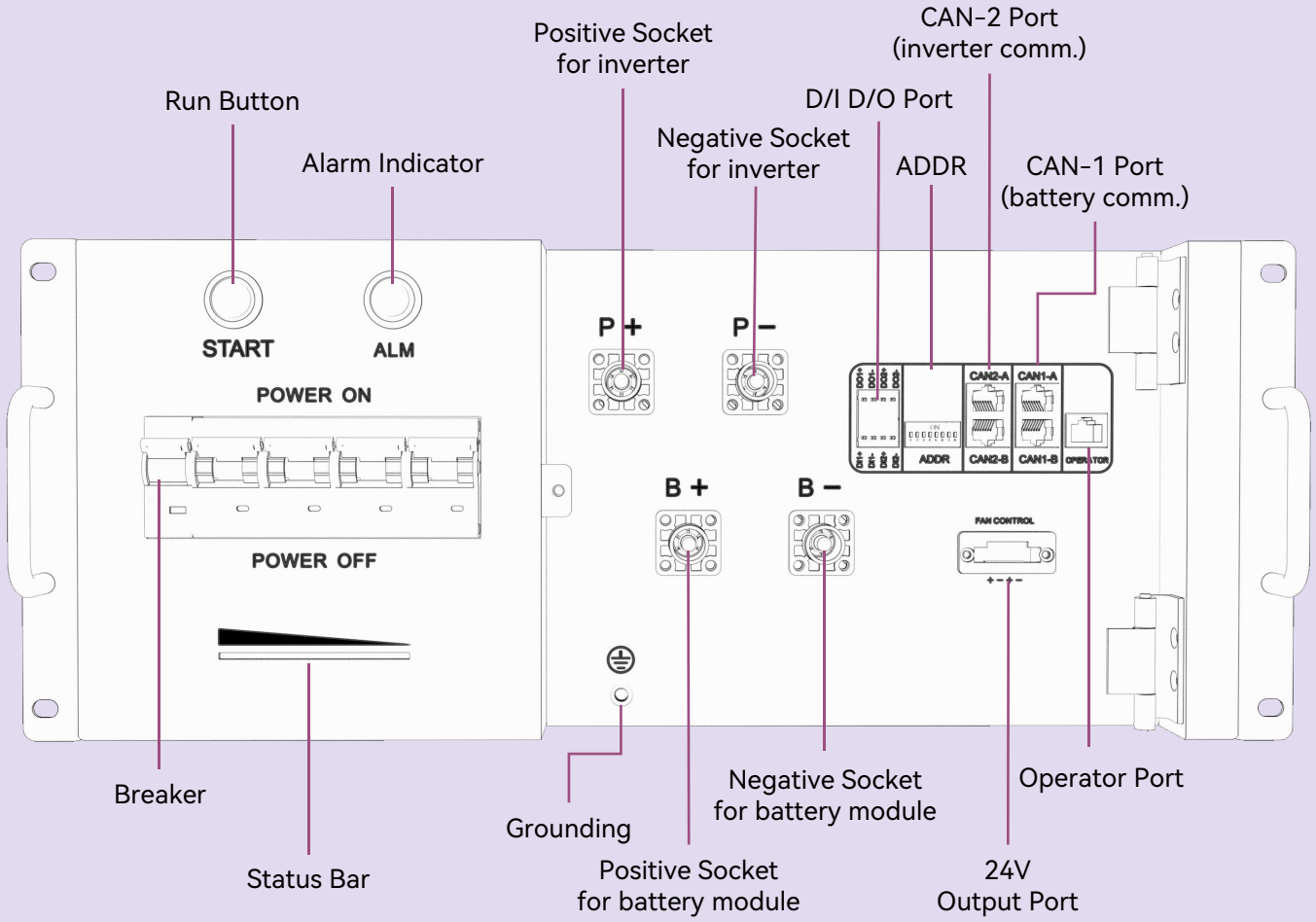
System Parameter

	EBR-S32K-A	EBR-S37K-A	EBR-S42K-A	EBR-S48K-A	EBR-S53K-A	EBR-S59K-A	EBR-S64K-A	EBR-S69K-A	EBR-S75K-A	E: Extender B: Battery R: Rack S: Stackable K:kWh A: A Series
Module Number	6	7	8	9	10	11	12	13	14	Number of battery pack
Nominal Energy (kWh)	32.22	37.59	42.96	48.33	53.7	59.07	64.44	69.81	75.18	Storage energy of the rack. One pack energy is 5.37kWh
Nominal Capacity (Ah)	105									Battery capacity, depend on the battery cell, usually unchanged.
Nominal Voltage(V)	307.2	358.4	409.6	460.8	512	563.2	614.4	665.6	716.8	The rated voltage of the battery rack. One pack voltage is 51.2V
Voltage Range (V)	279 - 350.4	325.5 - 408.8	372 - 467.2	418.5 - 525.6	465 - 584	511.5 - 642.4	558 - 700.8	604.5 - 759.2	651 - 817.6	The operating voltage of whole battery
Max. Charge/Discharge Current (A)	100 / 100									1C charge/discharge rate, it takes about 1 hour to fully charge or discharge.
Throughput(MWh)	Energy of system (kWh) * 3.2									Performance Warranty that the battery reaches at least an aggregate energy throughput
Working Temerature	0~55 (Charge) / -10~55 (Discharge)									The environmental temperature when battery charging and discharging
Weight (kg)	377	426	496	545	594	643	719	768	817	Includes the weight of the battery pack, controller, and rack.
Dimension[W*D*H] (mm)	554 * 662 * 1526		1092 * 662 * 1206				1092 * 662 * 1526			Different numbers of batteries use different types of racks, which leads to variations in size.
Communication	CAN / RS232									The communication method between inverter or battery modules
Protection Degree	IP21									Recommended for indoor installation

Controller

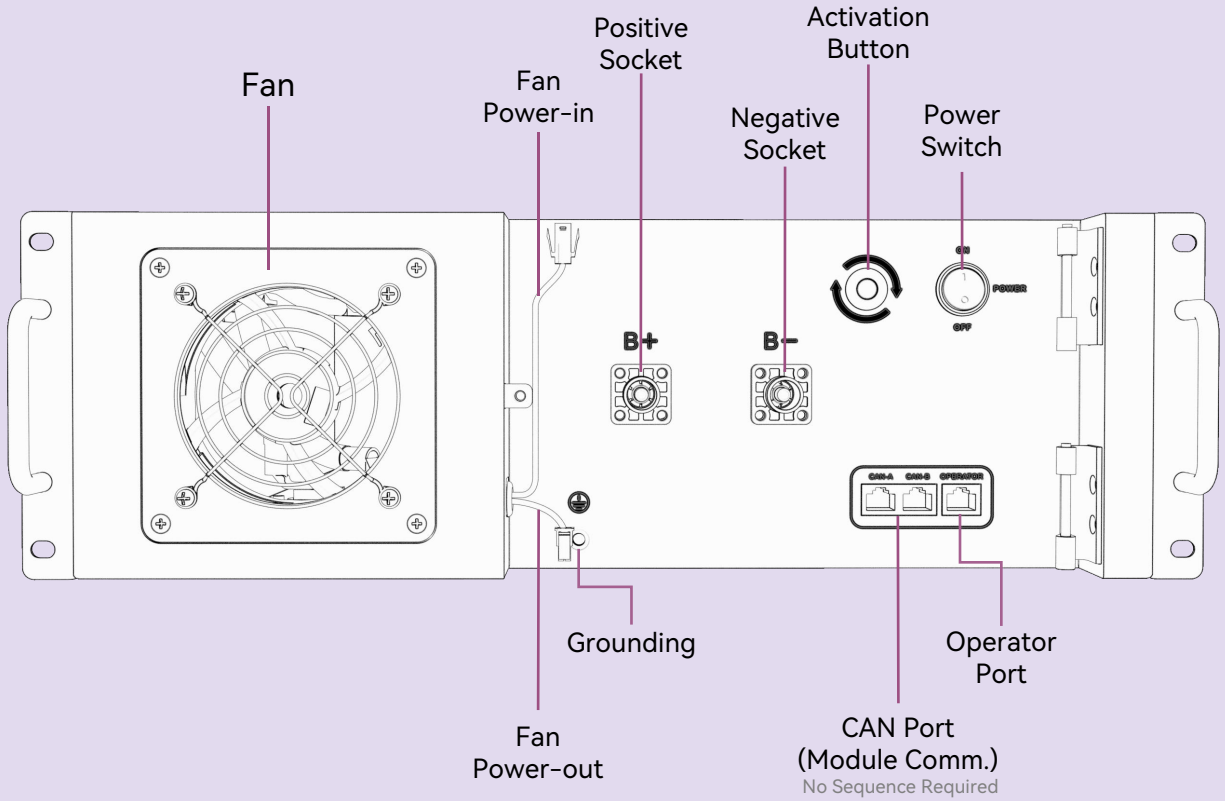
Due to the controller's startup voltage of 250V, it is recommended to use at least 6 battery modules. If 5 modules are chosen, the batteries should be set to a lower depth of discharge (DOD) to ensure the battery voltage does not drop below 250V.

Controller: EBR-C-A	
Operation Voltage(Vdc)	250 - 1000
Max. Chagre/Discharge Current(A)	100/100
Communication	CAN/RS232
Weight(kg)	23
Dimension[D*W*H](mm)	650 * 482 * 190
Protection Degree	IP21
Operation Temp.Range [℃]	-10~55



Battery Module

Battery Module: EBR-B5K3-A	
Nominal Energy (kWh)	5.37
Usable Energy (kWh)	4.83
Nominal Capacity (Ah)	105
Nominal Voltage (V)	51.2
Voltage Range (V)	46.5-58.4
Max.Charge/Discharge Current(A)	100/100
Weight (kg)	49
Dimension[D*W*H](mm)	650*482*150
Protection Degree	IP21
Operation Temp.Range [℃]	0~55(Charge)/-10~55(Discharge)
Communication	CAN /RS232
Cooling	Ventilation with Intelligent Fan

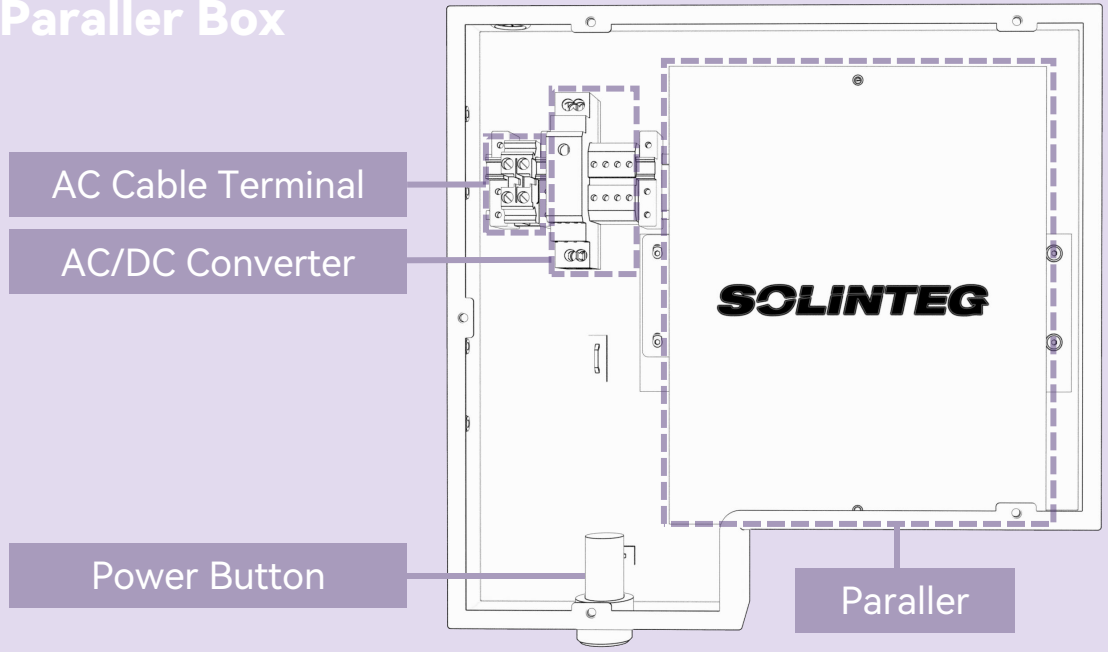


Paraller Box & Paraller

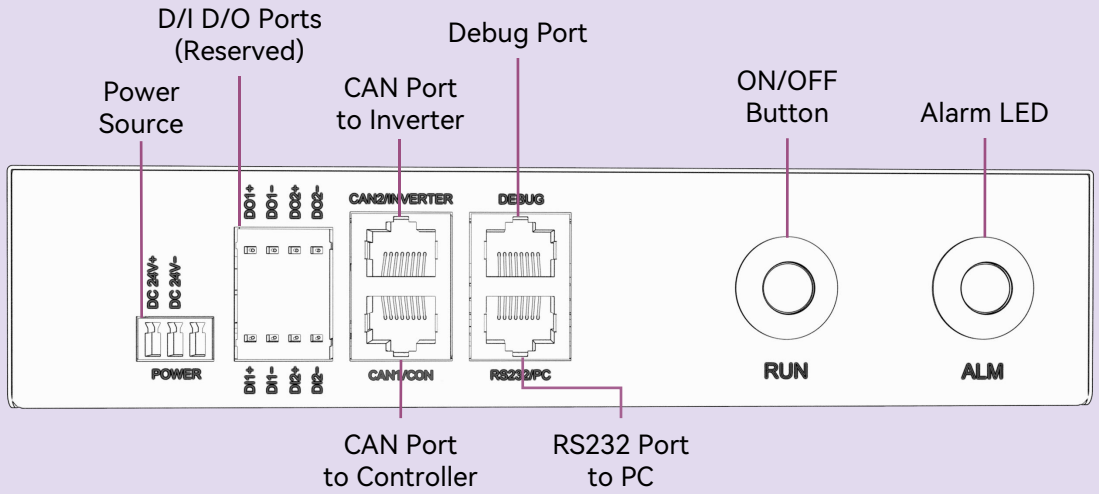
The paraller box contains a paraller as well as the circuitry that powers the paraller.

	Paraller Box	Paraller
Operation Voltage (V)	230VAC	24VDC
Max. Clusters	8	8
Communication	CAN/RS232	CAN/RS232
Dimension [W*D*H] (mm)	325 * 323 * 83	230 * 190 * 40
Weight (kg)	6	1.2
Operating Temperature (℃)	-10~55	-10~55

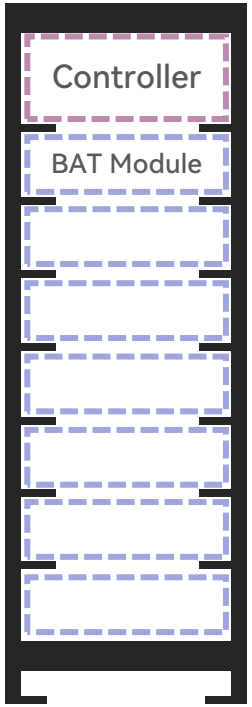
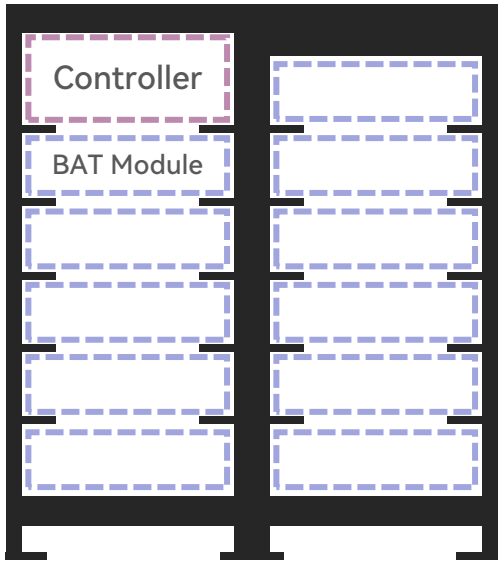
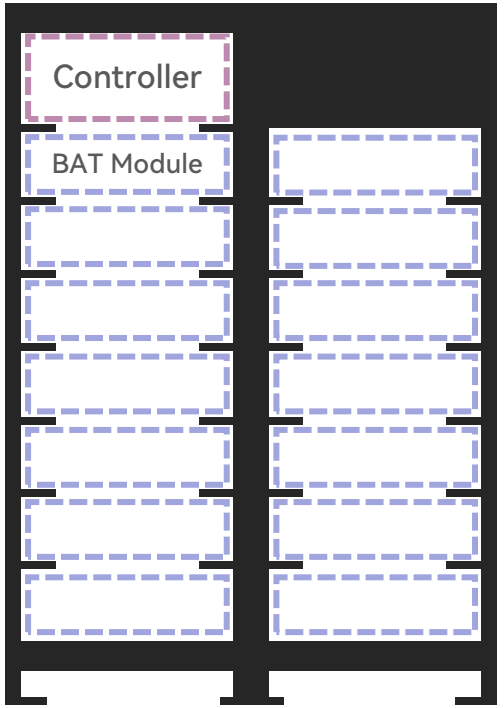
Paraller Box



Paraller

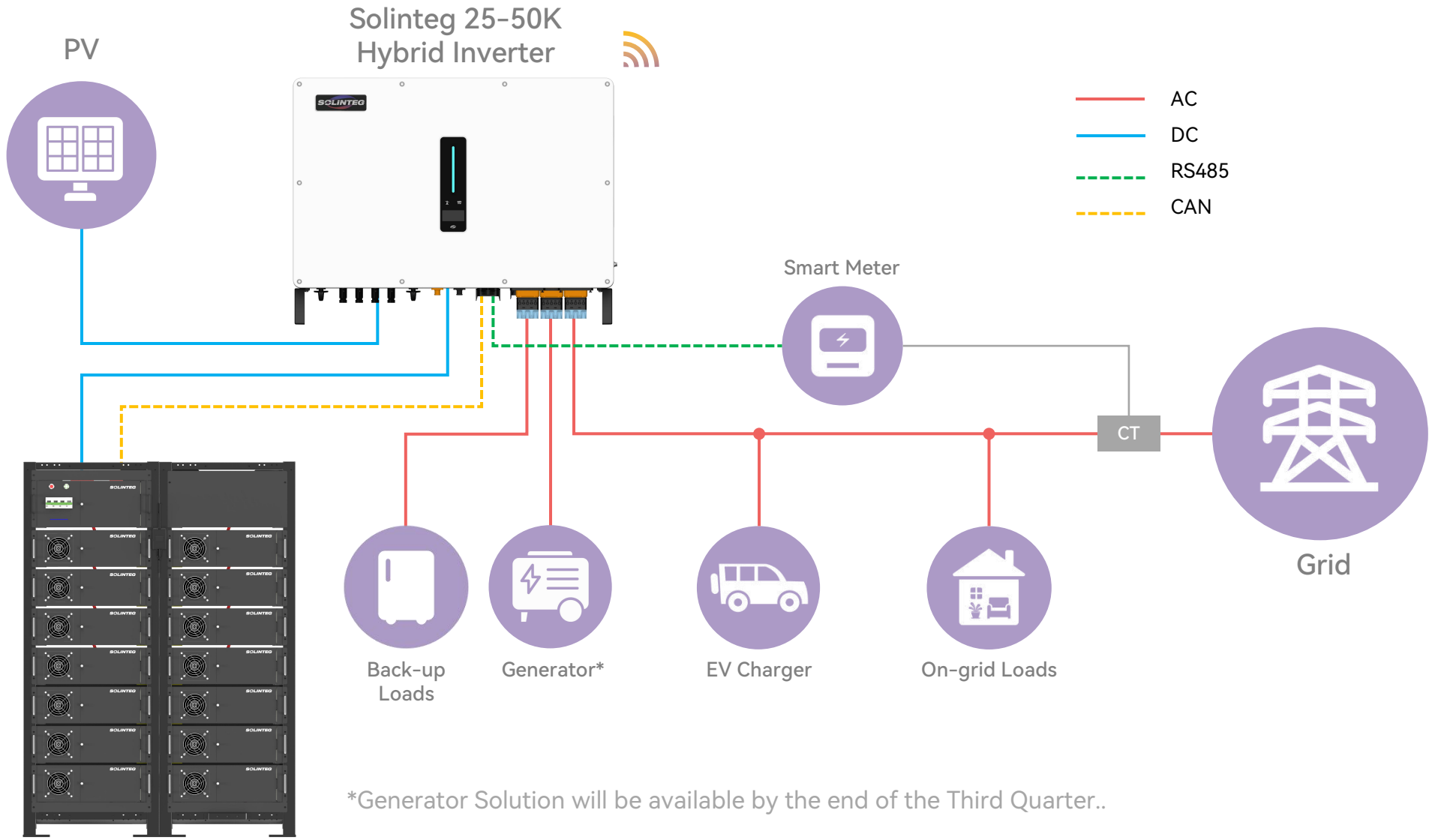


Rack

Rack Module	EBR-R-AT8	EBR-R-A6	EBR-R-A8
Application	6-7pcs Battery Modules	8-11pcs Battery Modules	12-14pcs Battery Modules
Capacity Range	32.22-37.59 kWh	42.96-59.07 kWh	64.44-75.18 kWh
Positioning			
Dimension [W*D*H]	554 * 662 * 1526 mm	1092 * 662 * 1206 mm	1092 * 662 * 1526 mm
Rack Weight	60kg	80kg	108kg

03
Application

Application of Single Cluster

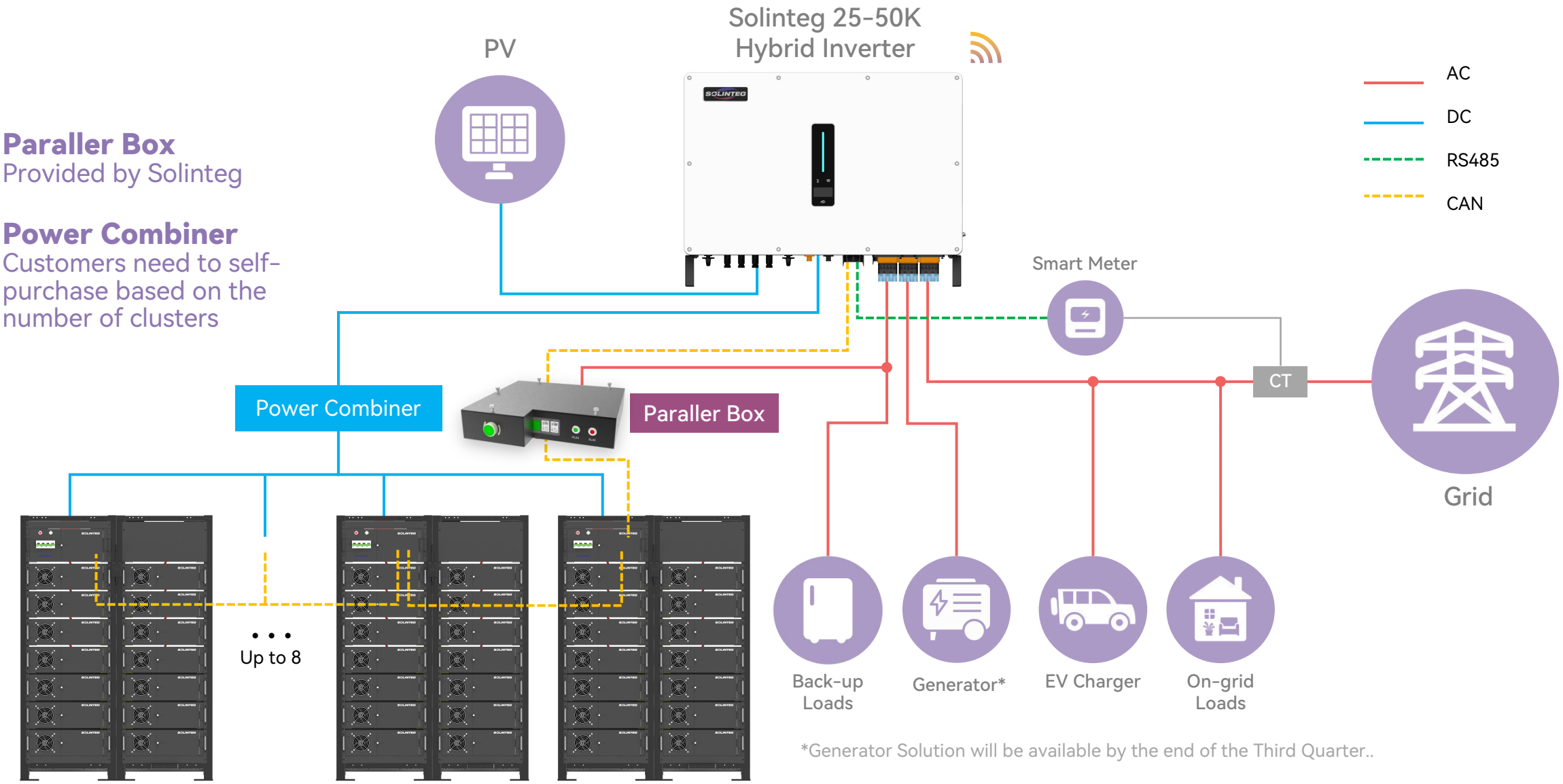


*Generator Solution will be available by the end of the Third Quarter..

Application of Multi-Clusters

Paraller Box
Provided by Solinteg

Power Combiner
Customers need to self-purchase based on the number of clusters



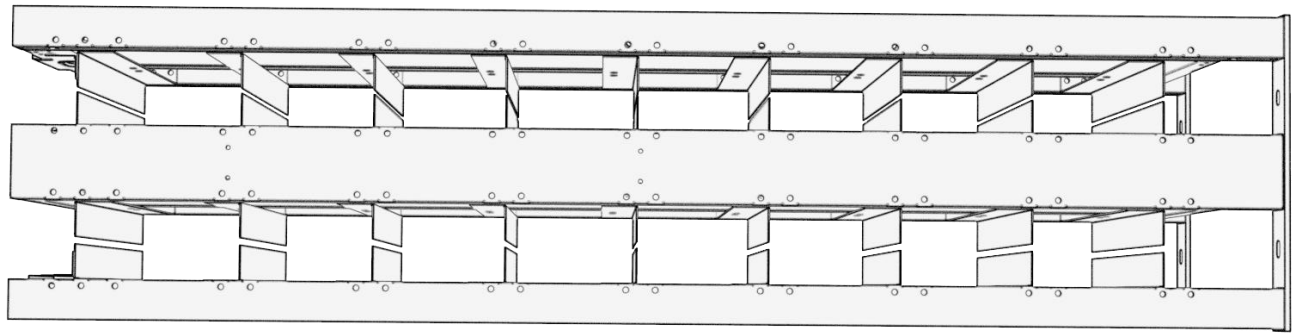
*Generator Solution will be available by the end of the Third Quarter..

04
Installation & Wiring

Rack Installation

Step 1

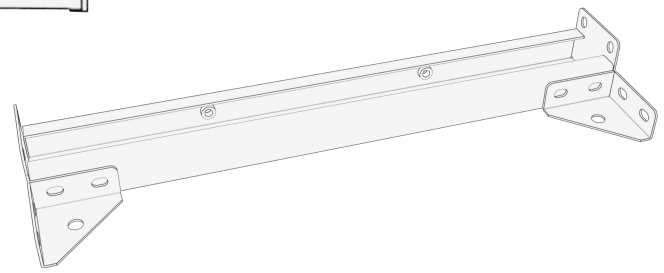
Unpack and check the models and quantities. Different models of rack come with varying numbers of accessories included.



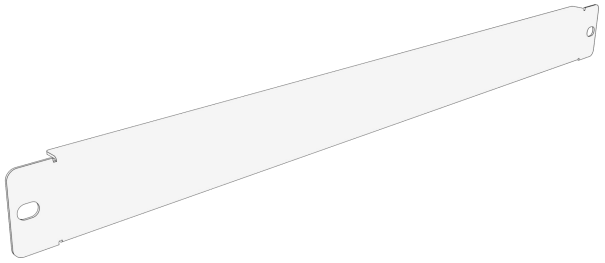
Pillar

Attention:
Demonstrate the installation process using EBR-R-A8 as an example. For the installation process of EBR-R-A6 and EBR-R-AT8, please refer to the actual accessories received and the installation instructions.

Tray



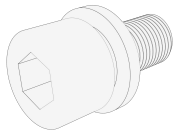
Beam



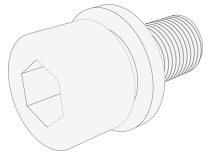
Crosspieces

PE Bar

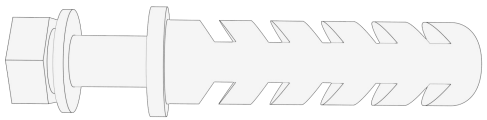
Decorative Cover



M6X12 Screw



M6X15 Screw

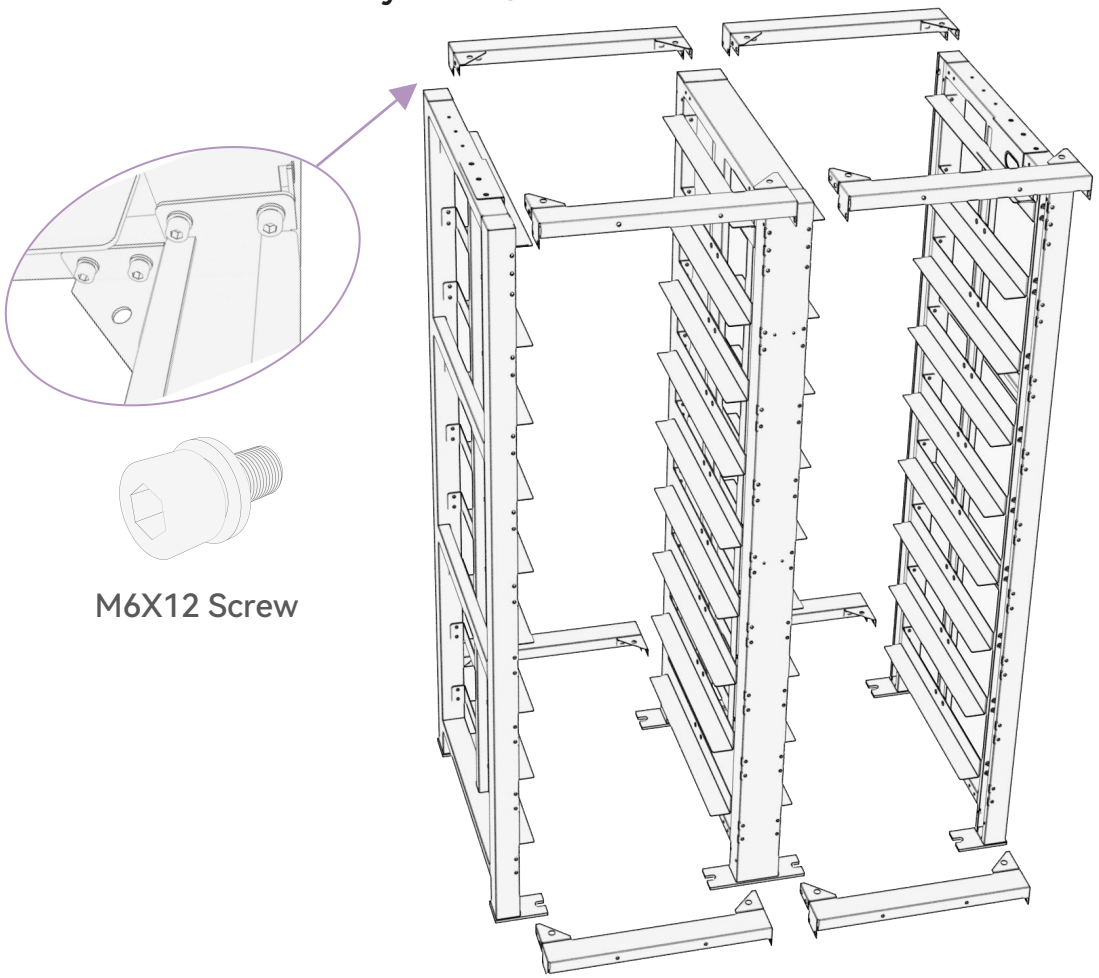


M8X60 Expansion Screw

Rack Installation

Step 2

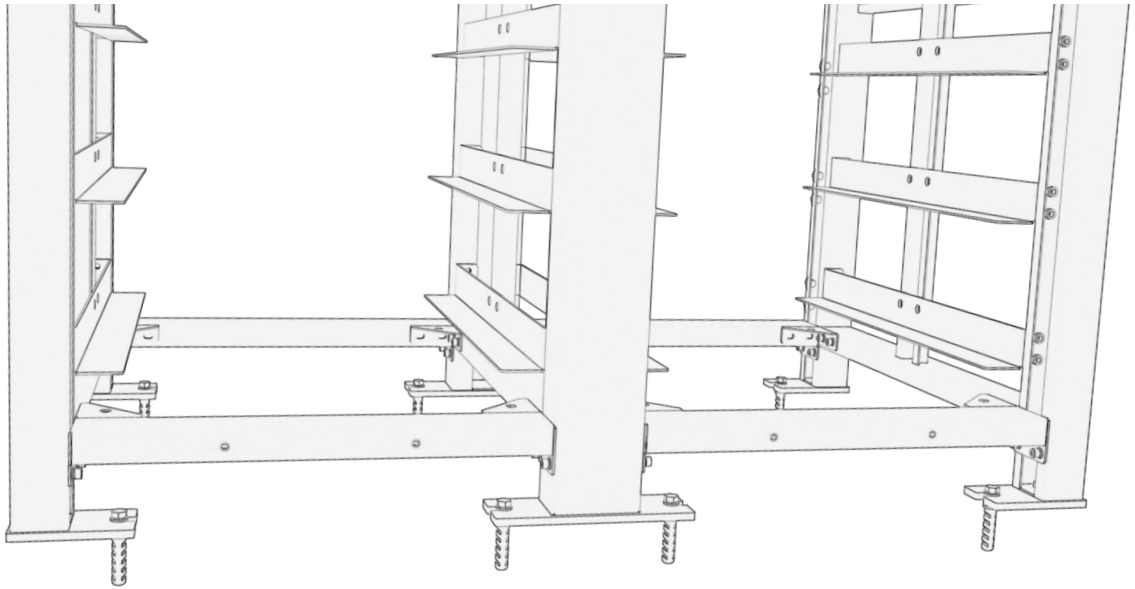
Locate the pillars in determined space and then fix the beams onto the pillars with M6X12 screws respectively. (4pcs screws for each end of every beam).



M6X12 Screw

Step 3

Use electric drill with bit (10mm) to drill holes for each foot at the bottom pillars accordingly. And then tighten the M8X60 expansion screw to fix the pillar onto ground. (1pcs screw for each foot).



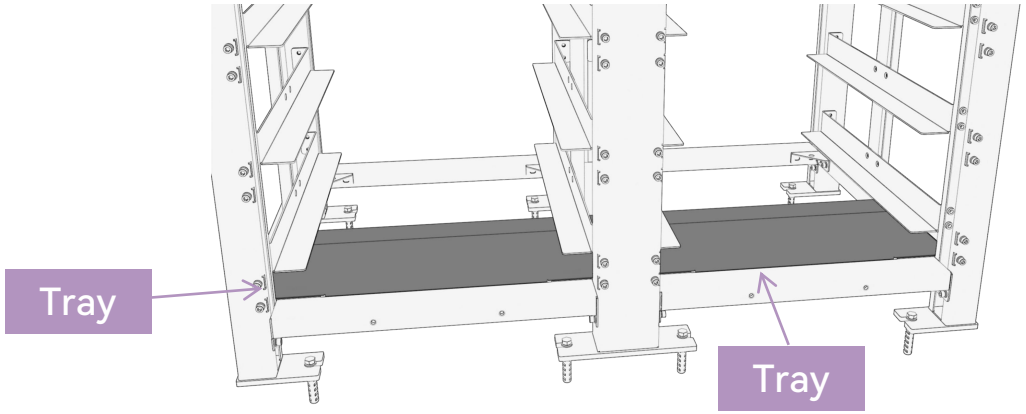
M8X60 Expansion Screw

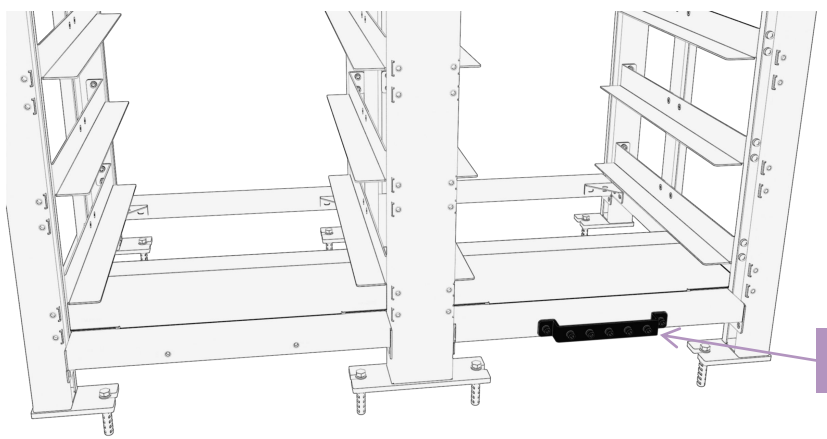
Fix the Pillars onto Ground

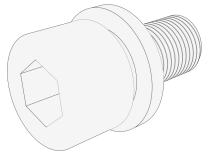
Rack Installation

Step 4

Place the tray in the position shown and using the M6X15 screws to install the PE bar on the bottom beam. (2pcs screws for fixation and 5pcs for grounding cable connection).

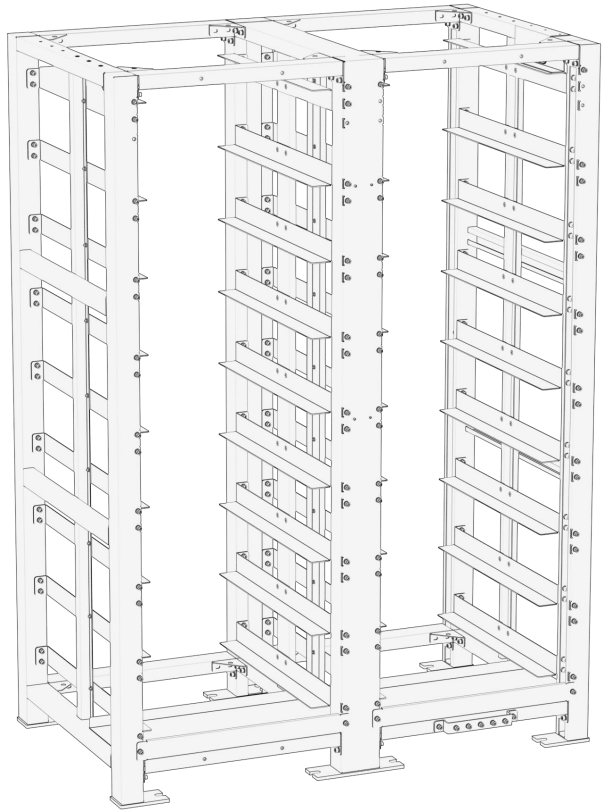






M6X15 Screw

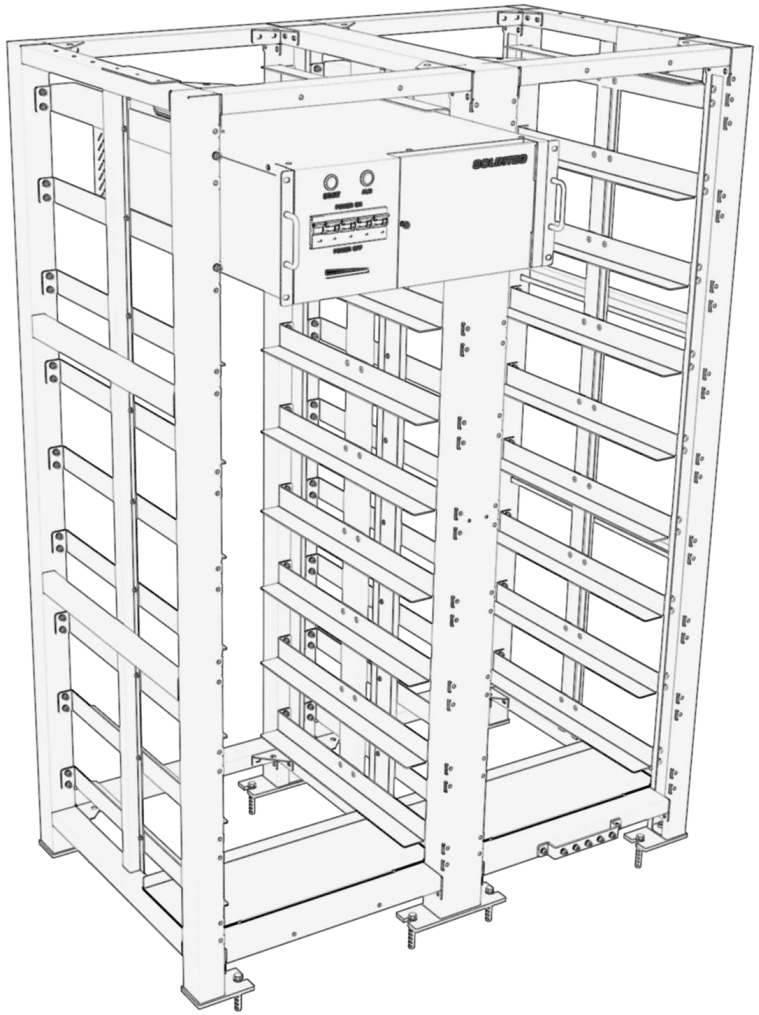
Finished Look

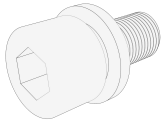


Controller&Battery Installation

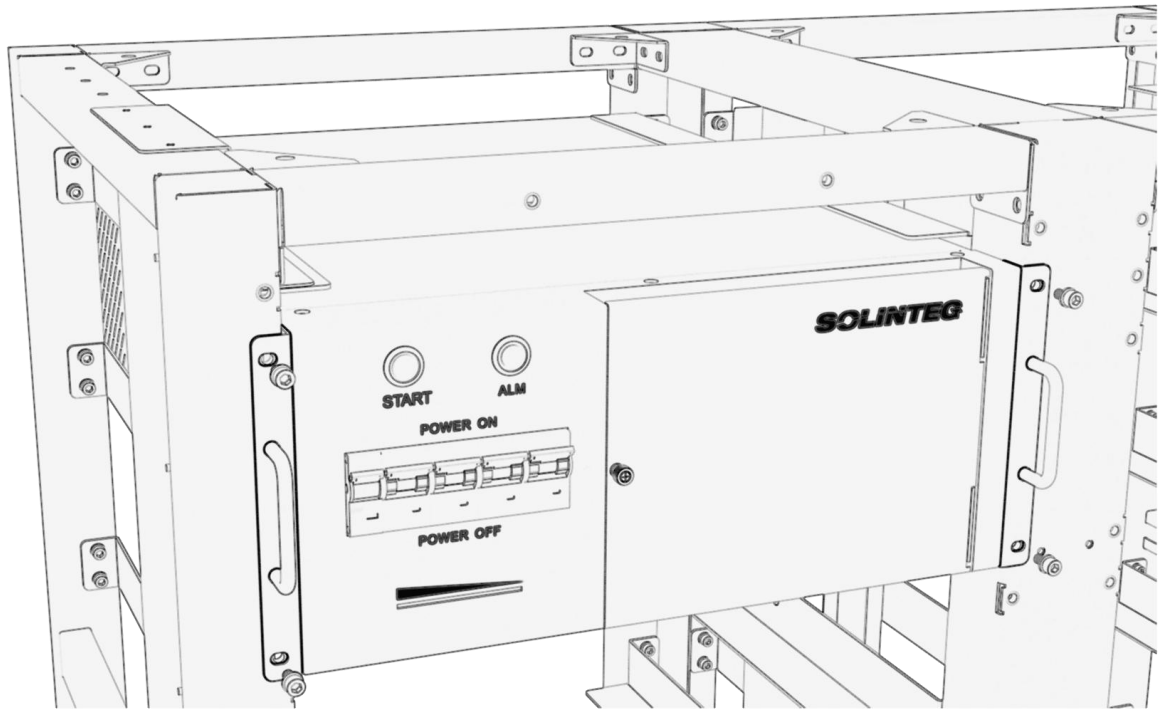
Step 1

Place the controller in the top layer (left or right of EBR-R-A6 and EBR-R-A8 based on actual need) of the rack horizontally.
And then fix the controller to rack with M6X12 screws (4pcs).





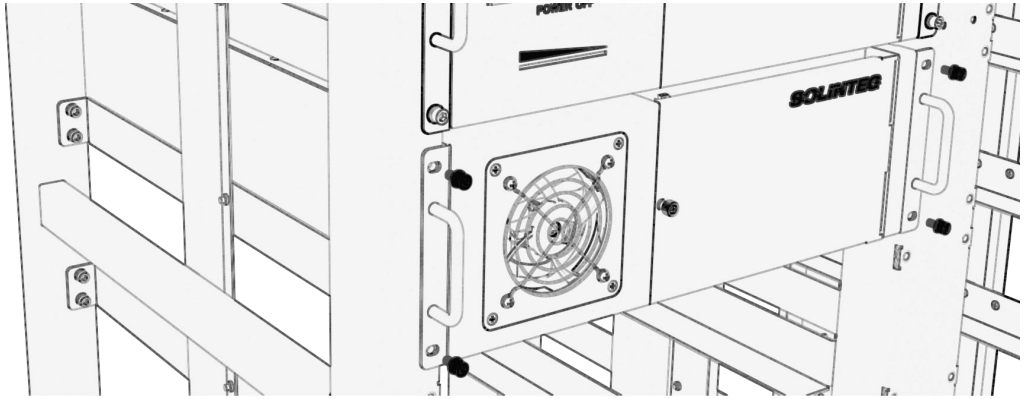
M6X12 Screw

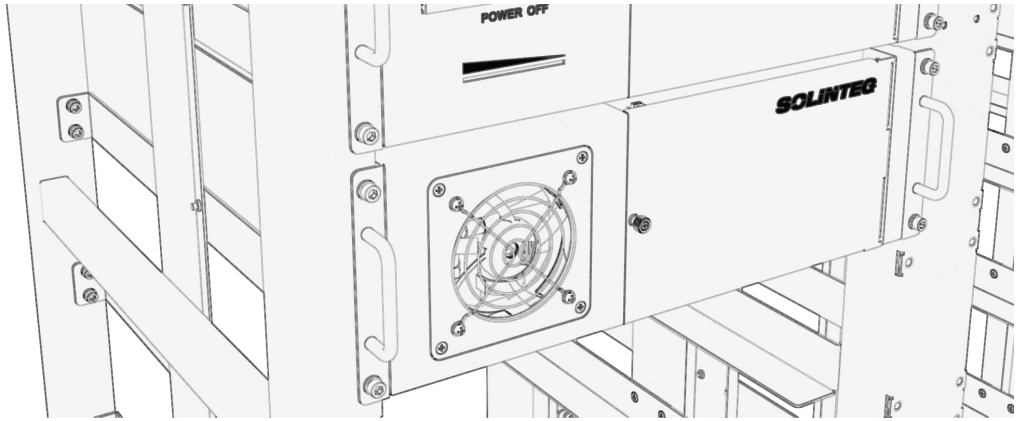


Controller&Battery Installation

Step 2

Place the batteries from the 2nd layer from the top in the same column of controller and then another column. Fix the batteries with M6X12 screws (4pcs for each battery).





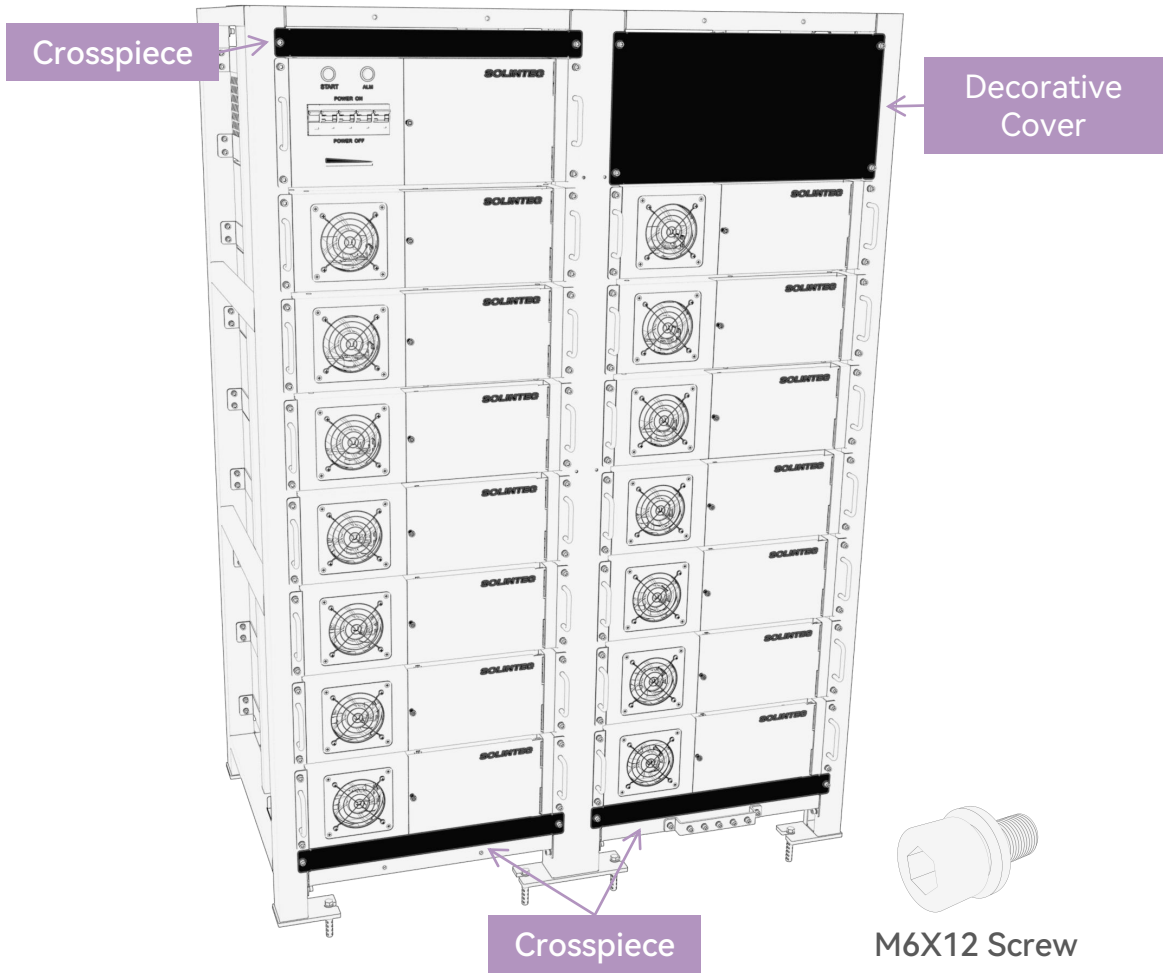
Step 3

Place the battery modules in sequence.

Controller&Battery Installation

Step 4

Fix the Crosspieces (2pcs screws each) and Decorative Cover (4pcs screws) with M6X12 screws.

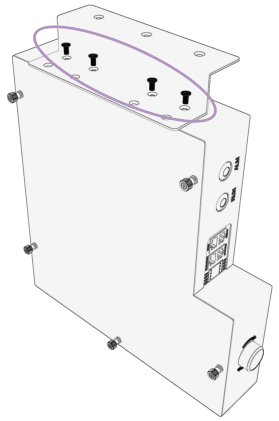


Finished Look

Paraller Box Installation
- For Multi-Clusters

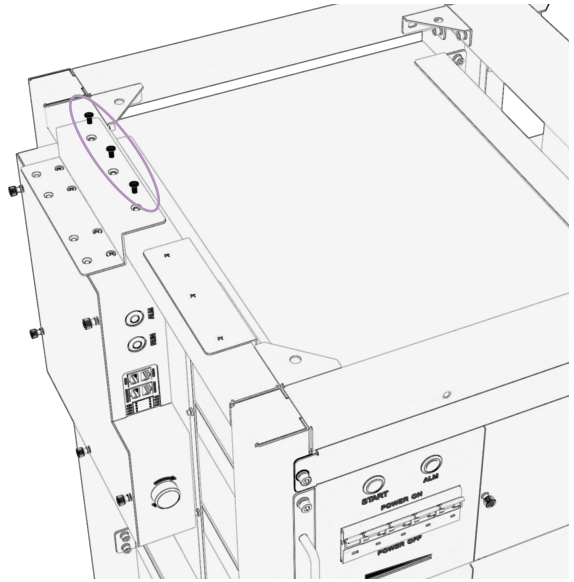
Step 1

Fix the Cross Rail onto the Paraller Box with M6X12 screws (4pcs).



Step 2

Install the Paraller Box onto the Rack with M6X12 screws (3pcs). The Paraller box could be installed either left side or right side of the Rack.



Finished Look

Wiring of Single Cluster System

Notices:

- Power cable connections must be processed in strict accordance with the instructions in this manual and local rules. Incorrect power connections can damage the battery and cause injuries or serious danger and damages.
- Unless official authorization and confirmation, batteries in one cluster shall have the same characters, such as SOC, batch, storage time, etc.
- Screws, cables and connections must be installed with due diligence and the tightening torque must be 14Nm. Each terminal should be inspected, and its torque checked every three months.
- **5pcs** is the minimum quantity of one battery system for low DOD application. And **6pcs** Battery Modules would be preferred for a normal battery system.
- The storage system must be restarted after changing ADDR.

Wiring of Single Cluster System

Inverter to Controller

Step 1

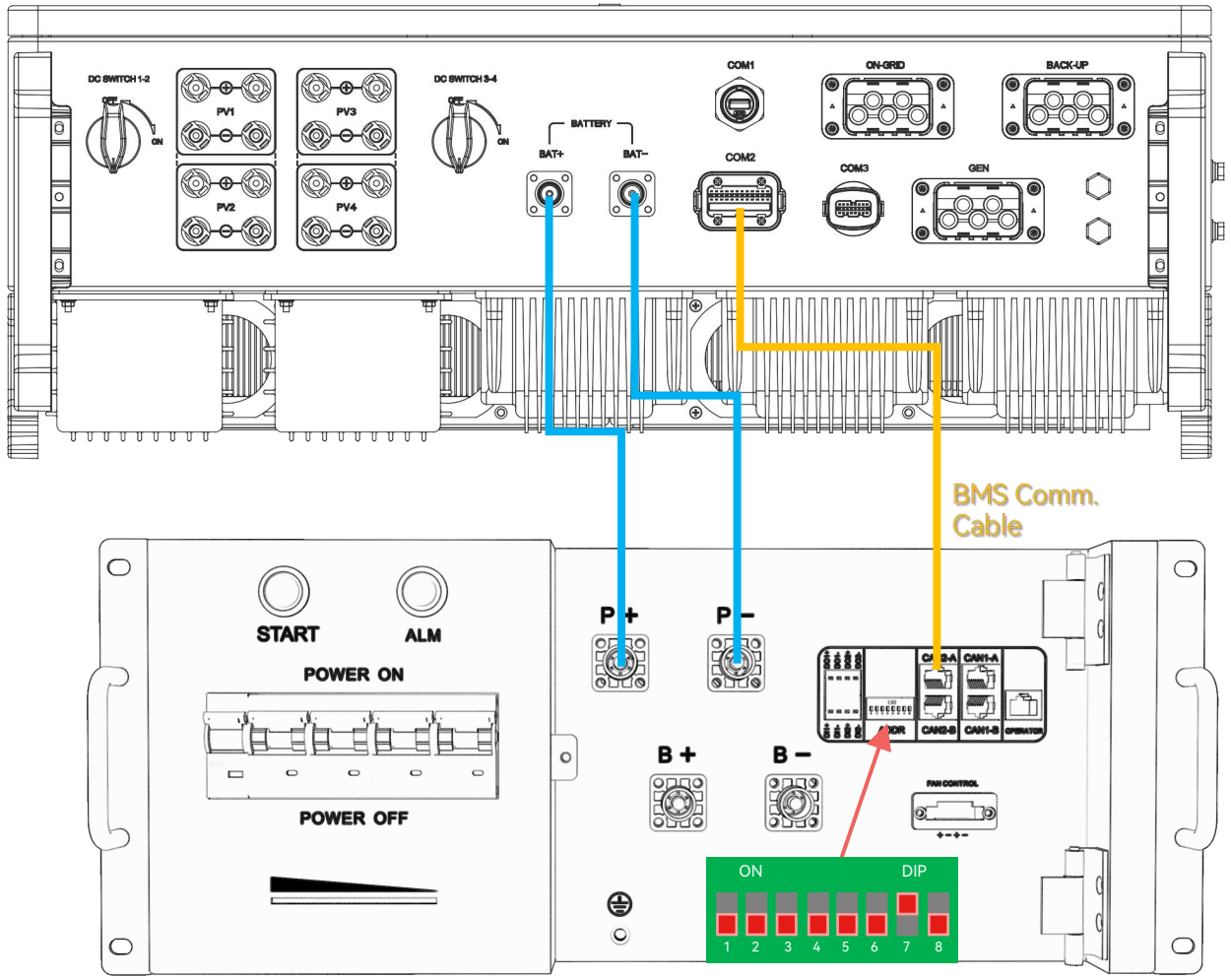
Connect BAT+ to P+ and BAT- to P- terminals between battery input terminal of Solinteg inverter and Controller. (Make sure there is suitable breaker between inverter and battery system.)

Step 2

Connect CAN-2A of Controller to BMS port (COM2) of inverter. (BMS Comm. Cable, accessory of inverter).

Step 3

Set DIP 7 of ADDR as “ON” and others as “OFF”.



DIP 7 of ADDR must be set as “ON” and others as “OFF” before turn-on the cluster

Wiring of Single Cluster System

Controller to First Battery Module

Step 1

Connect B+ terminal of Controller to B+ terminal of the 1st Battery Module. (B+ cable)

Step 2

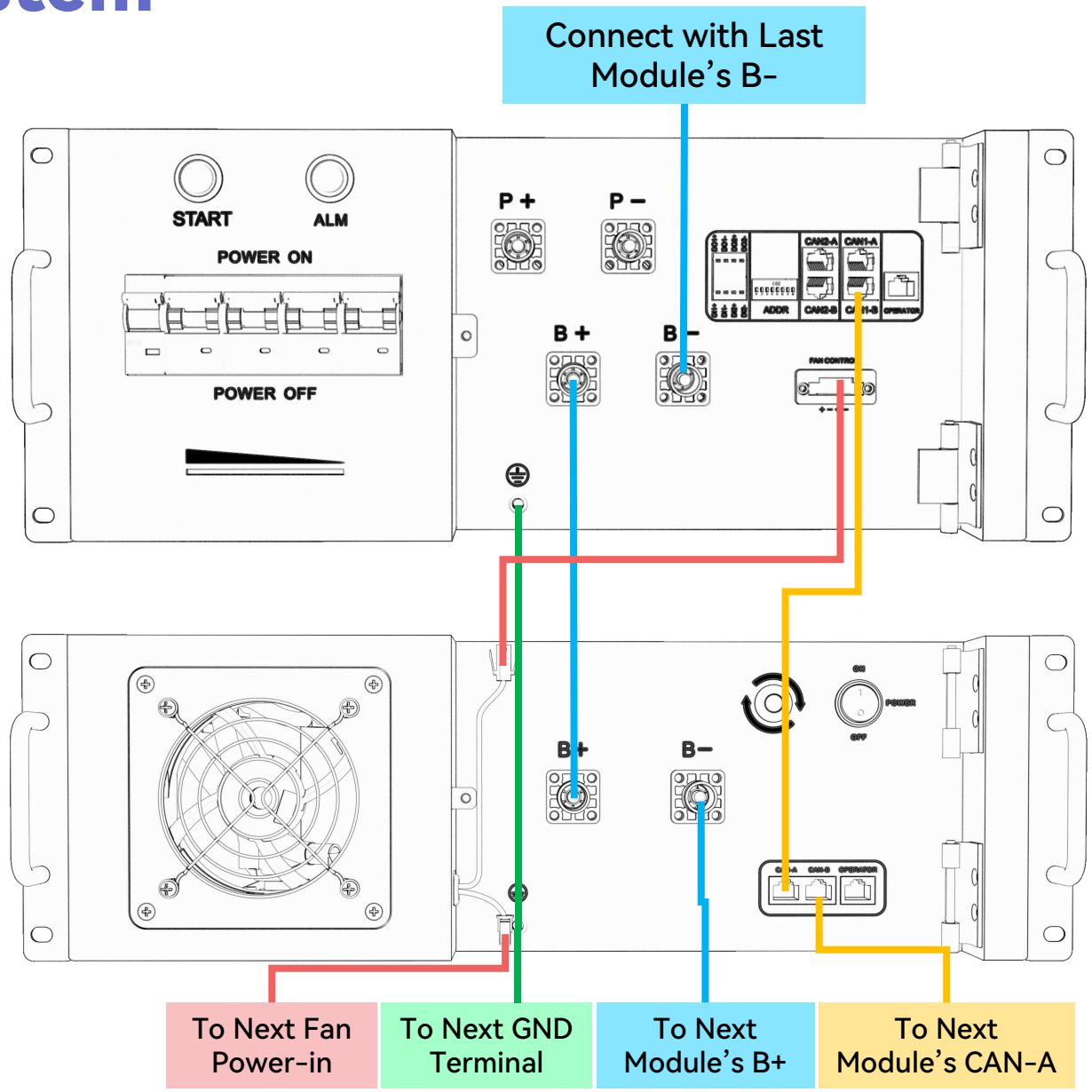
Connect CAN-1B of Controller to CAN-A of the first Battery Module. (CON Comm. Cable).

Step 3

Connect the GND terminals of modules and Controller. (CON PE Cable, PE Cable, EXT PE Cable and BAT PE Cable).

Step 4

Connect 24V Port of Controller to Fan Power-in socket of Battery Modules adjacent to Controller. (Fan Control Cable).



Wiring of Single Cluster System

Battery Module to Module

Step 1

Connect B- terminal of Battery Module to B+ terminal of next Battery Module until the last one. (HV Series Cable).

Step 2

Connect the last Battery Module's B- terminal to of the Controller's B- terminal. (B- Cable).

Step 3

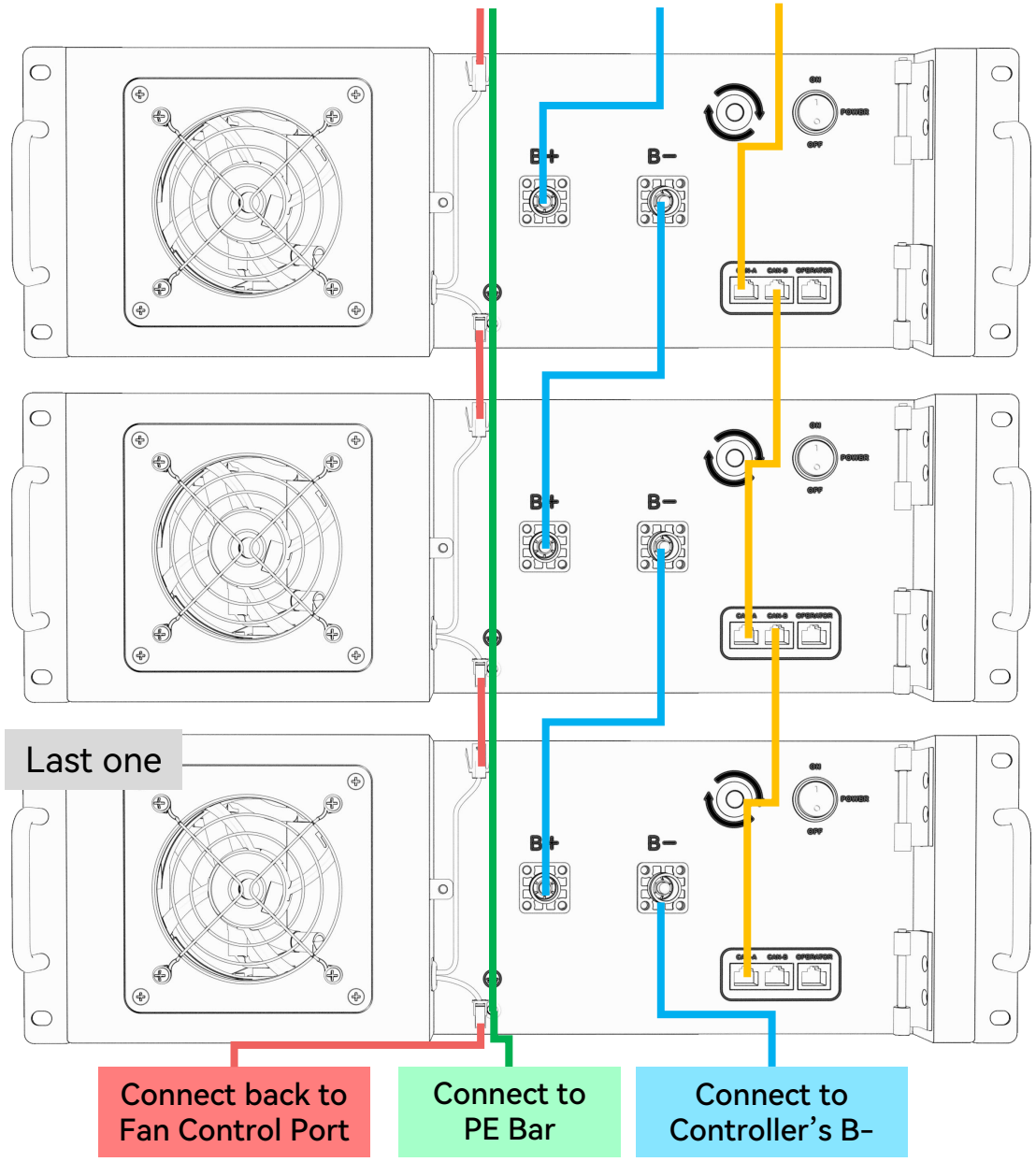
Proceed with CAN series connection between all the Battery Modules: from CAN-B of one module to CAN-A of the next one. (BAT Comm. Cable).

Step 4

Connect the GND terminals of modules, and connect the last GND terminal with PE bar. (CON PE Cable, PE Cable, EXT PE Cable and BAT PE Cable).

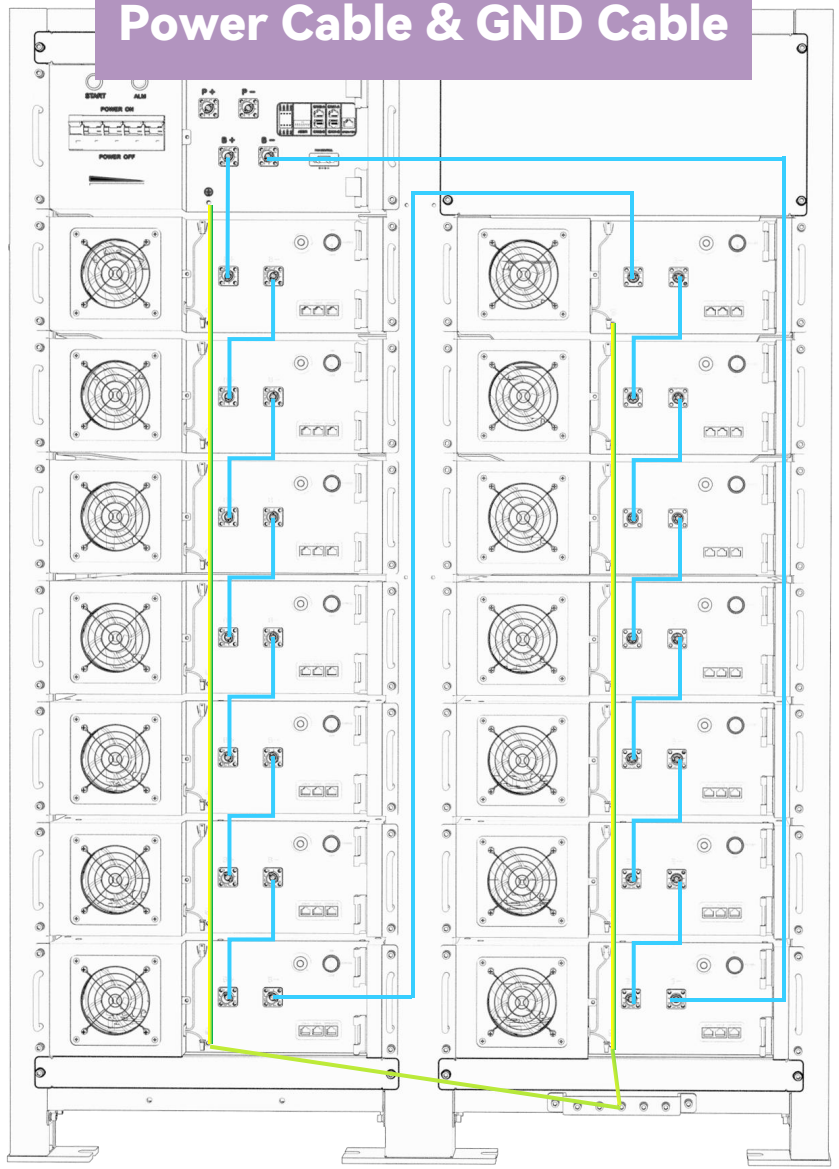
Step 5

Connect Fan Power-out of Battery Module to Fan Power-in of next Battery Module.



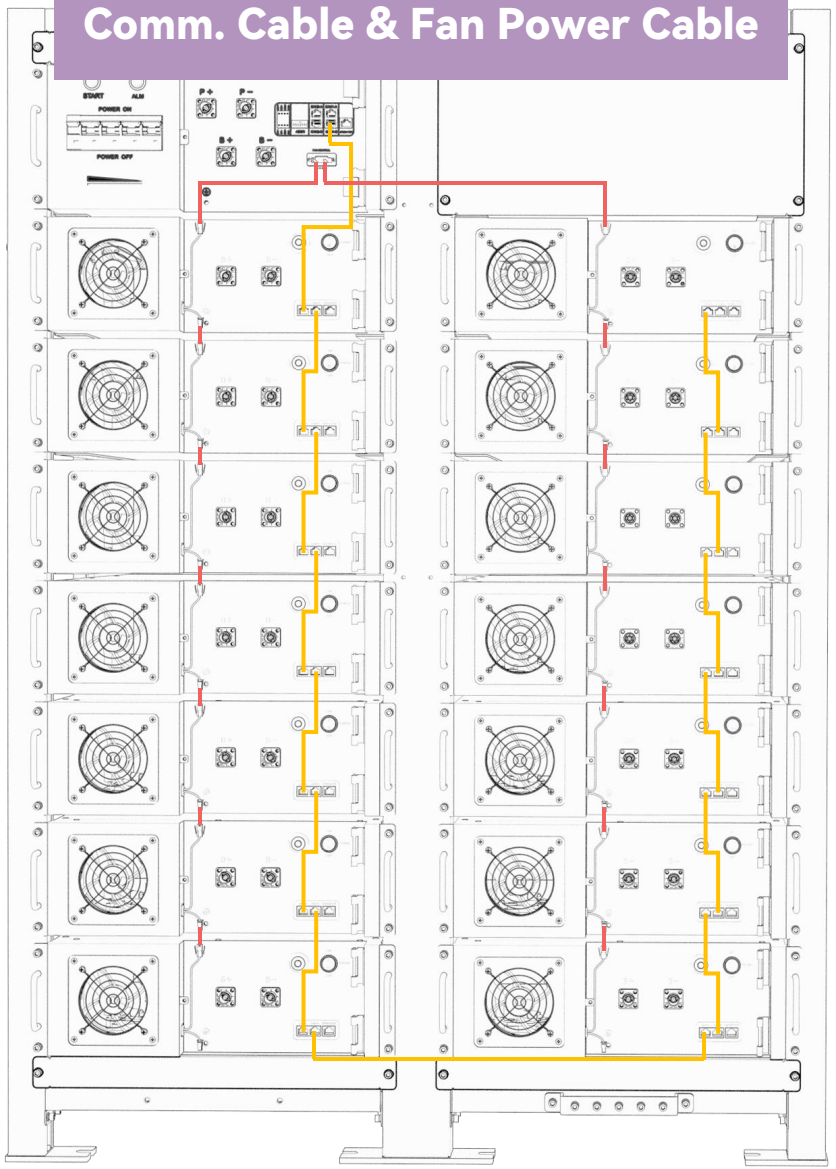
Wiring of Single Cluster System

Power Cable & GND Cable



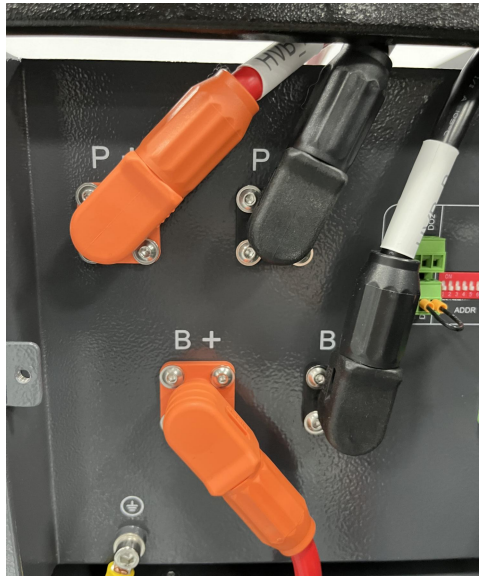
Wiring Overview Diagram

Comm. Cable & Fan Power Cable



Wiring of Single Cluster System

Actual Wiring Diagram

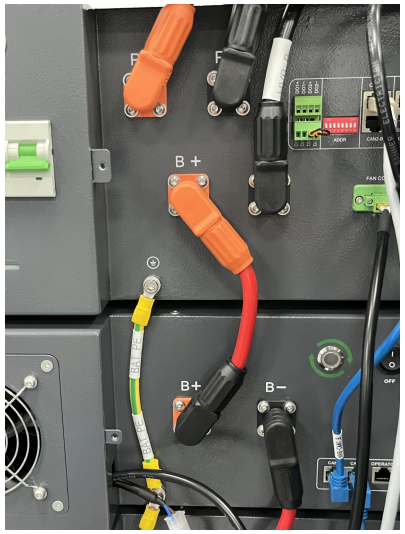


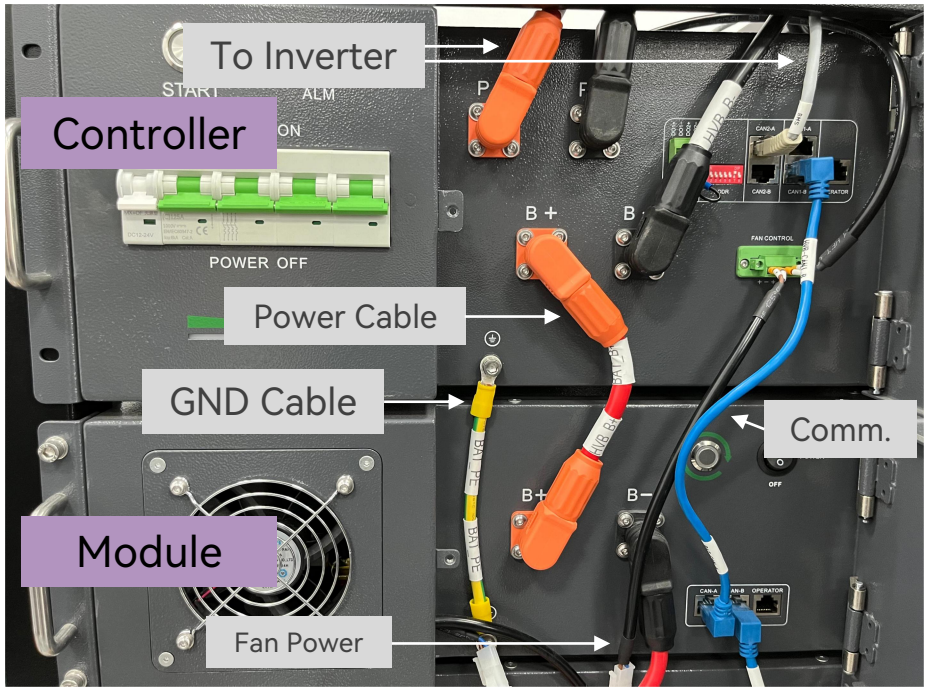
Start Button

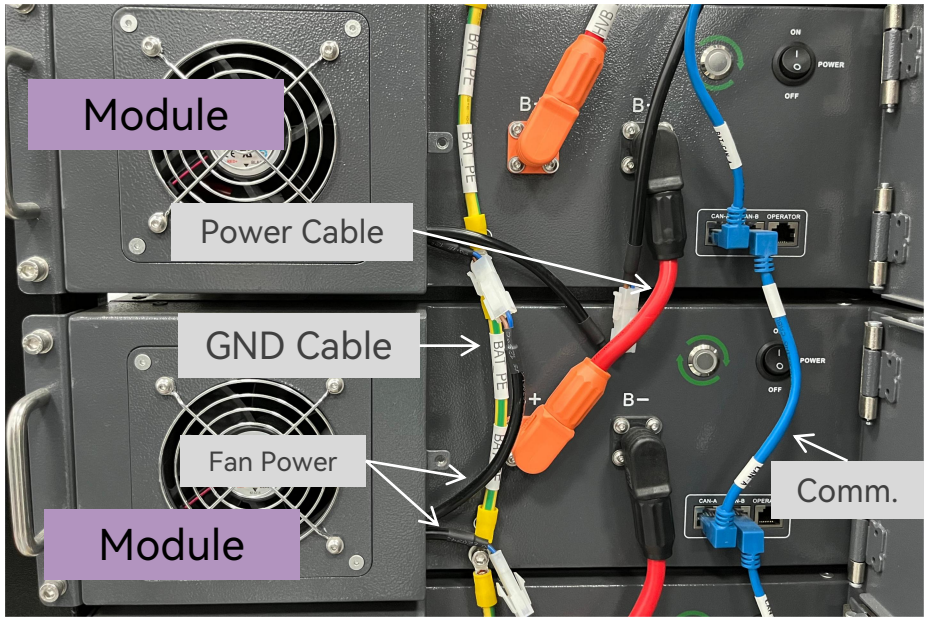
Breaker

Status Bar

Fan







Wiring of Multi-Clusters System

Notices:

- Paraller must be used for management of clusters in a battery system with multi-clusters (max. 8 clusters).
- Quantities of Battery Module in each cluster must be the same.
- Model of Battery Module involved in the same paralleled system must be the same, unless specified.
- Cable for parallel connection of each cluster must be the same (length, cross-section, materials, etc.).
- Address (1st to 4th bit) of each controller must be set accordingly. (As the bottom table shows)
- Resistance(DIP7) of the last controller must be set as “ON” and “OFF” for the rest clusters.

Controller No.	DIP1	DIP2	DIP3	DIP4	DIP5	DIP6	DIP7	DIP8
	Address bit, ON for 1 and OFF for 0				Reserved		Terminal Resistance	Reserved
0	OFF	OFF	OFF	OFF	/	/	ON for Enable OFF for Disable	/
1	ON	OFF	OFF	OFF	/	/		/
2	OFF	ON	OFF	OFF	/	/		/
3	ON	ON	OFF	OFF	/	/		/
4	OFF	OFF	ON	OFF	/	/		/
5	ON	OFF	ON	OFF	/	/		/
6	OFF	ON	ON	OFF	/	/		/
7	ON	ON	ON	OFF	/	/		/

Wiring of Multi-Clusters System

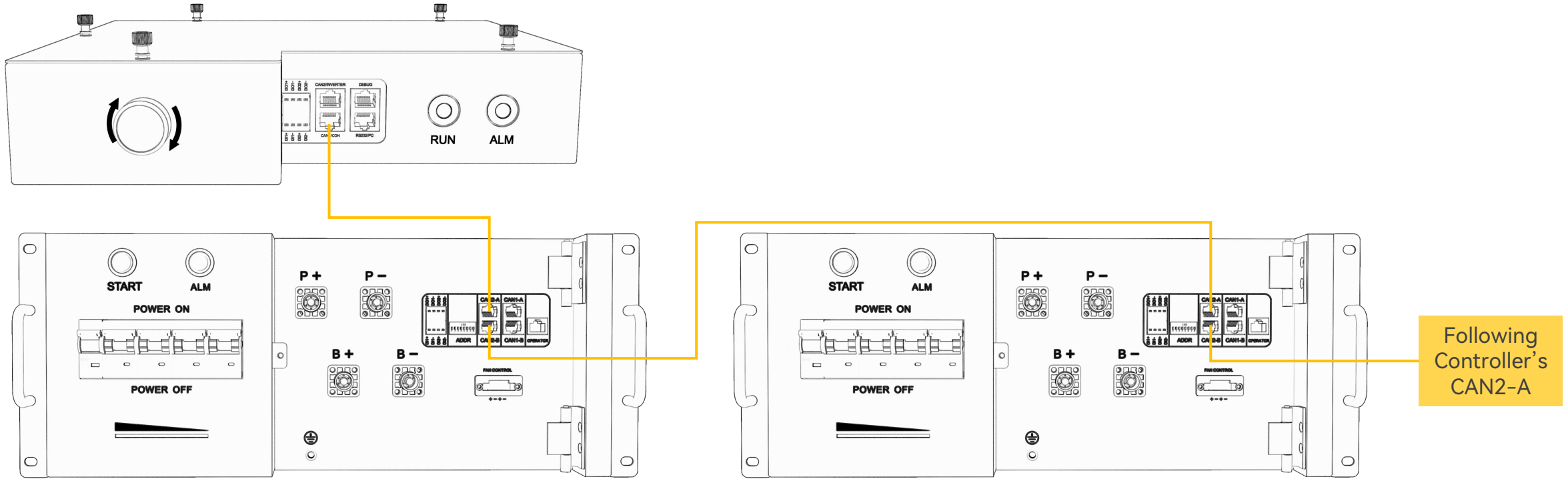
Paraller Box to Controllers

Step 1

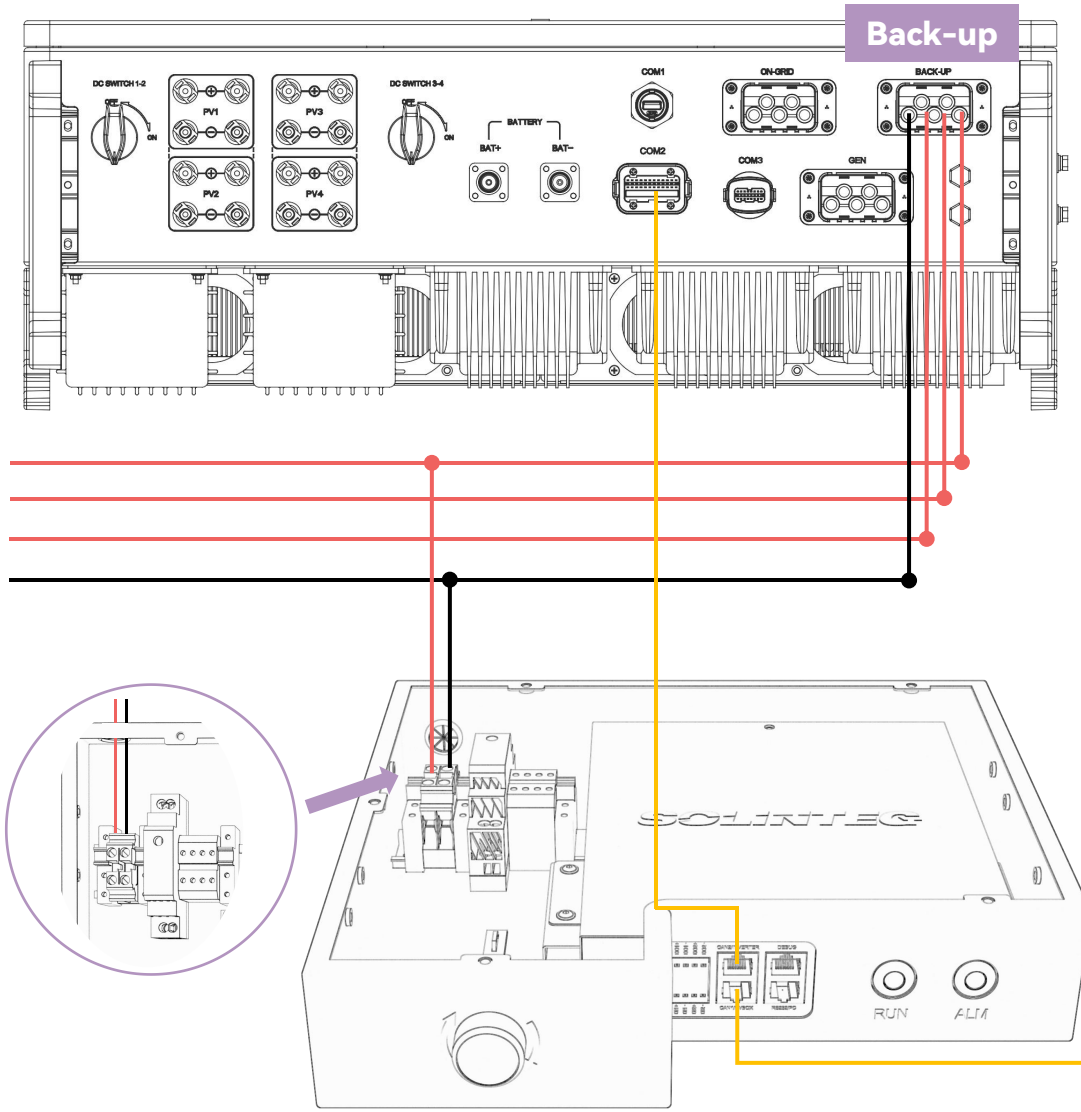
Connect CAN-2A of Controller to CAN1/CON. of Paraller. (Parallel Comm. Cable).

Step 2

Proceed with CAN series connection between all the Controllers: from CAN-2B of one Controller to CAN-2A of the next one. (Parallel Comm. Cable).



Wiring of Multi-Clusters System



Inverter to Paraller Box

Step 3

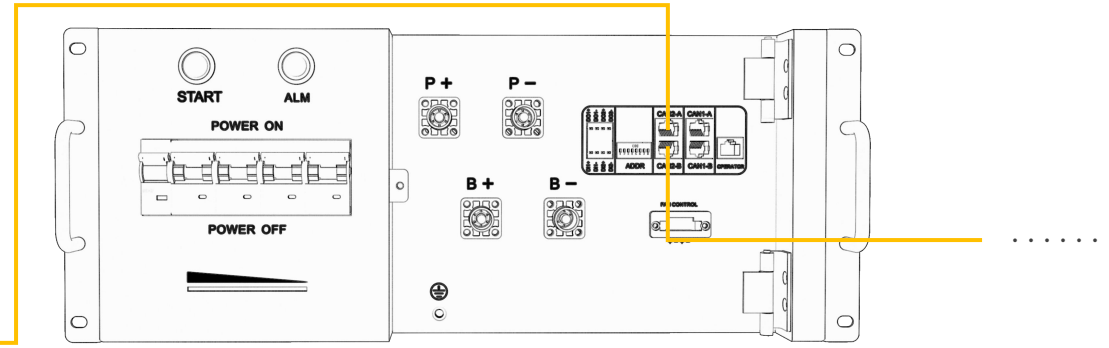
Thread the L and N cables through back-up side into the AC hole, insert into the input port of the Paraller Box and tighten the screws respectively.

Step 4

Connect the CAN2/INVERTER of Paraller to BMS port (COM2) of inverter. (BMS Comm. Cable, accessor of inverer).

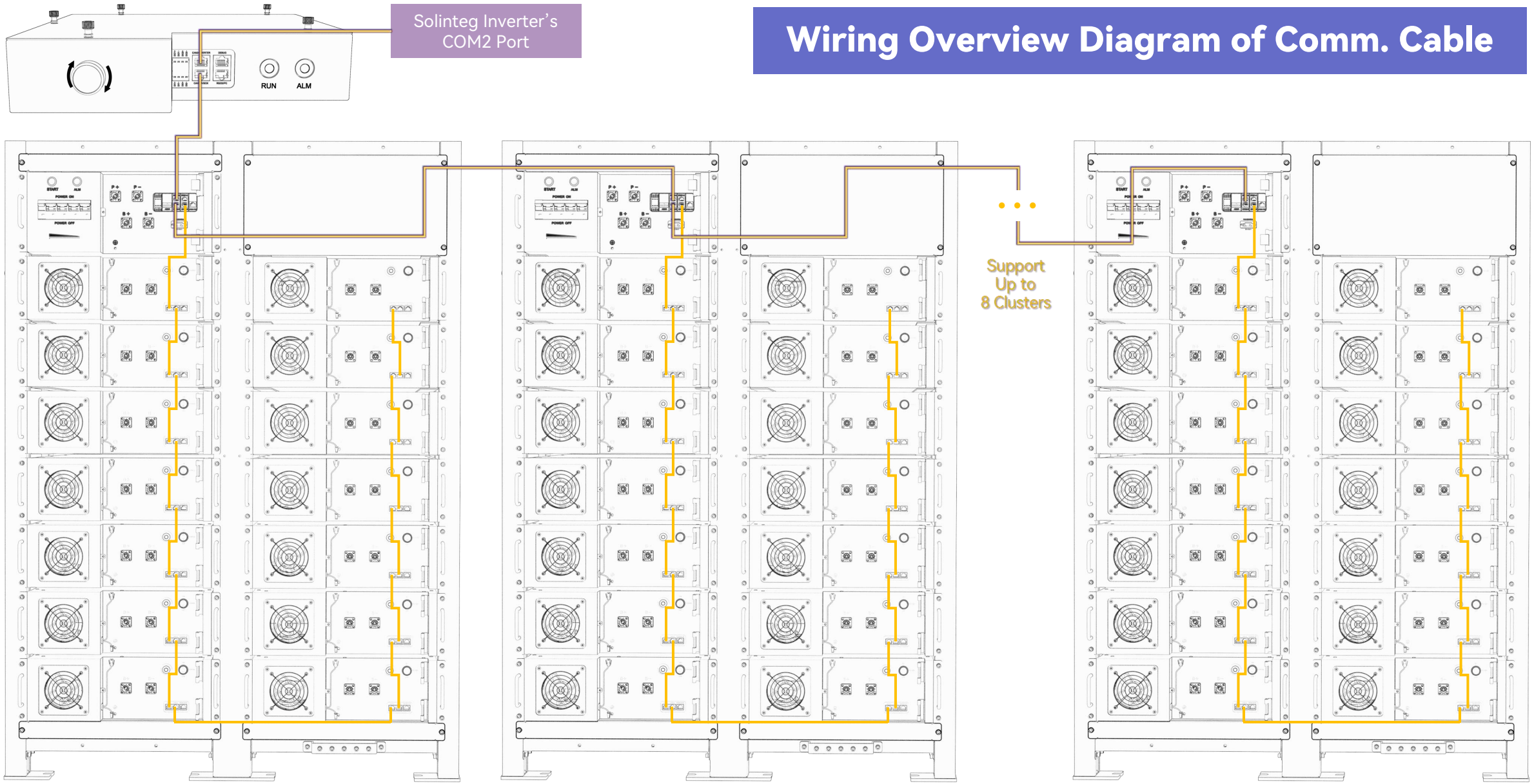
Step 5

Connect the other cables according to the wiring method of a single rack.



Wiring of Multi-Clusters System

Wiring Overview Diagram of Comm. Cable



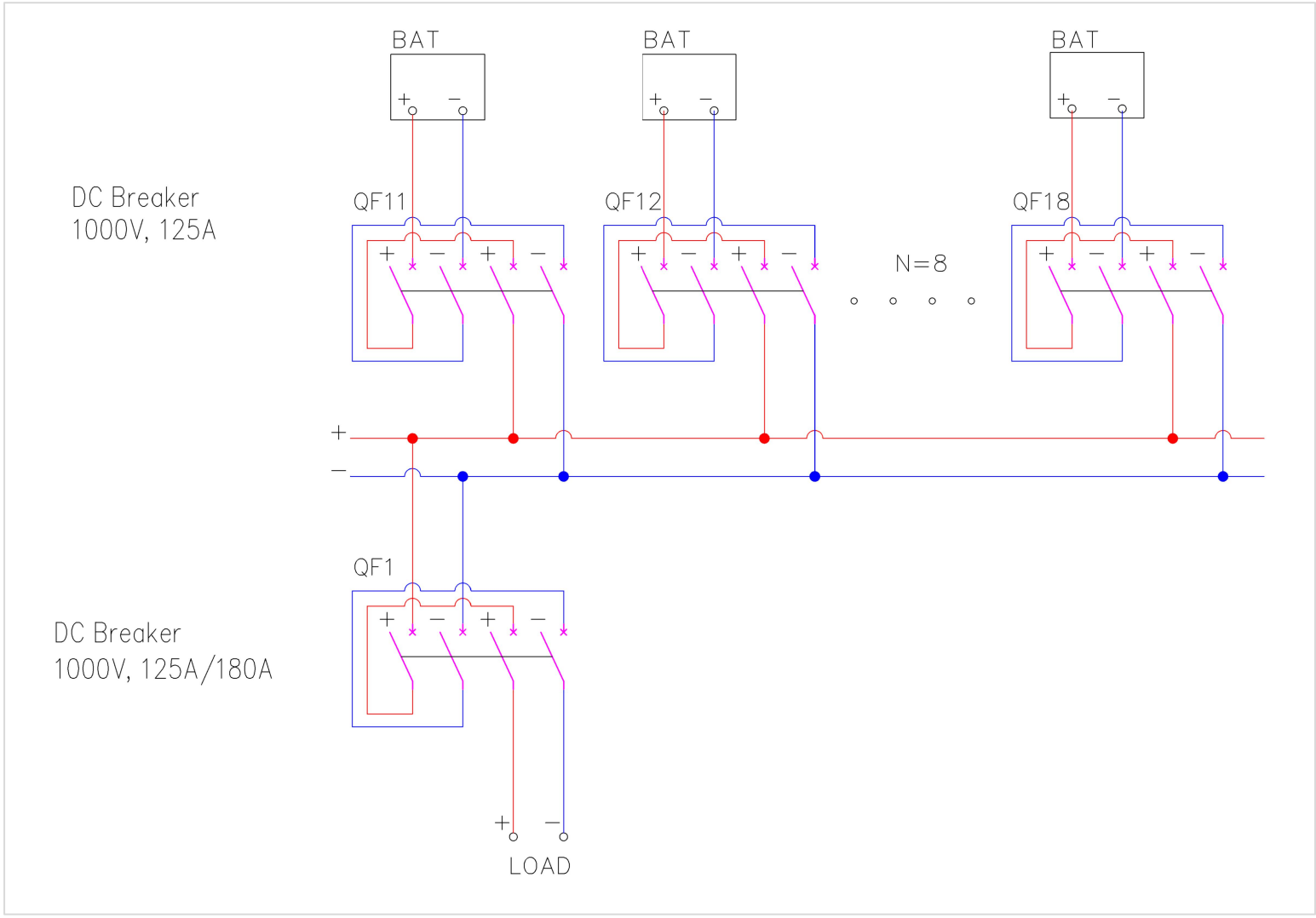
Wiring of Multi-Clusters System

Battery Power Combiner

Currently, Solinteg **does not** provide Power Combiner equipment, and it **needs to be self-purchased** when installation.
The Power Combiner with the corresponding number of inputs should be purchased based on the number of battery clusters to be connected in parallel.

The mainstream structure of the Power Combiner and the wiring are shown below:

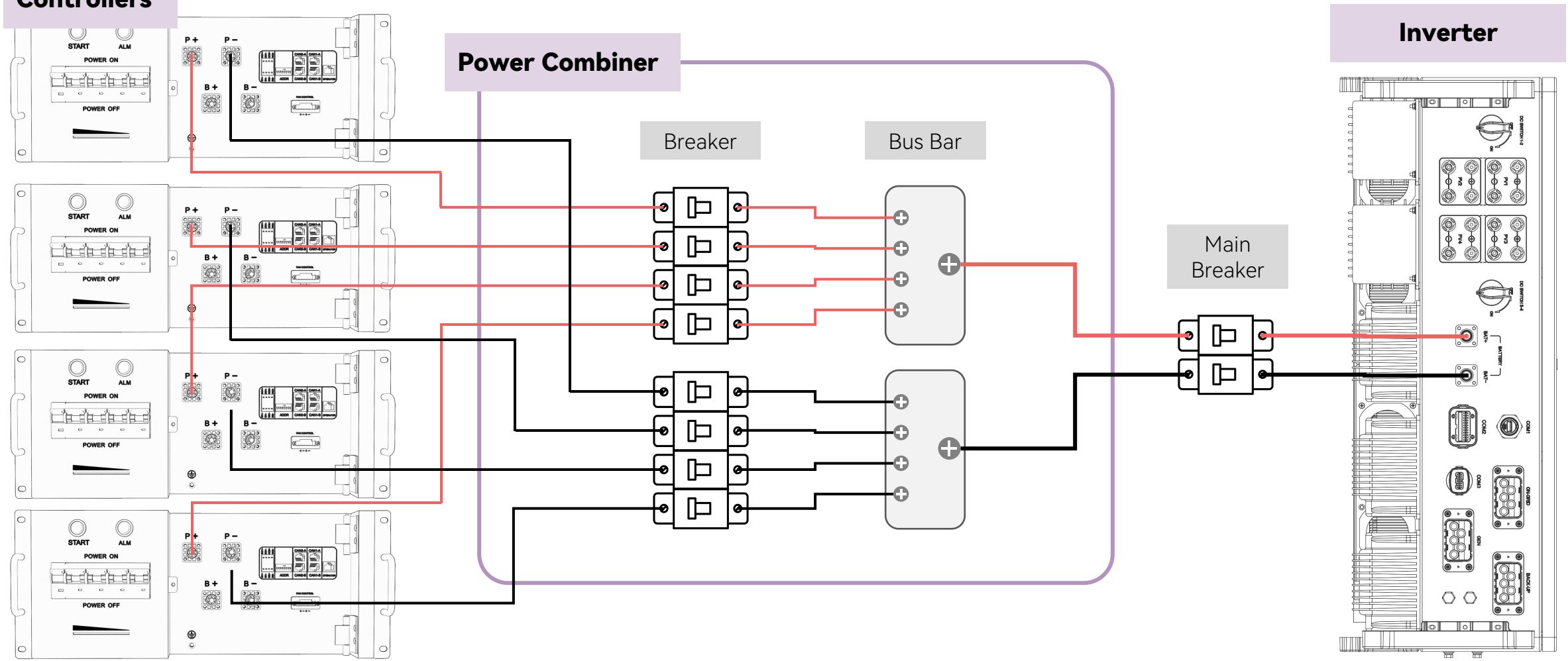
Selection reference drawing



Wiring of Multi-Clusters System

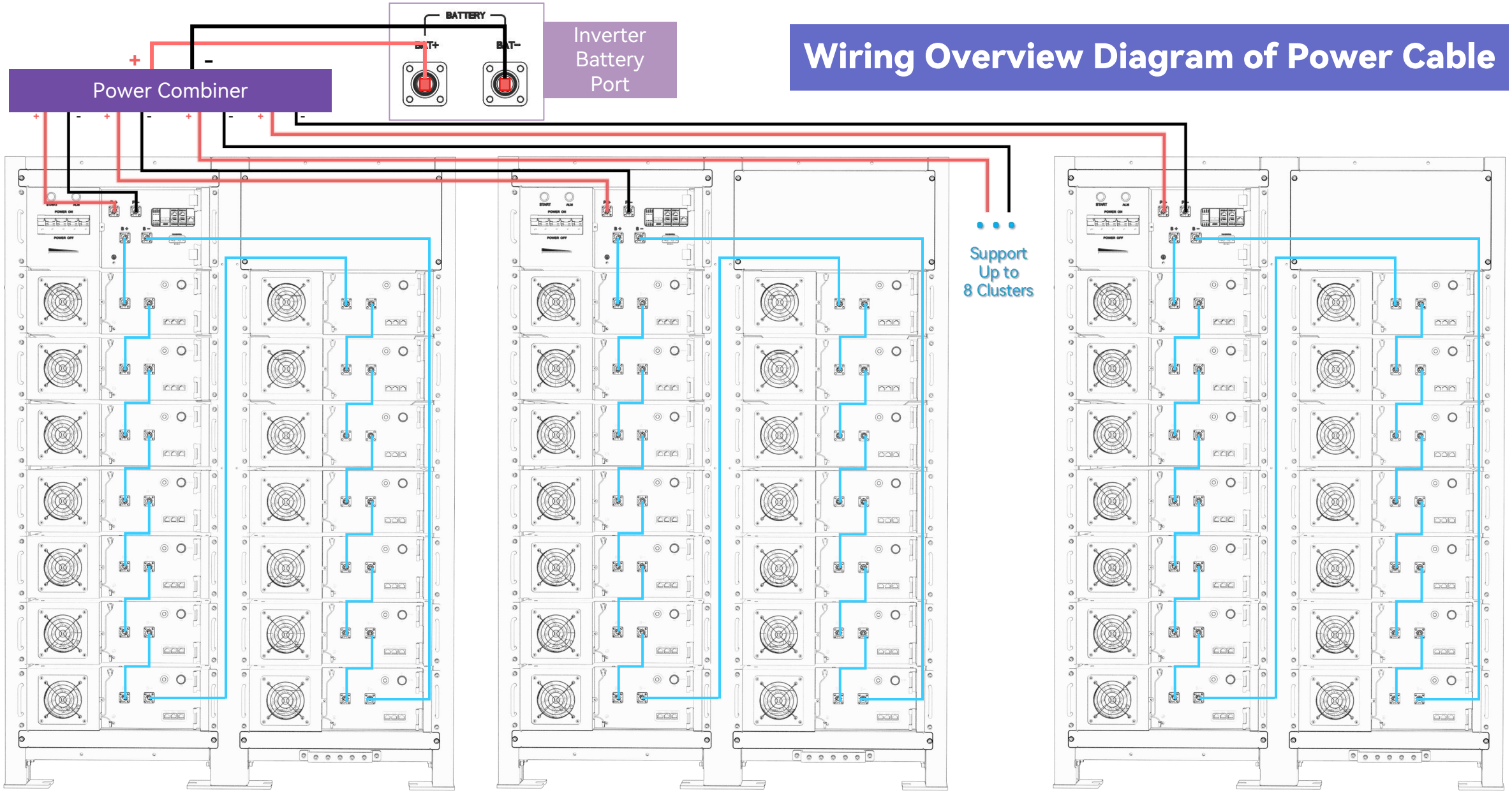
Wiring Example

*This example shows the parallel connection of 4 clusters.



Wiring of Multi-Clusters System

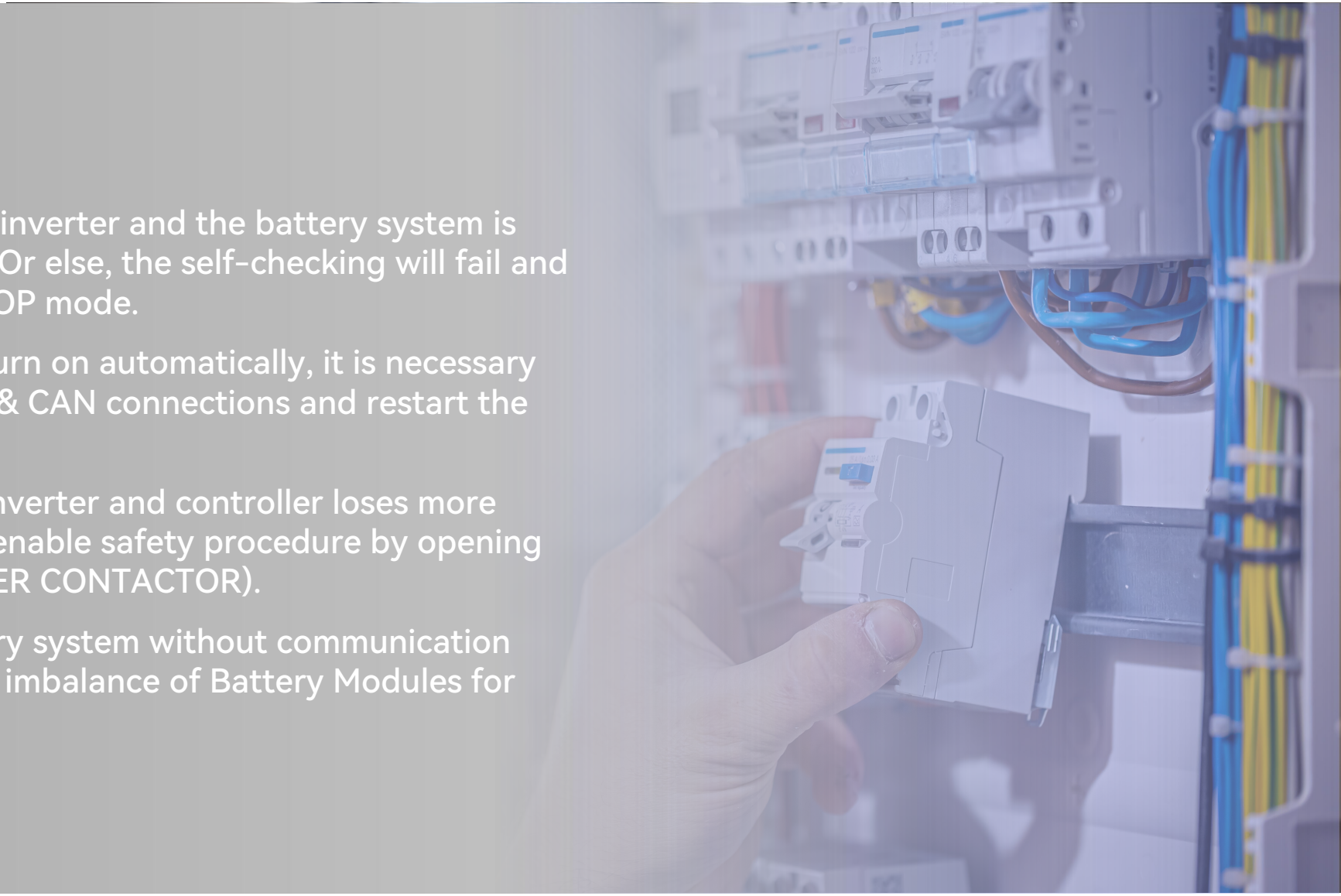
Wiring Overview Diagram of Power Cable



Start-Up

Notices:

- Make sure the breaker between inverter and the battery system is OFF during start-up procedure. Or else, the self-checking will fail and the battery system would be STOP mode.
- If one or more modules do not turn on automatically, it is necessary to check all the Communication & CAN connections and restart the START-UP procedure.
- If communication between the inverter and controller loses more than 60 seconds, controller will enable safety procedure by opening the internal power circuit (POWER CONTACTOR).
- Do not leave the powered battery system without communication with inverter, which may lead to imbalance of Battery Modules for self-discharging.



Start-Up

Step 1

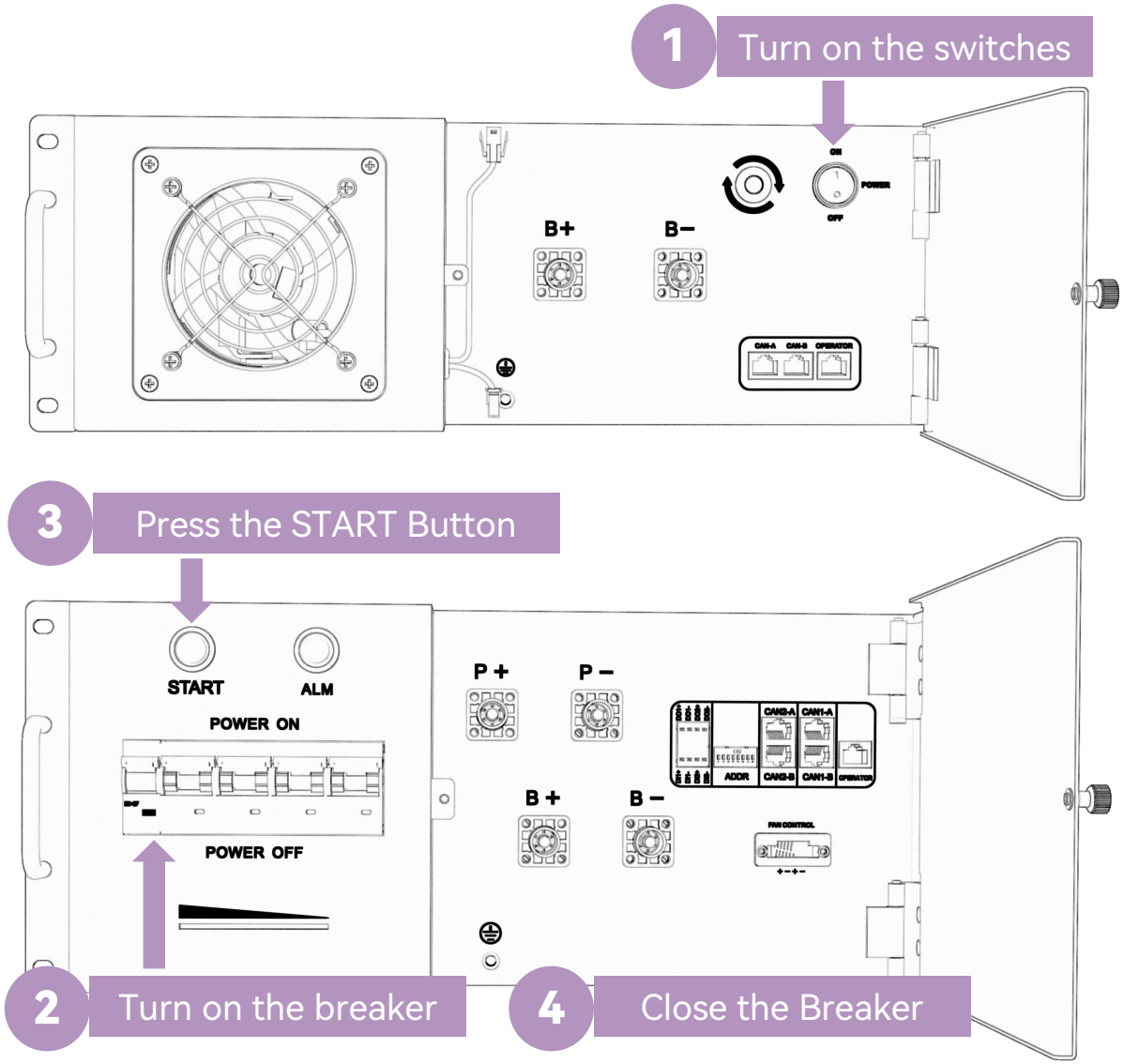
Make sure the breaker between inverter and battery system as OFF. Turn on the power switch of ALL Battery Modules as ON. (**DO NOT PRESS THE Activation Button).**

Step 2

Turn on the Controller breaker and then press the Run Button of Controller and hold for 5 seconds to start the start-up automatic procedure.
① Controller Run Button light up and then on steady GREEN, while status bar flashes.
② Battery Modules wake up automatically one by one (Activation Button lit-up and on GREEN).
③ Once insulation test and self-checking finished successfully (about 120 seconds), the battery system closes the output circuit and Status Bar stops blinking.

Step 3

Close the breaker between inverter and battery system.



05
Certification

SOLINTEG ACADEMY

- CB – IEC62638
- CB Safety – IEC62619
- CE EMC – IEC61000
- CE LVD – IEC62638
- UN383 & MSDS
- . . . . . .

SOLINTEG

- Scalable
- Reliable
- Efficient
- Powerful
- Durable
- . . . . . .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Parlam Zhan
Laboratory Manager
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Anbotek
Product Safety

* The certification is continuously being updated. The latest information can be accessed through the official website or by contacting the sales staff.

THANK YOU

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