SOLAX POWER

presentation

Simple. Reliable. Efficient
Residential solar energy storage professional
Since 2010

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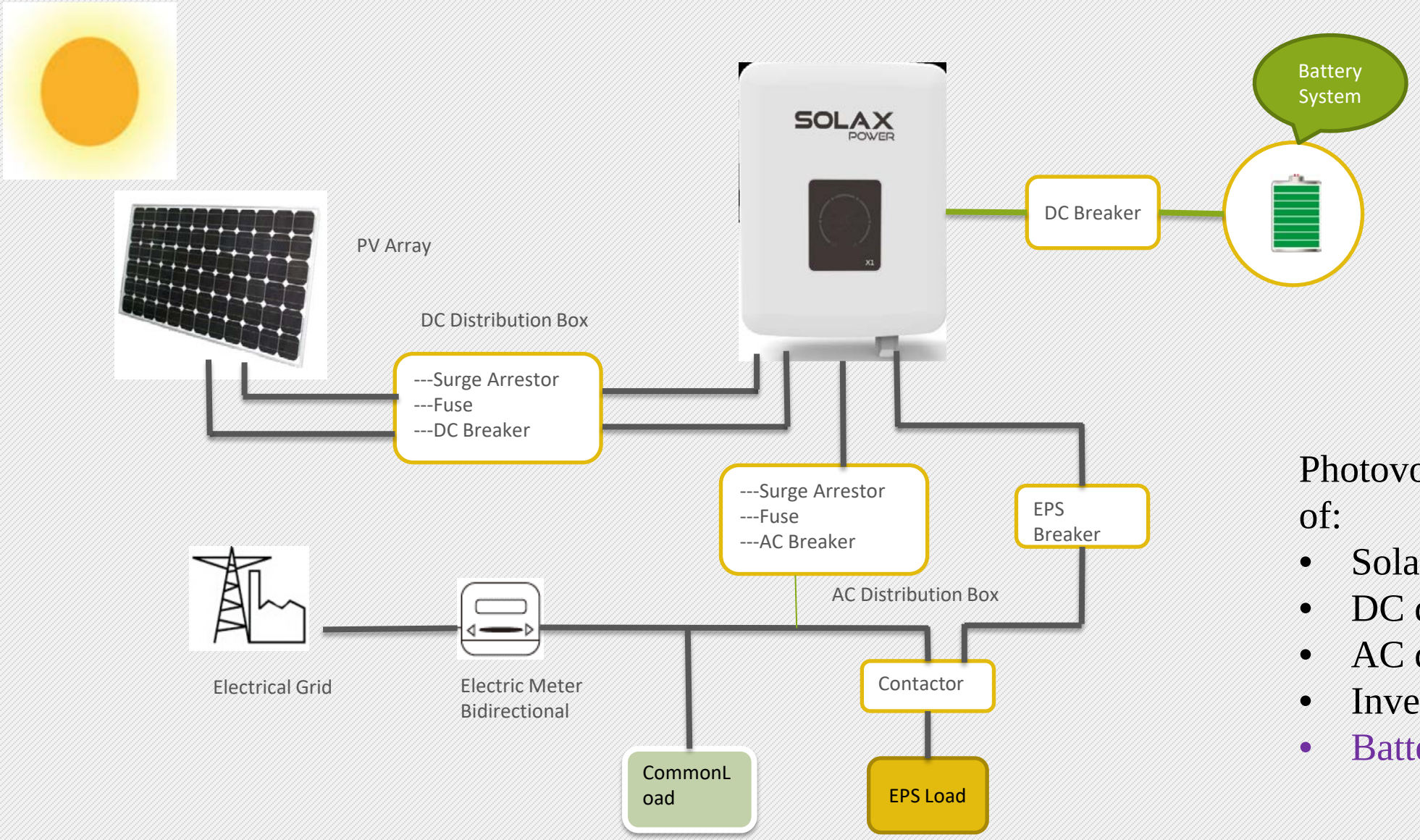
presentation agenda

OVERVIEW



Photovoltaic system consist of:

- Solar cell module;
- DC distribution equipment;
- AC distribution equipment;
- Inverter;
- Battery.

OVERVIEW

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GEN 1
NCM 4.5/6.3 kWh

GEN 2
NCM 4.5/6.3 kWh

GEN 3
LFP 5.8 kWh

INTRODUCTION

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Master Control
T-BAT H 5.8
5.8kWh

Slave Control
HV11550 (Battery Pack)
5.8kWh

- Maximum safety performance with LFP technologies
- IP55 for indoor and outdoor use
- Flexible in series to achieve higher voltage
- Contains NO toxic heavy metal or caustic materials

INTRODUCTION

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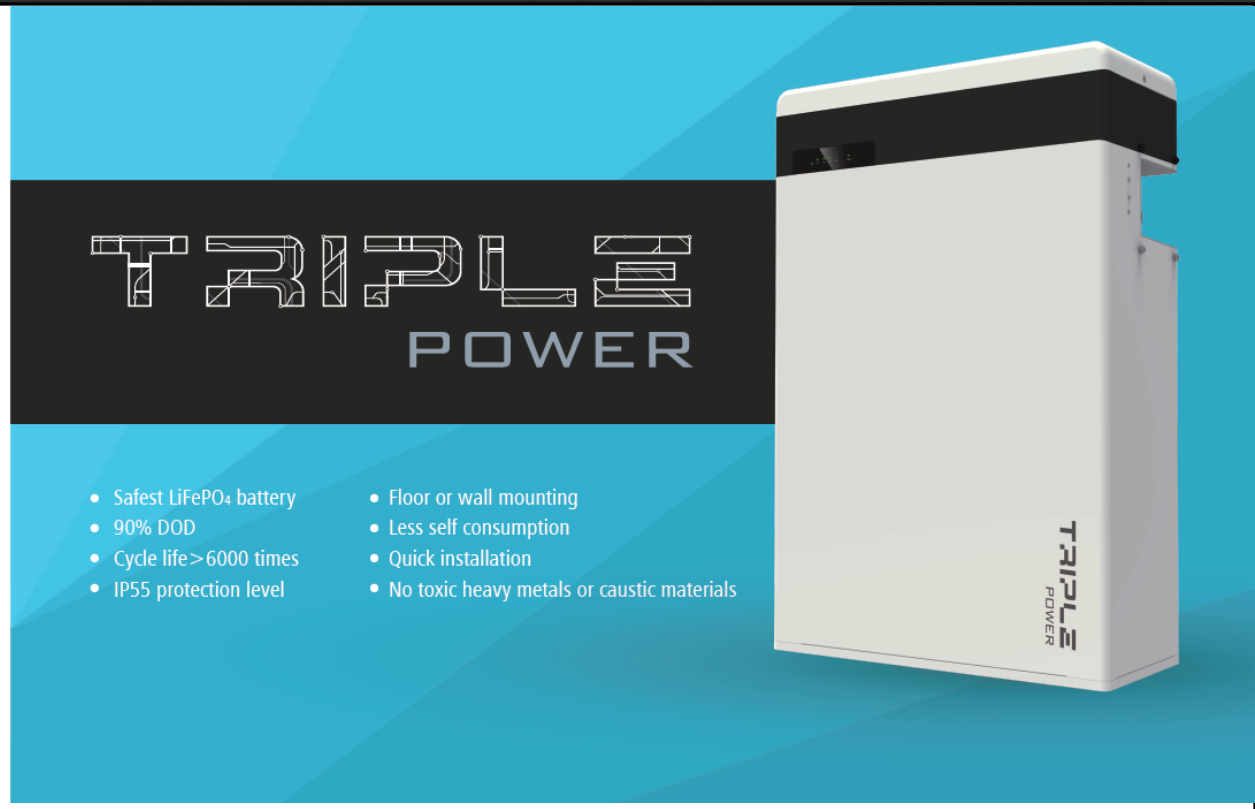
Features of Product:

· 90% DOD;
· 99% Charge Efficiency;
· 95% Charge Discharge Cycle Efficiency;
· Charge Cycle Life>6000;
· Hardware Secondary Protection;
· Classified Protection: IP65;
· Safety & Reliable;
· Little Space Taking;
· Two Installation Methods: Floor Mounting & Wall Mounting;
· **For Single Phase Storage Inverter can match with: 1-3 pack**;
· **For Three Phase Storage Inverter can match with: 2-4 packs**;



INTRODUCTION

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1、There is 2 type battery model:

- **Master Battery**: T-BAT H5.8 (Building in BMU);
- **Slave Battery**: HV11550 (This is only battery, no BMU)：

2、T58 Battery System：

No.	Model	Battery Module	Energy(kWh)	Voltage(V)
1	T-BAT H 5.8	T-BAT H 5.8	5.8	100-131
2	T-BAT H 11.5	T-BAT H 5.8 + HV11550 * 1	11.5	200-262
3	T-BAT H 17.3	T-BAT H 5.8 + HV11550 * 2	17.3	300-393
4	T-BAT H 23.0	T-BAT H 5.8 + HV11550 * 3	23	400-524

INTRODUCTION

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T-BAT-SYS-HV-(5.8)				
MODEL	T-BAT H 5.8	T-BAT H 11.5	T-BAT H 17.3	T-BAT H 23.0
PACK type	5.8	11.5	17.3	23.0
Battery type	Li-on(LFP)	Li-on(LFP)	Li-on(LFP)	Li-on(LFP)
NOMINAL CHARACTER				
Voltage [v]	115.2	230.4	345.6	460.8
Operating voltage range [v]	100-131	200-262	300-393	400-524
Battery Module	9S1P*4=1 Module	Module*2	Module*3	Module*4
Rated Capacity[AH]	50	50	50	50
Total energy [KWH]	5.8	11.5	17.3	23
Usable energy[kwh]	5.2	10.4	15.6	20.7
Faradic charge efficiency	99%	99%	99%	99%
Battery roundtrip efficiency	95%	95%	95%	95%
Standard power[kw]	2.9	5.8	8.7	11.6
Max power[kw]	4	8	12	16
Recommend charge/discharge current [a]	25	25	25	25
Maxcharge/discharge current [A]	35	35	35	35
Cycel life[90% DOD]	6000 Cycles	6000 Cycles	6000 Cycles	6000 Cycles
Weight [kg]	72	72+68.5	72+68.5*2	72+68.5*3
Certificate	海运证书【UN38.3(UN3840), Class 9(Hazardous materials classifcation)】,欧洲证书【IEC62619,EMC,MSDS】			

INTRODUCTION

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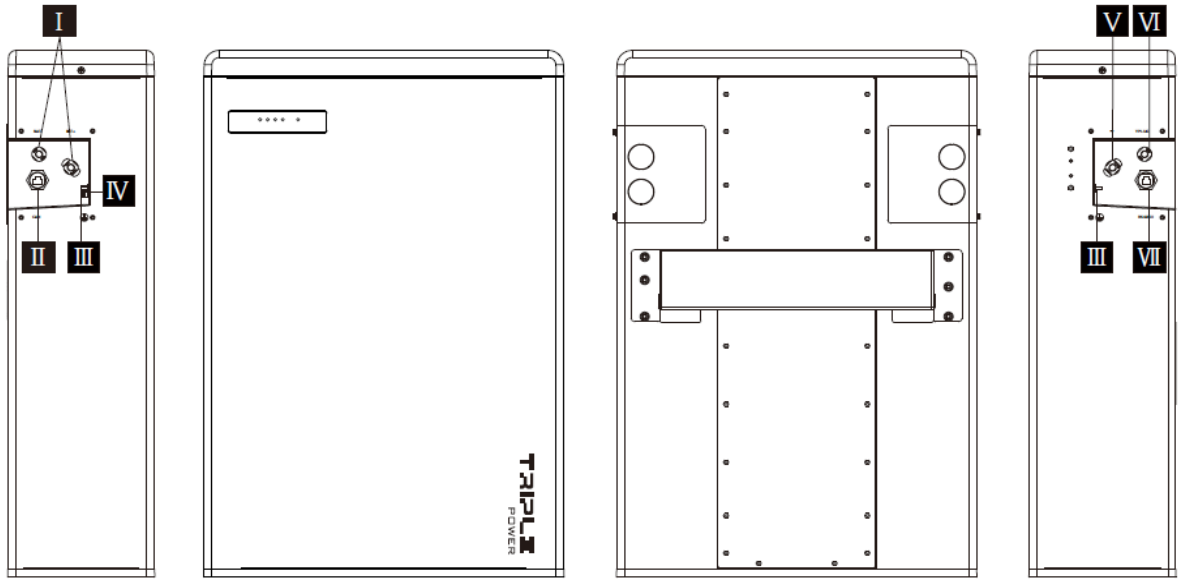

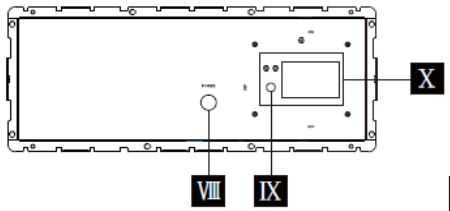

Object	Mark	Description
I	BAT+/BAT-	Charge/Discharge Connectors
II	CAN	CAN Connector
III	GND	GND
IV	/	Air Valve
V	-	Power Connector to + of next battery pack, or to YPLUG on the same side
VI	YPLUG	Power Connector' to XPLUG of next battery pack, or to "-" on the same side
VII	RS485 II	RS485 Connector to RS485 I of next battery pack
VIII	POWER	Power Button
IX	DIP	DIP Switch
X	ON/OFF	Circuit Breaker

Dimension：474*193*708mm

Weight：72.2kg(50Ah)

Master Battery

INTRODUCTION

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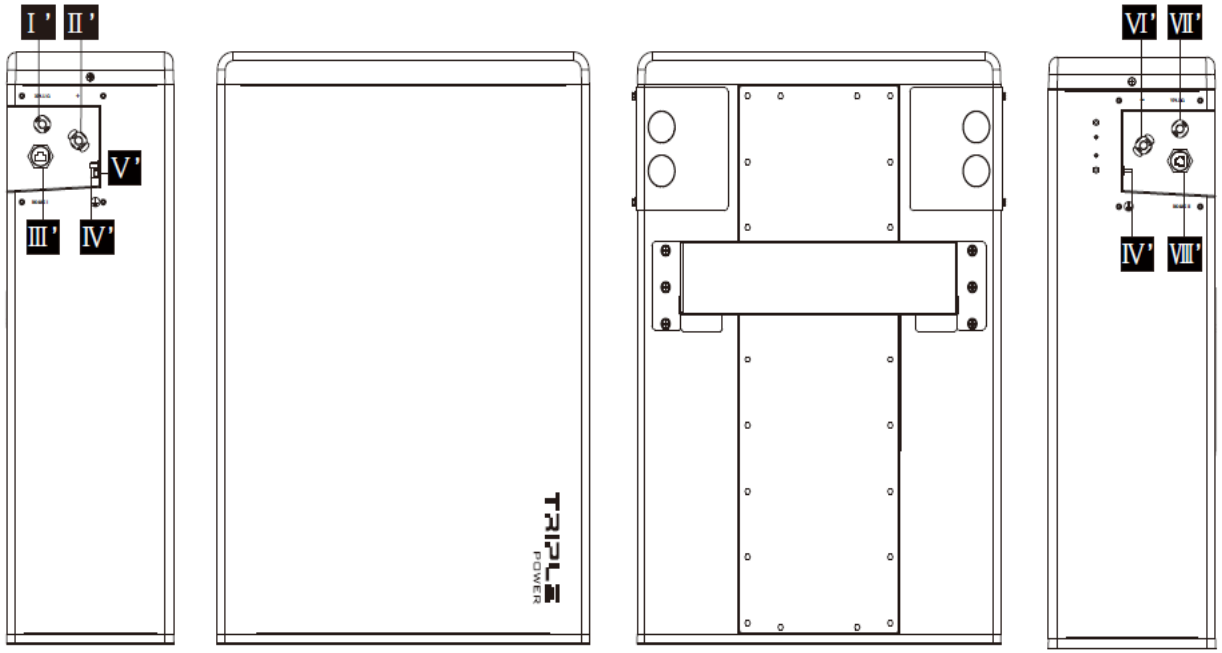

Object	Mark	Description
I′	XPLUG	Power Connector' to YPLUG of upper battery pack
II′	+	Power Connector to "-" of upper battery pack
III′	RS485 I	RS485 Connector to RS485 II of upper battery pack
IV′	GND	GND
V′	/	Air valve
VI′	-	Power Connector to + of next battery pack, or to YPLUG on the same side
VII′	YPLUG	Power Connector' to XPLUG of next battery pack, or to "-" on the same side
VIII′	RS485 II	RS485 Connector to RS485 I of next battery pack

Dimension：474*193*647mm

Weight：68.5kg(50Ah)

Slave Battery

CERTIFICATIONS

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Battery pack safety	CE, FCC,MSDS, TUV (IEC 62619), UL 1973
Battery cell safety	TUV (IEC 62619), UL 1642
UN number	UN 3480
Hazardous materials classification	Class 9
UN transportation testing requirements	UN 38.3
International protection marking	IP 55

INSTALLATION

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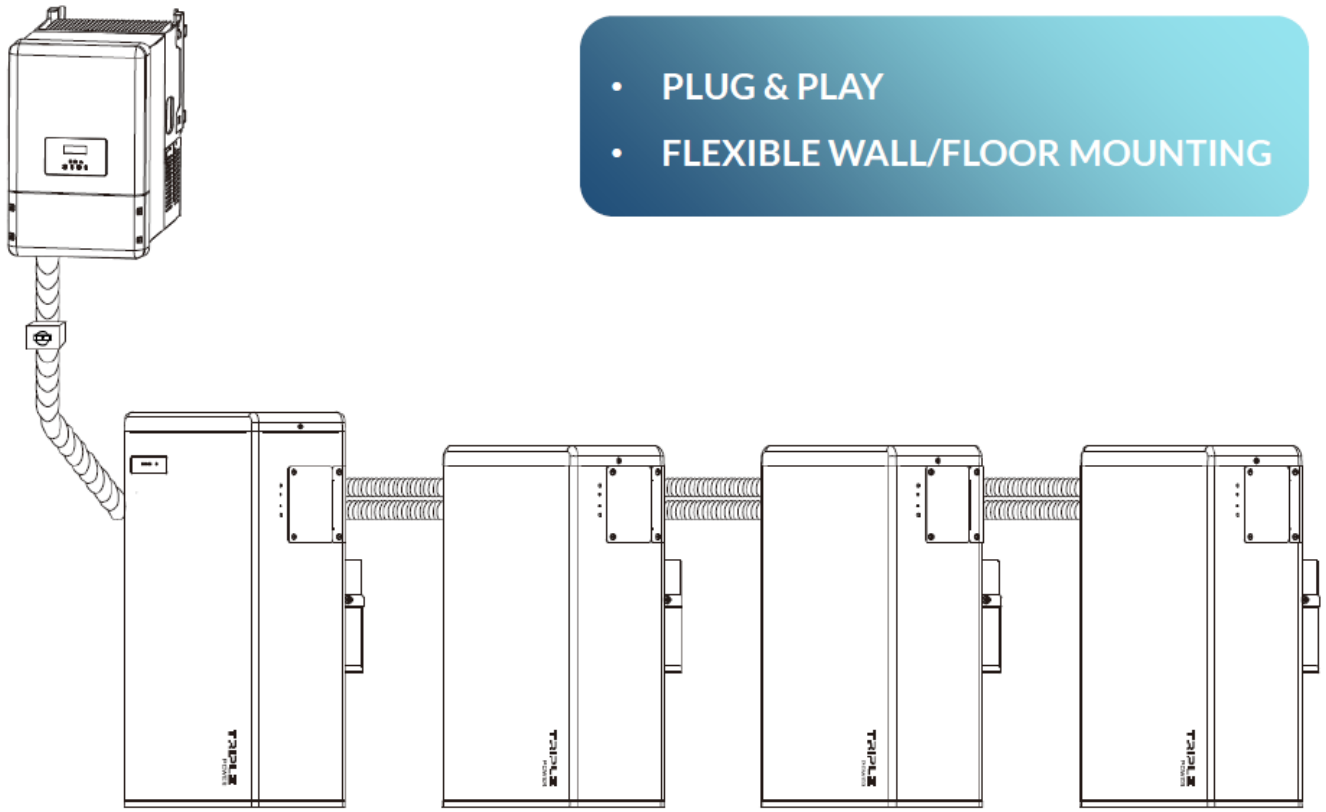
Easy to Install



- PLUG & PLAY
- FLEXIBLE WALL/FLOOR MOUNTING

One Triple Power system is allowed to install one T-BAT H 5.8 plus at most three battery packs.

The system could be scalable up to **23.2kWh** with one inverter.

INSTALLATION

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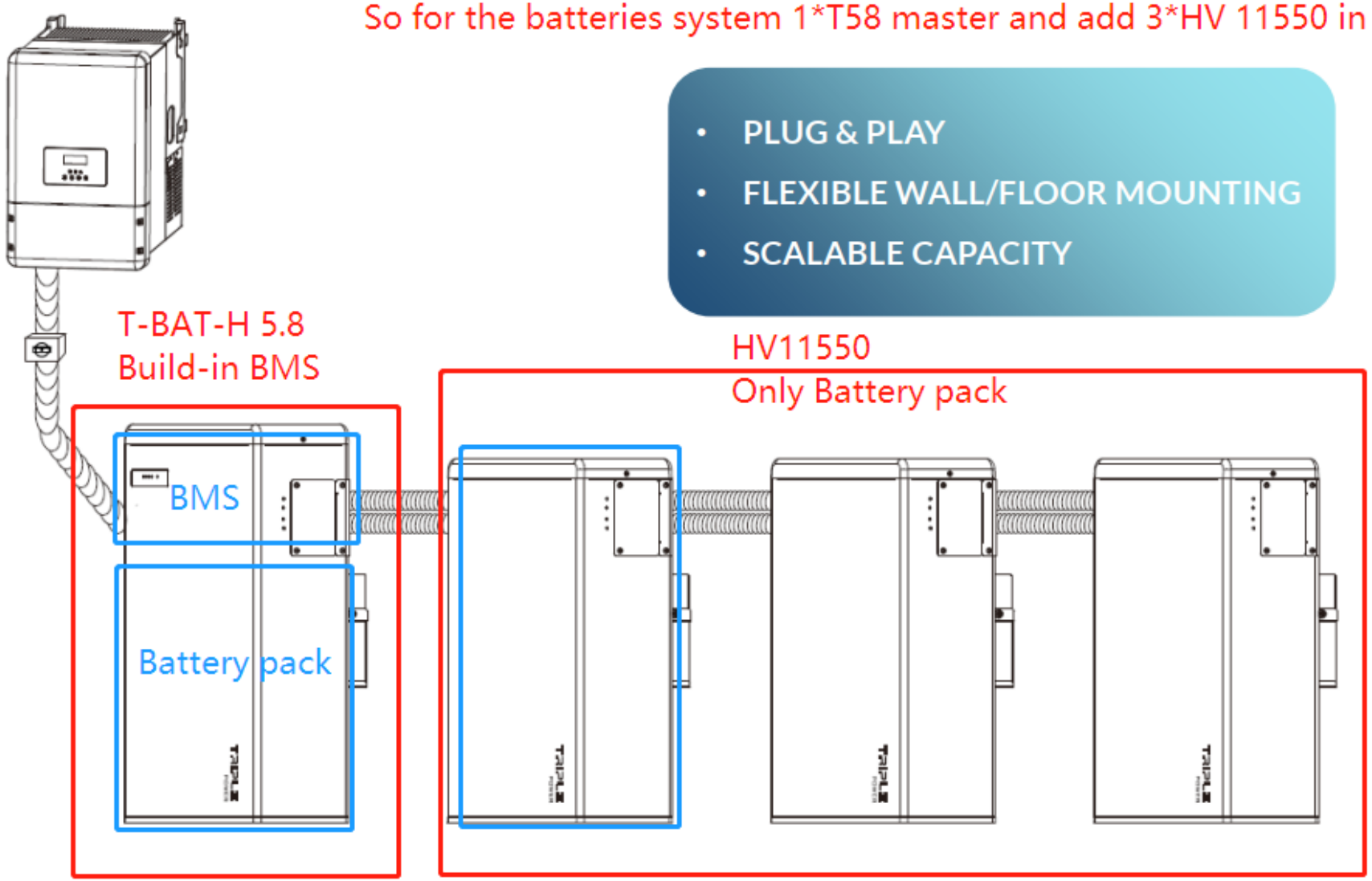
So for the batteries system 1*T58 master and add 3*HV 11550 in one string

- PLUG & PLAY
- FLEXIBLE WALL/FLOOR MOUNTING
- SCALABLE CAPACITY



INSTALLATION

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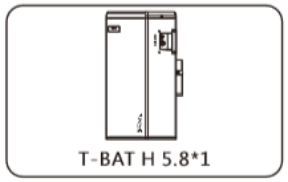
I Packing List (T-BAT H 5.8)

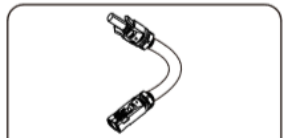
Note: The quick installation guide describes installation steps briefly. If you have any questions during the installation, please refer to the USER MANUAL which is enclosed to T-BAT H 5.8 for more information.


T-BAT H 5.8*1

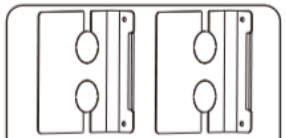

Power line (+)*1

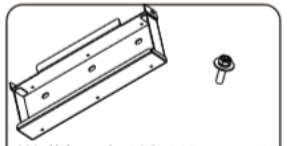

Power line (-)*1

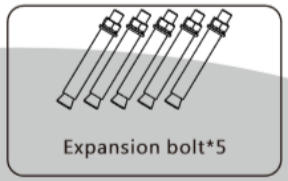

CAN cable (+)*1

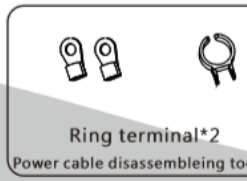

Series-connected plug*1

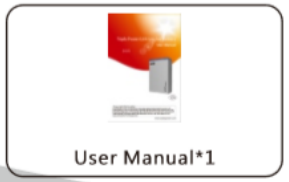

Cover plate1*2 M4 screw*8


Cover plate2*2


Wall bracket*1 M5 screw*1

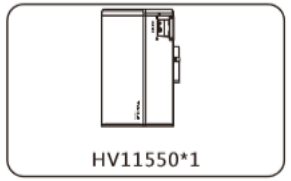

Expansion bolt*5

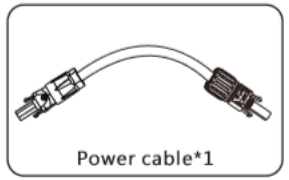

Ring terminal*2
Power cable disassembleing tool*1

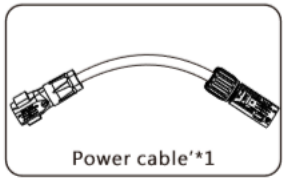

User Manual*1

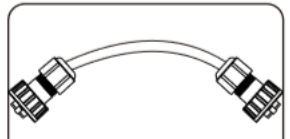
Quick installation guide*1

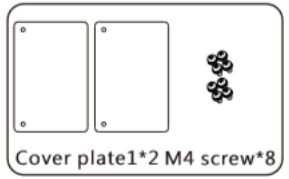
II Packing List (HV11550)

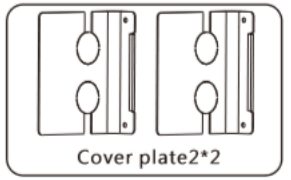

HV11550*1

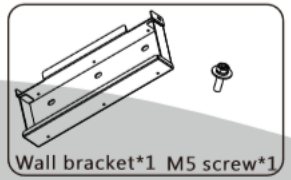

Power cable*1

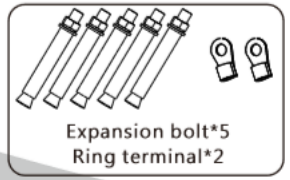

Power cable'*1


RS485 cable*1


Cover plate1*2 M4 screw*8


Cover plate2*2


Wall bracket*1 M5 screw*1


Expansion bolt*5
Ring terminal*2

Quick installation guide*1

INSTALLATION

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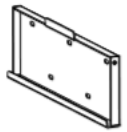
IV Battery Installation

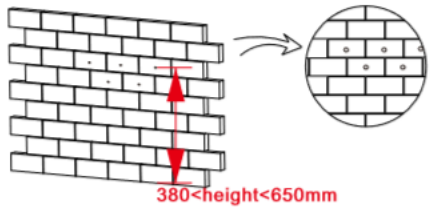
Note: 1. For T-BAT H 5.8 + 1~3 battery packs, please finish the battery installation before connecting cables!
2. Please make sure that the Inverter is off when connecting cables!

- Mark the position of the holes.

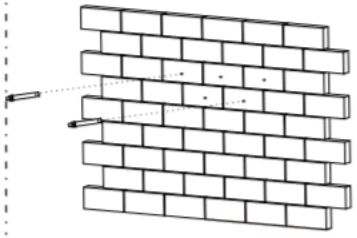


Bracket(377*140*69mm)
(for wall mounting)

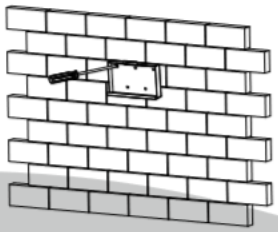
- Drill holes with driller.
- Depth: at least 50mm.



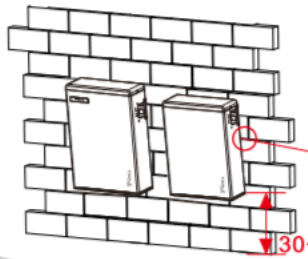
- Install the expansion bolts.



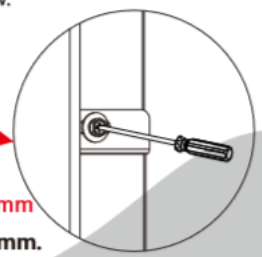
- Screw the expansion bolts.



- Match the battery with the bracket.



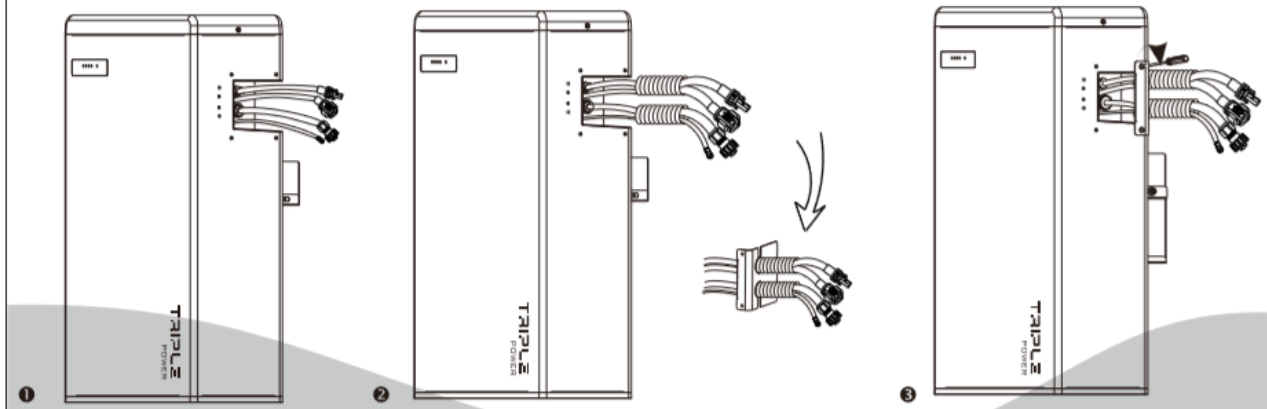
- Lock the joint between hanging board and wall bracket with M5 screw.



NOTE: 1. The distance between the bottom of battery pack and floor shall not exceed 300mm.
2. It is recommended that the space between battery packs is more than 300mm.

VI Overall Installation

1. Connect the cables.
2. Get the cables through the corrugated pipe.
3. DO REMEMBER TO INSERT THE SERIES-CONNECTED PLUG AT "-" AND "YPLUG" ON THE RIGHT SIDE OF LAST BATTERY PACK TO MAKE A COMPLETE CIRCUIT.
4. Set the cables into the groove of metal plates and screw them back to the battery pack on both sides.



INSTALLATION

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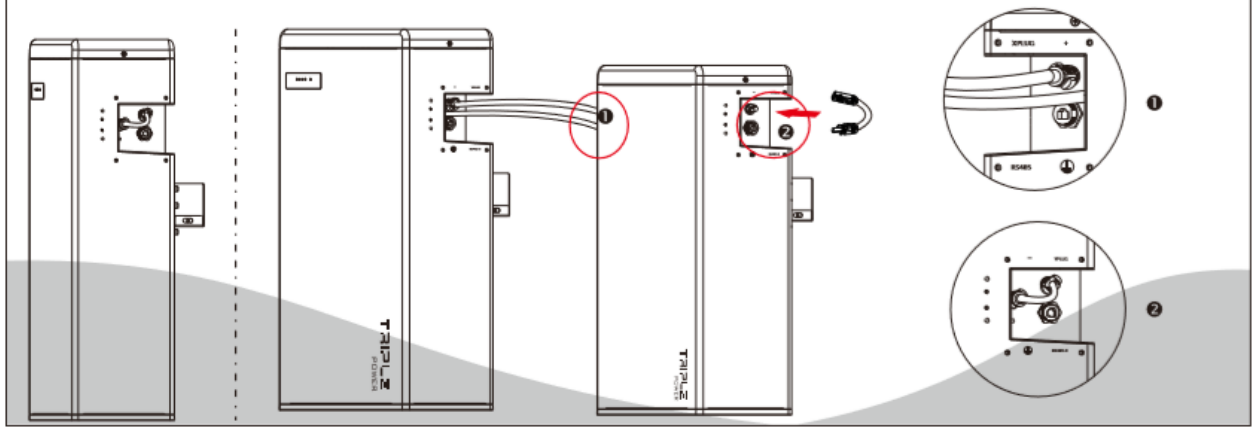
VII Power Cable Connection

For T-BAT H 5.8:

1. Insert the series-connected plug at "-" and "YPLUG" on the right side of T-BAT H 5.8 to make a complete circuit.

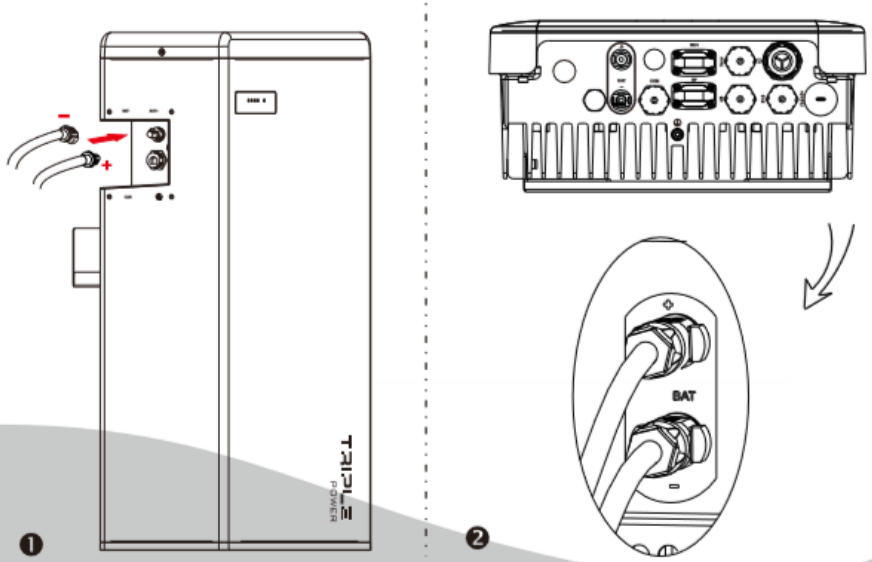
For T-BAT H 5.8 + 1~3 battery packs:

1. Connect "-" on the right side of T-BAT H 5.8/HV11550 to "+" on the left side of the next battery pack.
2. Connect "YPLUG" on the right side of T-BAT H 5.8/HV11550 to "XPLUG" on the left side of the next battery pack.
3. The rest battery packs are connected in the same way.
4. Insert the series-connected plug at "-" and "YPLUG" on the right side of last battery pack to make a complete circuit.



VIII Power Line Connectioin

1. Connect the the positive cable (+) and negative cable (-) to the corresponding port as shown in the following figure.
2. Keep the Inverter off. Connect the other end of charging cables (+,-) to the correct port on the Inverter.



NOTE

Each power line has one terminal block when leaving the factory, and customers need to connect the other end of terminal block by themselves.

Please refer to 4.5.2 **Cable Connection Steps** of User Manual on page 20 to get detailed connection steps for power line.

INSTALLATION

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IX Communication Cable Connection

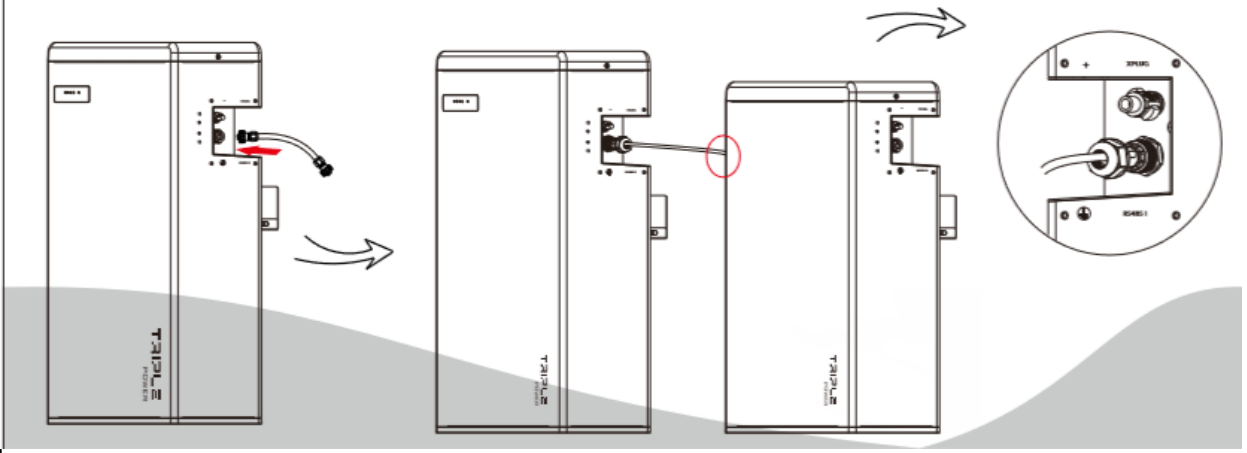
For T-BAT H 5.8:

1. Insert one end of the CAN communication cable which has no cable nut directly to the BMS port of the Inverter.

2. Insert the other end of the CAN communication cable to the CAN connector. Assemble the cable gland and screw the cable nut.

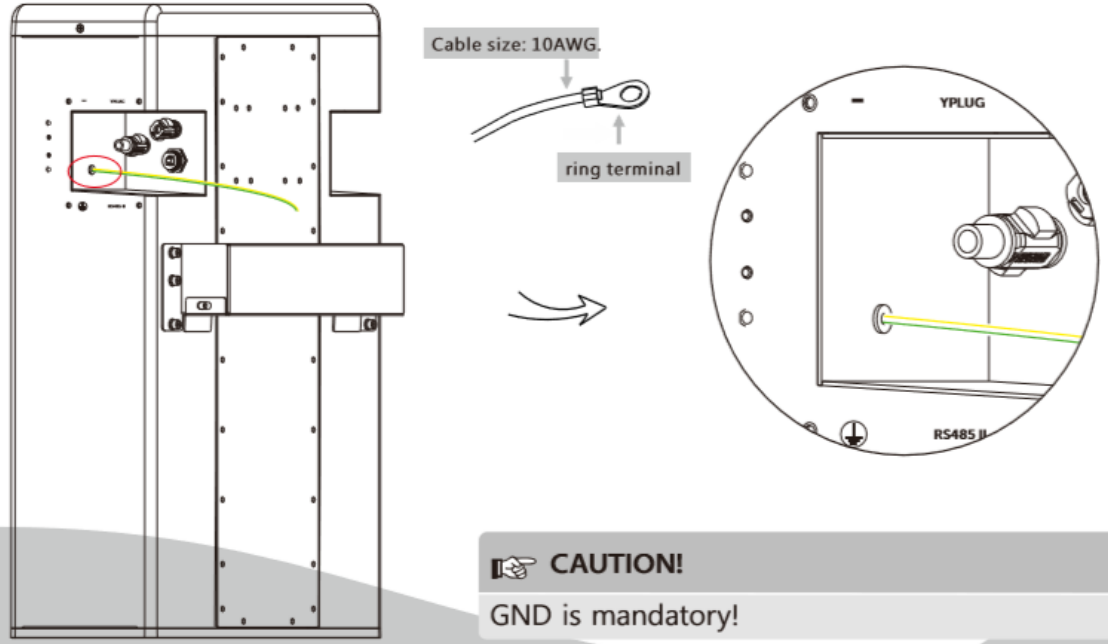
For T-BAT H 5.8 + 1~3 battery packs:

1. Connect RS485 II of upper battery on the right side to RS485 I of the follow-up battery pack which is on the left. Assemble the cable gland and screw the cable nut.



X Ground Connection

The terminal point for GND connection is on the side of grooves as shown below:



CAUTION!

GND is mandatory!

INSTALLATION

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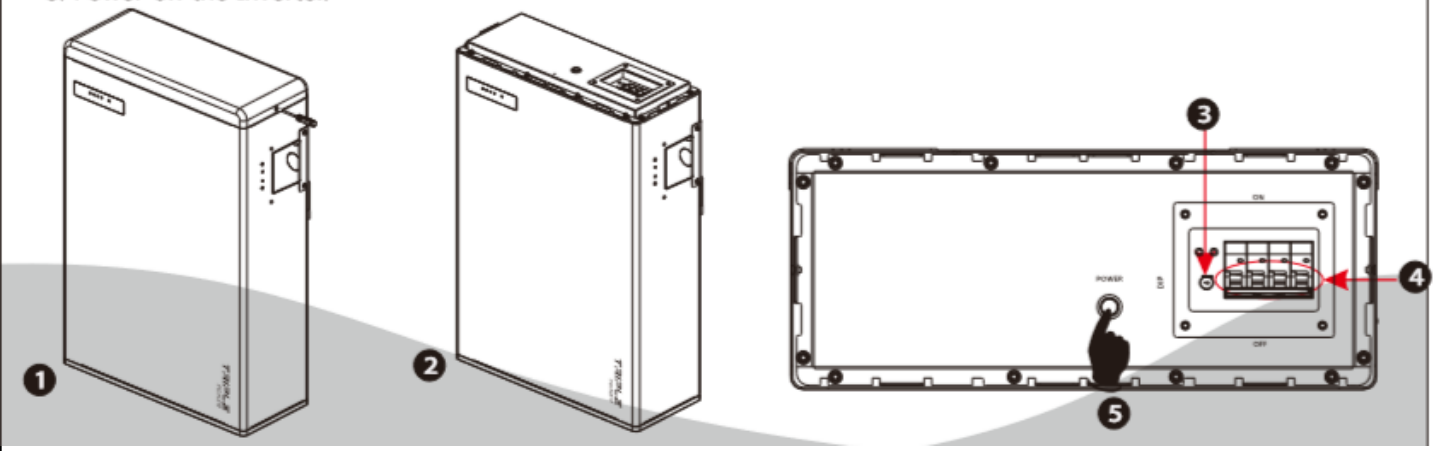
XI Commissioning

If all the battery packs are installed, follow these steps to put it in operation.

1. Remove the upper cover board of T-BAT H 5.8;
2. Remove the small cover plate;
3. Rotate the DIP to corresponding number with small tool accroding to the number of battery pack(s) that has(have) been installed(please see the configuration on the right);
4. Move the circuit breaker to the ON position;
5. Press the POWER button to turn on the T-BAT system;
6. Put the small cover plate back;
7. Reinstall the upper cover board to T-BAT H 5.8;
8. Power on the Inverter.

DIP Configuration:

0-	**Matching T-BAT H 5.8 (default)**
1-	**Matching T-BAT H 5.8 + 1*HV11550**
2-	**Matching T-BAT H 5.8 + 2*HV11550**
3-	**Matching T-BAT H 5.8 + 3*HV11550**



ATTENTION:
DIP switch is important

- 1 Battery (Master BAT)----DIP=0 (default);
- 2 Batteries (Master + 1 Slave)----DIP=1;
- 3 Batteries (Master + 2 Slave)----DIP=2;
- 4 Batteries (Master + 3 Slave)----DIP=3;

ONLY 1 Master Battery in one battery system;

INSTALLATION

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INSTALLATION

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TROUBLESHOOTING

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- BMS_Internal_Err;
- BMS_Externa_Err;
- BMS_LowVoltage;
- BMS_Overvoltage;
- BMS_TemHigh/BMS_TemLow;
- BMS_CellImbalance;
- BMS_Circuit_Fault;
- BMS_Relay_Fault;
- BMS_Version_Unmatch;
- BMS_M&S_Unmatch;
- BMS_CR_Unresponsive;

TROUBLESHOOTING

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- BMS_Internal_Err;

  - Which means, communications between batteries not good;
  - Need to check whether Comm cables connected well between batteries, whether RJ45 connections loose (make sure all connected tightly);
  - Need to check whether RJ45 Pin connections correct or not;
  - Replace with new comm cables to have a test;
  - If you have tried all the above, but still failed, please contact with Solax service team to get further support;

TROUBLESHOOTING

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- BMS_External_Err;

  - Which means, communications between Master Battery and Inverter not good;
  - Need to check whether Comm cables connected well between Master Battery and Inverter, whether CAN cable connections loose (make sure all connected tightly);
  - Need to check whether CAN Pin connections correct or not;
  - Replace with new CAN comm cables to have a test;
  - If you have tried all the above, but still failed, please contact with Solax service team to get further support;

TROUBLESHOOTING

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➢ BMS_OverVoltage;

- Which means, internal battery string of voltage higher than normal voltage;
- If this happens, then it will happens at the moment of battery been fully charged (full capacity);
- Leave it for 30 minutes to check whether it can back to normal status (just switch off battery breaker and power off button);
- Update inverter software & Battery software (Contact with Solax service team to get newest software version);
- If you have tried all the above, but still failed, please contact with Solax service team to get further support;

TROUBLESHOOTING

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➢ BMS_TemHigh/BMS_TemLow

- Which means, battery system will be protected when battery temperature is higher/lower than normal status;
- This may happens during summer time (when environment is high) or during winter time (when environment is low);
- Leave it for 30 minutes to check whether it can back to normal status (just switch off battery breaker and power off button);
- If you have tried all the above, but still failed, please contact with Solax service team to get further support;

TROUBLESHOOTING

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- BMS_CellImbalance;

  - Which means, internal cell voltage of the battery not balance;
  - Leave it for 30 minutes to check whether it can back to normal status (just switch off battery breaker and power off button); it can recover by automatically;
  - Update inverter software & Battery software (Contact with Solax service team to get newest software version);
  - If you have tried all the above, but still failed, please contact with Solax service team to get further support;

TROUBLESHOOTING

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SOLAX POWER

➢ BMS_Circuit_Fault;

- This is fault from battery BMU, and usually it is from hardware side;
- Restart whole system to have a test whether it can back to normal status;
- Measure the voltage battery to check whether battery voltage all good, then
- Replace with BMU(or Master battery) to have a test;
- If you have tried all the above, but still failed, please contact with Solax service team to get further support;

TROUBLESHOOTING

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SOLAX POWER

➢ BMS_Relay_Fault;

- This is fault from battery BMU, and usually it is from hardware side;
- Restart whole system to have a test whether it can back to normal status;
- Measure the voltage battery to check whether battery voltage all good, then
- Replace with BMU(or Master battery) to have a test;
- If you have tried all the above, but still failed, please contact with Solax service team to get further support;

TROUBLESHOOTING

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SOLAX POWER

➢ BMS_Version_Unmatch;

- Which means, software version of slave between batteries is not matched (this may happens when you add new battery to your original old system, or during new installation);
- Go to inverter “About” to check battery software version;
- Update software version of inverter and batteries (Contact with Solax service team to get the newest software version);
- If you have tried all the above, but still failed, please contact with Solax service team to get further support;

TROUBLESHOOTING

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SOLAX POWER

- BMS_M&S_Unmatch;

  - Which means, software version not matched between BMU and slave batteries(this may happens when you add new battery to your original old system, or during new installation);
  - Go to inverter “About” to check battery software version;
  - Update software version of inverter and batteries (Contact with Solax service team to get the newest software version);
  - If you have tried all the above, but still failed, please contact with Solax service team to get further support;

TROUBLESHOOTING

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SOLAX POWER

➢ BMS_CR_Unresponsive;

- Which means, there is no response from inverter when battery apply for charge demand;
- This may happens when BMU lost communication with Inverter or, when battery has been fully discharged amd capacity down to lower than min capacity;
- Restart battery system to have a test;
- Use multimeter to measure the voltage of each battery;
- If you have tried all the above, but still failed, please contact with Solax service team to get further support;

THANK YOU

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