Open Energy for All

Hybrid/AC-coupled Inverter

USER MANUAL

HYT-5.0HV-EUG1
HYT-6.0HV-EUG1
HYT-8.0HV-EUG1
HYT-10.0HV-EUG1
HYT-12.0HV-EUG1
HAT-5.0HV-EUG1
HAT-6.0HV-EUG1
HAT-8.0HV-EUG1
HAT-10.0HV-EUG1

Legal Notice

Hoymiles has made every effort to ensure the accuracy and completeness of this manual. However, this manual may be changed and revised due to product enhancements or user feedback.

Hoymiles reserves the right to modify this manual without prior notice at any given time. The latest version of this manual can be found by visiting the Hoymiles official website ***www.hoymiles.com*** or scanning the QR Code below.

Warranty

Follow the installation instructions in this manual to ensure warranty compliance and reliability. The current warranty conditions can be accessed at ***www.hoymiles.com***.

Contact Information

If you have technical queries or any questions concerning our products, please contact our support through the Hoymiles service portal:

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hoymiles.com

Contents

1 About This Manual

1.1 Purpose

This manual provides information on the installation, electrical connections, operation, and maintenance of the HYT/HAT series inverter.

Please consider the following before installation:

- Carefully read this manual before operation.
- Keep this manual for reference.

1.2 Audience

This manual is intended for use by qualified persons only. Qualified persons must have the following skills:

- Knowledge of how a battery works.
- Knowledge of how an inverter works.
- Training in how to deal with the dangers and risks associated with the installation, maintenance, and use of electrical devices.
- Training in the installation, commissioning, and maintenance of electrical devices.
- Knowledge of and compliance with all applicable laws, standards, and directives.

1.3 Validity

This manual is valid for:

- HYT/HAT-5.0HV-EUG1
- HYT/HAT-6.0HV-EUG1
- HYT/HAT-8.0HV-EUG1
- HYT/HAT-10.0HV-EUG1
- HYT-12.0HV-EUG1

2 Safety Information

Before installing, operating, commissioning, and maintaining the inverter, please carefully read the safety rules and usage instructions in this document as failure to do so may result in safety hazards or device damage. Safety instructions in this manual cannot cover all precautions that should be taken. Please consider the actual conditions on site when performing operations. Any damage caused by a violation of the safety instructions in this manual shall not be the responsibility of Hoymiles.

2.1 Safety Symbols

Safety symbols are used in this manual as follows:

Symbol	Description
DANGER	This symbol indicates potential risks that, if not avoided, may lead to death or serious physical injury.
WARNING	This symbol indicates potential risks that, if not avoided, may lead to personal injury or device damage.
CAUTION	This symbol indicates potential risks that, if not avoided, may lead to device malfunctions or financial losses.
NOTICE	This symbol indicates potential risks that, if not avoided, may lead to minor injury or damage to the equipment.
NOTE	This symbol indicates an important step or tip that leads to the best results but is not safety or damage-related.

2.2 Additional Symbols

The product label contains the following symbols with their meanings described below:

Symbol	Usage
	**Caution** Failure to observe any warnings contained in this manual may result in injury.
	**Danger to life due to high voltages** Only qualified personnel can open and maintain the inverter.
	**Hot surface** Burn danger due to hot surface that may exceed 60°C.
	After the inverter is turned off, wait for at least 10 minutes before opening the inverter or touching live parts.
	**Treatment** Electrical equipment that has reached the end of life must be collected separately and returned to an approved recycling facility to comply with the European Directive 2002/96/EC on Waste Electrical and Electronic Equipment and its implementation as national law. Return any devices you no longer need to an authorized dealer or an approved collection and recycling facility.

CE	**CE mark** The product complies with the requirements of the applicable EU directives.
RoHS	**RoHS mark**
UK CA	**UKCA mark**
	**Observe the documentation** Read and understand all documentation supplied with the product.
	This side up! This package must always be transported, handled, and stored in such a way that the arrows always point upwards.
	Fragile - The package/product should be handled carefully and should never be tipped over or slung.
	Keep dry! The package/product must be protected from excessive humidity and must be stored under cover.
	No more than six (6) identical packages are to be stacked on each other.

2.3 Safety Instructions

To prevent personal injury and property damage and to ensure the long-term operation of the product, read this section carefully and observe all safety information at all times. Failure to observe the prescribed instructions may potentially void the manufacturer's warranty. If in doubt, please contact Hoymiles.

⚠ DANGER

Danger to life from electric shock

- Before performing any work on the inverter, disconnect all DC and AC power from the inverter and wait for at least 10 minutes. The hazardous voltage will exist for up to 10 minutes after disconnection from the power supply.
- Never insert or remove the AC or DC connections when the inverter is running.
- Any live parts connected to battery ports cannot be touched before removing all the power from the inverter for 10 minutes, because there is still danger to life even battery voltage is lower than 60 V.
- Do not touch DC conductors or any non-isolated cable ends.
- The mounting location must be inaccessible to children.
- Never touch either the positive or negative pole of the PV connecting device. Strictly prohibit touching both at the same time.

⚠ WARNING

Risk of burns from hot surfaces

- The surface of the inverter might exceed 60°C, and touching the surface may result in burns.
- Do not touch hot surfaces before it cools down.
- Only authorized service personnel are allowed to install the inverter or perform servicing and maintenance.
- All powers, both AC and DC, should be disconnected from the inverter before attempting any maintenance, cleaning, or working on any circuits connected to the inverter.
- Attempting to service the inverter yourself may result in a risk of electric shock or fire and will void your warranty.
- Keep away from flammable and explosive materials to avoid fire disasters.
- The installation place should be away from humid or corrosive substances.
- The unit contains capacitors that remain charged to a potentially lethal voltage after the mains, battery, and PV supply have been disconnected.
- When accessing the internal circuit of inverter, wait for at least 10 minutes after disconnecting the power.

⚠ CAUTION

- The inverter has a transformerless design on the PV side. Neither positive nor negative terminals of PV panels should be grounded.
- The frames of PV panels should be grounded for safety reasons.
- Ensure that existing wiring is in good condition and no wire is undersized.
- Do not disassemble any parts of the inverter which are not mentioned in the installation.
- Authorized service personnel must use insulated tools when installing or working with this equipment.
- PV modules shall have an IEC 61730 class A rating.

NOTICE

- The minimum rated temperature of the wire used is 90°C (194°F).
- All electrical connections must be in accordance with local and national standards.
- Only with permission of the local utility grid company, the inverter can be connected to the utility grid.
- Do not open the inverter cover or change any components without authorization, otherwise the warranty commitment for the inverter will be invalid.
- Appropriate methods must be adopted to protect inverter from electrostatic discharge; any damage caused by ESD is not warranted by the manufacturer.
- Prior to the application, please read this section carefully to ensure the correct and safe application. Please keep the user manual properly.
- The manual contains no instructions for user-serviceable parts. See Warranty for instructions on obtaining service.
- If an error occurs, contact your local distributor or qualified electricians.

2.4 EU Declaration of Conformity

Hoymiles Power Electronics Inc. hereby declares that the inverter described in this document is in compliance with the basic requirements and other relevant provisions of the following directives.

- Electromagnetic Compatibility Directive 2014/30/EU (EMC)
- Low Voltage Directive 2014/35/EU (LVD)
- Restriction of the use of certain hazardous substances Directive 2011/65/EU and its amendment directives (EU) 2015/863 (RoHS)
- Waste Electrical and Electronic Equipment Directive 2012/19/EU (WEEE)

More detailed information can be found at ***https://www.hoymiles.com***.

3 Transportation and Storage

3.1 Transportation Requirements

- Place the inverters in the original packaging or specially designed transport packaging. The packaging materials should have sufficient strength and cushioning performance to prevent damage caused by collisions and squeezes during transportation.
- Secure the inverter firmly inside the packaging to avoid displacement during transportation. For large or heavy inverters, additional fixing devices may be required.
- Maintain stability and avoid sudden starts, stops, or significant oscillations during transportation.
- Observe the safety symbols on the package of the inverter before transportation.
- Pay attention to the weight of inverter. Be cautious to avoid injury when moving. Handle the inverter according to the personnel quantity required by local regulations.
- Wear protective gloves when moving the equipment by hand to prevent injuries.
- Hold the handle position and the bottom position of the inverter when lifting up the inverter. Keep the inverter horizontal in case of falling down.
- Professional handling equipment should be used, and it is essential to ensure that the operators possess the requisite operational skills and experience.

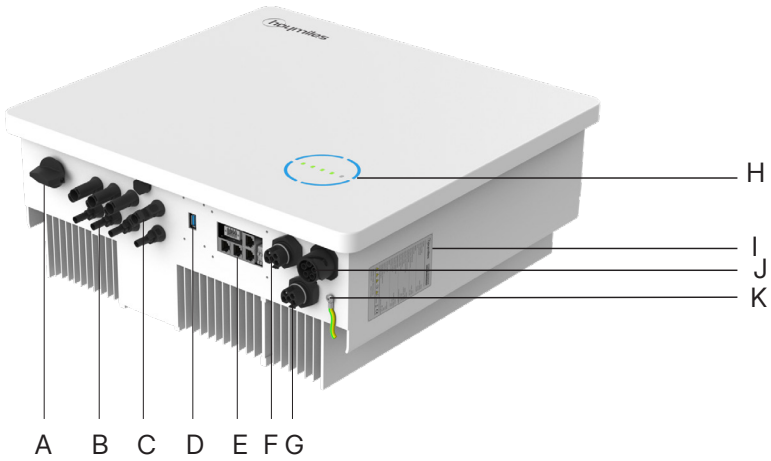
3.2 Storage Requirements

- Do not unpack the inverter if it is not used immediately.
- The storage temperature should be between –40°C and 70°C, and the relative humidity should be between 5% and 95%, without condensing.
- Store inverters in a clean and dry place to protect them from dust and moisture.
- The storage place should be well ventilated to ensure air circulation and avoid overheating of the equipment.
- Do not store the products in places exposed to direct sunlight, wet by rain, or with strong electric fields.
- Do not store inverters in places with chemically corrosive substances or where there are pests and rodents.
- Inverters should be repackaged in their original packages with desiccants retained.
- To avoid personal injury or device damage, stack inverters with caution to prevent them from falling down.
- The packages should not be tilted or inverted.
- Do not place heavy objects on the inverters to prevent damage to the equipment housing or internal components.
- During the storage period, inverters should be checked regularly, and it is recommended to check the inverter once every three months. Replace the packing materials damaged by insects or rodents in a timely manner.
- If inverters have been stored for two years or longer, they must be inspected and tested by professionals before being put into use.

4 Product Introduction

4.1 Product Appearance

The HYT-HV Series is a high-performance three-phase hybrid inverter with excellent reliability. The HAT-HV series is designed to retrofit PV systems. The intelligent EMS function supports self-consumption, economic, and backup modes for multi-scenario applications. Monitoring management through S-Miles Cloud allows users to remotely diagnose and track the system performance over time, offering superior energy production.



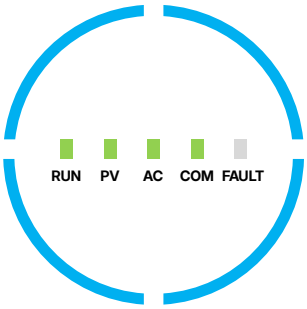
* The image shown here is for reference only. The actual product received may differ.

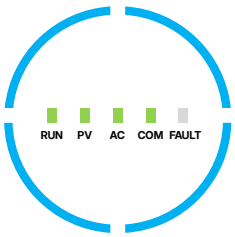
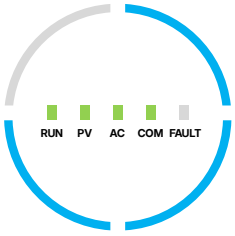
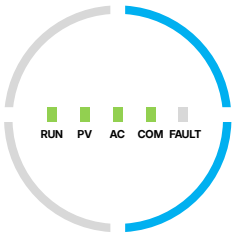
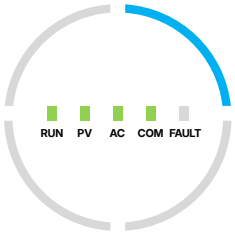
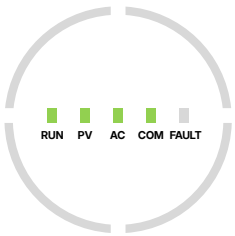
Object	Description
A	DC Switch(1)
B	PV Terminals(2)
C	Battery Terminals
D	Data Transfer Stick (DTS) Port
E	Communication Port
F	GRID Terminal
G	Generator (GEN) Terminal
H	LED Indicators
I	Label
J	Emergency Power Supply (EPS) Terminal
K	PE Terminal

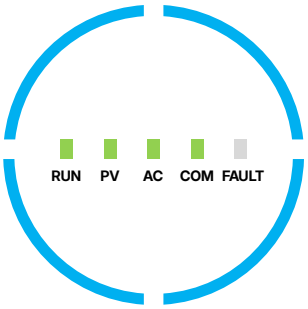
(1) Only for HYT series inverters.

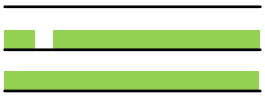
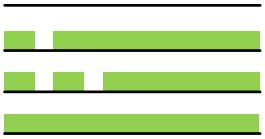
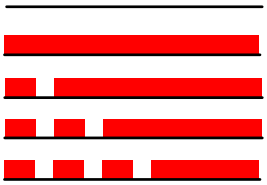
(2) Only for HYT series inverters.

4.2 LED Indicators



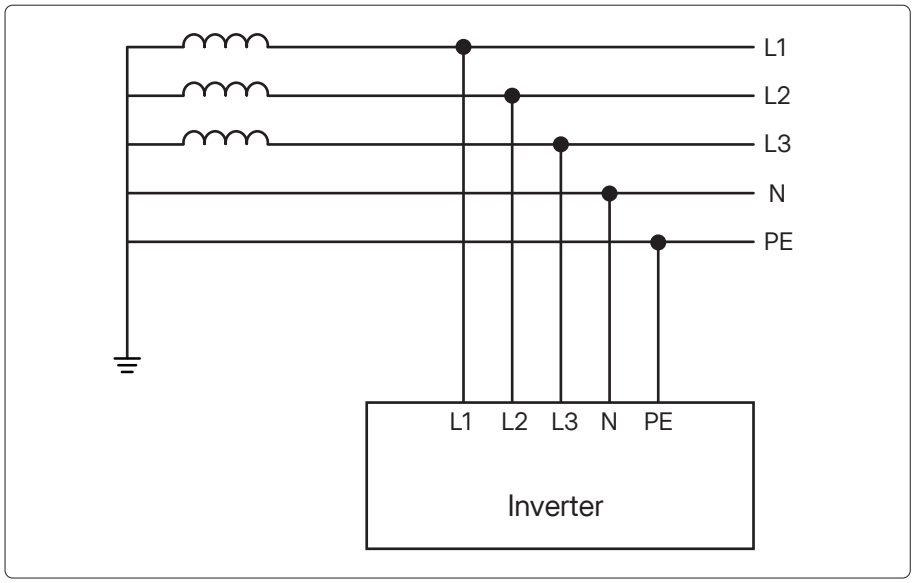
Indicator	Status	Explanation
SOC		Full circle LEDs on – SOC is 75-100%; battery is discharging or in standby Full circle LEDs blink – SOC is 75-100%; battery is charging
		3/4 circle LEDs on – SOC is 50-75%; battery is discharging or in standby 3/4 circle LEDs blink – SOC is 50-75%; battery is charging
		2/4 circle LEDs on – SOC is 25-50%; battery is discharging or in standby 2/4 circle LEDs blink – SOC is 25-50%; battery is charging
		1/4 circle LED on – SOC is 0-25%; battery is discharging or in standby 1/4 circle LED blinks – SOC is 0-25%; battery is charging
		Full circle LEDs off – No BMS communication



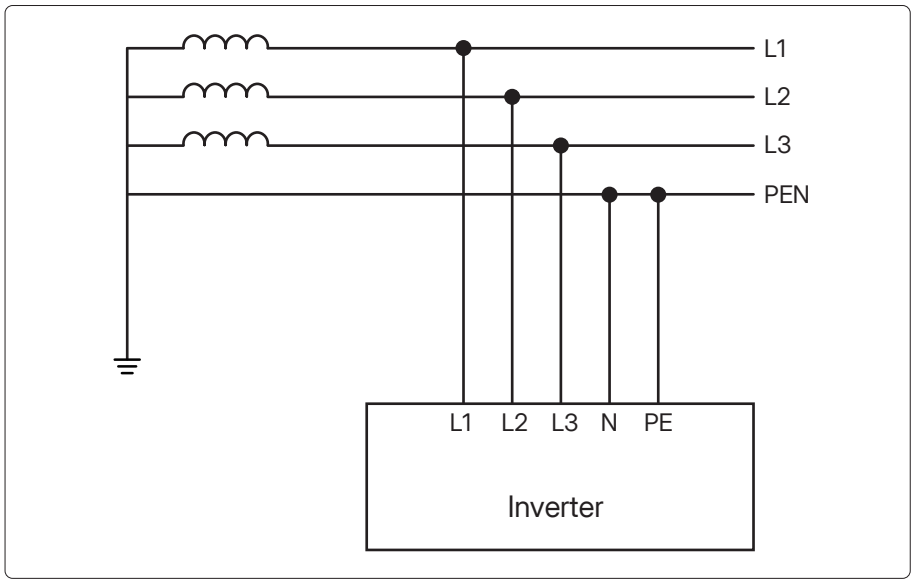
Indicator	Status	Explanation
RUN		Off – Inverter is shut down Blink 1 – Inverter is booting Blink 2 – Inverter is in bypass mode On – Inverter is turned on
PV (Only for HYS)		Off – PV voltage is low Blink 1 – PV power is low On – PV is generating power
AC		Off – Grid is disconnected and EPS is off, or a grid fault occurs Blink 1 – Grid is disconnected but EPS is on On – Grid is connected
COM		Off – Communication error of both meter and BMS Blink 1 – Communication failed to meter Blink 2 – Communication failed to BMS On – Both meter and BMS communications are normal
FAULT		Off – No fault On - A fault occurs Blink 1 – EPS port overload Blink 2 – ISO/RCD fault Blink 3 – Arc fault

4.3 Supported Power Grid

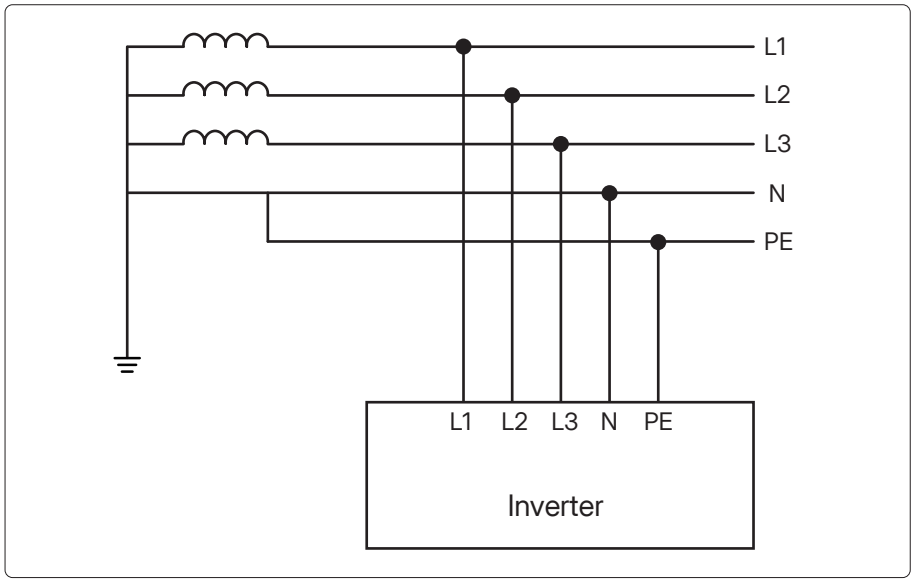
There are different ways of wiring for different grid systems. TN-S/TN-C/TN-C-S are shown as follows.



TN-S



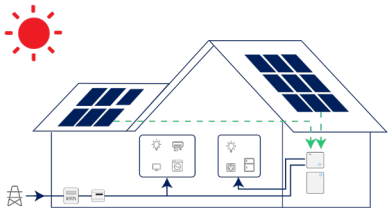
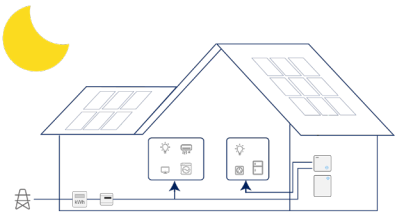
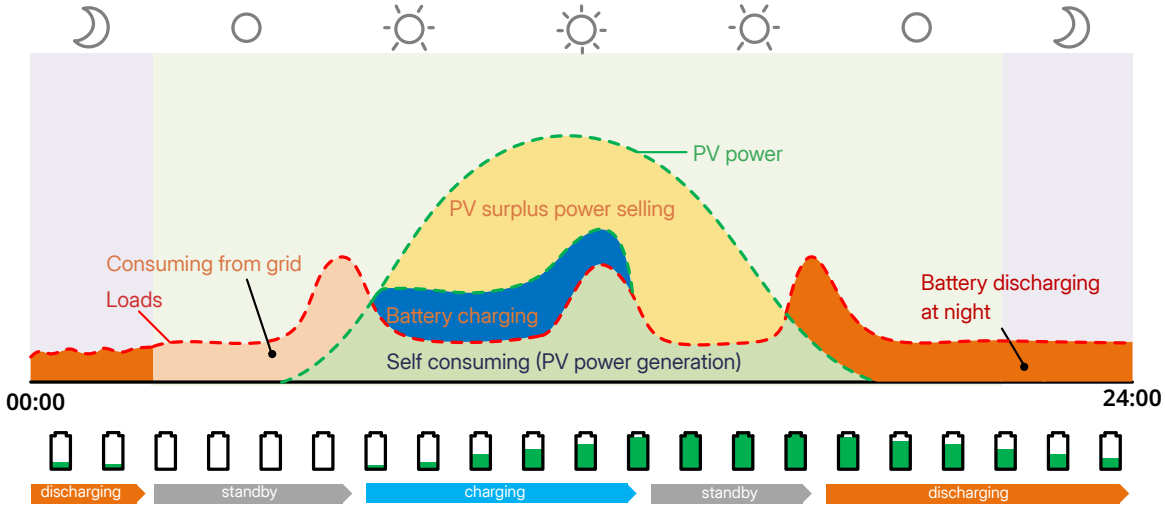
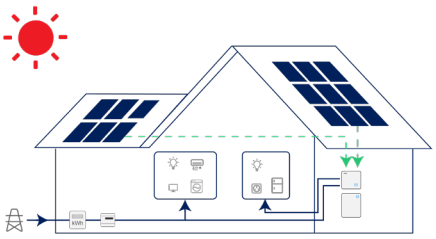
TN-C



TN-C-S

4.4 Working Modes

<table>
<tr><th colspan="3">Main Working Modes</th></tr>
<tr><td colspan="3">The following operation modes are applicable for the HYT series inverter and are also applicable for the HAT series inverter which is connected to the PV inverter.</td></tr>
<tr><td>Self-consumption Mode</td><td>In the daytime, solar energy supports the loads first and surplus energy is stored in the battery. When the battery is fully charged or reaches the maximum charge power, the rest energy is fed into the grid (or limited if required).

At night, the battery discharges for the loads first, and the grid will supply the loads once the battery power is not enough. In this mode, the battery cannot be charged from the grid at night.</td><td> 
  </td></tr>
<tr><td colspan="3"> 
</td></tr>
<tr><td colspan="3">Power flow of self-consumption mode</td></tr>
<tr><td>Economy mode</td><td>In this mode, the time of battery charge and discharge needs to be set. Meanwhile, the battery can be forced to charge from the grid during the preset charge time. For instance, the battery could be charged or discharged according to valley or peak electricity price.</td><td>  </td></tr>
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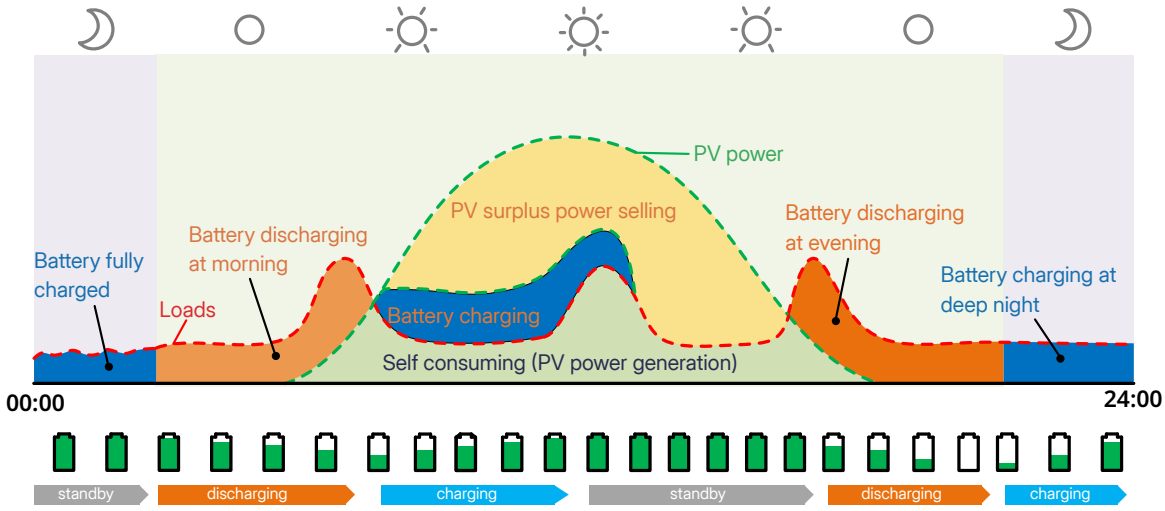
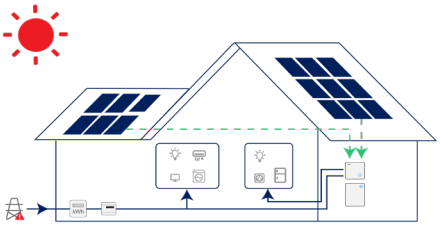
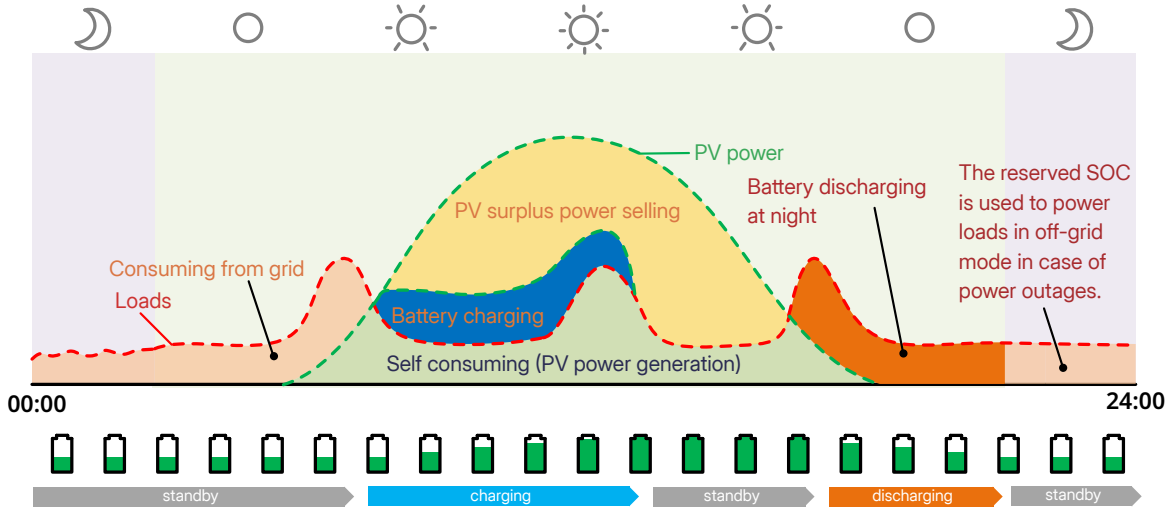


Power flow of economy mode

Backup Mode	In case of frequent power outages, a backup power SOC can be configured, which ensures that the battery always has enough energy to handle critical loads.	



Power flow of backup mode

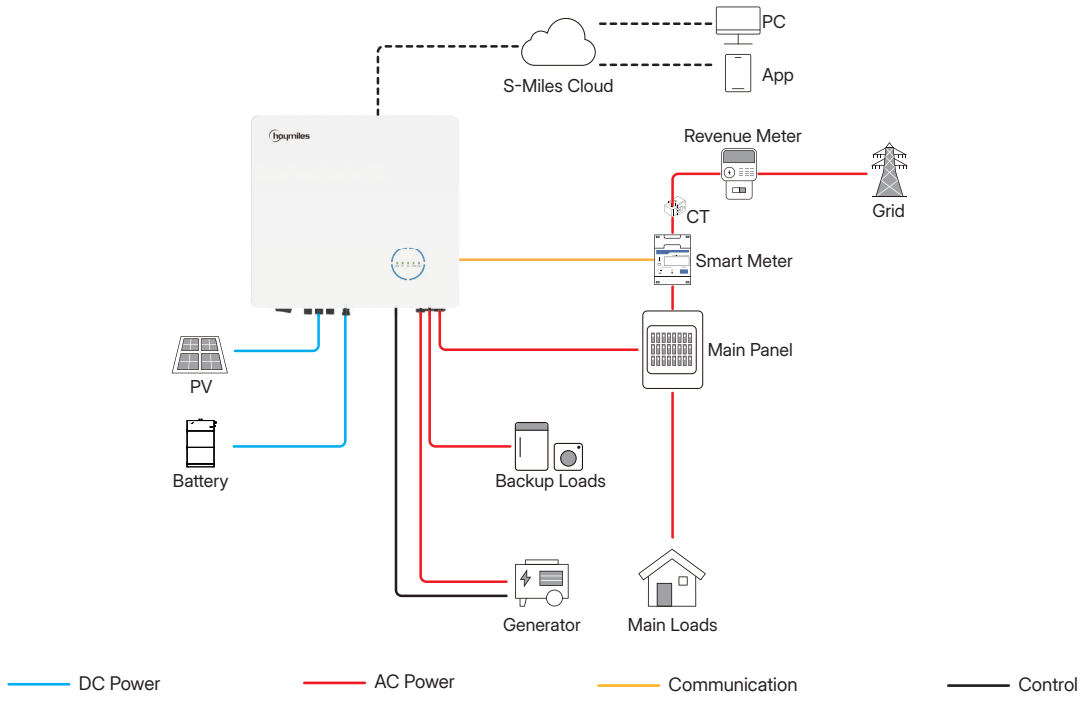
5 System Overview

NOTICE

- This diagram is a simplified system sketch that is only intended to explain system architecture.
- Please refer to ***https://www.hoymiles.com*** for the compatible battery list, and the user should first contact Hoymiles for technical consultation and obtain official confirmation before installing any battery not included in the official published list.

5.1 HYT-(5.0-12.0)HV-EUG1

The HYT-HV series inverter can be connected to a battery and PV panels to form a PV Energy Storage System (ESS). In the event of a grid outage, it can be used as an emergency power supply (EPS) through the self-consumption of solar energy. It can form a hybrid system for a new installation or an AC-coupled system to retrofit existing installations.

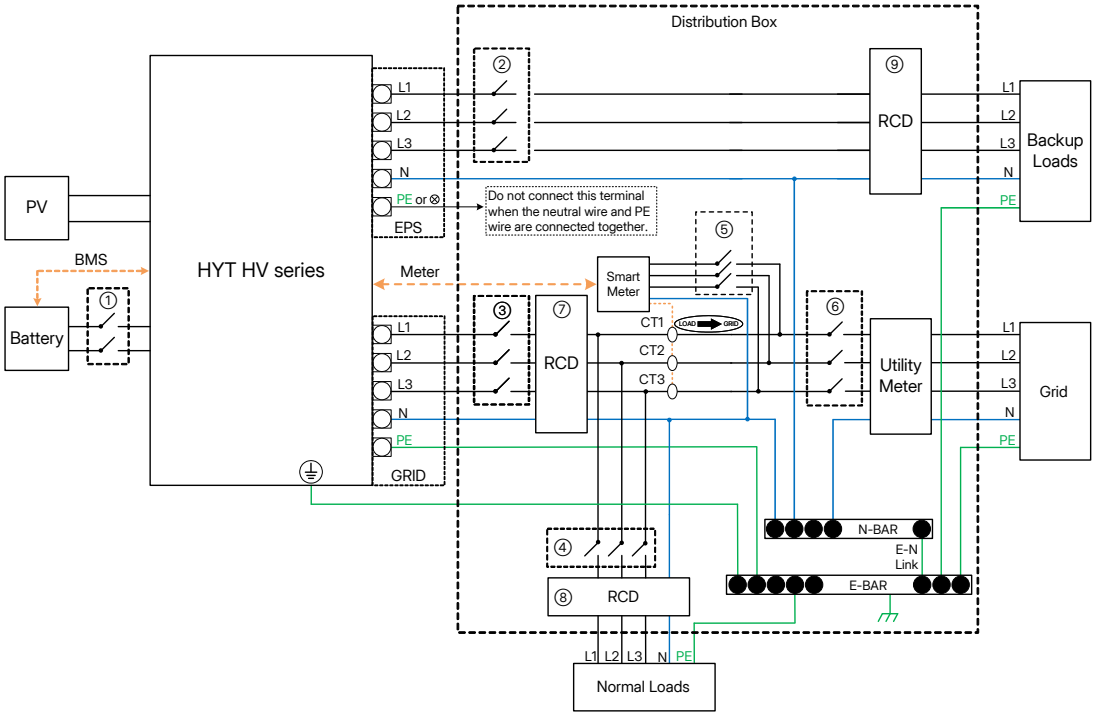


5.1.1 Basic Diagram

A. Diagram for Australia, New Zealand, South Africa, etc.

NOTICE

- This diagram is an example of application in which the neutral connects with PE in the distribution box.
- For countries such as Australia, New Zealand, South Africa, etc., please follow local wiring regulations!



Model	①	②	③	④	⑤	⑥	⑦	⑧⑨
HYT-5.0HV-EUG1	25 A/600 V DC Breaker	16 A/400 V AC Breaker	20 A/400 V AC Breaker	Depends on Loads	Depends on Meter	Main Breaker	300 mA RCD	30 mA RCD
HYT-6.0HV-EUG1	25 A/600 V DC Breaker	16 A/400 V AC Breaker	25 A/400 V AC Breaker					
HYT-8.0HV-EUG1	40 A/600 V DC Breaker	20 A/400 V AC Breaker	32 A/400 V AC Breaker					
HYT-10.0HV-EUG1	40 A/600 V DC Breaker	25 A/400 V AC Breaker	32 A/400 V AC Breaker					
HYT-12.0HV-EUG1	40 A/600 V DC Breaker	25 A/400 V AC Breaker	32 A/400V AC Breaker					

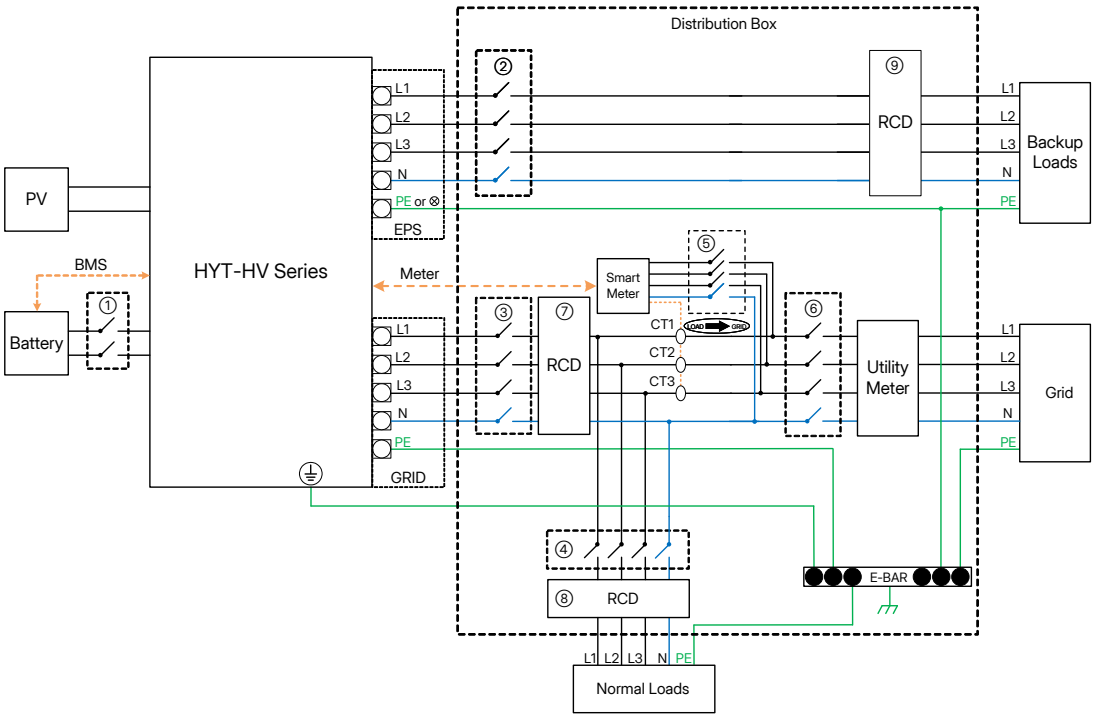
NOTE

- If the battery integrates a readily accessible internal DC breaker, no additional ① DC breaker is required.
- Since Hoymiles inverter has a built-in leakage current detection circuit, it is recommended to use a Type A RCD. If required by local regulations, a Type B RCD is also permitted.
- ⑧⑨ 30 mA RCD is recommended but not mandatory; please comply with local regulations.

B. Diagram for Other Countries

NOTICE

- This diagram is an example of application in which the neutral is separated from the PE in the distribution box.
- For countries such as China, Germany, Italy, etc., please follow local wiring regulations!
- The back-up PE line and earthing bar must be grounded properly and effectively. Otherwise, the back-up function may be abnormal when the grid fails.



Model	①	②	③	④	⑤	⑥	⑦	⑧⑨
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HYT-10.0HV-EUG1	40 A/600 V DC Breaker	25 A/400 V AC Breaker	32 A/400 V AC Breaker					
HYT-12.0HV-EUG1	40 A/600 V DC Breaker	25 A/400 V AC Breaker	32 A/400 V AC Breaker					

NOTE

- If the battery integrates a readily accessible internal DC breaker, no additional ① DC breaker is required.
- Since Hoymiles inverter has a built-in leakage current detection circuit, it is recommended to use a Type A RCD. If required by local regulations, a Type B RCD is also permitted.
- ⑧⑨ 30 mA RCD is recommended but not mandatory; please comply with local regulations.

5.1.2 Retrofit Diagram

The HYT-HV series inverter is compatible with any grid-connected PV inverter. With the addition of Hoymiles hybrid inverter, the existing PV system can be retrofitted to be a PV Energy Storage System (ESS) allowing more self-consumption energy and more backup energy.

Consult with your system integrator for detailed wiring according to your requirements.

Diagram 1

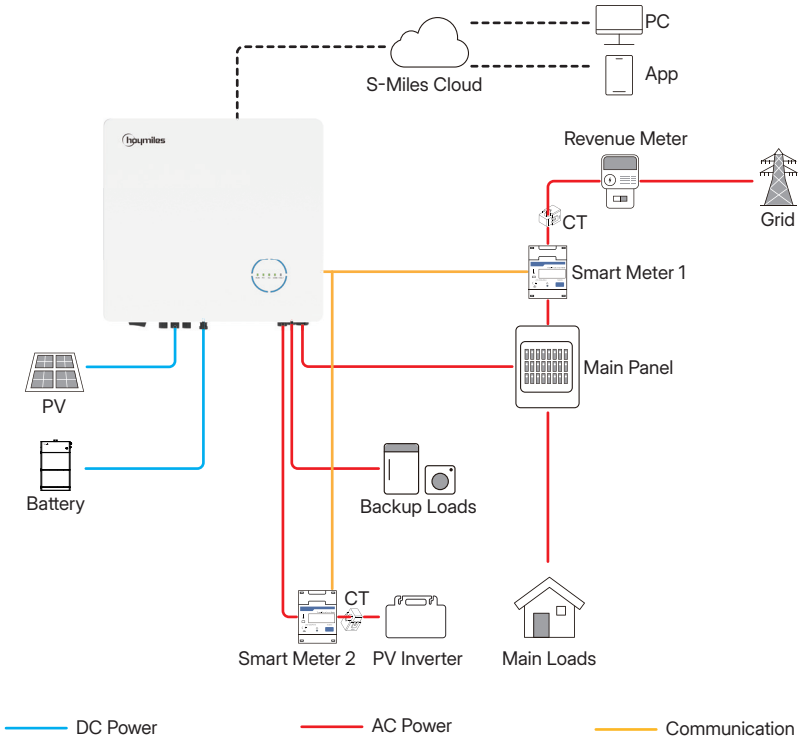
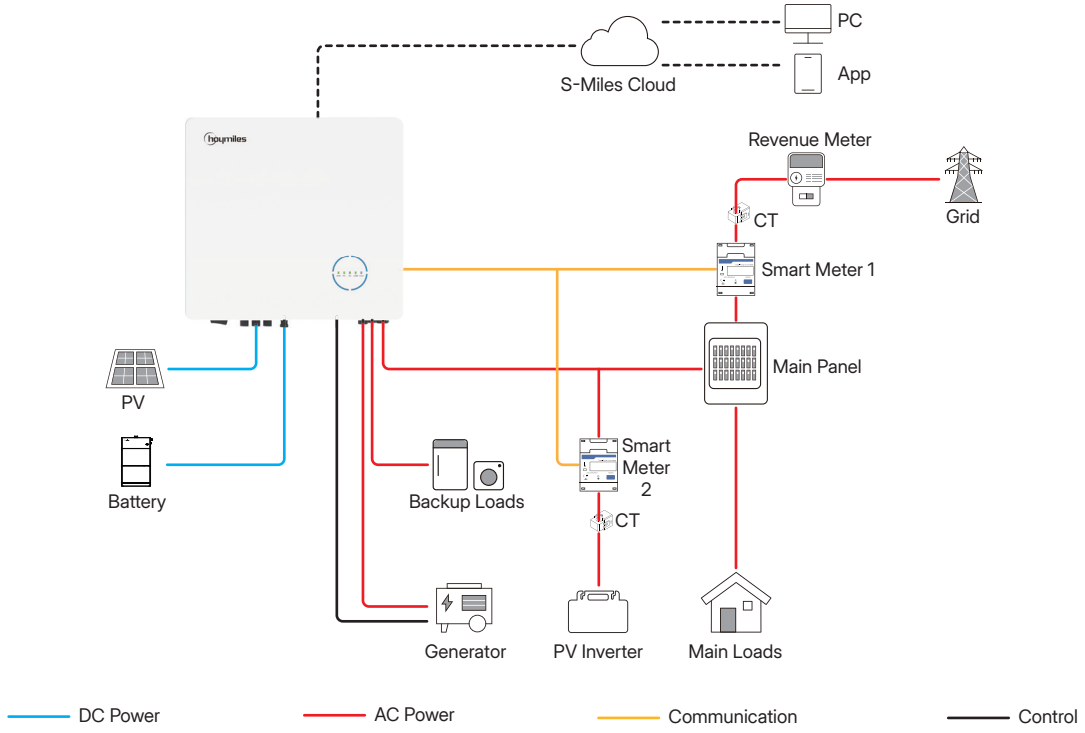


Diagram 2

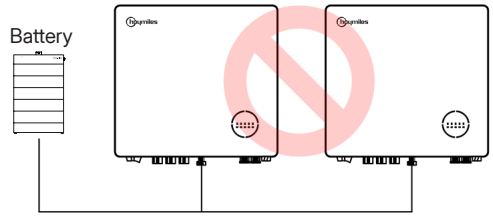


NOTE

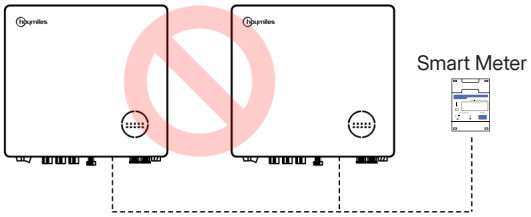
- If there is a strong desire to use this system in off-grid mode, it is recommended to connect the PV inverter to the GEN port (Diagram 1); if not, it is recommended to connect the PV inverter to the grid port (Diagram 2).
- If the generator is connected to the GEN port, there is no need to connect an additional meter.
- If the PV inverter is connected to the GEN port, the power of the PV inverter shall be less than the rated output power of Hoymiles hybrid inverter.
- If power export management is required, the power of the PV inverter shall be less than the battery charge power. The zero-export function will be disabled after the battery is fully charged.

5.1.3 Unacceptable Diagram

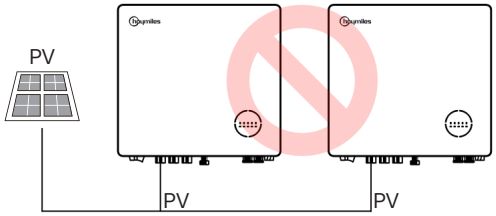
Avoid the following installation types to prevent damage to the system or the hybrid inverter.



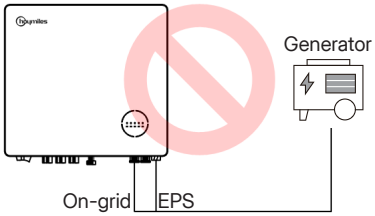
One battery cannot be connected to multiple inverters.



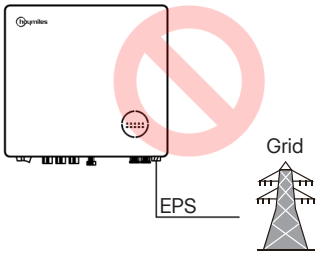
One meter cannot be connected to multiple inverters and different CTs cannot be connected to the same line cable.



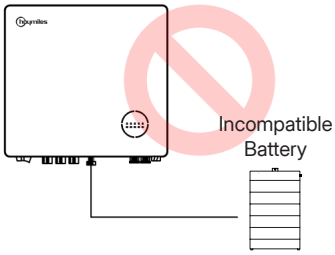
Single PV cannot be connected to multiple inverters.



Neither EPS or on-grid port can be connected to generator directly.



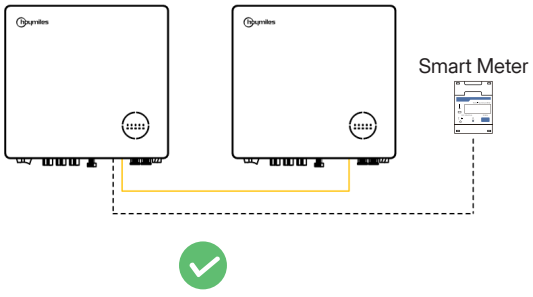
EPS port cannot be connected to grid directly.



Incompatible battery cannot be connected to battery port.

NOTE

The following diagram is acceptable if the inverters are connected in parallel.



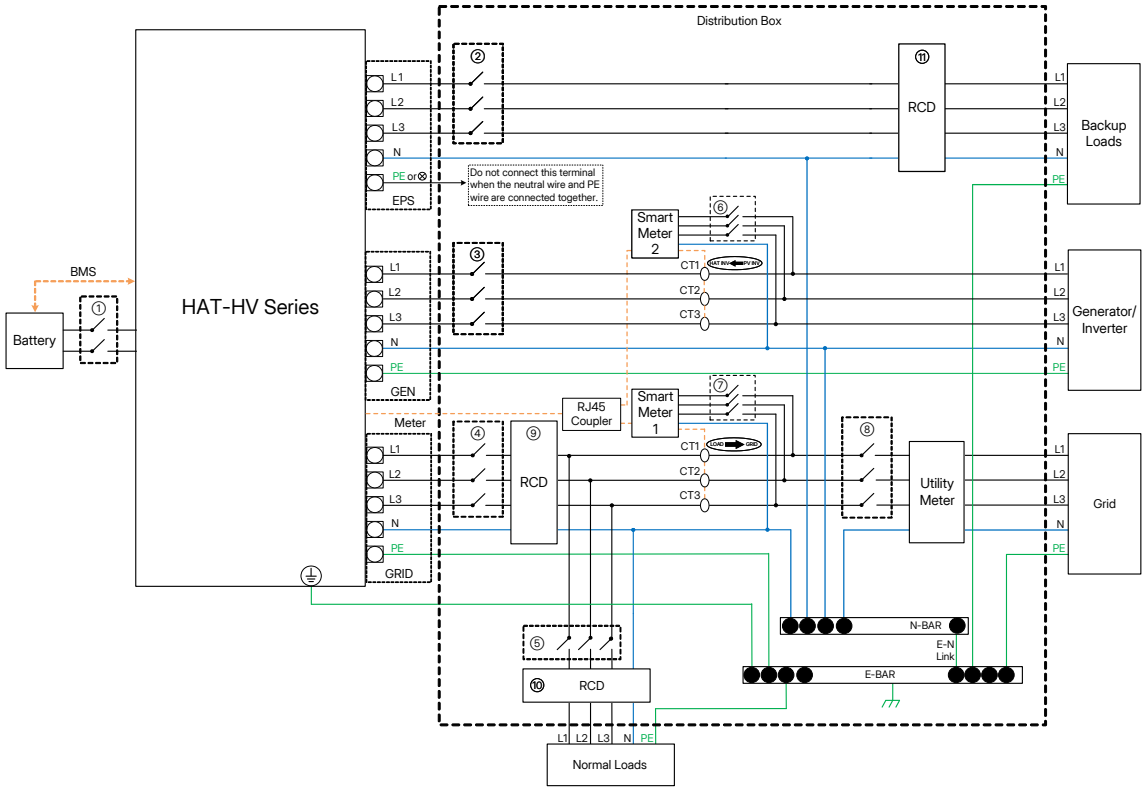
5.2 HAT-(5.0-10.0)HV-EUG1

5.2.1 Basic Diagram

A. Diagram for Australia, New Zealand, South Africa, etc.

NOTICE

- This diagram is an example of application in which the neutral connects with PE in the distribution box.
- For countries such as Australia, New Zealand, South Africa, etc., please follow local wiring regulations!



Model	①	②	③	④	⑤	⑥⑦	⑧	⑨	⑩⑪
HAT-5.0HV-EUG1	25 A/600 V DC Breaker	16 A/400 V AC Breaker	16 A/400 V AC Breaker	20 A/400 V AC Breaker	Depends on Loads	Depends on Meters	Main Breaker	300 mA RCD	30 mA RCD
HAT-6.0HV-EUG1	25 A/600 V DC Breaker	16 A/400 V AC Breaker	16 A/400 V AC Breaker	25 A/400 V AC Breaker					
HAT-8.0HV-EUG1	40 A/600 V DC Breaker	20 A/400 V AC Breaker	20 A/400 V AC Breaker	32 A/400 V AC Breaker					
HAT-10.0HV-EUG1	40 A/600 V DC Breaker	25 A/400 V AC Breaker	25 A/400 V AC Breaker	32 A/400 V AC Breaker					

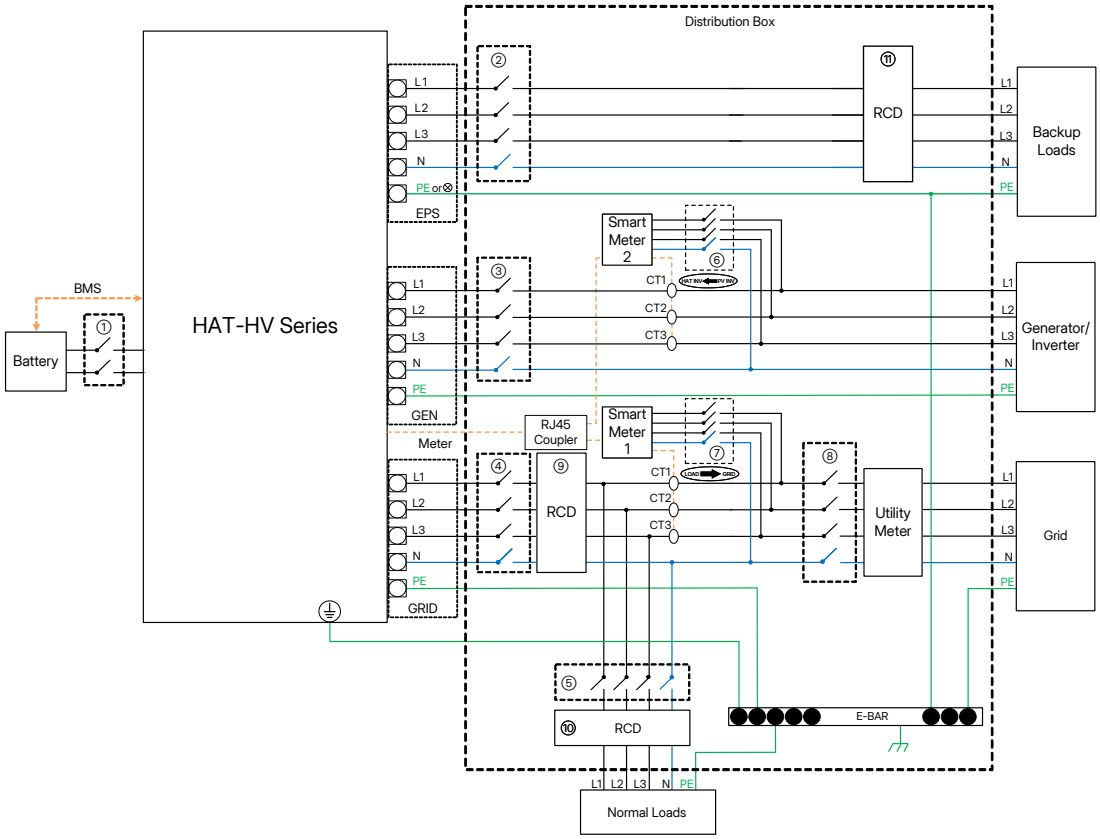
NOTE

- If the battery integrates a readily accessible internal DC breaker, no additional ① DC breaker is required.
- Since Hoymiles inverter has a built-in leakage current detection circuit, it is recommended to use a Type A RCD. If required by local regulations, a Type B RCD is also permitted.
- ⑩ ⑪ 30 mA RCD is recommended but not mandatory; please comply with local regulations.

B. Diagram for Other Countries

NOTICE

- This diagram is an example of application in which the neutral is separated from the PE in the distribution box.
- For countries such as China, Germany, Italy, etc., please follow local wiring regulations!
- The back-up PE line and earthing bar must be grounded properly and effectively. Otherwise, the back-up function may be abnormal when the grid fails.



Model	①	②	③	④	⑤	⑥⑦	⑧	⑨	⑩⑪
HAT-5.0HV-EUG1	25 A/600 V DC Breaker	16 A/400 V AC Breaker	16 A/400 V AC Breaker	20 A/400 V AC Breaker	Depends on Loads	Depends on Meters	Main Breaker	300 mA RCD	30 mA RCD
HAT-6.0HV-EUG1	25 A/600 V DC Breaker	16 A/400 V AC Breaker	16 A/400 V AC Breaker	25 A/400 V AC Breaker					
HAT-8.0HV-EUG1	40 A/600 V DC Breaker	20 A/400 V AC Breaker	20 A/400 V AC Breaker	32 A/400 V AC Breaker					
HAT-10.0HV-EUG1	40 A/600 V DC Breaker	25 A/400 V AC Breaker	25 A/400 V AC Breaker	32 A/400 V AC Breaker					

NOTE

- If the battery integrates a readily accessible internal DC breaker, no additional ① DC breaker is required.
- Since Hoymiles inverter has a built-in leakage current detection circuit, it is recommended to use a Type A RCD. If required by local regulations, a Type B RCD is also permitted.
- ⑩ ⑪ 30 mA RCD is recommended but not mandatory; please comply with local regulations.

5.2.2 Retrofit Diagram

The HAT-HV series inverter is compatible with any grid-connected PV inverter. With the addition of Hoymiles AC-coupled inverter, the existing PV system can be retrofitted to be a PV Energy Storage System (ESS) allowing more self-consumption energy and more backup energy.

Consult with your system integrator for detailed wiring according to your requirements.

Diagram 1

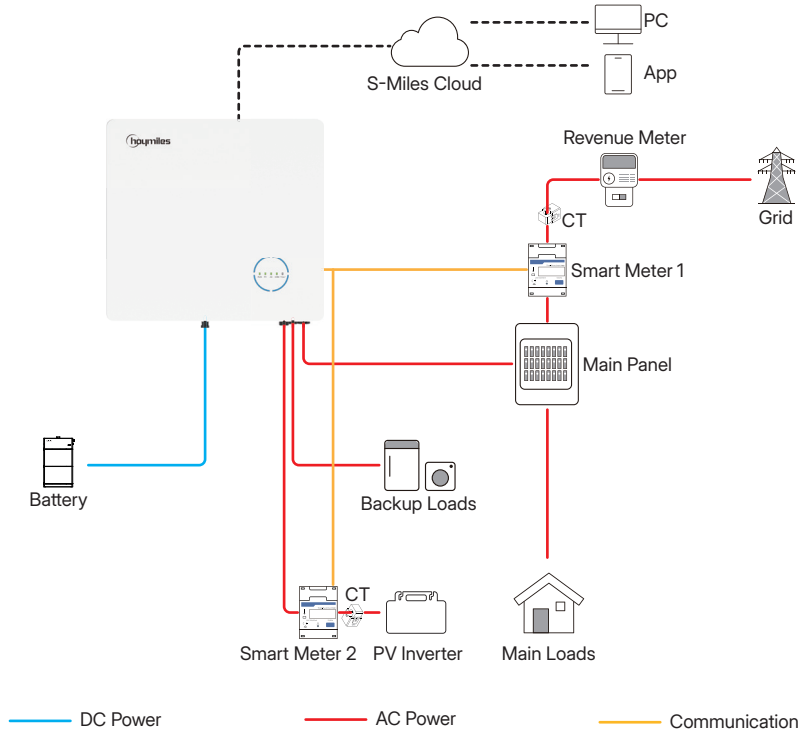
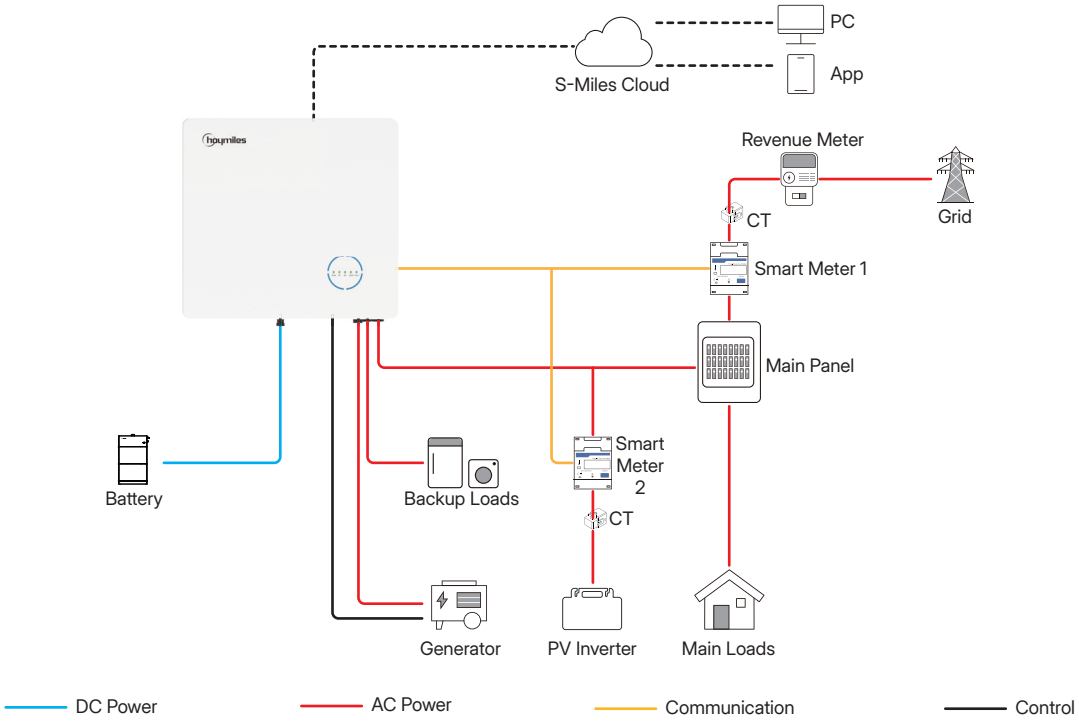


Diagram 2

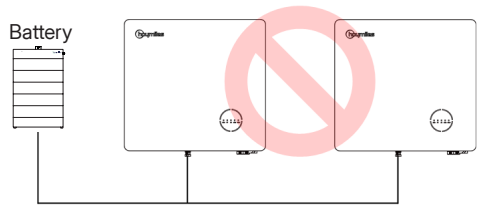


NOTE

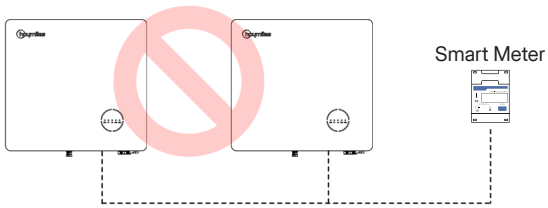
- If there is a strong desire to use this system in off-grid mode, it is recommended to connect the PV inverter to the GEN port (Diagram 1); if not, it is recommended to connect the PV inverter to the grid port (Diagram 2).
- If the generator is connected to the GEN port, there is no need to connect an additional meter.
- If the PV inverter is connected to the GEN port, the power of the PV inverter shall be less than the rated output power of Hoymiles AC-coupled inverter.
- If power export management is required, the power of the PV inverter shall be less than the battery charge power. The zero-export function will be disabled after the battery is fully charged.

5.2.3 Unacceptable Diagram

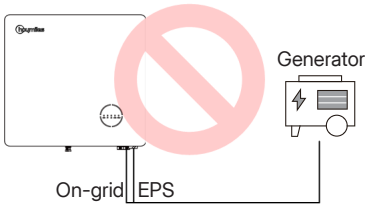
Avoid the following installation types to prevent damage to the system or the AC-coupled inverter.



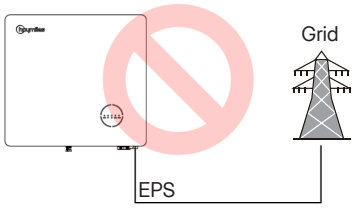
One battery cannot be connected to multiple inverters.



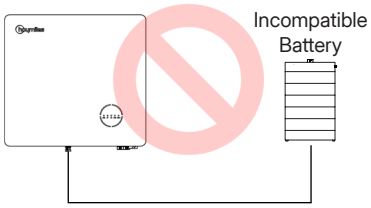
One meter cannot be connected to multiple inverters and different CTs cannot be connected to the same line cable.



Neither EPS or on-grid port can be connected to generator directly.



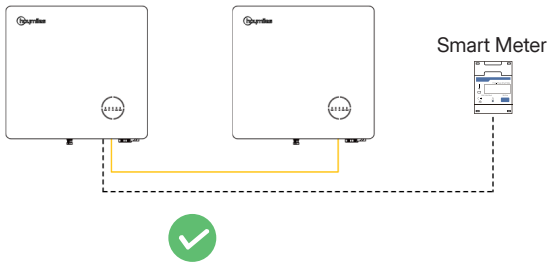
EPS port cannot be connected to grid directly.



Incompatible battery cannot be connected to battery port.

NOTE

The following diagram is acceptable if the inverters are connected in parallel.

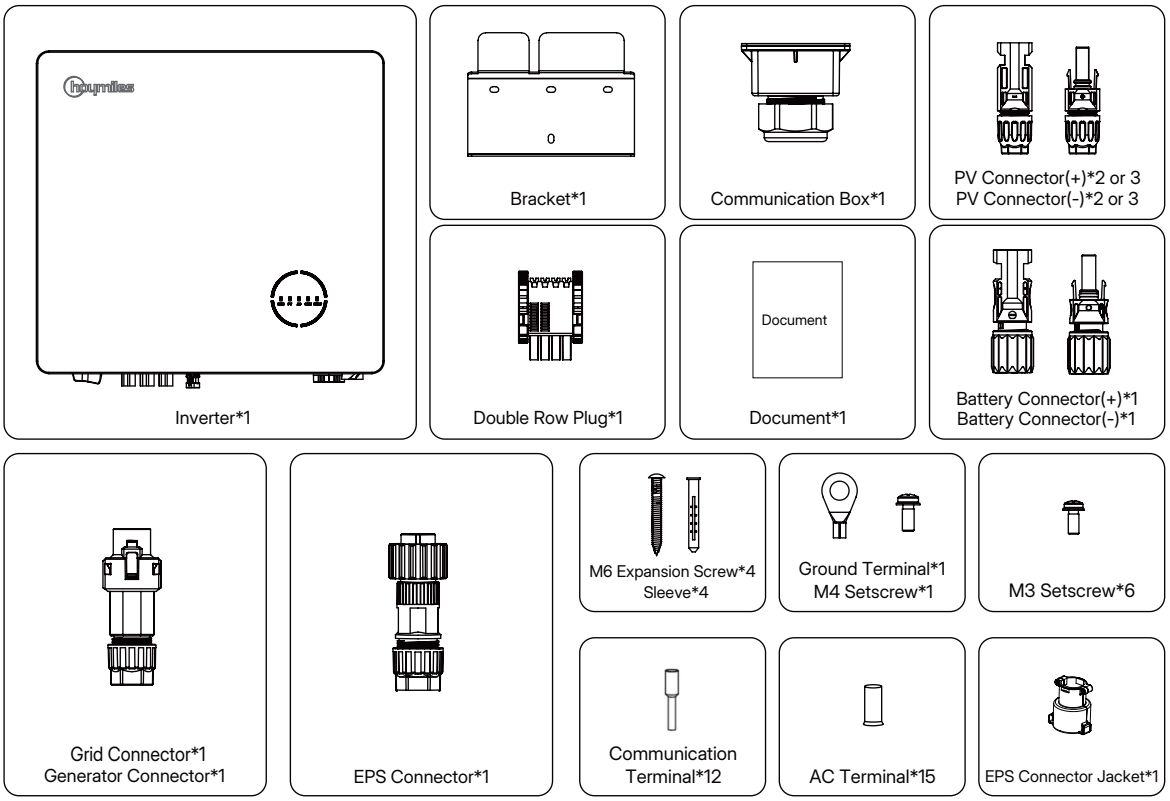


6 Installation Instruction

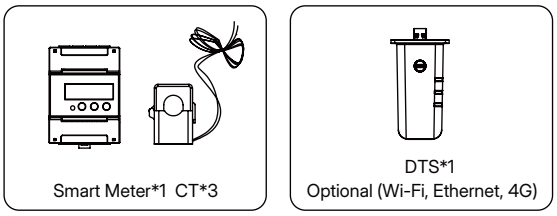
6.1 Unpacking

Please ensure that none of the components listed below are missing or damaged upon receipt of the hybrid inverter or AC-coupled inverter.

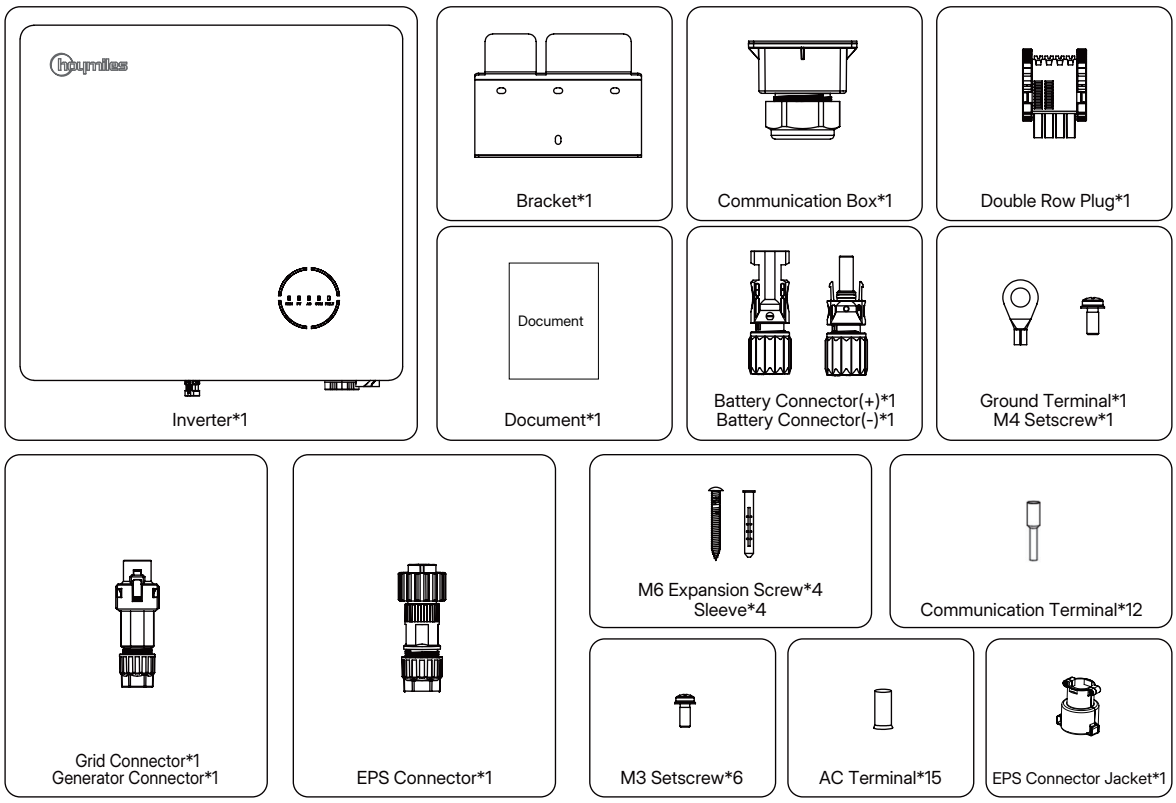
HYT-(5.0-12.0)HV-EUG1



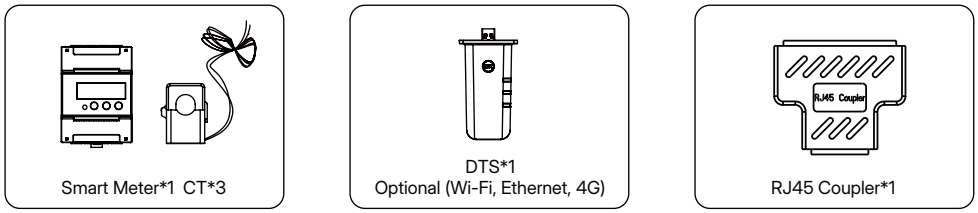
Accessories packing list



HAT-(5.0-10.0)HV-EUG1



Accessories packing list



6.2 Installation Requirements

⚠ WARNING

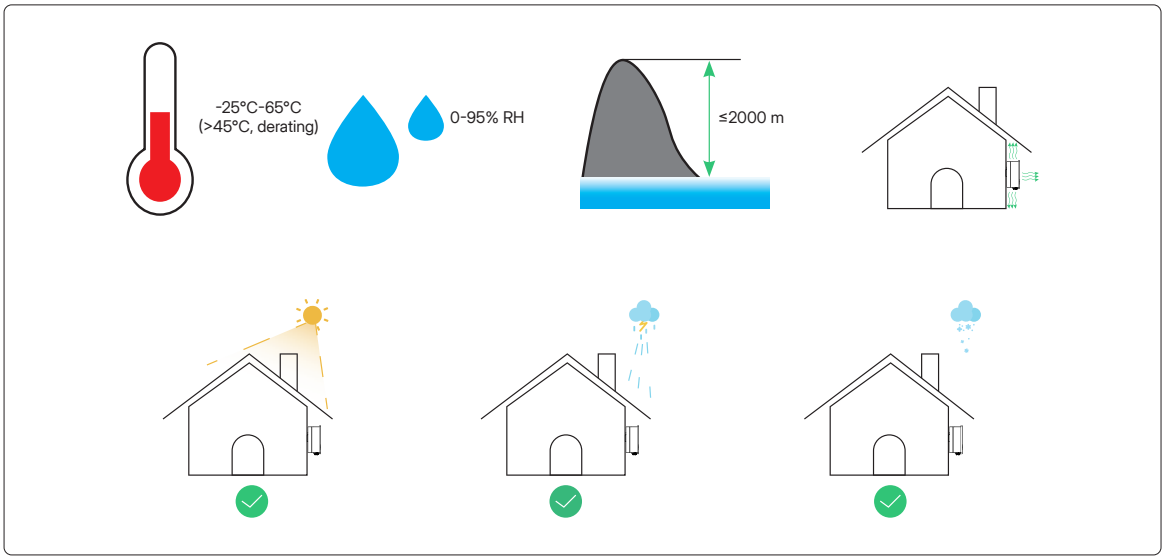
- Make sure there is no electrical connection before installation.
- To avoid electric shock or other injuries, make sure that holes are not drilled over any electrical parts or plumbing installations.

NOTICE

Make sure the inverter is correctly installed according to the following list. Any incorrect installation would require a risk assessment.

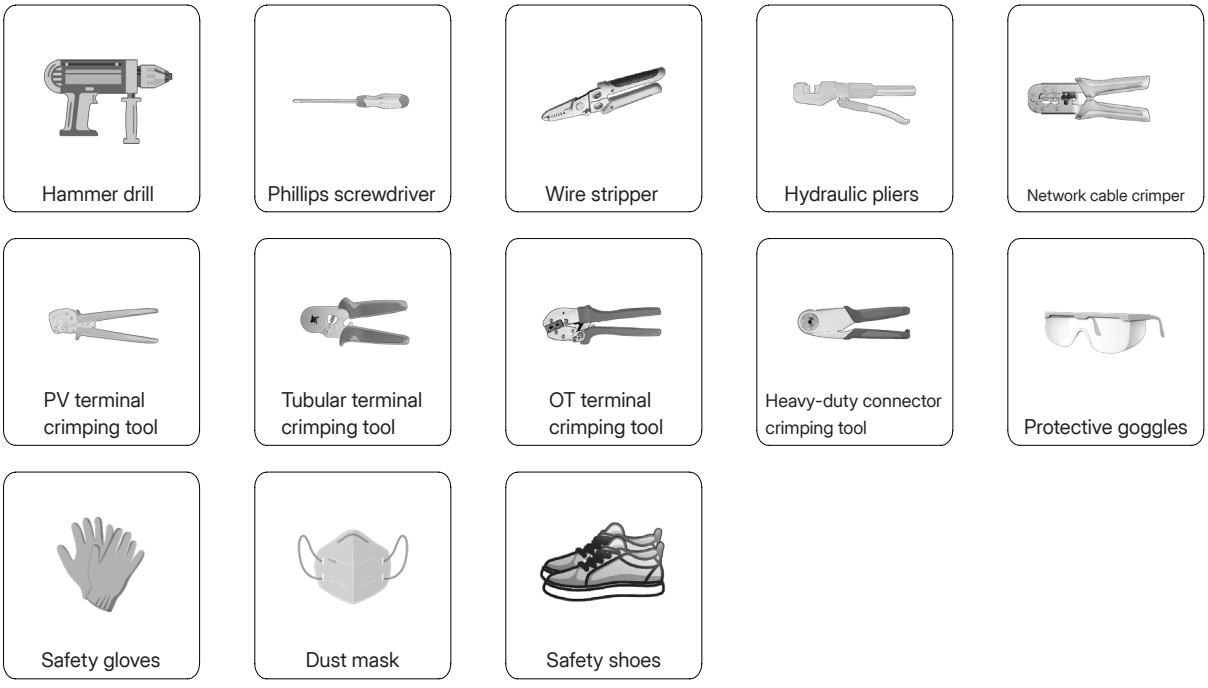
- The inverter installation should be protected by shelter from direct sunlight or bad weather such as snow, rain, or lightning.
- The inverter should be installed on a solid surface that is suitable for the inverter's dimensions and weight.
- The inverter should be installed vertically or at a maximum back tilt of 15°. Leave enough space around the inverter according to the figure below.

- The inverter should be installed in an environment with good ventilation and heat dissipation conditions.
- The ambient temperature should be between -25°C and 45°C. High ambient temperatures will cause power derating of the inverter.
- The relative humidity should be less than 95%, without condensing.
- The inverter should be installed at eye level for convenient maintenance.
- The product label on the inverter should be visible after installation.
- The inverter should be installed far from flammable materials.



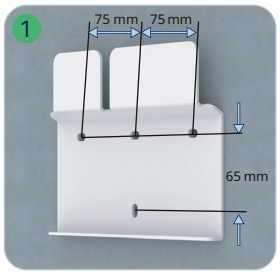
6.3 Installation Tools

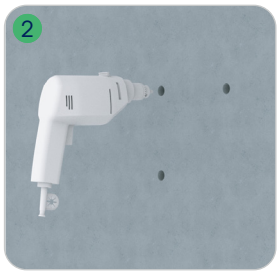
The following tools are recommended in the installation process, and other auxiliary tools can also be used on site if necessary.

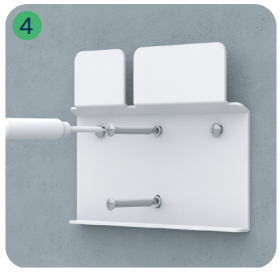
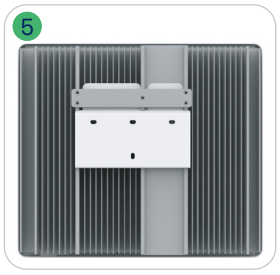


6.4 Installation Steps

Install the inverter on the wall using the provided wall-mounting bracket and expansion plug sets.

<table>
<tr><th colspan="3">Procedure</th></tr>
<tr><td>Step 1</td><td>Position the bracket against the wall and mark the 4 drilling hole locations.</td><td rowspan="2"> 


</td></tr>
<tr><td>Step 2</td><td>Drill holes with a driller, and make sure the holes are deep enough (at least 60 mm).</td></tr>
<tr><td>Step 3</td><td>Place sleeves in the holes, and then tighten them.</td><td rowspan="2"> 


</td></tr>
<tr><td>Step 4</td><td>Fix the wall bracket with expansion screws. Please confirm that the bracket is firmly attached to the mounting surface.</td></tr>
<tr><td>Step 5</td><td>Mount the inverter on the bracket.</td><td> 
</td></tr>
</table>

7 Electrical Connection

⚠ WARNING

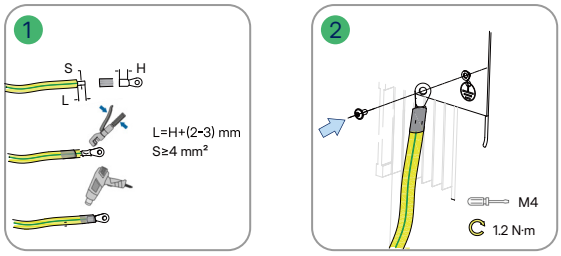
Prior to any electrical connections, keep in mind that the inverter has dual power supplies. It is mandatory for qualified personnel to wear personal protective equipment (PPE) during the electrical work.

NOTICE

For installation video, please visit *www.youtube.com/@Hoymiles/videos*.

7.1 Ground Cable Connection

All non-current carrying metal parts and device enclosures in the PV power system should be grounded. There is an additional grounding terminal located at the bottom right of the inverter, being connected to a nearby grounding point.

Procedure		
Step 1	Prepare the cable and OT/DT terminal.	
Step 2	Use the screw from the accessory box. Then fasten the cable with a screwdriver.	

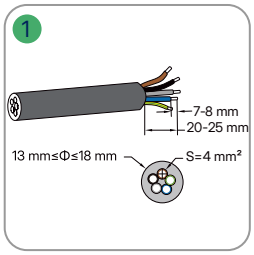
7.2 AC Cable Connection

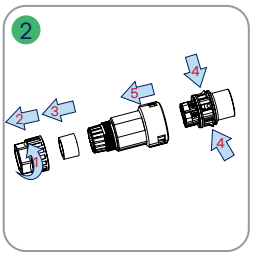
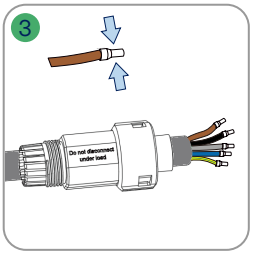
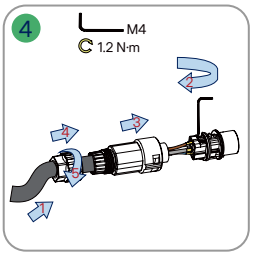
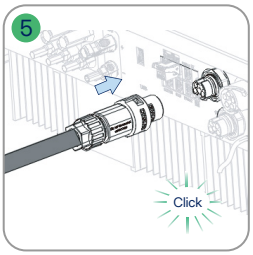
7.2.1 Grid Connection

⚠ WARNING

Before connecting the grid, please make sure all requirements listed below are followed.

- Use the grid connector from the accessory box. Damage to the device due to the use of an incompatible connector shall not be covered by the warranty.
- An independent three or four-pole circuit breaker must be installed on the output side of the inverter to ensure safe disconnection from the grid.
- Multiple inverters cannot share one circuit breaker.
- Never connect a load between the inverter and the circuit breaker.
- Do not connect the AC circuit breaker until all inverter electrical connections are completed.

Procedure		
Step 1	Remove the cable jacket by 20-25 mm, and strip the wire insulation by 7-8 mm. The conductor cross-sectional area: 4 mm².	

Step 2	a. Unscrew the grid connector counterclockwise. b. Disassemble the parts in sequence.	
Step 3	a. Insert the cable conductor core into the terminals and crimp them tightly. Make sure the cable jacket is not locked within the connector. b. Thread the AC cable of appropriate length through the waterproof terminal.	
Step 4	a. Fix all cables to the corresponding terminals with a torque of 1.2 N•m using the screwdriver according to the markings on the connector. Make sure the L1/L2/L3/N/PE cables are correctly assembled. b. Assemble the parts in sequence. c. Tighten the waterproof terminal clockwise.	
Step 5	Connect the grid connector to the inverter. There should be a “click” sound, if it is plugged in correctly.	

7.2.2 GEN Connection

The GEN port can be connected to the PV inverter or generator, and the GEN port wiring method is the same as that described in ***7.2.1 Grid Connection***.

The GEN port limits of connecting the PV inverter and generator are described as follows:

Model	HYT/HAT-5.0HV-EUG1	HYT/HAT-6.0HV-EUG1	HYT/HAT-8.0HV-EUG1	HYT/HAT-10.0HV-EUG1	HYT-12.0HV-EUG1
AC Input (GEN)					
Max. input power (W)	5000	6000	8000	10000	12000
Connection type			3L/N/PE		
Rated input voltage (V)			380/400		
Rated input frequency (Hz)			50/60		
Max. input current (A)	7.6	9.1	12.1	15.2	18.2
Recommended AC Breaker	16 A/400 V	16 A/400 V	20 A/400 V	25 A/400 V	25 A/400 V
Recommended Cable (mm²)	4	4	4	4	4

NOTE

- Select the appropriate AC breaker in accordance with local laws and regulations.
- The grid-connected PV inverter connected must have the overfrequency protection function.
- The single-phase microinverter can be connected to the HAT series inverter.
- Check whether the PV or battery is properly connected when the GEN port is connected to the PV inverter.

7.2.3 EPS Connection

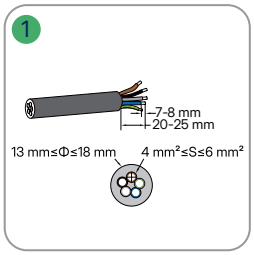
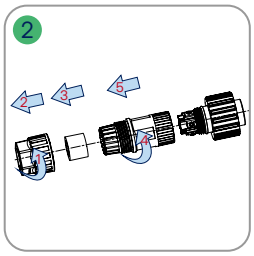
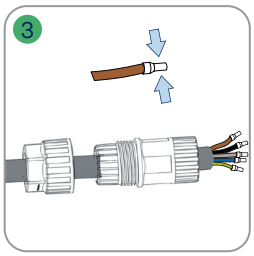
HYT/HAT-HV series has on-grid and off-grid functions. The inverter will transmit power through the GRID port when the grid is on, and it will transmit power through the EPS port when the grid is off.

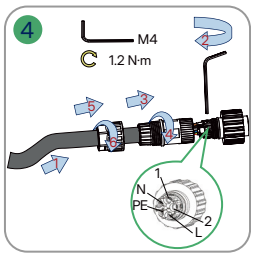
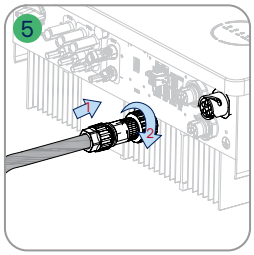
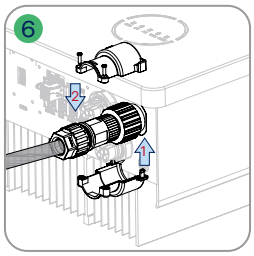
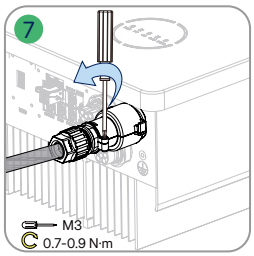
A standard PV installation typically consists of connecting the inverter to both panels and batteries. When the system is not connected to the batteries, the manufacturer strongly advises that the backup function shall not be used. The manufacturer will not honor the standard warranty and will not be liable for any consequences arising from users not following these instructions.

⚠ WARNING

Before connecting the EPS, please make sure all requirements listed below are followed.

- Use the EPS connector from the accessory box. Damage to the device due to the use of an incompatible connector shall not be covered by the warranty.
- An independent three or four-pole circuit breaker must be installed on the output side of the inverter to ensure safe disconnection from the grid.
- Multiple inverters cannot share one circuit breaker.
- Never connect a load between the inverter and the circuit breaker.
- Ensure the rated power of the EPS load does not exceed the rated output power of the inverter.
- Ensure that the starting power of inductive loads, such as air conditioners, refrigerators, and pumps, does not exceed the EPS peak power of the inverter. (The starting power of the air conditioner is at least 2 times the rated power. For details, refer to the appliance manual.) Otherwise, the inverter will stop output or even shut down with a fault alarm.

Procedure		
Step 1	Remove the cable jacket by 20-25 mm, and strip the wire insulation by 7-8 mm. The conductor cross-section area: 4-6 mm².	
Step 2	a. Unscrew the EPS connector counterclockwise. b. Disassemble the parts in sequence.	
Step 3	a. Insert the cable conductor core into the terminals and crimp them tightly. Make sure the cable jacket is not locked within the connector. b. Thread the AC cable of appropriate length through the waterproof terminal.	

Step 4	a. Fix all cables to the corresponding terminals with a torque of 1.2 N•m using the screwdriver according to the markings on the connector. Make sure the L1/L2/L3/N/PE cables are correctly assembled. (The correspondence between the terminals and cables is 2-L1, L-L2, and 1-L3.) b. Assemble the parts in sequence. c. Tighten the waterproof terminal clockwise.	
Step 5	Connect the EPS connector to the inverter and tighten it.	
Step 6&7	Install the EPS connector jacket to ensure that the EPS connector cannot be disassembled without tools.	 

7.3 PV Cable Connection (only for HYT series inverters)

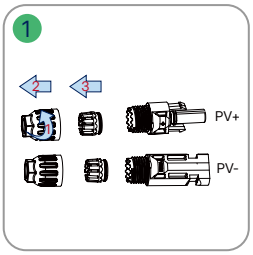
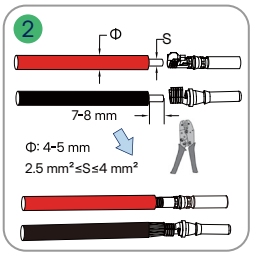
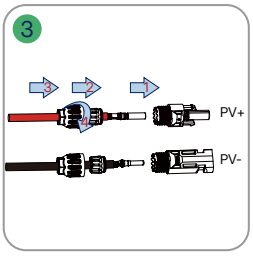
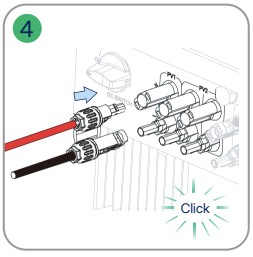
⚠ WARNING

Before connecting the PV, please make sure all requirements listed below are followed.

- The voltage, current, and power ratings of the panels to be connected are within the allowable range of the inverter. Ensure the polarity is correct, and please refer to the technical parameters in ***12 Technical Datasheet*** for voltage and current limits.
- Since the inverter is a transformerless structure, please do not ground the outputs of PV panels.
- If the inverter is integrated with a PV switch, please make sure it is in the "OFF" position. Otherwise please use an external PV switch to cut off the PV connection during wiring and when necessary.

NOTICE

- Use the PV connectors in the accessory box for PV connections. Damage to the device due to the use of an incompatible terminal shall not be covered by the warranty.
- Please make sure the connectors are correct, not the battery connectors, as they look similar.

Procedure		
Step 1	a. Unscrew the PV connector counterclockwise. b. Remove the insulator. c. Remove the inner cable gland.	
Step 2	a. Strip the insulation from each DC cable by 7-8 mm. The conductor cross-sectional area: 2.5-4 mm². b. Assemble cable ends with crimp contacts by PV terminal crimping tool.	
Step 3	a. Lead the cable through the cable gland. b. Insert the crimp contact into the insulator until it snaps into place. c. Gently pull the cable backward to ensure a firm connection. d. Tighten the cable gland and the insulator.	
Step 4	a. Check the cable connection of the PV string for polarity correctness and ensure that the open-circuit voltage in any case does not exceed the inverter input limit of 1,000 V. b. Connect the PV connectors to the inverter. There should be a "click" sound if they are plugged in correctly.	

7.4 Battery Cable Connection

This section mainly describes the cable connections on the inverter side. Refer to the instructions supplied by the battery manufacturer for the connections on the battery side.

For batteries without a built-in DC breaker, make sure that an external DC breaker is connected.

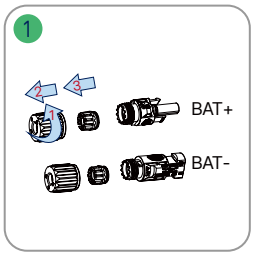
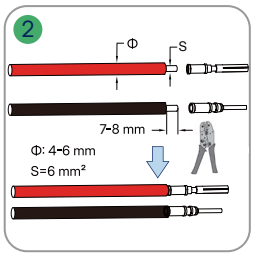
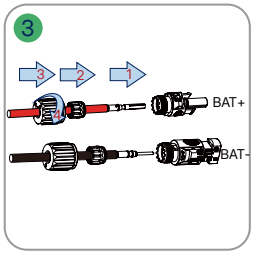
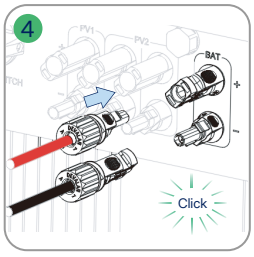
If you need to use this hybrid inverter or AC-coupled inverter as a grid-tied inverter, please contact Hoymiles for help.

⚠ WARNING

- A two-pole DC breaker with overcurrent protection (OCP) function is compulsory to be installed between the inverter and battery. The battery may have this switch integrated. If not, an external DC switch of proper ratings should be used.
- Make sure the breaker mentioned above is in the “OFF” position.

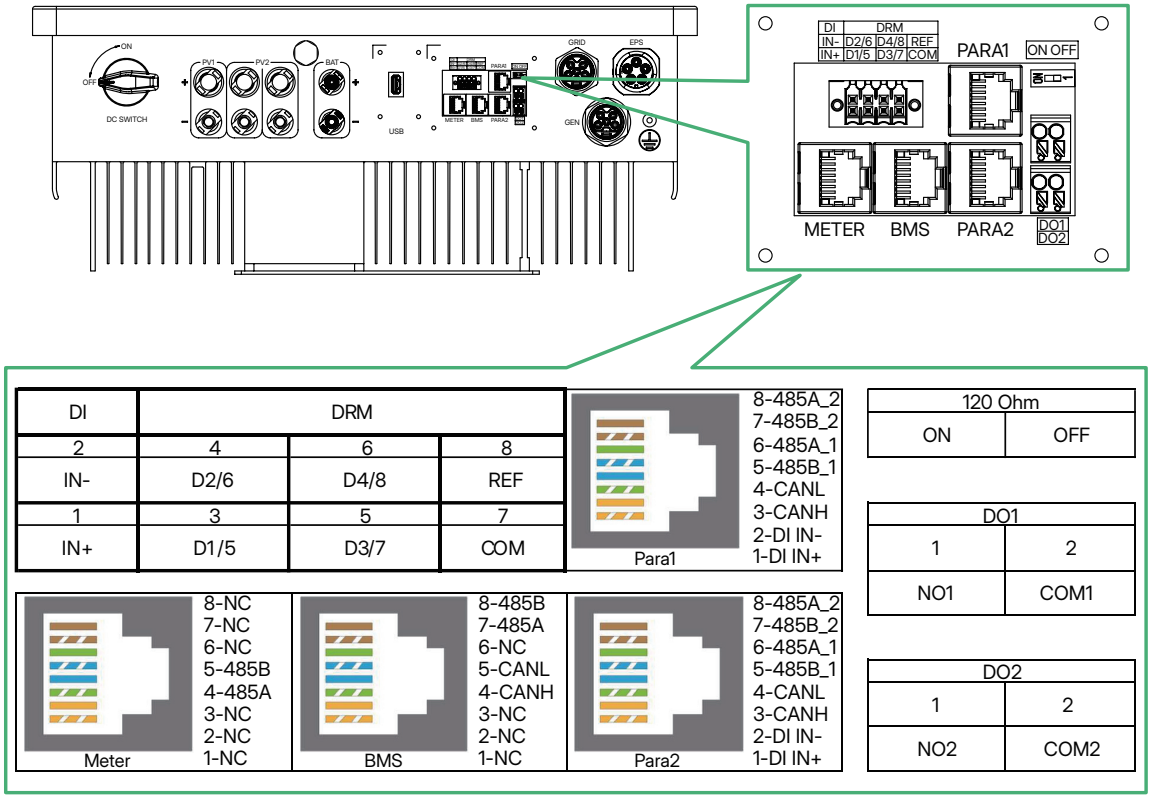
NOTICE

Use the battery connectors in the accessory box for battery connections.

Procedure		
Step 1	a. Unscrew the battery connector counterclockwise. b. Remove the insulator. c. Remove the inner cable gland.	
Step 2	a. Strip the insulation from each DC cable by 7-8 mm. The conductor cross-sectional area: 6 mm². b. Assemble cable ends with crimp contacts by hydraulic pliers.	
Step 3	Check the cable connection of the battery for polarity correctness and ensure that the open-circuit voltage in any case does not exceed the input limit of 600 V.	
Step 4	Connect the battery connectors to the inverter. There should be a “click” sound if they are plugged in correctly.	

7.5 Communication Cable Connection

Detailed pin functions of each port on the communication interface are as follows.

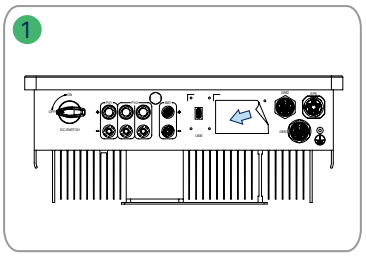
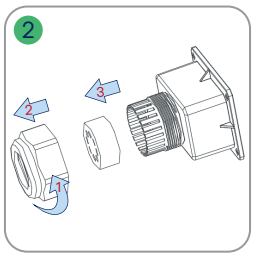
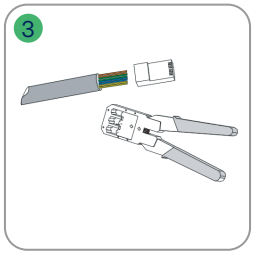
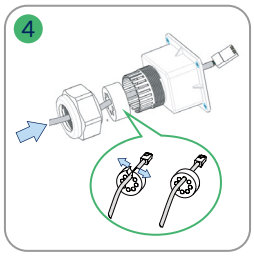
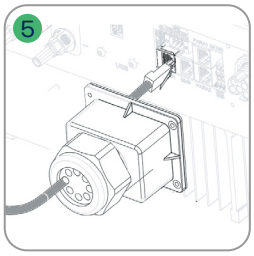
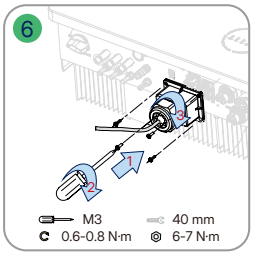


Label	Description
Meter (485A, 485B)	For the smart meter.
BMS (CANH, CANL, 485A, 485B)	For Li-ion batteries, communication is via CAN.
DRM (D1/5, D2/6, D3/7, D4/8, COM, REF)	For external Demand Response Enabling Device.
DI (IN+, IN-)	Dry contact input of external bypass contactor.
Parallel (DI IN+, DI IN-, CANH, CANL, 485B_1, 485A_1, 485B_2, 485A_2)	For parallel operation.
120 Ohm (ON, OFF)	120 Ohm termination resistor for parallel operation.
DO1 (NO1, COM1)	Dry contact output. The DO1 can be set to one of the functions as follows: Earth Fault Alarm, Load Control, and Generator Control.
DO2 (NO2, COM2)	Dry contact output. The DO2 will control the bypass contactor under certain logic.

7.5.1 BMS Connection

NOTICE

- Connection of communication box is mandatory whether it is wired or not.
- The communication cable should be a standard CAT 5 Ethernet cable.

Procedure		
Step 1	Peel the stickers off from the communication port.	
Step 2	a. Unscrew the communication box counterclockwise. b. Disassemble the parts in sequence.	
Step 3	Strip the insulation layer of the communication cable with an ethernet wire stripper, and lead the corresponding signal cables out. Insert the stripped communication cable into the RJ45 plug in the correct order, and crimp it with a network cable crimper. The pin definitions of BMS are shown in ***7.5 Communication Cable Connection***.	
Step 4	a. Thread the cable of an appropriate length through the communication box. b. Clip the ethernet cable into the rubber ring.	
Step 5&6	a. Insert the RJ45 plug into the BMS port until it clicks into place. b. Tighten the cable gland. c. Install the communication box with screws. d. Connect the other end of the BMS cable to the battery, following the battery's manual instructions.	 

7.5.2 Smart Meter and CT Connection

The smart meter and CT in the accessory box are necessary for system installation and are used to provide the operating condition of the inverter via RS485 communication.

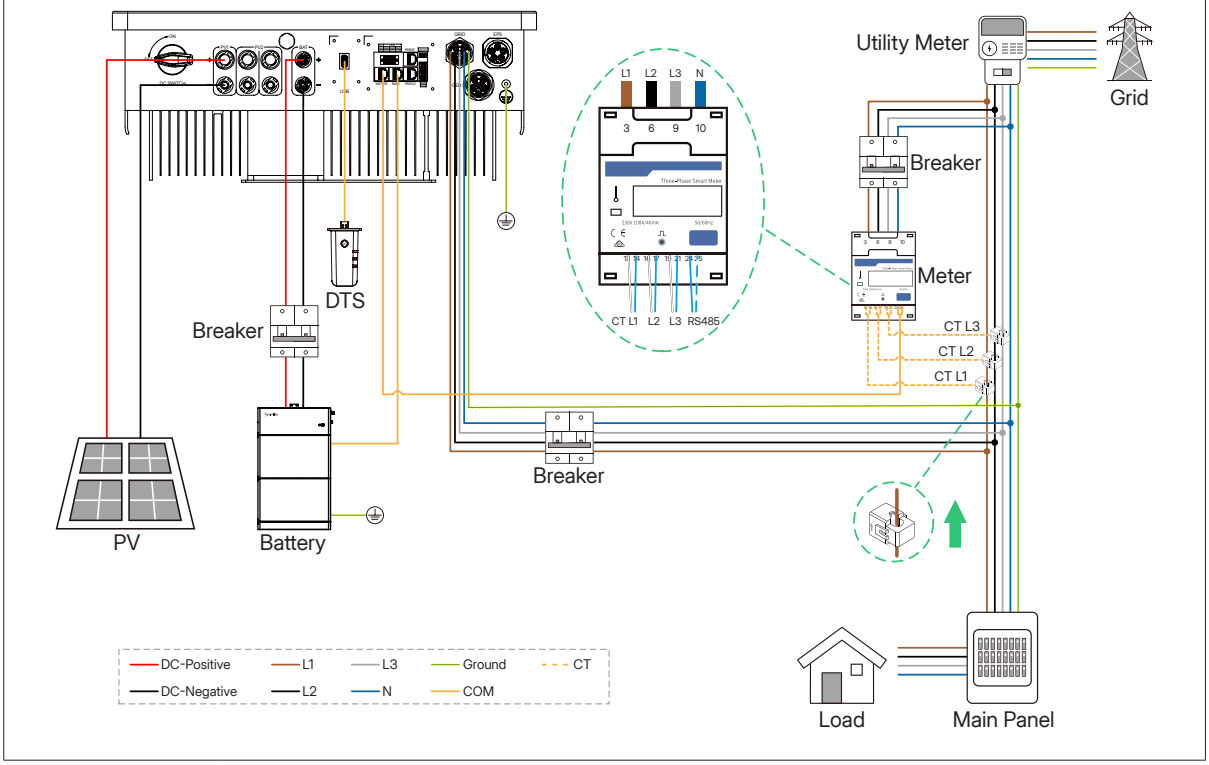
⚠ WARNING

Before connecting the smart meter and CT, ensure that the AC cable is totally isolated from the AC power source.

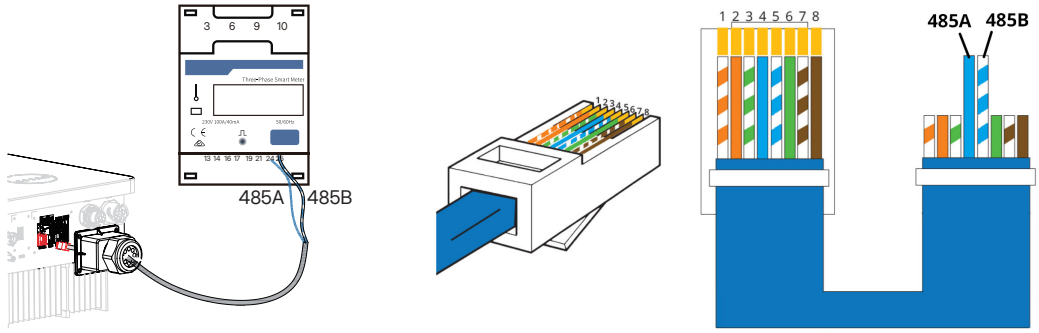
NOTICE

- One smart meter can be used with only one inverter.
- Three CTs must be used for one smart meter and must be connected on the same phase with the smart meter power cable.
- There is a symbol (arrow) or label on the surface of CTs that indicates the correct mechanical orientation of the CT on the conductor under measurement. Please identify the arrow or label before installing the CT.
- The communication cable should be a standard CAT 5 Ethernet cable.
- Two smart meters are required for the installation of an AC-coupled system. There is one smart meter in our packing box, and the other needs to be purchased from Hoymiles.
- If there are meter communication problems, please first check if the address of the PV side meter is set to 001, and the address of the grid side meter is set to 002.

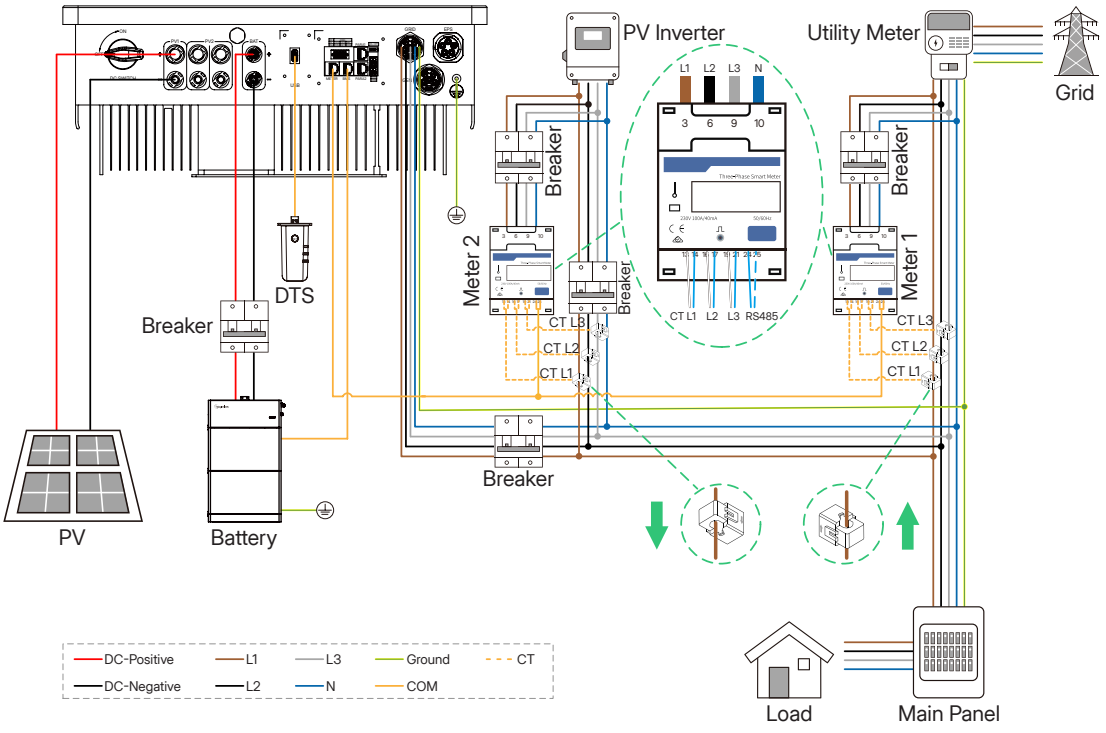
Procedure (Hybrid System)	
Step 1	a. Place the smart meter in or near the grid distribution box, right after the utility meter. b. Connect grid L1/L2/L3/N to meter's terminals 3/6/9/10. c. Clamp three CTs to L1/L2/L3 and connect wirings to 13/14, 16/17, and 19/21 respectively. The arrow on the surface of CT should point to the grid.



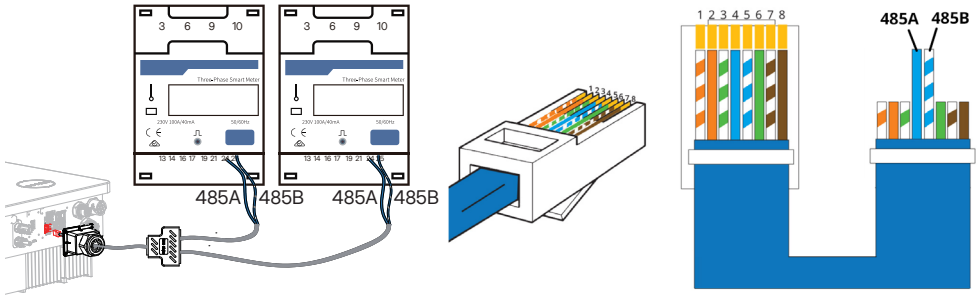
Step 2	Connect the communication cable between the inverter and the smart meter.



Procedure (AC-coupled System)	
Step 1	a. Place the smart meter 1 and 2 in or near the grid distribution box, right after the utility meter. b. Smart meter 1 is connected to the grid side, and the arrow on the surface of CT should point to the grid. c. If the PV inverter is connected to the GEN port or GRID port, smart meter 2 should be connected to the corresponding GEN side or GRID side, and the arrow on the surface of CT should point to the opposite direction of PV inverter. (The diagram below takes the GRID port as an example.) The connection method is the same as that described above.



Step 2	Connect the communication cable between the inverter and the smart meter.



7.5.3 DRM Connection

DRM is designed to support several demand response modes by certain control signals.

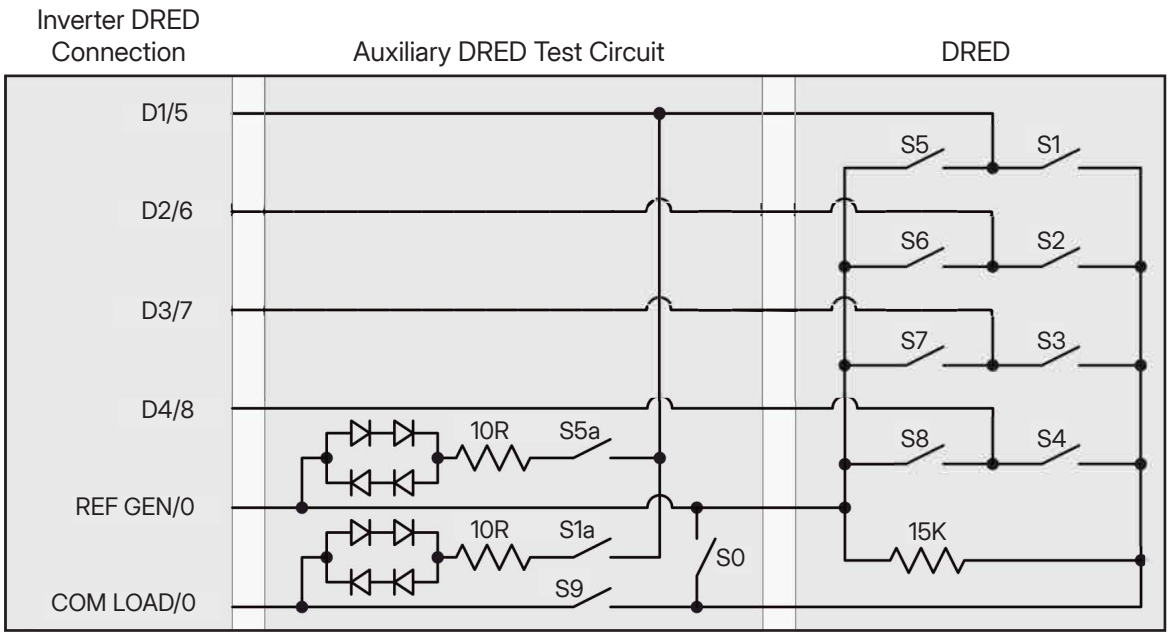
- **For Australia and New Zealand**

  According to AS/NZS 4777.2, the inverter needs to support the function of demand response mode (DRM). With the use of an external control box, active or reactive power regulation can be realized in a timely and fast manner, and the inverter can work stably during the process of regulation.

  Demand Response Modes

Function	Description
DRM0	Operate the disconnection device
DRM1	Do not consume power
DRM2	Do not consume at more than 50% of rated power
DRM3	Do not consume at more than 75% of rated power AND supply reactive power if capable
DRM4	Increase power consumption (subject to constraints from other active DRMs)
DRM5	Do not generate power
DRM6	Do not generate at more than 50% of rated power
DRM7	Do not generate at more than 75% of rated power AND absorb reactive power if capable
DRM8	Increase power generation (subject to constraints from other active DRMs)

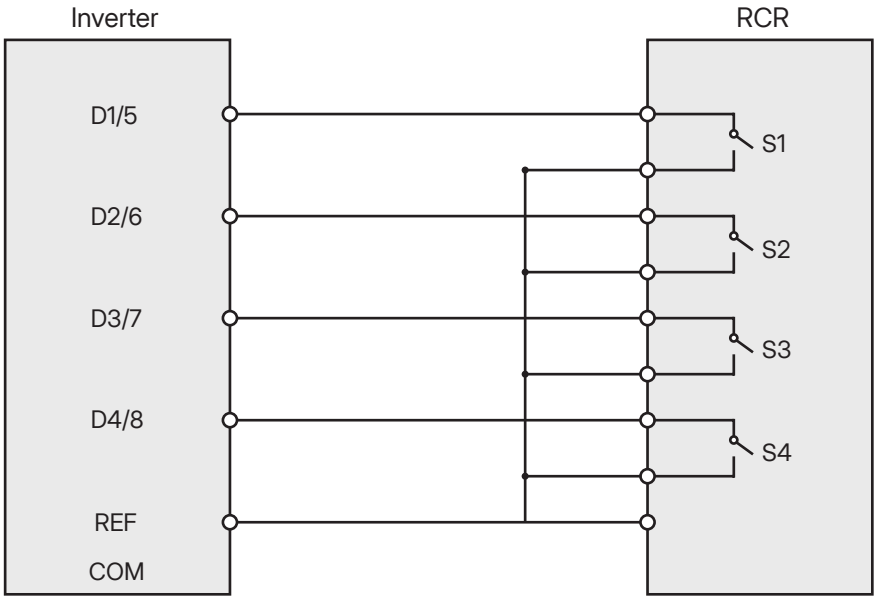
DRED Connection Circuit



- **For Germany**

  In Germany, the inverters are required to respond to control signals from the grid company via a Ripple Control Receiver (RCR). The RCR converts dispatch signals from the grid operator into dry contact signals, which the inverter uses to limit its feed-in power as instructed.

  The internal wiring and operation description are shown in the figure below.



S1	S2	S3	S4	RCR Operation	Output power (100% Rated Output Power)
0	0	0	0	None	100% (Unlimited)
1	0	0	0	Close S1	100%
0	1	0	0	Close S2	60%
0	0	1	0	Close S3	30%
0	0	0	1	Close S4	0

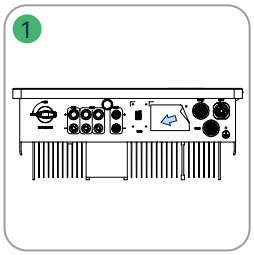
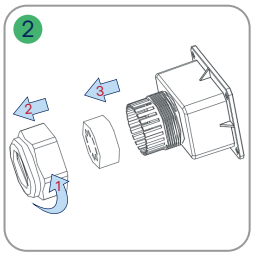
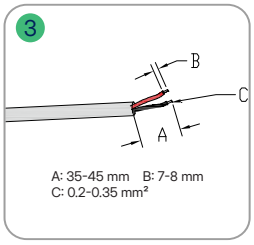
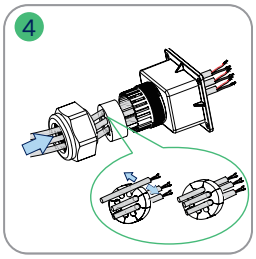
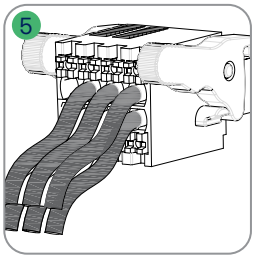
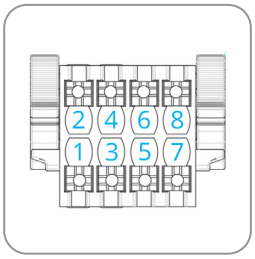
- **For Austria**

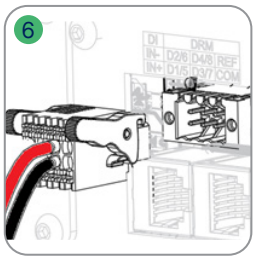
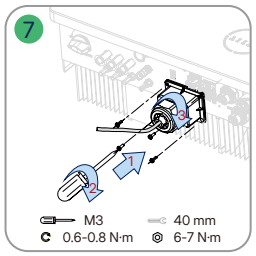
  An external contactor should be connected to D4/8 and REF. When the contactor is closed, the inverter output power is 0; When the contactor is disconnected, the inverter works normally and its output power is not limited.

NOTE

- After completing the DRM connection, enable the DRM function and enter the value of **DRM Control** using the S-Miles Installer App. For detailed instructions, refer to *9.3.2 Enable DRM Function*.
- For Austria, the value of **DRM Control** is 1.
- For Germany, the value of **DRM Control** is 2.

Connection Method

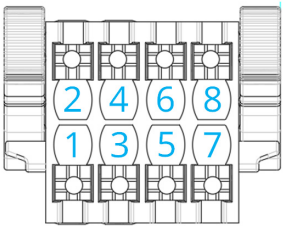
Procedure		
Step 1	Remove the stickers from the communication port.	
Step 2	a. Unscrew the communication box counterclockwise. b. Disassemble the parts in sequence.	
Step 3	Strip the insulation layer of the communication cable, and lead the corresponding signal cables out. Press the terminal.	
Step 4	a. Thread the cable of an appropriate length through the communication box. b. Clip the cable into the rubber ring.	
Step 5	Plug the wires into the terminal block firmly according to the following tables.	 

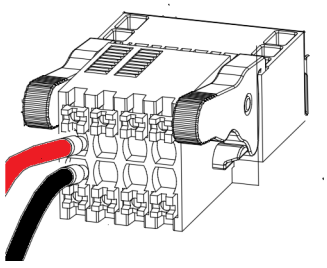
<table>
<tr><td>Step 5</td><td>For normal operation, wiring from the No.3 to No.8 holes. The function of each connection position is shown below.<table><tr><td>NO.</td><td>4</td><td>6</td><td>8</td></tr><tr><td>Function</td><td>D2/6</td><td>D4/8</td><td>REFGEN</td></tr><tr><td>NO.</td><td>3</td><td>5</td><td>7</td></tr><tr><td>Function</td><td>D1/5</td><td>D3/7</td><td>COM/DRM0</td></tr></table></td><td>For Remote Shutdown, wiring the No.7 and No.8 holes. The function of each connection position is shown below.<table><tr><td>NO.</td><td>8</td></tr><tr><td>Function</td><td>REFGEN</td></tr><tr><td>NO.</td><td>7</td></tr><tr><td>Function</td><td>COM/DRM0</td></tr></table></td></tr>
<tr><td>Step 6</td><td>a. Pull the wires outward to check whether they are fully inserted and cannot be pulled out easily.
b. Insert the terminal block into the connector until the terminal block clicks into place.</td><td> 
</td></tr>
<tr><td>Step 7</td><td>Tighten the cable gland.</td><td> 
</td></tr>
</table>

7.5.4 DI Connection

There is an integrated DI (IN+, IN-) as the dry contact input to the bypass contactor of the inverter. The connection method is the same as that described in ***7.5.3 DRM Connection***. Wiring the No.1 and No.2 holes if used, and the function of each connection position is shown below.

NO.	2
Function	IN-
NO.	1
Function	IN+

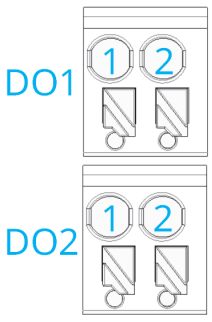


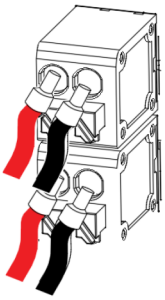


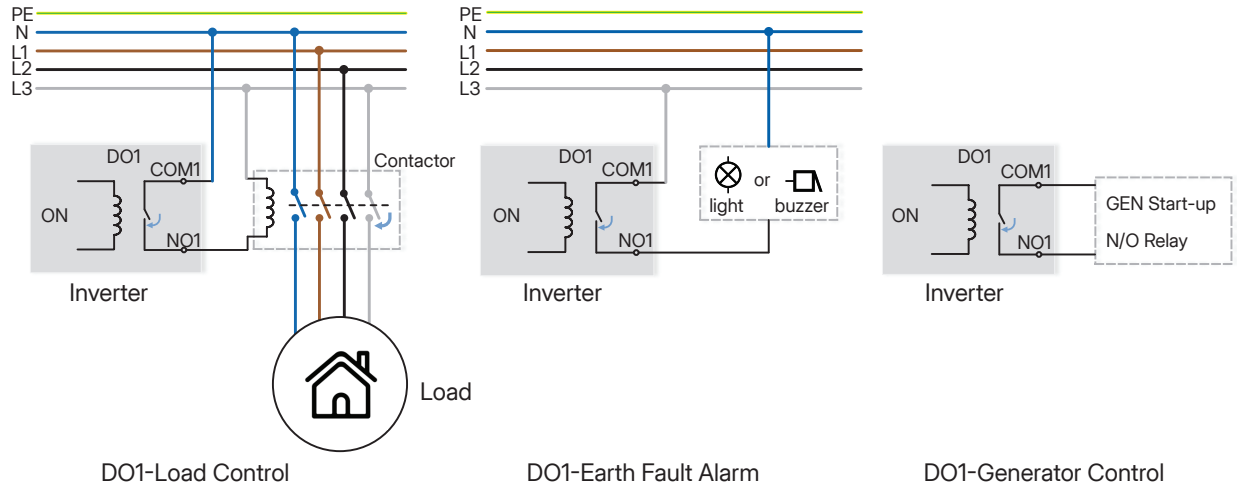
7.5.5 DO Connection

The inverter has integrated a multiple-function dry contact (DO1 and DO2). The DO1 can be set to one of the functions as follows, Earth Fault Alarm, Load Control, and Generator Control. The DO2 can control the external bypass contactor if used, and for more information, please contact Hoymiles technical support team. The connection method is the same as that described in ***7.5.3 DRM Connection***. The function of each connection position is shown below.

NO.	DO1 - 1	DO1 - 2
Function	NO1	COM1
NO.	DO2 - 1	DO2 - 2
Function	NO2	COM2

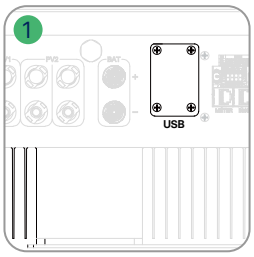
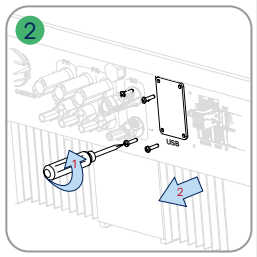
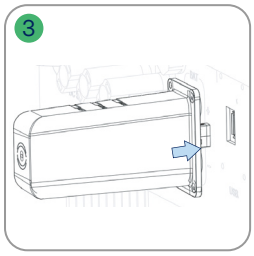
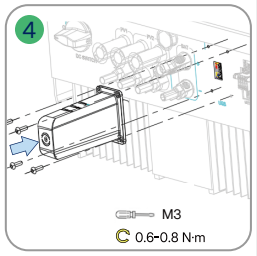


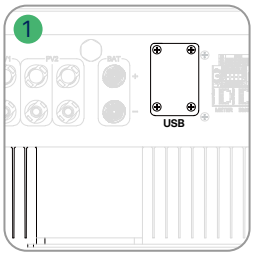
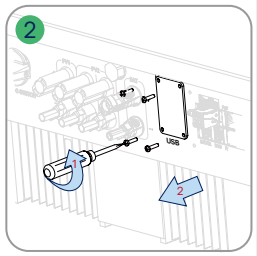
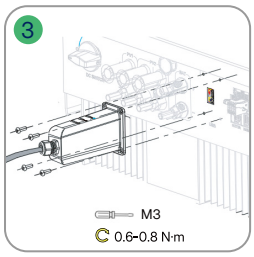
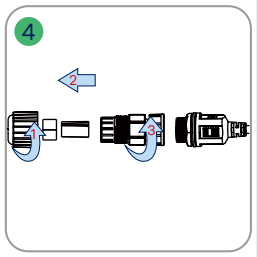


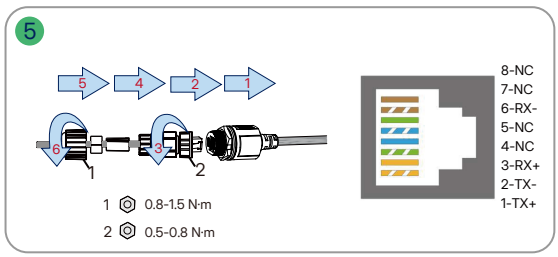


DO1-Load Control | DO1-Earth Fault Alarm | DO1-Generator Control

7.6 DTS Connection

DTS-Wi-Fi-G1 Procedure			
Step 1&2	Remove the DTS port cover plate.		
Step 3&4	a. Insert the DTS into the USB port. b. Fasten the screws.		

DTS-Ethernet-G1 Procedure			
Step 1&2	Remove the DTS port cover plate.		
Step 3&4	a. Insert the DTS-Ethernet into the USB port, and fasten the screws. b. Unscrew the swivel nut from the connector.		

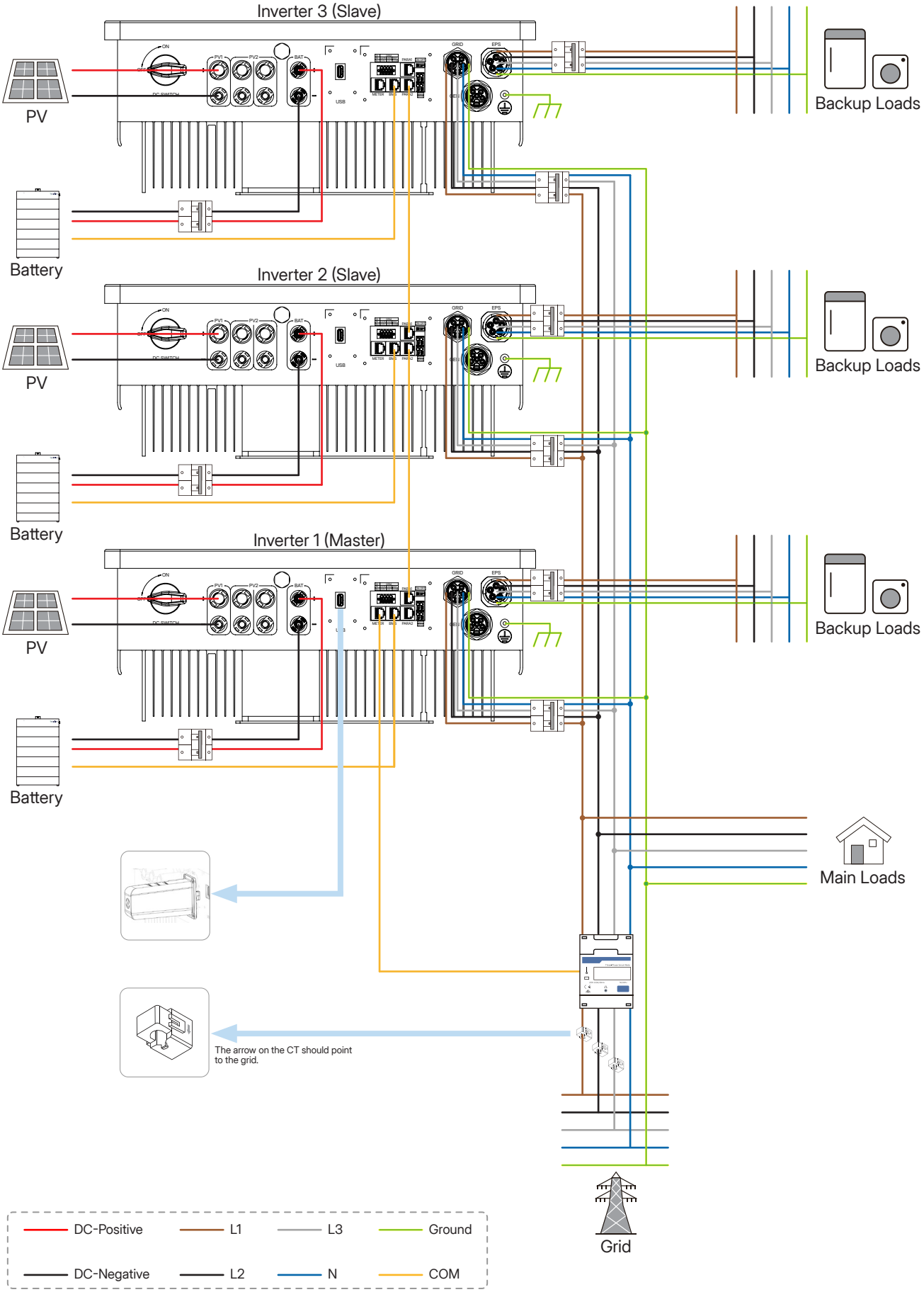
Step 5	a. Insert the RJ45 plug (pin definition is shown in the right figure) into the connector until there is an audible click sound. b. Thread the cable of an appropriate length through the connector. c. Tighten the cable gland.	

NOTE

The RJ45 plug with cable sheath cannot be inserted.

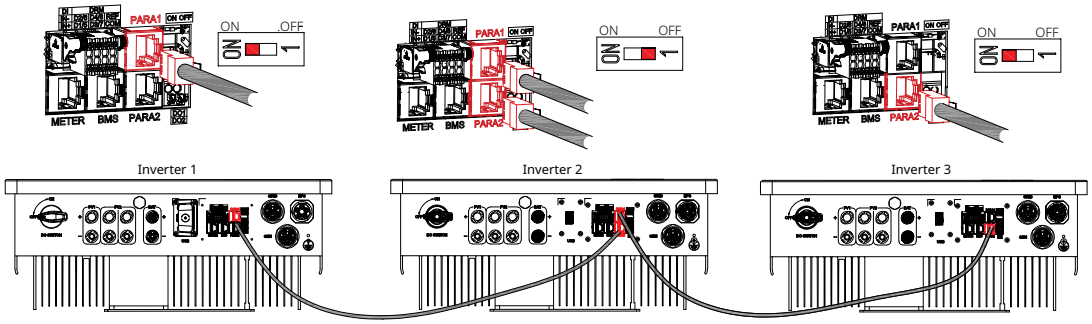
Indicator	Status	Description
RUN	ON	DTS is powered on.
	OFF	DTS is not powered on.
COM	ON	Proper communication with the inverter.
	OFF	Improper communication with the inverter.
NET	ON	Proper communication with S-Miles Cloud.
	OFF	Improper communication with S-Miles Cloud.
	BLINK	Improper communication with S-Miles Cloud, but the network is connected.

7.7 Parallel Connection



Note:

- As shown in the figure, parallel operation is performed through the PARA1/PARA2 interface. When inverters are used in parallel, the first and the last inverters are “ON”, and the others are “OFF”.



- The cable used for parallel communication between two inverters cannot exceed 10 m.
- Up to 10 inverters in parallel.
- The DTS must be connected to the Master.
- This series of inverters works with or without battery.
- One battery cannot be connected to multiple inverters at the same time.
- This series of inverters with different powers can be connected in parallel.
- PV is only for HYT-(5.0-12.0)HV-EUG1 inverters.
- If the grid side current exceeds 100 A, the smart meter and CTs (3 × 100 A) provided by Hoymiles will not be able to meet the current requirement. If you need other models with larger current to replace them, please contact Hoymiles sales.
- The PV inverter can be connected to the grid side. If power export management is required, the power of the PV inverter shall be less than the battery charge power. The zero-export function will be disabled after the battery is fully charged.

8 System Commissioning

8.1 Preparation

Before the commissioning of the inverter, make sure:

- The inverter DC switch and external circuit breaker are disconnected.
- Check wiring according to ***7 Electrical Connection***.
- Check whether the grid voltage is within the permissible range through the multimeter before turning on the AC switch.
- Unused terminals must be sealed using corresponding sealing plugs.
- Nothing is left on the top of the inverter and battery.
- Cables are routed in a safe place or protected against mechanical damage.
- Warning signs and labels are intact.

8.2 System Power-on

Step 1 If the inverter is connected to the battery, turn on the battery power switch and DC breaker.

Step 2 Turn on the AC breaker between the inverter and the grid.

Step 3 (Only for HYT series inverters) Rotate the DC switch to “ON” if the inverter is connected to the PV strings.

Step 4 Check whether the inverter is operating properly through the inverter indicators status.

9 S-Miles Cloud

The S-Miles App has been developed for Hoymiles and offers the following features.

a. Network configuration;

b. Local installation assistant;

c. System monitoring.

S-Miles Installer S-Miles End-user

Please download the S-Miles App from the Google Play Store or the Apple App Store. The QR code above can also be scanned to download the App.

NOTE

- The DTU mentioned in this manual refers to the DTS (Data Transfer Stick).
- In a residential energy storage system, the DTU displayed in the S-Miles Cloud refers to the DTS (Data Transfer Stick).
- The screenshots (Version 3.2.1) shown in this manual are for reference only. Since the App version will be updated periodically, the interface displayed on your screen may differ.

9.1 Connect to the DTS

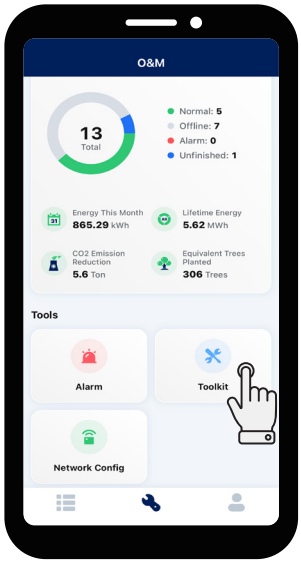
NOTE

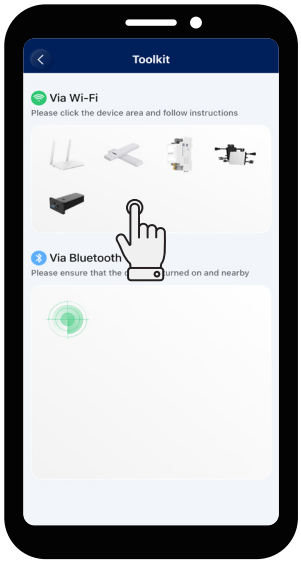
The steps about the password are only required for the first connection.

Step 1 Tap **O&M** > **Toolkit**.

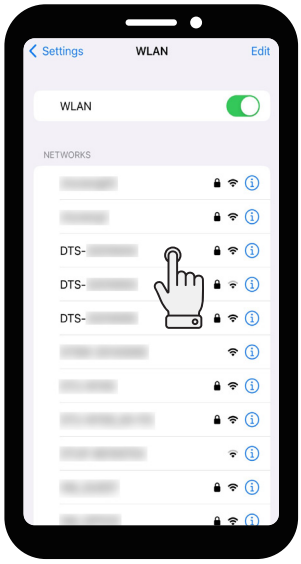
Step 2 Tap **Via Wi-Fi** area.

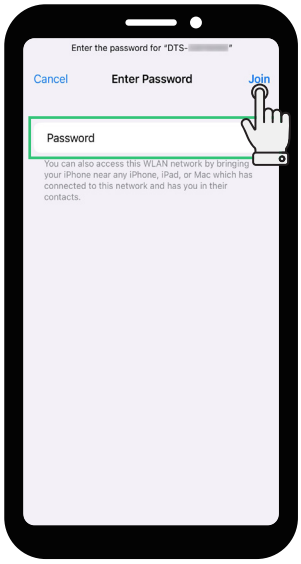
Step 3 Tap **Go to set**.





Step 4 Select the wireless network of DTS and enter the default password **ESS12345**. The DTS network name consists of “DTS” and the last eight digits of the product serial number.

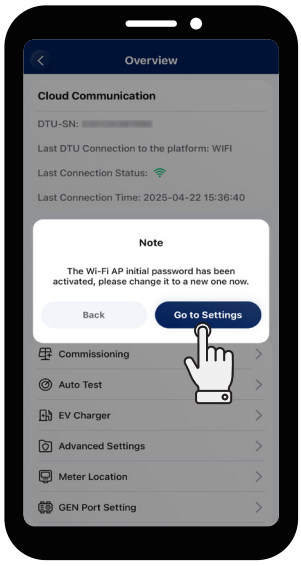


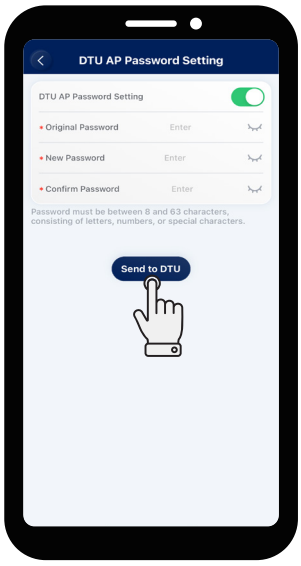


Step 5 Return to the App (will automatically enter the overview interface).

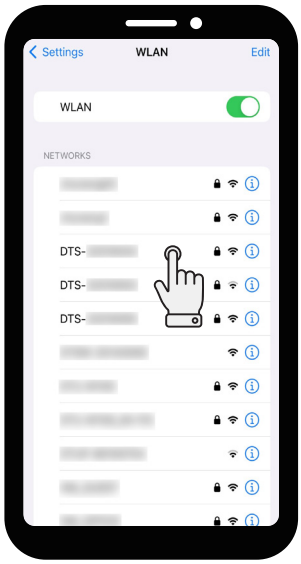
Step 6 Tap **Go to Settings** to change the default password to a new one.

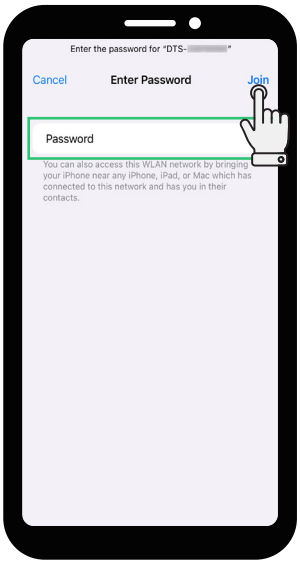
Step 7 Enter the original password and new password, confirm the new one, and tap **Send to DTU**.



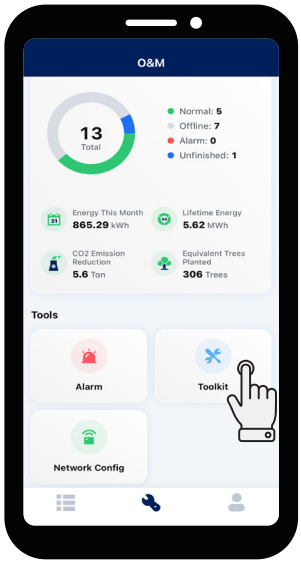


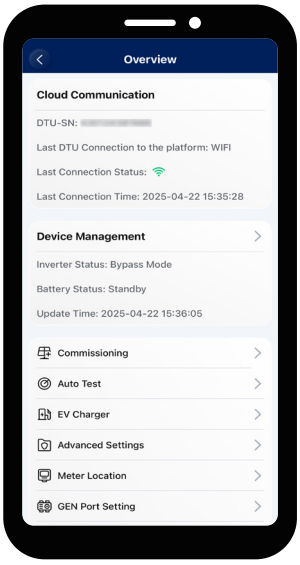
Step 8 Select the wireless network of DTS and enter the new password.





Step 9 Return to the App, and tap **O&M** > **Toolkit**.



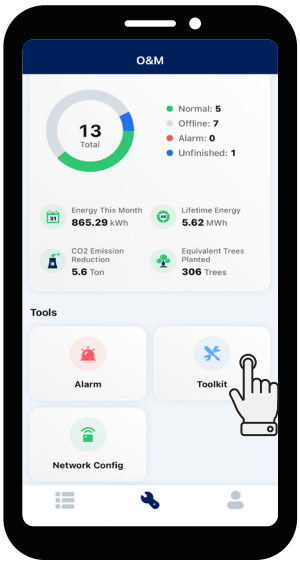


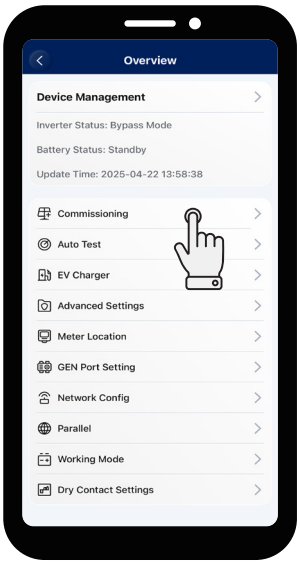
9.2 Start Commissioning

Commissioning is used to set and test a new residential energy storage system. It is a critical step to ensure that a new device and system can function properly according to the design specifications.

Step 1 Tap **O&M** > **Toolkit**.

Step 2 Tap **Commissioning**.

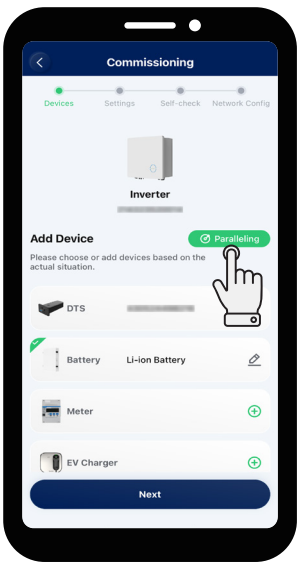




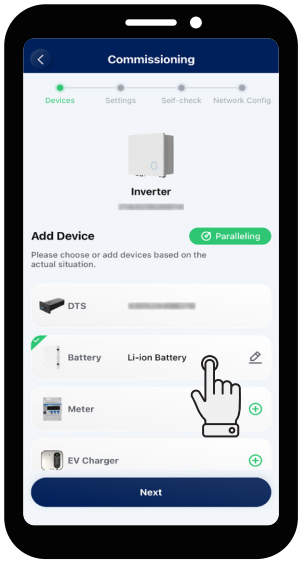
Step 3 Add devices

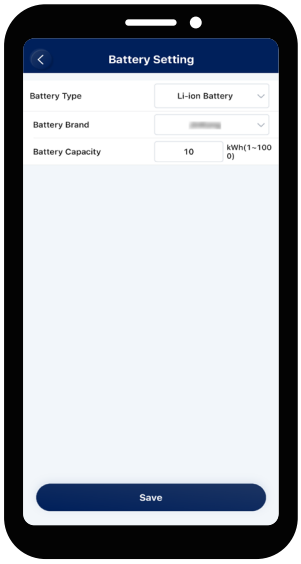
- If a parallel system is installed, tap **Paralleling**. All slave inverters will be automatically added.

> **NOTE**
>
> - The DTS must be connected to the Master.
> - After the slaves are connected to the Master through a communication cable, they can communicate with the DTS.
> - A DTS can only communicate with up to 10 inverters.



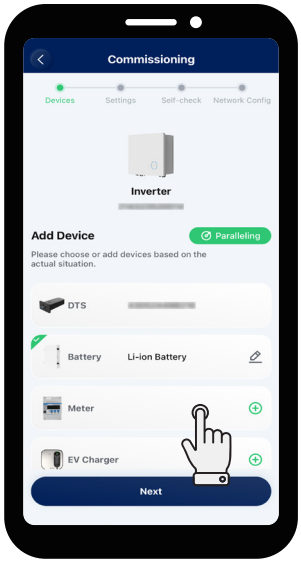
- If batteries are connected to the inverter, tap **Battery** to set battery parameters. Hoymiles batteries can be automatically identified. (The default battery type is **No battery**.)

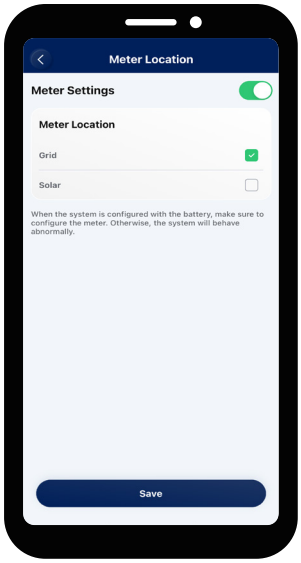




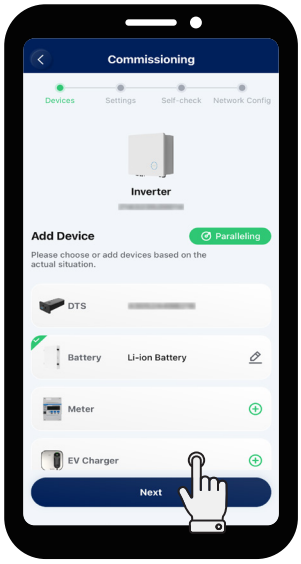
- Tap **Meter**, toggle on **Meter Settings,** and select the corresponding checkbox.

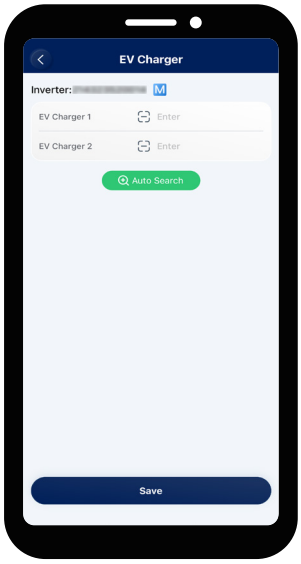
> **NOTE**
>
> For EUG1/AUG1 series inverter, if a PV inverter is connected to the GEN port, the checkbox on the right side of **Solar** should also be selected.



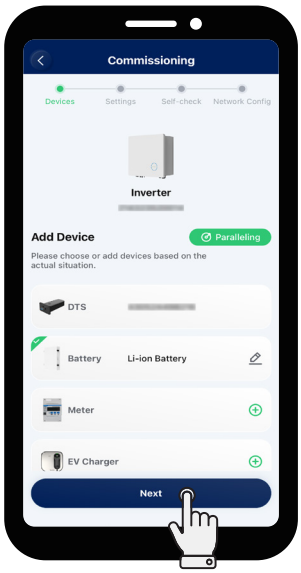


- If an EV charger is connected, tap **EV Charger**. You can tap **Auto Search** or scan the QR code on the label to identify the serial number (SN).





- Tap **Next**.



Step 4 Complete other settings

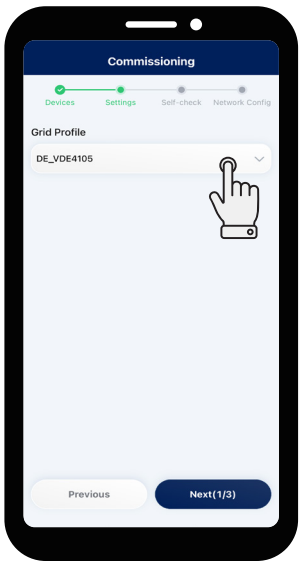
a. Select the grid profile in your region, and tap **Next**.

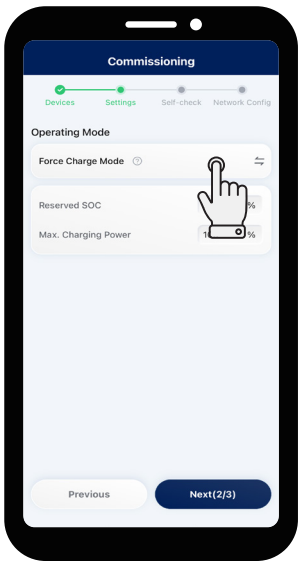
b. Select the working mode according to your actual needs, and tap **Next**. For details about working modes, refer to *9.3.4 Set Working Mode*.

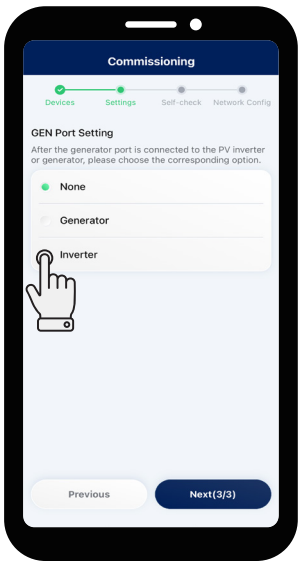
c. Select the corresponding option according to whether the device connected to the GEN port is **Generator** or **Inverter**, and tap **Next**. (The default option is **None**.)

NOTE

- If a generator is connected to the GEN port, detailed parameters are shown in *9.3.1 Set Advanced Parameters*. After setting the parameters, tap *Dry Contact Settings > Generator Control* to set its mode and corresponding parameters.
- If a PV inverter is connected to the GEN port, ensure the PV side meter is correctly installed and set. If there is a meter communication fault, first refer to *9.3.1 Set Advanced Parameters* for troubleshooting.





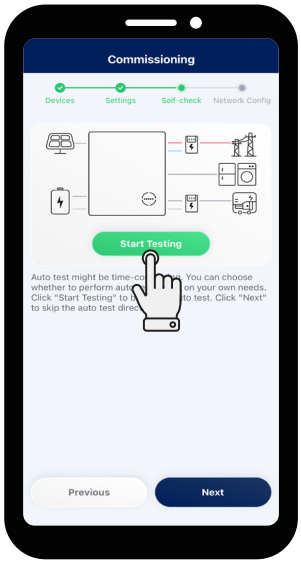


Step 5 Complete the self-check

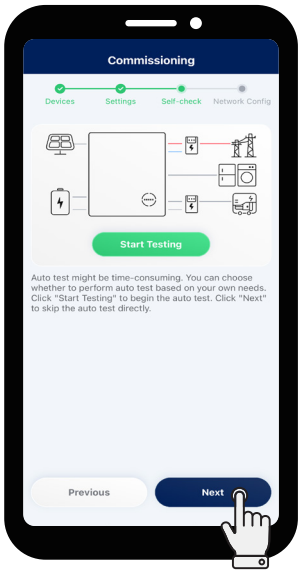
You can complete the self-check or skip the self-check as required.

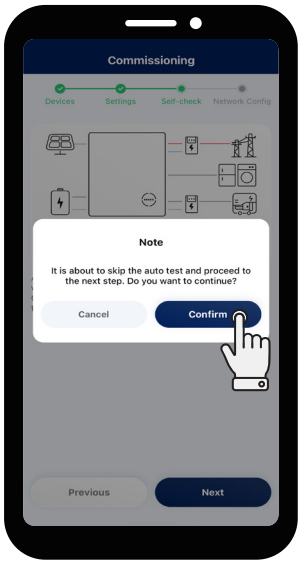
- If you want to complete the self-check, tap **Start Testing**.

> **NOTE**
>
> - Before this operation, make sure that all cables including DC cables, AC cables, and communication cables are properly connected, and all AC and DC switches are turned on.
> - If the result shows the CT is reversely connected, tap **Advanced Settings** > **Grid CT reverse** > **Enable** or **PV CT reverse** > **Enable**, and tap **Save**. For details, refer to *9.3.1 Set Advanced Parameters*.



- If you want to skip this step, tap **Next** > **Confirm**.





Step 6 Configure the network

You can follow the instructions to configure the network or directly skip this step.

NOTE

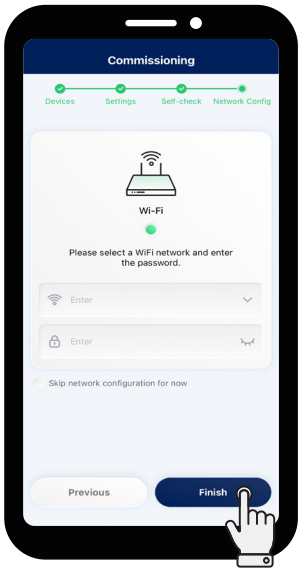
- **Go to Settings** will navigate to the new plant creation interface (haven't created a plant before the commissioning) or the homepage of the plant (have created a plant before the commissioning).
- After completing the commissioning, if you want to tap **Go to Settings**, first disconnect from the DTU Wi-Fi.

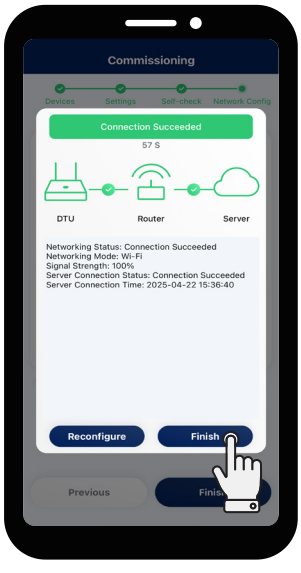
- If you want to configure the network:

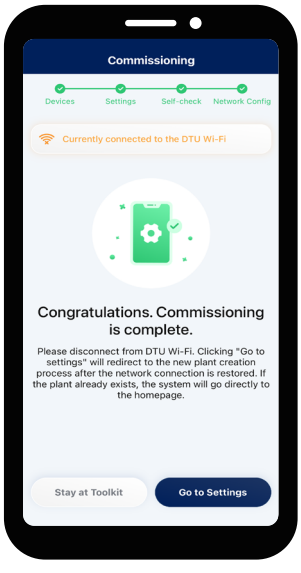
  a. Enter the Wi-Fi name and password, and tap **Finish**.

  b. Tap **Finish** after the network is successfully connected.

  c. Tap **Stay at Toolkit** or **Go to Settings**.



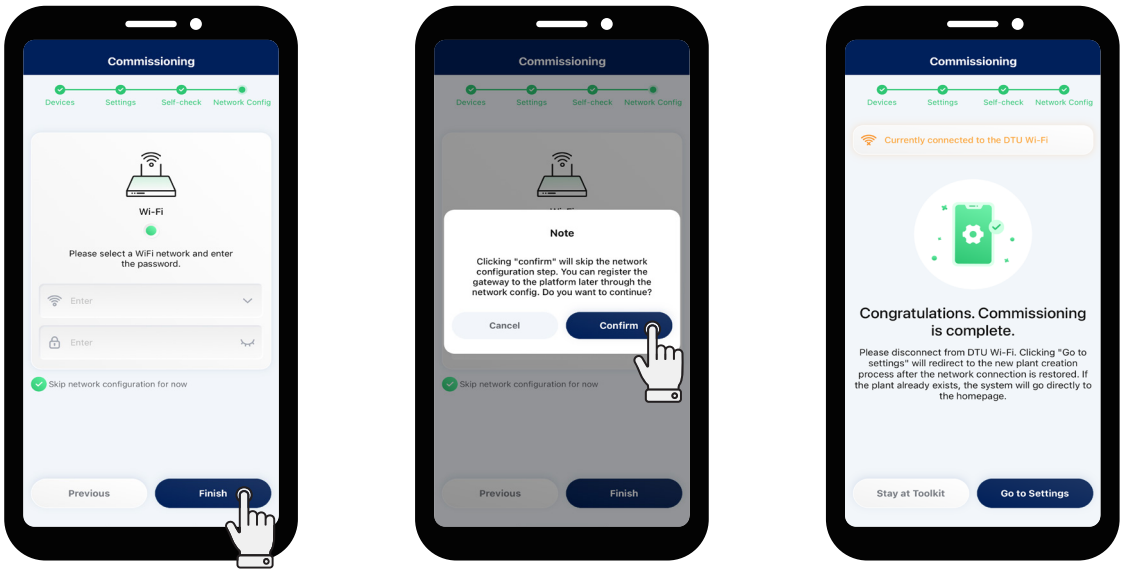




- If you want to skip this step:

  a. Tap **Skip network configuration for now** > **Finish** > **Confirm**.

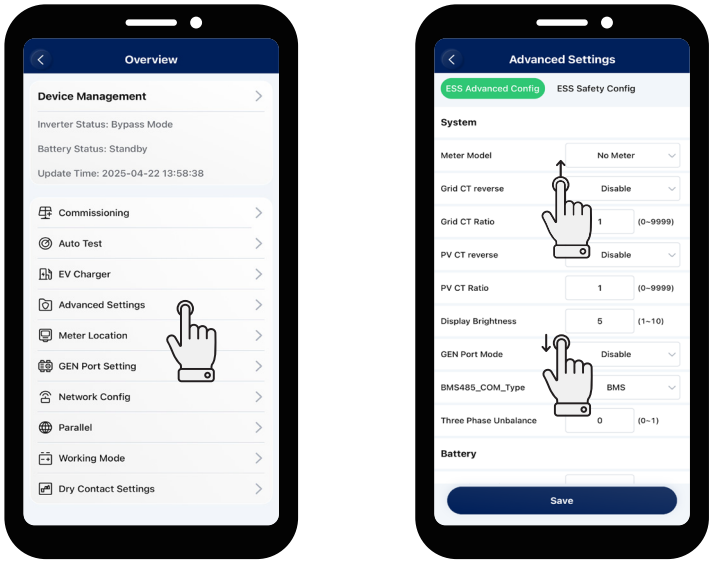
  b. Tap **Stay at Toolkit** or **Go to Settings**.



9.3 Set System Parameters

9.3.1 Set Advanced Parameters

Tap 🔧 **O&M** > **Toolkit** > **Advanced Settings** to set parameters of System, Battery, PV, Emergency Power Supply (EMS), and Generator.



★ System

Parameter	Description	Default Value
Meter Model	• For a single-phase inverter, please select “Single-phase Meter” or “Three-phase Meter”. • For a three-phase inverter, please select “Three-phase Meter”. • For an inverter used in North America, please select “Two-phase Meter”.	No Meter
Grid CT Reverse	Enable it to get correct sampling current when the grid side CT is reversely connected.	Disable

Grid CT Ratio	Set the grid side CT ratio.	1
PV CT Reverse	Enable it to get correct sampling current when the PV inverter side CT is reversely connected.	Disable
PV CT Ratio	Set the PV inverter side CT ratio.	1
Display Brightness	Set the brightness of LED indicators.	10
GEN Port Mode	After the generator port is connected to the inverter or generator, select the corresponding option.	Disable
BMS485_COM_Type	• If the RS485 port is connected to the battery, please select "BMS485". • If the RS485 port is connected to the microinverter DTU, please select "DTU.COM".	BMS
Three-phase Unbalance	When the loads of the three-phase inverter are not balanced, enable the three-phase unbalance function. It can compensate for each load.	Disable

NOTE

If a PV inverter is connected to the GEN port and there is a meter communication fault, follow the instructions below.

Step 1 Tap **Advanced Settings** > **GEN Port Mode** > **Force On** to enable the GEN port.

Step 2 Check if the address, baud rate, data bits, and check digit are consistent with the master, if not, correct the wrong one. Note that the address of the PV side meter should be set to 001, and its corresponding data bits should be set to n1-9600.

Step 3 Tap **Advanced Settings** > **Generator Port Mode** > **PV** after the meter address is correctly set and the communication is normal.

Step 4 Tap **Save**.

★ Battery

Parameter	Description	Default Value
Max. Discharging Power	Set the maximum discharging power.	100%
Max. Charging Power	Set the maximum charging power.	100%
Max. SOC	Set the maximum battery capacity as recommended by the battery manufacturer.	100%
Min. SOC	Set the minimum battery capacity as recommended by the battery manufacturer.	10%
Min. SOC Force Charging Power	Set the power to forcibly charge the battery when the battery SOC falls below the set minimum SOC.	200 W
Reserved SOC Force Charging Power	Set the power to charge the battery when the battery SOC falls below reserved SOC.	2%
Max. BAT Feed-in Power in Peak Time	Set the maximum value of battery feed-in power in peak time.	100%
Max. Grid Charging Power in Off-peak Time	Set the maximum power to charge the battery from the grid in off-peak time.	0 W

Max. BAT Discharging Power in Partial Peak Time	Set the maximum value of battery discharging power in partial peak time.	100%

★ PV

Parameter	Description	Default Value
MPPT Global Scan	If the PV modules are shaded, enable this function.	Disable

★ Emergency Power Supply (EPS)

Parameter	Description	Default Value
EPS Mode	• When the EPS port is connected, you can select “EPS” or “UPS”. You can select “UPS” when the load keeps power on, and the system will automatically switch between the on-grid mode and the off-grid mode under UPS mode. • EPS is characterized by continuous power supply, which means that the loads are powered by bypass under normal power supply, and the DC power will be inverted to supply the loads during power outage, maximizing energy utilization. • UPS is a kind of uninterrupted power supply which has stable voltage and frequency, and has an extremely high requirement for switching time. UPS not only operates during power outage, but also can output high quality power supply to ensure normal operation of electric equipment in case of abnormal situations such as overvoltage, undervoltage, and surge. • When the inverter is used as a PV inverter, select “Disable”.	EPS
External Bypass	For inverters with an external ATS (EPS) Box, when the external bypass switch is enabled, the inverter EPS port works in the off-grid mode and will not work in the on-grid mode.	Disable
PV Only	In off-grid mode, PV can also operate without the battery. (This function is not recommended since the system is unstable under this mode)	Disable

★ Generator

Parameter	Range
GEN Location	None/GenSide. To ensure the normal operation of the generator, please select “GenSide”.
GEN Signal Setting	Manual or DI/DO. If the generator cannot be controlled by dry contact, please select “Manual”. If the generator can be controlled by dry contact, please select “DI/DO”.
Min. Run Time	5-60 min
Max. Run Time	6-10 hour
Protection Interval	5-60 min
Synchronize Time	1-20 min

Shutdown Delay	1-20 min
GEN Rated Power	0-20000 W
High Voltage Limit	0-280 V
Low Voltage Limit	0-180 V
High Frequency Limit	0-70 Hz
Low Frequency Limit	0-59 Hz
Max. GEN Charging Power	0-20000 W

9.3.2 Enable DRM Function

Step 1 Tap **O&M** > **Toolkit**.

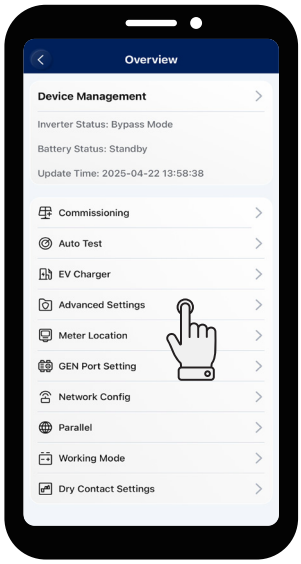
Step 2 Tap **Advanced Settings** > **ESS Safety Config**.

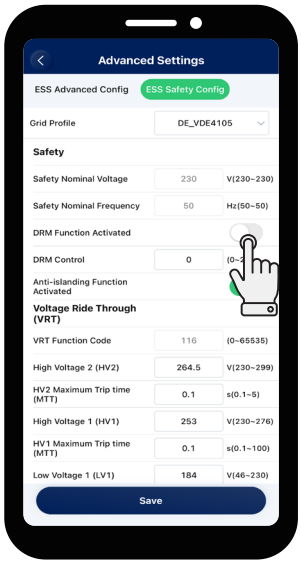
Step 3 Toggle on **DRM Function Activated**.

Step 4 (For some countries) Set the value of **DRM Control**.

NOTE

- The installer account and end-user account are classified by authority management, and the installer can modify grid protection and power quality response mode parameters.
- For Austria, the value of **DRM Control** is 1.
- For Germany, the value of **DRM Control** is 2.





9.3.3 Set Export Management Parameters

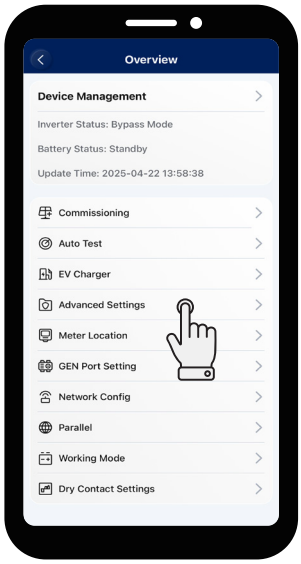
NOTE

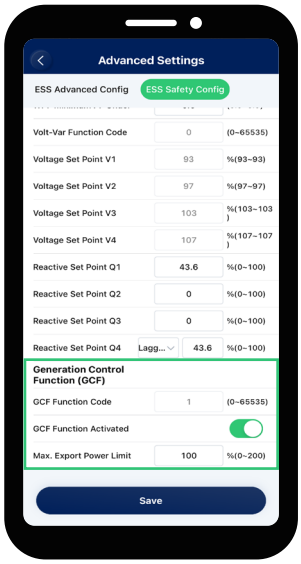
- This function is enabled by default, and the default value of Max. Export Power Limit is 100%.
- ESS refers to a single energy storage inverter or a parallel system.

Step 1 Tap **O&M** > **Toolkit**.

Step 2 Tap **Advanced Settings** > **ESS Safety Config**.

Step 3 Slide your finger down to the bottom, ensure **Generation Control Function (GCF)** is enabled, and set the value of Max. Export Power Limit.





- If no input device is connected to the grid side, and you do not need to limit the feed-in power, disable this function or skip this setting.
- If an input device, such as a microinverter, is connected to the grid side, and you do not need to limit the feed-in power, disable this function.
- If you need to limit the feed-in power, set Max. Export Power Limit as required.

  Scenario 1: Max. Export Power Limit is 0

  The feed-in power of an Energy Storage System (ESS) is 0. If an input device, such as a microinverter, is connected to the grid side, its output power cannot be controlled; it will output power according to its logic.

  Scenario 2: Max. Export Power Limit is 50%

  The maximum allowable feed-in power is 50% of the rated power of ESS. If an input device, such as a microinverter, is connected to the grid side, it can operate at full power, and the energy storage inverter will adjust the output of ESS in real time according to the set Max. Export Power Limit.

  Scenario 3: Max. Export Power Limit is 100%

  The maximum allowable feed-in power is 100% of the rated power of ESS. If an input device, such as a microinverter, is connected to the grid side, it can operate with its full power, and the energy storage inverter will adjust the output of ESS in real time according to the set Max. Export Power Limit.

  Scenario 4: Max. Export Power Limit is 150%

  The maximum allowable feed-in power is 150% of the rated power of ESS. If an input device, such as a microinverter, is connected to the grid side, it can operate with its full power, and the energy storage inverter will adjust the output of ESS in real time according to the set Max. Export Power Limit.

  NOTE

  - The energy storage inverter cannot control the output power of other input devices connected to the grid side. It means that the feed-in power cannot be limited to 0 if other input devices are connected to the grid side.
  - If no input device is connected to the grid side, Max. Export Power Limit can be set to 0-100%.

9.3.4 Set Working Mode

NOTE

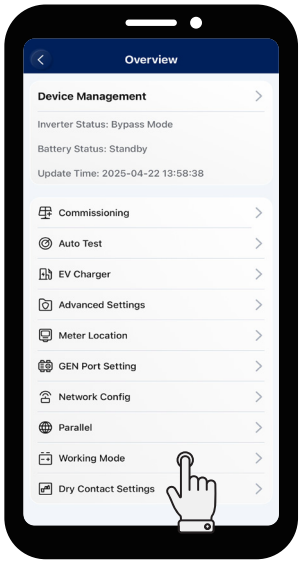
Only one mode can be selected at a time.

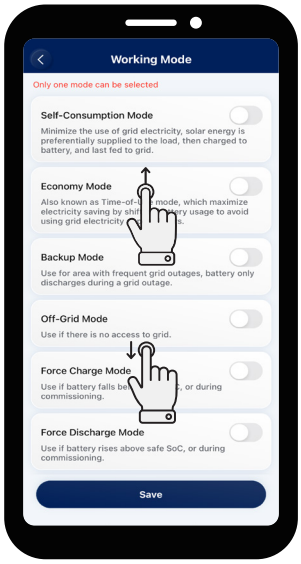
Step 1 Tap **O&M** > **Toolkit**.

Step 2 Tap **Working Mode**.

Step 3 Select one mode and set relevant parameters.

Step 4 Tap **Save**.





★ Self-consumption Mode

In the daytime, solar energy supports the loads firstly, and surplus energy is stored in the battery. When the battery is fully charged or reaches the maximum charge power, the surplus energy is fed into the grid (or limited if required). At night, the battery discharges for the loads firstly, and the grid will supply the loads once the battery power is not enough. In this mode, battery cannot be charged from the grid at night.

The self-consumption mode can reduce the use of grid power. Solar energy is preferentially supplied to the loads, charged to the battery, and finally fed into the grid. Users can set the reserved SOC within a certain range. (A small amount of power can be reserved due to infrequent power outages.)

★ Economy Mode

In this mode, battery charging and discharging periods need to be defined. Meanwhile, the battery can be forced to charge from the grid during the preset charging time. For instance, the battery could be charged or discharged according to valley or peak electricity prices. You can set reserved SOC within a certain range (a small amount of power can be reserved due to infrequent power outages), select the type of currency you need, and set different time periods to be more flexible to save costs of electricity. Set the time period for peak, low and partial peak grid prices in different seasons or dates, and you can just add up to four time periods.

★ Backup Mode

Backup mode can be selected when the grid frequently breaks down. The battery will be forced to charge to a set capacity so that it has enough power to support the electricity consumption in daily life when the inverter is in off-grid mode. You can also set the reserved SOC within a certain range.

★ Off-grid Mode

When the system is not connected to the grid, you can choose the off-grid mode.

★ Force Charge Mode

The force charge mode can be used during the commissioning of inverter or when the battery capacity falls below the value of safety SOC. You can set the reserved SOC within a certain range. If the battery capacity is lower than the setting, the battery will be forcibly charged. And You can set the max. charging power of battery if needed. Finally, save the values you have changed.

★ Force Discharge Mode

The force discharge mode can be used during the commissioning of inverter or when the battery capacity rises above the value of safety SOC. You can set the reserved SOC within a certain range. If the battery capacity is higher than the setting, the battery will be forcibly discharged. And you can set the max. discharging power of battery if needed. Finally, save the values you have changed.

★ Peak Shaving Mode

In this mode, the Peak Meter Power (the maximum power that the inverter obtains from the grid) can be set; only when PV and battery can fully supply the loads, can the Peak Meter Power be limited. Set the Baseline SOC to ensure the normal operation of this mode. When the battery SOC is less than the Baseline SOC, the grid can supply the loads or charge the battery with an output power not higher than the Peak Meter Power; when the battery SOC is less than the reserved SOC, the battery will not be discharged.

★ Time of Use Mode

The time of use mode allows users to customize the charge and discharge time of the battery within eight periods. During the pre-set charge time, the battery will be charged from the grid at the pre-set charging power until it reaches the pre-set stop charge SOC; during the pre-set discharge time, the battery will supply power to the load and the grid at the pre-set power until the battery discharges to the pre-set stop discharge SOC. The energy storage system allows users to freely set the charge and discharge time according to the local peak and valley electricity price to maximize the benefits. For the rest of the time, the system will run in self-consumption mode by default.

9.3.5 Set Dry Contact Function

NOTE

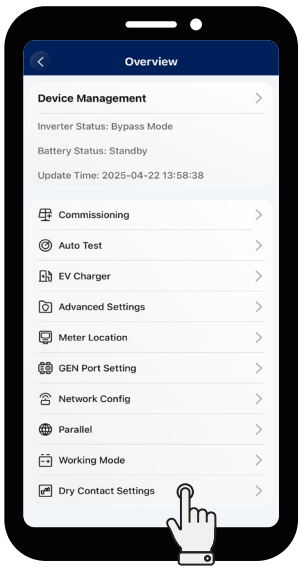
Only one mode can be selected at a time.

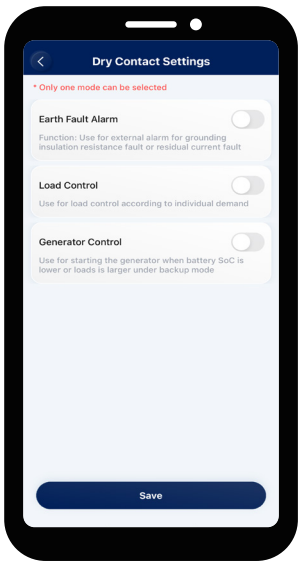
Step 1 Tap **O&M** > **Toolkit**.

Step 2 Tap **Dry Contact Settings**.

Step 3 Select one mode and set relevant parameters.

Step 4 Tap **Save**.





★ Earth Fault Alarm

This function is used for external alarm caused by grounding insulation resistance fault or residual current fault. Disable the external alarm when the load is connected. This function is to produce alarm, not to cause tripping.

★ Load Control

Load control can be used according to individual demand. This setting is to control whether the load is working or not. There are six modes available as follows.

(1) Manual Mode

Manually turn on or turn off the dry contact.

(2) Scheduled Mode

Set the time period for the dry contact to work. The dry contact is closed during this set time and disconnected at other times.

(3) Intelligent Mode

Because the energy generated by PV fluctuates a lot, this mode is to make the dry contact avoid being turned on and off frequently. The dry contact will only be turned on when the residual energy generated by the PV exceeds the power set by the load within the set time period. You can set the minimum run time and the nominal power of the dry contact.

(4) EPS Port Smart Control

The unnecessary dry contact will be turned off in off-grid situation when the battery capacity is lower than the set SOC value. You can set the value of protection SOC if needed.

(5) EV Charger Smart Control

In this mode, whether to start the EV charger can be determined based on the total input current. When the input current is less than the value of the entrance breaker rated current minus the EV Charger rated current, the EV Charger is allowed to work; when the input current is larger than the entrance breaker rated current, shut down the EV Charger to protect the entrance breaker.

(6) Heat Pump Control

The heat pump control function allows users to add up to four runtimes. According to the set power and battery SOC, it can control the start and stop as well as the power of the SG Ready heat pump, maximizing the PV energy utilization.

Parameter	Description
Start Power	When the average feed-in power is greater than or equal to the start power, the heat pump will be started.
Shutdown Power	When the running time is greater than or equal to the minimum single runtime and the average grid input power is greater than or equal to the shutdown power, the heat pump will be shut down.
Battery Starting SOC	There is an ON/OFF option. The default option is OFF. ON: When the average feed-in power is greater than or equal to the start power or the battery SOC is greater than or equal to the battery start SOC, the heat pump will be started.
Battery Shutdown SOC	When the running time is greater than or equal to the minimum single runtime and the battery SOC is less than the battery shutdown SOC, the heat pump will be shut down.
Min. Single Runtime	The minimum single runtime of the heat pump.

Max. Single-day Runtime	There is an ON/OFF option. The default option is OFF. ON: The heat pump will be shut down when the running time of the day reaches the maximum single-day runtime; it will be started again when the starting condition is reached the next day.
Time Range	Up to 4 operating periods can be set.

★ Generator Control

(1) Exercise Mode

The generator starts regularly during the preset period to ensure the operation of the generator.

Parameter	Description
Frequency	It allows the generator to start regularly at this frequency.
Start Time	It allows the generator to start regularly at this time.
Duration	The generator will stop running after this duration.

(2) Running Mode

This mode is the off-grid operation mode of the generator, including manual mode and auto mode.

A. Manual Mode

The manual mode is used to turn on or turn off the generator manually.

B. Auto Mode

The auto mode is used to turn on or turn off the generator according to the battery capacity. The auto mode only supports generators controlled by Dry Contact. Otherwise, please select the manual mode.

Parameter	Description
GEN Start SOC	In off-grid mode, start the generator when the battery capacity is lower than the safety SOC.
GEN Shutdown SOC	In generator mode, shut down the generator when the battery capacity is higher than the safety SOC.
Quiet Time	During the quiet time, the generator is disabled. If you set this time, it will affect the normal use of electricity.

(3) Battery Charge Time

Parameter	Description
Battery Charge Time	The generator will charge the battery during the preset period. Please choose the time period when the PV power is low to avoid wasting PV power.

9.4 Upgrade the Firmware

NOTE

During the firmware upgrade, do not power off the device.

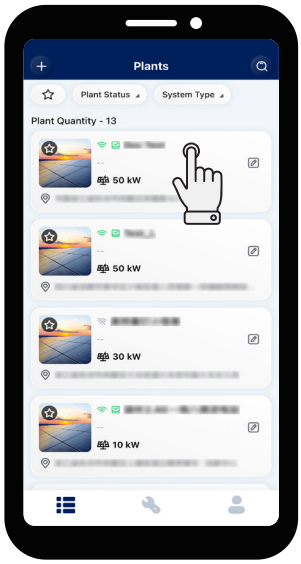
When you enter the plant overview interface, there will be a pop-up window if there is a new firmware version.

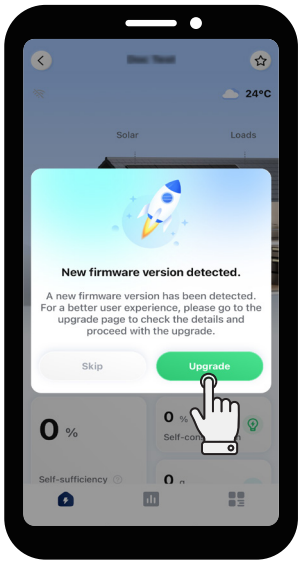
Method One

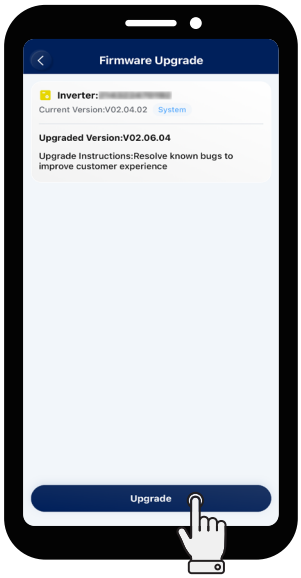
Step 1 Tap the target plant.

Step 2 Tap **Upgrade**.

Step 3 Tap **Upgrade**.



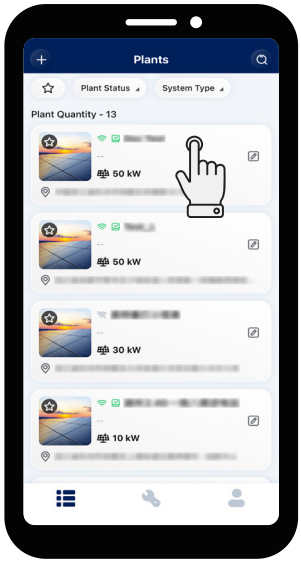


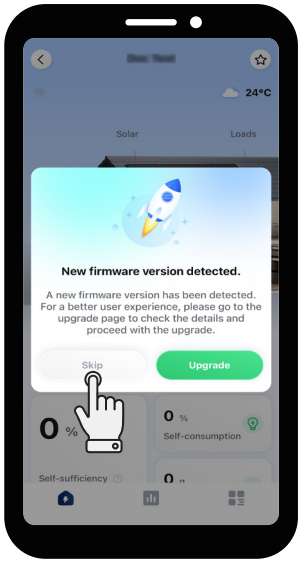


Method Two

Step 1 Tap the target plant.

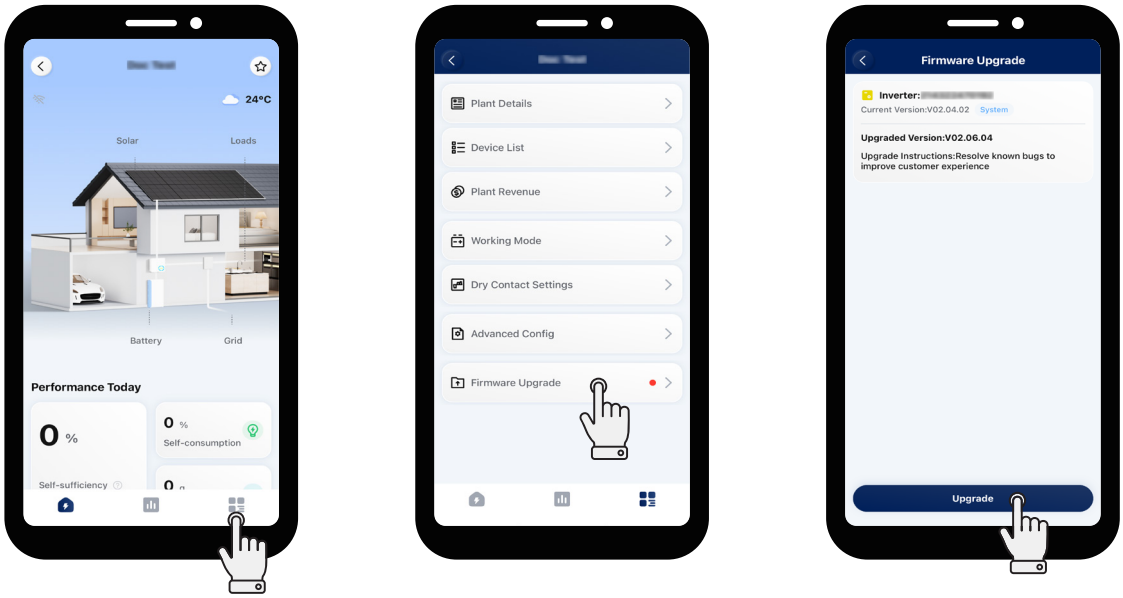
Step 2 Tap **Skip**.





Step 3 Tap in the lower right corner.

Step 4 Tap **Firmware Upgrade** > **Upgrade**.



10 System Maintenance

10.1 System Power-off

NOTICE

Wait at least 10 minutes after the LED indicators turn off to release the internal energy.

Step 1 Stop the inverter from working via the S-Miles App.

Step 2 If the inverter is connected to the battery, disconnect the DC breaker between the inverter and the battery.

Step 3 Disconnect the AC breaker between the inverter and the grid.

Step 4 (Only for HYT series inverters) Rotate the DC switch to "OFF" if the inverter is connected to the PV strings.

Step 5 Check whether the inverter indicators are off.

10.2 Routine Maintenance

To ensure that the inverter can operate for a long time, it is recommended to perform the following maintenance items. Make sure that all maintenance items are performed after the inverter is powered off.

Check Item	Check Method	Maintenance Interval
System Cleanliness	Periodically check the heat sinks to ensure that there are no obstacles and dust.	Once every 6 months
System Operation Status	• Check whether the inverter is damaged or deformed. • Check whether there is an abnormal sound when the inverter is working. • Check whether the inverter parameters are set correctly.	Once every 6 months
Electrical Connection	• Check whether the cables are firmly connected and intact; in particular, ensure that the parts being contacted with the metal surface are not scratched. • Check whether the waterproof plugs or covers of unused ports are firmly in place.	The first inspection is 3 months after the first installation, and the subsequent inspections can be carried out once every 6 to 12 months.
Grounding Reliability	Check whether the ground cables are firmly connected.	The first inspection is 3 months after the first installation, and the subsequent inspections can be carried out once every 6 to 12 months.

10.3 Troubleshooting

When the system is in alarm, please log in to the S-Miles App to review. The possible causes and their troubleshooting are shown as follows.

Display	Possible Cause	Handling Suggestions
Grid Overvoltage	The grid voltage is higher than the permissible range.	Generally, the inverter will reconnect to the grid after the grid recovers. If the alarm occurs frequently: 1. Make sure the ESS safety configuration of the inverter is set correctly. 2. Make sure that the grid voltage in your area is stable and within the normal range. 3. Check whether the cross-sectional area of the AC cable meets the requirement. 4. If the alarm persists, contact Hoymiles technical support team.
Grid Undervoltage	The grid voltage is lower than the permissible range.	Generally, the inverter will reconnect to the grid after the grid recovers. If the alarm occurs frequently: 1. Make sure the ESS safety configuration of the inverter is set correctly. 2. Make sure that the grid voltage in your area is stable and within the normal range. 3. Check whether the AC cable is firmly in place. 4. If the alarm persists, contact Hoymiles technical support team.
Grid Overfrequency	The grid frequency is higher than the permissible range.	Generally, the inverter will reconnect to the grid after the grid recovers. If the alarm occurs frequently: 1. Make sure the ESS safety configuration of the inverter is set correctly. 2. Make sure that the grid frequency in your area is stable and within the normal range. 3. If the alarm persists, contact Hoymiles technical support team.
Grid Underfrequency	The grid frequency is lower than the permissible range.	
No Grid	The inverter detects that there is no grid connected.	Generally, the inverter will reconnect to the grid after the grid recovers. If the alarm occurs frequently: 1. Check whether the grid supply is reliable. 2. Check whether the AC cable is firmly in place. 3. Check whether the AC cable is correctly connected. 4. Check whether the AC circuit breaker is disconnected. 5. If the alarm persists, contact Hoymiles technical support team.
RCD Fault	The residual leakage current is too high.	1. The alarm can be caused by high ambient humidity, and the inverter will reconnect to the grid after the environment is improved. 2. If the environment is normal, check whether the AC and DC cables are well insulated. 3. If the alarm persists, contact Hoymiles technical support team.
PV Reverse Connection	The inverter detects that the PV strings are reversely connected.	1. Check whether the corresponding string is of reverse polarity. If so, disconnect the DC switch and adjust the polarity when the string current drops below 0.5 A. 2. If the alarm persists, contact Hoymiles technical support team.

PV Undervoltage	The PV voltage is lower than the permissible range.	1. Check whether the DC cable is firmly in place. 2. Check whether there is a PV module shaded. If so, remove the shade and ensure the PV module is clean. 3. Check whether the PV module is in abnormal aging. 4. If the alarm persists, contact Hoymiles technical support team.
PV Overvoltage	The PV voltage is higher than the permissible range.	1. Check the specification and numbers of corresponding string PV modules. 2. If the alarm persists, contact Hoymiles technical support team.
Over Temperature	The temperature inside the inverter is higher than the permissible range.	1. Make sure that the installation complies with the instructions from the User Manual. 2. Check whether the alarm “Fan Fault” occurs. If so, replace the faulty fan. 3. If the alarm persists, contact Hoymiles technical support team.
ISO Fault	The insulation impedance of the PV string to the ground is too low.	1. Use a multimeter to determine if the resistance between the earth and the inverter frame is close to zero. If not, please ensure that the connection is good. 2. If the humidity is too high, an isolation fault may occur. Attempt to restart the inverter. If the fault persists, check it again when the weather turns fine. 3. Check the resistance to ground from the PV module/cable. Take corrective measures in case of leading to a short circuit or damaged insulation layer. 4. If the alarm persists, contact Hoymiles technical support team.
Arc Fault	The inverter detects that there is an arc fault.	1. Disconnect the DC switch and check whether DC cables are damaged and whether the wiring terminals are loose or in poor contact. If so, take corresponding corrective measures. 2. After taking corresponding measures, reconnect the DC switch. 3. If the alarm persists, contact Hoymiles technical support team.
EPS Load Overpower	The EPS load power is higher than the permissible range.	1. Reduce the power of EPS loads, or remove some EPS loads. The inverter will restart automatically. 2. If the alarm persists, contact Hoymiles technical support team.
Meter Reverse Connection	The inverter detects that the Meter or CT is reversely connected.	1. Make sure that the installation complies with the instructions from the User Manual. 2. If the alarm persists, contact Hoymiles technical support team.
Meter Communication Fault	The inverter detects that there is a meter communication fault.	1. Check whether the Meter communication cable and terminal are abnormal. 2. Reconnect the Meter communication cable. 3. If the alarm persists, contact Hoymiles technical support team.
Battery Reverse Connection	The inverter detects that the battery wirings are reversely connected.	1. Check the battery for polarity correctness, and correct it if necessary. 2. If the alarm persists, contact Hoymiles technical support team.
Battery Voltage Fault	The battery voltage is higher than the permissible range.	1. Check if the battery input voltage is within the normal range. 2. If the alarm persists, contact Hoymiles technical support team.

BMS Communication Fault	The inverter detects that there is a BMS communication fault.	1. Check whether the BMS communication cable and terminal are abnormal. 2. Reconnect the BMS communication cable. 3. If the alarm persists, contact Hoymiles technical support team.
BMS Battery Alarm	The inverter detects that there is a battery fault from BMS.	Try to restart the battery. If the fault persists, contact the battery manufacturer.
BMS Battery Fault	The inverter detects that there is a battery fault from BMS.	Try to restart the battery. If the fault persists, contact the battery manufacturer.
Relay Self-check Fault	The inverter detects that there is a relay self-check fault.	Try to restart the inverter. If the fault persists, contact Hoymiles technical support team.

11 Decommissioning

11.1 Removing the Product

Step 1 Power off the product as described in *10.1 System Power-off*.

Step 2 Disconnect all cables.

Step 3 Remove the DTS and the smart meter.

Step 4 Remove the inverter from the wall, and remove the bracket if necessary.

11.2 Packing the Product

If the original package is available, put the product and its accessories into the package and keep it in a dry and proper place.

If the original package is not available, put the product and its accessories into a suitable package. The package should be easy to remove, can bear the weight of the product, and can be sealed properly.

11.3 Disposing of the Product

If the inverter can not be used and needs to be disposed of, dispose of the inverter and its accessories in accordance with the European Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE).

In accordance with the WEEE and its implementation in national law, the electrical devices must be collected separately and recycled in an environmentally responsible manner. We recommend that you return your used device to your dealer or obtain information regarding a local, authorized collection and disposal system. Failure to comply with this EU Directive may result in a negative impact on the environment.

12 Technical Datasheet

12.1 HYT-(5.0-12.0)HV-EUG1

Model	HYT-5.0HV-EUG1	HYT-6.0HV-EUG1	HYT-8.0HV-EUG1	HYT-10.0HV-EUG1	HYT-12.0HV-EUG1
Battery					
Battery type	Li-ion				
Battery voltage range (V)	170-600				
Max. charge/discharge current (A)	20/20	20/20	30/30	30/30	30/30
Max. charge/discharge power (W)	5000/5000	6000/6000	8000/8000	10000/10000	10000/10000
Charging strategy for Li-ion battery	Self-adaption to BMS				
Communication	CAN				
PV Input					
Recommended max. PV power (W)	7500	9000	12000	15000	15000
Max. input voltage (V)	1000				
Rated voltage (V)	720				
Start-up voltage (V)	250				
MPPT voltage range (V)	200-950				
Max. input current (A)	14/14	14/14	14/14	14/28	14/28
Max. short circuit current (A)	17/17	17/17	17/17	17/34	17/34
MPPT number/Max. input strings number	2/2	2/2	2/2	2/3	2/3
AC Input and Output (On-grid)					
Rated output power (W)	5000	6000	8000	10000	12000
Max. output apparent power (VA)	5500	6600	8800	11000[1]	12000
Max. input power (W)	10000	12000	16000	16000	16000
Grid form	3L/N/PE				
Rated AC output voltage/Range (V)	380/400, 266-480				
Rated grid frequency (Hz)	50/60				
Max. output current (A)	8.3	10.0	13.3	16.7	17.4
Max. input current (A)	15.2	18.2	24.2	24.2	24.2
Power factor	>0.99 (0.8 leading ... 0.8 lagging)				
THDi (@rated output)	<3%				
AC Output (Off-grid)					
Rated output power (W)	5000	6000	8000	10000	12000
Max. output apparent power (VA)	10000, 10s	12000, 10s	16000, 10s	16000, 10s	16000, 10s
Back-up switch time (ms)	<10				
Grid form	3L/N/PE				
Rated output voltage (V)	380/400				
Rated output frequency (Hz)	50/60				
Max. continuous output current (A)	8.3	10.0	13.3	16.7	17.4
THDv (@linear load)	<3%				
Efficiency					
MPPT efficiency	99.9%	99.9%	99.9%	99.9%	99.9%
Max. efficiency	98.0%	98.0%	98.0%	98.0%	98.0%
EU efficiency	97.0%	97.1%	97.2%	97.4%	97.5%
Max. battery discharge to AC efficiency	97.5%	97.5%	97.5%	97.5%	97.5%
Protection					
Anti-islanding protection	Integrated				
PV string input reverse polarity protection	Integrated				
Insulation resistor detection	Integrated				
Residual current monitoring unit	Integrated				
AC over current protection	Integrated				
AC short current protection	Integrated				
AC overvoltage and undervoltage protection	Integrated				
Surge protection	DC Type II/AC Type III				
General					
Dimensions (W × H × D [mm])	502 × 486 × 202				
Weight (kg)	26.5				
Mounting	Wall mounting				
Operating temperature (°C)	-25 to +65 (>45, derating)				
Relative humidity	0-95%, no condensing				
Cooling	Natural convection				
Topology (Solar/Battery)	Transformerless/Transformerless				
Altitude (m)	≤2000				
Protection degree	IP65				
Noise (dB)	<40				
User interface	LED, App				
Digital input/output	DRM, 1 × DI, 2 × DO				
Communication	RS485, optional: Wi-Fi/Ethernet/4G[2]				
Certifications and Standards					
Grid connection standard	EN 50549, VDE-AR-N 4105, VFR: 2019, TOR Erzeuger Type A, RD647, NTS (SENP), CEI 0-21 2019:04				
Safety/EMC standard	IEC 62109-1/-2, EN 61000-6-1/-3				

(1) Max. output apparent power 10000 VA for Belgium.
(2) The DTS-Ethernet and DTS-4G solutions will be coming soon.

12.2 HAT-(5.0-10.0)HV-EUG1

Model	HAT-5.0HV-EUG1	HAT-6.0HV-EUG1	HAT-8.0HV-EUG1	HAT-10.0HV-EUG1
Battery				
Battery type	Li-ion			
Battery voltage range (V)	170-600			
Max. charge/discharge current (A)	20/20	20/20	30/30	30/30
Max. charge/discharge power (W)	5000/5000	6000/6000	8000/8000	10000/10000
Charging strategy for Li-ion battery	Self-adaption to BMS			
Communication	CAN			
AC Input and Output (On-grid)				
Rated output power (W)	5000	6000	8000	10000
Max. output apparent power (VA)	5500	6600	8800	11000(1)
Max. input power (W)	10000	12000	16000	16000
Grid form	3L/N/PE			
Rated AC output voltage/Range (V)	380/400, 266-480			
Rated grid frequency (Hz)	50/60			
Max. output current (A)	8.3	10.0	13.3	16.7
Max. input current (A)	15.2	18.2	24.2	24.2
Power factor	>0.99 (0.8 leading ... 0.8 lagging)			
THDi (@rated output)	<3%			
AC Output (Off-grid)				
Rated output power (W)	5000	6000	8000	10000
Max. output apparent power (VA)	10000, 10s	12000, 10s	16000, 10s	16000, 10s
Back-up switch time (ms)	<10			
Grid form	3L/N/PE			
Rated output voltage (V)	380/400			
Rated output frequency (Hz)	50/60			
Max. continuous output current (A)	8.3	10.0	13.3	16.7
THDv (@linear load)	<3%			
Efficiency				
Max. efficiency	97.5%	97.5%	97.5%	97.5%
Protection				
Anti-islanding protection	Integrated			
AC over current protection	Integrated			
AC short current protection	Integrated			
AC overvoltage and undervoltage protection	Integrated			
Surge protection	DC Type II/AC Type III			
General				
Dimensions (W × H × D [mm])	502 × 486 × 202			
Weight (kg)	23			
Mounting	Wall mounting			
Operating temperature (°C)	-25 to +65 (>45, derating)			
Relative humidity	0-95%, no condensing			
Cooling	Natural convection			
Topology (Battery)	Transformerless			
Altitude (m)	≤2000			
Protection degree	IP65			
Noise (dB)	<40			
User interface	LED, App			
Digital input/output	DRM, 1 × DI, 2 × DO			
Communication	RS485, optional: Wi-Fi/Ethernet/4G(2)			
Certifications and Standards				
Grid connection standard	EN 50549, VDE-AR-N 4105, VFR: 2019, TOR Erzeuger Type A			
Safety/EMC standard	IEC 62109-1/-2, IEC 62477-1, EN 61000-6-1/-3			

(1) Max. output apparent power 10000 VA for Belgium.
(2) The DTS-Ethernet and DTS-4G solutions will be coming soon.

13 Appendix: Grid Code

HYT-(5.0-12.0)HV-EUG1

National/Regional Grid Code	Description	HYT-5.0HV-G1	HYT-6.0HV-G1	HYT-8.0HV-G1	HYT-10.0HV-G1	HYT-12.0HV-G1
VDE-AR-N-4105	Germany HV power grid	Supported	Supported	Supported	Supported	Supported
UTE C 15-715-1(A)	France mainland power grid	Supported	Supported	Supported	Supported	Supported
UTE C 15-715-1(B)	France island power grid	Supported	Supported	Supported	Supported	Supported
UTE C 15-715-1(C)	France island power grid	Supported	Supported	Supported	Supported	Supported
CEI0-21	Italy power grid	Supported	Supported	Supported	Supported	Supported
C10/11	Belgium power grid	Supported	Supported	Supported	Supported	Supported
Austria	Austrian power grid	Supported	Supported	Supported	Supported	Supported
G98	UK G98 power grid	Supported	Supported	Supported	Supported	Supported
G99 TRPEA-HV	UK G99_ TRPEA_ HV power grid	Supported	Supported	Supported	Supported	Supported
AUSTRALIA-AS4777_A_HV400	Australia power grid	Supported	Supported	Supported	Supported	Supported
AUSTRALIA-AS4777_B_HV400	Australia power grid	Supported	Supported	Supported	Supported	Supported
AUSTRALIA-AS4777_C_HV400	Australia power grid	Supported	Supported	Supported	Supported	Supported
AUSTRALIA-AS4777_A_HV_NZ_400	New Zealand power grid	Supported	Supported	Supported	Supported	Supported
RD1699/166	Spain HV power grid	Supported	Supported	Supported	Supported	Supported
EN50549-poland	Poland power grid	Supported	Supported	Supported	Supported	Supported
IEC 62116	Hungary power grid	Supported	Supported	Supported	Supported	Supported
IEC 61683	Pakistan power grid	Supported	Supported	Supported	Supported	Supported
NRS 097-2-1	South Africa power grid	Supported	Supported	Supported	Supported	Supported

National/Regional Grid Code	Description	HYT-5.0HV-G1	HYT-6.0HV-G1	HYT-8.0HV-G1	HYT-10.0HV-G1	HYT-12.0HV-G1
TAI-PEA	Thailand power grid	Supported	Supported	Supported	Supported	Supported
TAI-MEA	Thailand power grid	Supported	Supported	Supported	Supported	Supported
ABNTNBR16149	Brazil power grid	Supported	Supported	Supported	Supported	Supported
IEC61727	IEC61727 HV(50Hz)	Supported	Supported	Supported	Supported	Supported
IEC61727-60Hz	IEC61727 HV(60Hz)	Supported	Supported	Supported	Supported	Supported
EN50549 -1-Portugal deviation	Portugal power grid	Supported	Supported	Supported	Supported	Supported
EN50549-1-Hungary deviation	Hungary power grid	Supported	Supported	Supported	Supported	Supported
No. 25/2016/TT-BCT 2016	Vietnam power grid	Supported	Supported	Supported	Supported	Supported
DEWA:2016	United Arab Emirates power grid	Supported	Supported	Supported	Supported	Supported
TNB+IEC60068	--	Supported	Supported	Supported	Supported	Supported
AS 4777.2	Israel power grid	Supported	Supported	Supported	Supported	Supported
NOM	Mexico power grid	Supported	Supported	Supported	Supported	Supported
Ordinance 140	Brazil power grid	Supported	Supported	Supported	Supported	Supported
TOR Erzeuger Type A	Austria power grid	Supported	Supported	Supported	Supported	Supported
VFR: 2019	France power grid	Supported	Supported	Supported	Supported	Supported

HAT-(5.0-10.0)HV-EUG1

National/Regional Grid Code	Description	HAT-5.0HV-EUG1	HAT-6.0HV-EUG1	HAT-8.0HV-EUG1	HAT-10.0HV-EUG1
VDE-AR-N-4105	Germany HV power grid	Supported	Supported	Supported	Supported
UTE C 15-715-1(A)	France mainland power grid	Supported	Supported	Supported	Supported
UTE C 15-715-1(B)	France island power grid	Supported	Supported	Supported	Supported
UTE C 15-715-1(C)	France island power grid	Supported	Supported	Supported	Supported
CEI0-21	Italy power grid	Supported	Supported	Supported	Supported
C10/11	Belgium power grid	Supported	Supported	Supported	Supported
Austria	Austrian power grid	Supported	Supported	Supported	Supported
G98	UK G98 power grid	Supported	Supported	Supported	Supported
G99 TRPEA-HV	UK G99_ TRPEA_ HV power grid	Supported	Supported	Supported	Supported
AUSTRALIA-AS4777_A_HV400	Australia power grid	Supported	Supported	Supported	Supported
AUSTRALIA-AS4777_B_HV400	Australia power grid	Supported	Supported	Supported	Supported
AUSTRALIA-AS4777_C_HV400	Australia power grid	Supported	Supported	Supported	Supported
AUSTRALIA-AS4777_NZ_HV400	New Zealand power grid	Supported	Supported	Supported	Supported
RD1699/166	Spain HV power grid	Supported	Supported	Supported	Supported
EN50549-poland	Poland power grid	Supported	Supported	Supported	Supported
IEC 61683	Pakistan power grid	Supported	Supported	Supported	Supported

National/Regional Grid Code	Description	HAT-5.0HV-EUG1	HAT-6.0HV-EUG1	HAT-8.0HV-EUG1	HAT-10.0HV-EUG1
TAI-PEA	Thailand power grid	Supported	Supported	Supported	Supported
TAI-MEA	Thailand power grid	Supported	Supported	Supported	Supported
ABNTNBR16149	Brazil power grid	Supported	Supported	Supported	Supported
IEC61727	IEC61727 HV(50Hz)	Supported	Supported	Supported	Supported
IEC61727-60Hz	IEC61727 HV(60Hz)	Supported	Supported	Supported	Supported
EN50549 -1-Portugal deviation	Portugal power grid	Supported	Supported	Supported	Supported
EN50549-1-Hungary deviation	Hungary power grid	Supported	Supported	Supported	Supported
No. 25/2016/TT-BCT 2016	Vietnam power grid	Supported	Supported	Supported	Supported
DEWA:2016	United Arab Emirates power grid	Supported	Supported	Supported	Supported
TNB+IEC60068	--	Supported	Supported	Supported	Supported
AS 4777.2	Israel power grid	Supported	Supported	Supported	Supported
NOM	Mexico power grid	Supported	Supported	Supported	Supported
VFR: 2019	France power grid	Supported	Supported	Supported	Supported

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