



## Single-phase Microinverter

# USER MANUAL

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HMS-1600-4T  
HMS-1800-4T  
HMS-2000-4T

## 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](http://www.hoymiles.com)) or scanning the QR Code below.



## Emission Compliance

This equipment has been tested and found to comply with the limits applied by the local regulations. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, you are encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

*\* Changes or modifications not expressly approved by the party responsible for compliance may void the user's authority to operate the equipment.*

## 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](http://www.hoymiles.com).

## Contact Us

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



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service.de@hoymiles.com

### Italy

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service.au@hoymiles.com

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# Using This Manual

## Symbols

•	List
▷	List (second level)
Step 1, Step 2, ...	Installation steps in a defined order
A), B), C) ...	Installation steps in a defined order (second level)

## Abbreviations

Abbreviation	Meaning	Abbreviation	Meaning
AC	Alternating Current	PE	Protective Earthing
AP	Access Point	PPE	Personal Protective Equipment
DC	Direct Current	PV	Photovoltaic
MPPT	Maximum Power Point Tracking	RCD	Residual Current Device
O&M	Operations and Maintenance	SN	Serial Number

## Related Documents

The following documents have been produced to assist you in maximizing the microinverter's potential.

<b>Datasheet</b>	<a href="#"><i>Datasheet HMS-2000 Series EU_EN</i></a>
<b>Tutorial Videos</b>	<a href="#"><i>Installation Video HMS-2000 Series Global_EN</i></a>
<b>Others</b>	<a href="#"><i>Hoymiles Compatibility Calculator</i></a>

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# 1 About This Manual

## 1.1 Purpose

This manual provides information on the installation, electrical connections, operation, and maintenance of the HMS-2000-4T series microinverters.

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:

- Understanding of microinverter operations and related functionalities.
- Knowledge of microinverter installation, usage, and maintenance.
- Competence in handling risks linked to microinverter installation, usage, and maintenance.
- Familiarity with local electrical codes and regulations.

## 1.3 Validity

This manual is valid for:

Model	Output Power (W)
HMS-1600-4T	1600
HMS-1800-4T	1800
HMS-2000-4T	2000

### NOTE

Model identifier:





**HMS-2000-4T**  
T T T  
A B C

- [A]: Series Name
- [B]: Output Power Level
- [C]: Number of Inputs

## 2 Safety Instructions








### 2.1 Safety Symbols

Safety symbols are used in this manual as follows:

Symbol	Description
 <b>DANGER</b>	This symbol indicates warns of hazards that could cause death or serious physical harm.
 <b>WARNING</b>	This symbol signifies the importance of strictly following directions to avoid safety hazards, including damage to equipment and personal injury.
 <b>CAUTION</b>	This symbol indicates potential risks that, if not avoided, may lead to device malfunctions or financial losses.
<b>NOTICE</b>	This symbol indicates potential risks that, if not avoided, may lead to minor injury or damage to the equipment.
 <b>NOTE</b>	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:

Icon	Explanation
	<b>Treatment</b> 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 an authorized dealer or an approved collection and recycling facility.
 5 min	<b>Caution</b> Risk of electrical shock.
	<b>High Voltage</b> Microinverters may contain high voltages, causing a risk of death.
	<b>Hot Surface</b> The microinverter may become hot during operation. Do not contact with metal surfaces.
	<b>CE mark</b> The microinverter conforms to the Low Voltage Directive of the European Union.
	<b>FCC mark</b> The microinverter complies with the FCC standard.
	<b>Read the manual first</b> Read this manual carefully before performing any installation, operation, or maintenance.

## 2.3 Safety Instructions

The HMS-2000-4T microinverter has been designed and tested in compliance with international safety standards, and thus requires careful installation and operation. Installers must carefully read and strictly follow the safety instructions in this section. Failure to do so may result in:

- Injury or death to the installer or operator
- Damage to the microinverter

### DANGER!

#### General

- All installation, start-up, troubleshooting, maintenance, and all other operations must be performed by a licensed electrician and follow local wiring codes.
- Always use personal protective equipment (PPE), like gloves and goggles, during installation.
- The microinverter should only be used when all technical parameters are observed and applied correctly. (You can refer to "[Technical Data](#)" for more details.)

#### Installation & Operation

- Report any non-standard installation conditions to the manufacturer.
- Do not install the equipment in flammable, explosive, corrosive, extreme heat/cold, or humid environments.
- Each microinverter input should only be connected to a single PV module. Do not connect batteries or other power supply sources. The unsupported devices have different output characteristics that differ from PV modules, potentially leading to improper functioning of the microinverters and posing safety hazards.
- Do not use the equipment in environments where safety devices are not working properly.
- Do not use the equipment if any unusual operations are detected.
- Check and ensure that all AC and DC wiring is properly installed and free from any snags, shorts, or damage. Additionally, ensure that all AC distribution boxes are securely sealed.
- Hoymiles shall not be liable for any damages caused by incorrect or improper operations.

#### Maintenance & Repair

- Ensure that the DC connectors are in perfect condition and that none of the DC conductors or DC connectors are exposed.
- Do not attempt to repair the product. All repairs must be done by licensed contractors or authorized Hoymiles service representatives using approved spare parts installed according to their intended use.
- Prior to any maintenance and repair operation, disconnect the power supply. Do not disconnect the AC and DC connectors under load.
- Maintain extreme caution when the microinverter is disconnected from the public grid. Hazardous voltages may still be present in some components.

### WARNING!

#### General

- Disconnect the microinverter from the electrical power supply before making or modifying any device connections.
- Restrict product access by unauthorized individuals.

#### Installation & Operation

- Make sure to obtain all necessary approvals from local power operators before connecting the microinverter to the power grid.

- To protect from rain, UV, and adverse weather conditions, install the microinverter beneath the PV module. Avoid exposing the AC and DC connectors to rain or moisture prior to connection.
- Use the [Hoymiles Compatibility Calculator](#) to verify the electrical compatibility of PV modules. To maintain the Hoymiles warranty, only use Hoymiles microinverters with the compatible PV modules shown on the Hoymiles Compatibility Calculator.
- Make sure that the PV module's maximum open circuit voltage falls within the maximum DC input voltage for the microinverter. (You can refer to "[Technical Data](#)" for more details.)
- Improper use, incorrect installation, or unauthorized removal of necessary protections may result in damage to the equipment or serious safety and shock hazards.
- Microinverter surfaces can reach high temperatures during operation and for a short time after switching off the AC circuit breaker. Avoid direct contact with these surfaces.

### Maintenance & Repair

- Avoid immersing the cable connectors or cables for a long period.
- Prevent any contaminants or deposits from entering the connector.
- Equipment repairs should only be performed by the Hoymiles Service Team, a repair team authorized by Hoymiles, or by authorized personnel familiar with all warnings and operating procedures contained in this manual.
- Ensure that the installation surface and equipment are within safe temperature and voltage ranges prior to handling any part of the microinverter.

### CAUTION!

#### Installation & Operation

- Before installation, inspect for transportation damages compromising insulation integrity and safety clearances.
- Do not remove or cover any warning labels or nameplates on the microinverter.
- Lift the microinverter carefully. Take the weight of the microinverter into account.
- Follow the wiring safety instructions to ensure proper polarity and secure connections.
- Inspect the microinverter system for functionality and performance post-installation. Double-check the electrical connections, communication links, and monitoring features.

#### Maintenance & Repair

- The microinverter packaging has been intentionally designed to be reusable. Retain the packaging for future use.
- Do not clean the equipment with filamentary or corrosive material-based rags to prevent corrosion and electrostatic charges.

### NOTICE

- The microinverter is an isolated device that manages power conversion and safety at the module level, so it does not need functional grounding for the PV array.
- The microinverter uses High Frequency transformer. For some countries that an external RCD (Residual Current Device) is required, Hoymiles recommends the use of a type-B 30 mA RCD.



## 3 Product Information

### 3.1 Overview

#### Functions

Microinverters are module-level power electronics that convert direct current (DC) into alternating current (AC). The HMS-2000-4T microinverter is well-suited for residential and small commercial installations. It can attach up to four PV modules, enabling greater efficiency and flexibility in energy production.

#### Features

- Maximum output power up to 1600/1800/2000 W
- Independent Maximum Power Point Tracking (MPPT) technologies, keeping your solar power always on
- Hassle-free assembly with a user-friendly plug-and-play design
- With Reactive Power Control, compliant with EN 50549-1:2019, VDE-AR-N 4105:2018, VFR2019, etc.
- Maximum efficiency 96.7%
- Adjustable power factor, supporting 0.8 leading and 0.8 lagging
- Enhanced safety with rapid shutdown compliance and isolated transformer
- Durable and reliable IP67 (NEMA 6) enclosure, 6000 V surge protection

#### Applications

The HMS-2000W-4T microinverter can work in two types of systems: single-microinverter system and multi-microinverter system.

In a single-microinverter system, the whole system includes one microinverter and four PV modules. This setup is great for places like balconies or outdoor areas with lots of sunlight, like gardens, front lawns, and terraces.

In a multi-microinverter system, you'll have multiple microinverters, each paired with four PV modules. These setups are usually found on rooftops.

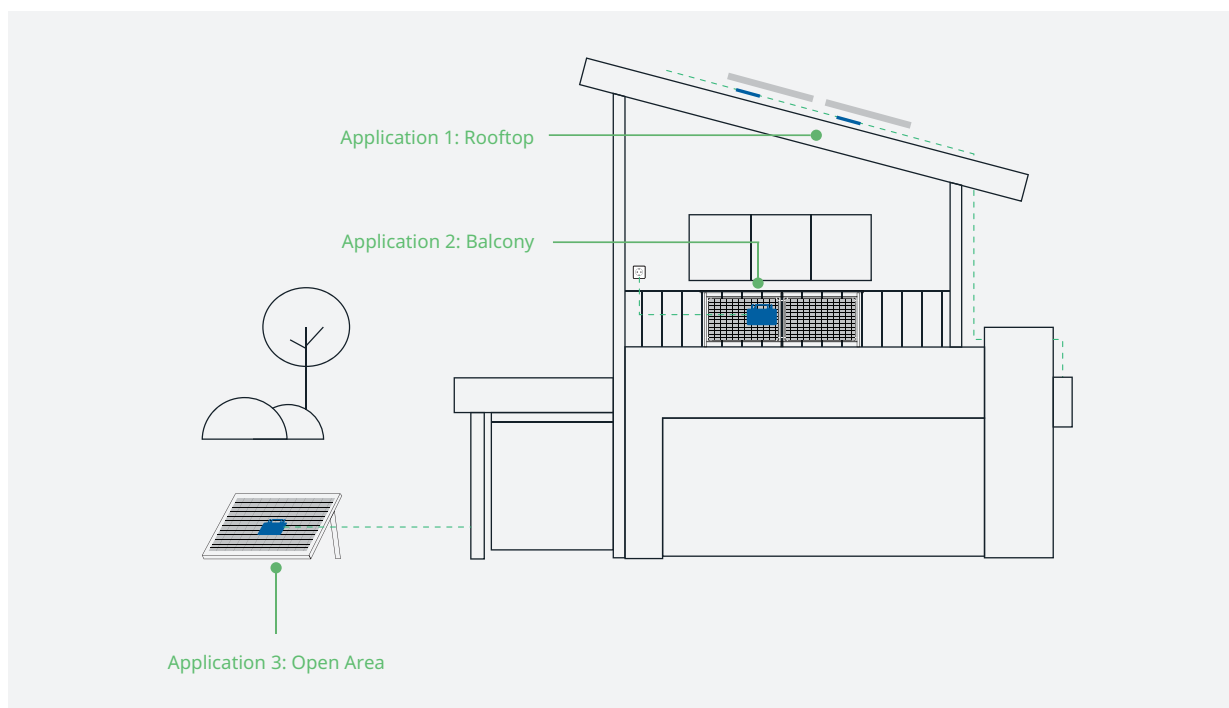



Figure 1-1 HMS-2000-4T Microinverter System Application

**NOTE**

For each type of setup, you'll need different accessories.




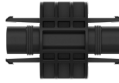


• **Single-Microinverter system:**

You can order an HMS Field Connector and get an AC cable ready for connection.

	<p><b>HMS Field Connector</b></p> <p>It provides a quick and simple electrical connection between the microinverter and the grid by serving as a joining component. To use it, you should prepare an AC cable to connect to it to form the AC end cable.</p>
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• **Multi-Microinverter system:**

You'll need to order the HMS Cable System and prepare an AC cable and a distribution box to connect the microinverters to the grid. The HMS Cable System includes these components:

	<p><b>HMS Connection Cable</b></p> <p>Make a customized AC Trunk by using the HMS Trunk Connectors and HMS Extension Connectors.</p>		<p><b>HMS Trunk Connector</b></p> <p>Used to connect the microinverter's AC output to the AC Trunk, as well as to join together multiple HMS Connection Cables to create the AC Trunk.</p>
	<p><b>HMS Cable Terminal Connector</b></p> <p>Used to form the AC cable into an AC End Cable, which completes the connection between the end of the AC Trunk and the distribution box.</p>		<p><b>HMS Extension Connector</b></p> <p>Used to extend your cable runs when the distance between two microinverters exceeds the standard length of an HMS Connection Cable.</p>
	<p><b>HMS Sealing Cap</b></p> <p>Used to cover the unused connection port on the HMS Trunk Connector, which is typically located at the beginning of the AC Trunk.</p>		<p><b>HMS Disconnect Tool</b></p> <p>A versatile tool that can be used to take apart connectors, tighten nuts, and loosen nuts.</p>

## How the Hoymiles Microinverters System Works

In a typical microinverter system, a few parts team up to turn sunlight into power you can use.

- **PV modules**

The PV modules capture sunlight and change it into DC electricity.

- **Microinverters**

Microinverters are small inverters installed directly on PV modules or nearby. They convert DC electricity from the PV modules into AC electricity, which can power homes or be fed back into the grid.

Microinverters use a sophisticated maximum power point tracking (MPPT) algorithm to optimize the performance of each PV module. This ensures that even if one PV module under performs, it will not drag down the overall performance of the other PV modules in the row.

- **DTU**

The Data Transfer Unit (DTU) is Hoymiles communication gateway. It bridges the communication between microinverters and S-miles Cloud Platform. It collect and delivers microinverter production data and energy consumption data to the S-Miles Cloud platform for monitoring and remote operations and maintenance (O&M).

- **S-Miles Cloud**

The S-Miles Cloud is a comprehensive monitoring and analysis platform. It watches over the microinverter system from afar, providing real-time insights into the whole system's performance and enabling you to keep track of your microinverter system's status. The S-Miles Cloud also enables module-level monitoring, and remote management.

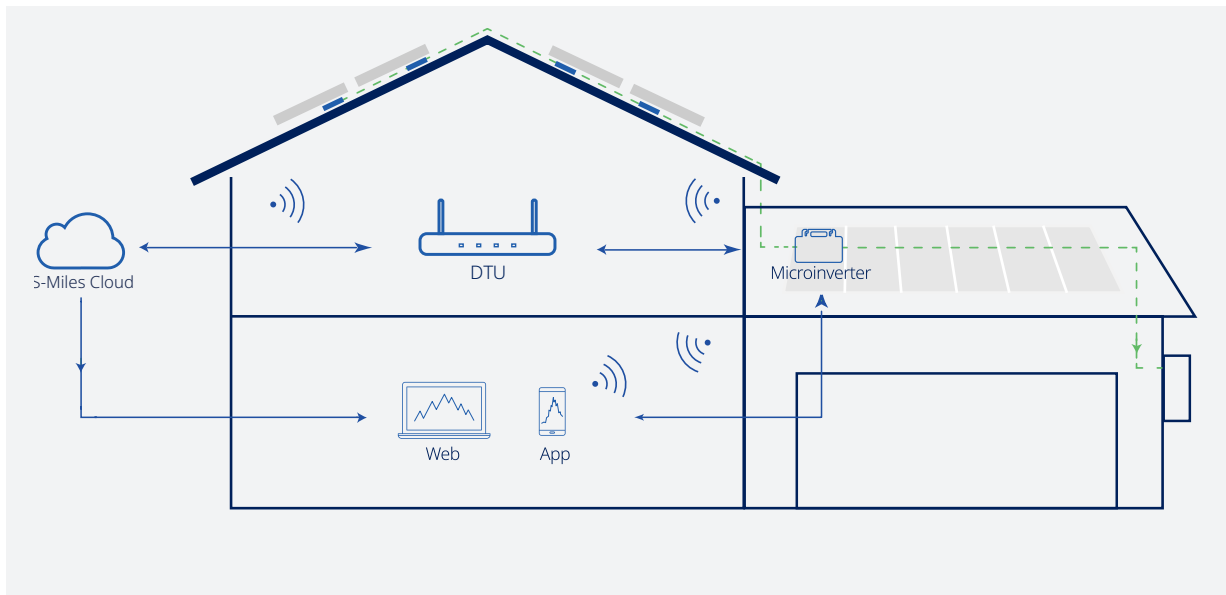


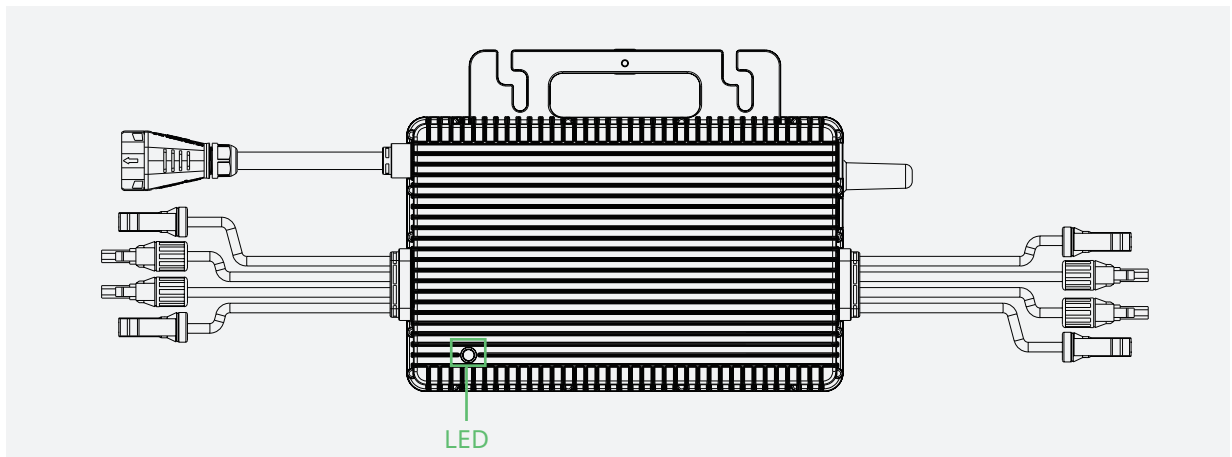
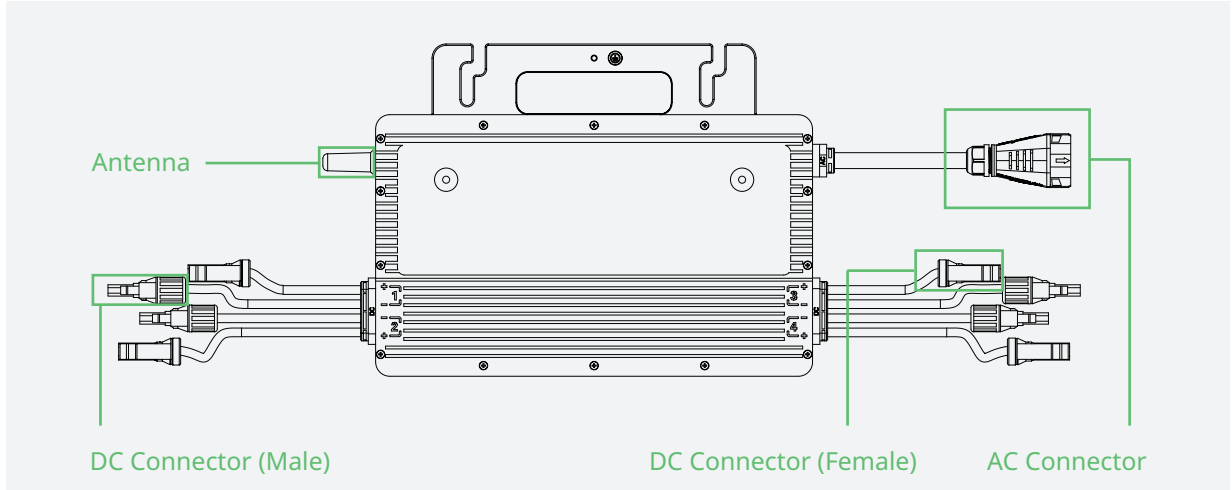
Figure 1-2 HMS-2000-4T Microinverter System Diagram

### 3.2 Appearance and Dimensions

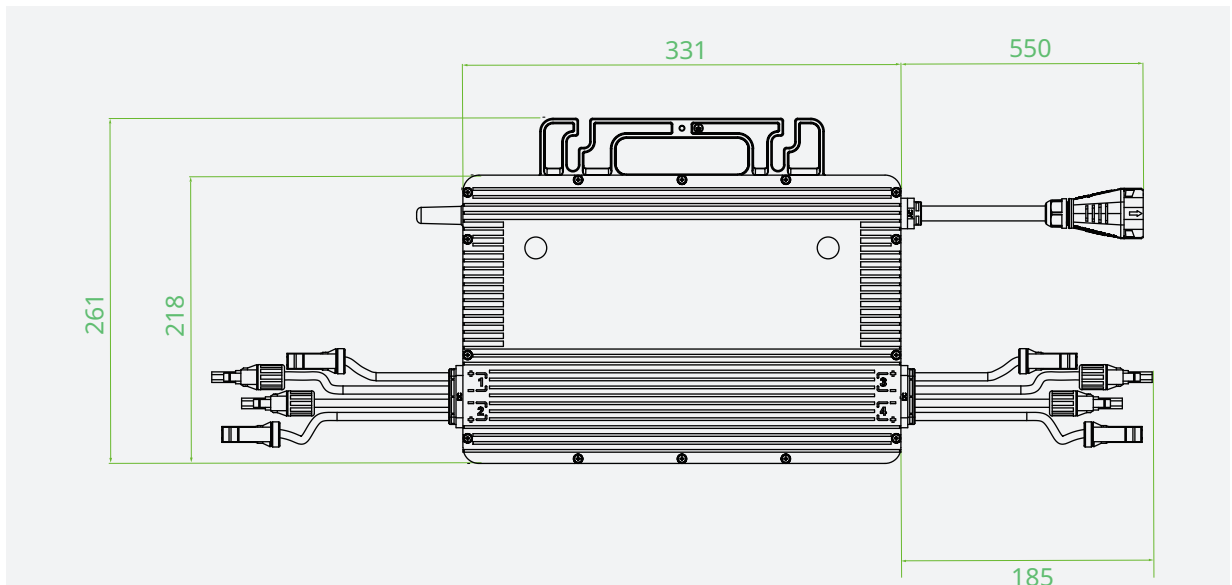
**NOTE**

The appearance and dimensions shown here are for reference only. The actual product you receive may differ.

#### Appearance



#### Dimensions (mm)



## 4 Installation Steps

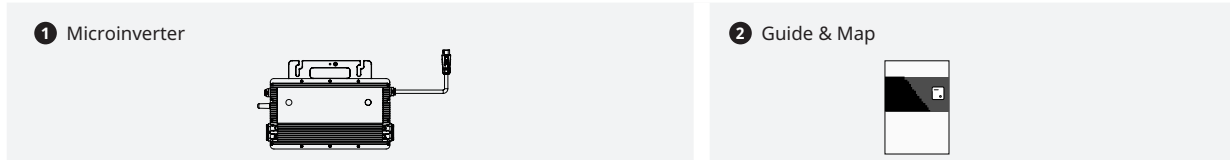
### 4.1 Preparation

#### Unpacking the Box

The microinverter has been thoroughly tested and was subject to a strict inspection before delivery. However, damage may still occur during shipping.

Conduct a detailed inspection after unpacking the microinverter:

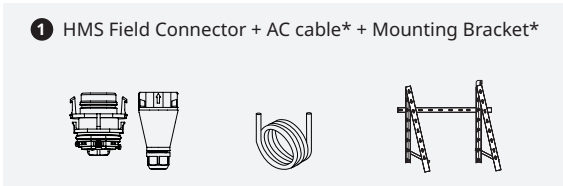
- Check for any external damage
- Check and confirm that all items have been included



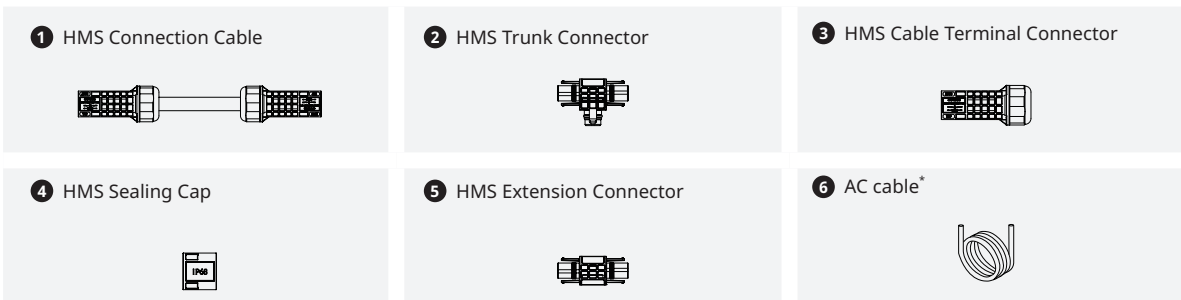
**NOTICE**  
Immediately contact your supplier or distributor upon noticing any damaged or missing parts.

#### Checking the Parts

##### • Single-Microinverter System



##### • Multi-Microinverter System



**NOTE**

Hoymiles doesn't offer the AC cable and mounting bracket for sale. You need to buy them separately. When purchasing, ensure compliance with local regulations and consider the following guidelines:

- **AC cable:** ensure it meets the necessary requirements.











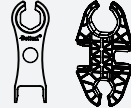
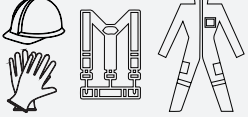
Type	Wire Type	Size	Cross-section Diameter	Maximum Voltage
Single-Microinverter System	Outdoor Use, Copper Wire	1.5 /1.0 mm <sup>2</sup>	8 - 9.5 mm	-
Multi-Microinverter System	Outdoor Use, Copper Wire	2.5/4/6 mm <sup>2</sup>	≤ 16.5 mm	600 V

- **Mounting Bracket:** Ensure the bracket has the load-bearing capacity and wind resistance to support the microinverter effectively.











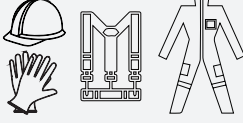
### Checking the Tools

Installation tools include but are not limited to the following recommended ones. If necessary, use other auxiliary tools on site.

#### • Single-Microinverter System

<b>1</b> Marker 	<b>2</b> Phillips Screwer 	<b>3</b> Cable Cutter 	<b>4</b> Wire Stripper 	<b>5</b> Crimping Tool  (1.5 mm <sup>2</sup> )	<b>6</b> Torque Wrench  (1.5-3 N•m)
<b>7</b> Crimp Ferrules  (1.5 mm <sup>2</sup> )	<b>8</b> Cable Ties 	<b>9</b> Electric Screwdriver 	<b>10</b> M8 Screws 	<b>11</b> Disconnect Tool 	<b>12</b> PPE 

#### • Multi-Microinverter System

<b>1</b> Marker 	<b>2</b> Steel Tape 	<b>3</b> Cable Cutter 	<b>4</b> Wire Stripper 	<b>5</b> Crimping Tool  (10 AWG, 12 AWG)	<b>6</b> Torque Wrench  (1.5-3 N•m)
<b>7</b> Electric Screwdriver  (2-9 N•m)	<b>8</b> M8 Screws 	<b>9</b> Cable Ties 	<b>10</b> Disconnect Tool 	<b>11</b> PPE 	

### Downloading the Application

Download the S-Miles Installer application. To download,

- Scan the QR code located on the right side, or,
- Search for “S-Miles Installer” on the App Store or Google Play Store



S-Miles Installer | Q

### Planning the Microinverters

You should specify the number of microinverters per AC output line based on the AC cables’ capacity.

Maximum Microinverter Number per Line			
Model	HMS-1600-4T	HMS-1800-4T	HMS-2000-4T
2.5 mm <sup>2</sup>	3@220V 3@230V 3@240V	2@220V 3@230V 3@240V	2@220V 2@230V 2@240V
4 mm <sup>2</sup>	4@220V 4@230V 4@240V	3@220V 4@230V 4@240V	3@220V 3@230V 3@240V

6 mm <sup>2</sup>	5@220V 5@230V 6@240V	4@220V 5@230V 5@240V	4@220V 4@230V 4@240V
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**NOTICE**

- Limits are determined based on AC cable ampacity, which can vary. Check local codes to determine the exact restrictions.
- Multiple 1-in-1, 2-in-1, and 4-in-1 microinverters can be connected to the same AC output line, as long as the total current doesn't exceed the local regulations' ampacity limits.

**Determining the Installation Position**

Consider the following to ensure the optimal location for the microinverter:

**IP 67**

- The microinverter meets the IP67 rating for environmental protection and can be installed indoors or outdoors.



- Shield the microinverter and DC connections from sunlight, rain, snow, UV, and other elements by installing them beneath the PV module.
- Install the microinverter beneath the PV modules to prevent power derating caused by temperature rise.



- Provide a minimum clearance of 2 cm around the microinverter enclosure to ensure proper ventilation and heat dissipation.



- Align environmental conditions with microinverter requirements specified in the "[Technical Data](#)" section, including the protection level, temperature, humidity, altitude, and more.



- Do not install the microinverter in:
  - ▷ Areas near corrosive, flammable, or explosive materials.
  - ▷ Areas accessible to children or pets.



- To avoid communication interference, steer clear of metal obstacles or large obstructions near the installation site of the microinverter.

## 4.2 Single-Microinverter System

Refer to the following steps to install the microinverter.

You can visit our [YouTube channel](#) or scan the QR code to watch the tutorial videos.



### **⚠️ DANGER!**

- Make sure there is no electrical connection before proceeding with the installation.
- During installation, secure the whole microinverter system to prevent it from falling.

### **⚠️ WARNING!**

Check the balcony railing for stability, weight capacity, and a smooth, level surface for bracket attachment.

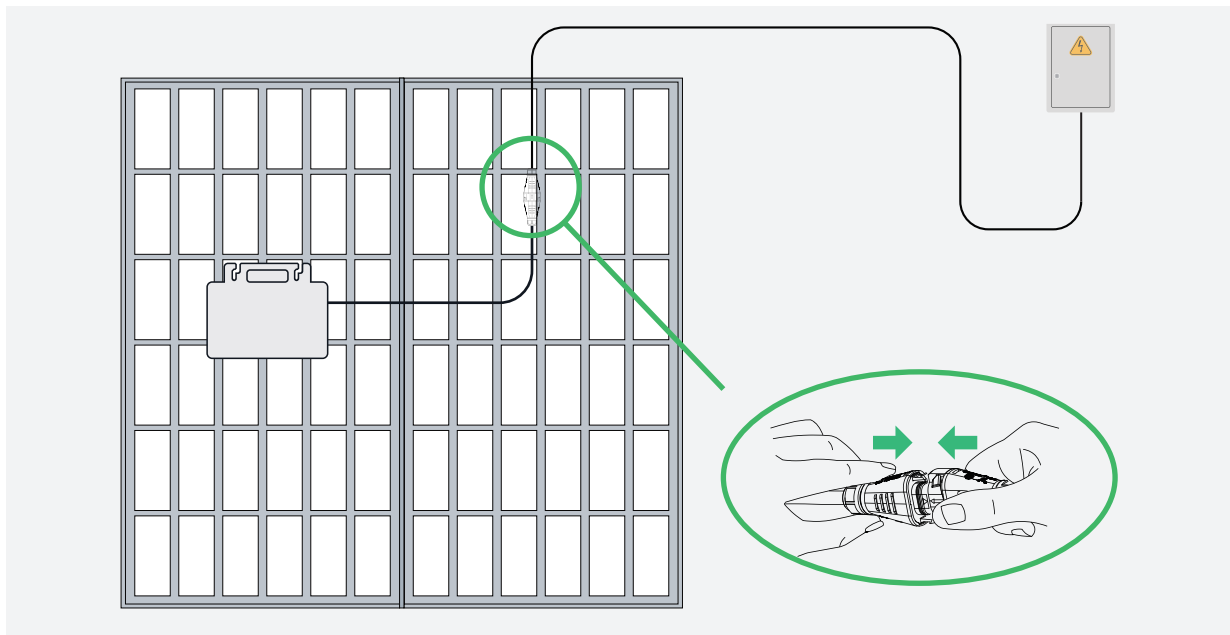
### **⚠️ CAUTION!**

Given the complexity of balcony installations, ensure that your installation adheres to the required environmental and safety standards. Seek professional advice if necessary.

### **NOTICE**

Due to the on-site conditions of the balcony and the placement of the microinverter, you may need additional DC Extension Cables. You can purchase them from Hoymiles by emailing [sales@hoymiles.com](mailto:sales@hoymiles.com).

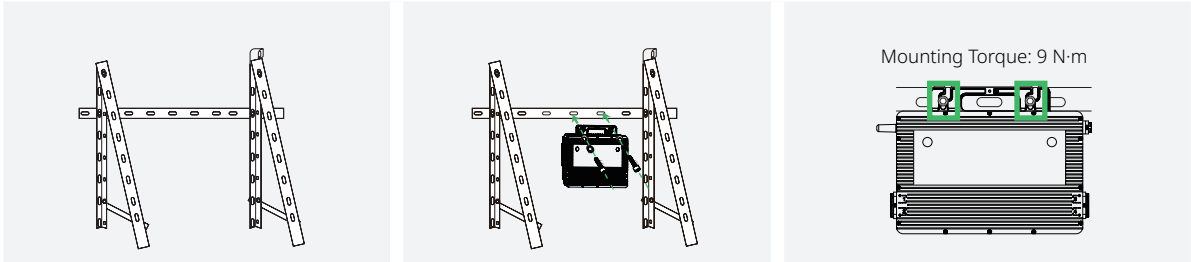
## Assembly Diagram





### Step 1 Attach the Microinverter


- A) Follow the manufacturer’s instructions to assemble the bracket.
- B) Attach the microinverter (label side up) to the bracket, ensuring the microinverter is properly aligned.
- C) Secure the microinverter to the bracket with M8 screws (Torque: 9 N•m). Do not over-torque.



**⚠ WARNING!**

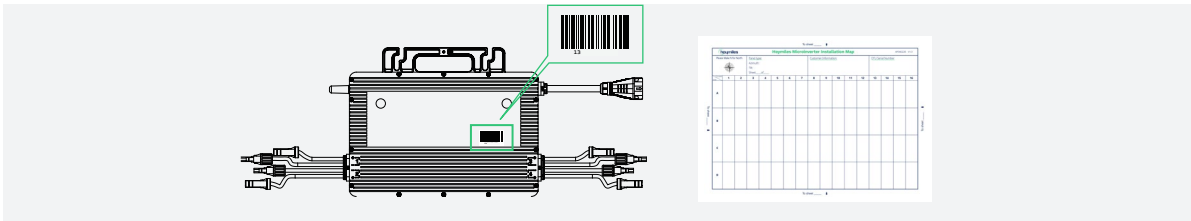
- The AC cables already include earth wires for direct grounding. If external grounding is required at your installation site, you can order the grounding accessory by emailing [sales@hoymiles.com](mailto:sales@hoymiles.com).
- Allow at least 2 cm of space around the microinverter for ventilation and heat dissipation.

Torque: 2 N-m



### Step 2 Complete the Installation Map

- A) Peel off the microinverter’s removable SN label.
- B) Affix the label to the respective location on the installation map.

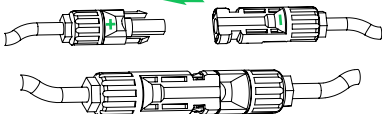


### Step 3 Connect the PV Modules

- A) Connect the female connectors of PV modules to the DC male connectors of the microinverter.
- B) Connect the male connectors of PV modules to the DC female connectors of the microinverter.
- C) Mount the PV modules above the microinverters.

**⚠ CAUTION!**

- Please note that the microinverter’s DC male connector is marked with a “+” sign, while the DC female connector is marked with a “-” sign. These symbols simply indicate the gender of the connector and do not imply the positive or negative current.



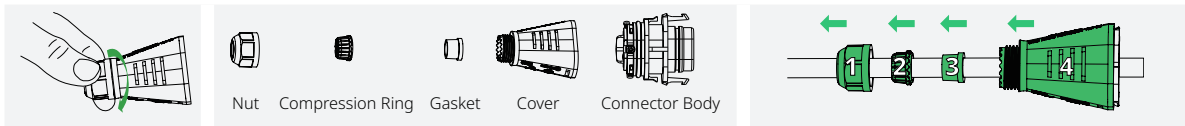
### Step 4 Attach the Bracket

- A) Follow the manufacturer’s instructions to securely attach the bracket to the balcony railing.
- B) Verify the bracket is aligned correctly, level, and stable.

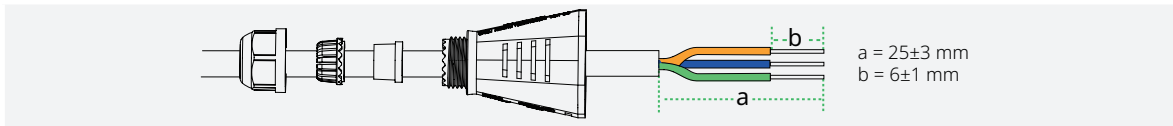
## Step 5 Power on the Microinverter System

### • Use HMS Field Connector

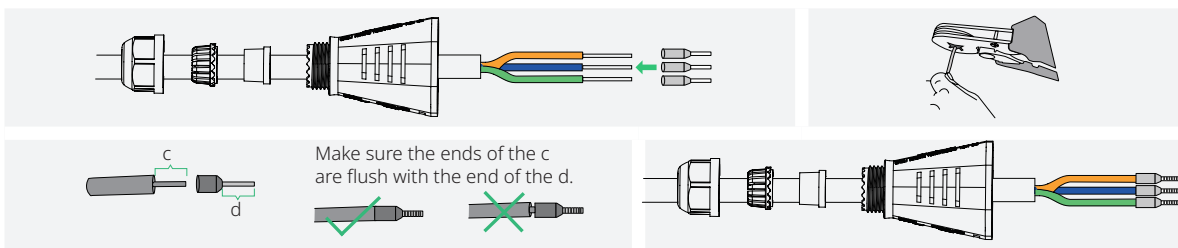
A) Separate the HMS Field Connector into five parts and slide them over an AC cable.



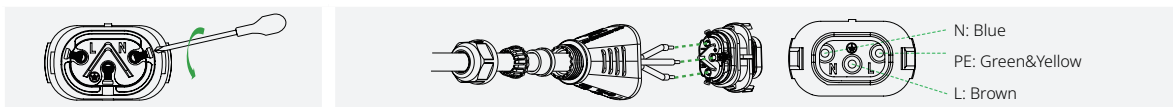
B) Strip off  $25 \pm 3$  mm of the outer jacket with a diagonal cutter. Then use a wire stripper to strip the insulation to expose  $6 \pm 1$  mm of the conductor.



C) Push the stripped wire end into the crimp ferrules and crimp the ferrule tightly.

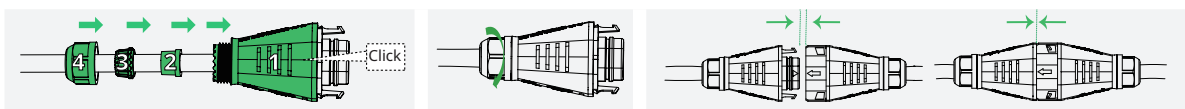


D) Insert the crimped cable into the connector body. (Wiring color codes may vary. Always adhere to national and site-specific regulations for wiring.)



E) Slide the cover, gasket, compression ring, and nut over the cable, then firmly tighten the nut with a torque wrench (Torque:  $2 \pm 0.5$  N·m).

F) Connect the HMS Field Connector to the microinverter's output connector until it clicks into place.



G) Connect the other end of the AC cable into the distribution box.

H) Wait five minutes for the system to start producing power.

I) Check the LED indicator on the connector side of the microinverter. If the microinverter is operating as expected, the LED indicator will flash green. If the LED indicator remains off or lights solid red, see "[6.2 LED Indicator Status](#)".

### 4.3 Multi-Microinverter System

Refer to the following steps to install the microinverter.

You can visit our [YouTube channel](#) or scan the QR code to watch the tutorial videos.



#### ⚠ DANGER!

- Disconnect AC circuit breakers and ensure they are not inadvertently reconnected before making any electrical connections.
- Confirm all cables are not powered before performing cable connections.

#### ⚠ WARNING!

- All electrical connections must adhere to local and national standards.
- Ensure all cables are in good condition, properly insulated, not damaged, securely attached, and of an appropriate size.
- Ensure all microinverters and inter-wiring connections are properly set up before installing the PV modules.

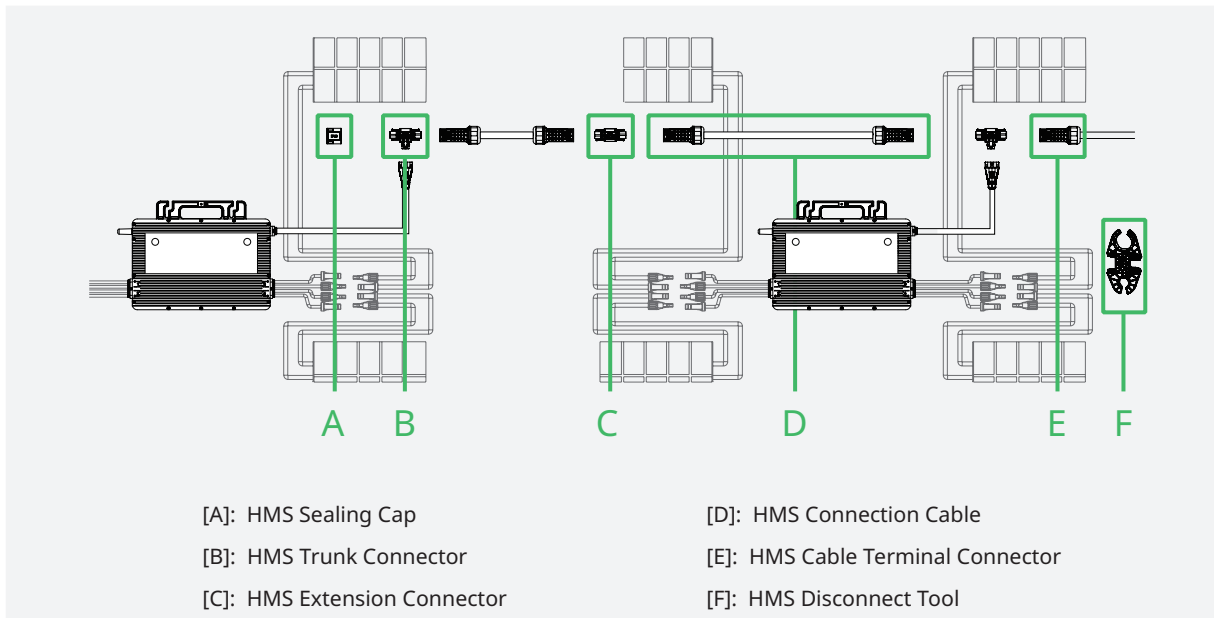
#### ⚠ CAUTION!

- All electrical connections must be in accordance with local and national standards.
- Do not pull or hold the AC cable with your hand. Hold the handle instead.
- Securely mount the microinverters using the correct amount of torque. The mounting torque of the M8 screw is 80 In/Lb. Do not over-torque.

#### NOTICE

Due to the on-site conditions of the roof and the placement of the microinverter, you may need additional DC Extension Cables. You can purchase them from Hoymiles by emailing [sales@hoymiles.com](mailto:sales@hoymiles.com).

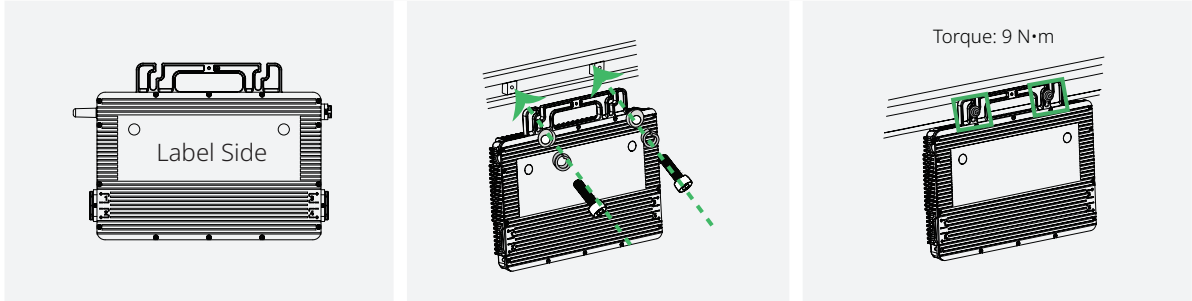
### Assembly Diagram



## Procedure

### Step 1 Attach the Microinverters to the Racking

- A) Plan and mark the position of each microinverter on the racking.
- B) Place the microinverter (label side up) onto the racking.
- C) Secure the microinverter to the racking (Torque: 9 N•m).



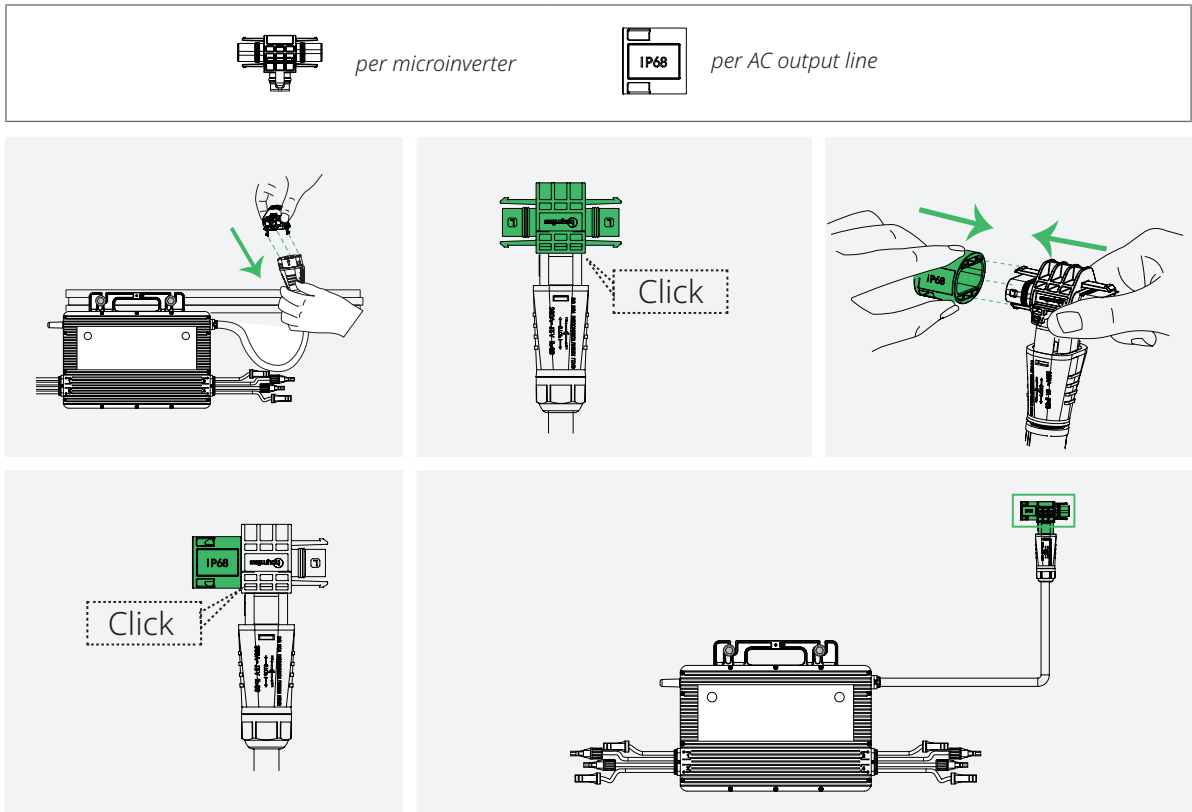
#### ⚠ WARNING!

- Maintain a minimum 30 cm of distance between the microinverter and the roof for optimal communication quality. If this isn't possible due to site constraints, maximize the separation between the microinverter and the roof.
- Allow at least 2 cm of space around the microinverter for ventilation and heat dissipation.
- The AC cables already include earth wires for direct grounding. If external grounding is required at your installation site, you can order the grounding accessory by emailing [sales@hoymiles.com](mailto:sales@hoymiles.com).



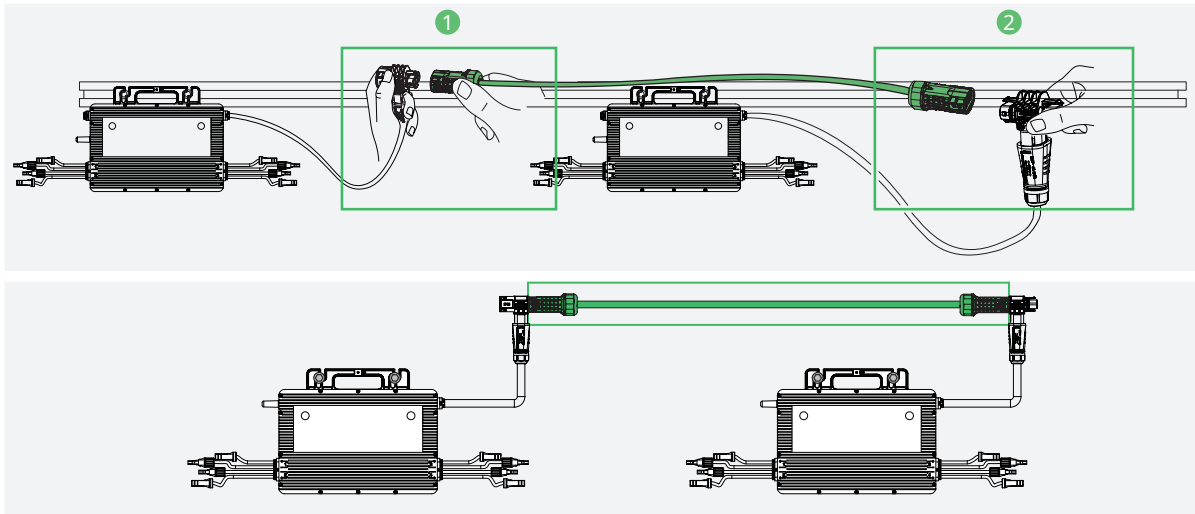
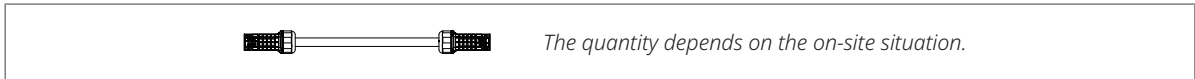
### Step 2 Connect the AC Trunk Connector

- A) Connect the HMS Trunk Connector to the microinverter.
- B) Cover the unused port on the HMS Trunk Connector (located at the beginning of the AC Trunk) with an HMS Sealing Cap. Listen for a click as the sealing cap engages.



### Step 3 Connect Adjacent Microinverters

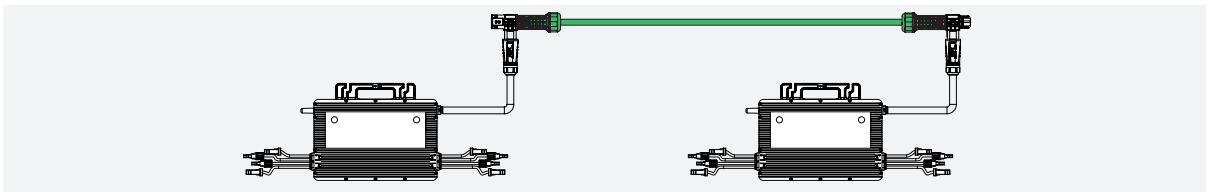
Use the HMS Connection Cables to connect all microinverters on the AC Trunk one by one. Listen for a click as they engage.



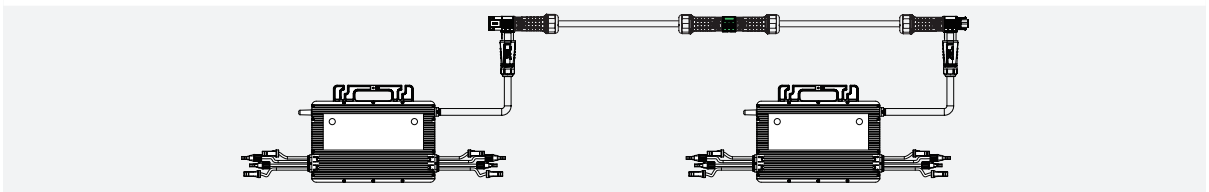
### Obstacle Scenario

If you need to space microinverters farther apart due to an obstacle, Hoymiles offers two solutions:

- **Using a longer HMS Connection Cable:** Hoymiles offers cable lengths including 1.1 m, 2.0 m, 2.3 m, 3.0 m, and 4.6 m. If you require a different length, contact our sales team by emailing [sales@hoymiles.com](mailto:sales@hoymiles.com).



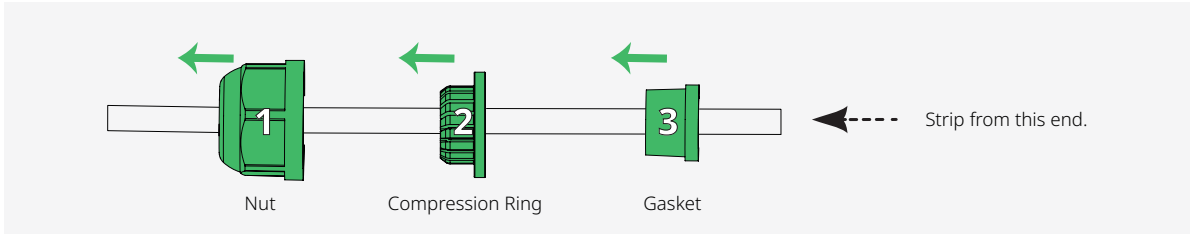
- **Using an HMS Extension Connector** to connect two HMS Connection Cables into a longer one.



\* To disconnect the HMS Extension Connector from the AC Trunk, you must use an HMS Disconnect Tool. (see "[7.1 Removing the Microinverter](#)".)

### Step 4 Make the AC End Cable

A) Separate the HMS Cable Terminal Connector into six parts, then slide the nut, compression ring, and gasket over the AC cable in the correct order.



**NOTICE**  
Two terminal pin sizes are available: one for 2.5 mm<sup>2</sup> cables and the other for 4 mm<sup>2</sup> or 6 mm<sup>2</sup> cables. Choose the correct terminal pin size matching the cable size to ensure a reliable and secure connection. Using the wrong size may result in potential issues or connection failures.

B) Strip off 40±5 mm of the outer jacket with a diagonal cutter. Then use a wire stripper to strip the insulation to expose 6 mm-7 mm of the conductor.

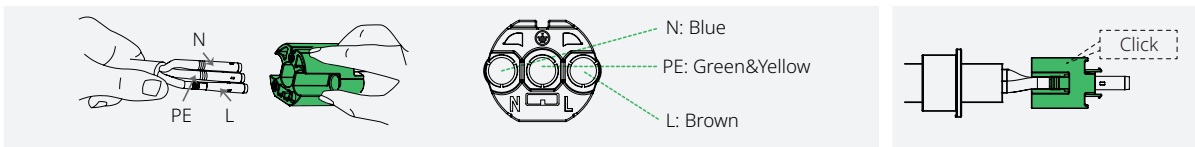


**NOTE**  
Take care not to cut individual conductor strands.

C) Insert the conductors into the terminal pins and crimp the connection with a crimping tool.

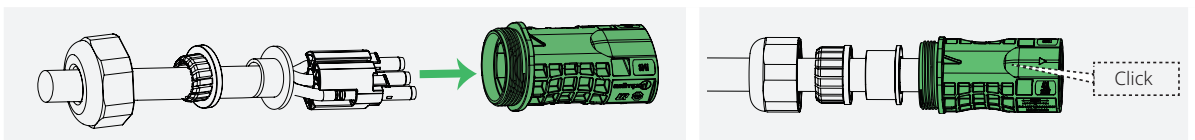


D) Insert the crimped cable into the connector body.

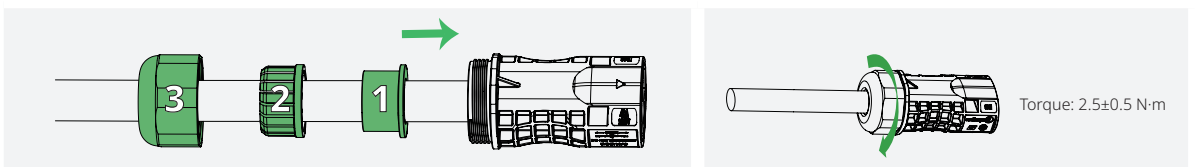


**NOTICE**  
Wiring color codes may vary. Always adhere to national and site-specific regulations for wiring.

E) Insert the connector body into the cover.

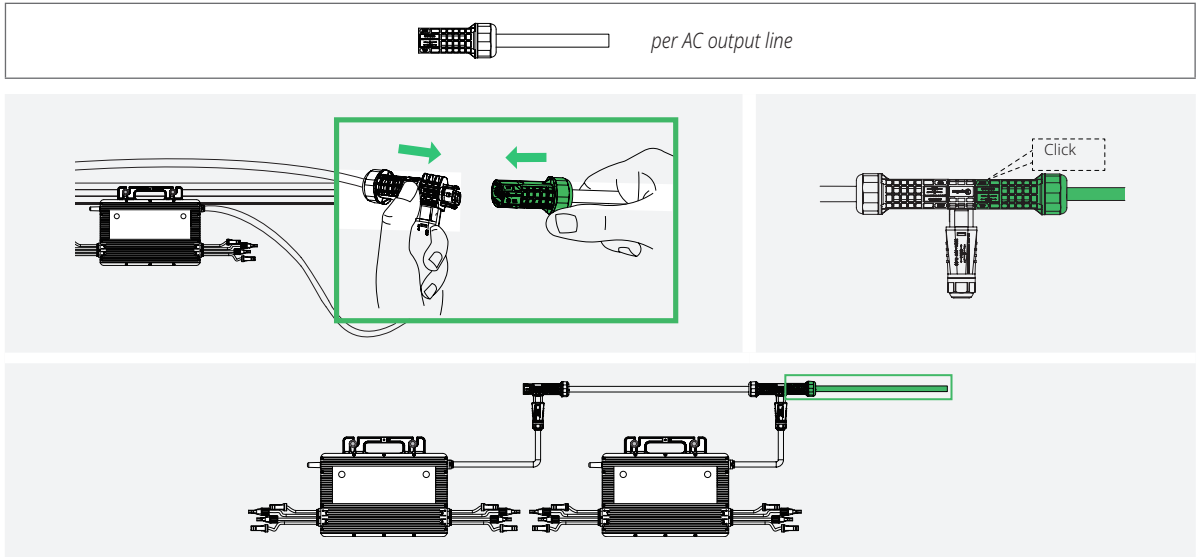


F) Slide the gasket, compression ring, and nut over the cable assembly. Tighten the nut to 2.5 ± 0.5 N·m.



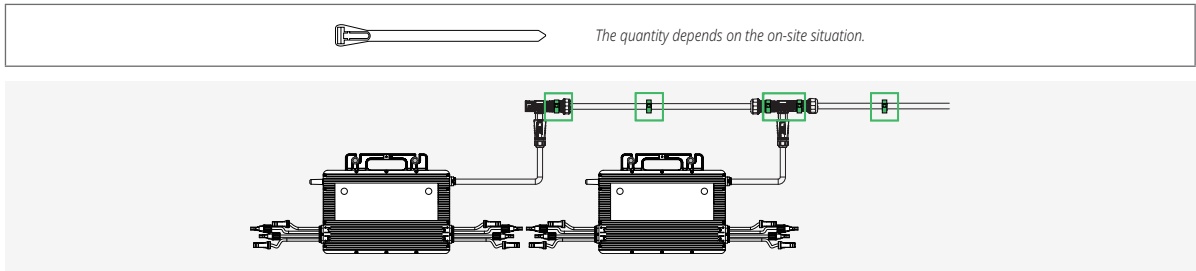
### Step 5 Connect the AC End Cable

Connect the AC End Cable to the last HMS Trunk Connector in the AC Trunk. Listen for a click as they engage.



### Step 6 Manage the AC Trunk

Secure all cables and connectors to the racking with metal cable ties, following local wiring regulations for tie spacing.

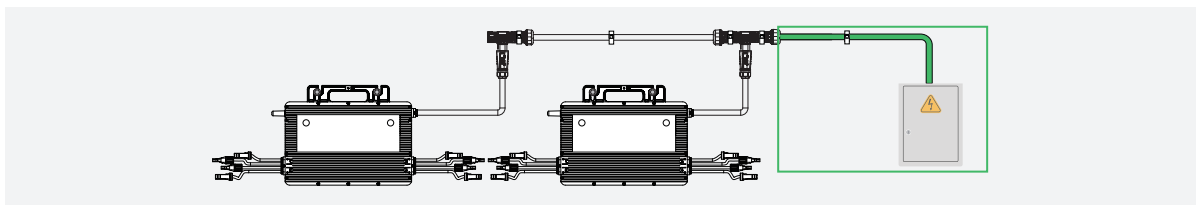


**NOTE**

The cable ties should be fastened around the central portion of all connectors.

### Step 7 Connect to the distribution box

Connect the other end of the AC End Cable to the distribution box.



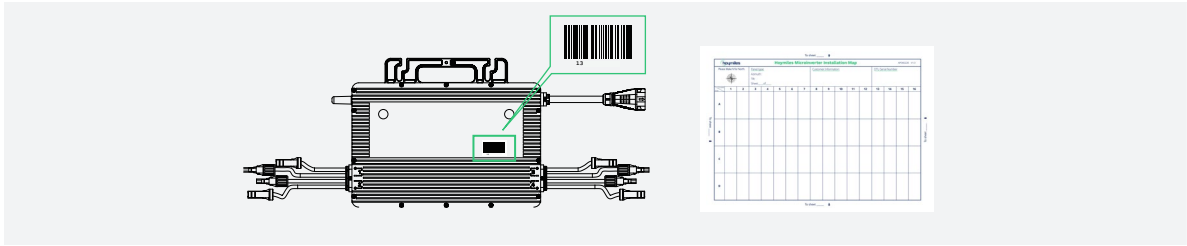
**WARNING!**

Please adhere to local wiring codes for wiring safety.

L	N	PE
Brown	Blue	Green&Yellow

**Step 8** Complete the Installation Map

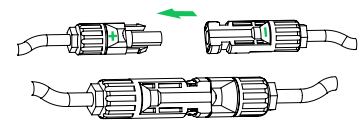
- Peel off the microinverter's removable SN label.
- Affix the label to the respective location on the installation map.

**Step 9** Connect the PV Modules

- Connect the female connectors of PV modules to the DC male connectors of the microinverter.
- Connect the male connectors of PV modules to the DC female connectors of the microinverter.
- Mount the PV modules above the microinverters.

**CAUTION!**

- Please note that the microinverter's DC male connector is marked with a "+" sign, while the DC female connector is marked with a "-" sign. These symbols simply indicate the gender of the connector and do not imply the positive or negative current.

**Step 10** Start-up

- Check the following before powering on the system:

Check Item	Acceptance Criteria
Microinverter	The microinverters are installed correctly and securely.
Cables routing	Cables are routed properly as required.
Cable ties	Cable ties are evenly distributed and no burr exists.
Cable connection	The AC output power cable and DC input power cable are connected correctly, securely, and reliably.

- Power on the Microinverter System.
- Turn the AC disconnect or circuit breaker for each AC output line **ON**.
- Turn the main utility-grid AC circuit breaker **ON**.
- Allow five minutes for the system to start generating power.
- Check the LED Status. If the microinverter is operating as expected, the LED indicator will flash green. If the LED indicator remains off or lights solid red, see "[6.2 LED Indicator Status](#)".



## 5 Commissioning

### NOTICE

- The screenshots provided here are for reference only. The actual screens may vary.
- The DTU's network name includes "DTU/DTUP/DTUL" followed by the last 8 digits of the product serial number (SN), and is password-free by default.
- The router's Wi-Fi name can only contain letters and Arabic numerals and the router should support 2.4 GHz band.
- Consult the Microinverter User Manual, DTU Manual, and S-Miles Cloud Guide for comprehensive instructions on configuring your monitoring system.



### NOTE

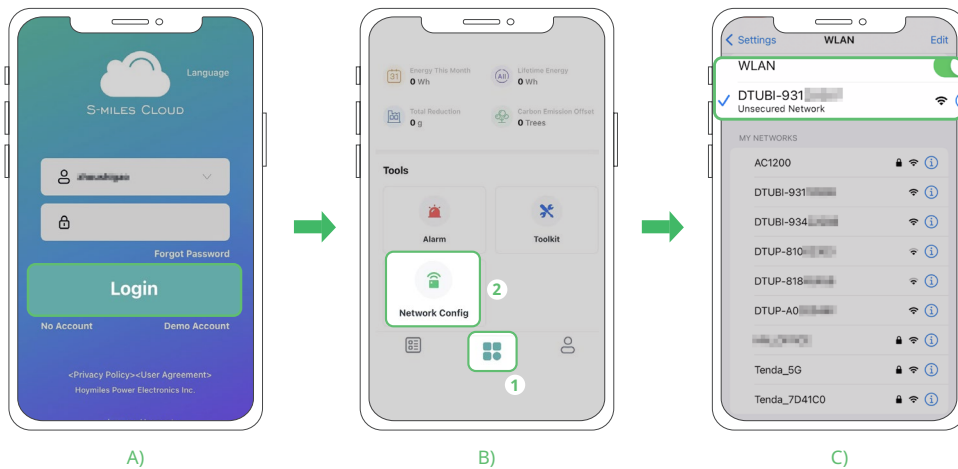
- The screenshots provided here are for reference only. The actual screens may vary.
- Refer to the [S-Miles Installer App Operating Guide](#) for additional details on power system implementation.



This section will guide you through connecting to the S-Miles Cloud, setting up the power system, adding devices, and configuring your power system.

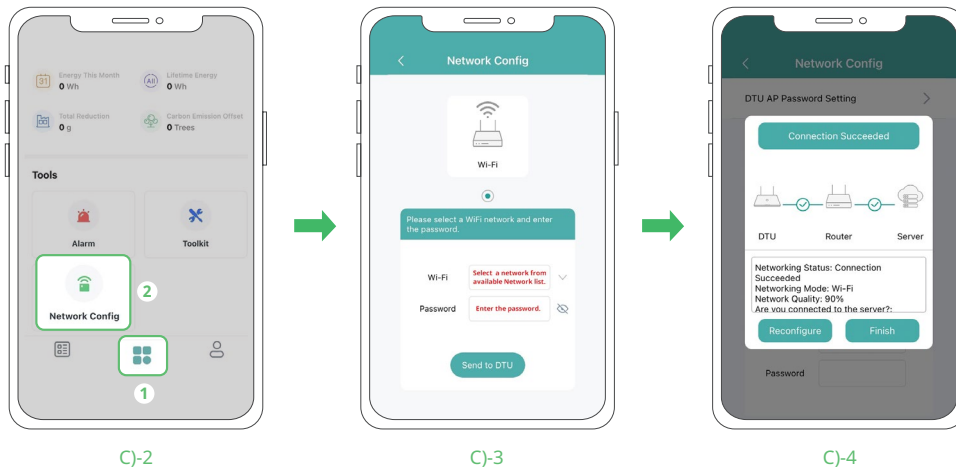
### 5.1 Setting Up and Activating Monitoring (Application)

#### Step 1 Establishing an Internet Connection

- Open and log in to the S-Miles Installer application using your credentials.
- Tap **O&M**  > **Network Config** .
- Tap the microinverter's hotspot. Then enter the microinverter's AP password.



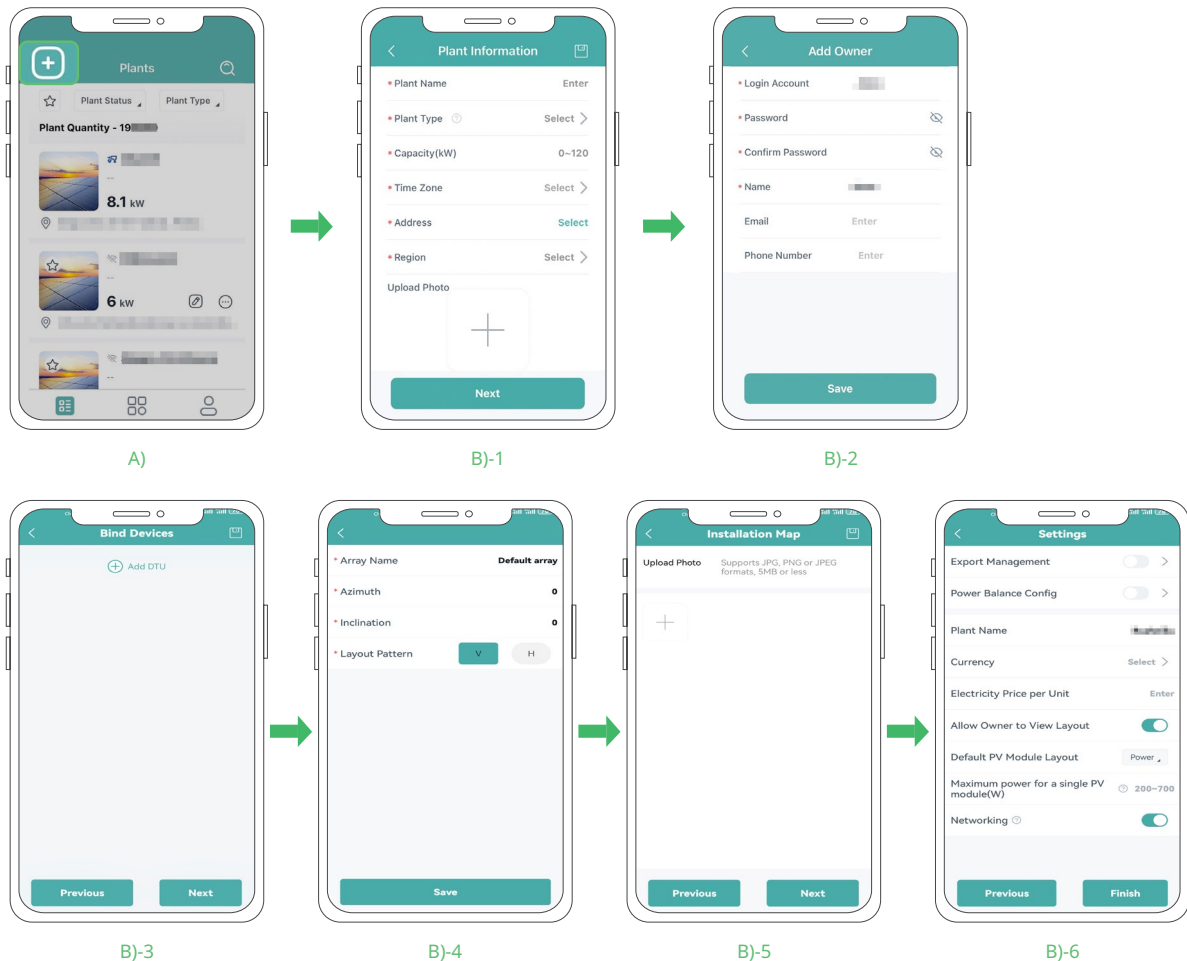
- Go back to the app, and tap **O&M**  > **Network Config** .
- Follow the prompts to configure the network connection.



### Step 2 Creating your power plant

A) Tap **Plants** > **Add Plant** .

B) Follow the prompts to fill in the required information. Then tap **Finish** to finalize the plant creation.



### Step 3 Setting your power plant

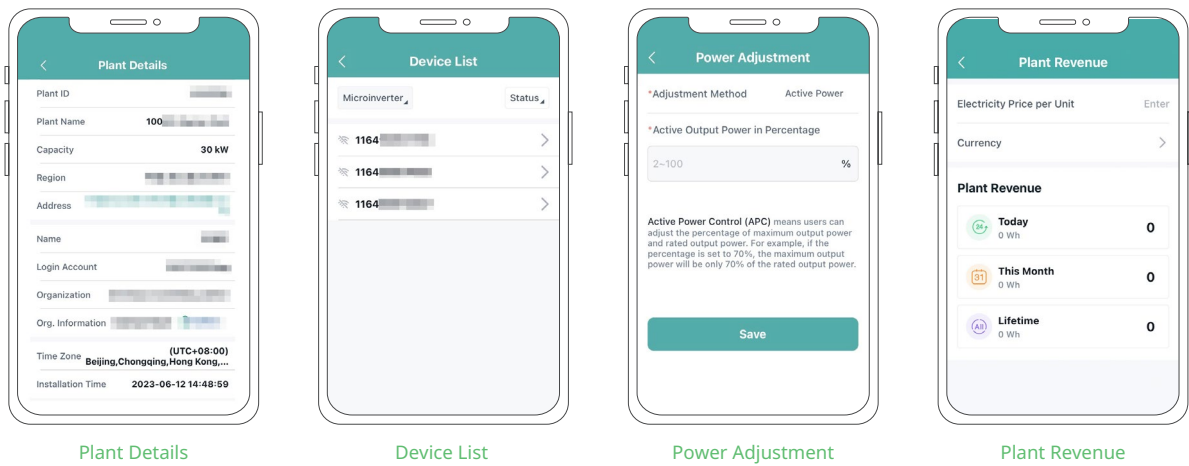
A) Tap **Plants** > **Search** .

B) Enter the desired plant name for your search, then tap the plant name to move to the plant homepage.

C) On the plant homepage, tap **Setting** .



Item	Description
☰ Plant Details	It offers access to geographical location, system capacity, and owner information about the power plant.
📄 Device List	It provides an SN list of devices installed in your power plant.
⚙️ Power Adjustment	It offers access to adjust the Active Power, Power Factor, and Reactive Power.
💰 Plant Revenue	It provides revenue data over the electricity price, real-time power production data, and historical power production data.



## 5.2 Setting the Grid Profile (Webpage)

The grid profile, which can be customized to comply with local electric regulations, is accessible on the Hoymiles Monitoring Platform. To modify the grid profile, follow the steps below:

### NOTICE

See [Appendix 3](#) to understand the grid profile parameters related to the power quality response.

- A) Log in to the S-Miles Cloud platform.
- B) Navigate to the **Grid Profile Management** section within the **O&M** tab.

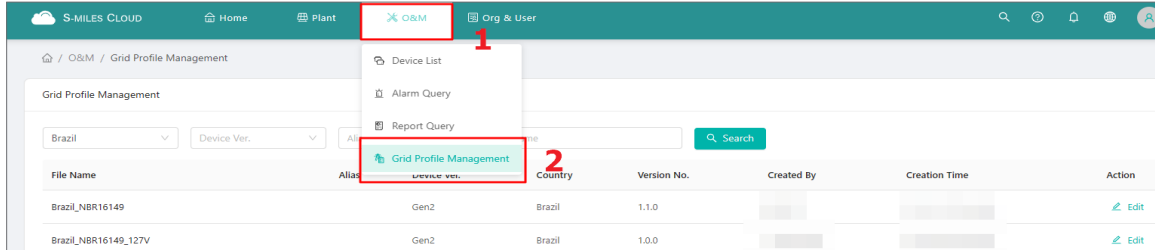


Figure 1 Navigate to the grid management page

- C) Search for the desired grid profile and click the Edit button to move to the modified page.

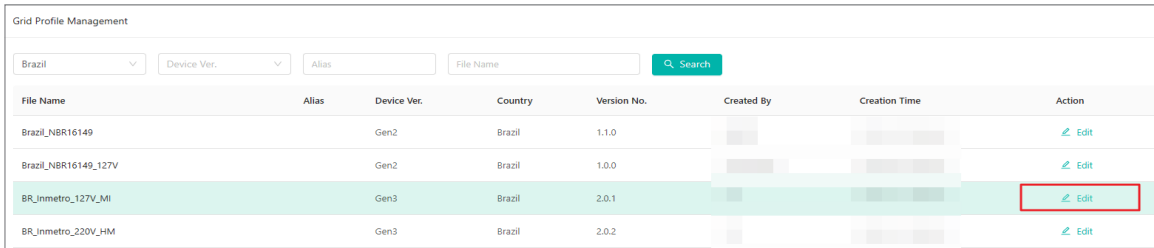
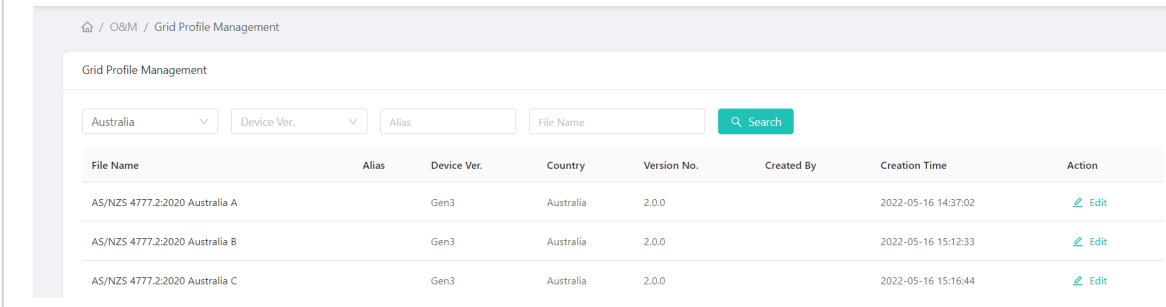


Figure 2 Move to the modified page

### NOTE

To find the grid profile applicable to Australia, search for "Australia grid profile" in the search box.



- D) Modified the function module and click the Confirm button to save your modification.

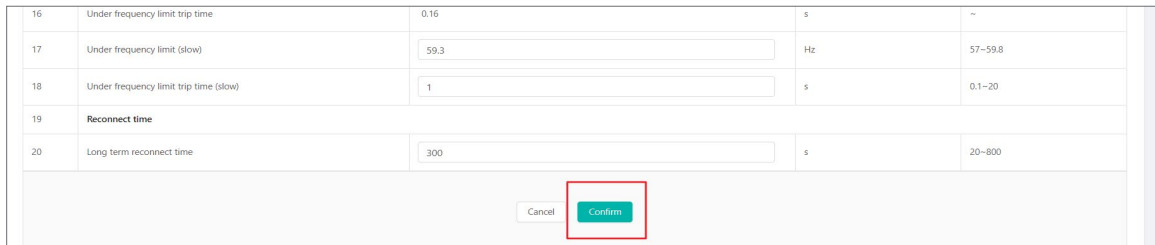


Figure 3 Modify the grid profile

E) Go to **Plant > Devices > Device maintenance > Grid profile update**.

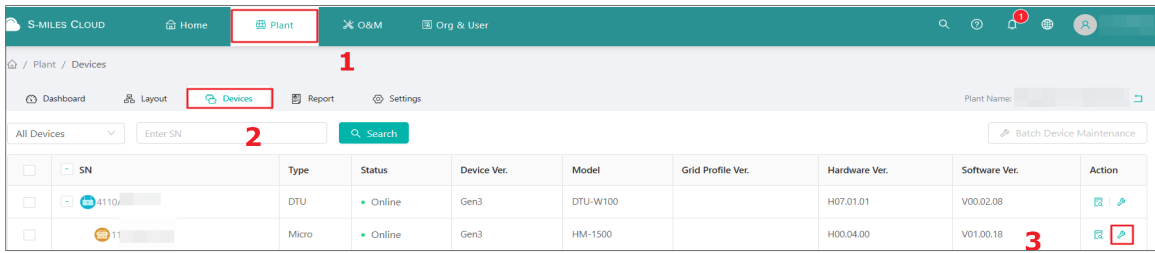


Figure 4 Move to the grid profile updating page

F) From the available options, select the recently modified grid profile. Then click OK to apply the modified grid profile to the PV microinverters associated with the PV plant.

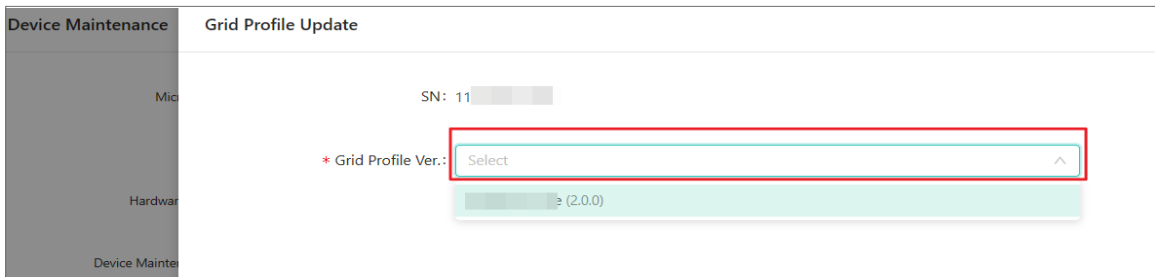
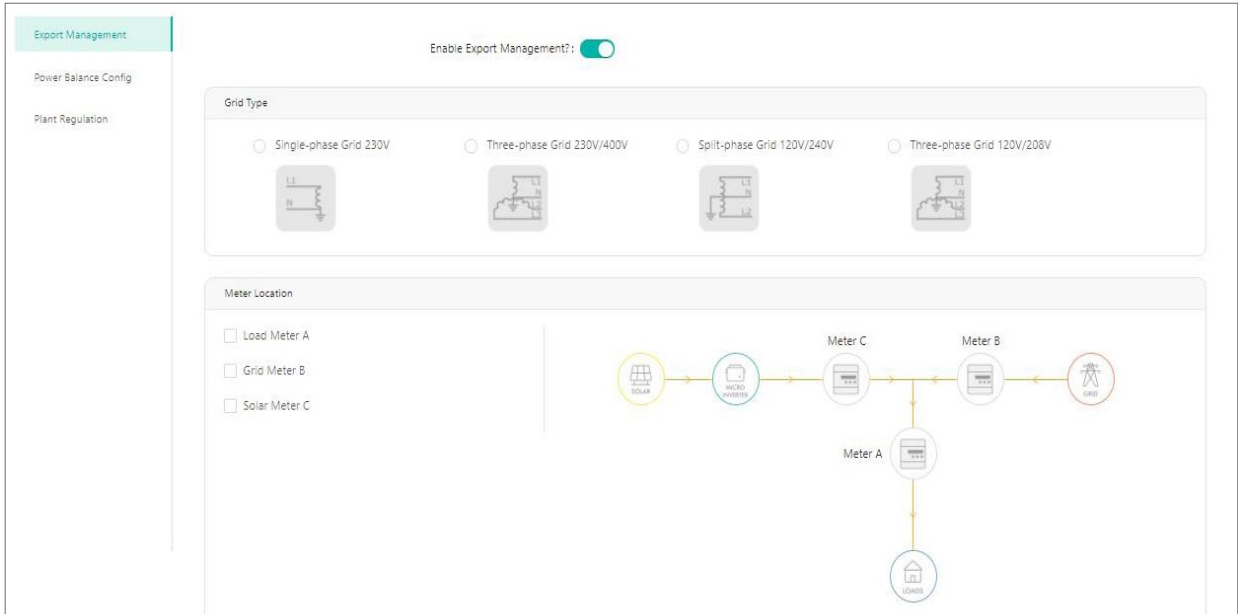


Figure 5 Upgrade the grid profile

### 5.3 Setting the Export Control (Webpage)

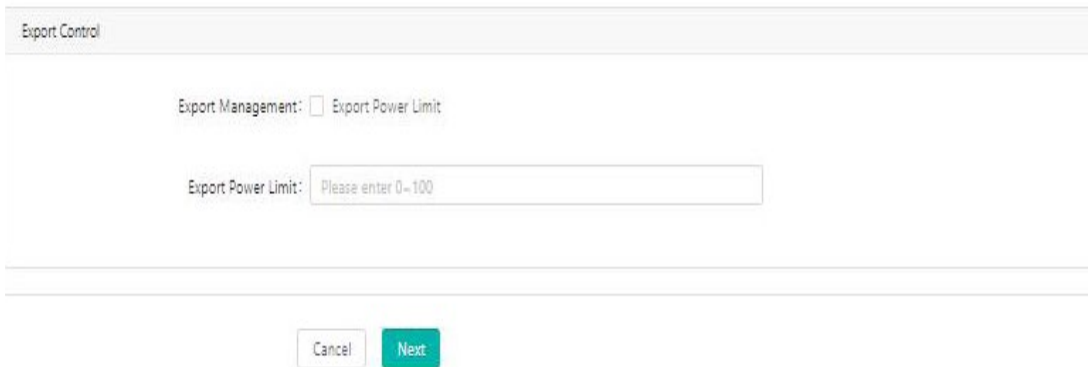
- A) Go to Plant > Plant O&M > Settings > Export Management.
- B) Slide the **Enable Export Management** button, then select and fill in the information as you need.



**NOTE**

- **Type of power grid:** There are four types of power grid: [Single-phase Grid 230V], [Three-phase Grid 230V/400V], [Split-phase Grid 120V/240V], [Three-phase Grid 120V/208V].
- **Meter location:** There are three access locations: [Load Meter A], [Grid Meter B], [Solar Meter C]. Select a position, and the meter SN input box will pop up (Meter A and Meter B cannot be selected at the same time).
- **Meter SN:** Enter the correct meter SN according to the prompts. The correct format should be a 12-bit string beginning with 10C0/10C1, like 10C0XXXXXXX. Our default meter is CHINT meter. For Wattnode meter please refer to "Technical Note-Hoymiles Export Management using 3rd Gen DTU-Pro V1.4".

- C) Enter the export power limit value.

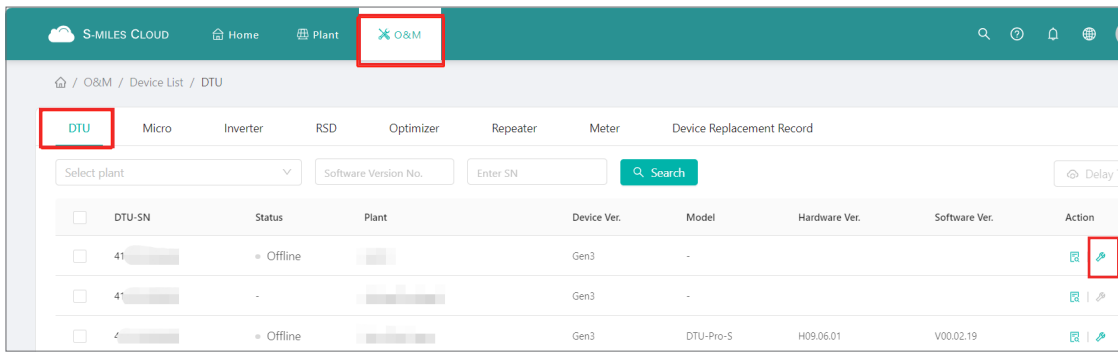


**NOTE**

- This option is not available when only [Solar Meter C] is selected for the meter location.
- The grid type is either [Single-phase Grid 230V], [Split-phase Grid 120V/240V] or [Three-phase Grid 120V/208V].
- In the case of [Three-phase Grid 230V/400V], there will be total and per phase limit modes when the meter location is [Load Meter A] or [Grid Meter B].

### 5.3 Upgrading the Firmware Version (Webpage)

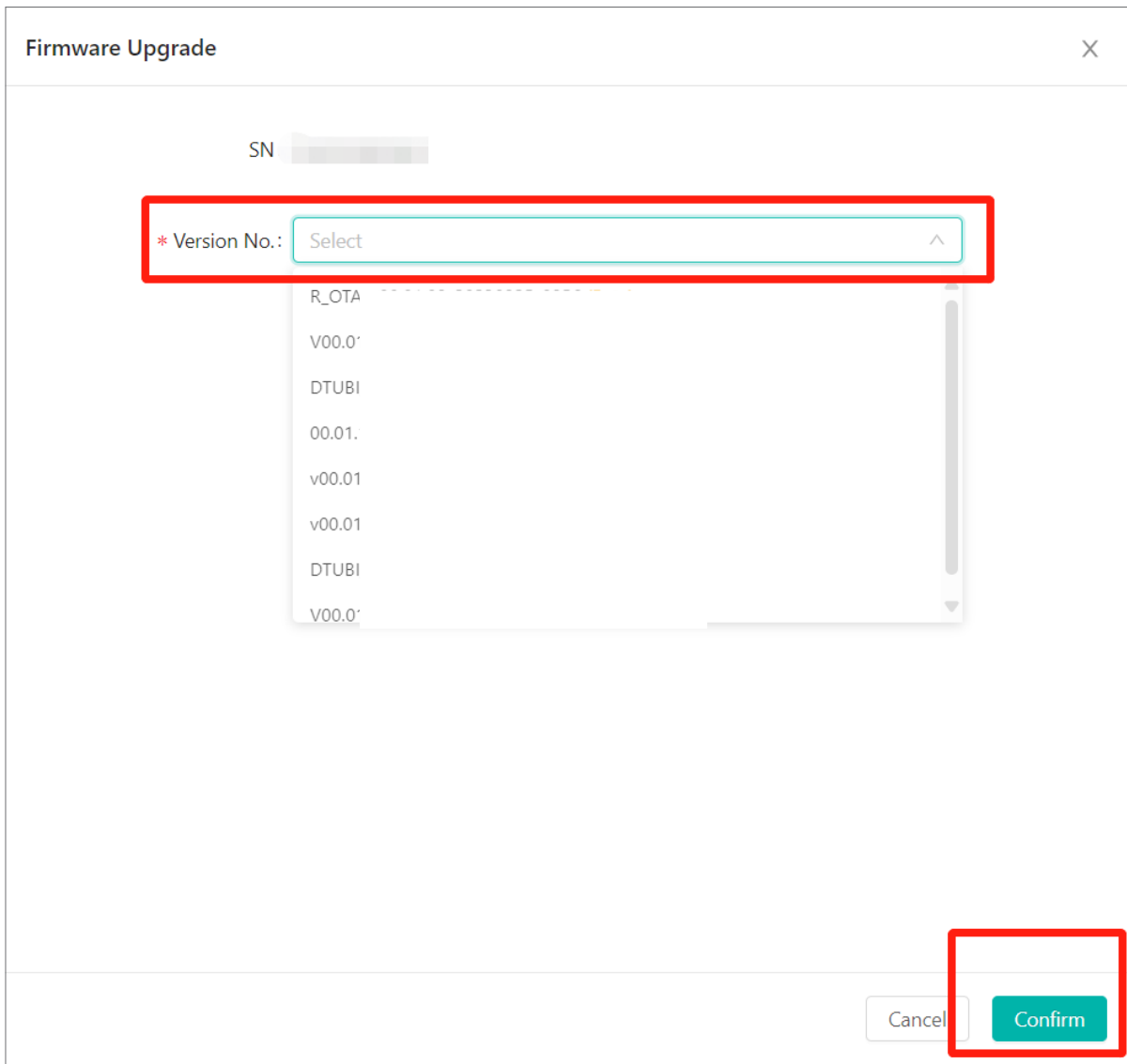
A) Go to O&M > DTU > Device Maintenance.



B) Click Firmware Upgrade.

C) Select the firmware version from the drop-down list.

D) Click the Confirm.



## 6 Troubleshooting

### 6.1 Troubleshooting List

Code	Alarm range	Alarm status	Resolutions
121	CU	Over temperature protection	<ol style="list-style-type: none"> <li>1. Ensure the microinverter installation site is properly ventilated and at a suitable ambient temperature.</li> <li>2. Improve airflow and heat dissipation if necessary.</li> <li>3. Please contact your dealer or Hoymiles technical support if airflow and ambient temperature do not meet the requirements.</li> </ol>
125	CU	Grid configuration parameter error	<ol style="list-style-type: none"> <li>1. Ensure grid configuration parameters are correct and attempt the upgrade again.</li> <li>2. Please contact your dealer or Hoymiles technical support if the issue persists.</li> </ol>
126	-	Software error code 126	<ol style="list-style-type: none"> <li>1. No further action is necessary if the alarm is accidentally triggered but the microinverter continues to function normally.</li> <li>2. Please contact your dealer or Hoymiles technical support if the alarm recurs frequently and does not reset.</li> </ol>
127	CU	Firmware error	<ol style="list-style-type: none"> <li>1. Check for the correct firmware and re-attempt the upgrade.</li> <li>2. Check and ensure the DTU, Hoymiles monitoring system, and microinverter are all connected and communicating with each other. Retry if needed.</li> <li>3. Please contact your dealer or Hoymiles technical support if the issue persists.</li> </ol>
128	CU	Software error code 128	<ol style="list-style-type: none"> <li>1. No special action is required if the alarm is accidental and the microinverter continues to function correctly.</li> <li>2. Please contact your dealer or Hoymiles technical support if the alarm recurs frequently and does not reset.</li> </ol>
129	CU	Software error code 129	<ol style="list-style-type: none"> <li>1. No further action is necessary if the alarm is accidentally triggered but the microinverter continues to function normally.</li> <li>2. Please contact your dealer or Hoymiles technical support if the alarm recurs frequently and does not reset.</li> </ol>
130	CU	Offline	<ol style="list-style-type: none"> <li>1. Please ensure the microinverter is functioning correctly.</li> <li>2. Check the communication status between the DTU and Hoymiles monitoring system, or between the DTU and microinverter, and make the necessary improvements if the communication appears poor.</li> <li>3. Please contact your dealer or Hoymiles technical support if the alarm recurs frequently and does not reset.</li> </ol>
141	Grid	Grid overvoltage	<ol style="list-style-type: none"> <li>1. Sudden, accidental activation of the alarm might be the result of a temporary irregularity in grid voltage. The microinverter will recover automatically once the grid voltage stabilizes.</li> <li>2. Check whether the grid voltage is in the acceptable range in the event of recurring alarm activation. Contact your local power operator or adjust the grid overvoltage protection limit through the Hoymiles monitoring system with consent from the local power operator if the grid voltage is not within acceptable limits.</li> </ol>
142	Grid	10 min value grid overvoltage	
143	Grid	Grid undervoltage	
144	Grid	Grid over-frequency	
145	Grid	Grid under-frequency	






146	Grid	Rapid grid frequency change rate	<ol style="list-style-type: none"> <li>1. Sudden, accidental activation of the alarm might be the result of a temporary irregularity in grid voltage. The microinverter will recover automatically once the grid voltage stabilizes.</li> <li>2. Check whether grid voltage is in the acceptable range in the event of recurring alarm activation. Contact your local power operator or adjust the grid overvoltage protection limit through the Hoymiles monitoring system with consent from the local power operator if the grid voltage is not within acceptable limits.</li> </ol>
147	Grid	Power grid outage	Check whether a power grid outage occurred.
148	Grid	Grid disconnection	Check the condition of the AC switch or AC wiring for issues.
149	Grid	Island detected	<ol style="list-style-type: none"> <li>1. Sudden, accidental activation of the alarm might be the result of a temporary irregularity in grid voltage. The microinverter will recover automatically once the grid voltage stabilizes.</li> <li>2. If all the microinverters in your station frequently trigger alarms, reach out to the local power operator to investigate potential grid islands.</li> <li>3. If the alarms do not stop, please contact your dealer or Hoymiles technical support.</li> </ol>
171	-	Abnormal phase-to-phase difference	Confirm that the wiring for each phase is correct. This fault is usually caused by the wrong phase.
181	CU	Earth Fault Alarm (Isolation Value Too Low)	<ol style="list-style-type: none"> <li>1. Check the wiring of the microinverter and PV modules for any ground faults or water ingress. Once fixed, the microinverter will automatically recheck the insulation resistance. And if it's within the required range, the alarm will clear, and power generation will resume.</li> <li>2. If the low impedance isn't due to wiring, disconnect the microinverter from the grid and PV modules.</li> <li>3. Use a multimeter to measure the impedance between the input ports and the housing. If the resistance is below 2k<math>\Omega</math>, there may be an internal ground fault, and the microinverter should be replaced.</li> </ol>
209	-	Port 1 No input	<ol style="list-style-type: none"> <li>1. Confirm that the port is connected to the PV module.</li> <li>2. If the PV module is indeed connected, examine the DC cable connection between this port and the PV module.</li> </ol>
210	-	Port 2 No input	
211	-	Port 3 No input	
212	-	Port 4 No input	
215	-	Input port 1 overvoltage	<ol style="list-style-type: none"> <li>1. Ensure that the PV module open-circuit voltage does not exceed the maximum input voltage.</li> <li>2. Should the PV module open-circuit voltage be within the normal range, contact your dealer or Hoymiles technical support.</li> </ol>
216	-	Input port 1 undervoltage	
217	-	Input port 2 overvoltage	
218	-	Input port 2 undervoltage	
219	-	Input port 3 overvoltage	
220	-	Input port 3 undervoltage	
221	-	Input port 4 overvoltage	

222	-	Input port 4 undervoltage	<ol style="list-style-type: none"> <li>1. Ensure that the PV module open-circuit voltage does not exceed the maximum input voltage.</li> <li>2. Should the PV module open-circuit voltage be within the normal range, contact your dealer or Hoymiles technical support.</li> </ol>
301 - 311	-	Hardware Error Code	<ol style="list-style-type: none"> <li>1. No further action is necessary if the alarm is accidentally triggered but the microinverter continues to function normally.</li> <li>2. Please contact your dealer or Hoymiles technical support if the alarm recurs frequently and does not reset.</li> </ol>






## 6.2 LED Indicator Status

The LED indicator on the microinverter indicates various statuses. The following table details the possible LED statuses and what they mean.

### Start-up

LED	Time Gap		Indicates
Flashing green	0.3s, 5 times		Start-up Success
Flashing red	0.3s, 5 times		Start-up failure, Microinverter Failure
Alternating red and green flashing	1s		Firmware Failure

### Operation

LED	Time Gap		Indicates
Flashing green	1s		Normal Power Production
Flashing green	2s		The microinverter is generating power, but one or more inputs are registering as abnormal.
Flashing red	0.5s		Control Unit Failure
Flashing red	1s		AC Grid Fault
Solid red	-		Hardware Failure

#### NOTE

- The microinverter is powered by the DC side. Check the DC side connection if the LED indicator is not illuminated. If the connection and input voltage are normal but the LED indicator is not on, contact your dealer or Hoymiles technical support team for further assistance (see "[Contact us](#)").
- All faults on microinverters are reported to the S-Miles Cloud via the DTU. Refer to the S-Miles Installer/End-user Application or S-Miles Cloud interface for more information.
- Ensure the grid connection is normal.

## 6.3 On-Site Inspection and Maintenance Instructions (only for qualified technicians)

### **⚠ DANGER!**

- Always wear personal protective equipment while performing inspection and maintenance.
- Shut down the microinverter and disconnect it from all power sources before beginning maintenance.
- The microinverter still contains lethal voltages after disconnecting from the power sources. Wait at least five minutes before proceeding with maintenance.

### **⚠ WARNING!**

Maintenance operations are strictly limited to authorized personnel, who are then responsible for reporting any discrepancies.

## On-Site Inspection

Most microinverter faults can be diagnosed and resolved using the following troubleshooting steps.

Check Item	Method
Ambient Temperature	Check the temperature of the microinverter for overheating (see " <a href="#">Technical Data</a> ").
Electrical Parameters	Verify the PV modules' DC voltage, the grid voltage, and the grid frequency is within the allowable range (see " <a href="#">Technical Data</a> ").
Electrical Connection	Ensure every AC breaker is operational and locked in the closed position.
DC Connections	<p>Check and make sure the DC connection between the PV module and the microinverter is tight and secure.</p> <p><b>Check steps:</b></p> <ol style="list-style-type: none"> <li>Disconnect the AC power first to de-energize the microinverter.</li> <li>Disconnect the DC connections.</li> <li>Re-connect the PV module and microinverter.</li> <li>If the DC connection is normal, the LED indicator will flash red.</li> </ol>
AC Connections	<p>Check and make sure the AC connection between the grid and the microinverter is tight and secure. If DC connections and AC connections are functioning properly, the LED indicator will flash green.</p> <p><b>Check steps:</b></p> <ol style="list-style-type: none"> <li>Disconnect the AC power first to de-energize the microinverter.</li> <li>Disconnect the DC connections.</li> <li>Re-connect the PV module and microinverter.</li> <li>If the DC connection is normal, the LED indicator will flash red.</li> <li>Reconnect the AC power.</li> <li>If DC and AC connections are normal, the LED indicator will flash green five times.</li> <li>If the problem persists, contact the Hoymiles Technical Support Team at <a href="mailto:service@hoymiles.com">service@hoymiles.com</a>.</li> </ol>

## Maintenance

Regular inverter maintenance is essential for ensuring longevity and optimal performance assets. The checklist provides specific tasks for the maintenance process.

Check Item	Acceptance Criteria
Ventilation	<ul style="list-style-type: none"> <li>• Verify the installation location has sufficient free space for ventilation and heat dissipation.</li> <li>• keep all components free and clear of debris, especially around the heat sink. Clean the microinverter regularly using a soft brush or vacuum cleaner.</li> </ul>
Electrical Connection	<ul style="list-style-type: none"> <li>• Check the wiring connections for any loose or damaged wires. If needed, tighten any loose connections.</li> </ul>
Microinverter Status	<ul style="list-style-type: none"> <li>• Check the microinverter for any sign of corrosion or physical damage. Broken parts should be addressed immediately.</li> <li>• Regularly updating the firmware and software of the microinverters.</li> </ul>
Environment	<ul style="list-style-type: none"> <li>• Check and ensure the environmental conditions remain within the specified operating range. (see "<a href="#">Technical Data</a>")</li> </ul>

## 7 Decommission

This section introduces how to safely remove, replace, store, and recycle microinverters at the end of their lifespan.

### **⚠ DANGER!**

- Never disconnect a DC connector when PV modules are in the sun. Cover the PV modules before disconnecting.
- Potentially dangerous voltage may still be present inside disconnected microinverters.
- Disposal of the microinverter must comply with the related local regulations to avoid pollution. The microinverter must not be disposed of with normal waste.
- Do not make repairs yourself. Hoymiles microinverter does not have any user-serviceable parts inside.

### 7.1 Removing the Microinverter

#### Procedure

Step 1: Switch all AC circuit breakers to the **OFF** position.

Step 2: Use an electric meter or current clamp to ensure there is no voltage and current.

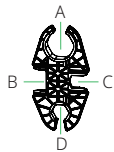
Step 3: Use the HMS Disconnect Tool to disconnect all AC connections and wait about five minutes.

Step 4: Use the HMS Disconnect Tool to disconnect all DC cable connections.

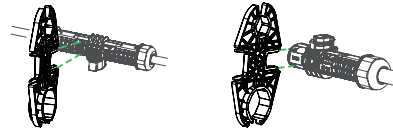
#### **NOTE**

To use the HMS Disconnect Tool,

- A) Align the HMS Disconnect Tool's notches with the released tabs on the connectors.
- B) Squeeze the tool firmly to apply pressure to the release tabs.
- C) Gently pull the connectors apart to disconnect them.



- [A]: Tighten/Loosen nuts
- [B]: Open the locking device
- [C]: Open the locking device
- [D]: Tighten/Loosen nuts



Step 5: Remove the PV modules from their mounts and cover them.

Step 6: Remove protective earthing connections (if needed).

Step 7: Unscrew the fixing screws on the top of the microinverter and remove the microinverter from the mounting racking.

### 7.2 Replacing the Microinverter

#### Procedure

Step 1: Record the new microinverter's SN.

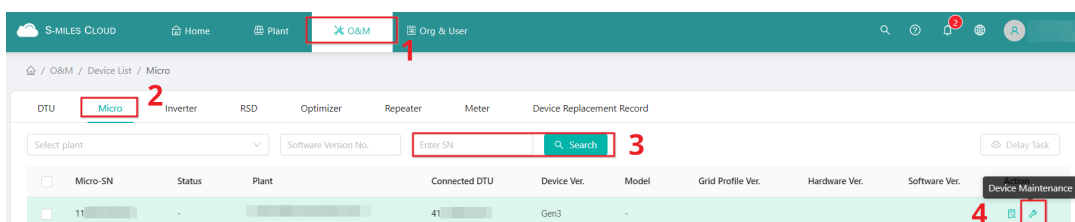
Step 2: Switch all AC circuit breakers to the **OFF** position and wait about five minutes.

Step 3: Install the new microinverter. ( See "[Installation Steps](#)").

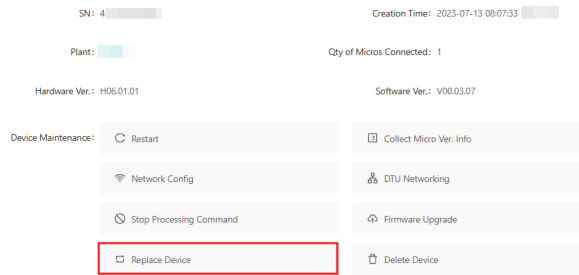
Step 4: Replace the microinverter in the monitoring platform.

A) Log in to the S-Miles Cloud at <https://global.hoymiles.com>.

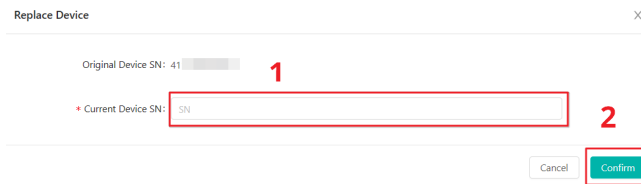
B) Go to **O&M > Micro > Search**, locate the device you wish to replace, and click on the **Device Maintenance** icon.



C) On the Device Maintenance dialogue, click the **Replace Device** button.



D) Enter the new microinverter's SN, then click the **Confirm** button to replace the microinverter.



### 7.3 Storing and Transporting the Microinverter

The following requirements should be met if the microinverter is not put into use directly.

- Pack the microinverter in the original packaging. If the original packaging is unavailable, use the packaging that is suitable for the weight and dimensions of the microinverter.
- Maintain a storage temperature of -40°C to 85°C, and a relative humidity between 30% to 90%.
- Store the equipment indoors in a well-ventilated area.
- Protect the microinverter from physical shocks or vibrations during transportation and storage.
- Prevent sudden impacts or movements during transportation.
- Follow general transportation regulations for the mode of transport and ensure compliance with all local regulations.
- Conduct a thorough inspection before restarting the equipment after prolonged non-operation.
- Do not exceed the stacking limit marked on the outer side of the packaging.

### 7.4 Disposing of the Microinverter

Step 1: Pack the microinverter in the original packaging. If the original packaging is unavailable, use the packaging that is suitable for the weight and dimensions of the microinverter.

Step 2: Properly seal the package using adhesive tape.

Step 3: Discard the packaging in accordance with local regulations.

## 8 Technical Data

### ⚠ WARNING!

#### Be sure to verify the following before installing Hoymiles Microinverter System.

- Verify that the PV module voltage and current specifications are compatible with the microinverter.
  - ▷ Make sure that the maximum open circuit voltage of the PV module is within the microinverter's operating voltage range.
  - ▷ We recommend the maximum current rating at MPP to be equivalent to or lesser than the microinverter's maximum input DC.
- The PV module output DC power should not exceed 1.35 times the microinverter's output AC power. Refer to the Hoymiles [Warranty Terms & Conditions](#) for details.



Model	HMS-1600-4T			HMS-1800-4T			HMS-2000-4T		
<b>Input Data (DC)</b>									
Commonly used module power (W)	320 to 540+			360 to 600+			400 to 670+		
Maximum input voltage (V)				65					
MPPT voltage range (V)				16-60					
Start-up voltage (V)				22					
Maximum input current (A)	4 × 14			4 × 15			4 × 16		
Maximum input short circuit current (A)				4 × 25					
Number of MPPTs				4					
Number of inputs per MPPT				1					
Max. inverter backfeed current to the array (A)				0					
<b>Output Data (AC)</b>									
Rated output power (VA)	1600			1800			2000		
Rated output current (A)	7.27	6.96	6.67	8.18	7.83	7.50	9.09	8.70	8.33
Nominal output voltage/range (V)*	220/180-275	230/180-275	240/180-275	220/180-275	230/180-275	240/180-275	220/180-275	230/180-275	240/180-275
Nominal frequency/range (Hz)*				50/45-55 or 60/55-65					
Inrush current for AC output port (A)				80@50µs					
Maximum output fault current (A)				12					
Maximum output overcurrent protection (A)				9.6					
Adjustable power factor (@nominal power)				> 0.99 default 0.8 leading ... 0.8 lagging					
Total harmonic distortion (@nominal power)				< 3%					
Maximum units per 6 mm <sup>2</sup> line**	5	5	6	4	5	5	4	4	4
<b>Efficiency</b>									
CEC peak efficiency	96.70%			96.50%			96.50%		
Nominal MPPT efficiency				99.80%					
Night power consumption (mW)				< 50					
<b>Mechanical Data</b>									
Ambient temperature range (°C)				-40 to +65					
Operating temperature range (°C)				-40 to +65					
Relative humidity				0-100					
Dimensions (W × H × D [mm])				331 × 218 × 40.6					
Weight (kg)				5.56					
Pollution degree				PD III					
Maximum operating altitude (m)				2000					
Cooling				Natural convection-No fans					
DC connection type				Stäubli MC4 DC Connector-M/F					
<b>Protection</b>									
Overvoltage category				PV: II; Main: III					
Protective class				I					
Enclosure rating				Outdoor-IP67					
Type of isolation				Galvanically Isolated HF Transformer					
Active anti-islanding method				Power variation					
Decisive voltage class				DC: A; AC: C					
<b>Features</b>									
Communication				Sub-1G (915 to 918 MHz)					
Monitoring				S-Miles Cloud (Hoymiles Monitoring Platform)					
Compliance				EN 50549-1: 2019, VDE-AR-N 4105: 2018, UL 1741, IEC/EN 62109-1/-2, IEC/EN 61000-6-1/-2/-3/-4, IEC/EN 61000-3-2/-3, IEC 62116, IEC 61683, IEC 60068-2-1/-14/-30, IEC 62920					

\* : Nominal voltage/frequency range can vary depending on local requirements.

\*\* : Refer to local requirements for exact number of microinverters per AC output line.

# 9 Installation Map

To sheet \_\_\_\_\_ ↑

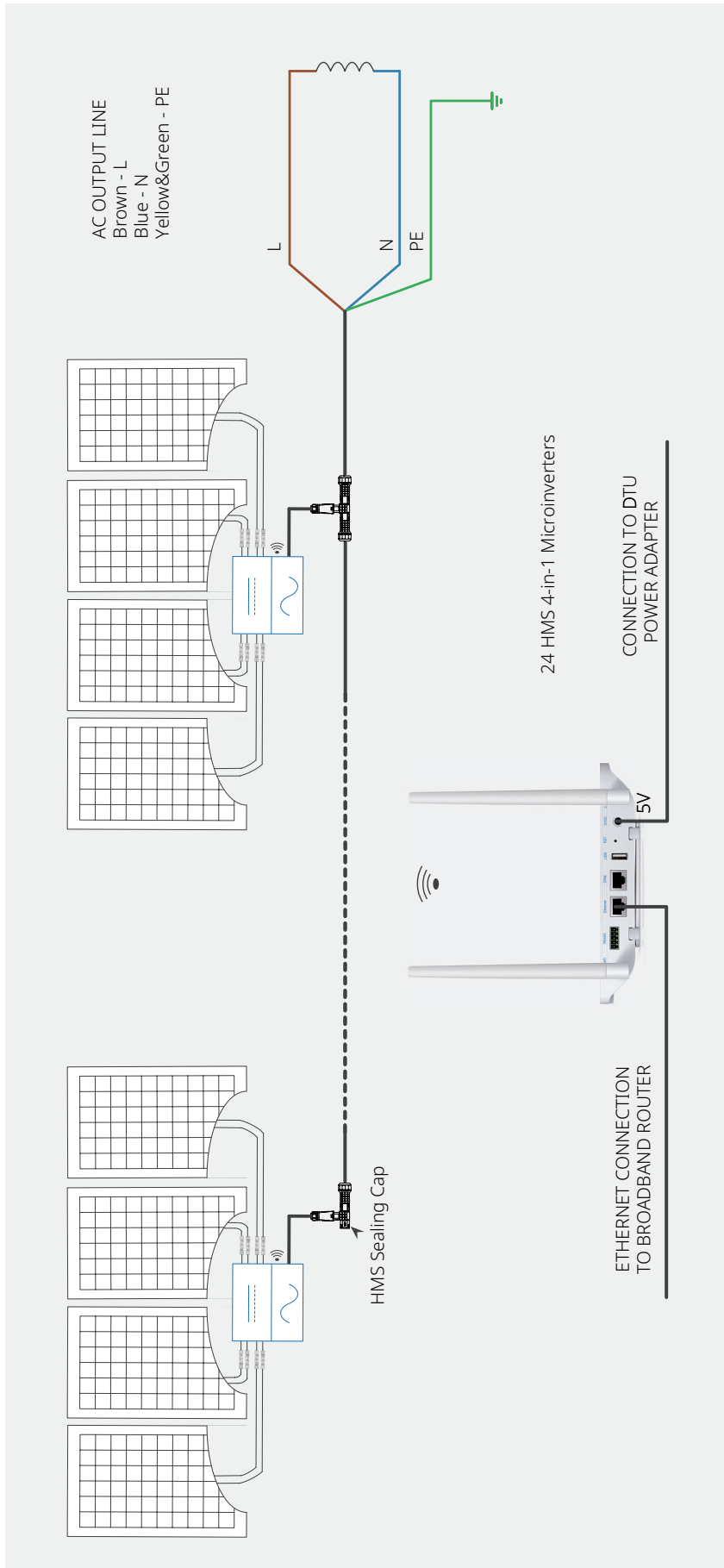
 Please Make N for North 		<b>Hoy miles Microinverter Installation Map</b>										DTU Serial Number AP040228 V1.3					
Panel type: _____ Azimuth: _____ Tilt: _____ Sheet _____ of _____		Customer Information:															
COLUMN	ROW	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
A																	
B																	
C																	
D																	

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# 10 Appendix 1: WIRING DIAGRAM

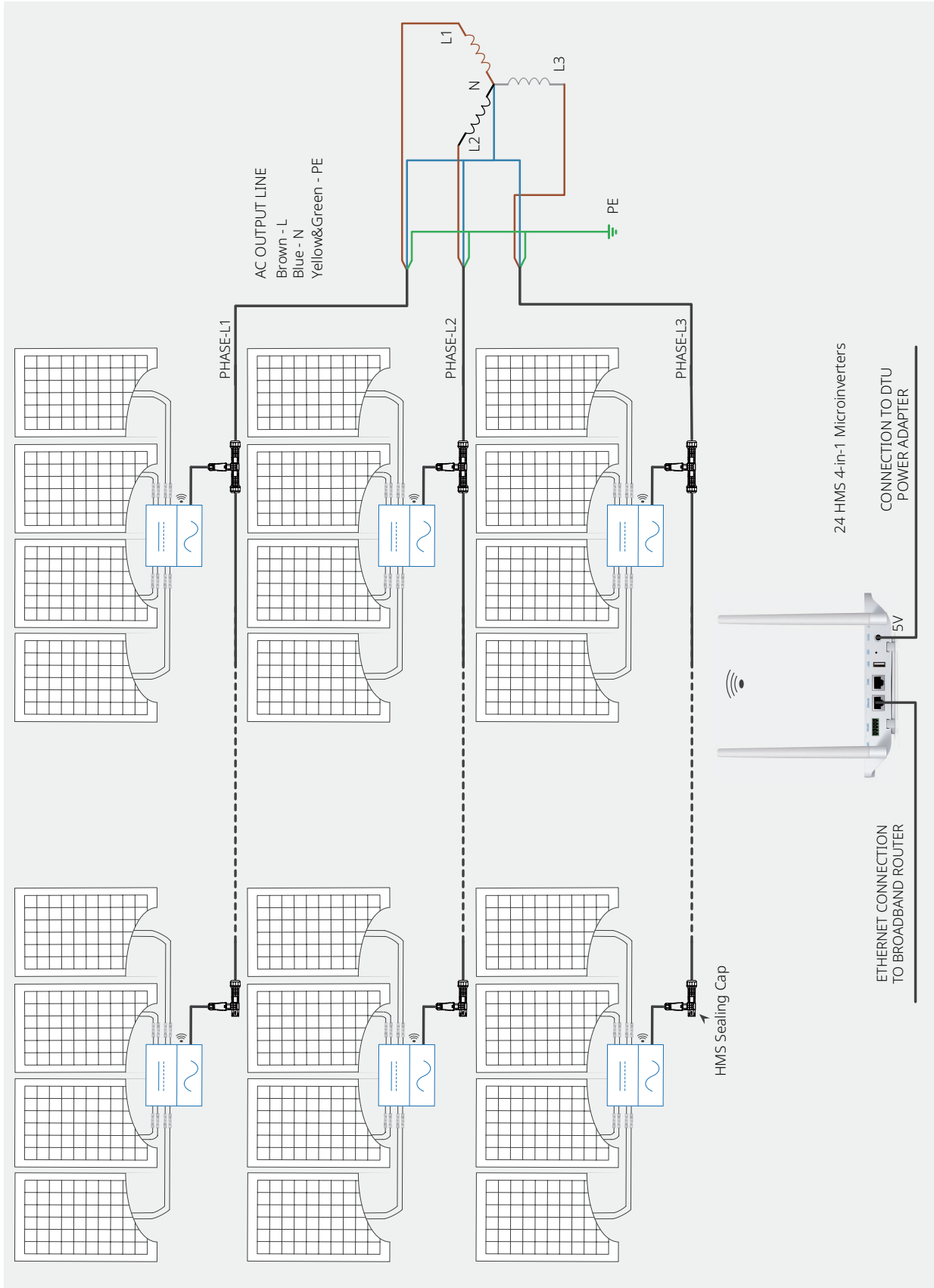
## 230VAC SINGLE PHASE:





# 11 Appendix 2: WIRING DIAGRAM

230VAC / 400VAC THREE PHASE:



## 12 Appendix 3: Hoymiles Grid Profile Parameters

The grid profile includes all the specifications for inverters that send electricity from a solar installation into the grid.

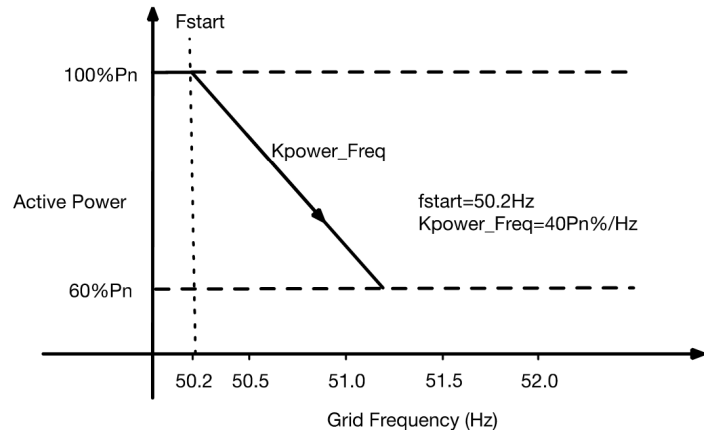
There are twelve modules related to power quality response: Frequency Watt (FW), Volt Watt (VW), Volt Var (VV), Specified Power Factor (SPF), Watt Power Factor (WPF), Active Power Control (APC), and Reactive Power Control (RPC).

### 1 Frequency Watt (FW)

Frequency Watt module is designed for the regulation about the active power response to over-frequency. The PV plant shall be capable of activating active power response to over-frequency at a programmable frequency threshold  $f_{start}$  with a programmable droop.

Taking the regulations in EN 50549-1:2019 as an example shown as Fig.1 and Table 7, the start frequency is 50.2 Hz, the power droop gradient is 40% Rated/Hz.

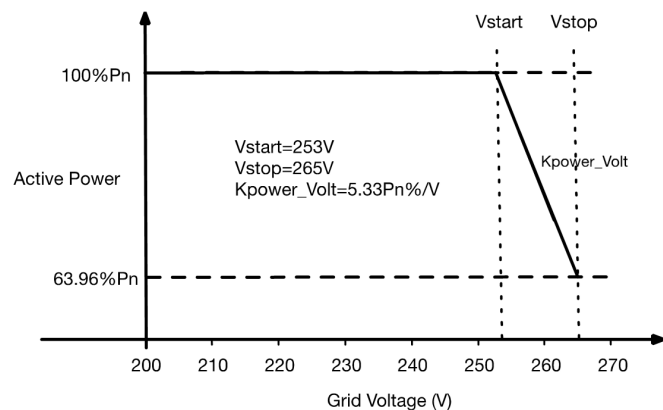
Figure 1 Example of Active Power Response to Over-Frequency



### 2 Volt Watt (VW)

The Volt Watt module varies the output power of the inverter in response to the voltage at the point of connection. When the grid voltage is higher than  $V_{start}$ , output power goes down at the Droop Slope shown below.

Figure 2 Example of Volt Watt Mode



### 3 Specified Power Factor (SPF)

The electric utility may require the specified power factor mode to fulfill local requirements. The fixed power factor setting must fall within the range of 0.8 leading to 0.8 lagging.

*Note:*

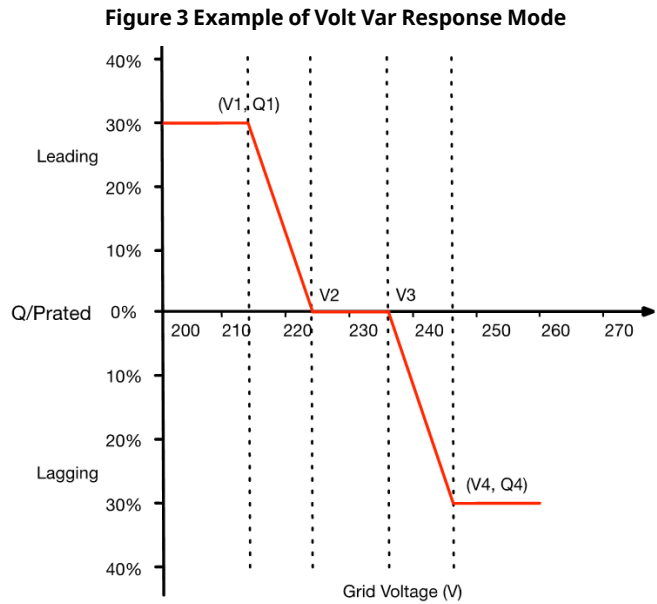
- Power factor is the ratio of the absolute value of active power ( $P$ ) to the apparent power ( $S$ ) under periodic conditions.
- Lagging power factor refers to when the inverter acts as an inductive load from the grid's perspective. Leading power factor refers to when the inverter acts as a capacitive load from the grid's perspective.
- When selecting the power factor, refer to the table below. Choose either Leading or Lagging first, and then enter a positive value. For instance, if you wish to set the power factor to 0.95 leading, select Leading and input the value as 0.95.

## 4 Volt Var (VV)

Hoymiles' latest generation microinverters, HMS, HM and HMT series, offer reactive power control capabilities such as Volt Var, SPF, WPF, RPC, etc. These modules are initially disabled by default, and only one of them can be enabled at a time. The Volt Var module adjusts the inverter's output reactive power in response to the voltage at the grid-interactive port. The required response curve for the Volt Var module is displayed below. Default values can be found in Table 9 and visualized in Figure 8.

**Note:**

By default, the firmware of Hoymiles microinverters sets Q1 to be leading and Q4 to be lagging. As a result, users only need to input a positive value. For instance, if Q1 is filled with 30, it will automatically be set as 30% leading. Similarly, if Q4 is filled with 30, it will be set as 30% lagging automatically.

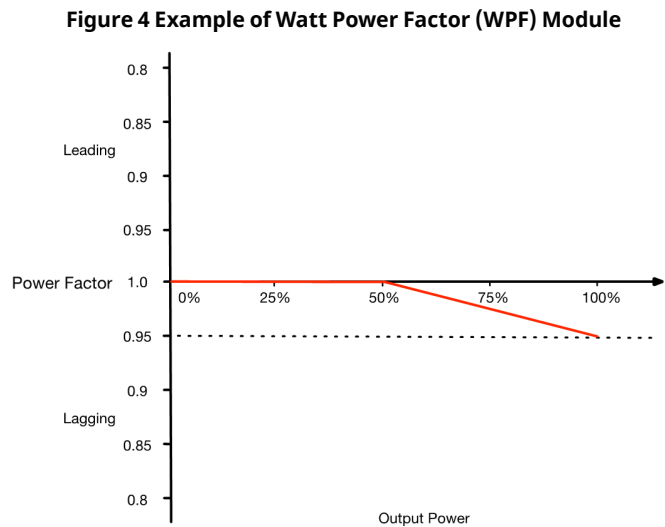


## 5 Watt Power Factor (WPF)

The Watt Power Factor module adjusts the displacement power factor of the inverter's output in response to changes in the output power. The required response curve for the Watt Power Factor module is displayed below.

**Note:**

- Referring to the table below, a positive input value sets the power factor as leading, while a negative input value sets it as lagging.
- By default, in the firmware of Hoymiles microinverters, Power Factor at Rated Power is set to be lagging. Therefore, users only need to input a positive value. For instance, if PFRP is filled with 0.95, it will be automatically set as 0.95 lagging.



## 6 Active Power Control (APC)

The output active power can be directly limited by the command from the platform and this function is enabled in the table as below by default. The change rate of the output power can be also modified in this module.

## 7 Reactive Power Control (RPC)

The output reactive power can be directly limited by making this function being enabled shown as below.

**Note:**

As shown in the table below, the reactive power should be selected to be Leading or Lagging first, then type in a positive value. For example, if the user would like to set the reactive power to 30% leading, then Leading needs to be selected and the value is filled with 30.