

## Three-phase Microinverter

# USER MANUAL

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MIT-4000-8T  
MIT-4500-8T  
MIT-5000-8T  
MIT-4000-8TL  
MIT-4500-8TL  
MIT-5000-8TL

## 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 Information

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



### Germany

service.de@hoymiles.com

### Italy

service.it@hoymiles.com

### Poland

service.pl@hoymiles.com

### Other EU countries

service.eg@hoymiles.com

### Spain

service.es@hoymiles.com

### Netherlands

service.nl@hoymiles.com

### Austria

service.at@hoymiles.com

### Australia&New Zealand

service.au@hoymiles.com

### France

service.fr@hoymiles.com

### Norway

service.no@hoymiles.com

### Finland

service.fi@hoymiles.com

### Asia&Pacific

service.asia@hoymiles.com



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

# Using This Manual

## Symbols

•	List (first level)
▷	List (second level)

## Related Documents

Datasheet	<a href="#">Datasheet_MIT-4000&amp;4500&amp;5000-8T_Global_EN</a>
Quick Installation Guide	<a href="#">Quick Installation Guide_MIT-5000-8T Series_Global_EN</a>
Tutorial Video	<a href="#">Installation Video_MIT-5000-8T series_Global_EN</a>
Others	<a href="#">Hoymiles Compatibility Calculator</a>

## Abbreviations

Abbreviation	Meaning	Abbreviation	Meaning
AC	alternating current	O&M	operations and maintenance
AFPE	Arc-Fault Protection Equipment	PE	protective earthing
DC	direct current	PPE	personal protective equipment
DTU	data transfer unit	PV	photovoltaic
MPPT	maximum power point tracking	SN	serial number

## Revision History

Version	Description
V20240725	This issue marks the initial official release.
V20240919	<ul style="list-style-type: none"><li>Updated the names of Flex-T5 Cable System and its accessories</li><li>Updated <a href="#">8 Technical Data</a></li></ul>
V20241008	<ul style="list-style-type: none"><li>Updated <a href="#">Figure 1-2</a></li><li>Updated <a href="#">8 Technical Data</a></li></ul>
V20241024	Added <a href="#">2.4 Arc Fault Protection</a>
V20241202	Updated <a href="#">6.1 Troubleshooting List</a>
V20250513	<ul style="list-style-type: none"><li>Updated <a href="#">4 System Installation</a></li><li>Updated screenshots of S-Miles Cloud</li></ul>

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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 MIT-5000-8T series microinverters.

Please consider the following before installation:

- Carefully read this manual.
- 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, use, and maintenance
- Competence in handling risks occurring in microinverter installation, use, and maintenance
- Familiarity with local electrical codes and regulations


## 1.3 Validity

This manual is valid for:

Model	Rated Output Power (VA)
MIT-4000-8T, MIT-4000-8TL	4000
MIT-4500-8T, MIT-4500-8TL	4500
MIT-5000-8T, MIT-5000-8TL	5000

### NOTE

Model identifier:

**MIT - 5000 - 8TL**  
  
**A      B      C    D**

[A]: Series Name

[B]: Output Power Level





[C]: Maximum Number of PV Modules Connected

[D]: Low Input Voltage (120 V)

## 2 Safety Information





### 2.1 Safety Symbols

Safety symbols are used in this manual as follows:

Symbol	Description
 <b>DANGER</b>	This symbol indicates potential risks that, if not avoided, may lead to death or serious physical harm.
 <b>WARNING</b>	This symbol indicates potential risks that, if not avoided, may lead to personal injury or device damage.
 <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 to 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>Read the manual first</b> Read this manual carefully before performing any installation, operation, or maintenance.

## 2.3 Safety Instructions

The MIT-5000-8T series microinverters have been designed and tested in compliance with international safety standards, and thus require 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 qualified electrician and follow local wiring codes.
- Always use PPE, such as gloves and goggles, during installation.
- The microinverter should only be used when all technical parameters are observed and applied correctly. (For details, see "[8 Technical Data](#)".)

#### 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 environment.
- Each microinverter input should only be connected to PV modules. 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 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.
- The total open circuit voltage of PV modules connected to each microinverter DC input should be within the input voltage range of the input. (For details, see "[8 Technical Data](#)".)
- 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 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 after 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 corrosive or filamentary material-based rags to prevent corrosion and electrostatic charges.

## 2.4 Arc Fault Protection

The MIT-5000-8T series microinverters integrate Arc-Fault Protection Equipment (AFPE) for arc detection and interruption.

### AFPE Classification



[A]: Protection Coverage (Full Coverage)

[B]: Method of Implementation (Integrated)

[C]: Functionality

[D]: Number of Monitored String per Input

[E]: Number of Input per Channel

[F]: Number of Monitored Channels

### Reconnection Method

The MIT-5000-8T series microinverters support two methods for reconnecting to the grid after arc interruption by the AFPE.

#### • Remote manual reconnection

This method can be used when the PV system is under supervision via remote control and the operator prefers to check the system remotely before reconnection.

To restart the AFPE and close circuits, a manual procedure is required (button or external signal, triggered by manual operation on-site or remote activation). This manual procedure requirement shall be maintained after loss of supply power to the AFPE.

#### • Automatic reconnection

This method can be used to allow more sensitive arc fault detection where deemed appropriate, and to enable system checks to differentiate between nuisance tripping and real arcs.

Adjustable automatic reconnection times are allowed for compliance with local installation standards or owner/operator preferences, provided that a minimum reconnection delay is ensured. In case the reconnection times are adjustable, this shall be done via adjustable setup parameters or manual switches (e.g. rotary switches).

To restart the AFPE no manual procedure is required if a minimum interruption time of 5 min is ensured before continuing operation of the array.

When interrupting the fifth time within a 24 h period, the AFPE is only allowed to be reset via remote manual reconnection before the AFPE does reconnect. Afterwards the AFPE may return to automatic reconnection mode.

## 3 Product Information

### 3.1 Overview

#### Functions

Microinverters are module-level power electronics that convert DC into AC. The MIT-5000-8T series microinverters are Hoymiles' new generation three-phase units designed to accommodate eight high-powered PV modules. The innovative 8-in-1 design significantly reduces system costs, making the MIT-5000-8T series a cost-effective choice. Additionally, its four MPPTs maximize energy harvest, ensuring optimal performance.

#### Features

- Three-phase output, ideal for commercial and industrial applications
- Output power up to 5000 VA and input current up to 20 A, compatible with 182 mm/210 mm PV modules
- Four MPPTs, optimizing power generation
- Low input voltage for safer rooftop installations, minimizing arc faults and electric shocks
- 8-in-1 design for quick installation with Flex-T5 Cable System, reducing costs
- Sub-1G wireless solution for stable communication and convenient O&M

#### Applications

The MIT-5000-8T series can be used in rooftop multi-microinverter systems consisting of multiple microinverters, with each paired to eight PV modules.

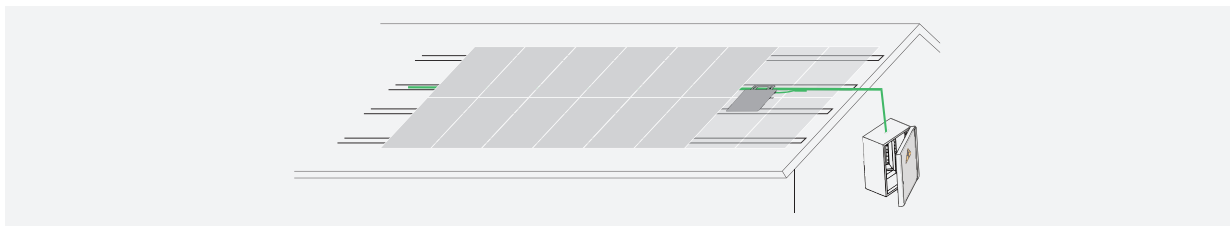







Figure 1-1 Rooftop Reference

#### NOTE

To connect the microinverters to the grid, you need to order the Flex-T5 Cable System and prepare AC cables and the distribution box. The Flex-T5 Cable System includes these components:

	<b>Flex-T5 Trunk Connector</b> <ul style="list-style-type: none"> <li>• Connects the microinverter's AC output to the AC Trunk</li> <li>• Connects multiple Flex-T5 Connection Cables to create the AC Trunk</li> </ul>		<b>Flex-T5 Connection Cable</b> <p>Uses the Flex-T5 Trunk Connectors and Flex-T5 Extension Connectors to form a customized AC Trunk</p>
	<b>Flex-T5 Extension Connector</b> <ul style="list-style-type: none"> <li>• Connects the first microinverter in the AC Trunk</li> <li>• Extends cable runs between microinverters when the distance exceeds standard Flex-T5 Connection Cable lengths</li> </ul>		
	<b>Flex-T5 Cable Terminal Connector</b> <p>Used to convert the AC cable into an AC End Cable, which completes the connection between the AC Trunk and the distribution box</p>		<b>Flex-T5 Disconnect Tool</b> <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 Hoymiles microinverter system, a few parts team up to convert sunlight into power you can use.

- **PV modules**

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

- **Microinverters**

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

Microinverters use a sophisticated MPPT algorithm to optimize the performance of each PV module. This ensures that the overall performance of PV modules in the row will not be dragged down if one PV module underperforms.

- **DTU**

DTU is Hoymiles communication gateway. It bridges the communication between microinverters and the S-Miles Cloud platform. It collects and delivers microinverter production data and energy consumption data to S-Miles Cloud for monitoring and remote O&M.

- **S-Miles Cloud**

S-Miles Cloud is a comprehensive monitoring and analysis platform. It monitors 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. S-Miles Cloud also enables module-level monitoring and remote management.

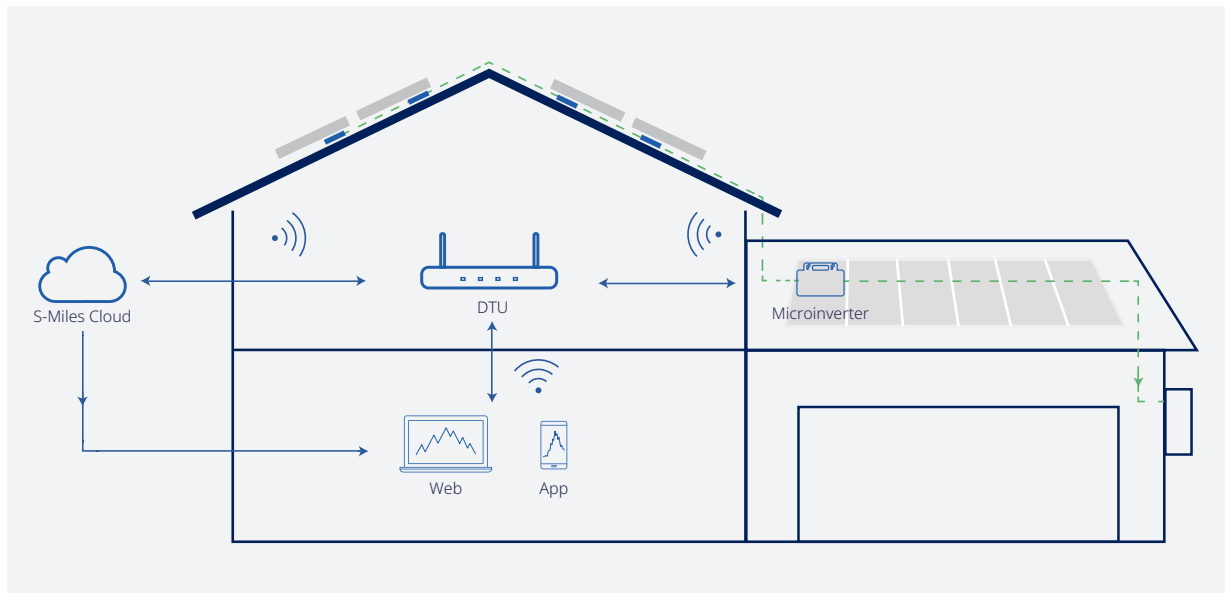


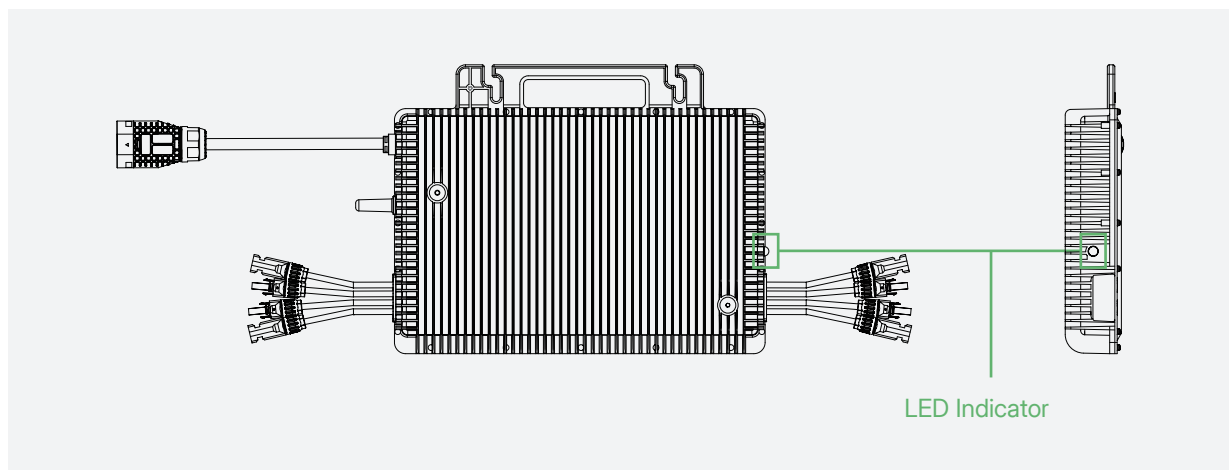
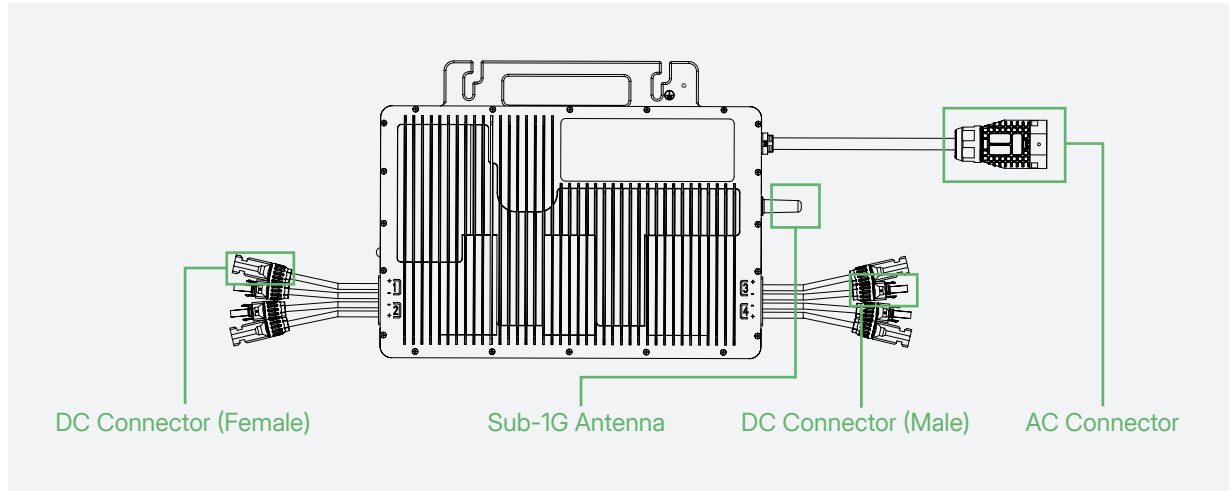
Figure 1-2 MIT-5000-8T Series Microinverters System Diagram

## 3.2 Appearance and Dimensions

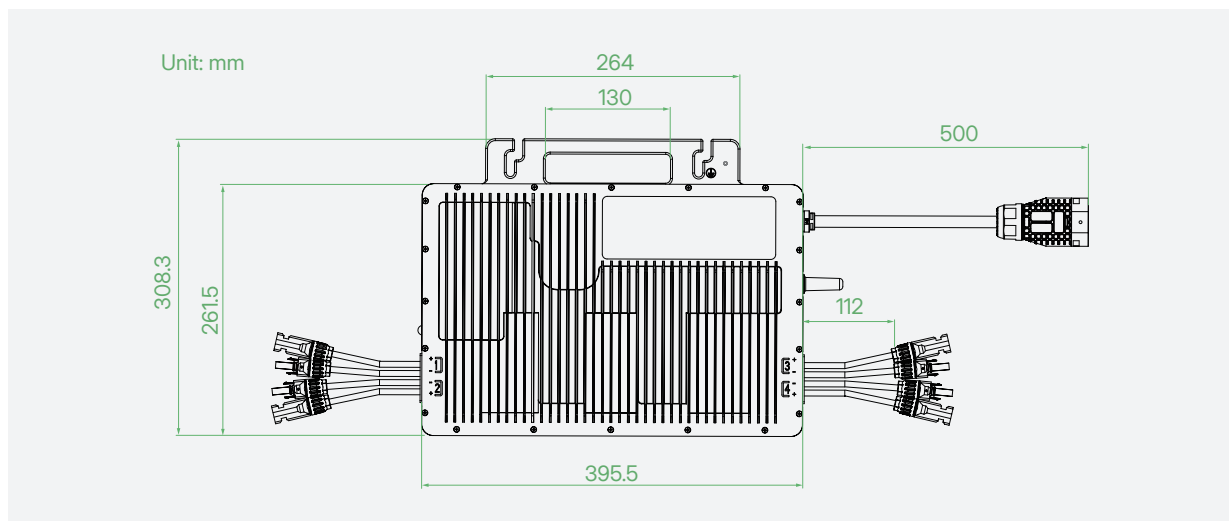
### NOTE

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

### Appearance



### Dimensions





## 4 System Installation

### 4.1 Preparation

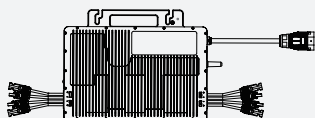
#### Unpacking the Box

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.

1 Microinverter



2 Guide & Map



#### NOTICE

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

#### Checking the Parts

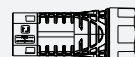
1 Flex-T5 Connection Cable



2 Flex-T5 Trunk Connector



3 Flex-T5 Cable Terminal Connector



4 Flex-T5 Extension Connector




5 AC cable\*



#### NOTE

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

Wire Type	Size	Cross-section Diameter	Maximum Voltage
Outdoor Use, Copper Wire	2.5/4/6 mm <sup>2</sup>	 ≤ 20.5 mm	450/750V (U0/U)

#### Checking the Tools

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

1 Marker



2 Steel Tape



3 Cable Cutter



4 Wire Stripper



5 Crimping Tool

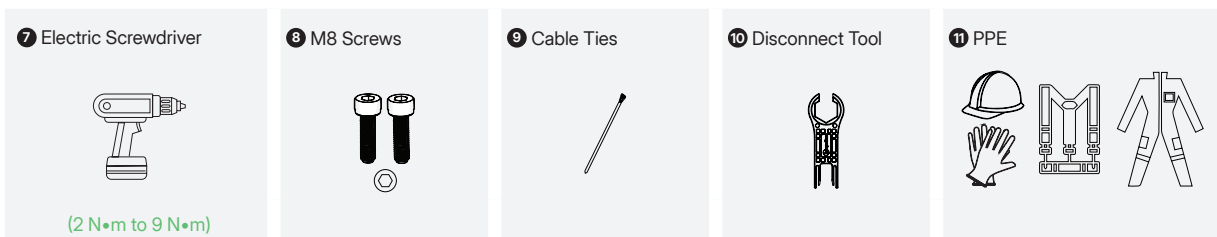


(2.5/4/6 mm<sup>2</sup>)

6 Torque Wrench



(1.5 N•m to 3 N•m)



## Downloading the Application

Download the S-Miles Installer application. To download,

- Scan the QR code located on the right side.
- 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 @230/400 V						
Model	MIT-4000-8T	MIT-4000-8TL	MIT-4500-8T	MIT-4500-8TL	MIT-5000-8T	MIT-5000-8TL
2.5 mm <sup>2</sup>	3		3		3	
4 mm <sup>2</sup>	5		4		4	
6 mm <sup>2</sup>	6		5		5	

### NOTICE

Limits are determined based on AC cable ampacity, which can vary. Check local codes to determine the exact restrictions.

## 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, UV, rain, snow, 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 "[8 Technical Data](#)", including 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 Installation Steps

Refer to the following steps to install the microinverter.

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



### **⚠ 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.

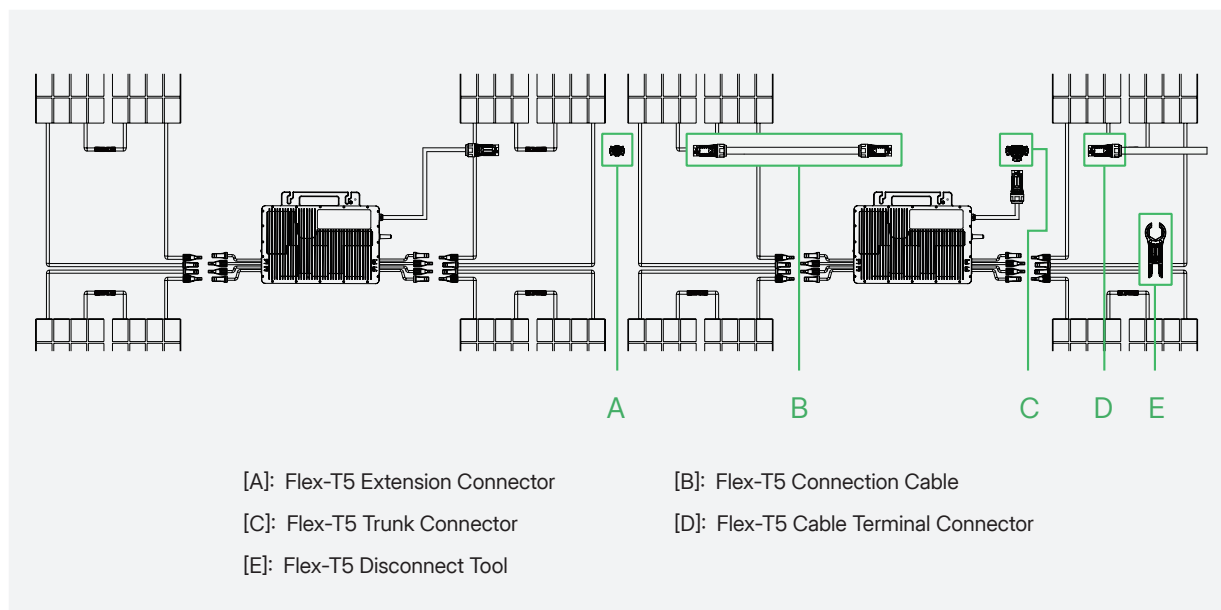
### **⚠ CAUTION!**

- Do not pull or hold the AC cable of the microinverter with your hand. Hold the handle instead.
- Securely mount the microinverters using the correct amount of torque. Mounting torque of the M8 screw is 9 N·m. Do not over-torque.

### **📖 NOTE**

Depending on 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).

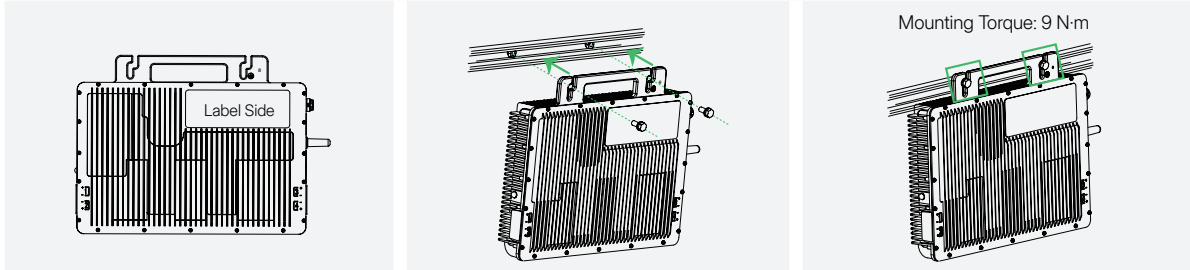
## Assembly Diagram



## Procedure

### Step 1 Attach the microinverters to the racking

- Plan and mark the position of each microinverter on the racking.
- Slide all sliding T-nuts along the racking until they are fully seated in the marked locations.
- Place the microinverter (label side up) onto the racking.
- Secure the microinverter to the racking (Torque: 9 N·m).

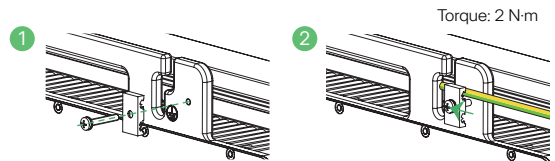


#### ⚠ WARNING!

- Always install the microinverter beneath the PV module to avoid direct exposure to rain, UV, and other harmful weather events.
- Maximize the separation between the microinverter and the roof for optimal communication quality.
- Allow at least 2 cm of space around the microinverter for ventilation and heat dissipation.

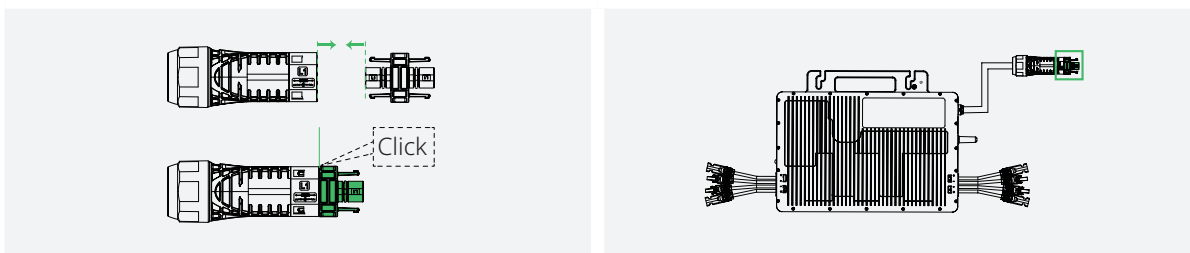
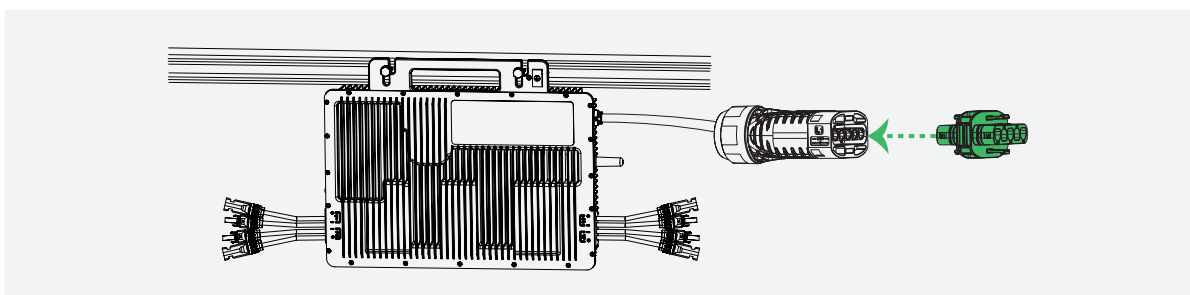
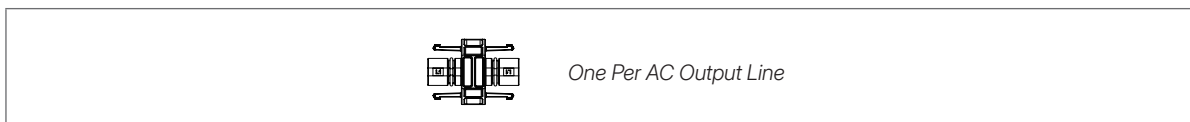
#### 📖 NOTE

The AC cables already include ground wires for direct grounding. If external accessory by emailing [sales@hoymiles.com](mailto:sales@hoymiles.com).



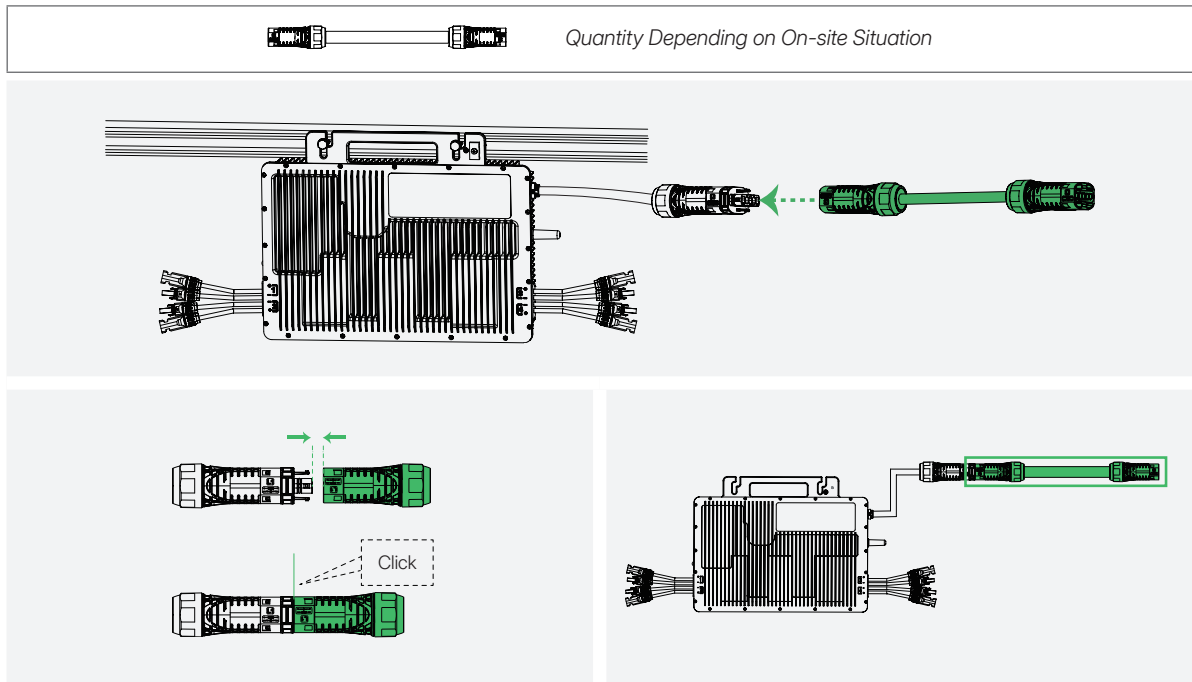
### Step 2 Connect the Flex-T5 Extension Connector

Connect the Flex-T5 Extension Connector to the microinverter. Listen for a click as the connectors engage.



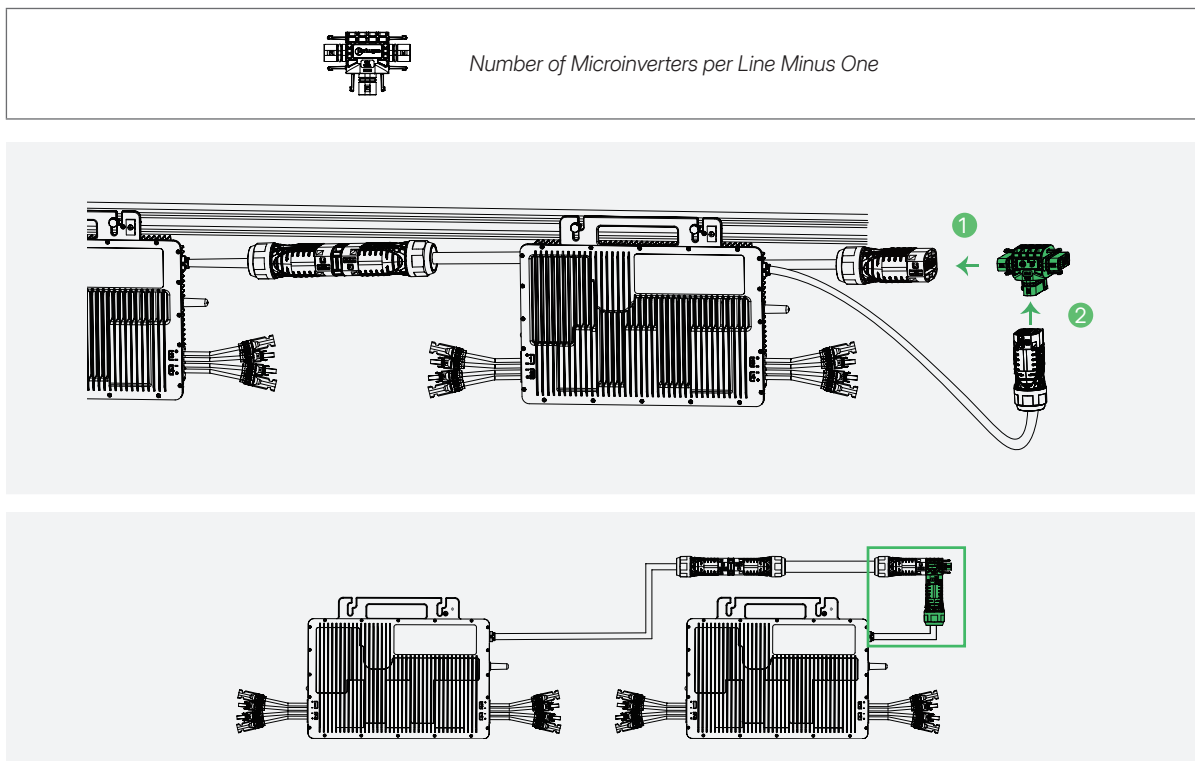
### Step 3 Connect the Flex-T5 Connection Cable

Connect the Flex-T5 Connection Cable to the other side of the Flex-T5 Extension Connector. Listen for a click as the connectors engage.



### Step 4 Connect adjacent microinverters

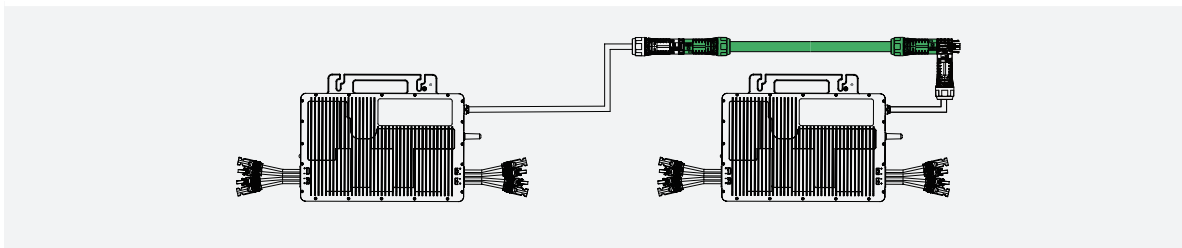
Use the Flex-T5 Trunk Connector to connect the adjacent microinverter, and listen for a click as they engage. Then, repeat this step to connect all microinverters on the AC Trunk one by one.



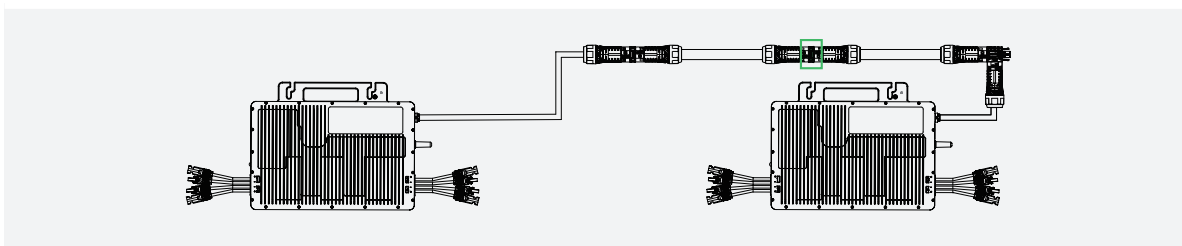
## Obstacle Scenario

If you need to space microinverters farther apart because of an obstacle, Hoymiles offers two solutions.

- **Using a longer Flex-T5 Connection Cable:** Hoymiles Flex-T5 Connection Cable is 4.6 m. If you require a different length, contact Hoymiles sales team [sales@hoymiles.com](mailto:sales@hoymiles.com).



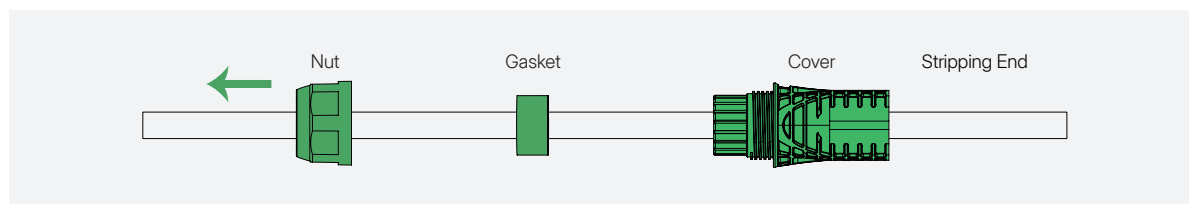
- **Using a Flex-T5 Extension Connector:** It connects two Flex-T5 Connection Cables into a longer one.



\* To disconnect the Flex-T5 Extension Connector from the AC Trunk, you must use a Flex-T5 Disconnect Tool. (For details, see "[7.1 Removing the Microinverter](#)".)

## Step 5 Make the AC End Cable

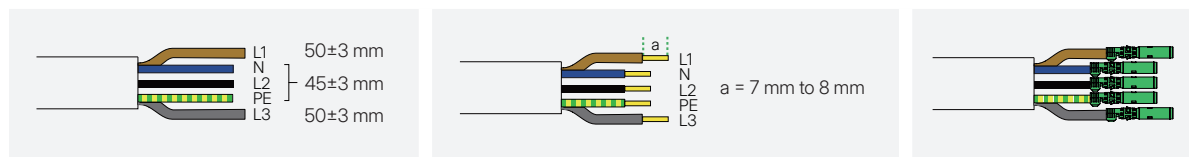
- Separate the Flex-T5 Cable Terminal Connector into five parts, then slide the nut, gasket, and cover over the AC cable in the correct order.

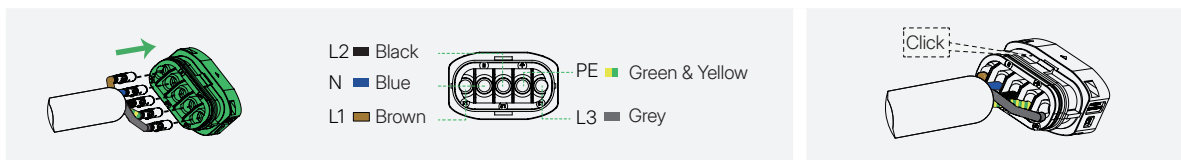


### ⚠ WARNING!

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.

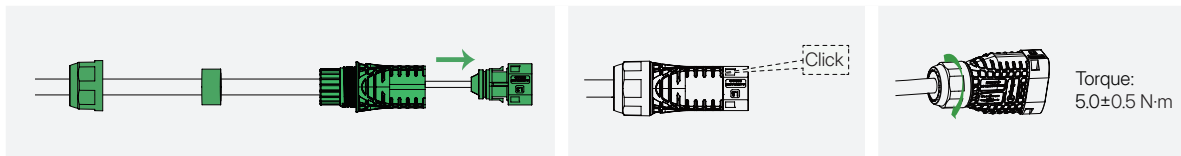
- Cut the outer jacket by 50±3 mm, and cut 5 mm off the N, L2, and PE wires.
- Strip all insulation to expose 7 mm to 8 mm conductors, and insert them into the terminal pins.
- Crimp the cable and insert it into the connector body.



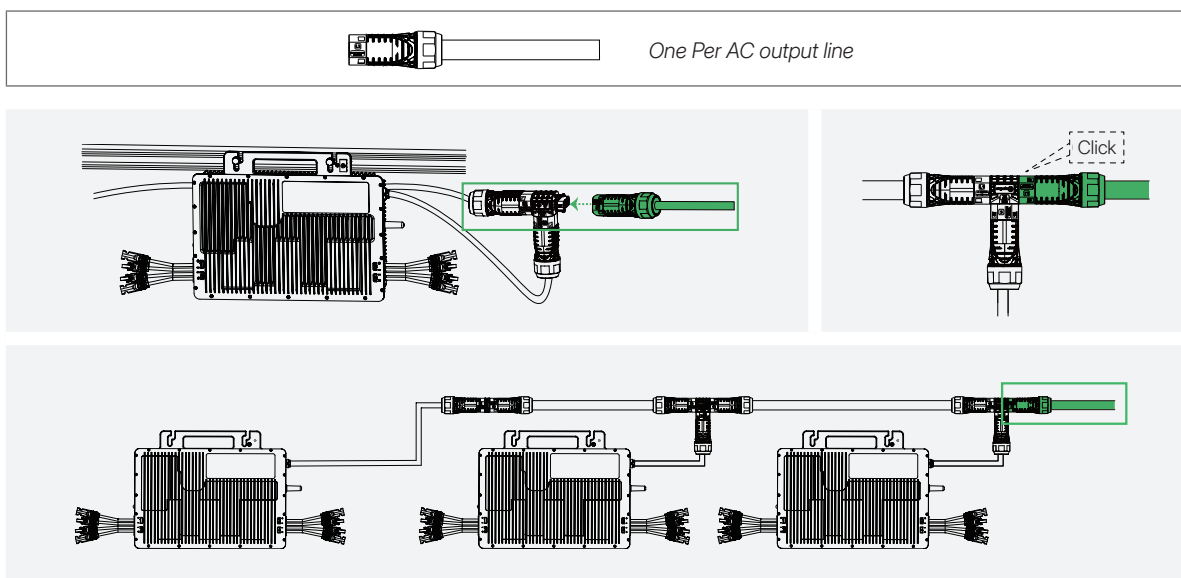
**NOTICE**

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

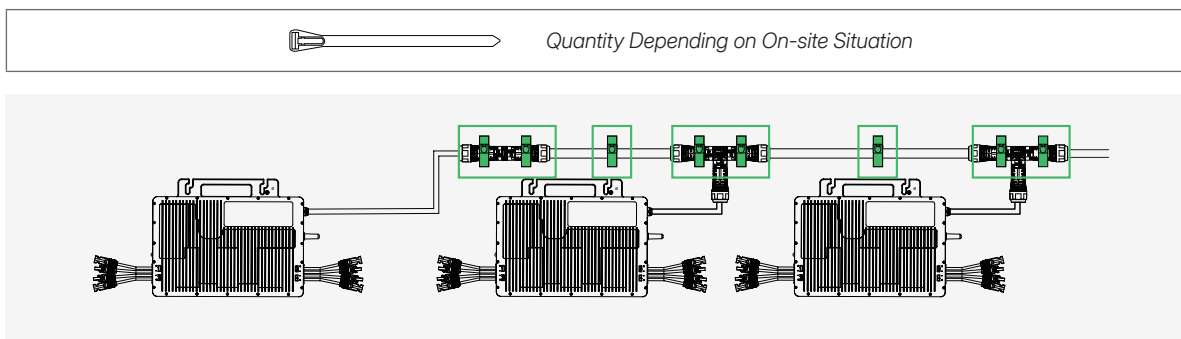
e. Slide the cover, gasket, and nut over the cable assembly. Tighten the nut to  $5.0 \pm 0.5$  N·m.

**Step 6** Connect the AC End Cable

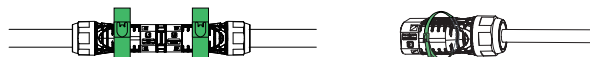
Connect the AC End Cable to the last Flex-T5 Trunk Connector in the AC Trunk. Listen for a click as they engage.

**Step 7** Manage the AC Trunk

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

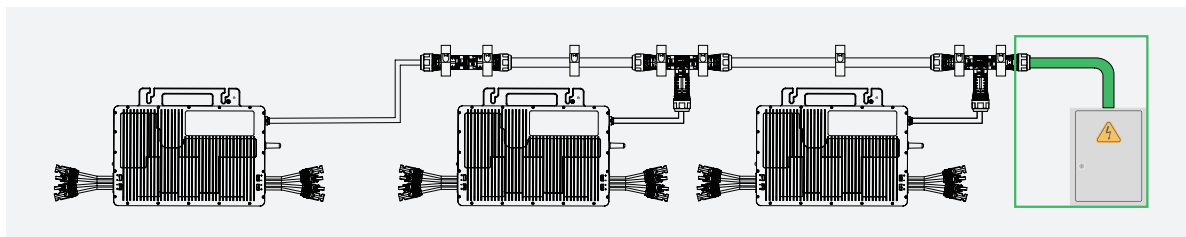
**NOTE**

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



## Step 8 Connect to the distribution box

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



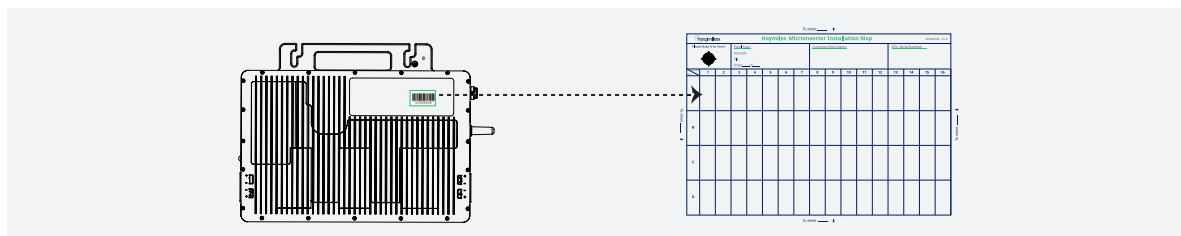
### ⚠ WARNING!

Adhere to local wiring codes for wiring safety.

L1	L2	L3	N	PE
Brown	Black	Grey	Blue	Green&Yellow

## Step 9 Complete the installation map

- Peel off the removable SN label of each microinverter.
- Affix the labels to their respective locations on the installation map.

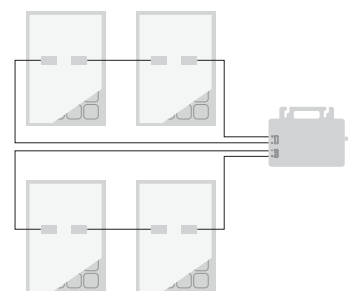
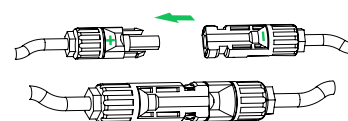


## Step 10 Connect the PV modules

- (Optional) Connect every two PV modules in series as a string.
- Connect the microinverters to the PV modules. Ensure that each microinverter DC input connects to a minimum of one PV module.
- Mount the PV modules above the microinverters.

### ⚠ WARNING!

- Check the polarity of DC connectors before connection. Connect the microinverter's positive (female with a "-" sign) and negative (male with a "+" sign) DC terminals respectively to the PV module's positive and negative terminals. If they are reversely connected, the microinverter will not operate.
- Connect one PV module or PV string to one microinverter DC input. Hoymiles is not liable for damages resulting from the conduction between any two inputs that is caused by incorrect or improper connection.





## Step 11 Start-up

### WARNING!

The microinverter is integrated with a comprehensive residual current monitoring unit. When detecting that the residual current exceeds the threshold, the microinverter immediately disconnects itself from the grid.

- If the circuit breaker for each AC output line provides protection against leakage current, its rated leakage operating current should be no less than the number of microinverters connected multiplied by 30 mA.
- If the main utility-grid AC circuit breaker provides protection against leakage current, its rated leakage operating current should be no less than the total number of microinverters multiplied by 30 mA.

a. Check the following before powering on the microinverter 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.

b. Power on the system.

c. Turn ON the AC disconnect or circuit breaker for each AC output line.

d. Turn ON the main utility-grid AC circuit breaker.

e. Wait five minutes for the system to start generating power.

f. 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 Setting Up and Activating Monitoring



### NOTE

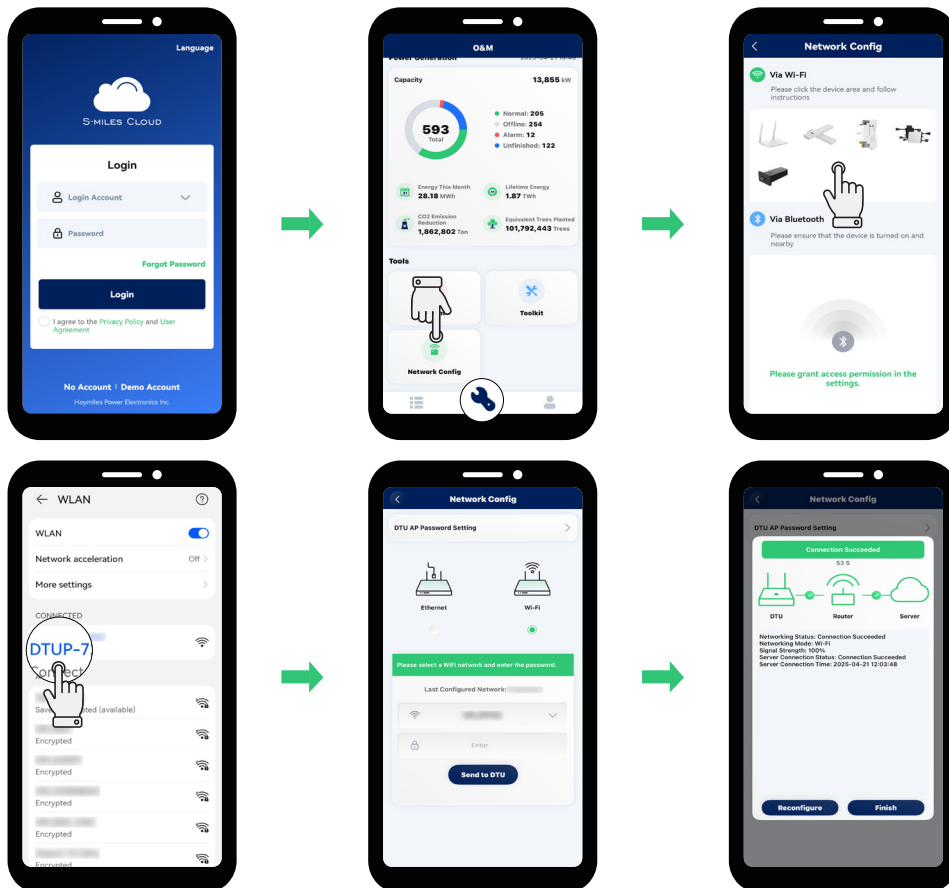
- The screenshots provided here are for reference only. The actual screens may vary.
- The DTU's network name includes "DTU/DTUP/DTUL" followed by the last eight digits of the product SN, and is password-free by default.
- Set the router to 2.4 GHz band. Do not enable 5 GHz band.
- The router's Wi-Fi name can only contain English letters and Arabic numerals.
- Refer to the [S-Miles Installer App Operating Guide](#) for additional details on power system implementation.
- Consult the DTU Manual, and S-Miles Cloud Guide for comprehensive instructions on configuring your monitoring platform.

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



### Procedure

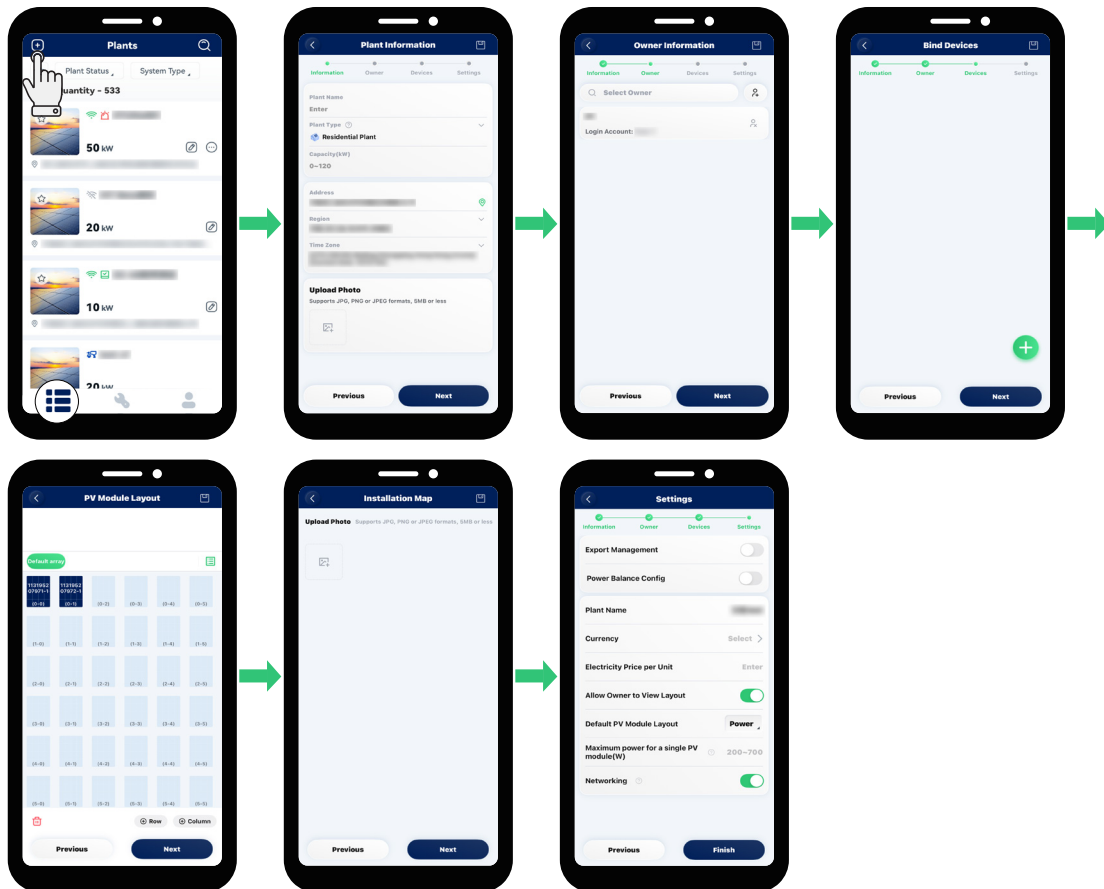
#### Step 1 Establish an internet connection

- Open and log in to the S-Miles Installer application using your credentials.
- Tap  > **Network Config** .
- Follow the prompts to configure the network connection.





## Step 2 Create your power plant





- Tap  > .
- Follow the prompts to fill in the required information.

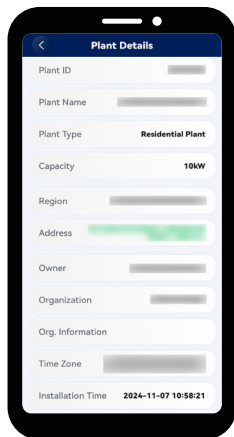


## Step 3 Set your power plant

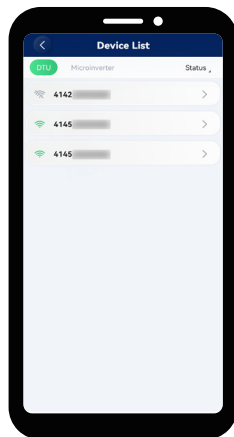
- Tap .
- Enter the desired plant name for your search and tap it to move to the plant homepage.
- On the plant homepage, tap .



Item	Description
 Plant Details	It provides access to geographical location, system capacity, and owner information about your power plant.
 Device List	It provides an SN list of devices installed in your power plant.
 Power Control	It provides 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.



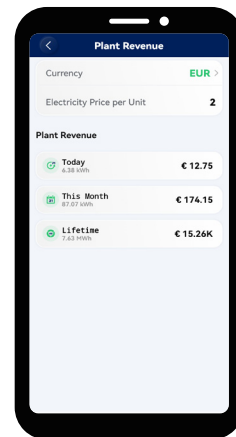
Plant Details



Device List



Power Control



Plant Revenue

## 6 Troubleshooting

### 6.1 Troubleshooting List




Code	Alarm Range	Alarm Status	Resolutions
121	-	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. If airflow and ambient temperature meet the requirements, contact your dealer or Hoymiles technical support. (For details, see "<a href="#">Contact Information</a>".)</li> </ol>
125	-	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. If the issue persists, contact your dealer or Hoymiles technical support. (For details, see "<a href="#">Contact Information</a>".)</li> </ol>
127	-	Firmware error	<ol style="list-style-type: none"> <li>1. Check for the correct firmware version and re-attempt the upgrade.</li> <li>2. Check and ensure the DTU, S-Miles Cloud, and microinverters are all connected and communicating with each other. Retry if needed.</li> <li>3. If the issue persists, contact your dealer or Hoymiles technical support. (For details, see "<a href="#">Contact Information</a>".)</li> </ol>
128	-	Software error code 128	<ul style="list-style-type: none"> <li>• If the alarm is accidental and the microinverter continues to function correctly, no special action is required.</li> <li>• If the alarm recurs frequently and does not reset, contact your dealer or Hoymiles technical support. (For details, see "<a href="#">Contact Information</a>".)</li> </ul>
129	-	Software error code 129	
130	-	Offline	<ol style="list-style-type: none"> <li>1. Ensure the microinverter is functioning correctly.</li> <li>2. Check the communication status between the DTU and S-Miles Cloud, or between the DTU and microinverters, and make the necessary improvements if the communication appears poor.</li> <li>3. If the alarm recurs frequently and does not reset, contact your dealer or Hoymiles technical support. (For details, see "<a href="#">Contact Information</a>".)</li> </ol>
141	Grid	Grid overvoltage	<ul style="list-style-type: none"> <li>• If the alarm is accidental, no special action is required. It might be caused by a temporary irregularity in grid voltage. The microinverter will recover automatically once the grid voltage stabilizes.</li> <li>• If the alarm recurs frequently and does not reset, check whether the grid voltage is in the acceptable range. If not, <ul style="list-style-type: none"> <li>▷ Contact your local power operator.</li> <li>▷ Adjust the grid overvoltage protection limit through S-Miles Cloud with consent from the local power operator. (For details, see <a href="#">S-Miles Cloud (Web) user manual</a>.)</li> </ul> </li> </ul>
142	Grid	10 min value grid overvoltage	
143	Grid	Grid undervoltage	
144	Grid	Grid over-frequency	
145	Grid	Grid under-frequency	
147	Grid	Grid no input	Check whether a power grid outage occurred.
149	Grid	Island detected	<ul style="list-style-type: none"> <li>• If the alarm is accidental, no special action is required. It might be caused by a temporary irregularity in grid voltage. The microinverter will recover automatically once the grid voltage stabilizes.</li> <li>• If all the microinverters in your station frequently trigger alarms, contact the local power operator to investigate potential grid islands.</li> <li>• If the alarms do not stop, contact your dealer or Hoymiles technical support. (For details, see "<a href="#">Contact Information</a>".)</li> </ul>

200	-	PV-1 reversely connected	Check the DC connector polarity of the microinverter and the PV module.
201	-	PV-2 reversely connected	
202	-	PV-3 reversely connected	
203	-	PV-4 reversely connected	
204	-	Wrong PV wiring	
205	-	Input MPPT-A 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. If the PV module open-circuit voltage is within the normal range, contact your dealer or Hoymiles technical support. (For details, see "<a href="#">Contact Information</a>".)</li> </ol>
206	-	Input MPPT-B overvoltage	
207	-	Input MPPT-A undervoltage	
208	-	Input MPPT-B undervoltage	
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 MPPT-C 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. If the PV module open-circuit voltage is within the normal range, contact your dealer or Hoymiles technical support. (For details, see "<a href="#">Contact Information</a>".)</li> </ol>
216	-	Input MPPT-C undervoltage	
220	-	Input MPPT-D overvoltage	
221	-	Input MPPT-D undervoltage	
315 - 325	-	Hardware error code	<ul style="list-style-type: none"> <li>• If the alarm is accidental and the microinverter continues to function correctly, no special action is required.</li> <li>• If the alarm recurs frequently and does not reset, contact your dealer or Hoymiles technical support. (For details, see "<a href="#">Contact Information</a>".)</li> </ul>





## 6.2 LED Indicator Status

The LED indicator on the microinverter indicates various statuses. The following table details the possible LED statuses and indications.

### Start-up

LED	Time Gap	Pattern	Indication
Flashing green	0.3s, 5 times		Start-up success
Flashing red	0.3s, 5 times		Start-up failure or microinverter failure
Alternating red and green flashing	1s		Firmware failure

### Operation

LED	Time Gap	Pattern	Indication
Flashing green	1s		Normal power production
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. If the LED indicator is not illuminated, check the DC side connection. If the connection and input voltage are normal, contact your dealer or Hoymiles technical support team for further assistance. (For details, see "[Contact Information](#)".)
- All faults on microinverters are reported to S-Miles Cloud via the DTU. Refer to the S-Miles Installer/Enduser Application or S-Miles Cloud interface for more information.
- Ensure the grid connection is normal.

## 6.3 On-Site Inspection and Maintenance (Only for Qualified Technicians)

### ⚠ DANGER!

- Always wear PPE 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 being disconnected 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. (For details, see " <a href="#">8 Technical Data</a> ".)
Electrical parameters	Verify the PV modules' DC voltage, the grid voltage, and the grid frequency are within the allowable range. (For details, see " <a href="#">8 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>Check the LED indicator status. Red flashes mean normal DC connection.</li> </ol>
AC connections	<p>Check and make sure the AC connection between the grid 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>Check the LED indicator status. Red flashes means the DC connection is normal.</li> <li>Reconnect the AC power.</li> <li>Check the LED indicator status. Five green flashes mean normal DC and AC connections.</li> </ol> <p>If the problem persists, contact the Hoymiles Technical Support Team at <a href="mailto:service@hoymiles.com">service@hoymiles.com</a>.</p>

## 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 site 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	Check the wiring connections for any loose or damaged wires. If needed, tighten any loose connections.
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	Check and ensure the environmental conditions remain within the specified operating range.



## 7 Decommission

This chapter 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 disconnection.
- 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 Flex-T5 Disconnect Tool to disconnect all AC connections and wait about five minutes.

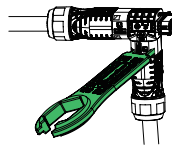
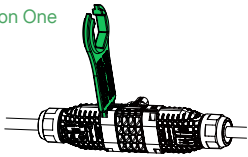
Step 4: Use the Flex-T5 Disconnect Tool to disconnect all DC cable connections.

#### **NOTE**

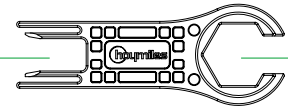
To use the Flex-T5 Disconnect Tool,

- Align the Flex-T5 Disconnect Tool's notches with the release tabs on the connectors.
- Squeeze the tool firmly to apply pressure to the release tabs.
- Gently pull the connectors apart to disconnect them.

Function One

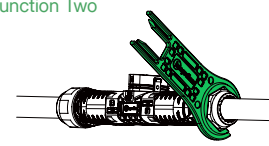


Function One:  
Disconnects connectors



Function Two:  
Tightens/Loosens nuts

Function Two



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

Step 6: Remove PE 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

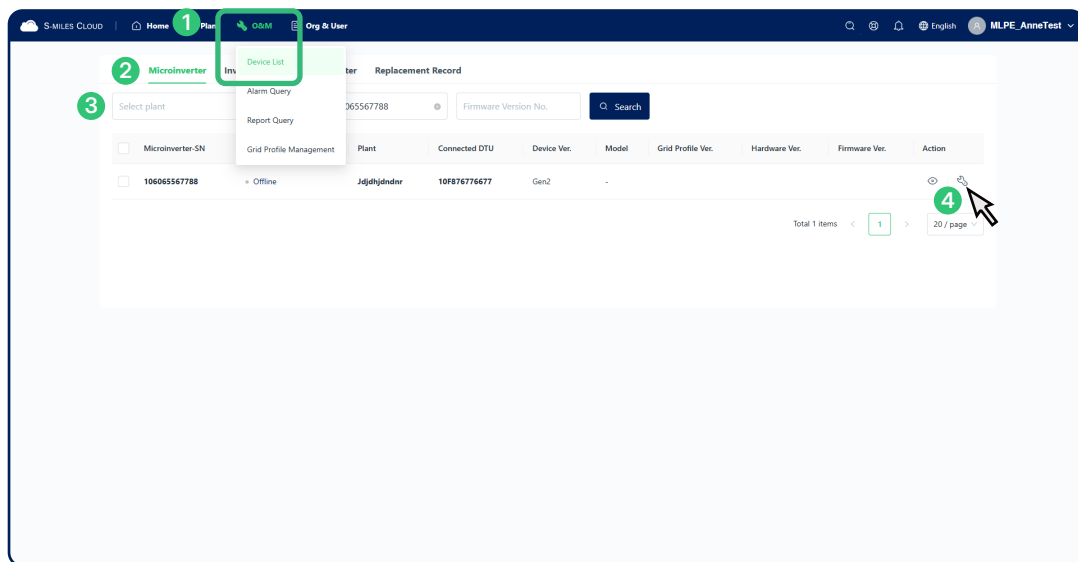
Step 1: Record the new microinverter's SN.

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

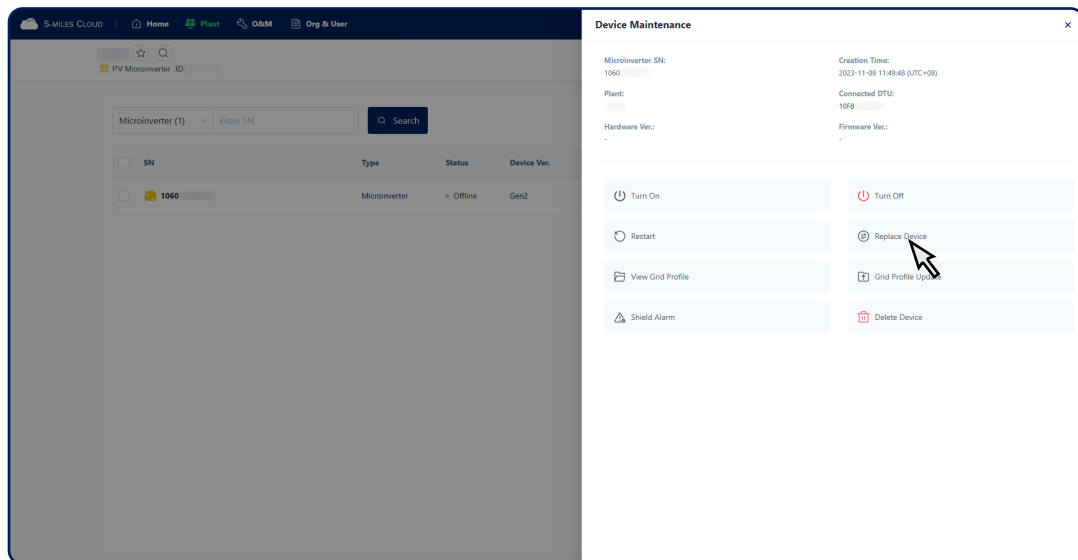
Step 3: Install the new microinverter. (For details, see "[4.2 Installation Steps](#)".)

Step 4: Replace the microinverter in the monitoring platform.

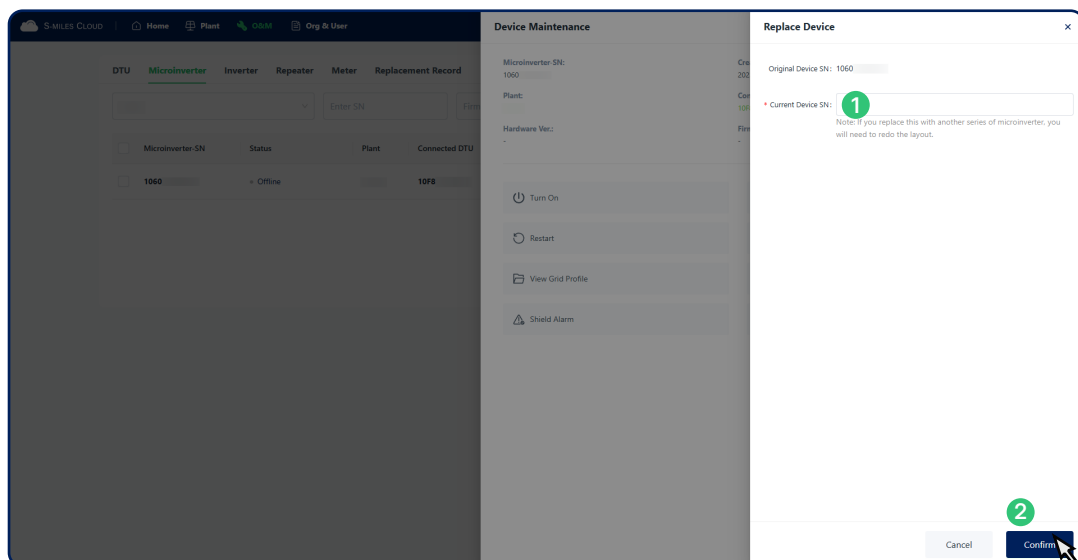
- Log in to S-Miles Cloud at <https://global.hoymiles.com>.
- Click  **O&M** > **Device List** > **Microinverter**.
- Locate the device to be replaced.
- Click .



e. Click **Replace Device**.



f. Enter the new microinverter's SN, and then click **Confirm**.



## 7.3 Storing and Transporting the Microinverter

If the microinverter is not put into use directly, the following requirements should be met.

- 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

### Procedure

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.**

- The total open circuit voltage of PV modules connected to each microinverter DC input should be within the input voltage range of the input.
- The PV module output DC power should not exceed 1.35 times the microinverter's output AC power. Refer to Hoymiles [Warranty Terms & Conditions](#) for details.


Model	MIT-4000-8T	MIT-4500-8T	MIT-5000-8T	MIT-4000-8TL	MIT-4500-8TL	MIT-5000-8TL
Input Data (DC)						
Commonly used module power (W)	400 to 650+	560 to 700+	600 to 750+	500 to 650+	560 to 700+	600 to 750+
Maximum input voltage (V)	140	140	140	120	120	120
Minimum/Maximum start-up voltage (V)	32/136	32/136	32/136	32/120	32/120	32/120
MPPT voltage range (V)	12-136	12-136	12-136	12-120	12-120	12-120
Peak power MPPT voltage range (V)	58-136	59-136	66-136	58-120	59-120	66-120
Maximum input current (A)	4 × 20					
Maximum input short circuit current (A)	4 × 25					
Number of MPPTs	4					
Number of inputs per MPPT	1					
Output Data (AC)						
Grid type	Three Phase					
Rated output power (VA)	4000	4500	5000	4000	4500	5000
Rated output current (A)	3 × 5.79	3 × 6.52	3 × 7.25	3 × 5.79	3 × 6.52	3 × 7.25
Nominal output voltage (V)	230/400, 3L+N+PE					
Nominal frequency (Hz)*	50/60					
Nominal range (Hz)*	45-55 / 55-65					
Adjustable power factor (@rated power)	>0.99 default 0.8 leading ... 0.8 lagging					
Total harmonic distortion (@rated power)	< 3%					
Maximum units per 2.5 mm² branch**	3	3	3	3	3	3
Maximum units per 4 mm² branch**	5	4	4	5	4	4
Maximum units per 6 mm² branch**	6	5	5	6	5	5
Efficiency						
Peak efficiency	97.40%	97.40%	97.40%	97.00%	97.00%	97.00%
EU weighted efficiency	96.10%	96.30%	96.40%	95.70%	95.90%	96.10%
Nominal MPPT efficiency	99.80%					
Night power consumption (mW)	< 50					
Mechanical Data						
Ambient temperature range (°C)	-40 to +65					
Storage temperature range (°C)	-40 to +85					

Dimensions (W × H × D [mm])	395 × 308 × 60
Weight (kg)	9
Enclosure rating	Outdoor-IP67
Cooling	Natural convection-No fans
<b>Features</b>	
Communication	Sub-1G
Topology	Transformerless
Monitoring	S-Miles Cloud (Hoymiles Monitoring Platform)
Compliance	EN 50549-1: 2019, EN 50549-10:2022 IEC/EN 62109-1/-2, IEC/EN 61000-6-1/-2/-3/-4, IEC/EN 61000-3-2/-3, UL 3741

\* : The parameter may vary depending on local requirements.


\*\* : Refer to local requirements for exact number of microinverters per branch.

## 9 Installation Map



**Hoymiles Microinverter Installation Map**

AP040228 V1.4

Please Make N for North				Panel type: _____ Azimuth: _____ Tilt: _____ Sheet _____ of _____										Customer Information: _____						DTU Serial Number: _____					
COLUMN	ROW	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16								
A																									
B																									
C																									
D																									

↑ To sheet \_\_\_\_\_

↓ To sheet \_\_\_\_\_

## 10 Appendix: WIRING DIAGRAM

### 230 VAC/400 VAC THREE PHASE

