Open Energy for All

Data Transfer Unit

USER MANUAL

DTU-Pro-S

Legal Notice

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

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

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Revision History

Version	Description
V202506	• Added *1.4 Regulatory Compliance Statement* • Updated *2 Hoymiles Microinverter System* • Updated *4 Installation* • Updated operation instructions of S-Miles Cloud and related screenshots • Updated *8 Technical Data*
V202404	Updated *7.2 Field Commissioning and Data Viewing*
V202202	This issue marks the initial official release.

CONTENTS

1 Important Safety Information

1.1 Read This First

This manual includes instructions for installing and maintaining the Hoymiles Data Transfer Unit DTU-Pro-S. DTU-Pro-S is compatible with Hoymiles HMS series, HMT series, MiS series, and MiT series microinverters.

1.2 Audience

This manual is intended for use by professional installation and maintenance personnel only.

1.3 Safety Instructions

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

⚠ DANGER

Do not use Hoymiles products in a way that is not suggested by the manufacturer. Otherwise, it can cause death, personal injuries, or equipment damage.

⚠ CAUTION

- Only qualified personnel can install or replace the DTU. Hoymiles is not liable for damages resulting from improper installation and use.
- Install the DTU away from dust, liquid, and corrosive gases.
- Do not attempt to repair the DTU. Contact your installer or distributor for maintenance. Unauthorized disassembly of the DTU is strictly forbidden, and voids the warranty.
- Read all instructions and warnings in the technical specifications carefully.

1.4 Regulatory Compliance Statement

Hoymiles confirms that the product described in this guide meets the essential requirements and relevant provisions of the EU directives.

Radio Technology	Radio Spectrum	Maximum Transmission Power
2.4G Wi-Fi	2.4-2.48 GHz	≤ 20 dBm
Sub-1G	868 MHz / 915 MHz	≤ 16 dBm

These technical parameters apply only to EU countries.

EU Directive Compliance

This product complies with the following EU directives and can be used without restrictions in the European Union:

- Directive 2014/53/EU (RED) and 2009/125/EC: Relating to the provision of electrical equipment within certain voltage limits on the market (Low Voltage Directive).
- Directive 2011/65/EU and 2015/863/EU (RoHS): Restricting the use of certain hazardous substances in electrical and electronic equipment.

The full text of the EU Declaration of Conformity (DoC) is available at: *www.hoymiles.com*.

2 Hoymiles Microinverter System

A typical Hoymiles microinverter system is composed of Hoymiles microinverters, the DTU, and Hoymiles monitoring platform S-Miles Cloud.

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.

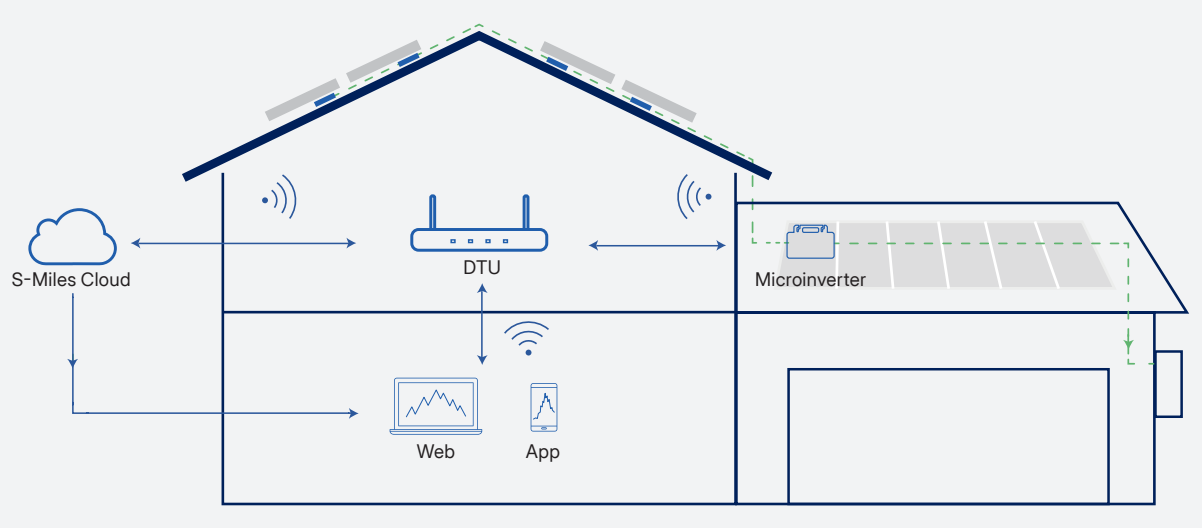
Microinverters use a sophisticated MPPT algorithm to optimize the performance of each PV module. This ensures that the overall performance of PV modules in the row will not be dragged down if one PV module underperforms.

DTU

The DTU is a key component in the Hoymiles microinverter system. It works as the communication gateway between Hoymiles microinverters and S-Miles Cloud. It communicates with the microinverters in a wireless way, and collects the operation data of the system. Meanwhile, it communicates with S-Miles Cloud via Ethernet, Wi-Fi, or 4G, uploading the system operation data for remote monitoring and O&M.

S-Miles Cloud

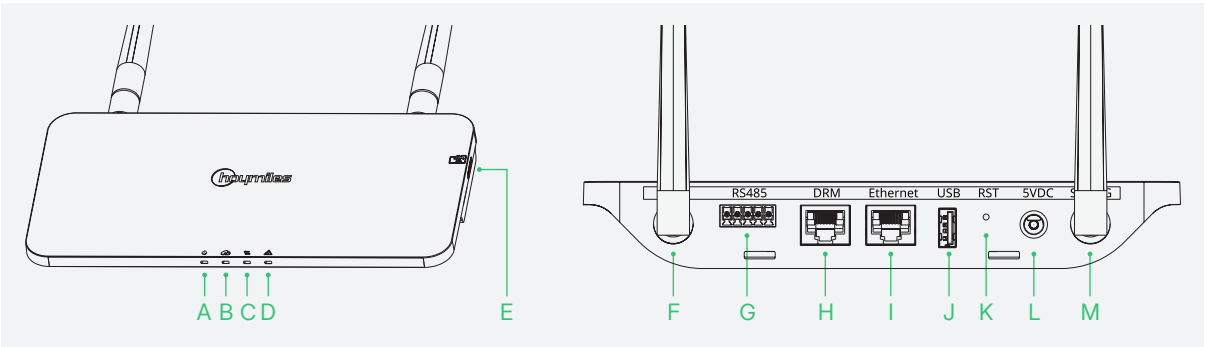
S-Miles Cloud is a comprehensive monitoring and analysis platform. It monitors the microinverter system from afar, providing real-time insights into the whole system's performance and enabling you to keep track of your microinverter system's status. It also enables module-level monitoring and remote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



3 Product Information

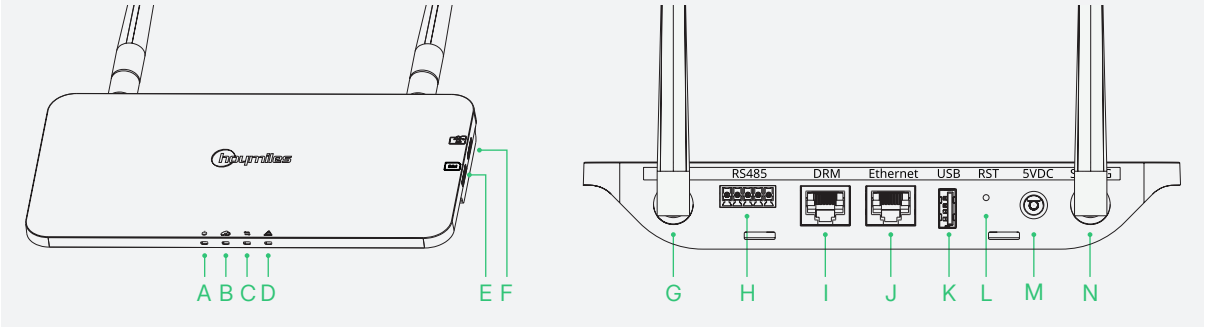
3.1 Interface Layout

Wi-Fi Version



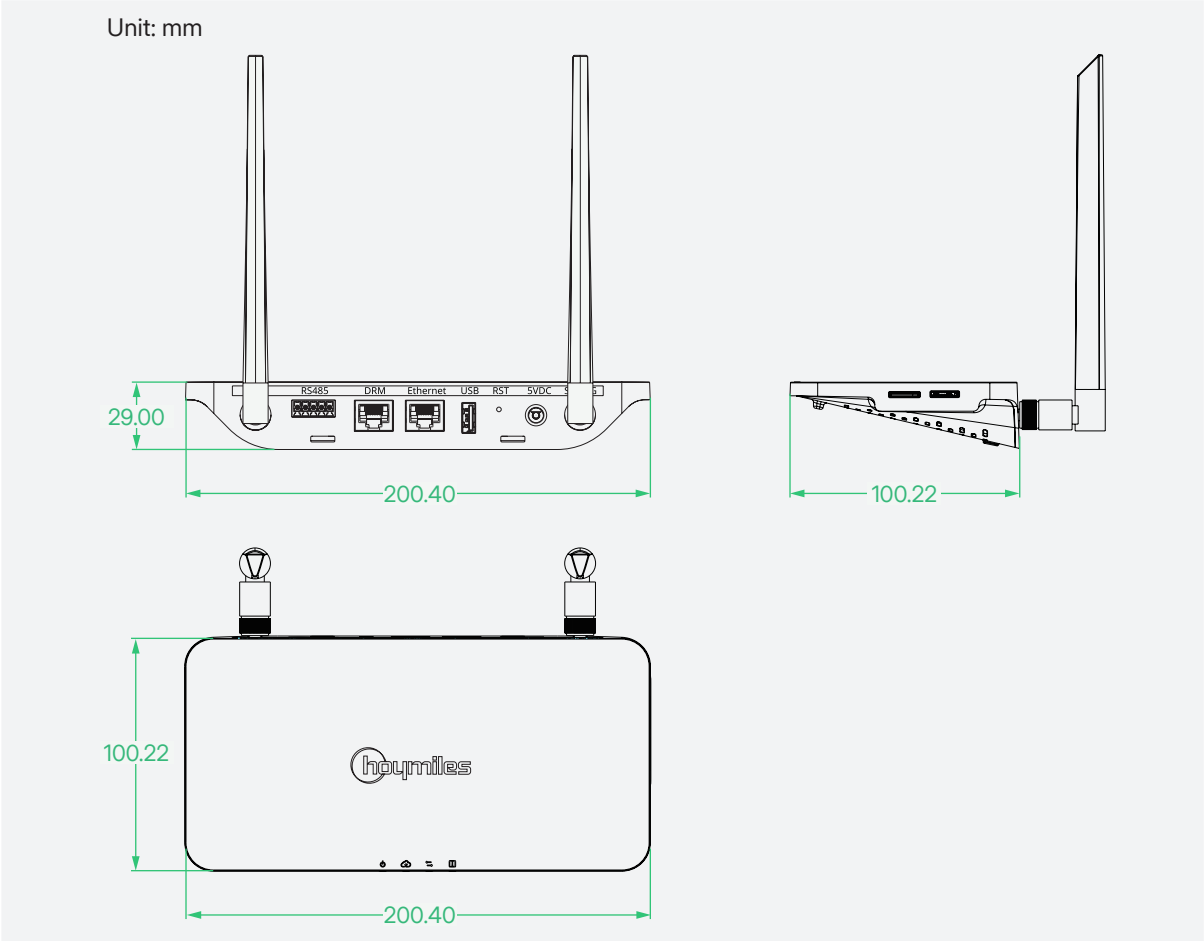
No.	Description	No.	Description
A	DTU Power Indicator	H	DRM Port
B	DTU Communication Indicator (With Server)	I	Ethernet Port
C	DTU Communication Indicator (With Microinverter)	J	USB Port
D	DTU Alarm Indicator	K	Reset Hole
E	SD Card Slot	L	Power Port
F	Wi-Fi Antenna Port (2.4G)	M	Sub-1G Antenna Port
G	RS485 Port		

4G Version



No.	Description	No.	Description
A	DTU Power Indicator	H	RS485 Port
B	DTU Communication Indicator (With Server)	I	DRM Port
C	DTU Communication Indicator (With Microinverter)	J	Ethernet Port
D	DTU Alarm Indicator	K	USB Port
E	SIM Card Slot	L	Reset Hole
F	SD Card Slot	M	Power Port
G	4G Antenna Port	N	Sub-1G Antenna Port

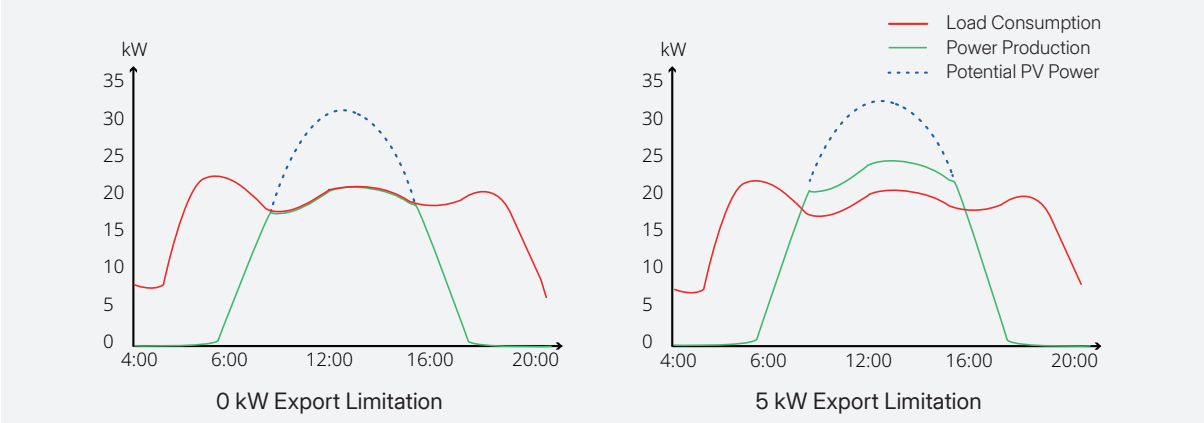
3.2 Dimensions



3.3 Export Management Function (RS485 Port)

The Smart Power Export Management of the DTU can intelligently control the output power of the PV system, maximizing power generation without violating grid export regulations.

The DTU, meter, and CTs (optional) are indispensable for Hoymiles Export Management solution. To accurately measure the PV output or load consumption, the meter should be installed at the grid or load side. Based on the data collected by the meter, the DTU will adjust power production to ensure the export power stays within the set limit.



3.4 Demand Response Modes (DRM Port)

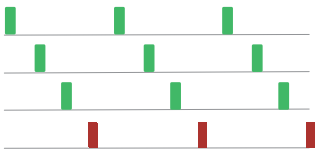
The DRM port is provided to support demand response modes shown below by connecting the external control device with a standard RJ-45 connector. The DTU-Pro-S supports DRM0/5/6/7/8 if used with Hoymiles microinverters.

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

3.5 LED Indicators

The LED indicators indicate the system status.

Indicator	Color	Indication
⏻		DTU power on
☁		Network communication
⇄		Microinverter communication
⚠		Fault state

Indicator	Status	Indication
All		Firmware upgrading
		Starting up
⏻		DTU powered on
		DTU powered off

		DTU communicating with S-Miles Cloud
		Internet disconnected
		Internet connected, server disconnected
		App connected
		DTU communicating with microinverters
		No microinverter SN (Create a plant on S-Miles Cloud.)
		Incomplete microinverter SNs
		Normal
		DTU alarm
		Microinverter alarm
		Meter alarm

4 Installation

4.1 Preparation

Package Contents

Check the package for the following items.

DTU-Pro-S (two antennas)	Adapter	Power Cable	Bracket	5-pin Terminal Block	Installation Map

NOTE

- The bracket is used for wall mounting, which requires personal protective equipment, a drilling tool, a screwdriver, and a minimum of two M4 screws all prepared by the installer.
- The 5-pin terminal block is used to connect the DTU to a meter in certain PV plants.

Connection Method

Choose an internet connection method and prepare the following items accordingly.

- **Ethernet connection:** Prepare an Ethernet cable and a router.
- **Wi-Fi connection:** Prepare a router.
- **4G connection:** Prepare a SIM card.

NOTE

- The router's Wi-Fi name can only contain English letters and numerals.
- Wi-Fi connection is supported by the Wi-Fi version DTU only, and 4G connection by 4G version DTU only.
- For the Wi-Fi version DTU, the router should support 2.4 GHz Wi-Fi.

System Capacity

The DTU-Pro-S is capable of monitoring up to 99 PV modules. However, the number may be reduced if the communication between the DTU and the microinverters is affected by installation conditions.

The maximum monitoring quantity is only possible when

- The installation site is in open space.
- Installation conditions meet the requirements described in both the DTU and the microinverter manuals.
- The DTU and the microinverters are properly placed apart as required.

Installation Location

Decide the installation location following the requirements. The DTU can be installed on a table or on the wall.

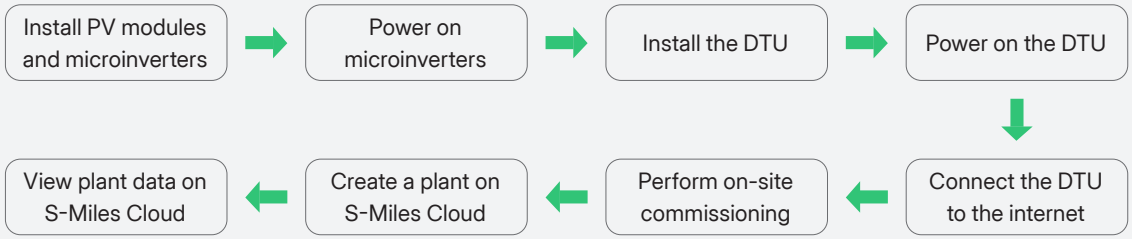
- Install the DTU on the top floor to increase signal strength.
- Install the DTU away from dust, liquid, and corrosive gases.
- Install the DTU near the center of the PV array.
- Install the DTU at least 0.5 m above the ground and more than 0.8 m away from corners.
- Do not install the DTU directly above metal or concrete, as this may cause signal interference.

Monitoring Application

Scan the QR code below to download Hoymiles S-Miles Installer application.

Installation Procedure

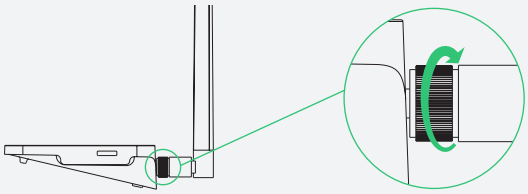
The chart below illustrates a typical installation procedure of Hoymiles microinverter system. You need to complete these steps on site except the last two.



4.2 Installation Steps

Step 1 Check the antennas

Check whether the two antennas are securely attached. If not, screw them clockwise tightly.

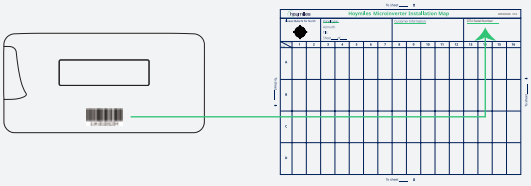


Step 2 Complete the installation map

A) Peel off the removable serial number (SN) label from the bottom of the DTU.

B) Affix the label to the installation map.

C) Complete the installation map. Keep it properly for your records.



Step 3 Install the DTU

Option 1: Place the DTU on a table.

A) Place the DTU on a table.

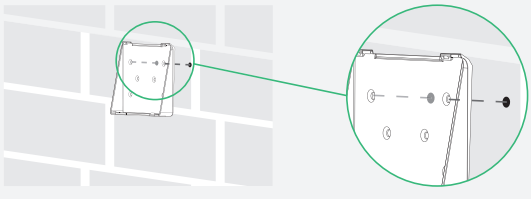
B) Adjust the antennas so that they stay vertical to the table.

Option 2: Mount the DTU on the wall.

NOTE

- We recommend *on-site commissioning* to check the DTU communication quality before wall-mounting.
- Wear proper PPE when drilling.

A) Fix the bracket on the wall using at least two screws (one on each side).

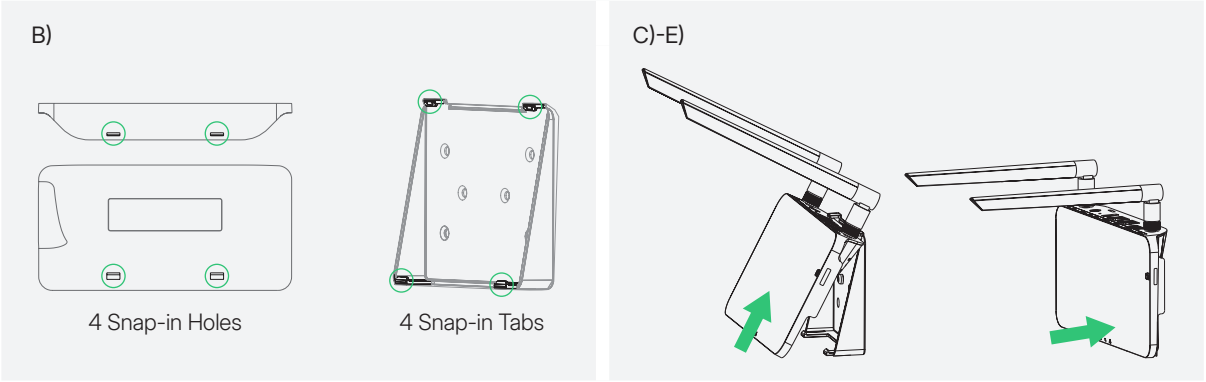


B) Align the snap-in holes on the antenna side of the DTU with the bracket's upper snap-in tabs.

C) Push the DTU towards the upper snap-in tabs until you hear a click.

D) Press the lower part of the DTU against the bracket until it clicks into place.

E) Adjust the antennas so that they stay vertical to the wall.

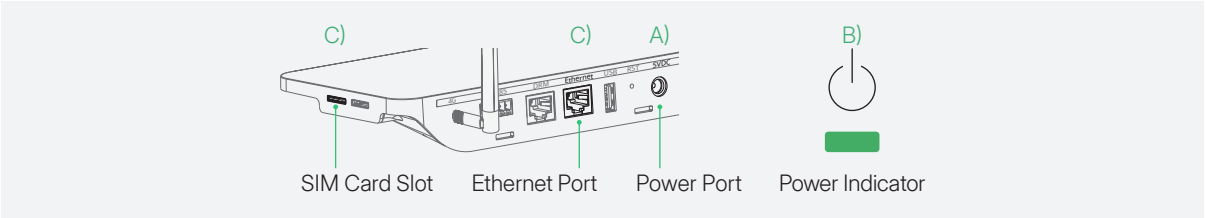


Step 4 Power on the DTU

A) Connect the adapter and the DTU using the power cable.

B) Plug in the DTU. The power indicator will be solid green.

C) If you choose Ethernet connection, connect the router and the DTU using the Ethernet cable.
If you choose 4G connection, insert the SIM card into the DTU until you hear a click.



Step 5 Establish an internet connection

NOTE

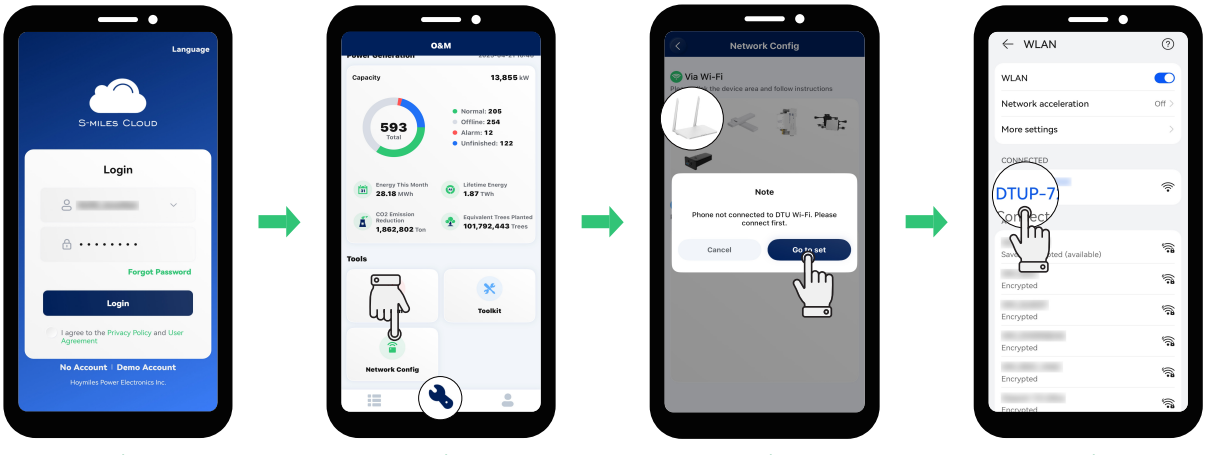
- The screenshots provided in this manual are for reference only. The actual screens may vary.
- The DTU's network name is DTUP-last 8 digits of the SN, and is password-free by default.

A) Open and log in to S-Miles Installer using your credentials.

B) Tap > **Network Config** .

C) Tap the picture of the DTU, and then tap **Go to set**.

D) Select the DTU's network.



E) Return to the App, and set the new DTU AP password.

F) Wait for about 30s, and connect to the DTU's network again using the new password.

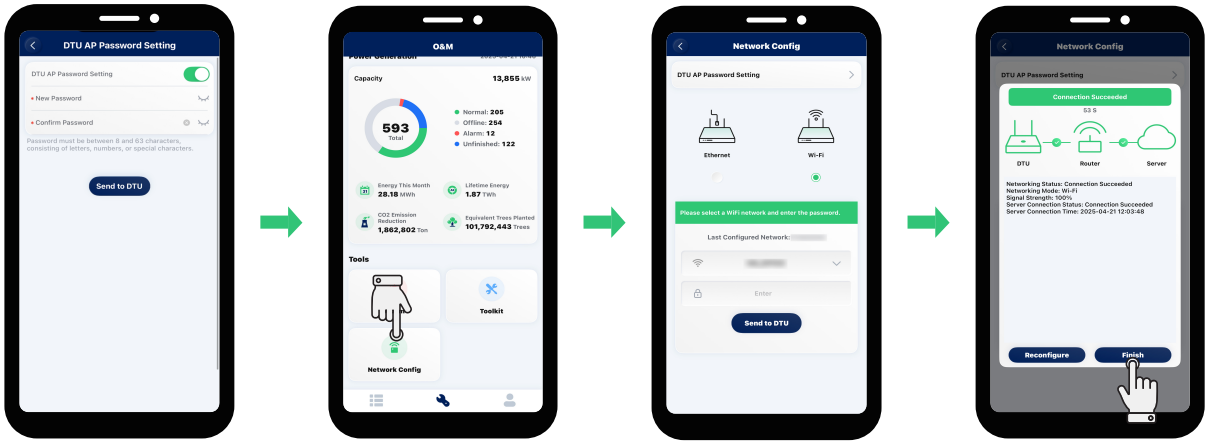
G) Return to the App, and tap **Network Config** .

H) Select a connection method, and tap **Send to DTU**.
If you select **Wi-Fi**, choose the router's Wi-Fi name and enter the password.

NOTE

For a dual-band router, select the 2.4 GHz network (e.g., network named "RouterName-2.4G").

I) Wait for about 60s. When the connection succeeds, tap **Finish**.



E) G) H) I)

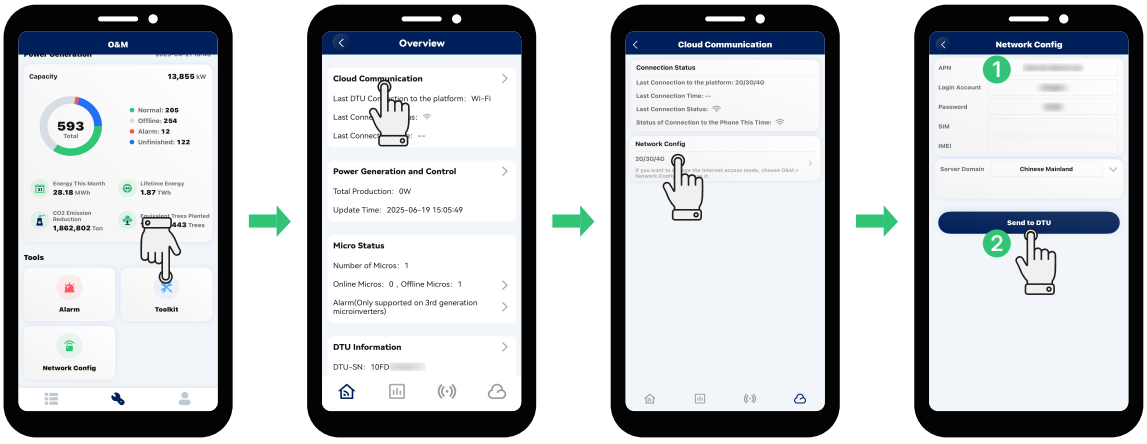
NOTE

If the connection fails, edit your APN settings following the procedure. Please obtain your APN from the telecom carrier.

A) Tap **Toolkit** > **Cloud Communication** > **Network Config**.

B) Enter the APN and other information.

C) Tap **Send to DTU**.



A)-1 A)-2 A)-3 B)-C)

4.3 On-site Commissioning (Optional)

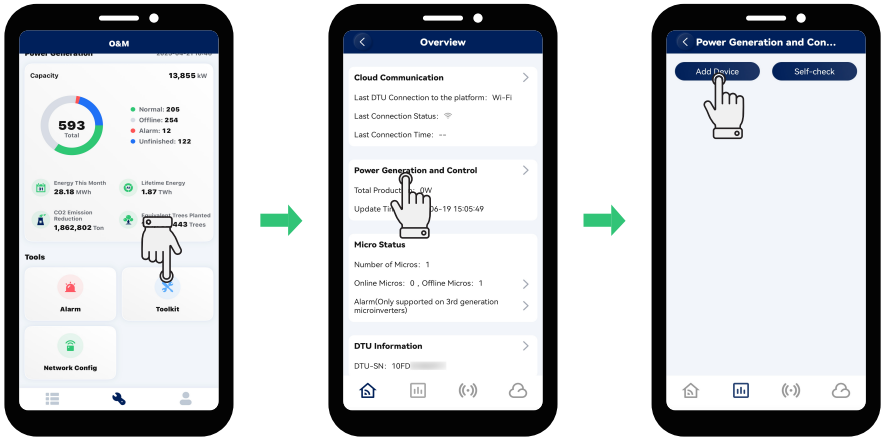
We recommend you check the DTU communication quality on site using Toolkit in the S-Miles Installer App. The procedure is as follows.

Step 1 Add the microinverters

NOTE

The microinverters added here are for on-site commissioning only, and the data will not be uploaded to the server. The power plant will not replace the one created on S-Miles Cloud.

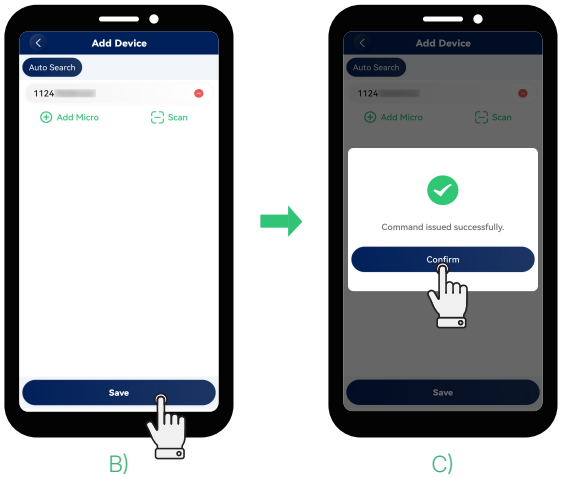
A) Tap **Toolkit** > **Power Generation and Control** > **Add Device**.



A)-1 A)-2 A)-3

B) Add the microinverter SNs.

C) Check that all the added microinverter SNs are correct. Tap ⊖ if you want to remove a microinverter. Then tap **Save** > **Confirm**.



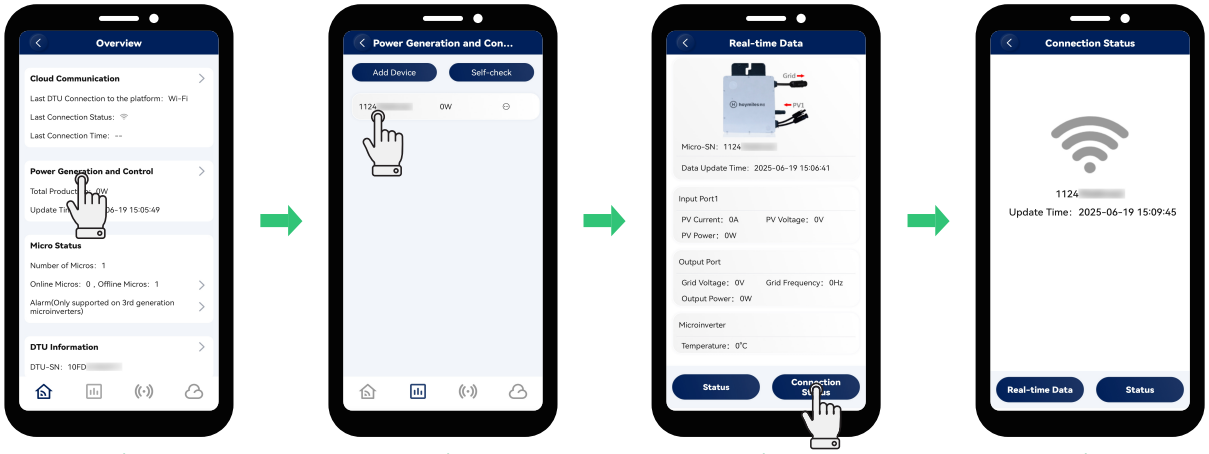
B) C)

Step 2 View the microinverter data and the connection status

A) Tap **Power Generation and Control**.

B) Tap the SN of the target microinverter. The real-time data is shown on the screen.

C) Tap **Connection Status**. The real-time connection status is shown on the screen.



A) B) C)-1 C)-2

NOTE

- If the signal strength is too weak, slightly move the DTU antennas.
- If there is no signal, ensure the microinverters are powered on, or refer to the microinverter user manual for troubleshooting.
- If you choose wall-mounting, ensure the DTU is fixed on the wall following *4.2 Installation Steps*.

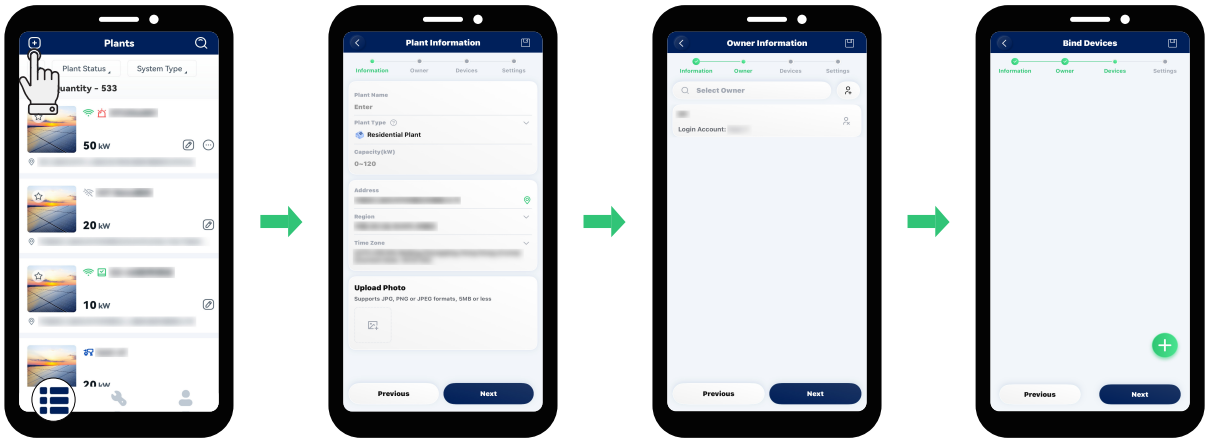
5 Setting Up Monitoring

Follow the procedure below to set up monitoring.

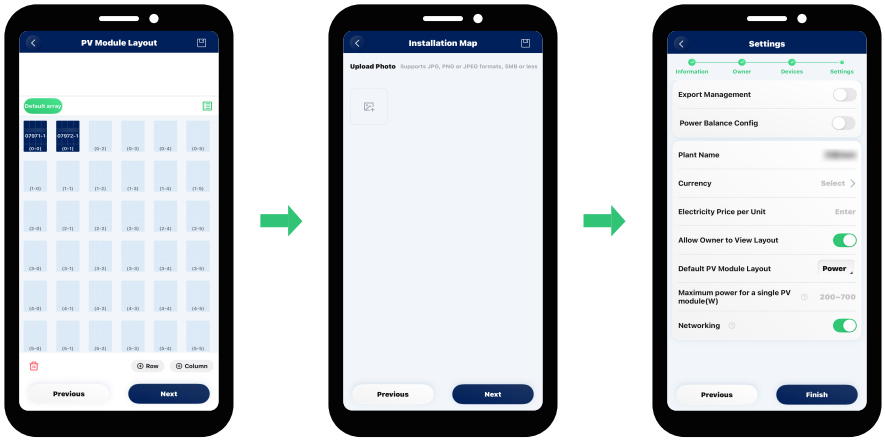
Step 1 Create your power plant

A) Tap ☰ > ⊕.

B) Follow the prompts to fill in the required information.



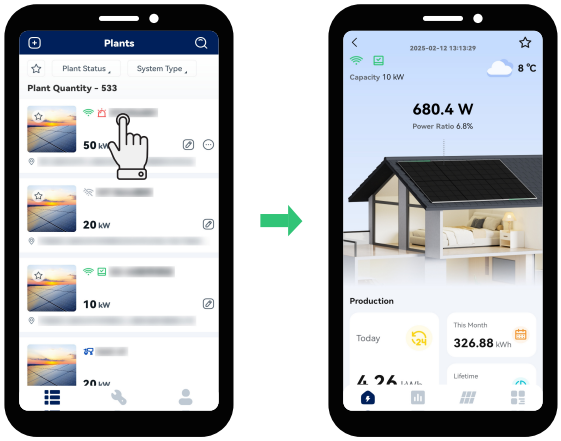
A) B)-1 B)-2 B)-3



B)-4 B)-5 B)-6

Step 2 View the plant data

Tap the plant name in the list to move to the plant homepage.



NOTE

- For more details on plant data viewing, consult *S-Miles Cloud (App) User Manual*.
- You can also set up monitoring on S-Miles Cloud Web. Consult *S-Miles Cloud (Web) User Manual* for instructions.

6 DTU Replacement

Follow the procedure below to replace the DTU.

Step 1 Replace the DTU on site

A) Remove the original DTU.

B) Record the new DTU's SN.

C) Install the DTU following instructions in *4.2 Installation Steps*.

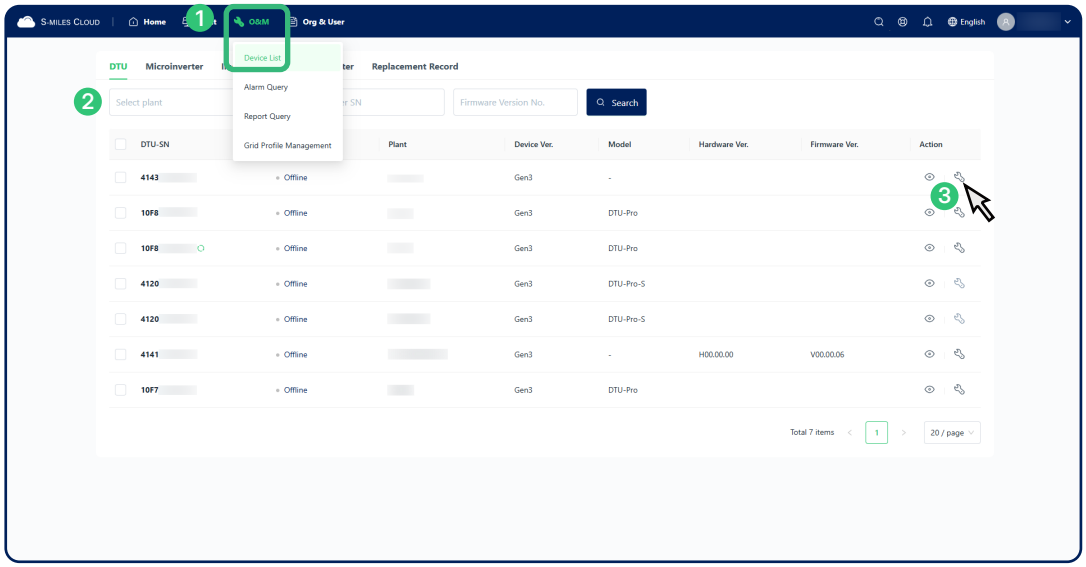
Step 2 Replace the DTU on S-Miles Cloud

A) Log in to S-Miles Cloud at *www.global.hoymiles.com*.

B) Click **O&M** > **Device List**.

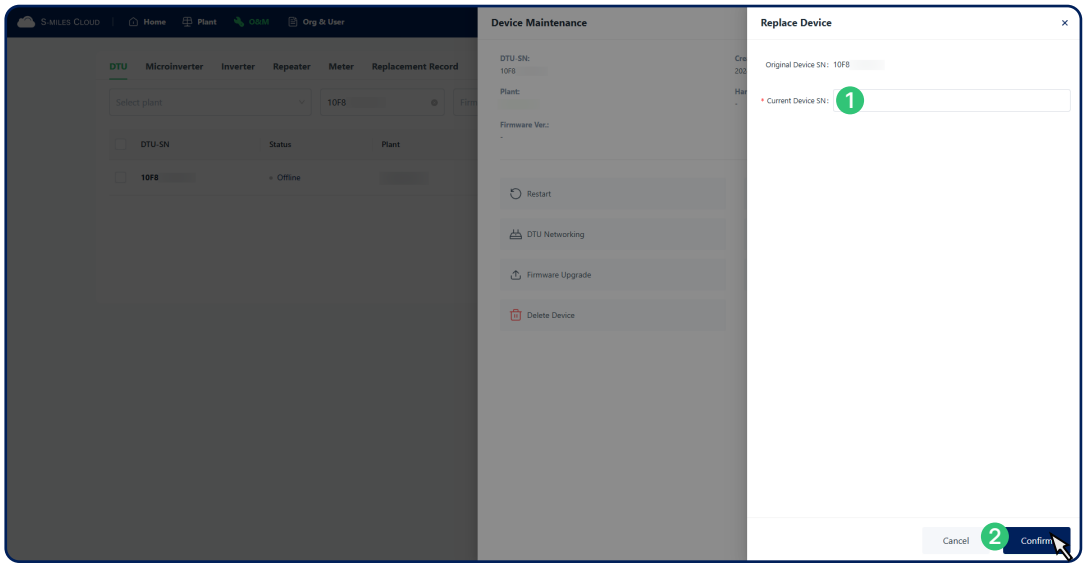
C) Select the plant which the DTU belongs to in the filter, or enter the device SN, and click **Search**.

D) Click .



E) Click **Replace Device**.

F) Enter the SN of the new DTU, and click **Confirm**.



7 Technical Data

Model	DTU-Pro-S (Wi-Fi Version)	DTU-Pro-S (4G Version)
Communication to Microinverter		
Signal	Sub-1G	
Maximum distance (open space) (m)	400	
Monitoring data limit from solar panels[1]	99	
Communication to S-Miles Cloud		
Ethernet	RJ45 × 1, 100 Mbps	
Wireless standard[2]	Wi-Fi: 802.11b/g/n	4G: TDD-LTE, FDD-LTE 3G: SCDMA 2G: GSM/GPRS
Radio band (GHz)	2.4	
Sample rate (min)	Per 5	
Communication to Peripherals		
RS485	COM × 1, 9600 bps, Modbus-RTU	
Ethernet	RJ45 × 1, Modbus-TCP	
DRM	RJ45 × 1, DRM0/5/6/7/8	
Interaction		
LED	LED Indicator × 4 – RUN, Cloud, MI, ALM	
APP	S-Miles Installer	
Power Supply (Adapter)		
Type	External adapter	
Adapter input voltage/frequency (V AC/Hz)	100 to 240 / 50 or 60	
Adapter output voltage/current (V/A)	5 / 2	
Power consumption (W)	Typ. 1.5 / Max. 3.0	Typ. 2.5 / Max. 5.0
Mechanical Data		
Ambient temperature (°C)	-20 to +55	
Dimensions (W × H × D [mm])	200 × 101 × 29 (without antennas)	
Weight (kg)	0.20	
Installation method	Wall mounting / Desktop mounting	
Environmental rating	Indoor-IP20	
Compliance		
Certificates	CE, FCC, IC, RCM, Anatel	
Microinverter Compatibility		
Microinverter model	HMS series[3], HMT series, MiT series[3], MiS Series	

**1 This depends on the installation environment. Please refer to 4 Installation for more details.*
**2 Extended antenna is recommended if the DTU is installed inside a metal box or under a metal/concrete roof.*
**3 DTU-Pro-S is compatible with: (a) HMS Series microinverters except HMS-300W/350W/400W/450W/500W-1T, HMS-600W/700W/800W/900W/1000W-2T, and HMS-1600DW/1800DW/2000DW-4T microinverters; (b) MiT Series microinverters except MIT-4000/4500/5000-8E Series microinverters.*