Open Energy for All

Data Transfer Unit

USER MANUAL

DTU-Pro
DTU-Pro-C

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1. Important Safety Information

1.1 Read This First

This manual includes important instructions for installing and maintaining the Hoymiles Data Transfer Unit (DTU-Pro/DTU-Pro-C).

DTU-Pro is the Wi-Fi Version， DTU-Pro-C is the 4G version.

1.2 Safety Instructions

Symbol	Usage
DANGER	Indicates hazardous situations that can result in deadly electric shock hazards, other serious physical injuries, or fire hazards.
WARNING	Indicates directions that must be fully understood and followed in their entirety to avoid potential safety hazards including equipment damage or personal injury.
CAUTION	Indicates that the described operation must not be carried out. The reader should stop, use caution, and fully understand the operations explained before proceeding.

- Note that only professionals may install or replace DTU.
- Do not try to repair the DTU without approval from Hoymiles. If the DTU is damaged, send the DTU back to your installer for repairing/replacement. Disassembling the DTU without approval from Hoymiles will invalidate the remaining warranty period.
- Read all instructions and warnings on the technical specifications carefully.
- Do not use Hoymiles products in a way that is not suggested by the manufacturer. Doing so may cause death or injury to persons or damage to the equipment.

1.3 User

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

1.4 Support and Contact Information

If you have technical queries concerning our products, contact your system installer or distributor. If further support is required, contact Hoymiles' support at this link.

- www.hoymiles.com
- Hoymiles Technical Service Center: service@hoymiles.com

1.5 Other Information

Product information is subject to change without notice. The user manual will be frequently updated. refer to the Hoymiles official website at www.hoymiles.com for the latest version.

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2. Hoymiles Microinverter System

2.1 Microinverter

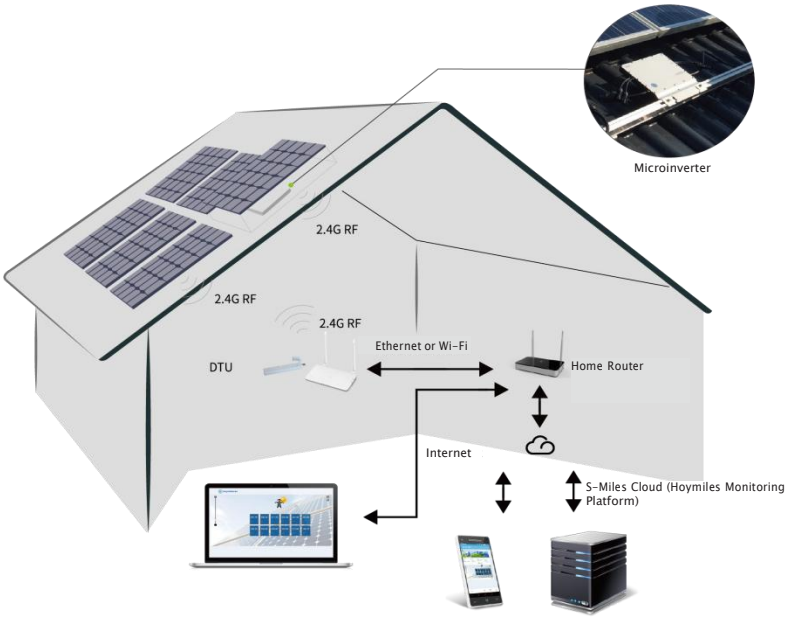
It converts the DC output of PV modules into grid-compliant AC power. It sends the output information of PV modules and the operation data of the microinverters to the DTU, which is the hardware basis of module-level monitoring. With conversion efficiency up to 96.7% and MPPT efficiency up to 99.9%, Hoymiles microinverters are among the high-quality microinverters in the world.

2.2 DTU

The DTU is a key component in the Hoymiles microinverter system. It works as the communication gateway between the Hoymiles microinverters and the S-Miles Cloud (Hoymiles Monitoring Platform). The DTU communicates wirelessly with the microinverters via 2.4 GHz Proprietary RF (Nordic), and collects the operation data of the system. Meanwhile, the DTU connects to the Internet via the router and communicates with the S-Miles Cloud (Hoymiles Monitoring Platform). The microinverter system operation data will be uploaded to the S-Miles Cloud (Hoymiles Monitoring Platform) via DTU.

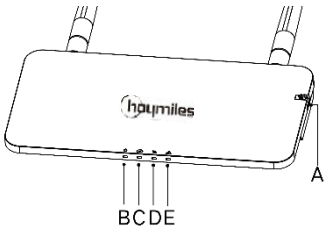
2.3 S-Miles Cloud (Hoymiles Monitoring Platform)

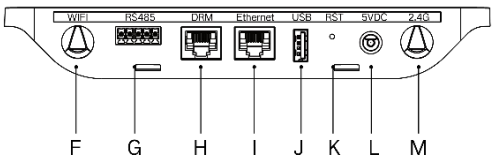
It collects the operation data and status of the microinverters in the system and provides module-level monitoring for users and maintenance staff. The following diagram shows the operation of the Hoymiles Microinverter System.



3. Interface Layout

3.1 For Wi-Fi Version





Item	Description
A	SD Card Slot
B	DTU Power Indicator
C	DTU Communication Indicator (With Server)

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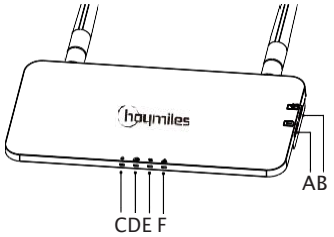
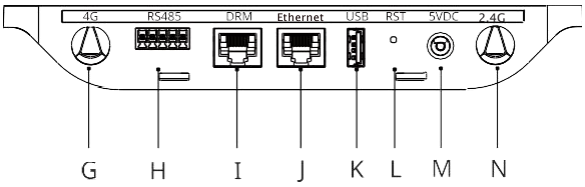
D	DTU Communication Indicator (With Microinverter)
E	DTU Alarm Indicator
F	Wi-Fi Antenna (2.4G)
G	RS485
H	DRM Port (For Australia only)
I	Ethernet Port
J	USB Port
K	Reset Bottom
L	Power Port
M	2.4G Antenna

3.2 For 4G Version





Item	Description
A	SIM Card Slot
B	SD Card Slot
C	DTU Power Indicator
D	DTU Communication Indicator (with server)
E	DTU Communication Indicator (with microinverter)
F	DTU Alarm Indicator
G	4G Antenna
H	RS485
I	DRM Port (For Australia / New Zealand only)
	Ethernet Port
K	USB Port
L	Reset Bottom
M	Power Port
N	2.4 G Antenna

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3.3 Export Management Function (RS485 port)

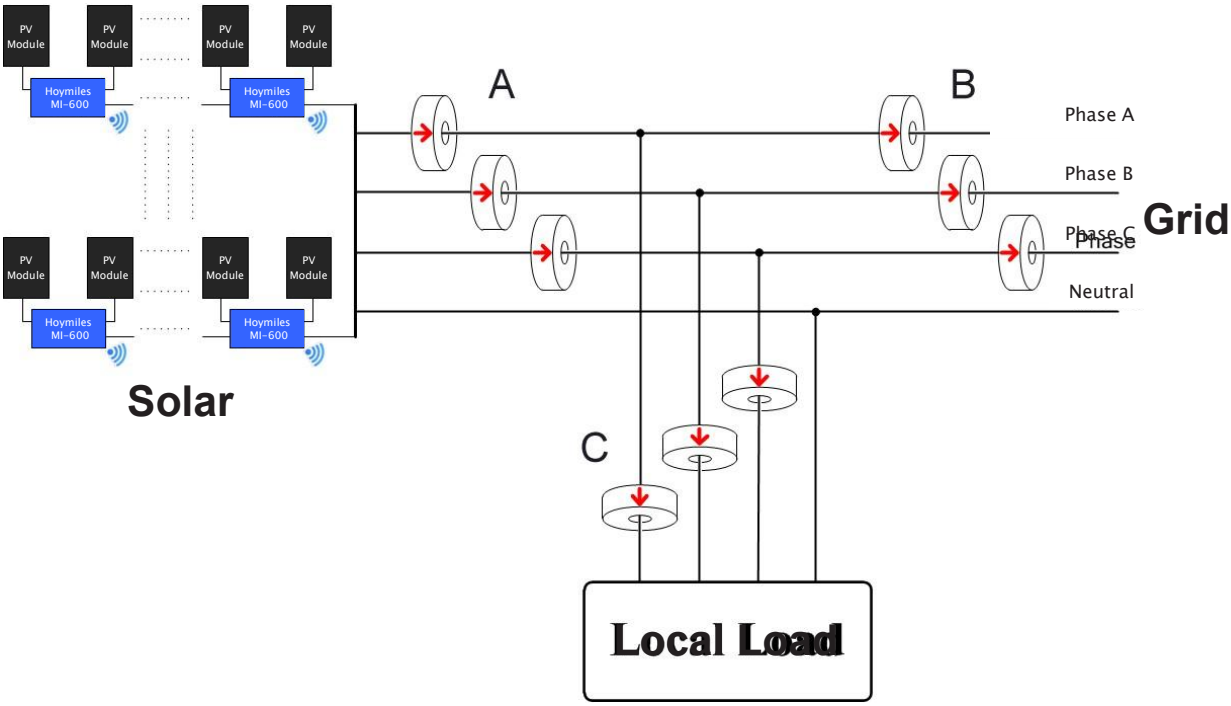
a. Devices Required.

- Hoymiles Microinverter: 4-in-1 Unit, 2-in-1 Unit and Single Unit
- DTU: DTU-Pro/DTU-Pro-C:
- Meter: Chint Meter (DDSU666)/Chint Meter (DTSU666)/CCS WattNode Meter

b. Export Control Type.

- Type 1: Zero Export: limits the export power to zero to prevent the generated power fed back to the grid.
- Type 2: Export Limit: limits the export power within a certain value.
- Type 3: Production and Consumption Monitoring: enable to measure the PV generation with high accuracy.

c. Installation Diagram.



Note: Refer to the "Hoymiles Export Management Technical Note" for more details.

3.4 Remote Active Power Control (RS485 port)

In some countries, it might be required that the generating plants should be equipped with a logic interface (input port) to cease the output of active power or limit active power to a regulated level. This logic input can be the RS485 port, Ethernet port, and so on. The DTU-Pro/DTU-Pro-C provides the RTU Modbus protocol over RS485 port for this remote active power control. For more information, refer to the "Modbus Implementation Technical Note".

3.5 DRM Port

The DRM port is provided to support several demand response modes as below by connecting the external control device with a standard RJ-45 connector. The DTU-Pro/DTU-Pro-C can support 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

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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)

3.6 Local Installation Assistant

Local Installation Assistant is a new function integrated with DTU-Pro/DTU-Pro-C. Download the Installer App (for installer/distributor use only) before use.

The DTU-Pro/DTU-Pro-C is improved over the previous generations of DTU product, and is developed with this new function that allows the installer to:

a. Complete the Wi-Fi configuration in one step.

b. See how many microinverters under this DTU are working properly (and the details for each microinverter) and how many are abnormal (and the details for each microinverter) at a glance through the plant overall inverter status indication.

c. Add connection status, which displays the signal strength between each microinverter with connected DTU, so that the installer can adjust the DTU installation location accordingly. This function simplifies DTU installation and avoids a second visit for installer due to the poor connections between DTU and certain microinverters.

Note: Refer to the “Hoymiles Local Installation Assistant Technical Note” for more details.

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4. DTU Installation

4.1 System Capacity

The DTU-Pro/DTU-Pro-C is capable of monitoring up to 99 panels. If the communication between the DTU and the microinverters suffers interference caused by installation conditions, the number of PV modules that the DTU can monitor may be reduced.

Note: Max. monitoring quantity is for open space with ideal installation conditions described in both the DTU and microinverter manuals. The distance between the microinverter and the DTU needs to be within the required range.

4.2 Basic Conditions Required

Before installing the DTU, ensure that the site meets the following requirements:

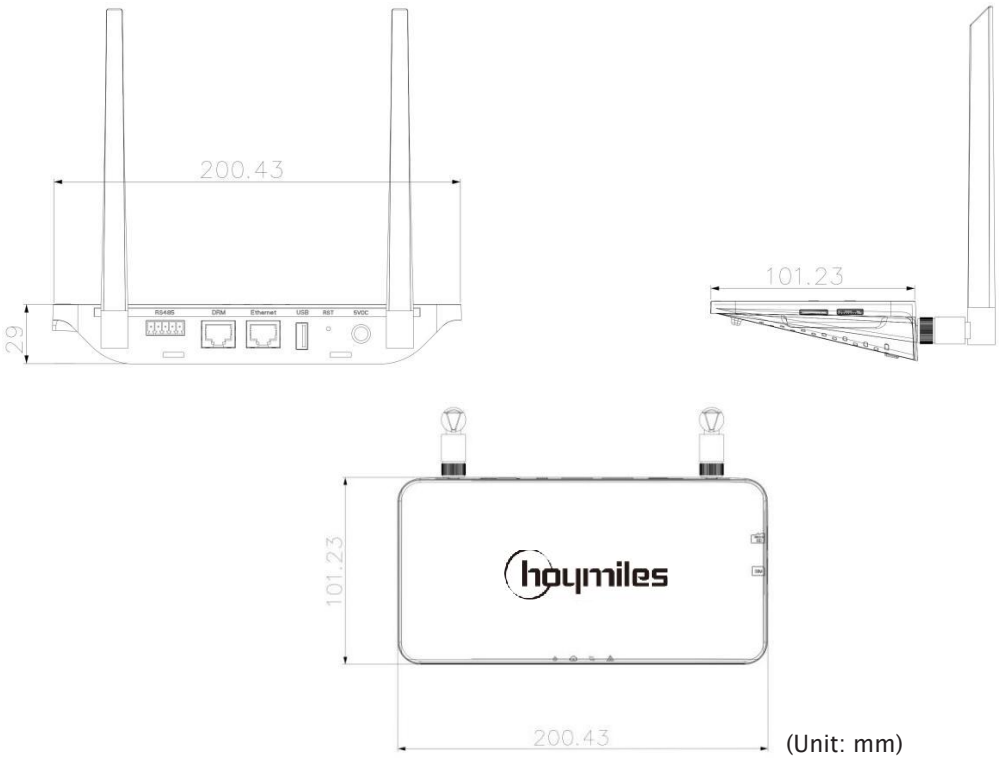
- Standard 220 VAC power outlet.
- Stable broadband Internet connection.
- Router with Ethernet port.

Environmental requirements for DTU installation:

- Away from dust, liquid, acids, or corrosive gas.
- The temperature should be between -20°C and 55°C.

If you plan to install the DTU on the wall, prepare two #8 (4.166 mm diameter) screws and a screwdriver in advance.

4.3 Dimensions



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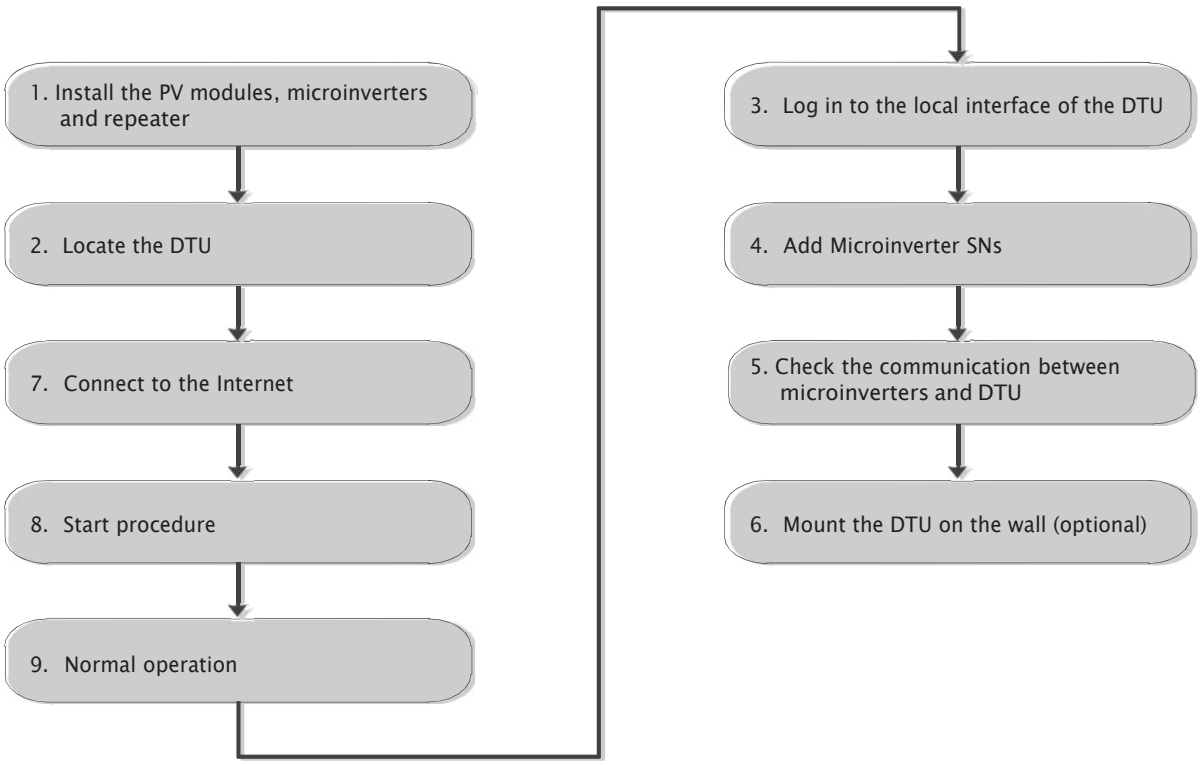
4.4 System Installation Sequence



4.5 Preparation

A. Download the Hoymiles Installer App.

B. Check the box for following items:

- Hoymiles DTU-Pro/DTU-Pro-C
- Two Antennas
- Adapter
- Bracket
- 5-Pin Plug

C. Choose the way DTU-Pro/DTU-Pro-C connects to the Internet:

Use Wi-Fi or Ethernet. Prepare for the following items, if needed:

- Ethernet Cable (if Ethernet option is selected).
- Hoymiles Installer App.

4.6 Install the DTU

Step 1: Install the antennas.

Take the two 2.4G antennas out of the box, and screw the antennas into the Wi-Fi port and 2.4G port.

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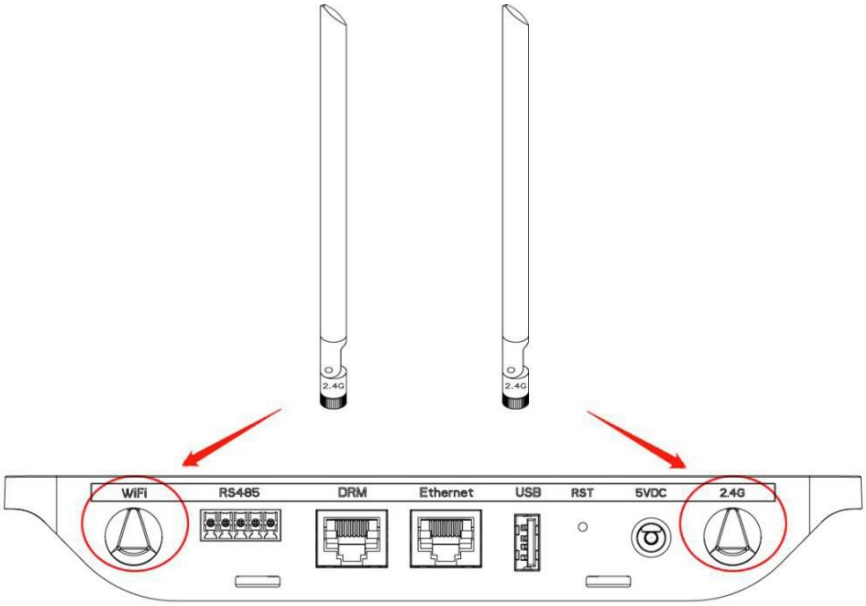


Note: If the DTU installation location is inside a metal box or under a metal/concrete roof, an extended 2.4G cable or 2.4G suction antenna is suggested, which can be purchased from Hoymiles or a local electrical store (Contact Hoymiles Technical Service Center for the detailed type information of the cable or antenna at support@hoymiles.com).

Step 2: Choose an installation location.

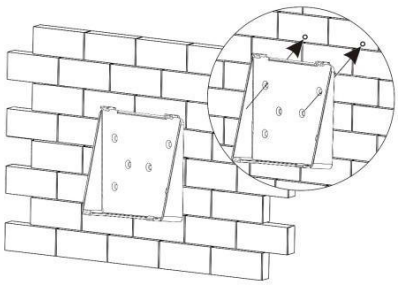
- Install on the top floor to increase signal strength.
- Install near the center of the PV array.
- Install at least 0.5 m above the ground and more than 0.8 m away from corners.

Note: Please do not install the DTU directly above metal or concrete to prevent signal interference.

Step 3: Choose the installation method.

Option 1: Mount the DTU on the wall.

- Screw the bracket on the wall, please use at least two screw holes (one on each side) to affix the bracket (M4 screws need to be prepared by installer).



- Match the bracket's upper buckle with the DTU-Pro/DTU-Pro-C.

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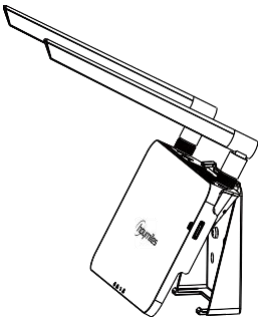
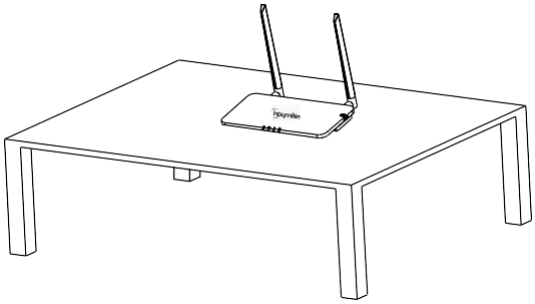
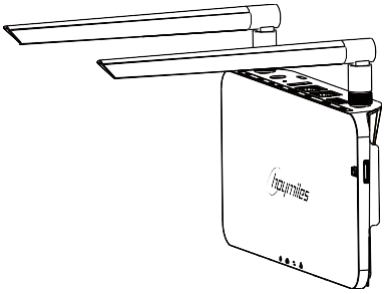


- Match the bracket's lower buckle by gently pressing the lower side of the DTU-Pro/DTU-Pro-C until you hear a clicking sound. Please make sure the antennas are perpendicular to the wall.



Option 2: Place the DTU on the table.

- If you place the DTU on the table, please make sure the antennas are perpendicular to the table.

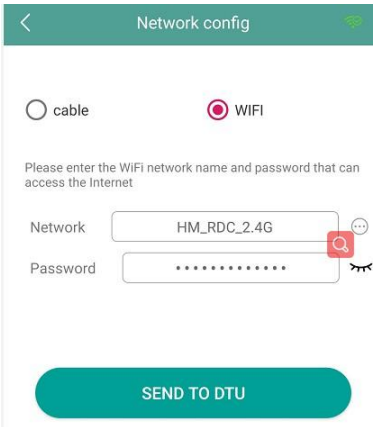


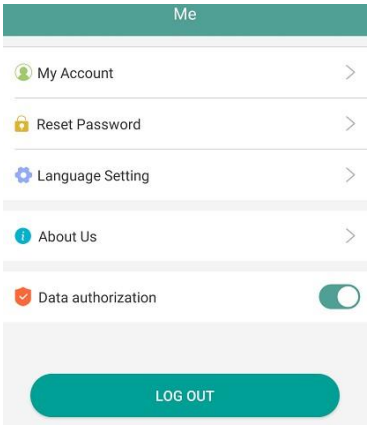
a. Plug in the power adapter to power the DTU.

b. Set up with Internet.

✓ For Wi-Fi

Use the smartphone/tablet to open the Installer App and login. Locate "Me" on the bottom of the page and select "Network Config". and then complete the Wi-Fi configuration.





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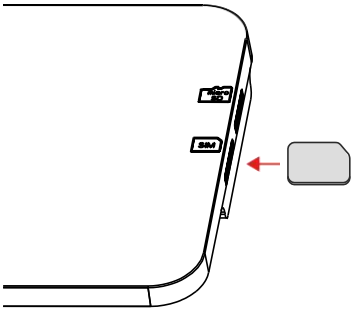
✓ For4G

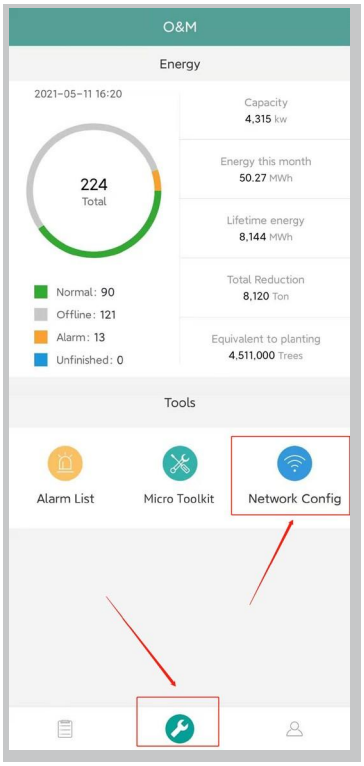
Use the smartphone/tablet to open the Installer App and login. Locate “Me” on the bottom of the page and select “Network Config”. and then complete the Wi-Fi configuration.

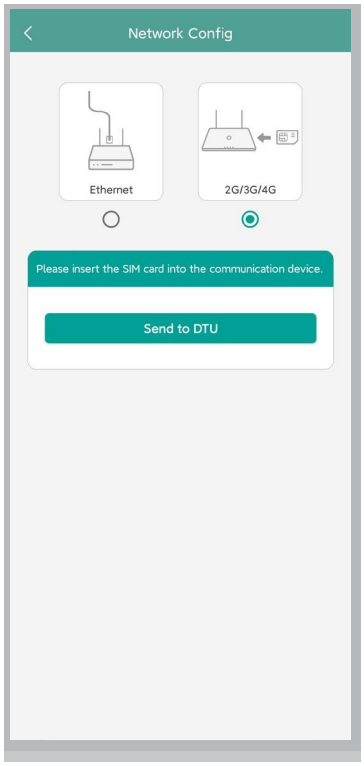
Insert the SIM Card into the SIM Card slot on the side of DTU until it clicks.



Following the successful connection between your app and the DTU, you can click “Network Config” again and enter the Network Config page.

Select “2G/3G/4G”. Click “Send to DTU”.





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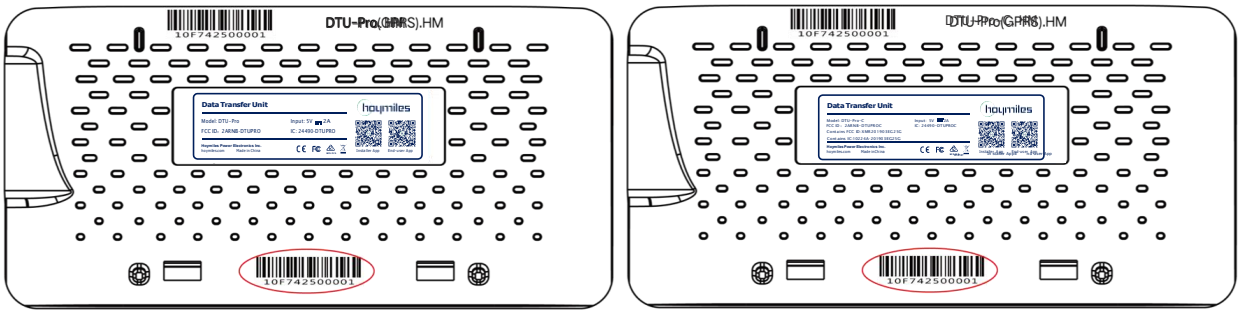
5. Complete Installation Map

Complete the installation map.

A) Peel the serial number label (as circled below) from the DTU and place it on the installation map.



B) Complete the system information of the installation map as shown below.

To sheet _____

hoymiles **Hoymiles Microinverter Installation Map** AP040228 V1.3

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 _____ ➡

To sheet _____

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6. Site Creation on S-Miles Cloud (Hoymiles Monitoring Platform)

A. Install the Hoymiles Installer App by searching “Hoymiles” at App Store (iOS) or Google Play (Android).

B. Open the app and log in with your installer account name and password. If you are a new installer with Hoymiles, apply for an installer account from your distributor in advance.

C. Add Plant, select the “Plant” tab on the bottom, then select “⊕” on the top right side of the page.

D. Select “Quick” for a single DTU and “Professional” for multiple DTUs.

E. Fill in the plant details accordingly, and press “Next” after this is complete.

F. Press “Add DTU SN”, scan the DTU SN (or you can manually input the SN) and press “Next” after this is complete.

G. Press “Start pairing” and choose the angle and tilt based on the installation site.

H. Scan the Microinverter SN (or you can manually input the SN) and check the box after completing each SN input. Press “Finish” once all Microinverter SNs have been added.

I. Disable the Scan function on the top right side and design the layout based on the installation site. Check the box on the top right side, and then select “Next” after completing the design.

J. Upload a picture of the site and select “Finish” to complete the site creation.

K. The new site will appear on the plant list in the installer account.

L. Press the “Networking” button after the plant is created.

M. Wait about 30 minutes, after which the plant will be displayed as online, and all the Microinverter SNs will be found.

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7. Customer Login

a. Download the End User App. Search “Hoymiles” at App Store (iOS) or Google Play (Android).

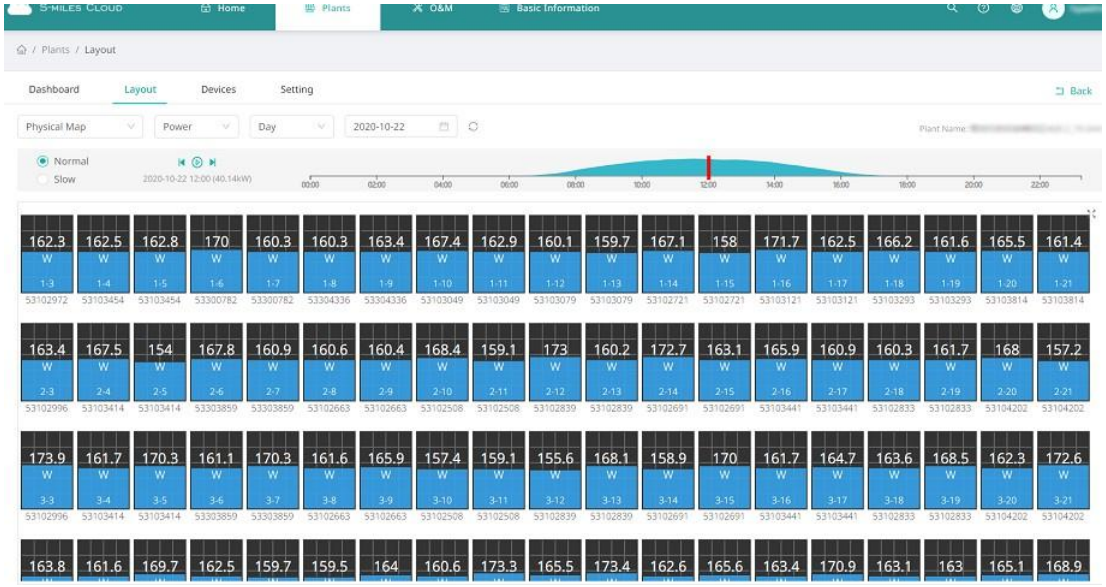
b. Log in with the password and username that have been set up by installer in the previous step (Section 6 Step B), and press “Login”.

c. Customers will be able to view all details once the data starts to upload. Normally it will take around 30 minutes for the first data to come through.

d. Customers can also view the microinverter generating details by accessing the S-Miles Cloud (Hoymiles Monitoring Platform) website at https://world.hoymiles.com.

8. Browse the Web-Based Plant

Log in to your account and browse the web-based plant.



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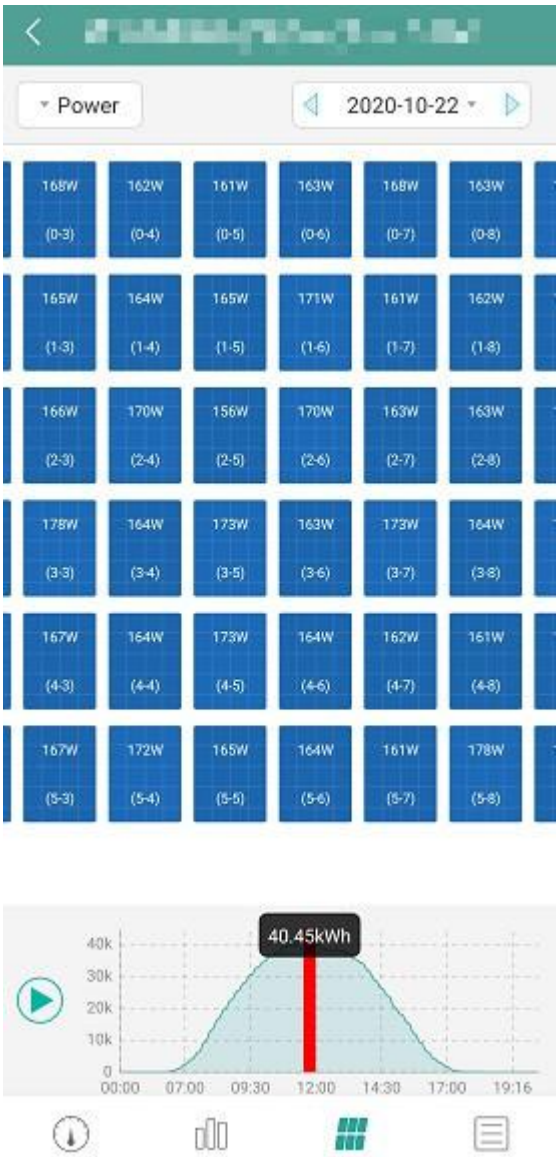
9. View Phone App

Download mobile phone app and view plant information.



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10. LED Indicators

The system status can be viewed on the Hoymiles local app or via the LED indicators.

LED Mark	LED Color	Explanation
⏻		DTU power on or power off
☁		Network communication
⇄		Microinverter communication
⚠		Fault state

LED States

LED Indicator	Status	Description
All		Firmware upgrading
		Starting up
⏻		DTU power on
		DTU power off
☁		DTU is communicating with the S-Miles Cloud (Hoymiles Monitoring Platform)
		Internet disconnected
		Internet connected, server disconnected
		Local app connected
⇄		Microinverters are communicating
		Microinverter SNs incomplete
		No Microinverter SN (perform networking)
⚠		Normal
		DTU alarm occurred
		Microinverter alarm occurred
		Meter alarm occurred

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11. Technical Data

Model	DTU-Pro (Wi-Fi Version)	DTU-Pro-C (4G Version)
Communication to Microinverter		
Signal	2.4GHz Proprietary RF (Nordic)	
Maximum distance (open space)	200 m	
Monitoring data limit from solar panels	99[1]	
Communication to S-Miles Cloud		
Ethernet	RJ45 × 1, 100Mbps	
Wireless[2]	Wi-Fi: 802.11b/g/n	4G: TDD-LTE, FDD-LTE 3G: SCDMA 2G: GSM/GPRS
Sample rate	Per 15 minutes	
Communication to Peripherals		
RS485	COM × 1, 9600bps, Modbus-RTU	
Ethernet	RJ45 × 1, Modbus-TCP	
DRM (For AU/NZ only)	RJ45 × 1, DRM0/5/6/7/8	
Interaction		
LED	LED Indicator × 4 – RUN, Cloud, MI, ALM	
APP	S-Miles Toolkit	
Power Supply (Adapter)		
Type	External adapter	
Adapter input voltage/frequency	100 to 240 V AC / 50 or 60 Hz	
Adapter output voltage/current	5V/2A	
Power consumption	Typ. 1.5W / Max. 3.0W	Typ. 2.5W / Max. 5.0W
Mechanical Data		
Ambient temperature (℃)	-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	HM series, MI series	

*1 This depends on the installation environment. Please refer to user manual for more details.
*2 Extended antenna is recommended if the DTU is installed inside a metal box or under a metal/concrete roof.

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FCC Caution:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. 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, the user is 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 receiver.
- Connect the equipment into 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.

This device complies with FCC radiation exposure limits set forth for an uncontrolled rolled environment. This device should be installed and operated with a minimum distance of 20cm between the radiator and your body.

ISED Caution:

This device complies with Innovation, Science and Economic Development Canada (ISED) licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment complies with ISED radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Cet appareil est conforme à la ou aux normes RSS exemptées de licence pour Innovation, Science et développement économique Canada. Le fonctionnement est soumis aux deux conditions suivantes: (1) ce dispositif ne peut pas causer d'interférence nocive, et (2) ce dispositif doit accepter toute interférence reçue, y compris les interférences pouvant causer un fonctionnement indésirable. Cet équipement respecte les limites d'exposition aux rayonnements ionisants fixées pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec une distance minimale de 20cm entre le radiateur et votre corps. Cet émetteur ne doit pas être localisé ou fonctionner en conjonction avec une autre antenne ou un autre émetteur.

Caution:

This radio transmitter 24490-DTUPROS and 24490-DTUPROSC have been approved by Innovation, Science and Economic Development Canada to operate with the antenna types
2.4G Blade Antenna
1G Blade Antenna
4G Blade Antenna
with the maximum permissible gain indicated.Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.