User Manual

Data Transfer Unit

(model: DTU-W100)

Contents

1. Important Safety Information

1.1 Read this First

This manual includes important instructions for installing and maintaining the Hoymiles Data

Transfer Unit (DTU).

1.2 Safety Instructions

Symbol	Usage
DANGER	Indicates a hazardous situation that can result in deadly electric shock hazards, other serious physical injury, or fire hazards.
WARING	Indicates directions which must be fully understood and followed in entirety in order to avoid potential safety hazards including equipment damage or personal injury.
CAUTION	Indicates this points out 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 can install or replace DTU.

+ Do not try to repair DTU without Hoymiles' approval. If DTU is damaged, please send the DTU back to your installer for repairing. Disassembling DTU without Hoymiles' approval will invalidate remaining of the warranty period.

+ Please read all instructions and warnings on the technical specifications and the DTU carefully.

+ Do not use Hoymiles products in the way that is not suggested by manufacture. Doing so may cause death or injury to persons, or damage to equipment.

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1.3 User

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

1.4 Support and Contact Information

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

http://www.hoymiles.com

Hoymiles customer service center:

Email: service@hoymiles.com

1.5 Other Information

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

2. About Hoymiles Microinverter System

2.1 The Microinverter: It converts the DC output of solar modules into grid-compliant AC power. It sends the output information details of PV panels and the operation data of the microinverters to the DTU, which is the hardware basis of the panel-level monitoring.

With conversion efficiency up to 96.7% and MPPT efficiency up to 99.9%, Hoymiles microinverters rank into the first class of the world's Microinverter industry.

2.2 The DTU: The DTU is the key component in Hoymiles microinverter system. It works as the communication gateway, which operates between the Hoymiles microinverters and the Hoymiles Monitoring Server. The DTU communicates with the microinverter wirelessly via 2.4G RF, collecting the operation data of the system. Meanwhile, the DTU connects to the Internet via router or GPRS and communicate with Hoymiles Monitoring Server. The microinverter system operation data will be uploaded to Hoymiles Monitoring Server via DTU.

2.3 The Hoymiles Monitoring Server: It collects the operation data and status of the microinverters in the system, and provides the panel-level monitoring for the users and maintenance staffs.

The following diagram shows the Hoymiles' Microinverter system.

www.hoymiles.com
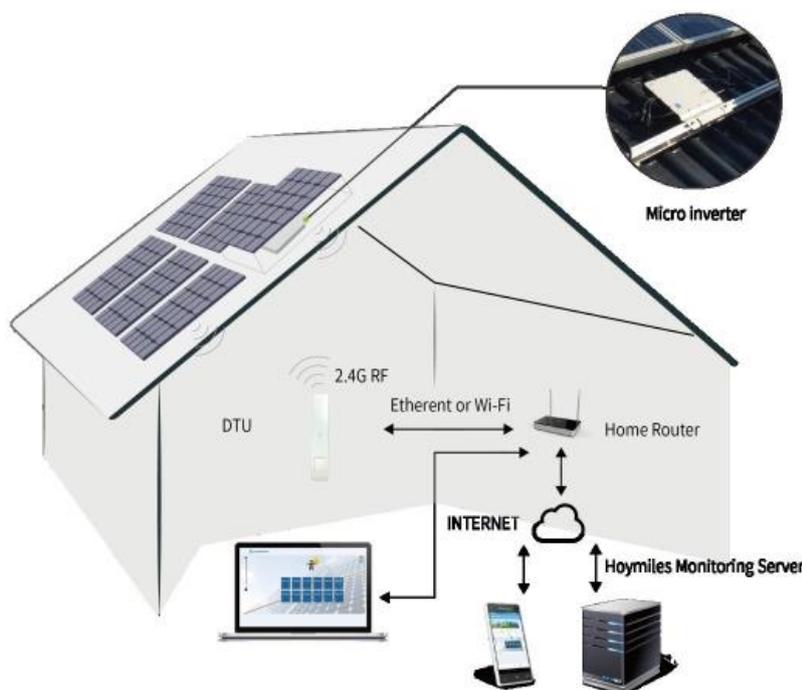
3. DTU Installation

3.1 System Capacity

The DTU is capable of monitoring up to 99 MI-250/MI-300 microinverters or 49 MI-500/MI-600

microinverters or 24 MI-1000/MI-1200 microinverters.

3.2 Basic Conditions Required

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

- ✓ Install close to the router.

- ✓ Stable Internet reception.

- ✓ Straight line distance between DTU and Microinverter shall be less than 5 meters.

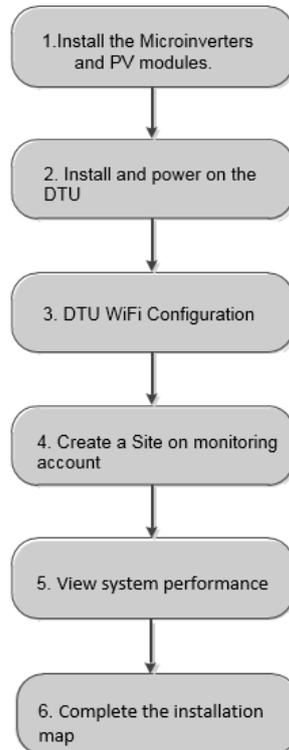- ✓ One meter above the ground,0.8 meters away from the corner.

The environmental requirements for DTU installation:

- ✓ Away from dust, liquid, acidic or corrosive gas.

- ✓ Temperature between -20⁰C and 55⁰C.

3.3 Dimension
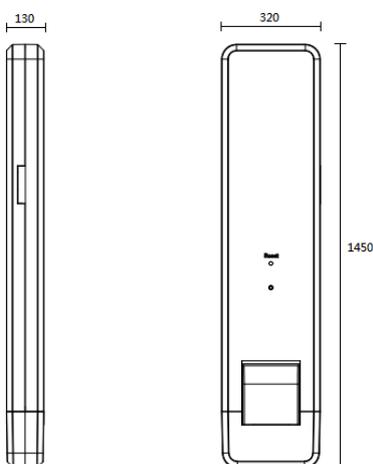
3.4 Installation Sequence

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┌─────────────────────────┐
│ 1.Install the Microinverters │
│ and PV modules.          │
└─────────────────────────┘
            │
            ▼
┌─────────────────────────┐
│ 2. Install and power on the │
│ DTU                      │
└─────────────────────────┘
            │
            ▼
┌─────────────────────────┐
│ 3. DTU WiFi Configuration │
└─────────────────────────┘
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            ▼
┌─────────────────────────┐
│ 4. Create a Site on monitoring │
│ account                  │
└─────────────────────────┘
            │
            ▼
┌─────────────────────────┐
│ 5. View system performance │
└─────────────────────────┘
            │
            ▼
┌─────────────────────────┐
│ 6. Complete the installation │
│ map                      │
└─────────────────────────┘
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3.5 DTU Installation Procedure

1) Install the PV Modules and microinverters

Please refer to the Microinverter's Manual or Quick Installation Guide for the detail installation

steps.

2) Locate the DTU

The maximum communication distance of Hoymiles DTU is 100m in open space. The walls,

roofs or other obstacles in between will effect on the signal and reduce the communication

distance in the real installation.

The range of signal reduction for possible obstacles at the site has been shown below:

Material	Relative signal range reductions
Wood/Glass	0-10%
Stone/Pressed cardboard	10%-40%
Reinforced concrete (reduction increases with amount of reinforcement)	10%-90%
Metal	Up to 100%

Therefore, the DTU shall be placed as close to the microinverters as possible at the site to ensure good communication between DTU and microinverters.
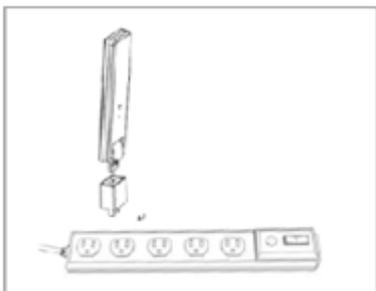
3) DTU Installation

a. Connect the DTU to the adapter and plug it into the wall socket. (Figure 1)
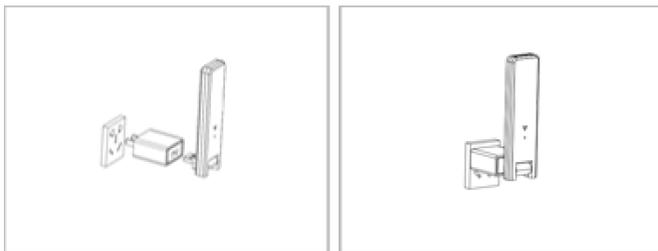
（Figure1）

b. If use Power Strip, please make sure it is placed at least 1 meter above the ground and try to install the DTU 90 degrees vertical to the ground as much as possible (figure 2).

(Figure 2)

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

4) Start Procedure

Once the DTU is powered on, the red, green and blue lights will flash every one second in turns for 30 seconds and then red and blue alternately flashing.

5) WiFi Configuration

a. Use your setting device (e.g. smart phone, laptop or tablet) to search the surrounding WiFi signal, you can find the DTU's WiFi named as "USR-C210" or "DTUW-XXXXXXXX" ("XXXXXXXX" is the last 8 digits from the DTU serial number). Connect with DTU's WiFi.

b. Open the Internet browser, enter 10.10.100.254 on the address bar, fill in default user name and password both as "admin", and click "Ok".

c. Click "WiFi Setting" on the left side manual bar.

d. Clicking the search button next to the SSID, then select the customer house router's WiFi nameand click "Ok".

e. Enter the house router's password as "STA Password", and click "Save".

f. Click the "Restart" bottom once you see the "Save Success" page.

g. Configuration completed after the Reboot success.

h. Power off the DTU for 10s, and then power on, wait about 2 minutes, DTU light shows (green and blue) or (blue), it means that DTU is connected to the wireless network. The DTU will keep searching for the nearby Microinverters' signals at this stage.

Note: (1) non-professionals do not modify other parameters.

(2) The "Reset" button on the DTU shell is only for customer who use the enterprise WiFi.

4. Site creation on HMP

a. Install Hoymiles Installer APP. You can search "Hoymiles" at App Store (IOS) or Play Store (Android).

b. Open the APP and login in with your installer account name and password. If you are a new installer with Hoymiles please apply an Installer account from Hoymiles Technical and Service Support Team at service@hoymiles.com in advance.

c. Add Station, select the "Station" tab on the bottom, then select "⊕" on the right top side of the page.

d. Select "Quick" for Single-DTU and "Profession" for Multi-DTU.

e. Please fill in the station details accordingly, and press "Next" after completed.

f. Press "Add DTU ID", scan the DTU ID (or you can manually input ID) and press "Next" after complete.

g. Click "Start binding" and choose the angle and tilt base on the installation.

h. Scan the Microinverter ID (or you can manually input the ID) and click the tick after complete each ID input. Press "Finish" once all Microinverter ID has been input.

i. Disable the Scan function on the top of the right hand side and design the Layout base on the installation. Click the tick box on the top of right hand side, and then select "Next" after complete 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 Station list from Installer account.

l. Please click "Networking" button after the power station is created.

m. Please wait about 30 minutes, the station will show online and all the MI-IDs are found, the DTU light will turn green.

5. Customer Login

a. Please download the End User App. You can search "Hoymiles" at App Store (IOS) or Play Store (Android).

b. Login with the Password and User name that has been set up by Installer on the previous step (Section 4 step e), and press "Login".

c. Customer will able to view all details once the data start to upload, normally it will need around 30 mins for the first data coming through.

d. Customer can also view the Microinverter generating details via accessing the HMP monitoring platform website at http://m.hoymiles.com.

6. Complete Installation Map

When the system is energized and the DTU detects the microinverters, you need complete the installation map.

a. Peel the serial number label from the DTU and place it on the installation map.

b. Complete system information of the installation map shown as follows.

7. Browse the Web Station

You can view the inverter real time operating details on computer web page by access Hoymiles online monitoring platform at http://m.hoymiles.com.

8. View Phone APP

Download mobile phone APP by search "Hoymiles" at App Store (IOS) or Play Store (Android), login with customer/installer account name and password, all installed Microinverters operating details will be able to view from there.

9. LED indicator working status description

Red Light	Description
Fleshing every 1 second	DTU disconnect WiFi
Fleshing every 0.5 second	DTU disconnect with server
Blue Light	**Description**
Fleshing every 1 second	No ID
Fleshing every 0.5 second	Received data From server
Green Light	**Description**
Fleshing every 0.5 second	The search ID is incomplete
Light up constantly	Normal
RED+GREEN+BLUE	**Description**
Each color fleshing once every 1 second	Power on
Each color fleshing twice every 1 second	Firmware upgrade

10. Troubleshooting

Indicator	Status	Description	Solution
Red	LED Flesh in Red every 1 second:	DTU no ID inside and disconnect with Wi-Fi	- Check the distance between router and DTU, if it's over range (refer to chapter 3.5 point 2) - Check the distance between router and DTU, if it's over range (refer to chapter 3.5 point 2)
	LED light up in Red constantly:	W100 with ID inside but no Wi-Fi connection	- Double check if the house router's password has been input correctly during the setting - Use other device connect with house router and make sure there is a effective reception - Try to connect with the hot spot from the phone to see if there is any data uploading successfully
	LED Flesh in Red every 0.5 second:	DTU disconnect with server	-Re-do the configuration - Double check the Port and server address inside the DTU (Please contact Hoymiles Tech. Support team for the correct address)
Blue	LED light up in Blue constantly:	W100 has Wi-Fi connection but without ID inside.	- Complete the site creation on APP or Monitoring platform - Complete networking
	LED Flesh	No ID	- Complete networking

	in Blue every 1 second:		
Green	LED light up in Green every 0.5 second:	The search ID is incomplete	- Re-locate the DTU to somewhere close to both router and Microinverter

> **Note**: Network Connection:
>
> 1. Connected to Wi-Fi, the blue indicator lights up, then you can build the power station;
>
> 2. Can't connect to Wi-Fi, the indicator lights up as red + blue alternately flashing, then you need to connect to Wi-Fi again.

11. Datasheet

Model	DTU-W100
Communication to Microinverter	
Communication method	2.4G RF
Communication frequency	2400MHz to 2483.5MHz
Number of channels	5
Maximum distance(free space)	100m
Maximum number of panels connected	99 panels
Communication to Cloud	
WIFI communication standard	802.11b/g/n
Data upload time	15 minutes
Power Supply（Adapter）	
Power supply	Adapter with USB port
Adapter input voltage / frequency	100 to 240 V AC / 50 or 60Hz
Adapter output voltage / current	5V / 2A

Power consumption	**1.0W (typical), 5W(maximum)**

Mechanical Data

Ambient temperature range (°C)	**-20°C to 55°C**
Size (W×H×D mm)	**143mm×33mm×12.5mm**
Weight(kg)	**0.1**
A fixed way	**Direct power supply**
Indicator light	**LED**

Others

Standard	**EN60950 EN61000-3-2 EN61000-3-3** **FCC Part15 Class B / Class C**