UT673PV+
User Manual

Preface

Thank you for purchasing the brand new Uni-Trend instrument. To use this instrument correctly, please read the entire manual carefully before use, paying special attention to the "Safety Information" section. If you have finished reading the manual, it is recommended that you keep it properly, either with the instrument or in a place where you can easily refer to it, so that you can consult it during future use.

一、 Overview

UT673PV is a photovoltaic module maximum power tester that can quickly and conveniently measure the maximum power point (MPPT) of solar panels. It can simultaneously measure the module's maximum power (Pmax), open-circuit voltage (Voc), and short-circuit current (Isc), displaying all parameters on a single interface. The maximum power point tracking (MPPT) of this Meter is the most important indicator for assessing the efficiency of solar panel power generation and is commonly used for measuring solar panels or troubleshooting faulty modules.

Applicable scenarios: photovoltaic panel manufacturers, photovoltaic panel users, etc.

二、 Features

1）The Meter is compact and easy for operators to carry.
2）Extra-large LCD, displaying all parameters on one screen.
3）Can switch between automatic/manual modes.
4）Over-temperature, over-voltage, and over-current warnings.
5）Reverse connection protection for photovoltaic panels within the rated voltage input range.
6）Over-rated power protection.
7）Features data hold, storage, retrieval, and deletion functions.
8）Can store 100 sets of data.
9）Equipped with automatic shutdown function, consuming <30 μA in standby mode.

Please carefully read the relevant sections on 'safety' and 'warning' included in this manual, and strictly follow all the cautionary warnings.

⚠**WARNING:**

This product is only suitable for solar power transmission photovoltaic scenarios. It cannot be used with DC SUPPLY POWER (especially switching power supplies) or other types of power sources for power measurement. If users mistakenly test the product with such power sources, the product may be damaged due to the inconsistent transient response times of different types of power sources! For other safety guidelines, please carefully read the 'Safety Information' before using the Meter.

三、 Checking Package Contents

This user manual includes relevant safety information and warnings. Please read the contents carefully and strictly follow all warnings and precautions. When you open the package to take out the Meter, please carefully check whether the following accessories are missing or damaged. If any item is missing or damaged, please contact your supplier.

1. User manual	1 pc
2. MC4 cable (UT-L101)	1 pc
3. Warranty certificate	1 pc
4. Dedicated photovoltaic tools	1 set
5. 1.5V AA battery	2 pcs
6. Magnetic hanger (UT-B23)	1 set (optional)

四、 Safety Information

Please pay attention to the 'warning signs and statements'. A warning indicates situations or actions that may pose a danger to the user or could potentially cause damage to the instrument or the equipment being tested.

This Meter is designed according to safety standards and complies with double insulation and overvoltage standard CAT 0 150V, suitable for outdoor use. Failure to use the Meter according to the relevant operating instructions may reduce or eliminate the protection it provides.

1. Before use, inspect the Meter and test leads for any damage or abnormal conditions. If any abnormalities are found, such as exposed test leads, damaged casing, or the LCD display not showing properly, do not use the Meter.
2. Never use a meter with an unsecured cover, as there is a risk of electric shock.
3. Damaged test leads must be replaced with leads of the same model or with the same electrical specifications.
4. When the Meter is measuring, do not touch exposed wires, connectors, unused input terminals, or the circuit being measured.
5. When measuring voltages above 30V DC, be extremely careful. Keep your fingers behind the protective finger guards of the test leads to prevent electric shock.
6. Never apply voltages or currents exceeding the values marked on the Meter between terminals or between any terminal and ground
7. Only use test leads (MC4 cables) rated for the same voltage and current as the Meter, and approved by a recognized safety certification body.
8. Do not store or use the Meter in high-temperature, high-humidity, flammable, explosive, or strong electromagnetic field environments.
9. Do not modify the internal wiring of the Meter, as this may damage the Meter and jeopardize safety.
10. Before using the Meter, measure a known voltage or current with the Meter to ensure it is operating correctly.

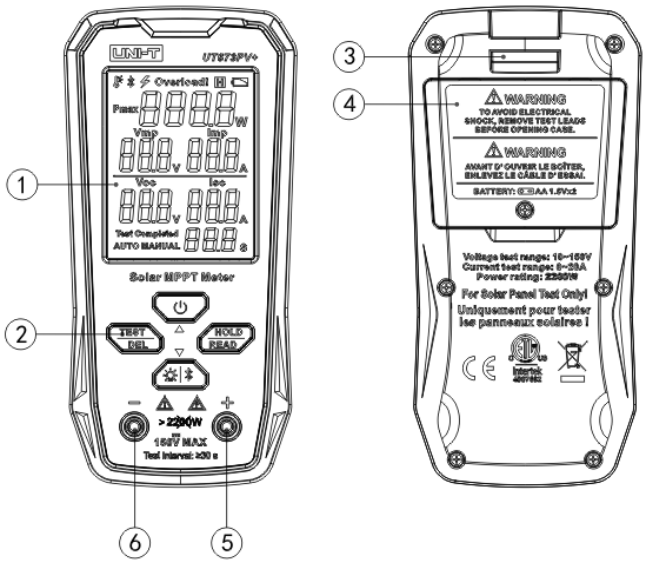
五、 Electrical Symbols

Symbol	Description
	High voltage! Danger!
	Warning
	DC (Direct Current)

六、 General Characteristics

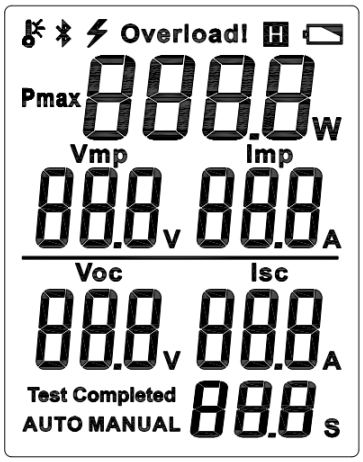
1. 150V Maximum voltage between signal input and COM terminals: 150V
2. Range: Automatic or manual
3. Polarity display: Reverse polarity protection
4. Overrange indication: Displays "OL"
5. Drop: 1 m
6. Operating temperature: 0℃~40℃ (32℉~104℉)
7. Storage temperature: -10℃~50℃ (14℉~122℉)
8. Relative humidity: ≤75% (0℃~30℃ below); ≤50% (30℃~40℃)
9. Altitude: ≤2000 m
10. Dimensions: Approx. 165 mm x 80 mm x 41 mm
11. Weight: Approx. 304 g
12. Safety standard: CAT 0 150 V
13. Pollution degree: 2
14. Application scenarios: Photovoltaic panels

七、 External Structure (Figure 1)



1. LCD display
2. Function buttons
3. Strap hook
4. Battery compartment cover
5. Positive measurement input terminal
6. Negative measurement input terminal

八、 LCD Display



Symbols	Descriptions
Overload!	Over-power warning
H	Data hold indicator
	Over-temperature warning
	Bluetooth connection indicator

	Low battery indicator
Pmax	Maximum measured power: Maximum power generation under current light intensity
Vmp	Maximum power point voltage: Voltage at maximum power generation under current light intensity
Imp	Maximum power point current: Current at maximum power generation under current light intensity
Voc	Open-circuit voltage: Voltage without any load connected
Isc	Short-circuit current: Current when the PV panel's positive and negative terminals are shorted
Test Completed	Test completed indicator
AUTO	Auto test
MANUAL	Manual test
88.8s	Cooldown countdown

九、Buttons

Positions	Descriptions
	Power button
	TEST/DEL button
	HOLD/READ button
	Backlight/Bluetooth button

Button layout:

Operating instructions for buttons

1. 

   1）When powered off, press and hold to turn on; when powered on, press and hold to turn off.

   2）In data review mode, press briefly to view the previous data entry.

2. 

   1）In normal test mode:

   Short press to perform a maximum power point test once (each time the test button is pressed, the Meter refreshes a 3-second countdown to start the test. The Meter automatically adjusts the test interval based on the current power value and refreshes the display: no interval when

≤600 W; refresh approximately every 5 s when ≤1200 W; refresh approximately every 15 s when >1200 W. If the TEST/DEL button is pressed during the set interval, the screen will flash 'Test Completed' three times. You need to wait for the interval countdown to finish for it to take effect, and the LCD does not display the countdown during this time).

Press and hold to enter automatic test mode (the Meter will refresh with a 3-second countdown. After the countdown ends, the Meter will enter automatic test mode, automatically adjusting the test interval based on the current power value and refreshing the display: when ≤100W, it refreshes approximately every 5 seconds; when >100W, it refreshes approximately every 15 seconds).

2）In automatic test mode: Short press to exit automatic test mode (can only exit after the first test is completed).

3）In data review mode: Short press to delete the currently displayed data, long press to delete all stored data.

3. 

1）In normal test mode: short press to enter HOLD mode to maintain the current data and store it (in automatic test mode, entering HOLD mode sets the countdown to 0, and exiting HOLD mode restarts the countdown), long press to enter data review mode (when the Meter's Bluetooth is on, it will only enter HOLD mode and will not save data).

2）In HOLD mode: Short press to exit HOLD mode.

3）In data review mode: Short press to exit data review mode (in review mode, "H" flashes continuously; when there is no stored data, the display shows "---". It can store 100 sets of data).

4. 

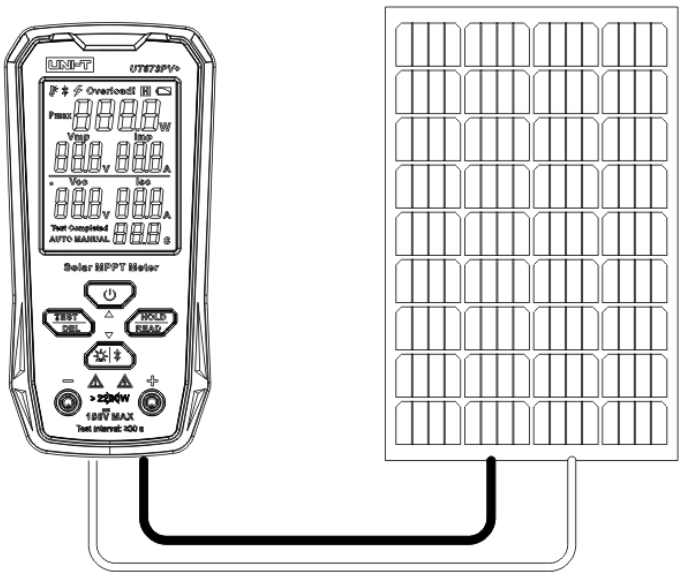
1） In normal test mode: Short press to turn the backlight on or off, long press to turn Bluetooth on or off.

2） In data review mode: Short press to view the next data entry.

十、Operating Instructions

Pay attention to the symbol "⚠" next to the test lead socket. This is a warning to make sure the voltage being tested does not exceed the indicated numbers, in order to ensure measurement safety!

1) Insert the red test lead into the red (+) socket, the black test lead into the black (—) socket, and connect the MC4 cable to the corresponding interfaces on both ends of the solar PV panel (in parallel to the load) for measurement.



2) When the Meter is turned on, it will display the Voc value in real time.
3) When you long-press the 'TEST/DEL' button for automatic testing, the Meter automatically adjusts the test time interval based on the currently displayed power value.
4) Press the 'TEST/DEL' button briefly for a single test; pressing it once will obtain one test result.

⚠ **WARNING**:

1. When testing the photovoltaic panel, it must be disconnected from the power grid.
2. This product is only suitable for testing photovoltaic panels!
3. The DC voltage measurement must not exceed 150V, as it may damage the Meter and cause harm to the user!
4. If the Meter display shows an over-temperature warning "🌡", you need to wait for the Meter to cool down naturally before continuing to use it.

十一、 Technical Specifications

Accuracy: ±(a% of reading + b digits), with a 1-year warranty
Ambient temperature: 0℃~40℃ (32℉~104℉)
Relative humidity ≤75%

Function	Range	Resolution	Accuracy ±(a% of reading + b digits)	Input limit	Descriptions
Open-circuit voltage measurement (V)	10~99.9V	0.1V	±(1.5%+5)	When the input exceeds the product's rated value, the product will restrict entry into the measurement mode, and OL will be displayed at	1) The Meter is powered by two 1.5V batteries, with a total standby power consumption of ≤50mA (total power consumption with backlight on is aboutless than 60mA). 2) When measuring power, the Meter can be used as a general
	100~150	1V	±(1.0%+5)		
Measurement power (W)	5~999.9W	0.1W	5~10W ±(1.0%＋5)		
			11W~500W ±(1.0%＋10)		
			501W~999.9W ±(1.5%＋5)		

	1000~2200W	1W	±(1.0%＋5)	corresponding position!	DC voltage meter, but the input amplitude must be ≤150V. 3) The specified accuracy of the above specifications is determined under standard light sources.
Short-circuit current (A)	0~20A	0.1A	±(1.5%＋5)		

⚠**WARNING:**

- The temperature condition for accuracy: 18°C to 40°C, with environmental temperature fluctuations kept stable within ±1°C. When the temperature is <18°C or >40°C, an additional temperature coefficient error applies: 0.1 x (specified accuracy)/°C.
- Withstand ability for instantaneous overvoltage input: maximum DC voltage 180V.

十二、 Bluetooth Software

1. Introduction

The Bluetooth software is a mobile APP, currently supporting mobile phones running on the operating systems of iOS 10.0 or newer and Android 5.0 or newer. Other operating systems are subject to the released application software.

2. Download “UNI-T Smart Measure”

1) For Android

Option 1: Search for "UNI-T Smart Measure" on the official website of Uni-Trend.

Option 2: Open your mobile phone browser and scan the QR code in the figure.

2) For iOS

Option 1: Search for "UNI-T Smart Measure" in the "App Store".

Option 2: Open your mobile browser and scan the QR code in the figure.

3. Use

1) When the Meter is powered on, press and hold the "  " button. If the "  " symbol appears on the screen, it indicates that the Meter's Bluetooth is turned on.
2) On your phone's home screen, find the installed “UNI-T Smart Measure” app icon and tap to open the app. After the “UNI-T Smart Measure” software launches and enters the navigation interface, in the list of devices waiting to connect, select the device named “UT673PV” and tap to connect.

十三、 Maintenance and Service

⚠**WARNING**: Do not open the back cover if you are not a professional to avoid damaging the Meter and causing injury to the user!

1. General maintenance

- For maintenance, please clean the Meter casing with a damp cloth and a mild detergent. Do not use abrasives or solvents.
- If any abnormalities are found in the Meter, use should be stopped immediately and it should be sent for repair.
- When the Meter needs calibration or repair, please have it serviced by qualified professional maintenance personnel or an authorized service center.

2. Battery installation or replacement

The specifications of the built-in batteries of this product: two 1.5V AA batteries. When the LCD displays a low battery warning (around 2.5V), the batteries should be replaced promptly; otherwise, measurement accuracy may be affected.

Please install or replace the batteries in the following order:

1) Turn off the Meter and remove the test leads from the input terminals.
2) Place the Meter face down, unscrew the battery compartment screws, remove the battery cover, and take out the batteries.
3) Install new batteries according to the polarity markings, put the battery cover back on, and screw it in place.