

Αξιολόγηση του Solar MPPT Uni-T UT673PV

UNI-T · EAN 6935750567333

Machine translation from Polski. In case of doubt the manufacturer's original document prevails.

UT673PV User Manual

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Introduction

Thank you for purchasing our new product. To use it safely and correctly, please read the user manual carefully, especially the "Safety Information" section. It is advisable to keep the user manual for future reference and store it in an easily accessible place, preferably near the device.

I. Overview

The MPPT solar meter UT673PV performs a quick measurement of the maximum power of solar modules. It allows you to simultaneously measure the maximum power (P_{max}) of the solar module, open-circuit voltage (V_{oc}), and short-circuit current (I_{sc}), and then display all parameters on the screen. MPPT is the best way to check whether the solar panel is generating power at low efficiency. This indicator is commonly used to measure the parameters of solar panels or troubleshoot faulty modules.

Application: manufacturers and users of solar panels, but not limited to them.

II. Features

- 1□ Small external dimensions, easy to carry
- 2□ Large LCD screen to display all parameters
- 3□ No batteries – the meter is powered when connected to the solar panel
- 4□ Manual/automatic mode
- 5□ Over-temperature, over-voltage, and over-current protection
- 6□ Reverse connection protection
- 7□ Overload protection

Please carefully review the "Safety" and "Warning" labels presented in this user manual and strictly follow all precautions.

Warning: Before operating the meter, please read the "Safety Information" section.

III. Accessories

This user manual provides essential safety information and warnings. Please read their content carefully and follow all warnings and precautions. If any accessory from the list below is missing or damaged, please contact the supplier.

1. User manual 1 piece
 2. MC4 cables (UT-L101) 1 pair
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3. Warranty certificate 1 piece
4. Special solar tool 1 set
5. Magnetic holder (UT-B23) 1 set (optional)

IV. Safety Information

Please refer to the section "Labels and Warning Messages." The warning indicates conditions and procedures that pose a risk to the user's health and may damage the meter or the tested equipment.

The design of the meter complies with the double insulation standard and the measurement category of no measurement. The product is intended solely for measuring in solar panels. The maximum operating voltage is 60 V DC. The meter is a device for indoor use. Failure to follow working procedures may result in the protection provided by the meter being damaged or lost.

1. Before operating, the meter and test leads must be checked for damage or issues. If exposed test leads, damaged casing, unusual display behavior, or other problems are detected, operation must be stopped.
2. The meter must not be used without the closed cover. Otherwise, there is a risk of electric shock.
3. If a damaged test lead is detected, it must be replaced with the same model or a lead of the same specification.
4. During measurement, do not touch exposed wire, connector, unused input terminal, or circuit.

5. When working with voltages exceeding 30 V DC, exercise caution. To avoid electric shock, hold the test lead by the touch barrier.
6. The voltage generated between terminals or any terminal and ground should not exceed the specified value.
7. Use only test leads (MC4 cables) with a rated voltage and current value the same as those used in the meter or test leads (MC4 cables) approved by the certification body.
8. The meter must not be stored or used in high-temperature, high-humidity, strong electromagnetic field conditions, or near flammable and explosive materials.
9. Internal wiring must not be changed without authorization; otherwise, the meter may be damaged, and the risk to user safety may increase.
10. To ensure the proper operation of the meter, measure the known self-voltage or current before proceeding with operation.

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V. Electrical Symbols

Symbol Description

Danger! High Voltage!

Warning

DC (Direct Current)

VI. General Characteristics

1. Maximum voltage between the signal input terminal and the COM terminal: 60 V DC
2. Range: automatic/manual
3. Polarity display: protection against reverse connection
4. Overrange indicator: "OL"
5. Drop resistance: 1 m
6. Operating temperature: 0°C □ 40°C (32°F □ 104°F)
7. Storage temperature: -10°C □ 50°C (14°F □ 122°F)
8. Relative humidity: ≤75% (below 30°C); ≤50% (30°C □ 40°C)
9. Operating altitude: ≤ 2000 m

- 10. External dimensions: approximately 142 x 76 x 22 mm
- 11. Weight: approximately 154 g
- 12. Measurement category: no measurement category, intended solely for measurements in solar panels, maximum operating voltage 60 V DC.
- 13. Pollution degree: 2
- 14. Field of application: solar panel

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VII. External Structure (Figure 1)

- 1. LCD Display
- 2. Function Buttons
- 3. Hanging Hook
- 4. Positive Input Terminal
- 5. Negative Input Terminal

VIII. LCD Display

Symbol Description

Overload

Data Hold

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Excessive Temperature

Maximum displayed, measured power: maximum power generated by the solar panel under current light intensity conditions.

Voltage at maximum power point: maximum voltage at the moment of power generation by the solar panel under current light intensity conditions.

Current at maximum power point: current at the moment of power generation by the solar panel under current light intensity conditions.

Open-circuit voltage: voltage without load

Short-circuit current: current of the positive and negative terminals of the solar panel where a short circuit occurred

Test completed

Automatic test

Manual test

Countdown to start the test

IX. Function Buttons

Button Description

HOLD: Data Hold

AUTO: Automatic Test

MANUAL: Manual Test

1.

1) In automatic sampling mode "AUTO": After maintaining the current data, the meter continues counting down to 0.0s, however, sampling is not triggered – it starts after exiting the HOLD mode and lasts for 1 second of counting.

2.

1) The test starts after 3 seconds from pressing the AUTO button. The meter automatically adjusts the test interval depending on the current power value and refreshes the display (once every 5 seconds for ≤ 100 W and 15 seconds for > 100 W).

2) To stop the automatic test, the meter must be turned on, and then the AUTO/MANUAL button should be pressed after the first 15 seconds of counting. The message "Test completed" will flash three times on the screen if the button is triggered within the specified waiting time. Triggering the AUTO/MANUAL button is activated after pressing it when the counting is ascending.

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3.

1) The test starts after 3 seconds from pressing the MANUAL button. The meter scans the maximum power point only once and refreshes the display.

2) To avoid damaging the meter due to frequent triggering of the MANUAL button, the meter is equipped with a protection mechanism that utilizes the sampling interval (triggering the MANUAL button is activated after pressing it within 5 seconds for ≤ 100 W and 15 seconds for > 100 W). The message "Test completed" will flash three times on the screen if the AUTO/MANUAL button is triggered within the specified waiting time. Triggering the AUTO/MANUAL button is activated after pressing it when the counting is ascending (the

counting is not displayed on the LCD screen).

Note: Triggering the button is disabled at the critical value of "0.0 s" after the meter switches to sampling mode.

X. Operating Procedures

The symbols " " next to the input terminals indicate that the tested voltage should not exceed the specified value!

- 1) Connect the red test lead to the red (+) terminal and the black lead to the black (-) terminal, then connect the MC4 cable to the appropriate ports at both ends of the solar panel (in parallel with the load).
- 2) After turning on the meter, the Voc value will be displayed in real-time.
- 3) After pressing the AUTO button to perform the automatic test, the meter will automatically adjust the test intervals based on the currently displayed power.
- 4) Press the MANUAL button to perform a manual test. The result can be obtained after pressing the MANUAL button.

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Warning:

1. Before testing the solar panel, it must be disconnected from the power supply.
The meter is not suitable for tests in the measurement category "CAT. II or higher".
2. The meter is intended for testing solar panels only!
3. Do not measure voltage exceeding 60 V DC or power exceeding 800 W, otherwise, the meter may be damaged or bodily injury may occur!
4. If the symbol " " appears on the display, stop using the meter and wait for it to cool down.

XI. Specifications

Accuracy: $\pm(a\% \text{ of reading} + b \text{ digits})$; one-year warranty

Ambient temperature: 0°C ~ 40°C (32°F ~ 104°F); relative humidity: $\leq 75\%$

Accuracy Protection

Function Range Resolution $\pm(a\% \text{ of reading input} + b \text{ digits})$;
Comment

1 The meter is

Voltage measurement 12□ 60 V 0.1V ±(1.5%+5) 100 Vrms

no-load (V) powered by a

5□ 10W solar panel, so

±(1.0%+5) the battery is

11W□ 500W When connected not required. The

Power measurement

(W) 5□ 800 W 0.1W ±(1.0%+10) voltage input should be ≥12 V.

501W□ 800W transition to 2□ Voltage measurement

±(1.5%+5) measurement will be

limited, and on direct current serves

the LCD screen as power measurement,

the symbol

“OVERLOAD!” will however, the input

appear. amplitude should

be around ≥12 V and

≤60 V.

Current 0□ 35 A 0.1A ±(1.5%+5) 3□ The indicated

short-circuit (A)

accuracy is

calculated under

standard lighting

conditions.

Warning:

□ The precise temperature range is 18°C~28°C. The ambient temperature fluctuation range stabilizes

at ±1°C. If the temperature is □ 18°C or □ 28°C, the temperature coefficient error should be considered: “0.1 x (indicated accuracy)/°C”.

□ The meter automatically turns off after about 10 minutes of inactivity. In automatic shutdown mode, it can be restarted by pressing any button.

XII. Maintenance

Warning: To avoid damage to the meter or personal injury, opening the rear cover should be entrusted to a qualified technician.

1. General maintenance

□ The housing should be cleaned with a damp cloth and mild detergent. Do not use abrasive

cleaners or solvents!

- If a problem occurs, stop using the meter and perform maintenance.
- Calibration and maintenance should be performed by a qualified technician or designated service personnel.

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This document is a translation of the original user manual created by the manufacturer. Detailed information about the distributor/manufacture warranty conditions is available on the website <https://serwis.innpro.pl/gwarancja>. The product should be regularly maintained (cleaned) at the user's expense and responsibility, either by the user or by specialized service points. In the absence of information about necessary periodic or service maintenance actions in the user manual, the user should regularly, at least once a week, assess the physical condition of the product against that of a physically new product. If any deviation is detected or identified, urgent maintenance (cleaning) or service steps should be taken. Failure to properly maintain (clean) and respond upon detecting a state of deviation may lead to permanent damage to the product. The warranty does not cover damages resulting from neglect. Warnings and safety information All information regarding operation and usage can be found in the user manual or on the product label. Before using the products, familiarize yourself with its content and follow the instructions contained therein. Also, review the following information before use: User safety Use measuring tools according to their intended purpose. Do not use measuring tools for tasks for which they were not designed to avoid damage or incorrect measurement results. Always ensure that the tool is in good technical condition before use. Damaged tools, such as cracked housings or damaged displays, may lead to incorrect measurements or risk of accidents. Regularly calibrate measuring tools to ensure their accuracy and reliability of measurements. Incorrectly calibrated devices may lead to erroneous results. Precautions Use appropriate eye protection, especially when working with measuring tools that may emit radiation. Keep measuring tools away from children and untrained individuals to prevent accidental damage or misuse. Avoid using measuring tools in extreme temperature, humidity conditions, or in an atmosphere with high dust concentration, which may affect their accuracy and functionality. When working with measuring tools, exercise caution to avoid damaging delicate measuring components (e.g., sensors, probes). Safe usage Always ensure that the measuring tool is properly set up and secured to avoid measurement errors or damage. Use measuring tools only in designated areas that provide adequate stability and minimize the risk of accidents, such as slippery or uneven surfaces. Never take measurements on live

components or in conditions that may pose a safety hazard. Guidelines for use in appropriate conditions Store measuring tools in a dry, cool place, away from moisture and direct sunlight, which may damage the devices or affect their accuracy. When using measuring tools, ensure they are well seated and not exposed to shocks or impacts that may lead to damage. Avoid using measuring tools in places with extreme conditions, such as heavy vibrations, hot surfaces, dust, or moisture, unless the tool is designed for such conditions by the manufacturer. Maintenance instructions Regularly check the condition of measuring tools, especially measuring components (e.g., sensors, probes, displays) and batteries. Follow the cleaning instructions provided by the manufacturer. Use appropriate cleaning materials (e.g., soft cloths) to avoid damaging delicate components. Regularly perform calibration of measuring tools according to the manufacturer's recommendations to maintain measurement accuracy. Safe disposal Used or damaged measuring tools should be disposed of in accordance with applicable environmental protection and electronic recycling regulations. Do not throw measuring tools in regular waste bins, as they may contain environmentally harmful components. Contact local authorities or recycling companies for information on the proper disposal of used measuring tools. Declaration of conformity The products have been designed in accordance with the safety requirements specified in Regulation (EU) 2023/988 on the general safety of products, ensuring their compliance with applicable safety and health protection standards for users.

Environmental Protection

Used electronic equipment marked in accordance with the European Union directive must not be disposed of together with other municipal waste. It is subject to selective collection and recycling at designated points. By ensuring its proper disposal, you prevent potential negative consequences for the natural environment and human health. The system for collecting used equipment complies with locally applicable environmental protection regulations regarding waste disposal. Detailed information on this topic can be obtained from the municipal office, waste management facility, or the store where the product was purchased. The product meets the requirements of the so-called New Approach directives of the European Union (EU) concerning issues related to user safety, health protection, and environmental protection, specifying hazards that should be detected and eliminated. Importer:
INNPRO Robert Błędowski Representative in the EU:

Manufacturer:

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