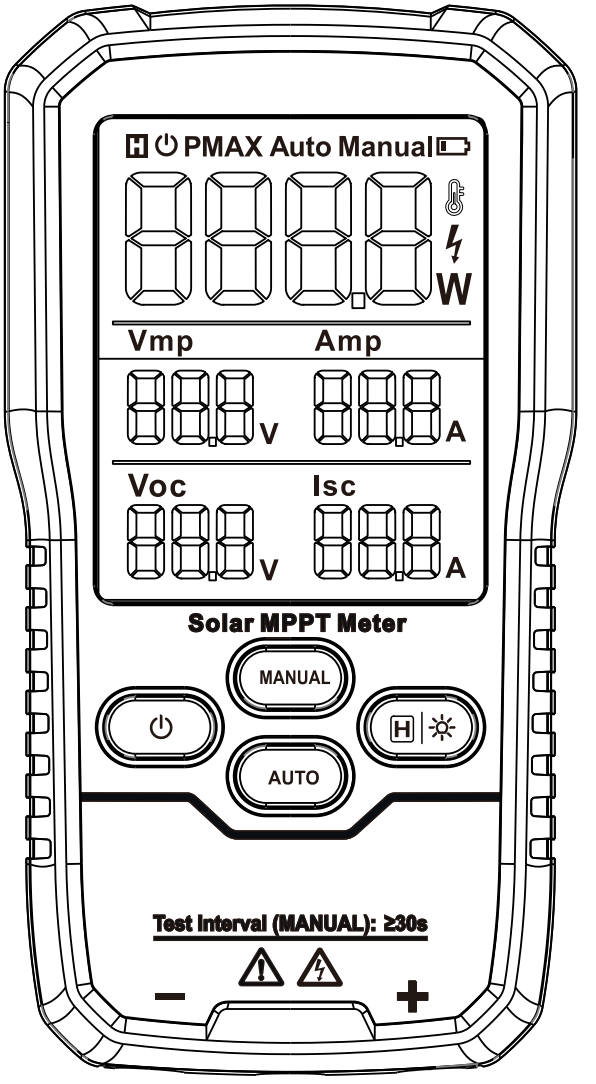
Solar MPPT Power Tester



FR705

USER MANUAL

Guang Zhou Zheng Neng Electronic Technology Co.,Ltd.

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I.Safety Precautions

- ✧ This product strictly adheres to the safety standards of the Chinese solar energy industry and the safety design standards of the European solar energy industry.
- ✧ Please read the "Safety Precautions" before using the instrument and operate strictly in accordance with the prescribed safety regulations.
- ✧ Please measure correctly within the safety range specified by national safety measurement standards and the corresponding range of the product to avoid possible damage from incorrect operation of the instrument.
- ✧ Do not touch conductors with a voltage exceeding 30V during measurement. Please be careful to avoid electric shock.
- ✧ When the measurement exceeds the range, a high-voltage lightning symbol and a buzzer alarm will be displayed. Please pay attention to measurement safety.
- ✧ Do not use in flammable, explosive or other special environments to avoid danger.
- ✧ When the low battery symbol is displayed, replace the battery in time to avoid measurement errors.
- ✧ Before measurement, check if the test leads are damaged or leaking electricity. If any are found, do not use them.
- ✧ Correctly connect the standard MC4 and check the positive and negative polarity of the test leads.
- ✧ Please pay attention to safety symbols and safety warnings.

II.General Technical Specifications

Product range: Maximum Power Pmax 1000W (FR705)

Maximum Power Pmax 2000W (FR705E)

Input protection: Anti-mistake input, positive and negative

Sampling rate: 3 times/s; Overload display OL

Auto power off: About 10 minutes

Operating temperature: 0-40℃

Accuracy: 23℃±5℃（18-28℃； humidity<75%）； 1year

Storage temperature:-10-60℃； humidity≤80%

Pollution grade:2

Altitude:0-2000m

Battery-powered: 7#/AAA 1.5V×3

Dimensions: 142.5H×76W×32Dmm

Weight: 230g (standard battery included, weight varies for different models)

Test accessories: MC4 dedicated test cable, standard MC4 dedicated wrench tool.

III.Overview

This is a brand-new professional-designed solar panel power tester. It has a very comfortable grip with an ergonomic design and a large LCD screen. It boasts high precision, high performance, shock resistance, safety, and stability. It can accurately measure the maximum power point (Pmax), maximum power point voltage (Vmp), and maximum power point current (Imp) of the solar panel. It is equipped with reverse polarity protection and internal over-temperature protection. It is suitable for professional solar panel manufacturers and solar power generation installation systems, and also serves as a professional measuring tool for solar photovoltaic panel enthusiasts for installation and maintenance.

IV.Appearance description

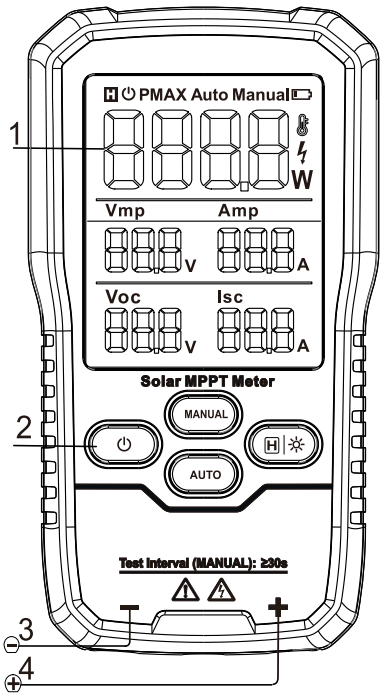
1、LCD display

2、Function key

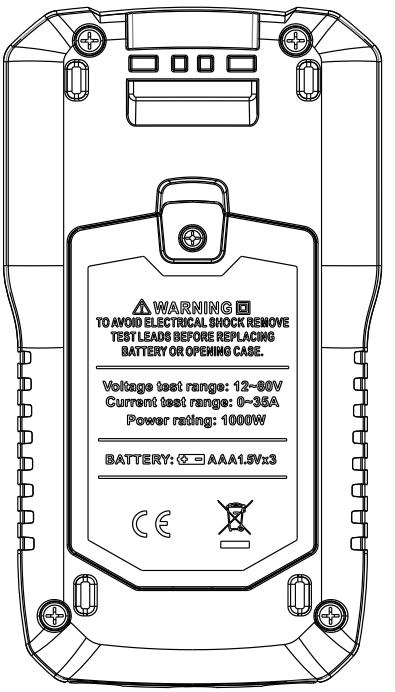
3、Black test input port for negative voltage V-

4、Red test input port for positive voltage V+

Product appearance picture - Front side



Product appearance picture-Back side



V.Display symbol explanation

SERIAL NUMBER	SYMBO	EXPLAIN
1	Pmax(W)	Maximum power point(W),the power at which the maximum electricity generation occurs under strong light conditions
2	Vmp(V)	Maximum voltage point(V),the voltage at which the maximum power generation occurs under strong light
3	Amp(A)	Maximum maximum current point (A), the current at which the maximum power generation occurs under strong light
4	Voc(V)	Open-circuit voltage, the measured voltage when the solar photovoltaic panel is not connected to a load
5	Isc(A)	Short-circuit current,the current measured when the positive and negative poles of the solar photovoltaic panel are rapidly short-circuited
6	MANUAL	Manual measurement:Press once to start the measurement and press again to stop it

7	AUTO	Automatic measurement,automatic cyclic measurement
8	HOLD	Maintain data symbols
9	⏻	Automatic shutdown symbol,automatic shutdown after 10 minutes
10		Temperature symbol,symbol for detecting excessive internal temperature of the product
11		Low voltage symbol,battery replacement prompt

VI.Key functions

1	⏻	Press and hold for 3 seconds to turn on the device and press and hold for 2 seconds to turn it off
2	MANUAL	Manual measurement mode
3	AUTO	Automatic loop measurement mode
4	H | ☼	When measuring,press the data retention button.Press and hold for 3 seconds to turn on the backlight

VII.International electrical symbols

1		"Caution" indicates an operation that poses a risk
2		"High pressure" indicates a warning of high voltage danger
3	CE	EU uniform directive, EU CE certification
4		Compliant with the WEEE Recycling Directive

VIII.Technical Parameter

Function/Model	FR705	FR705E	Resolution	Accuracy
Pmax(W)	1000W	2000W	0.1W	±(1.5%+5)
Vmp(V)	80V	150V	0.1V	±(1.0%+5)
Amp(A)	35A	45A	0.1A	±(1.0%+5)
Voc(V)	80V	150V	0.1V	±(1.5%+5)
Isc(A)	35A	45A	0.1A	
Input protection	Forward/reverse protection			
Temperature protection	Long term temperature measurement exceeding 60 degrees, over temperature protection stops testing			

IX.Test Reference

Voltage specifications of solar photovoltaic panels: 12V 18V 24V 36V 48V 60V
Power specifications of solar photovoltaic panels:60W 100W 200W 300W 500W 600W 700W 800W
1000WTest power calculation：Vmp×Amp= W
Example: 48.0V×11.0A=528W
⚠⚠ Prohibit tests greater than 1000W
⚠⚠ Prohibit tests greater than 80V
⚠⚠ Prohibit tests greater than 35A

2000WTest power calculation：Vmp×Amp= W
Example: 48.0V×11.0A=528W
⚠⚠ Prohibit tests greater than 2000W
⚠⚠ Prohibit tests greater than 150V
⚠⚠ Prohibit tests greater than 45A

X.General Maintenance

(1)Replace the battery ⚠⚠

Before replacement, it is necessary to disconnect the connection between the meter pen and the circuit to avoid the risk of electric shock.

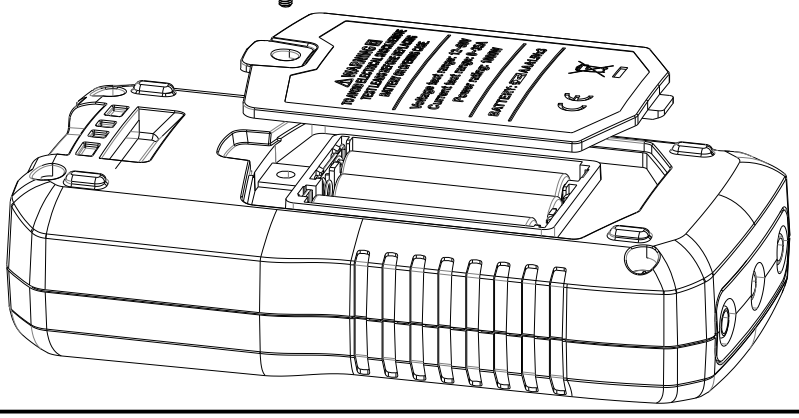
Battery specification: 7#LR03·AAA1.5V×3

To replace the battery, follow the illustration below to u nscrew the battery cover screws, replace the battery, and then make sure to tighten the screws of the battery cover before using the instrument normally.

(2)Maintenance ⚠⚠

Only authorized and professionally experienced technicians should open the machine casing for repair. If the product malfunction cannot be resolved, please contact the official after-sales service immediately. Non-professionals are strictly prohibited from operating. Avoid improper repair that may cause damage and electric shock hazards.

Open the battery cover



The contents of this user manual cannot be used as a reason for using the product for special purposes.

The company is not responsible for other losses caused by use.

The company reserves the right to modify the contents of the user manual.

Subject to change without notice.

GuangZhou ZhengNeng Electronics Technology Co.LTD

Address：4F, Bldg. 6, Hongjie Ind. Park, Baiyun Dist., Guangzhou, Guangdong, China

Tel：+86-02036544172

Web：http://www.fuzrr.com

E-mail：sales@fuzrr.com