INSTRUCTION MANUAL

MTPV33

SOLAR POWER METER

Contents

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1. WARNINGS

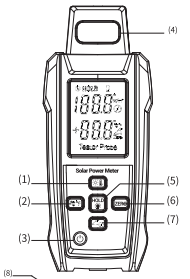
- Read, understand, and follow the safety rules and instructions in the manual before using the tester.
- The tester's detection function may not meet user needs if not used according to the manufacturer's instructions.
- Do not use the tester if it appears damaged or is not operating properly. If in doubt, seek repairs or replace the tester.
- Comply with all applicable safety codes.
- Avoid exposing the tester to extremes in temperature or high humidity.
- Keep mobile phones and other electronic devices that can affect the magnetic field away from the tester when using the compass function to measure orientation.
- Recalibrate the tester if the magnetic field in the measuring environment is too strong or if the tester has not been used for a long time, or if the measuring environment variables have changed significantly.

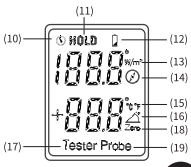
2. INTERNATIONAL SAFETY SYMBOLS

Potential danger. Indicates that the user must refer to the manual for important safety information. Equipment is protected by double or reinforced insulation.

3. TESTER INTRODUCTION

1 - Function keys for irradiance & temperature measurement
2 - Celsius and Fahrenheit Switch Button
3 - On/Off Button
4 - Photovoltaic Irradiance Sensor
5 - LCD backlight key and HOLD key (Press and hold for three seconds to turn the backlight on or off)
6 - Inclination Angle Reset Button
7 - Function keys for compass & Inclination angle measurement
8 - External Temperature Probe Slot
9 - Integrated Temperature Sensor for Solar Panel Surface Measurement
10 - Auto power off symbol
11 - Hold indicator
12 - Battery Level Indicator
13 - Irradiance Units and Function Indicator
14 - Compass Function Indicator
15 - Temperature Unit Indicator (Celsius / Fahrenheit)
16 - Inclination Angle Function Indicator
17 - Integrated Temperature Sensor Indicator
18 - Inclination Angle Reset Indicator
19 - External Temperature Probe Indicator





4. OPERATION

4.1. Turning The Tester ON/OFF

To power on the tester, press the switch button. The display will briefly show all elements before switching to the measurement interface. Avoid holding the button continuously, as it can freeze the display. To turn off the tester, press the switch button again.

4.2. Light Irradiance and Temperature Measurement

Adjust the tester to select the illumination measurement mode and place it directly on the photovoltaic panel for temperature and illumination readings. The internal temperature sensor on the back of the tester captures temperature, while the light irradiance sensor on the surface measures light intensity.

Note: If using the external temperature probe, connect it to the tester, and then the displayed temperature will be that of the probe.

To switch temperature units between Celsius and Fahrenheit press the "°C/°F" button. The default temperature unit is Celsius.

4.3. Measure The Tilt Angle and Basic Direction

Switch the tester to inclination and compass mode by pressing the "∠/⊙" button. The inclination angle can best be determined by placing the tester on the photovoltaic panel. To obtain accurate measurements, place the tester flat on the ground before calibration, adjusting the angle to zero using the "ZERO" button.

Note: For compass measurements, ensure minimal inclination and avoid metal objects or sources of magnetic interference for accurate readings. Due to the influence of terrain or the actual inclination of the building that may not be 0°, this method is used to reduce the unnecessary errors in measurement values.

1. Place and align the tester on the photovoltaic panel you wish to test, then perform the illumination, temperature, and inclination measurements.

Note: If the angle of inclination exceeds 20° the compass function will display "OL". If the angle of inclination is above 20° then surrounding metal objects or magnetic interference sources may influence the values measured by the compass.

2. The compass measurement must always be conducted away from the photovoltaic panel, by either holding the meter in your hands or by placing it on a horizontal surface (0° to 20° tilt). The tip of the meter should be pointed in the same direction that the photovoltaic panel faces.

Note: Keep away from metal objects or sources of magnetic interference, otherwise your compass measurements will be inaccurate. The compass points towards the geomagnetic north pole.

4.4. Hold and Backlight
Press the "HOLD" button to freeze the current value; press it again to return to real-time measurements. Hold the "HOLD" button for three seconds to toggle the screen backlight, which is off by default.

4.5. Low battery indicator
- Flashing battery icon indicates low voltage (4.8V to 5.2V).
- Tester shuts down below 4.88V.
- Replace battery to resume normal use and operation.

4.6. Auto Power Off
The tester auto shuts down after 30 minutes of inactivity to save battery. Hold the power button after turning on the meter to toggle this feature. When active, "Auto Shutdown" will appear on the screen; otherwise, it will not be displayed.

5. CHANGING THE BATTERY
1. Unscrew the battery cover on the back of the tester and remove it.
2. Insert 4 x AA 1.5V Alkaline batteries into the compartment.
3. Carefully close the battery cover.
4. Tighten the screws on the battery cover until secure, avoiding using excessive force.

Note: Remove the white rectangular safety strip before inserting the batteries for the first time.

6. RECALIBRATING THE TESTER COMPASS FUNCTION
If the tester has not been used for a long time, or the environment has changed significantly, please recalibrate the tester. The calibration method is as follows:
1. Restart the tester and then hold down the " " button.
2. Release the button when "444444" appears on the screen, then press the "HOLD" button once.
3. The screen will continue to display "444444", indicating that the tester is set to the compass calibration mode.
4. Place the tester on a horizontal surface or hold it horizontally. Rotate it slowly and uniformly for at least 6 turns over 1 minute.
5. Briefly press the "" button once to finalise and complete the compass calibration.
6. The compass function should now be calibrated and operational.

Note: If the calibration steps are followed incorrectly or if calibration fails for any reason, repeat steps 1-3 to try again.

7. SPECIFICATIONS

Irradiance	Range	50 to 1400W/m²
	Resolution	1 W/m²
	Accuracy	±(5% + 5 Digit)
Temperature	Range Tester Probe	 -10°C to 50°C (14°F to 122°F) -30°C to 100°C (-22°F to 212°F)
	Resolution	0.1°C (0.2°F / 1°F @ >100°F)
	Accuracy	±1.5°C (±2.7°F) @ -10°C to 75°C (14°F to 167°F) ±2°C (±3.6°F) @ -30°C to -10°C (-22°F to 14°F) ±2.5°C (±4.5°F) @ 75°C to 100°C (167°F to 212°F)
Inclination Angle	Range	-90° to 90°
	Resolution	0.1°
	Accuracy	±3°
Compass	Range	0° to 360°
	Resolution	1°
The measured value can be used as a reference for the actual situation		

8. WARRANTY

Warranty Coverage

Major Tech warrants its test instruments to be free from defects in materials or workmanship under normal use and service for a period of two (2) years from the date of shipment. This warranty is extended exclusively to the original purchaser, provided the online Product Registration has been completed on either www.major-tech.com or www.majortech.com.au, depending on which country the product was purchased. This warranty is non-transferable.

Exclusions

This warranty does not cover:

- Disposable batteries and fuses
- Damage caused by leaking batteries (damaging the meter and components)
- Normal wear and tear of mechanical components
- Failures caused by use outside the product's specifications Any product which, in the opinion of Major Tech, has been misused, contaminated, or damaged due to neglect.

Check Procedure
Prior to contacting Major Tech or a distributor regarding a warranty claim, please check the following:
- Batteries are installed correctly
- Battery condition – either replace disposable batteries or ensure rechargeable batteries are charged where applicable
- Test leads are inserted in the correct terminals and are fully inserted, no damage to test leads.

Contact Information
For any warranty claims or inquiries, please contact either Major Tech or the distributor from whom the product was purchased.

MAJOR TECH (PTY) LTD

South Africa

www.major-tech.com

sales@major-tech.com

Australia

www.majortech.com.au

info@majortech.com.au