

# Operation Manual

## Pocket full-spectrum PAR meter



Model: ■ 8584



## OPERATION QUICK GUIDE

### PREPARATION

1. Install 2pcs AAA batteries



### POWER UP / OFF

1. Press orange color power key to turn the meter on.
2. Press orange color power key more than 3 seconds to turn off

### HOLD

Press **HOLD** key to freeze reading.  
Press again to release.

### LOG

Press **LOG** key to memorize reading.  
Max.100 points

### MODE

Press **MODE** key to choose calibration or LOG recall or factory reset.  
Press Enter key to enter the mode you want.

### MX/MIN/AVG.

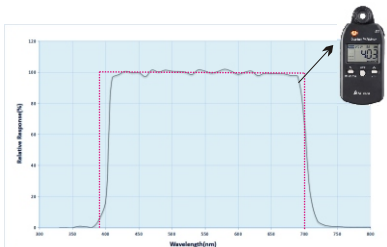
Press MX/MIN/AVG Key to switch the upper display to maximum, minimum, average values since power on, also show how many data has been logged.

## INTRODUCTION

Thank you for purchasing this accurate full-spectrum PAR meter. It is designed to measure Photo synthetically Active Radiation, (PAR) flux in wavelengths ranging from 400 to 700nm. There is a proportional relationship between the number of photons absorbed in 400 to 700nm and the rate of photosynthesis in plants, which is important for horticultural studies and monitoring plant physiology.

### Features :

- Stable measurement of PAR (PPFD
- Photosynthetic Photon Flux Density) in unit of  $\mu\text{mol}/\text{m}^2/\text{second}$ .
- Hold function to freeze data in dark place and then check later on.
- 100 points manual log and recall to skip note and pencil.
- Low power indicator for battery change
- Auto power off to save battery power.
- Tripod mount hole is on the rear side of PAR meter
- Maximum, minimum and average statistics for multiple sites analysis.
- High accuracy for 400 to 700nm under all light sources, including LEDs.



## KEYPAD



**POWER**



**HOLD  
ENTER**

- POWER** -Press to turn the meter on.  
-Press >3 seconds to turn off.  
-Auto power off while keypad is idle for 3 minutes.

**LOG** -Press to memorize reading.  
Maximum 100 points.

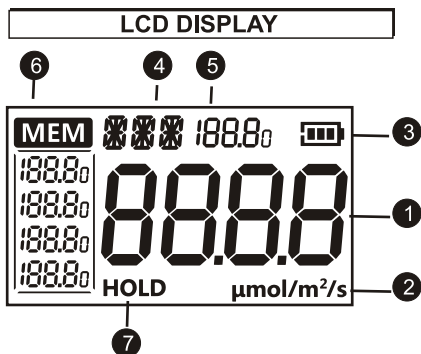
**HOLD** -Press to freeze reading.  
-Press again to release.

**MODE** -Press **MODE** key to choose calibration or LOG recall or factory reset.

**▲** -Scroll up or down to check the  
**▼** logged record while in log recall mode.  
-Change setting YES or NO while in reset and calibration mode.

**←** -Press to enter or quit the mode you choose.  
-Press to confirm the execution in zero calibration and factory reset mode.

- MX.** -Press to switch the upper display to  
**MIN.** maximum, minimum or average  
**AVG** values since power on  
 -Show how many data has been  
 logged



1. PAR value
2. PAR unit
3. Battery low voltage indicator
4. Indicator for all features (AVG, MAX, MIN, CAL, REC, RES)
5. Statistic PAR value
6. Latest 4 recorded value
7. Hold indicator

## MATERIAL SUPPLIED

This package contains:

- ✓ The meter x 1
- ✓ Battery x 2 (AAA size)
- ✓ Soft carry pouch
- ✓ Operation manual x1
- ✓ Paper box x1

## MEASUREMENT

1. Face the white PAR sensor detection area to the light source that you want to measure.
2. If you only need to measure one fixed spot, you can use tripod to hold PAR meter permanently.



3. If the place you stand is too dim to check reading, press HOLD key to freeze reading and check in brighter place.
4. If you have more than one space to measure, press LOG key to record and then review in recall mode later on. Free your hands from pencil and note.
5. No need to press any key, the latest 4 recorded PAR value will display at the left side of LCD.
6. To review logged data one by one. First, press MODE key to find "REC" (means recall). Press "←" to get in. Then press "∧" or "∨" to review one by one. Press "←" to quit review.
7. To delete all logged data, please see restore to factory setting section for the operation details.
8. To review the statistic data since power on, press "MX.MIN.AVG" key.

## CALIBRATION (ZERO)

After certain time of usage, such as one year time, you can do zero function if the measured value is not zero while in completely dark place.

1. Make sure the PAR sensor is fully covered while you plan to execute zero function.



2. Press MODE key to find "CAL".  
Press "←" to get in. Press "∧" or "∨" to choose from YES or NO. then, press "←" to execute.  
It will show "PASS" while zero function is done. Finally, press "←" to quit.

## FACTORY SETTING

1. This allows you to erase all logged data and restore to factory setting if you do zero function improperly.
2. Press MODE key to find "RES".  
Press "←" to get in. Then press "∧" or "∨" to choose Yes or No. To confirm it, press "←" to execute.  
It will beep once while reset function is done and quit to normal status automatically.

## MAINTENANCE

While doing measuring, make sure the white PAR sensing area is uncovered and face to light source.

After usage, clean the surface by soft tissue and keep it dry for storage. You may store it in the soft carry pouch we provide to avoid scratch and dust.

***WARNING: Don't immerse sensor or meter into water. This is not a waterproof device.***

## LOW-BATTERY

The battery icon shows the battery power status in 4 levels: Good, Middle and Low.

When empty power battery icon appears, it means the battery power status is low, please replace with 2 fresh batteries to ensure accurate measurements.

Before long term storage, please be sure to remove batteries to avoid liquid leakage risk.

## TROUBLESHOOTING

1. Power on but no display
  - 1) Make sure the time of pressing **power** key is more than 0.2 second.
  - 2) Check the batteries are in good contact with correct polarity.
  - 3) Replace new batteries and try again.



## SPECIFICATION

Model	8584
Spectral Range	400±10nm ~ 700±10nm
Measurement Range	0~5000µmol/m <sup>2</sup> /sec
Display resolution	0.01µmol/m <sup>2</sup> /sec for 0~99.99, 0.1 for 100~999, the rest is 1
Accuracy	±5 or ± 5% of reading, whichever is greater
Repeatability & Non-linearity	±1 µmol/m <sup>2</sup> /sec Less than 3 % (up to 4000 µmol/m <sup>2</sup> /sec)
Long-term Drift per Year	Less than 2 % per year
LCD update time	1 second
Field of View	180°
Directional (Cosine) Response	± 5 % at 75° zenith angle
Calibration Uncertainty	±5%
Temperature Response	±0.02%per °C
ZERO function	YES
RESET function	YES
LCD size	27(H)x48(W)mm
Operating temp.	0~50°C
Operating RH%	Humidity<80%
Storage temp.	-10~50°C
Storage RH%	Humidity < 90%, no condensation
Dimension	Meter: 150(L)x65(W)x24(H)mm
Tripod mount hole	YES
Weight	~100g
Power Supply/Consumption	AAA battery x 2pcs, less than 5mA
Standard Package	Meter with built-in PAR sensor/Battery/Manual/ soft carry pouch/paper box

## WARRANTY

The meter is warranted to be free from defects in material and workmanship for a period of one year from the date of purchase. This warranty covers normal operation and does not cover battery, misuse, abuse, alteration, tampering, neglect, improper maintenance or damage resulting from leaking batteries. Proof of purchase is required for warranty repairs. Warranty is void if the meter has been opened .

## **RETURN AUTHORIZATION**

Authorization must be obtained from the supplier before returning items for any reason. When requiring a RA (Return Authorization) , please include data regarding the defective reason, the meters are returned along with good packing to prevent any damage in shipment and insured against possible damage or loss.

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Hygrometer/Psychrometer

Thermometer

Anemometer

Sound Level Meter

Air Flow meter

Infrared Thermometer

K type Thermometer

K.J.T. type Thermometer

K.J.T.R.S.E. type Thermometer

pH Meter

Conductivity Meter

T.D.S. Meter

D.O. Meter

Indoor Air Quality Meter

Manometer

Tacho Meter

Data logger

Temp./RH datalogger

Wireless datalogger .....

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