

Spectrum[®] ***Technologies, Inc.***

"To Measure Is To Know"

LightScout[®] **Quantum PAR Meter** **Product Manual**



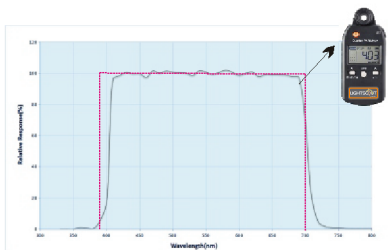
3415Z

INTRODUCTION

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

FEATURES:

- Stable measurement of PAR (PPDF, Photosynthetic Photon Flux Density) in units of $\mu\text{mol}/\text{m}^2/\text{second}$
- Hold function to freeze data and view later
- Logs up to 100 records
- Battery level indicator
- Auto power off
- Tripod mount hole on rear side of PAR sensor
- Maximum, minimum and average statistics for analysis of multiple sites
- High accuracy for 400nm to 700nm under all light sources, including LED

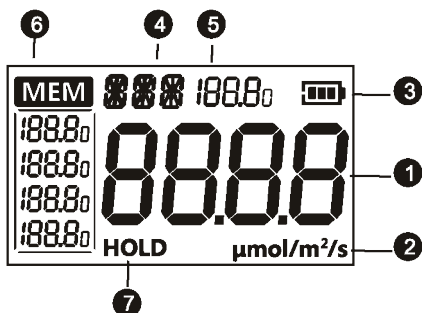


MATERIAL SUPPLIED

This Package Contains:

- Meter
- 2 AAA Batteries
- Soft Carrying Case
- Product Manual

LCD DISPLAY



1. PAR value
2. PAR units
3. Battery level indicator
4. Indicator for all features (AVG, MAX, MIN, CAL, REC, RES)
5. Statistical PAR value
6. Last 4 recorded values
7. Hold indicator

KEYPAD



Power



Hold/Enter



POWER

- Press to turn meter on
- Press for 3 seconds to turn off
- Auto power off when keypad is idle for 5 minutes

LOG

- Press to log reading
- Maximum 100 readings



HOLD

- Press to freeze reading
- Press again to release

MODE

- Press to choose Calibration, Log Recall or Factory Reset



- Scroll Up or Down to check logged readings while in Log Recall mode
- Change setting to YES or NO while in Reset mode



HOLD

- Press to enter or quit the mode you choose
- Press to confirm the execution in Zero Calibration and Factory Reset mode

**MX
MIN
AVG**

- Press to switch the upper display to maximum, minimum or average value
- Display number of logged readings

OPERATION QUICK GUIDE

PREPARATION

1. Install (2) AAA Batteries



POWER ON/OFF

1. Press the orange power button to turn the meter on
2. Press and hold the orange power button for 3 seconds to turn off

HOLD/←

Press the **HOLD/←** button to freeze a reading. Press again to release.

LOG

Press the LOG button to record the reading. Maximum of 100 logged readings allowed.

MODE

Press the **MODE** button to choose **log RECall**, **CALibration** or **factory RESet**. Press **HOLD/←** to choose the desired mode.

MX/MIN/AVG

Press the **MX/MIN/AVG** button to switch the upper display to maximum, minimum or average values and show the values recorded since turned on as well as the number of records logged.

MEASUREMENT

1. Face the white PAR sensor disk towards the light source that you want to measure.
2. If you only need to measure one fixed spot, you can use a tripod to secure the meter permanently.



3. If the area you are in is too dim to see the reading, press the **HOLD** button to freeze the reading to view under brighter light.
4. If you have more than one space to measure, press the **LOG** button to record the reading and then view later in Recall Mode.
5. The last 4 recorded PAR values will automatically display on the left side of the LCD.
6. To review logged data, press the **MODE** button and choose **REC** (recall). Press \leftarrow to enter. Then press \wedge or \vee to review one by one. Press \leftarrow to exit review.
7. To delete all logged data, please see restore to factory setting section.
8. To review the statistical data since powering on, press the **MX/MIN/AVG** button.

ZERO CALIBRATION

After using the meter regularly, you can re-calibrate it if the measured value is not zero in a completely dark room.

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



2. Press the **MODE** button and choose CALI. Press \leftarrow to enter. Then press \wedge or \vee to choose Yes or No. Press \leftarrow for 3 seconds to execute. It will display **PASS** when the zero function is complete. Press \leftarrow to quit.

FACTORY SETTING

1. Erase all logged data and restore to factory settings. **NOTE: THIS WILL ALSO RESET YOUR ZERO CALIBRATION.** Press the **MODE** button and choose RSS. Press \leftarrow to enter. Then press \wedge or \vee to choose Yes or No. Press \leftarrow for 3 seconds to execute. It will beep once when the reset function is complete and return to the main menu automatically.

MAINTENANCE

While measuring, ensure the white PAR sensing area is uncovered and facing the light source.

After usage, clean the surface with a cloth and keep dry for storage. Store in the soft carrying case provided to avoid scratches and dust.

WARNING: Don't immerse the sensor or meter in water. This device is NOT waterproof.

LOW BATTERY

The battery icon shows current status.

When the icon flashes, battery power is low and the current batteries should be replaced.

Prior to extended storage, remove the batteries to avoid damage to the meter.

TROUBLESHOOTING

Power is on but no Display

1. Press the Power button for less than 1 second
2. Check that batteries are installed correctly
3. Replace batteries and try again

SPECIFICATION

| | |
|-------------------------------|--|
| Spectral Range | 400 ± 10nm ~ 700 ± 10nm |
| Measurement Range | 0 ~ 5000 $\mu\text{mol}/\text{m}^2/\text{sec}$ |
| Display Resolution | 0.01 $\mu\text{mol}/\text{m}^2/\text{sec}$ 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 $\mu\text{mol}/\text{m}^2/\text{sec}$, Less than 3% (up to 4000 $\mu\text{mol}/\text{m}^2/\text{sec}$) |
| Long-Term Drift/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 | 27mm x 48mm (HxW) |
| Operating Temp | 0 - 50°C |
| Operating RH% | Humidity < 80% |
| Storage Temp | -10°C - 50°C |
| Storage RH% | Humidity < 90%, no condensation |
| Dimension | 150mm x 65mm x24mm (LxWxH) |
| Tripod Mount Hole | YES |
| Weight | ~ 100g |
| Power Supply/Consumption | (2) AAA Batteries, less than 5mA |
| Package Includes | Meter with Built-in PAR Sensor, 2 AAA Batteries, Product Manual, Soft Carrying Case |

WARRANTY

This product is warranted to be free from defects in material or workmanship for one year from the date of purchase. During the warranty period Spectrum will, at its option, either repair or replace products that prove to be defective. This warranty does not cover damage due to improper installation or use, lightning, negligence, accident, or unauthorized modifications, or to incidental or consequential damages beyond the Spectrum product. Before returning a failed unit, you must obtain a Returned Authorization Form from Spectrum. Spectrum is not responsible for any package that is returned without a valid Return Authorization number or for the loss of the package by any shipping company.

RETURN AUTHORIZATION

Within 30 days of receiving your product, you may return, in its original carton, any regular stocked item for full refund or exchange (excluding shipping & handling). A 20% restocking fee (50% for international orders) will be applied to products not meeting these requirements. Special Order Items cannot be returned. Product cannot be returned without prior authorization. To request a Return Authorization Form, please call our toll free number at 800.248.8873.

ADDITIONAL PRODUCTS

WEATHER MONITORING

WatchDog® Wireless Weather Stations
WatchDog Station Data Loggers
WatchDog Micro Weather Stations
WatchDog A&B Series Data Loggers
WatchDog Sensors & Accessories
WatchDog Sprayer Station
WatchDog Portable Wind Sensor
SpecWare Software
SpecConnect Cloud Service

IPM/PLANT HEALTH

Full Spectrum PAR/DLI Light Meter
LightScout® Handheld Light Meters
SPAD Chlorophyll Meter
FieldScout® Chlorophyll and NDVI Meters

SOIL PROPERTIES

FieldScout TDR Moisture Meters
WaterScout® Irrigation Stations
WaterScout Soil Moisture Sensors
WaterScout Profiler
FieldScout Direct Soil EC Meter
FieldScout TruFirm Turf Firmness Meter
FieldScout Soil Compaction Meters

NUTRIENT MEASUREMENT

LAQUA Nutrient Meters

Spectrum[®] **Technologies, Inc.**

"To Measure Is To Know"



This equipment has been manufactured for:

Spectrum Technologies, Inc.
3600 Thayer Court
Aurora, IL 60504 USA

The Manufacturer's CERTIFICATION OF CONFORMITY is on file at the above address, and certifies conformity to the following:

Model Number: 3415Z

Description: LightScout Quantum PAR Meter

Type: Electrical Equipment for Measurement, Control, and Laboratory Use

Directives: 2014/30/EU Electromagnetic Compatibility Regulations 2016
UK EMC - Electromagnetic Compatibility Regulations 2016

Standards: EN 61326-1 (2013)/BS EN 61326-1 (2013)
(IEC 6100-4-2 Ed.2.0 (2008)/-3 ED.4.0 (2020)/-8 ED.2.0 (2009))

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Form 148 (23-142) 5/2023

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