

# ***Spectrum***<sup>®</sup> ***Technologies, Inc.***

*"To Measure Is To Know"*

## **LightScout<sup>®</sup>** **Quantum PAR Meter** **Product Manual**



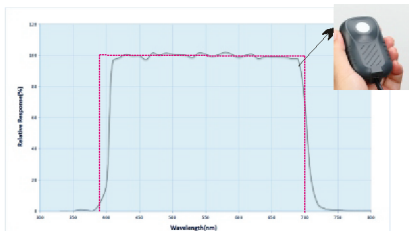
**3415ZX**

# 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  $\mu\text{mol}/\text{m}^2/\text{second}$
- 2 high quality RJ11 ethernet cables provided
- Hold function to freeze data and view later
- Stores up to 99 records
- Low battery indicator
- Auto power off
- Tripod mount hole on rear side of PAR sensor
- Selfie stick included to extend measurable range of sensor
- High accuracy for 400nm to 700nm under all light sources, including LED

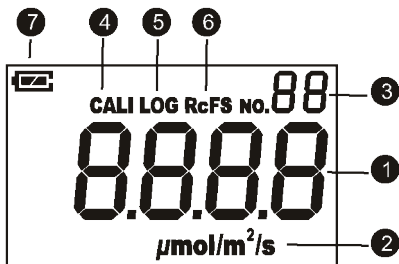


## MATERIAL SUPPLIED

This Package Contains:

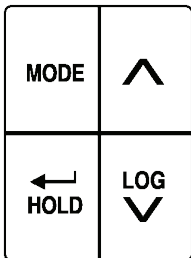
- Meter
- PAR Sensor
- Straight RJ11 Cable
- Coiled RJ11 Cable
- Selfie Stick
- 2 AAA Batteries
- Hard Carrying Case
- Product Manual

## LCD DISPLAY



1. PAR value
2. PAR units
3. Logged readings or hold icon ("H")
4. Zero calibration icon
5. Log recall icon
6. Restore to factory setting icon
7. Battery level indicator

# KEYPAD



POWER

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



HOLD

- Press to freeze reading
- Press again to release

LOG

- Press to record reading
- Maximum 99 stored readings

MODE

- Press to choose Calibration, Log Recall or Factory Reset



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



HOLD

- Press to enter the desired mode
- Long press for 3 seconds to confirm the execution in Zero Calibration and Factory Reset Mode

# OPERATION QUICK GUIDE

## PREPARATION

1. Install (2) AAA Batteries
2. Using either included RJ11 cable, connect the PAR sensor with the meter



## POWER ON/OFF

1. Press the orange power button on the right side 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 99 logged records allowed.

## MODE

Press the **MODE** button to choose **CALibration**, **LOG recall** or **Factory Reset**. Press **HOLD/←** to choose the desired mode.

## MEASUREMENT

1. Using either included RJ11 Cable, connect the PAR Sensor to the meter.

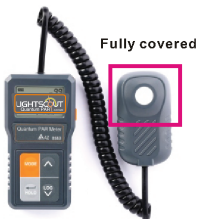


2. Face the white PAR disk towards the light source that you want to measure.
3. If the area you are in is too dim to see the reading, press the **HOLD** button to freeze the reading and view under brighter light.
4. If you have more than one space to measure, press the **LOG** button to record the reading. You can use the Recall Mode to view them later.
5. To review logged data, press the **MODE** button and choose **LOG**. Press  $\leftarrow$  to enter. Then press  $\wedge$  or  $\vee$  to review one by one. Press  $\leftarrow$  to quit review.
6. To delete all logged data, please see restore to factory setting section.

## 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 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.**
2. Press the **MODE** button and choose **RcFS**. 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 hard 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

### ***Display shows " - - - "***

1. PAR sensor is not connected  
Please check the cable and connector and re-connect.



# SPECIFICATION

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/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, Straight RJ11 Cable, Coiled RJ11 Cable, Selfie Stick, Product Manual, Hard 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 Quantum PAR/DLI Light Meters  
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<sup>®</sup>** **Technologies, Inc.**

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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:** 3415ZX

**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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