USER MANUAL

PHOTOBIO™ by PHANTOM

Advanced Quantum PAR Meter

OVERVIEW

The **PHOTOBIO by Phantom** Quantum PAR meter is designed to measure PAR (Photosynthetically Active Radiation) flux in wavelengths ranging from 400 to 700nm. There is a proportional relationship between the number of photons absorbed in 400 to 700nm band and the rate of photosynthesis in plants, which is important for horticultural studies and monitoring plant physiology.

⚠ ***IMPORTANT:*** To ensure safety, please read this manual carefully before installation and follow the instructions herein. Store this manual in a secure place for future reference.

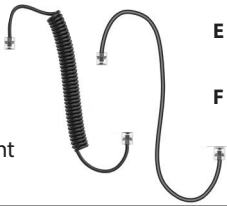
PARTS LIST (What's in the Box)

A - PAR Meter Main Unit

B - PAR Meter Sensor Unit

C - 4.9 ft Coiled Cable

D - 12 ft Straight Cable



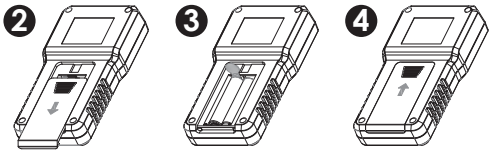
E - 2x AAA Batteries

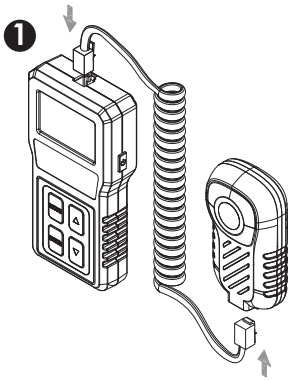
F - User Manual

(Full 12 ft length of cable not shown)

GETTING STARTED

1. Connect the sensor unit to PAR meter main unit with coiled cable or straight cable.
2. Open the battery cover.
3. Pull out the battery insulator.
4. Close the battery cover.





LCD screen will be on and the Quantum PAR Meter will begin operating. There is no need for initial setup or calibration.

OPERATING INSTRUCTIONS

1. Power On/Off

Press the **Power** button to turn on the Quantum PAR meter. Press and hold the **Power** button for 3 seconds to turn off the Quantum PAR meter.

2. Log function

Press ▼ to record the measurement data.

3. Hold function

Press **ENTER** to hold the measurement value. Press **ENTER** again to exit hold function.

4. Mode Functions

Press the **MODE** button to cycle through the Mode functions *(see table below)*. Press **ENTER** to enter each option menu.

OPERATING INSTRUCTIONS

MODE	DIRECTIONS
CALI	To calibrate the meter, enter **CALI** mode (**CALI** icon will be flashing), then press **ENTER**. Completely cover the photosensitive portion of the probe, and hold **ENTER** for 3 seconds to reset the zero point.
LOG	To display your data history, enter **LOG** mode (LOG icon will be flashing). Press **ENTER**. Use ▲ and ▼ to cycle through data records. Press **ENTER** to exit this mode.
RCFS	To reset the device to factory settings, enter **RcFS** mode (RcFS icon will be flashing). Press **ENTER** ("NO" will be flashing on LCD screen). Use ▲ or ▼ to select "YES," and then hold **ENTER** for 3 seconds. An audible beep will indicate when the device has been reset. If you hold **ENTER** for 3 seconds while "NO" is flashing, the device will not reset to factory settings. ***Important:*** This option erases all stored log data.

SPECIFICATIONS

Typical test conditions, unless otherwise specified: Ambient Temp =23+/-3°C, RH=50%–70%, Altitude=0~100 meter

MEASUREMENT	SPEC
Operating Temperature	32°F to 122°F (0°C to 50°C)
Storage Temperature	-4°F to 140°F (-20°C to 60°C)
Operating & Storage RH	0–95%, non-condensing
PPFD MEASUREMENT	
Repeatability	±1 umol/m^{-2}/sec^{-1}
Measurement Range	0– 3,999 umol/m^{-2}/sec^{-1}
Display Resolution	0.1 umol/m^{-2}/sec^{-1} (0–999); 1 umol/m^{-2}/sec^{-1} (1,000–3,999)
Cut-On Wavelength	400±10nm
Cut-Off Wavelength	700±10nm
Power Requirements	2 x AAA batteries
Dimension	*Main Unit:* 115 x 60 x 24mm *Sensor Unit:* 80 x 45.6 x 26mm
Weight	100g (without batteries and cable)

TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSE	SOLUTION
No display on LCD screen	No power	Press the Power button to turn on PAR meter.
	Bad Batteries	Replace battery.
	Cable error	Check the cable. Maybe there is an electrical short. Replace the sensor cable if needed.
LCD main display shows "----"	Sensor unit is not working	Check sensor cable to make sure it is securely connected to the PAR meter main body and sensor unit.
	Sensor cable is not connected	
	Some foreign materials are in the RJ11 port	Please check the RJ11 port and clean any foreign material that could cause interference.
Battery icon is flashing on the LCD screen	Battery is running low	Replace the batteries.
Reset to zero point failed	The light sensitive portion of the probe is not completely covered during calibration	Completely cover the photosensitive portion of the probe before calibrating

WARRANTY

Hydrofarm warrants the ***LGBQM2*** to be free from defects in materials and workmanship. The warranty term is for 1 year beginning on the date of purchase. Misuse, abuse, or failure to follow instructions is not covered under this warranty. Hydrofarm's warranty liability extends only to the replacement cost of the product. Hydrofarm will not be liable for any consequential, indirect, or incidental damages of any kind, including lost revenues, lost profits, or other losses in connection with the product. Some states do not allow limitation on how long an implied warranty lasts or the exclusion of incidental or consequential damages, so the above limitations or exclusions may not apply to you. Hydrofarm will, at our discretion, repair or replace the ***LGBQM2*** covered under this warranty if it is returned to the original place of purchase. To request warranty service, please return the ***LGBQM2***, with original sales receipt and original packaging, to your place of purchase. The purchase date is based on your original sales receipt.

⚠ WARNING – POSSIBLE RISK OF INJURY TO EYES AND SKIN

Hazardous optical UV, HEV, and IR radiation may be emitted from the light source. Always wear personal protective equipment ensuring complete shielding of skin and eyes. Avoid prolonged exposure and looking directly at light source.

PHOTOBIO™ by PHANTOM

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