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> VBR-Aqua IP68 PAR Meter for Aquarium, Reef, R, G, B PAR Separately, with a 3FT Telescopic Rod User Manual

VABIRA VBR-AQUA

VABIRA VBR-AQUA IP68 PAR Meter User Manual

Model: VBR-AQUA

INTRODUCTION

This manual provides comprehensive instructions for the VABIRA VBR-AQUA IP68 PAR Meter, designed specifically for aquarium and reef environments. It enables precise measurement of Photosynthetically Active Radiation (PAR), including separate readings for red, green, and blue light spectra, crucial for coral and plant health. The device features a waterproof sensor and a 3-foot telescopic rod for easy underwater measurements.

SAFETY INFORMATION

- Ensure the sensor is securely connected to the main unit before submerging in water.
- Do not attempt to open or modify the sealed sensor unit.
- Keep batteries and charging components away from water.
- For stable and accurate PAR readings, ensure water flow is minimized or stopped during measurement.
- Store the device in a dry, cool place when not in use.

WHAT'S IN THE BOX

The VBR-AQUA PAR Meter package includes the following components:

- VBR-AQUA Master Controller (Main Unit)
- IP68 Waterproof PAR Sensor
- 3-Foot Telescopic Rod
- USB Charging Cable
- Power Adapter

- 3 x AAA Alkaline Batteries
- Small Screwdriver (for battery compartment)



Image: Overview of the VBR-Aqua PAR Meter components, showing the main controller, the waterproof sensor, and the telescopic rod.

SETUP

1. **Battery Installation:** Locate the battery compartment on the back of the main unit. Use the provided screwdriver to open it. Insert 3 AAA alkaline batteries, ensuring correct polarity. Close the compartment securely.
2. **Charging:** For continuous testing or recharging, connect the provided USB cable to the main unit and the power adapter. Plug the adapter into a standard electrical outlet. The device can operate for approximately 100 hours on a full set of batteries.
3. **Sensor Connection:** Connect the waterproof PAR sensor to the main controller unit using the Ethernet-style cable. Ensure the connection is firm and secure.

4. **Telescopic Rod Assembly:** Attach the PAR sensor to the end of the telescopic rod. The rod allows for extension up to 3 feet to reach various depths within your aquarium. Ensure the sensor is firmly mounted to prevent detachment during use.

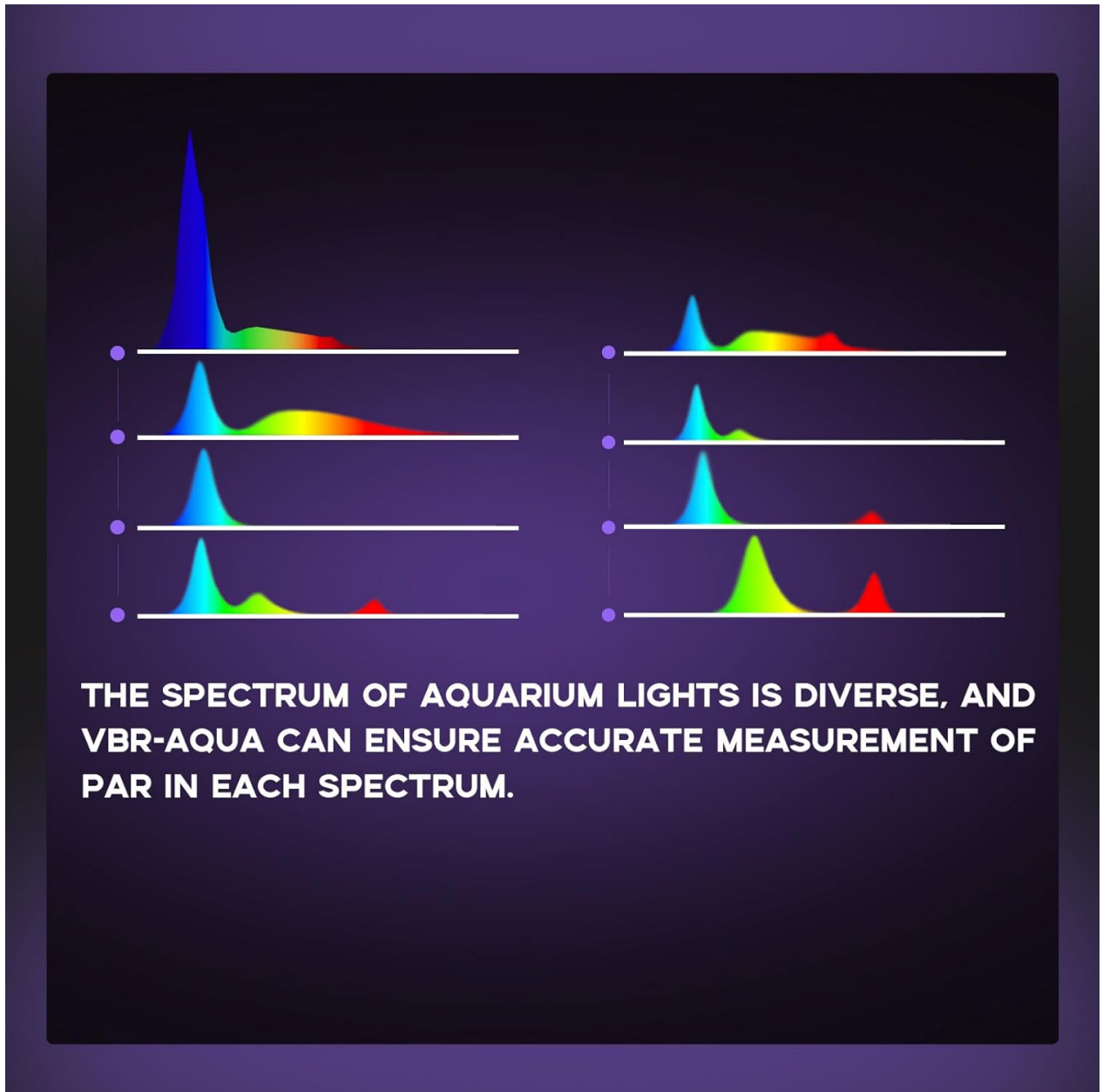


Image: The VBR-Aqua main controller unit, showing the display and navigation buttons for operation.

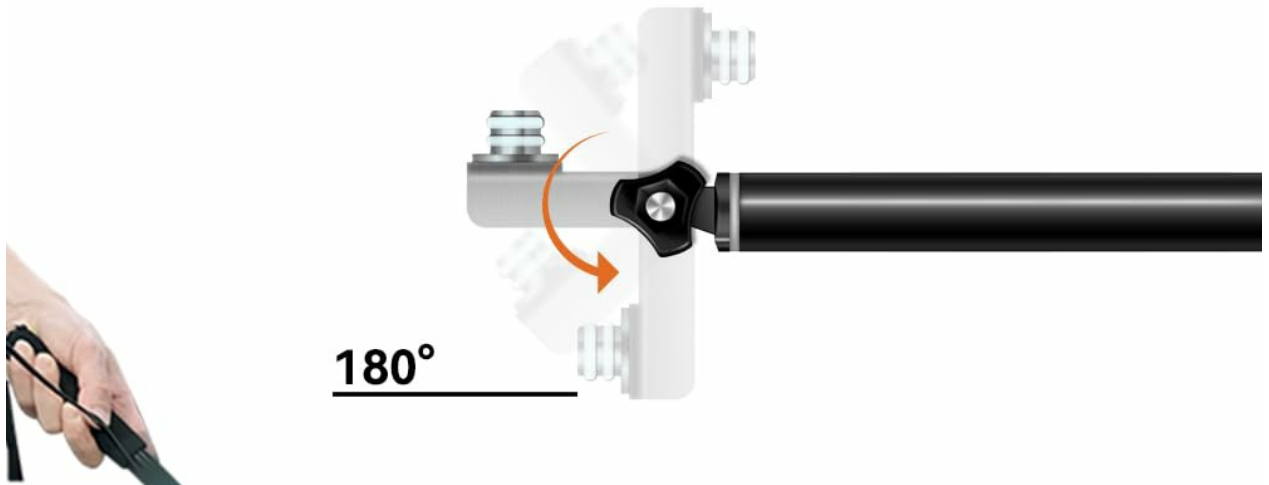


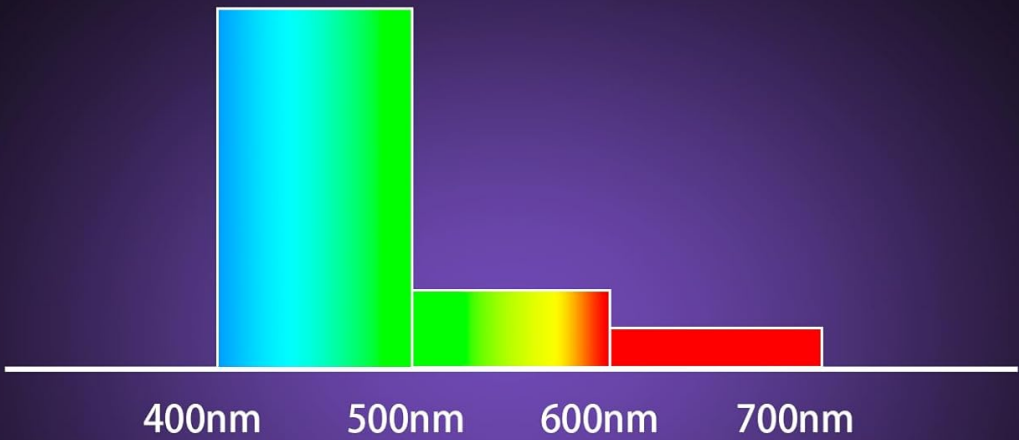
Image: The PAR sensor attached to the telescopic rod, demonstrating its use for measuring light levels within an aquarium.

OPERATING INSTRUCTIONS

- 1. Power On/Off:** Press the 'Meter' button to power on the device. To power off, press and hold the 'Meter' button.
- 2. Menu Navigation:** Use the arrow buttons (Up, Down, Left, Right) to navigate through the menu options on the display. Press 'Enter' to select an option and 'Back' to return to the previous screen.
- 3. Taking PAR Measurements:**
Submerge the PAR sensor into the aquarium water at the desired depth and location. Ensure the water is as still as possible for accurate readings. The device will display the instantaneous PAR value in $\mu\text{mol}/(\text{m}^2\cdot\text{s})$.

2023.06.07	09:14:16	🔋
B (400-500nm)	92.01	
G(500-600nm)	23.58	
R(600-700nm)	14.41	
PAR	130	$\mu\text{mol}/(\text{m}^2 \cdot \text{s})$

Show the PAR of the blue, green, and red in the light seperately.



remark: VBR-AQUA don't display this histogram.

Image: The VBR-Aqua display showing individual PAR values for blue (400-500nm), green (500-600nm), and red (600-700nm) light, along with the total PAR.

The VBR-AQUA meter can display the PAR values for blue (400-500nm), green (500-600nm), and red (600-700nm) light separately, providing detailed insights into your light spectrum's impact on corals and plants.

- Recording PAR Data:** The device can record up to 400 points of PAR data, allowing you to map light distribution across your tank. Refer to the on-screen prompts for saving and reviewing recorded data.
- Daily Light Integral (DLI):** The VBR-AQUA can calculate the Daily Light Integral (DLI) over 28 days. DLI measures the total amount of photosynthetically active light received by organisms over a 24-hour period, which is crucial for understanding long-term light exposure.



Image: The VBR-Aqua display showing both instantaneous PAR and Daily Light Integral (DLI) values, indicating the total light received over time.

- Important Note:** For the most stable and accurate PAR readings, it is recommended to minimize or stop water flow (e.g., turn off powerheads) in the aquarium during the measurement process.

MAINTENANCE

- **Cleaning:** After each use, rinse the sensor and telescopic rod with fresh water to remove any salt residue or debris. Wipe the main unit with a soft, dry cloth. Do not use abrasive cleaners or solvents.
- **Storage:** Store the VBR-AQUA PAR Meter in its original packaging or a protective case in a dry, cool environment away from direct sunlight and extreme temperatures.
- **Battery Care:** If the device will not be used for an extended period, remove the AAA batteries to prevent leakage and potential damage to the unit.

TROUBLESHOOTING

No Power / Device Not Turning On:

Check if the AAA batteries are correctly installed and have sufficient charge. Replace them if necessary.

Ensure the USB charging cable and power adapter are properly connected if attempting to power via adapter.

Inaccurate or Fluctuating Readings:

Ensure water flow in the aquarium is minimized or stopped during measurement. Water movement can significantly affect readings.

Verify the sensor is clean and free of algae or debris.

Ensure the sensor is fully submerged and positioned correctly.

Telescopic Rod Fills with Water:

This is a known characteristic of some telescopic designs. After use, extend the rod fully and allow it to drain completely before collapsing and storing.

SPECIFICATIONS

Feature	Detail
Model Number	VBR-AQUA
Waterproof Rating	IP68 (Sensor)
Telescopic Rod Length	Up to 3 feet
Battery Type	3 x AAA (included)
Battery Life	Approx. 100 hours
Data Storage	400 data points
DLI Recording	Up to 28 days
Package Dimensions	13.5 x 8.74 x 2.17 inches
Item Weight	1.81 Pounds

PAR REQUIREMENTS FOR CORALS AND PLANTS

Understanding the optimal PAR levels for your specific corals and plants is essential for their growth and health. Use the VBR-AQUA PAR Meter to ensure your lighting meets these requirements.

Effects of Light Spectra

The VBR-AQUA meter's ability to measure blue, green, and red light separately provides valuable data. Each spectrum plays a distinct role in photosynthesis and coral/plant physiology:

- **Blue Light (400-500nm):** Crucial for coral photosynthesis, health, and coloration. Zooxanthellae (symbiotic algae in corals) efficiently absorb blue light. It also aids in deep-water light penetration.
- **Green Light (500-600nm):** Plays a minor role in coral photosynthesis. While some studies suggest it can aid coral growth, excessive green light may inhibit photosynthesis. Not typically used as a primary light source for corals.

- **Red Light (600-700nm):** Has weak penetrating ability in water. Primarily beneficial for plant photosynthesis. Generally not recommended as a standalone light source for coral growth.

Typical PAR Ranges

The following tables provide general guidelines for ideal PAR levels and lighting durations for various corals and plants. These are approximate values and may vary based on specific species and tank conditions.

Scleractinia (Stony Corals)

Species	SPS LPS	Name	PAR($\mu\text{mol}/\text{m}^2/\text{s}$)	Lighting Duration
Scleractinia	Small Polyp Stony	Acropora	200-450	8-12 hours
		Seriatopora	150-300	8-10 hours
		Acropora hyacinthus	250-400	8-12 hours
Scleractinia	Large Polyp Stony	Plerogyra sinuosa	50-150	8-10 hours
		Favites, Platygyra	100-250	8-10 hours
		Euphyllia glabrescens	80-150	8-10 hours

Alcyonacea (Soft Corals) & Other Common Corals

Species	Name	PAR($\mu\text{mol}/\text{m}^2/\text{s}$)	Lighting Duration
Alcyonacea	Gorgonians	50-150	8-12 hours
	Leather Coral	50-150	8-10 hours
	Sarcophyton	50-150	8-12 hours
	Sinularia	50-150	8-10 hours
	Sea Fans	50-150	8-10 hours
Other common corals	Umbrella Coral	80-150	8-10 hours

Aquatic Plants

Plant Name	Ideal PAR	Duration
Medium Light Plants		
Java Moss	10-50 $\mu\text{mol}/\text{m}^2/\text{s}$	8-10 hours daily
High Light Plants		
Vallisneria	30-80 $\mu\text{mol}/\text{m}^2/\text{s}$	8-10 hours daily
Ludwigia inclinata	20-50 $\mu\text{mol}/\text{m}^2/\text{s}$	8-10 hours daily
Rotala	20-50 $\mu\text{mol}/\text{m}^2/\text{s}$	8-10 hours daily

WARRANTY AND SUPPORT

VABIRA products are manufactured to high-quality standards. For warranty information, technical support, or any questions regarding your VBR-AQUA PAR Meter, please contact VABIRA customer service through the platform where you purchased the product. Please have your model number (VBR-AQUA) and purchase date available. We aim to respond to all inquiries within one business day.
