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> Vodeson Handheld Spectrometer 340-1020nm User Manual

Vodeson 340-1020nm

Vodeson Handheld Spectrometer User Manual

Model: 340-1020nm

1. INTRODUCTION

This manual provides comprehensive instructions for the safe and effective operation of your Vodeson Handheld Spectrometer, model 340-1020nm. This compact and portable device is designed for precise light measurement across a wide spectral range, from 340nm to 1020nm. Please read this manual thoroughly before using the device to ensure optimal performance and longevity.

2. SAFETY INFORMATION

- Do not expose the device to extreme temperatures, humidity, or direct sunlight.
- Avoid dropping or subjecting the device to strong impacts.
- Do not attempt to open or modify the device. Refer all servicing to qualified personnel.
- Keep the optical sensor clean and free from dust or debris. Use a soft, lint-free cloth for cleaning.
- Ensure proper ventilation when operating the device for extended periods.

3. PACKAGE CONTENTS

Verify that all items are present in the package:

- Vodeson Handheld Spectrometer
- User Manual (this document)
- *(Additional accessories such as charging cable or protective case may be included depending on the specific product variant.)*

4. PRODUCT OVERVIEW

The Vodeson Handheld Spectrometer is a compact and versatile tool for light spectrum analysis. It features a broad

wavelength range and is designed for portability and ease of use with compatible devices.



Figure 4.1: The Vodeson Handheld Spectrometer connected to a smartphone, showing real-time spectral data and analysis. The device is black with a white optical sensor on the front.

Compact Lightweight Easy-To-Carry



Figure 4.2: Illustrates the compact and lightweight design of the spectrometer, fitting easily in the palm of a hand. Dimensions are approximately 1.85 inches (47mm) by 1.3 inches (33.2mm) by 1.1 inches (28mm).

Wide Compatibility:

Windows 8/10/11 | Android



Figure 4.3: The spectrometer offers wide compatibility with various operating systems, including Windows 8/10/11 and Android devices such as smartphones and tablets.

5. SETUP

5.1 Initial Connection

- 1. Charge the Device:** If applicable, ensure the spectrometer is fully charged before first use. Connect it to a standard USB power source using the provided cable.
- 2. Install Software/App:**
 - For Android devices: Download the official Vodeson Spectrometer application from the Google Play Store.
 - For Windows PCs: Download the Vodeson Spectrometer software from the official Vodeson website.
- 3. Connect the Spectrometer:**
 - For Android devices: Connect the spectrometer to your Android phone or tablet via a compatible USB-C to USB-C or USB-A to USB-C adapter/cable (not included, if required).

- For Windows PCs: Connect the spectrometer to an available USB port on your computer using a standard USB cable.

4. **Power On:** Press and hold the power button (if present) until the indicator light illuminates.

5.2 Software/App Configuration

1. Launch the Vodeson Spectrometer application/software on your connected device.
2. The software should automatically detect the connected spectrometer. If not, check the connection and restart the application.
3. Follow any on-screen prompts for initial calibration or settings adjustments.

6. OPERATING INSTRUCTIONS

6.1 Taking a Measurement

1. **Position the Spectrometer:** Point the optical sensor of the spectrometer directly at the light source you wish to measure. Ensure there are no obstructions between the sensor and the light source.
2. **Open the Application:** Ensure the Vodeson Spectrometer application is running and connected to the device.
3. **Initiate Measurement:** Within the application, locate the "Measure" or "Scan" button. Tap or click it to begin the spectral analysis.
4. **Observe Data:** The application will display the absolute spectrum, data analysis table, and other relevant parameters in real-time.

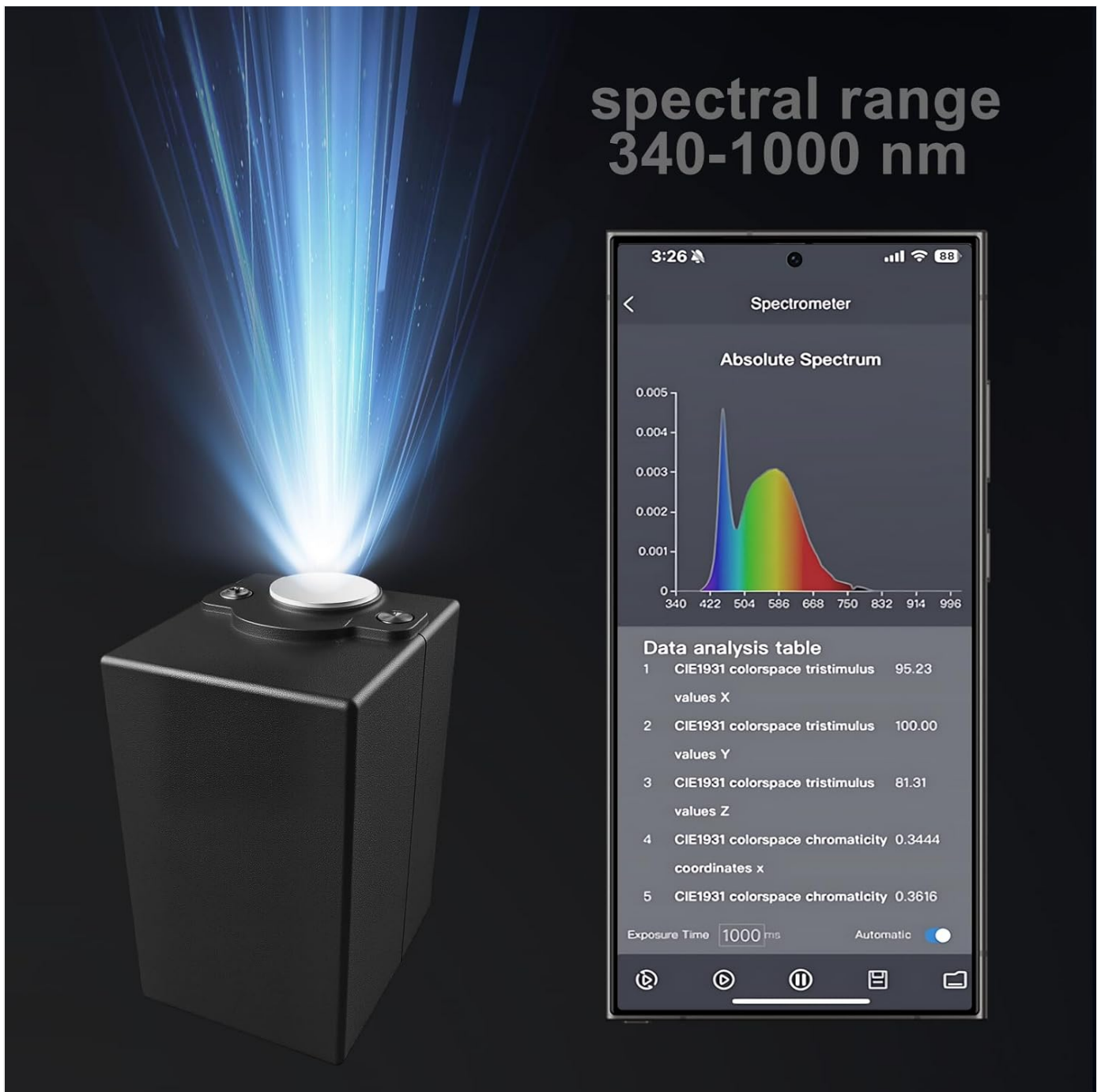


Figure 6.1: The spectrometer actively measuring a light source, with the corresponding spectral data displayed on a connected smartphone. The device is capable of measuring across a wide spectral range of 340-1020 nm.

6.2 Interpreting Measurement Data

The application provides a detailed analysis of the light spectrum. Key data points include:

- **Absolute Spectrum Graph:** Visual representation of light intensity across different wavelengths.
- **Data Analysis Table:** Numerical values for various parameters such as CIE1931 color space tristimulus values (X, Y, Z), chromaticity coordinates (x, y), and exposure time.
- **Additional Parameters:** Depending on the application settings, you may view color rendering index (CRI), correlated color temperature (CCT), illuminance (Lux), and specific parameters for plant growth light analysis (PAR, PPF).

Measurable parameters

Basic Parameters	Blue Light Hazard
CIE1931 Color Space Tristimulus Values	Blue Light Hazard Weighted Irradiance
Illuminance	Blue Light Hazard Level
Red Ratio	Near - Infrared
CIE1931 Color Space Chromaticity Coordinates	Red Light Irradiance
Irradiance	Near - Infrared Irradiance A
Green Ratio	Near - Infrared Irradiance B
CIE1960 Color Space Chromaticity Coordinates	
Candlepower Lux	
Blue Ratio	
CIE1976 Color Space Chromaticity Coordinates	
Peak Wavelength	
Half - peak Width	
Correlated Color Temperature (CCT)	
Dominant Wavelength	
Color Purity	
Chromaticity Shift	
Color Tolerance	
Color Quality Scale (CQS)	
Color Rendering Index (Ra, R1 - R15)	
Scotopic to Photopic Ratio	
Gamut Area Index (GAI)	
Equivalent Melanopic Lux (EML)	
Melanopic Equivalent Daylight (D65)	
Illuminance M - EDI	
	Plant Light Parameters
	Photosynthetically Active Radiation (PAR)
	Chlorophyll A Weighted Irradiance
	Chlorophyll B Weighted Irradiance
	Blue - Violet Irradiance
	Yellow - Green Irradiance
	Red - Orange Irradiance
	Red to Blue Irradiance Ratio
	Photosynthetic Photon Flux Density (PPFD)
	Blue - Violet Photosynthetic Photon Flux Density
	Yellow - Green Photosynthetic Photon Flux Density
	Red - Orange Photosynthetic Photon Flux Density
	Far - Red Photosynthetic Photon Flux Density
	Red - Orange to Photosynthetic Photon Flux Density Ratio
	Yellow - Green to Photosynthetic Photon Flux Density Ratio
	Blue - Violet to Photosynthetic Photon Flux Density Ratio
	Generated Photon Flux Density

Figure 6.2: A close-up of the spectrometer application interface, displaying the absolute spectrum graph and a data analysis table with values for CIE1931 color space tristimulus and chromaticity coordinates.



Figure 6.3: A comprehensive list of measurable parameters supported by the spectrometer, categorized into Basic Parameters, Blue Light Hazard, and Plant Light Parameters, including metrics like CCT, CRI, PAR, and PPFD.

6.3 Applications

The Vodeson Handheld Spectrometer is suitable for various applications, including:

- Lighting performance evaluation
- Color rendering analysis
- Plant growth light testing
- General spectral analysis for research and industrial purposes

7. MAINTENANCE

7.1 Cleaning

- Gently wipe the exterior of the device with a soft, dry, lint-free cloth.

- For the optical sensor, use a specialized lens cleaning cloth or air blower to remove dust. Avoid touching the sensor directly with fingers.
- Do not use abrasive cleaners, solvents, or harsh chemicals.

7.2 Storage

- Store the spectrometer in a cool, dry place, away from direct sunlight and extreme temperatures.
- If storing for an extended period, ensure the device is fully charged before storage and recharge periodically to maintain battery health.

8. TROUBLESHOOTING

Problem	Possible Cause	Solution
Device does not power on.	Low battery or no power.	Charge the device using the appropriate USB cable and power source.
Application does not detect the device.	Incorrect connection, software issue, or device not powered on.	<ul style="list-style-type: none"> • Ensure the device is powered on. • Check the USB cable connection. • Restart the application and/or your connected device. • Verify that the correct drivers are installed for Windows.
Inaccurate readings.	Dirty sensor, improper positioning, or environmental interference.	<ul style="list-style-type: none"> • Clean the optical sensor. • Ensure the sensor is pointed directly at the light source. • Minimize ambient light interference if possible. • Perform a software calibration if available.

9. SPECIFICATIONS

Feature	Detail
Model	340-1020nm
Wavelength Range	340-1020 nm
Compatibility	Windows 8/10/11, Android
Applications	Lighting performance evaluation, color rendering analysis, plant growth light testing, general spectral analysis.
Package Dimensions	5.9 x 3.9 x 2 inches
Weight	0.8 ounces
Manufacturer	VODESON
ASIN	B0FGNGL51M

10. WARRANTY AND SUPPORT

10.1 Warranty Information

This product comes with a standard manufacturer's warranty. Please refer to the warranty card included with your purchase or visit the official Vodeson website for detailed warranty terms and conditions. Keep your proof of purchase for warranty claims.

10.2 Customer Support

For technical assistance, troubleshooting, or any questions regarding your Vodeson Handheld Spectrometer, please contact Vodeson customer support through their official website or the contact information provided with your product documentation. When contacting support, please have your product model and ASIN (B0FGNGL51M) ready.

