Flaw Detection Light Meter

Model: LS331

User Manual V1.07

Please read this manual carefully before using and reserve it for reference.

Product introduction

The instrument is a multifunctional flaw detection light meter, specifically designed for non-destructive testing (NDT). It simultaneously measures UV power, visible light illuminance, and correlated color temperature (CCT). It meets the standards for non-destructive testing, penetrant testing, and magnetic particle testing.

Standards for the product

JJG 245-2005 Verification Regulation of Illuminance Meter

JJG 879-2015 Verification Regulation of Ultraviolet Radiometers

GBT 5097-2020 Non-destructive testing——Penetrant testing and magnetic particle testing——Viewing conditions

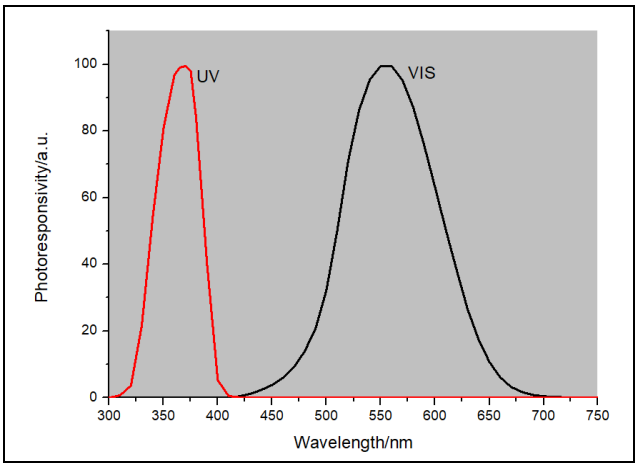
I. Technical Parameters

UV spectral response	315nm-405nm, λp = 365nm
UV power measurement range	0 - 200,000 μW/cm²
UV power resolution	0.1 μW/cm²
UV measurement accuracy (H is the standard value)	H<50 μW/cm²: ±5 μW/cm² H>=50 μW/cm²: ±10%H
UV unit	μW/cm² (default), mW/cm², W/m²
Illuminance measurement range	0 – 1,000,000 Lux
Illuminance resolution	0.1 Lux
Illuminance measurement accuracy	H<50Lux：±2Lux，H>=50Lux：±4H， (H is the standard value)
Illuminance unit	Lx (default), FC
CCT range	1000 – 100,000K
Response time	<0.7s
Test aperture diameter	Φ21mm
Size	Host: 147.2mm * 72mm * 28mm Probe: diameter 40mm * thickness 20mm
Weight	about 232 (including batteries)
Display	240*160 dot matrix LCD

Battery	2 AA alkaline batteries
Operating environment	Temperature (0 ~ 50)℃, Humidity <85%RH
Supply Voltage	DC 3V
Operating Current	20mA
Operating Power Consumption	60mW

II. Spectral response curve

The UV measurement uses high-precision UV filter and professional UV detector. It almost no response to visible wavelengths, eliminate the impact of other spectral bands on the measurement accuracy. Illuminance measurement adopts spectral sensor design, and illuminance values is obtained by integral of the V(λ) function with the measured spectrum, ensuring the spectral response curve of the instrument is in perfect agreement with V(λ).



III. Product features

1. The instrument measures UV power and visible light illuminance, specifically designed for NDT.
2. Large measurement range, UV range up to 200,000 μW/cm² and visible light range up to 1 million Lx.
3. The visible light measurement uses spectral sensor design with spectral response fully consistent with the V(λ) function, ensuring accurate measurements for all light sources.
4. The instrument features CCT measurement function, meeting the requirements of the GBT 5097-2020 for color temperature detection.
5. It has statistical function for the maximum values of UV power and visible light illuminance.
6. Auto shutdown can be set to prevent battery drain when not in use.

7. Utilize advanced digital probe technology, where digital signal processing is performed directly, reducing interference and providing excellent measurement accuracy.

IV. Operations

1. Power on/off

- **Power on**: Press 

to power on the instrument. After powering on, the instrument displays the information of the version number, serial number and enters into the measurement interface:

- **Power off:** Long press the 

button to power off; or the instrument will automatically power off when "Auto Off" set to ON.

2. Parameter settings mode

In the off state, long press the 

button 3s to enter the system setting mode. In the setting mode, there are seven sub-options, the  can select Language, UV Unit, VIS Unit, AutoOff, OffTime, Factory Settings and Exit. Short press 

to confirm selection.



A. Language

Short press 

or 

to enter the language selection,  button to select the language, short press 

, and the setting is completed.

B. UV Unit

Short press 

or 

to enter unit selection,  button to select unit, short press 

, and setting is finished.

C. VIS Unit

Short press Hold or Del to enter unit selection, ▲ ▼ button to select unit, short press Hold, and setting is finished.

D. Auto Off:

Short press the Hold or Del to enter auto power off selection, ▲ ▼ button to select [Yes/No] auto power off, short press Hold, then the setting is completed.

E. Off Time

Short press Hold or Del to select the shutdown time, ▲ ▼ to extend or shorten the shutdown time (long press to fast change the duration; may be set between 1-255 minutes), then short press Hold to finish the setting.

F. Factory Settings

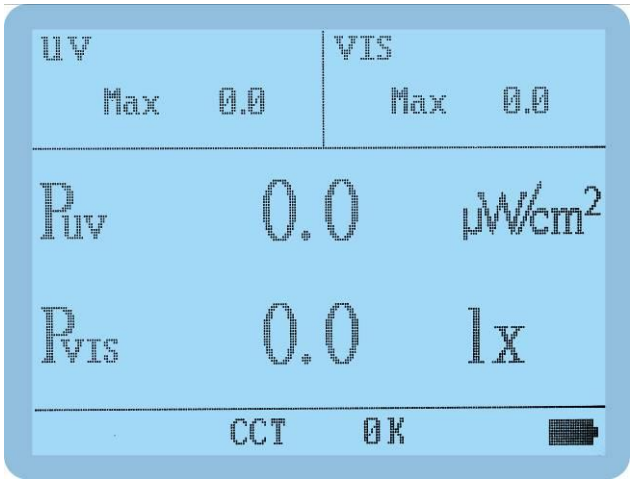
Short press Hold to enter the restore factory selection interface, Shift Del to switch the [Yes/No] option, short press Hold to confirm the option and return to the setting interface.

G. Exit

Press Enter briefly to exit the main menu and access the measuring interface.

3. Measurement mode

- After powering on the instrument, it enter the measurement interface. The system displays the maximum UV power, maximum visible light illuminance, real-time UV power, real-time visible light illuminance, and correlated color temperature.



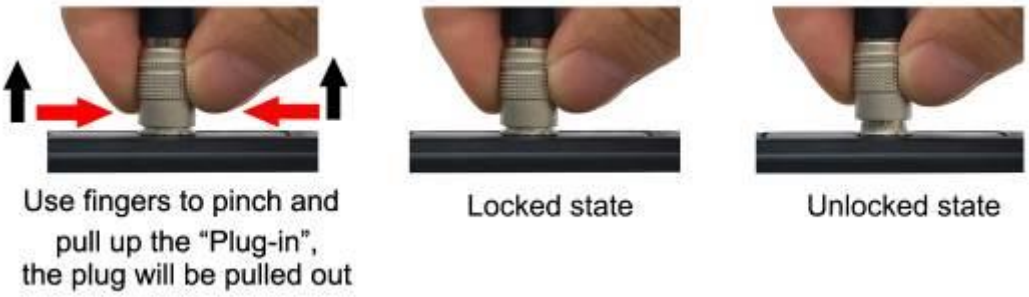
- In the measurement mode, if the backlight is off, short press the Hold button to light the backlight; if the backlight is already lit, short press the Hold button, and the “HOLD” icon will be displayed in the lower left corner of the interface. All data will be holding on the LCD, and the current data will be recorded.
- In the “HOLD” state, if the backlight is off, press the Hold button to light the backlight; if the backlight is already lit, short press the Hold button to cancel the HOLD state and start a new measurement.
- In the measurement mode, if the backlight is off, short press the Del button to light the backlight; if the backlight is already lit, press the Del button to clear up the current data and start a new measurement.
- In the measurement mode, short press ▲ or ▼ to enter the Record data query mode

4. Record data query mode

- Short press ▲ or ▼, enter the record data query mode. The instrument will display the latest recorded data No.1 (up to 9 recorded data are stored in the instrument, and the oldest recorded data will be deleted automatically when exceed 9 recorded data).
- Short press ▲ or ▼ to scroll up or down a recorded data.
- Short press Del to display data deletion prompt interface, short press ▲ ▼ to select [Yes/No], then short press Hold to confirm.
- Short press the Hold button to enter the measurement mode.

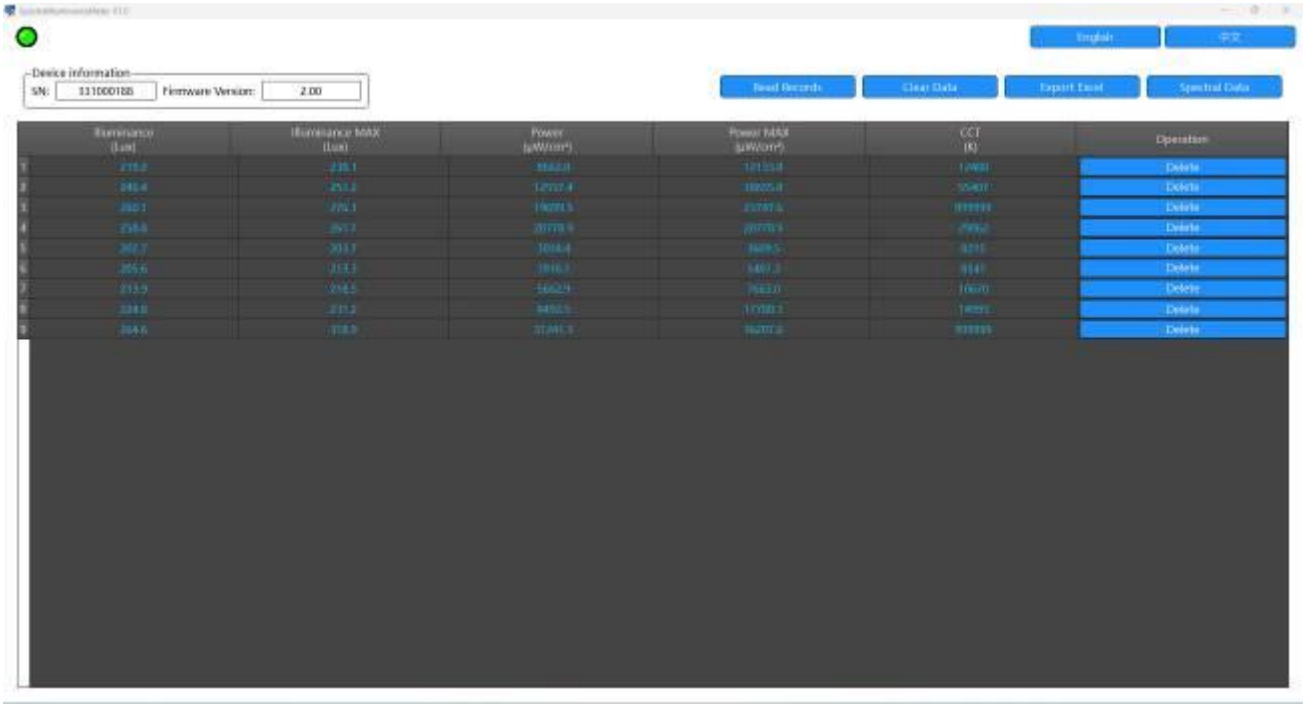
5. Aviation plug connection

When plugging out the probe, make sure not to violently rotate and pull the connector, but plug out the plug by the way as shown in the following diagram.



6. PC Software

Connect the device to a computer via USB to use the dedicated PC software for illuminance and luminance meters.The software supports reading measurement records, exporting data to Excel, and other functions.



V. Measurement and precautions

1. When not in use, please long press the 

button to power off.
2. Avoid contacting with corrosive materials and keep away from high humidity.
3. The recommended period of calibration is one year.
4. Since the UV probe is very sensitive to humidity changes, the storage environment is crucial. When not in use for a long time, be sure to store the instrument in a low humidity environment.

5. When the instrument displays Low Battery, please replace the battery.

VI. Packing list

No.	Description	Quantity	Unit
1	Flaw Detection Light Meter	1	pcs
2	User Manual	1	pcs
3	Calibration Report	1	pcs

VII. Service

1. The meter has one-year warranty. If the instrument works abnormally, please send the whole instrument to our company for maintenance
2. Provide users with spare parts and lifelong maintenance services
3. Provide the users with the meter calibration service
4. Free technical support for long term

Manufacturer: Shenzhen Linshang Technology Co., Ltd.
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