

# LS161/LS161A Transmission Meter

User Manual V1.0

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

Note: IR peak wavelength of LS161 is 940nm, and IR peak wavelength of LS161A is 1400nm.

## I. Product introduction

Transmission Meter is a small size, portable product for transmission value measurement. It is able to simultaneously measure and display UV, IR rejection value and visible light transmission value.

### Standards for the product

*GB/T 31849-2015 Film mounted motor vehicle glass*

*GA/T 744-2013 Automotive solar control window films*

*JJF 1225-2009 Calibration Specification for Transmittance Meter of Automobile*

*JJG 178-2007 Ultraviolet, Visible, Near-Infrared Spectrophotometers*

## II. Parameters

1. UV Peak wavelength: 365nm
2. IR Peak wavelength: 940nm/1400nm
3. VL wavelength: 380nm-760nm, CIE function of photopic vision
4. Resolution: 0.1%
5. Accuracy:  $\pm 2\%$  (colorless uniform light-transmitting material), factory standard sample detection sensitivity  $\pm 1\%$
6. Dimension: 101mm \*52mm \*25.5mm (L\*W\*H)
7. Thickness of testing sample: < 0.8mm
8. Display: 240\*240 dot matrix TFT color screen
9. Weigh: about 70g (exclude batteries)
10. Power supply: 4\*AAA alkaline battery
11. Supply voltage: DC5V
12. Operating current: 38mA
13. Operating power consumption: 190mW

## III. Operation

### 1. Power on/off

- Power-on self-test: Short press the "ON/OFF" button to power on. Ensure that the test sample is not placed in the test slot before powering on, otherwise the self-calibration cannot be completed. After powering on, the instrument will display the serial number, version number, and other relevant information. This interface will enter the measurement state after displaying for 3s. The instrument will display the corresponding measurement interface according to the set parameters.
- Manual off: Press "ON/OFF" button and hold for longer than 3 seconds, the meter will be powered off.
- Auto off: No button is pressed in 3 minutes, and then the meter will power off automatically.

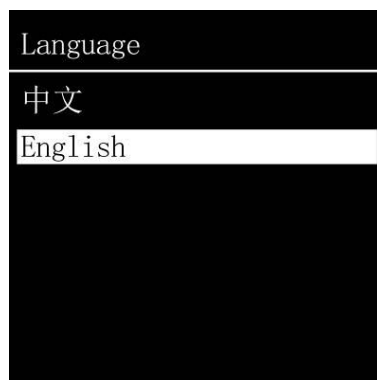
## 2. SETUP

In the off state, press and hold the "ON/OFF" button for 3 seconds to enter the "SETUP" interface. Short press the button for selection, you can switch options. Long press the button for confirmation.





- **Language**

Select "Language" to enter the language setting interface, choose the required language and confirm. The meter will then automatically return to the main menu.

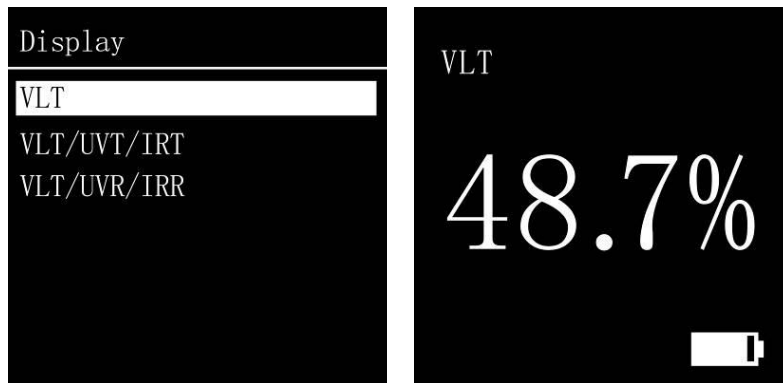


- **Display**

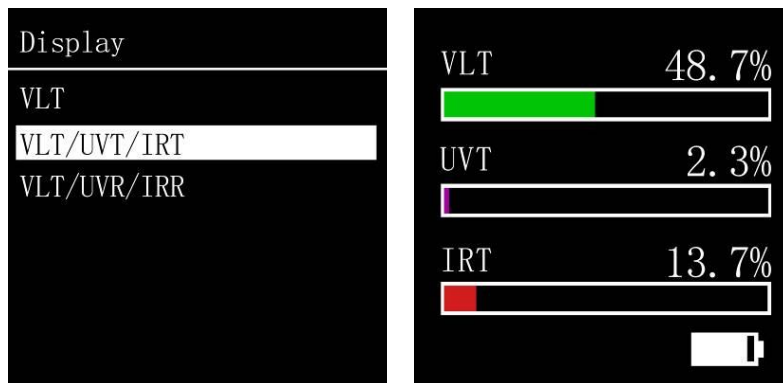
Select “Display” to enter the display setting interface. Short press the  button to switch options, long press the  button for 2 seconds to save the current option and enter the measurement interface.

LS161/LS161A options are as follows: (LS161 IR peak wavelength 940nm, LS161A is 1400nm)

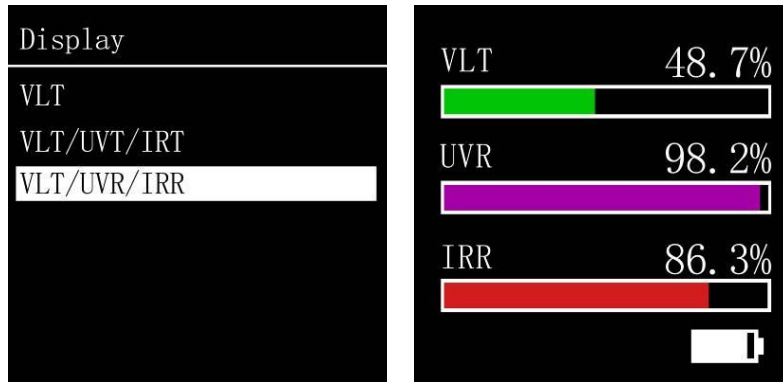
**VLT:** The measurement interface only displays VLT (visible light transmittance, i.e. transmittance).






**VLT/UVT/IRT:** The measurement interface displays VLT (visible light transmittance), UVT (ultraviolet transmittance), and IRT (infrared transmittance).



**VLT/UVR/IRR:** The measurement interface displays VLT (visible light transmittance), UVR (ultraviolet rejection rate), and IRR (infrared rejection rate).



### 3. Measurement

- When testing a sample in the measurement state, short press the  button, the "HOLD" icon will be displayed in the lower left corner of the interface, and the measurement data will be kept on the screen. If you need to measure again, press the  button to cancel the "HOLD" state and return to the measurement state.
- In the "HOLD" state, if the backlight is off, short press the  button to only light up the backlight. If the backlight is already on, it will cancel the HOLD function and start a new measurement.


### 4. The screen can rotate automatically

The instrument screen can rotate 180° according to its own direction, which is convenient for operation and reading data.

### 5. Backlight can light up automatically

In measurement mode, the backlight turns on automatically when a test sample is placed in the slot. If no action or test is performed, the backlight dims after 30 seconds.

### 6. Low battery reminder

When battery power is low, the battery icon at the bottom right will flash and display , indicating the need for replacement.

## IV. Features

1. The color screen displays different band progress bars in distinct colors for more intuitive visualization.
2. The screen can rotate automatically for easier operation and data reading.

3. It features real-time dynamic self-calibration, automatically calibrating upon power-on.
4. Multiple display modes, including rejection rate, transmittance, and single transmittance, can be set.
5. Simple operation and quick measurement, just place the test object in the slot, and results are displayed immediately.
6. Ideal for solar film performance demonstrations, as well as production, quality control, and inspection.

## V. Notes

1. The instrument will self-test and self-calibrate when powered on. The test slot must be empty at this time, otherwise the self-calibration cannot be completed.
2. Please turn off the power when the instrument is not in use.
3. Avoid contact with corrosive agents and prevent from high temperature and high humidity environment.
4. Extended use may cause a decrease in LED efficiency (the temperature of the LED light source increases and the efficiency decreases), resulting in VLT, UVR, and IRR data not showing "100%, 0.0%, 0.0%" or VLT, UVT, and IRT data not showing "100%, 100%, 100%" when no test object is present. In such cases, turn off the instrument, restart it for self-test and calibration. This does not affect measurement accuracy and normal operation.

## VI. Standard packing list

No.	Description	Quantity	Unit
1	Transmission Meter	1	pcs
2	User Manual	1	pcs
3	Certificate / warranty card	1	pcs
4	Storage bag	1	pcs

## VII. Service

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



Manufacturer: Shenzhen Linshang Technology Co.,Ltd.

Website: [www.linshangtech.com](http://www.linshangtech.com)

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