

LS161H

Transmission Meter

User Manual V1.0

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

I. Product introduction

The instrument is a small and portable transmission meter, a real pocket product. It is suitable for simultaneously testing the IR and UV rejection rate, visible light transmittance, total solar energy rejection (TSER) and solar heat gain coefficient (SHGC) of various film materials (such as solar films, explosion-proof films, etc.). The instrument has a variety of display parameter combinations, and users can choose according to their needs.

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 wavelength: Peak wavelength 940nm, 1400nm and Full IR
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. Solar Heat Gain Coefficient: SHGC (0.000-1.000)
7. Total Solar Energy Rejection: TSER (0.0%-100%)
8. Dimension: 101mm *52mm *25.5mm (L*W*H)
9. Thickness of testing sample: < 0.8mm
10. Display: 240*240 dot matrix TFT color screen
11. Weight: about 70g (exclude batteries)
12. Power supply: 4*AAA alkaline battery
13. Supply voltage: DC5V
14. Operating current: 38mA
15. Operating power consumption: 190mW

III. Operation

1. Power on/off

- Power-on self-test: Short press the  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  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  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 system setting interface.

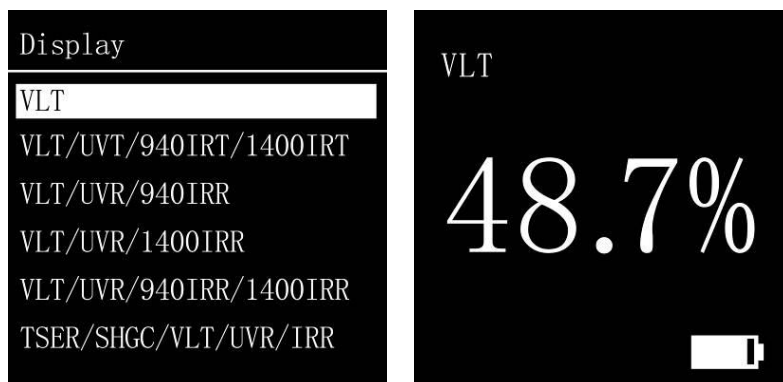


- **Display**

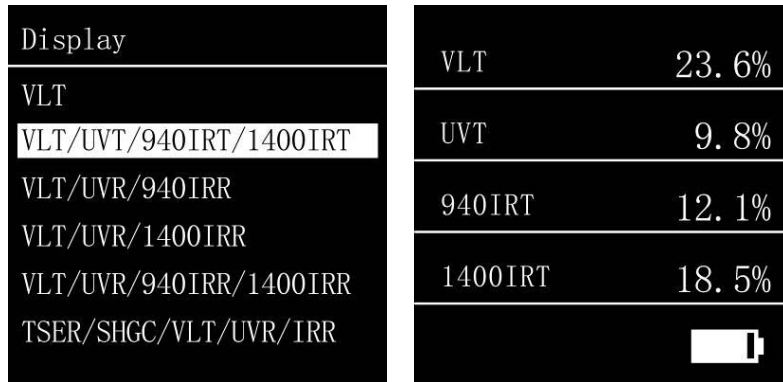
Select “Display” to enter the display setting interface. Short press the  button to switch options, long press the  button for 2 seconds to save the current option and enter the measurement interface.

The options are as follows: (both IR peak wavelengths 940nm and 1400nm are available)

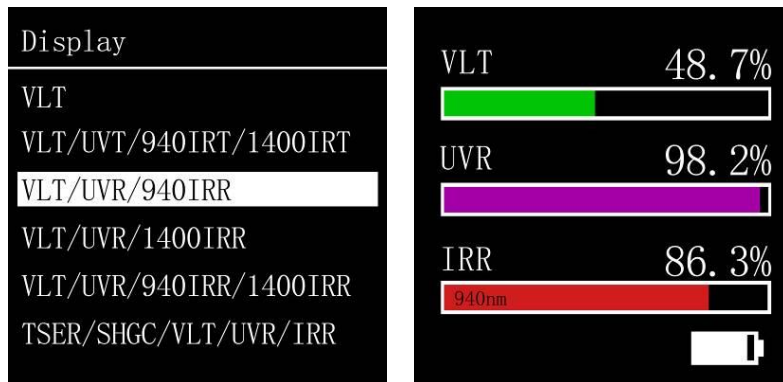
VLT: The measurement interface only displays VLT (visible light transmittance, i.e. transmittance).



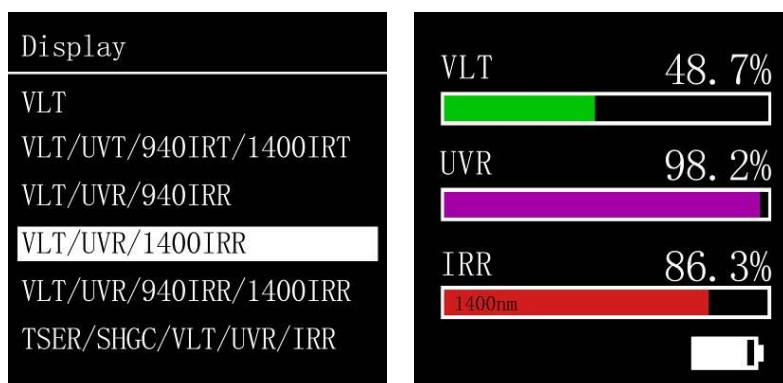
VLT/UVT/IRT: The measurement interface displays VLT (visible light transmittance), UVT (ultraviolet transmittance), 940IRT (940nm infrared transmittance), 1400IRT (1400nm infrared transmittance).



VLT/UVR/940IRR: The measurement interface displays VLT (visible light transmittance), UVR (ultraviolet rejection rate), and 940IRR (940nm infrared rejection rate).



VLT/UVR/1400IRR: The measurement interface displays VLT (visible light transmittance), UVR (ultraviolet rejection rate), and 1400IRR (1400nm infrared rejection rate).






VLT/UVR/940IRR/1400IRR: The measurement interface displays VLT (visible light transmittance), UVR (ultraviolet rejection rate), 940IRR (940nm infrared rejection rate), 1400IRR (1400nm infrared rejection rate).

Display	VLT	100%
VLT	UVR	0%
VLT/UVT/940IRT/1400IRT	940IRR	0%
VLT/UVR/940IRR	1400IRR	0%
VLT/UVR/1400IRR		
VLT/UVR/940IRR/1400IRR		
TSER/SHGC/VLT/UVR/IRR		

TSER/SHGC/VLT/UVR/IRR: The measurement interface displays VLT (visible light transmittance), UVR (ultraviolet rejection rate), IRR (full infrared rejection rate, which is the comprehensive value of the heat insulation rate of IR940nm and IR1400nm), TSER (Total Solar Energy Rejection Rate), and SHGC (Solar Heat Gain Coefficient).

Display	VLT	84.9%
VLT	UVR	23.2%
VLT/UVT/940IRT/1400IRT	Full IRR	6.5%
VLT/UVR/940IRR	TSER	12.1%
VLT/UVR/1400IRR	SHGC	0.879
VLT/UVR/940IRR/1400IRR		
TSER/SHGC/VLT/UVR/IRR		

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 display can rotate automatically

The instrument display interface 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. Five-band test: UV, visible light, IR 940nm, IR 1400nm, and Full IR.
6. Reference test for Total Solar Energy Rejection Rate (TSER) and Solar Heat Gain Coefficient (SHGC) parameters.
7. Simple operation and quick measurement, just place the test object in the slot, and results are displayed immediately.
8. 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 or 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

Service hotline: 086-755-86263411

Email: sales21@linshangtech.com