

LH-220/221

Optical Transmittance Meter

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# Users Manual

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## Summary

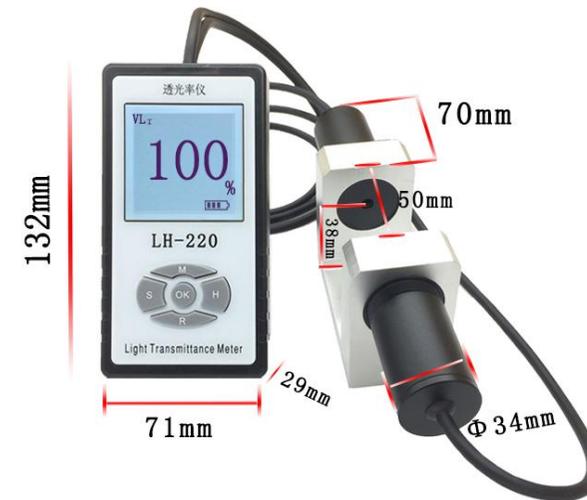
LH-220 / 221 are two high-precision Transmittance Measuring instruments, lh-220 is used for visible light (VL) transmittance test, lh-221 is used for ultraviolet (UV), visible light (VL), infrared (IR) three band transmittance test. According to the optical principle, the instrument implements gb5137.2-2002 test method for optical performance of automotive safety glass, and meets the requirements of jjf1225-2009, the calibration specification for automotive transmittance meter, It is specialized in measuring light transmittance of glass/ acrylic/ film/ PVC and other products.



## Advantage

1. Adopt the design of parallel light path, so that it can measure the material with large thickness
2. The split probe is equipped with a fixed bracket, and has fixed test and split test modes
3. High measurement accuracy, fast speed and simple operation
4. Real time measurement is put and measured, without buttons and waiting

5. With alarm function, the qualified range can be set in advance, and there is sound alarm in case of exceeding the standard
6. It can record 100 groups of measurement data, and can automatically count the maximum value, minimum value and average value
7. Three measurement modes of transmittance, opacity and solar film
8. Equipped with computer software and connected with computer, it can realize automatic test, over limit alarm, data statistics and data storage, View column chart, curve chart, print test report, etc
9. Power on automatic calibration and manual calibration
10. Large size LCD display, intelligent backlight, automatic shutdown without operation
11. Equipped with high-grade aluminum box and EVA lining, easy to carry out



## Parameter

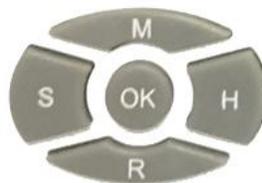
1. Light source wavelength:  
LH-220: UV: NO VL:380-760nm IR: NO  
LH-221: UV:365nm VL:380-760nm IR:940nm
2. Measurement range: 0-100%
3. Resolution: 0.1%
4. Measurement error:  $\leq 2\%$

5. Measured thickness:  $\leq 50\text{mm}$
6. Sample area:  $\geq 3 * 3\text{mm}$
7. Host size: 132x71x29mm
8. Handle size:  $\Phi 34 * 75\text{mm}$
9. Bracket size: 91 \* 45 \* 70mm
10. Aluminum box size: 340 \* 240 \* 100 mm
11. Power supply: AAA \* 4
12. Operating environment: T & H 0-40 °C  $\leq 85\%$

## Operation

### Key

1. OK key: confirm and turn on / off the machine, press OK key to turn on the machine, press and hold, OK key for 3 seconds
2. M key: mode mode switch + direction key: up
3. R key: rec query save data + direction key: down
4. S key: set enters the setting menu + direction key: left
5. H key: hold lock data and unlock + direction key: right



### Set up

S key -- enter menu up and down key -- select OK key -- confirm s key -- return



1. Calibration: for recalibration, press OK after entering the menu to recalibrate 100%

1178	
1178	100 %
2820	
2820	100 %
2709	
2709	100 %

2. Alarm: when the light transmittance exceeds the set range, the sound alarm is used for batch test

Alarm		
*Status:	Yes	
Option:	T	
	LSL	USL
UV	1.0	99.0%
VL	1.0	99.0%
IR	1.0	99.0%

Set value	
USL	LSL
99.0	01.0
*UV	1.0-99.0%
VL	1.0-99.0%
IR	1.0-99.0%

Status: used to turn off or turn on the alarm function

Parameter: set the alarm parameter to light transmittance or light shielding rate

Ultraviolet, visible and infrared: the qualified range of the three bands. Move the cursor position with the left and right keys, modify the number with the up and down keys, and then press the OK key to confirm

3. Test item: one or all of the light sources (UV, visible and infrared) can be selected for testing. The lh-220 is single visible light. This item cannot be set

Test Item
UV
VL
IR
*ALL

4. Automatic shutdown: yes -- automatic shutdown without operation for 3 minutes, no -- no automatic shutdown
5. Language: Select Chinese - Chinese, English - English
6. Restore factory settings: restore the tester parameters to factory settings
7. Exit: Exit menu

## Test

### Fixed test mode

1. Install the probe into the fixed base and keep no objects between the probes to avoid strong light environment. Press OK to start the machine and the light transmittance data will be displayed as 100%.
2. Put the tested object into the test slot, and the displayed data is the light transmittance value of the tested object
3. Press the H key to lock the data, press the OK key to save and unlock the data in the locked state, and then press the H key to unlock and exit if it is not necessary to save the data



### Field measurement method

It is applicable to the situation that the tested object has been installed and can't use the bracket, such as the front windshield of the car and the glass of the building doors and windows

1. Absorb the probe and keep no objects between the probes. Press OK to

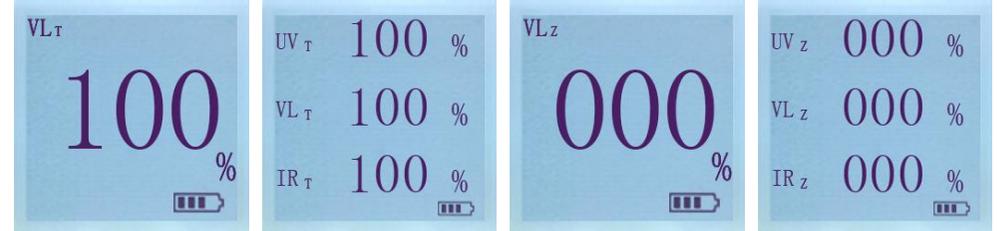
start the machine, and the light transmittance data will be 100%.

2. Two probes are aligned and clamped, and the displayed data is the transmittance value of the tested object



## Mode switching

Press the M key on the test interface to switch the transmittance, blackout and solar film



Transmittance

Barrier ratio

### Result query and deletion

Press the R key to enter the query interface and press the s key to exit

Up and down direction key up and down flip data

H key to delete current or all data, press OK key to confirm

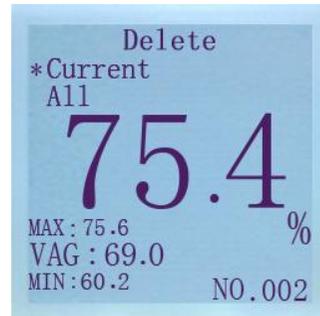
Max: maximum

Wag: Average

Min: minimum

## Matters needing attention

1. Avoid strong light environment when the instrument is tested with bracket
2. Before startup and calibration, two probes must be aligned and there is no object between them
3. When the light source is used continuously for a long time, it may not display 100% due to the change of luminous efficiency of the light source. At this time, restart the machine
4. If it is not used for a long time (such as one month), please take out the battery
5. Avoid contact with corrosive substances and keep away from high temperature and high humidity environment



## Configuration list

1. Tester
2. bracket
3. data line
3. Instructions
5. warranty card
6. Non-dust cloth
7. aluminum box

