

GLOSSMETER

- GM-4
- GM-7
- GM-247

This Gloss Meter is small in size, light in weight, easy to carry. Although complex and advanced, it is convenient to use and operate. Its ruggedness will allow many years of use if proper operating techniques are followed. Please read the following instructions carefully and always keep this manual within easy reach.

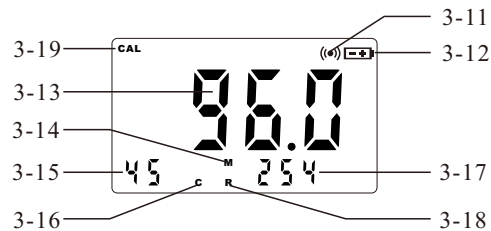


Fig. 2 Display

- 3-1 Display
- 3-2 Power Key
- 3-3 Angle Key
- 3-4 Calibration/Minus Key
- 3-5 Measurement Key
- 3-6 Delete Key
- 3-7 Read/Plus Key
- 3-8 USB Interface
- 3-9 Power Adapter Interface
- 3-10 Calibration Box
- 3-11 Coupling Indicator
- 3-12 Battery Indicator
- 3-13 Reading Value
- 3-14 Measurement Mode Indicator
- 3-15 Measurement Angle

1. FEATURES & APPLICATIONS

Designed and manufactured in accordance with international standard ASTM D 5 2 3 , ASTM D 1 4 5 5 , ASTM C 3 4 6 , ASTM C 5 8 4 , ASTM D 2457, DIN ENISO 2813, DIN 67530, ENISO 7668, JIS Z 8741, MFT 30064, TAPPIT 480, GB 9754, GB/T 13891, GB 7706 and GB 8807. Its technical parameters conform with JJG 696-2002.

Glossmeter have different kinds of measurement angles. Generally, 20° applies to High Gloss Materials, 60° applies to Medium Gloss Materials, 85° applies to Low Gloss Materials. Two additional angles are used for other materials. An angle of 45° is specified for the measurement of ceramics, films, textiles and anodised aluminium, whilst 75° is specified for paper and printed materials.

2. TECHNICAL SPECIFICATIONS

- Measuring geometry:
 - GM-4: 45°
 - GM-7: 75°
 - GM-247: 20°, 45° & 75°
- Range: 0.1 to 200 gloss units
- Accuracy: ±1.5 gloss unit (against reference standard JJG 696-2002)
- Resolution: 0.1 gloss unit
- Repeatability: ± 0.5 GU (0 ... 99.9)
- Measuring area: 7x14mm ellipse
- Data memorized: 254 groups
- Data output: USB interface
- Working condition:
 - Temperature range: 0°C- 40°C
 - Humidity: up to 85%
- Power supply: Lithium Battery
- Size: 140x45x75 mm
- Weight: 305 g

Accessories

- Main Unit.....1pc.
- Calibration Box.....1pc.
- Optic Cleaning Cloth.....1pc.
- Carrying Case.....1pc.
- Operation Manual.....1pc.

Optional Accessories

- USB Cable & software
- Bluetooth adaptor & software

3. STRUCTURE & DISPLAY



Fig. 1 Main Structure

- 3-16 Continuous Mode Indicator
- 3-17 Data Amount In Memory Indicator
- 3-18 Reading Mode Indicator
- 3-19 Calibration Indicator
- 3-20 Battery Cover on the back

4. POWER ON/OFF

- 4-1 To turn on the meter, just press the Power Key.
- 4-2 To turn off the meter, in the state of power-on, press and hold the Power Key for about 3 seconds. When 'OFF' comes out on the display, release the key.
- 4-3 The tester has a function of 10 minutes auto power off and a function of 1 hour auto power off. In the single measurement mode, the tester will power off itself if there is no key operation in 10 minutes. In the continuous measurement mode, the tester will power off itself if there is no key operation in 1 hour. About the conversions of single and continuous

measurement mode, please see 7. MEASUREMENT.

5. CALIBRATION

- 5-1 Firstly, to set calibration values. Press and hold the Power Key for about 9 seconds. When 'CAL' comes out on the display, release the key. Then the Calibration Indicator 'CAL', the 75° Angle Value '75', and a Reading Value of 75° comes out on the display. Press the Read/Plus Key or the Calibration/Minus Key for adjustment to the indicated value on the Calibration Box. Press the Measurement Key to confirm. Then the 20° Angle Value '20', and a Reading Value of 20° comes out on the display. Also press the Read/Plus Key or the Calibration/Minus Key for adjustment to the indicated value on the Calibration Box. Press the Measurement Key to confirm. Then the 45° Angle Value '45', and a

Reading Value of 45° comes out on the display. Also press the Read/Plus Key or the Calibration/Minus Key for adjustment to the indicated value on the Calibration Box. Press the Measurement Key to confirm. The setting of calibration value is finished.

- 5-2 Afterwards, Calibrate the meter. Put the meter correctly into the Calibration Box, and then press the Measurement Key, a reading comes out on the display. Compare the reading with the predetermined calibration value. If the two are the same, it means the meter is calibrated. If not, press the Calibration/Minus Key, 'CAL', and the Coupling Indicator '(●)' come out on the display. Then the predetermined calibration value comes out. The calibration complete.

6. ANGLE CONVERSIONS

In the state of power-on, press the Angle Key for measurement angle conversions.

7. MEASUREMENT

7-1 Single measurement. In the state of power on, lay the Measurement Aperture against the tested object. Press the Measurement Key, the Coupling Indicator ' (●) ' comes out on the right top of the display. Then the measurement reading of tested object comes out on the display. Also, this reading will be memorized into the tester automatically.

7-2 Continuous measurement. In the state of power on, press and hold the Power Key for about 6 seconds. When ' 5 [' comes out on the display, release the key. The Continuous Indicator ' C ' comes out on the display. The tester is in continuous measurement mode now.

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The tester take one measurement every second, and the coupling indicator appears once every second. Also lay the Measurement Aperture against the tested object. The tester will take multiple measurements on the tested object. The readings of these measurements will be memorized into the tester automatically.

To quit from the continuous measurement mode, press and hold the Power Key for about 6 seconds. When ' 5 [' comes out on the display, release the key. The Continuous Indicator ' C ' disappears. The tester is in single measurement mode now.

8. DATA SAVE / READ & DELETE

8-1 There are 2 modes for the meter. One is measurement mode with Measurement Mode Indicator ' M ', the other is reading mode with

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Reading Mode Indicator ' R '.

8-2 When taking a measurement in measurement mode, including single measurement and continuous measurement, the measurement data is automatically saved into the meter. Each time there is a Coupling Indicator ' (●) ', one group of data is saved, the amount of saved data increases one. For example, ' 055 ' becomes ' 056 '. 254 groups of data can be saved at most. When the data is full, the earlier data will be replaced by the latest data.

8-3 To enter the reading mode, just press the Read/Plus Key in power on state. The Measurement Indicator ' M ' disappears, the Reading Indicator ' R ' comes out. The Data Amount In Memory Indicator changes from ' Amount of data in memory ' to ' Current data ordinal in memory '.

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8-4 In the reading mode, press the Read/Plus Key or the Calibration/Minus Key to browse memorized data. Press the Delete Key here, memorized data can be deleted. To quit from the read mode, just press the Measurement Key, the Reading Indicator ' R ' disappears, the Measurement Indicator ' M ' comes out. Back to the measurement mode.

8-5 To delete all stored data, just press and hold the Delete Key for about 3 seconds in measurement mode.

8-6 When there is no data stored in memory, neither to enter the reading mode by pressing the Read/Plus Key nor to delete stored data by pressing the Delete Key is available. ' Err ! ' will be displayed.

9. THE INSTALLATION OF CONNECTION SOFTWARE

A CD for installation of the

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connection software is optional. Software installation steps are as follows, for details, please refer to the demo video and documentation in the CD.

→ Run the CD, open the compressed folder, double click the ' Test Setup. Cn '.

→ Click ' Next '.

→ Click ' Browse ', select the installation position, click ' OK '.

→ Click ' Next '.

→ Click ' Install '.

→ Click ' Finish '.

10. DATA TRANSMISSION FUNCTION

After the installation of connection software, plug in the USB Data Cable or the Bluetooth Adapter, then install the device on the computer. For the installation steps of device, please refer to the demo video and documentation in the CD.

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→ Open the software ' TestRS232(En) ' on the desktop of the computer.

→ Click ' System Settings ', select the correct port, such as ' COM1 ', ' COM3 ', ' COM5 '. Select ' Gloss Meter ', Click ' Save (A) ', then click ' Exit (E) '.

→ Click ' Data Collection ', then Click ' Begin/Continue '. Press the Read/Plus Key, all of the data memorized in the gauge will be transmitted into the computer. These data can be used for further processing.

11. REAL TIME DATA TRANSMISSION FUNCTION

After the installation of connection software, plug in the USB Data Cable or the Bluetooth Adapter, then install the device on the computer. For the installation steps of device, please refer to the demo video and documentation in the CD.

→ Open the ' TestRS232(En) ' on the

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desktop of the computer.

→ Click ' System Settings ', select the correct port, such as ' COM1 ', ' COM3 ', ' COM5 '. Select ' Gloss Meter ', Click ' Save (A) ', then click ' Exit (E) '.

→ Click ' Data Collection ', then click ' Begin/Continue '. Press the Measurement Key or the Single/Continuous Key, the present measurement data will be transmitted into the computer, for further processing.

12. POWER ADAPTER AND CHARGING OF BATTERY

12-1 When the battery voltage is too low, the battery indicator ' [] ' comes out. It is necessary to charge the batteries.

12-2 To charge the battery, connect the meter and a AC power supply with the Power Adapter. The battery will be full after 4 hour charging.

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12-3 After charging, remove the power adapter.

13. NOTES

* The Calibration Box removed from the main unit should be kept in a safe and clean place to prevent from damage or pollution.

* While measuring please keep environment light from directly irradiating into the measurement aperture. If necessary, especially under strong light, shade it with a piece of light-tight cloth.

* A big temperature difference between environment and meter would badly affect measuring accuracy. In such a case, please wait for a period of time till the temperature get to a balance and then calibrate the meter again.

* If measurement operation lasts a long time, for example an hour or more, it is necessary to re calibrate the meter.

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