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GLOSS METERS
OPERATION MANUAL

I. Product Introduction

It is a hand-held gloss meter with three geometries of 20°, 60° and 85°, it measures up to three gloss values at the same time. This gloss meter can be used to measure the gloss of paint, coating, ink,plastic, paper, ceramic, stone, metal and electroplating layer, etc. The instrument is easy to use, put andmeasure, no need to press button. In addition to normal model, QC mode can be set for QC detection. It is also equipped with a powerful PC software to be connected to a computer to measure and generate reports.

It conforms to the following standards:ISO2813, ISO7668, ASTM D523, ASTM D2457.

II. Parameters

Measuring Angle: 20°, 60°, 85°
Measuring Aperture: 20°:9mm*9mm;60°:9mm*15mm;85°:5mm*38mm
Minimum Test Material Size: 57mm*10mm
Measuring Range: 20°: 0-2000GU;60°: 0-1000GU;85°: 0-160GU
Resolution: 0.1GU
Repeatability: 0-100GU:±0.2GU;100-2000GU:±0.2%
Reproducibility: 0-100GU:±0.5GU;100-2000GU:±0.5%
Zero Error: 0.1GU
Indication Error: 0-100GU:±1.5GU;100-2000GU:±1.5%
Weight: About 300g
Power Supply: Lithium rechargeable battery 3.7V@2000mAh
Display: 240×128 Dot Matrix
Language: Simplified Chinese, English
Charge Port: USB(Type-C)
Data Transmission: USB
Working Temperature: 10~45°C,0~85%RH (no condensation)
Storage Temperature: -10~60°C,0~85%RH (no condensation)
Supply Voltage: DC5V
Operating Current: 20mA
Operating Power Consumption: 100mW

III. Features

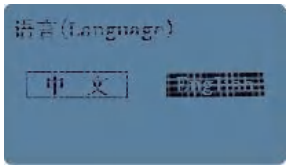
1. Real-time and put-and-measure services.
2. Detect samples quickly with the QC judging function.
3. The environmental temperature compensation function guarantees long-term calibration stability.
4. Support USB transmission and provide PC operating software, it can be online operated with a PC to generate test report.
5. Designed with an emphasis on ergonomics, sleek style, and comfort grab feel.
6. Single, dual, and triple gloss angle measurement mode can be set on the geometry selection surface.
7. Built-in rechargeable lithium battery, with ultra-low power consumption, it can work continuously for more than 65 hours under full charge.

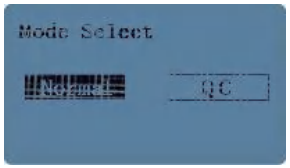
IV. Operation

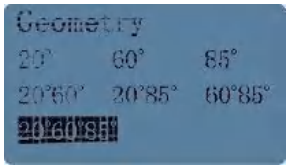
1. Turn on/off
   Turn On: In power-off state, short press the power button to turn on the instrument.
   Turn Off: Long press the power button to turn off the instrument; the instrument will automatically power off with no operation over 30 minutes.

2. Parameter Setting
   In power-off state, long press the button for 3s to enter the parameter setting mode:
   Language
   Short press the button to select Chinese or English, long press the button for 3s to complete the setting,and enter the next setting item.
   Mode Selection
   Short press the button to select normal mode or QC mode, long press the button for 3s to complete the setting, exit the setting and enter the calibration interface.

Geometry Selection
Short press the button to select geometry, single angle: 20°, 60° or 85°; dual angles: 20°60°, 20°85° or 60°60°; triple angles: 20°60°85°, long press the button for 3s to complete setting, exit setting and enter the calibration interface.







3. Calibration
If the meter gets powered on in calibration holder, it will enter the calibration interface. The user can perform the calibration operation according to the prompts, the instrument will enter measurement interface after the calibration. If it is not powered on in the calibration holder, it will skip the calibration and enter the measurement interface directly.

If it prompts that the calibration failed, the reasons may include:

If the standard is not clean, please clean the standard with special lens cloth before placing the meter into calibration holder.

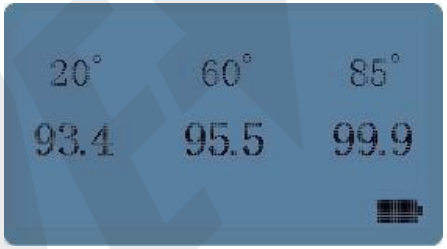
If the meter is not clung to the calibration holder, please re-place into calibration holder.

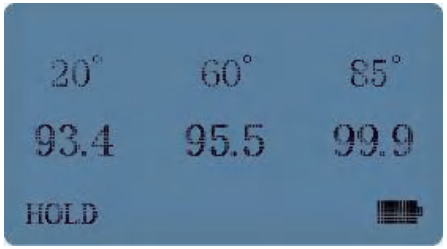
If there is a significant change in the ambient temperature, restart the device for measurement after the temperature of the instrument is close to the ambient temperature and it is confirmed that there is no condensation on the lens in the test port and the standard of the base

If the light source cannot work normally due to attenuation, the device needs to be sent back to the factory for inspection and maintenance.When the instrument prompts "Calibration failed", long press the button can skip the calibration.

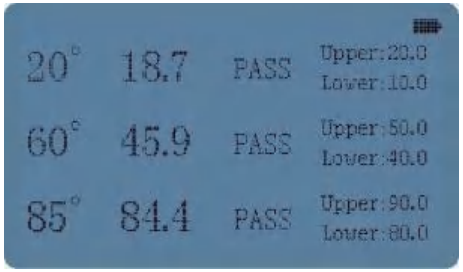
4. Measurement

(1) Normal Mode
If the instrument is set to normal mode, remove the calibration holder after calibration, place the measuring port on the surface of the object to measure, the instrument will display the measured value instantly. Short press the button, the lower left corner of the interface displays the "HOLD" symbol, and the measurement data is held on the display. To measure again, press the button to cancel the "HOLD" state and return to the "Measuring" state.





(2) QC Mode
If the instrument is set to QC mode, remove the calibration holder after calibration, place the measuring port of the instrument on the surface of the object to measure, short press the button to measure, the instrument will judge whether the measured value is qualified. The upper and lower limits could be set by PC software. For specific operations, please refer to the "Gloss Meter Software Operation Manual".



V. PC Software

1. Introduction of GlossMeter Software

GlossMeter is the support software for Gloss Meter that realizes parameter setting, online measurement, data export in EXCEL format, report generation,etc.

The device is equipped with a USB Type-C communication interface. Connect the device with a computer by a USB cable, and run GlossMeter, and you can begin the online operation. Particularly, the software has functions of report generation and printing. The software can automatically generate and print reports of measurement data. If a PDF printer is installed on your computer, you can print an electronic version of the report in PDF format. So it is convenient to record and store measurement data.

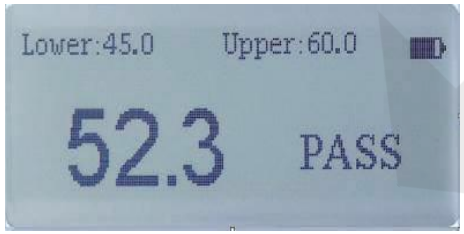
You don't have to manually install the USB driver. Just connect the device with the computer, and you can realize online operation (when you connect the device with the computer for the first time, an alert will ask you to restart the computer to automatically load the driver). Currently the software supports Windows. Computer hardware configuration recommended 6th Generation Intel® Core™ i3 Processors, RAM greater than 4G.

Software Installation

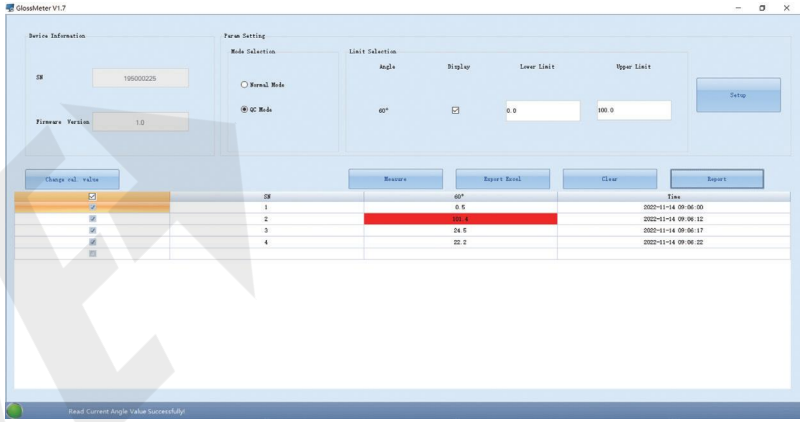
This software does not require installation. You can start the software by opening the EXE file. If you want to copy the software, you need to copy the entire folder.

Hardware Connection

Connect the device and computer by plugging the cable into the USB interfaces thereof respectively. After connection, a USB icon appears at the upper right corner on the device display.



2. Software Interface



USB Connection Status Indicator

Normal device connection: "Green".

Abnormal or no device connection: "Gray".

Device Information

The information includes the SN and Firmware Version.

Mode Selection

Normal Mode: the device continuously measures the gloss by covering the surface to be tested. There is no need for button pressing.

QC Mode: Each time the button is pressed，a value is got and qualified.

Limit Selection

The upper limit and lower limit are selected according to the sample test requirements. The data that are beyond the limits have corresponding prompts in the display, and are used to determine the qualification range for counting the number of PASS and NG in the report.

The preset upper and lower limits, after downloaded to the device, are also used to determine the qualification range in QC Mode.

The multi-angle device can also choose the angle display.

Function Buttons
“Measure”: used for online measurement. Click “Measure" once, and the device uploads a measurement value.

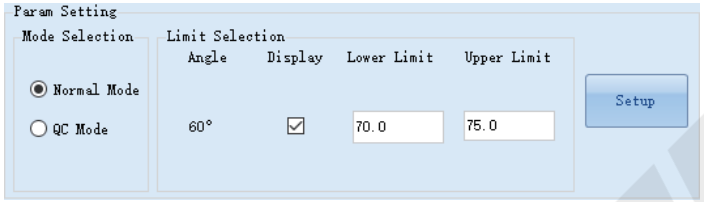
“Export Excel”: export the measurement data from the data column in Excel format.
“Clear”: clear all data in the data column.
“Report”: generate reports.

Data Display Area
The area includes data selection area, natural SN (accumulates once per each data read), measurement value, and test time.

Calibration values modification
Users can correct the Calibration values of the standard plate to ensure the accuracy of the instrument.

3. Software Operation

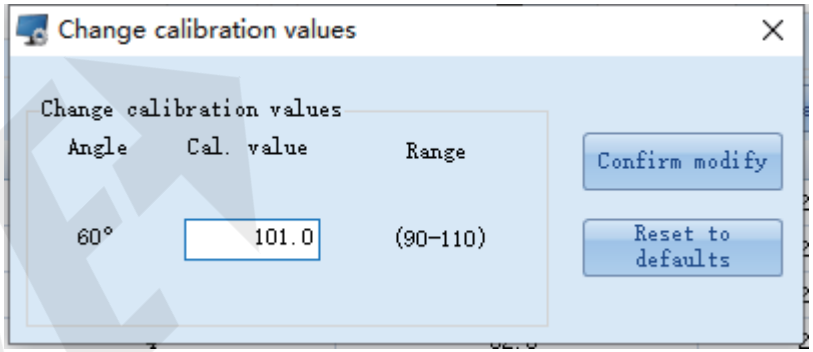
Parameter Setting



Customers can set the device to Normal Mode or QC Mode according to their needs. The multi-angle device can freely combine the angles that need to be displayed. The upper and lower limits are used to determine the qualification range in QC Mode.

After setting parameters, click "Setup" to download the parameters to the device.
Note: After setting the angle display and the upper and lower limits, the computer software will also display the selected angle synchronously, and make the qualification judgment according to the preset upper and lower limits.

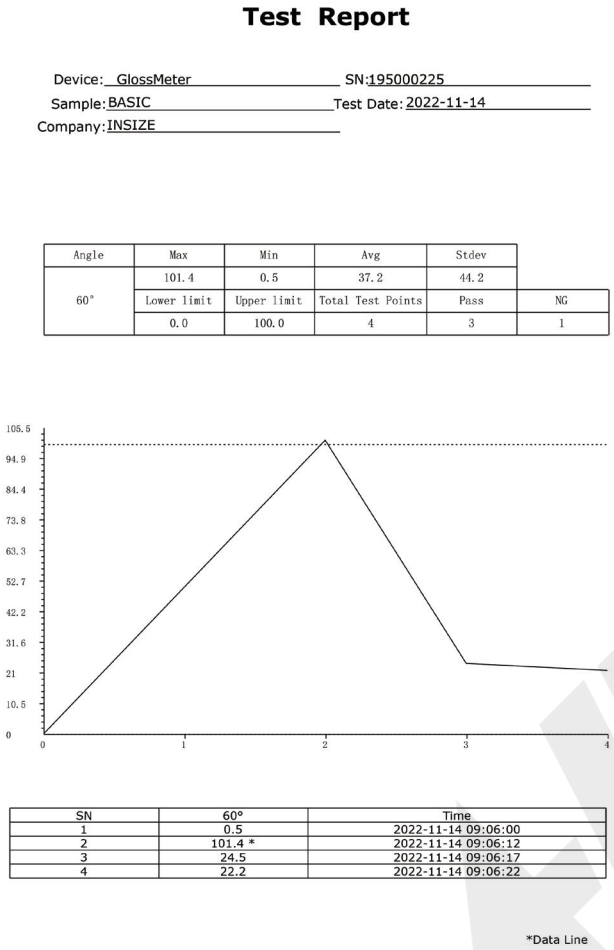
Calibration values modification



Input the new Calibration values of standard plate and click "Confirm modify" ,then calibrate to complete the revision of the standard value.
Click on "Reset to defaults" and then calibrate the instrument can restore factory Calibration values.
Note: In general, it is necessary to calibrate the standard plate by the metrology institute before modifing the standard value.

Online Measurement
For online measurement, click "Measure" to obtain the surface gloss value of the sample in real time, or shortly press the button on the device to automatically upload the measured value.

Report Generation
Click "Report" to generate the report as follows:



Test Report

Device: GlossMeter SN:195000225
Sample: BASIC Test Date: 2022-11-14
Company: INSIZE

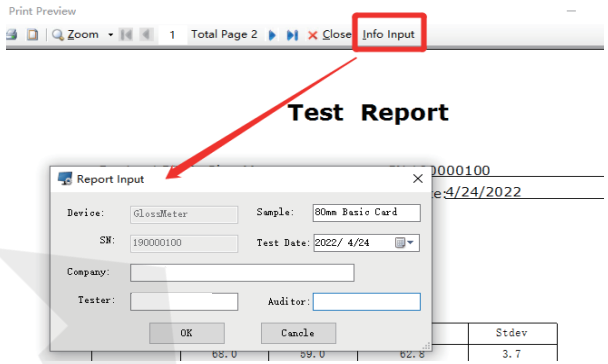
Angle	Max	Min	Avg	Stdev
60°	101.4	0.5	37.2	44.2
	Lower limit	Upper limit	Total Test Points	Pass	NG
	0.0	100.0	4	3	1

SN	60°	Time
1	0.5	2022-11-14 09:06:00
2	101.4 *	2022-11-14 09:06:12
3	24.5	2022-11-14 09:06:17
4	22.2	2022-11-14 09:06:22

*Data Line

Statistical information includes Max, Min, Avg, Stdev, Lower Limit, Upper limit,Total Test Points, Pass, and NG.

Header Information Input
Click "Info Input" to enter header information.



VI. Precautions

1. The temperature compensation function guarantees long-term calibration stability, it is recommended to calibrate once a week. If the environmental temperature changes significantly, please recalibrate it.

2. The measuring port of the instrument shall be attached to the surface of the object to avoid leakage of external light.

3. Please save the calibration holder in a clean place after the meter is removed, so as to prevent the standard from contamination.

4. Do not insert any object into the instrument for any reason, as it will damage it and influence the measuring accuracy as well as operation safety.

5. The instrument and calibration standard should be cleaned before storage and usage, and please use clean special lens cloth to remove contaminants. As the surface of the standard is very precise,make sure there are no fine particles on the lens cloth to avoid damage of the standard.

6. If there are multiple meters, put the meter on the calibration holder corresponding to the serial number of the meter for calibration.

7. When the battery of the instrument is out of power, it should be charged in time.

8. If the meter is not used over half a year, please charge it to avoid the battery from being excessively discharged and damaged.

9. The recommended calibration period is once a year and the factory provides calibration services.