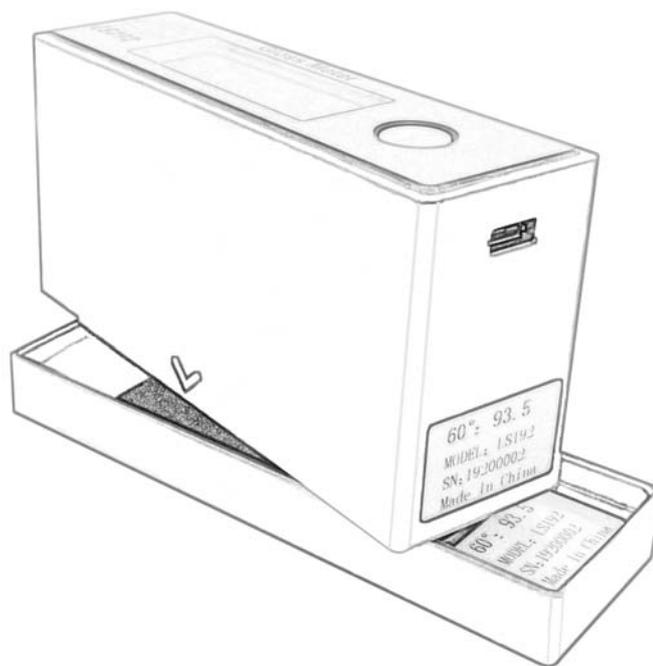# Gloss Meter

User Manual V3.3

Please read the manual carefully before you use.

Instruction for use

Thank you for choosing and using LS191/LS192 gloss meter. In order to better use the product, please read the manual carefully before you use.

✧ The "gloss meter" mentioned herein refers to specular gloss meter. It is also called as "gloss gauge".

✧ The "standard" mentioned herein refers to the working calibration standard plate which forms a complete set with the meter and is used for meter calibration.

✧ The working temperature of the meter should fall between 10℃ - 40℃, and the relative humidity should be less than 85%, without congealed hoarfrost.

✧ The storage temperature of the meter should fall between -10℃ - 60℃. The meter should be kept away from heat sources and corrosive agents and stored in a dry place.

✧ The meter should be used without strong electromagnetic interference.

✧ The meter provides one-year warranty. As for meter's failure resulted from normal use during the warranty, the company is responsible to maintain such failure without any charge. As for failure resulted from improper use or disassembly at random, the users will be liable for it by their own.

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I: About the meter

LS191/LS192 accords with the following standards:

ISO2813, ISO7668, ASTM D523, ASTM D2457, DIN 67530, GB/T9754, GB/T13891, GB/T7706, GB/T8807

All indexes of the meter meet the requirements of JJG 696-2002 Verification Regulation of "Specular Gloss Meters and Gloss Plates" for class one working meters.

Device	Standard Gloss Meter	Working Gloss Meter	
		Grade 1	Grade 2
Stabilization	0.2GU	0.4GU	1.0GU
Error of Zero	0.1GU	0.2GU	1.0GU
Error of Indication	±1.0GU	±1.5GU	±2.5GU

Table 1 Verification performance of the gloss meter

LS191/LS192 features:

● Provide real time measurement and put-and-measure services without pressing buttons. It displays the measurement data on a real time basis

● Equipped with intelligent statistics function. The number of measurements, the maximum value, the minimum value, the average value and the standard deviation are directly shown in the display interface

● Have environmental temperature compensation function and provide the ability of numerical stability.

- Unique is the intelligent auto diagnosis of the gloss meter which guarantees long-term stable calibration

- Support USB transmission and has PC operating software. It can be on-line operated with the computer to complete the test report

- Aviation aluminum housing and Calibration Holder, with super good quality; small design, and being easy to carry

- Built in rechargeable lithium battery, with Ultra low power consumption

- **LS191/LS192 is widely used for:**

Gloss measurement of materials and products in the fields of paint coatings, decorative materials, building materials, plastic materials, ceramic products, stone products, wood products, leather products, film-coated paper towel, printing ink, car maintenance, molding tool, metal coating, etc.

II: Structure
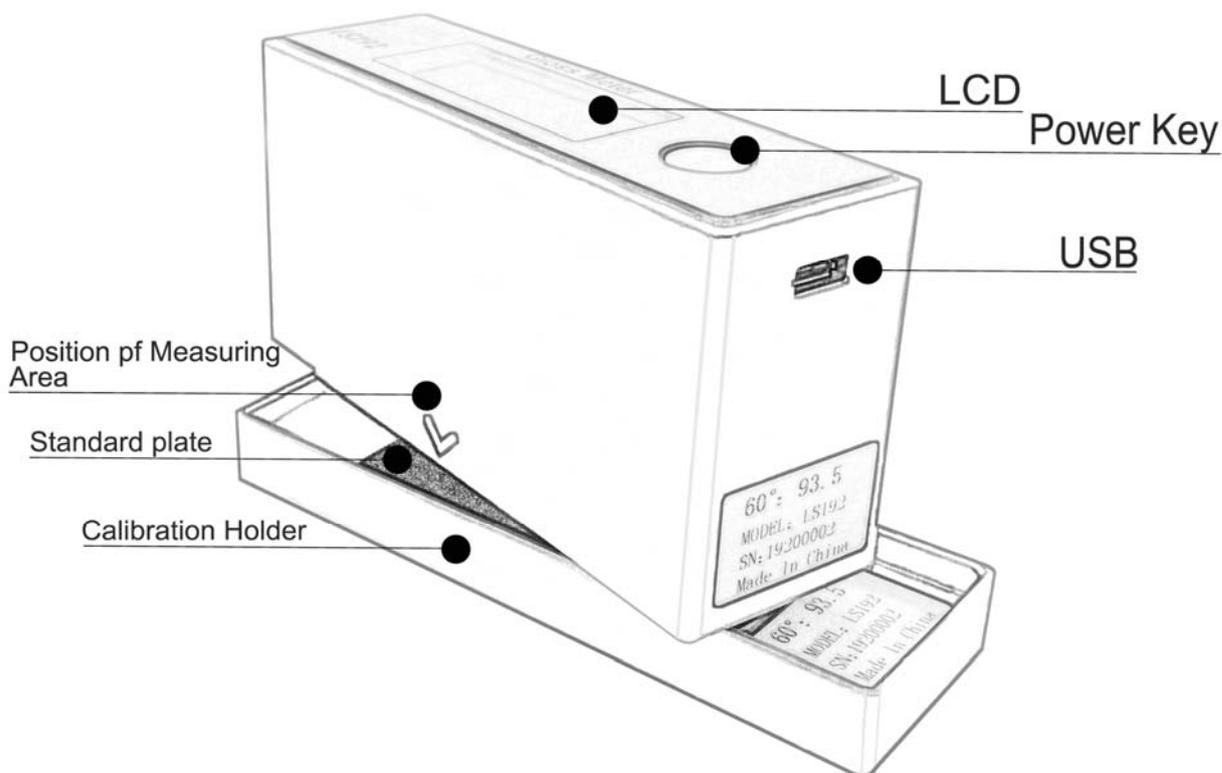
III: Technical parameters

Technical parameters	Unit	LS191 gloss meter	LS192 gloss meter
Angle	Degree	60	60
Measuring area	mm	9*15	9*15
Minimum test size	mm	14*28	14*28
Measurement range	GU	0-200	0-1000
Resolution	GU	0.1	0.1
Repeatability	GU	0-100: ±0.2 100-200: ±0.2% reading	0-100: ±0.2 100-1000: ±0.2% reading
Reproducibility	GU	0-100: ±0.5 100-200: ±0.5% reading	0-100: ±0.5 100-1000: ±0.5% reading
Zero error	GU	0.1	0.1
Error of indication	GU	0-100: ±1.5 100-200: ±1.5% reading	0-100: ±1.5 100-1000: ±1.5% reading
Working temperature	℃	10℃ ～ 40℃	10℃ ～ 40℃
Storage temperature	℃	-10℃ ～ 60℃	-10℃ ～ 60℃

Relative humidity		Less than 85％, no dew	Less than 85％, no dew
Power supply		Lithium rechargeable battery	Lithium rechargeable battery
Meter size	mm	104(L) * 35(W) * 60(H)	104(L) * 35(W) * 60(H)
Meter weight	g	332	332

IV: Operation

1. Powering on

Under the status of powering off, press the button of "Power" to power on the meter（Remove the lens paper on the standard board before powering it on.）. Normally, the meter will successively enter into start interface, warm-up interface, autodiagnosis interface, auto calibration interface and measurement interface. The whole process will last about 10 seconds. After entering into the measurement interface, the users can make the measurement.

➢ Start interface

➢ Warm-up interface, warm-up process will last 5 seconds

> ➢ Autodiagnosis interface. The meter must be power on in the "Calibration Holder", running autodiagnosis to timely find out the system errors, improper operation and environmental changes. Once the autodiagnosis result is normal, the system will display "OK", with the meter entering into the auto calibration interface.
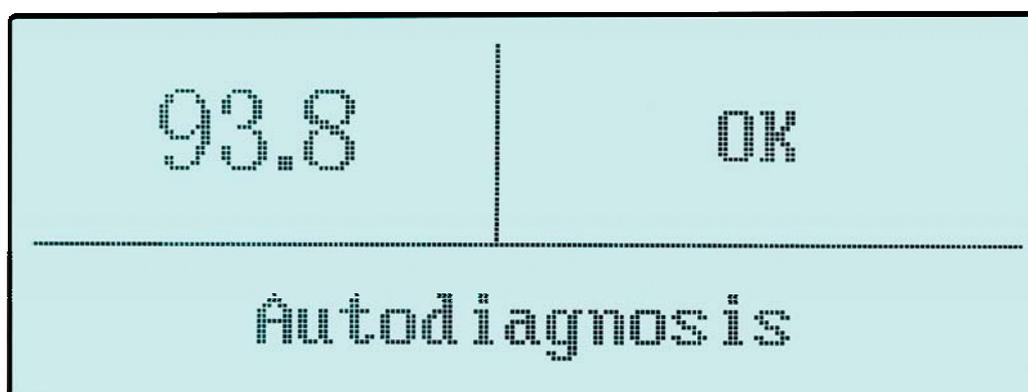
Autodiagnosis function can check whether the "calibration standard" is clean. If the standard value of the "calibration standard" falls out of qualified range, the meter will display "Please clean standard".
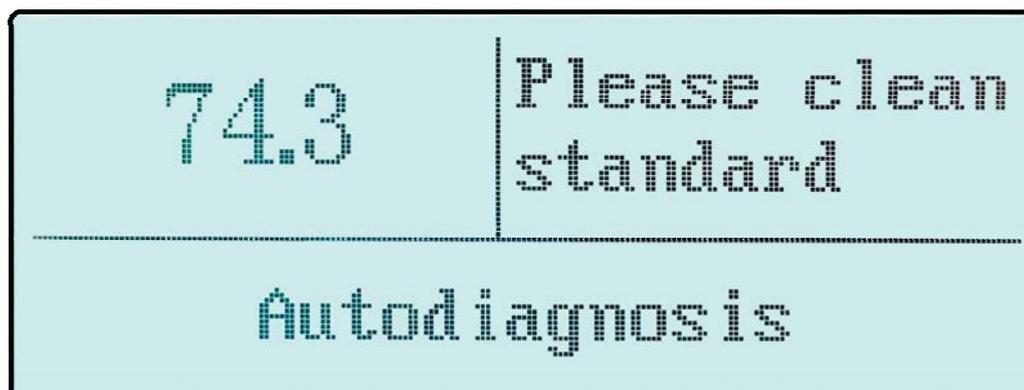
Then, the followings should be carried out:

1. If the standard is not clean, please clean the standard with special lens cloth, before placing the meter into the Calibration Holder.

2. If the meter is not clung to the Calibration Holder, please re-place into the Calibration Holder.

3. If a great change happens to the environmental temperature, restart the meter for measurement, after confirming that the meter temperature tends to be equal to the environmental temperature and that lens in the measuring port and the standard on the Calibration Holder are free from congealed hoarfrost.

After ruling out the above problems, place again the meter into the Calibration Holder and the meter will run again the autodiagnosis. If the troubles are removed, the meter will display "OK" and enter into the auto calibration mode.

If the meter display "Please clean standard". Also can enter into the auto calibration mode manually by short press "Power "key.

2. Auto Calibration

If the meter starts in the Calibration Holder, it will enter into calibration mode after autodiagnosis .If the autodiagonosis process is still unfinished, short press "Power" key and the meter will enter into auto calibration mode.

```
93.9        |   YES  02  NO
------------|------------------
       Auto Calibration
```
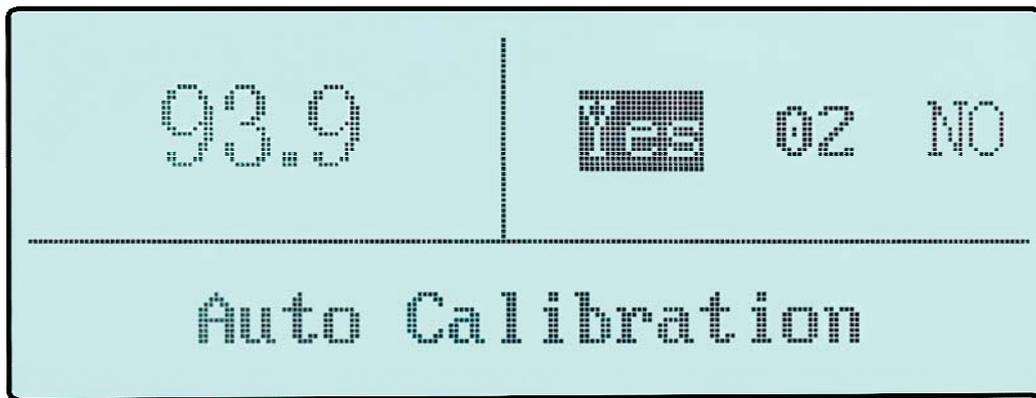
● Before the number reaches 0, short press "Power" Key and the meter will run auto calibration. After calibration, it will enter into measurement mode,and the measuring value is the same as that shown by the label on the right side of the meter.

● If no key pressed before the number reaches 0, the meter will directly enter into the measuring status without calibration operation.

If the system displays "Please call service" after calibration,the reasons may include:

1) The standard is not clean. Please clean the standard before calibrating.

2) The meter is not clung to the Calibration Holder. Please place

again the meter into the Calibration Holder before calibrating.

3) The light source is permanently damaged. Please send the meter to the factory for maintenance.

■ **Special attention:**

1) Use of an unclean standard will seriously influence the measuring accuracy. Please ensure the standard is clean and free from scratches before calibrating. Use the special lens cloth (as normal paper towels and cloths cannot be used to clean the standard) provided by our company when you clean the standard. Please use the cloth after cleaning, if the cloth is dirty.
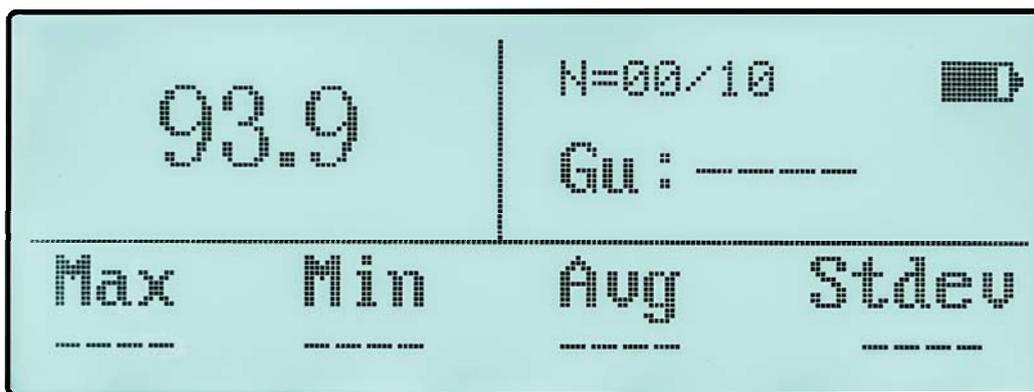
2) If the meter does not start in the Calibration Holder, it will not run autodiagnosis and auto calibration, but directly enter into measurement status.

3) The standard value 94GU above is determined by the concrete "standard", different meters are equipped with different standard, and the specific standard value is shown by the label on the right side or at the bottom of the meter.

3. Measurement
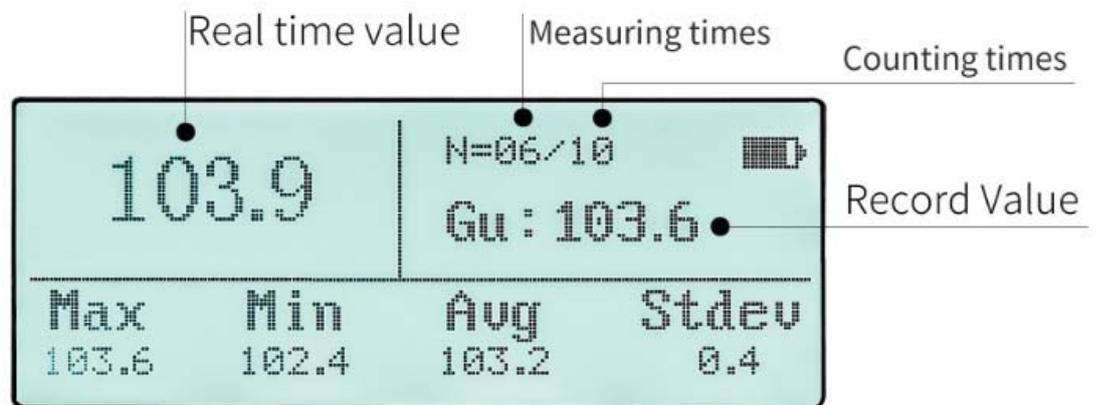
- Put the meter on the surface of the object. The meter will display the "Real Time value" directly.

- Short press "Power" and record the current measured value. Additional "1" will be automatically added to the measuring times, which will return to 1 after reaching the counting times，and maximum value, the minimum value, the average value and the standard deviation will reset. Every time you press the button, the meter will automatically count the maximum value, the minimum value, the average value and the standard deviation

☆　The default counting times is 10 and the adjustable range is 1-99. (please refer to the User Manual of Gloss Meter for counting times setting)

- Long press "Power" key to clear all statistical data. The system will restore the measuring times as 0

```
┌─────────────────────────────────────┐
│                      N=00/10     ▓▓▶ │
│       93.9           Gu : ─────      │
│  ──────────────────────────────────  │
│   Max      Min       Avg      Stdev  │
│   ─────    ─────     ─────    ─────   │
└─────────────────────────────────────┘
```

4. Powering off

The meter can be powered off in the following two ways:

■   In the power-on state, put the meter into the Calibration

Holder. The meter will power off after the "Time" reach zero.

```
┌─────────────────────────────────────┐
│                                      │
│       93.8           Time: 10        │
│  ──────────────────────────────────  │
│             Power off                │
└─────────────────────────────────────┘
```
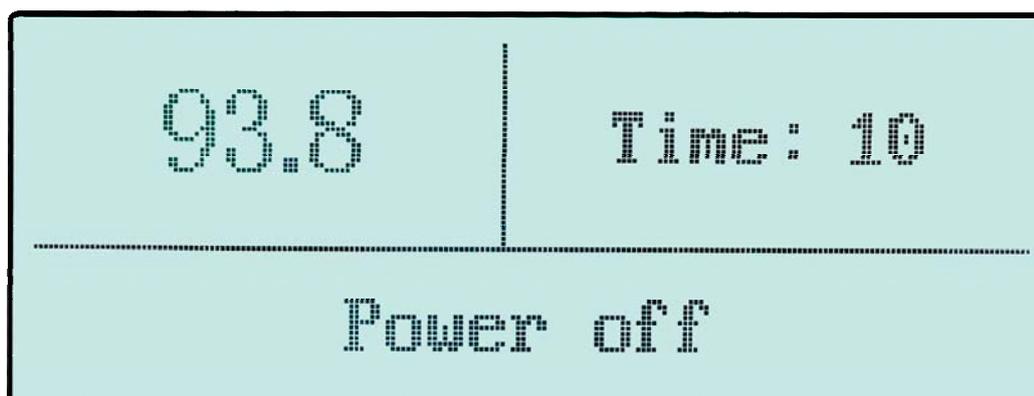
■ The meter will automatically power off 3 minutes after the

users carry out no operation

■   Operation notes:

1) Please ensure that the calibration standard is clean and the meter is

pressed into the Calibration Holder before powering on, so that the

meter can run a successful autodiagnosis. If the meter starts in a place

other than the Calibration Holder, the meter will not run auto diagnosis

and auto calibration, but directly enter into the measurement mode.

2) Please save the Calibration Holder in a clean place after the meter is removed, so as to prevent the standard from contaminating.

3) The meter has temperature compensation function which allows calibration for a long period. Suggest to calibrate once a week, and recalibrate if the environmental temperature is greatly changed.

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

5) If a great change happens to the environmental temperature, restart the meter for measurement, after confirming that the meter temperature tends to be equal to the environmental temperature and that lens in the measuring port and the standard on the Calibration Holder are free from congealed hoarfrost.

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 not in use, place the meter on the Calibration Holder and power it off.

V: Maintenance

1) Store the Calibration Holder in a clean place after removing from the meter to prevent the standard from contaminating.

2) Before storing and using, clean the meter and the standard, and use the clean special lens cloth to remove the contaminants. As surface of the standard is very precise, make sure there are no

fine particles on the lens cloth to avoid damage of the standard.

3) Do not insert any object into the meter for cleaning, as it will damage the meter and influence the measuring accuracy.

4) If the meter is not used over half a year, Please charge the meter to avoid the battery is excessively discharged and damaged.

5) Avoid to contact the corrosive agents and keep away from high temperature and high humidity environment.

6) Put the meter in the specialized package after powering off and keep it in a safe place.

7) The calibration period is suggested to be one year and the company provides calibration service.

VI: Factory list

◆ Gloss meter   1

◆ Calibration Holder with the standard   1

◆ USB cable   1

◆ Charger   1

◆ Special lens cloth   1

◆ User manual   1

◆ Plastic box for meter packaging   1

◆ Certificate / warranty card   1

◆ Lens paper   1

VII: Service

☆ The meter has one-year warranty. If the meter works abnormally, please send the whole meter to the company for maintenance

☆ Provide users with spare parts and lifelong maintenance services

☆ Provide the users with the meter inspection service for free

☆ 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