Black-White Densitometer

Manual

YUSHI INSTRUMENTS

Overview

The densitometer developed by our company is a quality product using computer calibration technology. It has advantages of accurate reading, high stability, strong anti-interference, attractive appearance and easy operation. It can be widely applied to the fields such as nondestructive testing, printing industry and medical industry etc. Each unit is equipped with density tablet and calibration software for its accuracy, which can be matched with density films of different standards.

Technical Specifications

Density Range

D=0.00 — 4.00（DM3010）

D=0.00 — 4.50（DM3010A）

D=0.00 — 5.00（DM3011）

Reading Stability

±0.02

Accuracy

±0.05D

Power Requirements

50～60Hz、220V±10%　110V±10%

Dimensions

260×265×110 (L×W×H)

Aperture Diameter

2mm

Display Format

Three-digit number

Sampling Time

0.8 seconds

Operation Environment

Temperature 0℃～40℃ Relative humidity ≤85%

Power Dissipation

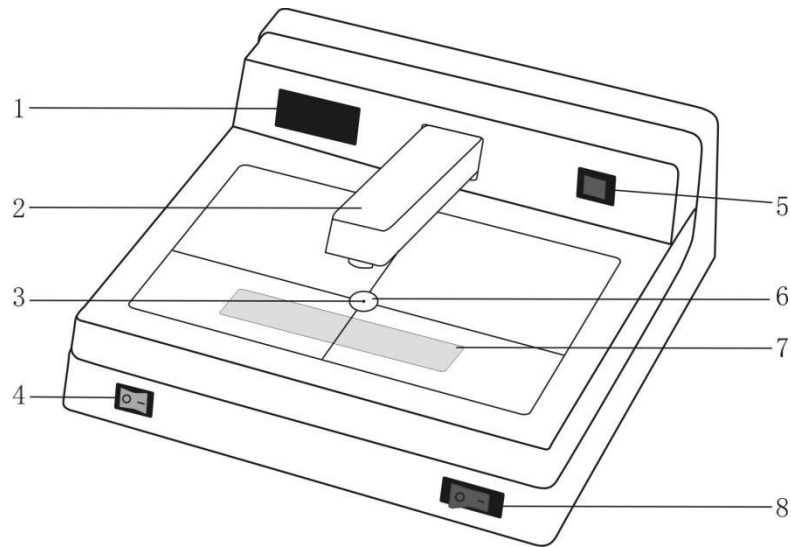About 25W

Weight

About 2.1kg

Standard configuration

1	Black & White Densitometer	1pc	2	Step Density Tablet	1pc
3	Power Cable	1pc	4	Communication Cable	1pc
5	Communication CD	1pc	6	Operation Manual	1pc
7	Quality Certificate	1pc	8	Warranty Card	1pc
9	Packing List				

Options

Standard Density Tablet

USB Communication package

Instrument Diagram

1. Display area
2. Measuring arm
3. Aperture
4. LED lighting switch
5. Zero setting button
6. Light source shell
7. LED lamp
8. Power switch

Operating Instructions

I、Measuring Density Values:

1、Press POWER button on the lower right corner of the device, the screen displays "-.--". The instrument should be preheated for 5 min.

2、Press the measuring arm down without putting any film, the screen displays "E.1". Keep holding the measuring arm while pressing the red *Zero Setting* button on the upper right corner of the device and the screen displays "0.00". Releasing the measuring arm in 2 seconds, the device will enter the density measuring mode.

3、Put the tested film on aperture point, and press the measuring arm, the density value will be shown on the screen.

4、While using the standard density tablet equipped with the instrument, the zero calibration should be done first, that is, do not put any density film, press the measuring arm and the *Zero Setting* button at the same time, the screen displays "0.00", then measure other points.

II、Observing Samples:

1. The tested samples can be observed after the LED light turned on at bottom left of the instrument.

2. Please keep the density tablet clean. Use it only when you are not sure about the accurate of the

measured values. If the value is not accurate, you can use calibrated step film and densitometer calibration software to calibrate the instrument.

3. When the density values are out of the prescribed range, the measurement data are still has reference value.　Please contact the manufacture if there are quality problems.

III、Calibration Function:

When using a density tablet of other brands or the error of indication beyond standard after a period of time, the instrument should be calibrated with calibration software to adapt to different density curves. (For details, please see the software instruction.)

Note : Instruction of Calibration Method

Summary: the software is used for our Black&White densitometer only, a standard density tablet is needed in the calibration process.

Principle: according to the standard values on the density tablet and the original measured values of densitometer, fitting out a calibration curve to compensate the nonlinearing of silicon photocell, and transmit the characteristic values of the curve to the densitometer.
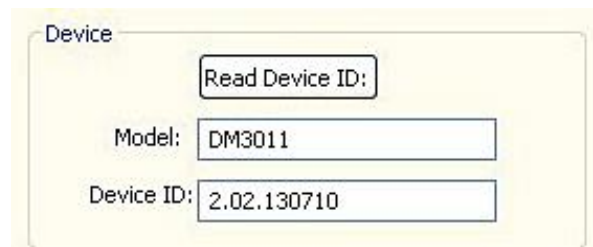
Select the Serial Port:

Select the default serial port 1 when using standard communication cable. Or install the driver first if using USB connection cable, then open the "COM PORT" in the device manager to check the serial port number

Choose the number of density tablet

Please choose the number of points according to the standard density tablet in use, support 5 points, 7 points, 8 points, 10 points, 12 points, 14 points, 16 points, 18 points and 21 points. (Take the density tablet of 13 points as an example, please enter 0.00 for both the standard value and the measured value of the first point when using a density tablet　of 14 points)

Read device version number:

Press this button to read the device version number after selected the serial port, it can also verify whether the pc communicate with the densitometer well or not. If the communication is normal, the instrument version number will be displayed in the text box below,　the window displays 'E.5' at the same time.

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Delete the Calibration Value:

There are calibration curves in the densitometer, so the original calibration values must be deleted before new calibration. Press the button to delete the all the original calibration curve, and then the viewing window displays "E.4".

The densitometer displays "nnn" after power off and on agian, it means there's no calibration curve in the densitometer, the measurement value is the original measured value, and the previous calibration data is deleted successfully. If the densitometer displays "---" after power off and on again, it means there is still calibration curve in the densitometer, the measurements are compensated correction.
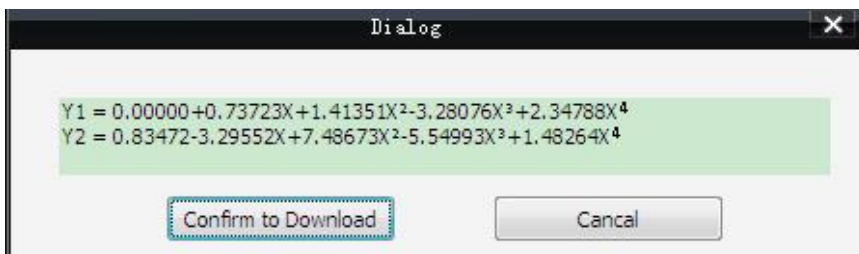
Calibration:

1. Prepare a regular standard density tablet.

2. Enter the standard values of density tablet and original measured values of densitometer in the corresponding textbox with ascending order.

3. Press calibration button to pop up the dialog box of calibration curve equation, the calibration parameter which need to be downloaded to the instrument can be check here.

The meaning of densitometer window shows

Display	Meaning
E.1	Zero Calibration
E.2	Over-limit Measurement
E.3	Calibration Data Download successfully
E.4	Calibration Data Delete Successfully
E.5	Reading Version Number Successful

Attention

1.The instrument is a precision measuring instrument. It should be keep away from dusts, humidity, alkaline and acid objects, and magnetic fields.

2. The dust is easy to fall into the light aperture, so after a period of time, if the instrument do not display 0.00 when calibrating, please open the light source shell with tape, then gently wipe the dust on the light-emitting diode with a cotton swab dipped in alcohol to ensure the normal use of the instrument.

3. Please keep the density tablet clean. Use it only when you are not sure about the accuracy of the measured values. If the value is not accurate, please use the step density tablet and calibration software to calibrate the instrument.

4. When the density values are out of the prescribed range, the measurement data are still has reference value. Please contact manufacturer if there is any problem.