Cassia portable black-and-white film densitometer

MDL-50;DL-2206M;DL-3010M

As long as you have a standard density film, your densitometer is accurate.

Characteristics:

The Cassia MDL-50;DL-2206M;DL-3010M portable black-and-white film densitometer adopts the most innovative programmable optical frequency sensor (made in the USA TAOS sensor). High intensity LED film viewer with variable brightness is recommended to measure radiographic density of the film. Instrument's calibration can be performed by end-user. Cassia MDL-50;DL-2206M;DL-3010M portable black-and-white film densitometer is the most advanced, precise and reliable densitometer on the market.

The function of adjusting a measured value of film density;
The function of zero calibration with probe;
The function of looking up previous 32 density measurements;
The function of smart power management;

MDL-50☐   **DL-2206M☐**   **DL-3010M🔴**

Product parameters:

Product name: Densitometer;

Product model: MDL-50;DL-2206M;DL-3010M;

Measuring range: 0.00-5.00D;

Measurement accuracy: $\pm$0.05D;

Calibration scope: arbitrary value;

Visual display: 4-bit LCD;

Optical frequency sensor: made in USA TAOS sensor

Aperture size: 3mm;

Power supply: built-in 2000mA lithium battery;

Power interface: MICRO USB interface;

Power adapter: DC 5V/1000mA(100-240VAC);(MDL-50)

Physical dimension:141 * 76 * 28MM;(MDL-50)

Weight:222g;(MDL-50)

Packing list:

Densitometer: one

Probe: one

Power adapter: one (MDL-50)

MICRO USB cable: one (MDL-50)

User manual: one

Warranty card: one

Certificate of conformity: one

Optional accessories:

14-step AGFA density strip: one

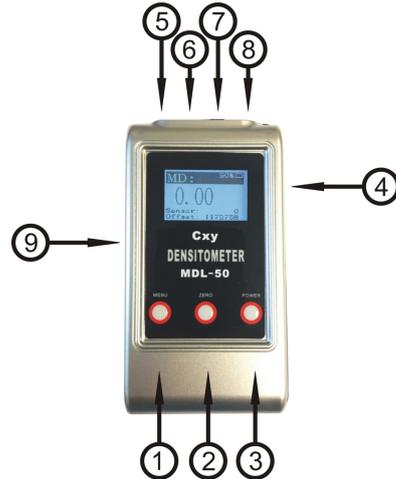## CASSIA Intelligent Technology Co., Ltd.

http://www.ledfilmviewer.com   email:ndtcassia@gmail.com

Operation guide:

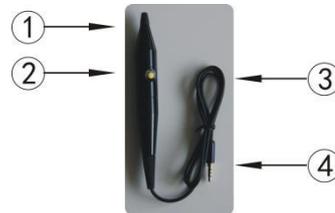**Densitometer:**

1: MENU button;

2: ZERO button;

3: POWER button;

4: Display;

5: Charge indicator;

6: Charging port;

7: Probe connector port;

8: Factory reset button;

9: Desktop stand;

Probe:

1: Light sensor;

2: Density measuring button;

3: Data line;

4: Probe connector jack;

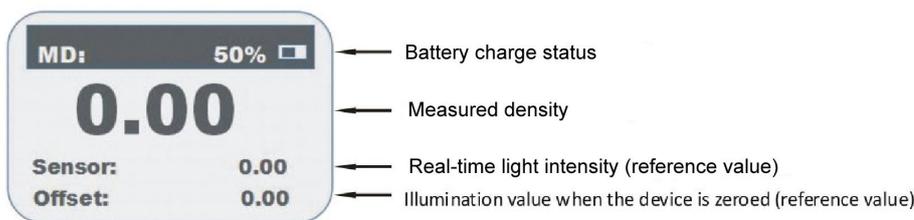
Basic operation:

Insert the probe connector (4) into the socket (7) in the densitometer.

Display and operation of buttons:

Press POWER (3) to start the device (long press 2 seconds to shut down), home screen will be displayed: **MD:0.00 (density value:0.00)**.

MD: 50% ▭	← Battery charge status
0.00	← Measured density
Sensor: 0.00	← Real-time light intensity (reference value)
Offset: 0.00	← Illumination value when the device is zeroed (reference value)

Description:

The large font in the central part displays measured film density, being 0.00 when the device is turned on;

Sensor: real-time intensity of illumination, serving as reference luminance value ;

When the soft tip of the probe is vertically pressed on the viewer screen, the brightness knob of the viewer is adjusted. The values of this group will change with the light intensity. Generally, the brightness is adjusted to the value of 1300000 as the reference brightness value.

Offset: A numerical reference value when densitometer is zeroed;

一：Zeroing (nulling) Densitometer :

The soft tip of the probe is pressed vertically at desired position on the screen of the viewer (e.g. "A" test point), and the brightness of the viewer is adjusted so that the sensor set of values is about 1300000, Short press ZERO (2), At the same time, offset values will be saved (reference value), The zero operation is completed.
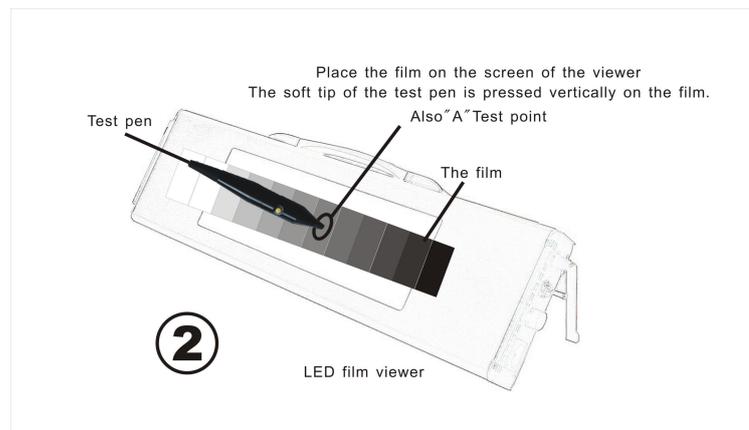
Operation:

Press POWER (3) to start the device

→probe reads the brightness of the viewer (about 1300000)

→Short press ZERO button (2)（Saves the reference brightness value at this time ）
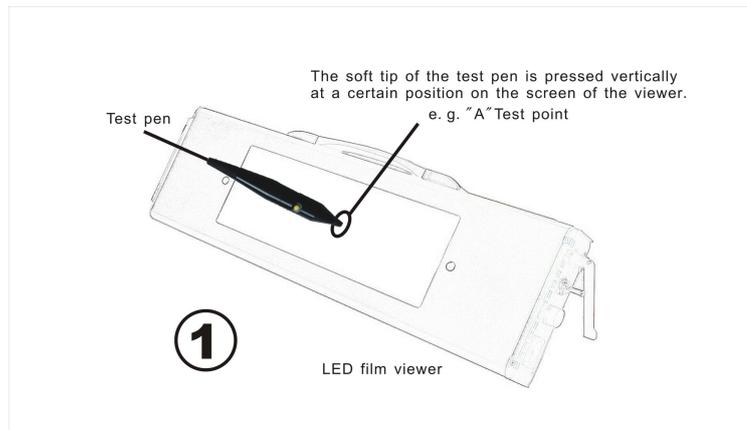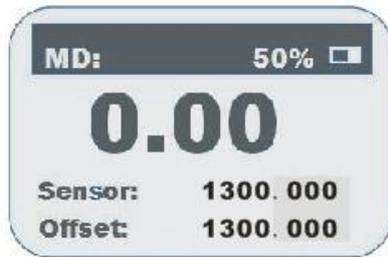
二：Film density measurement:

Place the film on the screen of the viewer (also at "A" test point), The soft tip of the probe is pressed vertically on the film, press the probe's data acquisition button (2) to measure the density value (do not press the data acquisition button continuously, the best interval time is > 2 seconds). Densitometer calculates and displays the density completing the measurement.

三：Advanced settings of the densitometer:

Function of the operating buttons are as follows:

MENU (1)   Button for confirming selection;

ZERO (2)   Menu selection button;
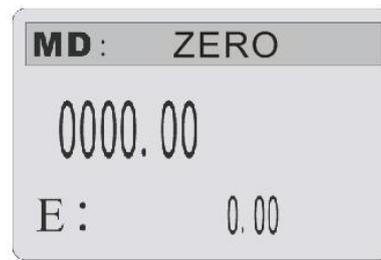
POWER (3)   Return button;

1: ZERO:

Zero point calibration of probe sensor:

Operation:

Short press MENU (1) to enter setting menu: MD_SET: (ZERO blinks)

→Short press MENU (1)   (Display zero interface)

→Long press MENU (1)   (OK! Save data)

Zero-point calibration is used to calibrate the response of the probe's sensor (THIS IS NOT DENSITOMETER CALIBRATION); after selecting this item and entering the menu (the display shows MD_ZERO:0000.00, E:0.00 as the output value of the sensor, the middle large font value is the current zero compensation value), the probe is to be placed in a light-free environment, and when the value is stable, the operation is confirmed by MENU(1) button. No input is made during this period value (no input at this time); click POWER (3) at any time to return to the main menu.

2：VSET:

Optical Density Calibration:

Calibration with certified density strip or other calibrated instruments; zero point calibration of probe must be completed before calibrating the densitometer. The following is illustrated by density film calibration: before choosing this menu item, use certified density strip, perform density measurement and ensure density value is displayed on the LCD screen (e.g. the known film density is 3.28D, and the measured value is 3.40D). Enter VSET menu (the display shows MD_VSET: 0000.00, where E: 3.40 is the current measured density, middle numbers is where reference density of 3.28D will be entered), short press MENU (1) 0000.0<u>0</u> (the hundredths digit will blink), short press ZERO (2) to adjust the value (make it 8), and again short press MENU (1) 0000.<u>0</u>8 (the tenths digit will blink). The tenths digit will blink, press ZERO (2) to adjust the value (make it 2), press MENU (1) 000<u>0</u>.28 (the ones digits will blink), and press ZERO (2) to adjust the value (make it 3) 0003.28 Once correct density value is entered, press and hold MENU (1) button until message "Success" is displayed. Press POWER (3) at any time to return to the main menu; densitometer calibration procedure is completed.

Operation:
POWER→MENU→ZERO→MENU→ZERO→MENU→ZERO→MENU→ZERO→LONG PRESS MENU OK!