Paint Mixing Scale Manual

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Welcome to use the paint mixing scale.

Product Introduction

I、Paint Mixing Scale Parameters

Maximum Range	Readability	Repeatability	Linear	Weighing Pan Size
5kg	0.1g	±0.2g	±0.2g	Φ240mm
8kg	0.1g	±0.2g	±0.2g	φ240mm
10kg	0.1g	±0.2g	±0.2g	φ240mm

II、Paint Mixing Scale Features

A. Unit conversion: grams, carats, ounces, pennyweight;
B. Piece recording and percentage weighing;
C. External weight calibration;
D. Standard RS232 interface;
E. All-metal structure, sturdy and durable;
F. Overload and impact protection function;
G. Weight check function;
H. Large white backlit LCD display.

III、Keyboard Keys

1. Tare : Tare, clear;
2. On/Off : On/off display;
3. Calib : External weight calibration;
4. Units : Convert weighing units;
5. %/Rec : Percent weighing;
6. Count : Piece counting, select piece counting sampling coefficient;
7. Menu : Enter function menu settings;
8. Print : Transmit display information to a printer or other device.

IV、Display information

OK : Indicates that the balance reading is stable;
G : Indicates that the reading unit is grams;
Oz : Indicates that the reading unit is ounces;
Ct : Indicates that the reading unit is carat;
Dwt : Indicates that the reading unit is pennyweight;
% : Indicates that the reading is displayed in percentage;
PCS : Indicates that the current status is piece counting;
------ : Indicates that stable data is being read;
UNABLE : Indicates illegal operation;

HHHHHH : Indicates that the weight carried by the balance exceeds the rated range;
LLLLLL : Indicates that the weighing pan is not placed or the weighing pan is not placed properly;

Install

Notice:
※ Choose a suitable location to install the paint mixing scale: as far away from heat sources, vibrations and airflow as possible;
※ The ambient temperature of the scale working environment should not fluctuate too much, generally not exceeding 5℃/hour.

1、Installation of the weighing pan assembly: Fix the weighing pan support on the corresponding sealing column.
2、Leveling: Adjust the two adjustable bottom corners on the underside of the housing so that the leveling bubble is in the center of the level.
3、Place the scale pan on the scale pan holder. Plug the communication cable interface of the display assembly into the corresponding interface on the rear of the electronic scale.
4、Power on: Plug the transformer into a 220V/50Hz AC outlet, and plug the other end of the transformer into the power socket at the rear of the balance.
5、Power-on self-test: After the power is turned on, the balance enters the automatic detection program and counts down after displaying the model number of the balance. After the self-test is completed, the balance is automatically cleared.

Notice:
※ In order to ensure the accuracy of weighing, it should be powered on and preheated for at least 25 minutes before first use or calibration.

Product Use

I、Ordinary Weighing

1. Before each use, power on for at least 15 minutes to warm up.
2. Clear objects from the weighing pan.
3. Press the Tare button once to zero the balance.
4. If another weighing unit is required, press the Units key until the desired weighing unit appears as indicated on the LCD display.
5. Place the object to be measured on the weighing pan.
6. Wait for the "OK" indication to stabilize before taking a weight reading.

II、Use Container for Weighing

1. Place the container on the weighing pan.
2. Press the Tare key to clear.
3. After the "OK" indication appears, place the object to be tested in the container.
4. After the "OK" indication appears, read the weight of the object to be measured.

III、Counting Mode

1、Press the Tare key to clear the balance. If a container needs to be weighed, place the container on the weighing pan and press the Tare key to zero.

2、Press the Count key. The balance will display “QTY 10”. Press the Count key and select the piece counting coefficient. The piece-count sampling coefficients are 10, 25, 50, and 100, where 10, 25, 50, and 100 represent the number of pieces for piece-count sampling. The greater the number of samples, the higher the accuracy. Press the Count key to cycle through the selections.
3、According to the selected sampling coefficient, place the same number of samples on the weighing pan or in the container, press the Units key, and the balance will display the number of samples. At this time, the balance enters the piece counting state, and the unit displayed on the LCD is “PCS”.
4、Place the items to be counted on the weighing pan or in the container, and the reading can be taken after the "OK" indication appears.

Notice:
※ After pressing the Units key, you can switch between piece counting and weighing states.
"PCS" indicates the number of pieces,
"g" means the weighing unit is grams,
"Oz" means the weighing unit is ounces,
"Ct" means the weighing unit is carat,
"dwt" means the weighing unit is pennyweight.
Press the Units key to switch between the above units.

IV、Percentage Weighing

If you want to calculate the weight percentage of the object to be measured and the reference object, follow these steps:
1、Press the Tare key to clear the number to zero.
2、Place the reference item on the weighing pan, wait for the scale reading to stabilize, and then press the Perct key. The scale will display "100.000" or "100.00", depending on the weighing accuracy of the scale. At the same time, "%" is indicated on the LCD display.
3、Remove the reference item and display "0.000" or "0.00".
4、Place the object to be measured on the weighing pan.
5、Wait until "OK" appears on the LCD display and then read the reading on the scale. The reading displayed at this time is a percentage relative to the reference item.
6、Press the Units key to return to normal weighing mode.

If you want to perform a fill percentage weighing, follow these steps:
1、Place the empty container on the weighing pan and press the Tare key to reset the number to zero.

2、Place standard items into the container.
3、Press the Perct key. After stabilization, "100.000" or "100.00" will be displayed.
4、Take away the container with the standard items and put another identical empty container on it. After the scale is stable, it will display "0.000" or "0.00".
5、Put the object to be measured into the container and read the scale reading after "OK" appears on the display. The reading displayed at this time is the percentage relative to the reference object.
6、Press the Units key to return to normal weighing mode.

V、Check Weighing Mode

If you want to determine whether the weight of an item is within a qualified range, you only need to set the upper and lower limits of the item's weight.
1、Set the upper and lower limits of qualified items and start the checkweighing mode (see function settings for setting methods).
2、Press the Tare key to clear.
3、Place the object to be measured on the weighing pan and weigh it.
4、Observe the screen. If "LOW" is displayed, it means the weight of the item is lower than the lower limit; if "HIGH" is displayed, it means the weight of the item is higher than the upper limit. If the item weight is within the acceptable range, the screen will display "OK".

VI、Print Output

After connecting to a thermal printer, the displayed data can be printed out.
1、Connect the printer and the balance through the RS232 interface.
2、Power on the printer.
3、Set up the scale (see the function setting section for the setting method).
4、Press the Print key to print the data.

VII、Computer Interface

Through the RS232 interface, the scale can communicate with the computer in two directions (see appendix).

Function Settings

The paint mixing scale has a function setting mode. By setting the function parameters, the scale can be used correctly.

Press the Menu key to enter the setting menu, press the Tare key to select the setting option, and press the Count key to confirm. When you want to exit the setting, press the Tare key to make the scale display "ESC", and then press the Count key to confirm.

I、Print Settings

The paint mixing scale has three printing modes:

Stable output (STABLE): output when the reading is stable;

Immediate output (INSTANT): output immediately after pressing the Print key;

Interval output (INTERVAL): Output at a preset time interval.

Users can set the number of line feeds (LINE FEED) for label printing.

Notice:

※ The printing mode and line feed number settings are separate. Set the print mode first, and then set the line feed number.

Follow these steps to set the print mode:

1、Press the Menu key and “PRINT” is displayed.

2、Press the Count key to enter the print menu. The balance displays "STABLE" and outputs in stable mode by default.

3、Press the Tare key to select the printing method to be set, and press the Count key to confirm.

4、After entering the print setting menu, press the Tare key to select line feed output "INTER", press the Count key to confirm, and "0 SEC" is displayed. Press the Tare key repeatedly to view the preset time interval, and press the Count key to confirm. If "0 SEC" is selected, it means continuous output.

5、Press the Count key to return to normal weighing mode.

6、After entering the print setting menu, press the Tare key repeatedly to set the number of line feeds "LINEFD".

7、Press the Tare key repeatedly to view the preset number of line breaks (1-18). After selecting the number of line breaks, press the Count key to confirm and return to the normal weighing mode.

II、Set the baud rate and check mode

1、Press Menu key to enter the menu setting mode.

2、Press Tare key and "BAUD" is displayed.

3、Press Count key to enter the baud rate setting menu, and "300" is displayed.

4、Press Tare key repeatedly to display other baud rates. After selecting the baud rate, press Count key to confirm. "PARITY" will be displayed, and then perform parity check settings.

5、Press Count key to perform parity check selection. "NONE" (no inspection) is displayed first.

6、Press Tare key to display other verification methods:

"ODD" represents odd parity,

"EVEN" represents even parity.

7、After selecting the inspection form, press Count key to confirm and return to the normal weighing mode.

III、Weighing Unit Setting

This setting limits the display units during operation. The specific steps are as follows:

1、Press Menu key to enter the setting menu, and "PRINT" is displayed.

2、Press Tare key repeatedly until "UNITS" is displayed.

3、Press Count key and "g yes" is displayed, indicating that the unit grams can be used. Press Count key to confirm. If you want to prohibit weighing in grams, press Tare key, "g no" is displayed, and then press Count key to confirm.

4、Use steps III to disable or use weighing modes in ounces “Oz”, carats “Ct”, and pennyweight “dwt”.

IV、Restore default settings (factory settings)

Restoring the default settings can restore the scale's measuring range and setting parameters to the

factory settings.

Please follow the steps below to restore default settings:

1、Press Menu key to enter the setting menu and display “PRINT”.

2、Press Tare key repeatedly until "INITIA" is displayed.

3、Press Count key to confirm. After "BUSY" is displayed, it returns to the normal weighing mode. The default mode is set.

V、Backlight Settings

1、Press the Menu key to enter the setting menu and display “PRINT”.

2、Press the Tare key repeatedly until "BLIGHT" is displayed, press the Count key to confirm, and "1 NIN" is displayed to enter the setting of the backlight automatic off time.

3、Press the Tare key repeatedly to select the backlight time (1, 2, 3, 5, 10, 15, 30, and 60 are optional, indicating that the backlight auto-off time is 1 to 60 minutes).

4、Press Count key to confirm and return to normal weighing mode.

VI、Checkweighing Settings

If you need to set the upper and lower weight limits, please follow the steps below:

1、Press the Menu key to enter the menu settings.

2、Press the Tare key repeatedly until "INSPCT" is displayed.

3、Press the Count key to confirm, enter the weight limit setting, and display "SET HI" (set upper limit value).

4、Press the Count key to confirm, and "0." (initial value) is displayed.

5、Press the Count key and "SET DP." is displayed. Press the Tare key repeatedly to adjust the decimal point position.

6、Press the Count key to confirm the decimal point position and display the initial setting value. Press the Count key to increase the value, and press the Tare key to decrease the value.

7、After setting the value, press the Menu key and the set value will flash. If you want to continue modifying, press the Tare key; if the confirmation is correct, press the Count key to confirm, and "SET HI" will be displayed.

8、Press the Tare key and "SET LO" (lower limit value setting) is displayed. The operation steps are the same as above.

9、Checkweighing enable setting:

When it is necessary to start the checkweighing mode, press the Tare key until "ENABLE" is displayed; press the Count key to confirm, and the checkweighing mode will take effect. When the checkweighing mode is not required, press the Tare key repeatedly until "DISABL" is displayed, press the Count key to confirm and return to the normal weighing mode.

10、View the upper and lower weight limits:

A、Press the Menu key and "PRINT" is displayed; press the Tare key repeatedly until "INSPCT" is displayed.

B、Press the Count key to confirm, and "SET HI" will be displayed.

C、Press the Count key and the balance will display the upper limit value.

D、Press the Tare key and the display returns to the upper menu "SET HI".

E、Press the Tare key, "SET LO" is displayed; press the Count key, the balance displays the lower limit value.

Notice:

※ During the operation, if you want to exit the menu setting, press the Tare key and select "ESC", and press the Count key to confirm.

※ If you want to clear the upper and lower limit value settings, press the Tare key repeatedly until "CLEAR" is displayed. Press the Count key to confirm. The data settings will be cleared and the upper and lower limits will be reset to zero.

※ Any modification to the upper and lower limits will cause the scale to automatically exit the checkweighing mode. After modification, you must re-enter the checkweighing mode and follow the steps in 7.9 for settings.

※ The set upper and lower limit values will be saved by the balance and do not need to be set again.

Appendix 1、Data communication of paint mixing scale and computer

Data communication can be achieved between the paint mixing scale and the computer through the RS232 interface.

The input command is as follows:

U: Indicates Units.....unit conversion;

T: Indicates Tare.....clearing function;

C: Indicates Calib..... External standard weight calibration function;

P: Indicates Print.....printing function;

%: Indicates Perct……percent function;

#: Indicates the immediate printing function;

M: Indicates Count.....piece counting function;

After the scale is connected to the computer, it is recommended to use the # command to output data. When the scale responds to the command, all the numbers or information it displays will be transmitted to the computer in the form of strings.

The format of the string is as follows:

A B C D E F G H I J K L M

A: +/- sign bit, not displayed when the value is positive, replaced by a space, displayed when the value is negative;

B~G: Numeric digits, the decimal point will also be transmitted, if the digits are less than 6 digits, they will be replaced by spaces;

H~I: space bit;

J: unit bit, indicating the unit of the transmitted data, for example, g is displayed when the weighing unit is grams;

K: Stable bit, its function is the same as the OK function of the balance, S means the data is stable, and a space means the data is unstable;

L: carriage return character;

M: The number of line breaks, indicating the number of line breaks set by the balance.

Appendix 2、RS232 interface

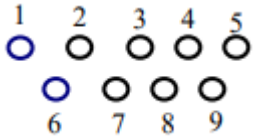
The RS232 interface of the paint mixing balance uses a standard interface transmission line. The data format is as follows:

1 start bit

8 data digits, including data check digits, and the check form is based on the setting method of the scale.

1 stop bit

Connect the scale to external devices as described below：



RS232 profile pin

PIN	Function
2:	TXD----Scale data transmission line
3:	RXD----Scale data receiving line
5:	GRD----Scale ground wire

Notice:

※ The CTS (CLEAR TO SEND) handshake signal is not used in this interface. Peripheral devices should have a buffer of at least 15 characters.

※ It is recommended that the cable length should not exceed 15 meters, the impedance of the connected load should be between 3.000~7.000Ω, and the capacitance should be less than 2500pF.

Appendix 3、Maintenance and Troubleshooting

I、Daily maintenance

1. Remove the weighing pan and wipe off the stains and dust on it.
2. Wipe off the oil and dust on the surface of the balance. Be careful not to use water, it is recommended to use alcohol or a mild solvent.
3. After cleaning, be careful not to let the limit screws on the scale plate and the housing come into contact.

II、Monthly maintenance

1、Calibrate the paint mixing scale using external standard weights.

1.1 Connect the balance to the power supply and let it warm up for at least 30 minutes.

1.2 Press Tare key to clear.

1.3 Press the Cal key to display the full range, and press the Tare key to display the half range.

1.4 Place the half-scale standard weight on the scale pan and press the Cal key to calibrate the external half-scale standard weight. The scale displays half-scale reading after ACAL is display.

1.5 Press the Cal key and the screen will display the full range. Place the full range standard weight on the weighing pan and press the Cal key. The screen will display the full range reading after displaying ACAL.

2、For safety reasons, check that the power cord is not damaged.

III、Troubleshooting

The following display messages indicate some common faults:

-------- Indicates that the electronic balance cannot obtain a stable reading.

HHHHHH The weight exceeds the rated weight by 5% or more.

LLLLLL a. The weighing pan and weighing pan drag are not installed. After installation, press the Tare key to clear them.

b. There may be debris under the weighing pan. Please check to make sure there is no contact between the weighing pan and the shell.

NOCAL The calibration procedure cannot be performed. Please refer to the calibration function to check whether the calibration weight is correct. Check whether there is any debris under the scale pan.

UNABLE The paint mixing scale can't perform the expected function due to missing or incorrect data.

Appendix 4、Product Quality Assurance

Our company guarantees the quality of our products in terms of materials and manufacturing. During the quality guarantee period, if the following conditions occur, our company will repair and replace the product free of charge.

1、The product has not been misused, improperly stored, or accidentally damaged. During use, there was no incorrect installation or maintenance, or failure to use it in accordance with the product instructions provided by our company.

2、The product has not been repaired or replaced by anyone other than our designated maintenance personnel.

3、The product's serial number is complete and has no defects or alterations.

4、Our company has confirmed that the material and manufacturing problems of the product occur under normal installation, use and maintenance.

The following situations do not fall within the scope of our quality assurance:

1、Damage caused by improper use, abuse or accident.

2、Damage caused by unapproved service.

3、Damage resulting from experimentation for other specific uses or purposes.

New Extension Function

I、Recalculation Function (Paint Batching Function)

When blending a paint mixed with multiple pigments, if there is too much of a certain pigment, you can use this function to make the weight of each pigment exactly match the input and stored value.

The steps are as follows:

1、Press the Menu button to enter the menu settings, and press the Tare button repeatedly until "REC OL" is displayed;

2、Press the Count key to confirm. Then press the Tare key repeatedly to select the "RECY" option. Press the Count key to enter paint scale fill calculation mode.

Notice:

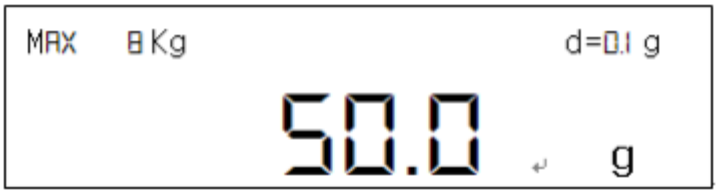
The "REC N" option is to return to normal mode;

The "ESC" option selects the default settings;

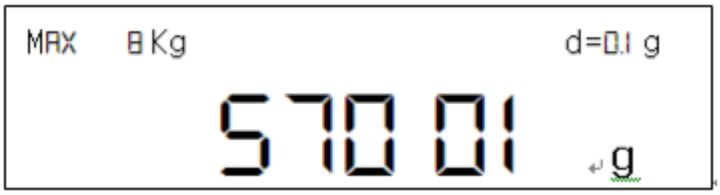
At this time, the Print key is the quality storage key, and the % key is the quality adjustment key.

3、Place the paint bucket on the weighing pan and press the Tare key to clear and tare;

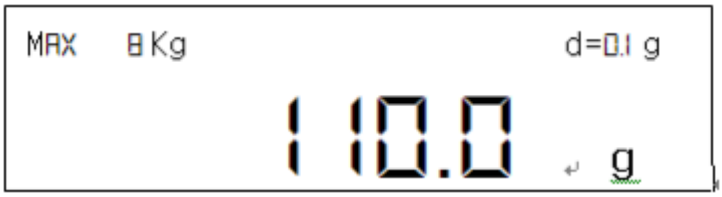
4、Add the first raw material, such as 50.0g.



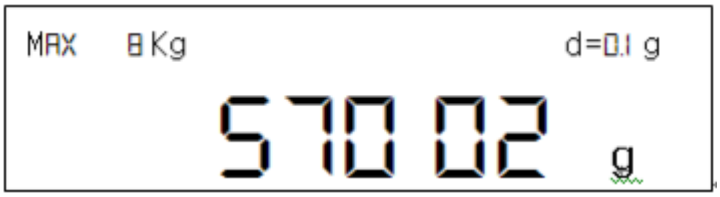
5、Press the Print key to save, and the screen displays "STO 01";



6. Add the second raw material. For example, the pigment to be added is 60.0g, and the two cumulative weights displayed on the screen are 110.0g.

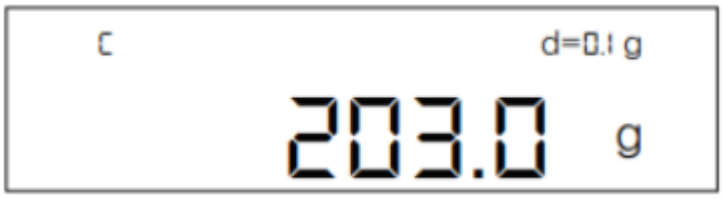


7、Press the Print key to save, and the screen will display "STO 02";

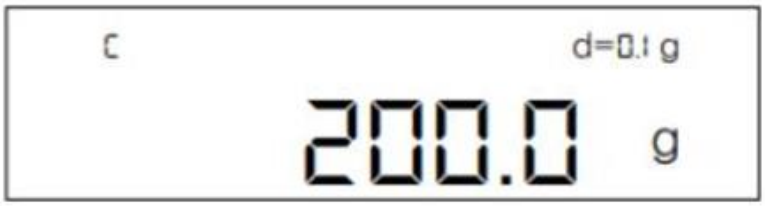


8、 Add the third ingredient. For example, 90g, but the screen shows 203.0g, while the recipe requires 200.0g. (Indicates that 90g of the third raw material should be added, but the actual amount added is 93g)

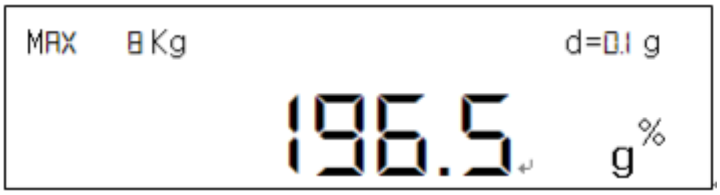
9、At this time, the quality formula coefficient needs to be adjusted. Press the % key to switch to the quality adjustment interface. At this time, the measurement range will not be displayed on the left side of the LCD screen, but the "C" character will be displayed. The main screen displays the value to be adjusted "203".



10、Press the Count key to increment the value; press the Tare key to decrement the value. Correct the value to 200.

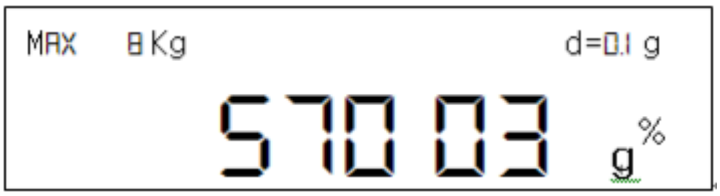


11、Press the CALIB key, the screen will flash; press the Count key to confirm and enter the normal interface. At this time, the range will be displayed again on the left side of the screen, and the displayed value is 196.5 (203 divided by the coefficient 1.033). The "%" symbol is displayed on the right side of the screen, indicating that the mass at this time is the value multiplied by the coefficient.

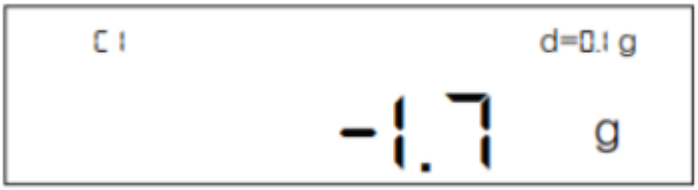


Note: Internal counting method: coefficient s=93/90≈1.033, so 203/1.033≈196.5.

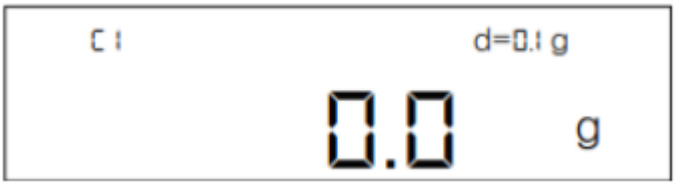
12、Press the Prin key to save, and the screen displays "STO 03". Then enter the compensation filling mode.



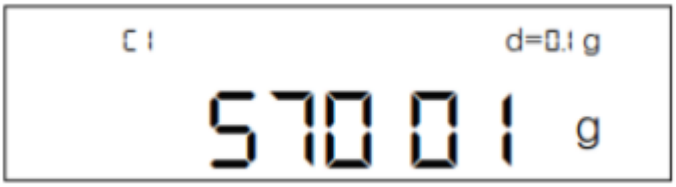
13、The screen will automatically display that the first material needs to be added 50×(1.033-1)≈1.7g. The range will not be displayed on the left side of the screen, but a flashing "C1" will be displayed.



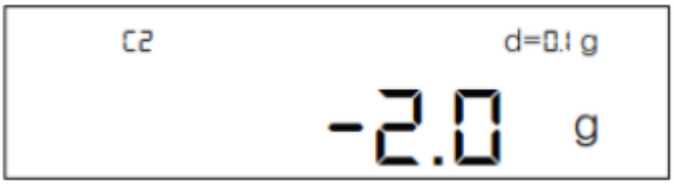
14、Add the first ingredient to make the display 0g.



15、Press the Print button to save, and the screen will display "STO 01";

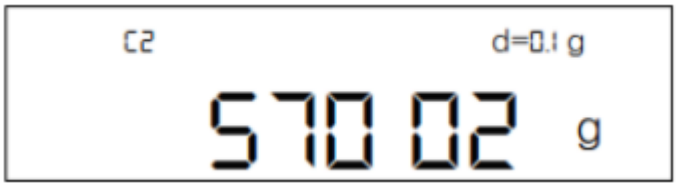


16、The screen will automatically display that the second material needs to be added 60×(1.033-1)=2.0g, and the range will not be displayed on the left side, but a flashing "C2" will be displayed.

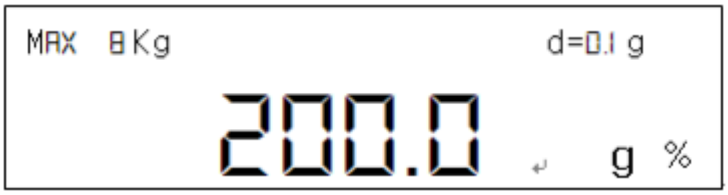


17、Add the second raw material so that the display changes to 0g.

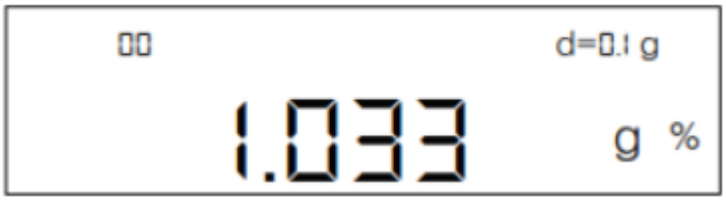
18、Press the Print key to save, and the screen displays "STO 02";



19、After the ingredients are completed, the screen displays 200.0g, the left side will redisplay the measurement range, and the right side will display the "%" symbol.



20、Press the MENU key, then press the TARE key to switch to "DP RAT", and then press the COUNT key. The screen will display the internal calculation coefficient.



Automatically exit after 5 seconds.

21、Take off the paint, and then you can turn off the recalculation function. Press the TARE key to clear the settings, and the screen displays 0.

Notice:

1. The currently stored mass must be more than 1g greater than the previous stored value before the storage operation can be performed, otherwise the screen will display "unable"
2. This function can store up to 8 times. After more than 8 times, unknown errors may occur.
3. The current coefficient can only be seen when the "%" symbol is displayed on the right side of the screen. After pressing the Tare key, the coefficient will automatically return to zero.
4. Press the Tare key to clear all previously stored values. If you need to save again, you need to start saving from the first one.
5. During the compensation filling process, pressing the Tare key will not have the effect of clearing the operation. If you want to exit the operation, press the print button but do not refill the ingredients until you return to normal mode. Then press the Tare key again to clear the operation.
6. The above operations are performed in the paint scale filling calculation mode.

If you want to return to normal mode, you want to restore the functions of the print key and % key. Press the Menu key and press the Tare key repeatedly until "REC OL" is displayed. Press the Count key to confirm, and press the Tare key repeatedly to select the "REC N" option. Press the Count key to confirm and exit the paint scale fill calculation mode.

II、Formula Weighing Function

You can manually adjust the formula coefficient to make the displayed value achieve the desired effect. For example, if the set coefficient is 0.5, the value displayed on the screen is: the actual mass value divided by 0.5.

Examples are as follows:

1. Place the paint bucket on the weighing pan and press the Tare key to clear and tare.
2. Press the Menu key to enter the menu settings. Press the Tare key repeatedly until the screen displays "CH RAT". Press the Count key, the screen displays "SET DP.". Press the Tare key and the screen will display “SET D.P”. Press the Count key to enter the system adjustment interface. The default value is 0.00. At this time, pressing the Count key will increase the value, and pressing the Tare key will decrease the value. Change the value to 0.50. Press the CAL key, the screen will flash, press the Count key to save the settings.
3. After returning to the display interface, the "%" symbol will be displayed on the right side of the screen, which means that the value displayed at this time is the actual mass multiplied by the coefficient. Take a 1kg weight or other objects of equal weight and place it in the paint bucket. The value displayed at this time is 2kg (1kg divided by 0.5).
4. Press the Tare key. The "%" symbol will no longer be displayed on the right side of the screen, indicating that the current display is 0.

Notice:

1. After entering the coefficient adjustment interface, the coefficient value can’t be set to 0.00, otherwise an incorrect value will be output.
2. This function can be used whether in filling calculation mode or normal mode.