



Instruction Manual

U.S. Solid Mobile-controlled
Analytical Balance



Table of Contents

Normal Operation

I. Getting Started.....	2
II. Specifications.....	5
<i>Technical Parameters:</i>	5
III. Unit Transformation.....	6
IV. Panel Description.....	7
<i>Panel Explanations</i>	7
V. Installation.....	8
<i>Choosing the installation location</i>	8
<i>Unpacking and inspection</i>	9
VI. Using the Balance.....	10
<i>Level adjustment</i>	10
<i>Start</i>	10
<i>Calibration</i>	10
<i>Tare function</i>	11
<i>Weighing unit selection</i>	11
<i>Counting</i>	11
VII. Maintenance and Cleaning.....	12
<i>Cleaning</i>	13
<i>Troubleshooting Guide</i>	14

Mobile App Operation

Home.....	16
<i>Connect Device</i>	16
1. Discover.....	16
2. Connected.....	17
<i>Weight records</i>	18
<i>Settings</i>	18
1. Language.....	18
2. Data Storage.....	19
3. Weighing Settings.....	20
4. Software Version.....	21
Functions.....	22
<i>Basic</i>	22
<i>Statistics</i>	24
<i>Percent</i>	27
<i>Density</i>	28
<i>Multi-device</i>	31
<i>Settings</i>	33
1. Sensitivity.....	33
2. Calibration.....	33
Tare.....	35
Zero.....	35
Switch.....	35

I. Getting Started

Thank you for choosing U.S. Solid USS-DBS01 Series Mobile-controlled Analytical Balance. We hope you enjoy your purchase. Please use and maintain the equipment according to all instructions within the manual.

The U.S. Solid Mobile-controlled Analytical Balances innovatively enable app-controlled function on the basis of normal operating mode, which means you can now connect and control your U.S. Solid analytical balance with mobile device. We believe this new feature will improve our users' experience, with minimum extra cost.

*Note: Please download *U.S. Solid Balance* app in App Store (IOS) or Google Play Store (Android) before using.

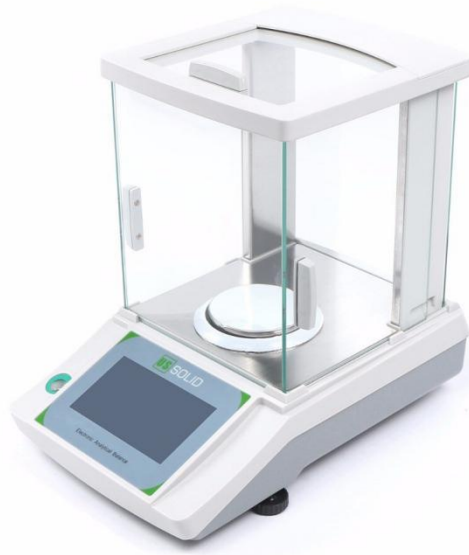
This product was developed according to CE marking regulations while emphasizing aesthetics and safety for the user. It has ISO certification, specifically ISO 9001. The high quality of the product, coupled with proper user care, should allow you to enjoy the product for years.

Improper use of this equipment can cause accidents, including but not limited to: electric discharges, circuit breaker malfunctions, fire, etc. Please read the maintenance section, where this is explained more fully.

For best results and longevity in product efficiency, read through this manual thoroughly before using the product.

Please bear in mind the following:

- This manual should be kept with the analytical balance, so it is available to all users
- Be careful when handling the balance. Avoid any sudden movements when in its vicinity. Be sure to not drop the balance, nor drop any heavy/sharp objects on it. Keep liquids away from the balance to avoid spills.
- Never take apart the balance to try and fix yourself. This could ruin the entire balance, and voids the product warranty. There is also risk of injury when disassembling the balance.
- To prevent fire and electrical issues, avoid dusty or overly dry environments. In case of electrical issue or fire, unplug the balance immediately.
- During setup, installation, and use, contact your wholesaler with any questions that arise.
- This equipment is protected under the Warranties and Consumer Good Regulation (10/2003)
- Overhaul is not covered by the equipment warranty
- Changes made to the product by non-certified individuals will result in a loss of the product warranty
- Accessories, including their loss, are not covered by the product warranty, nor does the warrant cover piece's deterioration over the course of time.
- Keep your invoice, either for having the right to a warranty, or for asking for warranty coverage. Manufacturer reserves the right to modify or improve the manual or equipment.



Always make sure you calibrate your scale before using

Features:

- Bluetooth connection function
- Electromagnetic force compensation technology
- Aluminum alloy die cast base and ss platter
- Super bright 5 inch color LCD display with backlight
- Touch screen
- Height-adjustable feet
- RS232 interface
- Full capacity taring
- Overload protection, bubble level adjustment ,under hook
- Different units of measure: g, lb, ct, oz, gn, ozt, dwt, dr, MM, tl. J, tl.T, tl.H, tola
- Check Weighing

II. Specifications

Technical Parameters:

MODEL	USS- DBS01002	USS- DBS01003
Max Capacity in grams	120 g	200 g
Accuracy Class	I	
Min. Capacity	10 mg	
Division	0.0001 g	
Verification Scale Value	0.001g	
Repeatability	0.0002 g	
Linearity	0.0003 g	
Stabilization Time	≤ 8 Seconds	
Operating Temperature	17.5 °C- 22.5 °C, with fluctuations of <1 °C/Hour	
	63.5 °F- 72.5 °F with fluctuations of <1.8 °F/ Hour	
Relative Humidity	50%-75%	
Pan size	90 mm	
Windshield	225 x 220 x 265 mm (L*W*H)	
Total dimensions	355 x 230 x 350 mm(L*W*H)	
Net weight	7.2 kg	
Power	AC 110 - 240 V 50 Hz/60 Hz DC 9 V-2.2 A by using the universal adapter	

III. Unit Transformation

Unit	Conversion Rate	Digit after Decimal Point
g	1	4
mg	1000	1
lb	0.0022046	6
ct	5	3
oz	0.035274	5
gn	15.4323584	3
ozt	0.0321507	5
dwt	0.6430149	4
dr	0.5643834	4
MM	0.266666951	4
tl.J	0.02671725	5
tl.T	0.026666702	5
tl.H	0.026455464	5

IV. Panel Description



Panel Explanations

1. Language: Switch between Chinese and English

2. Time: Set time

3. INT: Press + or - to choose the speed

INT-0 Highest Speed

INT-1 High Speed

INT-2 Normal Speed

INT-3 Low Speed

4. PCS: Press it to enter the piece counting mode

5. ASD: Press "+" or "-" to choose the sensitivity to match the environment

ASD-0 The highest sensitivity

ASD-1 The high sensitivity

ASD-2 The normal sensitivity

ASD-3 The poor sensitivity for bad environment

6. Print: Press + or - to choose the print mode

PRN-0 Output by Pressing

PRN-1 Timing output for every 30s

PRN-2 Timing output for every 60s

PRN-3 Timing output for every 120s

PRN-4 Continuous output

7. EXT CAL:Calibration key

V. Installation

Choosing the installation location

When analytical balances are used in routine lab or industrial measurement environments, the weighing speed will be much quicker, and the results more accurate. The location should meet the following conditions:

1. Work room should be clean and dry
2. Balance should be placed on a solid, stable, plain flat surface
3. Avoid locations in which the balance could be exposed to any of the following:

- a. Airflow from air conditioners, fans, doors, or windows
 - b. Vibrations from surrounding or nearby equipment
 - c. Direct sunlight or radiation
4. Do not use the balance anywhere exposed to explosive, combustible, or corrosive gases.
 5. Do not use the balance in areas with high humidity or high levels of dust
 6. When moving from a cooler to a warmer place, the accuracy and reliability of the scale will be influenced by the moisture condensation inside the balance. In order to eliminate this influence, it is best to leave the scale unplugged in its new location for at least two hours before next use.
 7. Keep the balance clean.
 8. Do not leave material on the balance when not in use.

Unpacking and inspection

Check that all of the items indicated below are included in the package and that nothing has been damaged:

- Balance
- Pan
- Power Cable
- External Calibration weight
- Manual

In case the balance or any component is damaged during transport, tell your transportation agent immediately in order to process claims within the proper time frame.

VI. Using the Balance

Level adjustment

Once the balance is placed at its location, check the bubble level; if bubble is not well-centered, turn the adjustable feet so the bubble moves to the center and the balance is properly leveled.

Start

1. Connect the balance to the power supply and press ON key on the panel. Wait 30 minutes after powering on for best performance.
2. After warming up, calibrate the balance.
3. After calibration, the balance will enter weighing mode
4. To turn the balance off, press the OFF key on the panel and the display will shut off. If the balance will be unused for an extended period of time, disconnect it from the power supply.

Calibration

1. Press EXT CAL key; the value of the necessary weight will flash on display
2. Put the calibration weight on the pan. Wait until the value of the calibration weight stops flashing and is fixed on the display (e.g. 100.0000 g, 200.0000g, etc., depending on the model)
3. Remove the weight from the pan
4. The balance will enter weighing mode and will display 0.0000g

Note: Each balance includes the necessary weight to complete external calibration

Tare function

1. Put the receptacle on the weighing pan; its weight will be displayed
2. Press “→ T ←” or “→ 0 ←” key and the reading on the display will automatically be set to 0.0000g; tare is complete
3. If the receptacle is removed from the pan, the corresponding weight, with negative value will be displayed
4. Press the “→ T ←” or “→ 0 ←” key again and the value on display will be set to zero again

Weighing unit selection

Press UNIT key to select the desired weighing unit from g, lb, ct, oz, gn, ozt, dwt, dr, MM, tl.j, tl.T, tl.H, tola

Counting

1. Press “PCS” to enter the piece counting mode
2. Prepare the sample, for example, prepare 10pcs samples and put them on the pan gently
3. Press 10, and until the display shows 10pcs. Then remove the samples gently. And it can work
4. Press to get back

VII. Maintenance and Cleaning

To get the best results and for product longevity, be sure to follow the suggestions below.

Note: All of the suggestions and guidelines mentioned below and throughout this manual will only be effective with continuous and careful maintenance of the equipment

- Follow all processes outlined in the manual
- Make the manual available to all users of the equipment
- Prevent the balance from any sudden movements or falls, as well as from direct sunlight or air flow. The balance is a precision instrument and must be handled carefully.
- Balance must be plugged into a grounded electrical outlet and the socket should be easily accessible to unplug in case of emergency
- Never unplug the balance by pulling on the wire, do so from the base
- Never use the balance in a wedged-in location, such as a shelf
- Never use other objects such as pens, pencils, etc. to press the buttons on the control panel; use only your fingers.
- Never place anything on the pan heavier than the maximum capacity of the balance, or the sensor could be damaged
- Do not submerge the balance, nor spill any liquids on it
- If any liquid does come into contact with the electrical parts of the balance, immediately disconnect it and send it in for service to be

checked and adjusted if necessary

- Always use only original components and supplies. Other devices and parts may appear similar, but can damage the equipment.

Cleaning

- Never use scourers or substances that can grate to clean metallic parts. This include, but is not limited to, stainless steel, aluminum, coatings, etc.. These can damage the balance and lead to early erosion of effectiveness of the balance.
- Use a lint-free cloth, dampened with soapy water, that does not contain any abrasive surfaces, nor corrosive materials

ATTENTION!! If equipment is not properly cleaned and cared for, technical service will be unable to fix or repair issues.
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Troubleshooting Guide

Problem	Cause	Solution
Display not working	No power supply	Plug in the adapter
	Fuse Damaged	Replace fuse
	Damaged Transformer	Replace the power transformer. If problem persists, send to Technical Services for repair.
Unstable Display	Poor working conditions	Seek somewhere with less vibration and/or airflow
	Wind or drafts affecting readings	Check to make sure draft shield is closed tightly
	Scale pan unsteady	Remove the pan and clean the surface of the balance well, making sure there are no lingering items
	Power exceeds permissible value	Connect balance to power supply 110-220 V AC
Displayed mass is not the same as true mass	Balance has not been calibrated	Double check calibration, internal and/or external
	Receptacle not being considered	Make sure the receptacle has been tared out
	Uneven surface	Make sure balance is on a flat, even surface

Note: According to the applicable legislation regarding “Non-automatic weighing instruments” in which balances are included, by means of writ dating from the 22nd of October, 1994 (BOE 1/3rd/95), these balances must not be used for:

- Commercial transactions
- Calculating taxes, tariffs, rates, indemnities, and other similar canons
- Judicial surveys
- Pharmaceutical medicine preparations, as well as analysis made in medical or pharmaceutical laboratories
- Determining the price or total amount in sale price or in pre-packaged preparations



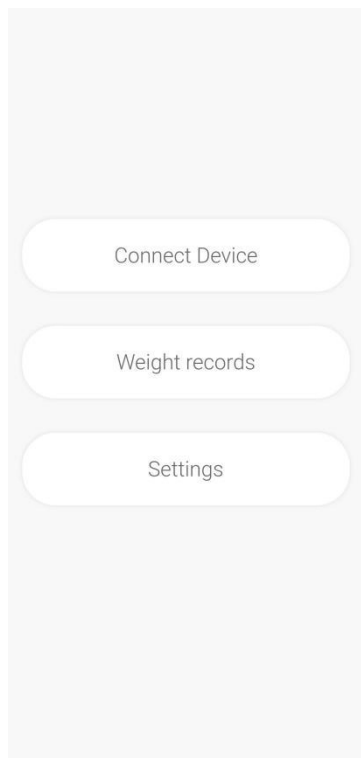
Instructions on environmental protection:

At the end of its life cycle, please do not dispose of this equipment by throwing it in the usual garbage. Instead, hand it over at a collection point for the recycling of electrical and electronic appliances. It does not contain dangerous nor toxic products for humans, but inadequate disposal could still damage the environment. The materials are recyclable as mentioned. By recycling material or through other forms or repurposing old appliances, you are making an important contribution to the protection of our environment. Please inquire with your local community authorities for the proper disposal location.

Mobile APP Operation

Home

Open the U.S Solid Balance app or click the [**HOME**] menu item on the lower navigation menu to view the **HOME** screen.



Connect Device

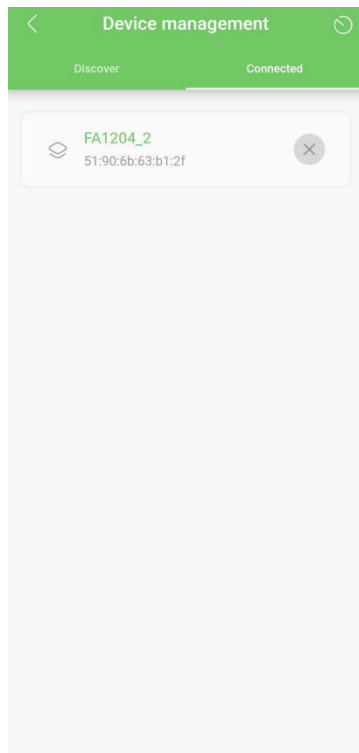
1. Discover

Find your U.S. Solid Balance in the list of discovered devices. Click on its [**PAIR**] button to connect your mobile device to your balance. Once connected, the app will automatically advance to the **CONNECTED** screen.



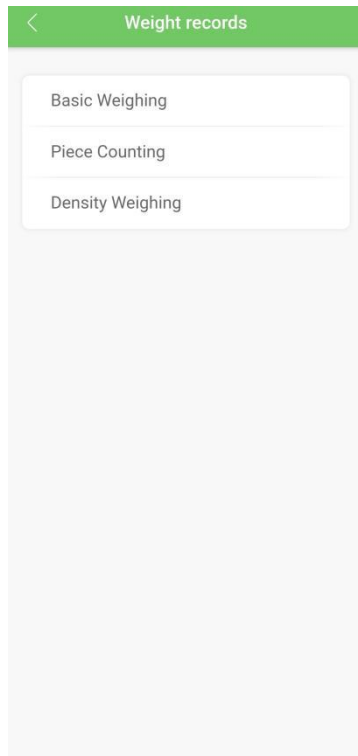
2. Connected

Select the [**Connected**] tab to view any connected balance. The app will navigate to the **FUNCTION** screen by clicking on it from the list.



Weight records

Click on the [**BASIC WEIGHING**], [**PIECE COUNTING**] or [**DENSITY WEIGHING**] menu items to check their corresponding records.

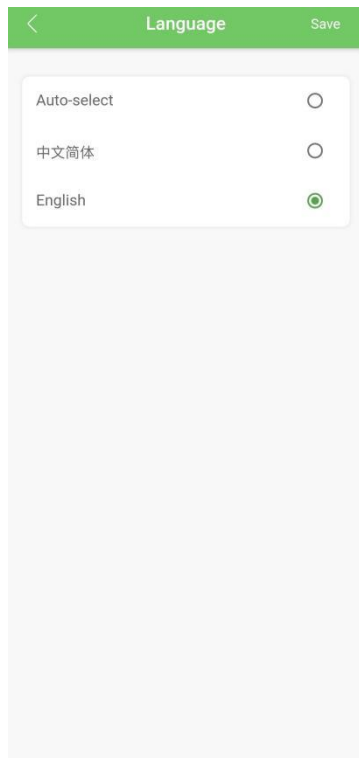


Settings

Click the [**SETTINGS**] menu item to view the app's system settings.

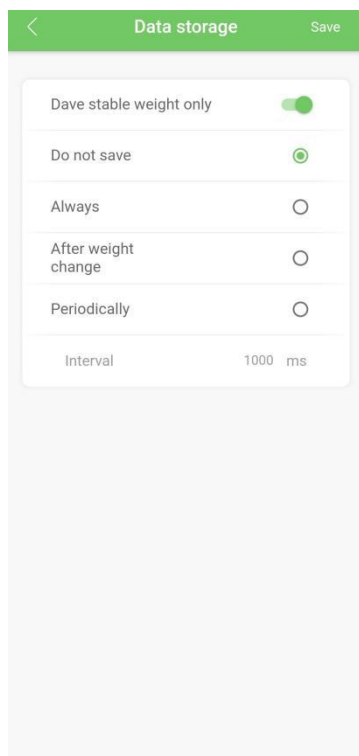
1. Language

Choose the [**LANGUAGE**] menu item to select your preferred language. You can choose Auto, Simplified Chinese, or English.



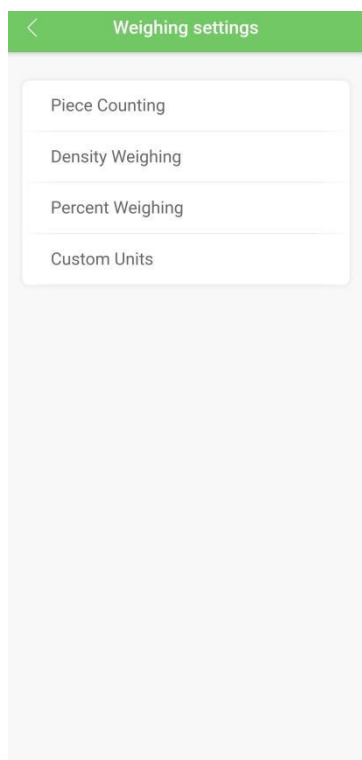
2. Data Storage

Enable/Disable the saving of the stable weight only by switching the **[Save stable weight only]** switch on or off.



Choose the **[Disable]**, **[Always]**, **[After weight change]**, or **[Periodically]** data saving option to select your data saving frequency preference. Click on the **[SAVE]** button to save your preference.

3. Weighing Settings



- Piece Counting: Click on the **[PIECE COUNTING]** menu item to set the *default sample count value*. Once set, click on the **[SAVE]** button to save the value.
- Density Weighing: Click on the **[DENSITY WEIGHING]** menu item to set the air density and alpha. Once set, click on the **[SAVE]** button to save these values.
- Percent Weighing: Click on the **[PERCENT WEIGHING]** menu item to set the default reference percentage, default target percentage, default

negative error and default positive error values. Once set, click on the **[SAVE]** button to save these values.

- Custom Units: Click on the **[CUSTOM UNITS]** menu item to create custom measurement units.

To create a new custom measurement unit:

- ① Enter the name of the new custom unit in the **[NAME]** text field;
- ② Enter an abbreviation of the new unit in the **[ABBREVIATION]** text field;
- ③ Enter the number of decimal places in the **[DECIMAL PLACES]** text field;
- ④ Enter the 1.0 gram equivalent value of the new custom unit in the **[1g =]** text field;
- ⑤ Save your newly defined custom measurement unit by clicking on the **[SAVE]** button.

Delete Custom Units:

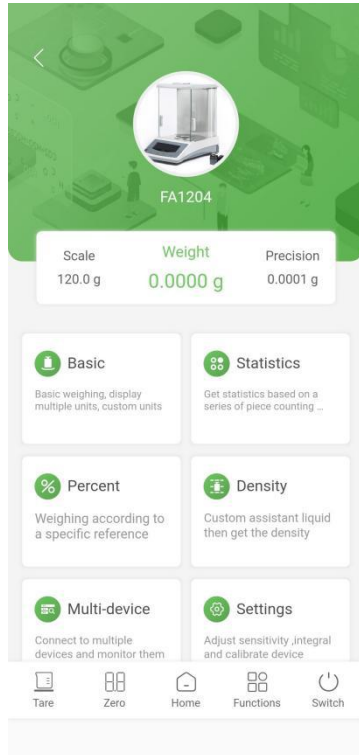
To delete a custom unit in the **STORED CUSTOM UNITS** section, simply click on its **[REMOVE]** icon on the right.

4. Software Version

The **VERSION** item displays the application's current version.

Functions

Functions menu screen.

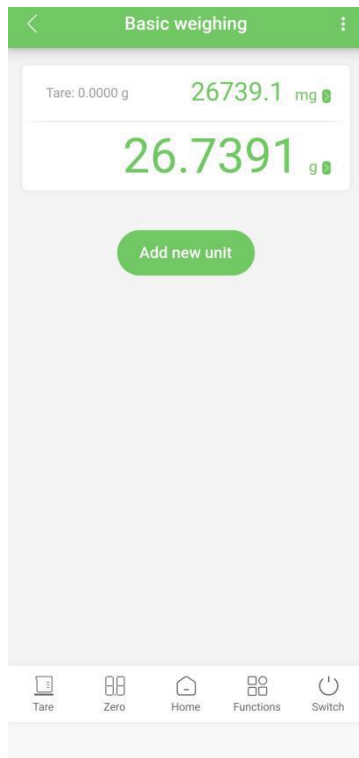


Basic

To perform a basic measuring:

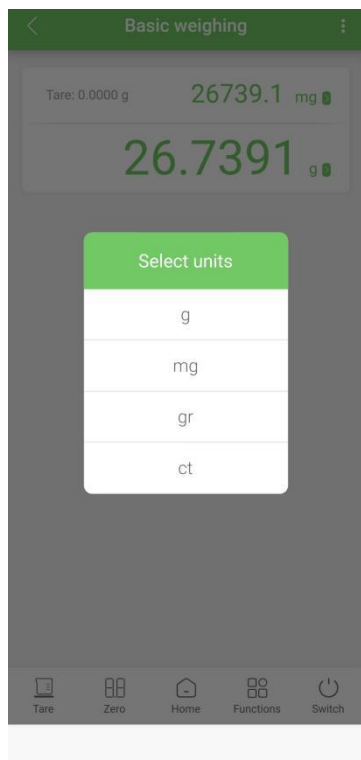
Place the sample on the balance's weighing pan. The result will then be displayed.

1. Click the arrow ([>]) button to the right of the reading's value to change the measurement unit;



2. Click the **[Add new unit]** button to add other units. Scroll up or down to select gram (**[g]**), milligram (**[mg]**), grain (**[gr]**), carat (**[ct]**), pound (**[lb]**), microgram (**[μg]**), ounce (**[oz]**), or any stored custom unit;

3. Click the three vertical dots (**[⋮]**) on the upper right of the screen to reveal the **[MORE]** menu. You can add **[CUSTOM UNITS]** or view **[WEIGHT RECORDS]** from this menu;

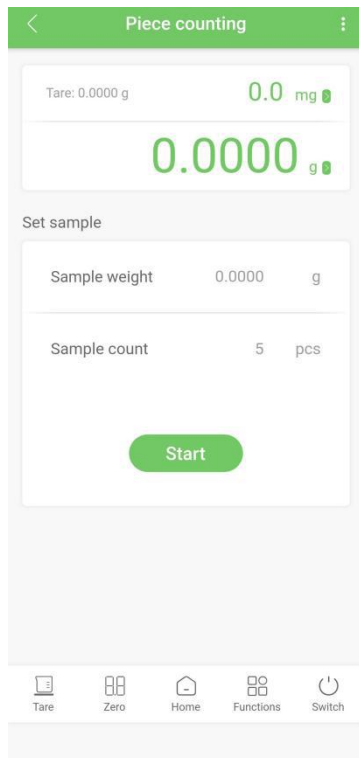


Statistics

The [***STATISTICS***] menu allows you to manage the balance's **PIECE COUNTING** feature.

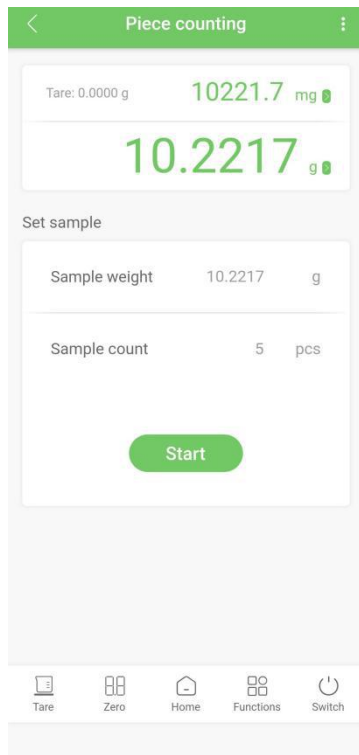
To use the **PIECE COUNTING** feature:

1. Set the reference sample count by clicking the number to the right of the ***SAMPLE COUNT*** text;

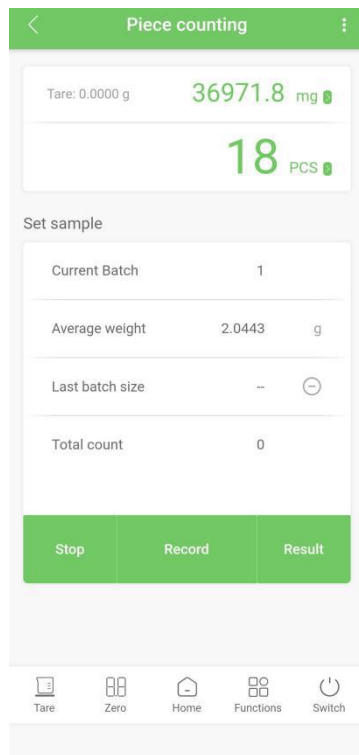


2. Place the reference sample(s) on the weighing pan;

3. Click the **[START]** button below when the reading stabilizes;



4. Place the target sample(s) on the balance's weighing pan. The result will then be displayed;



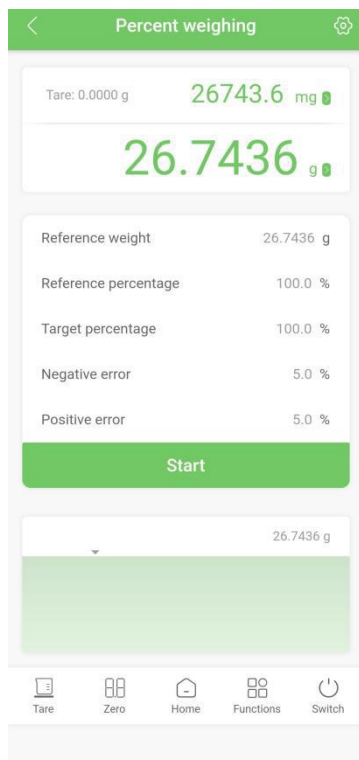
- Click the **[STOP]** button to finish the task and return to the main **PIECE COUNTING** screen.
- Click the **[RECORD]** button to store the results.
- Click the **[RESULT]** button to view the details of both the result and records.
- Click the **[SAVE RESULT]** button to store the results. You may enter a comment for the result before clicking the **[SUBMIT]** button.
- Click the three vertical dots (**[⋮]**) on the upper right of the screen to reveal the **[MORE]** menu. You can set the default sample count or view piece counts history from this menu.

Percent

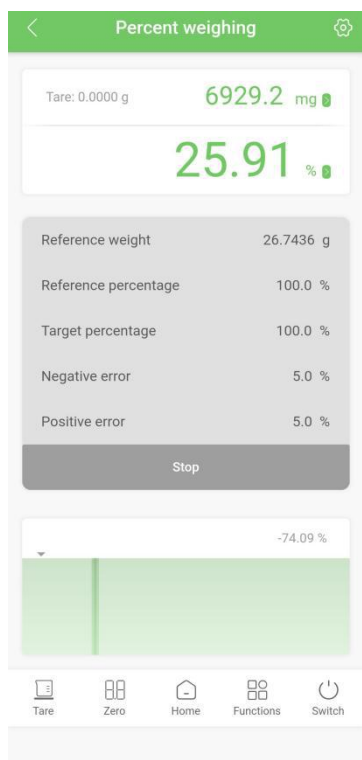
The [**PERCENT**] menu item allows you to manage the balance's **PERCENT WEIGHING** feature.

To perform percent weighing:

1. Place the reference sample on the balance's weighing pan;
2. Click the [**START**] button below when the reading stabilizes;



3. Place the target sample on the weighing pan. The result will then be displayed;



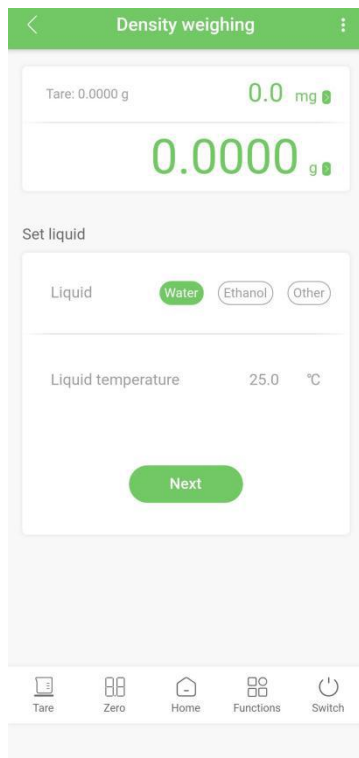
- Click the **[STOP]** button to restart another **PERCENT WEIGHING**.
- The diagram below indicates the percentage of the target weight over the reference weight.
- Click the **[GEAR]** settings icon on the upper right to set the default reference percentage, default target percentage, default negative error and default positive error values. Enter the values in their respective text field and then click on the **[SAVE]** button to store them.

Density

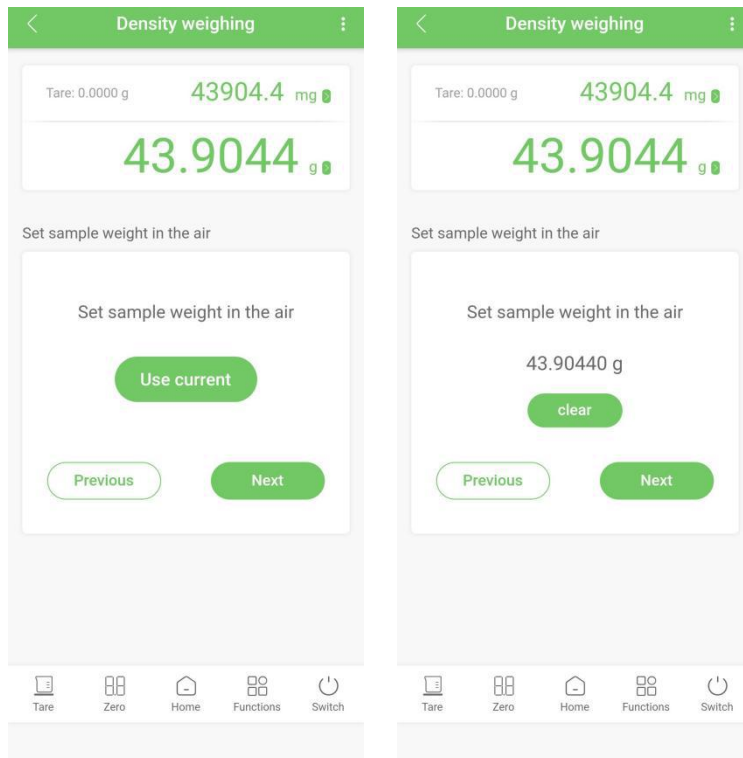
The **[DENSITY]** menu item allows you to determine a sample's density.

To measure a sample's density:

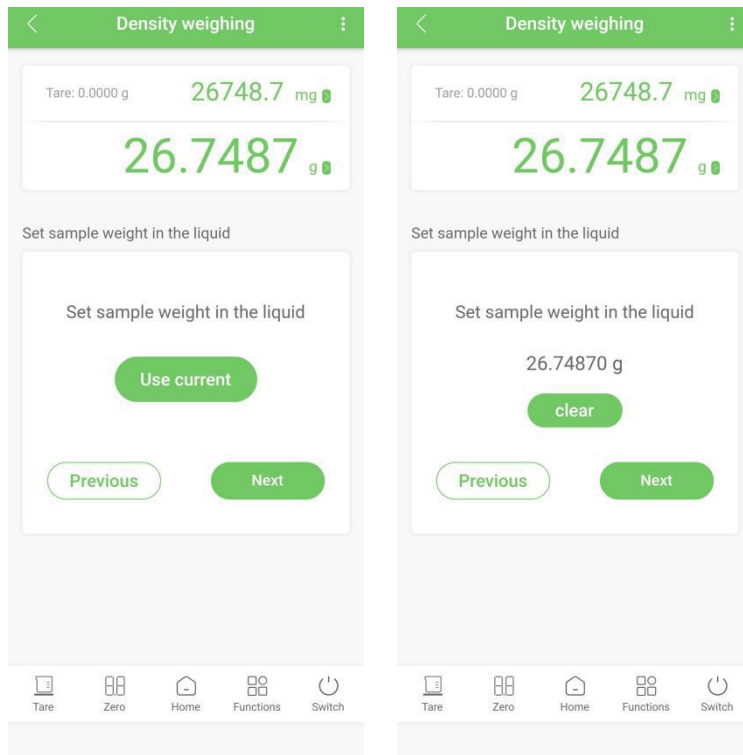
1. Selecting the liquid for the density you require;
2. Entering the liquid's temperature. *This is important because a given liquid can have differing density values at different temperatures;*



3. Place the sample on the balance's weighing pan and click the **[NEXT]** button;
4. Click the **[USE CURRENT]** button to get the sample weight of the air, and then click the **[NEXT]** button;



5. Place the density device with sample on the balance's weighing pan;
6. Click the **[USE CURRENT]** button when the reading stabilizes to determine the sample weight in liquid;



7. Click the **[NEXT]** button to view the **RESULT** screen;

8. Click the **[SAVE]** button to store the results. You may enter a comment for the result before clicking the **[SUBMIT]** button.

The screenshot shows the 'Density weighing' app interface. At the top, a green header bar contains a back arrow, the text 'Density weighing', and a menu icon. Below the header, the tare weight is displayed as 'Tare: 0.0000 g'. The current measurement is shown in large green digits as '26748.7 mg' with a small '0' icon, and below it, '26.7487 g' with a small 'g' icon. A section titled 'result' contains a table of data:

sample weight in the air	43.9044 g
sample weight in the liquid	26.7487 g
density	2.5569 g/cm ³
density compensated	2.5551 g/cm ³
volume	17.1706 cm ³
volume compensated	17.1887 cm ³
liquid	water 15.0 °C 0.9991 g/cm ³

Below the table are two green buttons: 'Previous' and 'Save'. At the bottom of the app is a navigation bar with five icons and labels: 'Tare', 'Zero', 'Home', 'Functions', and 'Switch'.

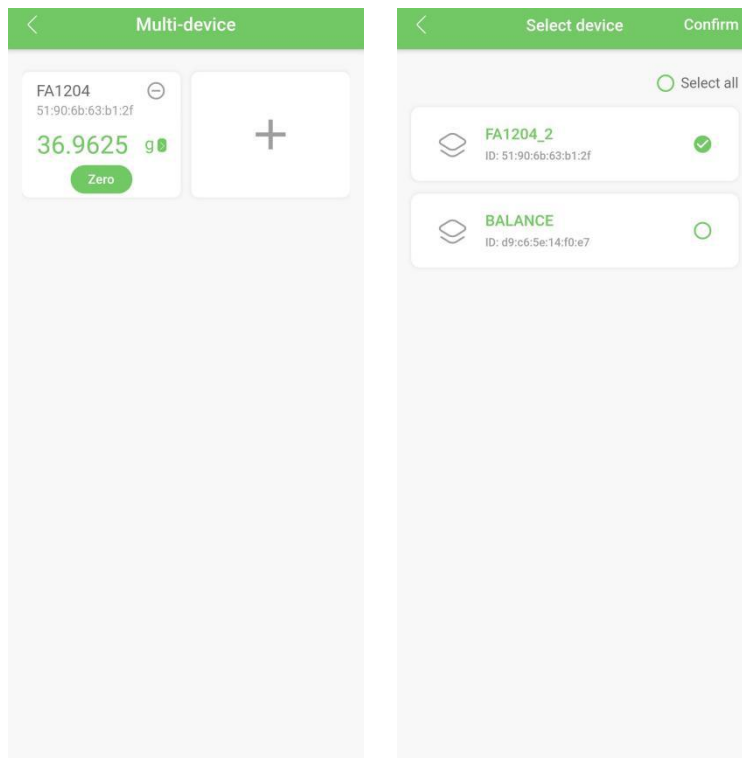
Multi-device

The **[MULTI-DEVICE]** menu item allows you to add additional balances to the app.

Note: the additional balance must be present on the **CONNECT DEVICE screen prior to adding it to this **MULTI-DEVICE** section.*

To add an additional balance:

1. Click on the button with the plus ([+]) sign to see any available additional devices;
2. Select the device you wish to add in the list and click the **[CONFIRM]** button to store the added device;
3. The readings of each device will then be displayed on the **MULTI-DEVICE** screen.



To remove a balance from the multi-device list:

- Click the minus ([-]) sign in the upper right corner of the device's tile.

Additionally, you can:

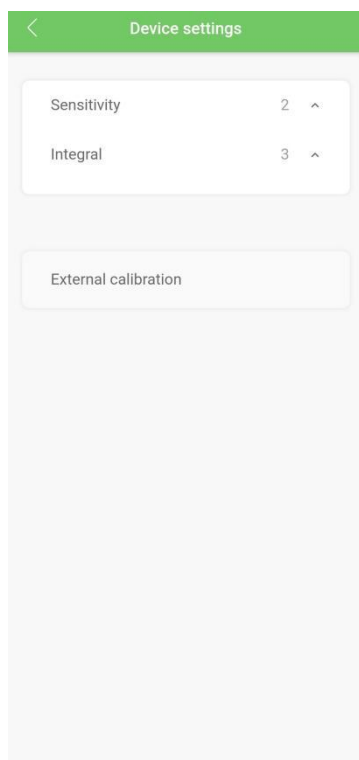
- Click the arrow ([>]) button to change the balance's measurement unit.
- Click the **[ZERO]** button to zero the device's reading.

Settings

The [**SETTINGS**] menu item allows you to manage the balance's setting and external calibration.

1. Sensitivity

Click the upwards arrows ([^]) on the right to select the balance's **SENSITIVITY** and **INTEGRAL** setting respectively.

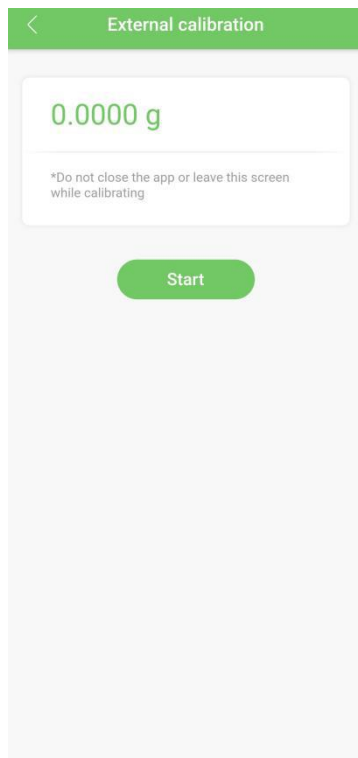


2. Calibration

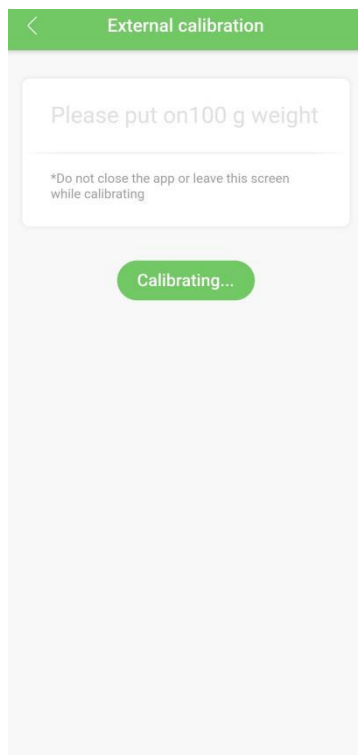
The [**EXTERNAL CALIBRATION**] menu item allows you to manage the balance's calibration.

To calibrate the balance:

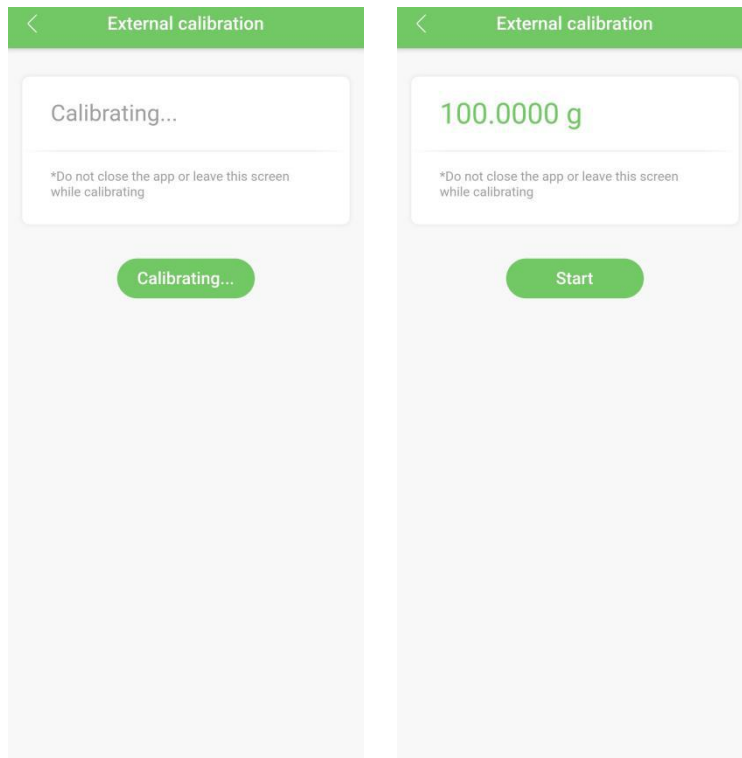
1. Click the **[START]** button to begin the calibration function;



2. Place the 100g calibration weight on the balance's weighing pan when instructed to do so;



3. The “Calibrating...” message will be displayed for a brief moment. And the calibration will be complete when the status message shows “100.0000 g”.



Tare

Click the [**TARE**] menu item to remove tare weight.

Zero

Click the [**ZERO**] menu item in order to zero the reading when the weighing pan has no load.

Switch

Click the [**SWITCH**] menu item to end the operation of the balance.

Contact

Feel free to visit our website: www.ussolid.com

You can email us at service@ussolid.com

You can call one of our friendly customer service representative at

1-800-243-5428

使用距离大于20cm的产品:

FCC WARNING

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

To maintain compliance with FCC's RF Exposure guidelines, This equipment should be installed and operated with minimum 20cm distance between the radiator and your body: Use only the supplied antenna.