



Sensor Analytical Balance **LB-43AWH**

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1. Safety Measures

- Preheat it as per the rule before using it.
- The total mass of the tare and weighing substance should not exceed the limitation of maximum capacity.
- If the weighing is inaccurate, calibrate the balance by weight.
- In case of taking out the round pan, first turn it around clockwise and take it out. Do not put out upward hard, to avoid the damage of the load cell.

2. Introduction

Sensor Analytical Balance LB-43AWH ensures high-accuracy sample weighing with a 5200 g capacity. It includes a 160 mm pan size, providing ample space for various sample sizes. It is equipped with an external calibration system, allowing precise adjustments of weights. Our analytical balance comes with LCD screen, ensuring easy readability of measurements.

3. Features

1. High-precision weighing
2. Wide temperature range
3. User-friendly interface
4. Fast response time
5. Durable weighing plate

4. Specifications

Model No.	LB-43AWH
Weighing Capacity	5200 g
Minimum Weighing	0.01 g
Pan Size	160 mm
Temperature Range	5 °C to 25 °C
Calibration System	External Calibration
Interface	RS232
Display	LCD
Power	220 V / 110 V
Bottom Thickness of Weighing Plate	3.8 mm
Outer Dimension	340 × 210 × 90 mm
Weight	8.5 kgs

5. Applications

Sensor Analytical Balance LB-43AWH is used in laboratories, research facilities, and industrial settings for precise weight measurements of samples, chemicals, and materials. It ensures high accuracy in quality control, formulation, and analytical testing applications.

6. Operations

6.1 Operation preparation

Put the balance on a stable, flat place, to avoid shaking, static electricity, sunlight, airflow, and electromagnetic wave interference.

6.2 Starting up

- 1) Plug in one end of the power adapter or power line to the balance input, and another end Connecting the AC power supply.

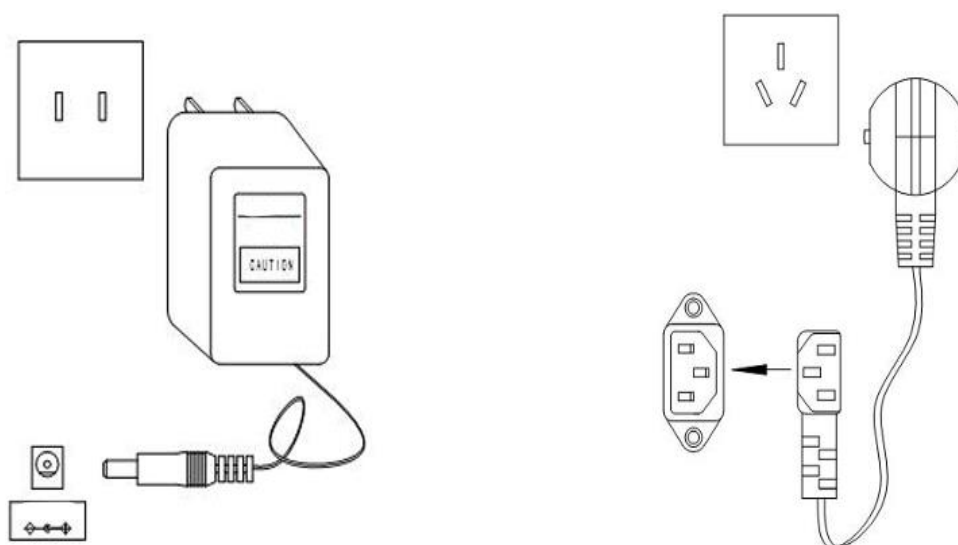


Figure-1

- 2) Turn on the power.

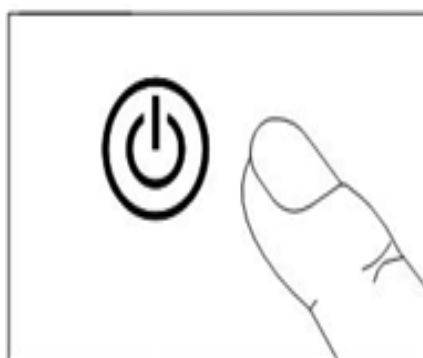


Figure-2

Taking 300g/10mg for example, after turning on the balance, it will display in order:

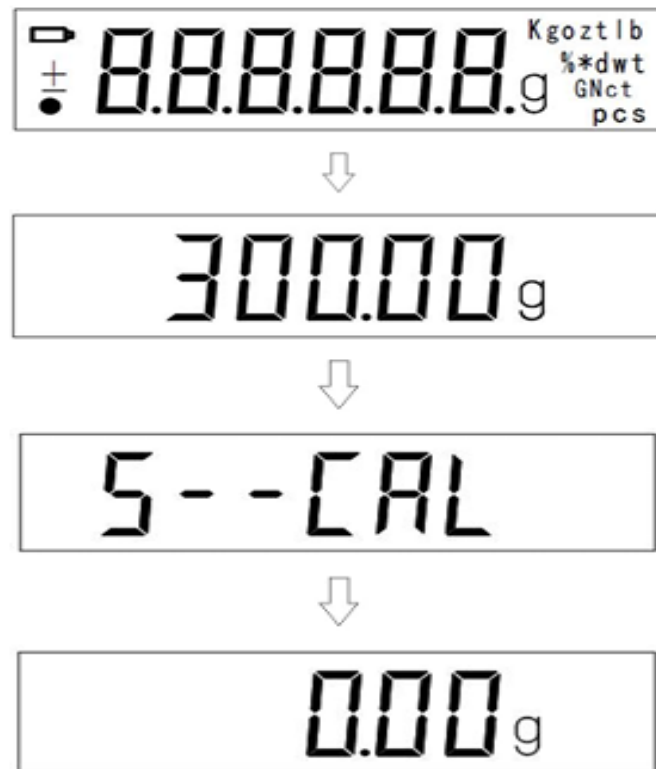


Figure-3

6.3 Calibration

- 1) Turning on the power, preheating it for half an hour, and then start calibration, it could be more accurate.
- 2) Calibration operation.

Take 300g/10mg for example:

- 1) Press " **CAL** " (calibration) " for 3 seconds. when no subject on the balance. It enters the calibration status, it appears "CAL-d2", then "200.00g" flashing appears. Put 200g weight on, and it displays "-- CAL- ", and then "200.00g" on display, which means entering the weighing status. If the weighing is not accurate, then repeat the above said calibration steps.

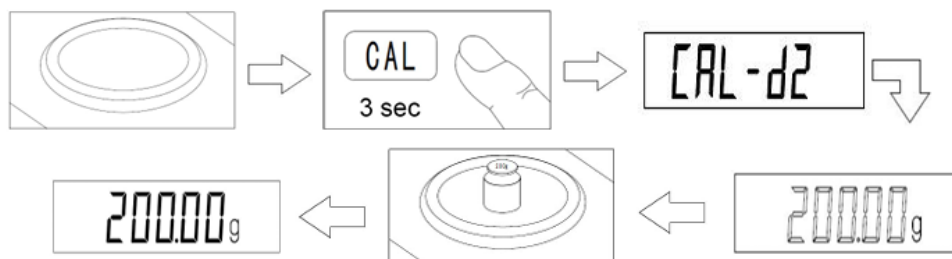


Figure-4

- 2) **Linear calibration:** Press “ **CAL** ” (calibration) “ [for 0.1mg accuracy balance, press **TARE**] for 3 seconds, it enters the calibration status, then press **CAL** till it appears “CAL-L”, it enters the linear calibration, puts on the weight under the data on display, one point for calibration has been done, and a fixed calibration data will be on display. Take off the weight, the next calibration data is on flashing, put on the weight accordingly, till all points for calibration have been done.

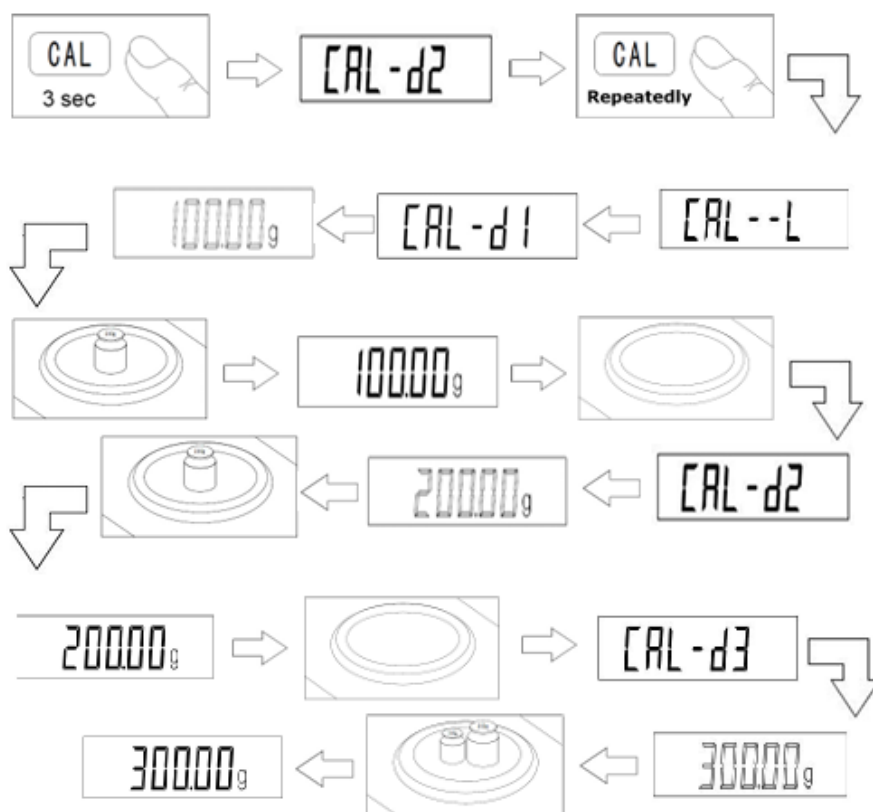


Figure-5

Note: If not put on the weight within 10 seconds after entering the calibration status, "no CAL" will be appeared, It means no calibration has been done, to quit the calibration.

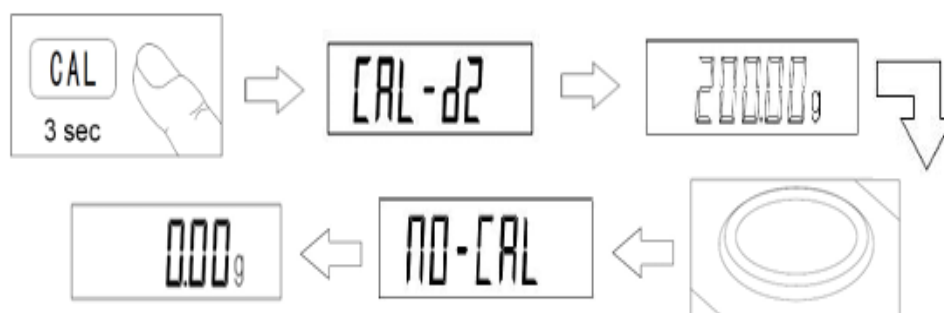


Figure-6

6.4 Weighing

- 1) After preheating or calibration, put the subject on the balance, till a black point on the bottom left side disappears, the value of the subject can be read out.

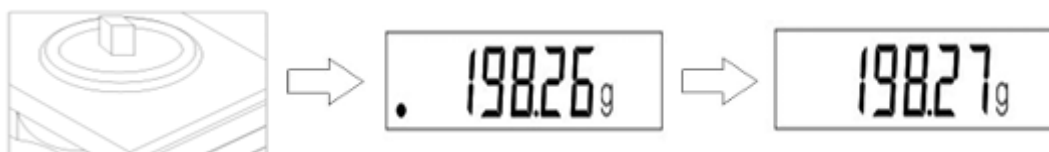


Figure-7

- 2) The maximum capacity of the balance +9e appears when it is turning on, (e=10d, d is a minimal readout to be appeared).

6.5 Tare

Press **TARE**, the tare weight of the pan can be taken out.



Figure-8

6.6 Backlit

The backlit is on when turning on the balance. Press **BL** to turn off the backlit. The service time of the balance can be prolonged if to switch off the backlit in case of using the rechargeable battery or dry battery.

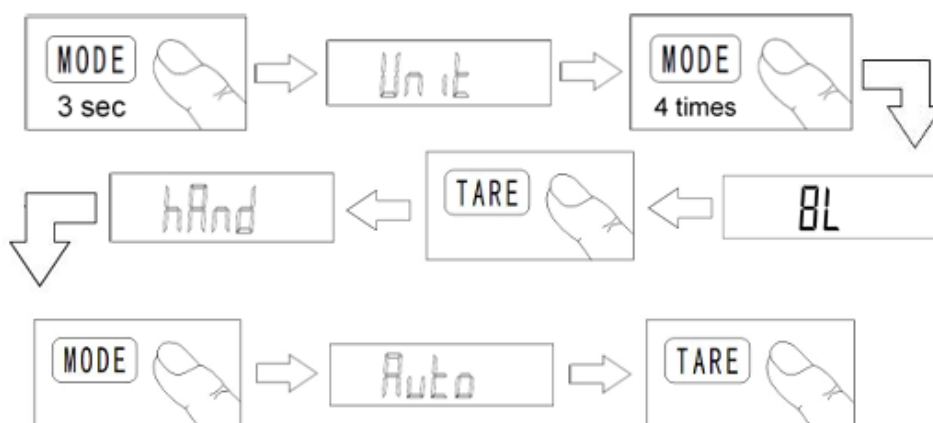


Figure-9

6.7 Zero-Tracking and Auto Tare

- 1) Press **CAL** at the same time as turning on the power (within 3 seconds) till “-Zero-” flashing, press **TARE**, “Zero*d” on display, press **TARE** repeatedly, Class I”* variation from “0-20”, class II”* variation from “0-5”, “Zero0d” means no Zero point tracing.
- 2) Press **CAL** again, “-tArE-” flashing, press **TARE**, “tArE*d” on display, press **TARE** again, class I”* variation from “0-30”, class II”* variation from “0-9”, “tArE0d” means no auto tare.
- 3) Setting end, press **BL**, it restarts and is back to normal weighing mode.

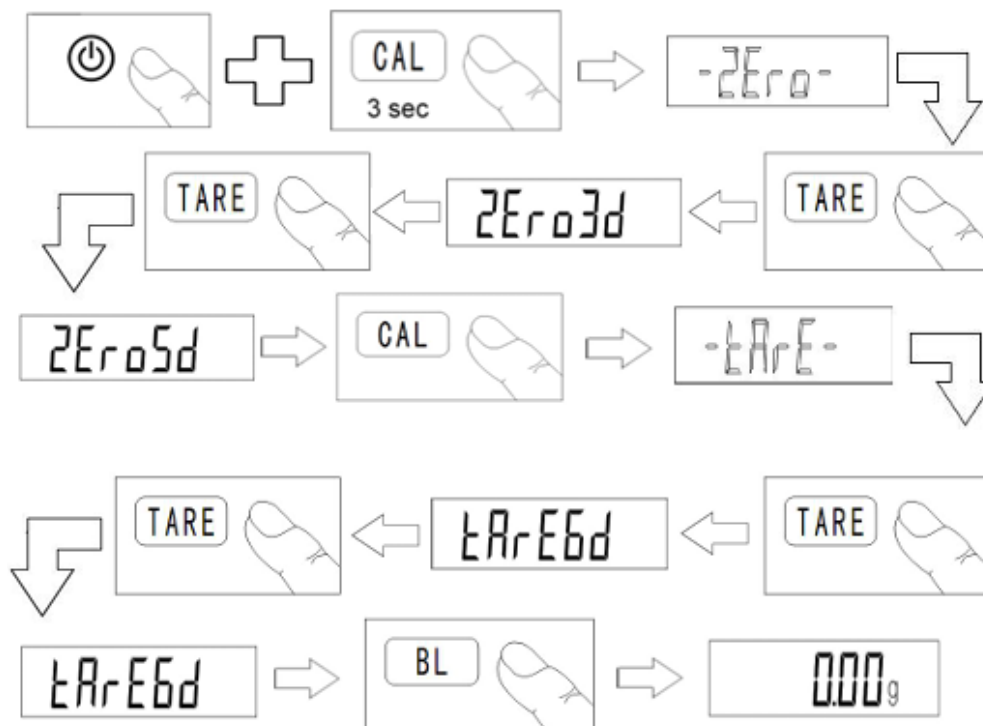


Figure-10

6.8 Other function

6.8.1 Unit conversion

Press **MODE** for 3 seconds till “Unit” flashes on, press **TARE**, “Unit*” flashes on, press **MODE**, to choose the unit required, and press **TARE** to ensure, the unit conversion has been done.

Taking the unit ‘g’ converses to unit “OZ” for example:

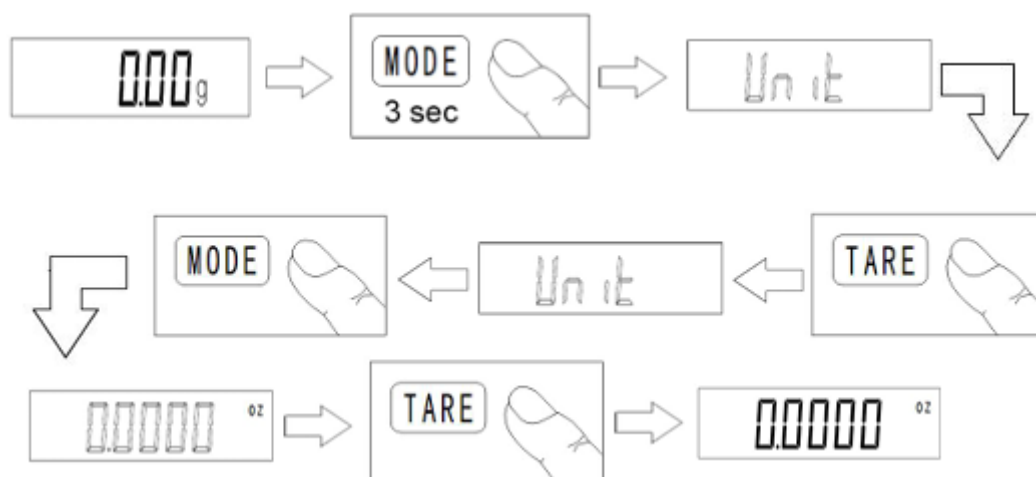


Figure-11

6.8.2 Counting

Press **MODE** for 3 seconds till "Unit" flashes on, press **MODE** again, "Count" flashes on, press **TARE** to ensure, "10pcs" flashing on, (press **MODE**, basic counting number can be changed from "10pcs" to "500pcs", the bigger the number, the higher the counting accuracy). Put on the same number of the articles as per flashing data on display, press **TARE** to ensure, "-----" is on display, and then counting setup has been done. When a single article for counting is less than 2d, it shows "no-Cou", the counting set up cannot be done.

Take an article of 10 pcs counting for example:

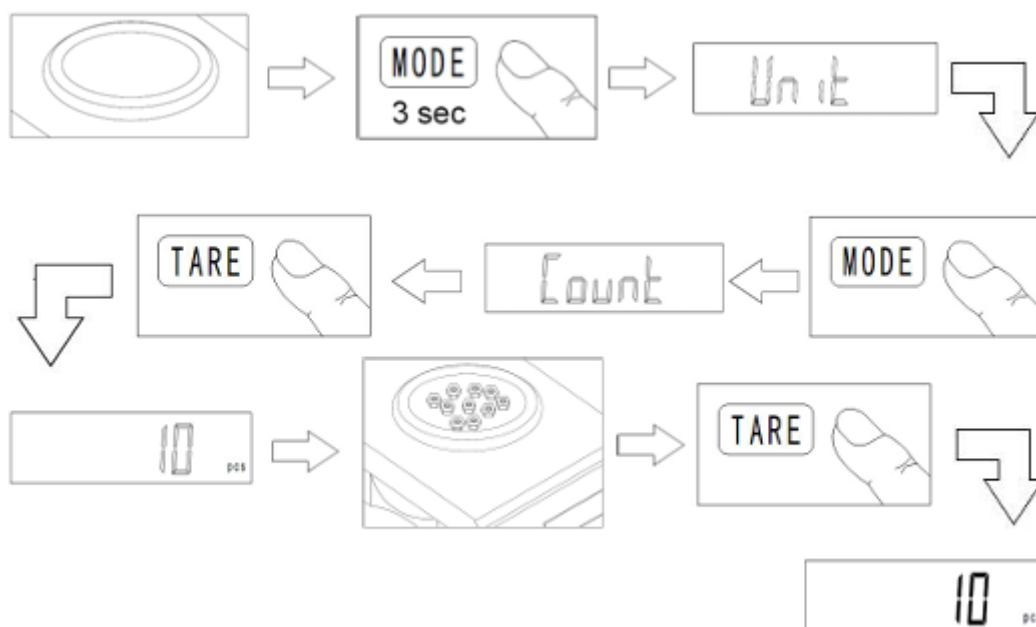


Figure-12

6.8.3 Percentage

Press **MODE** for 3 seconds till "Unit" flashes on, Press **MODE** two times, "PEA" flashing on, press **TARE** to ensure, "100%" flashing on, put on the article to be set as 100%, press **TARE**, "100%" on display, take out the article, and put on other substance, the percentage on display is that one of the substances vs former article. In case the value of the setting article divided by 100 is less than 2d, "no-PER" is on display, which means that the percentage setting up cannot be done, the mass of the article to be set has to be increased.

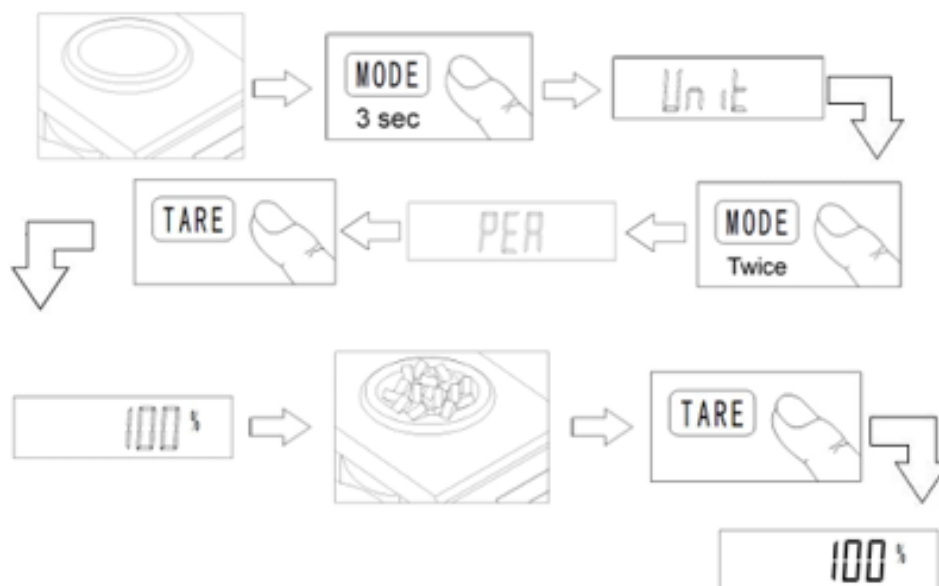


Figure-13

6.8.4 Printer

Press **MODE** for 3 seconds till "Unit" flashes on, press **MODE** three times, "Prt" on display, press **TARE** to ensure, "hAnd" is on display.

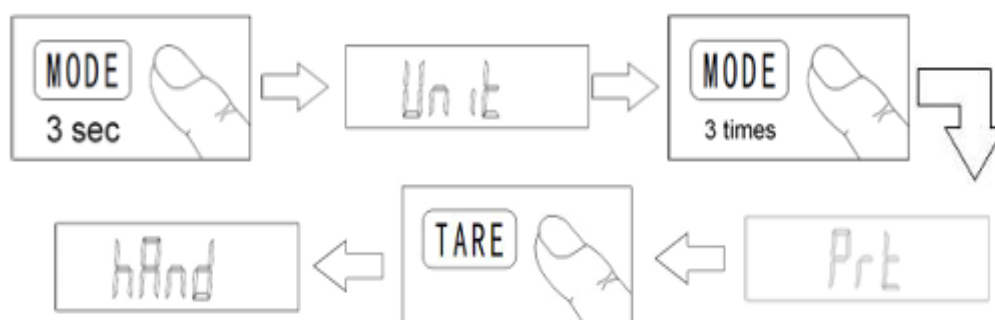


Figure-14

- 1) **Manual printing mode:** Press **TARE** again to ensure. Press **PRT** or printer code key to end the printing set up.
- 2) **Auto printing mode:** After above mentioned “hAnd “is on display, press **MODE** again, “Auto” on display, press **TARE** to ensure, put the substance which should be bigger than 5d, the weight value on display will be printed out after the black point for stable reading disappears.
- 3) **Continuous printing mode:** After above mentioned “hAnd “is on display, press **MODE** two times, press **TARE** to ensure, the data can be printed out continuously.

RS232 communication protocol:

It adopts a general RS232 UART signal, a 10BIT for each data frame, frame format as below:

bit1	bit2	bit3	bit4	bit5	bit6	bit7	bit8	bit9	bit10
------	------	------	------	------	------	------	------	------	-------

BIT1: Data symbol

BIT2-BIT9: Data bits

BIT10: Stop bit

Data frame format +/- symbol + data + unit + frame end:

- 1) **Data symbol:** 1byte ASCII code: “ + “ or “ - “. Symbol +: 2B-: 2D
- 2) **Data field:** 7bytes ASCII code, one byte is radix point “ . “, its position is the same as the display position.
- 3) **Unit:** 3 bytes ASCII code, if the unit is less than 3 bytes, filled up by blank (20).
lb: 6c 62 oz:6F 7A GN:474E Kg:6B67.
- 4) **Frame end:** Enter new line ASCII code, 0DH, 0AH Serial port connection line (9 core) connected with the computer: 2pins to 2pins, 5pins to 5 pins

6.8.5 IR sensor control function

Put the finger above the “IR sensor” (IR sensor window), it can control and carry out the calibration and tare operation. For Tare operation, just put the finger above the IR window shortly, it can be done. For the calibration, put the finger above the IR window for 3 seconds, it can be calibrated. When the IR sensor is working, its red indicator lights on.

- 1) To touch two IR windows, the function shuts down, the function can be restored when turn on the balance again.
- 2) For Mode function, can be turned on or turned off.

The steps for shutdown IR sensor function are as below:

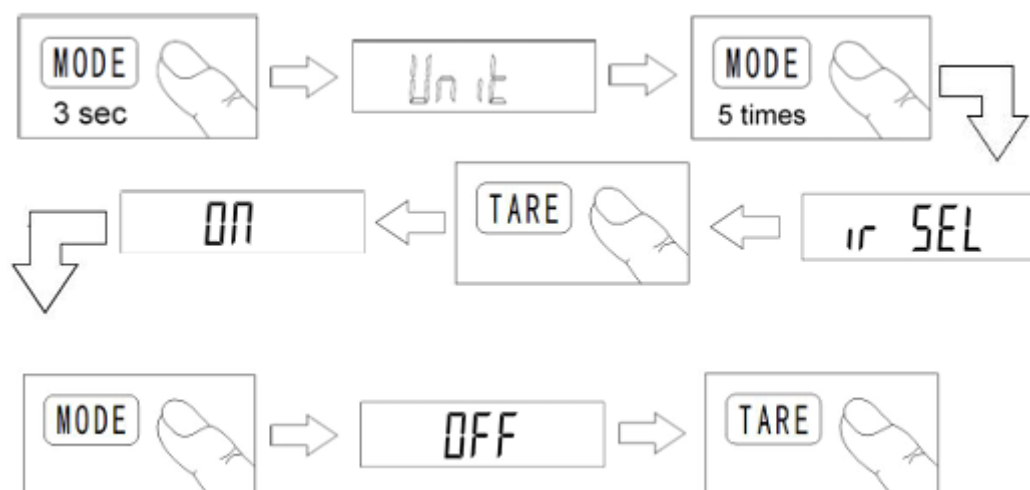


Figure-15

- 3) The IR sensor control function could be possibly affected by strong light or in the case of nearby windows.
- 4) After turning on the balance, if a black arrow appears on the upper right side of the screen, it means that IR sensing function has been shut down automatically, so adjusting its position, and turning on the balance again.
- 5) During the operation, if a single sensing red indicator lights up, just move the balance to the position where the red indicator lights off, and it will start to work normally after the data on display comes to zero.

6.8.6 Low voltage indication

In case the dry battery or rechargeable battery is used, replace it with the new one, if a symbol of battery appears on the upper side of the screen.



Figure-16

7. Troubleshooting

7.1 Unable to turn on the balance

- 1) Check the power adapter properly plugged in.
- 2) To replace with a new adapter if it is damaged.
- 3) Insert the overlay connection wire or replace it with a new one if the overlay is disconnected or damaged.
- 4) Mainboard damaged.

7.2 All characters on display after turning on and unable to return to normal weighing status

- 1) The balance crashed due to the AD chip being affected. Turn off the balance and turn on it again after 30 minutes.
- 2) The switch of overlay is damaged, replace it with a new one.

7.3 "S-CAL" or "UER2.0" on display after turning on, unable to work normally

- 1) The balance crashed due to the AD chip being affected. Turn off the balance and turn on it after 30 minutes.
- 2) To replace with a new AD chip if it is damaged.
- 3) Load cell wire disconnected. Check the wire connector.
- 4) To replace with a new one if the load cell is damaged.

7.4 "zero" appears after turning on, even after putting on the weighing substance, unable to work

- 1) The balance crashed due to the AD chip being affected. Turn off the balance and turn on it after 30 minutes.
- 2) Load cell wire disconnected. Check the wire connector.
- 3) To replace with a new one if the load cell is damaged.

7.5 "-----" on display after turning on the balance and unable to come to zero after press

- 1) Load cell wire disconnected. Check the wire connector.
- 2) To replace with a new one if the load cell is damaged.

7.6 "Zero" on flashing after turning on the balance

- 1) The "Calibration "button is damaged. To replace with new overlay.
- 2) The "calibration " function is affected by hard lights for the IR sensor function. Move the balance position till the red indicator of the "calibration" sensor window lights off.

7.7 IR sensing function comes to zero after turning on, and not on effect

Two IR sensing windows auto turn off due to being affected by hard light. Move the balance to the position and turn on it again till two IR windows work normally.

7.8 Nothing on display after turning on the balance, except backlit on flashing

Pin 12 or pin 13 of the program slices on the main board have faulty soldering with pin 6 or pin 7 of the screen driving chip. To have them soldered firmly.

7.9 No Max. capacity appears initially on the screen after turning on but only the random numbers or white screen on display

The main board storage chip was damaged, to replace it with a new one.

7.10 Zero point not stable, put-on small substance, the reading data on display is much more than its real weight or “----” appears. Unable to have a normal calibration after pressing **CAL** button

Put on wrong weight when calibration or the weighing substance is much less than calibration weight which leads to inner criterion amplified. Press **CAL** till “CAL-d*” on display (it has different d on display by different capacity), press **TARE** repeatedly till “CAL- d” which is as same as max. capacity, then keep waiting till “ CAL- d “ flashing on the screen, and put on the weight corresponding to the data on display.

7.11 Reading data unstable during the weighing process

- 1) There is airflow or vibration around the working area. To change the working place.
- 2) Maybe the pan or load cell is touched by some other things. To make the surroundings of the pan and load cell clean enough.
- 3) The plug between the load cell and the indicator is loose or it is touch spot oxidation. To tighten and fasten it, if still not working, should replace the plug on the indicator (9-core serial port socket).
- 4) Indicator power voltage is unstable, just to have the battery recharged or connected to the main power supply.
- 5) Indicator inner AD chip or load cell power circuit damaged. To replace the AD chip or check the power supply voltage, to replace the chip.

7.12 Reading value stopped suddenly during the weighing process and remained unchanged even by adding the substance weight

The balance crashed due to static electricity interference, to shut down and restart it.

7.13 “no Cou” appears during the counting process

A single substance weight for counting purposes is less than 2d (d is an actual division value which is also a minimum reading on display)

7.14 “no PEA “ appears during the percentage process

The substance sample weight for percentage measuring is less than 200d (d is an actual division value which is also a minimum reading on display). It must be greater than 200d to carry out the percentage function normally.

7.15 The balance with RS232C serial communication automatically shut down or the data on display as well as the screen are all flashing at the same time

RS232 serial communication chip on main board damaged. To replace it with a new one.

7.16 The printer cannot print out by pressing after the balance with the RS232C serial communication feature connected to the printer

- 1) Setup error for print output. Among the balance mode functions, is to set the data output mode as manual print mode.
- 2) Printing connection line disconnected. Check up the connection line plug, to open the plug and check it, if necessary.
- 3) The “print “ button is damaged. To replace it with a new one.



Labotronics Scientific. 1007 N Orange St., Wilmington, DE 19801, USA.
info@labotronics.com | www.labotronics.com