Labotronics

Double Display Balance

LB-13DDB

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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 Max.capacity.
- If the weighing is inaccurate, calibrate the balance by weight.
- In case of taking out the round pan, please first turn it around clockwise and take it out.
- Do not put out upward hardly, to avoid the damage of the load cell.

2. Introduction

Double Display Balance LB-13DDB is a high-resolution table-top unit equipped with the maximum weighing capacity of 1000 g. Built with superior precision load cell sensor for accurate weighing and stability. Features easy balance tare and quick stabilization providing reliable weight measurements. The panel features dual LCDs for visual monitoring of the measured weight from the opposite directions and operational buttons for manual operations

3. Features

1. Weighing capacity- 1000 g
2. High precision load cell sensors
3. Accuracy of 0.01 g
4. Dual LCD (white back light and black font) for visual monitoring from opposite directions can be incorporated with additional charges
5. Dynamic weighing with count, percentage and multiple unit conversion feature
6. Anti- corrosive stainless steel pan
7. Automated calibration
8. Fluctuation free readings
9. Rechargeable batteries

4. Specifications

Model No.	LB-13DDB
Weighing capacity	1000 g
Minimum weighing	0.01 g
Pan size	115 mm
Operational temperature	5 °C - 25 °C
Calibration system	External calibration
Interface	RS232
Display	Dual LCD (optional)
Power	220 V/110V
Outer dimensions	260 × 180 × 250 mm
Weight	2kgs

5. Applications

Double Display Balance LB-13DDB is used for sample/standard preparation, formulation, differential weighing, density determination, interval weighing and pipette routine testing

6. Operations

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

6.1 Starting up

Plug in one end of the power adapter or power line to the balance input, and another endconnecting the AC power supply.

Figure-1

Turn on the power

Figure-2

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

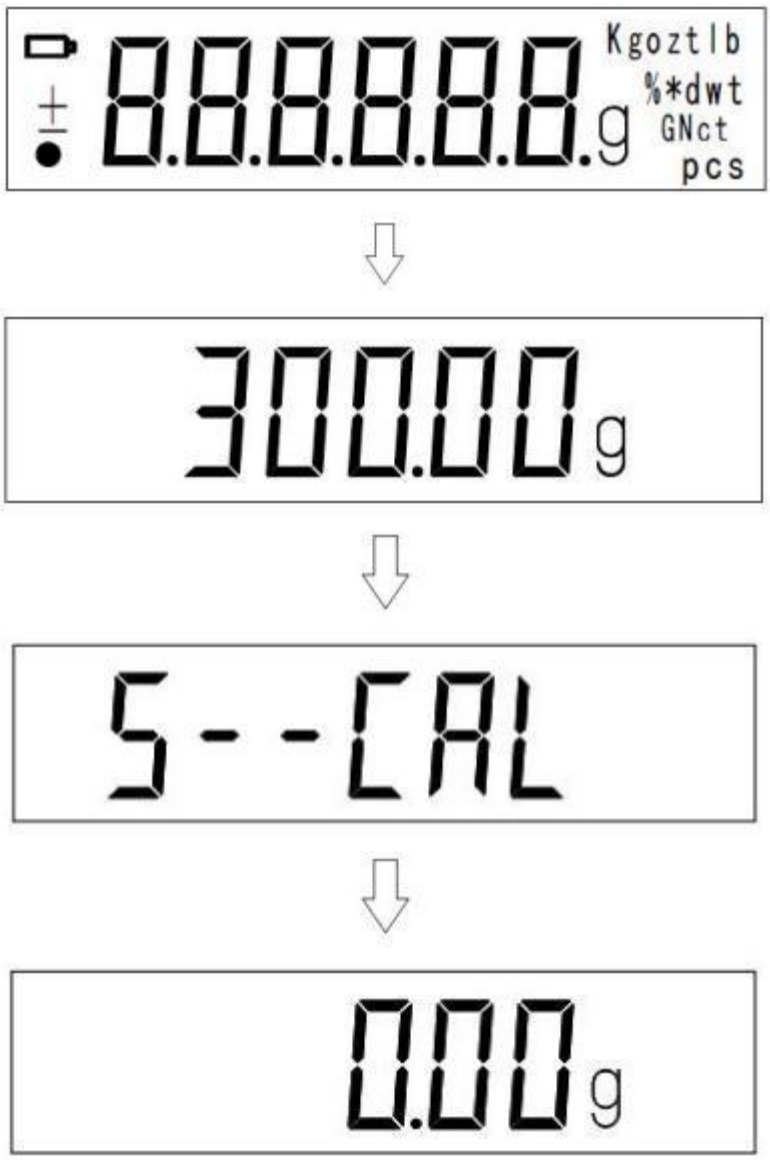

Figure-3

6.2 Calibration

- Turning on the power, preheating it for half an hour, and then starting calibration, could bemore accurate.
- 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 weighingstatus. If the weighing is not accurate, then repeat the above said calibration steps.

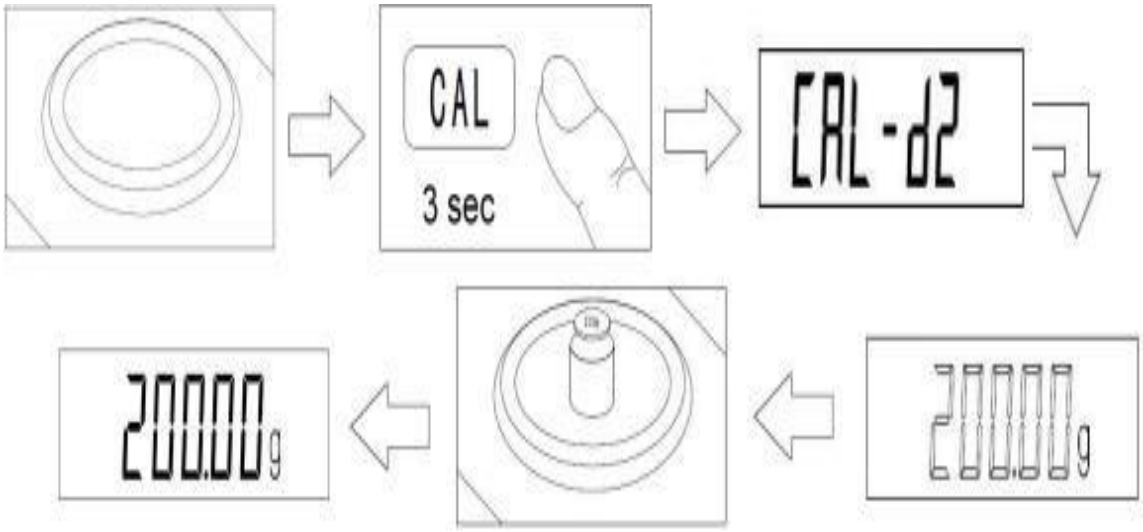

Figure-4

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

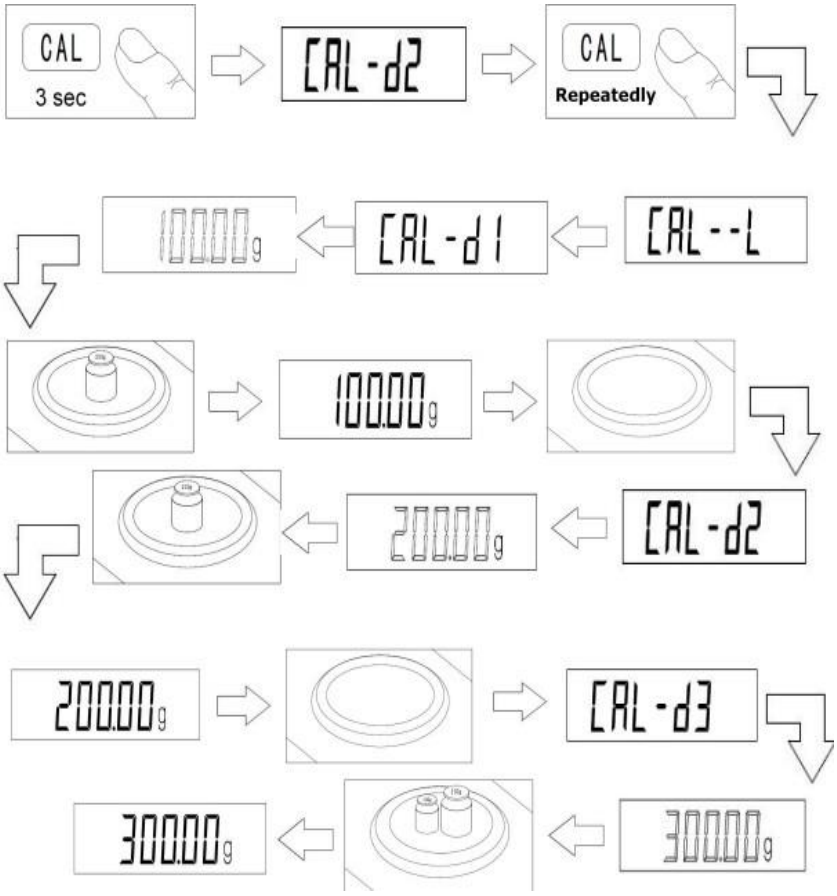

Figure-5

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.

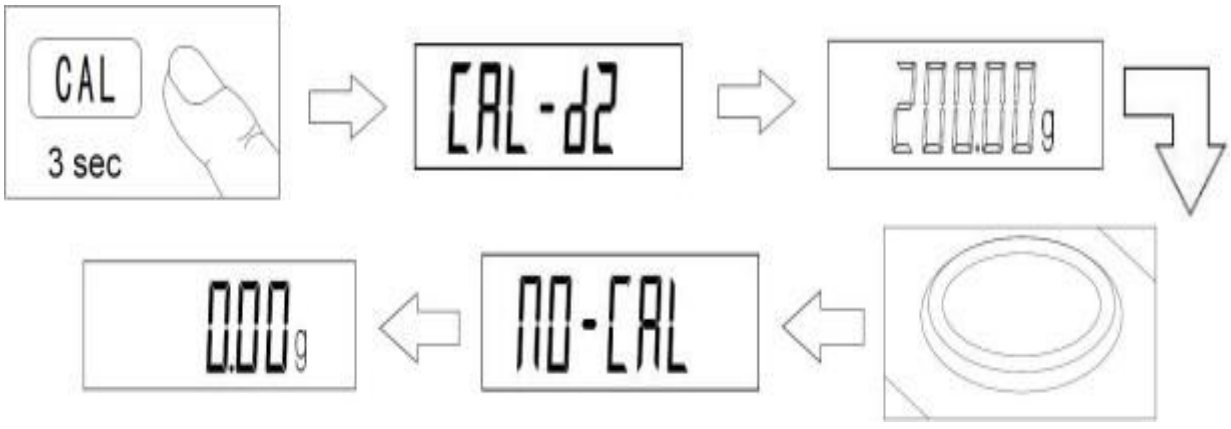

Figure-6

6.3 Weighing

- 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

- The maximum capacity of the balance +9e appears when it is turning on, (e=10d, d is aminimal readout to appear)

6.4 Tare: Press TARE and the tare weight of the pan can be taken out.

Figure-8

6.5 Backlit: The backlit is on when turning on the balance. Press 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.

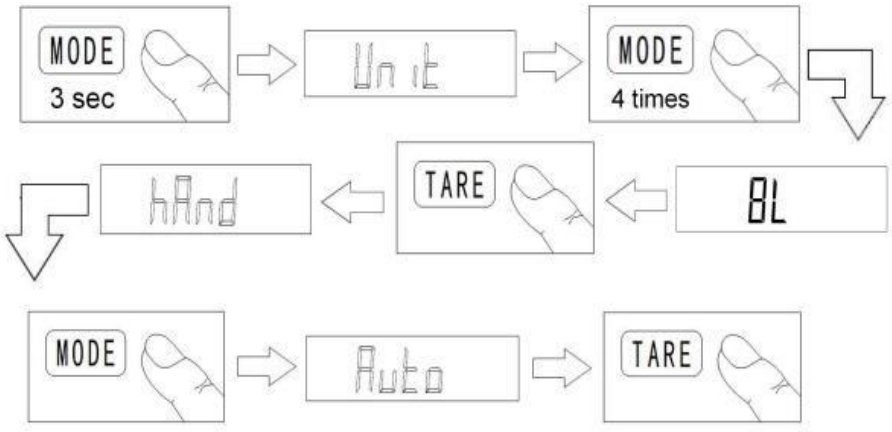

Figure-9

6.6 Zero-Tracking and Auto. Tare

- Press CAL at the same time of turning on the power (within 3 seconds) till "- Zero- TARE "flashing, press , "Zero*d" TARE on display, press repeatedly, Class I"*" variation from " 0 – 20 ", class II"*" variation from " 0 – 5 ", " Zero0d " means no Zero point tracing.
- 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.
  Setting end, press BL, it restarts and is back to normal weighing mode.

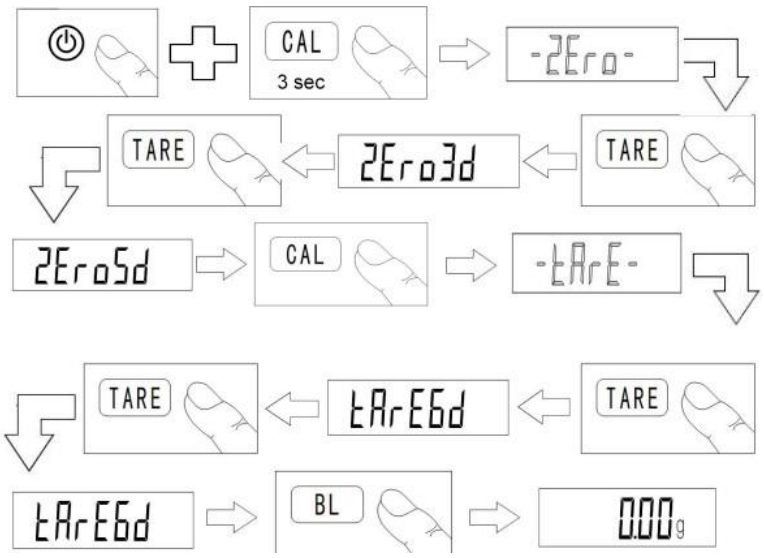

Figure-10

6.7 Other Function

Unit conversion: MODE Press for 3 seconds till " Unit " flashing on, press, "Unit *" flashing on, press TARE , to choose the unit required, and press TARE to make sure, the unitconversion has been done.

1) Taking the unit "g" converses to unit "OZ" for example:

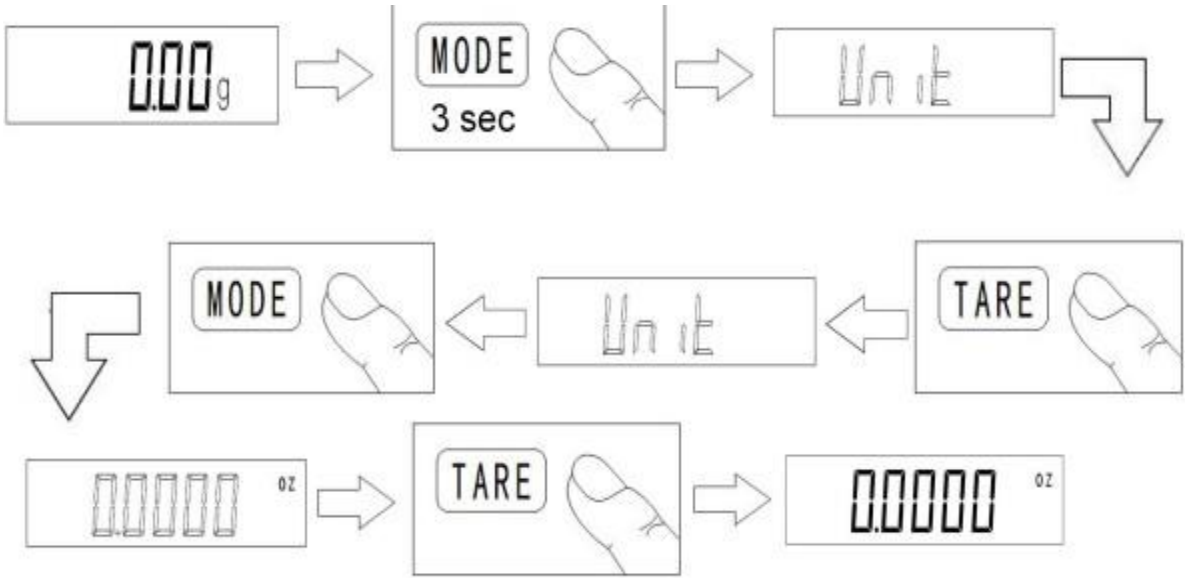

Figure-11

- **Counting**: press for 3 seconds till "Unit 'flashes on, press again, "Count " flashing on, press to make sure, " 10pcs " flashing on, (press, 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 articles as per flashing data on display, press to make sure, "------" 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 setup cannot be done.

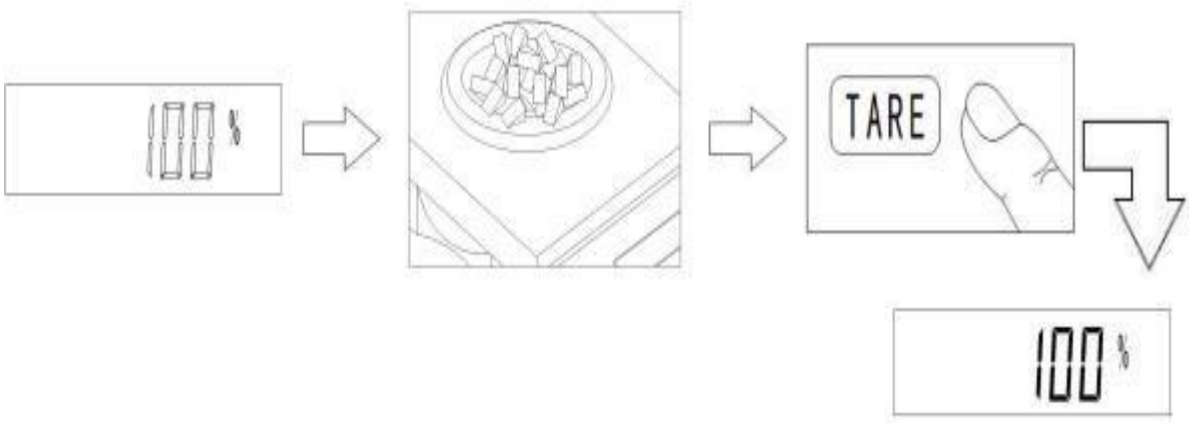

Figure-12

2) Take an article of 10 pcs counting for example:

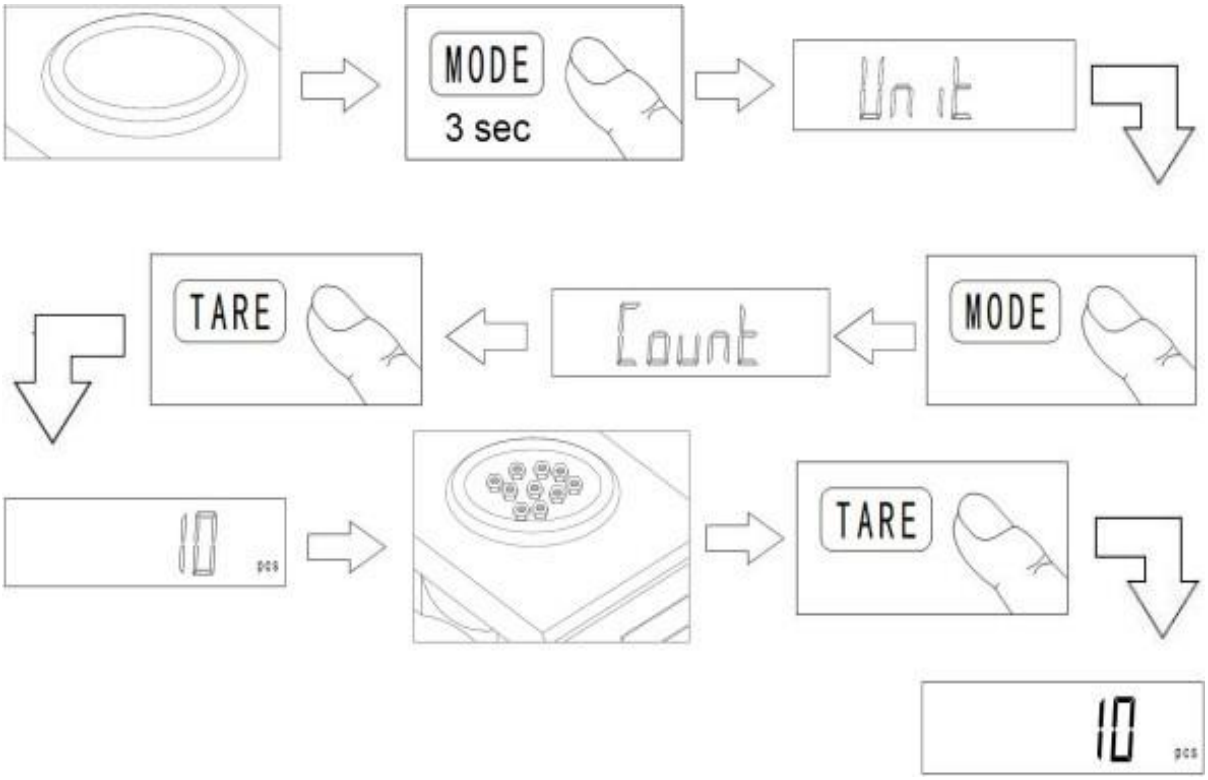

Figure-13

- **Percentage:** Press MODE for 3 seconds till " Unit "flashes on, Press MODE two times,"PEA" flashing on, press TARE to make sure, "100%" flashing on, put on the article to be setas 100%, press, "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 percentagesetting up cannot be done, and the mass of the article to be set must be increased.

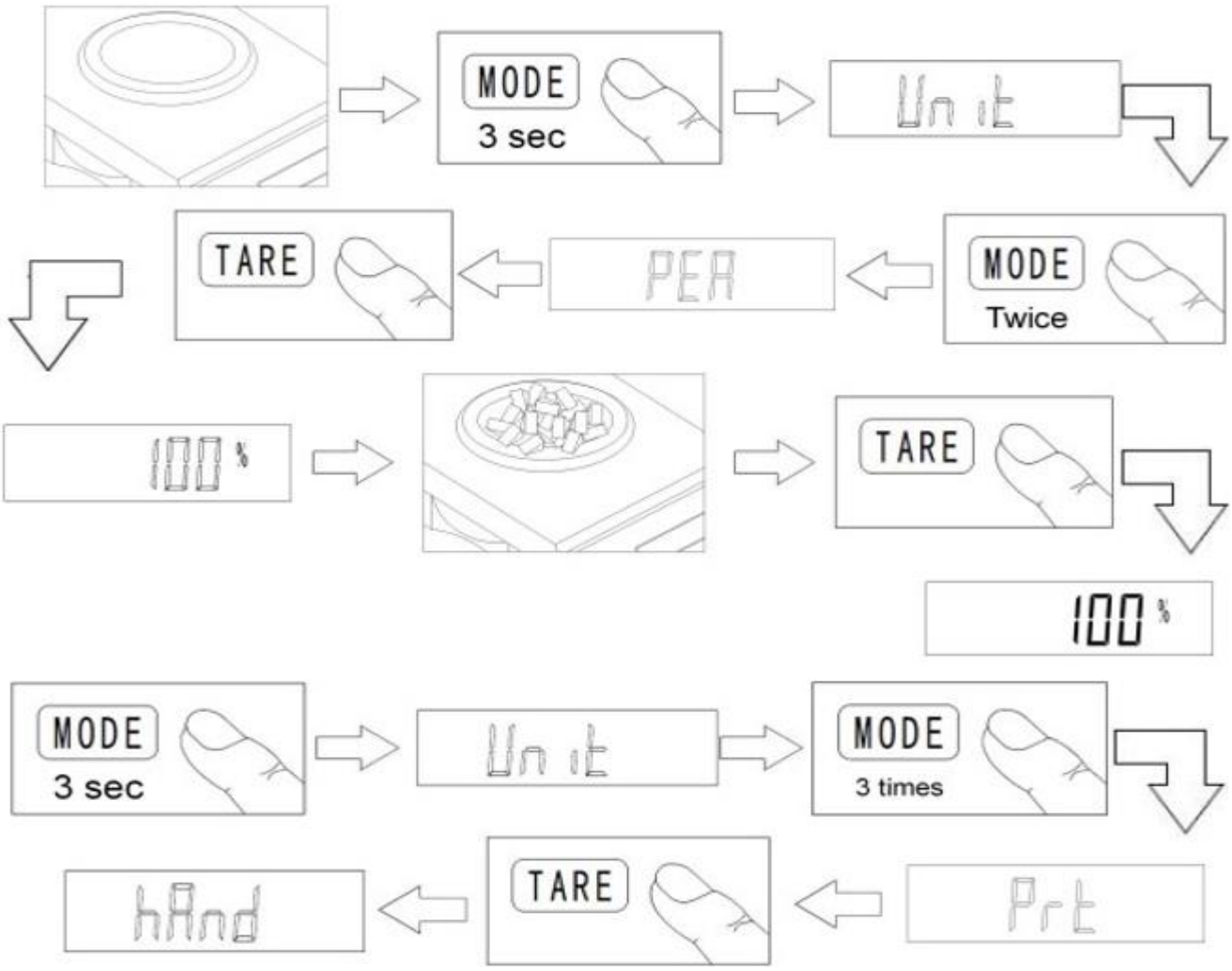

Figure-14

- **Printing:** Press for 3 MODE seconds till "Unit 'flashes on, press MODE three times, " TARE Prt' on display, press to make sure, "hAnd "is on display.
- **Manual printing mode**: Press again TARE to make sure. Press or PRT printercode key to end the printing setup.
- **Auto printing mode:** After above above-mentioned "hAnd "is on display, press MODE again,"Auto" on display, press TARE to make sure, put on 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.
- **Continuous printing mode:** After above mentioned "hAnd "is on display, press two times, TARE press to make sure, the data can be printed out continuously.

3) RS232 communication protocol

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

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

bit1	Bit2	bit3	bit 4	bit 5	bit 6	bit 7	bit 8	bit 9	bit 10

BIT1: Data symbol

BIT2~BIT9: Data bits.

BIT10: Stop bit

Baud rate:9600bps, No parity Stop bit 1.

Figure-15

- **Data symbol:** 1byte ASCII code: "+ " or " – ". Symbol +: 2B -: 2D
- **Data field:** 7bytes ASCII code, one byte is radix point " . ", its position is the same as the display position.
- **Unit:** 3 bytes ASCII code, if the unit is less than 3 bytes, filled up by blank (20). lb: 6c 62oz:6F 7A GN:47 4E Kg: 6B 67
- **Frame end:** enter new line ASCII code, 0DH, 0AH Serial pot connection line (9 core) connected with the computer: 2pins to 2pins, 5pins to 5 pins.
- **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.

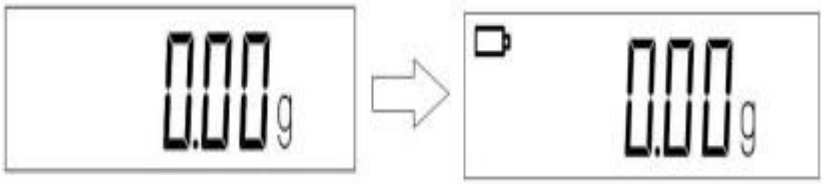

Figure-16

7. Troubleshooting

7.1 Unable to turn on the balance

- Check the power adapter properly plugged in.
- To replace it with a new adapter if it is damaged.
- Insert the overlay connection wire or replace it with a new one if the overlay disconnected or damaged.
- Main board damaged

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

- The balance crashed due to the AD chip being affected.
- Turn off the balance and turn on itagain after 30 minutes. (fit for all models)
- 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 worknormally.

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

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

- The balance crashed due to the AD chip being affected.
- Turn off the balance and turn on itafter 30 minutes.
- Load cell wire disconnected. Check the wire connector.
- Replace it 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 TARE

- Load cell wire disconnected.
- Check the wire connector.
- Replace it with a new one if the load cell is damaged.

7.6 ” Zero” on flashing after turning on the balance

The “calibration” function is affected by hard lights for the IR sensor function. To move the balance position till the red indicator of the **“calibration**“ sensoring window lightsoff.

7.7 The G series with IR sensoring function comes to zero after turning on, and noton effect.

Two IR sensoring windows auto turn off due to being affected by hard light move the balance to the position and turn on it again till the two IR windows are working normally.

7.8 Nothing is 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 solderingwith 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 is damaged, so replace it with a new one.

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

- Put on the wrong weight when calibration or the weighing substance is much less than calibration weight which leads to the inner criterion being 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 “flashes on the screen and puts on the weight corresponding to the data on display.

8. Accessories

Optional Accessories

- Rechargeable battery
- Double LCD display