



DEB Series Analytical Balance User Manual

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Please read this manual carefully and keep it safe for proper use

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1 INTRODUCTION

DEB series analytical balance work on electromagnetic force compensation technology and micro processor which implements high speed stabilization and high reliability. It can be widely used in industry, agriculture, commerce, schools, scientific research and other institutions to quickly weighing the quality and quantity of objects.

Safety Precautions



Avoid direct sunlight



Avoid vibrations



Avoid strong drafts

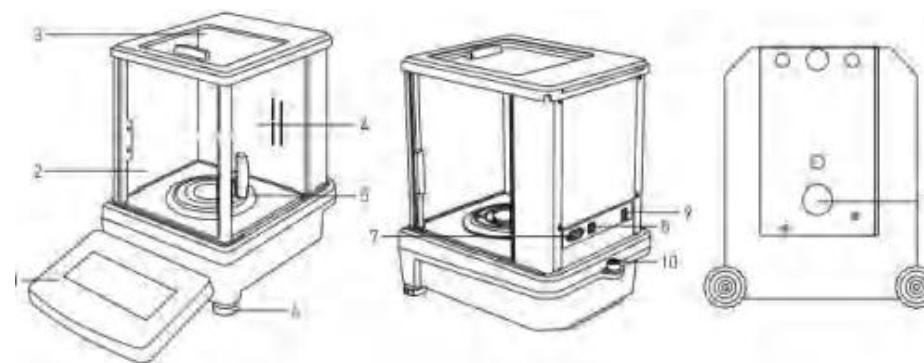


Avoid temperature fluctuations

*Verify that the AC Adapter input voltage matches the local AC power supply.

*Sufficient spacing for balances: >15cm all around the instrument.

Diagram

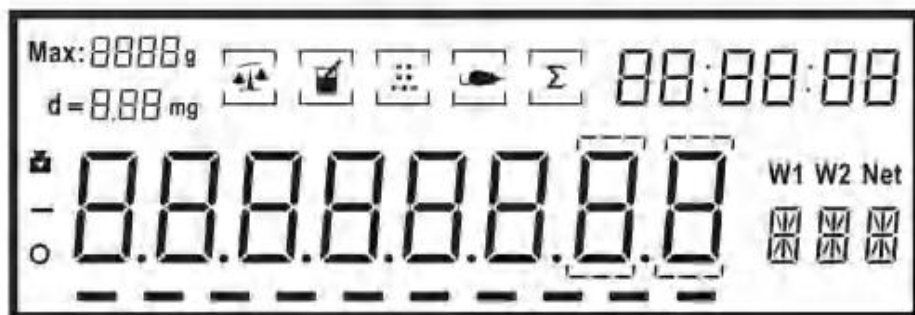


1	Terminal	8	USB-Bport
2	Front panel draft shield	9	Socket for power adapter
3	Top door draft shield	10	Bubble level
4	Side door draft shield(right/left)	11	Below weighing(optional)
5	Weighing pan		Press button
6	Leveling feet		Put weight or object on the pan
7	RS232 interface		Take off the weight or object

Button



Display information



No.	Display	Describe
1		Model display
2		Internal calibration sign
3		Negative weight value
4		Stable value
5		Weighing sign
6		Density determination
7		Piececounting
8		Dynamic weighing
9		Summation
10		Progress bar
11		Time setting
12		W1:weight in air,W2:weight in liquid
13		Unauthenticated numbers
14		Unit display

Parameter

DEB Analytical Balance(0.01mg)

EX-Model	DEB103S	DEB105S	DEB108S	DEB203S	DEB205S	DEB208S	DEB105	DEB125
IN-Model	DEB103SN	DEB105SN	DEB108SN	DEB203SN	DEB205SN	DEB208SN	DEB105N	DEB125N
Capacity	120g/31g	120g/51g	120g/81g	220g/31g	220g/51g	220g/81g	100g	120g
Readability	0.1mg/0.01mg						0.01mg	0.01mg
Stable time	2-3s						3s	3s
Preheating time	30-60mins						30-60mins	30-60mins
Weighing unit	g/oz/ct/mg/customizable						g/oz/ct/mg/customizable	
Min.weight	0.1mg/0.01mg						0.01mg	0.01mg
Repeatability	±0.1 mg/±0.03mg						±0.03mg	±0.03mg
Linearity	±0.2mg/±0.03mg						±0.03mg	±0.03mg
Interface	RS232/USB							
Pan size	φ90mm							
Packing size	Inner box:430x320x415mm.Master carton:490x380x485mm							
N.W.	6280g							
Power	AC110V-240V							

DEB Analytical Balance(0.1mg)

EX-Model	DEB124	DEB224	DEB324	DEB424	DEB524
IN-Model	DEB124N	DEB224N	DEB324N	DEB424N	DEB524N
Capacity	0-120g	0-220g	0-320g	0-420g	0-520g
Readability	0.1mg				
Stable time	1.5s		2.5s		
Preheating time	30-60min				
Weighing unit	g/oz/ct/mg/customizable				
Min.weight	0.1mg				
Repeatability	±0.1mg		±0.2mg		
Linearity	±0.2mg		±0.3mg		
Interface	RS232/USB				
Pan size	φ90mm				
Packing size	Inner box:430x320x415mm. Master carton:490x380x485mm				
N.W.	6280g				
Power	AC110V-240V				

DEB Analytical Balance(1mg)

EX-Model	DEB503	DEB603	DEB1003	DEB2003
IN-Model	DEB503N	DEB603N	DEB1003N	DEB2003N
Capacity	0-520g	0-620g	0-1000g	0-2000g
Readability	1mg			
Stable time	1-2s			
Preheating time	30-60min			
Weighing unit	g/oz/ct/mg/customizable			
Min.weight	1mg			
Repeatability	±1mg			
Linearity	±2mg			
Interface	RS232/USB			
Pan size	φ90mm			
Packing size	Inner box:430x320x415mm.Master carton:490x380x485mm			
N.W.	6280g			
Power	AC110V-240V			

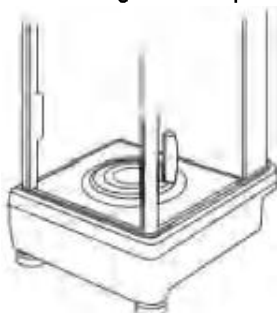
2. PREPARATION

Leveling the Balance

1 Put the balance on the stable desk, the desk can not be moved.

2 adjust the 2 Leveling Feet on the bottom, until the bubble is centered in the circle, then

installing the scale pan:

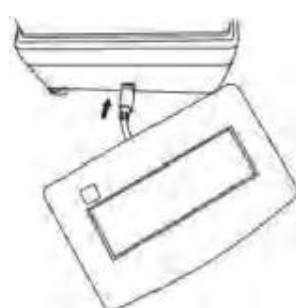


bubble right above	clockwise rotate two leveling feet
bubble right below	counterclockwise rotate two leveling feet
bubble left	counterclockwise rotate left leveling foot clockwise rotate right leveling foot
bubble right	counterclockwise rotate right leveling foot clockwise rotate left leveling foot

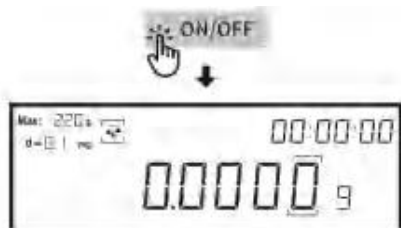
Connecting and Switching on

① Plug in the AC/CD adapter

② Connect the terminal with the balance



3 Press ON/OFF button



Balance enter the weighing interface

When the operating temperature changed, put the balance in the new place for 2 hours in the state of "power on", to make the balance comply with the new temperature.

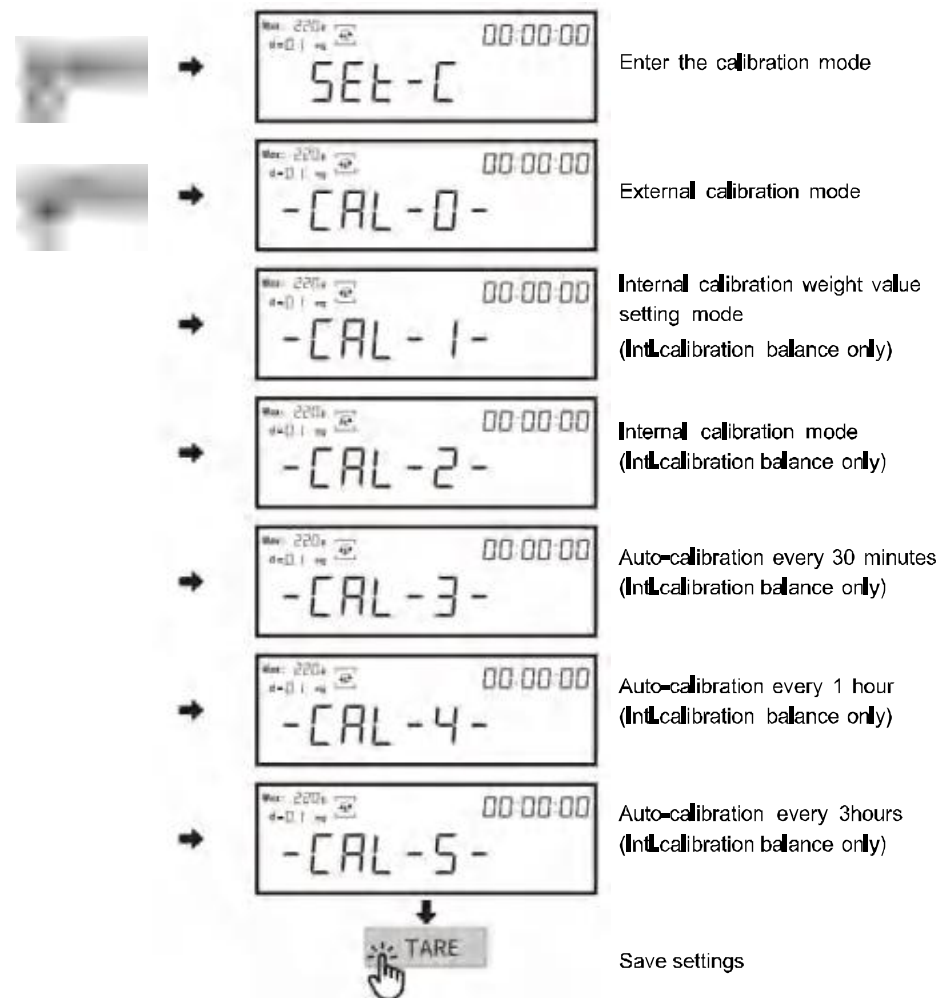
Attention: If the number on display is not stable in first boot, this occurred by operating temprature you can press "TARE" botton repeally and lay aside for 30 minutes

3. CALIBRATION

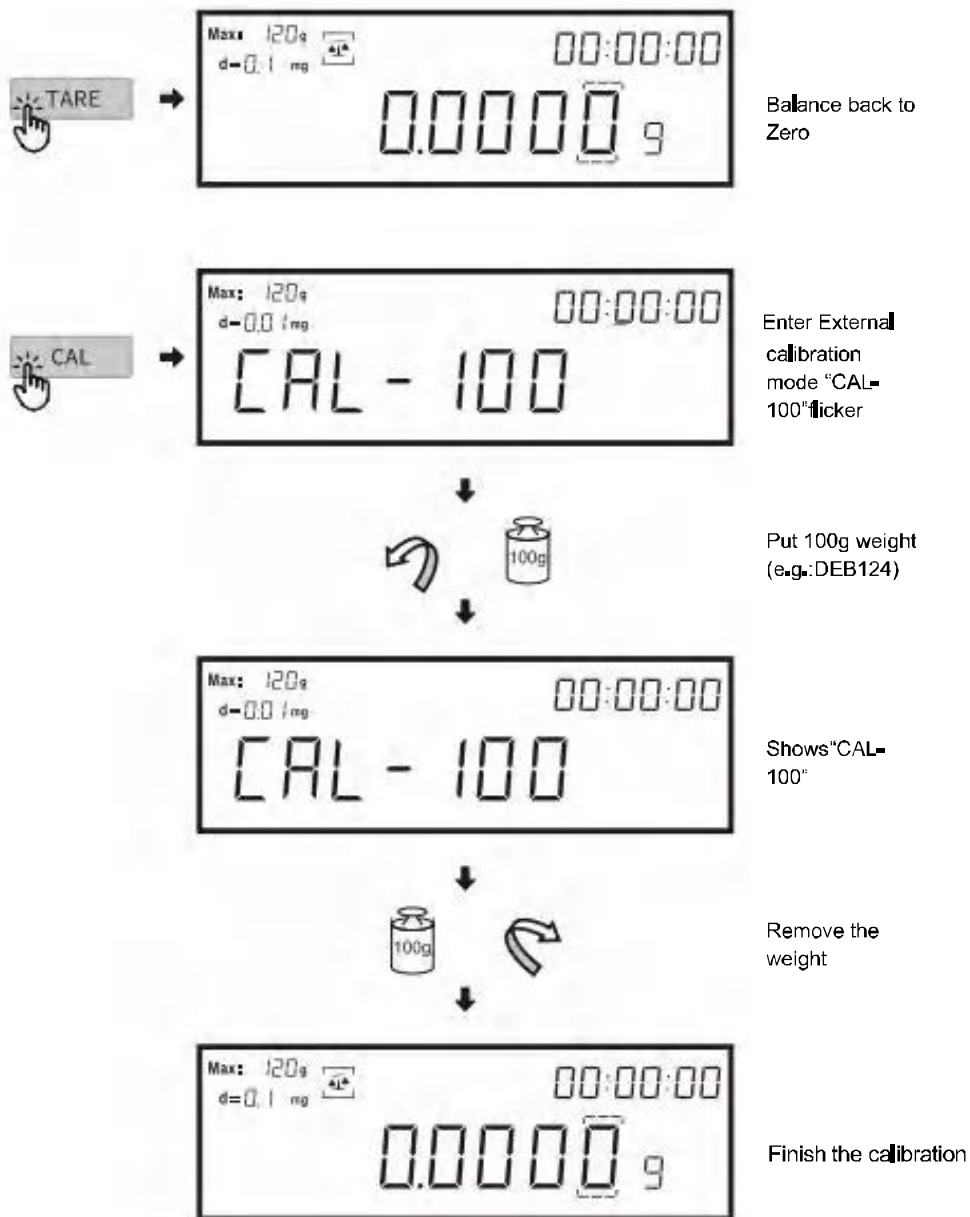
In order to get accurate weighing result, balance should be calibrated before the below usage scenarios.

1. Before first use
2. Balance power off for long time or power error.
3. After changing the operating environment.
3. Perform regularly in weighing procedure.

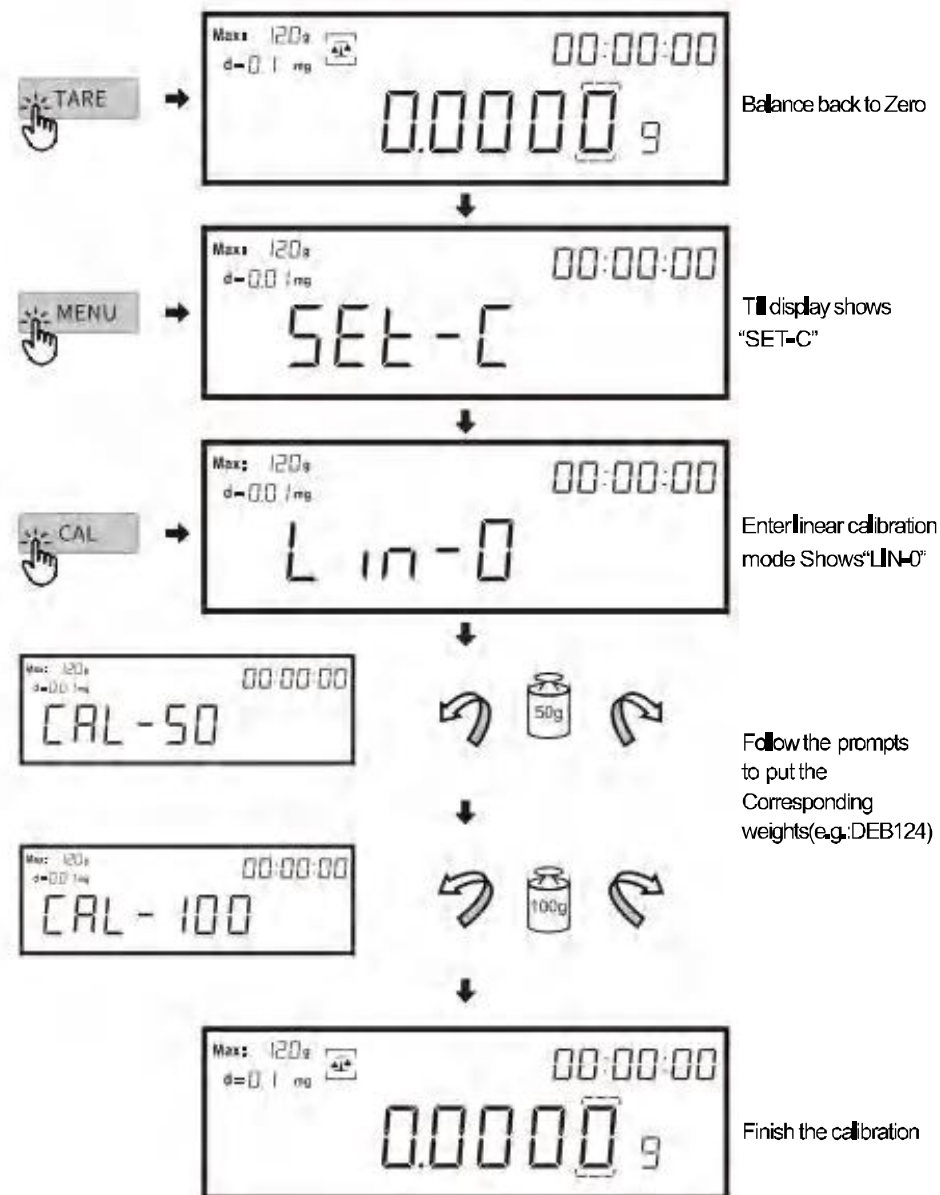
Chose the calibration methods (follow the sequence)



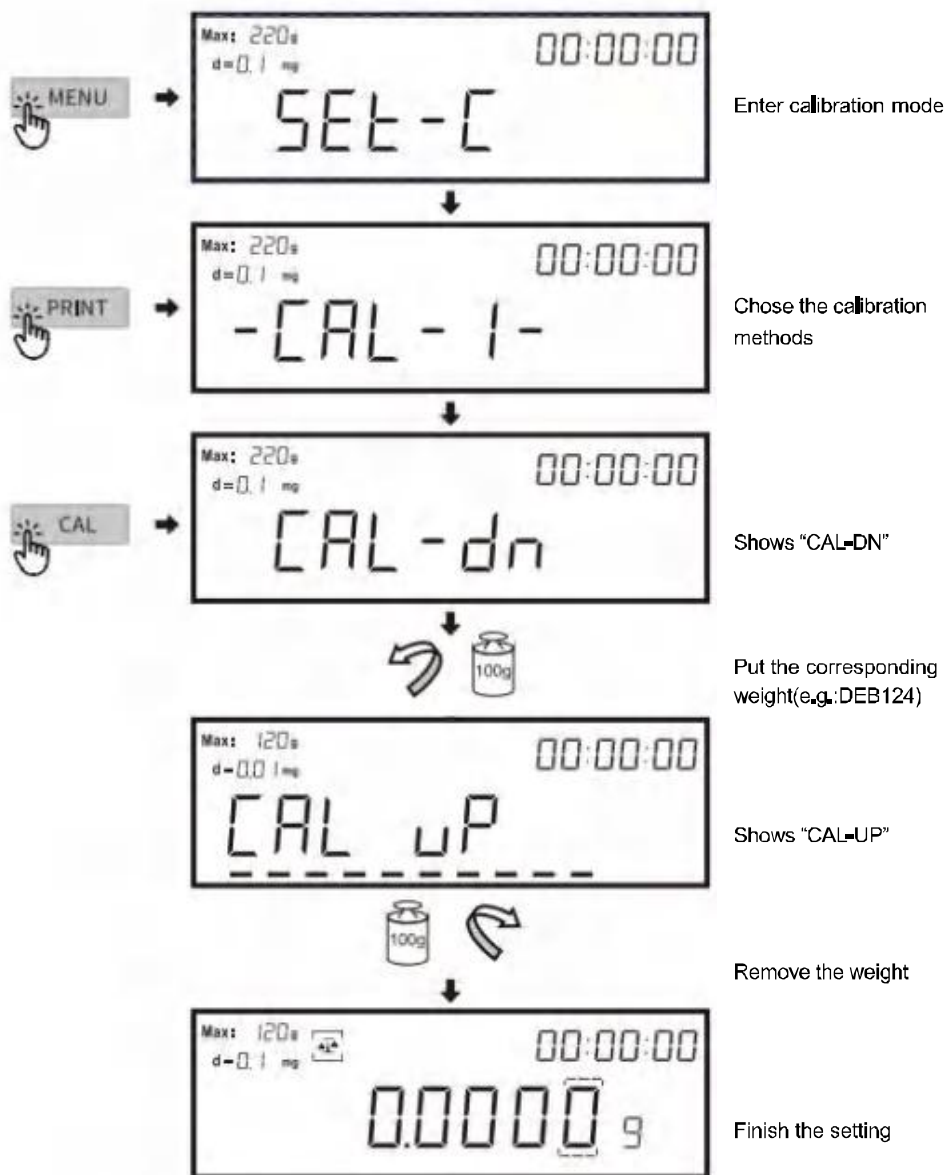
External calibration(single-point calibration)



Linear Calibration



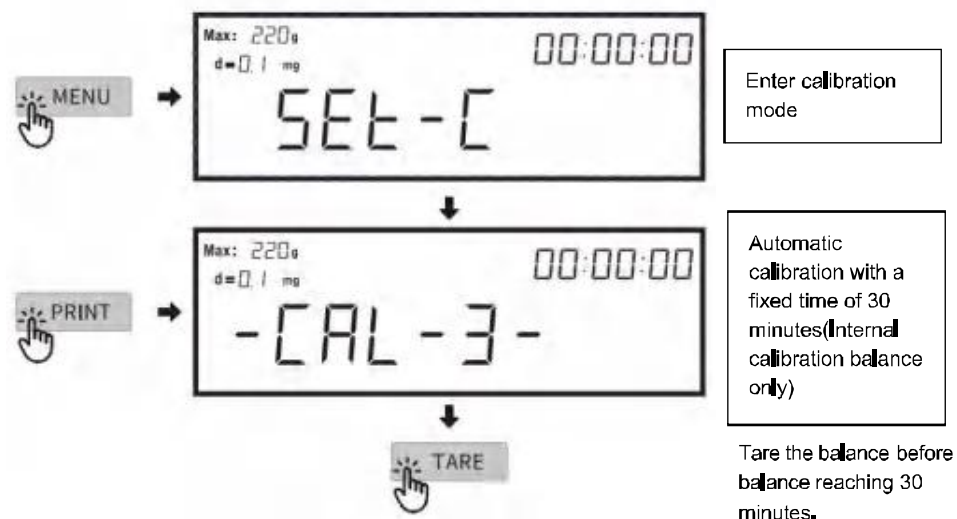
Internal calibration weight value setting (Internal calibration balance only)



Weight value setting

If the balance model is an internal calibration model, please directly press the calibration button to calibrate.

Auto-calibration

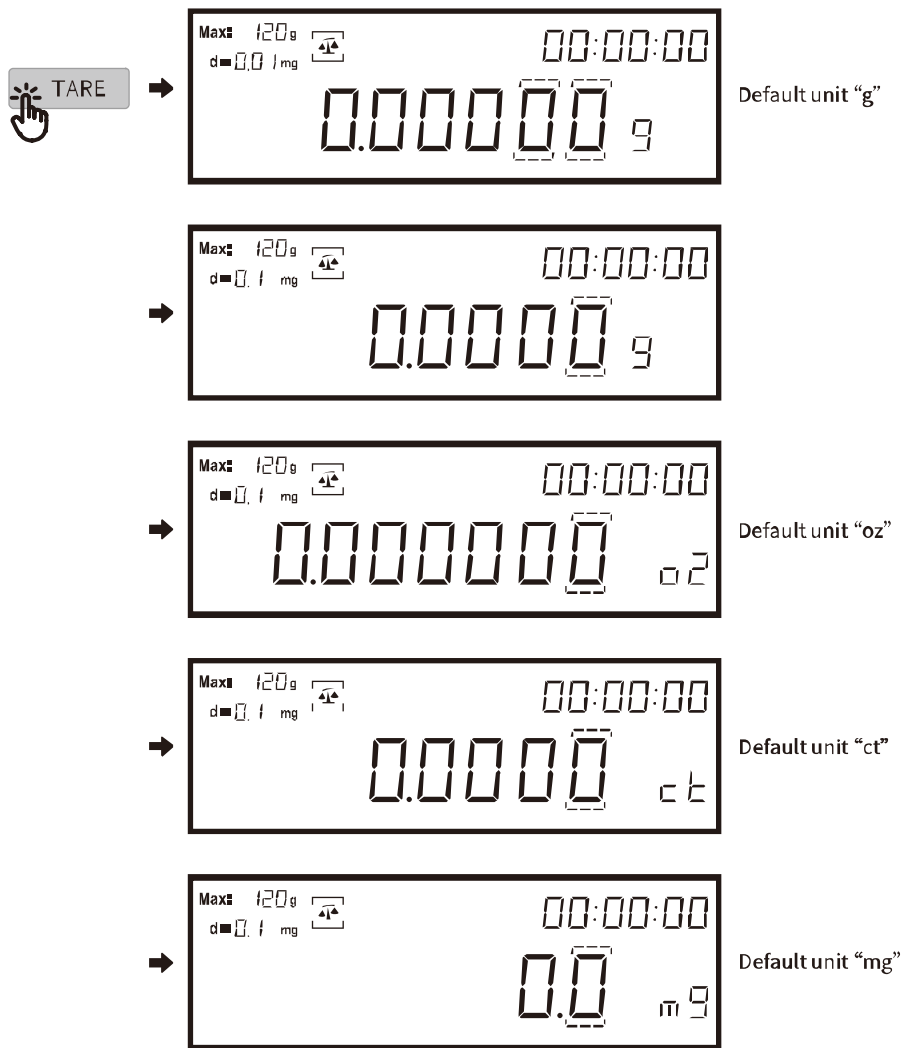


Remark: Balance should keep "0.0000", Tare the balance if balance not shown "0.0000" when reach 30 minutes.

4. SET UP AND OPERATION

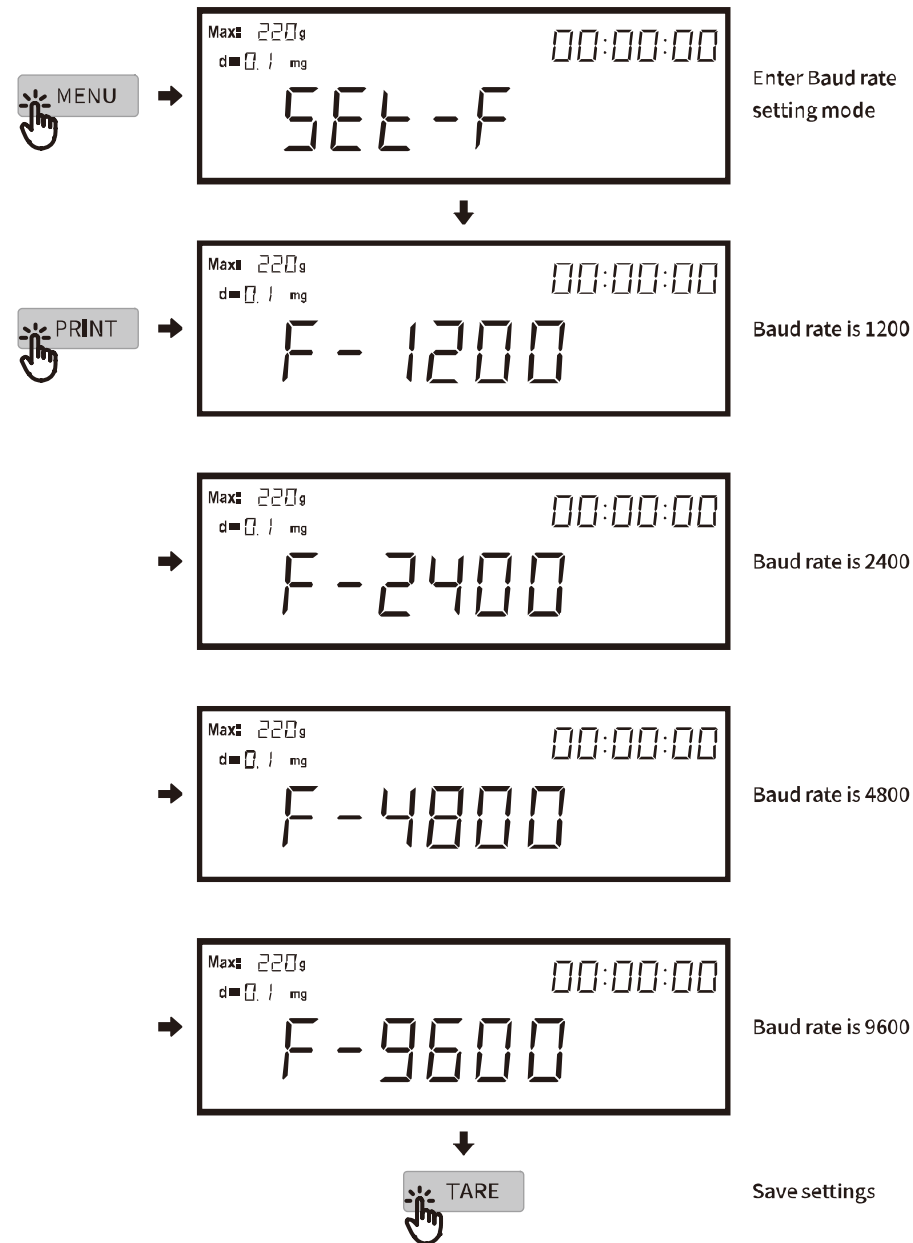
Balance set up

Unit conversion

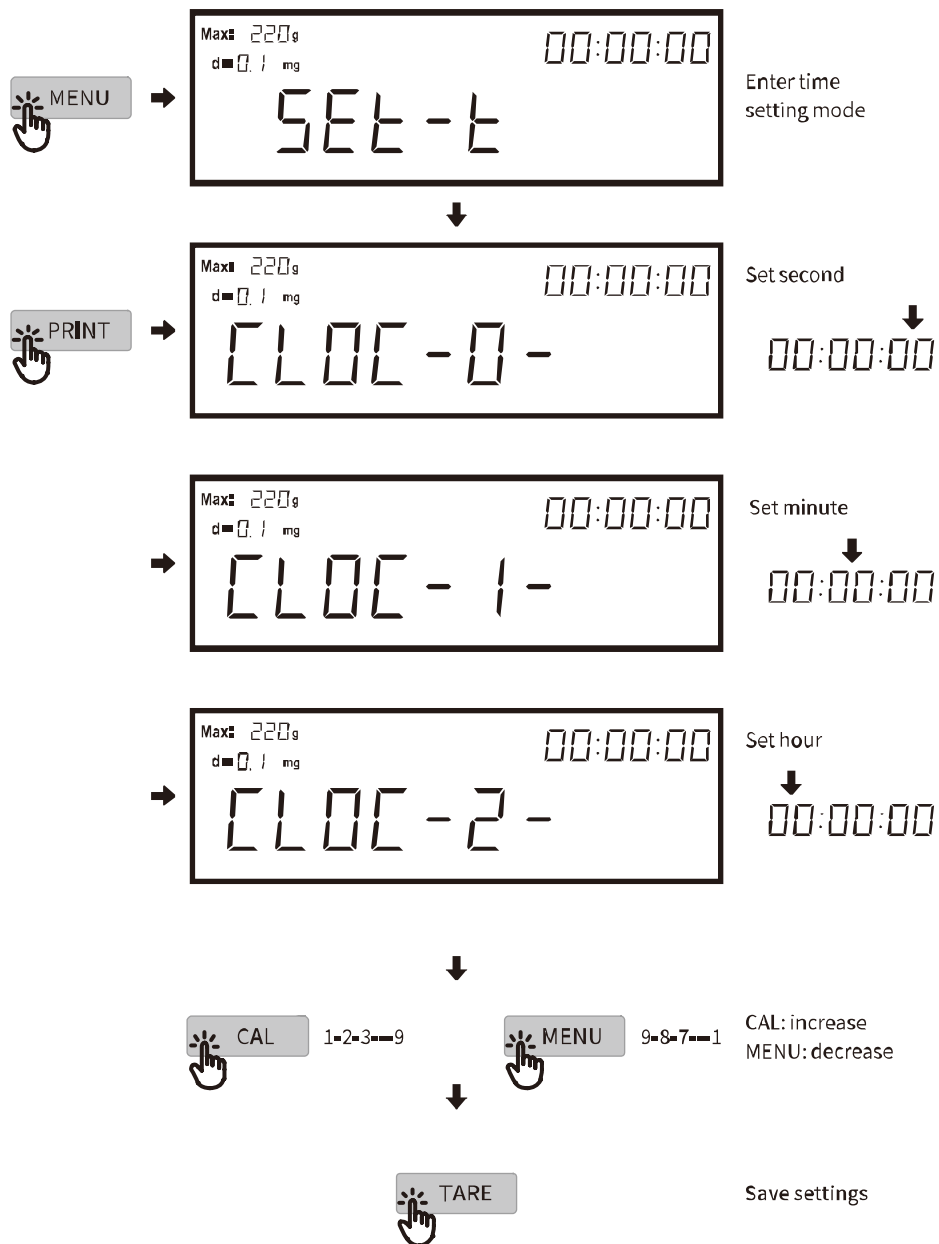


Remark: Other units are customizable

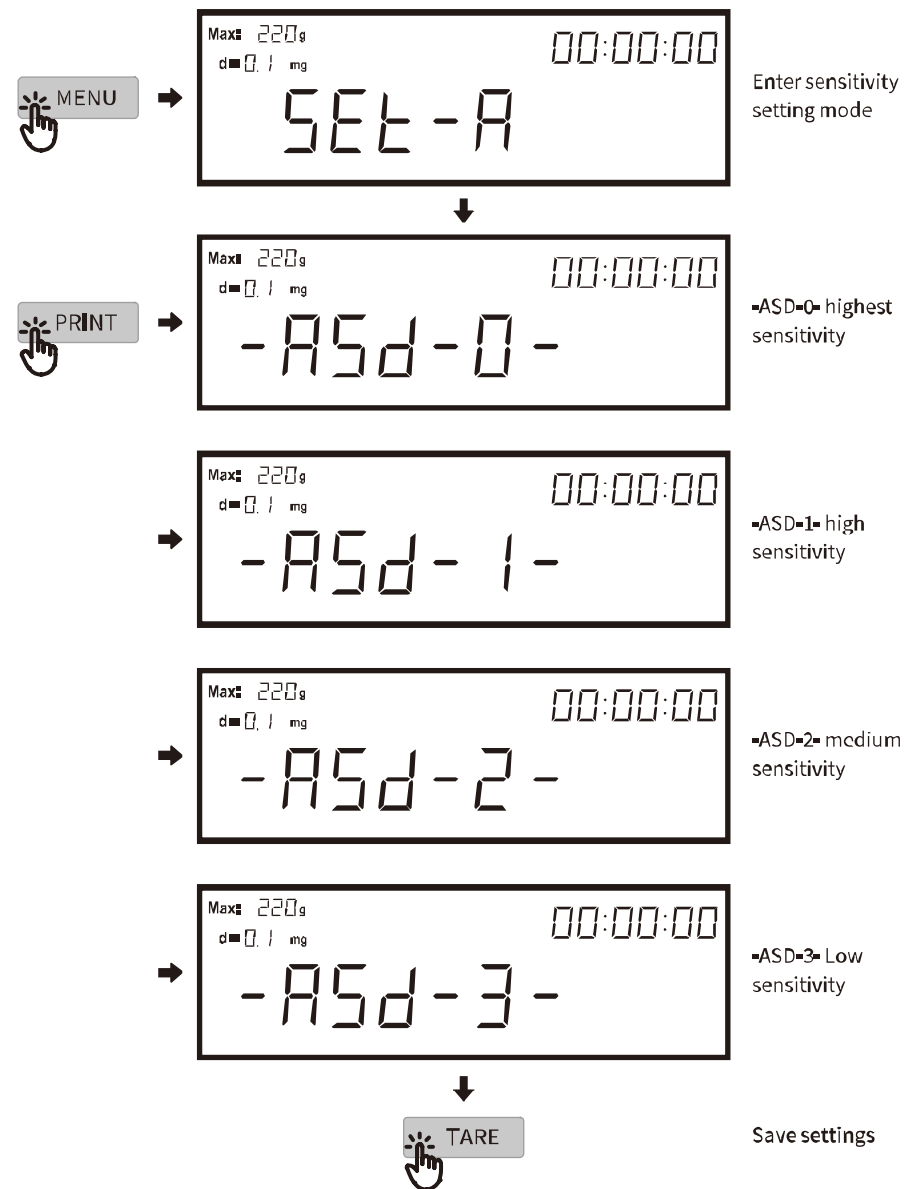
Baud rate setting



Time setting

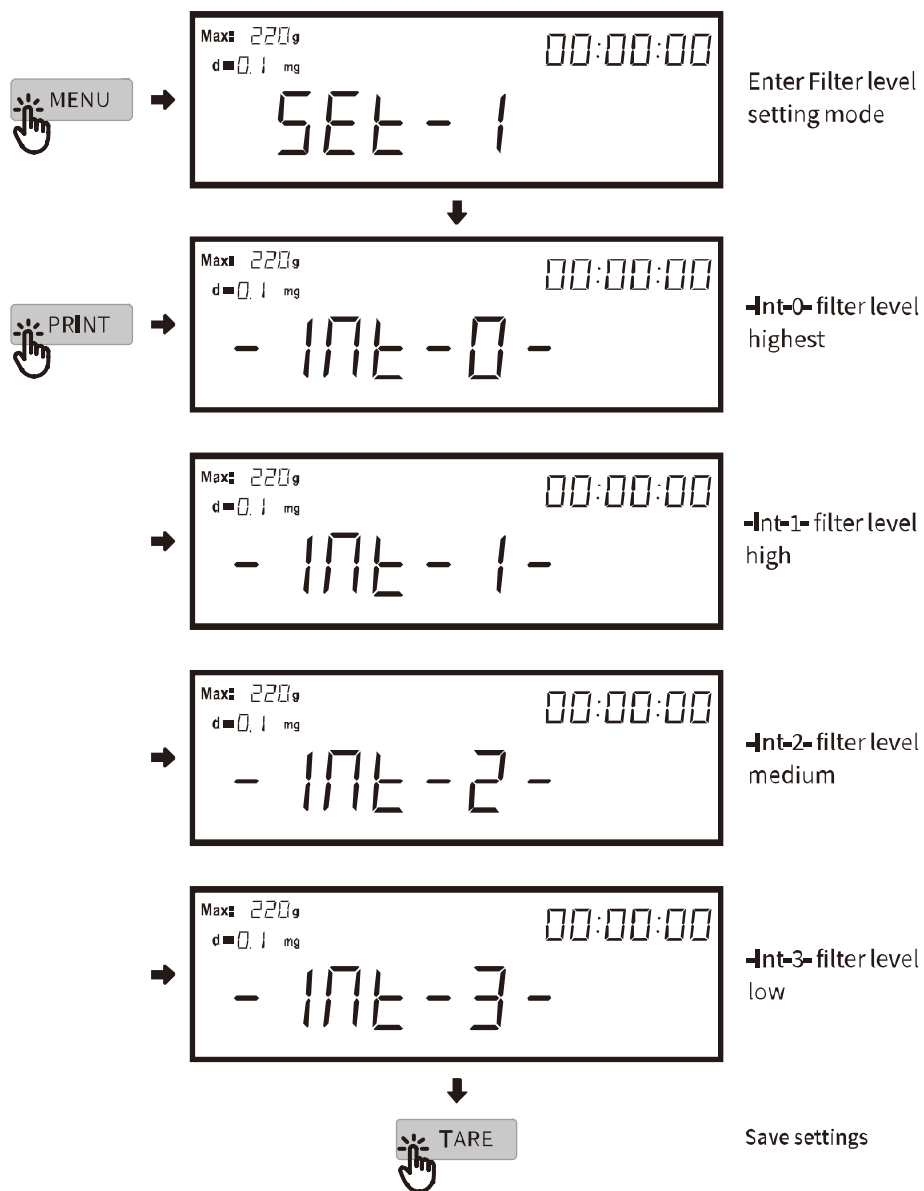


Sensitivity setting



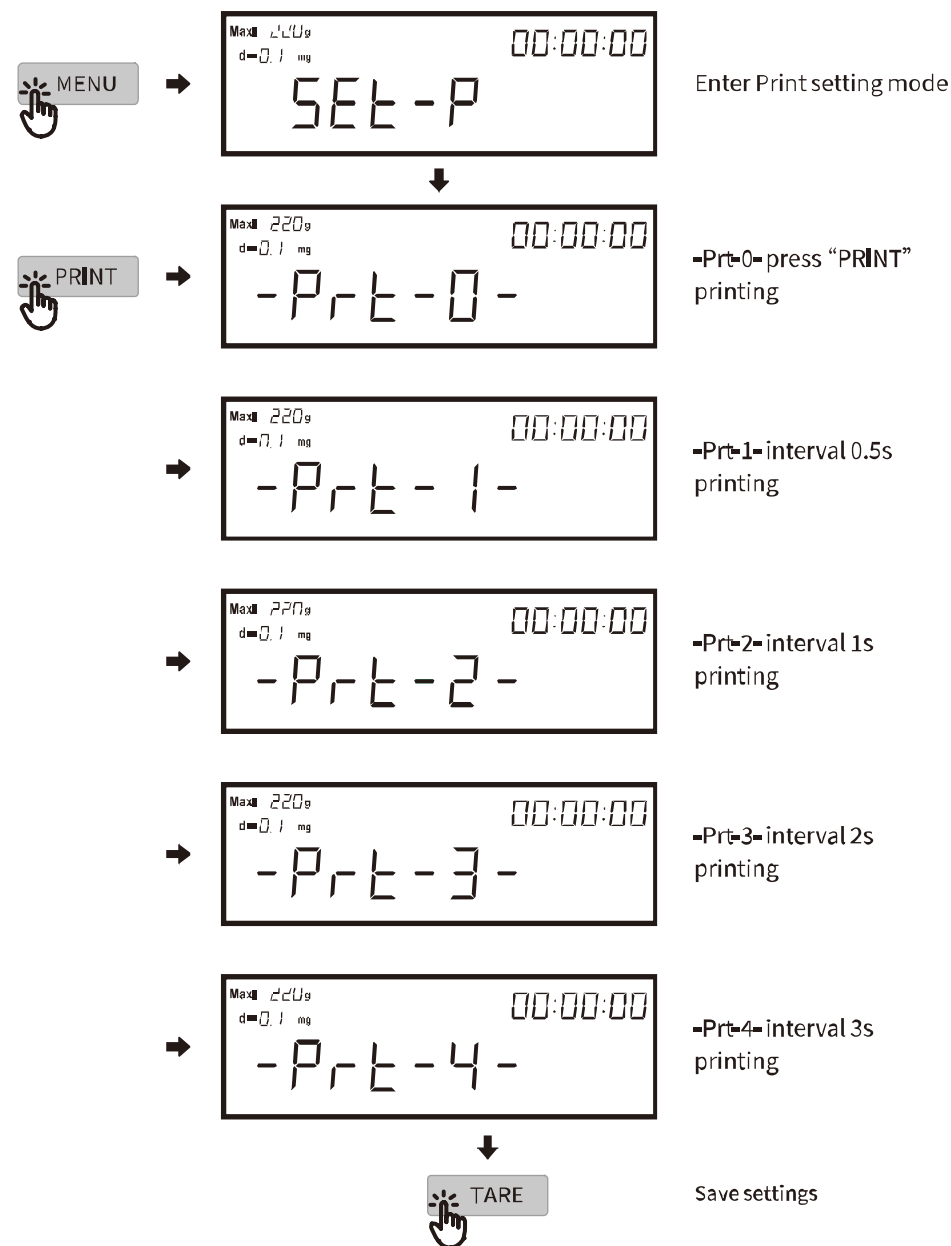
REMARK: factory setting sensitivity "ASD=3", suitable for most using environment. Higher sensitivity required better environment. Do not adjust the sensitivity without consulting the factory.

Filter level setting



REMARK: filter level is the internal calculating time of balance, factory setting is "Int-3", do not change by yourself without professional instruction.

Print setting



Interface Parameters

Rs232 interface

- Connection

Balance (9 pins)	PC/Printer (9 pins)
RXD (Input) 2	2
TXD (Output) 3	3
GND (Ground) 5	5

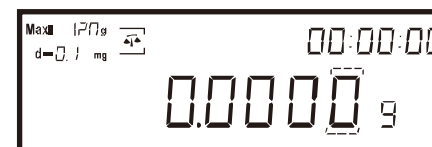
- The baud rate by default is 9600 bps (see Baudrate setting)
- Data format: 10 bits, 0 as start bit, 1 as stop bit, 8 digits (ASCII code) - No odd and even numbers adjusting
- Data output: by default is continuous mode. The data output mode can be changed into press output, timing output and continuous output (see Data output setting)

- Output data format

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Type or data	Data	Data	Data	Data	Data or dot	Data or dot	Data	Data	Data	Unit	Unit	Unit	Return	Line feed

OPERATION

Simple weighing



Under weighing interface

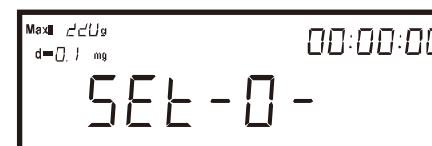


Put object on the scale pan

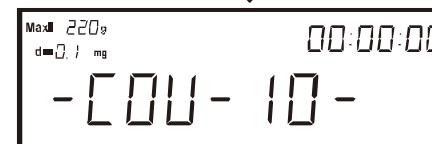


Get object weight

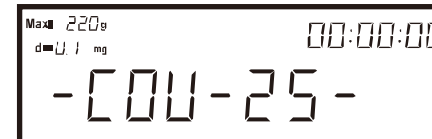
Piece counting



Enter piece counting mode



-COU-10- sample quantity 10PCS



-COU-10- sample quantity 25PCS

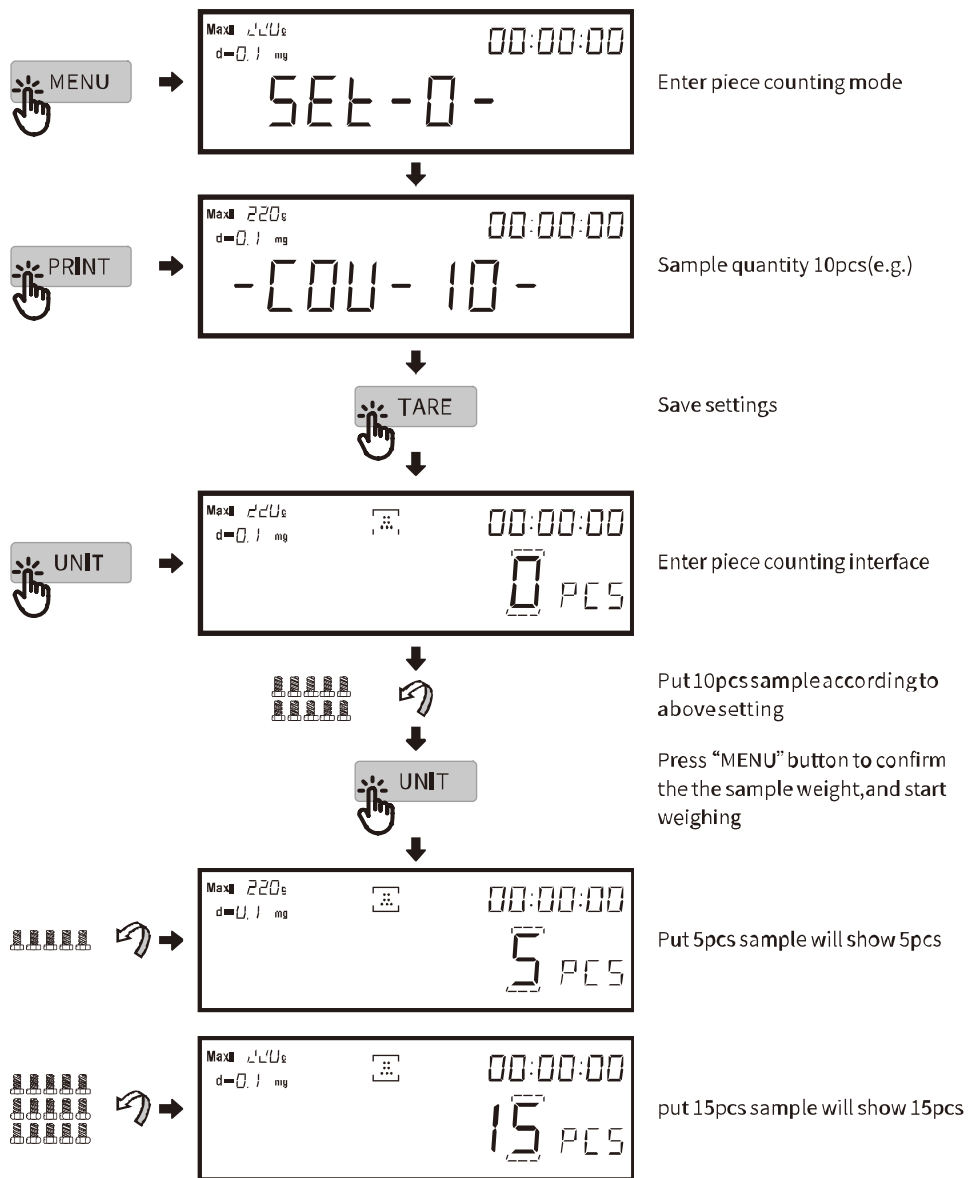


-COU-10- sample quantity 50PCS



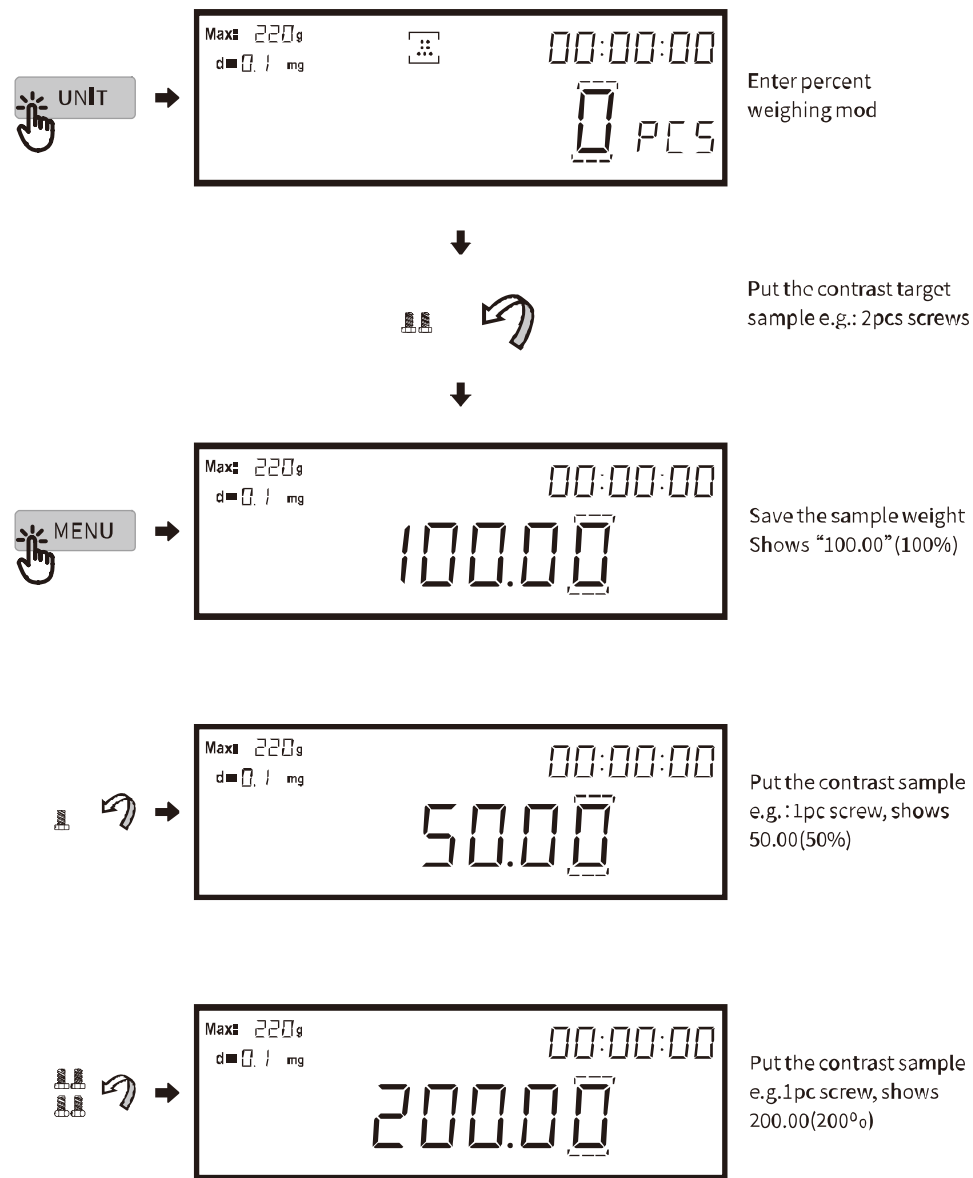
Save settings

Piece counting



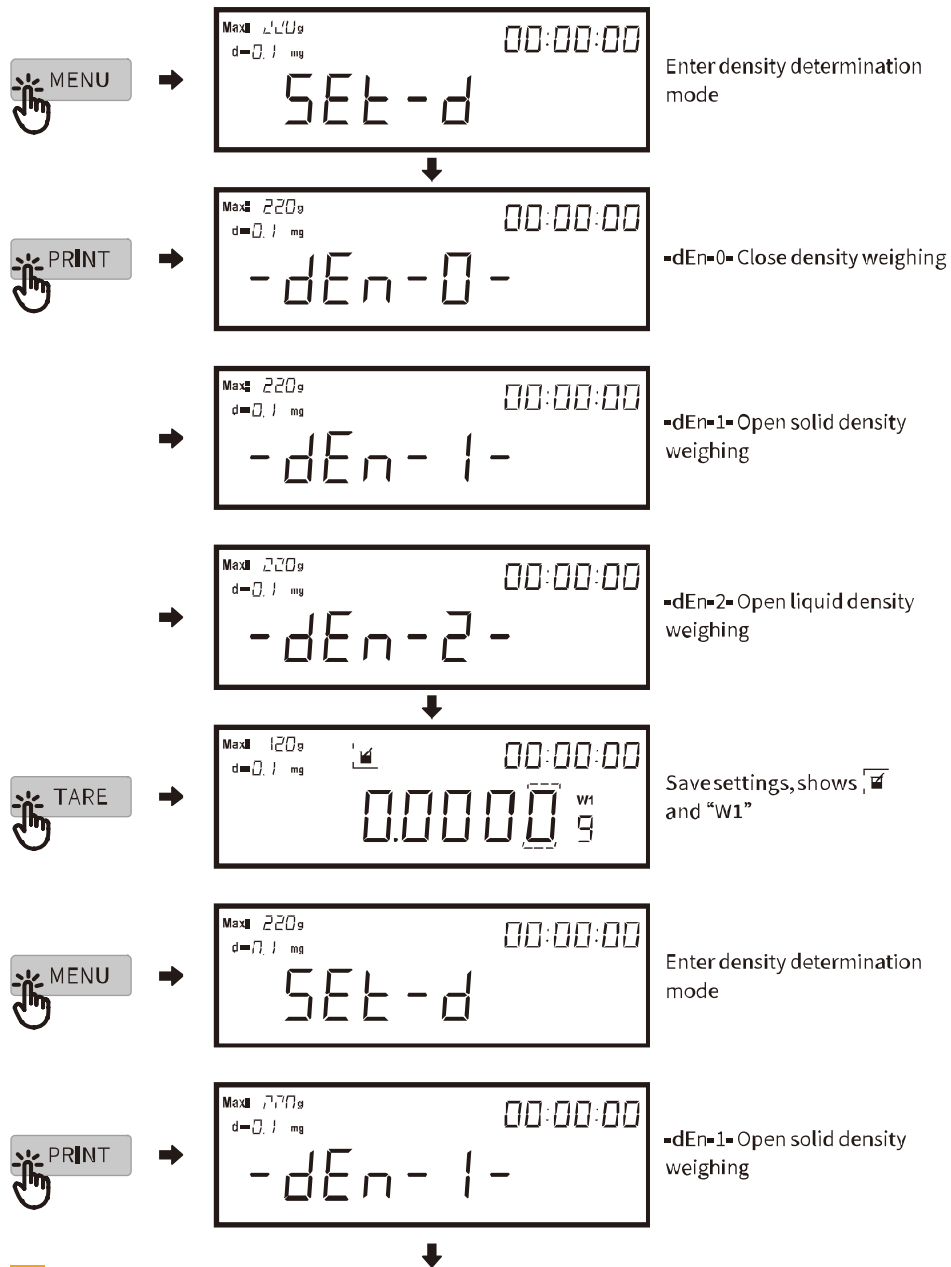
Remark: If test the same sample second time, don't need re-sampling.

Percent weighing

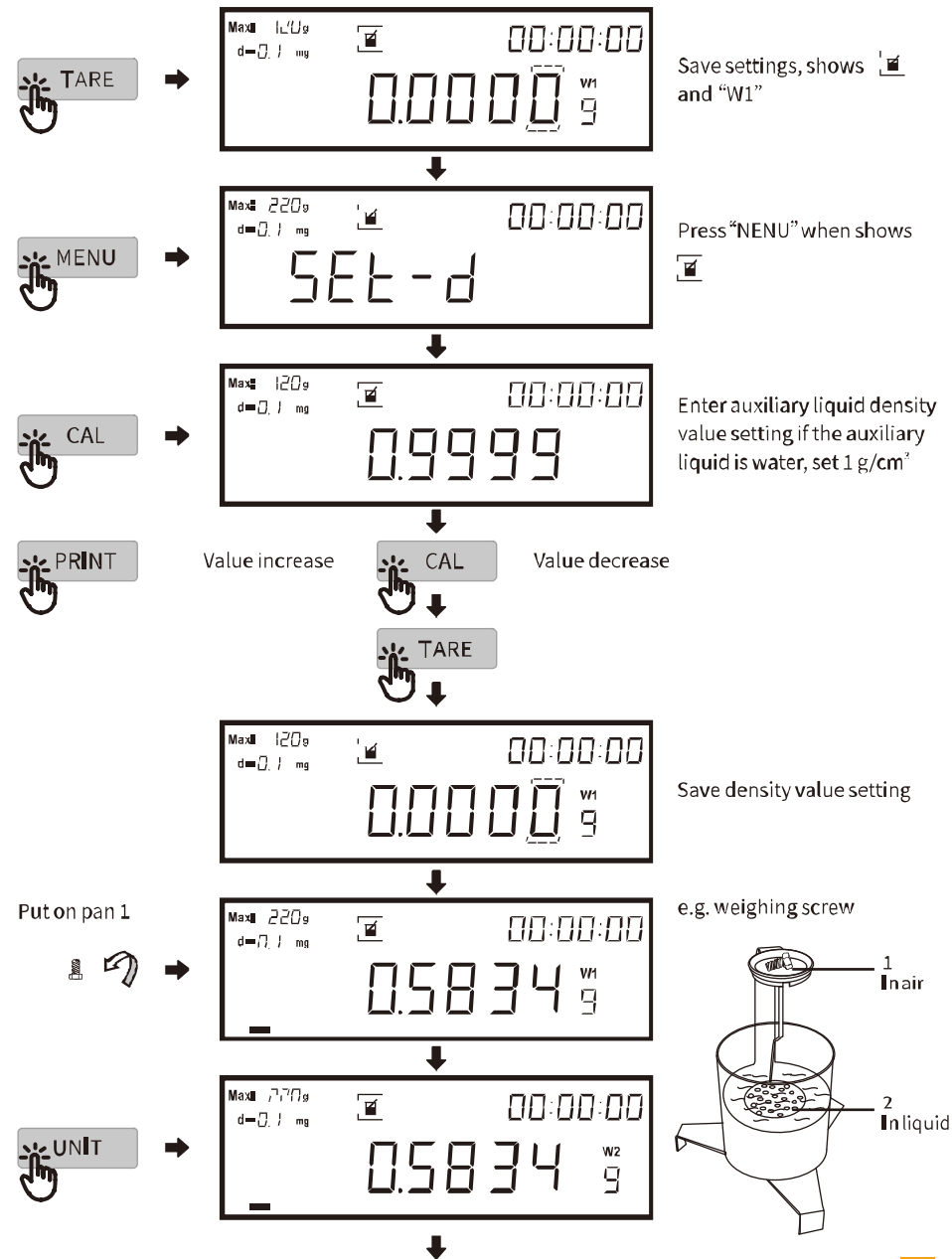


Remark: If use the same contrast second time, don't need re-sampling.

Density determination (need gravity kit=optional)

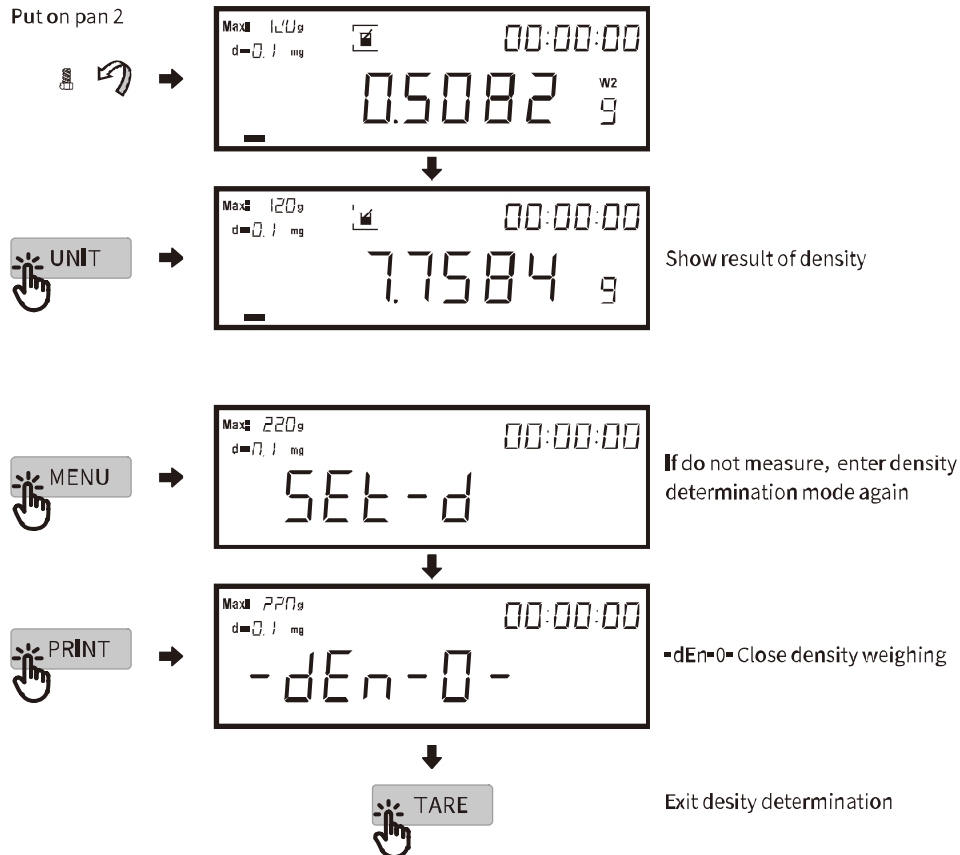


Density determination (need gravity kit=optional)



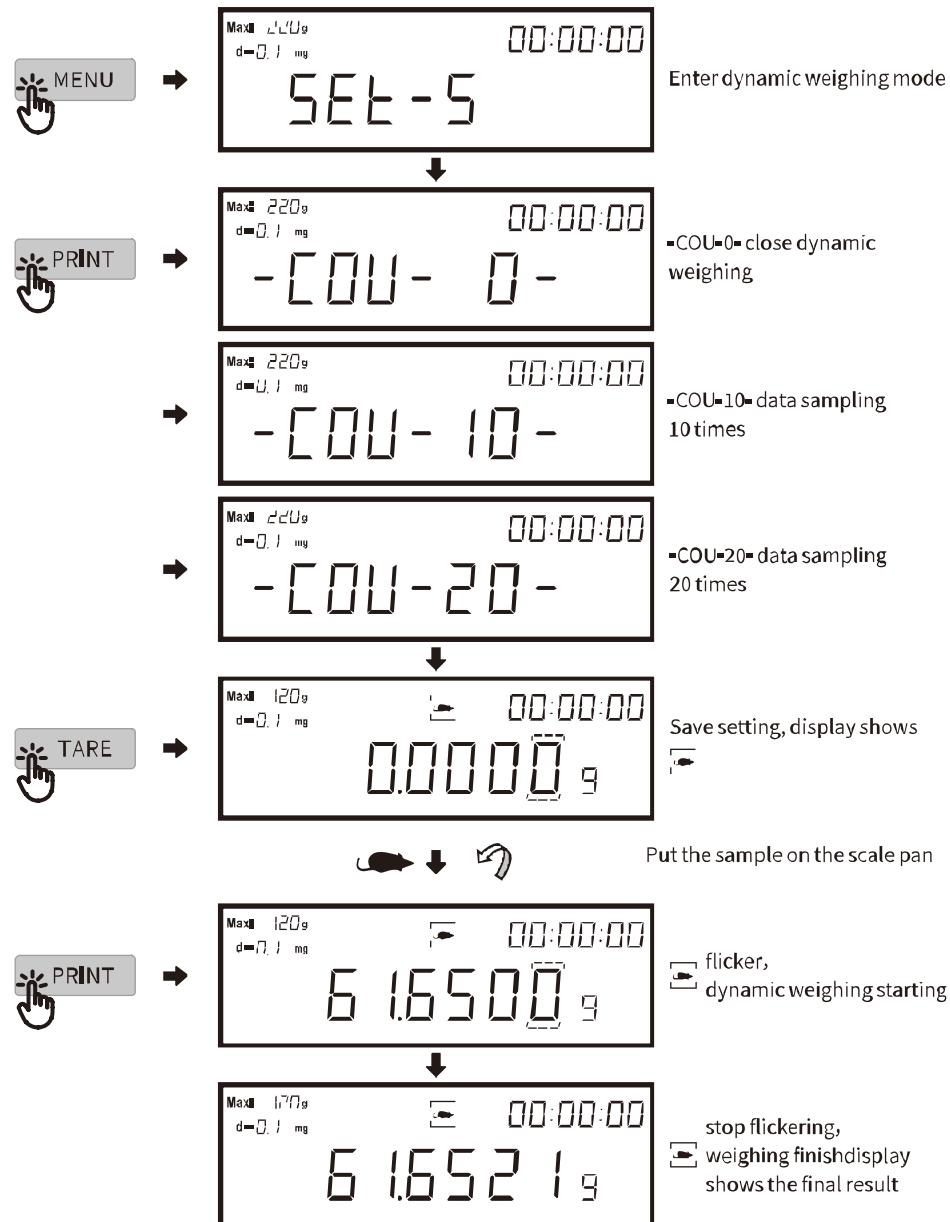
Density determination (need gravity kit=optional)

Put on pan 2

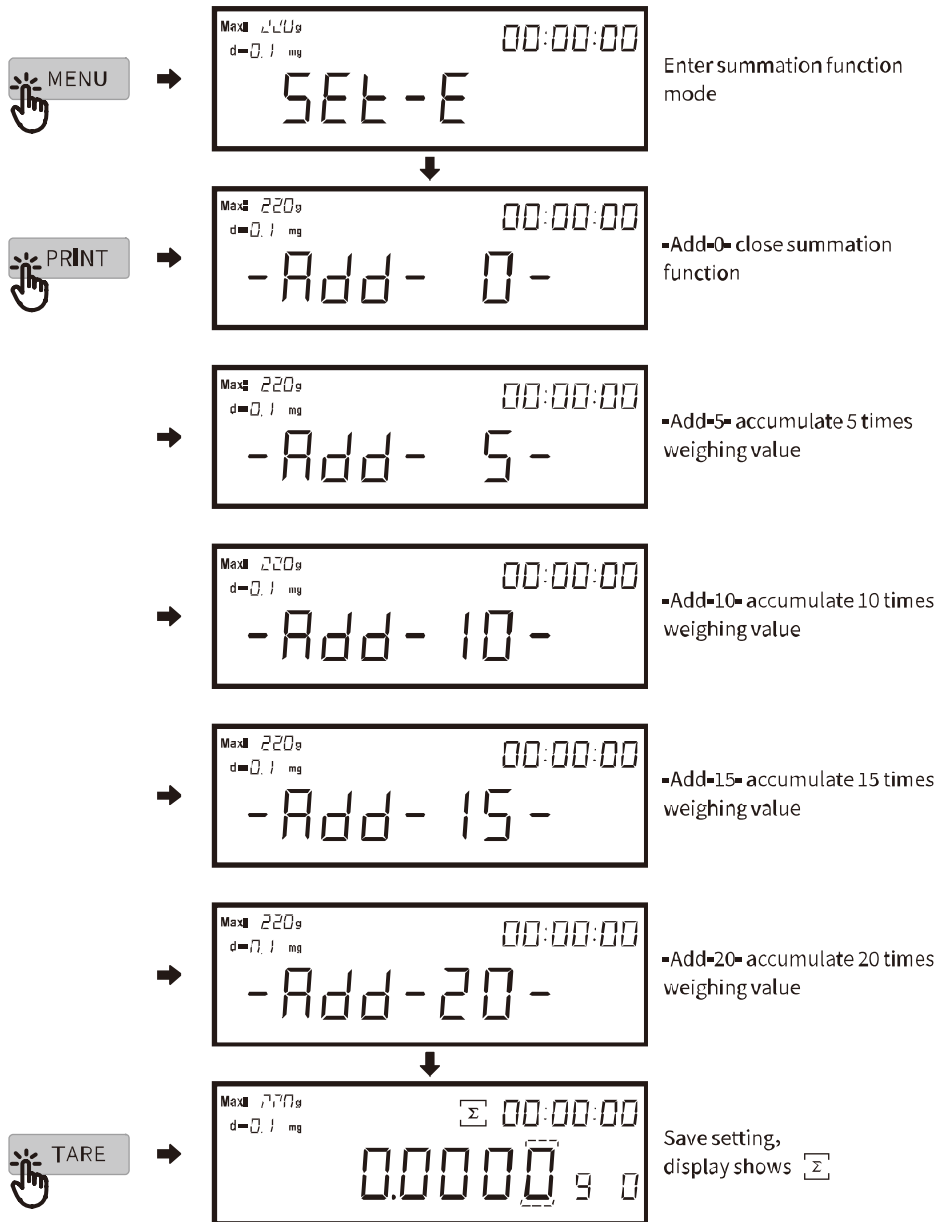


Remark: Liquid density weighing, need particular density kit, please consult manufacturer of operating instruction.

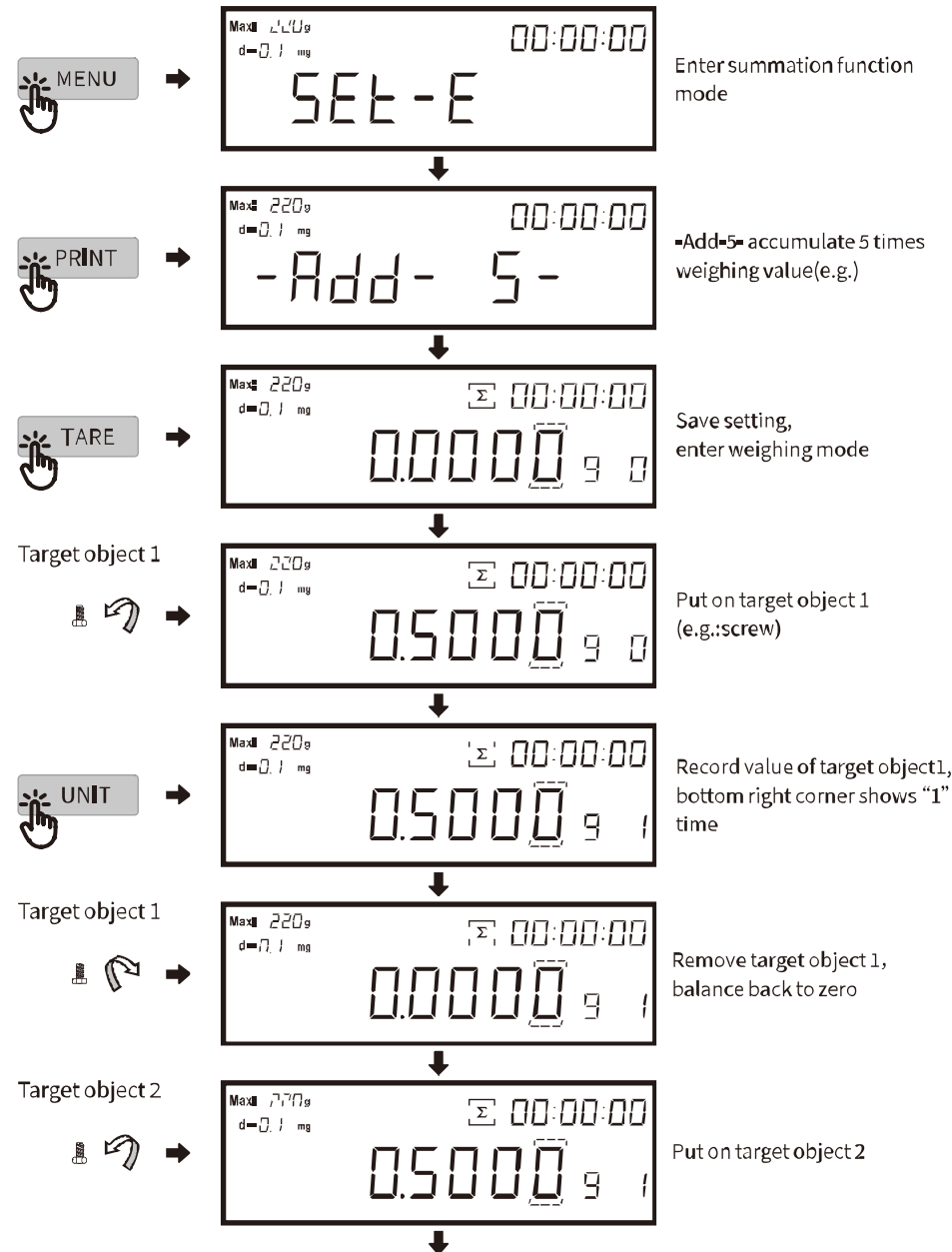
Dynamic weighing



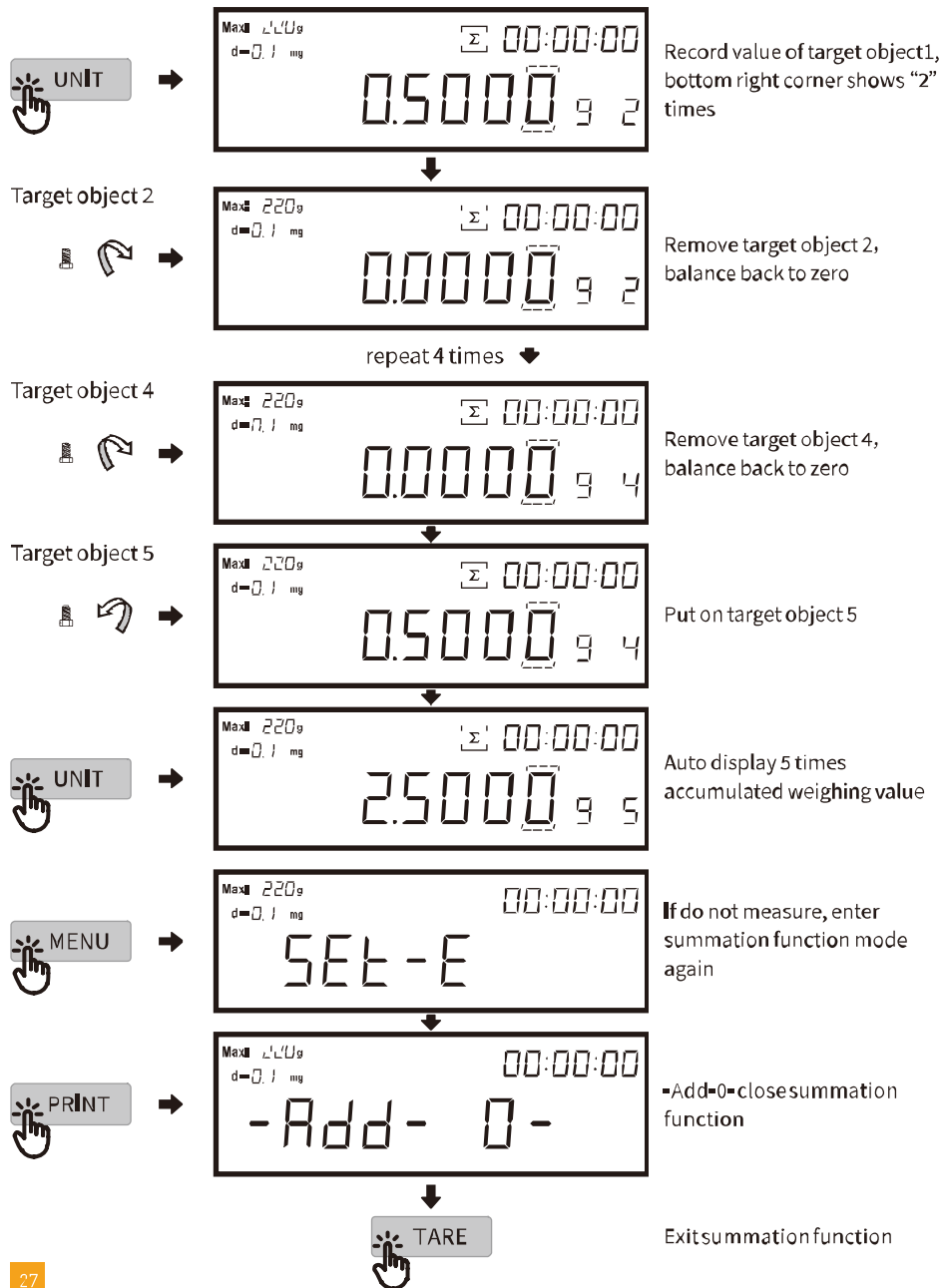
Summation Function



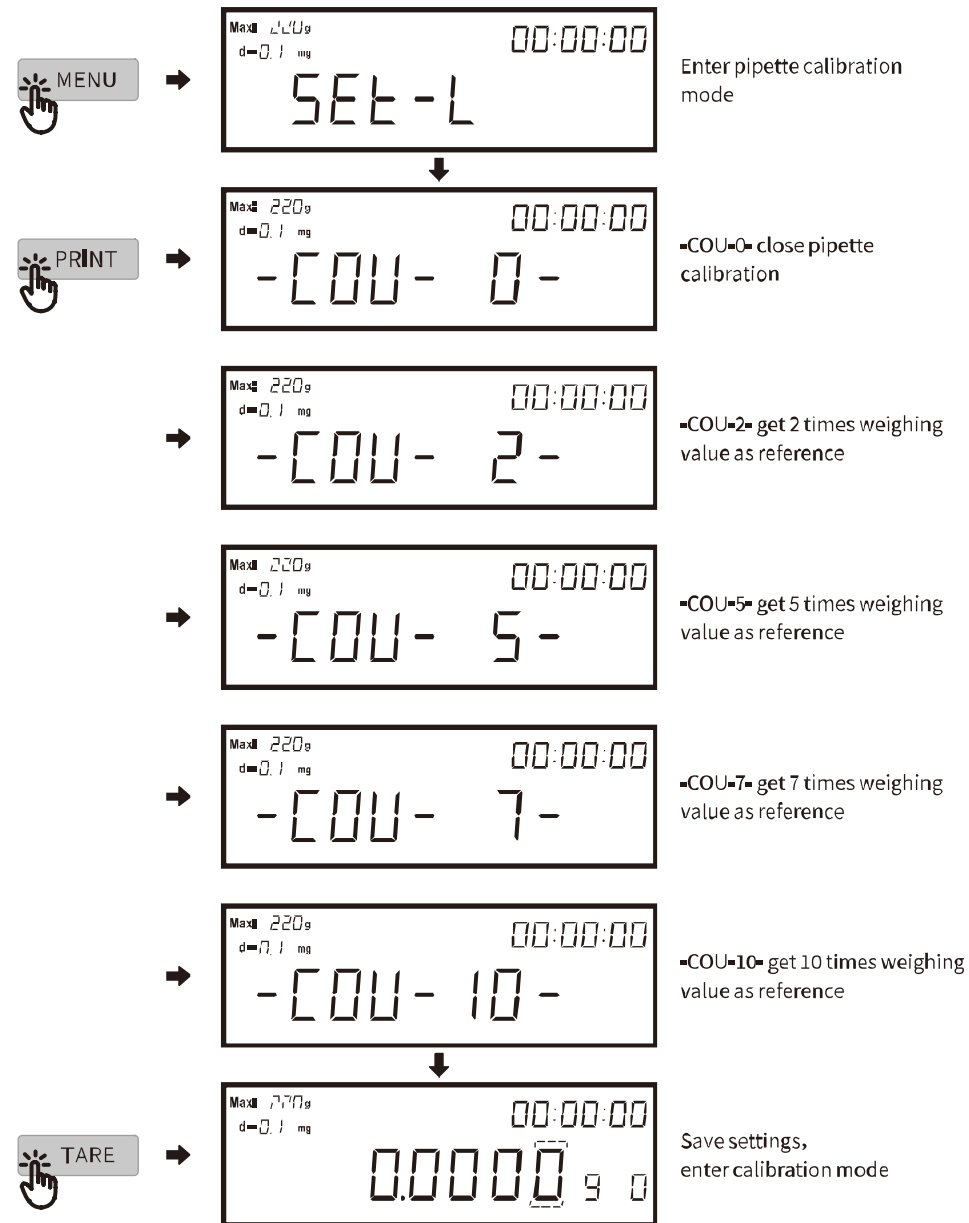
Summation Function



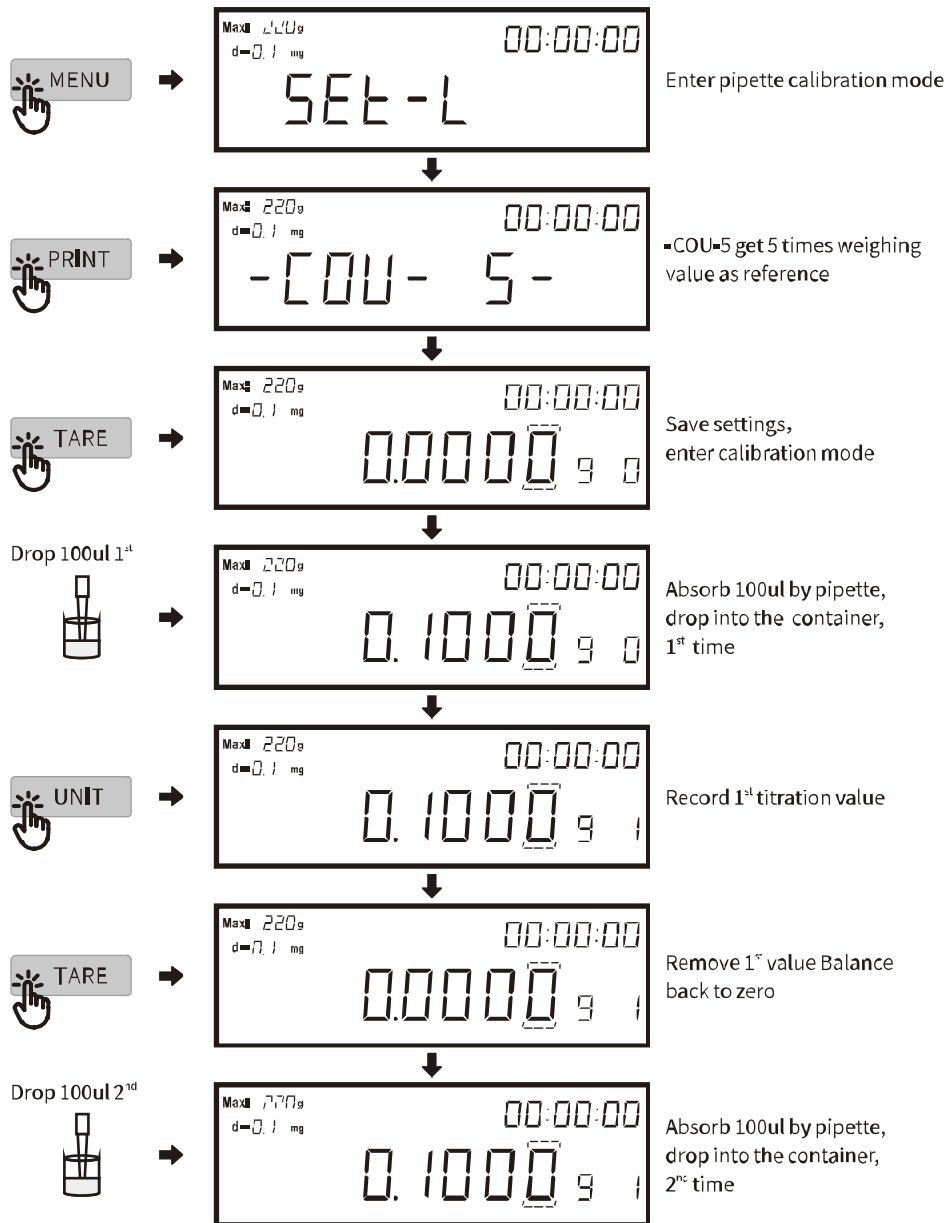
Summation Function



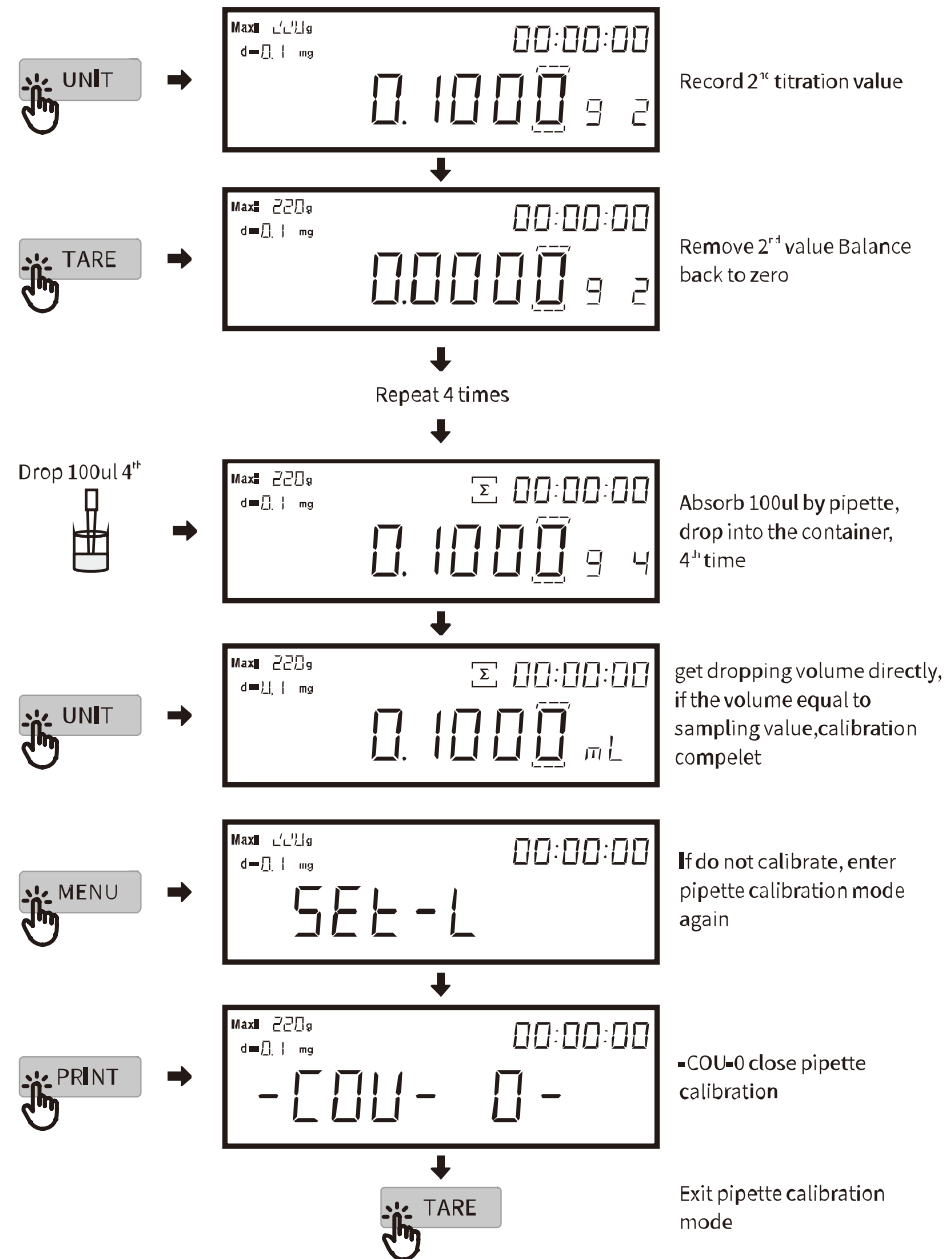
Pipette calibration



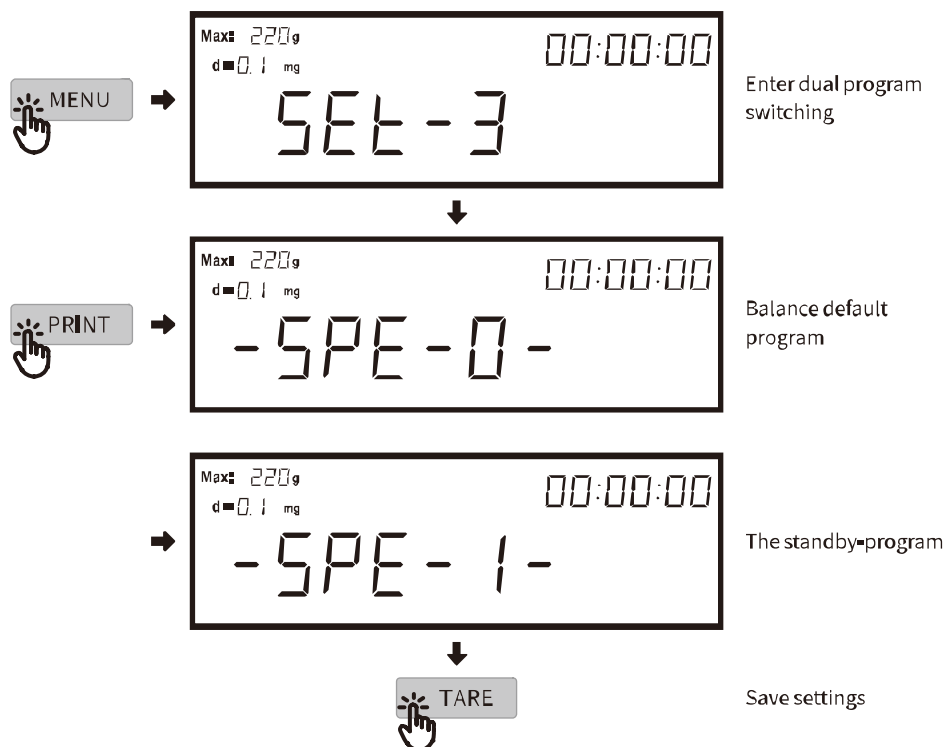
Pipette calibration



Pipette calibration



Dual program switching



Remark: when switch to another program, please make a linear calibration again to unlock the balance.

5.TROUBLESHOOTING

Problem	Cause	Solution
No display	No power supply; Fuse damaged; Power transformer is damaged.	Plug in adapter; Change the fuse; Change the power transformer; If problem persists, send the balance to the technical service for repair.
Unstable display	Bad working conditions; Air flow something between the scale pan and working table; The power exceeds its permissible value and is unstable; Static electricity.	Improve the working condition, close the windshield; Remove the pan and clean well the balance surface; Connect the balance to power supply 110-220 V AC; Static elimination.
Poor accuracy	Improper calibration; The weight of the recipient has not been tared; Big temperature difference; The balance is not horizontal.	Make calibration; Make tare; Put into suitable environment; Adjust level of balance.

6.COMPONENTS LIST

Balance	1
Balance pan	1
Adapter	1
Instruction manual	1
Weight(external)	1
(calibration) glove	1