U.S. SOLID

USS-DBS65 Series

Analytical Balance

User Manual

This manual should be made available to all users of this equipment. For best results, and for maximum durability of the equipment, carefully read and follow all instructions.

U.S. Solid® · 1200 E.55th Unit C, Cleveland, OH, 44103 ·
www.ussolid.com 1-800-243-5428

5.TROUBLESHOOTING

Problem	Cause	Solution
Display not working	No power supply; Fuse damaged; Power transformer is damaged;	Plug in adapter; Replace the fuse; Replace the power transformer; If problem persists, send the balance to the Technical Service for repair.
Unstable display	Poor 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	Double check calibration. Make sure the receptacle has been tared out. Place the balance in a suitable working environment. Make sure balance is on a flat, even surface.

6.COMPONENTS LIST

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

Dual Program Switching

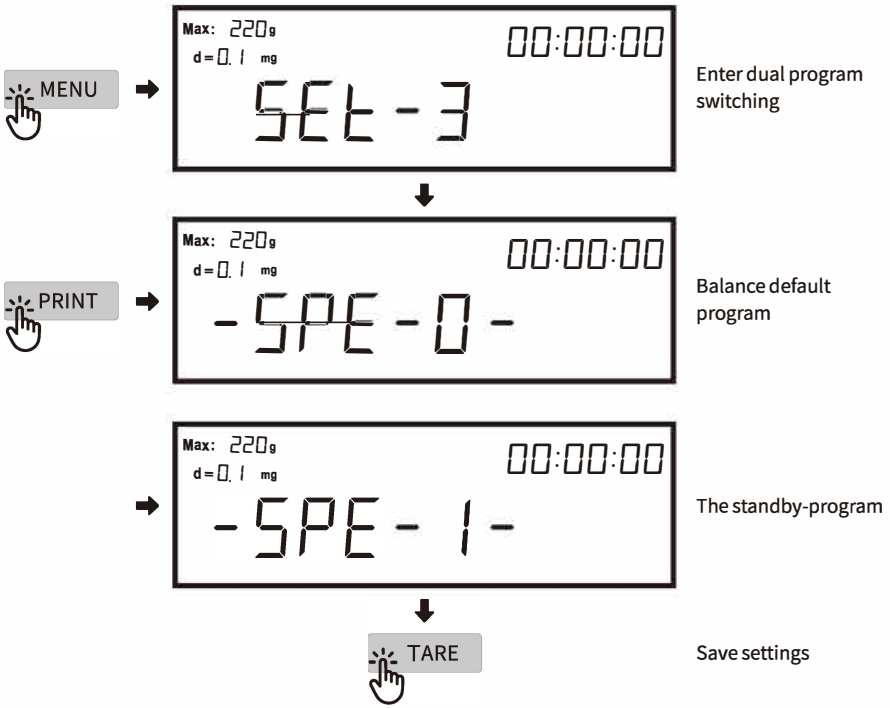


Table of content

1. INTRODUCTION

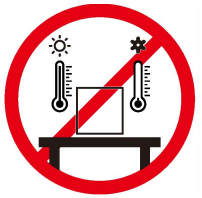
The USS-DBS65 series analytical balance works on electromagnetic force compensation technology and a microprocessor which implements high speed stabilization and high reliability. It can be widely used in industry, agriculture, commerce, schools, scientific research and other institutions to quickly weigh the quality and quantity of objects.

Safety Precautions

Avoid direct sunlight

Avoid vibrations

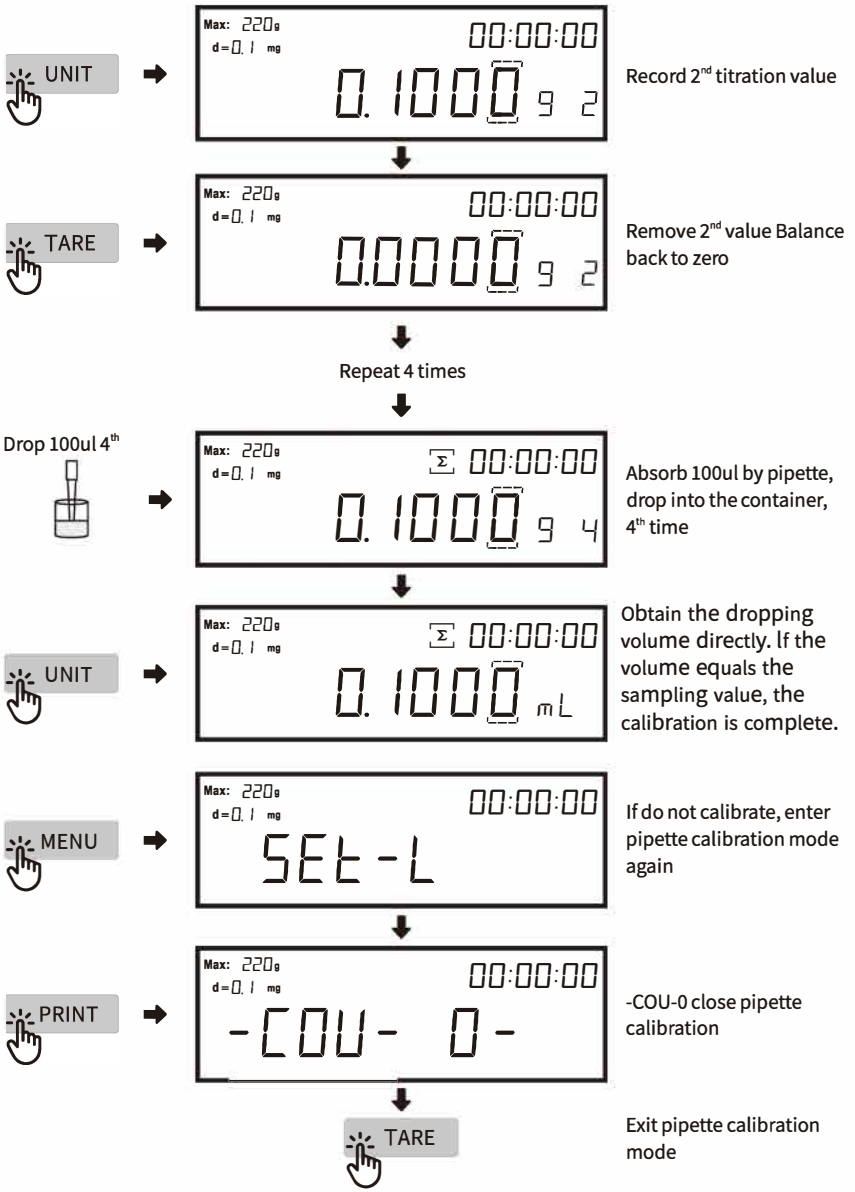
Avoid strong drafts



Avoid temperature fluctuations

*Verify that the AC adapter input voltage matches the local AC power supply.
*Please place the balance on a professional experimental platform. The thickness of the desktop should be ≥ 7cm.
*Sufficient spacing for balances: > 15cm all around the instrument.

Pipette calibration



Pipette Calibration

MENU → Enter pipette calibration mode

PRINT → -COU-5 get 5 times weighing value as reference

TARE → Save settings, enter calibration mode

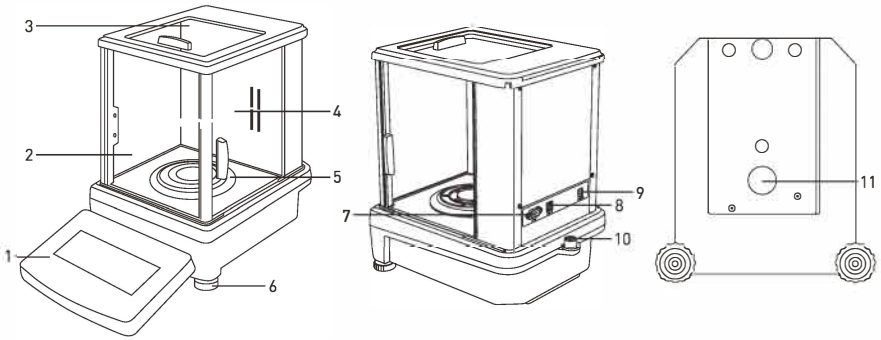
Drop 100ul 1st → Absorb 100ul by pipette, drop into the container, 1st time

UNIT → Record 1st titration value

TARE → Remove 1st value Balance back to zero

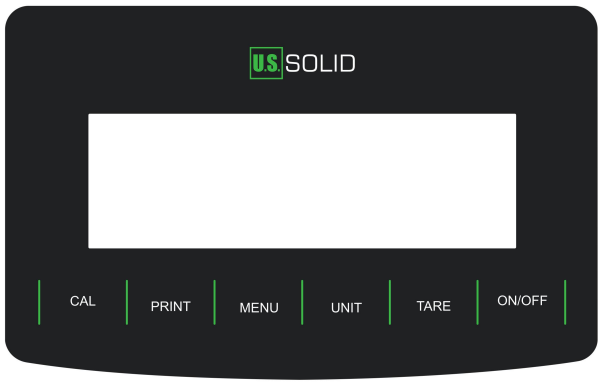
Drop 100ul 2nd → Absorb 100ul by pipette, drop into the container, 2nd time

Diagram

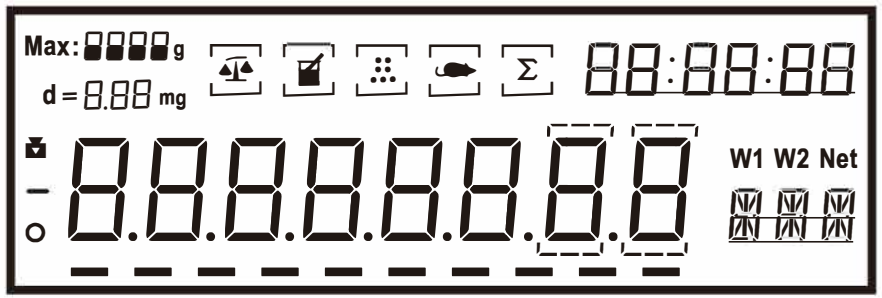


1	Terminal	8	USB-B port
2	Front panel draft shield	9	Socket for power adapter
3	Top door draft shield	10	Bubble level
4	Side door draft shield(right/left)	11	Below weighing(optional)
5	Weighing pan		Press button
6	Leveling feet		Put weight or object on the pan
7	RS232 interface		Take off the weight or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

Button

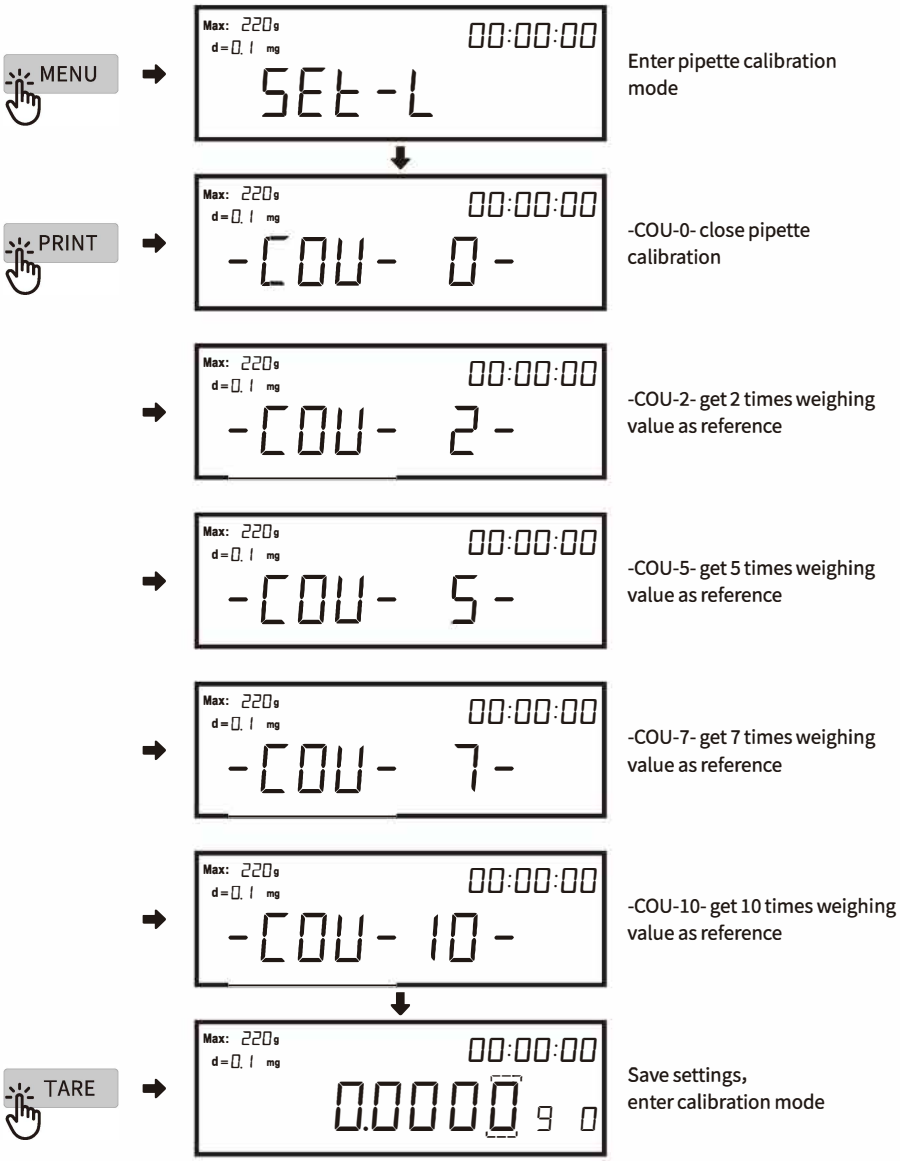


Display Information

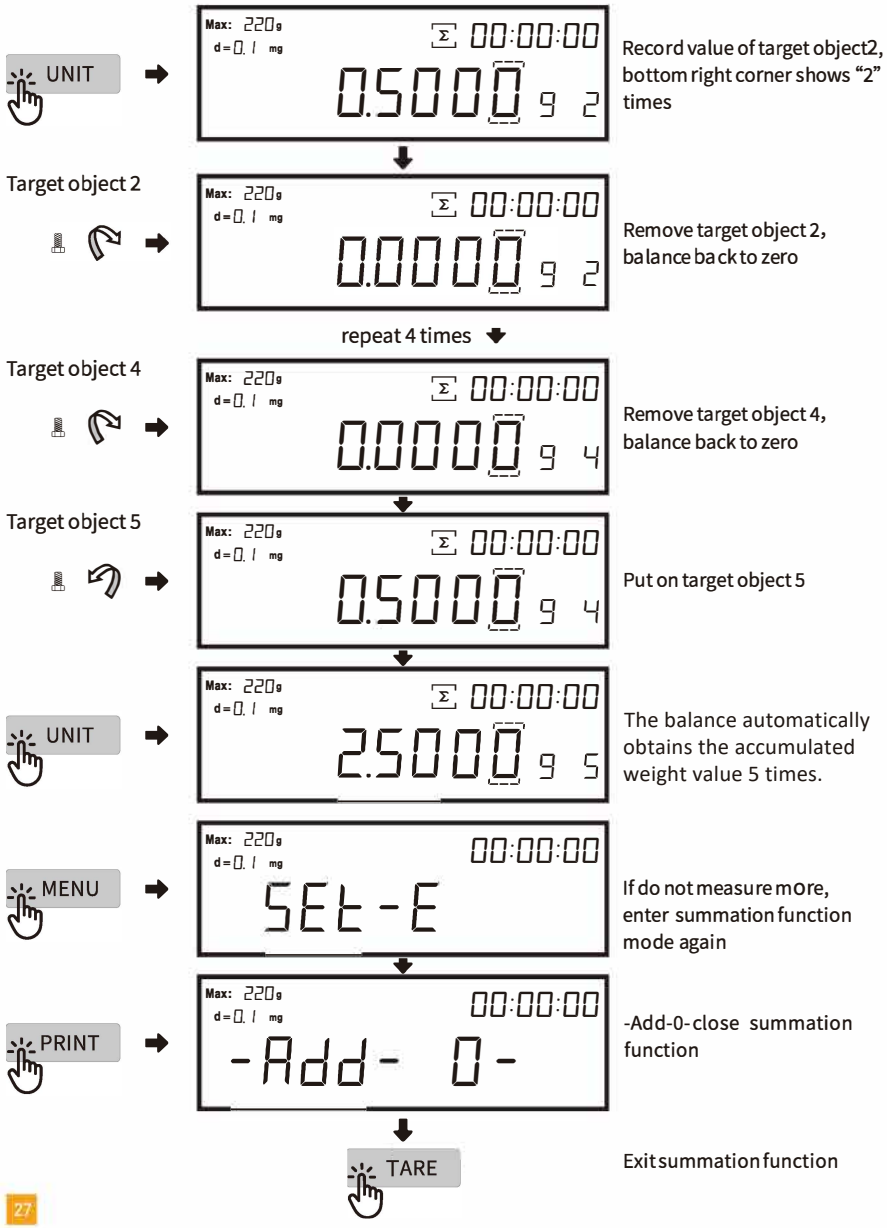


No.	Display	Description
1	Max: g d= mg	Model Display
2		Internal Calibration Sign
3		Negative Weight Value
4		Stable Value
5		Weighing Sgn
6		Density Determination
7		Piece Counting
8		Dynamic Weighing
9		Summation
10		Progress Bar
11		Time Setting
12	W1 W2	W1: weight in air, W2: weight in liquid
13		Unauthenticated Numbers
14		Unit Display

Pipette Calibration



Summation Function



Parameter

Analytical Balance(0.01 mg)

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	30-60 mins						30-60 mins	30-60 mins
Weighing unit	g/oz/ct/mg/lb/gn/ozt/dwt						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							

Analytical Balance(0.1 mg)

Capacity	0-120g	0-220g	0-320g	0-420g	0-520g
Readability	0.1mg				
Stable time	1.5s		2.5s		
Preheating time	30-60 min				
Weighing unit	g/oz/ct/mg/lb/gn/ozt/dwt				
Min. weight	0.1 mg				
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				

Analytical Balance(1mg)

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/lb/gn/ozt/dwt			
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			

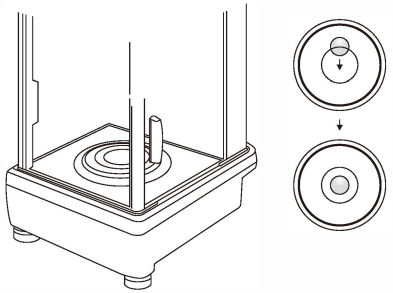
2. PREPARATION

Leveling the Balance

1 **Place the balance on a stable desk that cannot be moved.**

2 **Adjust the two leveling feet on the bottom until the bubble is centered in the circle.**

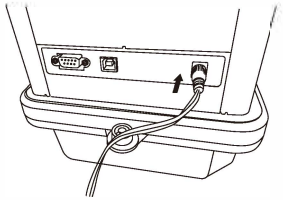
Ie. After leveling, install the scale pan:



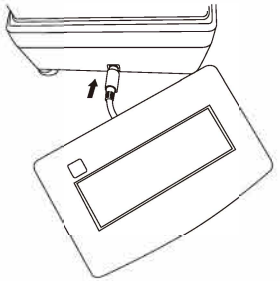
bubble right above	clockwise rotate two leveling feet
bubble right below	counterclockwise rotate two leveling feet
bubble left	counterclockwise rotate left leveling foot clockwise rotate right leveling foot
bubble right	counterclockwise rotate right leveling foot clockwise rotate left leveling foot

Connecting and Switching On the Balance

1 Connect the power adapter to the AC inlet on the back of the balance.



2 **Connect the terminal with the balance**



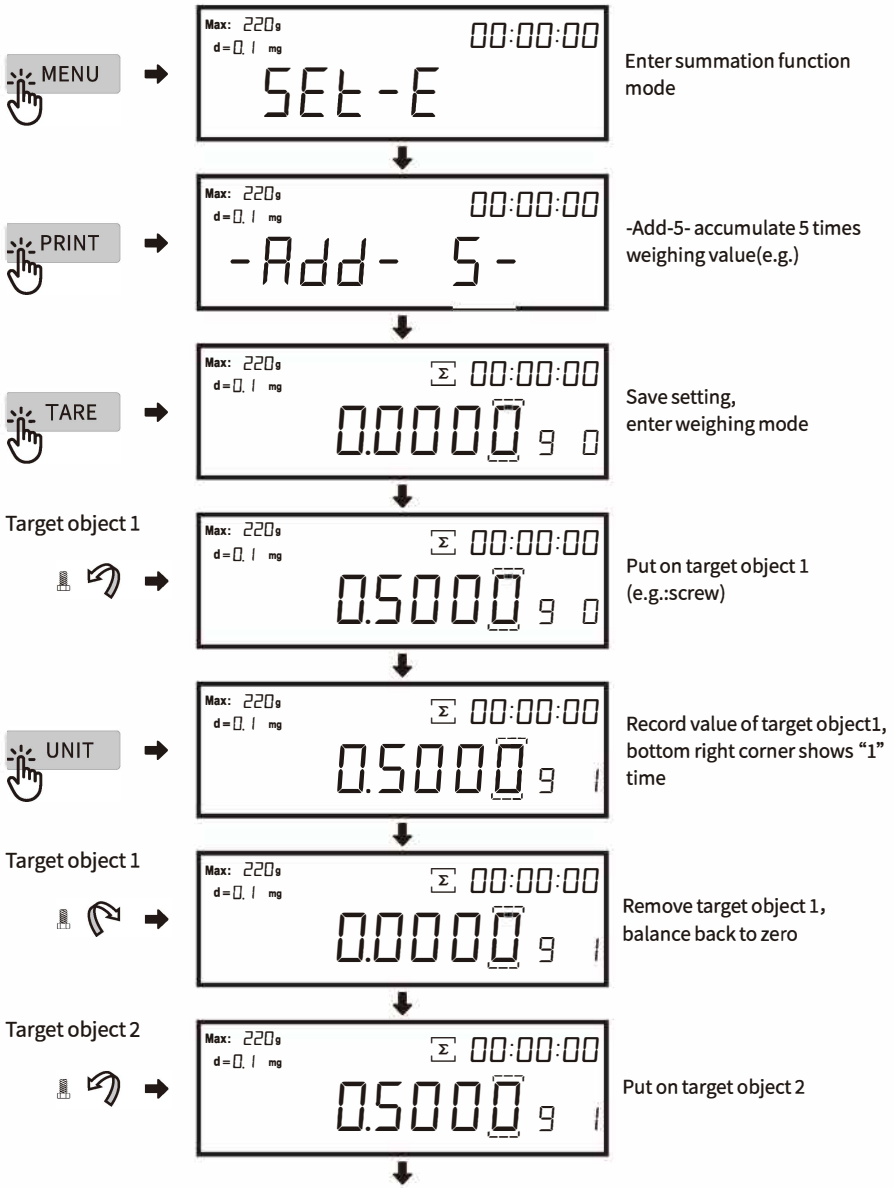
3 **Press the ON/OFF button**

The balance enters the weighing interface.

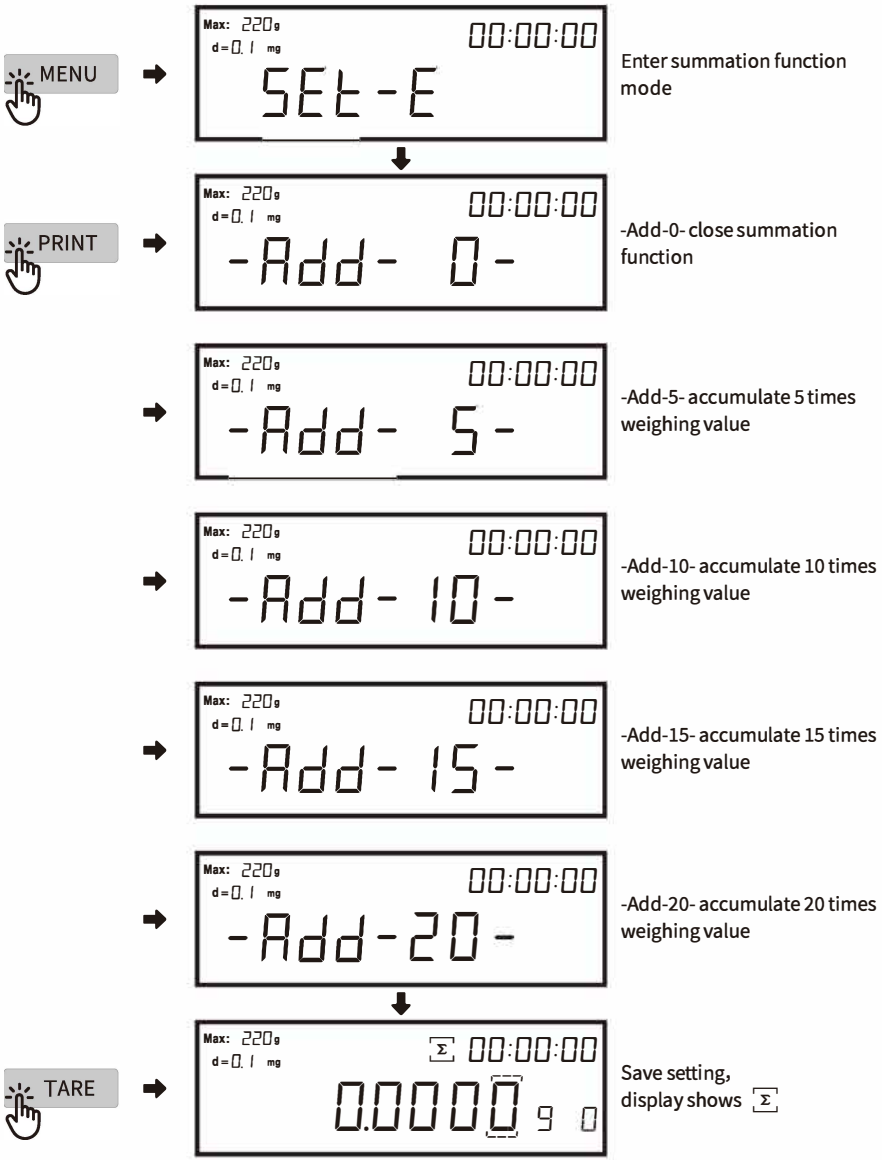
When the operating temperature changes, place the balance in the new location for 2 hours while powered on, to allow the balance to adjust to the new temperature.

Attention: If the number on the display is unstable during the first boot, this is caused by the operating temperature change. You can press the "TARE" button repeatedly and set aside for 30 minutes to allow the balance to stabilize.

Summation Function



Summation Function

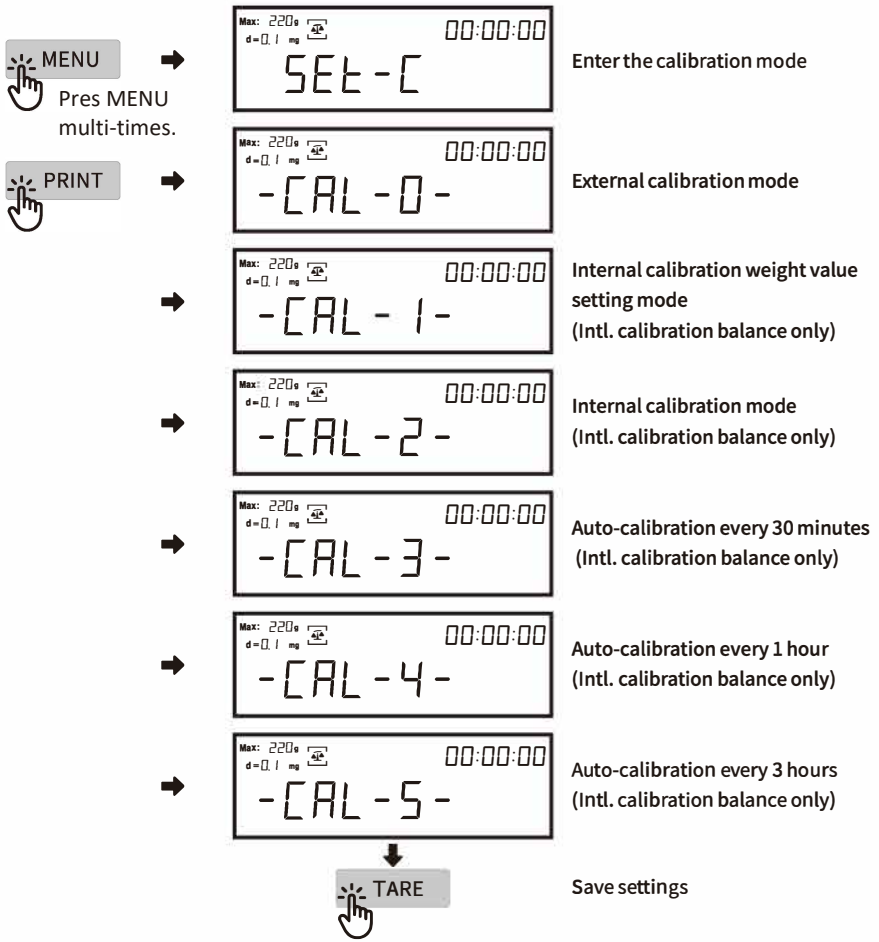


3. CALIBRATION

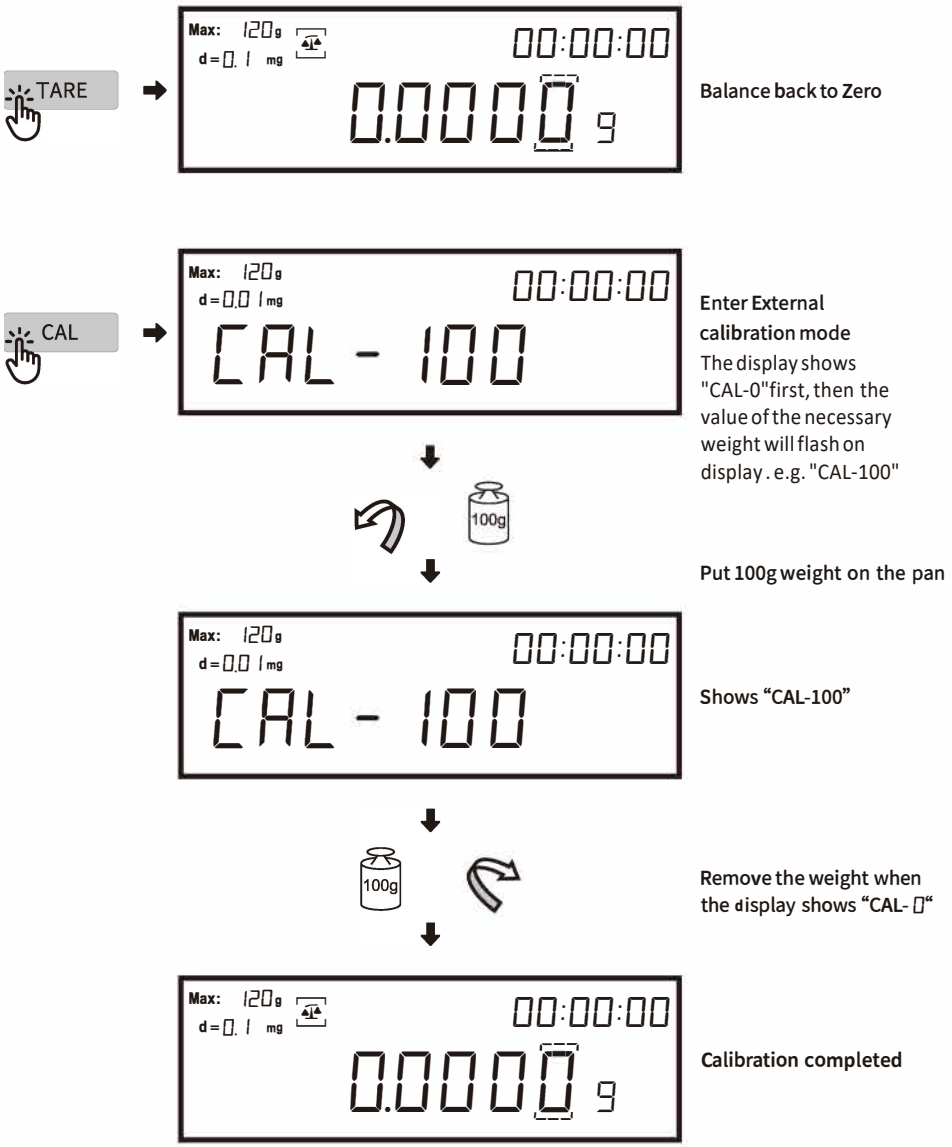
To obtain accurate weighing results, the balance should be calibrated before the following usage scenarios:

1. Before first use
2. After the balance has been powered off for a long time or after a power error
3. After changing the operating environment.
4. Regularly during weighing procedures.

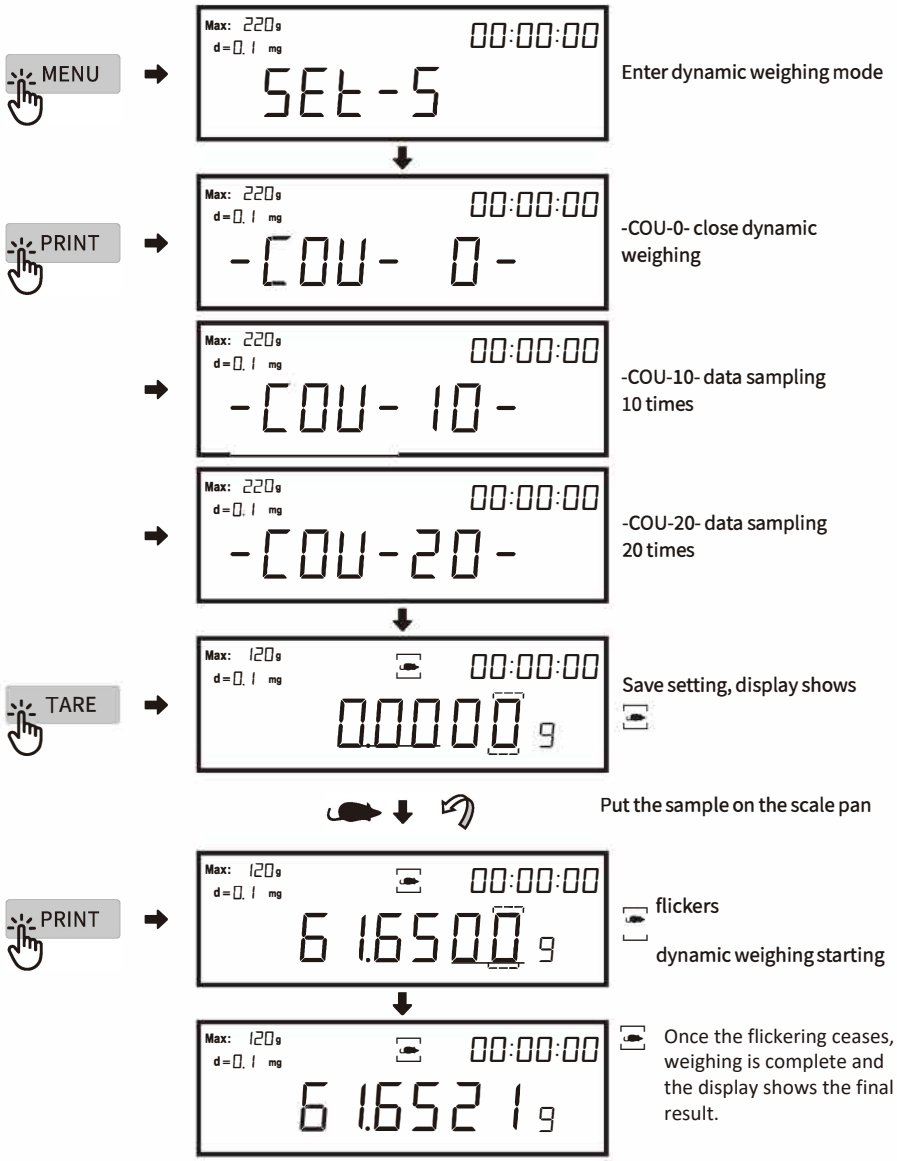
Choose the calibration methods in sequence



External calibration (single-point calibration)



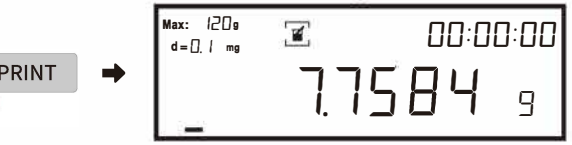
Dynamic Weighing



Density Determination (need gravity kit - optional)

Put on pan 2

PRINT

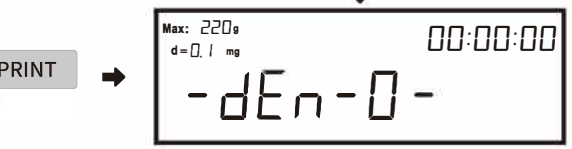


The density result is displayed.

MENU

If density is not measured, enter the density determination mode again.

PRINT



-dEn-0- Close density weighing

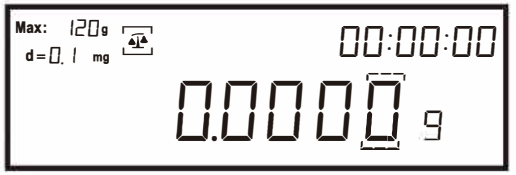
TARE

Exit desity determination

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

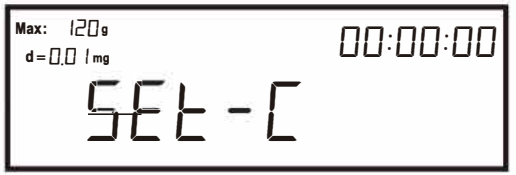
Linear Calibration

TARE



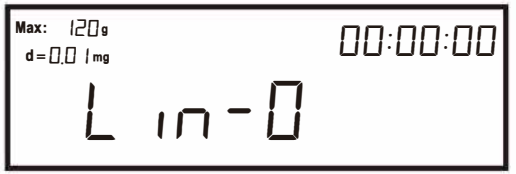
Balance back to Zero

MENU

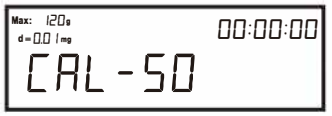


Until display shows “SET-C”

CAL



Enter linear calibration mode Shows “LIN-0”



Follow the prompts to put the corresponding weights on the pan. (e.g.:CAL-50 means 50g, CAL-100 means 100g)

Calibration completed

Internal calibration weight value setting (Intl. calibration balance only)

MENU → Max: 220g d=0.1 mg 00:00:00 SEt-C — Enter calibration mode

PRINT → Max: 220g d=0.1 mg 00:00:00 -CAL-1- — Choose the calibration methods

CAL → Max: 220g d=0.1 mg 00:00:00 CAL-dn — Shows “CAL-DN”

Put the corresponding weight on the pan (e.g.100g)

Max: 120g d=0.01mg 00:00:00 CAL uP — Shows “CAL-UP”

Remove the weight

Max: 120g d=0.1 mg 00:00:00 0.0000 g — Setting comp1eted

Density Determination (need gravity kit - optional)

TARE → Max: 120g d=0.1 mg 00:00:00 0.0000 W1 g — Save settings, shows ☑ and “W1”

MENU → Max: 220g d=0.1 mg 00:00:00 SEt-d — Press“NENU”whenshows ☑

CAL → Max: 120g d=0.1 mg 00:00:00 0.9999 — Enterauxiliaryliquid density valuesetting, ifthe auxiliary liquidiswater, set 1g/cm³

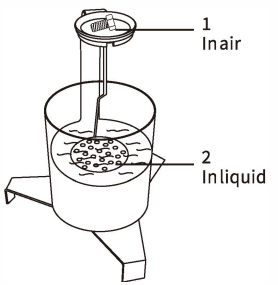
PRINT — Value increase — CAL — Value decrease

Press the ON/OFF key to se1ect which digit of the number to change.

TARE → Max: 120g d=0.1 mg 00:00:00 0.0000 W1 g — Savedensityvaluesetting

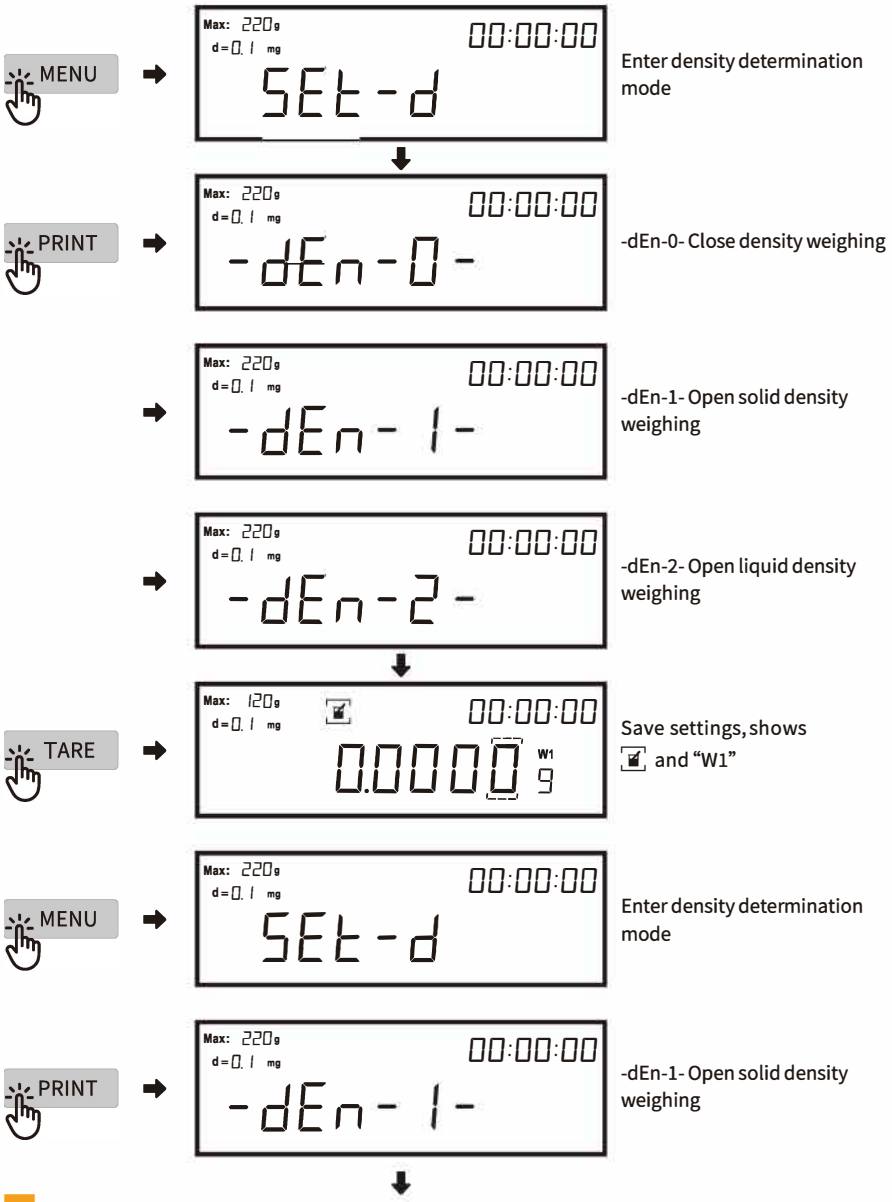
Put on pan 1 → Max: 220g d=0.1 mg 00:00:00 0.5834 W1 g

e.g.weighingascrew



PRINT → Max: 220g d=0.1 mg 00:00:00 0.5834 W2 g

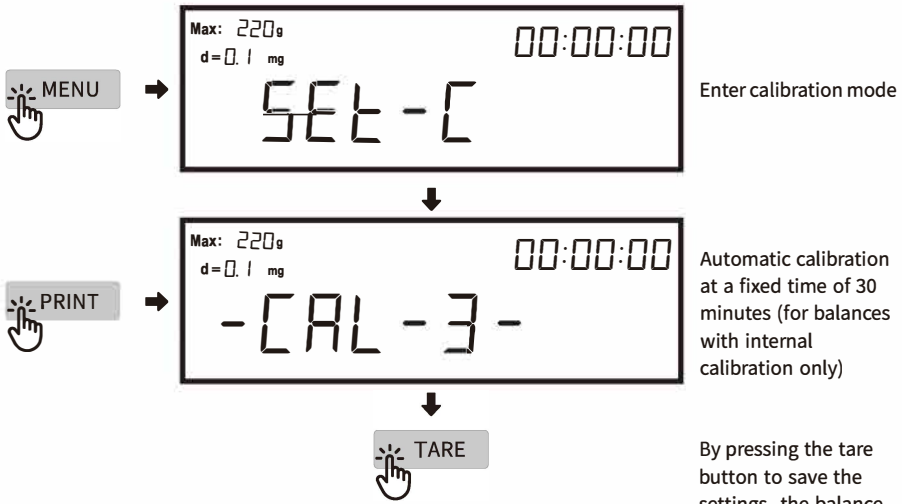
Density Determination (need gravity kit - optional)



Weight Value Setting

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

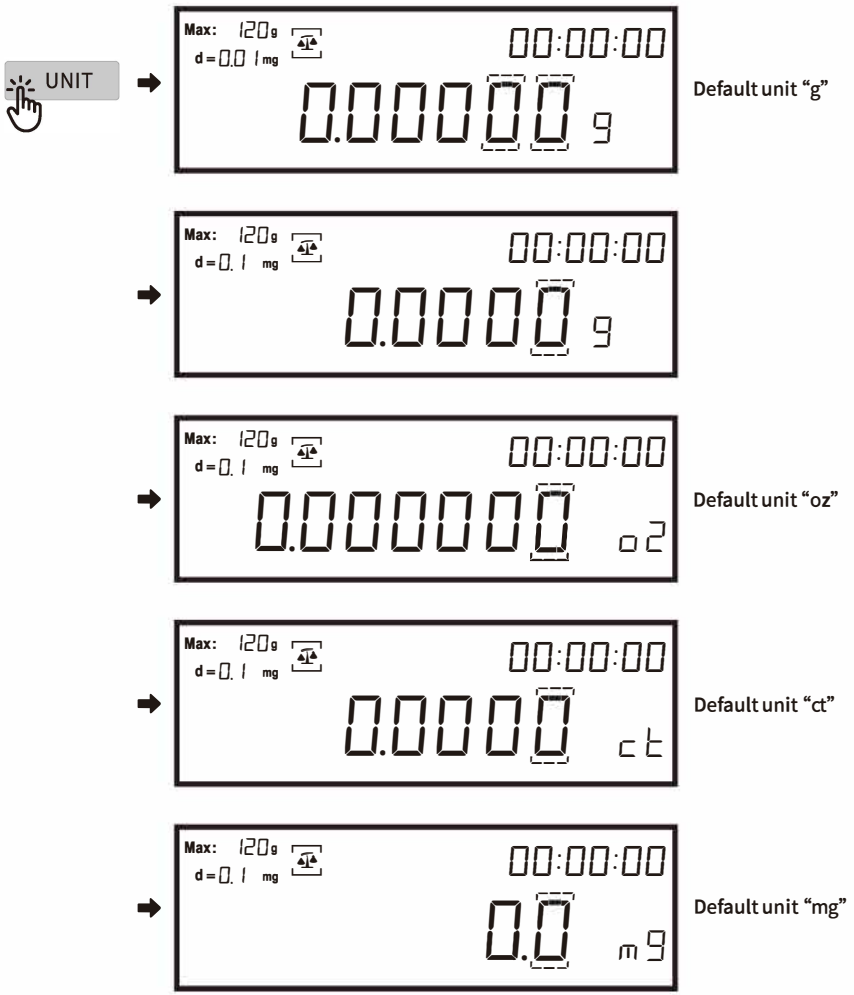
Auto-calibration



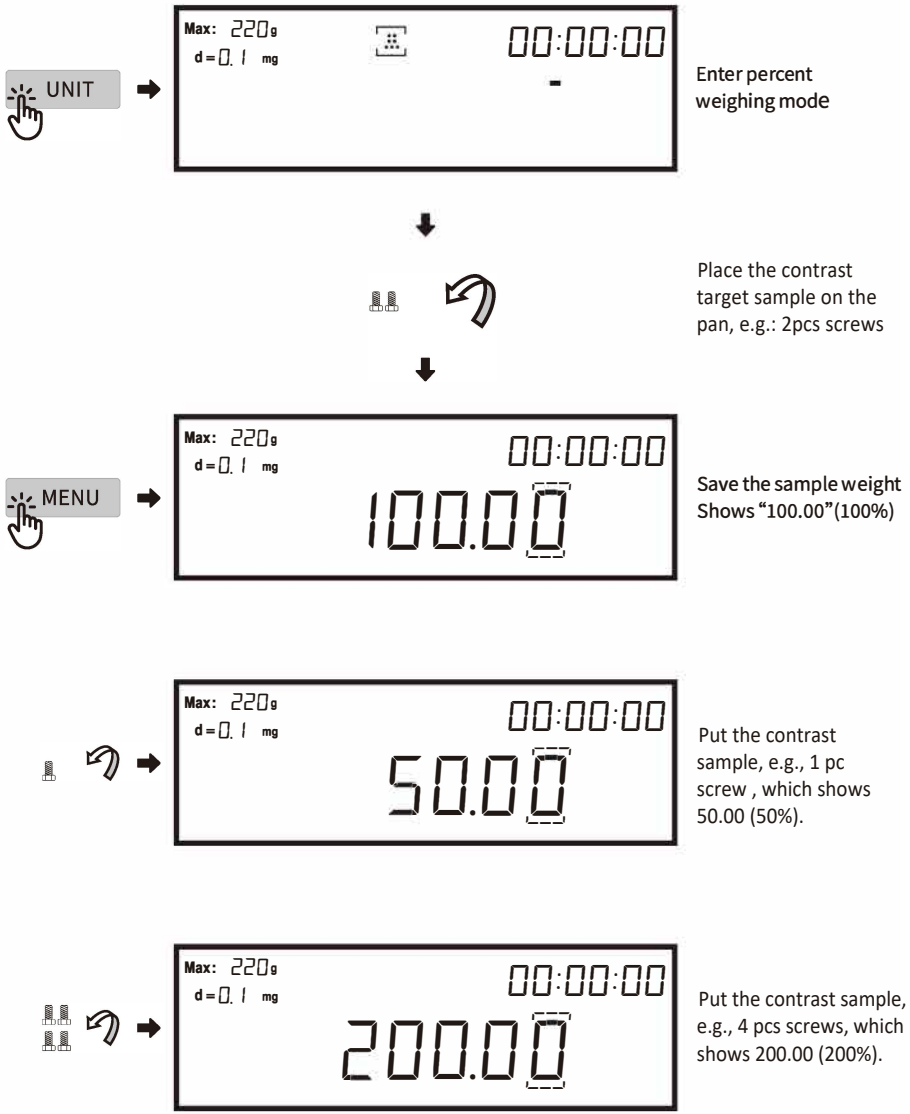
4. SETTING AND OPERATION

Setting

Unit Conversion

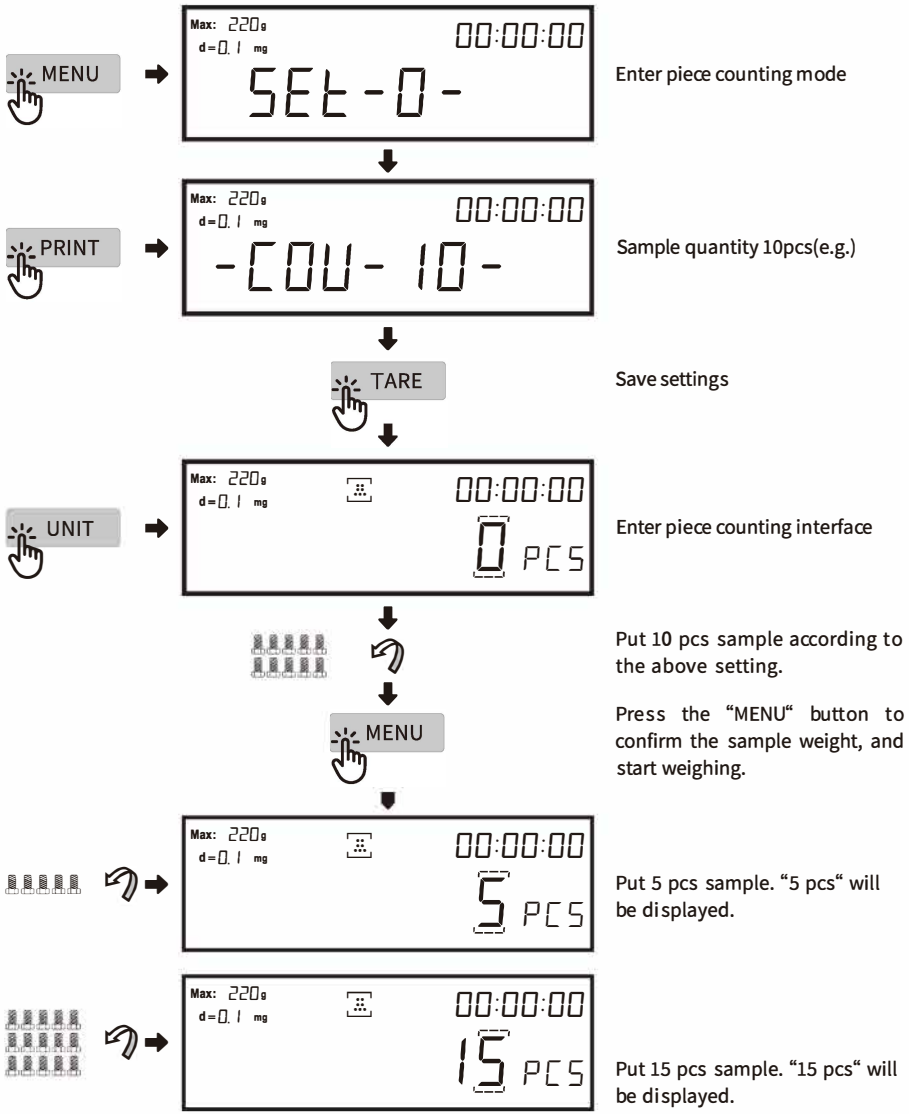


Percent Weighing



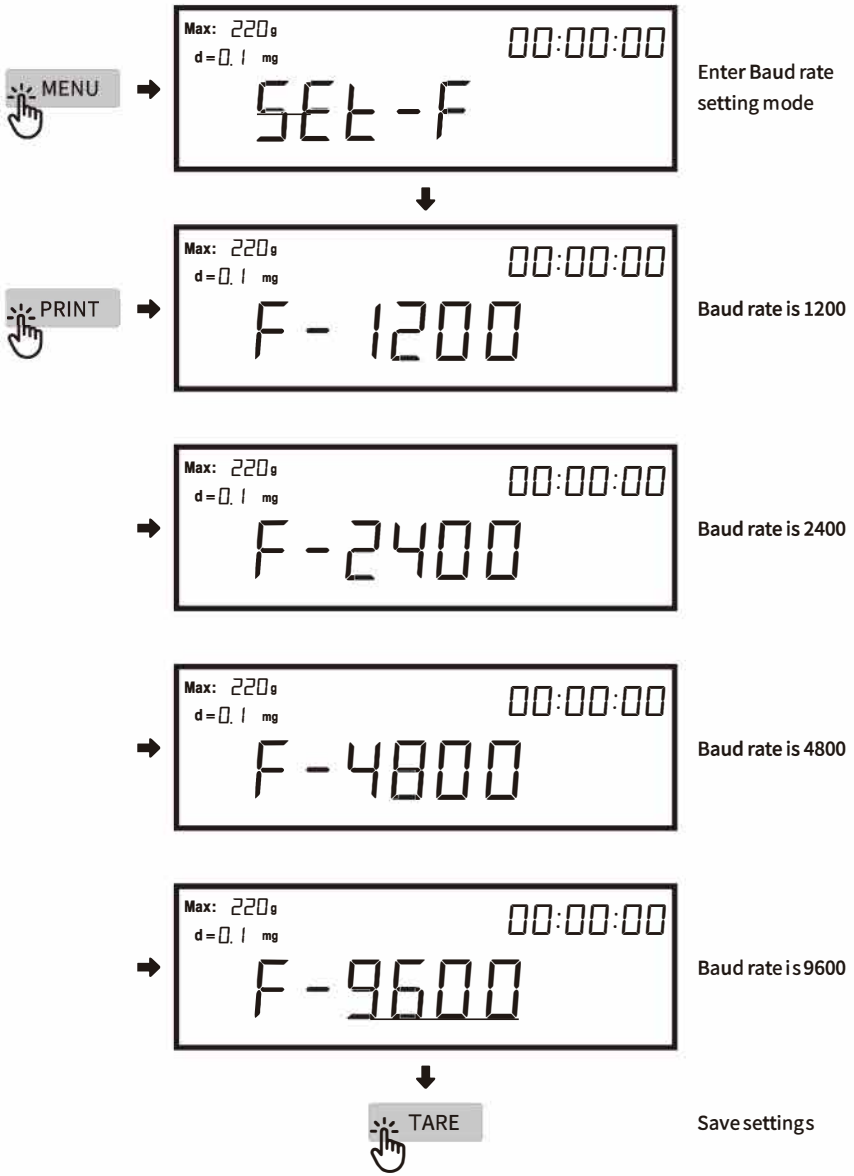
Remark: If using the same contrast sample a second time, re-sampling is not necessary.

Piece Counting

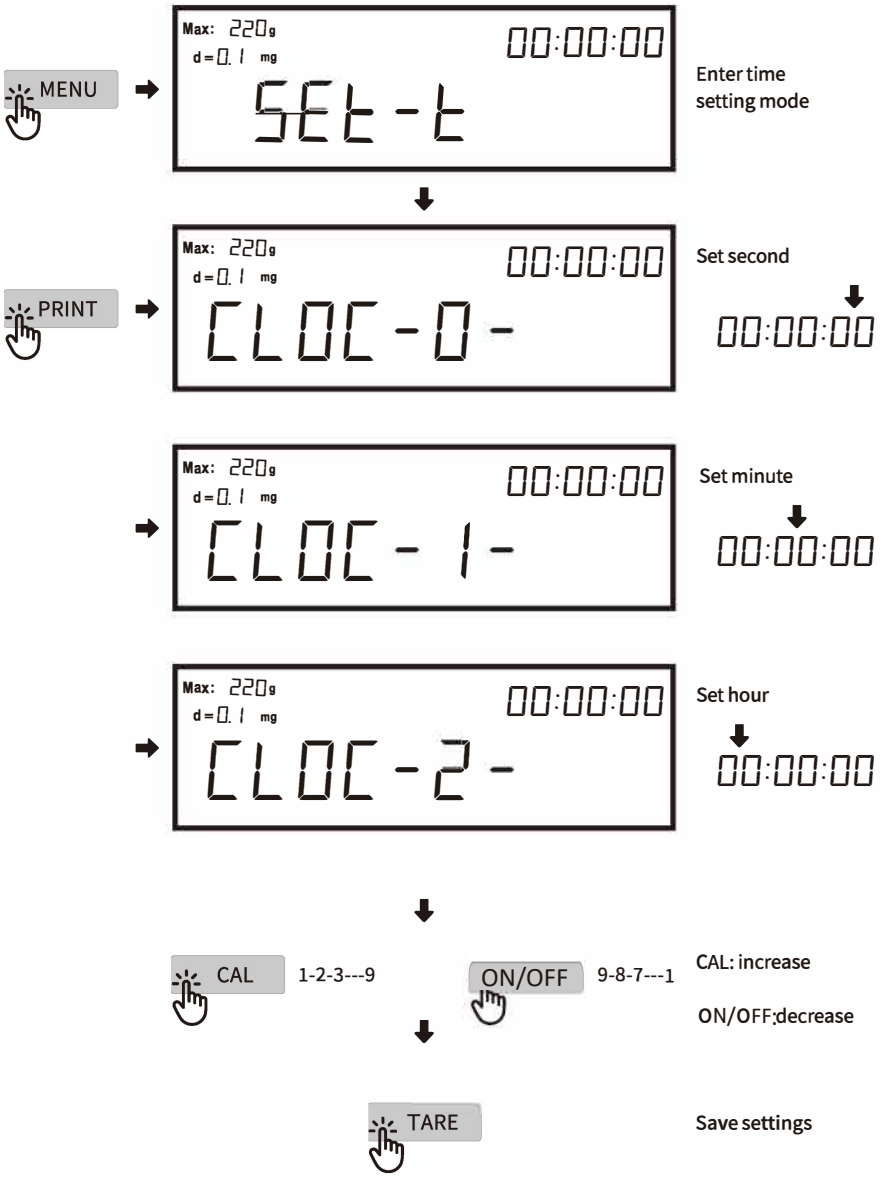


Remark: If testing the same sample a second time, re-sampling is not necessary.

Baud Rate Setting

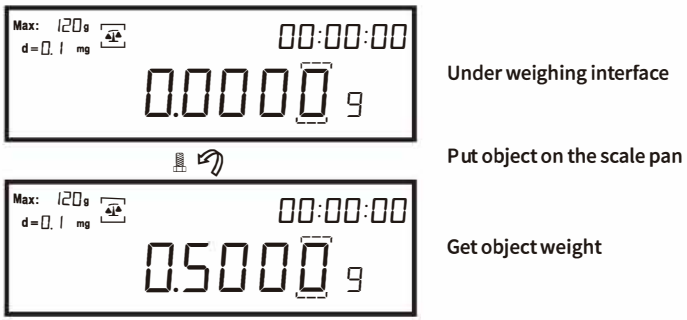


TimeSetting

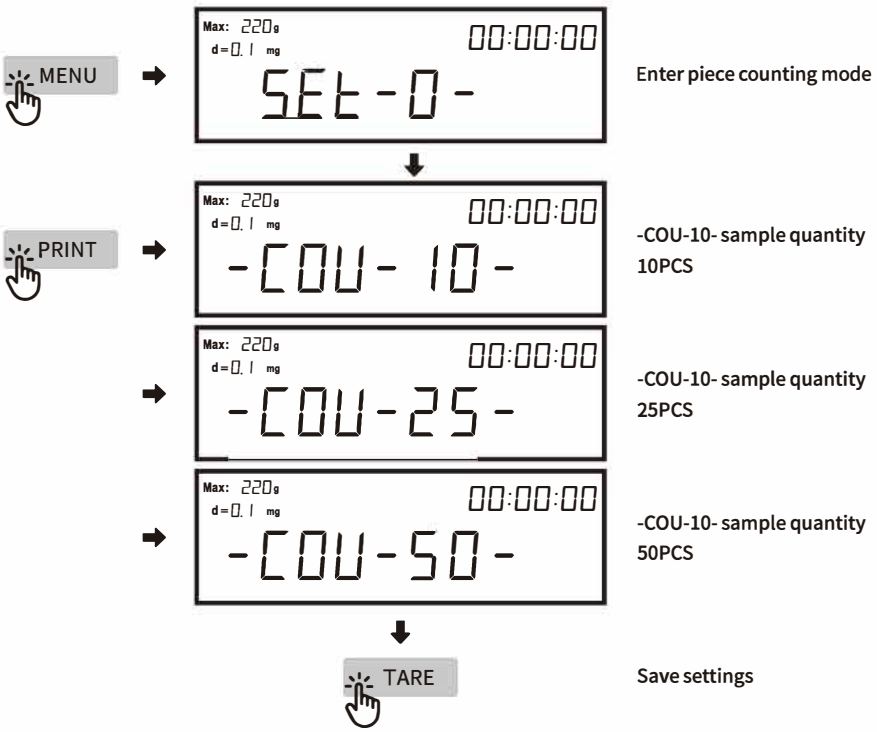


OPERATION

Weighing



PieceCounting



Rs232 Interface

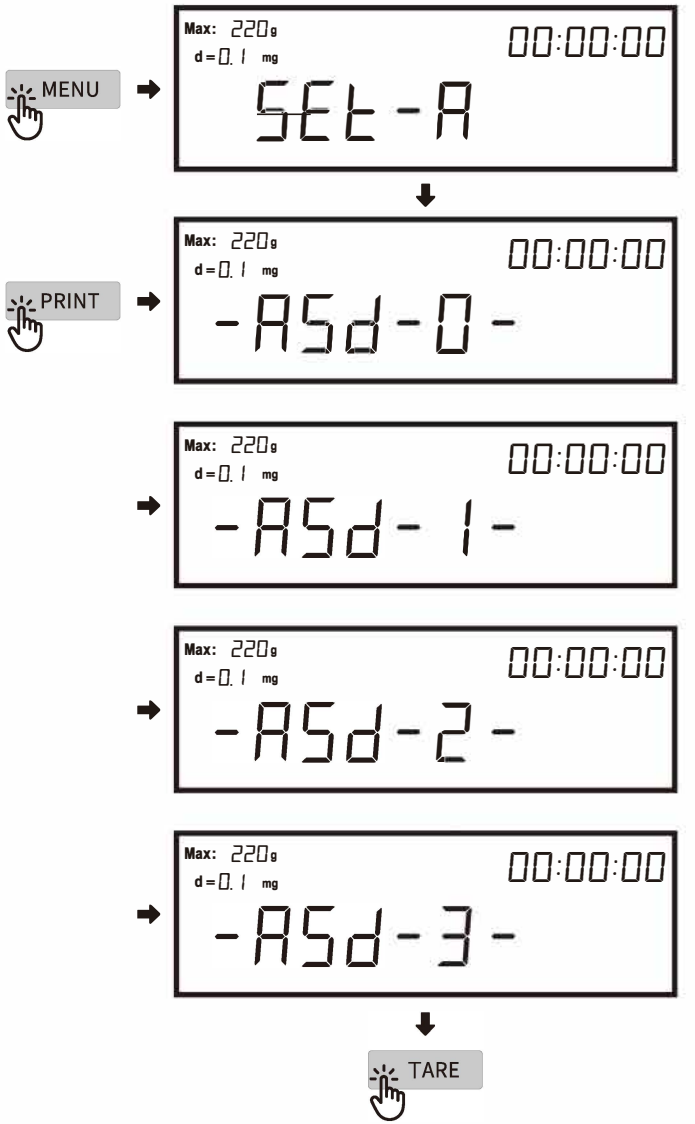
- Connection

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

- The default Baud Rate is 1200 bps (see Baudrate setting)
- The Data format is 10 bits, 0 as start bit, 1 as stop bit, 8 digits (ASCII code)
- No odd and even numbers adjusting
- Data output is in continuous mode by default. The mode can be changed into press button output, timing output and continuous output (see Data output setting)

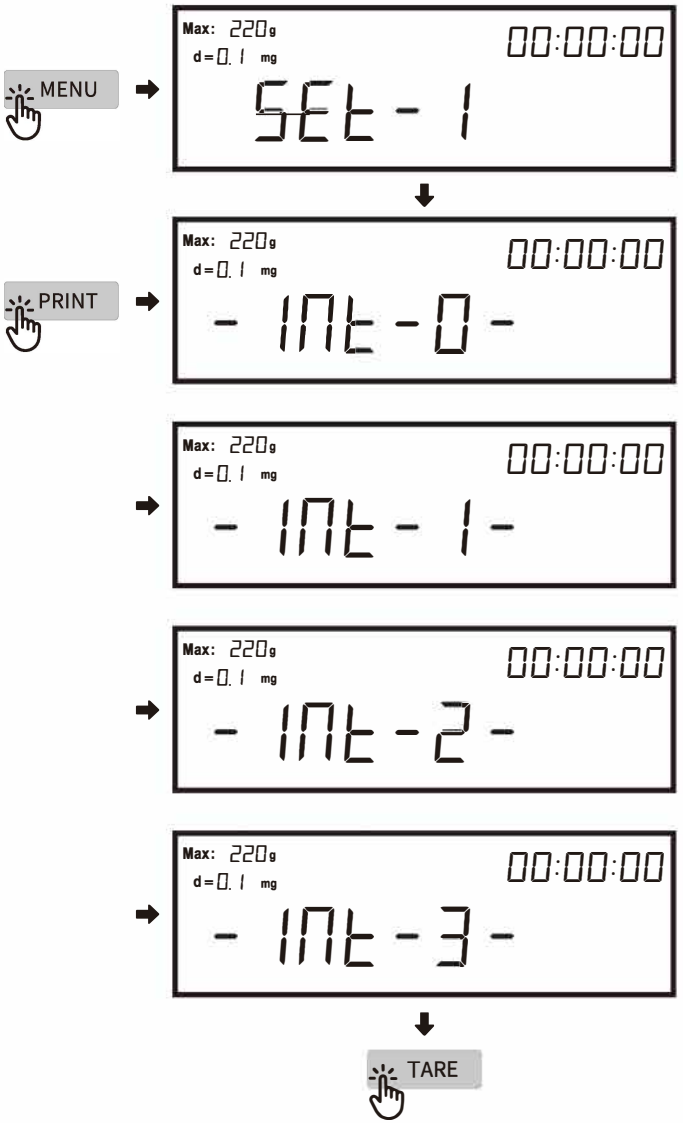
- Output data format

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



REMARK: The factory setting for sensitivity is "-ASD-3-", which is suitable for most using environments. Higher sensitivity requires a better environment. Do not adjust the sensitivity without consulting the factory.

Filter Level Setting



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

Print Setting