BALANZAS ANALITICAS NAHITA BLUE
NAHITA BLUE ANALYTICAL BALANCES
BALANCES ANALYTIQUES NAHITA BLUE

SERIES - SERIES - SÉRIES 5144, 5145, 5183

Este manual es parte inseparable del aparato por lo que debe estar disponible a todos los usuarios del equipo. Le recomendamos leer atentamente el presente manual y seguir rigurosamente los procedimientos de uso para obtener las máximas prestaciones y una mayor duración del mismo.

This manual should be available for all users of these equipments. To get the best results and a higher duration of this equipment it is advisable to read carefully this manual and follow the processes of use.

Ce manuel est une partie indissociable de l'appareil et doit être mis à la disposition de tous les utilisateurs de l'équipement. Nous vous recommandons de lire attentivement ce manuel et de suivre scrupuleusement les procédures d'utilisation afin d'obtenir des performances maximales et une plus longue durée de vie de l'appareil.

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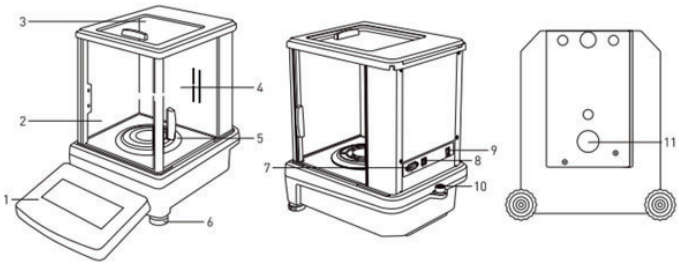
1. INTRODUCTION

5144, 5145, 5183 Series analytical balances work on electromagnetic force compensation technology and microprocessor, which allows high speed stabilization and high reliability. They can be widely used in industry, agriculture, commerce, schools, scientific research and other institutions.

Safety precautions

- Avoid direct sunlight
- Avoid vibrations
- Avoid strong drafts
- Avoid temperature fluctuations
- Verify that the AC/DC adapter input voltage matches the local AC power supply
- Sufficient spacing for balances: >15cm all around the instrument

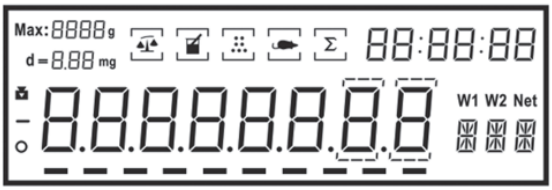
Diagram



1. Control panel
2. Front panel draft shield
3. Top door draft shield
4. Side door draft shield (right/left)
5. Weighing pan
6. Leveling feet
7. RS232 interface
8. USB-B port
9. Socket for power adapter
10. Bubble level
11. Below weighing

Control panel

Display information



No	Display	Description
1	Max: 8888 g d = 8.88 mg	Model display
2		Internal calibration sign
3	–	Negative weight value
4	○	Stable value
5		Weighing sign
6		Density determination
7		Piece counting
8		Dynamic weighing
9	Σ	Summation
10	-----	Progress bar
11	88:88:88	Time setting
12	W1 W2	W1: weight in air, W2: weight in liquid
13	8	Unauthenticated numbers
14		Unit

Technical data - 5145 Series analytical balance (0.01mg))

Reference (ext. calibration)	KBK002
Capacity	220 g
Readability	0.01 mg hasta 51 g / 0.1 mg > 51 g hasta 200 g
Stabilization time	2-3 s
Preheating time	30-60 min
Weighing unit	g / oz / ct / mg
Min. weight	1 mg / 0.5 mg
Repeatability	±0.03 mg / ±0.1 mg
Linearity	±0.03 mg / ±0.2 mg
Interface	RS232/USB
Pan size	Ø 90 mm
Net weight	6280 g
Power supply	AC 110-240 V; 9 VD 2 A

Technical data - 5144 Series analytical balances (0.1 mg)

Reference (ext. calibration)	KBF010	KBF011	KBF012
Reference (int. calibration)	KBF013	KBF014	KBF015
Capacity	120 g	320 g	520 g
Readability	0.1 mg		
Stabilization time	1.5 s	2.5 s	
Preheating time	30-60 min		
Weighing unit	g / oz / ct / mg		
Min. weight	0.1 mg		
Repeatability	±0.1mg	±0.2 mg	
Linearity	±0.2 mg	±0.3 mg	
Interface	RS232 / USB		
Pan size	Ø 90 mm		
Net weight	6280 g		
Power supply	AC 110-240 V; 9 VD 2 A		

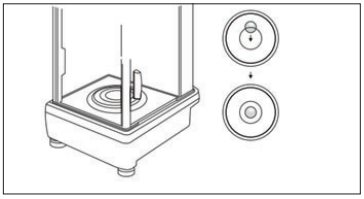
Technical data - 5183 Series analytical balances (1mg)

Reference (ext. calibration)	KBD015	KBD016	KBD017
Reference (int. calibration)	KBD018	KBD019	-
Capacity	500 g	1000 g	2000 g
Readability	1 mg		
Stabilization time	1-2 s		
Preheating time	30-60 min		
Weighing unit	g / oz / ct / mg		
Min. weight	1 mg		
Repeatability	±1 mg		
Linearity	±2 mg		
Interface	RS232 / USB		
Pan size	Ø 90 mm		
Net weight	6280 g		
Power supply	AC 110-240 V; 9 VD 2 A		

2. PREPARATION

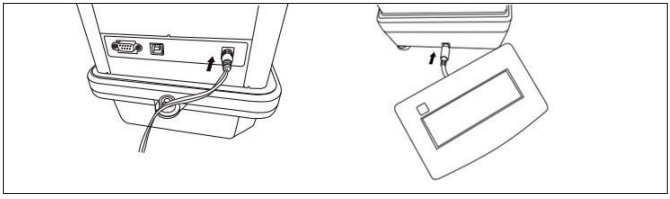
Leveling the balance

- Put the balance on the stable desk, the desk can not be moved.
- Adjust the two feet on the bottom, until the bubble is centered in the circle, then place the balance pan.



Connecting and switching on

- Plug in the AC/DC adapter and connect the control panel with the balance.



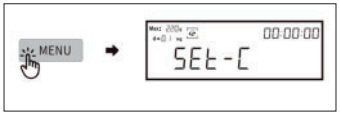
Conexión y encendido

■ Press the ON/OFF button. Balance enters 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. Recommended temperature between 15 and 25 ºC.
Attention: If the number on display is not stable in first boot, this occurred by operating temperature, you can press "TARE" botton repeatedly and lay aside for 30 minutes.

3. CALIBRATION

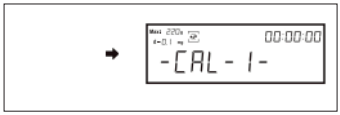
In order to get accurate weighing result, balance should be calibrated in below usage scenarios.
1. Before first use
2. Balance power off for long time
3. After changing the operating environment
4. Perform regularly in weighing procedure

Chose the calibration method (follow the sequence)

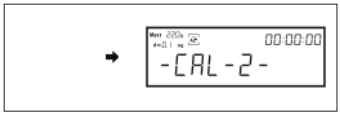


Enter the calibration mode

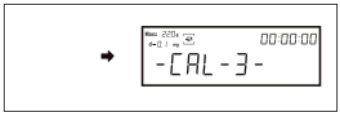
External calibration mode



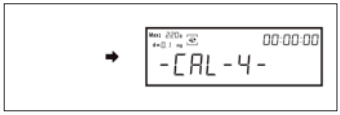
Internal calibration weight value setting mode (balance with internal calibration only)



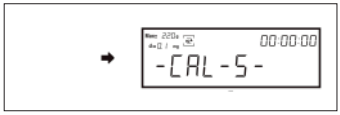
Internal calibration mode (balance with internal calibration only)



Auto-calibration every 30 minutes (balance with internal calibration only)



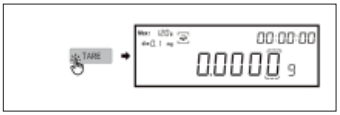
Auto-calibration every 1 hour (balance with internal calibration only)



Auto-calibration every 3 hours (balance with internal calibration only)

Save setting

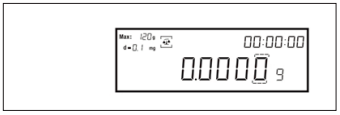
External calibration (single-point calibration)



Balance back to zero

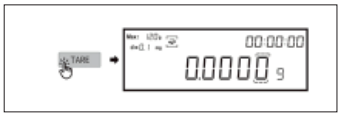
Enter external calibration mode; “CAL-100” flicker

Put the 100g weight (for example, in balance ref. KBF010)

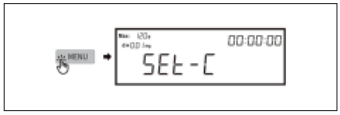


Put the 100g weight (for example, in balance ref. KBF010). Screen shows “CAL-100”. Remove the weight. Finish the calibration.

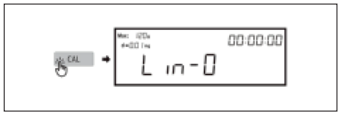
Linear calibration



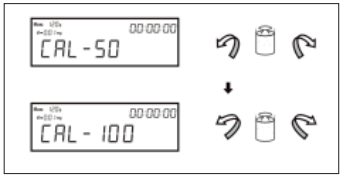
Balance back to zero



Press MENU button until screen shows “SET-C”



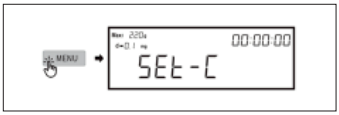
Enter linear calibration mode; screen shows “Lin-0”



Follow the prompts to put the corresponding weights

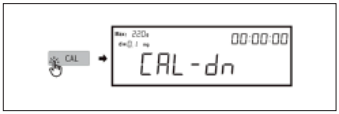
Finish the calibration

Internal calibration weight value setting (balance with internal calibration only)

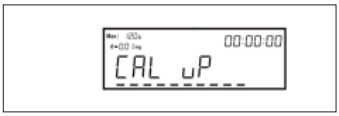


Enter calibration mode

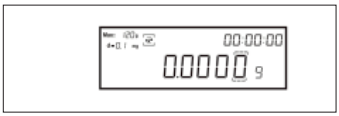
Chose the calibration method



Screen shows “CAL-dn”



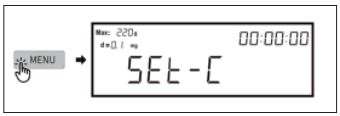
Put the corresponding weight. Screen shows “CAL-uP”. Remove the weight.



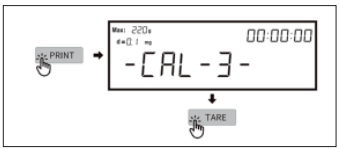
Finish the setting

Auto-calibration

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



Enter calibration mode

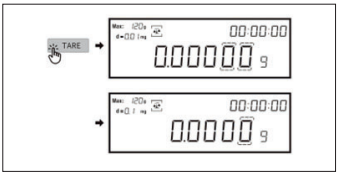


Automatic calibration with a fixed time of 30 minutes (balance with internal calibration only)

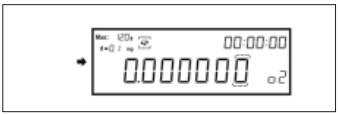
The TARE button saves the setting, and the balance automatically checks every 30 minutes thereafter.

4. SET UP AND OPERATION

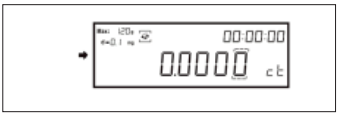
Unit conversion



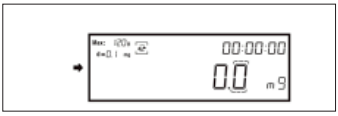
Unit “g”



Unit “oz”

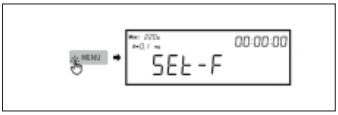


Unit “ct”

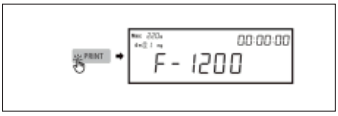


Unit “mg”

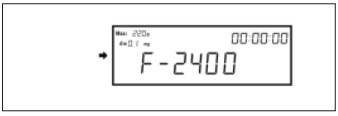
Baud rate setting



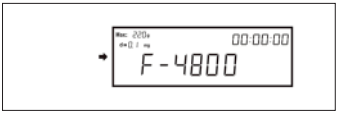
Enter Baud rate setting mode



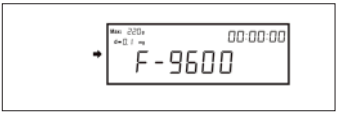
Baud rate is 1200



Baud rate is 2400

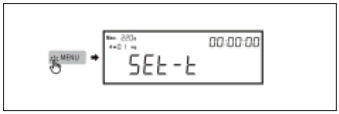


Baud rate is 4800



Baud rate is 9600. Save setting

Time setting

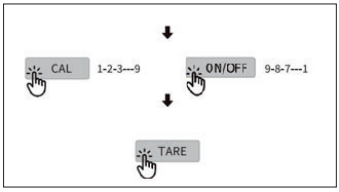


1. Enter time setting mode

2. Set seconds

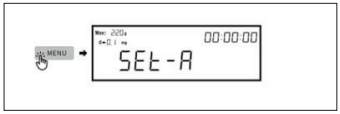
3 Set minutes

4. Set hours



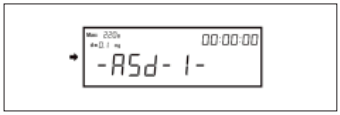
5. CAL increase. ON/OFF decrease. Press the TARE button to save the settings.

Sensitivity setting

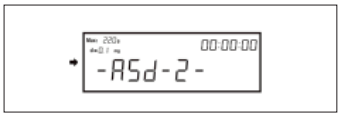


1. Enter sensitivity setting mode

2. -ASD-0- highest sensitivity

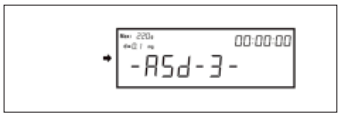


3. -ASD-1- high sensitivity



4. -ASD-2- medium sensitivity

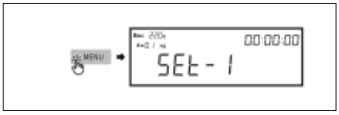
Sensitivity setting



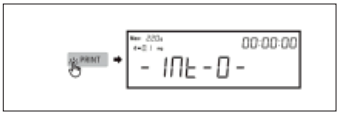
5. -ASD-3- low sensitivity
Save setting

NOTE: Factory setting sensitivity "-ASD-3-" is suitable for most environments. Higher sensitivity requires better environment. Don't adjust the sensitivity without consulting the manufacturer.

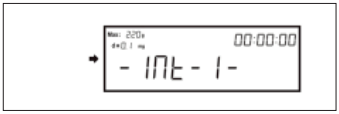
Filter level setting



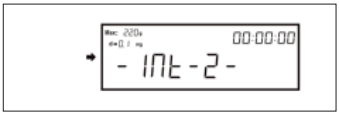
1. Enter filter level setting mode



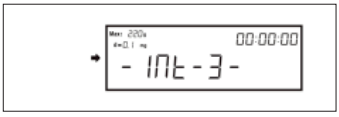
2. -Int-0- filter level highest



3. -Int-1- filter level high



4.-Int-2- filter level medium

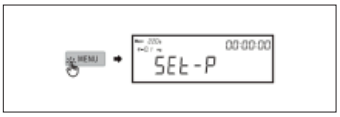


5. -Int-3- filter level low

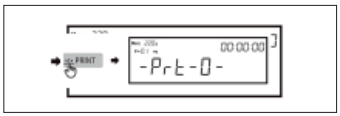
Save setting

NOTE: Filter level is the internal calculating time of balance. Factory setting is "-Int-3-". Don't change by yourself without professional instruction.

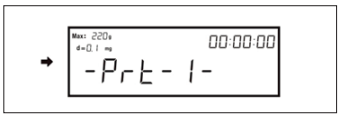
Print setting



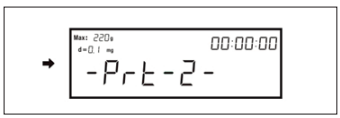
1. Enter print setting mode



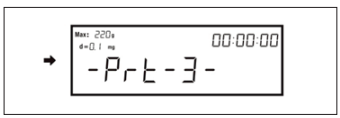
2. -Prt-0- press “PRINT” printing



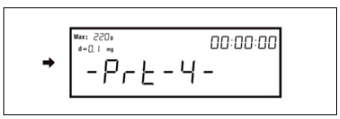
3. -Prt-1- interval 0.5 s printing



4. -Prt-2- interval 1 s printing



5. -Prt-3- interval 2 s printing



6. -Prt-4- interval 3 s printing

Save setting

INTERFACE PARAMETERS

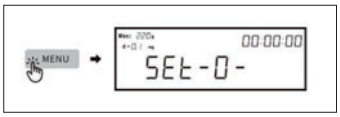
- RS232 interface
- Connection

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

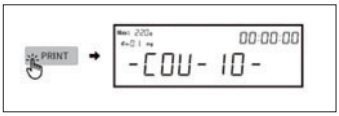
- The baud rate by default is 9600 bps (see baud rate setting)
- Data format: 10 bits, 0 as start bit, 1 as stop bit, 8 digits (ASCII code) – No odd and even numbers adjusting
- Data output: By default is continuous mode. The data output mode can be changed into press output, timing output and continuous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

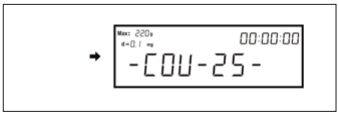
Piece counting



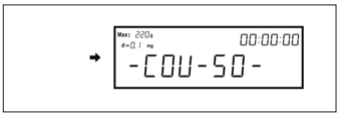
1. Enter piece counting mode



2. -COU-10- sample quantity 10 pcs

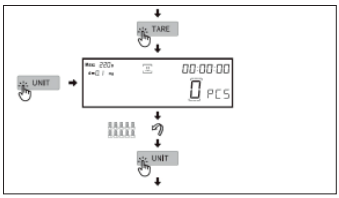


3. -COU-25- sample quantity 25 pcs

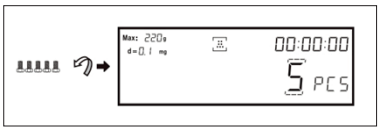


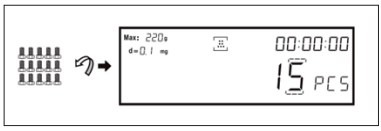
4. -COU-50- sample quantity 50 pcs

5. Enter piece counting mode

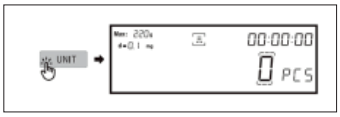


Put 10 pcs on the balance pan according to above setting. Press “UNIT” to confirm the sample weight and start weighing

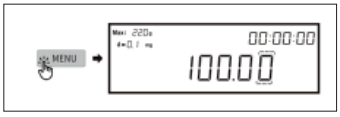




Percent weighing



1. Enter percent weighing mode. Put the contrast target sample on the balance pan, for example, 2 pcs of screw.

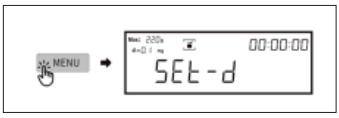


2. Save the sample weight. “100.00” (100%) is shown.

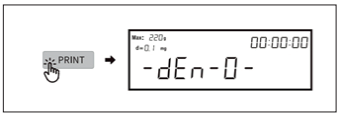
3. If you put 1 screw on the balance pan, “50.00” (50%) is shown.

4. If you put 4 screws on the balance pan, “200.00” (200%) is shown.

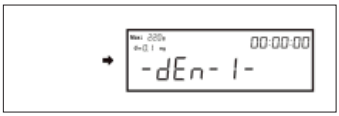
Density determination (gravity kit needed – optional)



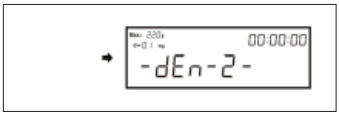
1. Enter density determination mode



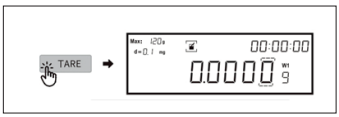
2. -dEn-0- close density weighing



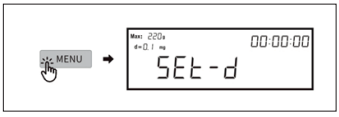
3. -dEN-1- open solid density weighing



4. -dEN-2- open liquid density weighing

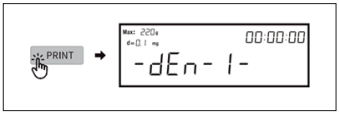


5. Save settings. Display shows ▣ and “W1”

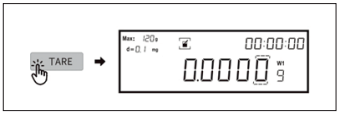


6. Enter density determination mode

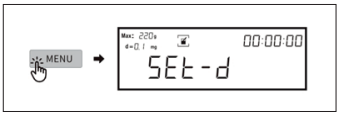
Density determination (gravity kit needed – optional)



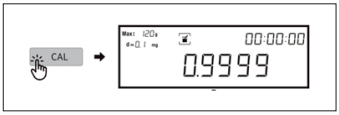
7.-dEN-1- open solid density weighing



8. Save setting. Display shows ☑ and “W1”

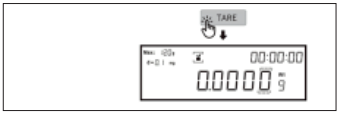


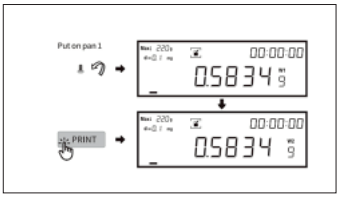
9. Press “MENU”. Display shows ☑

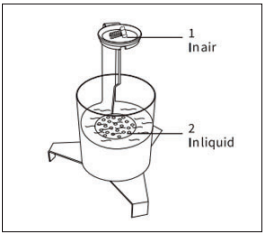


10. Enter auxiliary liquid density value. If the auxiliary liquid is water, enter 1 g/cm³.

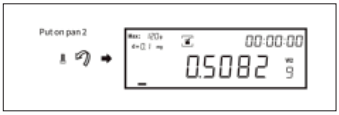
11. Press “PRINT” to increase the value and “CAL” to decrease the value. Save density value setting.



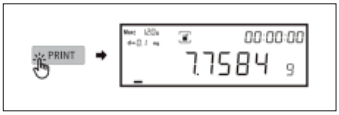




Put object on pan 1, for example, screw



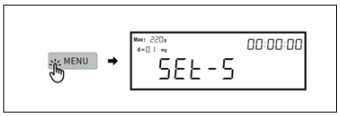
13. Put object on pan 2



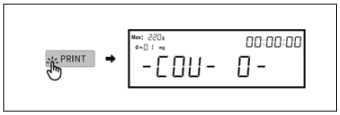
14. Get the result of density

15. If no more measurements, enter density determination mode again. -dEn-0- close density weighing. Exit density determination.

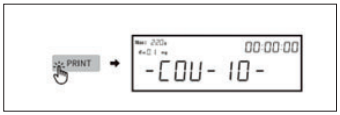
Dynamic weighing



1. Enter dynamic weighing mode

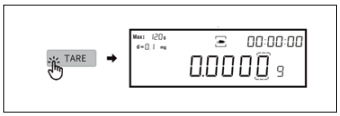


2. -COU-0- close dynamic weighing

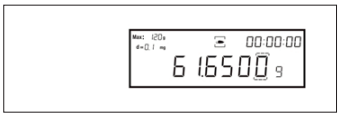


3. -COU-10- data sampling 10 seconds (approx.)

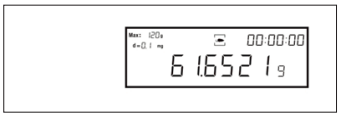
4. -COU-20- data sampling 20 seconds (approx.)



5. Save setting. Display shows . Place the sample on the balance pan (if the weight is not displayed, press the UNIT key) and the weight of the object will be displayed.

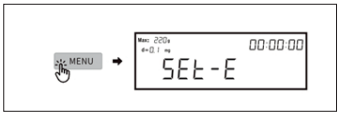


6. Put the sample on the balance pan, the icon starts flashing, dynamic weighing begins

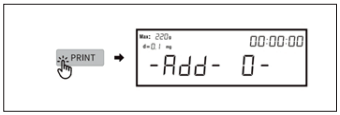


7. stops flashing, the dynamic weighing is finished, the display shows the final result. When the weighing is finished, you can remove the object from the pan and press the UNIT key again to start the weighing again.

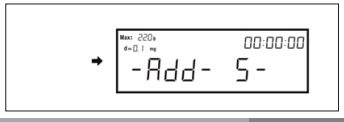
Summation function



1. Enter summation function mode

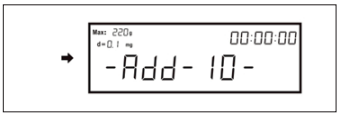


2.-Add-0- close summation function

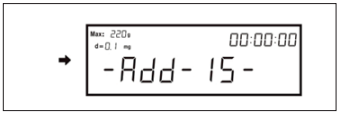


3.-Add-5- accumulate 5 times weighing value

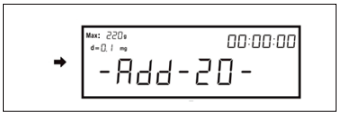
Summation function



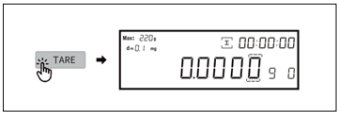
4. -Add-10- accumulate 10 times weighing value



3. -Add-15- accumulate 15 times weighing value

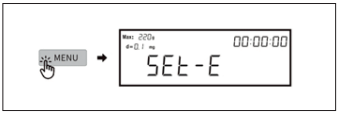


4. -Add-20- accumulate 20 times weighing value



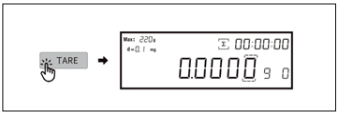
5. Save setting. Display shows Σ

Summation function

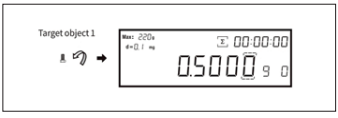


1. Enter summation function mode

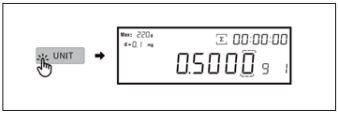
2. -Add-5- accumulate 5 times weighing value (e.g.)



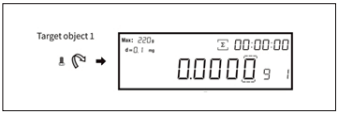
3. Save setting and enter weighing mode



4. Put on target object 1 (e.g. screw)

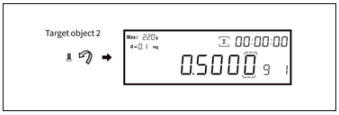


5. Record value of target object 1. Bottom right corner shows “1” time.

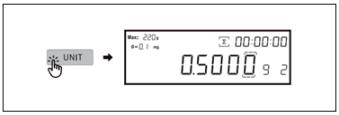


6. Remove target object 1. Balance back to zero.

Summation function

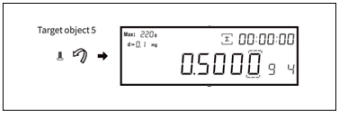


7. Put on target object 2



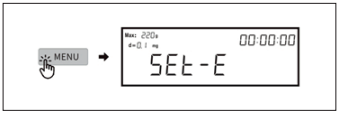
8. Record value of target object 2. Bottom right corner shows “2” times.

9. Remove target object 2. Balance back to zero.

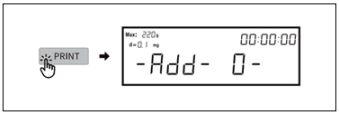


10. Repeat the procedure for target objects 3 and 4 Put on target object 5

11. Auto display 5 times accumulated weighing value.



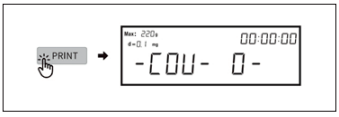
12. If no more measurements, enter summation function mode again



13. -Add-0- close summation function. Exit summation function.

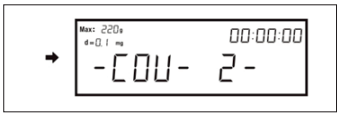
Pipette calibration

1. Enter pipette calibration mode

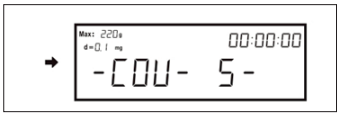


2. -COU-0- close pipette calibration

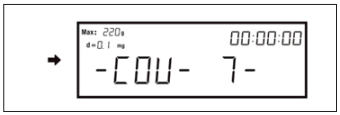
Pipette calibration



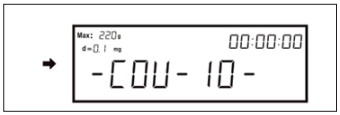
3.-COU-2- get 2 times weighing value as reference



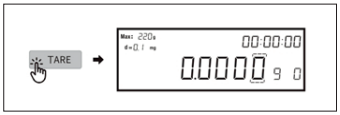
4. -COU-5- get 5 times weighing value as reference



5. -COU-7- get 7 times weighing value as reference

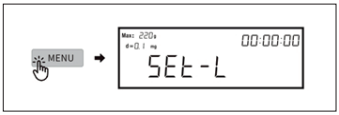


6. -COU-10- get 10 times weighing value as reference



7. Save setting and enter pipette calibration interface

Pipette calibration



1. Enter pipette calibration mode

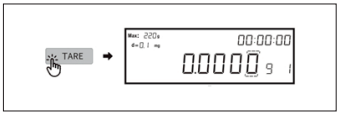
2. -COU-5- get 5 times weighing value as reference

3. Save setting and enter pipette calibration interface

4. Take with the pipette 100µl, drop into the container, first time

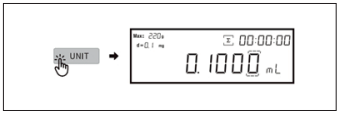
5. Record the first value

Pipette calibration

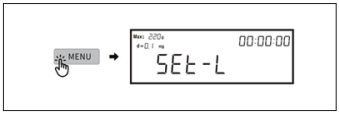


6. Remove the first value. Balance back to zero.

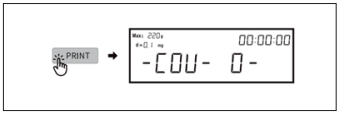
7. Repeat the above procedure 3 times
Take with the pipette 100μl, drop into the container, fifth time



8. Get liquid volume directly. Calibration completed.

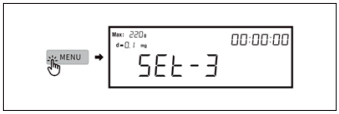


9. If no more calibrations, enter pipette calibration mode again



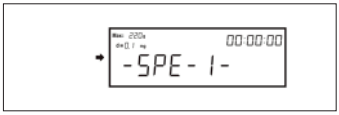
10. -COU-0- close pipette calibration. Exit pipette calibration mode

Sensor locking and unlocking



1. Enter dual program switching

2. Balance default program



3. The standby program

5. TROUBLESHOOTING

Problem	Cause	Solution
No display	- No power supply - Fuse damaged - Power transformer is damaged	- Plug in AC/DC adapter - Change the fuse - Change the power transformer - If problem persists, send the balance to the Technical Service
Unstable display	- Bad working conditions - Air flow - Something between the balance pan and the surface underneath the pan - The power exceeds its permissible value and is unstable - Static electricity	- Improve the working conditions - Close the windshield - Remove the pan and clean well the balance surface - Connect the balance to power supply 110-220VAC - Eliminate the static electricity
Mala precisión	- Improper calibration - The weight of the recipient has not been tared - Large temperature variations - The balance is not in horizontal position	- Make proper calibration - Make tare - Put the balance in a suitable environment - Adjust balance level