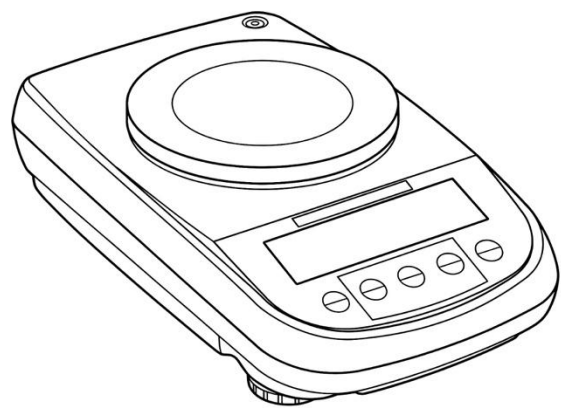
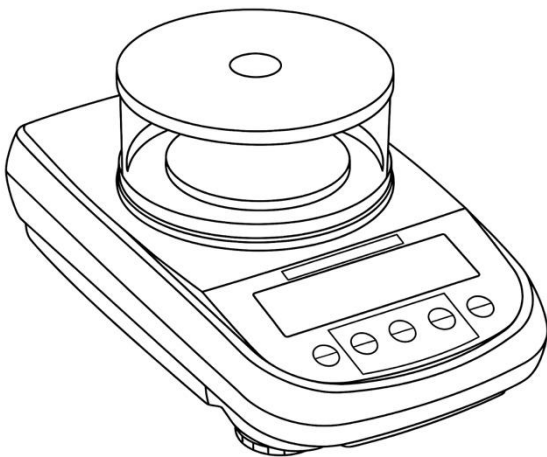
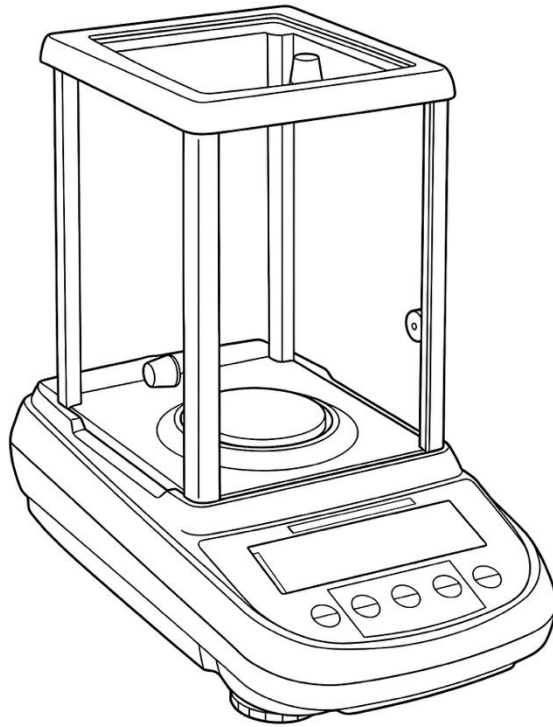


GRAMM

SERIES

TGI



USER MANUAL

ENG

INDEX

1	INSTALLATION INSTRUCTIONS	3
2	STORAGE CONDITIONS	4
3	WEIGHING PLATE ASSEMBLY	5
4	KEYBOARD AND DISPLAY	6
5	OVERVIEW	7
5.1	BALANCE BACK AND UNDERNEATH.....	7
5.2	IONISER (ONLY FOR MODELS -ION).....	8
6	WEIGHING	10
6.1	STAND BY	10
6.2	SIMPLE WEIGHING	10
7	CALIBRATION	11
7.1	BALANCES WITH EXTERNAL CALIBRATION.....	11
7.1.1	<i>External calibration</i>	11
7.2	BALANCES WITH INTERNAL CALIBRATION.....	13
7.2.1	<i>Internal calibration</i>	13
7.3	VERIFICATION	14
8	TARE FUNCTION	15
8.1	MANUAL TARE FUNCTION	16
8.2	OPTIONAL EXTERNAL ALPHANUMERIC KEYBOARD (CODE T201).....	16
9	BALANCE PARAMETERS SETUP MENU	18
9.1	WEIGHING UNITS	19
9.2	SERIAL OUTPUT SETUP.....	22
9.3	TRANSMISSION SPEED SELECTION	23
9.4	AUTOZERO FUNCTION	24
9.5	FILTER SELECTION.....	25
9.6	STABILITY FUNCTION	26
9.7	CONTRAST ADJUSTMENT	27
9.8	BACKLIGHT REGULATION	28
9.9	AUTO-OFF FUNCTION.....	29
9.10	DATE AND TIME REGULATION	30
9.11	LANGUAGE SELECTION.....	31
9.12	CALIBRATION MODE SETTING.....	32
9.12.1	<i>Automatic Calibration (AUT-CAL)</i>	32
9.12.2	<i>Internal calibration (I-CAL) [locked for verified balances]</i>	33
9.12.3	<i>External calibration (E-CAL) [locked for verified balances]</i>	33
9.12.4	<i>Technical calibration (TEC-CAL) [locked for verified balances]</i>	34
9.13	CALIBRATION DATA	35
10	BALANCE PROGRAMS MENU	36
10.1	PIECE COUNTING FUNCTION.....	37
10.1.1	<i>Manual insertion of the average unit weight</i>	38
10.1.2	<i>Automatic updating of the average unit weight</i>	40
10.2	PROGRAM FOR THE DETERMINATION OF THE DENSITY OF A SOLID OR A LIQUID.....	41
10.2.1	<i>Solid density determination</i>	41
10.2.2	<i>Liquid density determination</i>	43

10.3	FORMULATION FUNCTION.....	45
10.3.1	<i>Manual formulation.....</i>	45
10.3.2	<i>Formula saving</i>	46
10.3.3	<i>Formula recall.....</i>	48
10.4	MAX-MIN THRESHOLDS FUNCTION	50
10.4.1	<i>With both the limits set.....</i>	51
10.4.2	<i>With only the lower limit set.....</i>	51
10.4.3	<i>With only the upper limit set</i>	51
10.5	PERCENTAGE WEIGHING FUNCTION	52
10.5.1	<i>Automatic mode with reference weight</i>	52
10.5.2	<i>Manual insertion of the reference weight.</i>	53
10.6	ANIMAL WEIGHING FUNCTION	54
10.7	MAXIMUM LOAD FUNCTION	55
10.8	GLP FUNCTION (GOOD LABORATORY PRACTICES).....	56
11	RS232 INTERFACE FEATURES.....	58
11.1	GENERAL FEATURES.....	58
11.2	CONNECTOR MAP	58
11.3	CONNECTION OF THE BALANCE TO THE OPTIONAL ALPHANUMERIC KEYBOARD	58
11.4	CONNECTION OF THE BALANCE TO COMPUTER.....	59
11.4.1	<i>Continuous Transmission mode</i>	60
11.4.2	<i>On demand transmission mode</i>	60
11.4.3	<i>On demand transmission with G.L.P</i>	62
11.5	CONNECTION OF BALANCE WITH SERIAL PRINTER	63
11.5.1	<i>PRINT FORMATS.....</i>	63
11.5.2	<i>Generic Printer or TLP 50 printer with G.L.P</i>	65
12	ERROR CODES.....	66
13	MAINTENANCE AND CARE	67
14	QUICK GUIDE TO BALANCE PARAMETERS SETUP	68
15	BALANCE TECHNICAL CHARACTERISTICS Serie TGI	70
16	WARRANTY	71
17	EQUIPMENT DISPOSAL	71

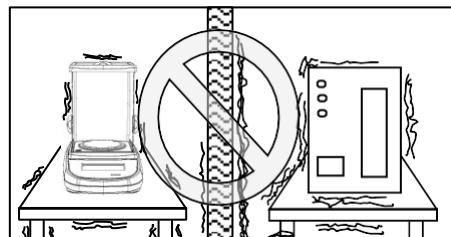
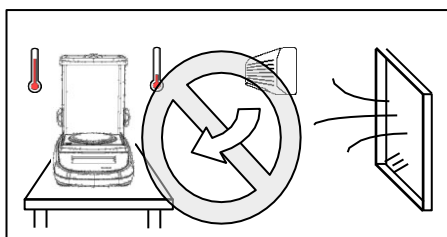
1 Installation instructions



WARNING:

Please carefully read these installations and use instructions before you begin working with your new balance. The product's safety and accuracy can no longer be guaranteed if the instrument is used in a way that is different from that recommended in this manual.

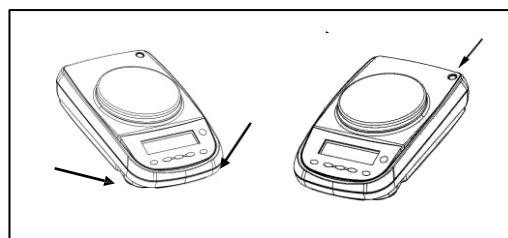
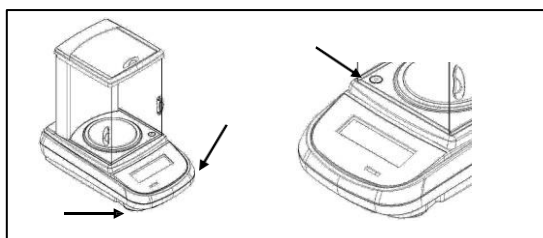
- **Remove** the balance and its calibration weight (if supplied) from the packaging and check for any visible damage to the instrument.
- **Do not install** the balance in environments in which there are drafts, strong temperature changes, or vibrations.
- **Do not use** the balance in potentially explosive environments.
- **The humidity of the environment** where the balance is used must be between 45% and 75%.



ATTENTION

In models with internal calibration remove the screw in the left lower part of the balance (see par. 5)

- **Place** the underplate and the plate on the balance (see par. 6).
- **Level** the balance by adjusting the feet at its front.



- **Connect** the power supply to connector 2 at the back of the balance (see par. 7).
- **Connect** the power supply to a nearby outlet, **which must be easily accessible**; after a few seconds the balance will turn on automatically.

- **Balance Warm-up:**

- Wait for 8 hours upon switching on for analytical balances (0,0001g)
- Wait for 30 minutes for other models

Then, calibrate the balance using the appropriate mass (if supplied), following instructions (par.7).

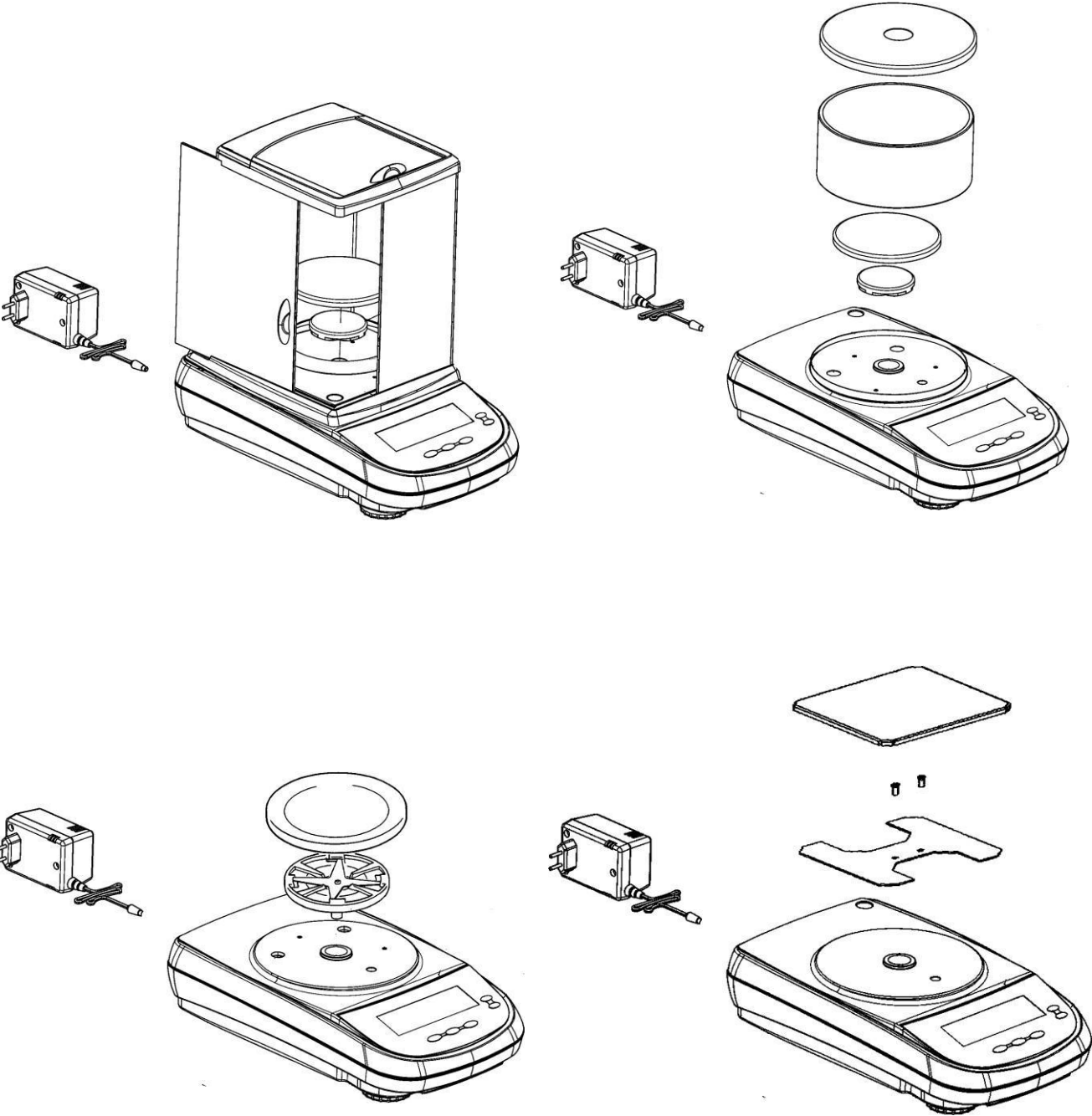
It is strongly suggested not to disconnect the balance from the electrical mains and only to use the ON/OFF button to change the balance to the stand-by mode if not in use.

- **Calibrate** the balance every time after it has been moved to another location.
- **Periodically check** the balance's calibration.
- **Do not** drop objects of an excessive weight on the balance's plate to avoid damaging it.
- **The assistance service** must be executed by specialized personnel and the spare parts used must be original.
Please contact the retailer where the purchase was made.

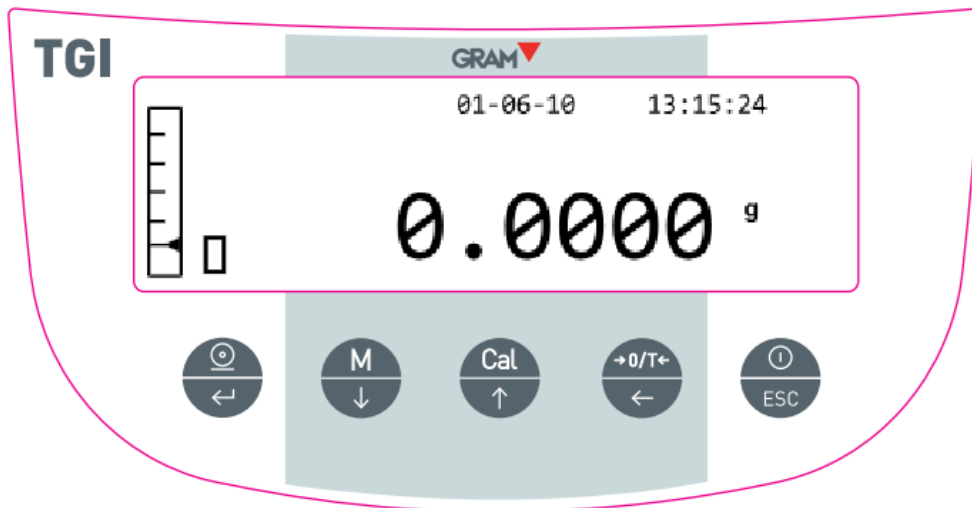
2 Storage conditions

- **Storage temperature** +5 °C...+40°C
- **Storage humidity** 45% - 75%.
- **Keep the balance's packaging** in case it needs to be sent for servicing; disconnect all cables and any accessories to prevent unnecessary damage.
- **Do not expose** the balance to extreme temperatures and humidity unnecessarily and avoid violent shocks.

3 Weighing plate assembly



4 Keyboard and display



Standby (OFF) or operating (ON) button or ESC

***** Stability indicator



TARE and zeroing button


O Zero indicator

% Percent weight



Selection CONFIRM or SEND data to the printer button

PC Piece counting

 Battery indicator Data insertion mode



Button for accessing the MENU to set the balance's parameters

H Upper threshold

L Lower threshold



Balance CALIBRATION button

DS Density measurement

ct, Unit of measurement

5 Overview

5.1 Balance back and underneath

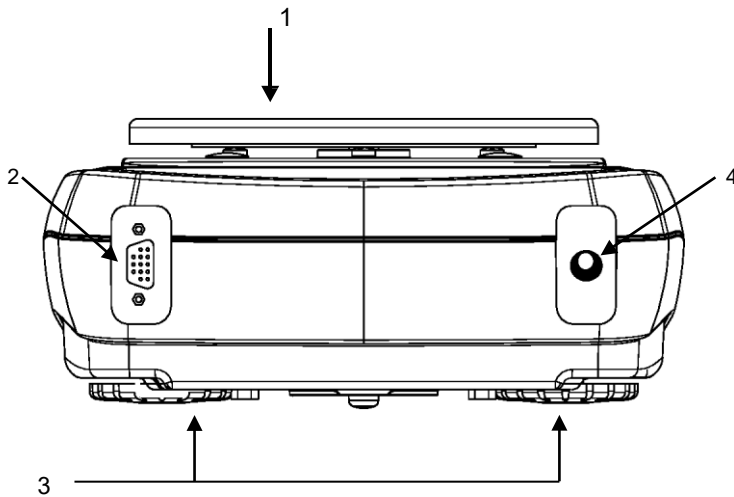


Figure 1

1 Weighing plate

2 CONNECTOR

9 pin RS232 Output Interface for PC/keyboard and printer

3 Adjustable feet

4 CONNECTOR

Power supply connector

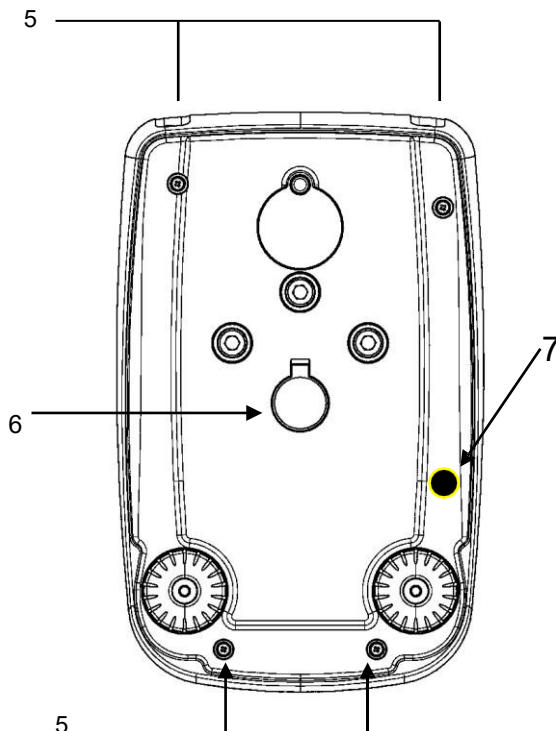


Figure 2

5 Balance closure screws

6 Weighing hook under the balance level

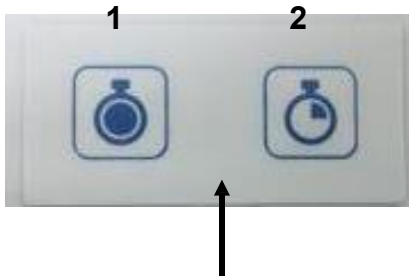
Note: to access, remove the cap

7. Protection screw for autocalibration motor (only for models with internal calibration). **ATTENTION:** remove this screw by hand as soon as the balance is removed from its package

5.2 Ioniser (only for models -ION)

Using the ionizer:

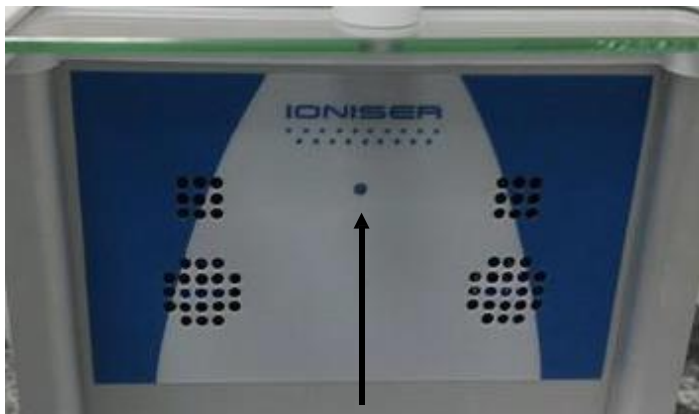
Keys descriptions.



1 Ionizer activation button for continuous mode. (Auto power off after 8 hours of operation)

2 Ionizer activation button for timed mode. (Operation for 2 minutes)

N.B. to switch from one function to another or to switch off the device, press either of the two keys.



LED green: ionizer on.

Solid red LED: ionizer activated in continuous mode.

Flashing red LED: ionizer activated in timed mode.

The ionizer is mounted in place of the rear glass in the models with resolution 0.0001 version -ION as in the photo.



Technical data - Ionizer

Distance "sample ion source"	c. 5 - 40 cm
Ozone concentration	0 ~ 0.05 ppm (2cm from ion source)
Ambient conditions	0 – 50°C, 20 ~ 80% air humidity (non-condensing)
AC adapter (primary)	AC 100-240V, 50/60Hz
Rated electric power supply	DC 12V, 500mA
Pollution degree	2
Overvoltage category	Category II
Altitude	Up to 2000m
Installation site	Device may only be used indoors

6 Weighing



For verified balances models during switch on, “WARM UP” message will appear on display, and a 30-minute countdown will initiate.

After connecting the balance to the power outlet, a self-diagnosis of the electronic circuits is automatically executed, ending with the standby indication.



6.1 Stand By

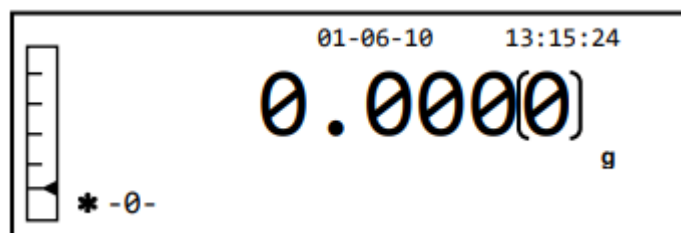
From the “STAND BY” mode:

- Press the **ON/OFF** button to use the balance in working conditions.
- Press the **ON/OFF** button again to return to the “STAND BY” mode.



6.2 Simple weighing

Place the sample to be weighed on the plate and read the value of the weight on the display as soon as the asterisk stability symbol ✱ appears.



The digit that represents the verification division “e” is rounded with a frame

7 Calibration

The electronic balance carries out mass measurements using gravity (g). Differences in geographical regions and altitudes vary the gravitational acceleration (g). The balance must therefore be adapted to environmental conditions to obtain accurate measurements. This regulation is performed through the calibration function.

7.1 Balances with external calibration

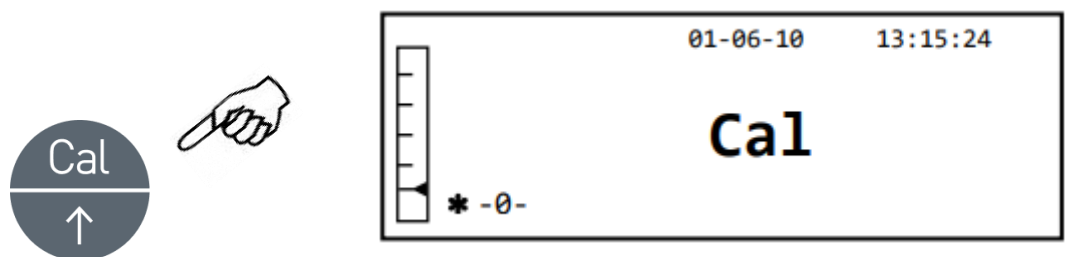
7.1.1 External calibration



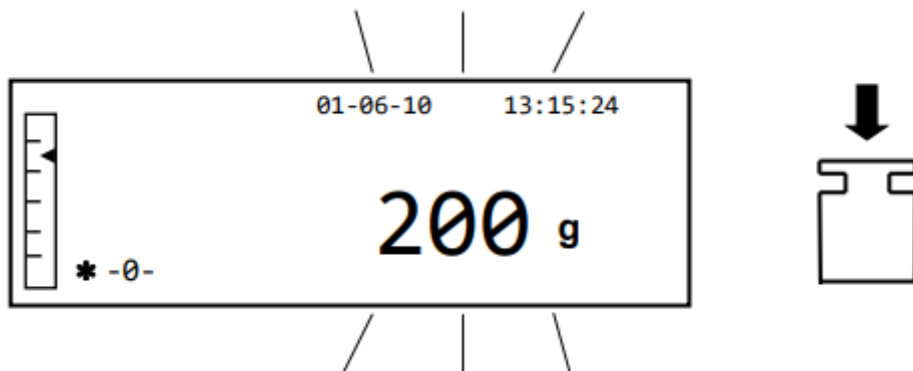
For verified balances models the external calibration function is locked

The calibration is performed through the CAL button.

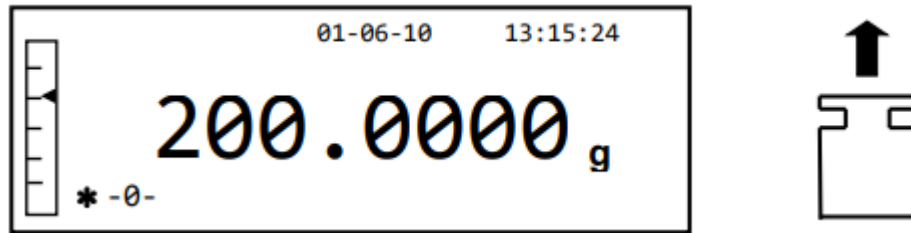
1. Press the **CAL** button with the plate unloaded; the word CAL will be displayed.



2. When the value of the calibration weight begins to flash, load the weight indicated by the display on the plate.



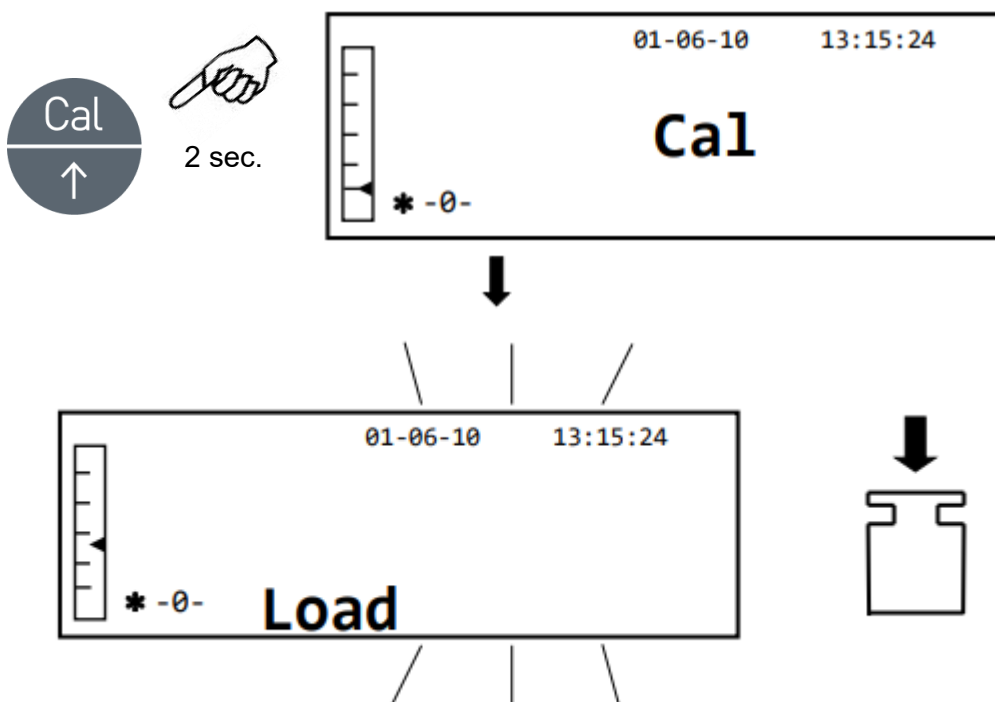
3. The display will stop flashing, indicating the value of the calibration weight with the stability indicator on.
Once the calibration has been completed, the calibrated weight will be displayed with the indication of the current unit of measurement.
4. Remove the calibration weight.
The balance is ready for weighing operations



NOTE: an error message will be displayed if there is any interference during the calibration process. To interrupt the calibration process, press the ON/OFF button while the calibration weight indication flashes.

It is also possible to calibrate the balance with a calibration weight greater than the pre-set calibration weight:

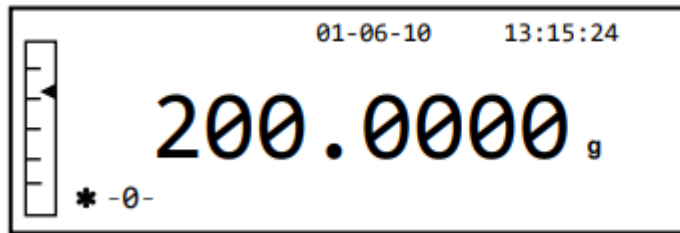
1. Press and hold the **CAL** button with the empty plate until the beeping stops, and then release the button. The word “-CAL-“ will be shown on the display, followed by the word “LOAD”, flashing.



2. Load a weight that is equal to or greater than the pre-set calibration weight on the plate; the balance will recognize a weight that is equal to or greater than the calibration weight as valid provided that it is a whole weight with respect to the most significant figure of the calibration weight.

E.G.: if the calibration weight is 200 g, it will be possible to calibrate the balance with values that go from 200g, 300g, 400g up to the upper capacity limit of the balance. The word “LOAD” on the display will stop flashing; once the calibration has been completed, the value of the weight used will be displayed.

3. Remove the calibration weight; the balance is ready for the weighing operation



NOTE: an error message will be displayed if there is any interference during the calibration process. To interrupt the calibration process, press the ON/OFF button while the calibration weight indication flashes.

7.2 Balances with internal calibration

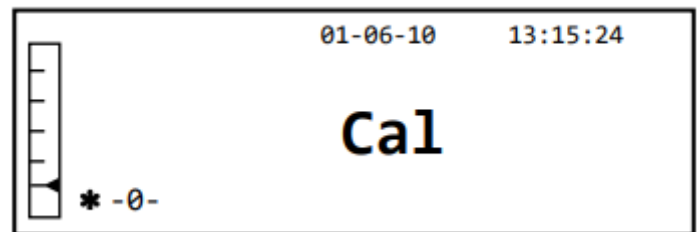
7.2.1 Internal calibration



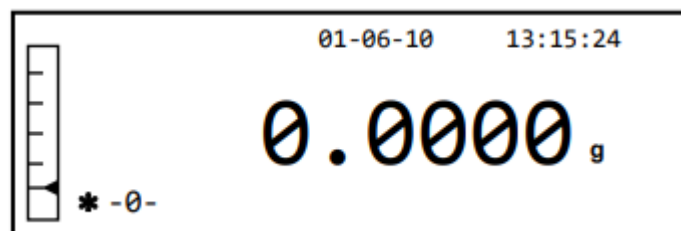
This is factory setting for verified balances models

In these models the calibration is completed through an internal automatic system:

1. Press the **CAL** button with the plate unloaded.
The display will show the message “**CAL**” and the balance’s calibration will be performed automatically.



2. Upon completing the calibration process, the balance will return to normal weighing conditions.



If the calibration is not completed due to vibrations or drafts, the message “**CAL bUT**” will be displayed. Press the CAL button again, and if the problem persists, select external calibration and contact the supplier.

To modify the calibration mode in these models with internal calibration, see section 9.12.1

7.3 Verification

General introduction:

According to EU directive 90/384/EEC balances must be verified if they are used for legally controlled areas as follows:

- a) For commercial transactions if the price of goods is determined by weighing.
- b) For the production of medicines in pharmacies as well as for analyses in the medical and pharmaceutical laboratory.
- c) For official purposes.
- d) For manufacturing final packages.

In case of doubt, please contact your local trade standards.

Verification instructions

An EU type approval exists for balances classified as verifiable in their technical data. If a balance is used where obligation to verify exists as described above, it must be verified and re-verified at regular intervals.

Re-verification of a balance is performed according to the respective national regulations. The legal regulation of the country where the balance is used must be observed.

After verification the balance is sealed at the indicated positions.

Verification of the balance is invalid without the seal.

Balances with obligation to verify must be removed from operation if:

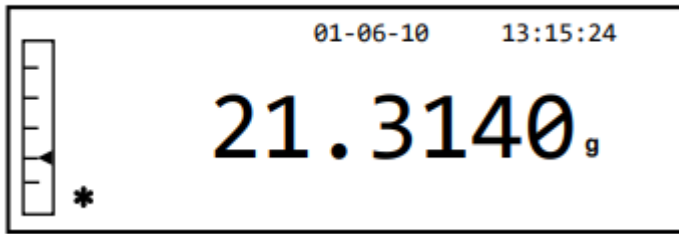
- **The weighing result of the balance is outside the error limit.** Therefore, check the balance at regular intervals by loading the instrument with known test weight (ca. 1/3 of the max. load) and compare with displayed value.



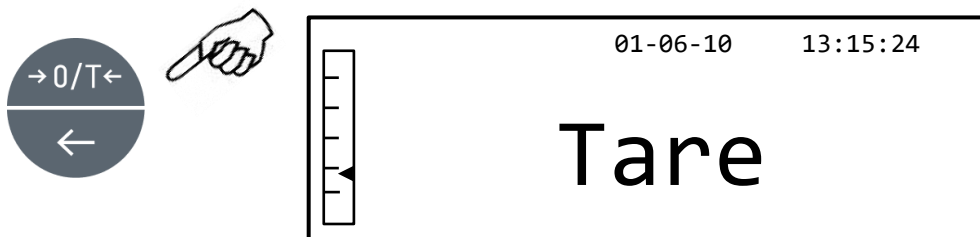
- **The reverification deadline has been exceeded.**

8 Tare function

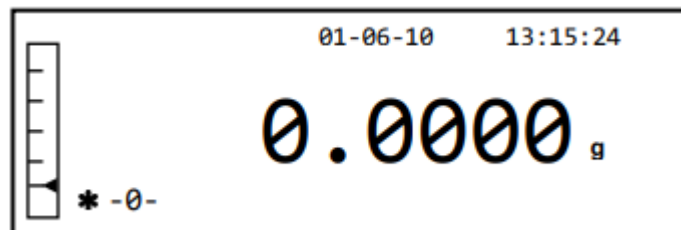
1. The relative weight will be shown on the display.



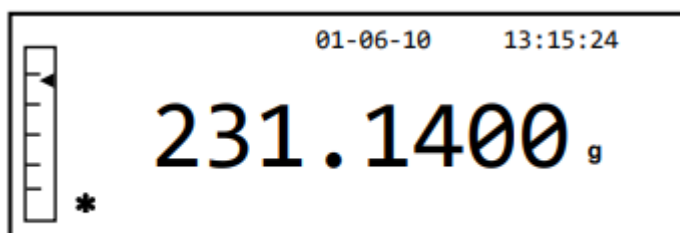
2. Press the **O/T** button. The word “Tare” will be displayed.



3. Once stability has been achieved, the zero value “**0.000**” will be displayed. In case stability is not achieved due to drafts, vibrations, or other types of disturbance, the dashes will continue to be displayed.



4. Put the objects to be weighed in the container. Read the value of the net weight on the display.



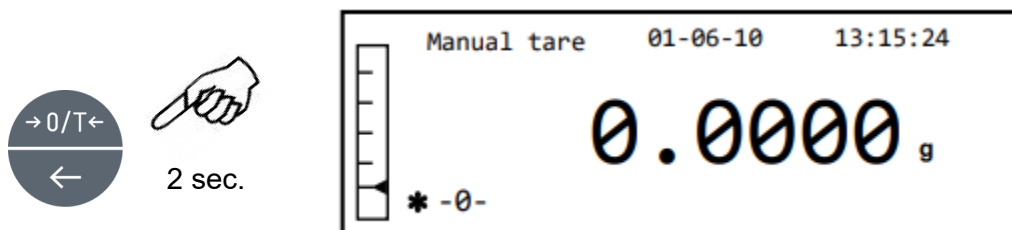
8.1 Manual tare function



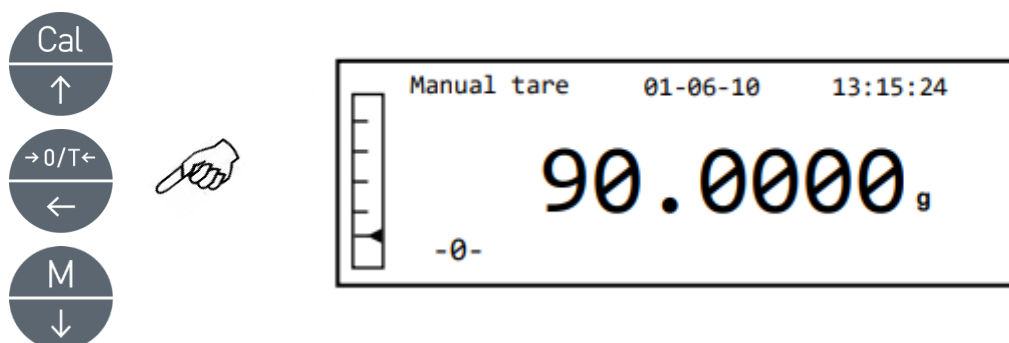
Function not available in verified balances

This function allows a tare value to be entered manually.

1. Press and hold the **O/T** button with the plate unloaded until the beeping stops, and then release the button.
2. The following word will be shown on the display:



3. Now insert the desired tare value using the **CAL** and **MENU** buttons to increase and decrease the number, while pressing the **O/T** button to pass to the next number. During the entering phase, holding down the **O/T** button allows you to delete the inserted value.



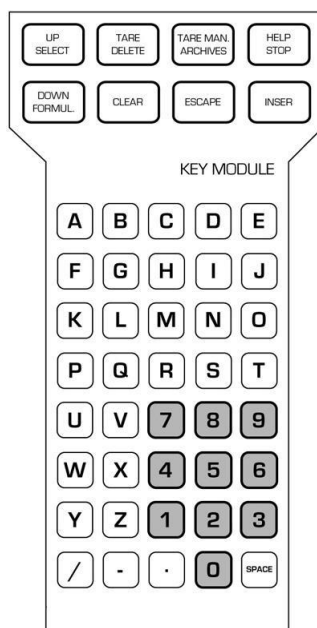
4. After having entered the desired value, press the **PRINT** button to confirm it. The value will remain in memory until the **TARE** button is pressed, or the instrument is disconnected from the power supply.

8.2 Optional external alphanumeric keyboard



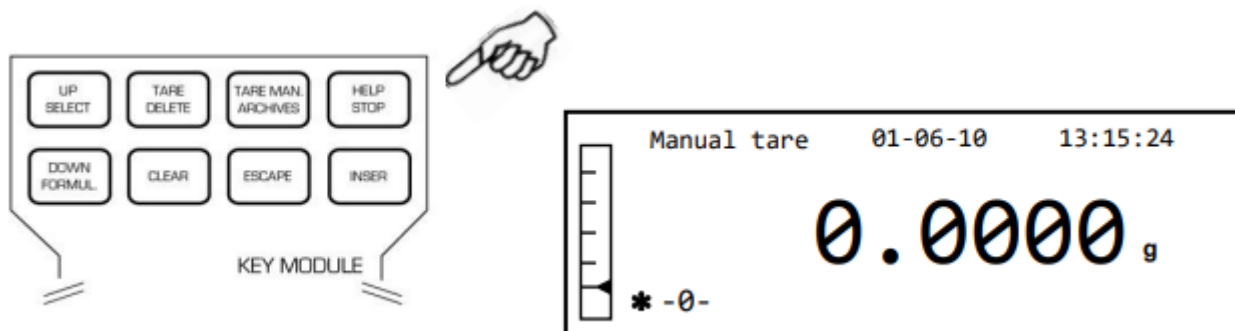
Function locked in verified balances

If you have an optional alphanumeric keyboard, the tare can also be performed by pressing the **TARE/DELETE** button of the keyboard itself, in the same way as described above.

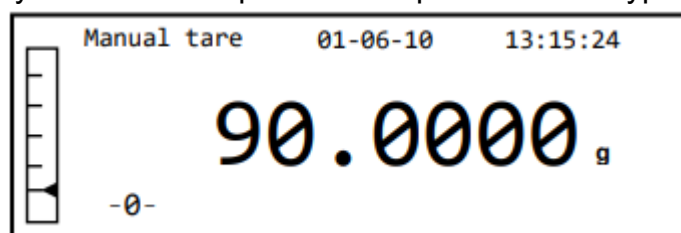


It is also possible to manually enter a known tare value from the keypad.

1. Press the **TARE MAN** button on the alphanumeric keypad. An arrow and the preceding manual tare value, if entered, will be shown on the display.



2. Press the **CLEAR** button to zero the previous value and enter the new value, using the numerical keys on the lower part of the alphanumeric keypad.

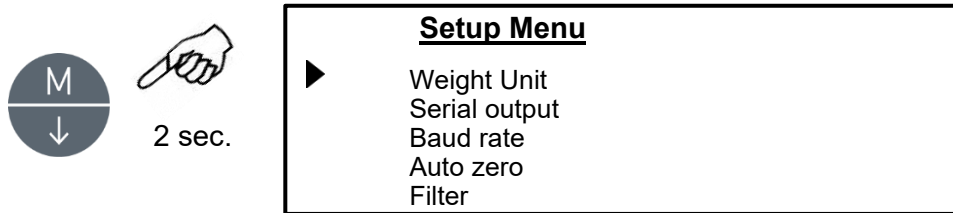


3. Press **INSER** to confirm.
4. Press the **ESCAPE** key to exit the tare mode.

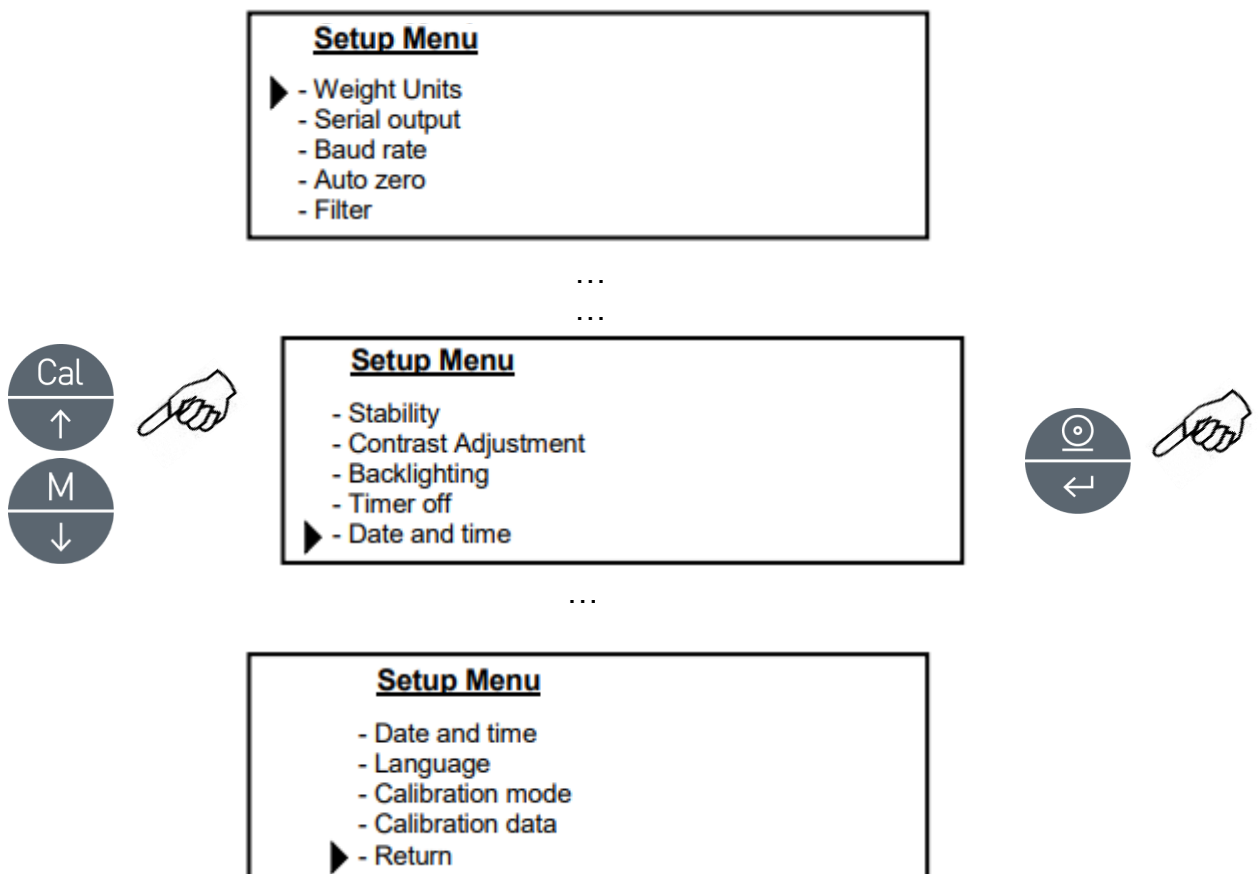
To zero the value of the manual tare inserted by keyboard, perform a normal tare operation with the **O/T** button on the balance, or with the **TARE/DELETE** button on the optional alphanumeric keyboard.

9 Balance parameters setup menu

1. Press and hold the **MENU** button with the plate empty until the beeping stops and then release the button.
2. The following writing will be shown on the display:



3. Now use the CAL and MENU buttons to navigate forward or backward in the parameters menu.



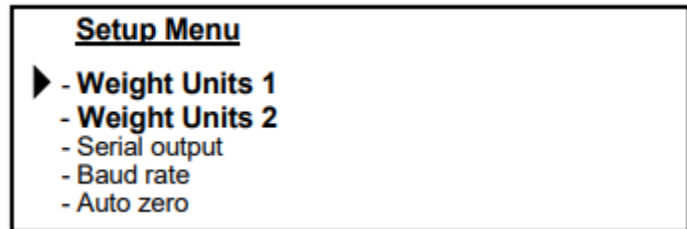
4. Position the cursor on the desired parameter and press the PRINT button to confirm the selection.
5. Press the ON/OFF button to exit the menu or select the return function and press the PRINT button.

9.1 Weighing Units

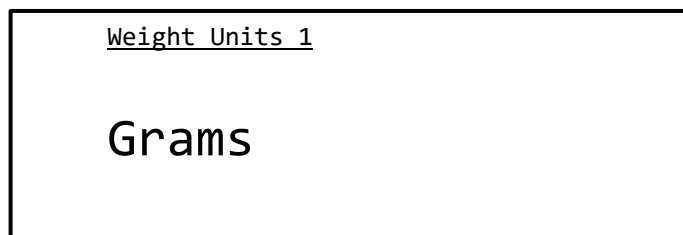
The scale can be set to display the weight in the different units, one primary (**Weight Units 1**) and one secondary (**Weight Units 2**).

The default unit of measurement is **Weight Units 1**.

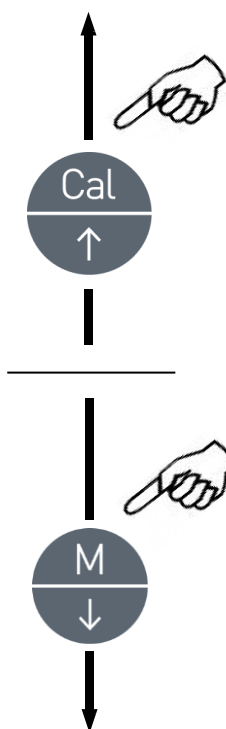
1. From zeroed weight display, hold down the **MENU** button until the beeping stops, then release the button. The setup menu will be displayed then select "**Weight Units 1**" and press **PRINT** to confirm.



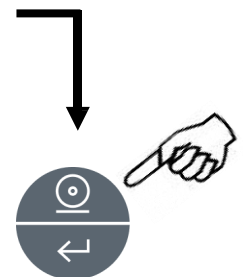
2. "**Grams**" unit will be displayed. Pressing the **MENU** or **CAL** button, it will be possible to scroll forward or backward the weighing units menu.



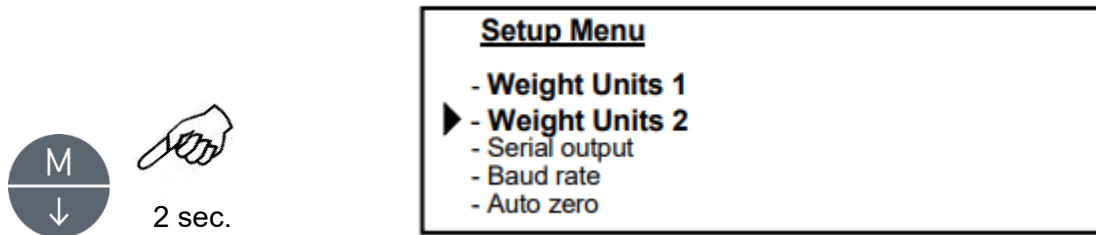
3. Press **PRINT** button to confirm or **MENU** button to shift to the other weighing unit.



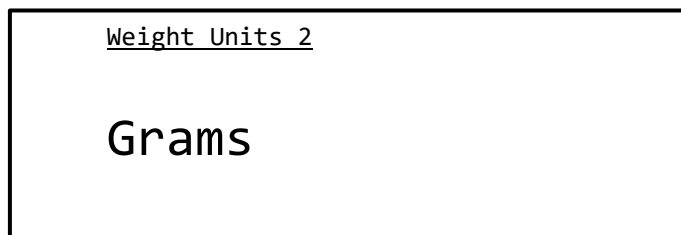
SYMBOL	UNIT	CONVERSION FACTOR 1g =
GrAM	GRAM	1
MILLi Gr	MILLIGRAM	0.001
CArAt	CARAT	5
OuncE	ONCE	0.035273962
Pound	POUND	0.0022046226
PEnn.	PENNYWEIGHT	0.643014931
OuncETr.	ONCE TROY	0.032150747
Gr a in	GRAIN	15.43235835
tAEL Hon	HONG KONG T AEL	0.02671725
tAEL SGP	SYNGAPORE T AEL	0.02646063
tAEL roc	R.O.C. T AEL	0.02666666
MoMME	MOMME	0.2667



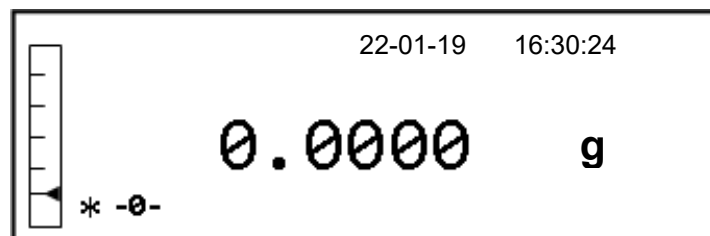
- After setting **Weight Units 1** (by pressing the **PRINT** button to confirm), the screen relative to the setup menu will be displayed again, select "**Weight Units 2**" and press **PRINT** to confirm.



- The "**Grams**" unit will be displayed. Pressing the **MENU** or **CAL** key will now be possible to scroll backwards or forwards the secondary units menu.

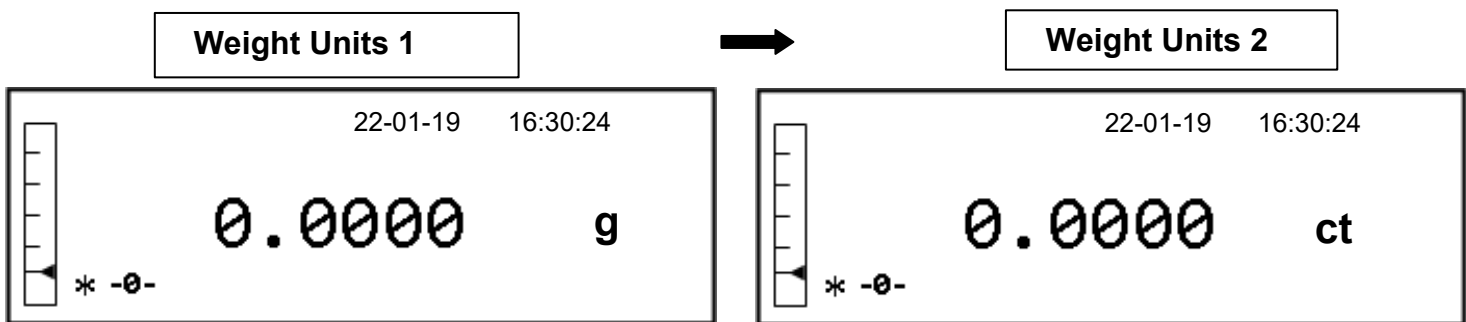
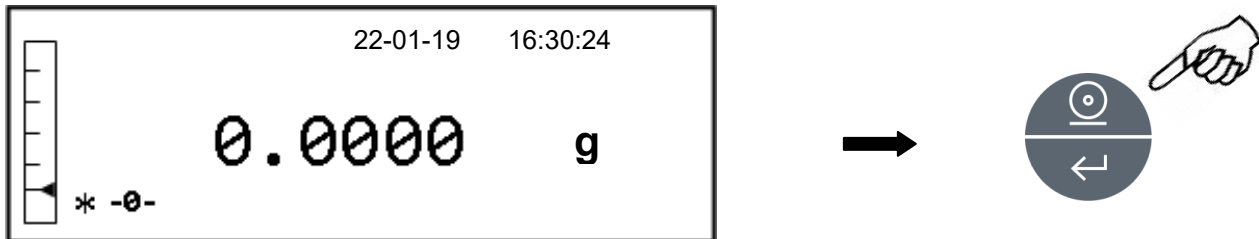


- Press the **PRINT** key to confirm or the **MENU** key to change to another unit of measurement (the measurement units available are the same as those listed in point 3).
- To exit the parameters setup menu, press the **MENU** button until the beeping stops, then release the button.
- The balance returns to normal weighing conditions.



It is recommended to set a second measurement unit when it is necessary to quickly display the result of weighing in two different units.

9. After setting both units of measurement, return to normal weighing condition, then press the **PRINT** button until the beeping stops, then release the button to switch from one unit of measurement to another.



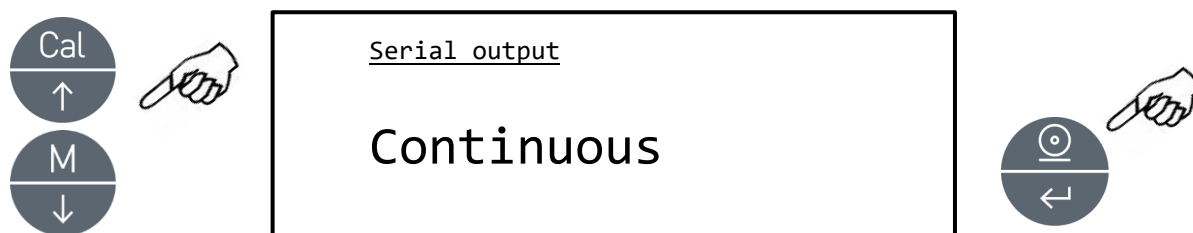
N.B. If the balance is switched to **Stand-by** mode using the **ON / OFF** button, upon next switch on, the weight will be displayed in the last selected measurement.

However, if the instrument is disconnected from the mains, when it is switched on again, the weight will be displayed in the measurement unit corresponding to **weight units 1**.

9.2 Serial output setup

Different data transmission devices and modes can be selected.

1. Select the serial output parameter as described in paragraph 10. The currently set transmission mode will be shown on the display:



2. By pressing the **MENU** or **CAL** button it will be possible to scroll through the serial output **MENU** forward or backward.
3. Then press the **PRINT** button to confirm the desired transmission mode.

The different transmission modes are illustrated below:

TRANSMISSION MODE	FEATURES
Continuous	Transmits the weight data in a continuous way
On demand	Transmits the weight data only when the PRINT button is pressed
Generic printer	The weight data is printed only when the Busy command is active
Tlp50 printer	The weight data is printed only if the Tlp50 model printer is connected
Upon request - Glp	Transmits the weight data and the Glp information only when the PRINT button is pressed
Generic printer - Glp	The weight data and the Glp information are printed only when the Busy command is active
Tlp – Glp printer	The weight data and the Glp information are printed only if the Tlp50 model printer is connected

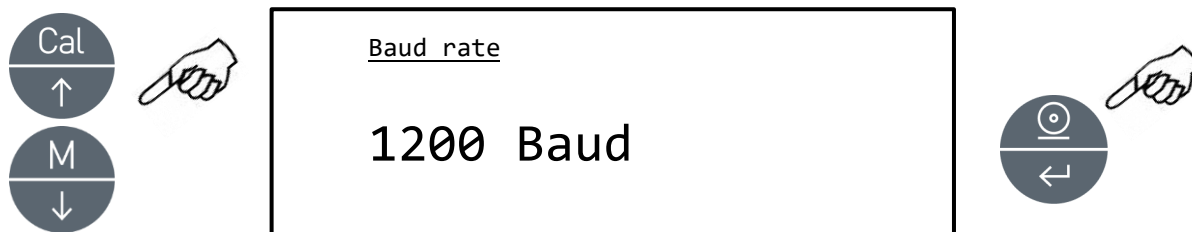
NOTE: transmission speed selection (paragraph 9.3)

4. After having selected the desired transmission mode, the screen relative to the balance parameters menu will be displayed again. It will now be possible to select another parameter or return to weighing mode by pressing the **ON/OFF** button.

9.3 Transmission speed selection

Different data transmission speeds can be selected.

1. Select the baud rate parameter as described in paragraph 10. The currently set transmission speed will be shown on the display:



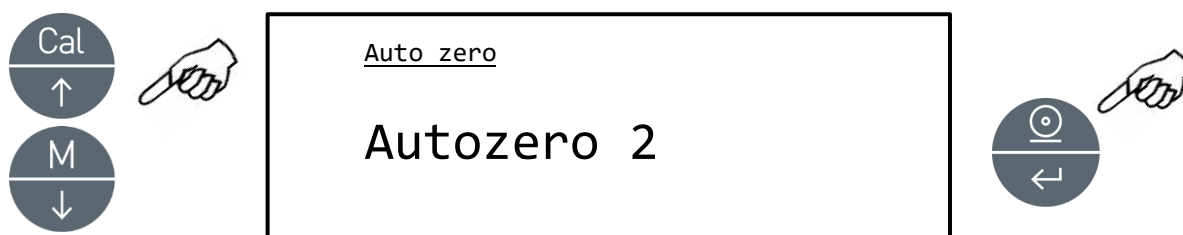
2. Select the serial data transmission speed (1200-2400-4800-9600 baud). By pressing the **MENU** or **CAL** button you can scroll the different transmission speeds forward or backward; then confirm the choice with the **PRINT** button.
3. After having selected the desired transmission speed, the screen relative to the balance parameter menu will be displayed again. It will now be possible to select another parameter or return to weighing mode by pressing the **ON/OFF** button.

9.4 Autozero function

Autozero is a correction from a possible deviation from zero.

Different autozero levels can be selected.

1. Select the autozero parameter as described in chapter 10.
The currently set autozero parameter will be shown on the display:



2. Select the desired autozero level. By pressing the **MENU** or **CAL** button you can scroll through the various levels forward or backward; then confirm your choice with the **PRINT** button.

AUTOZERO MENU	AUTOZERO LEVEL
Autozero off	Autozero off
Autozero 1	Light autozero
Autozero 2*	Average autozero
Autozero 3*	Heavy autozero
Autozero 3E*	Heavy full-scale autozero

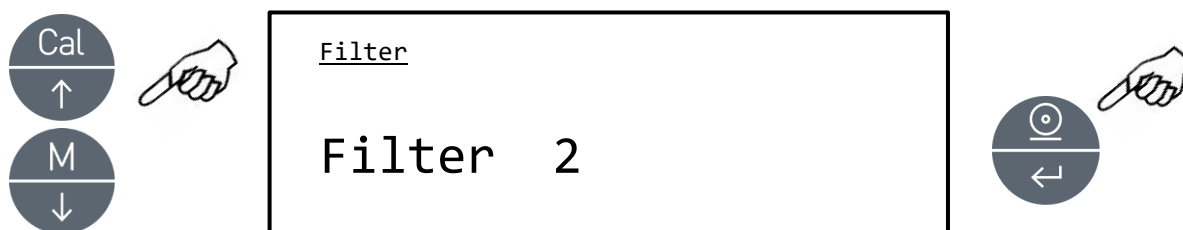
* locked in verified balances

3. After selecting the desired autozero, the screen relative to the balance parameters menu will be displayed again. You can now select another parameter or return to weighing mode by pressing the **ON/OFF** button.

9.5 Filter selection

The balance can be adapted to different environmental conditions thanks to the selection of three different filters:

1. Select the filter parameter as described in paragraph 10. The currently set filter type will be shown on the display:



2. Select the desired filter level. By pressing the **MENU** or **CAL** button you can scroll through the various levels forward or backward; then confirm your choice with the **PRINT** button.

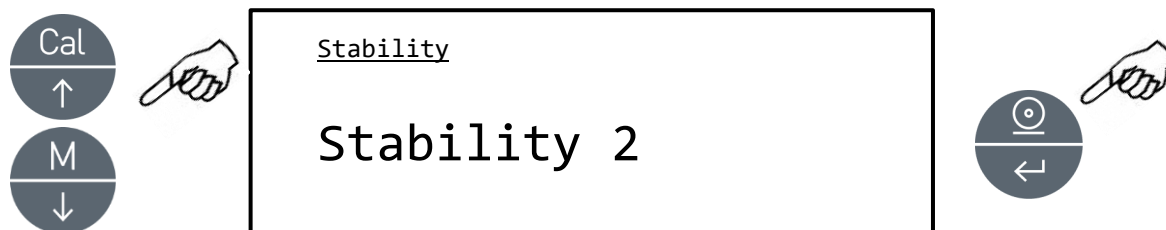
FILTER MENU	FILTER LEVEL
Filter 1	Use this filter level in stable environmental conditions and for use of the instrument in filling or dosing mode
Filter 2	Use this filter level when the environmental conditions are not stable
Filter 3	Use this filter level when the environmental conditions are particularly unstable

3. After selecting the desired filter level, the screen relative to the balance parameters menu will be displayed again. It will now be possible to select another parameter or return to weighing mode by pressing the **ON/OFF** button.

9.6 Stability function

The stability symbol will appear on the display when the weight is stable within a defined interval.

1. Select the stability parameter as described in paragraph 10. The currently set level of stability will be shown on the display:



2. Select the desired stability level. By pressing the **MENU** or **CAL** button you can scroll through the various levels forward or backward; then confirm your choice with the **PRINT** button.

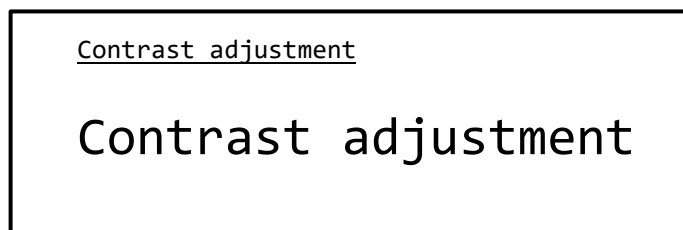
STABILITY MENU	LEVEL OF STABILITY
Stability 1	Use this level of stability when the environmental conditions are stable
Stability 2	Use this level of stability when the environmental conditions are less stable
Stability 3	Use this level of stability when the environmental conditions are unstable

3. After having selected the desired level of stability, the screen relative to the balance parameter menu will be displayed again. It will now be possible to select another parameter or return to weighing mode by pressing the **ON/OFF** button.

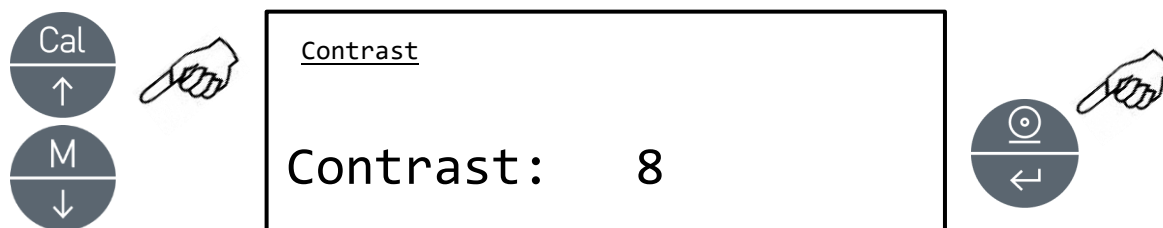
9.7 Contrast adjustment

The balance's display is equipped with an LCD display; the contrast can be regulated in order to make the indication as visible as possible from different angles.

1. Select the contrast adjustment parameter as described in paragraph 10. The currently set contrast value will be shown on the display:



2. Select the desired contrast value. By pressing the **MENU** or **CAL** button it will be possible to increase or decrease the value; then confirm the choice with the **PRINT** button.

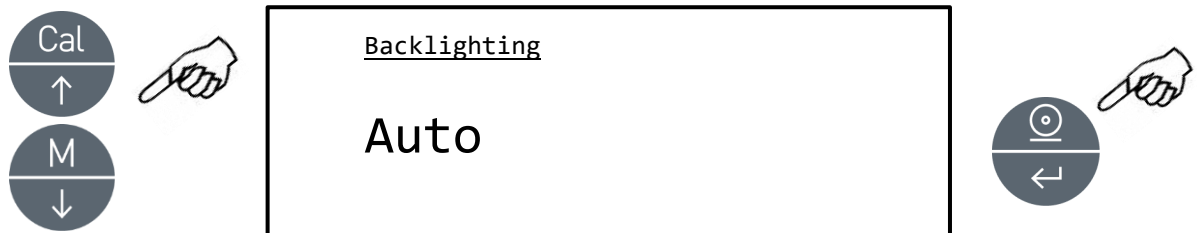


3. After having selected the desired contrast level, the balance parameters menu will be displayed again. It will now be possible to select another parameter or return to weighing mode by pressing the **ON/OFF** button.

9.8 Backlight regulation

The balance's display is equipped with a backlight to make the indication visible even in low light conditions.

1. Select the backlight parameter as described in paragraph 10. The currently set mode will be shown on the display:



2. Select the desired modality. By pressing the **MENU** or **CAL** button you can scroll through the various levels forward or backward; then confirm the choice with the **PRINT** button.

BACKLIGHT MENU	BACKLIGHT MODE
Auto	Backlight automatically active during the weighing phases
On	Backlight always on
Off	Backlight always off

3. After having selected the desired mode, the balance parameters menu will be displayed again. It will now be possible to select another parameter or return to weighing mode by pressing the **ON/OFF** button.

9.9 Auto-off function

This function allows you to activate the automatic switch-off of the balance after a preset time of inactivity.

1. Select the Auto off parameter as described in paragraph 10.
The currently set mode will be shown on the display:



2. Select the desired auto-off mode. By pressing the **MENU** or **CAL** you can scroll the various levels forward or backward; then confirm the choice with the **PRINT** button.

AUTO-OFF MENU	AUTO OFF MODE
Disabled	Auto-off disabled
2 minutes	Auto-off after 2 minutes of inactivity
5 minutes	Auto-off after 5 minutes of inactivity
15 minutes	Auto-off after 15 minutes of inactivity

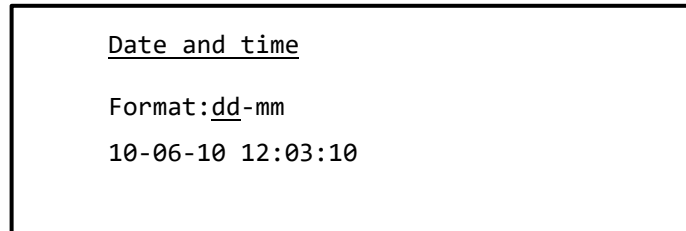
NOTE: In balances equipped with an internal battery, it is recommended not to disable the Auto-off mode in order to prolong the battery life.

3. After having selected the desired mode, the balance parameters menu will be displayed again. You can select another parameter or return to weighing mode by pressing the **ON/OFF** button.

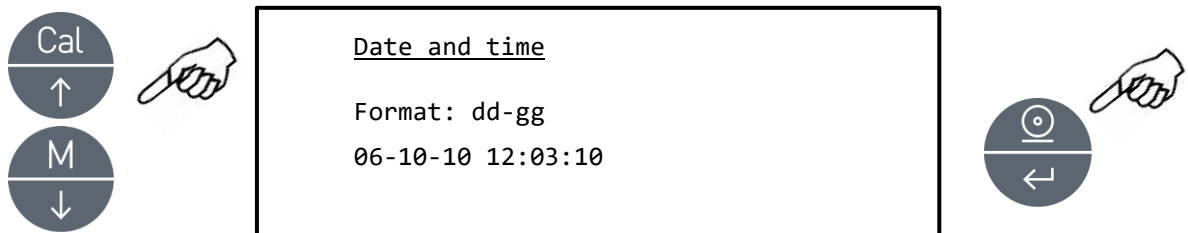
9.10 Date and time setup

This function allows you to set the date and time, and to modify the date display format.

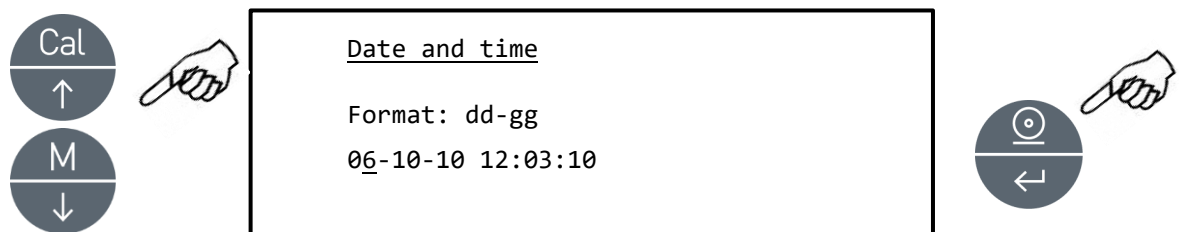
1. Select the date and time parameter as described in paragraph 10. The current set date and time will be shown on the display:



2. Select the desired format of the date. By pressing the **MENU** or **CAL** button you can modify the format dd-mm or mm-dd; then confirm the choice with the **PRINT** button.



3. Set the desired date and time by using the **MENU** and **CAL** buttons to increase and decrease the number and the **PRINT** button to pass to the next date.

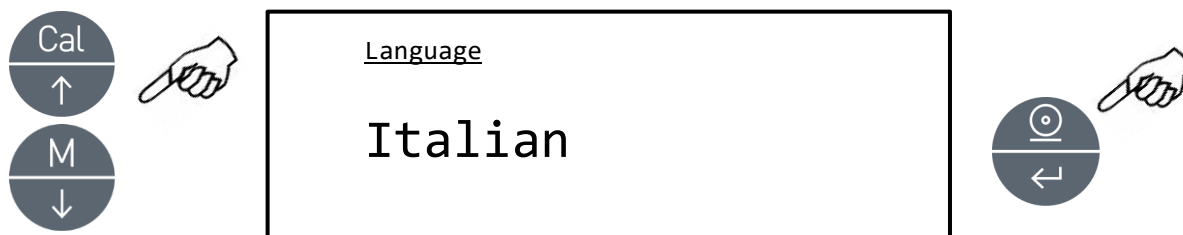


4. After having set the date and time, press and hold the **PRINT** button until the beeping stops and then release the button to save the settings.
5. The balance parameters menu will then be displayed. You can select another parameter or return to weighing mode by pressing the **ON/OFF** button.

9.11 Language selection

This function allows you to set the desired language.

1. Select the language parameter as described in paragraph 10. The currently set language will be shown on the display:



2. Select the desired language. By pressing the **MENU** or **CAL** button it will be possible to scroll the various levels forward or backward; then confirm your choice with the **PRINT** button.

LANGUAGE MENU	LANGUAGE
Italian	Italian language
English	English language
Português	Portuguese language
Deutsch	German language
Français	French language
Español	Spanish language

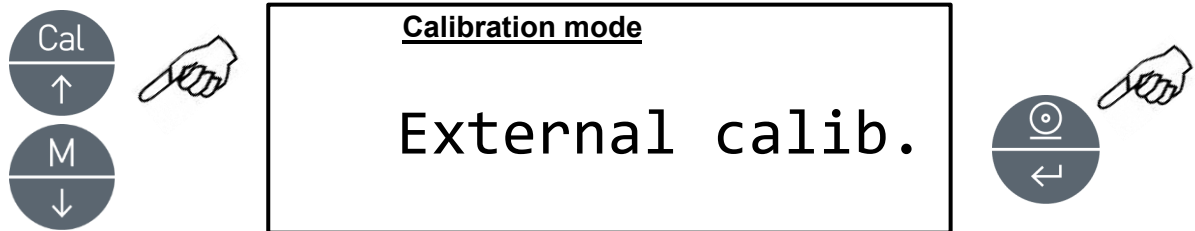
- After selecting the desired language, the balance parameters menu will be displayed again. You can now select another parameter or return to weighing mode by pressing the **ON/OFF** button.

9.12 Calibration mode setting

This function allows you to set the calibration mode.

* This function is only available for the models equipped with internal calibration (not available for all models). To check if the instrument is equipped with internal calibration mode, please refer to the table of technical features, chapter 18.

1. Select the calibration mode parameter as described in paragraph 10. The currently set calibration mode will be shown on the display:



2. Select the desired mode. By pressing the **MENU** or **CAL** buttons you can scroll the different calibration modes forward or backward:

- External calibration*
- Internal calibration*
- Automatic calibration
- Technical calibration*

*Locked for verified balances models

3. Press the **PRINT** button to confirm “**AUT-CAL**”, “**I-CAL**”, “**E-CAL**”. To confirm “**TEC-CAL**”, hold down the **PRINT** button until the beeping stops.
4. The balance parameters menu will then be displayed. You can now select another parameter or return to weighing mode by pressing the **ON/OFF** button.

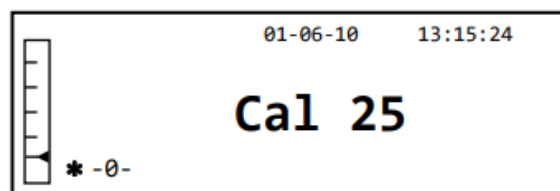
9.12.1 Automatic Calibration (AUT-CAL)



This is factory setting for verified balances models

The balance self-calibrates when the temperature variation exceeds the factory preset value and at factory preset time intervals, through the internal reference mass, and only if the balance pan is empty.

When the balance needs to perform the Automatic calibration, the display will show the following message:



A 25-second countdown will start during which you can decide if:

- Postpone the automatic-calibration procedure by 5 minutes by pressing the “**ON/OFF**” button

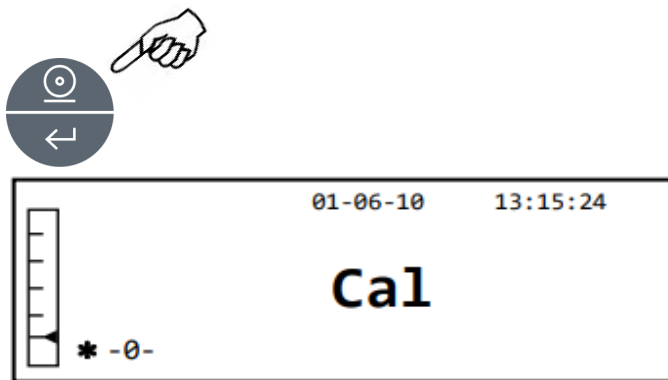
or

- Let the countdown finish so that the automatic calibration starts

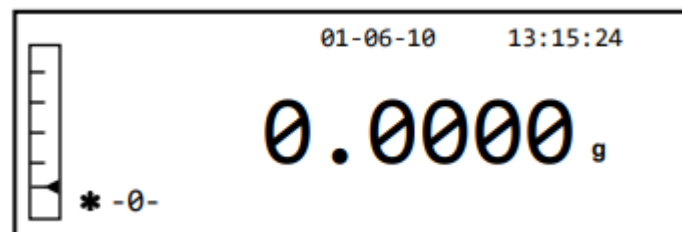
Note: during the countdown do NOT load anything on the plate!

In this mode, it is also possible to perform the calibration with the internal reference mass by pressing the **CAL** button at any moment, first ensuring that no weight is loaded on the plate.

1. Press the **CAL** button with the plate empty. The display will show the message “**CAL**” and the balance’s calibration will be performed automatically.



2. Upon completing the calibration process, the balance will return to normal weighing conditions.



If the calibration is not completed due to vibrations or drafts, the message “**CAL bUt**” will be displayed. Press the **CAL** button again, and if the problem persists, select external calibration and contact the supplier.

9.12.2 Internal calibration (I-CAL) [locked for verified balances]

The balance calibrates itself through the internal reference mass **ONLY** upon the request of the user by pressing the **CAL** button.

Before carrying out the internal calibration, ensure that no weight is loaded on the plate.

9.12.3 External calibration (E-CAL) [locked for verified balances]

The balance will be calibrated by using the external reference mass.

(Follow the procedures described in paragraph 8.1.2)

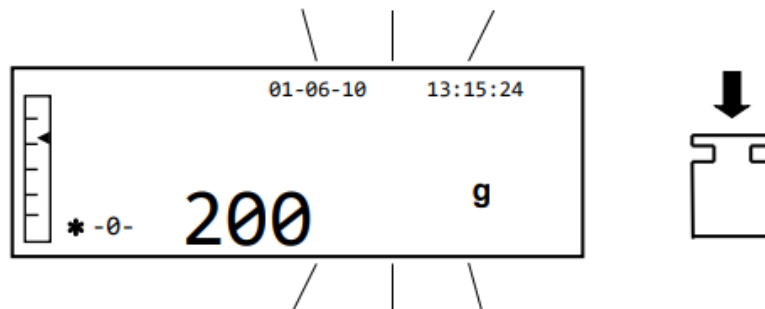
9.12.4 Technical calibration (TEC-CAL) [locked for verified balances]

This function allows the internal reference mass to be calibrated whenever assistance-control-maintenance interventions make this necessary.

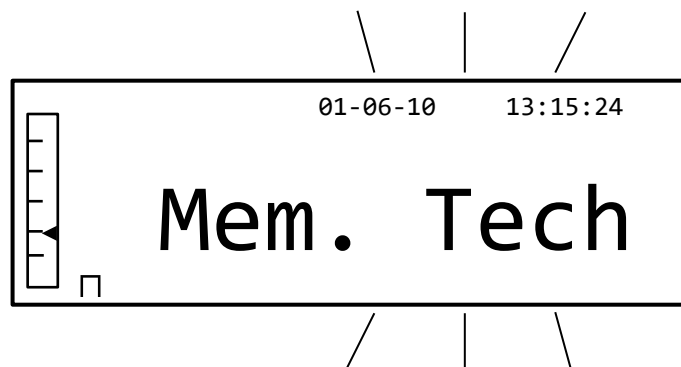
1. After selecting the **TEC-CAL** calibration mode, press the **CAL** button with the plate unloaded. The word “CAL” will be displayed.



2. When the value of the calibration weight begins to flash, load the calibration weight on the plate.



3. Wait for the calibrated weight to be displayed and the stability symbol to appear and then remove the weight from the plate.
4. When “**0.000**” is shown on the display, hold down the **PRINT** button until the beeping stops. The acquisition and automatic storage of the internal weight will now begin. During the acquisition cycle, the display will show the following flashing writing:



5. Once the internal calibration has been stored, the balance will return to the normal weighing mode.
6. Now re-enter the calibration menu as described in paragraph 9.1.12 and set the desired internal, automatic, or external calibration mode.



WARNING: this procedure must be performed only using class E2 reference masses.

9.13 Calibration data

This function allows you to display the data on the last performed calibration.

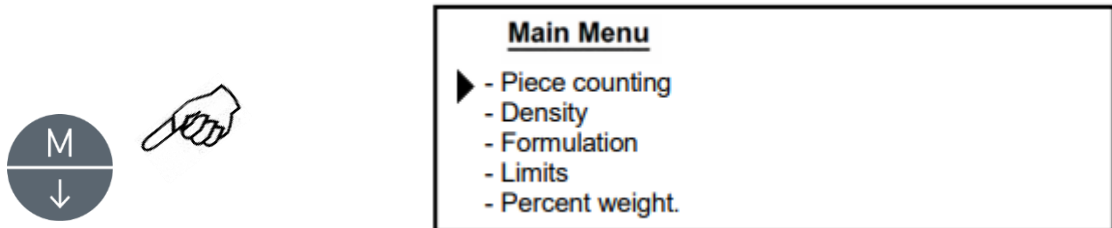
- Date
 - Calibration mode
 - Correction
1. Select the calibration data parameter as described in paragraph 10.
The data on the last calibration performed will be shown on the display:

Calibration data	
10-06-10	
External calib.	2000.0g
Corr.:	1.2g

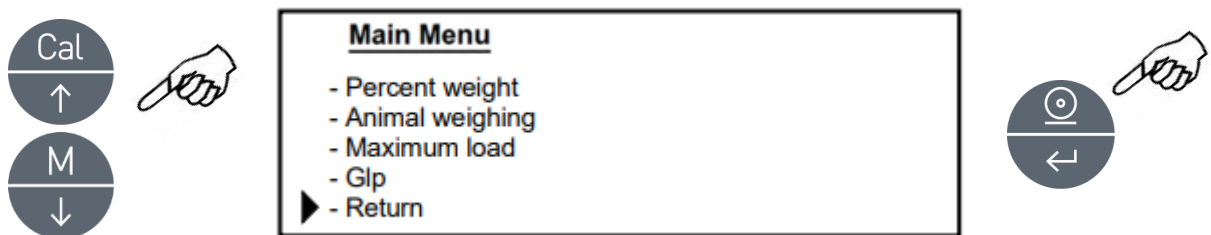
2. Press the **PRINT** button to print the calibration data.
3. Press the **ON/OFF** button to exit the screen and return to the balance parameters menu. You can now select another parameter or return to weighing mode by pressing the **ON/OFF** button.

10 Balance programs menu

1. Press the **MENU** button with the plate unloaded.
2. The following message will be shown on the display:



3. Now use the CAL and MENU buttons to navigate forward or backward in the menu of parameters.

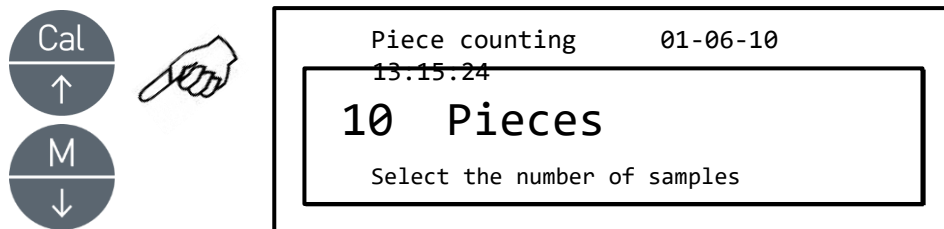


4. Position the cursor on the desired parameter and press the PRINT button to confirm the selection.
5. Press the ON/OFF button to exit the menu or select the return function and press the PRINT button.

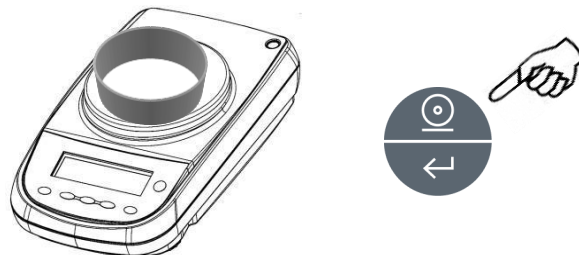
10.1 Piece counting function

The piece counting program allows you to perform a total count of the pieces after having performed a sampling of pieces or having inserted the average unit weight of the piece.

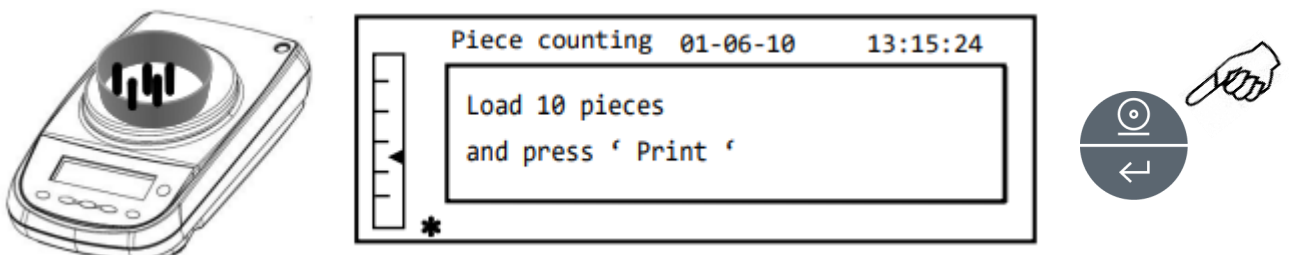
1. Select the piece counting program as described in paragraph 10.
The following screen will be shown on the display:



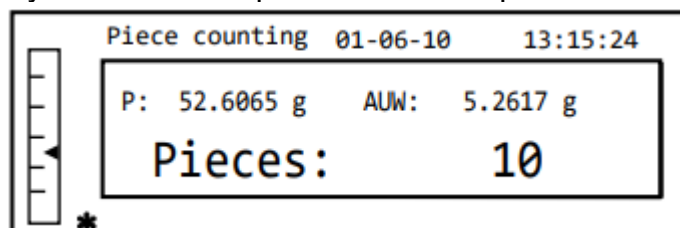
1. Select the number of pieces to put on the plate as a sample, pressing in sequence the **MENU** button to increase and the **CAL** button to decrease.
2. Load an empty container, if used, then press the **PRINT** button to confirm.
The choice of the number of pieces (10, 25, 50, 100, manual, see chapter 10.3) depends on the weight of an individual piece. Load an empty container, if used.



3. Load the number of pieces indicated on the display on the plate and press the **PRINT** key.



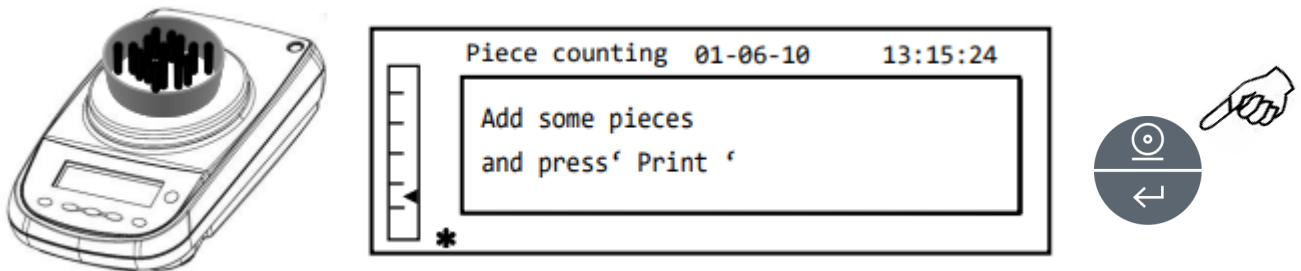
If there are enough samples (e.g. 10 as in the figure), the number of pieces loaded will appear on the display. You can now proceed with the piece counting.



If the pieces to be counted have a weight that is inferior to the balance's resolution, an error message will be displayed.

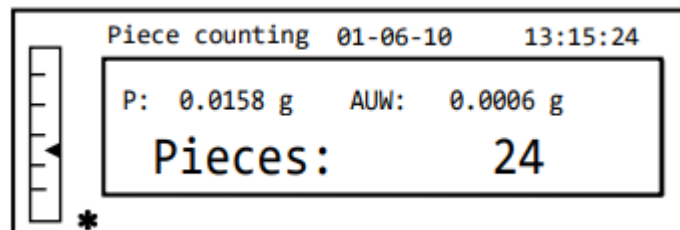
In this case it will be necessary to turn to a balance with greater resolution.

If the weight of the samples is acceptable but their count not sufficient, the following message will be displayed: Add enough pieces to double the approximate quantity loaded on the plate, then press the **PRINT** button.



If the number of pieces is still insufficient, the message indicated above will be displayed again. Double the quantity of pieces loaded again.

Once a sufficient number of pieces has been reached, their number will be displayed and it will be possible to proceed with the counting, loading the pieces to be counted on the plate.

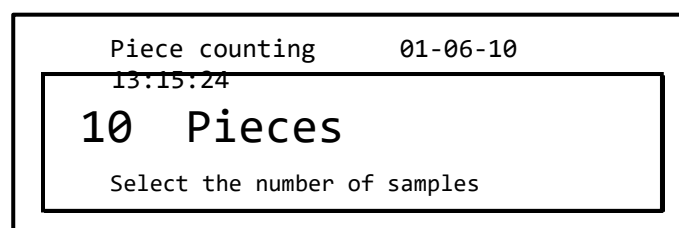


4. To exit piece counting mode, press the **ON/OFF** button and the balance will return to the normal weighing mode.

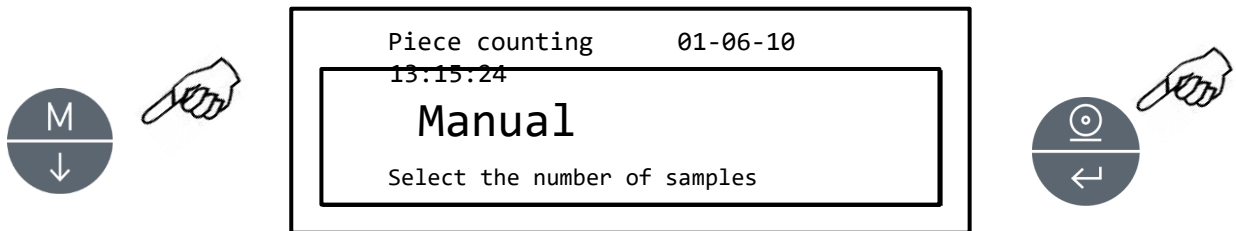
10.1.1 Manual insertion of the average unit weight

This function allows the user to enter, when known, the average unit weight of the piece, thus avoiding the sampling of the pieces.

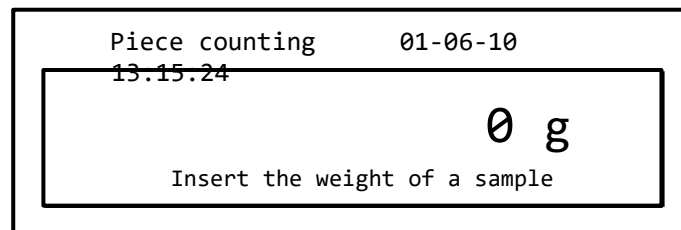
1. Select the piece counting program as described in paragraph 10. The following screen will be shown on the display:



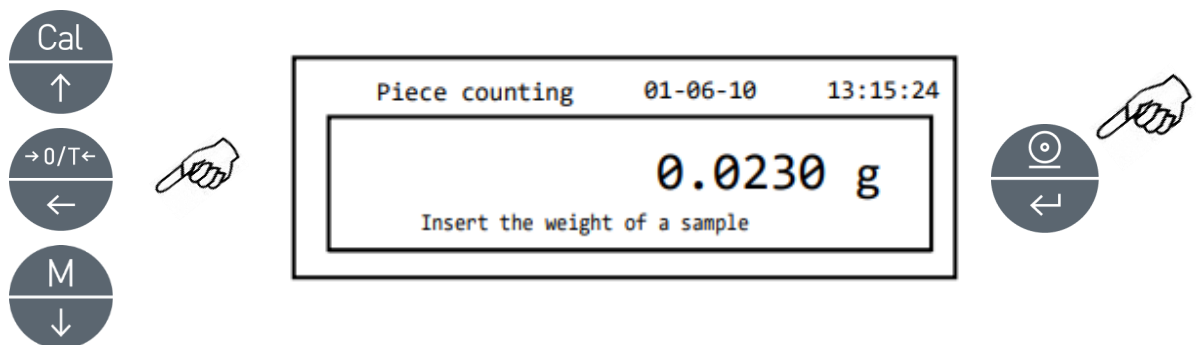
- Press the **MENU** button until the following message appears on the display:



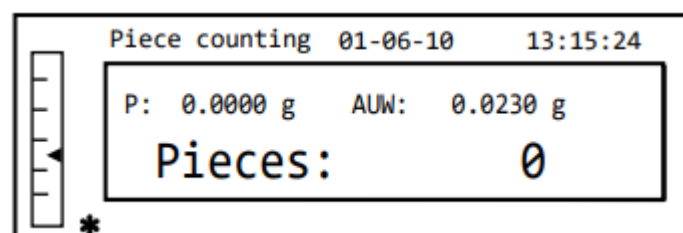
- Then press the **PRINT** button to confirm.



- Insert the piece's unit weight in grams using the **CAL** and **MENU** buttons to increase and decrease the value, while pressing the **O/T** button to pass to the next value. To insert a decimal point, hold down the **CAL** button. During the entering phase, the prolonged pressing of the **O/T** button allows you to delete the inserted value.

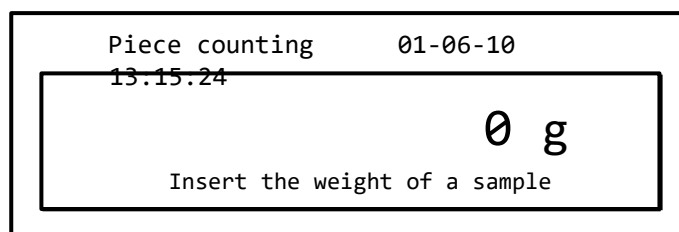


- Press the **PRINT** button to confirm.
If the piece entered is less than 100 times the resolution of the balance, an error message will be displayed.
To exit without entering the weight, press the **ON/OFF** button.
- If the weight is sufficient, "0" will be shown on the display; it is now possible to proceed with the counting, loading the pieces on the plate.



- To exit the piece counting function, press the **ON/OFF** button.

It is also possible to use the optional alphanumeric keyboard to insert the average unit weight of the sample. In this case, perform the same procedure described above to enter manual insertion mode.



1. Insert the unit weight of the sample in grams by using the numeric keys from 0 to 9 and the decimal point.
In case of error, press the **CLEAR** button and restart.
2. Press the **INSER** button to confirm.
3. If the piece entered is less than 100 times the resolution of the balance, an error message will be displayed.
To exit without entering the weight, press **ESCAPE** (on the alphanumeric keyboard) or **ON/OFF**.
4. If the weight is sufficient, "0" will be shown on the display; it is now possible to proceed with the counting, loading the pieces on the plate.
5. To exit the piece counting function, press the **ON/OFF** button.

10.1.2 Automatic updating of the average unit weight

After completing the sampling, the average unit weight can be updated in the following way.

1. Instead of loading all of the pieces to be counted, load a number of pieces that approximately doubles those loaded on the plate and wait for the beep.
2. This procedure can now be repeated up to a maximum of 255 pieces, or you can proceed with the normal counting of the pieces.
This mechanism allows for a more accurate estimate of the average unit weight and better precision in the counting of the pieces.

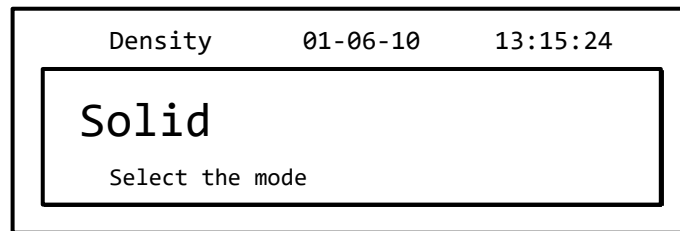
NOTE: the automatic updating mechanism is not active if the sampling has been completed through introduction of the average unit weight.

10.2 Program for the determination of the density of a solid or a liquid

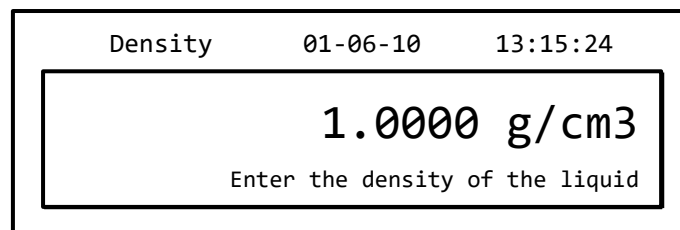
The density calculation program allows the determination of the density of a solid or liquid using the lower weighing hook or the hydrostatic kit (optional Code T027).

10.2.1 Solid density determination

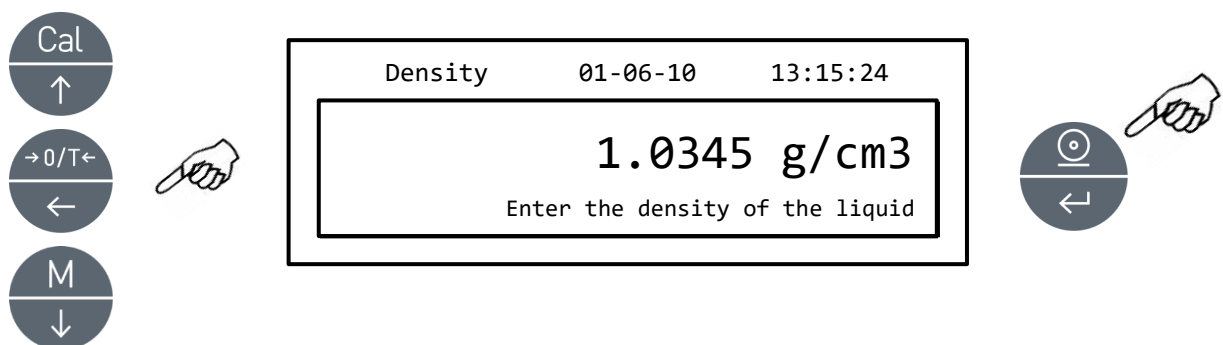
1. Select the density program as described in paragraph 10. The following screen will be shown on the display:



2. Then press the **PRINT** button to confirm the selection.
3. The density value of the liquid to be used will be displayed. The default value is equal to 1.0000 (distilled water at 20°C).



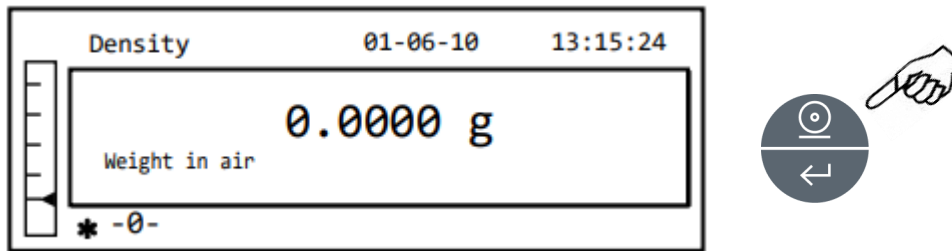
4. It is possible to insert a different value using the **CAL** and **MENU** buttons to increase and decrease the value, while pressing the **O/T** button to pass to the next value. During the entering phase, hold down the **O/T** button to cancel the inserted value.



Note: It is also possible to set the value using the optional alphanumeric keypad.

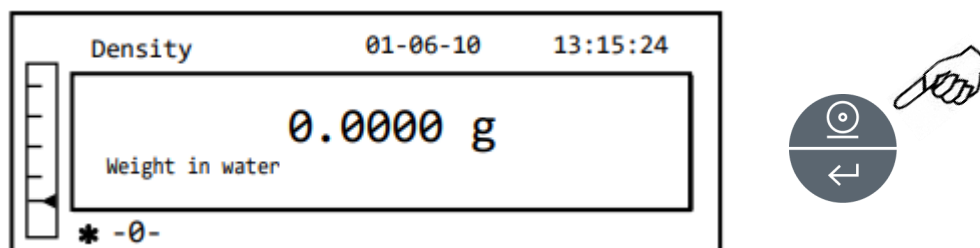
5. Once the desired value has been set, press the **PRINT** button.

6. It will now ask you to weigh the solid in the air.

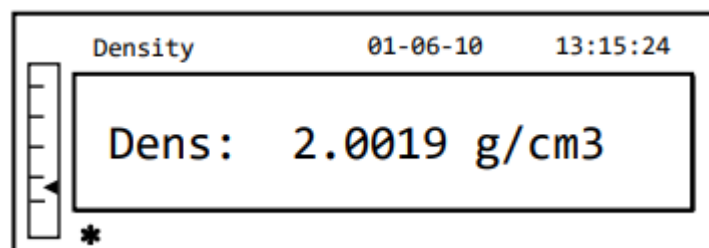


7. Perform a tare if necessary and load the solid. Wait for the stability symbol to appear and press the **PRINT** button to acquire the value. The word 'wait...' will appear during the acquisition of the value.

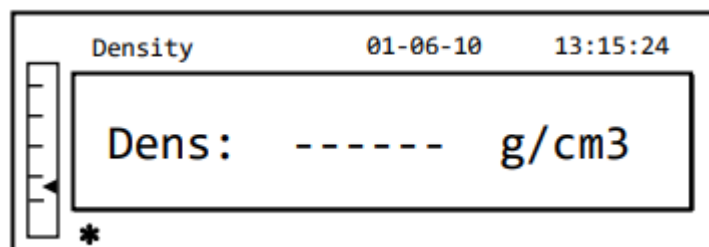
8. The weight of the solid in the liquid will then be requested. Perform the tare of the drum in the liquid. Put the solid in the drum, immerse the solid, and wait for the stability indicator to appear. Then press the **PRINT** button. The word 'wait...' will be displayed during the acquisition of the value.



9. The result of the density calculation of the solid will now be displayed. If the balance is equipped with a printer, it will be possible to print the density value by pressing the **PRINT** button.



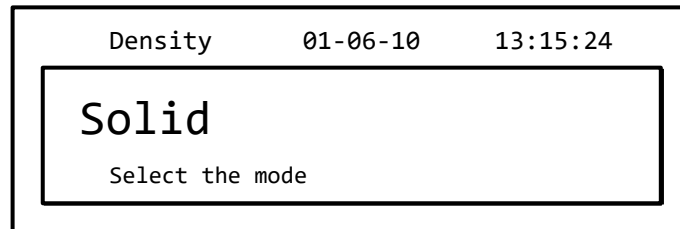
10. The following string will be shown on the display in case of error:



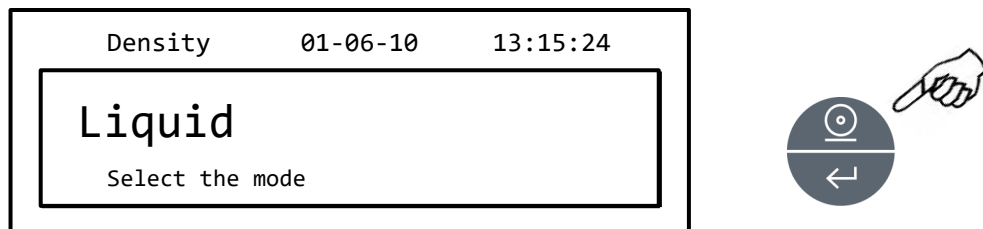
11. Now press the **ON/OFF** button to exit the density function, or the **MENU** button to perform the density measurement for another solid.

10.2.2 Liquid density determination

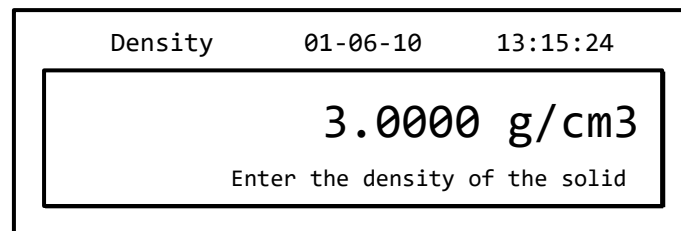
1. Select the density program as described in paragraph 10.
The following screen will be shown on the display:



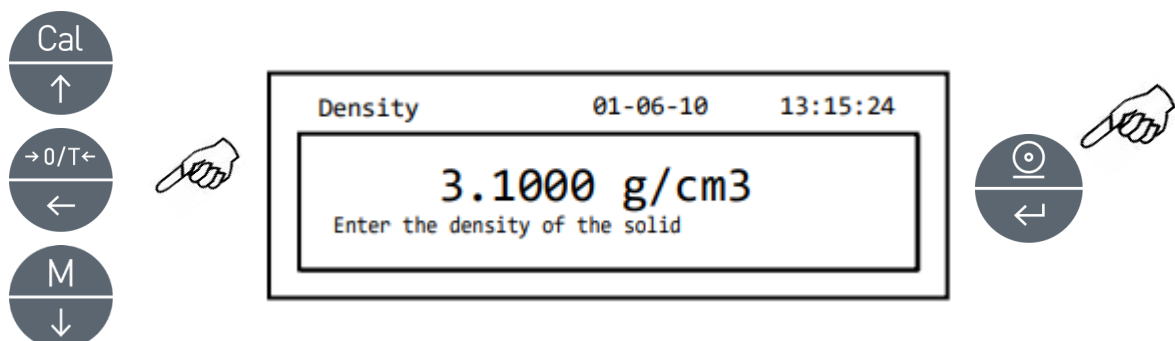
2. Press the **MENU** button to select liquid mode. Then press the **PRINT** button to confirm.



3. The default value of the solid's density will be displayed. The default value is equal to 3.0000 g/cm^3 .

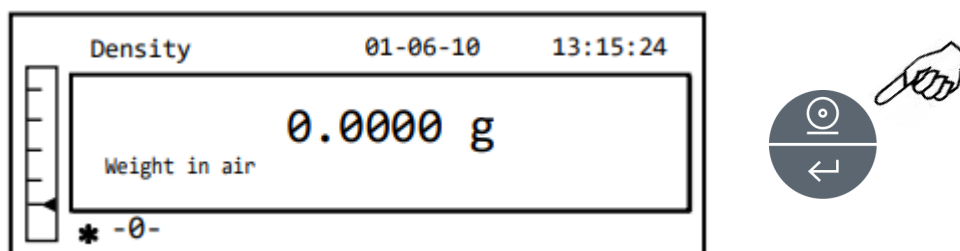


4. A different value can be entered by using the **CAL** and **MENU** buttons to increase and decrease the value, while pressing the **O/T** button to pass to the next value. During the entering phase, hold down the **O/T** button to delete the inserted value.

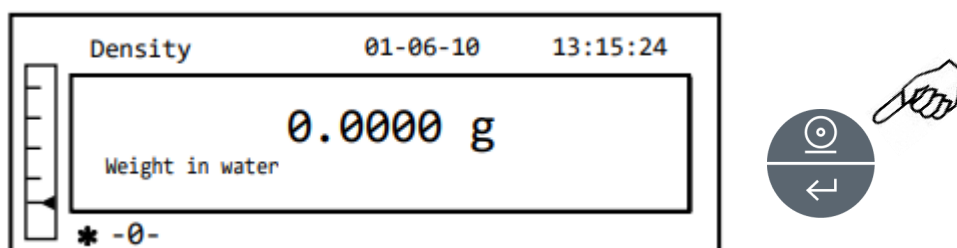


Note: It is also possible to set the value using the optional alphanumeric keypad.

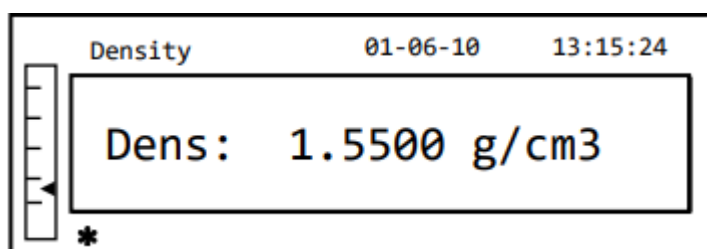
- Once the desired value has been set, press the **PRINT** button.
- It will now ask you to weigh the dipstick in the air.



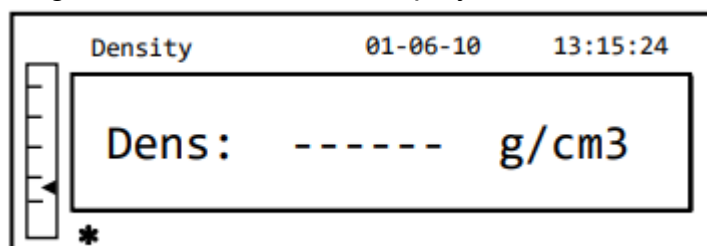
- Perform a tare if necessary and load the dipstick. Wait for the stability symbol to appear and press the **PRINT** button to acquire the value. The word 'wait...' will appear during the acquisition of the value.
- The weighing of the dipstick immersed in the liquid will then be requested. Then immerse the solid in the liquid, wait for the stability indicator to appear, and then press the **PRINT** button. The word 'wait...' will be displayed during the acquisition of the value.



- The result of the density calculation of the liquid will now be displayed. If the balance is equipped with a printer, it will be possible to print the density value by pressing the **PRINT** button.



- The following string will be shown on the display in case of error:

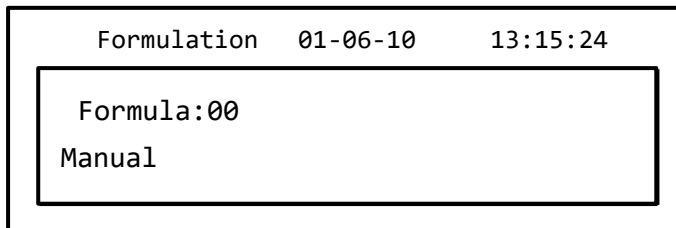


- Now press the **ON/OFF** button to exit the density function, or the **MENU** button to perform the density measurement for another liquid.

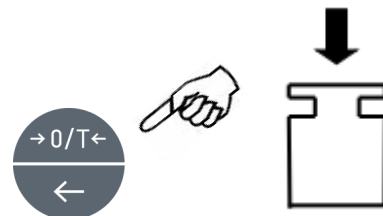
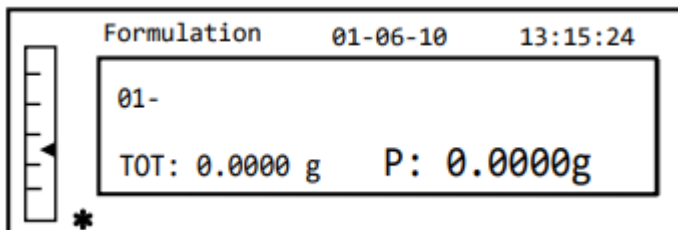
10.3 Formulation function

10.3.1 Manual formulation

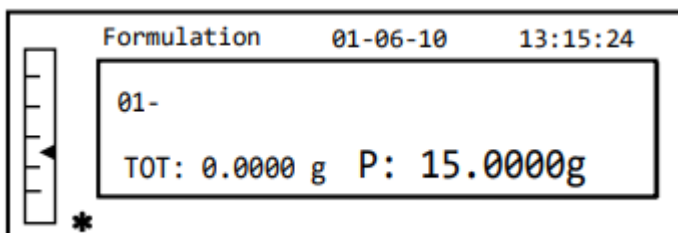
1. Select the formulation program as described in paragraph 10. The following screen will be shown on the display:



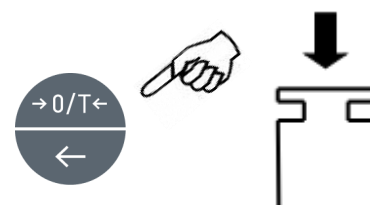
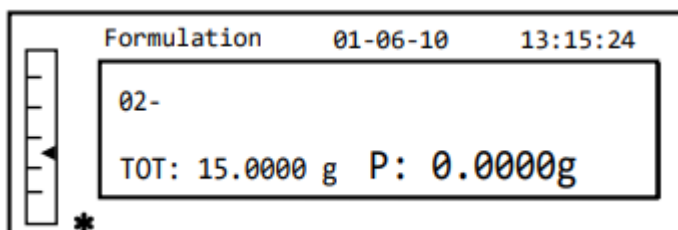
2. Then press the PRINT button to confirm the selection.



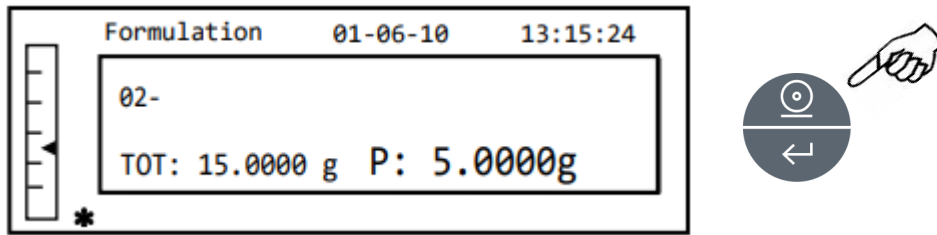
3. Perform a tare operation if necessary and load the first ingredient.



4. Then press the **PRINT** button to confirm.



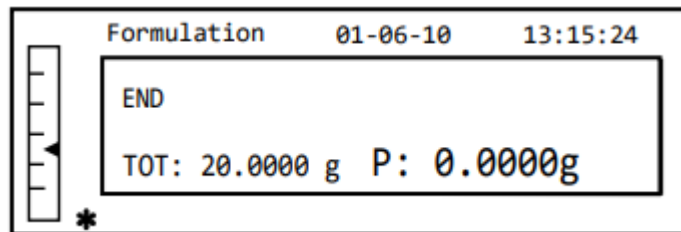
- Perform a tare operation if necessary and load the second ingredient.



- Then press the **PRINT** button to confirm.
- Repeat the operation for a maximum number of 99 ingredients.

Note: During the acquisition of the ingredient, the display of Err10 indicates a negative weight value. Verify no mistakes have been made with the ingredient loading and zeroing procedure.

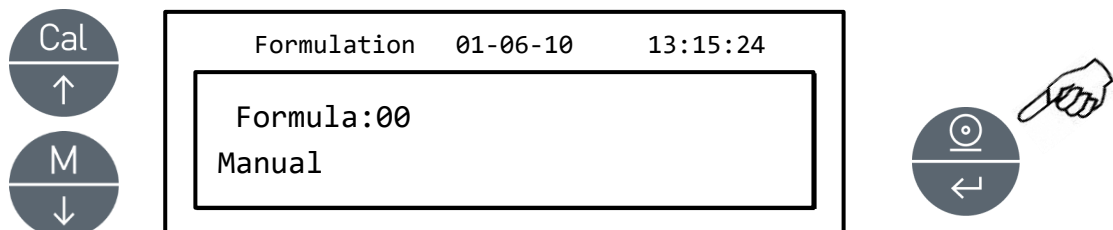
- To end, print the value of the individual components and the total value, and press and keep pressed the **PRINT** button until the beeping stops. The display will show the following screen:



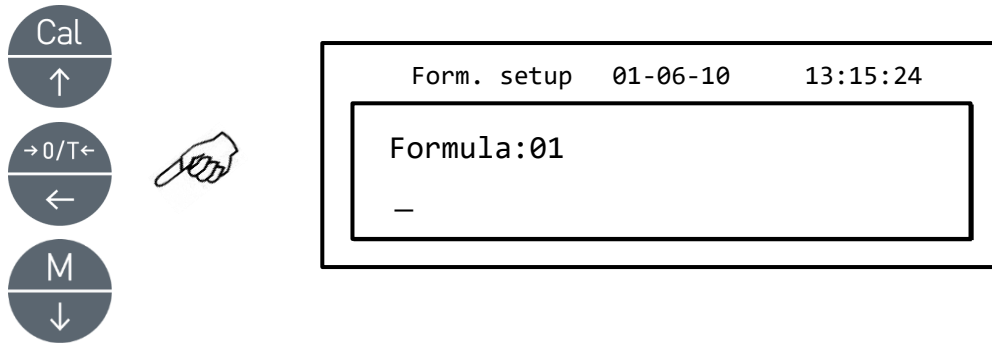
- To exit the screen and perform a new formulation, press the **ON/OFF** button once. To exit the program and return to the weighing screen, press the **ON/OFF** button two consecutive times.

10.3.2 Formula saving

- Select the formulation program as described in paragraph 10. The following screen will be shown on the display:

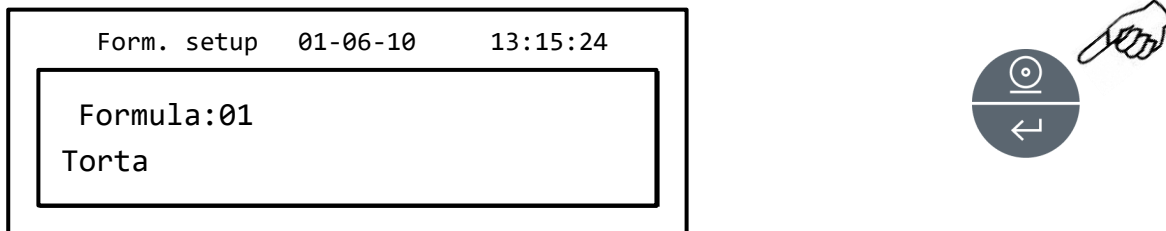


- Select the number of the formula to save or modify using the **CAL** and **MENU** buttons to increase and decrease the value, after the word 'Formula'. Then, hold down the **PRINT** button until the beeping stops to confirm the selection and enter the 'setup formula' menu.

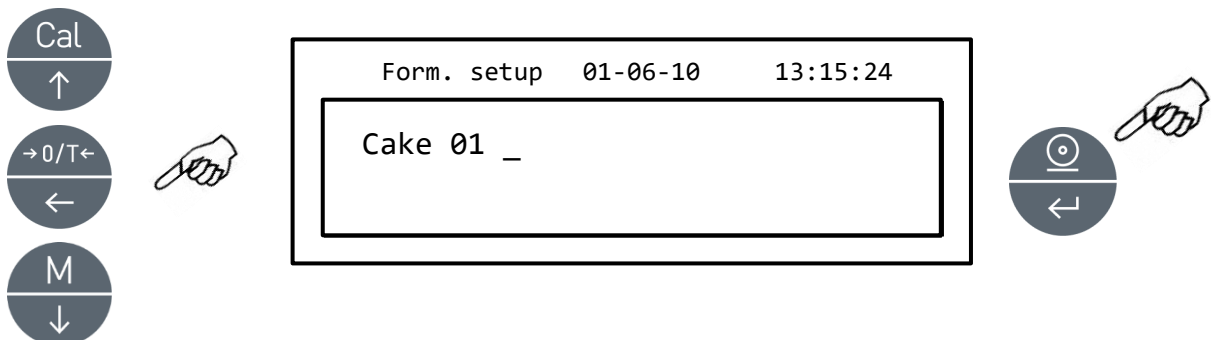


3. Enter the name of the formula (it can be a series of numbers or letters, max 20 characters) using the **MENU** or **CAL** buttons to scroll all of the available characters, and the **TARE** button to pass to the next character. To select the uppercase or lowercase character, hold down the **MENU** button until the beeping stops.

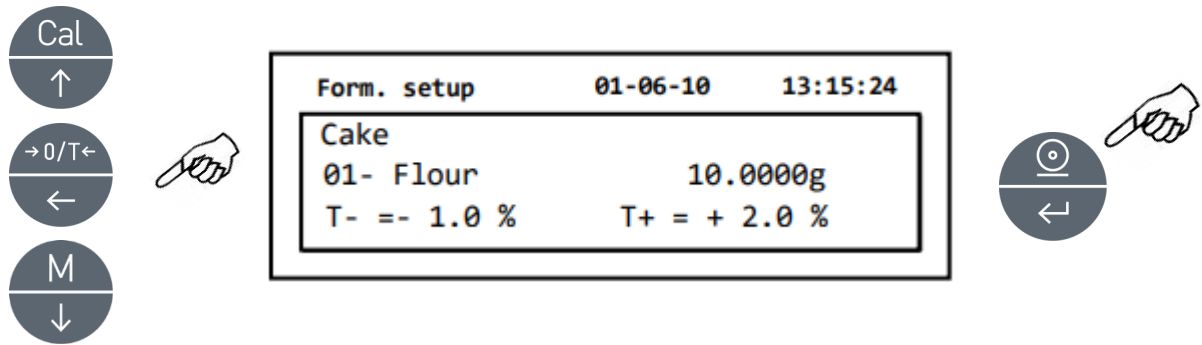
Note: It is also possible to set the value using the optional alphanumeric keypad.



4. Press the **PRINT** button to confirm.



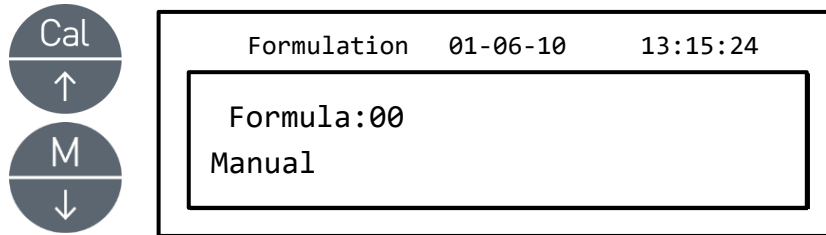
5. Enter the name of the first component (it can be a series of numbers or letters, max 11 characters) using the **MENU** or **CAL** buttons to scroll through the available characters.
6. Then press the **PRINT** button to confirm and save the value.



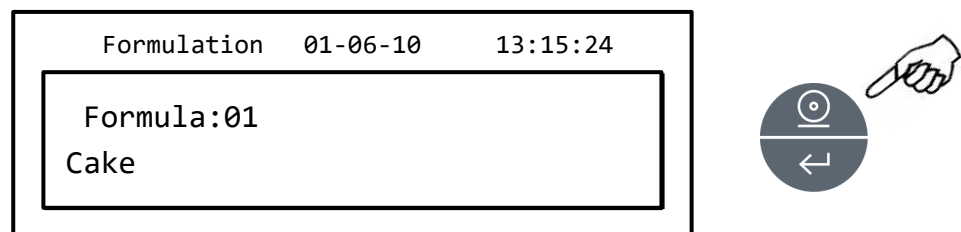
7. Now enter the quantity of the component using the **MENU** or **CAL** buttons to increase or decrease the value while pressing the **O/T** button to pass to the next value and the **PRINT** button to pass to the next parameter
8. Now enter the negative tolerance and press **PRINT** button to pass next parameter.
9. Now enter the positive tolerance.
10. Then press the **PRINT** button to confirm and save the value.
11. Repeat the operation described from point 5 to point 10 to enter all of the desired components up to a maximum of 20.
12. After having entered all of the desired components press the **ON/OFF** button to exit the formula saving procedure.

10.3.3 Formula recall

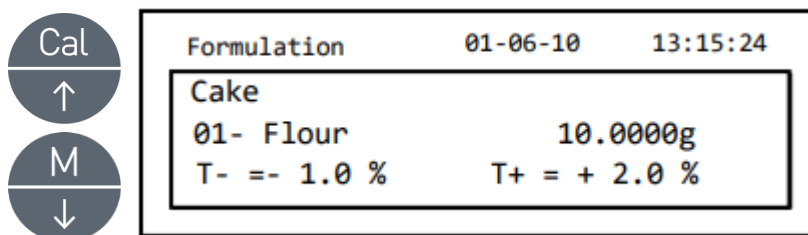
1. Select the formulation program as described in paragraph 10. The following screen will be shown on the display:



2. Choose the name of the formula (previously saved) using the **CAL** and **MENU** keys to scroll through the various formulas inserted.

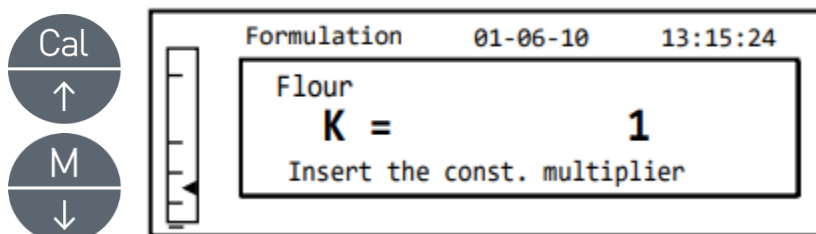


3. Then press the **PRINT** button to confirm the selection.



4. It will now be possible to display the various components and the relative quantities of the selected formula using the **MENU** and **CAL** buttons.

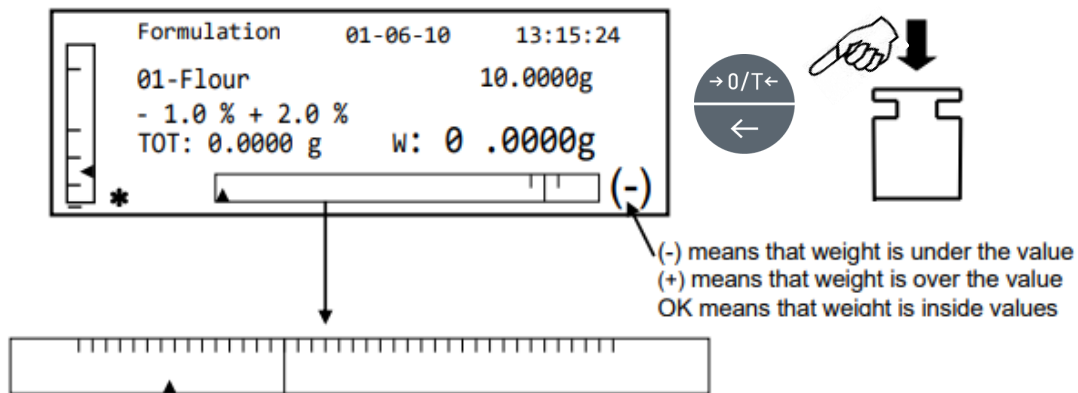
5. Press the **PRINT** button again to insert the constant multiplier.



6. Insert now the multiplicative constant K to determine the desired amount of product. Use the **MENU** or **CAL** buttons to increase or decrease the value.

Example: if the entered formula is for 100g of product, inserting $K = 2$ the values of all components will be recalculated to obtain a total amount of product equal to 200g.

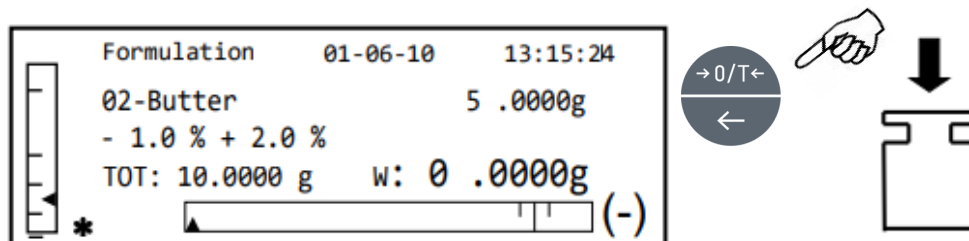
- Press the **PRINT** button again to begin weighing various components. If necessary, perform the tare operation before measuring out the quantity of the component indicated at the top right part of the display



(-) means that weight is under the value
 (+) means that weight is over the value
 OK means that weight is inside values

To facilitate the dosing operation, when the value of the component is approaching the threshold of the acceptable value, the dosing bar will automatically zoom.

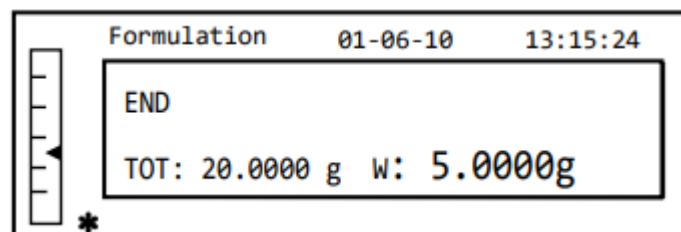
- Then press the **PRINT** button to pass to the next component.



- If necessary, perform the tare operation before measuring out the quantity of component indicated at the top right of the display.

- Then press the **PRINT** button to pass to the next component.

- Repeat the procedure until the last component, after which the weights of each component measured, and the total weight will be printed if the instrument is equipped with a printer. The display will show the following screen:



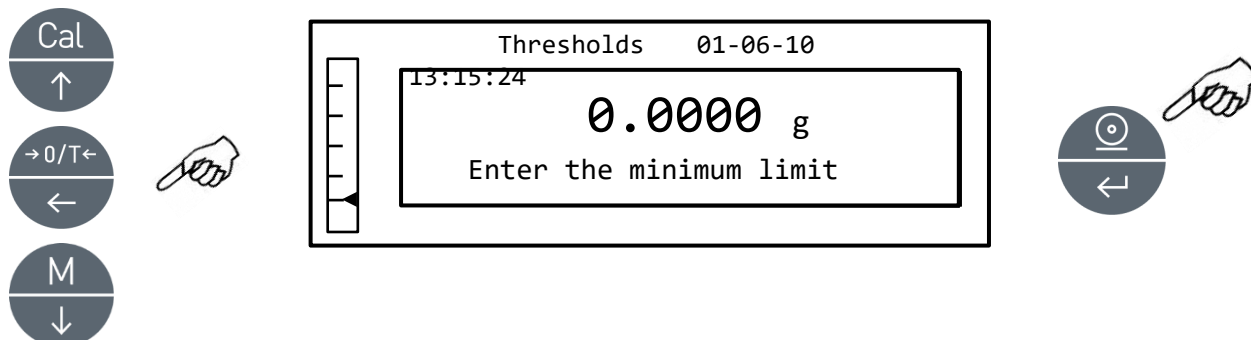
- To exit the screen and perform a new formulation, press the **ON/OFF** button once. To exit the program and return to the weighing screen, press the **ON/OFF** button two consecutive times.

To interrupt and exit the formulation function at any time, press the ON/OFF button.

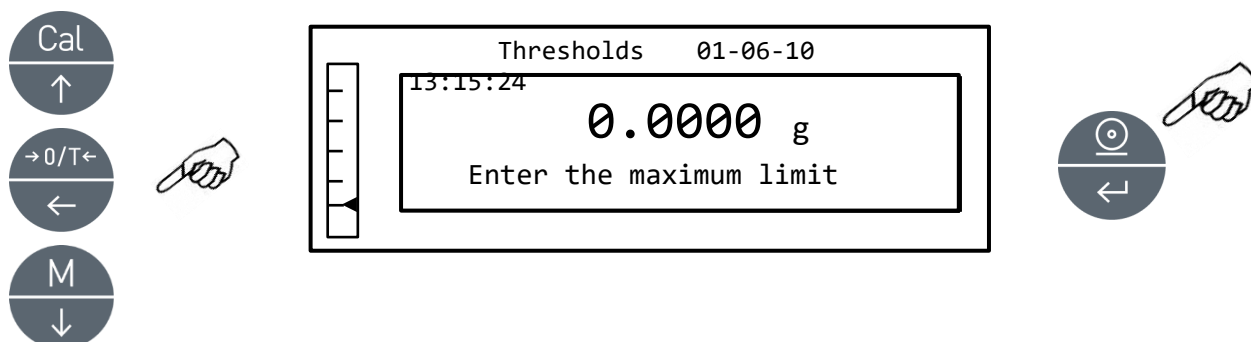
10.4 Max-Min threshold function.

The threshold function allows you to determine if the weight loaded on the plate is above or below two thresholds pre-set by the user.

1. Select the thresholds function as described in paragraph 10.
The following screen will be shown on the display:



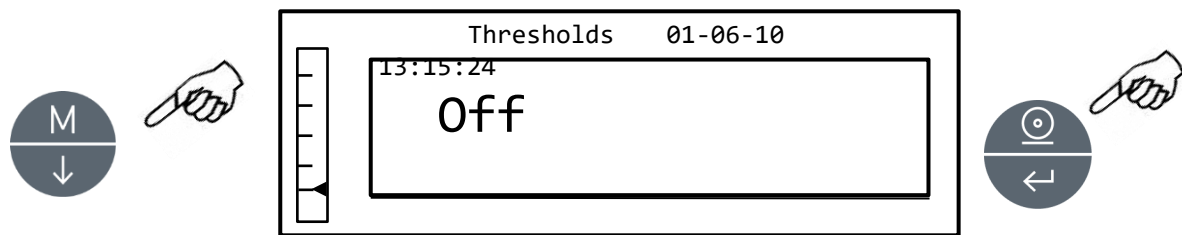
2. Enter the MINIMUM limit value by using the **CAL** and **MENU** buttons to increase and decrease the value, while pressing the **O/T** button to pass to the next number. During the entering phase, hold down the **O/T** button to delete the entered value.
3. Then press the **PRINT** button to confirm. The entered value will remain in memory until the balance is turned off.
4. The following screen will then be displayed.



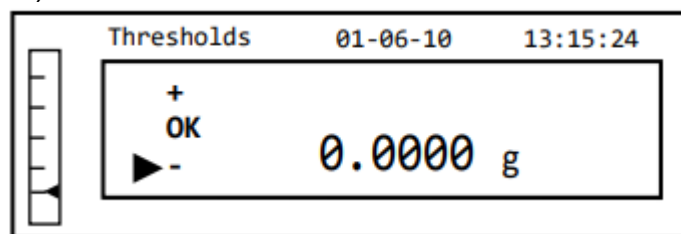
5. Now introduce the MAXIMUM limit using the same procedure described for the introduction of the MINIMUM limit.
6. Then press the **PRINT** button to confirm. The entered value will remain in memory until the balance is switched off.

Note: It is also possible to set the value by using the optional alphanumeric keypad.

7. The following screen will then be displayed.



8. Through the **MENU** key, select the activation or not of the acoustic signal when the weight is within the two set limits. Then confirm the selection by pressing the **ENTER** button.
9. If the thresholds have been inserted correctly, the balance will return to weighing mode with an indication of the threshold status (+ MAX threshold, - MIN threshold, **OK** within the two limits sets).



NOTE: If the values have not been set correctly, the word **ERROR 07** will be displayed.

The threshold function has three operating modes.

10.4.1 With both limits set

This mode allows to identify an acceptance range, inserting a lower limit and an upper limit, between which the value of weight is considered ok, identified by the "OK" symbol that is visualized on the display together with the acoustic signal, if activated. When the weight is under the value of the lower limit set, the symbol "L" is visualized on display, while if the value is above the upper limit set, the symbol "H" is visualized on display.

10.4.2 With only the lower limit set

When only the lower limit is set and the upper limit is left as zero, the weight is considered ok each time the value of weight is above the lower limit set, identified by the "OK" symbol that is visualized on the display together with the acoustic signal, if activated. When the weight is under the value of the lower limit set, the symbol "L" is visualized on display.

10.4.3 With only the upper limit set

When only the upper limit is set and the lower limit is left to zero, the weight is considered ok each time the value of weight is under the upper limit set, identified by the "OK" symbol that is visualized on the display together with the acoustic signal, if activated. When the weight is over the value of the upper limit set, the symbol "H" is visualized on display.

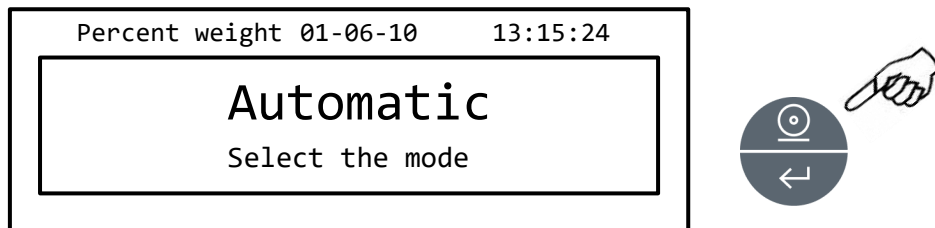
10.5 Percentage weighing function

This function allows you to read the weight as a percentage of a reference weight. The reference weight is assumed as the 100% value (factory setting).

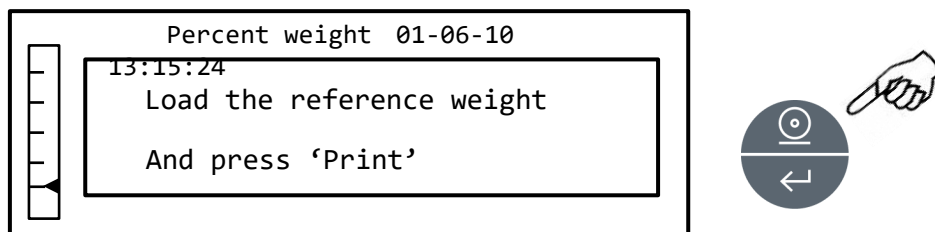
There are two modes for the acquisition of the reference weight – an automatic one (with reference weight), and a manual one (with the manual entry of the value of the reference weight).

10.5.1 Automatic mode with reference weight

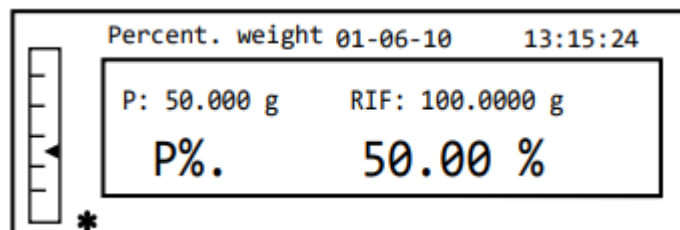
1. Select the percentage weighing function as described in paragraph 10. The following screen will be shown on the display:



2. Confirm automatic mode by pressing the **PRINT** button.
3. The tare will be performed and you will be asked to load the reference weight on the plate.



4. Load the reference weight on the plate and then press the **PRINT** button; the word "Wait" will appear. Once the weight is acquired, a screen with an indication of the weight loaded, reference weight, and percentage weight will be shown.

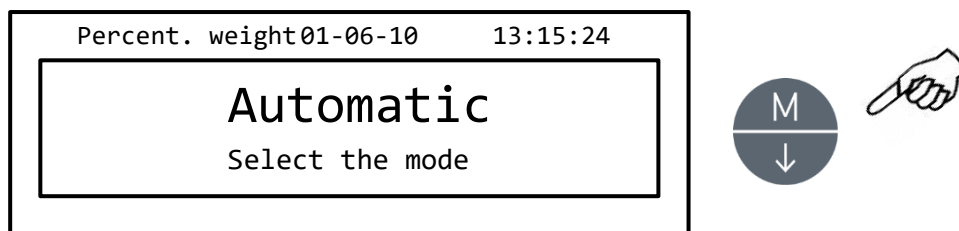


5. Now remove the reference weight, load the sample and read the percentage weight.
6. Press the **ON/OFF** button to exit the percentage weighing function.

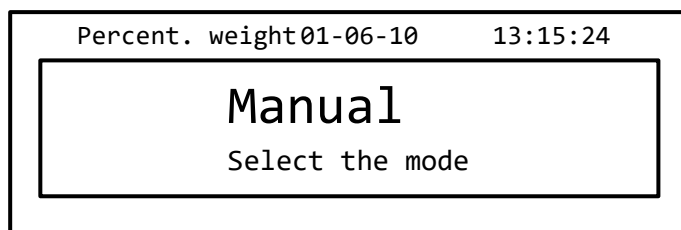
NOTE: If the reference weight introduced is less than 10 displayed digits, the word **ERROR 07** will be shown.

10.5.2 Manual introduction of the reference weight

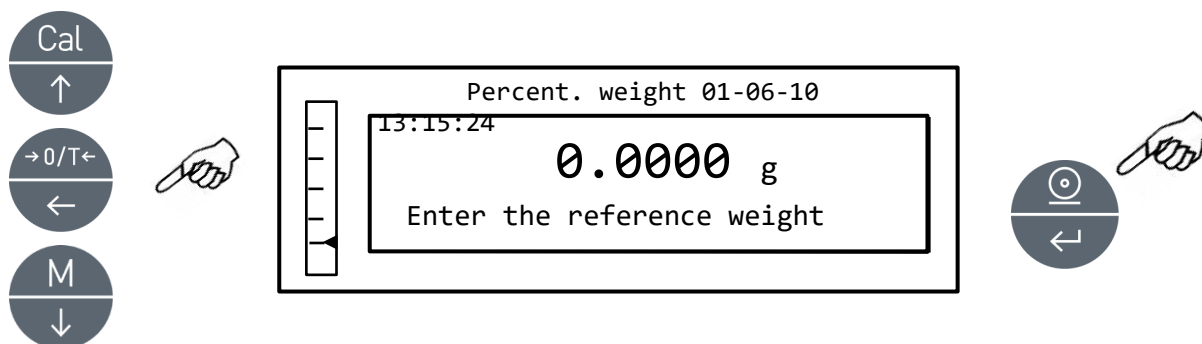
1. Select the percentage weight function as described in paragraph 10.
The following screen will be shown on the display:



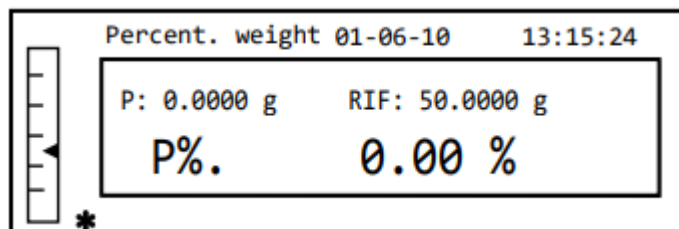
2. Press the **MENU** button to select manual mode



3. Confirm manual mode by pressing the **PRINT** button.



4. You can now enter the reference weight value, using the **CAL** and **MENU** keys to increase and decrease the value, while pressing the **O/T** button to pass to the next value. During the entry phase, holding down the **O/T** button allows you to delete the value entered. The value entered will remain in memory until the balance is switched off. It is also possible to enter the value using the optional alphanumeric keypad.
5. After having inserted the desired reference weight value, press the **ENTER** key.



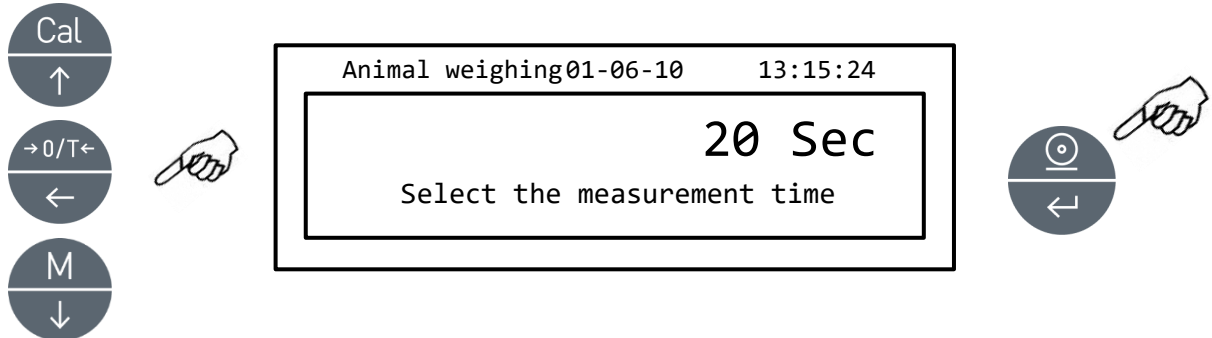
6. Now load the sample and read the percentage value.
7. Press the **ON/OFF** button to exit the percentage weighing function.

NOTE: If the reference weight entered is less than 10 displayed digits, the word **ERROR 07** will be shown.

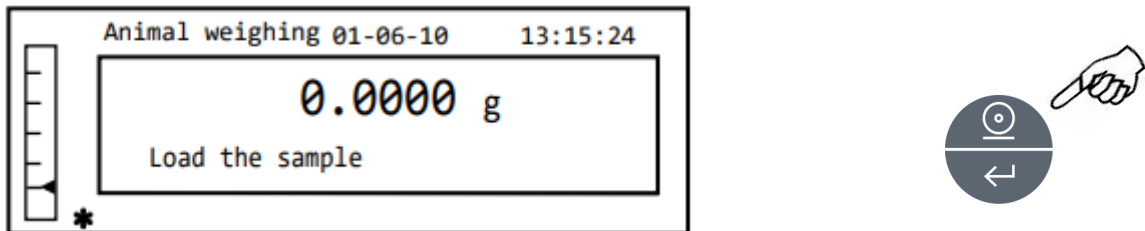
10.6 Animal weighing function

This function allows you to acquire an average weight of moving objects or animals for a settable period.

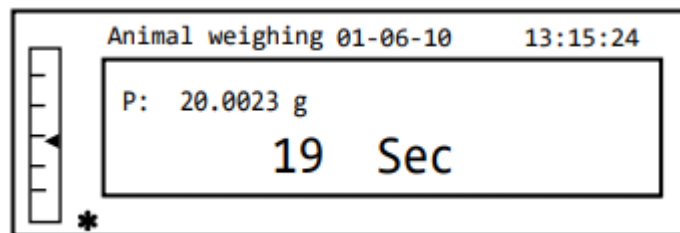
1. Select the animal weighing function as described in paragraph 10.
The following screen will be shown on the display:



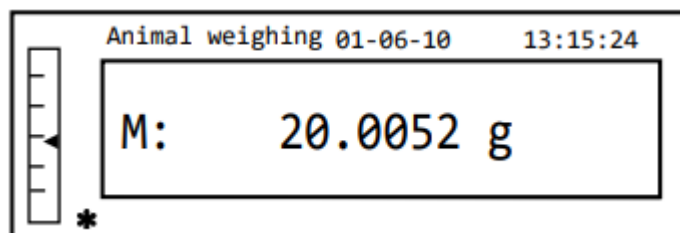
2. Set the desired time from 5 to 90 seconds using the **MENU** key to decrease and **CAL** to increase. Then confirm by pressing the **PRINT** button.



3. Load the sample to be weighed on the plate and press the **PRINT** button; the value of the current weight and the set sampling countdown time will be displayed.



4. Once acquired, the weight will be shown on the display with an indication of the average weight detected.

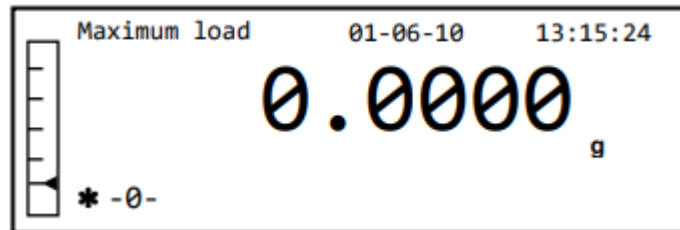


5. Press the **ON/OFF** button once to perform another measurement, or twice to exit the function.

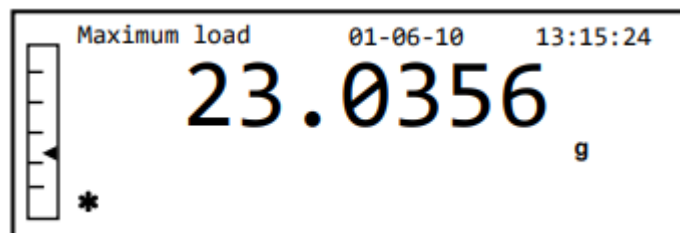
10.7 Maximum load function

The “maximum load” function allows you to measure the maximum load of a solid.

1. Select the maximum load function as described in paragraph 10.
A tare will automatically be performed, and the following screen will be shown on the display with an indication of the maximum load function at the top left:



2. The maximum load can now be detected.

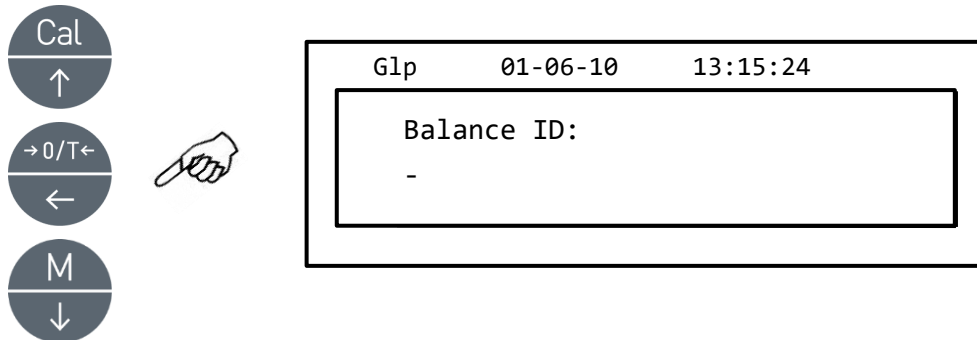


3. Press the **TARE** button to perform another measurement.
4. Press the **ON/OFF** button to exit the maximum load function.

10.8 GLP function (Good Laboratory Practices)

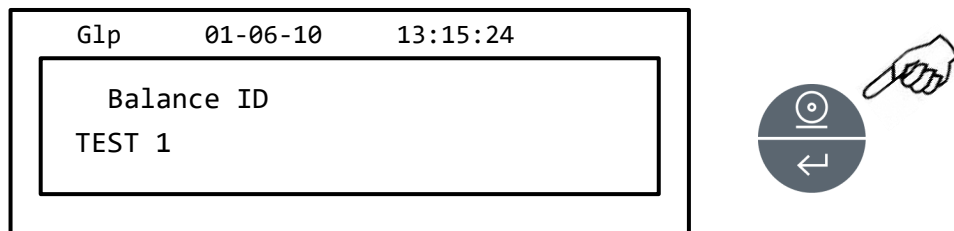
The “GLP” function allows you to save the identifying parameters of the instrument and operator to be able to print them along with the value of the test results.

1. Select the GLP function as described in paragraph 10.
The following screen will be shown:



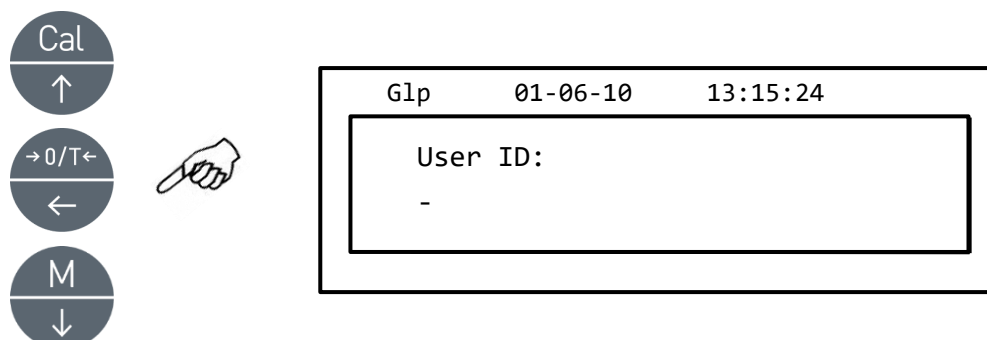
2. Enter the balance ID (it can be a series of numbers or letters, max 18 characters) using the **MENU** and **CAL** buttons to scroll through all of the available characters. To select uppercase or lowercase characters, press and hold the **MENU** button until the beeping stops.

Note: It is also possible to set the value by using the optional alphanumeric keypad.

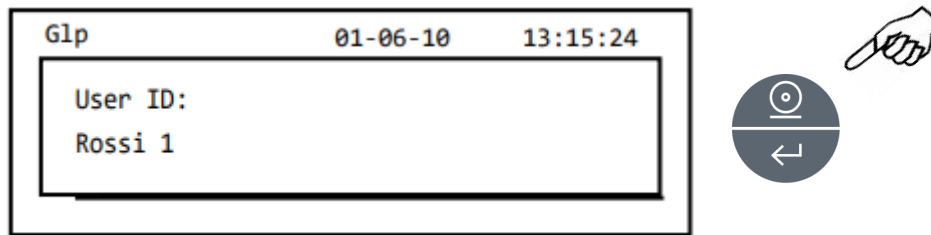


3. Enter the user ID (it can be a series of numbers or letters, max 18 characters) using the **MENU** and **CAL** buttons to scroll through all of the available characters.

Note: It is also possible to set the value by using the optional alphanumeric keypad.

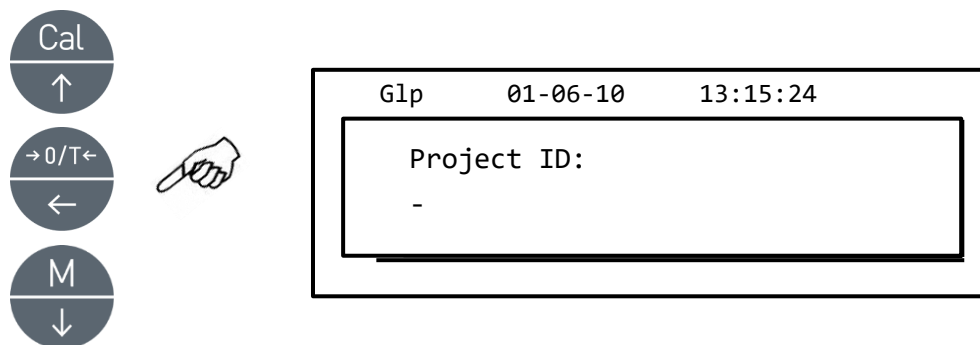


4. Confirm by pressing the **PRINT** button.

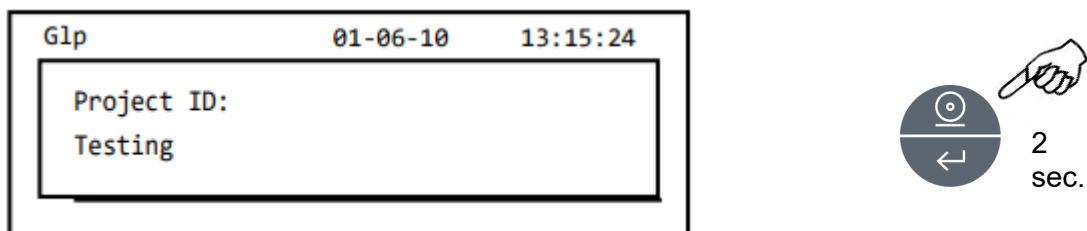


5. Enter the project identifier (it can be a series of numbers or letters, max 18 characters) using the **MENU** and **CAL** buttons to scroll through all of the available characters.

Note: It is also possible to set the value by using the optional alphanumeric keypad.



6. Then confirm all of the data entered by pressing and holding the **PRINT** button until the beeping stops.



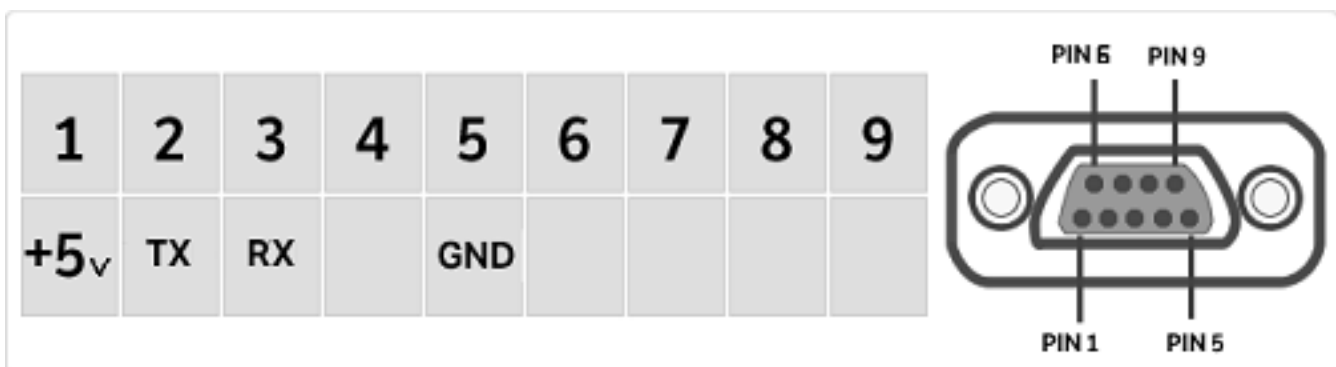
7. The balance will automatically return to the weighing screen.

11 RS232 Interface features

11.1 General features

The balance transmits the value visualized on the display following serial RS232C standard, allowing printing the value of weight to a PC monitor or to a serial printer. In the case of connection to a PC, it will be possible to select the transmission in continuous mode or transmission at user command by pressing of the PRINT button (as described at par.9.2). The balance is also capable of receiving commands, always through the standard RS232C, that allow performing all the functions available through the keyboard of PC itself. The speed of transmission and reception can be selected, as described previously (see par.9.3), to 1200, 2400, 4800, e 9600 baud. The character format is of 8 bit preceded by one start bit and followed by a stop bit. Parity is not considered.

11.2 Connector map

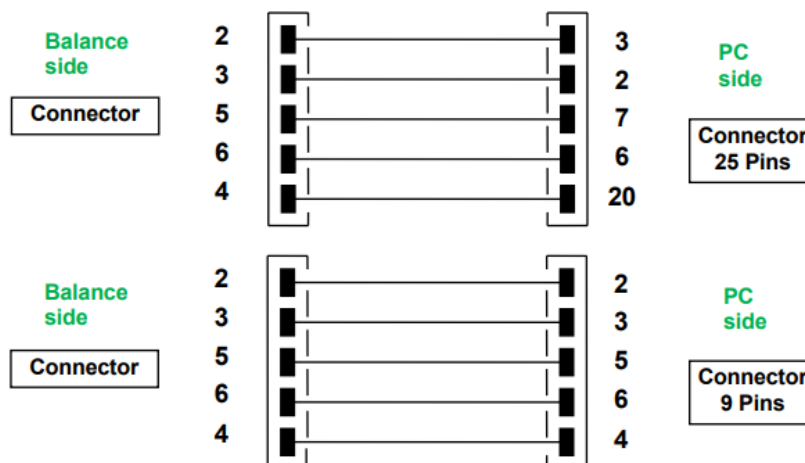


11.3 Connection of the balance to the optional alphanumeric keyboard

To connect the optional external alphanumeric keyboard to the balance, the same connector that is used to link the balance to PC must be used. In this case the connection to PC or to the printer must be through the connector on the optional alphanumeric keyboard.

11.4 Connection of the balance to computer

To receive/transmit data, link the connector of the balance to the serial port of your Personal Computer as shown below:



There are three ways of transmission in which the Balance and the computer can be interfaced:

- Continuous transmission of weight data (continuous mode must be set from the menu as explained in paragraph 9.2).
- On demand transmission of weight data (on demand mode must be set from the menu as explained in paragraph 9.2).
- On demand transmission with GLP of weight data (on demand mode with GLP must be set from the menu as explained in the paragraph 9.2).

In all three modes you can execute all the balance's functions directly from the computer's keyboard, transmitting to balance the ASCII codes as shown in the table below.

CODICE	2 nd FUNCTION (PROLONGED PRESS)
"t" = H74	TARE
"c" = H63	CALIBRATION
"e" = H65	ENTER
"m" = H6D	MENU
"o" = H6F	ON/OFF

CODE	1 st FUNCTION (SINGLE PRESS)
"T" = H54	TARE
"C" = H43	CALIBRATION
"E" = H45	ENTER
"M" = H4D	MENU
"O" = H4F	ON/OFF

11.4.1 Continuous Transmission mode

String transmitted is composed of the following 15 characters:

- First character: weight sign (blank or -)
- Second to ninth character: weight or other data
- Tenth to twelfth character: weight unit symbol
- thirteenth character: stability indicator
- fourteenth character: carriage return
- fifteenth character: line feed

Any non-significative zeroes are visualized as spaces. In the following table the various transmission formats are shown: Weight mode (valid for both continuous transmission)

1°	2°		3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°
Sign		weight							measure unit			Stability	CR	LF	

11.4.2 On demand transmission mode

When in on demand mode, the data transmitted to the computer not only includes information of the weight value but also date/time and other data transmitted to the computer, depending on the function in use.

In each mode the following data is transmitted:

WEIGHT:

```
-----  
03-04-11 10:13:44  
-----  
Weight:      0.00 g
```

PIECE COUNTING:

```
-----  
03-04-11 10:49:28  
-----  
Pcs.:       10  
Weight:     100.02 g  
MPW:       10.00 g
```

DENSITY:

```
-----  
03-04-11 10:51:15  
-----  
d: 1.4504 g/cm3
```

FORMULATION:

03-04-11 10:54:57

Manual

- 1. 31.05 g
- 2. 100.02 g
- 3. 26.89 g

T = 157.96 g

NOTE: To transmit the print of totalization of weights, hold down the PRINT button

THRESHOLDS:

Value under threshold

Value within thresholds

Value above threshold

03-04-11 11:02:19

03-04-11 11:01:50

03-04-11 11:01:50

Lim.1 : 10.00 g
Lim.2 : 100.00 g
Weight: -0.01 g
TEST: OK! ---

Lim.1 : 10.00 g
Lim.2 : 100.00 g
Weight: 31.08 g
TEST: OK!

Lim.1 : 10.00 g
Lim.2 : 100.00 g
Weight: 131.10 g
TEST: OK! +++

PERCENTUAL WEIGHT

03-04-11 11:58:39

Perc. 100.0 %
Weight: 18.69 g
Refer.: 18.69 g

ANIMAL WEIGHING:

03-04-11 12:01:06

Time = 20
Sec M:
56.53 g

MAXIMUM LOAD:

03-04-11 12:01:57

Max.: 2.76 g

11.4.3 On demand transmission with G.L.P.

In the on demand transmission with G.L.P., the data transmitted to the computer is the same as described as in the on demand transmission without G.L.P. mode but with additional G.L.P. parameters before of each transmission, as described below:

03-04-11 12:14:03
Balance ID:
A99
User ID:
MR.ROSSI
Project ID:
TEST

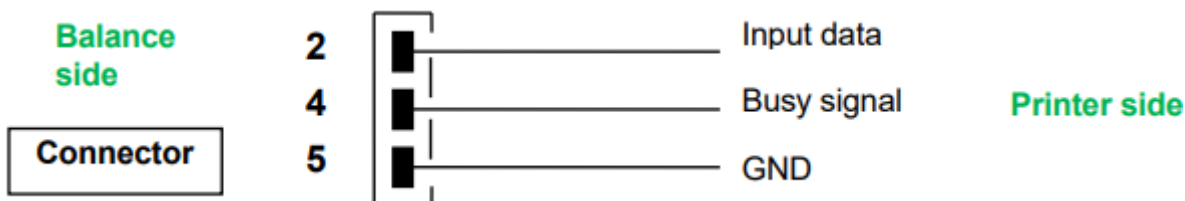
Weight: 18.71 g
Signature:

G.L.P parameters, Weight data, G.L.P parameters

11.5 Connection of balance with serial printer

It is possible to connect the balance to a printing peripheral.

To print the weight, connect the connector of the balance to the serial printer as shown in the graph below:



Here you can find description of the several modes of printing that can be selected:

- Printing the weight data with a generic serial printer (from the menu, set the generic printing mode as described in paragraph 9.2 and wait for the busy signal).
- Printing the weight data together with GLP indications with generic serial printer (from the menu, set the generic printing-GLP mode as described in paragraph 9.2 and wait for the busy signal)
- Printing the weight data with printer model TLP50 (from the menu, set the printer TLP mode as described in paragraph 9.2).
- Printing the weight data together with GLP indications with printer model TLP50 (from the menu, set the printer TLP - GLP mode as described in paragraph 9.2).

Note: In all different printing modes just described, if the weight is not stable during transmission of data to printer, an acoustic signal is emitted and ERR05 is displayed and weight is not printed.

11.5.1 PRINT FORMATS

Here are described the different types of print, depending on the printing mode and on the function selected:

Generic printing or TLP 50 printer

Weighing mode:

```
-----  
03-04-11 10:13:44  
-----  
Weight:      0.00 g
```

Piece counting:

```
-----  
03-04-11 10:49:28  
-----  
Pcs.:       10  
Weight:     100.02 g  
MPW:       10.00 g
```

Density:

03-04-11 10:51:15

d: 1.4504 g/cm3

Formulation:

03-04-11 10:54:57

Manual

1. 31.05 g
2. 100.02 g
3. 26.89 g

T = 157.96 g

NOTE: To transmit the print of total of weights, press and keep pressed the PRINT button

Thresholds:

Value under threshold

Value inside thresholds

Value over threshold

03-04-11 11:02:19

03-04-11 11:01:50

03-04-11 11:01:50

Lim.1 : 10.00 g

Lim.1 : 10.00 g

Lim.1 : 10.00 g

Lim.2 : 100.00 g

Lim.2 : 100.00 g

Lim.2 : 100.00 g

Weight: -0.01 g

Weight: 31.08 g

Weight: 131.10 g

TEST: KO! ---

TEST: OK!

TEST: KO! +++

Percentual weight:

03-04-11 11:58:39

Perc. 100.0 %

Weight: 18.69 g

Refer.: 18.69 g

Animal weight:

03-04-11 12:01:06

Time = 20 Sec

M: 56.53 g

Maximum load:


03-04-11 12:01:57

Max.: 2.76 g

11.5.2 Generic Printer or TLP 50 printer with G.L.P.



In the printing mode with G.L.P. the printed data are the same as shown in the print mode without G.L.P. but with the addition of G.L.P. parameters as shown below:

```
-----  
03-04-11 12:14:03  
Balance ID:  
A99  
User ID:  
MR.ROSSI  
Project ID:  
TEST  
-----  
Weight:  18.71 g  
  
Signature:  
  
-----
```



G.L.P parameters, Weight Data, G.L.P parameters

12 Error codes

ERROR MESSAGE ON DISPLAY	MEANING	POSSIBLE SOLUTIONS
ERR01	weight not stable after operation of tare	Protect the balance from air draughts or from vibrations of the working table
ERR02	impossible to start the calibration due to instability of the balance	Protect the balance from air draughts or from vibrations of the working table.
ERR03	calibration weight not correct or balance unstable	Calibrate with correct weight or protect the balance from environmental disturbances. In models with internal calibration remove the screw in the left lower part of the balance (see par5)
ERR04	weight of samples for the piece-counting function not adequate or unstable	Select a bigger number of samples or protect the balance from vibrations.
ERR05	impossible to print because of weight unstable	Protect the balance from environmental disturbances
ERR06	weight cannot reach stability in density mode	Protect the balance from environmental disturbances
ERR07	weight cannot reach stability in percentual weighing mode	Protect the balance from environmental disturbances
ERR08	anomaly on autocalibration motor	Contact service staff
ERR09	weight cannot reach stability in formulation mode	Protect the balance from environmental disturbances
ERR10	weight of component out of tollerance in formulation mode	Reduce quantity
ERR F	flash memory damaged	Ask authorized service staff for assistance
“UNLOAD”	weight loaded on the pan or pan not positioned properly	Remove the weight from the pan or position properly the pan and underpan.
“CAL But”:	the balance requires to be re-calibrated	Unload weights, if any, on the pan, and press the CAL button
	weight above range	Unload the weights loaded on the pan
	weight below range	Place the pan and the underpan properly

13 Maintenance and care

Regular maintenance of the balance guarantees accurate measurements.

- **Cleaning**

Before cleaning the balance, unplug the power supply of the balance from the mains. Do not use aggressive cleaning product (as solvents or similar), use a humid cloth with soft detergent. Avoid liquids entering the instrument case during the cleaning. Wipe the balance with a soft cloth. Parts of samples or powder can be removed using a brush or vacuum cleaner.

- **Safety checks**

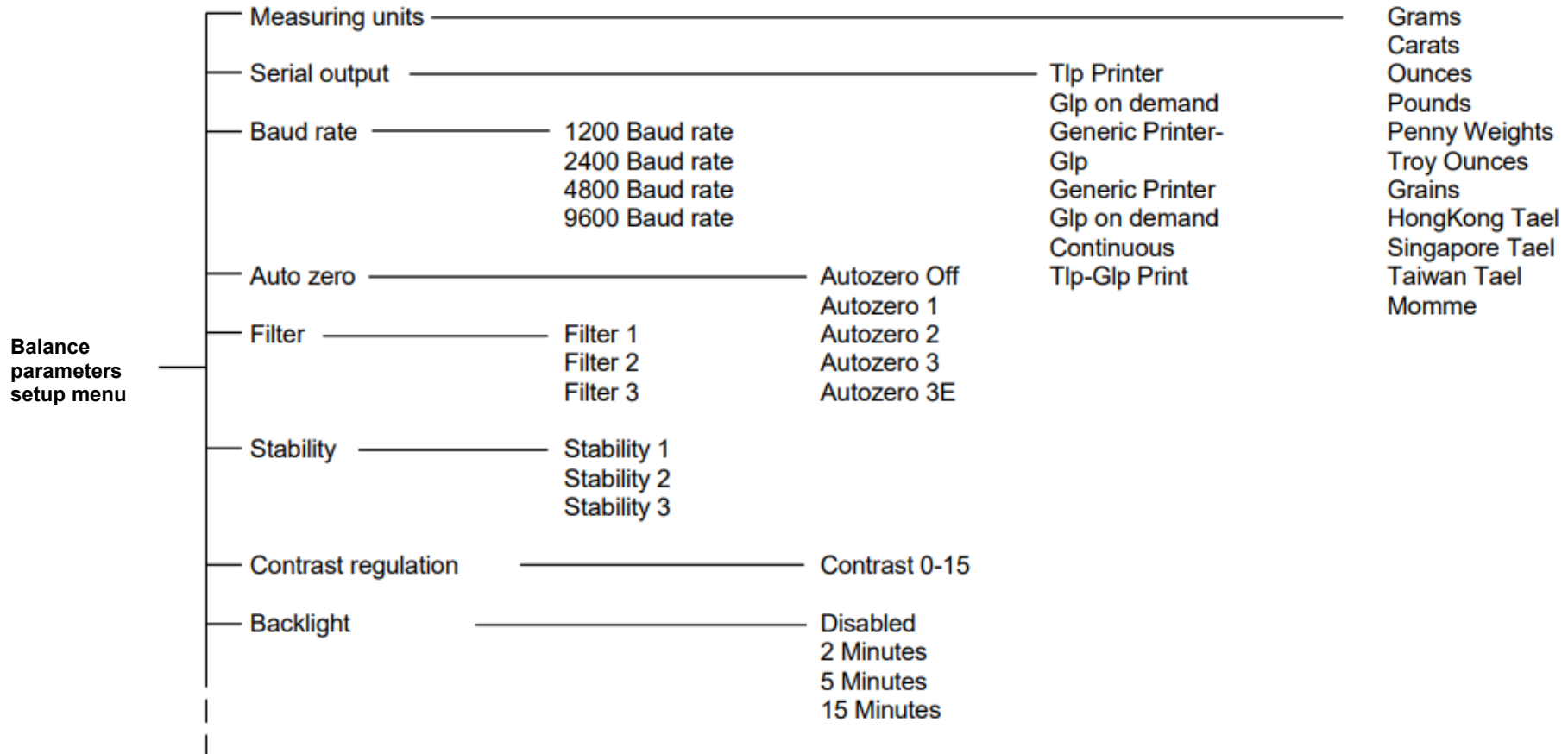
The instrument's safety is no longer guaranteed if:

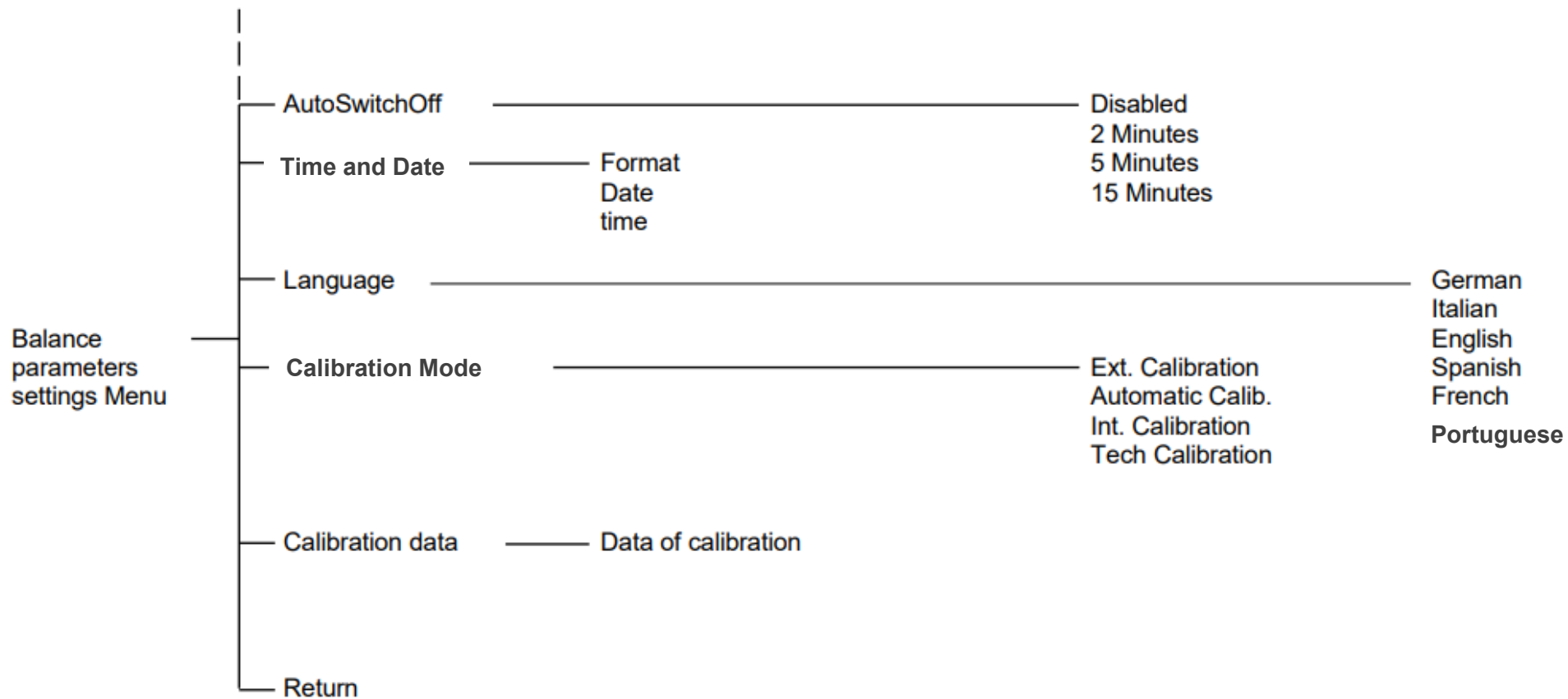
- balance power supply is clearly damaged
- balance power supply is not working anymore
- balance power supply is stored for long time in harsh environmental conditions.

In these cases refer to the support centre where specialized technician will make reparations to the instrument in the safe conditions.

14 Quick guide to balance parameters setup

- To access the balance parameters setup menu, hold down the **MENU** button until the beeping stops.
- Use the **MENU** button to go to next parameter, use the **CAL** button to go to previous and the **PRINT** button to confirm the choice.
- To escape from menu, press and keep pressed the **MENU** button until the acoustic alarm gets mute.





15 Balance Technical characteristics, serie TGI-1000M

All the models listed are only for internal use. Maximum altitude using limit: 4000m. Pollution level: 2. Over voltage category: II

Power supply provided:	INPUT: 230V ~ 50Hz o 115V ~ 60Hz, OUTPUT: 24V DC 1A, Max power absorbed 13.2VA-
Environment conditions adaptation:	Filters selection
Autozero:	Selectable from menu
Serial output:	RS232C
Operating temperature:	+5°C - +35°C

16 Warranty

- The warranty period is of 12 months from the date of purchase as of the invoice of the product or by delivery note.
- Warranty covers all parts defective at the origin. It does not cover mechanical or electronic parts damaged by incorrect installation, tampering or incorrect use.
- Warranty does not cover damages caused by impacts, balance dropping or dropping of objects on weighing pan.
- Delivery costs shall not be included in the warranty.

17 Equipment disposal



This equipment bears the crossed-out wheeled bin symbol, indicating that it must not be disposed of together with unsorted household waste.

It is your responsibility to ensure the proper end-of-life disposal of this equipment by delivering it to an authorised facility for separate collection and recycling. You are also responsible for decontaminating the equipment in the event of biological, chemical, and/or radiological contamination in order to protect the health and safety of personnel involved in its disposal and recycling.

For information on designated collection or disposal facilities, please contact the dealer from whom you originally purchased this equipment.

By following these requirements, you will contribute to the conservation of natural resources and help ensure that the equipment is recycled in a manner that safeguards human health.



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