OPTIKA®
BALANCES
ITALY

INSTRUCTION MANUAL

Model
TG Series

v 1.0 2019

CE

INDEX

1 WARNINGS AND SAFETY INSTRUCTIONS 3

2 INSTALLATION 4

2.1 PACKAGE CONTENT 4
2.2 POSITIONING THE DEVICE 5
2.3 START-UP 6

3 SERIAL INTERFACE CONNECTIONS 8

4 SIDE KEYPAD FUNCTIONS 8

4.1 DESCRIPTION 8
4.2 DISPLAY AREA FUNCTIONS 9
4.2.1 Instructions for use of the numeric and alphanumeric keypad for data entry 12

5 STANDBY, LOGOUT, SWITCHING OFF FUNCTIONS 14

6 SIMPLE WEIGHTING 15

7 CUSTOMIZED SETTINGS 17

7.1 SELECTING THE LANGUAGE 18
7.2 SETTING THE DATE AND TIME 19
7.3 CREATING A CHANGE AND SELECTING THE USER PROFILE 20
7.3.1 Recovering and removing the password 25
7.4 PREFERENCES: LANGUAGE, DISPLAY APPEARANCE, BEEPER, BRIGHTNESS 26
7.5 SETTING THE WEIGHTING PARAMETERS 27
7.6 CALIBRATING AND SETTING THE CALIBRATION MODES 29
7.7 SETTING PERIPHERALS 31
7.8 INFORMATION ON THE SOFTWARE 35
7.9 SERVICE 35
7.9.1 System data backup and restore 35
7.9.2 Factory reset 37
7.9.3 Software update 38
7.9.4 Heater technical service 38
7.9.5 Balance technical service 38

8 MENU OF THE FUNCTIONS 39

8.1 HEATER SETUP 39
8.2 DETERMINATION OF THE HUMIDITY CONTENT WITH "QUICK" METHOD 41
8.3 DETERMINATION OF THE HUMIDITY CONTENT WITH "ADVANCED" METHOD 44
8.4 STARTING A DYING CYCLE IN "ADVANCED" MODE 51
8.5 FUNCTIONS AVAILABLE DURING OR AT THE END OF THE DRYING CYCLE 54
8.6 RAPID KEYS 57
8.7 "PRESET" AND "PERSONAL" DATABASES OF THE DRYING METHODS 58
8.7.1 Default database 58
8.7.2 Custom Database 63
8.8 DATABASE OF THE RESULTS. 65
8.9 SETTING THE GLP DATA 67

9 TIPS FOR THE DETERMINATION OF THE HUMIDITY CONTENT OF THE SUBSTANCES 69

9.1 PREPARING THE SAMPLE 69
9.2 TYPES OF SAMPLES 69
9.3 AMOUNT OF SUBSTANCE AND DURATION OF THE DRYING CYCLE. 70

10 CARE AND MAINTENANCE 70
11 TECHNICAL FUNCTIONS 71
12 TROUBLESHOOTING 72
13 REPLACING ELECTRICAL FUSES 72
14 WARRANTY 73
15 STORAGE CONDITIONS 73
16 DISPOSAL 73

1 Warnings and Safety Instructions

CAUTION!
Please read these instructions for installation and use before starting your work with your new balance. One use for the device other than the one shown in this manual does not guarantee the safety of the product. Keep the instruction manual thoroughly.

Intended use

The humidity analyzer iThermo is used for quick and precise determination of the humidity of the liquid, pasty and solid substances using the thermogravimetric method.

Observe the following guidelines for safe and hassle operation of the analyzer of humidity:

- Use the humidity analyzer exclusively for determination of humidity in samples. Any use or handling can endanger the safety of persons and cause damage to the device or other property.
- Do not use the device in areas with danger of explosion; also operate the device only in accordance with the ambient conditions specified in these operating instructions.
- Do not use the device for chemically hazardous or toxic substances, as they can cause a bio-hazard or flammable or explosive substances that emit vapors when heated.
- If you use electrical equipment in installations and under ambient conditions requiring higher safety standards, comply with the provisions in the directives for the installation of such systems in the own country.
- The device may be operated only by trained personnel who know the properties/characteristics of the sample used.
- Before starting the unit for the first time, check whether the supply voltage corresponds to the mains voltage.
- To disconnect the unit from the mains power unplug the power cord.
- Route the power cord so as to avoid, avoid contact with hot surfaces of the device.
- Use only extension cords that comply with regulations and equipped with a protective conductor with a minimum operating temperature of at least 70°C.

Warning: heat protection

- Observe the following distance and the free space around the unit to prevent an accumulation of heat in the device and overheating of the unit itself:
  - 20 cm around the device
  - 1 m above the device
- Do not place flammable materials on, under or near the equipment as the heating element heats the surrounding area.
- Remove the samples with caution, as the heating element and the plates sample holder may still be very hot. To avoid burns when parts of the high temperature oven, wear gloves or use thermally insulated clamps.

2 Installation

Gently remove the device from its packaging, check it for visible damage caused by transportation and that all accessories shown below are present.

2.1 Package content

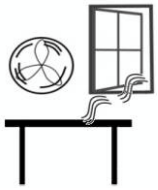
1 Device for humidity determination.
2 VDE power cable
3 15 pin M/F cable for connecting the balance/heater
4 Tablemat
5 Sample-holder plate pan
6 Pan with antiventilation cylinder
7 #10 sample-holder plates
8 CD with instruction manual

2.2 Positioning the device

The device was manufactured so that in normal operating conditions they are achieved reliable weighing results. Choosing the correct placement of the device is therefore important to ensure optimal and precise operation.

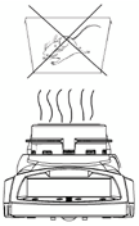
For choosing the place where you can install the device, you must meet the following criteria:

Do not install the balance in environments where there are drafts or sudden changes of temperature.



Avoid exposure to extreme temperatures and temperature fluctuations that occur, for example, if the device is placed closed to a radiator or in places under direct sunlight.

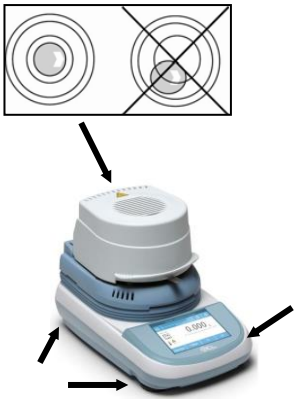
Do not place the device near explosive and flammable materials.



Place the device on a stable and leveled surface.
Avoid shock during weighing.

Environmental humidity of use of the balance must be comprised between 40% and 70%.
Do not expose the device to prolonged intense humidity. Unwanted condensation on the device may occur if a cold unit is place a higher temperature place. In this case, the device must be disconnected from the power supply and acclimatized at room temperature for about two hours.

Level the device by adjusting the 2 leveling feet placed one in the front and one in the rear of the device. The bubble level is positioned in the rear part of the heater.



Adjustable Feet

2.3 Start-up

The following describes all the steps required to prepare the device for the first start-up.

Open the oven lid and place:

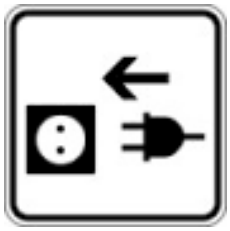
1. Pan with the antiventilation cylinder
2. Place the sample-holder plate extractor
3. Place the star on the weighing cone.

The balance is connected to the heater via a 15-pin M/F cable.
Plug the cable into the two connectors on the rear of the device as shown in the figure.

Plug the VDE cable supplied into the supply connector on the rear of the device.

N.B. Verify that the power supply indicated on the device nameplate matches the one in use in the country where you are installing the unit.

So **connect** the VDE cable to the outlet in the vicinity of the device. Do not use cables/extensions non-compliant with current regulations.



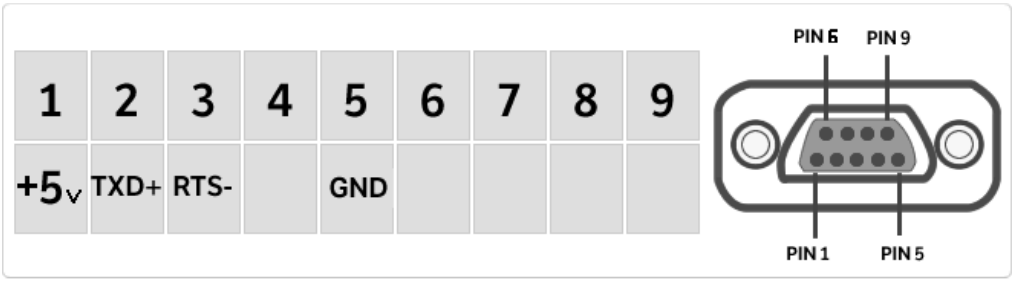
Wait 30 minutes after the start-up and calibrate the device prior its leveling. For the calibration procedure, refer to **Chapter 7.6**. Perform calibration of the device each time it is moved to another place.

It is recommended not to drop overweight items on the balance weighing pan to avoid damaging it.

The service must be performed by trained personnel and spare parts used must be original. To do that, please contact the retailer from whom the device was purchased.

3 Serial interface connections

The device is equipped as standard with a RS 232C interface for connection to a serial printer. To ensure communication between the device and a printer, you must satisfy the following conditions:
connect the printer via a suitable cable by matching the location of the printer signals with those of the device.
properly set the printer transmission speed and the type of printer according to the printer parameters. See section 7.7



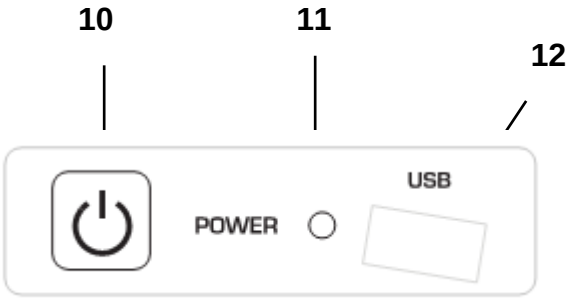
N.B. It's advisable to use one of the printers listed in chapter 7.7, (Mod. Dpp250 or TLP50) to ensure proper printing operation. (In the case of use of different printers, you cannot perform the printing of the graph).

4 Side keypad functions

The thermobalance is equipped with a keyboard placed in the left side part to perform the switching off operations.

4.1 Description

The keyboard has a switching on and off key (1), an operating indicator led (2) and a USB port.

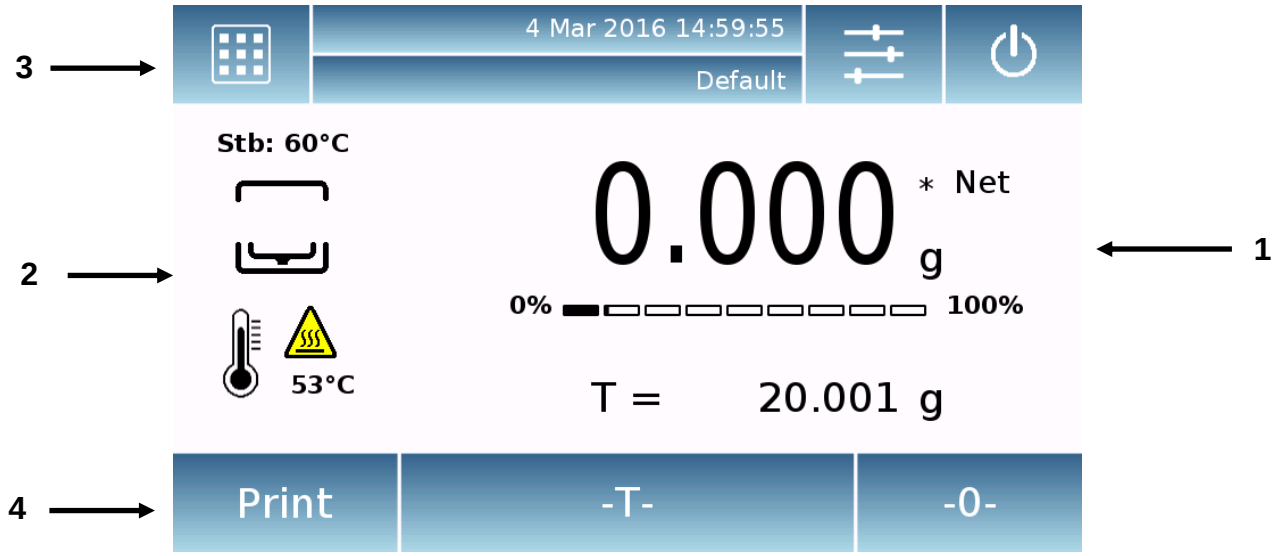


After inserting the power cord, the device will start automatically without having to press the power key.
Use the power key to switch off the device and restart the system when the power cord is permanently attached.

N.B. The phase of switching on and off of the device requires about 20 seconds; during this period, the display will remain switched off.
When powering, wait until you display the home screen before performing other operations.
While in the switching off phase, wait until the green LED turns off before removing the power plug if necessary.

4.2 Display area functions

The thermobalance is equipped with a color display with tap screen functionality that allows tapping on the screen in the active areas to quickly perform the access to the various menus and functionality of the device.



1

Area showing the weighing values or data related to humidity during and at the end of the drying cycle

g	Display of the measurement unit; tapping the symbol, you can access the menu of the measurement units and select the ones desired.
*	Stability value display.
T =	Tare value display.
0%-100%	Analog bar showing the magnitude being measured.

2

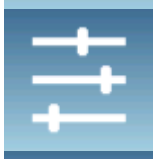
Area showing the heating operation status

60 °C	Value display of the heater temperature.
Stb: 60°C	Value display of the standby temperature of the heater.
	High temperature danger display.

3

Bar to display the time and date, to set the weighing parameters, to select the user, to access to drying functions and to switch off the device.

By tapping this area, you access the menu of the drying mode functions



By tapping this area, you access the weighting menu settings, the viewing preferences, the devices and user customization setup

By tapping this area, you access the switching off menu or enable the standby status of the device

By tapping this area, you access the user menu to make your selection quickly than desired

4

Bar to display the function keys.
By tapping the keys displayed in this area, the relative function will be executed. The following are all available keys that may vary depending on the selected applications

Bars of the keys available in simple weighing screens.

Print: key enabling data printing.

-0-: key enabling the reset key.

-T-: key enabling tare operation.

Bars of the keys available during the drying cycle.

Abort: key aborting the current drying cycle.

Stop: key stopping the drying cycle.
Tapping this key, you can stop the drying cycle

Bars of the keys available at the end of the drying cycle.

Esc: exit key from the drying function.

Save: key to store the test result.

Restart: key to restart a new drying cycle.

Print: key to print the result.

Param.: key to display the parameters used for the drying cycle.

4.2.1 Instructions for use of the numeric and alphanumeric keypad for data entry

The functionality of the alphanumeric keyboard described below is valid for all of the data insertion operations in the various modes of use of the device.

Mode 1

Alphanumeric keyboard.

Key to select how to enter the uppercase or lowercase letters

Key to delete the last character entered

Mode 2

Key to delete all the characters entered

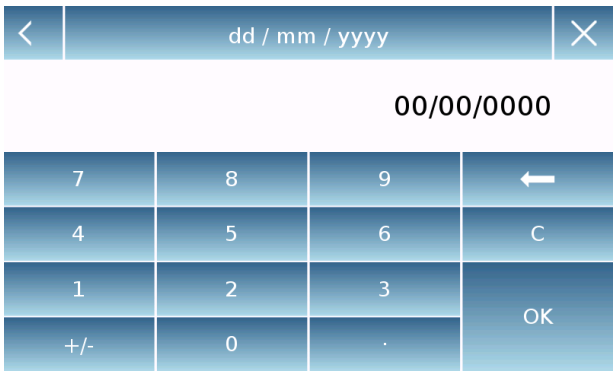
Key to move the cursor forward and backward on the string entered

Mode 3

Key to confirm and store the entry

Key to select the keypad characters.
By tapping this key, you display randomly the various characters available for the entry.
Mode 1, Mode 2, Mode 3

Key to delete the entry.



Numerical keypad.

Key to delete the last character entered

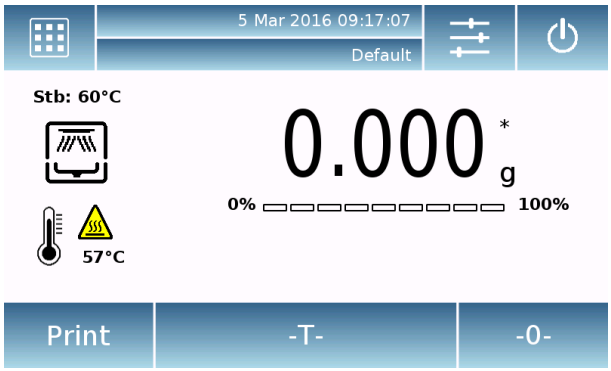
Key to confirm and store the entry

Key to delete all the characters entered

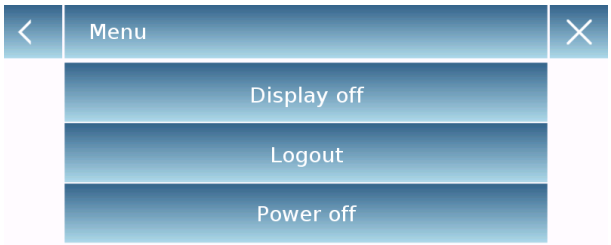
Key to delete the entry.

5 Standby, logout, switching off functions

After inserting the power cord into the wall outlet, the device will automatically switch on taking in the basic weighing screen.



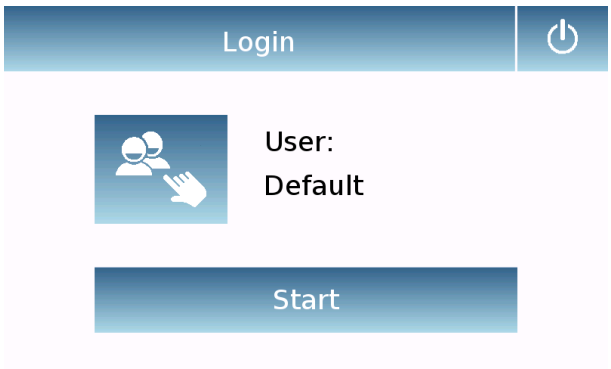
By tapping the area with the symbol You access the switching off menu.



There are 3 switching off modes:

- Display off.
- Logout.
- Switching off.

Display off
Selecting the display off mode, the device will go in the standby state; the display is turned off, so that only the bottom right command to turn on the system will be enabled.
Tapping the symbol, you will return to the basic weighing screen.



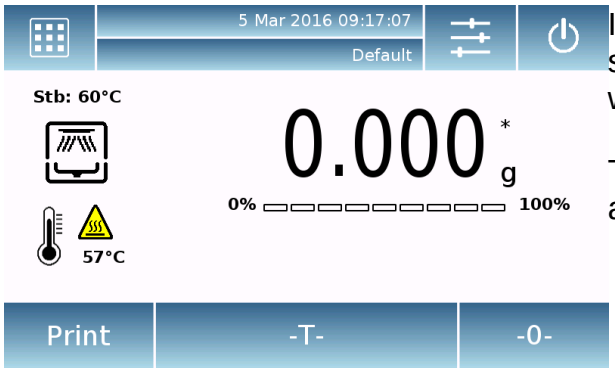
Logout
Sele**cting the** logout mode, you will disable the current user
Tapping **“Start”**, it will activate the user and in the case of password protected user it will be asked you to enter it.

Tapping you can select another user by which you want to switch on the device.

Switching off
Selecting the switching off command, the device will be turned off. To turn it on, you shall press the key on the left of the device or remove the power plug and insert it again.

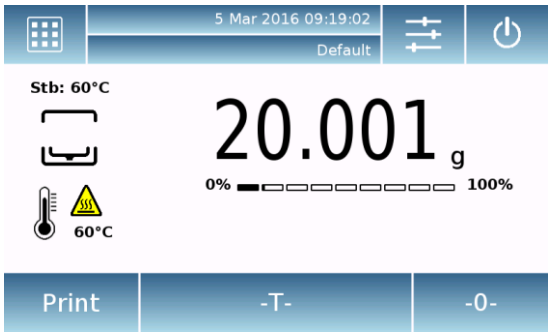
6 Simple weighting

After the power unit is connected, the green LED status indicator on the left side of the device will lit. This phase will last about 20 seconds and, during all the time, the display will remain off. After the data loading phase, you can display a screen showing the scope and resolution of the balance. Then, the device will be positioned in a simple weighing screen.
At first power up, the device is started by activating the default user with the factory settings.

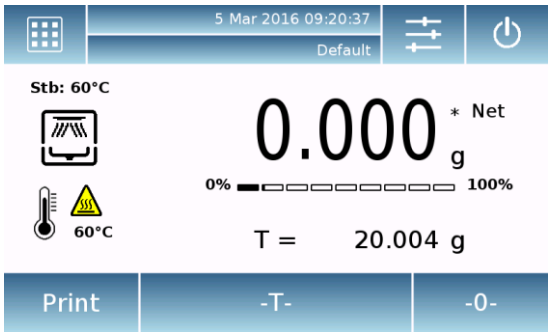


In simple weighing screen, the weight display area shows the value of the weight loaded on the weighing pan.

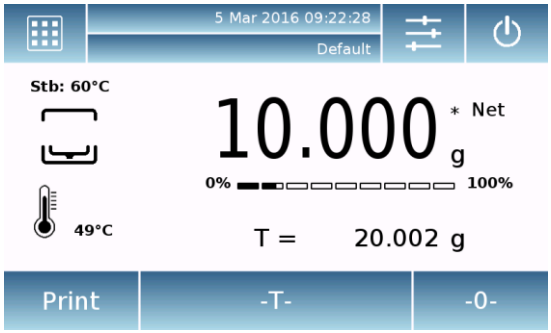
Tap the **-0-** key to set a new zero point and reset all tare values.



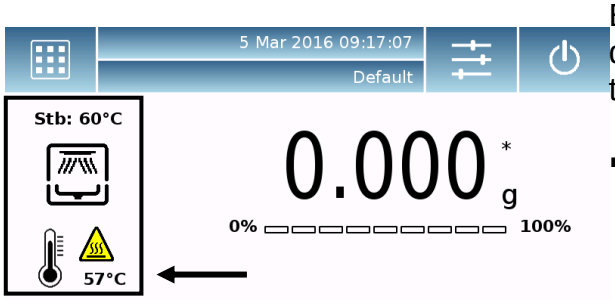
If you work with weighing containers, first zero the balance. Place the container and press the **"-T-"** key.



The **Net** symbol displayed shown the net weight. Tapping the **"Net"** symbol, you can display the gross weight **"Lrd"**.
"**T= "** indicates the tare value captured.

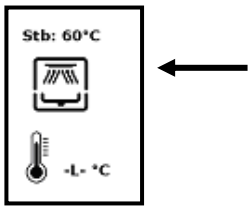


Place the material to be weighed on the balance and wait until the stability symbol turn on before detecting the value.



Even during use in simple weighing mode, the display on the left side displays information about the state of the oven:

- **"Stb"** indication of the standby mode of the oven. "**Stb: Off**" standby off, "**Stb: xx °C**, standby on based on the temperature value shown.



- **-L- °C:** it indicates the current temperature value inside the heater. "-L- °C" indicates a temperature lower than 35°C.

- Heater status when the lid is open.

- Heater status when the lid is closed with heating unit on.

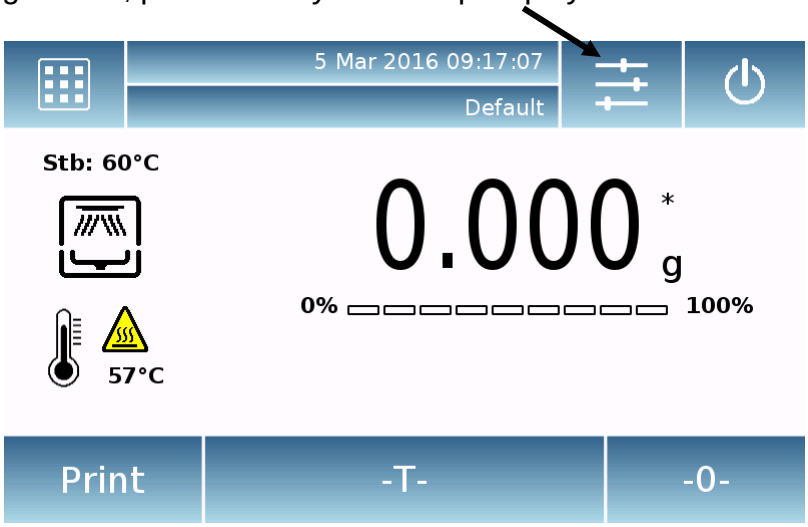
- Heater status when the lid is closed with heating unit off.

7 Customized settings

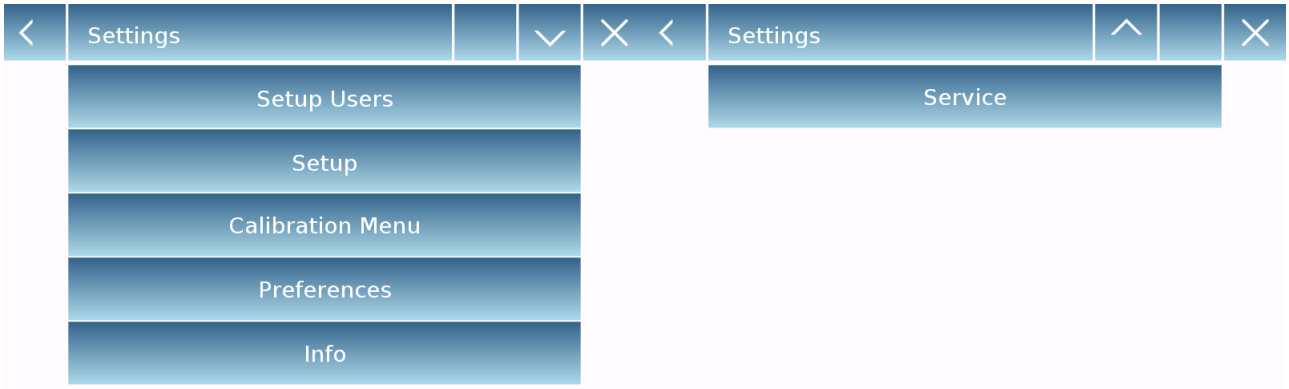
This section describes all the customization functions of the device. Each function described below can be set differently for each user.
N.B. Some settings can only be modified by users with administrator permissions.

- Setup of users.
- Setup.
- Menu of calibration.
- Preferences.
- Info
- Service

To enter the settings menu, press the key on the top display bar.



You will display the following screens with all the functions relating to the setup menu.



Indicator of the number of pages available.
To scroll through the pages back and forth, touch the arrows.

Return to the previous screen

Menu exit

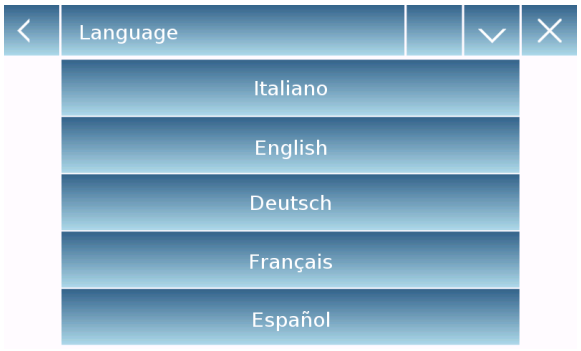
Function indicator not available or not enabled to users with no administrator rights.

7.1 Selecting the language

Select the "**Preferences**" function in the settings menu.

Tap the “**Language**” key in the menu list.

You can select the language for the device use.
Tap the “**Language**” key in the menu list.



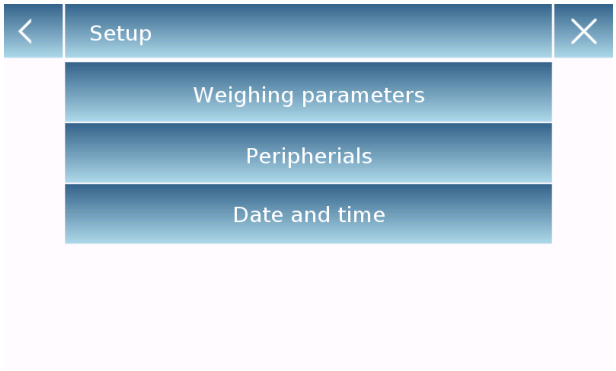
Then select the language desired.
All views will be automatically translated into the selected language.

N.B. The selected language will be assigned only to the user with which the selection was made.

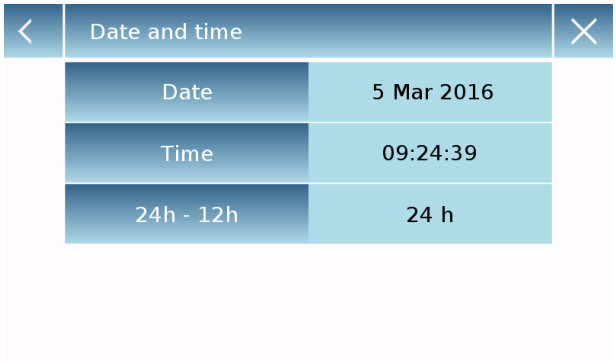
7.2 Setting the date and time

Select the "**Setup**" function in the settings menu.
Enter the new values of date and time. You can also select the time for the 24 or 12 hour format.

N.B. Setting the date and time cannot be customized for each user, but, once defined, it will be changed for all users.



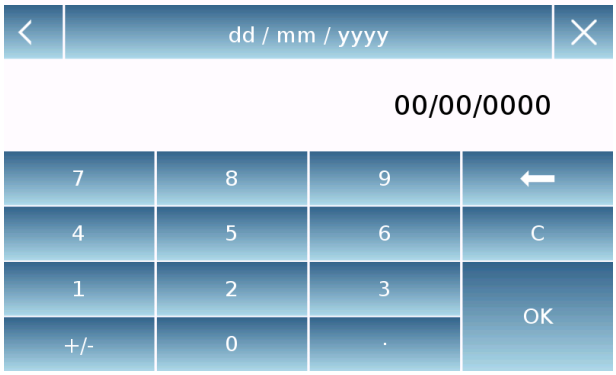
Tap the "**Date and time**" key in the menu list.



Tap the "**Date**" key in the menu list to change the date.

Tap the "**Time**" key in the menu list to change the time.

Tap the "**24h – 12h**" key in the menu list to set the time format.



You will display a numeric keypad for entering the date and time in the "**dd/mm/yyyy**" mode for the date and "**hh:mm:ss**" for the time.

Then tap the "**OK**" key to confirm the new settings, the "**C**" key to erase all entered data or the "**X**" key to exit without changing the value.

7.3 Creating a change and selecting the user profile

The balance can be set up for individual use on multiple users. You can create up to 10 different profiles of use. When you first turn on the device, the system enables the "**Default**" user; this user cannot be deleted or renamed.
Each user can then customize in a complete manner all the device settings, database included. Once you create your profile, tap the "**user area**" in the basic screen, and select the desired user. They will be so loaded all the settings for the selected user. From this point on, all changes made by the current user will be stored and made available every time the user will be selected.

You can create two types of users:

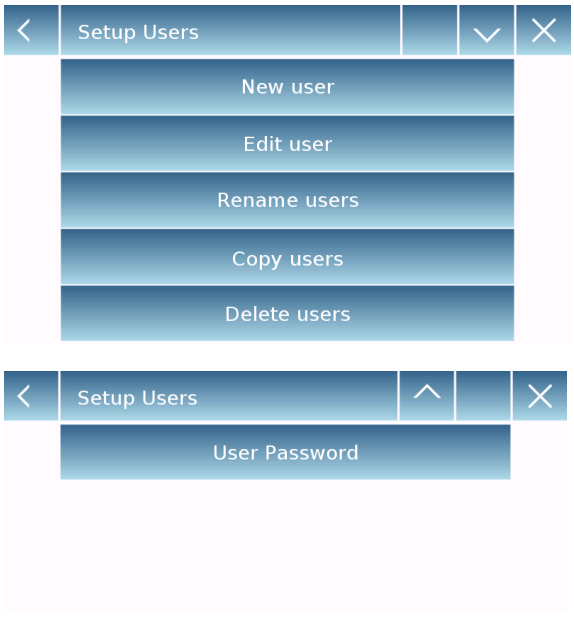
- **Administrator**
- **Standard**

Creating an administrator user enables the user so created to access all of the setting functions of the device and to edit or delete the other users.

The creation of a standard user allows the user to set only access to some setup functions of the device.
The ban indication displayed when you tap a function not available for the standard user is as follows:

In order to change the protected functions, you must access with an administrator user.
Also after creating an administrator or standard user, you can assign a password that will be required every time the user will select and the device will be power on.

The following describes all operations relating to the creation, modification and deletion of a user.
Select the "**Setup Users**" function in the settings menu.



From this screen you can access the following functions:

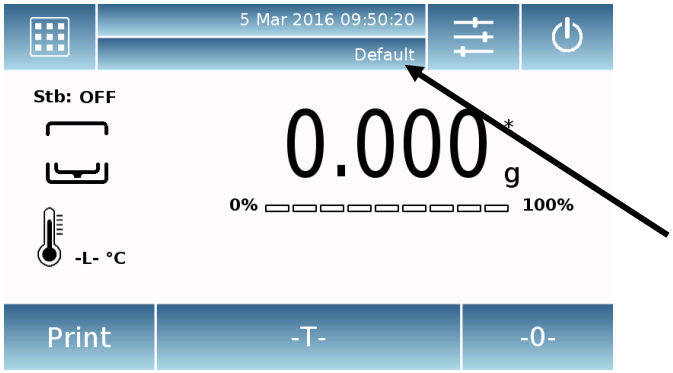
- New user
- Edit user
- Rename user
- Copy users
- Delete users
- User password

- **New user**

By selecting the "New user" function, you can define a new user. The maximum number of users is 10.
You will be prompted to select if the user you want to create must have administrative powers or be a standard user.

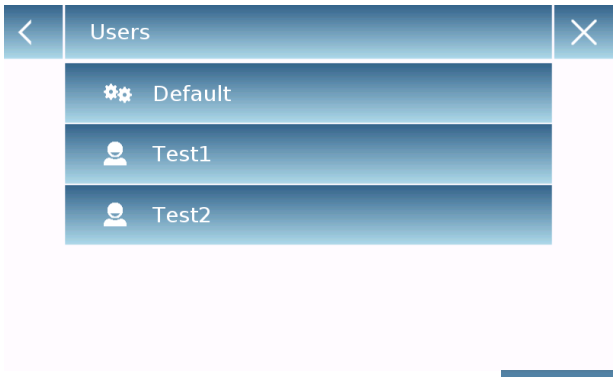
It will then automatically activate the keyboard for entering the user name.
The maximum allowed number of characters is equal to 30.

The input method is case sensitive, so a user entered as "TEST" will be different from a user that was entered as a "test".



After searching for a new user, return to the main screen.

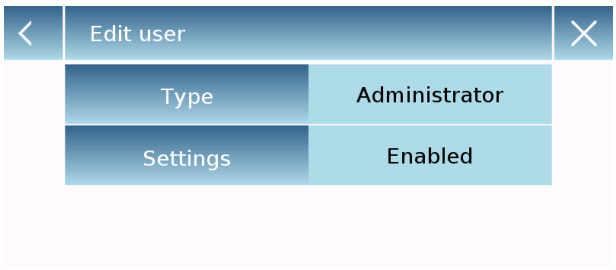
Tap the user selection area and select the newly created user.
From this moment all the changes made to the functions, the database or the results of the analysis will be associated with the user and every time you will called it up they will be automatically recharged.



The symbol to the left of the user name indicates the type of user:

Administrator

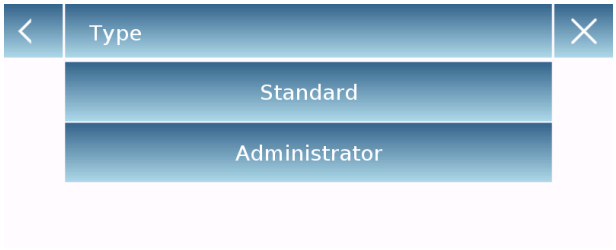
Standard



- **Edit user**

In the menu of the "User edit" function, you can change the user type ("Standard or Administrator") and momentarily unlock the settings locked in the case of standard user.

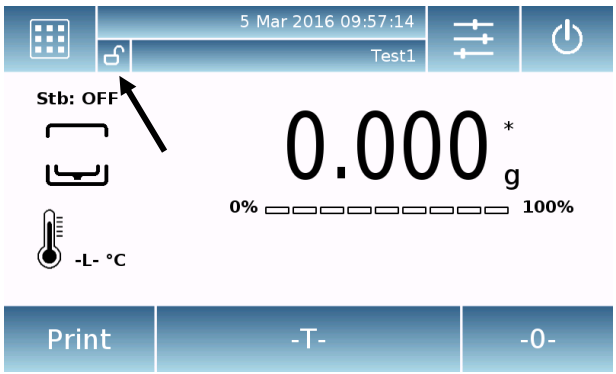
Type
If the user is standard, in order to make the change of the type of user, you will be prompted to enter the password of a user with administrator rights.



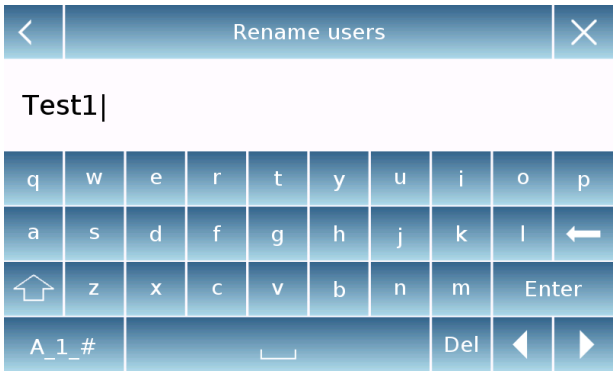
Select **"Standard"** to set the user in standard mode or select "**Administrator**" to set the user with administrator rights.

Settings
Selecting this function, you will be prompted to enter the password of a user with administrator rights.

Then select the "**Enable**" function to temporarily unblock the standard user or select the "**Disable**" function to lock the user again.



After unlocking the user in the basic screen on the left side of the user name, you will display an open padlock.
The release will remain active until it will be locked again through the change user menu, or when you select another user or the device is turned off.

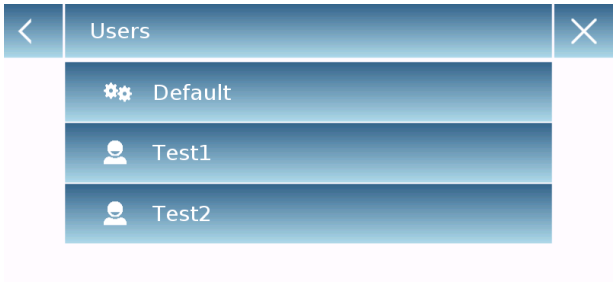


- **Rename users**

Selecting the "Rename users" function, you can modify the user name selected.

Select the user you want to rename.

The keyboard will be displayed for the name change.
Tap "**X**" to cancel or change the name and confirm with the "**Enter**" key

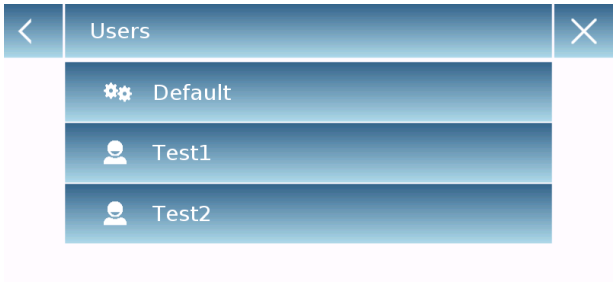


- **Copy users**

By selecting the "Copy user" function, you can create a new user with the same setting of an existing user .
They will not be copied any databases and it will not be activated the password protection if required. To copy another user databases, you must export and import them in the user desired.

Select the user you want to duplicate.

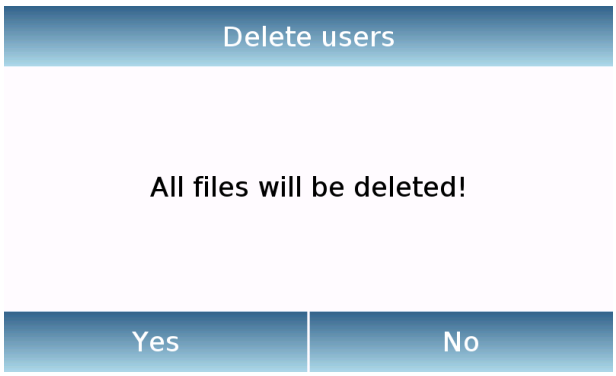
Enter the name for the new user and confirm with the "**Enter**" key.



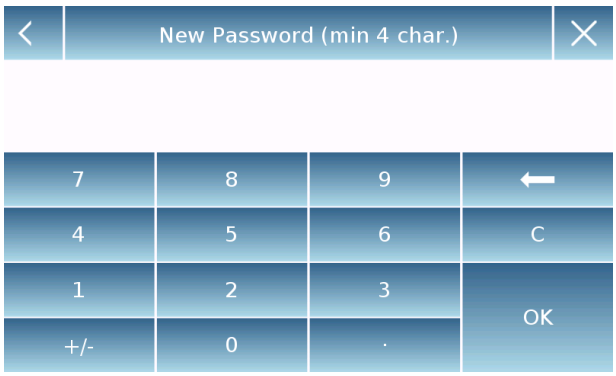
- **Delete users**

By selecting the "Delete users" function, you can permanently delete a user and its databases.

You will display a list of stored users and so you can select the user to delete.

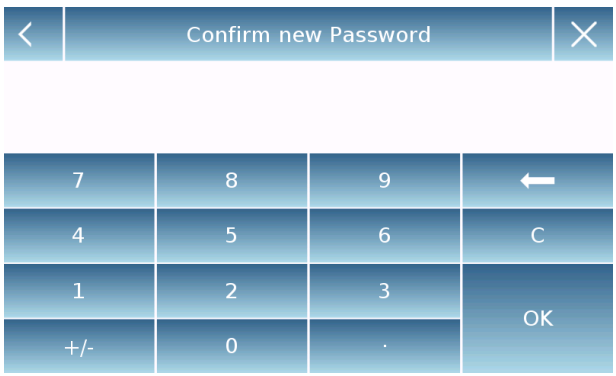


Confirm tapping **“Yes”** or delete the operation by tapping **“No”.**



- **User password**

By selecting the "User Password" function, you can assign an access password for the "standard" user or "Administrator".



You will then be prompted to enter the password again for confirmation.

Enter it and tap "**OK**".

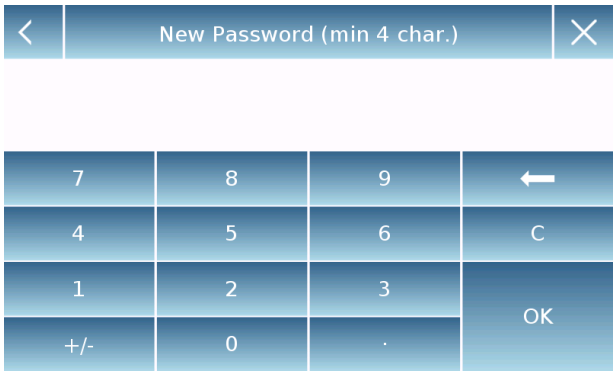
From this moment on, every time you want to access the user, you will be prompted to enter the password.

N.B. Write down the password entered and store it in a safe place.
Warning! In case of loss it will only be possible to recover the password for the "standard user". The recovery procedure is described in Section 8.3.1.

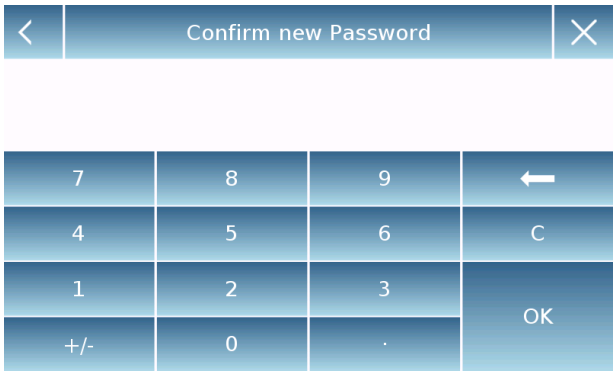
7.3.1 Recovering and removing the password

The user's password protection is applicable to "Standard" users as well as to "Administrators." In the first case, if the user forgets its password, it can update the "**User Password**" menu.

After selecting the "user password", you will be asked to enter the "**old password**." Enter the password of an administrator.



Then enter "**new password**" to be assigned to the user.



Confirm the password you just provided..

From this moment on, the "standard" user will have a new access password.

N.B.
To remove the password, when you will be asked to enter the new password and confirm the new password, tap the "OK" button without typing a value.

CAUTION! If the password lost is the one of an administrator, you will need to contact a service center to recover it.

7.4 Preferences: language, display appearance, beeper, brightness

For each user you can set an appearance of the display, the usage language, the activation or deactivation of the beeper and the brightness of the display. The following describes the various options available and their activation mode.

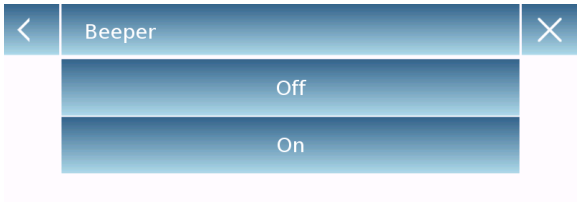
Select the "**Preferences**" function in the settings menu.

The parameters that can be set in the **“Preferences”** menu are as follows:

- Language (see Section 7.1)
- Aspect
- Brightness
- Beeper

Appearance
You can choose between 6 different color combinations and select the one you want by tapping the corresponding key.

Brightness
There are 4 levels of display brightness. Select the one you want by tapping the corresponding key.

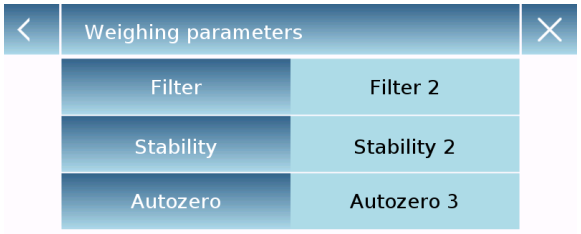


Beeper
The beeper function allows you to enable or disable the buzzer. When on, an audible signal is released each time you tap the live parts of the screen tap.

7.5 Setting the weighting parameters

For proper use of the balance, it is important to make the correct settings of the weighing parameters according to the environment of use.
This section describes the parameters of filter, stability, auto-calibration and measurement units of weighing.

Select the "**Setup**" function in the settings menu, and the "**Weighing parameters**" functions.



In the "**Weighing parameters**" screen, they are immediately verifiable the set values (in the parameter box on the right).
By tapping the key of the parameter you want to edit, you can change the value.

- **Filter:** the filter function allows speeding up or slowing down the response of the balance depending on the weighing needs and environmental conditions. Selecting the level 1, the response will be immediate but the balance will be more sensitive to environmental disturbances such as ventilation and vibration. Increasing the level, the response will be slower and the indication will be more stable.

  - **Level 1:** dosing conditions
  - **Level 2:** stable conditions
  - **Level 3:** unstable conditions

- **Stability:** this function allows you to adapt the balance to environmental working conditions. When using the device in a low-vibration environment, select the Level 0. The default is Level 2. Use the Level 3 for very noisy environments.

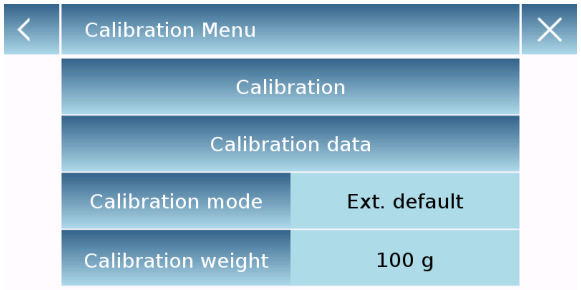
  - **Level 0:** for stable environments
  - **Level 1:** for not so stable environments.
  - **Level 2:** for unstable environments.
  - **Level 3:** for highly unstable environments.

- **Autozero:** automatic correction of zero constantly adjusts the value of zero. These possible changes may be, for example, due to dirt that may deposit on the pan. You can disable this function by selecting the "**Off**" mode. The Level 1 is the one with minor corrections until you get to Level 3E where the correction is maximum.

7.6 Calibrating and setting the calibration modes

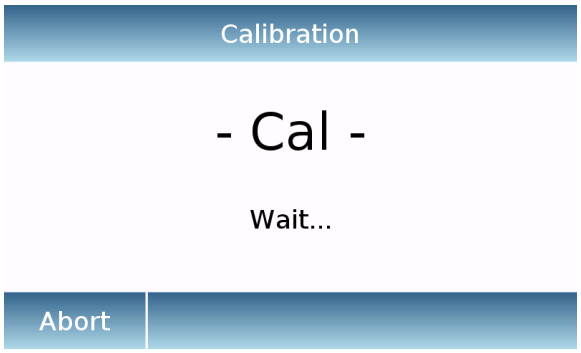
The electronic balance takes measurements of the mass using gravity (g). Differences in geographical regions and altitude will vary gravity acceleration (g).
Therefore, for accurate measurements, the balance must be adjusted to the place of use and environmental conditions. This adjustment is made by the calibration function.

Select the "**Calibration menu**" in the settings menu.

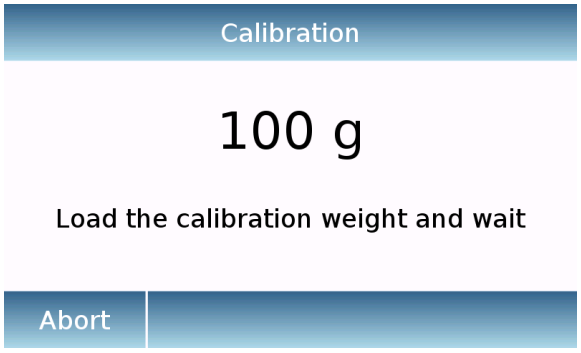


In the calibration menu you can perform the calibration, display and print data for the last calibration and set the calibration mode.

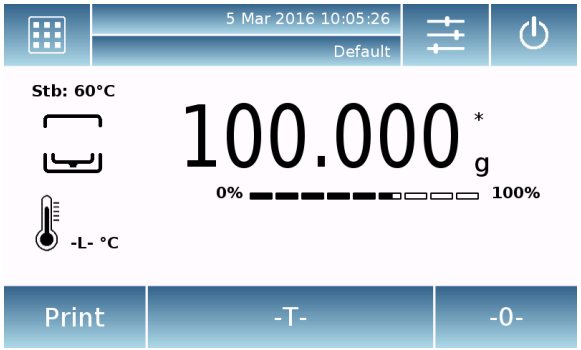
Before performing the calibration procedure, make sure that the pan is empty.



- **Calibration:** by tapping the calibration key, the calibration procedure corresponding to the set calibration mode will be activated



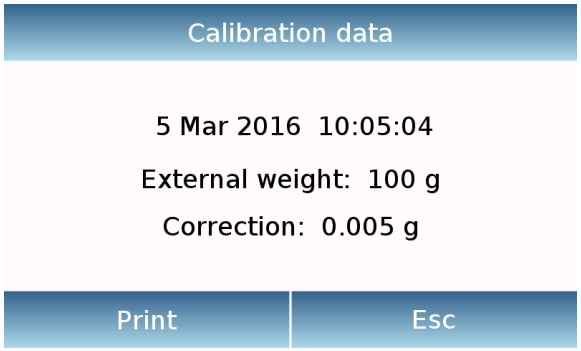
Load the required calibration weight or tap the "**Abort**" key to cancel the calibration procedure.



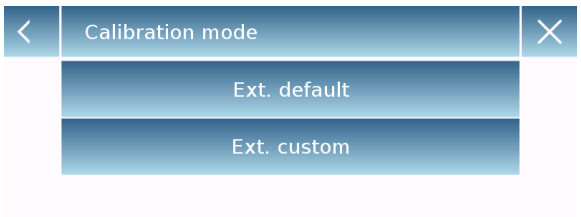
Wait until the weight acquisition.

If the operation is successful, you will display the weighing screen with the value of the calibrated weight.

Remove the weight from the pan.

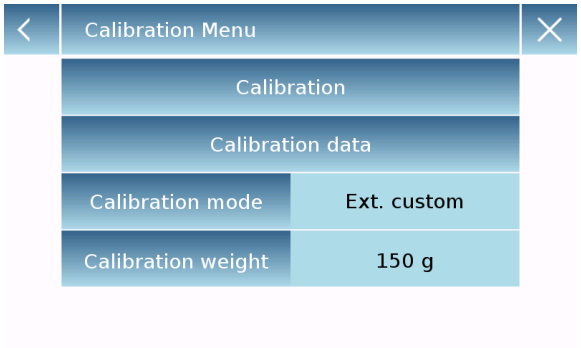


- **Calibration data:** in the calibration data screen, you can check the date of the last calibration, the manner in which it was performed, the value of the weight used and the correction made since the previous calibration. Tapping "**Print**", you can print out the displayed data.

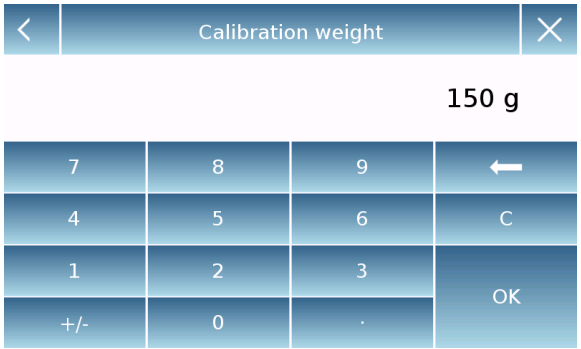


- **Calibration modes:** the balance can be set to perform the calibration in two different ways:

Ext. default
Selecting the default calibration mode when the calibration command is given, the required weight will be the default one set at the factory whose value will vary depending on the balance model.



Ext. custom
Selecting the “ext. custom" calibration mode, you can set a value of the custom calibration weight.

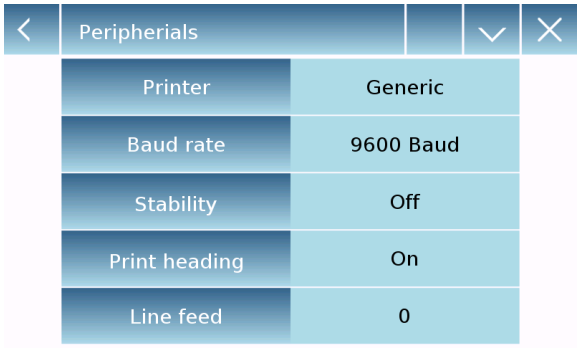


After selecting the "custom mode", tap the weight setting key to set the value of the desired weight.

7.7 Setting peripherals

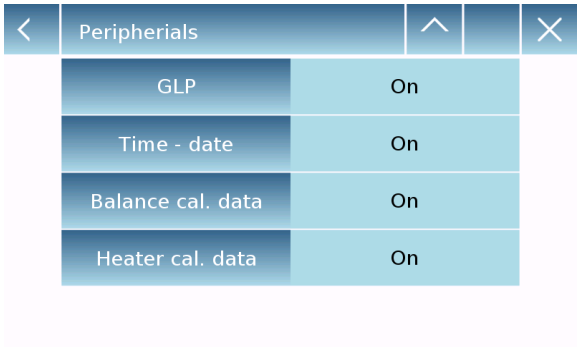
This section describes the functions and the relative RS232 and USB output serial settings of the device.

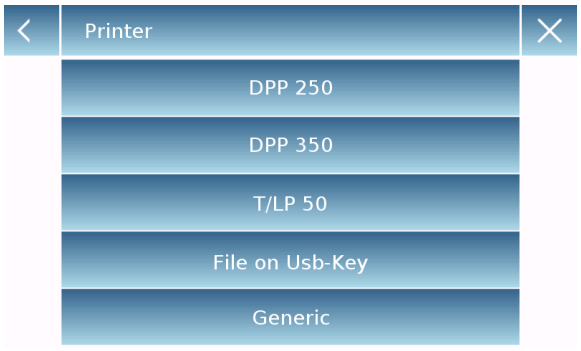
Select the "**Setup**" function and then the "**Peripherals**" function in the settings menu.



In the "**Peripherals**" menu screen, they are immediately verifiable the values of the set parameters (in the right parameter box).

By tapping the key of the parameter to be set, it will be activated the appropriate screen with the list of the various selectable options.



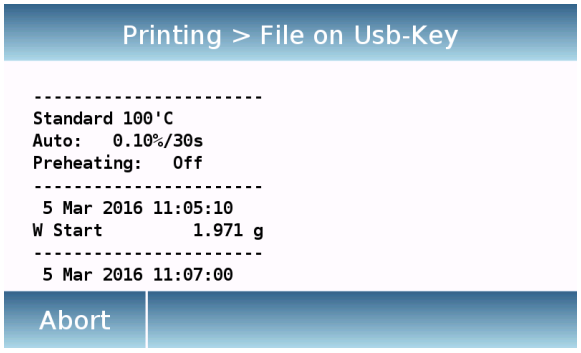


- **Printer:** this function allows you to select the device connected to the serial output.

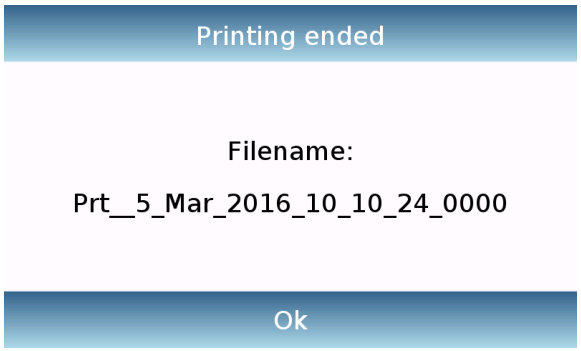
  - **Dpp250:** controlled print; tapping the "**Print**" key for the Dpp250 printer.
  - **Dpp350:** controlled print; tapping the "**Print**" key for the Dpp350 printer.
  - **Tlp50:** controlled print; tapping the "**Print**" key for the Tlp50 printer.
  - **Generic:** controlled print; tapping the "**Print**" key for the generic serial printer. **NB. If you use a generic printer, it is not guaranteed the printing of graph.**

- **File on Usb-Key:** controlled print; tapping the "**Print**" key, it will be performed the print on the file. In order to use this mode you will need a USB stick to be able to perform file saving. (If possible, use a USB stick dedicated just for this purpose).
- With the mode "File on Usb_Key activated" before executing the print command, verify that the USB stick for saving is inserted in the USB port on the left side of the device.

While saving the file on the screen, you can scroll to display the information that will be saved in the file.



At the end of the saving, you will display the file name automatically assigned on the screen.



Then on the USB stick you will find a file in a compressed format that contains two files, one text file with weighing data or the result of the drying test, and an image file containing the chart of drying.

Text file with analysis data

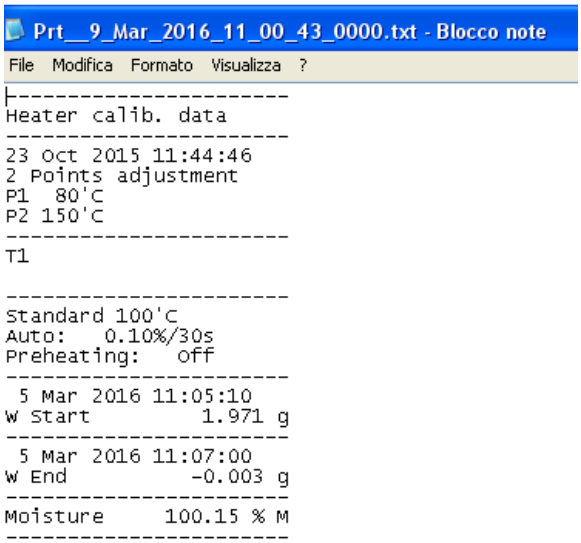
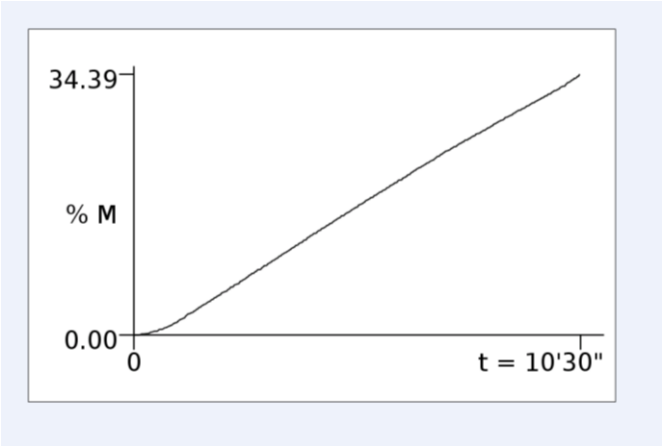
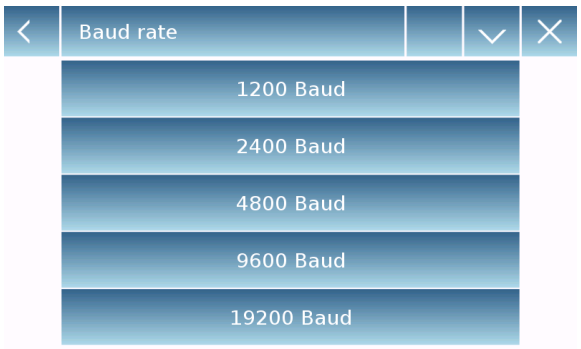
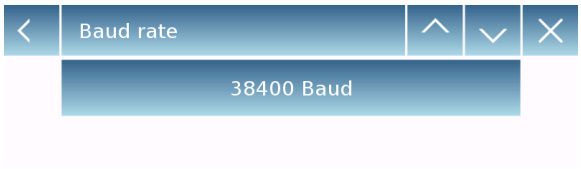


Image file

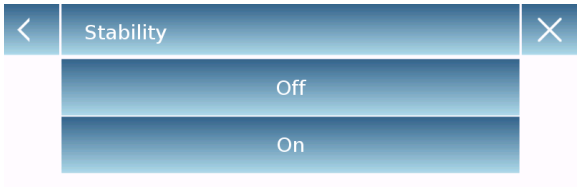


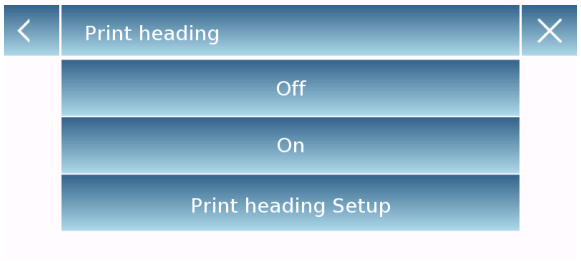




- **Baud Rate:** parameter to select the speed of the serial transmission rate. The speeds to be selected are the following:

  - **1200 Baud**.
  - **2400 Baud**.
  - **4800 Baud**.
  - **9600 Baud**.
  - **19200 Baud**.
  - **38400 Baud**.



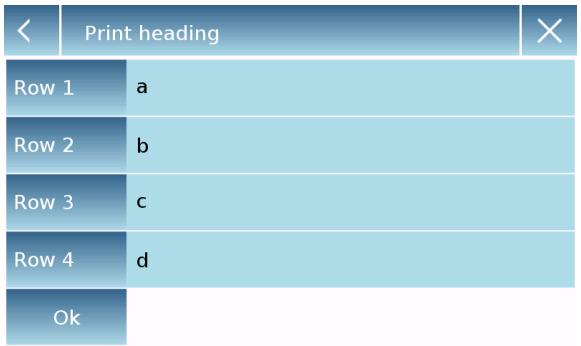


- **Stability:** verification of the stability before the data transmission. You can choose to activate or deactivate the stability control before printing the weight value:

  - **On**. control ON.
  - **Off**. control OFF.

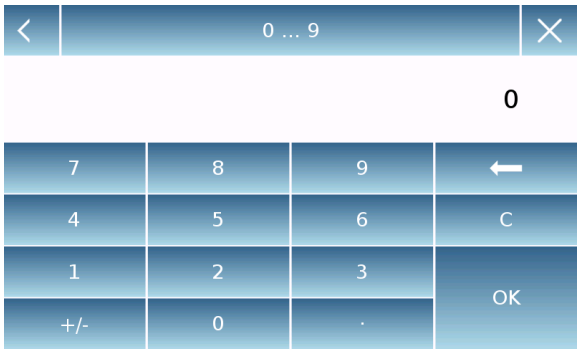
- **Print heading:** this function allows you to place the header at the beginning of the receipt printing. The function can be:

  - **On**. bill heading ON.
  - **Off**. bill heading OFF.
  - **Print heading Setup:** activation of the screen for the entry of the required text for the receipt header.

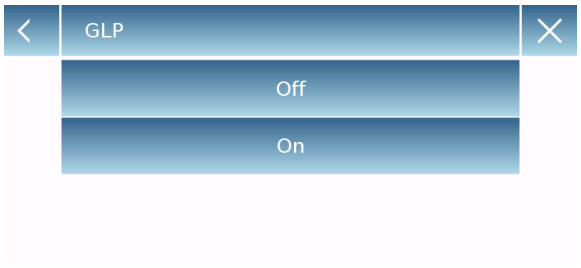


In the print heading screen, tap the rectangles indicating the number of the row to automatically activate the alphanumeric keypad and enter the desired text with up to 40 characters per line. Tap the "**OK**" key to confirm the entered text.

NB. You can activate and deactivate the receipt header function without losing the entered text, which will remain stored until you delete the content of the various rows.



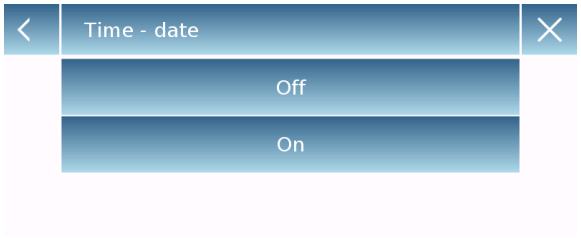
- **Paper progress:** this function allows you to set a number of blank lines to be added at the end of the receipt printing to allow it comes out from the printer.
- The entry numeric keypad of insertion will be automatically turned on, enter the desired number of lines (from 0 through 9) and tap the "**OK**" key to confirm the entered number.



- **G.l.p.:** this function allows you to enable or disable printing of the g.l.p. data after the user input

  ➢ **On**. g.l.p. data print ON.
  ➢ **Off**. g.l.p. data print OFF.

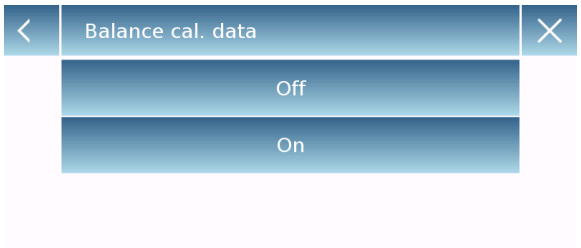
To enter the information and to manage the G.l.p. database, see **Chapter 9.9**



- **Time and date:** this function allows you to enable or disable printing of the time and date.

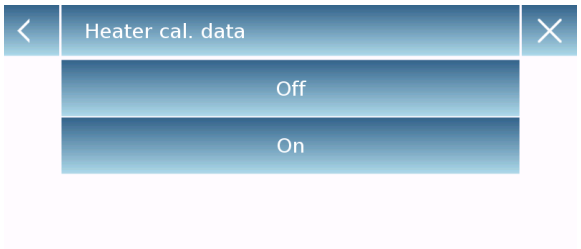
  ➢ **On**. calibration data printing ON.
  ➢ **Off**. calibration data printing OFF.

The printing of date and time cannot be enabled when the G.l.p. function is ON.



- **Balance cal. data:** this function allows you to enable or disable printing of the balance calibration data.

  ➢ **On**. calibration data print enabled
  ➢ **Off**. calibration data print disabled



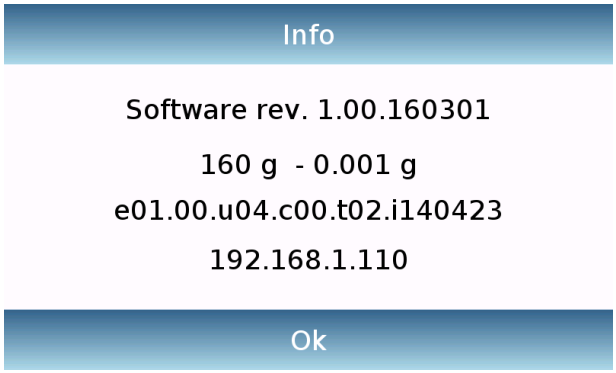
- **Heater cal. data:** this function allows you to enable or disable printing of the calibration data of the heater thermometer

  ➢ **On**. thermometer calibration data printing ON.
  ➢ **Off**. thermometer calibration data printing OFF.

7.8 Information on the software

This section explains how to display information about the software versions of the device.

Select the "**Setup**" and then "**Info**" in the settings menu.

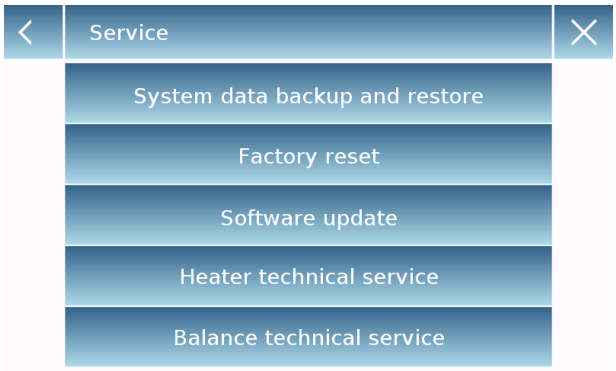


The information on the Info screen will be required by the technical personnel in the event of a request for assistance.

7.9 Service

This section explains all service-related functions and the ones related to data backup of the device.

Select the "**Setup**" and then "**Service**" in the settings menu.



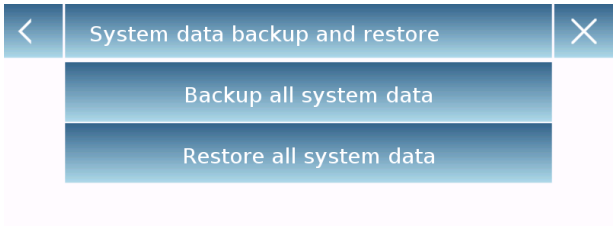
The functions available in the **Service** menu are as follows:

- System data backup and restore
- Factory reset
- Software update
- Heater technical service
- Balance technical service

7.9.1 System data backup and restore

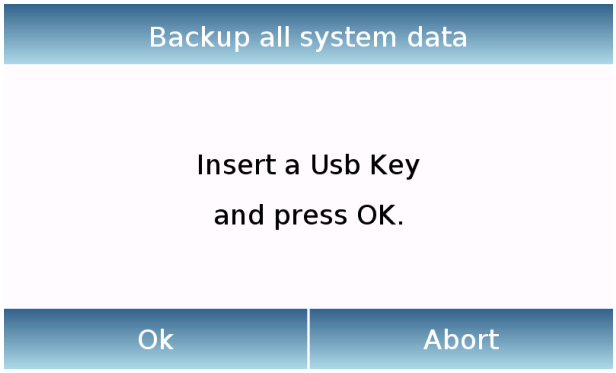
You can run the full system backup or restore the data and configuration previously saved on a USB stick.
This section describes the steps to follow to carry out the export or import of data.

N.B. It's advisable to use an empty USB stick dedicated to saving and restoring data.



- **System backup:** this command allows you saving all users and their configurations stored in the system, including the associated drying databases and the saved test results.

To back up, you must have a USB stick.



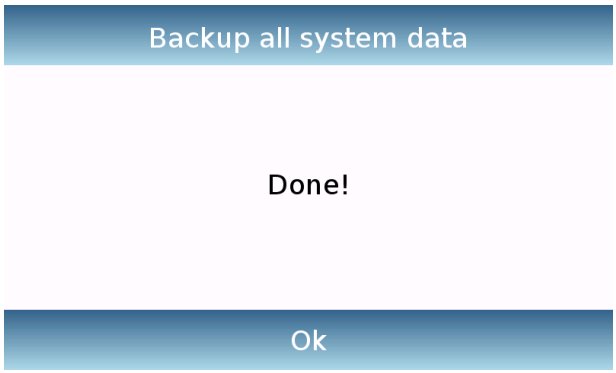
Insert the stick into the USB port on the left side of the device and press "OK".
Tap the "Abort" key to cancel the backup operation.

If the USB stick is inserted correctly after confirming, the alphanumeric keypad will be automatically displayed to enter the name you want to assign to the backup.

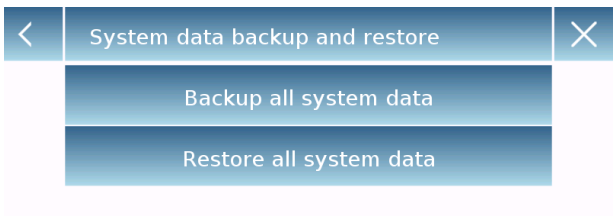
A screen with the "Complete!" message indicates that the export operation was successful.

In the stick, it will be created a backup folder with the assigned name.

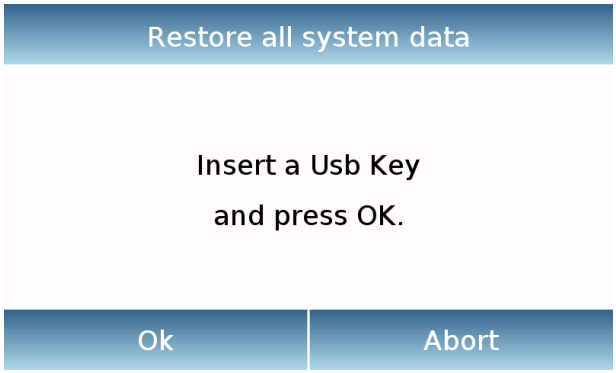
Opening the folder you will find a number of files and subfolders containing all data.
N.B: Do not modify or rename any files in order to avoid damaging the content. The so created folder will be automatically restored in the device by using the system recovery command.



- **System restore:** this command allows recovering all users and their previously exported system set-up with the backup command on the USB stick.

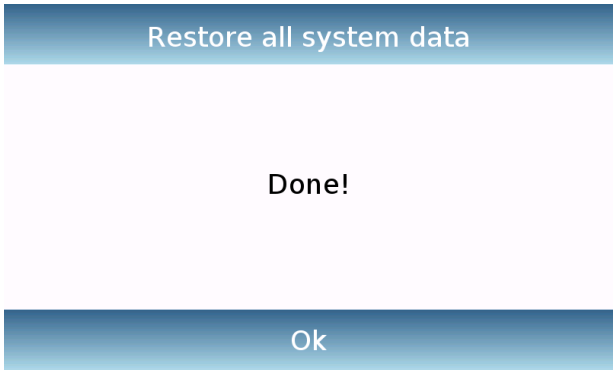


N.B. You can import data exported from another device to configure multiple devices with the same users and the same settings.



Insert the stick into the USB port on the left side of the device and press "OK".
Tap the "Abort" key to cancel the system reset operation.

If the USB stick is inserted correctly after confirming, the alphanumeric keypad for entering the name of the backup you want to restore will be automatically displayed.



A screen with the "Complete!" message will indicate that the system reset operation was successful.

7.9.2 Factory reset

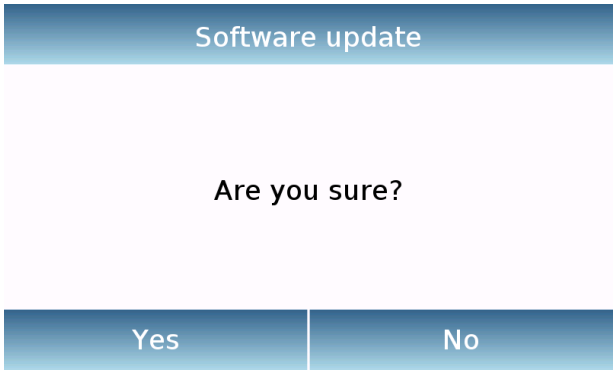
You can do a total reset of the device, to bring it back to the initial conditions.

Tap the "**Reset factory**" key, confirm by tapping the "Yes" key or cancel the operation by tapping the "No" key.

N.B. Pay attention as all the data of all users including their database will be lost. If you want to save them, make a backup before performing the factory reset.

7.9.3 Software update

Through the USB port you can make any software updates provided by the manufacturer. Here are the steps needed to perform the update.



Selecting the "Software update" will appear the screen with the request for confirmation.
Select "**No**" to cancel the operation, or "**Yes**" to continue.

Insert the USB stick in the port on the left side of the device by checking before the update program provided by the manufacturer is loaded on the stick and confirm with the "**OK**" button.

If the selected file is correct, it will activate the update operation and a counter display will indicate the progress.

N.B. Once you launch the software update operation, do not unplug the device until the operation is complete. While updating, the device will shut down and restart automatically, so do not press any button, but wait for the indication of successfully completed operation.

7.9.4 Heater technical service

The technical service function of the heater is only accessible by a qualified technician.

7.9.5 Balance technical service

The technical service function of the balance is only accessible by a qualified technician.

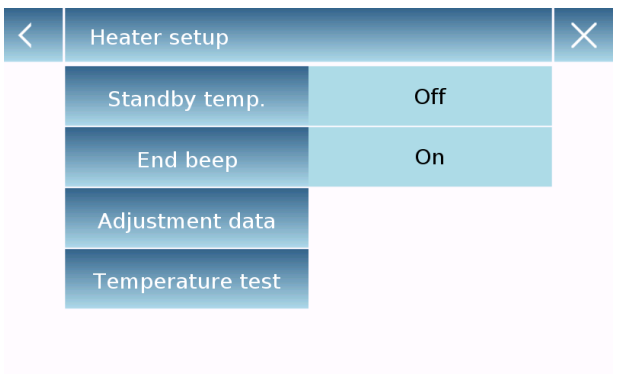
8 Menu of the functions

This section describes all the functions available for the analysis of the humidity content of the substances and the settings of the parameters relating to the mode of operation of the heater.
All the functions described below can be customized for each user.
So every time you change the user, the parameters will be set automatically depending on the settings selected by the user

Tap the key to access the Functions menu.

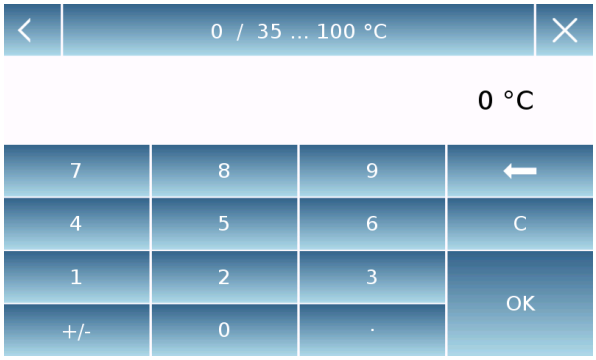
8.1 Heater setup

This section described the setting parameters and the acceptance tests related to the heater.
To access the heater settings, tap the **"Heater setup**" icon.



Heater setup: this command allows you to set the following parameters

- Standby temperature.
- Beeper.
- Adjustment data.
- Temperature test.



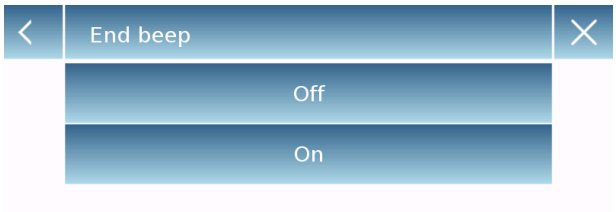
- **Standby temperature:** this function allows you setting a maintaining temperature value for the heater.

To enable the standby temperature, set the value desired.

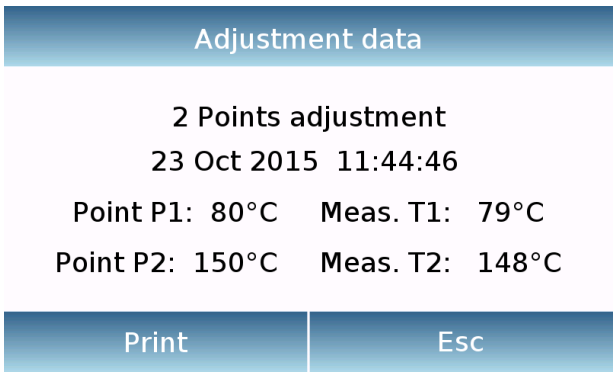
The selectable value is between a minimum of 35°C and a maximum of 100°C.

For the entry of the value, it will be displayed the numerical keypad. Press the "**OK**" button to confirm the value or “X" to exit.

To disable the standby temperature function, enter “0°C” as temperature value.

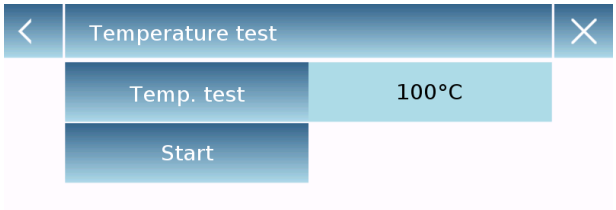


- **Beeper:** this function allows you enabling **“ON”** or disabling **“Off”** the beeper at the end of the drying cycle



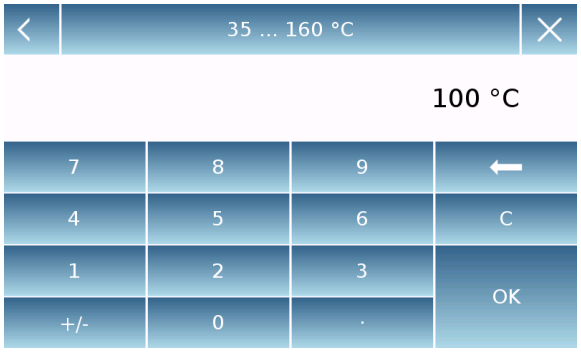
- **Adjustment data:**
  you can select this function to display and print the thermometer calibration data.

On the screen, you can check:
-the number of points with which the 1 or 2 calibration was performed
-the date and time of calibration
-the value after P1 and P2 calibration
-the value prior to Mis. calibration

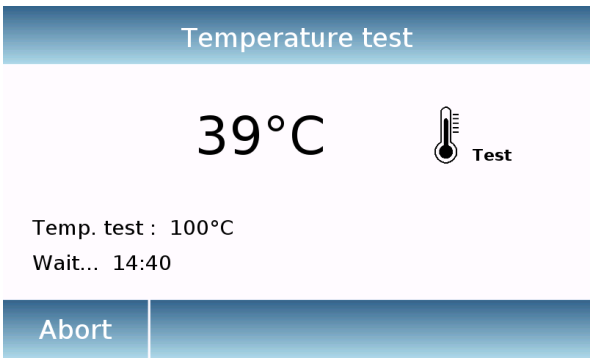


- **Temperature test:**
  This function allows you to enter a temperature value by which you want to perform a check.

N.B. To test, you must have the STCi-02 accessory. Refer to the instructions supplied with your accessory for correct use.



Tap the **“Test temp.”** Key to set the temperature value. Then press **“Start”** to perform the test.

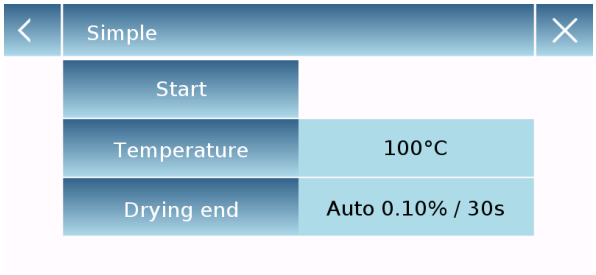


After starting the test, wait that the timer set automatically to 15 minutes is reset. You will hear a beep, so open the heater and compare the temperature value displayed with the one recorded by the thermometer placed inside

Tap the **"Abort"** key to cancel the test.

8.2 Determination of the humidity content with "Quick" method

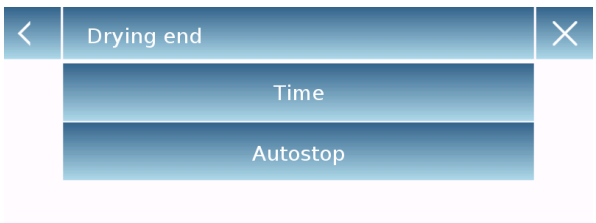
This section describes how to perform the analysis of the humidity content using the "**Simple**" method that allows you to perform a quick test by defining only the temperature and the method of drying end.
To access the function, tap the "**Simple**" icon in the menu "Functions".



The display screen allows you to start a drying cycle by tapping the "**Start**" button with the temperature parameters and modalities of the drying end displayed to the right of the function.

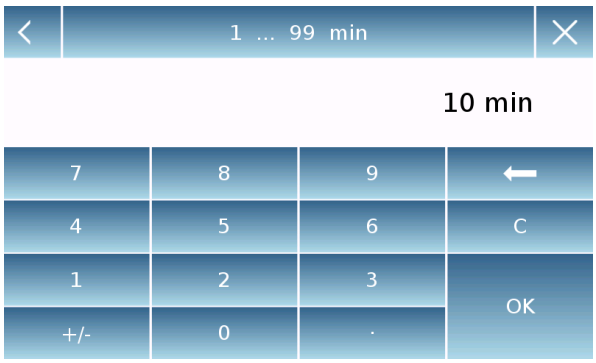
- **Temperature.**

Enter the desired temperature and tap the "OK" key.
The temperature values that can be set range from a minimum of 35°C to a maximum of 160°C) with step of 1°C.

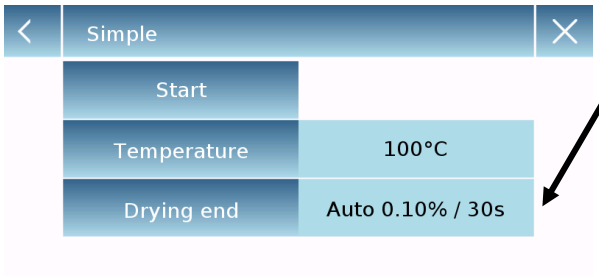


- **Drying end.**

The end drying parameter is the setting that defines the method by which you want to determine the end of the humidity measuring cycle contained in the substance to be analyzed.



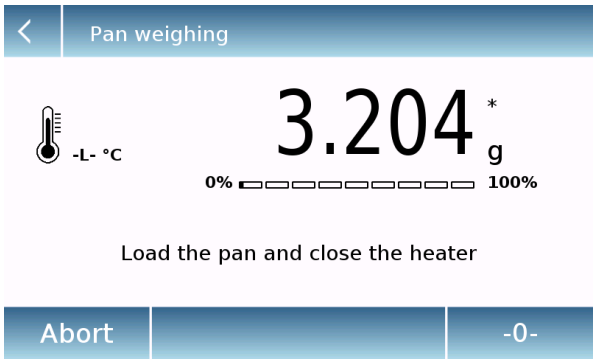
Time: setting this method of the end drying, the cycle will end when the time set will be elapsed. Also you can end the cycle manually at any time by tapping the "**Stop**" key.
Enter the value of time and press the "**OK**" button to confirm



Autostop %: setting this method of the end drying, the cycle will end when the variation of humidity loss will be less than 0.1% for a time interval of 30 seconds.
Also you can end the cycle manually at any time by tapping the "**Stop**" key.

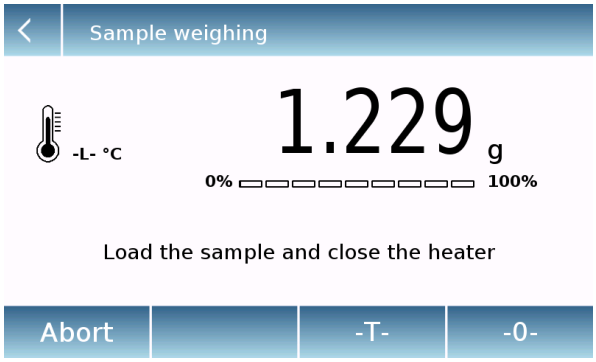
Start: tapping “Start”, you will enable the procedure for the humidity content analysis.

Load the test pan on the weighing plate and close the oven. You will automatically tare the test plate.

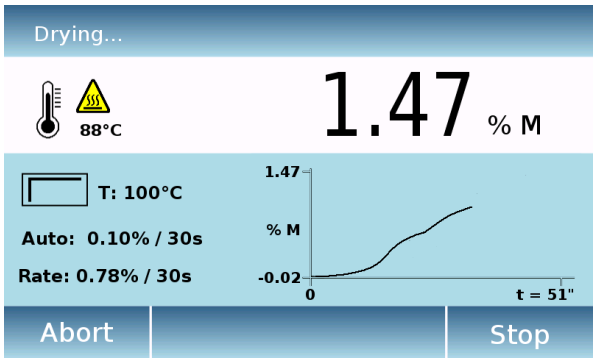


Load the substance to analyze and close the oven.

N.B. The minimum amount of substance required for the drying cycle based on the balance resolution:
0.01g Min 500mg
0.001g Min 500mg
0.0001g Min 50mg



After closing the heater cover, the cycle will automatically start and the analysis screen will appear.



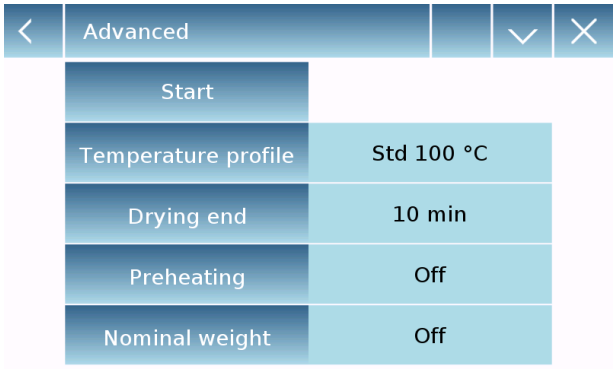
During drying, they are displayed all the parameters related to the test and through a real-time graph you can see the trend of drying.

For all the details related to the phase of drying and the final result management, refer to **Chapter 11**.

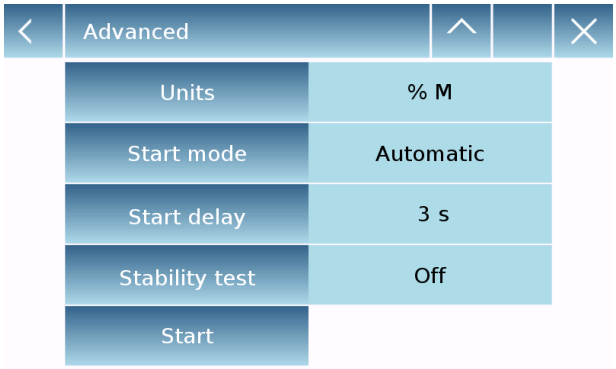
8.3 Determination of the humidity content with "Advanced" method

This section describes how to perform the analysis of the humidity content using the "**Advanced**" method that allows you to customize all the drying parameters and to define the initial modes and the temperature profile.

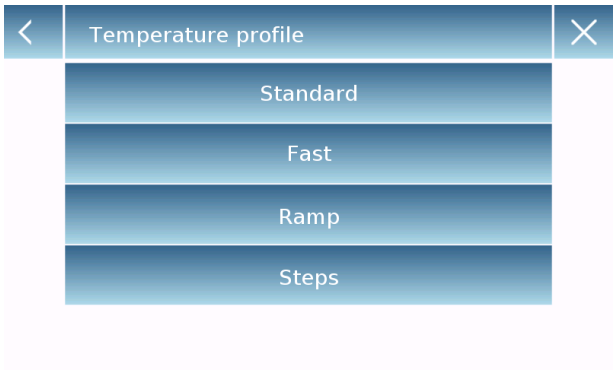
To access the function, tap the "**Advanced**" icon in the menu "Functions".



The display screen allows you to start a drying cycle tapping the "**Start**" key with the temperature parameters and modalities of the drying end displayed to the right of the function.



Tap the arrows to scroll through the pages.



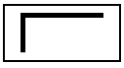
Temperature profile
The temperature profile parameter allows you to set the heating mode for the drying cycle. Select the mode and the heating temperature based on the substance to be analyzed.
For all modes of the heating, the **temperature settable values range from a minimum of 35°C to a maximum of 160°C.**

- **Standard**
- **Fast**
- **Ramp**
- **Steps**

- **Standard:** this mode is preset at the factory and is suitable for most samples. In this case, after starting, the temperature is increased with a speed defined at the factory until reaching the value set that then is kept fixed until the end of the measurement.

For entering the desired temperature, the numerical keypad will be activated . Enter the temperature value and then press the "**OK**" button.

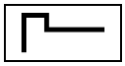
During the drying cycle, the standard mode is identified on the display by the following icon:

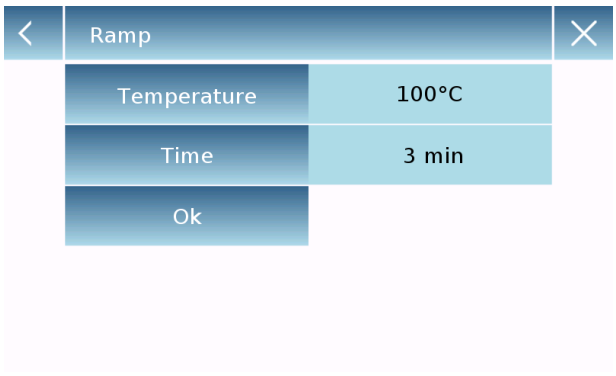


- **Rapid:** this method is suitable for samples with humidity content higher than 30%. After starting the unit, the temperature exceeds the set value by about 30% for 2 minutes to settle back down to the set value. This is to speed up the drying process.

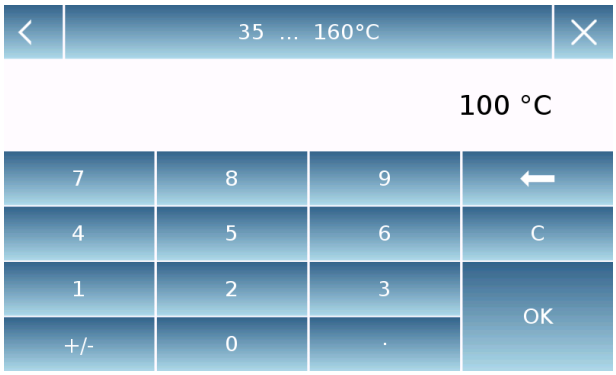
Enter the desired value and then press the "**OK**" button.

During the drying cycle, the rapid mode is identified on the display by the following icon:

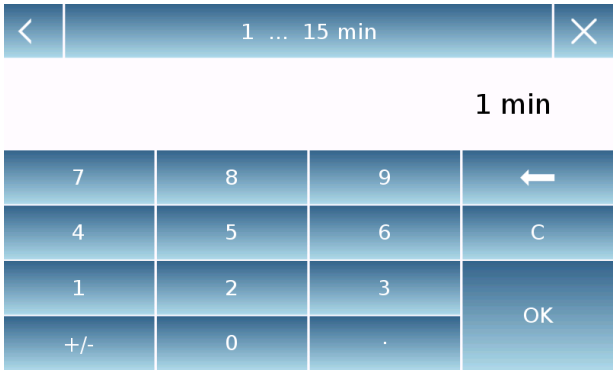




- **Ramp:** this program allows you to reach the set temperature with a user-determined timing. This method allows you to slowly warm without forming a film on the surface of the substance (i.e. in sugar-containing substances).

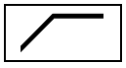


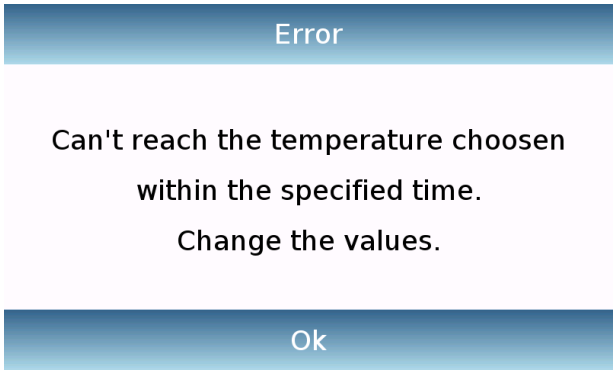
Tap the **“Temperature”** key to enable the alphanumeric keypad and enter the value desired. Then press **“Ok”**.



Tap the **“Time”** key to enable the alphanumeric keypad and enter the value desired. Then press **“Ok”**.

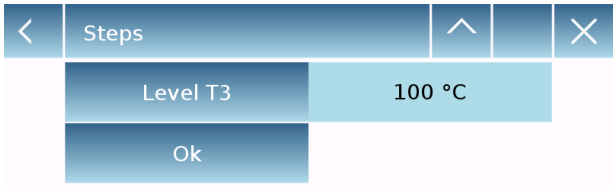
During the drying cycle, the ramp mode is identified on the display by the following icon:

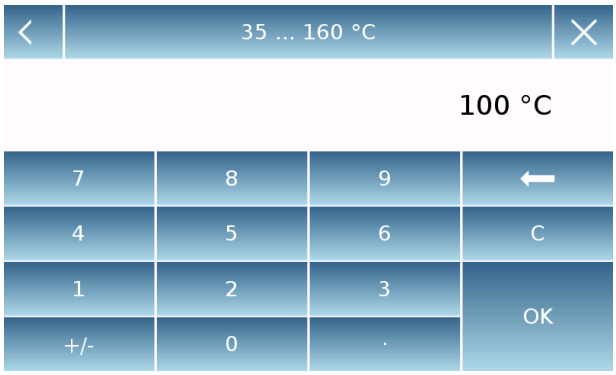




NB. The settable time ranges from a minimum of 1 to a maximum of 15 minutes. This time, however, must be congruous with the set temperature. If the set time is too low to achieve the desired temperature you will display an error screen.

- **Steps:** this program is used for the analysis of substances containing several components that vaporize at different temperature values. In this program, the drying is performed in steps, namely in the first level the sample is pre-heated to a set temperature for a specified time, then the temperature is adjusted to the new value and maintained for the second time interval chosen (second level). Finally, the temperature is brought to drying value until the end of the test, which ends in the end analysis mode selected. In this program you can choose the temperature for each level (min. 35°C and max. 160°C) and time (min. 1 and max. 99 minutes). If you need only a level, set the time value of the second level to "0".

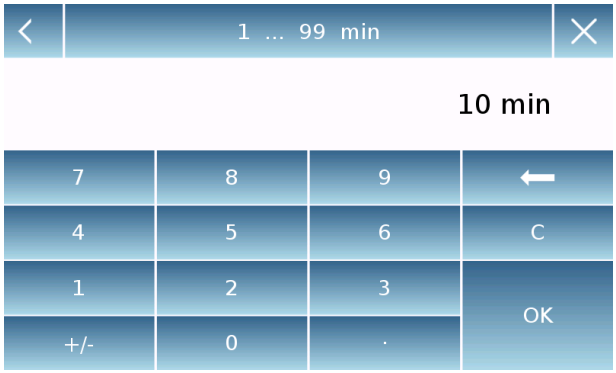




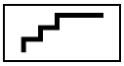
For the entry of the temperature and time, the numeric keypad will activate.
Enter the value of the temperature and time, then press "**OK**" to confirm the value.

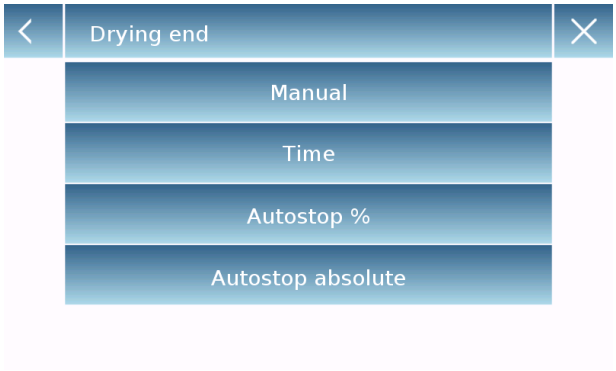
The set temperature for the third cycle will be maintained until the end of the test. So the time for the third cycle is determined by the choice made for the end drying.

NB. The time range can be set for the first and the second cycle from 1 to 99 minutes.



During the drying cycle, the steps mode is identified on the display by the following icon:

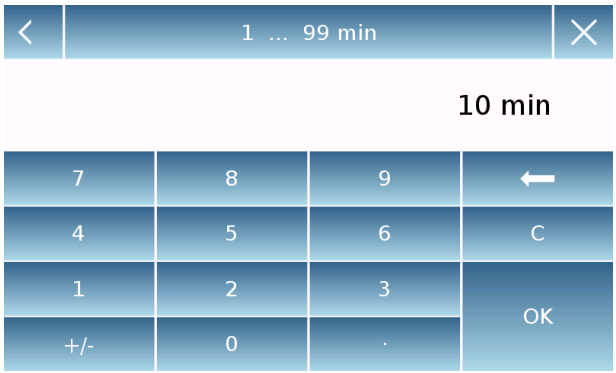




Drying end.
The end drying parameter is the setting that defines the method by which you want to determine the end of the humidity measuring cycle contained in the substance to be analyzed.

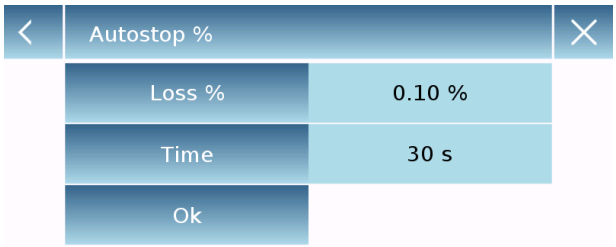
- **Manual:** setting this drying end method, the cycle will be stopped only when the user decides so by tapping "**Stop**".

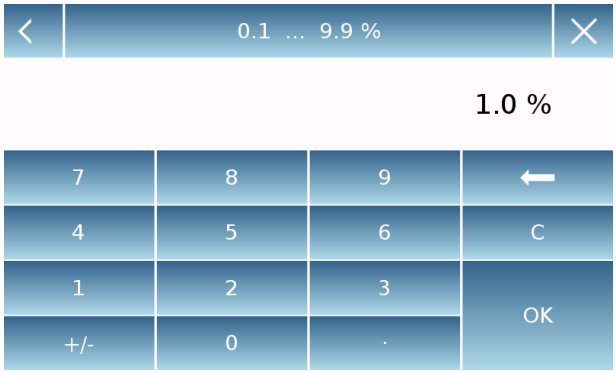
- **Time:** setting this drying end method, the cycle will be stopped when the set period of time will be elapsed. It will also be possible to end the cycle manually at any time by tapping "**Stop**".

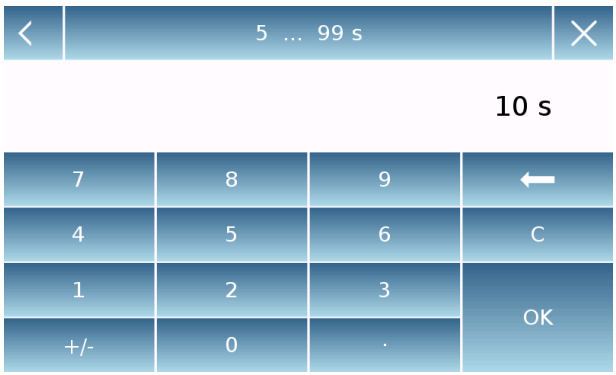


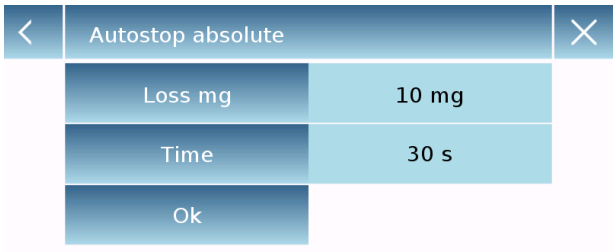
For entering the desired time, the numeric keypad will activate. Enter the minutes and then press **"Ok"**.

NB. The time range can be set from 1 to 99 minutes.









- **Autostop %:** setting this method of the end drying, the cycle will end when the variation of humidity loss in % is lower than the value set for the selected time interval.
  It will also be possible to end the cycle manually at any time by tapping "**Stop**".

To enter the humidity value in %, tap the "**% Change**" key so as to enable the numeric keypad. Enter the desired value and then press "**OK**".

NB. The range of % change must be between a minimum of 0.1% and a maximum of 10.0%.

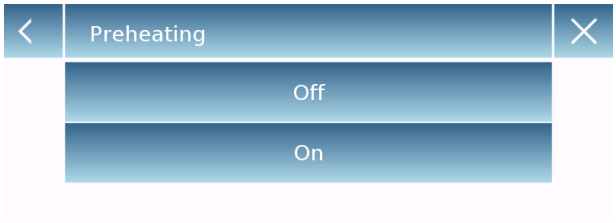
To enter the time interval within which you can check the humidity value in %, tap "**Time**" so as to display the numeric keypad. Enter the desired value and then press "**OK**".

NB. The time range must be between a minimum of 5 and a maximum of 99 seconds.
If when entering the % humidity and time values, the typed values will be incorrect, an error message will be displayed.

- **Autostop absolute:** by setting this method of the end drying, the cycle terminates when the variation of the weight loss of the substance will be less than the value set for the selected time interval.
- It will also be possible to end the cycle manually at any time by tapping **"Stop"**.

To enter the weight value, tap **"mg change"** and enter the time by pressing "Time" and then **"Ok"** to confirm.

NB. The range of variation of the weight must be between a minimum of 1g and a maximum of 60g

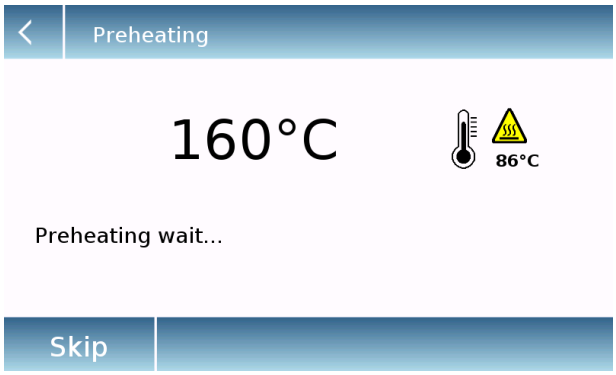


Preheating: this function allows you to preheat the heater before performing a drying cycle.

- **Off:** function off
- **On**: function on

With the function enabled prior to performing the drying cycle, the preheating screen will open. Tap the "**Skip**" key, to cancel the warm-up and quickly start the drying cycle.

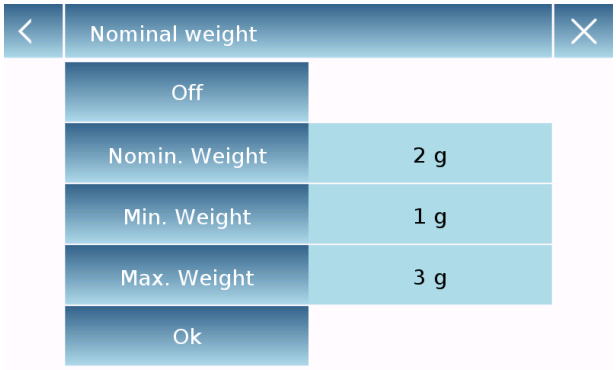
N.B. the preheating function on allows obtaining more repeatable results as each cycle occurs with the same starting condition of the heater.



Nominal weight: this function allows you to activate the nominal value control of the sample. It's particularly suitable for tests with samples having the same weight, in order to ensure greater reproducibility of the measurement results. When enabled, the test can only be performed if the loaded sample will be within the selected range.

- **Off:** function off
- **Nominal weight:** function on
- **Minimum weight:**
- **Maximum weight:**

Tap **"Off"** to disable the function. N.B .: any weight values previously entered will be reset.
Tap the "**Nominal, minimum, maximum weight**" keys to enter the desired preset weight, and then tap "**OK**" to confirm the settings.

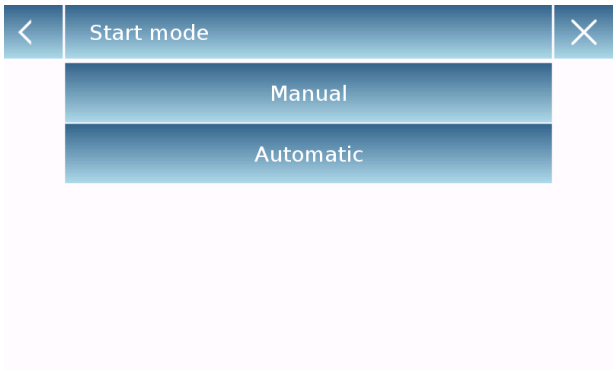


N.B. the minimum weight of substance permitted for the drying cycle varies based on the resolution scale:
0.01g Min 500mg
0.001g Min 500mg
0.0001g Min 50mg

Unit: this function allows you to select the parameter with which to display the drying cycle

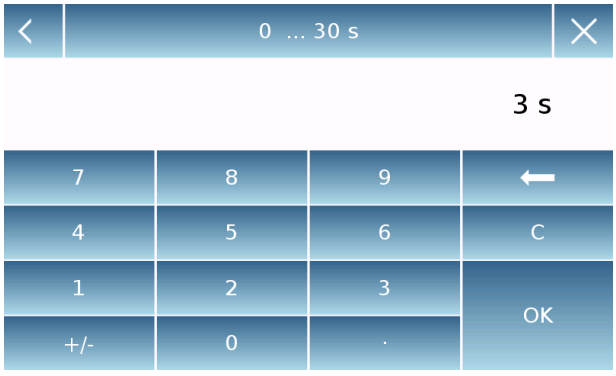
- **Humidity (%M):** value of humidity %
- **Residual (%R):** dry residue value %
- **Other (%A):** other value (ratio between initial weight and final weight in %)
- **Weight:** value of the weight in grams

The parameter set will still be changed whenever you want during the drying cycle.

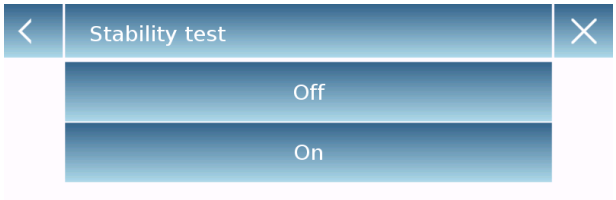


Start-up mode: this function allows you to select how to start the drying program.

- **Manual:** by selecting this mode, each operation of preparation for the start of the drying cycle must be confirmed by the user after closing the heater, you shall tap "**OK**".
- **Automatic:** by selecting this mode, each operation of preparation for the start of the drying cycle will be automatically performed upon heater closure.



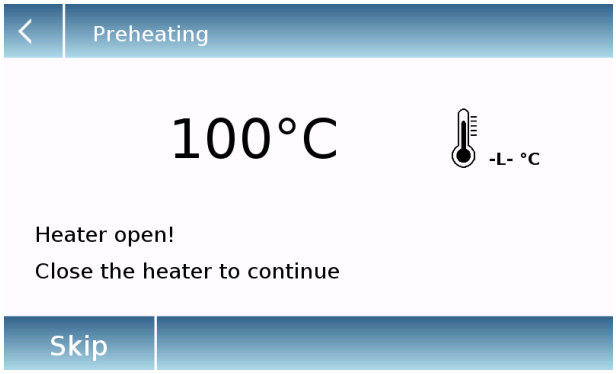
Delayed start-up:
the start of the drying cycle can be delayed with a time interval between 0 and 35 seconds.
Tapping this key, it will activate the numeric keypad to set the desired time.



Stability test: this function allows you to enable **"On"** or disable **"Off"** the weighting stability test before the drying cycle beginning.

8.4 Starting a dying cycle in “Advanced” mode

After making the settings described in Section 9.3, tap the "Start" key to start the drying cycle and to perform the drying cycle with the set parameters.

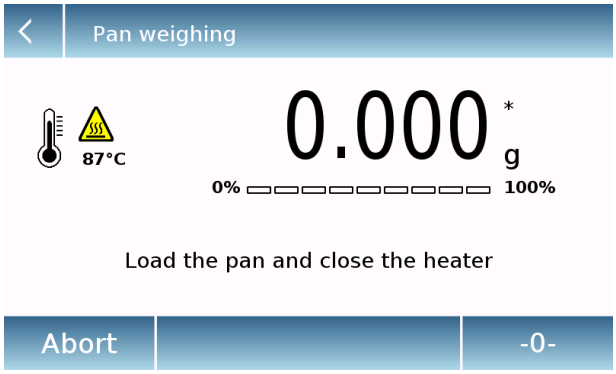


Step 1
Heater switching on

If the preheating function is activated, you will be asked to close the heater when it is open.
Close the heater and wait.

Tap **“Skip”** to cancel the preheating.

“Automatic start”

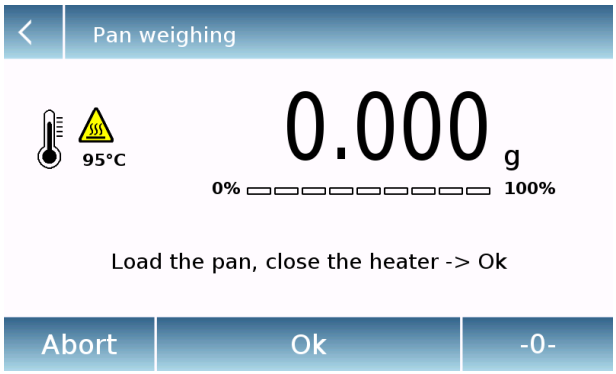


Step 2
Container tare

With the **“Automatic”** start mode, reset if necessary by tapping **“ – 0 – “**

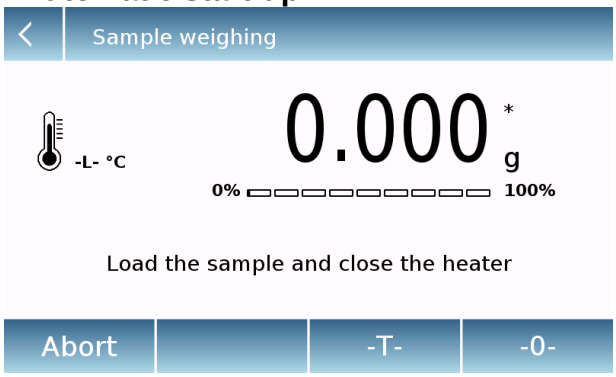
Load the sample-holder pan on the weighting plate and close the oven.

“Manual start”



With the **“Manual”** start mode, reset if necessary by tapping **“ – 0 – “**
Load the sample-holder pan on the weighting plate and close the oven and press “**OK**” to confirm.

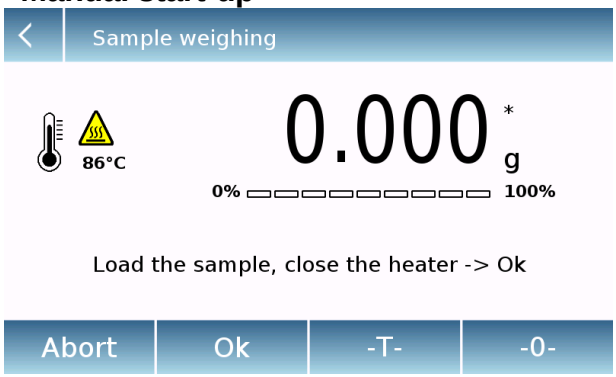
“Automatic start-up”



Step 3
Loading the substance to analyze

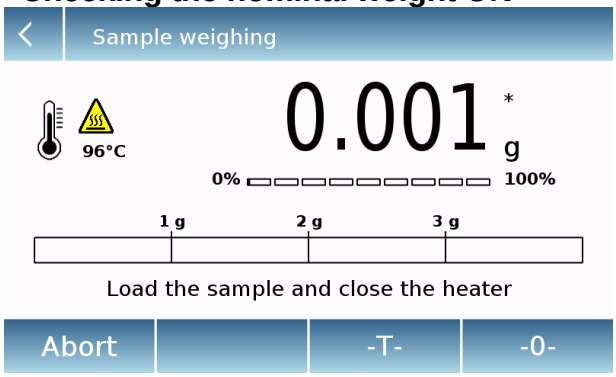
With the **“Automatic”** start mode, reset if necessary by tapping **“ – 0 – “.**
Then load the substance to analyze and close the heater.

“Manual start-up”



With the **“Manual”** start mode, reset if necessary by tapping **“ – 0 – “**
Then load the substance to analyze and close the heater and press “**OK**” to confirm.

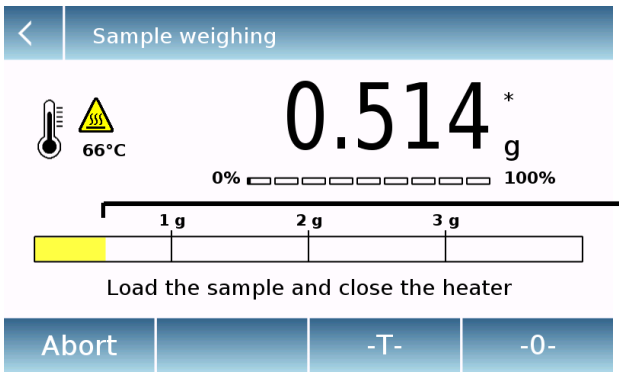
“Checking the nominal weight ON”



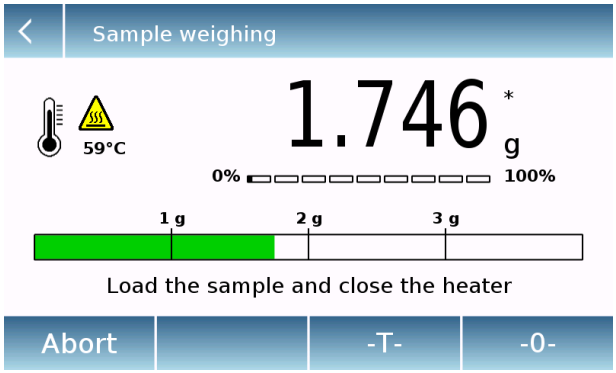
With **“nominal weight”** ON, load the quantity of substance set respecting the required tolerances.

A request to load the sample (with both automatic and manual modes) is carried out with a screen with a dose substance indicator.

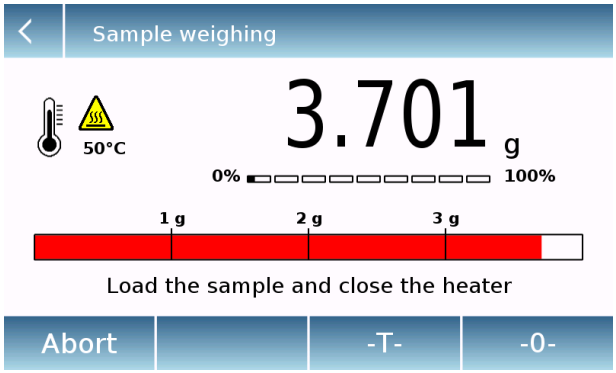
The indication bar of the amount of substance to be loaded provides the visual information during the loading of the substance.



Loading the substance will advance the bar colored in yellow until it reaches the set minimum value.



After reached the minimum value, the bar changes color and turns green, indicating that the quantity loaded is within the set limits. It will then remain in this color range until it is
exceeded the maximum limit of the substance set.

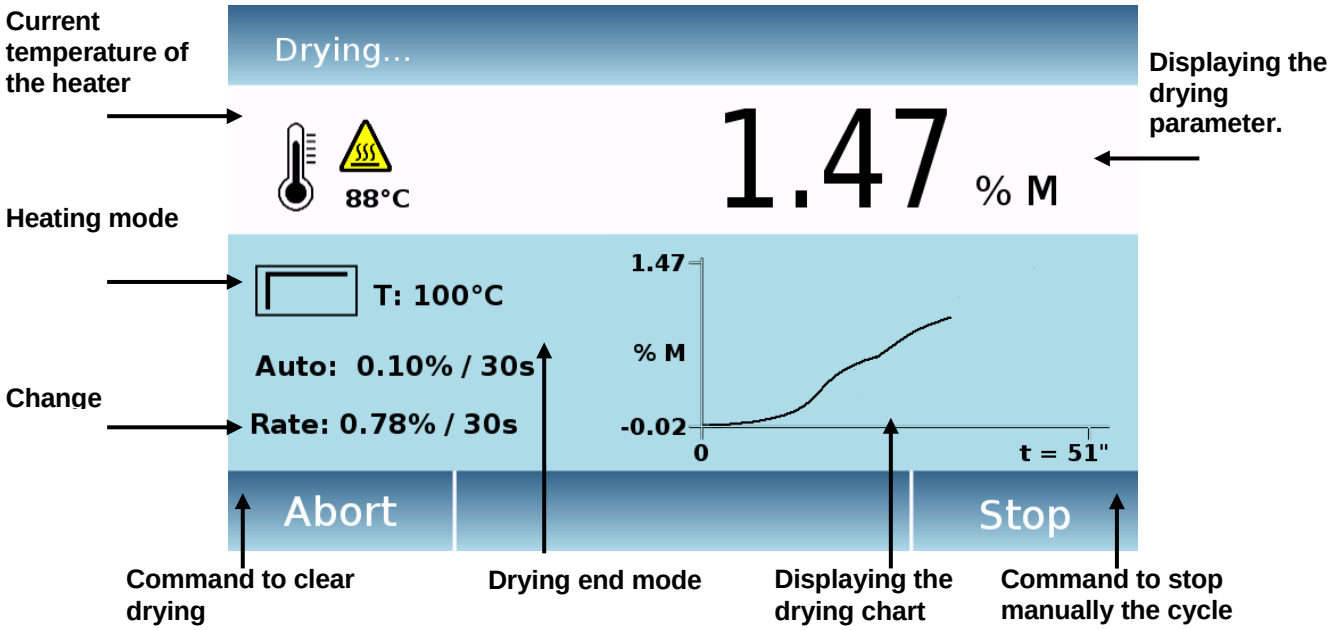


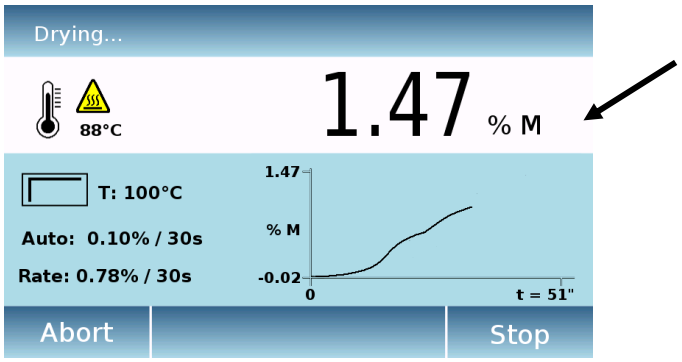
If you exceed the maximum value of substance, the bar will turn red, indicating that the upper limit was exceeded.

N.B. If the amount of the sample loaded does not respect the limits set, the drying cycle cannot be started.

8.5 Functions available during or at the end of the drying cycle

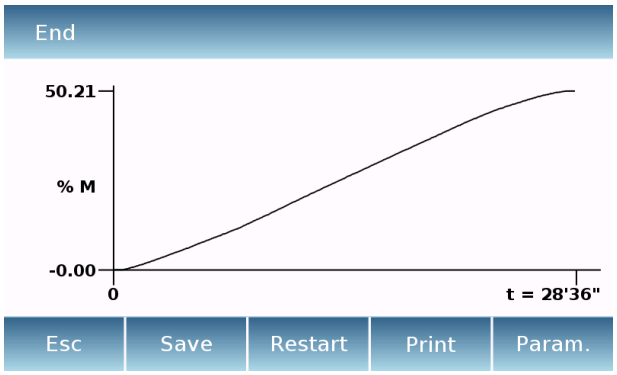
The following is a description of all functions available during and at the end of the drying cycle valid for the "Simple" and "Advanced" modes.





Selection of the parameter to be displayed, tapping the unit of measure of the parameter displayed you can rotate the display of the following drying parameters:

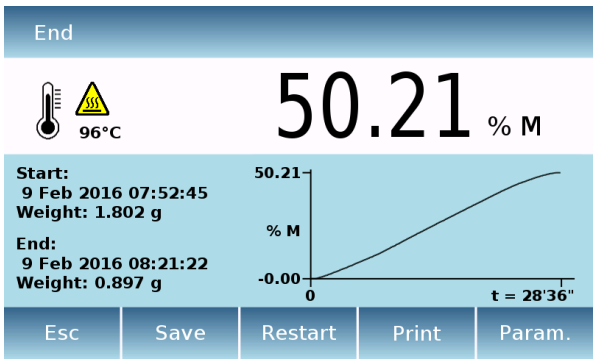
- **% M** Humidity
- **% R** Dry residue
- **% A** Other (Ratio between initial weight and final weight in %)
- **g** Weight



Abort: tapping the “Abort” key, the drying cycle will be canceled and you will be back in the "Simple Start" screen.

Stop: tapping the “Stop” key, the drying will be interrupted and the “End” screen will be displayed.

Graphic display: to display the chart in full-screen, tap the graph. From full-screen display, tap the graph to return to the previous screen.



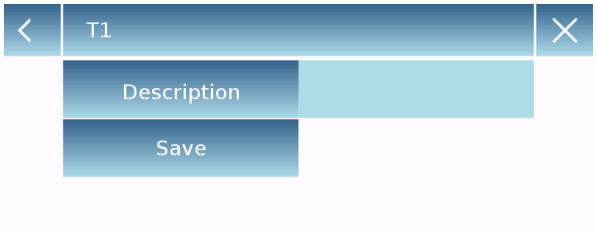
At the end of drying you will hear a short beep and display an "**End**" drying screen
You can tap the unit of measure to change the display of the drying parameter or tap the graph to display it in full screen.

After the test, do the following:
Esc: tapping the "Esc" key, it will be closed the test end screen and you will be back in the fast drying menu.

Save: tapping the "Save" button, you can save the result of drying complete with graph in the device internal database.

Insert, if required, the description of the test.

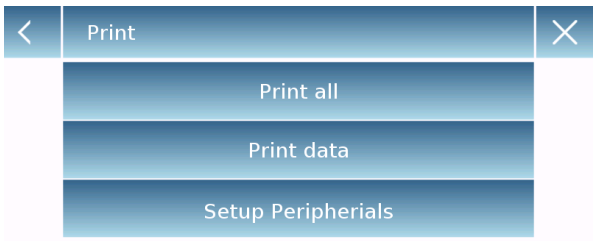
By tapping the "X" key the save operation will be canceled.



Tap the "Save" key to save the result.

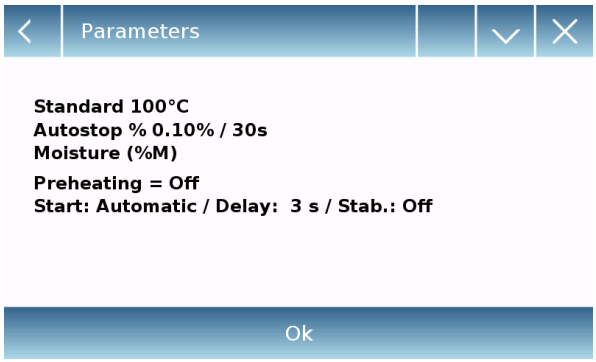
Tap the "OK" key to complete the save operation.

Restart: tapping the “Restart” key, you can perform a new drying cycle with the same parameters as the one just executed.

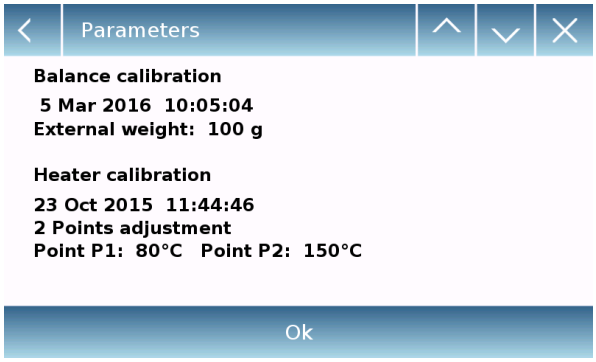


Print: tapping the “Print” key, you can decide what to print.

- **Print all:** print of the drying result including the graph.
- **Print data:** print of the drying result, data only.
- **Setup Peripherals:** it allows you accessing the peripherals setup menu of the device to change its settings. The function is not active for "Standard users."

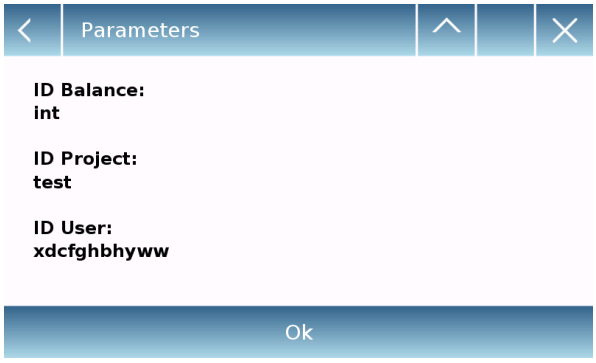


Param.: tapping the “Param.” Key, you can display all parameters used for the drying cycle.



Use the arrows to scroll through the pages and display all the data.

Tap the **“Ok”** key to close the screen.

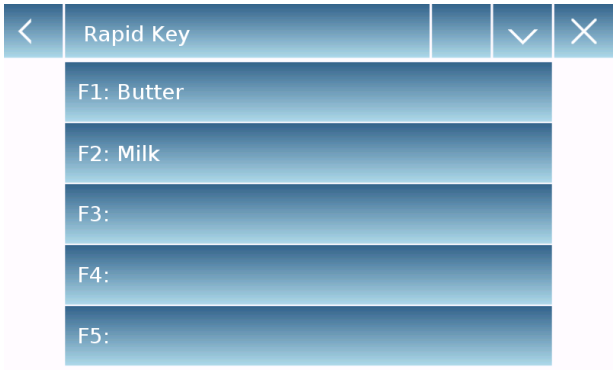


N.B. All data displayed on these pages when set will be printed or saved to a USB stick.

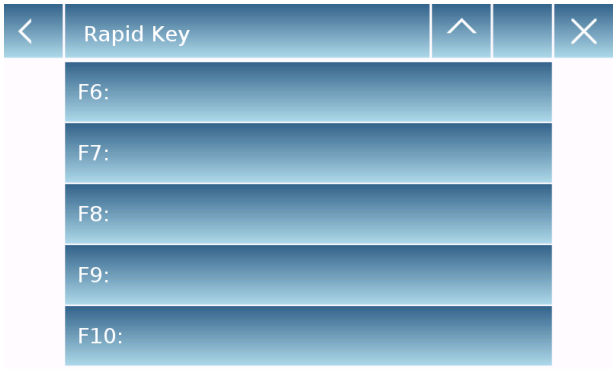
8.6 Rapid keys

This function allows you to quickly recall a drying cycle previously stored in the database

To access the function from the menu "Functions", touch the "**Rapid keys**" icon.



The rapid keys are customizable for each user and can be assigned and edited at any time.
The keys available are 10, to assign a program to a key refer to **Chapter 9.7** for the custom and default database.

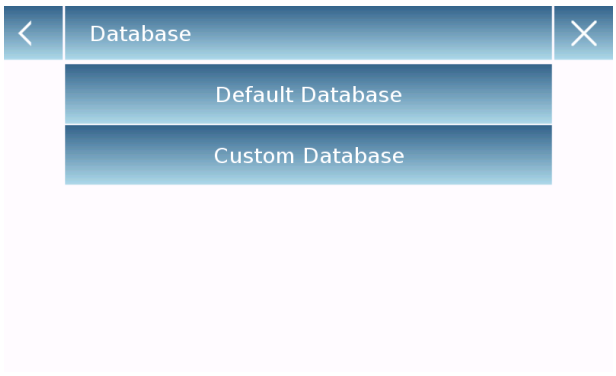


To recall a program, tap the corresponding button, and automatically the analysis procedure will be initiated.

8.7 “Preset” and “personal” databases of the drying methods

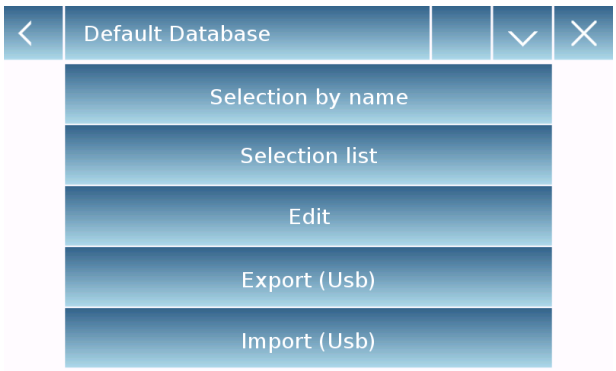
The **“Database”** function allows you accessing to the menu of the drying cycles databases; each user can customize and store its own programs.

To access the function from the menu "Functions", touch the **“Database”** icon.



The databases for the drying programs include two types:

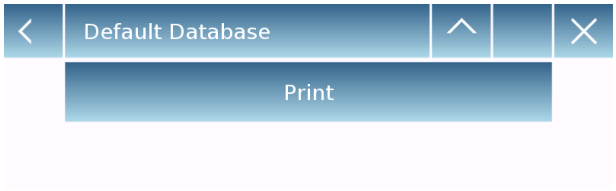
- **Default database:** tapping this key you can access the database containing the drying programs of various products set by the manufacturer.
- **Custom database:** tapping this key you can access the database of the user where you can store your drying programs.



8.7.1 Default database

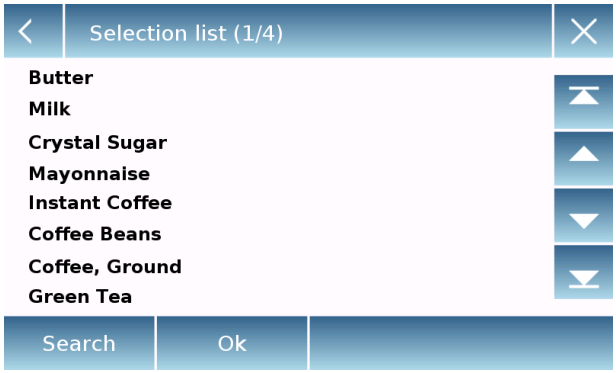
This database is preinstalled or all users, but you can customize it for each user. The following describes all the available functions:

- **Selection by name:** tapping this key you can call up a program by entering the relevant name.
- **Selection from a list:** tapping this key you can call up a program by selecting it from a list.
- **Change:** tapping this key you can access the program parameters that can be varied.
- **Export (Usb):** tapping this key you can export the database on a USB stick.
- **Import (Usb):** tapping this key you can import a previously exported default database from a USB stick.
- **Print:** tapping this key you can select a drying program and print it.



Selection by name, enter the product name to be called up.

After confirming with **"Enter",** if the name is correct you will display a screen with parameters related to the selected drying program.

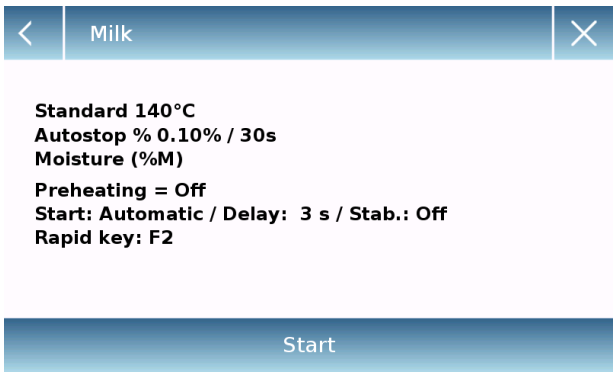


Selection from a list, tap the product desired and confirm with **"Ok"**. You will display a screen with the parameters related to the drying program selected.

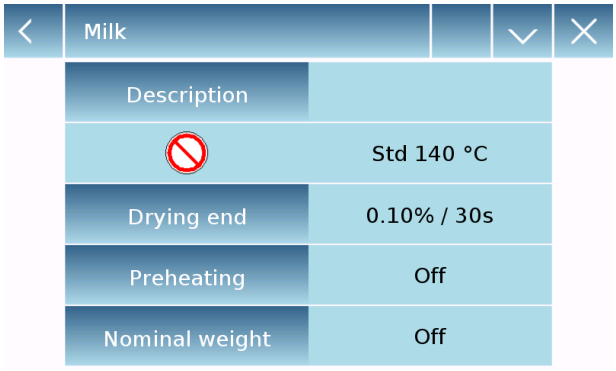
Tapping the **"Search"** key, you can search by entering the name of the record.

Use the keys to scroll a page at a time.

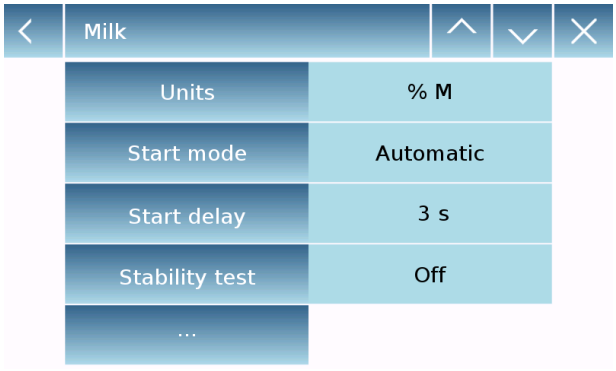
Use the keys to go to the beginning or end of the list.



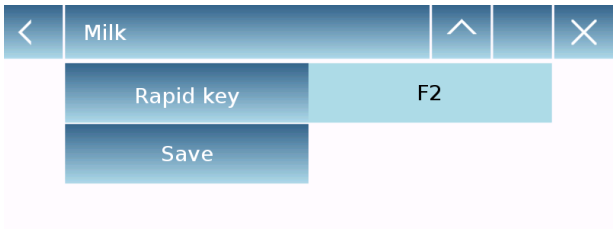
After selection by name or from a list, tap the "**Start**" key to proceed with the drying cycle.



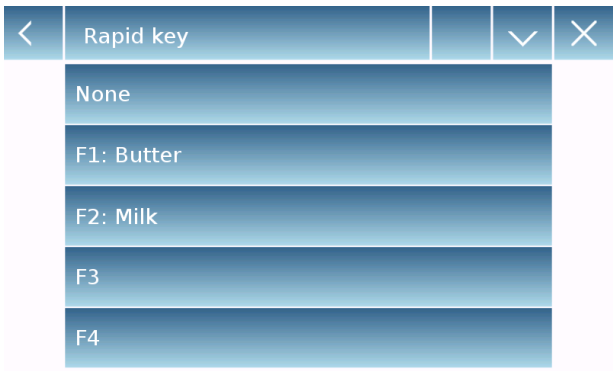
Change: this function allows you to customize the predefined drying programs. Customization is only available for some parameters and only for the "Administrator users".
Customizable parameters:



- **Description**
- **Preheating**
- **Nominal weight**
- **Unit**
- **Start-up mode**
- **Delayed start**
- **Stability test**
- **Rapid key**

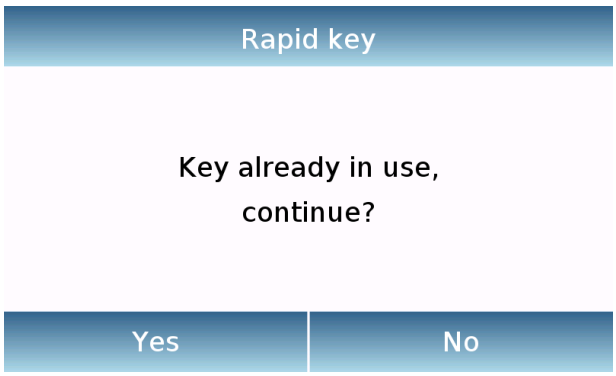


Rapid key: tapping this function, you will display a list of keyboard Rapid keys.



Select the one you want to assign the drying program.

Tapping the "**None**" command, any previously assigned key will be canceled.



You can select an already assigned key; in this case you will be asked to confirm the replacement. By tapping the "**Yes**" button, you will confirm the replacement while tapping the "**No**" button, the operation will be canceled.

N.B. After running all the customization desired, tap the "Save" key to store and update the default database.

Export (Usb): tapping the Export function you can export your custom database on a USB stick.

You will be prompted to insert the USB stick into the connector on the left side of the device. Insert the key and confirm with the " **Ok**" button, or press the " **Abort**" button to cancel the operation.

Type the name for the database to be exported.
If the name is already present on the stick will be asked whether to overwrite it.

.

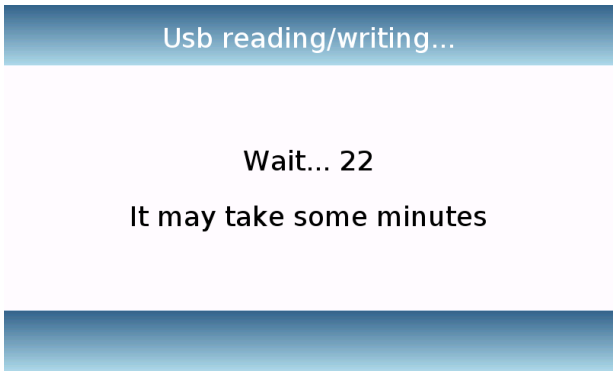
If the operation is successfully performed you will display a confirmation screen of the export database.

Tap the "**OK**" button to complete the operation.

Import (Usb): tapping the import function you can import a previously exported custom database.

You will be prompted to insert the USB stick into the connector on the left side of the device. Insert the stick and confirm with the " **Ok**" key, or press the " **Abort** " key to cancel the operation.

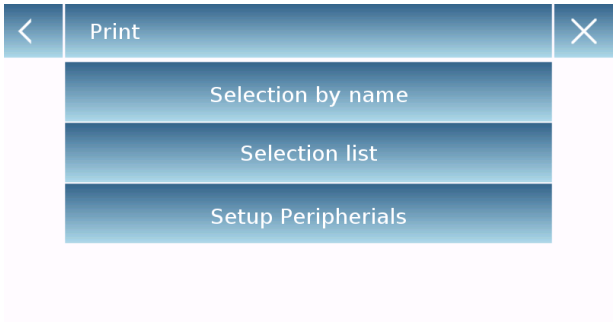
Type the database name to be imported and confirm with the "**Enter**" key.



If you enter the file is correct you will see a waiting screen while importing the database.

If the operation is successfully performed, you will display a confirmation screen of the import database.

Tap the "**OK**" button to complete the operation.

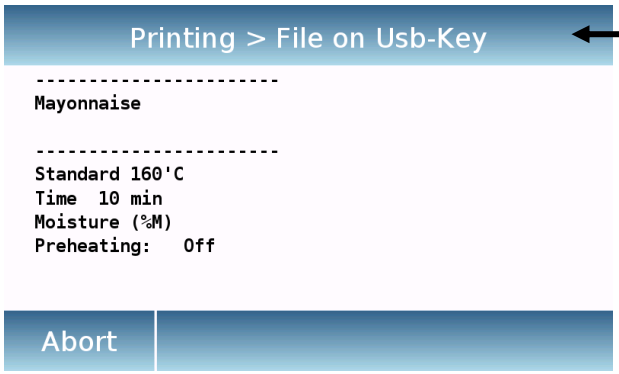


Print: the print function allows you to print on paper or on a drying program file by entering the name or by selecting it from a list.

- **Setup of peripherals**: this function allows you to directly access the peripherals setup to set various printing options

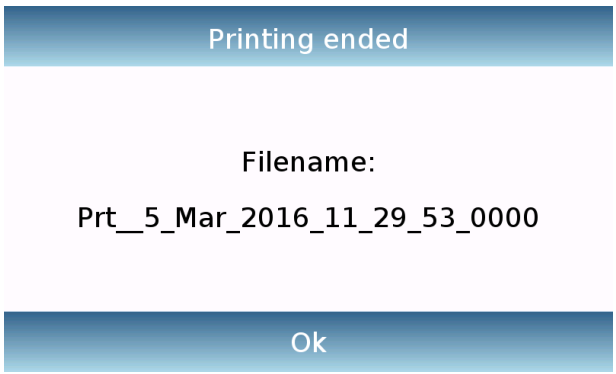
After you select the program to be printed, tap the "**Print**" key to print.

Tapping the **"Search"** key you can search by entering the name of the record.



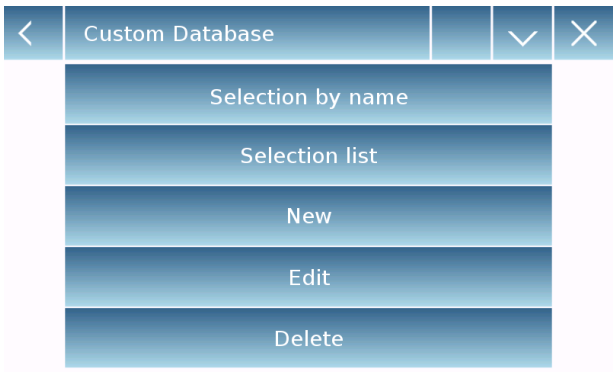
During printing, the screen header will display the device you are using to print.

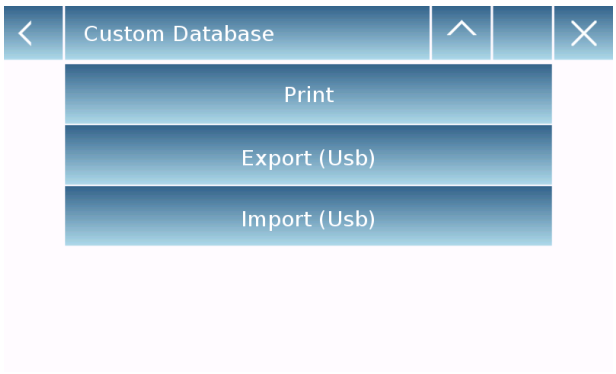
In the print on the file, you will also display a sliding screen with all the data saved on file.



After printing of the file, you will display the name assigned to the file saved on your USB stick.

Tap **"Ok"** to finish the operation.



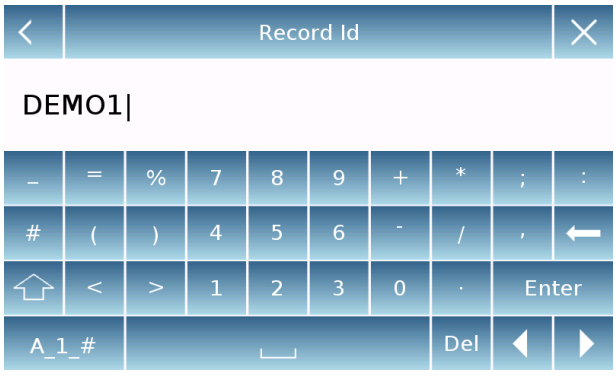


8.7.2 Custom Database

This database is customized for each user. Every time you create a new user, the database will be completely empty, so use the "New" command to add records with the desired drying programs.
The following describes all the available functions:

- **Selection by name:** tapping this key you can call up a program by entering the relevant name.
- **Selection from a list:** tapping this key you can call up a program by selecting it from a list.
- **New:** tapping this key you can enter a new drying record.
- **Change:** tapping this key you can access the program parameters that can be varied.
- **Delete:** tapping this key you can delete one or more records previously stored.
- **Print:** tapping this key you can select a drying program and print it.
- **Export (Usb):** tapping this key you can export the database onto a USD stick.
- **Import (Usb):** tapping this key you can import a Default database from a USD stick.

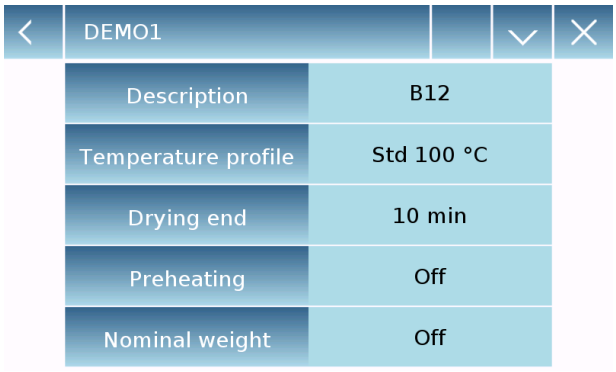
The following describes only the “New” and “Delete” commands; for all functions, refer to **Section 9.7.1** (Default database).



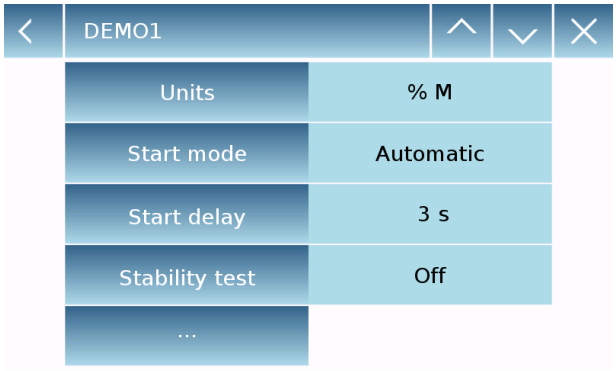
New: tapping this command, you can create a new record.

Use the keyboard to enter the name assigned to the new record.
The maximum number of characters is 30.

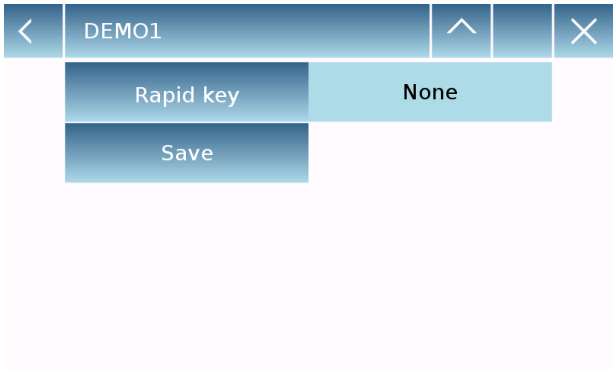
Tap “**Enter”** to confirm.



Description: tap this command to insert, if you want, the description of the product to analyze.



Set all parameters of drying. For clarification regarding the drying parameters, refer to the **Section 9.3.**

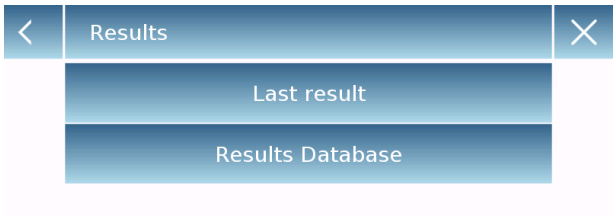


Rapid key: tap this command to assign a call up rapid key to the program stored. See **Section 9.6** for more information about the rapid keys.

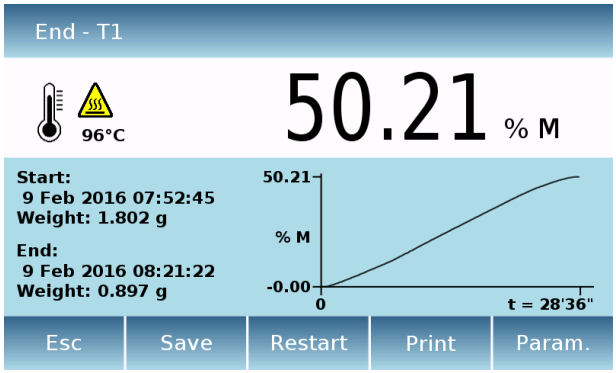
Save: after defining all parameters, tap the "Save" key to store the program in the database.

8.8 Database of the results

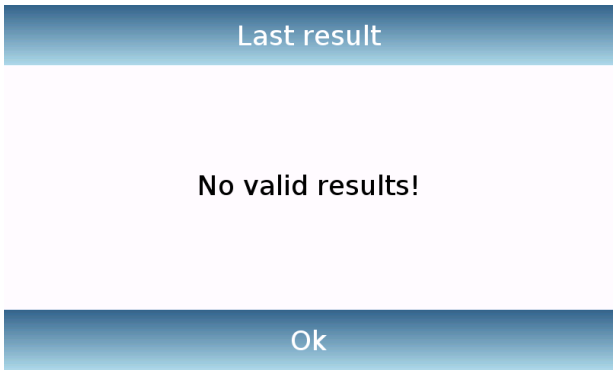
The results database allows you to call up and view the results of the drying previously made and saved in the device's internal memory. It's also a command to retrieve and display the last analysis even if not saved.
To access the function from the menu "Functions", tap the "**Results**" icon.



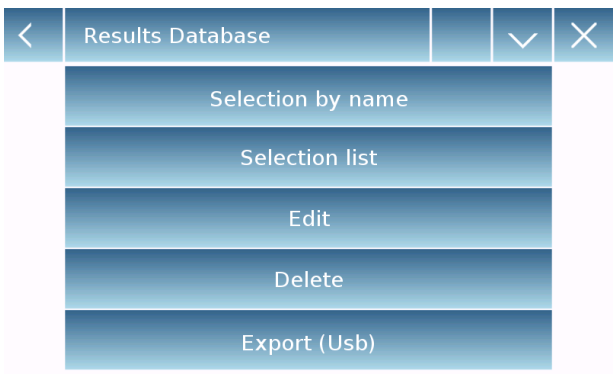
Last result: tapping this command, you can view the results of your last drying. The result remains available until you start a further drying or turn off the device.



After recalling the last result, it will be displayed the same screen of the test end. In addition to display various drying parameters and the corresponding chart, you can perform the same test end operations:
Save your work, start a new test with the same parameters, print the results and view the drying parameters.



If the information is not available, the following screen is displayed.



Results database: tapping this function, you access the User saved results database.

The following describes all the available functions:

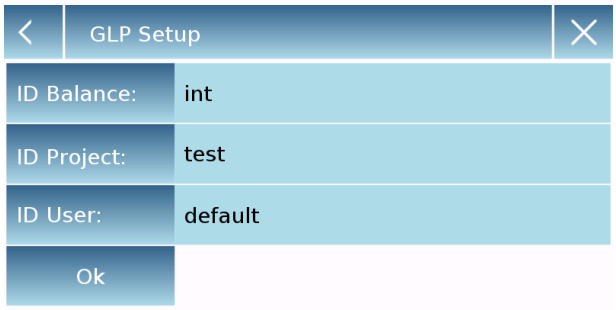
- **Selection by name:** tapping this key you can call up a program by entering the relevant name.

- **Selection from a list:** tapping this key you can call up a program by selecting it from a list.
- **Change:** tapping this key you can access the program parameters that can be varied.
- **Delete:** tapping this key you can delete one or more records previously stored.
- **Print:** tapping this key you can select a drying program and print it.
- **Export (Usb):** tapping this key you can export the database onto a USD stick.
- **Import (Usb):** tapping this key you can import a Default database from a USD stick.

8.9 Setting the GLP data

This function allows you to customize and create a database with G.l.p parameters ..

To access the function from the "Functions" menu, tap the "**GLP**" icon.

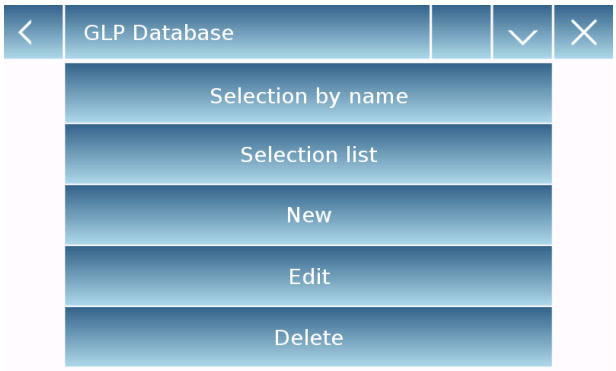


GLP Setup: use this command to enter the GLP parameters when you do not want to save them in the database.

You will display the data entry screen. Tap the corresponding parameter to enter the desired data.

- **Balance ID**
- **Project ID**
- **User ID**

After entering the data, press the "**OK**" key to confirm them.
NB. The maximum number of characters allowed per parameter is 20.



GLP database: tapping this control, you can access the menu for the management of the database with the GLP parameters

The following describes all the available functions:

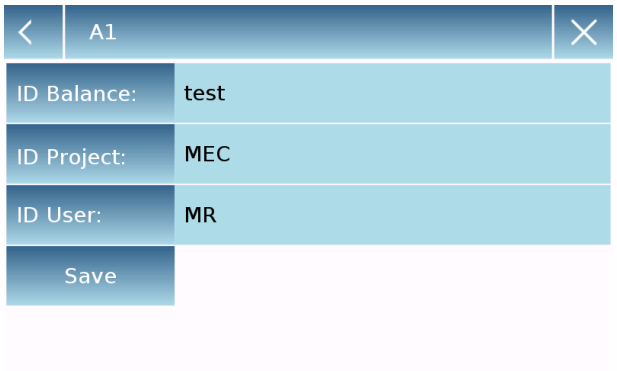
- **Selection by name**: tapping this key, you can call up a program by entering the item name.
- **Selection from a list**: tapping this key, you can call up a program by selecting it from a list.
- **New**: tapping this key, you can insert a new record.
- **Edit**: tapping this key, you can access the modified GLP parameters.
- **Delete**: tap this key to delete one or more previously stored records.
- **Print:** tapping this key, you can select a GLP record and print it.
- **Export (USB):** tapping this key, you can export the database to the USB stick.

- **Import (Usb):** tapping this key, you can import a database set before from the USB stick.

The selection, edit, delete, print, export and import keys are the same as described in **Section 9.7.1.**

New: this command allows you to insert a new record.

Enter the name you want to assign to the record and confirm with the "**Enter**" key.

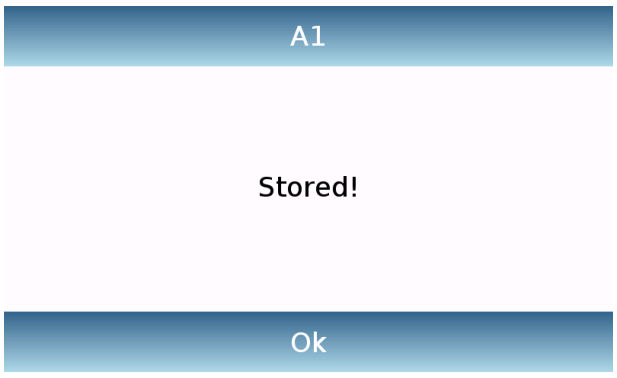


You will display the screen where entering the data: tap the relevant parameter to enter the data desires.

- **Balance ID**
- **Project ID**
- **User ID**

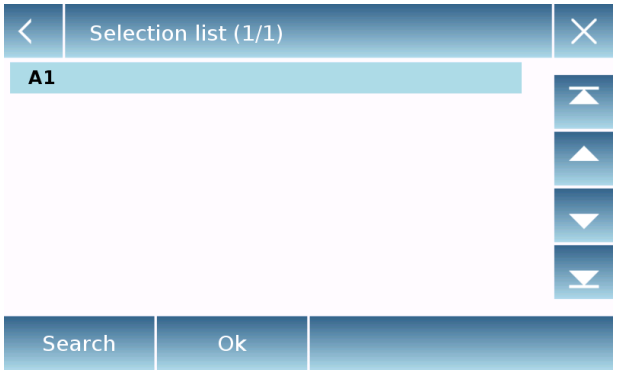
After entering the data, press the **"Save"** key to confirm.

To save the data at least one of the three boxes should be filled in. Otherwise, it will be displayed an incomplete data screen.



After entering the record in order to select it, use the "Select from list" or "Selection by name" commands.

Tap the record desired and confirm with **"Ok".**



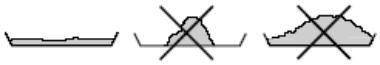
N.B. Enabling the "GLP" command in the print setup menu, the bill or the save file will show the data set in the box "Balance ID, Project ID, User ID."

9 Tips for the determination of the humidity content of the substances

9.1 Preparing the sample

Prepare a sample only at a time to prevent humidity exchange with the environment.
If you want to prepare multiple samples simultaneously, make sure to store them in a tightly closed container to prevent changes during storage.
For repeatable results, the sample should be distributed on the test plate in a homogeneous and evenly manner with a thin layer.
If the distribution is not homogeneous even the heat will not be uniform on the substance thus determining a drying that is not complete and longest drying time.
A substance accumulation causes a greater heating of the surface layer with the consequent formation of a burned layer. The considerable thickness of the burnt layer prevents the removal of humidity in the lower part of the sample. The humidity that remains trapped in the substance leads to incorrect results that are not less repeatable.

Preparing the samples of solid substances



Arrange evenly on the sample pan powdered substances or granules.
If the samples are large seeds, chop them with special instruments.
During this process, avoid overheating the substance.

Preparing the samples of liquid substances

In the case of liquids or samples subjected to fusion, we recommend using glass fabric filters involving the following advantages:

- uniform arrangement by capillary action,
- no dripping,
- fast evaporation due to increased surface area.

9.2 Types of samples

A good rule for the humidity determination occurs on samples that have the following properties:

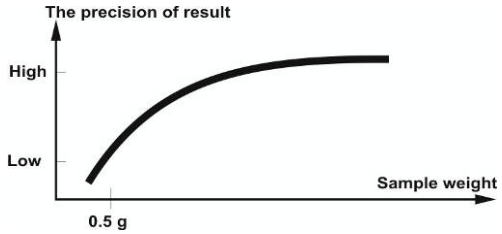
- Solid material in powder form or grains,
- Thermally stable materials that evaporate easily, volatile substances without addition of particular substances,
- Evaporating liquids up to become dry matter without formation of film.

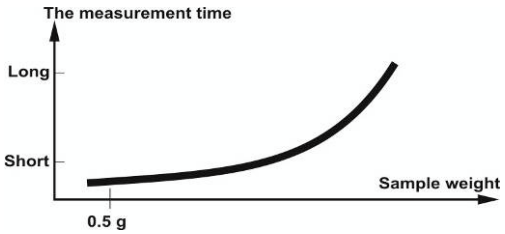
The humidity determination could be critical in the case of samples that:

- are sticky and viscous,
- during heating easily undergo chemical decomposition or release various components,
- have tendency to create surface film when subjected to heating.

9.3 Amount of substance and duration of the drying cycle.

The composition of the substance affects significantly the duration and the accuracy of the humidity measurement results.
A small amount of the substance will result in a faster drying cycle, but with less precise results.
While a greater amount of the substance will need higher drying times but with more reliable and repeatable results.





Therefore, based on the substance, it's necessary to determine the right compromise between the drying time and the accuracy of the results you want to obtain.

10 Care and Maintenance

Periodic maintenance of your balance guarantees the safety of your measuring tool.

- **Cleaning**
  Before cleaning the balance, unplug the power supply unit from the wall socket.
  Do not use harsh products (solvents or similar agents), but a damp cloth with a mild detergent. Prevent the penetration of liquids into the device during cleaning; after cleaning, dry with soft cloth. Remains of sample and dust can be removed with the use of a brush or vacuum cleaner.
- **Safety checks**
  The safety of the device is no longer ensured when:
  -The power supply unit is visibly damaged
  -The power supply unit no longer works
  -The power supply unit has been stored for a long time in unfavorable conditions.
  In these cases, please contact the service center where technicians will perform any repairs to restore the device in a safe condition.

11 Technical functions

The models to which this manual refers are all intended for internal use.
Maximum operating altitude: 4000m
Pollution degree: 2
Overvoltage category: II

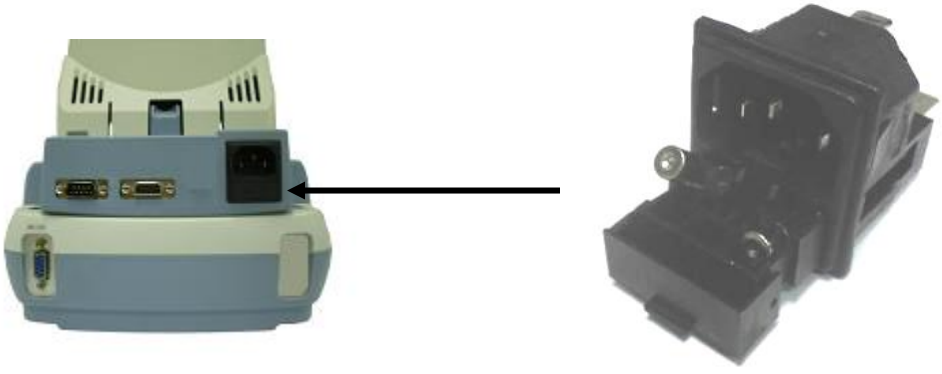
Power supply	INPUT: 220-240Vac (upon request, 110V) 50Hz
Power consumption	430 VA
Heater temperature range	+35 –160 °C with Step of 1°C
Bulb type	Halogen, power 400W
Interface	#1 RS232 #1 USB port
Working temperature/humidity:	+5°C - +35°C Air humidity 45% - 70% without condensation.

12 Troubleshooting

Problem	Possible cause
The device does not switch on	▪ VDE cable not connected. ▪ Cable connecting the balance and the heater not inserted. ▪ Fuses damaged (see **Section 13** for any replacement).
The measurement lasts too long.	▪ Switching off criterion set in a bad way.
The measurement cannot be repeated.	▪ Sample is not homogenous. ▪ Drying time is too short. ▪ Too high drying temperature (i.e. oxygenation of the sample material, exceeded the boiling temperature of the sample). ▪ Temperature sensor dirty or broken.
The weight value changes continuously.	▪ Draught. ▪ Table/support surface vibration. ▪ Electromagnetic fields/static charging (choose another place of positioning of the balance/if possible, turn off the system causing the problems).

13 Replacing electrical fuses

The VDE socket placed on the back of the device is equipped with a pan containing the electrical protection fuses.
The fuse model to be used is the following:
UTE T 2A 250V 5x25
The replacement must be performed by qualified personnel and with no current.
Remove the VDE cable from the device.
Open the fuse-holder box.
Remove the faulty fuses and insert new ones.
Close the fuse-holder box.



14 Warranty

- The term of the warranty is 60 months from the date of purchase proven by the product bill or the packing slip.
- The warranty covers all parts that may be defective in origin. It does not cover mechanical and electronic parts damaged due to improper installation, tampering or misuse.
- The warranty does not cover damage caused by shocks, falls of the balance or fall of objects on the weighing pan.
- Transportation to and from the service center is responsibility of the customer.

15 Storage conditions

- **Storage temperature** +5 °C…+40°C
- **Storage humidity** 45% - 75%.
- **Keep the packaging of the balance** in the event of possible deployment for customer service; unplug all cables and any accessories to prevent unnecessary damage.
- **Do not expose** the balance unnecessarily to extreme temperatures and humidity, and avoid violent shocks.

16 Disposal

If the packaging is no longer used, it can be delivered to the local waste disposal center. The packaging is made from environmentally friendly materials and is a valuable source of secondary raw materials. Exhausted batteries must not be thrown away with normal household waste. Dispose them of in local collection boxes. In case of disposal of the product, contact with the local authorities. Prior to disposal of, remove the batteries.

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