

OVENS and INCUBATORS

Super
PROJECT



User manual

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1 Warranty

In normal use conditions, the instrument is guaranteed for a period of 24 months from the date of purchase. The warranty is valid only if the product is original. It does not apply to any product or parts of it that have been damaged due to incorrect installation, improper connections, improper use, accident or abnormal conditions of operation.

The manufacturer declines all responsibility for damage caused by failure to follow instructions, lack of maintenance and any unauthorized modification.

The warranty does not include parts of the instrument defined as "consumables" and subject to wear, such as, for example, the door seal.

2 Contents of package

The instrument is delivered complete with the following parts:

1. n. 2 stainless steel wire shelves
2. n. 4 brackets for shelves
3. Power supply cable
4. User manual

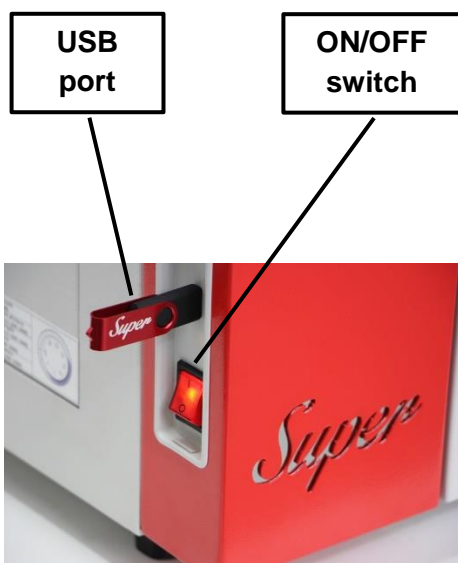
3 First use

3.1 Getting started

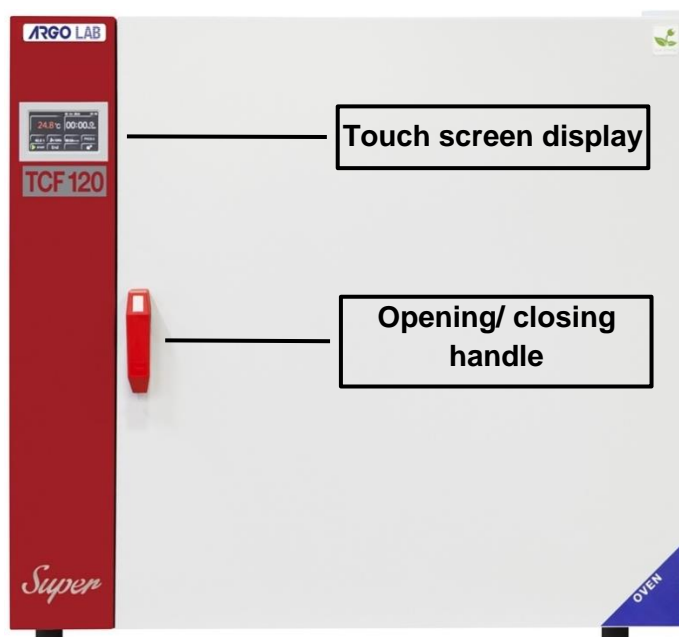
The oven should be installed in follow conditions:

1. Dry, clean and stable work table with a flat horizontal surface
NOTE: the instrument must not be placed on the floor (except TCF400 and ICF400)
2. Respect minimum spaces around instrument 30-50 cm
3. Room temperature between 5 °C and 40 °C, and relative humidity maximum of 85%
4. Power supply socket with earth connection
5. Power feed between 220-240 V - 50 Hz

3.2 Instrument parts

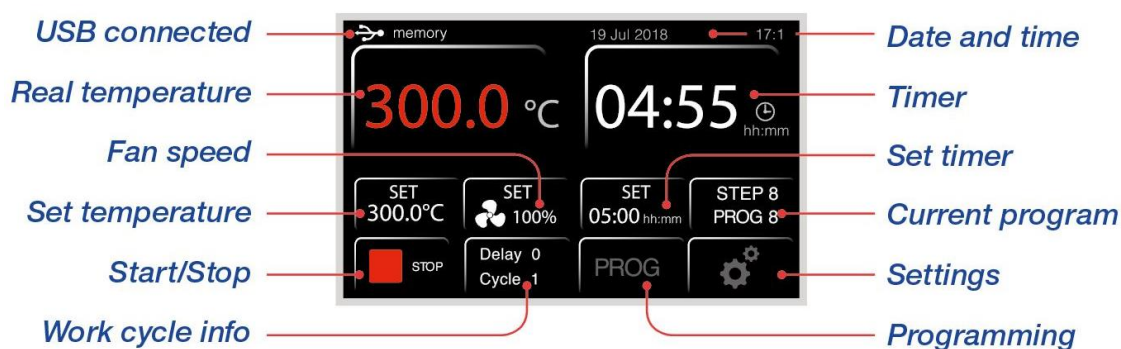


Picture 1



Picture 2

4 Display e commands



Picture 3

The touch screen display is capacitive, so it is possible use it indistinctly with your fingers, wearing latex gloves, with pens equipped of rubber terminal, with generic pens or pencils.

NOTE: it is advisable not to use the latter to avoid marking the display glass.

The different colours of the display, the icons and symbols have been used in the various screens to make them easy to understand and use:

- colour WHITE → adjustable value or parameter
- colour GREY → NOT adjustable value or parameter
- colour GREEN → START key, OK key or ENTER key to confirm
- colour RED → STOP key, indication of the current temperature (> 20,0 °C)
- colour ORANGE → ESC key, working parameters of programs steps (PROG 1..8)
- colour YELLOW → “Alarm” icon
- colour BLUE → indication of the current temperature ($\leq 20,0$ °C)

5 Operation

5.1 Switching on the instrument

Connect the power cord to a power outlet with a protective ground connection.

Turn on the instrument by pressing the button ON/OFF (Picture 1). Button and the display light up.

The display shows the initialization sequence with “Super” written and software version installed.

5.2 Basic mode (PROG 0) or with Programs (PROG 1..8)

The instrument can work in two modes:

- Basic (PROG 0) → program with a single working step
- Programs (PROG 1..8) → eight memorized programs, each of which consists of 8 steps

In both versions it is always possible to set the temperature, the timer and the fan speed (if present) for each individual work step.

Depending on the program in which you are located, the display will show one of the following main screens:

- PROG 0 → Picture 4
- PROG 1..8 → Picture 5



Picture 4 – Main screen PROG 0

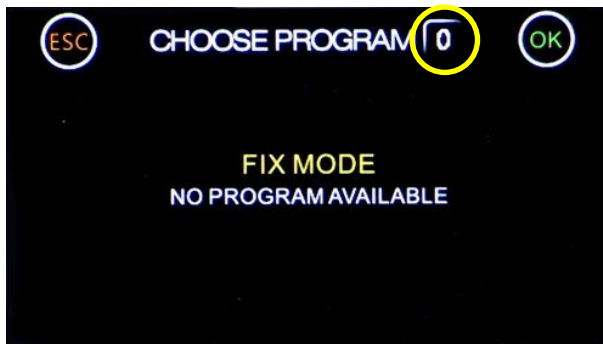


Picture 5 – Main screen PROG 1..8

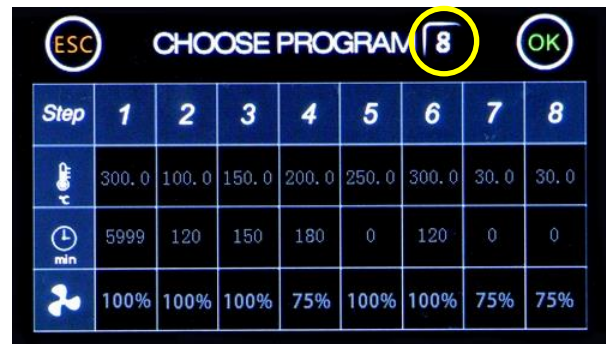
5.3 Recall and selection of a program

To select the desired program, press the highlighted key in Picture 4 or Picture 5. As mentioned, it is in the same position, the only change is the content of the screen depending on the program in which you are located.

Then, one of the two screens will appear (Picture 6 or Picture 7).



Picture 6

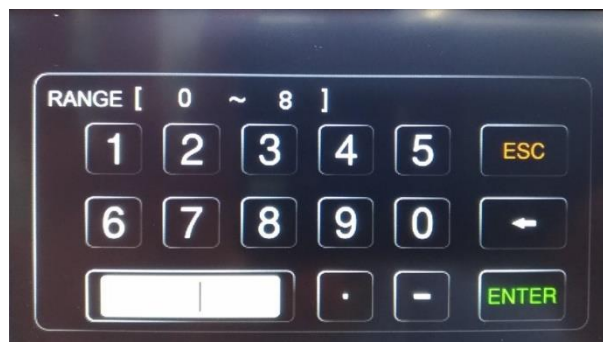


Picture 7

The PROG 0 is with a single step, therefore the indication “FIX MODE–NO PROGRAM AVAILABLE” (Picture 6), while the programs from one to eight have eight steps each one (Picture 7).

NOTE: in the screen of Picture 7, the parameters of various program steps are visible in read-only mode (grey), but not editable. To modify them, follow the instructions in paragraph 5.4.2.

Using the button highlighted in yellow, you can access the numeric keypad in Picture 8 and select the desired program.



Picture 8

Press ENTER to confirm the value. The display returns to the previous screen where you need to press OK to validate and then return to the main screen.

NOTE: it is possible to return to the previous screen without saving the modification pressing ESC.

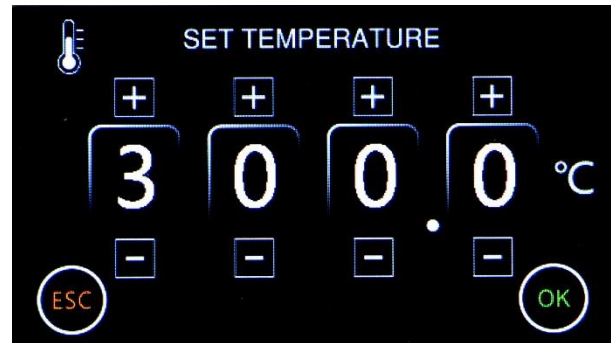
5.4 Programming

5.4.1 Modification of working parameters PROG 0

From the main screen of the PROG 0 mode (Picture 9), press the highlighted keys to change, from left to right, the temperature, the fan speed (where present) and the timer respectively. The screens of Picture 10, Picture 11 and Picture 12 will therefore appear.



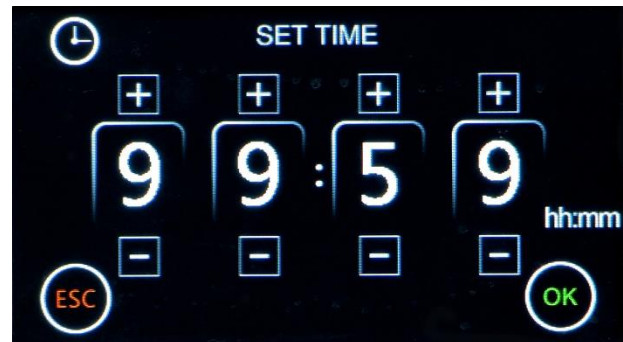
Picture 9



Picture 10



Picture 11



Picture 12

To increase or decrease the values of temperature and time, use the keys + and -, while for the fan (if present) it is possible choose directly between three speeds: High (100%), Medium (75%) e Low (50%).

In all the screens it is necessary confirm the set value by the button OK.

NOTE: it is possible to return to the previous screen without saving the modification pressing ESC.

5.4.2 Modification of working parameters PROG 1..8

From the main screen (Picture 13) press PROG to access to the menu of Picture 14.



Picture 13

Step	1	2	3	4	5	6	7	8
Temperature	100.0	150.0	200.0	200.0	250.0	300.0	30.0	30.0
Time (min)	60	120	180	0	0	0	0	0
Fan Speed	100%	75%	50%	75%	100%	100%	75%	75%

Picture 14

In the screen of Picture 14, select the program that you want to change by pressing the yellow highlighted button and setting the corresponding digit using the numeric keypad. Confirm with ENTER.

For each individual program step (from 1 to 8) it is possible to set the temperature (degrees Celsius), the timer (minutes) and the fan speed (if present), by clicking on the buttons highlighted in green, red and pink of the same screen.

For the temperature and the timer the respective numeric keypads will appear, marked by the icon of the thermometer (Picture 15) and the clock (Picture 16), with the indication of the program and of the step being modified. Once the desired value has been set, confirm with ENTER or go back to the previous screen without saving the changes by pressing ESC.



Picture 15



Picture 16

To change the fan speed (if present), instead, simply click on the corresponding button (pink colour in Picture 14) and the value will change in sequence between 100% = High, 75% = Medium and 50% = Low.

REPEAT THE PREVIOUS INSTRUCTIONS FOR EVERY STEP YOU WANT TO PROGRAM

NOTE: if you do not want to use all the STEPs of the program you are editing, it is necessary to impose the end of the program to the instrument. To do this, simply set a time equal zero in the next step to the last one you want to use.

EXAMPLE of Picture 14

If the last work step to be used is the third, it is enough to set the timer equal 0 in the fourth step, thus imposing that instrument stops after third step.

5.5 Start/stop of a program

To start or stop a program press respectively the START key (Picture 17) or STOP key (Picture 18). The keys are the same in both the main screens (PROG 0 or PROG 1..8).



Picture 17



Picture 18

The instrument then starts the set work cycle which can be one or more steps.

NOTE: the timer countdown only starts when the set temperature is reached. To be precise when $T_{real} = T_{set} \pm 0.3 \text{ } ^\circ\text{C}$.

Observing Picture 21, for example, the countdown of 99 hours and 59 minutes will start when the instrument reaches $300 \pm 0.3 \text{ } ^\circ\text{C}$

At any time it is possible to check the work step and the program number in which you are located (in green Picture 19 and Picture 20), as well as the possible delay at the start that has been set (Delay) and the number of repetitions of the program executed (Cycle), highlighted in blue Picture 19 and Picture 20 .



Picture 19



Picture 20

NOTE: it is always possible to consult the various parameters set in the steps of the program in use by clicking on the green button in Picture 19 and Picture 20, but be careful to press ESC only to return to the main screen. If you press the OK key, the instrument will interpret the action as confirmation of the choice of a new program, therefore it will forcibly terminate the work cycle in progress.

When the program ends or is manually stopped, the word "End" appears on the main screen (Picture 21) together an intermittent acoustic signal, which can be silenced by pressing the word "End" itself.



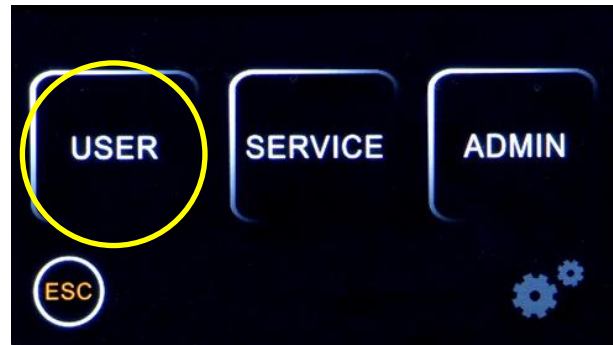
Picture 21

5.6 User settings menu

Pressing the icons of the gears of Picture 22 and then the key USER (Picture 23), you access to the user settings menu screens (Picture 24 and Picture 25).



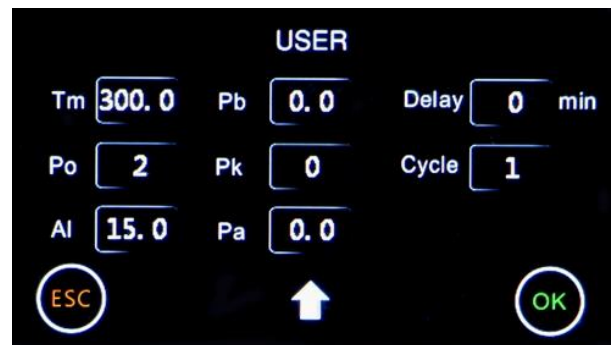
Picture 22



Picture 23



Picture 24



Picture 25

5.6.1 Settings of date and time

Clicking on any key of date and time you access to the menu of Picture 26.



Picture 26

Set the date and time using the numeric keypad minding that the format is as follow:

20yy-mm-dd hh: mm: ss

NOTE: It is necessary to set all the parameters (date and time) each time.

5.6.2 Frequency of data recording

Click on the highlighted key of Picture 27 to modify the frequency with which the instrument records the data of the work cycle.



Picture 27

Using the numeric keypad set a time (in minutes) from 1 to 255. Press ENTER to confirm or ESC to go back to the previous screen without saving.

NOTE: the memory can contain up to 2000 recordings. When this limit is reached, the instrument will start to overwrite the same memory with new data, thus erasing the previous ones starting from the oldest ones.

The recording frequency thus also defines the recording capacity in terms of duration (example Frequency= 60 minutes → 2000 data x 60 minutes= 2000 hours= 83 days).

NOTE: if a USB stick is connected to the instrument, the recordings take place directly on it as well as in the instrument's memory. The memory limit of 2000 data remains however, but the key itself will act as secondary memory and therefore it is possible to make a continuous recording over 2000 data.

5.6.3 Safety temperature limiter for samples protection

The instrument has the possibility to limit the maximum work temperature (**T_m**) for the samples protection from an erroneous setting of the working temperature.

On the top left part of display in Picture 25 the parameter "**T_m**" (temperature max) and the maximum expected value for the kind of instrument (different for oven and incubator) appear.

Set the maximum temperature value you want the instrument doesn't exceed during work cycle pressing on corresponding box and using the numeric keypad. Press ENTER to confirm or ESC to return to the previous screen without saving.

Example

If the set temperature for the work cycle is 100 °C and the temperature limiter (**T_m**) is fixed at 70°C, the instrument tries to achieve the set temperature (100°C), even if it is higher than the limited one set in this menu (**T_m**).

When the 70 °C are achieved the instrument goes in alarm emitting an audible intermittent alarm (silenced by pressing the Alarm key) and the heating element doesn't receive power supply until to the temperature will go below the limited one (**T_m**).

NOTE: the instrument tries in any moment to achieve the set work temperature, therefore, until it is bigger than the limited one (**T_m**), it goes in overtemperature alarm.

5.6.4 Restart mode after absence of power supply

It's possible to set the restart mode of the instrument after a power supply absence (**Po**):

Po VALUE	DESCRIPTION
0	On return of the power supply, the instrument does not automatically resume the heating cycle, but you must manually restart.
1	On return of the power supply, the instrument automatically resumes operation from the beginning of the heating cycle interrupted
2	On return of the power supply, the instrument automatically resumes operation at the very point of the heating cycle in which it was interrupted

Set the desired value pressing on the corresponding box (Picture 25) and using the numeric keypad. Press ENTER to confirm or ESC to return to the previous screen without saving.

5.6.5 Temperature limit for over temperature alarm

The instrument permits to set the limit of temperature over which it goes in over temperature alarm (**Al**).

NOTE: even if this value is adjustable by the operator, it's already set by factory and perfectly calibrated in function of instrument type, natural/forced air oven or incubator.

We recommend to do not change this value unless absolutely necessary, because temperature fluctuations more or less than the set one, especially in natural convection models, are normal and thus reducing dramatically the value of AL, it would risk do go frequently and unnecessarily alarmed the instrument.

If the modification is desired, press on the corresponding box (Picture 25) and use the numeric keypad. Press ENTER to confirm or ESC to return to the previous screen without saving.

5.6.6 Temperature offset on single point, on entire ramp, on room sensor

The instrument permits set the offset value on a single temperature point (**Pb**), on the entire temperature ramp (**Pk**) and on the room temperature (**Pa**).

NOTE: even if these values are adjustable by the operator, they are already set by factory and perfectly calibrated with certified and referable Accredia's measurement instruments.

We recommend that you do not change these values unless strictly necessary, for example if after a check with digital certified thermometer you find a discrepancies between the readings of the instrument and the external thermometer.

PARAMETER	DESCRIPTION
Pb	Changing this parameter you can correct the reading of PT100 sensor inside the instrument on one point temperature. The correction will therefore be attributable to one specific point.
Pk	Changing this parameter you can correct the reading PT100 sensor inside the instrument over the entire temperature ramp, that is going to change the inclination of the ramp reading of the sensor.
Pa	Changing this parameter you can correct the reading of environmental PT100 sensor installed on the instrument (only refrigerated versions) on only one temperature point. The correction will therefore be attributable to one specific point.

If the modification is desired, press on the corresponding boxes (Picture 25) and use the numeric keypad. Press ENTER to confirm or ESC to return to the previous screen without saving.

5.6.7 Delay of heating cycle start

The instrument provides the possibility of setting a delay at the start of the operating cycle (**Delay**) from 1 to 9999 minutes.

Set the desired value by pressing the corresponding box (Picture 25) and using the numeric keypad. Press ENTER to confirm or ESC to return to the previous screen without saving.

Once the delay has been set, by pressing the START key the instrument starts the program, but does not immediately start to heat up. Once the set delay time has elapsed, the instrument starts the heating and the set timer appears on the display.

5.6.8 Repetition of the selected program

The instrument allows the repeating from 1 to 99 times of the selected program, function (**Cycle**).

NOTE: it's also possible set the continuous repetition of a program, setting it in continuous "loop", with the parameter Cycle=0.

Set the desired value by pressing the corresponding box (Picture 25) and using the numeric keypad. Press ENTER to confirm or ESC to return to the previous screen without saving.

5.7 Download data and USB pen

The instrument is equipped as standard with a USB port for connecting a pendrive (Picture 28). By connecting a USB stick when the instrument is switched on (with active or inactive work cycle), the automatic download of all the data that the machine has in memory takes place (without having to press anything).

NOTE: if a USB stick is left connected to the instrument, the recordings take place directly on it as well as in the instrument's memory. The memory limit of 2000 data remains however (see paragraph 5.6.2), but the key itself will act as secondary memory and it is therefore possible to make a continuous recording over 2000 data.

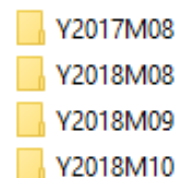
The format of the files that are downloaded is of type **.txt**. The data are therefore completely "open", editable and transferable to the normal computers applications, and it is possible to process them by the operator independently, without the need of any dedicated software.

The files are organized in folders divided by year (Y) and month (M) (Picture 29) and within the various folders they are ordered in days (D01, D02...).

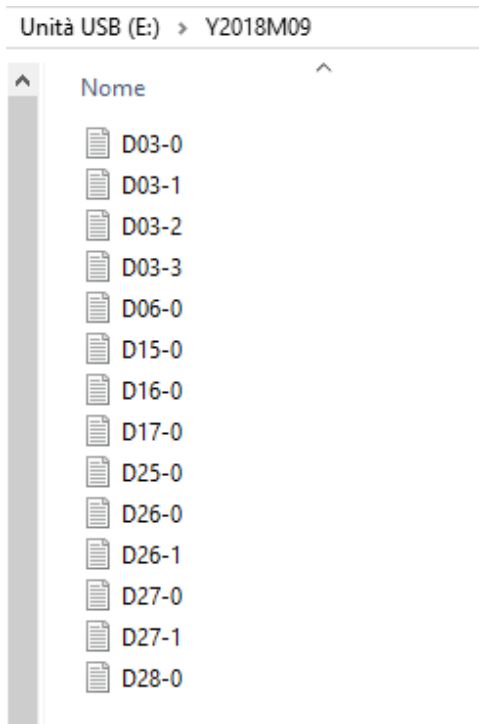
If several work cycles are performed on the same day, they will be named with the same date, plus the progressive number of the cycle. In the example of (Picture 30) on day 3, four work cycles were performed D03-0, D03-1, D03-2, D03-3.



Picture 28



Picture 29



Picture 30

NUM	DATE	TIME	REALTEMP	SET TEMP
1	2018-10-09	08:44	100.9	0.0
2	2018-10-09	08:45	88.2	0.0
3	2018-10-09	08:46	84.8	0.0
4	2018-10-09	08:47	74.9	0.0
5	2018-10-09	08:48	63.8	0.0
6	2018-10-09	08:49	55.6	0.0
7	2018-10-09	08:50	48.0	0.0
8	2018-10-09	08:51	42.5	0.0
9	2018-10-09	08:52	39.5	0.0
10	2018-10-09	08:53	39.2	40.0
11	2018-10-09	08:54	38.3	40.0
12	2018-10-09	08:55	39.7	40.0
13	2018-10-09	08:56	40.7	40.0
14	2018-10-09	08:57	41.0	40.0
15	2018-10-09	08:58	41.0	40.0
16	2018-10-09	08:59	40.7	40.0
17	2018-10-09	09:00	40.7	40.0
18	2018-10-09	09:01	40.7	40.0
19	2018-10-09	09:02	40.6	40.0
20	2018-10-09	09:03	40.3	40.0

Picture 31

As mentioned, the .txt files are completely open and contain the main working data of the machine: registration number (NUM), date (DATE), time (TIME), measured temperature (REAL TEMP) and set temperature (SET TEMP) , see Picture 31.

They are already organized in form of table and they also transferable in other computer applications in text form or table of values.

6 Clean and maintenance

Proper maintenance and cleaning of the instrument guarantee its good conditions.

The inner chamber of the instrument is made of stainless steel, so it can be cleaned with any detergent provided it is not aggressive and / or corrosive.

You should clean the inside and outside surfaces with a standard all-purpose cleaner sprayed on a soft cloth.

Before proceeding with any cleaning or decontamination, the user must ensure that the method used does not damage the instrument.

IMPORTANT:

If the instrument must be returned for service, it is necessary to provide for proper cleaning and possible decontamination by pathogens of the same.

It is also recommended to put the instrument in its original packaging to send it in for repairs and if it is missed it is necessary to provide to pack it properly in order to the transport.

Any damage caused from the incorrect shipping will not be covered by warranty.

7 Disposal of electronic equipment



The electrical and electronic equipment marked with this symbol may not be disposed of in landfills.

In accordance with EU Directive UE 2012/19/UE, the European users of electrical and electronic equipment have the opportunity to give back to the distributor or manufacturer upon purchase of a new one.

The illegal disposal of electrical and electronic equipment is punished with an administrative fine.