



X-306/S Oven Commander

A Program for X-REFLOW306/S Ovens to create/run programs and monitor/store temperatures of the oven thermocouples and additional two thermocouples connected to the TC-T and TC-B sockets in real time.

Version 9.2

Revision 2

Bokar International

P/NX-DOC230
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www.ESDmeters.com www.BestBatchOven.com
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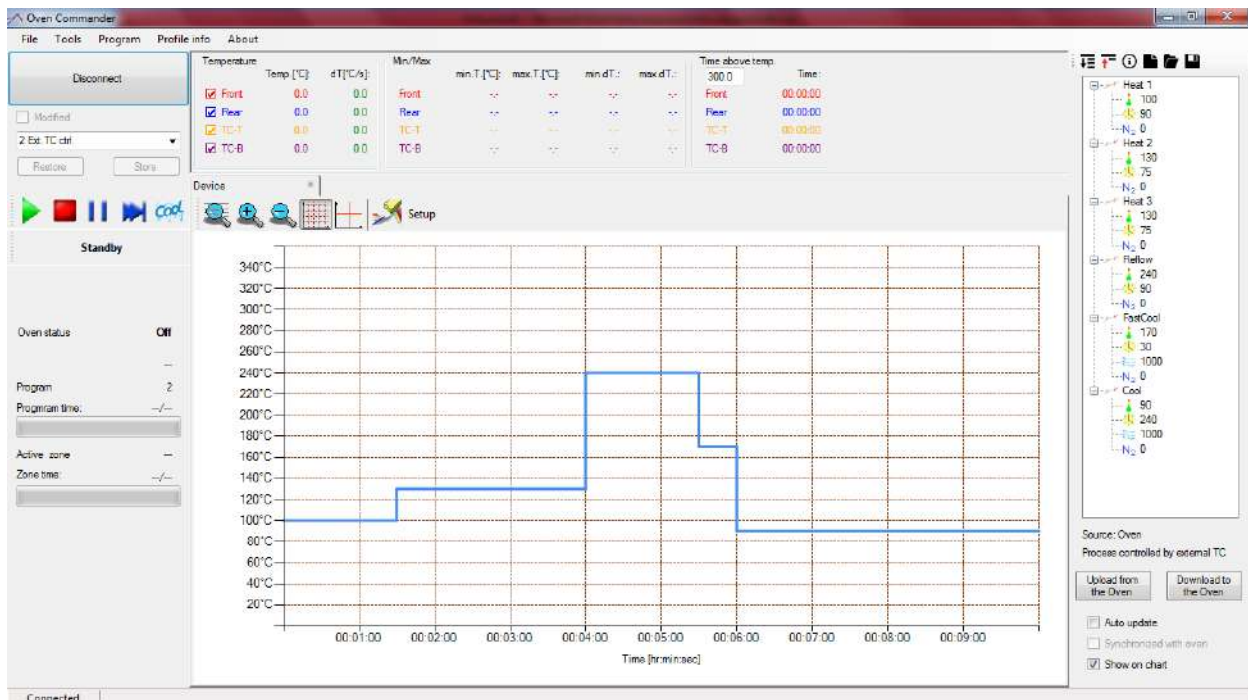


Introduction

The X306/S Oven Commander allows the operator to easily program, run and document work done with the X-Reflow306/S Batch Oven.

Major Oven Commander Features and User Benefits:

- Programming and controlling X-Reflow306/S oven from a PC
- Monitoring in real time air or N2 temperatures inside the oven and the two temperatures of the object to which the TC-T and TC-B thermocouples are connected
- Storing on a PC of the four monitored temperature/time profiles
- Printing the stored time/temperature graphs and Programs
- Exporting to Excel stored information of the time/temperature graphs
- Observing of time/temperature characteristics of the process in progress in real time
- Changing the program with “on the fly” modifications using a computer mouse or keyboard entry
- Documenting and storing additional information(like PCB number, PCB description, etc.) related to tasks performed (entered manually when running a profile)



I. Installation instructions

1. Download the latest firmware version from the server ("X-Reflow306-S_firmware_v5.247.zip or later" from http://www.bokar.us/downloads/X-Reflow306-S_firmware.zip) and load it into to the oven (the Commander program requires that firmware v5.247 or later is in the oven for proper operation).
(see http://www.bokar.us/downloads/Firmware-upgrade_X-Reflow306.doc details)
2. Download the Commander program from the server (X306-S-OvenCommander.zip from <http://www.bokar.us/downloads/X306-S-OvenCommander.zip>).
Then unpack the zip file to a Hard Disc of Your PC:

All unpacked files must be together in the same folder (password for unpacking is: Oven).

The files are listed below:

DocumentFormat.OpenXml.dll

FTD2XX_NET.dll

OvenCommander.exe

3. Run the file: **OvenCommander.exe**

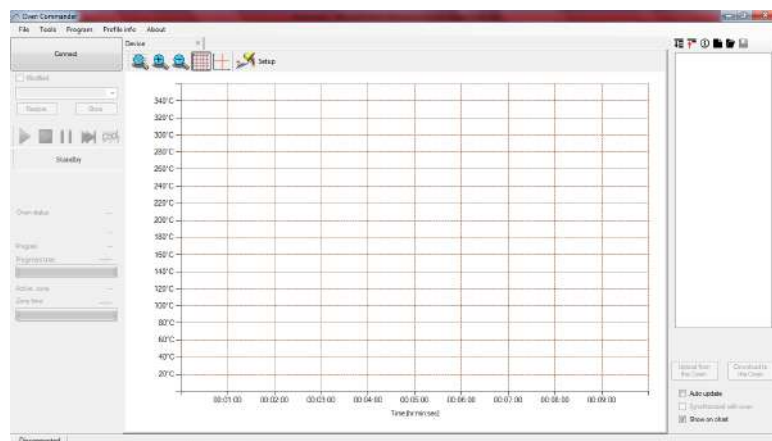


Figure 1

4. Connect **X-REFLOW306/S** to a PC using X485-USB Converter.
5. Turn ON the Power switch of X-Reflow306/S and login.
6. Press Connect (Top/Left corner of the program). This will connect the oven to your PC.

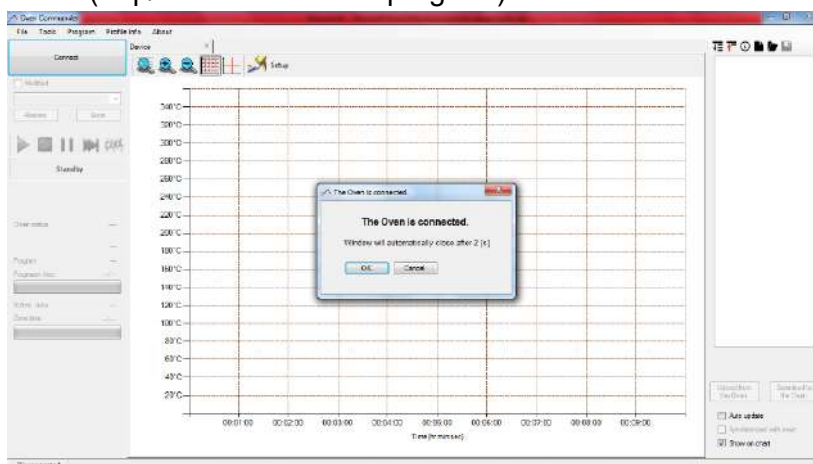


Figure 2

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Note: If your computer will not connect to the oven via X485-USB Converter, unzip the file "X485-USB converter_driver.zip" and run file "CDM20600.exe"

II. MAIN WINDOW

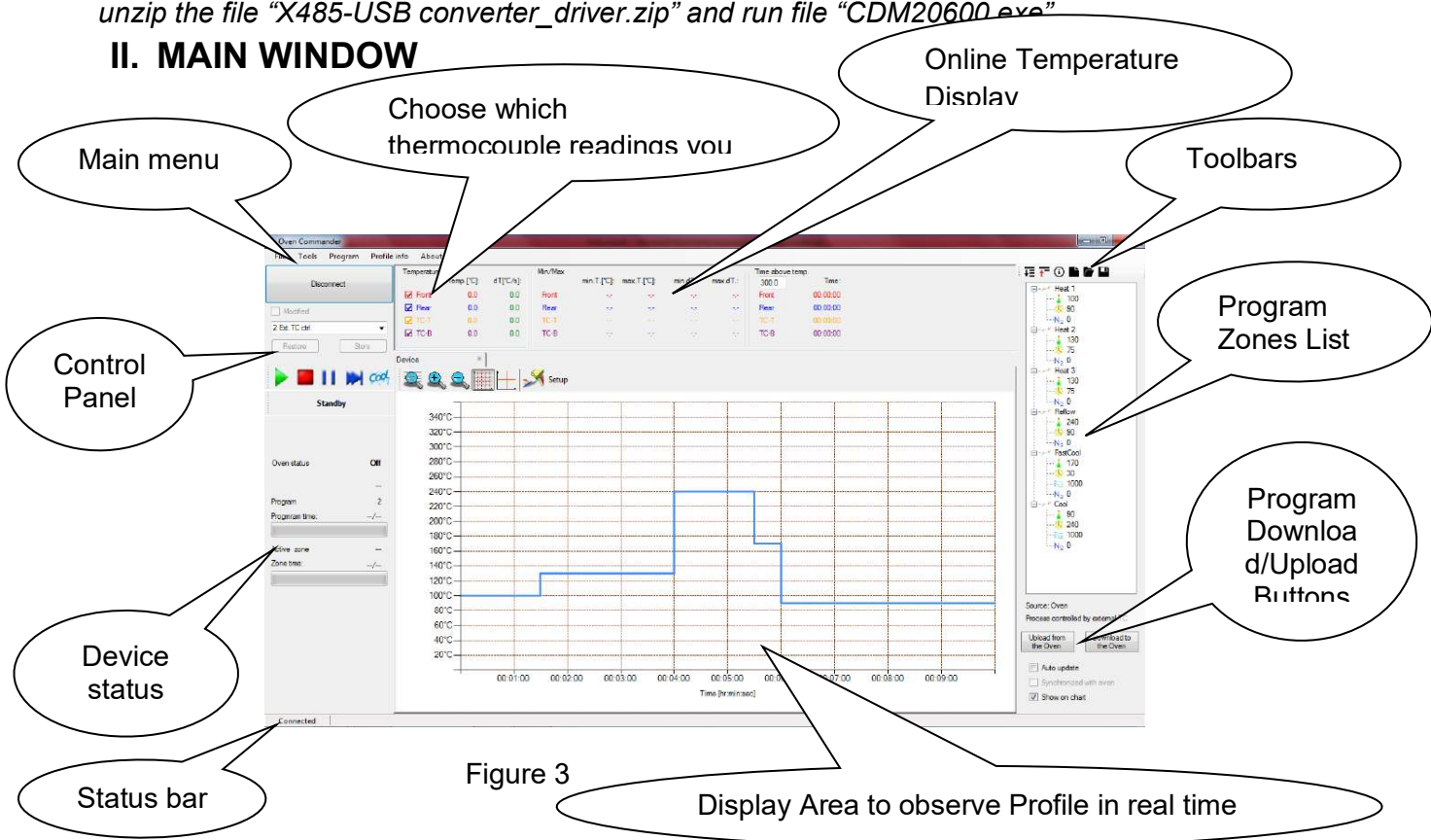


Figure 3

III. Description of the Control Panel

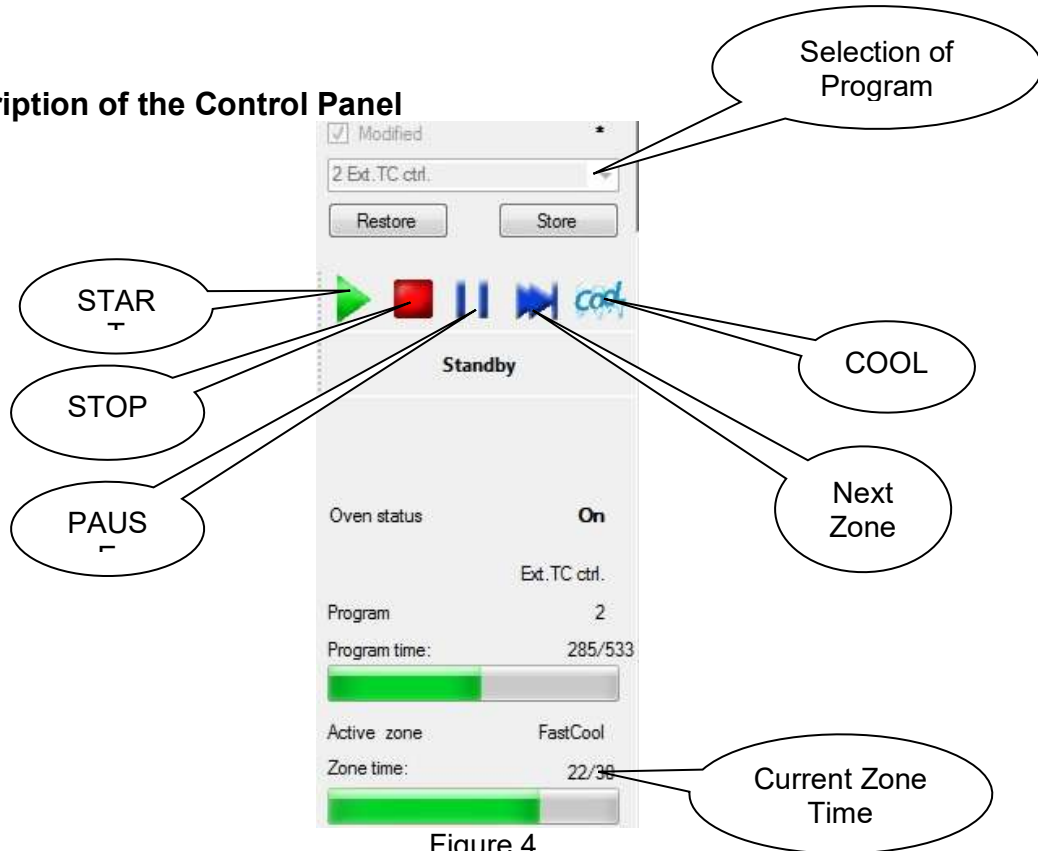


Figure 4

Control buttons:

START – Start the process. If the process is active, you can control it by clicking on the Control Buttons.

Note: If you press start during the process, the process will restart.

STOP – Stop the process

PAUSE – Pause the process. Press the **Pause** button again to continue the process.

NEXT ZONE – Clicking on this button ends the zone in progress and starts the following zone. This is an override of the preset program if the timing of the zone in the preset program was too long.

COOL – Clicking on this button stops the process and the system starts cooling the board. It can be pressed at any time during the process

IV. STARTING A PROGRAM

1. Choose a program from the list:

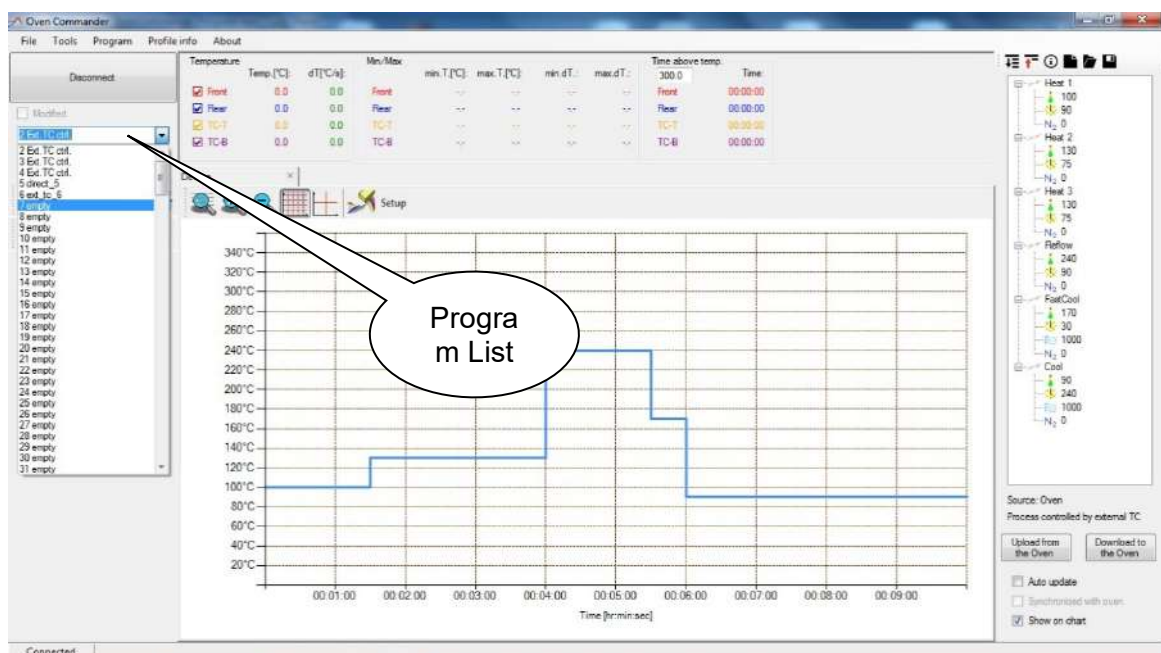


Figure 5

V. EDITING A PROGRAM

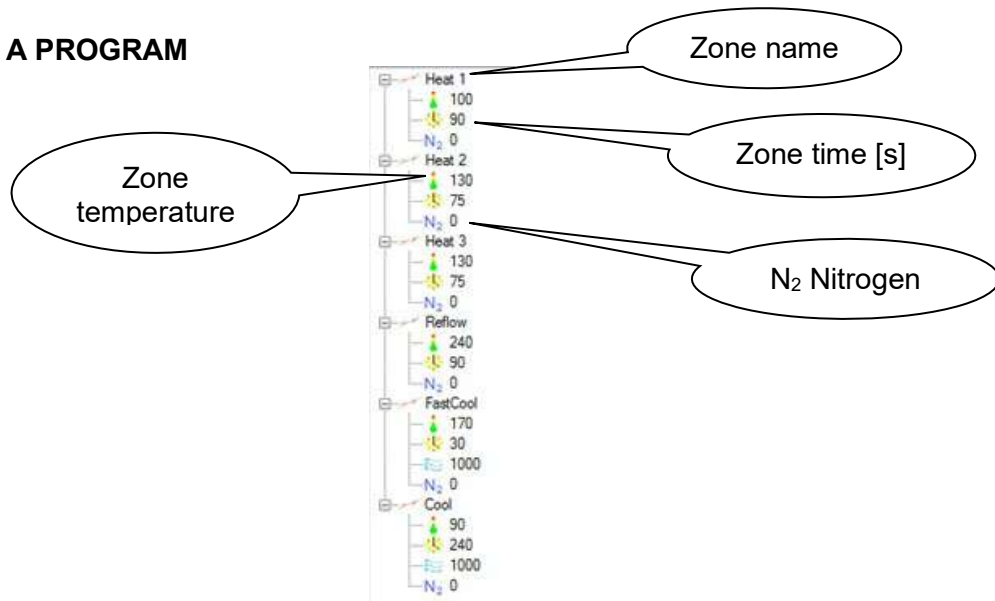


Figure 6

Note:

The Operator has two ways to edit the Program: graphical (using the mouse and modifying the graph) and by modifying temperatures and zone times in the Program Zones List via keyboard entry (Fig. 6).

Editing using the graph.

- 1 Changing zone temperature:
 - a Place the mouse cursor on the horizontal line of the Program Graph
 - b Press and hold the left mouse button
 - c Move the line up or down to the desired temperature
 - d Release the mouse button to set the temperature
- 2 Changing the zone time:
 - a Place the cursor on the vertical line indicating zone shifts on the Program Graph
 - b Press and hold the left mouse button
 - c Move the cursor left or right to the required timing
 - d Release the mouse button to set the zone time

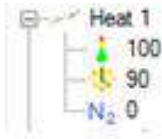


Figure 7

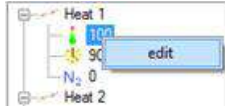
Editing the Program by keyboard entry in Program Zone List.

1 Changing zone temperature:

- a. Place the cursor on the temperature of the zone which you wish to modify



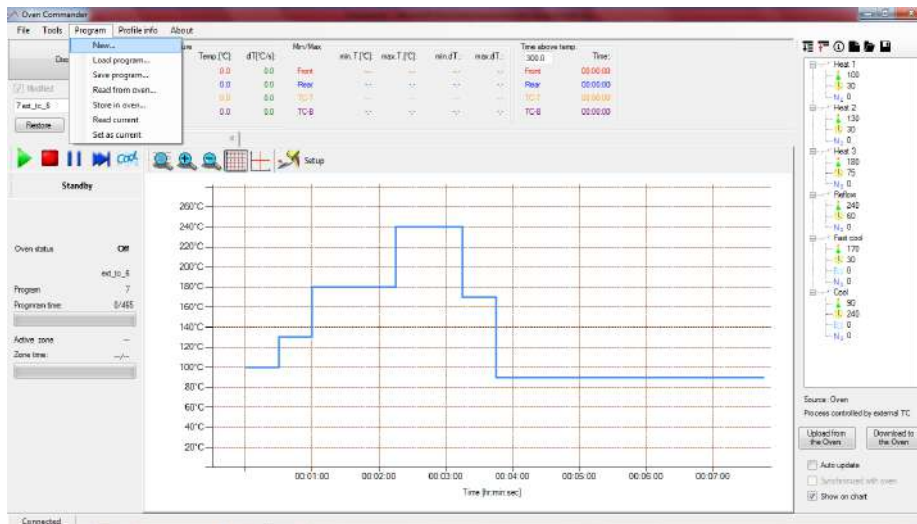
- b. With the right mouse button, click on the existing value and click edit



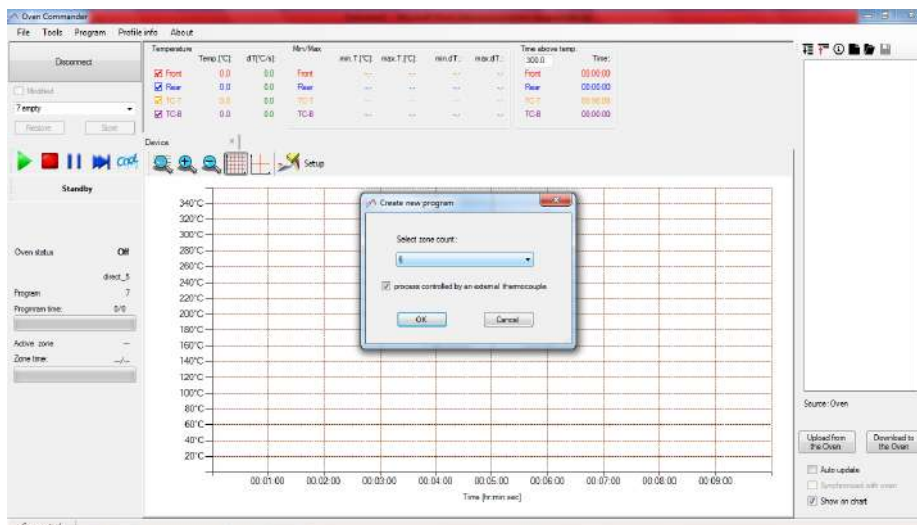
- c. Enter the new value from the keyboard and press enter

CREATE NEW PROGRAM

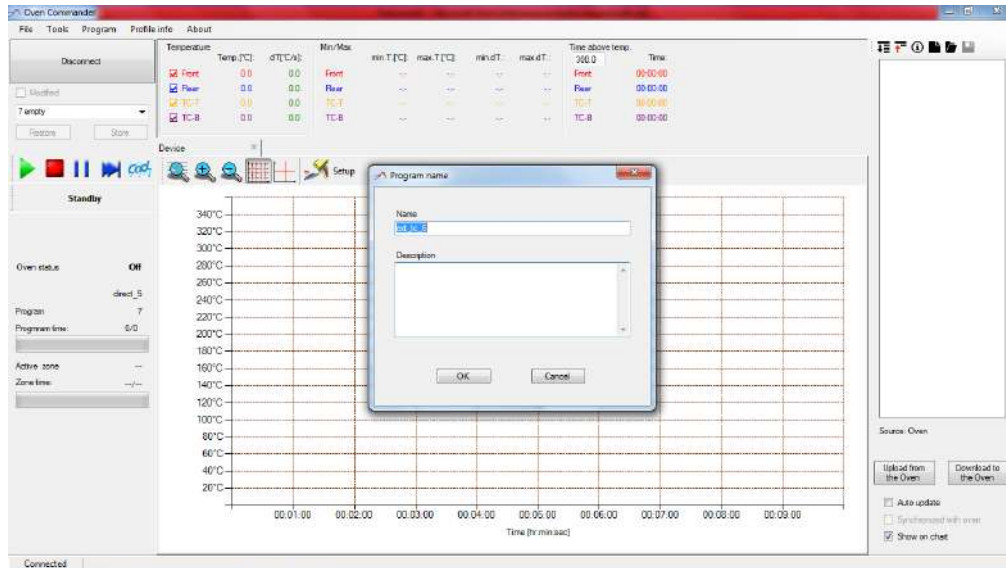
1. Choose from the Main Menu “Program” and then “New”



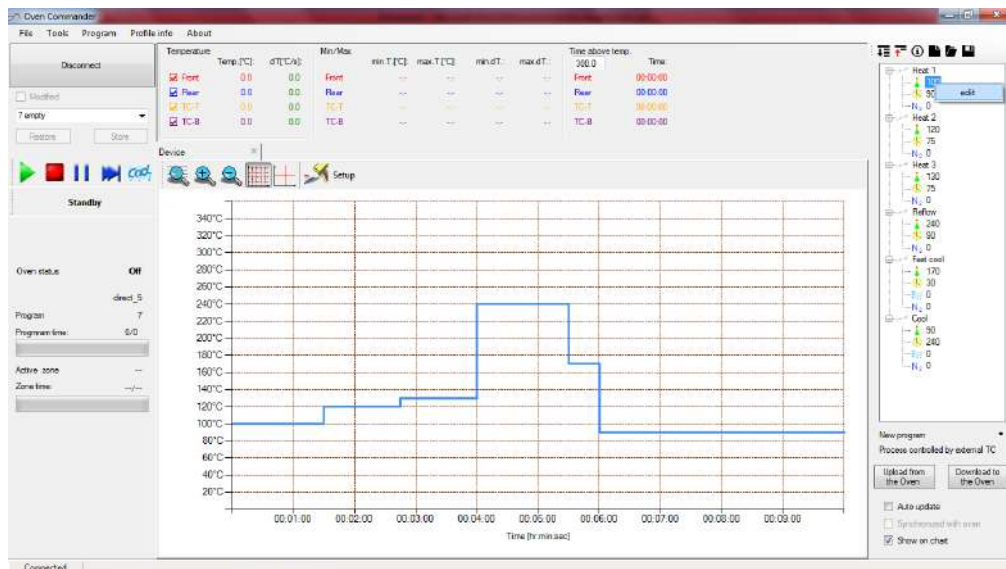
2. Select the zone count and if the process will be controlled by external thermocouple



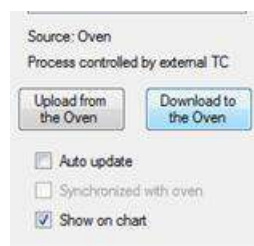
3. Press "OK"
4. Write the program Name and Description



5. Edit the program's parameters on the default graph



6. Press "Download to the Oven" to copy the program to the oven in order to run it



7. Press "File" and then "Save Program" to save the current program

8. Now press “Start” to run the program

VI. Editing the program in progress

You can change the current program’s parameters through either of the methods outlined in section 5. Note that you can edit the program while it is running.

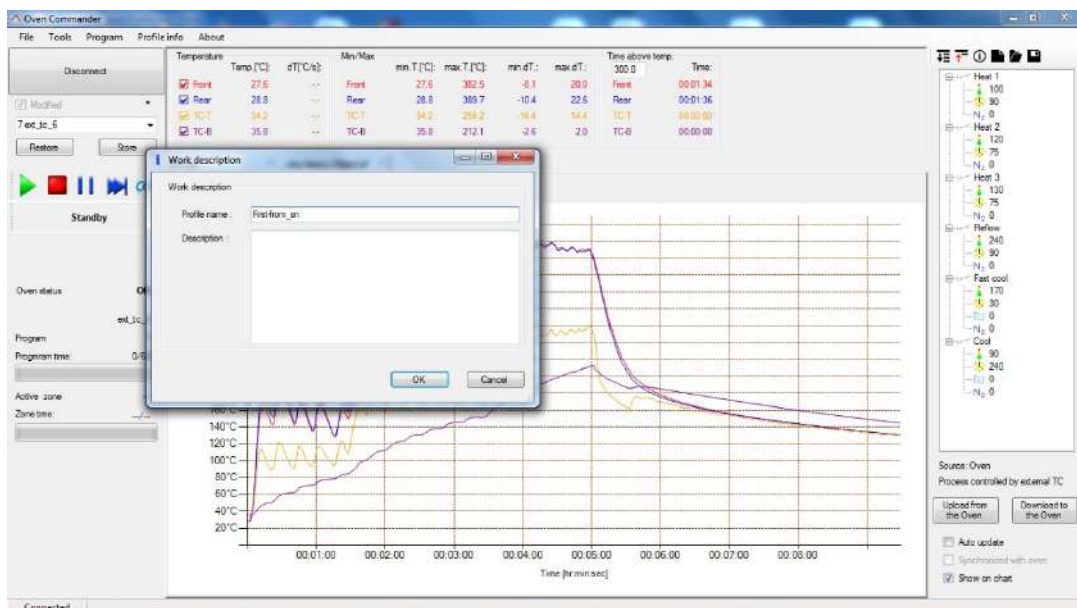
VII. Saving profiles

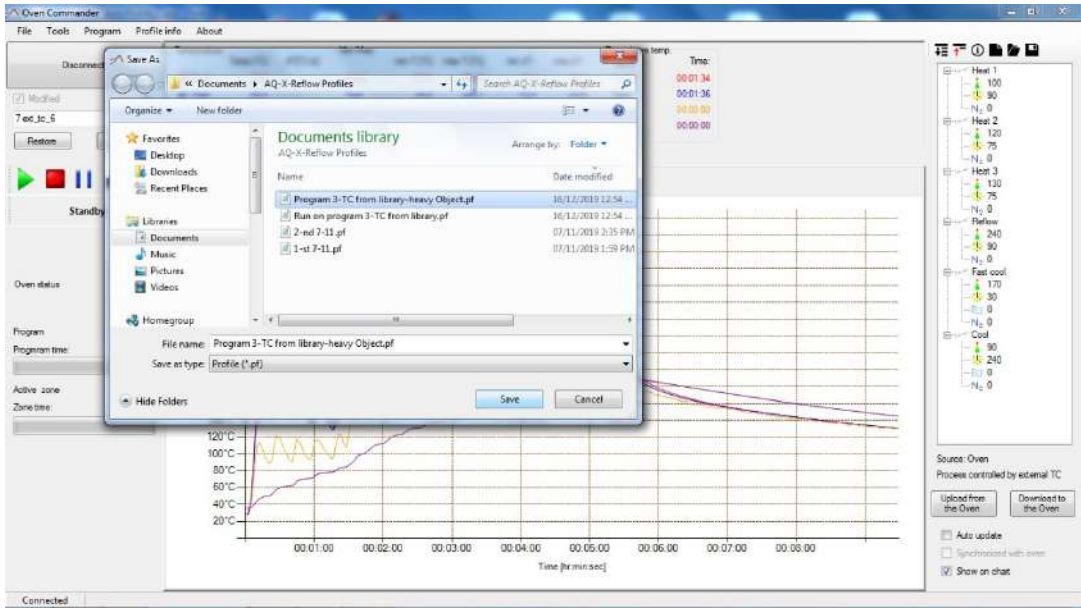
When you have a profile on the screen and you want to save it, select from the Menu:

“File” and then “Save”



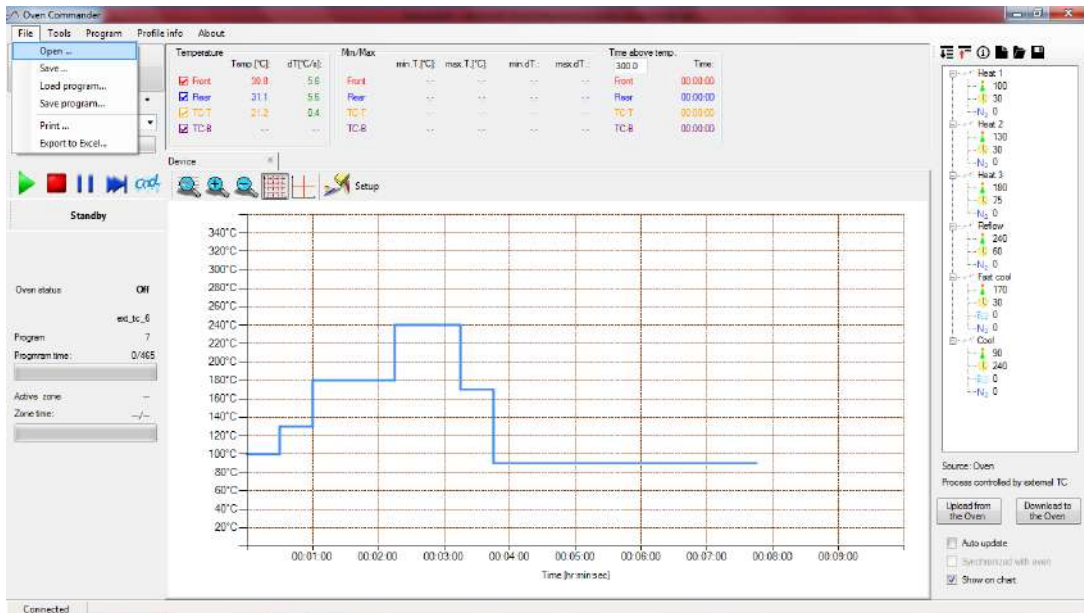
Select where you want to save it on your computer, enter the file name, add an additional description if needed, and save it by clicking the Save button.



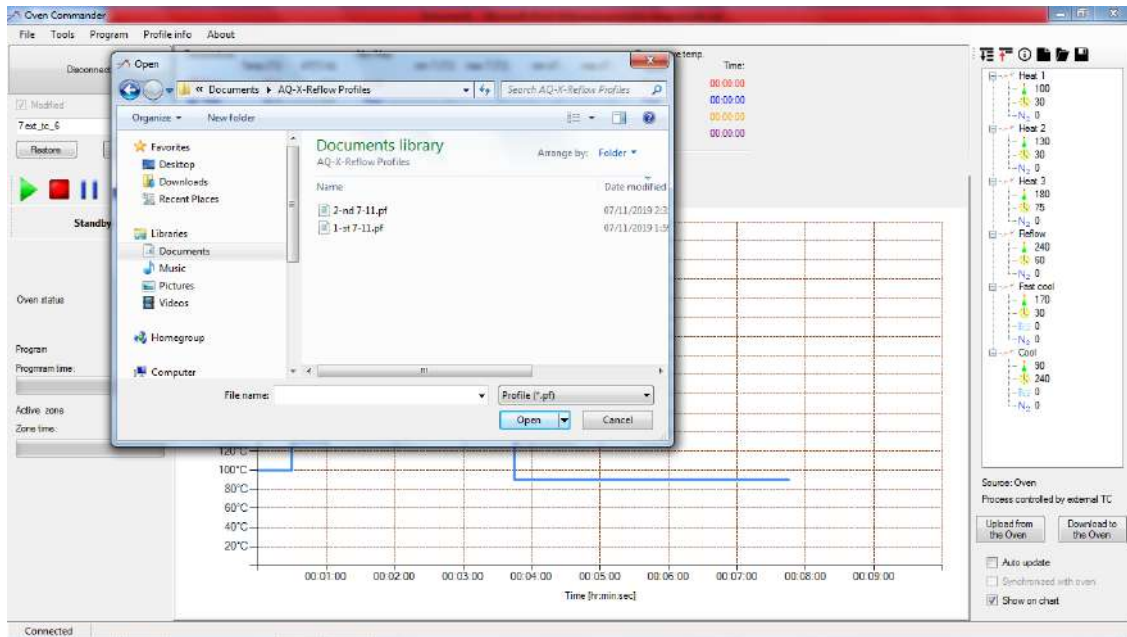


VIII. Reviewing saved profiles

To open a saved profile: chose from the Menu “File” and then “Open”

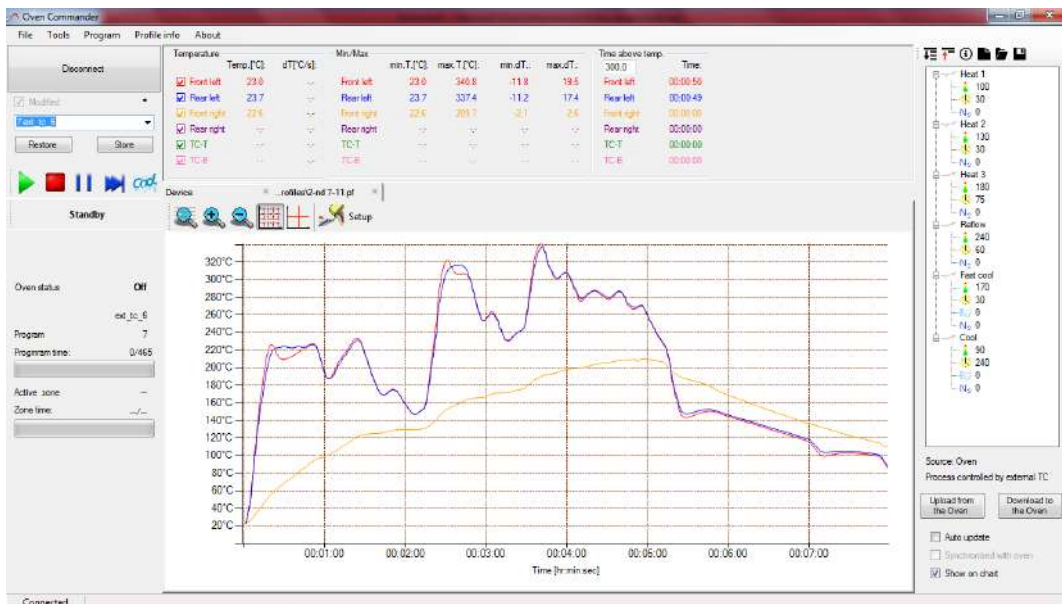


Chose “profile1.pf” or another file and open it:



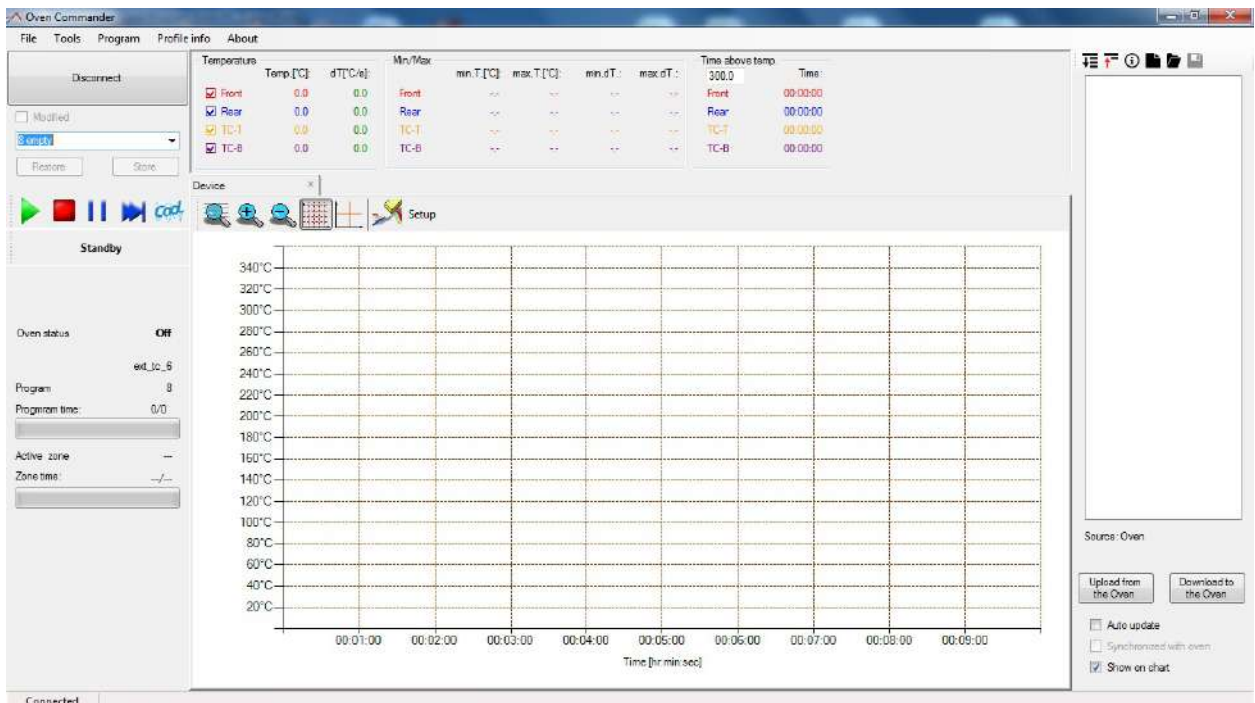
The profile shows four thermocouples:

- Two thermocouples: Located above the Front and Rear heaters.
- Two thermocouples: connected to the TC-T and TC-B on the back panel and possibly attached to the PCB heated in the oven.

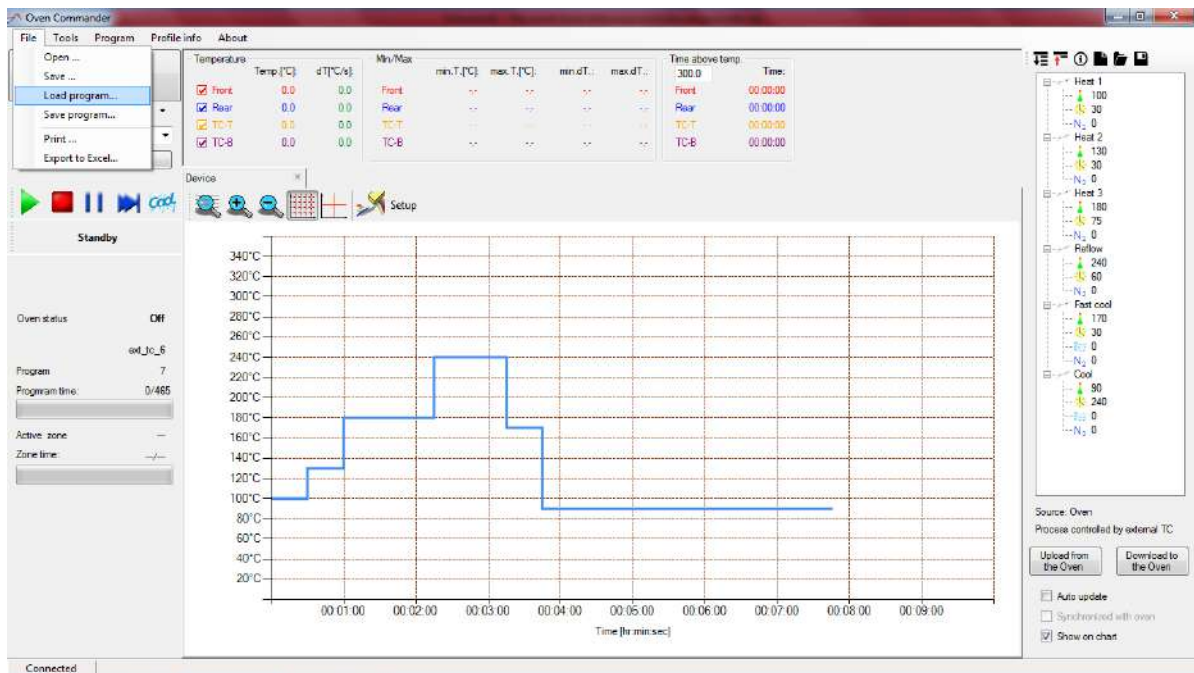


IX. Load program file from a PC to the Oven

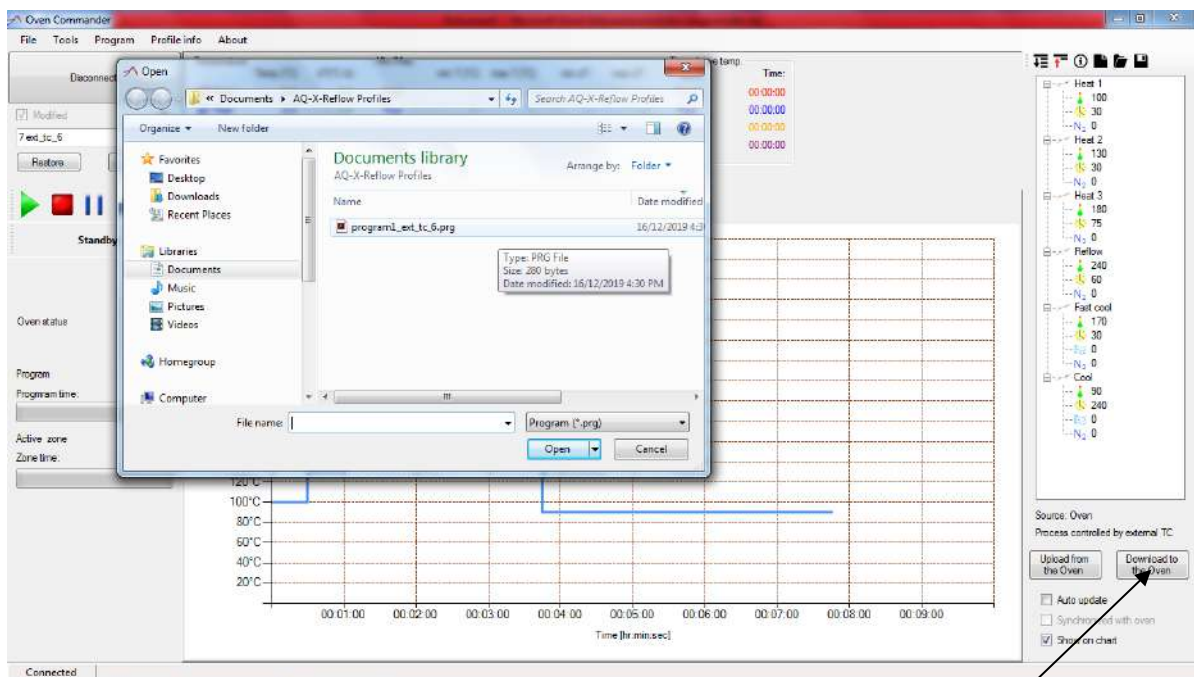
Chose Program List and empty program



Choose "File" from Menu and then "Load program"



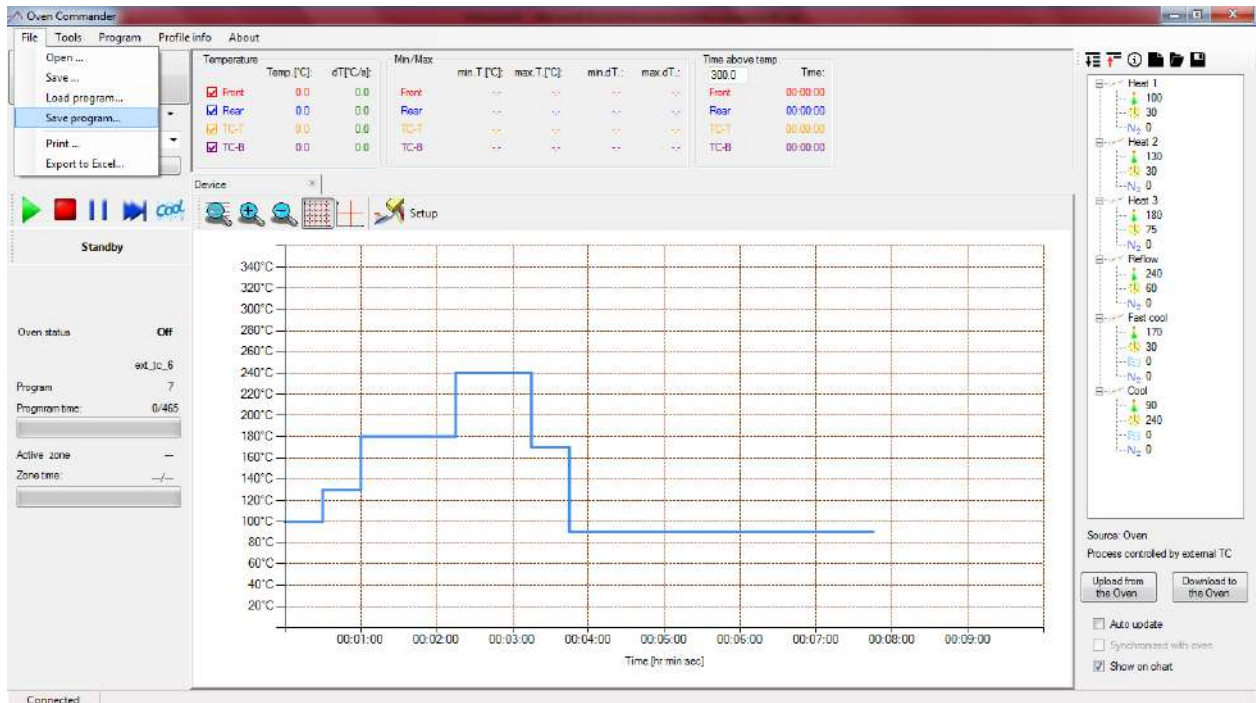
Choose the desired program and open it click "Open" button



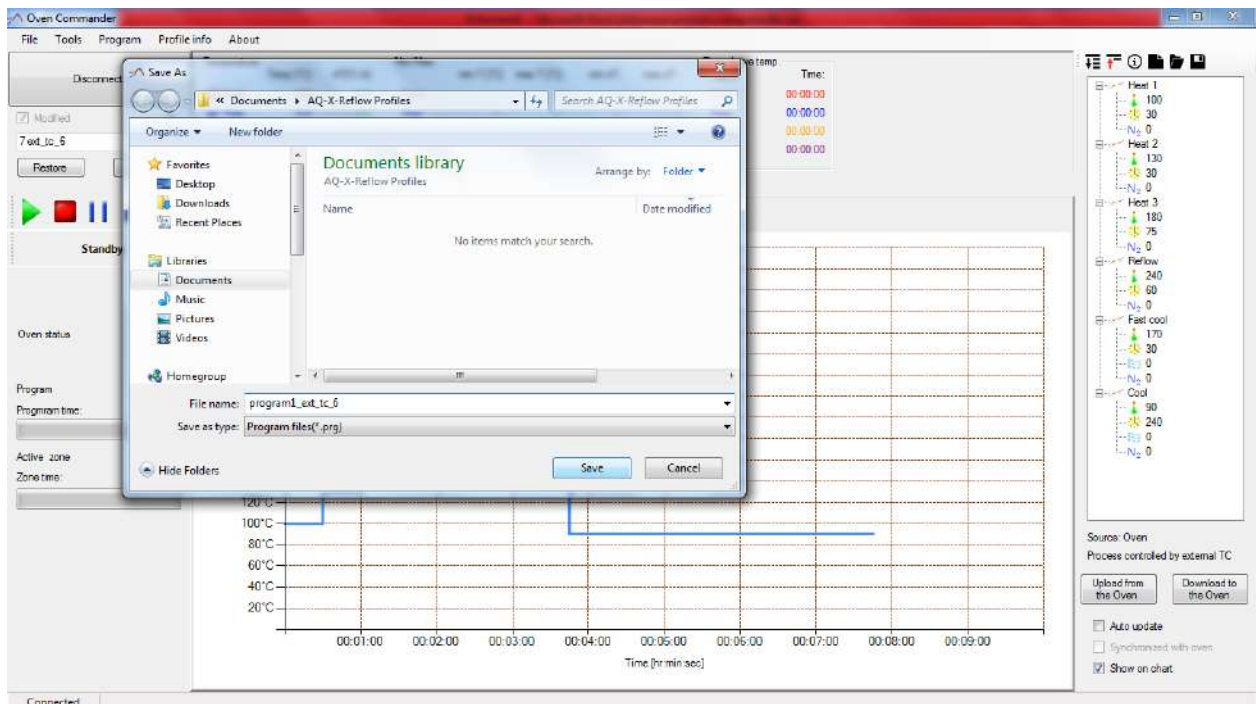
Then click the "Download to the Oven" button to save the program to the oven.

X. Save a program file from the Oven to the PC

1. Choose “File” and then “Save program”



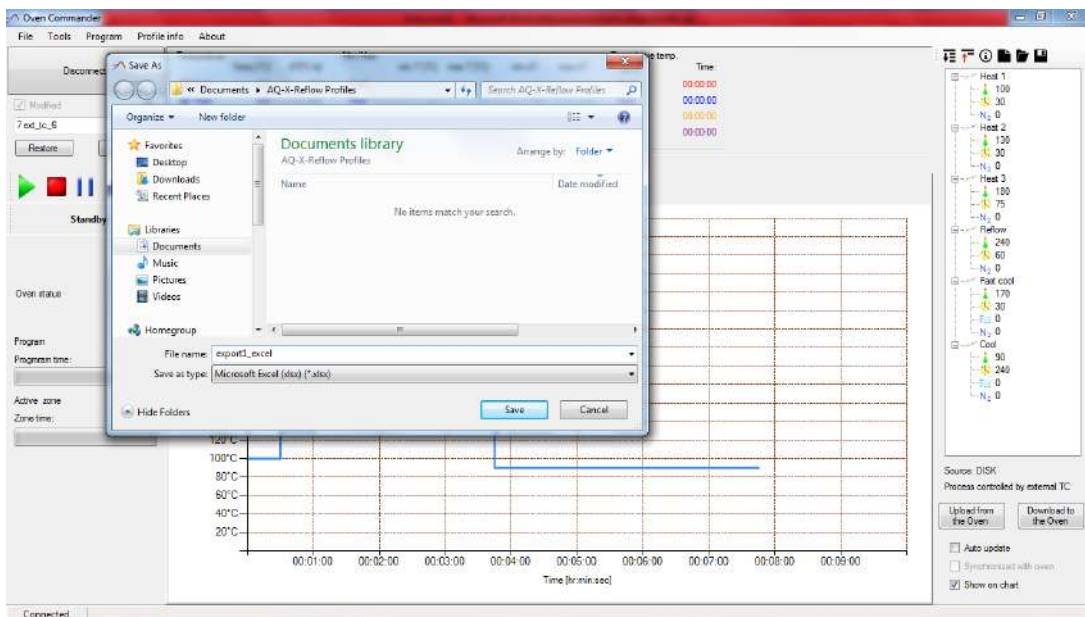
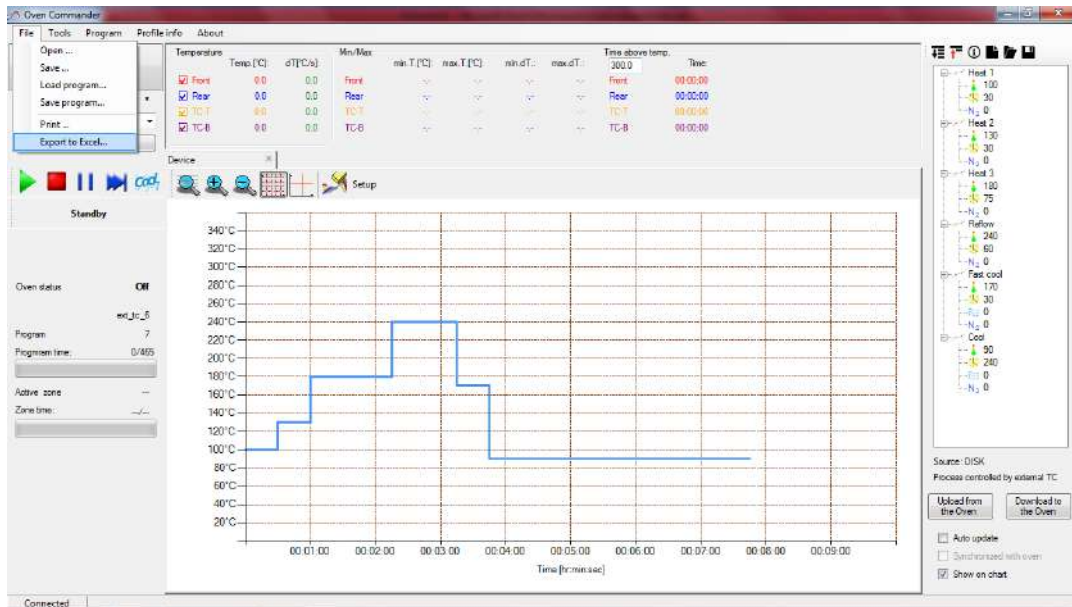
2. Choose where you want to save the program and file name. Then press “Save”



XI. Export the graph to the Excel file

If you want to export the graph to the excel file, chose from the menu: “File” and then “Export to Excel”. Enter the file name and chose the place to save excel file.

Click “Save” button and the excel version of your graph will be saved to your specified location.

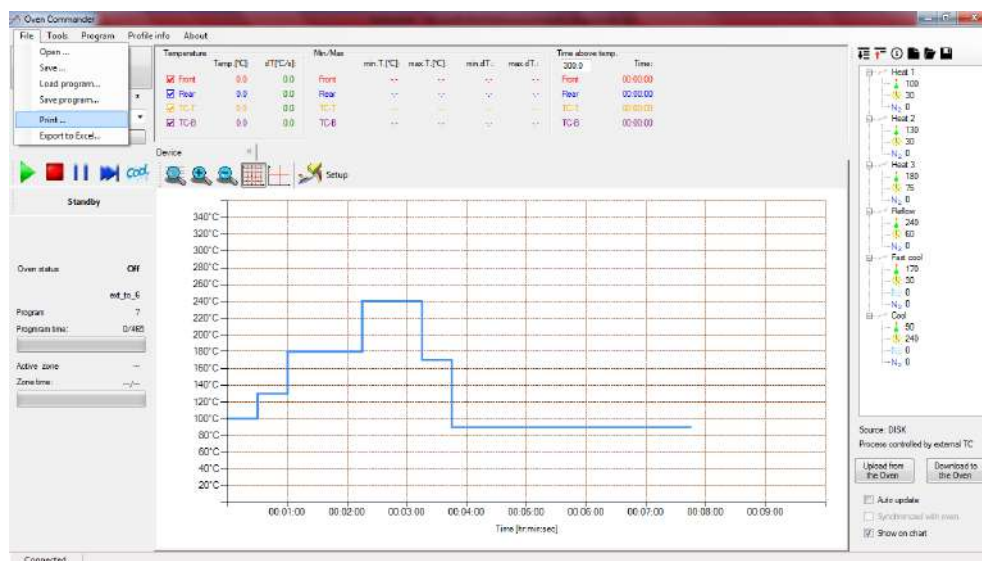


When you open the excel file it will look as shown below:

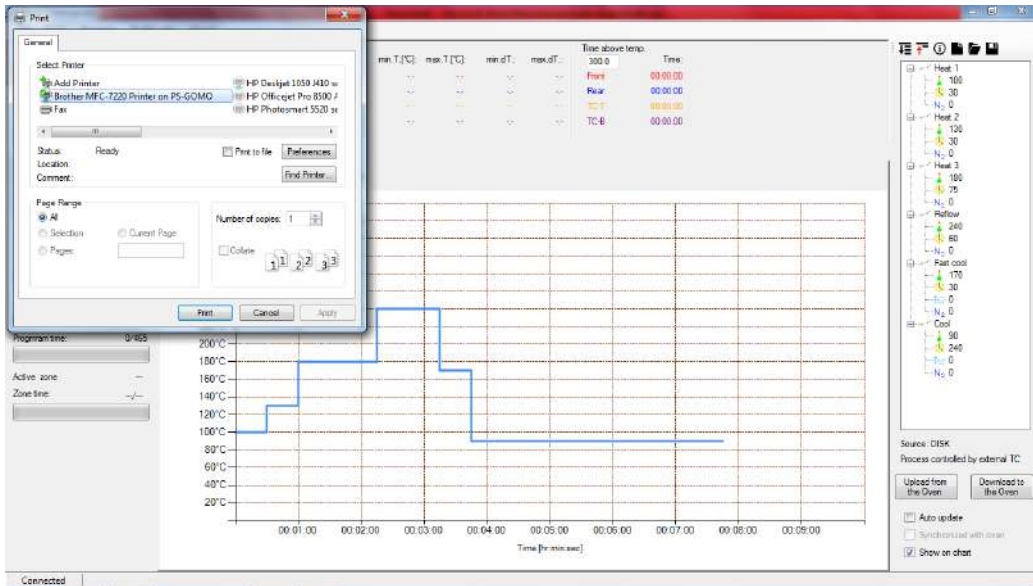
	A	B	C	D	E	F	G	H
1							Date	2019-12-15
2	Time [s]	Front [°C]	Rear [°C]	TC-T [°C]	TC-B [°C]			
3	0	27,60	28,80	34,20	35,80			
4	1	27,80	29,00	34,20	35,80			
5	2	33,60	33,60	34,60	35,80			
6	3	41,10	40,60	38,40	36,00			
7	4	50,60	50,30	43,80	36,60			
8	5	74,00	75,50	60,60	38,30			
9	6	87,10	90,00	71,10	39,40			
10	7	113,70	120,00	89,40	41,40			
11	8	127,10	135,20	97,50	42,60			
12	9	149,10	161,10	109,10	44,70			
13	10	156,00	170,20	112,20	45,70			
14	11	160,50	176,40	113,80	46,60			
15	12	164,30	181,70	110,00	47,90			
16	13	164,40	181,70	108,30	48,30			
17	14	162,20	178,70	102,50	49,20			
18	15	160,20	176,00	100,20	49,60			
19	16	155,40	169,60	95,40	50,00			

XII. Printing the graph and profile:

If you want to print the graph and profile: select "Print" from the Menu.

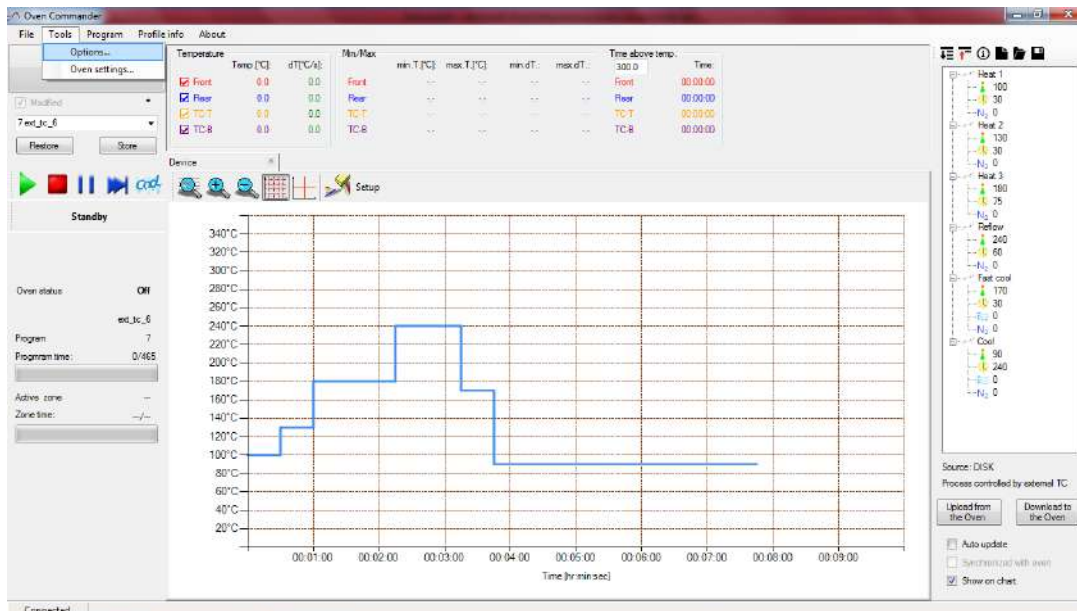


Select the printer which you want to use to print your graph. Click "Print"



XIII. OPTIONS

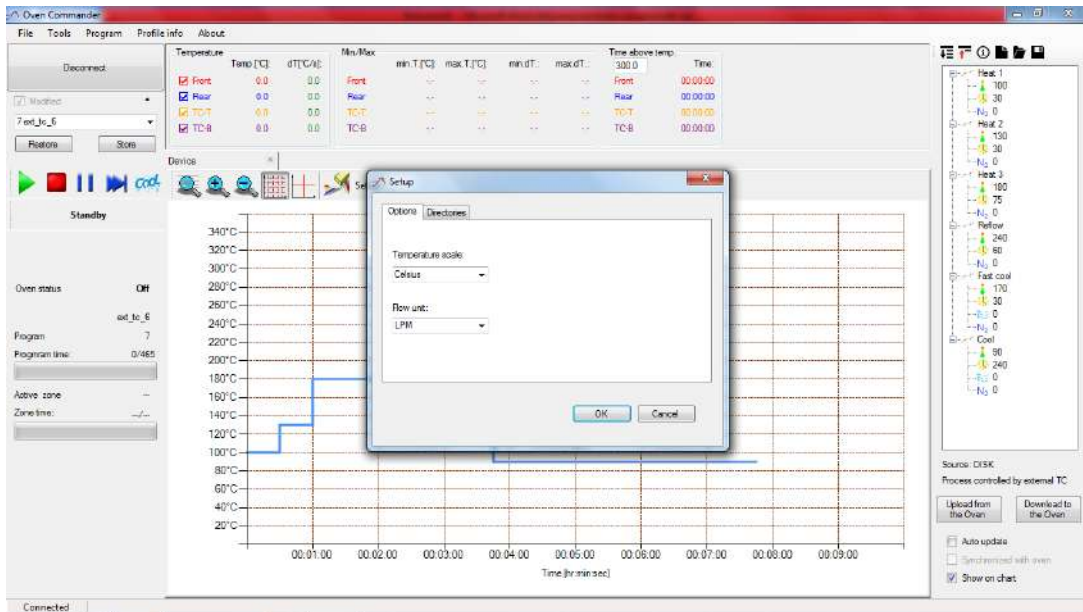
From Main Menu choose Tools and Options



Temperature scale: Choice of Celsius or Fahrenheit

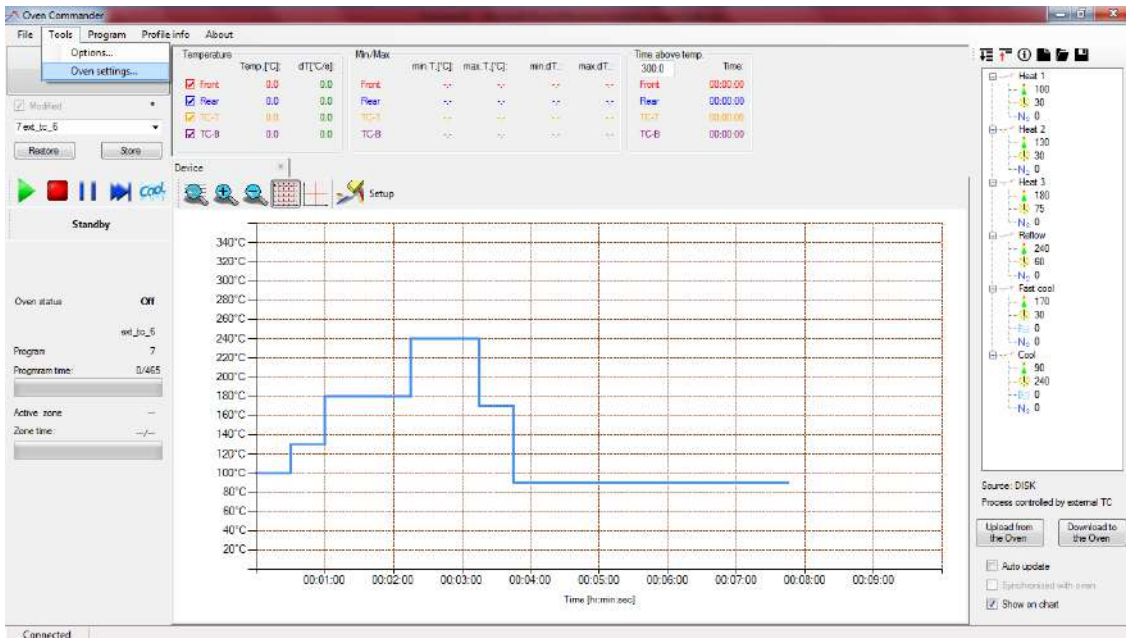
Flow unit: Choice of LPM or SCFM

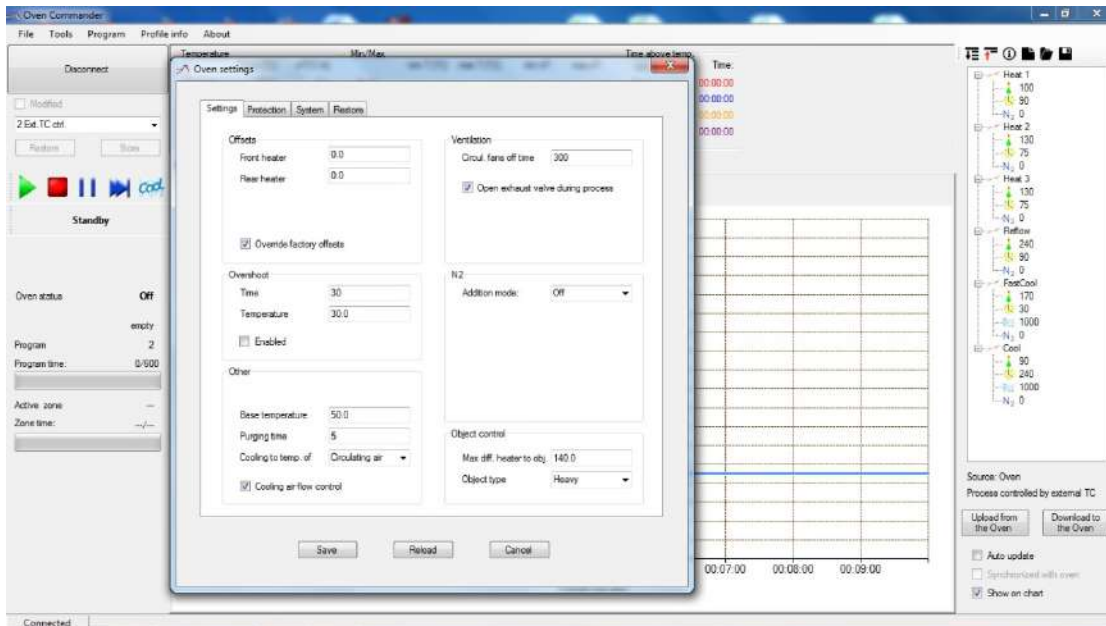
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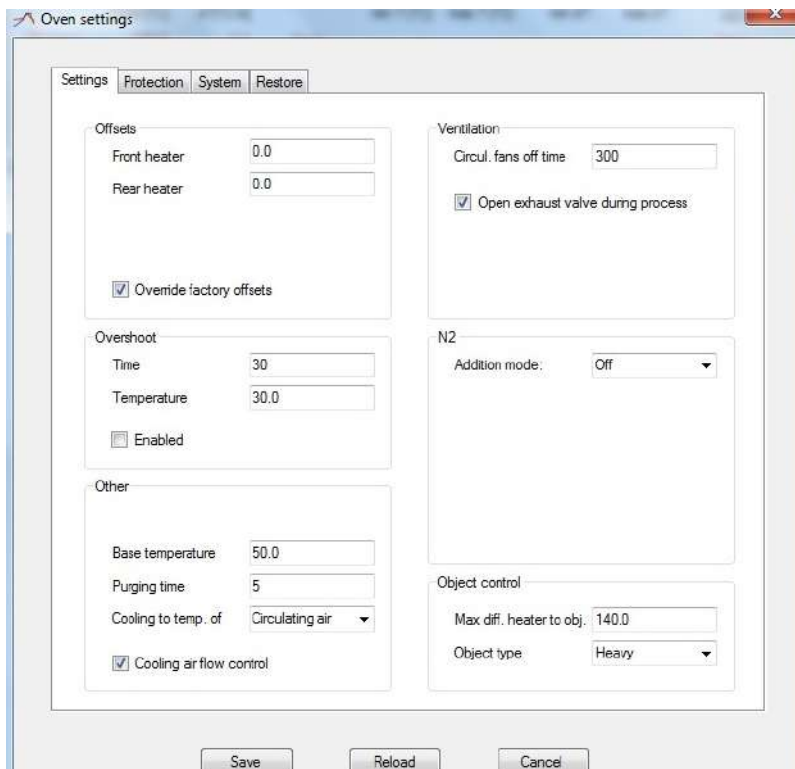
XIV. OVEN SETTINGS

From the Main Menu choose “Tools” and then “Oven Settings”





Settings - You can adjust the following oven settings from a PC (to save new values in the oven, use the “Save” button):



Offsets: Front heater: 0.0°C. Possible range: from -20.0°C to 90.0°C (Celsius).

Rear heater: 0.0°C. Possible range: from -20.0°C to 90.0°C (Celsius).

Overshoot: Time: Recommended time is 10s to 30s (seconds).

Temperature: Recommended Overshoot is 10°C to 30°C.

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Base temperature: Possible range: 0.0 °C (i.e. OFF) or from +50°C to +300°C.

Purging time: Length of time for Nitrogen to purge the oven before the process starts

Cooling to temp. of: Adjusts whether oven cools to Circulating air, TC-T or TC-B temperature

N₂: Addition mode:

Possible range: OFF or N2C continues or N2R periodic fill or N2P proportional.

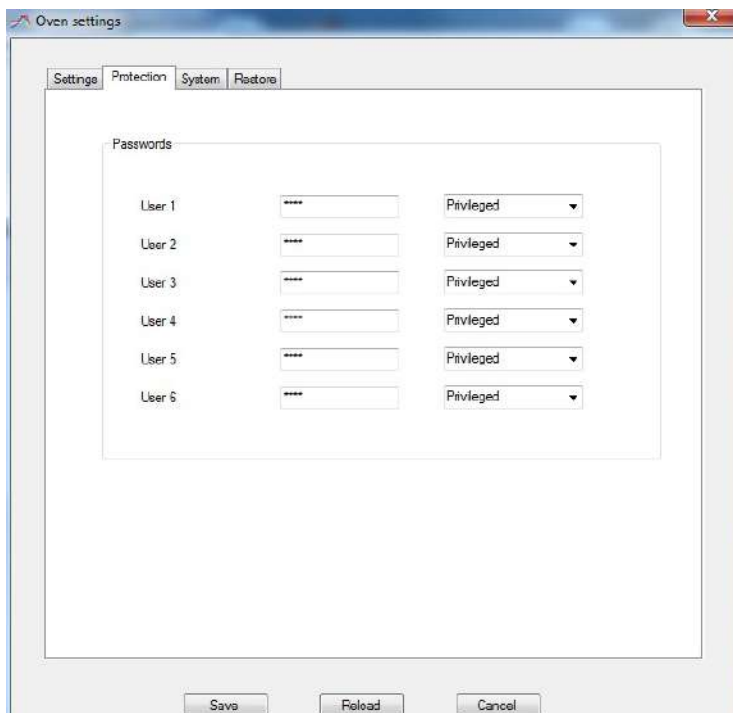
Object control: Max diff. heater to obj.: 140.0 °C, possible range: from 40.0°C to 160.0°C.

Object type: **Light** or **Heavy**.

Next tab: Protection.

You can change passwords and account types

(possible settings: Privileged or Limited for six users)



System - You can adjust the following oven settings from a PC:

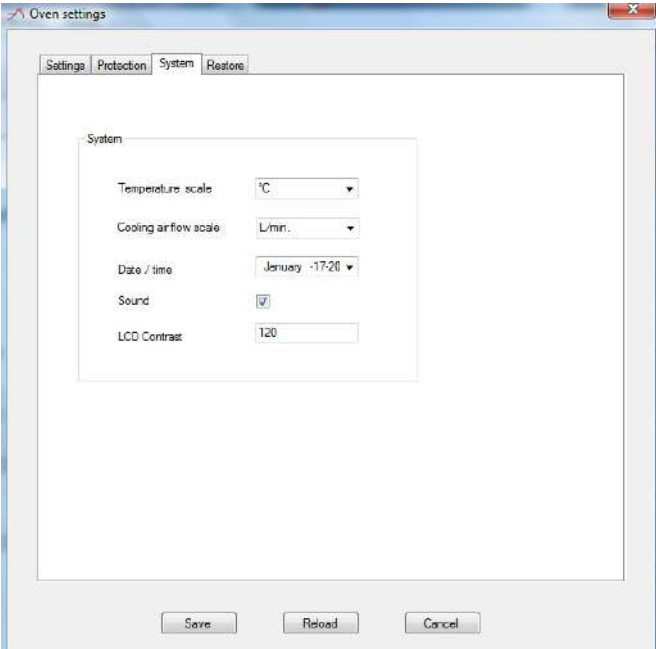
Temperature scale: °C (Celsius) or °F (Fahrenheit)

Cooling air flow scale: L/min. or SCFM

Date / Time

Sound: Toggles sound on or off

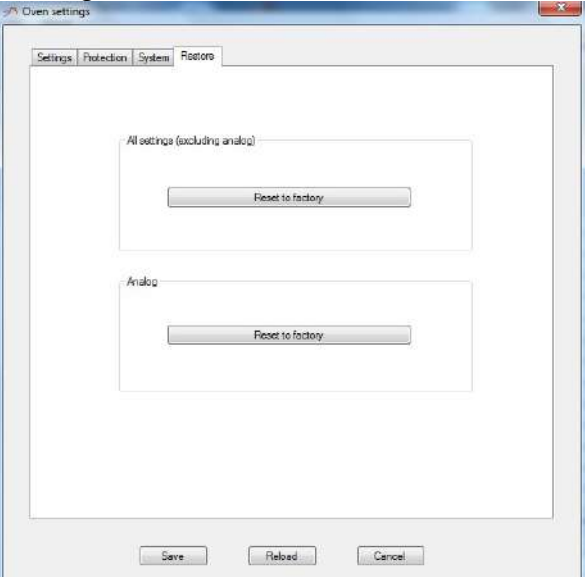
LCD Contrast (on the display on the oven)



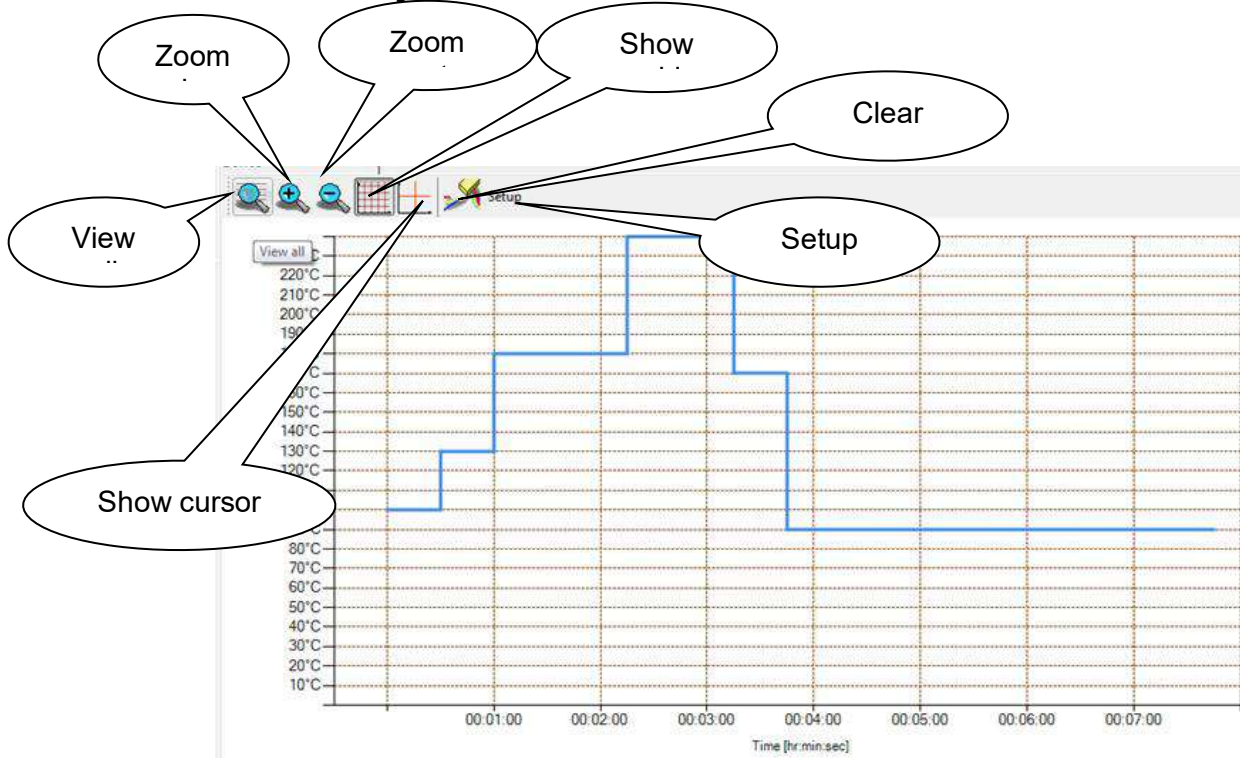
Restore - You can reset the oven to factory settings from your PC:

All settings (excluding analog) –This option allows an administrator to restore all settings to the factory-set values.

Analog -This option allows an administrator to restore analog settings to the factory-set values.



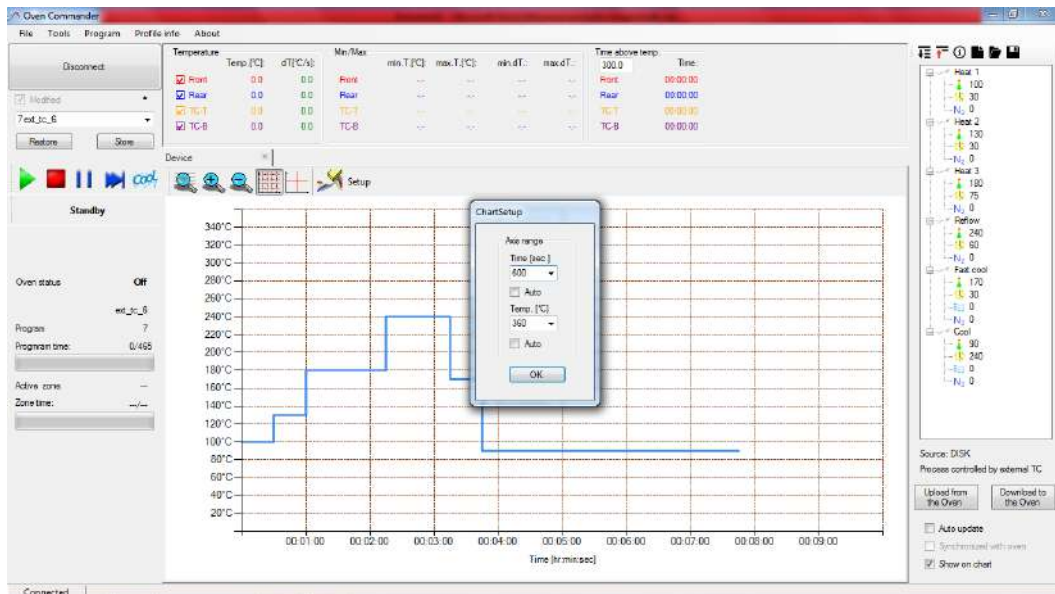
XV. Icons to adjust the chart



Press “Setup” to adjust axis range

Note:

The operator can also click and drag the axis to adjust the values.



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