



# XSO Oven Commander

A PC application to program and run the XSO Super Oven from a PC, monitor the oven operation in real time and store temperatures of the oven thermocouples and the additional two thermocouples connected to the TC-T and TC-B sockets located on the side panel of the Oven.

**Version 9**

Revision 45

P/NX-DOC231  
May 12/2020  
Rev.4

## Bokar International

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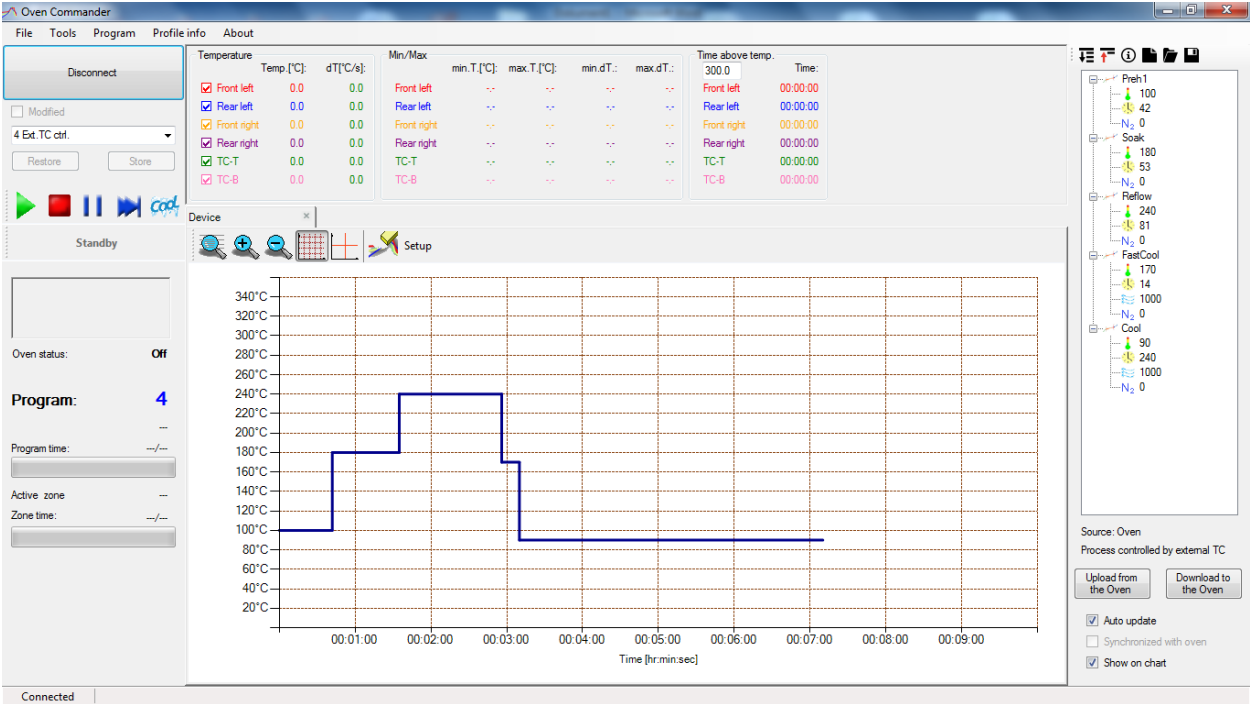


# Introduction

The XSO Oven Commander allows the operator to easily program, run, and document work done with the XSO Super Oven.

## Major Oven Commander Features and User Benefits:

- Programming and controlling XSO Super Oven from a PC
- Monitoring in real time the 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 the monitored temperature/time profiles
- Printing the stored time/temperature graphs and Programs
- Exporting to Excel the stored time/temperature graph information
- Observing in real time the time/temperature graphs of the process in progress
- Changing the program with “on the fly” modifications using a computer mouse or keyboard
- 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. Please check the firmware version on your XSO Super Oven. If it is version v7.21 or higher, you can use the Oven Commander. If it is lower, please download the latest **firmware version** from the server (“XSO\_firmware\_v7.21.zip” or a higher number from [http://www.bokar.us/downloads/XSO\\_firmware\\_v7.21.zip](http://www.bokar.us/downloads/XSO_firmware_v7.21.zip)) and load it into to the oven (the XSO Oven Commander program requires that firmware v7.21 or later is in the oven for proper operation).  
(see <http://www.bokar.us/downloads/Firmware-upgrade-XSO-SuperOven.doc> details)
2. Download the Commander program from the server (XSO-OvenCommander\_9.45.zip from <http://www.bokar.us/downloads/XSO-OvenCommander.zip>).

Then unpack the zip file to a Hard Disc of Your PC or copy from CD:

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**

**Keyxxxxxx.lic (this is the license key file)**

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

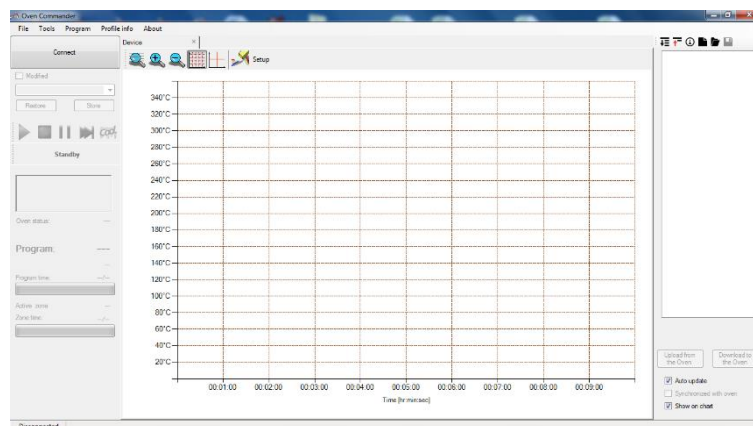


Figure 1

4. Connect the **XSO Super Oven** to a PC using X485-USB Converter.
5. Turn ON the Power Switch on the **XSO Super Oven** front panel and log in.
6. Indicate the key file with the oven serial number (the file with the extension .lic). Choose from the Top Menu: **Tools** and **Options**. Click on the **Directories** tab and **Edit**.

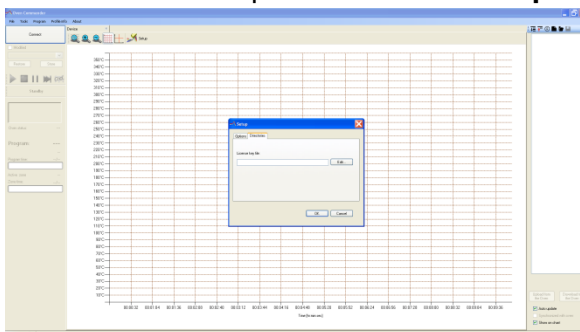


Figure 2

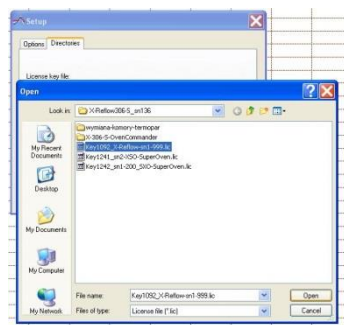


Figure 3



Figure 4

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Find the license file key (keyxxxxx.lic) and click Open. Click the OK button.

7. Press Connect (Top/Left corner of the program). This will connect the oven to your PC.

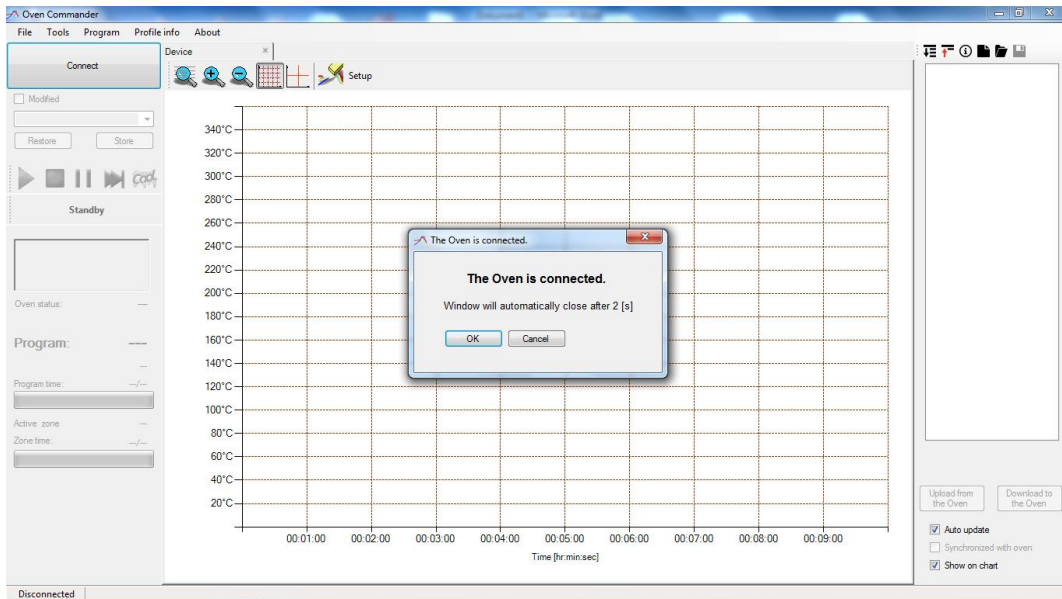


Figure 5

Note:

*If your computer will not connect to the oven via the X485-USB Converter, unzip the file "X485-USB converter\_driver.zip" and run the file "CDM20600.exe".*

*If the message "Unable to open license file" is displayed, check and perform step 6 again*

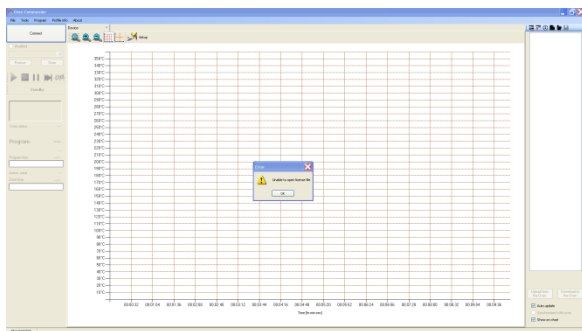
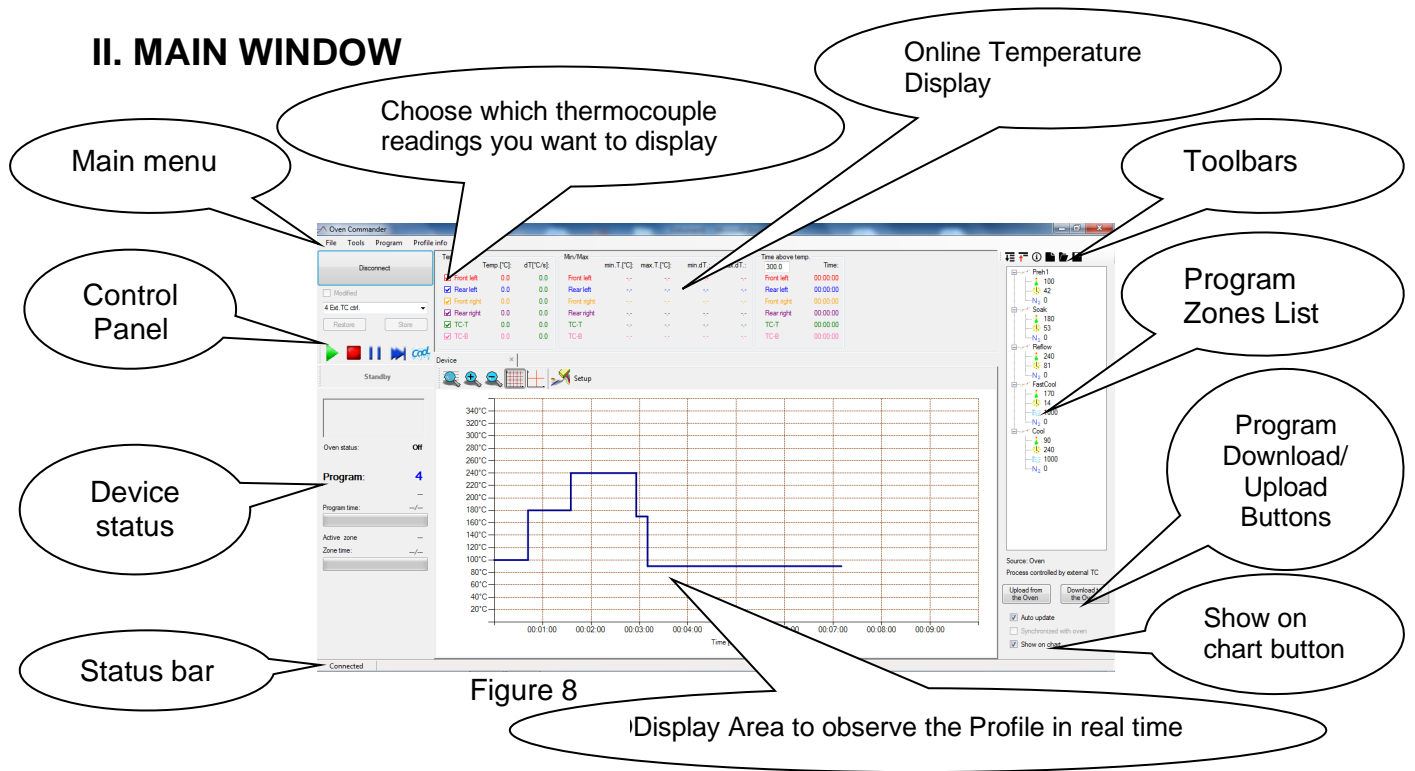


Figure 6

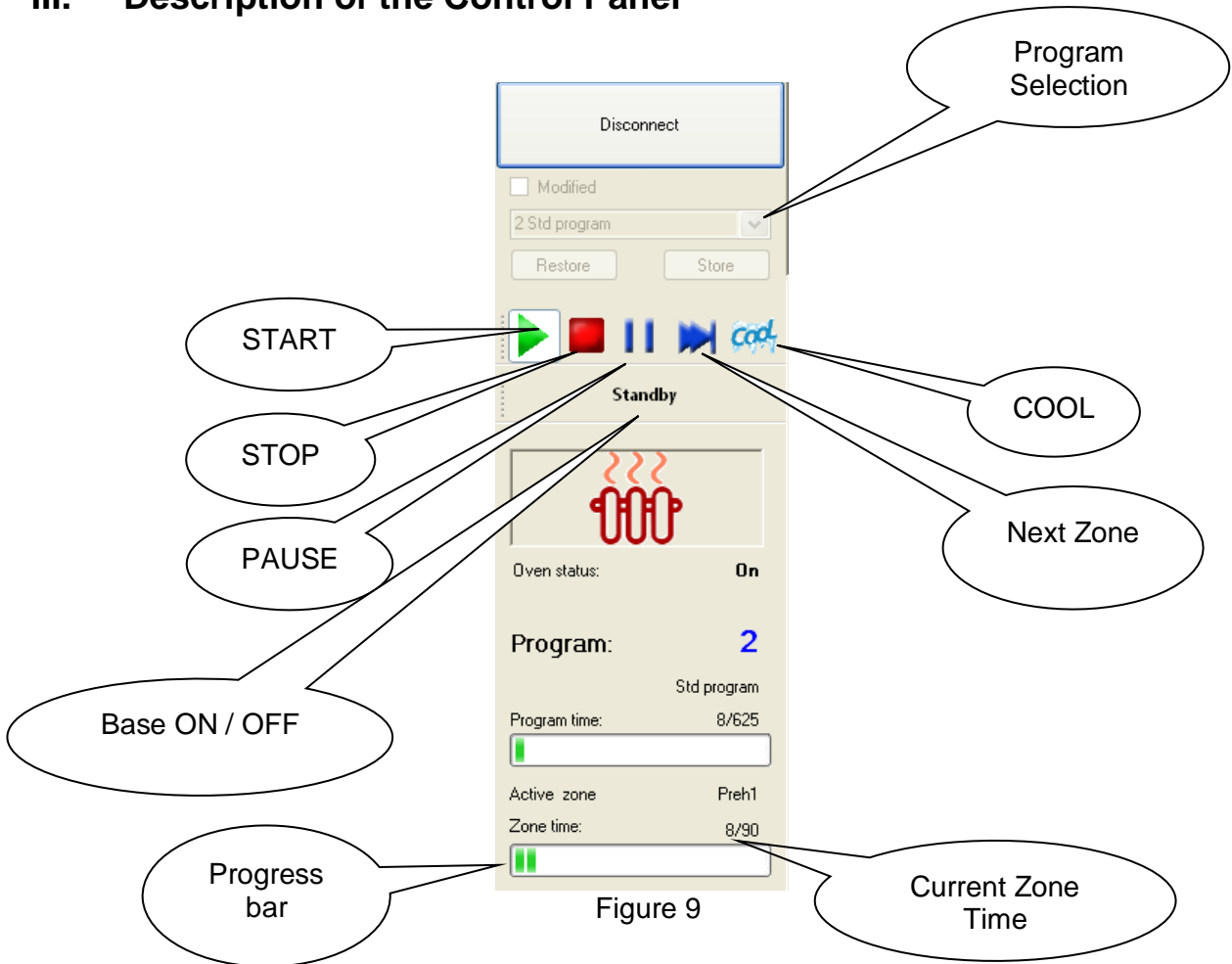


Figure 7

## II. MAIN WINDOW



## III. Description of the Control Panel



### 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.

**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

**Base ON/OFF** button - this is the temperature which the oven will maintain inside the heating chamber at all times after this option is selected.

## IV. STARTING A PROGRAM

1. Choose a program from the Program List:

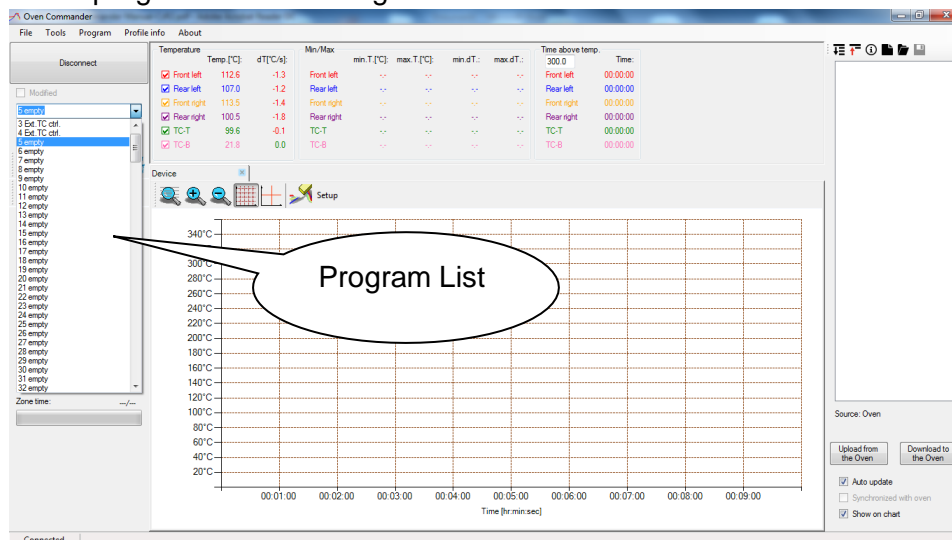


Figure 10

## V. EDITING A PROGRAM

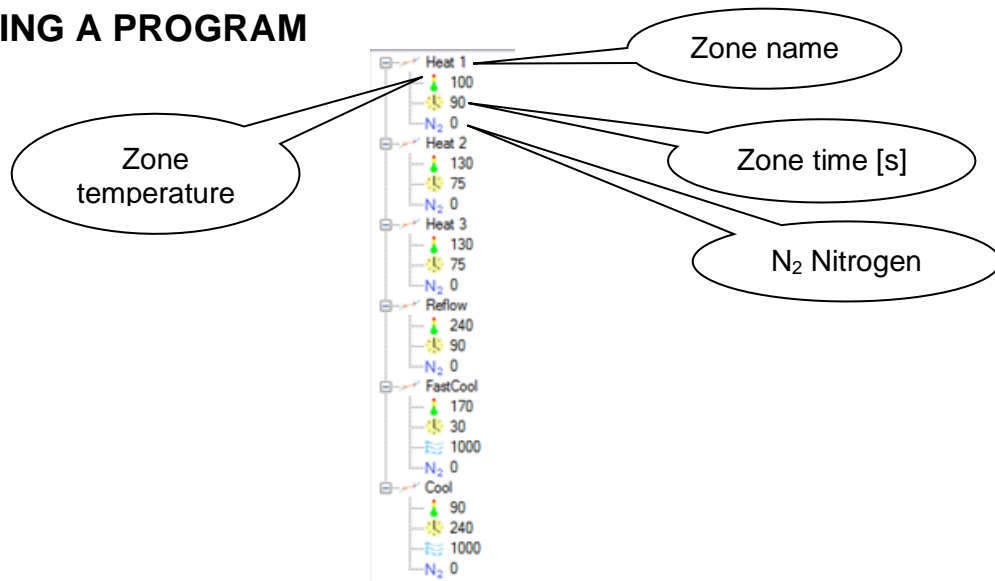


Figure 11

### 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. 11).**

### 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 change 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

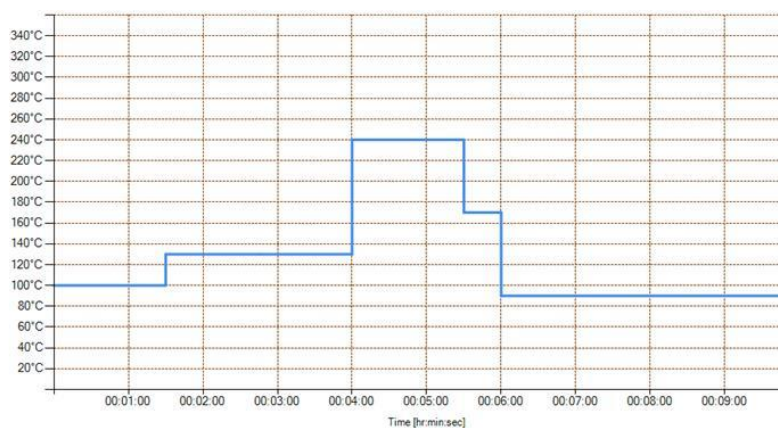


Figure 12

## 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

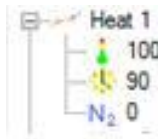


Figure 13

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

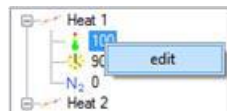


Figure 14

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

## CREATE A NEW PROGRAM

1. Choose from the Main Menu "Program" and then "New"

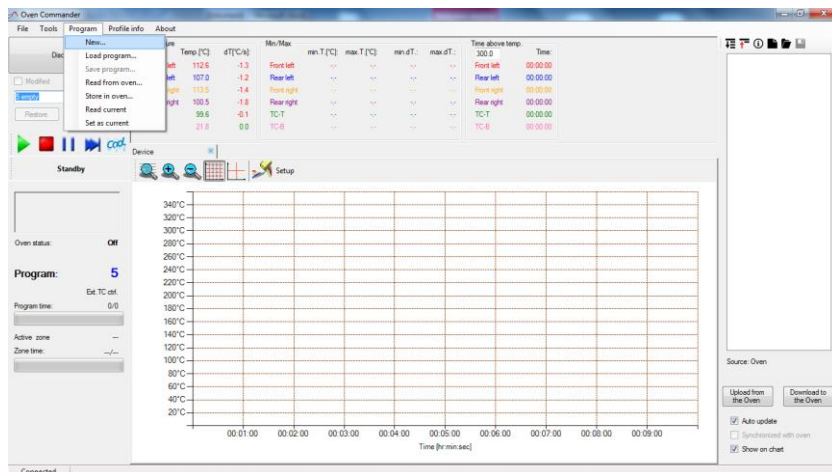


Figure 15

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

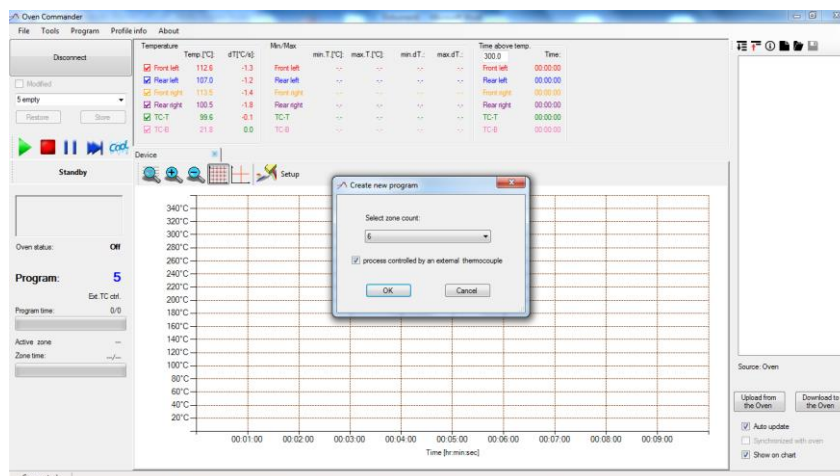


Figure 16

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3. Press “OK”
4. Record the program Name and Describe the program

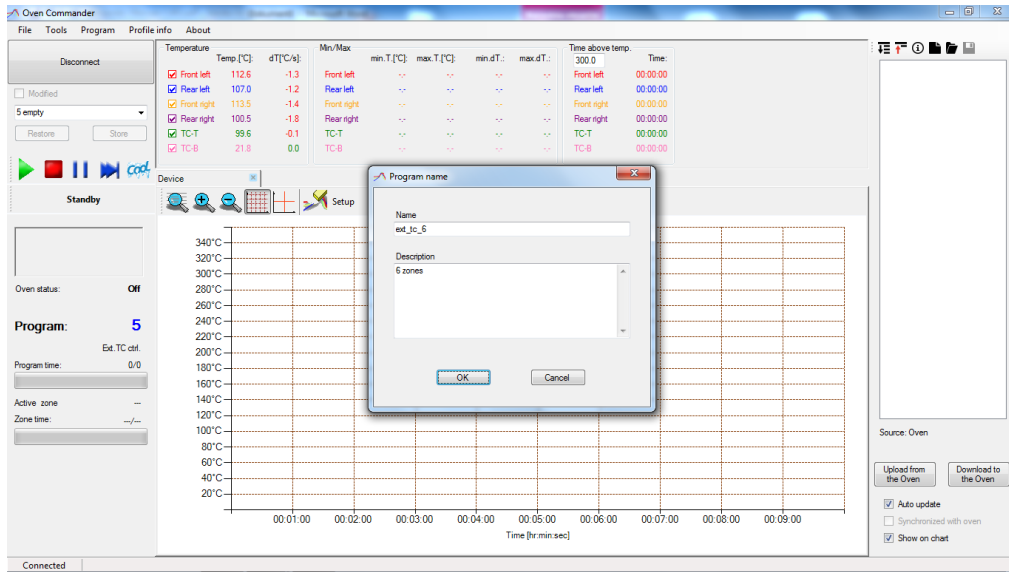


Figure 17

5. Set the program parameters starting from the default graph

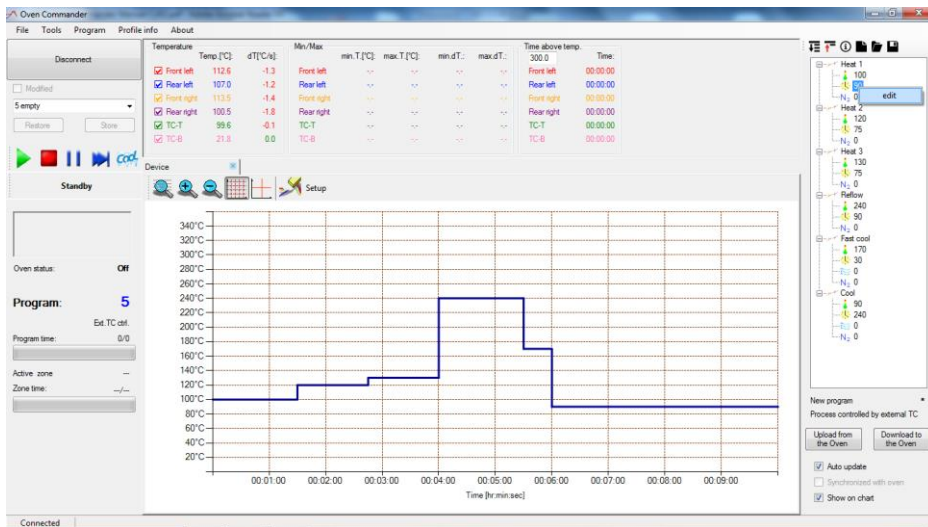


Figure 18

6. Press “Download to the Oven” to copy the program to the oven and then press “Store” on the control panel (left-top corner) in order to run it



Figure 19



Figure 20

7. Now press “Start” to run the program (green triangle).

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## VI. Editing the program in progress

You can change the current program parameters as described in section 5.  
Note: 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"



Figure 21

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

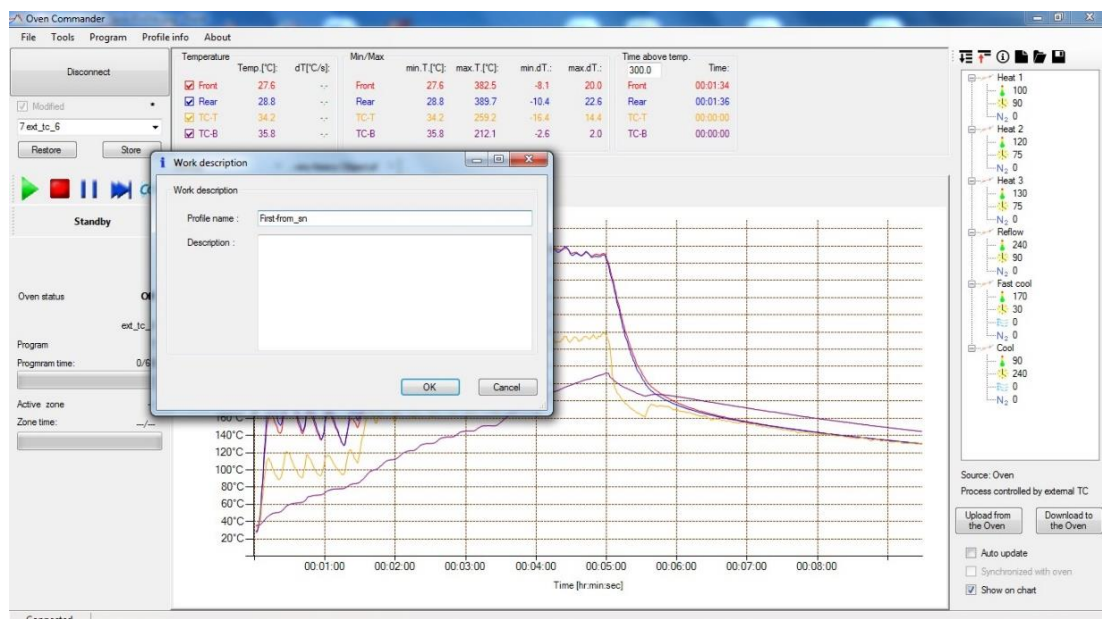


Figure 22

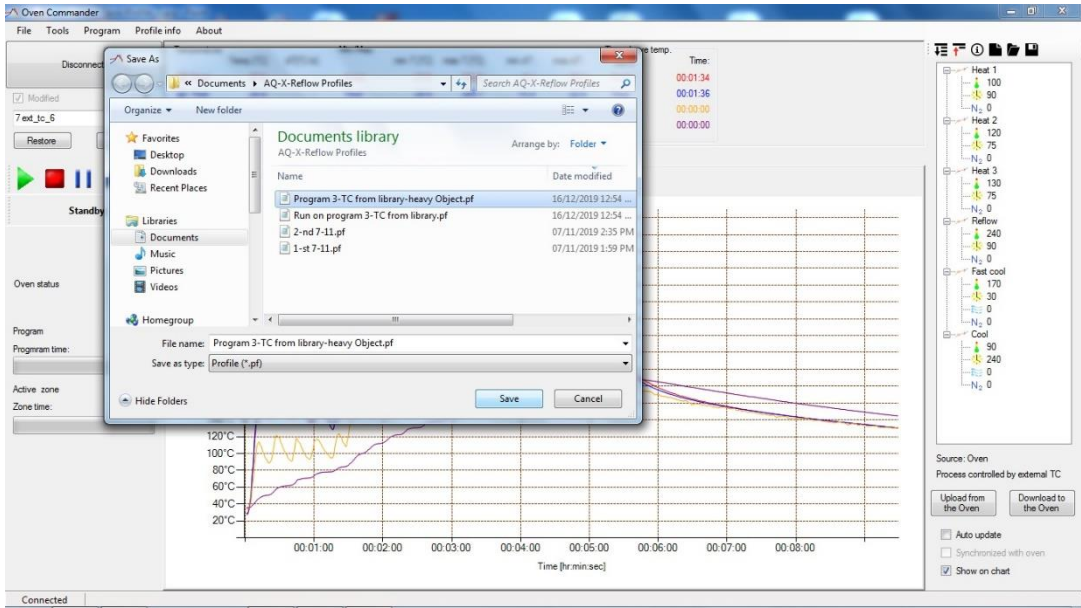


Figure 23

## VIII. Reviewing saved profiles

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

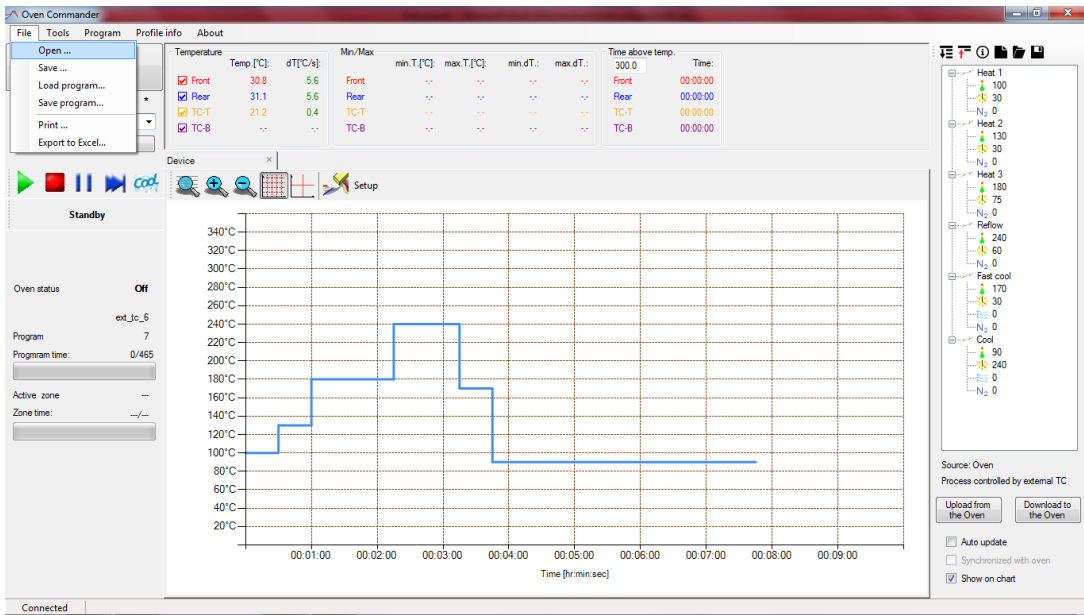


Figure 24

Choose the desired fire (e.g. "xyz.pf") and open it:

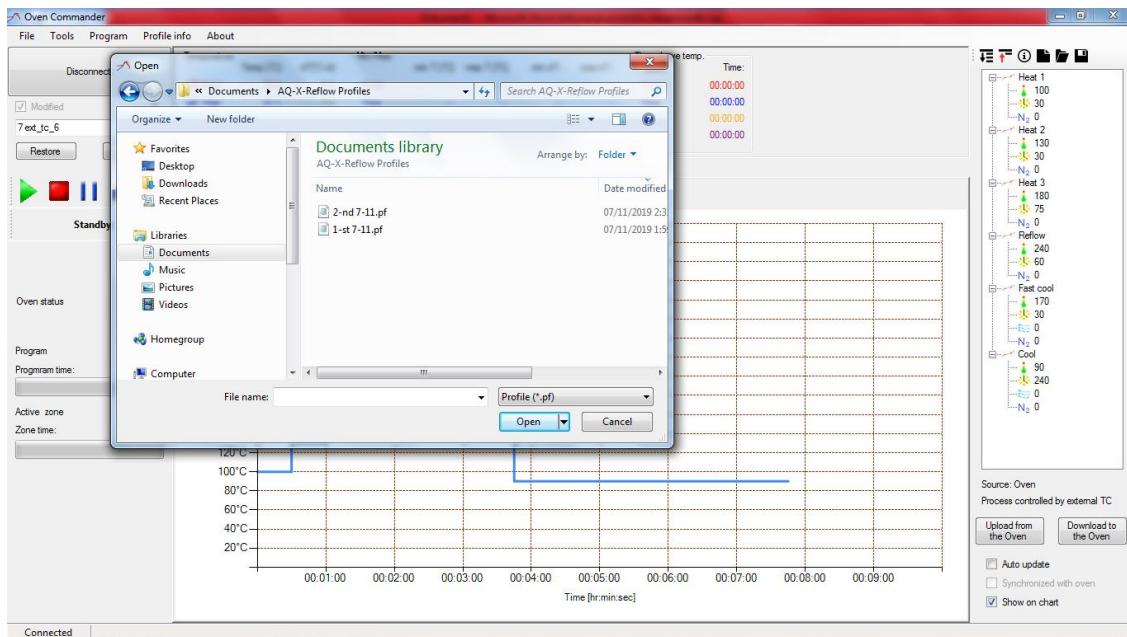


Figure 25

The profile shows six thermocouples:

- Four thermocouples: Located above the Front and Rear heaters.
- Two thermocouples: connected to the TC-T and the TC-B sockets on the side panel and attached to the PCB heated in the oven if so desired.

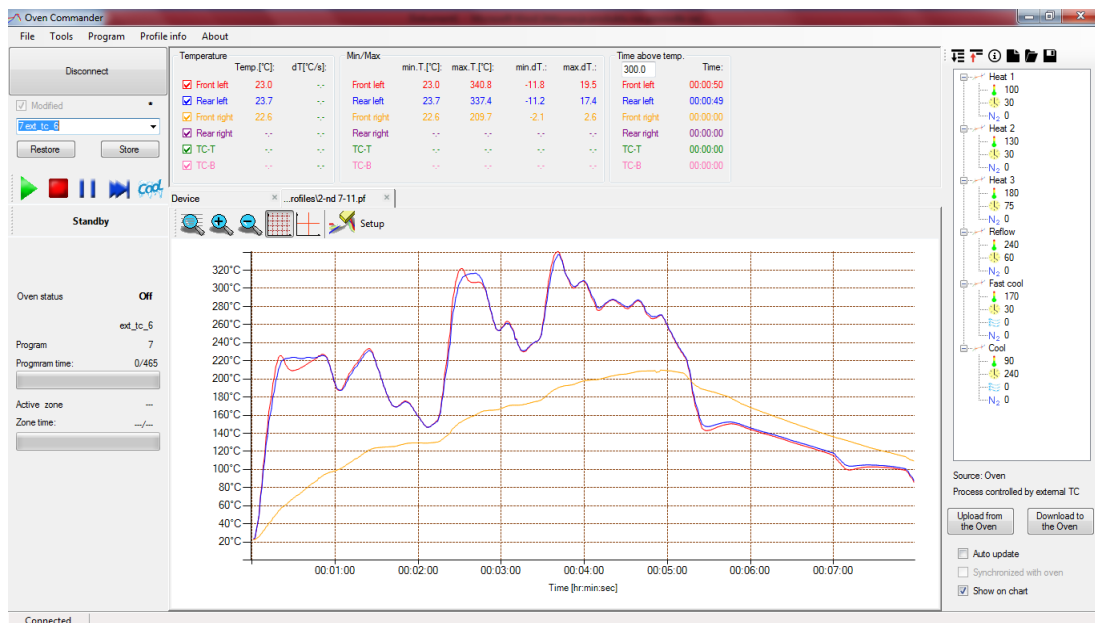


Figure 26

## IX. Loading a program file from a PC to the Oven

### 1. Expand Program List and choose an empty program

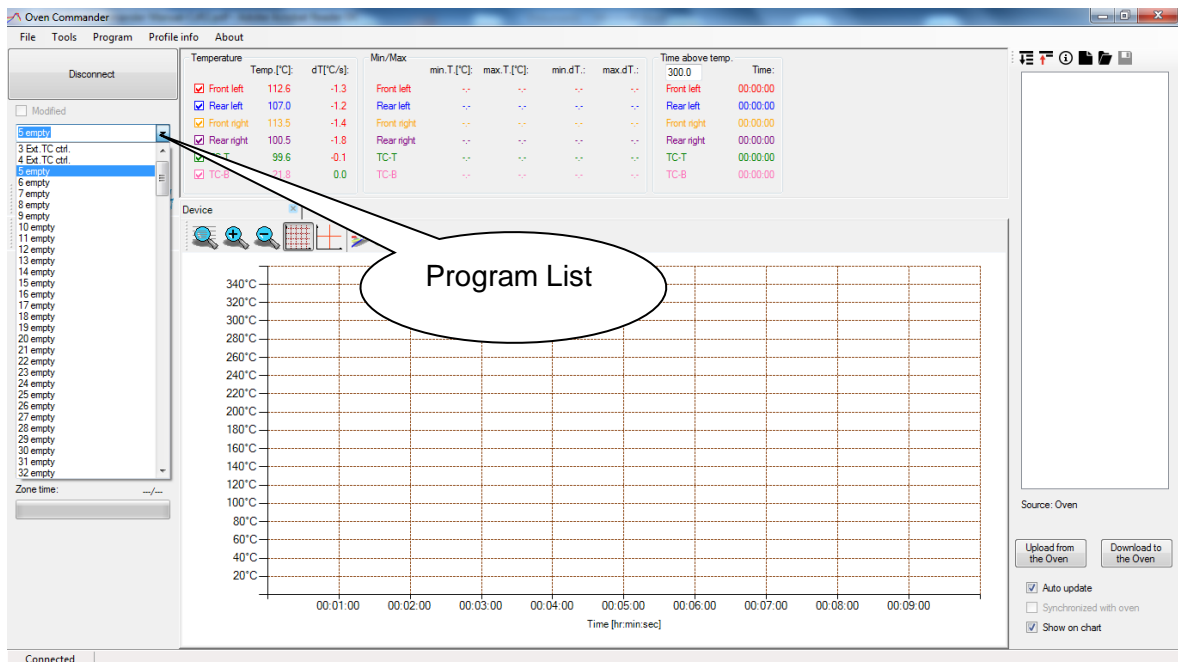


Figure 27

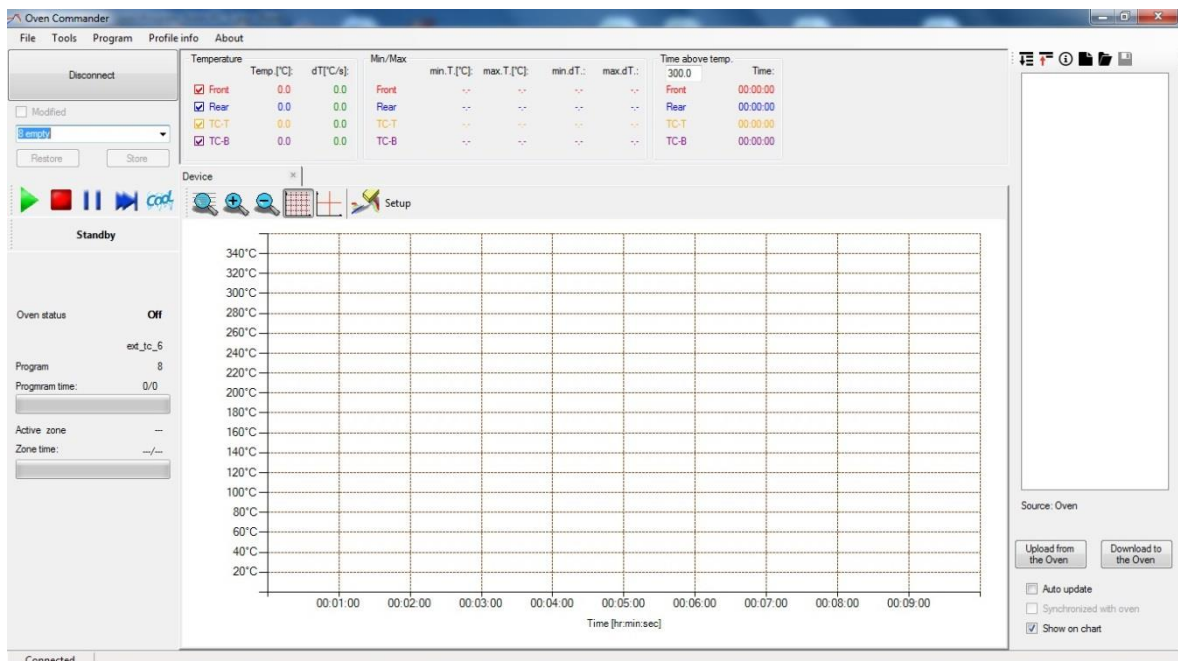


Figure 28

2. Choose "File" from the Menu and then "Load program"

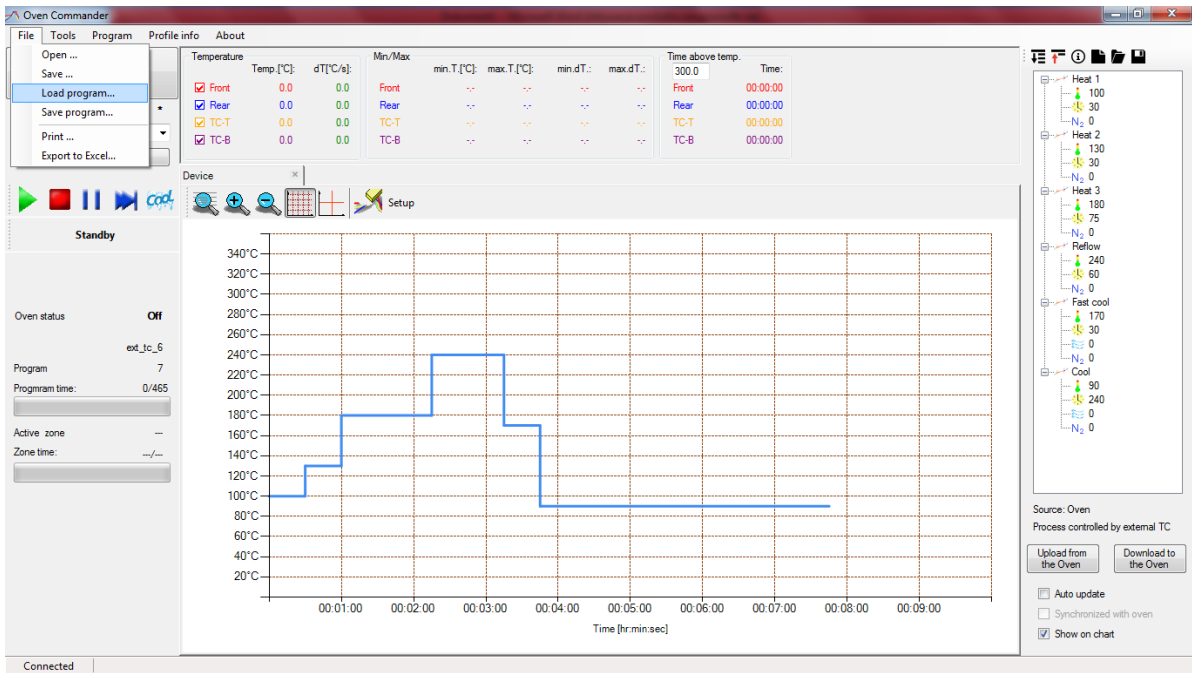


Figure 29

3. Choose the desired program. To open it, click the "Open" button

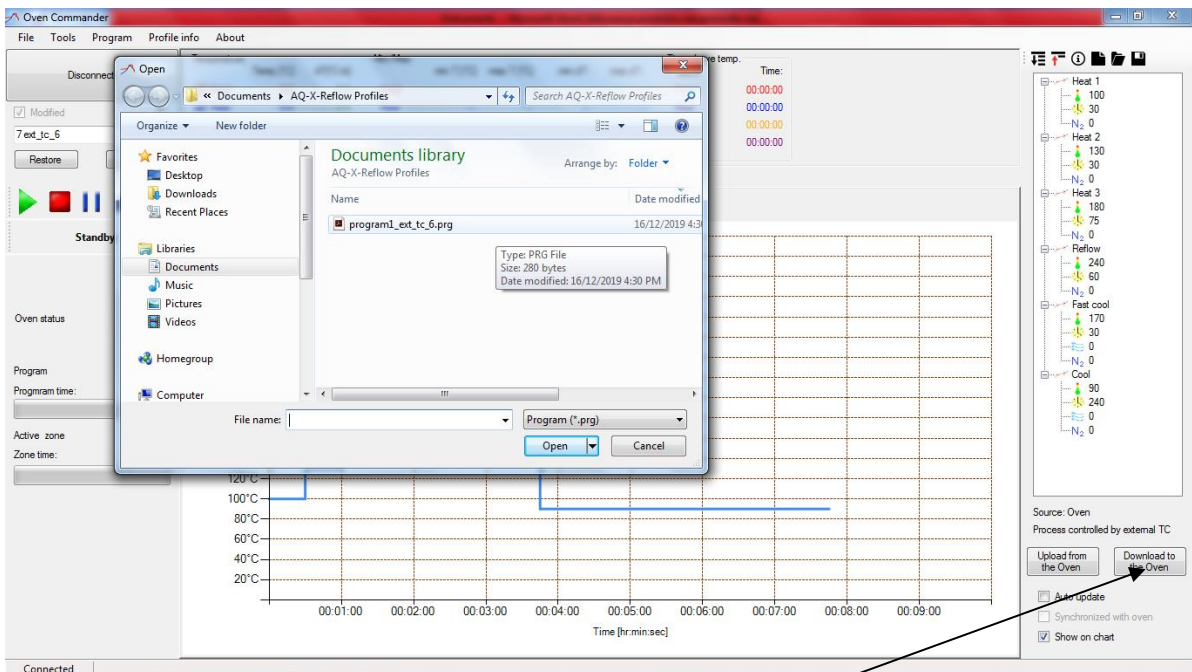


Figure 30

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

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

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

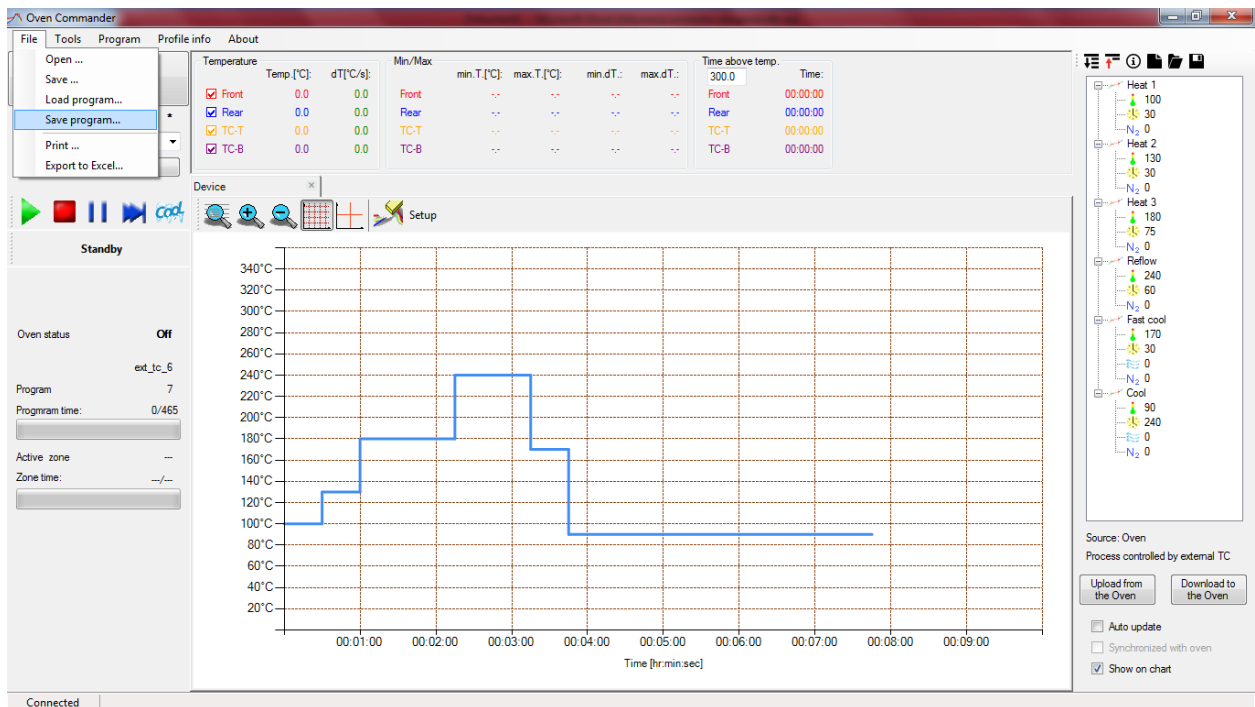


Figure 31

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

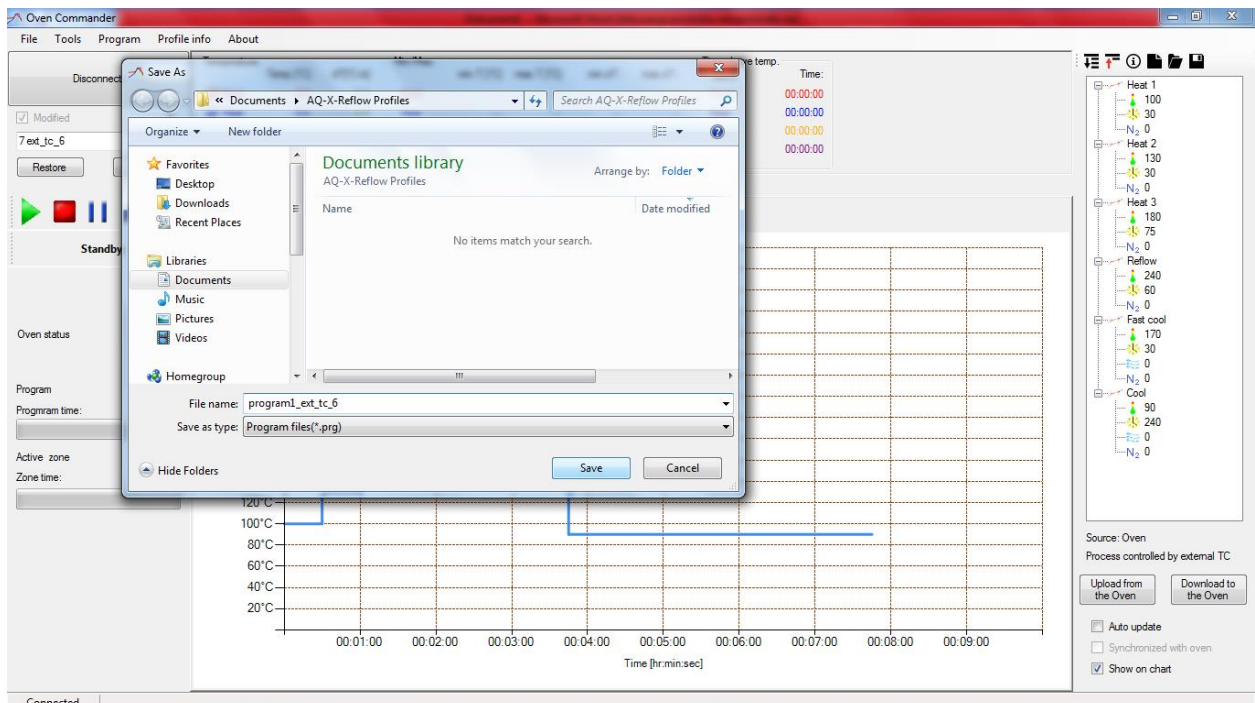


Figure 32

## XI. Exporting the graph to an Excel file

If you want to export the graph to an Excel file, choose from the menu: “File” and then “Export to Excel”. Enter the file name and choose the place to save the Excel file. Click the “Save” button and an Excel version of the graph will be saved to the specified location.

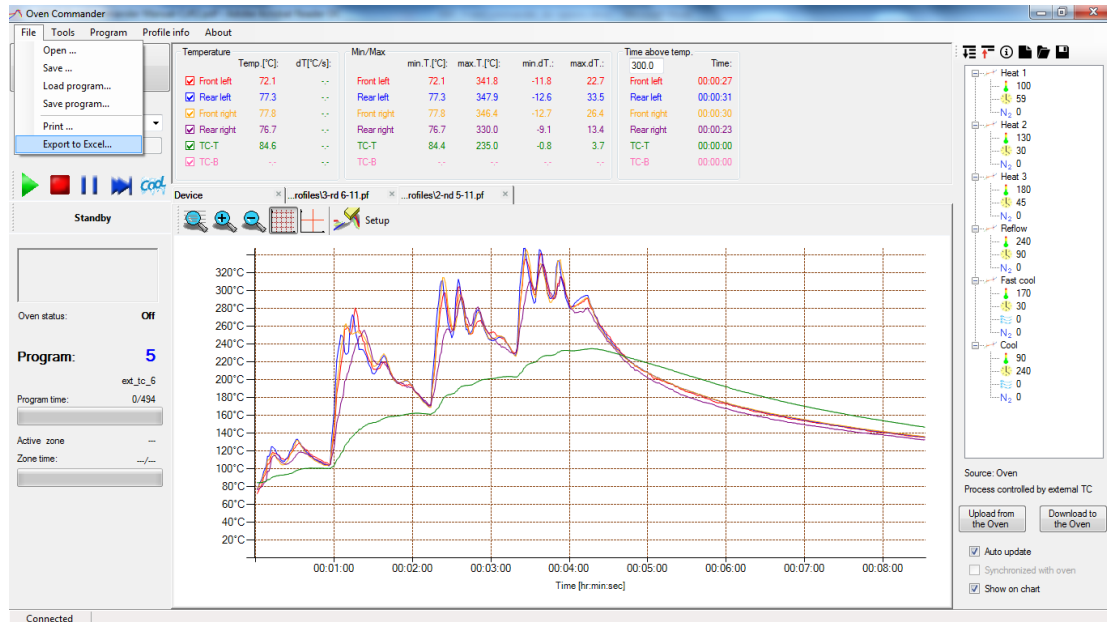


Figure 33

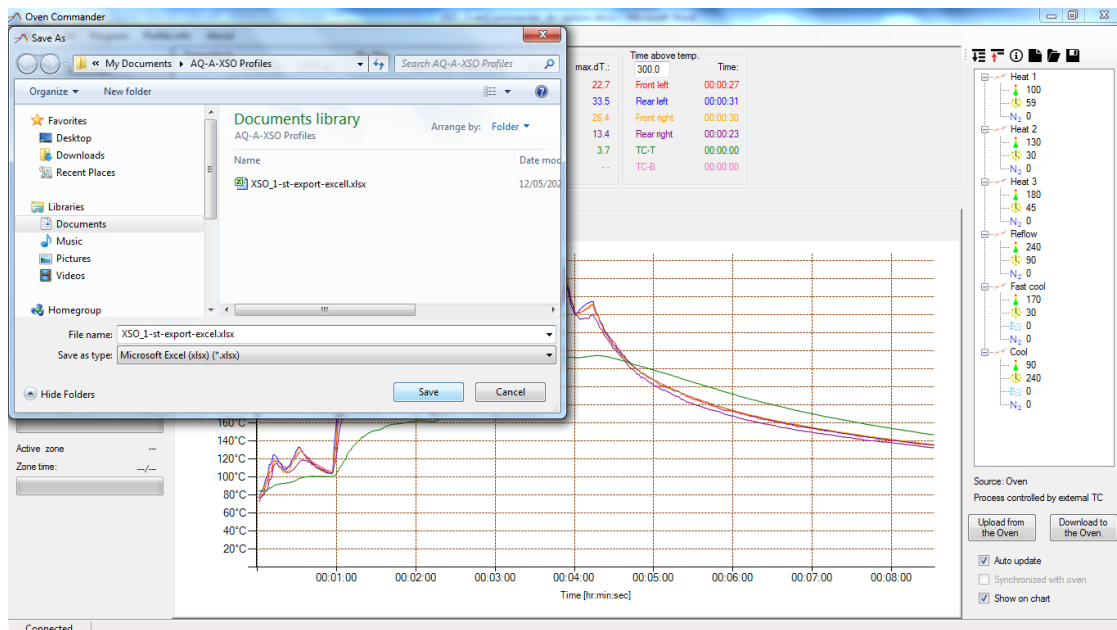


Figure 34



When you open the Excel file, it will look like Figure 35 below:

Time [s]	Front left [°C]	Rear left [°C]	Front right [°C]	Rear right [°C]	TC-T [°C]	TC-B [°C]
0	72.10	77.30	77.80	76.70	84.60	NaN
1	74.60	79.80	79.20	77.20	84.40	NaN
2	78.40	84.30	82.90	78.30	84.60	NaN
3	80.70	86.60	85.00	79.20	84.60	NaN
4	84.10	90.10	88.20	80.60	84.80	NaN
5	90.50	96.80	93.60	83.40	85.30	NaN
6	93.10	99.80	96.60	84.90	85.60	NaN
7	96.20	103.50	100.00	87.20	86.10	NaN
8	105.50	114.10	109.90	97.20	87.90	NaN
9	105.50	114.10	109.90	97.20	87.90	NaN
10	108.60	117.70	113.40	101.60	88.50	NaN
11	116.90	125.00	116.50	111.30	90.00	NaN
12	118.70	124.60	116.80	114.00	90.80	NaN
13	117.70	123.10	116.00	115.00	91.30	NaN
14	117.30	121.40	114.80	114.80	91.60	NaN
15	116.60	117.30	111.30	112.80	92.30	NaN
16	115.70	115.60	109.70	111.40	92.30	NaN
17	115.20	114.10	108.30	110.50	92.70	NaN
18	112.70	110.80	105.60	108.30	92.90	NaN
19	111.40	108.80	104.50	106.80	93.00	NaN
20	111.40	108.80	104.50	106.80	93.00	NaN
21	110.10	108.50	104.90	105.60	93.40	NaN
22	110.90	111.00	107.00	105.10	93.60	NaN
23	111.50	112.40	108.40	105.50	93.80	NaN
24	112.30	114.30	110.40	106.00	94.10	NaN

Figure 35

## XII. Printing graphs and profiles:

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

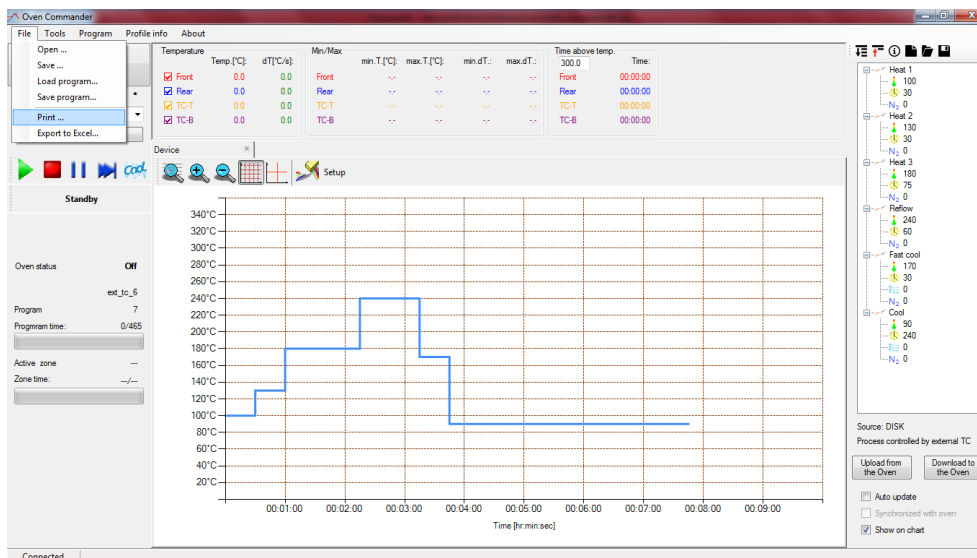


Figure 36

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

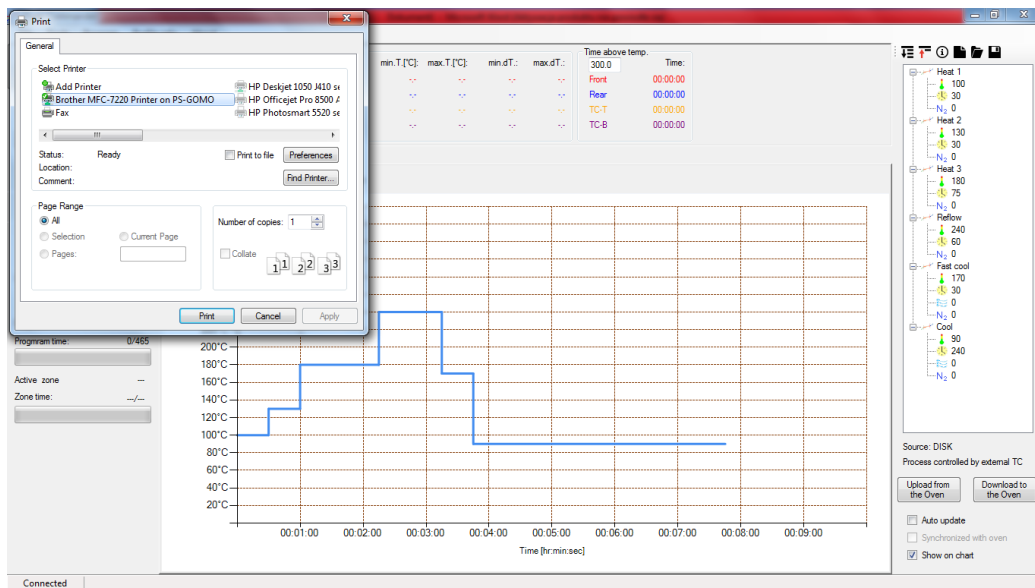


Figure 37

### XIII. OPTIONS

From the Main Menu, choose Tools and Options.

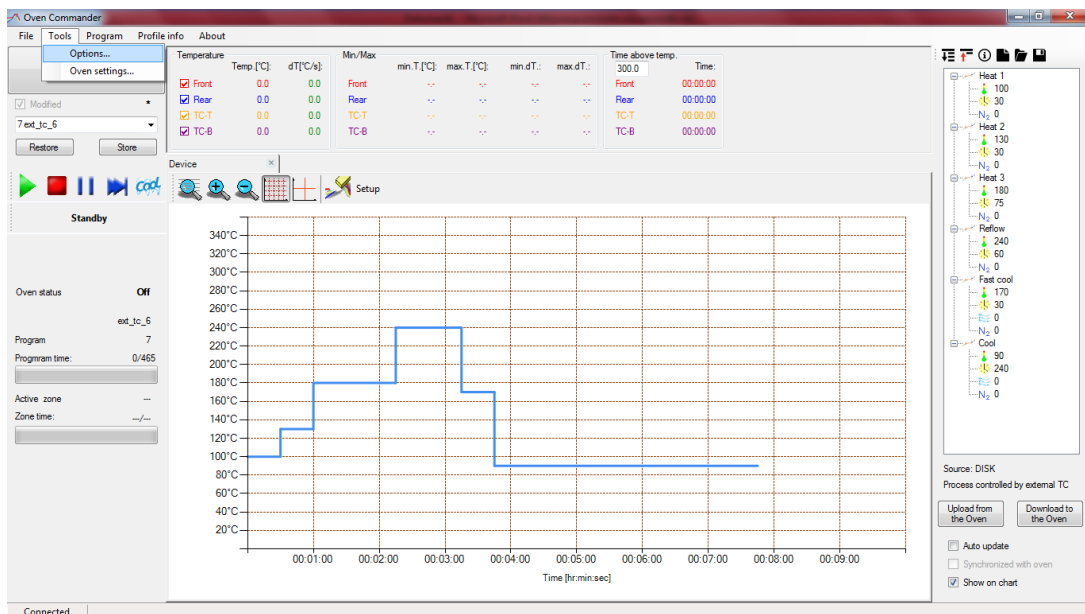


Figure 38

Temperature scale: Choice of Celsius or Fahrenheit

Cooling media flow unit: Choice of LPM or SCFM

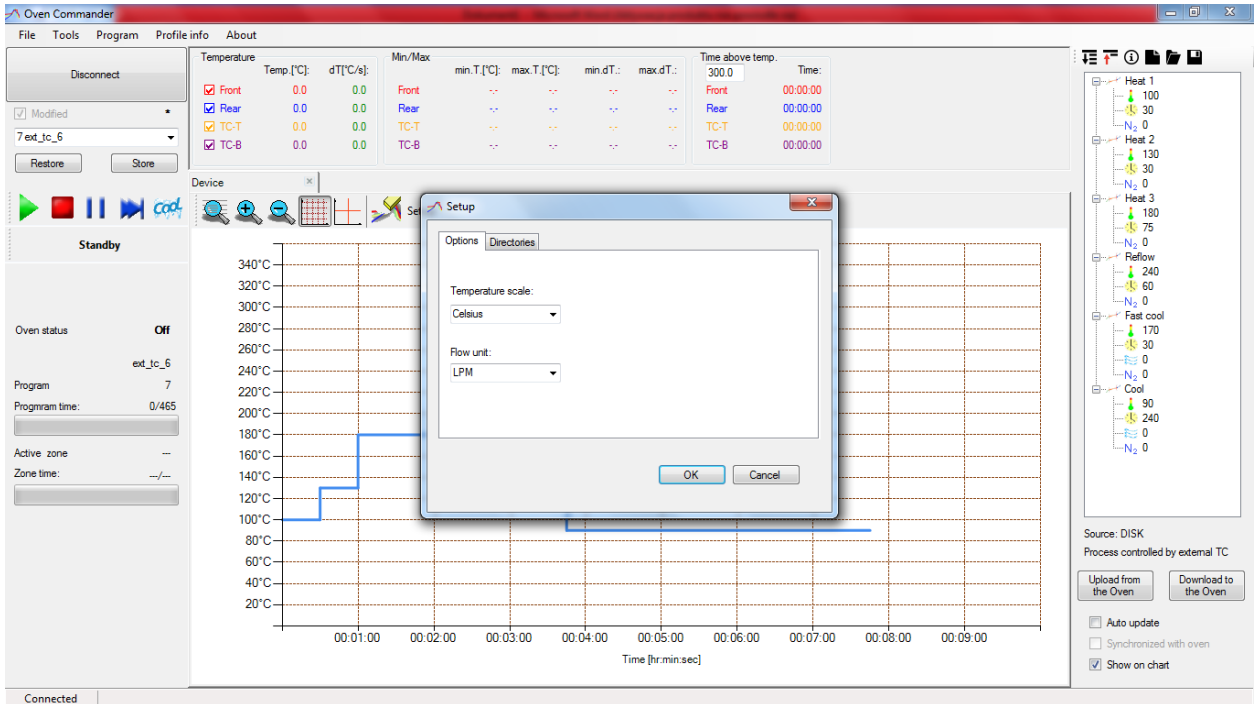


Figure 39

## XIV. OVEN SETTINGS

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

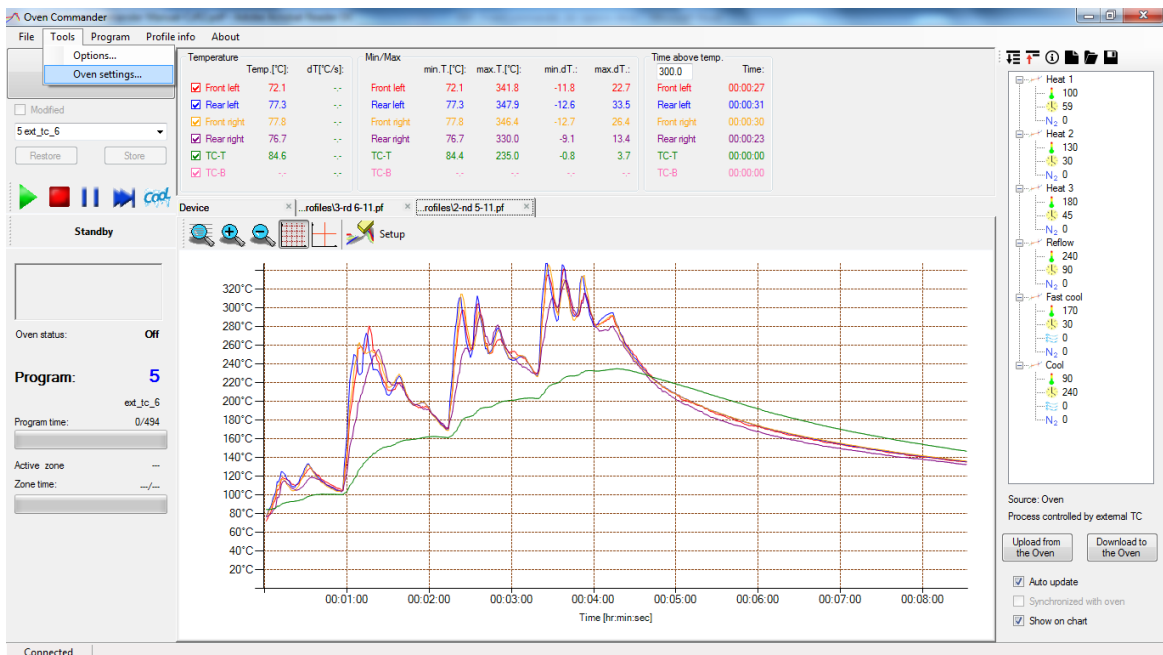


Figure 40

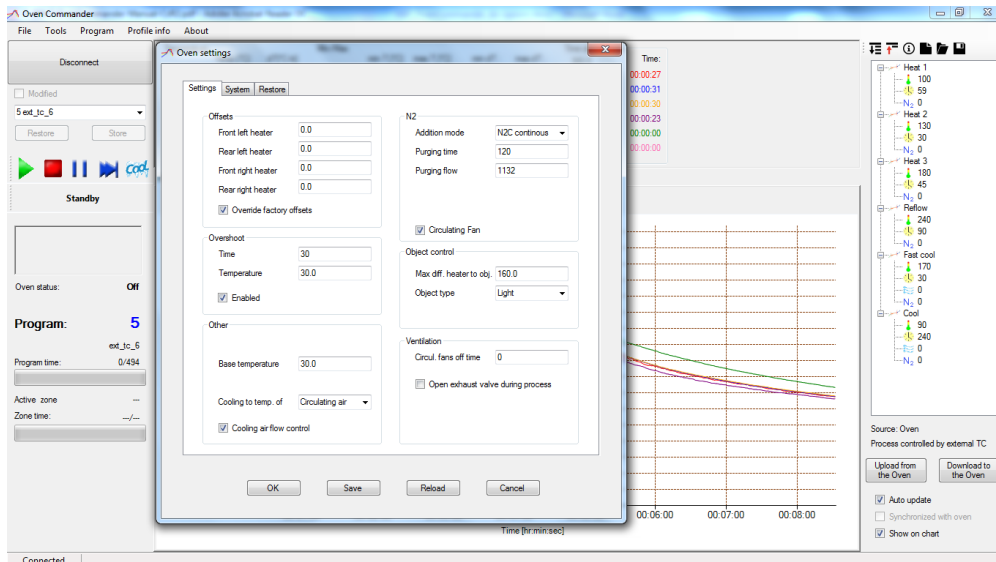


Figure 41

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

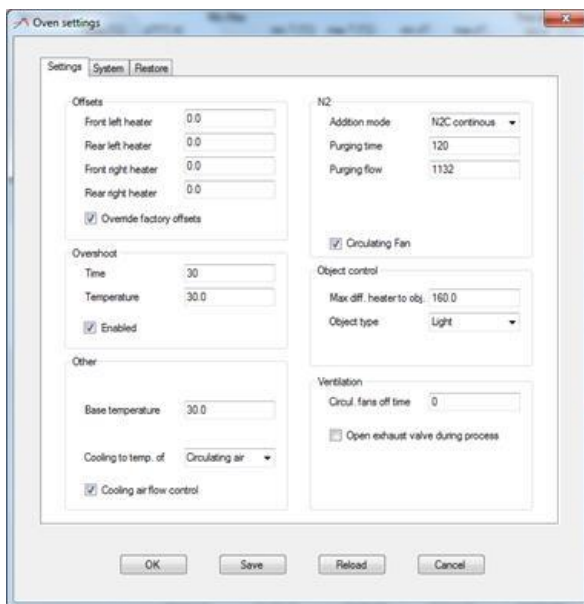


Figure 42

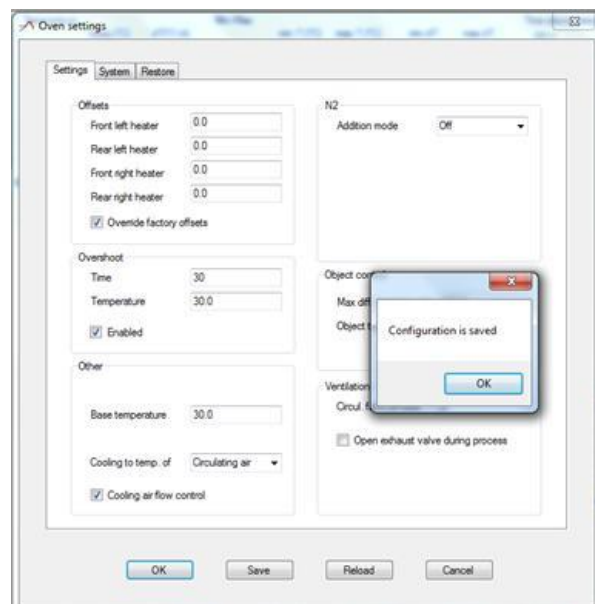


Figure 43

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

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

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

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

N2 Addition mode:

Possible choices: OFF, N2C = continuous fill, N2R = periodic fill or N2P = proportional fill.

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

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

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

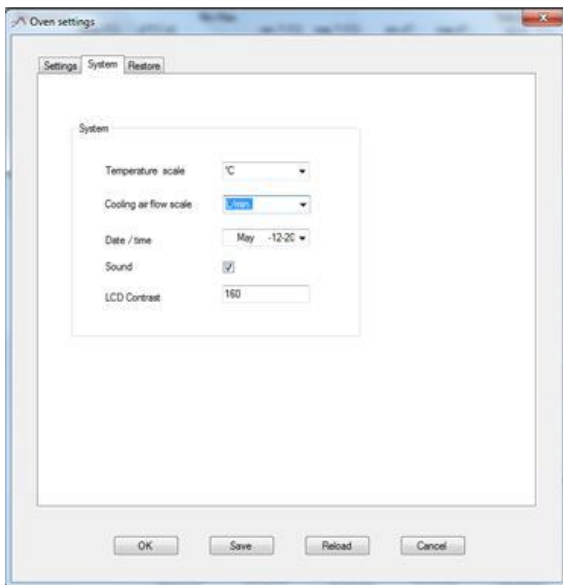


Figure 44

**Temperature scale:**

°C (Celsius) or °F (Fahrenheit)

**Cooling air flow scale:**

L/min. or SCFM

**Date / Time**

**Sound**

**LCD Contrast**

(on the display on the oven)

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

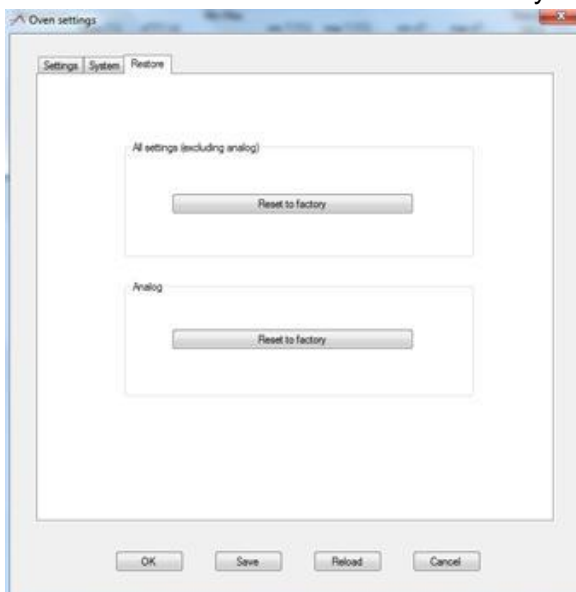


Figure 45

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

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

## XV. Icons to adjust the chart

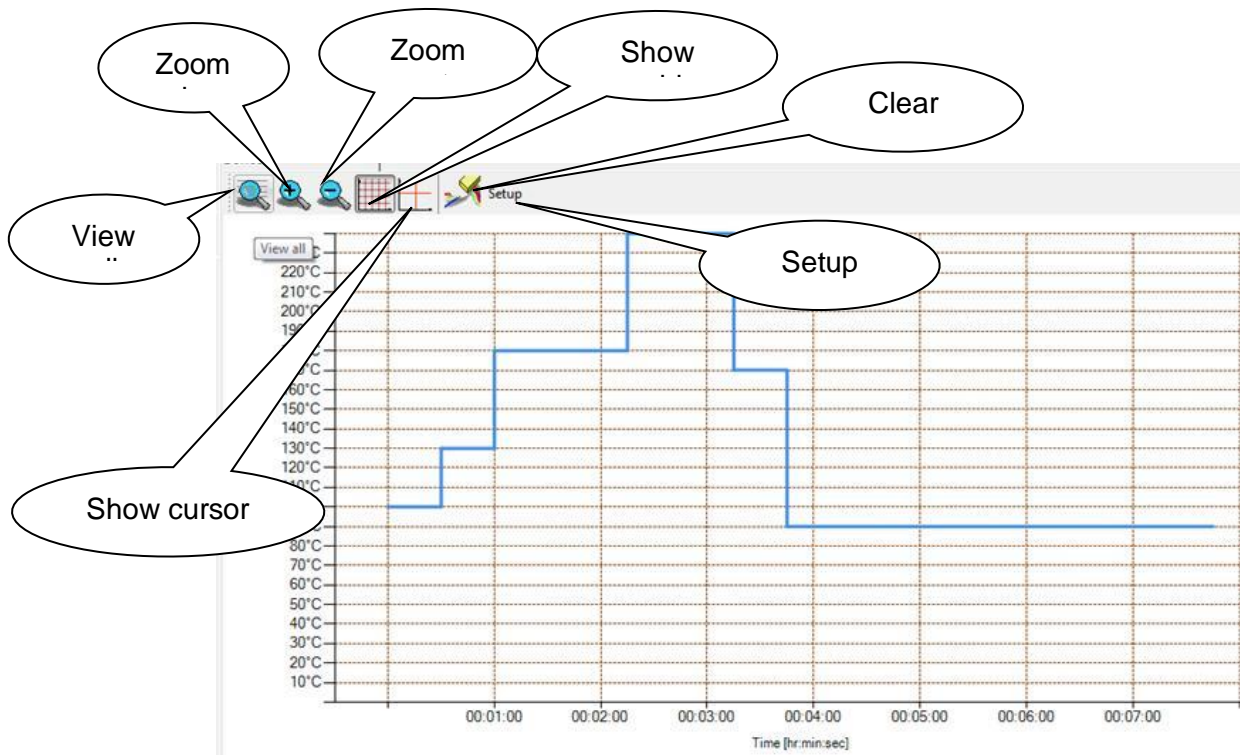


Figure 46

Press “Setup” to adjust axis range

**Note:**

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

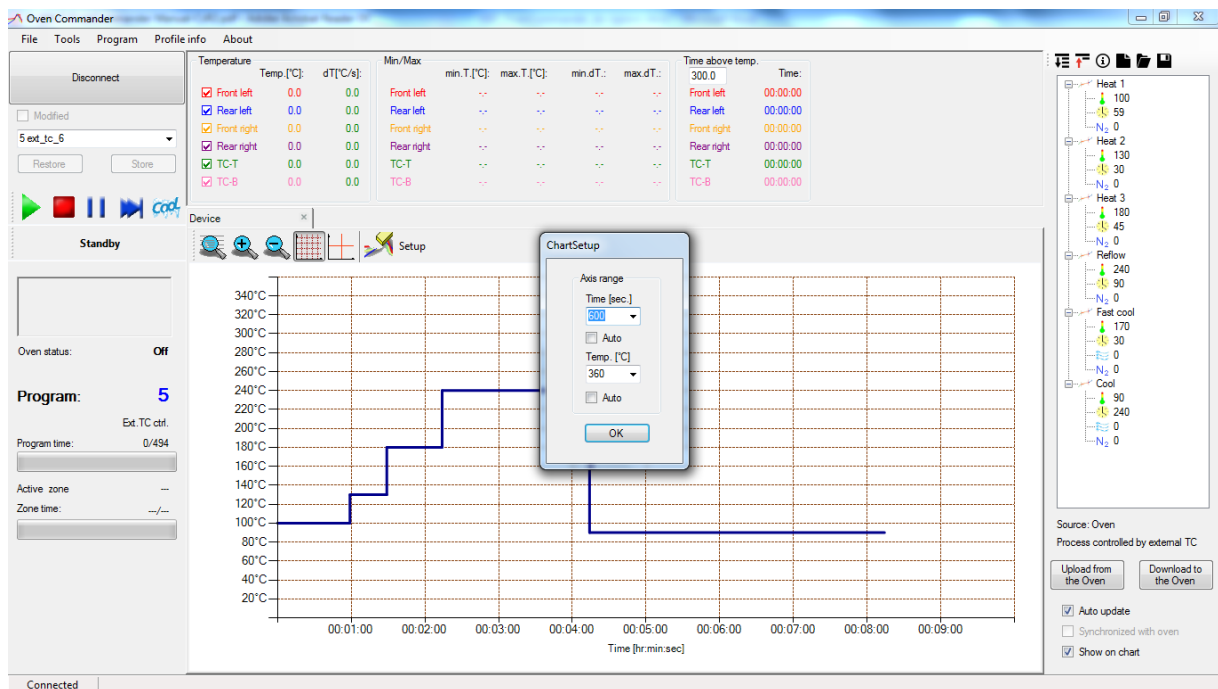


Figure 47

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