X-306/S Oven Commander

A Program for X-REFLOW306/S Ovens to create/run programs and monitor/store in real time the temperatures of the oven thermocouples and the additional two thermocouples connected to the TC-T and TC-B sockets.
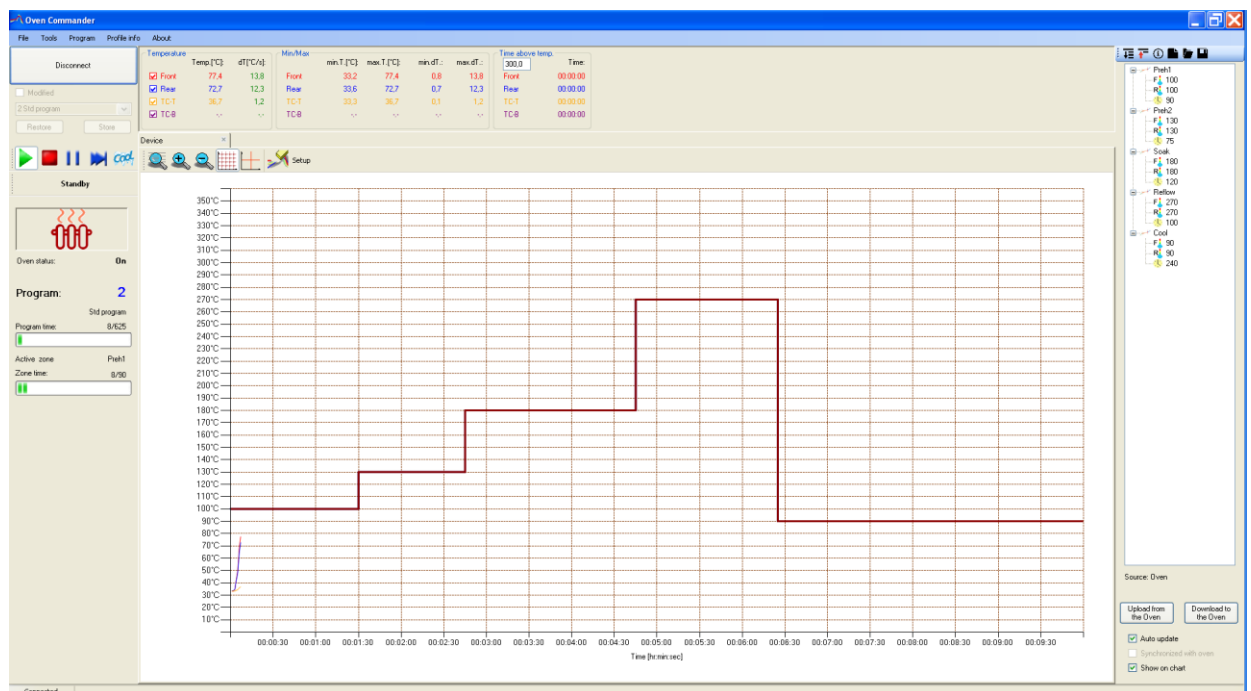
Version 9

Revision 46

Introduction

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

Major Oven Commander Features and User Benefits:

- Programming and controlling the X-Reflow306/S 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 four monitored temperature/time profiles
- Printing the stored time/temperature graphs and Programs
- Exporting to Excel the stored information in the time/temperature graphs
- Observing in real time of time/temperature characteristics 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)

BOKAR International 650 Scranton Pocono Hwy., Covington Twp. PA 18444, USA Tel: (570) 842-2812

e-mail: **bokar@bokar.com   www.BestBatchOven.com   www.bokar.com   www.ESDmeters.com**

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 Oven Commander program requires that the oven has installed firmware v5.247 or later for proper communication with the Oven Commander).
    You can find the instructions for the firmware upgrades on:
    http://www.bokar.us/downloads/Firmware-upgrade_X-Reflow306.doc
2. Download the latest X-306/S Oven Commander program from http://www.bokar.us/downloads/X-306-S-OvenCommander.zip)
3. Unpack the zip file to a Hard Disc of your PC or copy it from the CD received with the Oven.

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

The files which you should have in one folder on your PC are listed below:

DocumentFormat.OpenXml.dll

FTD2XX_NET.dll

OvenCommander.exe

Keyxxxxxx.lic (this is the license key file –It is on a CD included with the Oven if you have purchased the X-306/S Oven Commander or it can be sent by email after providing the oven serial number)
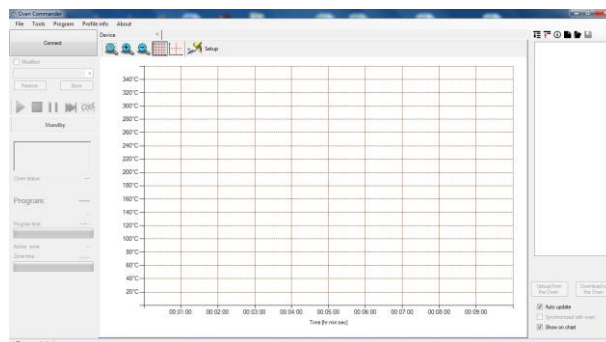
4. Run the file: **OvenCommander.exe**

Figure 1

5. Connect the **X-Reflow306/S Oven** to a PC using the X485-USB Converter.
6. Turn ON the Power Switch of the **X-Reflow306/S** and log in.
7. Return to the Oven Commander program and enter the location of the license key file with the oven serial number (file with the extension.lic). Choose from the Top Menu: **Tools** and then **Options.** Click on the **Directories** tab and then **Edit**. Find the license key file(keyxxxxx.lic) and then click Open. Click the OK button.
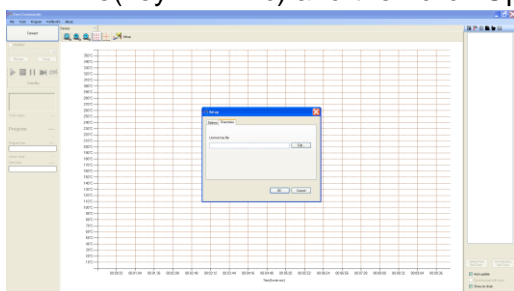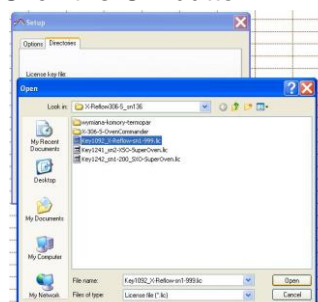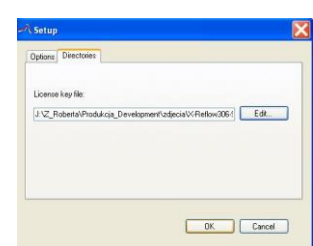

Figure 2

Figure 3

Figure 4

BOKAR International   650 Scranton Pocono Hwy., Covington Twp. PA 18444, USA Tel: (570) 842-2812

e-mail: **bokar@bokar.com**   **www.BestBatchOven.com**   **www.bokar.com**   **www.ESDmeters.com**

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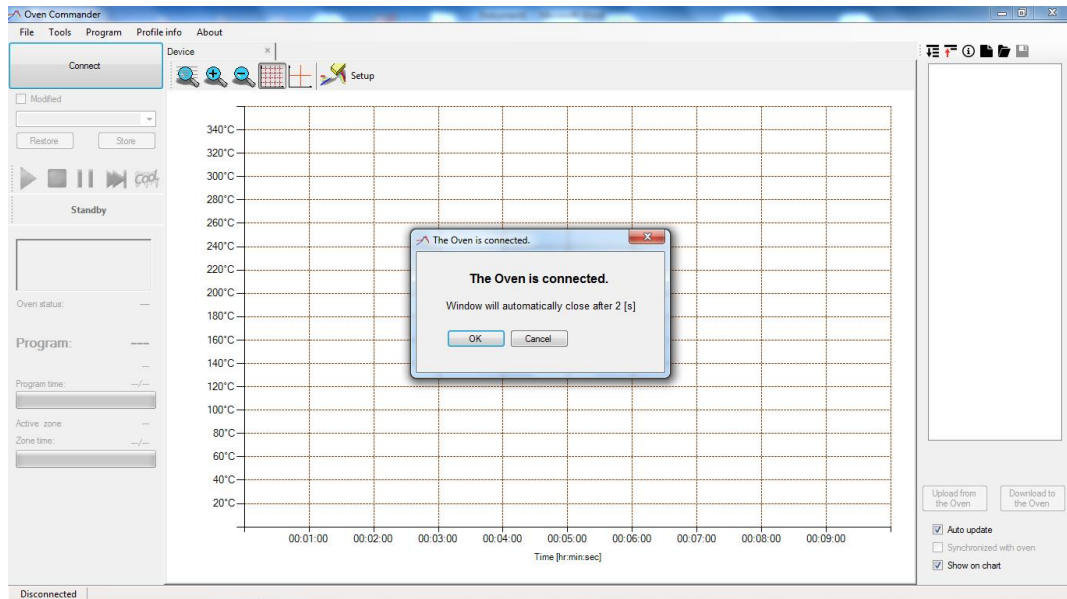

Figure 5

Note:

If your computer will not connect to the oven via 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 7 again.
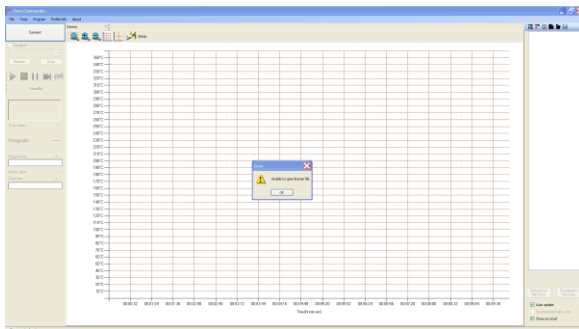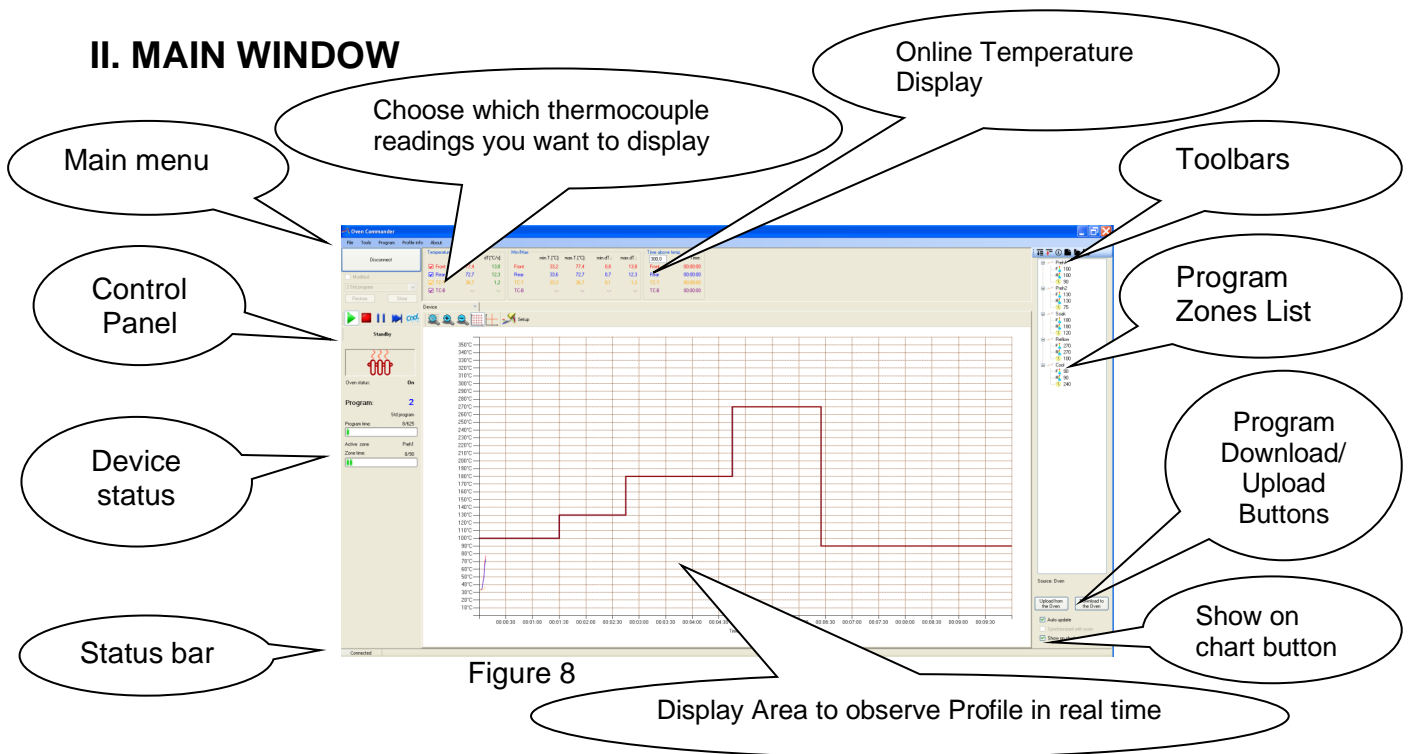

Figure 6

Figure 7

II. MAIN WINDOW

Online Temperature Display

Choose which thermocouple readings you want to display

Main menu

Toolbars

Control Panel

Program Zones List

Device status

Program Download/ Upload Buttons

Status bar

Show on chart button

Figure 8

Display Area to observe Profile in real time

III.   Description of the Control Panel

Selection of Program

START

COOL

STOP

Next Zone

PAUSE

Base ON / OFF

Progress bar

Current Zone Time

Figure 9

BOKAR International   650 Scranton Pocono Hwy., Covington Twp. PA 18444, USA Tel: (570) 842-2812

e-mail: **bokar@bokar.com**   **www.BestBatchOven.com**   **www.bokar.com**   **www.ESDmeters.com**

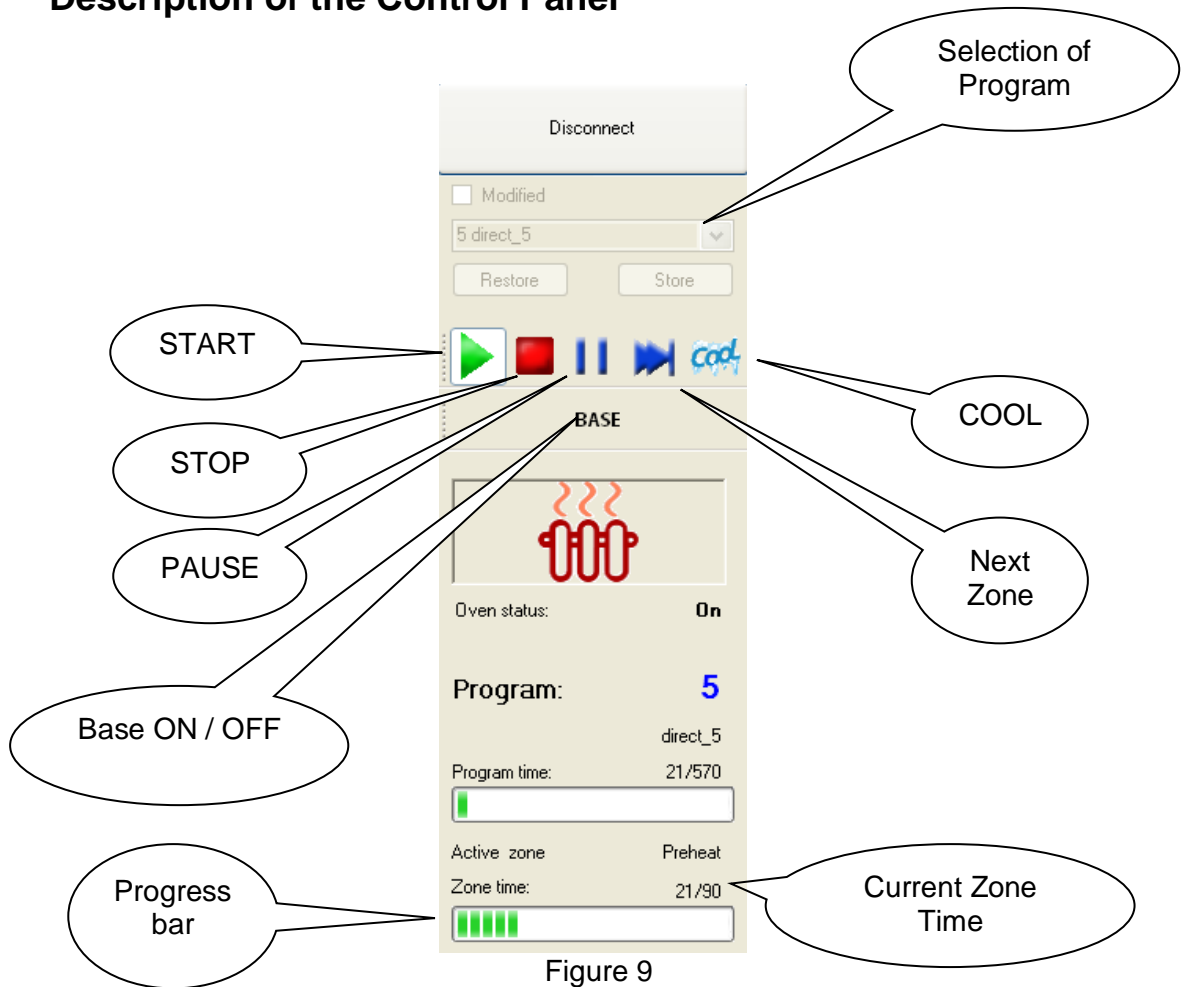**Control buttons:**

START – Starts 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 – Stops the process

PAUSE – Pauses 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 to stop it.

Base ON/OFF button - After this option is selected, the oven will maintain the preset temperature inside the heating chamber at all times.

IV. STARTING A PROGRAM

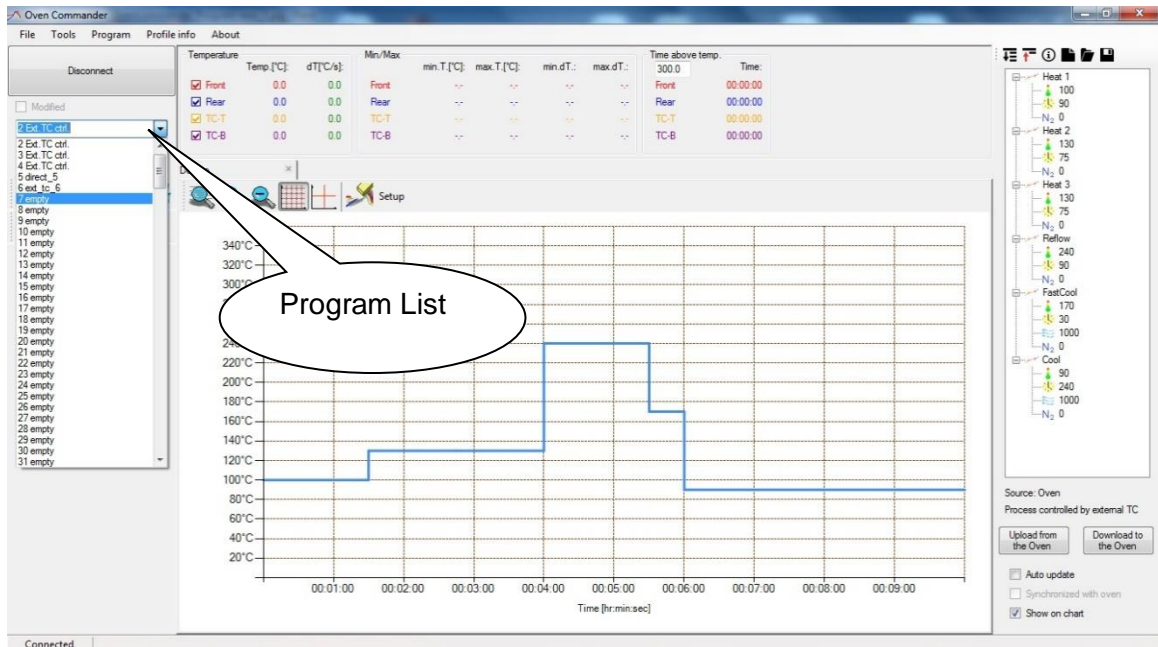1. Choose a program from the program list:
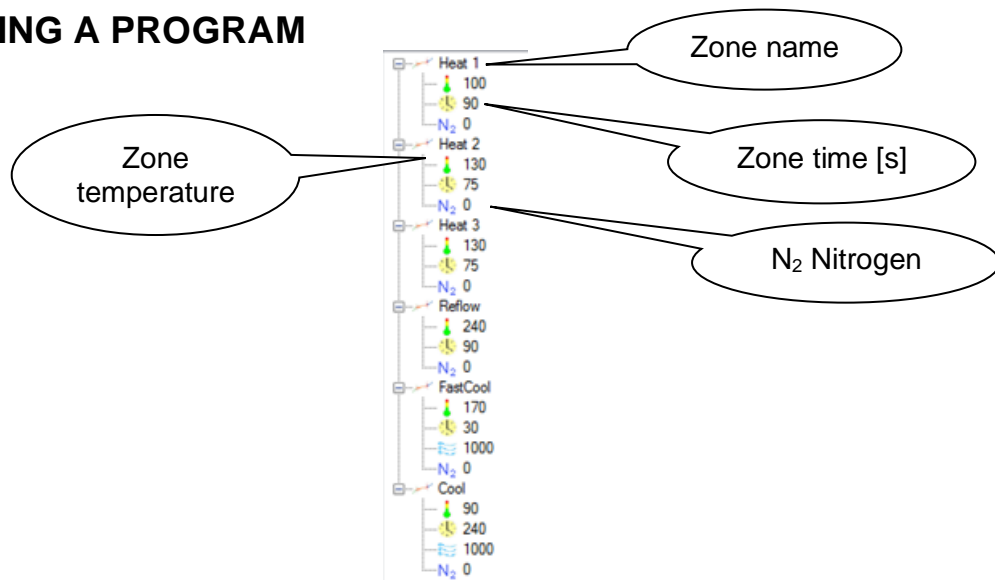

Figure 10

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 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 12

BOKAR International 650 Scranton Pocono Hwy., Covington Twp. PA 18444, USA Tel: (570) 842-2812

e-mail: **bokar@bokar.com**   **www.BestBatchOven.com**   **www.bokar.com**   **www.ESDmeters.com**
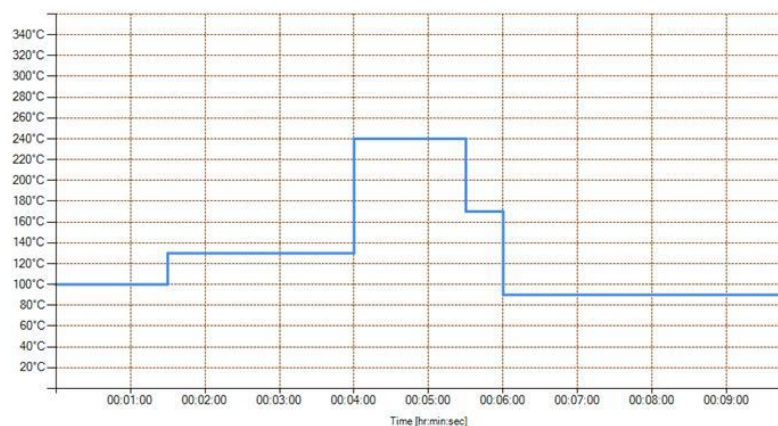
Editing the Program by keyboard entry in Program Zone List.

1 Changing zone temperature:

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

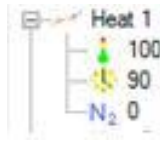   Figure 13

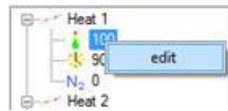   b. With the right mouse button, click on the existing value and click edit

        Figure 14

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

CREATE NEW PROGRAM

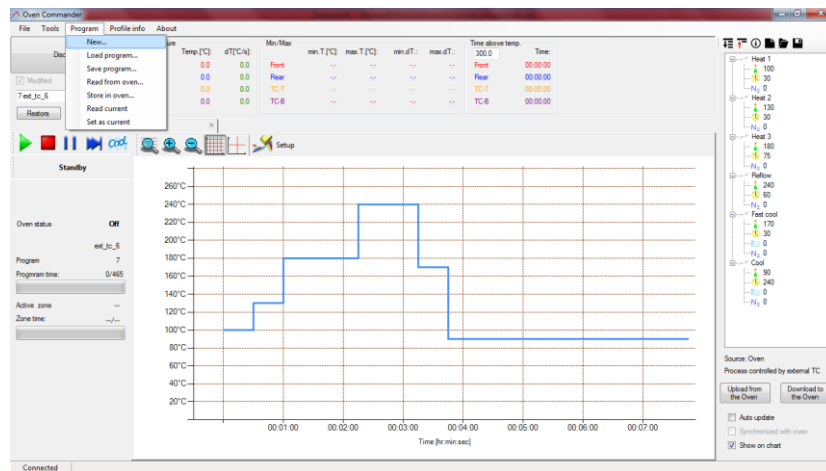1. Choose from the Main Menu "Program" and then "New"

Figure 15

2. Select the zone count and if the process will be controlled by an external thermocouple
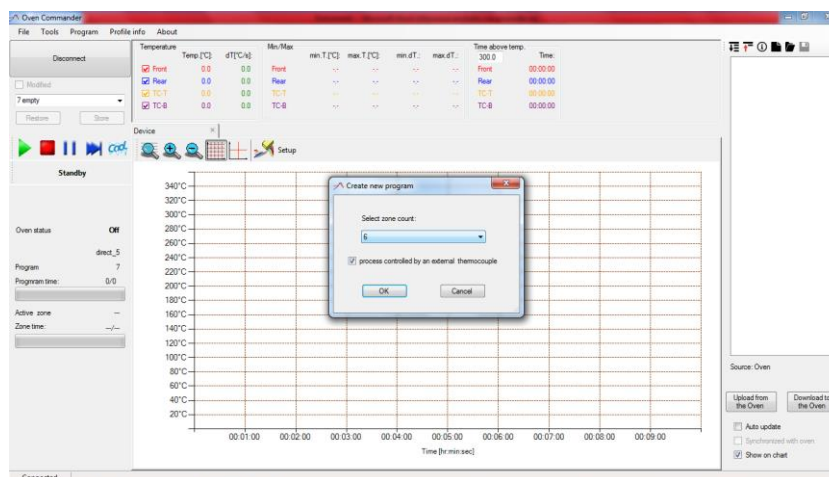
Figure 16

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

BOKAR International   650 Scranton Pocono Hwy., Covington Twp. PA 18444, USA Tel: (570) 842-2812

e-mail: **bokar@bokar.com**   **www.BestBatchOven.com**   **www.bokar.com**   **www.ESDmeters.com**
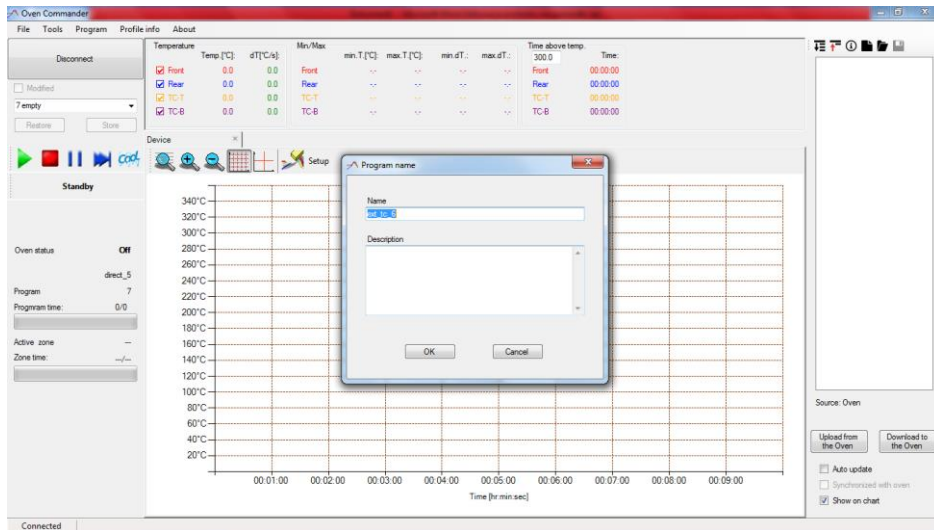
Figure 17

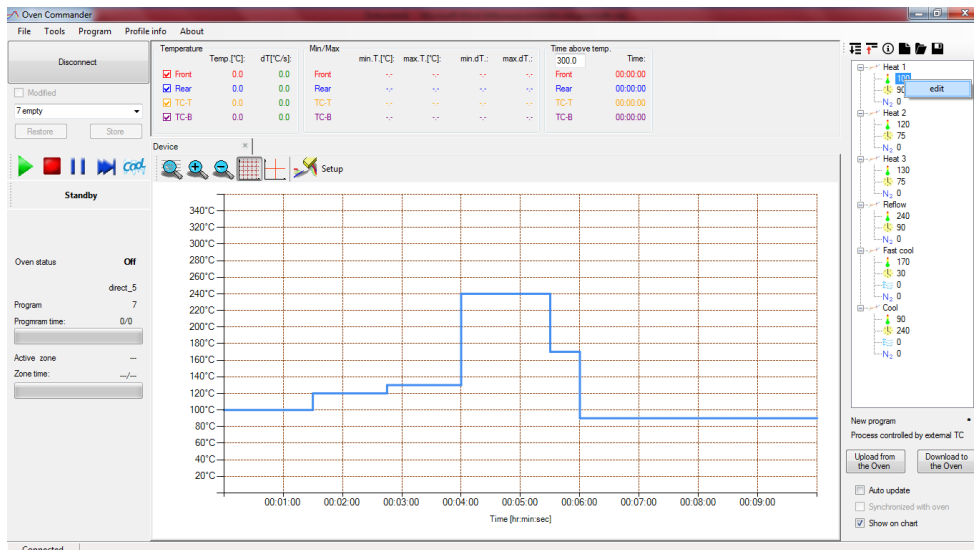5. Edit the program's parameters on the default graph

Figure 18

6. Press "Download to the Oven" to copy the program to the oven and then press "Store" on the Control Panel in order to run it

Figure 19

Figure 20

7. Now press "Start" to run the program

VI. Editing the program in progress

You can change the current program 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"
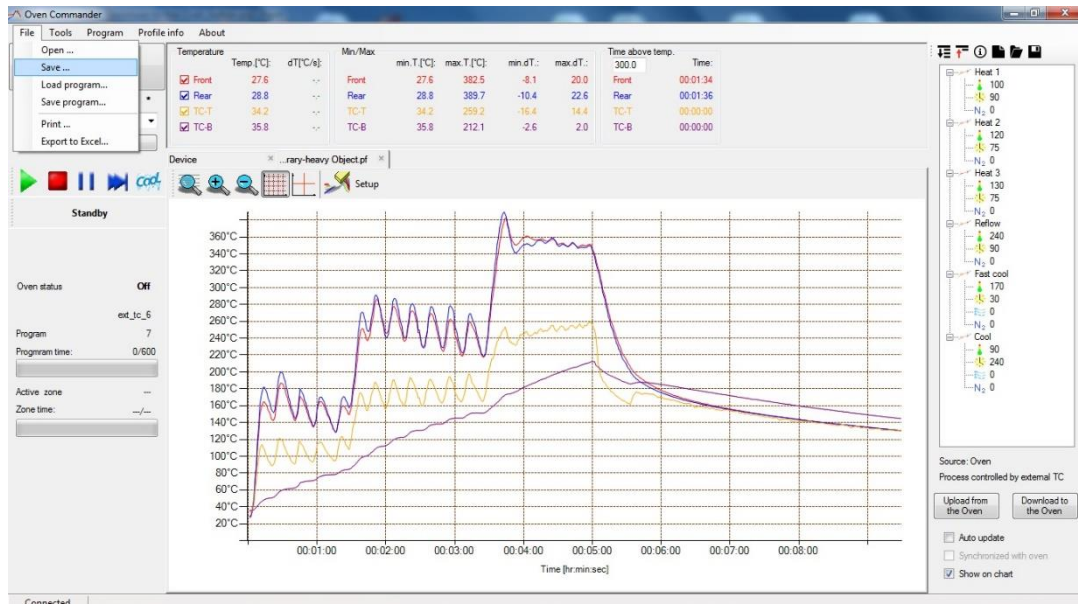
Figure 21

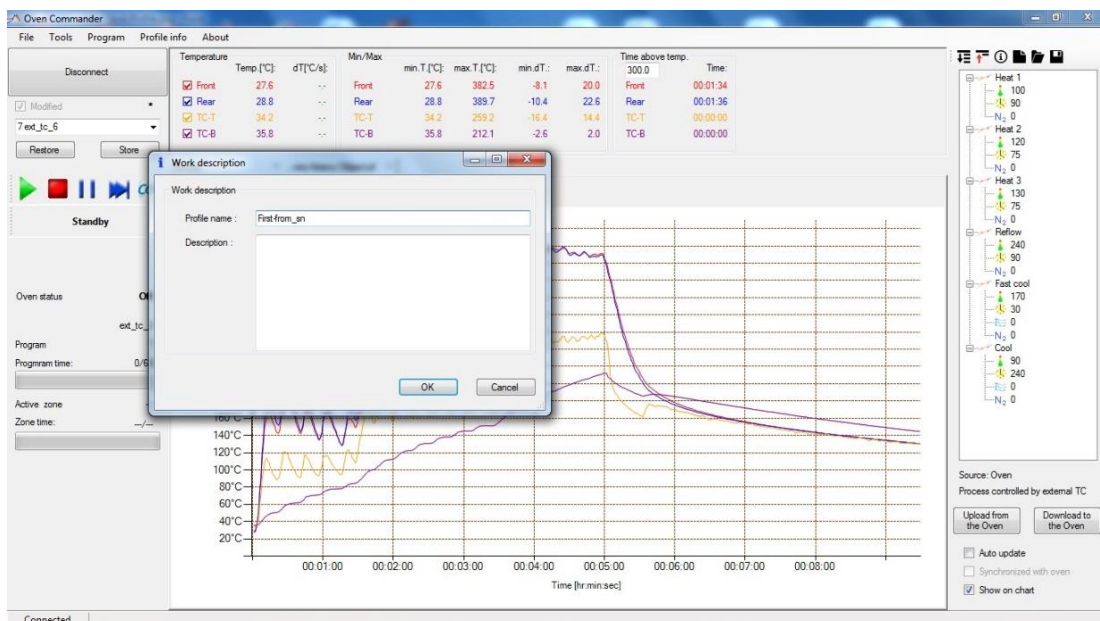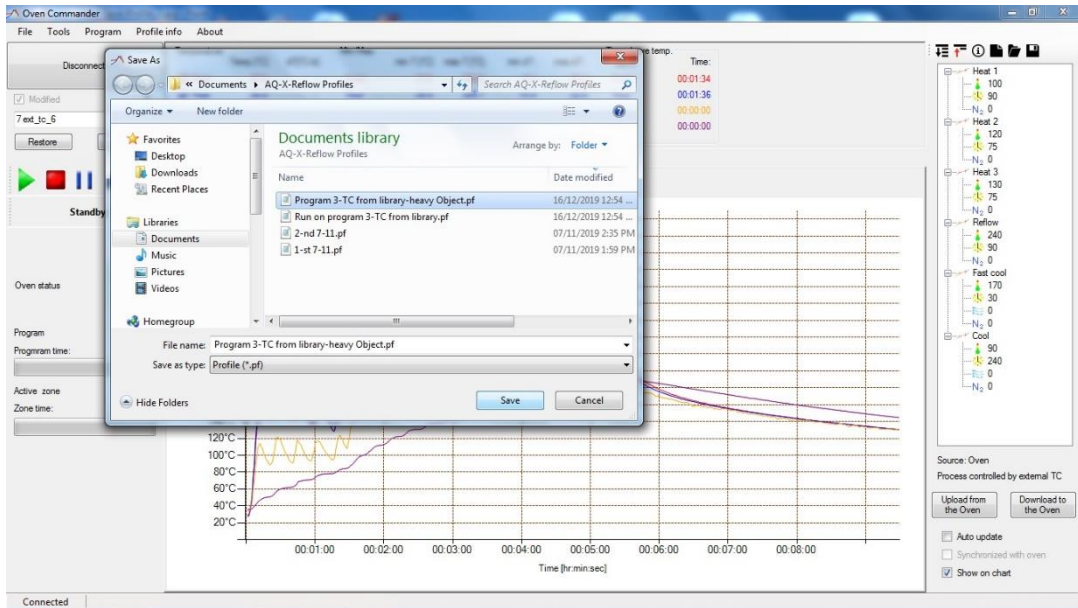Select where you want to save it on your computer, enter the file name, add an additional description if needed, and save it by clicking the Save button.

Figure 22

BOKAR International 650 Scranton Pocono Hwy., Covington Twp. PA 18444, USA Tel: (570) 842-2812

e-mail: **bokar@bokar.com** **www.BestBatchOven.com** **www.bokar.com** **www.ESDmeters.com**

Figure 23

VIII. Reviewing saved profiles

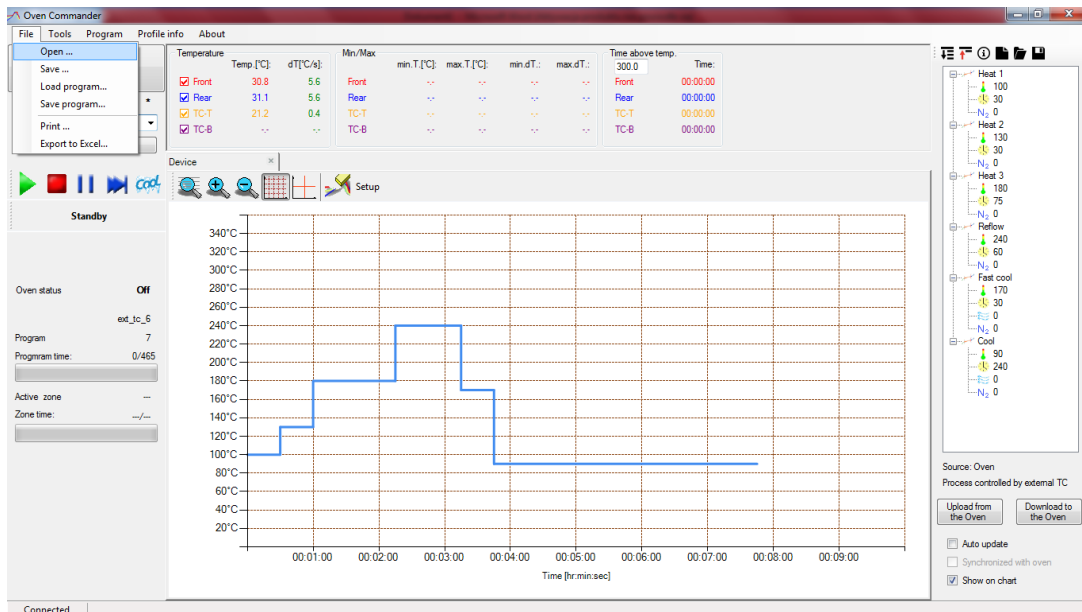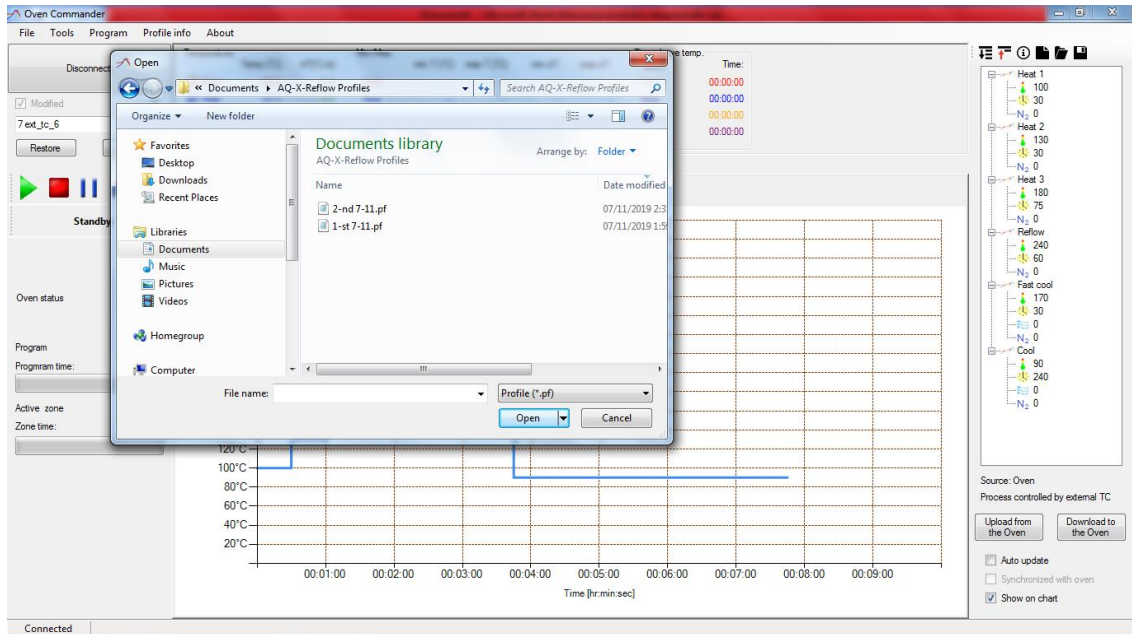To open a saved profile: chose from the Menu "File" and then "Open"

Figure 24

Chose "profile1.pf" or another file and open it:

BOKAR International   650 Scranton Pocono Hwy., Covington Twp. PA 18444, USA Tel: (570) 842-2812

e-mail: **bokar@bokar.com**   **www.BestBatchOven.com**   **www.bokar.com**   **www.ESDmeters.com**

Figure 25

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 left side panel and possibly attached to the PCB heated in the oven.
-
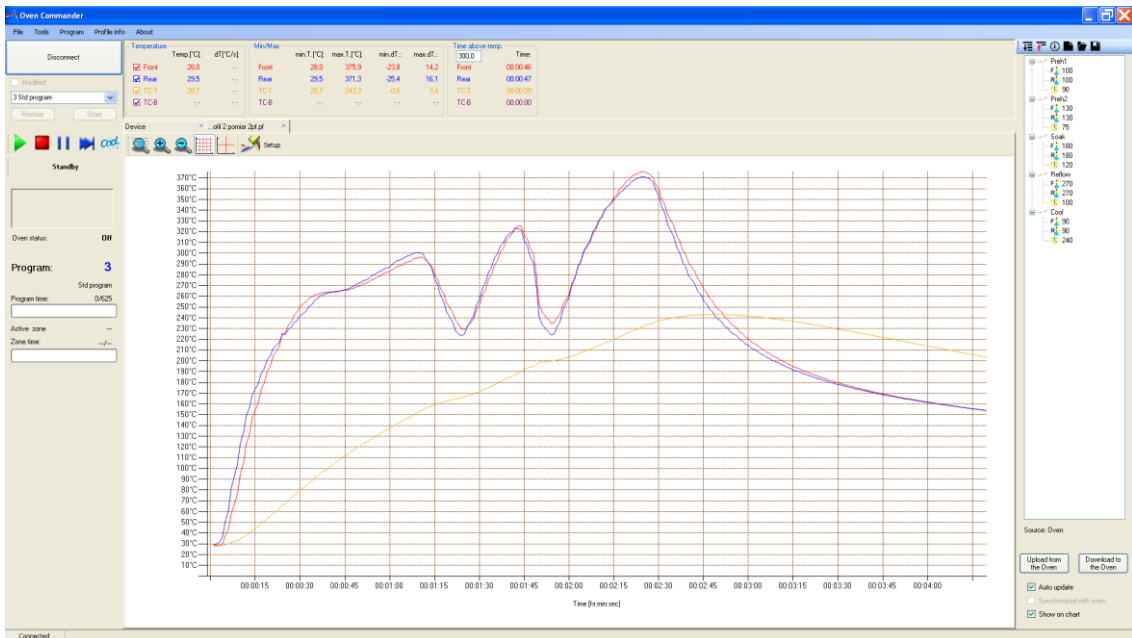
Figure 26

IX. Load program file from a PC to the Oven
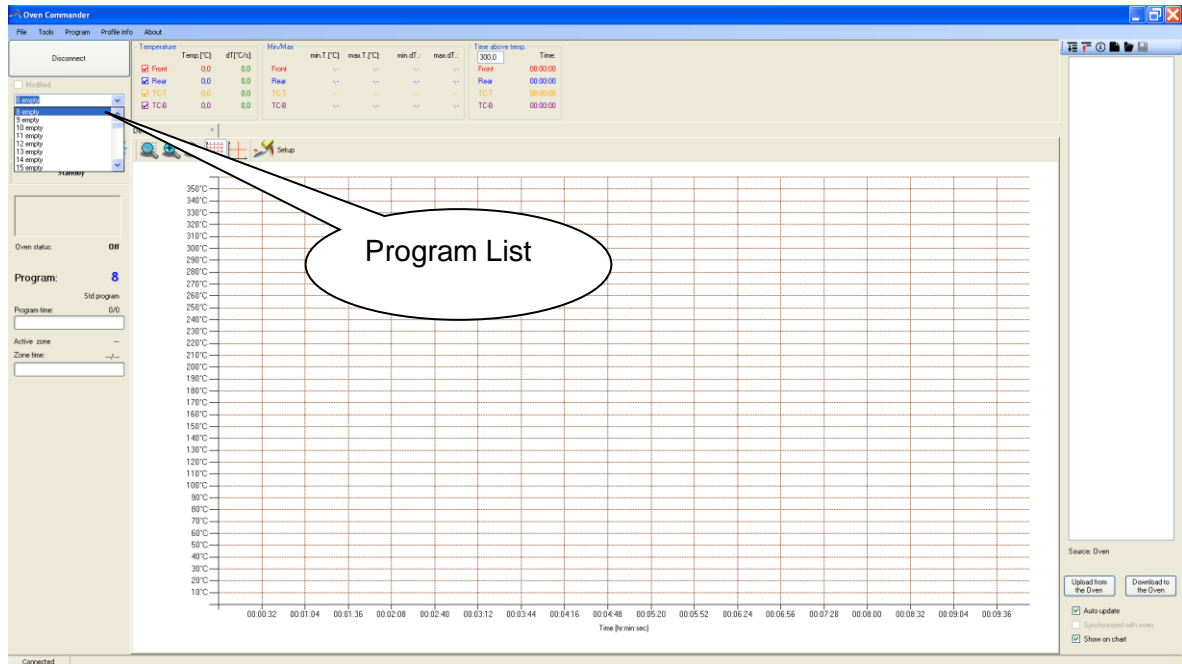
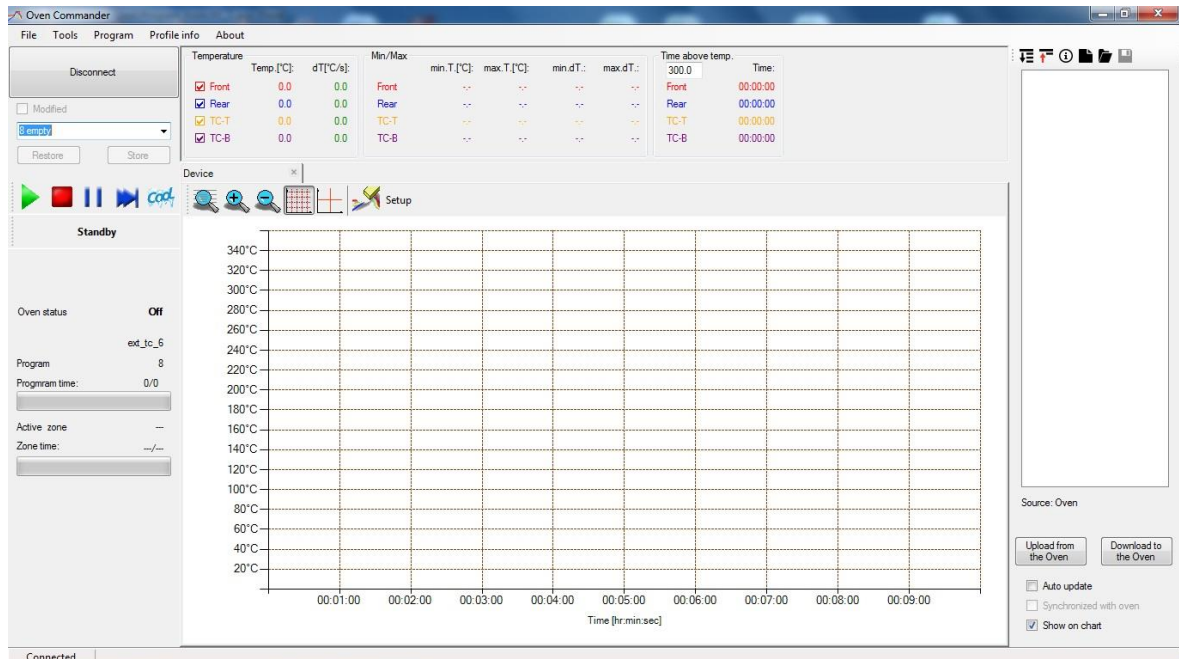1. Expand Program List and choose empty program

Figure 27

Figure 28

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

BOKAR International 650 Scranton Pocono Hwy., Covington Twp. PA 18444, USA Tel: (570) 842-2812

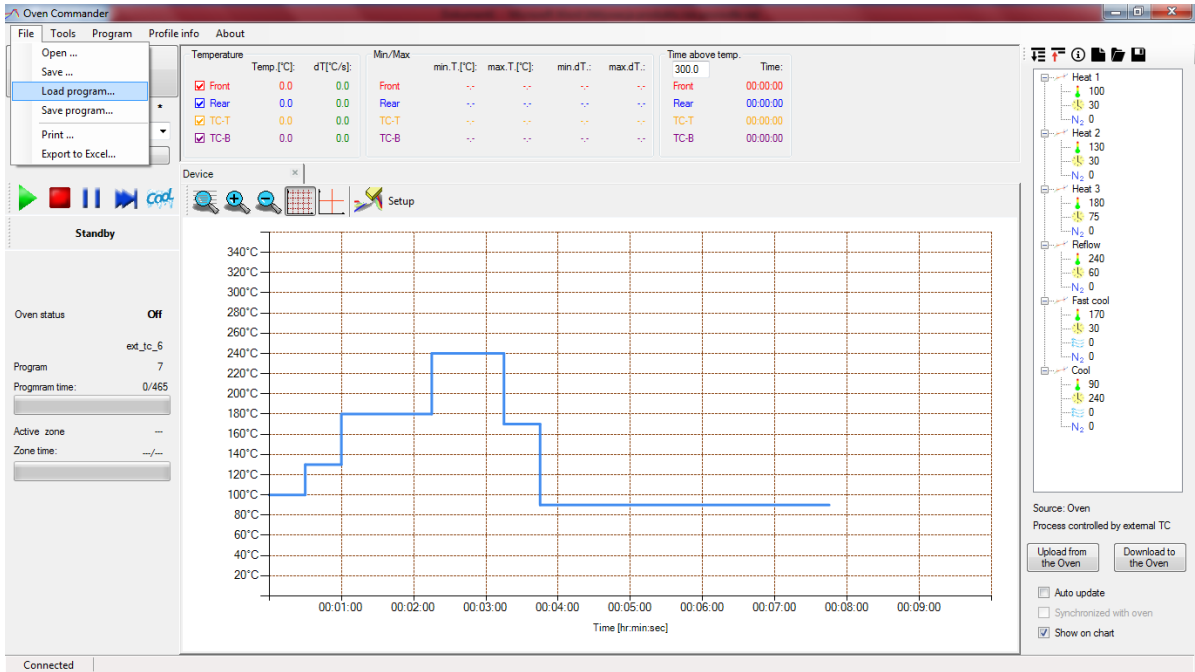e-mail: **bokar@bokar.com** **www.BestBatchOven.com** **www.bokar.com** **www.ESDmeters.com**

Figure 29

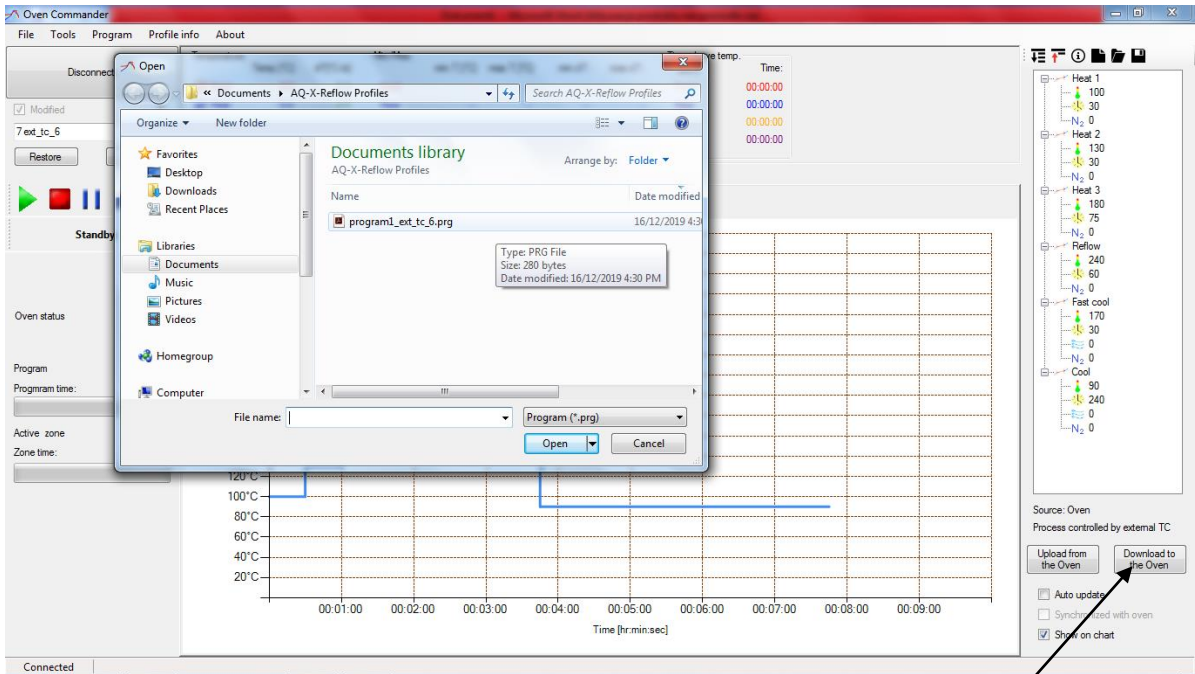3. Choose the desired program and open it by clicking the "Open" button

Figure 30

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

BOKAR International   650 Scranton Pocono Hwy., Covington Twp. PA 18444, USA Tel: (570) 842-2812

e-mail: **bokar@bokar.com**   **www.BestBatchOven.com**   **www.bokar.com**   **www.ESDmeters.com**

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

1. Choose "File" and then "Save program"
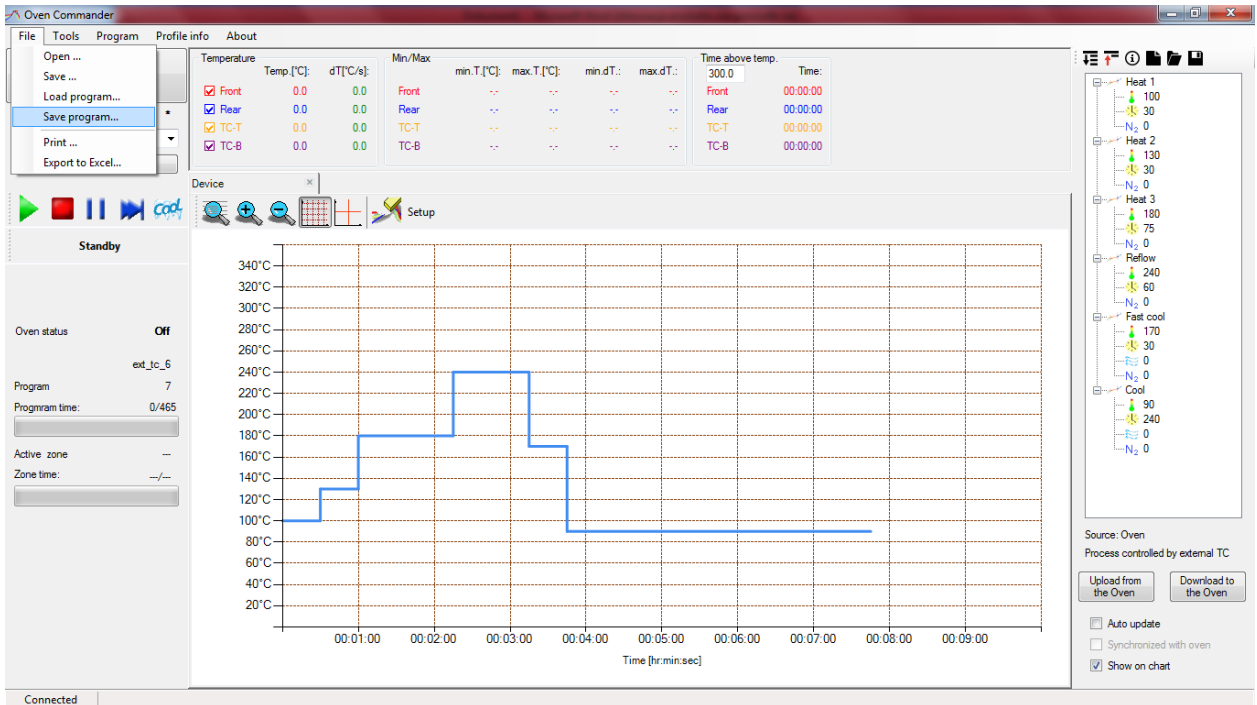
Figure 31

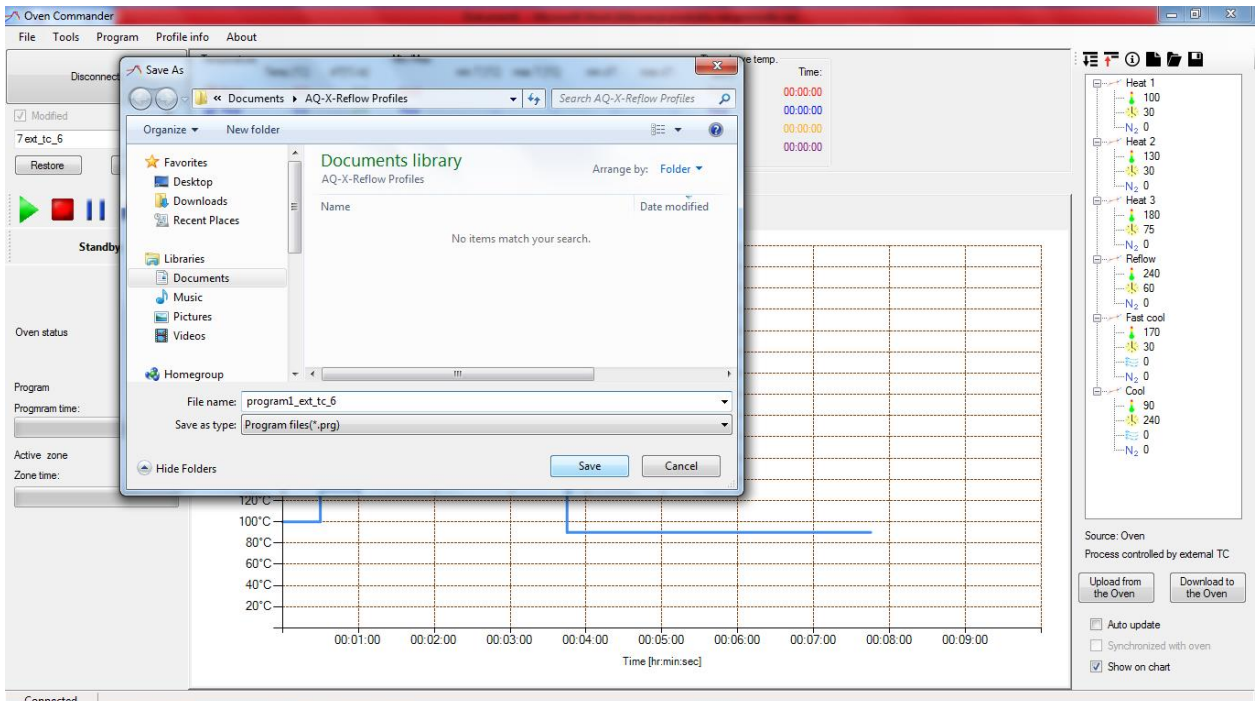2. Choose where you want to save the program and the file name. Then press "Save".

Figure 32

BOKAR International   650 Scranton Pocono Hwy., Covington Twp. PA 18444, USA Tel: (570) 842-2812

e-mail: **bokar@bokar.com**   **www.BestBatchOven.com**   **www.bokar.com**   **www.ESDmeters.com**

XI.   Export the graph to the Excel file

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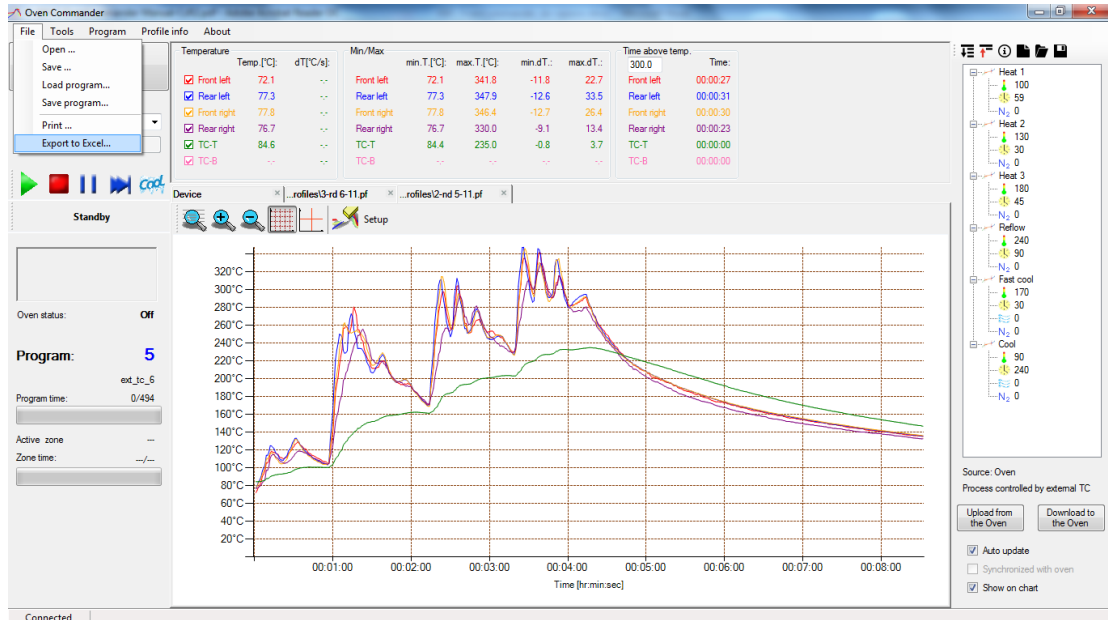Click the "Save" button and the Excel version of your graph will be saved to your specified location.
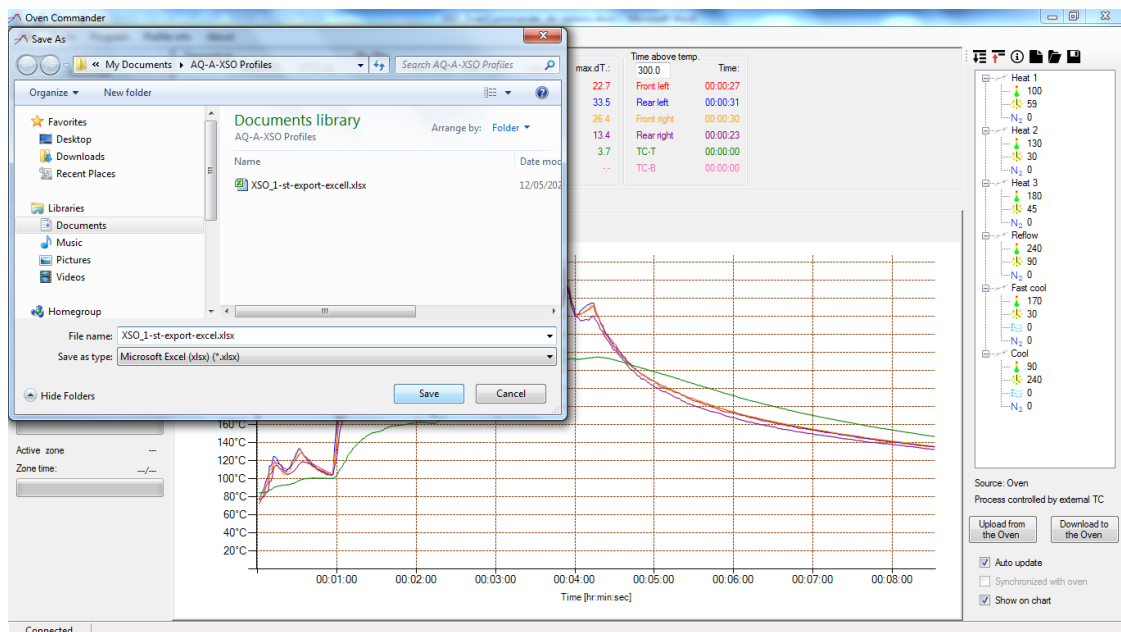

Figure 33

Figure 34

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

Figure 35

XII.   Printing the graphs and profile:

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

Figure 36

BOKAR International   650 Scranton Pocono Hwy., Covington Twp. PA 18444, USA Tel: (570) 842-2812

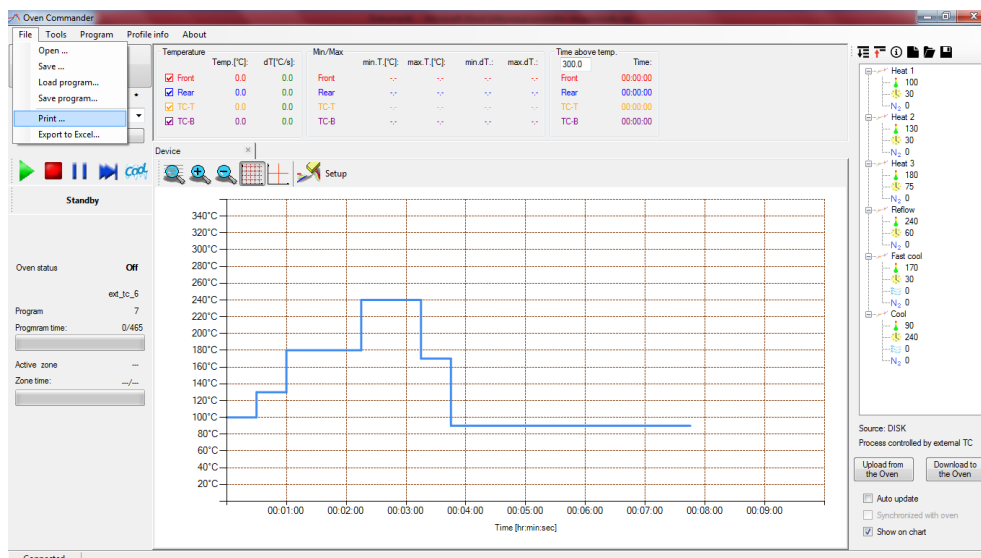e-mail: **bokar@bokar.com**   **www.BestBatchOven.com**   **www.bokar.com**   **www.ESDmeters.com**

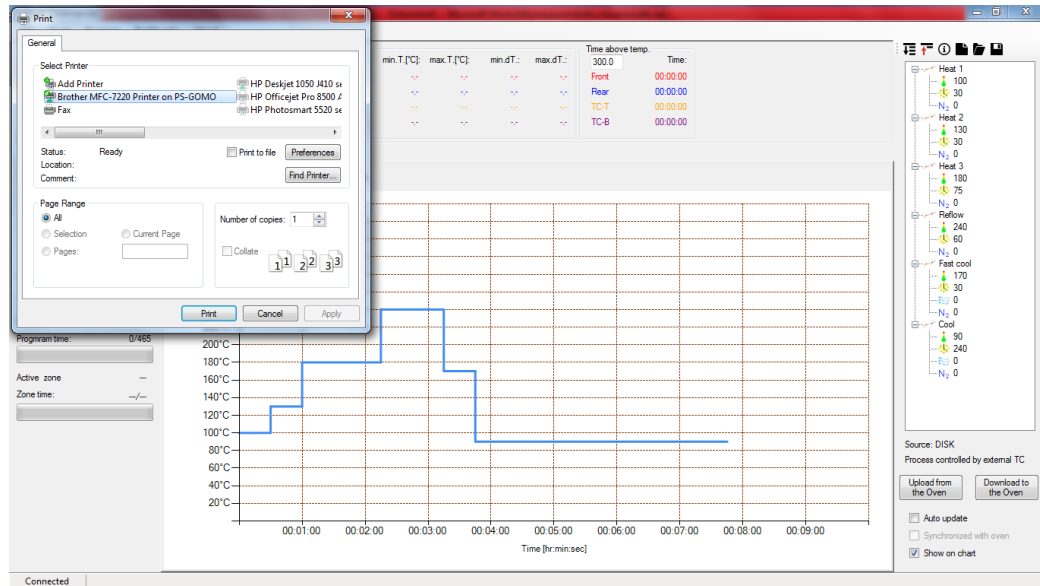Select the printer which you want to use to print your graph. Click "Print"

Figure 37

XIII. OPTIONS

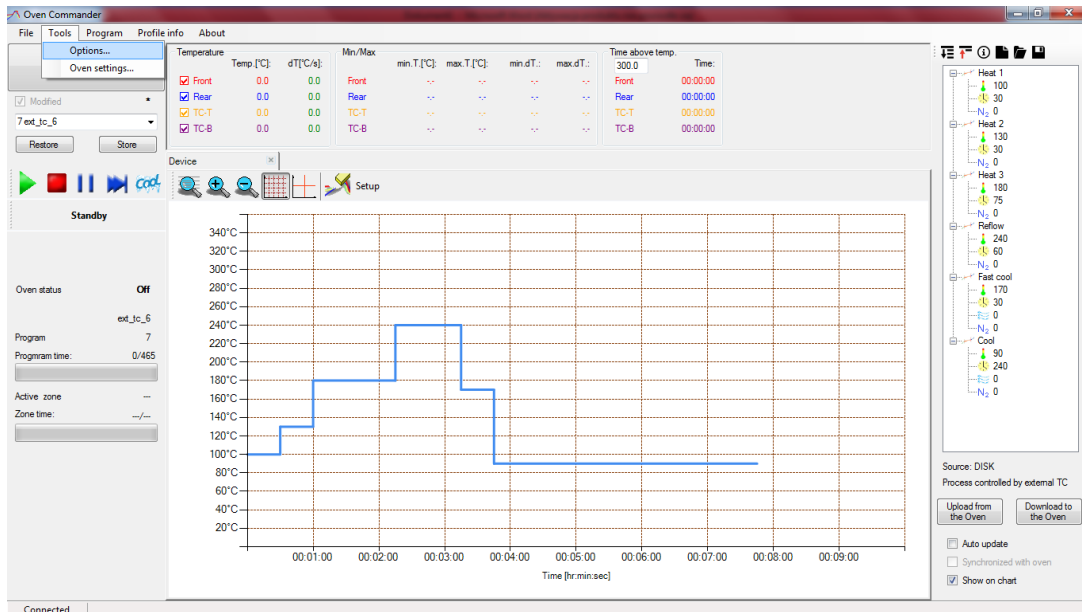From the Main Menu, choose Tools and Options

Figure 38

Temperature scale: Choice of Celsius or Fahrenheit
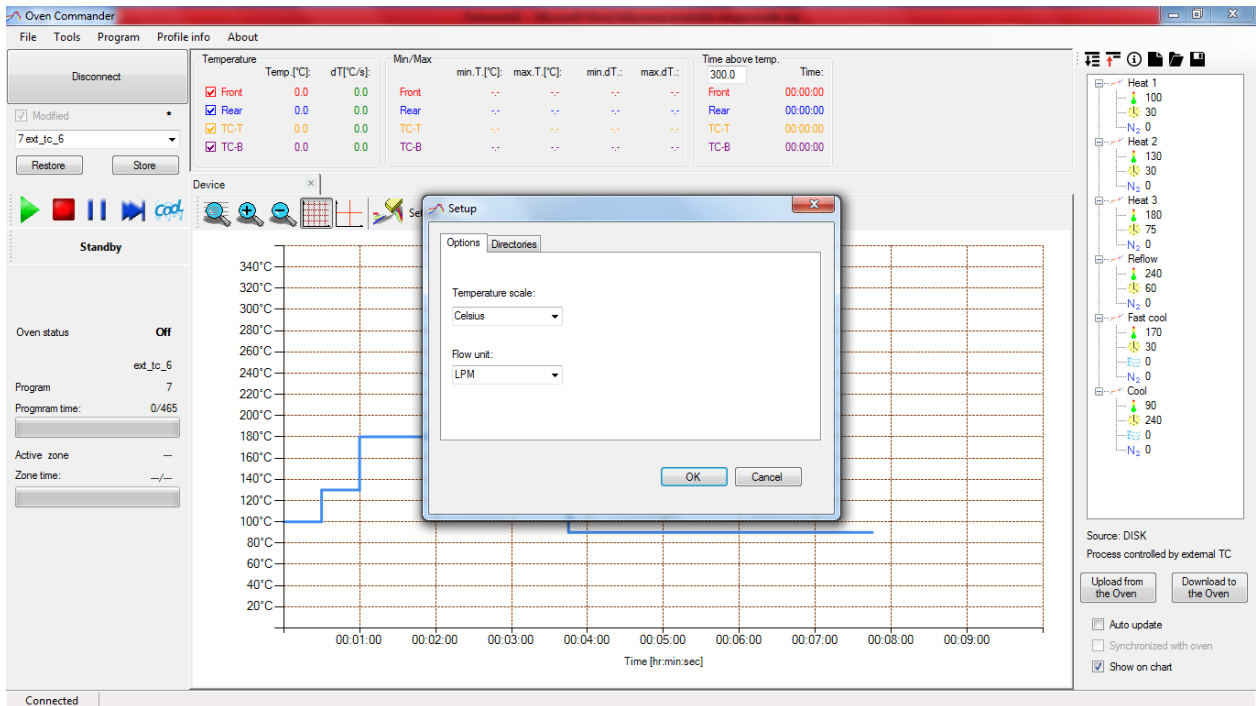
Flow unit: Choice of LPM or SCFM

Figure 39

XIV. OVEN SETTINGS

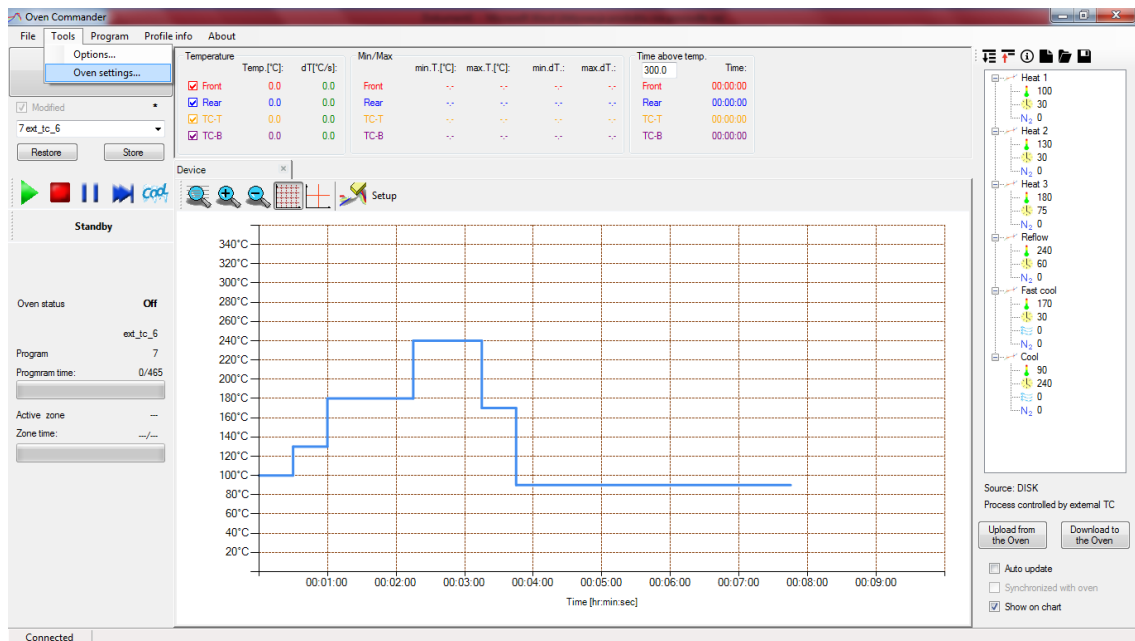From the Main Menu, choose "Tools" and then "Oven Settings".

Figure 40

BOKAR International   650 Scranton Pocono Hwy., Covington Twp. PA 18444, USA Tel: (570) 842-2812

e-mail: **bokar@bokar.com**   **www.BestBatchOven.com**   **www.bokar.com**   **www.ESDmeters.com**
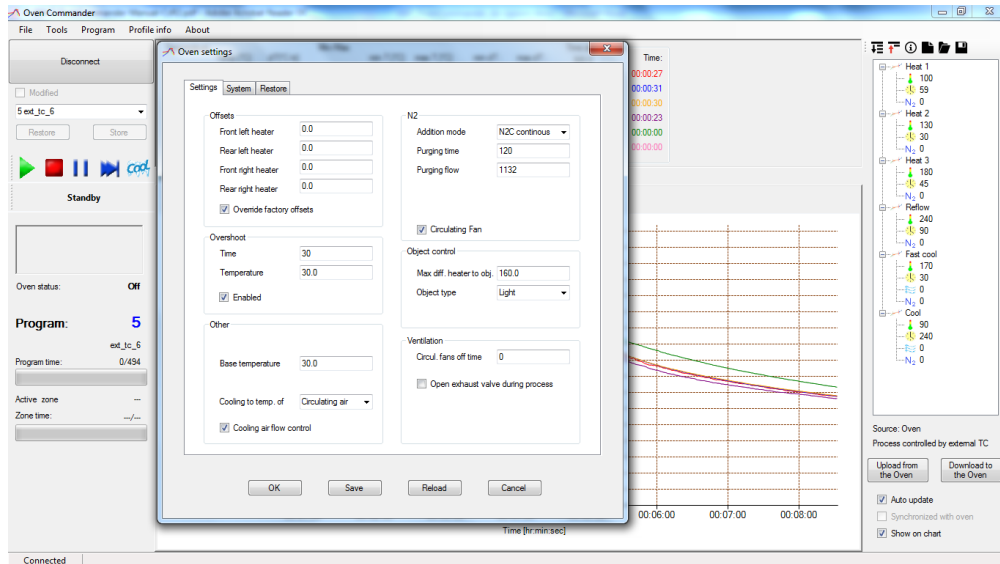
Figure 41

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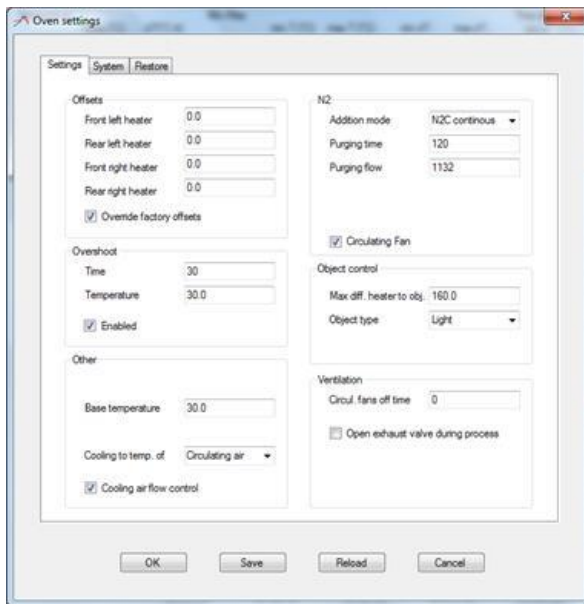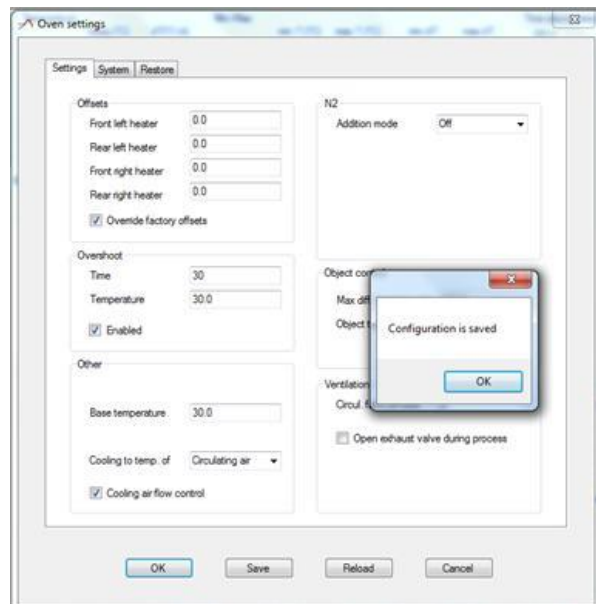

Figure 42

Figure 43

Offsets: Front heater: 0.0 ^{0}C. Possible range: from -20.0 ^{0}C to 90.0 ^{0}C (Celsius).

                 Rear heater: 0.0 ^{0}C. Possible range: from -20.0^{0}C to 90.0^{0}C (Celsius).

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

                 Temperature: Recommended Overshoot is 10 ^{o}C to 30 ^{o}C

Base temperature: Possible range: 0.0 ^{o}C (i.e. OFF) or from +50 ^{o}C to +300 ^{o}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 ⁰C, possible range: from 40.0 ⁰C to 160.0 ⁰C.

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

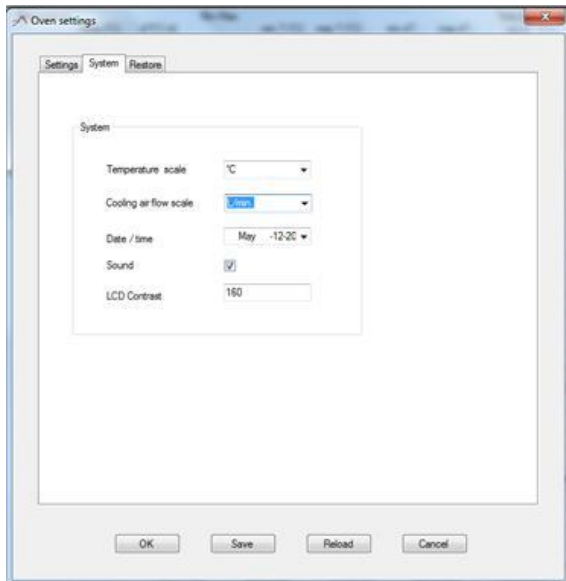# System   - You can adjust the following oven settings from a PC:

Figure 44

Temperature scale:

 ⁰C (Celsius) or ⁰F (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:
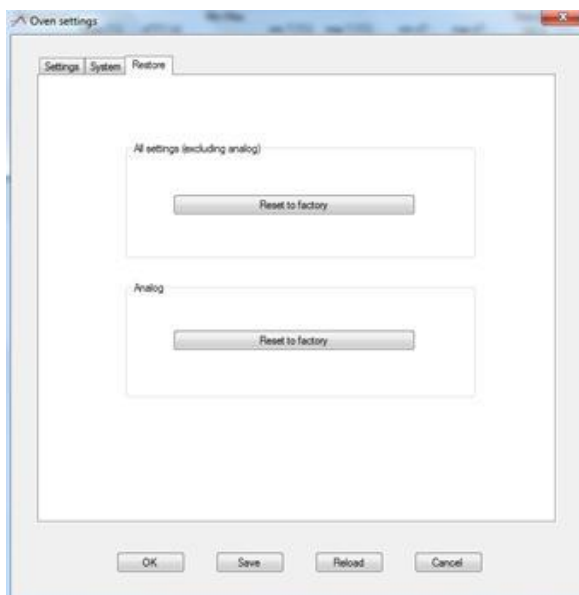

Figure 45

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

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

BOKAR International   650 Scranton Pocono Hwy., Covington Twp. PA 18444, USA Tel: (570) 842-2812

e-mail: **bokar@bokar.com**   **www.BestBatchOven.com**   **www.bokar.com**   **www.ESDmeters.com**
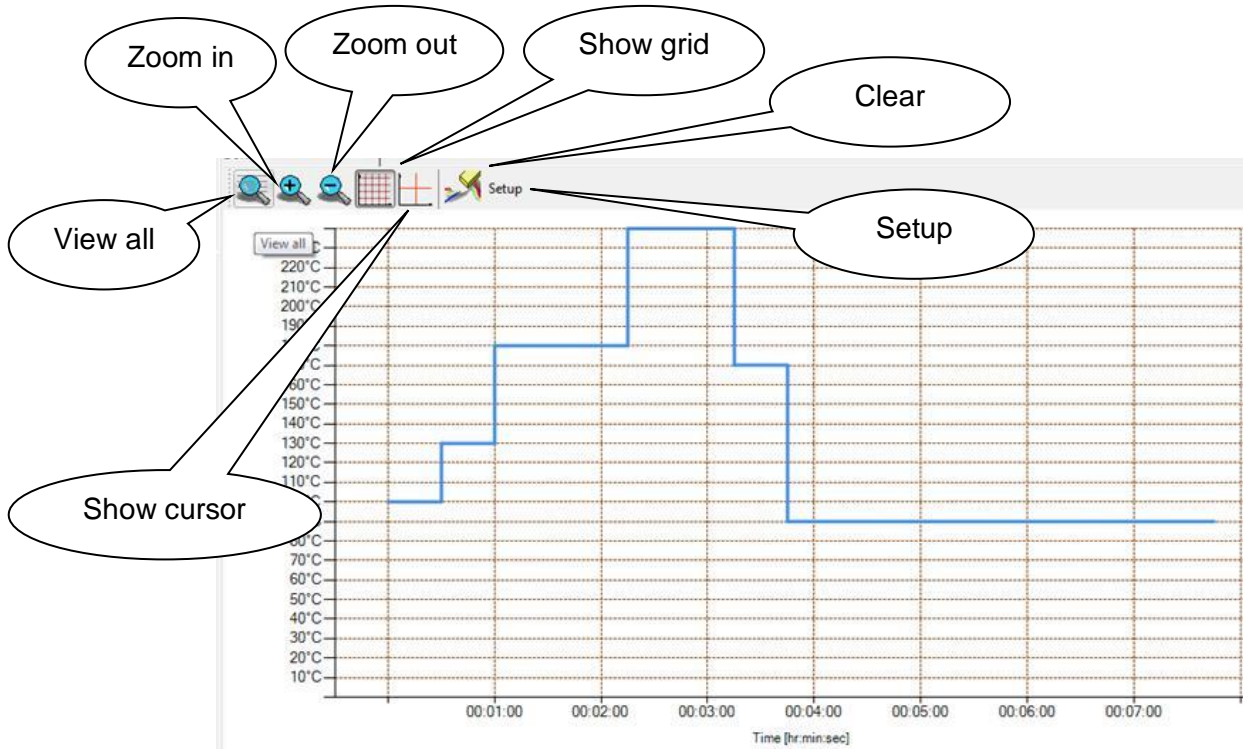
XV.   Icons to adjust the chart

Figure 46

Press "Setup" to adjust axis range

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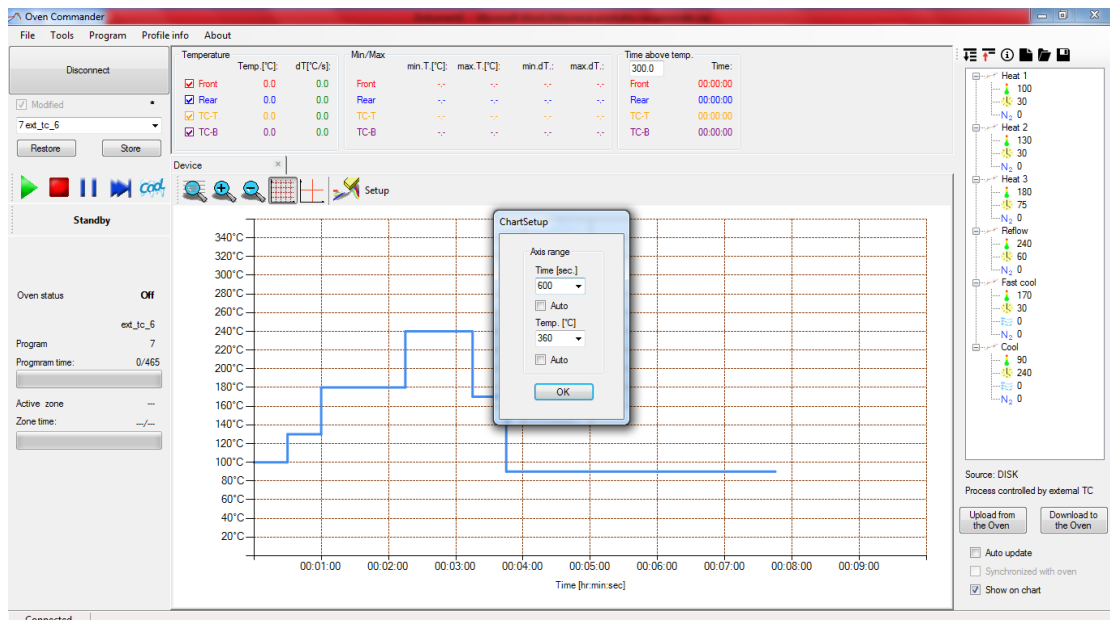**The operator can also click and drag the axis to adjust the values.**

Figure 47

BOKAR International   650 Scranton Pocono Hwy., Covington Twp. PA 18444, USA Tel: (570) 842-2812

e-mail: **bokar@bokar.com**   **www.BestBatchOven.com**   **www.bokar.com**   **www.ESDmeters.com**