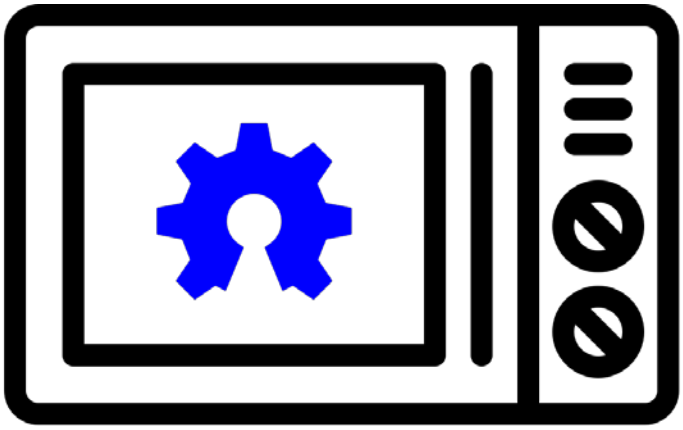
FireFlow Oven Controller

Application Guide

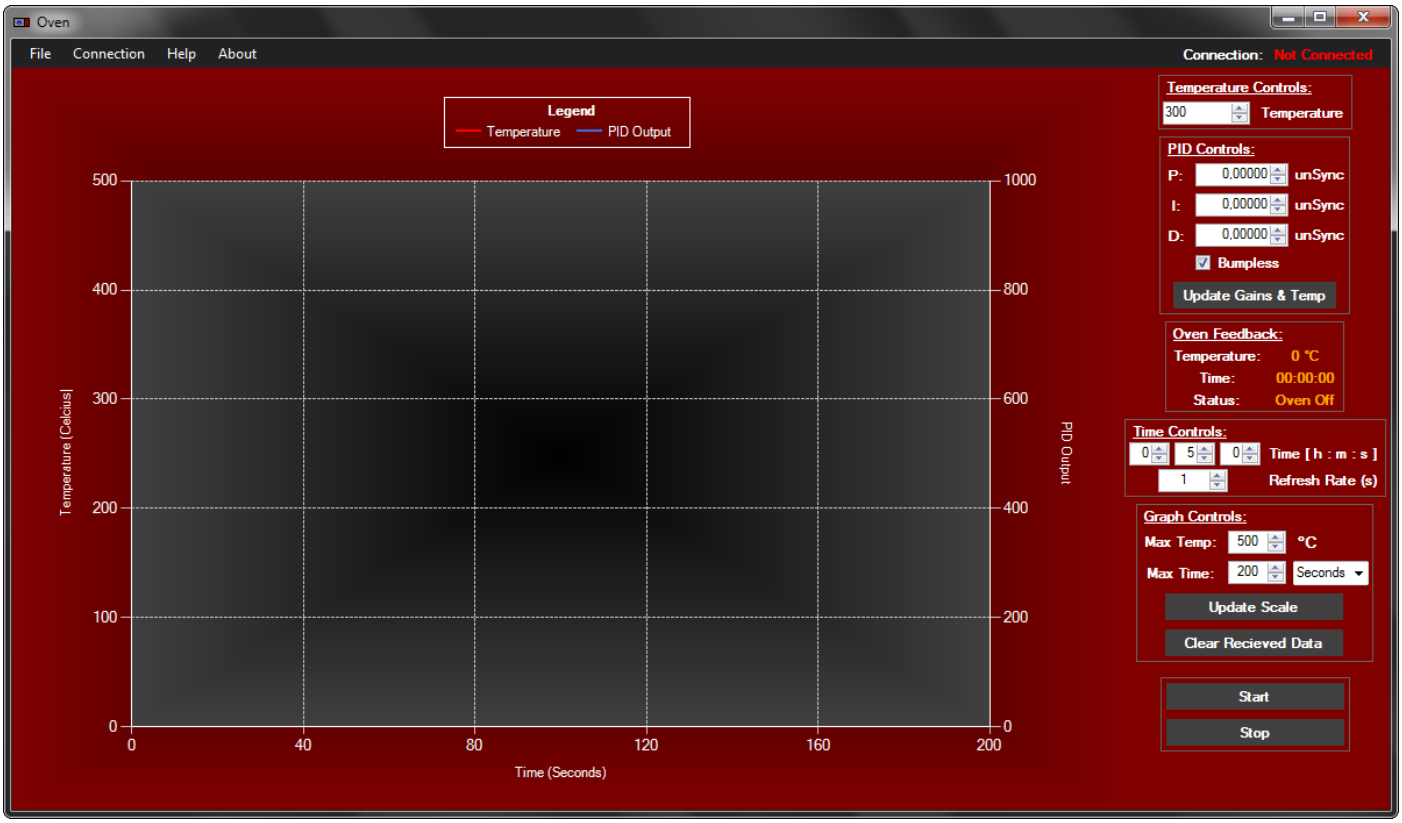


fire flow

FireFlow GitHub Organization: github.com/FireFlowController

Source GitHub Repository: github.com/FireFlowController/FireFlow-Oven

Program View

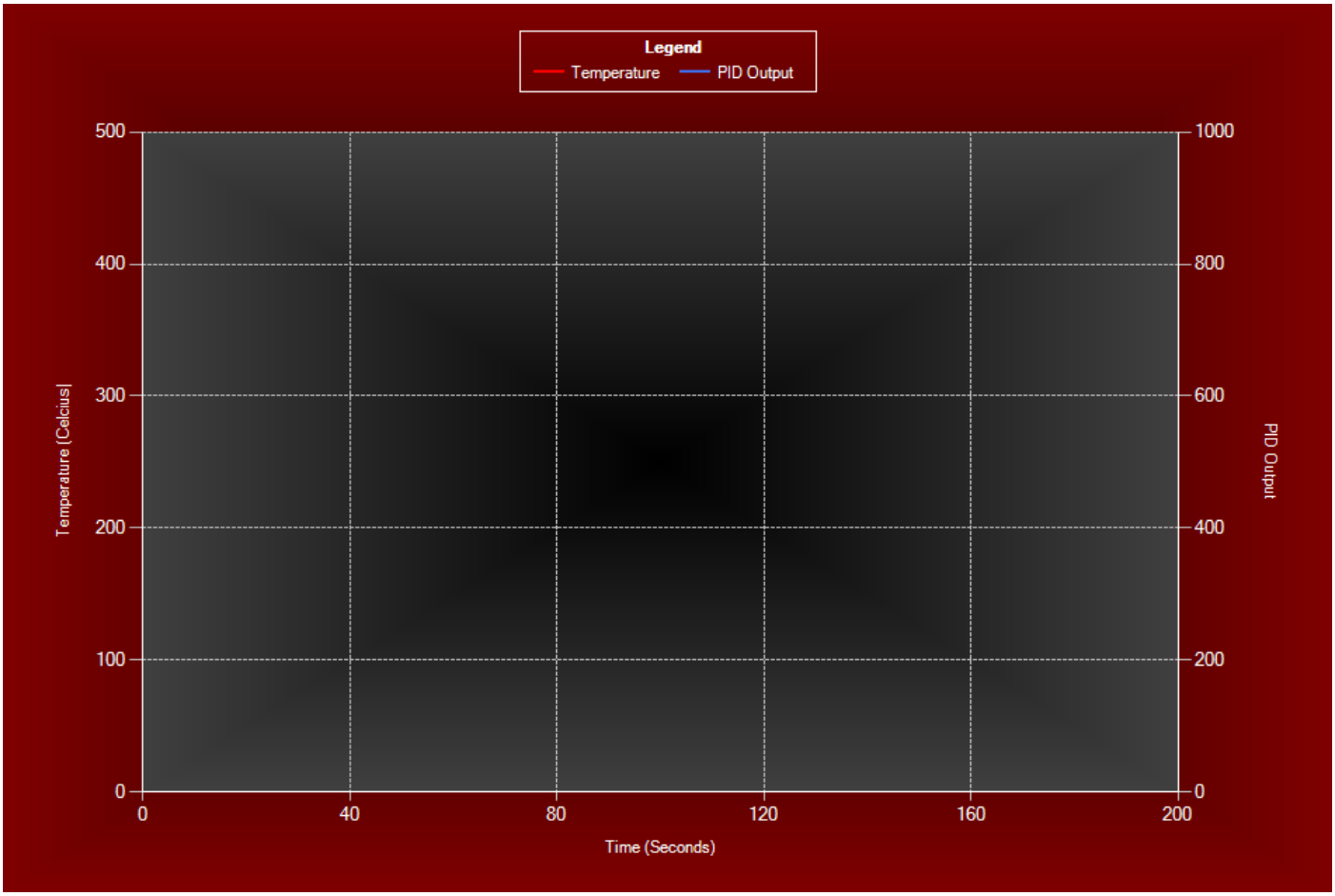


Program requires administrator privileges to access device manager information and display friendly names in COM port list.

Task Bar

1. Export options
2. Establish connection with FireFlow or custom controller
3. Some in program help
4. Info about developers, license etc.
5. Connection status

Chart



Red line: Temperature

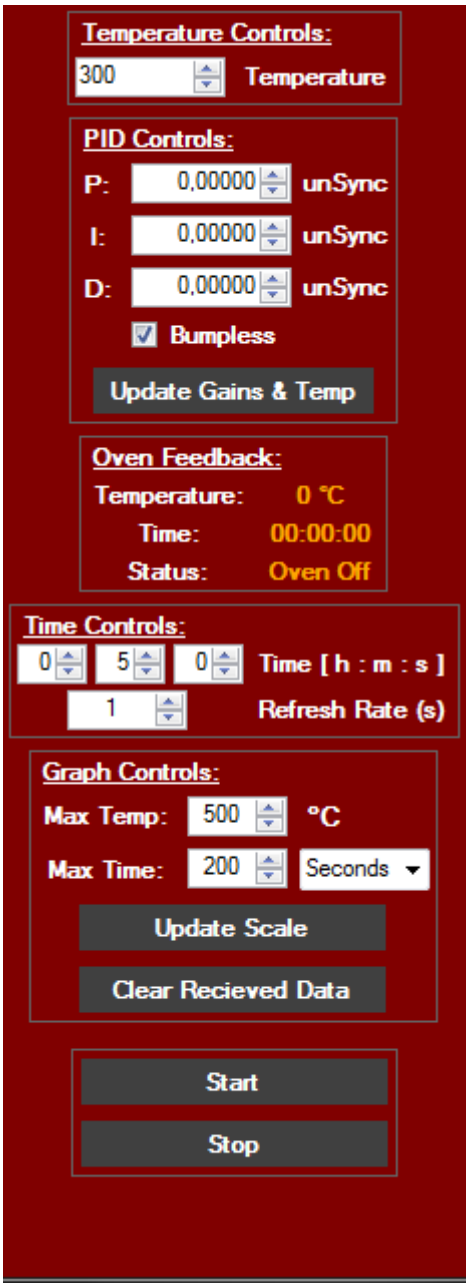
Blue line: PID Output

X axis: Time

Left Y axis: Temperature

Right Y axis: millisecond (heating element on time per second, PID output)

Control



Temperature SetPoint

PID Gains
After every change Update button must be pressed to sync new gain values with controller.
Bumbpless: Enables or disables bumpless gain change.

Feedback from the controller
Temperature, latest on time and status

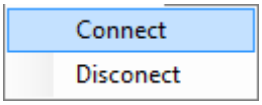
Control how much time oven will be on after start and chart refresh rate.

Chart controls
Maximum displayed temperature and maximum time.
After each change update button must be pressed to apply.
Clears any received data.

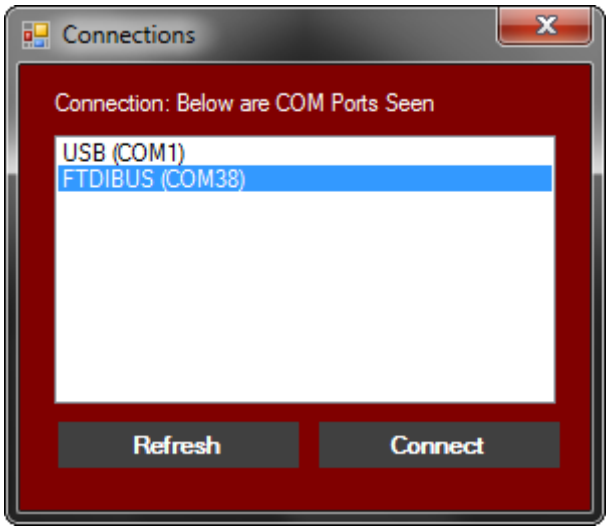
Oven start button
Oven stop button

Control

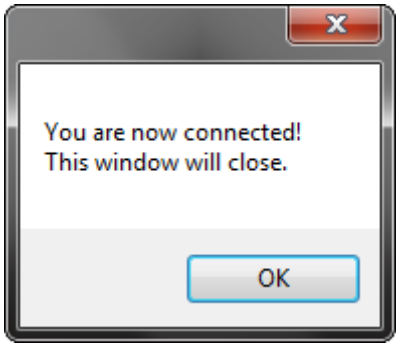
Step 1: In task bar press connection and then choose connect option



Step 2: In pop up choose your controller and then press connect



Step 3: If everything was successful you will see the message bellow, click "ok" and chart will start to update according to refresh rate.



If something goes wrong make sure that you choose the right port. If it continues you can ask for support at https://github.com/FireFlowController/FireFlow-Oven/issues

AT instruction Set

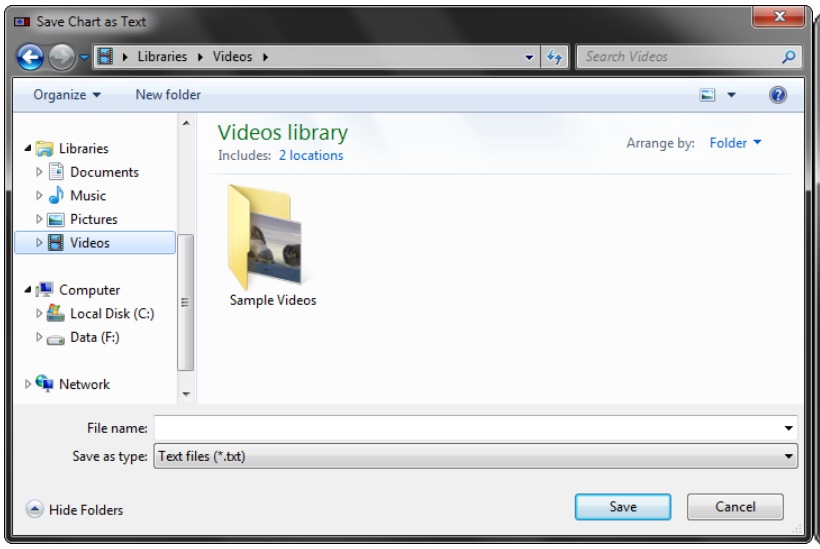
AT Instruction Set			
Function	Command	Respond	Variables
Connect	**"AT+CONNECT\r"**	**"AT OK"**	-
Request Temperature	**"AT+TEMP\r"**	**echo double**	-
Request PID Output	**"AT+PID_OUT\r"**	**echo double**	-
Start Oven	**"AT+OVEN_START\r"**	**"AT OK"**	-
Stop Oven	**"AT+OVEN_STOP\r"**	**"AT OK"**	-
Set SetPoint	**"AT+PID_SET," + SetPoint + "\r"**	**echo uint16_t**	uint16_t
Set Gains	**"AT+SET_GAINS," + P + "," + I + "," + D + "\r"**	**"AT OK"**	float (ex "0.10")
Get Propotional Gain	**"AT+GET_P\r"**	**"float"**	-
Get Integral Gain	**"AT+GET_I\r"**	**"float"**	-
Get Derivate Gain	**"AT+GET_D\r"**	**"float"**	-
Enable bumpless Gain change	**"AT+PID_Clear\r"**	**"AT OK"**	-
Dissable bumpless Gain change	**"AT+PID_NoClear\r"**	**"AT OK"**	-

On every respond there is "\r\n" at the end

Export Options

You can export any data collected for further processing by choosing 'File' -> Export in task bar.

Text: Every value since last clear (even if its not displayed) will be exported to .txt or .csv file



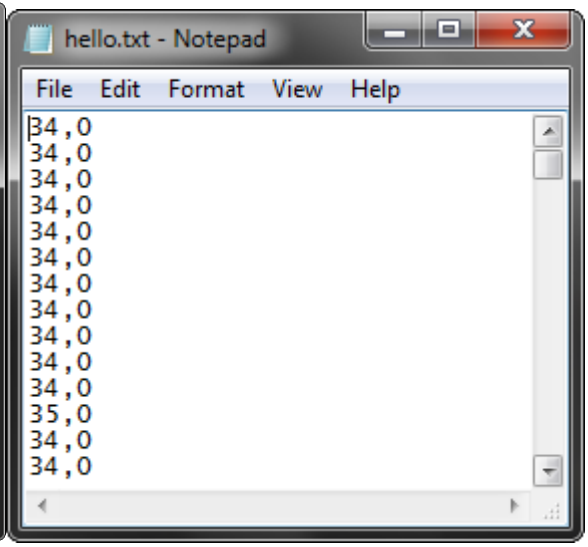


Image: Chart will be exported as image (.bmp .jpg .gif .png .tif) (Default png)