EYE User Manual

iRaptor Hardware and Software User Manual

Software Licensing Agreement and Product Warranty

The iRaptor Software is subject to the following license terms and conditions. Please read this license before you start using the product. If you do not agree to the terms and conditions of this license you may return the software to IRaptor.

1. IRAPTOR SOFTWARE LICENSE

1. This is a software license granted by IRAPTOR. The IRAPTOR software is licensed to you as the end user, it is not sold, and it may not be sold.
2. The IRAPTOR software is copyrighted material. You may use the software as long as you like provided you do not violate the copyright and if you follow these simple rules.
3. The IRAPTOR software is sold with one or more pieces of hardware called profiler and Software Dongle/Wi-fi base station. This License allows you to use the IRAPTOR software with the hardware purchased. You may copy the software to as many computers as you like, without the dongle the software will only have viewer access. You may not make any changes or modifications to the licensed software, and you may not decompile, disassemble, or otherwise reverse engineer this software.

2. LIMITED WARRANTY

1. Warranty period. The warranty period is two years from initial delivery to customer. What is covered by the Warranties: *IRAPTOR* warrants that the Hardware, Software, and Documentation are free from defect in material and workmanship under normal use. *IRAPTOR* warrants that the system as a whole will perform substantially in accordance with the specifications set forth in the provided Documentation.
2. Warranty "rated temperature" clarification. Much of the IRAPTOR hardware is rated by *IRAPTOR* to perform up to a certain temperature. Any hardware that is determined by *IRAPTOR* to have been exposed to temperatures above its rated temperature will not be covered under this Warranty.

3. Obligations of IRAPTOR During the Warranty Period

1. To qualify for warranty, the unit must be free from any signs of tampering
2. Replacement. IRAPTOR will replace any product that proves defective in materials or workmanship, without additional charge, on an exchange basis.
3. Correction of Software. IRAPTOR will either replace or repair without additional charge any software that does not perform in substantial accordance with the specifications of the Documentation. This will be done by delivering to you a corrected copy of the software or corrective code.
4. Final Remedy. If IRAPTOR is unable to replace defective documentation or defective media, or if IRAPTOR is unable to provide a corrected copy of the software or corrected documentation within a reasonable time, IRAPTOR will replace the software with a functionally similar program.

4. Exclusion of Other Warranties

1. IRAPTOR does not warrant that the functions contained in the software will meet your requirements or that the operation of the software will be uninterrupted or error free. The Warranty does not cover any copy of the software that has been altered or changed in any way by you or others. IRAPTOR is not responsible for problems caused by changes in the operating characteristics of the computer hardware or operating system which are made after delivery of the software.
2. IRAPTOR SHALL NOT IN ANY CASE BE LIABLE FOR SPECIAL, INCIDENTAL, CONSEQUENTIAL, INDIRECT OR OTHER SIMILAR DAMAGES ARISING FROM ANY BREACH OF THESE WARRANTIES

EVEN If IRAPTOR OR ITS AGENT HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations of exclusion may not apply to you.

3. IRAPTOR does not warrant components that are considered consumables. It is important that the 2x AAA Ni-MH (Nickel–metal hydride) batteries are correctly stored, charged and used. Severely misused batteries will void the warranty.
4. Improper handling of the EYE may limit our liability for damage to equipment and may also violate your instrument warranty. Improper handling or use could impair the protection provided by the equipment.

5. Other Conditions

1. The warranties set forth above are in lieu of all other express and implied warranties, whether oral, written, or implied, and the remedies set forth above are your sole and exclusive remedies. Only an authorized officer of IRAPTOR may make modifications to this warranty, or additional warranties binding to IRAPTOR. Additional statements such as advertising or presentations, whether oral or written, do not constitute warranties by IRAPTOR and should not be relied upon as such. This Warranty gives you specific legal rights, and you may also have other rights, which vary from country to country.

6. LIMITATION OF LIABILITY

1. In no case shall *IRAPTOR's* liability exceed the license fees paid for the right to use the Licensed Software.

CONTENTS

EYE CHARACTERISTICS

Welcome!

Welcome to a new generation of profilers. The EYE was developed by expert engineers after realizing that the existing solutions in the market were not responding to the needs of today's technology.

The iRaptor solution will help you optimize your production and the efficiency of your processes. The main product specs are described below.

Spec Requirements:

-0C till 75C internal operating temperature
-Accuracy +/- 0.5C
-Resolution 0.1C
-Sample Rate 0.1 to 50 readings per second
- Temperature range –250C to 1200C
-Wi-Fi 2.4 GHz
-Thermocouple compatibility 6 channel K type, Standard
-XYZ Accelerometer
-2x Pyrometer
-4 x Led's for battery level
-4 x Led's Unit Status
-Dimensions L x W x H mm
    Profiler dimensions 120 x 65.5 x 14.5 mm
    Shield dimensions Stainless Steel 281 x 78 x 24 mm
    Shield dimensions With Insulation 281 x 80.5 x 27.5 mm
-Power internal 2x batteries AAA Ni-MH rechargeable through USB-C

EYE Profiler Kit contents:

1) 6 channel profiler
2) USB Wi-Fi Dock station
3) Thermal Shield
4) Carrying Case
5) Profiler Carrier
6) USB-C to USB-C cable or USBA to USB-C cable
7) Profiling Protective Gloves
8) 6 Thermocouples Type K
9) Scissors
10) 6x Aluminum tape strips
11) Quick Reference Manual
12) 2 Year Warranty (excluding batteries)

Installing the EYE Software

Minimum PC Requirements

- 1 Ghz or faster with 2 or more cores, 4GB RAM.
- 64 GB or larger storage device.
- 1 or more available USB type A ports
- Operating system: Microsoft® Windows® 10 or upwards

Languages

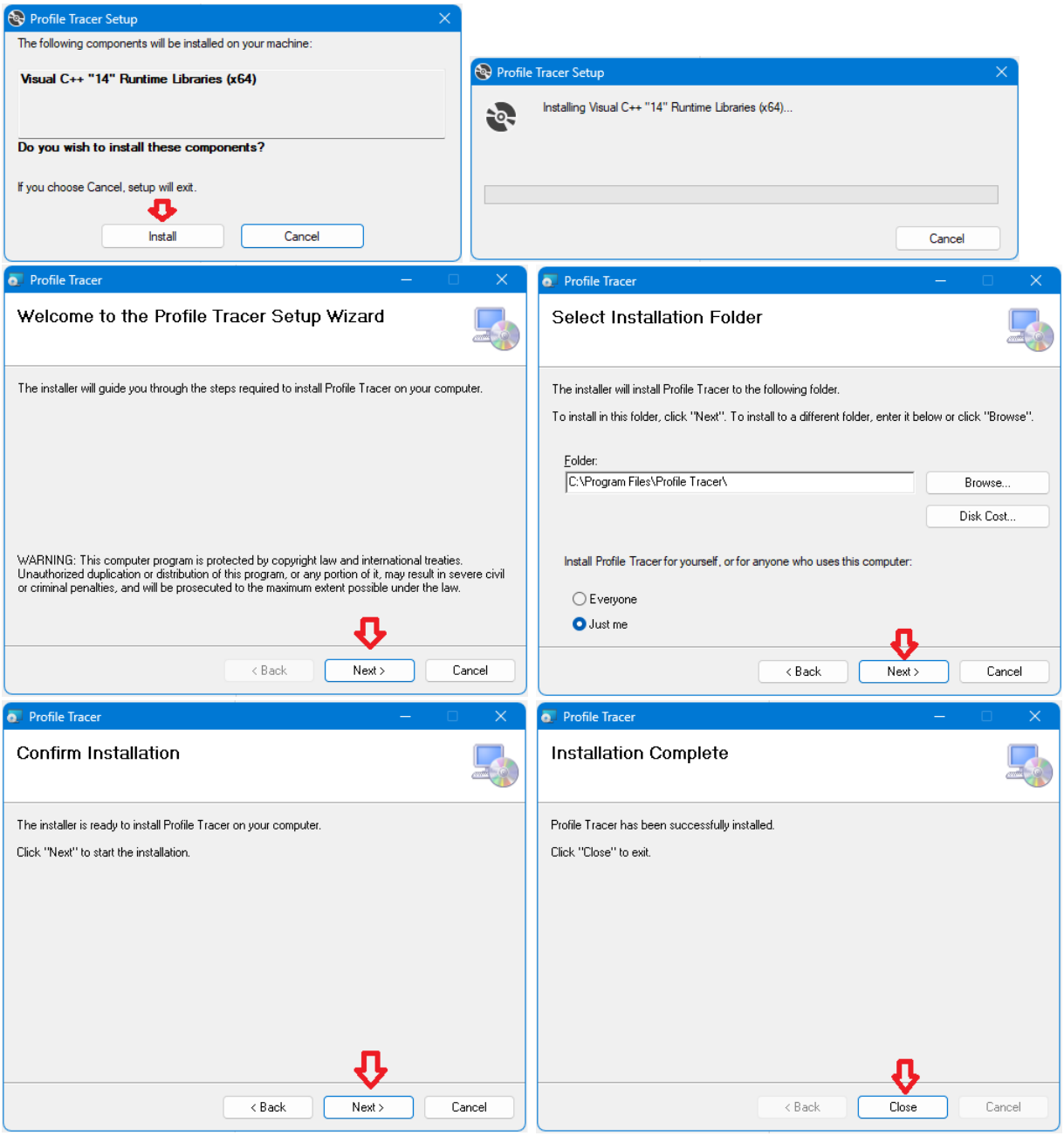
EYE currently only supports the English language. More languages will be added soon.

Software Installation

The software is provided on the webpage https://www.btu.com, from which you should download the file SETUP.EXE to start the installation process. Follow the instructions for the installation program as the screens are updated.

If prompted by the OS to allow this app from an unknown publisher to make changes to your device", please choose "Yes".

You may need to click on icon  on the taskbar before the above dialog box appears.



EYE Hardware

The EYE comes standard with 6 functional Type K thermocouple channels and performs as a wireless or datalogger unit. It uses a dongle to enable functionalities on the EYE Software and it is also a Wi-fi base station for the data transmitted.

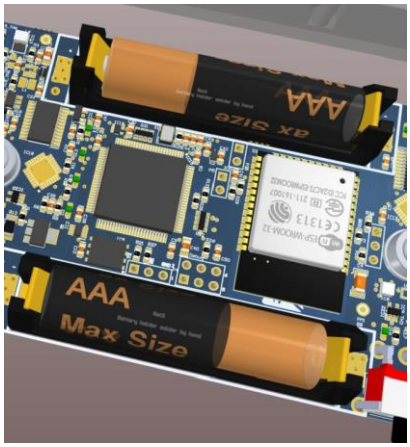
Figure 1

How to install or change the battery on your EYE unit

This battery replacement procedure should only be performed after warranty on the unit expires to prevent the warranty to be voided (these batteries are considered a consumable not being covered by warranty).

You must contact EYE or an authorized distributor to be provided with genuine batteries with correct specifications. Installing the wrong type of battery can reduce usage time, incompatible charging voltage, and even damage the device.

Use a screwdriver to remove the screws on the battery cover, on the bottom side of the EYE unit. Remove the old pair of batteries with the new pair of batteries in right polarity direction. Reposition the cover and tighten the screws again.



Battery Life

A single battery charge on the EYE should last for around 2.5 hours with wifi mode and 7.5 hours of dataloger mode, however this can change due to operating temperatures and/or the amount of variables selected for data collection.

The profiler is designed to operate in temperatures between 0ºC and 75ºC. After exiting the oven, it is expected for the device to take a while to cool down, therefore handle the device with the necessary care and appropriate tools, such as heat-resistant gloves.

PLEASE NOTE: If during operation the battery becomes heat damaged or corrosive, replace it immediately. Failing to do so can lead to damage to the profiler and/or the user itself.

Hardware Configuration

How to connect your Profiler to the Computer

Please start by installing the EYE software on your computer.

The unit may need to be charged using the supplied USB cable.

After installing the EYE software, please connect the Dongle to the computer's USB port.

Turn on the EYE unit using the ON/OFF switch. The battery indicators should light up, all 4 initially and then only the ones closest to the current battery capacity (0, 25%, 50%, 75%, Full).

The EYE software should connect automatically to the EYE unit.

Operating the Profiler

Prior to any test inside a heated oven, the EYE unit must be placed inside the provided heat shield, in which it should remain at all times during operation. Failure to do so will result in incorrect measurements and in severe damage to the unit itself.

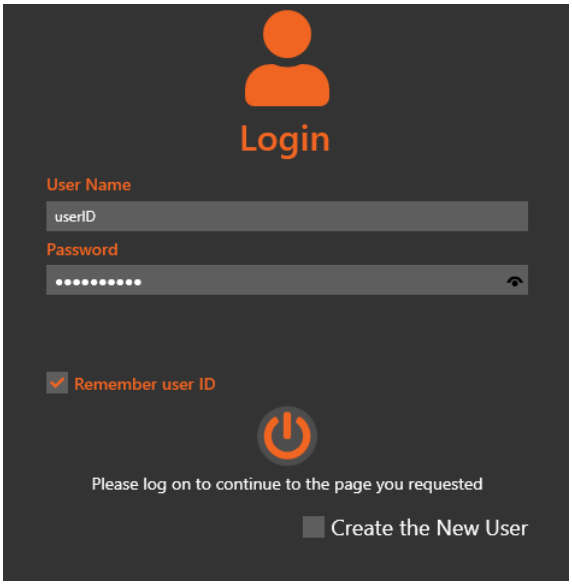
Loading the EYE unit into the Thermal Shield

Place the EYE unit on the bottom half of the provided thermal shield, taking care that:

- The unit should rest flat on the insulation bed inside the shield.
- The unit should sit with the battery indicators and pyrometer openings facing up;
- The thermocouple wires should exit from the front and the back of the thermal shield;
- The TC's wires must be routed over the top of the unit and never below the unit. This will prevent the unit to be tilted affecting the pyrometers alignment with the lenses.

- The pyrometers should be visible through the lenses on the thermal shield. Take care not to cover the pyrometers when routing TC wires over the profiler.
- Before closing the shield, do not forget to turn the EYE unit ON. The Power ON led indicator should turn red;
- Close the top half of the Thermal Shield and secure it in place with the latching mechanism. Take care to avoid damage to the thermocouple wires.

Using & Understanding the Software

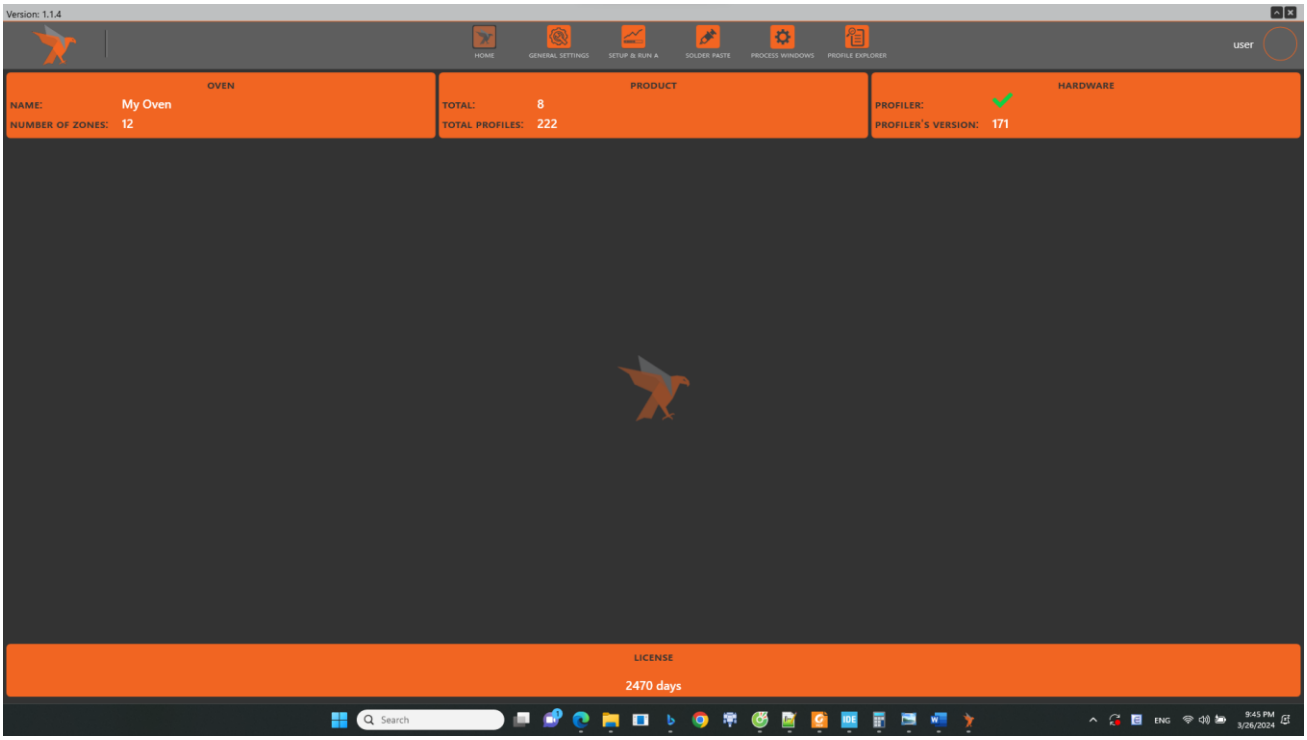


If you are a new user, please proceed as follows:

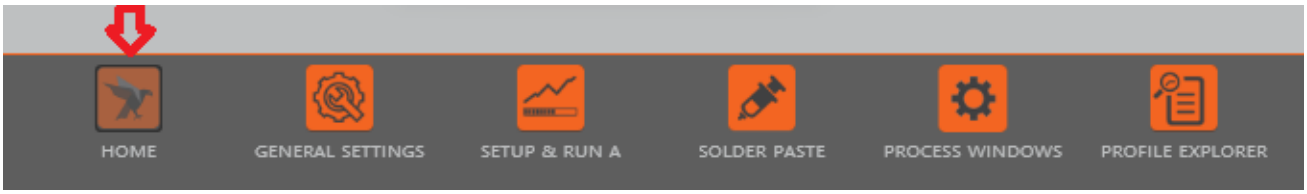
- Start by inserting your chosen/defined user name and password[1].
- Click on “Creating a New User”.
- The “Confirm Password” text box will appear, so that your login information can be stored.
- Choose your preferred language (more language will be added later).
- Choose if you wish the software to remember your ID information. Not clicking this option will require the user to insert the password in every new usage of the app.
- Click on the Power button to proceed  ;
- Regular users are only required to insert the user name and then pressing the Power icon;

[1] - Please check with your Systems Administrator for any policies on defining user names to internal software.

HOME (MAIN SCREEN)



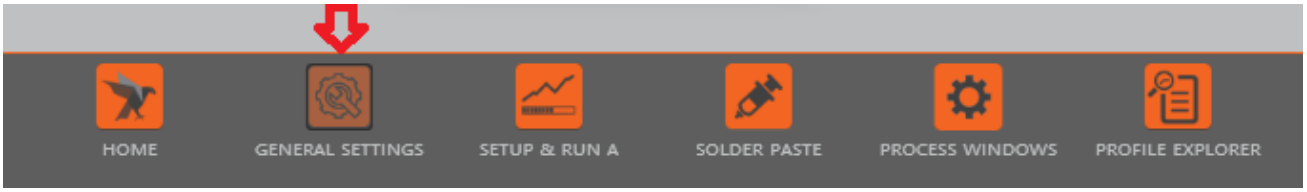
The HOME screen is the main screen from where you can manage all operations. It presents you with 6 main options:



While in any of these sections, if you wish to return to the main screen, simply press the “HOME” button.

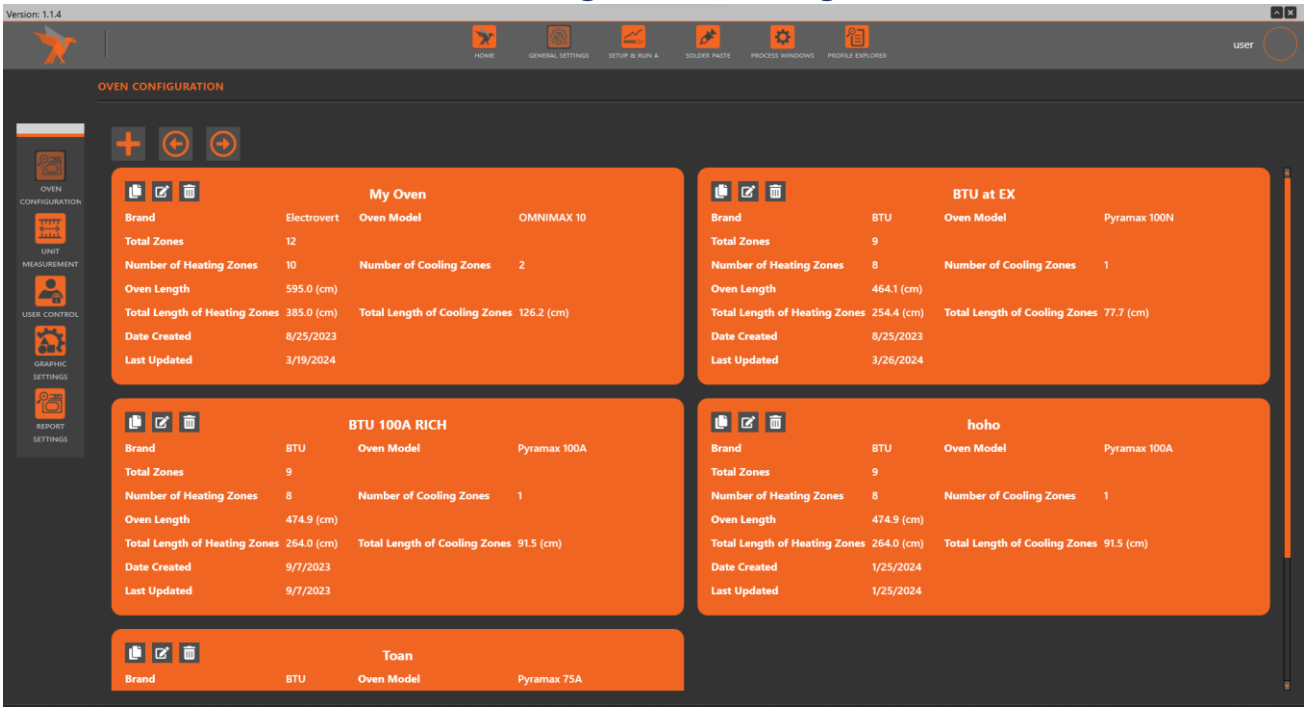
We will now guide you through each one of these options individually:

GENERAL SETTINGS



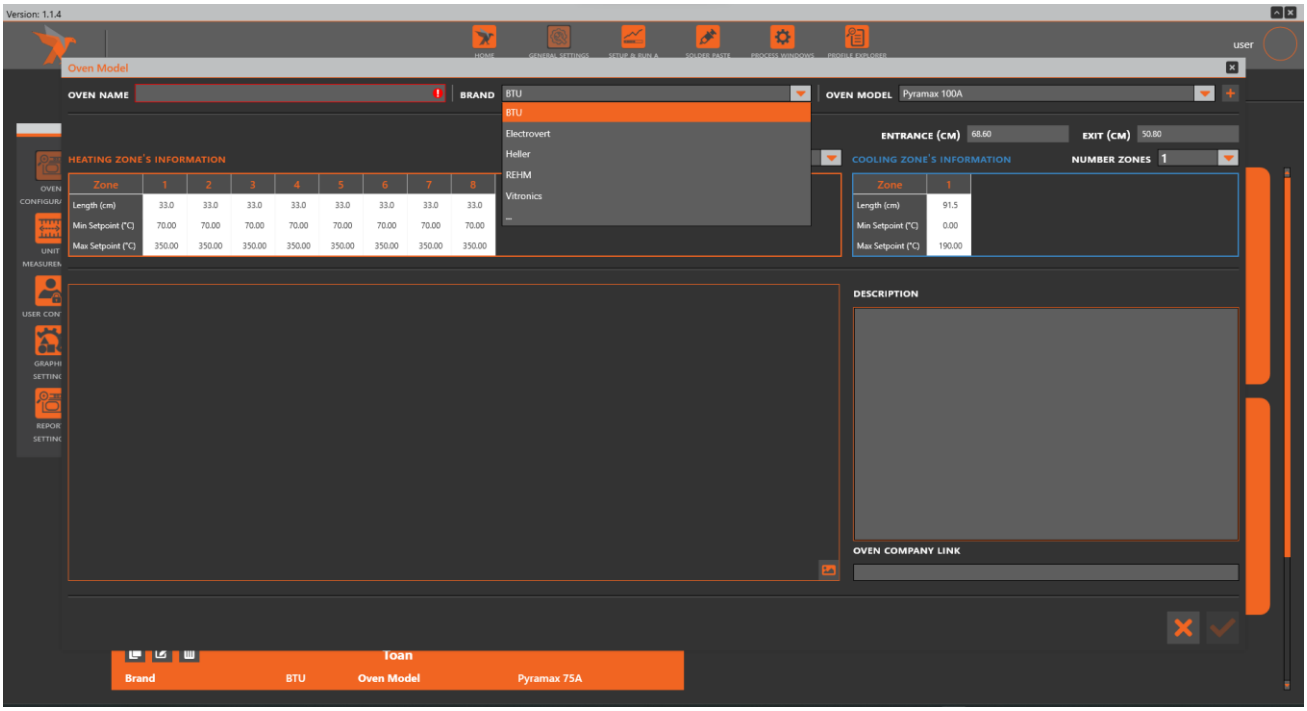
In this screen you can adjust your preferences regarding the software itself as well as the main operating characteristics, such as oven properties.

General Settings - Oven Configuration



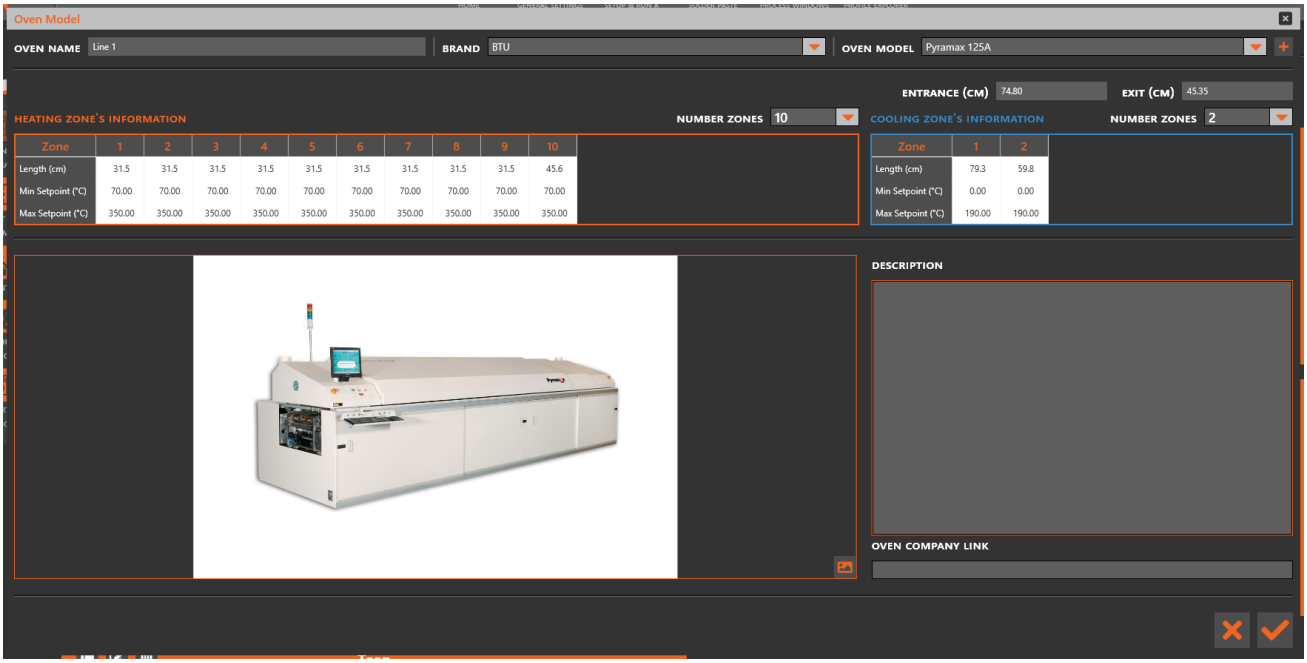
The initial screen will show you the oven setup you have created. If blank you will need to define a new oven setup.

- Click on the PLUS sign  to enter the Oven Settings screen.



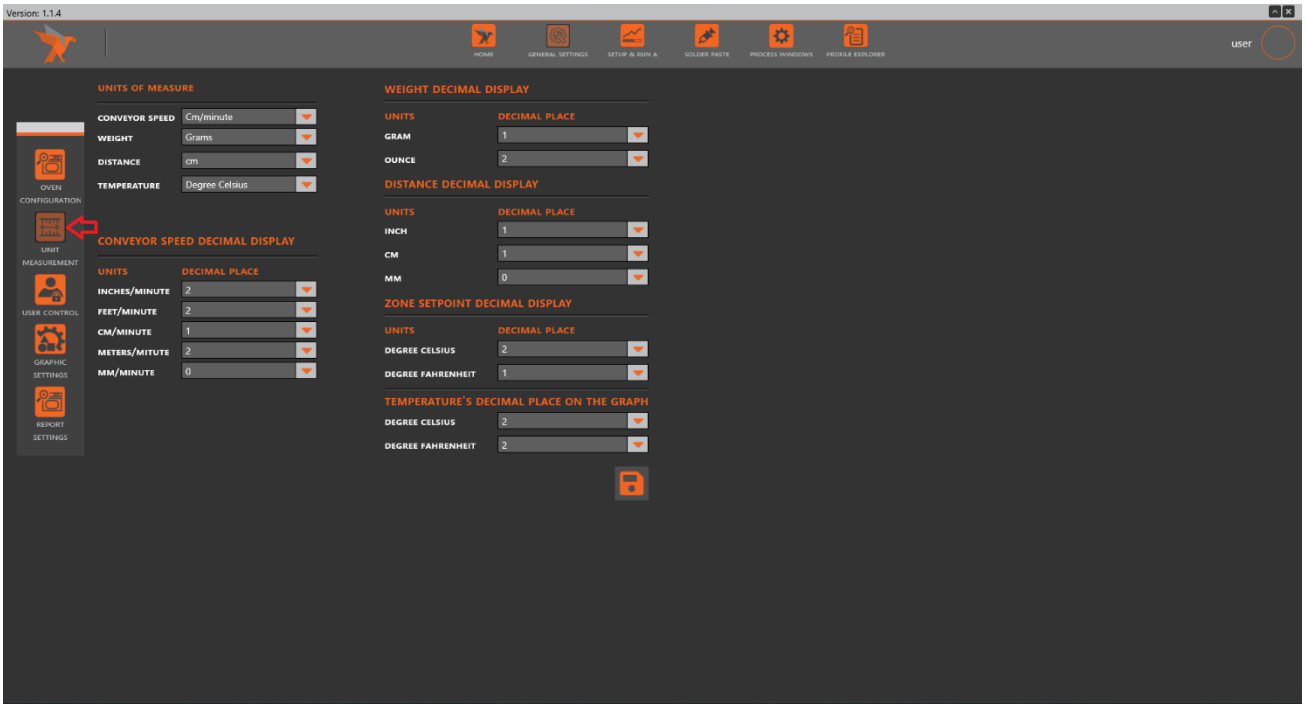
Here you can define the oven characteristics. The software has a database with the main make & models on the market, so the heating zones characteristics will update automatically according to your selection of “Brand” and “Oven Model”. (Please verify with your oven manual that the settings are correct).

If your oven brand and model are not visible, you can define your oven's settings either by selecting the Brand option "--" or selecting the plus sign at the top right corner, next to the "OVEN MODEL" drop down option. Please be aware of the importance of properly defining key aspects of the oven's operating properties, such as the number of Heating and Cooling Zones, Length of each Heating/cooling zones, also the Length of the Oven Entrance and Oven Exit. As all of these dimensions will have a direct impact on the outcome of the profiling operation.



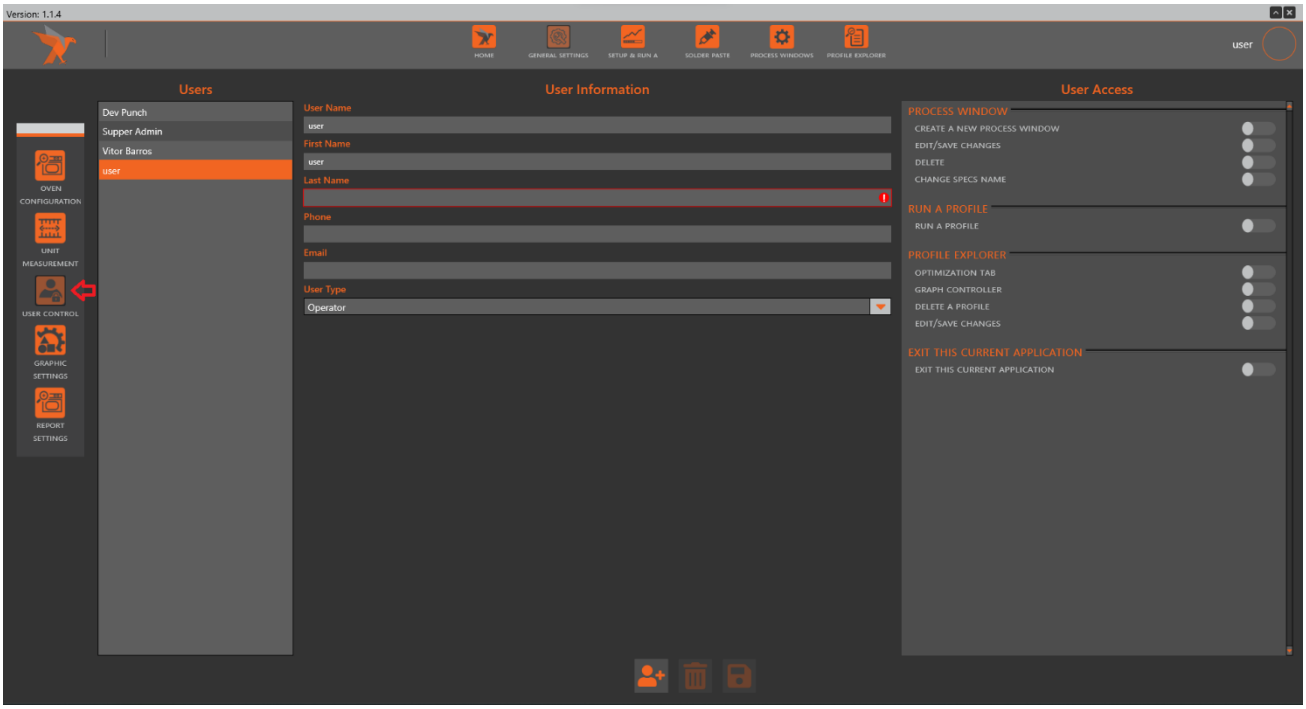
General Settings - Unit Measurement

On this screen you can set the preferred different types of units, as well as the decimal characters on each displayed unit.



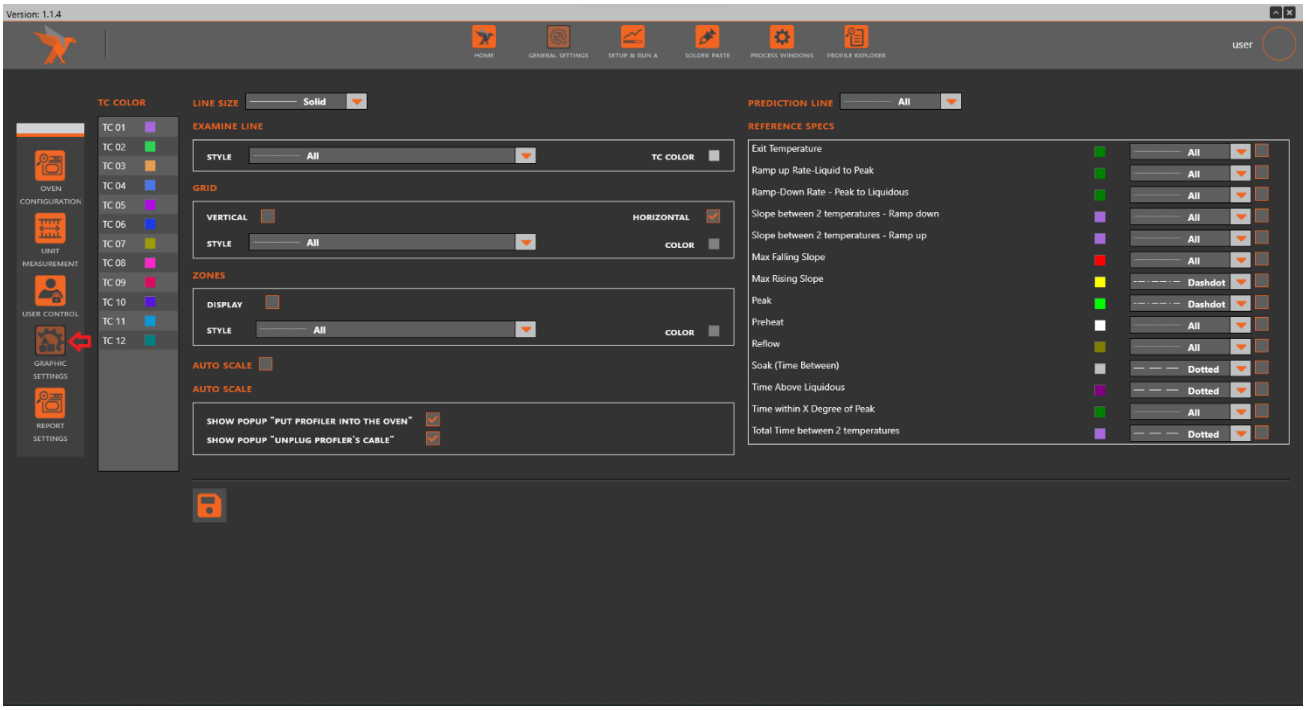
General Settings - User Control

On this screen the administrator can create new users and define what type of access each one will have.



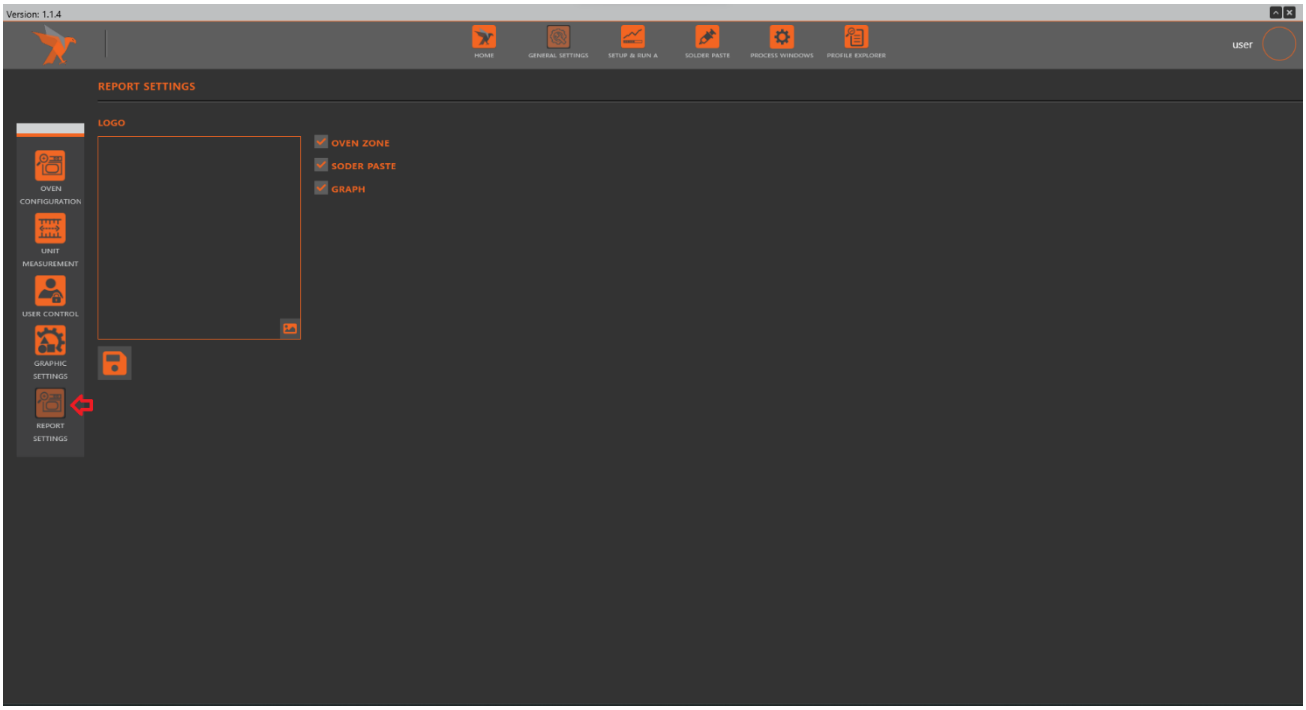
General Settings - Graphic Settings

On this screen you can change the appearance of the graphics created by running a profile. You can assign a different color to each Thermocouple, and customize the lines' appearance on the chart.

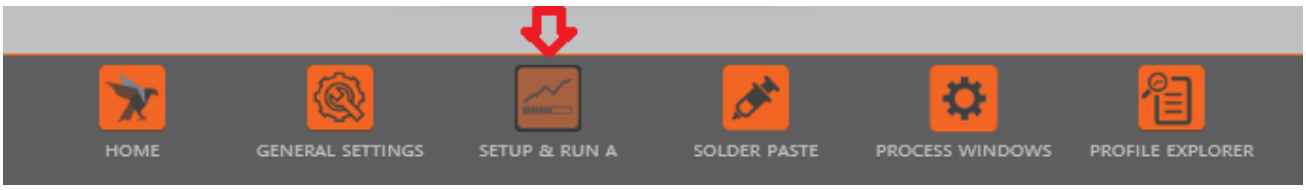


General Settings - Report Setting

Here you can customize how the profile report will appear, specifically by inserting your company logo, and enable other elements present on the report.



SET UP AND RUN A PROFILE MENU



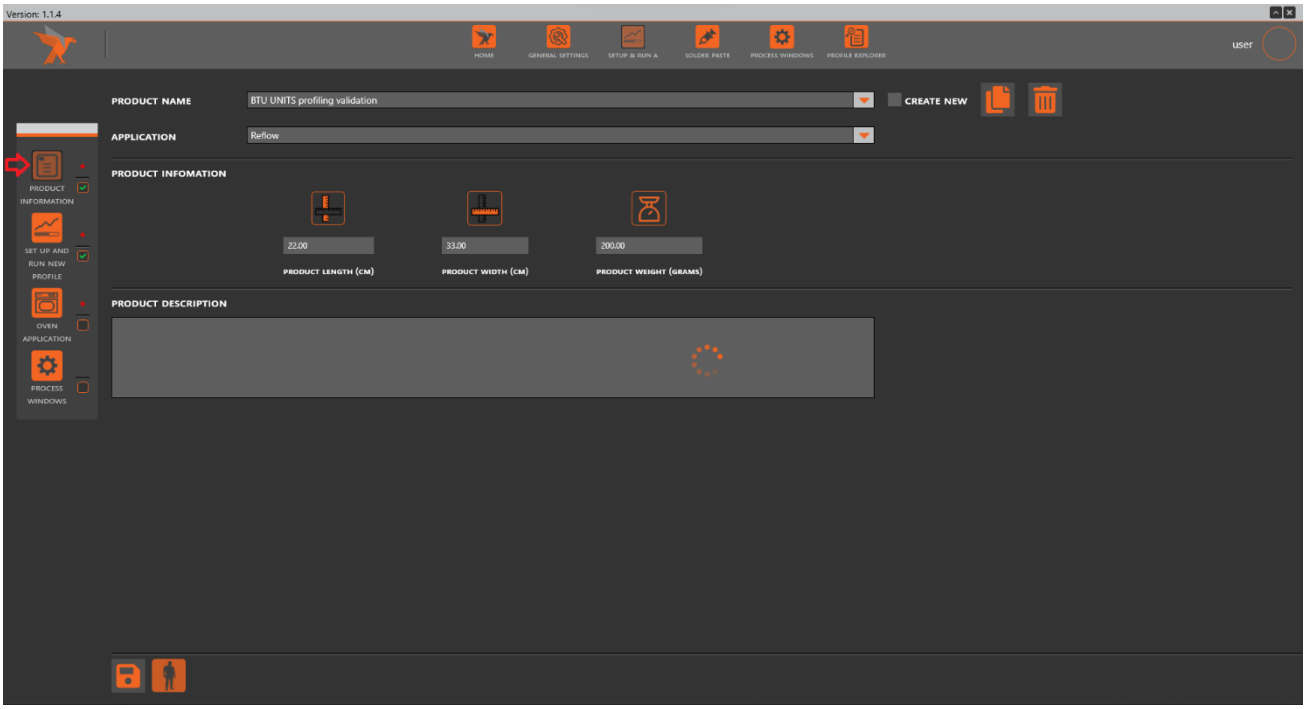
Before you run a profile, you need to set the main product characteristics, so that information is recorded properly. This involves a series of different fields.

Product Information

Here you can set information regarding the product you're profiling:

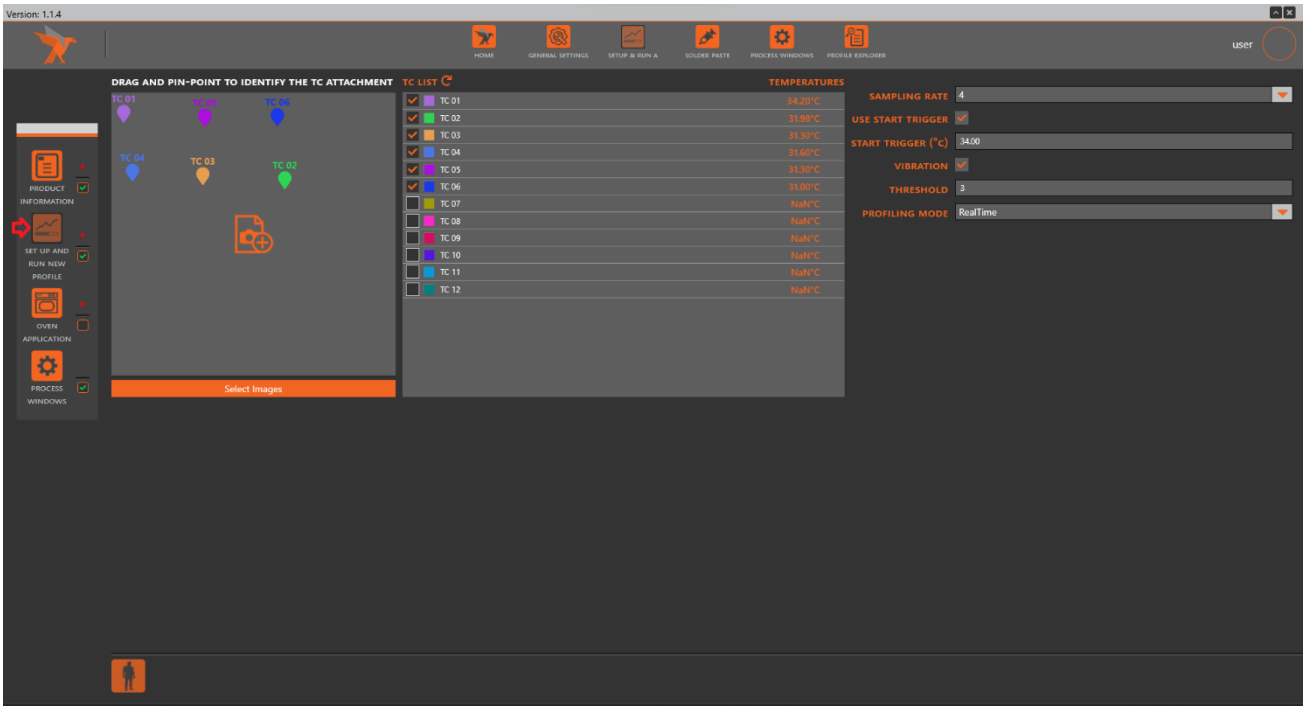
- Its name,
- The type of process you're analyzing (Reflow, Cure, Semiconductor, Time vs Temperature, Wave On or Wave Off),
- Dimensions Length, Width and Weight of the product itself.

Once that information is inserted don't forget to Save the information by clicking on the save icon in the bottom left corner.

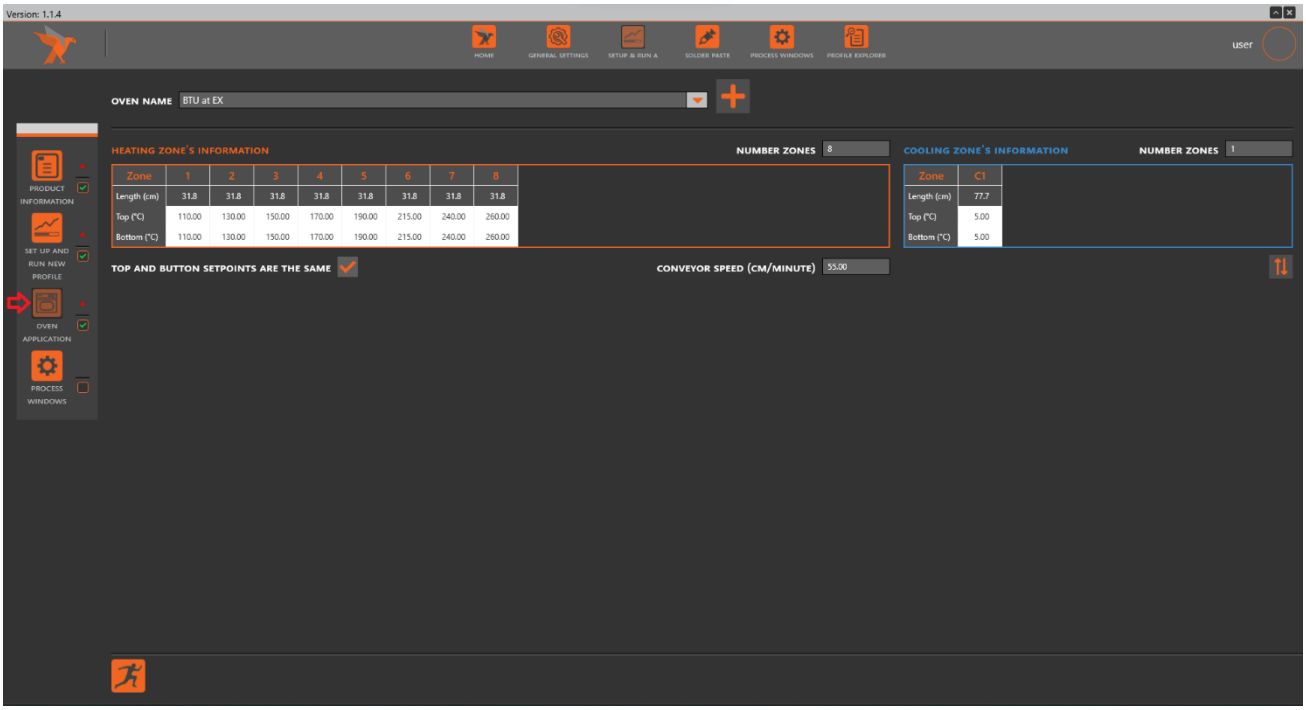


Set Up And Run A Profile

On this screen you can upload a picture of the product and define where the Thermocouples are attached. You can also define the Sample Rate (between 0.25 and 4 per second) and the expected profile length.



Oven Application

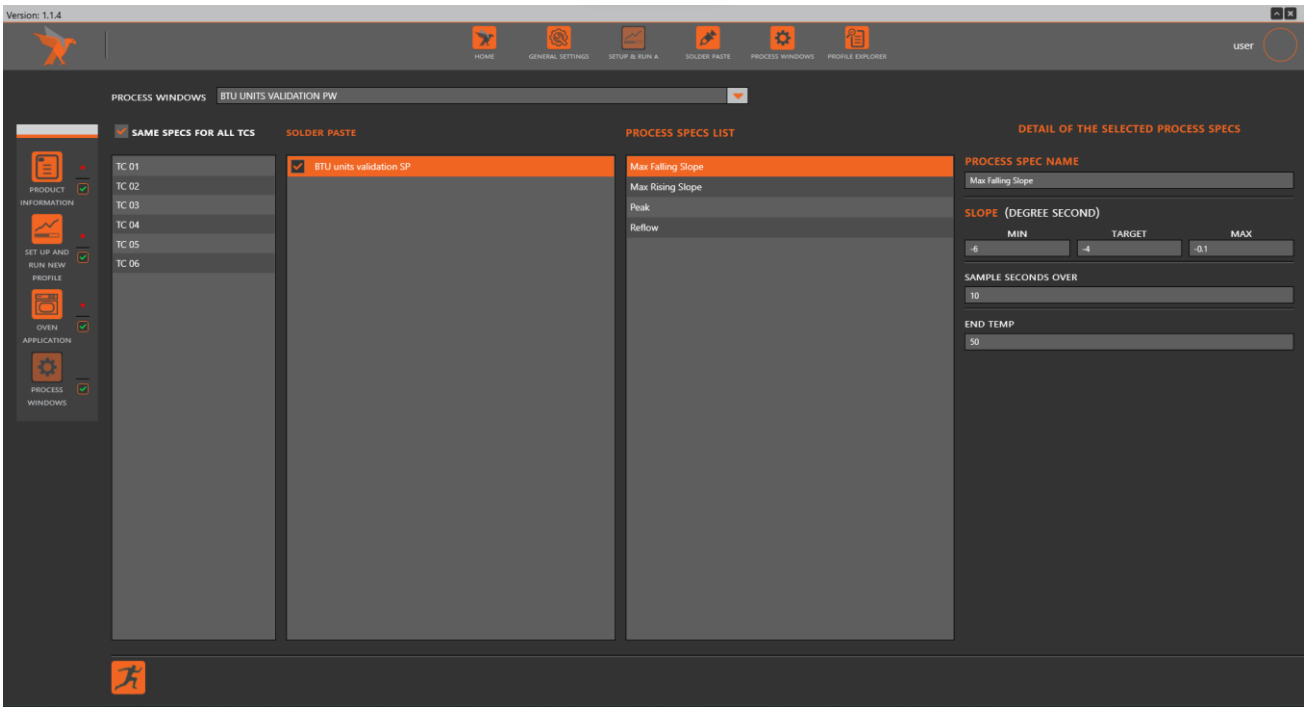


Select one of the Ovens from the drop-down menu, where it lists all the ovens in the factory (previously defined at General Settings/Oven configuration tab)

Input the Oven recipe setpoint temperatures for every heating/cooling zone and input the conveyor speed setpoint.

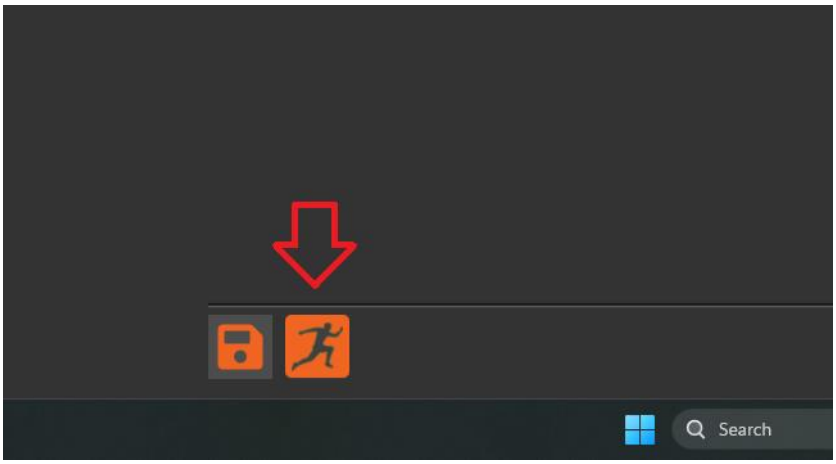
In case the top and bottom setpoint temperatures are different, use the available field to input different temperatures per zone.

Process Windows

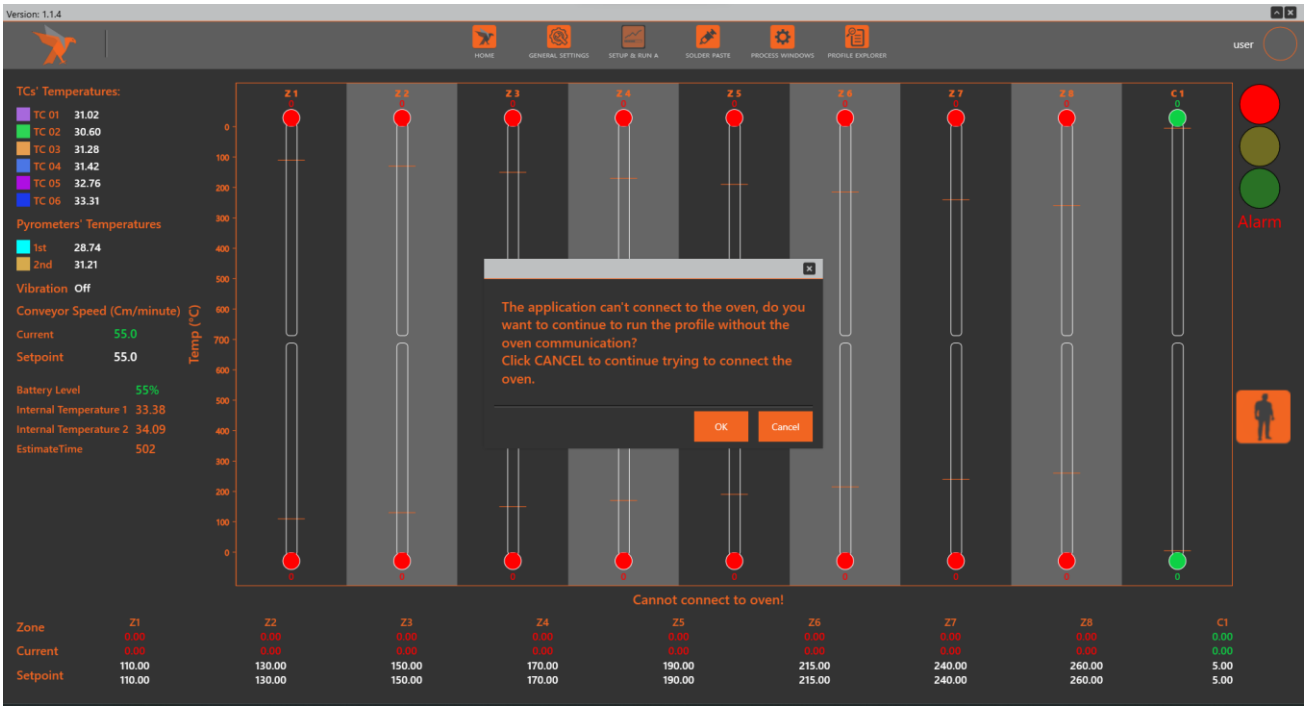


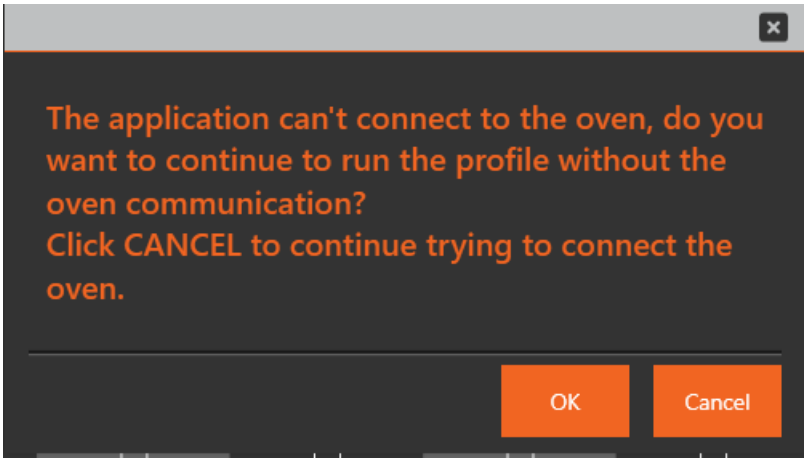
You can assign a Process Window to the product to be profiled. This action isn't mandatory. You can also assign a Process Window once the profile is downloaded. The drop-down menu will display all the process windows previously saved by the user. Once selected it is "ONLY FOR VISUALIZATION". Changing values can be done once the profile is downloaded.

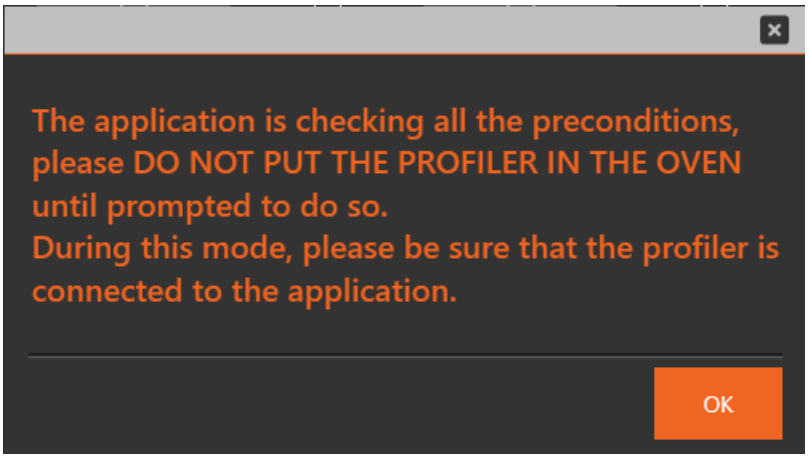
The option "Same Specs for all" in this menu is only to check if the Process Window selected has that option enabled or disabled, no changes can be made at this time.

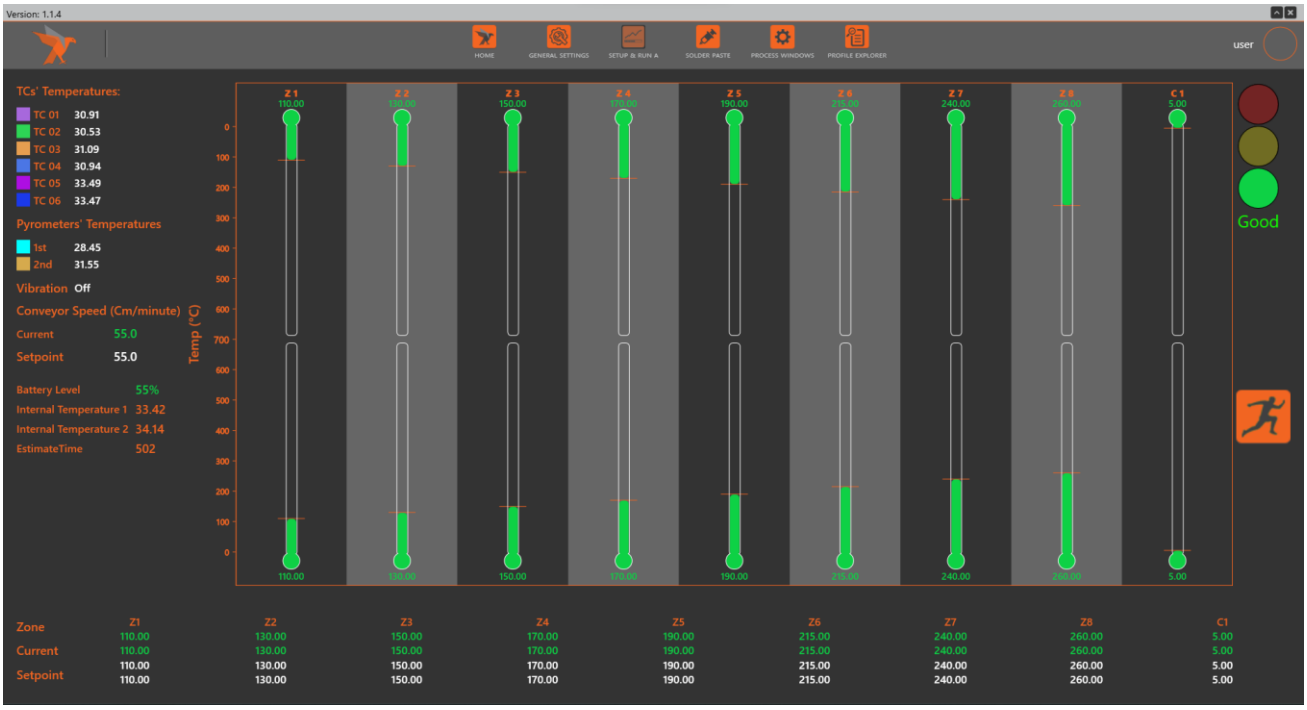


Pushing the button of the" Running Man" will initiate the profiling procedure

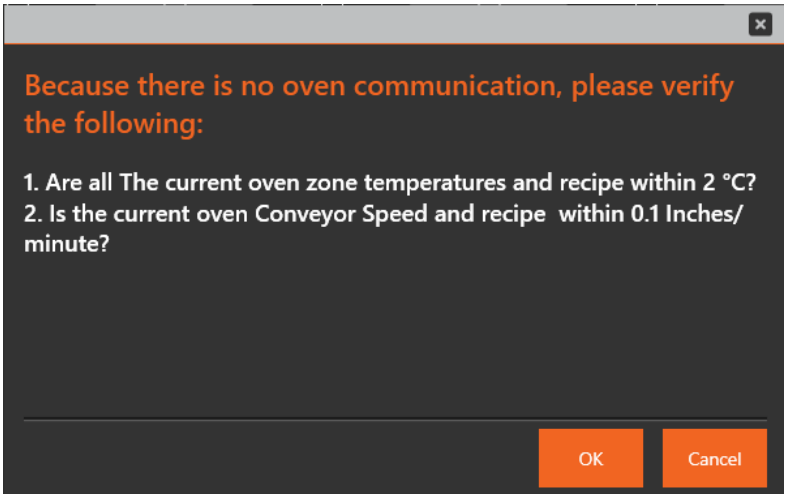

Version: 1.1.4
HOME
GENERAL SETTINGS
SETUP & RUN A
SOLDER PASTE
PROCESS WINDOWS
PROFILE EXPLORER
user
TCs' Temperatures:
TC 01 31.02
TC 02 30.60
TC 03 31.28
TC 04 31.42
TC 05 32.76
TC 06 33.31
Pyrometers' Temperatures
1st 28.74
2nd 31.21
Vibration Off
Conveyor Speed (Cm/minute)
Current 55.0
Setpoint 55.0
Battery Level 55%
Internal Temperature 1 33.38
Internal Temperature 2 34.09
EstimateTime 502
Temp (°C)
Z1 Z2 Z3 Z4 Z5 Z6 Z7 Z8 C1
The application can't connect to the oven, do you want to continue to run the profile without the oven communication?
Click CANCEL to continue trying to connect the oven.
OK
Cancel
Alarm
Cannot connect to oven!
Zone
Current
Setpoint
110.00 130.00 150.00 170.00 190.00 215.00 240.00 260.00 5.00
110.00 130.00 150.00 170.00 190.00 215.00 240.00 260.00 5.00

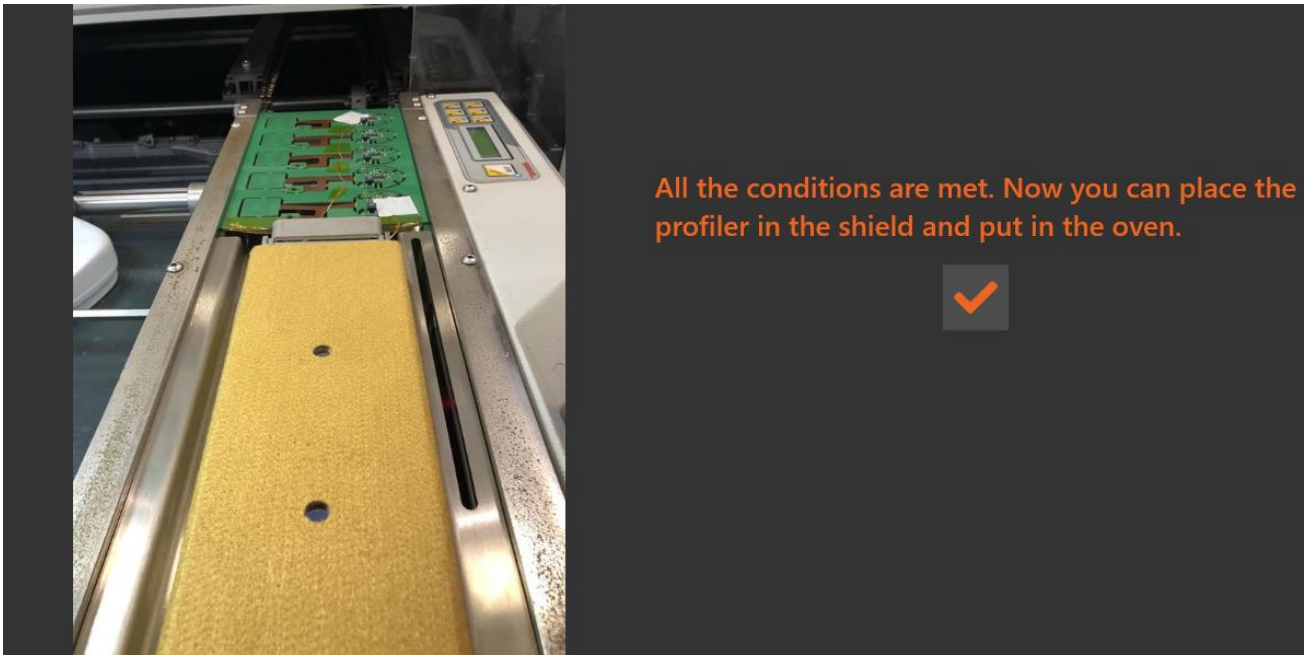

The application can't connect to the oven, do you want to continue to run the profile without the oven communication?
Click CANCEL to continue trying to connect the oven.
OK
Cancel


The application is checking all the preconditions, please DO NOT PUT THE PROFILER IN THE OVEN until prompted to do so.
During this mode, please be sure that the profiler is connected to the application.
OK

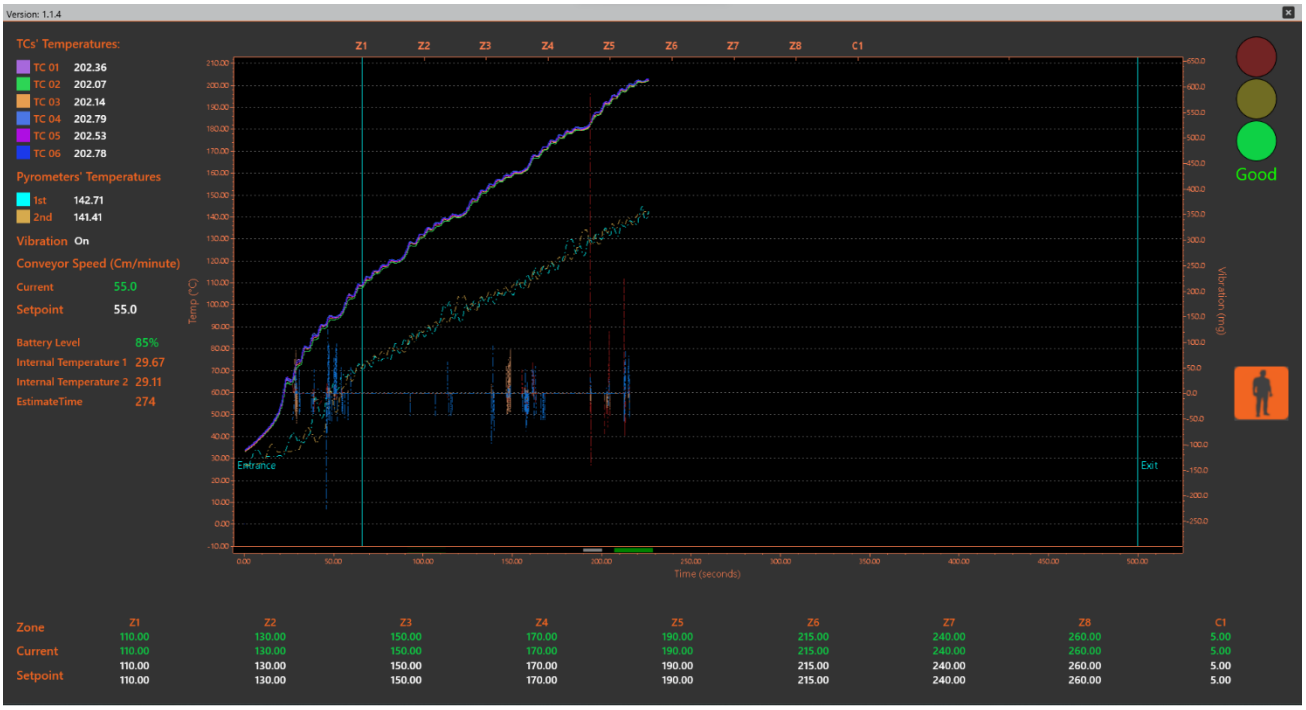


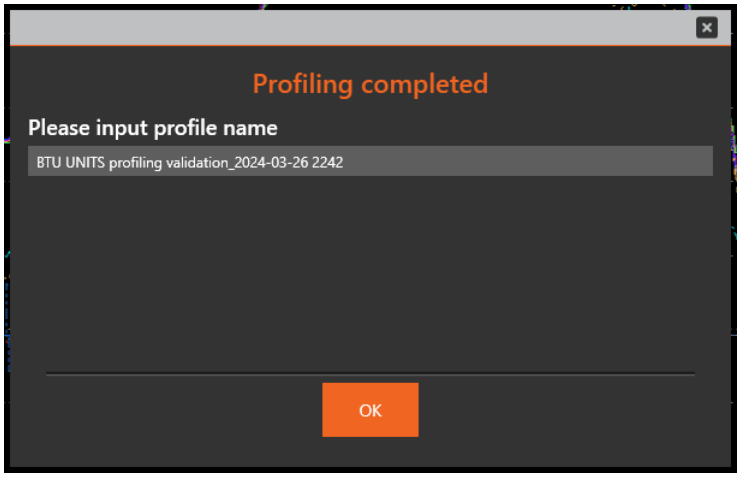
Click the  button

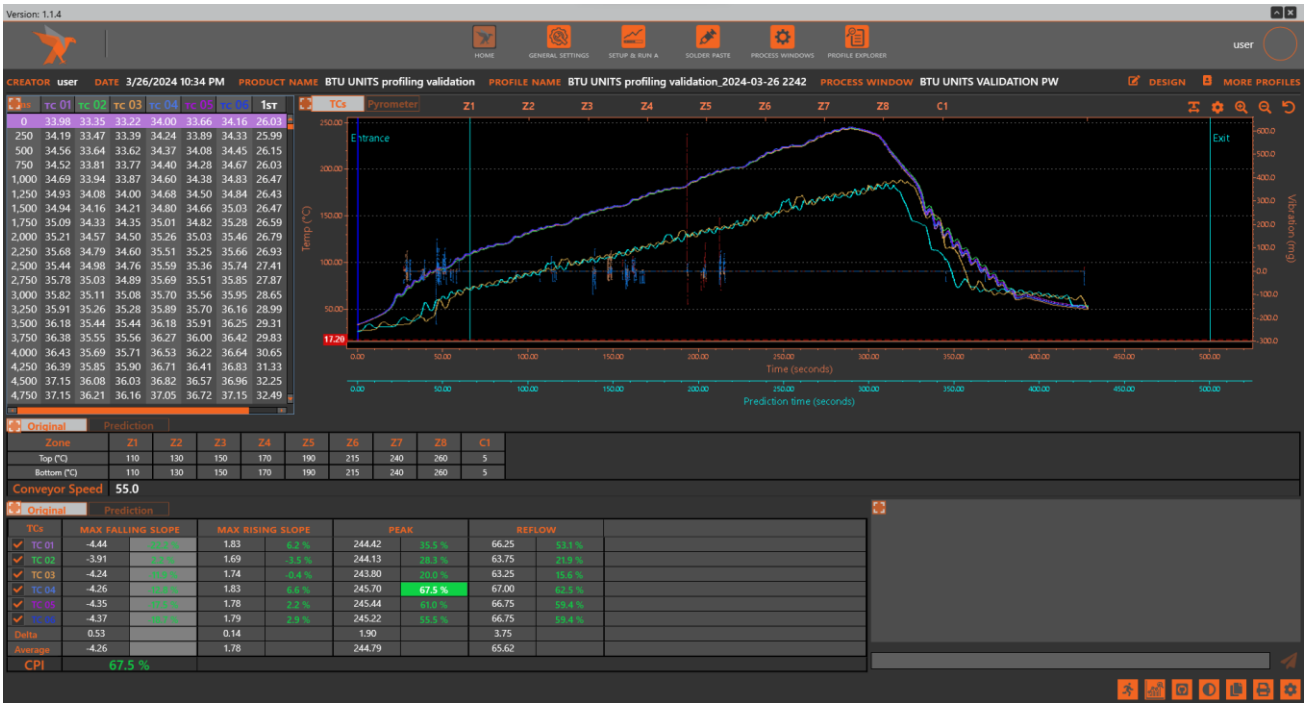




The picture below shows an example of a live profile being made, where Vibration X Y Z, Pyrometers and TC's data are visible live on the screen.

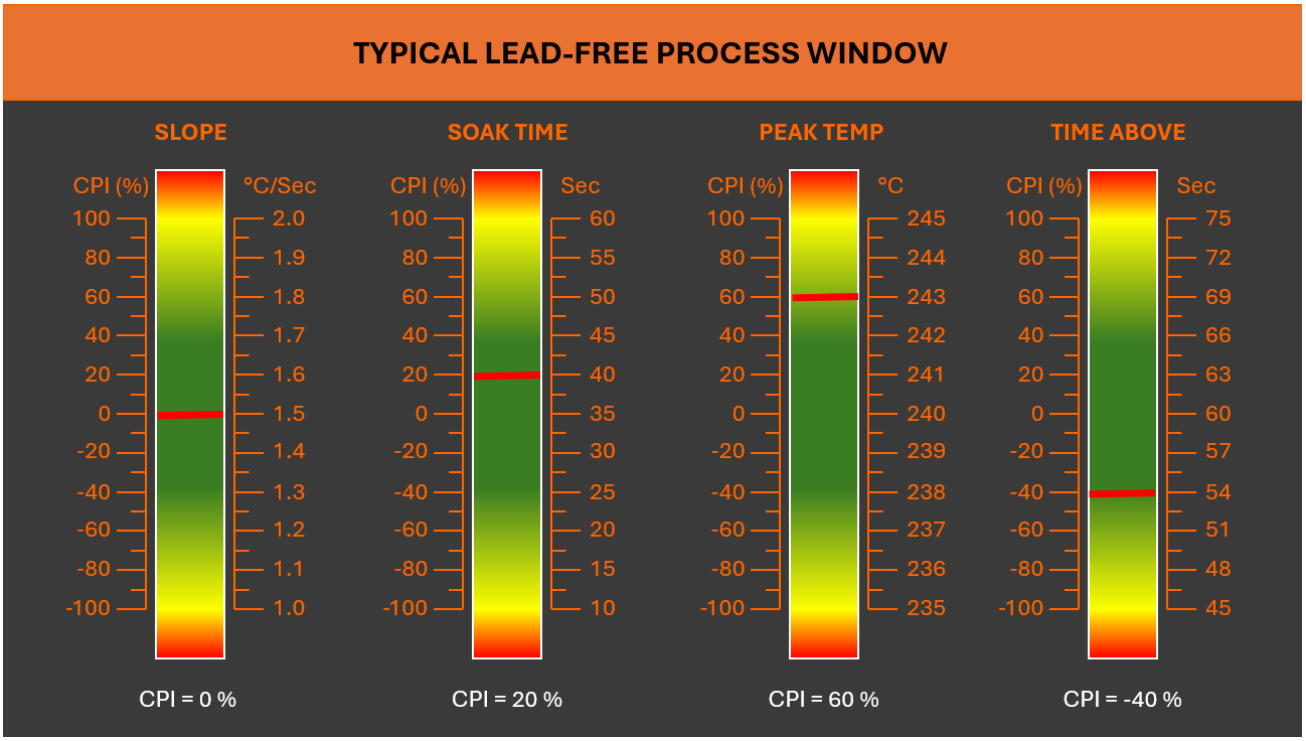




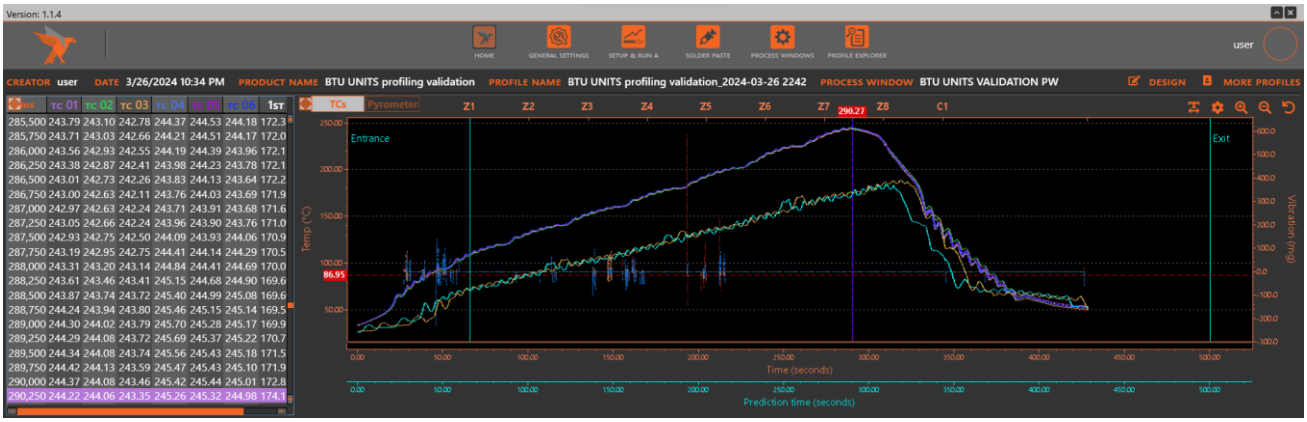


After Profile download the first thing to check is the In-Spec CPI value between 0% and 99% Green or Out-of-Spec CPI value more than 100% Red. The table below explains the CPI calculations and logic.

The CPI value displayed in the bottom left corner is always the worst value achieved under the different specs part of the Process Window selected by the user. That value represents the product under the oven profiling conditions for that specific Process Window.



While passing the mouse over the graph, TC and Pyrometer data are displayed automatically.



Click he button  to maximize and minimize the graph or all other widgets.

Click the button  to switch between Time and Distance at X axis of the graph.

Click the button  to select which data will be displayed.

Click these buttons  to zoom in, zoom out and reset zoom the graph.

Oven temperatures and conveyor speed setpoints recipe (Original):

Original | Prediction

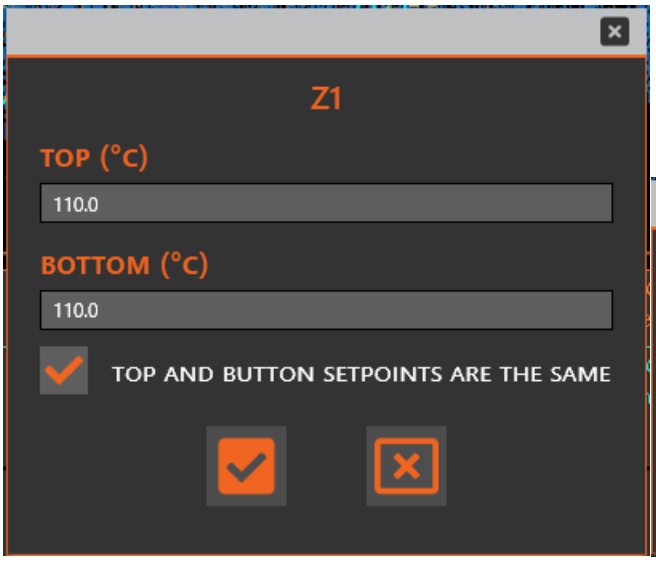
Zone	Z1	Z2	Z3	Z4	Z5	Z6	Z7	Z8	C1
Top (°C)	110	130	150	170	190	215	240	260	5
Bottom (°C)	110	130	150	170	190	215	240	260	5
Conveyor Speed	55.0								

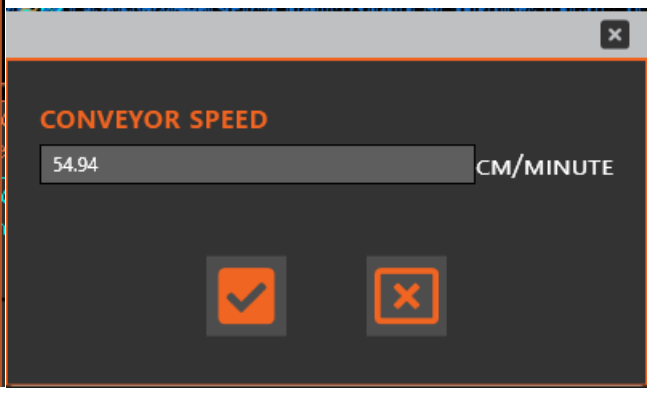
Oven temperatures and conveyor speed setpoints Optimized recipe (Prediction):

Original | Prediction

Zone	Z1	Z2	Z3	Z4	Z5	Z6	Z7	Z8	C1
Top (°C)	110	130	150	170	190	210	236	262	5
Bottom (°C)	110	130	150	170	190	210	236	262	5
Conveyor Speed	54.9								

Click the pencil icon to use the Manual prediction, where the user can force a setpoint (temperature and conveyor speed) and view the resulting prediction.





This table displays Process Window values for each TC during the profile:

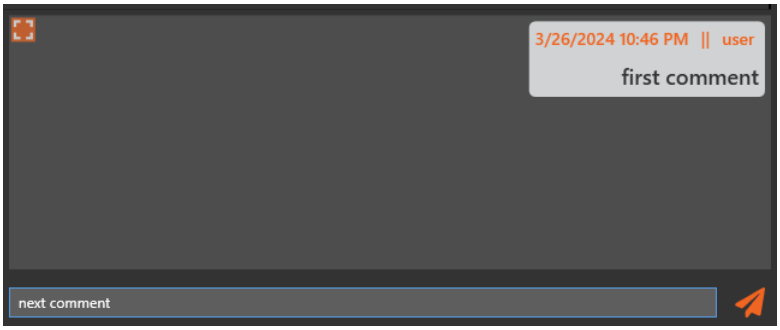
Original | Prediction

TCs	EXIT TEMPERATURE		MAX FALLING SLOPE		MAX RISING SLOPE		PEAK		REFLOW	
TC 01	56.19	-6.4 %	-4.44	-22.2 %	1.86	8.9 %	244.42	35.4 %	66.25	53.1 %
TC 02	57.69	-3.8 %	-3.92	-2.2 %	1.78	2.2 %	244.13	28.2 %	63.75	21.9 %
TC 03	54.56	-9.1 %	-4.24	-11.9 %	1.89	11.0 %	243.80	20.1 %	63.25	15.6 %
TC 04	55.93	-6.8 %	-4.26	-12.8 %	1.85	7.7 %	245.70	67.4 %	67.00	62.5 %
TC 05	57.40	-4.3 %	-4.35	-17.5 %	1.85	7.6 %	245.44	61.1 %	66.75	59.4 %
TC 06	56.08	-6.5 %	-4.37	-18.7 %	1.86	8.6 %	245.22	55.5 %	66.75	59.4 %
Delta	3.13		0.53		0.11		1.89		3.75	
Average	56.31		-4.26		1.85		244.78		65.62	
CPI	67.4 %									

This table displays Process Window OPTIMIZED values for each TC, using the predicted oven setpoints:

TCs	EXIT TEMPERATURE		MAX FALLING SLOPE		MAX RISING SLOPE		PEAK		REFLOW	
TC 01	73.21	33.0 %	-4.02	-1.2 %	1.84	6.8 %	241.94	-13.3 %	60.00	-16.7 %
TC 02	76.88	42.2 %	-3.79	5.3 %	1.79	3.1 %	241.66	-16.8 %	59.75	-18.8 %
TC 03	71.96	29.9 %	-4.16	-7.9 %	1.86	9.1 %	240.90	-26.2 %	58.50	-29.2 %
TC 04	73.56	33.9 %	-4.02	-0.8 %	1.85	7.8 %	242.71	-3.6 %	63.00	12.5 %
TC 05	74.21	35.5 %	-4.01	-0.7 %	1.84	7.3 %	242.68	-4.0 %	63.00	12.5 %
TC 06	73.29	33.2 %	-4.03	-1.7 %	1.86	8.9 %	242.46	-6.7 %	63.00	12.5 %
Delta	4.93		0.37		0.08		1.81		4.50	
Average	73.85		-4.01		1.84		242.06		61.21	
CPI	-29.2 %									

In this field the user is able to add notes to the profile in a SMS type of format:



 Re-Run a profile using the settings from the existing profile.

 Run the Profile Optimization routine.

 Pyrometer Analysis Tool, Using the statistical mathematical model we can compute the area of plotted data set, then we can apply the result and its limit. So we can determine the user see the issues that their ovens would have.

 Optimization Tool where the user can define setpoints the optimization should keep as the original recipe.

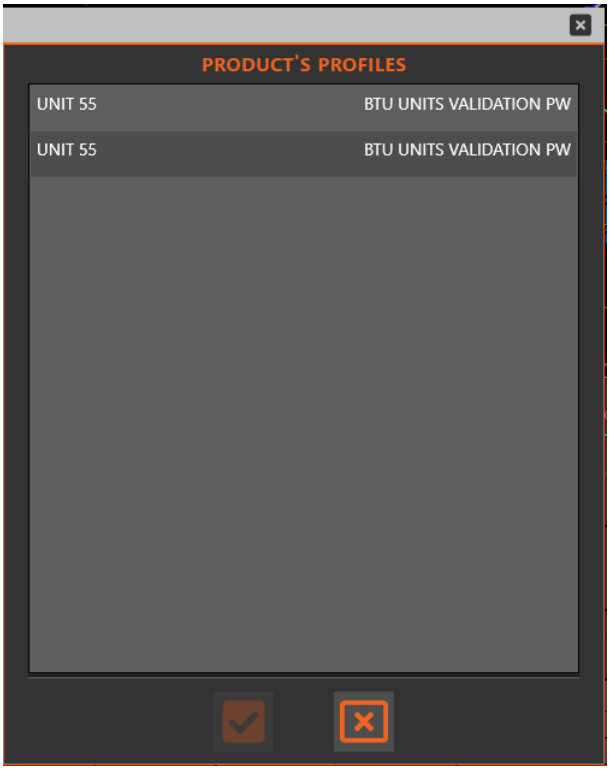
 Copy the profile data to Clipboard and able to paste to Excel

 Print the profile report

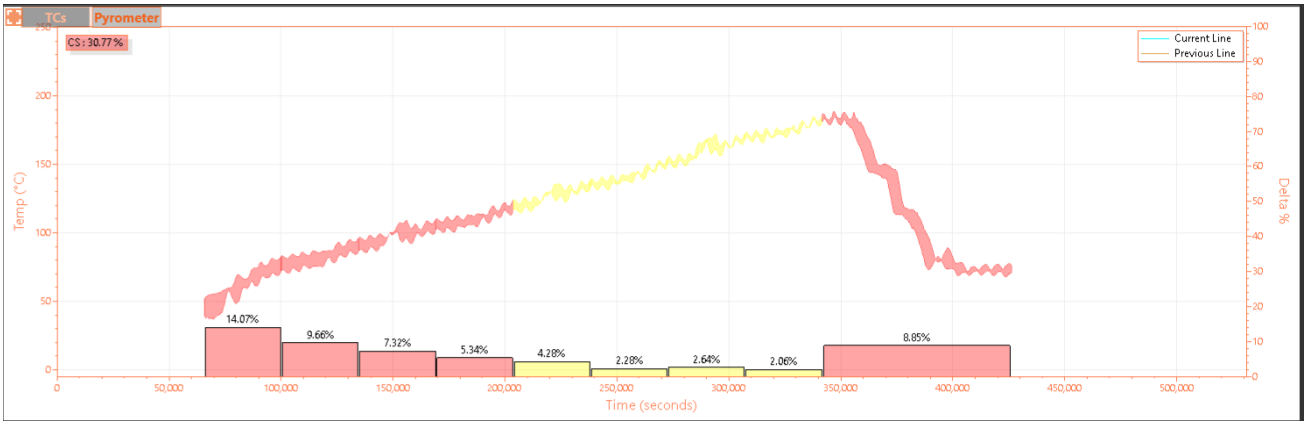
 View/edit the Process Window specifications

Pyrometer Analysis Tool

After clicking  , SW appears a dialog box for you to choose a profile to compare



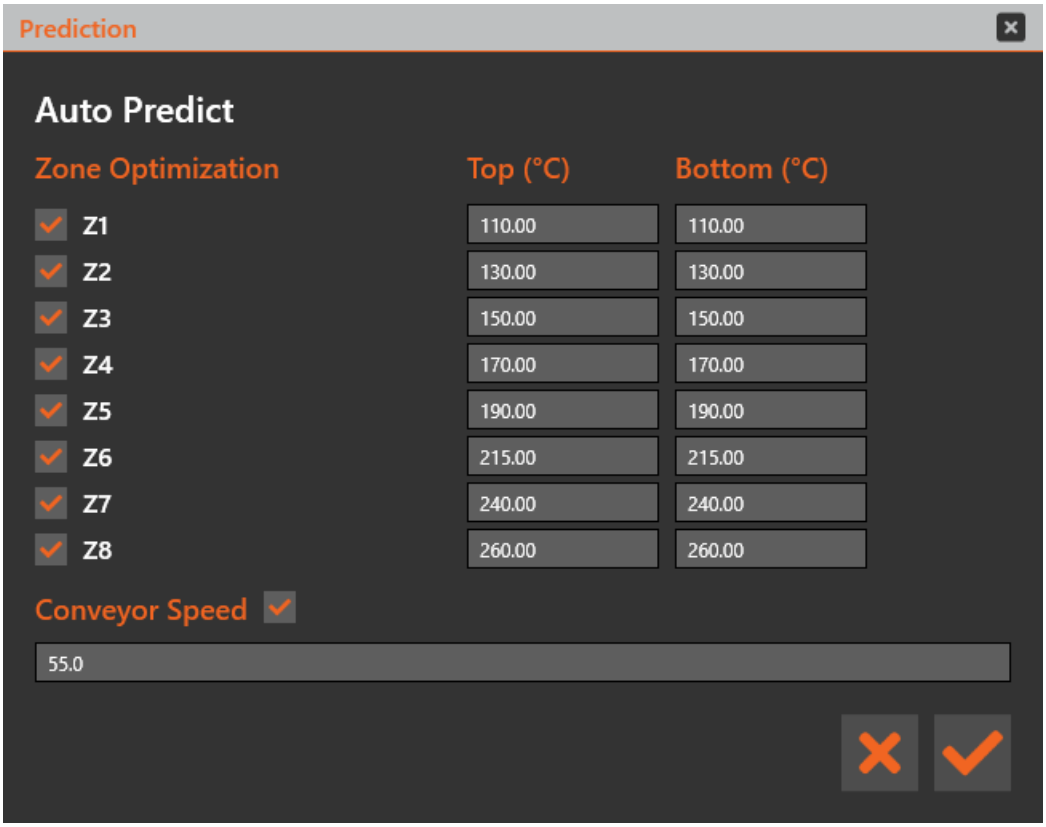
The software will compare the pyrometers behavior between the two profiles runs. Differences between 0% and 2% will displayed with Green color, between 2% and 4% will be displayed with Yellow color and differences bigger than 4% will be displayed in Red.



Optimization Tool

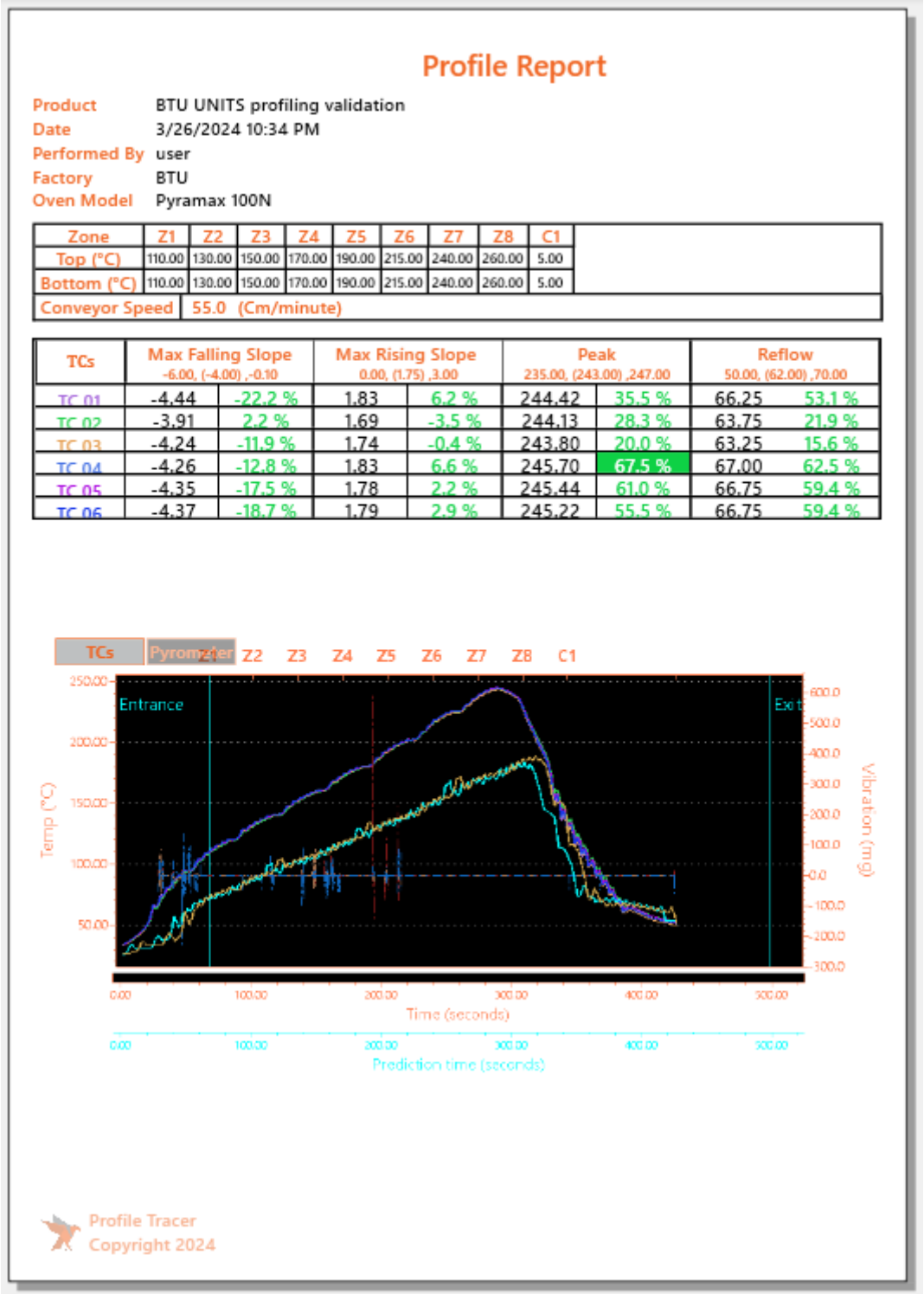
Click  to start the optimization tool.

Optimization Tool where the user can define setpoints the optimization should keep as the original recipe.



Print the profile report

After clicking  function, you can see the report as below, including what you have set in the Report Settings section.



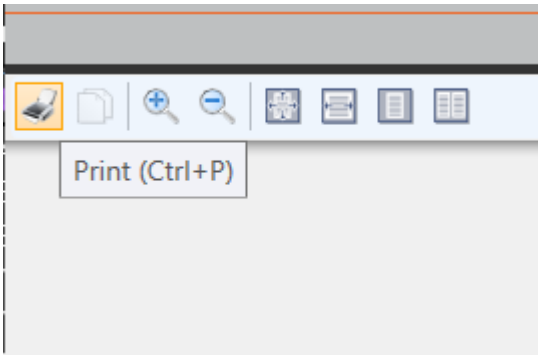
Profile Report

Product	BTU UNITS profiling validation
Date	3/26/2024 10:34 PM
Performed By	user
Factory	BTU
Oven Model	Pyramax 100N

Zone	Z1	Z2	Z3	Z4	Z5	Z6	Z7	Z8	C1
Top (°C)	110.00	130.00	150.00	170.00	190.00	215.00	240.00	260.00	5.00
Bottom (°C)	110.00	130.00	150.00	170.00	190.00	215.00	240.00	260.00	5.00
Conveyor Speed	55.0 (Cm/minute)								

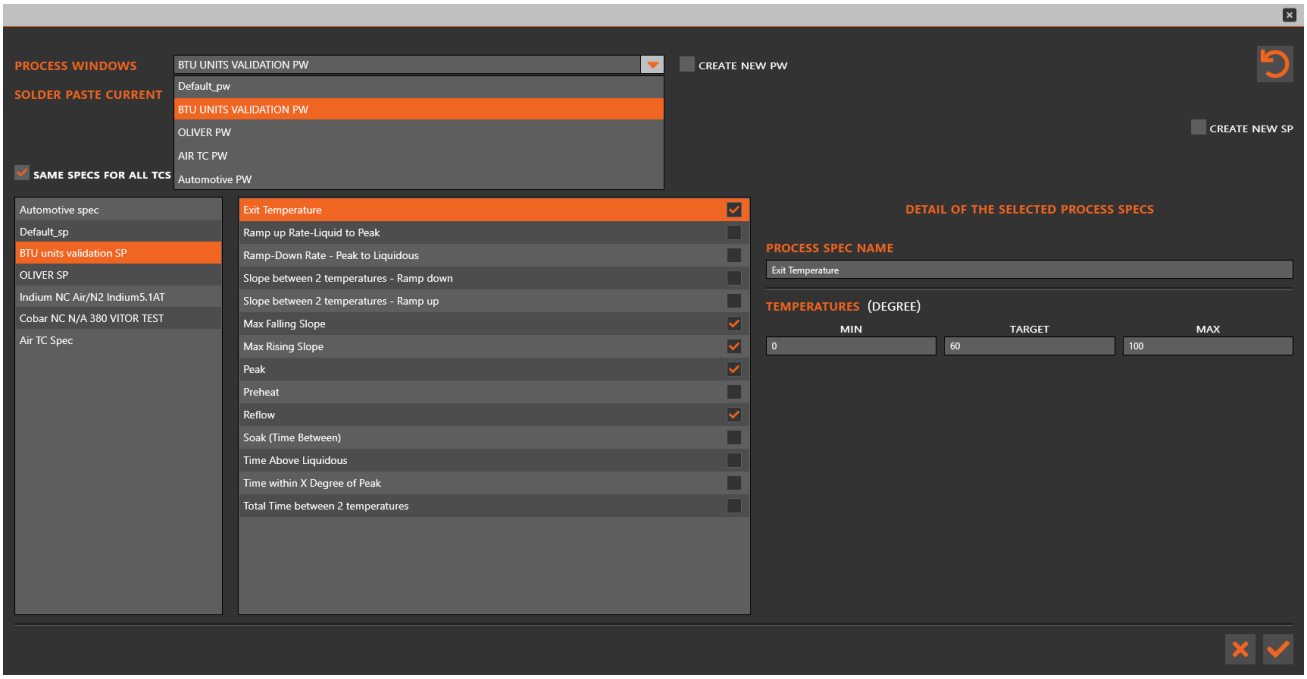
TCs	Max Falling Slope -6.00, (-4.00) ,-0.10		Max Rising Slope 0.00, (1.75) ,3.00		Peak 235.00, (243.00) ,247.00		Reflow 50.00, (62.00) ,70.00	
TC 01	-4.44	-22.2 %	1.83	6.2 %	244.42	35.5 %	66.25	53.1 %
TC 02	-3.91	2.2 %	1.69	-3.5 %	244.13	28.3 %	63.75	21.9 %
TC 03	-4.24	-11.9 %	1.74	-0.4 %	243.80	20.0 %	63.25	15.6 %
TC 04	-4.26	-12.8 %	1.83	6.6 %	245.70	67.5 %	67.00	62.5 %
TC 05	-4.35	-17.5 %	1.78	2.2 %	245.44	61.0 %	66.75	59.4 %
TC 06	-4.37	-18.7 %	1.79	2.9 %	245.22	55.5 %	66.75	59.4 %

Click on the printer icon to print.



Edit the Process Window

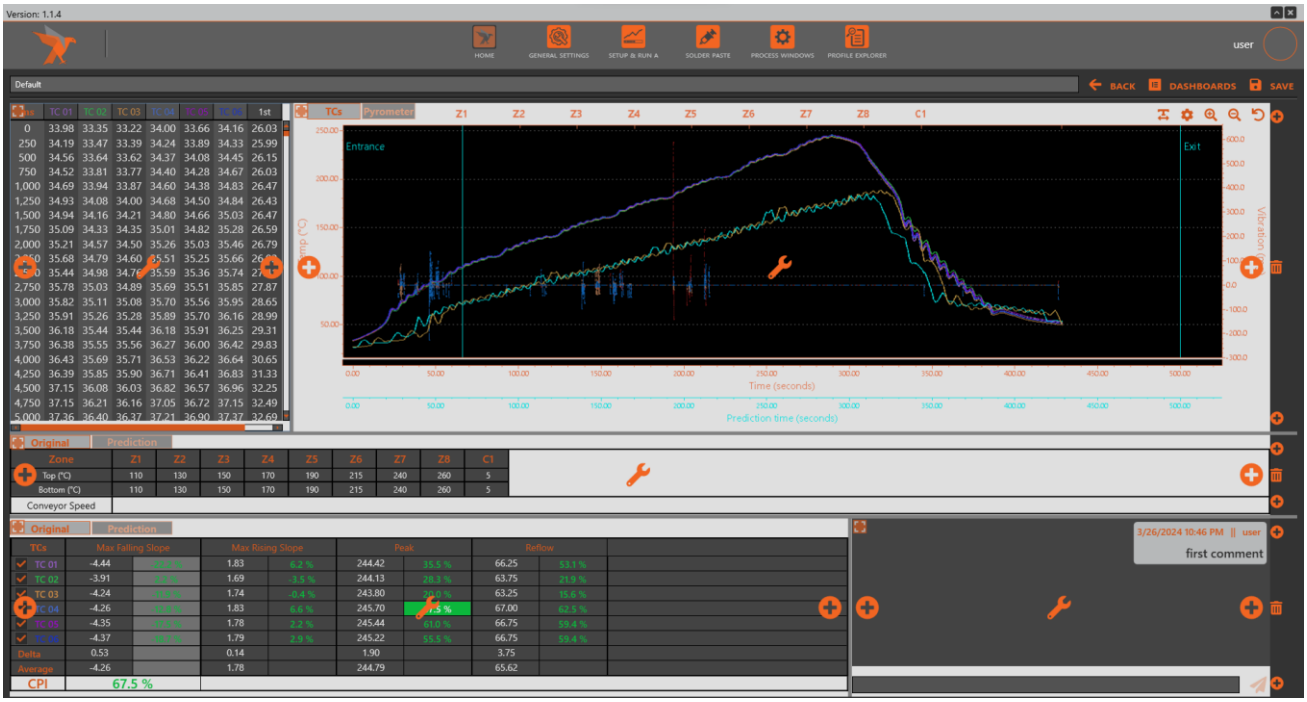
After running the profile, you can edit the Process Window by clicking  (go to Solder paste section and process window section to understand)



Layout Design

With Function 

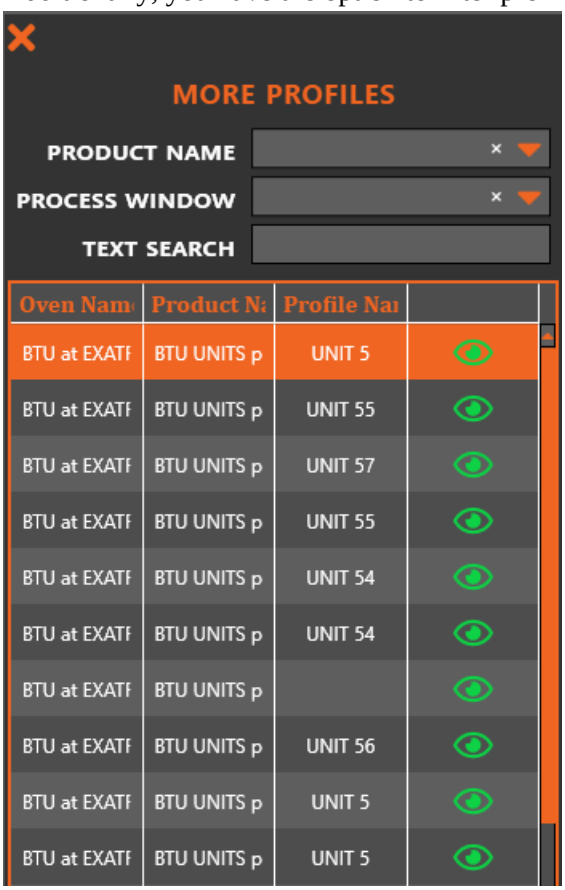
, you can customize how the software displays profile parameters like graphs and tables, using elements called widgets. These widgets allow for complete customization of their position and size on the screen

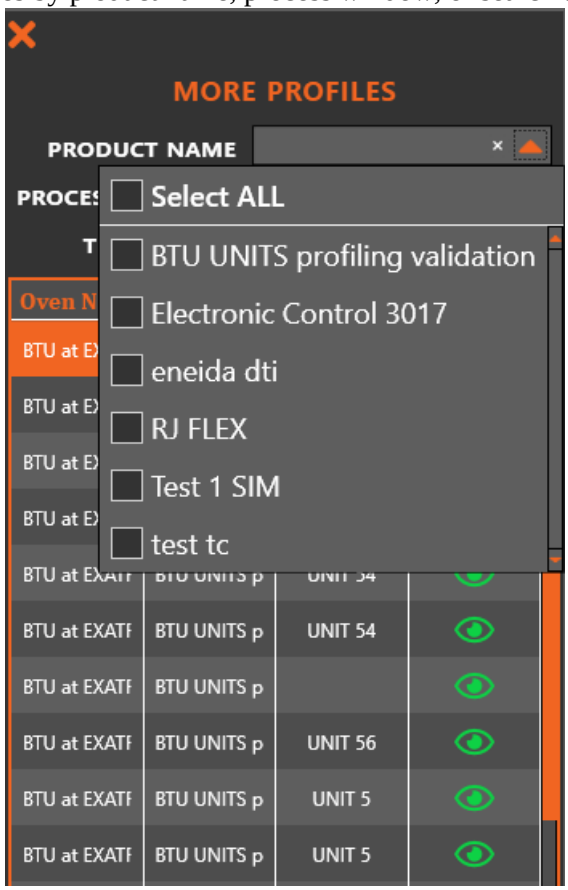


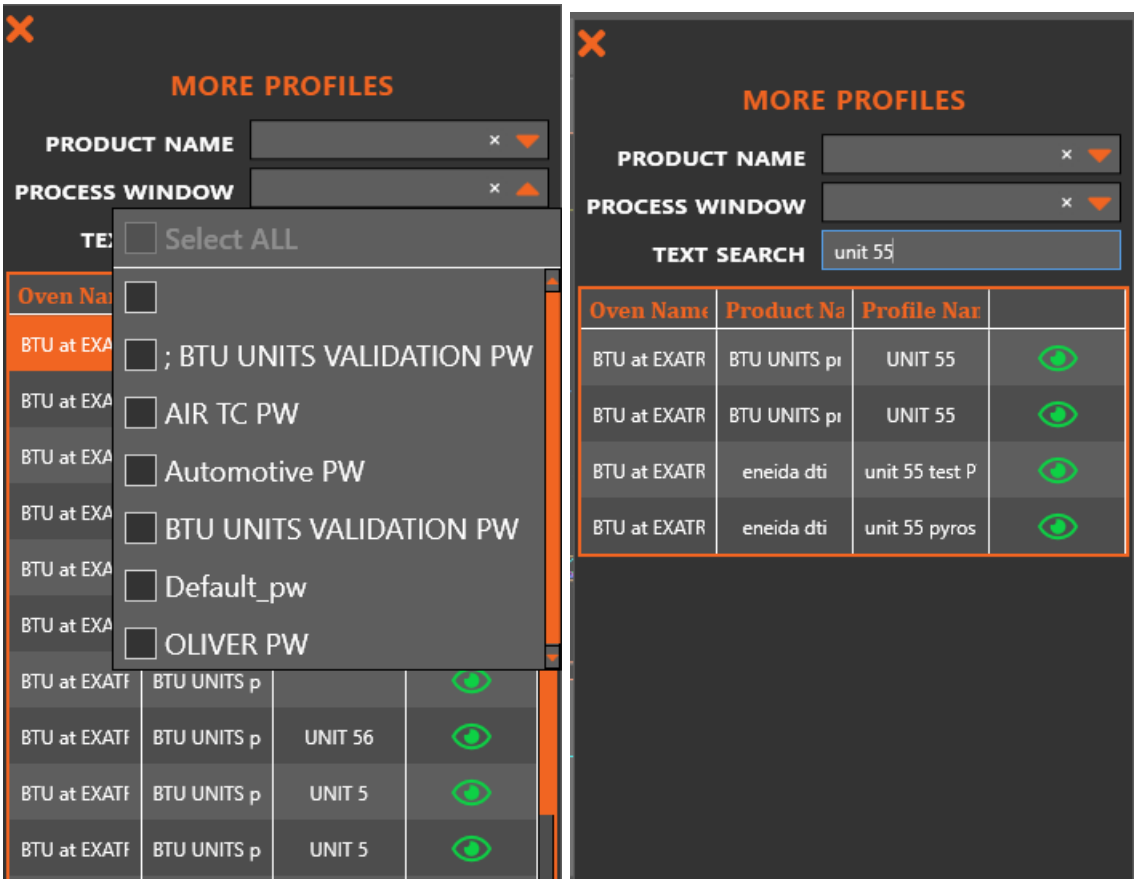
More profiles

When opening a profile, you can immediately open another profile by clicking 

. Additionally, you have the option to filter profiles by product name, process window, or search using text



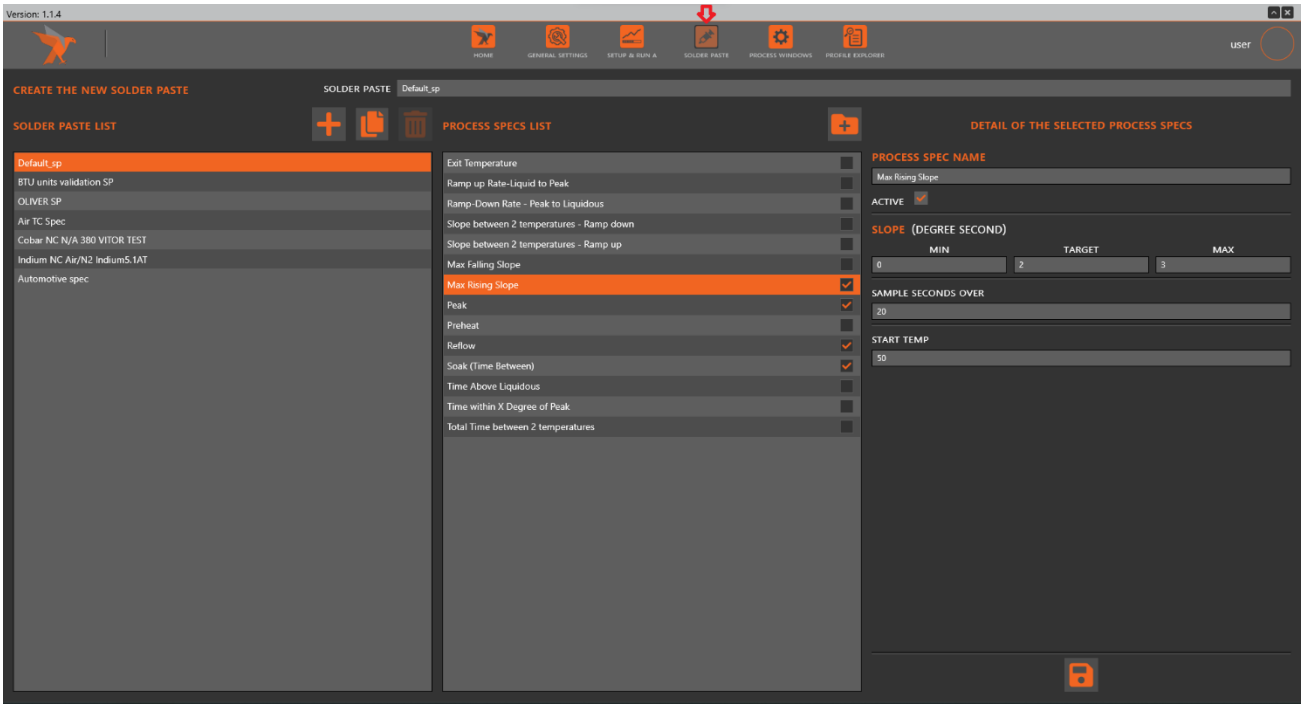




SOLDER PASTE MENU

On this menu screen you can create "Solder Paste" specifications or "Components" specifications, i.e. LED specification, Capacitor specification, BGA specification, etc....

Using as starting point an existing Solder Paste library where the major Solder Paste Manufacturers are listed. The software allows each value to be adjusted to the customers' own specification values.

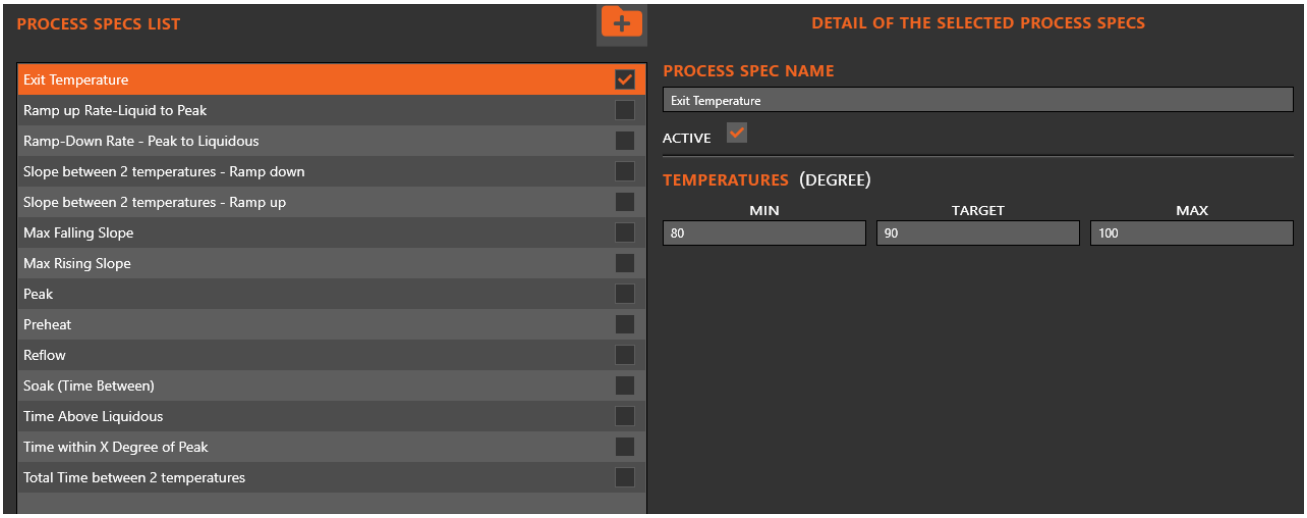


Create a new solder paste

Click the button

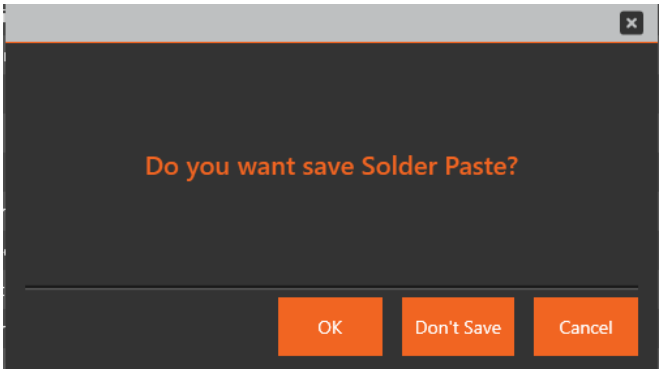
Enter the name for it

Choose specs that you want to use and config the parameters, don't forget to enable by checking ACTIVE.



Finally click on the button.

The SW shows the dialog to confirm please click OK to Save.

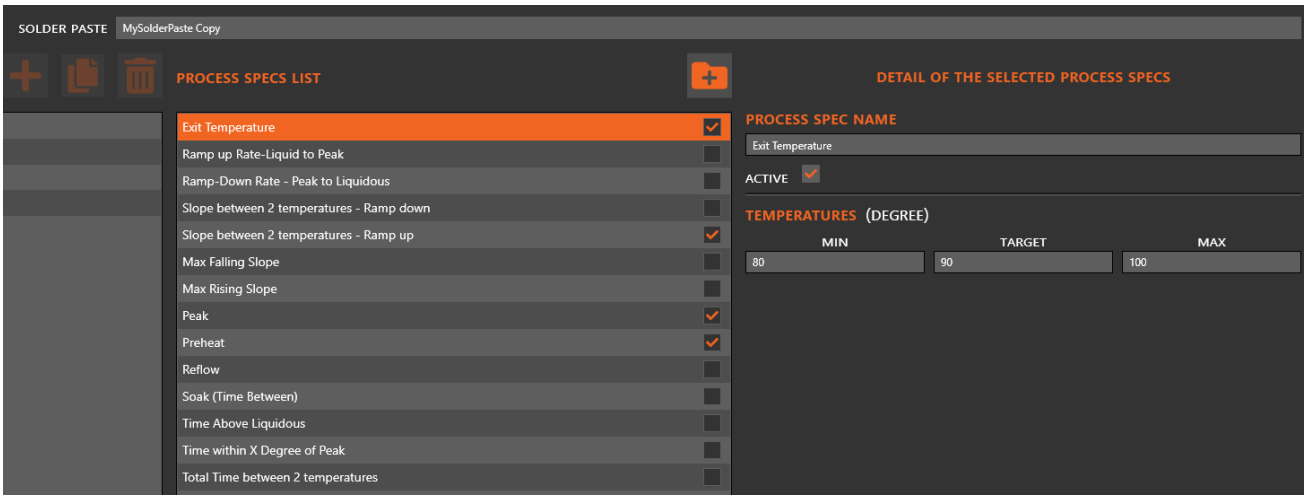


Create a solder paste by copying from another solder paste

Click the button.

Edit the name if needed.

Edit parameters for every specs if needed.



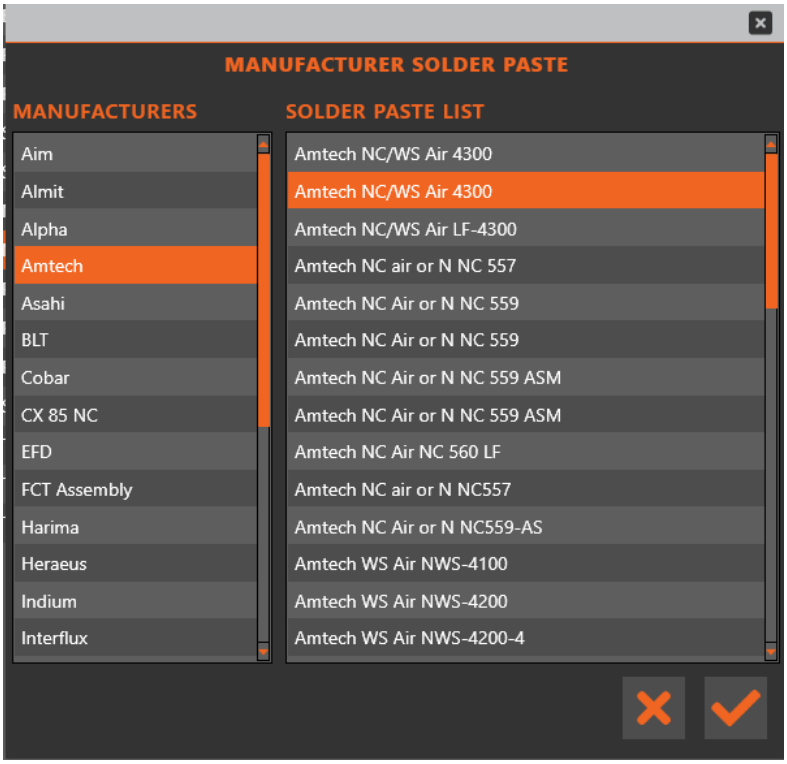
Finally click on the button then OK button.

Create a solder paste by selecting from the library.

Click the button

Click the button

Select the Manufacturer and the Solder paste

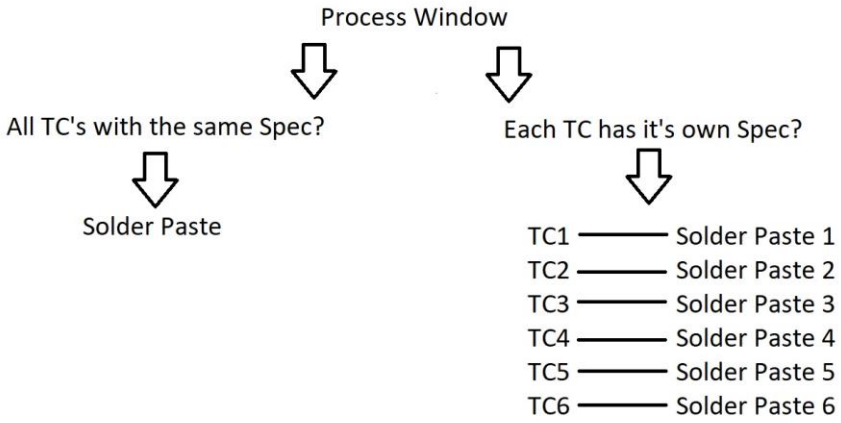


Click the button

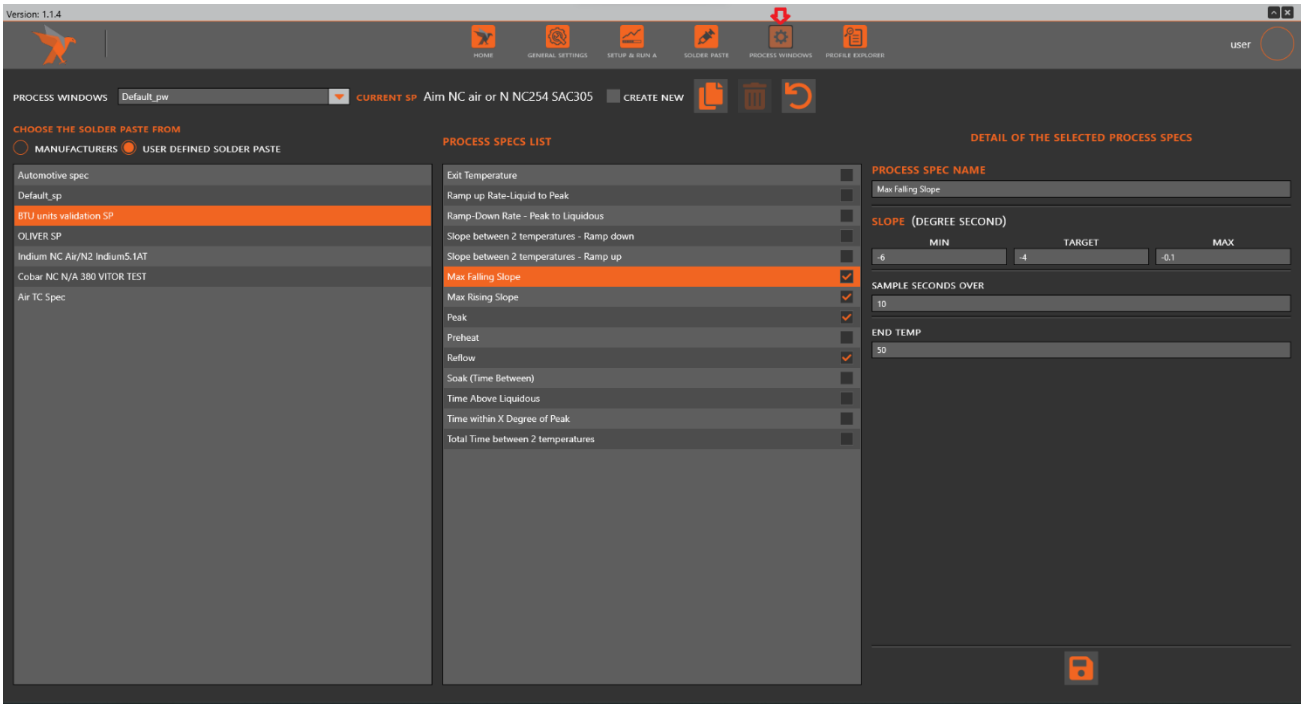
Edit the name and parameters for every specs if needed.

Finally click the button then OK button.

PROCESS WINDOWS MENU



On this screen you are able to select whether you want to apply the same solder paste specifications to all Thermocouples or individually.

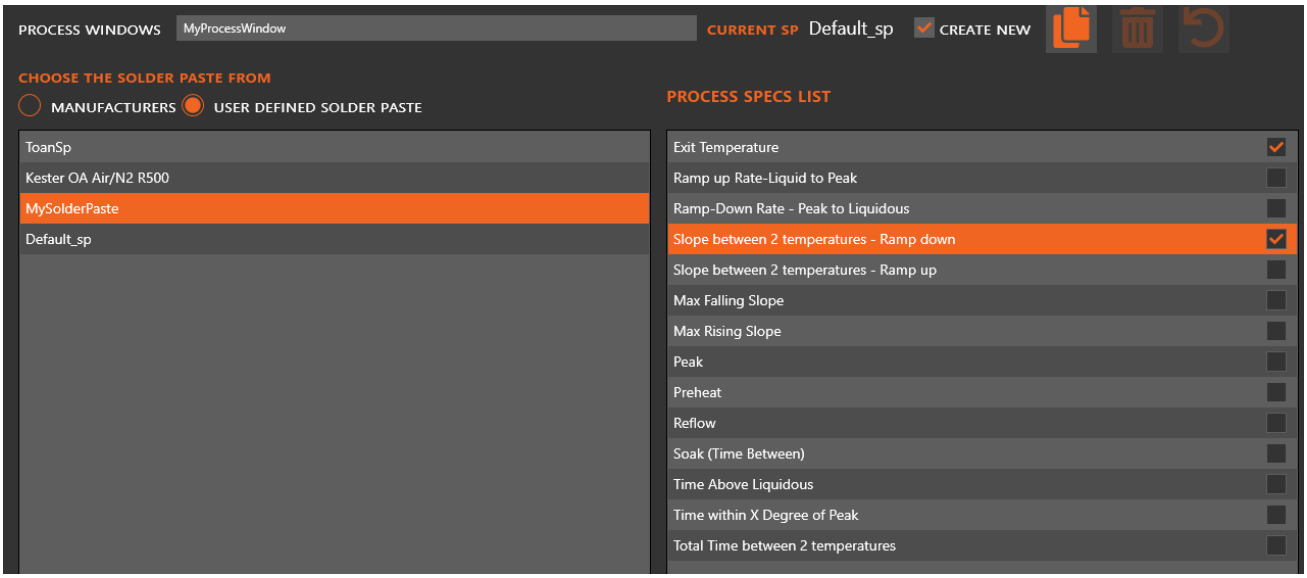


Create a new Process Window

Check the 

Enter the name 

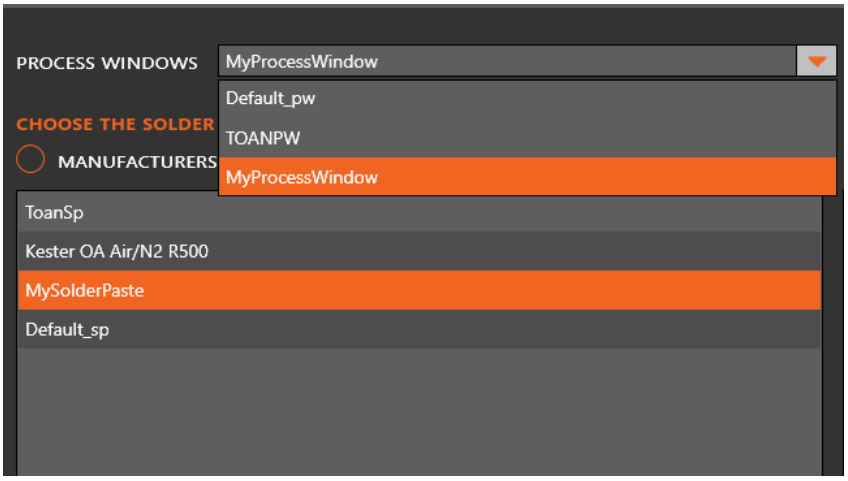
Select the solder paste then edit the parameters for specs if needed



Finally click the  button.

Create a process window by copying a existed process window

Select a process window from the dropdown menu



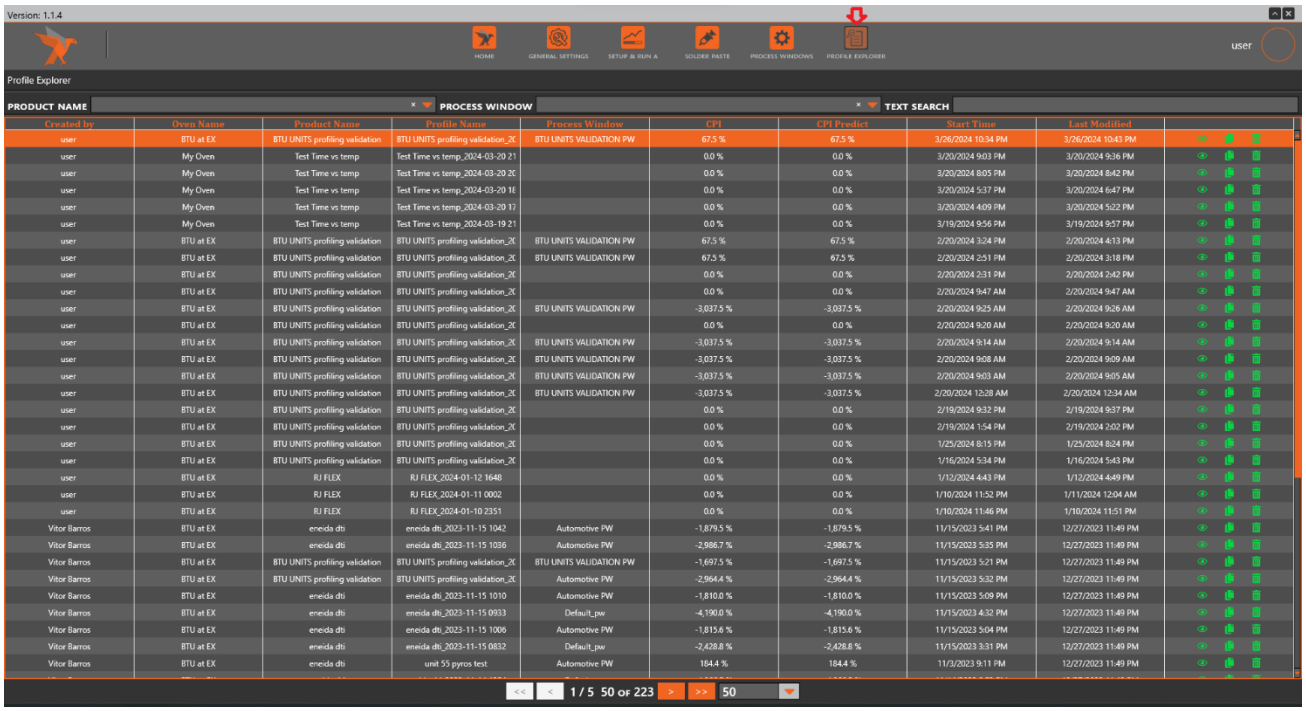
Click the button

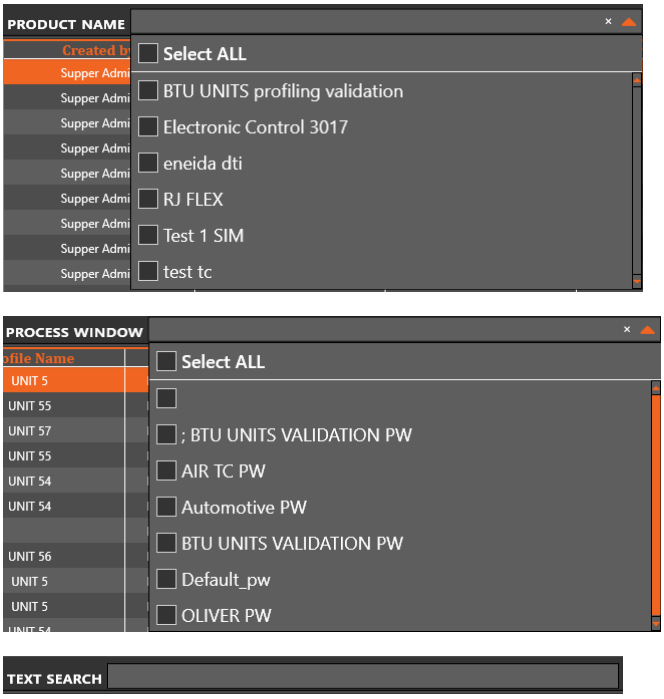
Edit the name and parameters for every specs if need.

Finally click the button

PROFILE EXPLORER

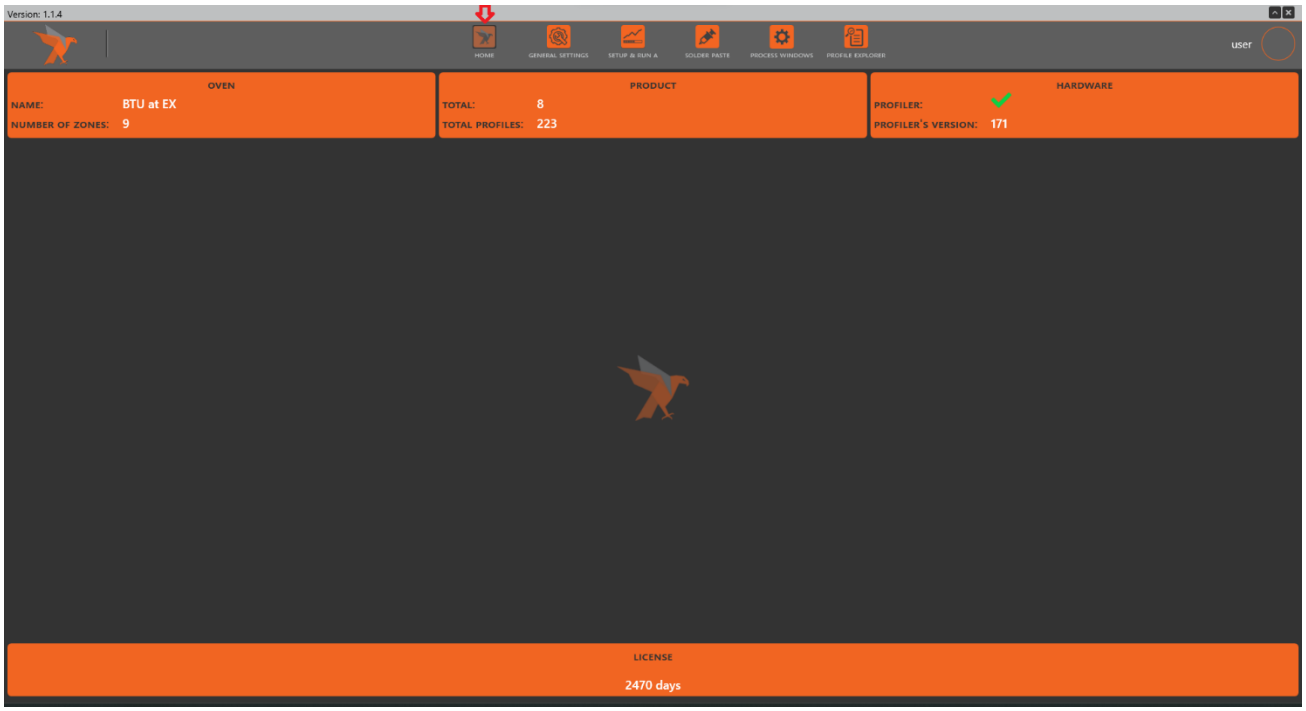
This screen presents a list of all the profiles stored in the software.





HARDWARE STATUS

This screen will present the status of operation of the EYE.



STEPS TO CREATE A THERMAL PROFILE

Check list

The EYE app (If not installed, proceed to the Installing the EYE software section.) [reference]

The PCB

The profiler set: Dongle, profiler, type K thermocouple, shield, jig, glove, scissors, aluminum tap [reference]

Setup

Prepare the EYE by ensuring it's properly configured on the software for the intended measurement environment. This includes defining which thermocouples are being used, setting the sampling interval, start point trigger and any other relevant parameters.[reference]

Placement

Position the data logger in the location where temperature measurements are desired. This could be inside a Reflow oven, Wave, Selective, Vapor Phase machines or any equipment with temperatures positive or negative, depending on the specific application. [reference] [reference] [reference]

Start Logging

The unit will start collecting data as soon the temperature start point trigger will be reached on any of the thermocouples measuring the components or by user instructions. [reference]

Data Collection

Allow the data logger to run for the desired duration to capture temperature variations over time. This could range from a few minutes to several days, depending on the specific requirements of the thermal profile.

Monitoring

Periodically check the data logger to ensure it's functioning properly, to monitor the ongoing temperature measurements and to be sure the unit is not getting stuck inside the machine if the case of the unit is travelling on a Pin Chain or Mesh Belt.. This helps identify any issues or anomalies that may arise during the logging process. [reference]

End Logging

Once the desired duration of temperature measurement is complete, it will automatically download the profile data to the software. [reference]

Plotting the Thermal Profile

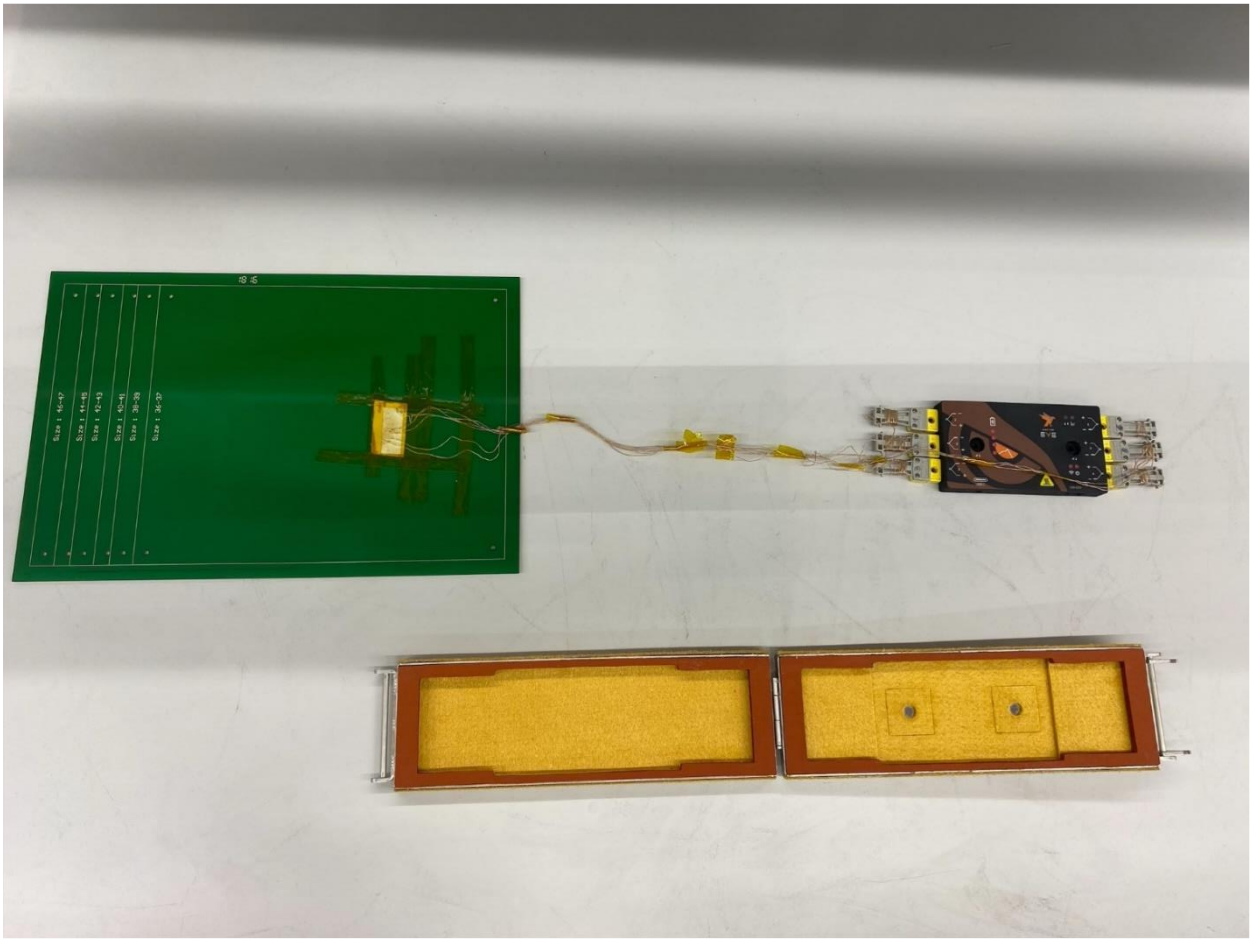
Use the collected temperature data to plot a thermal profile graph, showing how the temperature changed over time and checking if the CPI is inside Process Window Specification using our specialized data analysis tools providing insights into temperature variations and trends. [reference]

Documentation

Document the thermal profile findings, including the measurement conditions, any relevant environmental factors, and interpretations of the temperature data. This documentation helps ensure the reliability and reproducibility of the thermal profile analysis.

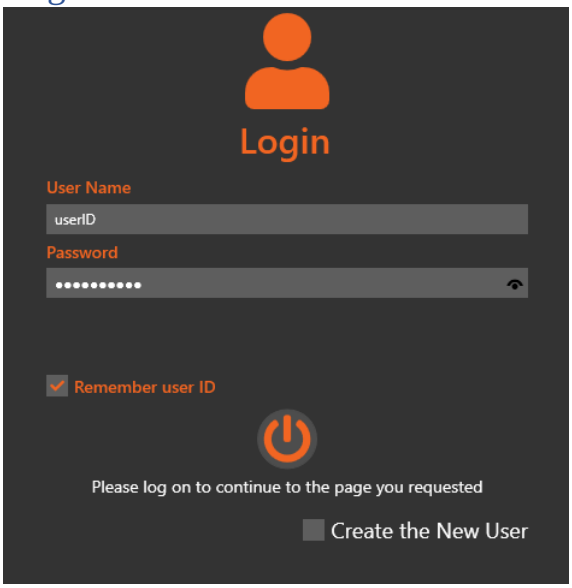
EXAMPLE RUNNING A PROFILE

1 Mout the needed TCs to the PCB

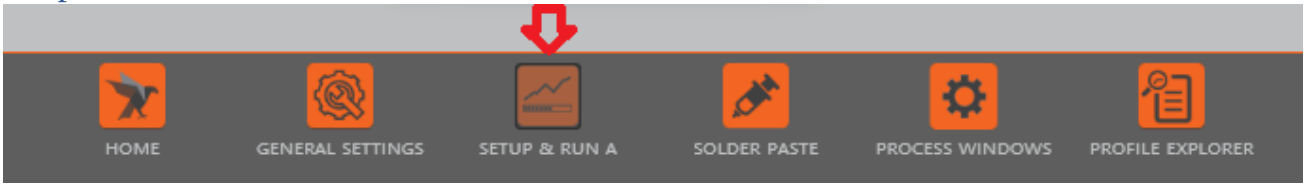


2 Plug the Dongle to the PC and switch on the unit.

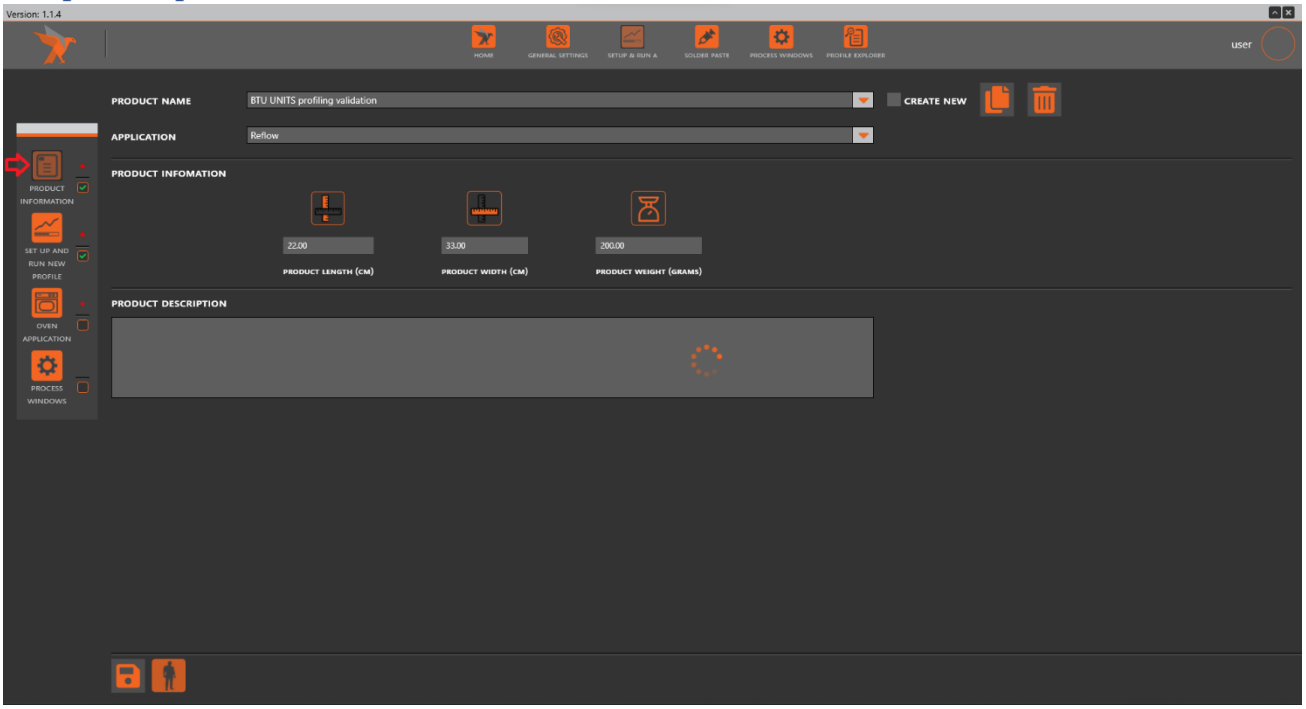
3 Open the EYE app and login.



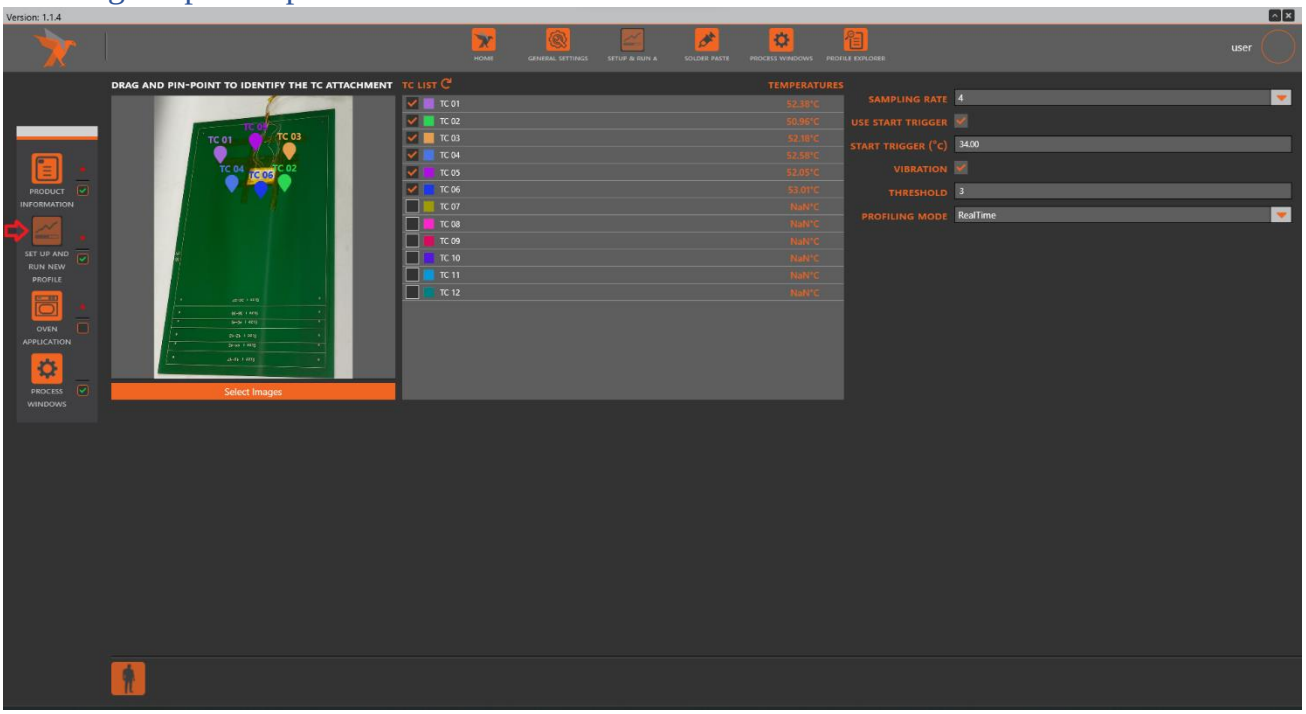
4 Open SETUP & RUN A PROFILE menu.



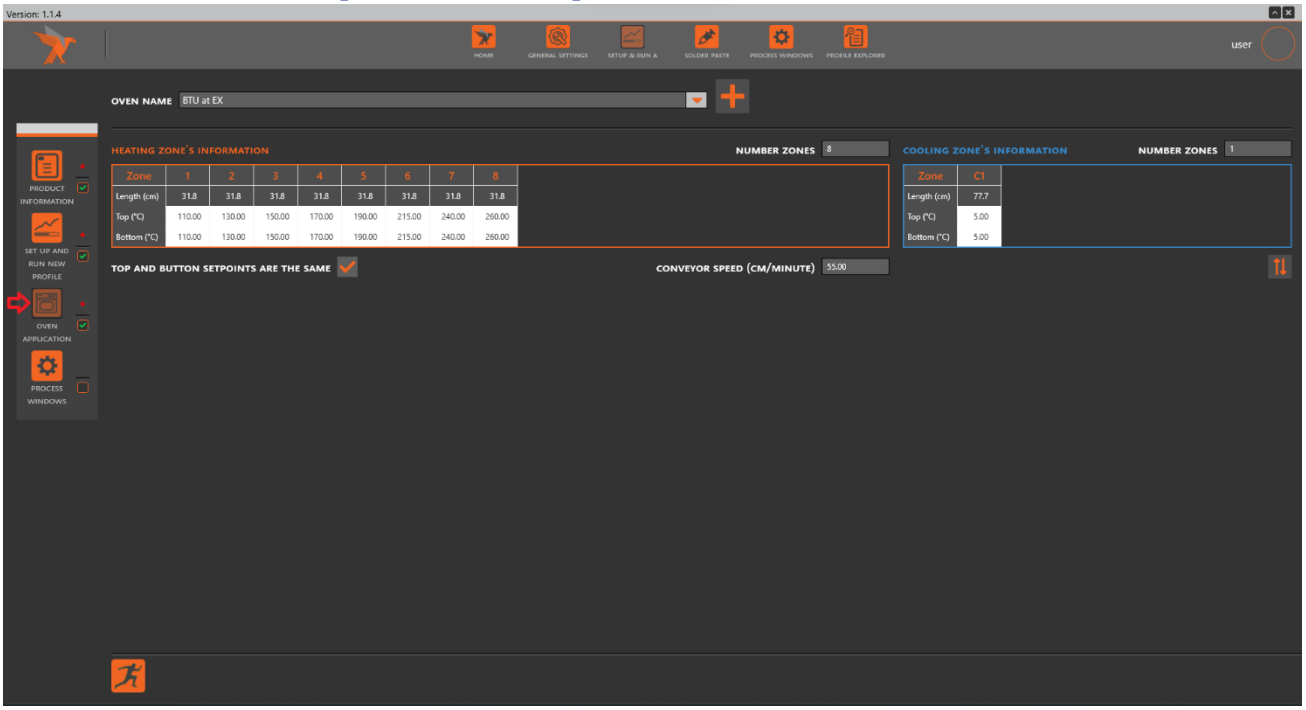
5 Input the product infomation



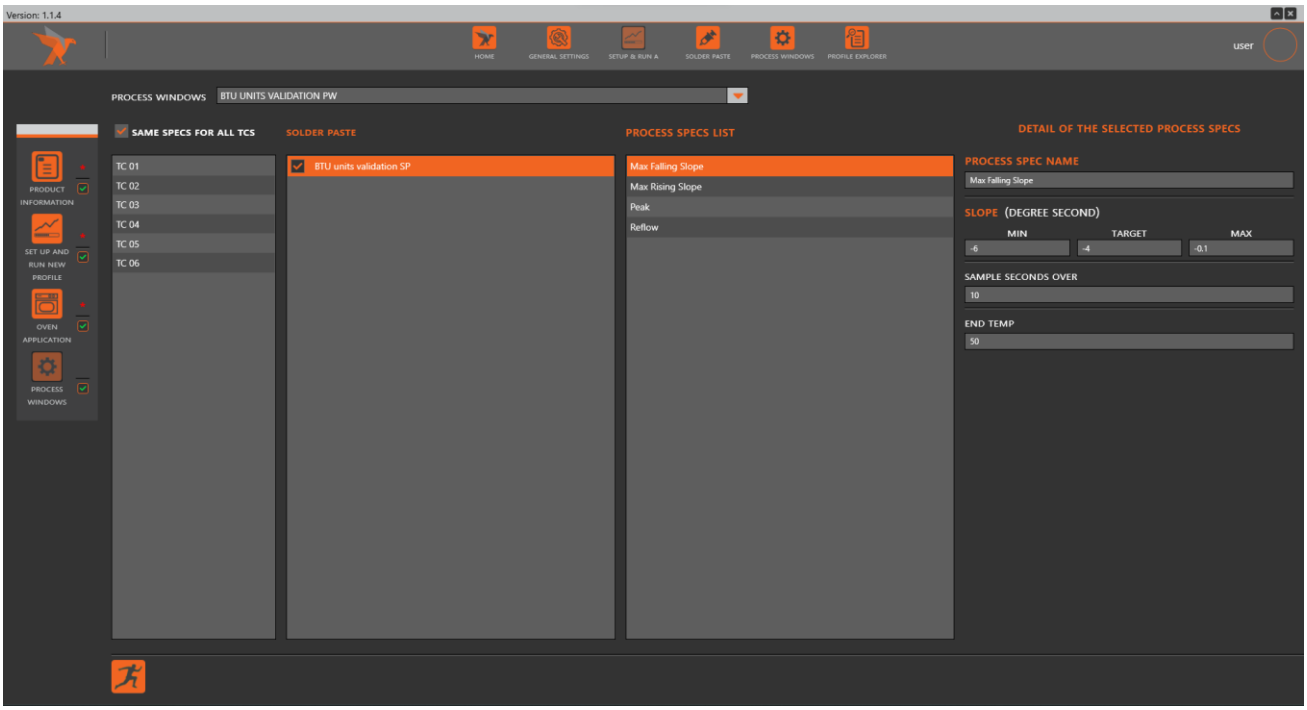
6 Config the profile parameters



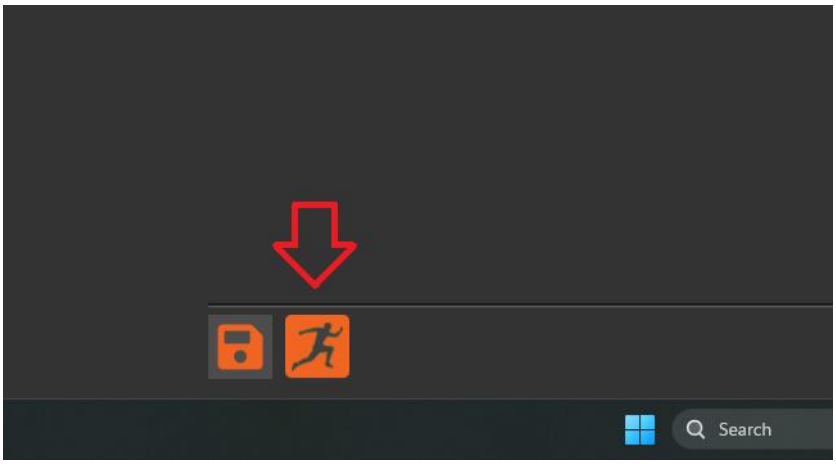
7 Select the oven and input the oven recipe



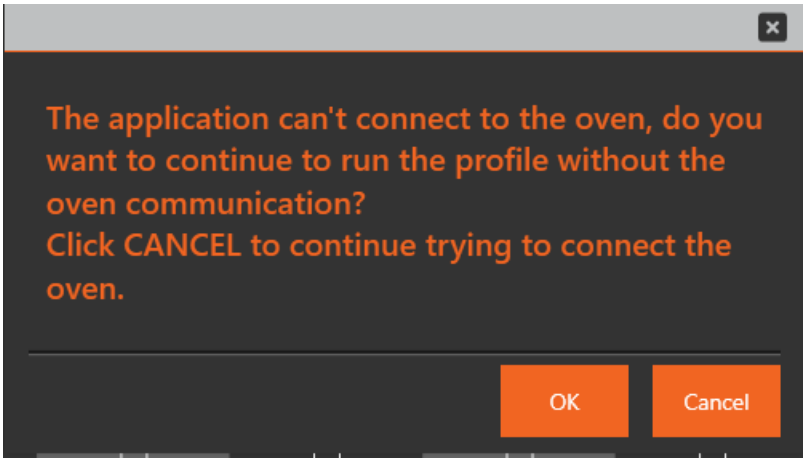
8 Choose the Process Window

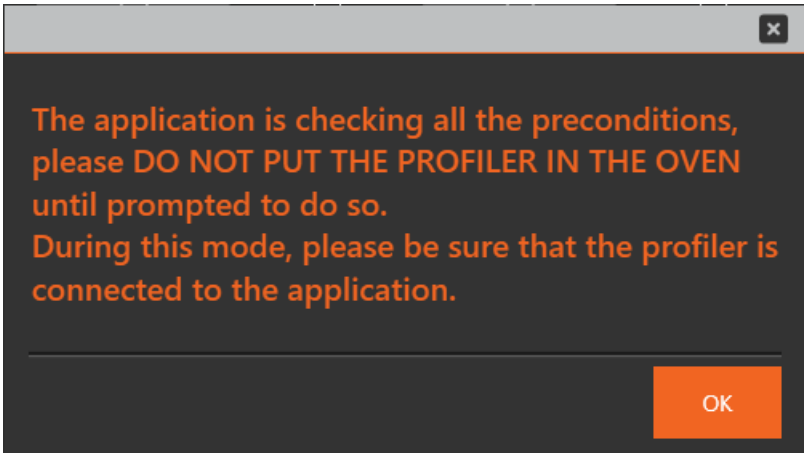


9 Click run button

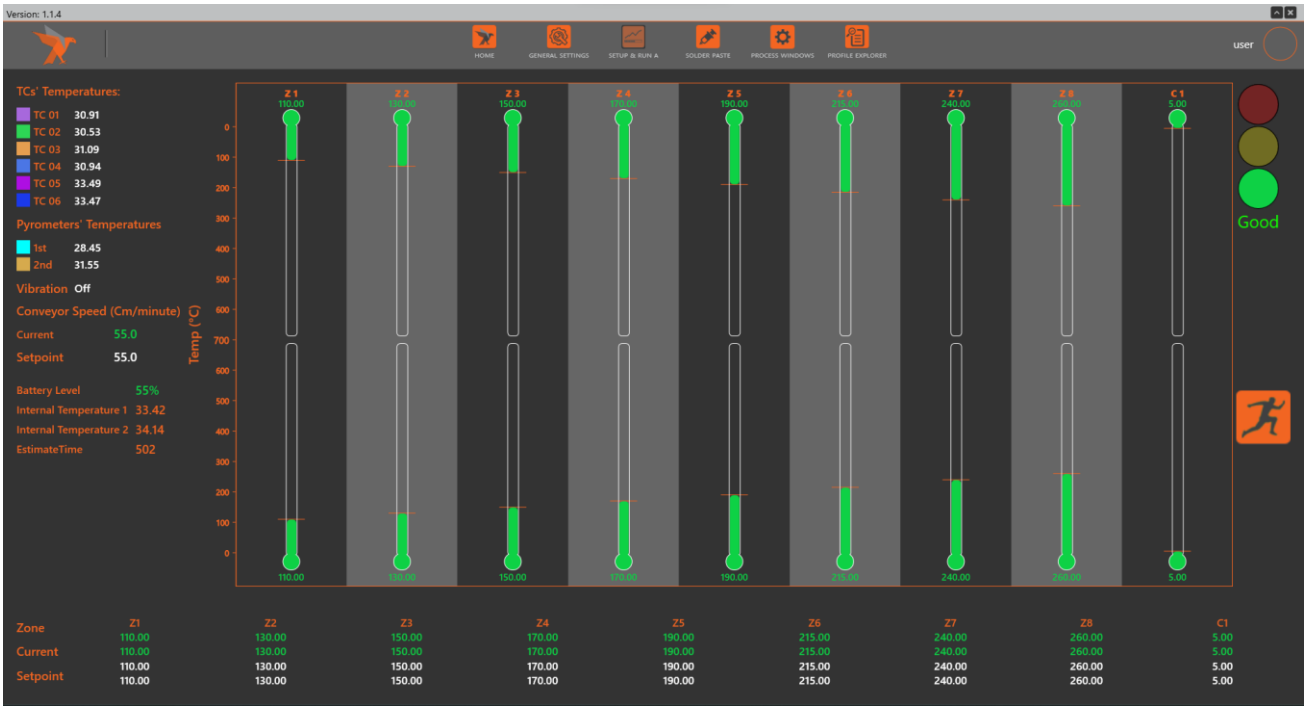


10 Click OK to follow the instructions

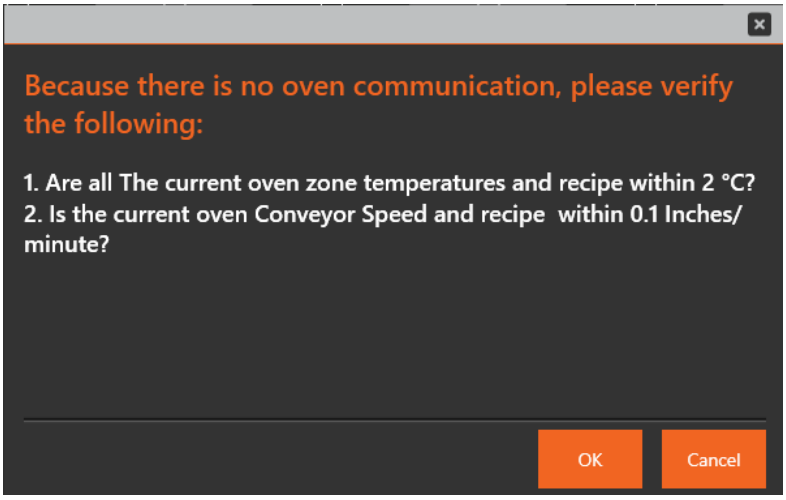




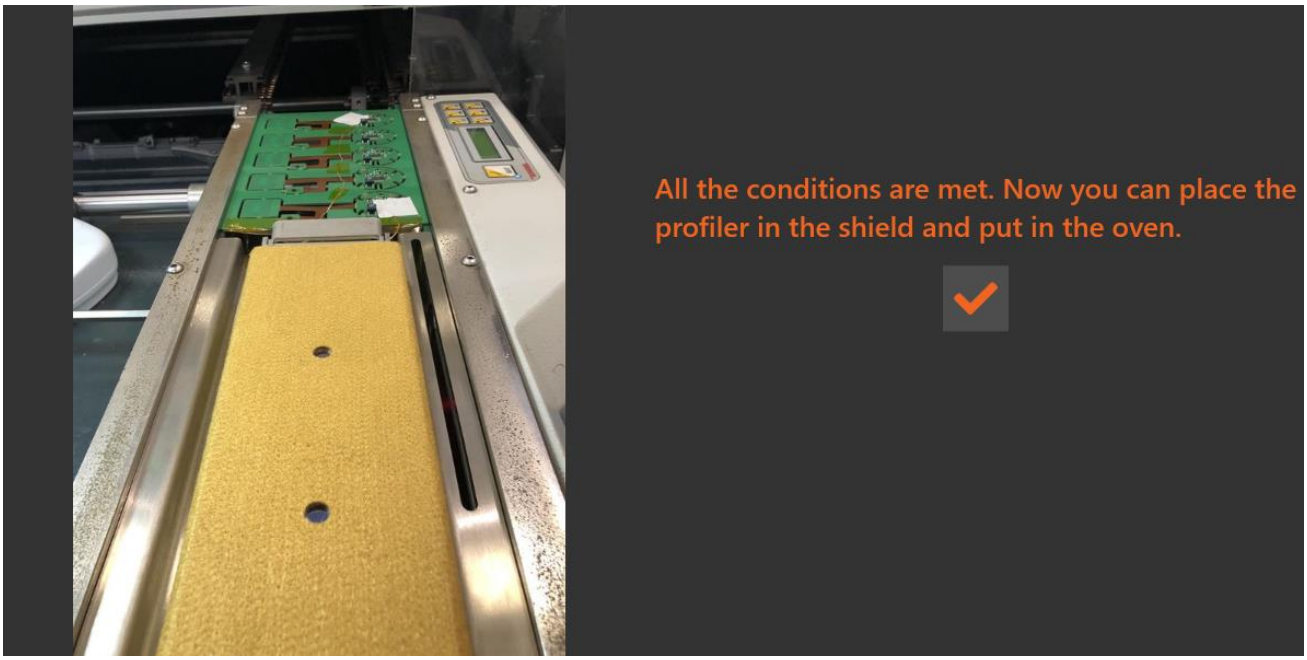
11 Click the run button



12 Follow the instructions

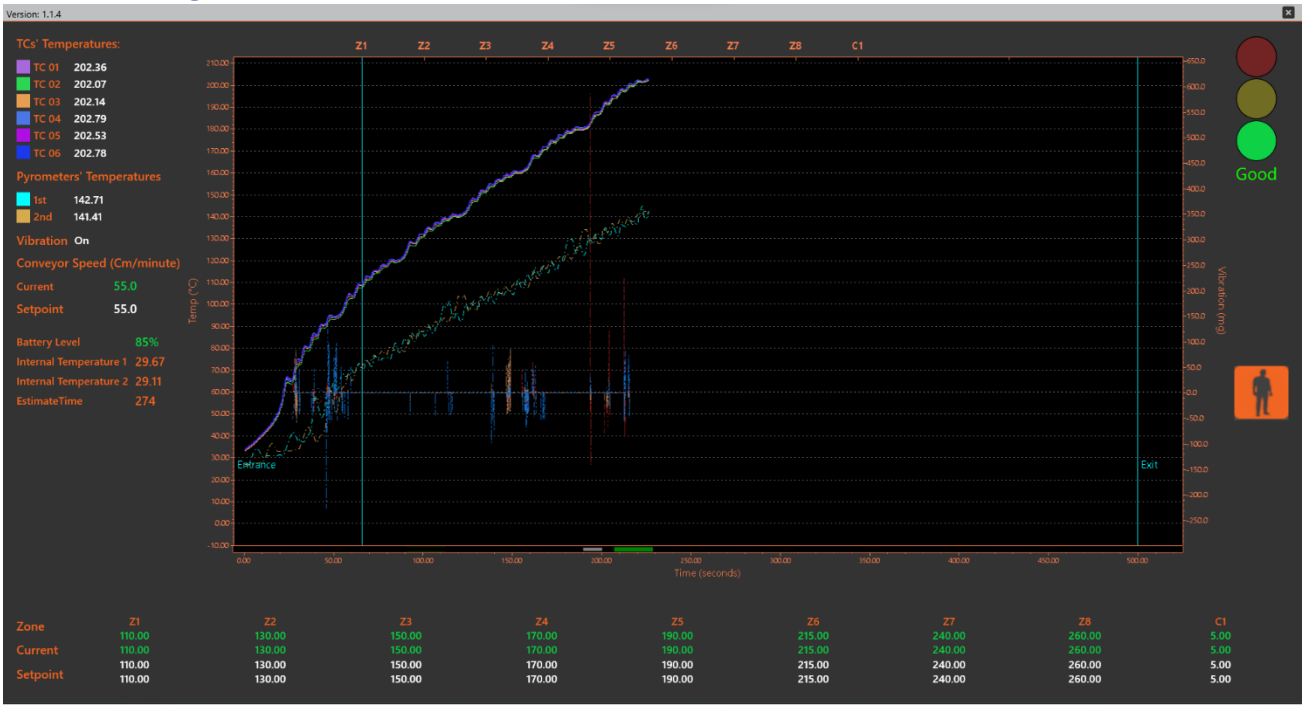


13 Put the unit inside the shield

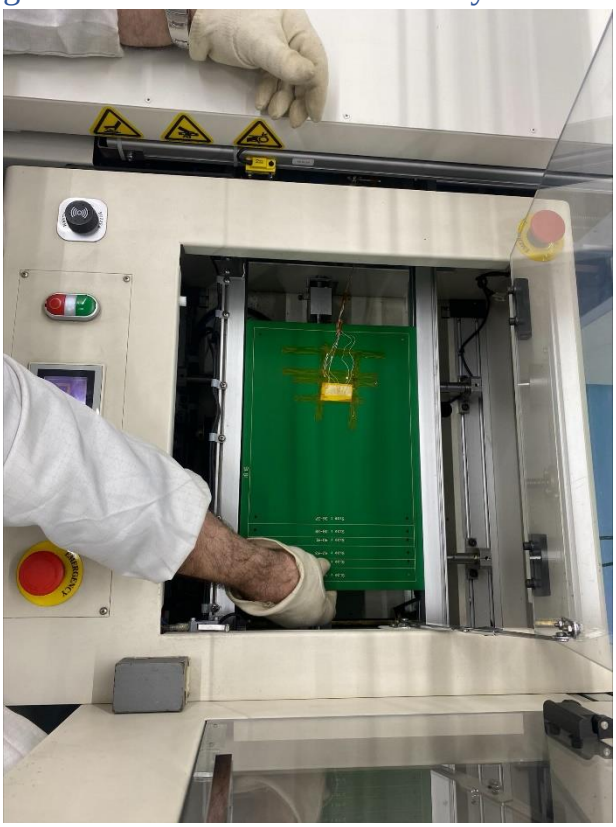


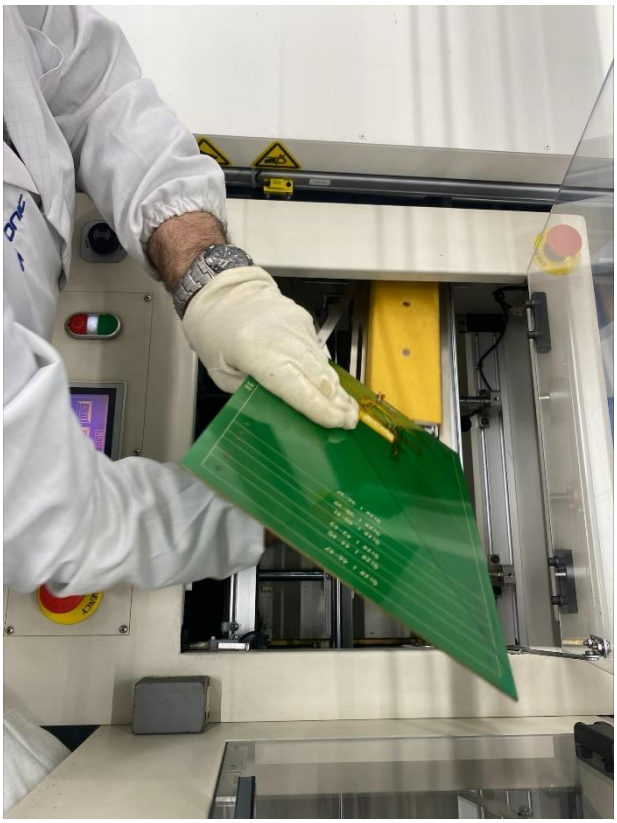
14 Mount the jig to the conveyor and mount the shield to the jig.

15 Monitoring the real-time data



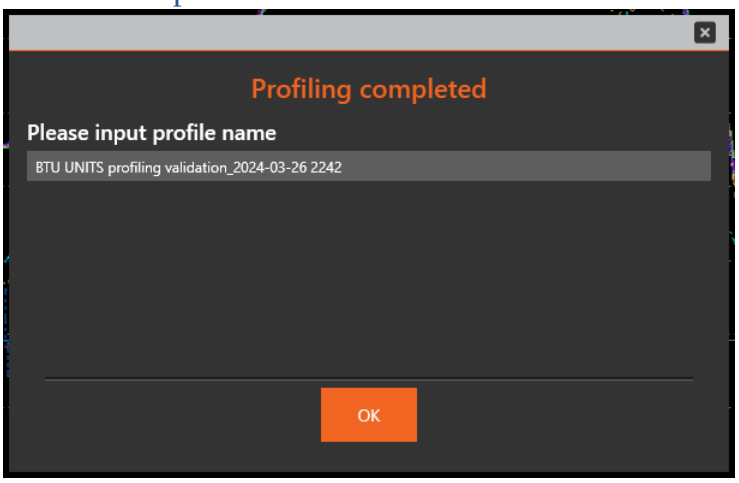
16 After the board and the profiler pass through the oven, take it out. Please wear thermal gloves as the hardware can be very hot.





17 Bring the profiler next to the PC to get the signal strength
18 Take the profiler out of the shield to cool it down

19 Save the profile.



20 Analyse the profile and re-run if necessary