

Profile Graph Display

Once the KIC 2000 software opens the *Profile Graph Display*, all the tabs at the top will be accessible. The *General Tab* will show the profile results for both the *Preheat* and *Wave* sections of the profile. You can select either the *Preheat* tab or the *Wave* tab above the *Statistic* table. See Figure 103.

Preheat Tab

The *Preheat* tab represents only the section of the profile before the wave. The KIC 2000 software draws a Blue rectangle around the area that is considered *preheat*. The profile statistics and set points which are shown below the profile graph depict only the *preheat* section of the profile, the profile data inside the Blue rectangle. See Figure 103.

Information regarding the *Wave TC's* is displayed in a window at the upper-Right hand corner of the profile graph. This information includes; Dwell time, parallelism, and the solder temperatures for the wave(s).



Figure 103: Profile Graph Display

Profile Information from the *Wave TC's* is displayed in a window at the upper-Right hand corner of the profile graph. See Figure 103 and Figure 104. This information includes; Dwell time and Parallelism in seconds, and the Solder temperature set point and actual for the *wave(s)* portion of the profile.

The Dwell time is measured by the *Wave TC's*. The Parallelism is the measured time difference between when the *Wave TC-Left*, and *Wave TC-Right* hit the wave.

Lambda Wave	
Dwell Time (left)	2.0 s
Dwell Time (right)	2.0 s
Parallelism:	+0.0 s
Solder Temp:	
Setpoint:	260.0
Actual:	263.0

Figure 104: Wave Information

The Solder Temperature set point is input by the user before the profile when entering oven set point information. The solder temperature value is measured by the *Air TC* during the profile.

Navigator – The Navigator software option will optimize only for the *preheat* section of the profile. The *Navigator* will not predict changes to the *wave* section of the profile.

Statistics - Below the profile graph is the *Profile Statistics*. The *Statistics* are a numeric representation of the profile and how well the profile fits the selected *Process Window*. The *Statistics* for this profile and the predicted profile are shown. A percentage value is displayed in each cell beside the *Statistic* value. This percentage represents the amount of *Process Window* being used. A PWI under 100% indicate the profile fits within the selected *Process Window*, a PWI 100% or higher indicates the profile has exceeded the selected *Process Window*. The KIC 2000 software will only display PWI values for the *Preheat Statistics*.

Original/Predicted Set points - Below the profile *Statistics* is the oven temperature and conveyor settings. The *original* set points represent the oven settings when this profile was run; the *predicted* settings represent the recommendation of the *Navigator* prediction software. If you did not purchase the *Navigator* option, the software will display the same oven settings for the *original* and *predicted* statistics. *Navigator* is an optional KIC 2000 software feature that automatically finds the best profile for your product based on your solder paste specifications.

The KIC 2000 software will not show the predicted set points should the user want to print the profile. If you wish to print the predicted set points, you can do so by pressing the F9 key. The F9 function key will print any active profile screen of the KIC 2000 software.

Wave Tab

The *Wave Tab* will show profile information specific to the wave portion of the profile. The KIC 2000 software draws a Blue rectangle around the area that is considered *Wave*. The profile statistics and set points which are shown below the profile graph depict only the *Wave* section of the profile. See Figure 105.

Wave PWI – If you entered Wave specific *Process Window* specs when setting up your *Process Window* then the *Wave PWI* will also be displayed when viewing the *Wave* tab. See Figure 105.

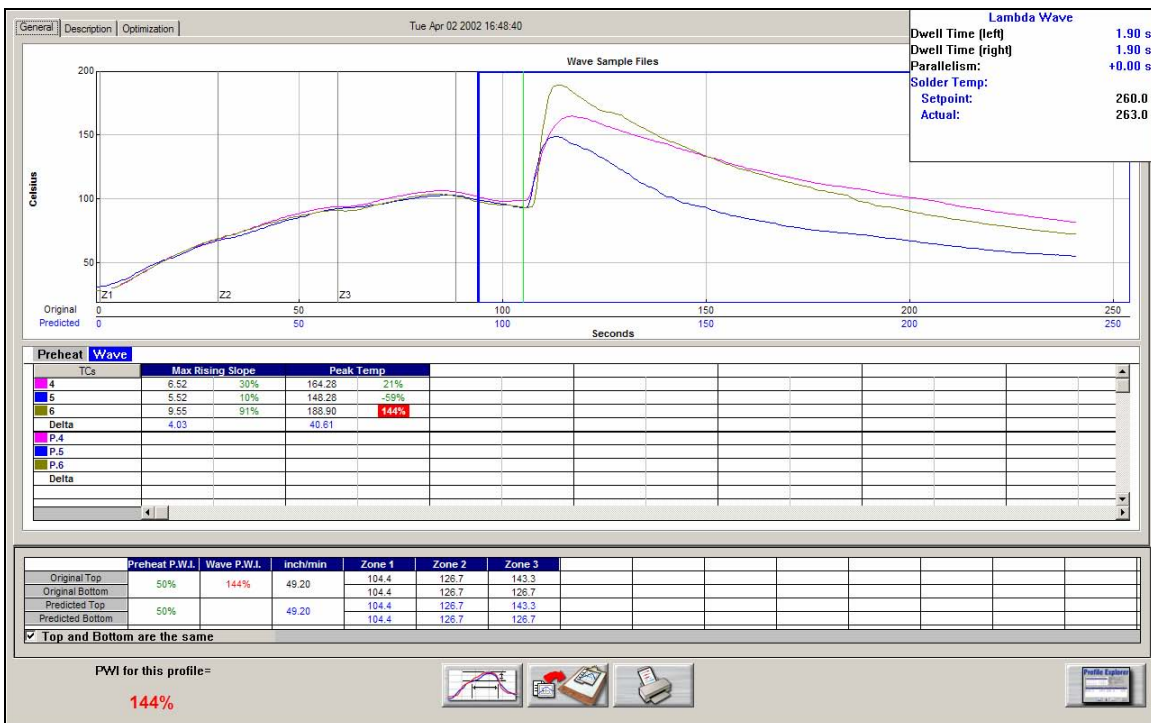


Figure 105: Profile Graph Display – Wave Tab

Manual Profile Prediction

The *KIC 2000* software has automatic (*Navigator*), and manual prediction capabilities. The standard *KIC 2000* software installation includes manual prediction capabilities.

Manual prediction gives the user the flexibility to easily predict changes to the oven settings (temperature settings, conveyor speed), and view the results without having to spend the time actually running the profile. This feature is very helpful to the user, minimizing the time spent fine tuning or developing a thermal profile. See Figure 106.

Original/Predicted set points – Manual Prediction

	P.W.I.	inch/min	Zone 1	Zone 2	Zone 3
Original Top	47%	49.2	220.0	260.0	290.0
Original Bottom			220.0	260.0	260.0
Predicted Top	47%	49.2	220.0	260.0	290.0
Predicted Bottom			220.0	260.0	260.0

Figure 106

Original/Predicted set points – Navigator (Optional)

	P.W.I.	inch/min	Zone 1	Zone 2	Zone 3
Original Top	47%	49.2	220.0	260.0	290.0
Original Bottom			220.0	260.0	260.0
Predicted Top	28%	49.2	220.7	256.1	284.5
Predicted Bottom			220.7	256.1	254.5

Figure 107

This is an example of how the *KIC 2000* software (*standard* and with *Navigator*) lists the “PWI, and oven settings for the profile. This table is divided into the *original* section (top), and the *Predicted* section (bottom). The *original* values represent the oven settings at the time the profile was run. The *predicted* values represent the prediction results as determined by the *Navigator* software. See Figure 107.

If you purchased the *Navigator* software option, the *KIC 2000* software will automatically generate results that are best suited for the selected *Process Window*. In the event you wish to modify the prediction results of the *Navigator*, you can do so.

To predict changes to the oven settings, or modify the *Navigator* prediction results, click on the zone you wish to change. In the example below, zone 1 has been selected. See Figure 108.

	P.W.I.	inch/min	Zone 1	Zone 2	Zone 3
Original Top	47%	49.2	220.0	260.0	290.0
Original Bottom			220.0	260.0	260.0
Predicted Top	47%	49.2	230	260.0	290.0
Predicted Bottom			220.0	260.0	260.0

Figure 108

Type the new temperature setting, and then press *Enter*. The *Navigator* will predict the results of that change, and then automatically update the PWI, *predicted Statistics*, and the profile graph. The new predicted results will be displayed on the graph in a dotted-line format. This format enables the user to easily determine the difference between the *original* and *predicted* profiles. See Figure 109.

Profile Graph Display

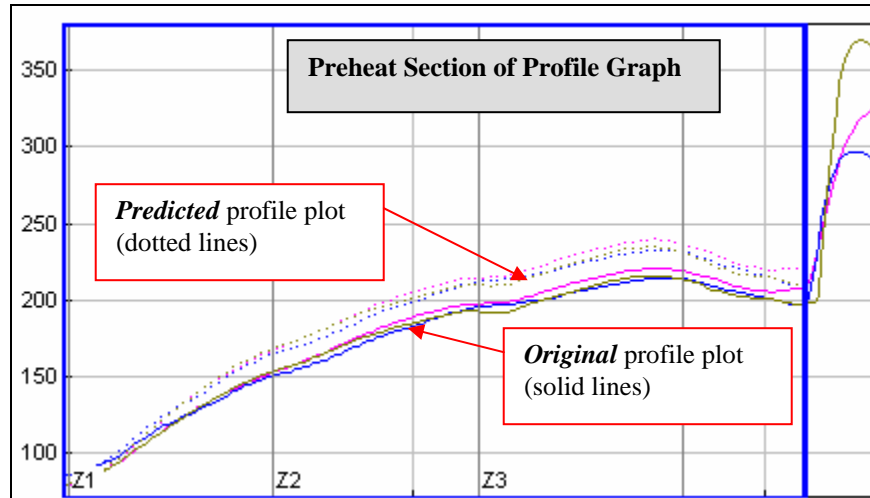


Figure 109

The PWI for the profile is displayed in the bottom-Left corner of this screen. If the measured PWI is below 100%, the value will be displayed in a Green font. See Figure 110. If the measured PWI is 100% or higher, the value will be displayed in a Red font. See Figure 111.

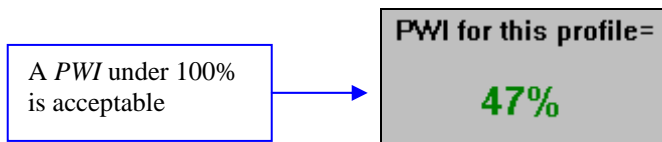


Figure 110: PWI In-Spec

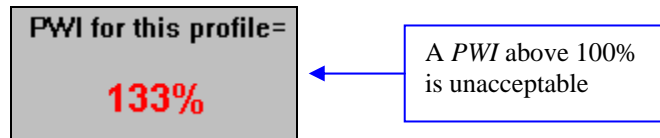


Figure 111: PWI Out-of-Spec

This display method enables the user to easily identify if the profile is in or out of spec.

Graph Controller

The *Graph Controller* allows the user to modify the view of the *KIC 2000*-profile graph. To open the *Graph Controller*, Left-click on the *TC* column header in the *Statistics* table or Double-Left-click, anywhere just outside the profile graph.

Auto Scale – The *Auto Scale* feature will automatically adjust the X, and Y axis scales to fit all of the data in the profile graph. When the *Auto Scale* feature is disabled, the user must manually input the minimum and maximum scale settings for the X, and Y axis scale of the profile graph.

Selecting Thermocouples to View

The *TC*'s section is a list of the thermocouples used for the profile. By selecting *All* you are selecting that all the thermocouples used for the original profile will be displayed on the profile graph. In the event that you wish to view the profile without a particular or multiple thermocouples, you can deselect individual thermocouples, or deselect the *All* check box, and choose only the thermocouples you wish to view.

Deselecting Thermocouples

If a thermocouple has become disconnected during the profile, the profile results may be affected due to above normal peak temperatures and such. This situation may cause the profile *PWI* value to be artificially inflated due to bad data. In the event a single or multiple thermocouples become disconnected from the product during the profile, you can deselect the affected thermocouple(s). The *KIC 2000* software will recalculate the *PWI*, and update the profile statistics based on the remaining thermocouples selected. You must select at least one product thermocouple.

Grid – Enables/disables the view of the X, and Y-Axis scales.

Reference Lines – Enables the view of *Reference Lines* displayed on the profile graph. These lines represent any temperatures referenced in the selected *Process Window*.

Zone Lines – Enables the view for the oven zone lines on the profile graph.

Predicted TCs Only - Removes the Original profile plot from view, displaying only the prediction profile plot on the graph.

Zero Decimal – When viewing the Pointer tool, this setting enables or disables the decimal display. When unchecked, the software will display one decimal point.

Internal Temp – Enables the view of the *KIC profiler's* internal temperature profile plot on the graph.

Display Wave TC's – Enables the display of the Wave *TC*'s and the Divider Timestamp Line on the profile graph

Distance From Air TC – Displays the *Distance From the Air TC* for each thermocouple. You can edit these values. These values were originally entered before the Profile start.

Wave TC 1/TC 2 – Distance from *Air TC* to each *Wave TC*.

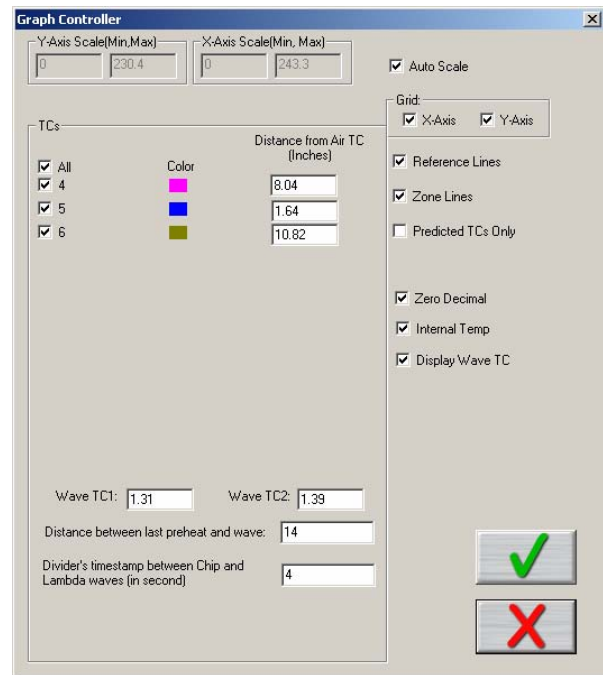


Figure 112: Graph Controller – Wave-On

Distance Between Last Preheat and Wave – This is the distance from the main wave to the last preheat zone. You can edit this if necessary. This value was originally entered by the user in the *Entering Oven Recipe* screen.

Dividers timestamp between Chip and Lambda waves (in seconds) – Time between waves in seconds.

Chip and lambda wave measurements

In some situations the KIC 2000 software will not display the *Wave-On* profiles correctly. This can be caused by many factors. An incorrect display for the *Wave* portion of the profile display can effect the *Dwell Time* and *Parallelism* measurements and in some cases only displays information for 1 wave even though there are 2 waves present.

If you experience a problem with the *Wave-On* profile display, you can adjust the display manually. This will ensure that the KIC 2000 software *Wave-On* profile display is as accurate as possible.

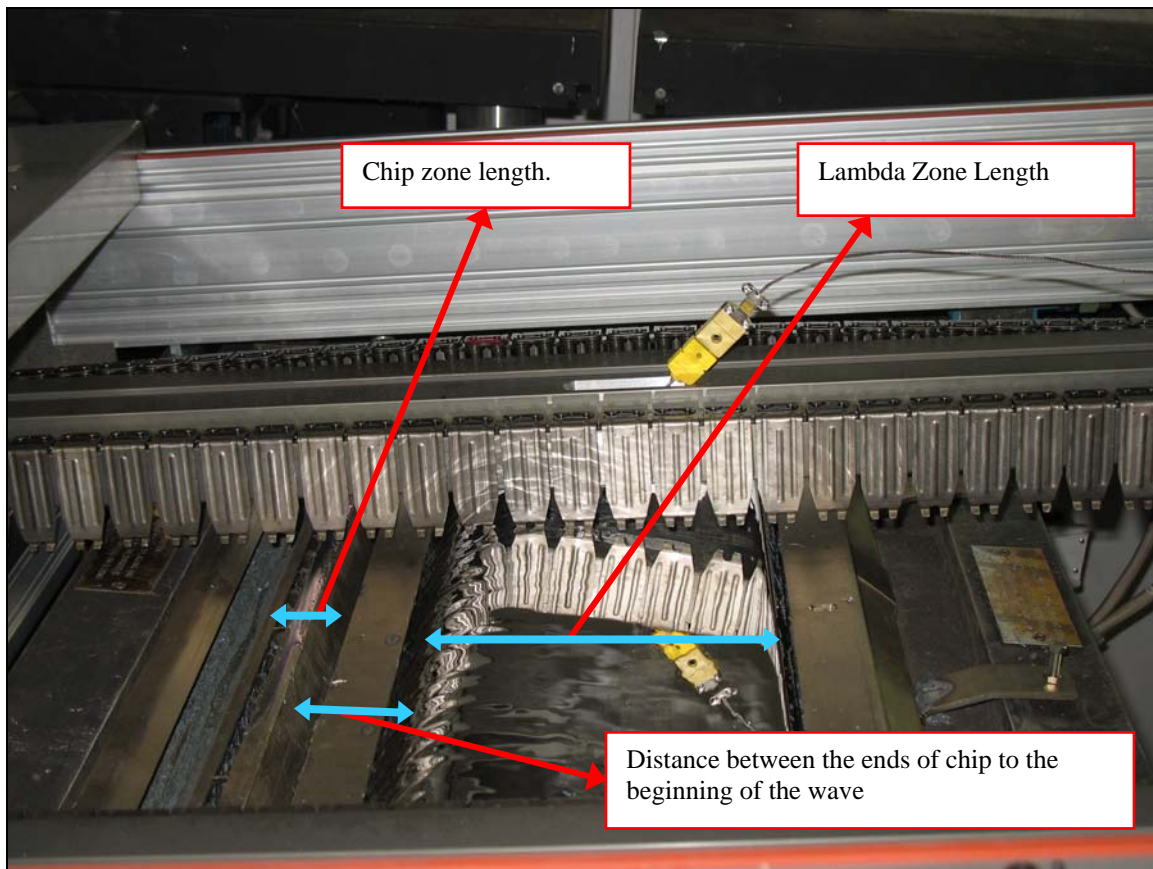


Figure 113: Dual-wave Wave Solder Machine - Wave measurements

In order for the *KIC 2000* software to display the *Wave-On* profiles correctly, the user can manually enter the Wave Machine measurements in the *Oven* configuration file. See Figure #1 for details of each required measurement.

File Name to edit: C:\KIC Profiler 2000\Ovens**yourwaveovenname**.kiccfg:

1. Enter the measurements for the required items listed below: See Figure 113 for details of each required measurement.

```
[HOST]
LambdaLength=
ChipLength=
fChipLambdaDistance=
UnitsEnumForWave=0 (0=Inches, 1=Centimeters)
```

2. After the measurements have been input, save the file and then close it.

From this point-forward all profiles run using this same oven name will be displayed using the values input in the previous step.

Divider Timestamp between Chip and Lambda Waves

If you receive an incorrect calculation result for the *Wave(s)* portion of the profile, such as: there should be 2 waves but it shows only 1, or the *Dwell Time* appears to be incorrect, then it may be necessary to adjust the *Divider Timestamp between Chip and Lambda Waves*.

Here are the steps to follow on how to manually change the *Divider Timestamp between Chip and Lambda Waves* line position on the profile graph.

1. Open a Wave-On profile from the Profile Explorer or have a Wave-On profile (that has just been run) displayed on the Graph screen.
2. Launch the Graph Controller. To enable, Left-click outside the Graph area. See Figure 116.
3. Select the *Display Wave TC's* check box. See Figure 114.

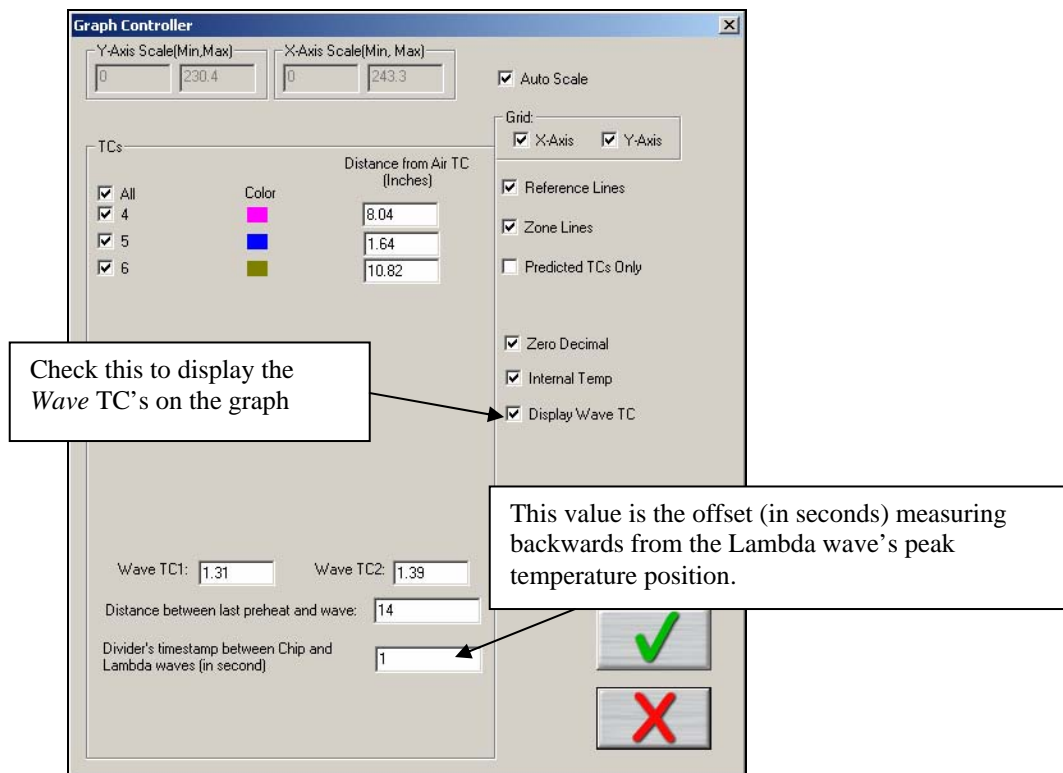


Figure 114: Graph Controller – Wave-On

4. Select the Green-Check button to save the changes made and return to the Profile Graph display. See Figure 114.

Whenever a change is made in the *Graph Controller* that affects the profile display A *KIC* message will appear asking the user if the changes should be saved or not. See Figure 115.

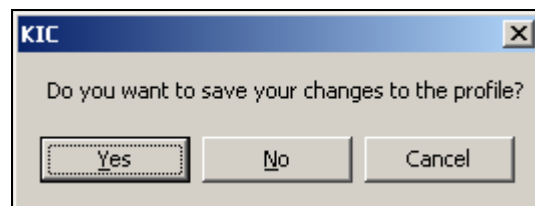


Figure 115

When returned to the profile graph, you will see the *Wave TC's* and the *Divider Timestamp between Chip and Lambda Waves* line between waves is displayed (shown in light green). See Figure 116.

If you notice that the *Divider Timestamp between Chip and Lambda Waves* line is not positioned between the 2 waves or is located before the Lambda wave (see the ideal location for the Divider Line between Chip and Lambda Waves section), then an adjustment must be made in order to display the waves and *Divider Timestamp between Chip and Lambda Waves* line properly.

Below is an example of an incorrect *Divider Timestamp between Chip and Lambda Waves* measurement display:

Notice:

Only 1 wave is displayed even though there are really 2 waves present. See Figure 116.

The *Divider Timestamp between Chip and Lambda Waves* line is positioned incorrectly. It should be positioned between the Chip and Lambda Waves and not inside the Lambda wave as displayed. See Figure 116.

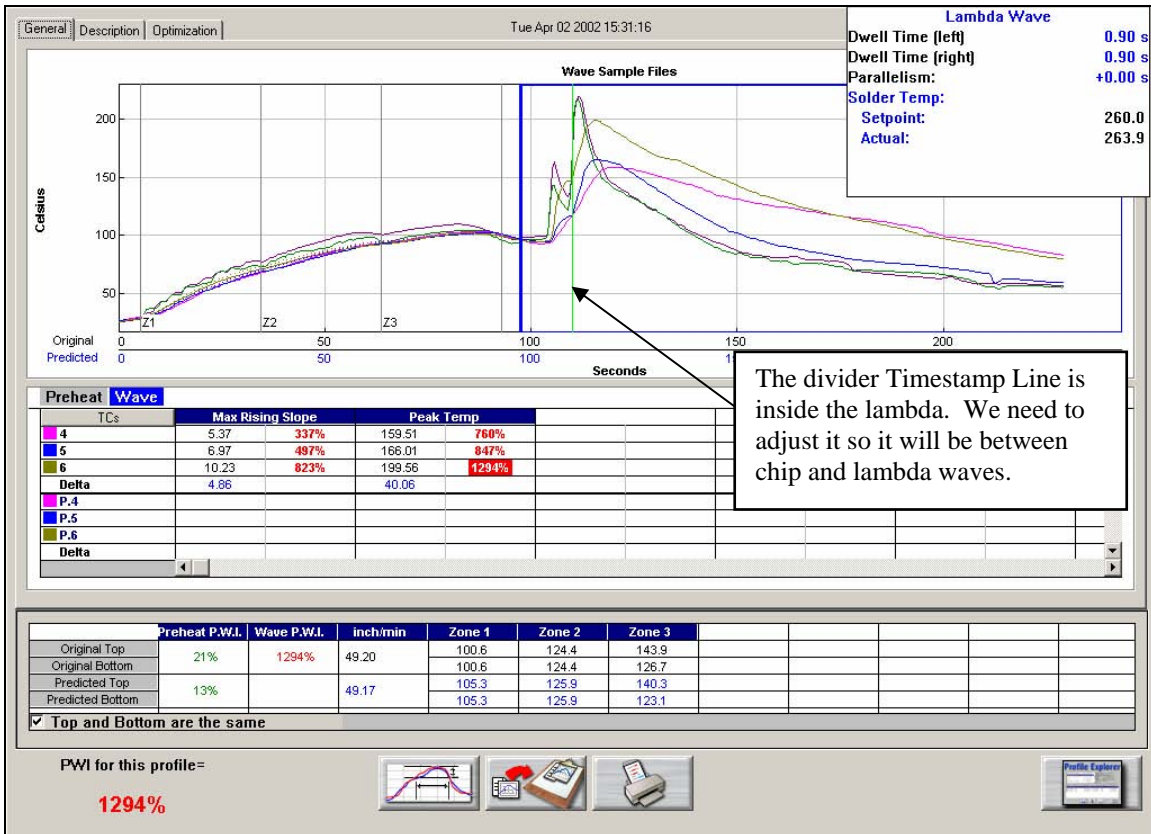


Figure 116

Launch the *Graph Controller*, to enable Left-click outside the Graph area. See Figure 116.
 The current *Divider Timestamp between Chip and Lambda Waves* is set to a value of 1". See Figure 117.

To move the *Divider Timestamp between Chip and Lambda Waves* line backward on the graph, enter a higher value. To move *Divider Timestamp between Chip and Lambda Waves* line forward on the graph enter a lower value.

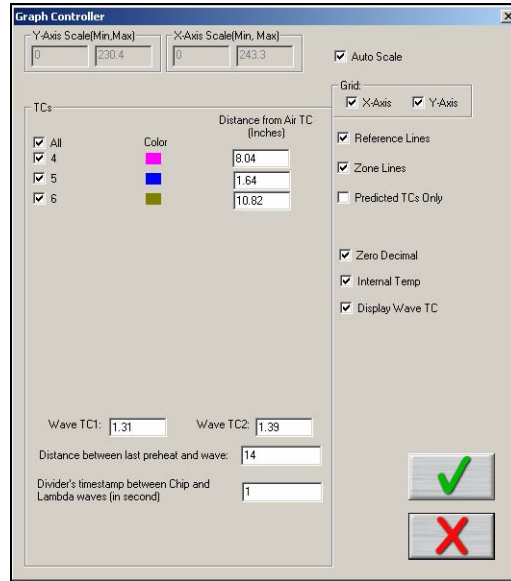


Figure 117: Graph Controller – Wave-On

The ideal position for the *Divider Timestamp between Chip and Lambda Waves* is the Lambda wave Dwell time + 1-2 seconds. For this example, the *Divider Timestamp between Chip and Lambda Waves* should be set to 4 seconds. (2 seconds Dwell + 2 Seconds) See Figure 118.

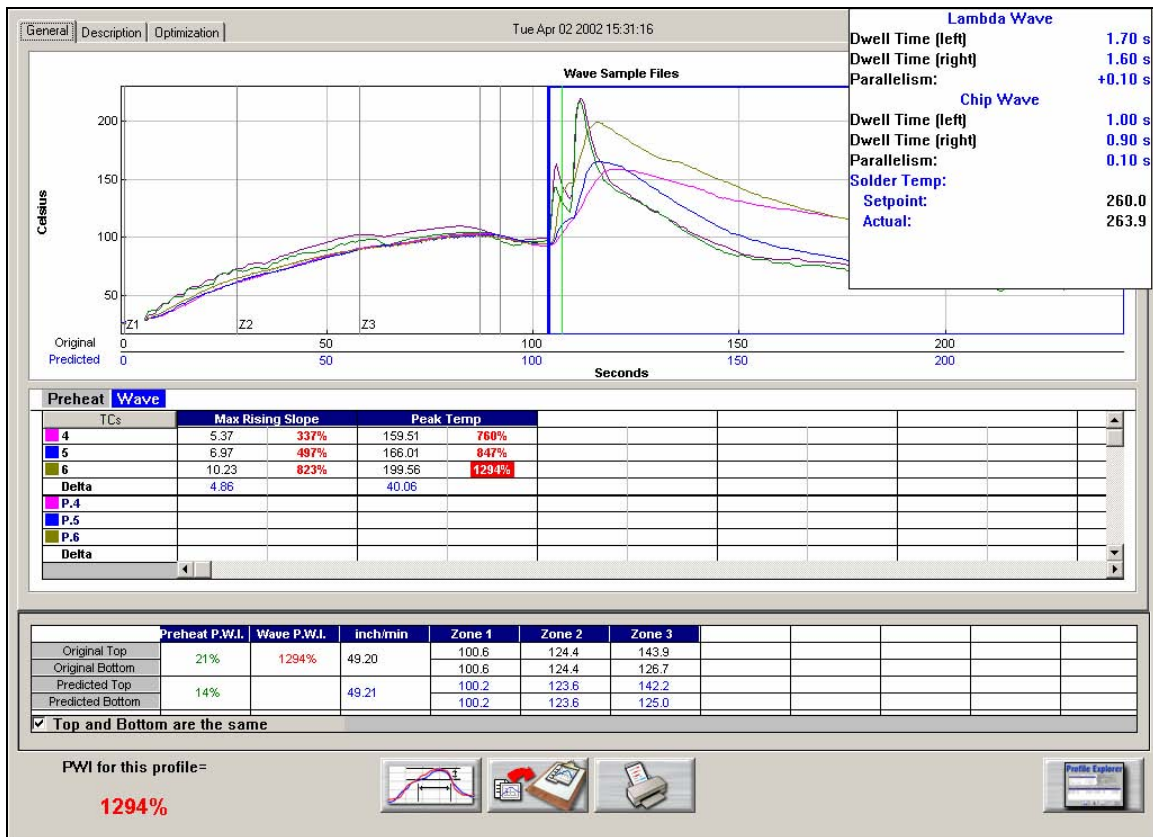


Figure 118: Divider Timestamp between Chip and Lambda Waves line is displayed in the correct position

The Wave-On profile is now displayed correctly showing 2 waves and the *Divider Timestamp between Chip and Lambda Waves* line is displayed in the correct position. See Figure 118.

You can go back to the *Graph Controller* and turn off the *Display wave TC's* option if you do not wish to view them in the profile graph display. .

The ideal location for the Divider between chip and lambda waves line.

The correct *Divider Timestamp between Chip and Lambda Waves* line position will help to improve the calculation of the Wave TC's (Dwell Time and Parallelism).

The ideal *Divider Timestamp between Chip and Lambda Waves* line should be positioned between the 2 waves (Chip and Lambda waves) but not inside the Lambda wave. See Figure 119 through Figure 122.

Figure 119 through Figure 121 show examples of incorrect positioning of the *Divider Timestamp between Chip and Lambda Waves* line.

Figure 119 shows that the *Divider Timestamp between Chip and Lambda Waves* line is not positioned correctly, as a result the line is displayed inside the Lambda wave.

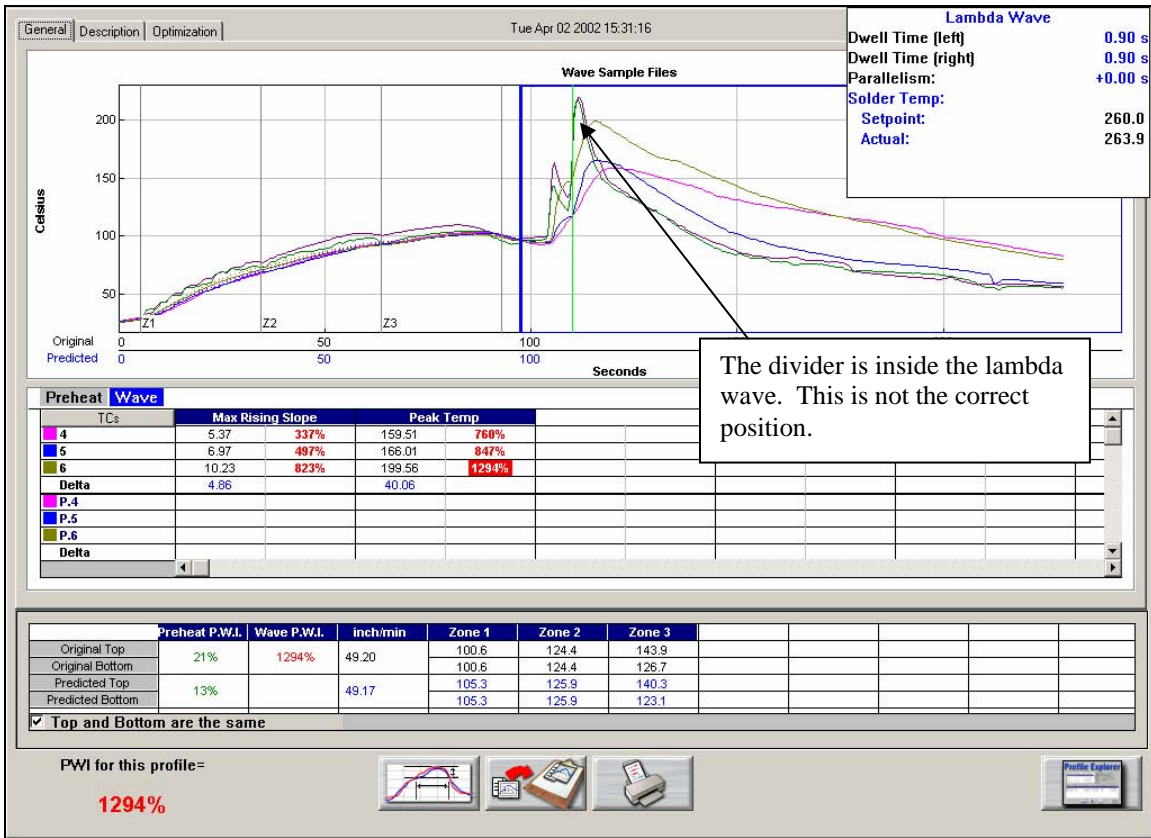


Figure 119: Divider Timestamp between Chip and Lambda Waves = 1-inch

Figure 120 shows that the *Divider Timestamp between Chip and Lambda Waves* line is not positioned correctly, as a result the line is inside the chip wave.

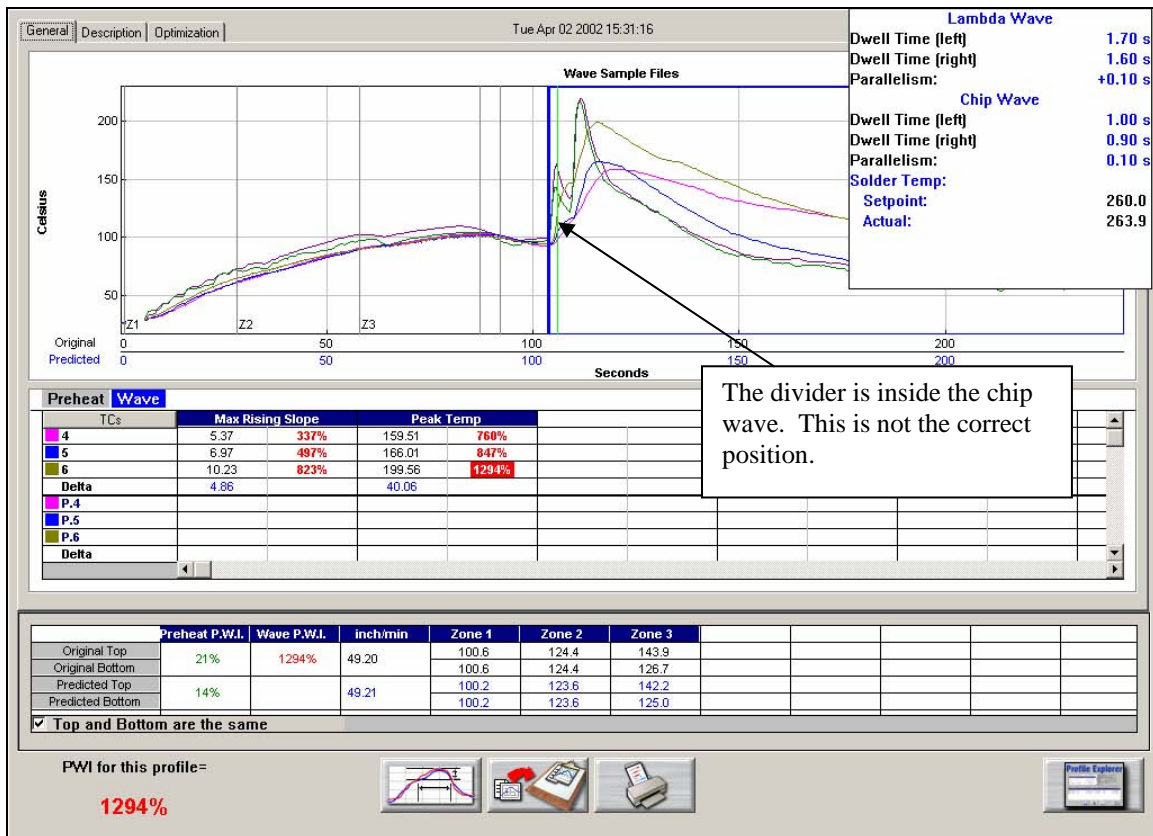


Figure 120: Divider Timestamp between Chip and Lambda Waves = 5-inches

Figure 121 shows that the *Divider Timestamp between Chip and Lambda Waves* line is not positioned correctly, as a result its position is outside both the Chip and Lambda waves.

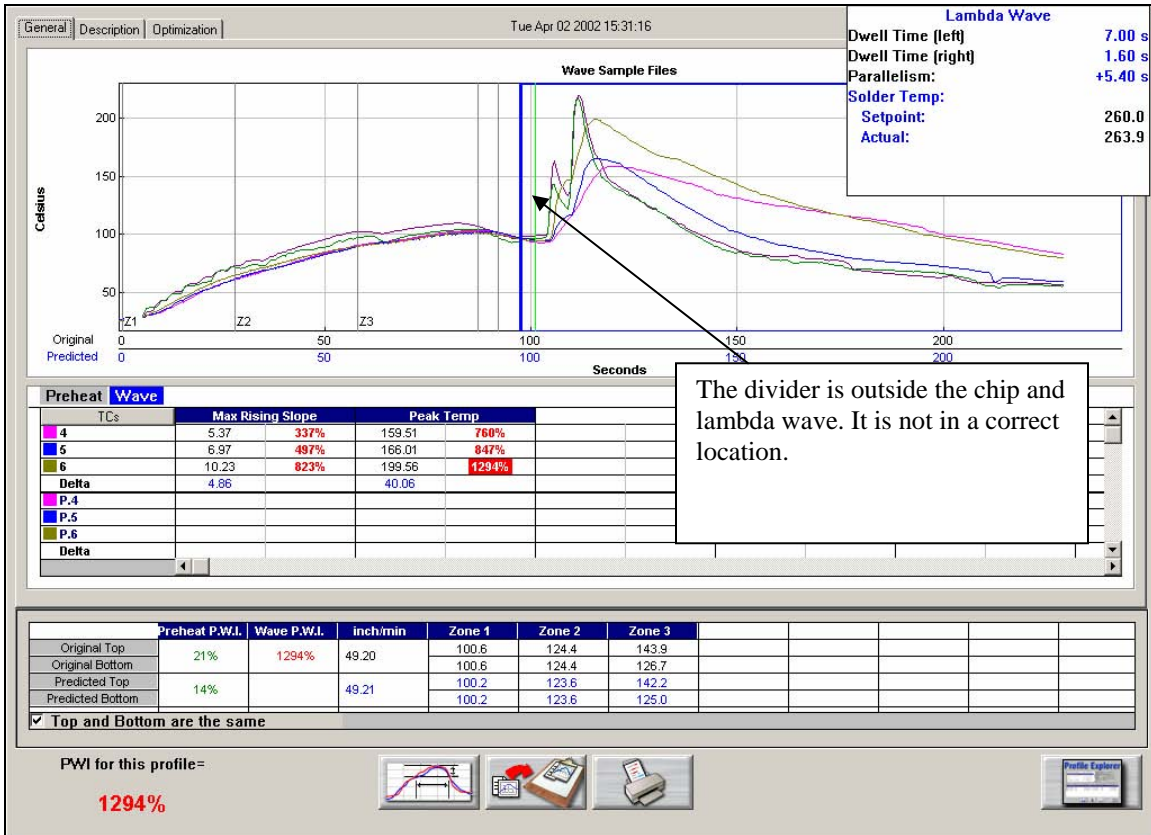


Figure 121: Divider Timestamp between Chip and Lambda Waves = 10-inches

Figure 122 shows the ideal location of the *Divider Timestamp* between *Chip and Lambda Waves* line. The line is positioned after TC1 and TC2 have passed the Chip wave and before the TC's hit the Lambda wave.

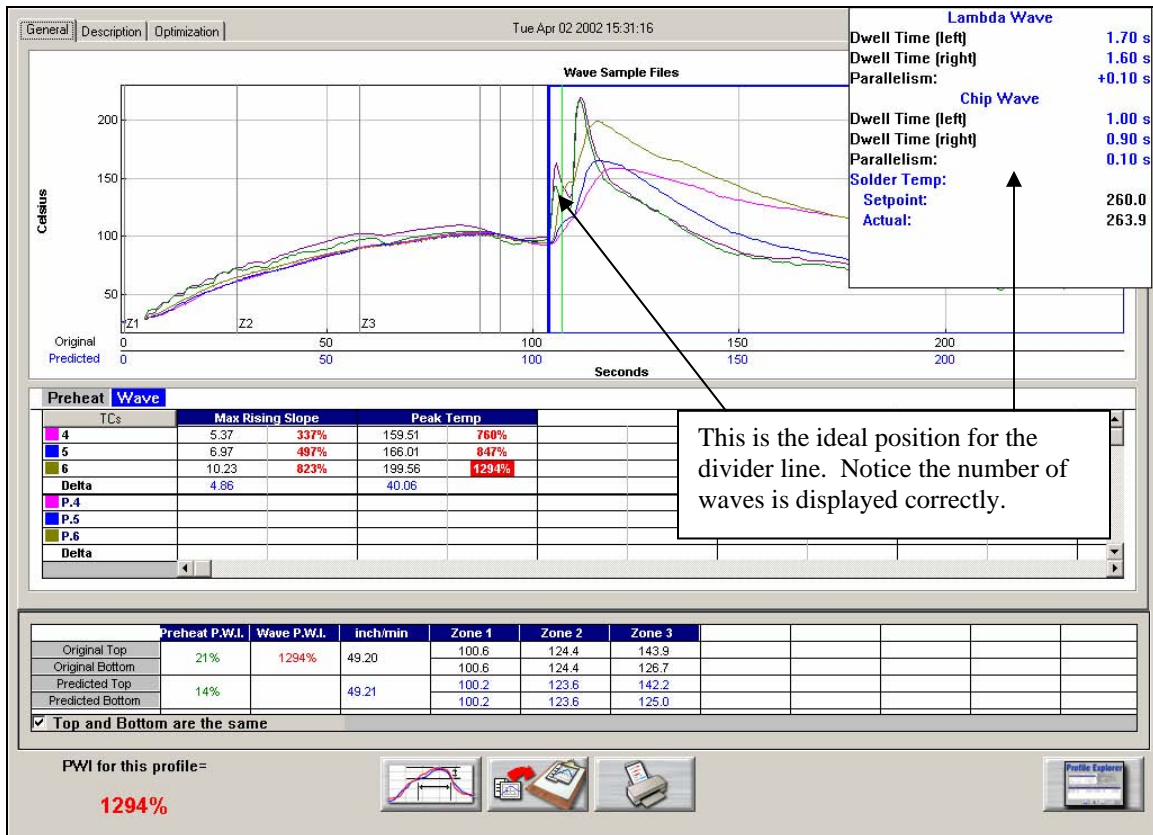


Figure 122: Divider Timestamp between Chip and Lambda Waves = 4-inches

If you have any questions or need assistance with wave solder profiling or to manually change the *Divider Timestamp between Chip and Lambda Waves* value contact KIC Technical Support: tech@kicmail.com.

Tips for Profiling Wave Solder

Listed below are tips for profiling wave solder machines using your *KIC Profiler*. These tips are intended to help you in profiling your wave solder machine.

Your process may not match the pictures below.

Contact *KIC* Technical support if you have any questions regarding wave solder profiling using your *SlimKIC 2000* or *KIC Explorer* profiler. tech@kicmail.com.

- Wave solder profiling is simplified with the *Wave Surfer* device. If you are not using a *Wave Surfer* device, use a blank, spare board, or palette to carry the *KIC Profiler* on. It may be helpful to secure the *KIC profiler* and *Thermal Shield* to the board/palette.
- During the profile, you can run the *KIC Profiler* in front or behind the profile board. See Figure 123.
- Run the thermal shield upside-down to prevent any solder from contacting the *SlimKIC 2000*. See Figure 123.
- Use a board stiffener when available. This will help prevent the board from sagging due to the weight of the *KIC Profiler*.
 - This will also help prevent liquid solder from flowing onto the board, possibly contacting the *Thermal Shield* or *KIC Profiler*.
 - It is helpful to raise the *SlimKIC 2000* thermal shield at least 1/8" to 1/4" off the carrier board/palette in order to prevent any liquid solder from entering the *Thermal Shield*. See Figure 123.
- You can run the profile with or without the spray fluxer active. If you choose to run wave solder profiles with the spray fluxer on, you run the risk of contaminating the *Wave Surfer* or Thermal shield. If operating properly all the spray flux should be removed by the process.

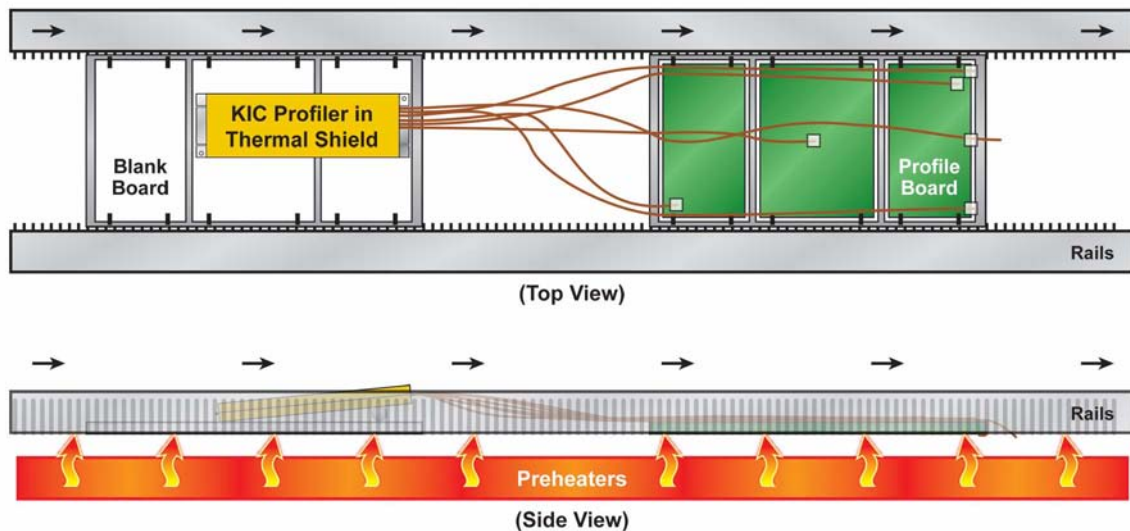


Figure 123: Profiling Wave Solder Using a KIC Profiler

Cure Profiling

The process for running a Cure profile is very similar to the *KIC 2000* software *Reflow* application. You may have to define your own spec, as the *KIC 2000* software does not contain process windows specifications designed for cure applications.

From the *KIC 2000* Main Menu select the *Run Profile* button. See Figure 124.

This is the button that has a picture of a PCB. A text label will be displayed as you place the mouse pointer over each button.

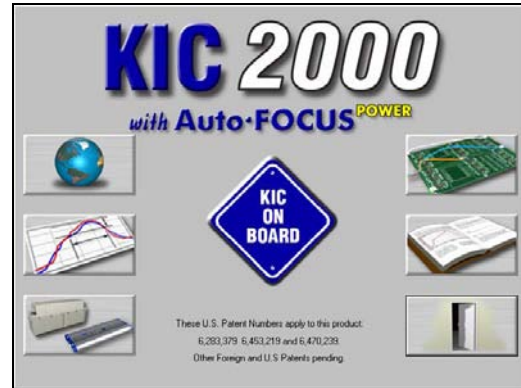


Figure 124: KIC 2000 Main Screen

Name Product and Select Process Window/Application type

Figure 125: Run a Profile Screen #1

- Select your product name from the list. If you're profiling a new product type the name.
- Select your *Process Window* from the list.
- Select your process type from the application list. The *KIC 2000* software profile and prediction results are based on this setting, it is imperative that you select the correct application type. Failing to do so can affect the profile results. Choose *Cure*.
- Select your *oven name* from the list. If you're profiling on a new oven or machine, type the name in the *Oven Name* field.
- Optionally you can type notes or descriptions for this profile in the "Profile Description" field. These notes will be stored with the profile and can be edited later if necessary.

When you are satisfied with your selection, choose the "Next" arrow to proceed. The software will step you through the screens in order to run a profile. See Figure 125.

Cure Profile Trigger temperatures

Cure	
Profile start	33°C/92°F
Mid trigger	100°C/212°F
Profile end	80°C/176°F

If you have any questions, contact KIC Technical Support. tech@kicmail.com, (858)-673-6050 anytime.

Temperature vs. Time profiling

The *Temperature vs. Time* feature allows the user to profile a large variety of processes. By allowing the user to make a simple temperature/time profile they will have the ability to run profiles and set up experiments for practically any thermal process. This would include, batch processes for cure, environmental temperature cycling, rework, hi-temp process, etc. Additional capabilities include being able to measure temperatures from -150 to 1050. *Temperature vs. Time* profiling is different than the other application types.

Differences include:

- The *KIC Profiler* will not utilize temperature triggers for starting/stopping the profile. These actions are performed manually.
- *TC #1* is not used as an *Air-TC*; it behaves as a normal *TC*. *TC #1* can be included in *Process Window* calculations. Data for *TC #1* is displayed on the profile graph. Using any other application type, it is not.
- *KIC 2000* prediction capabilities by design are not compatible with *Temperature vs. Time* profiles. The *Navigator* prediction tool as well as *Auto-Focus* will not work on *Temperature vs. Time* profiles. *PWI* is calculated for each profile.
- The *KIC Profiler* must remain connected to the communication cable throughout the *Temperature vs. Time* profile. This includes *SlimKIC 2000* Profilers with RF capability.
- *KIC Explorer* Profilers can utilize the RF option for wireless *Temperature vs. Time* profiles.
- Using *Temperature vs. Time*, users can measure negative temperatures. Because temperature triggers are not used, the *KIC 2000* software can display data as low as -150C.

Sample Rate

When the *Temperature vs. Time* application is selected a fixed number of 5000 data points divided by the *Expected Profile Length* is used to display the profile.

Note: To decrease the number of samples, enter a longer Expected Profile Length.

KIC 2000 software

This section will outline the information necessary to set up and run a *Temperature vs. Time* profile using your *KIC Profiler* and *KIC 2000 software*. This section is written assuming the user has a basic understanding of the *KIC 2000* software before attempting to run a *Temperature vs. Time* profile.

Global Preferences

Units of Measure – Set the unit of measure for each item. These settings will determine the units used to display the profile graph.

Product Start Temperature - The default setting is 31C. This setting is used for *Temperature vs. Time* profiling even though temperature triggers are not used. Instead the profile can start as soon as the *Start Profile* button is selected and as long as the product TC's are below this temperature setting.

Profiling Hardware –Even if you have a *SlimKIC 2000* or *KIC Explorer* profiler that has RF capability, the *KIC Profiler* must remain connected to the communication cable throughout the duration of the *Temperature vs. time* profile.

Auto Focus Tab – The *Auto Focus* feature by design is not compatible with *Temperature vs. Time* profiles.

If you have made any changes, be sure and select the Green check mark button to save those changes when exiting the *Global Preferences* screen.

Process Window Setup

The *Process Window* is a set of limits applied to the profile data. The user has the option of either not using a defined *Process Window* in which case no *PWI* will be calculated, or define a *Process Window* and have the *KIC 2000* software calculate and display a *PWI* for that profile.

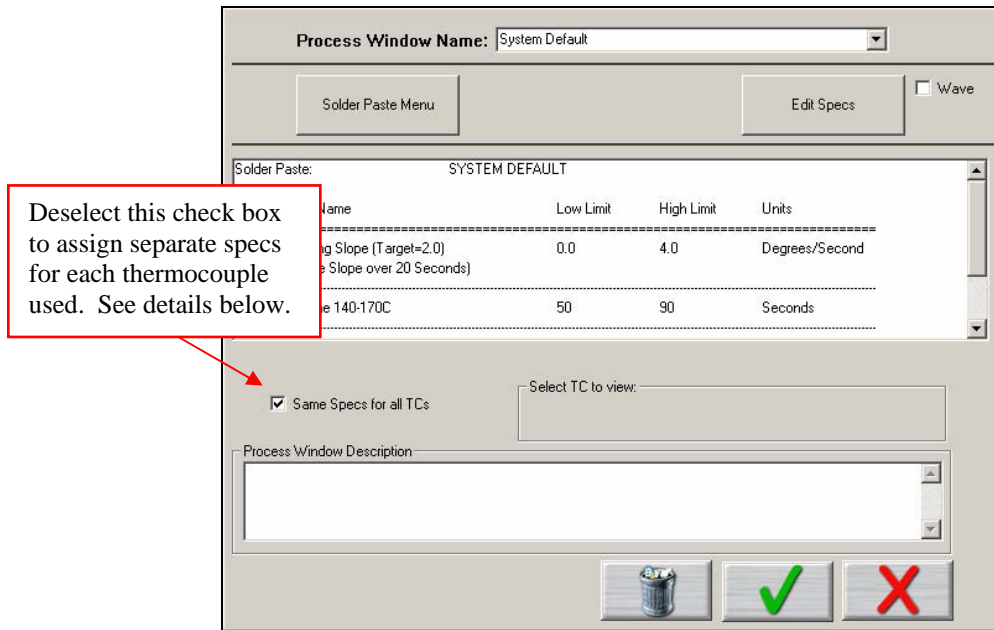


Figure 126: Process Window

Process Window Name – Name of the KIC Process Window file that includes the statistics chosen and limits for those statistics, along with whatever text is typed in the *Description* field.

- **Solder Paste Menu** - A read only library list of numerous solder pastes along with the statistics and limits suggested by the paste mfg., also included is a *User-Defined* option in the list which allows you to create a spec. of your own. See below for additional details.
- **Edit Specs** – Screen allowing the user to edit or choose statistics and limits for a chosen solder paste or define your own specs
- **Wave** – This radio button switches between the process specs and the *Wave* process specs for the selected *Process Window*. Set up a *Process Window* specific to *Wave* TCs for *Wave* Solder profiling.
- **Read only text box** – Shows the paste name, statistics name, and limits for a *Process Window* chosen, edited, or saved by the user. To edit select the *Edit Specs* button.
- **Same Specs for all TC's** – By deselecting this checkbox, you can assign separate specifications for each individual thermocouple you are using. After deselecting the checkbox, you'll need to click on the *Edit Specs* button to choose which statistics will be used and what spec limits will be set for each thermocouple used. This option would be used if you had component specific specifications that differ from the general solder paste specs. Another use for this would be if you wanted to monitor the actual board temperature as well as component temps. You would then only select the statistics for that TC that are relevant. If you wish to use the same specifications for all thermocouples, put a check mark in the box.
- **Select TC to View** – This dialog box will appear only if the *Same Specs for all TC's* checkbox is deselected. By clicking on the dropdown menu, you can view the specifications that have been defined for that number thermocouple. If a description was included, it will be displayed next to *Label*.
- **Process Window Description** – Field allowing for freehand notes for a particular *Process Window*

Running a Temperature vs. Time profile

From the *KIC 2000 Main Menu* select the *Run Profile* button.

This is the button that has a picture of a PCB. A text label will be displayed as you place the mouse pointer over each button.

Name Product and Select Process Window/Application Type

Name Product and Select Process Window:

Product Name: Board 103 - PW4

Process Window: reflow

Application: Temperature Vs Time

Oven Name: 1809EXL

Remove Oven

Profile Description:

← → ✕

Figure 127: Run a Profile Screen #1 – Time vs. Temperature

- Select your *Product Name* from the list. If you're profiling a new product type the name.
- Select your *Process Window* from the list.
- Select Temperature vs. Time from the *Application* list. The *KIC 2000* software profile display and calculations are based on this setting
- Select your oven name from the list. If you're profiling on a new oven or machine, type the name in the *Oven Name* field.
- Optionally you can type notes or descriptions for this profile in the *Profile Description* field. These notes will be stored with the profile and can be edited later if necessary.

When you are finished with your selection, choose the *Forward Arrow* button to proceed. See Figure 127.

Selecting the thermocouples and starting a profile

This screen displays the live readings for all thermocouples connected to your *KIC profiler*. Select the thermocouples by clicking the check box next to each *TC* number. Make sure the *SlimKIC 2000* has a fresh battery and is powered on. See Figure 128.

Selecting Thermocouples - To select a thermocouple, check the box next to the thermocouple number.

The live temperatures are displayed beneath each thermocouple label.

Thermocouple Labels - Optionally you can check the box to *Include thermocouple labels*. When this box is checked you can type a text label for each selected thermocouple. 20 character maximum.

If the selected Process Window has Separate Specs for TC's, then the user must return to the Process Window-Edit Specs screen in order select/deselect TC's or change their labels.

Product Name: Temp vs Time Sample Profile

Select the Thermocouple(s) used for this Profile:

Include Thermocouple(TC) Labels (20 char. Max)

	TC1 <input checked="" type="checkbox"/>	TC2 <input checked="" type="checkbox"/>	TC3 <input checked="" type="checkbox"/>	TC4 <input checked="" type="checkbox"/>	TC5 <input checked="" type="checkbox"/>	TC6 <input type="checkbox"/>
Live Reading	25.7	24.4	24.6	26.6	26.8	
Label	Middle	Top Right	Top Left	Mid Right	Mid Left	
	TC7 <input type="checkbox"/>	TC8 <input type="checkbox"/>	TC9 <input type="checkbox"/>	TC10 <input type="checkbox"/>	TC11 <input type="checkbox"/>	TC12 <input type="checkbox"/>
Live Reading						
Label						

Battery Voltage 8.4 SlimKIC Internal Temperature 24.6

SlimKIC Time Vs Temperature Profile

Expected Profile Length in Minutes: 5

Buttons: [Back] [Start Profile (Green Traffic Light)] [Cancel (Red X)]

Note: Select this button to start a profile.

Figure 128: Run a Profile Screen #2 – Time vs. Temperature

Expected Profile Length – This value controls the X-Axis on the profile graph. Make sure to enter enough time to complete your profile. Otherwise the profile plot will stop as soon as the *Expected profile Length* is achieved. Data outside this time limit will not be displayed.

Note: to decrease the number of samples, enter a longer Expected Profile Length

Once you have selected your thermocouples, you are ready to profile.

Make sure your *KIC profiler* hardware is properly connected to the computer. You will be able to view the live readings for each selected thermocouple. If you do not see the live readings, then your *KIC profiler* hardware is not connected properly.

Recheck the connections. *Temperature vs. Time* profiles cannot begin until your KIC Profiler is connected via the cable, and communication established.

Select the *Start Profile* (Green traffic light) button to begin profiling. The profile will begin at this point.

The *KIC 2000* software requires that the selected thermocouples read valid temperatures below the *Maximum product temperature at start of profile* as set in the *Global Preferences* screen. The default setting is 31°C/88°F.

If any of the selected thermocouples read too high, this message will appear. See Figure 129.

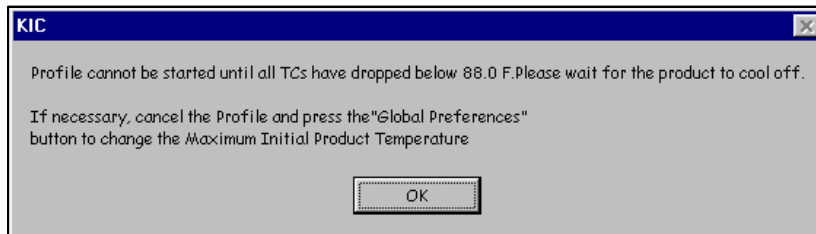


Figure 129

When the *KIC 2000* software detects valid temperatures for all of the selected thermocouples, it will allow you to start the profile.

The maximum operating temperature for the *SlimKIC 2000* profiler is 105°C/220°F. If your process temperatures will cause the *SlimKIC* to exceed this limit then **DO NOT** place the *SlimKIC* into the oven.

The maximum operating temperature for the *KIC Explorer* is 85°C/185°F. If your process temperatures will cause the *KIC Explorer* to exceed this limit then **DO NOT** place the *KIC Explorer* into the oven.

Trailing Wire Profiling

The *SlimKIC 2000* and *KIC Explorer* profilers can be used with elongated thermocouples or a thermocouple extension long enough to pass through the process. This is especially useful for low clearance processes or higher temperature processes that would normally cause the *SlimKIC 2000* or *KIC Explorer* profiler to overheat during use.

Select the *Stop Profile* button when the profile is complete. Leave the product *TC*'s connected until the software displays a message instructing you to turn off your *KIC* profiler.

Live Profile Graph Display

The *Live Profile Graph* display will show the profile plot on the graph for the current profile that is running. See Figure 130.

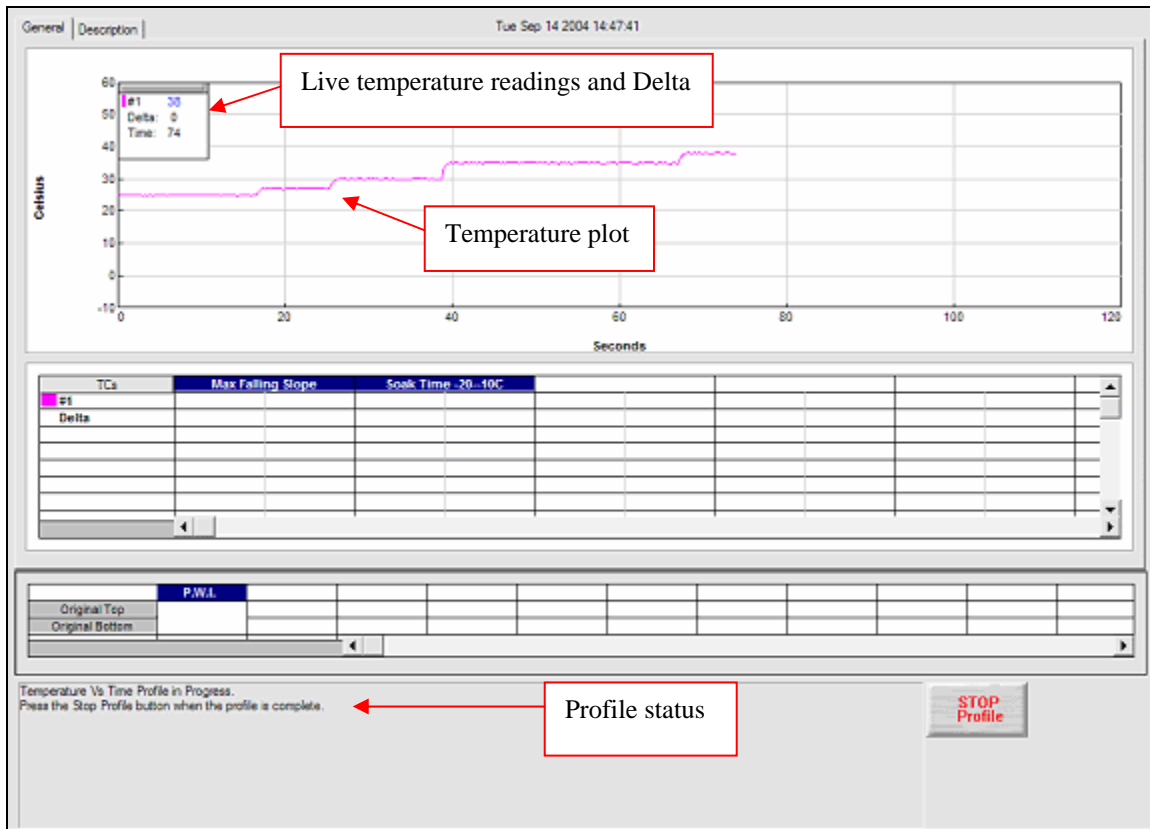


Figure 130: Live Profile Graph Display

While the *KIC Profiler* is in the oven, and until the profile has ended, the software will continue to display the Live Profile Graph. The Description tab at the top of the screen is inaccessible.

- The live profile is plotted on the graph
- The current temperatures for each thermocouple and the Delta between them are displayed in a small window in the upper-Left hand corner of the profile graph. The elapsed time is also displayed.

The *Live Profile Graph* display will remain on your screen until the *Stop Profile* button is selected even if the profile time has completed and the profile plot has ended. See Figure 130.

The software will display 2 messages when the *Stop Profile* button is pressed:

The first will ask the user to confirm the Profile Stop. See Figure 131.

If the user selects *No*, then the profile continues.
If the user selects *Yes*, then the second message instructs the user to turn your *KIC Profiler* off. See Figure 132.

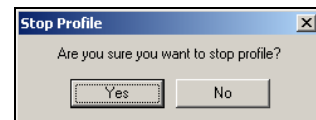


Figure 131



Figure 132

Viewing the Profile and Statistics

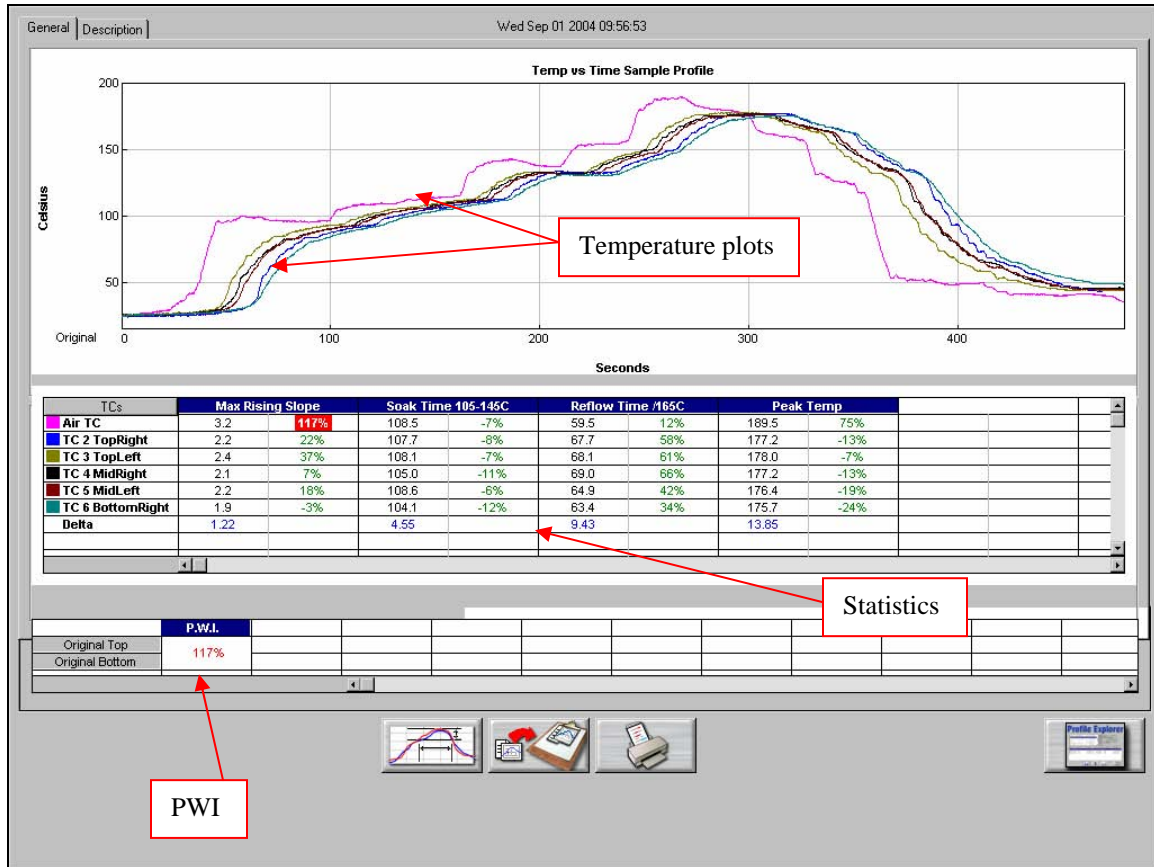


Figure 133: Profile Graph Display – Time vs. Temperature

The *Profile* screen-*General* Tab displays the product name, and profile start time at the top of the screen. The profile, profile statistics and PWI are also displayed. See Figure 133.

Profile View – To maximize the profile display, double click inside the profile graph area. The profile graph will change and be displayed in a full screen format. Double click again to return to normal view.

Statistics View – To maximize the *Statistics* view, double click inside the *Statistics* table area. The *Statistics* will change and be displayed in a full screen format. Double click again to return to normal view.

Description tab

The *Description* tab contains a text area that displays a description of the profile should you wish to enter any. See Figure 134.

This text is the same text that you can enter in the *Select Product* screen at the beginning of the *Run Profile Routine*.

This text is also displayed in the *Profile Explorer* view for each profile.

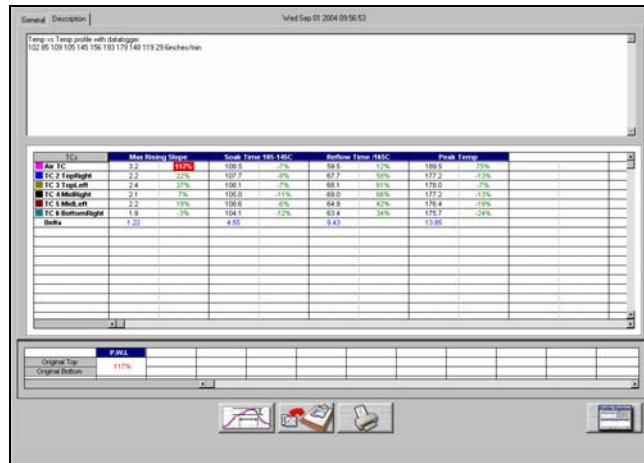


Figure 134: Description Tab – Time vs. Temperature

Graph Controller

The *Graph Controller* allows the user to modify the view of the *KIC 2000*-profile graph. To open the *Graph Controller*, Left-click on the *TC* column header in the *Statistics* table or Double-Left-click, anywhere just outside the profile graph. See Figure 135.

Auto Scale

The *Auto Scale* feature will automatically adjust the X, and Y axis scales to fit all of the data in the profile graph. When the *Auto Scale* feature is disabled, the user must manually input the minimum and maximum scale settings for the X, and Y axis scale of the profile graph.

Selecting Thermocouples to View

The *TC's* section is a list of the thermocouples used for the profile. By selecting *All* you are selecting that all the thermocouples used for the original profile will be displayed on the profile graph. In the event that you wish to view the profile without a particular or multiple thermocouples, you can deselect individual thermocouples, or deselect the *All* check box, and choose only the thermocouples you wish to view.

Deselecting Thermocouples

If a thermocouple has become disconnected during the profile, the profile results (*PWI*) may be affected to due above normal peak temperatures and such. This situation may cause the profile *PWI* value to be artificially inflated due to bad data. In the event a single or multiple thermocouples become disconnected from the product during the profile, you can deselect the affected thermocouple(s). The *KIC 2000* software will recalculate the *PWI*, and update the profile *Statistics* based on the remaining thermocouples selected. You must select at least one product thermocouple.

Grid – Enables/disables the view of the X, and Y-Axis scales.

Reference Lines – Enables the view of *Reference Lines* displayed on the profile graph. These lines represent any temperatures referenced in the selected *Process Window*.

Zone Lines – Enables the view for the oven zone lines on the profile graph.

Zero Decimal – When viewing the *Pointer* tool, this setting enables or disables the decimal display. When unchecked, the software will display one decimal point.

Internal Temp – Enables the view of the *KIC profiler's* internal temperature profile plot on the graph.

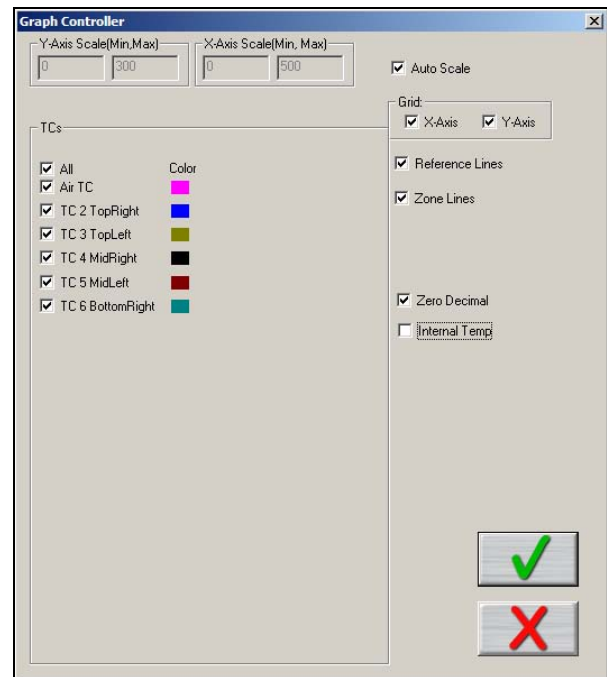


Figure 135: Graph Controller – Time vs. Temperature

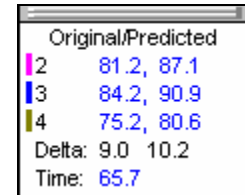
Automatic Calculation of Delta T + Delta (or range) for all Stats

The software will automatically calculate, and display in the *Pointer* tool display box, the Delta for the profile data for all *TC's* for all *Statistics* columns. This is the range of the highest to the lowest value for any given specification. This information is strictly being displayed and is not factored in to the *PWI* value calculations.

Pointer Tool

You can also view the Delta T (ΔT), or Delta Temperature, at specific points across the profile by right mouse clicking on the graph. This will bring up the *Pointer* tool and a chart will appear in the upper left corner of the graph. See Figure 136. Wherever the pointer is moved across the profile, the following data will be displayed:

- The first column is the actual temperature for each *TC*.
- The Delta T for both actual and predicted TC data.
- The time during the profile at which the pointer is placed.



	Original	Predicted
2	81.2	87.1
3	84.2	90.9
4	75.2	80.6
Delta:	9.0	10.2
Time:	65.7	

Figure 136: Graph Pointer

Profile Screen Buttons

There are four buttons at the bottom of the *Profile* screen.

Edit/Define Process Window – Choose this button to either view or edit the process specification(s) for the product used in this profile.

Copy to clipboard – Choose this button to copy the profile data to the Windows clipboard. You can then paste the data to a different application.

Print – Choose this button to print a copy of the profile that is currently on your screen.

Return to Profile Explorer button– When finished viewing or analyzing the profile, select this button to return to the *KIC 2000* main menu. You will be returned to the *Profile Explorer* if the profile was opened from there.

Exiting the profile screen

Saving changes to the profile

Any changes to the *Description Notes* or the *Process Window* can be saved with the profile. This will permanently update this profile with the changes. Changes to the *Process Window* saved here only, save the changes with the profile. To save the changes to *Process Window* file see next dialog box. See Figure 137.

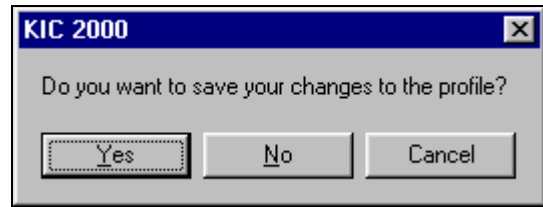


Figure 137

Saving changes to the *Process Window*

If you have made changes to the *Process Window* while viewing a profile you can save these changes when you exit the *Profile* screen. The *Process Window* will permanently have these changes whenever it is used to profile from this point forward. See Figure 138.

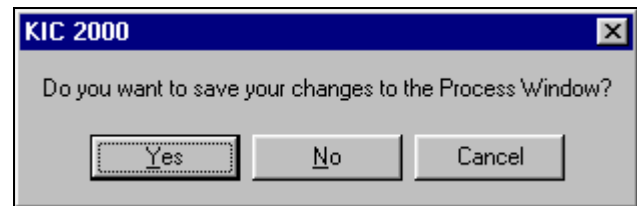


Figure 138

The *KIC 2000* software will take you to the *Edit Process Window* screen in order to save the changes that you have made.

These 2 messages will only appear if changes have been made while viewing the profile.

KIC Profilers

SlimKIC 2000

The **SlimKIC 2000** is a real-time solder reflow process setup and optimization tool. The *SlimKIC 2000*'s configuration guarantees a perfect profile every time by both transmitting data in real-time as it passes through the process and simultaneously recording the data internally. When the *SlimKIC 2000*



profiler has completed its run through the process, the internally logged profile is automatically wirelessly downloaded, filling in any gaps that may have occurred due to broken transmission of the real-time profile. The wireless download feature ensures that every profile run is a good one, and that it will never be necessary to hold up production to run a second profile.

Specifications

Accuracy:	+/- 2°F (1.2°C)
Resolution:	Variable 0.3 to 0.1°C
Internal Operating Temp:	0°C to 105°C
Thermocouple Compatibility:	Type K, 9 or 12 TCs
Temperature Range:	-150°C to 1050°C
Computer Compatibility:	PC
Power Requirements	9V Alkaline battery
Operating Frequency:	433.92 MHz
Dimensions:	Varies depending upon model and shield.

SlimKIC 2000 Maximum Internal Temperature is 105°C

Removing the SlimKIC 2000 cover



Figure 139

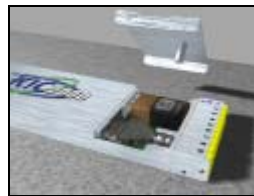


Figure 140

To remove the *SlimKIC 2000* cover or change the battery you will have to first unscrew the battery cover from the bottom side of the *SlimKIC 2000*. This will require a small Flathead screwdriver. The screw has a retaining clip to keep it in place so it will not come all the way out. Just loosen it enough so the cover comes free. Remove the battery cover. See Figure 139 and Figure 140.

Locate the retention slots on the side of the *SlimKIC 2000* cover. To remove the *SlimKIC 2000* cover you will need to apply equal pressure to 2 of the retention springs on the same side, and then pull up on the cover slightly. Do the same for the other side retention springs. Once both sides have been lifted slightly, you should be able to remove the cover easily.

You can use a small Flathead screwdriver to assist this procedure.

Inside the SlimKIC 2000

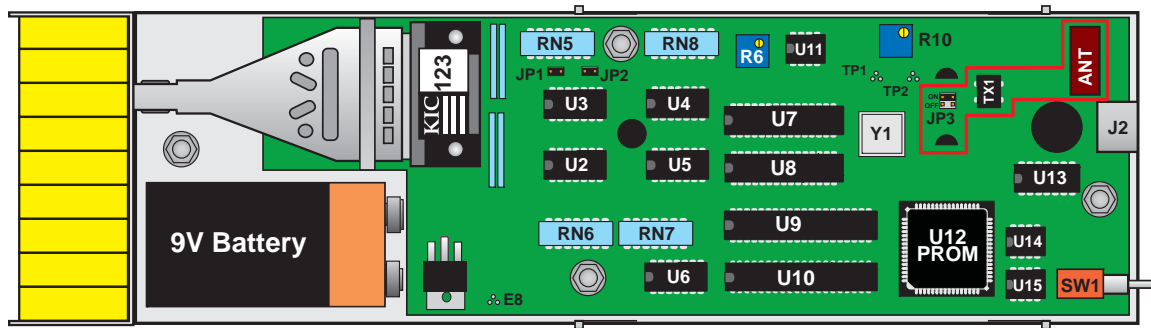


Figure 141: SlimKIC 2000 Internal view

Serial Number Location

The *SlimKIC 2000* serial number label is located on the main connector block (J1). The *SlimKIC 2000* shield must be removed in order to view the serial number. See Figure 141.

Internal Components

- J2** This is the 8 pin download/communication port located at the rear of the *SlimKIC 2000*.
- P1** This is the main power connector. This connector fits a 9Volt battery.
- R10** This is the CALIBRATE potentiometer, and is the only adjustment on the *SlimKIC 2000* used for calibrating the unit.
- R6** This is the MAX TEMP Potentiometer. This is used to increase or decrease the upper range of temperatures that the *SlimKIC 2000* can read.
- SW1** This is the On/Off toggle switch.
- U12** This is the socket that holds the *SlimKIC 2000* - EPROM. The EPROM version can change, check with KIC regularly to ensure you have the latest version firmware in your *SlimKIC 2000*.

Transmitter models include

- JP3** This 2 position jumper enables or disables the RF transmission capability.
- TX1** This is the transmitter and facilitates the RF transmission capability.
- ANT** This is the antenna connector. Normally the KIC 2000 does not use an antenna. In some cases an antenna can be added to improve the transmission strength.

SlimKIC 2000 calibration

Before calibration, connect the *SlimKIC 2000* Profiler directly to the PC using the *SlimKIC 2000* Direct Connect cable.

The *SlimKIC 2000 Thermal Profiler* is connected to a computer COM port using the direct connect cable for the purpose of setting up the *SlimKIC 2000*, downloading logged data, collecting data in real-time, or calibration. See Figure 142.



Figure 142: *SlimKIC 2000* direct connect to PC

SlimKIC 2000 Calibration Procedure

The suggested calibration frequency cycle for the *SlimKIC 2000* is 12 months. To calibrate the *SlimKIC 2000* you will need a thermocouple simulator.

Perform the following steps to properly calibrate the SlimKIC 2000 within $\pm 1.2^{\circ}\text{C}$ ($\pm 2.0^{\circ}\text{F}$):

Let the *SlimKIC 2000* stand for at least 30 minutes, with its power on, in a constant ambient environment free of drafts.

- Turn on the computer and start the *KIC 2000* or *KIC 24/7* software.
- Connect the *SlimKIC 2000* to the computer with the direct connect cable.
- On the *KIC 2000* or *KIC 24/7* software's main screen, choose the *Hardware status* button. The *KIC 2000* or *KIC 24/7* software will display the temperatures for each thermocouple connected.
- Connect the thermocouple simulator to the TC1 (Air TC) position on the *SlimKIC 2000*.
- Set the thermocouple simulator to the maximum temperature you expect to read in your oven. Observe the display of Product TC #1's (Air TC) temperature on the screen. This display should update rapidly.
- Adjust the Calibrate potentiometer very slowly until this *Maximum Temperature* is correct.
- Set the thermocouple simulator to below room temperature ($40^{\circ}\text{F} \sim 65^{\circ}\text{F}$).
- Adjust the Calibration potentiometer very slowly until this low temperature is correct.
- Repeat these steps until both temperatures are reading correctly.

When both temperatures are reading correctly, the SlimKIC 2000 is calibrated.

KIC offers calibration services for all KIC hardware. Contact KIC Technical Support for details. tech@kicmail.com.

Setting the SlimKIC 2000 Maximum Temperature

The *Maximum Temperature* setting for the *SlimKIC 2000* refers to the highest temperature that the *SlimKIC 2000* is set to read. When you received your *SlimKIC 2000*, it was preset for 932°F (500°C) as the *Maximum Temperature*. It can be changed. The highest temperature that the *SlimKIC 2000* is capable of reading is 1050°C.

TIP: If you exceed this temperature while running a profile, your TC inputs will read OVR (over-range). If this happens to you, the first thing to suspect is that the Maximum Temperature setting for your SlimKIC 2000 is not set high enough for the temperature application you're attempting to measure.

Follow these steps to change the *SlimKIC 2000 Maximum Temperature*.

- Turn on the computer and start the *KIC 2000* or *KIC 24/7* software.
- Connect your *SlimKIC 2000* to the computer via the direct connect communication cable.
- Turn on your *SlimKIC 2000*.
- Observe the *Hardware Status* screen. The number that you'll be calibrating is the *Max Temp Capability* in the *SlimKIC 2000* section.
- Remove the cover of the *SlimKIC 2000*, using a small screwdriver adjust the *Max Temp* potentiometer very slowly until the desired maximum temperature is achieved.

Turn Clockwise to decrease the *Maximum Temperature*.

Turn Counterclockwise to increase the *Maximum Temperature*.

KIC Explorer

The *KIC Explorer* is a new generation of thermal profilers featuring an impressively compact design. It will easily move through restrictive process dimensions you encounter in today's thermal applications. The *KIC Explorer* incorporates state-of-the-art SMT technology and high-temperature rated components, backed by our distinguished reputation for reliability. You can depend on this rugged, innovative hardware to endure the harsh conditions of real-world factory use



Specifications

System Accuracy:	±1.2°C	
Internal Resolution:	±0.04°C	
Internal Operating Temp:	0°C to 85°C	
Measurement Range:	-150°C to 1050°C	
Sample Rate:	0.1 to 10 per second	
Storage Capacity:		
	7-Channel Unit:	131,040 samples
	12-Channel Unit:	224,640 samples
PC Connection:	USB 2.0 (Std-A/Mini-B)	
Power Requirements:	(3) AAA batteries	
Radio Frequency (RF):	916 MHz	
Thermocouple Compatibility:		
	7-Channel Unit:	Type K, Standard
	12-Channel Unit:	Type K, Mini-TC
Dimensions (L x W x H mm):		
	7-Channel Unit:	200.0 x 60.0 x 17.0
	12-Channel Unit:	178.0 x 60.0 x 14.0

KIC Explorer Maximum Internal Temperature is 85°C

FCC Statement (Applies to KIC Explorers with RF capability only)

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Caution: Changes or modifications not expressly approved by the party responsible for compliance could void the users' authority to operate the equipment.

Party Responsible for Declaration of Conformity:

KIC, 15950 Bernardo Center Dr, Suite E, San Diego, CA92127, 858 945 7428

As a standard feature, the *KIC Explorer* has 12 thermocouples to meet your requirements. See Figure 143. The *miniature-TC harness* design makes this possible, and is less expensive than a standard Type-K thermocouple. If you prefer to use Type-K thermocouples, the *KIC Explorer* is available in a standard Type-K, 7-channel model. See Figure 144.



Figure 143: KIC Explorer 12 Channel



Figure 144: KIC Explorer 7 Channel

KIC Explorer 12 Channel - Mini-TC Harness

The 12 channel *KIC Explorer* uses an all new thermocouple connector design named the *Mini-TC Harness*. The *Mini-TC Harness* is a 3-thermocouple harness in a very small connector. The size of these *Mini-TC* connectors allows the *KIC Explorer* to utilize 12 thermocouple inputs without increasing the size of the *KIC Explorer* dimensionally over the 7-channel model.

The 12 channel *KIC Explorer model* has *Mini-TC Harness* ports. Each port facilitates 3 separate thermocouples.

Connecting the Mini-TC's

1. Align the *Mini-TC Harness* with the *Mini-TC* port. See Figure 145.
2. Slide the *Mini-TC Harness* into the *Mini-TC* port. See Figure 146.
3. When fully seated, the *Mini-TC Harness* will lightly click into position. See Figure 147.



Figure 145



Figure 146



Figure 147

Note: During use and during the calibration procedure, the 12 channel *KIC Explorer* models must remain inside their thermal shield in order to maintain accurate temperature readings. No Exceptions.

Mini-TC Temperature ratings

Mini-TC harness assemblies are available in 2 different temperature ratings, Low-Temperature, and Medium Temperature.

- Low-Temperature Mini-TC's – Teflon, double insulation, 30 gauge wire, for use up to 300°C. (Low temperature Mini-TC's are not standard and will not be included with the *KIC Explorer* kit.)
- Medium Temperature Mini-TC's – Glass, double insulation, 30 gauge wire, for use up to 400°C.

If you have any questions about Mini-TC temperature ratings contact KIC Technical Support; tech@kicmail.com.

Mini-TC Lengths

Due to the color of the wire used to manufacture the medium temperature *Mini-TC* Harness it can be difficult to identify the individual thermocouple wires. For ease of use each *KIC Explorer Mini-TC* Harness will have 3 different lengths of wire. The longest wire is always the first thermocouple in the group. The second longest is the 2nd thermocouple in the group. The shortest wire is always the 3rd thermocouple in the group. See Figure 148.

Mini-TC harnesses are available in different lengths ranging from 18" to 36" in 6" increments. Standard *KIC Explorer* units ship with the Mini-TC "Sample" set that includes multiple length thermocouples, a sample of each length offered by KIC. See Figure 148. If you require a specific length wire you, it can be ordered and included with the *KIC Explorer* at the time of purchase or ordered separately.

Sample Set, Mini-TC (Qty 4)										
18"	TC Position		24"	TC Position		30"	TC Position		36"	TC Position
TC #1	18"		TC #1	24"		TC #1	30"		TC #1	36"
TC #2	17"		TC #2	23"		TC #2	29"		TC #2	34"
TC #3	16"		TC #3	22"		TC #3	28"		TC #3	32"

Figure 148

18" Mini-TC Set (Qty 4)	
Part Number: TC-TKM-MINI-0418	
TC #1	18"
TC #2	17"
TC #3	16"

Figure 149

24" Mini-TC Set (Qty 4)	
Part Number: TC-TKM-MINI-0424	
TC #1	24"
TC #2	23"
TC #3	22"

Figure 150

30" Mini-TC Set (Qty 4)	
Part Number: TC-TKM-MINI-0430	
TC #1	30"
TC #2	29"
TC #3	28"

Figure 151

36" Mini-TC Set (Qty 4)	
Part Number: TC-TKM-MINI-0436	
TC #1	36"
TC #2	34"
TC #3	32"

Figure 152

Which Mini-TC do I need for my application?

To determine the length of *Mini-TC*'s needed for a particular product the user will measure their products length, and then add the distance of 12" (min. distance between *KIC* profiler and product), and then add 1" for the *Air TC* position.

Example:

$$\begin{aligned}
 &6" \text{ (Product Length)} + 12" \\
 &= 18" + 1" \text{ (for Air TC)} \\
 &= 19"
 \end{aligned}$$

Use the table to the Right to determine the correct Mini-TC length. See Figure 153.

Mini-TC Harness Matrix		
Product length	Min Length of TC wire needed	KIC Mini-TC
4"	17"	18"
6"	19"	24"
8"	21"	24"
10"	23"	24"
12"	25"	30"
14"	27"	30"
16"	29"	30"
18"	31"	36"

Figure 153

If you have any question regarding *Mini-TC* length or are unsure what length to order, contact *KIC* Technical Support, tech@kicmail.com.

Installing/changing Batteries

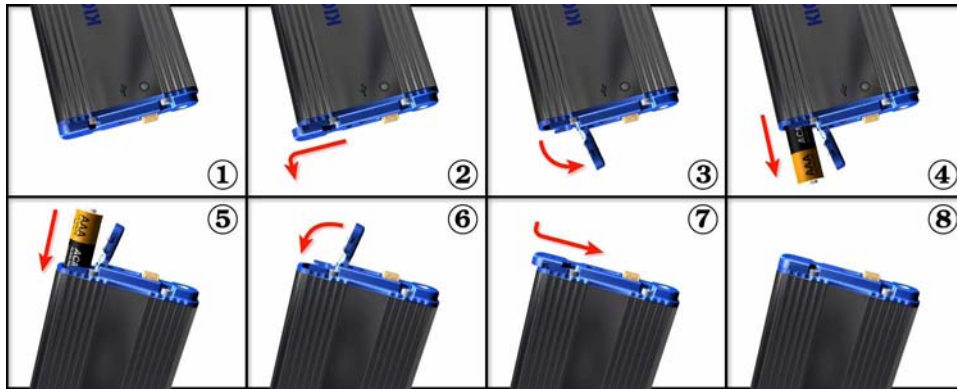


Figure 154: KIC Explorer Battery install/replacement

The *KIC Explorer* uses 3 standard alkaline AAA sized batteries. *KIC* recommends the use of standard alkaline batteries; however you can use other types including rechargeable batteries.

If you experience negative effects using other types of batteries or discover your *KIC Explorer* is not operating properly then switch back to standard alkaline batteries. If problems persist, contact *KIC* Technical Support: tech@kicmail.com.

Battery Life

The *KIC Explorer* is very efficient on battery usage. Independent tests show that a standard set of alkaline batteries will last more than 25 hours while operating at room temperature. Operating temperatures can affect battery performance.

Batteries and Temperature

The *KIC Explorer* is designed to pass through ovens that will cause the batteries inside the *KIC Explorer* to heat up. Since the batteries have a high heat capacity they will tend to continue to heat even after the *KIC Explorer* has exited the oven.

Even if the *KIC Explorer* has cooled sufficiently to allow the user to run another profile, the battery may not have cooled down as low as the *KIC Explorer*.

In the event the *KIC Explorer* batteries become heated during use and you wish to run another profile, *KIC* suggests substituting a different (room temperature) cooler set of batteries before the next profile is run. This will allow the user to run more frequent profiles without the chance of overheating the batteries or the *KIC Explorer*.

Note:

- Lead-Free (hot) thermal profiles can cause the battery packaging to un-wrap. This is normal and should be monitored to ensure the batteries condition is intact and operational before each use.
- In the event the batteries become heat damaged or corrosive, replace them immediately. Failing to do so can lead to *KIC Explorer* damage and or personal injury.

KIC Explorer Base Station

The *KIC Explorer Base Station* is part of the optional *RF* hardware. The *Base Station* facilitates the 2-way *wireless (RF)* communication between the *KIC Explorer* and the computer running the *KIC 2000* software. See Figure 155.

The *Base Station* connects to a USB port and three LED's, the Green/Red LED's will only light up while the *KIC 2000* software is open, or during a profile depending on the events that are transpiring.

Base Station LED Indicators

Red = Data received

Green = RF Activity

Orange = Error/Data not received

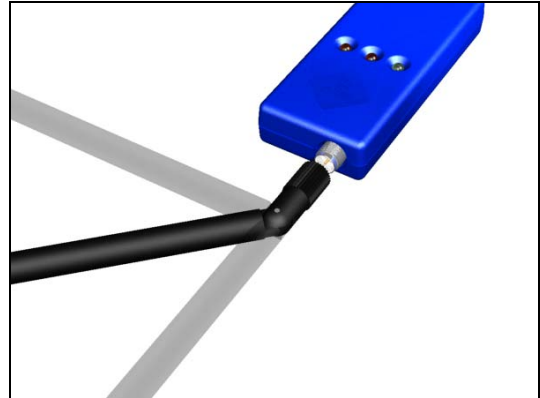


Figure 155: KIC Explorer Base Station, RF Models Only

Base Station Antenna

The *KIC Explorer Base Station* antenna is a screw on-90 degree pivot. See Figure 155.

For convenience, a 6'-USB port extension cable is included with your *KIC Explorer* so that the user can adjust the position of the *Base Station* and find a more suitable location if needed.

The orientation of the antenna will affect the RF capability of the *KIC Explorer*. Since every different location has different RF levels, *KIC* can not recommend a particular position that will yield the best results.

In most cases the user can simply connect the *Base Station* to a USB port and be ready to profile trouble free. In some situations the user must adjust the *Base Station* location for improved or for acceptable performance.

The user is responsible for locating the *Base Station* and adjusting the *Base Station* antenna orientation to best suite their needs.

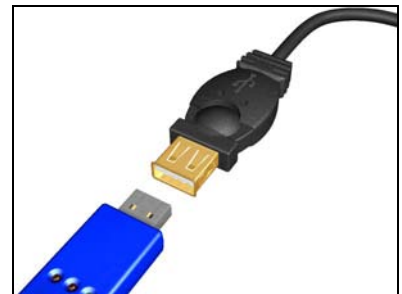


Figure 156: KIC Explorer Base Station Connected to Computer

FCC Statement (Applies to KIC Explorers Base Station)

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Caution: Changes or modifications not expressly approved by the party responsible for compliance could void the users' authority to operate the equipment.

Party Responsible for Declaration of Conformity:

KIC, 15950 Bernardo Center Dr, Suite E, San Diego, CA92127, 858 945 7428

KIC Explorer Antenna

The *KIC Explorer* antenna is required when utilizing your *KIC Explorer* in *RF Mode*. Without it the *KIC Explorer* can not communicate wirelessly.

The *KIC Explorer RF* antenna connects to the Antenna port on the *KIC Explorer*. See Figure 157.

Note: Use the *Global Preferences* screen to activate the *RF* functionality of the *KIC Explorer*.



Figure 157: KIC Explorer Antenna

By connecting the Base Station and KIC Explorer antenna the KIC Explorer device becomes an intentional radiator of RF. See page 96.

KIC Explorer Power On/Off

Power On – Press/hold the Amber colored On/Off button for 1 second (located at the back of the *KIC Explorer*). When power is on, the LED indicators will power on. The LED color/pattern will represent the current *KIC Explorer* hardware state/status. See Figure 158.

Power Off – Press/hold the Amber colored On/Off button for 1 second (located at the back of the *KIC Explorer*). See Figure 158. When the power is turned off, the LED indicators will be off.



Figure 158

KIC Explorer LED Indicators

The *KIC Explorer* LED indicators will indicate the current state/status of the *KIC Explorer*. The *KIC Explorer* has 2 LED indicators, 1-Red, and 1-Green and can be viewed by looking at the top of the *KIC Explorer* near the On/Off button. See Figure 158.

KIC Explorer State/Status	LED Indicators
Initialization(Power up)	Red On/Green On (for about 2 seconds)
State 1 - Resetting or TC(s) above profile start temp.	Red ON
State 2 - Ready to profile (Start Trigger)	Red flashing
State 3 - (Mid Trigger) , 4 - (Stop Trigger), 6 - (manual mode)	Green flashing (profile in progress)
State 8 - (End of Profile)	Green flash and Red flash
State 5 - (Idle)	Green On
During Flashing FW	Red On/Green On (same as power up)

KIC Explorer Thermal Shields

KIC offers 2 models of *KIC Explorer* thermal shields:

- **Cool Touch** – The *Cool Touch-KIC Explorer* thermal shield is standard and is included with all standard *KIC Explorer* profiling kits. The *Cool Touch* shield can be handled without gloves, however gloves are recommended whenever heat is present. The *Cool Touch* thermal shield also allows the *KIC Explorer* longer duration at given temperatures during use.
- **Stainless Steel** – The *Stainless Steel -KIC Explorer* thermal shield is optional accessory for the *KIC Explorer*. The *Stainless Steel* thermal shield has no outer insulation and measures 1/8” lower in Height than the *Cool Touch* shield.

Important Note about KIC Explorers and Thermal shields:

Both the 7 channel and 12 channel *KIC Explorers* are not intended to be used without a *KIC* approved thermal shield and must remain inside their thermal shield at all times during use or during the *KIC Explorer* calibration procedure. Failing to do so will yield inaccurate temperature data and/or an inaccurate PWI value.

Loading the KIC Explorer into the Thermal Shield

12 Channel -KIC Explorer – Place the *KIC Explorer* into bottom half of the *KIC Explorer* thermal shield.

- The *Mini-TC* harnesses should rest flat on the metal block inside the shield.
- The thermocouple wires should exit from the front of the thermal shield.
- The *KIC Explorer* antenna should extend fully, and exit from the back of the thermal shield. See Figure 159.

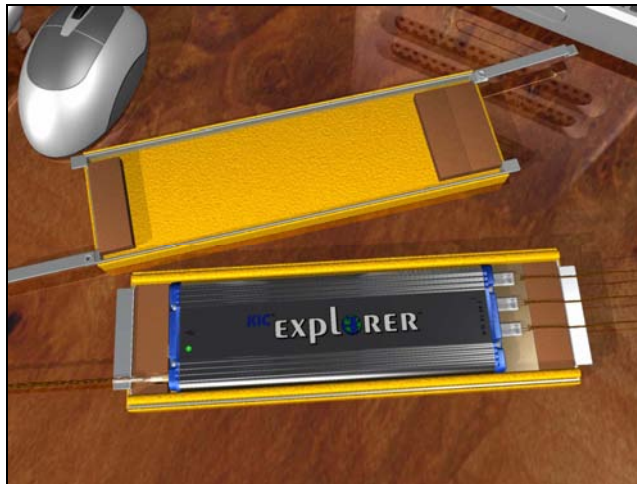


Figure 159: 12 Channel KIC Explorer with Thermal Shield

7 Channel -KIC Explorer – Place the *KIC Explorer* into bottom half of the *KIC Explorer* thermal shield.

- The thermocouples should rest flat on the bottom of the inside the shield.
- The thermocouple wires should exit from the front of the thermal shield.
- The *KIC Explorer* antenna should extend fully, and exit from the back of the thermal shield.
See Figure 160.

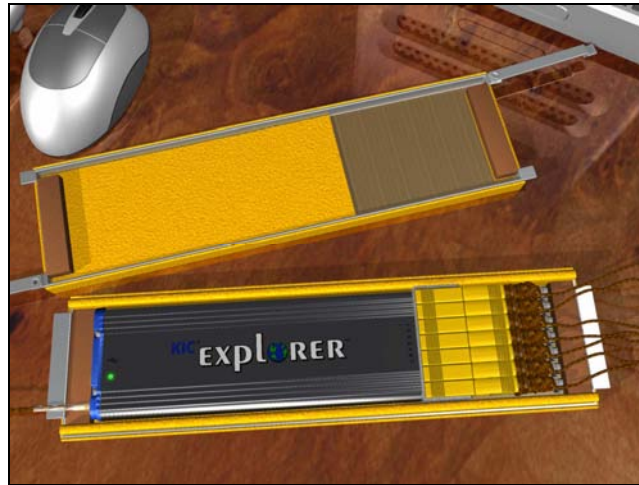


Figure 160: 7 Channel KIC Explorer with Thermal Shield

Once the *KIC Explorer* is set inside the bottom half of the thermal shield and the thermocouple wires and antenna are properly routed to the rear of the shield, verify the *KIC Explorer* is on by viewing the LED near the *On/Off* button.

Next place the top-half of the *KIC Explorer* over the bottom half and then swing the latching mechanisms into the closed positions at each end. See Figure 161.

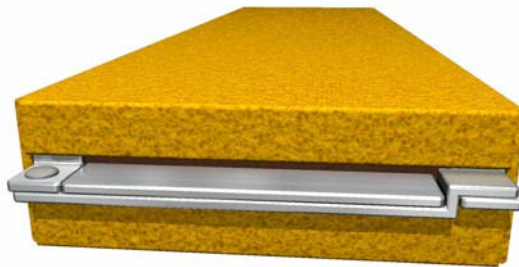


Figure 161: KIC Explorer Thermal Shield Latching Mechanism

Contact *KIC* Technical Support if you need any assistance with your *KIC Explorer*: tech@kicmail.com.

KIC Explorer Utility

The *KIC Explorer Utility* is a software program that facilitates calibration the *KIC Explorer* as well as firmware upgrades and or hardware troubleshooting.

The *KIC Explorer Utility* is included in the standard *KIC 2000* software installation. It is located in C:\KIC Profiler 2000\KE Utility folder.

In order to calibrate or upgrade the firmware make sure your *KIC Explorer* is on and connected to the computers USB port and then open the *KIC Explorer Utility* software program.

The KIC Utility Calibration Tab

Note: Changes made to the Gain and Offset values within the *KIC Explorer Utility* will have a direct affect on all thermocouple readings made by the *KIC Explorer*.

KIC Explorer Device

If your *KIC Explorer* is on and connected the *KIC Explorer Utility* will display the *KIC USB* device name. If the *KIC Explorer Device* field is blank then no device is detected or the device is not displayed, in which case select the *Refresh* button. See Figure 162.

Note: If you are *KIC Explorer* is not recognized, then make sure the power is on, recheck the cable connections and or *Base Station* connection and verify your USB port is working correctly.

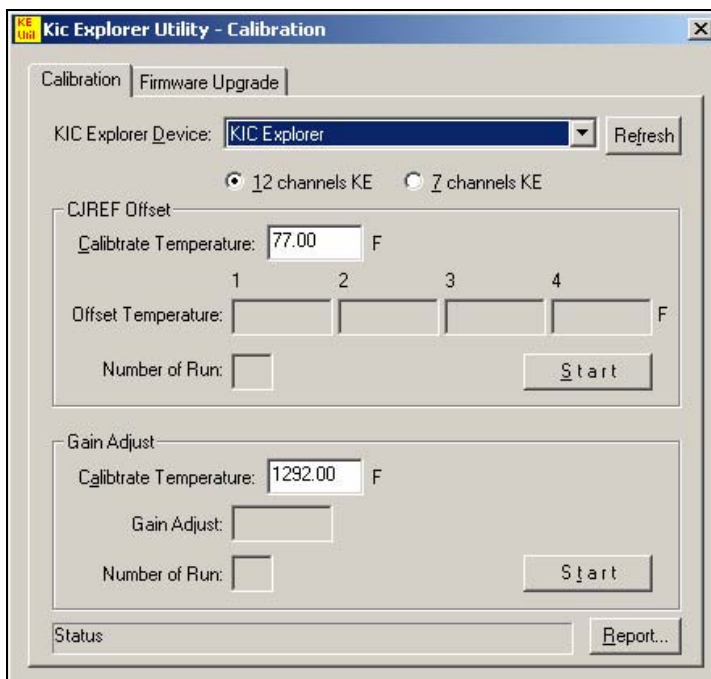


Figure 162

Note: For calibration of the *KIC Explorer* you can use the USB communication cable or if your *KIC Explorer* is equipped for *RF* use you can connect the *KIC Explorer Base Station* and perform the *KIC Explorer* calibration procedure wirelessly.

Select your *KIC Explorer* model – Select either *12 channels KE*, or *7 channels KE*.

Note: Failure to select the correct model will result in a failed calibration.

Calibration Status Window

The *Calibration Status* Window displays the log of all *KIC Explorer Utility* events and recorded temperatures during Offset and Gain calibration. See Figure 163.

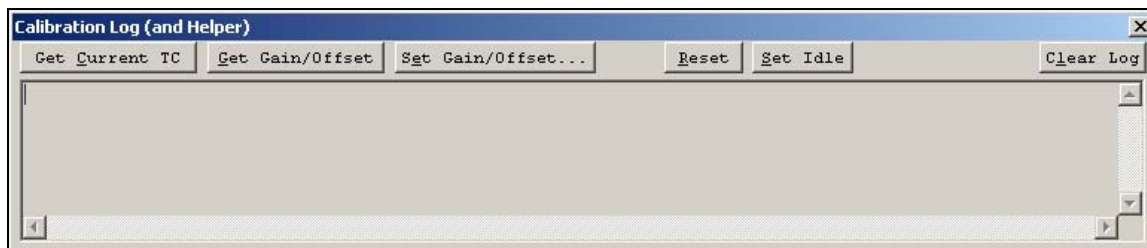


Figure 163

Calibration Status Window Functions

Get Current TC – displays the current thermocouple values for all channels of the *KIC Explorer*.

See Figure 164.

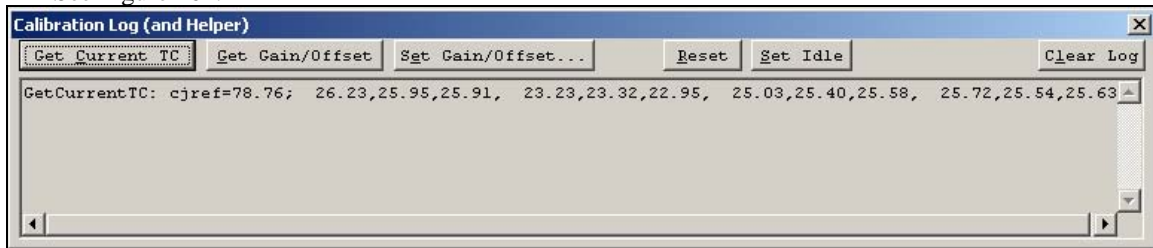


Figure 164

Get Gain/Offset – Displays the currently stored Gain and Offset values for the *KIC Explorer*.

See Figure 165.

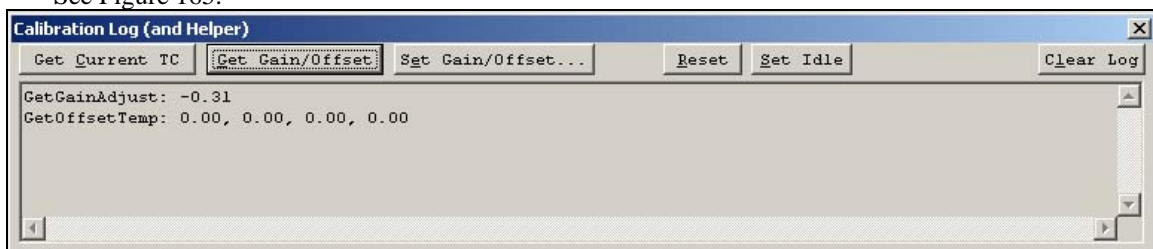


Figure 165

Set Gain/Offset – Opens the “Set Gain Adjust and Offset Temperatures” Window. This window displays the currently stored Gain/Offset values for the *KIC Explorer*. See Figure 166.

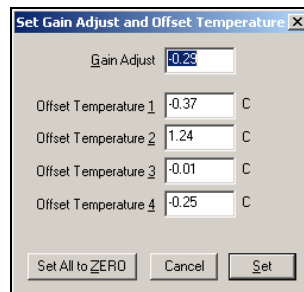


Figure 166

Offset Temperatures #1-4 – Displays the current Gain and Offset values stored in the *KIC Explorer* for each of the 4 thermocouple ports. The user can manually change the offset values if needed. See Figure 166.

Note: Changes made to the Gain and Offset values within this window will have a direct affect on all thermocouple readings made by the *KIC Explorer*.

Set All to Zero – Manually set the Gain and all Offset values to zero and closes the “Set Gain Adjust and Offset Temperatures” windows. See Figure 166.

Set – Hard sets the currently displayed Gain and Offset values.

Cancel – Cancels all actions and closes the “Set Gain Adjust and Offset Temperatures” window. See Figure 166.

Reset – Clears the *KIC Explorer* data memory and returns the *KIC Explorer* to the “ready to Profile” state.

Set Idle – Stops data collection and sets the *KIC Explorer* to “Idle” state.

KIC Explorer Calibration

KIC Explorer calibration procedure should only be performed by qualified persons. If you need assistance, training, or need to arrange for *KIC* to calibrate your *KIC Explorer* contact *KIC* Technical Support tech@kicmail.com, asia.tech@kicmail.com, europa.tech@kicmail.com.

The *KIC Explorer* is electronically calibrated using the *KIC Explorer Utility*. The *KIC Explorer* has 4 separate calibrations, 1 for each of its 4 thermocouple connector ports. Using the *KIC Explorer Calibration Adapter* is the only way to properly calibrate the *KIC Explorer* profiler.

The suggested calibration frequency cycle for the *KIC Explorer* is 12-months.

To calibrate the *KIC Explorer* you will need the following hardware:

- *KIC Explorer*
- *KIC Explorer* USB communication cable or *Base Station*
- *KIC Explorer* thermal shield
- Type “K” thermocouple simulator
- *KIC Explorer Calibration Adapter* (7 or 12 channel models).

Software:

- *KIC 2000* ver. 2.4.0.0
- *KIC Explorer Utility* ver. 1.31

The *KIC Explorer Utility* uses the Fahrenheit temperature scale for its calibration.

Perform the following steps to properly calibrate the *KIC Explorer* within $\pm 1.2^{\circ}\text{C}$ ($\pm 2.0^{\circ}\text{F}$):

1. Make sure your *KIC Explorer* is on and connected to the computers USB port or connect the *KIC Explorer Base Station*.
2. Connect the *KIC Explorer calibration adapter* to the *KIC Explorer* making sure to occupy all of the thermocouple inputs as required. Connect the other end to your type “K” thermocouple simulator’s output port.
3. Turn the power to your thermocouple simulator on and set the output value to 77°F.
4. Open the *KIC Explorer Utility* software program or if already open select the Refresh button. To verify communication between the *KIC Explorer* and the *KIC Explorer Utility*, select the “get Current TC” button in the *Calibration Status* window. If communicating properly you should see the current live temperatures from the *KIC Explorer*. See Figure 167.



Figure 167

CJREF (Cold Junction Reference) Offset

The CJRED Offset is the amount of temperature to add or subtract from the base *KIC Explorer* readings.

KIC recommends setting this value to the same temperature as the *cjref* (Internal) temperature. You can view the *cjref* (Internal) temperature by selecting the “Get Current TC” button.

It is recommended to use the default *Calibration Temperature* value; however the user can enter the *Calibration Temperature* value between 50°F and 212°F.

Calibration Temperature – The default *Calibration Temperature* is 77°F.

Whatever the value of the *Calibration Temperature* field, the thermocouple simulator must match exactly.

1. Adjust the thermocouple simulators output to be the same value as the *Calibration Temperature* field.
2. When both the *calibration Temperature* field and the thermocouple simulator output values match, select the *CJREF Offset-Start* button to begin the *KIC Explorer* calibration.
See **Error! Reference source not found.**

The *KIC Explorer Utility* will automatically adjust the 4 thermocouple port's calibrations. The calibration for each thermocouple port is separate and differences in Offset values between thermocouple ports are normal.

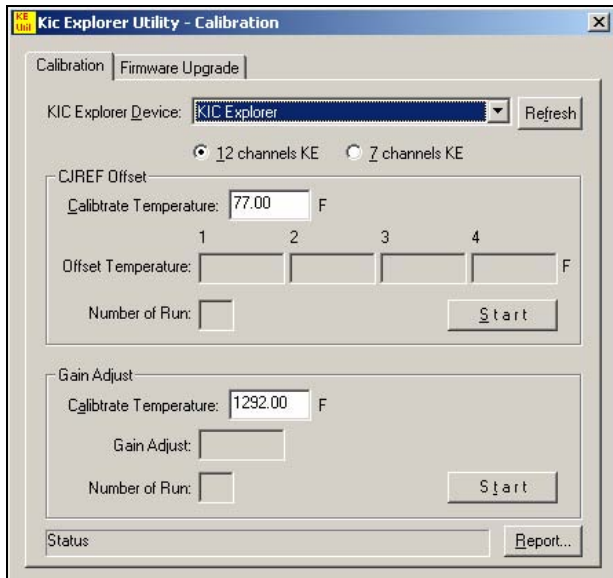


Figure 168

Note: During this process electronic adjustments are made in order to “tune” the *KIC Explorer* for maximum accuracy at the specified temperature.

When the *KIC Explorer Utility* has finished the Offset calibration a “CJREF Offset calibration is successfully completed” notice will appear in the Report area at the bottom of the *KIC Explorer Utility* screen and the *Offset calibration Log* is displayed in the *Calibration Status* window. See Figure 169.

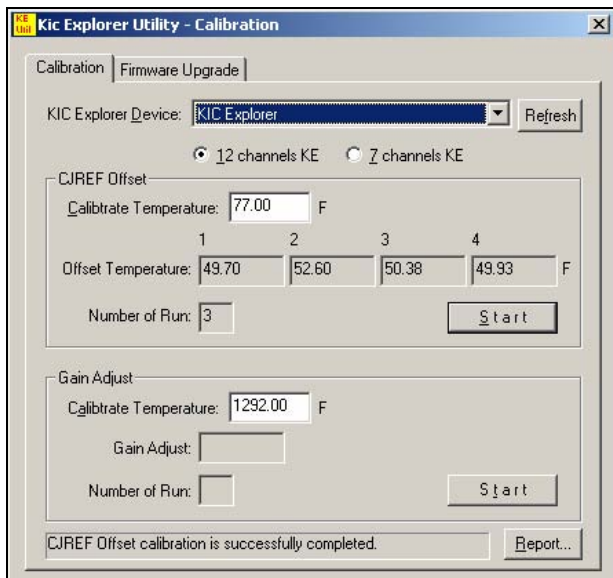


Figure 169

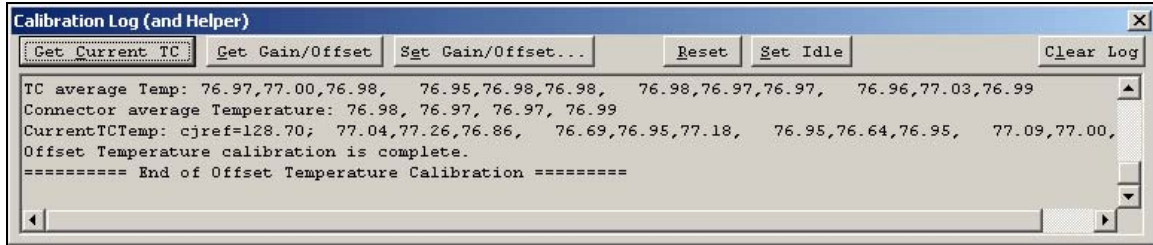


Figure 170

When the “End of Offset Temperature calibration” is displayed in the *Calibration Status* Log window the Offset portion of the *KIC Explorer* calibration procedure is complete. See Figure 170. Next is the Gain Adjust procedure.

Gain Adjust

The Gain Adjust portion of the *KIC Explorer* calibration procedure affects the accuracy of the *KIC Explorer* across its temperature capability range.

For maximum accuracy set the Gain Adjust calibration value to the highest temperature you expect to read for your process. It is recommended to use the default calibration temperature; however, you can enter calibration values between -1480°F and -58°F, or between 302°F and 1832°F.

Calibration Temperature – The default *Calibration Temperature* is 1292°F.

1. Whatever the value of the *Calibration Temperature* field, the thermocouple simulator must match exactly. Adjust the thermocouple simulators output to be the same value as the *Calibration Temperature* field.
2. When both the *Calibration Temperature* field and the thermocouple simulator output values match, select the Gain Adjust-Start button to begin the *KIC Explorer* calibration. See Figure 171.

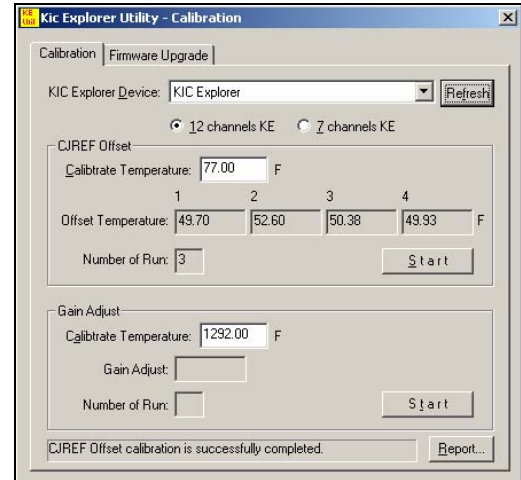


Figure 171

The *KIC Explorer Utility* will begin to automatically adjust the Gain Adjust setting.

Note: During this process electronic adjustments are made in order to “tune” the *KIC Explorer* for maximum accuracy at the specified temperature.

When the *KIC Explorer Utility* has finished the Gain Adjust portion, a “Gain Adjust calibration is successfully completed” notice will appear in the Report area at the bottom of the *KIC Explorer Utility* screen and the *Offset calibration Log* is displayed in the *Calibration Status* window. See Figure 172.

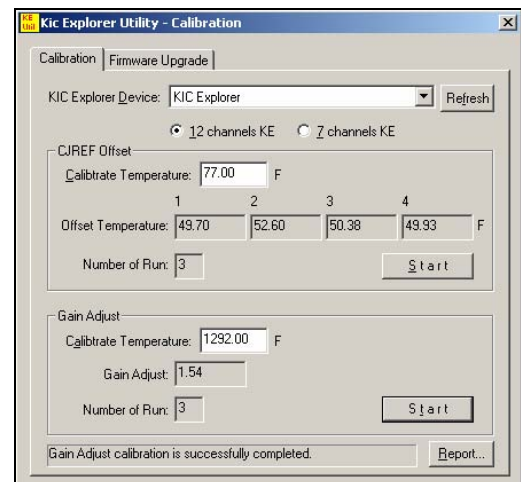


Figure 172

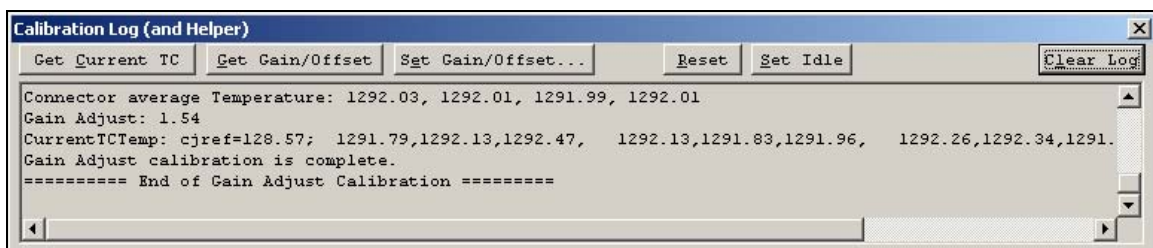


Figure 173

When the “End of Gain Adjust calibration” is displayed in the *Calibration Status Log* window the Gain Adjust portion of the *KIC Explorer* calibration procedure is complete. See Figure 173.

This concludes the *KIC Explorer* calibration procedure. You can close/exit the *KIC Explorer Utility*.

KIC Utility Flash Upgrade Tab

The *KIC Explorers* firmware can be upgraded using the *KIC Explorer Utility*. This gives *KIC Explorer* users the ability to upgrade their *KIC Explorers* whenever a new firmware is available.

Periodically *KIC* will post updated firmware files on the website www.kicthermal.com . The *KIC* Firmware flash file is needed to complete this process.

Flash updating or “Flashing” the *KIC Explorer* can only be done by use of the USB communication cable.

Flashing the KIC Explorer

KIC Explorer Device

If your *KIC Explorer* is on and connected the *KIC Explorer Utility* will display the *KIC Explorer Device* name (*KIC Explorer*). If the *KIC Explorer Device* field is blank then no device is detected or the device is not displayed, in which case select the *Refresh* button. See Figure 174.

API Version – Displays the current API version; *KIC Explorer* background communication utility.

Current Firmware Version – Displays the current firmware version for the *KIC Explorer*.

KIC Explorer Firmware Image File – Displays the selected firmware flash file. Select the *Browse* button to search for the file.

Start Firmware Upgrade – This button starts the firmware upgrade.

Status – Displays the current *KIC Explorer* status once the flash process has begun.

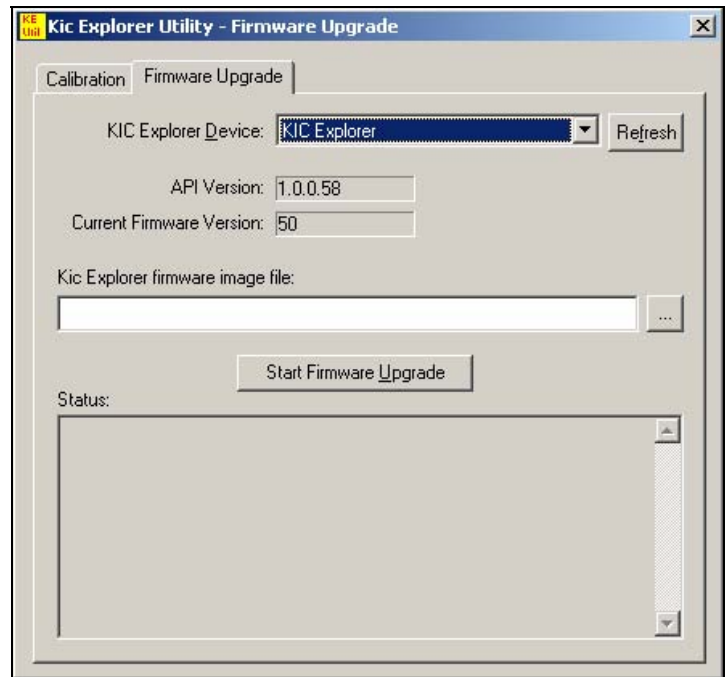


Figure 174

KIC Explorer Flash Update

Follow these steps to flash your KIC Explorer:

1. Make sure your *KIC Explorer* is on and connected to the computers USB port using the USB communication cable.
2. Open the *KIC Explorer Utility* software program or if already open select the Refresh button. . See Figure 162.
3. Type the name of the firmware file or select the Browse button to locate the file. See Figure 175.
4. When you have selected the firmware file it will be displayed in the *KIC Explorer Firmware Image File* field. See Figure 176.
5. Select the “Start Firmware Upgrade” button to begin the flash process. See Figure 176.
6. During the flash process the *KIC Explorer* status will be displayed in the *Status* field.

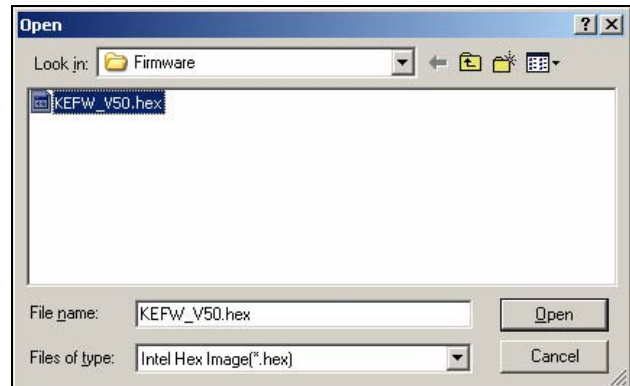


Figure 175

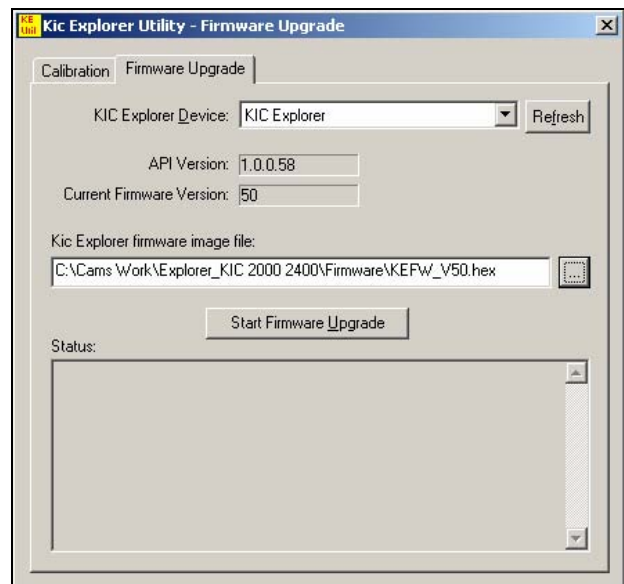


Figure 176

7. When the flash process is finished a *KIC* message will appear letting the user know the process is complete and show the previous and new-current firmware versions. Select the “OK” button. See Figure 177.



Figure 177

This concludes the *KIC Explorer* flash upgrade procedure.

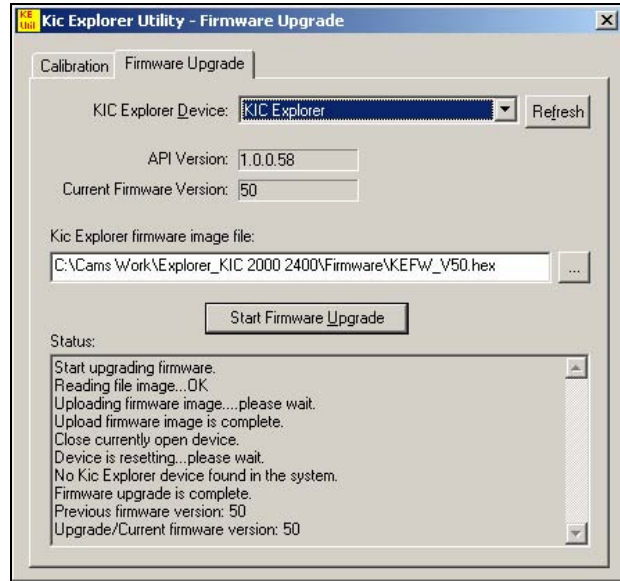


Figure 178

Appendix A: The Process Window Index

A Method for Quantifying Thermal Profile Performance

The Problem

While there are currently statistically valid methods for quantifying pick and place and screen printer performance, there is no widely accepted method for comparing performance of thermal profiles, and thus, no quantifiable system of ranking thermal process performance. Once a thermal profile has been run, it is judged as being either in or out of spec, and perhaps subjectively judged as being OK, good, or really good. Efforts to track process performance for SPC or QC generally focus on a single, or a small group, of profile statistics; for example, peak temperature of one or two thermocouples on a golden board. The Process Window Index is a statistical method for ranking thermal profile and thermal process performance.

Defining the Process Window Index

The Process Window Index is a measure of how well a profile fits within user defined process limits. See Figure 179.

This is done by ranking process profiles on the basis of how well a given profile “fits” the critical process statistics. A profile that will process product without exceeding any of the critical process statistics is said to be inside the Process Window. The center of the Process window is defined as zero, and the extreme edge of the process window as 99%.

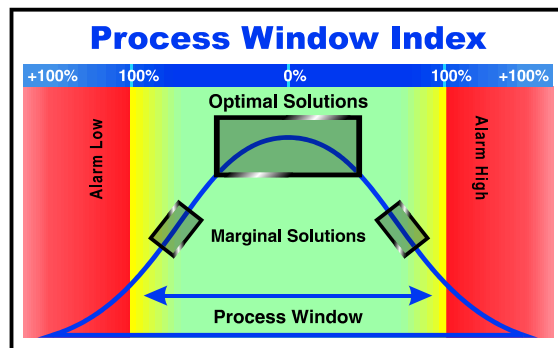


Figure 179: Process Window and PWI

A “Process Window Index” of 100% or more indicates that the profile will not process product in spec. A “Process Window Index” of 99% indicates that the profile will process product within spec, but it is running at the very edge of the Process Window. A “Process Window Index” of less than 99% indicates that the profile is in spec and tells users what percentage of the process window they are using; for example, a PWI of 70% indicates a profile that is using 70 percent of the process spec.

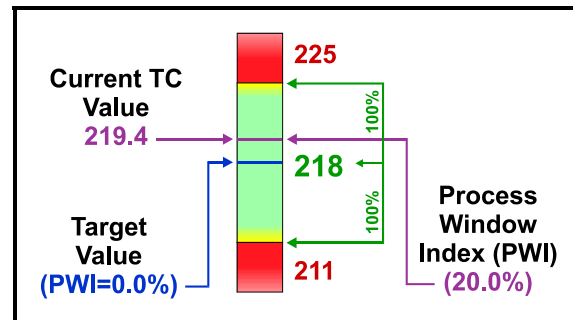


Figure 180: The Process Window Index
(Single Statistic—Peak Temperature of one Thermocouple)

The PWI tells users exactly how much of their process window a given profile uses, and thus how robust that profile is. The lower the PWI, the better the profile. A PWI of 99% is risky because it indicates that the process could easily drift out of control. Most users seek a PWI of below 80%, and profiles with a Process Window Index between 50% and 60% are commonly achieved (if the oven is sufficiently flexible and efficient).

Figure 180 shows the Process Window Index for the Peak Temperature of a single thermocouple. The Process Window Index for a complete set of profile statistics is calculated as the worst case (highest number) in the set of statistics.

For example: if a profile is run with six thermocouples, and four profile statistics are logged for each thermocouple, then there will be a set of twenty-four statistics for that profile, and the PWI will be the worst case (highest number expressed as a percentage) in that set of profile statistics. Note that Figure 181 shows the user designated critical statistics for a single thermocouple.

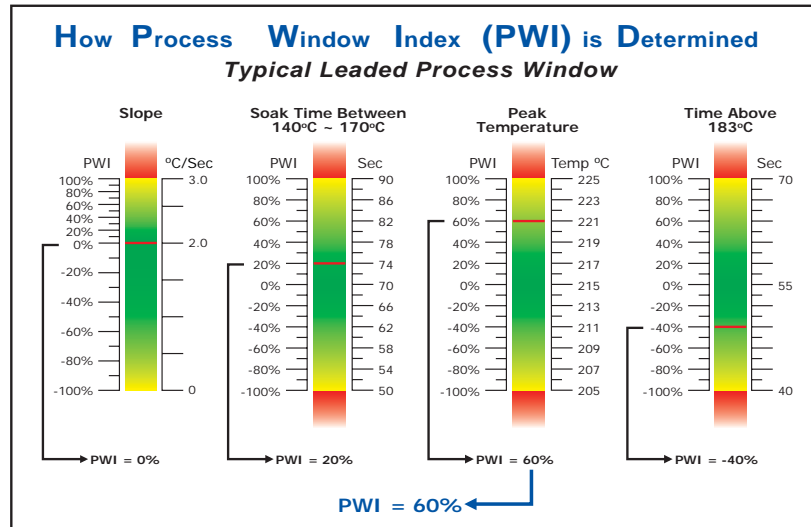


Figure 181: The Process Window Index (Multiple Statistics for a Single Thermocouple and Final PWI Calculation)

Calculating the PWI

To calculate the Process Window Index: $i=1$ to N (number of thermocouples); $j=1$ to M (number of statistics per thermocouple); **measured_value**_[i,j] is the [i,j]th statistic's value; **average_limits**_[i,j] is the average of the [i,j]th statistic's high and low limits; and **range**_[i,j] is the [i,j]th statistic's high limit minus the low limit.

$$PWI = 100 \times \max_{N,M} \left\{ \left| \frac{(\text{measured_value}_{[i,j]} - \text{average_limits}_{[i,j]})}{(\text{range}_{[i,j]} \div 2)} \right| \right\}$$

Table 3: Process Window Index Formula

Thus, the PWI calculation includes all thermocouple statistics for all thermocouples. The profile PWI is the worst case profile statistic (maximum, or highest percentage of the process window used), and all other values are less.

Benefits of Ranking Thermal Profile Performance

The analysis of thermal profiles with the Process Window Index offers four significant benefits. The first is that profiles can be easily compared, and users can be confident that they are using the best profile their process can achieve. Before the PWI was available for profile analysis, comparing profiles was subjective, and users could never be certain they had the best profile for their product. The PWI provides an excellent opportunity for process improvement and its use is a significant step towards Zero-defect Production.

The second benefit is that the PWI greatly simplifies the profiling process. When used in advanced profiling tools, all profile statistics are reduced to a single number (the PWI) that even the most inexperienced operator can understand. This means significant savings in terms of training costs and a reduction in defects caused by operator error. It further means that in a few minutes, an inexperienced operator can setup an oven with the optimal profile, a job that formerly could take an experienced engineer hours.

The third benefit is that because the PWI reflects the performance of the whole profile, it provides much better indicator of process capability than tracking a single statistic. The PWI thus provides excellent data for SPC and other QC monitoring programs while simplifying data gathering and reducing process monitoring costs.

Finally, the PWI gives users a simple method for comparing thermal process performance. Comparisons may be made between individual lines on the shop floor, between processes at multiple plants, and between processes using dissimilar equipment. The ability to quantify thermal process performance will give electronics assemblers a means for comparing the performance of their soldering equipment. This will be of value in selecting equipment, for buy off, and for process troubleshooting.

Table 4 is the result of a series of tests comparing oven performance using several sizes of PCBs. Each board was profiled in the given oven, and then an automated profile prediction tool was used to find the optimal profile for that board in the given oven. After the oven set points were changed and the oven stabilized, a second profile was run to confirm that the predicted PWI had been achieved. Table 4 shows that there is significant variation in oven performance between various makes and models. In this test, Oven C had more zones than Ovens A and B, and performed better, as would be expected.

Oven		Board Type			
Manufacturer	Model	Motherboard	Cell Phone	Display Adapter	Mainframe
A	X	PWI = 87%	PWI = 62%	PWI = 79%	PWI = 126%
B	Y	PWI = 71%	PWI = 58%	PWI = 61%	PWI = 93%
C	Z	PWI = 33%	PWI = 29%	PWI = 34%	PWI = 58%

Table 4: Comparison of Oven Performance — Best Achievable PWI

Conclusion

The simplicity of the Process Window Index makes its validity as a statistical tool readily apparent and its adoption as an industry standard clearly offers a significant opportunity for the improvement of the soldering process. The advantages detailed above point to its value in demystifying the soldering process and open the door to precision control of a process that has been ignored for too long. Issues like the coming of Lead-free electronic assembly mean that electronics assemblers can no longer be complacent about their soldering process. Sophisticated tools utilizing the PWI as a standard for accurately measuring the thermal process will mean more efficient production, improved and simplified process control, and higher quality final product.

APPENDIX B: Attaching Thermocouples to the product

Overview

Thermocouple attachment is one of the single most important factors for attaining accurate thermal profile results. If a thermocouple is not attached properly, the profile will yield inaccurate results. The objective is to attach a thermocouple to the lead of a component in order to measure the solder joint temperature to verify the thermal profile meets the specified process parameters. We have outlined 2 methods for thermocouple attachment below.

When selecting a position for your thermocouples, you want to measure points on the product that represent the entire mass-range of the product. Select at least one position that is a high-mass area of the board (large component) and at least one position that is a low-mass area of the board (small component). If you can develop an acceptable profile for the low and high -mass areas of the board, the other areas of the board will be processed within the same process parameters.

High temperature solder is considered the industry standard for attaching thermocouples to PCBs for thermal profiling. High temperature solder provides excellent repeatability, and is a very strong attachment method. The cons to using high temperature solder are that it is not easy to work with, requires tools, and is usually destructive to the test product. For these very reasons *KIC* tested alternative means of attaching thermocouples to PCBs. Of the many different attachment methods tested by *KIC*, Aluminum tape provided profile results most similar to high temperature solder and it proved to be non-destructive as well.

Aluminum Tape

Aluminum tape provides a secure connection with excellent thermal conductivity. It offers users of pass-through profilers a simple, inexpensive, and nondestructive method of attaching thermocouples for thermal profiling. Using Aluminum tape reduces the effort required for obtaining an accurate thermal profile as opposed to high temperature solder.

The Aluminum tape is cut with scissors to a size of approximately 1/4" × 1/4" and is used to secure the thermocouple to the product. The tape can be used on the bare PCB or easily conform over the shape of components and leads. Tape can be used to hold excess wire down to the board and provide some strain relief. See Figure 182.

For Aluminum tape ordering information contact KIC, sales@kicmail.com.

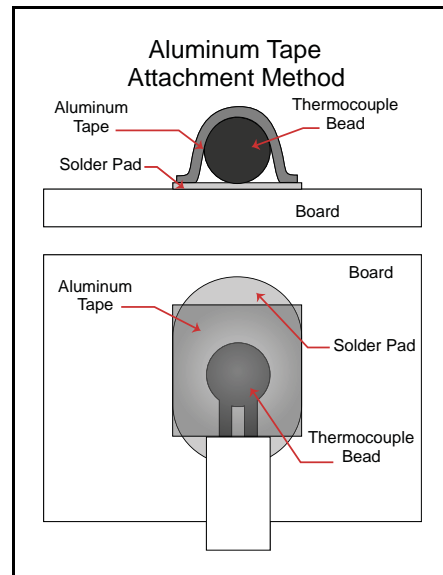


Figure 182

High Temperature Solder

Do not attempt to attach the *TC* by melting solder into the spot and then shoving in the bead. Place the *TC* bead on the attachment surface and heat both evenly with the soldering iron. Make sure your iron is set to achieve temperatures over the solder melting point. For the solder KIC provides 300C should be sufficient. Then touch the solder to the heated *TC* bead and let the heat from the *TC* bead melt the solder. This method gives you superior wetting and a stronger solder attachment to the pad or lead. See Figure 183.

Be sure and remove any residual eutectic solder before applying the high temperature solder. If the eutectic solder is not removed, the tension of the thermocouple wire may lift the component as soon as the eutectic solder reaches its melting point, which is a lower temperature than high temperature solder.

Your temperature reading will come from the first point of contact between the two wires leading from the *TC*. To insure accurate readings, it is critical to carefully separate the two wires all the way up to the *TC* bead after soldering.

High temperature solder is an efficient heat conductor, so if a tiny bit gets between the *TC* bead and the lead or pad; you will still get an accurate reading. However, too much solder at the measurement point will increase the heat capacity of the *TC* and cause your peak temperature measurement to read low.

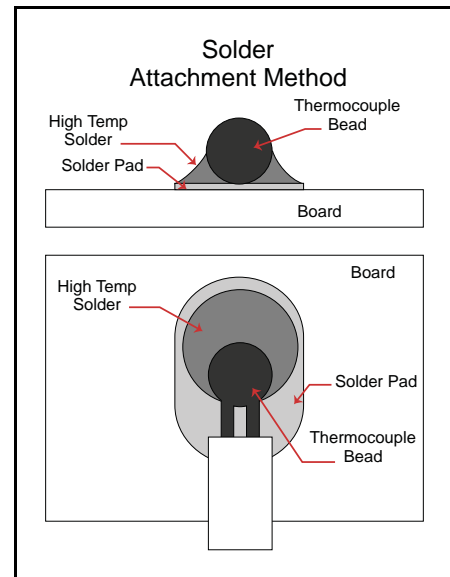


Figure 183

APPENDIX C: Writing KIC 2000 Data over a Network

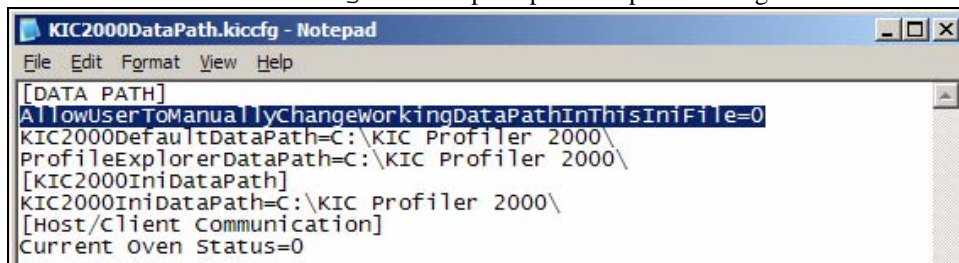
The *KIC* software can easily be configured to write the collected data to a network drive location. This would allow data from one or even multiple systems to be stored in one centralized location (Server/Shared Hard Drive).

First, map a network drive from the PC running the *KIC* software to the desired network location.

Due to the varieties of O/S and network configurations, KIC cannot detail this step. We recommend you contact your I.T. Department or Network Administrator for assistance.

Once you have established the network drive, on the PC where the *KIC* software will be running, follow the steps below:

1. Ensure the *KIC* software is shutdown. Open Windows Explorer, and locate the *KIC Profiler 2000* “Log” directory. Then double-click the `KIC2000DataPath.kiccfg` file.
2. The `KIC2000DataPath.kiccfg` file will open up in Notepad. See Figure 184.

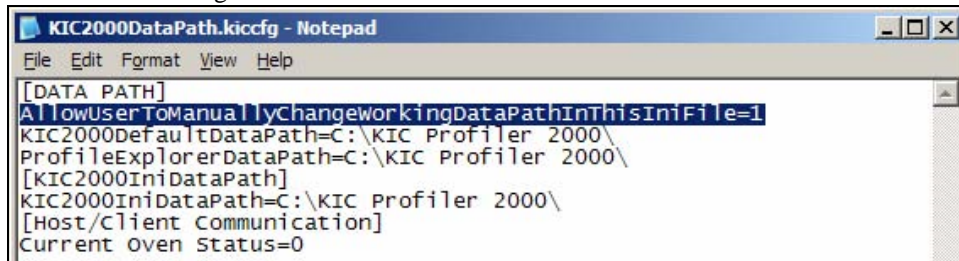


```

KIC2000DataPath.kiccfg - Notepad
File Edit Format View Help
[DATA PATH]
AllowUserToManuallyChangeWorkingDataPathInThisIniFile=0
KIC2000DefaultDataPath=C:\KIC Profiler 2000\
ProfileExplorerDataPath=C:\KIC Profiler 2000\
[KIC2000IniDataPath]
KIC2000IniDataPath=C:\KIC Profiler 2000\
[Host/client Communication]
Current oven Status=0
  
```

Figure 184

3. Change the value of `AllowUserToManuallyChangeWorkingDataPathInThisIniFile` from =0 to =1. See Figure 185.

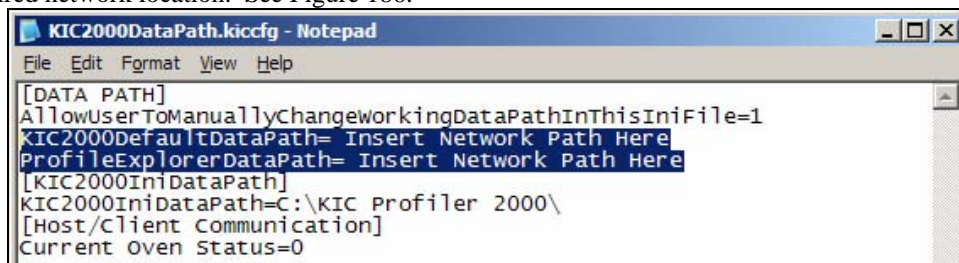


```

KIC2000DataPath.kiccfg - Notepad
File Edit Format View Help
[DATA PATH]
AllowUserToManuallyChangeWorkingDataPathInThisIniFile=1
KIC2000DefaultDataPath=C:\KIC Profiler 2000\
ProfileExplorerDataPath=C:\KIC Profiler 2000\
[KIC2000IniDataPath]
KIC2000IniDataPath=C:\KIC Profiler 2000\
[Host/client Communication]
Current oven Status=0
  
```

Figure 185

4. Change the values of `KIC2000DefaultDataPath` and `ProfileExplorerDataPath` to the desired network location. See Figure 186.



```

KIC2000DataPath.kiccfg - Notepad
File Edit Format View Help
[DATA PATH]
AllowUserToManuallyChangeWorkingDataPathInThisIniFile=1
KIC2000DefaultDataPath= Insert Network Path Here
ProfileExplorerDataPath= Insert Network Path Here
[KIC2000IniDataPath]
KIC2000IniDataPath=C:\KIC Profiler 2000\
[Host/client Communication]
Current oven Status=0
  
```

Figure 186

5. Once the KIC2000DataPath.kiccfg file has been modified with the new locations, choose File/Save from the drop down menu to save the changes.
6. Close Windows Explorer and start the *KIC 2000* software.
7. With the *KIC* software open, go into *Profile Explorer*. You should now see the new data path directory displayed in the upper right hand corner of the screen. See Figure 187.

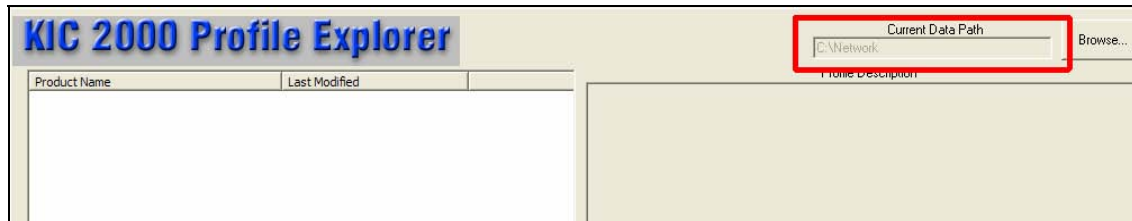


Figure 187

All data collected in this *KIC 2000* application will now be written to the network folder chosen. It will automatically create a subfolder named “Profiles” in the directory chosen. In that “Profiles” folder, it will create sub folders for each product name, just as it would in the default *KIC 2000* directory.

You can now view the collected data from any PC on the network that is running the *KIC 2000* software.

When selecting the folder, browse to the root directory of the main “Profiles” folder. For example, if the profiles are in a directory called F:\KIC Profiler 2000/Profiles/ Board A, you would browse only to the F:\KIC Profiler 2000 folder.

If there is no network connection when the KIC software is started, the software will automatically change the data path back to the default location of C:\KIC Profiler 2000. To resume writing data to a network location, you will need to repeat the steps listed above.

Contacting KIC

There are various means of contacting or attaining information from KIC.

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On the Web

You can find the latest KIC product news along with a library of useful information at our website www.kicthermal.com or www.kic.cn

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