X5 Profiler
Hardware Guide

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KIC® *Innovation That Works™*

X⁵ Profiler Hardware Guide

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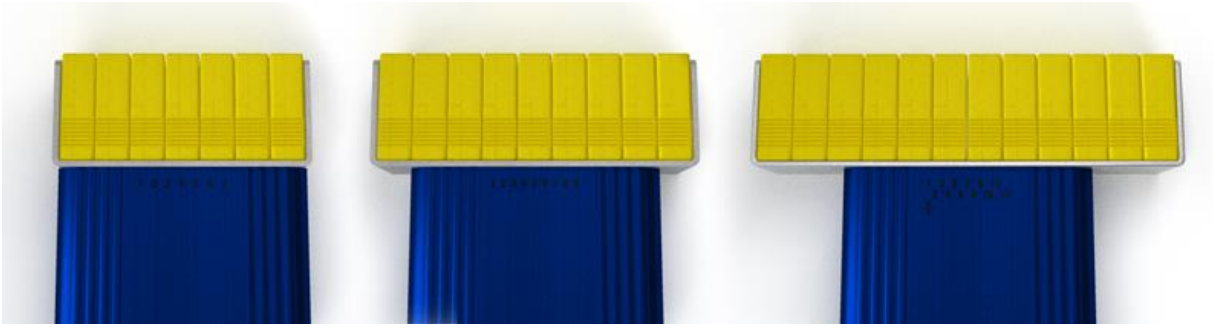
Introducing the X⁵ profiler

X⁵ is KIC's compact, powerful new generation of thermal profilers. The profiler is the data acquisition tool and a component of KIC's thermal process management systems. It physically moves through the thermal process, capturing the temperature and time information that KIC software uses to create a thermal profile.

The X⁵ uses standard type-K thermocouples, and is available in the 7, 9, or 12-channel (L to R) models shown below:



The X⁵ has two *modes* of operation — *datalog* and *wireless*. Datalog is an operating mode wherein the profiler simply logs temperature data as it moves through the thermal process. Later, a USB cable connects the profiler to the computer and transfers profile data to and from the software.

The X⁵ is also available in a *dual* capability model that supports wireless mode. With wireless mode, the X⁵ transmits data by radio signals directly to the software. An antenna/transceiver pair replaces the cable connection and lets you view the accumulating profile data in *real-time*.

Software for your profiler

Your X⁵ profiler kit includes a copy of the *Profiling Software 2G* program. Used with your X⁵, this software provides all the tools you need for basic thermal profiling. It lets you set operating parameters, monitor your hardware, graphically display analytical data, and manage multiple profile data sets. While this Hardware Guide uses images from the Profiling Software 2G to illustrate procedures, you may use the X⁵ profiler with other KIC software products.

Receiving your profiler kit

Upon receiving your profiler kit, check it to make sure that all the required components are there. The specific contents of your kit will match the configuration— datalog or wireless—that you ordered. The full catalog of parts appears below:

Part Description
X⁵ Profiler - datalog or dual model (wireless capable) (7, 9, or 12-channel)
X⁵ Profiler antenna (wireless models only)
X⁵ base station RF transceiver and antenna (wireless models only)
USB communication cable
USB extension cable 6ft (wireless models only)
Thermal shield
Thermocouples (7, 9, or 12—standard type K)
Aluminum tape for attaching thermocouples
Scissors for cutting the tape
Gloves for handling the unit and test product hot from the thermal process
AAA batteries
X⁵ Getting Started Guide (Datalogger or Dual version)
X⁵ Profiler Hardware Guide
Profiling Software 2G
Profiling Software 2G user manual (on included CD)
USB Software Key (Needed to run Profiling Software 2G)

Powering the X⁵

AAA batteries power the X⁵ during typical profiling runs through a thermal process. However, when you afterward transfer data to the software, the unit can use system power directly through its USB connection, saving battery power for further profile runs. When you use the X⁵ directly connected to a computer, the unit receives power from the USB port, extending battery life.

Note:

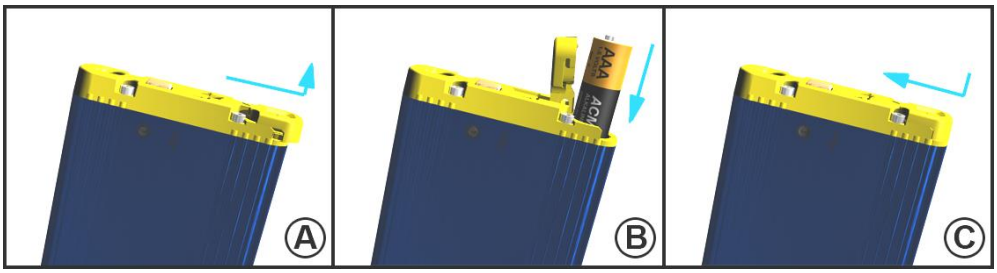
- Using USB power does not charge the batteries.
- While using USB power, the batteries must remain installed in the unit.

Installing and using batteries

The X⁵ uses three standard AAA-sized batteries. The profiler works best with *alkaline* batteries. However, you can use other types including rechargeable batteries.

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

The illustration below shows how to install or replace batteries:



Managing battery life and performance

Independent tests show that a standard set of alkaline batteries will exceed 20 hours of room temperature operation. The software has a built-in battery monitor and automatically recognizes if battery voltage is too low to complete a profile. When battery voltage drops below 3.5V, the software will not allow you to start a profile until you have replaced the batteries.

Temperature considerations

Operating temperatures can affect battery performance. Since profilers move through heated ovens, it is to be expected that the batteries inside experience rising temperatures. Batteries have a high capacity to absorb heat and tend to remain hot even after the profiler has exited the thermal process.

Even if the rest of the profiler hardware has cooled sufficiently to permit running another profile, the batteries may remain too hot to use safely. In this case, if you want to run another profile, replace the heated batteries with a new, room temperature set. Battery substitution helps you avoid the chance of overheating the batteries and potentially damaging the profiler. It also lets you run more profiles in a given session.

Note:

- The high temperatures experienced in running thermal profiles can cause the plastic film jacket on the outside of the battery to peel. Always inspect heated batteries before reuse to verify that they are intact and operational.

- In the event the batteries become heat-damaged or corrosive, replace them immediately. Failing to do so can lead to X⁵ damage and or personal injury.

Turning the power on and off

Power On – Press/hold the amber colored On/Off button for 1 second (located at the back of the X⁵). When power is on, the LED indicators will illuminate. The LED color/pattern will represent the current X⁵ hardware state/status.

Power Off – Press/hold the amber colored On/Off button for 1 second (located at the back of the X⁵). When the power is turned off, the LED indicators will also be off.

Reading the LED status indicators

A pair of LEDs, (one green; one red) report the current state of the profiler through a small lens found on the top side of the unit, near the on/off button. The table below relates the state of the profiler to its corresponding LED appearance:

X⁵ State	LED appearance
Power up and initialization	**Green flash, then red for 2 seconds**
Resetting	**Red on steady**
TC(s) above profile start temperature	**Red on steady**
Ready to profile (start trigger)	**Red flashing**
Profile in progress (mid-trigger, stop-trigger, manual mode)	**Green flashing**
End of profile	**Red and green flashing**
Idle	**Green on steady**
Updating firmware	**Red/green (“orange”) on steady**

Setting up data communication between the X⁵ and the computer

To begin profiling in either datalog or wireless mode, you must first establish data communication between the X⁵ and the computer running the Profiling Software 2G program. Both modes communicate to the computer through a standard USB port, datalog mode using a cable, wireless mode using a plug-in transceiver unit called a *base station*. If the computer has no available USB ports, use a standard 2-8 port *hub* to add an open port.

Caution: You must install Profiling Software 2G before connecting any profiler hardware to the computer. Connecting the hardware before the software is installed will render the X⁵ unusable. The normal setup routine must follow the sequence shown below:

1. Install the software.
2. Connect the X⁵ hardware to the computer.
3. Follow the instructions in the *Hardware Wizard* to link the profiler to the appropriate USB drivers.

Caution: When connecting the **X⁵** to laptop computers that utilize a floating ground connection (2-prong power plug); you must manually ground the laptop before connecting the **X⁵**. This procedure will prevent unwanted electrical interference that may distort the temperature data collected by the **X⁵**.

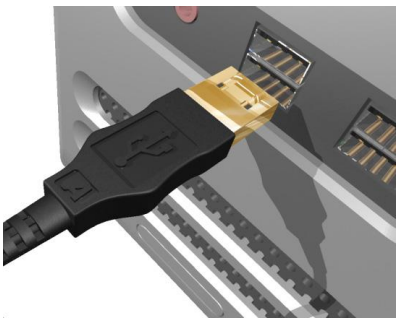
If you have any questions or need assistance connecting your hardware, contact KIC Technical Support tech@kicmail.com.

Setting up communication in datalog mode

In basic datalog mode, the profiler records data as it moves through the thermal process that it later transfers to the computer through a cable.

To setup datalog mode communication

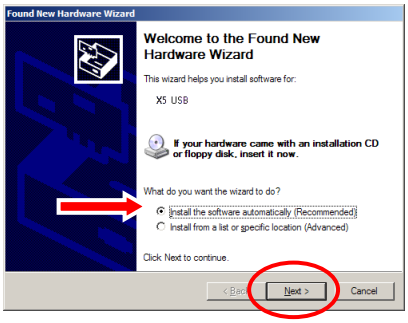
1. Verify that that the Profiling Software 2G is on the computer and that fresh batteries are in the X⁵.
2. Locate the X⁵ USB communication cable, and insert its standard (Type A) connector into a USB port on the computer.



3. Connect the other end of the cable to the USB (Mini-B) socket on the end of the X⁵.

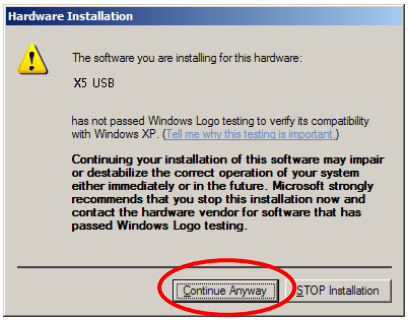
4. Press the power button to turn on power to the X⁵.

   Windows recognizes the USB device, and the Found New Hardware Wizard screen appears.



5. Select the **Install the software automatically (Recommended)** option, then click the **Next** button.

   A Hardware Installation screen appears with a message about Windows compatibility.

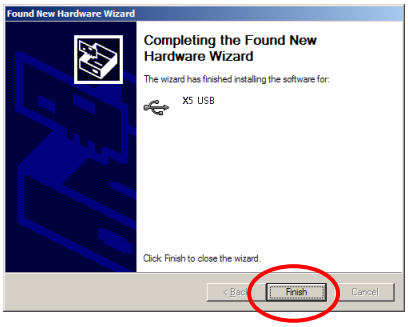


6. Click the **Continue Anyway** button.

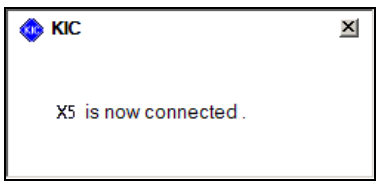
   Windows begins installing the USB software drivers and redisplays the Found New Hardware Wizard screen.

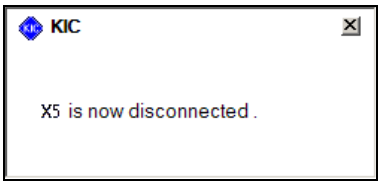
7. When the "*finished installing the software*" message appears, click the **Finish** button.

   The USB drivers are now installed, and the X⁵ profiler is ready to communicate with the software.



Note: The *Found New Hardware Wizard* USB driver installation routine will run each time you connect a *new* **X⁵** that has not been used before on that PC. Once the USB drivers are installed, whenever you connect an **X⁵** to a USB port, a message reports whether the device is connected or not:



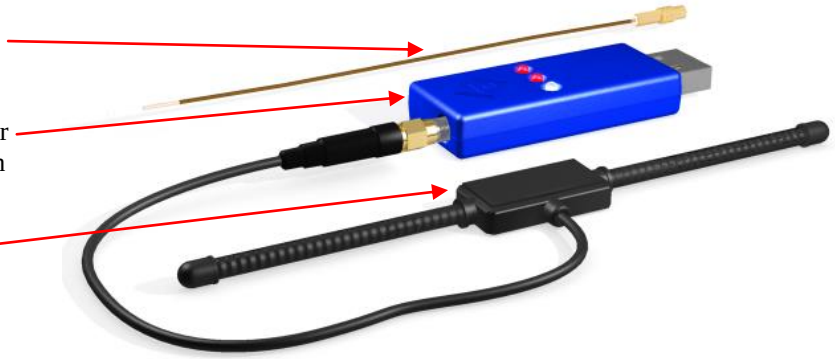


Setting up communication in wireless mode

Dual model X⁵ s have the capability of radio communication to the Profiling Software 2G program on your computer. Wireless communication lets you view the thermal profile as it develops in real-time from data transmitted by the X⁵. To switch to wireless mode, you need to enable this functionality in the software.

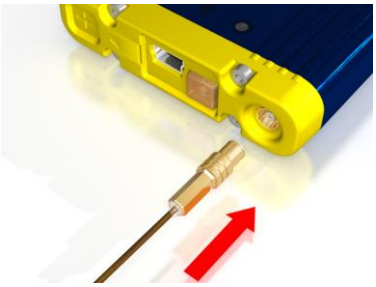
In place of the basic profiler's communication cable, the wireless configuration substitutes four hardware items:

- A X⁵ antenna for data transmission
- A *base station*—a transceiver that plugs into a USB port on the computer
- A base station antenna
- An extension cable

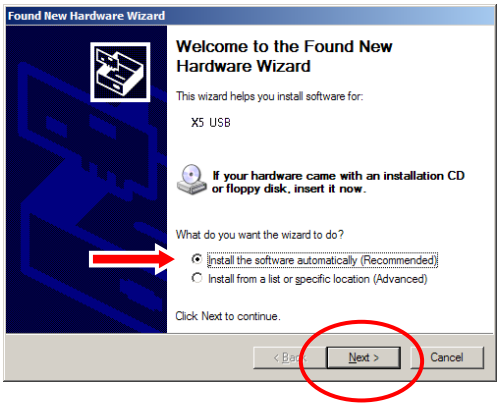


To setup wireless mode communication:

1. Verify that that the Profiling Software 2G program is on the computer and that fresh batteries are in the X⁵.
2. Thread the antenna on to the base station connector, insert the base station into a USB port on the computer, and insert the X⁵ antenna to the socket on the end of the unit:



When you connect the base station, Windows recognizes the USB device, and the Found New Hardware Wizard screen appears.



3. Select the **Install the software automatically (Recommended)** option, then click the **Next** button.

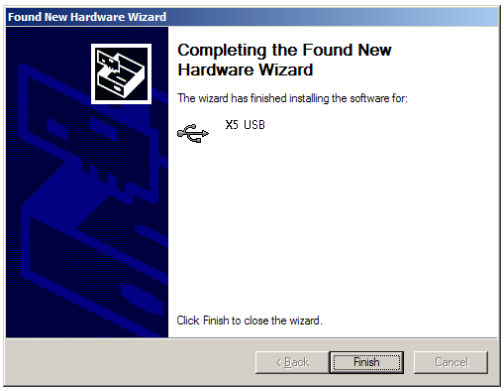
A Hardware Installation screen appears with a message about Windows compatibility.

4. Click the **Continue Anyway** button.

   Windows begins installing the base station USB software drivers and redisplays the Found New Hardware Wizard screen.

5. When the "*finished installing the software*" message appears, click the **Finish** button.

   The base station USB drivers are now installed, and the X⁵ profiler is ready to communicate with the software.

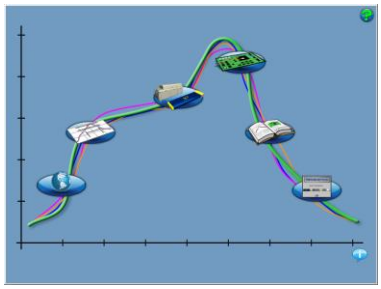


   Note: *The Found New Hardware Wizard USB driver installation routine* will run each time you connect a *new* **X**⁵ that has not been used before on that PC.

   Once the USB drivers are installed, whenever you connect a X⁵ Base Station to a USB port, a message reports whether the device is connected or not:

6. Launch Profiling Software 2G.

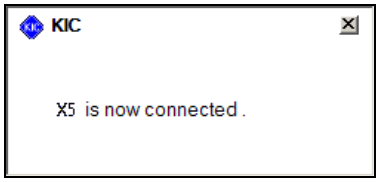
   The Main screen appears, and one base station LED begins to flash.



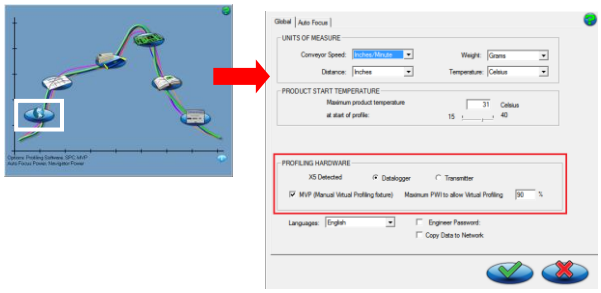
7. Use the communication cable to connect the X⁵ to a USB port on the computer.

8. Press the power button to turn on power to the X⁵.

A message appears, confirming the powered connection.

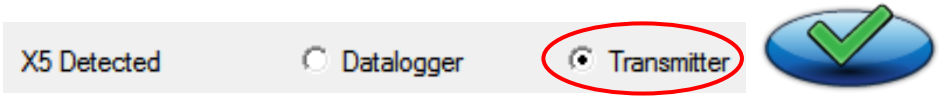


9. From the **Main** screen, click on the **Globe** button to display the **Global Preferences** screen.

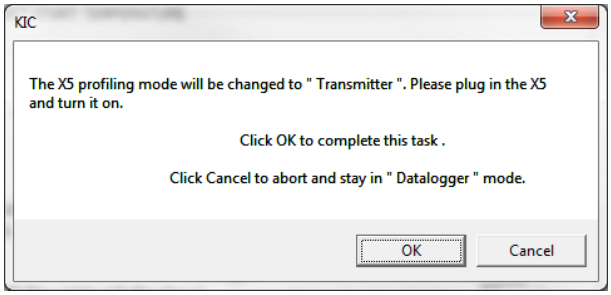


The software shows the X5 as <u>detected</u> in the Profiling Hardware panel, and displays radio button choices for specifying the communication mode.

10. Click the radio button for **Transmitter,** followed by the **Save** (green check) button:

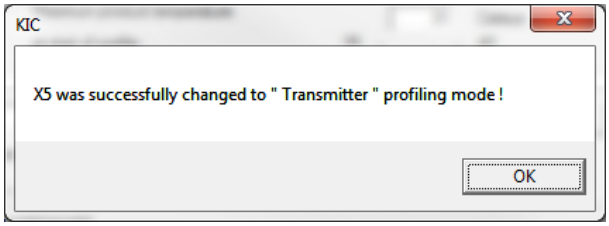


As the selection toggles from Datalogger mode, the following prompt appears:



11. Click **OK** complete the mode change.

Successful mode change displays this confirmation message:



12. Disconnect the communications cable.

13. Click **OK** to return to the Main screen.

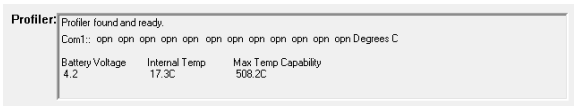
    The remaining base station LEDs begin flashing.

    Note: Base station LED indicators:

    Red = Data received from X⁵
    Green = A wireless signal is detected
    Orange = Data Sent from Base Station to X⁵

14. When the Main screen appears, click the **Hardware Status** button.

The Hardware Status screen appears, showing the status of the profiler, and confirming that the software is receiving the wireless signal from the X⁵.



Note: The Profiler panel displays live temperature values and the current battery voltage. TC connections display the live temperature or appear as open (opn).

Improving reception

In most cases, simply connecting the base station to a USB port will produce acceptable wireless performance. However, some environments might require you to take extra care in positioning the base station and its antenna for best results. Follow the guidelines below:

USB port choice: The system uses direct line-of-site transmission, and this may influence your choice of a port on the front or back of the computer. Bear in mind that you will also want to be able to see the base station LEDs to know the system status.

Extension cable: The dual model kit includes a 6-foot extension cable that runs between the base station and the USB port. The cable can let you locate the base station/antenna for better reception and LED visibility.

Antenna orientation: The best position for the antenna is very site-dependent. Generally, the closer you can place the antenna to the oven tunnel opening, the better the reception.

Antenna placement: Placing the antenna itself directly on a metal surface such as an oven can degrade signal reception. The Velcro® included in the kit lifts the antenna away from the metal surface, avoiding the poor reception problem. Always use the Velcro if you want to attach the antenna to the oven.

Antenna height: The antenna should be at least 2.5 feet (0.762 m) above the ground.

Note: Using multiple profilers in too close proximity can cause signal interference problems.

Troubleshooting failed reception

If the base station LEDs do not flash or the software does not display temperatures, the wireless signal is not being received from the X⁵. Check the base station to confirm that its antenna is correctly installed and that the extension cable, if used, is properly connected. Check the profiler unit to confirm that it is:

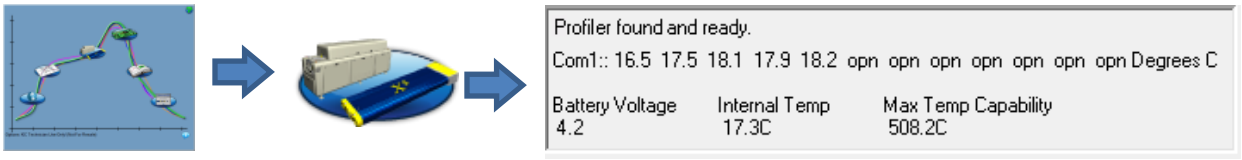
- ✓ Turned on
- ✓ Loaded with fresh batteries (The battery level must be greater than 3.49 volts.)
- ✓ Using firmware version 74 or higher
- ✓ Set to *Transmitter* in the software
- ✓ Equipped with a correctly installed antenna

Preparing to profile

The profiler starts and stops collecting temperature data based on trigger values. The software and profiler use default values derived from your selected process. If you change your process selection or its default values, you may need to plug your profiler into the USB port to update the temperature trigger values. Once you then disconnect the profiler from the USB cable and place it back in the shield, data collection becomes an automatic function triggered by temperature trigger values. For further information, refer to the section in the user manual titled *Running a profile* or, if available, to the section titled *Profiler temperature triggers*.

Checking the operating status of your profiler

The software provides a Hardware Status screen that displays channel communication, power, and temperature values. You access this screen by clicking on the Hardware Status button on the Main screen:



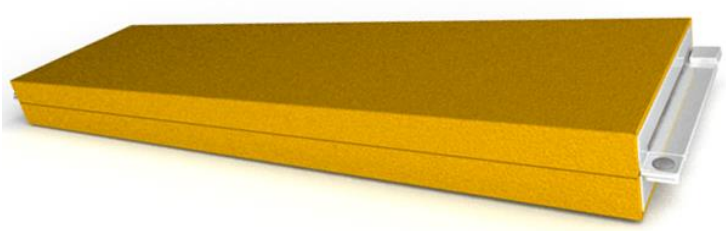
Using the thermal shield

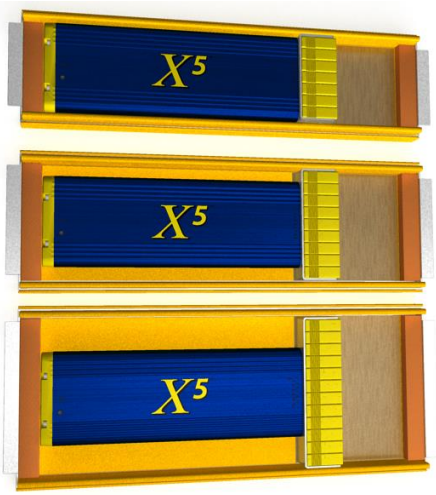
An X⁵ kit includes a *thermal shield*—a stainless steel enclosure that protects the profiler against extreme heat during runs through a thermal process.

Note: Thermal shield constructions vary based on the number of thermocouples used with the profiler and the amount or type of insulating materials. The instructions that follow illustrate a typical example of a shield and are substantially applicable to any specific model.

Caution: The **X⁵**'s maximum internal temperature is 85°C. **ALWAYS** use the thermal shield to protect the **X⁵** from heat damage.

The shield's outer surfaces are covered with *Cool Touch*—a special heat insulating material that makes the shield more comfortable to handle after absorbing oven heat. Cool Touch also lets the profiler perform runs at higher temperatures and longer durations.

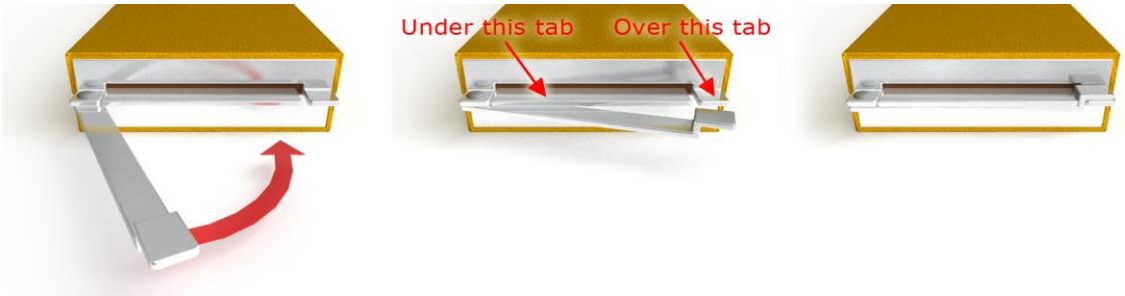




The inside surfaces of the shield protect the profiler with yet more Cool Touch insulation, Teflon tape, and foam rubber cushions. As additional thermocouples increase the width of the shield, insulation pieces create snug-fitting spaces for the profiler.

Note: While Cool Touch makes the shield easier to handle, *gloves are still required* especially when the profiler has just emerged from the oven. Your profiler kit includes a pair of specially selected safety gloves.

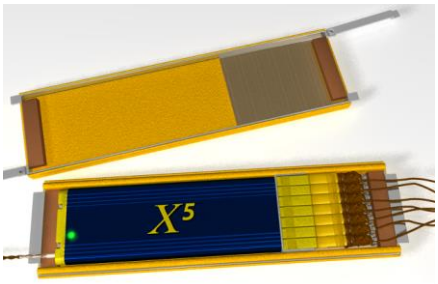
The shield has top and bottom halves that fit closely together, secured by a *latch* mechanism on each end. The bottom half features a wide metal *tab*. The top half has a swinging latch arm with a curved end and a narrow tab. The shield halves close together tightly as the latch arm swings *under the wide* tab and *over the narrow* tab:



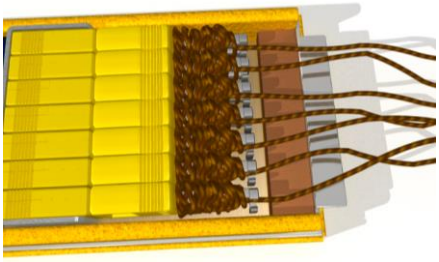
To load the thermal shield for profiling:

1. Unlatch the ends, and take off the top half of the shield.

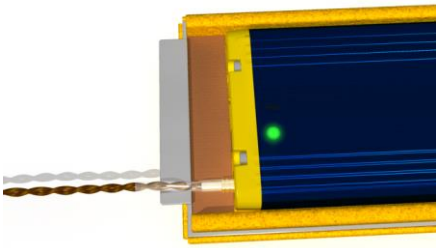
2. Place the X⁵ into the bottom half so that the profiler rests on the Cool Touch insulation and the thermocouples rest flat on the Teflon tape.



3. Make sure the thermocouple wires clear the sides and exit from the front of the shield.



4. On wireless units, make sure the X⁵ antenna is securely attached, fully extended, and exits from the back of the shield.



5. Look at the lens near the back of the X⁵ to verify that the LED is lighted and the profiler is powered.

6. Place the shield top over the bottom half, and close the latches on both ends, being careful not to damage exiting wires.

Safely handling after exiting the oven

As the profiler emerges from the oven, its shield, especially any exposed metal, can be uncomfortably hot to touch. Your profiler kit includes a pair of safety gloves, and it is absolutely required that you use these gloves for handling the unit after an oven run.

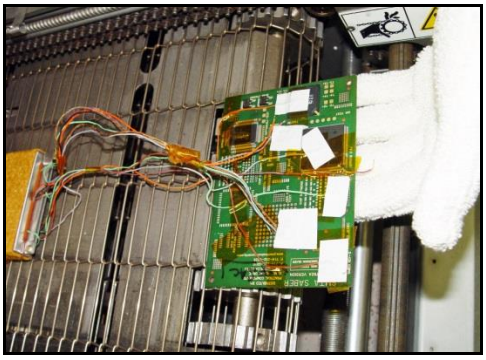
The safety gloves provided with your profiler kit feature a fabric construction that is rated to permit holding an object heated to 120°C (250°F) for up to 30 seconds. Operators should never hold a profiler longer than 30 seconds and should only hold it as long as needed to move it safely to a workbench or other appropriate flat surface.

CAUTION: Never substitute gloves that are not rated for similar temperature and holding cycle specifications. Contact your profiler manufacturer for replacement or extra pairs.

To safely remove the profiler from the oven.

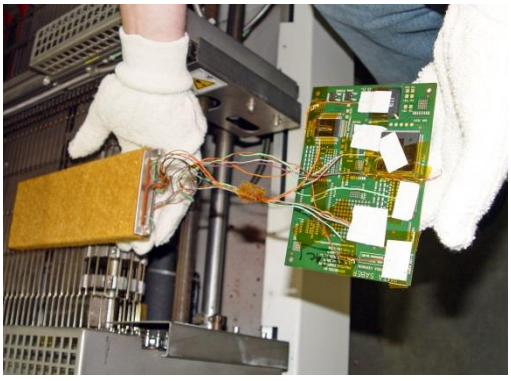
1. CAUTION: Wear the safety gloves supplied with your profiler kit during this procedure..

2. As the PCB reaches the end of the conveyor, carefully support the board with a gloved hand.



3. Matching the speed of the conveyor, slowly move the board away from the oven keeping the thermocouple wires away from any entangling machinery.

4. As the profiler reaches the end of the conveyor, carefully support it with your other gloved hand.



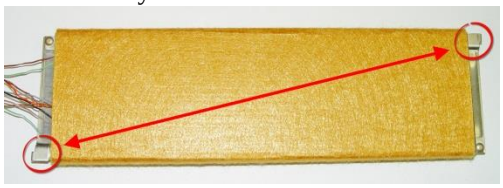
5. Carry the PCB and profiler away from the oven area, and place the shielded profiler on a flat, level surface that is unaffected by the unit's heat.

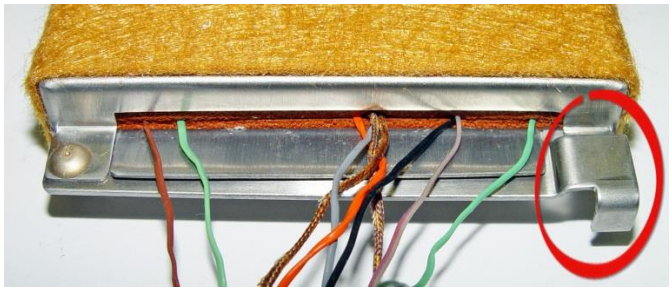
6. Follow the procedure titled *To safely remove the profiler from the shield.*

To safely remove the profiler from the shield:

1. CAUTION: Wear the safety gloves supplied with your profiler kit during this procedure.

2. Position the shielded profiler with its *top* half facing up—note the small tabs that appear at the top of the closed latch assembly.





3. Carefully open the latches at both ends of the profiler.

4. Remove the top half of the shield and place it aside.

5. Carefully lift the profiler out of the shield.

6. Place the profiler in front of a fan or other cooling station arrangement.

7. When the unit has cooled down sufficiently, connect it with the supplied USB cable for data download.

Cleaning and decontaminating the profiler

In certain applications the profiler or stainless steel shield may pick up a residue of solder flux from the oven conveyor. Such residue is easily removed by rubbing the surface with a soft cloth lightly moistened with isopropyl alcohol.

Note: Do not saturate the cloth or the equipment. Wait a few seconds for the alcohol to evaporate before reusing the unit.

WARNING: *Alcohol is flammable*. Alcohol should only be used on a cool profiler or shield that is away from any heat sources, including reflow ovens. All cleaning fluid must be removed from this hardware before using it in an oven.

For cosmetic removal of fingerprints use ordinary window cleaner and a soft cloth.

Calibrating the X⁵

To keep your profiler operating at proper factory specifications, KIC recommends calibrating the unit *every 12 months*. The procedure detailed below lets you calibrate the profiler to within ±1.2°C (±2.0°F).

The calibration procedure follows a sequence of three parts:

1. Establishing hardware/software communication
2. Setting the Cold Junction Reference (CJREF) offset value
3. Adjusting temperature gain

The CJREF offset is the amount of temperature to add or subtract from the base profiler readings. KIC recommends setting this value to the same temperature as the CJREF (Internal) temperature. You can view the CJREF (Internal) temperature by clicking the *Get Current TC* button on the *Calibration Log* screen displayed during the procedure.

The *Gain Adjust* portion of the calibration procedure affects the accuracy of the profiler across its temperature capability range. For maximum accuracy, set the *Gain Adjust* calibration value to the highest temperature you expect to read for your thermal process.

Note: The *maximum temperature* setting is the highest temperature that the X5 is set to read. The highest temperature that the profiler is *capable of reading* is 1050°C (1922°F). This profiler is factory preset at 1050°C (1922°F), but you can change the setting to suit your needs.

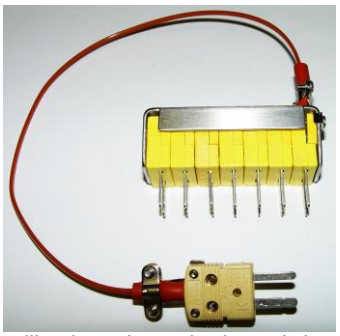
Note: Only qualified persons should perform the calibration procedure. If you need assistance, training, or need to arrange for KIC to calibrate your X⁵ contact KIC Technical Support tech@kicmail.com, asia.tech@kicmail.com, europe.tech@kicmail.com.

Before starting the procedure

- Assemble the following hardware:
  - X⁵ USB communication cable.
  - Type K thermocouple simulator
  - X⁵ Calibration Adapter (7, 9, or 12 channel).

  Contact KIC to acquire the correct calibration adapter cable. sales@kicmail.com

TC Simulator


Calibration Adapter (7-channel shown)

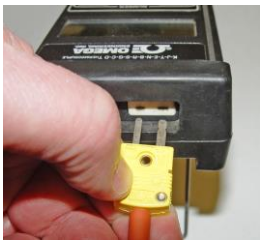
- Be prepared to run the *Profiling Software 2G* application and its *Profiler Hardware Utility*.
- Do not attempt to calibrate the profiler with an ungrounded computer as this may produce inaccurate results.

To establish communication:

1. Connect the profiler to the computer USB port.
2. Turn on the profiler power.

3. Connect the calibration adapter to the profiler, making sure to occupy all of the thermocouple inputs as required.

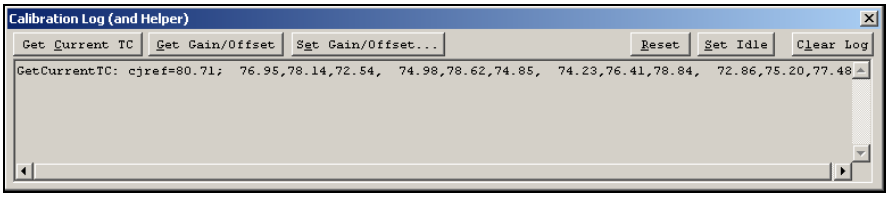
4. Connect the other end of the adapter to the **output port (**left side when instrument viewed upright) of the type K thermocouple simulator.

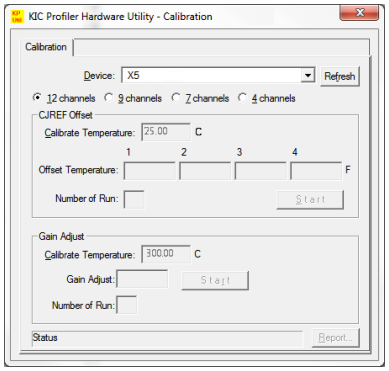


5. Turn on the power to the thermocouple simulator, and set the output value to 25°C (77°F).

6. Open the **X⁵ Utility** folder and double click the KPUtil icon KP Util (default folder location = OS *C:\Profiling Software)*,

7. The **Profiler Hardware Utility - Calibration** screen and the **Calibration Log** screens appear:





8. Make sure that X⁵ is selected in the Device field.

9. Click one of the radio buttons to select the number of channels used by your profiler:

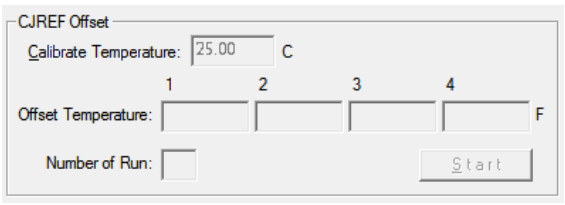
10. On the Log screen, click the **Set Idle** button, and then click the **Get Current TC** button to verify communication between the software and the profiler. (If communicating properly the current live temperature readings from the profiler appear.)

Note: With the software utility is open and the hardware connected, if the profiler unit does not appear in the Device field, clicking the **Refresh** button makes the software detect the presence of the hardware and display the name in the field:

To specify the CJREF offset:

1. Open the **Profiler Hardware Utility - Calibration** screen.

2. In the **CJREF Offset** panel's **Calibrate Temperature** field, accept the recommended default temperature of 25°C (77°F) or type in a new value between 10°C (50°F) and 500°C (932°F).



Note: The Calibrate Temperature value should be selected to represent an *anticipated ambient temperature*. Calibrating to this temperature will likely yield acceptably accurate performance. The selected default (25°C) approximates typical room temperature and is recommended for most lead-free soldering applications. However, the number of ovens present or other site-environment factors might influence your selection of this value. You can type in whatever value better matches your specific situation. If your thermal process is well established around specific temperatures, it may make sense to focus calibration on these target values.

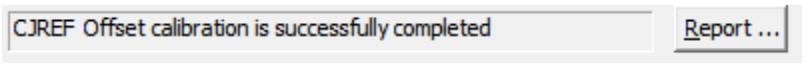
Note: Older versions of software may indicate other values as the default temperature.

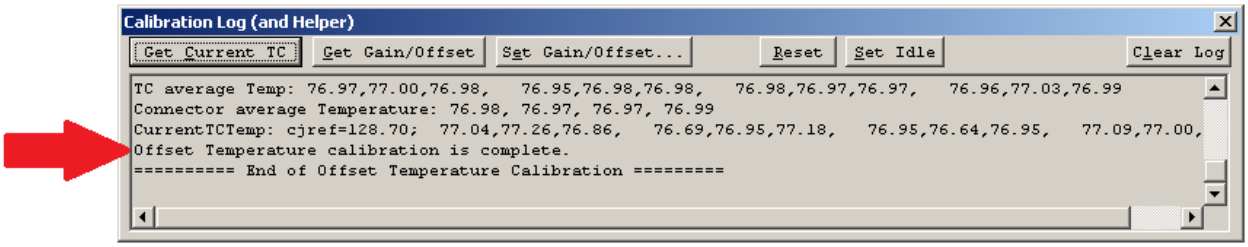
3. Adjust the output on the thermocouple simulator to match your specified calibration temperature.

4. When the values match, click the-**Start** button to begin calibration.

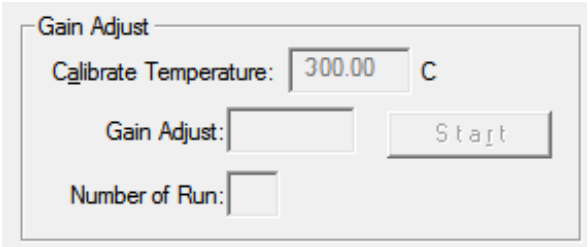
   The software automatically adjusts the calibration temperature for each of the thermocouple ports, typically resulting in different values among the four ports. Electronic adjustments also tune the profiler for maximum accuracy at the specified temperature.

   When the software completes the offset calibration, a status messages appears in the Report area at the bottom of the utility screen and in the status panel of the Calibration Log:





To specify the gain adjustment:



1. Open the **Profiler Hardware Utility - Calibration** screen.

2. In the **Gain Adjust** panel's **Calibrate Temperature** field, accept the recommended default temperature of 300°C (572°F) or type in a new value between 10°C (50°F) and 500°C (932°F).

   Note: The recommended default temperature is selected for its suitability to typical lead-free soldering applications. The range of values presented offers you the choice of calibrating to a *maximum temperature* or to a specific *temperature of interest*. Calibrating to the maximum temperature will yield acceptably accurate performance throughout the range. Alternatively, if your thermal process is well established around specific temperatures, it may make sense to focus calibration on these target values.

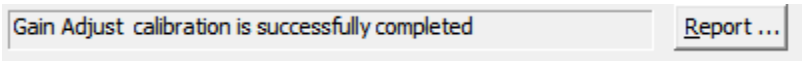
   Note: Older versions of KIC software may indicate other values as the default temperature.

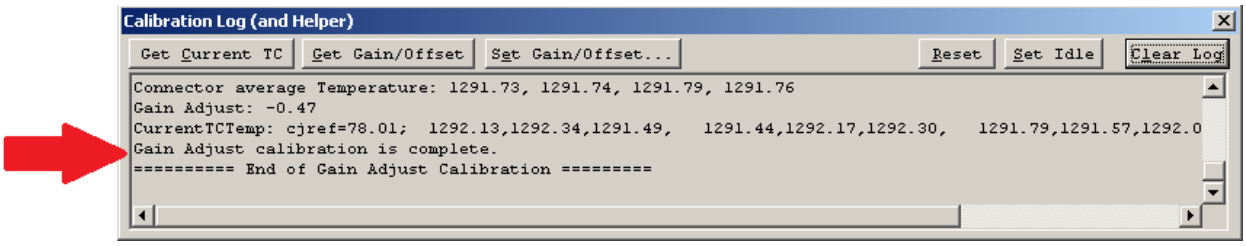
3. Adjust the output on the thermocouple simulator to match your specified calibration temperature.

4. When the values match, click the-**Start** button to begin calibration.

The software automatically adjusts the Gain setting while electronic adjustments tune the profiler for maximum accuracy at the specified temperature.

When the software completes the gain adjustment, a status messages appears in the Report area at the bottom of the utility screen and in the status panel of the Calibration Log:





5. Close and exit the software to end the procedure.

Note: In the Gain Adjust panel, the *Number of Run* field displays a running count of the number of times you needed to run the final gain adjustment part of the calibration procedure. The count can go to a maximum of eight. While it is typical to restart the gain adjustment two or three times before achieving final calibration, a run count number that exceeds five or six can indicate that the profiler has a problem that should be analyzed by KIC technical support. tech@kicmail.com

Specifications

Accuracy:	±0.5°C
Resolution:	±0.1°C
Internal Operating Temp:	0°C to 85°C
Humidity Range:	20-85% non-condensing
Measurement Range:	-150°C to 1050°C
Sample Rate:	0.1 to 10 per second
Data Points:	224,640
PC Connection:	USB 2.0 (Std-A/Mini-B)
Power Requirements:	AAA batteries (3) or USB cable when connected to a computer
Radio Frequency (RF):	433.92 MHz
Thermocouple Compatibility: 7, 9 and 12-Channel Models	Type K, Standard
Dimensions (L x W x H mm):	
7-Channel Model:	206.0 x 60.0 x 17.0
9-Channel Model:	206.0 x 75.0 x 17.0
12-Channel Model:	206.0 x 98.0 x 17.0

Warranty protection impairment

CAUTION: RISK OF VIOLATION OF WARRANTY Improper handling may limit our liability for damage to equipment. Improper handling may also violate your instrument warranty.

CAUTION: After use in a reflow oven or other thermal process, surfaces on the X⁵ profiler may be hot to the touch. The safety label shown at the right appears on the device to caution against handling before the device has cooled down.

Contacting KIC

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

KIC Technical Support

KIC Tech Support is available by email:

USA: tech@kicmail.com
Europe: europe.tech@kicmail.com
Asia: asia.tech@kicmail.com

KIC Product Training

Contact KIC Customer Support by email, training@kicmail.com

KIC Sales

Contact KIC sales:

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Europe: europe.sales@kicmail.com
Asia: asia.sales@kicmail.com
China: asia.sales@kicmail.com

Find the KIC Representative in Your Area

Send an email, or visit our web page to find a local representative.