



INSTRUCTION MANUAL

XTC-Profiler

**"K" TC Data Logger with eight "K" Thermocouples,
and USB connection to a PC**

Free standing operation (Log, and connect to a PC later)



P/N X-DOC173

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Rev. H

650 Scranton Pocono Hwy
Covington Twp., Pa 18444, USA
Tel: (570) 842-2812 Fax: (570) 842-4290
E-Mail: bokar@bokar.com
www.bokar.com, www.SMT-tool.com,
www.ESDmeters.com, www.SMTrework.net
www.Assembly-SMT.com, www.No-Stat.com



The system Includes:

- XTC-Profiler
- "K" Thermocouple (8)
- USB cable
- Power Supply
- CD with XTC Profiler Software

System Description:

Keyboard:

- Power** - turns the meter ON and OFF
- ESC** - exits the selected function
- Arrows:** - Left to Right –scroll through the functions
- Enter** - confirm the selected function
- Menu** - Entry to the unit Menu

Diodes:

- ACQUIRE** - shows recording mode
- LOW MEM.** - warning that memory is low
- CHARGE** - indicates state of the batteries
- LOW BAT.** - warning that the batteries need to be replaced or re-charged

TC1, TC2, TC3, TC4, TC5, TC6, TC7, TC8 - Sockets to connect up to 8 Thermocouples

Display of temperatures measured by the thermocouples:



Press and hold **POWER** button. The display shows temperature of the first thermocouple.

Pressing the right and left Arrows scrolls, in sequence, through the readings of all thermocouples from TC1 to TC8.

Recording readings in the XTC-Profiler's internal memory

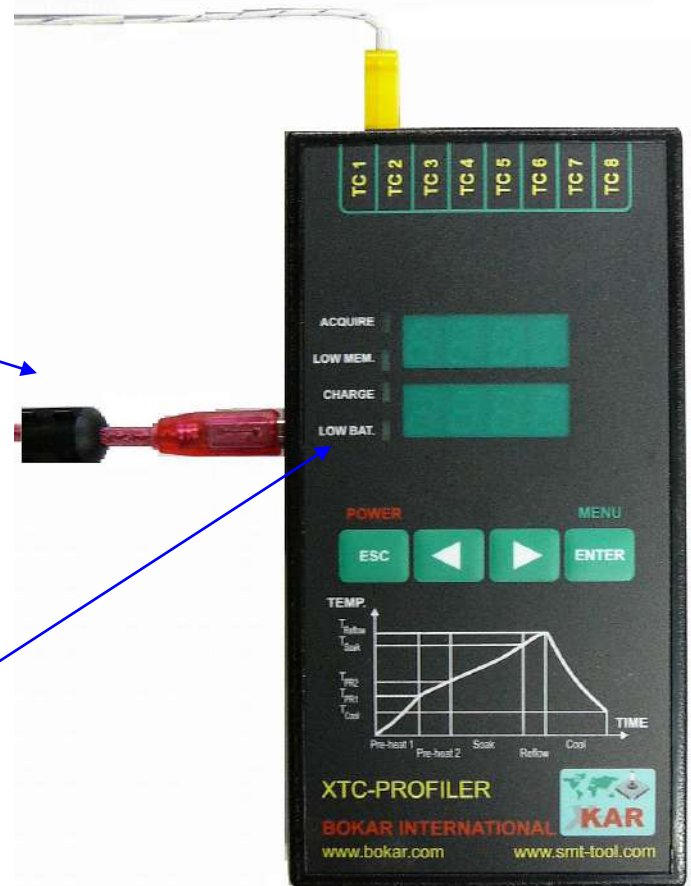
Press **ENTER**. The display shows: **Arch. (Archive)**. Press **Enter** again. The lower display shows: **Run**. To start recording press **Enter**. When recording to the internal memory diode (**ACQUIRE**) illuminates. To assure the proper recording, the thermocouples should be connected prior to activation of the recording.

To stop recording, press either the left or right arrow. The bottom display should show **STOP**. Press **Enter** one more time. The recording of temperature measurements will have stopped. The profiler recorded your measurements as file number 1. The next recording will be saved as the file number 2, the one after that as file number 3, etc.

Press **ESC** twice to return to non-saved measurement mode.

To access the Menu, Press **Enter**

1. The display will show **Arch** and **HrS**



Pressing the Arrow keys scrolls through the menu as follows:

Right Arrow:

FLSH which will show on the bottom display the percentage of the free memory

When In FLSH mode you can press either **Enter** or **Right Arrow**.

Pressing **Enter**: The bottom display will show number of recorded files.

Press **Enter** again to access the CLr (Clear) mode.

Warning: Pressing **Enter** now deletes all files from the memory.

To keep recorded files in the memory, press **ESC** to exit this menu.

Pressing **Right Arrow**: Shows **bAtt** and on the bottom display batteries voltage

(Number 0.56x means that there are no batteries).

Pressing **Right Arrow** again brings you to the power management screen. The profiler can extend the battery's life by turning off the display when it is not needed. This screen is where you define the delay between your last key press and the display turning off.

The top display will show: **T.oFF** and at the bottom the previous setting in seconds. Using right or left arrows increase or decrease this elapsed time as desired. The bottom display will blink during this time setting. Press **Enter** to save the settings.

Press **ESC** to return to the default display showing the channel number on the top display and its temperature on the bottom display. To scroll through all 8 channels use either the right or left arrow.

WARNING :

Do not connect the power supply to XTC-Profiler when using regular (not rechargeable) AA batteries. The power supply can be connected when rechargeable AA batteries are used or there are no batteries in the meter.

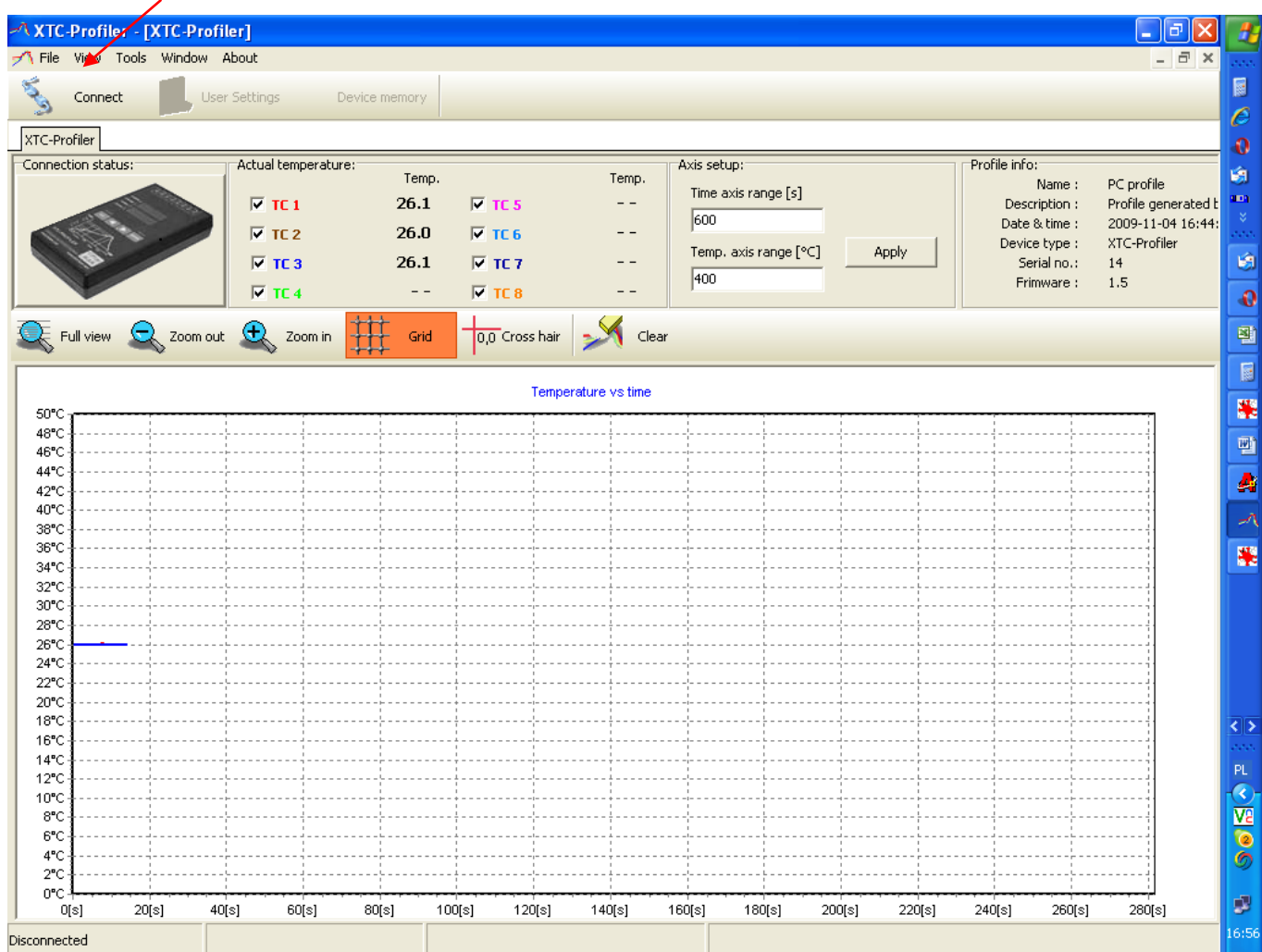
Technical Specifications:

MODEL	XTC-Profiler
Input Voltage (Power Supply AC to 12V DC, 400mA) or Four AA Rechargeable Batteries.	110-120, 220-240V AC to 12V DC, 400mA
Power Consumption	Max. 4,5VA (including battery charging)
Charge rate current	500mA
Time to full charge (Bat. Capacity = 2500mAh)	5.5 hours
Weight	4 kg (8.8 lbs.)
System dimensions (XTC-Unit)	7.5" x 3.75" x 1.25" (185 x 100 x 32 mm)
Packaged weight (Including 8 thermocouples, USB cable CD, Power Supply and Manual)	2 lbs. (.92 kg)
"K" Thermocouple Inputs	8
Measurement Temperature Range	-30 °C – 1000 °C
Measurement accuracy	+/- 0.5 °C
Measurement resolution	0.1 °C
Sampling frequency	Depends on the Recording time setting. At 1h Recording time setting the sampling rate is 1/sec.
Number of recorded channels	The device always records all 8 Channels
Max recording time for one file (one session)	21 min 20 sec
Recording Time: (Memory Capacity)	Eight sessions. Total time: Defined by the user. Maximum recording time: 48 hours When recording time is set at 1h, sampling rate is 1/sec. When recording time is 48h the sampling rate is 1/48sec
Recording Time for the profile viewed on the PC screen and saved directly on the PC	No time limit

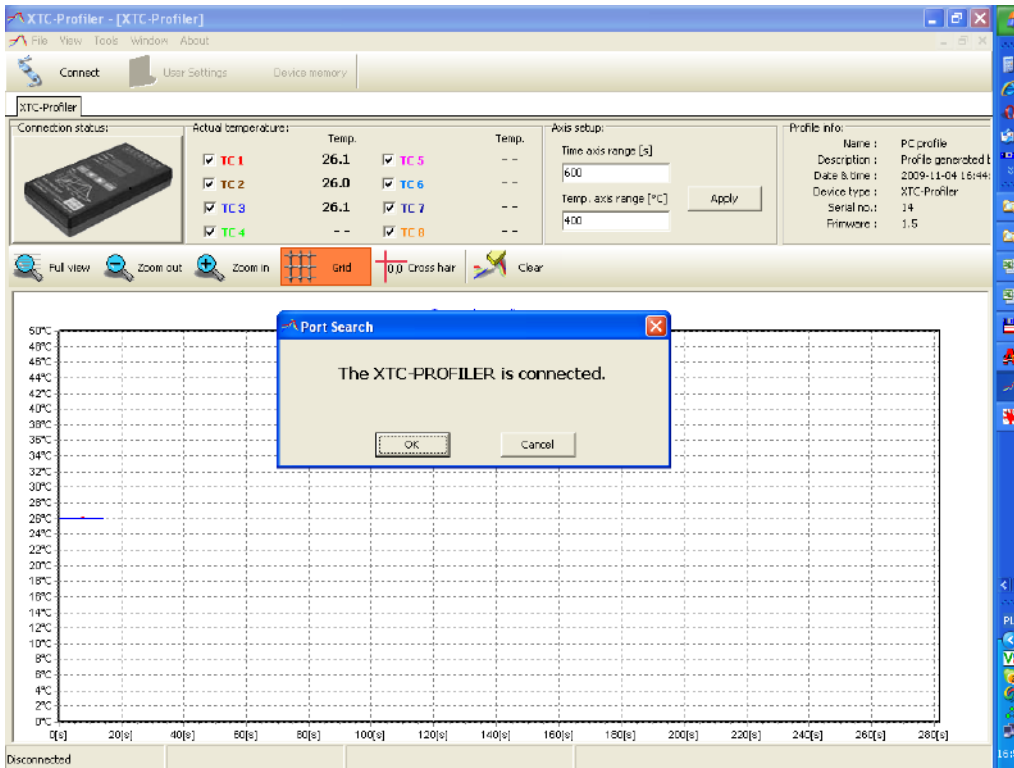
XTC-Profiler – Application Software

Install the XTC-Profiler software (from a CD or the file sent to you by e-mail)

- Connect the XTC-Profiler to a PC via a USB cable (make sure to use the original cable with a magnetic core around the cable)
- Press ESC (Power) and hold. The XTC-Profiler will power-up and show the reading of Ch 1
- Open the XTC-Profiler program on your PC



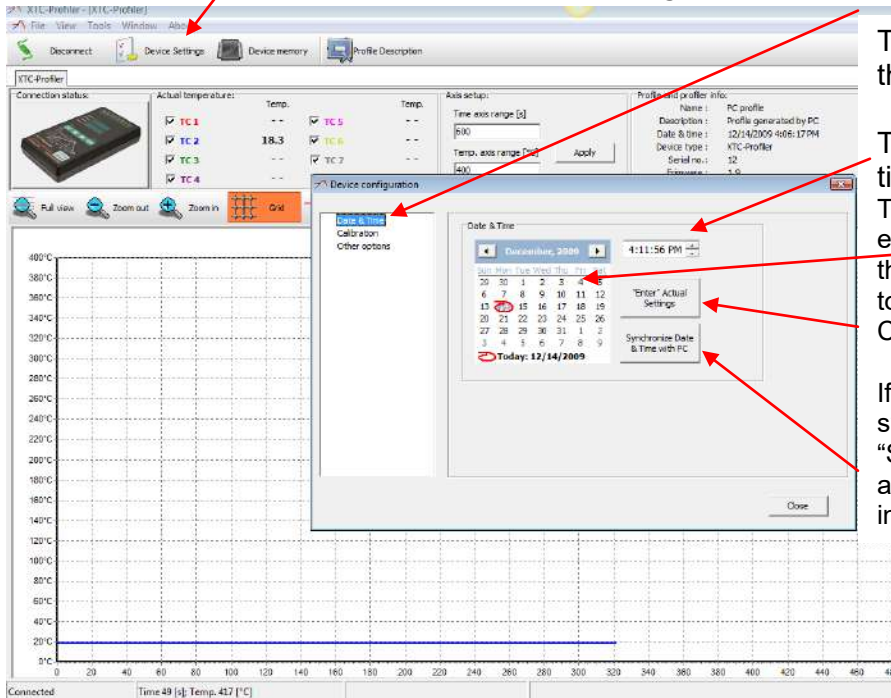
- Click on **the Connect button** (the message window will open momentarily showing : “The XTC-Profiler is connected” – Click “OK” to close the message window.



Now the Menu on top of the screen is active. The picture in the “connection status” window is now displayed in color. You can see green keys on the profiler picture keypad.

Device Settings:

Click on the Device Settings icon. **The first choice is Time and Date.**
Click on it and set the proper time and date.



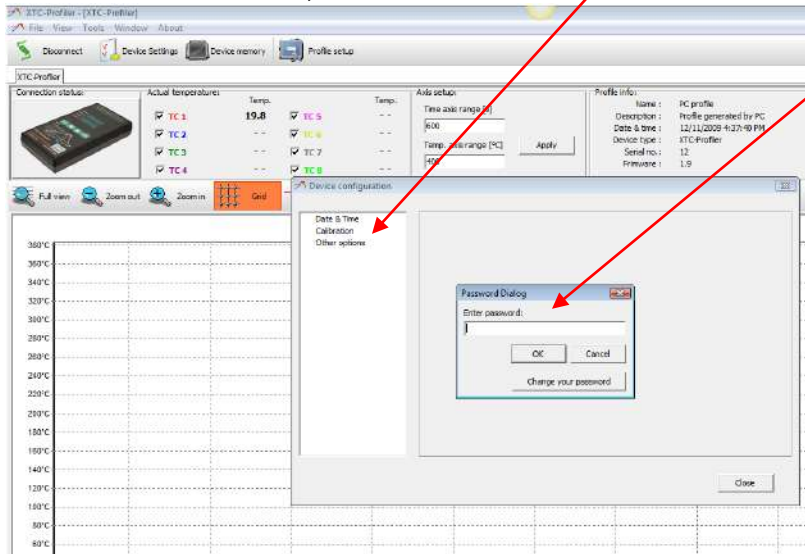
The time and date pop-out window has three areas on the right hand side:

The top line of the window shows the time set previously in the XTC Profiler. To set a new time and date manually, enter the date on the calendar (left side of the pop-out window) and the hour in the top line on the right hand side. Click on “Enter Actual Settings”

If you want to set the time and date to synchronize with your PC, just click on the “Synchronize date and time with your PC” and the time and date from your PC will be instantly entered.

The second choice on Device Settings is Calibration. (NOTE: The unit is calibrated in the factory, and the user does not need to re-calibrate the unit. This option is given only to fine tune the unit after service or parts replacement).

If you decide to re-calibrate, click on “Calibration”. The Password window will pop-out.

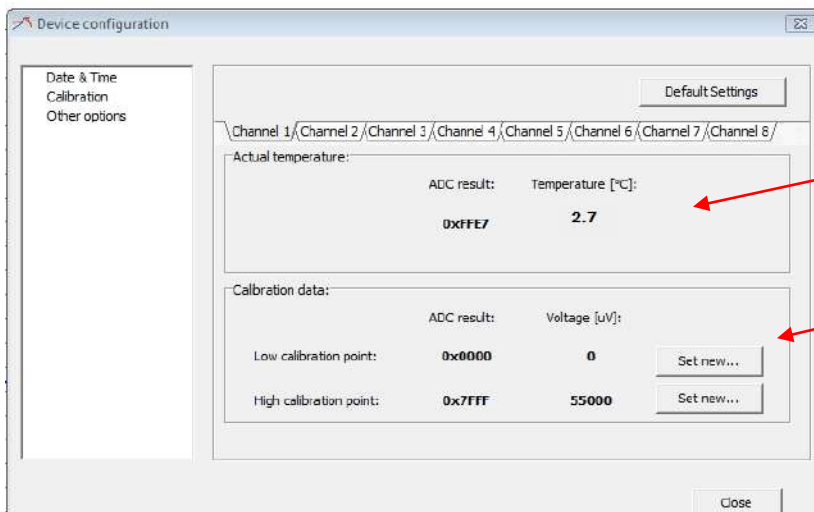


Enter factory set user password which is 1234. This will open the calibration window. (Note: You can change the password by clicking on “change the password” and enter the password of your choice (any combination of 6 digits and letters). With the correct password you can access the calibration menu.

The menu opens on Channel1. It allows for 2 point calibration for each channel. One low temperature point and one high temperature point.

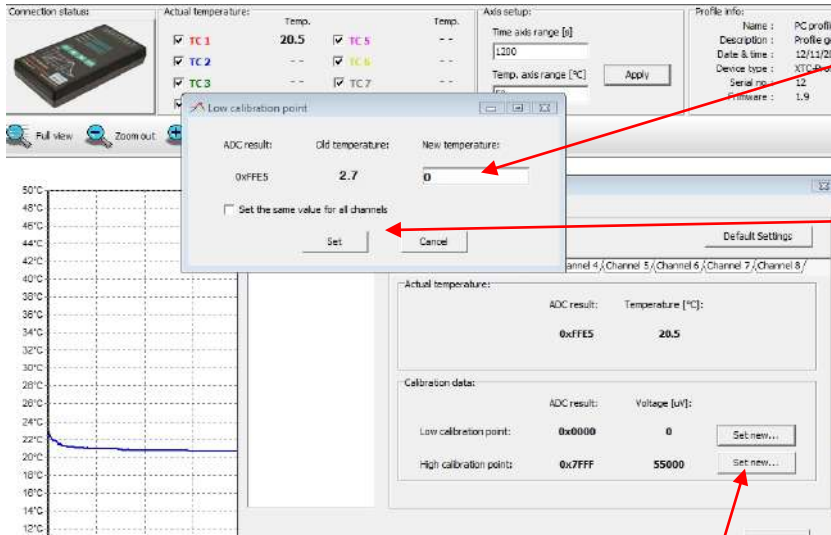
The most practical way to calibrate the unit is to do low point calibration for all channels and then high point calibration for all channels.

The procedure is as follows: Connect all eight thermocouples to the unit. Tie the ends of the thermocouples together and insert them into the container with ice. Wait a few minutes until the ice partially melts. The ice floating in the water has temperature of 0 °C.



If the thermocouple #1 is in the icy water it should measure the temperature 0 °C. On the example to the left it shows 2.7 °C.

Click on Set New

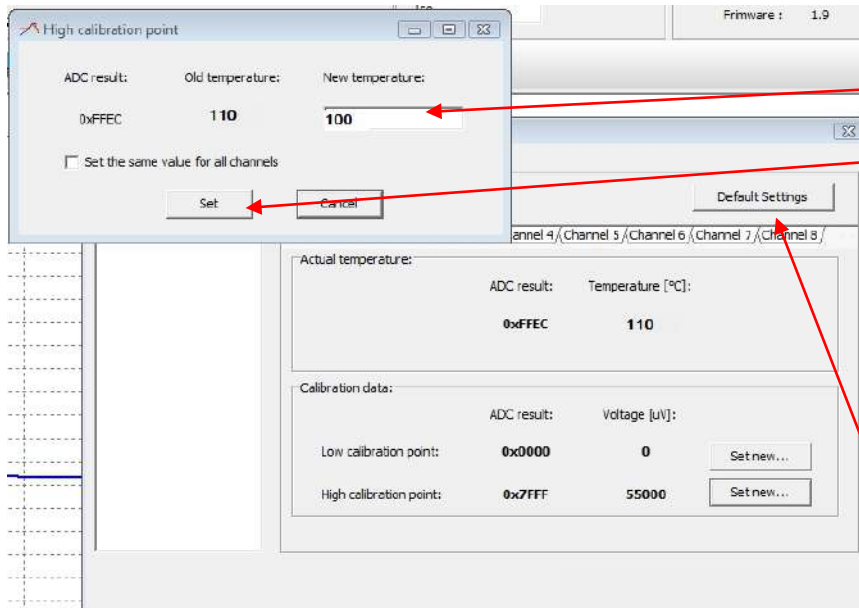


Set the temperature "0"
In the "new temperature"
section.

Click on "Set"
This sets the reading to
0 °C, calibrating the low
point of channel 1.

Repeat this procedure for
all eight channels to
calibrate all eight low
points.

For high temperature calibration, try to connect all eight thermocouples to a hot plate or insert them into an oven holding them steady and with a high temperature that you are sure of (e.g. 400 °C.) If you do not have any reliable high temperature source, use a container with boiling water which will give you a temperature 100°C. When you know that all TC's are at the known high temperature, click on "Set New" high calibration point.



The pop-out window will open.
Enter the new temperature
100 °C.

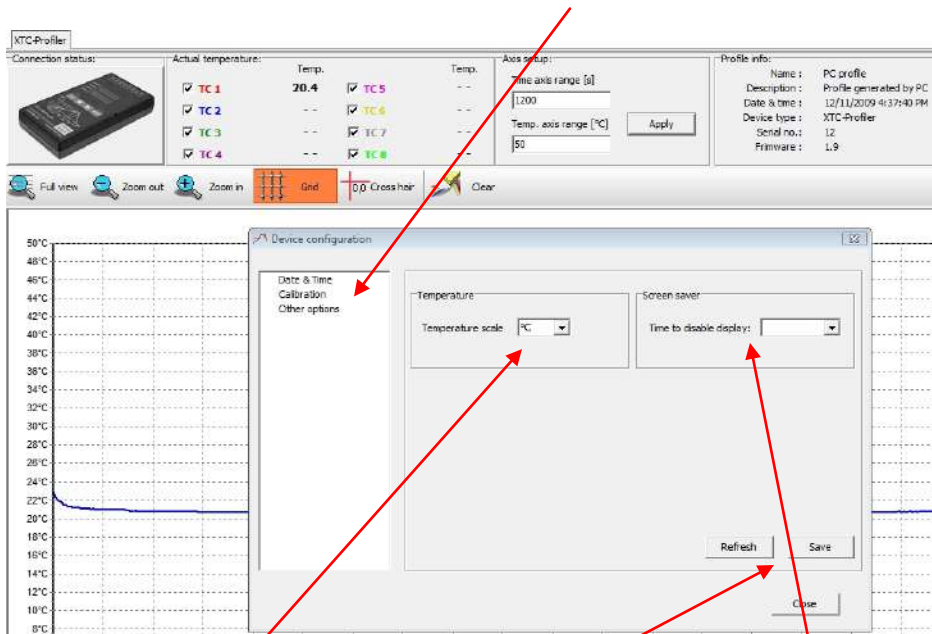
Click on "Set" to confirm.

Repeat the procedure for all eight
channels.

When finished, your profiler is re-
calibrated.

**If at any time you doubt your
calibration accuracy or decide
not to recalibrate,** click on
"Default Settings" and the last
factory calibration will be restored.

The third choice in the Device Settings is **Other Options**.



In this menu, one can check what settings are in the XTC profiler memory by clicking on “Refresh”. The XTC Profiler Software, when started, will show the graph in degrees (°C). To see the graph in degrees F versus time, go to **Other Options** in Device Settings and change the scale to °F and press “Save” to confirm the change. This change will be also saved in the XTC internal memory.

Another important feature in this menu is the “**Battery saver**” option. To save battery power, the operator can set the time period from initial application of power (pressing POWER button) to when the LED display will turn off. The XTC profiler still works and records Data, but it does not display it. The blinking “dot” on the bottom display, located after the third digit, confirms the operation without an active display. To activate the display, one can touch any key on the XTC Profiler keyboard. The display will be active again for the period of time set in the Active Display Time window.

Description of XTC Profiler Information Screen

- **Connection status** – shows if the XTC profiler is connected to a PC. If the profiler is connected and has communication with your PC, the picture in the “connection status” window is displayed in color.
- **Actual temperature section** shows all eight thermocouples’ status. The screen will show the actual temperature of each thermocouple that is connected to the profiler. Thermocouples are listed in two rows: TC1 to TC4 in the left row and TC5 to TC8 in the right row. On the left side of a thermocouple number, there is a small square with a check mark. The check mark can be toggled ON and OFF by clicking on it with the left mouse button. When the check mark is on, this thermocouple reading will be displayed on the graph. Unwanted thermocouple readings can be taken off the graph by unchecking the box next to the name.

- **Axis set-up section** shows the x and y scale of the displayed temperature-time graph.

To change the time or temperature axis range enter the desired values and confirm your numbers by pressing enter or clicking on Apply.

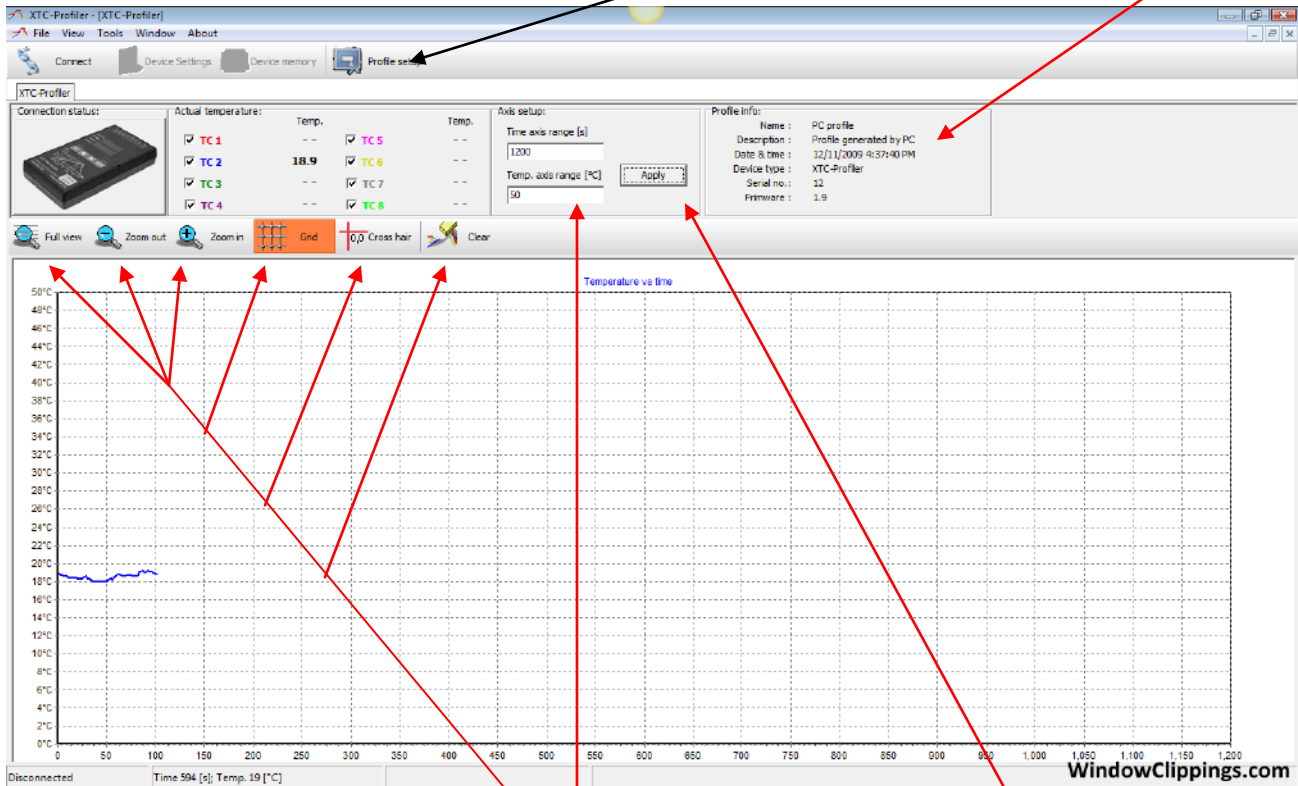
Note: The maximum temperature is 1000 °C, and the minimum temperature is 10°C. On the time scale, the min possible setting is 60sec. and the maximum is 100 000 sec.

- **Profile Info Section** shows the profile date and the time when profile window have been opened, and device name, serial number and firmware revision.

In this section the operator can describe the profile which he is working with.

He can name the profile and enter a description which will help him later on to identify it.

To enter this info: Click on Profile Description.



Buttons to change the view:

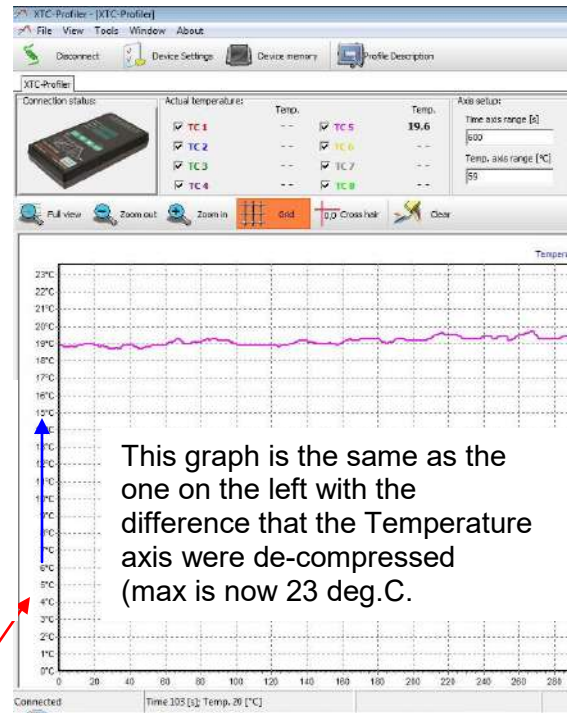
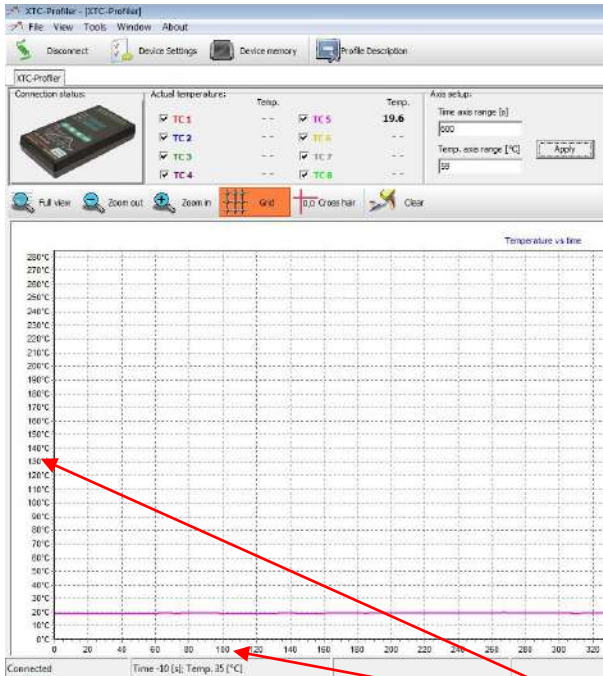
1. **Full view** – returns the view to the preset one
2. **Zoom out, Zoom in** – enlarges or reduces the graph
3. **Grid** – turns the graph grid lines on or off
4. **Cross hair** – turns the cross hair lines on or off to help to read temperature points
5. **Clear** – Clears all data

Changing limits on X and Y axis.

Axis setup – write in the max time and max temperature of the desired graph from the keyboard.

To compress the axis scales and/or “float” the graph up/down and left/right, use the mouse buttons as described below. To return to the original view, as defined by X-Y axis set-up, press “Apply”.

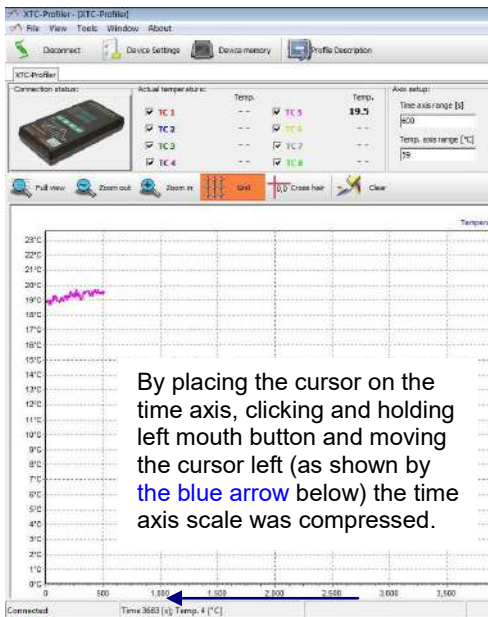
Using the mouse :



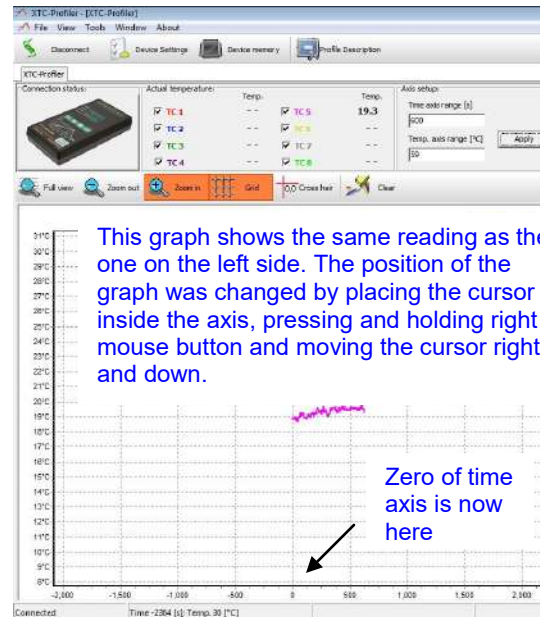
The blue arrow shows cursor motion "UP" when left mouse button is pressed and held

This graph is the same as the one on the left with the difference that the Temperature axis were de-compressed (max is now 23 deg.C.)

Place the cursor on either X scale or Y scale. Click and hold the left mouse button. Move the mouse "upwards" or "downwards" for the X axis or right or left for the Y axis in order to make the axis you have chosen compress/de-compress.



By placing the cursor on the time axis, clicking and holding left mouse button and moving the cursor left (as shown by the blue arrow below) the time axis scale was compressed.



This graph shows the same reading as the one on the left side. The position of the graph was changed by placing the cursor inside the axis, pressing and holding right mouse button and moving the cursor right and down.

Zero of time axis is now here

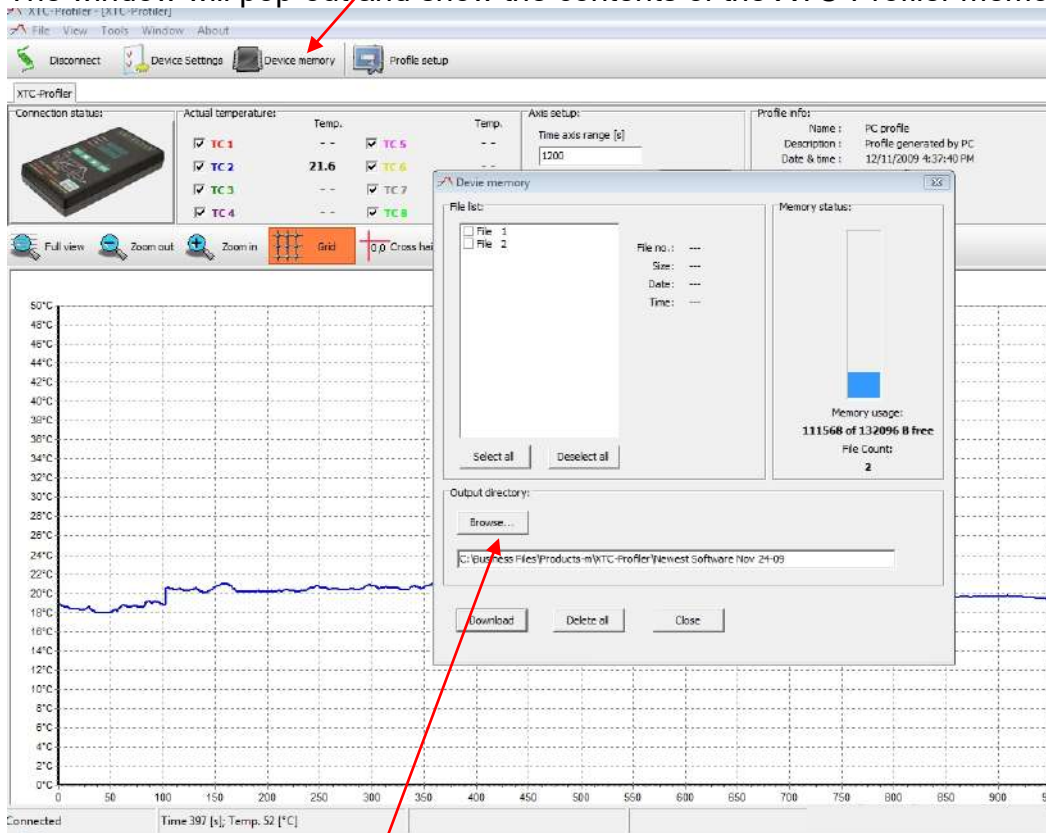
To move the graph up/down or left/right together without changing the compression of the axis, position the cursor on the graph (inside the axis) at any place, press and hold the right mouse button and move the cursor in the desired direction. The graph will be "dragged" by the cursor accordingly but the readout will not change.

To reverse the changes and return to the original axis limits and the original graph position, move the mouse cursor to the "apply" key in the "set Axis" section and click on it with the left mouse button.

Retrieving the information contained in the memory of the XTC-Profiler

Click on **Device memory**

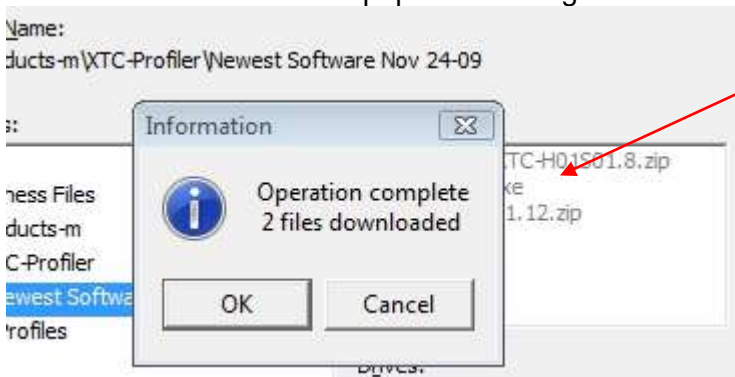
The window will pop-out and show the contents of the XTC-Profiler memory.



To view on a PC and save the measurements recorded into the XTC Profiler unit:

Select the files in the left window: e.g. File 1. (All existing files can be selected at once)

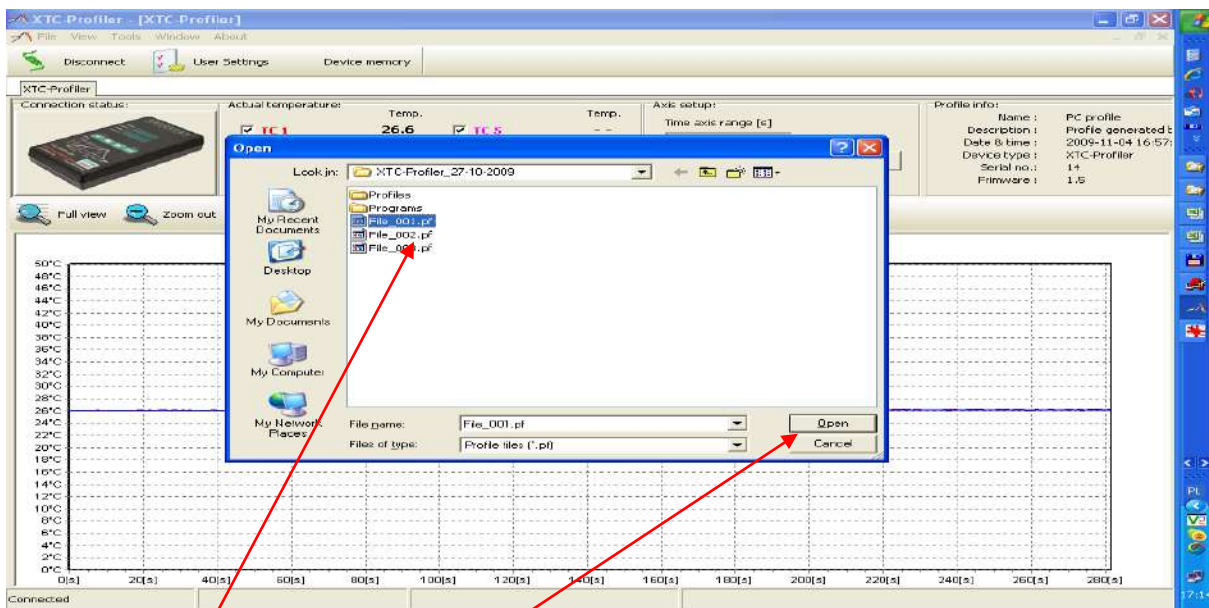
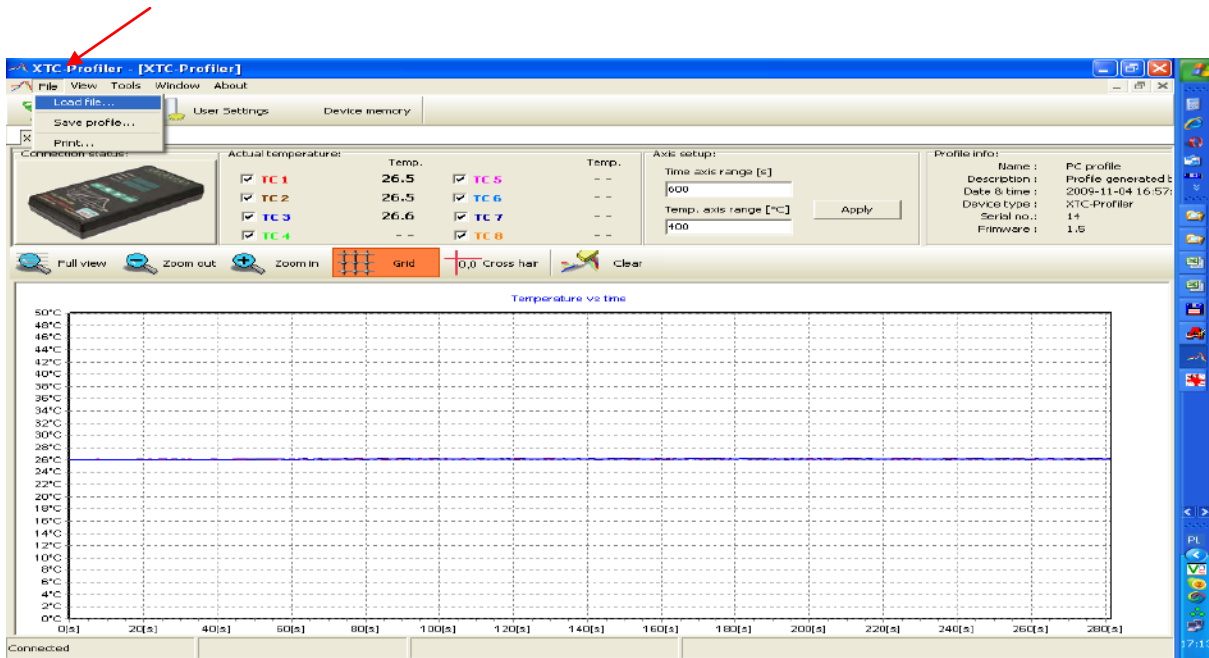
- Click on **Browse** and select where you want to save the files or leave the default folder (this means the one in which the program is saved)
- Click on **Download**
- The information window will pop-out showing that the files were saved successfully.



- Click on **OK**
- You can now delete these files from profiler's memory by clicking on **Delete all** or, leave the files in the memory and exit the window by clicking on **Close**.

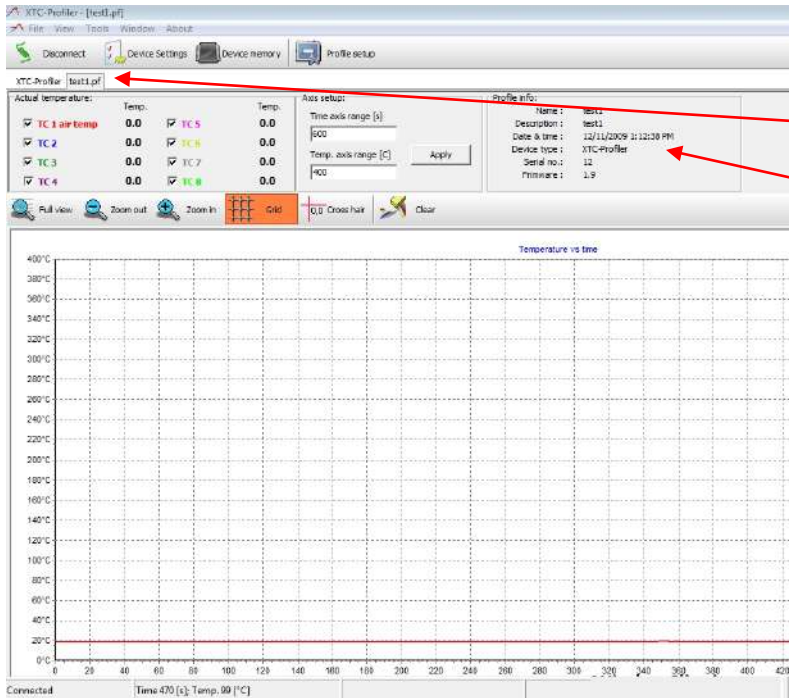
To view the files saved on the PC on the display:

Click on FILE, Choose Load File



Choose the file and click on Open

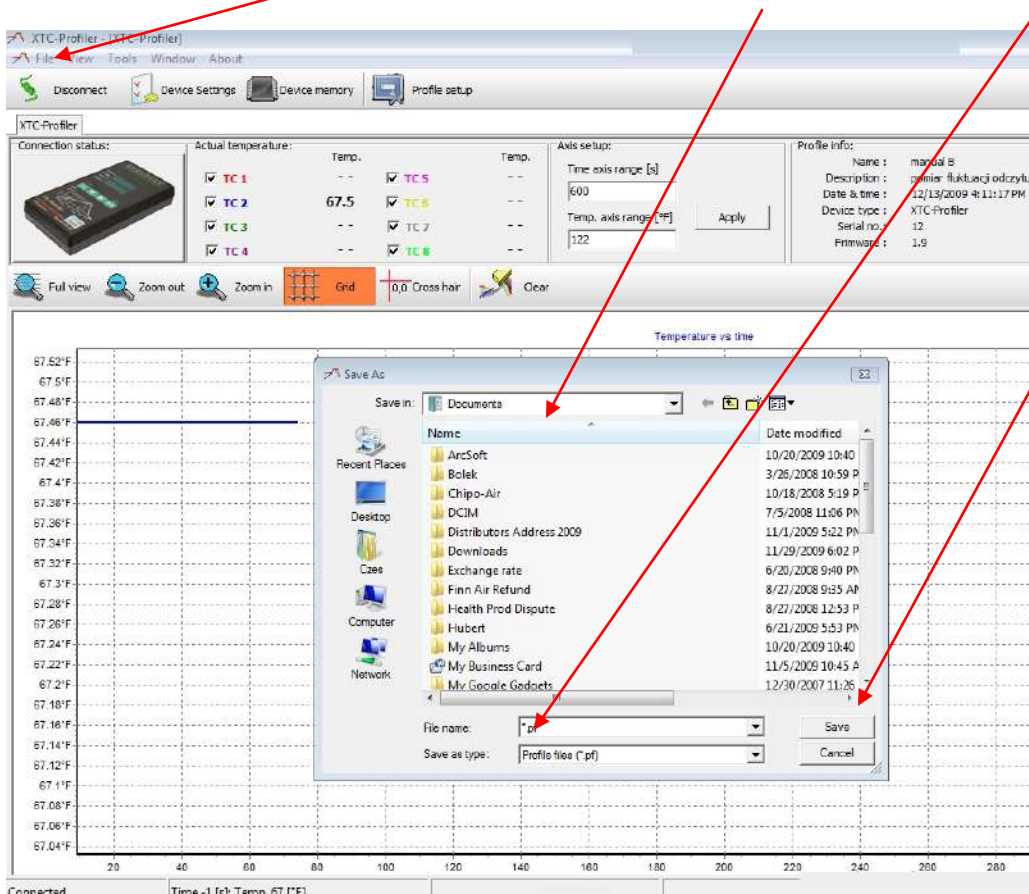
The selected file will show on your PC screen.



Uploaded file :
 File name
 File Description

All files from the XTC-Profiler can be saved on the PC under the chosen file names and viewed on the PC, printed, shared etc.

To save the file (Profile) go to **FILE**, click on **Save profile** (Remember to describe the profile before saving it). The window will ask where to save the file, and what the file name is.

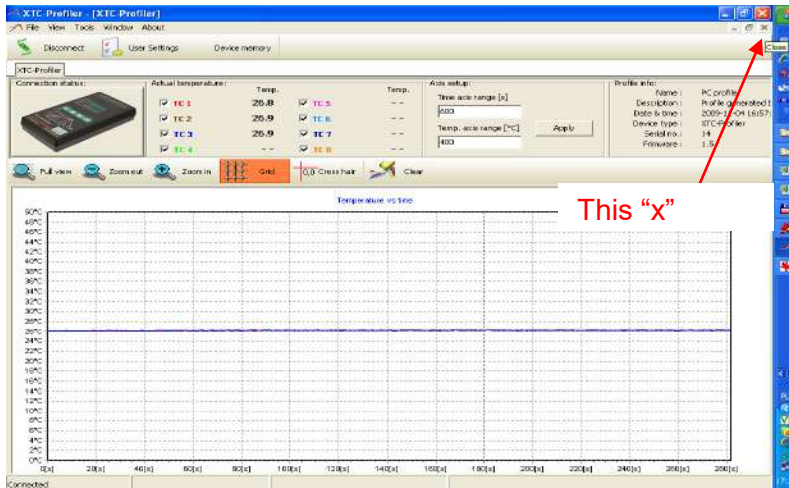


Choose the file name and the location and click **Save**

The file is now saved in the selected location.

To exit this profile, click on the X as shown below (the x on the blue background,

–not the top one on the red background)



Description of the Top Screen Menu : **File—View—Tools—Window—About:**

1. **File:** Click on **File** and the following window will show:

Load File... Allows you to find the location of the xxx.pf files and load them on the screen

Save Profile... Allows you to choose where to save the profile

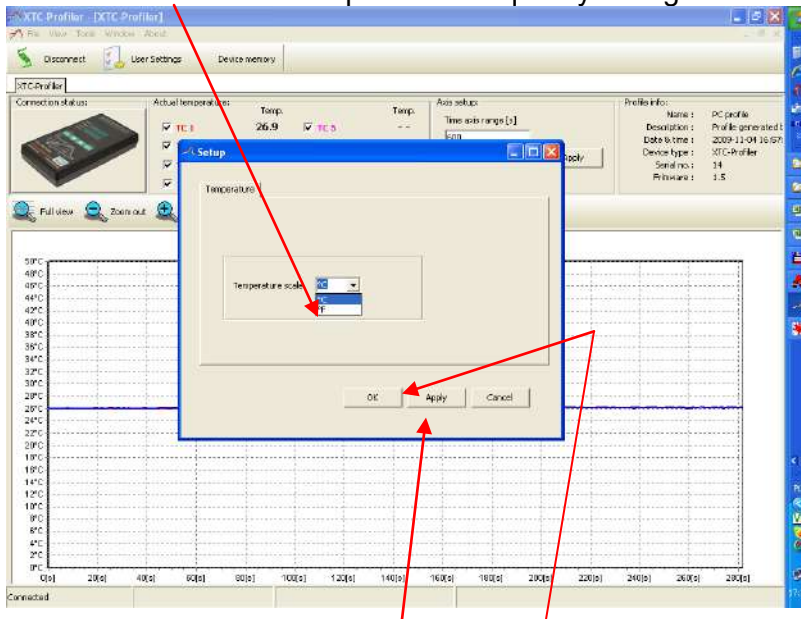
Print... Allows you to print the file on the screen

2. **View:** Click on **View** and then on **Event Log**

A window will pop out showing the Events Log from the first connection with the XTC Profiler.

3. **Tools:** Click on **Tools** and then on **Options**.

In this window the operator can quickly change the temperature scale from Celsius to Fahrenheit:



Click on **Apply** and **OK** to confirm.

4. **Window:** Click on **Window** and you will see the conventional Windows commands for the window.

5. **About:** Click on **About**. An information window with information about the Brand, Product Name and current Revision of the Application will open.



We would like to thank you for purchasing our XTC Profiler and hope that it will serve you well.

If you have any questions related to this product, please check www.bokar.com. And if you do not find the desired information there, please contact us via e-mail at bokar@bokar.com or call us at (570) 842-2812.

With Regards,

Management and Design Team of Bokar International



BOKAR International
650 Scranton Pocono Hwy.,
Covington Twp. PA 18444, USA

Tel: (570) 842-2812

E-mail: bokar@bokar.com

<http://www.bokar.com>

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