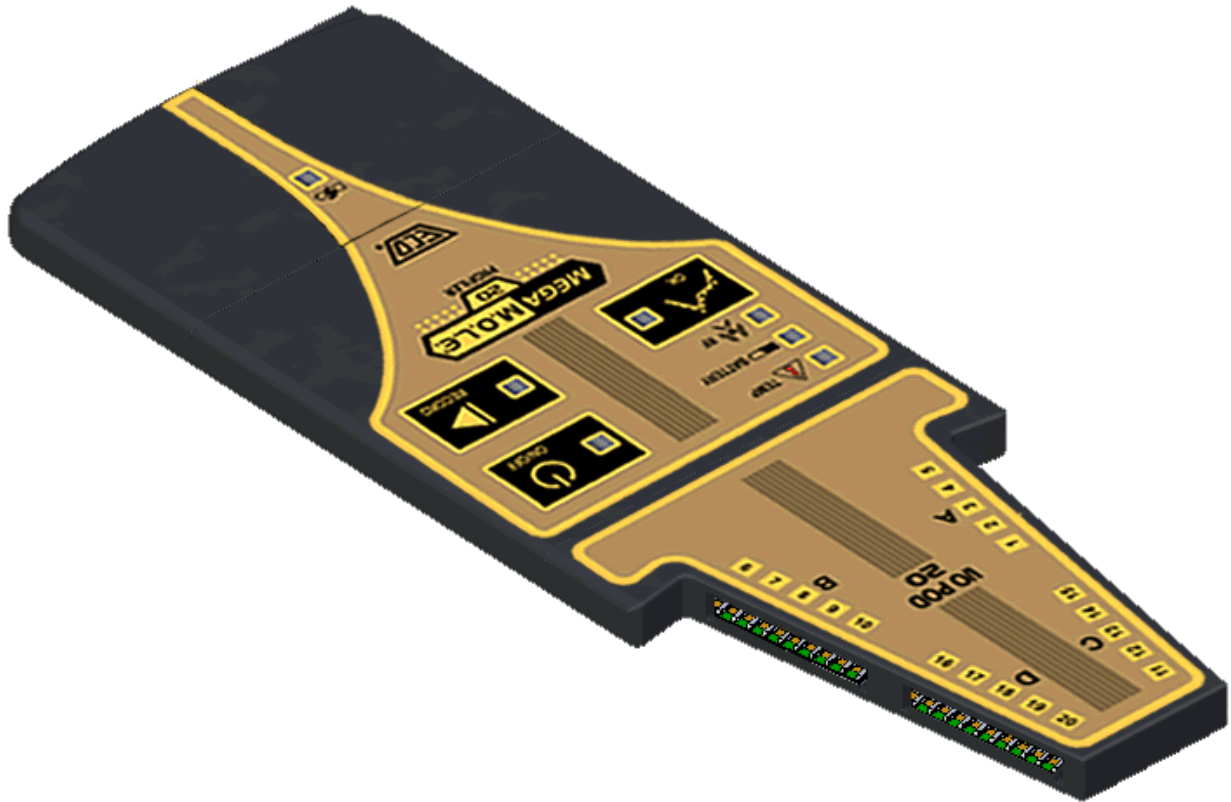


MEGAM.O.L.E.® 20

Hardware & Software Help Guide



MEGAM.O.L.E.® 20
Hardware & Software Help Guide
A47-6342-00 Rev 2.10

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1.0 Introduction

1.1 Copyright



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1.2 Declaration of Conformity



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Declaration of Conformity

Product: <u>MegaM.O.L.E.® Profiler</u>	Part number: <u>E47-6342-45</u>
<u>MegaM.O.L.E.® 20 I/O Module</u>	<u>E47-6342-50</u>
<u>MegaM.O.L.E.® Power Pack Battery</u>	<u>E47-6342-30</u>

The above product is in conformity with the following standards or other normative documents:

- **EN 301 489-1 V1.6.1 (2005-09)**
- **EN 300 328 V1.7.1 (2006-10)**
- **EN 489-17 V1.2.1 (2002-08)**
- **EN60950**

Following the provisions of the following European Directives:

- **R&TTE 1999/5/EC**
- **Low-voltage Directive 2006/95/EC**
- **RoHS 2002/95/EC**
- **WEEE 2002/96/EC**

Signed: _____

Date: _____

April, 2008

1.3 How to use this Users Help Guide

This Users Help Guide explains how to use ECD Thermal Profiling instruments and software.

This Users Help Guide is written for users of varied experience. If a section covers information you already know, feel free to skip to the next section.

- You do not need to be a computer expert to use this Users Help Guide or the software.
- The Users Help Guide assumes you are familiar with Microsoft® Windows® Operating Systems.



Hardware portions of this manual are written to reflect the following firmware versions:

- MEGAM.O.L.E.®: 10.27 and higher.

The software portions reflect version(s) 2.11 and higher.



The MEGAM.O.L.E.® MAP software is designed to be used with the ECD MEGAM.O.L.E.® and SuperM.O.L.E.® Gold Profilers.

1.4 Terms Used

In 1986 ECD introduced our original Thermal Profiling instrument called the **M.O.L.E.® (Multichannel Occurrent Logger Evaluator)**. Over the years ECD has produced several models of the **M.O.L.E.®** for use in a wide variety of applications. In this Users Help Guide, we may refer to all of our Thermal Profiling instruments as the **M.O.L.E.® Profiler**.

The **M.O.L.E.® Profiler** is a registered trademark of ECD.

The following statements describe special terms that will be used in this Users Help Guide:



Informs the user that the note includes important information.



Informs the user that the note includes a handy tip.



Informs the user of an equation used.

Hardware Terms:



Informs the user that the note identifies conditions or practices that could result in damage to the equipment.



Informs the user that the note identifies conditions or practices that could result in personal injury or damage to property other than the equipment.

- **Thermocouple**, may be referred to as T/C.

Software Terms:

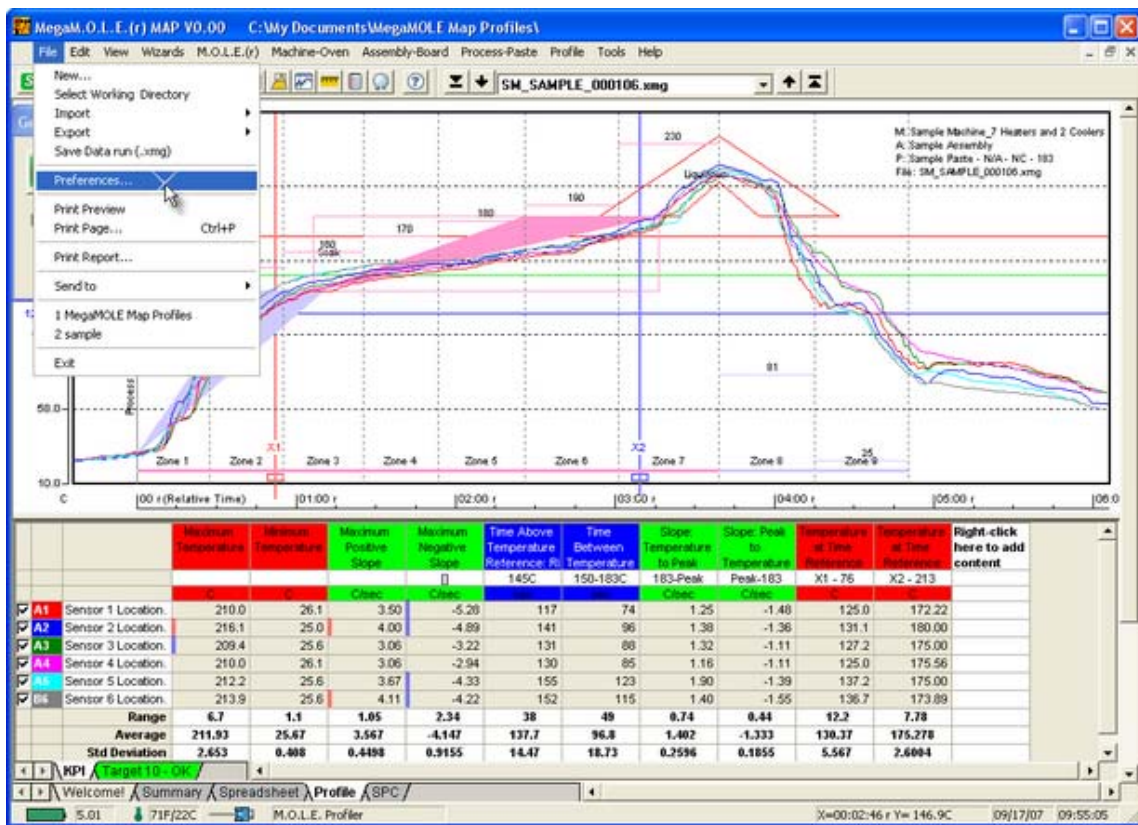
- **Page Tab Views**, the individual page tabs in the MEGAM.O.L.E.® software.
- **Data Set**, multiple data runs saved as individual .XMG files into the selected working directory.
- **Data Run**, the data uploaded from the M.O.L.E. Profiler and saved as an .XMG file into a working directory.

1.5 Fonts Used

This manual uses a specific font to indicate terms or words that can be found directly on the display of the computer.

For example:

On the **File** menu, click **Preferences** to configure the software global settings. This **font** indicates the words **File** and **Preferences** are actually found on the computer display.



2. Safety

2.1 Operators Safety Information

The safety information in this section is for the benefit of operating personnel. Warnings and Cautions will also be found throughout the manual where they apply.

Hardware changes or modifications to the M.O.L.E. Profiler or components are not expressly approved by ECD and could void the warranty.



The warranty will not cover damage caused by neglect or abuse of any ECD products. To maintain the safety features incorporated, operation must be in strict compliance with the requirements specified herein.

The MEGAM.O.L.E.® Profiler 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.

For protection of the M.O.L.E. Profiler and components, observe the following:



- **NEVER** permit the M.O.L.E. Profiler or the battery to exceed the maximum specified internal temperature as permanent damage may result. ([Refer to Appendix A: Specifications](#)).
- **NEVER** expose the M.O.L.E. Profiler or battery to temperatures below the specified minimum for extended time periods. This may damage the rechargeable battery.
- **NEVER** connect the M.O.L.E. Profiler input channels to objects at elevated electrical potentials.
- **NEVER** operate the M.O.L.E. Profiler in flammable or explosive atmospheres. Such usage constitutes a fire or explosion risk.
- **NEVER** immerse the M.O.L.E. Profiler in liquids.
- **NEVER** subject the M.O.L.E. Profiler and components to sharp impacts.
- **NEVER** excessively stress the computer Interface cable.
- **NEVER** expose the M.O.L.E. Profiler and components to corrosive environments.

- **NEVER** make any changes or modifications to the Wireless RF components. Such changes are not expressly approved by ECD and could void the user's authority to operate the equipment.



MEGAM.O.L.E.® Profiler is designed to be operated at a distance of greater than 20 centimeters from the head or torso of the user.



When removing M.O.L.E. Profiler from any temperature environment, be careful of extreme temperatures and use protective gloves.

2.2 Battery Warnings



Warnings:

- Charge “Rechargeable” Power Pack batteries using only the ECD approved charger.
- Always dispose of used batteries promptly and properly.
- Keep all batteries away from children.
- The batteries may explode if mistreated.
- The batteries contain electrolytes.

Replace the M.O.L.E. Profiler batteries with same type only:

- *MEGAM.O.L.E.*: Rechargeable Power Pack battery, ECD Part No. (E47-6342-30)



Using alternate batteries may present a risk of fire or equipment damage.

2.3 Equipment Maintenance

Maintain your equipment to prevent future problems and unwanted costs. Keep your M.O.L.E. Profiler at peak performance by taking care of the system components and keeping it calibrated.

Typical maintenance should include the following:

- Wipe the exterior of the instrument enclosure or components with a cloth dampened with water or IPA alcohol.




















IPA alcohol is the only type of solvent that is acceptable to clean Thermal Profiling instruments or any of the system components. All other types such as **organic solvents** are not recommended.

- Inspect the Power Pack battery charger enclosure for damage. Do not use the charger if the enclosure is cracked or broken, or if the power plug pins are loose or deformed.
- ECD recommends the M.O.L.E. Profiler I/O Pod is factory re-calibrated every 6 months when it is being used constantly. If the use is occasional, a period of no greater than 12 months between calibrations is recommended.

2.4 Product Symbols

The following symbols may be present on the M.O.L.E. Profiler and/or system components:

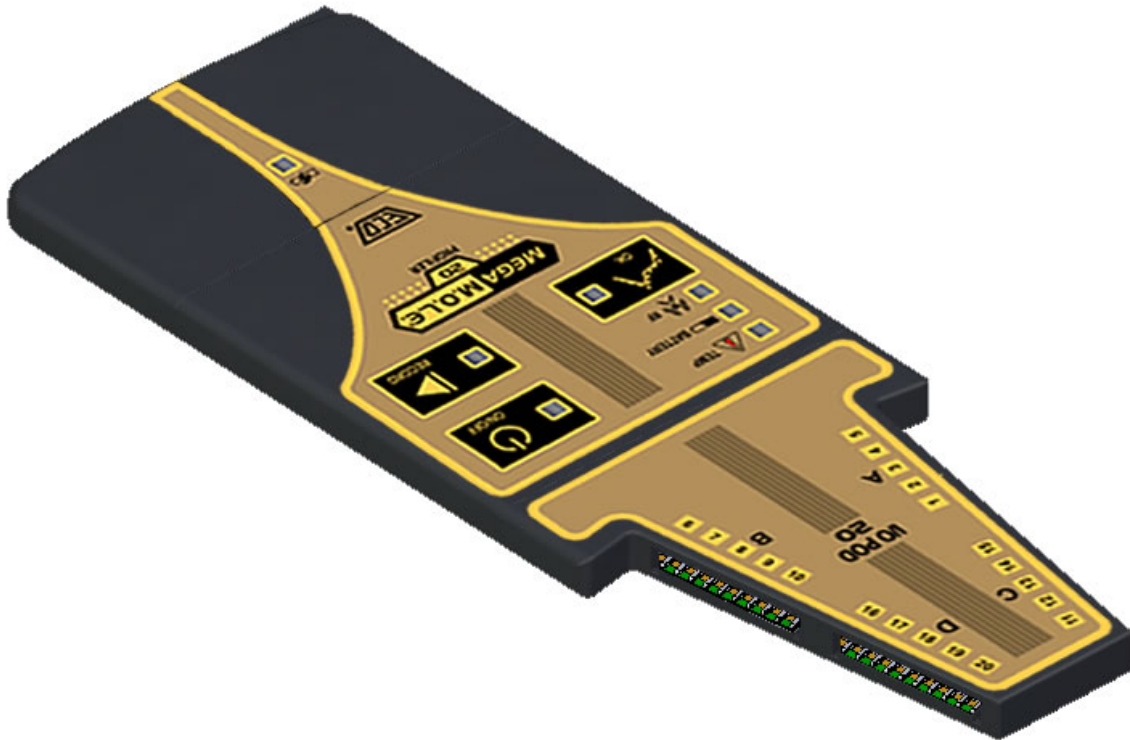
	ON/OFF
	Start Data Run Recording
	Battery Level
	
	Operating Temperature
	Universal Serial Port (USB)
	Battery Charging Indicator
	Radio Frequency (RF) Activity
	Radio Frequency (RF) Jack
	Waste Electrical and Electronic Equipment (WEEE)

	Direct Current (DC) Power
	Alternating Current (AC) Power
RoHS / 	RoHS Compliant
	CAUTION: Whenever this internationally recognized symbol is used on the product, additional information concerning that particular feature or function appears in the manual.
	European Conformity
FCC	Federal Communications Commission (FCC)
	Power transformer is protected throughout by double or reinforced insulation.
	Indoor use only. For electric-shock protection, always operate the battery charger in a protected, indoor location.

3.0 Equipment

3.1 MEGAM.O.L.E.®

The *MEGAM.O.L.E.®* Profiler is the most compact and durable thermal profiling instrument ECD offers. It is powered by a removable Power Pack battery and includes a "Smart" I/O Pod that interfaces with the test assembly.

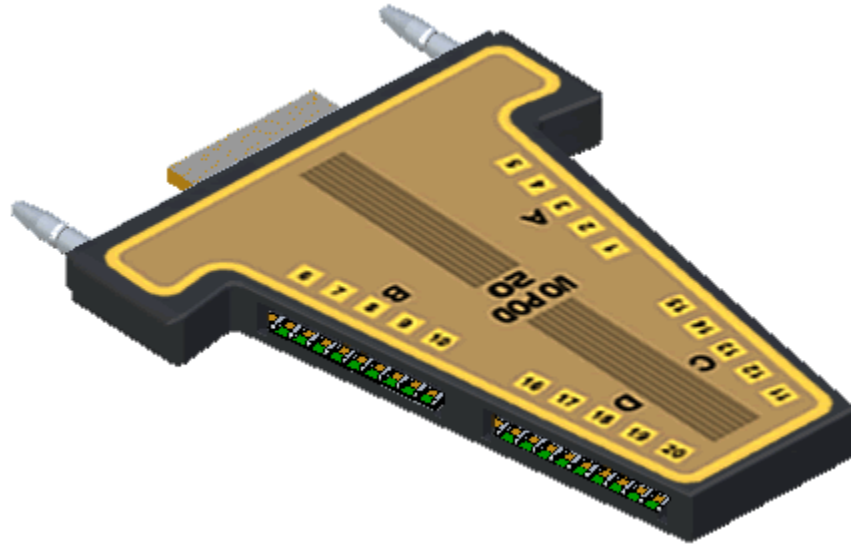


Features/functions:

- [I/O Pod](#): This pod connects to the *MEGAM.O.L.E.* Profiler and has four input connections for attaching up to a maximum of twenty thermocouple sensors.
- [Main Module](#): This is the main controller which stores collected data runs.
- [Power Pack battery](#): Supplies power to the thermal profiler and I/O Pod.

3.1.1 I/O Pod

This I/O Pod is considered a "Smart" pod as it is capable of storing all of the configured machine, assembly and process documentation. It also locks the data run (How did we do it) documentation information and can remain with the test assembly for quick setup time.



I/O Pod Features/functions:

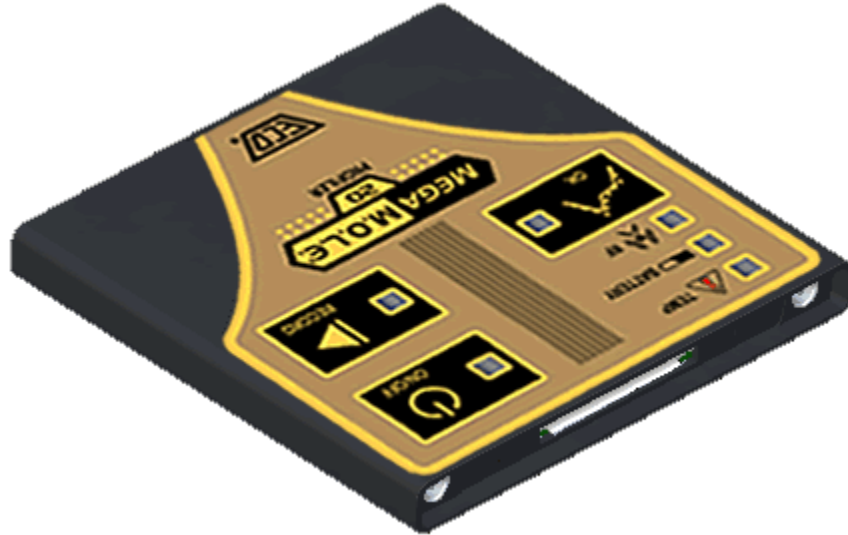
- **Thermocouple/Inputs:** This is where Type "K" Thermocouples sensors are connected.
- **Interface Connector:** This connector is where converted digital data from the I/O pod is transferred when connected to the Main module. Since the I/O pod converts the recorded analog data to digital data, this reduces the amount of "Noise" the induced into the thermocouples measurement system.
- **Alignment Pins:** These pins are used to secure the I/O Pod to the Main Module. They are keyed so it properly aligns with the Main module.

3.1.2 Main Module

The Main module is the controller unit of the *MEGAM.O.L.E.* Profiler. This module stores the recorded data runs that can be downloaded to a computer through the Data Port located on the Power Pack battery.



To configure and download data from the Main Module, the Power Pack battery must be connected to the unit. Refer to topic [Power Pack Battery](#) for more information.



Features/functions:

- **Buttons:** ON/OFF, Record & OK.

Button:	Action:
ON/OFF	Turns Main module "ON/OFF".
Record	Starts/Stops Main module recording data.
OK	Invokes "OK" process where the last recorded profile is compared to pre-configured criteria resulting in a "Pass" or "Fail" mode.

- **Activity indicators:** These are LED's that indicate what state the M.O.L.E. Profiler is in. Refer to the illustration and table below.

LED:	Action:	LED Color
ON/OFF	Indicates Main module is "ON" and idle	Green (Flashing)
Record	Indicates Main module is recording data	Green (Flashing)
OK	Indicates recorded profile passes pre-configured criteria using the Target 10-OK tab in the software.	Green - Pass (Solid) Red - Fail (Solid)
Temp(erature)	Indicates if the internal temperature is at or above a certain threshold.	Red (Slow Flash) >40°C Red (Solid) >85°C
Battery	Indicates when the Power Pack battery voltage is low	Red (Slow Flash) <3.0V
RF (Radio Frequency)	Indicates when main module and receiver is transferring data	Blue



- **Interface Connectors:** There are two interface connectors in the Main module. The front connector interfaces with the I/O Pod and is where the converted digital data from the I/O pod is transferred to the Main module. The rear connector interfaces with the Power Pack battery and power and signal data is transferred.
- **Alignment Sockets:** These are where the mating I/O Pod and Power Pack battery alignment pins are inserted.
- **RF Antenna Connector:** This is where the Optional RF antenna is connected.

3.1.3 Power Pack Battery

The *MEGAM.O.L.E.* Profiler is powered by a Power Pack battery and it is important to make sure it is charged and operating properly before each data run. When connected to a computer, the software displays the voltage of the Power Pack battery on the Status bar. Refer to topic [Status Bar](#) for more information.



When the Power Pack needs to be charged use the transformer charger or USB computer interface cable supplied with the kit. Refer to the instructions in topic [Charging the Power Pack Battery](#). It is recommended that a spare Power Pack battery be ordered so that one battery is charging while the other one is being used.

Features/functions:

- **Data/Charging Port:** This port is located on the backside of the battery. This is used to transfer data through the USB computer Interface cable to the computer. It is also used to charge the battery using the supplied transformer.

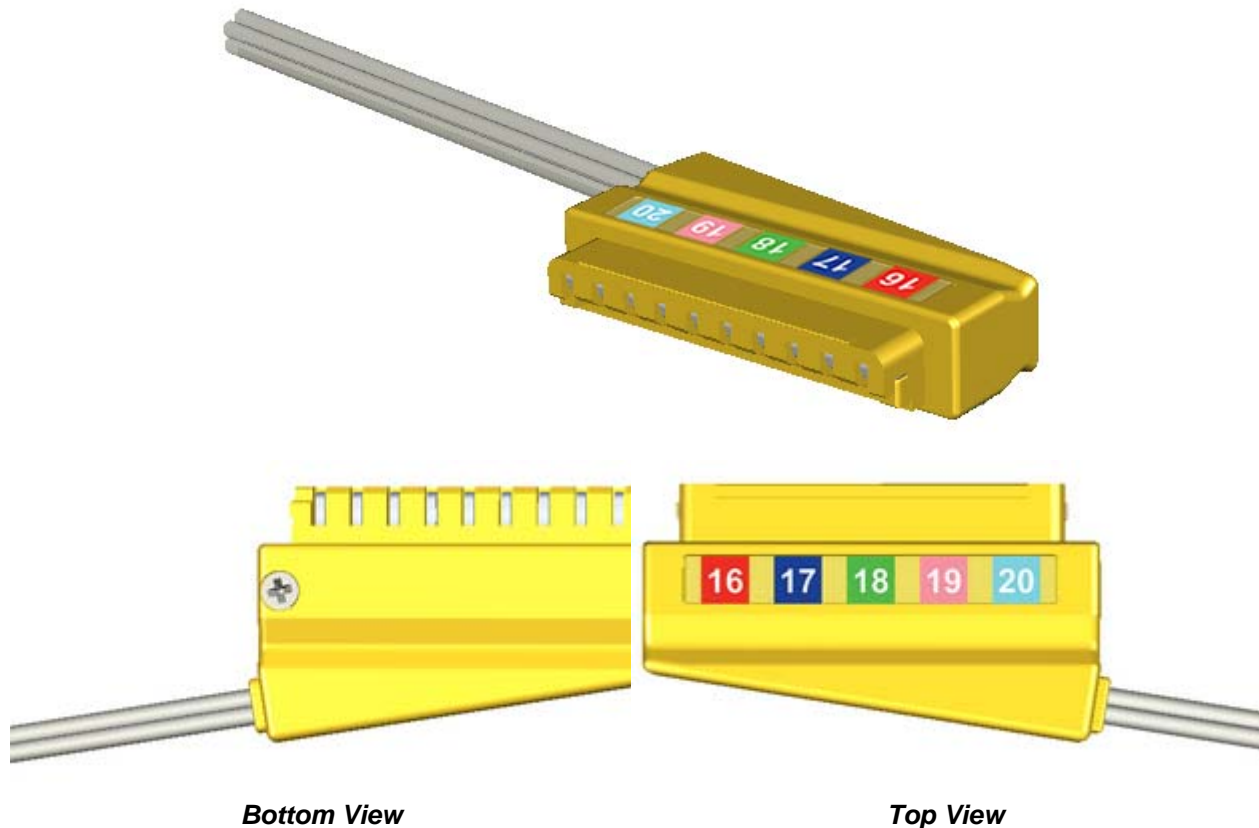


When the Power Pack battery is connected to a powered computer USB port, the power from the USB port will charge the Power Pack battery.

- **Activity indicator:** This LED illuminates when the Power Pack battery is charging.
- **Interface Connector:** This connector interfaces with the rear interface connector on the Main module. It is where the power and signal data is transferred.
- **Alignment Pins:** These pins are used to secure the Power Pack battery to the Main Module. These are also keyed so it properly aligns with the Main module.

3.1.4 Sensors

Up to 20 sensors can be attached to the *MEGAM.O.L.E.* Profiler per data run. Four sets of five 0.005" K-Type thermocouple sensors are included in the Kit.



ECD also offers a wide selection of sensors and adaptors to meet the needs of many applications. For more information about optional sensors for specific applications, refer to topic [How to Get Additional Help](#) to contact ECD.

Plug the sensor connector into the desired *MEGAM.O.L.E.* Profiler channel block. The software helps keep a record of the *MEGAM.O.L.E.* Profiler channel number associated with the location and the type of sensor. The thermocouples correlate to the channels in the software so the sensors can be easily identified.



The individual Thermocouples in the block connectors can be easily removed and replaced. Refer to topic [Constructing a Thermocouple](#) for more information.

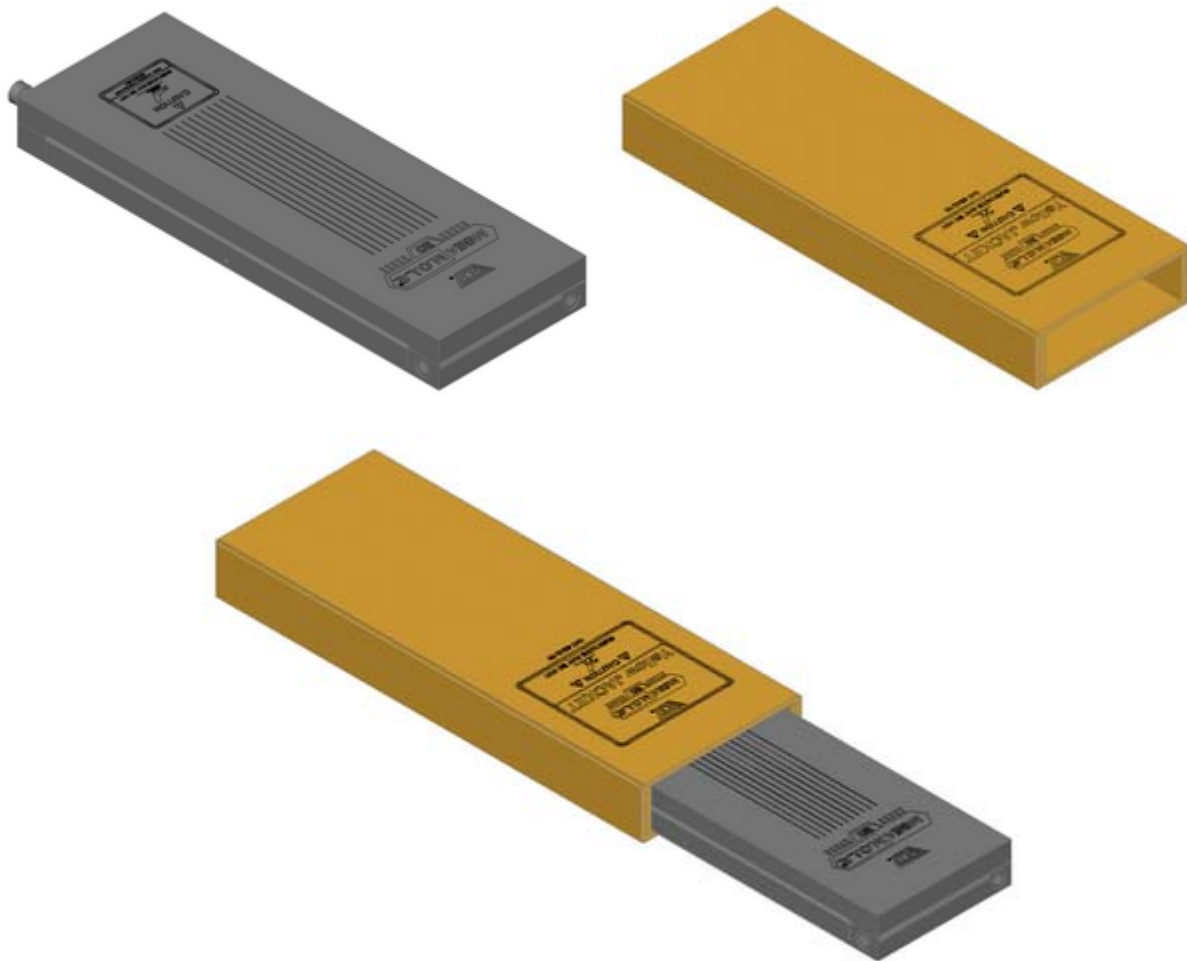
3.1.5 USB Computer Interface Cable

Two USB cables are included in the hardware package. These cables connect the *MEGAM.O.L.E.* Profiler to a computer USB port and power pack battery charger.



3.1.6 Barrier & Yellow Jacket

The Uni-Barrier with Yellow Jacket is the standard barrier in all our Lead-Free profiling kits, including the wireless RF kit. A thermal barrier is the protection the M.O.L.E. needs to ensure longevity through harsh environments. With piano-hinged stainless steel construction, sheathed in cool-to the touch high-temperature fabric this thermal barrier is ideal for lead-free processes. This barrier is rated to protect the *MEGAM.O.L.E.* for 10 minutes at 200C. When used with the Yellow Jacket it is rated for 17 minutes at 200C.



3.1.7 MEGAM.O.L.E.® to Standard T/C Adaptor

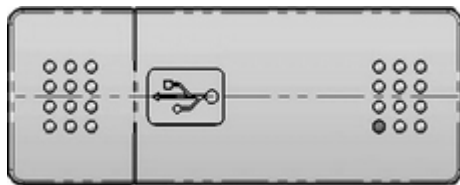
This optional thermocouple adaptor is attached to the thermal barrier and converts the *MEGAM.O.L.E.*® profiler nano connectors to standard connectors. This is especially useful when a user has an experimental assembly pre-wired with standard thermocouples saving considerable setup time.



3.1.8 Wireless RF Option

The wireless RF option for the MEGAM.O.L.E.® profiler produces real time profiles fast for immediate data collection and transmission to a computer. The Transmitter is an built-in component that when used with the antenna sends data to the RF transceiver which connects to a USB port on the computer.

Wireless RF Transceiver:

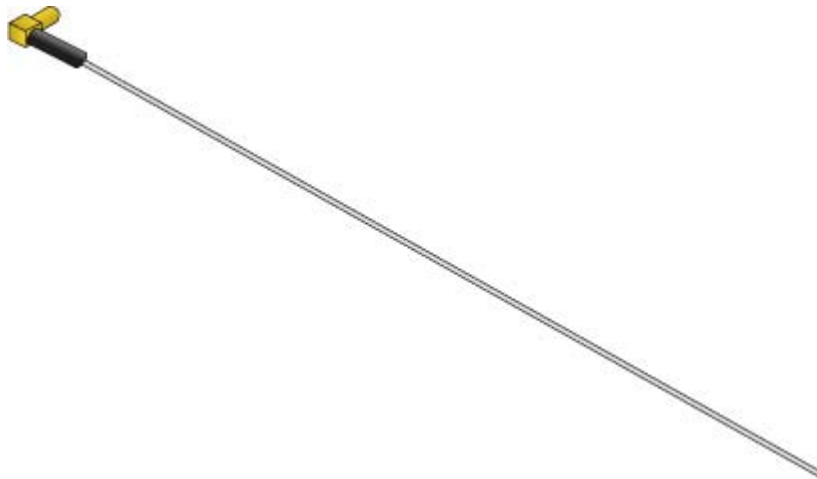


Front Side



Back Side

Antenna:



4.0 Basics

4.1 Setup

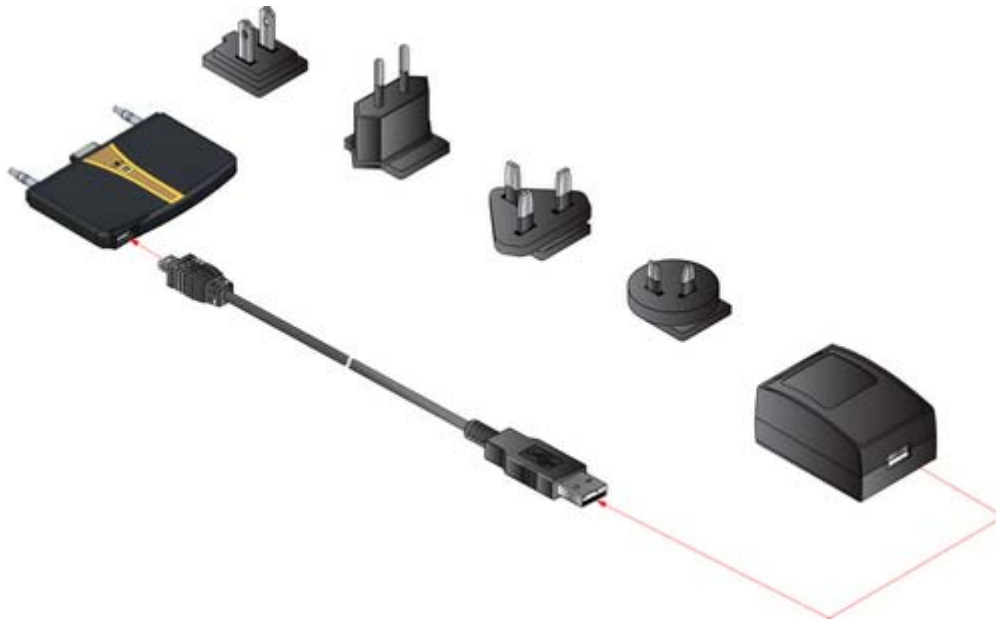
The Setup topic offers a brief description of the system hardware configuration.

4.1.1 Charging the Power Pack Battery

Because the M.O.L.E. profiler is powered by a rechargeable Power Pack battery, it is important that it is charged and operating properly prior to performing every experiment. A spare Power Pack battery may be ordered so the one battery is charging while the other one is being used.

To charge the power pack battery:

- 1) Slide the interchangeable plug into the adaptor until it clicks indicating that is fully seated.
- 2) Plug the transformer end of the charger into a wall outlet and the USB connector end into the Power Pack.



A completely discharged Power Pack takes about 8 hours to be fully charged. For quick charges, the Power Pack battery can be charged for 15 minutes allowing one 10 minute data run to be performed.

- 3) When the charging cycle is complete, connect the Power Pack to the M.O.L.E..



The Power Pack battery can be charged continuously whenever the M.O.L.E. profiler is not being used, however, if the M.O.L.E. profiler is going to sit idle for five days or more, you may want to remove it from the charger.

4.1.2 Communications Setup

To connect the M.O.L.E. Profiler:



The software must be installed prior to communications setup. (Refer to [Software Installation](#) for more information).

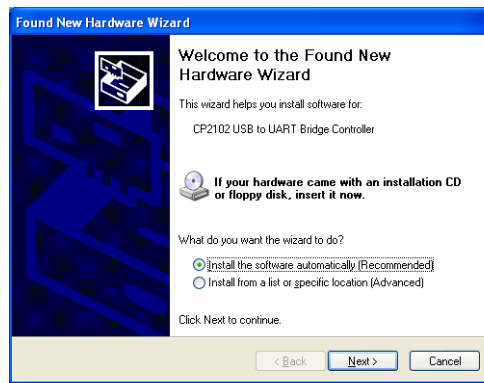
- 1) Insert the USB computer interface cable into a computer USB port and the other end into the Power Pack Battery Data Port.





The first time a M.O.L.E. Profiler is connected to a computer two drivers will be installed. One is a device driver for the M.O.L.E. Profiler and the other is for USB communication.

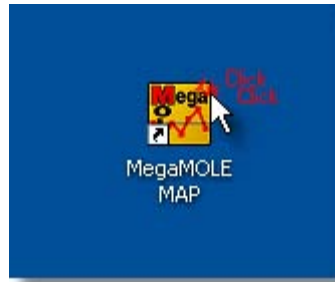
- 2) During installation of the device driver, when prompted to select the location of the device driver, select "***Install the software automatically***". Follow the remaining wizard instructions closely.



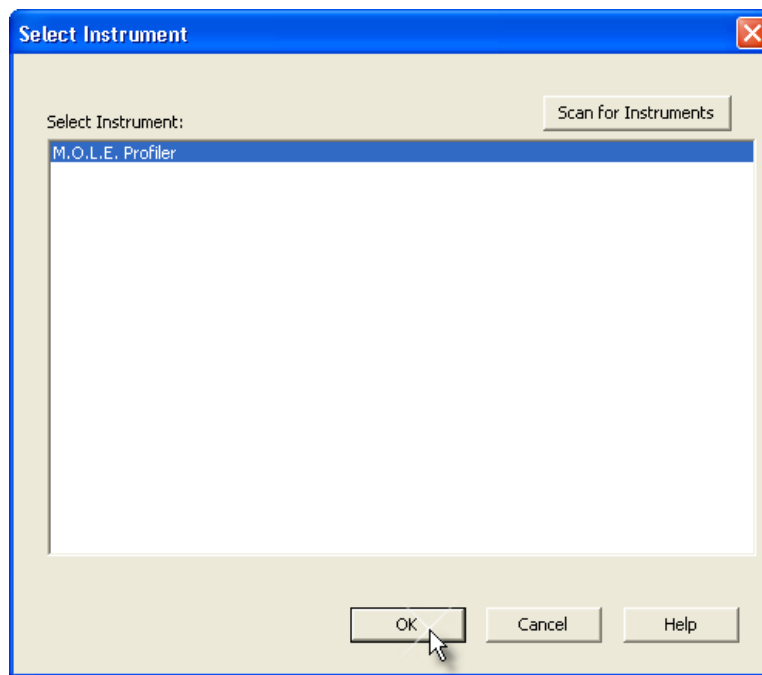
- 3) During installation of the USB driver a message box appears, select the ***Continue Anyway*** command button and the driver will be successfully installed.



- 4) After M.O.L.E. Profiler is connected to a computer, the software must be configured so they can communicate. Start the software program by either double-clicking the MAP software icon or selecting it from the ECD program sub-menu.



- 5) On the **M.O.L.E.** menu, click the **Select Instrument** command.
- 6) Select the desired instrument from the list box. If there are none listed, click the **Scan for Instruments** command button to detect all available instruments.



MAP software allows multiple instruments to be connected to a computer at one time. Selecting the **Scan for Instruments** command button will detect all instruments and display them in the list. If no instrument is detected, the default Demonstration MEGAM.O.L.E.® profiler is displayed.

- 7) Click the **OK** command button to accept or **Cancel** to quit the command.

4.1.3 Wireless RF Option Setup

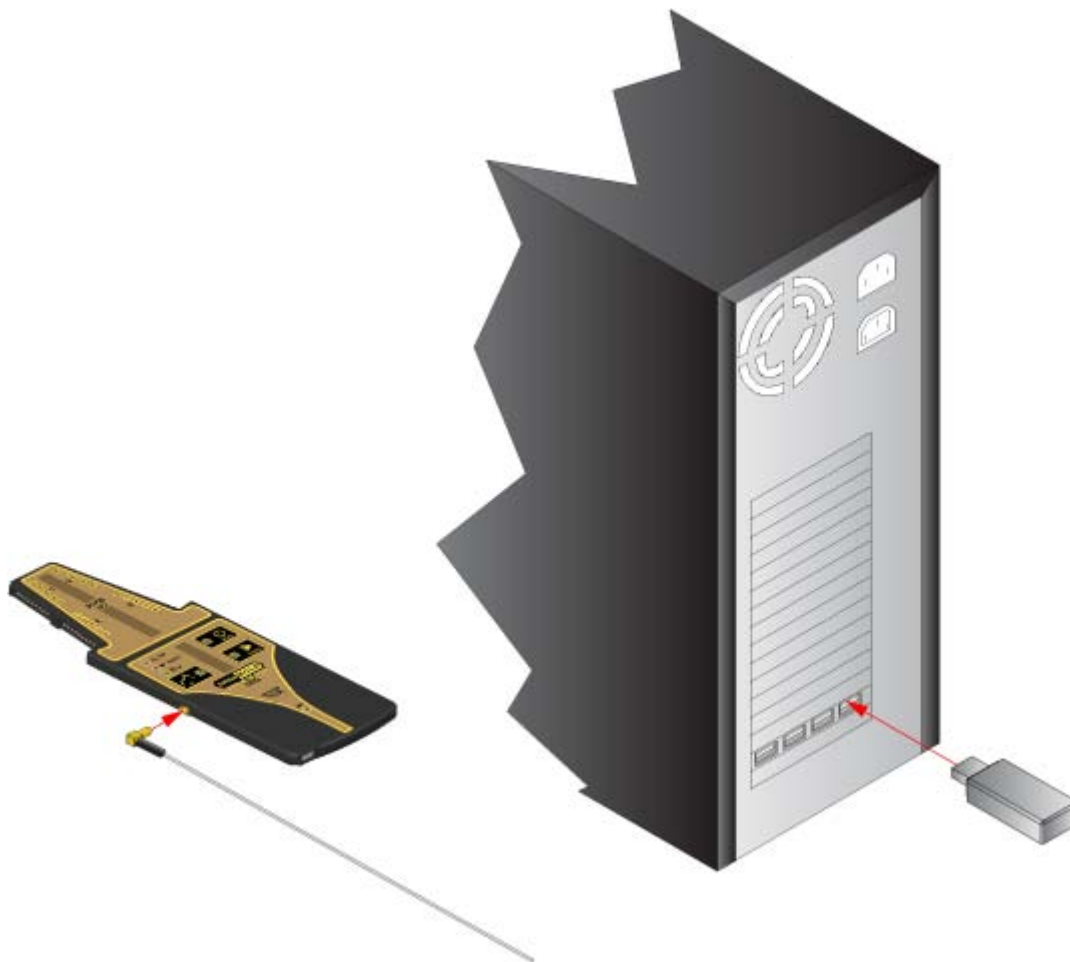
To connect the wireless RF option:



Prior to wireless RF communication, the M.O.L.E. Profiler must first be connected to a computer through the USB port. This allows the software to register the M.O.L.E. Profiler ensuring that other local computers cannot read RF data from this profiler. (Refer to [Communications Setup](#) for more information)

- 1) Insert the Wireless RF Transceiver into an available USB port and the antenna to the M.O.L.E. Profiler. The first time the Transceiver is connected to a computer, the drivers will automatically be installed. The operating system displays the installation status on the taskbar.

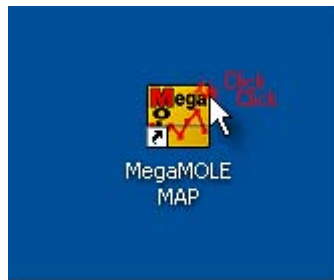




The M.O.L.E. Profiler is designed to work with with included antenna **ECD P/N: E47-6342-11** only. Never make any changes or modifications to the Wireless RF components. Such changes are not expressly approved by ECD and could void the user's authority to operate the equipment.

- 2) After the Transceiver is connected to a computer, it needs to be detected by the software to properly communicate.

- 3) Start the software program by either double-clicking the MAP software icon or selecting it from the ECD program sub-menu.

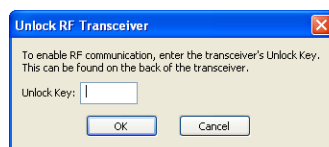


- 4) On the **M.O.L.E.** menu, click the **Select Instrument** command.
- 5) Select the desired instrument from the list box. If there are none listed, click the **Scan for Instruments** command button to detect all available instruments.

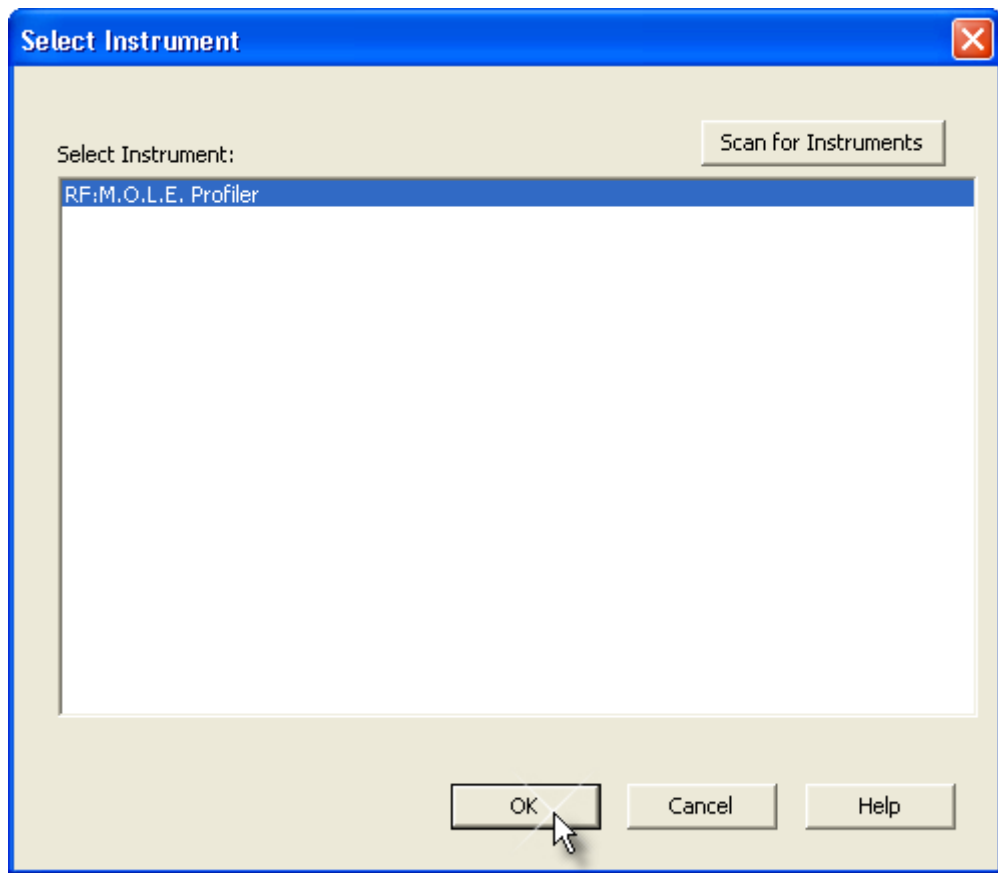
When the software detects the Wireless RF Transceiver for the first time, the user will be prompted to enter the 5 digit Unlock Key located on the product ID label.



- 6) Enter the Unlock Key in the field and select the **OK** command button.



MAP software allows multiple instruments to be connected to a computer at one time. Selecting the **Scan for Instruments** command button will detect all instruments and display them in the list. If no instrument is detected, the default Demonstration MEGAM.O.L.E.® profiler is displayed.



7) Click the **OK** command button to accept or **Cancel** to quit the command.
The system is now ready for Wireless RF communication.

4.2 Operation

This section guides the user through a typical collection process. Portions of this section will require referral to some software sections of the Users Help Guide for additional information.

The M.O.L.E. Profiler is dependent on the software to control how it collects and interprets data. Several kinds of data runs may need to be performed to achieve desired information, or the same data run may be performed repeatedly over time to monitor one process. Either way, an data run will need to be setup at least once.

After the hardware is setup and the software is installed, use the following steps to perform an experiment using a M.O.L.E. Profiler.



This procedure uses the "Fresh Start" wizard for the typical data run process.

Step 1: Set MAP information

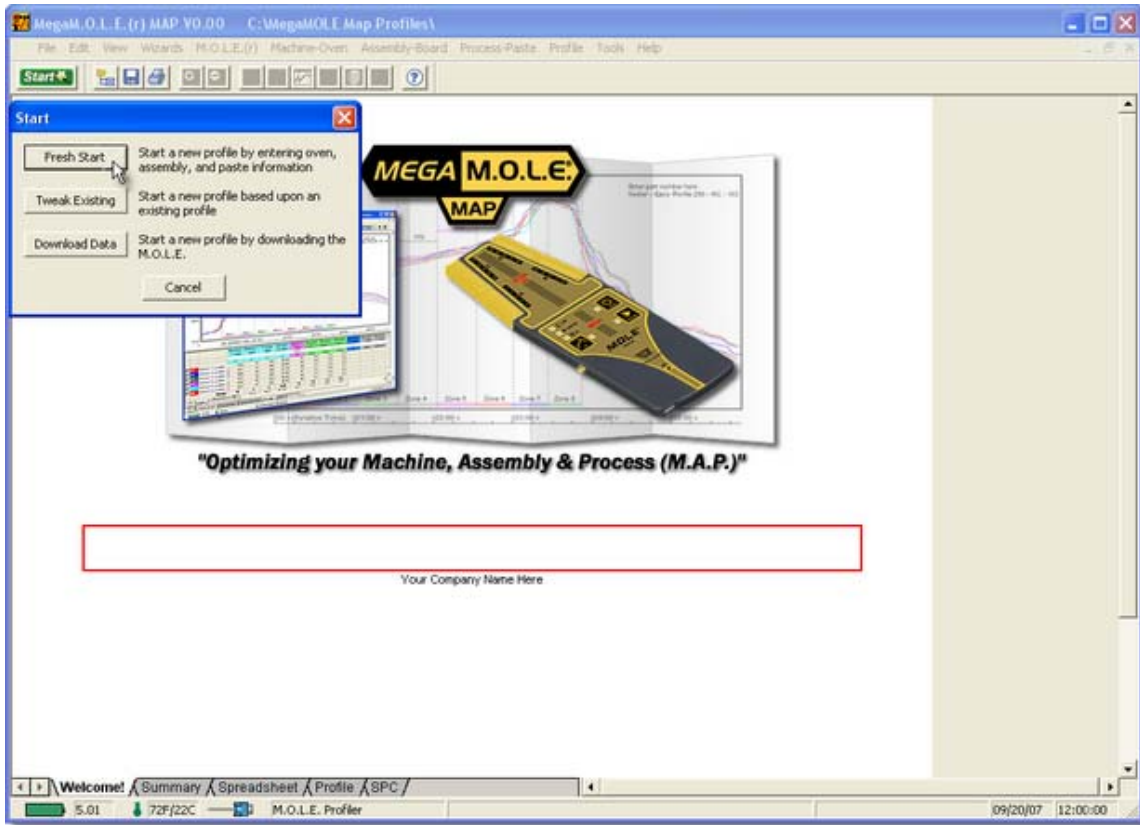
- 1) Start the software by double clicking on the program icon.
- 2) Connect the M.O.L.E. Profiler to the computer. Refer to topic [Basics>Setup>Communications Setup](#) for more information.



When the information is being sent to a SuperM.O.L.E. Gold Profiler the Activity LED will illuminate indicating that it is communicating with the computer properly.

- 3) Make sure the M.O.L.E. Profiler Power Pack battery is fully charged. When a M.O.L.E. Profiler is selected, the software status bar displays the current battery voltage. Refer to topic [Software>Features>Status Bar](#) for more information.

- 4) On the **File** menu, click **New/Start**. A message box appears with the three workflow wizard options.



- 6) On the **Start** dialog box, click the **Fresh Start** command button and the workflow wizard appears.



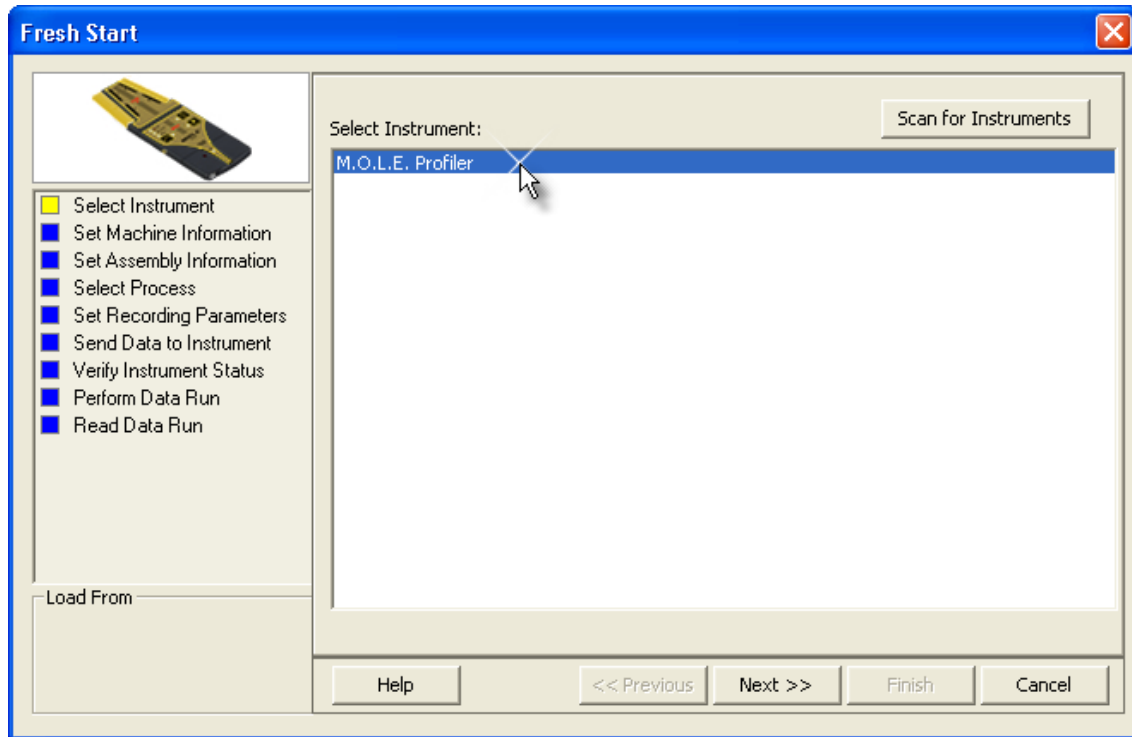
When navigating through the wizard, the step list on the left uses a color key to inform the user of the current step, steps that have been completed and remaining steps.

■ Current ■ Completed ■ Remaining

- 7) Select the desired instrument from the list box to make active. If there are none listed, click the **Scan for Instruments** command button to detect all available instruments.




MAP software allows multiple instruments to be connected to a computer at one time. Selecting the **Scan for Instruments** command button will detect all instruments and display them in the list. If no instrument is detected, the default Demonstration MEGAM.O.L.E.® profiler is displayed.



- 8) Click the **Next** command button.

- 9) Select a machine from the Machine drop down list. If the desired machine does not appear in the list click the **New** command button to create a new machine. Refer to topic [Software>Menus>Machine>Create new Machine](#) for more information.

Fresh Start



Machine: Sample Machine_7 Heaters and 2 Coolers

Heater: +BTU_Test_Pyramax 150_1.1 InH2O (2.74 mBar)


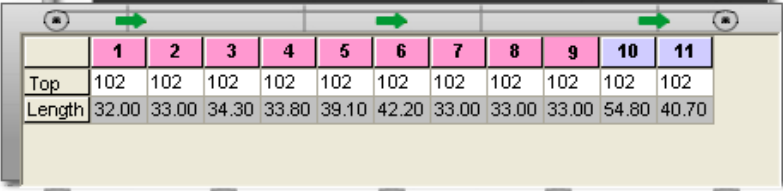
Recipe: Heller_1912_HI

Conveyor: Sample Machine_7 Heaters and 2 Coolers

Units: C

☒ Top and Bottom Setpoints are the same ☐ Enable Nitrogen

Load... Save... Print... Send to machine Notes...

	1	2	3	4	5	6	7	8	9	10	11
Top	102	102	102	102	102	102	102	102	102	102	102
Length	32.00	33.00	34.30	33.80	39.10	42.20	33.00	33.00	33.00	54.80	40.70

Load From

Help << Previous Next >> Finish Cancel

10) Set the machine recipe settings such as Conveyor Speed, Zone Temperatures and Temperature units.

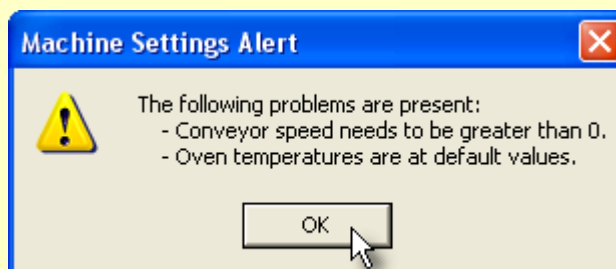


The software includes features to save and load machine recipe setting files. These files are helpful so the user can quickly recall machine information and ensure it is always the same.

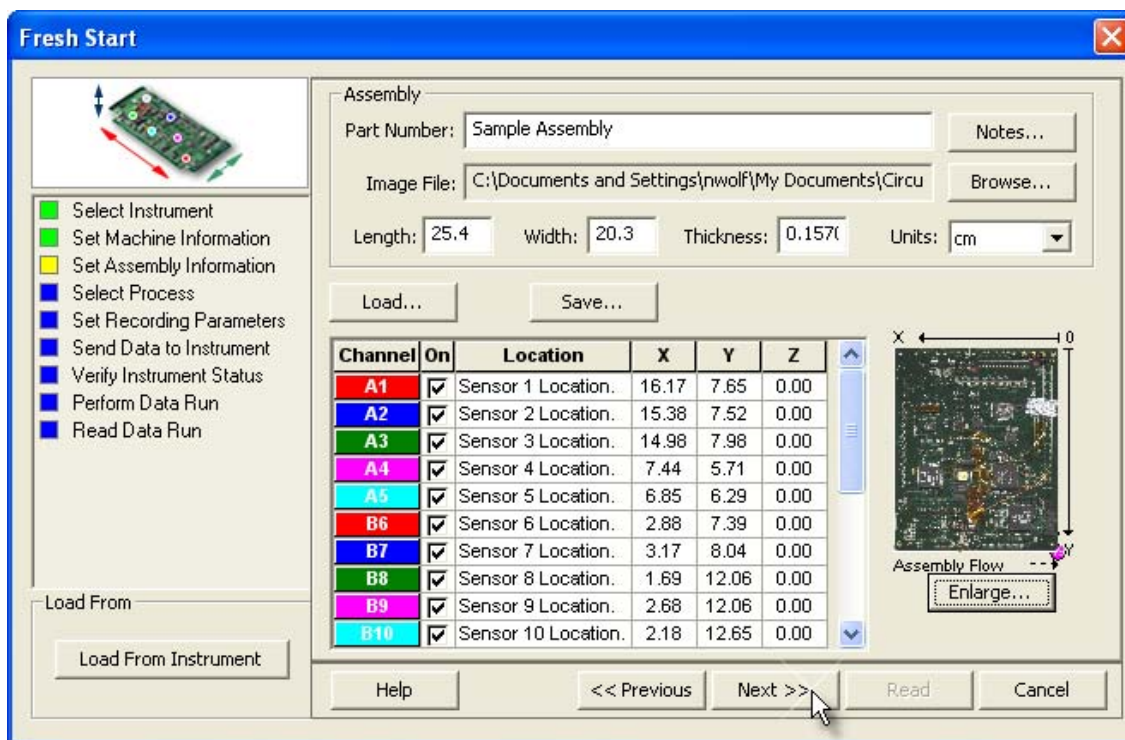
	1	2	3	4	5	6	7	8	9
Top	150	150	160	170	180	190	230	81	25
Length	32.40	32.40	34.80	34.80	38.40	42.00	44.40	43.20	40.80

11) Click the **Next** command button.

If no value is specified for the conveyor speed or the default oven temperature values, the software will remind the user to set them.



12) Enter the assembly information such as part number, board size, sensor locations and a product image.



Fresh Start

Assembly

Part Number: Sample Assembly Notes...

Image File: C:\Documents and Settings\nwolf\My Documents\Circu Browse...

Length: 25.4 Width: 20.3 Thickness: 0.157 Units: cm

Load... Save...

Channel	On	Location	X	Y	Z
A1	<input checked="" type="checkbox"/>	Sensor 1 Location..	16.17	7.65	0.00
A2	<input checked="" type="checkbox"/>	Sensor 2 Location..	15.38	7.52	0.00
A3	<input checked="" type="checkbox"/>	Sensor 3 Location..	14.98	7.98	0.00
A4	<input checked="" type="checkbox"/>	Sensor 4 Location..	7.44	5.71	0.00
A5	<input checked="" type="checkbox"/>	Sensor 5 Location..	6.85	6.29	0.00
B6	<input checked="" type="checkbox"/>	Sensor 6 Location..	2.88	7.39	0.00
B7	<input checked="" type="checkbox"/>	Sensor 7 Location..	3.17	8.04	0.00
B8	<input checked="" type="checkbox"/>	Sensor 8 Location..	1.69	12.06	0.00
B9	<input checked="" type="checkbox"/>	Sensor 9 Location..	2.68	12.06	0.00
B10	<input checked="" type="checkbox"/>	Sensor 10 Location..	2.18	12.65	0.00

Load From

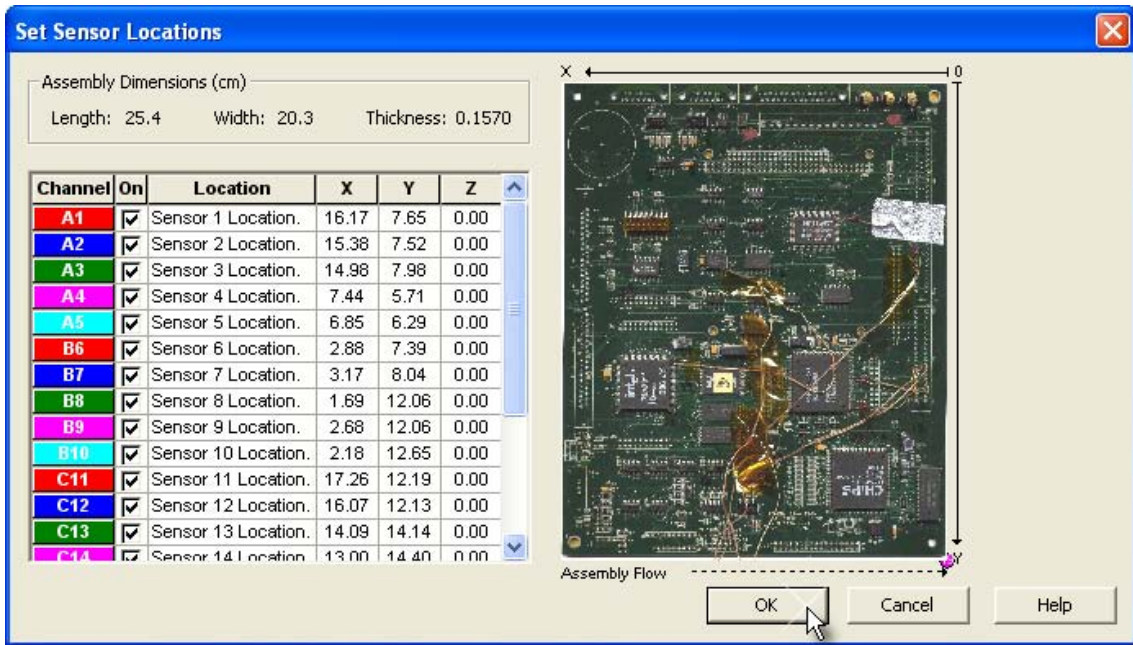
Load From Instrument

Help << Previous Next >> Read Cancel

Enlarge...



If a product image has been selected, clicking the **Enlarge** command button displays the Set Sensor Locations dialog box where the user can specify the locations of each sensor. To move sensor locations, drag the sensor markers to the approximate location where the sensors are attached.



13) When finished, click the **OK** command button to accept or **Cancel** to return without making any changes.

14) Click the **Next** command button.

15) Attach sensors to a test assembly.

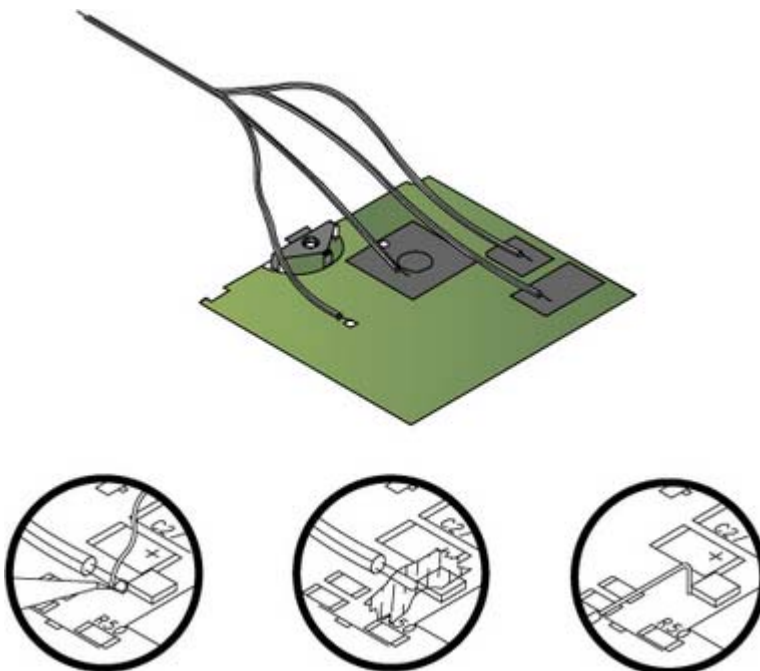


When soldering a T/C sensor to a component with high temperature solder, use Kester SN10 (or equivalent) for 183°C eutectic solder or Kester SN5 (or equivalent) for lead free soldering.

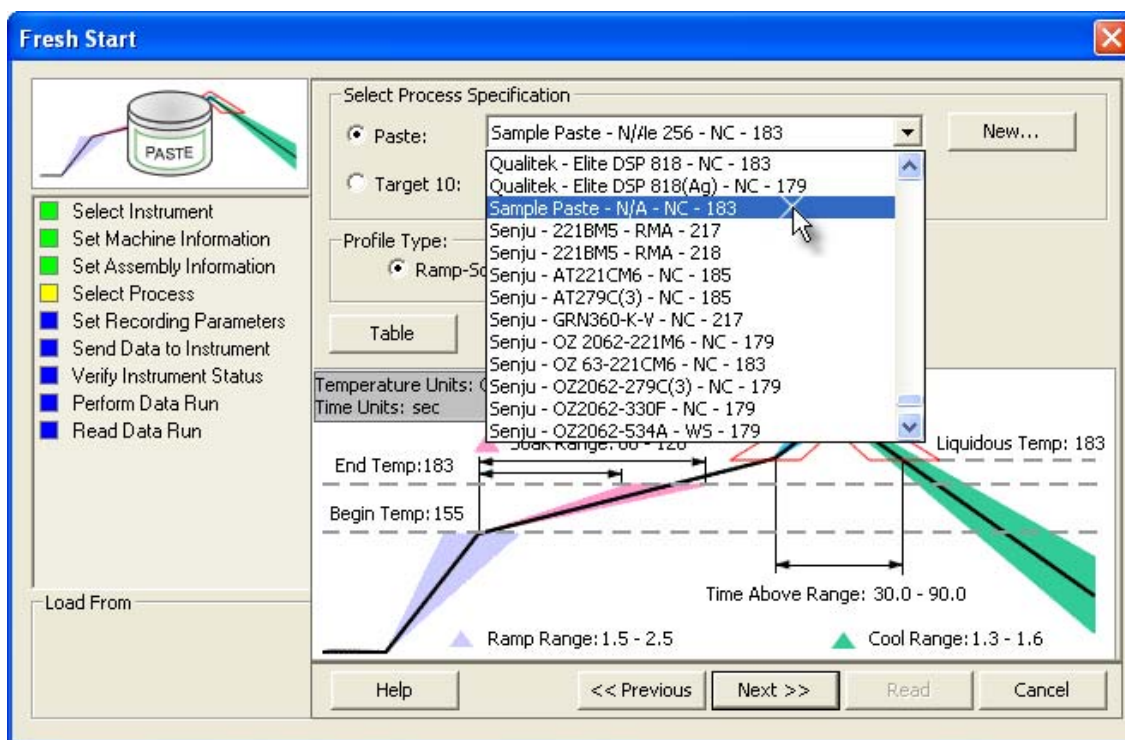
- 16) Unwind the sensor leads and attach the connectors to the M.O.L.E. Profiler. Make sure to connect them to the same channel(s) that were configured in the wizard workflow. For example, if configuring the M.O.L.E. Profiler to have Channels 1 through 5 active, be sure the sensors are attached to the same five channels.



Kapton® tape, aluminum tape and Temp probe™ can also be used to hold T/C wire to the test assembly.




- 17) Select your process specification. The user can select a **Paste** from the database or a pre-defined **Target 10** file. Then select a Profile Type (Ramp-Soak-Spike or Ramp-to-Spike). If your Paste does not appear in the database list click the **New** command button to create a new paste. Refer to topic [Software>Menus>Process>Create new Paste](#) for more information.



Once a paste is selected the specifications are displayed on the graph. The software also allows paste specification data to be viewed in a table view by clicking the **Table** command button.

Fresh Start



- Select Instrument
- Select Machine Information
- Select Assembly Information
- Select Process
- Set Recording Parameters
- Send Data to Instrument
- Verify Instrument Status
- Perform Data Run
- Read Data Run

Select Process Specification

Paste: Sample Paste - N/A - NC - 183 New...

Target 10: Alpha Metals - WS619LF SAC405 - WS - 221

Profile Type:

☒ Ramp-Soak-Spike ☐ Ramp-To-Spike

Graph Notes... Print...

	Ramp	Soak			Spike		Liquidous		Cooling
Spec	Slope	Begin T	End T	Time	Slope	Peak T	Temperature	Time Above	Slope
Units	(C/sec)	(C)	(C)	(sec)	(C/sec)	(C)	(C)	(sec)	(C/sec)
Min	1.5	135		80	1.5	205	183	30.0	1.5
Max	2.5		183	130	2.0	235		90.0	2.0

Load From

Help << Previous Next >> Read Cancel

18) Click the **Next** command button

- 19) Set Recording Parameters such as the instrument name, recording interval, start parameters and stop parameters. This step is where the user can also turn a sensor channel **ON** or **OFF**, set the sensor location description and sensor type. Refer to topic [Software>Menus>M.O.L.E.>Set Recording Parameters](#) for detailed information for each setting.

Fresh Start

Instrument Name: M.O.L.E. Profiler

Recording Interval
 Hour: 0 Minute: 0 Second: 1 1/10: 0

Start Parameters
☐ Temperature 26.0 F
 Trigger Slope: Positive (+)
☐ Delay Points 1
 Delay Time: 00:00:01

Stop Parameters
☒ Data Points 330
 Total Time: 0000:00:05:30
☒ Synchronize instrument clock

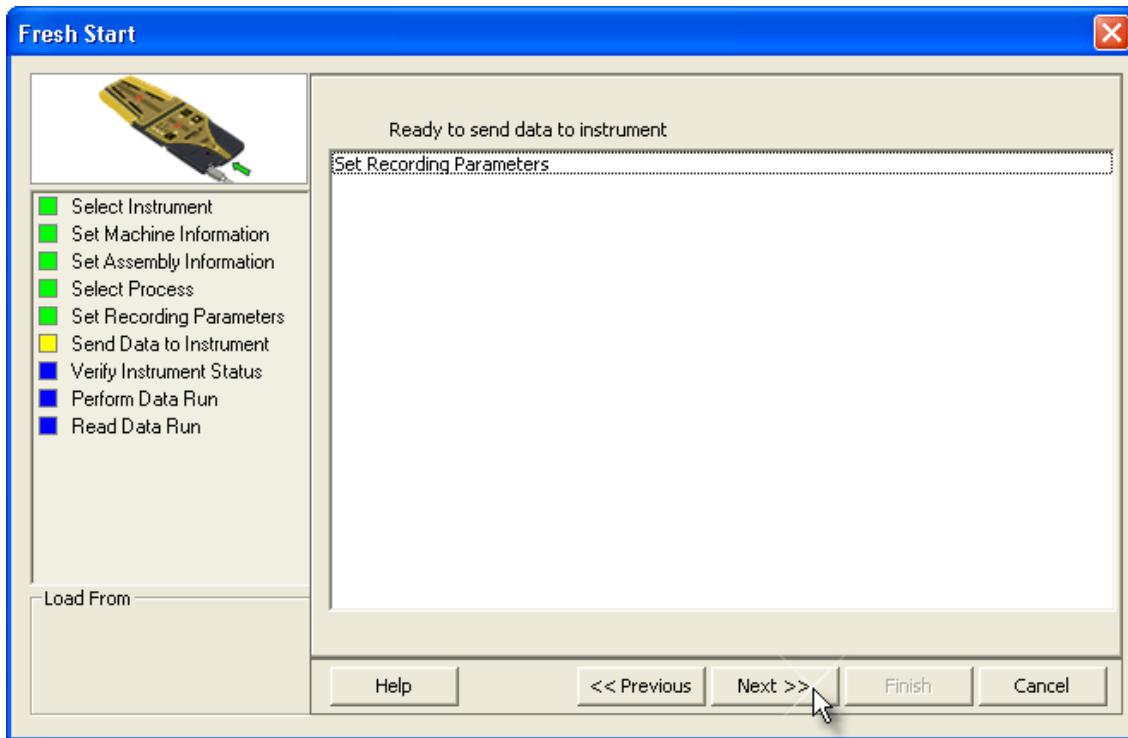
Channel	On	Location	Type
1	<input checked="" type="checkbox"/>	Sensor 1 Location.	Type-K
2	<input checked="" type="checkbox"/>	Sensor 2 Location.	Type-K
3	<input checked="" type="checkbox"/>	Sensor 3 Location.	Type-K
4	<input checked="" type="checkbox"/>	Sensor 4 Location.	Type-K
5	<input checked="" type="checkbox"/>	Sensor 5 Location.	Type-K
6	<input checked="" type="checkbox"/>	Sensor 6 Location.	Type-K

Load From

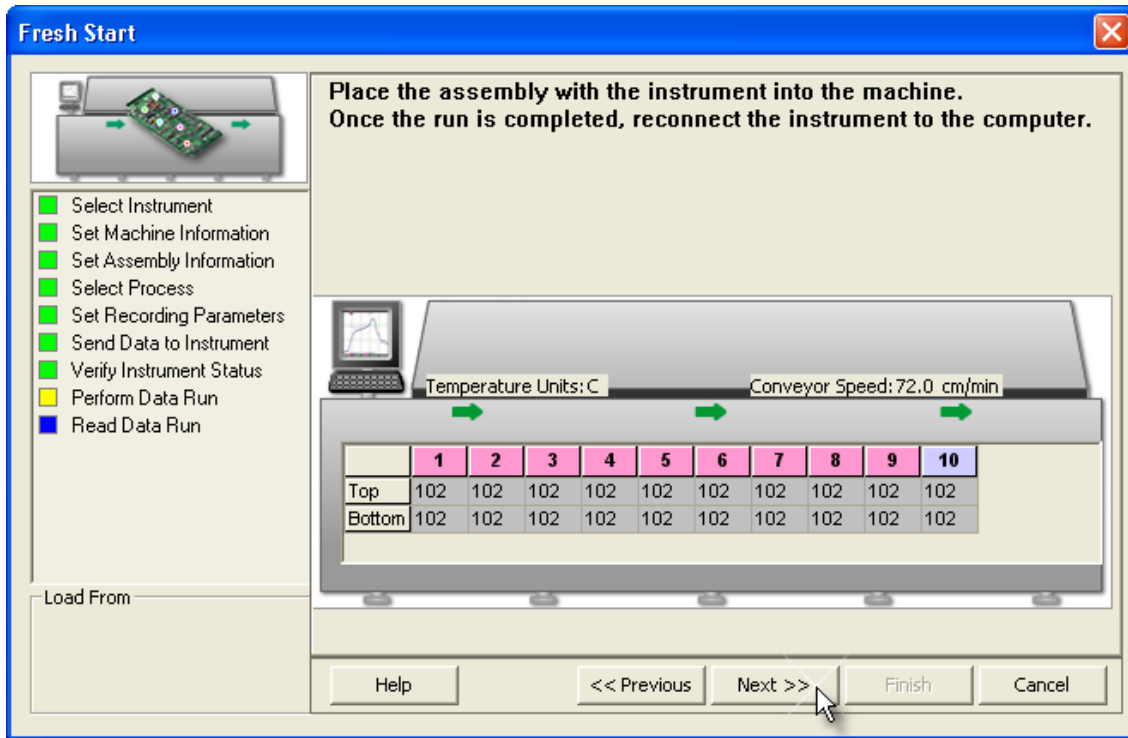
Help << Previous **Next >>** Finish Cancel

- 20) Click the **Next** command button.

21) Click the **Next** command button to send the recording parameters to the instrument.



22) Click the **Next** command button.



Step 2: Perform Data Run

- 1) Place the M.O.L.E. Profiler in the appropriate thermal barrier making sure the Thermocouple and/or Sensor wires are not damaged.



Never permit the M.O.L.E. Profiler to exceed the absolute maximum warranted internal temperature, as permanent damage may result. The warranty will not cover damage caused by exceeding the maximum specified internal temperature.



- 2) After the oven stabilizes, turn the M.O.L.E. Profiler on and press the record button.



The record button will need to be pressed even if the M.O.L.E. profiler is configured to start if the start parameters **Trigger Temperature** or **Points Delay** are configured.

- 3) Pass the thermally protected M.O.L.E. Profiler and test assembly through the machine.



It is highly recommended that protective gloves are used when retrieving the thermal barrier from the oven and when opening the thermal barrier.

- 4) As the test assembly and M.O.L.E. Profiler emerge from the machine, carry the test assembly with sensors attached and the M.O.L.E. Profiler in the Thermal barrier to a table or flat surface.

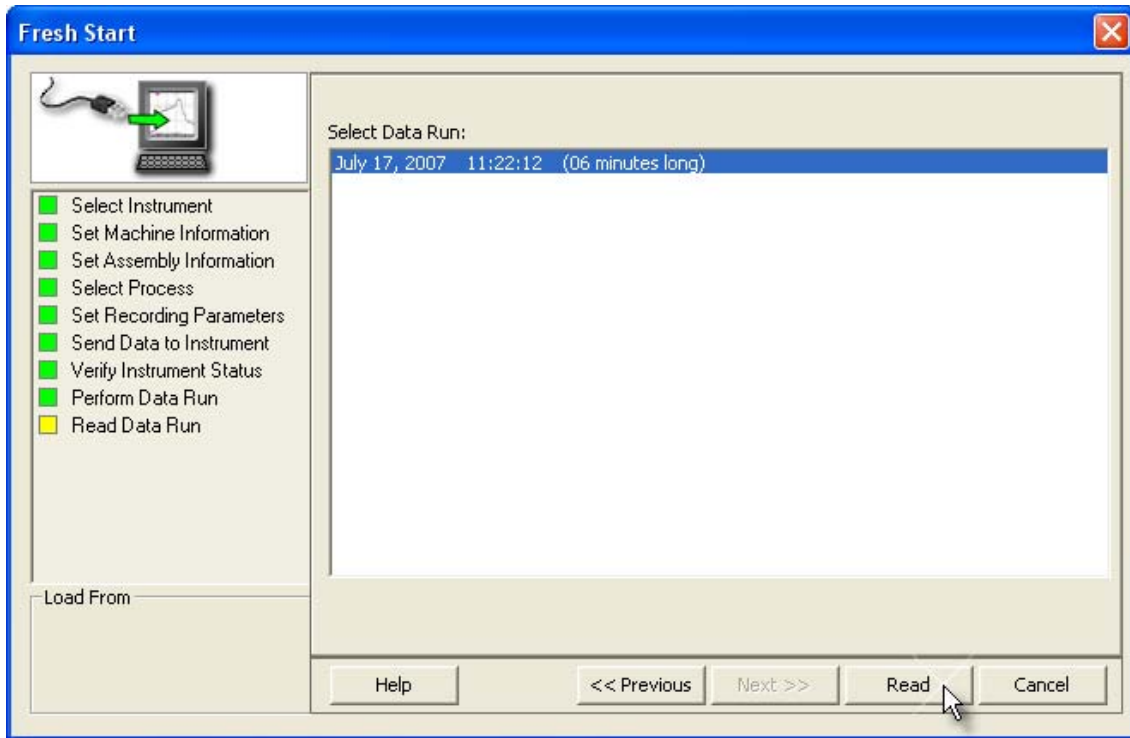


If a sensor is removed before the M.O.L.E. Profiler has stopped collecting data, the data for that channel might become distorted.

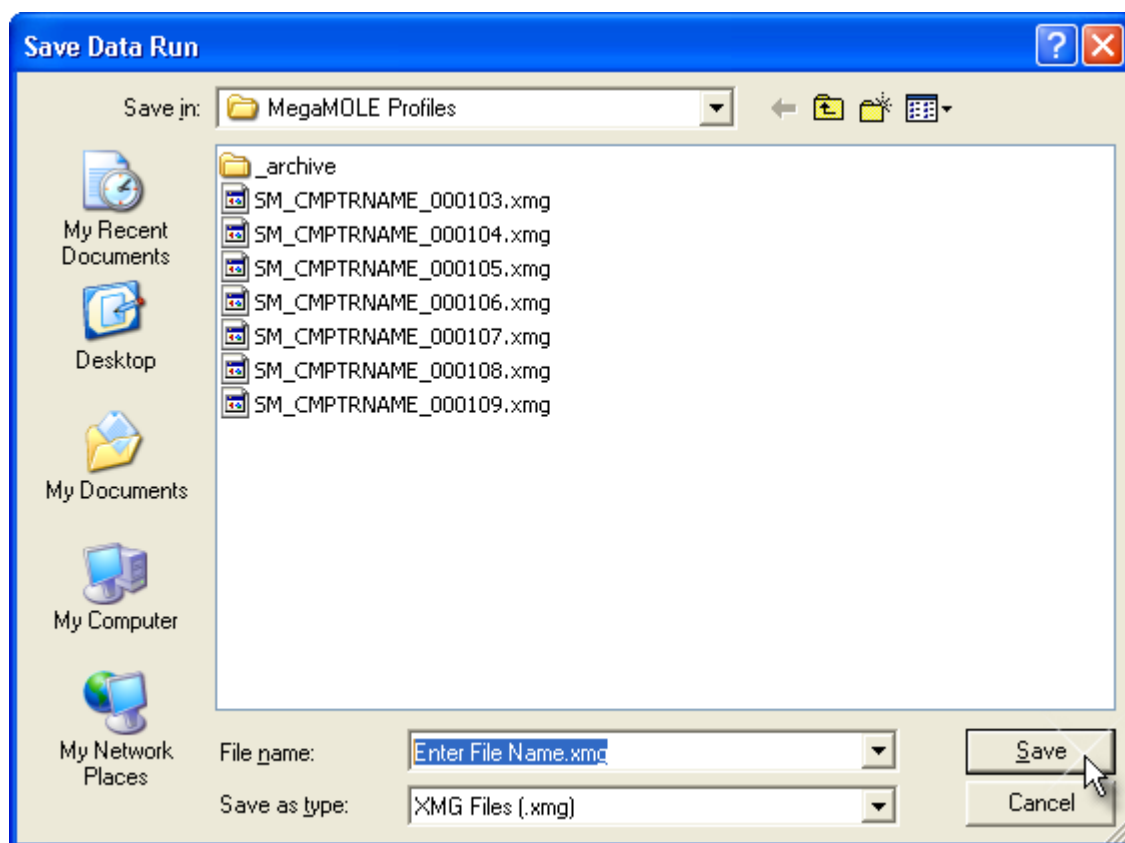
- 5) Open the Thermal barrier and if the Activity LED is still flashing this means the M.O.L.E. Profiler is still recording and it must be stopped.
- 6) Remove the M.O.L.E. Profiler from the Thermal barrier. Handle it carefully, as the case may still be warm.
- 7) Disconnect the sensors from the M.O.L.E. Profiler and place it near the computer.

Step 3: Read Data Run

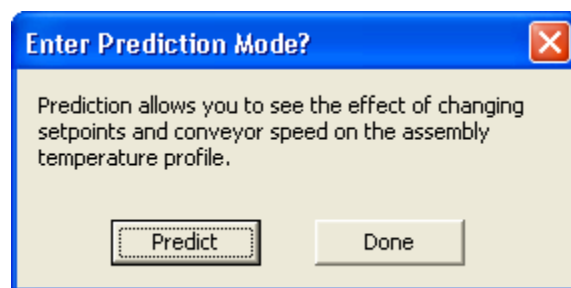
- 1) Restore the software and click the **Finish** command button to read the data run from the M.O.L.E. Profiler.



- 2) When the data run has been downloaded, the software will suggest a default file name or prompt the user to specify a new file name.



- 3) When finished, click the **Save** command button.
- 4) The software then prompts the user if they want to enter Prediction mode. Entering prediction mode enables the user to change a zone temperature values or the conveyor speed and predict the outcome of that change on the data run profile. Refer to topic [Software>Menus>Tools>Prediction](#) for more information.



- 5) Click the **Predict** command button to enter Prediction mode or **Done** to complete the workflow wizard .

The information is automatically saved in the data run file (.XMG) and the experiment data can now be analyzed with the software tools.

5.0 Software

5.1 Computer Hardware Requirements

The following computer hardware requirements are necessary for the software to properly perform:

Hardware:

- 300mhz processor or equivalent
- 128 megabytes of RAM (minimum)
- 50 megabytes of free disk space
- CD ROM
- USB Port
- 1024x768 VGA with True Color
- Color printer is recommended

Operating System:

- Windows XP
- Windows 2000

Languages:

MAP software is available in the following languages for the above operating systems:

- English
- Chinese Simplified

5.2 Installation

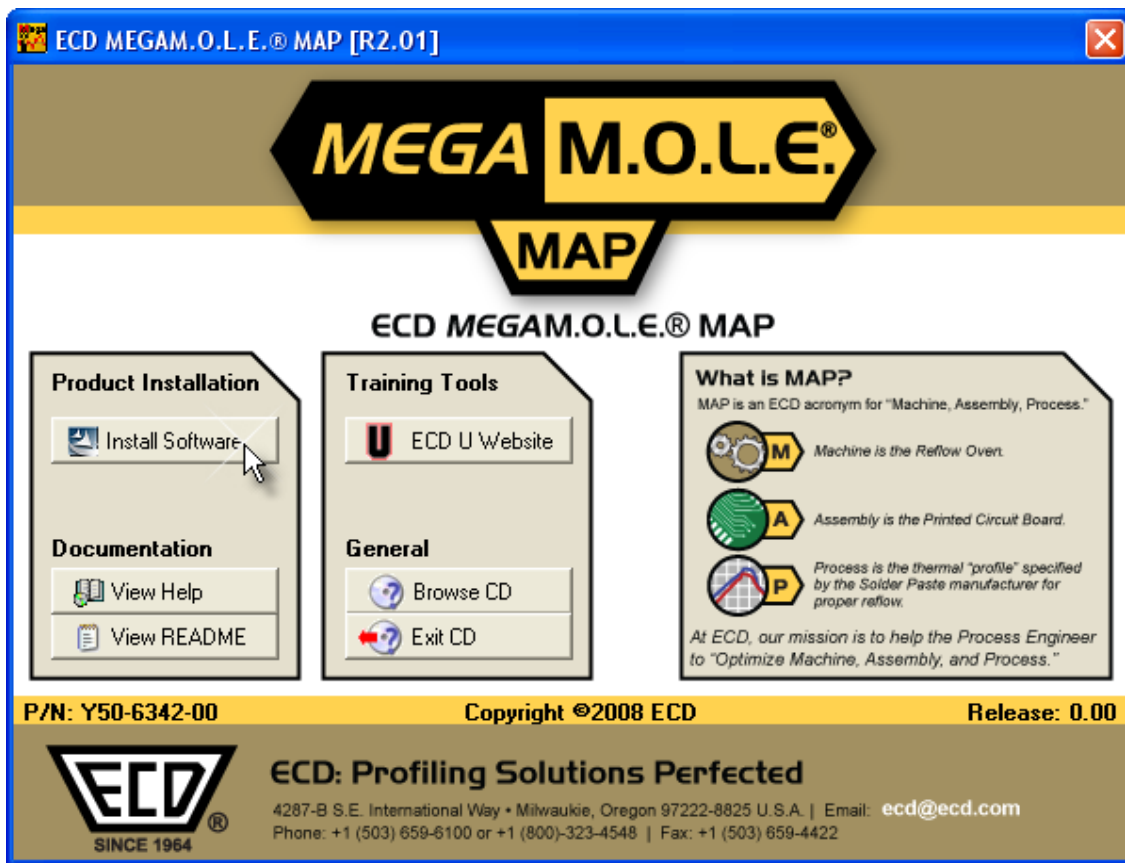
Autorun Install:

- 1) Insert the CD in the drive and the MAP software autorun menu appears.



If the autorun menu does not appear, proceed to **Manual Install** for instructions.

- 2) Select the **Install Software** command button to start the installation.



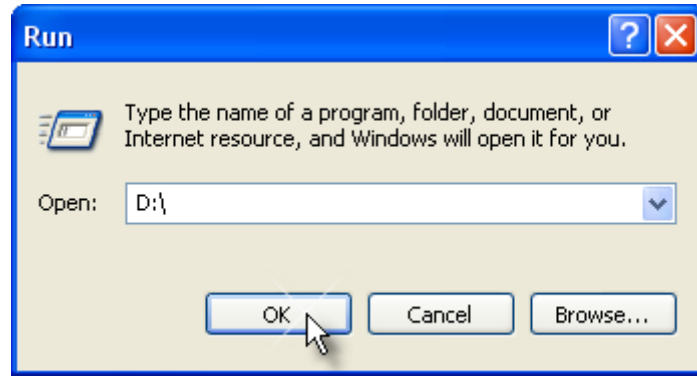
- 3) Closely follow the setup instructions provided with the software.



The user must have administrator permissions for the computer to install this software.

Manual Install:

- 1) Insert the CD in the drive.
- 2) Select **Run** from the Start menu.
- 3) Select the **Browse** command button and navigate to the software CD. Double-click the installation (.EXE) file.
- 4) Select the **OK** command button to start the installation.



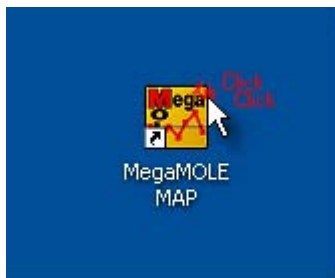
- 5) Closely follow the setup instructions provided with the software.

5.2.1 Starting the Software



Prior to starting, click the README icon from the MEGAM.O.L.E.® program sub-menu to read the latest release notes

After the software is installed, start the software program by double-clicking the MEGAM.O.L.E.® icon from the desktop.



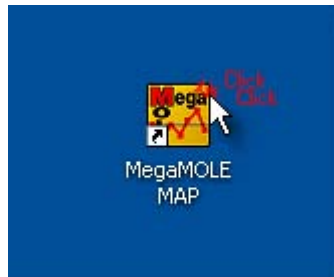
Once the software installation is complete, it is important to start the software and configure the software to communicate with the M.O.L.E. Profiler. Refer to topic [Basics>Setup](#) for more information.

5.2.2 Software Authorization

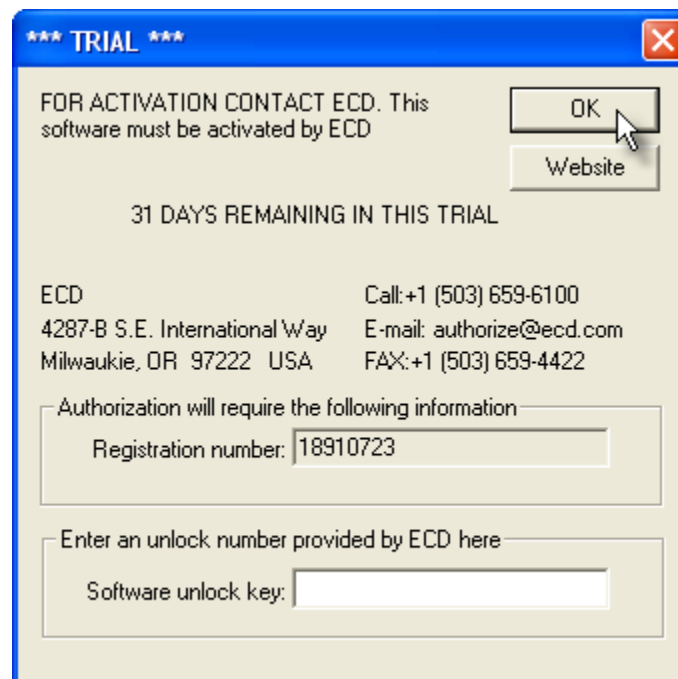
The MEGAM.O.L.E.® software is a fully functional 31-day trial version. Once the trial period is over, you may purchase the software from an ECD Sales person. For Sales contact information refer to topic [Service>How to Get Additional Help](#).

To authorize:

- 1) Start the software program by double-clicking the MEGAM.O.L.E.® icon from the desktop and the Software Authorization dialog box appears.



- 2) Enter the purchased Authorization key in the text box and click the **OK** command button.



The software can also be activated from the Preferences property sheet. Refer to topic [Software>Menus>File>Preferences>Misc>Authorization](#) for more information.

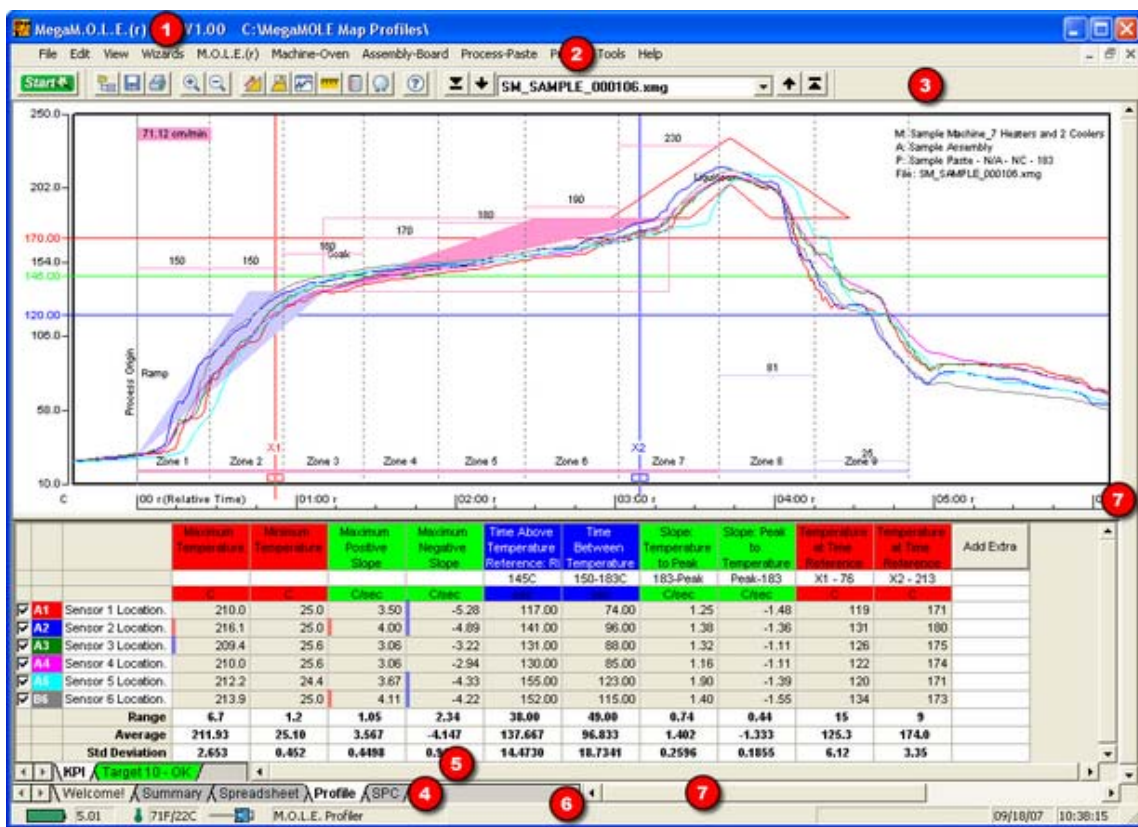
5.3 Features

This section presents an overview of the software window. When the software is started, it automatically defaults to the previously selected working directory. Refer to topic [Software>Menus>File>Open Working Directory](#) for more information.



After installation, the software is started with a sample working directory with files that will be selected for users to familiarize themselves with the program. It is recommended when the user starts collecting process data, a new or existing working directory should be used.

The software offers several features as described in the following section.

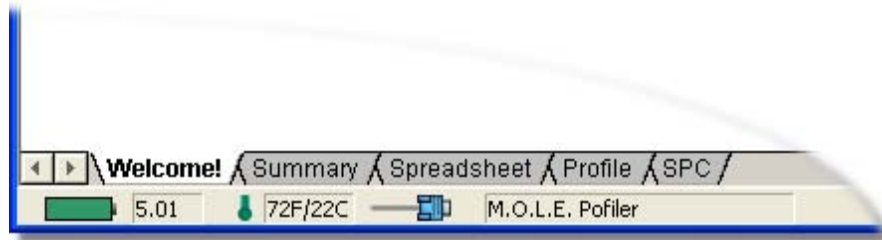


- ❶ **Title Bar:** This bar contains the program name, version, and the selected working directory.
- ❷ **Menus:** These menus contain the commands and tools for all Page Tab Views. Each Page Tab View may contain different commands that supply specific support. Individual menus are described in detail in their specified sections. Refer to topic [Software>Menus and Tool Commands](#) for more information.
- ❸ **Toolbar:** The Toolbar has buttons to serve as shortcuts to the menu commands. Individual toolbar buttons are described in detail in their specified sections of this manual. Each Page Tab View may have different items on the toolbar because of the different features offered.

- ④ **Page Tab Views:** These tabs are used to gain access to each Page Tab View.
- ⑤ **Split Bar:** This bar slides the Horizontal Scroll bar to the left or right so all or part of the page tabs can be viewed.
- ⑥ **Status Bar:** This bar on the bottom of the display, shows the status of the M.O.L.E. Profiler Power Pack battery, Internal operating temperature, connected COM port, available Help information, mouse pointer X-Y position, current date and time.
- ⑦ **Scroll Bars:** These bars scroll the display horizontally and vertically.

5.3.1 Page Tabs

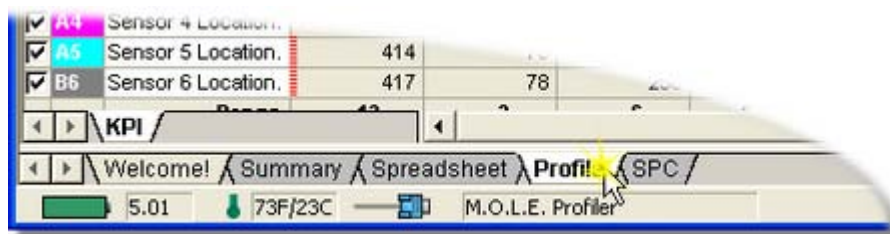
There are five standard Page Tabs. These tabs are located on the bottom left of the display.



To display the contents of a Tab, use the mouse pointer. The tab will then become highlighted, and the worksheet will now be visible.

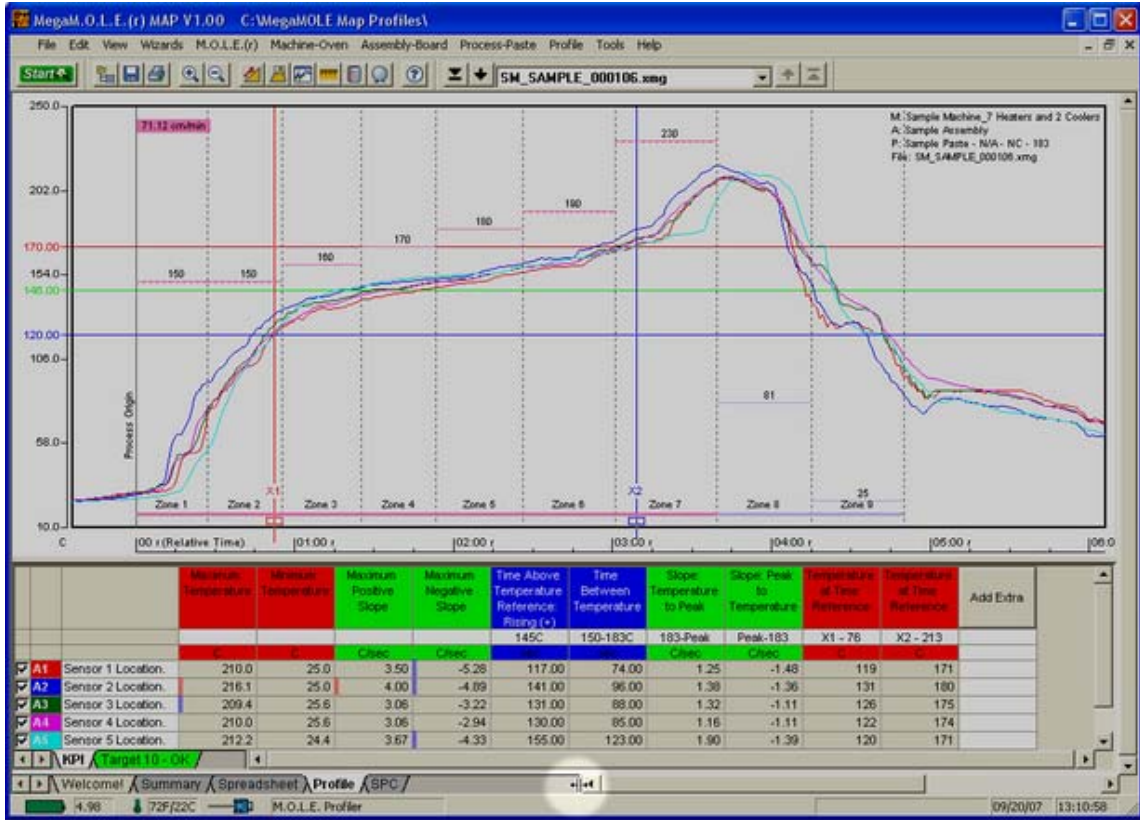


The keyboard does not allow access to the Tabs. The only way to select a Tab is by using the mouse pointer.

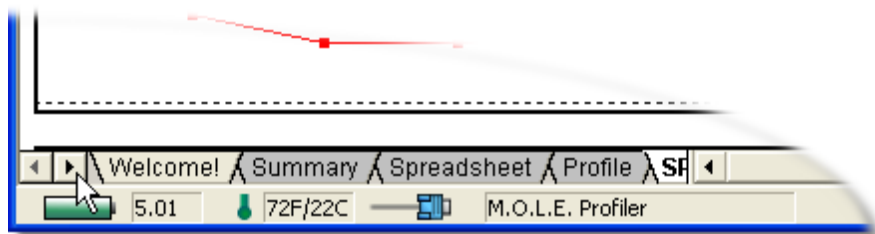


5.3.2 Split Bar

The Split bar lets the user slide the resize the Horizontal scroll bar to the left or right, so all of the Tabs can be viewed. This feature is always located on the left edge of the Horizontal scroll bar.



Hidden Tabs may also be displayed by using the Tab Scroll Arrows located on the left side of the Tabs.

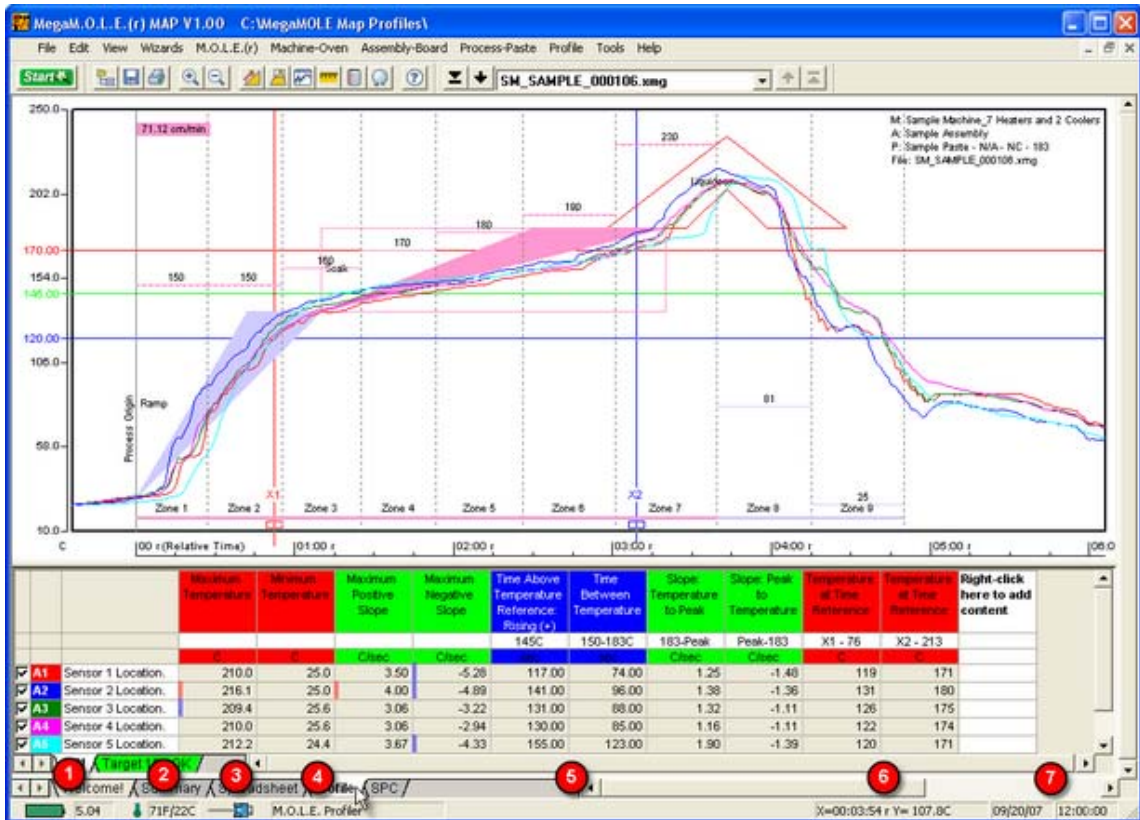


5.3.3 Status Bar

This bar is located on the bottom of the software display. It shows the status of the M.O.L.E. Profiler Power Pack battery, Internal operating temperature, connected COM port, available Help information, mouse pointer X-Y position, current date and time.



Using the **Preferences** command, the user can decide which M.O.L.E. Profiler status bar items will be displayed. Refer to topic [Software>Menus>File>Preferences>M.O.L.E.](#) for more information.



- ❶ **Battery:** This indicator displays the voltage reported by the currently selected M.O.L.E. Profiler. The nominal range for normal MEGAM.O.L.E. profiler 4.0V to 3.0V.
- ❷ **Temperature:** This indicator displays the internal operating temperature reported by the currently selected M.O.L.E. Profiler.



If the internal operating temperature is within the acceptable range (**0°-40°C [0°-104°F]**) the symbol appears in **GREEN**. When the internal operating temperature is above the acceptable range (**41°C> [105.8°F>]**), it appears in **RED** indicating that the M.O.L.E. profiler has reached the temperature warning zone.

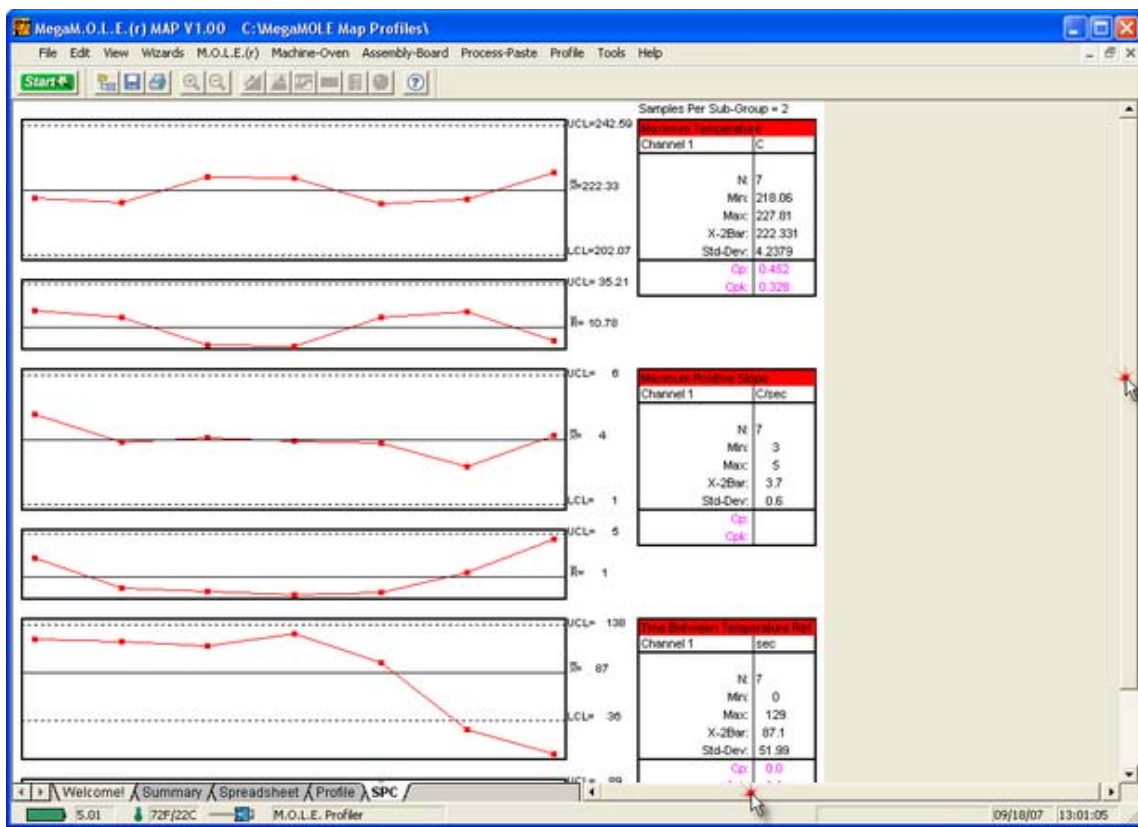
- ③ **M.O.L.E. Profiler Connection:** This indicator displays a symbol for the computer communication connection type such as Serial, USB or wireless RF.
- ④ **Instrument User Name:** This indicator displays the user configured name for the M.O.L.E. Profiler.
- ⑤ **Help Information:** This indicator displays the action that button performs when the mouse pointer is placed over a Toolbar button or Menu command.
- ⑥ **Time (X)/Temperature (Y) Readout:** This indicator displays the Time and Temperature values of the mouse pointer location on the Profile tab Data Graph. The units displayed for Time and Temperature values are the same as those displayed on the graph.
- ⑦ **Date and Time:** This indicator displays the current time and date of the computer. The user can auto synchronize this clock with the M.O.L.E. Profiler internal clock. Refer to topic [Software>Menu>File Menu>Preferences>M.O.L.E.](#) for more information.

5.3.4 Scroll Bars

All Tab Views have both Horizontal and Vertical screen scroll bars so the non-visible areas of the display can be scrolled into view.

The Horizontal scroll bar is located in the lower right corner and can be scrolled left or right by pressing the left or right arrows located on each end of the scroll bar.

The Vertical scroll bar located on the right side of the screen has the same features as the Horizontal scroll bar except it scrolls the display up and down.



For best performance, it is recommended that the minimum computer display area be set to 1024 X 768. Refer to Microsoft® Windows® documentation for details.

5.4 Page Tab Descriptions

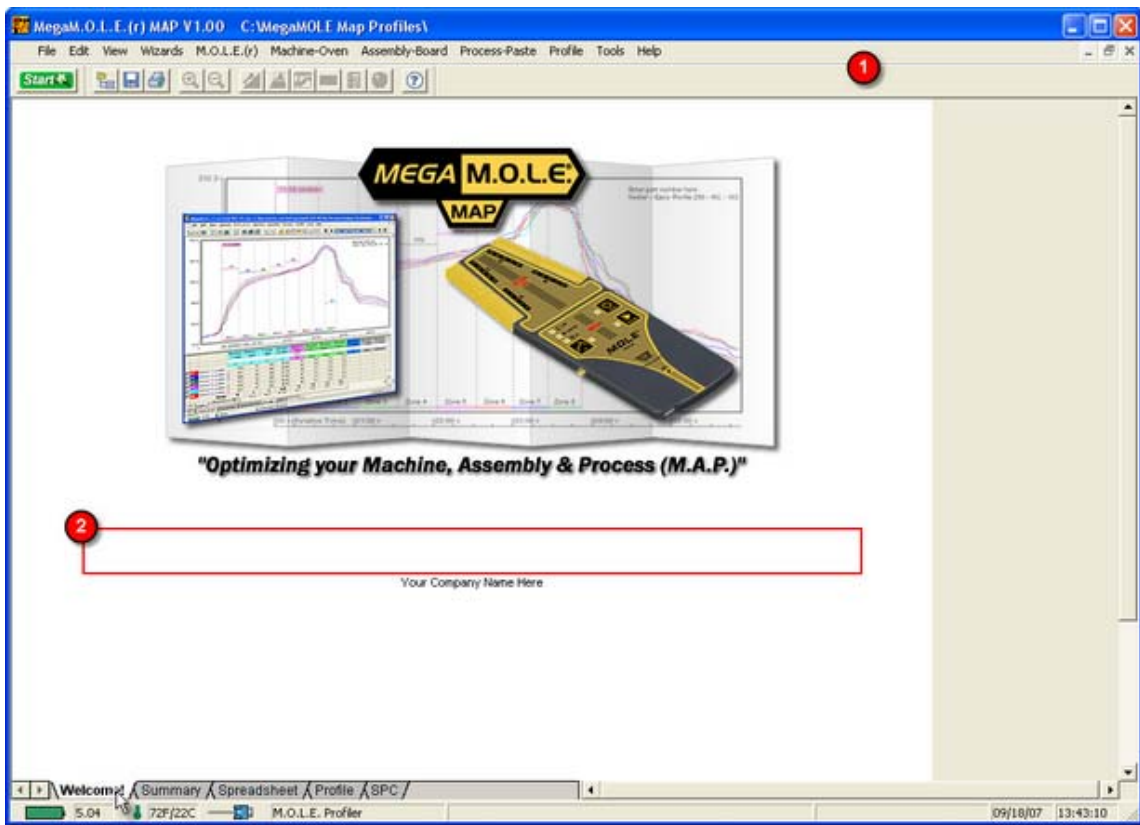
The Page Tabs offer four different ways to view the data recorded by the M.O.L.E. Profiler. Each page tab focuses on specific data and offers different features and functions. Along with the Welcome page tab they formulate a complete Profiling report.

5.4.1 Welcome Page Tab

Welcome is the introductory tab. It contains an introductory illustration and text box for entering a company or profiling report name.

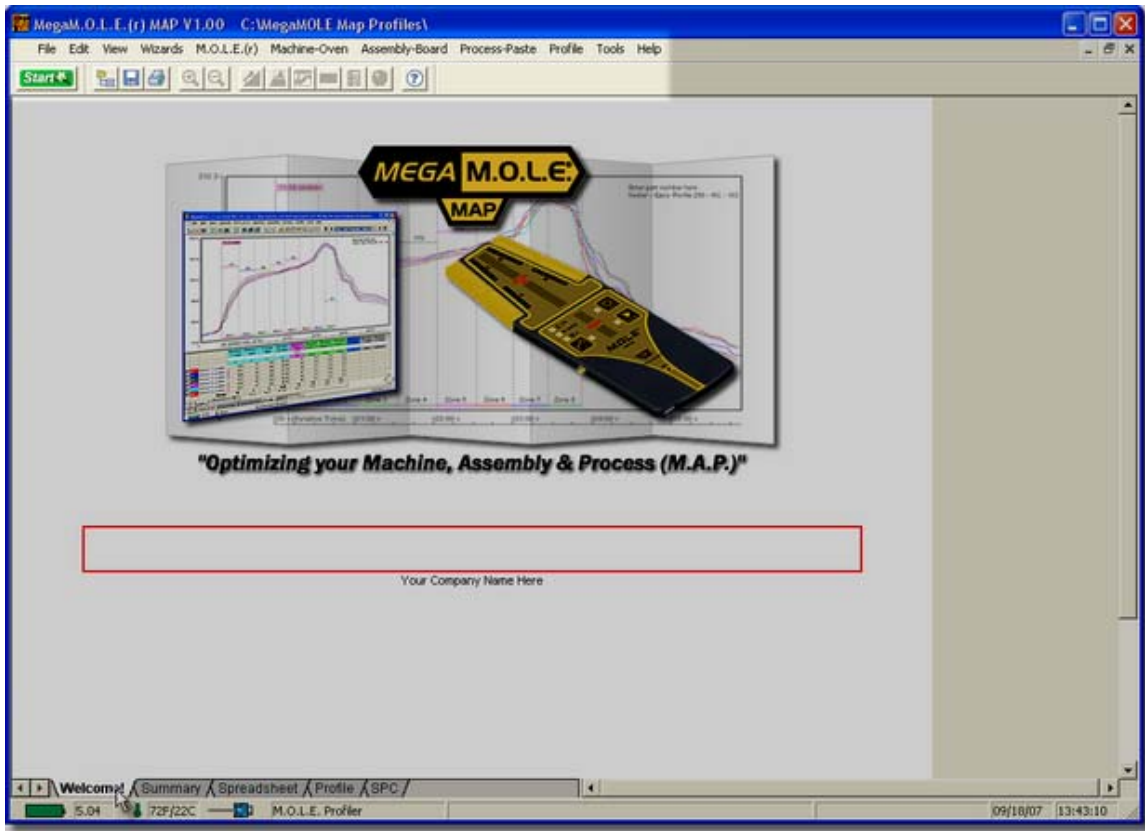
Welcome Tab features:

- ❶ [Menus and Toolbar](#)
- ❷ [Company/Report Name Text Box](#)



5.4.1.1 Menus & Toolbar

- **Menus:** File, Edit, Wizards, M.O.L.E.®, Machine-Oven, Assembly-Board, Process-Paste, Profile, Tools and Help.
- **Toolbar Buttons:** Start, Open Working Directory, Save, Print, and Help.

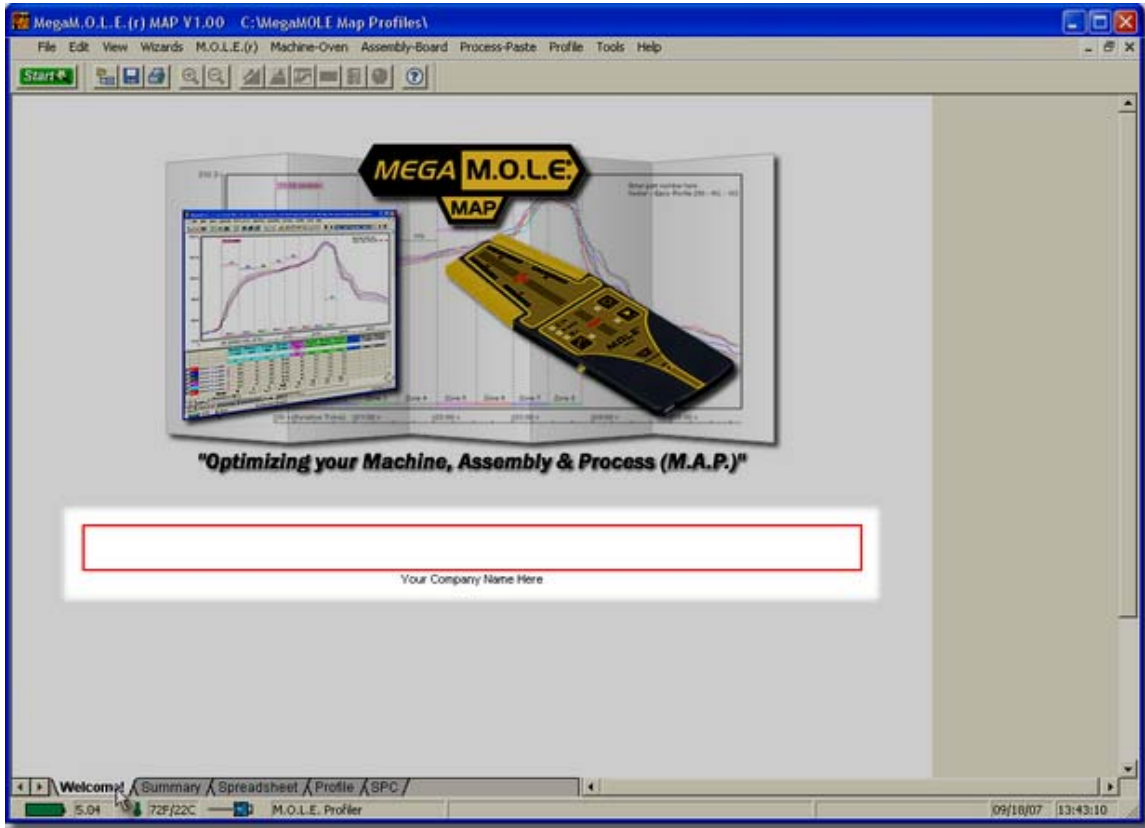


5.4.1.2 Company/Report Name

The text box located on the bottom half of the Welcome page tab allows the user enter a company or report name.

To enter a name:

- 1) Using the mouse pointer, click in the text box.
- 2) Type a desired name and then hit the [enter] key to accept or [esc] to cancel.

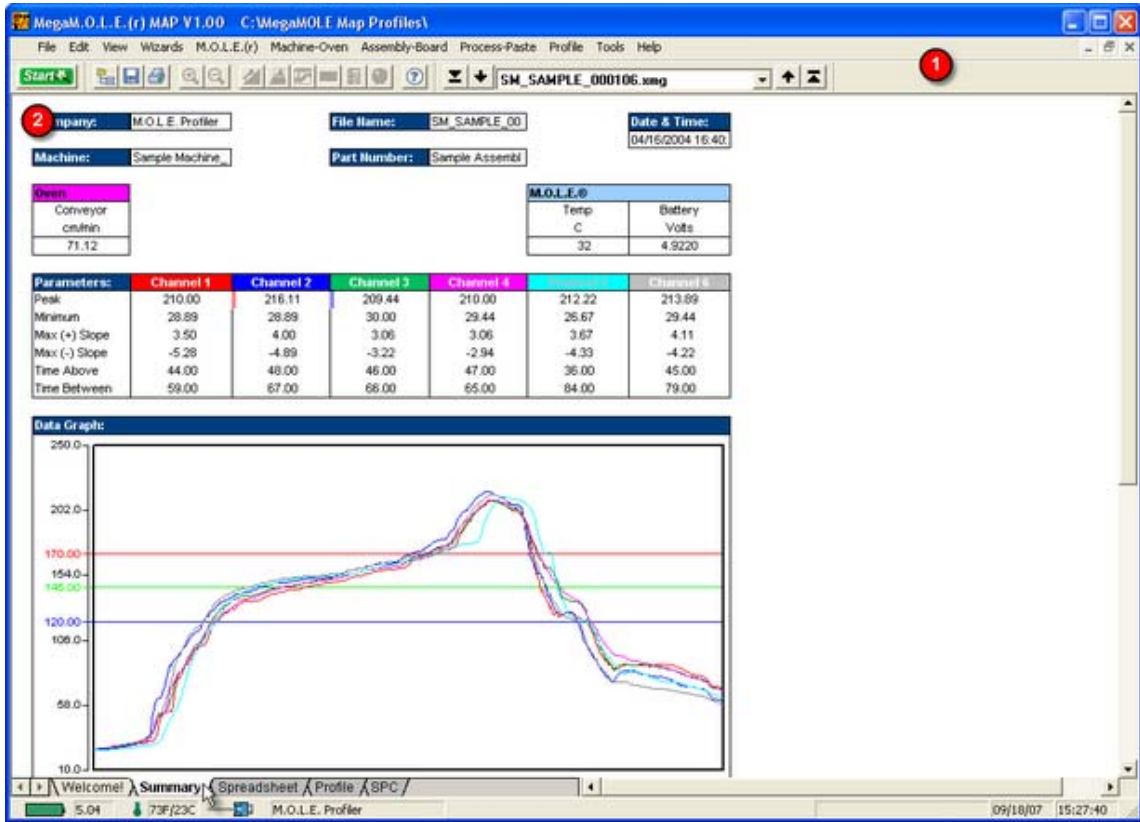


5.4.2 Summary Page Tab

The Summary Page Tab is where individual data runs are viewed in summarized page format.

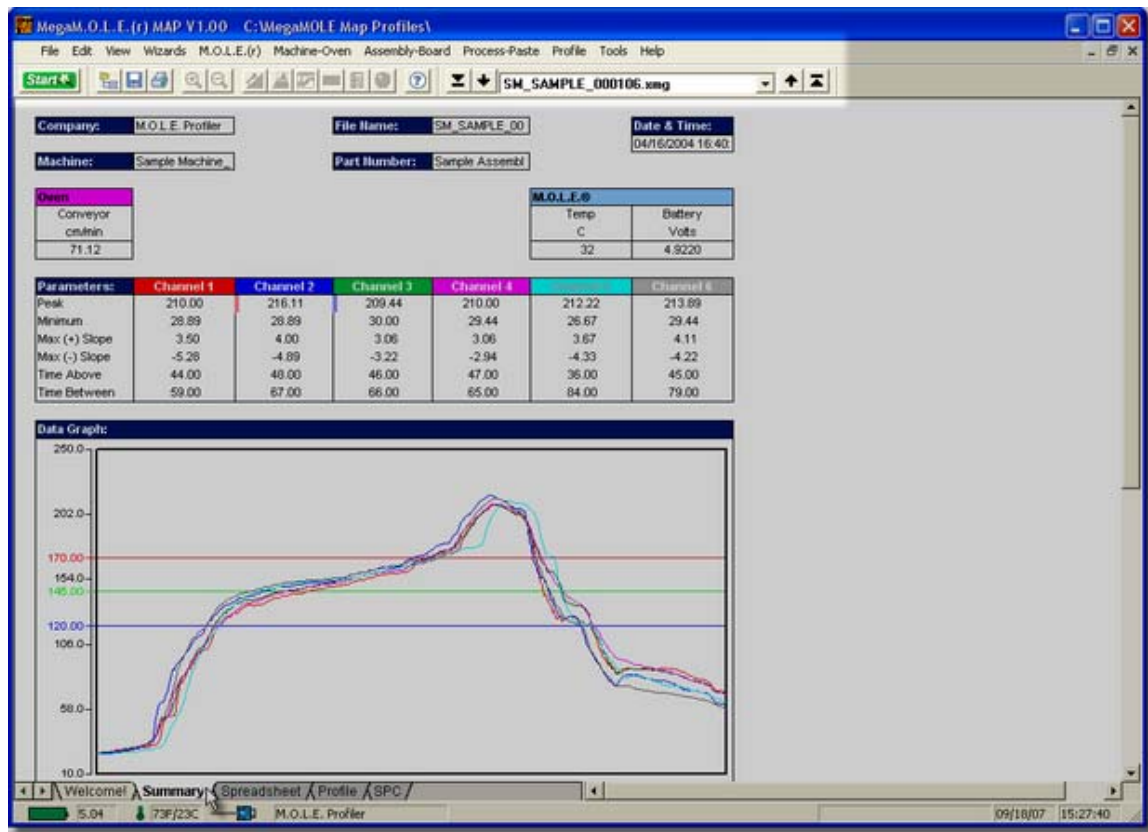
Summary Tab features:

- 1 [Menus and Toolbar](#)
- 2 [Summary Template](#)



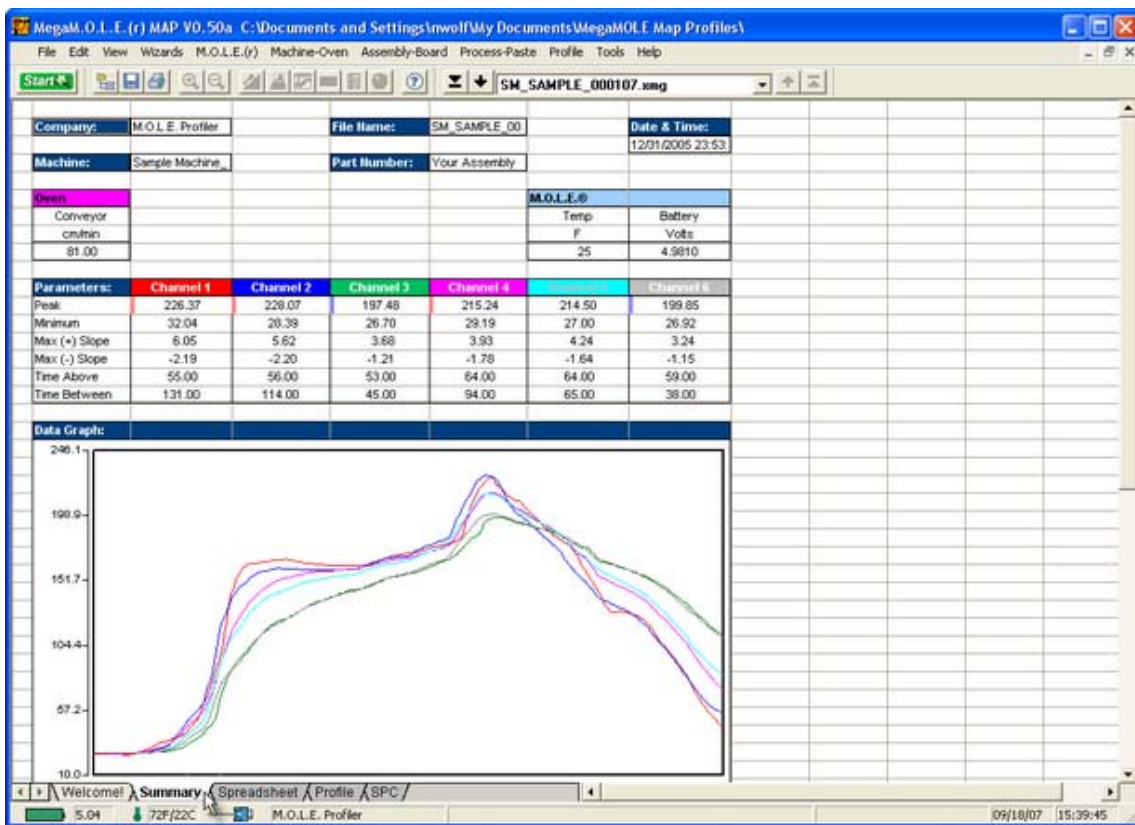
5.4.2.1 Menus & Toolbar

- **Menus:** File, Edit, Wizards, M.O.L.E.®, Machine-Oven, Assembly-Board, Process-Paste, Profile, Tools and Help.
- **Toolbar Buttons:** Start, Open Working Directory, Save, Print, Help, First (data run of the data set), Back (to previous data run), Forward (to the next data run), and Last (data run of the data set).



5.4.2.2 Summary Template

The Summary Page Tab is built using a template file (*.TSU) overlaid on a cell grid.



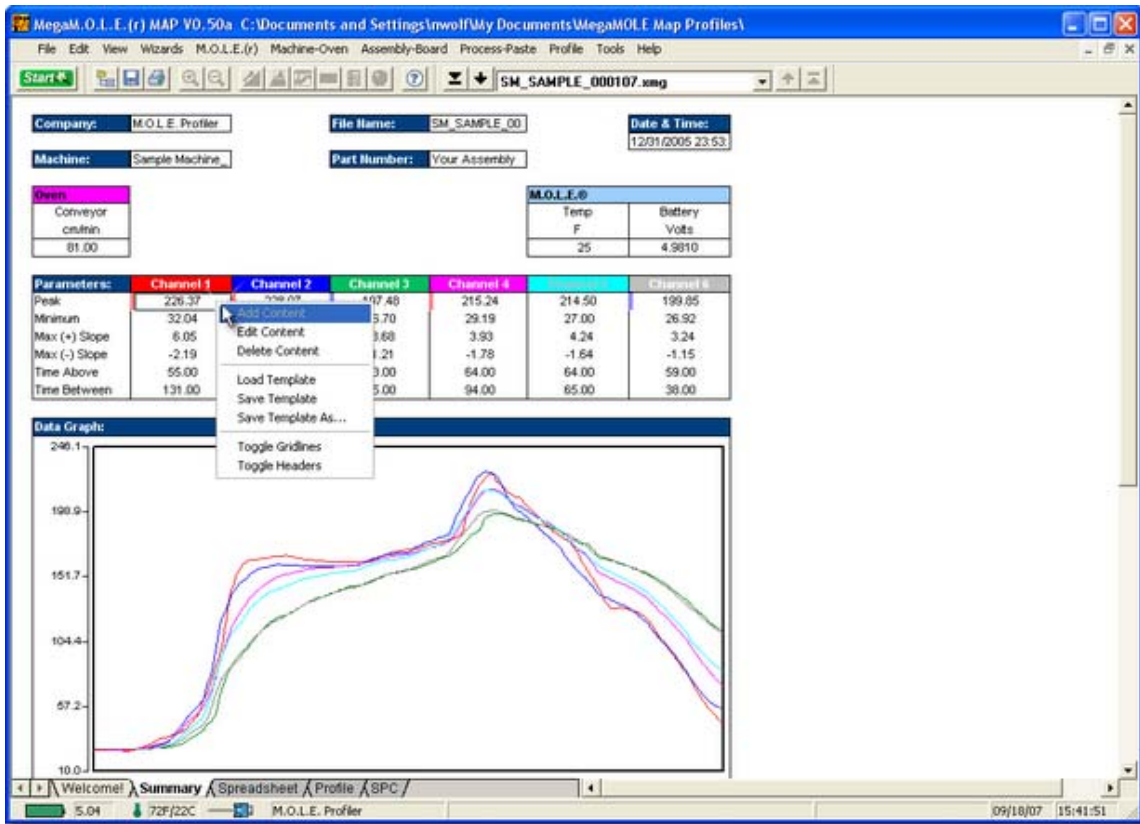
The Summary template is automatically loaded every time the software is started. This template file is specified on the Summary page tab of the Preferences dialog box. Refer to topic [Software>Menus>File>Preferences>Summary](#) for more information.

To display Template commands:

- 1) Move the mouse pointer over a template cell.
- 2) Using the right mouse button, right-click and a shortcut menu appears.



Template commands can also be accessed on the View menu. Refer to topic [Software>Menus>View>View Menu](#) for more information. To add or edit a calculation refer to topic [Software>Page Tabs>Summary Template>Add & Edit Content](#) for more information.



3) You can now select from the following template commands.

5.4.2.2.1 Add & Edit Content

To add or edit template content, the software includes a wizard to guide the user through the related content options. The template allows five different calculation categories to be displayed.

Add & Edit Content wizards:

- ❶ Text
- ❷ Temperature Value (Y)
- ❸ Time Value (X)
- ❹ Slope (dX/dY)
- ❺ Temperature (Y) Delta
- ❻ Special Values



This wizard contains all the related steps to add or edit content to the template. It is recommended to process all steps in order but the software allows you to navigate forward and backward setting options individually. When the minimum options have been selected, **Finish** command button will become active.

Add or Change a Calculation

Select your calculation category:
Y-Axis values are usually for a specific point or extremes.
X-Axis values are typically times or times between events.
Slopes are typically the rates things are changing.

☐ Text

☒ Temperature Value (Y): Minimum, Peak, At Time Reference

☐ Time Value (X): Time To, Time Between, Time Above

☐ Slope (dY/dX): Maximum, Minimum, Between Time References

☐ Temperature (Y) Delta: Maximum Delta, Delta at Peak

☐ Special Values

Channel Number: 1-Type-K

Help << Previous Next >> Finish Cancel

5.4.2.2.1.1 Text

To add or edit Text content:

- 1) Right-click a template cell and a shortcut menu appears.
- 2) Select **Add Content** or **Edit Content** from the shortcut menu and the **Add or Change a Calculation** wizard appears.



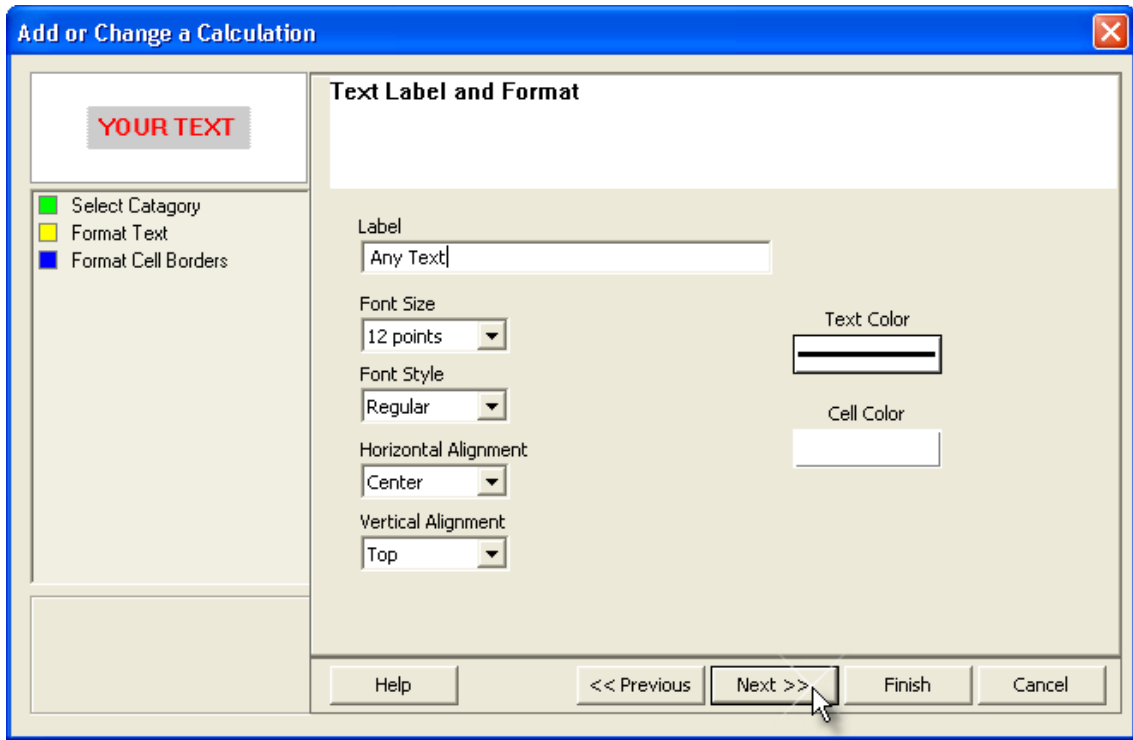
When navigating through the wizard, the step list on the left uses a color key to inform the user of the current step, steps that have been completed and remaining steps.

■ Current ■ Completed ■ Remaining

- 3) Click **Text**.

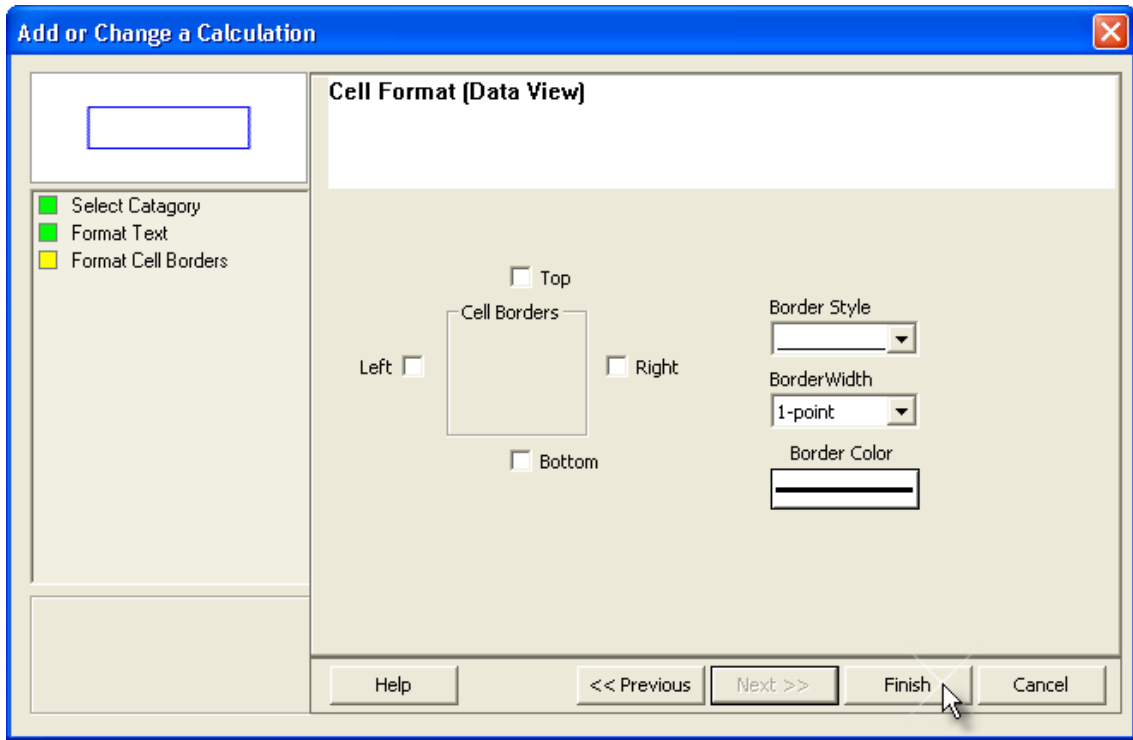
- 4) Select the **Next** command button.

5) Select desired text formatting options.



6) Select the **Next** command button.

7) Select desired cell border options.



8) Select the ***Finish*** command button to complete the wizard and display the new calculation data in the selected template cell.

5.4.2.2.1.2 Temperature Value (Y)

To add or edit Y-Axis Values content:

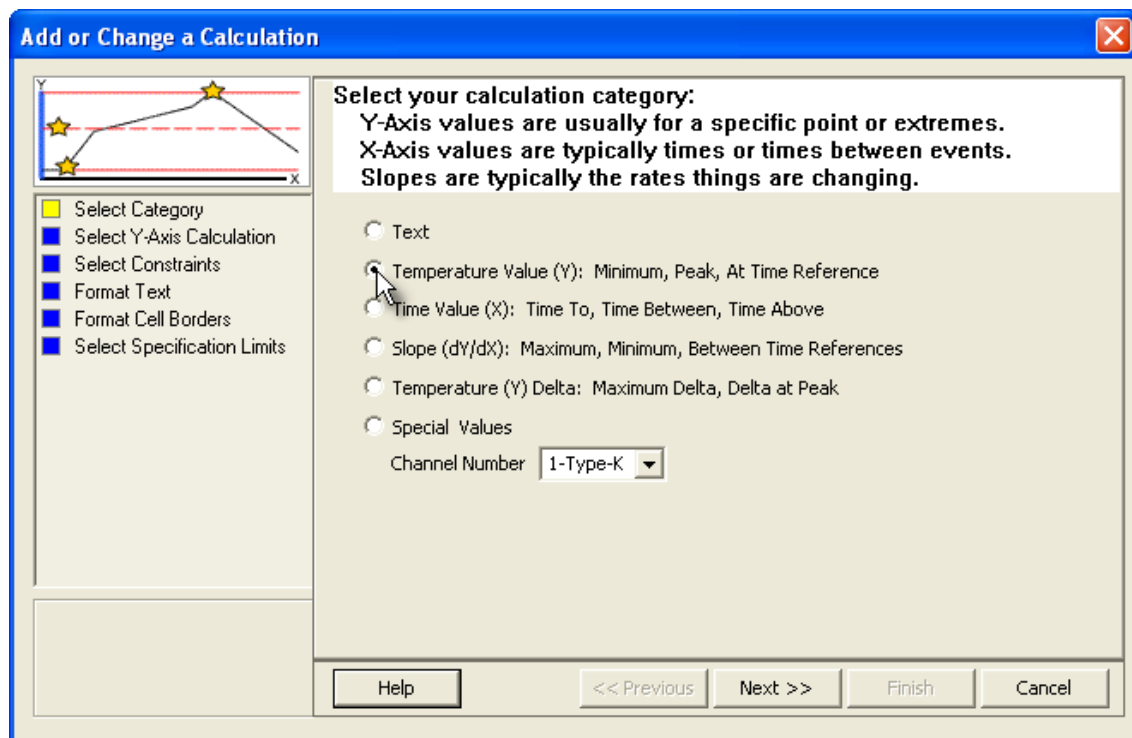
- 1) Right-click a template cell and a shortcut menu appears.
- 2) Select **Add Content** or **Edit Content** from the shortcut menu and the **Add or Change a Calculation** wizard appears.



When navigating through the wizard, the step list on the left uses a color key to inform the user of the current step, steps that have been completed and remaining steps.

■ Current ■ Completed ■ Remaining

- 3) Click **Temperature Values (Y)** and which channel to derive the data from.

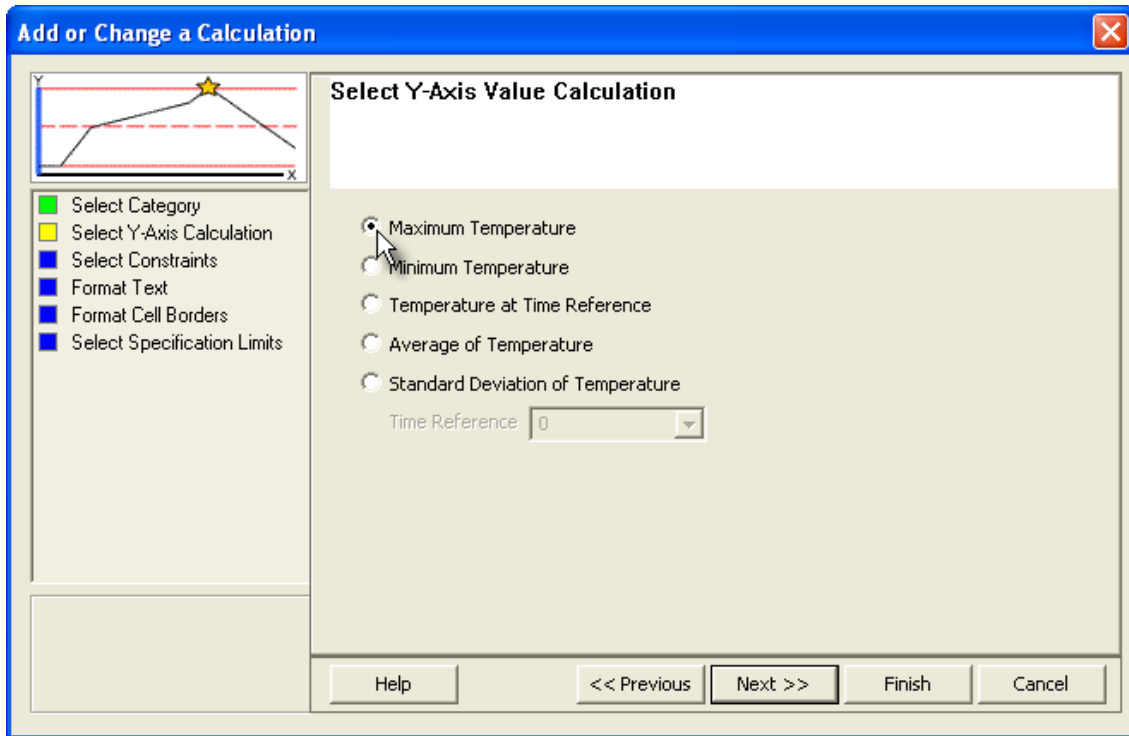


- 4) Select the **Next** command button.

5) Select a Temperature (Y) Axis Value.



If **Temperature at Time Reference** calculation is selected, the software requires the user to select an established Time (X) Reference line. If one is not established the software automatically creates one on the Profile Page Tab Data Graph.



6) Select the **Next** command button.

- 7) Select the calculation constraints. These options are the specified area on the Time (X) Axis where the values are to be extracted from.



If the **Within Magnified Window** constraint is selected and the Magnify tool is used to zoom in on a portion of the Data Graph, the Data Table displays the statistics for those values within the magnified window.

Add or Change a Calculation

Select Calculation Constraints

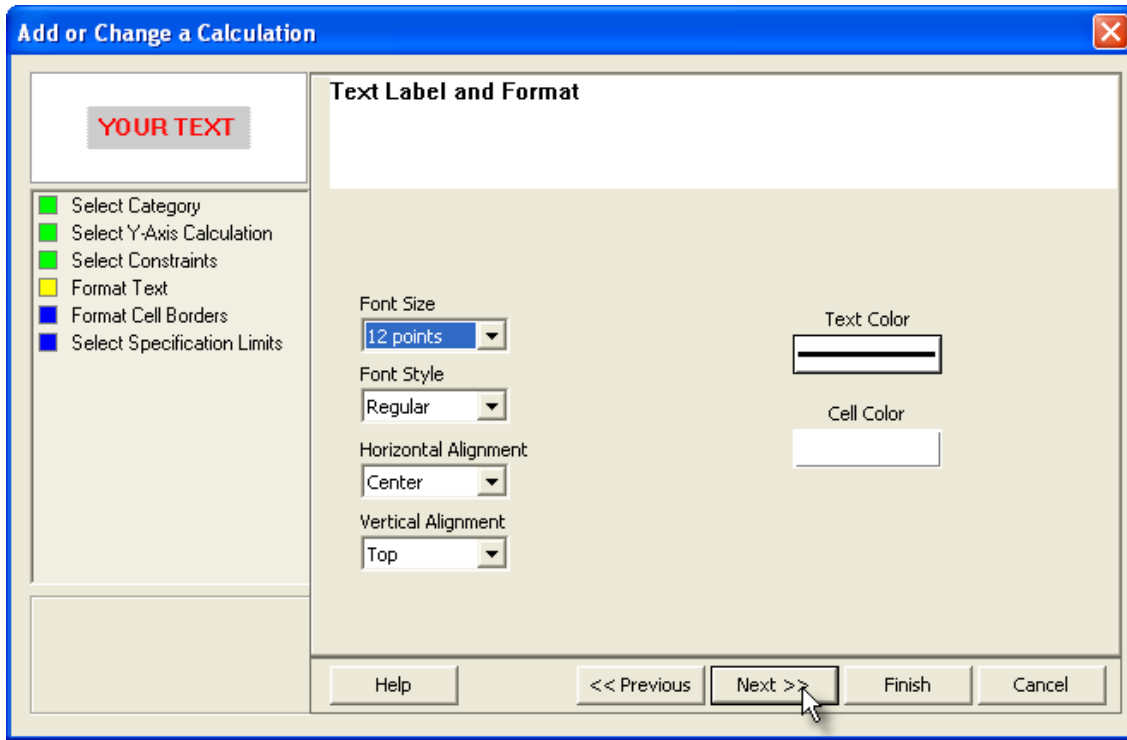
- ☐ None
- ☒ After Process Origin: |
- ☐ Within Magnified Window: []
- ☐ Within Machine: | |
- ☐ Within Machine Zone: || ||
Zone Number: 1
- ☐ Between Temperature: = =
- ☐ Temperature to Peak: / /

Lower Value: 0.0 C
Upper Value: 0.0 C

Help << Previous Next >> Finish Cancel

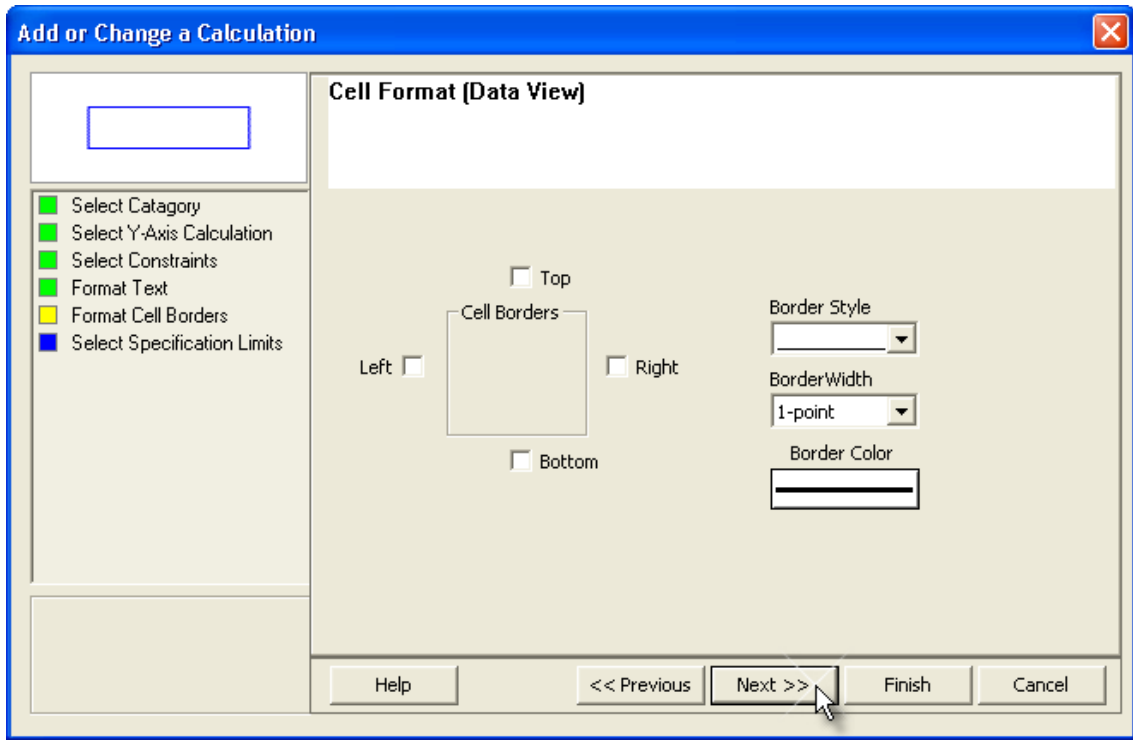
- 8) Select the **Next** command button.

9) Select desired text formatting options.



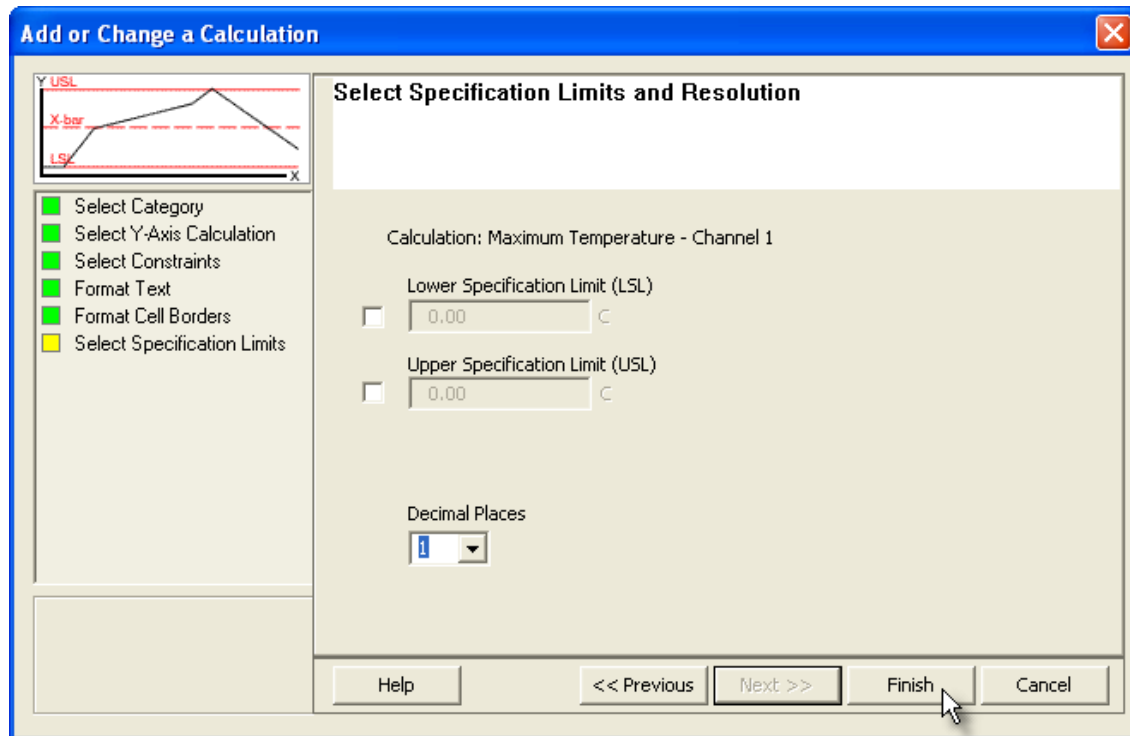
10) Select the **Next** command button.

11) Select desired cell border options.



12) Select the **Next** command button.

- 13) Select Specification Limits and Units. If these values are violated colored bars will appear in the formatted template cell. Refer to topic [Software>Page Tabs>Summary>Template>Specification Limit Indicators](#) for more information.



- 14) Select the **Finish** command button to complete the wizard and display the new calculation data in the selected template cell.

5.4.2.2.1.3. Time Value (X)

To add or edit X-Axis Values content:

- 1) Right-click a template cell and a shortcut menu appears.
- 2) Select **Add Content** or **Edit Content** from the shortcut menu and the **Add or Change a Calculation** wizard appears.



When navigating through the wizard, the step list on the left uses a color key to inform the user of the current step, steps that have been completed and remaining steps.

■ Current ■ Completed ■ Remaining

- 3) Click **Time Value (X)** and which channel to derive the data from.

- 4) Select the **Next** command button.

5) Select a Time (X) Axis Value.



If any **Temperature Reference (Y)** calculation is selected, the software requires a Temperature (Y) Reference Line to be established. Refer to topic [Add Temperature \(Y\) Reference Lines](#).

Add or Change a Calculation

Select Time Value Calculation

- ☐ Time To Temperature
- ☐ Time To Temperature Reference
- ☐ Time Between Temperature
- ☐ Time Between Temperature References
- ☒ Time Above Temperature: Total (+/-)
- ☐ Time Above Temperature: Rising (+)
- ☐ Time Above Temperature: Falling (-)
- ☐ Time Above Temperature Reference: Total (+/-)
- ☐ Time Above Temperature Reference: Rising (+)
- ☐ Time Above Temperature Reference: Falling (-)

Lower value: 0.0 C

Upper value: 0.0 C

Lower Reference: [dropdown]

Upper Reference: [dropdown]

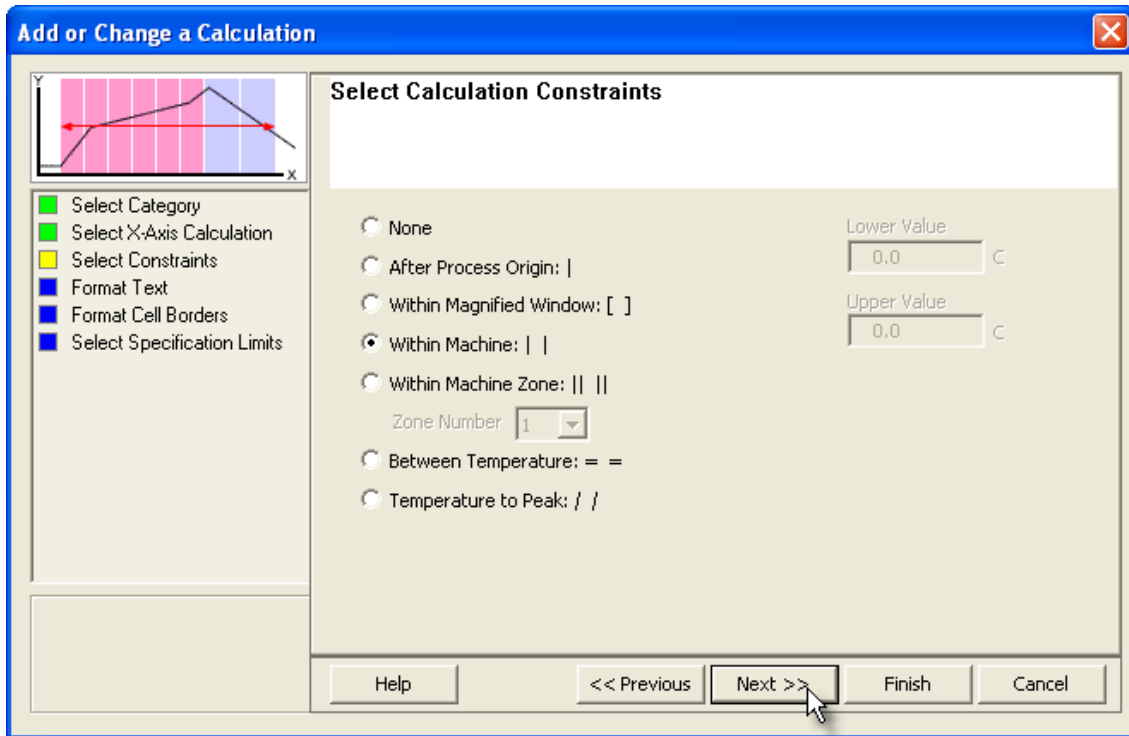
Help << Previous Next >> Finish Cancel

6) Select the **Next** command button.

- 7) Select the calculation constraints. These options are the specified area on the Time (X) Axis where the values are to be extracted from.

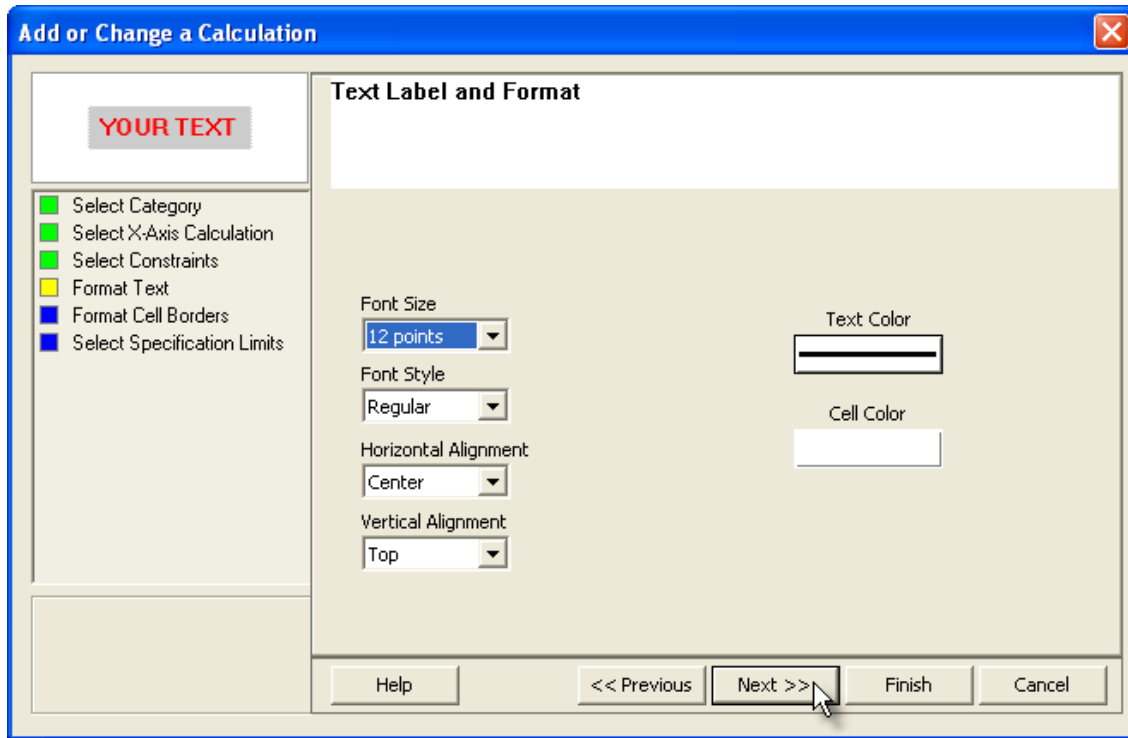


If the **Within Magnified Window** constraint is selected and the Magnify tool is used to zoom in on a portion of the Data Graph, the Data Table displays the statistics for those values within the magnified window.



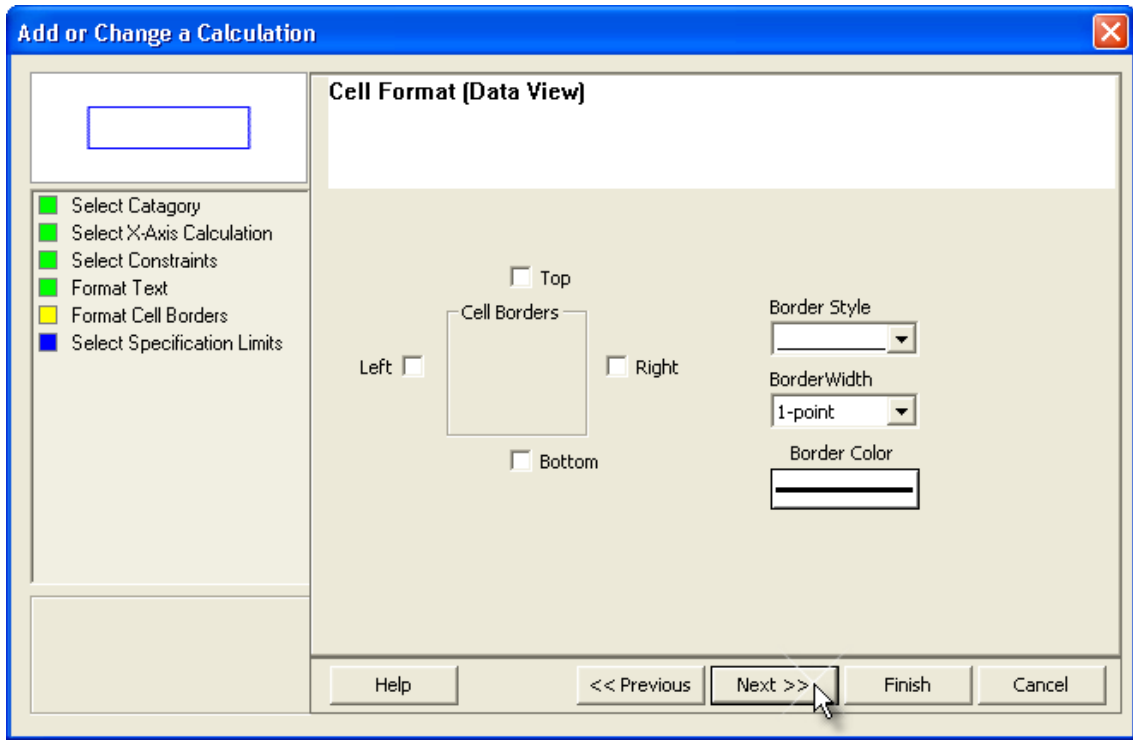
- 8) Select the **Next** command button.

9) Select desired text formatting options.



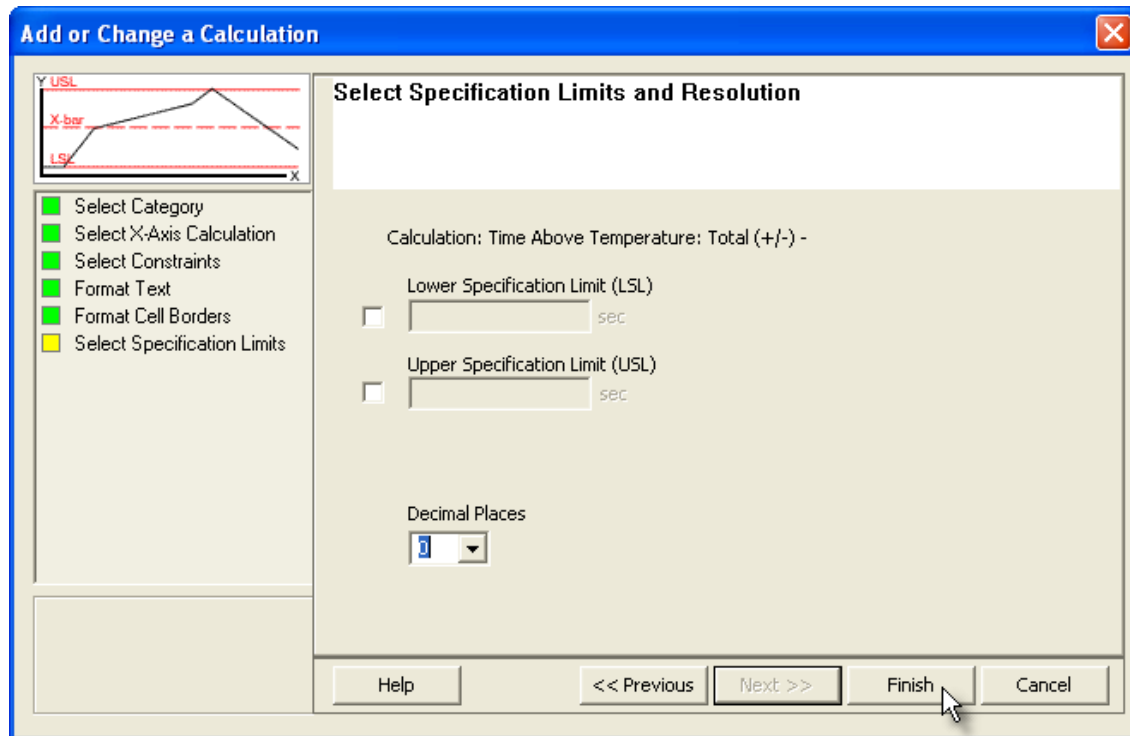
10) Select the **Next** command button.

11) Select desired cell border options.



12) Select the **Next** command button.

- 13) Select Specification Limits and Units. If these values are violated colored bars will appear in the formatted template cell. Refer to topic [Software>Page Tabs>Summary>Template>Specification Limit Indicators](#) for more information.



- 14) Select the **Finish** command button to complete the wizard and display the new calculation data in the selected template cell.

5.4.2.2.1.4. Slope (dX/dY)

To add or edit Slope Value content:

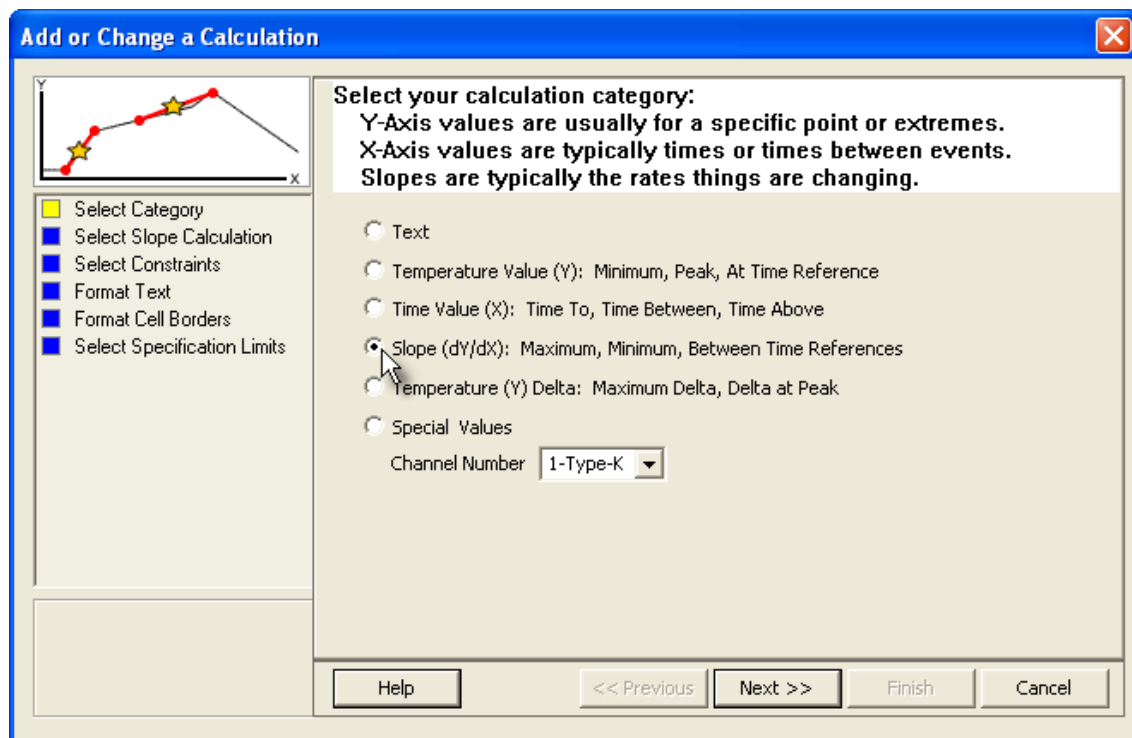
- 1) Right-click a template cell and a shortcut menu appears.
- 2) Select **Add Content** or **Edit Content** from the shortcut menu and the **Add or Change a Calculation** wizard appears.



When navigating through the wizard, the step list on the left uses a color key to inform the user of the current step, steps that have been completed and remaining steps.

■ Current ■ Completed ■ Remaining

- 3) Click **Slope (dX/dY)** and which channel to derive the data from.



- 4) Select the **Next** command button.

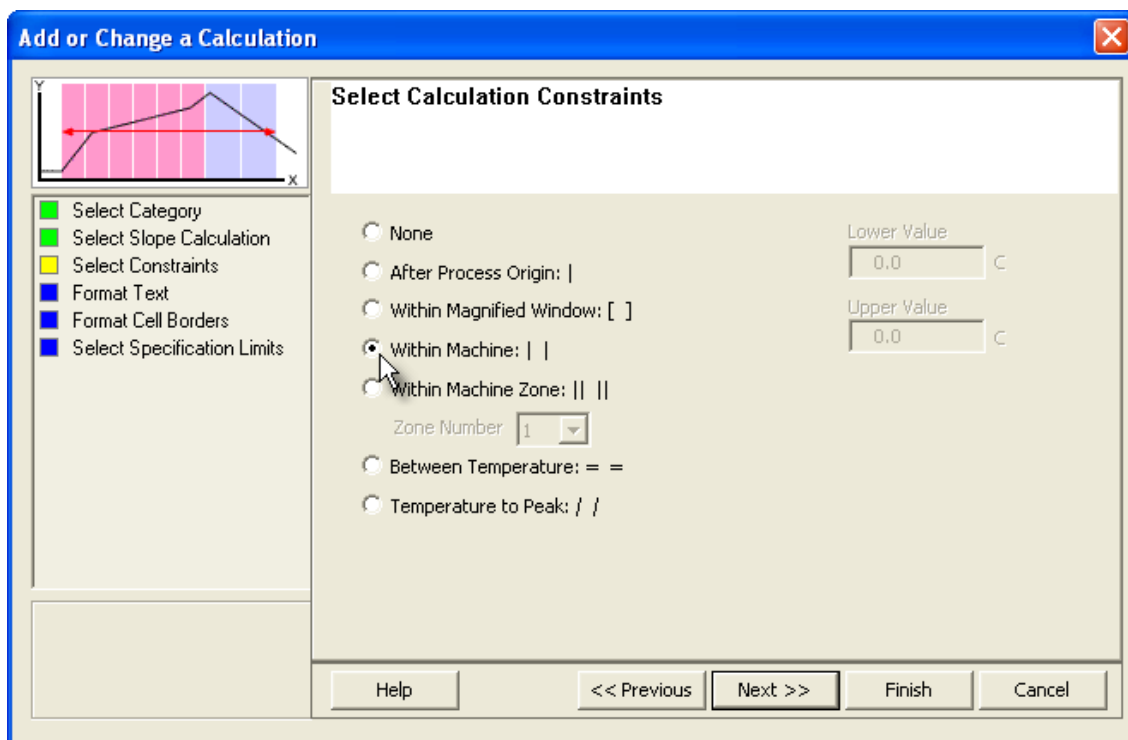
5) Select a Slope Value.



If **Slope Between Time References** calculation is selected, the software requires the user to select an established Time (X) Reference line. If one is not established the software automatically creates one on the Profile Page Tab Data Graph.

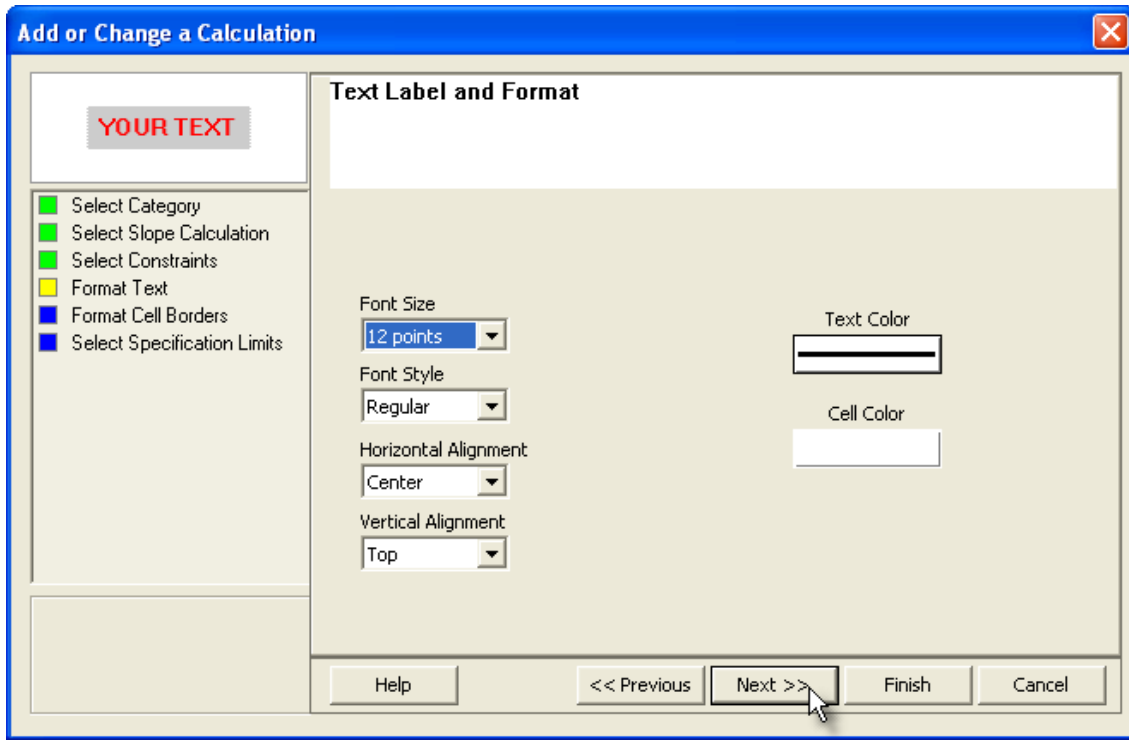
6) Select the **Next** command button.

- 7) Select the calculation constraints. These options are the specified area on the Time (X) Axis where the values are to be extracted from.



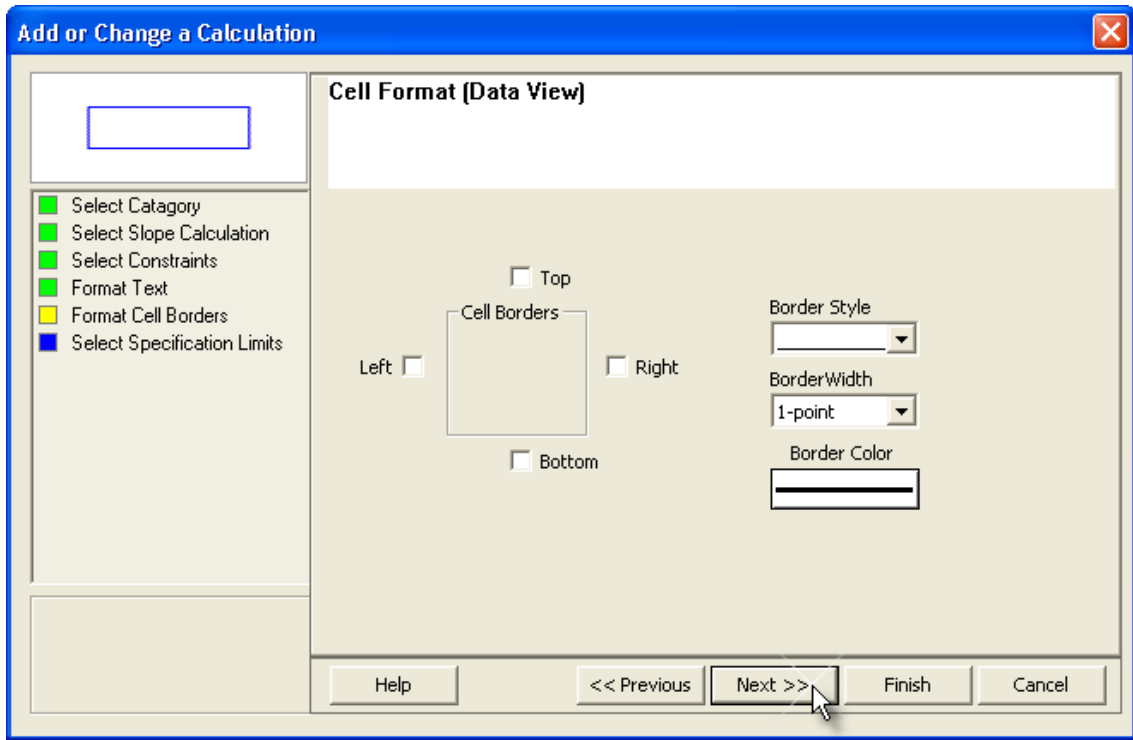
- 8) Select the **Next** command button.

9) Select desired text formatting options.



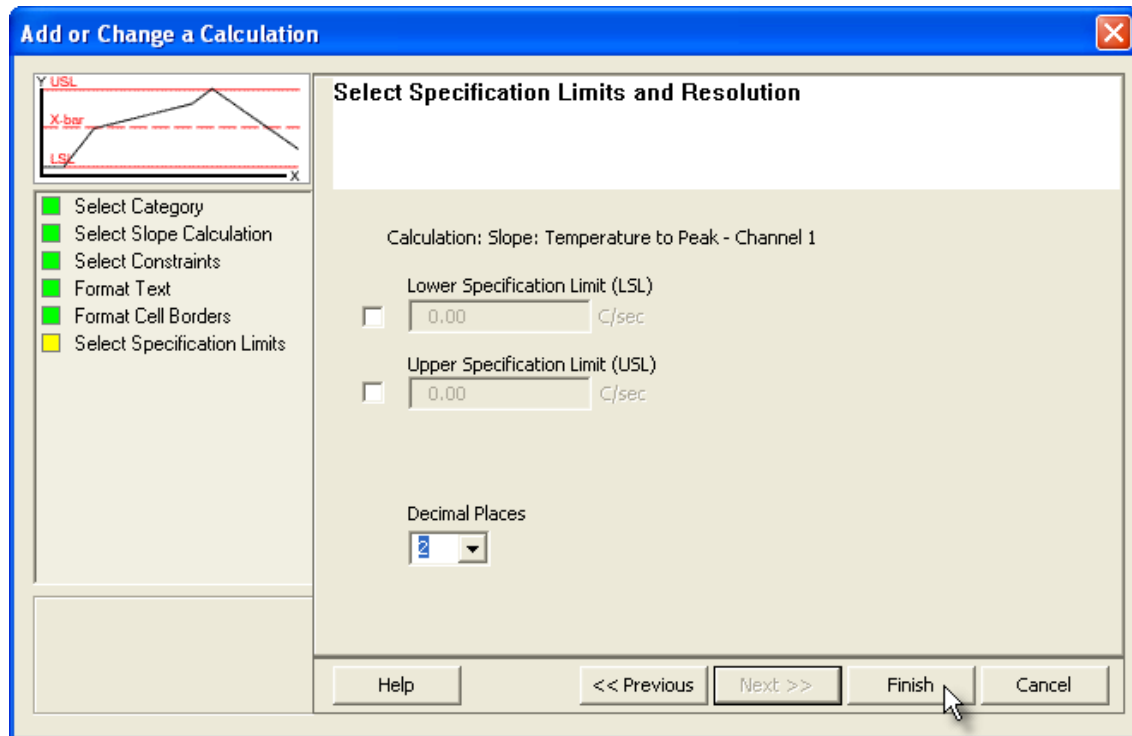
10) Select the **Next** command button.

11) Select desired cell border options.



12) Select the **Next** command button.

- 13) Select Specification Limits and Units. If these values are violated colored bars will appear in the formatted template cell. Refer to topic [Software>Page Tabs>Summary>Template>Specification Limit Indicators](#) for more information.



- 14) Select the **Finish** command button to complete the wizard and display the new calculation data in the selected template cell.

5.4.2.2.1.5. Temperature (Y) Delta

To add or edit Temperature (Y) Delta content:

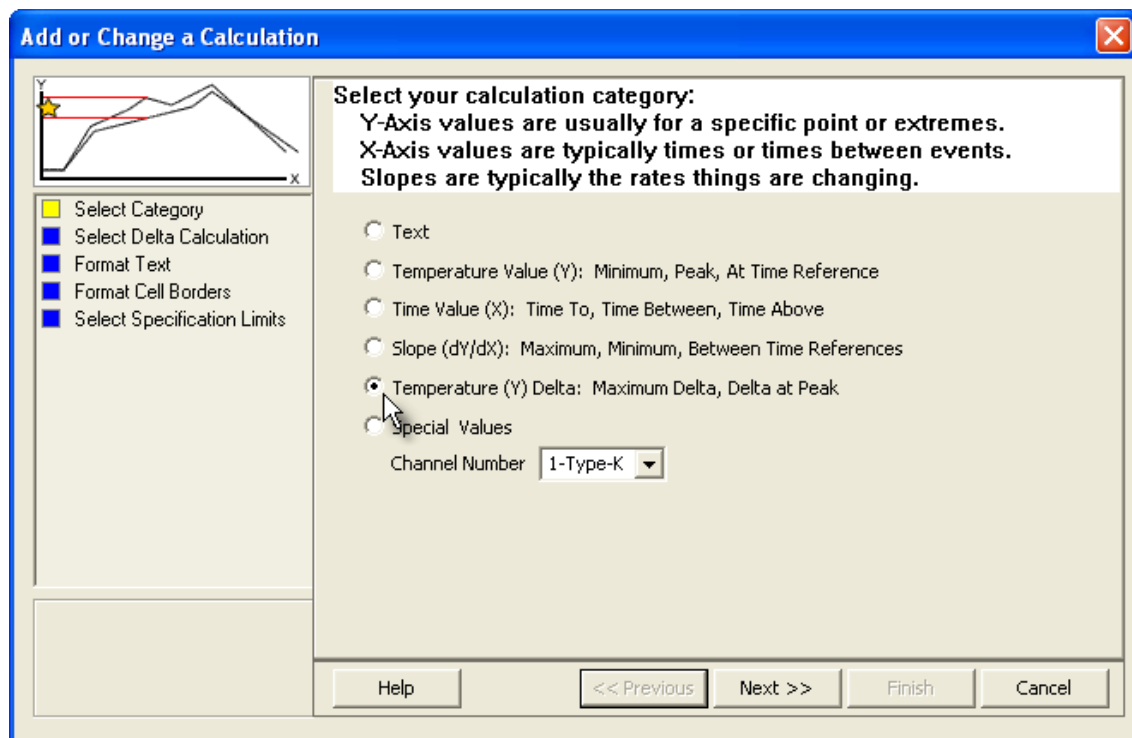
- 1) Right-click a template cell and a shortcut menu appears.
- 2) Select **Add Content** or **Edit Content** from the shortcut menu and the **Add or Change a Calculation** wizard appears.



When navigating through the wizard, the step list on the left uses a color key to inform the user of the current step, steps that have been completed and remaining steps.

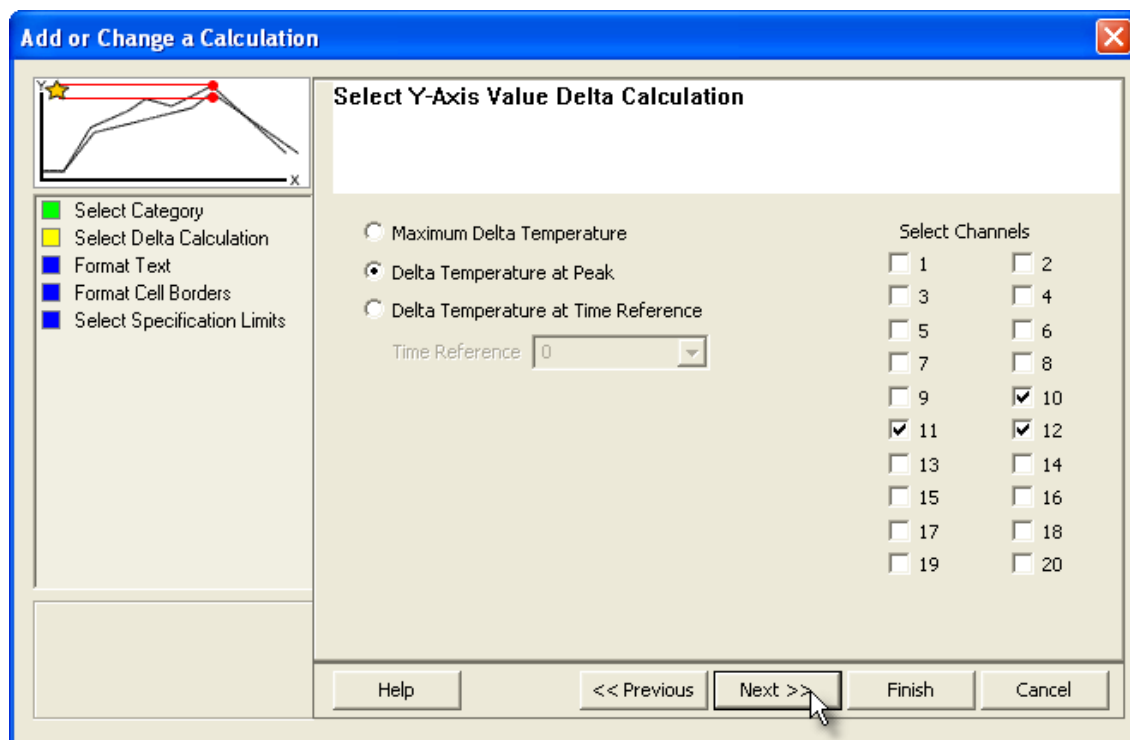
■ Current ■ Completed ■ Remaining

- 3) Click **Temperature (Y) Delta** and which channel to derive the data from.



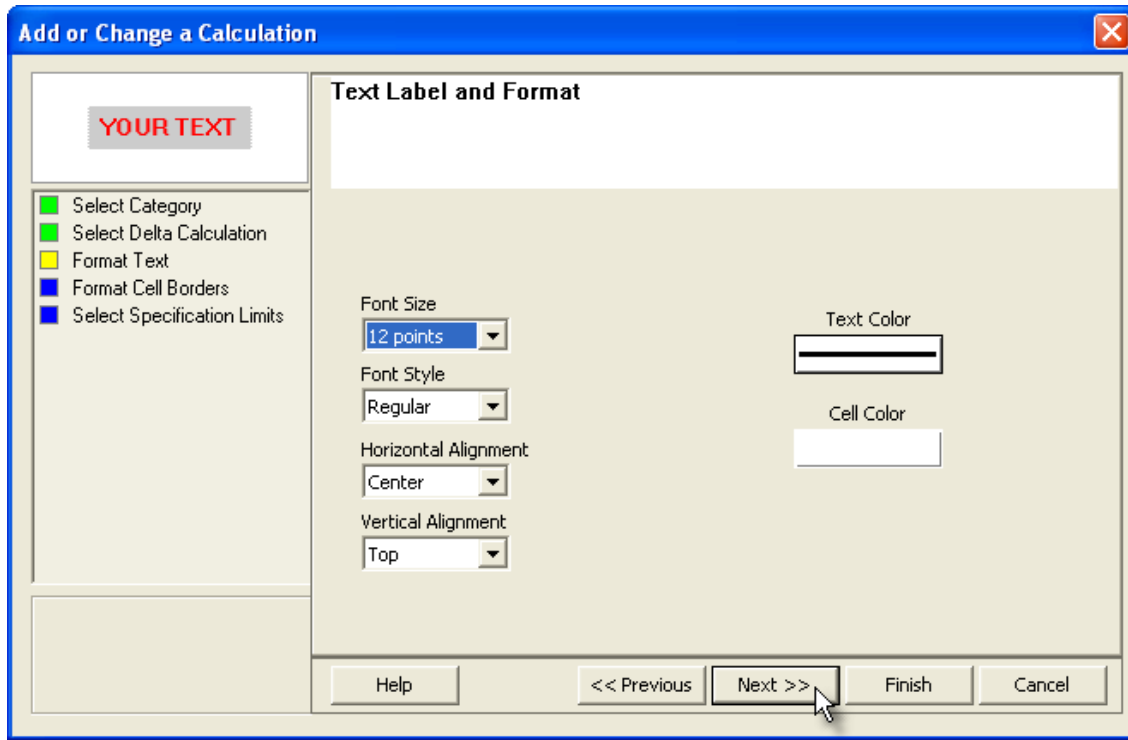
- 4) Select the **Next** command button.

- 5) Select a Y-Axis value delta calculation and which channels to you wish to be included in this calculation.



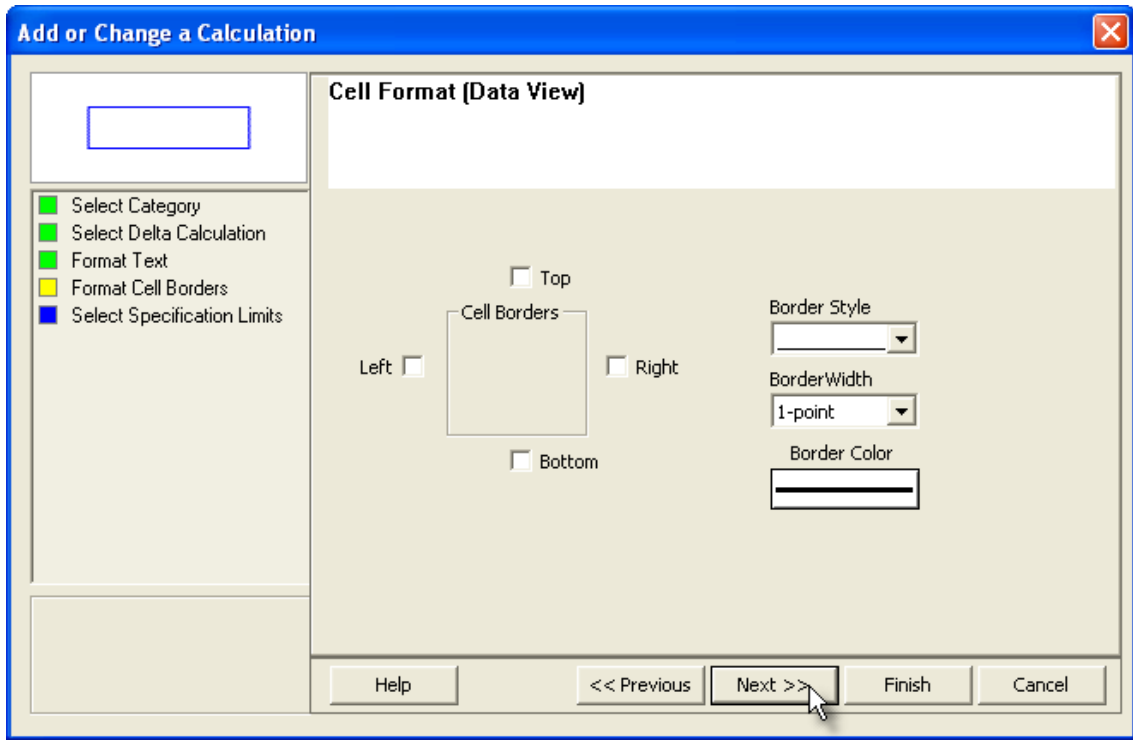
- 6) Select the **Next** command button.

7) Select desired text formatting options.



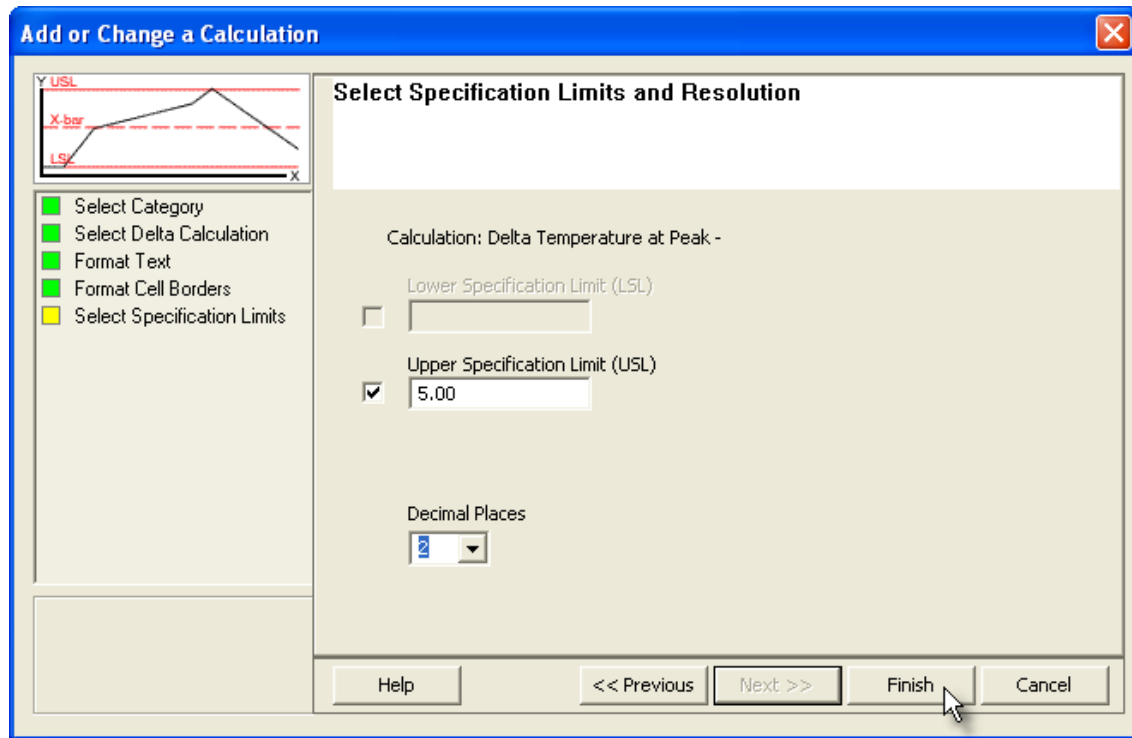
8) Select the **Next** command button.

9) Select desired cell border options.



10) Select the **Next** command button.

- 11) Select Specification Limits and Units. If these values are violated colored bars will appear in the formatted template cell. Refer to topic [Software>Page Tabs>Summary>Template>Specification Limit Indicators](#) for more information.



- 12) Select the **Finish** command button to complete the wizard and display the new calculation data in the selected template cell.

5.4.2.2.1.6. Special Value

To add or edit Special Value content:

- 1) Right-click a template cell and a shortcut menu appears.
- 2) Select **Add Content** or **Edit Content** from the shortcut menu and the **Add or Change a Calculation** wizard appears.



When navigating through the wizard, the step list on the left uses a color key to inform the user of the current step, steps that have been completed and remaining steps.



Current

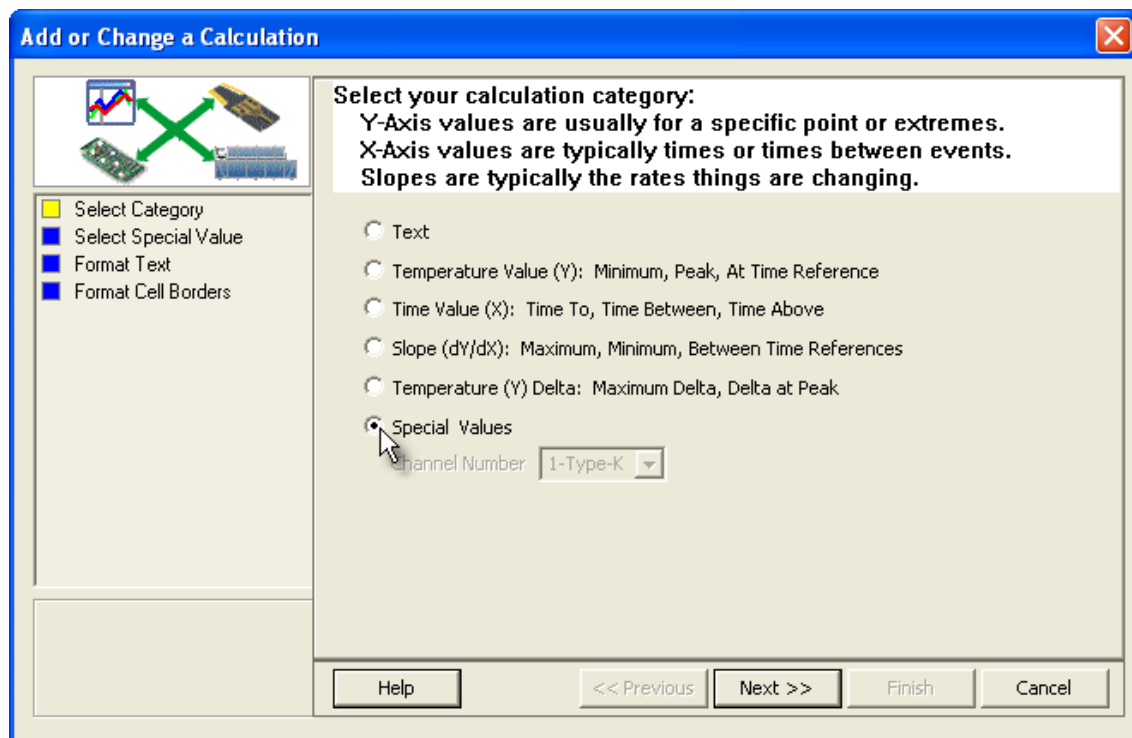


Completed



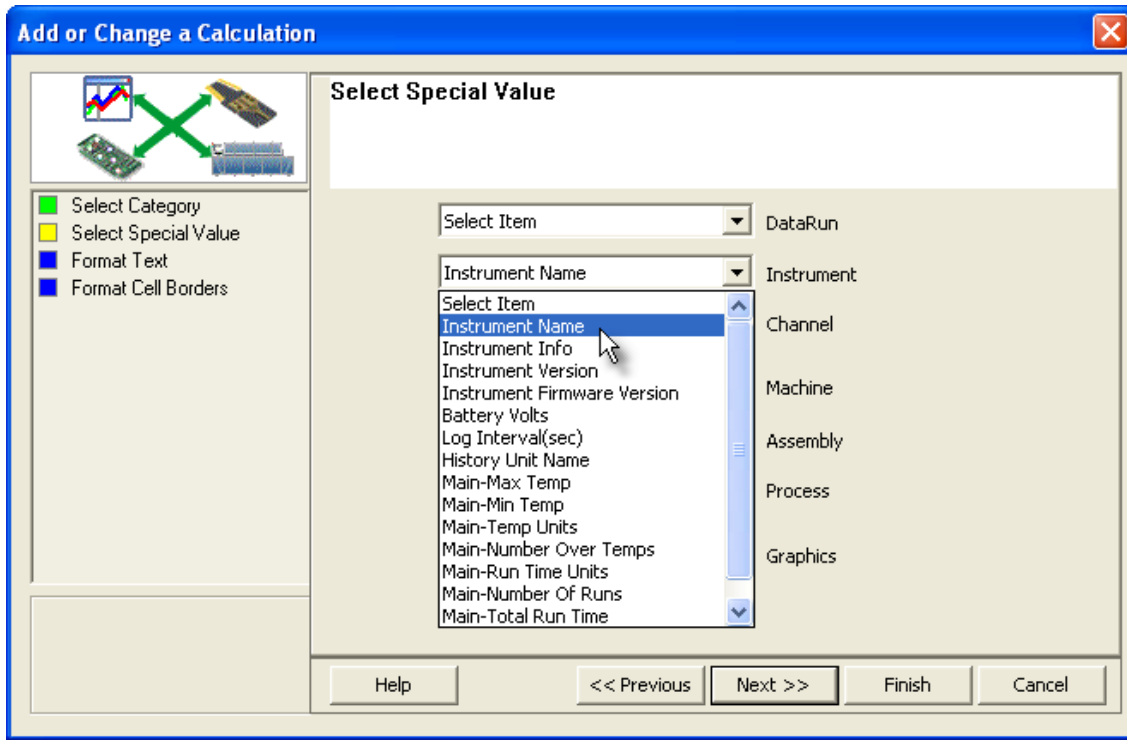
Remaining

- 3) Click **Special Value**.



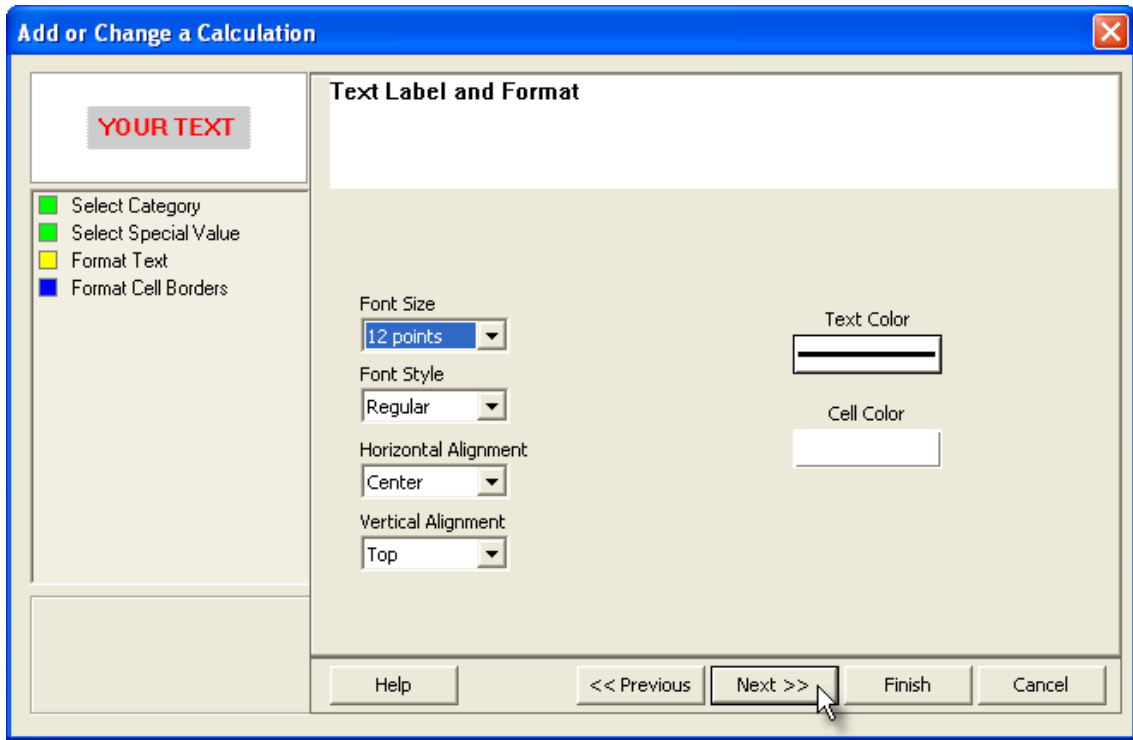
- 4) Select the **Next** command button.

5) Select a Special Value type.



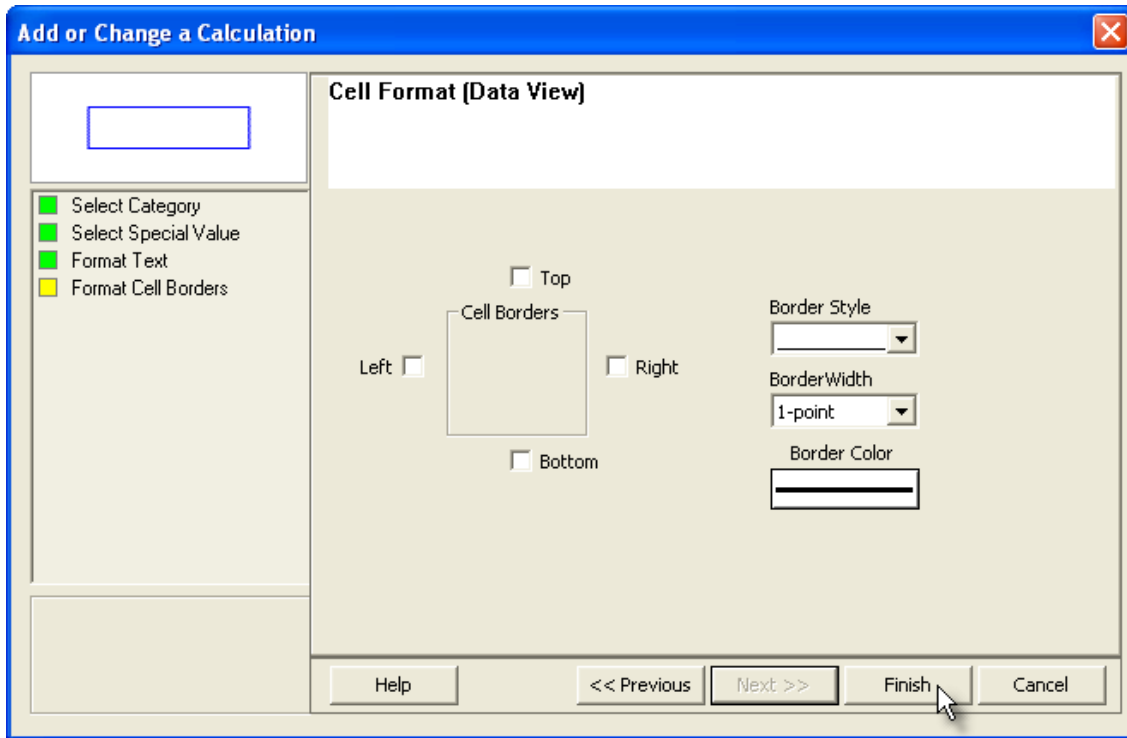
6) Select the **Next** command button.

7) Select desired text formatting options.



8) Select the **Next** command button.

9) Select desired cell border options.

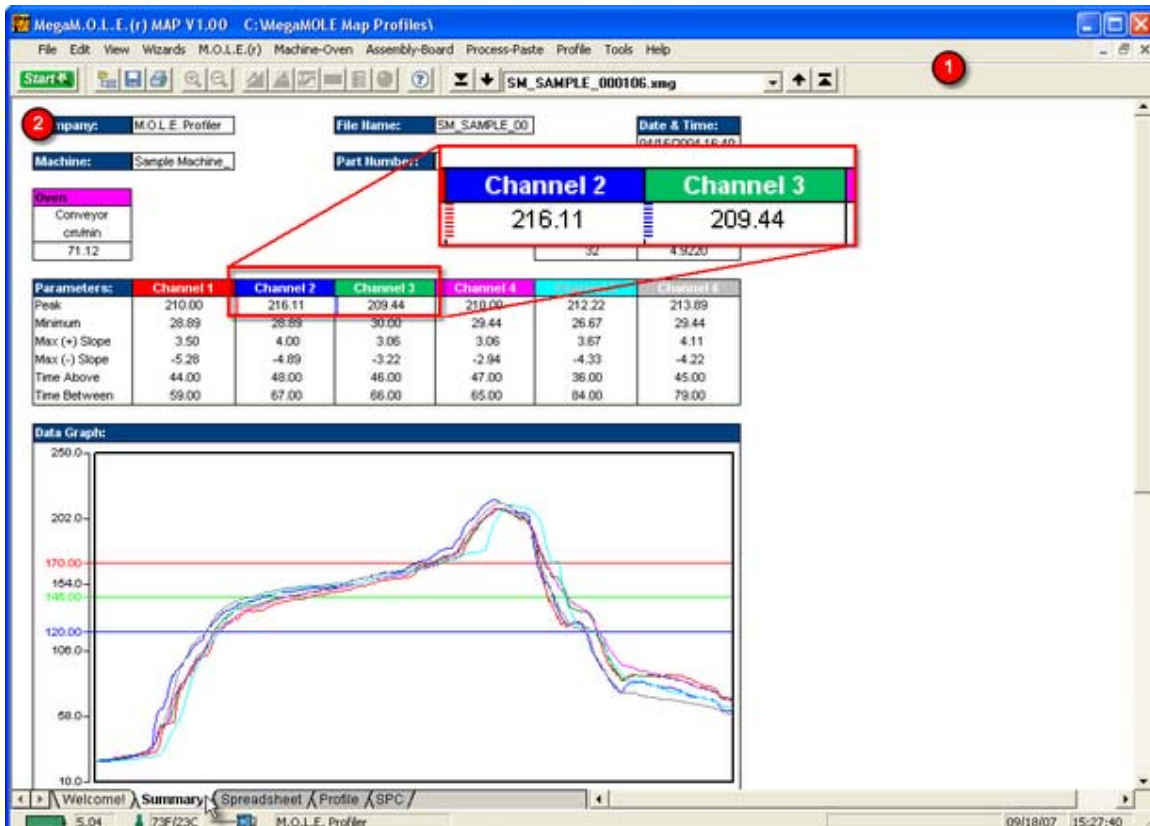


10) Select the ***Finish*** command button to complete the wizard and display the new calculation data in the selected template cell.

5.4.2.2.2. Specification Limit Indicators

Parameters displayed on the Summary Page Tab can have both Lower and Upper specifications applied. If a specification limit is violated, the software displays a red or blue indicator on the left edge of the Data Table cell.

If a USL has been exceeded, that parameter indicator will appear in **red** (indicating it is above the specification limit). If a parameter is less than the user specified LSL, that parameter indicator will appear in **blue** (indicating below the specification limit).



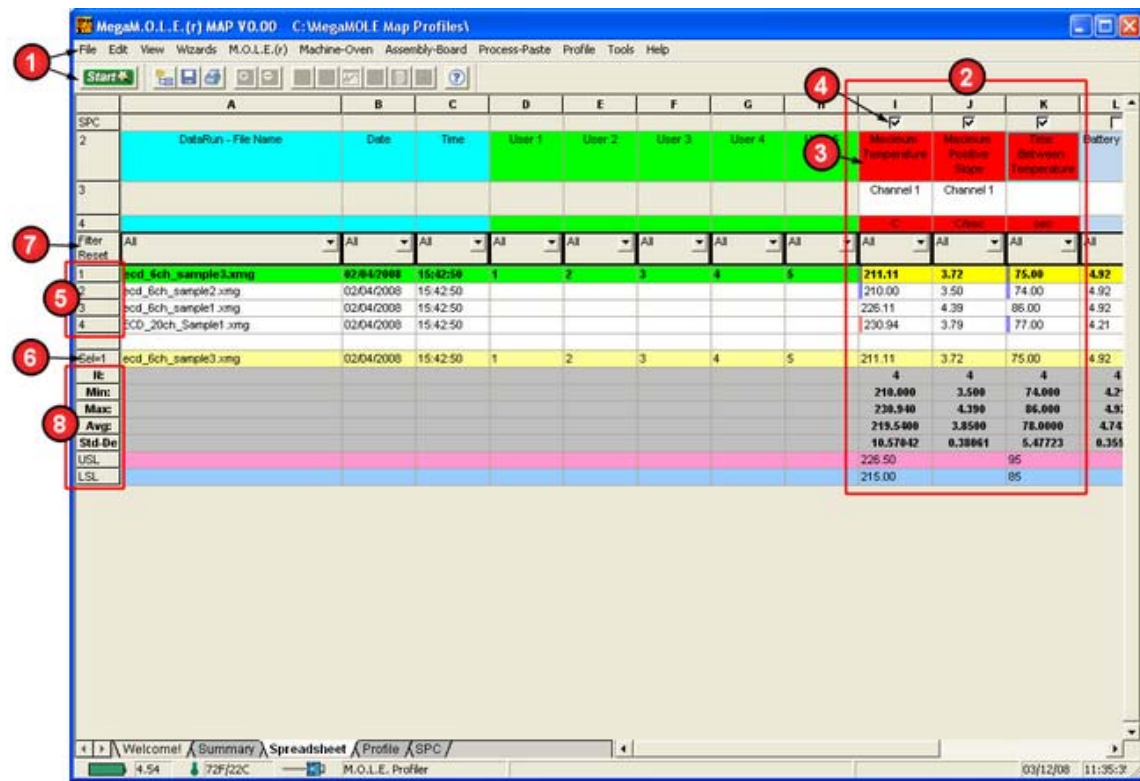
Refer to topic [Software>Page Tabs>Summary>Template>Add & Edit Content](#) for information on how to apply LSL and USL values.

5.4.3. Spreadsheet Page Tab

The Spreadsheet Page Tab contains data that is collected by the M.O.L.E. profiler put into standard spreadsheet format. Each row in the spreadsheet represents one data run. The columns after the Data Run and User defined Parameter Groups include SPC Flags so the user can select which parameters are to be displayed on the SPC Page Tab.

Spreadsheet Worksheet features:

- 1 [Menus and Toolbar](#)
- 2 [Spreadsheet Template](#)
- 3 [Parameters](#)
- 4 [SPC Flags](#)
- 5 [Data Run Rows](#)
- 6 [Selected Data Run](#)
- 7 [Filters](#)
- 8 [Statistics](#)



5.4.3.1. Menus & Toolbar

- **Menus:** File, Edit, Wizards, M.O.L.E.®, Machine-Oven, Assembly-Board, Process-Paste, Profile, Tools and Help.
- **Toolbar Buttons:** Start, Open Working Directory, Save, Print, and Help.

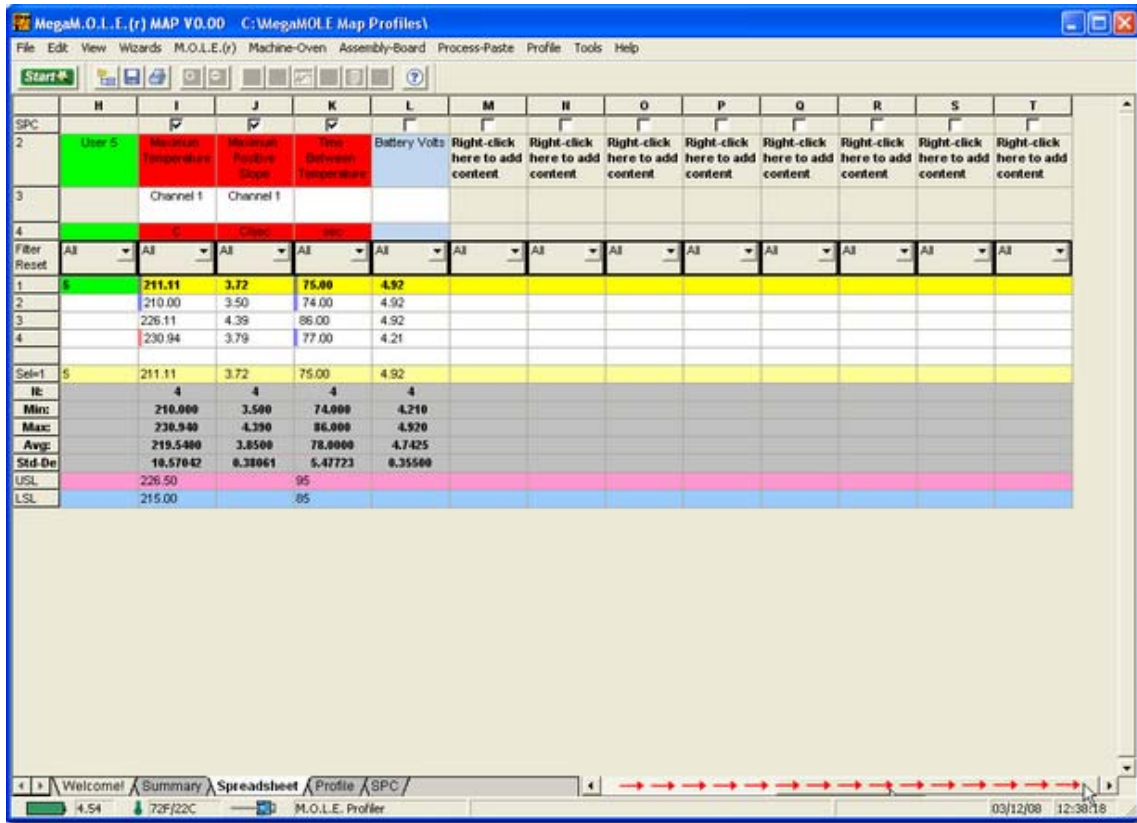
The screenshot displays the MegaM.O.L.E.(r) MAP V0.00 software window. The menu bar includes File, Edit, View, Wizards, M.O.L.E.(r), Machine-Oven, Assembly-Board, Process-Paste, Profile, Tools, and Help. The toolbar contains buttons for Start, Open Working Directory, Save, Print, and Help. The main data area is a spreadsheet with the following structure:

SPC	A	B	C	D	E	F	G	H	I	J	K	L
2	DataRun - File Name	Date	Time	User 1	User 2	User 3	User 4	User 5	Maximum Temperature	Minimum Positive Slope	Temp. Difference	Battery
3									Channel 1	Channel 1		
4									C	Chap	sec	
Filter	All	All	All	All	All	All	All	All	All	All	All	All
Reset												
1	ecd_6ch_sample3.xmg	02/04/2008	15:42:50	1	2	3	4	5	211.11	3.72	75.80	4.92
2	ecd_6ch_sample2.xmg	02/04/2008	15:42:50						210.00	3.50	74.00	4.92
3	ecd_6ch_sample1.xmg	02/04/2008	15:42:50						226.11	4.39	86.00	4.92
4	ecd_20ch_Sample1.xmg	02/04/2008	15:42:50						230.94	3.79	77.00	4.21
Set=1	ecd_6ch_sample3.xmg	02/04/2008	15:42:50	1	2	3	4	5	211.11	3.72	75.00	4.92
It:									4	4	4	4
Min:									210.000	3.500	74.000	4.2
Max:									230.940	4.390	86.000	4.9
Avg:									219.5400	3.8500	78.0000	4.74
Std De									10.57042	0.38061	5.47723	0.350
USL									226.50		85	
LSL									215.00		85	

The status bar at the bottom shows: 4.54, 72°F/22°C, M.O.L.E. Profiler, and the date/time 03/12/08 11:35:38.

5.4.3.2. Spreadsheet Template

The Spreadsheet Page Tab is built using a template file (*.TSH) overlaid on a cell grid. Columns after the Data Run and User Parameter Groups allow the user to define parameters using the Template commands. To view the template use the horizontal scrollbar to slide the template left.




	H	I	J	K	L	M	N	O	P	Q	R	S	T
SPC													
2	User 5	Maximum Temperature	Maximum Pressure Slope	Temp. Between Temperature	Battery Volts	Right-click here to add content	Right-click here to add content	Right-click here to add content	Right-click here to add content	Right-click here to add content	Right-click here to add content	Right-click here to add content	Right-click here to add content
3		Channel 1	Channel 1										
4		C	Chase	Unit									
Filter Reset	All	All	All	All	All	All	All	All	All	All	All	All	All
1	5	211.11	3.72	75.00	4.92								
2		210.00	3.50	74.00	4.92								
3		226.11	4.39	86.00	4.92								
4		230.94	3.79	77.00	4.21								
Stat=1	5	211.11	3.72	75.00	4.92								
It:		4	4	4	4								
Min:		210.000	3.500	74.000	4.210								
Max:		230.940	4.390	86.000	4.920								
Avg:		219.5400	3.8500	78.0000	4.7425								
Std-De		10.57042	0.38061	5.47723	0.35500								
USL		226.50	.95										
LSL		215.00	.85										



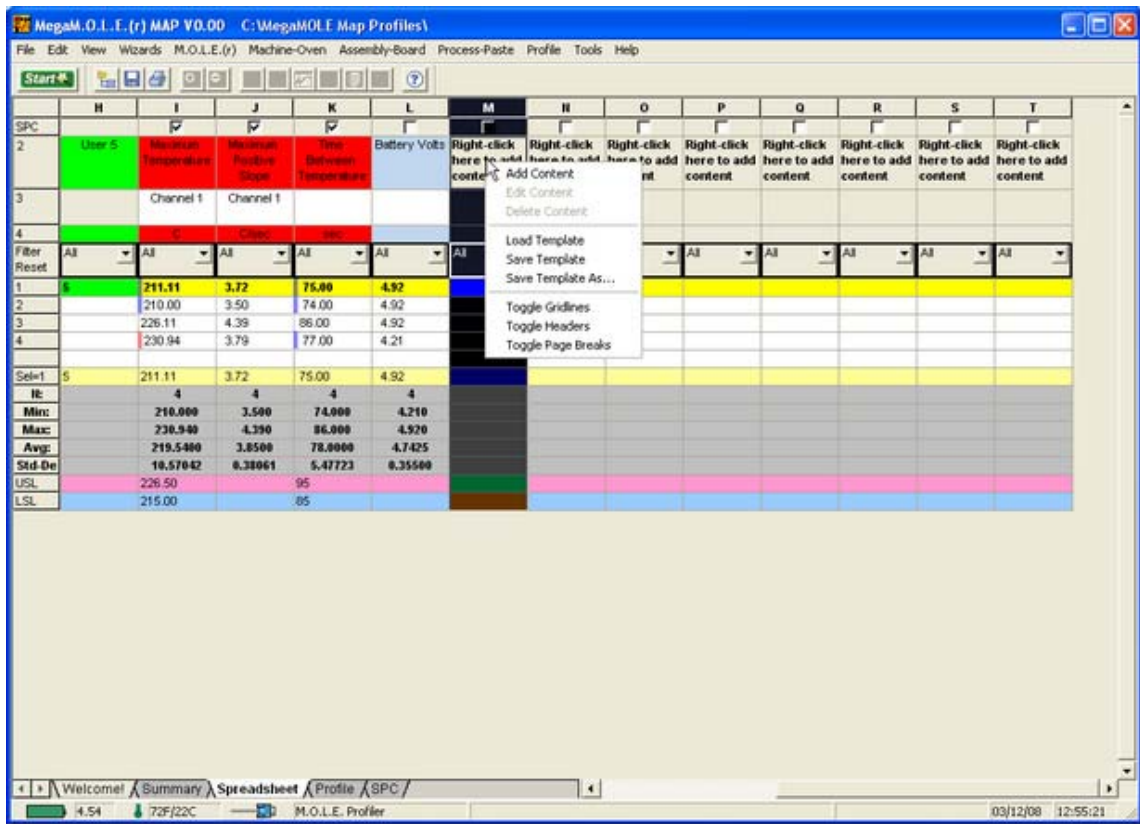
The Spreadsheet template is automatically loaded every time the software is started. This template file is specified on the Spreadsheet Page Tab of the Preferences dialog box. Refer to topic [Software>Menus>File>Preferences>Spreadsheet](#) for more information.

To display Template commands:

- 1) Move the mouse pointer over a parameter label.
- 2) When the mouse pointer becomes a , right-click and a shortcut menu appears.



Template commands can also be accessed on the View menu. Refer to topic [Software>Menus>View Menu](#) for more information. To add or edit a calculation refer to topic [Software>Page Tabs>Spreadsheet>Spreadsheet Template>Add & Edit Content](#) for more information.



3) You can now select from the template commands.

5.4.3.2.1. Add & Edit Content

To add or edit template content, the software includes a wizard to guide the user through the related content options. The template allows four different calculation categories to be displayed.

Add & Edit Content wizards:

- ❶ Temperature Value (Y)
- ❷ Time Value (X)
- ❸ Slope (dX/dY)
- ❹ Temperature (Y) Delta
- ❺ Special Values



This wizard contains all the related steps to add or edit content to the template. It is recommended to process all steps in order but the software allows you to navigate forward and backward setting options individually. When the minimum options have been selected, **Finish** command button will become active.

Add or Change a Calculation

Select your calculation category:
Y-Axis values are usually for a specific point or extremes.
X-Axis values are typically times or times between events.
Slopes are typically the rates things are changing.

☐ Text

☒ Temperature Value (Y): Minimum, Peak, At Time Reference

☐ Time Value (X): Time To, Time Between, Time Above

☐ Slope (dY/dX): Maximum, Minimum, Between Time References

☐ Temperature (Y) Delta: Maximum Delta, Delta at Peak

☐ Special Values

Channel Number: 1-Type-K

Help << Previous Next >> Finish Cancel

5.4.3.2.1.1. Temperature Value (Y)

To add or edit Y-Axis Values content:

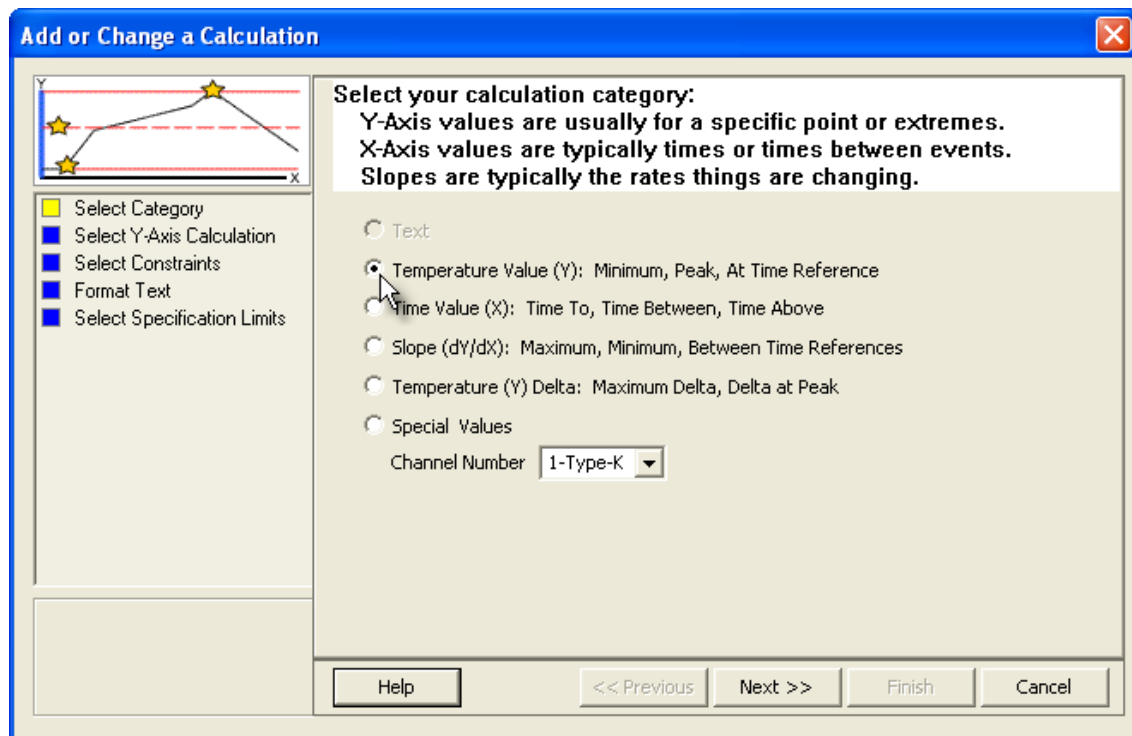
- 1) Right-click a template cell and a shortcut menu appears.
- 2) Select **Add Content** or **Edit Content** from the shortcut menu and the **Add or Change a Calculation** wizard appears.



When navigating through the wizard, the step list on the left uses a color key to inform the user of the current step, steps that have been completed and remaining steps.

■ Current ■ Completed ■ Remaining

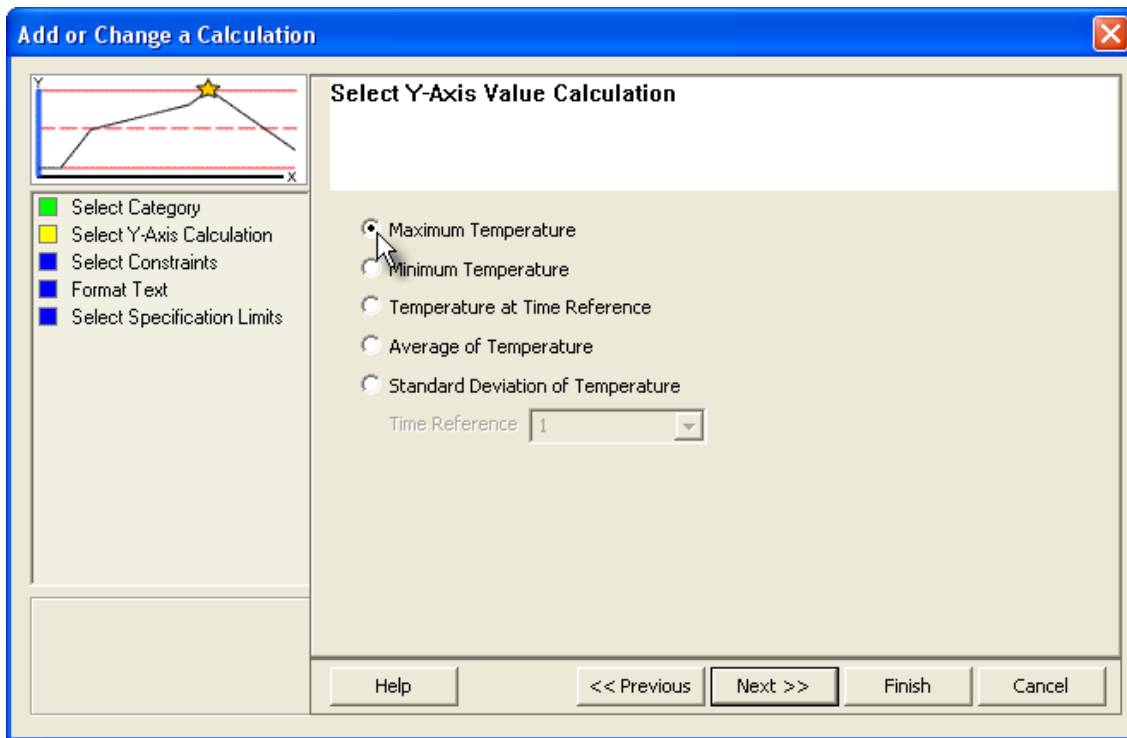
- 3) Click **Temperature Values (Y)** and which channel to derive the data from.



- 4) Select the **Next** command button.
- 5) Select a Temperature (Y) Axis Value.



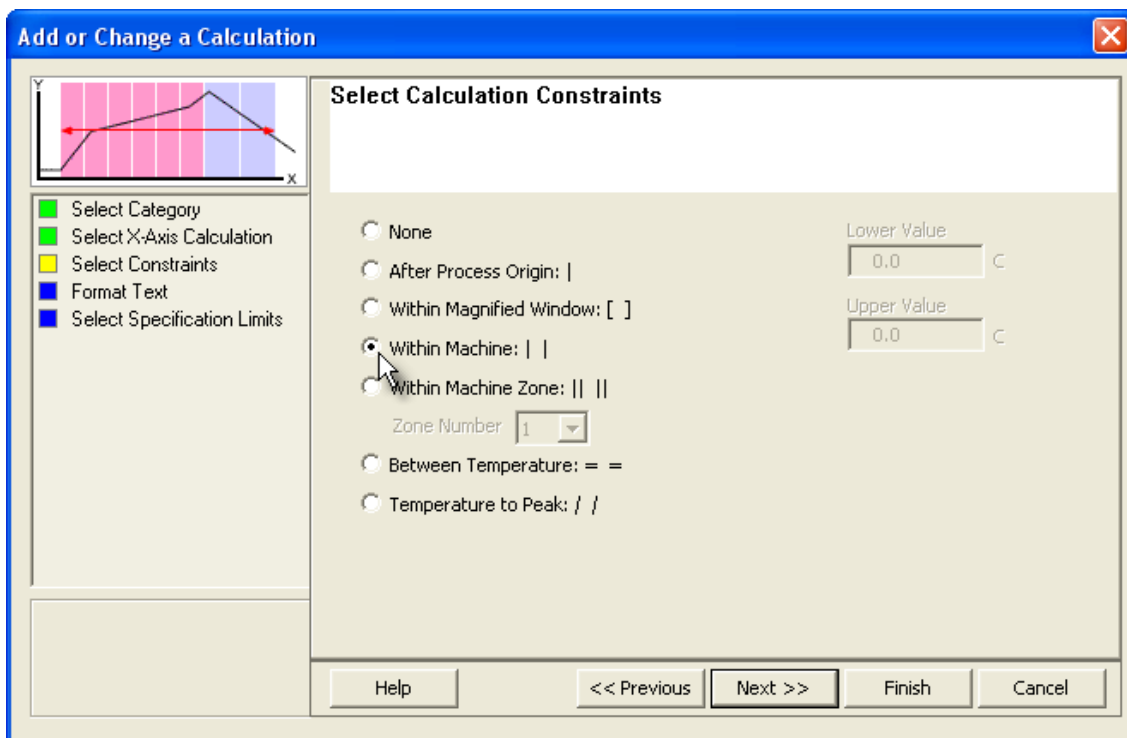
If **Temperature at Time Reference** calculation is selected, the software requires the user to select an established Time (X) Reference line. If one is not established the software automatically creates one on the Profile Page Tab Data Graph.



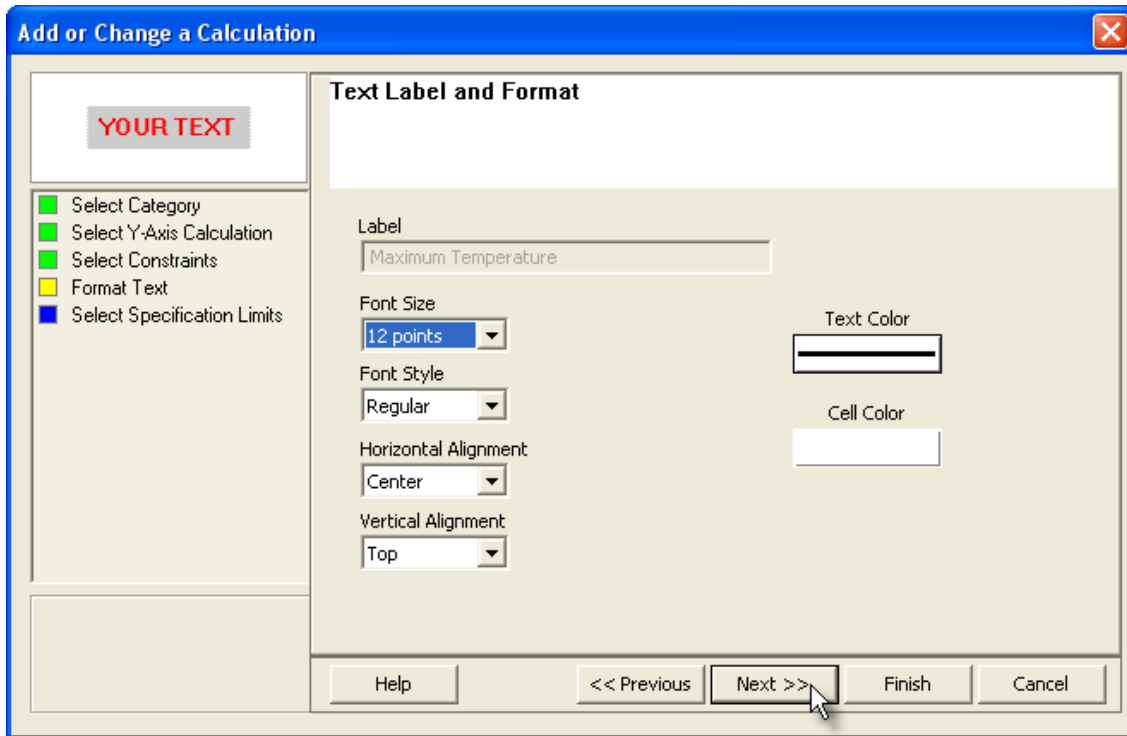
- 6) Select the **Next** command button.
- 7) Select the calculation constraints. These options are the specified area on the Time (X) Axis where the values are to be extracted from.



If the **Within Magnified Window** constraint is selected and the Magnify tool is used to zoom in on a portion of the Data Graph, the Data Table displays the statistics for those values within the magnified window.

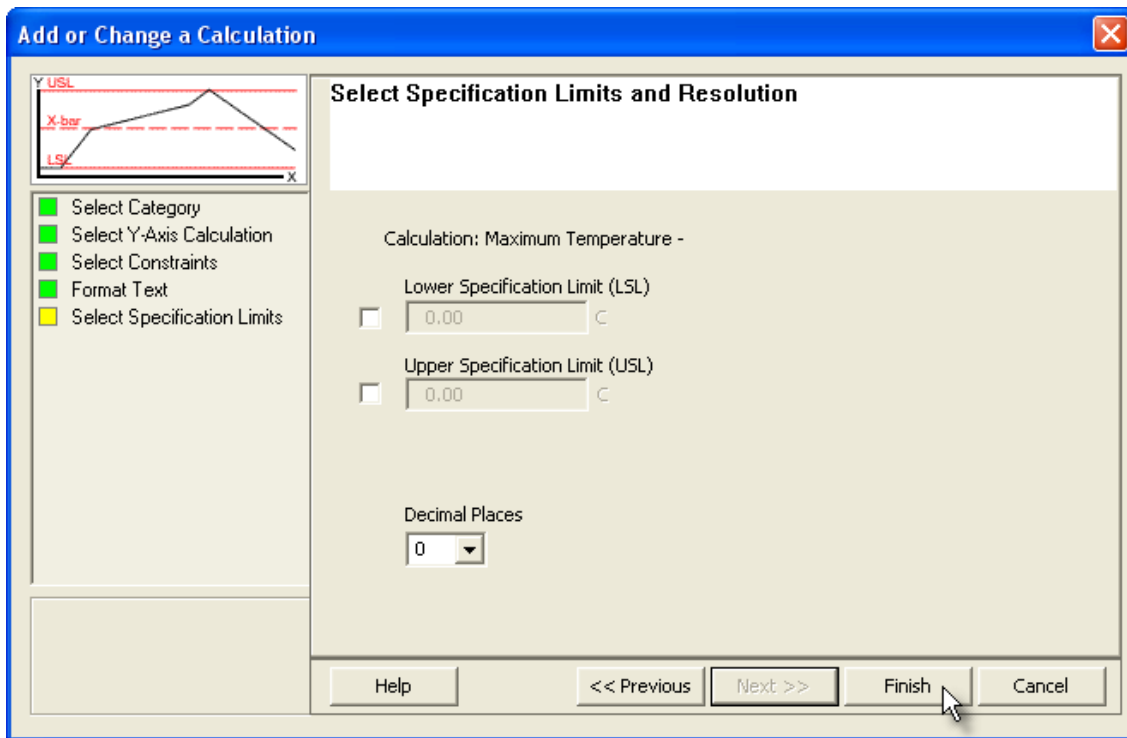


- 8) Select the **Next** command button.
- 9) Select desired text formatting options.



10) Select the **Next** command button.

11) Select Specification Limits and Units. If these values are violated colored bars will appear in the formatted template cell. Refer to topic [Software>Page Tabs>Spreadsheet>Template>Specification Limit Indicators](#) for more information.



- 12) Select the ***Finish*** command button to complete the wizard and display the new calculation data in the selected template column.

5.4.3.2.1.2. Time Value (X)

To add or edit X-Axis Values content:

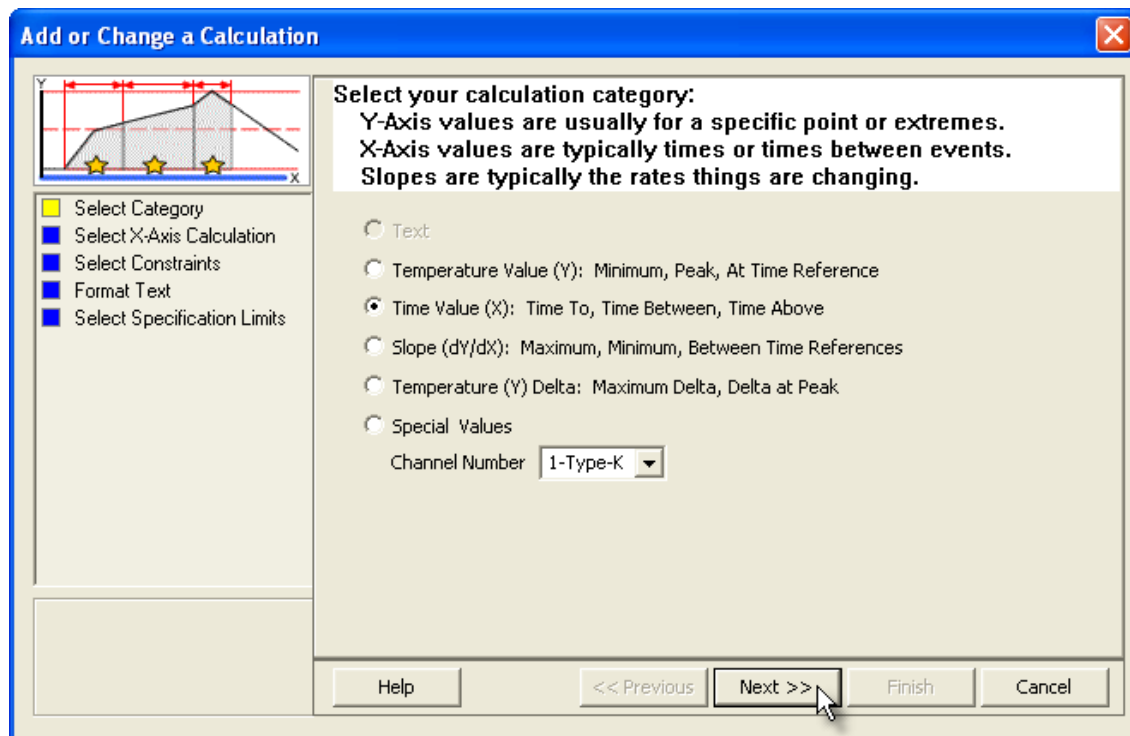
- 1) Right-click a template cell and a shortcut menu appears.
- 2) Select **Add Content** or **Edit Content** from the shortcut menu and the **Add or Change a Calculation** wizard appears.



When navigating through the wizard, the step list on the left uses a color key to inform the user of the current step, steps that have been completed and remaining steps.

■ Current ■ Completed ■ Remaining

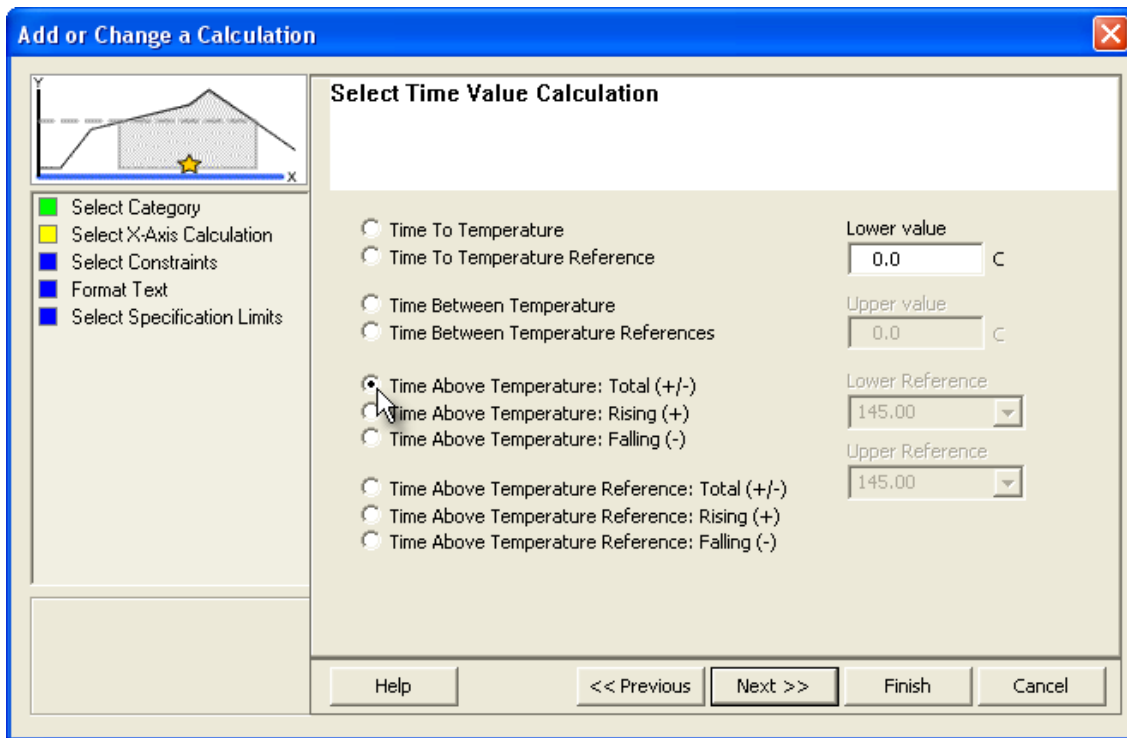
- 3) Click **Time Value (X)** and which channel to derive the data from.



- 4) Select the **Next** command button.
- 5) Select a Time (X) Axis Value.



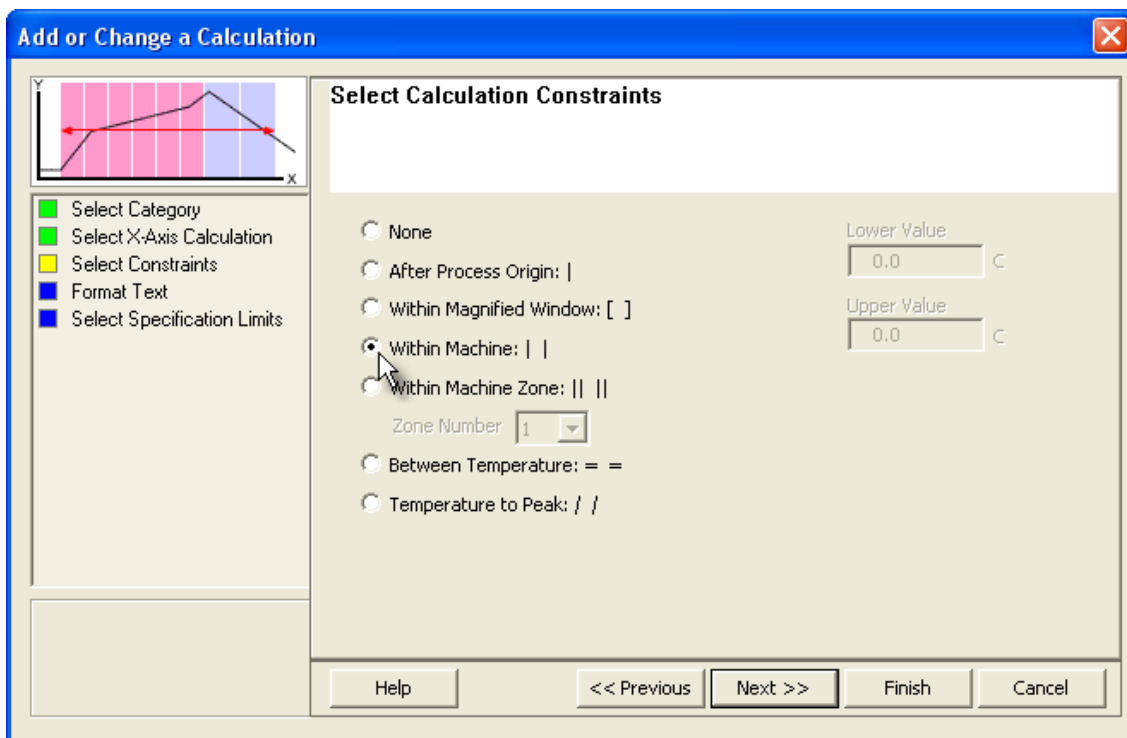
If any **Temperature Reference (Y)** calculation is selected, the software requires a Temperature (Y) Reference Line to be established. Refer to topic [Software>Menus>Profile>Add Temperature \(Y\) Reference Lines](#).



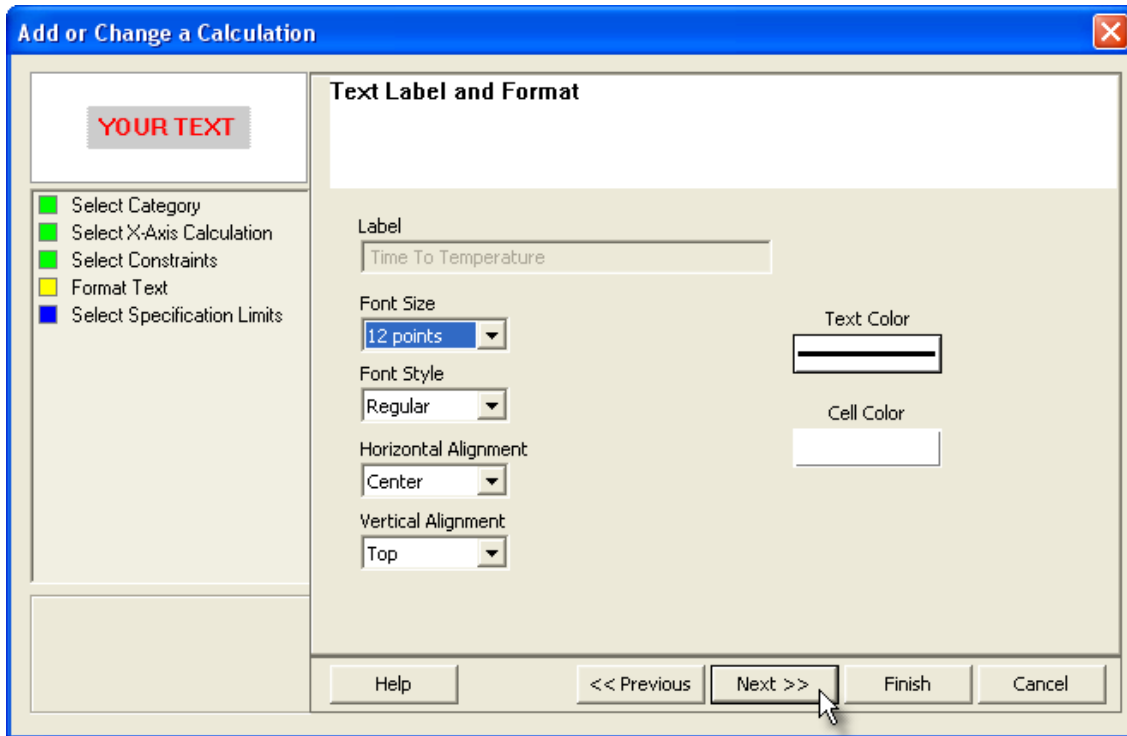
- 6) Select the **Next** command button.
- 7) Select the calculation constraints. These options are the specified area on the Time (X) Axis where the values are to be extracted from.



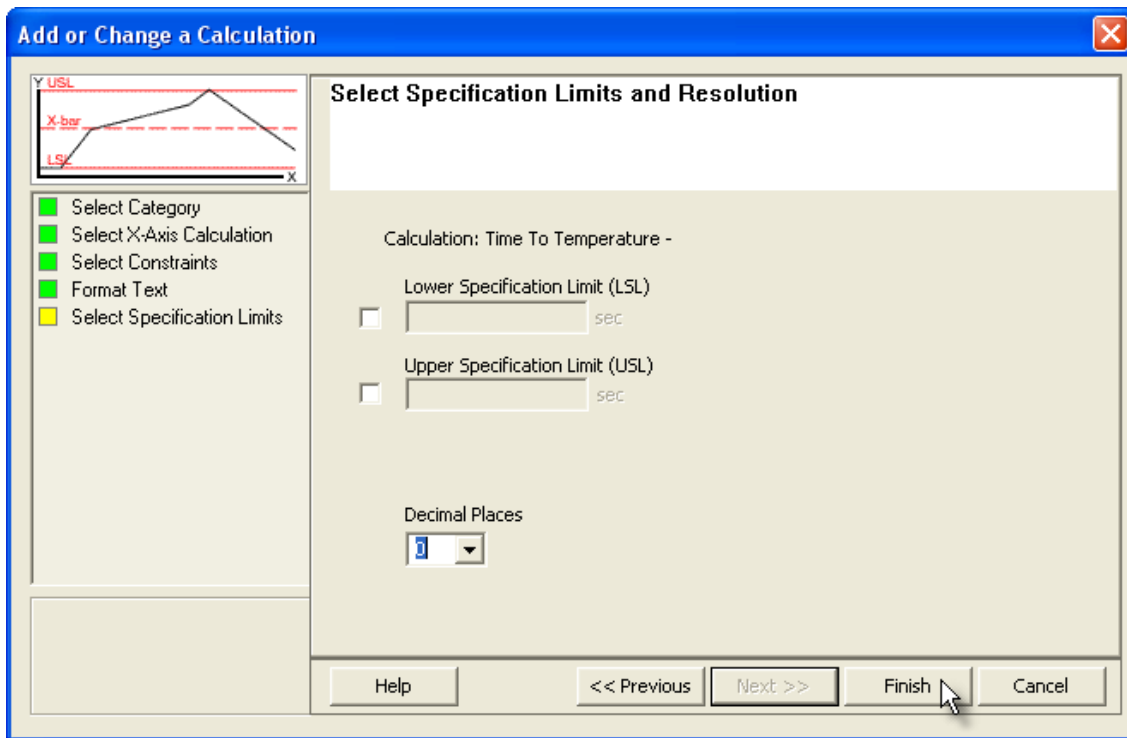
If the **Within Magnified Window** constraint is selected and the Magnify tool is used to zoom in on a portion of the Data Graph, the Data Table displays the statistics for those values within the magnified window.



- 8) Select the **Next** command button.
- 9) Select desired text formatting options.



- 10) Select the **Next** command button.
- 11) Select Specification Limits and Units. If these values are violated colored bars will appear in the formatted template cell. Refer to topic [Software>Page Tabs>Spreadsheet>Template>Specification Limit Indicators](#) for more information.



- 12) Select the ***Finish*** command button to complete the wizard and display the new calculation data in the selected template column.

5.4.3.2.1.3. Slope (dX/dY)

To add or edit Slope Value content:

- 1) Right-click a template cell and a shortcut menu appears.
- 2) Select **Add Content** or **Edit Content** from the shortcut menu and the **Add or Change a Calculation** wizard appears.



When navigating through the wizard, the step list on the left uses a color key to inform the user of the current step, steps that have been completed and remaining steps.



Current

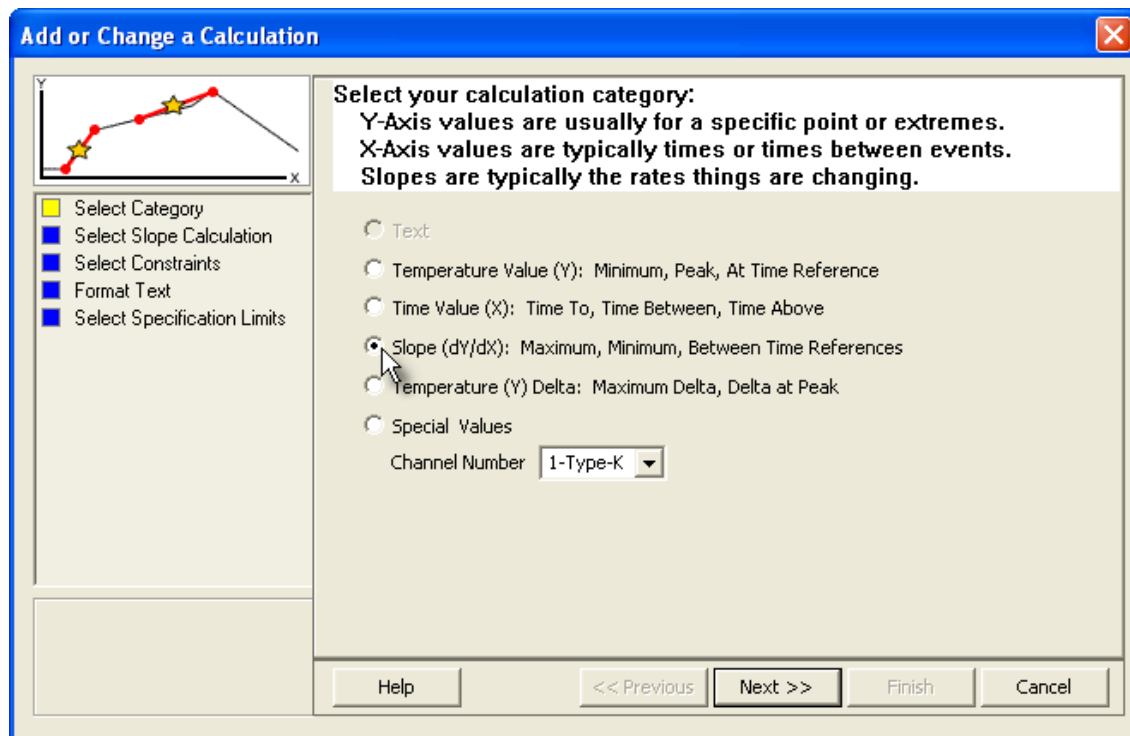


Completed



Remaining

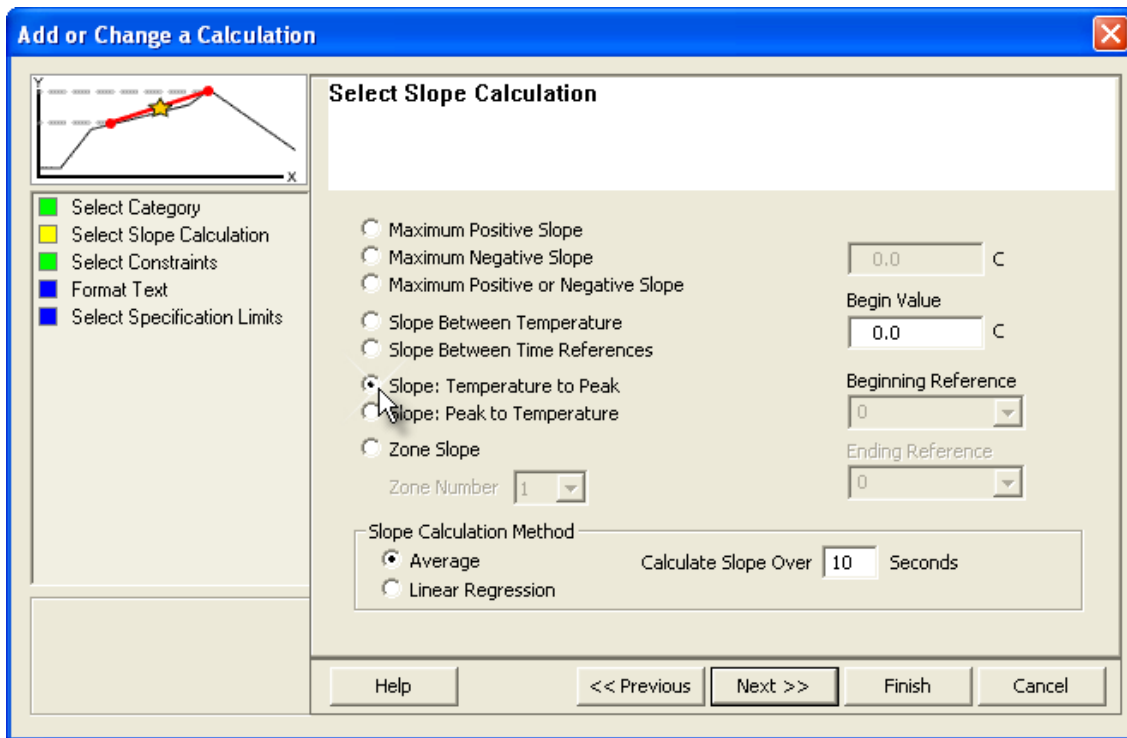
- 3) Click **Slope (dX/dY)** and which channel to derive the data from.



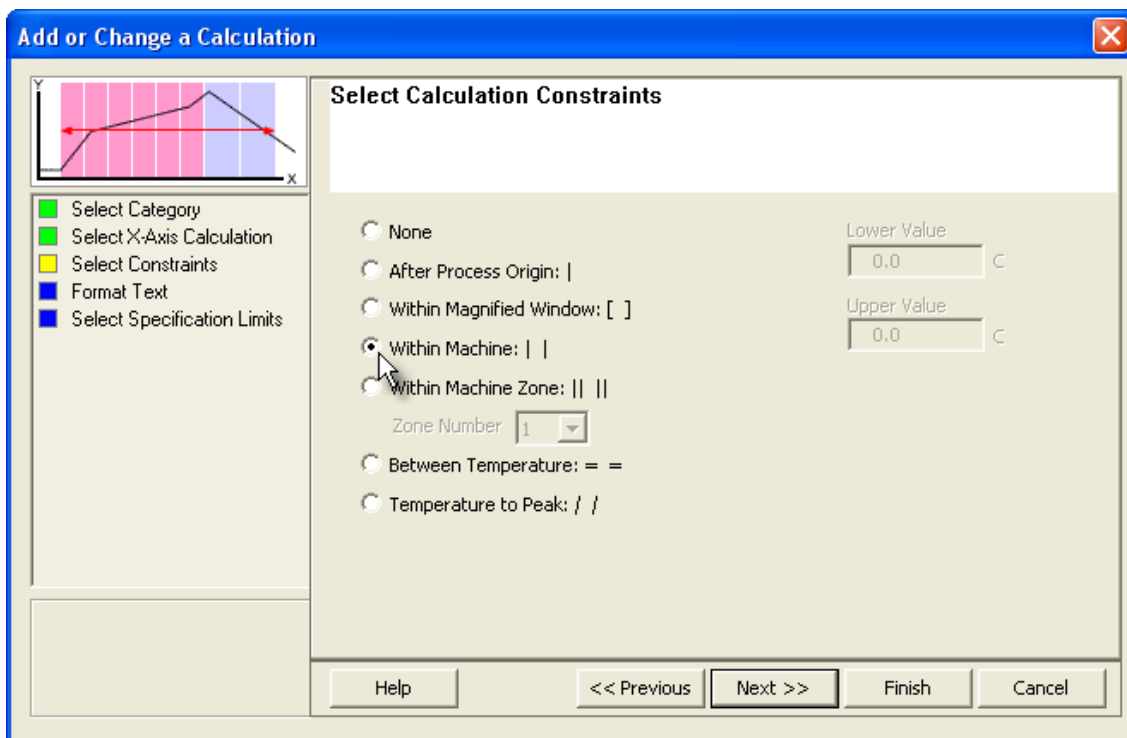
- 4) Select the **Next** command button.
- 5) Select a Slope Value.



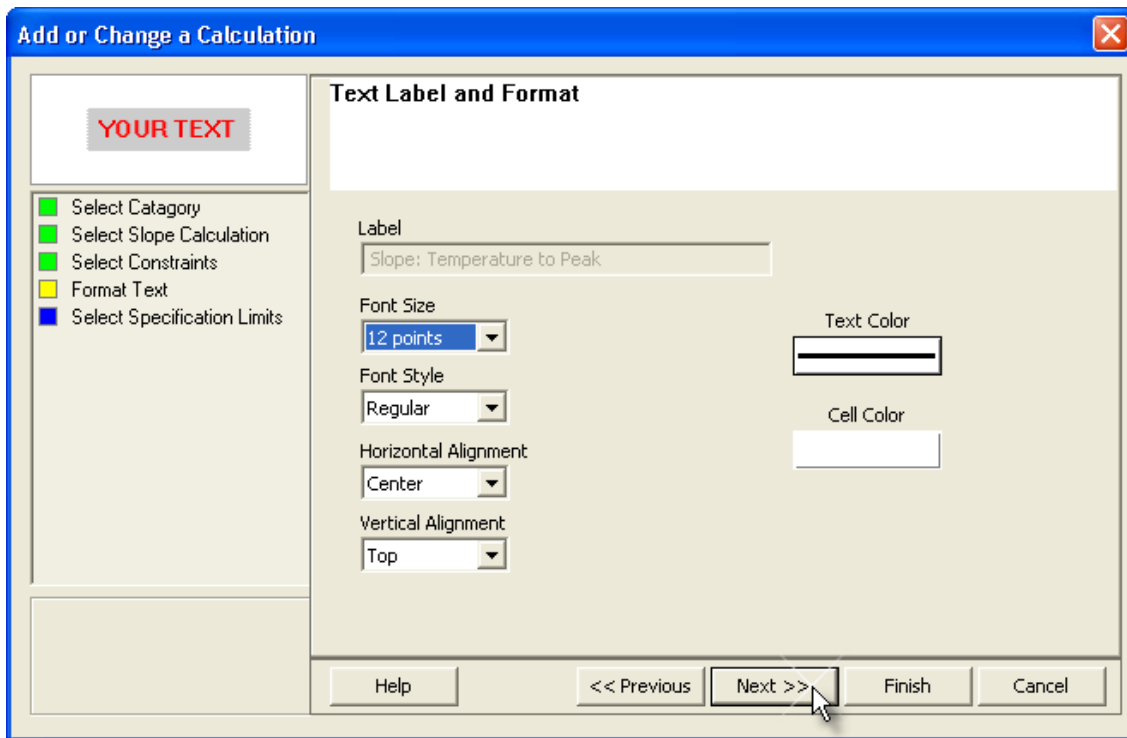
If **Slope Between Time References** calculation is selected, the software requires the user to select an established Time (X) Reference line. If one is not established the software automatically creates one on the Profile Page Tab Data Graph.



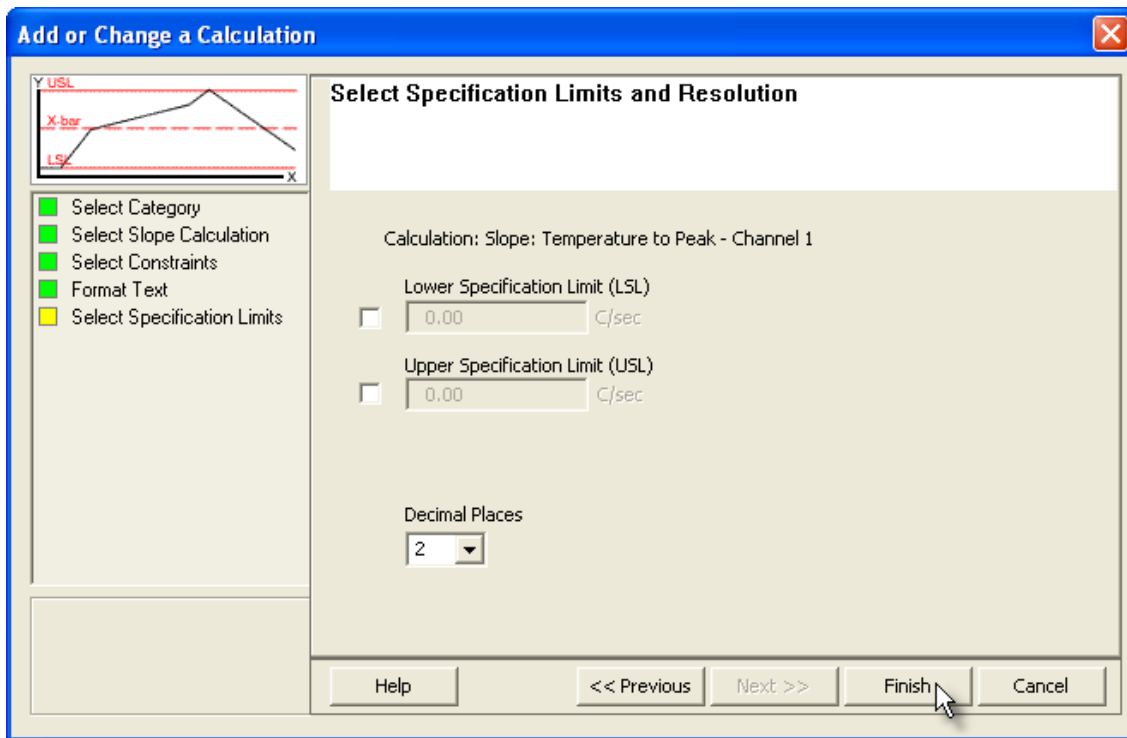
- 6) Select the **Next** command button.
- 7) Select the calculation constraints. These options are the specified area on the Time (X) Axis where the values are to be extracted from.



- 8) Select the **Next** command button.
- 9) Select desired text formatting options.



- 10) Select the **Next** command button.
- 11) Select Specification Limits and Units. If these values are violated colored bars will appear in the formatted template cell. Refer to topic [Software>Page Tabs>Spreadsheet>Template>Specification Limit Indicators](#) for more information.



- 12) Select the **Finish** command button to complete the wizard and display the new calculation data in the selected template column.

5.4.3.2.1.4. Temperature (Y) Delta

To add or edit Temperature (Y) Delta content:

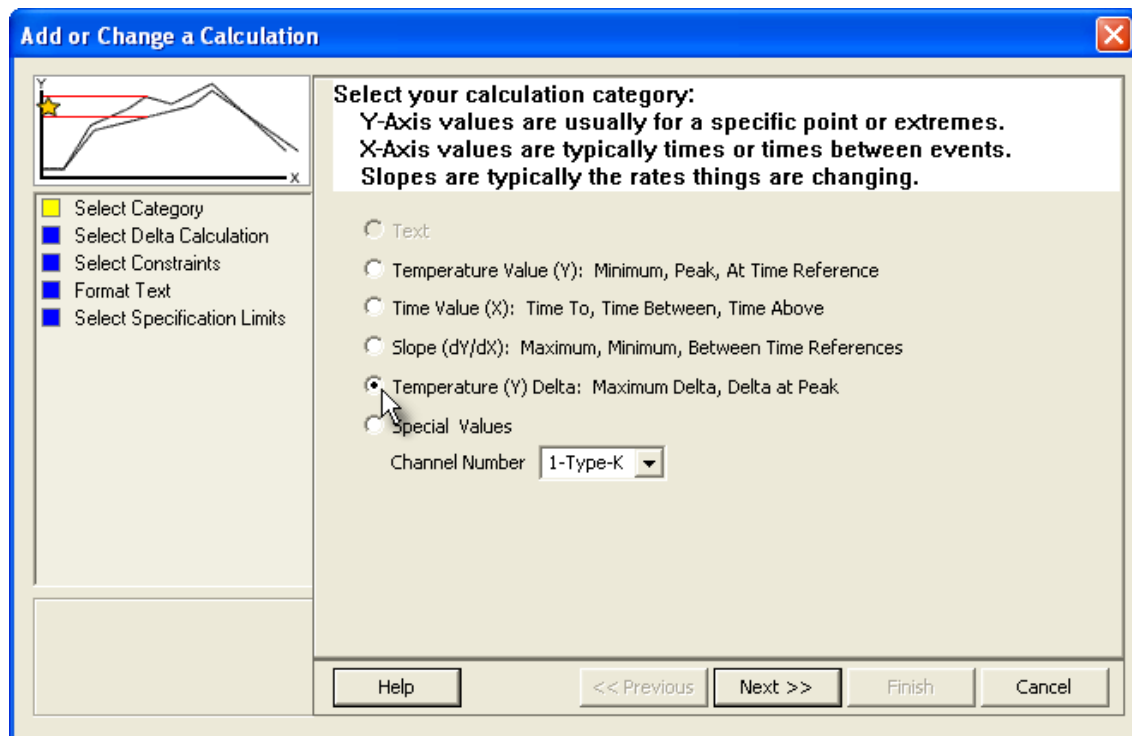
- 1) Right-click a template cell and a shortcut menu appears.
- 2) Select **Add Content** or **Edit Content** from the shortcut menu and the **Add or Change a Calculation** wizard appears.



When navigating through the wizard, the step list on the left uses a color key to inform the user of the current step, steps that have been completed and remaining steps.

■ Current ■ Completed ■ Remaining

- 3) Click **Temperature (Y) Delta** and which channel to derive the data from.



- 4) Select the **Next** command button.
- 5) Select a Y-Axis value delta calculation and which channels to you wish to be included in this calculation.