Introduction

Small, simple and affordable, ELIWELL data loggers can measure and record data at specified intervals ranging from once every 2 seconds, to once every 12 hours. ELIWELL's DataLogger Manager requires no programming skills, and enables the user to effortlessly select reading rate, specify the user's ID, and initiate the start of data collection. For immediate use of the data logger refer to the Quick Start Guide.

In addition, all data can be saved in a format easily read by spreadsheet applications such as "Microsoft Excel." or "Lotus 1-2-3.". It is our goal to bring you accurate, low-cost, easy-to-use data loggers that integrate easily into the user's working environment. To better understand your needs and to better serve you, we welcome and appreciate your feedback.

Thank you for choosing ELIWELL for your data logging requirements.

Warranty

Products manufactured by ELIWELL, are warranted against defective material and workmanship for a period of one year, starting from the date of shipment. In the event that a ELIWELL product is found to be defective, ELIWELL will repair or replace the product at its sole discretion. Such repair or replacement shall be the sole remedy of this warranty.

This warranty extends only to the original purchasing customer and does not apply to any unit, which in our sole judgment, has been subjected to:

a)Operating or environmental conditions in excess of our written specifications or recommendations;
b) Damage, misuse or neglect;
c) Improper installation, repair or alteration.

This warranty excludes batteries.

Except as to title, this is our only warranty for the products. ELIWELL expressly disclaims all other warranties, guarantees or remedies whether expressed or implied or statutory including any implied warranty of merchantability or fitness for a particular purpose. We also disclaim any implied warranty arising out of trade usage or out of a course dealing or course of performance. We do not guarantee the integrity of data or warranty that the products will operate uninterrupted or error-free. ELIWELL data loggers and their associated software have been thoroughly tested and the documentation reviewed. However, ELIWELL does not warrant the performance of its products, or that the products or their associated software will operate as described in this manual.

Battery Warning

Most ELIWELL data loggers contain a lithium battery. Do not cut the battery open, incinerate, or recharge. Do not heat lithium batteries above 85ºC unless the battery is specifically rated for higher temperatures. Dispose the battery in accordance with local regulations.

Hardware

Package Inspection

Verify that the data logger(s) was not damaged in transit by carefully unpacking all items in the shipping carton and looking for obvious signs of physical damage. If the data logger is damaged, repack it in its original container and contact ELIWELL Customer Service. Any damage noted upon receipt must be documented to file a claim against the carrier.

System Requirements

ELIWELL DataLogger Manager requires an IBM or compatible PC with the following:

- Pentium or higher processor
- Windows 95/98/2000/XP/NT
- 128 MB RAM
- Color 800 X 600 monitor
- 30 MB free disk space
- 3.5" disk drive or CD-ROM
- Available 9 pin male serial (COM) port

NOTE: Although the software is designed to work with the Windows Operating Systems listed above, ELIWELL cannot guarantee operation on OS's no longer supported by Microsoft Support Life Cycle Policy.

Quick Start Guide

For immediate use of the data logger, follow these six simple steps:

1. Install the software (see Software Installation, if help needed with this step).
2. Attach the logger to the host computer using the interface cable, as shown in the diagram below.
3. From the Communication Menu, select **Auto Configure port**.
4. From the Device Menu, select **Start Device**.
5. Select the **Reading Rate** to be used.
6. Click on **Start Device**.

After a brief pause while the software communicates with the device, the user will see the message **Device Started**. The device is now running and taking measurements. Place it in the elected environment to perform its measurements. When the user is ready to view the measurements, simply connect it to the computer and select **Read Device Data** from the Device Menu.

Interface Cable Installation

Insert the male connector of the PDLUSBIF interface cable into the female receptacle of the data logger. Insert the female USB connector into the USB.

NOTE: Most ELIWELL data loggers can use both PDLUSBIF interface cables, some do not.

Battery Replacement

Most ELIWELL miniature data loggers contain a user-replaceable 3.6 volt or 3.0 volt lithium battery. Replacement batteries may be purchased from the factory along with installation instructions. Then click the link for the specific data logger to ensure the device has a user-replaceable battery. If the device does not have a user-replaceable battery, or the customer simply does not wish to replace the battery themselves, the device may be returned to the factory for service. In this case, the customer should contact the company from which the unit was purchased for an Return Merchandise Authorization (RMA) number and return the product as instructed by customer service. ELIWELL will replace the battery and return the data logger promptly.

Software

Getting Started

For simplicity and ease of use all ELIWELL data loggers operate similarly. The ELIWELL DataLogger Manager automatically configures itself specifically for each class of logger by reading the device type. Each class of logger has a unique device type and identifies itself when queried by the host computer. This has been implemented to minimize confusion and to eliminate the need to learn different software packages. Therefore, only one software package and only one manual is required for all ELIWELL Data Loggers. In certain instances where differences occur, an attempt is made in this manual to bring clarification and avoid confusion. Most examples used in this manual are for the PDL10T, but can be extended to all devices.

Software Installation

Installing from CD ROM

Insert the CD ROM labeled ELIWELL DataLogger Manager into the host computer's CD ROM drive. From the Windows Start Menu, choose the Run command and type d:\autorun.exe into the **Open field**

and click OK., it will bring the installation menu window **ELIWELL CD Contents** as shown below.

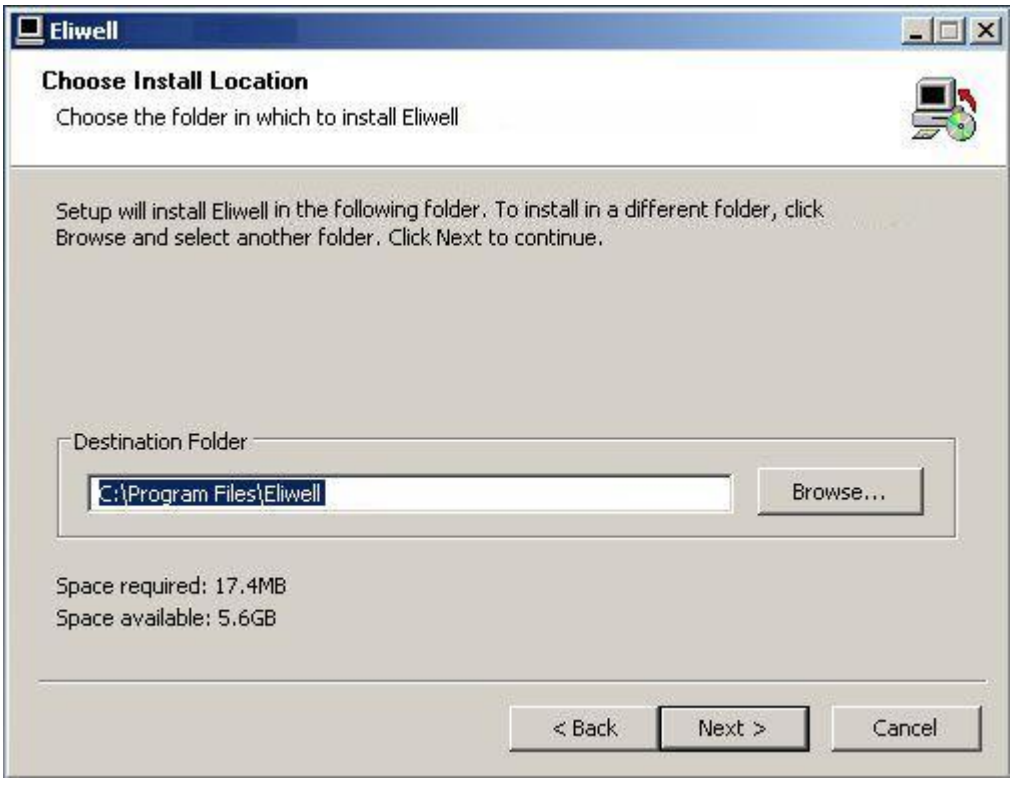
If the host computer's CD ROM Drive is not the D: drive, use the correct letter for the instructions above.

Install ELIWELL

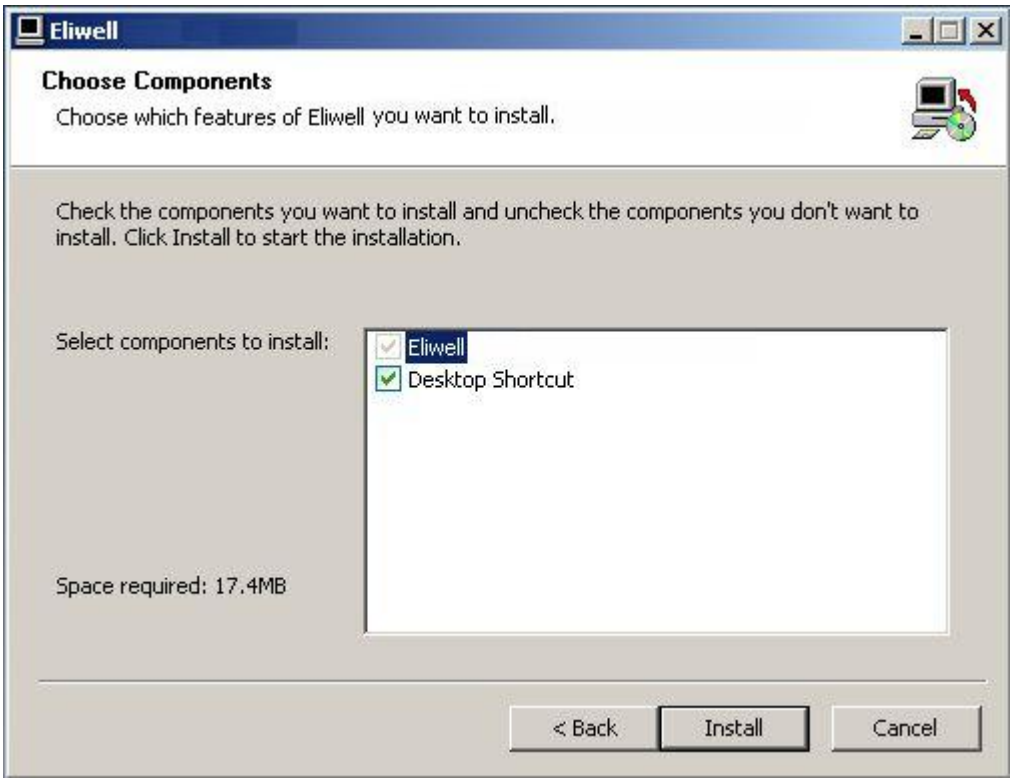
The selected language will be displayed on the installation windows.

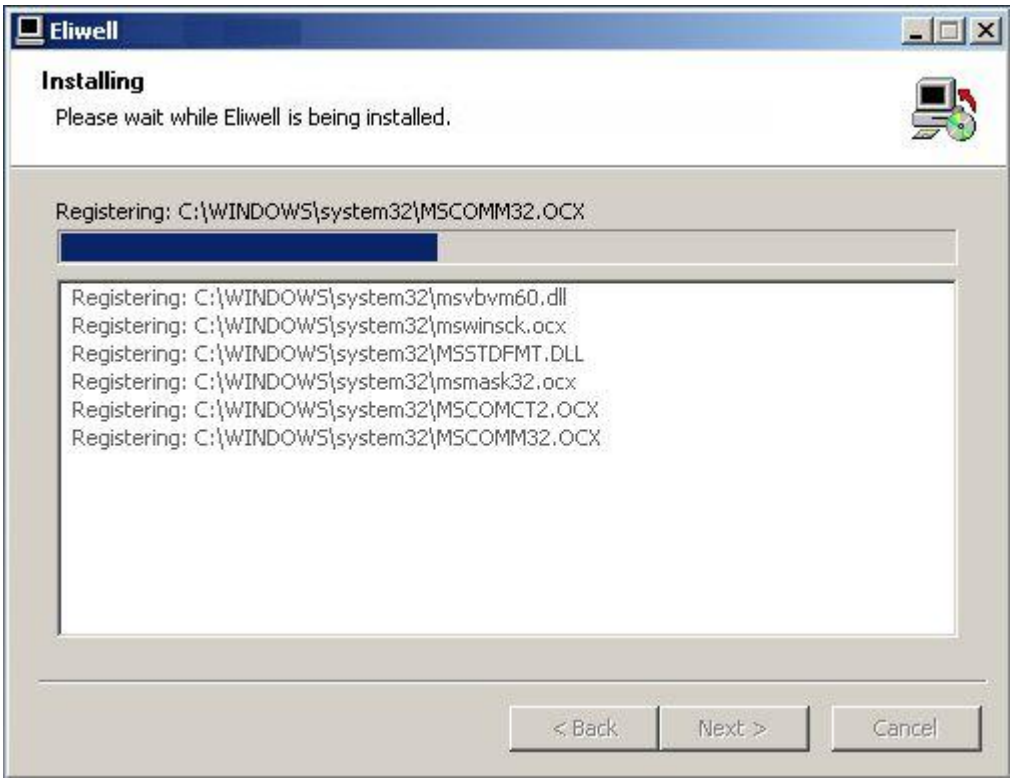
The following screens are examples of the installation windows:


Eliwell
Welcome to the Eliwell Setup Wizard
This wizard will guide you through the installation of Eliwell
It is recommended that you close all other applications before starting Setup. This will make it possible to update relevant system files without having to reboot your computer.
Click Next to continue.
Next >
Cancel


Eliwell
Choose Install Location
Choose the folder in which to install Eliwell
Setup will install Eliwell in the following folder. To install in a different folder, click Browse and select another folder. Click Next to continue.
Destination Folder
C:\Program Files\Eliwell
Browse...
Space required: 17.4MB
Space available: 5.6GB
< Back
Next >
Cancel


Eliwell
Choose Start Menu Folder
Choose a Start Menu folder for the Eliwell shortcuts.
Select the Start Menu folder in which you would like to create the program's shortcuts. You can also enter a name to create a new folder.
Eliwell
Accessories
Administrative Tools
Adobe
Adobe Acrobat 4.0
Advanced Administrative Tools
America Online
ANSMTP SMTP COMPONENT
Apache HTTP Server 2.0.55
AppDev Learning Demo
Chinese keywords
Classic PhoneTools
Do not create shortcuts
< Back
Next >
Cancel


Eliwell
Choose Components
Choose which features of Eliwell you want to install.
Check the components you want to install and uncheck the components you don't want to install. Click Install to start the installation.
Select components to install:
Eliwell
Desktop Shortcut
Space required: 17.4MB
< Back
Install
Cancel



Install USB Interface Drivers (for use with PDLUSBIF)

The USB interface drivers can be installed when the host computer has USB drivers. After the installation the data logger will communicate with the PC through USB port. The host computer must have USB drivers to install the USB interface drivers.

Select the **Install** button to install USB interface drivers.

NOTE: A pop up box may appear explaining **This software may impair or destabilize the correct operation of your system either immediately or in the future**. The drivers have been tested and will not interfere with the operation of the host computer. Select "continue" to proceed with the installation.

Installation Documents

View ELIWELL Read Me, View ELIWELL Software Manual and **View ELIWELL Quick Start Guide** are documents about ELIWELL data loggers, software, and more. After installation, the software will be listed under the default ELIWELL software program group and saved under the default C:\Program Files\ELIWELL\ directory.

To begin immediately, see the Quick Start Guide.

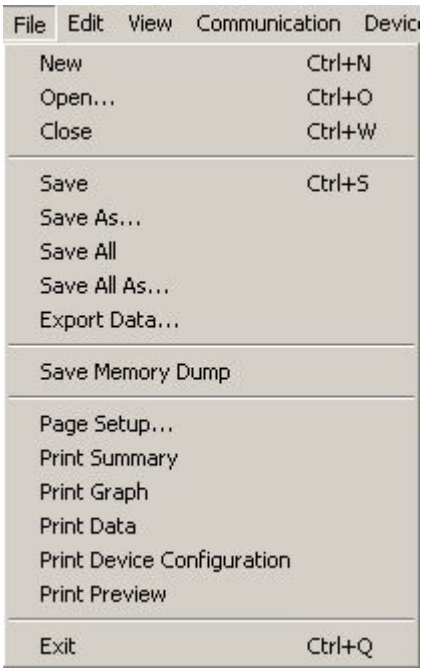
Running the Software

Run the software by selecting the ELIWELL icon in the ELIWELL Software program group. The software will open and is immediately ready for starting a device or downloading data. The tool bar and menu items will appear as shown below. All toolbar commands are also menu commands.

NOTE: Throughout this manual, when a menu command has a corresponding toolbar command, the toolbar icon is included with the description of the menu command.

The File Menu

The File Menu will appear as follows:



File Menu: New

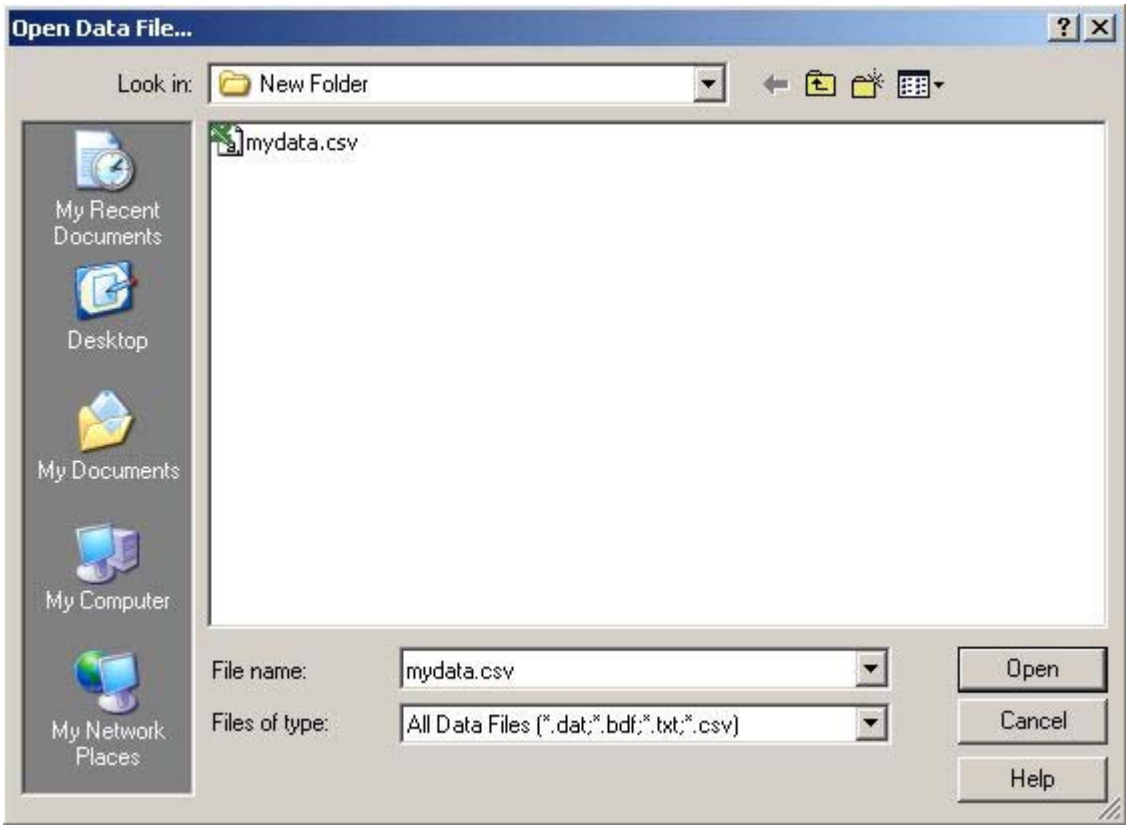
Select this command to create a new graph window. It will not discard any information that is already on the screen or in existing windows. Multiple windows may be created and displayed simultaneously, and may be manipulated using the Window Menu..

File Menu: Open

Select this command to open previously saved data files, loading them into the current window. If no windows are open, a new one will be created. Data in the current window is not discarded, the new data is added as an additional dataset. Multiple windows may be created and displayed simultaneously, and may be manipulated using the Window Menu.

Open Dialog Box

Select the Open command for the following window:



There are three types of files that may be opened with this software. These file formats are described in Save.

File Menu: Close

This command closes the currently active window. If the data displayed in the window has not been saved, the user will be prompted to save it at this time. This command will not discard data from or close any other existing windows.

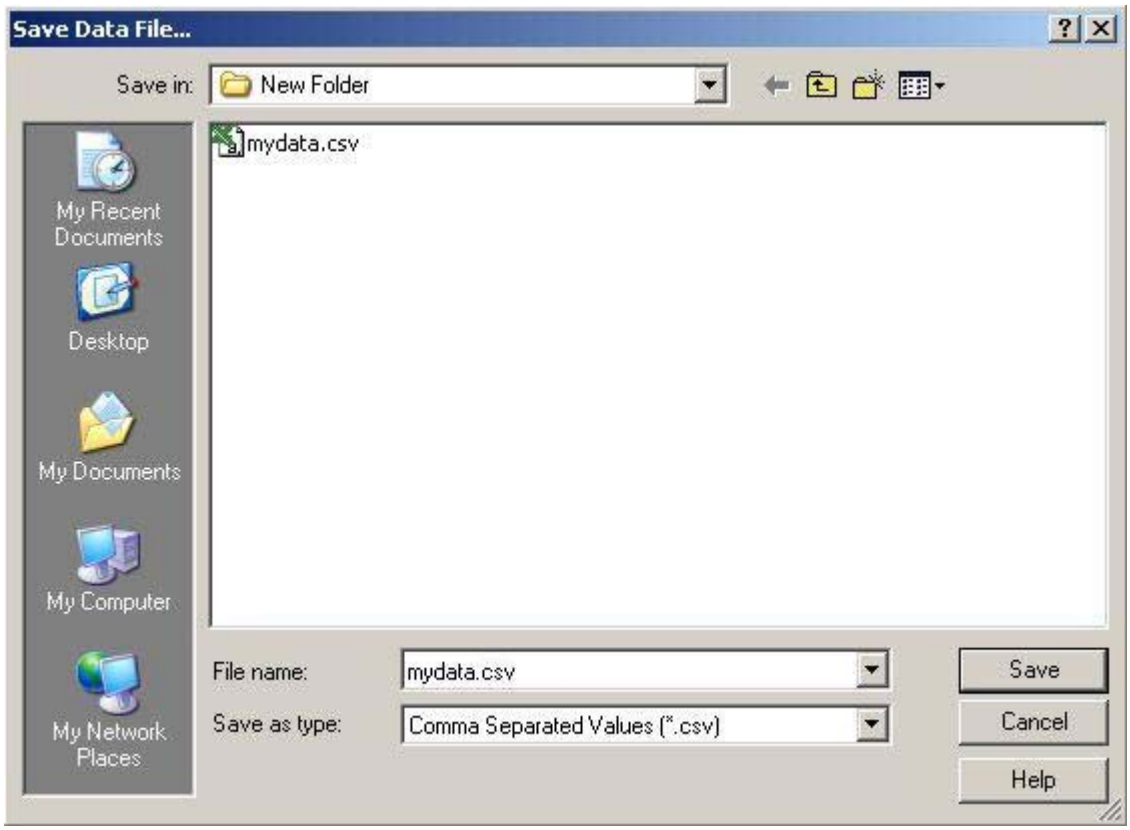
File Menu: Save

File Menu: Save As

Select **Save As** from the **File Menu** to save a copy of data under an alternate name, in any of the three file types discussed on the following page.

File Menu: Save All

Select **Save** or **Save All** from the **File Menu** to display the window as shown below:



Data may be saved as any of three types of files. These files are as follows:

***.dat**
This is our own internal ASCII data format. This format can be viewed by most text editing or word processing software.

***.txt**
Files stored in this format contain tab delimited text and can be viewed by most word processing and spreadsheet programs.

***.csv**
Files stored in this format contain comma separated values and are directly readable by Microsoft Excel. and many other spreadsheet programs.

NOTE: In order to save a dataset, it must be displayed in the Graph or Data tab.
NOTE: To read data in an external program use the Export Data command.

File Menu: Save All As

Select **Save All As** from the **File Menu** to save all copies of datasets under alternate names, in any of the three file types discussed.

NOTE: The user will be prompted to save each individual dataset as a different file. The software does not upload one file as multiple datasets; they are required to be uploaded individually.

File Menu: Export Data

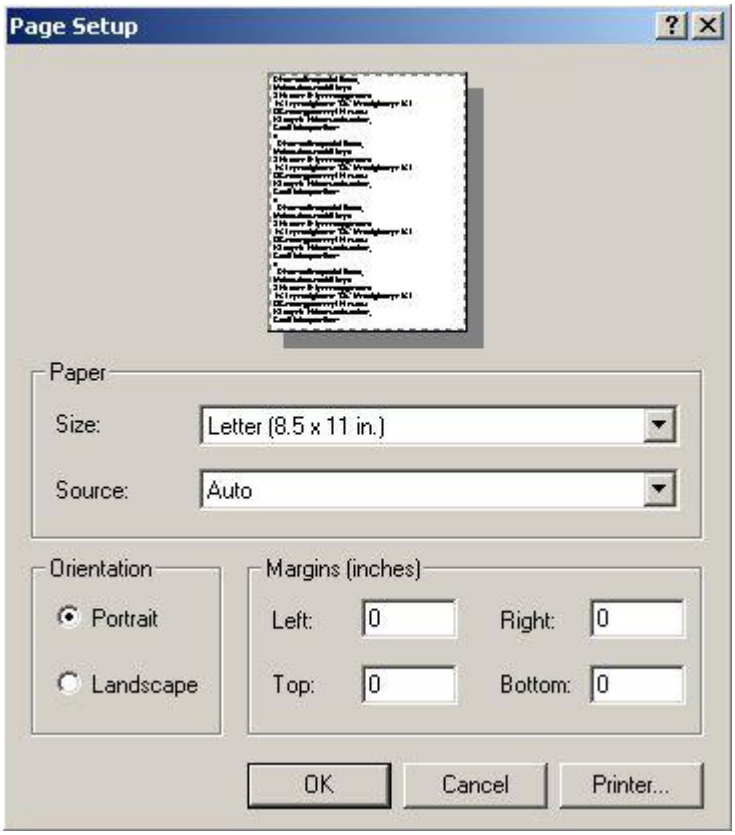
Select **Export Data** from the **File Menu** to export a copy of the data in a format that is designed for easy import into programs such as Excel. . Data can be read in the same units displayed on the screen. The three file types are the same as those provided with the Save command, except data which is specific to the software, such as graph colors, is stripped out. Use Export to open the file in another program.

File Menu: Save Memory Dump

Select **Save Memory Dump** from the **File Menu** to download the entire memory contents of the attached device and save it in binary format. This command is useful to the factory for troubleshooting problems in the field and recovering data from a malfunctioning device. The user will typically not use this command unless directed to do so by our tech support department.

File Menu: Page Setup

Select **Page Setup** from the **File Menu** to bring up the window below. This window allows the user to select the printer and printing options. The options will vary according to the particular printer and network. Consult the printer manufacturer for details about the printer's options.



File Menu: Print Summary

Select **Print Summary** from the **File Menu** to print the statistics for currently selected device.

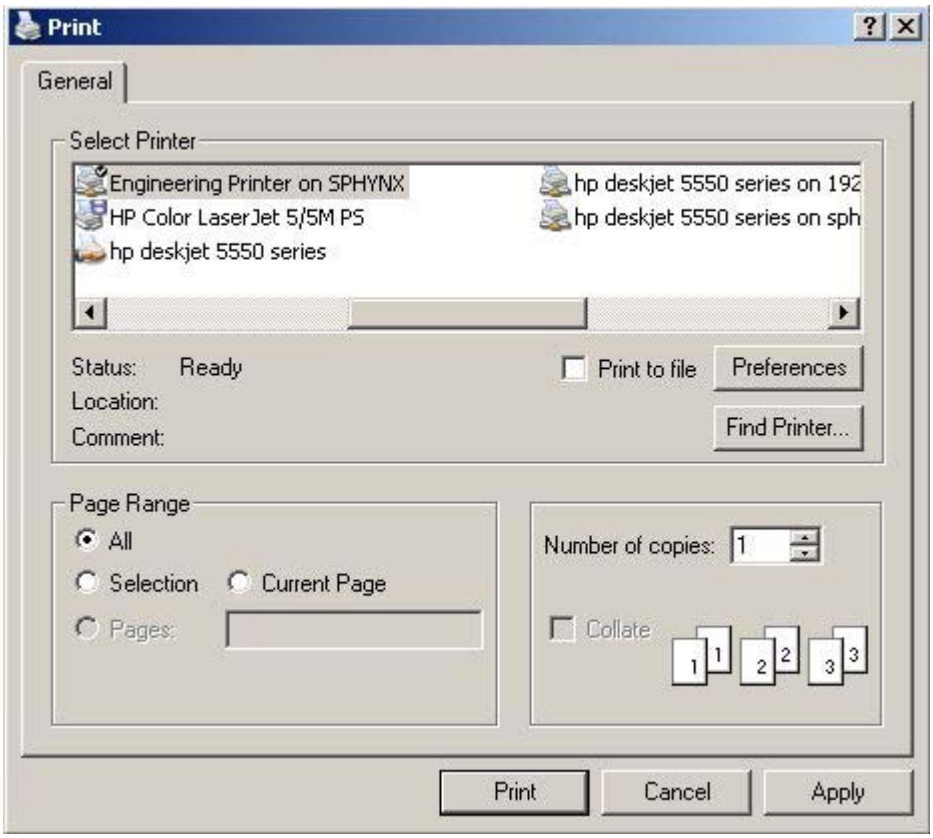
File Menu: Print Graph

Select **Print Graph** from the **File Menu** to print the currently selected graph to the host printer. The single dataset file can be printed by viewing the Graph tab. Printing out the composite graph can be achieved through the Composite Graph tab.

File Menu: Print Data

Select **Print Data** from the **File Menu** to print the device data in table format. The amount of data will vary depending upon the device and the number of data points.

Select one of the choices from above **Print Summary, Print Graph**, and **Print Data** from the **File Menu** to bring up the following window:



File Menu: Print Device Configuration

Select **Print Device Configuration** from the **File Menu** to print information that relates to the dataset file currently displayed on the screen.

NOTE: The message **unable to print device configuration** will inform the user if there is no dataset file open.

File Menu: Print Preview

Select **Print Preview** from the **File Menu** to place a check mark next to it. When this menu item is checked, the result of Print Graph, Print Data, Print Summary and Print Device Configuration will display on the screen, rather than on the host printer. This allows a preview of the data to be printed. To uncheck this menu item select **Print Preview** again.

File Menu: Exit

Select **Exit** from the **File Menu** to close all open files and exit the program. There will be a prompt to save all files that have been changed.

The Edit Menu

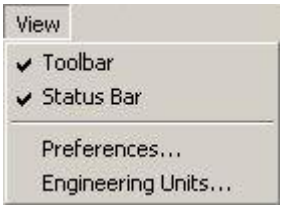
The Edit Menu will appear as follows:

Edit Menu: Cut, Copy & Paste

The **Edit Menu** toolbar is currently disabled.
The Cut, Copy and Paste functions are not available for use.

The View Menu

The **View Menu** will appear as follows:



View Menu: Toolbar

The **Toolbar** option is used to show or hide the toolbar located at the top of the screen. Hiding the toolbar allows more room for the graph being displayed.

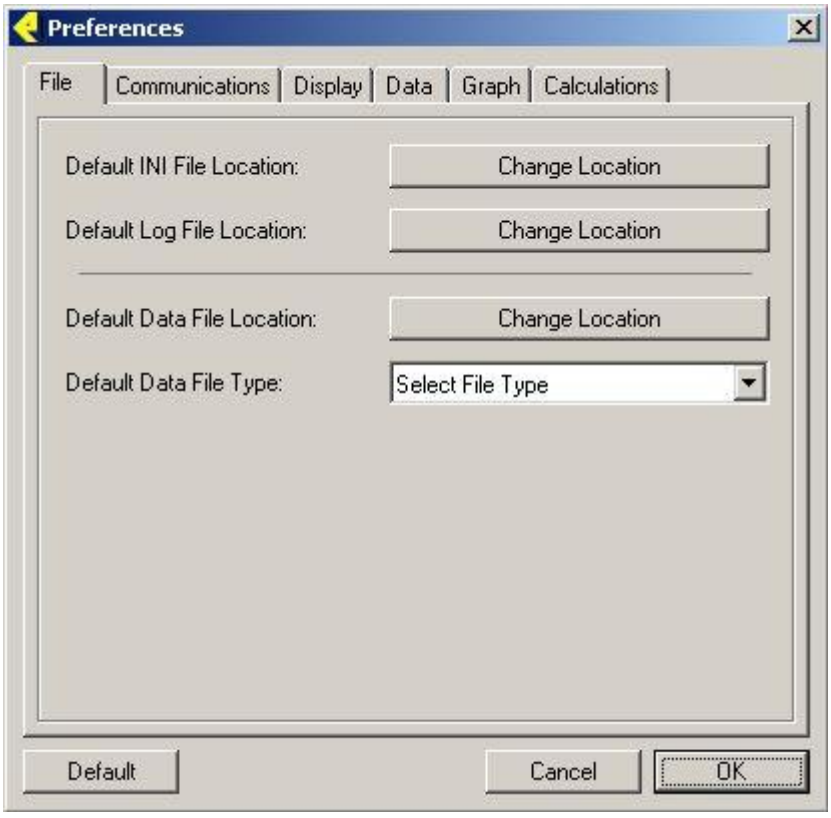
View Menu: Status Bar

The **Status Bar** option is used to show or hide the status bar located at the bottom of the screen. Hiding the status bar allows more room for the graph being displayed.

View Menu: Preferences

Select **Preferences** to display the window shown below.

The following six tabs are found in this window: File, Communications, Display, Data, Graph, and Calculations. Each tab creates the ability to set preferences for a part of the program.



File Tab

Select the **File** tab from **Preferences Form**, to set the default file locations.

Default Log File Location

The **Default Log File Location** from the **Preferences Form** refers to the log files that are created while the software is running. Not all data loggers create a log file. The software appends a log file for each wireless transmitter when it receives a transmission. Through this option the user can change the default location where the log files are saved.

Default INI File Location

Select the **Default INI File Location** from the **Preferences Form** to refer to the initial settings the software will apply when it starts up. For those without read/write privileges, the INI File Location can be changed to a public folder for multiple users.

Default Data File Type

Select the **Default File Type** to choose from the list of file types in the drop down menu . The type can be changed when the file is saved, it is simply convenience setting. When checked, the data will be automatically be saved to the default file location that was selected in the file tab.

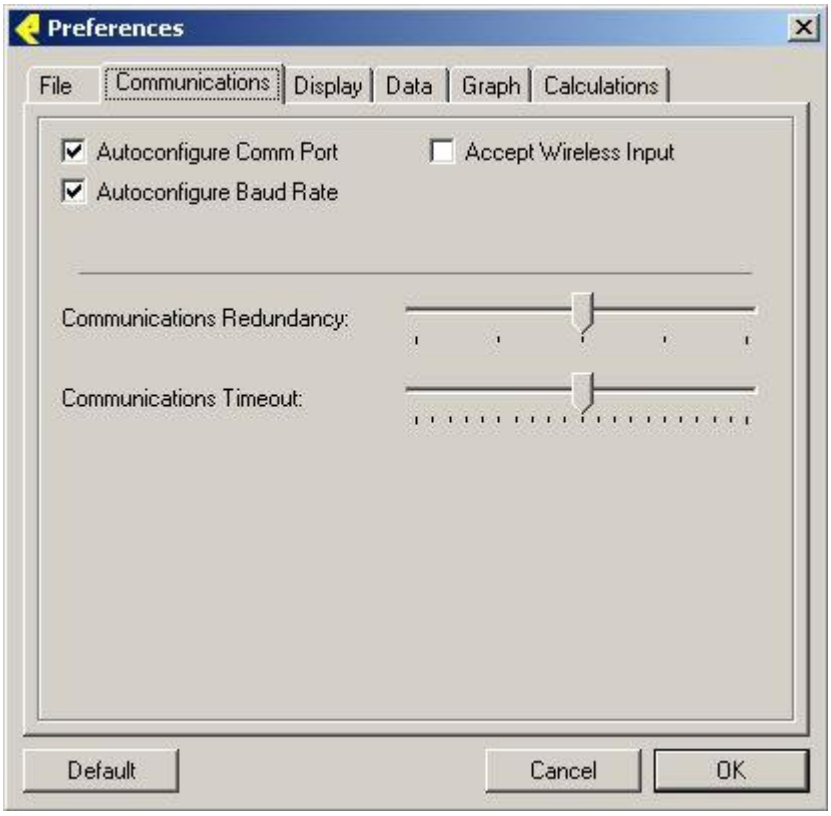
NOTE: This is limited to the data that was downloaded from the device to the computer (see Read Device Data).

Default Data File Location

Select the **Default Data File Location** from the **Preferences Form** to refer to the folder that the datasets are saved to. When the user Saves a file, the chosen directory will be the default save location. This can be changed when the user saves the file, it's simply a convenience setting.

Communications Tab

This tab sets various Communications preferences.



Autoconfigure Comm Port

Check this option to automatically configure the correct COM port in use to the host computer's . Leave this item checked unless the software is having trouble identifying the host computer's COM port (this happens rarely, usually only on older PCs). If this item is unchecked, the user must configure the Comm settings manually. See Select Comm Port.

Autoconfigure Baud Rate

Check this option to automatically configure the correct communications speed. Leave this item checked unless the software is having trouble identifying the host computer's COM port (this happens rarely, usually only on older PCs). If this item is unchecked, the baud rate must be configured manually. See Select Baud Rate.

Accept Wireless Input

Check this option to accept real time readings from the RF series of data loggers. To accept these readings the computer must have an RFC101A interface cable connected to an available COM port and the wireless RF logger or extender radios must be enabled to transmit.

Communications Redundancy

This refers to the number of times the PC will try to communicate with the logger. Setting the tab closer to the left will decrease the number of times it will try to communicate and setting the tab further to the right will increase the number of times it will try to communicate with the logger.

Communications Timeout

This refers to the length of time the PC will wait for the response from the data logger. Setting the tab closer to the left will decrease the amount of time the PC waits for a response, while setting the tab further to the right will increase the length of time the PC will wait. This setting is used when the user is has a device that takes a longer time to respond to the PC.

Display Tab

The **Display Preferences Tab** sets display time and language settings.

Use 24 Hour Time Format

Check this box to use a 24-hour format. Leave it unchecked to use a 12-hour format.

Use UTC Standard Time

Check this box to use Universal Coordinated Time (UTC). Formerly known as Greenwich Mean Time (GMT).

Use UTC Abbreviation Time

Check this box to display the time zone that is relative to UTC time. If both the **Use UTC Standard Time** box and **Use UTC Abbreviation Time** box are unchecked then the system time of the PC will be displayed.

Select Display Language

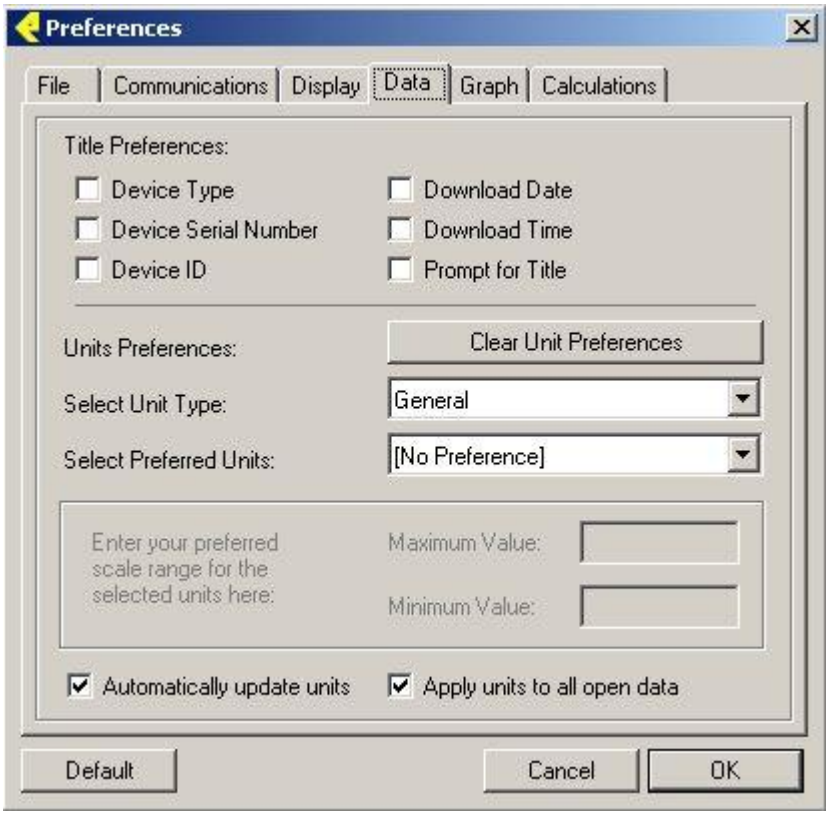
Choose the language to be displayed on the software from the language drop down list. The software toolbar command also offers the language choice.

Automatically Select Language 

Check the **Automatically Select Language** box to choose the restarted software language as the computer system language and ignore the selected language. Unchecked the restarted software language is always the selected language.

Data Tab

The **Data Preferences** tab can set various data preferences.



Title Preferences

The **Title Preferences** settings determine which items appear in the Title of the dataset. If all boxes are unchecked **untitled dataset** will appear as their title name. The Device Type, Device Serial Number, Device ID, Download Date, and Download Time can be selected or unselected. Check the **Prompt for Title** box to prompt for a title each time, rather than generating its own title. These features must be enabled prior to downloading the data for them to apply.

Units Preferences

The **Units Preferences** settings determine the units used for the various types of measurements. In **Select Unit Type**, select the type of measurement from the dropdown list, then **Select Preferred Units** to use from the second dropdown list. The high point and low point range can be defined on the graph. This defines the **Preferred Scale**. See Set Graph to Preferred Scale.

Clear Unit Preferences

Select the **Clear Unit Preferences** button to set all unit preferences to the [No Preference] setting.

Automatically update units

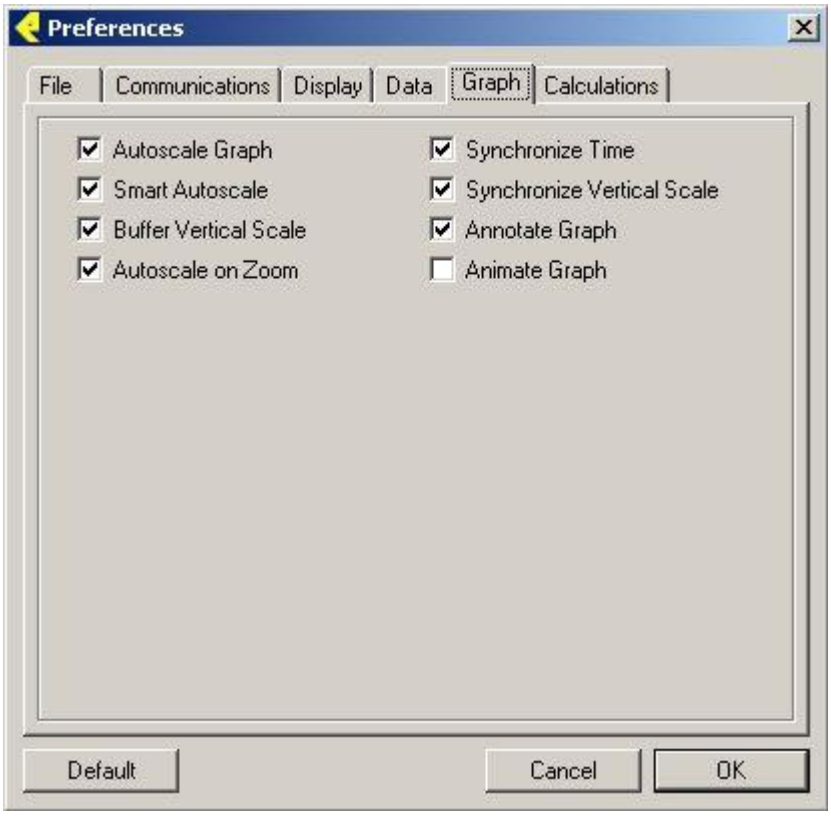
Check the **Automatically update units** option to allow preferred units to change when the corresponding units are changed on the screen.

Apply units to all open data

Check the **Apply units to all open data** option to trigger all corresponding units to change datasets on the screen. From this tab the graph preferences can be selected.

Graph Tab

In the **Graph Preferences** tab the graph preferences can be selected.



Autoscale Graph

Check the **Autoscale Graph** option to automatically optimize the vertical scale of the graph to match the minimum and maximum data points shown on the graph. This provides maximum resolution for viewing the graph.

NOTE: The Composite Graph will have the Autoscale Graph option applied if there are multiple datasets that have the Autoscale Graph option applied and un- applied.

Smart Autoscale

Check the **Smart Autoscale** option to round the vertical and horizontal scales to a tenth of a decimal

point providing a slightly wider scaled range. If the option is off then the horizontal and vertical scales will be rounded to the thousandth.

NOTE: The Composite Graph will have the Smart Autoscale option applied if there are multiple datasets that have the Smart Autoscale option applied and un- applied.

Buffer Vertical Scale

Check **Buffer Vertical Scale** option to add an extra 10 measurements to the beginning and end ranges of the vertical scale, making the plotted lines more centered in the graph.

Autoscale on Zoom

Check **Autoscale on Zoom** option to automatically scale the graph when zooming in using the horizontal zoom tool only.

Synchronize Time

Check **Synchronized Time** option to view multiple graphs which only affects the composite graph tab. When checked, multiple datasets will be shown over a scaled period of time through the composite graph. When unchecked the multiple datasets will instead overlap each other and the time shown is directly related to which graph the cursor has selected.

Synchronize Vertical Scale

Check **Synchronize Vertical Scale** option to view multiple graphs which only affects the composite graph tab. When checked multiple datasets are shown with scaled vertical ranges, meaning each parameter (temperature, humidity, etc.) will have one default set range for each parameter. When the option is unchecked each plotted graph will have its own individual scaled vertical range.

Annotate Data

Check **Annotate Data** option to permit all annotations be viewed on the computer screen, this option is beneficial when printing the annotations. When this option in unchecked, the data can still be annotated, yet it is not visible on the screen unless that data point has been clicked, whereas the annotation appears in the top left hand corner of the graph.

Animate Graph

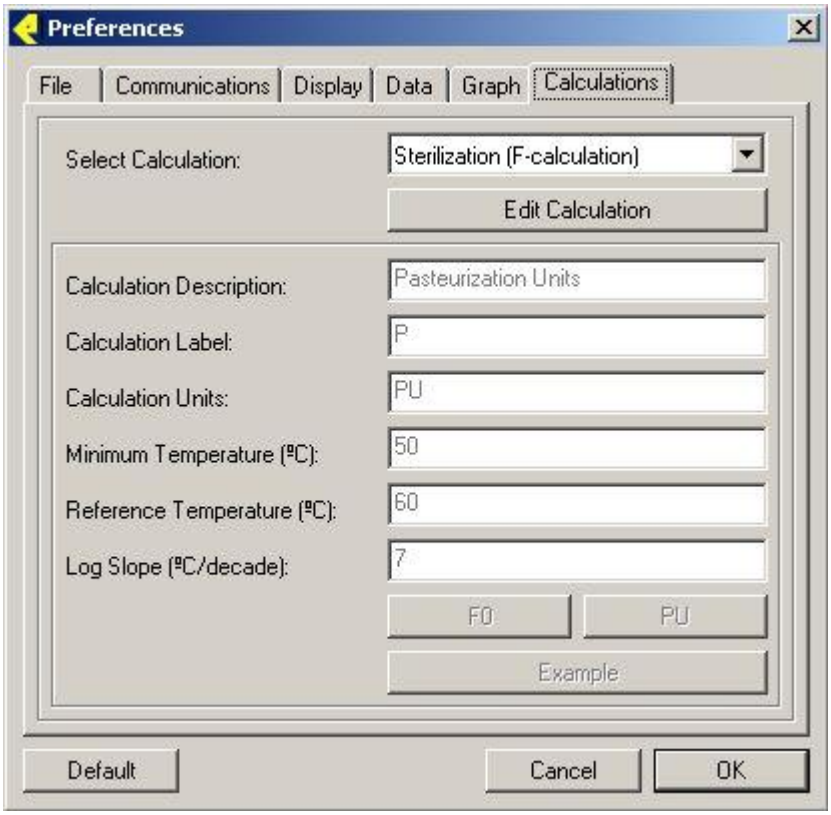
Check the **Animate Graph** option to create blinking maximum and minimum alarm setting lines on the screen.

Calculations Tab

In Calculations Preferences tab various calculations preferences can be set.

Edit Calculation

Select the **Edit Calculation** button, the following window will appear:



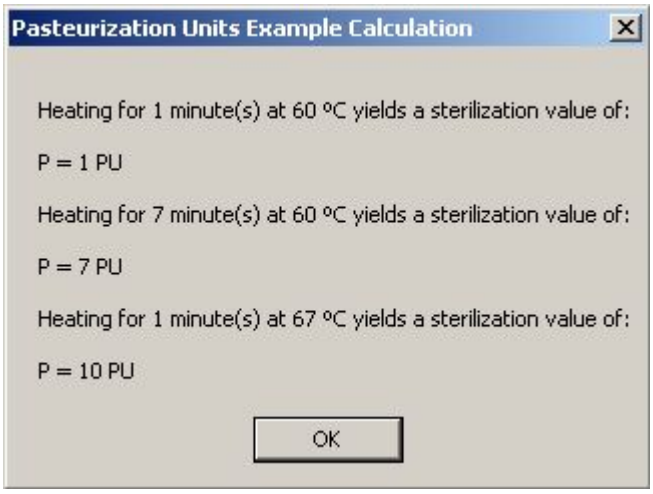
F0

Select the **F0** button to display the settings for F0, a common unit of sterilization.

PU

Select the **PU** button to display the settings for the Pasteurization Units.
Select the **Example** button to show the user an example. The window will appear as follows:

Example Calculation Screen



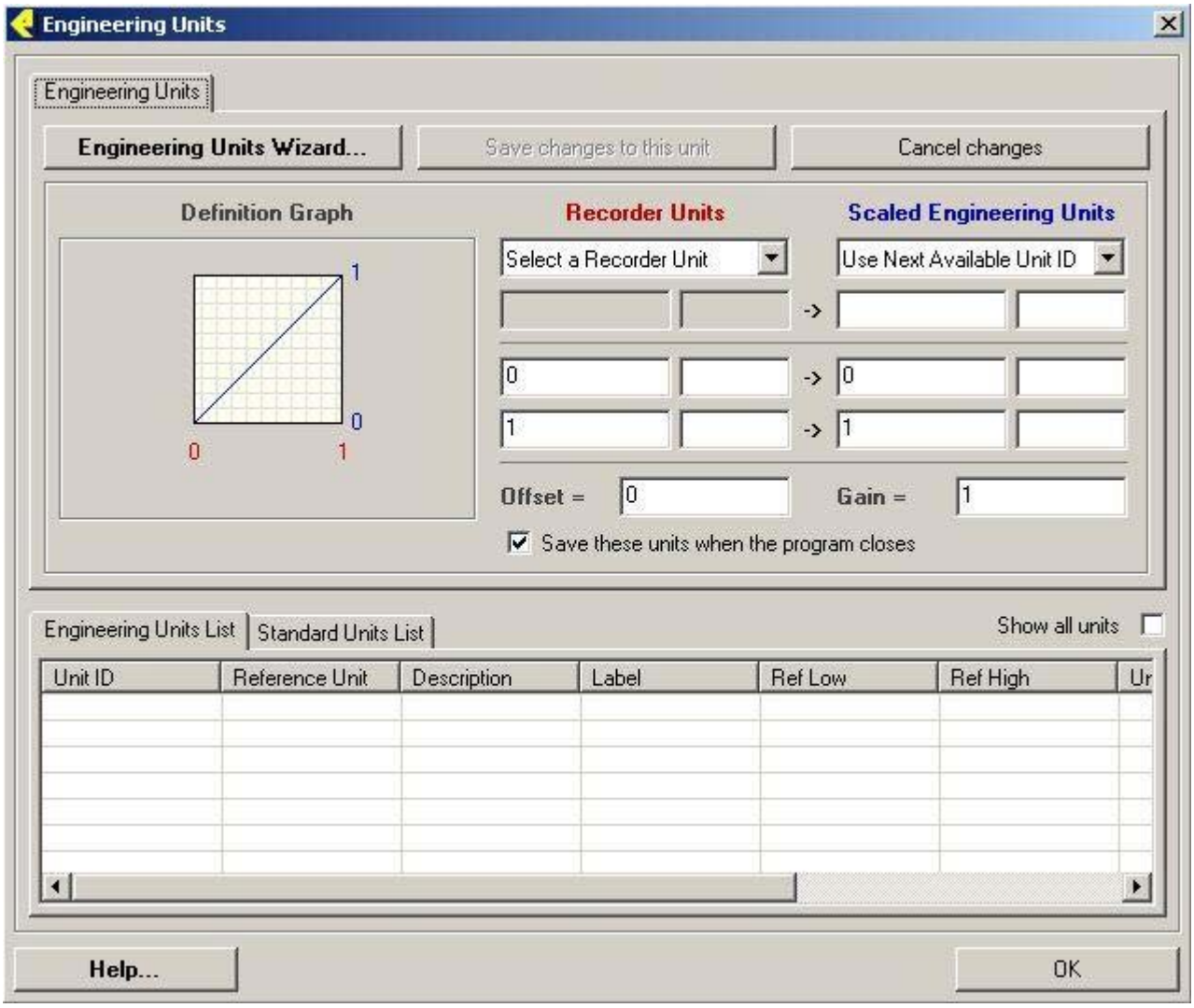
View Menu: Engineering Units (Software level)

This is a ELIWELL software feature which allows the customization of engineering units. These units are software level units (saved in the software specific to user's PC not the device) and their functions are the same as non-customized units.

NOTE: There are two types of engineering unit levels (software and device). The user can manipulate the software level engineering units whenever the software is on, but the device level is only available to edit when the connected device

has engineering units attribute. See Device Level Engineering Units for details.

Select **Engineering Units** from the View Menu to display the following window:



Create **Engineering Units** by using the **Engineering Units Wizard** button or **Create a new unit** button on bar below.

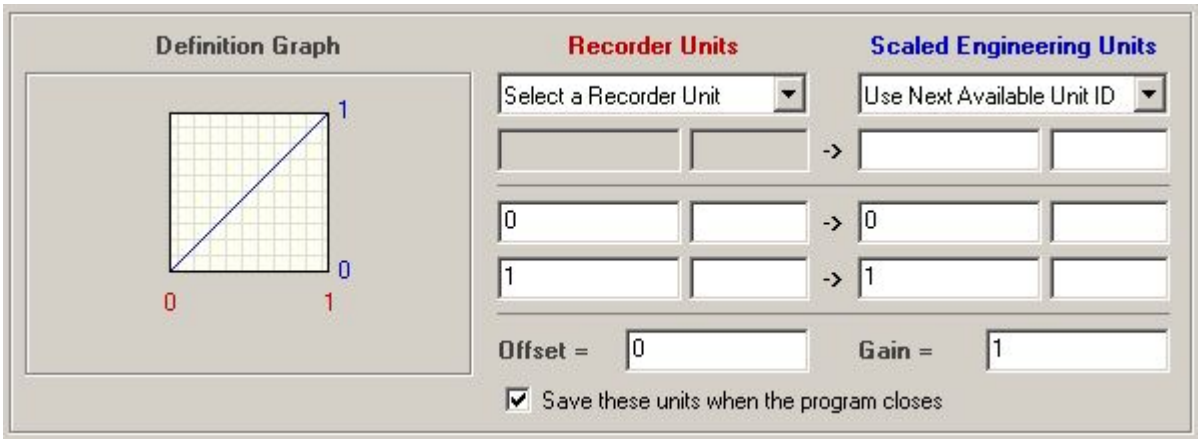
Engineering Units Wizard

Select the **Engineering Units Wizard** button to bring up the Engineering Units Wizard window in the following screen.

The wizard will calculate the engineering unit based on the input.

Edit Engineering Units

If the box below is enabled the engineering units can be edited directly. Otherwise, choose the **Create a new unit** button or highlight a record from the Engineering Units List to enable this part first.



Definition Graphs

The **Definition Graph** compares Recorder Units and Scaled Engineering Units when data is input for the engineering units.

Recorder Units

Select a Recorder Unit must be selected, then input the low/high reference values. When no specific unit is displayed the **Select a Recorder Unit** dropdown list (Fig. 1) will contain all available units, otherwise, it will only contain the unit that relates to the displayed unit (Fig. 2) as shown below.

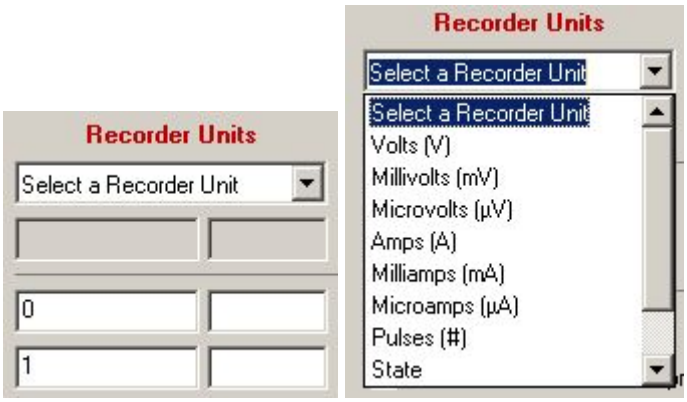


Fig.1

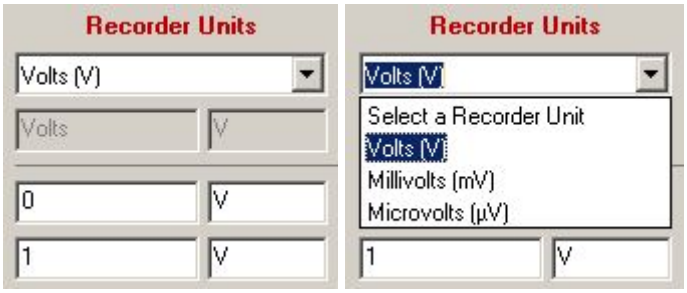


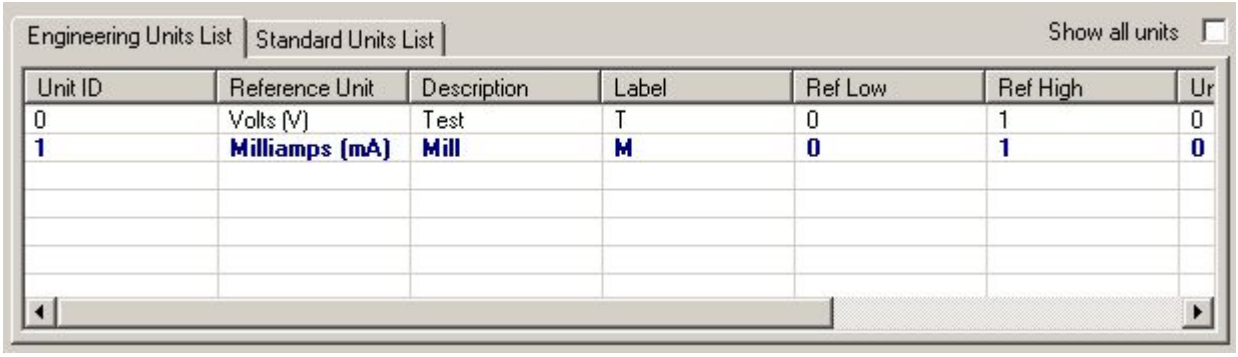
Fig.2

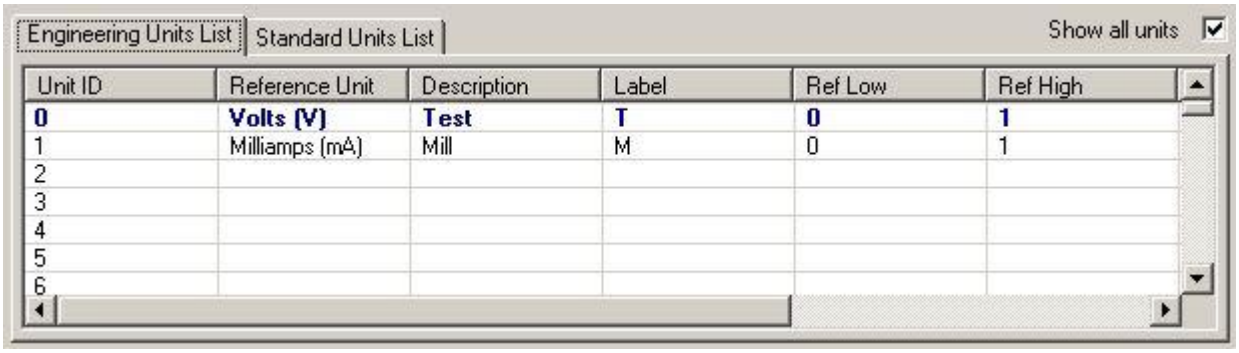
Scaled Engineering Units

The **Scaled Engineering Units**, screen shot of Edit Engineering Units, requests the description, label, and low/high unit values of the engineering unit. The description field allows the full name of the parameter to be displayed in the software. Examples of this are Volts, Milliamps, pH, Gallons, etc. This name is displayed on the graph and data table as the description of the data. The label field allows the label of the parameter to be displayed in the software. Examples are V, mA, pH, G, etc. The gain and offset fields are the equivalent of the "m" and the "b" respectively in the "Y = m * X + b" equation. X is the raw data from the device and Y is the data displayed by the software. Choose the **Scaled Engineering Units** dropdown list to select THE unit ID. If **Use Next Available Unit ID** is set as the default, the software will assign the next available unit ID to the created unit.
If the checkbox **Save these units when program closes**, screen shot bottom of Edit Engineering Units, , is checked when the program closes, the created unit will be saved in the software after the software is closed. Otherwise, the created unit will be lost after the software closes.

Engineering Units List

The **Engineering Units List** tab will display all the customized engineering units. To Edit a record highlight it. The information will be displayed in the Edit Engineering Unit's Recorder Units section.

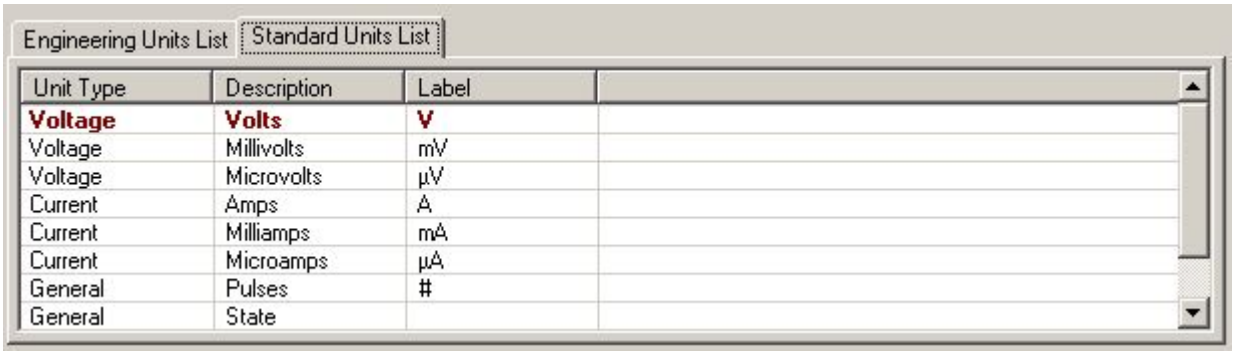




NOTE: The **Show all units** checkbox defines the status of both **Engineering Units List** tab and **Use Next Available Unit ID** dropdown list box. If checked, all available unit ID's will be displayed on both fields. The unit ID range is 0-255.

Standard Units List

The **Standard Units List** tab will display all the available unit type(s) that can be used to make customized engineering units.



The Communication Menu

The Communication Menu displayed below:

Communication Menu: Auto Configure Port

Select **Auto Configure Port** from the **Communication Menu** to automatically indicate which COM/USB port the device is attached and which baud rate the device uses to communicate. This command operates only when an interface cable is connected to an available COM/USB port and a functioning data logger. **If this command fails to find the device, then the device is not functioning properly or the interface cable is not properly connected**. Once the software has identified the COM/USB port and the proper baud rate, the information will be stored in the configuration file. This command only needs to be activated once. If a different COM/USB port is later used, or if a device with a different baud rate is used, then re-select the command.

Communication Menu: Select Comm Port

Select the **Comm Port** to manually set/choose the communication/USB port in which to connect the data logger. The correct COM/USB port must be selected, or the software will not to communicate with the

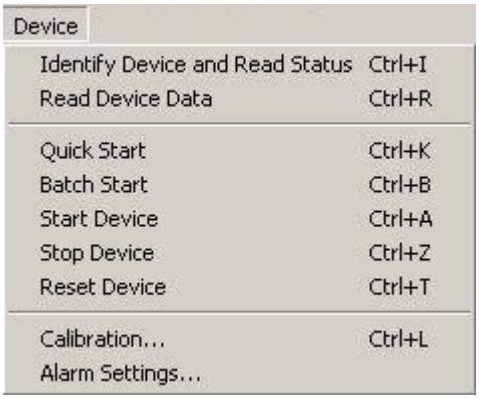
data logger. To automatically configure this option, refer to Auto Configure Port.

Communication Menu: Select Baud Rate

Select the **Baud Rate** from the **Communication Menu** to manually set the speed to use to communicate with the data logger. The correct baud rate must be selected, to allow the software to communicate with the data logger. To automatically configure this option, refer to Auto Configure Port.

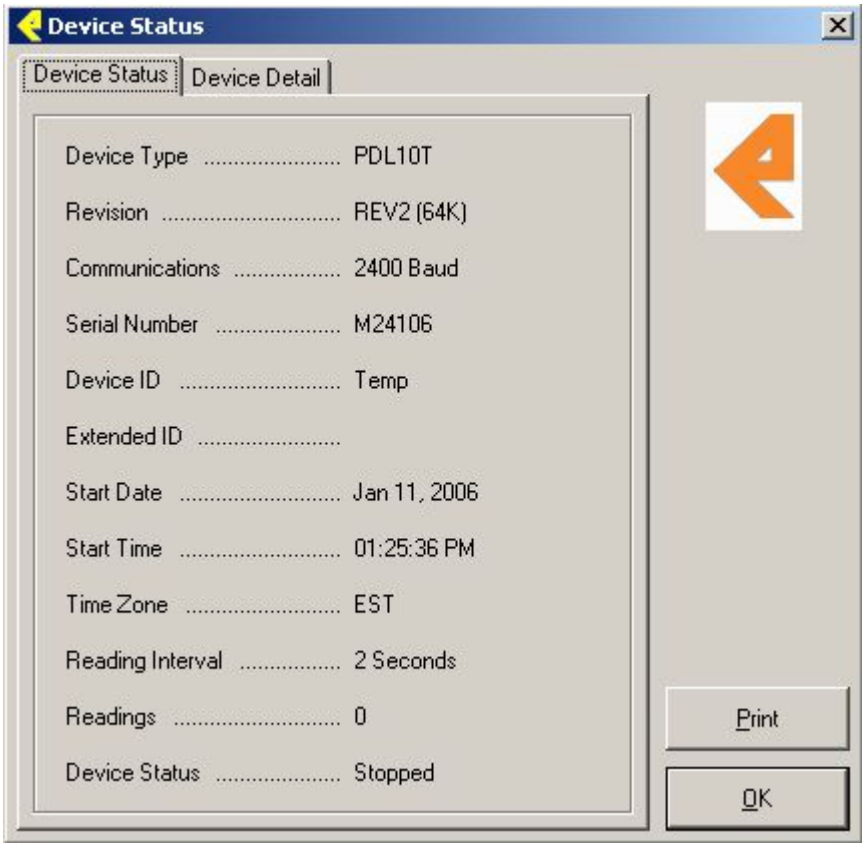
The Device Menu

The Device Menu will appear as shown:



Device Menu: Identify Device and Read Status

Select **Identify Device and Read Status** from the **Device Menu** to allow software to communicate with the attached data logger and display a window similar to this one:



Device Status Tab

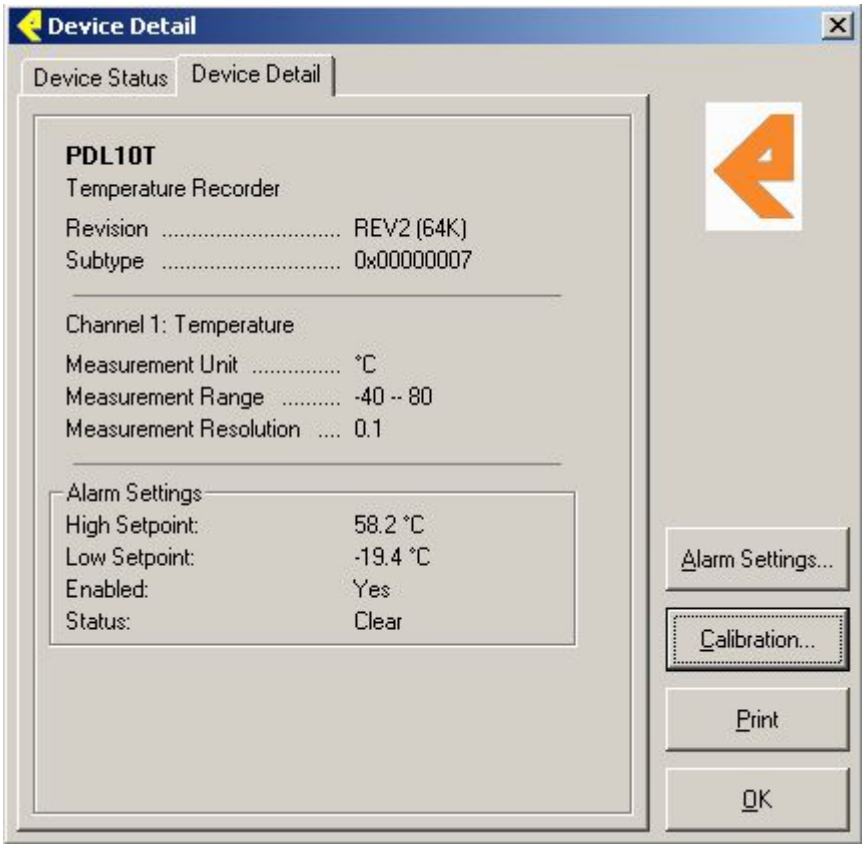
The **Device Status** tab displays the device type, revision number, serial number, Extender (user) ID, and operating parameters of the particular device in the Device Status dialog box. The serial number is set at the factory and cannot be changed by the software. The user ID can be selected when starting the device. This command will also verify that the software is able to communicate with the device and that the correct COM/USB port has been selected. If the device does not communicate, verify the following:

1. Are the COM port and baud rate correct?
2. Is there another device using the selected COM port, such as a modem or PDA?
3. Is the device's battery dead?
4. Is the PDLUSBIF cable connected to the correct COM port?

In addition, this command will read and indicate the current status and all pertinent information of the device that is connected. This provides a quick method for determining the current state or status of a particular device.

Device Detail Tab

The **Device Detail** tab displays the details of the device. An example of a PDL10T data logger is seen in the screen below:



The details include device type (device name as heading), revision number, subtype, and channel information. Information about Alarm Setting, Thermocouple Type, Engineering Units, Trigger Settings, Wireless Configuration, Wrap Around and Calibration will be displayed when the device supports these features.

NOTE: When these features exist, a corresponding button will be displayed on the lower right side of the screen. An Alarm Settings & Calibration button are displayed in the example on the screen above.

The following details are described as follows:

Alarm Settings

Select **Alarm Settings** to display an alarm setting screen that will permit the alarm range to be changed (see Alarm Settings for full operating instructions).

Thermocouple Type

Select **Thermocouple Type** to display a thermocouple type screen to specify which type of thermocouple is being used (see Thermocouple Type for full operating instructions).

Engineering Units

Select **Engineering Units** to display an engineering units screen to permit the type of units to be displayed on the graph to be defined (see Engineering Units for full operating instructions).

Trigger Settings

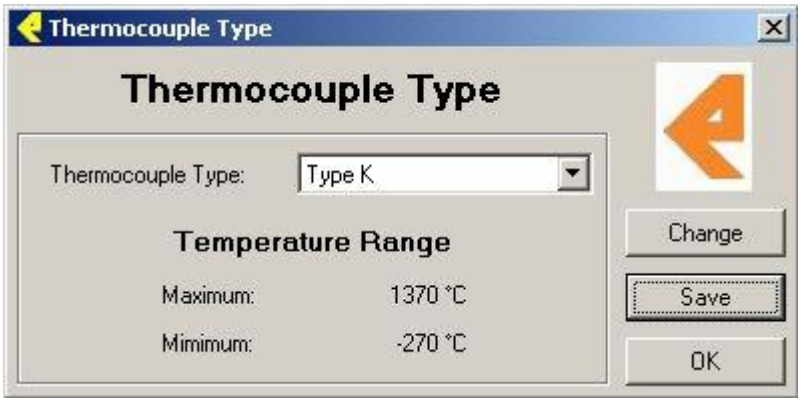
Select **Trigger Settings** to display a trigger setting screen that will permit the trigger range to be changed (see Trigger Settings for full operating instructions).

Calibration

Select **Calibration** to display a calibration screen to permit the device to be calibrated (see Calibration for full operating instructions).

Thermocouple Type

Select **Thermocouple Type** to display a thermocouple type window to request the input of the thermocouple type being used. This command is only available for devices that use thermocouples as the sensing element, such as the TC4000, TC110, QuadTemp, and OctTemp. The device will configure itself appropriately for the chosen type of thermocouple. The device requires this information to properly make temperature measurements and automatically perform the thermocouple cold junction compensation. Upon activation of this command, the software communicates with the device to determine if it has a programmable thermocouple attached. If it does, the following window appears:

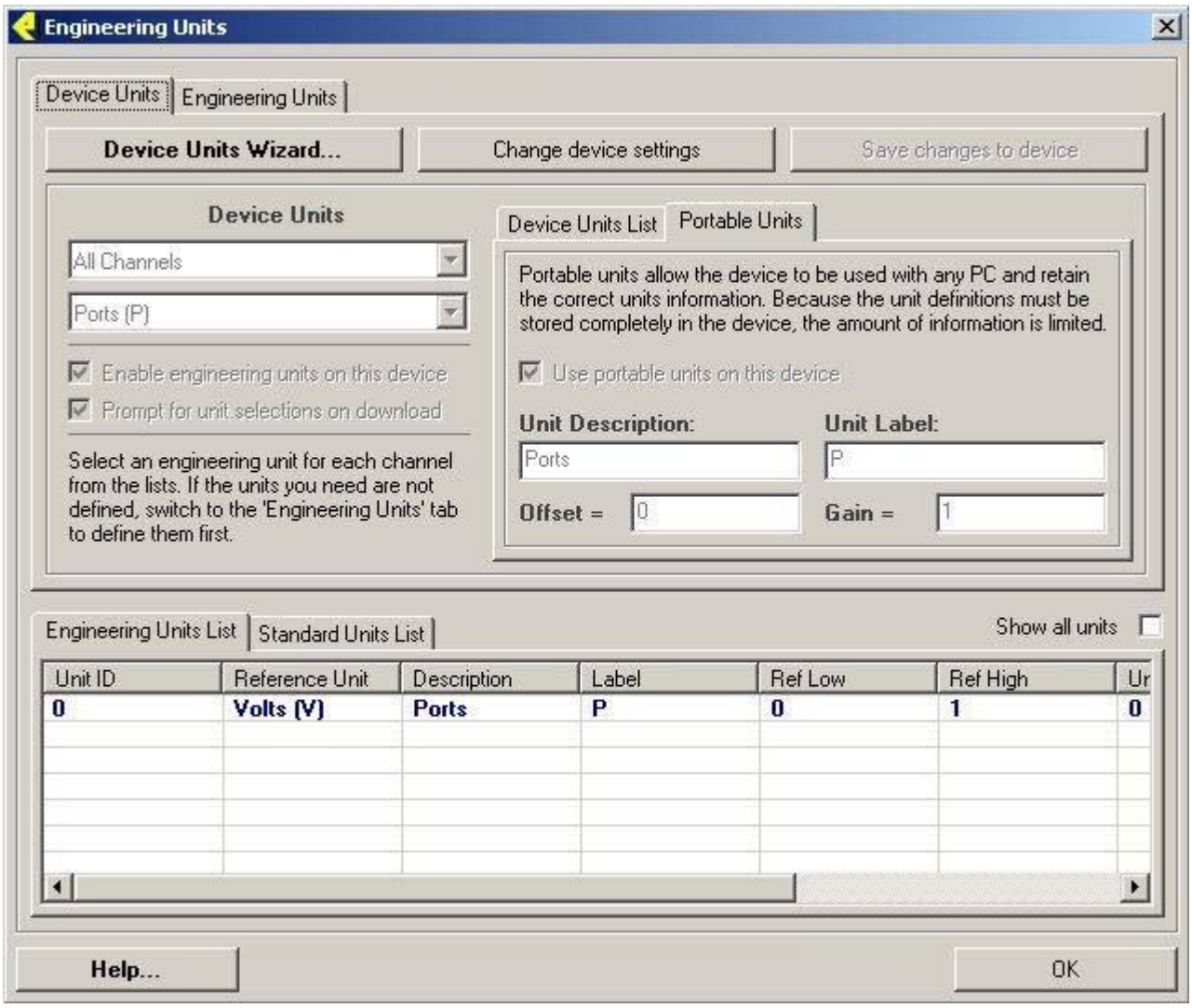


To change the thermocouple type, select the **Change** button. To commit the change, select **Save** to store the thermocouple type in the device. After selecting the thermocouple type, the temperature range for the chosen thermocouple is automatically displayed.

Engineering Units (Device/Software level)

The **Engineering Units** command is only available when a data recorder with this feature is connected to the host computer. Multiple engineering units can then be defined into multi-channel recorders.

NOTE: If the **software level engineering units** does not have the record of device engineering unit, a new software level record of device engineering unit with an unique unit ID will be created when Identify Device and Read Status are performed.



1. Device Units

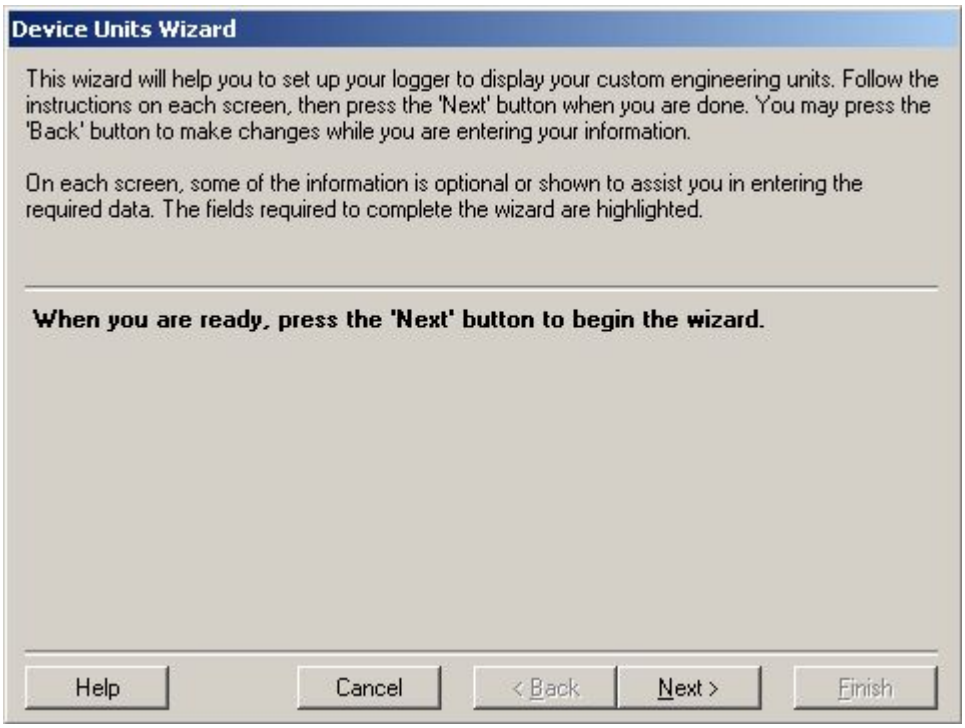
The **Device Units** tab contain the engineering unit(s) of the device connected to the host PC. The Device Units Wizard button (1) will automatically edited the device's engineering units or it can be done manually using the **Change device settings** button (2). Save the changes into the device select the **Save changes to device** button (3).

(1) (2)

(3)

A. Device Units Wizard

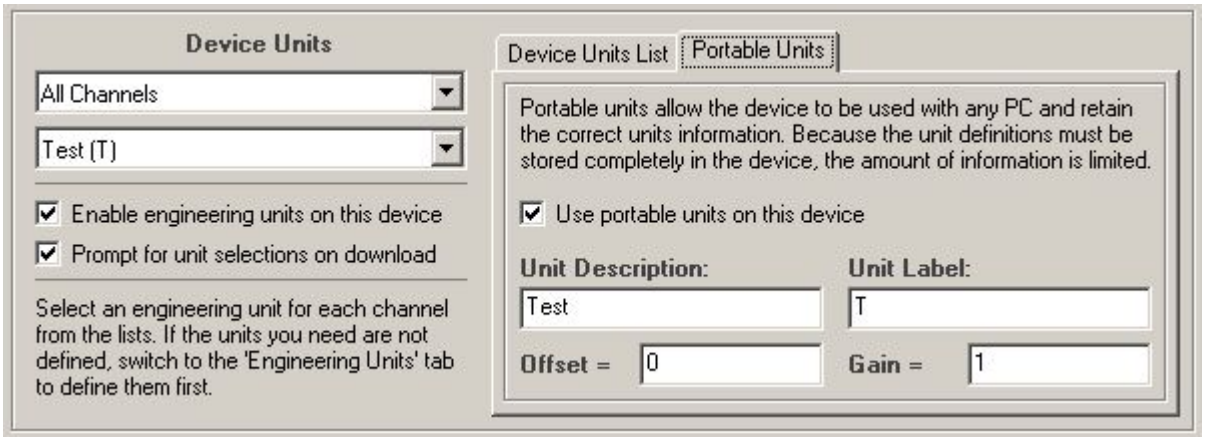
The **Device Units Wizard** will calculate the Device unit(s) based on the user's inputs.



B. Edit Device Units

When **Edit Device Units** is enabled, the engineering units of the device can be edited directly. Otherwise the user needs to select the Change device settings button (2) (see buttons above) to enable this part first.

NOTE: The **Use portable units on this device** checkbox defines the status of two dropdown list in the Device Units field. If it is checked then two dropdown lists will show all channels and portable units respectively.



Enable Engineering Units

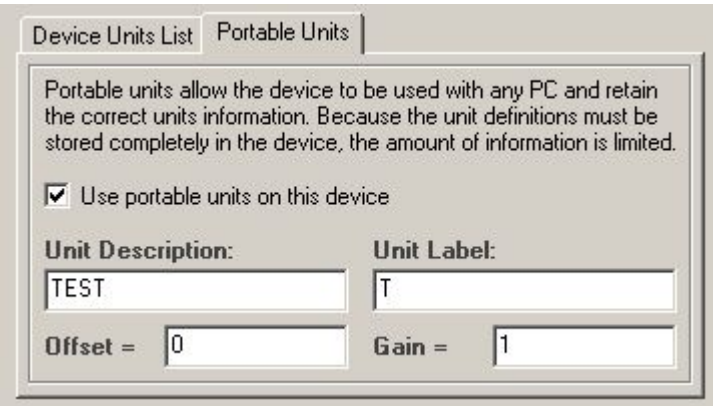
The **Enable engineering units on this device** option indicates if the units programmed into the device should be displayed when data is downloaded.

Prompt for unit selections on download

The **Prompt for unit selections on download** option allows the stored information to be edited each time the data is uploaded.

Portable Units

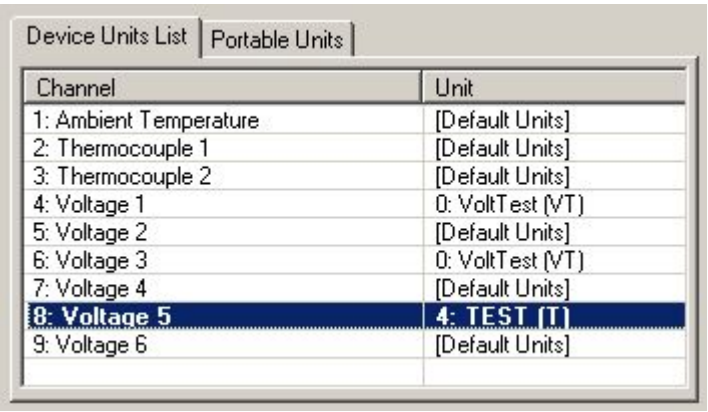
The **Portable Units** tab contains description, label, gain, and offset fields. The description field is used to enter the full name of the parameter to be displayed in the software. Examples of this are Volts, Milliamps, pH, Gallons, etc. This name is displayed on the graph and data table as the description of the data.



The label field is used to enter the label of the parameter that is to be displayed in the software. Examples are V, mA, pH, G, etc. The gain and offset fields are the equivalent of the "m" and the "b" respectively in the "Y = m * X + b" equation. X is the raw data from the device and Y is the data displayed by the software.

Device Units List

The **Device Units List** tab shows all channels and their corresponding unit.

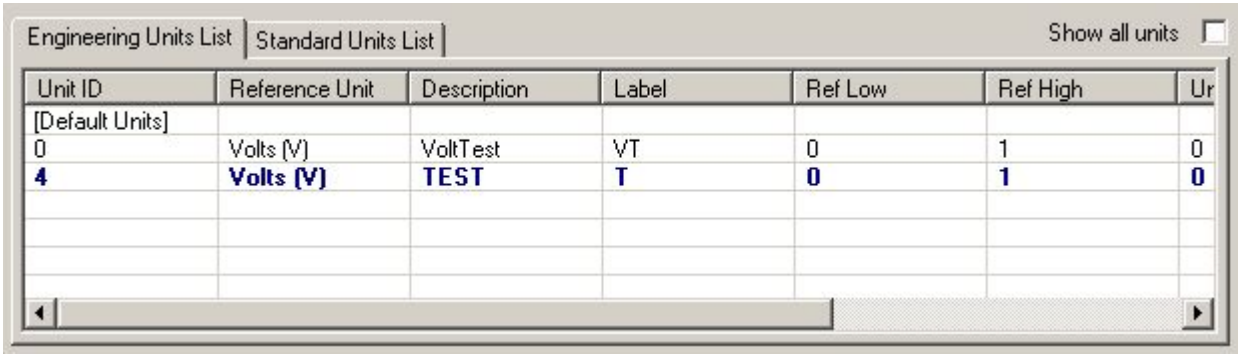


NOTE: To assign the engineering unit to the specific channel select the channel and choose the record from Engineering Units List below. If the unit assigned to the channel is a software level (not device level) engineering unit then the **Use portable units on this device** option in Portable Units will be unchecked.

Unit Description	Unit Label
Rate	M/S (meter/scale)
Concentration	PPM
Pressure	PSI
Metering	Watts, gallons
Level	Inches
pH	pH

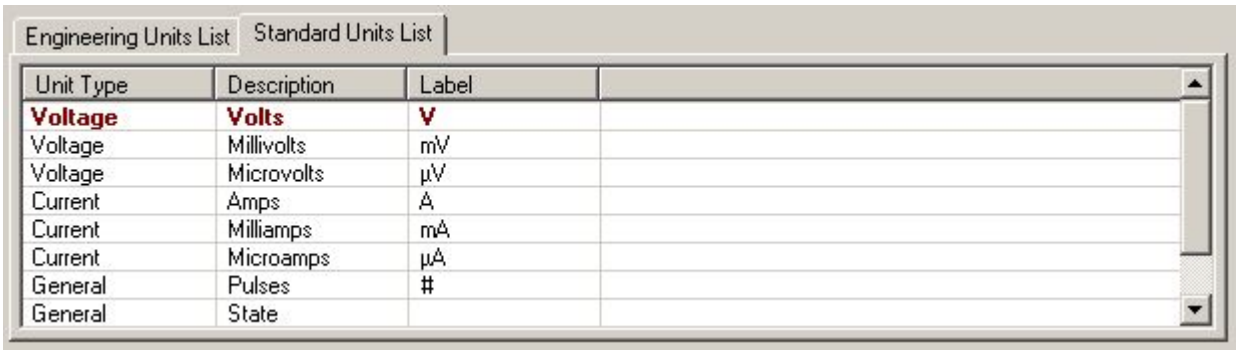
Engineering Units List

The function of the **Show all units checkbox** is described in Software Level Engineering Units List, see Engineering Units (software level).



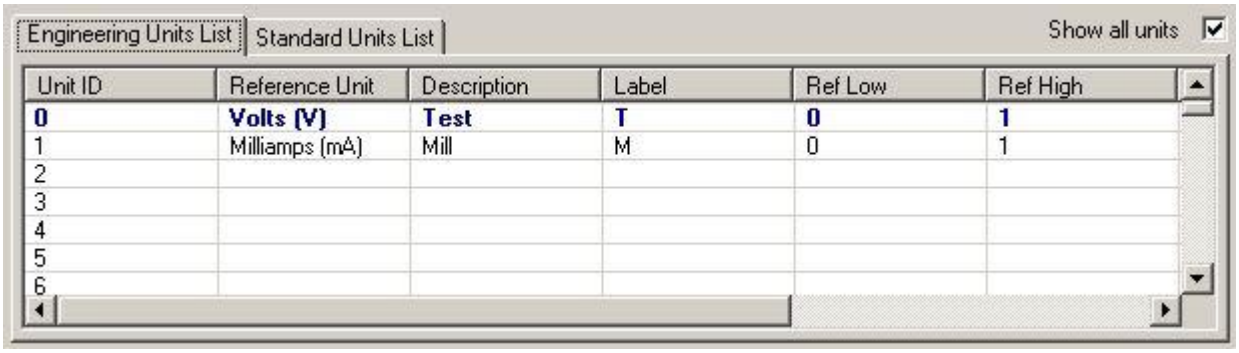
Standard Units List

The **Standard Units List** tab will display all the available unit types that can be used to make customized engineering units.



2. Engineering Units

The **Engineering Units** tab will be the same as Engineering Units Software level.

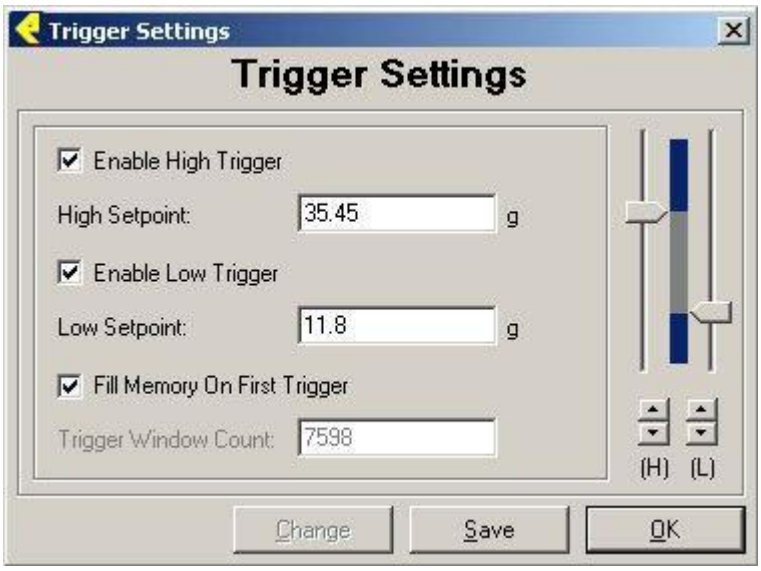


NOTE: The edibility of the **Device Units** and **Engineering Units** tabs will be opposed so they cannot be edited at same time.

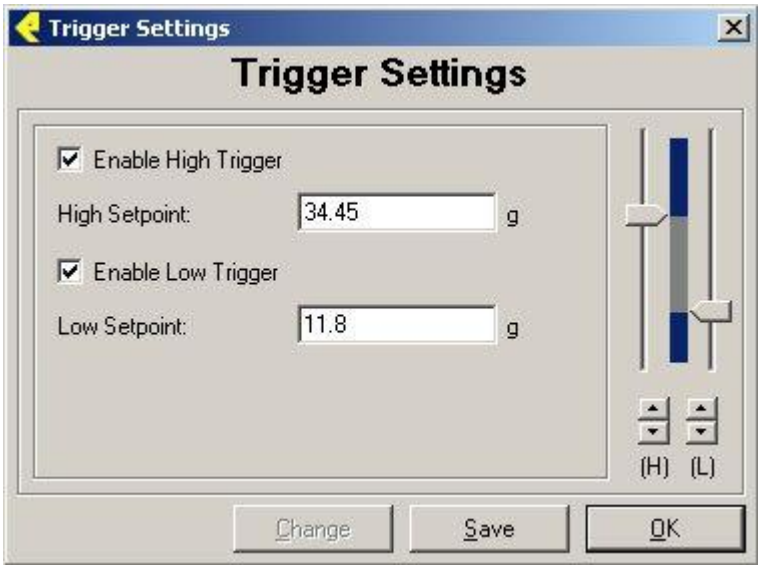
Trigger Settings

Select **Trigger Settings** from the Device Menu: Start Device or Identify Device and Read Status. This command is only available when the data recorder has the Trigger feature (PRTrans1000 and SVR101). The trigger screens offered depend on the type of data recorder connected to the host computer. Trigger screen samples are shown below.

Trigger formats with one mode of operation fall into two types: With or Without settable sample count.



Trigger Form 1:
with
sample count



Trigger Form 2:
without
sample count

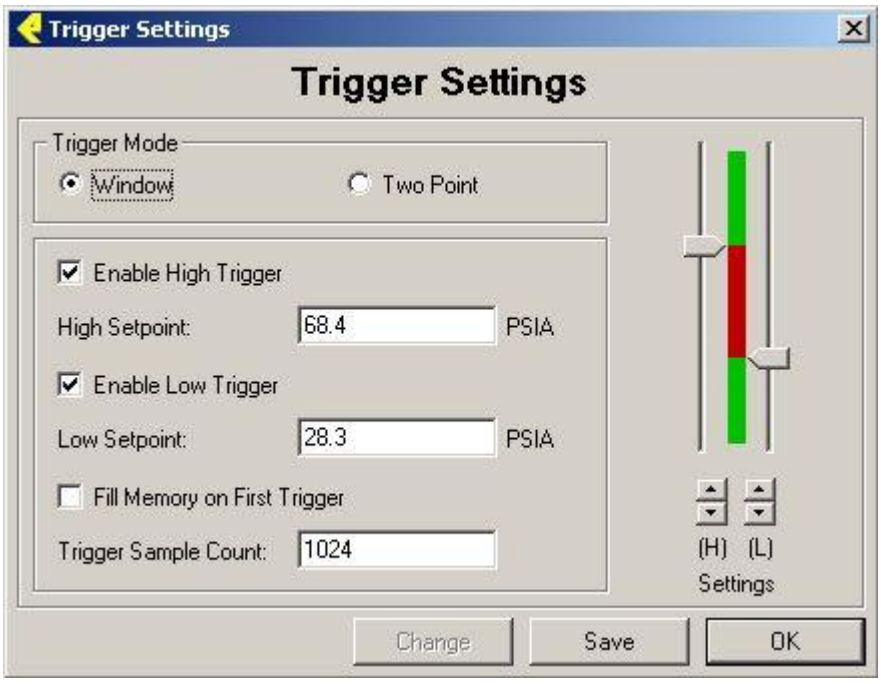
To edit trigger values, click the **Change** button. The values can be typed in directly, or changed using the slider control .

NOTE: The high and low triggers cannot be disabled simultaneously.

The values for the high or low trigger points can be set. Enable the high trigger to allow the acquisition of data to begin if the point is greater than the high set point. Enable the low trigger to allow the acquisition of data to begin if the trigger level is less than the low set point. The trigger sample can be set up to count by;

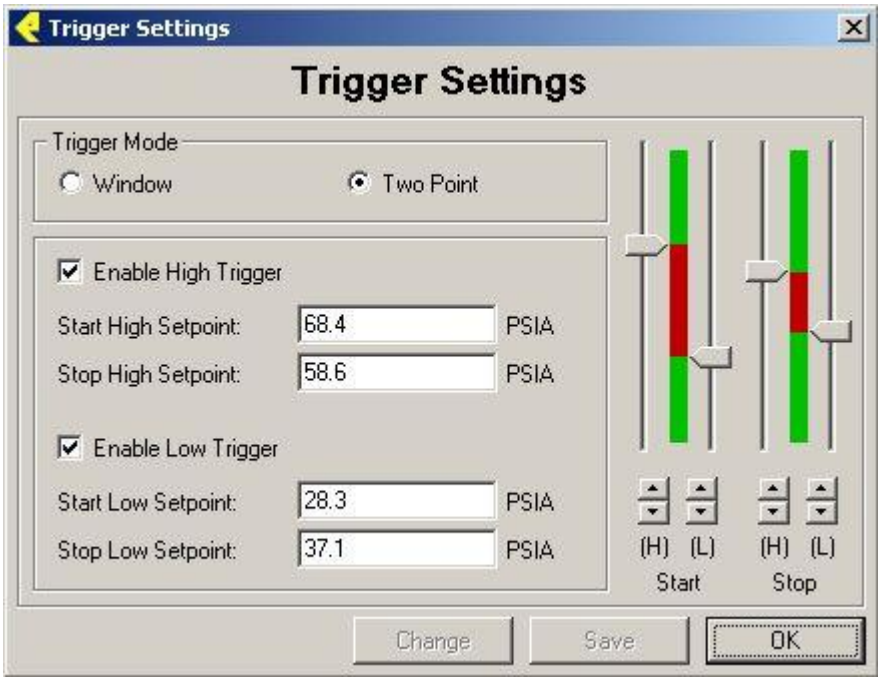
1. Typing in their readings count number or
2. Select **Fill Memory on First Trigger** option to get the maximum reading counts on a single event.

Trigger formats with two trigger mode options fall into two types: Window and Two Point .



Trigger Form 3:
Window, the function of this form is similar to Trigger Form 1.

The values for the high or low trigger points can be enabled and set manually. Enabling the high trigger allows the acquisition of data if the pressure level is greater than the start high point and be stopped at the stop high point. Enabling the low trigger allows the acquisition of data if the pressure level is less than the start low point and be stopped at the stop low point.



Trigger Form 4:
Two Point Mode

Two Point Mode allows for a High Trigger and Low Trigger. There will be two separate areas of pressure that can enable a trigger.

Device Menu: Read Device Data

To download the data from the device to the computer, select **Read Device Data** from the **Device Menu**. This command automatically downloads all the stored data from the device and displays it in both graphical and tabular format. The standard PDL10T will download data at approximately 120 readings per second. A progress bar located near the bottom of the screen gives a visual indication of how long the download will take.

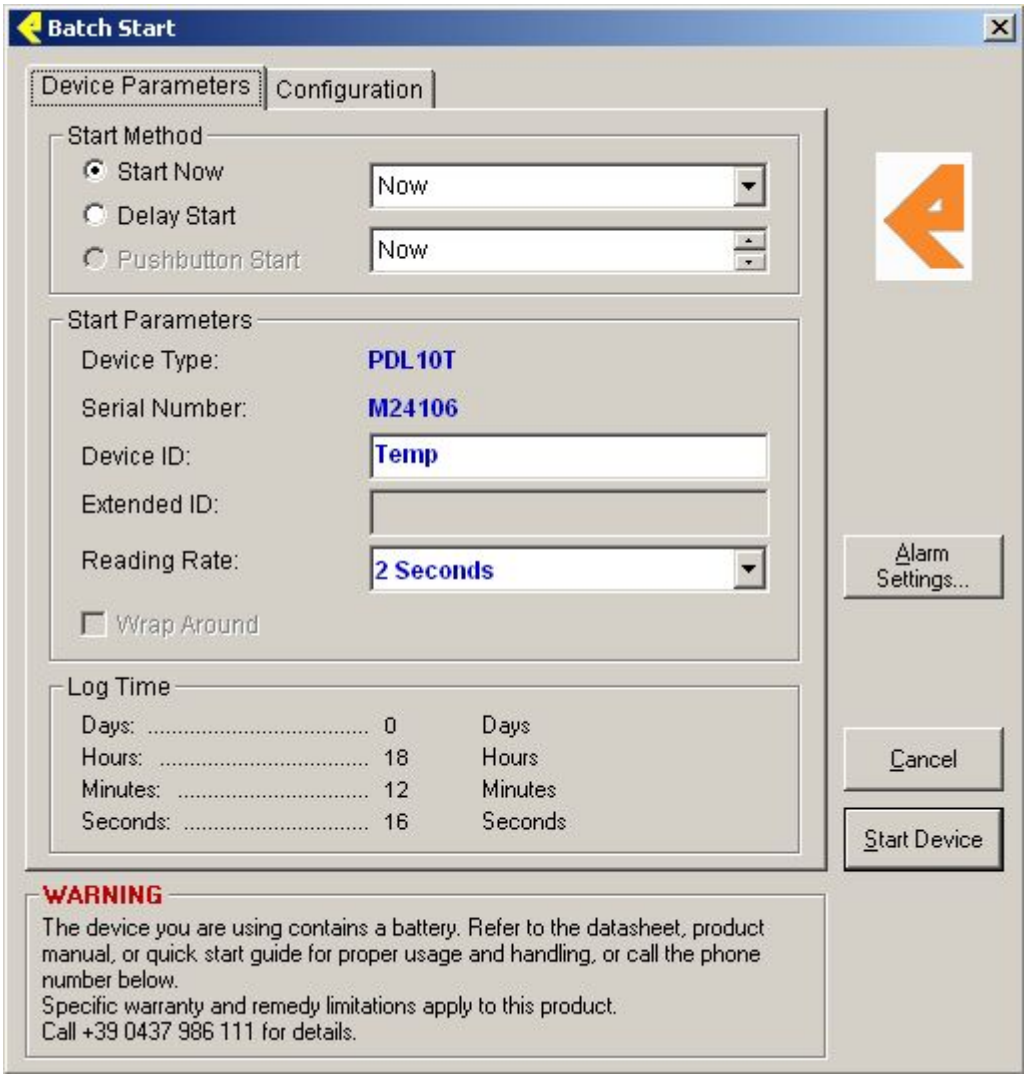
NOTE: The data logger continues to record after the data has been downloaded. Use Stop Device to stop the data logger from taking readings.

Device Menu: Quick Start

Select **Quick Start** from the **Device Menu** to start the device without asking for any settings. It will use the previously set user ID and reading rate. This is useful for saving time, especially when programming multiple devices with the same parameters.

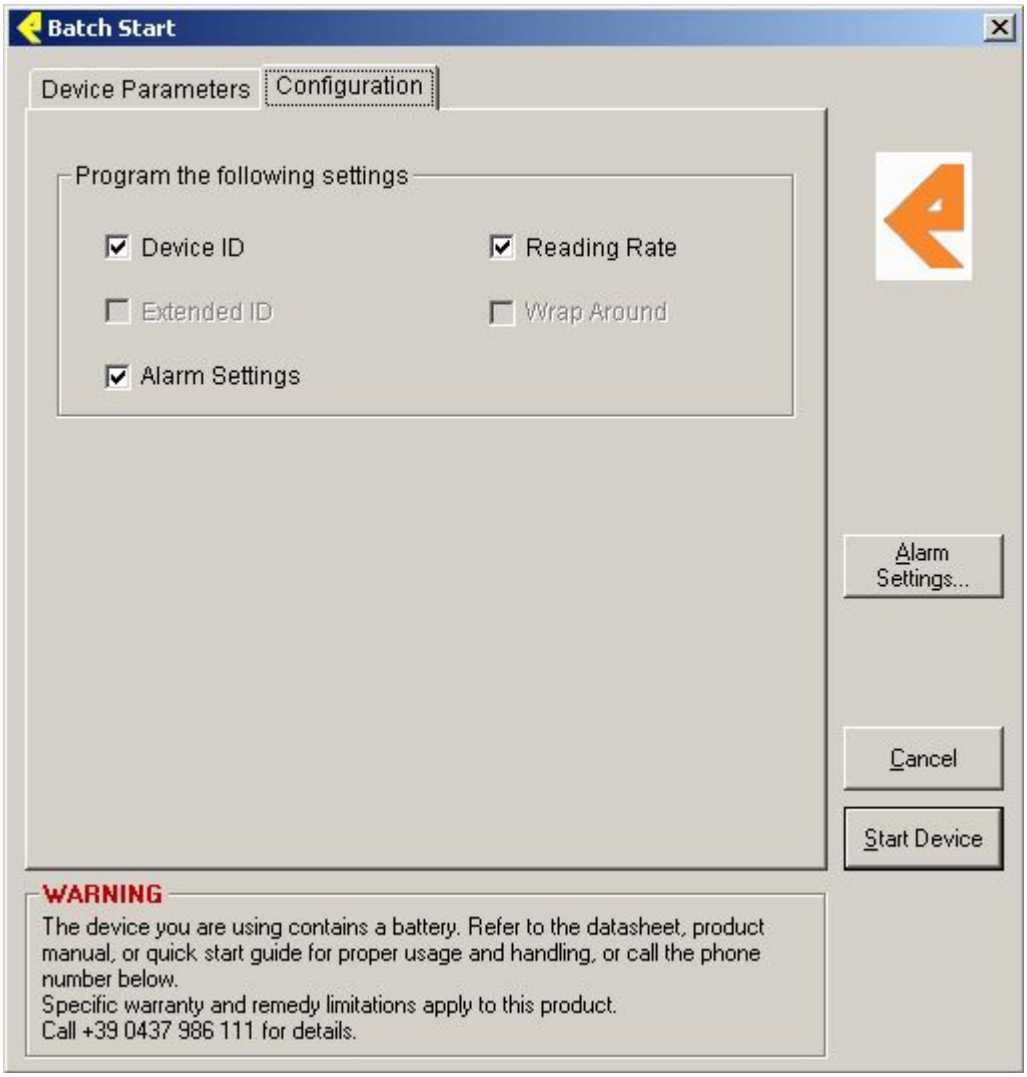
Device Menu: Batch Start

Select **Batch Start** from the **Device Menu** to display the following window:



Device Parameters Tab

The **Device Parameters** tab have similar functions as Start Device. The availability of Device ID field, Extended ID field, Reading Rate, and Wrap Around field (option available depending on device) depends on the selections in the Configuration tab. If the device has the alarm setting feature then a corresponding button will be displayed on the screen. An Alarm Settings button is displayed on the screen above.



Configuration Tab

The **Configuration** tab has five selectable parameters; **Device ID , Extended ID , Reading Rate , Wrap Around**, and **Alarm Settings** options. The availability of these fields depends on the features the device supports.

Device ID

Check the **Device ID** box to give the device up to a 6-character name in the **Device Parameters** tab.

Extended ID

Check the **Extended ID** box to give the device an additional 16-character name in the **Device Parameters** tab.

Alarm Settings

Click the **Alarm Settings** button to edit the alarm settings from the **Device Parameters** tab.

Reading Rate

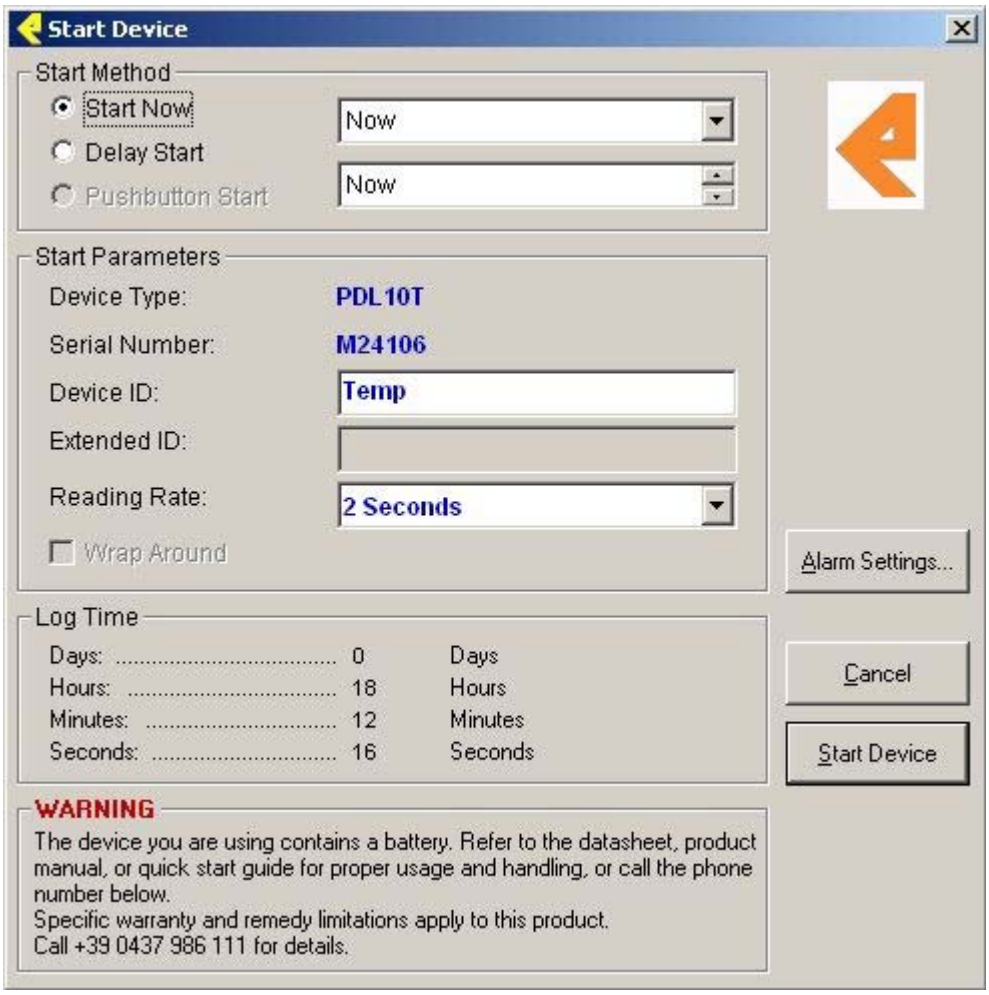
Check the **Reading Rate** box to choose the reading rate from the **Device Parameters** tab.

Wrap Around

Check the **Wrap Around** box to choose the wrap around memory feature from the **Device Parameters** tab.

Device Menu: Start Device 

Select **Start Device** from the **Device Menu** to display the following window:



NOTE: Starting the device will erase all readings currently stored in its memory.

The **Start Device** window allows the start time and reading rate to be set. The **Start Method** setting may be used, along with the **Start Now** radio button, to start the data logger immediately. Alternatively, the user can select the **Delay Start** option to delay the start of data collection. The start time may be delayed up to six months from the current time. The **Pushbutton Start** option can be selected to start the data logger by pushing the pushbutton on the device. **The push button must be pushed down and held for at least 3 seconds**.

When the device has a feature such as alarm setting, thermocouple type, trigger settings, wireless configuration and engineering units then a corresponding button will be displayed on the screen. An **Alarm Settings** button is displayed in the example below in the lower right hand portion of the screen.

The reading rate can be selected to determine its data recording frequency. When selected, the maximum recording time will be calculated for the particular device, based on its internal memory capacity, and displayed in **Log Time** box. Once started, the device will continue to record readings until its memory is full, unless the **Wrap Around** feature is enabled. When full, the data recorder will stop recording additional readings, then place itself into a low power state to maximize battery life. The data stored in the data logger is always preserved (even in the case of battery failure) unless the device is reset or started. When re-started the existing readings are then overwritten.

Device ID

A Device ID may be entered in the space provided in any combination of six letters and/or numbers. The Device ID is written to the device and will appear in graphs or reports when the device is read later. Use

it for identification of the device or personnel linked to the device, etc.

When all parameters/settings are set, press **Start Device** to program and begin recording data.

Device Menu: Stop Device

Select **Stop Device** from the **Device Menu** permits the software to communicate with the data logger and stop it from taking additional measurements. The data logger will enter a low power state to conserve battery life and when the memory is full. When full, the data recorder will stop recording additional readings and place itself into a low power state to maximize battery life automatically, this is simply a convenient way to extend the life of the battery. This mode is obvious to the user because the device will immediately wake up when the host computer communicates with the logger. When the device will not be used for a long period of time, stopping the device from collecting more data will conserve power to extend battery life. Stopping the device has no effect on the data in memory, the data is always retained.

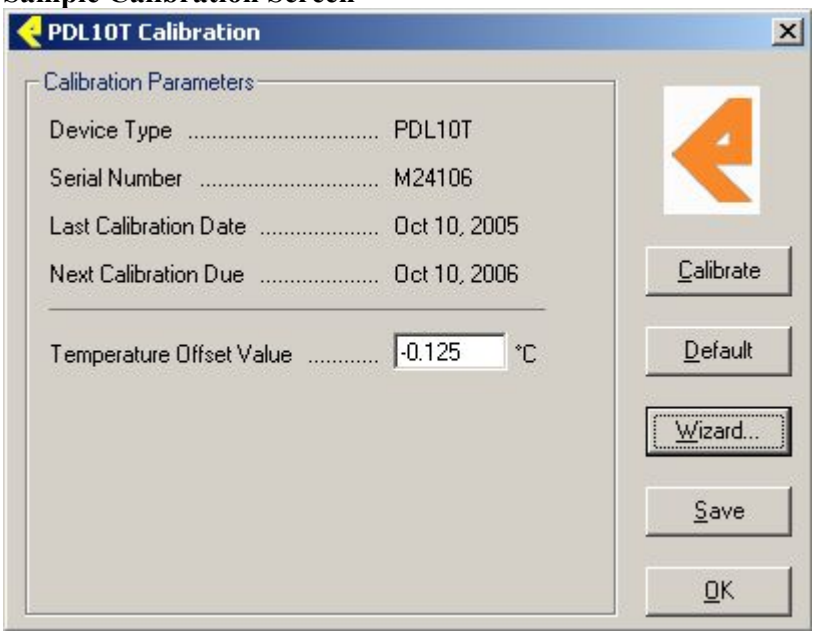
Device Menu: Reset Device

Select **Reset Device** from the **Device Menu** to permit the software to communicate with the data logger device, and stop it from taking further measurements. **This will also erase all readings currently stored in memory**. Resetting the device will cause the data logger to enter a low power state to conserve battery life.

Device Menu: Calibration

Select **Calibration** from the Device Menu. All data logger devices can be calibrated through the software. This eliminates the need for opening the device or adjusting potentiometers. Calibration parameters, as well as the last calibration date, are stored within the device itself in non-volatile memory. This can be accessed through the software. It also allows the device to maintain calibration while being used on any computer. Most data loggers can be effectively calibrated using a single point to correct an offset. In some cases, two points may used to correct for gain and offset errors. The PDL10T uses a single point calibration. The calibration offset is defined as the value the device reads at zero. Thus, if the PDL10T reads 0.5ºC when the correct value is 0ºC, the user would enter 0.5ºC for the calibration offset. The 0.5ºC would then be subtracted from each reading downloaded from the device, and the data would be correct without any further manipulation. The PDL10T Calibration window shown below is displayed when the **Calibration** command is selected, and a PDL10T is connected to the interface cable. To edit the calibration values, click on the **Calibrate** button. The **Default** button may be used to return all values to their default settings (0.000 for offset values, and 1.000 for gain values.)

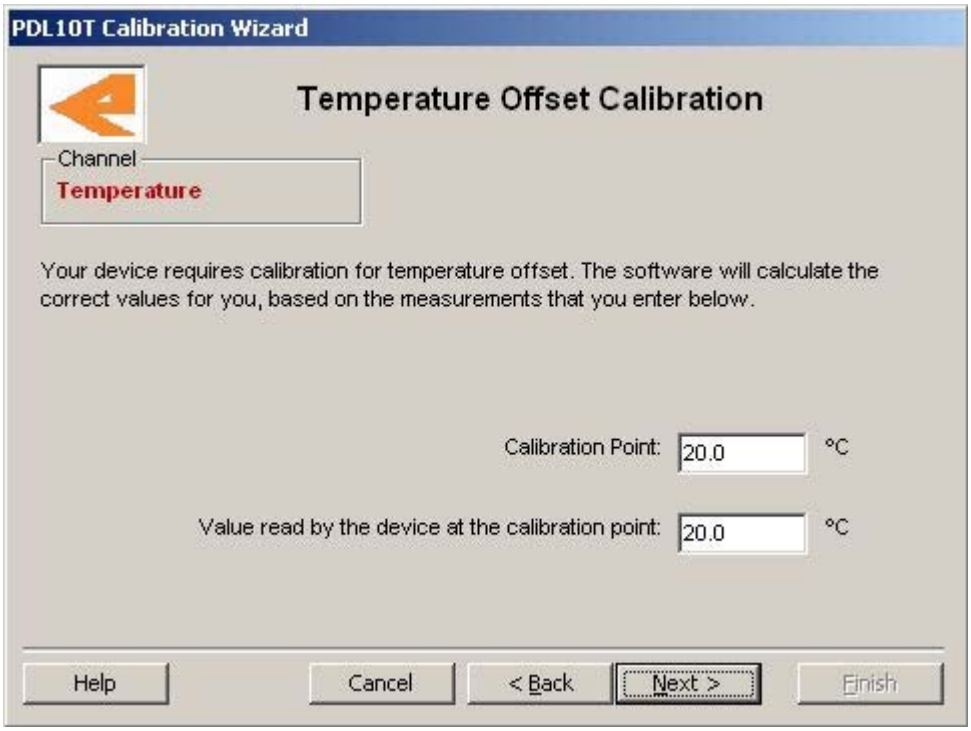
Sample Calibration Screen



For convenience, a **Wizard** button is available. Select this button to display the **Calibration Wizard**, a series of screens with fields can be fill in regarding the behavior of the *un-calibrated* (all values set to the default) device. The wizard performs the calculations for the offset and/or gain values and puts them into the correct fields in the calibration window. To commit to any changes, select **Save** to store the calibration information in the device. The calibration is then saved, and the new calibration values are displayed on the screen.

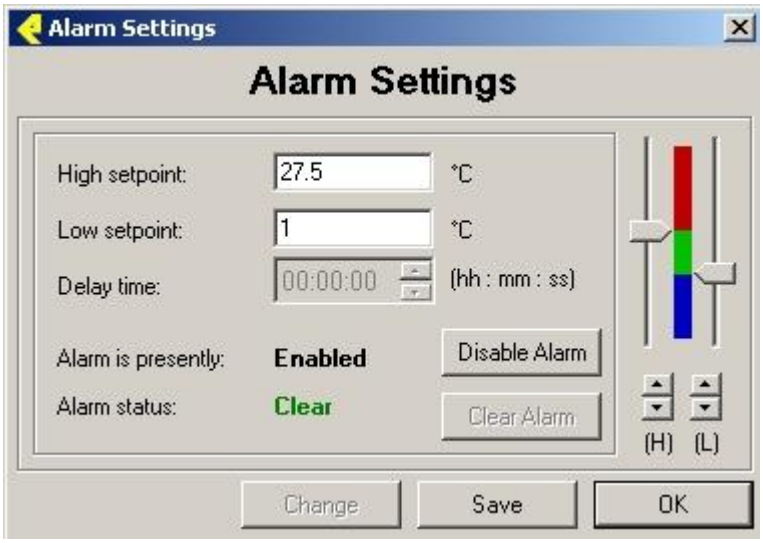
The Calibration Wizard

The **Calibration Wizard** displays information which correlates to the type of device attached. The following screen is an example of a Temperature Gain/Offset calibration on the Temperature channel of a PDL10T device. To calibrate the device select the **Next** button, complete the required fields for each channel of the device, and select the **Next** button again until the Wizard highlights the finished button. Select the **Finish** button and the calculations are made and the correct values are placed into the Calibration windows. Select **Save** to save these values into the device.



Device Menu: Alarm Settings

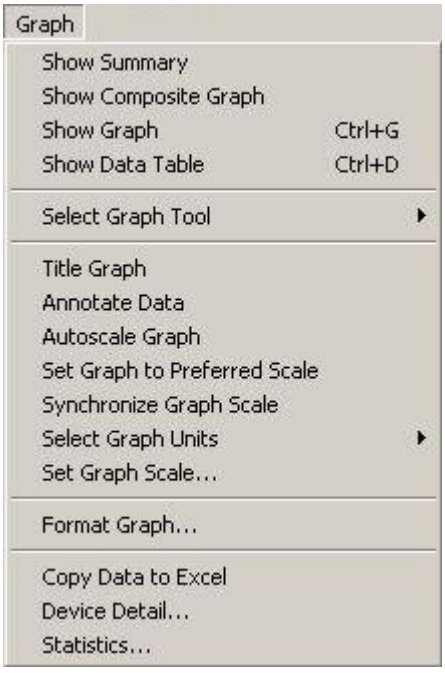
From the **Device Menu**, choose **Alarm Settings**. This command is only available when a data logger with this feature is connected. This command allows the high and low temperature points to be set, this will trigger a visual alarm (flashing LED). The time delay can be set to trigger a visual alarm. These points should be set in the units indicated, 0 ºC is shown in the example below. To edit these alarm values, select the **Change** button, as shown in the window below:



Select **Save** to store the values into the device. When the alarm values are stored into the device, they are rounded to the nearest alarm set point for that device. Once the alarm has been tripped (e.g. the temperature has gone outside the set limits), the LED will flash at a one second reading rate until the device is reset or the alarm is deactivated by the Alarm Settings Disable command. It is important to remember that the device only takes readings at its programmed reading rate.
NOTE: If a temperature travels outside the set limits between readings, it will be missed by the device and the alarm will not become active.

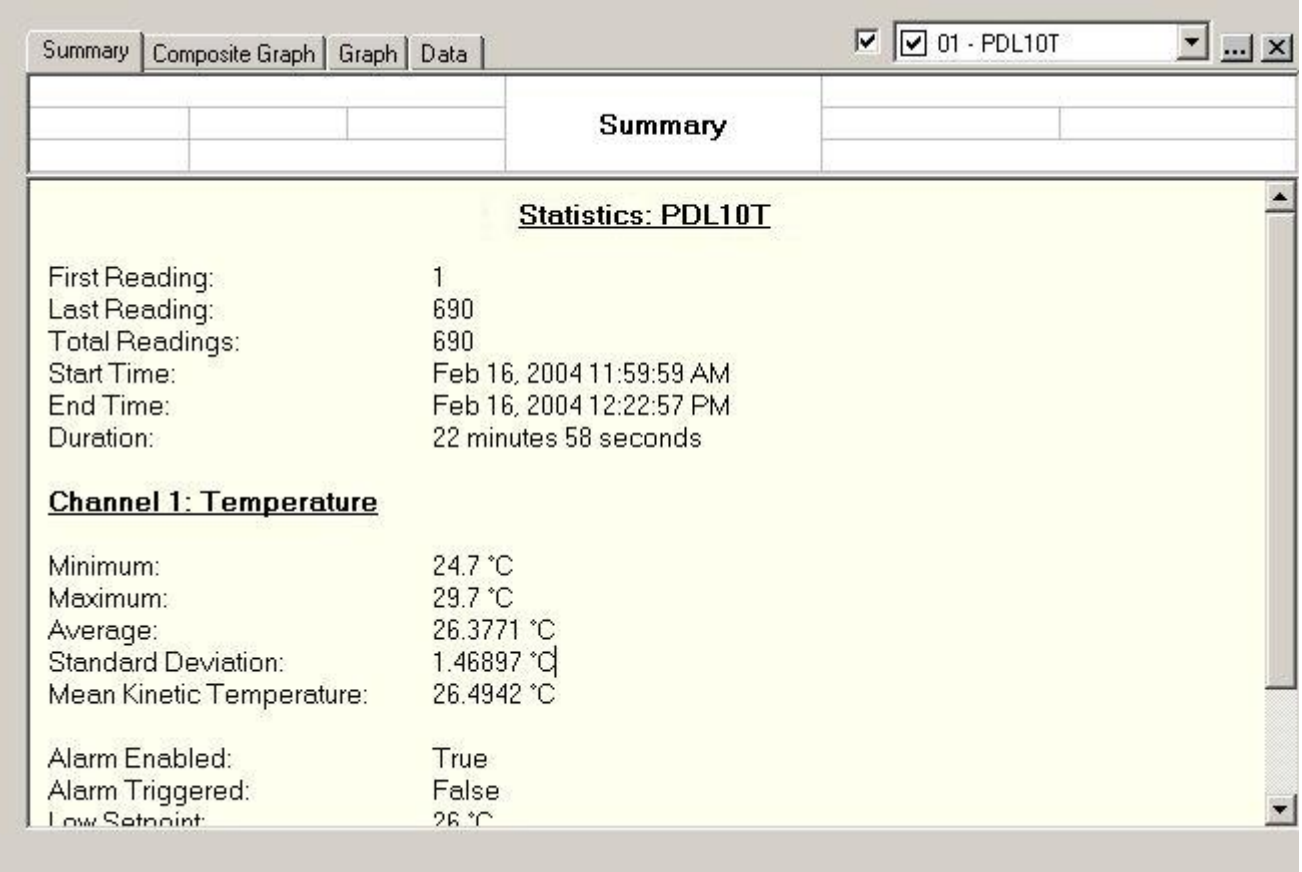
The Graph Menu

The Graph Menu appears like this:



Graph Menu: Show Summary
Select the **Show Summary** command from the **Graph Menu** to display the **Summary** tab, which will appear as follows:

Sample Statistics for PDL10T

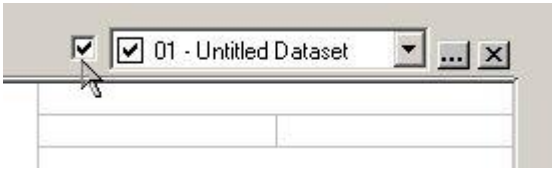


Graph Menu: Show Composite Graph

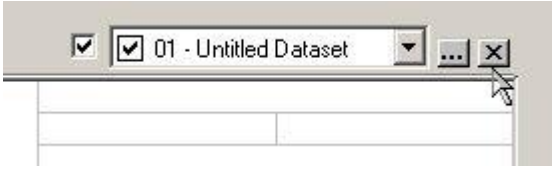
Select the **Show Composite Graph** command from the **Graph Menu** to display the **Composite Graph** tab, which will appear as follows:

The **Composite** tab displays a graph of one or more datasets. Datasets can be loaded by using the Open command from File Menu. Once loaded, they are displayed as graphs.

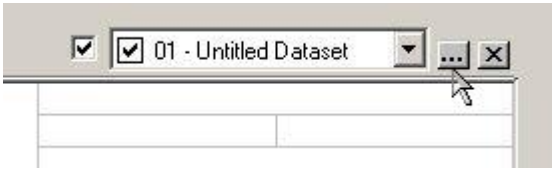
To display the dataset(s) select one from the dropdown list at the top-right corner of the composite graph (see below). Select the checkbox next to the list to select or deselect the dataset(s) for display. Deselecting the dataset(s) does not unload it , it remains in memory and can be reselected at any time.



To unload a dataset from the memory, select it from the dropdown list at the top-right corner of the composite graph. Select the **X** button on the right to unload the dataset (see below). Once a dataset is unloaded, it cannot be redisplayed without reloading it using the Open command from File Menu.



To manipulate multiple datasets simultaneously select the ellipses (□)button in the middle to open **Graph Configuration form** (see below).



Deselect Dataset

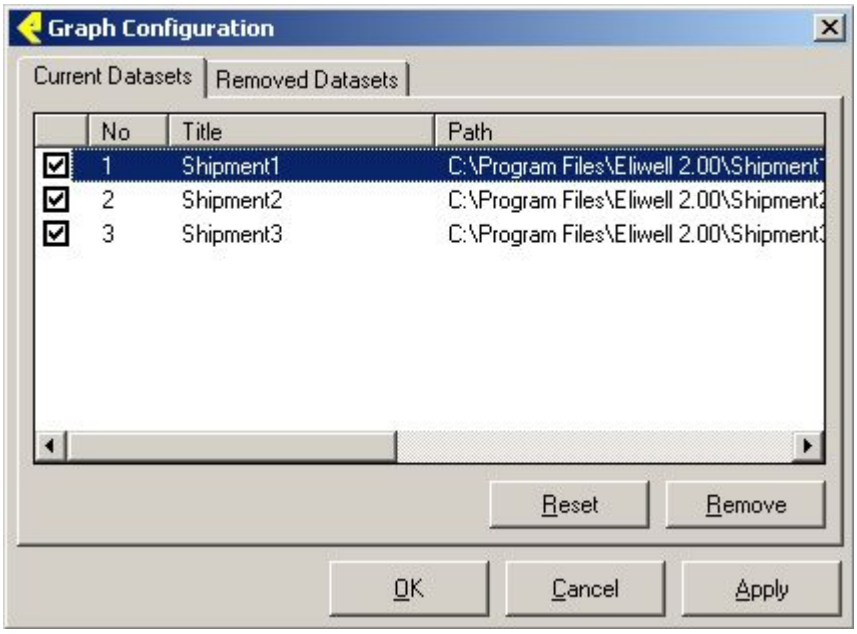
To **deselect dataset(s)** for display on the composite graph, uncheck them.

Unload Dataset

Highlight **dataset(s)** and press the **Remove** button to unload them from memory.

Unload Data Set into Temporary Buffer

Select the **Remove** button to place the unloaded dataset(s) in the temporary buffer, rather than unloading them permanently. They can be restored or reset. After selecting the **Apply** button or the **OK** button, the unloaded dataset(s) cannot be redisplayed without reloading them using the Open command from File Menu.



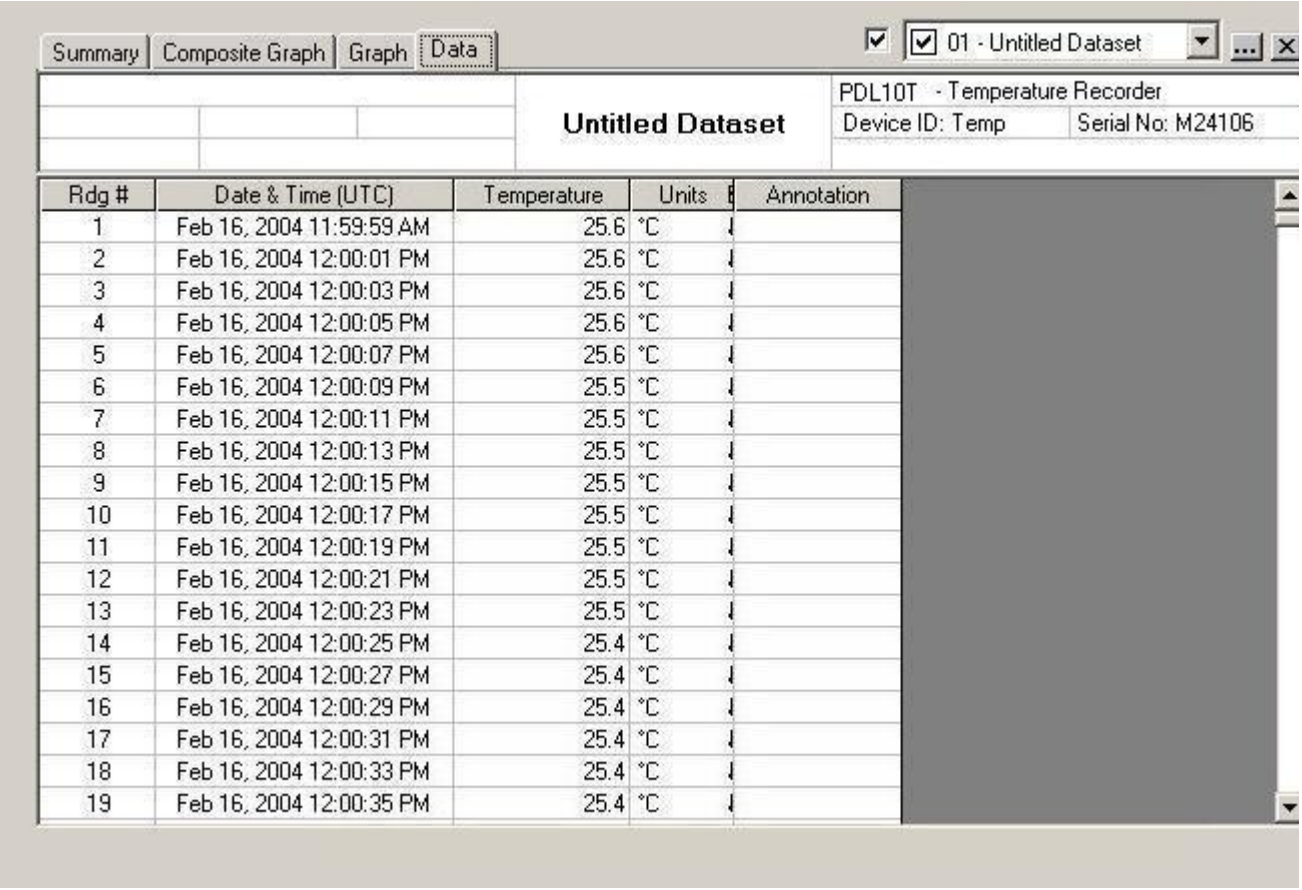
Graph Menu: Show Graph

Select the **Show Graph** command from the **Graph Menu** to display the **Graph** tab. This tab is similar to the Composite Graph except that only one dataset can be displayed at a time.

NOTE: In order to save a dataset, it must be displayed in the Graph or Data tab.

Graph Menu: Show Data Table

Select the **Show Data Table** command from the **Graph Menu** to direct the software to display the **Data** tab as shown in the window below:



Rdg #	Date & Time (UTC)	Temperature	Units	Annotation
1	Feb 16, 2004 11:59:59 AM	25.6	°C	
2	Feb 16, 2004 12:00:01 PM	25.6	°C	
3	Feb 16, 2004 12:00:03 PM	25.6	°C	
4	Feb 16, 2004 12:00:05 PM	25.6	°C	
5	Feb 16, 2004 12:00:07 PM	25.6	°C	
6	Feb 16, 2004 12:00:09 PM	25.5	°C	
7	Feb 16, 2004 12:00:11 PM	25.5	°C	
8	Feb 16, 2004 12:00:13 PM	25.5	°C	
9	Feb 16, 2004 12:00:15 PM	25.5	°C	
10	Feb 16, 2004 12:00:17 PM	25.5	°C	
11	Feb 16, 2004 12:00:19 PM	25.5	°C	
12	Feb 16, 2004 12:00:21 PM	25.5	°C	
13	Feb 16, 2004 12:00:23 PM	25.5	°C	
14	Feb 16, 2004 12:00:25 PM	25.4	°C	
15	Feb 16, 2004 12:00:27 PM	25.4	°C	
16	Feb 16, 2004 12:00:29 PM	25.4	°C	
17	Feb 16, 2004 12:00:31 PM	25.4	°C	
18	Feb 16, 2004 12:00:33 PM	25.4	°C	
19	Feb 16, 2004 12:00:35 PM	25.4	°C	

Data Tab

The **Data** tab displays data in table format, to easily determine the exact value of each data point.

Graph Menu: Select Graph Tool

Select the **Select Graph Tool** command from the **Graph Menu** to enable the cursor mode which the mouse will assume when it is pointed and clicked over the graph. Several cursor modes are available, each with a specific function as follows:

Cursor 

When the cursor mode is selected,

1. Click on a data point of the graph to indicate the value.
2. Click on or near a data point on the graph to indicate the value of the data point.

The data point selected can be changed by navigating the cursor or;

A. use clicking method.
B. click and drag the mouse horizontally in the graph.
C. use the functions (move left, move right) on the keyboard.

Time Cursor 

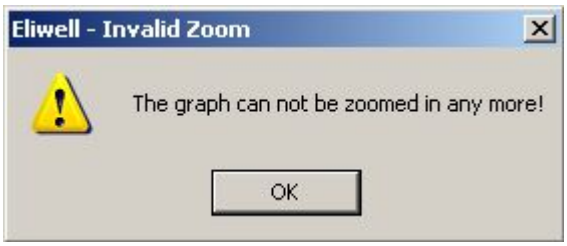
When this cursor mode is selected, choose one of the following methods;

1. Click and drag the mouse horizontally over the graph area or
2. Use the arrow keys (left, right) on the keyboard, to indicate the time and value of each data point the cursor passes over.

Scroll 

Select the cursor mode to **scroll** the graph in any direction to view a particular section. To scroll the graph, click and hold the mouse button, then drag the mouse in the direction desired. When dragging the cursor a line with an arrow is drawn to indicate the direction and amount of the scrolling operation. When the mouse button is released, the graph is then scrolled in the direction and by the amount specified.

Zoom In
When this cursor mode is selected, click on the graph to **Zoom In** for a close-up view of a particular area of the graph. Multiple zooms may be performed to obtain best view. The software can only zoom in to a limited extent. If the zoom limit is reached, the following message will be displayed.



Message Box 1: Warning for Zoom In

Zoom Out
When this cursor mode is selected, click on the graph to **Zoom Out** for an overall view of a particular area of the graph. Multiple zooms may be performed to obtain the best view. To avoid zooming out too many times a warning message may be set . This will reset the software.

Message Box 2: Warning for Zoom Out

Box Zoom
Select the cursor mode, then click and drag on the graph to draw a rectangle. When the mouse button, is released the graph will **Zoom In** to obtain a close-up view of that area of the graph.

Horizontal Zoom
Select the cursor mode, then click and drag on the graph to draw a horizontal rectangle. When the mouse button is released, the graph will **zoom in** to get a close-up view of that area of the graph.

Vertical Zoom
Select the cursor mode, then click and drag on the graph will draw a vertical rectangle. When the user releases the mouse button, the graph will **zoom in** to get a close-up view of that area of the graph.

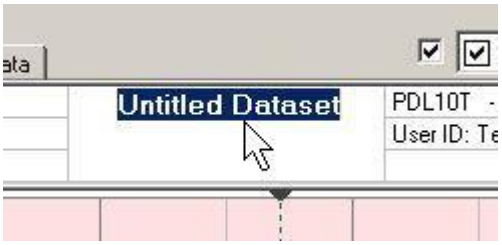
Cancel Zoom
Select Cancel Zoom to cancel any zoom modes. The graph will be redrawn in its default state.

Graph Menu: Title Graph

This feature will be disabled when no dataset is displayed on the screen. Otherwise, there are two ways to modify the title graph.

1. The title graph can be modified by selecting **Title Graph** from the Graph Menu or the Right Click Pop-Up Menu. The entering screen will appear as follows:

2. Double click the graph title area, to highlight and modify it.

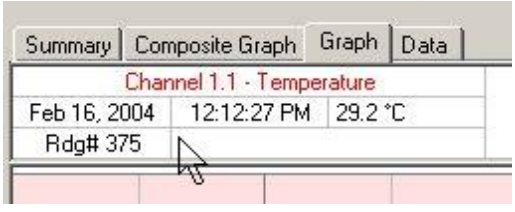


Graph Menu: Annotate Data

This feature will be disabled if there is no channel selected. Otherwise, there are two ways to annotate data.

1. Select the **Annotate Data** menu from the Graph Menu or the Right Click Pop-Up Menu. The following screen will appear:

2. Double click the annotate data area on the heading of the graph. Type the annotation in the box as shown below:



Graph Menu: Autoscale Graph 

Select the **Autoscale Graph** command from the Graph Menu to optimize the vertical scale of the graph to match the minimum and maximum data points shown on the graph. This provides maximum resolution for viewing the graph.

Graph Menu: Set Graph to Preferred Scale

Select **Set Graph to Preferred Scale** command from the Graph Menu to set the graph to the preferred scale.

If no preferences are set, the graph will show on the vertical scale, the measurement range of the device (this may differ from the rated operating range shown on the label of the device). The time scale will begin when the first reading was taken, and end when last reading was taken.

Graph Menu: Synchronize Graph Scale

Select the **Synchronize Graph Scale** command from the Graph Menu to synchronize the time and value axes of the graph.

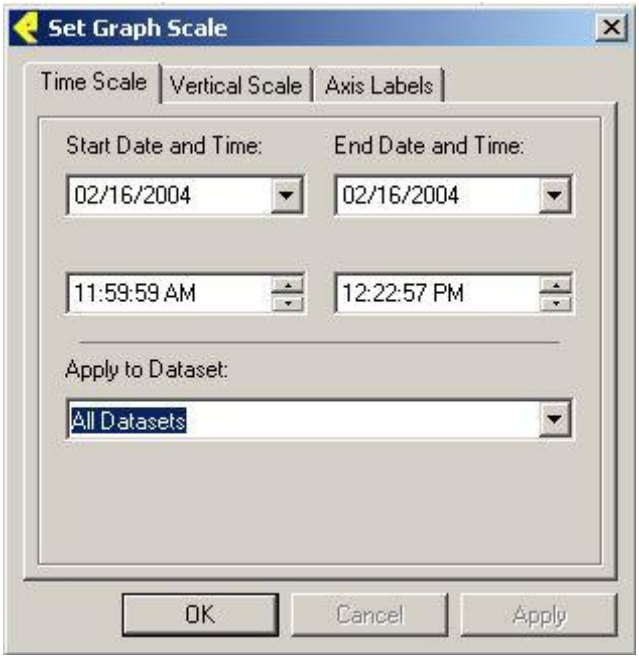
Graph Menu: Select Graph Units

Select the **Select Graph Units** command from the Graph Menu to select the units to be used when displaying the graph. The available units will vary depending on the type of data logger used. For example, the PDL10T reads temperature and provides units of degrees Celsius (ºC), Fahrenheit (ºF), Rankin (ºR) or Kelvin (K). The PDL10TRH records temperature and humidity and has available 0 ºC, 0 ºF, 0 ºR, and K for the temperature reading, and %RH, Dew Point and Water Vapor Concentration for the humidity reading.

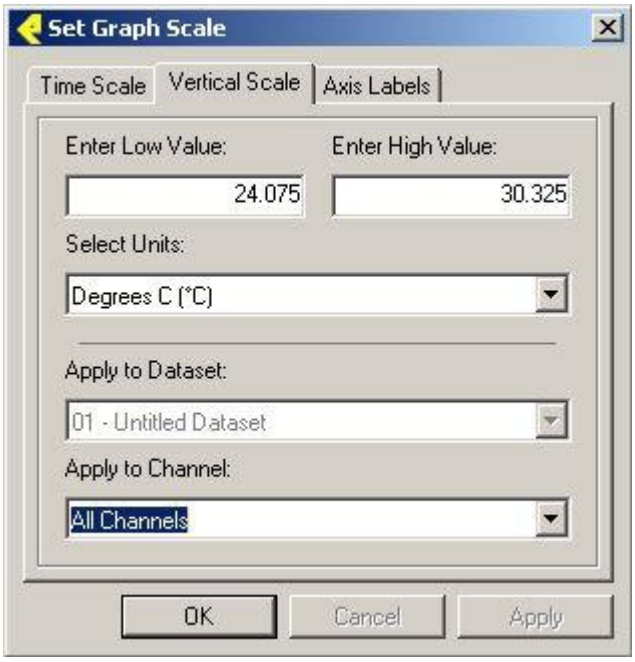
Graph Menu: Set Graph Scale

Select the **Set Graph Scale** command from the Graph Menu to manually change and specify the values of the vertical and horizontal axis. The following three screens are shown for each of the tabs:

Time Tab

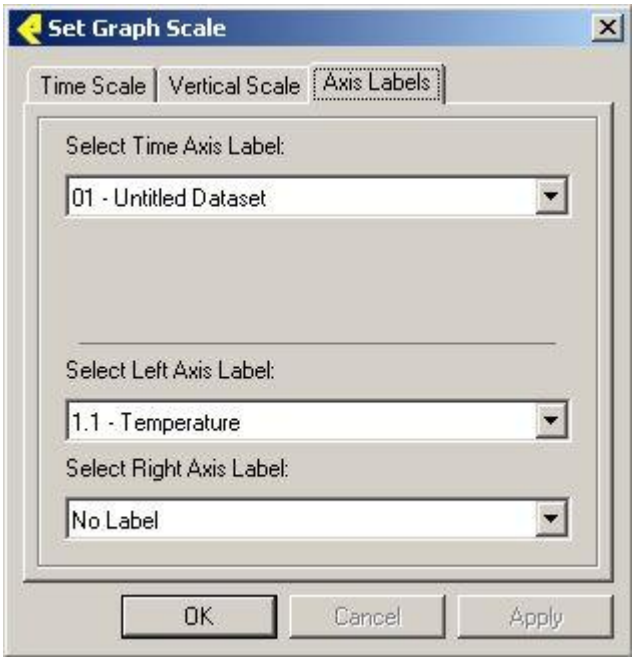


Scale Tab



NOTE: In order to enter the low value or the high value of the unit a unit from the **Select Units** dropdown list box must be selected first. There is no unit selected if the value of the **Select Units** dropdown list box is **No Units Selected**.

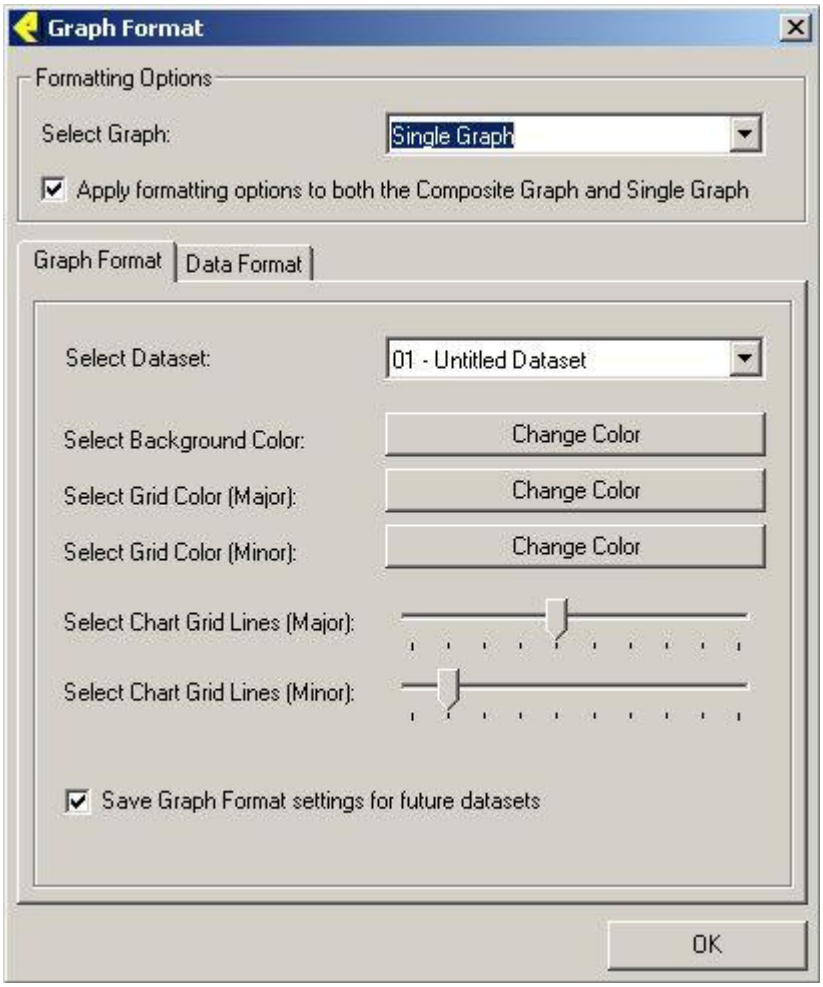
Axis Tab



Different data recorders will show a slightly different window depending on the number of channels and the parameters being recorded. Scaling of the horizontal axis is controlled by the **Select Time Range** section. To set the end points of the horizontal axis, select the specified endpoints from the dropdown date and time selectors. The vertical axis is set using the **Vertical Scale Tab**.

Graph Menu: Format Graph

Select the **Format Graph** command from the Graph Menu to show the following window:

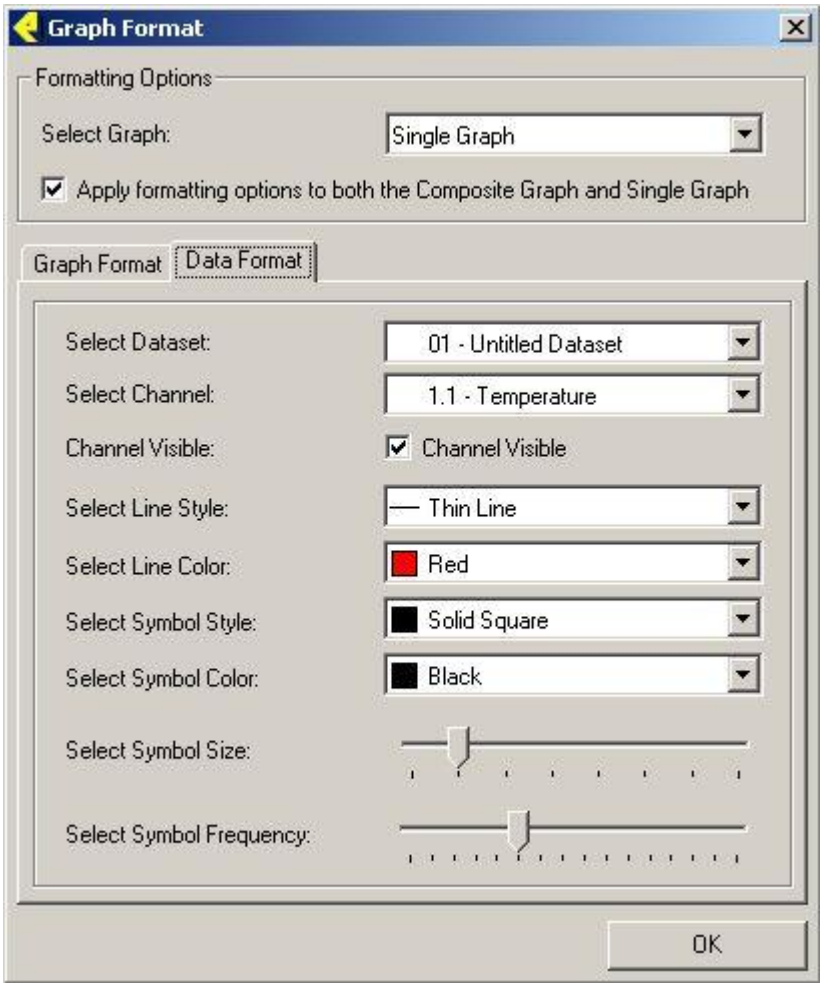


Edit **Formatting Options** to apply formatting to the single graph, the composite graph, or both.

Graph Format Tab

Select the **Graph Format** tab to set the background color for the entire graph, as well as the color and number of the major and minor grid lines. Changes are applied to the dataset selected at the top of the frame.

The **Data Format** looks like this:



Data Format Tab

This window allows the user to customize the look of the graphical data for each dataset. First, select the dataset to customize from the dropdown list. Choose the channel from the second dropdown list (some devices have multiple channels). Then, select the thickness of the line, line color, symbol style, and symbol color from the remaining dropdown lists. Finally, select the symbol size and frequency (see Manipulate Plotting Symbol) and whether the channel should be visible or not (see Hide Selected Channel and Show Hidden Channels).

Manipulate Plotting Symbol

The **Select Symbol Size** slider and the **Select Symbol Frequency** slider are used to manipulate the plotting symbols. The zero setting removes all plotting symbols, and higher settings will approximately double the number of symbols on the graph as the slider is moved up one notch.

Hide Selected Channel

Uncheck the **Channel Visible** option to hide the selected channel or choose the Right Click Pop-up Menu to hide the selected channel.

Show Hidden Channels

Check the **Channel Visible** option to show the hidden channel. Click OK., the graph will be immediately redrawn with the option chosen. Choose The Right Click Pop-Up Menu to show the hidden channel also.

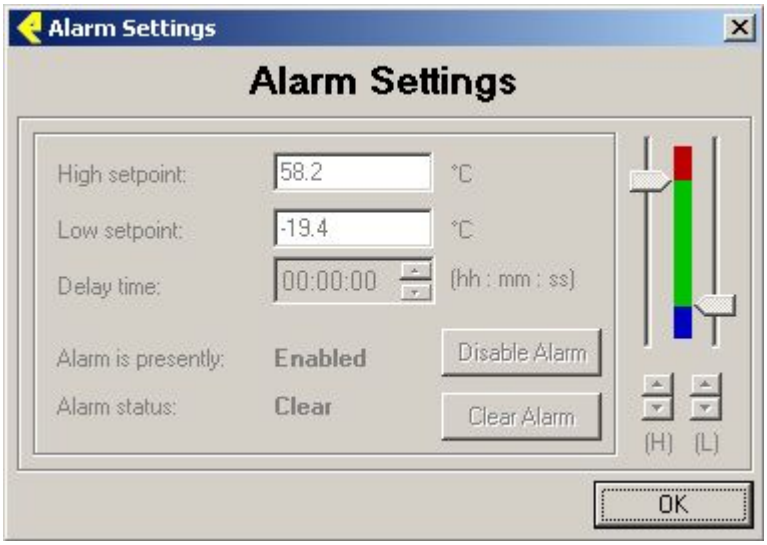
Graph Menu: Copy Data To Excel.

Select **Copy Data To Excel.** to allow the software to launch the Microsoft Excel. spreadsheet program, and copy the current dataset to an Excel. worksheet. This command will only work with a compatible version of Excel. properly installed on the host computer.

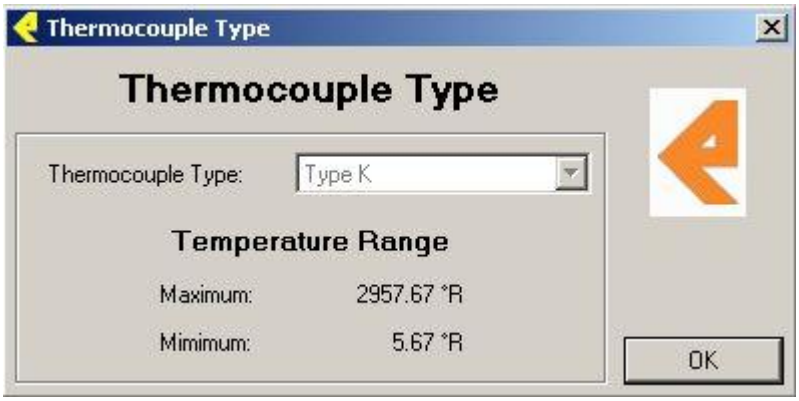
Graph Menu: Device Detail

Select the **Device Detail** command to display the device details of the selected dataset. This will include device type, revision number, subtype, and channel information. Information about alarm setting, thermocouple type, wireless configuration, wrap around and engineering units may also be displayed if the device supports those features. The window is similar to Identify Device and Read Status features.

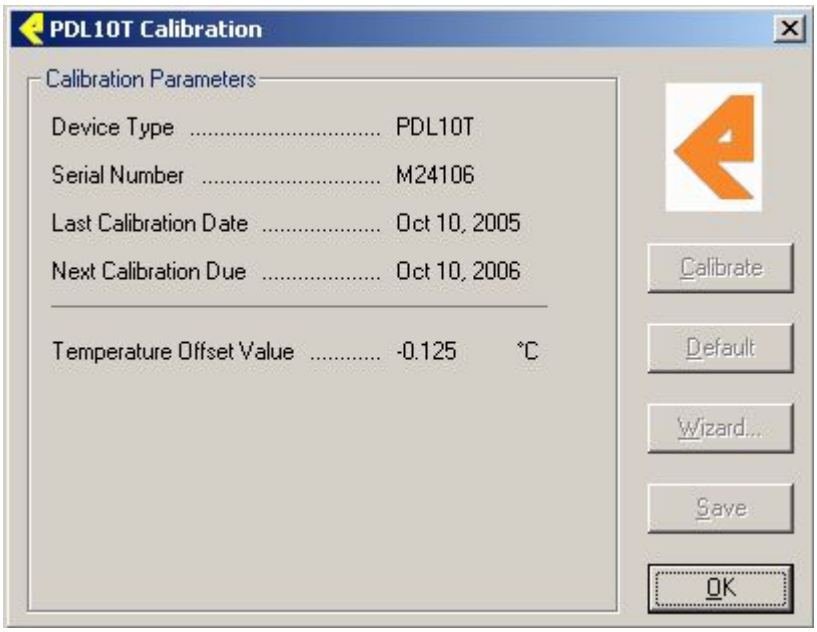
Select the **Alarm Setting** button from the **Device Detail** tab to display a read-only alarm setting screen to show the alarm range. This command is only available when the selected dataset is generated from a device that has this feature.



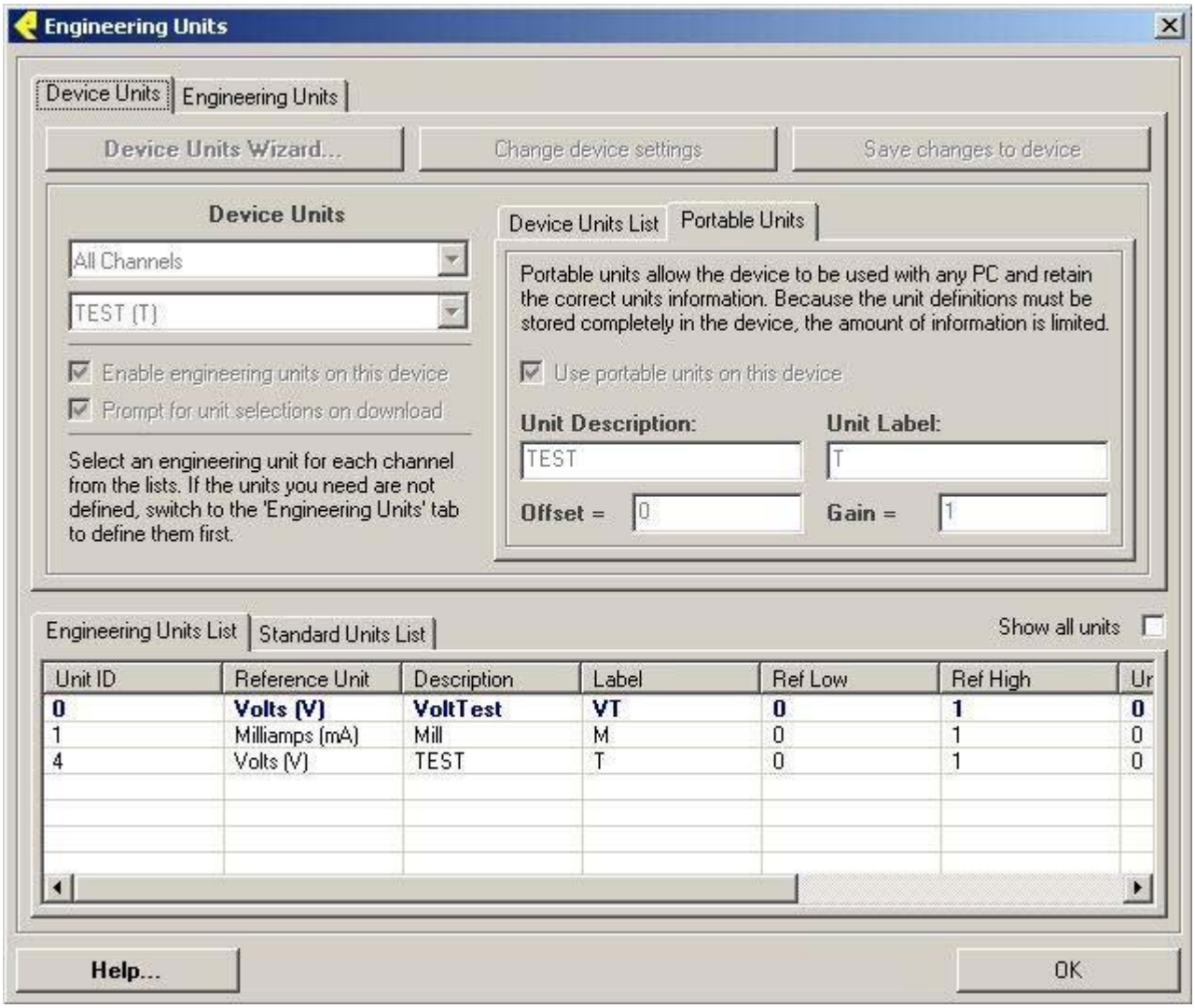
Select **Thermocouple Type** button from the **Device Detail** tab to display a read-only thermocouple type screen. This command is only available when the selected dataset is generated from a device that has this feature.



Select **Calibration** button from the **Device Detail** tab to display a read-only calibration form that shows the user the device of the selected dataset calibration information.

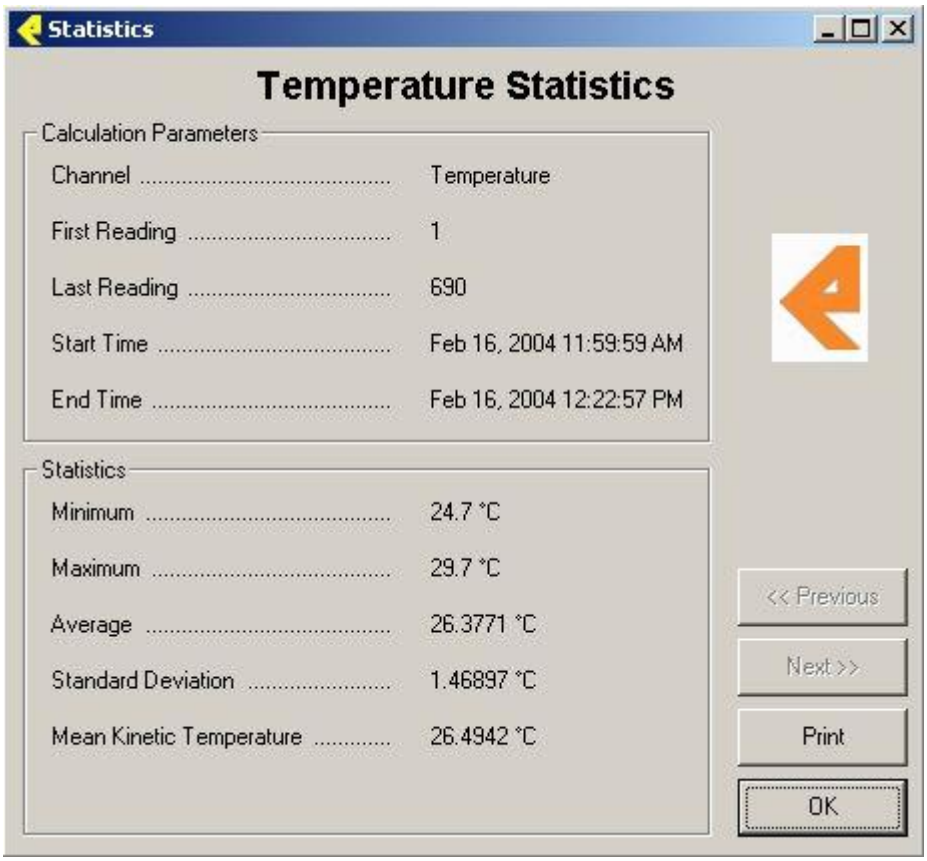


Select the **Engineering Units** button from the **Device Detail** tab to display a read-only engineering units screen. This command is only available when the selected dataset is generated from a device that has this feature.



Graph Menu: Statistics

Select the **Statistics** command to calculate some basic statistics for data on each individual channel. A typical screen for some calculated statistics for the temperature channel of a PDL10T might appear as follows:



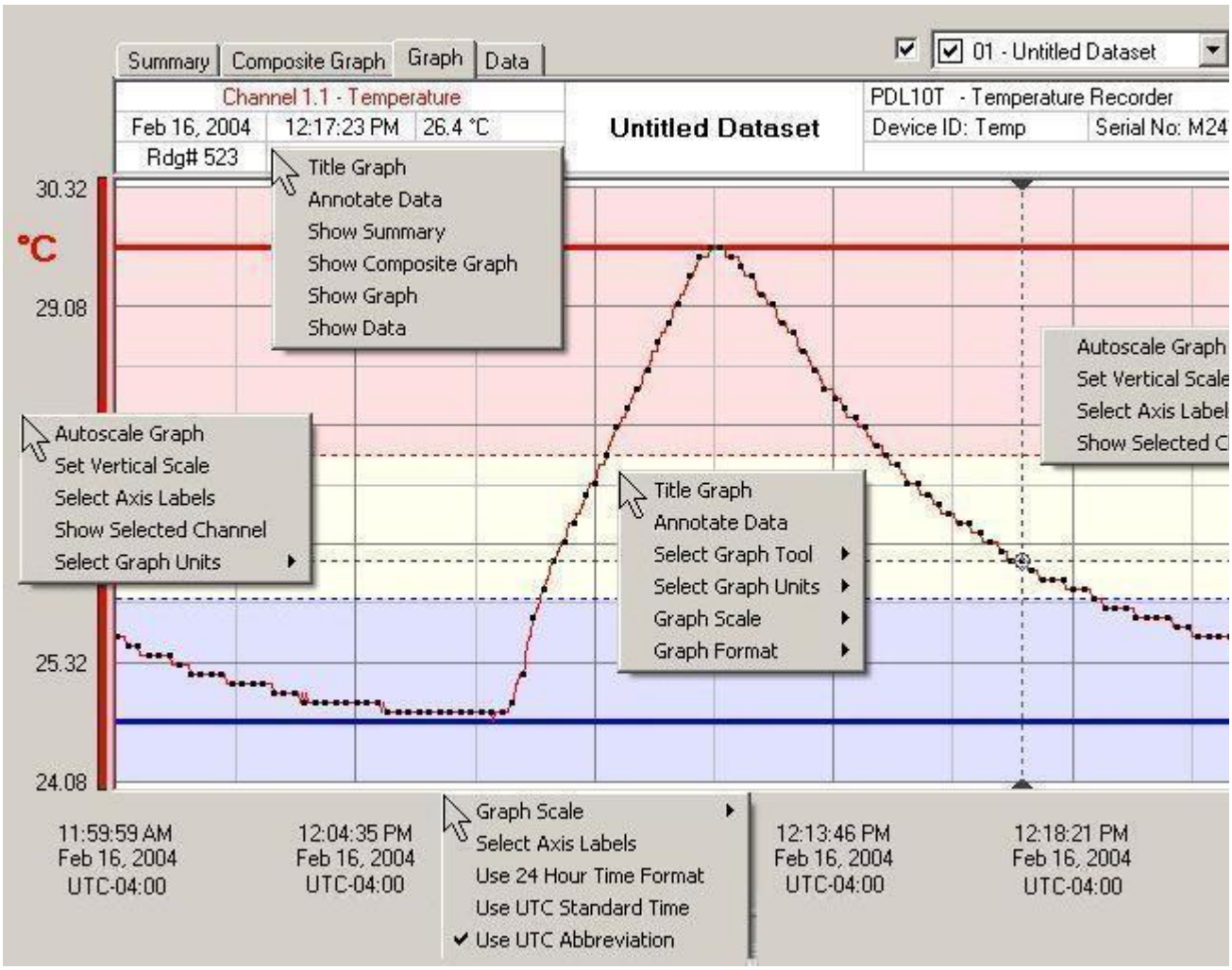
For data recorders with more than one channel, the Next and Previous buttons will be available. This allows the user to quickly view the statistics on each channel. In the example for the PDL10TRH, activating the Next button will update the dialog box with the statistics for the humidity channel.

The Right Click Pop-Up Menu

The **Right Click Pop-Up Menu** incorporates menus from the Graph Menu. It provides a convenient way to manipulate the graph. It will show different pop-up menus depending on the position of the mouse on the screen.

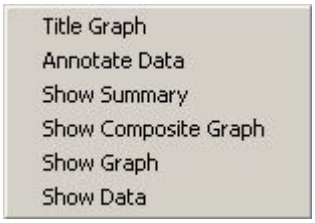
The **Right Click Pop-up Menu** will appear 1 of 2 ways (see window #2):

Window #1:



Submenu A

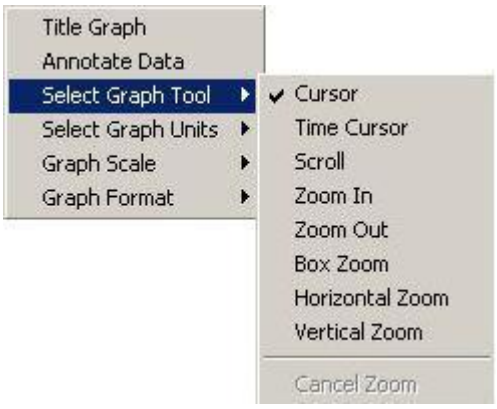
Click the **Title Graph** submenu to modify the title graph (see Title Graph).



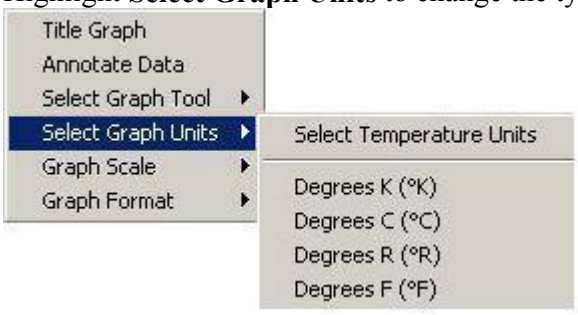
Click the **Annotate Data** submenu to modify the **Annotate Data** (see Annotate Data).
Click the **Show Summary, Show Composite Graph, Show Graph**, and **Show Data** options to bring up the Summary, Composite Graph, Graph, and Data tabs, respectively.

Submenu B

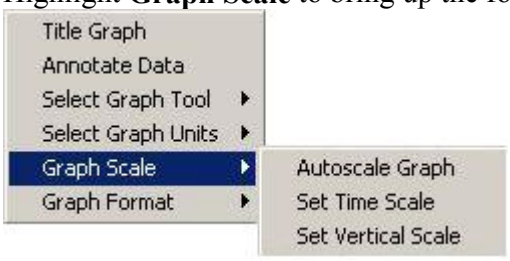
Highlight **Select Graph Tool** to change the cursor mode (see Select Graph Tool).



Highlight **Select Graph Units** to change the type of scaling units (see Select Graph Units).

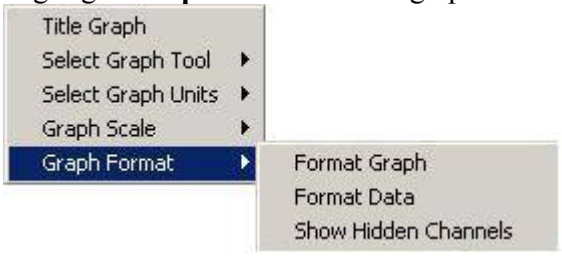


Highlight **Graph Scale** to bring up the following box.

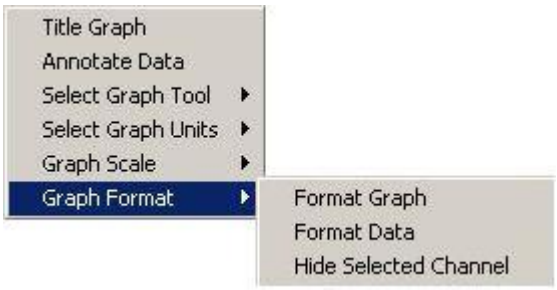


Click the **Autoscale Graph** option to automatically optimize the vertical scale of the graph (see Autoscale Graph).
Click the **Set Time Scale** submenu to display a time scale setting form (see Set Graph Scale).
Click the **Set Vertical Scale** submenu to display a vertical scale setting form (see Set Graph Scale).

Highlight **Graph Format** to bring up the following box:



Click **Format Graph** to display a graphic format setting form (see Format Graph).
Click **Format Data** to display a data format setting form.
Click the **Show Hidden Channels** to show all hidden channels in the graph.



The **Hide Selected Channel** is available when there is a channel selected on the screen. The Hide Selected Channel function, in the Graph Format menu to hide the selected channel.

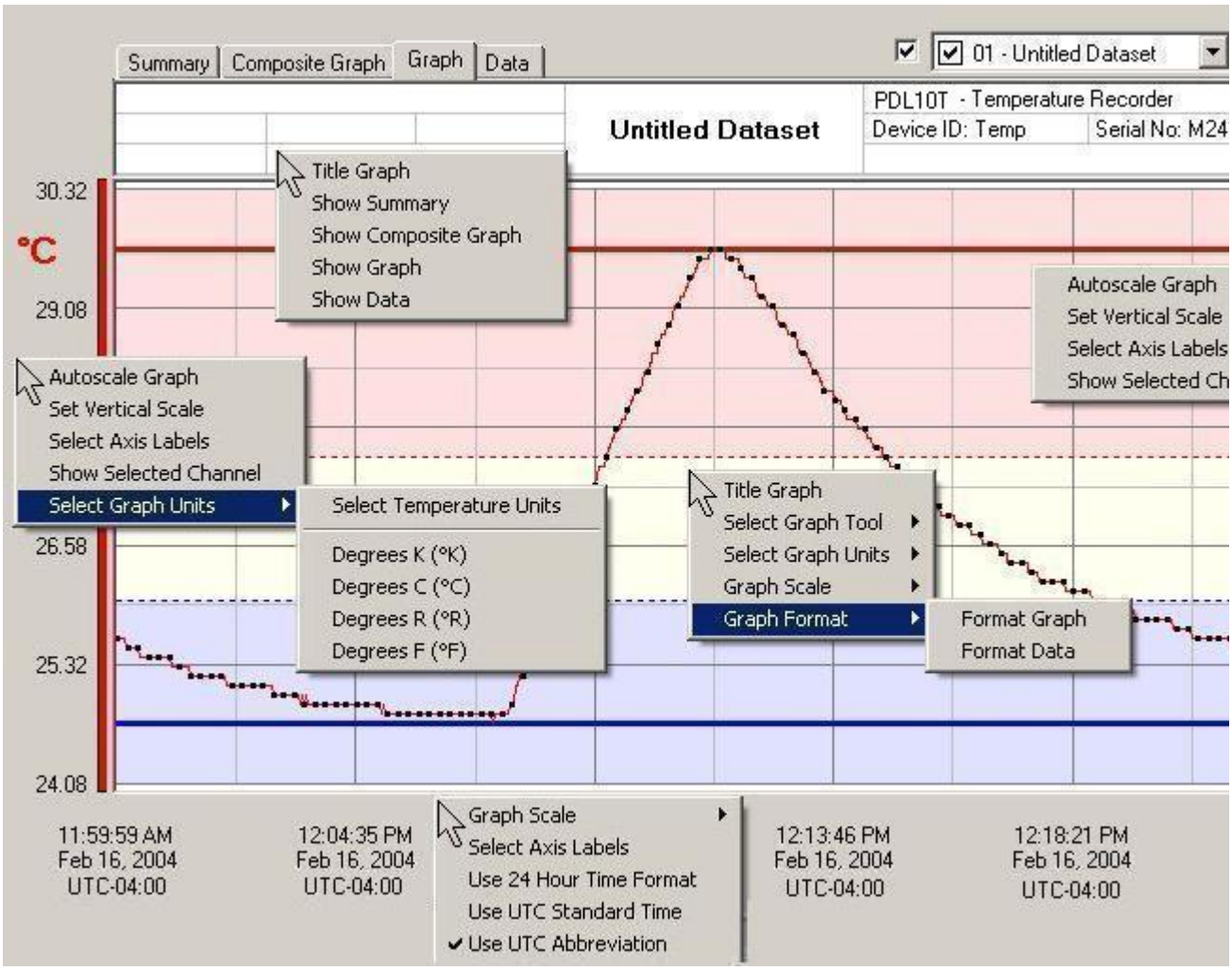
Submenu C

Select the **Select Axis Labels** to bring up the **Set Graph Scale** box, under the Axis Labels tab. The user can choose which vertical labels are shown and whether they will be shown on the left or right sides.

Use 24 Hour Time Format, Use UTC Standard Time, or **Use UTC Abbreviation** to change the way the time is viewed (see display preferences).

Window #2:

The **Right Click Pop-up Menu** will appear below if there is no channel selected on the screen by the user.

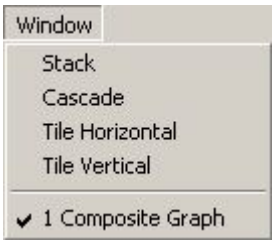


Here the **Right Click Pop-up Menu** is similar to Window #1 with two differences:

1. The submenu Annotate Data is not available.
2. The submenu Hide Selected Channel is not available in Graph Format menu.

The Window Menu

The Window menu looks like this:



Window Menu: Stack

Choose **Stack** from the Window Menu to resize all the open graph windows to take up the whole main window and are to stack (overlay) on top of each other.

Window Menu: Cascade

Select **Cascade** from the Window Menu to resize all the open graph windows to a medium size, and then

positions them in a staggered layer, one on top of the other, to maintain the title bars are visible.

Window Menu: Tile Horizontal

Select **Tile Horizontal** from the Window Menu to rearrange the open graph windows, to make fully visible and to align horizontally next to each other with no overlapping.

Window Menu: Tile Vertical

Select **Tile Vertical** from the Window Menu to rearrange the open graphs windows to make fully visible and to align vertically next to each other with no overlapping.

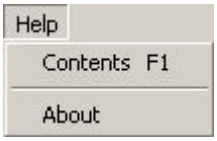
Window Menu: Selected File

When only one graph menu with multiple data sets is open, the line will show the selected tab that is open in the graph menu.

When multiple open graph menus are open with different data set(s) in each one, all the file names will be listed under this option. This method allows a desired graph to be viewed.

The Help Menu

The Help Menu looks like this:

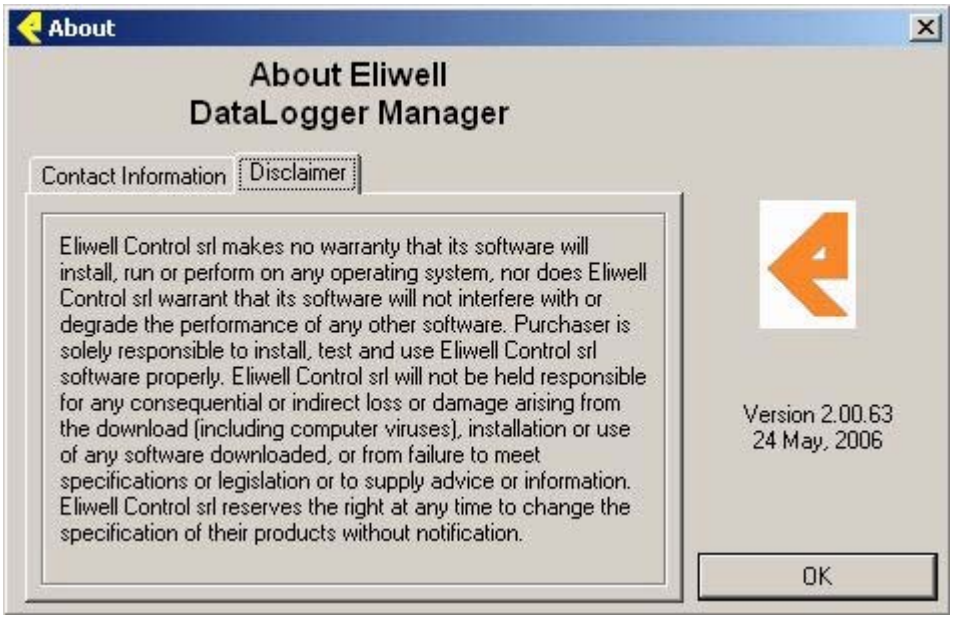


Help Menu: Contents

Select **Contents** from the Help Menu to bring up the Help window, and presents the Table of Contents for the online manual.

Help Menu: About

Select **About** from the Help Menu to bring up the **About** window, and presents information about the company and the software version. This screen includes the ELIWELL address, phone number for technical information, e-mail address and web site. It also includes the full revision number of the software and the date of release.



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