Temprecord User's Manual

User's Manual for Temprecord Software.

Temprecord User's Manual

Version 5.21

This is the User's Manual for the Temprecord for Windows software and associated temperature and humidity loggers. The contents of this manual mirror the online help provided with the application, but the format of this PDF file is better suited to printing.

Temprecord User's Manual

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1 Contents

Welcome to Temprecord for Windows on-line Help. This screen lists the major help topics. You can jump to other topics by clicking on text that is displayed like this. For more information on how to use the Temprecord help system, see How to Use Help.

- License Information
- File Menu
- Program Menu
- View Menu
- Options Menu
- Help Menu

- Pop-up Menus
- Speed Buttons

- Installation
- How to Use Help
- Getting Started with Temprecord
- How do I...
- Common Problems
- Error and Warning Messages
- Command-Line Parameters

1.1 License Information

The Temprecord program is supplied free by Temprecord International Limited ("TIL"). You may not charge for the software. You are free to distribute the software installation package to any other person or organisation. It must be supplied in it's unmodified complete form (generally a compressed file named **trw-setup.zip).**

You may not disassemble or reverse-engineer the Temprecord software or hardware.

The software is provided on an "as-is" basis. TIL does not warranty the software nor guarantee it's operation in all environments. TIL accepts no claim for damages incidental to the use of their software.

1.2 Help Menu

While you can access Temprecord on-line help at most times by pressing F1, the Help menu provides a quick way of jumping to frequently accessed topic groups, such as common problems that might be experienced and how to deal with them, or a list of the error and warning messages.

- Contents
- Topic Search
- How Do I...
- Common Problems
- View Help as PDF

- About Temprecord

1.3 Getting Started with Temprecord

If you are new to Temprecord, this topic provides a step by step tutorial on how to use a logger to record temperature and then reading and displaying the recorded temperature data. The following steps assume you have just taken delivery of a 'starter pack' consisting of the Temprecord program, a Temprecord Scientific or Multi-trip logger, and a Temprecord Reader Interface.

- Connect the Temprecord Reader Interface to your computer's serial port or USB port. If you are unsure about this step, see the topic Where do I plug my reader in?
- Insert the Temprecord logger into the Reader, making sure it is pushed all the way in.
- Select File/Query Logger by opening the File Menu and clicking on Query Logger. After a few seconds, a window should display showing a summary of the logger. Otherwise, see the topics Unable to Access Temprecord Logger or Unable to open COMx.
- Select Program/Parameters. After a few seconds you will see the Logger Parameters screen, which allows you to set the logger up. Change the sample period to 00:00:10 (one sample every 10 seconds). Set the start delay to 00:00:20 (20 seconds).
- Click on 'OK'. After a few seconds the logger parameters screen will close.
- When the logger parameters screen has closed, remove the logger from the reader interface. After 20 seconds or so, it will flash to indicate the start delay has counted down and it has started to record temperature samples.
- Place the logger in an environment you wish to measure the temperature of (e.g. a refrigerator) and leave it for a few minutes.
- Retrieve the logger, and insert it into the Reader Interface.
- Select the File/Read Logger function. A window will open indicating the data is being read from the logger. When this step is complete a graph of the recorded samples will display.
- Select the View/Values function. The Window will change to display the logged temperatures as a series of temperature values.
- Select the File/Save function. This allows you to save the logged temperatures to a file so that they can be read from disk later. Temprecord initially chooses a filename based on the serial number of the logger, but you are free to change this if you wish. Click on OK to save the data to disk.

Your Temprecord logger continues to record samples until it is stopped (see Program/ Stop Logger) or the maximum number of samples is taken (unless the Loop Overwrite Option is turned on). You do not need to stop the logger in order to read and display the logged temperature.

Congratulations! You have just used your Temprecord logger to record and display temperature samples.

See also:

How Do I...?
Common Problems
Error and Warning Messages

1.4 How To Use Help

There are several ways to find information about a particular help topic.

- If you are new to Temprecord and want to find out how to use the product, try Getting Started with Temprecord.
- To search for help on a particular topic, click on the button marked 'Search' near the top of this Help window.
- To find out more about an item on a Temprecord menu, open the menu, move the mouse over the menu entry, and press F1.
- To find out more information about an error message that is displaying, press F1 while the error message window is displayed, or click on the button marked 'Help'. You can also refer to the Help topic Error and Warning Messages.
- For a brief summary of the steps involved in the more common Temprecord operations, such as programming a logger, starting a logger, reading a logger's data, etc., see the topic How Do I....
- If you are having a particular problem, try looking at the Help topic Common Problems.

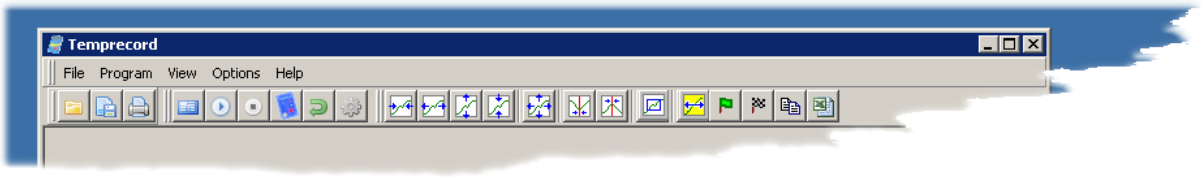
When viewing Temprecord help, these symbols are used as an aid to your quickly finding the information you require:

indicates a note of caution - where care needs to be taken with a Temprecord function.

is used to bring your attention to text that describes a quicker way of performing some function - a short-cut or hint.

indicates that the description applies to the Mk II and Mk III loggers only.

1.5 Speed Buttons



Many of the common operations you will need to perform with Temprecord can be accessed by the row of buttons (called 'speed buttons') along the top of the Temprecord window. These buttons are arranged as three groups of similar functions.

Opens a file. The same function is available with the File/Open menu entry.

Saves the data in the current Temprecord data window to a disk file. The same function is available with the File/Save menu entry.

 Prints the data in the current Temprecord data window. You can specify the form that the printed report takes with the printing options. The same function is available with the File/Print menu entry.

 Saves the data in the current Temprecord data window as a PDF report file. You can specify the form that the PDF report takes with the PDF options. The same function is available with the File/Save to PDF menu entry.

 Emails the data in the current Temprecord data window as an attached .TR file. If the data in the window is from a file, or it was from a logger and was subsequently saved to a file, the attachment is given that name. If the data in the window has been read from logger but not yet saved to a file, the name of the attachment is created from the default TR filename. The details of the email, such as the recipients and accompanying message body are determined be the email options.

 Allows you to program the parameters of a logger. You must have a logger inserted in the reader interface and the logger must be in the 'ready' state. The same function is available with the Program/Parameters menu entry.

 Starts a logger. You must have a logger inserted in the reader interface and the logger must be in the 'ready' state. Once a logger has been started, you cannot alter the parameters. The same function is available with the Program/Start menu entry.

 Stops a logger. You must have a logger inserted in the reader interface and the logger must be in the 'logging' state. The same function is available with the Program/Stop menu entry.

 Reads the data from a logger. You must have a logger inserted in the reader interface and the logger must be in the 'logging' or 'finished' states. The same function is available with the File/Read Logger menu entry.

 Reuses a logger. You must have a logger inserted in the reader interface, the logger must be in the 'finished' state, and it must be a multi-trip or scientific type. The same function is available with the Program/Reuse menu entry.

 Zooms in (i.e. expands) the trace horizontally. This button is only functional if there is logger or file data loaded and graph view mode is selected. The same function is available with the View/Zoom/X+ menu entry, or by pressing the '+' key with the shift key held down.

 Zooms out (i.e. compresses) the trace horizontally. This button is only functional if there is logger or file data loaded and graph view mode is selected. The same function is available with the View/Zoom/X- menu entry, or by pressing the '-' key with the shift key held down.

 Zooms in (i.e. expands) the trace vertically. This button is only functional if there is logger or file data loaded and graph view mode is selected. The same function is available with the View/Zoom/Y+ menu entry, or by pressing the '+' (plus) key.

Zooms out (i.e. compresses) the trace vertically. This button is only functional if there is logger or file data loaded and graph view mode is selected. The same function is available with the View/Zoom/Y- menu entry, or by pressing the '-' (minus) key.

Zooms to the preset values for the time and temperature axes specified in the graph view options page. See the topic Using the Zoom Presets for more information.

Moves the graph sample cursor to the minimum values sample. This button is only functional if there is logger or file data loaded and graph view mode is selected. The same function is available with the View/Goto/Minimum menu entry, or by pressing the F5 key. Note that only the samples between the start and end samples are considered when Temprecord searches for the minimum value.

Moves the graph sample cursor to the maximum values sample. This button is only functional if there is logger or file data loaded and graph view mode is selected. The same function is available with the View/Goto/Maximum menu entry, or by pressing the F6 key. Note that only the samples between the start and end samples are considered when Temprecord searches for the maximum value.

Selects all the samples. This is equivalent to clicking on the first sample, pressing **F7** to set the start sample to the first sample, then clicking on the last sample, pressing **F8** to set the end sample to the last sample. Any Copy operation will then copy all of the samples to the clipboard. The select all samples operation can also be carried out by pressing Ctrl-A while in the graph view, or selecting **Select All** from the right-click menu in graph view. This button is only functional if there is logger or file data loaded and graph view mode is selected.

Sets the start sample to the graph sample cursor, i.e. the position on the graph of the cursor. This is equivalent to pressing **F7.** This button is only functional if there is logger or file data loaded and graph view mode is selected.

Sets the end sample to the graph sample cursor, i.e. the position on the graph of the cursor. This is equivalent to pressing **F8.** This button is only functional if there is logger or file data loaded and graph view mode is selected.

Copies the samples between (and including) the start and end samples to the clipboard. From the clipboard the samples can then be pasted into a spreadsheet such as Microsoft Excel or a word processing document. See copying samples to the clipboard for more information. This button is only functional if there is logger or file data loaded and graph view mode is selected.

Copies the samples between (and including) the start and end samples to an Excel spreadsheet file. By default, an XLS file with the same filename as the .TR file is created. See copying samples to Excel for more information. This button is only functional if there is logger or file data loaded and graph view mode is selected.

All of the functions accessible from these speed buttons are also available as menu entries, and some are also available through the keyboard function keys.

1.6 Pop-Up Menus

At most times when Temprecord is running, you can click the right mouse button and get a menu of the most common commands.

For example, a frequent operation is changing from one view mode to another. This can be done in the conventional way, by opening the View Menu and clicking on the view mode you require, but a much quicker way is to place the mouse cursor in the Temprecord data window you want to change the view mode in, and click the right mouse button. You can then select the view mode you want from there.

You can perform the following operations from the pop-up menu in the current Temprecord data window:

- Select one of the four view modes (summary, values, statistics, or graph).
- Select between viewing Temperature data, Humidity data, or both.
- Access the Go To functions.
- Access the Zoom functions.
- Set the current sample as the start sample.
- Set the current sample as the end sample.
- Read data from a logger.
- Print from the current Temprecord data window.
- Save the data in the current window to a file.
- Edit the comment fields for the current window.
- Access the display options. This menu entry will access the options page for any one of the four view modes, i.e. summary, values, statistics or graph, depending on the current view mode.
- Close the current data window.

Some of these functions may not be available and the pop-up menu entries are displayed in gray in that case. For example, the Zoom entry will be grayed unless the view mode of the current window is graph view.

You can also perform the following operations from the pop-up menu that displays when the right mouse button is clicked when there are no Temprecord data windows open, or the mouse is not positioned over a data window:

- Query a logger -i.e. check for the presence of a logger and display the summary data from that logger in a new window.
- Read data from a logger.
- Open an existing Temprecord data file.
- Exit Temprecord

1.7 Command-Line Parameters

When starting Temprecord from the command line (from a “DOS Prompt”, there are numerous command-line options that can be used. Some of these enable you to perform repetitive tasks from a batch file and are useful when setting up or reading a large number of loggers.

Temprecord already implements the ability to specify TR files to load on the command-line. These existing command-line parameters are unaffected.

All settings (such as COM port, parameter defaults, export settings, etc) that are currently in use are

also used for any operations specified through command-line options.

As an example of the use of the added command-line options, the command:

```
trw  /stop /read /save fred /reuse /start /exit
```

will stop the logger, read the data, save it as a file FRED.TR, reuse the logger, start the logger again, and TRW will then exit. If any errors occur, all processing of commands stops and a message describing the problem is displayed.

The command:

```
trw /read
```

will start TRW, read the logger data, and remain open with the logged data displayed.

These command-line parameters are useful for performing a series of operations on one logger. If you have a batch of loggers to read and reconfigure, auto mode operation is probably preferable.

Using the Command-Line Options

Commands can be carried out by any of the following methods:

From a DOS Command Prompt:

- Click on Start
- Click on Programs
- Click on MS-DOS Prompt
- At the C:> prompt, type the Temprecord command, i.e. “trw”, followed by a space, followed by the command-line options, followed by the “Enter” key.

From a Batch File:

- Click on Start
- Click On Programs
- Click on Accessories
- Click on NotePad
- In NotePad, enter the commands you wish to execute, one per line.
- Click on Save, and enter the folder and name of the file. Be sure to give it an extension .BAT, e.g. “doit.bat”.

To execute the batch file, type its name at a DOS command prompt, or create a shortcut to it.

From A Shortcut:

- Open the folder you want to create the shortcut in, unless you want the shortcut to be on your desktop.
- Right-click in the folder (or on the desktop).
- Click on “New”
- Click on “Shortcut”
- Enter the TRW command-line, including the path, e.g.: C:\trw\trw.exe /read
- Don’t forget to add the “.EXE” to the TRW program name.
- Click on Next

- Enter a name for the shortcut.
- Click on Finish.

To use the shortcut, double click it.

WARNING The TRW program contains many prompts and safeguards when dealing with Temprecord data. As an example, TRW will prompt you before reusing a logger if it believes you have not yet read and saved the data, as reusing a logger makes any data in it inaccessible. These prompts are NOT issued when using the command-line functions of TRW. It is the user's responsibility to make sure that data has been saved before reusing a logger with the /REUSE command line option.

Command-Line Reference

The command-line options are described in the order you would normally carry out the commands if you were using them from TRW. Note however that the command-line options can be specified in any order on the command line.

The order of execution of the commands is NOT necessarily the order in which you specify them, but is instead the order that would make the most sense. As an example, if you specify the command:

```
trw /export /read
```

the logger would be read first, then the data would be exported.

Some combinations of command-line options are not sensible and in this case an error message will be displayed and no commands will be executed.

Command	/STOP
Example	trw /stop
Function	Stops the logger. If the logger is not in the logging state an error message is issued. If the logger is already stopped, no error is issued.

Command	/OPEN <filename>
Example	trw /open fred
Function	Opens a Temprecord data file from disk. An error is raised if no filename is specified, if the file is not found or if it is not a valid Temprecord data file. If no filetype is specified, .TR is assumed. If the filename contains spaces, you need to enclose it in double quotes, e.g. **trw /open "data from fred.tr**".

Command	/READ
Example	trw /read
Function	Reads the data from the logger. The logger must be present, and either logging or stopped or an error results.

Command	/SAVE [<filename>]

Example trw /read /save
trw /read /save fred

Function Saves the loaded Temprecord data to a disk file as a Temprecord data file. An error results if there is no data loaded, i.e. a /READ or /OPEN command line option must also be specified. If no filename is specified and the loaded data is from a file, an error is issued. If no filename is specified and the loaded data is from a logger, a filename is constructed from the logger serial number. If a filename is specified and no filetype, .TR is assumed.

NOTE: If the file already exists it is overwritten. You will not be prompted before overwriting, even if that option is checked in TRW.

If the filename contains spaces, you need to enclose it in double quotes, e.g. **trw /read /save "data from fred.tr**".

Command /EXPORT [<filename>]

Example trw /read /export
trw /read /export fred

Function Saves the loaded Temprecord data to a disk file as an ASCII file (i. e. performs the same function as the 'Export' function from within TRW). An error results if there is no data loaded, i.e. a /READ or / OPEN command line option must also be specified. If no filename is specified and the loaded data is from a file, the name of the export file is the name of the loaded TR file, but with filetype as specified in the Options/Export settings of TRW. If no filename is specified and the loaded data is from a logger, a filename is constructed from the logger serial number, and the filetype is as specified in the Options/Export settings of TRW. If a filename and filetype is specified, it is used as the exported filename. If no filetype is specified but no filetype, the filetype as specified in the Options/Export settings of TRW is used.

When exporting data with this option, the export settings as specified in the Options/Export settings of TRW apply.

NOTE: If the file already exists it is overwritten. You will not be prompted before overwriting, even if that option is checked in TRW.

If the filename contains spaces, you need to enclose it in double quotes, e.g. **trw /read /export "data from fred.txt**".

Command /REUSE

Example trw /reuse

Function Reuses the logger. If the logger is not present, not a multiple use type, or it is not in the stopped state an error message is issued. If the logger is protected with a password and no password is supplied with the /PASSWORD option, or the password supplied is incorrect, an error results. When the logger is reused, all parameters are left unchanged (except in the case of the older Mk1 to Mk3 loggers, where the start delay is set to the value

specified in the parameter default options). If you require different parameters to be used, specify them using the Options/Defaults settings in TRW and use the /DEFAULTS command-line option also.

NOTE: No warning is issued if the data in the logger has not been read and/or saved. This option should not be used unless the data from the logger has been successfully read and saved, either by previous operations, or on the same command line.

Command	/PASSWORD
Example	trw /reuse /password 1234
Function	Supplies a password to be used when reusing the logger or setting the logger parameters to the defaults. This option is required when the logger is protected by a password and the /REUSE or /DEFAULTS command-line options are used.

Command	/START
Example	trw /start
Function	Starts the logger. If no logger is present, or if the logger is not in the READY state, an error results.

Command	/AUTO
Example	trw /auto
Function	Starts Auto Mode when TRW starts. This option would normally be used on it's own, or only with the **/KIOSK** option below.

Command	/KIOSK
Example	trw /kiosk
Function	Starts TRW in "Kiosk mode", with a reduced set of functions and capabilities.

Command	/EXIT
Example	trw /open fred /export /exit
Function	Exits TRW when all command have been successfully carried out. If any command resulted in a error, a message will be displayed, and TRW will exit after this message has been cleared.

Examples

Some examples of common functions follow:

Example	trw /stop
Function	Stops the logger and leaves TRW running.

Example trw /stop /save /reuse /exit

Function Stops the logger, saves the data to a filename based on the logger serial number (overwriting any file of the same name), reuses the logger, and then exits TRW.

Example trw /open sample1 /export /exit

Function Reads the file SAMPLE1.TR from disk, exports it as SAMPLE1. PRN (or whatever the current export filetype is set to) and then exits TRW.

Example trw /stop /read /save sample2 /export sample2 /exit

Function Stops the logger, reads it, saves the data to SAMPLE2.TR, exports it to SAMPLE2.PRN (or whatever the current export filetype is set to) and then exits TRW. Note that in this example if no filetype is specified after the /EXPORT option, the export filename will be based on the logger serial number, even though a filename was supplied with the /SAVE option.

If you enter the above command line into a batch file, and replace the filename with "%1", i.e. create a file called exportit.bat with the following line in it:.

```
trw /stop /read /save %1 /export %1 /exit
```

you will be able to type the command:

```
exportit sample2
```

to carry out the commands.

1.8 Where do I plug my reader in ?

The Temprecord program requires an available serial port or USB port on your computer to operate. The serial connector for this will be on the back of your computer, along with the connectors for the display and keyboard. It will be either a DB-9M (9-pin male) or a DB-25M (25-pin male) connector. A 25 pin-to-9 pin converter is supplied with the Reader Interface and you should use this if your computer is only fitted with a DB-25M connector.

If your reader has a USB connector, you need to plug it into a SUB port. These are normally located on the rear of desktop PCs, or on the side or rear of laptop/notebook PC's.

Don't confuse the DB9-M serial port connector with the display connector. The display connector is normally the same size as a DB-9M connector but will be a 15-pin female connector

Don't confuse the DB25-M serial port connector with the printer connector. The printer connector is normally the same size as a DB-25M connector but will be a 25-pin female connector.

WARNING – The Temprecord Reader model SR2 is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

1.9 How Do I...

- How do I install Temprecord on another computer ?
- How do I set up a logger to record temperatures ?
- How do I see the temperature values as numbers, instead of as a graph ?
- How do I save my data after I have read it from the logger ?
- How do the upper and lower limits work when Temprecord displays data ?
- How do I see my data as a graph and as a set of values at the same time ?.
- How do I use the comment fields ?.
- What are 'Presets' and how do I use them ?

See also:
Common Problems
Error and Warning Messages

1.10 View Help As PDF

Use this menu item to see the help file as a PDF file. The PDF format help can be more convenient as it is organized more like a book. It is also possible to print all or some of the help file, whereas Windows help only allows you to print one topic at a time.

See Also
Unable to open PDF file

1.11 About Temprecord

Temprecord for Windows 2000/NT/XP/Vista
English-Language HTML Help

P.O. Box 58-430
Auckland, NEW ZEALAND
http://www.temprecord.com
info@temprecord.com

Produced December 2009

2 Installation of Temprecord

The Temprecord program can be installed on as many computers as you wish. Just take the original

installation disk that you installed this copy of Temprecord with, place it in the drive of the computer you wish to install it on, and run TRW-SETUP.EXE from the drive.

IMPORTANT! Don't plug in your reader interface before installing the Temprecord software.

Of course you will require another reader interface unit if you wish to program and start loggers on the second computer.

In order to use the reader interface unit, your computer must have a spare USB port. As part of the installation process, the necessary USB driver files are normally copied to your computer and installed. This part of installation normally proceeds without problems, but you might need to manually install these drivers with some computers or versions of Windows. See the topic Installing Temprecord Reader USB Drivers for more information.
.
To install Temprecord on another workstation on a network, see the topic Installing Temprecord on Networks

See Also

Installing Temprecord on Networks
Installing Temprecord Reader USB Drivers
Notes for System Administrators

2.1 Installing Temprecord on Networks

This topic will mainly be of interest to network administrators.

Like most modern Windows applications, Temprecord has been designed to be installed on each workstation it is required on. Once installed, the default data file and reports folders are set to the current users profile, and also shared documents folders are created for the PC and have modify permissions set for all users. The installer creates all folder required with the appropriate permissions set. The installer will not run unless an administrator account is logged in.

Installing TRW on a common shared network drive is not recommended. The installation process creates file associations between the Temprecord program and .TR data files which will not be present if the program is not installed on the workstation. It also pre-installs USB driver files for the Temprecord Reader. These files are not provided for in the Windows driver set, so users running from a shared network copy of TRW.EXE will not be able to access loggers with a Temprecord Reader interface.

Changes in the way Windows Help is implemented mean that it is more difficult to install the help files on a shared drive.Windows help files (CHM files) will not function properly unless they are located on the same machine as the user, i.e. they cannot be on a network drive. The simplest way to circumvent this problem is to install Temprecord on every machine that will be running it.

Windows XP/Vista

Windows XP and Windows Vista have additional security measures which prevent a user opening a help file on a remote (network) drive. If you receive the message "Navigation Canceled" displayed in a help window this is the reason. To prevent this, make sure that Temprecord is installed on every machine that needs to run it -i.e. "locally".

We have provided a batch installer to enable rapid deployment of Temprecord software across multiple machines. See the file **Install.txt** in the distribution package, and also the topic Notes for System Administrators

See Also

Installation of Temprecord
Installing Temprecord Reader USB Drivers
Notes for System Administrators

2.2 Installing Temprecord Reader USB Drivers

Normally installation of the USB drivers required for the Temprecord Reader Interface will happen automatically as part of the software installation. If you experience difficulty with the automatic installation of the USB drivers required for the reader interface, follow the instructions given here.

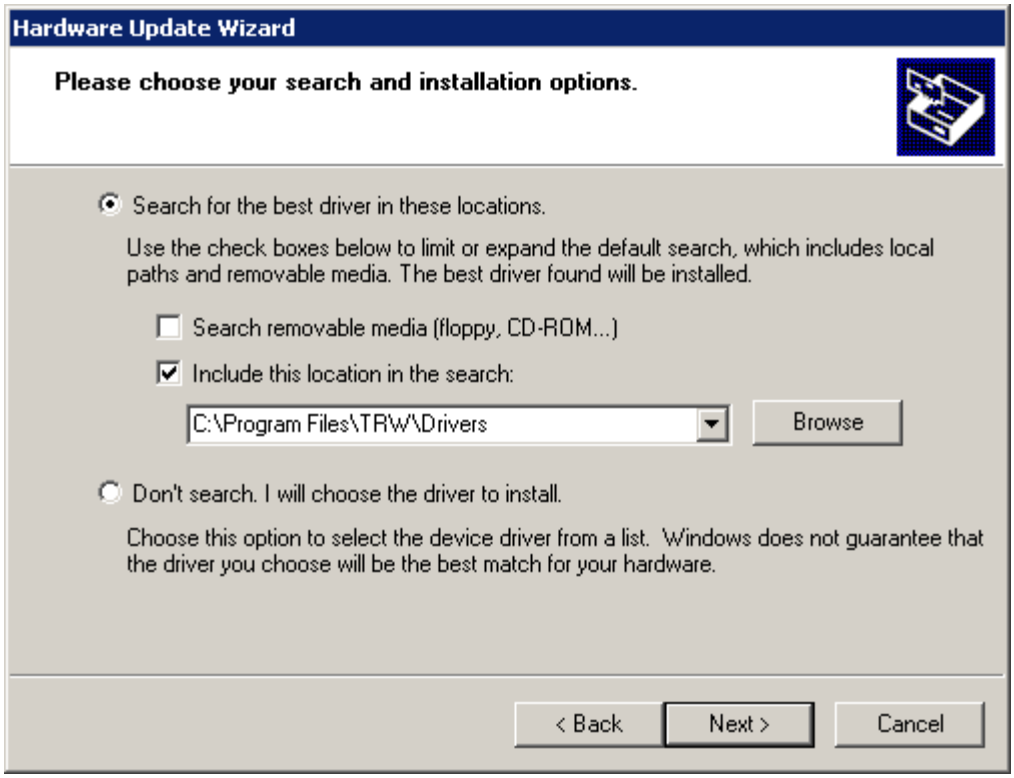
IMPORTANT! Don't plug in your reader interface before installing the Temprecord software.

If the instructions given below do not work for you, you can always install the USB drivers manually

IMPORTANT NOTE. If you are running Windows 2000 or Windows XP prior to Service pack 2 ("XP SP2"), you must ensure that your computer is not connected to the Internet when you install the USB drivers. Otherwise Windows will load an incorrect driver file from the Internet. If you are running Windows XP SP2 or above the installer will ask if it can check the Internet for the driver. You must answer "No" to this question.

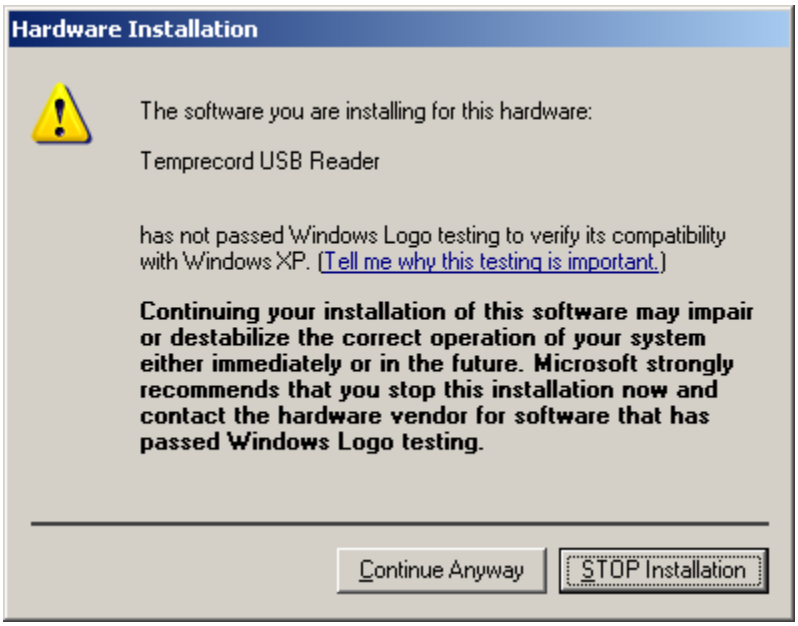
If the installation of the drivers is incomplete, you may see this dialog when you plug in the reader for the first time:

Select **Install from a specific location (Advanced)**, and click **Next**.



Make sure **Search for the best driver in these locations** is selected, **Search removable media** is not checked, and **Include this location in the search** is checked. Then click the **Browse** button. Navigate to the folder **C:\Program Files\TRW\Drivers** (If you installed to a folder other than TRW, select that folder instead). When you have selected the folder, close the **Browse** dialog and click **Next**.

After some time (up to a minute) you may see a warning that the drivers are not Microsoft-certified and asking you to confirm that you wish to install them anyway:



Click on the **Continue Anyway** button. After a short time you should receive a dialog announcing the successful completion of the installation.

At this point, the whole process will repeat for the driver named "USB Serial Port". After this has completed (make the same selections as detailed above for installation of the Temprecord USB Reader) your reader should be ready for use. If you encounter difficulties, you can try to install the USB drivers manually

See Also

install the USB drivers manually

Installation of Temprecord
Installing Temprecord on Networks
Notes for System Administrators

2.3 Installing the USB Drivers Manually

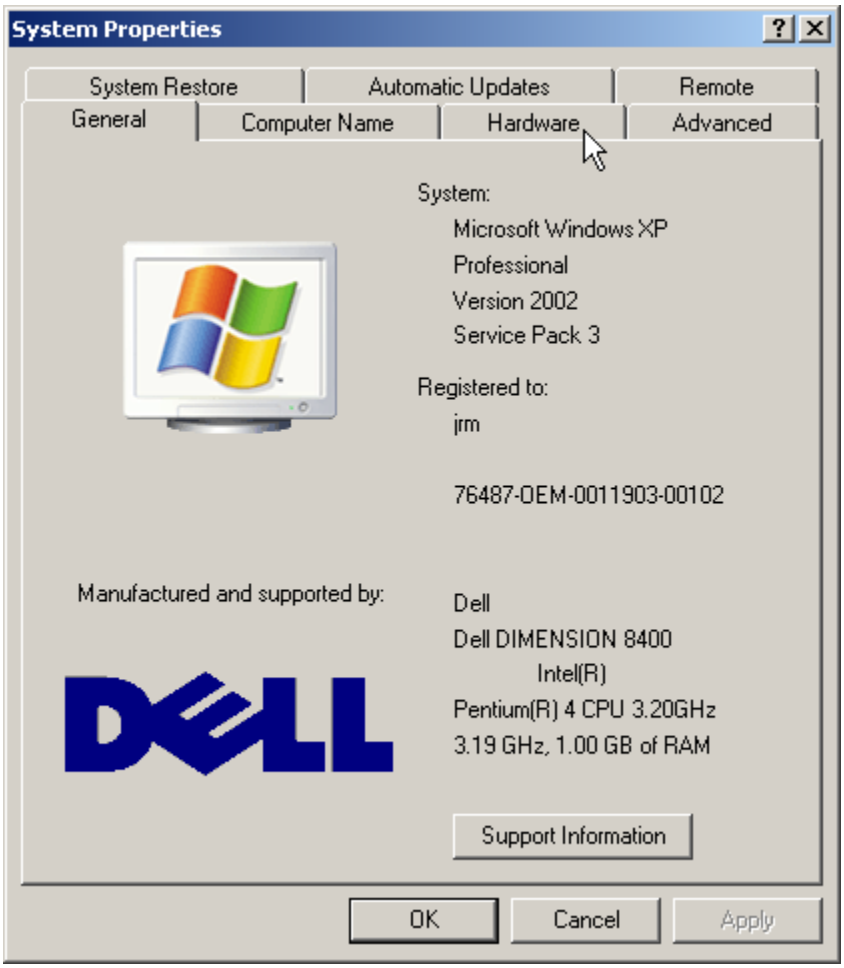
If things go wrong with the USB installation, you can try installing the USB drivers manually.

IMPORTANT! Don't plug in your reader interface before installing the Temprecord software.

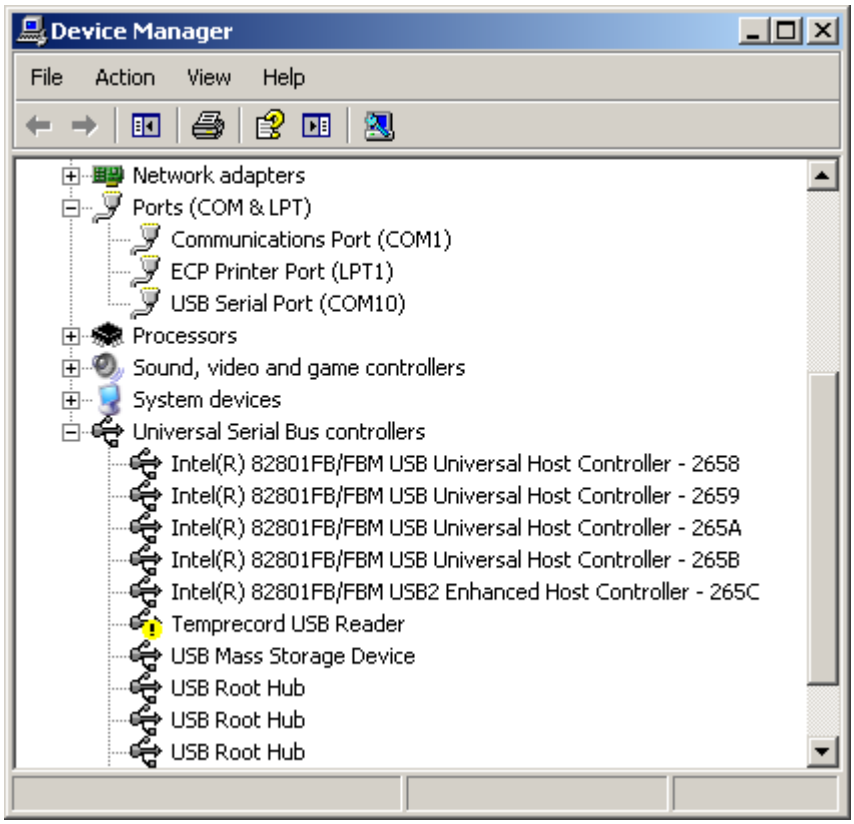
IMPORTANT NOTE. If you are running Windows 2000 or Windows XP prior to Service pack 2 ("XP SP2"), you must ensure that your computer is not connected to the Internet when you install the USB drivers. Otherwise Windows will load an incorrect driver file from the Internet. If you are running Windows XP SP2 or above the installer will ask if it can check the Internet for the driver. You must answer "No" to this question.

First, plug the reader in to an available USB port.

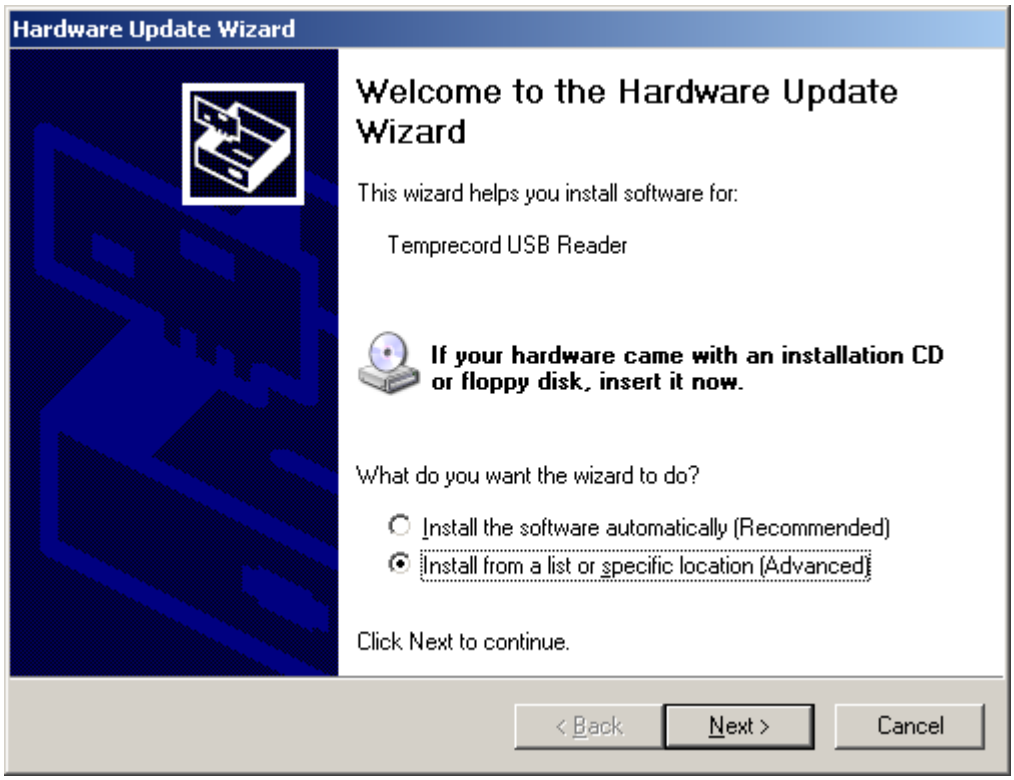
To check if the drivers are installed, check the Device Manager (in Windows XP, click **Start**, **Control Panel**, and double-click **System**. Click on the **Hardware** tab from the **System Properties** page:



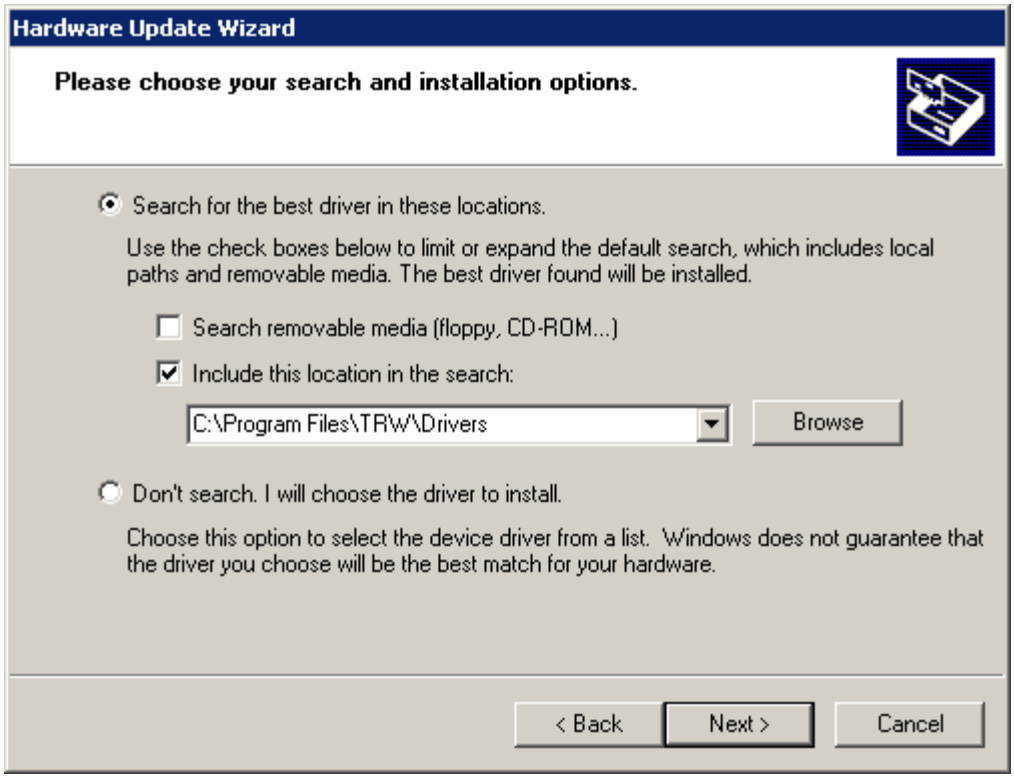
Click the **Device Manager** button.



If the driver for the Temprecord Reader Interface is missing or incorrectly installed, and the a yellow exclamation mark will show beside the USB symbol in the hardware list. Right-click the **Temprecord USB Reader** entry and select **Update Driver**. The following dialog will display:

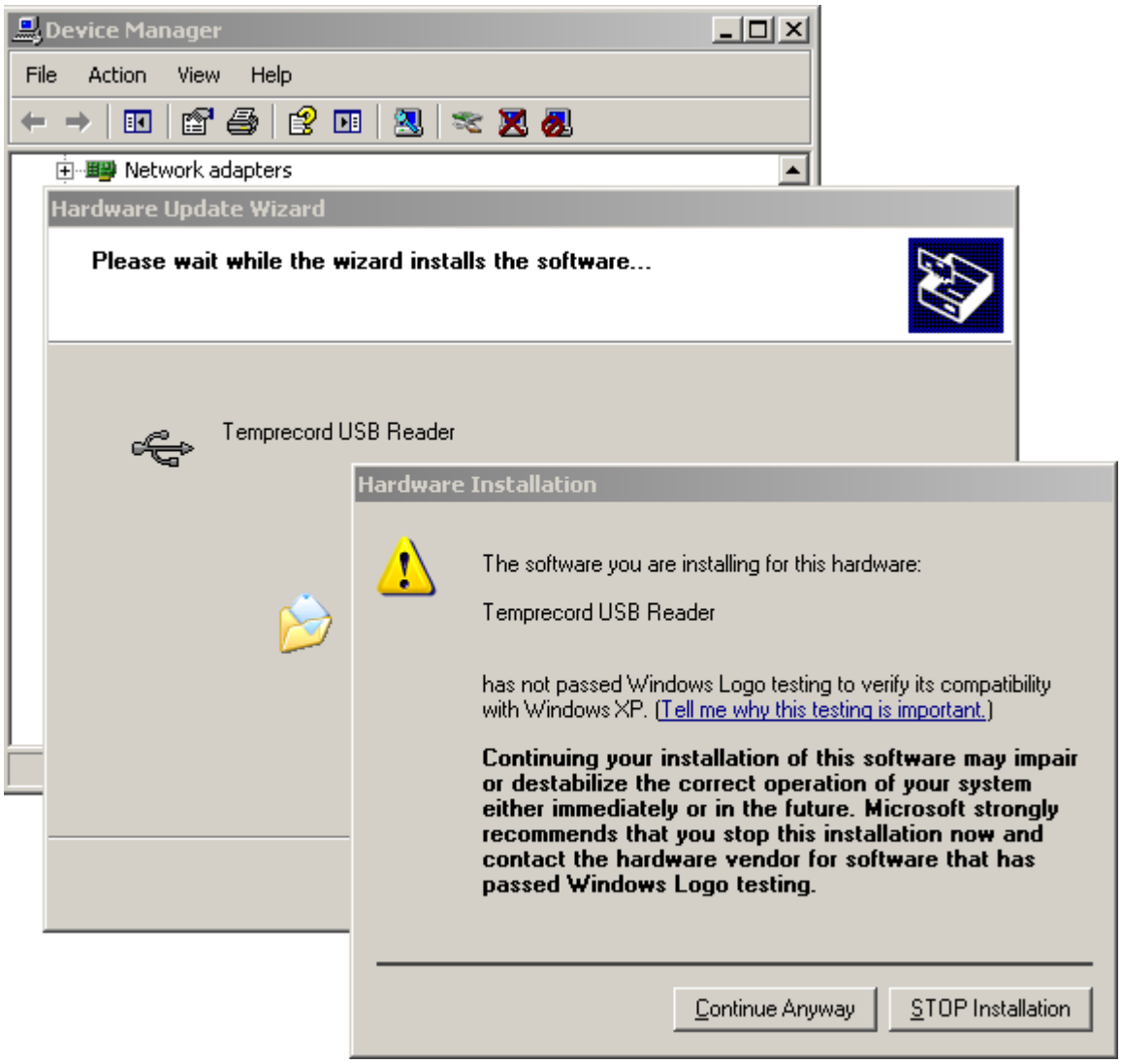


Select **Install from a specific location (Advanced)**, and click **Next**.



Make sure **Search for the best driver in these locations** is selected, **Search removable media** is not checked, and **Include this location in the search** is checked. Then click the **Browse** button. Navigate to the

folder C:\Program Files\TRW\Drivers (If you installed to a folder other than TRW, select that folder instead). When you have selected the folder, close the **Browse** dialog and click **Next**. You will probably receive a warning that the driver is not certified:



Click the **Continue Anyway** button, and you should see the following screen.

At this point the whole process will repeat to install a second set of drivers that are required. Follow the same procedure as outlined above.

See Also

- Installation of Temprecord
- Installing Temprecord on Networks
- Installing Temprecord Reader USB Drivers
- Notes for System Administrators

2.4 Notes for System Administrators

These notes will serve as a guide to administrators, IT support personnel and other installers of Temprecord.

Installation

Temprecord requires the user to have administrator rights for installation. After installation, Temprecord will be available to all users of the computer, whether administrators or limited users.

Batch installation (see below) carried out on computers with an installation of Temprecord (TRW) prior to 5.25 can automatically import those settings, but you will need to edit the batch file to enable that group of statements..

Installation of newer versions of Temprecord on computers with versions of Temprecord 5.26 Build 1038 and above should retain the current settings.

Manual installation is just a matter of running the executable **trw-setup.exe**. To produce a log file (for diagnostic purposes, or to email to Temprecord with an installation support enquiry), enter the command:

```
trw-setup /log=InstallLog.txt
```

Folder Use and Permissions

Installation of Temprecord creates the following folders off the root folder `C:\Documents and Settings\<User name>\`:

`..My Documents\Temprecord\`	Default folder for Temprecord (.TR) files
`..My Documents\Temprecord\Reports\`	Default folder for PDF report files
`..Local Settings\Application Data\Temprecord\TRW\`	Folder for TRW.INI settings file and email queue file
`..Local Settings\Application Data\Temprecord\TRW\Email Files\`	Folder for temporary attachment files for emails. Files remain in here until the email with attachme

	nts is succ essf ully sent, whe n thes e files are delet ed.
..Local Settings\Application Data\Temprecord\TRW\Event Log\	Fold er for the even t log
..Local Settings\Temp\Temprecord\TRW\Preview\	Fold er for temp orar y PDF files creat ed whe n PDF previ ew is used .

It is assumed that these folders are all created with modify permissions for the current user, so that a limited user can still run Temprecord, create and save files and email attachments, etc. Temporary PDF preview files are created in the logged-in user's TEMP folder

Distribution

The Temprecord program is generally distributed as a ZIP file named **trw-setup.zip.** Within the ZIP archive are three files:

- **trw-setup.exe** — The setup executable. Run this file to install Temprecord.
- **readme.txt** — Late-breaking news and version history
- **Install.txt** — These notes
- **TRW Batch Installation Template.bat** — A sample batch file to illustrate unattended batch installation

The installation ZIP archive file contains EXE and BAT files. These file types are often blocked by system administrators because of the fear they might harbour viruses. You may need to find alternate ways of distributing the installable other than email attachments.

Batch Installation

The file **TRW Batch Installation Template.bat** is provided as an example of how Temprecord can be installed without user intervention in situations where the installation destination folder is known in advance. System administrators should examine this file and edit it to suit their environment is necessary, although using it in its current form will generally install Temprecord satisfactorily.

To prepare the batch installation template to install Temprecord, the following steps are required:

- Unzip the TRW setup files into a temporary folder
- Copy the file **TRW Batch Installation Template.bat** to a new name.
- Edit the new batch file and change the items shown in red on the following lines if required:

```
set InstallLogFilename=TRW Installation Log.txt
set InstallFolder=C:\Program Files\Temprecord\TRW\
set InstallGroup=Temprecord
```

You will find the batch installation template in the folder `C:\Documents and Settings\All Users\Documents\Temprecord Files\Samples`.

A note about INI files

The INI file (usually called TRW.INI) is responsible for remembering all the settings of TRW when the application exits.. From TRW version 5.26 onwards, the INI file is handled differently to previous TRW versions:

- When TRW starts it first checks the folder the EXE file is located in for the INI file. If one is found it is read. This folder is usually something like:

  ```
  C:\Program Files\Temprecord\TRW\
  ```

  If Temprecord has been installed and is running from a network drive for shared use, an INI file will be checked for in that folder instead.

- If the INI file is not found the common application data folder of the PC is checked. If TRW.INI is found there it is read. This folder is normally something like:

  ```
  C:\Documents and Settings\All Users\Documents\Temprecord\Application Data\TRW\
  ```

- If TRW.INI is not found in the common application folder, the local settings application folder is checked. If TRW.INI is found there it is read. This folder is normally something like:

  ```
  C:\Documents and Settings\<User name>\Local Settings\Application Data\Temprecord\TRW\
  ```

- If TRW.INI is not found in any of these three locations, a new default one is created in the local settings application data folder,

- When TRW exits, the INI file is written back to the folder it was read from. If the user does not have write access to that folder, or the file is marked as read-only, no error message is issued.

The above behaviour enables various configurations to be accommodated. The installation default is

for each user to have their own INI file. Alternatively the INI file can be copied to the common application data folder and it will be used by all users on that workstation. Finally, the INI file can be copied to a network server folder containing a shared copy of TRW.INI and all users on the network will share the INI settings.

The installer creates a new TRW.INI file unless it finds an existing one from a previous installation, so existing settings should be preserved on re-installation of versions 5.26 onwards.

If you require a custom configuration for your users you can create this by installing TRW on your local machine, setting up the desired options, then copying the TRW.INI file to your installation image such that the file is available in the same folder as TRW-SETUP.EXE when this file is run. If the installer finds this custom copy of TRW.INI in the same folder TRW-SETUP.EXE is running in, and there is no local TRW.INI file there already, the custom one is copied

Previous versions of TRW kept the TRW.INI file in the folder:

```
C:\Program Files\TRW
```

If you have a previous version of TRW installed and wish to keep those settings, there are statements in the batch file which copy the file TRW.INI from an existing installation of TRW to the application data folder of the new installation. This means the new installation will inherit most of the settings the user had with the previous installation of TRW. These statements are commented out by default. You need to modify and enable these statements if you require this. A backup of any existing TRW.INI file is made first.

You need to deploy your edited batch file and the file **trw-setup.exe**. The other files **readme.txt** and **Install.txt** are already present in the setup EXE file.

To carry out the batch installation:

- Copy the deployment files (edited batch file and setup executable) to a temporary folder on the target installation machine.
- Change to that folder.
- Execute the batch file.

If you encounter problems with batch installation, the file **TRW Installation Log.txt** created as part of installation can be inspected for clues as to what might be wrong. This file should be included in any request for technical support.

Customizing Installation

If you require your installation to have customized settings, these are the steps required:

- unzip all the files in trw-setup.zip to a temporary folder
- install Temprecord on your computer.
- open the Options dialog.
- set any custom options you require.
- exit Temprecord.
- open Explorer and navigate to C:\Documents and Settings\<User name>\Local Settings \Application Data\Temprecord\TRW
- copy the file TRW.INI into the temporary folder

The contents of the temporary folder are what you need to distribute as an installation image.

See Also

Installation of Temprecord
Installing Temprecord on Networks
Installing Temprecord Reader USB Drivers

3 Common Problems

Listed here are some of the more common problems users of Temprecord experience. To see an explanation of the problem and its remedy, click on one of the topics below.

- Temprecord will not start
- Temprecord won't recognize my logger
- The arrow keys don't move the cursor on the graph
- The trace isn't visible on the graph
- I can't alter some of the parameters
- I get an error when I try to update the parameters
- I can't print anything with Temprecord
- I can't print my data as a list of values
- I get a 'SPOOL32 Error' when I print
- When I open a menu, some of the items are grayed
- When I click on a button, nothing happens apart from a beep
- My logger says it exceeded the limits, but I can't see where
- The start time displayed changes every time I insert a marker.
- I can't get the TTV statistics to display or print, or export them to a file.
- I can't get the PHI (growth) statistics to display or print, or export them to a file.
- I can't select the Humidity options when I program the logger parameters
- The temperature exceeded the limits but the summary does not show this
- My filenames are all garbled

3.1 Temprecord will not start

If Temprecord does not start at all, - i.e. when you click on the Temprecord icon, or Click on Start/All Programs/ Temprecord, nothing happens - the most likely reason is anti-virus software. Try disabling the anti-virus software and start Temprecord again.

Temprecord only allows one instance of the application to be running at once. If you try to start Temprecord when it already running an error message will display.

3.2 Temprecord won't recognize my logger

The most common reason for this is confusion over COM Ports. If you receive the error message Unable to open COMx. the port selected is either in use by another device or program, or the port doesn't exist.

If you receive the message Unable to Access Temprecord Logger it means that Temprecord has found the COM Port but was unable to communicate with the logger.

3.3 The arrow keys don't move the cursor on the graph

In Graph View mode the left and right arrow keys move the sample cursor one sample to the left or right. If the current zoom factor is such that there are more samples across the screen than there are pixels across the screen (a pixel is the smallest screen element your computer's screen can display), the displayed cursor will not necessarily move on screen when the cursor is moved with the arrow keys.

Use the View/Zoom In Horizontally function to change the zoom factor so that the samples are displayed more widely apart.

3.4 The trace isn't visible on the graph

In Graph View mode at higher Zoom levels it is possible to scroll the displayed area to a point in the graph where the trace is not visible. If this occurs, you can use the View/Go To/Find Trace function to position the trace near the centre of the window. The zoom factor and horizontal position are not altered.

If you are viewing data from a Humidity logger, you can select whether Temperature, Humidity, or both are displayed by right-clicking on the graph.

3.5 I can't alter some of the parameters

When using the Program/Parameters function to set up a logger, you may notice some of the parameters are displayed in gray and you cannot alter them.

- (Mk III) The parameters Lower and Upper Temperature Limits, Start at Date Option, Limits Delay Option, and the group of enables (Loop Overwrite, Start and Stop with Button, Start and Stop with Switcher and Allow Markers) are only possible with the newer Mk II and Mk III Temprecord Loggers. If you are programming an older Temprecord logger, these parameters will appear grayed. If you are programming a humidity logger, and it is configured to log Humidity only, the temperature options will appear grayed.
- (Mk III) The parameters Start Date and Start Time can only be programmed if the Start on Date option is enabled.
- (Mk III) The function Limit Delay can only be altered if the Enable Safe Range parameter is checked.
- (Mk III) The upper and lower humidity limits can only be altered if the logger being

programmed is a humidity logger, and it is set up to log humidity only, or both temperature and humidity.

3.6 I get an error when I try to update the parameters

This can occur when accessing the logger with Bluetooth serial ports. Set the option Bluetooth Compatibility

3.7 I can't print with Temprecord

You should check the following:

- Can you successfully print with any other application? Try printing a document with your word processor. If this is also unsuccessful, the problem lies with the printer or your computer.
- Check that the selected printer is available to your computer.
- Do you get a blank sheet when you print? Check the printing options and make sure that at least one of summary, values, statistics, or view is selected.
- Check that you have the latest printer driver for your printer and version of Windows.

Some earlier versions of the Windows 3.11 printer drivers for the HP LaserJet 5P series of printers may give this error. If you are unable to get an updated printer driver for the LaserJet 5 that fixes the problem, try installing a printer driver for an earlier compatible printer, such as the HP LaserJet III.

Some HP DeskJet printers will require installation of other HP drivers. For example the HP 820 and 870 require use of the HP DeskJet 310 driver. This driver is available from the HP web site (http://www.hp.com) or from your Temprecord dealer. Install the driver as if you were adding another printer, then select that printer when printing from Temprecord for Windows.

See Also

I get a 'SPOOL32 Error' when I print

3.8 I get a 'SPOOL32 Error' when I print

This is an internal error in the Windows printer driver. Problems have been observed with some HP printers, for example.

If you have a DeskJet 400 and are experiencing problems, try using the printer drivers for the 550C printer. You will need to install the 550C as another printer and select this whenever you wish to print from Temprecord.

3.9 When I open a menu, some of the items are grayed

There are occasions when an item on a menu is not applicable because certain conditions are not met. For example, if you do not have any data windows open (because you have not opened any files, or loaded data from a logger), it is not sensible to save data, as there is no data to save..

Under these circumstances Temprecord will 'gray' the File/Save menu entry, as a reminder that you need to do something else before you can use that entry.

Other examples of menu entries that are 'grayed' are:

Menu Entry	Disabled When
File/Save File	No data Windows are open or only summary data loaded from a logger.
File/Close File	No data windows are open
File/Edit Comments	No data windows are open or only summary data loaded from a logger.
File/Export	No data windows are open or only summary data loaded from a logger.
File/Print	No data windows are open
View/Go To	No data windows open or view mode is not graph or values.
View/Go To/Previous Marker View/Go To Next Marker	(Mk III) These are only enabled when there is data loaded from a Mk II or Mk III logger (Mk I loggers do not support user markers).
View/Zoom	No data windows open or view mode is not graph.
View/Set as Start Sample View/Set as End Sample	No data windows open or view mode is not graph.
View/Temperature	Only humidity data has been logged
View/Humidity	Only temperature data has been logged
View/Temperature and Humidity	Only humidity data or only temperature data has been logged (this menu option is only available when both temperature and Humidity have been logged).

3.10 When I click on a button, nothing happens apart from a beep

There are occasions when a speed button action is not applicable because certain conditions are not met. For example, if you do not have any data windows open (because you have not opened any files, or loaded data from a logger), it is not sensible to print data, as there is no data to print.

Under these circumstances Temprecord will 'beep' when the button is clicked on, as a reminder that you need to do something else before you can use that entry.

The following describes when each of the speed buttons is inoperative:

Speed Button	Disabled When
 File/Open	Always enabled.

 File/Save	No data windows are open
 File/Print	No data windows are open
 Program/Parameters  Program/Start  Program/Stop  Program/Read Logger  Program/Reuse	Those buttons associated with programming and reading a logger are always enabled, but a logger needs to be present in the reader interface.
 Zoom in horizontally  Zoom out horizontally  Zoom in vertically  Zoom out vertically  Zoom all  Zoom to presets  Select all samples  Set start sample  Set end sample  Copy to clipboard  Copy to Excel	No data windows open or view mode is not graph

 Go to minimum sample  Go to maximum sample	No data windows open or view mode is not graph or values.

3.11 My logger says it exceeded the limits, but I can't see where

The red LED on Mk II and Mk III loggers will flash if the logged temperature has gone above the upper limit or below the lower limit since the logger was started. If loop overwrite is on however the sample record contained in the logger will not necessarily have any samples that are outside the limits, as these may have been overwritten.

3.12 The start time displayed changes every time I insert a marker

Temprecord calculates the time of the first sample by taking the current time and counting backwards, using the number of samples taken and the sample period. If the sample record contains markers as well as temperature values, the start time will be earlier by the number of markers multiplied by the sample period if the data has not been read from the logger.

If the data has been read from the logger the displayed time of first sample should be correct. If the data has not been read then the summary time of first sample will be earlier than the true value if the sample record contains markers.

3.13 I can't get the TTV statistics to display or print, or export them to a file

Temprecord only displays the Total Temperature Value (TTV) statistics if Show TTV Statistics is checked in the Statistics Options tab. This option must be checked if you want to print the TTV statistics or export then to a file also.

3.14 I can't get the PHI statistics to display or print, or export them to a file

Temprecord only displays the PHI (growth) statistics if Show PHI Statistics is checked in the Statistics Options tab. This option must be checked if you want to print the PHI statistics or export then to a file also.

3.15 I cant print my data as a list of values

Temprecord can print data in any or all of the four different view modes. By default, new installations of Temprecord have the printing of numeric values disabled.

Use the Options/Printing page to turn on printing of the values. You can access the printing options by either:

- Opening the Options menu, and selecting the 'Printing' tab.
- Clicking on the 'Options' button when the Print dialog is displayed.

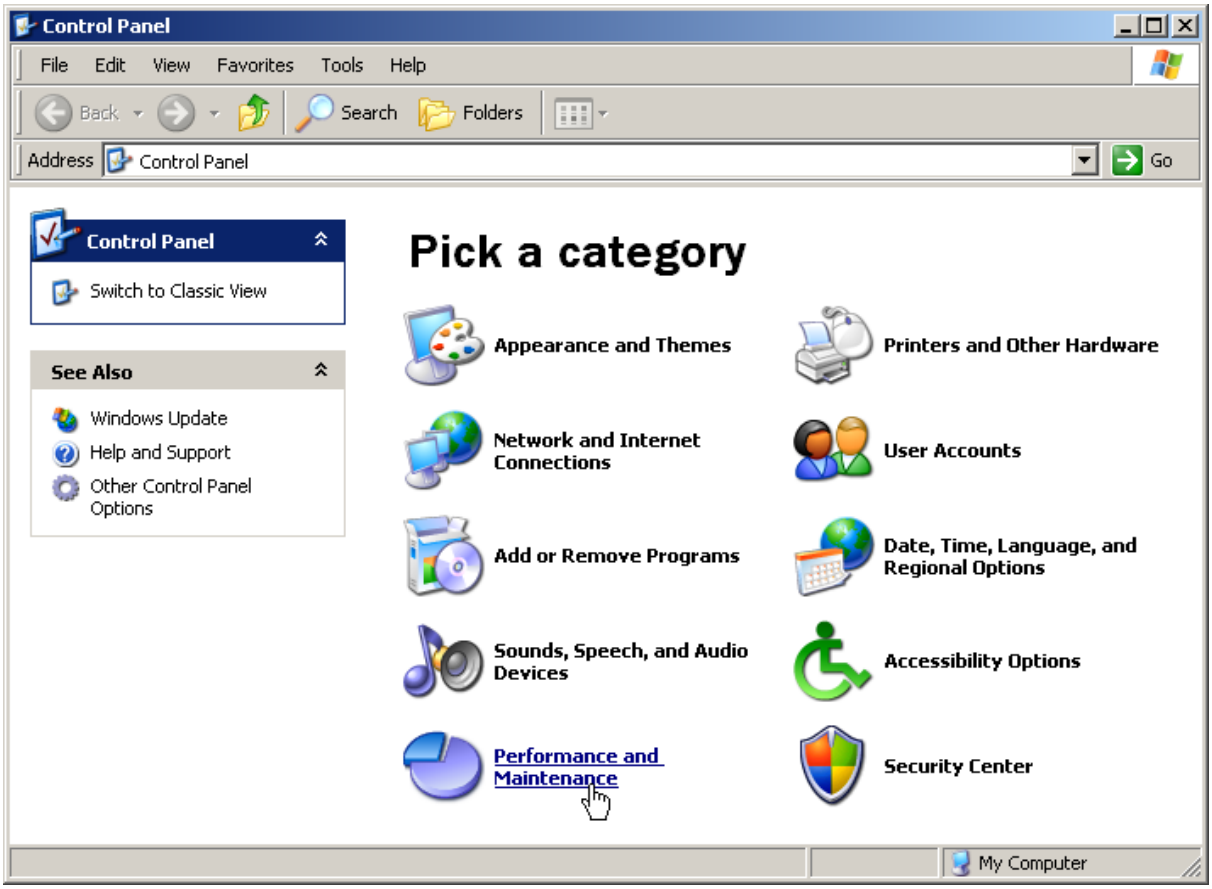
3.16 COM Port Issues

An unused COM port is required to use the Temprecord Reader Interface to program and read loggers. You specify the COM port to use using the Options/COMPort dialog.

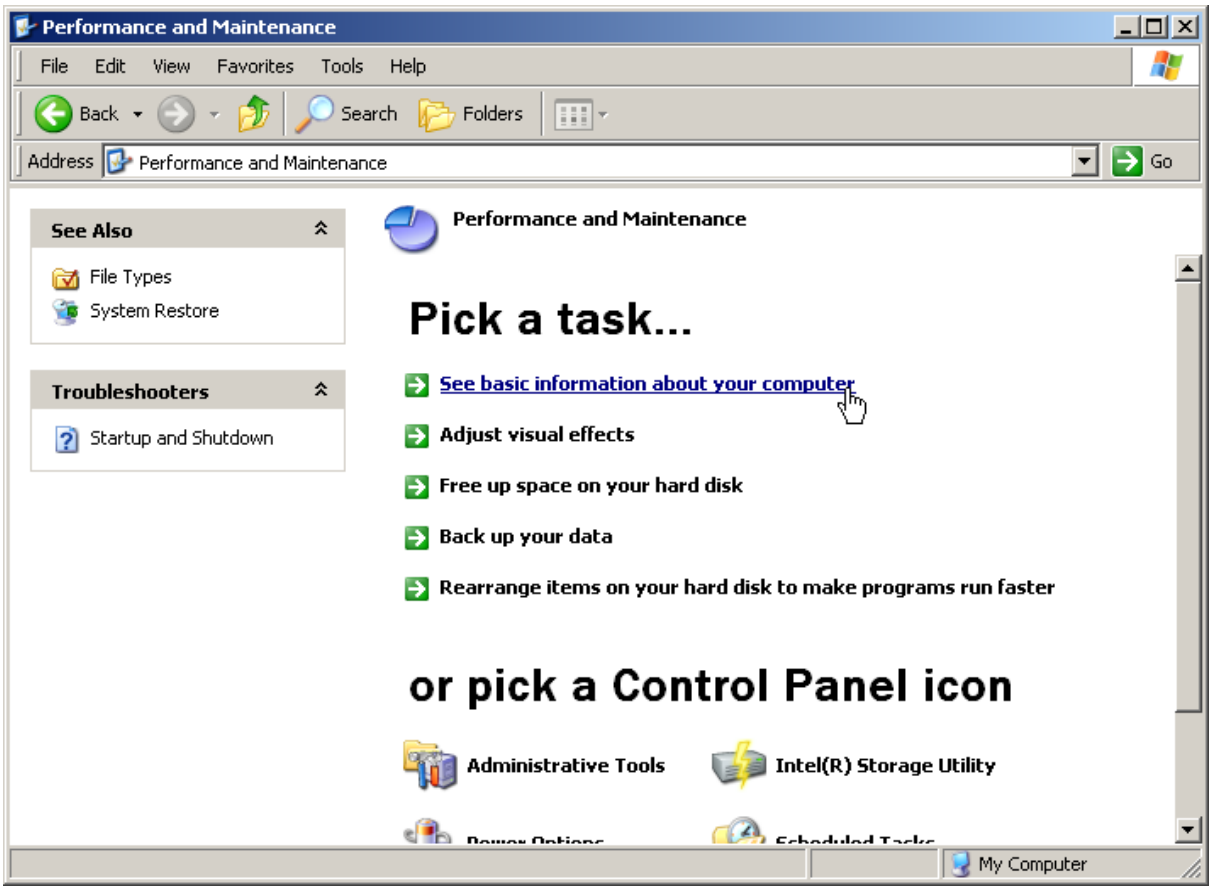
If you have the type of Reader Interface that plugs into a USB port, it may not be obvious which COM port that it is using, as the COM port is sometimes assigned dynamically by Windows according to what port numbers (COM1, COM2 etc) are already taken.

If you need to establish what COM port your USB reader interface is using, the following procedure should guide you to find out.

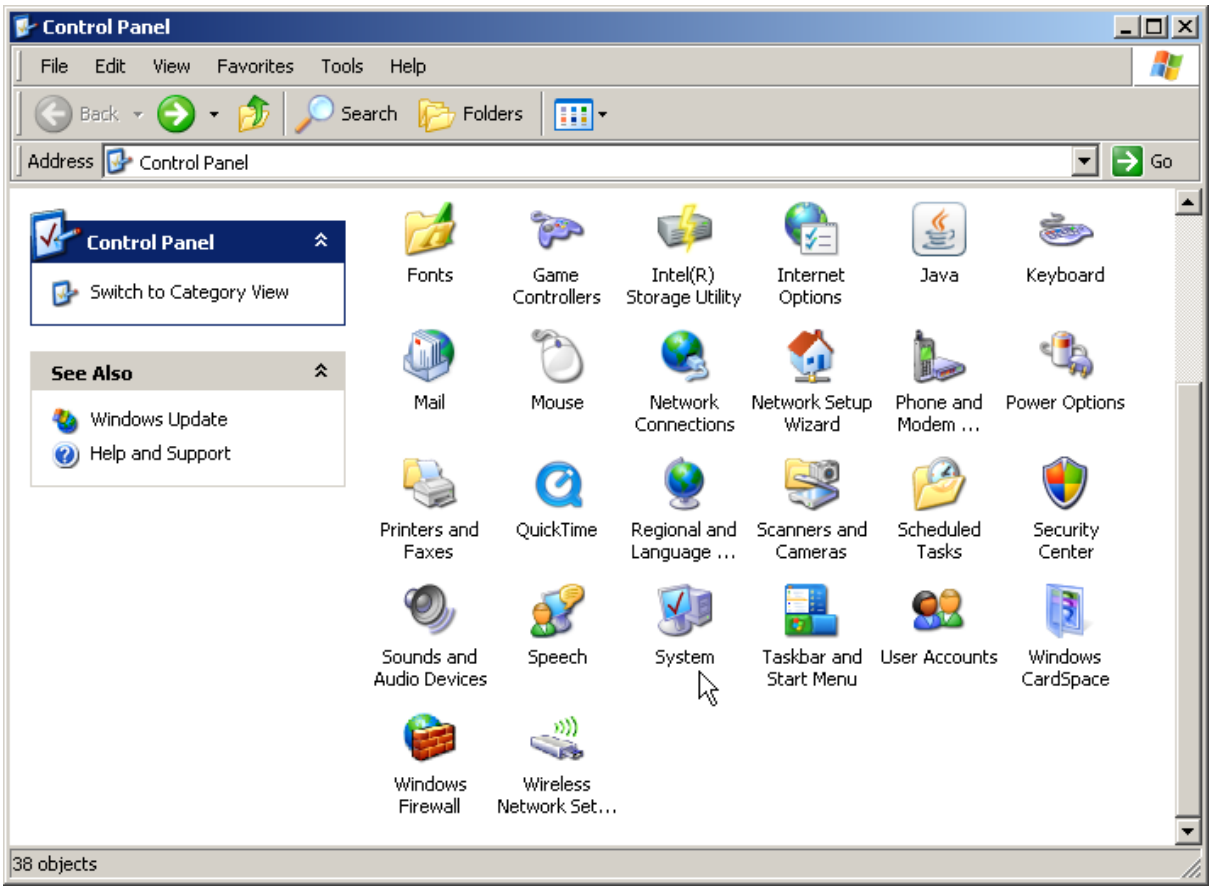
- Click on **Start**
- Click on **Control Panel**:



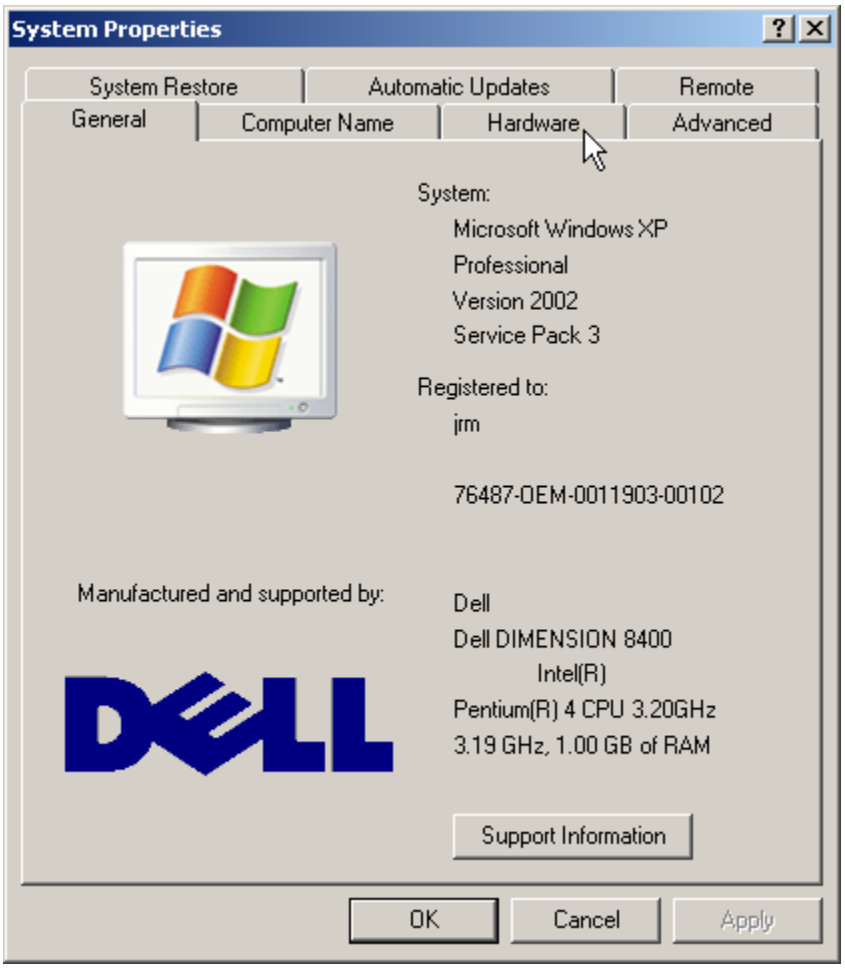
- If your control panel window shows the "category" view (as shown above), click on **Performance and Maintenance**.



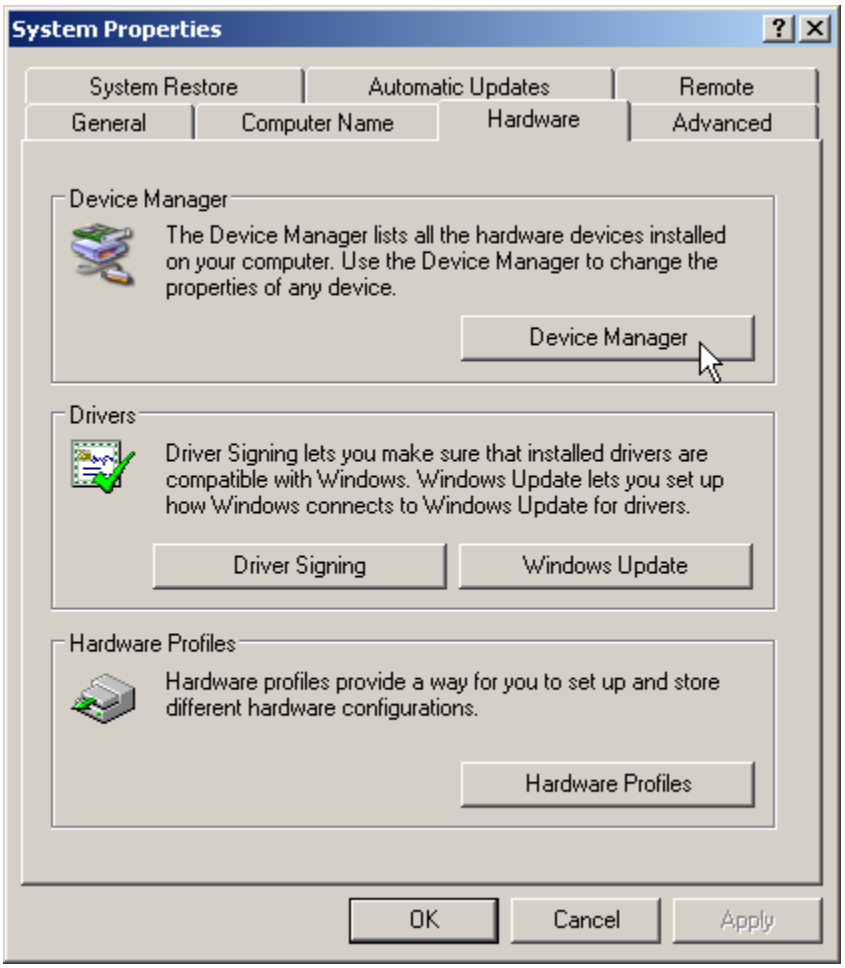
- Now, Click on **See basic information about your computer**. This will open the **System Properties** window.
- If instead, your control panel window shows the "classic" view (as shown below):



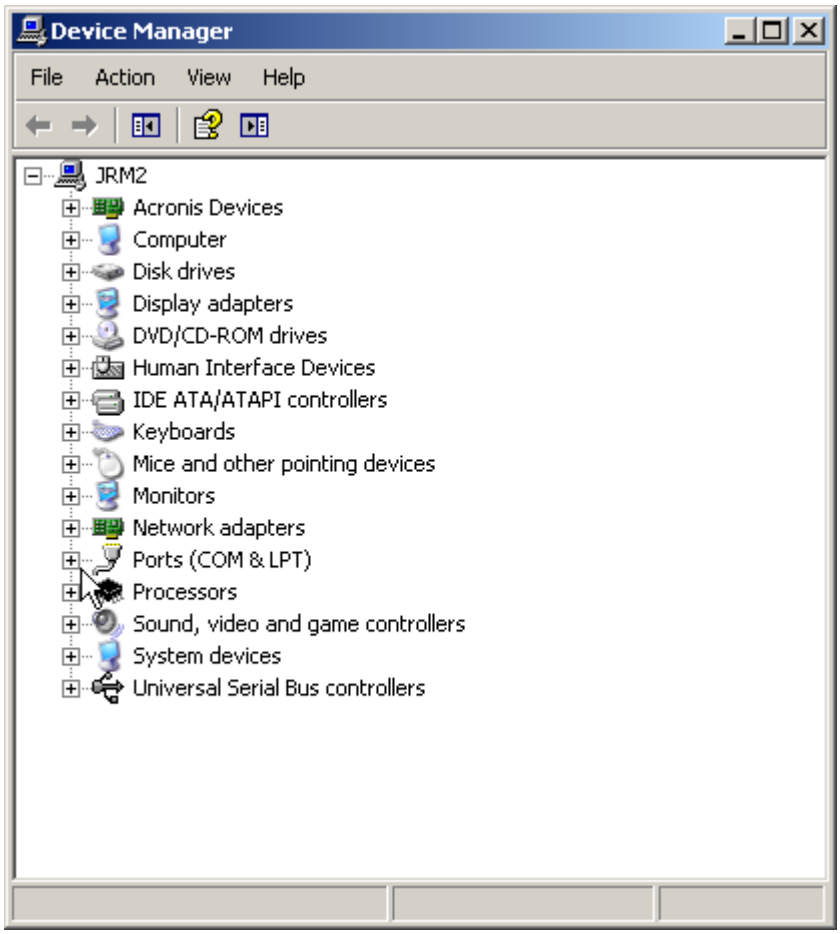
- Click on **System**. This will open the **System Properties** window.



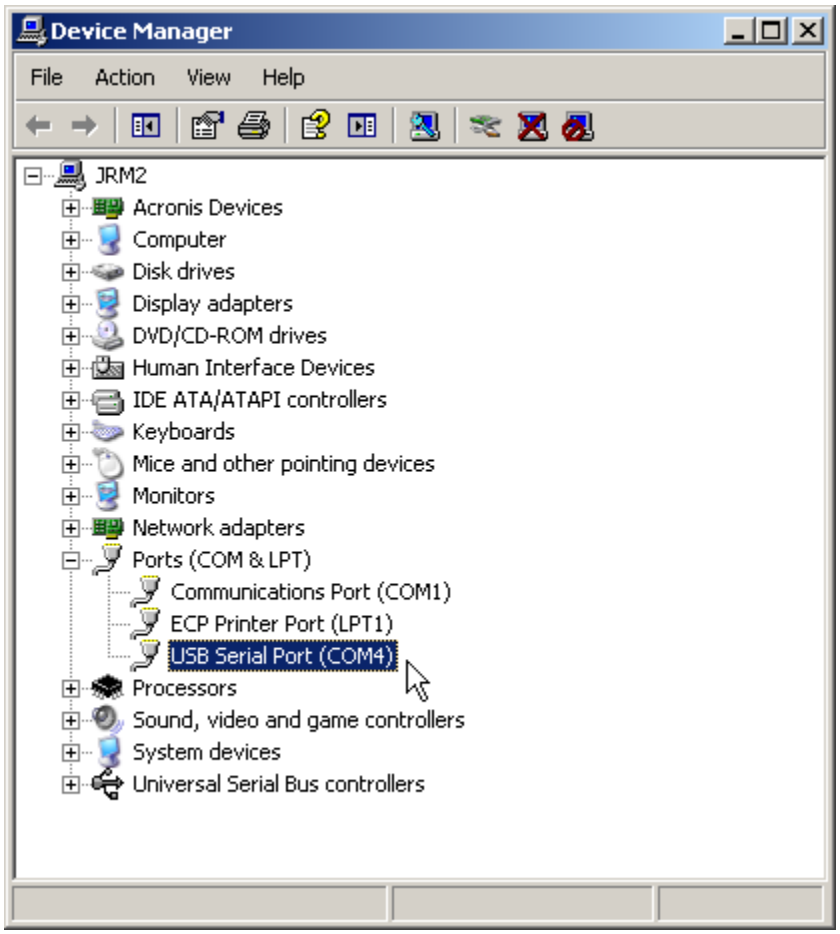
- Click on the **Hardware** tab.



- Click on the **Device Manager** button.



- Click on the plus (**+**) sign to the left of the **Ports (COM & LPT)** line to expand the line:



- This will show the COM numbers of any ports connected to your PC. You can find out which one the Temprecord Reader Interface is by unplugging it and seeing which COM port disappears.

HINT When you open the Options/COM Port dialog, Temprecord tries to select the most likely USB-based COM Port. You can either select **Look for USB reader** to use the USB-based COM port that Temprecord has located, or select **Use this COM Port** to tell Temprecord to use a specific port.

3.17 I cant select the Humidity options when I program the logger parameters

Your logger may not be a Humidity-capable logger. If the case does not have a small grille at one corner it is probably a temperature-only logger.

3.18 The temperature exceeded the limits but the summary does not show this

You may have the limit delay parameter on the logger set to a non-zero value. If the limit delay is set to 5 for example, the logger will allow 5 consecutive samples outside the limits before it reports an out-of-limits condition.

If you want the logger to report an out-of-limits condition as soon as a sample is outside the limits, set the limit delay to zero.

3.19 My filenames are all garbled

If you notice that your filenames are unusually long and contain all manner of characters and underscores, the most likely reason is that you have forgotten to "quote" some characters in the filename or folder specification. For example, if you wanted your Temprecord data files to always have the same name, and you entered a default filename specification of:

```
Data from Green Logger.TR
```

The filename actually used when the data was saved to a file would be something like this!:

```
1a4_20 p.m.a fro11r0920 S0001234o9r.4_20 p.m.r
```

This is because Temprecord is using the characters you entered as formatting codes. To achieve the result you intended, make sure the characters in the specification you don't want used as formatting characters are enclosed in double-quotes:

```
"Data from Green Logger.TR"
```

4 File Menu

The File menu provides functions for loading and saving Temprecord data files, and reading and printing data from a logger.

- Checking for a Logger
- Reading a Logger
- Saving a File
- Opening a File
- Renaming a File
- Deleting a File
- Emailing a File
- Closing a File
- Editing the Comment Fields
- Exporting Data
- Printing Data
- Opening recent files
- Exiting Temprecord

4.1 Checking for a Logger

Use the File/Query Logger function to check for a logger in the Reader Interface and read the summary data from the logger. This only reads enough information to display a summary of the logger status. Use the File/Read Logger function to read the logged temperature values and display them.

You can also check for a logger by pressing the spacebar, or from the pop-up menu that displays when you press the right-hand mouse button.

4.2 Reading a Logger

Use the File/Read Logger function to check for a logger in the Reader Interface, read the summary data, then read the logged temperatures. Once the logged temperatures have been read, the window view mode will change to Graph View mode and the logged temperature values are shown plotted as temperature against time.

You can also read the data from a logger by clicking on this speed button  on the toolbar displayed along the top of the Temprecord main window, or from the pop-up menu that displays when you press the right-hand mouse button.

When a **Mon-T** logger is read, the display units are set to the **Mon-T** programmed logger units. I.e. if you program a logger in Fahrenheit units and read the logger with Temprecord set to display temperatures in Celsius, the display units will change to Fahrenheit after you read the logger's temperature data.

4.3 Accessing Temprecord ...

Temprecord is accessing your logger. If you decide you do not wish to continue, click the 'Cancel' button and the operation will aborted.

4.4 Saving a File

Use the File/Save File function to save the contents of the currently selected window to a disk file. The data can be that loaded previously from another file or from a logger.

If the data in the currently selected window is from a logger, Temprecord will suggest a filename based on the serial number of the logger. You can type in a new name here if you wish.

If the data in the currently selected window is from a file, Temprecord will suggest the same filename be used to save the data. You can type in a new name here if you wish. If you leave the name, or use the name of an existing file, you will be prompted whether you wish to overwrite that file.

Unless you explicitly specify it, the file type of Temprecord data files is always set to '.TR'. You can change this if you wish, but it is not recommended, as other Temprecord functions assume the use of this filetype.

The File/Save File function creates files in Temprecord format. You cannot view these files with a word processor or Notepad/Wordpad. To save the temperature data in text form, or in a form suitable for importing into a spreadsheet, use the File/Export function

You must have read the temperature data from the logger before you can save it to disk. If you have only read the summary data by using the File/Query Logger function, you will not be able to save the temperature values to disk until you also read the logged temperature data using the File/Read Logger function.

You can save the data in the current window by clicking on this speed button  on the toolbar displayed along the top of the Temprecord main window, or from the pop-up menu that displays when you press the right-hand mouse button.

4.5 Save File Dialog

Enter the name of the file you wish to save and click the 'OK' button. If the file exists you will be asked if you want to overwrite the existing file.

If you do not want to save the Temprecord data as a file, click the 'Cancel' button.

If you do not specify a filetype in the save file or export file dialog, Temprecord will choose one for you.

- If you do not specify a filetype in the 'Save Temprecord Data File' dialog, Temprecord assumes a filetype of '.TR'. Unless you have good reason to change, we recommend that you stay with this convention.
- If you do not specify a filetype in the 'Export Temprecord Data' dialog, Temprecord assumes the filetype specified in the export options ASCII filetype field. You should set this option to correspond to the requirements of the application you are exporting the data to.
- If you specify no filetype after the filename, but you do specify the period, Temprecord saves or exports the file without a filetype

You can also determine whether Temprecord prompts you before overwriting existing files of the same name (see General Options.).

See also

Saving a file
Exporting data
Export options

4.6 Opening a File

Use the File/Open File function to load a Temprecord data file from disk and display it in graph form. You can use this function to inspect Temprecord data files previously saved on disk.

Temprecord data files have the filetype or extension of **.TR**. In Explorer, they will show in the open dialog with this icon:

By default the Temprecord data file open dialog only shows .TR files, even though other file types may be present in the folder. You open a file by selecting it and clicking the Open button. You can also open a Temprecord data file by double-clicking it in the File Open dialog. You can open several files at once by selecting them each (hold the Ctrl key down and click on each one you want to open) and then clicking the Open button.

There are other ways to open Temprecord data files:

- From explorer, drag the data file onto the Temprecord icon on your desktop.
- You can open multiple files this way by selecting them in explorer and dragging the group onto the icon.
- Drag a file or group of files onto the Temprecord window.
- Double click a file in explorer. If Temprecord is not running it will start and load the file. If it is already running the file will be loaded.

Each time you open a file, Temprecord opens another window to display the file in. The number of files you can have displayed is limited only by the amount of memory your computer has, but in practice is many more than you would normally want. You can alter the way each of these windows is displayed with the View menu.

You can alter the view mode of the window to any one of summary, values, statistics, or graph by using the View menu, or from the pop-up menu that displays when you press the right-mouse button

You can open the same file more than once and have it displayed in two or more windows simultaneously. This allows you to view and compare different parts of the graph for example, or have the data displayed in graph view in one window, and in values view in another. See the topic How do I see my data as a graph and as a set of values at the same time ?.

Unless you explicitly specify it, the file type of Temprecord data files is always assumed to be '.TR'. You can change this if you wish, but it is not recommended, as other Temprecord functions assume the use of this filetype.

You can also open a file by clicking on this speed button  on the toolbar displayed along the top of the Temprecord main window, or from the pop-up menu that displays when you press the right-hand mouse button.

The File/Open File function only reads files in Temprecord format. You cannot load an ASCII file or a file that was created with the File/Export function. If you try to load a file that is not a Temprecord data file, an

error message will be displayed.

See also:
Reading a Logger
Saving a File
Renaming a File
Closing a File
Changing the View Mode
Pop-up Menus

4.7 Open File Dialog

Displayed is a dialog that allows you to specify a file or files to be loaded into the Temprecord program.

- Select the file you wish to open from the list, and click the ‘OK’ button.
- If you do not wish to open a file, click the ‘Cancel’ button.

You can open two or more files at once by selecting those files from the list. If you hold the Ctrl key down while you click in the scrolling list of files, you can selectively mark files. You can also 'unmark' them by clicking on them when they are already marked. If you hold the Shift key down when you click, all files between the last marked file and where you clicked are marked. When you click on OK, all marked files are loaded.

By default, the list of files is made up from those matching the 'wild-card' of *.TR in the current subdirectory. You can narrow down your search by typing in another wild-card mask and clicking on 'OK'. For example, if you type

```
M*.TR
```

into the File Name field, and click on 'OK', only those files that start with 'M" and end with '.TR' will be displayed.

See also:
Opening a File
Reading a Logger

4.8 Deleting a File

Use the File/Delete File function to remove any Temprecord data files you no longer have a use for.

Do not delete files unless you are absolutely certain you have no further use for them, or the files are also backed up safely. Once a file has been deleted, the data contained in it is no longer available.

4.9 Delete File Dialog

Displayed is a dialog that allows you to specify a file or files to be deleted from your computer system's disk.

- Select the file or files you wish to delete from the list, and click the ‘OK’ button.
- If you do not wish to delete any files, click the ‘Cancel’ button.

You can delete two or more files at once by selecting those files from the list. If you hold the Ctrl key down while you click in the scrolling list of files, you can selectively mark files. You can also 'unmark' them by clicking on them when they are already marked. If you hold the Shift key down when you click, all files between the last marked file and where you clicked are marked. When you click on OK, all marked files are deleted.

By default, the list of files is made up from those matching the 'wild-card' of *.TR in the current subdirectory. You can narrow down your search by typing in another wild-card mask and clicking on 'OK'. For example, if you type

```
M*.TR
```

into the File Name field, and click on 'OK', only those files that start with 'M" and end with '.TR' will be displayed

See also:
Deleting a File
Renaming a file

4.10 Renaming a File

You can change the name of a Temprecord data file by opening it and then savingit under a different name:

- Click on the File/Open File function to load the file you want to rename.
- Click on File/Save File.
- Type in the new name.
- Click on ‘OK’. If you have chosen the name of an existing file, you will be asked if you want to overwrite that file.

This procedure creates an identical copy of a file with a different name. If you do not want the file with the original name you can delete it.

See also:

Opening a File
Saving a File
Deleting a File
Closing a File

4.11 Emailing Files

Temprecord provides many flexible options for emailing data files or PDF reports. Clicking on **File/Email** will display a submenu with six options:

You will probably need to configure the email options before you can send emails.

Email TR File

Sends the data from the current Temprecord data window as a .TR file by email. The recipient(s) of the email, and the subject and body of the message are determined by the email options. The file is sent as an attachment to the email. If your email options are configured to send emails by MAPI, the email will be send via your default email client (Outlook, Outlook Express, Eudora etc.) and will probably be found in the outbox. Whether the email is sent immediately or not depends on how the email client is configured. If the email options are configured for SMTP you will also need to configure these options.

If the data in the current Temprecord data window is from a file, the name of the attached file will be the same as the name of the file you have open. If the data is from a logger it will be saved to a file first. The name of the file will be determined by the default TR filename option and the folder by the folder for TR files option.

Email PDF File

Sends the data from the current Temprecord data window as a report in PDF format.

If the data in the current Temprecord data window is from a file, the name of the attached file will be the same as the name of the file you have open, but with an extension of **.PDF**. If the data is from a logger it will be saved to a TR file first and then the PDF file will be created. The name of the PDF file will be determined by the default PDF filename option and the folder by the folder for PDF files option.

Email TR and PDF Files

This option is the same as the above two, but both the TR and the PDF file are attached to the email.

Email All TR Files

The behaviour of this function is as for emailing a single TR file, except that TR files from all open Temprecord data windows are attached to the email and sent.

Email All PDF Files

The behaviour of this function is as for emailing a single PDF file, except that PDF reports are generated for each of the open Temprecord data windows and attached to the email and sent.

Email All TR and PDF Files

This function attaches a TR file and a PDF report from all open Temprecord data windows.

The **Email TR File**, **Email PDF File**, and **Email both TR and PDF Files** functions are also available by clicking the right mouse button in a Temprecord data window.

See Also

Default TR Filename
Folder for TR files
Default PDF Filename
Folder for PDF files
Email Options
SMTP Options

4.12 Closing a File

Use the File/Close File function to close a window that is currently displaying logger data for data from a Temprecord file.

If you have read the data from a logger and not yet saved it, you will be asked if you wish to do so.

If you have edited the comment fields for the window you are closing and not yet saved the file, you will be asked if you wish to do so.

You can also close the current Temprecord data window from the pop-up menu that displays when you press the right-hand mouse button

4.13 Editing the Comment Fields

The File/Edit Comments function allows you to alter the 64-character comment fields that are stored along with the Temprecord data file. These comment fields can contain anything you wish.

If you edit the comment fields for a file you have loaded, you must save the file again for the changes to be effective. You will be prompted to do this if you try to close the window or exit Temprecord without saving the changes.

If the comment fields are from a file that was created with an earlier version of Temprecord, you may only alter the first field of the comment fields.

Don't get the comment fields confused with the user data. The comment fields are stored with the file - they are not stored in the logger itself. They are provided as a means of annotating the data files after they have been read from the logger, or for providing additional data when files are exported to other applications such as spreadsheets.

You can also edit the comment fields from the pop-up menu that displays when you press the right-hand mouse button.

You can change the labels that appear to the left of the comment fields. Use the Options/Comment Labels function to do this. These labels are also stored in the Temprecord data file. You cannot change the labels in the file, only the data in the fields themselves. See the topic Using the comment fields for more information.

4.14 Edit File Comments Dialog

Displayed are the comment fields for the currently loaded Temprecord data file or the comment fields for the data from the logger, if you have just read one.

You can type up to 10 lines of descriptive information here. Only the first 64 characters of each line are recorded. Click the 'OK' button to exit the dialog and save your changes. The changes will be saved with the data when you use the save file function.

If you do not want to change the comment fields, click the 'Cancel' button.

If the comment fields are from a file that was created with an earlier version of Temprecord, or the data loaded is from an earlier model Temprecord logger, you may only alter the first field of the comment fields.

Don't get the comment fields confused with the user data. The comment fields are stored with the file - they are not stored in the logger itself. They are provided as a means of annotating the data files after they have been read from the logger, or for providing additional data when files are exported to other applications such as spreadsheets.

You can also edit the comment fields from the pop-up menu that displays when you press the right-hand mouse button.

You can change the labels that appear to the left of the comment fields. Use the Options/Comment Labels function to do this. These labels are also stored in the Temprecord data file. You cannot change the labels in the file, only the data in the fields themselves. See the topic Using the comment fields for more information.

See also:
Editing a comment
Saving a file

4.15 Using the Comment Fields

Temprecord provides a powerful means of attaching additional information to temperature data files.

When a Temprecord data set is created (i.e. when data is read from a logger and displayed in a window), a set of comment fields is created, along with associated comment labels.

- There are 10 comment fields, each with an associated label. Each comment field can be up to 64 characters. The label can be up to 16 characters
- The comment labels are assigned from the setting in the Options/Comment Labels page when a logger's data is read. The labels are associated with the file that is created from the logged data and cannot be changed in that file. The comment labels are normally created by the person who is organizing the data collection associated with the temperature loggers. They give you the opportunity to create a labeled 'form' that the person who reads the logger can fill in.
- The contents of the comment fields are all set to empty when a Temprecord logger is read. You can edit the contents of these fields at any time. You can enter any text you wish into the comment fields. The comment fields are normally filled in by the person who reads the logger.
- The comment fields, and their associated labels, are saved when the Temprecord data file is saved. You can edit the comment fields later by loading the file and using the Edit Comments function.
- You can change the default comment labels using the Options/Comment Labels page. Any loggers that are read from that time on and the data files that are created from the logger data will have those comment labels associated with them.

As an example, say that the Temprecord logger was being used to monitor temperature in a nursery for chickens:

- The loggers are deployed each week, and at the end of that week, they are retrieved, along with other data collected, such as mortality and feed consumption.
- The comment labels would be set up to provide prompts for this additional data to be entered, e.g. the label for comment field 1 could be 'Building Number :', the label for field 2 could be 'Mortality :', and so on.
- The loggers are read. After the data from each logger is read, the Edit Comments function is used to fill in the three fields we defined labels for above.
- The logger data is saved to a file. Remember the comment labels and field contents are saved with the file also.

This comment field data is now available whenever the file is accessed. It also appears on printed reports (you will need to make sure **Comment Fields** is checked in the Printing Options tab), in the summary view, and when the data is exported

4.16 Exporting Data

As well as saving files in Temprecord format, you can also use the File/Export function to save files in ASCII, for use by other applications.

If you have more than one data file open, you can use File/Export All to export all the open files to disk.

You can determine the format of the ASCII files saved with the Options/Export form. You can also determine whether Temprecord prompts you for the export filenames first or chooses one based on

the data filename, and whether existing files can be overwritten without prompting first (see General Options),

If both Temperature and Humidity were logged, the data values are exported as pairs – temperature, then humidity.

See also
Saving a File
Export Options

4.17 Print Dialog

To print your Temprecord data, click the **Print** button. The data in the currently selected window is printed when you click on the **Print** button.

You can also print all the open windows. If you click on **File**/**Print All**, the data from each open window in turn will be sent to the printer when you click on the **Print** button.

To exit this dialog without printing anything, click the **Cancel** button.

The format of the printed report is determined by the printing options. You can change these before you print by clicking the 'Options' button. For example, you can specify whether any or all of the four reports (summary, statistics, values, or graph), are printed and change the fonts used.

If you want to change your printer setup, click the 'Setup' button. The functions available from the Printer Setup dialog will depend on your installed printer, but you will generally (for example) be able to change the printer orientation from portrait to landscape, or specify a different printer, if you have more than one available.

4.18 Printing Data

Use the **File**/**Print** function to generate a printed report. When the Print dialog is opened you can specify whether any or all of the summary, values, statistics, or graph are printed. The data printed is taken from the currently selected window.

Use the **File**/**Print All** function to generate a printed report for all open windows. When the Print dialog is opened you can specify whether any or all of the summary, values, statistics, or graph are printed as for printing a single report. The data printed is taken from each of the displayed windows.

You can also open the Print dialog by clicking on this speed button  on the toolbar displayed along the top of the Temprecord main window, or from the pop-up menu that displays when you press the right-hand mouse button

.

See also:
Print dialog

Exporting data

4.19 Saving to a PDF File

Saving data to a PDF file is just like printing, but the report that would have been printed is sent instead to a PDF file. The contents of the report are determined by the same options that determine the printed output.

4.20 Opening recent files

When the File Menu is opened, Temprecord includes the last nine files opened as menu entries, so that you can quickly return to files you have been working on.

If you click on a file name corresponding to a file that is already open in a Temprecord data window, that window is selected as the current data window.

If you click on a file name corresponding to a file that is not open in a Temprecord data window, a new window is opened and that file loaded into it.

You can also open the same file in two different windows. This is useful if you want to see the graph and values simultaneously. See the topic How do I see my data as a graph and as a set of values at the same time ?.

4.21 Exiting Temprecord

Use the File/Exit Temprecord function to close the Temprecord program. You do not need to close the data windows that you might have opened within Temprecord first.

When you exit Temprecord, it remembers the window size and position.

If you have read the data from a logger and not yet saved it, or you have edited the comment fields for a data window and not yet saved the data to a file, you will be asked if you wish to do this before exiting.

When you exit Temprecord, you will be asked to confirm that you want to do this. If you prefer not to be asked this question, you can uncheck the option 'Prompt before exiting Temprecord in the Options/General form.

5 Program Menu

Use the program menu to set the logger parameters, and start, stop and re-use the logger.

- Programming a Logger's Parameters
- Logging Temperature, Humidity, or Both
- User Data
- Sample Period
- Start Delay
- Start Time and Date
- Password
- Lower and Upper Limits
- Enable Safe Range
- Limit Delay

- Loop Overwrite
- Start and Stop with Button
- Start and Stop with Switcher
- Allow Markers

- Setting up several loggers
- Setting up a default set of parameters

- Starting a Logger
- Stopping a Logger
- Re-Using a Logger
- Starting Auto Mode Operation
- Registering Loggers

- What the LEDs on the logger tell you
- Using the button on the logger to mark an event
- Using the button on the logger to start and stop logging

5.1 Programming a Logger's Parameters

Before a Temprecord logger is used to record temperature, it is usually programmed first. This is not necessary, but unless the default parameter settings suit your application, you will generally want to change them.

In the case of the multi-trip and scientific loggers, which can be used more than once, you may wish to change the parameters after the logger has been re-used.

The following parameters can be programmed:

- Logging Temperature, Humidity, or Both
- User Data
- Sample Period
- Start Delay

- Start Time and Date
- Password
- Lower and Upper Limits
- Enable Safe Range
- Limit Delay

- Loop Overwrite
- Start and Stop with Button
- Start and Stop with Switcher
- Allow Markers

You can program the parameters for the logger currently in the reader interface by clicking on this speed button  on the toolbar displayed along the top of the Temprecord main window.

5.2 Program Parameters Dialog

This dialog allows you to set up the Temprecord logger before it is started.

- When you have finished changing the parameters, click the 'OK' button to save the parameters to the logger and exit this dialog.
- If you have more than one logger to set up with the same or similar parameters, click the 'Apply' button to save the parameters to the logger and leave this dialog open.
- Click the 'Cancel' button to exit this dialog without changing the logger parameters.
- Click the 'Defaults' button to set all the parameters (except for the 'Password' and 'Confirm' fields) from the default options.

You can change the following parameters:

- Logging Temperature, Humidity, or Both
- user data
- sample period
- start delay
- password.
- lower and upper limits
- start time and date
- enable safe range
- limit delay

- loop overwrite
- start and stop with button
- start and stop with switcher
- allow markers

5.3 Logging Temperature, Humidity, or Both

If your logger is capable of logging Humidity, you can choose whether it logs temperature, Humidity, or both.

If you select **Temperature and Humidity**, the number of samples available is halved, as one each of both temperature and humidity values are logged each sample period. The display of logging duration will change to reflect this.

5.4 User Data

The user data consists of up to five lines of 40 characters each.. The user data is stored in the logger and cannot be altered once the logger has been started.

Don't confuse the user data with the comment fields. The comment fields are stored in the data files that Temprecord saves on disk and can be edited after the data has been read and saved. The user data cannot be changed after the logger data has been read.

Earlier Temprecord loggers provided for six lines of 40 characters each. The sixth line has been removed to allow for information to be stored at manufacture.

5.5 Sample Period

The sample period determines the time between samples. You can set the sample period in multiples of 2 seconds.

Enter the time you wish to elapse between each Temprecord sample. This is normally set at manufacture to the following values:

- 2.5 minutes for the inland model
- 5 minutes for the export model
- 2.5 minutes for the multi-trip model
- 5 minutes for the scientific model
- 2.5 minutes for the **Mon-T** logger

You can enter any value between 2 seconds and the upper limit of 24 hours.

If you enter a sample period greater than these values, it will be limited to these values within the logger. The screen also calculates the logging duration, being the time to fill the logger based on the current sample rate.

Temprecord has an internal time resolution of 2 seconds. This means that whatever value you enter must be a multiple of 2 seconds. The time is specified in hours, minutes, and seconds.

When you have entered all the data you wish to alter, click on 'OK' to update the parameters and exit the form.

Click on 'Apply' instead if you want to update the data in the logger, but not exit the form. This can be useful where you have several loggers to set up, each with the same or similar parameters.

Once the logger has been started, you cannot alter the user data, password, sample period or start delay. Check that these are correct before you start the logger.

The sample period also affects the behaviour of the limit delay and Safe range. These parameters both use units of the number of samples taken, so the time delay before they act is dependent on the sample period.

When a MultiTrip or Scientific Temprecord logger is re-used, the sample period that was in effect for the previous use is retained. If you require a different sample period, this should be programmed after the logger has been re-used.

If the logger is a humidity logger, and both humidity and temperature are enabled, the sample period applies to both, i.e. if you set a sample period of one minute, a temperature and humidity sample pair will be taken every minute. In this case the logging duration will be halved.

See also:

- Sample rate issues
- Logging duration
- Start delay
- Start time and date
- Start and stop with switcher
- Start and stop with button
- Limit Delay
- Enable safe range
- User data
- Password
- Re-using a logger

5.6 Logging Duration

This is the time that will elapse before the logger is full, based on the current sample period. This time will change as you enter a new sample period, so you can adjust the sample period rate so that the logger fills over a specific time interval if you desire.

If you are logging both Temperature and Humidity, the logging duration will be halved.

See also:
- Sample period
- Sample rate issues
- Start delay
- Start time and date
- Start and stop with switcher
- Start and stop with button
- Enable safe range
- User data
- Password
- Re-using a logger

5.7 Start Delay

The start delay determines how long after the logger is started before the first sample is actually taken. The primary reason for the start delay is to allow for situations where the logger is started at room temperature, and then later placed in a controlled environment.

Enter the time you wish to elapse between starting of the Temprecord and the taking of the first sample. This is normally set at manufacture to one minute, but you can alter it to any value between 10 seconds and 24 hours.

Temprecord has an internal time resolution of 2 seconds. This means that whatever value you enter will be rounded to the nearest multiple of 2 seconds. The time is specified in hours, minutes, and seconds.

When you have entered all the data you wish to alter, click on 'OK' to update the parameters and exit the form.

Click on 'Apply' instead if you want to update the data in the logger, but not exit the form. This can be useful where you have several loggers to set up, each with the same or similar parameters.

Once the logger has been started, you cannot alter the user data, password, sample period or start delay. Check that these are correct before you start the logger.

The start delay is set from the options default value whenever a logger is reused. You can still alter the start delay before starting the logger however

.

When a MultiTrip or Scientific Temprecord logger is re-used, the sample period that was in effect for the previous use is retained. If you require a different sample period, this should be programmed after the logger has been re-used.

See also:
- Sample rate issues
- Logging duration
- Start time and date
- Start and stop with switcher
- Start and stop with button
- Enable safe range

Sample period
User data
Password
Re-using a logger

5.8 Start Time and Date

Instead of using the start delay to determine how long after starting before the logger starts recording samples, you can program Temprecord to start at a particular time and date.

In the Program/Parameters form, you must check the box 'Enable Start on Date Option' before you can enter a time and date to start logging from.

The logger will start recording samples from within a few seconds of the time and date specified. The time and date you specify must be in the future or an error will result

.

It is still possible to start the logger by any of the other means, i.e. with the switcher, the buttons, or by using the Program/Start Logger function of Temprecord. It is possible to program the logger so that it cannot be started with the switcher and/or the button (see the topics start and stop with switcher, and start and stop with button for more information).

If the logger is started by any of these means, the start time and date is ignored.

See also:
Sample rate issues
Logging duration
Start delay
Start and stop with switcher
Start and stop with button
Enable safe range
Sample period
User data
Password
Re-using a logger

5.9 Password

Temprecord loggers can be protected with a password (actually a number). If the password is set, it is not possible to alter the parameters or re-use the logger.

If you wish to protect the user data, you can enter a number into this field. This will prevent anyone altering the user data or the sample period and start delay (unless they know the password also).

The password can be a number up to 8 digits. If you specify zero as the password, this is equivalent to no password, and anyone will be able to alter the user data, start delay or sample period.

The password will not display as you type it. You must enter the password twice, once in the

'Password' field, and again in the 'Confirm' field. These two passwords must match. You do not need to specify 8 digits. We recommend at least 4 digits as sufficient. If you leave these fields blank, the current password will not be changed.

Do not forget your password!

If you do, you will be unable to alter the user data, start delay or sample period, and in the case of the Multi-trip and Scientific models, you will be unable to re-use them. In the case of **Mon-T** loggers, you will also need to know the password to start or stop the logger using the Temprecord program. You can still start or stop these loggers using the button if start with button or stop with button respectively have been enabled.

Temprecord are unable to reset passwords or determine what they have been set to. A logger with an unknown password can still be read.

When you have entered all the data you wish to alter in the Program/Parameters form, click on 'OK' to update the user data and exit the form.

Click on 'Apply' instead if you want to update the user data in the logger, and not exit the form. This can be useful where you have several loggers to set up, each with the same or similar user data.

Once the logger has been started, you cannot alter the user data, password, start delay or sample period. Check that these are correct before you start the logger.

Removing a Password

To remove or clear a password, i.e. to allow anyone to access the logger without a password, edit the parameters, then enter a value of 0 (zero) into the password and confirm fields. Then save the parameters to the logger.

See also:
Password specification errors
User data
Sample period
Start delay

5.10 Password Required

The logger you are attempting to program or reuse is protected with a password. The password will be number of up to 8 digits.

To access the logger, enter the logger password and click the ‘OK’ button. If you do not want to access the logger, or you cannot because you do not know the password, click the ‘Cancel’ button.

See also:
Password Specification Errors

5.11 Enable Safe Range

Temprecord Mk III has a the ability to compare the logged temperatures and humidity against upper and lower limits, and report whether the limits have been exceeded via the red and green LED on the logger. In some situations, the logger must be started while the temperature/humidity is outside the limits and it is undesirable for this situation to be reported as a temperature/humidity outside of the limits. Also, there are applications where a brief excursion outside the limits may be expected, and is not to be reported as an out-of-range error.

To accommodate these situations, Temprecord allows you to set a **safe range enable**, and an associated limit delay.

If the **enable safe range** option is not checked, logger samples are checked against the limits from the time when the logger is started. If the option is checked, the temperature/humidity must enter the 'safe range' (i.e. it must be less than the upper limit and greater than the lower limit) before it will be checked against the limits.

If humidity only is being logged, then the above comments apply to humidity instead of temperature.

If both temperature and humidity are being logged, then both the temperature and humidity must be within their respective safe ranges

If the enable safe range option is checked, comparison of the temperature (and/or humidity) values starts as soon as the number of samples taken inside the safe range exceeds the value specified in the limit delay parameter. For example, if the limit delay is set to 5, the checking of temperatures and/or humidity against limits will not start until more than five successive samples have been recorded as inside the safe range.

To have comparison against the limits begin as soon as a sample is inside the safe range, set the limit delay to 0.

Enabling the safe range entry option does NOT mean that the logger does not start taking samples until the conditions for safe range entry are met. Enabling safe range entry means that the samples taken are not COMPARED against the limits until the conditions for safe range entry are met. The logger still takes samples from the time the start delay expires (or from the start time and date, if this is enabled).

See also:
Limit delay
Lower and upper limits

5.12 Lower and Upper Limits

Temprecord Mk III has a the ability to compare the logged temperature and humidity values against lower and upper limits, and report whether the limits have been exceeded via the red and green LED on the logger.

The Program/Parameters form allows you to specify these limits. Enter the limits in the same units as the current setting of the units option (°C or °F). In the case of the humidity the units are % RH.

(Mk III) When Temprecord reads the data from a Mk III logger and displays it in graph view mode, the limits that were programmed in the logger are shown on the graph. These limits are also used in the values view and statistics view. See the topic how the limits are used when Temprecord displays data for more information

.

In some situations, the logger must be started while the temperature and/or humidity are outside the limits and it is undesirable for this situation to be reported as such. Also, there are applications where a brief excursion outside the limits may be expected, and is not to be reported as an out-of-range error. See the parameters enable safe range and limit delay for more information.

See also:
Limit delay
Enable safe range

5.13 Limit Delay

Temprecord Mk III has a the ability to compare the logged temperatures and humidity against upper and lower limits, and report whether the limits have been exceeded via the red and green LED on the logger. In some situations, the logger must be started while the temperature/humidity is outside the limits and it is undesirable for this situation to be reported as a temperature/humidity outside of the limits. Also, there are applications where a brief excursion outside the limits may be expected, and is not to be reported as an out-of-range error.

To accommodate these situations, Temprecord allows you to set a **limit delay** parameter. The limit delay is used in two ways - it affects the behaviour of both the safe range, and also the lower and upper temperature and humidity limits.

- The **limit indicators** (upper temperature exceeded, lower temperature exceeded, upper humidity exceeded, lower humidity exceeded) are only set when the number of continuous samples exceeding the respective limit is greater then the **limit delay** parameter. In other words, the limit delay specifies how many consecutive samples are tolerated outside the limits before an out-of-limits condition is flagged.

  To have the limit indicators set (and therefore the red LED flash) as soon as any single sample exceeds the respective limit, set the **limit delay** to 0.

- If the enable safe range option is checked, comparison of the temperature (and/or humidity) values starts as soon as the number of samples taken inside the safe range exceeds the value specified in the **limit delay** parameter. In other words, the limit delay specifies how many consecutive samples are tolerated inside the limits before checking of the samples against the limits begins. For example, if the limit delay is set to 5, the checking of temperatures and/or humidity against limits will not start until more than five successive samples have been recorded as inside the safe range.

  To have comparison against the limits begin as soon as a sample is inside the safe range, set the limit delay to 0.

See also:

Enable safe range
Lower and upper limits

5.14 Loop Overwrite

Normally when Temprecord has taken a number of samples equal to the logger capacity, recording of samples stops. It is possible however to program the logger so that when it is filled, the next sample taken overwrites the oldest sample. The logger will from that time on therefore always contain a record of the most recent 7937 samples (inland and multi-trip loggers) or 32513 samples (export and scientific loggers). If you are logging both temperature and humidity, these figures are 3969 samples and 16257 samples respectively

You can turn the loop overwrite option on and off in the Program/Parameters form. If this option is not checked, the logger will stop recording when it fills up. If this option is checked, after the logger has filled, subsequent samples taken overwrite the oldest sample.

5.15 Start and Stop with Button

You can determine whether the logger can be started and/or stopped with the button in the Program/ Parameters form. If you want to be able to start the logger with the button, check the option marked 'Start with Button'. If you want to be able to stop the logger with the button, check the option marked 'Stop with Button'.

The button on the logger is used for both starting and stopping the logger, and also for recording markers in the sample record. See the topics using the button on the logger to mark an event and using the button on the logger to start and stop logging for more information.

See also:
Starting a logger
Stopping a logger
Start and Stop with switcher
Allow markers

5.16 Start and Stop with Switcher

You can determine whether the logger can be started and/or stopped with the switcher in the Program/ Parameters form. If you want to be able to start the logger with the switcher, check the option marked 'Start with Switcher'. If you want to be able to stop the logger with the switcher, check the option marked 'Stop with Switcher'.

You cannot prevent starting and stopping with the switcher of the older Temprecord loggers.

the button on the logger is used for both starting and stopping the logger, and also for recording markers in the sample record. See the topics using the button on the logger to mark an event and using the button on the logger to start and stop logging for more information

.

See also:
Starting a logger
Stopping a logger
Start and Stop with button
Allow markers

5.17 Allow Markers

You can determine whether pressing the button can be used to insert markers into the temperature record in the Program/Parameters form. If you want to be able to insert markers by pressing the button, check the option marked 'Allow Markers'.

the button on the logger is used for both starting and stopping the logger, and also for recording markers in the sample record. See the topics using the button on the logger to mark an event and using the button on the logger to start and stop logging for more information.

See also:
Starting a logger
Stopping a logger
Start and Stop with switcher
Allow markers

5.18 Mon-T Temperature Logging Range Parameters

The parameters discussed here are only present in the Temprecord **Mon-T** logger. When the parameters for Temprecord Mk1 through Mk3a loggers are edited, these parameters do not apply and will not show in the parameters dialog.

The **Mon-T** logger allows the user to trade off temperature resolution against temperature range. This is achieved by allowing the user to specify the minimum temperature logged and the resolution. If a small value of resolution is specified, e.g. 0.05C, the logger will only record over a smaller range. The table below shows the temperature logging range that results from various settings of these controls

Minimum Temperature	Resolution	Range
-40	0.50	-40.00 to +86.50
-20	0.20	-20.00 to +30.60
-15	0.10	-15.00 to +10.30
- 5	0.05	- 5.00 to +7.65

Minimum Temperature

This is the lowest temperature the **Mon-T** logger can record. It can be set to any value within the specified temperature range of the logger. It serves as the starting point for the logging temperature range.

Resolution

The size of the steps between one temperature and the next. The higher the resolution, the smaller the logged temperature range. The resolutions available depend on the logger temperature units:

Resolution	Range (Celsius)	Range (Fahrenheit)
1.00	not available	253.00 F
0.50	126.50 C	126.50 F
0.20	50.60 C	50.60 F
0.10	25.30 C	12.30 F
0.05	12.65 C	not available

Maximum Temperature

This is the highest temperature the **Mon-T** logger can record. It is calculated from the Minimum Temperature and the Resolution. It is calculated using the formula:

```
Tmax = TMin + (SampleIntervalsLogged * 253)
```

As you change the minimum temperature, resolution , or logger units, the maximum temperature is calculated and displayed.

Logger Units

This parameter determines the units (Celsius or Fahrenheit) used to set the Minimum Temperature and Resolution parameters.

Don't confuse the display units with the **Mon-T** Logger Units. The **Mon-T** Logger Units determine what units are used when programming the **Mon-T** - specific parameters (Minimum Temperature, and Resolution). The display units determine how temperatures are displayed in the Temprecord program

When a Mon--T logger is read, the display units are set to the **Mon-T** programmed logger units. I.e. if you program a logger in Fahrenheit units and read the logger with Temprecord set to display temperatures in Celsius, the display units will change to Fahrenheit after you read the logger's temperature data.

Warnings

Temprecord will warn you if you attempt to set the upper or lower limits outside the Minimum and Maximum Temperatures as defined above.

When the **Mon-T** logger is recording temperatures outside the logging range, the temperature actually recorded will be limited to the minimum or maximum temperature specified. This has implications for calculated statistics. It is important to make sure the range between the Minimum and Maximum Temperatures is greater than the expected temperature range.

These settings can only be adjusted if the option Show **Mon-T** - specific settings is enabled. If this option is not enabled, the fields for Minimum Temperature, resolution, and Logger Units do not appear and the logger temperature range and resolution are displayed in their place.

5.19 Setting up several loggers

If you have several Temprecord loggers to set up in a single session, Temprecord makes it easy for you. The button marked 'Apply'' in the Program/Parameters form updates the information in the form to the logger, but leaves the form open.

To set up several loggers with the same or similar programmed data:

1. Place the first logger into the reader interface.
2. Select the Program/Parameters menu item. After a few seconds the Program/Parameters form will open with the parameters for that logger.
3. Make any changes you want to the user data, sample rate, etc.
4. Click on 'Apply'. A window will open while the Temprecord parameters are updated and after this is done you will be returned to the Program/Parameters form.
5. Remove the logger and insert the next one.

Repeat steps 3, 4 and 5 as many times as necessary to set up your loggers, then click on 'OK' to update the last logger and close the Program/Parameters form

Temprecord will not allow you to set up a logger that is protected with a password unless the passwords on all subsequent loggers matches the original logger, or the password on the subsequent loggers is zero.

Temprecord will only allow you to set up loggers of all the same type in this way. You cannot set up (for example) an inland logger, then a scientific logger

.

See also:
Setting up a default set of parameters
Auto Mode Operation

5.20 Setting up a default set of parameters

If you have a particular set of parameters that are frequently programmed into your loggers, you can create a 'default' set of parameters, which you can load into the Program/Parameters form simply by clicking on the 'Defaults' button.

To set up and use a set of default parameters:

- Select the Options/Defaults menu item. This will open the default options form, which looks very similar to the Program/Parameters form, except that there is no 'password' field.'
- Enter the parameters. You might for example have a particular set of user data, which remains the same for all loggers apart from one line, being the destination of produce being

shipped. You would leave that line blank here.

- Click on OK.

To use the default set of parameters:

- Place a logger into the reader interface.
- Select the Program/Parameters menu item. After a few seconds the Program/Parameters form will open with the parameters for that logger.
- Click on the 'Defaults' button. This will load the user data with the defaults you programmed previously.
- Make any changes you want to the user data, sample rate, etc. In the example mentioned above, you would key the destination into the line left blank.
- Click on 'Apply' or 'OK'.
- Remove the logger.

See also:
Setting up several loggers
Options Menu
Default options
Auto Mode Operation

5.21 Starting a Logger

Use the Program/Start Logger function to start the Temprecord logger. Before starting, you should configure the logger if you wish to set the user data, alter the sample period or start delay, or change any of the other parameters

The Temprecord logger status must be READY in order for it to be started. Once started, the start delay begins timing. After this start delay period has elapsed, the Temprecord unit will begin to log temperature. The Temprecord logger will flash when started, and again when the start delay has expired and logging begins. If you have recently read a Temprecord logger and not yet saved the contents to a disk file, you will be prompted to save the data first.

Inland and Export loggers can only be started by snapping off the tabs.

Starting a logger does not necessarily mean it will begin taking temperature readings. Logging of temperatures will not start until the start delay has counted down.

When you use the Program/Start Logger function, you will be asked to confirm that you want to do this. If you prefer not to be asked this question, you can uncheck the option 'Prompt before starting' in the General Options form.

(Mk III) You can also set up a logger so that it can be started by the button on the logger, or by the switcher or by a programmed start time and date

You can start the logger currently in the reader interface by clicking on this speed button  on the toolbar displayed along the top of the Temprecord main window.

See also:

Stopping a logger
Reusing a logger
Sample period
Start delay
Start time and date
Limit Delay
Lower and Upper limits
Loop Overwrite
Start and stop with button
Start and stop with switcher
Allow markers
Auto Mode Operation

Saving a file

5.22 Stopping a Logger

Use the Program/Stop Logger function to stop the Temprecord logging temperature samples. The Temprecord logger status must be LOGGING in order for it to be stopped.

If you have recently read a Temprecord logger and not yet saved the contents to a disk file, you will be prompted to save the data first. The Temprecord logger will flash when logging stops.

When you use the Program/Stop Logger function, you will be asked to confirm that you want to do this. If you prefer not to be asked this question, you can uncheck the option 'Prompt before stopping' in the General Options form.

You can also stop loggers with the switcher or by pressing the button on the logger.

Inland and Export loggers can only be stopped by snapping off the tabs.

You can stop the logger currently in the reader interface by clicking on this speed button  on the toolbar displayed along the top of the Temprecord main window

.

See also:
Starting a logger
Reusing a logger
Sample period
Start delay
Start time and date
Limit Delay
Lower and Upper limits
Loop Overwrite
Start and stop with button
Start and stop with switcher
Allow markers
Auto Mode Operation

Saving a file

5.23 Reusing a Logger

The Program/Reuse Logger function allows Multi-trip or Scientific Temprecord loggers to be reused. The Temprecord logger must be in the 'stopped' state. If the Temprecord unit has been password-protected, you will be asked to enter the password before the unit can be restarted. If you wish to change the password, use the Program/Parameters function after you have re-used the logger . If you have recently read a Temprecord logger and not yet saved the contents to a disk file, you will be prompted to save the data first.

When a Temprecord is re-used, the current sample period is retained. If you want to set a different sample period, use the Program/Parameters function after you have re-used the Temprecord logger.

When you use the Program/Reuse Logger function, you will be asked to confirm that you want to do this. If you prefer not to be asked this question, you can uncheck the option 'Prompt before reusing' in the General Options form.

The start delay is always set to a default value of one minute when a Temprecord is re-used. You can also change this with the Program/Parameters function if desired.

You can reuse the logger currently in the reader interface by clicking on this speed button  on the toolbar displayed along the top of the Temprecord main window

.

See also:

Starting a logger
Stopping a logger
Sample period
Start delay
Start time and date
Limit Delay
Lower and Upper limits
Loop Overwrite
Start and stop with button
Start and stop with switcher
Allow markers
Auto Mode Operation

Saving a file

5.24 What the LEDs on the logger tell you

The Mk III Temprecord logger has two visible LED's (light-emitting diodes). These are used to both to provide a confirmation of operation of the logger, and to provide information about the temperature limits stored in the logger.

Logger Status	Red LED	Green LED
Ready to be started	off	off
When started	flashes 4 times	off
Counting start delay	off	off
When start delay expires	flashes 4 times	off
Logging, stopped	off	flashes briefly every 10 seconds
Logging or stopped, if lower or upper limit exceeded	flashes briefly every 10 seconds	off
When communicating	off	flashes briefly

The **Mon-T** Temprecord logger also has two visible LED's, but their operation is different. The logger status can only be determined by pressing the button on the logger.

Logger Status	Red LED	Green LED
Ready to be started	off	off
On starting	off	6 flashes
Counting start delay	off	off
On start delay expiry	off	6 flashes
Logging, stopped (only when button pressed)	3 flashes if logger out of limitsf	3 flashes if logger inside limitsf
On stopping	off	6 flashes

See also:
Starting a logger
Stopping a logger
Start delay
Start time and date
Limit Delay
Lower and Upper limits
Start and stop with button
Start and stop with switcher
Allow markers

5.25 Using the button on the logger to mark an event

Temprecord has the ability to record markers along with the temperature data. A marker is simply an indication of an event - no other information is stored other than the fact that the button was pushed, and the time it was pushed. The time recorded is that of the most recently taken sample.

To insert a marker, you must hold the button down for at least 2 seconds. The red LED on the logger will flash twice to confirm that a marker has been recorded.

This feature must be enabled by checking the allow markers option in the Program/ Parameters form. If this option is not checked, pressing the button has no effect, unless stop with button is also checked, in which case pressing the button (for at least 10 seconds) will stop the logger taking samples.

Once the marker has been recorded (i.e. when the LED flashes), be sure to release the button immediately. Remember that the logger can also be stopped by holding the button down for at least 10 seconds!

You can enter as many markers into the logger as you wish, but the Temprecord program only displays the first 100 markers recorded.

Each marker occupies a sample position - i.e. for every marker you insert, the sample capacity of the logger is reduced by one for that use.

See also:
Stopping a logger
Start and stop with button
Allow markers
Using the button on the logger to start and stop logging

5.26 Using the button on the logger to start and stop logging

You can use the button on the logger to start and stop logging. This feature must be enabled by checking the start and stop with button options in the Program/Parameters form.

If this option is not checked, pressing the button has no effect, unless allow markersis also checked, in which case pressing the button (for at least 2 seconds) will insert a marker if the logger is taking samples

.

See also:
Starting a logger
Stopping a logger
Start and stop with button
Allow markers
Using the button on the logger to mark an event

5.27 Changing Logger Parameters

Make any changes you want to the logger parameters. When you have finished, click on 'OK' and the logger will be updated and the Program/Parameters form will close.

If you have several loggers to program, clicking on 'apply' will update the logger, but leave the form open. You can then insert another logger and program that.

If you click on 'Default', the Program/Parameters form will be filled in with the parameters specified in the Options/Defaults form.

See also:
User Data
Sample Period
Start Delay
Start Time and Date
Password
Lower and Upper Limits
Enable Safe Range
Limit Delay
Loop Overwrite
Start and Stop with Button
Start and Stop with Switcher
Allow Markers
Auto Mode Operation

5.28 Accuracy and Resolution

There is often confusion over the difference between the accuracy of monitoring devices, and the resolution of monitoring devices.

'Accuracy' refers to the range of uncertainty that applies to a given temperature measurement, i.e. the temperature value logged by the device as compared to the true temperature. The accuracy of the Temprecord logger is around 0.6°C (1.0°F) over the measurement range.

'Resolution' refers to the number of decimal places to which the temperature values are recorded, and also displayed. The resolution of the logger varies with temperature, but at 0C it is around 0.01°C (one one-hundredth of a degree). The displayed resolution in Temprecord is usually 0.01°C. While it may not seem sensible to record and display the temperature values to a greater resolution than the accuracy of the logger, it can be in fact quite useful. Temprecord is able to record and display very small fluctuations in temperature - changes that would be much smaller than the resolution of other loggers, which often have a resolution of as much as 2.0°C.

The humidity values are normally displayed to a resolution to 0.01 %RH. The accuracy of the humidity measurements is dependent on the grade of logger. Please see the specification sheet for more details.

See also
Sample period
Sample rate issues

5.29 Sample Rate Issues

The sample rate determines how often the Temprecord logger measures and stores the temperature.

With Temprecord, this is specified by the sample period, which is the time that elapses between samples. Bear in mind that while a longer sample period will increase the length of time the logger will run before the memory is filled, you need to consider the effects of undersampling. This situation arises when the sample period is too long to pick up changes in the temperature. As an example, if the sample period is set to 1 hour, you cannot guarantee to pick up instances where the temperature exceeds a maximum value for a period of only ten minutes.

This discussion also applies to humidity, if humidity is being logged instead of temperature, or if both are being logged

See also:
Sample period
Accuracy and resolution

5.30 Auto Mode Operation

Auto mode operation allows you to carry out a sequence of operations on a batch of loggers. For example, you can stop, read, save, reuse, program the parameters, and start a logger in sequence by doing nothing more than placing the logger in a reader. Temprecord detects when the logger has been inserted, programs it, then waits for it to be removed before waiting for the next logger.

You can determine what operations are carried out by changing the Auto Mode Options

To start Auto Mode, select **Auto Mode** from the **Program** menu. Once the Auto Mode window is displayed, you can click on the **Start** button and Temprecord will wait for a logger. When one is inserted into the reader it will be detected and the sequence of operations defined by the Auto Mode Options will be carried out. When the operations are complete Temprecord waits for the logger to be removed.

To end logging mode click the **Stop** button. Click the **Exit** button to close the Auto Mode window.

Never remove the logger from the reader while Auto Mode operations are underway. Wait until operations have finished and REMOVE LOGGER is displayed. If you need to remove a logger while processing is underway, click on the Stop button first and wait until Auto Mode has stopped.

You can also start Auto Mode operation by clicking on this speed button  on the toolbar displayed along the top of the Temprecord main window.

See also:
Auto Mode Options

5.31 Kiosk Mode Operation

The "Kiosk" mode operation of Temprecord is intended for environments where the sender of a shipment monitored by Temprecord loggers wants to impose limits on the range of operations that can be performed on the logger.

An example is where the Temprecord user programs loggers which are dispatched to a remote location and the condition of the shipment is then assessed by examining the LED indicators. If a problem is indicated, the receiver would read the logger and email the data file back to the sender. Kiosk mode (often in conjunction with auto mode operation) allows the shipper to restrict the receiver to carrying out a certain subset of operations.

In kiosk mode the user is only able to perform the following operations:

- start the logger.
- stop the logger.
- read the logger.
- save the logger data.
- save a PDF report.
- email the TR data file.
- email a PDF report file.
- exit the Temprecord program.
-

The user cannot:

- select values or graph views.
- reuse the logger.
- alter any of the options.

Temprecord Kiosk Mode can only be started by providing a command line option at startup.

6 View Menu

Use the View menu to display the logged temperature data and change the format in which it is displayed.

- Toolbars

- Summary View
- Statistics View
- Values View
- Graph View
  - The Graph Cursor
  - Changing the view mode
  - Viewing Temperature, Humidity, or Both
  - Getting the same file displaying in 2 or more windows
  - Getting data read from the logger displaying in 2 or more windows
  - Viewing Temperature, Humidity, or Both
- Units
- Go to Functions
  - Find Trace
  - Go to First, Go to Last Sample
  - Go to Start, Go to End
  - Go to Next, Go to Previous Marker
  - Go to Min, Go to Max Sample
  - Set as Start, End Markers
  - Using the Start and End Markers
  - Using the Min and Max Markers
  - Using the User Markers
- Zoom Functions
  - How zooming works
  - Horizontal Zoom
  - Vertical Zoom
  - Zoom Between Start and End markers
  - Zoom All
  - Zooming with the Mouse
  - Zoom Window to Presets
  - Zoom all Windows to Presets
  - Assign Presets from Window
  - Edit Presets
- View Info
- Cascade
- Tile Vertically
- Tile Horizontally
- Close

6.1 Toolbars

You can enable or disable the display of the three toolbars, **File**, **Program**, and **Graph.**

These toolbars can be dragged from their docking position and sit as a small window in front of the Temprecord main window. You can also dock them to the left-hand edge of the main window.

6.2 Summary View

The temperature data in a Temprecord data window can be displayed in one of four view modes. These are summary view, statistics view, values view and graph view. The summary view displays the user data, logger serial number, sample period, etc. You do not need to read the logged temperature data to see the summary view of the logger. Using the File/Query Logger function reads the summary data and changes the view mode of the window to summary view.

You can select the summary view mode by opening the View menu and clicking on 'Summary'.

You can also change the view mode from the pop-up menu that displays when you press the right-hand mouse button.

See also:

Changing the view mode

Statistics view

Values view

Graph view

6.3 Statistics View

The temperature data in a Temprecord data window can be displayed in one of four view modes. These are summary view, statistics view, values view and graph view. The statistics view displays an analysis of the temperature data in relation to the lower and upper limits, and the start and end samples. You need to read the logged temperature data to see the statistics view of the logger. Using the File/Query Logger function only reads the summary data.

You can select the statistics view mode by opening the View menu and clicking on 'Statistics'.

(**Mon-T** logger only) When the **Mon-T** logger is recording temperatures outside the logging range, the temperature actually recorded will be limited to the minimum or maximum temperature specified. This has implications for calculated statistics, as the values used in the calculations do not reflect the actual temperatures the logger was subjected to.

Take care when interpreting statistics from Mon-T loggers that have exceeded the programmed Minimum or Maximum temperature range

The Statistics for all Samples

The statistical information displayed consists of:

- the mean temperature (i.e. the average temperature).
- the maximum temperature reached
- the minimum temperature reached
- the number and percentage of samples that were above the upper limit.
- the number and percentage of samples that were below the lower limit.
- the number and percentage of samples that were both above the upper limit and below the lower limit.

If Humidity was logged instead, these statistics are available for the logged humidity samples. If both Humidity and Temperature were logged, these statistics are available for both. You can select between them by using the **View/Temperature**, **View/Humidity**, and **View/Temperature and Humidity** menu options.

Statistics for Samples Between Start and End Markers

The above parameters are calculated for all of the samples read from the logger. If you have set start and end samples that are different from the first and last samples in the logger, the above parameters are calculated again using only those samples between the start and end samples. This is useful when you want to exclude a portion of the data record, e.g. the time when the logger was not in a controlled environment.

TTV (Total Temperature Value) Statistics

Temprecord for Windows can also calculate and display TTV (Total Temperature Value) statistics. To enable this facility, click on Options/Statistics, and make sure Show TTV Statistics is checked. The TTV statistics are displayed after the statistics for all samples and statistics for samples between the start and samples are displayed. The TTV statistics are calculated for one or more periods starting from the start sample. The temperature limits, duration and number of TTV periods are set using the statistics view options

For more information on the derivation and application of TTV statistics, see the topic Total Temperature Value. There are also options that control whether the TTV statistical data is shown, printed or exported. See Graph View Options, Printing Options, and Export Options for more details.

PHI Statistics

Temprecord for Windows can also calculate and display PHI (Process Hygiene Index) statistics. To enable this facility, click on Options/Statistics, and make sure Show Growth Statistics is checked. The PHI statistics are displayed after the statistics for all samples and statistics for samples between the start and samples are displayed. The PHI statistics are calculated between the start and end samples only.

The PHI statistics are presented as a guide only. They do not represent any actual measured growth of organisms present in the monitored environment. The statistics calculated are based on information and techniques developed by the Meat Research Institute of New Zealand.

For more information on the derivation and application of PHI statistics, see the topic Process Hygiene

Index.

Mean Kinetic Temperature (MKT)

Mean Kinetic Temperature (MKT) is a way of expressing the overall effect of temperature fluctuations during storage or transit of perishable goods with a single temperature value, the Mean Kinetic Temperature.

MKT is a calculated, single temperature that is better represents the effects of temperature variations over a period of time then a simple averaging of the temperatures.

Temprecord calculates the MKT value for the samples between the start and end samples and displays the value on the graph view and Statistics view.

For more information on MKT, see the topic Mean Kinetic Temperature.

Refrigeration Index (RI) Statistics

Temprecord for Windows can also calculate and display RI (Refrigeration Index) statistics. To enable this facility, click on Options/Statistics, and make sure Show Refrigeration Index Statistics is checked. The RI statistics are displayed after the PHI statistics. The RI statistics are calculated between the start and end samples only. Remember that if a file has just been loaded the start sample is set to the first sample and the end sample to the last sample.

The RI value is calculated for each sample and is cumulative. If the temperature falls below 7.0 degrees C the RI value at this point is reported. The RI value is also reported at the end sample, regardless of whether the 7.0 degree C temperature was reached.

The time interval taken for the temperature to fall to 7.0 degrees C is also reported.

The RI value displayed is a logarithmic value, and represents the base 10 log of the number of generation increases over the time period.

If the Show Refrigeration Index Statistics option is checked the refrigeration index is also plotted on graph view. See Refrigeration Index Graph View for more information.

The RI statistics are presented as a guide only. They do not represent any actual measured growth of organisms present in the monitored environment. The statistics calculated are based on information and techniques developed by Meat and Livestock Australia.

For more information on the derivation and application of RI statistics, see the topic Refrigeration Index .

The settings of the lower and upper limits affect how the statistical data is displayed. See the topic how the limits are used when Temprecord displays data for more information.

You can also change the view mode from the pop-up menu that displays when you press the right-hand mouse button.

See also:

Changing the view mode

Summary view

Values View
Graph view
Total Temperature Value
Mean Kinetic Temperature
Graph View Options
Statistics View Options
Printing Options
Export Options
Process Hygiene Index
Refrigeration Index

6.3.1 Total Temperature Value (TTV)

In many applications the is a need to evaluate thermal performance - how well was a certain temperature band maintained over time. In some applications the ideal ambient temperature changes over time. At any given time there is an optimum temperature range for best results.

This optimum temperature profile - sometimes called the **zone of thermal neutrality** - can be modeled as a single or a series of equal length time periods, where each period has a lower an upper temperature. An index can be calculated for that period based on the distance the actual temperature strays outside the two limits. The total temperature value (TTV) for that period is calculated as the sum of the number of degrees outside the limits for each temperature sample in the period. Samples that are within the limits are not counted - only samples where the temperature is outside the limits are counted, and the further outside the limits the sample is, the higher its contribution for the TTV value for that period. The TTV value is thus a temperature-time integral of the deviation from the ideal range.

Temprecord for Windows allows you to specify up to 20 TTV periods of any duration, and then specify a lower and upper temperature limit for each period. The TTV value is calculated separately for the lower and upper limits for each time period, and total TTV results are also calculated.

If the number of samples corresponding to the TTV periods specified exceeds the number of samples between the start sample and the last sample, the number of periods actually shown may be less than the number specified. Also, this may mean that the number of samples used to calculate the TTV value for the last shown TTV period is less than a full TTV period's worth. In this case the TTV value for the final period will have less relevance.

The units of the TTV values are **degree-samples**, because the method of calculation involves summing the temperature deviation for each sample. This means that the displayed value depends on both the sample rate and the selected units (degrees F or degrees C). When comparing TTV values from different data records, the sample rate, selected units, and TTV period should be the same for both files.

The TTV statistics are shown in the statistics view. The TTV statistics can also be printed and exported.

See also:

Changing the view mode
Statistics view
Statistics View Options
Printing Options
Export Options
Process Hygiene Index

6.3.2 Mean Kinetic Temperature (MKT)

Mean Kinetic Temperature (MKT) is a way of expressing the overall effect of temperature fluctuations during storage or transit of perishable goods with a single temperature value, the Mean Kinetic Temperature.

MKT is a calculated, single temperature that is better represents the effects of temperature variations over a period of time than a simple averaging of the temperatures.

Temprecord calculates the MKT value for the samples between the start and end samples and displays the value on the graph view and Statistics view.

Technically speaking, MKT is an expression of cumulative thermal stress experienced by a product at varying temperatures during storage and distribution. In other words, MKT is a calculated, single temperature that is analogous to the effects of temperature variations over a period of time.
MKT is not a simple weighted average. The calculation of MKT gives the higher temperatures a greater weight when computing the average than would a simple numerical average or an arithmetic mean. This weighting is determined by a geometric transformation--the natural logarithm of the absolute temperature.

6.3.3 Product Integrity Profile (PIP)

A frequent use of Temprecord data loggers is to monitor the temperature of a shipment with passive refrigeration, i.e where cooling of the product is achieved by adding refrigerated ballast such as ice packs to the consignment. The temperature profile thus starts off at a relatively higher temperature, falls to a minimum, then warms back to ambient. The goal is to ensure the product cools quickly and remains in the safe storage temperature zone for the anticipated duration of the journey. Blood products tend to use this type of refrigeration where the container is made from expanded polystyrene foam.

If a Temprecord logger is included with the shipment, the Temprecord program provides the ability to quickly analyse a temperature record and determine key indicators via the Product Integrity Profile. The information is presented in the form of annotations on the graph, and a report as part of the statistics. Both of these functions can be enabled with the Show Product Integrity Statistics option.

Definitions

PIP	Product Integrity Profile
Cool zone	the desired temperature range in which the product should remain
Above cool zone or **ambient**	temperatures above the cool zone, i.e. where the product is too warm
Below cool zone	temperatures below the cool zone - i.e. where the product is too cold
Time to cool	the time taken for the temperature to cool from the start until the upper limit of the cool zone

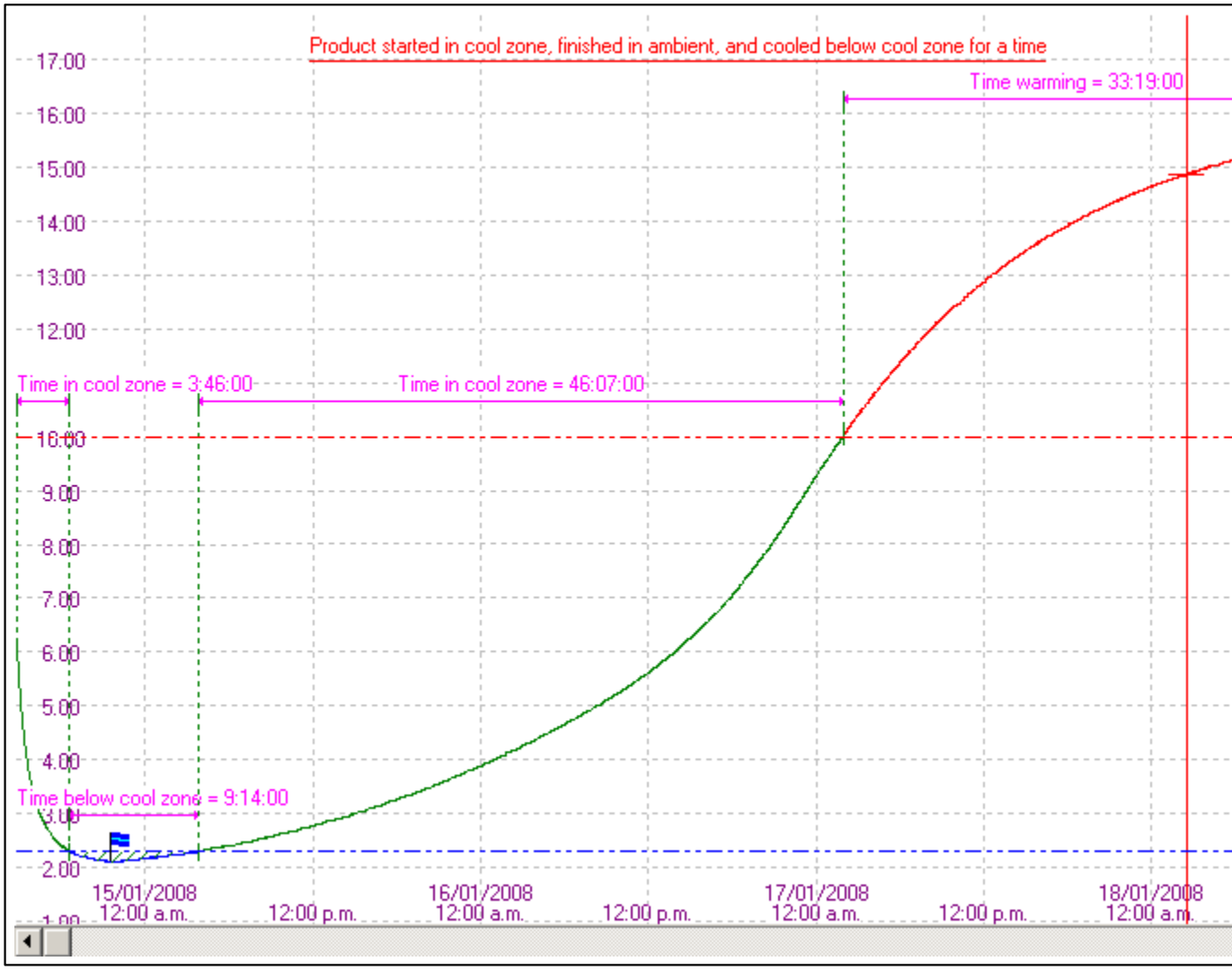
Time in cool zone	the time the product spent inside the cool zone. If the product cooled below the lower limit, the time in the cool zone will be shown as two sections: the time taken to cool from the upper temperature limit down to the lower temperature limit (when the temperature enters the blow cool zone), and the the time taken to warm from the lower temperature limit up to the upper temperature limit (when the temperature enters the above cool zone or ambient). The time when reported in the statistics report is the sum of these values.
Time below cool zone	the time spend below the lower temperature of the cool zone
Time warming	the time taken for the temperature to reach the end after exiting the cool zone

The Product Integrity Profile statistics are intended for situations where the temperature does not enter and leave the cool zone repeatedly. In an environment where the temperature was cycling due to the action of a thermostat, and the temperature was repeatedly crossing the upper or lower limit, the PIP statistics are less likely to be relevant and should be used with care..

The start sample sets the start position of the PIP analysis. The end sample sets the end position. For a logger or file that has just been read the start and end samples are set to the first and last samples. This may be appropriate or you can change them at any time, and the PIP statistics will be recalculated and displayed for the data between the new start and end samples.

The upper temperature limit sets the upper boundary of the cool zone and the lower temperature limit the lower boundary. For a logger or file that has just been read these limits are set to the limits the logger was programmed with. You can change the limits at any time, and the PIP statistics will be recalculated and displayed for the new upper and lower limits.

In the example below, the upper and lower limits are set to 10C and 2.3C, and the start and end samples are set to the first and last samples.



To avoid small temperature variations near the limits causing confusing results, the average of the last three temperature samples is used when determining if the temperature has progressed from one zone to the next. For this reason, there can be a delay of several samples before the temperature progresses to another zone.

You should bear this in mind when comparing the temperature limits with the reported times.

6.3.4 Process Hygiene Index

Introduction

The following text is based on a document supplied by The Meat Research Institute of New Zealand. It describes how to apply the PHI values calculated by Temprecord for Windows.

Microbes and meat

Meat at slaughter is sterile (Gill, 1979). Microbes that can cause food poisoning and/or spoilage begin

their activities after contaminating the exposed surfaces of meat. A typical organism often found associated with meat is Escherichia coli. This organism is an important pathogen. It also has growth characteristics that are similar to other mesophilic pathogens (viz. organisms that grow well in warm environments) such as the salmonellae. Measuring the ability for E. coli to grow on meat is therefore a useful indication of the potential for mesophilic pathogens to grow generally.

Bacterial growth

Bacteria grow and multiply on the meat surface at a rate determined by physiological capacity and the availability of water, space and nutrients. Fresh meat provides a moist and nutritious environment for bacteria to grow on. This means that bacterial growth will be effectively limited only by the cells physiology. Having said this, meat surface drying is sometimes used to control growth. However, it is difficult to prove effective application of drying on a non-uniform product such as fresh meat. Furthermore, the effect of drying is difficult to quantify. It should be assumed then, unless proven otherwise, that there will always be areas on the surface of meat that can allow unrestricted growth of bacteria. Control is then best effected by manipulating the physiological growth capacity of the organisms. This is best done using temperature.
Generally speaking, bacteria grow faster as the temperature rises. The faster they grow, the faster they can reach numbers that can result in disease or spoilage. Thus, by minimizing initial bacterial numbers (using hygienic processing techniques), cooling meat quickly, and maintaining low storage temperatures food safety and storage potential will be maximized. To have confidence in the product such techniques need to be 'measured'. Initial bacterial numbers can be minimized by good manufacturing practice and assessed by classical microbiological techniques. The ability for the bacteria to grow during processing can be assessed by re-assaying meat at the process end. This is, however, a slow process and does not give an indication as to how each processing step contributes to the overall microbial bio-load. An alternative method uses predictive microbiology in the form of the Process Hygiene Index (PHI).

The Process Hygiene Index

PHI is a means of assessing the potential growth of a microbial indicator organism during a process. The PHI is a numerical value that is equivalent to the growth of a microbial indicator organism (E. coli) over a process temperature history collected by an electronic data-logger. The higher the index value, the greater the potential for E. coli growth. For example, an index of 0 (zero) indicates no growth potential, 10 indicates a potential for 10 generations of growth (i.e. an E. coli cell has the potential to reproduce 10 times).

The probe

A special probe is manufactured for use in PHI applications. The logger probe is tapered and composed of Teflon. This allows easy insertion and retrieval from product (especially after freezing when other materials may stick). Teflon also is a poor conductor of heat so the probe tip, which contains the sensor, will allow a faithful measurement of the local temperature.

Positioning the probe

The probe is positioned to measure temperature at a site that reflects the process's greatest ability to allow bacterial growth. This means that the logger's probe must be attached to the warmest meat surface site (where bacterial contamination occurs) and the monitored meat must follow the process through its warmest path. Deep tissue temperature, whilst warmer than the surface during the initial carcass cooling phase, is NOT used because deep tissue is sterile and bacterial growth does not therefore need to be considered. If the warmest path is not known, or is variable, a number of samples (e.g. carcasses) are monitored that are representative of the load. For a carcass the slowest cooling site is adjacent to the aitch-bone pocket (bovine) or within the cavity adjacent to the 5th and 6th lumbar vertebrae (ovine). After cold boning, the probe should be placed on the surface of a small cut, which has the ability to re-heat at the fastest rate. After warm/hot boning a large cut is used because it will cool the slowest. After packaging (including offals) the probe is placed at the thermal centre of the load (e.g. between two cuts at the centre of a box in the centre of the load). Further specifications can be tailored for your own process or obtained from the appropriate regulatory literature.

Types of processes

Before calculating a process PHI an operator must decide what type of process they have monitored. This involves two considerations. Firstly, is the process one or two-phase? Secondly, is the process aerobic, anaerobic, or a mixture of the two?

One-phase or Two-phase?

Processes such as carcass cooling and offal cooling are termed 'single phase' processes because they are composed of a single cooling period containing no periods where product is handled requiring removal of the temperature logger. A temperature history is collected simply by attachment of the probe to the slowest cooling site. For surface sites, the probe is inserted into a stainless steel disc which is then pinned to the meat surface using a non-heat conducting (i.e. Teflon®) staple. The logger should be placed with the product as soon as possible. There may be regulatory requirements relating to your process describing when and where probes are placed. For carcass cooling, the surface temperature should be above 25° C at the beginning of the process and below 7° C at the end (which is the minimum temperature for E. coli growth). At the end of the process the logger is interrogated and a PHI produced. Note that 2 models of disc are available - one for beef and one for mutton.

Temprecord for Windows expresses PHI values both with and without lag. This lag refers to the period of time that bacteria need to adjust to a new environment before they can start to grow. For use with fresh meat processing DO NOT USE VALUES EXPRESSED AS 'WITH LAG'. This is because bacteria that contaminate meat are considered to have resolved their lag phase by the time process monitoring is commenced.

When a single-phase process is followed by a second operation the overall process is termed 'two-phase'. An example is where a carcass is cooled (first phase), boned and the packaged cuts chilled (second phase). During this operation the temperature logger is used to measure the first phase as described for the single-phase operation. The logger is then removed for the boning operation and then placed with the packaged product to continue the monitoring process. There may be a regulatory limit on the maximum length of time the logger can be absent from the product between the phases (e.g. one hour for carcass/cuts assessment). The PHI value for a two-phase process can be calculated as follows:

Remember that you must have the Statistics option 'Show Growth Statistics' checked in order for Temprecord for Windows to display PHI statistics.

- 1. In Graph View, mark the start and end of the first phase of cooling. You can do this quickly by positioning the graph cursor at the start of the first phase of cooling, and pressing F7. Then position the cursor at the end of the first phase of cooling and press F8.
- 2. Switch to Statistics View. Temprecord for Windows will then show a value for the PHI for the first phase. The expressed PHI will either be for aerobic growth (e.g. carcass cooling) or anaerobic growth (e.g. offal cooling- although this will be a one-phase process only).
- 3. Repeat step 1. for the second phase of cooling.
- 4. Repeat step 2. for the second phase. The PHI will be either for anaerobic growth (e.g. warm-boned bulk packed meat or vacuum packaged cuts) or aerobic growth (e.g. unwrapped cuts).
- 5. Manually calculate the potential for aerobic growth during the inter-phase period. This is done by firstly choosing the maximum temperature occurring at either the end of the first phase or the

start of the second phase and then calculating the amount of potential aerobic growth for the inter-phase period using the following formula, used by the PHI software algorithm and presented in the paper of Reichel et. al. (1991).

$Y = (0.0513x - 0.17)2$, when x is between 7 and 30°C

$Y = (0.027x + 0.55)2$, when x is between 30 and 40°C

$Y = 2.66$, when x is between 40 and 47°C and

$Y = 0$ when x is <7°C or >47°C

Example:

If the first phase ends at 7° C and the second phase starts 0.75 hr later at 12° C, you need to calculate 0.75 hours aerobic growth at 12° C.

((0.0513 x 12) -0.17)2 = 0.2 generations potential growth per hour.

The inter-phase PHI is therefore 0.75 x 0.2 = 0.15

- 6. The three PHI values (first phase, second phase and inter-phase) are then added together to give a process PHI.
- 7. For two-phase processes that contain an aerobic first phase followed by an anaerobic second phase, results that are marginally (e.g. within 0.2 generation) above specified upper limits for the process, can be recalculated taking into consideration the short aerobic-to-anaerobic lag period during which cells cease to grow while converting their metabolisms to anaerobic respiration. This method is described in Reichel et al. It is a tedious process to accomplish manually and may not significantly influence your result - however it is an option for those operators who want to keep their results faithful with those generated by MIRINZ AP1 software (presently incompatible with Temprecord loggers). A future release of Temprecord for Windows will produce a PHI value for a two-phase process and will calculate the lag automatically.

Uses for PHI

In addition to establishing if a process allows a potential for E. coli proliferation that is within certain guidelines the PHI technique can be used for:

- comparing processes (e.g. chiller runs).
- assessing the effect of process modifications on allowing microbial growth.
- HACCP (Hazards Analysis Critical Control Points) applications.

Inappropriate applications of PHI

PHI is not a method to calculate actual bacterial growth on product. A PHI value reflects the maximum potential for a process to allow the growth of E. coli and similar organisms. There may be reasons why actual E. coli growth is lower. For example, some product may have a pH unfavorable for maximum growth, some product may dry sufficiently to retard growth, while other product within the process may not be contaminated with E. coli.

Further Notes

Growth of micro organisms is measured in the number of times they multiply. If they stop multiplying, then they are considered to have stopped growing. If the part of the product where any E.coli are located is below 7degC they will stop growing/multiplying. A PHI of 3.5 doesn't mean 3.5 Log per hour; it means 3.5 generations/hour. A generation is a doubling, a Log is a factor of ten. So starting with one cell, a generation of growth will give us 2 cells, whereas a Log growth will give us 10 cells.

The PHI only tells you the number of generations of growth that would occur if the product is at that temperature for one hour. If the temp is changing with time then you have to work out the number of generations of growth in separate time steps. For example, the first hour is 37degC so the PHI might be 6 generations / hr for that hour, the second hour at 35degC so the PHI = 4.8 generations / hr for that hour. If we add the two hours of growth together we get 10.8 generations (these PHI figures are just made up).

We can extend this to minutes too: If at 37degC for 1 minute gives PHI of 6 generations / hr then must be (6/60) = 0.1 generations / minute, then at 35degC for 1 minute gives PHI of 4.8 generations / hr then must be (4.8/60) = 0.08 generations / minute. Hence in the two minutes we have 0.18 generations of growth.

To convert generations to a straight multiplication factor, just multiply by 2 to the power of the number of generations.

For example, 10 generations = 2 to the power of 10 = 1024. So the number of micro organisms has increased by a factor of 1024. You can see that this is about the same as 3 Logs, 10 to the power of 3 = 1000.

The Future

MIRINZ and Temprecord International Ltd. are continuing to develop and improve software and hardware for extending the scope of the PHI. In addition to pursuing this application of predictive microbiology for food safety, they are also working on a similar application for predicting the growth of spoilage organisms. This will allow processors to monitor and optimize storage processes to minimize the growth of spoilage organisms and thus maximize the storage life of chilled product.

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6.3.5 Refrigeration Index

Introduction

Temprecord can calculate and display Refrigeration Index values. The Refrigeration Index is calculated from the start sample to the end sample, or over the whole sample record if these have not been set. See Refrigeration Index Graph View for details.

The following text is based on a document supplied by Meat Livestock Australia. It describes how to apply the RI values calculated by Temprecord for Windows.

Lag phase

A lag phase may occur when a bacterium moves from one environment to another, especially if it has to adjust to a new environment. The hot boning work described above demonstrated a good correlation when 5 generations of lag were introduced to the equation. 5 generations of growth (1.5 log $_{10}$) can be subtracted from the calculated refrigeration index in situations where a lag may occur.

The question 'the starting temperature is hot' determines whether a lag is applied. If the meat is hot or warm, then it is assumed that *E. coli* has recently been introduced to the meat surface and a 5 generation lag is allowed. If the meat is cold, then it is assumed that *E. coli* may already be present on the meat, has adjusted to the environment and is ready to grow as soon as the temperature rises.

The lag phase can be programmed from the RI options.

Temperature

Temperature is the only parameter that can be entered by the user. Temprecord uses the temperature samples from the Start Sample and calculates the RI value cumulatively from then on until the end sample is reached. If the temperature record cools to below 7C the RI value at this point is recorded also.

The Predictive Model

The predictive model used in this calculator was developed by Dr Tom Ross and colleagues at the University of Tasmania. The model has been published (Ref. 1 below).

An evaluation of the model against data in the literature has also been published (Ref. 2 below).

The use of these models in hot boning applications and validation data has been described in an MLA publication that accompanies the Hot Boning Index Calculator CD ROM (Ref 3 below).

Remember that you must have the Statistics option 'Show Refrigeration Index Statistics' checked in order for Temprecord for Windows to display RI statistics

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References/Further reading

1. Ross, T., Ratkowsky, D. A., Mellefont, L. A. and T.A. McMeekin, T. A. (2003) Modelling the effects of temperature, water activity, pH and lactic acid concentration on the growth rate of *Escherichia coli. Int.J.Food Microbiol*. 82: 33-44.
2. Mellefont, L.A., McMeekin, T.A. and Ross, T. (2003) Performance evaluation of a model describing the effects of temperature, water activity, pH and lactic acid concentration on the growth of *Escherichia coli*. *Int.J.Food Microbiol*. 82: 45-58.
3. Meat & Livestock Australia (2004) Validation of the chilling of hot boned manufacturing meat and primals. PRMS.020

6.3.6 Rate of Cooling

Rate of cooling statistics are a measure of the rate at which an environment or product cools after reaching a peak value. Temprecord always calculates these statistics between the start (F7) and end (F8) marker samples, in the following way:

- The temperature record between the start and end samples is scanned for the maximum value.

- The interval between the maximum sample and the **Zone 1 End** temperature is called ‘Zone 1’ and is treated as the first rate of cooling interval.
- The interval between the point at which the **Zone 1 End** temperature is reached, and the point at which the **Zone 2 End** temperature is reached is called ‘Zone 2’ and is treated as the second rate of cooling interval, and so on.
- The statistics (duration, rate of cooling in degrees per hour) are calculated for each interval.
- The statistics for these intervals are calculated until the end of the measurement period, which is until the number of zones specified has been reached, until 5 zones have been done, or until the end (F8) sample is reached.

Temprecord also prints and displays two total durations after the rate of cooling values. The first total is the time taken from the maximum temperature till the end of the measurement period. The second total is the time taken from the end of zone 1 (i.e. from flag 2) until the end of the measurement period - i.e. it does not include zone 1

.

6.4 Values View

The temperature data in a Temprecord data window can be displayed in one of four view modes. These are summary view, statistics view, values view, and graph view. The values view displays the temperatures as a list of values in degrees C or degrees F, depending on the setting of the Units option. You need to read the logged temperature data to see the values view of the logger. Using the File/Query Logger function only reads the summary data.

The settings of the lower and upper limits affect how the values are displayed. See the topic how the limits are used when Temprecord displays data for more information.

In values view mode, temperatures that are above the upper limit or below the lower limit can be displayed in a different color. You can change these colors with the values view options. By default, these colors are set to **red** and **blue** respectively.

If you have Total Temperature Value (TTV) statistics enabled, then these limits determine the color used to display the TTV values, rather than the lower and upper limits.

You can select the values view mode by opening the View menu and clicking on 'Values'.

If Humidity was logged instead, the values shown are for the humidity samples If both Humidity and Temperature were logged, you can show the values for either or both. You can select between them by using the **View/Temperature**, **View/Humidity**, and **View/Temperature and Humidity** menu options.

You can also change the view mode from the pop-up menu that displays when you press the right-hand mouse button.

See also:
Changing the view mode
Summary view
Statistics view
Graph view

6.5 Units

Changes the display units from degrees Celsius to degrees Fahrenheit, or vice-versa.

You can quickly swap between degrees C and F with the Ctrl-U key.

Don't confuse the display units with the **Mon-T** Logger Units. The **Mon-T** Logger Units determine what units are used when programming the Mon-T - specific parameters (Minimum Temperature, and Resolution). The display units determine how temperatures are displayed in the Temprecord program

When a **Mon-T** logger is read, the display units are set to the **Mon-T** programmed logger units. I.e. if you program a logger in Fahrenheit units and read the logger with Temprecord set to display temperatures in Celsius, the display units will change to Fahrenheit after you read the logger's temperature data.

7 Graph View

The temperature data in a Temprecord data window can be displayed in one of four view modes. These are summary view, statistics view, values view, and graph view. The graph view displays the temperatures as a graph of temperature (in degrees C or degrees F, depending on the setting of the **Units** option) against time . You need to read the logged temperature data to see the graph view of the logger. Using the File/Query Logger function only reads the summary data.

When you read the data from a logger, the view mode of the data window is switched to graph view.

In graph view mode, the upper limit is shown as a dotted **red** line, and the lower limit as a dotted **blue** line, though you can change the colors used if desired. See the topic how the limits are used when Temprecord displays data for more information.

A vertical solid red line indicates the position of the graph cursor. You can move the graph cursor with the left and right arrow keys, or by clicking on the graph. See the graph cursor topic for more information.

You can select the graph view mode by opening the View menu and clicking on 'Graph'.

If Humidity was logged instead, the trace shown will be for the humidity samples If both Humidity and Temperature were logged, you can show the trace for either or both. You can select between them by using the **View/Temperature**, **View/Humidity**, and **View/Temperature and Humidity** menu options.

If the Show Refrigeration Index Graph View is set

You can also change the view mode from the pop-up menu that displays when you press the right-hand mouse button.

Temprecord provides a powerful set of zooming functions for displaying and printing your temperature data as a graph. See the topic Zoom Functions for more information

.

Temprecord displays key points on the graph with flags:

- start sample (set by F7)
- end sample (set by F8)
- minimum temperature (F4)
- maximum temperature (F5)
- user marker position
- start of rate of cooling zone 1
- start of rate of cooling zone 2
- start of rate of cooling zone 3
- start of rate of cooling zone 4
- start of rate of cooling zone 5
- end of rate of cooling zones

See also:

Changing the view mode
Summary view
Statistics view
Values view
Zoom Functions
Using the Zoom Presets
Rate of Cooling

7.1 The Graph Cursor

The graph cursor is a vertical red line on the graph that you can position with the mouse, or any of the Go To functions. At all times, the time and temperature at the graph cursor are displayed at the top of the Temprecord data window.

The following operations affect the graph cursor:

- The left and right arrow keys. These move the cursor horizontally by one sample. If the graph cursor reaches the edge of the window, the window will scroll horizontally. Note that at lower horizontal zoom factors, more than one sample can be represented by a display pixel. In this case, the arrow keys will change the sample under the cursor, but the cursor may not necessarily move on the display.

- Clicking on the graph. If the graph view window is clicked, the cursor sample is set to the closest sample to the graph cursor. If the mouse button is held down, the sample cursor is 'dragged' along with the mouse cursor.

- The Find Trace function. This function does not actually move the graph cursor from the sample it is currently on, but instead shifts the trace vertically so that you are guaranteed of seeing the trace. It is useful when you have 'lost' the trace at higher zoom factors.

- The Go to First, Go to Last Sample functions. These move the cursor to the first and last sample respectively of the logged temperatures. Note that if loop overwrite was enabled when the logger was recording, the first sample in the sample record will not necessarily be the first one taken by the logger.

You can also move quickly to the first sample with the Home key, and to the last sample with the End key

- The Go to Start, Go to End functions. These move the cursor to the start sample and end sample respectively of the logged temperatures.

  The start sample and end sample are set to the first and last sample when a logger or file is read, but you can alter them to select a particular range of samples. See Using the start and end markers for more information.

The start sample is marked on the graph with the flag symbol. The end sample is marked on the graph with the flag symbol.

- (Mk III) The Go to Next, Go to Previous Marker functions. These move the graph cursor to the next user marker in the record, or the previous user marker in the record, using the sample at the cursor as the starting point. If there are no more markers from that point on, the cursor does not change. User marker are those inserted into the sample record by pressing the button on the logger. The allow markers parameter must be checked before markers can be inserted into the sample record.

You can quickly move to the next marker by pressing the Ctrl-N key (hold the Ctrl key down and press the 'N' key. You can also move quickly to the previous marker with the Ctrl-P key.

The markers are shown on the graph with the flag symbol.

- The Go to Min, Go to Max Sample functions. These move the cursor to the minimum value sample and maximum value sample respectively of the logged temperature and/or humidity values.

  The behaviour of these functions changes somewhat when both temperature and humidity traces are displayed. If the cursor is not currently positioned at a minimum temperature or humidity sample, then the Go to Min.function moves the cursor to minimum temperature sample. If the cursor is already on the minimum temperature sample then the Go To Min function moves it to the minimum humidity sample. If the cursor is already on the minimum humidity sample then the Go To Min function moves it to the minimum temperature sample. Equivalent behaviour exists for the Go To Max function.

The maximum and minimum are only calculated between the start and end samples. When a file or logger is first read, the start and end sample are set to the first and last sample respectively, so the minimum and maximum displayed are for the whole sample record. If the start and/or end samples are altered however, the maximum and minimum are recalculated. See Using the start and end markers for more information.

The maximum and minimum are only calculated over the samples stored in the logger at the time the logger was read or saved to a file. If loop overwrite is enabled, there may well be samples that have since been overwritten that would have been below the minimum or above the maximum

.

You can move quickly to the minimum sample by pressing the F4 key, and to the maximum sample by pressing the F5 key.

The maximum sample is marked on the graph with the flag symbol. The minimum sample is marked on the graph with the flag symbol

7.2 Changing the view mode

The temperature data in a Temprecord data window can be displayed in one of four view modes. These are summary view, statistics view, values view, and graph view.

You can change the view mode of a window by:

- opening the view menu and clicking on the view mode you want to select.
- opening the pop-up menu by clicking the right mouse button and clicking on the view mode you want to select.
- Using the File/Query Logger function. This always opens a data window and selects the summary view mode.
- Using the File/Read Logger function. This always opens a data window, reads the Temprecord logged data, and selects the graph view mode.

7.3 How the limits are used when Temprecord displays data

The appearance of the values view, statistics view, and graph view is affected by the lower and upper limits, but the behaviour differs slightly depending on whether the data was read from a Mk I Temprecord logger or a Mk II or Mk III Temprecord logger. When using the lower and upper limit temperature and/or humidity values you need to bear in mind the following:

- Mk I Temprecord loggers do not have the facility to program the lower and upper temperature limits. When you read a Mk I logger, or load a file that was created from data read from a Mk I logger, the display lower and upper limits for that data window are set from the values in the default options.
- (Mk III) Mk II and Mk III Temprecord loggers have the facility to program the lower and upper temperature limits. When you read a Mk II or Mk III logger, or load a file that was created from data read from a Mk II or Mk III logger, the display lower and upper limits for that data window are set from the values that were programmed in that logger.
- (Mk III) Some Mk III Temprecord loggers also have the ability to log humidity. In this case you can also program lower and upper humidity limits. When you read a Mk III humidity logger, or load a file that was created from data read from a Mk III humidity logger, the display lower and upper limits for that data window are set from the values that were programmed in that logger.
- If you adjust the lower and/or upper limits in a Temprecord data window the data in that window is altered to reflect the new limit value.
- When you alter the lower and/or upper limits in a Temprecord data window, that change is 'local' to that window. The limits programmed into the logger are not changed, and the limits as set in the default options are not changed. The limits used to display the data in other Temprecord data windows are not changed.

It is quite possible then to have a file opened in two different Temprecord data windows and to have data from that file displayed in each, but with two different sets of lower and upper limits, and these limits can be adjusted independently.

7.4 Viewing Temperature, Humidity, or Both

If the logger or file contains both temperature and humidity data, you can choose to display either temperature, humidity, or both in the statistics view, values view, or graph view modes.

To determine what is displayed, use the **View/Temperature**, **View/Humidity**, or **View/Temperature and Humidity** menu functions. Alternatively, you can right-click in the window and select these functions from the pop-up menu.

7.5 Displaying the same file in 2 or more windows

It is sometimes useful to see the data from a file displayed as both a graph, and as a list of values, or to see the statistical data along with the graph. You can switch from one view mode to another within a window, but this does not allow you to see the two display modes at the same time.

To see a data file displayed twice, you simply open the same file again. You then have two windows with the same data file loaded and you can change the view mode of either of them to whichever view mode you require. There is no limit to the number of data files you can have open (other than the amount of memory your computer has available).

When Temprecord opens another data window, it will normally be opened over the top of any existing windows. To have Temprecord arrange the windows so that they do not overlap, use the View/Tile Vertically or View/Tile Horizontallyfunctions. To have Temprecord arrange all of the open windows as a cascade of overlapping windows, use the View/Cascade function.

See also:

Tile Vertically
Tile Horizontally
Cascade
Zoom Functions
Using the Zoom Presets
Displaying data read from a logger in 2 or more windows

7.6 Displaying data read from a logger in 2 or more windows

It is sometimes useful to see the data read from a logger displayed as both a graph, and as a list of values, or to see the statistical data along with the graph. You can switch from one view mode to another within a window, but this does not allow you to see the two display modes at the same time.

To see the data read from a logger displayed in two different windows, you need to save the data from one of them first as a file. This is because Temprecord will only ever allow one window to be opened containing data from a logger.

These are the steps involved in displaying the data from 2 or more different loggers:

- Use the File/Read Logger function to read the first logger. Temprecord will open a window (if there is not already a window open with data read from a logger - if there is, this one will be used) and display the temperature data as a graph.
- Use the File/Save function to save the logger data to a disk file. You can use the filename provided by Temprecord (which will be derived from the serial number of the logger), or you can type in a new file name of your choice.
- Use the File/Read Logger function to read the data from the second logger. This will open another window and display the data from that logger in graph view.

These are the steps involved in displaying the data from the same logger in 2 windows:

- Use the File/Read Logger function to read the first logger. Temprecord will open a window (if there is not already a window open with data read from a logger - if there is, this one will be used) and display the temperature data as a graph.
- Use the File/Save function to save the logger data to a disk file. You can use the filename provided by Temprecord (which will be derived from the serial number of the logger), or you can type in a new file name of your choice.
- Use the File/Open function to read the file again This will open another window and display the data from that logger in graph view.

When Temprecord opens another data window, it will normally be opened over the top of any existing windows. To have Temprecord arrange the windows so that they do not overlap, use the View/Tile Vertically or View/Tile Horizontallyfunctions. To have Temprecord arrange all of the open windows as a cascade or overlapping windows, use the View/Cascade function.

See also:

Tile Vertically
Tile Horizontally
Cascade
Zoom Functions
Using the Zoom Presets
Displaying the same file in 2 or more windows

7.7 Go to Functions

Temprecord provides a comprehensive array of functions for moving quickly to important points on the graph. You can access these functions from the view menu or from the pop-up menu that displays when you click the right-mouse button.

- Go to Any Sample
- Go to First, Go to Last Sample

- Go to Start, Go to End
- Go to Next, Go to Previous Marker
- Go to Min, Go to Max Sample
- Using the Start and End Markers
- Using the Min and Max Markers
- Using the User Markers

7.7.1 Find Trace

Use the View/Go To/Find Trace function to shift the vertical axis of the graph view so that the trace is near the middle of the data window. This function is useful when you have 'lost' the trace at higher zoom factors. The horizontal position, sample cursor position and zoom factor are not changed.

7.7.2 Go to Sample

Use the **View**/**Go To**/**Sample** to position the sample cursor at a sample specified by number. When you use this function a small dialog appears over the top of the Temprecord main window. You can enter a sample number in this dialog and press **Enter**. Temprecord numbers samples starting from 1. If you enter a sample number less than 1 or greater than the number of samples the cursor is positioned at the first or last sample respectively.

You can also quickly open the **Go To Sample** dialog with the **^G** key (Hold the **Ctrl** key down and press the **G** key).

The **View**/**Go To Sample** function also works in values view mode, where it positions the sample at the top of the window to be sample of interest.

You can leave the **View**/**Go To Sample** dialog open while you work and still access the menus and open and close files etc. The **Go To Sample** function always operates on the window that last had focus.

7.7.3 Go to First, Go to Last Sample

Use the View/Go To/First Sample and View/Go To/Last Sample to position the sample cursor at the first sample and last sample in the sample record.

Don't confuse the first and last samples with the start and end samples. The first and last samples always refer to the first sample in the record and the last sample in the record respectively. The start and end samples refer to the position of the start and end markers, which are used in the calculation of statistical information.

You can also move quickly to the first sample with the Home key, and to the last sample with the End key

The View/Go To/First Sample and View/Go To/Last Sample functions also work in values view mode, where they position the sample at the top of the window to be the first or last sample.

7.7.4 Go to Start, Go to End

Use the View/Go To/Start Sample and View/Go To/End Sample to position the sample cursor at the start marker sample and end marker sample in the sample record.

Don't confuse the first and last samples with the start end samples. The first and last samples always refer to the first sample in the record and the last sample in the record respectively. The start and end samples refer to the position of the start and end markers, which are used in the calculation of statistical information.

You can also move quickly to the first sample with the Home key, and to the last sample with the End key

The start sample is marked on the graph with the flag symbol. The end sample is marked on the graph with the flag symbol.

You can set the current sample under the cursor as the start sample with the F7 key, and as the end sample with the F8 key.

The View/Go To/Start Sample and View/Go To/End Sample functions also work in values view mode, where they position the sample at the top of the window to be the start or end sample.

7.7.5 Go to Next, Go to Previous Marker

Use the View/Go To/Next Marker and View/Go To/Previous Marker to position the sample cursor at the next user marker or the previous user marker with reference to the current sample cursor position.

You can also move quickly to the next user marker with the Ctrl-N key, and the previous sample with the Ctrl-P key

The user markers are shown on the graph with the flag symbol.

The View/Go To/Next Marker and View/Go To/Previous Marker functions also work in values view mode, where they position the sample at the top of the window to be the next or previous sample with a user marker.

7.7.6 Go to Min, Go to Max Sample

Use the View/Go To/Minimum and View/Go To/Maximum functions to position the sample cursor at the maximum or minimum temperature between the start and end markers.

The behaviour of these functions changes somewhat when both temperature and humidity traces are displayed. If the cursor is not currently positioned at a minimum temperature or humidity sample, then the **Go to Min** function moves the cursor to minimum temperature sample. If the cursor is already on the minimum temperature sample then the **Go to Min** function moves it to the minimum humidity sample. If the cursor is already on the minimum humidity sample then the **Go to Min** function moves it to the minimum temperature sample. Equivalent behaviour exists for the **Go to Max** function.

The minimum and maximum functions only pertain to the samples between the start and end markers. Be sure to set the start marker position to the first sample and the end marker position to the last sample if you want to see statistical data for the whole temperature record

You can move quickly to the minimum sample by pressing the F4 key, and to the maximum sample by pressing the F5 key.

You can also move directly to the minimum sample by clicking on this speed button  on the toolbar displayed along the top of the Temprecord main window, or from the pop-up menu that displays when you press the right-hand mouse button.

You can also move directly to the maximum sample by clicking on this speed button  on the toolbar displayed along the top of the Temprecord main window, or from the pop-up menu that displays when you press the right-hand mouse button.

The maximum sample is marked on the graph with the flag symbol. The minimum sample is marked on the graph with the flag symbol

The View/Go To/Minimum and View/Go To/Maximum functions also work in values view mode, where they position the sample at the top of the window to be the minimum or maximum valued sample.

7.8 Select all samples

The Select all samples function sets the start and end markers to the beginning and end of the logged samples. Use this function if you want to copy all the samples to the clipboard when the Copy function is used.

You can select all the samples by:

- Clicking on **Select All** speed button on the graph toolbar. 
- Pressing the **Ctrl-A** key when in graph view.
- Right-clicking while in graph view and selecting **Select All** from the menu.

See also:

Copy to clipboard
Copy to Excel

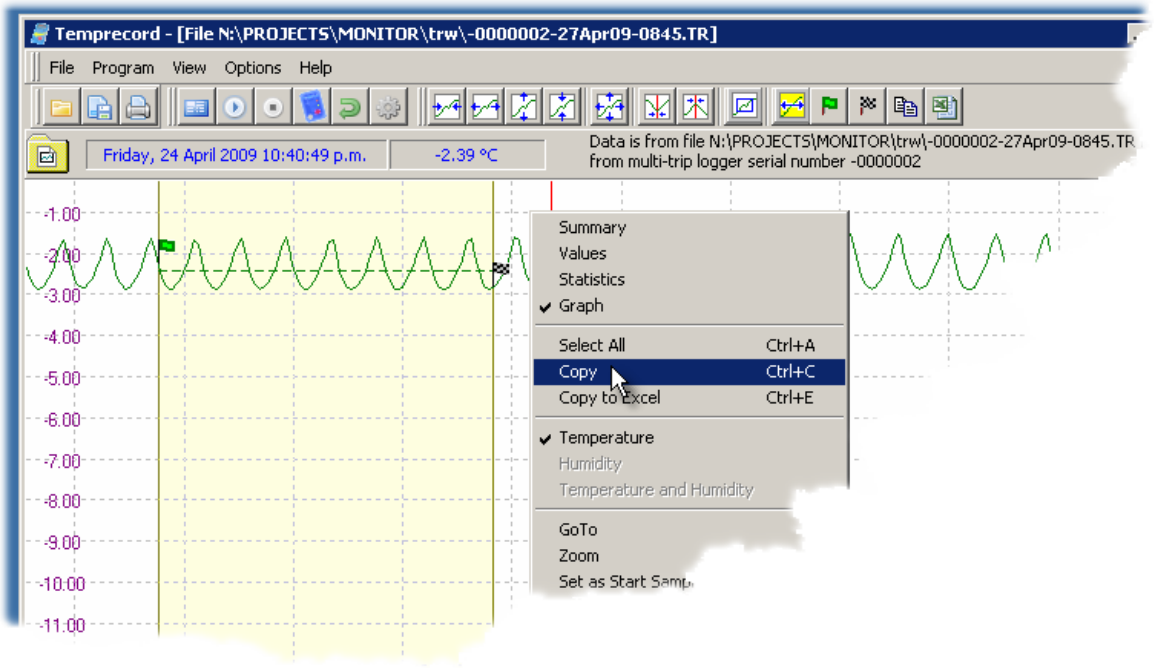
7.9 Copy to Clipboard

When you are in Graph view, you can use the **Copy** function to place sample values into the clipboard. From the clipboard the sample values can be transferred to other Windows applications such as word processors and spreadsheets.

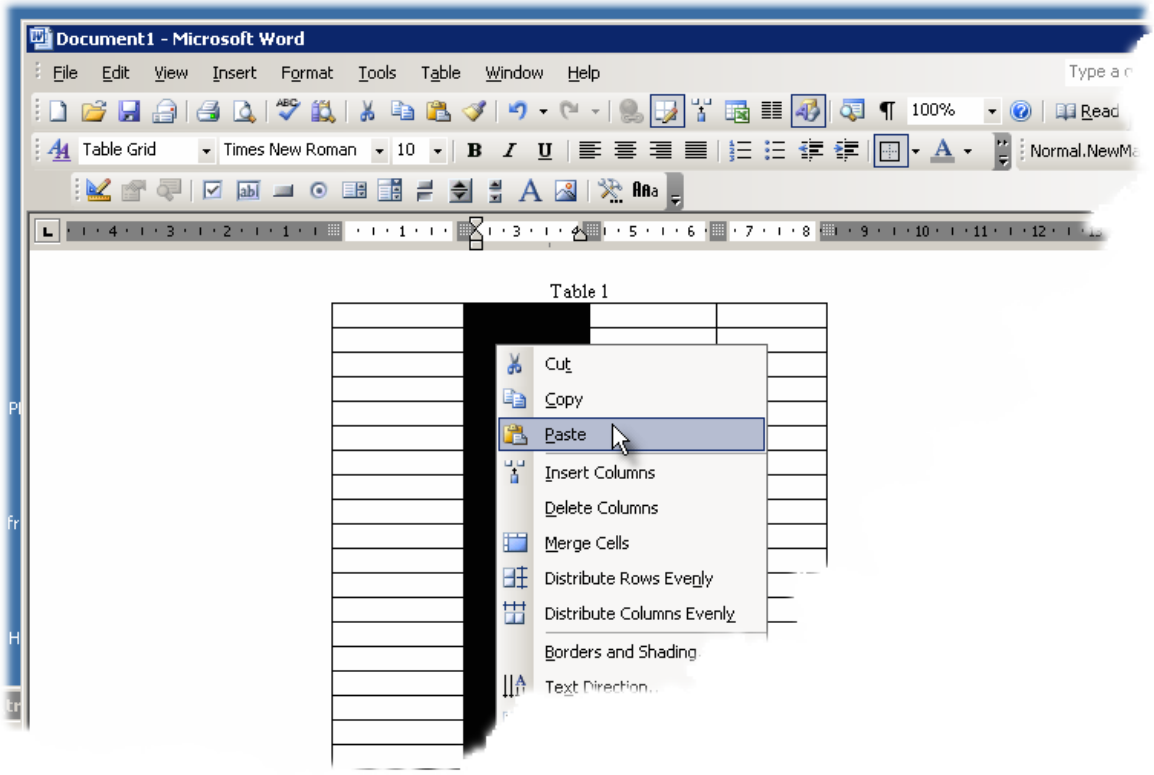
The explanation below is for copying a range of samples to the Windows clipboard. This is of general use when importing sample data into other applications. For the specific task of importing samples into a Microsoft Excel spreadsheet, it is recommended you use the Copy to Excel function. This creates a .XLS file directly and is much more convenient.

As an example, to copy a range of samples to a table in a Microsoft Word document, follow the steps below:

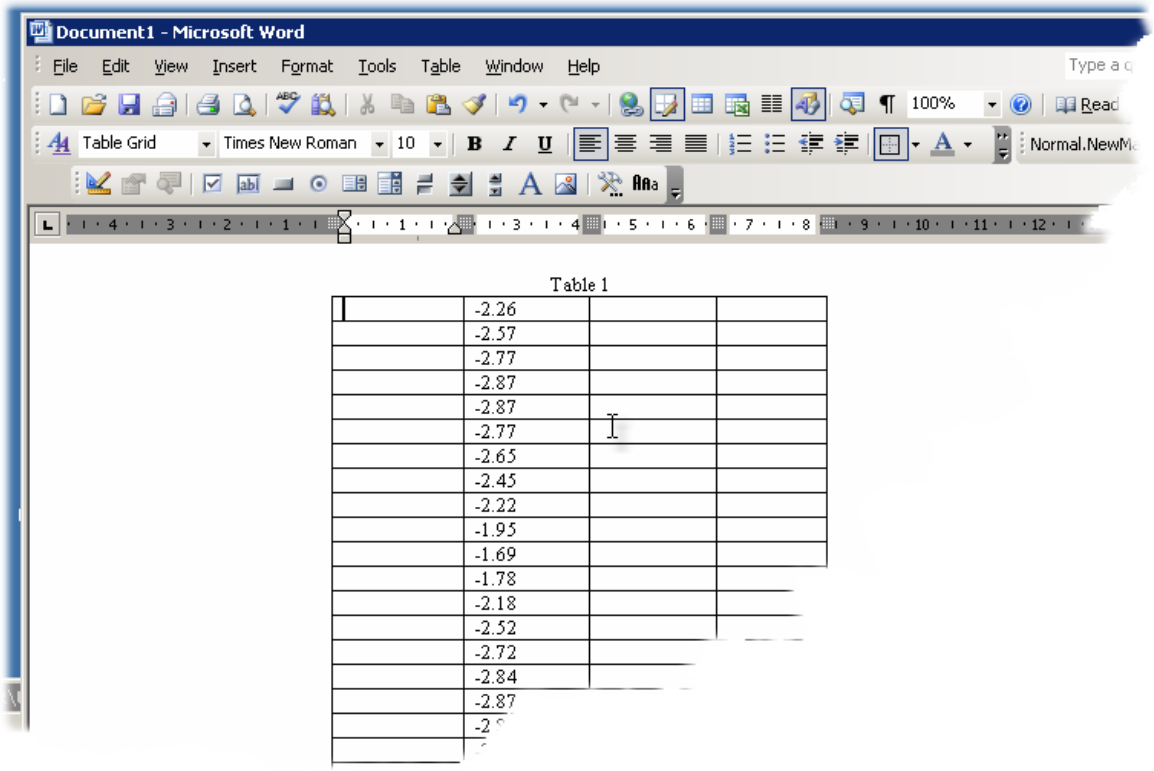
- In Graph view, select the start sample on the trace of the range you wish to transfer. Click on the sample, and then press the **F7** key.
- Now select the end sample of the range. Click on the sample, and press the **F8** key. The range of samples selected is shown on the graph in a different colored background.
- Open the Graph right-click menu by clicking the right-hand button on your mouse.
-



- Select **Copy** from the menu.
- Open the Microsoft Word document that contains the table you wish to copy the samples to.
- Select the column in the table where you want to paste the data (the entire column should show as black when it is selected)



- Right-click on the mouse and select **Paste** from the right-click menu.



The data will be pasted into the table.

You can also use the Ctrl-C key or the **Copy to clipboard** speed button  to achieve the same result

You don't need to close Temprecord after you copy the samples to the clipboard and before you open Word. If you do close Temprecord, the samples you copied to the clipboard will still be available on the clipboard to copy into other applications until they are replaced by another copy operation.

See also:

Select all samples
Copy to Excel

7.10 Copy to Excel

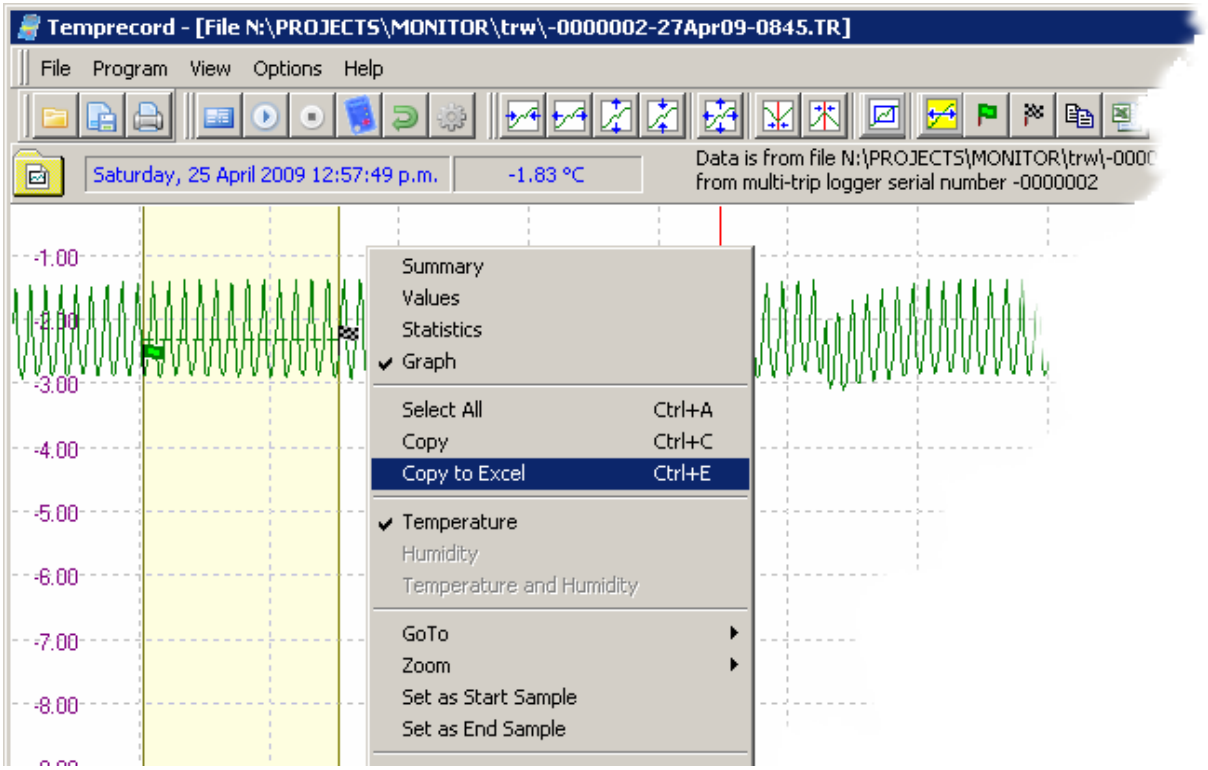
When you are in Graph view, you can use the **Copy to Excel** function to create a new Excel spreadsheet and place the selected sample values (samples between the start and end samples) into the spreadsheet. There are options that allow you to:

- include or exclude the date column.
- prompt for the filename of the XLS file, or default to using a file with thee same name as the .TR file, but with an extension of .XLS
- prompt before overwriting an existing XLS file of the same name.
- open the XLS file with Microsoft Excel after it is created (requires Excel to be installed on the computer).

The explanation below is for copying a range of samples directly to Excel. To copy a range of times/samples to other applications, such as Microsoft Word, see the Copy to clipboard function.

To copy a range of samples to Excel, follow the steps below:

- In Graph view, select the start sample on the trace of the range you wish to transfer. Click on the sample, and then press the **F7** key.
- Now select the end sample of the range. Click on the sample, and press the **F8** key. The range of samples selected is shown on the graph in a different colored background.
- If you want to copy all the samples into the spreadsheet, type **Ctrl-A to** select all the samples.
- Open the Graph right-click menu by clicking the right-hand button on your mouse.

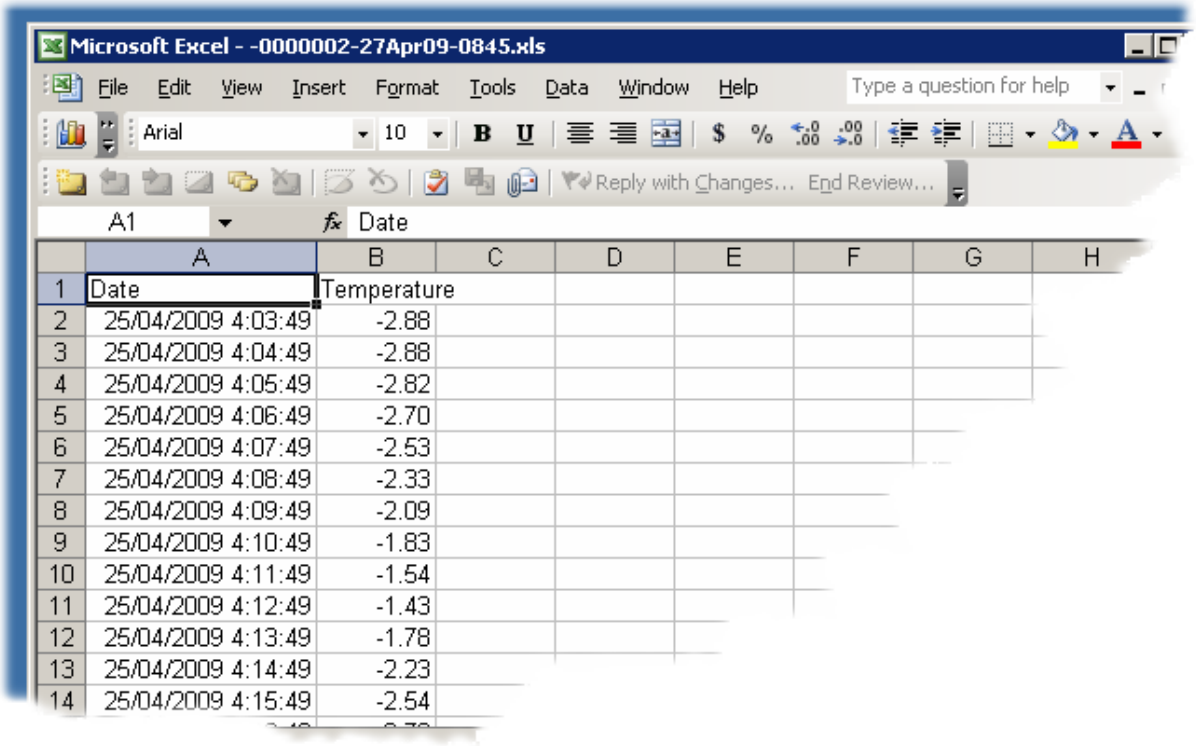


- Select **Copy to Excel** from the menu.

The data will be pasted into the spreadsheet as one to three columns:

1. The date and time of the sample. This column can be suppressed if required.
2. The temperature of the sample (in the selected display units) if temperature was logged.
3. The humidity of the sample, if humidity was logged.

The temperatures will be copied in the current display units (C or F).



	A	B
1	Date	Temperature
2	25/04/2009 4:03:49	-2.88
3	25/04/2009 4:04:49	-2.88
4	25/04/2009 4:05:49	-2.82
5	25/04/2009 4:06:49	-2.70
6	25/04/2009 4:07:49	-2.53
7	25/04/2009 4:08:49	-2.33
8	25/04/2009 4:09:49	-2.09
9	25/04/2009 4:10:49	-1.83
10	25/04/2009 4:11:49	-1.54
11	25/04/2009 4:12:49	-1.43
12	25/04/2009 4:13:49	-1.78
13	25/04/2009 4:14:49	-2.23
14	25/04/2009 4:15:49	-2.54

You can also use the Ctrl-E key or the Copy to Excel speed button to achieve the same result

See also:

Select all samples
Copy to Clipboardl

7.11 Set as Start, End Markers

Enter topic text here.

7.11.1 Using the Start and End Markers

The start and end markers are provided as a convenient way of defining an area of interest of the graph. The information presented in statistics view mode normally pertains to the sample record as a whole, but if the start sample marker is not placed at the first sample, or the end sample marker is not placed at the last sample, the same statistics are also presented for the samples defined between the start and end samples.

The start sample is marked on the graph with the flag symbol. The end sample is marked on the graph with the flag symbol. You can set any sample to be the start sample by positioning the graph sample cursor at that sample, and using the View/Set as Start Sample, function or by pressing F7. You can set any sample to be the end sample by positioning the graph sample cursor at that sample, and using the View/Set as End Sample, function or by pressing F8.

7.11.2 Using the Min and Max Markers

The minimum and maximum markers displayed on the graph indicate the extremes of the temperature between the start and end samples If you have just read a logger or file, the start and end markers are set to the first and last samples, so the minimum and maximum pertain to the whole sample record. If you move the start or end markers, the minimum and maximum positions will be recalculated and displayed.

The sample corresponding to the maximum temperature is marked on the graph with the flag symbol. The minimum sample is marked on the graph with the flag symbol. You can position the graph sample cursor at the minimum value with the View/Go To/Minimum, function or by pressing F5. You can position the graph sample cursor at the maximum value with the View/Go To/Maximum, function or by pressing F6.

The behaviour of these functions changes somewhat when both temperature and humidity traces are displayed. If the cursor is not currently positioned at a minimum temperature or humidity sample, then the Go to Min.function moves the cursor to minimum temperature sample. If the cursor is already on the minimum temperature sample then the Go To Min function moves it to the minimum humidity sample. If the cursor is already on the minimum humidity sample then the Go To Min function moves it to the minimum temperature sample. Equivalent behaviour exists for the Go To Max function.

7.11.3 Using the User Markers

The user markers are events recorded in the logger data record by the pressing of the button on the front of the logger. These events are logged along with the temperature data, and each event takes up the equivalent space of one logged sample.

When the graph is displayed, samples with user markers attached are displayed with the flag symbol.

You can use these markers to indicate when key events occurred while the logger was sampling, for example when the logger was placed in a controlled environment, or to indicate when some unexpected event was observed that you suspect might be influencing the temperature.

See also:
Using the buttons on the logger to mark an event

7.12 Zoom Functions

Temprecord provides various methods for changing the horizontal (time axis) and vertical (temperature axis) zoom factors.

- How zooming works
- Horizontal Zoom
- Vertical Zoom
- Zoom Between Start and End markers

- Zoom All
- Zooming with the Mouse
- Zoom Window to Presets
- Zoom all Windows to Presets
- Zoom All Windows To This One
- Assign Presets from Window
- Edit Presets

7.12.1 How zooming works

When a file or logger data is first read, the horizontal axis is scaled so that the entire sample record occupies the width of the data window. Similarly, the vertical axis is scaled so that the height of the data window corresponds to the span from the minimum temperature to the maximum temperature.

Horizontal zoom and vertical zoom always work relative to the cursor position. After a zoom operation, Temprecord always attempts to position the view window so that the graph sample cursor is in approximately the same location in the window after the window has been zoomed. Horizontal and vertical zoom can be changed independently.

If you have data displayed in several windows from different loggers, the Zoom Window to Presetsfunction is a useful way of displaying and printing the graphs for comparison purposes. See the topic Using the Zoom Presets for more information.

7.12.2 Horizontal Zoom

In graph view mode, you can alter the horizontal zoom factor with the Shift-plus and Shift-minus keys (hold the shift key down while you press the plus (+) and minus (-) keys).

You can also access the horizontal zoom functions from the view menu (View/Zoom/X+ and View/ Zoom/X-), or from the pop-up menu that displays when you click on the right-mouse button.

You can also zoom in horizontally (expand the time axis on your displayed graph) by clicking on this speed button  on the toolbar displayed along the top of the Temprecord main window.

You can also zoom out horizontally (compress the time axis on your displayed graph) by clicking on this speed button  on the toolbar displayed along the top of the Temprecord main window.

If you have data displayed in several windows from different loggers, the Zoom Window to Presetsfunction is a useful way of displaying and printing the graphs for comparison purposes. See the topic Using the Zoom Presets for more information.

On computers with reduced keyboards (such as notebook computers), use the equals (=) key instead of the plus (+) key.

7.12.3 Vertical Zoom

In graph view mode, you can alter the vertical zoom factor with the plus and minus keys.

You can also access the vertical zoom functions from the view menu (View/Zoom/Y+ and View/ Zoom/Y-), or from the pop-up menu that displays when you click on the right-mouse button.

You can also zoom in vertically (expand the temperature axis on your displayed graph) by clicking on this speed button  on the toolbar displayed along the top of the Temprecord main window.

You can also zoom out vertically (compress the temperature axis on your displayed graph) by clicking on this speed button  on the toolbar displayed along

If you have data displayed in several windows from different loggers, the Zoom Window to Presetsfunction is a useful way of displaying and printing the graphs for comparison purposes. See the topic Using the Zoom Presets for more information. the top of the Temprecord main window.

On computers with reduced keyboards (such as notebook computers), use the equals (=) key instead of the plus (+) key.

7.12.4 Zoom Between Start and End markers

Use the View/Zoom/Between Start and End function to set the horizontal zoom factor so that the start sample is at the left-hand side of the data window and the end sample is at the right-hand side. The vertical zoom factor is not altered.

You can also zoom between start and end markers with the F9 key.

7.12.5 Zoom All

Use the View/Zoom/All function to adjust the zoom factors so that the trace exactly fills the data window. This is equivalent to the setting of the horizontal and vertical zoom factors that takes place when a new file is opened or a logger is read.

You can also perform the zoom all function by clicking on this speed button  on the toolbar displayed along the top of the Temprecord main window.

You can also perform the 'Zoom All' function with the F4 key.

If you have data displayed in several windows from different loggers, the Zoom Window to Presetsfunction is a useful way of displaying and printing the graphs for comparison purposes. See the topic Using the Zoom Presets for more information.

7.12.6 Zooming with the Mouse

You can zoom about arbitrary areas of the trace by using the mouse. To do this:

- Position the mouse cursor at the top-left corner of the area you wish to zoom about.
- Press the left-hand mouse button and hold it down.
- Drag the mouse cursor to the bottom right corner of the area you wish to zoom about and release it.

The window will be zoomed so that the top-left corner of the data window is set to where you started dragging from, and the bottom-right corner where you stopped dragging from (released the mouse button).

You cannot extend the zoom about area past the window edges. If you try to drag the mouse past the window edge with the shift key held down, the zoom area will be limited to the window border.

The mouse zoom action is only carried out if the area marked is greater than a certain size. This prevents accidental zooming when you were clicking on the trace to move the graph sample cursor.

If you decide to abandon the mouse zoom operation after you have started dragging, make the zoom rectangle as small as possible before you release the mouse button and no zooming will occur.

If you have data displayed in several windows from different loggers, the Zoom Window to Presetsfunction is a useful way of displaying and printing the graphs for comparison purposes. See the topic Using the Zoom Presets for more information

7.12.7 Zoom Window to Presets

Use the View/Zoom/Zoom Window to Presets function to set the horizontal and vertical graph axes for the current Temprecord data window to the time and temperature span specified in the Graph View Options settings.

When this function is used, the displayed graph will be scaled so that the temperature at the top and bottom of the graph will be those specified in the Preset Zoom Y fields of the graph view options. The span of the date and time across the displayed graph will be set to the dates and times specified in the Preset Zoom X fields of the graph view options.

This function is very useful when you read the data from two or more loggers and wish to align them so that the same temperature and time range is displayed for each. Provided the 'Visible Window' printing option is selected, the printed graphs will also be similarly aligned in time and temperature.

This function has no effect unless a data file is loaded or data has been read from the logger.

You can also zoom to the presets by clicking on this speed button  on the toolbar displayed along the top of the Temprecord main window.

The preset zoom function will not work unless the corresponding enables are checked in the Graph View Options page. There are two enables, one for each of the X (time) and Y (temperature) axes. If only the X zoom preset is enabled, using the zoom to presets function causes the X axis span to be reset, but not the Y axis. If only the Y zoom preset is enabled, using the zoom to presets function causes the Y axis span to

be reset, but not the X axis.

See the topic Using the Zoom Presets for more information.

7.12.8 Zoom all Windows to Presets

Use the View/Zoom/Zoom all Windows to Presets function to set the horizontal and vertical graph axes for open Temprecord data windows to the time and temperature span specified in the Graph View Options settings.

This function behaves the same as the Zoom Window to Presets function, except that all open Temprecord data windows are zoomed. It provides a quick way of setting the horizontal and vertical axes to the same values.

See the topic Using the Zoom Presets for more information.

7.12.9 Zoom All Windows To This One

Use this function to quickly change the X and/or Y limits of all the graphs that are open to the current window. This function is the equivalent of the following sequence:

- Use the Assign Presets From Window function in the window you wish to zoom all others to.
- Then, use the Zoom all windows to Presets function.

This function is also available via the **F10** key.

7.12.10 Assign Presets from Window

Use the View/Zoom/Assign Presets from Window function to set the horizontal and vertical graph axes preset values from the current Temprecord data window.

This function is useful when you wish to align a second displayed or printed graph to the axes settings of an existing graph.

You can also directly set the presets from the Graph View Options page.

See the topic Using the Zoom Presets for more information.

7.12.11 Using the Zoom Presets

The 'Zoom Presets' are a powerful tool for aligning and comparing your Temprecord data. It provides a means of setting the horizontal (time and date) and vertical (temperature) axes of the displayed or printed graph to match the axes in another window, or to set the axes to arbitrary values.

Example 1 - Displaying a fixed region of data

Assume you have data loaded from several loggers displayed in several Temprecord data windows. The loggers all have data that covers the time and temperature range you are interested in, but the loggers have differing sample periods and start times, and the temperature range recorded by each is different. By default, when a logger's data is read, Temprecord will scale the graph of data from each logger to fully occupy the window, so the scaling of the graph view will depend on the temperature range of the data and the number of samples taken. The following procedure will align any or all displayed windows to a set temperature and time range:

- Select one of the Temprecord data windows and determine from the graph which date and time and temperature range you wish to display.
- Open the Graph View Options page.
- Enter the date and time you wish to appear at the left-hand side of the graph into the Preset Zoom Axis 'From' date and time fields.
- Enter the date and time you wish to appear at the right-hand side of the graph into the Preset Zoom Axis 'Until' date and time fields.
- Enter the temperature you wish to appear at the top of the graph into the Preset Zoom Axis 'Upper Temperature' field.
- Enter the temperature you wish to appear at the bottom of the graph into the Preset Zoom Axis 'Lower Temperature' field.
- Click on 'OK'.
- Select a Temprecord data window.
- Select graph view mode.
- Click on View/Zoom/Zoom Window to Presets.

The graph displayed in the window will be scaled to the values you entered into the graph view options Preset Zoom fields. You can the last step for each remaining window, or you can force all windows to be scaled to these preset settings at once by using the View/Zoom/Zoom all Windows to Presets function.

Example 2 - Matching the axes of one graph to another.

The situation frequently arises where you have data from two or more loggers displayed and you wish to compare them - either on-screen or as printed graphs. The following procedure will align two or more displayed graphs to another displayed graph.

- Select the first graph of interest.
- Get the graph displaying the region you wish to compare. You can do this by using the normal zoom functions, or by zooming with the mouse.
- Click on View/Zoom/Assign Presets from Window. This function assigns the presets in the graph view options page from the axes settings for the current Temprecord data window. Once assigned, these presets are remembered until the assign function is used again.
- Select another Temprecord data window.
- Select graph view mode.
- Click on View/Zoom/Zoom Window to Presets.

The graph displayed in the window will be scaled to the values you entered into the graph view options Preset Zoom fields. You can force all windows to be scaled to these preset settings at once by using the View/Zoom/Zoom all Windows to Presets function.

The zoom presets are also applied to the printed graph, but only if the 'Print Visible Window' printing option is selected.

The preset zoom function will not work unless the corresponding enables are checked in the Graph View Options page. There are two enables, one for each of the X (time) and Y (temperature) axes. If only the X zoom preset is enabled, using the zoom to presets function causes the X axis span to be reset, but not the Y axis. If only the Y zoom preset is enabled, using the zoom to presets function causes the Y axis span to be reset, but not the X axis.

To quickly zoom all windows to match one particular window, you can use the Zoom all Windows to This One function.

7.13 Set as Start Sample

Use the View/Set as Start Sample function to make the start sample the same as the current graph cursor sample.

The start sample is used in conjunction with the end sample to define an area of the sample record to be used for calculation of statistical data such as the mean, maximum and minimum.

You can also set the start sample to the current graph cursor position with the F7 key.

The start sample is marked on the graph with the flag symbol.

See also:
Using the start and end markers

7.14 Set as End Sample

Use the View/Set as End Sample function to make the end sample the same as the current graph cursor sample.

The end sample is used in conjunction with the start sample to define an area of the sample record to be used for calculation of statistical data such as the mean, maximum and minimum.

You can also set the end sample to the current graph cursor position with the F8 key.

The end sample is marked on the graph with the flag symbol

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See also:
Using the start and end markers

7.15 Tile Vertically

Use the View/Tile Vertically function to arrange the Temprecord data windows so that they do not overlap and are tiled side-by-side.

See also:
Tile Horizontally
Cascade
Close

7.16 Tile Horizontally

Use the View/Tile Horizontally function to arrange the Temprecord data windows so that they do not overlap and are tiled one above the other.

See also:
Tile Vertically
Cascade
Close

7.17 Cascade

Use the View/Cascade function to arrange the Temprecord data windows so that they overlap and are cascaded down the screen.

This function is useful because all the data window title bars are visible and you can click on whichever one you want to examine.

See also:

Tile Horizontally
Tile Vertically
Close

7.18 Close

Use the View/Close function to close the currently selected Temprecord data window. If you have read the data in the window from a logger and not yet saved it, or you have edited the comment fields and not yet saved the data, you will be asked if you wish to save the data first.

See also:
Tile Horizontally
Tile Vertically
Cascade

7.19 View Info

If this menu entry is checked, the right-hand side of the Temprecord Window is used to display extra information about the operation of Temprecord.

Email Queue

This tab indicates the state of the email queue.. When files are sent by SMTP, they are places in a queue and sent from the queue in the background, allowing you to continue working while the emails and their attached files are sent. The queue contents are saved when you exit Temprecord, and sending of the queued items resumes when Temprecord is next started.

Once an email has been sent, it remains in the queue until it is past a certain age, after which time it is removed.

Event Log

Temprecord records significant events and writes them to an event log. Such events as starting and exiting Temprecord, sending email attachments etc. are logged.

You can quickly toggle the display of the extra information tabs with the Ctrl-I key.

7.20 Refrigeration Index Graph View

Temprecord for Windows can also calculate and display RI (Refrigeration Index) statistics. To enable this facility, click on Options/Statistics, and make sure Show Refrigeration Index Statistics is checked. The RI statistics are calculated between the start and end samples only. Remember that if a file has just been loaded the start sample is set to the first sample and the end sample to the last sample.

The RI value is calculated for each sample and is cumulative. If the temperature falls below 7.0 degrees C the RI value at this point is reported. The RI value is also reported at the end sample, regardless of whether the 7.0 degree C temperature was reached.

The time interval taken for the temperature to fall to 7.0 degrees C is also reported in the statistics view.

The RI value displayed is a logarithmic value, and represents the base 10 log of the number of generation increases over the time period.

The Y axis for the refrigeration index is shown on the right-hand edge of the graph view. It is always scaled so that the trace occupies the whole graph.

You can change the colours of the refrigeration index graticule and trace in options.

See Also

Refrigeration Index in Statistics View
Options

8 Options Menu

The Options menu allows you to alter the settings that affect how Temprecord behaves, and customize Temprecord to suit your own preferences.

- How the Options work
- General Options
- COM Port Options
- File Saving Options
- Summary Options
- Values Options
- Statistics Options
- Graph Options
- View Options
- Printing Options
- Export Options
- Default Options
- Email Options
- Language Options
- Comment Labels Options
- Web Options
- Auto Mode Options

8.1 How the Options work

The Options Menu consists of several tabbed ‘pages’. There are tabs for the following options:

- Summary View
- Values View
- Statistics View
- Graph View
- Printing
- Export
- Default Parameters
- Language
- General Preferences

- Comment Labels Options
- Web Options
- Auto Mode Options

You can select any one of the pages by clicking on the name of the page. You can make changes to any of the fields on any page. When you click on '**OK'**, each page is checked and if an error is found, that page will be displayed.

If you click on '**Cancel'**, the Options pages will close and no changes will be made.

Any changes you make are remembered the next time you start Temprecord. If you are running Temprecord on a network, you can install Temprecord so that each network user has their own set of options. See Installing Temprecord on Networks for more information.

8.2 Font Dialog

Select the font you wish to use to print or display text with.

- If you are selecting the font for the summary view, statistics view, or values view, only the fixed (non-proportional) fonts available are displayed.
- If you are selecting the font for the graph view, you can choose from any of the screen fonts installed on your computer.
- If you are selecting the font for the printed report text, you can choose from any of the fixed (non-proportional) printer fonts installed on your computer.
- If you are selecting the font for the printed report graph axis annotation, you can choose from any of the printer fonts installed on your computer.

To use the new font you have selected, Click on the 'OK' button.

8.3 General Options

Use the Options/General page to set general preferences for Temprecord operation.

Prompt Before Starting

Check this option if you want Temprecord to confirm with you that you wish the logger to be started. If this option is not checked, then using the Program/Start Logger function will start the logger without any warning being displayed first

Prompt Before Stopping

Check this option if you want Temprecord to confirm with you that you wish the logger to be stopped. If this option is not checked, then using the Program/Stop Logger function will stop the logger without any warning being displayed first

Prompt Before Reusing

Check this option if you want Temprecord to confirm with you that you wish the logger to be reused.

If this option is not checked, then using the Program/Reuse Logger function will reuse the logger without any warning being displayed first

Prompt Before Exiting Temprecord

Check this option if you want Temprecord to confirm with you that you wish to exit the Temprecord program. If this option is not checked, then using the File/Exit Temprecord function will close the Temprecord program without any warning being displayed first

If you have read a logger and not yet saved the data to a file, or edited the comment fieldsbut not yet saved the file, you will still be given the opportunity to do this.

Prompt Before Overwriting TR Files

Check this option if you want Temprecord to confirm with you before an existing Temprecord data file (a .TR file) is overwritten. If this option is not checked, any existing file of the same name will be replaced without warning.

Prompt Before Overwriting Export Files

Check this option if you want Temprecord to confirm with you before an existing Temprecord exported file is overwritten. If this option is not checked, any existing file of the same name will be replaced without warning.

Prompt for Export Filename

Check this option if you want Temprecord to prompt you for the name of the file to be exported. If this option is not checked, Temprecord chooses a filename based on the Temprecord data filename (or the logger serial number if the logger data has been read but not yet saved as a file) and appends the ASCII filetype specified in the Export Options.

Check for Logger on Startup

Check this option if you want Temprecord to check for a logger when it first starts. If a logger is found, the summary data will be read and a window opened with the summary data displayed. If this option is not check, no attempt is made to check for a logger on startup. You can still check for a logger by pressing the spacebar or using the File/Query Logger function.

Bluetooth Compatibility

It is possible to access Temprecord loggers over a Bluetooth interface. If your computer is fitted with a Bluetooth-to-serial adapter, and you select this COM port with Temprecord, you will be able to access a logger connected to another Bluetooth-to-serial adapter. Because of the timing uncertainties of a Bluetooth connection, Temprecord needs to make changes to the way it communicates with the logger. Setting this option will ensure that the communication is reliable.

Consult the documentation for the Bluetooth-to-serial adapter for details on configuration.

Fast Download

This option was present in previous versions of Temprecord, but is not available under 32-bit Windows platforms. Faster download is automatically available on Mk3a loggers (firmware version 2.14 and above).

8.4 COM Port Options

Use the Options/COM Port page to set the COM port you want Temprecord to use. Most older computers usually have at least two, and sometimes up to four COM ports available. Newer computers may have one COM port.

If your computer is newer and has no available COM port, you can use a USB to serial adapter.

Use This COM Port

Select this option if your computer is fitted with standard COM ports, and/or you know the COM port your Temprecord reader will be connected to. Choose the COM port from the drop down list (COM1 through COM255).

Look for USB Reader

Select this option if you have a Reader with a USB connector. Temprecord will then look for the reader on the USB bus and find out what COM port it has been assigned to, and set that as the COM port. If Temprecord is unable to find a compatible USB device, when trying to open the port, it will use the COM port selected in **Use this COM Port** above.

If you experience difficulties, you can still select **Use this COM Port**, select a specific COM port from the drop-down list and force Temprecord to use that COM port, even if you are using a USB-based COM port or reader.

Users with some older computer systems may experience difficulty with selection of the COM Port. See the topic COM Port Conflicts for more information.

8.5 File Saving Options

IMPORTANT. The discussion below is necessarily detailed. TRW has a powerful filename and folder naming facility that enables you to avoid virtually all of the drudgery and possibility of errors when naming your data and report files. The good news is that we have arranged it so that the installation defaults will most likely suit your needs. If you are feeling adventurous, you can play with these settings, but in the first instance, the existing installed settings should be fine.

Introduction

The basic idea behind formatted file and folder names is that you can give your data and report files names which convey information about when the file was created, and what logger it came from. You can similarly store the files in folders that are organized by date or by logger serial number. Finally, you can incorporate a unique sequence number into the filenames.

See also:

Default TR Filename
Folder for .TR Files
Default PDF Filename
Folder for .PDF Files
Using the File and Folder Templates

When are default filename and folders used?

8.5.1 Using the File and Folder Templates

Under some circumstances when you save data and report files, Temprecord creates it's own name for the file, and chooses a folder to save the file to. These circumstances are:

- when Temprecord data files are saved from an Auto Mode operation.
- when the option is selected to create a PDF report from the Print dialog.
- when the option is selected to send a PDF report as an email attachment file.

In addition, when you read data from a logger and save it to a file, the initial name chosen when the save dialog displays is derived from the default TR filename.

Temprecord provides the ability to generate file names and folder names based on the date the data was read from the logger, the logger serial number, the name of the currently logged in user, and a unique sequence number that is increased by 1 each time it is used.

The format of these file and folder names is determined by templates which you can specify and alter. When Temprecord is installed, these are set to sensible defaults, but your situation may call for a different file and older naming convention, in which case you can modify them.

The most common use of this option is to provide filenames and/or folder names that identify the the logger serial number, date and time a logger was read, or the name of the operator using the computer at the time.

The following table shows how each of the special characters is used. Any other character or character group not shown in the table below is used unchanged in the file or folder name, i.e it is not converted into some other collection of characters.

c	Displays the date using the format given by the Windows short date format, followed by the time using the format given by the Windows long time format, as specified for that computer in Windows Control Panel. The time is not displayed if the date-time value indicates midnight precisely.
d	Displays the day as a number without a leading zero (1-31).
dd	Displays the day as a number with a leading zero (01-31).
ddd	Displays the day as an abbreviation (Sun-Sat).
dddd	Displays the day as a full name (Sunday-Saturday).
ddddd	Displays the date using the format given by the Windows short date format.
dddddd	Displays the date using the format given by the Windows long date format
e	Displays the year in the current period/era as a number without a leading zero (Japanese, Korean and Taiwanese locales only).
ee	Displays the year in the current period/era as a number with a leading zero (Japanese, Korean and Taiwanese locales only).
g	Displays the period/era as an abbreviation (Japanese and Taiwanese locales only).
gg	Displays the period/era as a full name. (Japanese and Taiwanese locales only).
m	Displays the month as a number without a leading zero (1-12). If the m specifier immediately follows an h or hh specifier, the minute rather than the month is displayed.
mm	Displays the month as a number with a leading zero (01-12). If the mm specifier immediately follows an h or hh specifier, the minute rather than the month is displayed.
mmm	Displays the month as an abbreviation (Jan-Dec).

mmmm	Displays the month as a full name (January-December).
yy	Displays the year as a two-digit number (00-99).
yyyy	Displays the year as a four-digit number (0000-9999).
h	Displays the hour without a leading zero (0-23).
hh	Displays the hour with a leading zero (00-23).
n	Displays the minute without a leading zero (0-59).
nn	Displays the minute with a leading zero (00-59).
s	Displays the second without a leading zero (0-59).
ss	Displays the second with a leading zero (00-59).
z	Displays the millisecond without a leading zero (0-999).
zzz	Displays the millisecond with a leading zero (000-999).
t	Displays the time using the format given by the short time format.
L	Displays the Logger serial number.
U	Displays the currently logged in Windows user
#	Displays a unique sequence number (see below)**.**

If you don't want Temprecord to use these date formatting rules on the file or folder name you specify, enclose the entire template in double quotes (**"**... **"**).

Note that the specifier for "minutes" is "n" (not "m", which means "months").

Examples

Here are some examples of the filenames generated:

Filename Format Specified	Filename Generated	Feature Demonstrated
"data"	data.TR	No formatting
L	S1234567.TR	Logger serial number in filename
"User" U "Logger" L	User Joe Bloggs Logger S1234567.TR	Logged-in user and logger serial number in filename
mmm dd yyyy L	Jan 31 2007 S1234567.TR	Date and logger serial number in filename
mmm dd yyyy hh-mm	Jan 31 2007 12-34.TR	Date and time in filename
"Saved" dd mmm yy-#	Saved 31 Jan 07-678.TR	Date and sequence number in filename

The same rules apply to the folder specifiers, and you can include path delimiters ("backslashes") in the specifier. Some examples:

Folder Format Specified	Folder Name Generated	Feature Demonstrated
"My data\"	My Data\	No formatting
"My Data\"yyyy\mmm\	My Data\2009\Jun\	Folder tree organized by year, then month
"Files from logger "L	Files from Logger S1234567\	Logger serial number in folder name
"TR Files\"U	TR Files\Joe Bloggs\	Logged-in user in folder name
mmm dd yyyy L	Jan 31 2007 S1234567\	Date and logger serial number in folder name
mmm dd yyyy hh-mm	Jan 31 2007 12-34\	Date and time in folder name

See also:

Default TR Filename
Folder for .TR Files
Default PDF Filename
Folder for .PDF Files
When are default filename and folders used?

8.5.2 When are default filename and folders used?

Temprecord has several rules it uses when saving TR data files and PDF report files.

Manually Saving a TR Data File

When you read data from a logger and try to save it, a save file dialog will display. The initial name chosen for the filename is determined by the Default TR Filename. You can change the proposed filename at this point. The destination folder defaults at installation to **C:\Documents and Settings\Joe Bloggs\My Documents\My Temprecord Files**. If you change the destination folder in the save dialog, Temprecord remembers the new folder from then on.

Manually Saving a PDF Report File

When you try to save a logger's data manually to a PDF file, if the data has already been saved to a TR data file, the initial name chosen for the PDF file is the name of the TR data file, but with a PDF extension You can change the proposed filename at this point. The destination folder defaults at installation to **C:\Documents and Settings\Joe Bloggs\My Documents\My Temprecord Files\pdf**. If you change the destination folder in the save dialog, Temprecord remembers the folder for you, independently of the folder it last saved a TR data file to.

When you try to save a logger's data manually to a PDF file, and the data has not already been saved to a TR data file, you will be prompted to save the TR data file first. The initial name chosen for the PDF file is the name of the TR data file, but with a PDF extension You can change the proposed filename at this point. The destination folder defaults at installation to **C:\Documents and Settings\Joe Bloggs\My Documents\My Temprecord Files\pdf**. If you change the destination folder in the save dialog, Temprecord remembers the new folder for you, independently of the folder it last saved a TR data file to.

Auto-Saving a TR Data File

When you save a TR data file from Auto Mode, Temprecord will never prompt you for the filename. Instead, it always uses the Default TR Filename format specifier to construct the filename, and the Folder for .TR Files to determine the folder the file is store in. Also, you will never be prompted if an existing file is about to be overwritten. It is important therefore that you arrange for these specifiers to always produce a unique filename.

Auto-Saving a PDF Report File

When you save a PDF report file from , Temprecord will never prompt you for the filename. Instead, it always uses the Default PDF Filename format specifier to construct the filename, and the Folder for .PDF Files to determine the folder the file is store in. Also, you will never be prompted if an existing PDF file is about to be overwritten. It is important therefore that you arrange for these specifiers to always produce a unique filename.

Emailing TR Data Files From Auto Mode

Temprecord always automatically saves TR data files or PDF report files before emailing them in Auto Mode. The TR data files are saved according to the Default TR Filename and the Folder for .TR Files. The PDF report files are saved according to the Default PDF Filename and the Folder for .PDF Files. Temprecord then makes temporary copies of the files and generates attachments for the email. After the email has been sent the temporary files are deleted.

Take care with formatted filenames and folders. If careful attention is not paid to how they are used, one can unintentionally create a myriad of strangely-named files and folders!

See also:

Auto Mode
Default TR Filename
Folder for .TR Files
Default PDF Filename
Folder for .PDF Files
Using the File and Folder Templates
[****]

8.5.3 Default TR Filename

Default TR Filename

The default TR filename determines the form of the initial filename TRW chooses when the data from a logger is saved to a TR file. It is important to note that what is specified here is a template for the filename, and the actual filename will not usually be the same as what you enter here (though it can be if you want). When TRW chooses the filename, it uses the default filename template, but treats several characters as having special meaning. For example, the character **L** means "the logger serial number", and the characters **yyyy** mean "the current year".

For a detailed discussion and examples of the way file and folder formatting characters work, see the topic Using the File and Folder Templates.

If you want to have characters in the filename but don't want them to be interpreted by the above rules, they must be enclosed in double-quotes ("..."), thus to use a filename of **My Logger.tr**, you must enclose the filename in quotes, thus: **"My Logger.tr"**.

You do not need to specify the file extension (.TR for Temprecord data files). If you want a different extension you can enter it. Note also that you cannot use the characters "**:**" (colon), "**/**" (slash) and "****" (backslash) in your filename. If TRW finds any characters that are not valid in a filename, it will replace them with underscores ("_"). If you want to specify a path as well as a filename, use the Folder for TR files option (see below). If TRW finds a path component specified in the default filename, it will be ignored.

The panel below the **Default TR Filename** field shows you what filename would be used for the given file name format specifier. As you type your filename format specifier the filename sample is updated.

The installation default specifier for the default TR filename is **L YYYY-MM-DD hh-nn-ss**. This means that the default filename for a datafile read from logger S1234567 at 12:34:56 on the 1st of June, 2009 would be **S1234567 2009-06-01 12-34-56.tr**. Note that the **.tr** extension is added automatically. If you want a different extension, you should enter it as part of the format specifier. For example a specifier of **L YYYY-MM-DD hh-nn-ss".dat"** would result in a filename with the extension **.dat**. Note that the extension characters are surrounded by double quote characters (**"..."**) to prevent them being interpreted as formatting instructions. See the topic When are default filename and folders used? for more information.

Take care with formatted filenames and folders. If careful attention is not paid to how they are used, one can unintentionally create a myriad of strangely-named files and folders!

See also:

Folder for .TR Files
Default PDF Filename
Folder for .PDF Files
Using the File and Folder Templates
When are default filename and folders used?

8.5.4 Folder for .TR Files

Folder for .TR Files

Enter the folder name or path where you want to save your data files. Whatever filename entered in the **Default TR Filename field** is appended to this folder name. The folder name specified can be used directly if it is enclosed in double quotes ("..."), or it can be treated as a format template using the same rules as for the default TR filename. See the topic Using the File and Folder Templates for more information.

If you wish to save the files in a date-organized tree of folders the path should be specified here. You can also use the specifiers for the logger serial number, and the sequence number in this field.

The panel below the **Folder to save files to** field shows you what folder would be used for the given file name format specifier. As you type your folder format specifier the folder sample is updated.

Sometimes the folder name generated by the formatting is too long to fit in the display panel underneath each field. In this case Temprecord shortens the displayed path name so that the start and end characters are displayed, and a portion of the middle part is replaced by an ellipsis (...). If you want to see the whole pathname, move the cursor over the sample panel and a hint will display with the full pathname.

The installation default specifier for the default folder for .TR files is a blank string. This is a special case that places the TR data files in folder **C:\Documents and Settings\Joe Bloggs\My Documents\My Temprecord Files**. If you were to enter a specifier of **"Joes Files"**, the TR data files would be saved in folder **C:\Documents and Settings\Joe Bloggs\My Documents\My Temprecord Files\Joes Files**. Note that the specifier is surrounded by double quote characters ("...") to prevent it being interpreted as formatting instructions. If Instead Joe wanted to store his files organized by month, he could enter as the specifier **"Joes Files for "mmmm yyyy**. In this case the TR data files would be saved in folder **C:\Documents and Settings\Joe Bloggs\My Documents \My Temprecord Files\Joes Files for June 2009** for any logger he read in that month, Joes Files for July 2009 in the next month and so on. See the topic When are default filename and folders used? for more information.

When specifying the folder name used to save files, if you don't specify a path that starts with an absolute pathname (one that includes a disk specifier such as C: or \ \Server\, Temprecord assumes a path starting from your Temprecord data files folder

(normally C:\Documents and Settings\Joe Bloggs\My Documents\My Temprecord Files\ ).

Take care with formatted filenames and folders. If careful attention is not paid to how they are used, one can unintentionally create a myriad of strangely-named files and folders!

See also:

Default TR Filename
Default PDF Filename
Folder for .PDF Files
Using the File and Folder Templates
When are default filename and folders used?

8.5.5 Default PDF Filename

Default PDF Filename

The default PDF filename determines the form of the initial filename TRW chooses when How do I use the formatted file and folder names?the data from a logger is saved to a TR file. It is important to note that what is specified here is a template for the filename, and the actual filename will not usually be the same as what you enter here (though it can be). When TRW chooses the filename, it uses the default filename template, but treats several characters as having special meaning. For example, the character L means "the logger serial number", and the characters yyyy mean "the current year".

For a detailed discussion and examples of the way file and folder formatting characters work, see the topic Using the File and Folder Templates.

If you want to have characters in the filename but don't want them to be interpreted by the above rules, they must be enclosed in double-quotes ("..."), thus to use a filename of **My Report.pdf**, you must enclose the filename in quotes, thus: **"My Report.pdf"**.

You do not need to specify the file extension (.pdf). If you leave the extension off, ".pdf" is appended to any filename generated. If you want a different extension you can enter it. Note also that you cannot use the characters "**:**" (colon), "**/**" (slash) and "**** " (backslash) in your filename. If TRW finds any characters that are not valid in a filename, it will replace them with underscores ("_"). If you want to specify a path as well as a filename, use the Folder for PDF files option (see below). If TRW finds a path component specified in the default PDF filename, it will be ignored.

The panel below the **Default PDF Filename** field shows you what filename would be used for the given file name format specifier.

The installation default specifier for the default PDF filename is **L YYYY-MM-DD hh-nn-ss**. This means that the default filename for a report printed from the data for logger S1234567 read at 12:34:56 on the 1st of June, 2009 would be **S1234567 2009-06-01 12-34-56.pdf**. Note that the .pdf extension is added automatically. If you want a different extension, you should enter it as part of the format specifier. For example a specifier of **L YYYY-MM-DD hh-nn-ss".rep"** would result in a filename with the extension **.rep**. Note that the extension characters are surrounded by double quote characters ("...") to prevent them being interpreted as formatting instructions. See the topic When are default filename and folders used? for more information.

Take care with formatted filenames and folders. If careful attention is not paid to how they are used, one can unintentionally create a myriad of strangely-named files and folders!

See also:

Default TR Filename
Folder for .TR Files
Folder for .PDF Files
Using the File and Folder Templates
When are default filename and folders used?

8.5.6 Folder for .PDF Files

Folder for .PDF Files

Enter the folder name or path where you want to save your data files. Whatever filename entered in the **Default TR Filename field** is appended to this folder name. The folder name specified can be used directly if it is enclosed in double quotes ("..."), or it can be treated as a format template using the same rules as for the default TR filename. See the topic Using the File and Folder Templates for more information.

If you wish to save the files in a date-organized tree of folders the path should be specified here. You can also use the specifiers for the logger serial number, and the sequence number in this field.

When specifying the folder name used to save files, if you don't specify a path that starts with an absolute pathname (one that includes a disk specifier such as **C:** or **\\Server**, Temprecord assumes a path starting from your Temprecord data files folder (normally **C:\Documents and Settings\Joe Bloggs\My Documents\My Temprecord Files**).

The panel below the **Folder to save files to** field shows you what folder would be used for the given folder name format specifier.

Sometimes the folder name generated by the formatting is too long to fit in the display panel underneath each field. In this case Temprecord shortens the displayed path name so that the start and end characters are displayed, and a portion of the middle part is replaced by an ellipsis (...). If you want to see the whole pathname, move the cursor over the sample panel and a hint will display with the full pathname.

The installation default specifier for the default folder for .PDF files is **"pdf"**. This places and PDF files in folder **C:\Documents and Settings\Joe Bloggs\My Documents\My Temprecord Files\pdf**. If you were to enter a specifier of **"pdf\Joes Reports"**, the PDF report files would be saved in folder **C:\Documents and Settings\Joe Bloggs\My Documents\My Temprecord Files\pdf\Joes Reports**. Note that the specifier is surrounded by double quote characters ("...") to prevent it being interpreted as formatting instructions. If Instead Joe wanted to store his reports organized by month, he could enter as the specifier **"pdf\Joes Reports for "mmmm yyyy**. In this case the PDF report files would be saved in folder **C:\Documents and Settings\Joe Bloggs\My Documents\My Temprecord Files\pdf\Joes Reports for June 2009** for any logger he read in that month, **Joes Reports for July 2009** in the next month and so on. See the topic When are default filename and folders used? for more information.

Take care with formatted filenames and folders. If careful attention is not paid to how they are used, one can unintentionally create a myriad of strangely-named files and folders!

See also:

Default TR Filename
Folder for .TR Files
Default PDF Filename
Using the File and Folder Templates
When are default filename and folders used?

8.6 Summary View Options

Use the **'Summary'** tab of the options form to change the way the summary view is displayed.

Font

Use the **'Font'** button to change the font Temprecord uses for the text in the summary view. You can only choose from the fixed spacing fonts installed on your computer. Proportional fonts are not available for the summary display.

Annotation Color

Use the '**Annotation Color**' button to change the color used when displaying the annotation text - i.e. the text on the left of the window that is the same each time.

Data Color

Use the '**Data Color**' button to change the color used when displaying the summary data text - i.e. the text on the right of the window that changes for each file or logger that is read.

As an example, if you select blue as the annotation color and red as the data color, your summary text would look like this:

```
Logger Type    : scientific
Serial Number  :   00001766
```

Be careful when changing these colors. If you select a color that is the same as the background of the window, any text displayed in that color will be invisible

!

See also:

Show **Mon-T** - specific settings
Values view options
Statistics view options
Graph view options

8.7 Show Mon-T - specific settings

Enable this option if you want to be able to set the Minimum Temperature, Resolution, or Logger Units of **Mon-T** loggers when programming the parameters. This option also displays those parameters on the summary display when enabled.

See also:
Programming **Mon-T** parameters

8.8 Values View Options

Use the 'Values' tab of the options form to change the way the values view is displayed.

Auto-wrap Columns

If you want Temprecord to display only as many values as will fit across the window, then '**Auto-wrap columns**' should be checked. If you want Temprecord to display a fixed number of columns across the window, whether they would fit or not, the '**Auto-wrap columns**' should be unchecked. You can then change the number of columns in the **'Columns'** field. This option is useful when you wish each line of values to correspond to a particular time interval. If you specify a sample period of 5 minutes for example, and you set the number of columns to 12, then each line will contain 1 hours worth of samples.

Columns

The columns option sets the number of columns displayed across the window. This option is useful when you wish each line of values to correspond to a particular time interval. If you specify a sample period of 5 minutes for example, and you set the number of columns to 12, then each line will contain 1 hours worth of samples.

If you specify more columns here than will fit across the Temprecord data window, not all of the temperature values will display. If you want all temperature values to be visible, make sure the '**Auto-wrap columns**' option is on.

Font

Use the '**Font**' button to change the font Temprecord uses for the text in the values view. You can only choose from the fixed spacing fonts installed on your computer. Proportional fonts are not available for the values display.

Date/Time Color

Use the '**Date/Time Color**' button to change the color used when displaying the date and time text in the values view window.

Above Limits Color

Use the '**Above Limits Color**' button to change the color used when displaying those samples that exceed the upper limit. If you do not want these samples to appear differently from the other samples, choose the same color as the '**In Range**' color.

If you have Total Temperature Value statistics display enabled, this color is used if the temperature of that sample exceeds the temperature for that TTV period.

In Range Color

Use the '**In Range Color**' button to change the color used when displaying those samples that are between the lower and upper limits.

Below Limits Color

Use the '**Below Limits Color**' button to change the color used when displaying those samples that are below the lower limit. If you do not want these samples to appear differently from the other samples, choose the same color as the '**In Range**' color.

There are separate colors defined for both temperature and humidity values.

If you have Total Temperature Value statistics display enabled, this color is used if the temperature of that sample is less than the temperature for that TTV period.

Marker Samples Color

Use the '**Marker Samples Color**' button to change the color used when displaying those samples that have user markers associated with them. If you do not want these samples to appear differently from the other samples, choose the same color as the 'In Range' color.

Be careful when changing these colors. If you select a color that is the same as the background of the window, any text displayed in that color will be invisible!

See also:
- Summary view options
- Statistics view options
- Graph view options

8.9 Statistics View Options

Use the '**Statistics**' tab of the options form to change the way the statistics view is displayed.

Show General Statistics

If this option is checked, the general statistics (minimum, maximum, mean of samples, time spent inside and outside limits) are shown in the display and the printed reports. In addition, if the start sample is not set to the first sample or the end sample is not set to the last sample, the statistics are also shown for the samples between the start and end samples.

PHI (Process Hygiene Index) Growth statistics

Shows the bacterial growth information in the displayed and printed statistics

Product Integrity Profile

Product Integrity Profile is a means of determining how effective refrigeration of a shipment has been. When enabled, the graph is annotated with the times taken to reach key points such as the minimum temperature, and transitions of the upper and lower limits. The duration taken is also displayed. The statistics view also shows a

report from this data.

Blood Cooling Alerts

When the blood cooling alert function is enabled, the graph shows a flag when the temperature has risen a certain amount above the minimum. This maximum temperature rise can be specified.

Show MKT Statistics

Check this box if you want the Mean Kinetic Temperature (MKT) statistics to be displayed and printed as well as the normal statistical data.

This option must be checked in order for MKT statistics to be graphed, printed, or exported.

MKT Options - Delta H value

Enter the value of Delta-H or activation energy for your product. The nominal value used for this is 83.14472 kJ/mol , which is suitable for most materials. The calculated value of MKT varies with the activation energy entered here, but the variation is not great and you should not need to alter this parameter. If you require very accurate MKT calculations, the value of Delta-H should be determined for your monitored commodity. The activation energy for a particular commodity can be determined by a procedure known as differential scanning calorimetry (DSC) analysis.

Font

Use the '**Font**' button to change the font Temprecord uses for the text in the statistics view. You can only choose from the fixed spacing fonts installed on your computer. Proportional fonts are not available for the statistics display.

Annotation Color

Use the '**Annotation Color**' button to change the color used when displaying the annotation text - i.e. the text on the left of the window that is the same each time.

Data Color

Use the '**Data Color**' button to change the color used when displaying the statistics data text - i.e. the text on the right of the window that changes for each file or logger that is read.

As an example, if you select blue as the annotation color and red as the data color, your statistics text would look like this:

```
Mean                : 20.71
Maximum             : 24.53
Minimum             : 19.43
```

Be careful when changing these colors. If you select a color that is the same as the background of the window, any text displayed in that color will be invisible!

See also:
TTV statistics options
Refrigeration index statistics options
Rate of cooling statistics options
Summary view options
Values view options
Graph view options
Printing OptionsExport OptionsTotal Temperature Value (TTV)
Process Hygiene Index
Mean Kinetic Temperature
Refrigeration Index

8.10 Graph View Options

Use the '**Graph**' tab of the options form to change the way the graph view is displayed, and to set the axes values used for the zoom preset function.

Font

Use the '**Font**' button to change the font Temprecord uses to display the axis annotation (the date and time on the horizontal axis and the temperature on the vertical axis). You can choose from any of the fonts installed on your computer.

Above Limits Color

Use the '**Above Limits Color**' button to change the color used when displaying that part of the temperature trace that exceeds the Upper limit. If you do not want the trace to appear differently from that part of the trace that is within the limits, choose the same color as the '**In Range**' color. The color you choose here is also used to display the upper limit horizontal line.`

In Range Color

Use the '**In Range Color**' button to change the color used when displaying that part of the temperature trace that is between the Lower and Upper limits.

Below Limits Color

Use the '**Below Limits Color**' button to change the color used when displaying those samples that are below the Lower limit. If you do not want the trace to appear differently from that part of the trace that is within the limits, choose the same color as the '**In Range**' color. The color you choose here is also used to display the lower limit horizontal line.

There are separate colors defined for both temperature and humidity values.

If **Show Limits** is checked, and **Show TTV Limits** is not checked, the trace will display in the 'above limit's color when the temperature is above the upper limit, and in the 'below limit's color when the temperature is below the lower limit. Otherwise, the trace will display in the 'in range's color

If **Show TTV Limits** is checked the trace will display in the 'above limit's color when the temperature is above the upper limit for the TTV period for that sample, and in the 'below limit's color when the temperature is below the lower limit for the TTV period of that sample. Otherwise, (if the temperature is in range for that TTV period, or the sample is prior to the first TTV period or past the last TTV period) the trace will display in the 'in range's color. Note that you must also have **Show TTV Statistics** checked for this to display.

Be careful when changing these colors. If you select a color that is the same as the background of the window, any part of the trace displayed in that color will be invisible

Axis Color

Use the '**Axis Color**' button to change the color used when displaying axis annotation (the time and date, and temperature values displayed along the left-hand and bottom edge of the graph).

Graticule Color

Use the '**Graticule Color**' button to change the color used when displaying the graticule lines on the graph.

Cursor Color

Use the '**Cursor Color**' button to change the color used when displaying the graph cursor.

See also:

Zoom and presets options
Copy to clipboard, Excel Options
Summary view options
Values view options
Statistics view options
Using the Zoom Presets
Printing OptionsExport OptionsTotal Temperature Value (TTV)

8.10.1 Zoom and presets options

Preset Zoom X Axis

These fields set the date and time span that the X axis will be set to when the Zoom Window to Presets function is used. The 'From' date and time fields determine the date at the left-hand side of the graph, and the 'Until' fields determine the date and time at the right-hand side.

The preset zoom X values are not used unless the '**Enable**' box is checked. If you want to zoom two or more traces to the same Y (temperature) span, but do not want to alter the X axis (time) settings, make sure this box is unchecked before you use the Zoom Window to Presets function.

Preset Zoom Y Axis

These fields set the temperature span that the Y axis will be set to when the Zoom Window to Presets function is used. The '**Upper Temperature**' field determines the temperature at the top of the graph, and the '**Lower Temperature**' field determines the temperature at the bottom.

The preset zoom Y values are not used unless the '**Enable**' box is checked. If you want to zoom two or more traces to the same X (time and date) span, but do not want to alter the Y axis (temperature) settings, make sure this box is unchecked before you use the Zoom Window to Presets function.

If you want the graph to be printed to the same settings as the displayed window, make sure the '**Print Visible Window**' printing option is selected

See the topic Using the Zoom Presets for more information.

8.10.2 Copy to clipboard, Excel Options

Include date in copied data

Check this option if you wish the date and time to be copied to the clipboard or the Excel when the Copy to Clipboard or Copy to Spreadsheet functions are used. The date and time are formatted according to the local Control Panel settings for the display of date and time.r

Prompt for spreadsheet filename

Check this option if you wish to be prompted for the spreadsheet (.XLS file) name when the Copy to Spreadsheet function is used. If this option is not checked, Temprecord will derive a name based on the current TR data filename or if the current logger data has not yet been saved to a file, based on the settings for the default filename.

Prompt before overwriting spreadsheet

Check this option if you wish Temprecord to prompt you when the spreadsheet file being saved already exists. If this option is clear, an existing file of the same name will be overwritten with no warning.

Open spreadsheet after copy

Check this option if you wish Temprecord to open the data saved to a spreadsheet with Excel after the save is completed. Microsoft Excel must be installed on the machine.

8.11 View Options

The View options allow you to control what is displayed when Temprecord displays or prints the graph view or statistics. If an option is enabled, the corresponding parameter will be shown on the graph, on the printed graph, and in the statistics report if relevant.

TTV (Total Temperature Value) statistics

Shows the TTV information on the displayed and printed graph, and in the statistics.

This option also affects the display of temperature values (values view mode). If **Show TTV limits** is enabled (and **Show TTV statistics** is also enabled), the TTV limits for the current TTV period determine the color used for the values, rather than the lower and upper limits.

Brief TTV Only

Shows the TTV information in an abbreviated form.

PHI (Process Hygiene Index) Growth statistics

Shows the bacterial growth information in the displayed and printed statistics

ROC (Rate of Cooling) statistics

Shows the rate of cooling information on the displayed and printed graph and statistics.

RI (Refrigeration Index) Statistics

Shows the refrigeration index data on the displayed and printed graph and statistics. On the graph, the RI value is shown as a separate trace with values indicated on the right-hand axis. The RI value is calculated from the start sample until the end sample.

Blood Cooling Alerts

When the blood cooling alert function is enabled, the graph shows a flag when the temperature has risen a certain amount above the minimum. This maximum temperature rise can be specified.

MKT (Mean Kinetic Temperature) Statistics

When MKT is enabled, the graph will show the value of the mean kinetic temperature as a dotted horizontal line.

Product Integrity Profile

Product Integrity Profile is a means of determining how effective refrigeration of a shipment has been. When enabled, the graph is annotated with the times taken to reach key points such as the minimum temperature, and transitions of the upper and lower limits. The duration taken is also displayed. The statistics view also shows a report from this data.

Upper and lower limits

When enabled, the lower and upper limits are shown on the graph as horizontal dotted lines.

Minimum and maximum flags

When enabled, flags display to indicate the minimum and maximum value samples between the start and end samples. If a logger has just been read or a file just opened, the start and end samples are set to the first and last samples respectively. The minimum sample is shown on the graph with the flag symbol and the maximum sample is shown on the graph with the flag symbol.

Start and end flags

When enabled, the start and end samples are marked with flags. The start sample is shown on the graph with the flag symbol and the end sample is shown on the graph with the flag symbol.

User marker flags

When enabled, any markers present in the sample record are displayed on the graph. The user marker

	samples are shown on the graph with the flag symbol.
Mean temperature	When enabled, the mean temperature of the samples between the start and end samples is shown as a dotted horizontal line.
Comment fields	When enabled, the user comment lines are shown on the printed report.

8.12 Export Options

Use the **Options/Export** page to set up the way ASCII files are saved. There are also options to determine whether you are prompted for an export filename, and whether you are prompted before an existing export file is overwritten. These options can be found with the general options.

Field Delimiter

This determines the character used to separate items on each line when the file is written. You can choose from a space, a comma, a tab character, or a semicolon. Choose whichever option suits the application that will be reading the ASCII file. If you will be importing the file into a spreadsheet such as Excel or Lotus 123, comma-separated values are normally used. If you will be importing data into a Microsoft Word table, use tabs.

ASCII Filetype

Use this option to set the default filetype used when the temperature data is written to a file.

Columns

Use this option to specify how many columns are written to the ASCII file. If this value is set to 1, the file will consist of a single column of values, one per line. If you do not want any line breaks in your file, set this to 99999.

Averaging

Use this option to specify how many samples are averaged before a value is written to the ASCII file. If this field is set to 1, no averaging is performed, and the 'raw' temperature values are written to the file. If this field is set to (say) 10, then a set of 10 temperatures is averaged and the mean value written to the file. In this case, there would be one tenth the number of values in the file as there were samples.

Date Format

Use this option to specify how the date is written to the ASCII file, if at all. The format chosen will depend on how your application requires date and time information to be formatted.

- '**No date**' specifies that no time or date information is to be written. The temperature values will be written to the file without any preceding time and date information.
- '**Use local setting**' specifies that the date and time are to be written in the format as selected with the 'International' settings in Windows' Control Panel.
- '**MM:SS**' specifies that the time is written in that format, e.g. **12:34**. The date is not written.
- '**HH:MM:SS**' specifies that the time is written in that format, e.g. **11:12:34**. The date is not written.
- '**Seconds since 1980**' specifies that the time and date are written as an integer being the

number of seconds that have passed since midnight on January 1, 1980.

- '**Days since 1900**' specifies that the time and date are written as an floating point value being the number of days that have passed since midnight on January 1, 1900. The integer part of this value gives the number of days, the fractional part gives the time as a fraction of a day. This format is normally the one most suitable for exporting data to spreadsheets such as Microsoft Excel or Lotus 123.

Quoted Text

Check this option if you want all text in written annotation to be surrounded by quotes. Some applications require that text be differentiated from numerical data in this way when they import data.

Summary

Check this option if you want the summary written to the ASCII file as well. The summary includes information such as the user data, the comment fields and their associated labels, the number of samples etc.

Values

Check this option if you want the individual sample values to be exported. If this option is checked, the sample values corresponding to the specified sample range are written to the file.

Turn this option off if you want the sample values and nothing else in the exported file.

Markers

Check this option if you want the those data values with associated markers to be indicated as such when they are exported. If this option is checked, those samples with associated markers will be written to the file with an appended '*****' character.

Turn this option off if the application you are using to analyse the exported data has trouble with the extra characters appended to the sample values.

General Statistics

Check this option if you want the general statistics to be exported. The statistics exported always pertain to those between the start and end samples. It is not affected by the sample range setting described below.

TTV Statistics

Check this option if you want the results of the Total Temperature Value (TTV) statistics calculations to be exported. If this option is checked, the TTV results as displayed in the statistics view are written to the export file.

Turn this option off if you do not want the TTV statistics in the exported file.

The '**Show TTV Statistics**' option (on the Statistics Options tab) must be checked in order for the TTV statistics to be exported.

When the field delimiter is set to a non-space character, extra delimiters are inserted when the TTV totals are exported. This is so that the totals will align properly with the individual TTV period data and column headers when the exported file is imported into a spreadsheet

MS Access TTV Statistics

Check this option if you want the results of the Total Temperature Value (TTV) statistics calculations to be exported in a format more suitable for importing into Microsoft Access or Microsoft Excel.. If this option is checked, the TTV results as exported as a series of rows as shown in the following example:

```
"Serial No","Sample Period","Start Sample","Start Sample DateTime","TTV Period","Periods
Specified","Periods Shown","Period Number","TTV Below","TTV Above"
"S2222849","60","1","4/03/1997 17:20:36","0.041667","5","5","1","0","186"
"S2222849","60","1","4/03/1997 17:20:36","0.041667","5","5","2","0","663"
"S2222849","60","1","4/03/1997 17:20:36","0.041667","5","5","3","10","0"
"S2222849","60","1","4/03/1997 17:20:36","0.041667","5","5","4","0","990"
"S2222849","60","1","4/03/1997 17:20:36","0.041667","5","5","5","0","861"
```

The first line is only exported if the **Include Header Row** option is checked. To import in MS Access you should have a table defined with field names the same as those shown above. Each line will then be imported as a single record in the table.

The '**Show TTV Statistics**' option (on the Statistics Options tab) must be checked in order for the MS Access TTV statistics to be exported, and the **Show Brief TTV Statistics** option must not be checked.

PHI Statistics

Check this option if you want the results of the PHI (Process Hygiene Index) statistics calculations to be exported. If this option is checked, the PHI results as displayed in the statistics view are written to the export file.

The '**Show Growth Statistics**' option must be checked in order for the PHI (Process Hygiene Index) statistics to be exported.

Rate of Cooling Statistics

Check this option if you want the results of the Rate of Cooling (ROC) statistics calculations to be exported. If this option is checked, the ROC results as displayed in the statistics view are written to the export file.

The '**Show Rate of Cooling Statistics**' option must be checked in order for the ROC statistics to be exported.

Sample Range

Use this option to specify what samples are written to the ASCII file. This option only has an effect when the **Values** export option is checked.

- '**Entire Record**' specifies that all samples read from the currently loaded Temprecord file or the logger are to be written to the ASCII file (or averaged and then written to the file, if **Averaging** is set to a value other than 1).
- '**Visible Window**' specifies that only those samples displayed in the current Temprecord data graph view window are to be written to the ASCII file (or averaged and then written to the file, if '**Averaging**' is set to a value other than 1).
- '**From Start to End Markers**' specifies that only those samples between the start and end samples are to be written to the ASCII file (or averaged and then written to the file, if '**Averaging**' is set to a value other than 1).

See Also:
Graph view optionsStatistics view optionsPrinting OptionsTotal Temperature Value (TTV)

8.13 Printing Options

Use the **Options/Printing** page to set up how your printed reports are formatted.

Summary

Check the '**Summary**' option if you wish the summary to be printed. The information printed is the same as that shown in the summary view window, except that there are options for independently determining whether the comment lines and user data are printed.

Comment Fields

Check the **Comment Fields** option if you wish the comment fields to be printed.

User Data Lines Printed

Specify the number of lines (zero through 6) of user data you wish to print.

Statistics

Check the '**Statistics**' option if you wish the statistical data to be printed. The information printed is the same as that shown in the statistics view window. If the start and end samples are not set to the first and last sample, two sets of statistical information are printed, one for the entire sample set, and one for the samples between the start and end markers.

If the statistics option **Show TTV statistics** is checked, the TTV (Total Temperature Value) statistics are printed also.

If the statistics option **Show Growth statistics** is checked, the PHI (Process Hygiene Index) statistics are printed also.

Values

Check the '**Values**' option if you want the sample values to be printed. The samples that are printed depend on the settings of the '**Sample Range**' below.

Be careful when using this option. Depending on the settings of the text font, the columns, and the sample range, you can generate a large amount of printout !

Graph

Check the '**Graph**' option if you want the temperature data to be shown as a graph. Temprecord can allocate anything from one quarter of the page to whole page for the graph of temperature data (see the following option '**Graph Height**'). If there is not this amount of space remaining on the page after the printing of the previous data, the graph will be printed on the next page. The samples that are printed depend on the settings of the '**Sample Range**' below.

Graph Height

Use this option to specify the height of the graph printed in the report. This option is only used if the '**Graph**' option described above is also checked. The height is specified in terms of a percentage of the available page height.

If you set the printer to Landscape orientation instead of Portrait, the graph height is measured relative to the height of the landscape page

No Color

Some monochrome printers, particularly higher-resolution laser printers, will attempt to render colored text as varying shades of gray, with the result that the text may not be readable. Check this option if you are printing on a black-and-white printer. Temprecord will not send any color information to the printer and text which is not printed in black on your display will be printed in black on the printer.

You can also use this option if you have a color printer, but do not want the printed output to be in color.

Text Font

Use the '**Text Font**' button to change the font used to print the summary, statistics, and values text in the printed report. You can only choose from the fixed spacing fonts installed on your computer. Proportional fonts are not available for printed text. By choosing a smaller font, you may be able to fit the summary and a half-page graph all on the same page.

Axis Font

Use the '**Axis Font**' button to change the font Temprecord uses to display the axis annotation (the date and time on the horizontal axis and the temperature on the vertical axis) of the printed graph. You can choose from any of the fonts installed on your computer.

Sample Range

Use this option to specify what samples are printed file. This option is only used if the '**Graph**' and/or '**Values**' options described above are also checked.

- '**Entire Record**' specifies that all samples read from the currently loaded Temprecord file or the logger are to be printed.
- '**Visible Window**' specifies that only those samples displayed in the current Temprecord data graph view window are to be printed. If this option is used, the printed graph will have the same temperature and sample span as the displayed graph view window, and the graticule positions will be the same.
- '**From Start to End Markers**' specifies that only those samples between the start and end samples are to be printed.

Auto-wrap Columns

If you want Temprecord to print only as many values as will fit across the page, then '**Auto-wrap columns**' should be checked. If you want Temprecord to print a fixed number of columns across the page, whether they would fit or not, the '**Auto-wrap columns**' should be unchecked. You can then change the number of columns in the '**Columns**' field.

Columns

The columns option sets the number of columns across the printed page when the temperature values are printed. This option is useful when you wish each line of values to correspond to a particular time interval. If you specify a sample period of 5 minutes for example, and you set the number of columns to 12, then each line will contain 1 hours worth of samples.

If you specify more columns here than will fit across the printed page, not all of the temperature values will print. If you want all temperature values to be visible, make sure the '**Auto-wrap columns**' option is on.

Print Comment Fields

If this option is checked, the comment fields are printed in the summary and displayed when summary view is selected. If this option is not checked, the comment fields are not printed.

Print Limits

If this option is checked, the lower and upper limits are printed on the graph, as bold horizontal dashed lines. You can only change this option if the '**Graph**' option above is checked.

See Also:

Graph view optionsStatistics view optionsExport OptionsTotal Temperature Value (TTV)

8.14 Parameter Defaults

Use the Options/Parameter Defaults page to set up your most common set of parameters. The fields in this page are the same as those in the Program/Parameters form, apart from the password fields. You cannot specify a default password.

Once you have set up your defaults, you can load them into the Program/Parameters form by clicking on the **Defaults** button.

The start delay default value specified here is also used whenever a logger is re-used. If you enter a value of (say) 00:02:00 in the default start delay field, the logger start delay will be set to 2 minutes when the logger is reused. You can still change it before starting the logger.

See the topic Programming a Logger's Parameters for more information about the fields on this options page.

See also:

Programming a Logger's Parameters
Mon-T Parameter Defaults

8.14.1 Mon-T Parameter Defaults

The **Mon-T** parameter defaults allow you to specify the **Mon-T** - specific parameters used when assigning default parameters in the Program Parameters dialog or when using the Load Parameters from Defaults function in Auto Mode and a **Mon-T** logger is being processed.

Don't confuse the display units with the Mon-T Logger Units. The Mon-T Logger Units determine what units are used when programming the Mon-T - specific parameters (Minimum Temperature, and Resolution). The display units determine how temperatures are displayed in the Temprecord program.

See also:

Parameter Defaults
Program Parameters dialog
Load Parameters from Defaults
Auto Mode

8.15 Email Options

The Email options are provided so that you can customize the email message that accompanies files when you send them by email.

To:

Enter the email addresses of the recipients, separated by commas.

From:

Enter your name and email address, in the format **Your Name <your email address>**. This is not necessary, except that when sending mail by the SMTP method, some mail servers require a valid "From:" address to be specified before they will accept the message.

Subject:

Enter the subject line of the email. This is optional. You can use special formatting keywords in the subject. These are replaced at the time the email is queued for sending by text according to the rules specified below in the section "Formatting".

Message:

Enter the body of the email message. This is optional. You can use special formatting keywords in the subject. These are replaced at the time the email is queued for sending by text according to the rules specified below in the section "Formatting".

Email Method

Mail can be sent by two methods. SMTP (Simple Mail Transfer Protocol) requires no additional software to be installed on your computer, but preview of the email before sending is not possible. MAPI (Messaging Application Programming Interface) requires that the MAPI interface be installed on your computer. If you have an a mail client such as Microsoft Outlook or Outlook Express this will generally be the case. When Temprecord sends an email, the MAPI interface starts up your email client and uses that to send the email. In most cases, this will not in fact send the email, but place a copy of it in your Outbox. With MAPI therefore, you have the opportunity to review, edit, or delete the emails before they are sent.

Temprecord can send files via MAPI as long as tour computer has the MAPI interface installed. No other configuration should be required. If you need to send email via SMTP, the SMTP Email Options will need to be

configured.

Display message in email client before sending

(MAPI only) Check this option if you want to display the email in your email client before sending it. You then have the option of editing the text of the email, attaching further files manually, adding or removing recipients, etc.

If the above option is not checked (i.e. don't preview the message), some later versions of email client software will detect that another program (i.e. Temprecord) is trying to use it to send email. This behaviour is how some email viruses propagate themselves and the email client is preventing it. You might find that you need to click on **OK** or **Yes** in a dialog before the email will send.

Formatting

Temprecord looks for certain character combinations in your email subject line and message text and replaces them if they are found, as shown in the following table:

String	Replaced By	Example
%To%	list of recipients	fred@mycompany.com, jane@mycompany.com
%From%	sender's name and email address	Joe Bloggs <joe@mycompany.com>
%Name%	sender's name	Joe Bloggs
%Email%	sender's email address	joe@mycompany.com
%Files%	names of attached files, separated by commas	Report1.pdf, Report2.pdf
%User%	logged in Windows user	joe
% Workgroup %	computer workgroup name	Admin
%Computer %	computer name	Joes Dell 8400

See also:

SMTP Email Options
Options Menu

8.15.1 SMTP Email Options

In order to send emails by SMTP Temprecord needs to know some information about your email provider. This information will normally be available from your IT support person or your ISP (Internet Service Provider).

SMTP Server

Enter the name of your SMTP (Simple Mail Transfer Protocol) server. This will be a string in the form of **smtp.mycompany.com** or **smtp.myISP.com**.

SMTP Port

Enter the SMTP port number. This will be set by your ISP and is normally 20.

Use SSL

Check this box if you want Temprecord to use SSL (Secure Sockets Layer) to transmit the emailed data. SSL is a high level of encryption used to protect sensitive data from unauthorized eavesdropping. Your ISP may not support SSL.

Authentication Required

Check this box if your ISP requires you to provide authentication information (a user name and password) before you can use their SMTP server to send email.

SMTP User Name

Enter the user name provided by your ISP for access to their SMTP server if your ISP requires you to provide authentication information.

SMTP Password

Enter the password corresponding to the above user name needed to access the SMTP server if your ISP requires you to provide authentication information.

See also:

Error sending emaill
Email Options
Options Menu

8.16 Language Options

Use the Options/Language page to specify the language Temprecord will use. When it is first installed, Temprecord will choose the language based on the language setting for your computer (this is normally set through the Windows Control Panel). This corresponds to the **Use regional settings** option. If you want Temprecord to always choose a particular one of the languages available, regardless of the Windows settings for language, select that language here, instead of the **Use regional settings** option.

Temprecord help will only be available in the selected language if that language's help file is installed. If Temprecord cannot find the help file, it will use the English language help

8.17 Comment Labels Options

Use the Option/Comment Labels page to change the text Temprecord displays to the left of the comment fields when you are editing the comment fields for a Temprecord data file.

This feature only works with data files created with Temprecord for Windows, or Temprecord for DOS from versions 1.15 onwards. You cannot use the comment labels feature on files created with the earlier versions of Temprecord for DOS.

The comment field labels are assigned to a data set at the time the data is read from the logger. From then on, the labels cannot be altered, but the text in the comment fields themselves can be altered. For more information, see the topic Using the comment fields.

8.18 Web Options

Use the Options/Web tab to set up Temprecord for transferring files to the Internet. In order to use this facility you must have arranged the facility with Temprecord.

Customer ID

Enter the ID supplied to you by Temprecord., or by the administrator for your organization. Unless there is a valid customer ID and password provided here, you will not be able to upload datafiles and reports for storage on the web.

Password

Enter the password supplied to you by Temprecord., or by the administrator for your organization. The password will not display as you type it. You only need enter the customer ID and password once.

Use This Account

Receptacle,
Authentication Key 1,
Authentication Key 2

Encryption
Use This Encryption Key
Confirm Key

8.19 Auto Mode Options

Use the **Options/Auto Mode** page to change the behaviour of Temprecord's Auto Mode. Auto Mode provides a means of rapidly processing a quantity of loggers, with little more user intervention than inserting and removing the logger from a reader.

Timeout

This option sets the number of seconds before auto mode times out and exits when either waiting for a logger or waiting for the logger to be removed after completion.

Stop Logger if necessary

Check this option if you want Temprecord Auto Mode to stop a logger that is logging. If the logger is already stopped, no action is taken

Read Logger

Check this option if you want Temprecord Auto Mode to read the data from the logger.

Save TR File

Check this option if you want Temprecord Auto Mode to read the data from the logger and save it to a disk file. The name used for the file is determined by the formatted filename option. The folder used is determined by the folder to save TR files. If you select the **Save TR File** option, the **Read Logger** option will be selected for you.

Email TR File

Check this option if you want Temprecord Auto Mode to email the TR file. If you select the **Email TR File** option, the **Read Logger** option will be selected for you, and the data is automatically saved to a TR file, regardless of the **Save TR File** auto mode option.

Save PDF File

Check this option if you want Temprecord Auto Mode to read the data from the logger and save it to a PDF file. The name used for the file is determined by the formatted PDF filename option. The folder used is determined by the folder to save PDF files. If you select the **Save PDF File** option, the **Read Logger** option will be selected for you.

The contents of the PDF report (summary, graph, etc) are determined by the printing options. The printed pages range option is ignored when generating the PDF. All pages of the report are generated to the PDF, even if a page range was selected in the print to PDF dialog.

Email PDF File

Check this option if you want Temprecord Auto Mode to email the PDF report. If you select the **Email PDF File** option, the **Read Logger** option will be selected for you, and the data is automatically saved to a PDF file, regardless of the **Save PDF File** auto mode option.

Print Report

Check this option if you want Temprecord Auto Mode to send the printed report to the printer. The contents of the printed report (summary, graph, etc) are determined by the printing options. All pages of the report are printed, even if a page range was selected in the print dialog. If you select the **Print Report** option, the **Read Logger** option will be selected for you.

Reuse Logger

Check this option if you want Temprecord to reuse the logger. The logger must be stopped. Remember that reusing a logger clears any logged data so you should use the **Read Logger** and **Save TR File** options also.

Load Default Parameters

Check this option if you want Temprecord Auto Mode to program the Default Parameters into the logger.

Note that if this function is used, whatever parameters are programmed into the logger will be overwritten, including the shipping data, which may have been set explicitly for the previous trip.

Start Logger

Check this option if you want Temprecord Auto Mode to start the logger.

See Also:

Auto Mode Operation

9 Error and Warning Messages

The recalibration period on this logger will expire in 12 weeks.
This logger"s recalibration is due in 2 weeks

- Confirm password is invalid
- Data read from logger has not yet been saved. Save first ?
- Datafile format error - probably not a Temprecord data file
- Datafile format incorrect
- Datafile format version error
- Do you wish to exit Temprecord ?
- Do you wish to re-use the Temprecord logger ?
- Do you wish to start the Temprecord logger ?
- Do you wish to stop the Temprecord logger ?
- Error opening <filename>
- Error reading file
- Error writing file <filename>
- Invalid limit delay count
- Invalid lower temperature limit
- Invalid password submitted
- Invalid sample period
- Invalid start date
- Invalid start delay
- Invalid start time
- Invalid preset date or time
- Invalid upper temperature limit
- Password and confirm are different
- Password is invalid
- Password is not verified
- Password Specification Errors
- Start time and date has already passed
- Temprecord cannot be stopped until start delay expires
- Temprecord failed to re-use
- Temprecord failed to start
- Temprecord failed to stop
- Temprecord has already been re-used
- Temprecord has not yet been started
- Temprecord is already running
- Temprecord is already started
- Temprecord is already stopped
- Temprecord must be re-used before starting
- Temprecord must be stopped before re-use
- Temprecord was unable to create your TRW.INI file
- Temprecord was unable to find your TRW.INI file
- Temprecord was unable to write to your TRW.INI file
- The Auto Mode option to reuse the logger is set but no options have been set to save data, Continue?
- The comment fields for file <filename> have been edited but the changes have not yet been saved. Save file ?

- The comment fields for logger <serial number> have been edited but the data has not yet been saved. Save logger data to file ?
- The data from this logger has not yet been read. Do you wish to read the data and save it before re-using the logger ?
- The Temprecord help file for the selected language <filename> was not found. English language help will be used instead
- This model Temprecord cannot be re-used
- This Temprecord can only be started by snapping off a tab
- This Temprecord can only be stopped by snapping off a tab
- Unable access parameters. Temprecord is probably faulty
- Unable to access parameters. Temprecord has been started
- Unable to access parameters. Temprecord has finished logging
- Unable to access parameters. Temprecord must be re-used first
- Unable to access Temprecord after re-use
- Unable to access Temprecord after starting
- Unable to access Temprecord after stopping
- Unable to access Temprecord Logger
- Unable to access Temprecord. Password is incorrect
- Unable to delete file <filename>
- Unable to load file - insufficient memory
- Unable to open COMx
- Unable to open form
- Unable to print
- Unable to read. Temprecord has not yet been started
- Unable to read. Temprecord is probably faulty
- Unable to read. Temprecord start delay has not expired
- Unable to reuse Temprecord. Unit is probably faulty
- Unable to save file <filename>
- Unable to save Temprecord parameters
- Unable to start Temprecord. Unit is probably faulty
- Unable to stop Temprecord. Unit is probably faulty
- Unable to update parameters as Temprecord is not in "ready" state
- Unable to update parameters as Temprecord is of a different type
- Unable to update parameters as Temprecord is of older type
- Unable to update parameters as Temprecord is of newer type
- Unable to update parameters as Temprecord protected with password
- Unexpected end-of-file
- Unknown command option
- WARNING - File damaged. Data may not be correct
- NOTE - This data logger remains within an accuracy of +/- 0.5C but for greater accuracy you may choose to have it re-calibrated

9.1 Bad address

Temprecord encountered an error while trying to communicate with the logger. These errors most often result from problems with the reader or logger.

- The logger battery could be exhausted.
- The reader may not have sufficient voltage to operate properly. This can occur on some laptops that do not implement the serial interface adequately.

9.2 Bad CRC

Temprecord encountered an error while trying to communicate with the logger. These errors most often result from problems with the reader or logger.

- The logger battery could be exhausted.
- The reader may not have sufficient voltage to operate properly. This can occur on some laptops that do not implement the serial interface adequately.

9.3 Bad verify

Temprecord encountered an error while trying to communicate with the logger. These errors most often result from problems with the reader or logger.

- The logger battery could be exhausted.
- The reader may not have sufficient voltage to operate properly. This can occur on some laptops that do not implement the serial interface adequately.

9.4 Confirm password is invalid

When specifying a password for a logger, both the 'Password' and 'Confirm' fields must be filled in with the same number. The number can be up to 8 digits. You cannot have other characters such as the space character or alphabetic characters. The password will not display as you type it.

See Also:
Error and Warning Messages

9.5 Data read from logger has not yet been saved. Save first ?

You have requested that Temprecord carry out an operation that will overwrite the data in the current Temprecord Logger data window, and that data has not yet been saved.

- If you want to have the opportunity to save the Temprecord data that is already in the Temprecord data window, click the 'Yes' button.
- If you do not wish to save the data, but you still want to proceed with the operation, click the 'No' button.
- If you want to abandon the operation and continue working with the data already in the Temprecord data window, click the 'Cancel' button.

See Also:
Error and Warning Messages

9.6 Datafile format error - probably not a Temprecord data file

The file you have tried to load is not a Temprecord data file. The default filetype for Temprecord data files is '.TR'.

You may have tried to load an ASCII data file instead. Temprecord cannot load ASCII files, it can only create them.

See Also:
Error and Warning Messages

9.7 Datafile format incorrect

The file you have tried to load is possibly a Temprecord data file, but the file format is not compatible with this version of the Temprecord program. The file is possibly damaged. You will need to read the file with the same version of Temprecord that was used to produce the file.

See Also:
Error and Warning Messages

9.8 Datafile format version error

The file you have tried to load is a Temprecord data file, but the file format is not compatible with this version of the Temprecord program. You will need to read the file with the same version of Temprecord that was used to produce the file.

See Also:
Error and Warning Messages

9.9 Do you wish to exit Temprecord ?

You have asked to exit the Temprecord program.

- If you wish to close the Temprecord program click the 'Yes' button. If you have read data from a logger and not yet saved it, you will be asked if you wish to do so. If you have edited the comment fields for a file and not yet saved the file, you will be asked if you wish to do so.
- If you do not wish to exit Temprecord, click the 'No' button. You will be returned to the Temprecord program.

If you do not wish to have this question displayed each time you exit Temprecord, open the Options/General form and clear the 'Prompt before exiting Temprecord' check-box.

See Also:
Error and Warning Messages

9.10 Do you wish to re-use the Temprecord logger ?

You have asked to re-use the Temprecord logger. This will prepare it for another use. After you have re-used it, you will be able to set program the parameters (such as the sample period, the Upper and Lower limits, etc).

- If you wish to re-use the Temprecord logger click the 'Yes' button.
- If you do not wish to re-use the Temprecord logger, click the 'No' button. You will be returned to the Temprecord program.

If you do not wish to have this question displayed each time you exit Temprecord, open the Options/General form and clear the 'Prompt before re-using Temprecord' check-box.

See Also:
Error and Warning Messages

9.11 Do you wish to start the Temprecord logger ?

You have asked to start the Temprecord logger. This will start the start delay counting down, and when the start delay has expired, the logger will begin recording temperature samples.

- If you wish to start the Temprecord logger click the 'Yes' button.
- If you do not wish to start the Temprecord logger, click the 'No' button. You will be returned to the Temprecord program.

Once the logger has been started, you cannot alter any of the logger parameters, such as the user data, start delay, sample period, etc. You also cannot stop the logger until the start delay has expired and the logger has begun taking samples.

If you do not wish to have this question displayed each time you exit Temprecord, open the Options/General form and clear the 'Prompt before starting Temprecord' check-box

See Also:
Error and Warning Messages

9.12 Do you wish to stop the Temprecord logger ?

You have asked to stop the Temprecord logger. This will stop the logger taking samples.

- If you wish to stop the Temprecord logger click the 'Yes' button.
- If you do not wish to stop the Temprecord logger, click the 'No' button. You will be returned to the Temprecord program and the logger will continue to record samples (unless loop overwrite is disabled and the logger has filled up).

If the loop overwrite option is turned on, once the logger is full, the oldest samples are overwritten. In this case you should always ensure that the logger is stopped after you have finished recording samples. If loop overwrite is turned off, the logger will stop recording samples when it is filled anyway, so it is not necessary to stop it until you wish to re-use it

If you do not wish to have this question displayed each time you exit Temprecord, open the Options/General form and clear the 'Prompt before stopping Temprecord' check-box.

See Also:

Error and Warning Messages

9.13 Error opening <filename>

Temprecord could not open the named file.

- Check the spelling of the filename.
- If your computer is part of a network, check that the file is not held open by another user.
- The file could be damaged. Run the 'SCANDISK' utility on your computer.

You will also receive this error if the name of a non-existent file is specified on the Temprecord command line.

See Also:
Error and Warning Messages

9.14 Error reading file

Temprecord could not read from the file.

- If your computer is part of a network, check that the file is not held open by another user, and that you have permission to read from the file.
- The file could be damaged. Run the 'SCANDISK' utility on your computer.

See Also:
Error and Warning Messages

9.15 Error sending email

The following errors can result when you try to send files by SMTP (Simple Mail Transfer Protocol).

No email recipients specified'

You must enter a list of valid email addresses in the "To:" field on the Email Options tab.

No files to attach

Temprecord was unable to find the files specified.

SMTP options not set

Before you can send emails via SMTP, certain options need to be set. Click on Options/SMTP Email and specify at least the SMTP server name. Normally this will be a string of the form **smtp.internetserviceprovider.com** or **smtp.yourcompanyname.com**. You may need to refer to your IT administrator for this information.

Unable to queue mail for sending'

Temprecord was unable to queue the email for sending.

Unable to send mail (error xxx')

If you receive an error of this for wham using MAPI to send emails, the error explanation ("xxx") will indicate the error response returned from the MAPI interface. You may need to refer to your IT administrator for guidance on fixing these errors.

See Also:
Error and Warning Messages
SMTP Email Options

9.16 Error writing file <filename>

Temprecord could not write to the named file.

- If your computer is part of a network, check that the file is not held open by another user, and that you have permission to write to the file.
- Check that the file is not marked as read-only.

See Also:
Error and Warning Messages

9.17 Incorrect firmware

The logger you are trying to communicate with contains features that mean that this version of Temprecord is incompatible with the logger. You will need to download an update from http://www.temprecord.com.

See also
Logger Firmware Revision 2.14

9.18 Invalid limit delay count

The permissible range for the limit delay parameter is 0 to 255. Enter a number in this range

See Also:
Error and Warning Messages

9.19 Invalid lower temperature limit

The permissible range for the lower temperature limit is from -327.68 to +327.67 degrees C. This corresponds to a range of -557.8 to 621.8 degrees F. Enter a number in this range

See Also:
Error and Warning Messages

9.20 Invalid password submitted

This logger you have tried to access is protected by a password and the password you have specified is not correct.

Re-enter the password. The number can be up to 8 digits. You cannot have other characters such as the space character or alphabetic characters. The password will not display as you type it.

See Also:
Error and Warning Messages

9.21 Invalid sample period

The sample period is the time that elapses between samples. Enter the sample period as hours, minutes and seconds. The minimum sample period that can be entered is 0:00:02, or 2 seconds. You

can enter any value between 2 seconds and the upper limit of 24 hours, and the sample period must be a multiple of 2 seconds.

See Also:
Error and Warning Messages

9.22 Invalid start date

The start date you have entered is not a valid date. Do not enter any separator characters such as '/' or '-' when you enter the date.

See Also:
Error and Warning Messages

9.23 Invalid start delay

The start delay is the time that elapses between when the logger is started and when it begins to record samples. Enter the start delay as hours, minutes and seconds. The minimum start delay that can be entered is 0:00:10, or 10 seconds. You can enter any value between 10 seconds and 24 hours.

See Also:
Error and Warning Messages

9.24 Invalid start time

The start time you have entered is not a valid time. Do not enter any separator characters such as ':' when you enter the time.

See Also:
Error and Warning Messages

9.25 Invalid preset date or time

The date or time you have entered as one of the preset dates is not a valid date or time. Do not enter any separator characters such as ':' or '/' when you enter the date or time.

See Also:
Error and Warning Messages

9.26 Invalid upper temperature limit

The permissible range for the upper temperature limit is from -327.68 to +327.67 degrees C. This corresponds to a range of -557.8 to 621.8 degrees F. Enter a number in this range

See Also:
Error and Warning Messages

9.27 No wakeup from logger

Temprecord is unable to communicate with the logger.

Check that the COM port selected using the COM port options is the same port that has the Temprecord reader connected to it.

Temprecord is always improving its products. Occasionally changes to the logger's specification mean that earlier versions of Temprecord software are incompatible with newer loggers, as the earlier software is not aware of the new features and cannot take advantage of them. Where a logger requires a particular revision of software to operate correctly, the packaging will include a warning to this effect.

See also Logger Firmware Revision 2.14

9.28 No response from logger

Temprecord is unable to communicate with the logger.

Check that the COM port selected using the COM port options is the same port that has the Temprecord reader connected to it.

Temprecord is always improving its products. Occasionally changes to the logger's specification mean that earlier versions of Temprecord software are incompatible with newer loggers, as the earlier software is not aware of the new features and cannot take advantage of them. Where a logger requires a particular revision of software to operate correctly, the packaging will include a warning to this effect.

See also Logger Firmware Revision 2.14

9.29 Logger Firmware Revision 2.14

Temprecord released a newer version of the Mk III logger in 2009. This version, firmware revision 2.14, implements greater reliability of communications with the logger and also faster (around ten times faster) download times.

In order to take advantage of these faster download times, loggers with firmware version 2.14 (or greater) must be used with Version 5.23 (or greater) of the Temprecord for Windows software (TRW). Newer loggers cannot be used with earlier versions of TRW.

If you have Firmware version 2.14 loggers, you will need to upgrade Temprecord for Windows to program and read these loggers. The Temprecord software can be downloaded from http://temprecord.com/software.html.

Note that the converse does not apply - that is, the current version of Temprecord can program and read both older and newer loggers, with no special action required by the user to swap between the two types of logger.

9.30 Password and confirm are different

You have entered a password in the ‘Password’ field that differs from the one in the ‘Confirm’ field. Re-enter both passwords.

See Also:

Error and Warning Messages

9.31 Password is invalid

The password you have entered is invalid.

Re-enter the password. The number can be up to 8 digits. You cannot have other characters such as the space character or alphabetic characters. The password will not display as you type it.

See Also:
Error and Warning Messages

9.32 Password is not verified

You have entered the password in only one of the two Password and Confirm fields. You must fill in both fields with the same password.

If you do not want the logger to have a password, enter the value zero into both fields. If you want to leave the password unchanged, leave both fields blank.

See Also:
Error and Warning Messages

9.33 Password Specification Errors

The following error messages can result from not specifying the password correctly. Check the notes below to determine the reason.

Invalid Password

A password must be a number in the range 0 to 99999999. You cannot specify characters other than digits here. You can specify as many digits as you wish up to a maximum of 8

Password Not Verified

One of the password fields was left blank. You must fill in both password fields

Password and confirm are different

The password you specified in the first field does not match that in the verification field.

General Password Notes

If you don't want the current password to be changed, leave both fields blank. If you want the password feature to be disabled, enter zero (0) in both fields.

You do not need to specify all 8 digits for your password, though this will make it more secure. We recommend 4 digits as sufficient.

Do not forget your password! If you do, you will be unable to alter the user data, and in the case of the Multi-trip and Scientific models, you will be unable to re-use them.

See also:
Password
User data
Sample period
Start delay
Error and warning messages

9.34 Start time and date has already passed

You have enabled the 'Start at Time and Date' option for the logger, but the start time and date specified has already passed.

Change the time and date to a future time and date.

See Also:
Error and Warning Messages

9.35 Temprecord cannot be stopped until start delay expires

You have attempted to stop the Temprecord logger while the start delay is still counting down. The logger cannot be stopped until the start delay has expired and the logger has begun to take samples.

See Also:
Error and Warning Messages

9.36 Temprecord failed to re-use

Temprecord has not been able to verify that the logger reused correctly. The operation may have been successful. Check the state of the logger by using the File/Query Logger function.

You may have removed the logger from the reader too quickly. Do not remove the logger until the message window that opens has closed again

See Also:
Error and Warning Messages

9.37 Temprecord failed to start

Temprecord has not been able to verify that the logger started correctly. The operation may have been successful. Check the state of the logger by using the File/Query Logger function.

You may have removed the logger from the reader too quickly. Do not remove the logger until the message window that opens has closed again

See Also:
Error and Warning Messages

9.38 Temprecord failed to stop

Temprecord has not been able to verify that the logger stopped correctly. The operation may have been successful. Check the state of the logger by using the File/Query Logger function.

You may have removed the logger from the reader too quickly. Do not remove the logger until the message window that opens has closed again

See Also:
Error and Warning Messages

9.39 Temprecord has already been re-used

You have tried to reuse a logger that has already been reused. You can now program the parameters and start the logger.

See Also:
Error and Warning Messages

9.40 Temprecord has not yet been started

You have tried to read the data from a logger that has not yet been started. To have your logger take samples:

- Use the Program/Parameters function to set the logger up.
- Use the Program/Start function to start the logger.
- Place the logger in the environment you wish to monitor for a while.
- Use the File/Read Logger function to read the samples taken so far.

See Also:
Error and Warning Messages

9.41 Temprecord is already running

You have tried to start the Temprecord program, but there is already a copy of Temprecord running on your computer. Only one copy of Temprecord can run at any one time on a single computer.

You can find the copy that is already running on your computer: Hold the Alt key down and press the Tab key. Windows will display a panel with all the running programs shown as icons. Use the Tab key to switch from one running program to the next. Repeat this until the Temprecord icon is selected. Release the Alt key and you will be placed in the copy of Temprecord that is already running.

Alternatively, if the taskbar is displayed, click on the taskbar button that shows the Temprecord icon.

See Also:
Error and Warning Messages

9.42 Temprecord is already started

You have attempted to start the logger when it is already taking samples. If the logger status is shown as 'holdoff', it means that the start delay is still counting down. The logger will begin to take samples when the start delay counts down to zero.

See Also:
Error and Warning Messages

9.43 Temprecord is already stopped

You have attempted to stop the logger when it has already been stopped.

You can now read the logger and re-use it.

See Also:
Error and Warning Messages

9.44 Temprecord must be re-used before starting

You have attempted to start the logger but it has not yet been re-used.

- Use the Program/Reuse function to reuse the logger.
- Use the Program/Parameters function to set the logger up for the next use.
- Use the Program/Start function to start the logger.

See Also:
Error and Warning Messages

9.45 Temprecord must be stopped before re-use

You have attempted to re-use the logger without stopping it first. The logger must be in the 'Stopped' state before reuse.

- Use the Program/Stop function to stop the logger
- Use the File/Read Logger function to read the temperature data from the logger
- Use the File/Save function to save the temperature data to a disk file.
- Use the Program/Reuse function to reuse the logger.
- Use the Program/Parameters function to set the logger up for the next use.
- Use the Program/Start function to start the logger.

See Also:
Error and Warning Messages

9.46 Temprecord was unable to create your TRW.INI file

An error has occurred when Temprecord tried to create your INI file. The INI file is used to remember

your preferences and settings between Temprecord sessions. You will still be able to run Temprecord, but any changes you make to the options may not be remembered.

- Check that your disk is not full.
- Check that you have sufficient access rights to your computer's Windows directory. You may not have full access if you are running on a network.

See Also:
Error and Warning Messages

9.47 Temprecord was unable to find your TRW.INI file

Temprecord could not find your TRW.INI file in the Windows subdirectory of your computer. The INI file is used to remember your preferences and settings between Temprecord sessions. A new INI file will be created with default settings for all the preferences.

You may receive this message if you install Temprecord for another user on your network. This is normal and it just means that Temprecord is creating another separate preferences file for the new user. The message should not appear again.

See Also:
Error and Warning Messages

9.48 Temprecord was unable to write to your TRW.INI file

An error has occurred when Temprecord tried to write your preferences to your INI file. The INI file is used to remember your preferences and settings between Temprecord sessions. You will still be able to run Temprecord, but any changes you have made to the options may not be remembered.

- Check that your disk is not full.
- Check that you have sufficient access rights to your computer's Windows directory. You may not have full access if you are running on a network.

See Also:
Error and**See Also:**
Error and Warning Messages Warning Messages

9.49 The Auto Mode option to reuse the logger is set

You have attempted to start Auto Mode but Temprecord has found that you have the option to reuse the logger set, but you have no Auto Mode option set to read the logger and save the data.

If you continue, any data contained in the logger will be lost when the logger is reused. You should make sure the data has been saved to disk at an earlier time before using auto mode with neither of the options to read the logger and save the data enabled.

If you do not want to be prompted for this question, and you understand the issues involved, make sure the checkbox labeled "Don't ask me this again" is checked.

The state of this checkbox is only remembered for the current auto mode session. If you exit auto mode, the prompt will be displayed the next time you start it. It is not possible to permanently disable this warning.

See Also:

Error and Warning Messages

9.50 The comment fields for file <filename> have been edited but the changes have not yet been saved. Save file ?

You have changed the comment fields for the named file but the data has not yet been saved to disk.

You should save the data to disk or your changes to the comment fields will be lost.

See Also:
Error and Warning Messages

9.51 The comment fields for logger <serial number> have been edited but the data has not yet been saved. Save logger data to file ?

You have changed the comment fields for the data from the logger shown but the data has not yet been saved to disk.

You should save the data to disk or your changes to the comment line will be lost.

- Click the 'Yes' button if you want to save the changed comment information to a disk file.
- Click the 'No' button if you do not want to save the edited comment information. Any changes you have made will be lost.
- Click the 'Cancel' button to abandon the operation.

See Also:
Error and Warning Messages

9.52 The data from this logger has not yet been read. Do you wish to read the data and save it before re-using the logger ?

You have attempted to reuse the logger without first reading the data from the logger and saving it to disk.

You should save the data to disk before reusing the logger you will lose the data stored in the logger.

- Click the 'Yes' button if you want to read the logger data before reusing and save it to a disk file.
- Click the 'No' button if you do not want to read the logger data before reusing the logger. The data in the logger will be lost.
- Click the 'Cancel' button to abandon the operation.

See Also:
Error and Warning Messages

9.53 The Temprecord help file for the selected language <filename> was not found. English language help will be used instead

The selected language does not have an associated Help file. The English-language help file will be used instead. See your distributor about obtaining a help file for the language you have selected.

You can select the language of the Temprecord program with the Options/Language function. By default, this is set to 'use regional settings', which instructs Temprecord to look at your Windows installation to see which language your computer is set up for. Temprecord will then try to choose a language to suit your setting.

You can access the regional settings for your computer as follows:

Windows 3.1/3.11

- Open the 'Main' program group.
- Open 'Control Panel.
- Open 'International'
- You can now change the language by clicking on the 'Language' drop-down list box.
- Click on 'OK'

Windows 95

- Click on 'Start'
- Select 'Settings'
- Select 'Control Panel.
- Open 'Regional Settings''
- You can now change the language by clicking on the 'Language' drop-down list box.
- Click on 'OK'

You can force Temprecord to ignore the regional settings by selecting one of the languages shown on the Options/Language page instead of the 'use regional settings' selection.

Not all the languages shown on the Options/Language page are implemented. If you choose one that is not yet implemented, Temprecord will use English language instead.

See Also:
Error and Warning Messages

9.54 This model Temprecord cannot be re-used

You have attempted to reuse a single-use (Inland or Export) logger. These models can only be used once, after which they should be returned for recycling.

See Also:
Error and Warning Messages

9.55 This Temprecord can only be started by snapping off a tab

You have attempted to use the Temprecord program to start an inland or export logger. These cannot be started with the program - they must be started by snapping off one of the tabs.

See Also:
Error and Warning Messages

9.56 This Temprecord can only be stopped by snapping off a tab

You have attempted to use the Temprecord program to stop an inland or export logger. These cannot be stopped with the program - they must be stopped by snapping off the remaining tab.

See Also:
Error and Warning Messages

9.57 TX timeout

Temprecord is unable to communicate with the logger due to a problem with the serial COM port.

Check that the port is not in use by another application and is selected correctly using the COM port options.

9.58 Unable access parameters. Temprecord is probably faulty

You have attempted to program the parameters on a logger that reports as faulty. The logger's battery may be exhausted.

See Also:
Error and Warning Messages

9.59 Unable to access parameters. Temprecord has been started

You have attempted to program the parameters on a logger has already been started. You cannot alter the parameters on a logger unless it is in the 'ready' state.

See Also:
Error and Warning Messages

9.60 Unable to access parameters. Temprecord has finished logging

You have attempted to program the parameters on an inland or export logger that has finished logging. You can only alter the parameters on a logger before it is started.

See Also:
Error and Warning Messages

9.61 Unable to access parameters. Temprecord must be re-used first

You have attempted to program the parameters on a logger has finished logging. You cannot alter the parameters on a logger unless it is in the 'ready' state.

- Use the Program/Reuse function to reuse the logger.
- Use the Program/Parameters function to set the logger parameters up for the next use.
- Use the Program/Start function to start the logger.

See Also:
Error and Warning Messages

9.62 Unable to access Temprecord after re-use

The logger could not be accessed after reusing.

You may have removed the logger from the reader too quickly. Do not remove the logger until the message window that opens has closed again

See Also:
Error and Warning Messages

9.63 Unable to access Temprecord after starting

The logger could not be accessed after starting.

You may have removed the logger from the reader too quickly. Do not remove the logger until the message window that opens has closed again

See Also:
Error and Warning Messages

9.64 Unable to access Temprecord after stopping

The logger could not be accessed after stopping.

You may have removed the logger from the reader too quickly. Do not remove the logger until the message window that opens has closed again

See Also:
Error and Warning Messages

9.65 Unable to access Temprecord logger

This error is reported when the Temprecord program is unable to communicate with the logger. Of all the problems you might encounter getting Temprecord operational, this is the most likely. The reason for this could be because:

- you do not have the reader interface plugged in.
- you have it plugged in to a port different to that specified by the Options/COM Portsetting.
- there is no logger inserted in the reader interface, or the logger is not pushed far enough in.
- you have inserted the logger the wrong way around. The logger must be inserted into the reader interface with the hole visible and on the left. The logger types with snap-off tabs must be inserted with the tab end visible.
- the logger is faulty.

You may see other error messages if the logger cannot be accessed. See the topics:

TX timeout
No response from logger
No wakeup from logger
Bad CRC
Bad verify
Bad address
Incorrect firmware

for more information.

See also:
Unable to open COMx
Options/COM Port
Error and Warning Messages

9.66 Unable to delete file <filename>

Temprecord was unable to delete the named file. When this error occurs and you had selected more than one file to delete, any further files you might have also selected are not deleted.

- Check the speklling of the filename
- Check that the file is not marked read-only
- Check that the file is not held open by another network user.

See Also:
Error and Warning Messages

9.67 Unable to access Temprecord. Password is incorrect

You have attempted to program the parameters on a Temprecord logger that is protected with a password.

Enter the correct password.

See Also:
Error and Warning Messages

9.68 Unable to load file - insufficient memory

Temprecord will report this message if it cannot create another Temprecord data window to display the data from a logger or a file. You are unlikely to see this error, but if it appears, you should try to make more memory available on your computer, by closing some other applications, or fitting more memory.

See Also:
Error and Warning Messages

9.69 Unable to open COMx

This error is reported when the Temprecord program is unable to initialize the COM Port to communicate with the logger. The message will indicate which COM port (COM1, COM2, COM3 or COM4) it was attempting to use. This could be because:

- the COM Port does not exist on your computer.
- the COM Port is in use by another application.

Select Options/COM Port to investigate which COM Ports are available. The Options/COM Port screen displays for each of COM1 to COM4, whether the port is in use by another application, in use by Temprecord, or non-existent. You must choose a COM Port that is not in use and is fitted to your computer.

Other devices which also use COM Ports are a mouse and a modem.

See also:
COM Port conflicts
Unable to access Temprecord Logger
Options/COM Port
Error and Warning Messages

9.70 Unable to open form

Temprecord will report this message if it cannot create a form. Forms or 'dialog boxes' are used by Temprecord in order for you to enter information. Examples are:

- the Program/Parameters dialog
- the Options dialog
- the Edit Comments dialog
- the Password dialog
- the Print dialog

You are unlikely to see this error, but if it appears, you should try to make more memory available on your computer, by closing some other applications, or fitting more memory.

See Also:
Error and Warning Messages

9.71 Unable to open PDF help file

Temprecord was unable to open the PDF help file. This is most likely to be because:

- The computer system you are using does not have Adobe Acrobat Reader installed. You can download Adobe Acrobat Reader from http://www.adobe.com/products/acrobat/readstep2.html.
- The PDF help file was not installed when you installed Temprecord. The PDF file should have been installed into the same folder as the Temprecord program. The PDF help file is called TRW_EN.PDF and would normally be installed into C:\Program Files\TRW\.

See Also:
Error and Warning Messages

9.72 Unable to print

An error has occurred while Temprecord was trying to print.

- Check that the selected printer is available to your computer.
- Check that you have the latest printer driver for your printer and version of Windows.

Some earlier versions of the Windows 3.11 printer drivers for the HP LaserJet 5P printer will give this error. If you are unable to get an updated printer driver for the LaserJet 5 that fixes the problem, try installing a printer driver for an earlier compatible printer, such as the HP LaserJet III.

See Also:
Error and Warning Messages

9.73 Unable to read. Temprecord has not yet been started

You have attempted to read data from a Temprecord logger before it has been started.

- Use the Program/Parameters function to set the logger parameters up for the next use.
- Use the Program/Start function to start the logger.

See Also:
Error and Warning Messages

9.74 Unable to read. Temprecord is probably faulty

You have attempted to read the logged data from a logger that reports as faulty. The logger's battery may be exhausted.

See Also:
Error and Warning Messages

9.75 Unable to read. Temprecord start delay has not expired

You have attempted to read data from a Temprecord logger before the start delay has counted down to zero. The logger will not begin to take samples until the start delay has expired.

See Also:
Error and Warning Messages

9.76 Unable to reuse Temprecord. Unit is probably faulty

You have attempted to reuse a logger that reports as faulty. The logger's battery may be exhausted.

See Also:
Error and Warning Messages

9.77 Unable to save file <filename>

Temprecord was unable to save the data to the named file.

- Check the filename is valid
- Check that the file is not already held open by another network user.

This error can also occur if you are trying to save a file that was created with an earlier version of the Temprecord software. You can load these files and view and print the data in them, but you cannot save them again.

See Also:
Error and Warning Messages

9.78 Unable to save Temprecord parameters

An error occurred when Temprecord tried to save the parameter data to the logger.

You may have removed the logger from the reader too quickly. Do not remove the logger until the message window that opens has closed again

See Also:
Error and Warning Messages

9.79 Unable to start Temprecord. Unit is probably faulty

You have attempted to start a logger that reports as faulty. The logger's battery may be exhausted.

See Also:
Error and Warning Messages

9.80 Unable to stop Temprecord. Unit is probably faulty

You have attempted to stop a logger that reports as faulty. The logger's battery may be exhausted.

See Also:
Error and Warning Messages

9.81 Unable to update parameters as Temprecord is not in "ready" state

Temprecord could not update the parameter data in the logger because the logger is not in the 'ready' state.

This error can occur when you are using the 'Apply' button to set the parameters of several loggers in

succession and you accidentally insert a logger that has already started.

See Also:
Error and Warning Messages

9.82 Unable to update parameters as Temprecord is of a different type

Temprecord could not update the parameter data in the logger because the logger is of a type that is different to the logger the parameters were originally read from.

This error can occur when you are using the 'Apply' button to set the parameters of several loggers in succession and you accidentally insert a logger that is of a different type from the one the parameter data was originally read from.

See Also:
Error and Warning Messages

9.83 Unable to update parameters as Temprecord is of older type

Temprecord could not update the parameter data in the logger because the logger in the reader interface is of the older type, whereas the logger the parameters were originally read from is of the newer type.

This error can occur when you are using the 'Apply' button to set the parameters of several loggers in succession and you accidentally insert an older logger.

See Also:
Error and Warning Messages

9.84 Unable to update parameters as Temprecord is of newer type

Temprecord could not update the parameter data in the logger because the logger in the reader interface is of the newer type, whereas the logger the parameters were originally read from is of the older type.

This error can occur when you are using the 'Apply' button to set the parameters of several loggers in succession and you accidentally insert an newer logger.

See Also:
Error and Warning Messages

9.85 Unable to update parameters as Temprecord protected with password

Temprecord could not update the parameter data in the logger because the logger in the reader interface is protected with a password, and the password is not the same as the password of the logger the parameters were originally read from is of the newer type.

This error can occur when you are using the 'Apply' button to set the parameters of several loggers in succession and you accidentally insert a logger protected with a password.

See Also:
Error and Warning Messages

9.86 Unexpected end-of-file

Temprecord has found the end of a Temprecord data file before it expected do. This error should not occur under normal operation.

- Check that the file is a Temprecord data file.
- The file may be damaged. Run a utility such as SCANDISK to try to repair the file.

See Also:
Error and Warning Messages

9.87 Unknown command option

The command-line parameter specified is invalid. Temprecord accepts parameters on the command line. If a filename is specified for example, Temprecord will open that file when it starts. You can enter several filenames if you wish, separated by spaces.

There are also command-line options that specify actions Temprecord is to perform when it starts. For example, you can read a logger and save the data to a file. See Command-Line Parameters for more information.

See Also:
Error and Warning Messages

9.88 WARNING - File damaged. Data may not be correct

The Temprecord data file is possibly damaged. All Temprecord data files include error-checking information to guard against tampering, and to detect damage to the files that might result in incorrect information being displayed.

- If the file was copied from some other source (e.g. a diskette, or from an e-mail attachment), retrieve the file again.

See Also:
Error and Warning Messages

9.89 NOTE - This data logger remains within an accuracy of +/- 0.5C but for greater accuracy you may choose to have it re-calibrated

Mk III and later loggers can contain additional calibration information to improve their accuracy. If you receive this message it indicates that this calibration information is possibly invalid. If this is the case, the temperatures read from the logger are possibly less accurate than they might be, but they will still be within an accuracy of +- 0.5C. You should return the logger to Temprecord for recalibration.

See Also:
Error and Warning Messages

9.90 This logger''s recalibration is due in N weeks

This logger's recalibration is due in 2 weeks.

You will not be able to use the logger after 15 Jan 2010

This message will display when you try to start a logger which has been programmed at the Temprecord factory to prevent usage after a calibration expiry date. You will be able to start the logger on trips until the expiry date shown.

See Also:
Error and Warning Messages

9.91 The recalibration period on this logger will expire in N weeks

'The recalibration period on this logger will expire in 12 weeks.

You will not be able to use the logger after 15 Jan 2010

This message will display when you save the parameters for a logger which has been programmed at the Temprecord factory to prevent usage after a calibration expiry date. You will be able to start the logger on trips until the expiry date shown.

See Also:
Error and Warning Messages

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