

Thermodata Viewer software

Thermodata Viewer consists of a set of tools to configure temperature loggers and download, view and save the resulting data. It is designed for users in the commercial and academic sectors who routinely monitor temperatures at multiple locations.

Thermodata Viewer is designed to run on a stand-alone PC and is suitable for an operator configuring and reading data from up to 20 loggers, typically in the commercial and academic sectors. It is designed to run on a networked or stand-alone PC workstation. It is expected that users of the application will have the skills to use word processing and spreadsheet software.

Functions

Thermodata Viewer enables the user to perform the following tasks:

- Configuration of user options.
- Configuration of loggers.
- Downloading data from loggers.
- Viewing the downloaded data in the form of a graph or data table.
- Exporting the data in the form of CSV files.
- Viewing of logger status.

The password functions of DS1922 and DS1923 loggers are not supported by Thermodata Viewer.

Loggers compatible with Thermodata Viewer

Thermodata software is primarily developed for use with products derived from the Dallas Semiconductor/Maxim iButton range.

Loggers specifically supported include:

- All Thermlogger temperature and temperature/humidity loggers produced by Thermodata.
- All DS1921 and DS1922 Thermochron temperature loggers produced by Dallas Semiconductor/Maxim.
- DS1923 Hygrochron temperature/humidity loggers produced by Dallas Semiconductor/Maxim
- IB-Tag waterproof and marine temperature loggers produced by AlphaMach Inc.

Other loggers supported include re-branded iButton derived products such as those marketed by Hioki and ACR Systems.

Conventions used in this manual

Text in this manual is formatted to aid recognition of instructions and important points. Descriptions and explanations of features and functionality appear as standard text.



Instruction steps appear in point format and green italic text.



Important points appear in bold red text. Attention to these points will prevent loss of data and ensure the correct operation of the software.

Getting started

Software Installation

Thermodata Viewer is distributed as a single installation package containing the necessary prerequisite files and driver files. Some hardware (1-Wire) adapters require an additional setup process.

The software may be installed from the installation CD or by downloading the file ThermodataViewer.exe from <http://www.thermodata.com.au/software/download.htm>

System requirements


Minimum system requirements are as follows:

- Windows 2000, Windows XP, Windows 2003 Server or Vista.
- A monitor with a resolution of 1024 x 768 pixels.
- Pentium 3 or equivalent processor.
- 256 MB of RAM

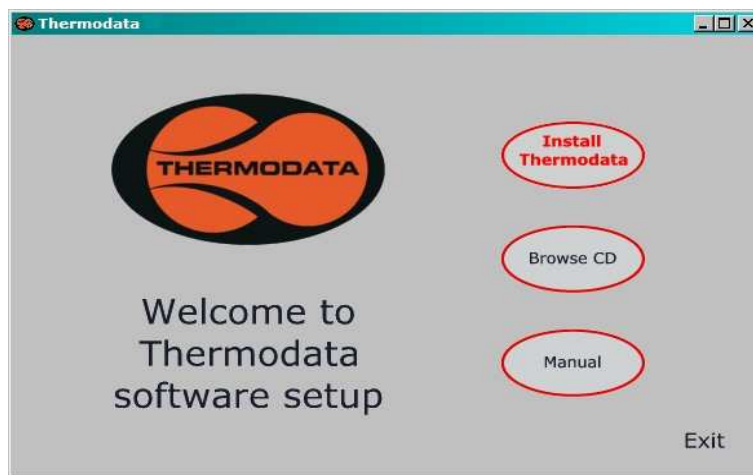
Software installation

 *Insert the CD into the CD or DVD drive of the PC.*

The setup menu should be displayed.

 *If the setup menu does not appear, browse to the CD and double click on the file AutoRun.exe.*

The CD setup menu will be displayed:



 *If installing from a CD, click on the button Install Thermodata Viewer*

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- ☞ *If installing from downloaded files, double-click on the file `ThermodataViewer.exe`.*

The installation process will start.



- ☞ *Click the Next button as required to progress through the installation.*

💣 The software will not run properly after installation unless:

- 1. You are logged in with Administrator privileges and**
- 2. The USB adapter is unplugged during installation.**

- ☞ *Unplug the USB adapter.*

- ☞ *If you are not logged in with Administrator privileges, click Cancel, log in with Administrator privileges and repeat the steps in this section.*

- ☞ *Follow the prompts to complete installation of the support package.*



 Click *Finish* to complete the software installation process.

Hardware adapter installation

Supported hardware (1-Wire) adapters

A 1-Wire adapter with an ID chip is required to operate the Thermodata application.

The following adapters are supported:

- DS9490R USB adapter from Dallas Semiconductor/Maxim,
- DS9097U-009 serial (RS232) adapter from Dallas Semiconductor/Maxim,
- Link 45i serial (RS232) adapter with ID chip from iButtonLink,
- COM to 1-Wire USB adapter with ID chip from Eclo.

The following adapters are not supported:

- DS9097U-S09 serial (RS232) adapter from Dallas Semiconductor/Maxim,
- DS9097E serial adapters from Dallas Semiconductor/Maxim,
- Link 45 serial (RS232) adapter without ID chip from iButtonLink,
- COM to 1-Wire USB adapter without ID chip from Eclo.

DS9490R USB adapter installation

Drivers for the DS9490R adapter are included in the downloaded support package and on the CD. After installation of the support package, plug the DS9490R adapter into a USB socket.

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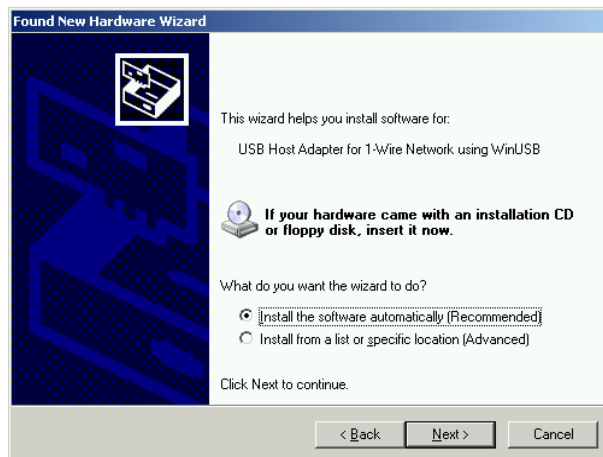
Depending on the version of Windows, the driver for the adapter may be automatically installed. If this does not occur, Windows will start the Found New Hardware wizard:



At the time of writing, Windows update does not provide drivers for 1-Wire adapters

 Click “No, not at this time.”

A further window will ask how you want to look for the drivers.



 Select “Install the software automatically” and click Next.

Windows will configure the system to recognize the adapter.

Some PCs may fail to automatically install the USB drivers. In this case, select “Install from a Specific Location” and select the appropriate sub folder under the Drivers folder on the CD ROM.

 **Ensure that the correct folder is on the CD-ROM is selected. The driver for Windows 2000 is incompatible with Windows Vista and vice versa.**

The driver installation process may need to be repeated if the adapter is plugged into a different USB port.

The DS9490R adapter is USB 1.1 compliant. It may be used in a USB 2.0 socket but there is no benefit from doing so.

Serial adapters DS9097U-009 and iButtonLink

Drivers for these devices are installed with the software. No further installation is required.

Eclo USB adapter

The Eclo USB adapter uses a conversion chip to provide a virtual serial port. Its use requires the FTDI driver which may be found on the installation CD in the folder \drivers\FTDI (T-tec)\

The drivers may also be downloaded from <http://www.eclo.pt/>.

 *Plug the USB adapter in to a USB port and allow the Found New Hardware wizard to run. When prompted, select the location of the driver files.*

Once the driver is installed the Eclo adapter appears as a serial adapter to Thermodata applications.

Troubleshooting USB adapter installations

In cases where the software fails to recognize a USB adapter, the usual cause is corruption or incorrect installation of the USB adapter.

If this occurs, please refer to the **Installation and Update Guide for Dallas/Maxim USB 1-Wire Adapters** which contains detailed instructions on how to correct these problems.

Setup

Running Thermodata Viewer for the first time

 **The software requires a compatible 1-Wire adapter to operate.**

 *Plug the 1-Wire adapter into the PC*

 *Click: Start - All Programs -Thermodata – Thermodata Viewer*

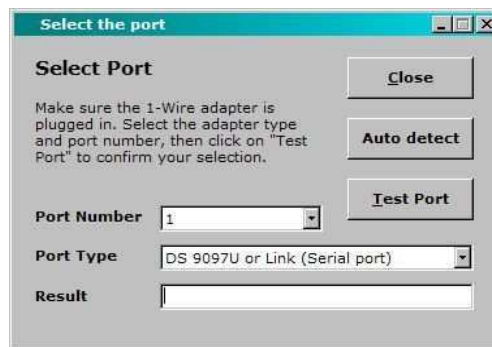
 *Or double-click the desktop icon:*




The application will open and the menu will be displayed:

Adapter settings

When Thermodata Viewer application starts, it will scan for the 1-Wire adapter. If it is unable to detect the adapter, the following Select Port form will be displayed:

The image shows a Windows-style dialog box titled "Select the port". The dialog has a light gray background and a title bar with standard window controls. Inside, there is a section titled "Select Port" with a "Close" button to its right. Below this, there is a paragraph of instructions: "Make sure the 1-Wire adapter is plugged in. Select the adapter type and port number, then click on 'Test Port' to confirm your selection." There are three buttons: "Auto detect", "Test Port", and "Close". Below the buttons, there are two dropdown menus: "Port Number" (set to "1") and "Port Type" (set to "DS 9097U or Link (Serial port)"). At the bottom, there is a "Result" label followed by an empty text input field.

 *If the adapter is not plugged in, plug it in, wait for it to be detected and click Test Port.*

 *If the adapter is plugged in, click Auto Detect. Alternatively the port type and number may be manually selected.*

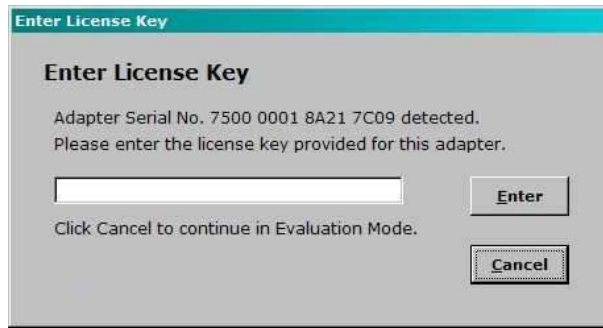
USB adapters generally use Port 1.

Eclo adapters or serial adapters used via a USB to serial adapter may have a high port number. Valid port numbers are 1 to 16.

If the adapter is successfully detected the form will close and A prompt will appear to enter the license key.

If a USB adapter is not successfully detected, please refer to the **Installation and Update Guide for Dallas/Maxim USB 1-Wire Adapters** which contains detailed instructions on how to correct this problem.

License key



A numeric key must be entered to use Thermodata software.

A license key is required for unrestricted use of the software. Such a key has nine digits and may be shown on a sticker attached to the 1-Wire adapter:



 *Enter the license key or evaluation key and click Enter License Key.*

 *If using the software in Evaluation Mode click Cancel.*

Note Evaluation mode is restricted as follows:

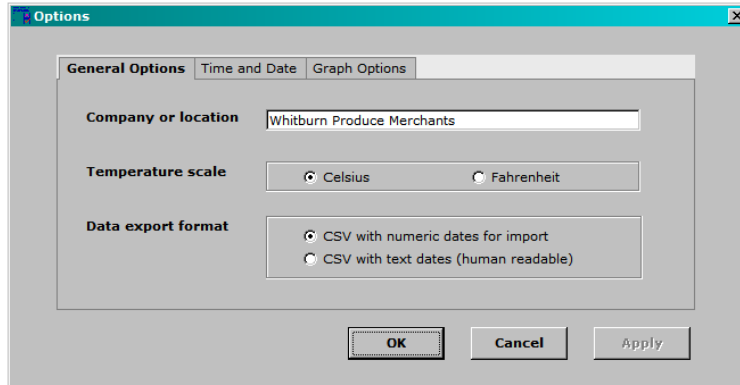
- The software will operate for 30 days from the first installation.
- Operation is limited to use with two loggers only. Further loggers will not be recognized.
- The data export function is not available.

Setup and user options

 *Click the Options button:*



The options form will be displayed:



The company or location name is included in exported data and graphs.

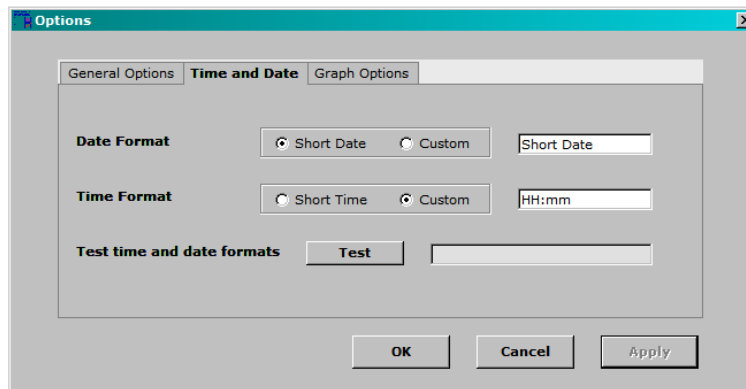
 *Enter the company or location name.*

 *Select your preferred temperature scale.*

The software is able to export the logged data as comma separated values (csv) files. There are two alternatives for the format of the dates saved in these files:

- Numeric dates allow the data to be used by other software, such as Microsoft Excel, or imported into Thermodata 3 without error.
- Text dates allow the file to be read directly by a person viewing the file in a text editor. Importing this data may result in errors arising from differing date formats. For example, 03/07/2008 would be interpreted as March 7 in the USA and July 3 in Australia.

 *Select your preferred date format.*



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The date and time format may be selected from the options shown or entered manually by typing the format definitions into the time and date format fields. The options for format definition are as follows:

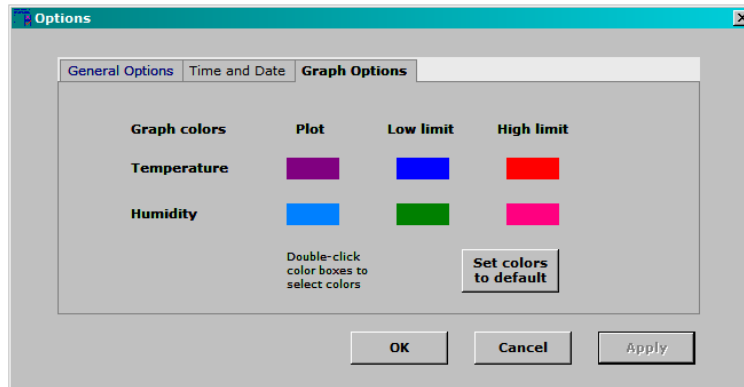
d	The day of the month is shown as a number, i.e., 7 or 17
dd	The day is shown as a two digit number, i.e., 07 or 17.
ddd	The day is shown as a three letter abbreviation, i.e., Thu
dddd	The day is shown in full, i.e., Thursday
M	The month is shown as a number, i.e., 8 or 12
MM	The month is shown as a two digit number, i.e., 08 or 12
MMM	The month is shown as a three letter abbreviation, i.e., Aug
MMMM	The month is shown in full, i.e., August
yy	The year is shown as a two digit number, i.e., 03
yyyy	The year is shown as a four digit number, i.e., 2003
m	The minute is shown as a number, i.e., 7 or 17
mm	The minute is shown as a two digit number, i.e., 07 or 17
H	The hour is shown as a number, i.e., 2 or 12
HH	The hour is shown as a two digit number, i.e., 02 or 12
AMPM	after the time format makes the time appear in 12 hour format followed by AM or PM

Long date formats may not fit into the layout of some forms and reports.

 *Enter your preferred date and time format.*

 *Click the Test button.*

The current date and time will appear in the selected format.



The colors used in the graph may be changed from the default colors shown:

 *Double-click on the color box*

 *Select the preferred color for the plot line and click OK*

Logger configuration

Loggers must be configured before they are used. Configuration is also referred to as missioning.

Configuration sets the operating parameters for the logger, synchronizes the logger's internal clock with that of the PC and sets the logger to start immediately or with a delay.

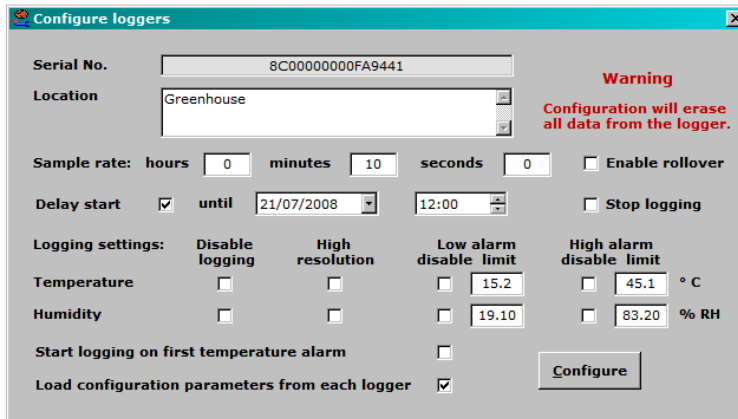
 **Configuration erases all log data stored in the logger. If the data is important, please ensure that it is exported to a file before configuration.**

Loggers may also be stopped. This preserves the data in the logger until it is next configured.

 *Click the logger configuration button:*



The configuration form will be displayed:



Logger detection

Loggers are automatically detected as they are connected to the receptor. When a logger is detected the serial number and location data from the user memory will be displayed.

If the Load Configuration Parameters from Each Logger is checked then the parameters, including sample rate and alarm settings will be displayed.

Only those parameters applicable to the connected logger will be available.


Configuration parameters


The following configuration parameters are available when configuring loggers:

Logging interval (sample rate)

Available logging intervals are as follows:

- 1921 type loggers: 1 minute to 255 minutes (4 hours 15 minutes).
- 1922 and 1923 type loggers: 1second to 273 hours.

 **1922 and 1923 type loggers should not be left running with very short logging intervals. Leaving a logger running with a 1 second logging interval will deplete the battery within a few weeks whether or not rollover is selected. If a short interval is used , it recommended that the logger is stopped as soon as possible after the data is collected. For details on stopping loggers, see the Stop Logger section on the next page.**

 **If a logging interval of five seconds or less is selected, subsequent configuration or stopping of the logger may require several attempts. If configuration is not successful with the logger running then it is necessary to stop the logger before configuration.**

It is not possible to set the logging interval to zero with Thermodata software.

Rollover

If rollover is not enabled the logger will collect data only until the internal log memory is full. If rollover is enabled the logger will continue collecting data, erasing the oldest log record when each new reading is taken.

For example, a 1921 logger with a logging interval of 30 minutes will run for approximately six weeks. If it is left in place for six months with rollover disabled, the first six weeks of data will be collected and saved after which data collection will stop. Subsequent data will not be logged.

If rollover is enabled the logger will have the most recent six weeks of data in memory. Earlier records will be discarded.

Start delay

Loggers may be configured with a delayed start as follows:

- 1921 type loggers have an approximate maximum start delay of 42 days
- 1922 and 1923 loggers have a maximum start delay of 5 years using Thermodata software.

The theoretical maximum start delay for 1922 and 1923 loggers is about 31 years. This is not practical as the maximum battery life is less than ten years. Thermodata software limits the start delay to five years.

Stop logger

If this box is checked, the logger will be stopped and the log data preserved. No change to passwords or other parameters is possible when stopping loggers.

Disable temperature or humidity

1923 type loggers may be configured to record:

- Temperature only.
- Humidity only.
- Temperature and humidity together.

 *To disable either temperature or humidity check either “disable logging” box.*

High resolution

1922 and 1923 loggers allow either standard resolution (0.5°C) or high resolution of 0.0625°C. However, high resolution readings use double the memory so the logger will record only half the number of readings.

Available mission samples

Logger type and configuration	Maximum number of samples	Mission duration (30 minute interval)	Mission duration (5 minute interval)
1921	2048	6 weeks	1 week
1922 low resolution	8192	24 weeks	4 weeks
1922 high resolution	4096	12 weeks	2 weeks
1923 temperature or humidity low resolution	8192	24 weeks	4 weeks
1923 high resolution temperature or humidity	4096	12 weeks	2 weeks
1923 low resolution temperature and humidity	4096	12 weeks	2 weeks
1923 high resolution temperature and humidity	2048	6 weeks	1 week
1923 high resolution temperature and low resolution humidity	2560	53 days	9 days
1923 low resolution temperature and high resolution humidity	2560	53 days	9 days

Alarm limits

1921 loggers require that alarm limits are entered during configuration. Alarm limits are used by Thermodata software to emphasize out of range data on printed reports and graphs.

1922 and 1923 loggers offer the option of selectively disabling alarm configuration for either high or low limits for temperature or humidity. If the disable boxes are checked, Thermodata software will not include alarm limits with data downloaded from these loggers.

 *If alarm configuration is enabled, enter the required alarm limits into the fields.*

Alarm limits are stored to the nearest 0.5°C or 0.6% relative humidity. 1922 and 1923 type loggers include internal calibration data which affects the alarm limits. The calibration factor will be applied to the alarm limits, which generally do not exactly match the limits entered during configuration.

Start mission on first temperature alarm

1922 and 1923 loggers may be configured to start logging only when a temperature outside the specified alarm limits is detected.

If a start delay is used in conjunction with this feature then the logger will only start after the start delay has elapsed and an out of range reading is detected.

Configuration

 *When all of the parameters are set to your requirements, click Configure.*

Configuration takes around one second. A success message will be shown at the bottom of the form if configuration is successful.

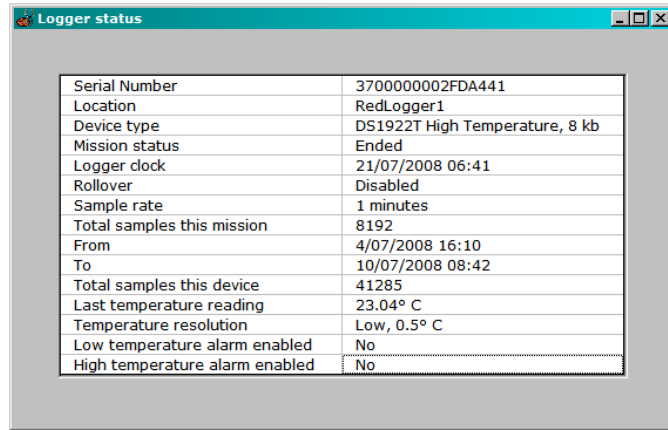
Logger status

 *Click the Logger Status button:*



The logger status form will appear:

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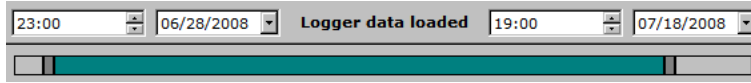
The screenshot shows a window titled "Logger status" with a table of configuration parameters. The table has two columns: the parameter name and its value.

Serial Number	370000002FDA441
Location	RedLogger1
Device type	DS1922T High Temperature, 8 kb
Mission status	Ended
Logger clock	21/07/2008 06:41
Rollover	Disabled
Sample rate	1 minutes
Total samples this mission	8192
From	4/07/2008 16:10
To	10/07/2008 08:42
Total samples this device	41285
Last temperature reading	23.04° C
Temperature resolution	Low, 0.5° C
Low temperature alarm enabled	No
High temperature alarm enabled	No



The status and all configuration parameters for the logger will be displayed.

Downloading and displaying data

When a logger is connected, the data is automatically downloaded. The date and time range of the data is shown in the toolbar.



If less than the full range of data is required to be displayed or exported then a lesser date and time range may be selected.

-  *Select the start and end dates and times in the boxes on the toolbar, or*
-  *slide the two ends of the slider control until the desired date and time range is shown in the boxes.*

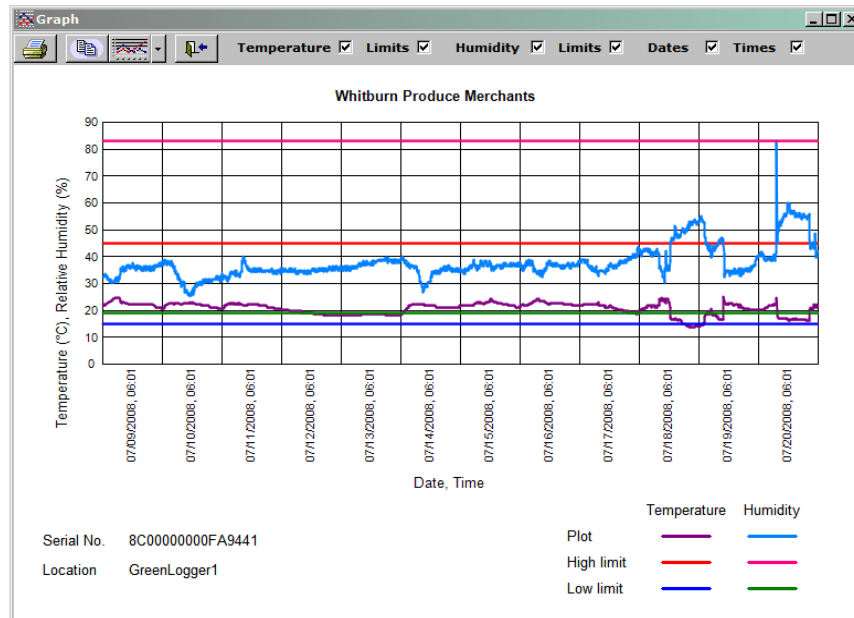
The graph and data grid will update automatically to show the selected range if they are open when it is changed.

Graph

-  *Click the Graph button:*



The graph will be displayed:



While viewing the graph, the following options are available:

- Show temperature (applies only if the graph includes humidity data).



Uncheck this box to remove the temperature plots and alarm limits from the graph.

- Show humidity (applies only if the graph includes humidity data).



Uncheck this box to remove the humidity plots and alarm limits from the graph.

- Show alarm limits.



Uncheck this box to remove the alarm limit lines from the graph.

- Show date.



Uncheck this box to show the time of day only on the time axis.

- Show time.



Uncheck this box to show the date only on the time axis.

The following icons are displayed on the toolbar:

- Print. Displays the Print dialog box and.
- Copy. Copies an image of the graph to the clipboard. The image may then be pasted to a graphics or word processing application.
- Time between tick marks (drop-down)



Select the number of days or hours between entries on the time axis.

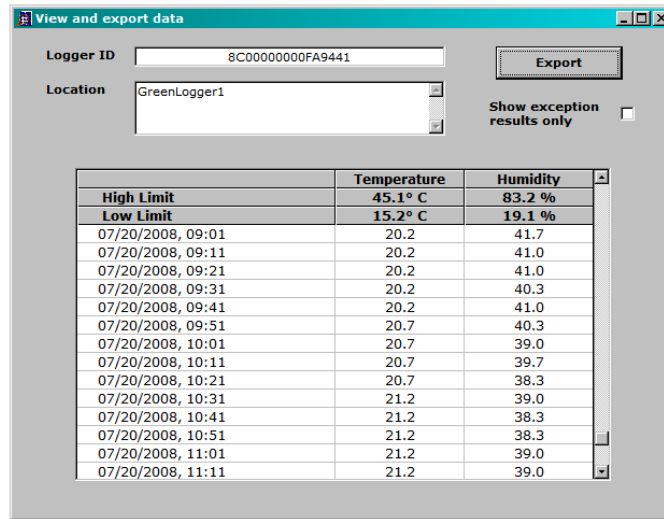
- Close. Closes the graph.

View and export data

 Click the View button:




The View and export data form will be displayed:



	Temperature	Humidity
High Limit	45.1° C	83.2 %
Low Limit	15.2° C	19.1 %
07/20/2008, 09:01	20.2	41.7
07/20/2008, 09:11	20.2	41.0
07/20/2008, 09:21	20.2	41.0
07/20/2008, 09:31	20.2	40.3
07/20/2008, 09:41	20.2	41.0
07/20/2008, 09:51	20.7	40.3
07/20/2008, 10:01	20.7	39.0
07/20/2008, 10:11	20.7	39.7
07/20/2008, 10:21	20.7	38.3
07/20/2008, 10:31	21.2	39.0
07/20/2008, 10:41	21.2	38.3
07/20/2008, 10:51	21.2	38.3
07/20/2008, 11:01	21.2	39.0
07/20/2008, 11:11	21.2	39.0

Data grid

The data grid displays the selected data range in tabular form. If alarms are enabled then readings outside the alarm limits are displayed in bold text.

 Check the Show Exception Results Only box to display only those results that are outside the alarm limits.

Data export

 Click the Export button.

The Save File dialog box will be displayed.

 Select the folder and file name and click Save.

The file will be saved to the selected location.