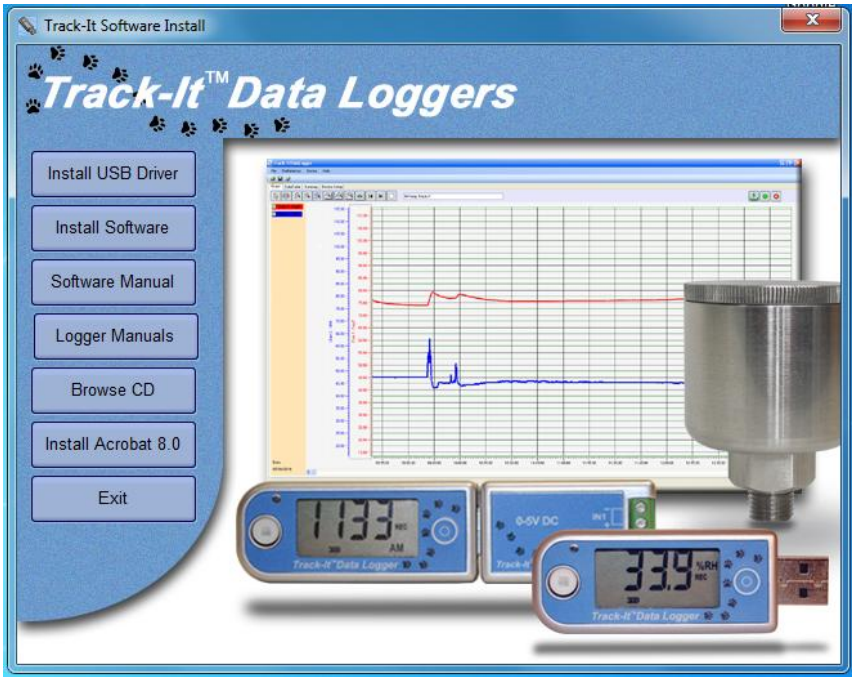
Track-It Software User's Guide



Track-It is a PC based (Windows XP / Vista/ Windows 7) program to enable a user to program and view data from the Track-It series of micro data loggers. The program allows the loggers to be configured (set up) and for data to be retrieved, displayed and in some instances, viewed in real time on the PC. The user can also export data into a CSV file for import into an Excel spreadsheet. This manual applies to Software Rev 0.9.175 or later.

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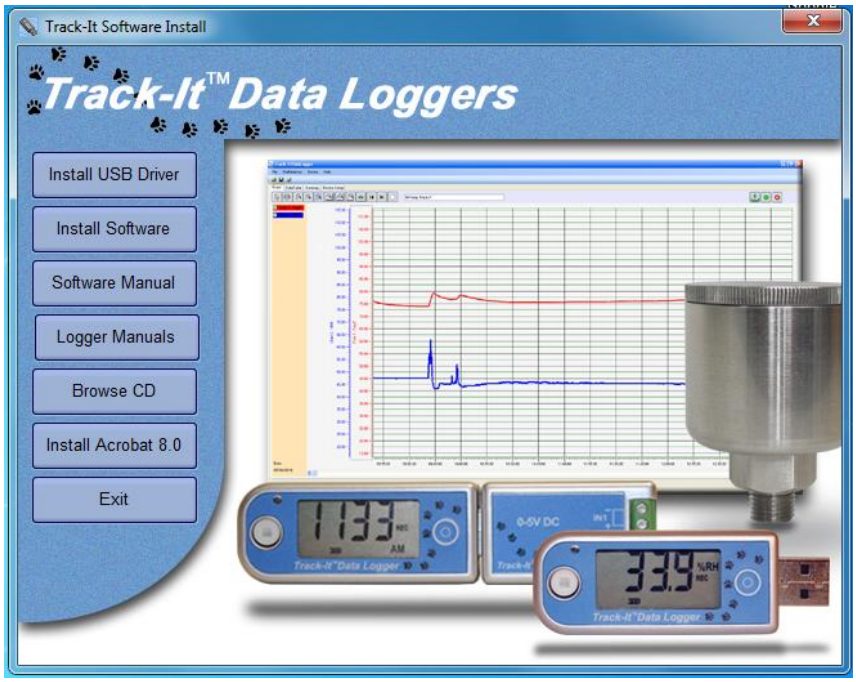
1.0 Installation

1.1 Software Installation

This installation is detailed for a Windows 7 system – It is similar for Windows Vista / XP.

Note: Before reinstalling or upgrading the software, remove existing versions using the Control Panel – Add/Remove Programs

Insert the Installation CD into the Drive. If the installation does not begin automatically use Windows File Explorer to navigate to the CD drive and run CD_Start.exe. The installation program will launch and display the menu shown here.



If you plan to use the help files you will need to install the Acrobat™ Reader if not already present on your system. Click "Install Acrobat 8.0".

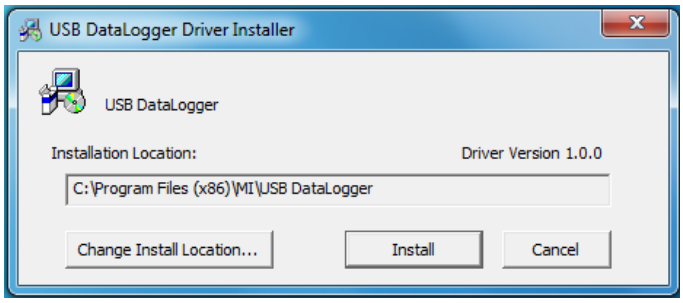
There are two parts to the software installation - install the USB Driver and then install the main application (software).

1.2 USB Driver Software Installation

Note: Ensure the USB device (Recorder) is NOT plugged in during this installation. The USB driver has to be installed in order for the software to run.

To install the USB Driver - click the "Install USB Driver" button.

The installer will automatically launch the USB driver installation. If it does not use Explorer to navigate to the installation CD "USB VCP Driver" directory and double click "USBDataLoggerVCPInstaller.exe". This will bring up the Installer window shown here.

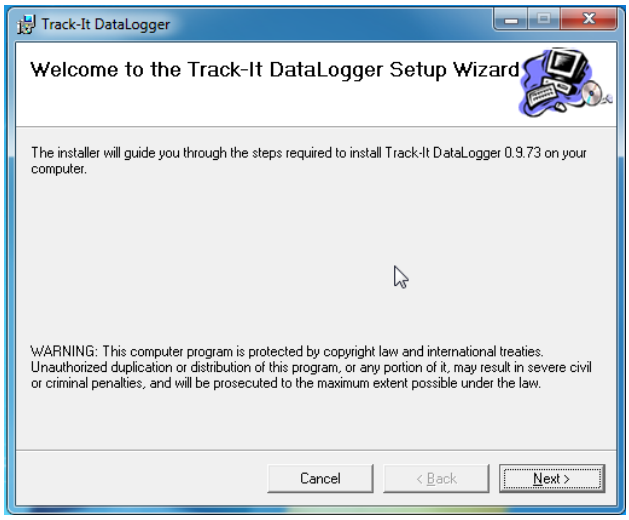


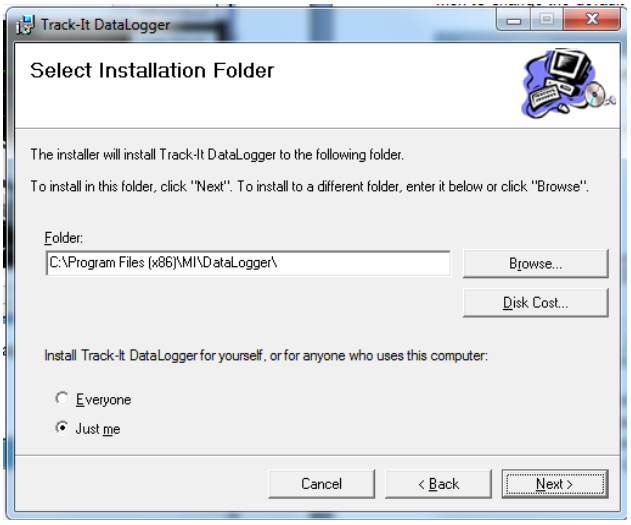
The default installation location will be shown, if you wish to change it for any reason, enter the new install location. Click the "Install" button. The system will be scanned then the software will be installed. Follow any instructions.

You may get the ominous Window's Unsigned Driver warning message (or Windows can't verify the publisher of this software) – click "Continue Anyway". The Driver Software will be installed.

1.3 Application Installation

To install the actual application software click the "Install Software" button. This will launch the Track-It setup wizard shown below left. Click the "Next >" button to continue to the license agreement. Accept the license agreement – "I Agree" (or quit the installation) and click the "Next >" button to continue. You will then be asked to enter your information – name and business. Enter the information if you wish and click the "Next >" button to continue. Now select the installation folder – shown below right. If you wish to change the default for any reason, enter the new install location and whether the installation will be accessible to all users of this machine or just you (default). Click the "Next >" button.





On the "Confirm Installation" screen click the "Next >" button. The software will be installed.

Note: This program requires the DotNet component. If it is not found on the system it will be installed.



When completed click the "Close" button. A shortcut icon (shown here) will be placed on the desktop.

1.4 Inserting the USB Device (Logger)

Insert the USB Device into the USB slot on the computer. It will be recognized and depending on the operating system it will be announced as – "Found new hardware – Loading Driver or Loading Software"

The device will be installed as a VCP - virtual communication (comm) port. Correct installation can be checked using the Device Manager. In Windows 7 - from the "Start" menu - right click on "Computer" and select "Properties" then select "Device Manager" from the list on the left. For Windows XP - from the "Start" menu - right click on "My Computer" and select "Properties". Select the "Hardware" tab the click "Device Manager".

This will bring up the device list shown here. Click on "Ports (COM& LPT)" and you should see an entry for "USB DataLogger (COMx)" where x is the comm port number assigned and will depend on what devices are already resident on your PC. In this case x = 7 so the USB DataLogger will appear as Serial Comm Port 7.



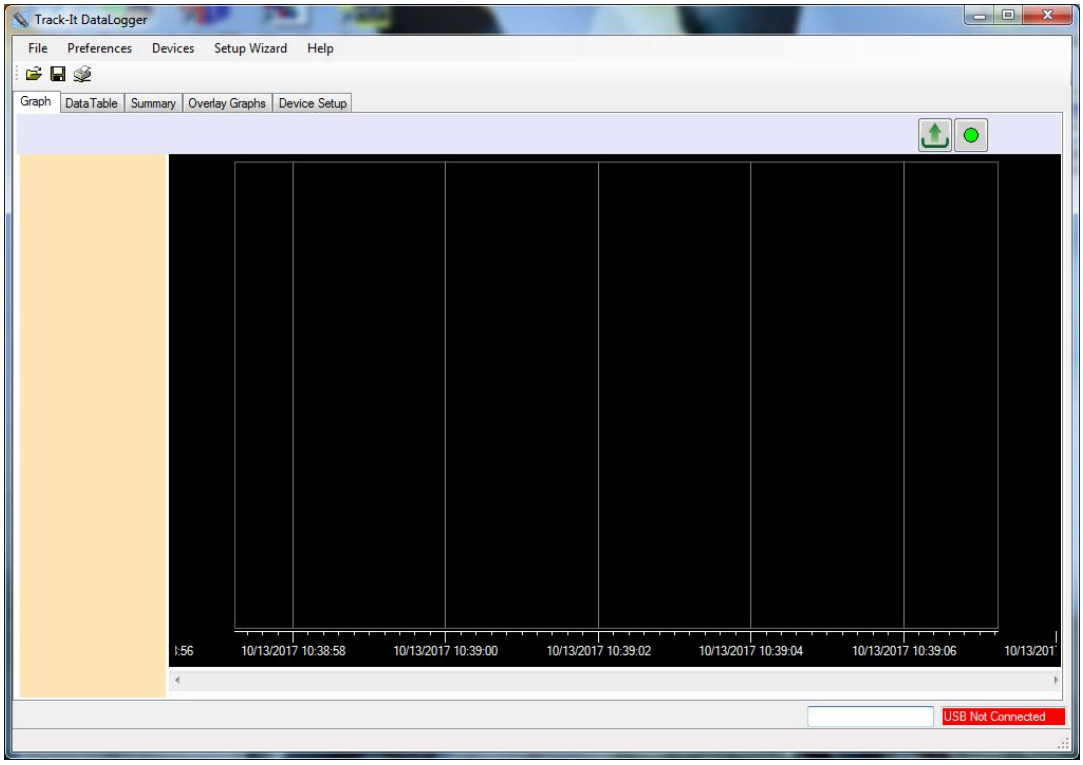
2.0 Operation

2.1 Start Up

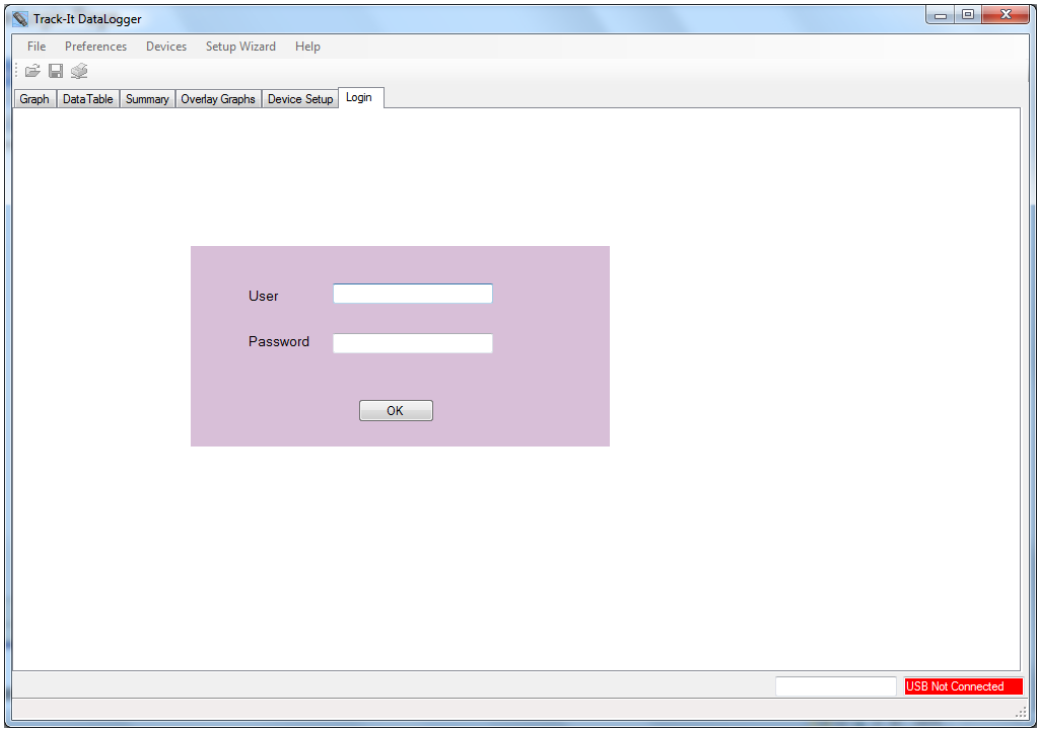


To start the program double click the Track-It icon shown on the right or select the program from the Start menu.

If the security is not enabled, the program start up window will appear as shown below.



Otherwise, it starts at the Login Page



To enable the master password see Chapter 3.4 -Preferences.

There are menu options (File, Preferences, Devices, Help) and 3 icons at the top of the window.
Open File; Save File; Print

And below that are tabs (Graph, Data Table, Summary, Overlay Graphs, Device Setup, Login). The content of the window is dependent on which Tab is selected.

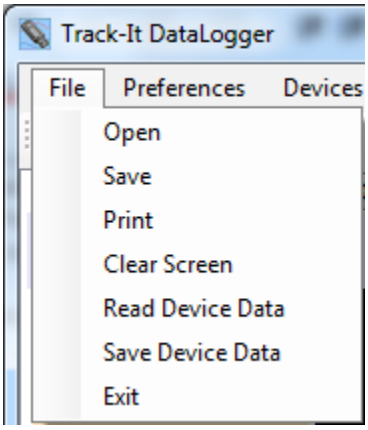
At this point there are several options available. A previously saved data file can be opened or a logger can be connected to the USB port and its data can be uploaded or it can be configured for use or in some cases live data can be read.

2.2 Logging in to the Program

The password option is disabled by default when the software is installed. The Login page is not enabled. This option can be modified in the Preferences dialog box, which is explained in the next section - Preferences. Users can also be added. If the password option is enabled, the user has to login first. Otherwise, the program cannot do anything.

The menu options are as follows:

2.3 File



2.3.1 Open

This allows the user to open a saved data file for viewing. Also available by icon .
The Open Data File window will pop up so the user can select the file (of type .dat) to be loaded into the graphic window for viewing.

2.3.2 Save

This allows the user to save any current data on the graph. Also available by icon .
The Save Data File window will pop up so the user can name the file to be saved.

2.3.3 Print

This allows the user to print the current graph. Also available by icon .
The print window will pop up. The user can select a printer and adjust its properties. The Print Range is used to print just the Current Page or a range of pages. If "All" is selected use the drop down menu to select the Total number of Pages to be printed. The Margins can be set. The options allow for top, bottom, left and right margin adjustment.

The data table and summary table can also be printed.

2.3.4 Clear Screen

This clears the graph and table.

2.3.5 Read Device Data

This allows the user to retrieve the current recorded data in the device. If selected, it will ask for a file name. This operation will stop any recording currently in progress on the device. If there is no recorded data in the device you will get a message to that effect.

2.3.6 Save Device Data

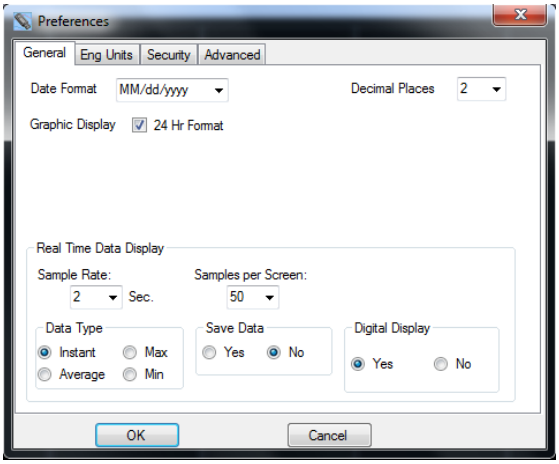
This allows the user to retrieve the current recorded data in the device. If selected, it will ask for a file name. The "Memory Dump" will not plot the graph nor display the data on the table.

2.3.7 Exit

Close and exit the program.

2.4 Preferences

There are basic settings that need to be set up by the user if the defaults are not acceptable. Select "Preferences" from the menu at the top of the window. This will pop up the preferences window shown below.



2.4.1 The General Tab

This page has several settings that affect the way data is displayed.

2.4.1.1 Date Format

Selects the format in which the date is presented. Select your preference from the pull down menu.

2.4.1.2 Decimal Places

Selects the number of decimal places in which numeric data will display.

2.4.1.3 Graphic Display 24 Hr Format

If checked time on the graph will be displayed in 24 hour format. If unchecked time will be displayed in 12 hour format with AM and PM indication.

2.4.1.4 Real Time Data – Sample Rate

When sampling and displaying in real time this selects the real time sample update rate.

2.4.1.5 Real Time Data – Samples per Screen

Use the pull down menu to select how many samples fill the screen before the graph starts to auto scroll. The user can still choose to compress the data at a later stage.

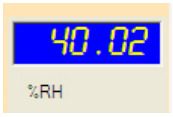
2.4.1.6 Real Time Data – Data Type

Select whether to show data as Instant – each data point is displayed as is, Max or Min will show the peak value high or low, Average will average the readings. Note that a 2 second sample rate is the maximum sample rate and essentially all points will be instantaneous.

2.4.1.7 Real Time Data – Save Data

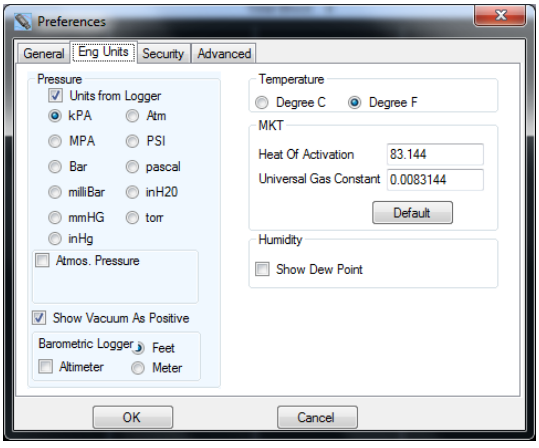
Check Yes to record data to your local storage medium. When choosing to display live data in the graphic window you will be asked to select a data file to save the data to.

2.4.1.8 Real Time Data - Digital Display



If checked Yes - adds a digital display on the left hand side of the graphic window during LIVE display.
Note: Right Clicking on the Digital Display pops up a window allowing selection of colors.

2.4.2 Eng Units



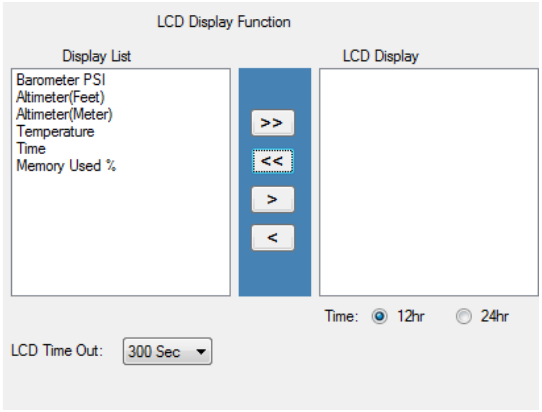
2.4.2.1 Pressure Units

Select this tab to select the units used by this program locally to display pressure (specific to certain loggers only). Note this does not affect the logger which always uses its default units (kPa). The scale factor from selected engineering units to kPa is shown and may be adjusted by the user.

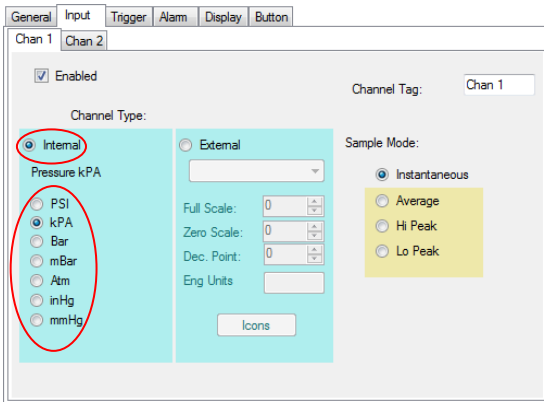
The check box "Units from Logger" is only for the Pressure Display Logger. If it is checked, the software will use the unit that is used by the logger and ignore the choice from the Preferences.

The user can also decide to Use a Pressure Offset, Show Vacuum Positive (or negative if not checked), and set the Barometric Altimeter in Feet or Meters.

Note that the Barometric Altimeter (Feet), and Altimeter (meters) are also available under Device_Setup/Display tab to be displayed on the LCD if so desired.



On the Chan 1 tab under the Input tab, the pressure selections are also available when the "Internal" radio button is selected. Seven pressure units are available for use.



2.4.2.2 Temperature

Select the temperature units used to display on the logger by clicking °C or °F. Note the Logger device always uses °C internally.

2.4.2.3 MKT - Mean Kinetic Temperature

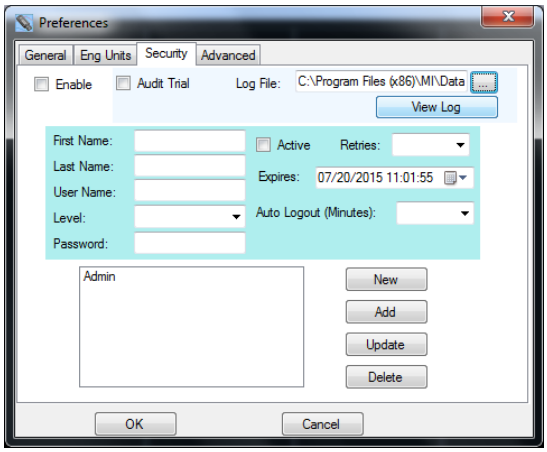
The user can enter the values that are used to calculate Mean Kinetic Temperature.

2.4.2.4 Humidity

If the "Show Dew Point" checkbox is checked, a new trace will be plotted on the graph and a new column will be displayed on the data table if both Temperature and Humidity channels are enabled for Temperature / Humidity loggers.

2.4.3 Security

Security must be ENABLED in order to be active. This window allows the security to be enabled and allows users to be created, privileges assigned, restrictions set and an audit trail generated. Once Security is enabled only Users with Administrative privileges may edit this page.

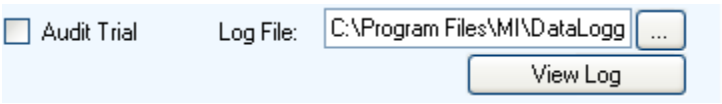


The Administrator can enter a User name, activate or deactivate Users, choose the User access level, User access expiration date, and password. Once all the options are selected click the "Add" button. This user will be added to the user list. Similarly a user can be highlighted in the list and the user parameters will be displayed. Any parameter may be changed and can be saved by clicking the "Update" button.

General options are:

Enable Enables the password option. If not checked there will be no User control of the software and anyone can use it without restriction.

Audit Trail If Audit Trail is checked, activities including everything related to security, communication to the loggers and PC will be encrypted and saved to the file entered in the "Log File" text box.



If the logged in User has Administrator privileges, then the activity log can be accessed by clicking the "View Log" button.

The options when adding or editing a user are:

First Name The user's first name
Last Name The user's last name
Level There are three User Levels: User, Manager and Administrator



User: **Can read and save data from loggers.** Cannot access Preferences or change the logger's configuration. Cannot save the configuration to the PC.
Manager: Access to everything except Preferences.
Administrator: Access to everything.

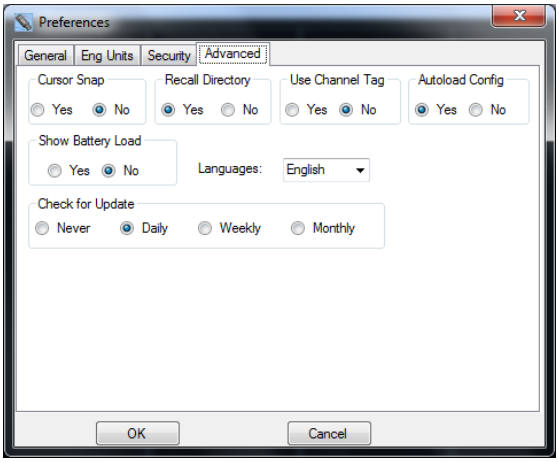
Password Enter the password to be used for this user.

Active If the user is active (Checked box) they can access the program provided their user name and password match when logging in to the program. If not active, the user cannot log in to the system.
Retries The number of times the user can try to login before the user login fails.
Expires The user's login privilege will expire on this date.
Auto Logout The program will automatically logout the user after this amount of inactivity time (in minutes).

New Clear all area except the user list box.
Add Adds a user to the user list. The list box on the bottom left on the dialog shows all users.
Update Modifies a user's password data.
Delete Choose one of the users in the list box and click delete. That user will be deleted from the list.

2.4.4 Advanced

2.4.4.1 Cursor Snap to Point



Determines whether the cursor will snap (jump) to the actual data point on a line – check Yes, or move along the extrapolation of the line – check No.

2.4.4.2 Recall Directory

If checked Yes the program will remember the last directory used and will default to this at each start up.

2.4.4.3 Use Channel Tag

If checked Yes – uses the user supplied Channel Tag as set in the Device Setup - Input tab else uses the generic labels Chan 1 or Chan 2.

2.4.4.4 Autoload Config

If checked Yes – each time the Device Setup tab is selected the program will load the configuration from the logger, provided the logger is attached to the USB port. If checked No – the user will need to load the configuration manually, either from the device or the PC. When navigating away from Device Setup and back, the configuration will remain intact once loaded.

2.4.4.5 Show Battery Load

Show the battery load on Device Setup page – Yes or No.

2.4.4.6 Languages

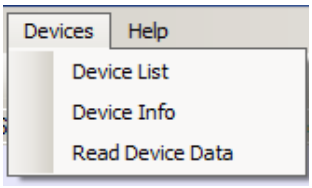
Selects the language in which all dialogs will be presented. This requires language specific file "language.csv" that is configured for the languages required. The default is English.

2.4.4.7 Check for Update

Automatically checks for software update according to the setting.

2.5 Devices

The Devices menu option refers to the Logger plugged into the USB port on the PC.



2.5.1 Device List

This will show the device(s) currently connected or available to the PC. Select the device you will be working with by checking the box and then press the "Connect" button. If only a single device is connected it will connect automatically.

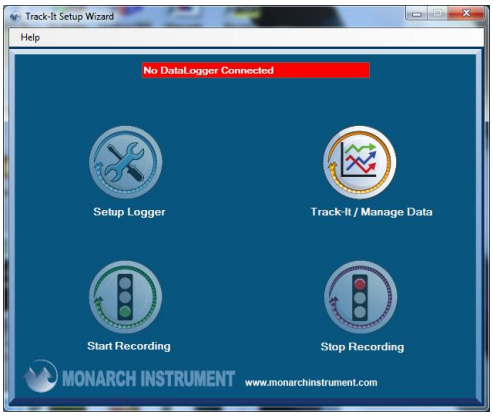
2.5.2 Device Info

This shows the information about the current connect device. It shows memory capacity, device type, the current firmware revision and the device serial number.

2.5.3 Read Device Data

This allows the user to retrieve the current recorded data in the device. If selected it will ask for a file name. This operation will stop any recording currently in progress on the device. If there is no recorded data in the device you will get a message to that effect.

2.6 Setup Wizard



This will stop Track-It Software and start Track-It Setup Wizard.

2.7 Help

Selecting the "Help" menu item pops up the help selection. There are two choices:

2.7.1 Manual

Opens this user manual.

2.7.2 About

Pops up a window showing the software revision.

2.8 Graph Tab

The Graph tab allows for the visualization of data. The user can choose to load an already saved file using the Open option or Upload data from a connected device or View data in real time (select loggers only).

2.8.1 Icons

The graphic area is fully interactive. Data can be zoomed and scrolled, the interaction controlled by the icons above the graph. Mouse over the icons for a brief description of their function.



- Pan

This is the default cursor. It is used to scroll the trends horizontally and vertically by simply right clicking in the graphics area. Traces can be scrolled individually by clicking and dragging the individual vertical scales or together by clicking and dragging in the graphics area.

 - Expand / Compress
Click this button to expand (zoom) or compress the graph along the x-axes (time) and y-axis (scale). Traces can be zoomed individually by clicking and dragging the individual vertical scales or together by clicking and dragging in the graphics area.

 - Zoom In
Click this button to zoom in the graph.

 - Zoom Out
Click this button to zoom out the graph.

 - Zoom Window
Click this button to zoom to a user-defined window. When clicked, the cursor will turn into a draw window tool. Draw a window around the area of interest by holding the right mouse button and dragging the window. On release, the window area will fill the graphics screen.

 - Zoom X-Axis to Fit
Click this button to fit all data into one screen.

 - Manual Zoom to Fit
Click this button to manually zoom the vertical (Y) Axis. This will pop up the Manual Zoom window. Enter the minimum and maximum vertical Axis scale values and check which channel to apply it to, then press the "OK" button to execute or "Cancel" to exit.

 - Zoom Scales
Click this button to zoom the vertical (Y) Axis to the defaults. This will pop up the Zoom Scales window. Check which channel to apply it to, then press the "OK" button to execute or "Cancel" to exit. The vertical scales will zoom to the default extremes.

 - Cursor
Click this button to enable the cursor. There are several cursor options to enable in depth examination of the data on the graph. See Section 2.7.3 below.

 - Scroll to End
Click either the left or right scroll button to jump to the start or end of the data.

 - Original Scale
Click this button to make the graph back to the original scale.

 - Clear
Click this button to clear the graph and return to the start up state.

 - Upload Data from Device
This allows the user to retrieve the current recorded data in the device. If selected it will ask for a file name. This operation will stop any recording currently in progress on the device. If there is no recorded data in the device you will get a message to that effect. A device must be connected in order to perform this task.

 - Start Live Data
This allows the display (and recording if enabled under Preferences) of real time data from the connected device. Data will plot on the graph and show on the Digital Indicators if these are enabled under Preferences.

 - Stop Live Data
This allows the display of live data to be stopped.

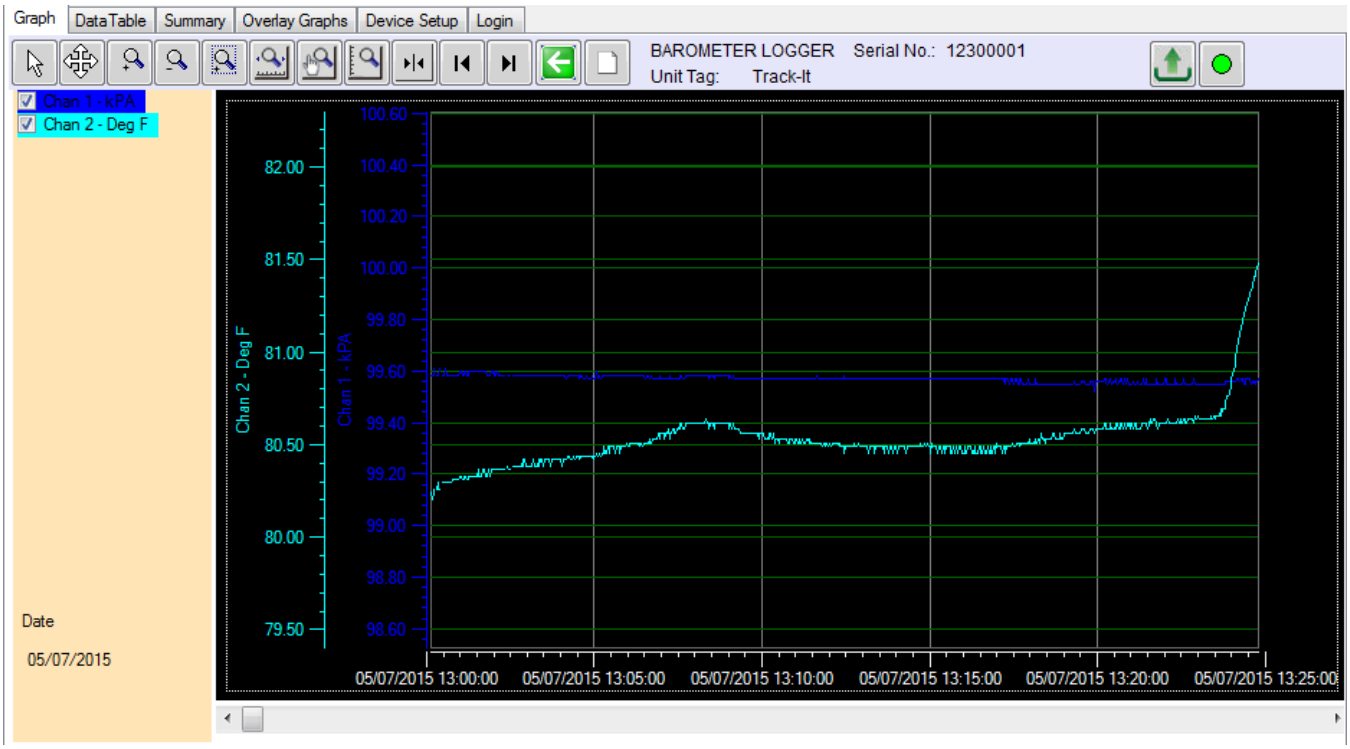
 - Pause / Run Live Data
Only visible during Live Data display. If running the Pause icon will be visible and is used to pause live data

display, note that data continues to be acquired and when the Play icon is pressed the graph will "catch up" to real time. No data is lost. If paused, the Run icon will show.

There is a TEXT BOX at the top of the graph. By default this will contain the Unit Tag but the user can choose to write anything here. This is useful as it is printed on the printout.

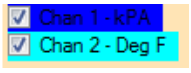
2.8.2 Displaying Recorded Data

Data can be loaded from a file or uploaded from a connected device. To open a previously saved file press the File open icon and select the file. To upload recorded data from a connected device press the Upload Data icon and follow the instructions. Once loaded the data is displayed on the graph. Use the icons above to navigate around. Use the Zoom X-Axis to Fit icon to see an overall trend. A typical graph is shown below.

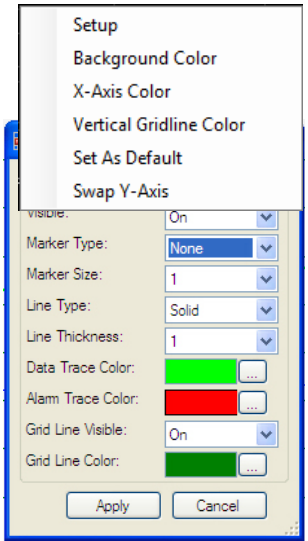


Note: This display shows the digital readouts (on the left) enabled in the Preferences menu.

On the top left are the trend identifiers, above the digital readouts – these identify the channel by trend color. By unchecking the boxes you can shut off the corresponding trace. The vertical scales for each channel will be in the corresponding color of the trace for easy identification as is the background of the digital display.



If you move the cursor anywhere on the graph and right click the mouse you will bring up the setup menu shown below. There are several options:



2.8.2.1 Setup (Channel on Graph)

The Channel Setup dialog allows the user to modify the properties of each channel.

Channel	Selects a channel
Visible	Turns the trace on or off for the selected channel
Marker Type	Identifies the actual points recorded. The trace is extrapolated between these points. The points can be marked by a square, circle or diamond. The user can also select None for no marker.
Marker Size	Adjusts the size of the marker on the points.

Line Type	Identifies the trace type. It can be solid, dashed or dotted.
Line Thickness	Adjusts the thickness of the trace.
Data Trace Color	Changes the trace color for the selected channel.
Alarm Trace Color	Changes the alarm trace color for the selected channel.

2.8.2.2 Background Color

Allows the graph background Color to be changed

2.8.2.3 X-Axis Color

Allows the graph X-Axis color to be changed

2.8.2.4 Vertical Grid Line Color

Allows the Vertical grid line color to be changed

2.8.2.5 Set As Default

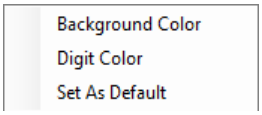
Save the current settings as default.

2.8.2.6 Swap Y-Axis

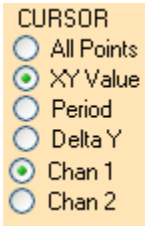
Swap the position of the vertical scales.

2.8.2.7 Digital Display Setup

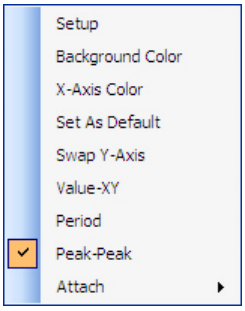
The Digital Display Setup dialog is accessed by right clicking on the digital display active area. The user can set the display background color and the color of the digits as described above. The settings may also be "Set as Defaults" and will be remembered each time the program is started.



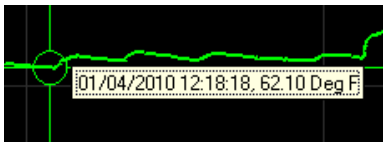
2.8.3 Using the Cursor



The cursor is turned on using the Cursor icon . When the cursor is on, a number of options appear on the left hand side of the window as shown left. Some of these cursor choices can be selected by right clicking the mouse button on the graph which brings up the cursor setup menu shown right. The cursor modes are described below:

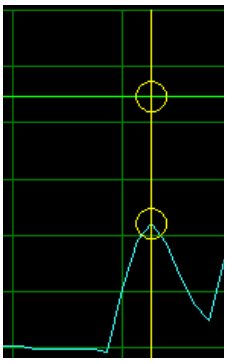


2.8.3.1 Value - XY.



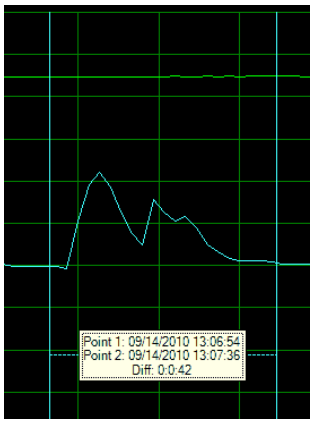
This uses a single cursor to identify a point on the trace as shown here. When the mouse is moved over the cursor line the pointer will turn into a pointing finger. If you left click at this time you can drag the cursor line left or right, the data in the travelling window will update the time and value of the point in the target circle. You can attach the cursor to the other trace by using the right click pop-up menu - "Attach" option, or simply click Chan 1 or Chan 2 radio button on the cursor menu on the left. Pressing the "S" key on the keyboard will also switch between traces.

2.8.3.2 All Points



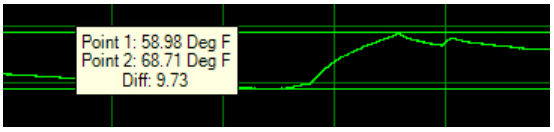
This brings up the cursor with targets around all traces as shown right. The values of the data within the target circle are shown at left in two digital panel meter windows shown above. The time stamp of the data point is below these windows and the date stamp is at the bottom left of the window. When the mouse is moved over the cursor line the pointer will turn into a pointing finger. If you left click at this time you can drag the cursor line left or right, the data in the digital panel meter windows will update.

2.8.3.3 Period



Selecting the Period Cursor option will bring up two vertical cursors which move along the X-axis (Time) with a data window box between them that shows the time of each cursor and the difference between them. This box can be dragged up or down. This enables easy measurement of time between events or duration of events. In addition there is a summary of the data between the cursors shown on the left of the graph. This gives the minimum, maximum and average of all points between the cursors for each trace. In addition, clicking the "Summary" button will jump to the Summary tab page which has additional information of the data points between the cursors.

2.8.3.4 Peak



Selecting the Peak Cursor option will bring up two horizontal cursors two cursors which move along the Y-Axis (amplitude) with a data window box between them that shows the value of each cursor and the difference between them. This box can be dragged left or right. This enables easy measurement of amplitude related events (Spikes). You can attach the cursor to the other trace by using the right click pop-up menu - "Attach" option, or simply click Chan 1 or Chan 2 radio button on the cursor menu on the left. Pressing the "S" key on the keyboard will also switch between traces

2.8.4 Live Data

The graph can be used to display live data from certain devices. The data can also be saved to the local PC storage medium if selected. This and other options are setup in the Preferences Real Time recording menu.



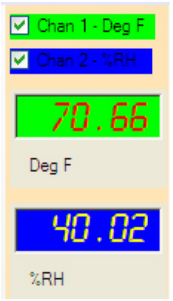
To record real time data make sure the device is connected and press the "Start Live Data" button.
Data will plot on the graph and shows on the Digital Indicators if these are enabled under Preferences.



To stop displaying/recording live data press the "Stop Live Data" button.



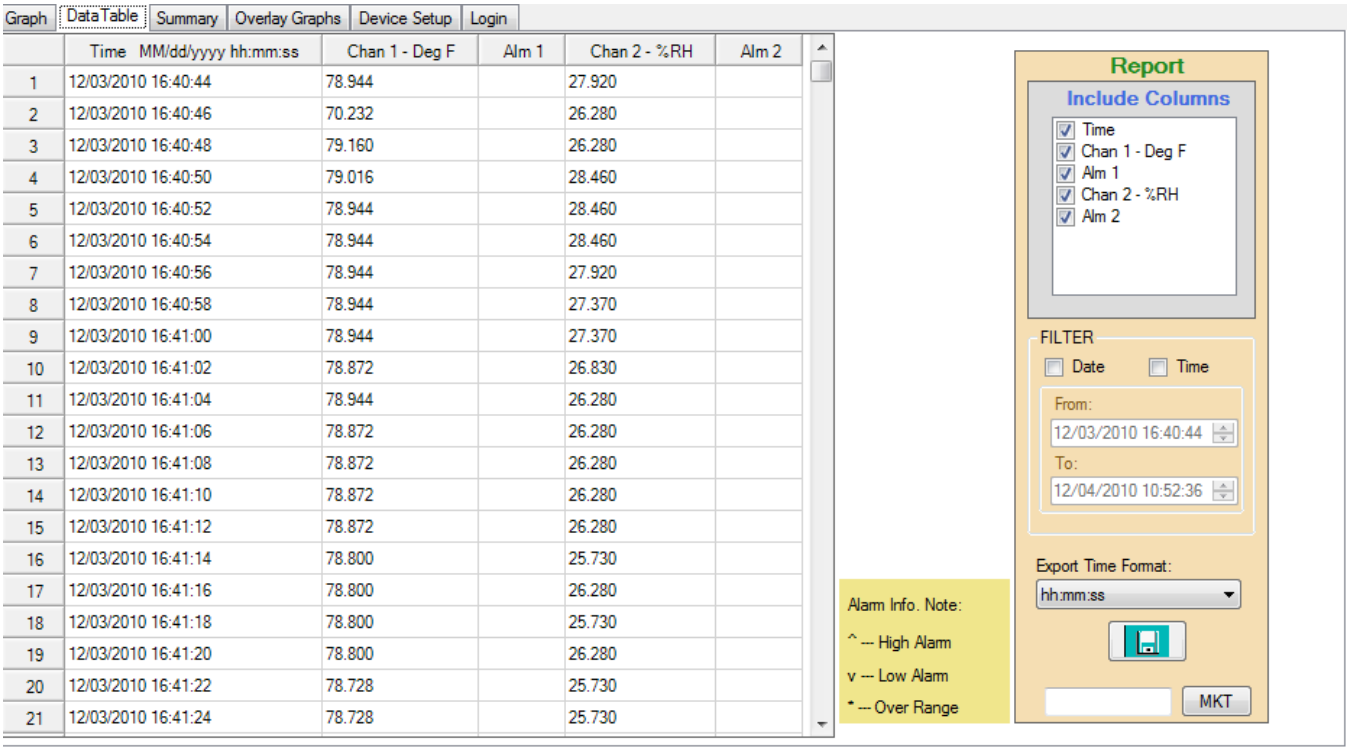
The Pause / Run Live Data buttons are only visible during Live Data display. If running the Pause icon will be visible and is used to pause live data display, note that data continues to be acquired and when the Play icon is pressed the graph will "catch up" to real time. No data is lost. If paused, the Run icon will show.



The Graph Icons and Setup options are available during Live Data but can only be accessed when the graph is paused.
The graph in live record mode is similar to the display recorded data but has the added feature that Digital displays can be enabled in the Preferences menu. The digital displays will appear on the extreme left of the vertical axes on the graph window. The digital displays can be customized by moving the mouse over the displays and right clicking. The user can change the background color and the Digit color. The display background typically follows the selected trace color.

2.8.5 Data Table

The Data Table tab displays the graphic data in tabular format with the time and date stamp of the samples along with the actual data recorded. The Alarm information, in the Alm 1 and Alm 2 columns indicate whether the data point is in alarm – indicated by "^" for high alarm or "v" for low alarm. The user can use the scroll bar to see all the data.

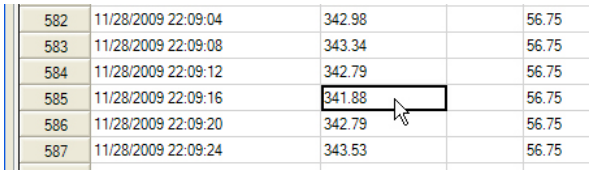


	Time MM/dd/yyyy hh:mm:ss	Chan 1 - Deg F	Alm 1	Chan 2 - %RH	Alm 2
1	12/03/2010 16:40:44	78.944		27.920	
2	12/03/2010 16:40:46	70.232		26.280	
3	12/03/2010 16:40:48	79.160		26.280	
4	12/03/2010 16:40:50	79.016		28.460	
5	12/03/2010 16:40:52	78.944		28.460	
6	12/03/2010 16:40:54	78.944		28.460	
7	12/03/2010 16:40:56	78.944		27.920	
8	12/03/2010 16:40:58	78.944		27.370	
9	12/03/2010 16:41:00	78.944		27.370	
10	12/03/2010 16:41:02	78.872		26.830	
11	12/03/2010 16:41:04	78.944		26.280	
12	12/03/2010 16:41:06	78.872		26.280	
13	12/03/2010 16:41:08	78.872		26.280	
14	12/03/2010 16:41:10	78.872		26.280	
15	12/03/2010 16:41:12	78.872		26.280	
16	12/03/2010 16:41:14	78.800		25.730	
17	12/03/2010 16:41:16	78.800		26.280	
18	12/03/2010 16:41:18	78.800		25.730	
19	12/03/2010 16:41:20	78.800		26.280	
20	12/03/2010 16:41:22	78.728		25.730	
21	12/03/2010 16:41:24	78.728		25.730	

The box to the right is used to save the data to a CSV file. 

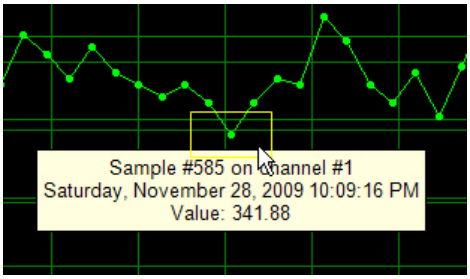
2.8.5.1 Synchronizing Data

The synchronizing option allows a user to identify points on the graph using the data table and vice versa.



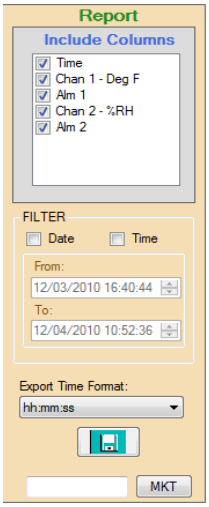
582	11/28/2009 22:09:04	342.98		56.75
583	11/28/2009 22:09:08	343.34		56.75
584	11/28/2009 22:09:12	342.79		56.75
585	11/28/2009 22:09:16	341.88		56.75
586	11/28/2009 22:09:20	342.79		56.75
587	11/28/2009 22:09:24	343.53		56.75

To jump from the data table to the corresponding point on the graph, double click the value of interest in the data table as shown right. This will open the graph page with a box around the point of interest. Place the cursor in the box to see details of the point. Note that in order to see the detail and select points on the graph you should set the marker type and size in the setup option and zoom the graph accordingly.



To jump from a point on the graph to the corresponding value in the data table move the cursor over the point on the trace, the cursor will change to a pointing hand, click the point and it will jump to the data table.

2.8.5.2 Exporting Data



Data can be saved to PC media as a Comma Separated Variables (CSV) file. The data transfer is controlled in the Report box on the right of the window. The user can select the data to be exported as follows:

Included Columns Select which columns in the table are to be exported.
Filter Check the range of data to be exported. The range can be dictated by Date, Time or both. Once checked select the From and To date/times.
Export Time Format Select hours and minutes hh:mm or hours minutes and seconds hh:mm:ss.

Press the Save Data button  to save the CSV data to media.

2.8.5.3 Printing Table Data

Use the Report dialog above to select the range of data to be printed and click the Print icon or select print from the file menu.

2.9 Summary

The Summary Tab provides a quick overview of the data loaded into the graph. The exact format depends on the actual data, user programming and device type. Selecting the Summary Tab displays two additional tabs - Channel Summary and Alarm Summary.

2.9.1 Channel Summary

This shows a summary of all data points and indicates start and stop times, the total number of samples and the maximum, minimum and average values of the recording. If the period cursors are used to get to the summary - additional information will be displayed pertaining to the data between the cursors.

Chan	Chan Tag	Chan Type	Eng Units	Max	Min	Total Samples	Average	Start Time	Stop Time
Chan 1	Chan 1	Temperature	Deg F	88.88	-39.30	11120	69.59	06/09/2010 15:20:30	06/13/2010 12:00:00
Chan 2	Chan 2	Humidity	%RH	91.34	28.33	11120	52.70	06/09/2010 15:20:30	06/13/2010 12:00:00

2.9.2 Alarm Summary

This shows a summary of all alarms that occurred.

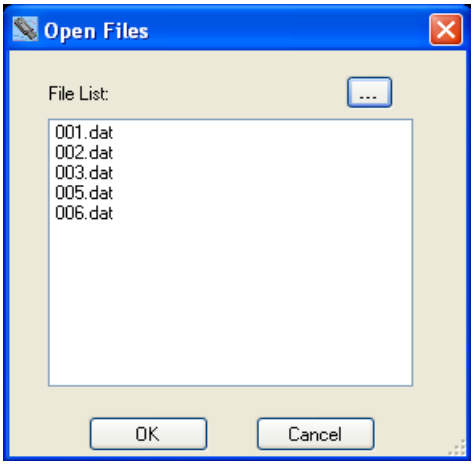
Chan	Set	Type	Max Value	Time	Duration
Chan 1	448.10 kPA	HI	517.61 kPA	11/30/2009 21:02:36	0 Hr 45 Min 0 Sec
Chan 1	448.10 kPA	HI	508.62 kPA	11/30/2009 21:47:40	0 Hr 7 Min 58 Sec
Chan 1	448.10 kPA	HI	540.37 kPA	11/30/2009 21:55:42	1 Hr 47 Min 42 Sec
Chan 1	448.10 kPA	HI	688.81 kPA	11/30/2009 23:43:28	6 Hr 39 Min 40 Sec
Chan 1	448.10 kPA	HI	534.60 kPA	12/01/2009 06:23:12	0 Hr 27 Min 40 Sec
Chan 1	448.10 kPA	HI	515.66 kPA	12/01/2009 06:50:56	0 Hr 7 Min 40 Sec
Chan 1	448.10 kPA	HI	543.59 kPA	12/01/2009 06:58:40	0 Hr 44 Min 34 Sec
Chan 1	448.10 kPA	HI	571.62 kPA	12/01/2009 07:43:18	0 Hr 37 Min 8 Sec

2.9.3 Printing Summary Table

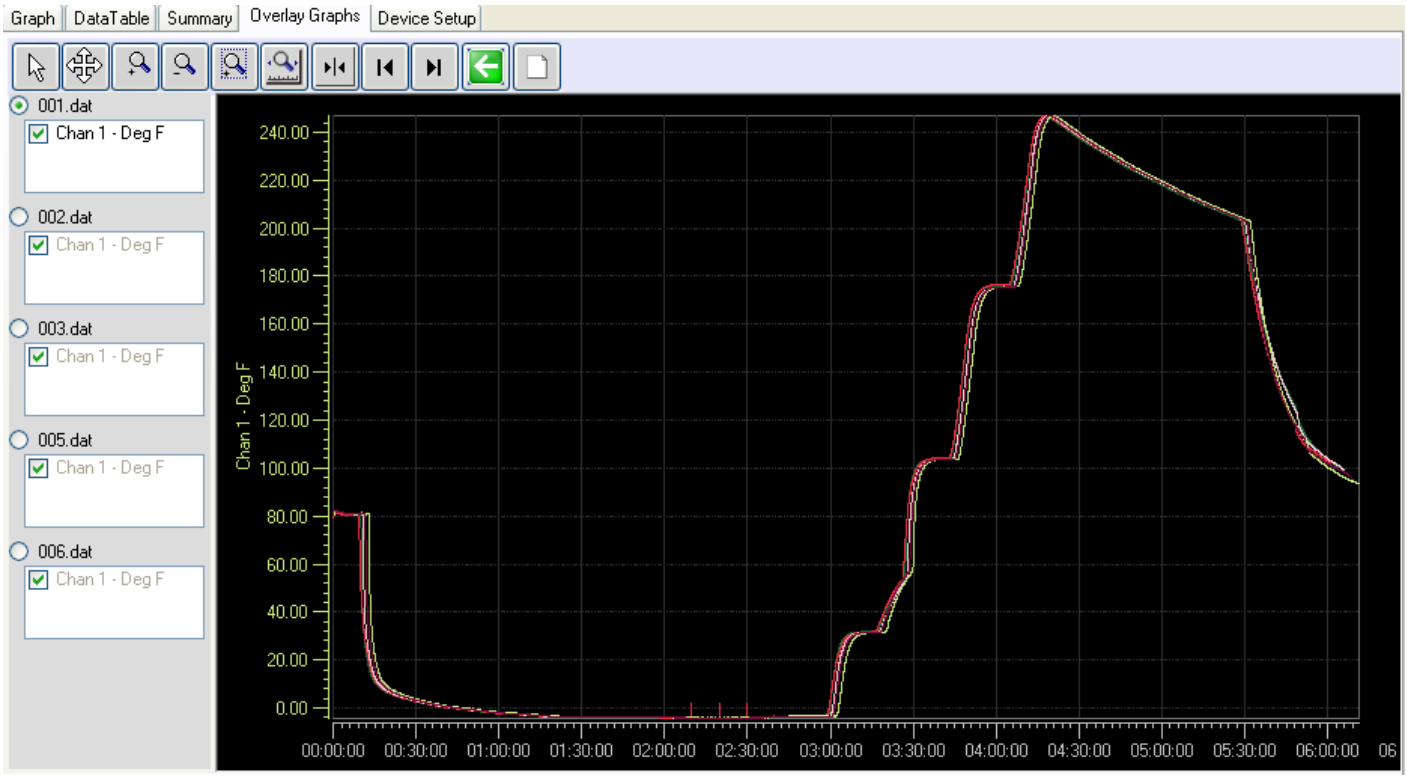
Click the Print icon to print the summary table.

2.10 Overlay Graphs

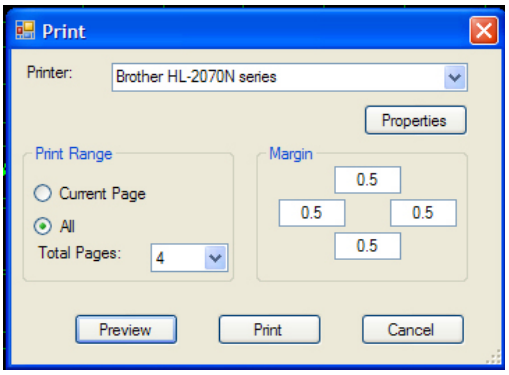
The Overlay Graphs tab allows for the visualization of data from multiple data files. The user can choose to load the already saved files using the Open option. The maximum number of files that can be opened is five.



Select the files to add to the display and click OK. The files will be loaded onto the same graph using the time/date stamp to synchronize. The chart may be manipulated as described above.



2.11 Printing



Use the print icon  or select Print from the File menu to print the graphic currently on the screen. This will bring up the Print dialog box shown here. Select an available printer from the drop down box and set its Properties as required.

2.11.1 Print range

The options are:

Current Page Select this to print the current graphic display as it appears on the page. Use the zoom icons to format the graph to your liking.

All This will bring up a "Total Pages" drop down box which will indicate how many pages will be printed in total. Select the number of pages you want to print. Note: Ensure the vertical scaling is set correctly as this will affect all printed pages.

2.11.2 Margin

Set the margins – top, left, right, bottom on the page to be printed. Inputs are in inches.

2.11.3 Preview

This will pop up a preview window which will show what the printout will look like. Use this to make sure you get what you are expecting.

2.11.4 Print

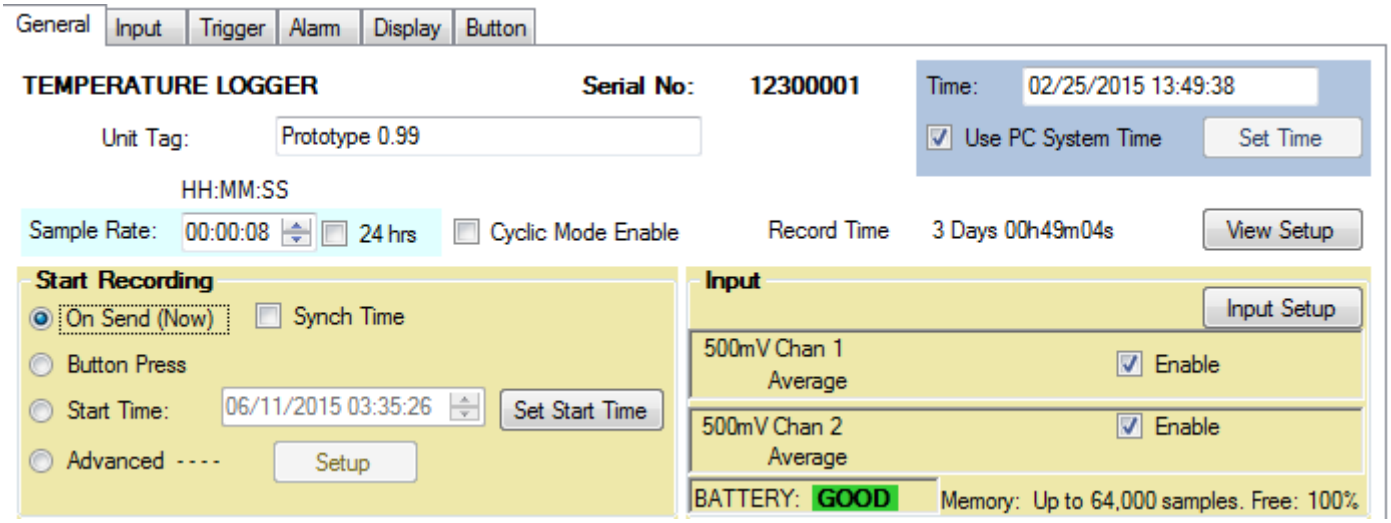
Prints the graph.

2.11.5 Cancel

Exits without printing.

2.12 Device Setup

The Device Setup Tab is used to configure the actual logger. Options under this tab depend on the type of device attached to the USB port. Not all tabs may be present and the options shown may differ from those discussed here. The basic concept is the same for all devices and you can check the documentation that came with your specific logger for more information. There are several sub tabs under the Device Setup Tab.



2.12.1 General

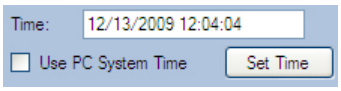
The General Tab is a quick setup window for the logger. There are advanced set ups for those users who wish to record specific events at specific times, for the most part however this page allows a quick turnaround for logger devices.

In order to set up the device it must be connected. If the device is connected (plugged into the USB port) when entering this page the data will automatically be read if the autoload config option is set in the Preferences menu.. If it is not shown as connected use the "Connect" button to select and connect to the device then use the Device Configuration "Read from Device" button to read the current configuration from the device. Alternatively a previously saved configuration can be loaded from a saved file using the "Read From PC" button.

The Device Configuration can be saved to the PC at any time using the "Save to PC" button. The configuration is sent to the device using the Device Configuration "Send to Device" button

This page contains information of how the unit is currently configured. In some places this is information only and cannot be changed here, you need to use the other tabs to actually change the settings. The device is identified at the top of the window – TEMPERATURE/HUMIDITY LOGGER in this case, and the serial number is displayed.

2.12.1.1 Time



On the right hand side is the Time window. This shows the time as loaded from the device and it updates in real time. Checking the Use PC System Time will do just that, use the PC time to send to the device. Alternatively if you press the "Set Time" button you can set the time and date to any time you want. Note that when you send a configuration to the device and the time varies from the PC system time by more than 3 minutes you will get a warning which you may choose to ignore.

2.12.1.2 Unit Tag

This is an identifying name that can be entered by the user and saved into the device. Up to 20 characters may be entered. This unit tag will appear at the top of the graph when data is loaded.

2.12.1.3 Sample Rate



This is the rate at which the device will take and store readings (in simple mode). Samples can be taken and stored from once every 2 seconds to once every 24 hours. The sample rate time window can be used to set the time from 2 seconds to 23 hours 59 minutes and 58 seconds in 2 second increments. If you require a once a day or 24 hour sample period, check the 24 hrs box. Cyclic Mode Enable essentially allows the device to record forever – or at least until the battery dies. It allows the device to overwrite old data when the memory fills up. When the device gets to

the end of memory, it cycles around and starts at the beginning again, overwriting data. You will always have the latest samples in memory – If this box is not checked the device will stop recording when memory is full. The actual total sample time is shown to the right – 3 days 19 hours 01minute and 20 seconds in this example. As you change the sample time this value will recalculate.

2.12.1.4 Start Recording

This is a quick way to start the device recording. Options are:

On Send (Now) – as soon as you send the configuration to the device it will start recording. It can only be stopped by plugging it into the USB port and using the software. There is an additional Check Box associated with this option - **Synch Time**. If unchecked, recording will start as soon as the configuration is loaded to the device. If checked, recording will start when the time is an exact multiple of the sample time. In the above case it will be on the minute, so the unit will wait until the time is XX:XX:00 (seconds zero). - as opposed to XX:XX:12 if this happened to be the start time. If Synch Time is checked it could be almost a whole sample period before the unit actually starts recording.

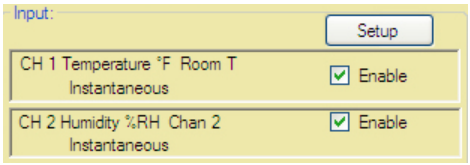
Button Press – the recording can be stopped and started using the button on the device. Read the device instructions for actual button operation

Start Time – The device will start recording at some future date and time as specified. Use the "Set Start Time" button to set the start time and date. Once the configuration is sent to the device, the device will sleep in ultra-low power mode until the start time is reached and then it will commence recording at the sample rate. This feature uses Trigger 1 – you will notice that the Trigger indication at the bottom of the page reflects this.

Advanced – This needs to set up by the user – see the Trigger Tab information below.

2.12.1.5 Input

This is an indication of how the input channels are set up in the device. It will indicate the channel type (Temperature °F) Channel tag (Room T) and sample mode (Instantaneous). The channels can be disabled by unchecking the box or can be set up using the "Setup" button.



2.12.1.6 Trigger Status

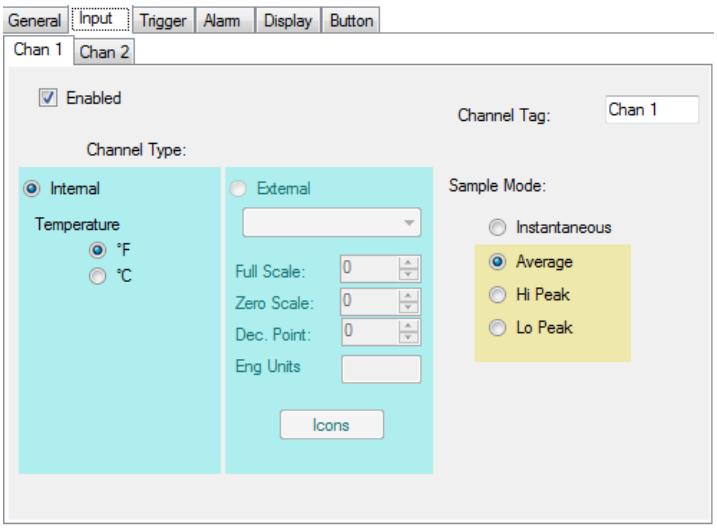
At the bottom of the window is the Trigger Status – this is what will affect the way the device records.

2.12.1.7 Other Data

For most loggers BATTERY indicates the general condition of the battery. Note that with certain batteries anything other than GOOD should be an indication to change the battery. Check the device instruction sheet. Memory shows the device capacity, and Free is an indication in percent of the amount of unused memory. NOTE: Memory will always be cleared when configuration is sent to the device if the configuration has changed from what was already in the device. You will have the option to save the memory contents before the configuration is uploaded.

2.12.2 Input

The content of this tab is device specific but is similar in set up. This example is for a temperature humidity logger.



This tab allows the user to configure the inputs of the device. Some devices have fixed inputs which cannot be changed, others, like this one have the ability to record internal (fixed) sensors, like the Temperature and Humidity OR external analog signals using plug in adapter modules (milliamps and Volts).

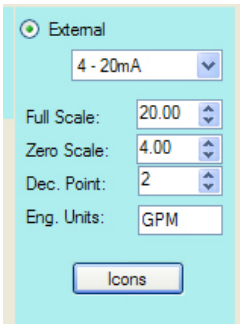
2.12.2.1 Enabled

If checked this input is active if unchecked it is disabled.

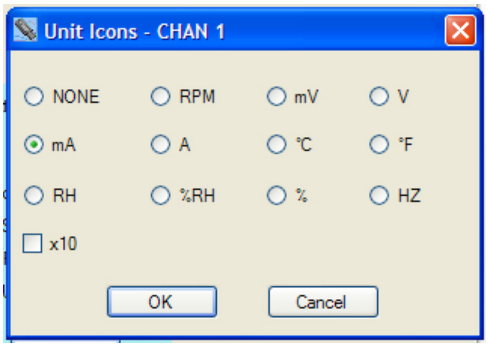
2.12.2.2 Channel Tag

Up to 9 characters may be entered to describe the channel input. This information is saved in the device and is displayed on the Graphs if set up in Preferences.

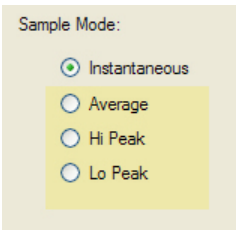
2.12.2.3 Channel Type



Select Internal to use the device built in sensor. There is nothing else to set up.
Select External to program the analog input. Select the analog module you will be using from the drop down menu box – for example 4 – 20 mA. The default scaling can be changed. For example the Full Scale value can be set to 100 and the zero scale value can be set to 0 (as opposed to 4) in this case. You can also set the number of decimal points – note that the device can only display 4 characters – assuming it has a display. You can also enter 5 characters for engineering units. This is used by the local PC software and is not displayed on the device – use the ICONS button to enable the available icons on the display as shown below.



2.12.2.4 Sample Mode

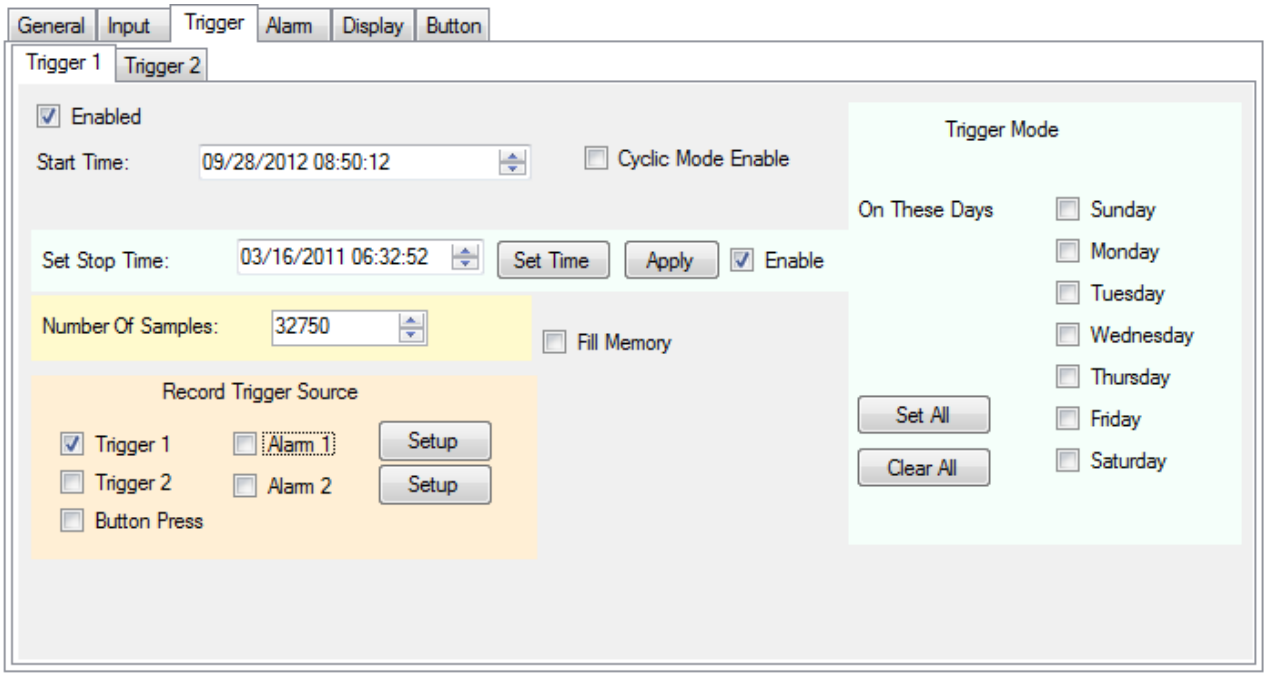


The standard mode is Instantaneous – in this mode the device takes a single sample at the sample rate and stores it in the memory. By checking one of the other modes the device will sample at the maximum sample rate – 2 seconds, and will save the result – Average, High Peak or Low Peak at the user set sample rate - thus if the sample rate is 10 minutes, the device will take a sample every two seconds then every ten minutes it will save the average of the last 10 minutes, or the peak during the last ten minutes depending on the sample mode selection. **NOTE:** While this may cut down on memory use it **maximizes the battery load**.

If a second channel exists it will have a tab and is set up in a similar way.

2.12.3 Trigger

The Trigger tab enables the user to set up the device to record at predetermined times. A number of parameters are interdependent and the user should be aware of this when setting up advanced trigger options.



There are two triggers – 1 and 2, they operate independently but their effect is combined to control the record times. These two triggers can operate independently or together with Alarms and the Button.

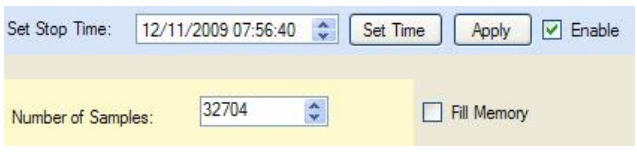
The triggers are used to start (and stop) the recording at user settable times. The Trigger needs to be enabled in order to function. The recorded data is determined by the start time, the stop time and the sample rate. The user can select a start time and stop time which will determine the number of samples recorded, or the number of samples can be set which will determine the stop time. These are affected by the sample rate. In the event that the device is set to record on alarm, the alarm check can be set to be continuous or to be gated by the trigger time. The Trigger can be set to record on specific days of the week by checking the corresponding boxes. For example if a start and stop time is set and Monday, Wednesday and Friday are checked, the unit will record at the start time and end at the stop time on each of the days checked. In addition the button can be set to stop and start recording provided the triggers are not active – if the device is recording because of a trigger being active the button cannot stop that recording even though it is enabled.

There are two other things to take into account – **Cyclic Mode Enable** essentially allows the device to record forever – or at least until the battery dies. It allows the device to overwrite old data when the memory fills up. When the device gets to the end of memory, it cycles around and starts at the beginning again, overwriting data. You will always have the latest samples in memory – If this box is not checked the device will stop recording when memory is full. **Fill Memory** if checked will force the device to record until memory is filled. Basically it disables the stop time limitation and forces the number of samples to the maximum.

2.12.3.1 Start Time

This is set to be the time the recording will start. If stop time is not enabled the device will record until memory is filled or if cyclic mode is enabled it will record until stopped by the user (or the battery dies)

2.12.3.2 Stop Time

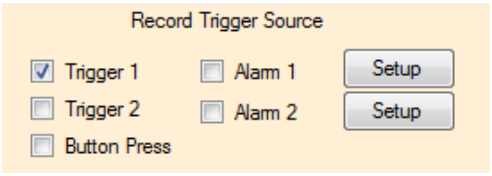


This needs to be enabled in order to be active. The user needs to set a stop time which is greater than the start time. The stop time can be set as a date and time and the software will calculate how many samples this will record. The stop time needs to be applied using the "Apply" button. Alternatively the user can set the number of samples to be recorded and the software will calculate the stop time.

2.12.3.3 On These days

The unit will record on each of the days checked. If no days are checked the unit will record once based on the start and stop times as described above.

2.12.3.4 Record Trigger Source



This is a summary of the current Triggers that will affect the recording. The check boxes can also be used to enable or disable Triggers. Note that triggers are cumulative – if for example Alarm 1 is checked and no other trigger is checked the device will record whenever the Alarm condition is true. If Alarm 1 AND Trigger 1 is checked, the device will only record if the Trigger 1 time is active and there is an Alarm during this period. If only Trigger 1 is checked the device will record based on the Trigger 1 settings – start time (and stop time if enabled). The Setup buttons take you to the Alarm tag. If Button Press is checked the button will also initiate a recording. The button will not however override other settings.

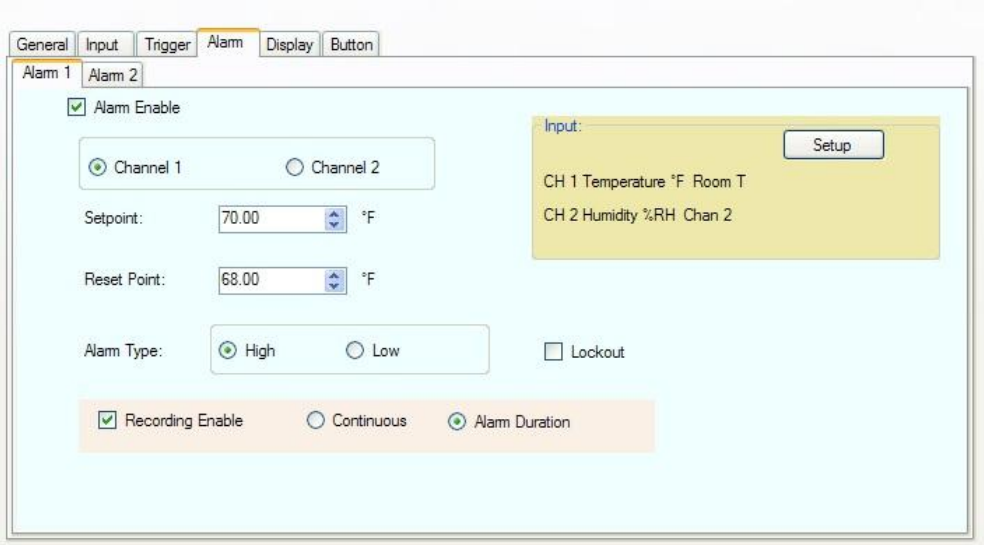
2.12.3.5 Trigger Logic

The following logic is used to determine how the device will actually record. Note that the setup on the General Tab will override the trigger settings unless "Advanced" is selected.

Boxes Checked	Trigger Mode
Trigger 1 (no stop time set, no cyclic mode)	Unit will record when start time reached and record till memory filled (if in cyclic mode will record forever)
Trigger 1 (with stop time set)	Unit will record when start time reached and stop at stop time
Trigger 1 and 2 (with stop times set)	Unit will record for Trigger 1 time and (then) Trigger 2 time
Alarm 1 (or Alarm 2)	Unit will record whenever alarm condition is true. Refer to Alarm Setup
Alarm 1 AND Trigger 1	Unit will record when alarm condition is true DURING time set by Trigger 1
Alarm 1 AND Trigger 1 AND Trigger 2	Unit will record when alarm condition is true DURING time set by Trigger 1 and Trigger 2

2.12.4 Alarm

The logger can be programmed to simply show an alarm condition or can be set to record on an alarm condition. The method of showing an alarm varies by device but the graph can be set up so that points in alarm are a different color to normal conditions. For devices with a display the alarm enabled icon is a bell and there are icons to show whether high or low alarms are active. See device user manual for details.



There are two alarms - 1 and 2. Each has its own tab. The alarms operate independently but their effect is cumulative.

In order for any alarm action to occur the Alarm Enable checkbox has to be checked. The user has to select the channel to which the alarm will apply - check the radio button for Channel 1 or Channel 2.

2.12.4.1 Setpoint

The setpoint is in the units of the channel selected. This is the point at which the alarm will activate. If alarm type is High the alarm will activate when the input exceeds the setpoint. If the alarm is Low the alarm will activate when the input goes below the setpoint.

2.12.4.2 Reset Point

This is the point at which the alarm will reset or cancel. The difference between Setpoint and Reset Point is the hysteresis. Note that the Reset Point cannot exceed the set point for a high alarm or be set lower than the setpoint for a low alarm.

2.12.4.3 Alarm Type

The Alarm type can be High (active when actual point value exceeds setpoint) or Low (active when actual point value is less than setpoint).

2.12.4.4 Lockout

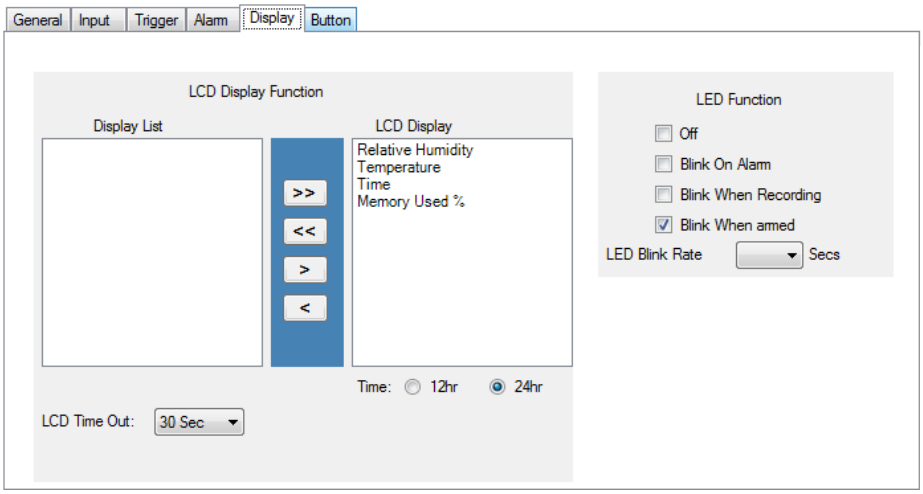
This forces the alarm to wait until the startup condition is not true before activating. For example if you have set a low alarm at 50 and when you download the configuration the current value is 40, if lockout is checked this will not trigger an alarm. The current value has to exceed the setpoint of 50 to activate the alarm. At that time anytime the current value goes below the setpoint it will activate an alarm.

2.12.4.5 Recording Enable

If checked this will cause the device to record whenever there is an alarm (subject to other trigger conditions). There are two additional options associated with Record Enable. Continuous – once triggered the device will continue recording. Alarm Duration – once triggered the device will record for the duration of the alarm then stop when there is no longer an alarm.

2.12.5 Display

The display tab is for devices that have a display. If the connected device does not have a display you will not see this tab. The content of the display tab may vary according to the device attached. The typical display window is shown below.



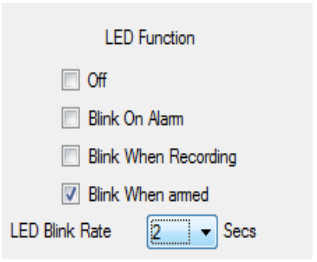
2.12.5.1 LCD Display Function

This is device dependent. There is a Display List on the left that shows the various options that can be displayed on the device display. The LCD Display on the right shows the actual data that will be displayed on the device display. There needs to be at least one item in the LCD Display list. To add an item select it in the Display List and use the add button ">" to add it to the LCD Display. To remove an item from the LCD Display, select it and use the remove button "<" to remove it from the Display List. The Add All ">>" or Remove All "<<" buttons can be used to add or remove all items in the lists.

Choose "On" in LCD Time Out selection to keep the display on all the time. Otherwise select an LCD Time Out to have the display turn off after the preset number of seconds. Note that the LCD Always On option does impact battery load.

2.12.5.2 LED Function

Some devices have a programmable LED which can be programmed by the user.
Note – turning the LED on can have a significant impact on battery life. Choices for LED indication are (in this instance):



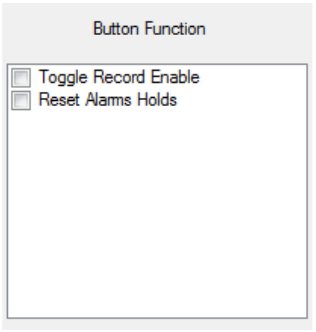
Off -	LED is off and will not operate on the device
Blink when armed -	LED will blink while the device is armed to record but is not actually recording.
Blink when recording -	LED will blink when the device is actually recording.
Blink on alarm -	LED will blink if there has been an alarm condition.

Note – all LED blink options can be selected together.

LED Blink Rate	Selects the time interval between blinks in seconds – the shorter the time interval the higher the battery load.

2.12.6 Button

The Button tab may or may not be present depending on the device attached. If the device has a button it may be programmed here.



Check the boxes for the functions you wish the button to perform. Note that there may be other default button functions that are not listed here. The functions listed are device dependent.

This space intentionally left blank.

3.0 Special Input Types

3.1 Event Logger

The event logger is used to measure the state of the inputs (2), whether they are High or Low. External modules must be used to interface to the logger. The logger has a user settable internal bias voltage which applies a weak pull up to the inputs (high state) which is the normal idle state in this case. The external modules then pull the inputs low when there is an event. Note that isolated modules add an inversion state - when active (energized) the modules pull the logger inputs low. The event Logger also has the ability to measure temperature using the internal sensor.

Note: There are two modes of sampling and storing data depending on the setup of Channel 1.

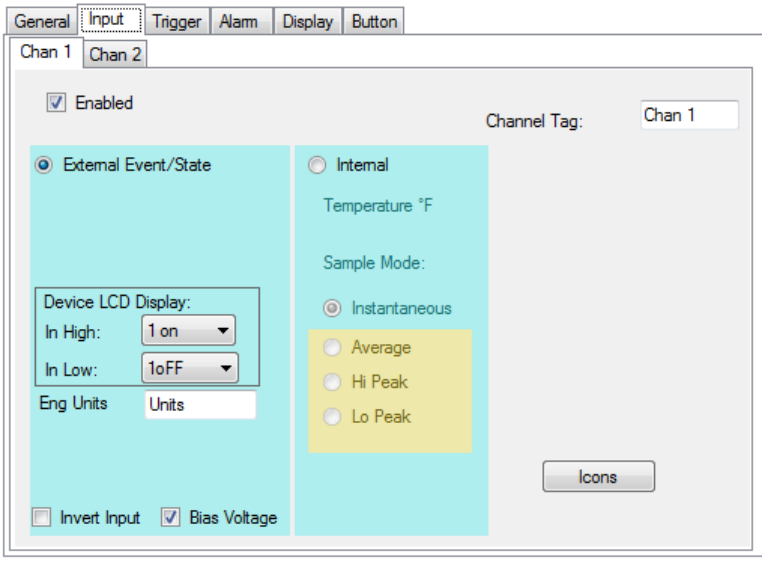
Sampled Mode: If Channel 1 is selected to measure **temperature**, the Logger will take readings at the **sample rate** **set by the user**. This sample rate will also apply to the event/state input of Channel 2. Thus the state of the input of Channel 2 will be measure only when the temperature on Channel 1 is measured.

Event Mode: If Channel 1 is selected to be **External State/Event** the Logger will only save a sample if the state of the input changes - High to Low or Low to High. This is independent of the Sample Rate which will be disabled. This will now also apply to Channel 2 - a sample will only be taken on a change of state. A change of state on either input will cause a sample to be saved. In Event Mode the user will be unable to change the sample rate and the resolution of the event timestamp will be 2 seconds. (Events less than 2 seconds may not be seen.)

The mode of Channel 2 is indicated by the addition of the word (Sampled) in the software setup window - determined by how Channel 1 is set up.

The software recognizes the Logger type and presents choices accordingly.

The Input setup window for Channel 1 is shown right. The user has the option to select Channel 1 as Internal Temperature or External Event/State. (Note: Channel 1 cannot be disabled)



If Channel 1 is set for External Event/State there are several parameters that can be configured.

Device LCD Display - is a short message that is displayed on the Logger Display (and on the Graph) when the inputs are High or Low. Use the pull down menu to select a message that works for you.

Channel Tag and Eng (Engineering) Units can be used to add description to the input.

Invert Input - if this box is checked the sense of the input will be reversed, on the LCD Display and on the Graph (An Actual High on the input will be considered a Low in the sampled data).

Bias Voltage - Check this box to provide a weak pull up to the inputs. This enables the external modules to function. If you have the ability to drive the inputs directly this box can be unchecked to save battery power. Note that the maximum input to the Event Logger is 3Vdc.

Channel 2 is set the same way as Channel 1 Event/State. If Channel 1 is set as Temperature, the device will be in Sample Mode and Channel 2 setup will indicate - **External Event/State (Sampled).** If Channel 1 is set to the External Event/State the device will be in Event Mode and Channel 2 setup will indicate **External Event/State**.