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Introduction

This help file contains over a hundred pages of detailed information about PicoLog for Windows... but don't worry, you don't have to read them all now! Every dialog or view has a help button to get you directly to the help you need.

Please take a couple of minutes to look at the first few pages, as this will quickly help you to understand the way that PicoLog works.

When using the program, you can ask for help in two ways:

- press the **Help** button in any dialog in the program
- press the help button in any of the data views in the program

Once in this help file, you can find things by:

- pressing the **Contents** button above for a full list of the items covered in this file
- pressing **Search** above and then select a keyword that describes what you are looking for

- Pressing to go onto the next page.

Please press now to continue the introduction….

Overview

PicoLog for Windows is a powerful data acquisition tool, yet it is relatively simple to learn the basics and is easy to use.

It has the following capabilities:

- supports all Pico converters

- collects blocks of data at high speed from a single converter

- collects data at low speed over long periods from multiple converters

- sets alarm thresholds for measured parameters

- allows parameter scaling using equation or table lookup

- includes built-in scaling for Pico signal conditioners

- calculates additional parameters from one or more measured parameters

- can analyse other files whilst collecting data

- displays data during slow collection and after collection

- has graphical (XY and Y vs time) and spreadsheet data display

- transfers data to other applications using clipboard, file or DDE

- transfers data between computers using IP network

You can use the Guided Tour option to take you through the steps required to collect and display data. The Contents section of this help file has a link to Chapter 3 which contains a useful list of **How to…** topics.

Recording

The main function of PicoLog for Windows is to collect data and write it to disk but it can also be used to display and analyse the data.

It can record data in three different ways:

- **Realtime** - this offers continuous recording over long periods. The data can be displayed in graphical or spreadsheet format *during* data collection. The fastest sampling rate in realtime mode depends on the speed of the computer and the operating system (it is in the order of a few milliseconds).

- **Block** - this is used to collect a relatively short block of data at high speed. It is not possible to display data during block mode recording. In block mode, it is possible to start recording on a trigger event. If the 'repeat immediately' option is selected, it is possible to write a run file for each occurrence of the trigger event.

There are several options to specify what should happen at the end of a run (when the specified maximum number of samples have been collected). The options are:

- **stop**

- **repeat immediately**

- **repeat after a delay** (for example, once an hour)

The recording mode and repeat functions are selected using the recording dialog.

Note: when PicoLog is installed for DrDAQ, the recording mode is fixed at Realtime, and the repeat functions are not available.

Parameters

PicoLog can measure up to 100 parameters at the same time. These parameters can come from three sources:

- measured single readings from a converter (normally in volts)

- measured values obtained by analysing a set of readings from a converter (for example, AC voltage or frequency)

- calculated values derived from one or more other parameters (for example power calculated from amps x volts)

Values obtained from a set of readings take some time to measure, so they can only be used in realtime mode, when the sample time is greater than QuickSampleMs.

Measured parameters are added by first selecting a converter, then specifying what the channels on the converter are to be used for. The various types of converter each have different settings, so the dialogs to set up a measurement are different for each converter. The fast converters have two different dialogs: one for realtime mode, the other for block mode.

Several options are available regardless of the type of converter and these are accessed using the 'options' button on the measurement dialog. The options include:

- range, units and decimal places

- alarm settings

- scaling for Pico signal conditioners

- scaling for other types of sensor, using table lookup or equations.

Useful Dialogs:

- Parameter Options

- Parameter Alarm
- Parameter Scaling
- Parameter Selection
- Conditioner
- Calculated parameter list
- Edit calculated parameter

Legal information

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Safety Warning

For all Pico ADCs except the ADC-101, the ground input of the ADC is connected directly to the ground of your computer in order to minimise electrical interference.

Do not connect the ground input of the ADC to anything which may be at some voltage other than ground, as you may risk damage to the ADC and your computer. Furthermore, if you connect the ADC ground to something which is 'live', your computer chassis may become live.

If in doubt, check by connecting a channel input to the doubtful ground point, and check that there is no significant AC or DC voltage.

Chapter 2: Views

- About Views
- Recorder View
- Player View
- Graph View
- XY Graph View
- Spreadsheet View
- Notes view

About Views

PicoLog for Windows is made up of a number of separate views but you need only activate the views that you wish to use. As a result, the screen is not cluttered with data that you are not using and the computer can easily be used for other applications whilst you are recording.

The available views are as follows:

- recorder view - enables you to start and stop recording and to specify recording files, the current parameters and the alarm state.

- player view - enables you to scroll quickly and easily through stored files to compare results on successive runs.

- notes view - enables you to enter information for a particular run.

- spreadsheet view - shows detailed or summary information in a format which can be copied to a clipboard.

- graph view - shows one or more parameters over a period of time.

- XY graph view - shows one parameter against another.

When you start PicoLog in recorder mode, the computer initially displays the recorder view. The other views can be selected from the recorder view menu.

When you start PicoLog in player mode, the computer initially displays the player view.

Recorder View

When you start PicoLog for Windows using the Recorder icon, the computer displays the monitor view, which looks like this:

At the top is a menu that gives access to file management functions, recording settings and other views.

Next is a window containing details of the current status of recording, together with some buttons to control recording.

The buttons on the top left are used to specify a filename and to start or stop recording. The controls are as follows:

specify a new file to record to

rewind the current file so that it can be re-recorded

start recording

pause recording

stop recording

access the help info for the recorder view (this page)

The buttons on the top right are used to open other views:

open a notes view

open a graph view

open a spreadsheet view

The remainder of the view contains a line of information for each selected parameter. At the left of each line is an indicator lamp that changes colour depending of the state of the parameter:

The parameter value is within range

The parameter value is currently out of range, but has not been out of range long enough to raise an alarm

The parameter is in an alarm state (to cancel the alarm, use the mouse to click on the lamp)

The parameter is an alarm state, but the alarm has been cancelled

Next to each lamp is the parameter name and the current value. The value is updated continuously.

If you click on a parameter name (not the lamp), the computer will display the measurement details for this parameter. (For the ADC16, for example, it will display the ADC16 Channel Details.)

When the recorder view is running, you can find out about the menu by pointing at a menu option, then pressing the F1 key.

If you minimise the recorder view, the computer will display an icon which shows whether there are any warnings or alarms:

If an alarm occurs, you can then double-click on the icon to restore the recorder view.

Player View

When you either start PicoLog using the Player icon or you select the **View | Player** option from the monitor menu, the computer opens a new window like this:
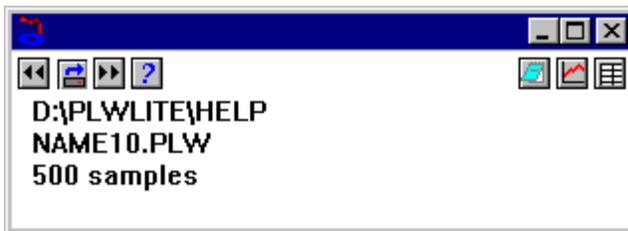
This shows you the name of the current player file and the number of samples taken so far.

The buttons on the top left are used to specify a filename and to go forward or back a file. The controls are as follows:

load a new file into the player

go to previous file

go to next file

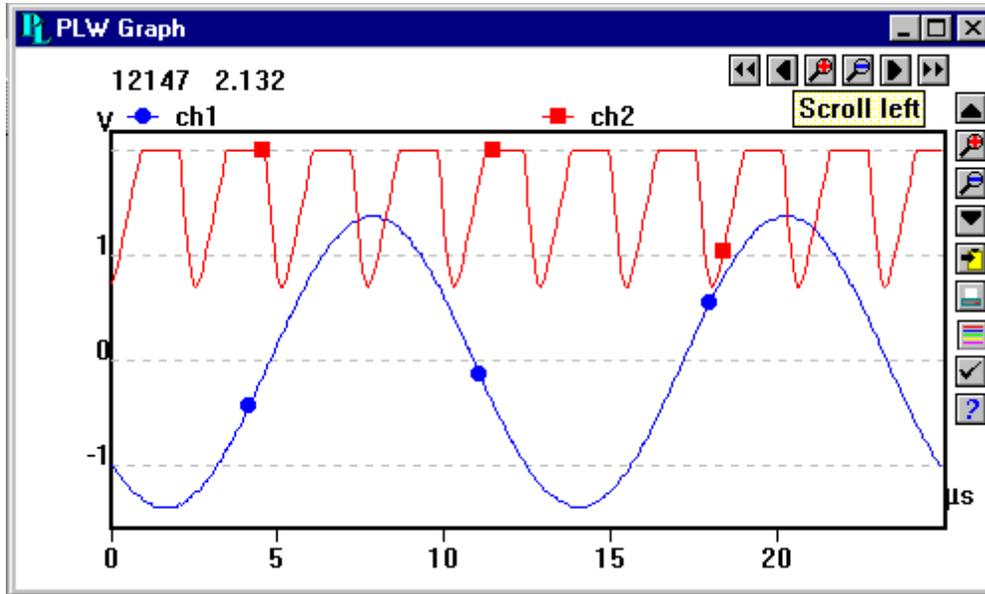The buttons on the top right are used to open other views:

open a notes view

open a graph view

open a spreadsheet view

Graph View

When you select the **View | Graph** menu option, the computer opens a new window like this:

Note that there are several graph options that affect the way that the graph is displayed and the format of the axis scales.

There are a number of buttons in the top right corner of the screen. The group of horizontal buttons selects what time interval is displayed:

⏪ move a whole display left (earlier)

◀ move a quarter display left (earlier)

🔍 magnify the middle half of the display to fill the whole width

🔍 shrink the current display to half size, so that more is displayed before and after

▶ move a quarter display right (later)

⏩ move a whole display right (later)

The upper group of vertical buttons controls the vertical range displayed. If there is more than one graph frame, the buttons control the frame with the thicker border. To switch to a different frame, point inside the new frame with the cursor and click the left mouse button.

🔼 move a whole display up

🔍 magnify the middle half of the display to fill the whole height

🔍 shrink the current display height to half size, so that more is displayed above and below

🔽 move a whole display down

Note that if you use these controls to change the time or vertical range, auto-scaling for that axis is turned off automatically. Use the options to turn auto-scaling back on again (see button below).

The remaining vertical controls are:

📋 copy the graph to the clipboard

🖨 print the graph

📊 select the parameters to display on the graph

☑ specify the options for the graph

❓ access the help info for the graph view (this page)

If you move the mouse cursor onto the graph part of the screen, the computer will display the parameter value and time at the current cursor position.

XY Graph View

When you select the **View | XY Graph** menu option, the computer opens a new window like this:
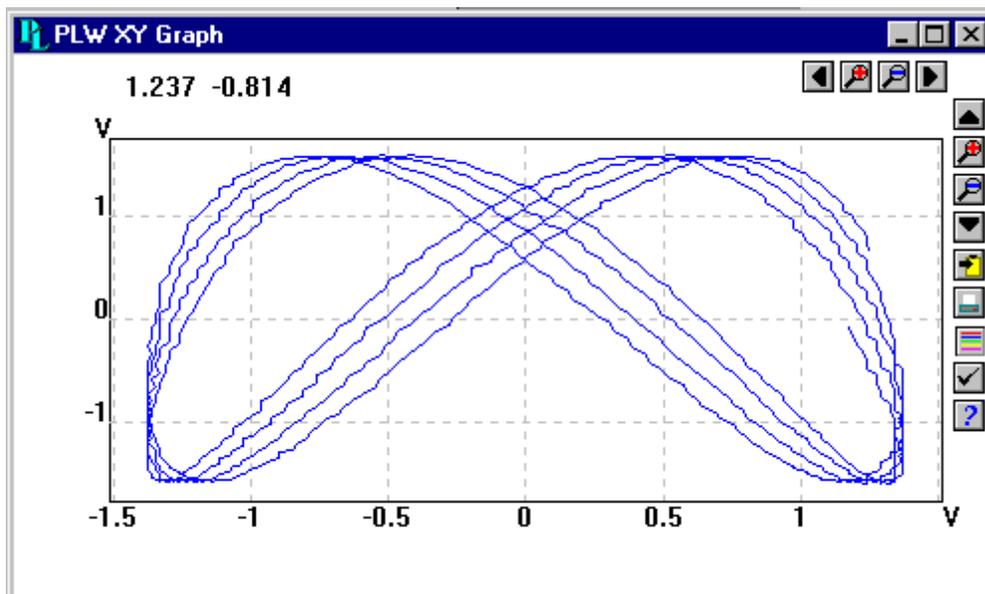
There are a number of buttons in the top right corner of the screen. The group of horizontal buttons controls the horizontal range displayed:

⏮ move a whole display left

◀ move a quarter display left

🔍 magnify the middle half of the display to fill the whole width

🔍 shrink the current display to half size, so that more is displayed

▶ move a quarter display right

⏭ move a whole display right

The upper group of vertical buttons controls the vertical range displayed.

🔺 move a whole display up

🔍 magnify the middle half of the display to fill the whole height

🔍 shrink the current display height to half size, so that more is displayed above and below

🔻 move a whole display down

Note that if you use these controls to change the horizontal or vertical range, auto-scaling for that axis is turned off automatically. Use the options to turn auto-scaling back on again (see buttons below).

The remaining vertical controls are:

📋 copy the graph to the clipboard

🖨 print the graph

📊 select the parameters to display on the XY graph (only two)

☑ specify the options for the graph

❓ access the help info for the graph view (this page)

If you move the mouse cursor onto the graph part of the screen, the computer will display the parameter values at the current cursor position.

Spreadsheet View

When you select the **View | Spreadsheet** menu option, the computer opens a new window like this:

There is one line for each reading. The first two columns show the time and date while the remaining columns show the selected parameters. The scroll bar on the right selects the range of times to display.

The following options buttons are available:

▤ select the parameters to display

☑ Spreadsheet options - specify whether to display individual readings, or first reading, average, minimum and maximum for a period

If you select a range of readings, you can use the following buttons:

▤ write the readings to a disk file

▤ write the readings to the clipboard.

You can select a range in one of three ways:

If all of the readings that you want to select are on the screen:

• point the mouse at the first reading

• press and hold down the left mouse button

• drag the mouse to the last reading (the selected readings will be highlighted as you go)

• release the left mouse button

If the readings are a long way apart:

• point the mouse at first reading

• click the left mouse button (this will highlight the first reading)

• scroll down to the last reading

• point at the last reading

• press down the shift key and click the left mouse button

If you wish to select all of the readings for one day:

- point the mouse at any reading during the required day

- click the left mouse button (this will highlight the reading)

- ◼ click on the 'select day' icon

Notes View

This view enables you to enter information for a particular run. This is useful if you carry out a number of similar runs. The report title can be the same for every run, but the notes contain information specific to each run.

If you have a Notes view open when you use the player to browse through several runs, the notes for each run will be displayed. The notes also appear on printed reports.

Chapter 3: How to….

- Start a new run

- Repeat an existing run

- Start recording when the computer is turned on

- Display data

- Select which parameters to display

- Print data

- Export data to a spreadsheet

- Export a graph to a word processor

- Get a date/time graph axis

- Use units other than volts

- Transfer data over an IP network

Other Chapters: General Information   Views   Menus   Dialogs (General)   Dialogs (Product Specific)   Equipment   Technical Information

How to start a new run

Note: Do not attempt to save your data directly to a floppy disk.

To start a new run from scratch:

1. On the menu bar, select **File**

2. Select **New** settings

The computer will then take you through the steps necessary to define what you want to collect:

- recording method (realtime continuous recording, or fast block)... not applicable for DrDAQ

- sampling interval and maximum number of samples

- converter details

- measured parameters (for the ADC16, for example, the computer will display the ADC16 Channel Details)

Once you have entered these details, check that the monitor view is displaying the parameters that you wish to record, and that the correct values are showing.

1. Select **View**

2. Select **Recorder** to open up the recorder view. This has buttons like a tape recorder, to start, stop, rewind etc.

3. Click on the File button

4. Type in the name of the file that you wish to record to

5. Press **OK** (the filename will appear in the recorder view)

6. Click on the Record button (the sample number will increase every sample interval)

How to repeat an existing run

If you have just recorded a run, and you wish to **retain** the data yet start a new run…

1. Click on the file button (the computer will display the next sequence-numbered file name)
   Note: Do not attempt to save your data directly to a floppy disk.

2. If you do not wish to use the default filename, type in a different name

3. Press **OK**

4. Press the Record button

If have just recorded a run, and you wish to **discard** the data and start a new run…

1. Click on the redo button

2. Press the record button

If you wish to repeat a run that you did some time previously…

1. Select **File** from the menu bar
2. Select **Open**
3. Select the file that you wish to repeat
4. Select **View** from the menu bar
5. Select **Recorder** to display the recorder view
6. Proceed according to the **retain** or **discard** options described above

How to start recording when the computer is turned on

Note: Do not attempt to save your data directly to a floppy disk.

This is what you have to do to save the settings for the type of run that you wish to start:

1. Define the type of run that you wish to carry out
2. Select **File** from the menu bar
3. Select **Save as…**
4. Type in a filename for these settings
5. Change the filetype to **Settings (*.pls)**
6. Press **OK**

Under Windows 95/98:

1. Click on the Windows 95 **Start** button
2. Select **Settings**
3. Select **Taskbar and start menu**
4. Select **Start menu programs**
5. Click on **Add**
6. type in **c:\pico\plw.exe -r fred.pls** (or whatever your settings file is called)
7. Click on **OK**
8. Select the **startup** folder (programs in the startup folder are run automatically when Windows starts)
9. Click on **OK**
10. Click on **Finish**

How to display data

As you define a run, the current values parameters that you add will appear in the Monitor view.

To display the data in graphical or spreadsheet format, you should first start recording.

You can then display the data either by clicking on the appropriate button in the recorder view:

open a notes view

open a graph view

open a spreadsheet view

Alternatively, you can use the menu bar:

1. Select **View** from the menu

2. Select the required view type (Graph, XY graph, Spreadsheet, etc)

How to select which parameters to display

When you first open a graph or spreadsheet view, the computer displays only the first parameter. To select a different parameter or to add further parameters:

1. Press the parameters button on the view. The computer will display the parameter selection dialog, a list of all of the available parameters with the selected parameters highlighted.

2. Click on each parameter that you wish to view (it will be highlighted)

3. Press the **OK** button

How to print data

To print a graph:

1. Open a graph view

2. Alter the settings to display the data that you wish to print

3. Press the print button

To print a spreadsheet:

1. Open a spreadsheet view

2. Alter the settings to display the parameters that you wish to print

3. Point at the first reading that you wish to print

4. Click the left mouse button (this reading will be highlighted)

5. Point at the last reading that you wish to print

6. Hold down the shift key and click the left mouse button (the whole block will be highlighted)

7. Press the print button 🖨

How to export data to a spreadsheet

To export data to a spreadsheet:

1. Open a PicoLog spreadsheet view

2. Alter the settings to display the parameters that you wish to export

3. Point at the first reading that you wish to print

4. Click the left mouse button (this reading will be highlighted)

5. Point at the last reading that you wish to print

6. Hold down the shift key and click the left mouse button (the whole block will be highlighted)

7. Press the clipboard button 📋

8. Move to the spreadsheet program

9. Point at the top left of the area you wish to fill

10. Select Paste from the Edit menu

Alternatively, you can press the file button 💾, then write the data to a text file. You can then import the text file into a spreadsheet.

Note: Do not attempt to save your data directly to a floppy disk.

If you wish to have the readings in the spreadsheet updated continuously with the current readings, you can use Dynamic Data Exchange   (DDE).

How to export a graph to a word processor

To export a graph to a word processor:

1. Open a graph view

2. Alter the settings to display the graph that you wish to export

3. Press the clipboard button 📋

4. Move to the word processor program

5. Point at the place to insert the picture

6. Select **Paste** from the Edit menu

Note: Do not attempt to save your data directly to a floppy disk.

Alternatively, you can press the file button 🖼, then write the data to a Windows metafile. You can then import the graphics file into the word processor.

How to get a date/time graph axis

The time axis of a graph normally shows the time (in the selected sample interval units) since the start of the run. Whilst this is convenient for short runs, it is not ideal when collecting data over longer periods.

To enable date and time scaling on a graph:

1. Press the options button on the graph ☑
2. Change the **Time format** to **Date/Time**

Other axis scale formats can be selected in the same way - see the graph options dialog for more details.

How to use units other than volts

If you are using a Pico signal conditioner, see Signal Conditioners

If you are using some other sensor:

1. Select the converter in the normal way
2. At the measurement list dialog, select **Add**

    (for the ADC16, for example, this would be the ADC16 Channel List Dialog)
3. Enter the details for the measurement
4. Press the **Options** button
5. Press the **Scaling** button
6. Enter the scaling details (see parameter scaling dialog for details)

How to transfer data over an IP network

The PicoLog IP socket facility is used to take measurements on one or more computers, but record the data on another computer.

The measurements are taken by PicoLog running on one computer (called the **Server**). Another computer, the **Client**, requests the data via an IP network.

On the server:

1. Press **Start**

2. Select **Run**...

3. Type in **winipcfg.exe**

4. Note the server name

On the client:

1. Open a DOS box

2. Type in **ping** followed by the server name

3. The computer will display the time taken to send a message to the server and receive a response. Check that it is working and note the time.

On the server:

1. Start up PicoLog

2. Select **File**

3. Select **Preferences**

4. Select **IP Sockets**

5. Check the **Enable Server** box

6. Press **Ok**

7. Set up the PicoLog to measure the channels that you require

On the client:

1. Start up PicoLog

2. Select **File**

3. Select **Preferences**

4. Select **IP Sockets**

5. Check the **Enable Client** box

6. Exit and restart PicoLog

7. Select **New Settings**

8. Enter recording details and press **OK**

9. Enter the sampling details and press **OK**

10. Select **Socket** in the converter type combo box

11. Press **OK**

12. Type in the server name, eg **fred**

    Note: server names are case sensitive!!! Fred is not the same as fred

13. Press **Connect**

14. the computer should now display the channels from the server

15. Click on one of the channels

16. If you want to change the name, type in the local name

17. Press **OK**

18. The channel you selected is marked with an X

19. Repeat for each of the channels

20. Press **OK**

21. The monitor window should now display the readings from the server

Chapter 4: Menus

- File menu

- Settings menu

- View menu

- Help menu

Other Chapters: General Information   Views   How to...   Dialogs (General)   Dialogs (Product Specific)   Equipment   Technical Information

File Menu

Note: Do not attempt to save your data directly to a floppy disk.

The file menu appears on the menu bar at the top of the monitor view window.

File | New settings

This menu option erases the current settings and then takes you, step by step, through the process of setting up PicoLog to collect some data.

File | New data

This menu option enables you to open a new file to record your data. If you save the file as a setup file, only the settings are stored. If you save it as a data file, both the settings and data are stored. You can also save the file as a text file only.

File | Open

This menu option closes all active views and then opens a data or setup file.

If you open a data file, the settings and data are copied from the file, and the data is displayed. If you open a setup file, only the settings are recovered: no data is displayed until you start PicoLog running.

File | Save As

This menu option asks for a filename and then writes the data to that file.

If you save the file as a setup file, only the settings are stored. If you save it as a data file, both the settings and data are stored. You can also save the file as a text file only.

File | Delete file

This menu option enables you to delete a file. Select the file and then press **OK** to delete it.

File | Preferences

This group of menu options enables you to customise PicoLog for Windows:

- **Language** – enables you to select the language that PicoLog for Windows will use.
- **Colours** – enables you to select the colours that PicoLog for Windows will use.
- **Sound** – enables you to select the sounds for certain events.
- **Temperature** - enables you to select the units for temperature measurements.
- **Serial No** – enables you to enter the serial number for PicoLog for Windows
- **IP Sockets** - used to enable the facility to transfer data between two computers running PicoLog, using an IP network.
- **Converter** - used to specify what converter is to be used.

File | Exit

This menu option exits from the program.

Settings Menu

The settings menu appears on the menu bar at the top of the monitor view window.

Settings | Recording

This menu option enables you to choose the recording method for your measurements.

Settings | Converters

This menu option enables you to specify the converter and port that will take the measurements.

Settings | Sampling

This menu option enables you to specify the sampling rate and the action at the end of a run.

Settings | Calculated parameters

This menu option enables you to enter details for parameters which are calculated from one or more other parameters. This can be done either during data collection or after the data has been collected.

Settings | Monitor

This menu option enables you to select the parameters that you wish to display in the recorder view. To select a parameter, highlight it and then press OK.

View Menu

The view menu appears on the menu bar at the top of the monitor view window.

View | Player

This menu option creates a new player view.

View | Notes

This menu option creates a new notes view.

View | Spreadsheet

This menu option creates a new spreadsheet view.

View | Graph

This menu option creates a new graph view.

View | XY Graph

This menu option creates a new xy graph view.

Help Menu

The help menu appears on the menu bar at the top of the monitor view window.

Help | Index

This menu option takes you to the help index for PicoLog for Windows.

Help | Contents

This menu option takes you to the help contents page for PicoLog for Windows.

Help | Using Help

This option explains how to use the help.

Help | This view

This option explains the operation of the monitor view

Help | Guided Tour

This menu option shows you the main features of the program. A converter need not be connected.

Help | About…

This menu option gives the version and serial number for Picolog for Windows.

Chapter 5: Dialogs (General)

- Sampling Dialog
- Converter List Dialog
- Converter Details Dialog
- Converter Preferences
- Recording Dialog
- IP Sockets Dialog
- Socket Channel List Dialog
- Socket Channel Details Dialog
- Socket Status Dialog
- Parameter Options Dialog
- Parameter Alarm Dialog

- Parameter Scaling Dialog

- Parameter Selection Dialog

- Calculated Parameter List Dialog

- Edit Calculated Parameter Dialog

- Graph Options Dialog

- XY Graph Options Dialog

- Spreadsheet Options Dialog

- Confirm File Delete

- Print Dialog

- Colours Dialog

- Language Dialog

- Sound Dialog

- Temperature Dialog

- Serial Number Dialog

- Conditioner Dialog

Other Chapters: General Information   Views   How to...   Menus   Dialogs (Product Specific)   Equipment   Technical Information

Sampling Dialog

This dialog sets the sampling rate and defines the action to take at the end of a run.

Sampling interval

To set the interval between samples, type a number in the box and select the required units. The interval must be a whole number so, for example, 30 seconds must be specified rather than 0.5 minutes.

Note that, when using sampling intervals less than a second, displaying a graph whilst data recording is possible, but may interfere with recording.

Maximum number of samples

To set the maximum number of samples to be collected during a run, enter the maximum in this box. The maximum can be up to a million samples. During real-time data collection, the sampling can be stopped at any time, so you can enter a large number and then stop the run early.

Readings per sample

Normally PicoLog takes **as many readings as possible** during each sample period, then saves the average of the readings. If you need an instantaneous measurement, (for example, if you wish to calculate standard deviations), change this option to **Single**.

Converter List Dialog

When you specify that you wish to use multiple converters, this dialog is used to build up a list of converters to use. On the left is a list of the converters that are currently active.

Edit…

To edit the details for an existing converter, highlight the entry for it and press this button. This will open the converter dialog.

Add…

To add another converter to the list, press this button. This will open the converter dialog so you can enter the type and port for the new converter.

Delete

To remove a converter from the list, highlight the converter and press this button.

Parameters…

To specify the parameters to be measured for a converter, highlight the converter and press this button.

Converter Details Dialog

This dialog is used to specify the details for a converter. Note that it is NOT displayed if you set the Converter preferences to automatically select a particular converter.

Converter type

This lists the types of converter that can be used with the program. Please note that not all the converters will be available if block mode has previously been selected.

Port

Select the port that the converter is connected to.

When you press OK, the computer will open a measurement dialog for this converter. (For the ADC16, for example, the computer will open the ADC16 Channel List Dialog)

Converter preferences

This dialog is accessed via the **File | Preferences** menu option.

You can specify in advance which converter to use, so that the computer does not ask each time you define new settings. The options are:

- Ask for the converter every time you enter new settings
- Use the converter specified when PicoLog was installed
- Use the converter specified in this dialog.

When you select the last option, the computer enables the converter and port fields on this dialog.

Recording Dialog

This dialog is used to specify which recording method will be used.

Note: this dialog is not displayed if you installed PicoLog for use with DrDAQ.

Recording method

The options are:

- **Real time continuous** – means you can record the data at the same time as displaying it in graphical or spreadsheet form. The maximum sampling rate is one per millisecond. With this method, multiple converters can be used.
- **Fast block** – means data is collected at high speed, but the data cannot be displayed until after it is collected. The sampling rate is controlled by the converter, so this method is limited to a single converter.

Use multiple converters

Check this box if you wish to use more than one converter. This option is not available for fast block recording.

Action at end of run

This defines what happens when all the samples have been collected. Choose one of the following options:

- **Stop** - means stop collecting,
- **Repeat immediately** - means start a new run immediately after completing the current run.
- **Repeat after delay** - means start a new run after the restart delay has elapsed. This might be used to collect a one-minute block of data once per hour.
- **Scroll** - means that new samples will be recorded and the oldest samples will discarded. This is useful if you only wish to have a record of the most recent samples.

When you select a repeat option, the computer automatically increments a sequence number at the end of the filename.

Repeat delay

When in '**repeat after delay**' mode, this is the time interval from the start of one run to the start of the next run.

IP Sockets Dialog

This dialog is accessed from the **File | Preferences** menu option. It is used to specify the details required to establish a link between two or more computers via an IP network.

One computer is referred to as the Server- it supplies data. The other computer is the Client - it receives data from the server, and displays the parameters as if they were collected locally. A server can support any number of clients, and a client can get data from up to 10 servers.

Enable Server

When this option is selected, PicoLog will start responding to requests for data from any PicoLog clients that contact it.

Enable Client

This sets this computer to act as a client. When it is checked, the Socket device appears in the Select Device dialog.

Socket

This specifies what IP socket the server will use. It is not normally necessary to change it, unless the socket is already in use by another application. If you change it, you must do so on the server and on all clients.

Timeout

This only has any effect on the client. It controls how long the client will wait for a response from the server. You can use the PING command to find out how long a round trip normally takes.

Minimise network traffic

If this box is not checked, the client will continuously request data from the server. This is OK over a local network, but could cause a dial-up bridge between two subnets to stay active all the time.

If you check this box, the client only asks for data once per sample period. With a sample period of an hour, the client will only contact the server once per hour.

Socket Channel List Dialog

This dialog is used to establish a connection to another copy of PicoLog running on a remote computer (the server), and then select the channels that are to be imported to this copy of PicoLog.

Server

This is the name of the server. If it is on your local network, the computer name should be enough (for example, carnot). If you wish to communicate via a large network or via the internet, you will need to put the full name of the computer (for example, carnot.picotech.co.uk).

Connect

Having entered a server name, press **Connect** to establish a link to the server. If it is successful, it will display a list of channels (parameters) available on the server. If someone changes the details on the server, you can press this button to update the details locally.

Edit…

To select a channel, first highlight it, then press this button. This will open the edit channel dialog so that you can enter the details.

Disable

To disable a previously selected channel, highlight it and press this button.

Socket Channel Details Dialog

This dialog is used to enter the details for a channel.

Name on server

This is the name of the channel on the remote (server) computer. It cannot be changed from the local computer.

Name

This is the name of the channel as it will appear locally.

Options…

To set the options for a parameter, press this button.

Socket Status Dialog

This dialog displays the details about the IP connection to the server.

Parameter Options Dialog

This dialog is used to set the options for each parameter. It is accessed by pressing the Options button on the measurement dialog for the converter. (For the ADC16, for example, this would be the ADC16 Channel Details)

Units

The entered units will appear on spreadsheets and graphs.

Number display

This defines the format of the information for spreadsheet entries and graph scales. For example, with a field width of 6 and 2 decimal places, a number will appear in the format ddd.dd. The field width must be between 1 and 8, and the number of decimal places must be less than the field width.

Scaling for graphs

This defines the maximum and minimum values to be used for graphical displays, when the vertical axis scale is set to 'Maximum'

Conditioner

This button is used when a signal conditioner is connected to a channel. It opens the signal conditioner dialog, which enables you to select the type of conditioner and sensor that is connected to an ADC channel. Once selected, the computer scales the input into the appropriate units for the sensor.

PicoLog is supplied with an extensive library of scaling information for sensors from a variety of manufacturers.

Scaling…

This opens the parameter scaling dialog. It can be used in two ways:

- to convert an input voltage into some other units
- to apply minor scaling corrections to values that have already been scaled for a particular signal conditioner and sensor..

Alarm…

This opens the alarm settings dialog for this parameter.

Parameter Alarm Dialog

This dialog defines the alarm settings for each parameter. It is invoked when you press the **Alarm** button on the Parameter Options dialog.

Enable alarm

If you wish to set alarm limits for this parameter, check this box.

Lower and upper threshold

If the parameter goes out of this range, the alarm will sound.

Hysteresis

This feature is not currently implemented.

Holdoff

If the parameter value occasionally goes out of range for short periods, you can prevent this causing an alarm by setting a holdoff period. The alarm will then sound only if the parameter stays out of range for longer than the holdoff period.

Parameter Scaling Dialog

This dialog is used to specify how to convert a parameter value into some other unit, for example from volts to temperature. It is invoked when you press the **Scaling** button on the Parameter Options dialog.

Scaling Method

There are three scaling methods: **None**, **Table lookup**, and **Equation**. You can also read in a lookup table or an equation from a file.

Table lookup

This is useful for a set of input readings corresponding to different values of the parameter to be scaled. You can put two or more pairs of values in the box below. For example, to convert a 0 to 2.5V input to minus 40 to 100C, enter the following details in the box

0 -40

2.5 100

Two pairs is sufficient if there is a linear relationship between the raw and scaled values. For non-linear relationships, the required number of pairs depends on the maximum acceptable interpolation error. If you wish to enter more than half a dozen pairs of values, it is better to enter the table into a file, and then use file scaling (see below).

Equation

This can be used when it is possible to calculate the relationship between the input reading and the parameter value. The raw parameter values is represented by x. For example, to convert a temperature from Fahrenheit to Celsius, the equation would be

$(x-32)* 5 / 9$

For more information on equations, see equation scaling.

File…

When you specify that you wish to use a file for scaling, this button is enabled. When you press this button, the computer opens up a dialog to select a scaling file.

Scaling from file

If you wish to scale the inputs from a number of identical parameters using the same method, or if you wish to set up a large lookup table. See Scale file format for more information on the format.

Parameter Selection Dialog

This dialog is used to select the parameters which will be displayed on a view.

For the monitor view, it is accessed via the **Settings | Monitor** menu option.

For the graph and spreadsheet views, It is accessed from the **Select Parameters** tool button on the view.

The selected parameters are highlighted. To select or de-select a parameter, point the cursor at it then click the left mouse button.

Group

At the bottom is the group combo-box. You can use this to save and restore a number of named groups of parameters.

To save the current parameter selection as a group, type in the group name and press Save Group.

To select a saved group, open the combo box and double-click on the requested group.

To modify an existing group, make the changes to the parameter selection then type in the group name and press Save Group.

To remove an existing group, de-select all parameters, type in the group name and press Save Group.

Calculated parameter list dialog

This dialog is used to add or edit calculated parameters (i.e. those which are derived from one or more other parameters).

Unlike parameters which are measured, it is possible to change the details for calculated parameters once a run is completed.

On the left is a list of calculated parameters and on the right are some buttons which enable you to add, edit or delete calculated parameters.

Add

To add a new calculated parameter, press this button. This will open the edit calculated parameter dialog.

Edit…

To edit the details for a calculated parameter, first highlight it and then press this button. This will open the edit calculated parameter dialog so that you can enter the details.

Delete

To remove a calculated parameter, first highlight it and then press this button.

Edit calculated parameter dialog

This dialog enables you to edit the details for a calculated parameter. A calculated parameter is calculated from up to five other parameters, using an equation.

A..E

These fields enable you to select up to five parameters (either measured or calculated) which will be used to calculate this parameter. If you require less than five input parameters, unused parameters should be left blank.

Equation

This is the equation that explains how to calculate this parameter from the input parameters. The input parameters are represented by A,B,C,D and E. For example, to calculate the power output from a boiler, the input parameters might be

A = inlet temperature

B = outlet temperature

C = flow rate

and the equation would be

$(A-B) * C * 4120$

See equation scaling for more information.

Options…

To set the options (units, range etc) for this parameter, press this button.

Graph Options Dialog

This dialog is used to set the options for the Graph View. It is accessed from the Options ☑ button on the Graph View:

Title

This is the title of the graph that will appear on the graphical reports.

Format

This specifies how traces are to be divided between graphs. The choices are:

- **Automatic** – the traces are allocated by the computer, putting traces with the same units on the same graph.
- **Separate graphs** – each parameter is displayed on a separate graph.
- **All traces on same graph** - each parameter is displayed on the same graph

Time axis scale

This allows you to choose how the time axis is scaled:

- **Automatic** – the scaling is set by the computer.
- **Maximum** – the time axis is set to the maximum sampling time
- **Scroll** – the display is scrolled across the screen
- **Manual** – the scale can be changed by clicking on the scroll left/right tool buttons on the Graph View.

The time axis scale is automatically set to Manual if you press any of the time scrolling buttons

Time Format

This allows you to choose the format for the time axis:

- **Numeric** – the time in the selected sampling time units since the start of the run
- **Time since start** – the time in hours and minutes since the start of the run
- **Time of day** – the real time
- **Date/time** – the real time including the date

Vertical axis scale

This allows you to choose how the vertical axis is scaled:

- **Automatic** – the scaling is set by the computer.
- **Maximum** – the axis is set to the maximum
- **Manual** – the scale can be changed by clicking on the vertical scrolling buttons on the Graph View.

The Vertical axis scale is automatically set to Manual if you press any of the vertical scrolling buttons

Display every xxx samples

If you are displaying a graph while collecting data, this controls how frequently the graph is updated. It has no effect after you have finished recording, or when using the player.

When collecting less than a thousand samples, leave it set to 1. When collecting a large number of points, it may take some time to update the graph, so updating every time a new reading is taken would be a waste off effort.

Display Markers

When this box is checked and there is more than one trace on the graph, the computer displays markers (triangles, circles etc) on the traces to help identify the traces.

Auto save on exit

When this box is checked, all graph view settings are saved automatically when you close the graph view

XY Graph Options Dialog

This dialog is used to set the options for the XY Graph View. It is accessed from the options ☑ tool button on the XY Graph View:

Title

This is the title of the graph that will appear on graphical reports.

Horizontal/Vertical axis scale

This allows you to choose how the axes are scaled.

- **Automatic** – the scaling is set by the computer.
- **Maximum** – the axis is set to the maximum

- **Manual** – the scale can be changed by clicking on the scroll buttons on the XY Graph View.

The axis scale is automatically set to Manual if you press any of the scroll buttons.

Auto save on exit

When this box is checked, all XY graph view settings are saved automatically when you close the XY graph view

Spreadsheet Options Dialog

This dialog is used to set the options for the spreadsheet view. It is accessed from the options ☑ tool button.

Auto save on exit

When this box is checked, all event view settings are saved automatically when you close the event view.

Auto scroll

When auto scroll is enabled whilst sampling is in progress, the viewed range is updated automatically to keep the latest reading visible.

Time Format

This allows you to choose the format for the time:

- **Numeric** – the time in the selected sampling time units since the start of the run

- **Time since start** – the time in hours, minutes and seconds since the start of the run

- **Time of day** – each sample is labelled with the time it was taken

- **Date/time** – each sample is labelled with the date and time it was taken

Show individual/aggregated readings

When show individual readings is checked, the spreadsheet view shows each individual reading.

When it is cleared, the computer displays results which are aggregates (1st reading/ave/max/min) of the readings for the time interval specified below. The controls in the Show aggregated readings box are then enabled. If you select more than one control, the computer displays the corresponding number of columns for each sensor in the spreadsheet, and adds a heading (1st reading/ave/max/min) to each column.

Time interval per row

This specifies the time interval between each of the rows on the spreadsheet. If, for example, the sampling interval was set for every minute, and you set the time interval per row to 60, each row will be the (1st reading/ave/max/min) of 60 readings.

Confirm File Delete

When you select **File | Delete** from the Recorder view menu, the computer first asks you for a filename and then displays this dialog.

This dialog box asks you to confirm that you wish to delete the specified file.

Print Dialog

This dialog appears when you press a print button on one of the views.

Printer

At the top is a combo box with the name of the default printer. You can select a different printer if you wish.

Setup

Use this button to open a dialog with setup information specific to the selected printer.

Once all the details are correct, press **OK** to start printing.

Colours Dialog

This dialog is accessed from the **File | Preferences** menu option. It is used to specify the colours for the background, text and traces for the graph and spreadsheet views. To change a colour, press on the colour button to open the colour selection dialog.

Background

This is the colour for the background on graphs, and for non-selected readings on the spreadsheet.

Frame

This is the colour of the frame round graphs.

Grid

This is the colour for the grid on the graphs.

Text

This is the colour for text.

Selection

This is the colour for the selected readings on the spreadsheet.

Traces

A graph can display up to ten traces: the ten buttons along the bottom of the dialog are the colours for each trace.

Language Dialog

This dialog is accessed from the **File | Preferences menu** option and is used to select the language that PicoLog for Windows will use.

Sound Dialog

This dialog is accessed from the **File | Preferences** menu option.

For some events, PicoLog can make a sound when an event occurs. This dialog allows you to enable the sounds for each type of event.

Beep on each new reading

This option is useful if there is a problem and you need to keep a close check on it. If you select a graph or spreadsheet view, the computer beeps each time a new reading is added to the graph or spreadsheet.

Beep when lamp is pressed

When there is an alarm set, the lamp on the monitor view turns red. You can click on the lamp to cancel the alarm. When this box is checked, the computer beeps to confirm it has accepted your request to cancel the alarm.

Beep continuously on alarm.

When this box is checked, the computer produces a continuous tone while an alarm is active.

Temperature Dialog

This dialog is accessed from the **File | Preferences** menu option and is used to specify the units for temperature measurements. The options are Fahrenheit or Celsius (Centigrade).

Serial Number Dialog

Every Picolog for Windows program is issued with a serial number. This allows you to download free upgrades from the Pico Technology web site for a period of one year from the date of purchase.

This dialog is used to enter the serial number for PicoLog for Windows, given to you by Pico Technology. It is accessed from the menu option **File | Preferences | Serial Number**.

Conditioner Dialog

This dialog provides support for the Pico range of signal conditioners. A signal conditioner provides excitation and/or power for a sensor and then amplifies the output from the sensor.

When you use this dialog to specify a signal conditioner and sensor, the computer automatically converts the input voltage into the appropriate units for this sensor.

Signal conditioner calculations are done before normal scaling, so it is possible to make further adjustments to the scale using the Scaling dialog. This could be used in a variety of ways, for example:

- to make small corrections after calibrating a sensor

- to convert from metric to imperial units

- to convert from Amps to Kilowatts

Conditioner

This is the type of signal conditioner that you wish to use.

For the ADC16, the computer automatically detects the signal conditioner type but for other converters, it is necessary to manually select the signal conditioner.

Sensor

Once you have selected a conditioner, the sensor dialog contains a list of sensors that are suitable for use with the specified conditioner. Select the sensor that you wish to use.

Information about sensors is stored in a set of Pico Signal Conditioner (.PSC) files. You can also create your own PSC files to add other sensors.

Chapter 6: Dialogs (Product Specific)

ADC 10/12/40/42

- Measurement List Dialog
- Measurement Details Dialog
- Block Dialog
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- Status Dialog

ADC 11/22

- Measurement List Dialog
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ADC16

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ADC 100/101

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ADC 2XX

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Demo

- Measurement List Dialog
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DrDaq

- Measurement List Dialog
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RH02

- Channel List Dialog
- Channel Details Dialog
- Status Dialog

TC08

- Channel List Dialog
- Channel Details Dialog
- Status Dialog

TH03

- Channel List Dialog

- Channel Details Dialog

- Status Dialog

ADC10/12/40/42 Measurement List Dialog

This dialog is used to build up a list of parameters to measure for a converter. On the left is the current list of measurements and on the right are buttons to update the list.

Add…

To add a measurement to the list, press this button. This will open a dialog to enter details of the new measurement.

Edit…

To edit a measurement in the list, highlight it and press this button. This will open the measurement dialog so that you can edit the details.

Delete

To delete a measurement in the list, highlight it and press this button.

ADC10/12/40/42 Measurement Details Dialog

This dialog is used to enter the details for a measurement.

Name

This is the name of the measurement. This name will appear on all reports.

Measurement

This specifies the type of measurement that will be made. The options are:

- **DC volts** – the DC component or average input voltage.

- **AC volts** – the RMS AC voltage (note that this excludes any DC component).

- **dB** – AC volts converted to dB.

- **Frequency** – the frequency of the AC component, in Hz.

Voltage range

This specifies the voltage range for the measurement.

Scan time

This is the total time to take the set of readings for a sample. The scan time should be at least three cycles at the minimum frequency that you wish to measure.

Options…

To set the options for the measurement (such as units and scaling) press this button. This will open the parameter options dialog.

ADC10/12/40/42 Block Dialog

This dialog only applies to the block method of recording. It is used to select the channels that will be used to take measurements.

Name

This is the name of the measurement. This name will appear on all reports.

Total time

This is the time over which you want to collect the data. If this is not long enough, more time will automatically be taken.

Number of samples

This specifies the number of samples to be taken during a block.

Trigger…

To enter the trigger details for the measurement press this button. This will open the trigger dialog.

Options…

To set the options for the measurement (such as units and scaling) press this button. This will open the parameter options dialog.

ADC10/12/40/42 Trigger Dialog

Triggering is used to select the moment at which PicoLog collects data – usually at some fixed time before or after a trigger event.

A trigger event occurs when a specified channel crosses a voltage threshold – either rising or falling. PicoLog can start collecting data immediately after the trigger event, or a fixed time interval before or after the trigger event.

Trigger enable

If you wish to collect data only when the specified trigger conditions occur, check this box. If the box is not checked, data is displayed continuously.

Direction

The trigger direction can be either rising or falling. If rising is selected, the trigger event occurs when the voltage rises across the trigger threshold.

Channel

This selects which channel is to be used as the trigger input.

Threshold

This shows the voltage (in mV) that the trigger channel must cross in order for a trigger event to occur.

Delay

This controls the time delay, as a percentage of the sweep time, between the trigger event and the start of collecting data. A negative delay means that the computer will show data that was recorded before the trigger event - for example, -50% places the trigger event in the middle of the collected data and –100% means that all data is collected before the trigger.

Auto trigger

If you wish PicoLog to trigger after a specified time – even if no trigger event occurs – check this box. This will prevent PicoLog from waiting indefinitely for the event and locking up the computer.

Note: If you disable auto-trigger and the computer does lock up, you can press the F9 key to simulate a trigger.

Auto trigger after

The time after which PicoLog will trigger, even if no trigger event occurs.

ADC10/12/40/42 Status Dialog

ADC11/22 Measurement List Dialog

This dialog is used to build up a list of parameters to measure for a converter. On the left is the current list of measurements and on the right are buttons to update the list.

Add…

To add a measurement to the list, press this button. This will open a dialog to enter details of the new measurement.

Edit…

To edit a measurement in the list, highlight it and press this button. This will open the measurement dialog so that you can edit the details.

Delete

To delete a measurement in the list, highlight it and press this button.

ADC11/22 Measurement Details Dialog

This dialog is used to enter the details for a measurement.

Name

This is the name of the measurement. This name will appear on all reports.

Channel

This is the channel to be used for the measurement.

Measurement

This specifies the type of measurement that will be made. The options are:

- **DC volts** – the DC component or average input voltage.
- **AC volts** – the RMS AC voltage (note that this excludes any DC component).
- **dB** – AC volts converted to dB.
- **Frequency** – the frequency of the AC component, in Hz.

Scan time

This is the total time to take the set of readings for a sample. The scan time should be at least three cycles at the minimum frequency that you wish to measure.

Options…

To set the options for the measurement (such as units and scaling) press this button. This will open the parameter options dialog.

ADC11/22 Block Dialog

This dialog is used to select the channels and sampling rate for fast recording.

Edit…

To select a channel, highlight it and press this button. This will open the edit channel dialog so that you can enter the details.

Number of samples

This specifies the number of samples to be taken during a block.

Total time

This is the time over which you want to collect the specified number of samples. If the specified total time is too short, the computer will still collect the specified number of samples, even if it takes longer.

Disable

To disable a measurement in the list, highlight it and press this button.

Trigger…

To enter the trigger details for a measurement, highlight it and press this button. This will open the trigger dialog.

ADC11/22 Trigger Dialog

Triggering is used to select the moment at which PicoLog starts collects data – usually at some fixed time before or after a trigger event.

A trigger event occurs when the specified channel crosses a voltage threshold – either rising or falling. PicoLog can start collecting data immediately after the trigger event, or a fixed time interval before or after the trigger event.

Trigger enable

If you wish to collect data only when the specified trigger conditions occur, check this box. If the box is not checked, data is displayed continuously.

Direction

The trigger direction can be either rising or falling. If rising is selected, the trigger event occurs when the voltage rises across the trigger threshold.

Channel

This selects which channel is to be used as the trigger input.

Threshold

This shows the voltage (in mV) that the trigger channel must cross in order for a trigger event to occur.

Delay

This controls the time delay, as a percentage of the sweep time, between the trigger event and the start of collecting data. A negative delay means that the computer will show data that was recorded before the trigger event - for example, -50% places the trigger event in the middle of the collected data and –100% means that all data is collected before the trigger.

Auto trigger

If you wish PicoLog to trigger after a specified time – even if no trigger event occurs – check this box. This will prevent PicoLog from waiting indefinitely for the event and locking up the computer.

Note: If you disable auto-trigger and the computer does lock up, you can press the F9 key to simulate a trigger.

Auto trigger after

The time after which PicoLog will trigger, even if no trigger event occurs

ADC11/22 Status Dialog

ADC16 Channel List

This dialog is used to select the channels that will be used to take measurements.

Note that, when using a CM001 signal conditioner adapter, only the first four channels are available. The remaining four channels are used for conditioner type detection.

Edit…

To select a channel, highlight it and press this button. This will open the edit channel dialog so that you can enter the details.

Disable

To disable a previously selected channel, highlight it and press this button.

ADC16 Channel Details Dialog

This dialog is used to enter the details for a channel.

Name

This is the name of the channel. This name will appear on all reports.

Resolution/conversion time

The resolution can be 13 to 16 bits. Values are signed so, for example, 16 bits will give values in the range – 65,535 to + 65,535.

The time taken for each measurement increases in proportion to the resolution: 16 bits gives the highest precision results but takes the longest time per reading.

Differential input

If you wish to measure the voltage difference between adjacent channels, check this box. This mode applies to channels 1, 3, 5, and 7. For example, if differential input is enabled for channel 1, the computer will measure the voltage difference between channel 1 and channel 2.

Filter enable

If you wish to use a filter to reduce the effects of electrical noise, check this box.

Filter factor

Each time a reading is taken, the filtered value is updated using the equation:

new value = old value + (reading - old value)/(filter factor)

Filtered values are more stable but the readings will respond relatively slowly to a step change in voltage. The higher the factor, the stronger the filtering effect will be.

Options…

To set the options for a parameter, press this button.

Conditioner

If the ADC16 driver detects that a signal conditioner module is fitted, this dialog box will display the name of the signal conditioner. Use Options | Conditioner to specify the type of sensor that you intend to connect to the signal conditioner.

ADC16 Status Dialog

ADC100/101 Measurement List

This dialog displays a list of the measurements that you wish to take.

Add…

To add a measurement to the list, press this button. This will open the measurement dialog so you can enter the details.

Edit…

To edit a measurement in the list, highlight it and press this button. This will open the measurement dialog so that you can edit the details.

Delete

To delete a measurement in the list, highlight it and press this button.

ADC100/101 Measurement Details Dialog

This dialog is used to enter the details for a measurement.

Name

This is the name of the measurement. This name will appear on all reports.

Channel

This is the channel that will take the measurement.

Measurement

This specifies the type of measurement that will be made. The options are:

- **DC volts** – the DC component or average input voltage.
- **AC volts** – the RMS AC voltage (note that this excludes any DC component).
- **dB** – AC volts converted to dB.
- **Frequency** – the frequency of the AC component, in Hz.

Voltage range

This specifies the voltage range for the measurement.

Scan time

This is the total time to take the set of readings for a sample. The scan time should be at least three cycles at the minimum frequency that you wish to measure.

Options…

To set the options for the measurement (such as units and scaling) press this button. This will open the parameter options dialog.

ADC100/101 Block Dialog

This dialog only applies to the block method of recording. It is used to select the channels that will be used to take measurements.

Total time

This is the time over which you want to collect the data. If this is not long enough, more time will automatically be taken.

Number of samples

This specifies the number of samples to be taken during a block.

Name

This is the name of the measurement. This name will appear on all reports.

Range

This specifies the voltage range for the measurement.

Trigger…

To enter the trigger details for the measurement press this button. This will open the trigger dialog.

Options…

To set the options for the measurement (such as units and scaling) press this button. This will open the parameter options dialog.

ADC100/101 Trigger Dialog

Triggering is used to select the moment at which PicoLog collects data – usually at some fixed time before or after a trigger event.

A trigger event occurs when a specified channel crosses a voltage threshold – either rising or falling. PicoLog can start collecting data immediately after the trigger event, or a fixed time interval before or after the trigger event.

Trigger enable

If you wish to collect data only when the specified trigger conditions occur, check this box. If the box is not checked, data is displayed continuously.

Direction

The trigger direction can be either rising or falling. If rising is selected, the trigger event occurs when the voltage rises across the trigger threshold.

Channel

This selects which channel is to be used as the trigger input.

Threshold

This shows the voltage (in mV) that the trigger channel must cross in order for a trigger event to occur.

Delay

This controls the time delay, as a percentage of the sweep time, between the trigger event and the start of collecting data. A negative delay means that the computer will

show data that was recorded before the trigger event - for example, -50% places the trigger event in the middle of the collected data and –100% means that all data is collected before the trigger.

Auto trigger

If you wish PicoLog to trigger after a specified time – even if no trigger event occurs – check this box. This will prevent PicoLog from waiting indefinitely for the event and locking up the computer.

Note: If you disable auto-trigger and the computer does lock up, you can press the F9 key to simulate a trigger.

Auto trigger after

The time after which PicoLog will trigger, even if no trigger event occurs.

ADC100/101 Status Dialog

ADC2XX Measurement List

This dialog displays a list of the measurements that you wish to take.

Add…

To add a measurement to the list, press this button. This will open the measurement dialog so you can enter the details.

Edit…

To edit a measurement in the list, highlight it and press this button. This will open the measurement dialog so that you can edit the details.

Delete

To delete a measurement in the list, highlight it and press this button.

ADC2XX Measurement Details Dialog

This dialog is used to enter the details for a measurement.

Name

This is the name of the measurement. This name will appear on all reports.

Channel

This is the channel that will take the measurement.

Measurement

This specifies the type of measurement that will be made. The options are:

- **DC volts** – the DC component or average input voltage.
- **AC volts** – the RMS AC voltage (note that this excludes any DC component).
- **dB** – AC volts converted to dB.
- **Frequency** – the frequency of the AC component, in Hz.

Voltage range

This specifies the voltage range for the measurement.

Scan time

This is the total time to take the set of readings for a sample. The scan time should be at least three cycles at the minimum frequency that you wish to measure.

Options…

To set the options for the measurement (such as units and scaling) press this button. This will open the parameter options dialog.

ADC2XX Block Dialog

This dialog is used to select the sampling rate and channels for fast data recording.

Timebase

This is a list of the sample rates built into the ADC2XX unit. Select one of the entries from this list.

Oversample

This is the number of individual readings to be used for each sample. If you select four, for example, each sample will be made up of four readings and the time per sample will be four times the timebase.

Number of samples

This specifies the number of samples to be taken during a block.

Total time

This is the time required to take the specified number of samples

Name

This is the name of the measurement. This name will appear on all reports.

Range

This specifies the voltage range for the measurement. Set to 'off' if the channel is not required.

AC/DC

This specifies whether the input is to be AC or DC coupled.

Trigger…

To enter the trigger details for the measurement press this button. This will open the trigger dialog.

Options…

To set the options for the measurement (such as units and scaling) press this button. This will open the parameter options dialog.

ADC2XX Trigger Dialog

Triggering is used to select the moment at which PicoLog collects data – usually at some fixed time before or after a trigger event.

A trigger event occurs when a specified channel crosses a voltage threshold – either rising or falling. PicoLog can start collecting data immediately after the trigger event, or a fixed time interval before or after the trigger event.

Trigger enable

If you wish to collect data only when the specified trigger conditions occur, check this box. If the box is not checked, data is displayed continuously.

Direction

The trigger direction can be either rising or falling. If rising is selected, the trigger event occurs when the voltage rises across the trigger threshold.

Channel

This selects which channel is to be used as the trigger input.

Threshold

This shows the voltage (in mV) that the trigger channel must cross in order for a trigger event to occur.

Delay

This controls the time delay, as a percentage of the sweep time, between the trigger event and the start of collecting data. A negative delay means that the computer will show data that was recorded before the trigger event - for example, -50% places the trigger event in the middle of the collected data and –100% means that all data is collected before the trigger.

Auto trigger

If you wish PicoLog to trigger after a specified time – even if no trigger event occurs – check this box. This will prevent PicoLog from waiting indefinitely for the event and locking up the computer.

Auto trigger after

The time after which PicoLog will trigger, even if no trigger event occurs.

ADC2XX Status Dialog

Demo Measurement List

This dialog displays a list of the measurements that you wish to take.

Add…

To add a measurement to the list, press this button. This will open the measurement dialog so you can enter the details.

Edit…

To edit a measurement in the list, highlight it and press this button. This will open the measurement dialog so that you can edit the details.

Delete

To delete a measurement in the list, highlight it and press this button.

Demo Measurement Details Dialog

This dialog is used to enter the details for a measurement.

Name

This is the name of the measurement. This name will appear on all reports.

Channel

This is the channel that will take the measurement.

Measurement

This specifies the type of measurement that will be made. The options are:

- **DC volts** – the DC component or average input voltage.
- **AC volts** – the RMS AC voltage (note that this excludes any DC component).
- **dB** – AC volts converted to dB.
- **Frequency** – the frequency of the AC component, in Hz.

Voltage range

This specifies the voltage range for the measurement.

Scan time

This is the total time to take the set of readings for a sample. The scan time should be at least three cycles at the minimum frequency that you wish to measure.

Options…

To set the options for the measurement (such as units and scaling) press this button. This will open the parameter options dialog.

Demo Block Dialog

This dialog only applies to the block method of recording. It is used to select the channels that will be used to take measurements.

Time per sample

The timing is set in the unit itself, so the time per sample is guaranteed. Choose from the given list.

Total time

This is the time over which you want to collect the data. If this is not long enough, more time will automatically be taken.

Number of samples

This specifies the number of samples to be taken during a block.

Name

This is the name of the measurement. This name will appear on all reports.

Range

This specifies the voltage range for the measurement.

Trigger…

To enter the trigger details for the measurement press this button. This will open the trigger dialog.

Options…

To set the options for the measurement (such as units and scaling) press this button. This will open the parameter options dialog.

Demo Trigger Dialog

Triggering is used to select the moment at which PicoLog collects data – usually at some fixed time before or after a trigger event.

A trigger event occurs when a specified channel crosses a voltage threshold – either rising or falling. PicoLog can start collecting data immediately after the trigger event, or a fixed time interval before or after the trigger event.

Trigger enable

If you wish to collect data only when the specified trigger conditions occur, check this box. If the box is not checked, data is displayed continuously.

Direction

The trigger direction can be either rising or falling. If rising is selected, the trigger event occurs when the voltage rises across the trigger threshold.

Channel

This selects which channel is to be used as the trigger input.

Threshold

This shows the voltage (in mV) that the trigger channel must cross in order for a trigger event to occur.

Delay

This controls the time delay, as a percentage of the sweep time, between the trigger event and the start of collecting data. A negative delay means that the computer will show data that was recorded before the trigger event - for example, -50% places the trigger event in the middle of the collected data and –100% means that all data is collected before the trigger.

Auto trigger

If you wish PicoLog to trigger after a specified time – even if no trigger event occurs – check this box. This will prevent PicoLog from waiting indefinitely for the event and locking up the computer.

Auto trigger after

The time after which PicoLog will trigger if no trigger event occurs.

Demo Status Dialog

DrDAQ Measurement List Dialog

This dialog is used to build up a list of parameters to measure for a converter. On the left is the current list of measurements and on the right are buttons to update the list.

Add…

To add a measurement to the list, press this button. This will open a dialog to enter details of the new measurement.

Edit…

To edit a measurement in the list, highlight it and press this button. This will open the measurement dialog so that you can edit the details.

Delete

To delete a measurement in the list, highlight it and press this button.

At the bottom are controls to determine when the digital output and the LED are to be turned on. The options are:

- **Always on -** the output is always on
- **On when recording -** the output is on whilst PicoLog is recording
- **Off during alarm -** the output is turned on when no alarm condition is present
- **On during alarm -** the output is turned on when an alarm condition is present

DrDAQ Measurement Details Dialog

This dialog is used to enter the details for a measurement.

Name

This is the name of the measurement. This name will appear on all reports.

Channel

This is the channel to be used for the measurement.

Scaling

For some sensors, more than one scaling is available. If so, this option is used to select the scaling that you wish to use.

Measurement

This specifies the type of measurement that will be made. The options are:

- **DC signal** – the DC component or average input signal.
- **AC signal** – the RMS AC signal (note that this excludes any DC component).
- **Frequency** – the frequency of the AC component, in Hz.

Note: AC signal and **Frequency** are not available for slowly-changing channels

Scan time

PicoLog takes a set of readings at high speed and then uses these readings to calculate the selected measurement (**DC signal**, **AC signal** or **Frequency**). The scan time is the total time to take the set of readings for this measurement.

When making **DC signal** measurements, a longer scan time will reduce the effects of noise. Note, however, that the sum of the scan times for all channels must not exceed the sampling interval used for recording.

When making **AC signal** or **Frequency** measurements, the scan time should be at least three cycles at the minimum frequency that you wish to measure. For example, if you wish to measure a 50Hz AC signal, one cycle is 20ms, and three cycles are 60ms.

Options…

To set the options for the measurement (such as units and scaling) press this button. This will open the parameter options dialog.

DrDAQ Block Dialog

This dialog is used to select the channels and sampling rate for fast recording.

Edit…

To select a channel, highlight it and press this button. This will open the edit channel dialog so that you can enter the details.

Number of samples

This specifies the number of samples to be taken during a block.

Total time

This is the time over which you want to collect the specified number of samples. If the specified total time is too short, the computer will still collect the specified number of samples, even if it takes longer.

Disable

To disable a measurement in the list, highlight it and press this button.

Trigger…

To enter the trigger details for a measurement, highlight it and press this button. This will open the trigger dialog.

DrDAQ Trigger Dialog

Triggering is used to select the moment at which PicoLog starts collects data – usually at some fixed time before or after a trigger event.

A trigger event occurs when the specified channel crosses a voltage threshold – either rising or falling. PicoLog can start collecting data immediately after the trigger event, or a fixed time interval before or after the trigger event.

Trigger enable

If you wish to collect data only when the specified trigger conditions occur, check this box. If the box is not checked, data is displayed continuously.

Direction

The trigger direction can be either rising or falling. If rising is selected, the trigger event occurs when the voltage rises across the trigger threshold.

Channel

This selects which channel is to be used as the trigger input.

Threshold

This shows the voltage (in channel units) that the trigger channel must cross in order for a trigger event to occur.

Delay

This controls the time delay, as a percentage of the sweep time, between the trigger event and the start of collecting data. A negative delay means that the computer will show data that was recorded before the trigger event - for example, -50% places

the trigger event in the middle of the collected data and –100% means that all data is collected before the trigger.

Auto trigger

If you wish PicoLog to trigger after a specified time – even if no trigger event occurs – check this box. This will prevent PicoLog from waiting indefinitely for the event and locking up the computer.

Note: If you disable auto-trigger and the computer does lock up, you can press the F9 key to simulate a trigger.

Auto trigger after

The time after which PicoLog will trigger, even if no trigger event occurs

DrDAQ Status Dialog

RH02 Channel List Dialog

This dialog is used to select the channels that will be used to take measurements.

Edit…

To select a channel, first highlight it, then press this button. This will open the edit channel dialog so that you can enter the details.

Disable

To disable a previously selected channel, highlight it and then press this button.

RH02 Channel Details Dialog

This dialog is used to enter the details for a channel.

Name

This is the name of the channel. This name will appear on all reports.

Filter enable

If you want to use a filter to reduce the effects of electrical noise, check this box.

Options…

To set the options for a parameter, press this button.

RH02 Status Dialog

TC08 Channel List Dialog

This dialog is used to select the channels that will be used to take measurements.

Edit…

To select a channel, first highlight it, then press this button. This will open the edit channel dialog so that you can enter the details.

Disable

To disable a previously selected channel, highlight it and press this button.

TC08 Channel Details Dialog

This dialog is used to enter the details for a channel.

Name

This is the name of the channel. This name will appear on all reports.

TC type

This is the thermocouple type connected to the channel. There are eight valid thermocouple types: B, E, J, K, R, S, T, and N.

There is also a $\pm$ 60 millivolt range.

Filter enable

If you want to use a filter to reduce the effects of electrical noise, check this box.

Filter factor

Each time a reading is taken, the filtered value is updated using the equation:

new value = old value + (reading - old value)/(filter factor)

Filtered values are more stable, but respond more slowly to real changes in temperature. The higher the factor, the stronger the filtering effect will be.

Options…

To set the options for a parameter, press this button.

TC08 Status Dialog

TH03 Channel List Dialog

This dialog is used to select the channels that will be used to take measurements.

Edit…

To select a channel, first highlight it, then press this button. This will open the edit channel dialog so that you can enter the details.

Disable

To disable a previously selected channel, highlight it and then press this button.

TH03 Channel Details Dialog

This dialog is used to enter the details for a channel.

Name

This is the name of the channel. This name will appear on all reports.

Sensor type

This is the sensor connected to the channel. There are seven choices:

- **EL015 (Low temp)** is a thermistor sensor suitable for measuring temperatures in the range −30 to 70°C.
- **EL029 Doorswitch** is a magnetic sensor, which senses if a door is open or closed.
- **EL031 Light** is a sensor suitable for measuring light intensity.

- **EL039 (Low Temp)** is a thermistor sensor suitable for measuring temperatures in the reange -40 to 30°C.
- **Medium temp** is a thermistor sensor suitable for measuring temperatures in the range 0 to 70°C.
- **High temp** is a thermistor sensor suitable for measuring temperatures in the range 0 to 300°C.
- **Unicam** (OEM)

Filter enable

If you want to use a filter to reduce the effects of electrical noise, check this box.

Filter factor

Each time a reading is taken, the filtered value is updated using the equation:

new value = old value + (reading - old value)/(filter factor)

Filtered values are more stable, but respond more slowly to real changes in temperature. The higher the factor, the stronger the filtering effect will be.

Options…

To set the options for a parameter, press this button.

TH03 Status Dialog

Chapter 7: Equipment

- Converters
- DrDAQ
- RH02
- TH03
- TC08
- ADC16
- ADC10/12/40/42
- ADC11/22
- ADC 100/101
- ADC2XX

- IP Sockets

- Demo

- Signal Conditioners

Converters

PicoLog takes measurements using one or more converters. These devices connect to the serial or parallel port on your computer and convert electrical signals into measurements.

PicoLog can work with up to ten converters at the same time in Realtime recording mode but can only work with one converter in Block mode.

Converters:

- DrDAQ

- RH02

- TH03

- TC08

- ADC16

- ADC10/12/40/42

- ADC11/22

- ADC100/101

- ADC2XX

- IP Sockets

Dialogs:

- Converter Preferences

- Converter List

- Converter Details

DrDAQ

DrDAQ is a medium-speed analog to digital converter with 9 channels. The channels are as follows:

Channel	Connector	Range
Sound waveform	built in	+/-100
Sound level	built in	50..100dBA
Voltage	Screw terminal	0..5V
Resistance	Screw terminal	1k..1M
pH	BNC	0..14
Light	Built in	0 .. 100
Temperature	Built in	0 to 70C
External 1	FCC68 4-pin	
External 2	FCC68 4-pin	

The external sensor inputs automatically detect the type of sensor and scale the input accordingly.

DrDAQ has two outputs: a digital output and an LED. These outputs can be turned on permanently, only during recording or only when an alarm condition exists.

Note: DrDAQ is capable of 15k samples per second, however, we recommend using PicoScope for sample rates of 1 millisecond or faster. DrDAQ is intended for educational use and to simplify usage, block mode is disabled if PicoLog is installed for DrDAQ.

Dialogs:

- Measurement List
- Measurement Details
- Block
- Trigger

RH02

The RH-02 connects to the serial port on your computer and measures temperature and humidity. Even if only humidity is required, both parameters must be recorded. You can use up to 9 RH02 units. The conversion time for the RH-02 is over a second, so block mode is not supported.

Dialogs:

- Channel List
- Channel Details

TH03

The TH-03 is designed to measure temperatures. It can also be used to provide a qualitative measure of light level and to monitor a switch (e.g. a door switch). The conversion time for the TH-03 is over a second, so block mode is not supported.

Each TH-03 unit provides three inputs. You can use up to 9 TH-03 units.

Dialogs:

- Channel List
- Channel Details

TC08

The TC-08 is designed for use with thermocouples of any type and it can also be used to measure voltages up to 60mV. The conversion time for the TC-08 is over a second, so block mode is not supported.

Each TC-08 unit provides eight inputs. You can use up to 9 TC-08 units at the same time.

Dialogs:

- Channel List
- Channel Details

ADC16

The ADC-16 is high resolution converter that offers 8 analogue input channels. You can use the CM002 signal conditioner adapter to connect up to four signal conditioner modules. The conversion time for the ADC-16 is over a second, so block mode is not supported.

You can use up to 9 ADC16 units at the same time.

Dialogs:

- Channel List
- Channel Details

ADC10/12/40/42

These units plug into the parallel port and provide a single analogue input. The following table shows their differences:

Converter	Resolution	Range
ADC10	8 bits	0-5V
ADC12	12 bits	0-5V
ADC40	8 bits	-5 to +5V
ADC42	12 bits	-5 to +5V

Both realtime and block modes are supported.

These units can be connected to signal conditioners using a CM001 signal conditioner adapter.

Up to three units can be connected to the same computer.

Dialogs:

- Measurement List
- Measurement details
- Block
- Trigger

ADC11/22

The ADC-11 and ADC-22 are 10-bit converters with an input range of 0 to 2.5V. The ADC-11 has 11 input channels and the ADC-22 has 22 channels.

There is no provision for connection to signal conditioners as these devices are unipolar. It would be possible to use these devices with signal conditioners that do not produce negative voltages.

Both realtime and block modes are supported.

Up to three units can be connected to the same computer.

Dialogs:

- Measurement List
- Measurement Details
- Block
- Trigger

ADC100/101

The ADC-100 and ADC-101 are two-channel high-speed devices with programmable input voltage ranges. The ADC-101 has higher voltage ranges and differential inputs.

Both realtime and block modes are supported.

These units can be connected to signal conditioners using a CM001 signal conditioner adapter.

Up to three units can be connected to the same computer.

Dialogs:

- Measurement List
- Measurement Details
- Block
- Trigger

ADC2XX

The ADC200/212/216 range of devices have two inputs and programmable voltage input ranges. All devices collect samples at precise time intervals to an internal buffer.

Both realtime and block modes are supported.

These units can be connected to signal conditioners using a CM001 signal conditioner adapter.

Up to three units can be connected to the same computer.

Dialogs:

- Measurement List
- Measurement Details
- Block
- Trigger

IP Sockets

PicoLog has built-in support for transferring data over an IP network.

One computer supplies the data and is referred to as the Server. The other computer (referred to as the Client) receives data from the server and displays the parameters as if they were collected locally. A server can support any number of clients and a client can get data from up to 10 servers.

A client needs two pieces of information to talk to a server: the name of the server and a socket number (normally 1050). The server does not need to know anything about the client.

The link uses the UDP/IP protocol. This is very efficient but does not guarantee that every message will get through. On large networks, a lost message would result in a delayed data update on the client.

See How to transfer data over an IP network for detailed instructions on setting up a link.

Dialogs:

- IP Sockets Preferences
- Channel List
- Channel Details

Demo

The demo device can be used to evaluate the functions available in PicoLog before buying a Pico product. It produces two channels of simulated data.

Dialogs:

- Measurement List
- Measurement Details
- Block
- Trigger

Signal conditioners

The Pico range of signal conditioners provide a quick and easy way of connecting sensors to Pico Converters. PicoLog has built-in scaling to use the signal conditioners with a wide range of sensors. To enable signal conditioner scaling for a measurement:

1. On the measurement dialog, press the **Options** button

2. Press the **Conditioners** button

3. Select the **signal conditioner type** (the sensors dialog will be updated to show the selection of sensors that work with this signal conditioner)

4. Select the **sensor type**

For more information about signal conditioners, and about the .PSC files that contain details about signal conditioners, please consult the signal conditioner help file.

Chapter 8: Technical information

- File Formats Overview
- Preference File Format
- PLW Data File Format
- Settings File Format
- Scale File Format
- Pico Signal Conditioner (.PSC) File Format
- Startup commands
- Running multiple copies
- Dynamic Data Exchange (DDE)
- Equations

Other Chapters: General Information   Views   How To...   Menus   Dialogs (General) Dialogs (Product Specific)   Equipment

File Formats Overview

PicoLog for Windows uses the following file types:

plw.ini	preferences
recorder.pls	sampling settings for the recorder
player.pls	settings for the player
*.pls	other saved settings
*.plw	data file
*.scl	scaling file
*.psc	signal conditioner files

The .ini and .pls files are Windows-style .ini files. They can be edited with a text editor.

Note: Do not attempt to save your data directly to a floppy disk.

Preference file format

The preference file, plw.ini, contains two sections: General and Preferences. These sections contain the following items:

Note: Do not attempt to save your data directly to a floppy disk.

General

DataPath - alternate path for data files

UserName - text to display in the footer for printed reports

Language - language code (see language dialog)

Serial - serial number for PicoLog

VersionWarning - version warning state (tells to check web for update)

Preferences

Colour1 - colour of a graph component (see colours dialog)

BeepOnReading

BeepOnLamp

BeepOnAlarm - sound options (see sounds dialog)

Fahrenheit - units for temperature (Yes= Fahrenheit, No=Celsius)

QuickSampleMs - minimum sample interval for which AC/frequency measurement is possible

PLW data file format

Note: Do not attempt to save your data directly to a floppy disk.

The .plw file has a fixed-length header, followed by a data record for each sample. It is terminated by a copy of the .pls file that was used to record it.

The first two-byte field of the header contains the length, in bytes, of the header. The remaining fields are as follows:

```
UNS16      header_bytes; - the length, in bytes, of this header
char       signature [40]; "PicoLog for Windows"
UNS32      version;
UNS32      no_of_parameters; no of parameters recorded
UNS16      parameters [50];
UNS32      sample_no; same as no_of_samples, unless wraparound occurred
UNS32      no_of_samples; number of samples recorded so far
UNS32      max_samples;
UNS32      interval; sample interval
UNS16      interval_units; 0=Femtosecs…4=ms, 5=secs, 6=mins, 7=hours
UNS32      trigger_sample;
UNS16      triggered;
UNS32      first_sample;
UNS32      sample_bytes; length of each sample record
UNS32      settings_bytes; length of settings text after samples (copy of .pls file)
UNS32      start_date;
UNS32      start_time;

INT32      minimum_time;
INT32      maximum_time;
char       notes [200];
INT32      current_time;
UNS8       spare [78];
```

```
} HEADER;
```

Each sample record contains the sample time, which is a 4-byte integer, followed by one 4-byte floating point value for each parameter.

Settings file format

Note: Do not attempt to save your data directly to a floppy disk.

PicoLog uses **recorder.pls** to hold information about the current recording session. A separate file, **player.pls**, holds information about the current player session.

The user can use the Save as… option to save the current settings in a named .pls file. These details can later be loaded to carry out a new test with the same settings.

The **recorder.pls** file is also written to the end of each **.plw** data file and is automatically reloaded when an old .plw file is loaded.

All settings files are in windows .INI format and could be edited using a text editor, although this is not recommended. The file contains the following sections:

[Sampling] - this section contains details of recording and sampling.

[General] - numbers of parameters, converters, etc

[Converter 1] - generic converter details - type and port

[Unit 1] - type-specific converter details

[Unit 1 Measure 1] - details about a measurement from converter 1

[Parameter 1] - details about a parameter (excluding converter info)

[Monitor] - info on the monitor view

[Recorder] - info on the recorder view

[Graph1] - info on the graph view

[XYGraph1] - info on the XY graph view

[Spread1] - info on the spreadsheet view

[File] - current filename

Scale file format

This file is a text file containing information in the following format:

The first few lines define a number of keyword parameters. These lines are in the same format as a Windows .ini file, with a keyword, an equals sign and then a value, for example:

Units=°C

One of the keyword parameters is the scaling method and must always be included. The remaining parameters are optional. The keywords for the optional parameters are listed below.

After the optional parameters, the actual scaling information appears in the same format as it is entered in the scaling dialog.

The scaling method can be specified either in English or in the currently selected language. If the scaling method is specified in English, it will be understood regardless of what language is selected.

For a lookup table with just two pairs, the file would look like this:

Notes=LM35CZ Temperature sensor

Type=Table

Units=°C

-0.02   -20

0.1   100

For an equation, the file would look like this:

Notes=Temperature in Fahrenheit from LM35CZ

Type=Equation

32 + x *0.005555

The optional parameters are:

Notes   You can include one or more lines of notes to explain what this scaling file is to be used for. The first few lines of the scaling file are displayed when the file is loaded, so the notes give the user an indication that they have loaded the correct scaling file.

Units   the unit text to be shown on graphs, spreadsheets etc

Width   the field width when the parameter appears in spreadsheeets

Places   the number of decimal places to display

MinValue   the minimum value for graphs

MaxValue   the maximum value for graphs

Some of the optional parameters will automatically set the fields on the 'Parameter options' dialog, for example the units, range etc. See the parameter options dialog for more information on these parameters

Pico Signal conditioner (.PSC) file format

PicoLog and other Pico software products are provided with a set of .PSC files that contain scaling information on a wide range of sensors. The conditioner dialog offers a choice of the sensors in these files.

Users can add their own scaling information by creating additional .PSC files. These will be used automatically. It may, however, be easier to use the standard scaling facilities of PicoLog.

See the Signal Conditioner help file for more information about these files.

Startup Commands

The following options can be specified when starting PicoLog for Windows:

-p   start PicoLog in player mode

-r   restart recording

xxxx.pls load the settings from xxxx.pls

Program Modes

You can have more than one copy of PicoLog for Windows running at once. This means that you can use one copy to examine old data files whilst another copy is collecting a new data file. You can have more than one 'player' open to examine old files, but only one recorder is allowed.

To start PicoLog for Windows as a recorder, press the 'recorder' icon in the Pico Technology program group.

To start PicoLog for Windows as a player, you can either press the 'player' icon in the Pico Technology program group or, if you already have a recorder running, select the Player view from the view menu.

See also the -p option for the startup command.

Dynamic Data Exchange (DDE)

This is a convenient method of transferring the current set of readings to other applications. Data is updated continuously, about once per second.

Data items are identified by three keywords- **Application**, **Topic** and **Item**. The keywords accepted by PicoLog are:

Application	PLW
Topic	Current
Item	Name - parameter name
	Value - the current value
	Units - the units
	Alarm - the alarm status

Each DDE request returns a list of values for each parameter.

To read the current values into Excel, type the following command into a spreadsheet cell:

=PLW|Current!Value

To read the current values into Quattro Pro, type in the following command into a cell:

@DDELINK([PLW|Current]Value)

Most application programming languages (C, Delphi, Visual Basic) provide tools to make DDE requests from other applications.

Equations

An equation can contain the following items:

- **input parameters** - these are represented by X for a measured parameter and A, B C D E for a calculated parameter.

- **numbers** - these should be in fixed point decimal notation, eg 26.55. Exponential notation (1.65E-6) is not supported.

- **mathematical operators** (see below)

- **mathematical functions** (see below)

- **spaces**

Operators

The operators follow the normal rules of operator precedence (BODMAS). If you wish to force a particular order of evaluation, use brackets.

	Description	Usage
( )	brackets	(x - 5) * 6
-	unary minus	-x
-	binary minus	x - 5
+	plus	x + 5
*	times	x * 5
/	divide	x / 5

Functions

Name	Description	Usage	Example
exp	e^x	exp (x)	exp (3) = 20.085
log10	$\log_{10}$	log10 (x)	log10(100)=2
ln	$\log_e$	ln (x)	ln(20.085)=3
power	power	x power 5	2 power 3 = 8
mod	modulo (remainder)	x mod 5	10 mod 2 = 1
sqrt	square root	sqrt (x)	sqrt(2) = 1.414