WINDMILL
Replay Manual

Windmill Software Limited

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Windmill Replay Manual

1   Introduction

Replay displays moving graphs of data previously collected by Windmill Logger. It shows data from up to 8 channels, from one Logger file. The top part of Replay shows the graph whilst the bottom shows a table of numeric values.
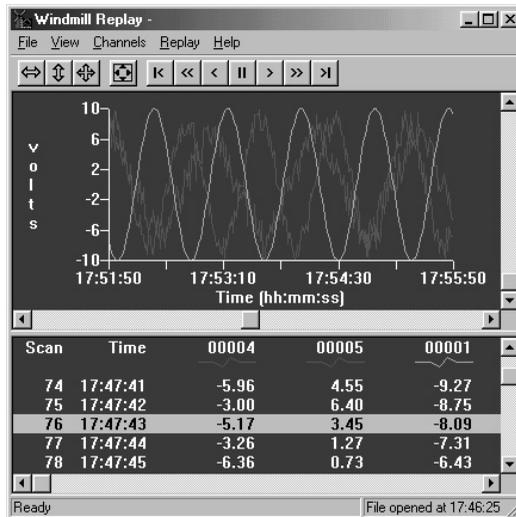
Windmill Replay

Replay works with Logger files containing tab-separated values. The files can contain up to 16000 lines of data. Replay cannot read files where the data values are separated by commas or spaces.

This manual tells you how to use Replay. The rest of this manual covers:

- Installing and starting Replay, Sections 2–4
- Finding the exact value of a point on the graph, Section 5
- Zooming in and out of the graph, Sections 6 and 7
- Replaying moving data, Section 8
- Printing the graph, Section 9
- Opening a new data file, Section 10
- Adding and removing channels, Section 11
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2   Installing Replay

Install Replay along with the other Windmill programs. See Chapter 1 of the *Windmill User Manual* for details.

3   Starting Replay

1. Start Replay in the normal Windows way, by double-clicking on the Replay icon for example. You are asked to select a Logger file. By default files ending .wl are shown, but you can choose files with any extension.

2. Select a file and press OK. Replay checks that this file is a suitable Logger file, which may take a few moments. Replay then invites you to select:
    - Up to 8 channels of data
    - The colour of each channel's line on the graph
    - the type of channel, and, for analogue channels, how many decimal places should be shown.

Selecting channels to display in Replay.

3. Select Channels
   The dialogue shows the first 8 channels in the file. You can select a different channel, or "(None)", from each drop down list. To quickly remove all channels choose the Clear All button. To re-display the first 8 channels choose the Defaults button.

4. Select Line Colours
   Select a colour for each channel's line from the drop down lists. You've 6 colours to choose from.

5. Select the Channel Type and Resolution
   Replay determines the type of channel you've selected: analogue or digital. For analogue channels you can select the number of decimal places to display: 0, 1, 2, 3 or 4. Note that the data will not necessarily be accurate to this number of decimal places: the accuracy will depend on the hardware.

Once you've made your selections press OK. Replay reads the data from the selected channels, which again may take a few moments. The main Replay screen then appears. Use the Channels menu if you later want to change channels.

When you open another file with the same channels, Replay will start with your previous selections.

4   The Replay Window

Menu
Bar

All but one of Replay's functions are available from the menu options. The exception is when selecting an area of the graph to zoom into, where you drag the mouse while holding down the right mouse button.

Tool
Bar

The tool bar buttons provide quick access to the zoom-out and replay features. To learn the function of a button select it and keep the left mouse button pressed down: a brief help message appears on the status bar.

Graph
Area

There is one x axis which is the time axis.

There may be more than one y axis, depending on the type of channels and their units.

All digital channels are graphed against one y axis, which is divided according to the number of channels. Analogue channels with the same units are graphed against another y axis. The y range is from the lowest to the highest value in the file. The units are set with SetupIML, before the data is collected. They are case sensitive, so by using Volts and volts say, you could force two volts axes. This would be use-

ful if, for example, one channel has a range of 0–1 V and another 0–250 V.

At first all data is shown. Trends may not be easily discernible with large data files, until you zoom into areas of interest (Section 6).

Table Area	Shows numeric values for each channel, arranged as a list of scans. (A scan is one pass of all channels. It includes the time stamp and 1 reading from each channel.)
Status Bar	Shows the date of the creation of the data file. It also shows the function of the currently selected menu item or button.

4.1   Changing the Split between Graph and Table

You can choose how much space to give the graph and how much the table. Position the cursor over the line dividing the graph and table, so it changes to this ⬍.

Hold down the left mouse button and drag the dividing line to its new position.

5   Finding the Exact Value of a Point on the Graph

Double-click a point on the graph and the table jumps to the relevant row, where you can see the exact data values. A cursor appears on the graph in the form of a vertical line. The points on this line correspond to the highlighted values in the table. Once you've displayed the cursor you can drag it to a new position. (Hold down the left mouse button as you drag, release the button when the cursor is where you want it.) If you double-click, or drag to, a position with no data, the cursor will jump to the nearest data point.

Similarly you can double-click a row of the table and a cursor will show the corresponding points on the graph.

6   Zooming into an Area of the Graph

Hold down the right mouse button and drag a rectangle to enlarge. Release the button and the selected rectangle will fill the graph area. Depending on your selection area, analogue channels may be temporarily lost or cropped from the y axis. Every digital channel, however, will always be shown. (Digital changes of state are obvious even when the y axis is reduced.) You can zoom-in until only a few points are shown.

7   Zooming out to Show More Data

You can:

- zoom-out horizontally,
- zoom-out vertically,
- zoom out in both directions,
- show all values.

Each zoom-out will approximately double the amount of data shown in the specified direction. Use the buttons or View menu as detailed below.

7.1   Zooming out Horizontally

Click on the graph area and select either Zoom Out X-Axis from the View menu, or the Zoom Out X button. This shows data collected over a longer time period, but retains the same y axis limits.

7.2   Zooming out Vertically

Click on the graph area and select either Zoom Out Y-Axis from the View menu, or the Zoom Out Y button. This shows a wider range of data but leaves the time axis as it is.

7.3   Zooming out in Both Directions

Click on the graph area and select either Zoom Out Both from the View menu, or the Zoom Out Both button. This extends both the x and y axes.

7.4 Viewing all of the Graph

Click on the graph area and select either View All of Graph from the View menu, or the Show All button. All the data will be shown.

8 Replaying Moving Data

Up until now we've been looking at a static graph, here we're going to move it.

Zoom into the graph until it looks a reasonable resolution, then use the Replay menu items or buttons.

Go to Start	Jumps to first data scan
Forward	Replays data from left to right, slowly
Fast Forward	Replays data from right to left, quickly
Stop	Stops the replay
Go to End	Jumps to last data scan
Reverse	Replays data from left to right, slowly
Fast Reverse	Replays data from left to right, quickly

9 Printing the Graph

Click on the graph and select Print from the File menu.

The usual Windows Print dialogue appears. The currently displayed graph will fill the chosen paper size, so you'll probably want to select Landscape orientation for the paper.

9.1 Previewing the Print-Out

Select Print Preview from the File menu. A Windows Print Preview shows the graph. The preview lets you see two pages at once, but one

page will always be blank. You can print directly from here: press the Print button.

9.2   Choosing the Printer Settings

Select Print Setup from the File menu and choose the printer and paper settings.

10   Opening a New Data File

To change the Logger data file choose Open from the File menu. Select a new file and then select channels, as discussed in Section 3, *Starting Replay*.

11   Adding and Removing Channels

Choose the Channels menu. The channels dialogue box appears. Use this as you did when starting Replay, as discussed in Section 3, *Starting Replay*.

12   Removing the Status Bar

The status bar shows the function of the currently selected button or menu item. You can remove the status bar, giving more room to the table or graph. Choose Status bar from the View menu, removing the tick.

13   Removing the Tool Bar

The tool bar lets you select buttons rather than menu items. You can remove the tool bar, giving more room to the table or graph. Choose Toolbar from the View menu, removing the tick.

14   Replaying Appended Files

An appended file occurs when you re-start logging to an existing
data file. Replay will only read the first part of an appended file, which
relates to the first "header" it encounters. You can replay subsequent
parts of the file by manually cutting and pasting each appended section
to a new file, using Excel or a word processor that supports text (ASCII)
format. Always make a backup before editing in case of mistakes, and
don't edit the file whilst Replay is using it.

15   Closing Replay

Select Exit from the File menu. Replay will close.