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D-LOG SCADA SOFTWARE USER MANUAL VERSION 10 (Typical Green Composting Facility “Tunnel” D-Log)

INTRODUCTION

Note: this special version of D-Log is designed to work with D-Log Manager – a control panel for managing multiple instances of D-Log, and it is therefore recommended that the manual for D-Log Manager is read as well as this D-Log specific manual.

The Phoenix D-Log is a PC based SCADA software program designed to link into a PLC controlling Industrial or Scientific process, providing the User with the facility to store data, change parameters, view process status in a number of formats, log, display, print or export data into any spreadsheets. It is also possible to view and print historical data and reports.

The D-Log program will run successfully on any PC capable of running Windows 95 (though it is recommended to use Windows 2000 upwards for total reliability), with a graphics capability of 1024x768 , and storage capacity limited only by the PC hard disk drive.

With connection to the Plant PLC via an OPC Server, plant data and control may also be accessed via a standard telephone line providing that the PC has a suitable modem.

Plant graphics are customised by Phoenix for each user and installation is normally carried out by Phoenix engineers at the user's site. Featuring, as it does, simple operator controls and clear readable displays using standard Windows controls, D-Log introduces a truly professional and easy to use system to the Plant Operator, with consequent improvements to efficiency and productivity.

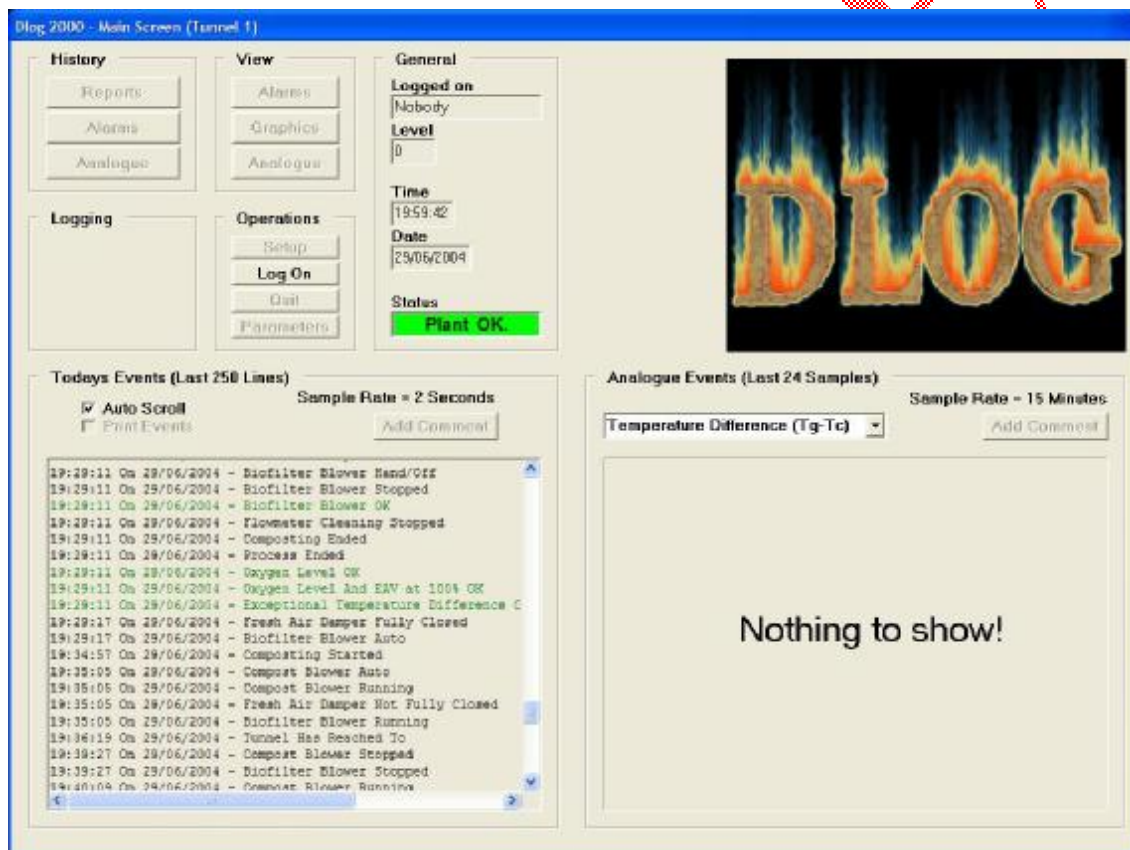


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SECTION 1: MAIN SCREEN

The main screen is automatically displayed at switch on of the program, unless the 'Launch to Graphics' option is selected (see Engineer's Manual). To access or initiate any of the functions, it is only necessary to point the cursor at the required button and 'click' the left mouse button. Main screen functions are grouped in clusters and function as follows:





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LOGGING

This version of D-Log does not have manual control of logging.

GENERAL

1) Logged on

Shows the name of the user currently logged on. If user has an access level less than 50 it will illuminate green, between 50 and 80 will illuminate yellow and if above 80, it will illuminate red. This is to serve as a visual reminder that you are logged on and to help prevent leaving the system in this state and possible damage by another person who is not authorised to access certain features (see operations- 2). Note that if D-log is left unused for 30 minutes with a user logged on, it will automatically log them off as a security measure.

2) Level

This shows the access level of the user who is currently logged on (see operations- 2).

3) Time

The current time- double click on this to view the PC and PLC clocks, change the PC clock and synchronize the PC clock to the PLC clock (synchronizing is done automatically at report time every day). Note that it is normal for there to be a difference of up to a few seconds due to the delays that occur when synchronization takes place.

4) Date

The current date- you can double click on this to view the PC and PLC clocks, change the PC clock (or if on a network, synchronize to the servers clock) and synchronize the PC clock to the PLC clock (synchronizing is done automatically at report time every day). Note that it is normal for there to be a difference of up to a few seconds due to the delays that occur when synchronization takes place.

5) Status

A quick indication of whether the system is 'OK' or if there is an alarm condition, in which case an audible alarm will also sound. Click this to go straight to the status viewer (see 'View 1) Alarms').

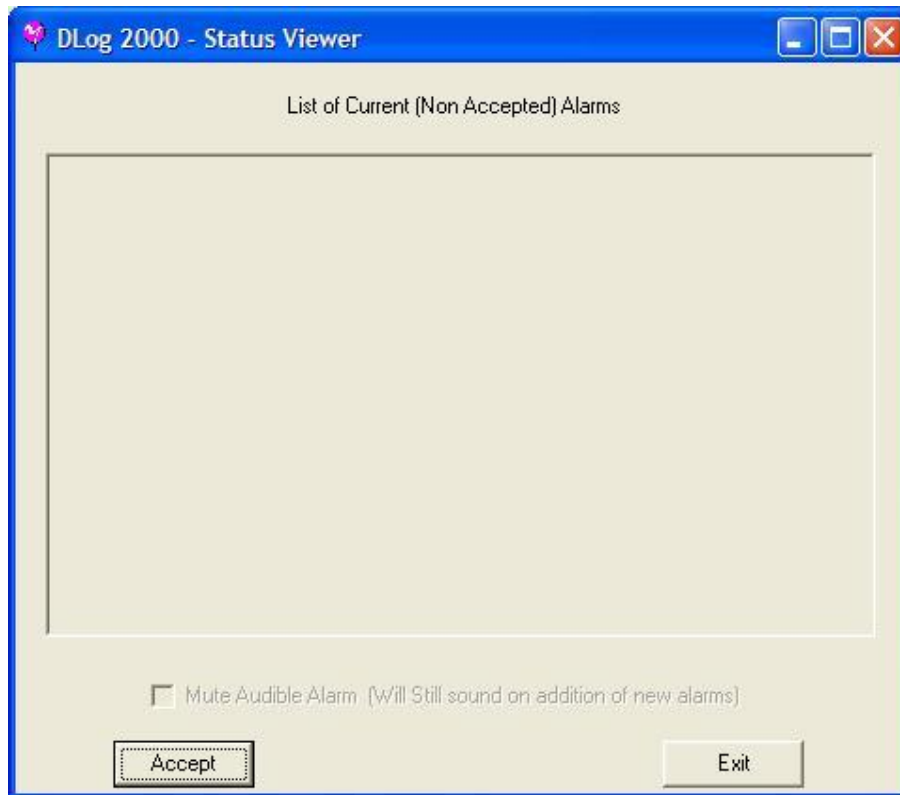


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VIEW

1) Alarms



(Also accessible by clicking on status). This window shows all current alarms which have not been accepted by a user clicking the Accept button. The audible alarm can be muted by clicking the mute check box, but will re- sound on the addition of new alarms.

2) Graphics

This will bring up the site specific Graphical Schematic of the plant (see section 4- Graphical Representation of equipment).



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3) Analogue

Object Name	Value
Compost Temp Average	65.86°C
Compost Temp Probe 1	66.20°C
Compost Temp Probe 2	66.94°C
Compost Temp Probe 3	62.74°C
Compost Temp Probe 4	69.33°C
Compost Temp Probe 5	64.74°C
Compost Temp Out	46.62°C
Fresh Air Temp	22.30°C
Exhaust Air Temp	32.89°C
Recirc. Air Temp	46.13°C

Select 'Analogue' to view a window showing the current values of all the analogue devices on the plant. It updates every second.



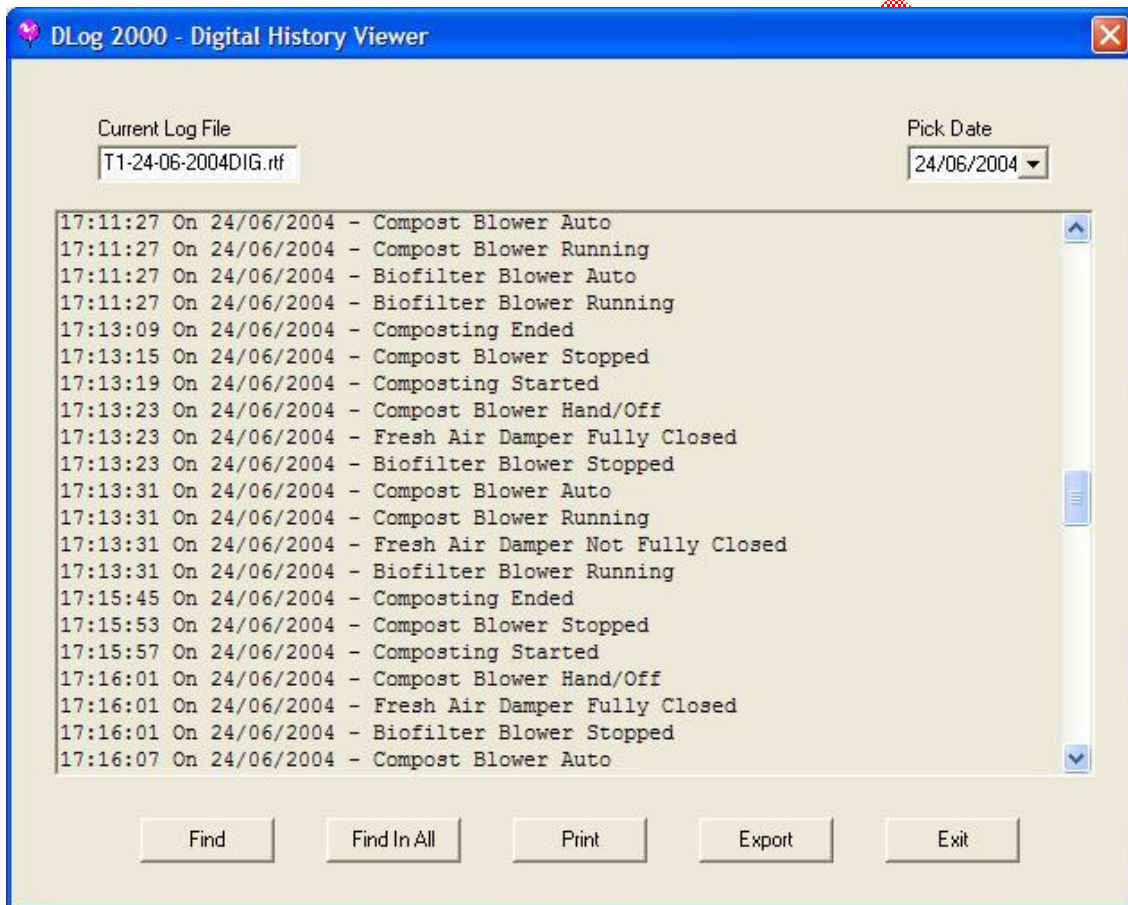
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HISTORY

Note: Before reading about history, it is advisable to first read Section 2- Events.

1) Reports



This window will show any previous report for a cycle. The cycle is selected by picking the date using the drop down calendar (**Pick Date**). Current log file shows the actual file name, and is not normally of any importance.

The **Find** button allows you to search for a specific piece of text (as any standard word processor does) and will highlight the result (if any).

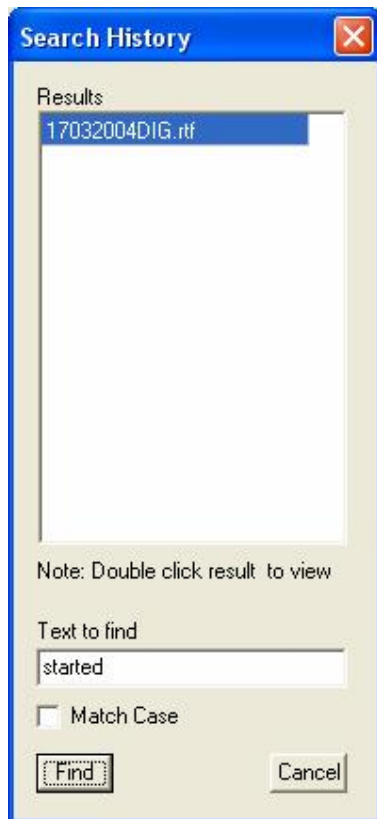
A hard copy can be printed by clicking on the **Print** button. **Export** allows the file to be sent (standard Ascii text) to a disk, or if the machine is networked, to another PC.



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The **Find All** button allows a search for a specific piece of text across all the log files and brings up all the results. The required file name can then be selected from the results window by double clicking it. The viewer screen will reappear at the first instance of the required text.

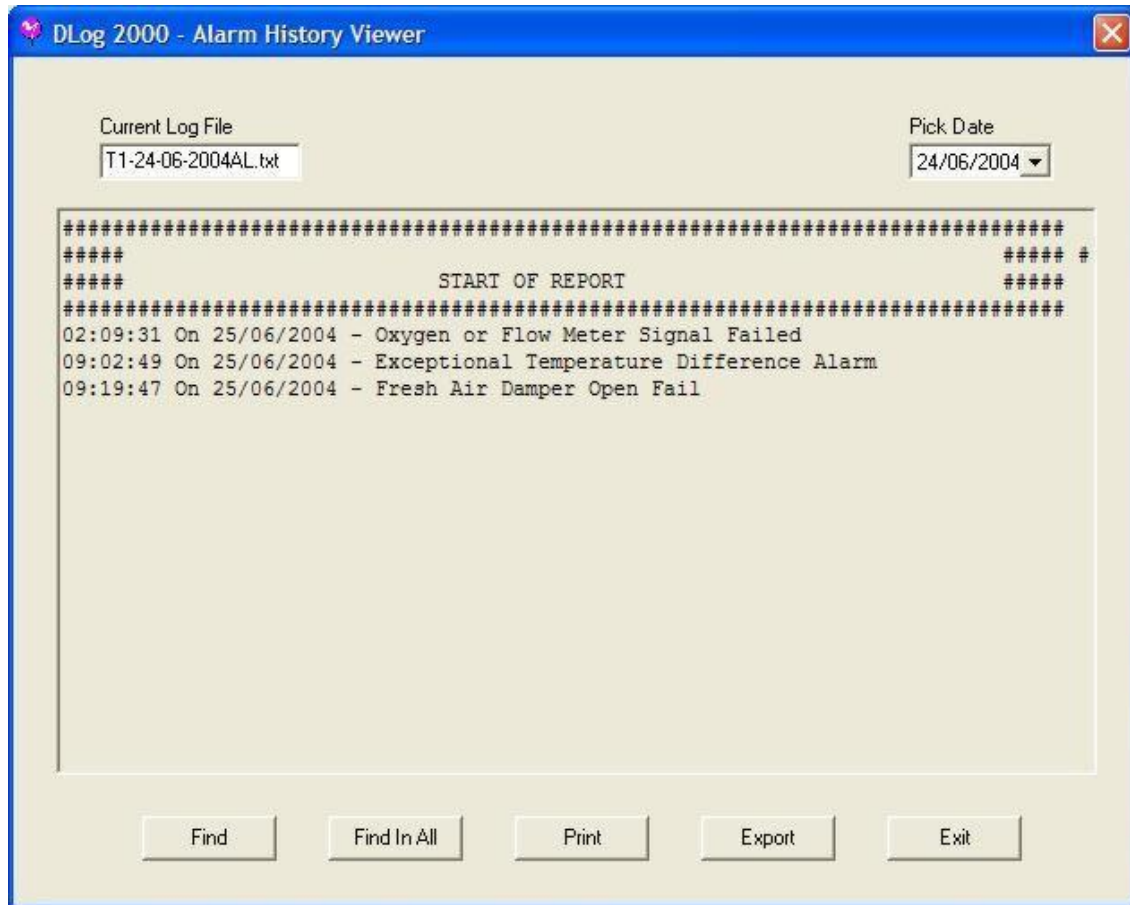




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2) Alarms



This is exactly the same as Reports except showing Alarm History.

3) Analogue

See section 3- Analogue History



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OPERATIONS

1) Setup

See the engineer's handbook. Note that due to the complexity of the system, and the powerful options available, it is Phoenix Electrical's policy not to grant end users with a full access password until after the 12 month guarantee period.

2) Log on/off

Dlog2000 - Security Check

Name
ENGINEER

Proceed

Password
xxxxxxxx

Exit

(also accessible by clicking on 'logged on')

To gain access to the systems features, you must log on. You will be asked for a user name and password which will give you access to the features that you are authorised to use. Please do not forget to log off when you have finished, as someone could accidentally make changes to things they should not normally have access to. If you leave the machine idle for 30 minutes, you will be automatically logged off as a safety measure.

3) Quit

Most D-Log systems run continuously, but occasionally an engineer may need to quit D-Log.

4) Cycle

See section 5- Cycle and plant options.



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SECTION 2: EVENTS

One of D-Log's main functions is to store all events occurring at the plant on disk for later retrieval. The digital events of the current cycle are displayed on the main screen (bottom left) and the last 24 Analogue samples are also displayed on the main screen (bottom right).

TODAY'S EVENTS

See section 1, Main Screen diagram

This is a scrollable, time and date stamped list of up to the last 250 digital events since the start of the current cycle. Such things as pump starts/ stops appear here. Scroll up through the list using the up/ down facing arrows to the right hand side of it, but before doing so switch off auto scroll. If there are more than 250 events and you wish to see these, please see Section 1- History.

1) Sample Rate

Shows how often the digital signals are being scanned.

2) Auto scroll

When check box is ticked, the list will always show the latest digital event to occur. This should be switched off if scrolling through the list, as any new digital event will cause the list to scroll to the bottom again and thus lose your place.

3) Print events

(requires access level of 80 or more) when this check box is ticked, all events will be printed at report end time.

4) Print Summary

(requires access level of 80 or more) when this check box is ticked, a summary of hours run and flows will be printed at report end time.

5) Add comment

If you want to make a note of something (say a motor has been removed for repair, for example), do so by clicking on this. The comment will be date stamped and will also say who was logged on when the note was made.



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ANALOGUE EVENTS (LAST 24 SAMPLES)

See section 1, Main Screen diagram

This is a graph, showing the last 24 samples that were taken for the selected 'channel'.

1) Sample rate

Shows how often a sample is taken from the currently selected channel.

2) Channel (below Sample Rate)

This is a drop down list for selecting which channel you would like to view. Just click on the downwards facing arrow, and then click on the required channel. The graph will then change accordingly.

3) Add comment

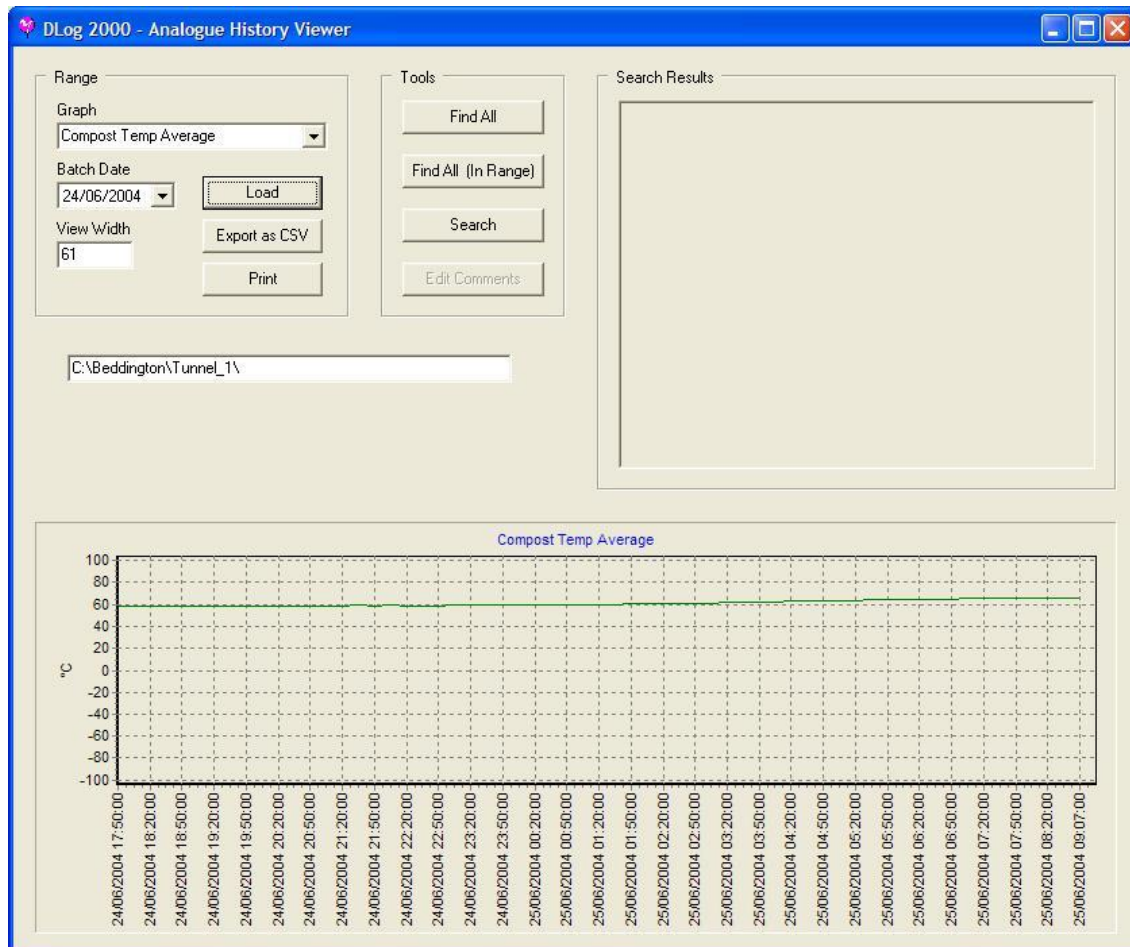
If you want to make a note of something (say a pH head has been replaced, for example), you can do so by clicking on this. The comment will be stored at the same index as the next sample (see Section 3- Analogue History for details on the powerful advantage of using analogue comments).



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SECTION 3: ANALOGUE HISTORY



The Analogue History screen has many powerful features for locating the exact piece of graphing which is required to view. As with the main screen, the functions are grouped into clusters which appear as follows:

RANGE

1) Graph

This is a drop down list for selecting the required channel for viewing. Just click on the down arrow and click on the required channel. **YOU MUST SELECT A GRAPH BEFORE YOU CAN DO ANYTHING ELSE!**

2) Start Date

D-Log will always try to load 3 whole months of data into memory. Select the first date which you are interested in using from the drop down calendar.



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3) View width

See end of this section (working with graphs).

4) Load

This will load the data into memory and display it on the graph (bottom of screen).

5) Export as CSV

This allows the loaded portion of graph to be sent (standard Comma Separated Variable) to a disk, or, if the machine is networked, to another PC. This can then be imported into a spreadsheet for further analysis if desired.

6) Print

This will print a hard copy.

TOOLS

The tools group is used for finding comments which were added into the graph by way of the comment feature on the main screen. They function as follows:

1) Find All

This will find all comments in the entire history of logging. You can then select a date which corresponds to a comment if you so wish.

2) Find All (In Range)

This will find all comments which are within the loaded data and list them along with the date in the 'Search Results' portion of the screen (top right). This information can then be tied in with the appropriate part of the graph.

3) Search

The Search Analogue History window has several options, again grouped into clusters:

OPTIONS

1) Text

Select this button if you want to search for text.

2) Value Less

If, for example, you wanted to find all occurrences when a pH graph went below a certain level, you would select this button.

3) Value More

If, for example, you wanted to find all occurrences when a pH graph went above a certain level, you would select this button.



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RANGE

1) All

Select if you want to search the entire history of the graph.

2) Loaded

Select if you want to search only within the loaded data.

ENTER TEXT TO FIND/ ENTER CUT OFF VALUE

Put the appropriate text/ value in this box.

FIND

Starts the search and lists the results along with the date in the 'Search Results' portion of the Analogue History screen (top right). This can then be tied in with the appropriate part of the graph or the required data can be loaded.

EDIT COMMENTS

Not yet available

WORKING WITH GRAPHS

1) View Width

Change this value to fit a comfortable amount of data in the width of the graph. This is the actual number of samples shown.

2) Zooming In

Zoom in on a part of the graph by left clicking on the top left part of the required area and dragging the box to the bottom right corner of the required area. The selected area will then fill the graph display.

3) Returning to Normal Zoom

To return the screen back to normal, simply draw a window from top right to bottom left (any size)- i.e. the exact opposite of zooming in.

4) Panning

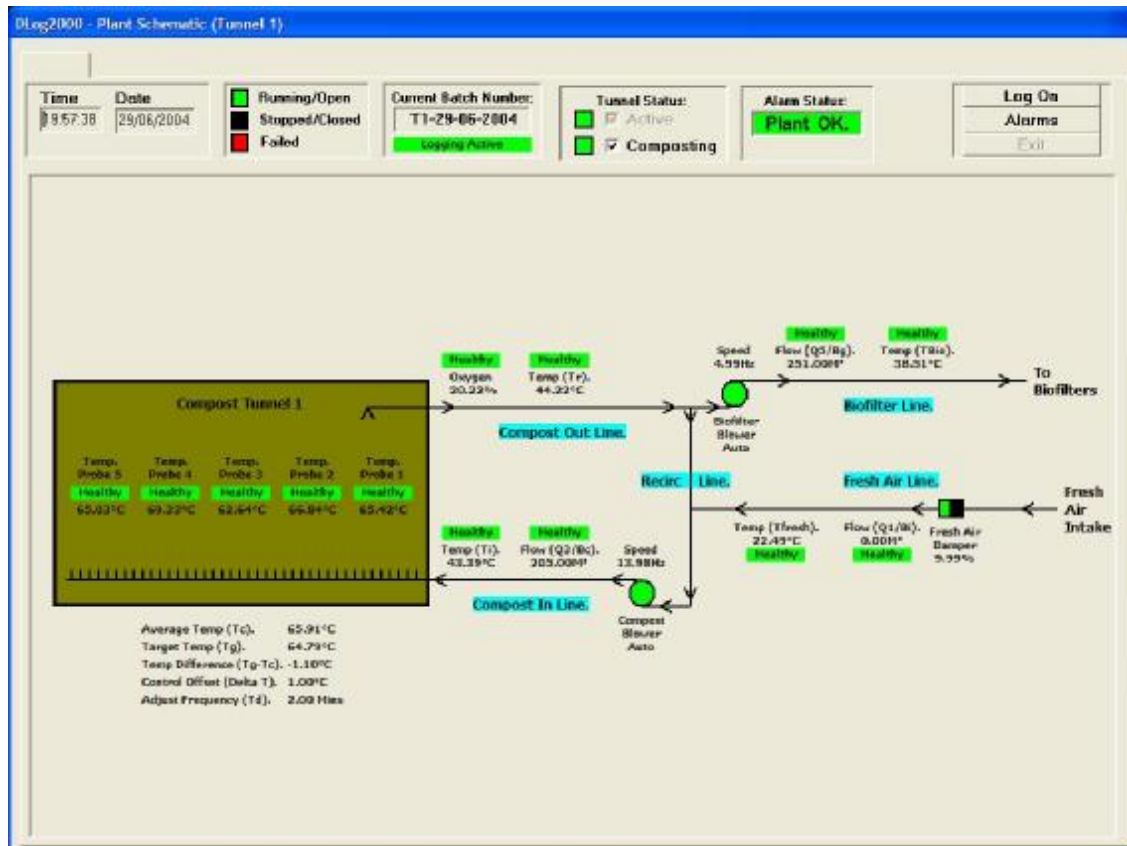
Pan to the left or right by holding the right mouse button anywhere in the graph and dragging it across.



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SECTION 4: GRAPHICAL REPRESENTATION OF EQUIPMENT



GRAPHICS SCREEN

ALARM RESET

Resets any alarms in the PLC.

LOG ON/ OFF

Exactly as per main screen log on/ off.

TOP CONSOLE

Current date

Current time

Current batch number

Logging active indicator

Tunnel "Active" checkbox

Tunnel "Composting" checkbox

"Common" Alarm checkbox



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Alarm status indicator

Log on/off – see section 1-OPERATIONS-Log on/off

EXIT

Returns to the main screen.

SCHEMATIC OF THE PLANT

Visual indication of status of all motors.

Visual indication of all analogue inputs.

Visual indication of all major faults.

All alarm indication is in flashing red and yellow format for ease of identification.

On purchase of D-Log, a copy of this manual with a site specific Section 4 will be provided.

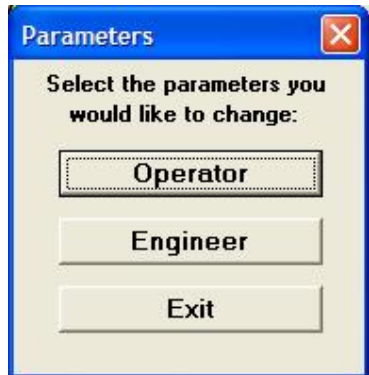


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SECTION 5: CYCLE AND PLANT OPTIONS

PARAMETERS SCREEN (accessed from main screen)



SAMPLE



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OPERATOR SETUP SCREEN (accessed from Parameters screen)

Name	Value	Unit
Target Compost Temp (Tg)	64.75	°C
B=Point A to start Td adjustment	51.37	°C
Cycle Sample Min Delay	2.00	Mins
Cycle Sample Max Delay	15.00	Mins
Compost Blower Startup Flow	10.00	%
Compost Blower Rate of Change	10.00	%
Biofilter Blower Startup Flow	30.00	%
Biofilter Blower Rate of Change	2.00	%
EAV Startup Opening	9.99	%
EAV Minimum Opening	9.99	%
EAV Rate of Change	24.96	%
Flowmeter Cleaning Period	60.00	Mins
Flowmeter Cleaning Duration	1.00	Mins

Write PLC Exit

Note: An access level greater than 50 is required to access this screen.

All the site specific settings are listed under the 'Name' column. To change the settings, just click on the required value, and type in the new value. When finished, press the WRITE PLC button. If you do not wish to write the changes, click exit. You will be asked if you want to write the changes to the PLC, click NO.



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ENGINEER SETUP SCREEN (accessed from Parameters screen)

Name	Value	Unit
Minimum Oxygen Level	4.96	%
Compost Blower Min Speed	10.00	%
Biofilter Blower Min Speed	10.00	%
Delta T=Tg Differential Max	0.98	°C
Amount to Add to Intake Flow for Biofilter Flow	5.00	%
Biofilter Speed When in Hand	30.00	%

Note: An access level greater than 80 is required to access this screen.

This screen functions exactly the same as the operator setup screen and is used by engineers to make system changes at a lower level than an operator would normally need (i.e. system calibration).