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QLW 10/97 OMEGA

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Thank you for selecting an OMEGA data acquisition system for your project!

Our primary objective is to provide you with data acquisition systems that are easy to install, operate, and maintain. We also strive to provide the performance and versatility you need at the lowest overall cost. The benefits for you are increased productivity, data you can count on, and, of course, meeting your cost and time budgets.

QuickLog for Windows (QuickLog) is a menu-driven data acquisition software application that is supplied with all of our WB and DATA*shuttle* series data acquisition hardware products. It has an easy-to-use tabular interface which brings simplicity to the laboratory and industrial environments, allowing you to set up a typical data acquisition application in less than 30 minutes!

Using QuickLog, together with our plug-in data acquisition boards and/or parallel port DATAshuttles, you can easily and quickly implement a broad spectrum of R&D or industrial tasks, in a wide variety of settings. You can, for example,

- · **Display data** *in meters and charts,*

- · **Automatically linearize** *thermocouples and RTDs,*

- · **Monitor processes and experiments***,*

- · **Log data to disk** *for later analysis,*

- · **Control devices using digital outputs***,*

- · **Gather data unattended***, and*

- · **Exchange data with other Windows applications** *via DDE.*

This chapter shows how to install the QuickLog software. Please refer to Chapter 2 for instructions on operation.

General Information

WHAT YOU NEED These are the items necessary to start using QuickLog:

- *This manual*
- *The QuickLog disk, and*
- *A data acquisition device (connected to your PC according to the Owner's Manual).*

SYSTEM REQUIREMENTS QuickLog works with most Wintel personal computers (PCs with Intel, or Intel-like CPUs, running Windows) available today. The minimum software and hardware requirements your PC needs to run QuickLog successfully are listed below. To get the best performance from the software, especially when more than one Windows application is to be run, we recommend additional hardware resources.

MINIMUM REQUIREMENTS A personal computer with a 386 processor, a standard keyboard, a mouse or similar pointing device, and

- *4 MB memory (RAM),*
- *2 MB of free hard disk space*
- *3.5" diskette drive,*
- *A monitor and a VGA display adapter supported by Windows,*
- *One parallel interface (Centronics) if using a DATAshuttles, and*
- *DOS (v5.0 or later) and Windows (v3.1or later) or Windows 95.*

Setting Up QuickLog

Make sure that your QuickLog package is complete. In addition to this printed document, it should contain a floppy disk, the Hardware Installation Manual, and the registration card.

Make sure that there is at least 2 MB of free space on the hard disk on which you intend to install QuickLog.

Insert the QuickLog disk into the floppy disk drive.

STARTING THE
INSTALLATION

For Computers Running Windows 3.x –

1. **From the File menu in Windows Program Manager, choose Run.** The Run dialog box will appear.

2. **In the command line, type the drive letter** of the drive you are using, followed by a colon and the QuickLog installation program file name, SETUP. (You may type upper or lowercase letters.) For example: A:SETUP

3. **Press the Enter key.** The QuickLog installation program will start.

For Computers Running Windows 95 –

1. **Open the Control Panel.**

2. **Select Add/Delete Programs.**

3. **Windows 95 will search for the installation disk.** Select finish and the QuickLog installation program will start.

You can exit the installation procedure any time by clicking the Cancel button. However, QuickLog will not be completely and properly set up.

SETUP SUMMARY
You will be asked to specify the drive and the directory where QuickLog is to be installed. The default is C:/QLFW. You may type a different path, but it must be a valid MS DOS path:

```
Drive:/ Directory/Directory
```

Then choose OK. The installation program will:

· *Check if the specified directory exists, and create it if necessary.*

· *Check if there is enough free space on your hard disk. If not, you will be asked to enter another drive or to cancel setup.*

- · *Copy all QuickLog program files to the drive and directory.*
- · *Create a QuickLog program group in the Windows Program Manager. If the group already exists, it will be opened.*
- · *Create various program items within that group.*
- · *Add the command line DEVICE=DRIVE;/DIRECTORY/ DIRECTORY/.../STIDATAQ.386 to the [386Enh]section of the SYSTEM. INI file to install the virtual device drive needed to communicate with the hardware.*

COMPLETING SETUP Restart Windows so that the changes made to your system can take effect, so that the driver will be loaded.

Specifications

METER DISPLAY SCREENS *Types of I/O Supported –* Analog In, Analog Out, Digital In, Digital Out, Counter/Timer pulse input, Counter/Timer frequency input, and Time.

Maximum Number of Data Acquisition Devices – 15

Maximum Number of Channels Per Board – 160. Channel name and/or units may be typed in.

Analog Input Ranges Supported – all that are supported by the data acquisition driver.

Analog Input Resolution Supported – all that are supported by the data acquisition driver.

Analog Output Ranges Supported – all that are supported by the data acquisition driver

Scaling of Any Input Type – linear, y=mX + b.

Outputs (analog or digital) may be changed by typing the value into the digital meter.

Size of Digital Meter Display – selectable height and width.

Number of Digital Meters – selectable from 1 to 100.

CHART DISPLAY SCREEN Single chart with selectable time scale. Y axis is % of specified range or user entered maximum and minimum range. Includes the scaling specified in the digital meter display.

Chart is a window that may be sized as desired.

Types of I/O Supported – Analog In, Digital In, Counter/Timer pulse input.

Number of Traces Displayed – 14 maximum.

LOGGING ***Data Type –*** ASCII characters, tab-delimited.

Maximum Number of Logged Channels – 256

Log Rate – same as sample rate

Types of I/O Supported – Analog In, Digital In, Counter/Timer pulse input.

DDE Any meters may be linked to another application using DDE.

Inputs can be sent, and outputs can be received, from the other source.

DDE Rate – same as sample rate, or same as rate requested by other application.

GENERAL CONFIGURATION The following settings are available for the general configuration of QuickLog:

- *Sample rate: same for all channels, inputs and outputs,*
- *Polled or synchronous mode for all types: Analog In, Analog Out, Digital In, Digital Out, Counter/Timer pulse input, Counter/Timer frequency input,*
- *Polled mode: maximum speed is several samples/second,*
- *Interrupt mode: maximum speed is several hundred samples/second,*
- *Number of input meters,*
- *Input meter font size,*
- *Log file name, and*
- *Number of output meters.*
- *Output meter font size.*

Specifications

I/O CONFIGURATION BY CHANNEL The input and/or output of each channel can be configured using these options:

- *Device (board)*
- *Channel*
- *Range (AI and AO only)*
- *Resolution (AI only)*
- *Scale (AI only): $y = mx + b$ where m and b may be entered.*
- *Logging: yes/no.*
- *Display on chart: yes/no.*

CHART CONFIGURATION Charts can be configured according to these available settings:

- *Number of points on time axis (2 to 1000)*
- *Number of labels on time axis*
- *% of full scale on Y axis (0 to 100)*
- *Scaling of Y axis: -1e10 to 1e10*
- *Selectable options:*
  Color for each trace
  Line type for each trace
  Chart Colors
- *Viewing Style: Color, monochrome, monochrome + symbols*
- *Plotting method: Line, Point, Points + Line, Points + Spline, Spline*
- *Graph or Table: Graph, Table, Both*
- *Grid Lines: Both, Y axis, X axis, None*
- *Grid in front*
- *UnZoom*
- *Font size: Large, Medium, Small*

Chapter 2: Getting Started

QuickLog is entirely menu-driven. You control data acquisition, display, and disk logging by configuring QuickLog via the pull-down menu system.

QuickLog is based on one display screen of digital meters that are used to display all types of available inputs, and another screen for all types of available outputs. In addition, it displays input signals on a Y-t chart, as well as logs these inputs to disk.

You can change the name on each input or output meter to identify it.

When you first launch QuickLog, it searches for hardware devices, first on the ISA bus inside the PC, and then on all installed printer ports. It then creates Input, Output, and Chart windows that reflect the installed hardware.

QuickLog runs, and collects and displays input data, as soon as it is launched. It continues to run when you are configuring the various options. If you load a configuration file that does not match the installed hardware, it automatically adjusts the configuration file to match the hardware, and displays a warning message.

This chapter briefly explains the various menus, with a description of their functions. QuickLog also has an extensive on-line Help facility, which has more information than what is contained here.

File Menu

Standard functions include those for creating, loading, and saving configurations. These are **New**, **Open...**, **Save**, and **Save As**. Select **New** to revert to the default configuration. Other file menu commands and their functions include:

SAVE AS STARTUP The Save As Startup command allows you to define your own startup configuration, using your desired settings.

PRINT WINDOW Print Window immediately prints the active top window, using the default Windows printer.

EXPORT CHART Export Chart to the Windows clipboard, a file, or to your printer.

EXIT Exit closes the program.

Edit Menu

Cut, **Copy**, **Paste**, and **Delete** are standard editing functions.

PASTE LINK Paste Link allows you to paste DDE links from another application into an output meter.

Options Menu: General

SAMPLE AND LOG RATE
You may select the ***Sample Rate***, in Hz, which is the rate of reading and displaying inputs and logging to disk. The maximum rate depends on the Mode you have selected, the speed of your PC, and the data acquisition hardware installed.

MODE
The ***Polled (or Asynchronous) mode*** samples at the rate set by the application, and is the slowest data acquisition rate. This mode does not use interrupts for most data acquisition devices. However, this mode is the simplest to use.

The ***Interrupt (or Synchronous) mode*** samples at a precise rate set by the driver, and allows much faster sampling. Most data acquisition devices generate hardware interrupts to pace the driver, and thereby set the rate.

Refer to the on-line help for more information about these modes.

INPUT METERS
When first launched, QuickLog detects the hardware installed, and creates a default user interface made up of a table of windows, called Input Meters, which display the analog, digital, or Counter/Timer values being sampled. You may change the number of Meters being displayed, as well as the number of horizontal and vertical Meter windows, using the General Options menu. Color and font size are also selectable.

OUTPUT METERS
You may set up the Output Meters in the same fashion as described above, if you have a device installed that has analog or digital outputs.

Options Menu: Inputs

This window allows you to define which readings will be displayed in the Meter window. You may select data acquisition **Device** 1 through 15, the input **Function...None**, **Analog In**, **Digital In**, **Pulse In**, **Time**, **Date** (from the PC clock), and which **Channel** on that device will be assigned that input function.

WINDOW LABEL The first column accepts a typed in label for that Input Meter window, in place of the default label.

ANALOG INPUT RANGE When you select Analog In, you may select the input Range from a table that will depend on the ranges available on the device you have connected to your PC.

RESOLUTION The column Resolution allows selection of A/D resolution, again dependent on the device connected. Some devices allow for averaging the samples to reduce noise. Also, Low Noise mode is effective in greatly reducing AC line interference.

SCALE When you click on the radio button Scale = mX + b, a new field opens to allow you to enter coefficients for a linear scaling of the analog input readings into engineering units

LOG & CHART Log and Chart columns allow you to select whether this channel will be logged to disk and/or displayed on the Chart. At least one channel must have the Log box checked to have logging to disk. At least one channel must have the Chart box checked to have a trace on the chart.

Options Menu: Output Meters

The functions in this menu are similar to the Input Meters Options menu described above, but these selections operate on the output signals: **Analog** and **Digital**.

Options Menu: Chart

This window allows you to customize the appearance of the Y-t Chart display. All of the parameters are available in one window, as opposed to the function of the Chart menu described below, where an abbreviated set of attributes are accessible separately in the menu.

OPTIONS MENU: COLORS AND LINES Chart Colors and Lines can be used to select colors and line types on the chart.

Chart Menu

Unlike the Options menu, these selections do not cause the Chart data to be erased.

UNDO ZOOM Undo Zoom allows you to cancel a Chart zooming operation; alternatively, use the keyboard shortcut Ctrl+Z.

CHART ZOOM Chart Zoom allows you select a region of interest in the data, and expand it to fill the Chart display window. Place the cursor at one edge of the region of interest, and hold the left mouse button down. Move the cursor to draw a box around the region, and release the mouse button. The region will expand to fill the window. The X and Y scales will also expand to maintain the proper scale.

OTHER OPTIONS The balance of the menu items, ***Viewing Style***, ***Font Size***, ***Plotting Method***, ***Grid Lines***, ***Grid in Front***, and ***Graph or Table***, are direct menu access to the same items as in Options, Chart. Refer also to the on-line Help.

Run Menu

To ***Start*** the acquisition, press F5; to ***Stop***, press F6. When acquisition is running, a green ***Running*** indicator lights up at the left edge of the menu bar; when stopped, the indicator turns red.

Window Menu

This menu allows you to pull the **Input** (F9), **Output Meter** (F11) displays, and the **Y-t Chart** (F12) to the foreground of the screen.

Calibration Menu

CALIBRATE ANALOG INPUTS When you click on this entry, the analog input circuits of all devices are immediately calibrated against their respective internal precision voltage references, which compensates for drift and offset.

AUTOCALIBRATE You may select the interval at which you wish to invoke the above calibration function.

CALIBRATE ANALOG OUTPUTS This selection calibrates analog outputs on some hardware.

CAUTION: Outputs are changed from minimum to maximum on all ranges during calibration.

CHANGE NUMBERS This utility allows you to perform a complete recalibration of the device. If you follow the instructions given in the Help file, you can restore the device to the original factory accuracy. However, please observe the cautionary statement in the window, and in the Help file.

Help Menu

The Help menu provides on-line help for QuickLog. The on-line help is a complete guide to the use of QuickLog, with much more information than this manual.

INSTALLED HARDWARE Installed Hardware is very helpful when calling our Technical Support people. The information contained in this window will help speed the answers to your application and troubleshooting questions.