

1... INTRODUCTION

MANUAL OVERVIEW

This User's manual provides information relative to the use of the HyperLogger™ Portable Data Logging System manufactured by Logic Beach Incorporated, La Mesa, CA. The manual is organized into sections describing the main components of a HyperLogger system, from the System Base through the various features within the provided software. The last section of the manual consists of the Appendices which give detailed specifications and information for general reference and advanced applications.

After following the instructions for the installation of the HyperWare software, much can be learned by exploring this manual, the software and the hardware in any order... without concern for damaging results. However, *it is HIGHLY RECOMMENDED that this User's manual be read in its entirety before deploying the HyperLogger in a real application.*

A note on the keyboard / mouse convention used within this manual... Throughout the manual, instructions on PC keyboard entry or menu selections via mouse are specified by using italic print such as *ENTER* which refers to the 'Enter' Key on the keyboard or *FILE* which refers to the menu item titled 'FILE'.

HYPERLOGGER SYSTEM: 'THE BIG PICTURE'

The HyperLogger is a battery powered portable data logging and control system. It can be left at a site to collect data from various analog and digital signal or sensor inputs. This data is mathematically processed by the HyperLogger and stored in its internal memory while simultaneously performing basic onsite alarm and control functions. The collected data is then transferred to a PC running the supplied HyperWare software for data display and analysis.

HYPERLOGGER SYSTEM COMPONENTS

A Hyperlogger portable data logging system consists of a number of components... both hardware and software.

The main components are listed below and details follow:

- ◆ HyperLogger System Base
- ◆ Interface Modules
- ◆ HyperWare, Windows based software
- ◆ Options such as modems, PCMCIA, etc

HyperLogger System Base

The HyperLogger System Base (See Figure 1... -1) refers to the main data logger unit housed in its weatherproof enclosure. The System Base houses the battery pack, the Terminal Strip Adapter, and the main HyperLogger front panel with its associated plug-in ports for User installation of Interface Modules.

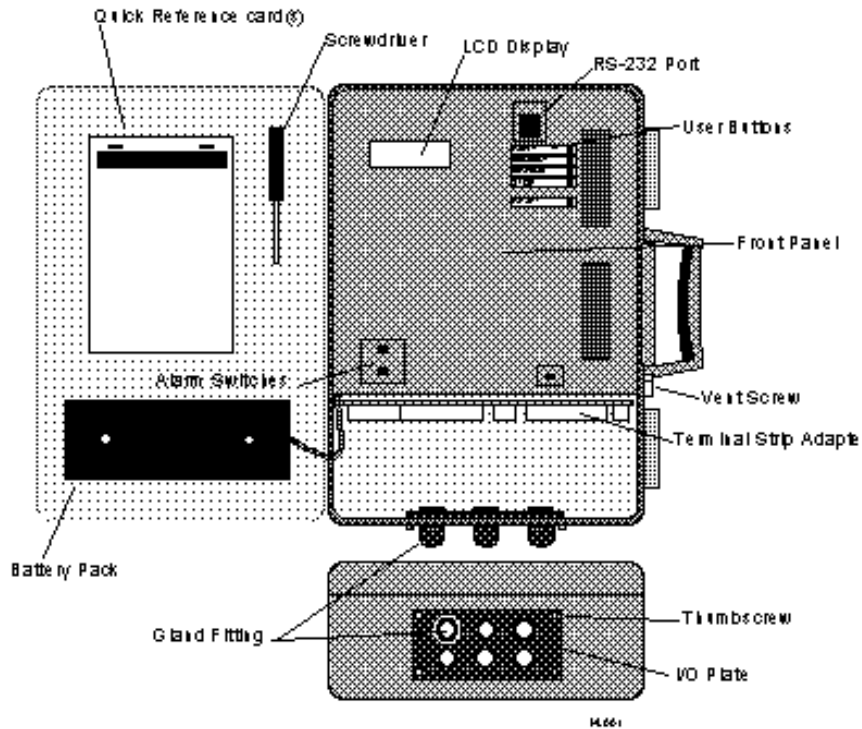


Figure 1... -1: HyperLogger System Base

Interface Modules

Interface Modules (See Figure 1... -2) are plug-in circuit board assemblies that provide the interface to various types of inputs and output signals. The Interface Modules can be User installed into the System Base then configured for the specific type of signal or sensor to be connected to the HyperLogger. Interface Modules are configured via software and/or switch settings on the modules.

A family of Interface Modules is available for interface to various input signal types such as thermocouples, RTD's, voltage, current, frequency, event, etc. Additionally, Interface Modules are available with outputs for digital alarm and basic ON/OFF control functions.

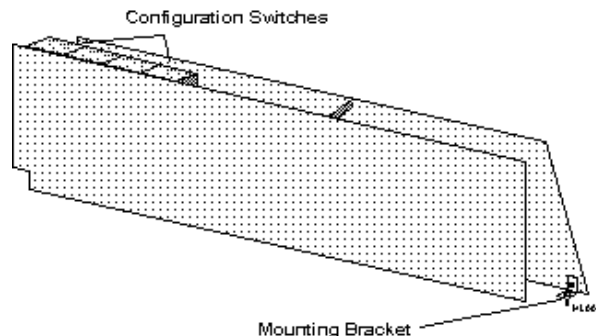


Figure 1... -2; Interface Module

HyperWare™ Software

Supplied with the HyperLogger is a powerful Windows based software package called HyperWare. HyperWare, running on an IBM compatible PC under the Microsoft Windows environment provides a multitude of functions for setup of the HyperLogger as well as analysis of collected data including:

- ◆ Serial Communications support between the PC and the HyperLogger for RS-232 and telephone modem links
- ◆ Programming of the HyperLogger using the powerful HyperNet™ visual icon based programming method
- ◆ Multi-channel, graphic data display of previously collected data using HyperPlot™
- ◆ Screen captures of HyperPlot graphs for seamless integration into other Windows based software applications such as wordprocessors, spreadsheets, or desk-top publishing packages
- ◆ Conversion of collected data files to ASCII text or Microsoft Excel file formats
- ◆ Powerful mathematical data manipulation of collected data during conversion to HyperPlot graphs, ASCII text files and Excel files
- ◆ HyperTrack™ real-time data display of HyperLogger inputs and HyperNet nodes

Additional Components

Special function modules are available to provide:

Telephone Modem Interface - plug-in modules that contain integral low power 2400 Baud or 14.4 Kbaud telephone modems. These modules allow for direct connection to standard telephone lines for data transfer, reprogramming, and control...all from a remote PC running HyperWare.

PCMCIA Memory Card Interface - plug-in module provides a socket and interface circuitry for removable PCMCIA memory card support. When utilized, the HyperLogger stores data to the credit card sized PCMCIA card. At any time, the card can be unplugged from its socket and carried or shipped to a another site where the data can be downloaded to a PC. Advantages of the PCMCIA card include massive data storage capability, easily transportable data, and field data collection by non-technical staff.

Special Serial Communications Interface - a variety of special serial communication types and protocols are available for serial signal interface. Contact Logic Beach about your specific application requirement.

Included with each Hyperlogger portable data logging system are a number of other items including this manual, DB-9 and DB-25 to RJ-12 adapters, RS-232 cable, a plug-in power supply, and liquid-tight fittings.

FEATURES

Designed with the User in mind, the Hyperlogger portable data logging system has a multitude of integral features ranging from special hardware considerations to unlimited software programmability and data review. Key features include:

- ◆ Up to 24 channels of analog input or 48+ digital input/outputs
- ◆ Configurable Interface Modules accept a multitude of signal types and ranges *all on a single module*.
- ◆ Low power design allows for field logging up to 3 weeks from a set of commonly available D-Cells.
- ◆ Terminal Strip Adapter wiring system allows for quick connect and disconnect of the sensor and signal wiring harness. Using this feature, the HyperLogger can readily be moved and connected up at different sites, with a minimum of setup time.
- ◆ Five integral alarm outputs including two relays
- ◆ True Microsoft Windows based HyperWare software... included with the HyperLogger.
- ◆ Powerful HyperPlot graphic data display software with seamless integration of plotted data into other Windows applications.
- ◆ HyperNet visual icon based programming provides unlimited flexibility in programming, *yet maintains simplicity with drag and drop icon configuration*. Set the HyperLogger up without writing cryptic lines of code nor experiencing the rigors of excruciating two button menu tree nightmares.
- ◆ Intelligent logging methodologies include logging only upon change of an input (Delta-Logging), Conditional logging based on input levels, Conditional logging based on time of day or elapsed time, dual speed logging initiated by User programmed conditions, and more.
- ◆ Real-Time display (on integral liquid crystal display) of User defined node points... ranging from raw input signals to intermediate processed data to data logged to memory.
- ◆ User defined alarm messages
- ◆ Pager call-out upon User defined alarm conditions

SUMMARY OF STEPS IN UTILIZING THE HYPERLOGGER

In a typical application of the Hyperlogger portable data logging system, the following sequence of steps would be involved. Details of each step are presented in later sections of this manual.

1. Install the required Interface Modules into the HyperLogger System Base. Configure Interface Module hardware switches if applicable (eg enabling a front end divider for the +/-30VDC range on the HLIM-1)
2. Connect up to the HyperLogger via a serial link from your PC. Start HyperWare and change to the HyperNet Development Screen.
3. Query the HyperLogger for its current hardware configuration by clicking the NEW button.
4. Construct a Program Net for this logging session by dragging and dropping icons onto the HyperNet screen, then connecting signals between the icons. Save the Program Net to disk and print out a Terminal Strip Adapter wiring diagram for field reference.
5. Transfer the Program Net to HyperLogger memory via the serial link and disconnect the serial link.
6. Install the HyperLogger at the site and make the appropriate wiring connections to the Terminal Strip Adapter and modem (if used).
7. Enable the HyperLogger, then as a quick pre-departure check, check readings at various pre-programmed HyperProgram net nodes using the Next and Select buttons while viewing the HyperLogger display.
8. Close the door on the HyperLogger and collect data.
9. Later, connect up to the HyperLogger via a serial link (RS-232 or modem) or retrieve the PCMCIA memory card and from within HyperWare, download the HyperLogger memory to a file on the PC.
10. For a fast and immediate review of the collected data, double-click on the data icon and HyperPlot will automatically load and graphically display the collected data.
11. Save the desired HyperPlot graphic view as a Windows Bitmap file, then switch to your Windows based wordprocessor and seamlessly insert the saved graphic into your test report.
12. Optionally, use the HyperWare Post-Processing capability to configure a special data reduction/ conversion icon network. Then run the collected data file through the post processor and generate a text file, Excel Spreadsheet file or another HyperPlot file.

APPLICATIONS

Portable, self-contained, and of low-power design, the HyperLogger can be deployed for data collection in multitudes of applications. Data collection, data reduction, intelligent logging, and alarming are all readily implemented with the flexibility of HyperNet programming. The rugged hardware coupled with powerful, yet simple to use, software allows for unlimited applications. Applications include:

- ◆ Vehicle testing
- ◆ Power monitoring and Energy audits
- ◆ Well pump down and slug testing
- ◆ Waste Water pump station performance and loading analysis
- ◆ Process monitoring with alarming upon 'out of condition' performance
- ◆ HVAC performance monitoring
- ◆ Laboratory experiment data collection
- ◆ Variable speed drive performance monitoring
- ◆ Oven profiling