



LOGIC BEACH Inc.

HyperLogger  
PowerPlus™

## HLP-10 HYPERLOGGER POWERPLUS™ DATA LOGGER

### FEATURES:

- Extremely flexible energy data logging system
- Capable of consumption vs. production profiling for accurate efficiency studies
- Reads and records over 26 energy parameters
- Logs power and other process signals: pressure, flow, temperature, etc. simultaneously
- Easily programmed to record just the desired parameters
- Self-contained battery powered system allows for complete logging autonomy
- Made in the USA

### OVERVIEW:

The HLP-10 is a self-contained portable power logging instrument and energy monitoring system. It is the ideal instrument for energy efficiency studies because it can include energy and the results of that consumption for total system analysis. The HLP-10 can be deployed to monitor the power consumption from compressors, chillers, and any AC motors as well as the pressure, flow and temperatures resulting from the energy expended for a more complete efficiency study. In-plant efficiencies and sizing analysis can now be more thoroughly performed by inclusion of all system components and parameters. The Logic Beach HyperLogger PowerPlus logs AC voltage, current and power logging capabilities and allows the addition of standard industrial sensors to record temperature, flow, or pressure *simultaneously*. The power data is transmitted from the Power Sensing Harness to the data logger via an isolated serial data link where it is stored along with other user-connected sensors or signal inputs. The HLP-10 is capable of monitoring power from 16 unique systems simultaneously allowing for faster analysis and results.

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HLP-10 shown with 100A clamps, and optional pressure and temperature sensors.

The Power Sensing Harness split core transducers contain the electronics to monitor and convert the measured parameters to the serial data stream. An integral serial cable then connects to the HyperLogger data logging system, which can be located a distance from the power harness and it's associated high-voltage connections.

The HLP-10 is programmed from within the Logic Beach HyperWare software application. HyperWare is the revolutionary, market proven icon-based programming, communication, real-time trending and data analysis software used with all of Logic Beach's portable and remote site data logging and alarming systems.

### APPLICATIONS:

- Compressor efficiency & sizing studies
- Cogeneration performance analysis
- Chiller efficiency studies
- Time of day power usage profiling
- Power Factor correction programs
- Refrigeration efficiency evaluations
- Voltage sag/surge detection
- Transformer Efficiency/Performance Testing



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## FEATURES:

- Two and three phase operation
- Monitor up to 16 power feeds
- Isolates high voltage connections
- Measure up to 500VAC direct
- Select from 18 different clamp sizes
- Up to 2400 Amps AC
- Local readout
- 1% measurement accuracy class
- Icon based setup
- Modem / RF /Cellular Communications
- Programmable Alarms

## MEASURED POWER PARAMETERS:

- kWH: Consumption
- kW: Demand
- kW: demand each phase\*
- Demand: Avg., Min., Max.
- Voltage, line to line
- Voltage phase to phase
- Voltage: line & phase to neutral\*
- Power factor
- Power factor each phase\*
- Amps: avg., current per phase
- kVAR: reactive power
- kva: apparent power
- \*Based upon derived neutral voltage

## ANALOG SIGNALS:

(when used with optional interface modules)

- Voltage DC: +/- 30Vdc
- Current DC: 0 – 22mA
- Temperatures, T'couples, RTDs
- Frequency, Events, Pulses, Resistance

## OPERATION:

The power sensing harness is a self-contained system that is comprised of the current clamps, fused voltage leads and an electronics module. All the necessary circuitry is contain within these components for processing of the voltage and current signals and converting the voltage and current

measurements into over 26 different energy consumption, power, voltage and phase information. This information is output, in serial format, to the data logger where the data logging program reads and records the desired measurements into logger memory. The HLP-10 HyperLogger is simply programmed from a PC running the Logic Beach HyperWare data logger software. With the ease of HyperWare's icon-based drag and drop programming method, icons representing phase voltages, currents, power, etc are easily interconnected with a mouse to build a data logging and alarming strategy. During operation, electrical data from the power module as well as other connected sensor/signal inputs (e.g. thermocouples, RTD's, thermistors, pressure, flow, 4-20mA, etc) are logged to the HyperLogger's memory for later download and analysis.)

## OPTIONAL INTERFACE MODULES

### HLIM-1: Analog Interface Module

Thermocouples: J,K,E,T,R,S  
DC Voltage: 11 ranges, +/- 20mV to +/- 30V  
DC Current: 7 ranges, +/- 200uA to +/- 22mA

### HLIM-2: Digital Interface Module

Frequency: 5Hz to 30kHz (square or sine wave)  
Event: Contact closure or TTL, 0-15Vdc  
Count: Contact closure or TTL to 20kHz

### HLIM-4: Resistance Interface Module

RTD: 100 and 1000 Ohms  
Thermistors: 10k Ohm @ 25degrees C  
Resistance: 12 ranges, 200ohms to 400K full scale

### HLIM-5: Memory / Modem Interface

Module has internal socket for removable memory cards from 60,000 to 600,000 samples with capabilities for internal 14.4 modem.

### HLIM-7: Isolated Interface Module

Thermocouples: J,K,E,T,R,S  
DC Voltage: 6 ranges, +/- 23mV to +/- 30V  
DC Current: 5 ranges, +/- 200uA to +/- 22mA

### HLIM-8: Eight Channel Digital Interface

Eight individually user-selectable channels configured as either inputs or outputs.

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## SPECIFICATIONS:

### **Data Logger:**

**Data Storage Memory:** Battery backed up SRAM. Apx. 40,000 samples internal, to 600,000 samples with optional PCMCIA removable memory card

**Data Memory Backup:** Lithium cell, 1 year @ 25C

**Memory Utilization:** User programmable; Stop when Full or Rotary (FIFO) memory

**A/D Converter:** 12 bit plus sign (13 bit) SAR converter, 18 bit for HLIM-7 Interface Module

**A/D Converter Accuracy:** +/- 0.1% RDG + 1 bit

**Sampling Throughput Rate:** 150+ Samples/Sec., rate varies with number and type of channels and programmed signal processing

**Interface Module Ports:** 6 ports for plug-in Interface Modules and special function modules (modem, PCMCIA)

**Digital Port:** Integral General Purpose Digital Input channel. Programmable for Event or high-speed Counter. Contact closure or driven input

**Outputs:** 2 low-voltage N/O relays; 500mA rated: S/W controlled

3 Digital (0/5 Vdc), Current Ltd., Software controlled  
5Vdc regulated output, 125 mA current limited

**Display:** Two line, 16 character per line LCD.

**Clock:** Date and Time, 24 hour, battery backed up.

**Glitch Recovery:** Hardware watchdog reset followed by software restart of last operation.

**Power Consumption:** 9 VDC nominal. Apx. 3mA between readings; apx. 50mA during readings; provided by 6 internal D-cells.

**External Power**(optional): 9-16 VDC, 10-20 VAC from any semi-regulated external source. Transzorb protected.

### **Power Sensing Harness:**

**Input primary voltage:** 208 to 480 VAC rms

Number of phases monitored: one or three

**Frequency:** 50/60 Hz

**Primary current:** up to 2400A continuous/phase

**Internal isolation:** 2000 VAC rms

**Case insulation:** 600 VAC rms

**Temperature range:** 0 – 60C°

**Humidity range:** 0 – 95% non-condensing

**Accuracy:** 1%

**Output:** RS 485, 2-wire shield

**Current transformers:** split core: 100, 300, 400, 800, 1600, 2400

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