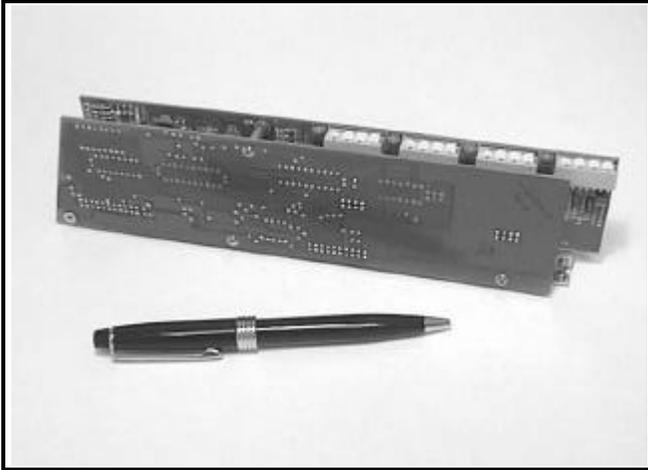# HyperLogger ™ Interface Modules

Description and Specifications

Overview

The HyperLogger™ Interface Module (I/M) family is an assortment of I/Ms that plug into the six I/M ports provided on the HyperLogger System Base. The I/M's provide various functions ranging from digital and analog signal-conditioned input to alarm outputs to special applications such as modem and PCMCIA memory card interface.

Analog / Digital Interface Modules:

Analog and digital signal/sensor I/M's allow for direct connection and data recording from a full spectrum of input signals and sensor types.

Various modules provide excitation, filtering, transient protection, amplification, and software codes as required by the connected sensor/transducer or sensed parameter. True differential inputs with precision Instrumentation Amplifiers insure high signal to noise ratio performance.

Special Function Interface Modules:

Additional interface modules are available that include special functions such as on board low-power telephone modems, special serial communications, and removable PCMCIA memory card interface.

Modem Interface Modules incorporate FCC approved modems supporting direct telephone line connection for remote interrogation and control of the HyperLogger as well as advanced functions such as Alarm Paging.

A PCMCIA memory card I/M is offered, allowing for data collection to a removable `credit card style' memory module. This memory card provides massive data storage capability and can easily be removed and replaced in the field by non-technical staff.

Installation / Configuration:

I/M's plug directly into one of the six System Base ports allowing for standard I/O wiring through the Terminal Strip Adapter wiring board on the System Base. Screw down

securement insures reliable connection and readings in the most rugged environments.

Each I/M contains encoded Identification and calibration information for immediate self-configuration. Upon installation of the I/M into the HyperLogger System Base, the microprocessor reads the module type and stores calibration information for use during readings.

The Interface Modules are then configured for application and signal type via the HyperNet™ icon based visual programming method supplied within HyperWare™.

Many analog and digital modules include field configurable (via switch settings) hardware front-ends such as burden resistors, voltage dividers, etc. which add flexibility and minimize User demands for interface to real-world signals.

Performance and Reliability

Precision trimmed, temperature stabilized references insure accurate Cal-Check™ performance over time and temperature. All I/M's are calibrated, burned-in, and tested ready for immediate plug-in installation into the HyperLogger. Instructions and a Quick Reference Card (for field reference) are supplied with each module.

INTERFACE MODULE SPECIFICATIONS

HLIM-1 Analog Interface: Provides 4 individually programmable channels of the following analog signal input. Any combination of the following types/ranges can be configured on a module.

Thermocouple:

Type:	J, K, E, T, R, S
Accuracy:	+/- 0.2 to 1.0 C depending on range and type (+/- 5C for R and S type)

Cold Junction Compensation (CJC) Range: -10 to 60C

CJC Accuracy (see System Base spec)   +/-0.5C

DC Voltage:

Full Scale Ranges:	+/- 20mV, +/-40mV, +/-50mV, +/-60mV, +/-100mV, +/-200mV, +/-1V, +/-2V, +/-5V, +/-10V, +/-30V
Accuracy:	+/-0.3% F.S., +/-0.5% FS on Med & Hi Ranges

Common Mode Range: 3.5 VDC, Full Differential Input

Input Resistance: >2.5M for 5, 10, and 30VDC; >10M for all other ranges

DC Current:

Full Scale Ranges:	+/-200uA , +/-400uA, +/-500uA, +/-1mA, +/-2mA, +/-11mA, and +/-22mA
Accuracy:	+/- 0.3% F.S.

Input Resistance: 100 ohms (all current ranges)

HLIM-2 Digital Interface: Provides 8 channels. 4 channels can be individually programmed for Event, Count, Frequency or Output and 4 channels are provided for use as Output only.

FREQUENCY:

Input Range:	5hz to 30Khz (Square or Sine Wave)
Input Waveform:	AC; 300mVp-p Minimum, 15 Vp-p Maximum

EVENT:

Time Resolution:	1 second or 5mS with HyperLogger in sub-second mode.
Input Signal:	Contact closure or TTL (0 to 15VDC max)
Debounce:	50mS; Software enable / disable

COUNT:

Input Signal:	Contact closure or TTL (0 to 15VDC max); 20Khz maximum input freq.
Debounce:	50mS; Software enable / disable
Maximum Count:	16 million; maximum accumulated counts between reads

DIGITAL OUTPUT:

Output Signal:	Low output = tri-state (floating)
	High Ouput= 4.0VDC @ 1mA
	= 3.2VDC @ 10mA
Current Limit:	Short circuit protected. Max current = 12mA (apx) per channel.

HLIM-4 RTD, Thermistor, and Resistance Interface:
Provides 4 individually programmable channels of the following resistance type signal input. Any combination of the following types/ranges can be configured on a module.

RTD:

Type:	100 and 1000 ohm @ 0C
Curve (alpha):	Am (0.00392) and Eu (0.00385)
Ranges:	-200 to 300C; -200 to 850C
Accuracy:	+/- 0.1 to 0.4C depending on range and wiring configuration
Configurations Supported:	2-Wire, 3-Wire, and 4-Wire. (3 and 4-Wire configs require 2 channels to implement)

THERMISTOR:

Thermistor Type:	10Kohm @25C, Fenwall #16 or eq.
Ranges:	-32 to 180C; -4 to 180C; +10 to 180C; +25 to 180C
Accuracy:	+/-0.2 to 0.5C depending on range

RESISTANCE:

Ranges:	12 ranges; from 200 ohm Full Scale. to 400,000 ohm Full Scale
Accuracy:	+/-0.1 to 0.3% of Rdg depending on range and wiring configuration
Configurations Supported:	2-Wire, 3-Wire, and 4-Wire. (3 and 4-Wire configs require 2 channels to implement)

HLIM-8 Eight Channel Digital I/O: Eight channel I/O Module allows for User configuration of 8 channels as Inputs or Outputs (individually selectable).

Input Signal:	Contact Closure or TTL input (0 to 26VDC max. Software enabled Debounce.
Output Signal:	OFF=Tri-State (Floating)
	ON= 5 VDC. Short Circuit protected. Max Current = 5mA (apx)

HLIM-5 PCMCIA and Modem Interface: Module has integral socket for memory cards and interface for modem module. HLIM-5 accepts 512K (LBI P/N: MC-50) to 2Meg (LBI P/N MC-200) SRAM cards and optionally modem (below). Module must be installed in HyperLogger Port 6. PCMCIA socket projects through front panel Option Port 2, and modem (if installed) through Option Port 1.

NOTE: A single HLIM-5 module will accept both a memory card and a modem. Order memory card(s) and/or modem below to complete system.

Socket:	PCMCIA Type II socket with button ejector
Card Compatibility:	Logic Beach MC-50, -100, -200 and -400 low-power SRAM cards or compatibles

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MC-xxx Memory Cards: PCMCIA Memory Cards for use with the HLIM-5 PCMCIA Socket Interface Module. Low-Power SRAM medium for data storage and transport.

Capacity:	MC-50; 50,000 to 80,000 Samples
	MC-200; 200,000 to 300,000 Samples
	MC-400; 400,000 to 600,000 Samples
Power:	Replaceable internal lithium cell. Cell lasts apx 1 year.
Dimensions:	apx 2.1" x 3.4" x 0.15"

MM-14.4 Modem: 14.4KBaud telephone Modem Module option. Allows for direct connection to telephone lines for auto-answer and Pager Dial out alarm functions. Low-Power design for operation from HyperLogger internal batteries. Requires HLIM-5 Interface Module.

Baud Rates::	1200, 2400, 9600, 14.4K

MM-2400 Modem: 2400Baud telephone Modem Module option. Same specifications as MM-14.4 (above) with exception of speed. Requires HLIM-5 Interface Module.

Baud Rates::	1200, 2400 Baud