

MNL-1 ModuLogger 'Mini' Data Logger

Features

- 4 universal analog inputs accept t'couples, Vdc or mAdc
- Full differential, bipolar inputs
- 4 user-programmable outputs
- 1 Hi-Speed Counter/Event input
- 16,000 Sample Capacity (80,000 optional)
- Conditional logging, math, integrals, delta logging and much more
- Communicate via RS-232, Ethernet, RF, or modem
- Low power for battery or line-powered use
- Real-Time trending to a PC via serial link
- Includes HyperWare for programming, communications and data analysis
- Flexible programming via graphic drag and drop icons

**The Authority in
 Unrestricted Data
 Logging**



ModuLogger™ 'MINI'

The Mini is a low-cost, self-contained portable data logging and alarming system designed for field, production floor and lab data collection. The logger is user-configurable and programmed via the included HyperWare software program. HyperWare provides for graphic programming of the Mini, serial communications, real-time trending, graphic plotting and spreadsheet conversion of collected data. After field data collection, the Mini's memory is downloaded to a PC running the provided HyperWare software. The data can then be further manipulated, plotted, via the included plotter program and/or converted to CSV or Excel file formats.

As a self-contained, battery powered, stand-alone unit, the Mini can be remotely deployed or incorporated into equipment where it reliably samples digital and analog inputs, storing them to memory. Easily programmed, the MiniLogger has powerful processing capabilities for data reduction (averaging, min/max, etc) mathematical manipulation (algebraic, trig, time integrals, etc.), and conditional data logging capabilities.

MiniLogger Hardware

The Mini is a ruggedly packaged module that contains the system microprocessor, data storage memory, Analog to Digital converter, signal conditioning circuitry for inputs and outputs, User-switches, RS-232 port and Cold Junction Compensation circuitry. Optional features include sensor loop power, telephone modem, removable PCMCIA memory card expansion and front panel display for current readings and system or user-defined messages.

Analog Input Channels

The MiniLogger can accept up to four universal, software-configurable, analog type inputs: 6 thermocouple types, 11 ranges of VDC or 7 ranges of DC current. Each channel can be individually configured for a different input signal type and sampling strategy. An additional analog channel is used for Cold Junction Compensation for thermocouple applications, which may be used as a system temperature, resistance, thermistor, or contact closure input when thermocouples are not used.

Each analog input channel is a full differential input, software programmable gain and



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ModuLogger™ 'MINI' (continued)

configuration, front-end completion circuitry and rugged suppression protection circuitry to insure reliable, accurate signal conditioning. The innovative Cal-Check™ self-calibration feature has been enhanced within the Mini to include User-programmable self-calibration cycles for both analog input channels and the system Analog to Digital Converter. Precision trimmed, temperature stabilized references insure accurate Cal-Check performance over time and temperature.

Digital Inputs and Alarm Outputs

In addition to the analog inputs, a General Purpose Digital Input is provided for logging of events or hi-speed counting of digital signals from flow meters, encoders, or other pulse-train type sources. Available alarms include: two isolated relay outputs, a TTL output, a Status LED and a 5Vdc regulated output.

User Interface

Enable, Stop and Reset switches as well as LED status indicators are provided at one end of the MiniLogger module. Input and Output wiring is handled through pluggable terminal strips which allow for simple mass connection and disconnection of wiring.

Applications

Designed for portable, plant floor, remote site, and long-term remote data collection applications, the Mini incorporates low-power circuitry providing up to 4 weeks of operation from its optional plug-on D-cell battery pack. A low-voltage transformer (provided) can be used for indefinite logging.

With its compact package design, it's perfect for incorporation into OEM equipment for performance and operational profiling.

Specifications

Data Storage Memory: Redundant battery backed up SRAM. Apx 16,000 samples internal, 80,000 with expanded memory option (internal)

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

Memory Utilization: User programmable; Stop when Full, Stop & Continue Processing, Rotary (FIFO) memory

A/D Converter: 12 bit plus sign (13 bit) SAR converter. Programmable first-order filtering and 50/60 Hz noise rejection

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

Sampling Throughput Rate: 150+ Samples per Second (analog input to memory); rate dependent on number and type of channels and logger program

Analog Input Channels: 4 individually programmable inputs

Specifications (continued)

THERMOCOUPLE:

Type: J, K, E, T, R, S

Accuracy: +/- 0.2 to 1.0° C depending on range and type (+/- 5°C for R and S type)

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

CJC Accuracy: +/- 0.5°C

DC VOLTAGE:

Full Scale Ranges: +/- 20mV, +/- 40mV, +/- 50mV, +/- 60mV, +/- 100mV, +/- 200mV, +/- 1V, +/- 2V, +/- 5V, +/- 10V, +/- 30V

Accuracy: +/- 0.3% F.S., 0.5% for Hi and Med 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, +/- 22mA

Accuracy: +/- 0.3% of Rdg

Input Resistance: 100 ohms (all ranges)

DIGITAL INPUT:

One General Purpose Digital Input channel. User programmable, Event or high-speed Counter. Contact closure or TTL driven signal input (15VDC max)

Outputs:

2 - low-voltage N/O relays; 500mA rated

1 - Current limited TTL digital output

1 - 100mA 5VDC regulated output

Real-Time 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 5mA between readings; apx 50 mA during readings; provided by 6 internal D-cells.

External Power: 9-32 VDC, 10-26 VAC from any semi-regulated external source (120VAC wall adapter included). Fuse and Transorb protected.

Operating Temperature/Humidity: -10 to 60°C (14 to 140° F). 90% non-condensing

Enclosure/Dimensions/Weight: Dust Sealed. 8.8"W x 4.8"H x 2.2"H (3.8"H w/ Battery Pack attached). 1.5lbs (3lbs with batt)

Shock and Vibration: The Mini will withstand the shock and vibration conditions encountered in normal commercial shipping and handling.

Need More Capability?

For applications requiring greater input/output capacity, request literature on the Logic Beach HyperLogger or ModuLogger data logging and alarming products.

Need Less Capability?

For applications needing only a digital counter/event input (no analog) ask about the MNL-2, designed specifically for tipping bucket rain gages or flow logging applications.

OEMS.

Contact us about incorporating the MiniLogger into your equipment for logging equipment status, inventory levels and system performance and/or alarming on level, flow, temperature, and more.

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Contact Logic Beach for configuration assistance.

4010.10405 9/02