

# OMP-MNL Portable Data Logging and Alarming System

**\$995**  
Basic Unit



- ✓ **Low-Cost Systems Provided Complete with HyperWare Windows Software**
- ✓ **Fully User-Programmable via Graphic Drag-and-Drop Icons**
- ✓ **Four Universal Analog Inputs Accept Thermocouples, Voltage, and Current**
- ✓ **Four User-Programmable Alarm Outputs**
- ✓ **One High-Speed Counter/Event Input**
- ✓ **Conditional Logging, Math, Integrals, Delta Logging, and Much More**
- ✓ **Low Power for Battery- or Line-Powered Use**
- ✓ **Full Differential, Bipolar Inputs**
- ✓ **Real-Time Trending to a PC via Modem or RS-232 Link**
- ✓ **16,000 Sample Capacity (up to 400,000 When Using PCMCIA Memory Card)**

The OMP-MNL Series is a low-cost, self-contained, portable data logging and alarming system. Its rugged enclosure contains the system microprocessor, data storage memory, A/D converter, signal conditioning circuitry for inputs and outputs, user switches, RS-232 port, and cold junction compensation for thermocouples. After field data collection, the OMP-MNL's memory is downloaded to a PC via an RS-232 port using our HyperWare Windows software, which is included with each OMP-MNL data logger. The data can then be further

manipulated, plotted, and converted to various spreadsheet formats, for use with programs such as Microsoft Excel.

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

## Analog Input Channels

The OMP-MNL can accept up to four universal analog inputs which are software configurable for 6 thermocouple types, 15 DC voltage ranges (up to  $\pm 30$  Vdc), or 7 DC current ranges. Each channel can be individually configured for a different input signal type as well as sampling strategy. An additional analog channel is provided for cold junction compensation for thermocouple applications. If thermocouples are not used, this CJC channel is available as a system temperature, resistance, thermistor, or contact closure input.

The OMP-MNL has been discontinued. Please contact our Data Acquisition department for a possible alternative.



OMP-MNL-1, \$995, shown smaller than actual size

Each of the analog input channels sports full differential inputs, software-programmable gains and 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 OMP-MNL to include user-programmable self-calibration cycles for both analog input channels and the system A/D converter. Precision trimmed, temperature-stabilized references insure accurate performance over time and temperature.

## Digital Inputs and Alarm Outputs

In addition to the analog inputs, a software-configurable general purpose digital input is provided for logging of events or high-speed counting of digital signals from flow meters or any pulse-type sources. The OMP-MNL also provides two isolated alarm relay outputs, a TTL alarm output, a status LED, and a regulated, current-limited 5 Vdc output, all controllable under software.

## User Interface

Enable, stop, and reset switches as well as LED status indicators are provided at one end of the OMP-MNL module. Input and output wiring is handled through removable terminal strips that allow for simple mass connection and disconnection of wiring.

## Applications

Designed for portable, plant floor, remote site, and long-term remote data collections applications, the OMP-MNL incorporates low-power CMOS circuitry, to provide up to 4 weeks of operation from its optional plug-on D-cell battery pack (the OMP-MNL does not have an internal battery). A low-voltage AC power transformer (provided) can be used to power the unit indefinitely. With its compact package design, it's perfect for incorporation into OEM equipment for performance and operational profiling.

## Software

HyperWare for Windows is a powerful multi-purpose software package provided with the OMP-MNL. It facilitates serial communications, provides for graphic programming of the OMP-MNL, real-time data trending, collected data graphic plotting, and data export to other applications, such as Microsoft Excel.

## Options and Accessories

The OMP-MNL is supplied with all the basic necessities that will make it ready for immediate use. However, several optional accessories are available that will greatly increase its capabilities.

The OMP-ML-DISP-MNL display module will provide real-time read-outs of any analog inputs, digital I/O, and logger status. It simply attaches to the top of the OMP-MNL logger.

The OMP-MLIM-5 PCMCIA interface module can be attached to the base of the OMP-MNL series data logger, which will expand the logger's memory capacity up to 500,000 readings, depending on which PCMCIA card is used.

The OMP-MLIM-5-144 interface module is the same as the OMP-MLIM-5, with an additional 14.4 kbps modem installed, which will allow remote communications to a PC running Hyperware.

For remote applications where AC power is not available, the OMP-MNL-BATT battery pack module can be used to power the OMP-MNL data logger up to 4 weeks. It accepts 6 standard D-cell batteries and is attached to the base of the data logger (this is not a rechargeable battery pack). It may also be powered from any 10 to 32 Vdc or 10 to 26 Vac external power source. A 120 Vac power adapter is provided for powering via an AC outlet.

## Specifications

### Data Storage Memory:

Redundant battery backed-up SRAM. Approx. 16,000 samples for OMP-MNL-1 and up to 80,000 with OMP-MNL-1-EXM. Up to 500,000 reading when using PCMCIA memory cards.

### Data Memory Backup:

Lithium cell, 1 year @ 25°C

### Memory Utilization:

User programmable; stops either when memory is full, or rotary (FIFO)

### A/D Converter:

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

### A/D Converter Accuracy:

±0.1% RDG + 1 bit

### Sampling Throughput Rate:

150 samples per second max. (analog input to memory); rate is dependent on number and type of channels and programmed signal processing. Sampling rates are configurable for each channel.

### Digital Input:

One general purpose digital input channel. User programmable for event or high-speed counter applications. Contact closure or TTL driven signal input (15 Vdc max)

### Outputs:

2 low voltage N.O. relays, 500 mA rated; 1 current limited TTL digital output; 100 mA @ 5 Vdc regulated output (short circuit protected)



OMP-MNL-1, \$995, shown smaller than actual size

**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. Approx. 5 mA between readings, approx. 50 mA during readings provided by optional battery pack (6 internal D-cells)

### External Power:

Terminal strip connection for external power source. Accepts 10 to 32 Vdc or 10 to 26 Vac from any semi-regulated external source (120 Vac wall adapter is included with OMP-MNL). Fuse and Transzorb protected

### Operating Temperature/Humidity:

-10 to 60°C (14 to 140°F), 90% RH non-condensing

### Mechanical:

(Dust sealed)  
224 W x 122 H x 56 mm D (8.8 x 4.8 x 2.2")  
[97 mm D (3.8") with battery pack attached]  
0.7 kg (1.5 lb) [1.4 kg (3 lb) with battery pack]

### Analog Input Channels:

4 individually programmable channels of the following analog signal input. Any combination of the following types/ranges can be configured in an OMP-MNL.

### Cold Junction

**Compensation Range (CJC):** -10 to 60°C (14 to 140°F)

## DC VOLTAGE INPUTS

### Full Scale Ranges:

$\pm 20$  mV,  $\pm 40$  mV,  $\pm 50$  mV,  $\pm 60$  mV,  $\pm 100$  mV,  
 $\pm 200$  mV,  $\pm 1$  V,  $\pm 2$  V,  $\pm 5$  V,  $\pm 10$  V,  $\pm 30$  V

### Accuracy:

$\pm 0.5\%$  F.S. for  $\pm 10$  V and  $\pm 30$  V range.

All other ranges  $\pm 0.3\%$  F.S.

### Common Mode Range:

3.5 Vdc, full differential inputs

### Input Resistance:

$> 2.5$  M for 5, 10, and 30 Vdc;

$> 10$  M for all other ranges

## DC CURRENT INPUTS

### Full Scale Ranges:

$\pm 200$   $\mu$ A,  $\pm 400$   $\mu$ A,  
 $\pm 500$   $\mu$ A,  $\pm 1$  mA,  $\pm 2$  mA,  
 $\pm 11$  mA,  $\pm 22$  mA

**Accuracy:**  $\pm 0.3\%$  F.S.

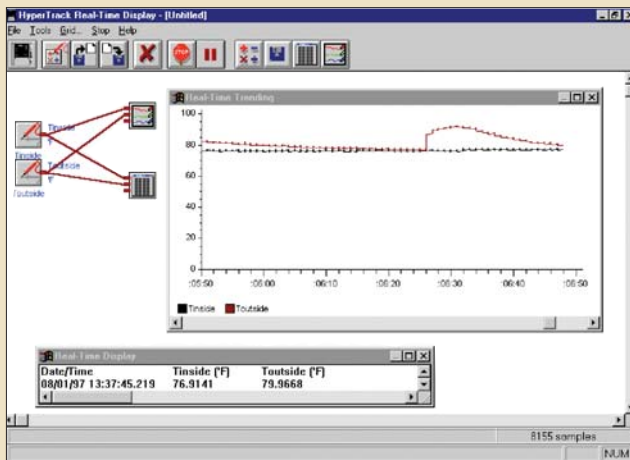
### Input Resistance:

100 $\Omega$  (all current ranges)

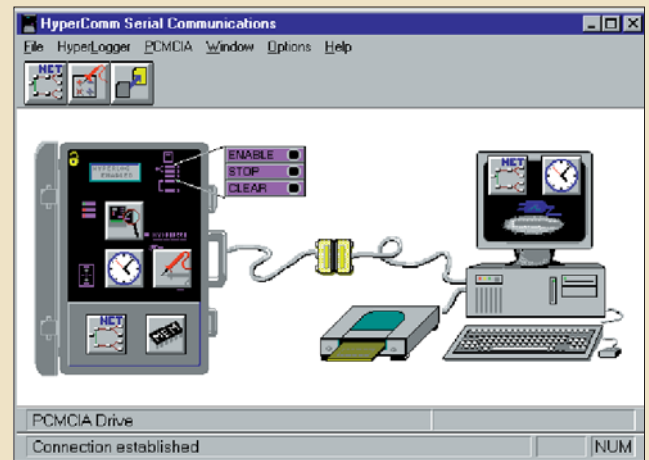


OMEGACARE<sup>SM</sup> extended warranty program is available for models shown. Ask your sales representative for full details when placing an order. OMEGACARE<sup>SM</sup> covers parts, labor and equivalent loaners.

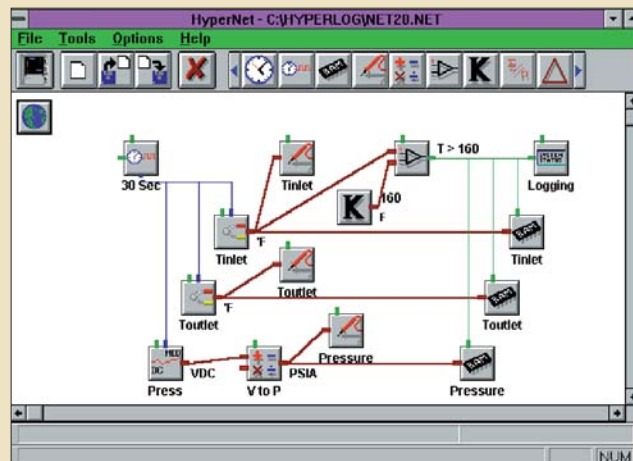
## Included Hyperware Software



Real-Time Trending



Graphic RS-232/Modem Communications



Drag and Drop Graphics Programming

## Thermocouple Input Ranges

Thermocouple	Maximum Range	Accuracy*
<b>J</b> Iron-Constantan	0 to 760°C 32 to 1400°F	±1°C ±1.8°F
<b>K</b> CHROMECA®-ALOMEGA®	0 to 1370°C 32 to 2498°F	±1.2°C ±2.2°F
<b>E</b> CHROMECA®-Constantan	-100 to 1000°C -148 to 1832°F	±1°C ±1.8°F
<b>T</b> Copper-Constantan	-160 to 400°C -256 to 752°F	±1°C ±1.8°F
<b>R</b> Pt/13% Rh-Pt	0 to 1000°C 32 to 1832°F	±10°C ±18°F
<b>S</b> Pt/10% Rh-Pt	0 to 1750°C 32 to 3182°F	±10°C ±18°F

\* Plus ±0.5°C CJC accuracy

## To Order (Specify Model Number)


Model Number	Price	Description
<b>OMP-MNL-1</b>	<b>\$995</b>	OMP-MNL portable data logging system with 16,000 reading memory
<b>OMP-MNL-1-EXM</b>	<b>1145</b>	OMP-MNL portable data logging system with 80,000 reading memory

OMP-MNL data loggers are supplied with HyperWare Windows software, RS-232 cable for PC connection, DB9 and DB25 serial port adapters, 120 Vac to 12 Vdc power adapter and operator's manual.

OMEGACARE<sup>SM</sup> extended warranty is available for models shown on this page. Ask your sales representative for full details when placing orders.

**Ordering Example:** OMP-MNL-1, OMP-MNL-BATT and OMEGACARE<sup>SM</sup> 1-year extended warranty (add 1 year to standard 1-year warranty), \$995 + 65 + 99 = \$1159.

## Options and Accessories

Model Number	Price	Description
<b>OMP-ML-DISP-MNL</b>	<b>\$180</b>	Display module with 2 line x 16 character LCD
<b>OMP-MLIM-5</b>	<b>120</b>	PCMCIA interface module; includes socket for SRAM memory cards (requires PCMCIA SRAM card)
<b>OMP-MLIM-5-144</b>	<b>340</b>	Modem/PCMCIA interface module; includes 14400 baud modem and socket for SRAM memory cards (requires PCMCIA SRAM card)
<b>OM-320-MC-50†</b>	<b>120</b>	PCMCIA SRAM memory card - approx. 65,000 samples (requires any OMP-MLIM-5 interface module)
<b>OM-320-MC-200†</b>	<b>260</b>	PCMCIA SRAM memory card - approx. 250,000 samples (requires any OMP-MLIM-5 interface module)
<b>OM-320-MC-400†</b>	<b>360</b>	PCMCIA SRAM memory card - approx. 500,000 samples (requires any OMP-MLIM-5 interface module)
<b>OMP-MNL-BATT</b>	<b>65</b>	Battery pack module (w/ 6 D-Cells). Attaches to OMP-MNL data loggers.
<b>OM-320-PD-2</b>	<b>280</b>	PCMCIA drive connects to IBM PC serial port or USB port for reading data from PCMCIA SRAM cards. Includes software drivers.
<b>OM-220-RPS-1</b>	<b>395</b>	Rechargeable power supply for sensor excitation and auxiliary logger power. Dual outputs programmable from 3.5 to 22 Vdc.
<b>OM-220-BATT-2</b>	<b>28</b>	Replacement battery for OM-220-RPS-1
<b>OM-220-CHGR-12</b>	<b>68</b>	Battery charger for stand-alone charging of batteries when not installed in OM-220-RPS-1 (115 Vac input)
<b>CS-3772</b>	<b>50</b>	Reference Book: Open-Source Robotics and Process Control Cookbook 

† The number of readings that each PCMCIA can store depends on the types of inputs that you are storing. For example, digital I/O uses less memory than analog inputs, so you can store more readings, therefore, the values listed above are approximations.



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