Where Do I Find Everything I Need for Process Measurement and Control? OMEGA ... Of Course!

TEMPERATURE
- Thermocouple, RTD & Thermistor Probes, Connectors, Panels & Assemblies
- Wire: Thermocouple, RTD & Thermistor
- Calibrators & Ice Point References
- Recorders, Controllers & Process Monitors
- Infrared Pyrometers

PRESSURE / STRAIN FORCE
- Transducers & Strain Gauges
- Load Cells & Pressure Gauges
- Displacement Transducers
- Instrumentation & Accessories

FLOW / LEVEL
- Rotameters, Gas Mass Flowmeters & Flow Computers
- Air Velocity Indicators
- Turbine / Paddlewheel Systems
- Totalizers & Batch Controllers

pH/CONDUCTIVITY
- pH Electrodes, Testers & Accessories
- Benchtop / Laboratory Meters
- Controllers, Calibrators, Simulators & Pumps
- Industrial pH & Conductivity Equipment

DATA ACQUISITION
- Data Acquisition & Engineering Software
- Communications-Based Acquisition Systems
- Plug-in Cards for Apple, IBM & Compatibles
- Datalogging Systems
- Recorders, Printers & Plotters

HEATERS
- Heating Cable
- Cartridge & Strip Heaters
- Immersion & Band Heaters
- Flexible Heaters
- Laboratory Heaters

ENVIRONMENTAL MONITORING AND CONTROL
- Metering & Control Instrumentation
- Refractometers
- Pumps & Tubing
- Air, Soil & Water Monitors
- Industrial Water & Wastewater Treatment
- pH, Conductivity & Dissolved Oxygen Instruments

RMS Voltage Loggers
Model OM-SL-L205
Model OM-SL-L230
Model OM-SL-L260

USER MANUAL

M-3440/0899

WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **13 months** from date of purchase. OMEGA Warranty adds an additional one (1) month grace period to the normal **one (1) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product.

If the unit should malfunction, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of being damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components which wear are not warranted, including but not limited to contact points, fuses, and triacs.

OMEGA is pleased to offer suggestions on the use of its various products. However, OMEGA neither assumes responsibility for any omissions or errors nor assumes liability for any damages that result from the use of its products in accordance with information provided by OMEGA, either verbal or written. OMEGA warrants only that the parts manufactured by it will be as specified and free of defects. OMEGA MAKES NO OTHER WARRANTIES OR REPRESENTATIONS OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED, EXCEPT THAT OF TITLE, AND ALL IMPLIED WARRANTIES INCLUDING ANY WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED. LIMITATION OF LIABILITY: The remedies of purchaser set forth herein are exclusive and the total liability of OMEGA with respect to this order, whether based on contract, warranty, negligence, indemnification, strict liability or otherwise, shall not exceed the purchase price of the component upon which liability is based. In no event shall OMEGA be liable for consequential, incidental or special damages.

CONDITIONS: Equipment sold by OMEGA is not intended to be used, nor shall it be used: (1) as a "Basic Component" under 10 CFR 21 (NRC), used in or with any nuclear installation or activity; or (2) in medical applications or used on humans. Should any Product(s) be used in or with any nuclear installation or activity, medical application, used on humans, or misused in any way, OMEGA assumes no responsibility as set forth in our basic WARRANTY/ DISCLAIMER language, and additionally, purchaser will indemnify OMEGA and hold OMEGA harmless from any liability or damage whatsoever arising out of the use of the Product(s) in such a manner.

RETURN REQUESTS/ INQUIRIES

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence.

The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR **WARRANTY** RETURNS, please have the following information available BEFORE contacting OMEGA:

1. P.O. number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR **NON-WARRANTY REPAIRS**, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:

1. P.O. number to cover the COST of the repair,
2. Model and serial number of product, and
3. Repair instructions and/or specific problems relative to the product.

OMEGA's policy is to make running changes, not model changes, whenever an improvement is possible. This affords our customers the latest in technology and engineering.

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Engineering Service: 1-800-872-9436 / 1-800-USA-WHEN[SM]
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It is the policy of OMEGA to comply with all worldwide safety and EMC/EMI regulations that apply. OMEGA is constantly pursuing certification of its products to the European New Approach Directives. OMEGA will add the CE mark to every appropriate device upon certification.

The information contained in this document is believed to be correct but OMEGA Engineering, Inc. accepts no liability for any errors it contains, and reserves the right to alter specifications without notice.

WARNING: These products are not designed for use in, and should not be used for, patient connected applications.

Table of Contents

Warning

These safety warnings are provided to ensure the safety of personnel and proper operation of the instrument.

- Read the instruction manual completely and follow all the safety information before attempting to use or service this instrument.
- Use caution on any circuit: Potentially high voltages or currents may be present.
- Read the ~~safety~~ specifications section prior to using the data logger. Never exceed the maximum voltage ratings given.
- Safety is the responsibility of the operator.
- For maintenance, use only original replacement parts.
- NEVER open the back of the instrument while connected to any circuit or input.
- ALWAYS connect the leads to the logger before connecting the leads to the test voltage.
- ALWAYS inspect the instrument and leads prior to use. Replace any defective parts immediately.
- NEVER use the Models OM-SL-L205, 230 and L260 on electrical conductors rated above 600 V in overvoltage category III (CAT III).

International Electrical Symbols

This symbol signifies that the loggers are protected by double or reinforced insulation. Use only specified replacement parts when servicing the instrument.

This symbol signifies CAUTION! and requests that the user refer to the user manual before using the instrument.

For more information about the Logger, refer to disk 2: USER GUIDE

Notes:

Windows 95 Systems

1. Insert the floppy disk containing the data logger software in your computer's floppy drive (usually Drive A).
2. Click on the "Start" button on the bottom left side of the screen.
3. Select "Run" from the menu and type **a:setup** in the dialog box then click on "OK".
4. The setup program will temporarily load onto your computer.
5. Next the setup program will offer C:\DATALOG as the location where the software will be installed. Click on "Next" to use this directory or type in a new name, then click on "Next".
6. A bar graph will appear showing the progress of installation. When installation is complete a message screen will appear stating that the program has been installed. Click on "OK". You are now ready to use the data logger software.

USING THE SOFTWARE

Launch the software and connect the RS232 cable from your computer to the logger.

Select "FILE", "Baud rate" and "1200", then select "PORT", Com1, Com2, Com3 or Com4 (see your computer manual). The logger must now communicate with your computer (ID number of the logger and number of points recorded displayed).

Download takes about 90 seconds.

Cleaning

The body of the logger should be cleaned with a cloth moistened with soapy water. Rinse with a cloth moistened with clean water. Do not use solvent.

Receiving Your Shipment

Upon receiving your shipment, make sure that the contents are consistent with the packing list. Notify OMEGA of any missing items. If the equipment appears to be damaged, file a claim immediately with the carrier and notify OMEGA at once, giving a detailed description of any damage.

Packaging

The Loggers OM-SL-L205, L230 and L260 include the following:

- User manual
- One 9 V battery
- Two 3½" disks containing the window-based download and graphic software and a generic user guide
- Six ft. long RS232 cable
- Set of velcro mounting pads

Specifications

ELECTRICAL

Number of Channels: 1

Measurement Range:
OM-SL-L205: 0 - 25 Vrms (stray voltage)
OM-SL-L230: 0 - 300 Vrms
OM-SL-L260: 0 - 600 Vrms

Input:
OM-SL-L205: 0 - 25 Vrms
OM-SL-L230: 0 - 300 Vrms
OM-SL-L260: 0 - 600 Vrms

Input Connection: Recessed Safety Banana Jacks

Input Impedance:
OM-SL-L205: 1 MΩ
OM-SL-L230 and OM-SL-L260: 2 MΩ

***Accuracy:** 1% Readings + Resolution

Resolution: 8 Bit

OM-SL-L205:

Scale Range	Maximum Input	Resolution
100%	25 V	0.1 V
50%	12.5 V	0.05 V
25%	6.25 V	0.025 V
12.5%	3.125 V	0.0125 V

OM-SL-L230:

Scale Range	Maximum Input	Resolution
100%	300 V	2 V
50%	250 V	1 V
25%	125 V	.5 V
12.5%	62.5 V	.25 V

OM-SL-L260:

Scale Range	Maximum Input	Resolution
100%	600 V	4 V
50%	300 V	2 V
25%	250 V	1 V
12.5%	125 V	0.5 V

*Reference condition: 23°C ± 3K, 20 to 70% RH, Frequency 50/60Hz, No AC external magnetic Field, DC magnetic field ≤ 40A/m, battery voltage 9 V ± 10%.

Software

This model requires software version 5.0 and above.

MINIMUM COMPUTER REQUIREMENTS

Processor: 386 or higher

RAM Storage: 4 MB minimum

Hard Drive Space:
700K for application, approximately 400K for each stored file

Environment: Windows 3.1 or Windows 95

Port Access: 1 available 9 pin serial port
1 parallel port for printer support

INSTALLATION

Your data logger software is supplied on a single 3½" floppy disk. To install the program on your Windows based computer, proceed as follows: The software is Multilanguage. A prompt will ask you to select the language at the end of the installation process.

Windows 3.1 Systems

1. Insert the floppy disk containing the data logger software in your computer's floppy drive (usually Drive A).
2. From the Program Manager select "File" on the command line.
3. Select "Run" from the pull-down menu and type **a:setup** in the dialog box then click on "OK".
4. The set up program will temporarily load onto your computer.
5. Next the setup program will offer C:\DATALOG as the location where the software will be installed. Click on "Next" to use this directory or type in a new name, then click on "Next".
6. A bar graph will appear showing the progress of installation. When installation is complete a message screen will appear stating that the program has been installed. Click on "OK". You are now ready to use the data logger software.

Battery Installation

Under normal conditions, the battery will last up to a year of continuous recording unless the logger is restarted very frequently.

In the OFF mode, the logger puts almost no load on the battery. Use the OFF mode when the logger is not in use. Replace the battery once a year in normal use.

If the logger will be used at temperatures below 32°F (0°C) or is frequently turned on and off, replace the battery every six to nine months.

1. Make sure your logger is turned off (no light blinking) and all inputs are disconnected.
2. Turn the logger upside down. Remove the four Phillips head screws from the base plate, then take off the base plate.
3. Locate the two wire (red/black) battery connector and attach the 9 V battery to it. Make sure that you observe polarity by lining up the battery posts to the proper terminals on the connector.
4. Once the connector is plugged onto the battery, insert the battery into the holding clip on the circuit board.
5. If the unit is not in record mode after installing the new battery, disconnect it and press the button twice then reinstall the battery.
6. Reattach the base plate using the four screws removed in step two.

Your data logger is now recording (LED blinking). Press the test button for 5 seconds to stop the instrument

Note: For long term storage, remove the battery to prevent discharge effects.

Operation

Connect the set of leads to the logger and then connect the other end of the leads to the conductor to be measured. Be sure that the measurement is compatible with your instrument range. If the LED is continuously lit, disconnect your logger immediately.

Next, press the start/stop button on the front of the unit to begin the recording session. The indicator light will double blink to indicate that the recording session has started. When the recording session has been completed, press the start/stop button the end the recording. The indicator light will single blink to indicate that the recording session has ended and the unit is in stand-by.

Disconnect the leads from the conductor and connect the logger to the computer for data downloading. See section 2 of the user guide for downloading.

Sample Rate:
4096/hr max. decreases by 50% each time memory is full

Data Storage: 8192 readings

Data Storage Technique:
(TXR™) Time Extension Recording™

Power:
9V Alkaline NEDA 1604, 6LF22, 6LR61

Battery Life Recording:
Up to 1 year continuous recording @ 25°C

Output:
RS-232 via DB9 connector; 1200 Bps

INDICATORS

Operation Mode Indicator: One Red LED

- Single Blink in stand-by mode
- Double Blink in RECORD mode
- Continuously on: Overload condition
- No Blinks in OFF mode

CONTROLS:

One button used to start and stop recording sessions and to turn the data logger ON and OFF.

ENVIRONMENTAL

Operating Temperature: -4 to + 158°F (-20 to +70°C)

Storage Temperature: -4 to + 174°F (-20 to +80°C)

Relative Humidity: 5 to 95% non-condensing

Temperature Influence: 5 cts.

MECHANICAL

Size:
2-7/8” W x 2-5/16” H x 1-5/8” D (73mm x 59mm x 41mm)

Weight (with battery): 5 oz. (140g)

Mounting:
Base plate mounting holes or Velcro® pads

Case Material: Polystyrene UL V0

SAFETY

CE

Working Voltage: IEC 1010-1, 600V, Cat III

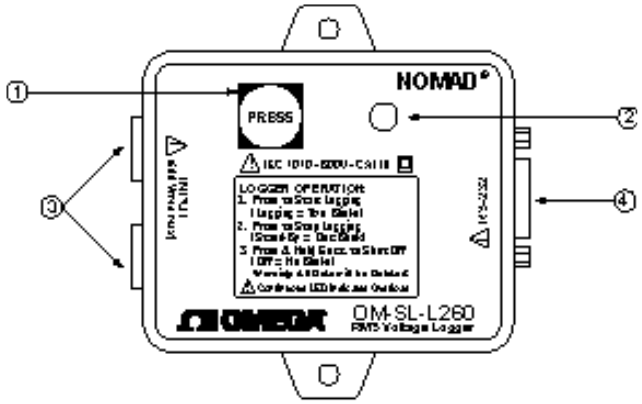
ORDERING INFORMATION

RMS Voltage Logger, 0 - 25 Vrms ..... Model OM-SL-L205
RMS Voltage Logger, 0 - 300 Vrms ..... Model OM-SL-L230
RMS Voltage Logger, 0 - 600 Vrms ..... Model OM-SL-L260

Accessories:
Replacement 6ft RS232 cable with DB9F OM-SL-RS232-DB9
Replacement Test Leads..... OM-SL-VL

Features

Models OM-SL-L205, L230 and L260:



(1) Start/Stop Button
(2) Indicator Light
(3) Input Safety Plugs
(4) RS-232 Interface

Indicators and Buttons

The data logger has only one button and one indicator. Both are located on the front panel.

The button is used to start and stop recordings and to turn the data logger on and off. The red LED indicates the status of the data logger; OFF, STANDBY or RECORDING. When the LED is lit continuously it indicates an overload condition.

Inputs and Outputs

The left side of the data logger incorporates 4mm safety banana jacks input.

The right side of the data logger has a female 9 pin “D” shell serial connector used for data transmission from the data logger to your computer.

Mounting

Your data logger is equipped with clearance holes in the base plate tabs for mounting. For less permanent mounting, the velcro pads (supplied loose) can be attached to the data logger and the surface to which the logger will be mounted.