



# User's Guide



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## OM-EL-HL

HANDHELD INFRARED CONTROLLER



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

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# OM-EL-HL

## Handheld Control Unit for EasyLog

The OM-EL-HL is a low cost, hand-held EasyLog configuration and data collection unit which can be operated by both technical and non-technical personnel. The OM-EL-HL is designed to be used in environments where a Windows™ based PC is either unavailable or impractical. Up to eight EasyLogs can be configured and the data from each stored in non-volatile memory that will hold the data until it can be analyzed on a PC.

### **OM-EL-HL contains:**

- 1 x Handheld Control Unit**
- 2 x AA Batteries**
- 1 x 3½" Floppy Disk With OM-EL-WIN & HL-HELP**
- 1 x D-type to D-type Communications Cable**
- 1 x OM-EL-HL Manual**

# REQUIREMENTS

The OM-EL-HL is a field tool for data retrieval and configuration of the Omega EasyLog series of data loggers. The OM-EL-HL is designed to be used in conjunction with a PC running OM-EL-WIN EasyLog control software.

## Minimum System Requirements

- IBM compatible PC running Windows™ 3.1 or above.
- OM-EL-WIN version 3.01 or above.
- One or more EasyLogs.
- EasyLog RS232 serial cable.
- D-type to D-type RS232 serial cable. (Included)

## Optional

- OM-EL-LINK-IR - Self powered RS232 to InfraRed converter for the PC.
- OM-EL-PANEL-IR - Panel Mounting InfraRed transmitter / Receiver.
- OM-EL-2-IR - OM-EL-2 with InfraRed communications.

# FIRST TIME USERS

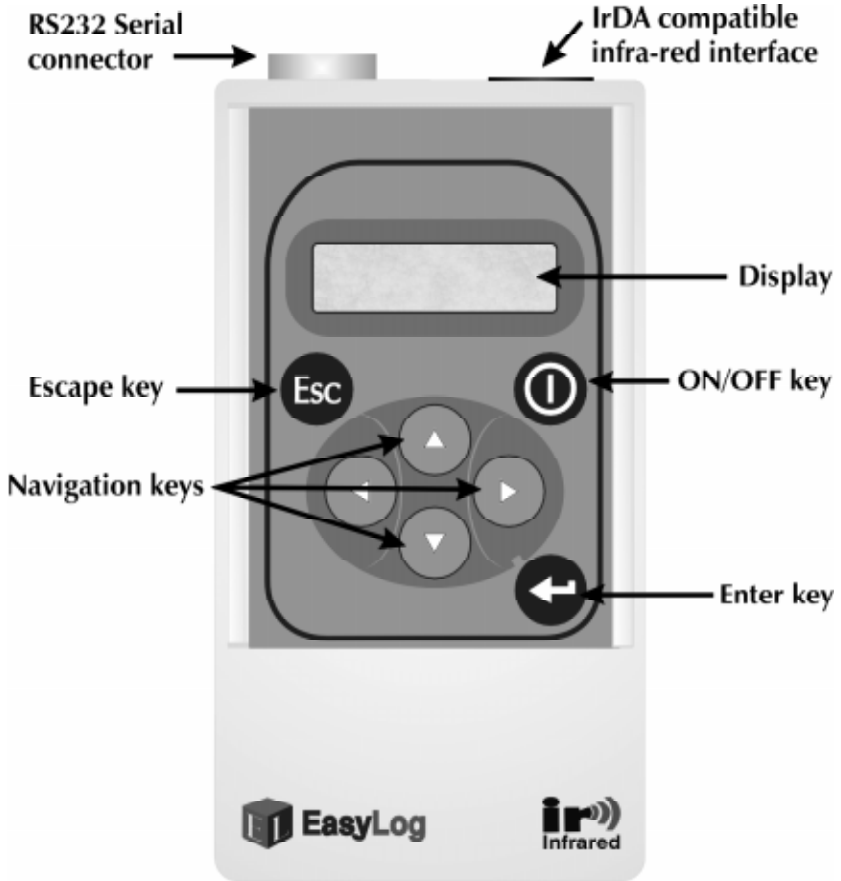
For users not familiar with the EasyLog range, please refer to the EasyLog datasheets and OM-EL-WIN user manual.

## USING THE EASYLOG DATA LOGGER

A typical logging scenario consists of four stages:-

1. Selecting and connecting an appropriate sensor.
2. Choosing the desired recording method and starting the log.
3. Stopping the log after the required period and extracting the recorded data.
4. Presenting and analyzing the data.

## NAVIGATING THE MENU SYSTEM



The OM-EL-HL is operated by using a simple menu system. The Up and Down arrow keys navigate the main/sub menus, while left and right arrow keys select the appropriate logger. A “beep” will confirm that a key has been pressed.

The Enter key is used to select the highlighted menu.

The Escape key will revert to the previous menu without saving any data.

Arrow keys are also used in selected menus to allow the user to enter alpha/numeric data.

## INITIAL SETUP

Before operating the OM-EL-HL for the first time, two 1.5V AA type batteries must be inserted correctly in the battery compartment on the rear of the unit. The cover of the battery compartment is held in place by a single screw.

With the batteries in place, press the ON/OFF key to power up the OM-EL-HL. The internal microprocessor clock will now need to be set with the correct time and date. This is accomplished by using the Current Date and Current Time menus as described on page 13.

The OM-EL-HL will also indicate a Low Battery Warning on power up if the batteries have a low level of charge left. If this message is displayed, the user is advised to switch off the OM-EL-HL and replace the batteries. The clock will then require re-setting.

Once the clock has been set, the OM-EL-HL is ready to use.

**N.B.** When replacing the batteries, it is advisable for the user to wait approximately 15 seconds before inserting the new batteries. This will allow the OM-EL-HL's low power circuitry to fully discharge.

## ATTACHING AN EASYLOG TO OM-EL-HL

Using the EasyLog interface cable (from OM-EL-WIN), plug the 9-way D socket of the lead into the serial port at the top of the OM-EL-HL. The opposite end of the lead is connected to the EasyLog. Depending on the module, the connector at this end could be either a 9-way D socket, an 8-pin Mini-DIN or the jack plug supplied with OM-EL-WIN-LITE.

Alternatively, the integrated InfraRed communication link can be selected in the Comms menu. The InfraRed link may be used with OM-EL-PANEL-IR, OM-EL-LINK-IR or OM-EL-2-IR. OM-EL-LINK-IR can also be used for InfraRed communication with a PC.

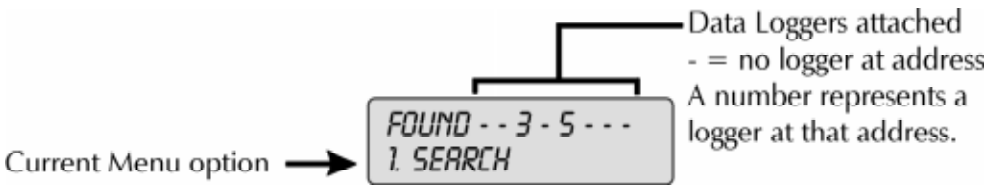
# MAIN MENU

The main menu consists of the following options:-

1. SEARCH
2. STATUS
3. START
4. STOP
5. DOWNLOAD
6. EMULATE
7. SETUP
8. ADVANCED
9. OM-EL-HL COMMS
10. CURRENT TIME
11. CURRENT DATE

## 1. SEARCH

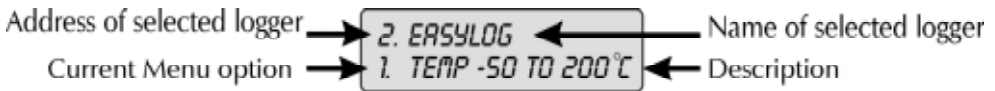
Pressing <Enter> searches for any loggers attached to the OM-EL-HL. As the OM-EL-HL searches, loggers that reply will be shown by their relevant address number on the top row of the LCD display. A dashed line in place of the logger's address indicates that no logger has been found at that address.



On menus 2 - 7, selection of a logger is accomplished by utilising the left and right arrow keys. The flashing cursor will highlight the selected logger, with the up and down arrow keys highlighting the relevant menu. Pressing <Enter> will select the highlighted logger and menu.

Selection of menus 2 - 5 will show on the top row of the display the current logger's address number, followed by its name. The second row shows all other relevant data. If the selected EasyLog is active or in a delayed start, the user will be unable to enter the menu. The logger must be stopped before the user is able to alter any settings.





## 2. STATUS

With STATUS displayed, pressing <Enter> will open the menu. By using the up and down keys, the following parameters can be examined.

1. SENSOR TYPE
2. SAMPLE RATE
3. STORAGE MODE
4. LCD SYMBOLS
5. LOGGER STATE
6. NUMBER OF SAMPLES

Press <Esc> to return to the main menu.

## 3. START

With START displayed, pressing <Enter> will open the menu. The following sub-menus can be scrolled through by using the up and down arrow keys.

1. ACTIVE
2. ALARMS
3. HIGH ALARM
4. LOW ALARM
5. START MODE
6. START LOGGER

### 3.1 ACTIVE \*\*

This function controls the active symbol on the EasyLog display. Pressing <Enter> will toggle the feature on or off. When enabled, this symbol is displayed every second for the duration of the logger being active. It is useful for confirming correct operation of the logger during long sample rates as well as troubleshooting.

### 3.2 ALARMS \*\*

Pressing <Enter> will toggle the ALARMS on or off. With the option set, if the EasyLog's reading exceeds either of the limits, then this is indicated by an HI (or LO) display condition alternating with the reading on the EasyLog's display. The alarm levels are saved with the data and are visible when data is exported to a PC running OM-EL-WIN. Additionally, hardware outputs are available for both levels on the logger, which may be used (via suitable buffer circuitry) to drive external signalling equipment.

### **3.3 HIGH ALARM**

Pressing <Enter> will prompt you to enter the high alarm value. This is achieved by using the up and down arrow keys to display from a decimal point to 9. The most significant digit also displays a polarity symbol. The left and right arrows are used to move along the sequence of numbers. Press <Enter> to return to sub-menu.

### **3.4 LOW ALARM**

For setting the low alarm level, the same commands as high alarm are used.

**\*\* N.B.** Refer to OM-EL-WIN manual for cautions regarding timing accuracy.

### **3.5 START MODE**

Pressing <Enter> will toggle between:-

- **NORMAL** : EasyLog will start logging as soon as START LOGGER is activated.
- **PUSH TO START** : Allows you to start the logger from the front button (OM-EL-2) or by connecting a switch between header pins SW and V- on the OM-EL-1 (see datasheet).
- **DELAYED START TIME** : Enter desired start time in a similar manner as entering alarm data but in hours/minutes/seconds.
- **DELAYED START DATE** : Enter desired start date using the same commands as delayed start time but in day/month/year.
- **DELAYED START** : Will utilise the EasyLog system clock and start the logger at the entered time and date described in delayed time and date start.

**NOTE:** Because the current time & date will be downloaded from the OM-EL-HL unit to the EasyLog, be sure to set the time & date correctly on the OM-EL-HL first.

### **3.6 START LOGGER**

Pressing <Enter> will start the logger in its selected mode.

## **4. STOP**

With STOP displayed, pressing <Enter> will stop the logger if it is active. Once the logger has been stopped, the next set of samples taken will start from the beginning and overwrite previous data.

## 5. DOWNLOAD

With DOWNLOAD displayed, pressing <Enter> will open the menu. You are then prompted to choose one of the eight memory locations in which to store the collected data from the selected EasyLog. The up and down arrow keys are used to scroll through the memory locations. The display will show the name of the last logger to download data into that memory location. If there is no data held in a memory location the display will show EMPTY.

Once a memory location has been selected press <Enter> to start the DOWNLOAD routine. The OM-EL-HL will “Beep”, while data is being downloaded from the EasyLog.

The memory location selected for the EasyLog to download its data will also become that EasyLog’s new address for the EMULATE mode. For example, if the EasyLog’s data has been downloaded into memory location 5, the EasyLog’s address in the EMULATE mode will also be 5. Memory locations can be cleared by the CLEAR command in OM-EL-WIN (Emulate Mode).

## 6. EMULATE

In this mode, the OM-EL-HL emulates an EasyLog module for the purpose of downloading the collected information to OM-EL-WIN. The PC looks upon the OM-EL-HL as between 1 and 8 EasyLogs depending on how many loggers have been downloaded to the OM-EL-HL.

Connect the OM-EL-HL to your PC with the supplied 9way D-type to D-type cable or equivalent. Select the EasyLog Emulation Mode on the OM-EL-HL by pressing <Enter>.

Using the OM-EL-WIN software on your PC, click on SEARCH. The OM-EL-WIN software will show all the EasyLogs that have been downloaded to the OM-EL-HL. Data is stored on the OM-EL-WIN software in the normal manner.

## 7. SETUP

With SETUP displayed, pressing <Enter> will open the menu. The following sub-menus can be scrolled through by using the up and down arrow keys.

1. *LOGGER NAME*
2. *SENSOR TYPE*
3. *SAMPLE RATE*
4. *STORAGE METHOD*
5. *LCD SYMBOL*
6. *SCALER*
7. *DEFAULT CAL*
8. *UPDATE AND EXIT*

### 7.1 *LOGGER NAME*

Pressing <Enter> will prompt you to change the logger name. The name is changed by using the up and down arrow keys to display the available characters. The left and right arrows are used to move along the sequence of up to 14 characters. Press <Enter> to return to sub-menu or accept current name.

### 7.2 *SENSOR TYPE*

Select SENSOR TYPE by pressing <Enter>. The available sensors for the connected logger can be scrolled through by using the up and down arrows. Press <Enter> to select the sensor or return to sub-menu.

**N.B.** Available Sensor options are dependent on logger type.

### 7.3 *SAMPLE RATE*

Select SAMPLE RATE by pressing <Enter>. The available sample rates can be scrolled through by using the up and down arrows. Press <Enter> to select the rate or return to sub-menu.

### 7.4 *STORAGE METHOD*

Select STORAGE METHOD by pressing <Enter>. The following storage types can be scrolled through by using the up and down arrow keys:-

- **NORMAL** : This is the conventional method used for recording data over a period of time. Readings are taken at regular time intervals and stored as a sequence of values inside the EasyLog module. Logging stops once the module's memory is full. The maximum number of readings that can be stored inside an EasyLog module is limited by the size of the module's memory.
- **HISTOGRAM** : In Histogram mode, individual readings are not stored. Instead, the occurrence of each reading is recorded. This means that many more readings can be processed over a longer period of time.

**NOTE:** The Histogram storage method is not an option for the 12BIT EasyLogs.

- **ROLLING** : Rolling data storage is similar to Normal data storage, except that when the EasyLog module's memory is full, logging continues by overwriting the oldest data. When logging is stopped, the module contains all the readings leading up to the time of stopping. Use Rolling mode to record data that leads up to a particular event.
- **EVENT** : In Normal, Rolling and Histogram mode, readings are taken at regular time intervals. In Event mode, a reading is only taken and stored when the Event button is pressed. Refer to the EasyLog module's datasheet for more information. In Event mode, each reading is stored together with the time and date of the reading.

### ***7.5 LCD SYMBOL***

Select LCD SYMBOL by pressing <Enter>. The available annunciators, which are dependent on the type of EasyLog module being used, can be scrolled through by using the up and down arrows. Press <Enter> to select the desired symbol or return to sub-menu.

**N.B.** Symbols available are dependent on logger type.

### ***7.6 SCALER***

As in sub-menu 3.5 LCD SYMBOL above, but used to change the scaler annunciator.

### ***7.7 DEFAULT CAL***

Press <Enter> to reset the current logger's calibration settings to the factory default. **WARNING!** Only select this menu if you are sure you want to overwrite any custom values that have previously been set.

### ***7.8 UPDATE AND EXIT***

Press <Enter> to update the current settings for the logger and return to the main menu.

## **8. ADVANCED**

With ADVANCED displayed, pressing <Enter> will open the menu. The following sub-menus can be scrolled through by using the up and down arrow keys.

1. *RESET LOGGER*
2. *CLEAR LOGGER*
3. *NEW ADDRESS*

### ***8.1 RESET LOGGER***

EasyLog is supplied from the factory pre-configured for a 5 second sampling rate in Normal storage mode and in the modules default temperature range. If you wish to return the logger to this condition press <Enter>. Remember, all readings will be lost. This option also restores the default calibration settings. **DO NOT USE** if the logger has been User/Custom calibrated, unless you have the means to accordingly re-calibrate sensor to logger.

### ***8.2 CLEAR LOGGER***

If you wish to clear all of the old stored readings from the selected EasyLog, press <Enter>. Although all old readings are erased, the module's configuration parameters will remain unchanged.

### ***8.3 NEW ADDRESS***

Pressing <Enter> will prompt the user to change the logger's address. Use the up and down arrow keys to scroll through any free addresses in the range 0 - 7. Press <Enter> to change the address or return to the sub-menu.

**N.B.** The search limit (see OM-EL-HL Comms) should be set high enough to allow the new address to be shown by the OM-EL-HL.

## **9. OM-EL-HL COMMS**

With OM-EL-HL COMMS displayed, pressing <Enter> will open the menu. The following sub-menus can be scrolled through by using the up and down arrow keys. Press <Esc> to return to the main menu.

- 1. INTERFACE*
- 2. SMART SEARCH (S. SEARCH)*
- 3. SEARCH LIMIT*

### ***9.1 INTERFACE***

Pressing <Enter> will toggle between the RS232 and the InfraRed communication interface.

### ***9.2 SMART SEARCH***

Pressing <Enter> will toggle SMART SEARCH on or off. With SMART SEARCH on, the OM-EL-HL will scan twice in succession for each module address, thus increasing the chance that a given module is free to respond.

### **9.3 SEARCH LIMIT**

If you are confident that all the module addresses are at the lower end of the scale (e.g.: addresses 0, 1, 2, 3) then you can substantially increase the search speed by selecting the highest module address that you expect to find. Pressing <Enter> will allow you to change the SEARCH LIMIT. Use the up and down arrow keys to scroll through and select search limit between 0 - 7. Press <Enter> to change the limit or return to the sub-menu.

**NOTE:** It is recommended initially that this option is left set at its default value of 7.

## **10. TIME**

The current time can be changed by pressing <Enter> and then using the up and down arrow keys to alter the digits (Hrs., Min., Sec.). The left and right arrows are used to move along the sequence of numbers. Press <Enter> to set the time with this value and return to menu.

## **11. DATE**

The current date can be changed by pressing <Enter> and then using the up and down arrow keys to alter the digits (Day, Month, Year.). The left and right arrows are used to move along the sequence of numbers. Press <Enter> to set the date stored in the OM-EL-HL and return to menu.

# QUICK MENU

## SEARCH

↓↑

## STATUS

- ⇒ Sensor Type
- ⇒ Sample Rate
- ⇒ Storage Mode
- ⇒ LCD Symbol
- ⇒ Logger State
- ⇒ Number of Samples

↓↑

## START

- ⇒ Active
- ⇒ Alarms
- ⇒ High Alarm
- ⇒ Low Alarm
- ⇒ Start Mode ⇒ *normal / push to start / delayed start time /*  
⇒ *delayed start date/delayed start*
- ⇒ Start Logger

↓↑

## STOP

↓↑

## DOWNLOAD

↓↑

## EMULATE

↓↑

## SETUP

- ⇒ Logger Name
- ⇒ Sensor Type ⇒ *dependent on logger type*
- ⇒ Sample Rate
- ⇒ Storage Method ⇒ *normal / histogram / rolling / event*
- ⇒ LCD Symbol ⇒ *dependent on logger type*
- ⇒ Scaler
- ⇒ Default Cal
- ⇒ Update and Exit

↓↑

## ADVANCED

- ⇒ Reset Logger
- ⇒ Clear Logger
- ⇒ New Address

↓↑

## OM-EL-HL COMMS

- ⇒ Interface ⇒ *RS232 / InfraRed*
- ⇒ Smart Search
- ⇒ Search Limit

↓↑

## TIME

↓↑

## DATE



## COMPATIBLE PRODUCTS



**OM-EL-1**



**OM-EL-LITE**



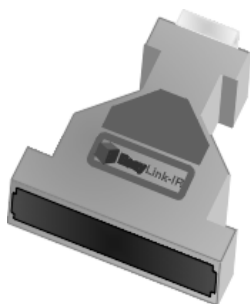
**OM-EL-2**



**OM-EL-1-12BIT**



**OM-EL-2-12BIT**



**OM-EL-LINK-IR**



**OM-PANEL-IR**



**OM-EL-2-IR**

# SPECIFICATION

## PHYSICAL CHARACTERISTICS

Size	120mm x 64mm x 23mm/4.72" x 2.56" x 0.86"
Weight	150g/5.3oz (incl. batteries)
Screen size	36.5mm x 10mm/1.44" x 0.39"
Screen type	16 characters by 2 lines Supertwist dot matrix LCD
Sound	Piezo buzzer
Keyboard	7 key "Clicktouch" membrane

## POWER SUPPLY

Requirement	2 x AA 1.5V alkaline cells
Current consumption	Typical "On" = 45mA Typical "Stand By" = 20µA

## MEMORY

Built in	8 full EasyLog dataloggers
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## COMMUNICATIONS

Ports	RS232 & IrDA compatible InfraRed
Baud rate	9600
IR TX range	1 meter

## ENVIRONMENT

Operating temp.	0°C to 50°C
Storage temp.	-20°C to 50°C
Operating humidity	0% to 80% non condensing
EMC	For Europe: EN55022 Class B

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## 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.

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## 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 the 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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