

# User's Guide

Instruction Sheet

*Shop online at*

***omega.com***<sup>®</sup>  
Ω OMEGA<sup>®</sup>

*omega.com*

*e-mail: info@omega.com*

*For latest product manuals:  
omegamanual.info*



**ISO 9001**  
CERTIFIED  
CORPORATE QUALITY  
STAMFORD, CT

**ISO 9002**  
CERTIFIED  
CORPORATE QUALITY  
MANCHESTER, UK

## OM-EL-USB-TC-LCD

**THERMOCOUPLE DATA LOGGER WITH  
LCD DISPLAY AND USB INTERFACE**



<b>OMEGAnet® Online Service</b> <b>omega.com</b>	<b>Internet e-mail</b> <b>info@omega.com</b>
---	---

### **Servicing North America:**

**U.S.A.:**  
ISO 9001 Certified

One Omega Drive, P.O. Box 4047  
Stamford, CT 06907-0047  
TEL: (203) 359-1660 FAX: (203) 359-7700  
e-mail: info@omega.com

**Canada:**

976 Bergar  
Laval (Quebec) H7L 5A1, Canada  
TEL: (514) 856-6928 FAX: (514) 856-6886  
e-mail: info@omega.ca

### **For immediate technical or application assistance:**

**U.S.A. and Canada:** Sales Service: 1-800-826-6342 / 1-800-TC-OMEGA®  
Customer Service: 1-800-622-2378 / 1-800-622-BEST®  
Engineering Service: 1-800-872-9436 / 1-800-USA-WHEN®  
TELEX: 996404 EASYLINK: 62968934 CABLE: OMEGA

**Mexico:**

En Español: (001) 203-359-7803 e-mail: espanol@omega.com  
FAX: (001) 203-359-7807 info@omega.com.mx

### **Servicing Europe:**

**Benelux:**

Postbus 8034, 1180 LA Amstelveen, The Netherlands  
TEL: +31 (0)20 3472121 FAX: +31 (0)20 6434643  
Toll Free in Benelux: 0800 0993344  
e-mail: sales@omegaeng.nl

**Czech Republic:**

Frystatska 184, 733 01 Karviná, Czech Republic  
TEL: +420 (0)59 6311899 FAX: +420 (0)59 6311114  
Toll Free: 0800-1-66342 e-mail: info@omegashop.cz

**France:**

11, rue Jacques Cartier, 78280 Guyancourt, France  
TEL: +33 (0)1 61 37 2900 FAX: +33 (0)1 30 57 5427  
Toll Free in France: 0800 466 342  
e-mail: sales@omega.fr

**Germany/Austria:**

Daimlerstrasse 26, D-75392 Deckenpfronn, Germany  
TEL: +49 (0)7056 9398-0 FAX: +49 (0)7056 9398-29  
Toll Free in Germany: 0800 639 7678  
e-mail: info@omega.de

**United Kingdom:**  
ISO 9002 Certified

One Omega Drive, River Bend Technology Centre  
Northbank, Irlam, Manchester  
M44 5BD United Kingdom  
TEL: +44 (0)161 777 6611 FAX: +44 (0)161 777 6622  
Toll Free in United Kingdom: 0800-488-488  
e-mail: sales@omega.co.uk

---

It is the policy of OMEGA Engineering, Inc. 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 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, human applications.

# OM-EL-USB-TC-LCD

## Thermocouple Data Logger with LCD

### ORDERING INFORMATION

Standard Data Logger OM-EL-USB-TC-LCD  
(Data Logger, Measurement  
Leads, Software on CD and Battery)

Replacement Battery OM-EL-BATT

### FEATURES

- -200 to +1350°C (-328 to +2462°F) K-type measurement range
- -200 to +1190°C (-328 to +2174°F) J-type measurement range
- -200 to +390°C (-328 to +734°F) T-type measurement range
- High contrast LCD, with four digit temperature display
- USB Interface for set-up and data download
- User-programmable alarm thresholds
- Status indication via red and green LEDs
- Immediate, delayed and push-to-start logging
- Supplied complete with replaceable internal lithium battery and Windows control software



This standalone data logger measures and stores up to 32,510 temperature readings from either a K, J or T type thermocouple. A thermocouple is attached via the thermocouple socket at the base of the unit. The user can easily set up the logging rate and start-time, and download the stored data by plugging the data logger into a PC's USB port and running the purpose designed software under Windows 2000, XP, Vista or 7. Data can then be graphed, printed and exported to other applications.

The high contrast LCD can show several different temperature variables. The user can cycle between these using the push button. The data logger is supplied complete with a long-life lithium battery, which can typically allow logging for up to 6 months.

Specifications	Minimum	Typical	Maximum	Unit
Probe Measurement range (K-type)	-200 (-328)		+1350 (+2462)	°C (°F)
Probe Measurement range (J-type)	-200 (-328)		+1190 (+2174)	°C (°F)
Probe Measurement range (T-type)	-200 (-328)		+390 (+734)	°C (°F)
Operating temperature range *	-10 (+14)		+40 (+104)	°C (°F)
Resolution (internal and displayed)		0.5 (1)		°C (°F)
Accuracy (logger error)		±1 (±2)**		°C (°F)
Logging rate	every 1 s		every 12 hr	-
1/2AA 3.6V Lithium Battery Life		6***		Months

\* Operating temperature applies to the data logger module only. Please consult the probe manufacturer for operating temperature of thermocouple.

\*\* Quoted accuracy is for the data logger only and excludes the thermocouple probe. Thermocouple error should also be taken into consideration.

\*\*\* Depending on sample rate, ambient temperature and use of LCD.

# OM-EL-USB-TC-LCD

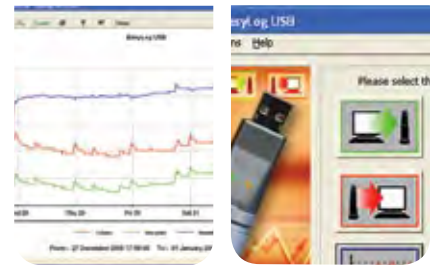
## Thermocouple Data Logger with LCD

### WINDOWS CONTROL SOFTWARE

Omega's EasyLog USB control software is supplied free of charge with each data logger. Easy to install and use, the control software runs under Windows 2000, XP (Home and Professional Editions), Vista & 7. The software is used to set-up the data logger as well as download, graph and export data to Excel.

The software allows the following parameters to be configured:

- Logger name
- °C, °F
- Logging rate (1s, 10s, 1m, 5m, 30m, 1hr, 6hr, 12hr)
- High and low alarms
- Immediate, delayed and push-to-start logging
- Display off, on for 30 seconds after button press, or permanently on
- Data rollover (Allows unlimited logging periods by overwriting the oldest data when the memory is full)



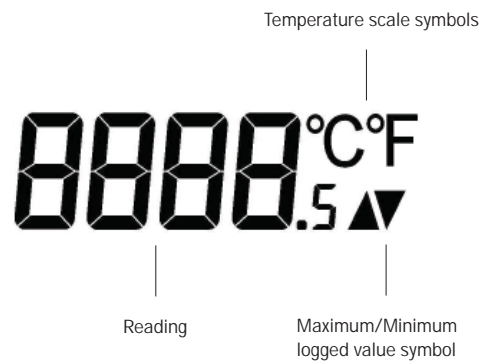
The latest version of the control software may be downloaded free of charge from **[www.omega.com](http://www.omega.com)**

# OM-EL-USB-TC-LCD

## Thermocouple Data Logger with LCD

### DISPLAY AND STATUS FUNCTIONS

The OM-EL-USB-TC-LCD features a high contrast LCD and two LEDs. The LCD shows logged temperature values using seven segment numbers, along with symbols. The LCD can also show information regarding the logging status.



Three different functions are available on the display – most recent logged temperature, maximum logged temperature and minimum logged temperature. The push button is used to cycle through the functions. In addition, logging and alarm status are shown using two high intensity LEDs.

### LCD INDICATION

Display	Logger Status	Explanation
d5	Delayed Start	This is shown when the logger is set to start at a specific data and time*
P5	Push to Start	This is shown when the logger is setup for "Push to start" logging
109	Logging	This is shown when the logger is running in "LCD off" mode, and the button is pressed. The display clears again after three seconds
- - -	Stopped	If the logger has not been set to log and the button is pressed, three dashes are displayed for three seconds

\* If the logger is set to "LCD off" or "LCD on for 30 seconds" mode, then this will only be shown after the button is pressed. Otherwise the display will remain blank.

# OM-EL-USB-TC-LCD

## Thermocouple Data Logger with LCD

### LED FLASHING MODES

OM-EL-USB-TC-LCD features two LEDs that indicate the logging, battery and alarm status:

- The first LED flashes red (R) to indicate that the OM-EL-USB-TC-LCD is in an alarm condition. It will flash when the logged temperature has exceeded a Low or High alarm level.
- The second LED flashes green (G) to indicate that the OM-EL-USB-TC-LCD is not in an alarm condition.

Hold is enabled by default, which forces the logger to continue flashing the red LED after an alarm, even when the temperature has returned to normal. This feature ensures that the user is notified that an alarm level has been exceeded, without the need to download the data from the logger.

Hold can be turned off via the control software. The red LED will then only flash while the logger is in an alarm condition. When the temperature returns to normal, the green LED will flash.

Additional LED modes are explained below:

		<b>Green single flash (10 seconds)</b> The data logger is currently logging. No alarm.
		<b>Green single flash (20 seconds)</b> The data logger is currently logging. No alarm. However, the battery is low and should be replaced before logging important data.
		<b>Green single flash (30 seconds)</b> The data logger is not currently logging, but is primed to start at a later date and time (delayed start).
		<b>Green double flash (20 seconds)</b> The data logger is full and has stopped logging. No alarm.
		<b>Red single flash (10 seconds)</b> The data logger is currently logging. Low alarm.
		<b>Red single flash (20 seconds)</b> The data logger is currently logging. Low alarm. However, the battery is low and should be replaced before logging important data.
		<b>Red double flash (10 seconds)</b> The data logger is currently logging. High alarm.
		<b>Red double flash (20 seconds)</b> The data logger is currently logging. High alarm. However, the battery is low and should be replaced before logging important data.
		<b>Red/Green single flash (20 seconds)</b> The data logger is full and has stopped logging. Alarm (high, low or both).
		<b>No LEDs flash</b> The data logger is stopped, the battery is empty or there is no battery fitted.

# OM-EL-USB-TC-LCD

## Thermocouple Data Logger with LCD

### DIMENSIONS

All dimensions in mm (inches)



### BATTERY REPLACEMENT

We recommend that you replace the battery every 6 months, or prior to logging critical data.

The OM-EL-USB-TC-LCD does not lose its stored readings when the battery is discharged or when the battery is replaced; however, the data logging process will be stopped and cannot be re-started until the battery has been replaced and the logged data has been downloaded to a PC.

The battery is 'press fit' and is not fitted with solder tags. Before replacing the battery, remove the OM-EL-USB-TC-LCD from the PC.

#### **Note:**

Leaving the OM-EL-USB-TC-LCD plugged into the USB port for longer than necessary will cause some of the battery capacity to be lost.

### WARNING

Handle lithium batteries carefully, observe warnings on battery casing. Dispose of in accordance with local regulations.



## 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's 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 malfunctions, 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 having been 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 in which wear is not warranted, include but are 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 the company 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. Purchase Order 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. Purchase Order 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.

OMEGA is a registered trademark of OMEGA ENGINEERING, INC.

© Copyright 2004 OMEGA ENGINEERING, INC. All rights reserved. This document may not be copied, photocopied, reproduced, translated, or reduced to any electronic medium or machine-readable form, in whole or in part, without the prior written consent of OMEGA ENGINEERING, INC.



# Where Do I Find Everything I Need for Process Measurement and Control? **OMEGA...Of Course!** *Shop online at [omega.com](http://omega.com)*

## **TEMPERATURE**

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

## **PRESSURE, STRAIN AND FORCE**

- ☑ Transducers & Strain Gages
- ☑ Load Cells & Pressure Gages
- ☑ 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