

# EL-USB-TC-LCD

Thermocouple Data Logger with LCD Display and USB Interface

This standalone data logger measures and stores over 32,000 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 logger and view downloaded data by plugging the module into a PC's USB port and using the supplied software. 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 1 year.

## FEATURES

- -200 to +1300°C (-328 to +2372°F) Measurement Range (K-type)
- -100 to +900°C (-148 to +1652°F) Measurement Range (J-type)
- -200 to +400°C (-328 to 752°F) Measurement Range (T-type)
- High contrast LCD, with four digit temperature display
- USB Interface for Set-up and Data Download
- 2 User-Programmable Alarm Thresholds
- Bright Red and Green LED Indication
- Immediate, delayed and push-to-start logging
- Supplied with basic K-type thermocouple rated from 0 to 300°C (32 to 446°F)
- Supplied complete with replaceable internal lithium battery and Windows control software



## WINDOWS CONTROL SOFTWARE

Easy to install and use, the control software runs under Windows 2000, XP (Home and Professional Editions) and Vista (32-bit). It allows the user to set up and download data from any EL-USB product. The latest version of the control software may be downloaded from [www.lascarelectronics.com](http://www.lascarelectronics.com)

## DISPLAY FUNCTIONS

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.

## DATA LOGGER SETUP VARIABLES

- 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)

## ORDERING INFORMATION

<b>Standard Data Logger</b> (Data Logger, Software on CD and Battery)	Stock Number <b>EL-USB-TC-LCD</b>
<b>Replacement Battery</b>	<b>BAT 3V6</b>

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## SPECIFICATIONS

Specification	Min.	Typ.	Max.	Unit
Probe Measurement range (K-type)	-200 (-328)		+1300 (2372)	°C (°F)
Probe Measurement range (J-type)	-100 (-148)		+900 (1652)	°C (°F)
Probe Measurement range (T-type)	-200 (-328)		+400 (752)	°C (°F)
Operating temperature range *	-10 (12)		+40 (104)	°C (°F)
Resolution (Internal and displayed)		0.5 (1)		°C (°F)
Accuracy (overall error) **		±1 (2)		°C (°F)
Logging rate	every 1s		every 12hr	-
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.

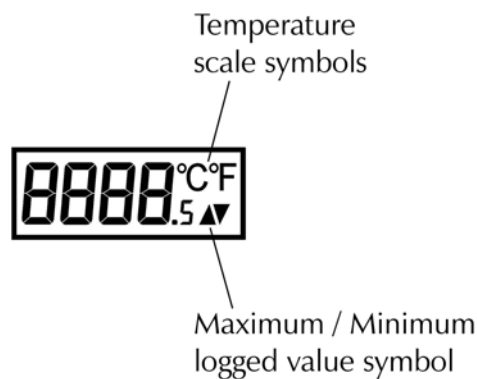
\*\* Quoted accuracy is for the data logger only and excludes the thermocouple probe. Thermocouple error should also be taken into consideration.

\*\*\* @ 25°C, 1m logging rate and display off. Varies depending on sample rate, ambient temperature and use of LCD display.

## LED AND LCD INDICATORS

The 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.



LCD status indicators:

Display	Logger status	Explanation
	Delayed Start	This is shown when the logger is set to start at a specific date and time.*
	Push to Start	This is shown when the logger is setup for 'push to start' logging.
	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.

button is pressed. Otherwise the display will remain blank.

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06/2009 N.J-H Applies to EL-USB-TC-LCD

## LED flashing modes:

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 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 EL-USB-TC-LCD is not in an alarm condition.

Latching 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.

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

Additional LED modes are explained below:

R G



**Green LED flashes once every 30 seconds**

- The data logger is not currently logging, but is primed to start at a later date and time.



**Green LED flashes once every 10 seconds**

- The most recently logged temperature is between the Low alarm and high alarm levels.



**Red LED flashes once every 10 seconds**

- The most recently logged temperature is equal to or lower than the low alarm level.

NB: If latching is enabled, then the alarm condition may have been triggered by a previous event.



**Red LED flashes twice every 10 seconds**

- The most recently logged temperature is equal to or higher than the high alarm level.

NB: If latching is enabled, then the alarm condition may have been triggered by a previous event.



**Green LED flashes once every 20 seconds**

- The battery is low and the most recently logged temperature is between the Low alarm and high alarm levels.



**Red LED flashes once every 20 seconds**

- The battery is low and the most recently logged temperature is equal to or lower than the low alarm level.

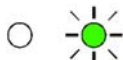
NB: If latching is enabled, then the alarm condition may have been triggered by a previous event.



**Red LED flashes twice every 20 seconds**

- The battery is low and the most recently logged temperature is equal to or higher than the high alarm level.

NB: If latching is enabled, then the alarm condition may have been triggered by a previous event



**Green LED flashes twice every 20 seconds**

- The logger is full and the most recently logged temperature is between the Low alarm and high alarm levels.



**Red and Green LEDs flash alternately every 20 seconds**

- The logger is full and a stored value is equal to or exceeds the low or high alarm level.

NB: This state is only possible if latching is enabled.



**No LEDs flash**

- The logger is not being used.

Or

- The logger was logging, but has now shut down due to a flat battery (voltage has dropped below 2.8V). Plug the data logger into the PC and run the control software to find out which condition applies.

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H Applies to EL-USB-TC-LCD

**DIMENSIONS** All Dimensions in mm

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