EL-USB-TC-LCD Thermocouple Data Logger

The EL-USB-TC-LCD 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. 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.

Features

- -200 to +1300°C Measurement Range (K-type)
- -100 to +900°C Measurement Range (J-type)
- -200 to +400°C 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
- Replaceable Internal Lithium Battery
- Supplied with basic K-type thermocouple rated from 0 to 300°C (32 to 446°F)

Programmable Elements

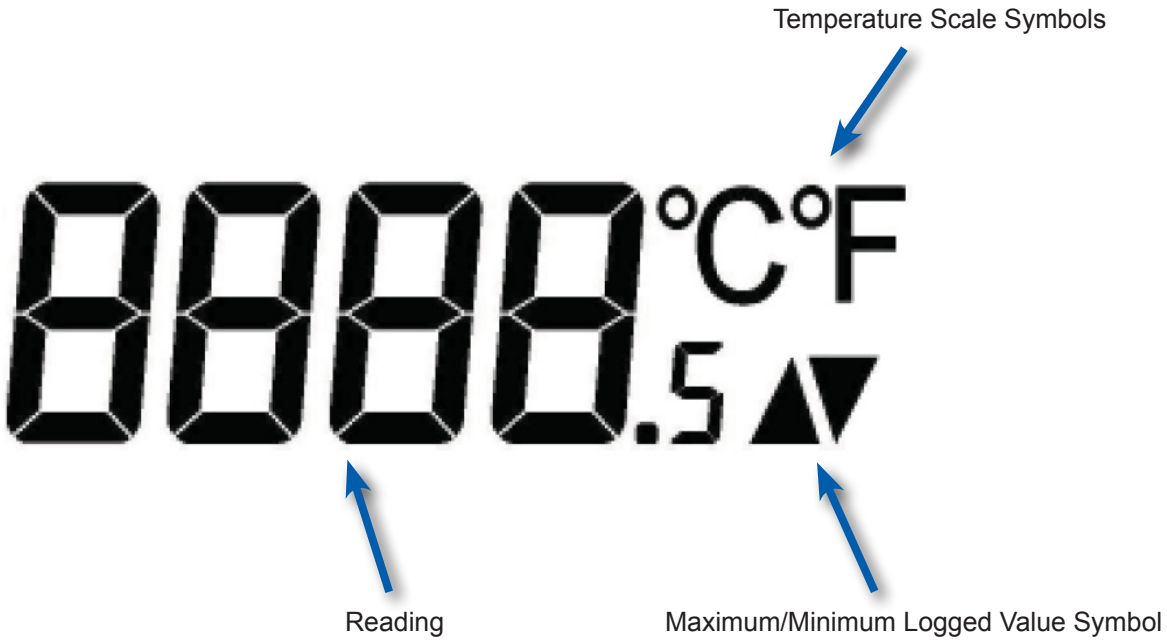
- Logger Name
- °C, °F
- Logging Rate (1s, 10s, 1m, 5m, 30m, 1hr, 6hr, 12hr)
- High and Low Alarms
- Immediate, delayed and push-to-start logging
- Display off, on for 30 seconds after button press , or permanently on
- Data rollover (Allows unlimited logging periods by overwriting the oldest data when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

Record Times

Sampling Interval	Record Times
1 sample every second	9 hours
1 sample every 10 seconds	90 hours
1 sample every minute	22 days
1 sample every 5 minutes	112 days
1 sample every 30 minutes	22 months
1 sample every hour	> 2 years
1 sample every 6 hours	> 2 years
1 sample every 12 hours	> 2 years

LCD Display

The LCD display on the EL-USB-TC-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 (next page).

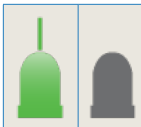
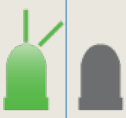
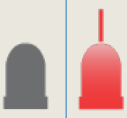
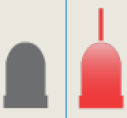
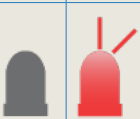
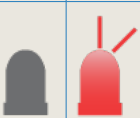
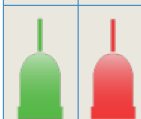
Display	Logger Status	Explanation
dS	Delayed Start	This is shown when the logger is set to start at a specific data and time. If the logger is set to “LCD off” or “LCD on for 30 seconds” mode, then this will only be shown after the button is pressed. Otherwise the display will remain blank.
PS	Push to Start	This is shown when the logger is setup for “Push to start” logging.
log	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.

LED Flashing Modes

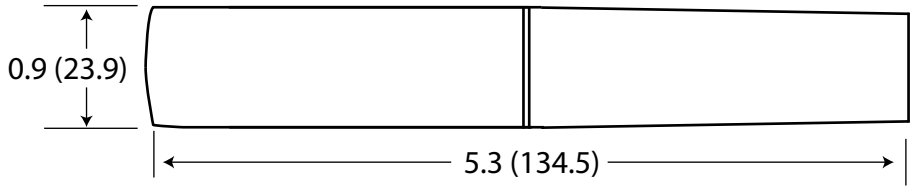
The EL-USB-TC-LCD features two LEDs that indicate the logging, battery and alarm status:

- The first LED flashes red (R) to indicate that the EL-USB-TC-LCD is in an alarm condition. It will fl ash 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.

“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 whilst the logger is in an alarm condition. When the temperature returns to normal, the green LED will flash.

	**Green single flash (10 seconds)** The data logger is currently logging. No alarm.
	**Green single flash (20 seconds)** The data logger is currently logging. No alarm. However, the battery is low and should be replaced before logging important data.
	**Green single flash (30 seconds)** The data logger is not currently logging, but is primed to start at a later date and time (de-layed start).
	**Green double flash (20 seconds)** The data logger is full and has stopped log-ging. No alarm.
	**Red single flash (10 seconds)** The data logger is currently logging. Low alarm.
	**Red single flash (20 seconds)** The data logger is currently logging. Low alarm. However, the battery is low and should be replaced before logging important data.
	**Red double flash (10 seconds)** The data logger is currently logging. High alarm.
	**Red double flash (20 seconds)** The data logger is currently logging. High alarm. However, the battery is low and should be replaced before logging important data.
	**Red/Green single flash (20 seconds)** The data logger is full and has stopped log-ging. Alarm (high, low or both).
	**No LEDs Flash** The data logger is stopped, the battery is dead, or there is no battery.

Dimensions



Dimensions shown are inches (mm)

Specifications

Specification	Minimum	Typical	Maximum	Unit
Measurement range (K-type)	-200 (-328)		+1300 (2372)	°C (°F)
Measurement range (J-type)	-100 (-148)		+900 (1652)	°C (°F)
Measurement range (T-type)	-200 (-328)		+400 (752)	°C (°F)
Resolution (internal and displayed)		0.5 (1)		°C (°F)
Accuracy (logger error)		± 1 (2)**		°C (°F)
Logging Rate	every 1s		every 12hr	-
Memory Capacity		32,000		samples
Operating Temperature Range*	-10 (14)		+40 (104)	°C (°F)
Battery Life***		6		Month

* Operating temperature applies to the data logger module only.
** Quoted accuracy is for the data logger only and excludes the thermocouple probe.
*** @ 25°C and 1m logging rate and display off

EL-USB-TC-LCD Ordering Information

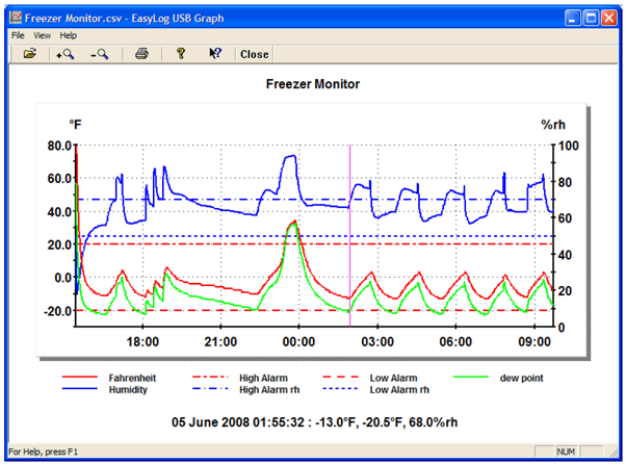
Description	Order Number
Thermocouple Data Logger with LCD Display Includes EL-USB-TC-LCD data logger, 1.5m K-type Thermocouple, software on CD, and battery.	**EL-USB-TC-LCD**
Battery Replacement battery.	**BAT 3V6**

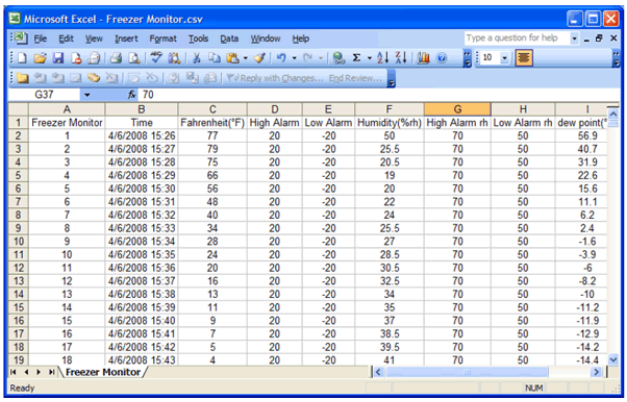
Easy to Program and Deploy

Getting an EasyLogger product ready to acquire data is simple:

1. Remove the protective USB cover.
2. Plug the instrument into any convenient USB port (image 1).
3. Program the data logger with the provided EasyLog software (image 2):
   - Give the logger a unique name (convenient when deploying multiple units).
   - Select the required sample rate.
   - Select high and/or low alarm thresholds.
   - Select the specific date and time to begin logging.

Now remove the data logger from the USB port, replace the USB cover, and deploy the instrument wherever you need it.





	A	B	C	D	E	F	G	H	I
1	Freezer Monitor	Time	Fahrenheit(°F)	High Alarm	Low Alarm	Humidity(%rh)	High Alarm rh	Low Alarm rh	dew point(°
2	1	4/6/2008 15:26	77	20	-20	50	70	50	56.9
3	2	4/6/2008 15:27	79	20	-20	25.5	70	50	40.7
4	3	4/6/2008 15:28	75	20	-20	20.5	70	50	31.9
5	4	4/6/2008 15:29	66	20	-20	19	70	50	22.6
6	5	4/6/2008 15:30	56	20	-20	20	70	50	15.6
7	6	4/6/2008 15:31	48	20	-20	22	70	50	11.1
8	7	4/6/2008 15:32	40	20	-20	24	70	50	6.2
9	8	4/6/2008 15:33	34	20	-20	25.5	70	50	2.4
10	9	4/6/2008 15:34	28	20	-20	27	70	50	-1.6
11	10	4/6/2008 15:35	24	20	-20	28.5	70	50	-3.9
12	11	4/6/2008 15:36	20	20	-20	30.5	70	50	-6
13	12	4/6/2008 15:37	16	20	-20	32.5	70	50	-8.2
14	13	4/6/2008 15:38	13	20	-20	34	70	50	-10
15	14	4/6/2008 15:39	11	20	-20	35	70	50	-11.2
16	15	4/6/2008 15:40	9	20	-20	37	70	50	-11.9
17	16	4/6/2008 15:41	7	20	-20	38.5	70	50	-12.9
18	17	4/6/2008 15:42	5	20	-20	39.5	70	50	-14.2
19	18	4/6/2008 15:43	4	20	-20	41	70	50	-14.4

Easy to Upload and Analyze Data

Whether you want to review stored data using the supplied application or using Microsoft Excel, getting meaningful results from recorded data is fast and easy:

1. Remove the protective USB cover.
2. Plug the instrument back into the PC's USB port.
3. Use EasyLog software to stop recording, access the instrument's stored data, and save it to a file that you name on the PC, all in one easy operation. The file format is Excel-compatible.
4. Immediately EasyLog's Graph utility is enabled to display all the stored data in one compressed view.
5. A cursor allows you to determine signal magnitude and time and date of acquisition for any value, and a magnifier utility allows you to zoom in for a closer look over any range – Easy and fast.
6. For more custom analysis and report generation, simply import the stored data file to Microsoft Excel for virtually unlimited flexibility in how you view and interpret your results.

EL-USB Data Logger Series Overview

EasyLog Products for Any Application

From temperature and humidity to carbon monoxide trending, there's an EasyLog data logger that's right for you. Click on "Jump" to go to the product's web page.

Measurement		Model EL-USB												
Function	Range	-1	-1-RCG	-1-PRO	-2	-2+	-2-LCD	-2-LCD+	-3	-4	-5	-TC	-TC-LCD	-CO
Temperature	-35 to +80°C (-31 to +176°F)	Jump												
Temperature	-20 to +60°C (-4 to +140°F)		Jump											
High Temperature	-40 to +125°C (-40 to +257°F)			Jump										
Humidity, temperature, dew point	0 to 100% RH -35 to +80°C (-31 to +176°F)				Jump	Jump	Jump	Jump						
Voltage	0 to 30 VDC								Jump					
Process current	4 to 20 mA									Jump				
Event, State, Count	3-28 VDC										Jump			
Thermocouple (no display)	-130 to +900°C (J) -200 to +1300°C (K) -200 to +350°C (T)											Jump		
Thermocouple (with display)	-130 to +900°C (J) -200 to +1300°C (K) -200 to +350°C (T)												Jump	
Carbon monoxide	0 to 1000 ppm													Jump

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Data Acquisition Product Links

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Data Acquisition | Data Logger | Chart Recorder | Thermocouple | Oscilloscope