EL-USB-TC

Thermocouple Data Logger with USB Interface

ORDERING INFORMATION

Standard Data Logger (Data Logger, Measurement Leads, Software on CD and Battery)	EL-USB-TC
Replacement Battery	BAT 3V6 1/2AA
K-type Probe	K-TYPE PROBE 1M5

FEATURES

- -200 to +1350ºC (-328 to +2462ºF) K-type measurement range
- -200 to +1190ºC (-328 to +2174ºF) J-type measurement range
- -200 to +390ºC (-328 to +734ºF) T-type measurement range
- USB interface for set-up and data download
- User-programmable alarm thresholds
- Status indication via red and green LEDs
- Supplied with replaceable internal lithium battery, Windows control software and basic K-type thermocouple (0 to 400°C/32 to 752°F)

This standalone data logger measures and stores up to 32,510 temperature readings from either a J, K 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 thermocouple type, logging rate, start-time, logging mode, 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 data logger is supplied complete with a long-life lithium battery, which will last for approximately 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***		Month

* 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 alarm LEDs.

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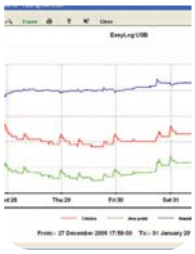
WINDOWS CONTROL SOFTWARE

Lascar'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, 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
- Start date and start time
- Range of logging modes available

The latest version of the control software may be downloaded free of charge from **www.lascarelectronics.com**



YOUR THERMOCOUPLE

The probe supplied with your EL-USB-TC is a K-type thermocouple designed to measure temperatures from 0 to 400ºC (32 to 752ºF).

The EL-USB-TC is designed to work with J, K and T-type thermocouples fitted with a standard mini thermocouple connector; this makes your data logger compatible with a wide range of available thermocouples. Your application will determine which probe is most suitable based on temperature range, accuracy, form and price. For information on a wide variety of alternative thermocouples, please contact the following companies:

UK

RS Components *(www.rs-components.com)*
Farnell *(www.farnell.com)*
Helium Projects *(www.helium.uk.net)*
TC Ltd *(www.tc.co.uk)*

USA

Omega *(www.omega.com)*
Allied Electronics *(www.alliedelec.com)*
Newark Electronics *(www.newark.com)*

Type	Temperature Range °C	Temperature Range °F	Connector Coding ANSI	Connector Coding IEC
K	-200 to +1350	-328 to +2462		
J	-200 to +1190	-328 to +2174		
T	-200 to +390	-328 to +734		

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LED FLASHING MODES

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

- The first LED flashes red to indicate that the EL-USB-TC 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 to indicate that the EL-USB-TC 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.

Additional LED modes are explained below:

	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 (delayed start).
	Green double flash (20 seconds) The data logger is full and has stopped logging. 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 logging. Alarm (high, low or both).
	No LEDs flash The data logger is stopped, the battery is empty or there is no battery fitted.

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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 EL-USB-TC 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.

Check with your supplier that the battery you are ordering is 'press fit' and is not fitted with solder tags. Before replacing the battery, remove the EL-USB-TC from the PC.

Note:
Leaving the EL-USB-TC 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.

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THE EASYLOG USB RANGE

Each EL-USB data logger features the direct-to-USB connection and easy-to-use functionality that the range is known for. The range comprises 14 data loggers as detailed in the following table:

Part No	Function	Range	Accuracy (overall error)		Readings	Battery	Battery Life*
			Typ.	Max.			
EL-USB-1	Temperature	-35 to +80°C (-31 to +176°F)	±1°C (±2°F)		16,382	3.6V ½AA	1 Year
EL-USB-1-PRO	High Temperature	-40 to +125°C (-40 to +257°F)	±0.2°C (±0.4°F)	±0.5°C (±1°F)	32,510	3.6V ⅔AA	3 years
EL-USB-1-RCG	Temperature with rechargeable battery	-20 to +60°C (-4 to +140°F)	±1°C (±2°F)		32,510	Lithium Ion	1 month (rechargeable)
EL-USB-2	Temperature, humidity & dew point	-35 to +80°C (-31 to +176°F) 0 to 100%RH	±0.5°C (±1°F) ±3%RH	±2°C (±4°F) ±6.0%RH	16,382	3.6V ½AA	1 year
EL-USB-2+	Increased accuracy temperature, humidity & dew point	-35 to +80°C (-31 to +176°F) 0 to 100%RH	±0.3°C (±0.6°F) ±2.0%RH	±1.5°C (±3°F) ±4.0%RH	16,382	3.6V ½AA	1 year
EL-USB-2-LCD	Temperature, humidity & dew point with LCD	-35 to +80°C (-31 to +176°F) 0 to 100%RH	±0.5°C (±1°F) ±3.0%RH	±2°C (±4°F) ±6.0%RH	16,379	3.6V ½AA	1 year
EL-USB-2-LCD+	Increased accuracy temperature, humidity & dew point with LCD	-35 to +80°C (-31 to +176°F) 0 to 100%RH	±0.3°C (±0.6°F) ±2.0%RH	±1.5°C (±3°F) ±4.0%RH	16,379	3.6V ½AA	1 year
EL-USB-3	Voltage	0 to 30V d.c.	±1%		32,510	3.6V ½AA	1 year
EL-USB-4	Current loop	4 to 20mA	±1%		32,510	3.6V ½AA	1 year
EL-USB-5	Counter, Event & State	N/A		±3 secs/24 hrs	32,510	3.6V ½AA	1 year
EL-USB-TC	Thermocouple (J, K and T-type) K-type probe included	-200 to +1350°C (-328 to +2462°F) (K-type) -200 to +1190°C (-328 to +2174°F) (J-type) -200 to +390°C (-328 to +734°F) (T-type)	±1°C (±2°F)		32,510	3.6V ½AA	6 months
EL-USB-TC-LCD	Thermocouple with LCD (J, K and T-type) K-type probe included	-200 to +1350°C (-328 to +2462°F) (K-type) -200 to +1190°C (-328 to +2174°F) (J-type) -200 to +390°C (-328 to +734°F) (T-type)	±1°C (±2°F)		32,510	3.6V ½AA	6 months
EL-USB-CO	Carbon monoxide	0 to 1000ppm **NOT A LIFE SAVING DEVICE**	±6ppm		32,510	3.6V ½AA	3 months
EL-USB-CO300	Carbon monoxide	0 to 300ppm **NOT A LIFE SAVING DEVICE**	±4ppm		32,510	3.6V ½AA	3 months
EL-USB-LITE	Low cost temperature	-10°C to +50°C (+14 to +122°F)	±1°C (±2°F)		4,080	CR1620 Lithium coin cell	1 month
EL-USB-RT	Real-time temperature & humidity monitor	-20 to +70°C (-4 to +158°F)	±1.5°C (±3°F) ±4.5%RH		7 days	N/A	N/A

*Depending on logging rate, ambient temperature, and use of alarm LED

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