

# EL-USB-ACT

## AC and DC Millivolt Data Logger with Current Clamp Input

### ORDERING INFORMATION

Standard Data Logger  
(Data Logger, Software  
on CD, Batteries, Mini-B  
to A USB cable)

EL-USB-ACT

### FEATURES

- Compatible with a.c. and d.c. current clamps
- Energy monitoring mode (to calculate power, cumulative energy and cumulative cost)
- a.c. and d.c. millivolt measurement mode
- Logging rates between 1s and 12hr
- Stores 127,232 readings
- 4mm banana plug inputs (19mm spacing)
- USB interface for set-up and data download
- User-programmable alarm thresholds
- High contrast LCD, with 4 digit current, power, cumulative energy and cumulative cost display functions, battery status, alarm indicators and measurement units
- Immediate, delayed and push-to-start logging
- Supplied with user replaceable AA batteries (2) and Windows control software



**The EL-USB-ACT (and attached current clamp) should only be used by a competent engineer, and usage must comply with all relevant Local & International Health & Safety Regulations & Guidelines.**

When used with a current clamp, this standalone data logger measures and stores up to 127,232 a.c. and d.c. current readings over a 0 to 1000 amp d.c. measurement range (0 to 723 amps for a.c.). In 'energy monitoring' mode, this data is converted into power, energy (using a user defined voltage value) and cost (using a user supplied energy unit cost). The millivolt measurement mode allows for direct measurement of voltage, up to 1V d.c. (700mV a.c.).

The user can easily set up the logger and view downloaded data by plugging the data logger into a PC's USB port and using the supplied software. The software has provision for a clamp scaling factor (the clamp input-output ratio of amps to millivolts). Stored data can then be graphed, printed and exported to other applications. The high contrast LCD can show a variety of current, power, energy and cost information. At the touch of a button, the user can cycle between the most recent, maximum and minimum measurement values. The data logger is fitted with 2 replaceable AA batteries, which can allow logging for up to 6 months.

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Specifications	Minimum	Typical	Maximum	Unit
Measurement range (a.c.)	0		723	mV a.c. RMS
Equivalent clamp measurement range (a.c.)*	0		723	A a.c.
Accuracy (a.c.)		5		%
Frequency			500	Hz
Measurement range (d.c.)	0		1000	mV d.c.
Equivalent clamp measurement range (d.c.)*	0		1000	A d.c.
Accuracy (d.c.)		2		%
Measurement resolution		250		$\mu$ V
Equivalent clamp measurement resolution*		250		mA
Display resolution**	1			mA / mV
Logging rate (Current measurement)	Every 1s		Every 12hr	-
Logging rate (Energy measurement)	Every 1s		Every 10s	-
Operating temperature range	-10 (-31)		+50 (176)	$^{\circ}$ C ( $^{\circ}$ F)
Battery life***			6	Months

\* The standard clamp output ratio is 1mV per amp

\*\* Display resolution will change, depending on the number of digits in use. The display will auto range to make the best use of available space

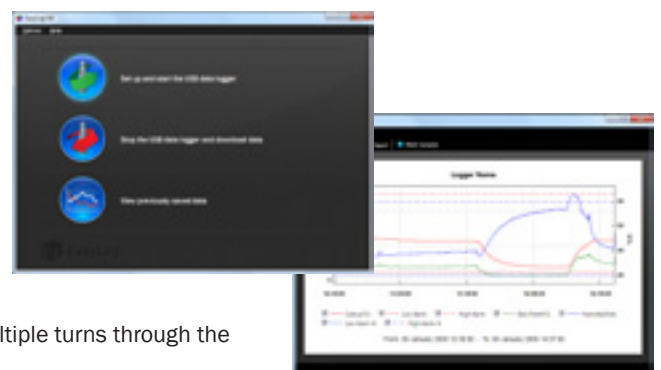
\*\*\* Depending on sample rate, ambient temperature and use of LCD

### EL-WIN-USB (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 (up to 16 characters)
- Measurement mode (current, energy, power or voltage)
- Logging rate (1s, 10s, 10s average 1m, 5m, 30m, 1hr, 6hr, 12hr).  
Energy monitoring is limited to 1s and 10s average.
- Signal type (a.c. or d.c.)
- Supply voltage (energy monitoring only)
- Cost per kWh (energy monitoring only)
- High and low alarm levels
- Scaling factor (when using a current clamp only, to accommodate multiple turns through the clamp or different mV/A ratios)
- 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.lascarelectronics.com](http://www.lascarelectronics.com)

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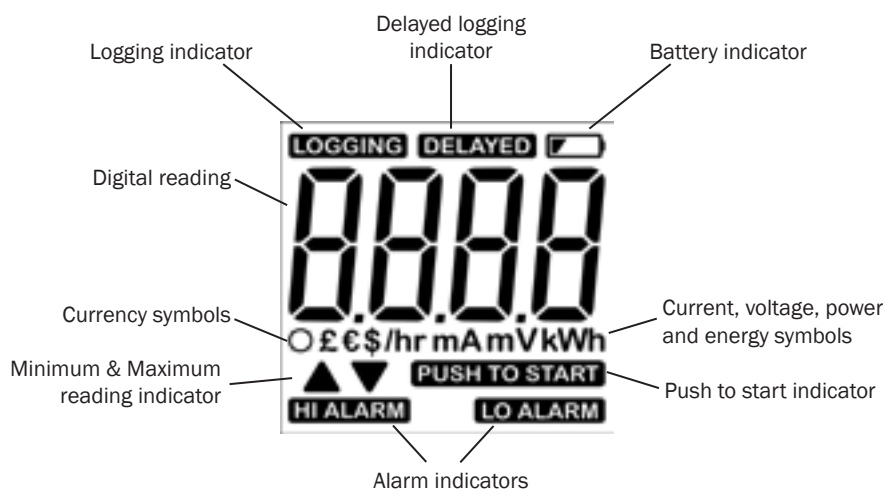
### DIMENSIONS

All dimensions in mm (inches)



### DISPLAY AND STATUS FUNCTIONS

The EL-USB-ACT features a high contrast LCD. The LCD shows logged values using seven segment numbers and corresponding symbols. The LCD also shows information regarding the logger status.



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The EL-USB-ACT has three different modes:

- In 'current mode', three different functions are available on the display – most recent logged current, maximum logged current and minimum logged current.
- In 'millivolt mode', three different functions are available on the display – most recent logged voltage, maximum logged voltage and minimum logged voltage
- In 'energy monitoring mode', five different functions are available on the display – most recent logged power, maximum logged power, minimum logged power, cumulative energy consumption and cumulative cost (only available if a cost per kWh is entered in the software during setup).

The push button is used to cycle through the functions in each mode.

### LCD INDICATION







All Modes:

Display	Logger Status	Explanation
	Delayed Start	This is shown when the logger is set to start at a specific data 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
	High alarm	This is shown when the input goes above a user specified value **
	Low alarm	This is shown when the input goes below a user specified value **
	Stopped	If the logger has not been set to log and the button is pressed, 'Stop' is 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.

\*\* Not available in 'energy monitoring' mode.

Current Mode:

Display	Explanation
	Latest stored 'current' reading
	Push button to view minimum stored 'current' reading
	Minimum stored 'current' reading
	Push button to view maximum stored 'current' reading
	Maximum stored 'current' reading
	Push button to view latest stored 'current' reading

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Energy Monitoring Mode:

Display	Explanation
186 kW	Latest stored power reading Push button to view minimum stored power reading
549 kW ▼	Minimum stored power reading Push button to view maximum stored power reading
1349 kW ▲	Maximum stored power reading Push button to view cumulative energy consumption
90.17 kWh	Cumulative energy consumption Push button to view cost per hour
2.13 € /hr	Cost per hour Push button to view cumulative cost
384 €	Cumulative cost Push button to view latest stored power reading

Millivolt Mode:

Display	Explanation
295 mV	Latest stored 'millivolt' reading Push button to view minimum stored 'millivolt' reading
81 mV ▼	Minimum stored 'millivolt' reading Push button to view maximum stored 'millivolt' reading
872 mV ▲	Maximum stored 'millivolt' reading Push button to view latest stored 'millivolt' reading

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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 of the following data loggers:

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-LCD	Temperature with LCD	-35 to +80 °C (-31 to +176 °F)	±0.5°C (±1°F)	±1.5°C (±3°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 ¾AA	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 <b>NOT A LIFE SAVING DEVICE</b>	±6ppm		32,510	3.6V ½AA	3 months
EL-USB-CO300	Carbon monoxide	0 to 300ppm <b>NOT A LIFE SAVING DEVICE</b>	±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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