

# EL-USB-2-LCD

Humidity, Temperature and Dew Point Data Logger with LCD Display

This standalone data logger measures and stores up to 16,379 relative humidity and 16,379 temperature readings over 0 to 100%RH and -35 to +80°C (-31 to +176°F) measurement ranges. 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. Relative humidity, temperature and dew point (the temperature at which water vapour present in the air begins to condense) data can then be graphed, printed and exported to other applications.

The high contrast LCD can show a variety of temperature and humidity information. At the touch of a button, the user can cycle between the current temperature and humidity, along with the maximum and minimum stored values for temperature and humidity.

The data logger is supplied complete with a long-life lithium battery, which can typically allow logging for up to 1 year.

## FEATURES

- 0 to +100%RH measurement range
- -35 to +80°C (-31 to +176°F) measurement range
- Dew point indication via Windows control software
- USB interface for set-up and data download
- User-programmable alarm thresholds for %RH & T
- Status indication via red and green LEDs
- High contrast LCD, with two and a half digit temperature and humidity display function
- Immediate, delayed and push-to-start logging
- 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

Six different functions are available, which can be cycled through using the built-in push button. The most recent logged value, maximum logged value and minimum logged value can be displayed separately for humidity and temperature. In addition, logging and alarm status is shown using two high intensity LEDs.

## DATA LOGGER SETUP VARIABLES

- Logger name
- °C, °F
- Logging rate (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

**Standard Data Logger**  
(Data Logger, Software on CD  
and Battery)

Stock Number  
**EL-USB-2-LCD**

**Replacement Battery**

**BAT 3V6**

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*Specifications liable to change without prior warning*

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## SPECIFICATIONS

Specification		Min	Typ	Max	Unit
Relative Humidity	Measurement range	0		100	%RH
	Repeatability (short term)		+0.1		%RH
	Accuracy (overall error)		+3.0*	+6.0	%RH
	Internal resolution		0.5		%RH
	Long term stability		0.5		%RH/Yr
Temperature	Measurement range	-35 (-31)		+80 (176)	°C (°F)
	Repeatability		+0.1 (0.2)		°C (°F)
	Accuracy (overall error)		+0.5 (1)	+2 (+4)	°C (°F)
	Internal resolution		0.5 (1)		°C (°F)
Dew Point	Accuracy (overall error)		+1.1 (+2)**		°C (°F)
Logging rate		every 10s		every 12hr	-
Operating temperature range †		-35 (-31)		+80 (176)	°C (°F)
1/2AA 3.6V Lithium Battery Life***			1		Year

\* This specifies the overall error in the logged readings for relative humidity measurements between 20 and 80%RH.

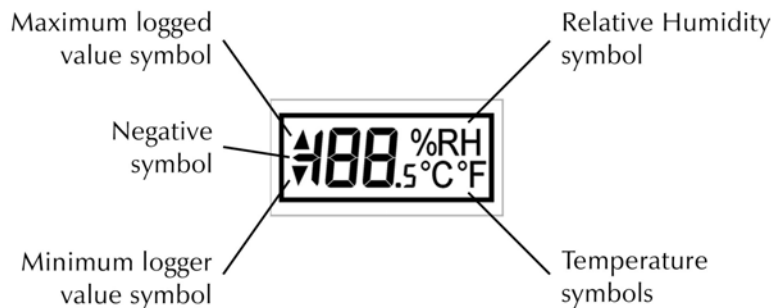
\*\* This specifies the overall error in the calculated dew point for relative humidity measurements between 40 and 100%RH at 25°C.

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





† At temperatures below -20°C (-4°F) the LCD will exhibit slower response times of approximately 10 seconds.

## LED AND LCD INDICATORS

The EL-USB-2-LCD features a high contrast LCD and two bi-colour LEDs. The LCD shows logged temperature and humidity values using seven segment numbers, along with annunciators. The LCD can also show information regarding the logging status.










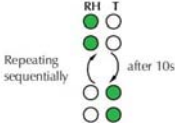

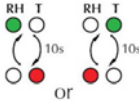
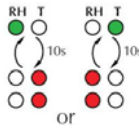
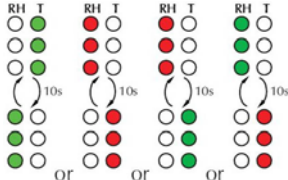

LCD status indicators:

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

\*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.

The number of flashes and colours indicate:

	(Single LED, Single Flash)	The channel is logging, no alarm
	(Single LED, Double flash)	Delayed start
	(Single LED, Triple flash)	Logger full, no alarm
	(Single LED, Single Flash)	The channel is logging, low alarm
	(Single LED, Double flash)	The channel is logging, high alarm
	(Single LED, Triple flash)	Logger full, alarm

LEDs	Meaning	Action
	<p><b>No LEDs flash</b></p> <ul style="list-style-type: none"> <li>- No logging started.</li> <li>or</li> <li>- Battery fitted but completely discharged.</li> <li>or</li> <li>- No battery fitted.</li> </ul> <p>Plug the data logger into the PC and run the control software to find out which condition applied.</p>	<p>Start logging.</p> <p>Replace battery.</p> <p>Fit battery, start logging.</p>
	<p><b>Alternating green double flash every 10 seconds</b></p> <ul style="list-style-type: none"> <li>- Logger configured for delayed start.</li> </ul>	<p>No action needed, logger will start at a later date and time.</p>
	<p><b>Alternating greens single flash every 10 seconds</b></p> <ul style="list-style-type: none"> <li>- Logger operating.</li> <li>- Last stored Humidity and Temperature readings within set alarm levels. (If hold is enabled, then a flashing Green LED indicates that no alarm condition has ever been logged).</li> </ul>	<p>None.</p>
	<p><b>Alternating between green and red single flash every 10 seconds</b></p> <ul style="list-style-type: none"> <li>- The green LED indicates the parameter that is within set alarm levels.</li> <li>- The red LED indicates the parameter for which the Low alarm level has been exceeded. (If hold is enabled, then the alarm condition may have been triggered at any point during the current logging session).</li> </ul>	
	<p><b>Alternating between single green and double red flash every 10 seconds</b></p> <ul style="list-style-type: none"> <li>- The green LED indicates the parameter that is within set alarm levels.</li> <li>- The red LED indicates the parameter for which the high alarm level has been exceeded. (If hold is enabled, then the alarm condition may have been triggered at any point during the current logging session).</li> </ul>	
	<p><b>Alternating between green or red triple flash every 10 seconds</b></p> <p><b>Warning :</b> Logger memory is full.</p> <p>In this condition, hold is automatically enabled, and a flashing Green LED indicates that no alarm condition has ever been logged. A Red LED indicates that an alarm condition has been logged.</p>	<p>Download Data.</p>
	<p><b>Simultaneous red single flash every 60 seconds</b></p> <p><b>Warning :</b> Battery is nearly discharged.</p> <p>No alarm conditions are indicated.</p> <p>Once the battery is exhausted, no LEDs will flash.</p>	<p>Fit new battery and download data.</p>



## CAUTION

Exposure of the internal sensor to chemical vapours such as those produced by some plastics and foamed materials may interfere with the internal sensor and cause inaccurate readings to be logged. In a clean environment, this will slowly rectify itself, therefore ensure that the logger is used in a ventilated area i.e. air exchange is allowed.

Exposure to extreme conditions or chemical vapours will require the following reconditioning procedure to bring the internal sensor back to calibration state. 80°C (176°F) at <5%RH for 36h (baking) followed by 20-30°C (70-90°F) at >74% RH for 48h (re-hydration).

High levels of pollutants may cause permanent damage to the internal sensor.

# VENTAS

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