Order code	Manufacturer code	Description
85-3411	n/a	n/a

Sales: 01206 751166
Sales@rapidelec.co.uk
Technical: 01206 835555
Tech@rapidelec.co.uk
Fax: 01206 751188
www.rapidonline.com

EL-USB-2

Humidity, Temperature and Dew Point USB Data Logger

This data logger measures and stores up to 16,382 relative humidity and 16,382 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 logging rate and start-time, and download the stored data by plugging the module straight into a PC's USB port and running the purpose designed software under Windows 98, 2000, XP and Vista (32-bit). Relative humidity, temperature and dew point (the temperature at which water vapor present in the air begins to condense) data can then be graphed, printed and exported to other applications. The data logger is supplied complete with a long-life lithium battery, which can typically allow logging for a year. Status indication is via flashing red and green LEDs. The logger is protected against ingress from water and dust to IP67 standard when the plastic cap and seal are fitted.

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
- Supplied with Replaceable Internal Lithium Battery and Windows Control Software
- Environmental Protection to IP67

WINDOWS CONTROL SOFTWARE

Easy to install and use, the control software runs under Windows 98, 2000, XP (Home and Professional Editions) and Vista (32-bit). It allows the user to set up and download any EL-USB-2. The latest version of the control software may be downloaded from *www.lascarelectronics.com*.

DATA LOGGER SET-UPS

- Logger Name
- °C, °F
- Logging Rate (10s, 1m, 5m, 30m, 1hr, 6hr, 12hr)
- High and Low Alarms for Humidity and Temperature
- Start Date and Start Time

ORDERING INFORMATION

	Stock Number
Standard Data Logger (Data Logger, Software on CD and Battery)	EL-USB-2
Replacement Battery	BAT 3V6

SPECIFICATIONS

Specification		Min.	Typ.	Max.	Unit
Relative Humidity	Measurement range	0		100	%RH
	Repeatability (short term)		+0.1		%RH
	Accuracy (overall error) (20-80%RH)		+3.0**		%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) (25°C, 40-100%RH)		+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

* Depending on sample rate, ambient temperature and use of alarm LEDs
** 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.

LASCAR ELECTRONICS LTD.
MODULE HOUSE,
WHITEPARISH,
WILTSHIRE SP5 2SJ,
UK
TEL: +44 (1794) 884567
FAX: +44 (1794) 884616
E-mail: sales@lascar.co.uk

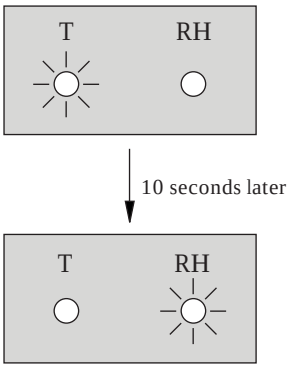
LASCAR ELECTRONICS INC.
3750 WEST 26th STREET,
ERIE,
PA 16506,
USA
TEL: +1 (814) 835 0621
FAX: +1 (814) 838 8141
E-mail: us-sales@lascarelectronics.com

LASCAR ELECTRONICS (HK) LIMITED
UNIT NOS. 6-8, 19/F FUTURA PLAZA,
111-113 HOW MING STREET,
KWUN TONG, KOWLOON,
HONG KONG
TEL: +852 2389 6502
FAX: +852 2389 6535
E- mail:purchasing@lascar.com.hk

LED FLASHING MODES

EL-USB-2 features 2 bi-colour LEDs, one LED represents temperature measurement, the other represents RH. Each is clearly marked on the logger. To save power, the status indication alternates between the two channels every 10 seconds. So first you will see the status of the temperature logging and 10 seconds later you will see the status of the RH logging and so on.

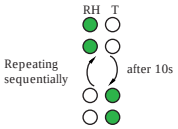
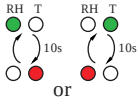
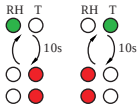
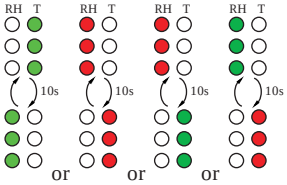
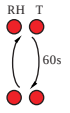
1.



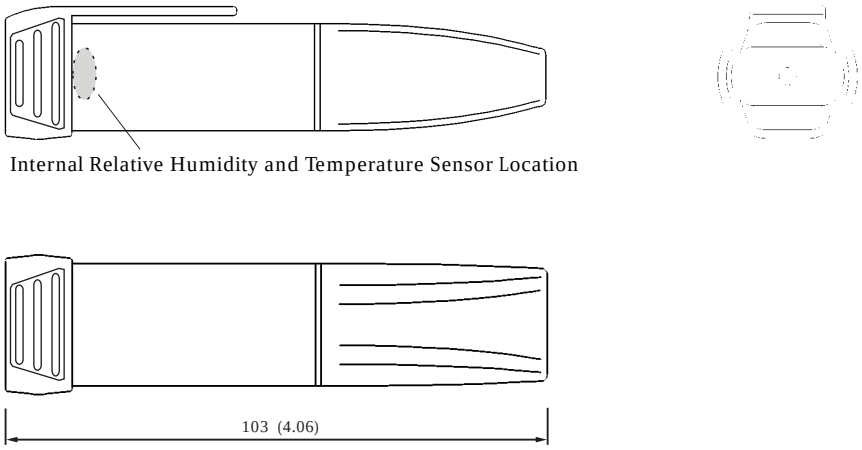
2. The number of flashes and colours indicate :

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

LED FLASHING MODES

LEDs	Meaning	Action
	<u>No LEDs flash</u> - No logging started. or - Battery fitted but completely discharged. or - No battery fitted. Plug the data logger into the PC and run the control software to find out which condition applies.	Start logging. Replace battery. Fit battery, start logging.
	<u>Alternating green double flash every 10 seconds</u> - Logger configured for delayed start.	No action needed, logger will start at a later date and time.
	<u>Alternating green single flash every 10 seconds</u> - Logger operating. - 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)	None
	<u>Alternating between green and red single flash every 10 seconds</u> - The green LED indicates the parameter that is within set alarm levels. - 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 a while ago)	
	<u>Alternating between green single and red double flash every 10 seconds</u> - The green LED indicates the parameter that is within set alarm levels. - 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 a while ago)	
	<u>Alternating between green or red triple flash every 10 seconds</u> Warning : Logger memory is full. In this condition, hold is automatically enabled, and a flashing Green LED indicates that no alarm condition has ever been logged.	Download data.
	<u>Simultaneous red single flash every 60 seconds</u> Warning : Battery is nearly discharged. No alarm conditions are indicated. Once the battery is exhausted, no LEDs will flash.	Fit new battery and download data.

DIMENSIONS All dimensions in mm (inches)



BATTERY REPLACEMENT

We recommend that you replace the battery every 12 months, or prior to logging critical data.

The EL-USB-2 does not lose its stored readings when the battery is discharged or when the battery is replaced; the data logging process will however be stopped and cannot be re-started until the battery has been replaced and the logged data has been downloaded to PC.

Only use 3.6V 1/2AA lithium batteries. 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-2 from the PC.

Note:
Leaving the EL-USB-2 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.

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, therefore ensure that the logger is used in a ventilated area i.e. air exchange is allowed.

In a clean environment, this will slowly rectify itself. However, 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.