

EL-OEM-3

OEM Packaged

Voltage Data Logger

ORDERING INFORMATION

Standard Data Logger EL-OEM-3

(Data Logger only, EasyLog software available from www.lascarelectronics.com)

FEATURES

- PCB Mounted (2.54mm pitch, header sockets)
- 0-2.4 Volt d.c. Measurement Range
- Logging Rates between 1s and 12hr
- Stores 64,000 readings
- Data Rollover mode (Allows extended logging by overwriting the oldest data when the memory is full)
- USB interface for set-up and data download (USB connector not included on module. Module not designed to be permanently connected to USB)
- User-programmable alarm thresholds
- Nominal 3V supply voltage
- Immediate and delayed logging modes
- Free Windows control software available
- Complete integration is possible with the purchase of the USB interface protocol. Please contact Lascar Electronics for more information.



This component style data logger measures and stores up to 64,000 voltage readings over a 0 to 2.4V d.c. measurement range. It can be incorporated into new and existing products without the need to specifically develop a hardware and software platform.

The user can easily set up the logging rate and start time, and download the stored data by connecting the data logger to a PC's USB port and running the purpose designed software under Windows 2000, XP Vista and 7. The data can then be graphed, printed and exported to other applications. The USB protocol information can be purchased, to integrate the data logger into custom software.

Specifications	Minimum	Typical	Maximum	Unit
Measurement range	0		2.4	V (d.c.)
Internal resolution		2.4		mV
Accuracy (overall error)		±1		%
Logging rate	every 1s		every 12 hr	-
Supply voltage	2.75		3.6	V
Operating current*	0.01		3	mA
Operating temperature range	-40 (-40)		85 (185)	°C (°F)

* Minimum current consumption is during the sleep phase, Maximum is when a reading is being recorded. When the module is connected to a USB host, up to 15mA may be drawn.

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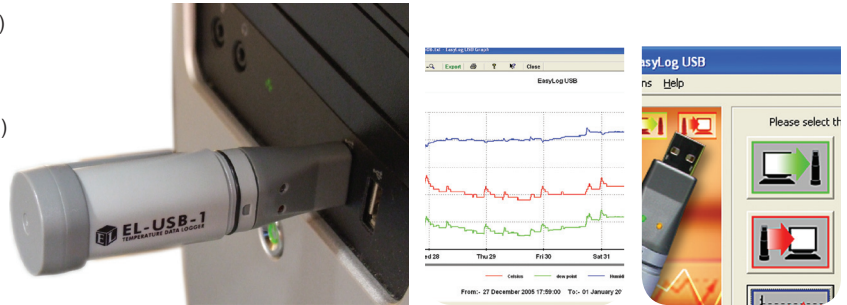
EL-WIN-USB (CONTROL SOFTWARE)

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.

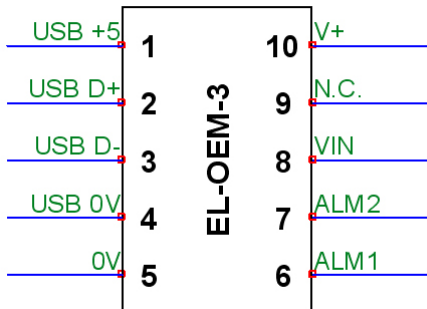
The software allows the following parameters to be configured:

- Logger name
- Logging rate (1s, 10s, 1m, 5m, 30m, 1hr, 6hr, 12hr)
- High and low alarms
- Data rollover (allows extended logging by overwriting the oldest data when the memory is full)
- Start date and start time

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



APPLICATION NOTES AND PIN FUNCTIONS



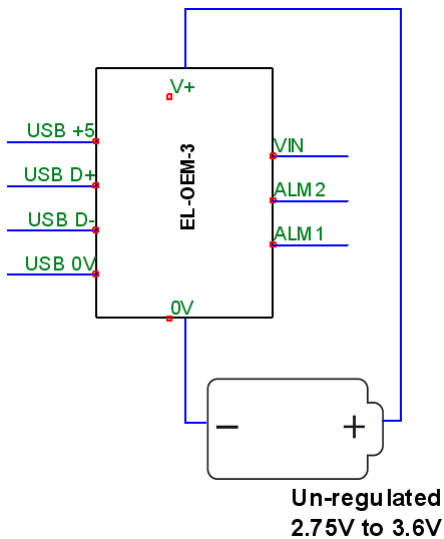
- | | |
|-----------|--|
| 1. USB +5 | +5V rail for USB interface |
| 2. USB D+ | Positive data line for USB interface |
| 3. USB D- | Negative data line for USB interface |
| 4. USB 0V | Ground rail for USB interface |
| 5. 0V | Module ground |
| 6. ALM1 | Logging status* |
| 7. ALM2 | Logging status* |
| 8. VIN | 0 - 2.4V d.c. signal input |
| 9. N.C. | Not Connected - do not connect to this pin |
| 10. V+ | Supply voltage input, suitable for voltages between 2.75V and 3.6V |

*See the alarm section

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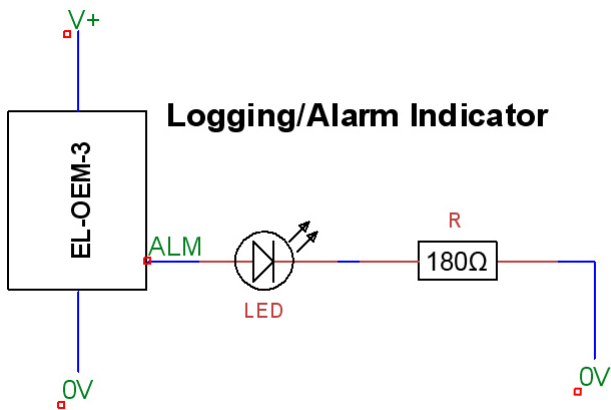
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POWER SUPPLY OPTIONS



The logger is suitable for voltages between 2.75V and 3.6V. This can either be from a battery or using an external voltage regulator. If the voltage drops below 2.75V, the logger will reset to a stopped condition (i.e. in the event of a depleted battery).

ALARM/INDICATOR OUTPUT



Maximum output current 10mA.

ALM1 shows logging status when the hardware isn't in an alarm condition.

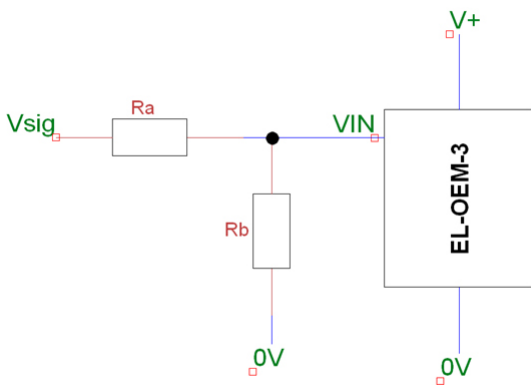
ALM2 shows logging status when the hardware is in an alarm condition.

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VOLTAGE INPUT

D.C. Voltage



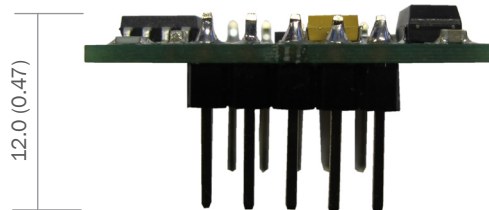
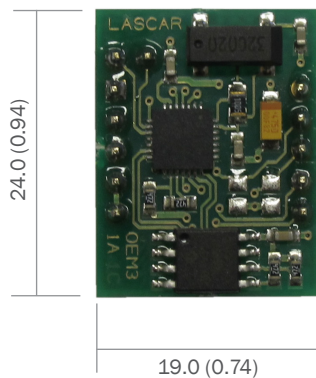
D.C. voltages of less than 2.4V can be measured using VIN directly. Voltages greater than 2.4V require rescaling, as per the table below:

Required F.S.R.	Ra	Rb
24V	910K	100k
240V	1M	10k

V_{sig} can be connected to the positive supply rail and used to record the supply voltage.

DIMENSIONS

All dimensions in mm (inches)



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ALARM OUTPUT MODES

EL-OEM-3 features a two alarm outputs - ALM 1 and ALM 2.

By default hold is disabled. In this mode the ALM 1 will no longer continue to pulse after the logged reading has returned to normal from an alarm condition.

Hold can be turned on via the control software. In this mode ALM 1, that indicates an alarm condition, will continue to pulse even after the logged reading 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.

	ALM 2	ALM 2 single pulse (10 seconds) The data logger is currently logging. No alarm.
	ALM 2	ALM 2 single pulse (20 seconds) The data logger is currently logging. No alarm. However, the battery is low and should be replaced before logging important data.
	ALM 2	ALM 2 single pulse (30 seconds) The data logger is not currently logging, but is primed to start at a later date and time (delayed start).
	ALM 2	ALM 2 double pulse (20 seconds) The data logger is full and has stopped logging. No alarm.
ALM 1		ALM 1 single pulse (10 seconds) The data logger is currently logging. Low alarm.
ALM 1		ALM 1 single pulse (20 seconds) The data logger is currently logging. Low alarm. However, the battery is low and should be replaced before logging important data.
ALM 1		ALM 1 double pulse (10 seconds) The data logger is currently logging. High alarm.
ALM 1		ALM 1 double pulse (20 seconds) The data logger is currently logging. High alarm. However, the battery is low and should be replaced before logging important data.
ALM 1	ALM 2	ALM 1/ ALM 2 single pulse (20 seconds) The data logger is full and has stopped logging. Alarm (high, low or both).
		No pulse The data logger is stopped, the battery is empty or there is no battery fitted.

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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 multiple 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-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 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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