This datasheet should be read in conjunction with the EL-2 datasheet

EasyLog® EL-2-IR

EasyLog-2 with Infra-red communications

The EL-2-IR data logger enables both infra-red and/or RS-232 communication between the logger and the P.C and EL-HL. EL-2-IR is an easy method of measuring, displaying and recording temperature, humidity, pH, voltage, current, etc., with a memory for 8064 readings and a battery life of up to 3 years**. EL-2-IR can operate as a 'stand alone' logger or be permanently connected to a system. The EL-2-IR serial link is addressable and up to 8 loggers can be connected to one serial port. The P.C. software operates under Windows 3.1 and does not require specialist skill to operate. Data output is in text format and can be easily integrated into any popular spreadsheet. Graphical output is possible under EL-WIN. Consult the EasyLog software manual for further details.

- RS232 and Infra-red Communications
- Uses IrDA Communication Standard
- Multi-function
- Ideal For Use In Hazardous Environments
- No Extra Software Needed
- Line-of-sight Communication
- Battery Powered
- CE

Stock Number Infra-red Communications				EL-2-IR
Specification	Min	Typ	Max	Unit
Baud Rate		9600		bps
Communication Distance①	0		1/3.3	m/ft
Communication cone		±15		°
Current consumption of IR circuitry (on)	2	2.3	2.5	mA
Current consumption of IR circuitry (off)		0.1		µA

Note 1: Under normal lighting conditions

* Sensor dependent.
** Battery life dependent on input mode and sampling rate.

Stock Number Hand Held Data Logger			EL-2-IR
Specification	Range	Resolution	Accuracy
Temperature ('K' type thermocouple)	-25 to +200°C	1°C	±1°C
	-13 to +392°F	1°F	±2°F
Temperature (internal)	-10 to +50°C	1°C	±1°C
	+14 to +122°F	1°F	±2°F
Humidity	5 to 95% RH	1%RH	*
pH	0 to 14pH	0.1pH*	±0.1pH*
Voltage	0 to 2V D.C.	0.01V	±1%
	0 to 20V D.C.	0.1V	
Current	0 to 2A	0.01A	±1%
Rate count	0 to 255	1 unit	N/A
Frequency	40 to 400Hz	N/A	±2Hz
Battery	3.6V ½AA lithium (up to 3 years life)**		
Serial link	8 Pin Mini DIN		
Sensor connection	Phono		
Number of readings	8064		
Logging rate	1 sample per 5 seconds to 1 per 12 hours		

Communications area

Communications can take place at a distances from 0m (i.e."nose-to-nose") to 1m. The EL-2-IR and the IR port on the PC should be pointing at each other. The IR beam spans about 30°, so the two devices do not have to be directly aligned, however there should be a clear line-of-sight between the two.

Cable communications

The RS232 cable will work as normal, regardless of whether the IR circuitry is on or not. However, attempting to use both the cable and the infra-red simultaneously will result in communication errors.

At the PC

The EL-2-IR is designed to communicate with devices which have IrDA-compatible infra-red ports. If your computer doesn't have one of these, Lascar's EasyLink-IR can be used to convert a normal serial port. Simply plug the EasyLink-IR into the 9-way serial port, point it in the right direction. If you use a serial extension cable, ensure that it is a straight-through. Null modem and Lascar EasyLog cables will not work.

Operating Instructions

Step 1: Simply hold down the button for 2-3 seconds. The Actiwave symbol will flash once.
Step 2: Place the logger in line of sight of the IR port on your PC.
Step 3: That's it!

IR timeout

To maximise battery life, after no communications activity has occurred for about five minutes the IR circuitry will automatically shut down. If the button is held down until the Actiwave flashes, the timeout period will be reset.

For experienced EasyLog users

Pressing the button to turn on the IR circuitry will not affect the logger itself, e.g. if it's in push to start, or push to log mode. Conversely, a short press, say for a push to log, will not affect the IR circuitry. The duration that the button is held down for determines what the press is intended for.

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USING EXTERNAL SIGNALS

PIN FUNCTION

A1, A2, REF, SW.	Output for test diagnostics. Do not use.
HA.	High Alarm output = V+ when alarmed.
RS.	Reset input. Active low - operated by RESET switch. NOTE - logging will stop and restart at 0 time.
LA.	Low Alarm output = V+ when alarmed.
A+.	Output = V+ when a reading is in progress.
V+.	Battery positive.
V-.	Batery negative.

DO NOT APPLY AN EXTERNAL SUPPLY VOLTAGE ACROSS THESE PINS WITH BATTERY IN PLACE.

Only connect outputs to high impedance inputs, otherwise performance will be affected and battery life drastically reduced.

BATTERY REPLACEMENT

Only use ½AA 3.6V lithium. The list below is not exhaustive. Check with supplier that the battery you are ordering is 'press fit' and is not fitted with solder tags or leads. When replacing the battery, remove the serial communications cable and ensure correct orientation of the battery.

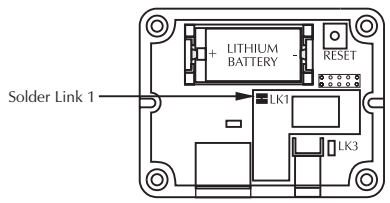
MANUFACTURER	PART NUMBER	MANUFACTURER'S ORDER CODE
MAXELL	ER 3S TC	n/a
SAFT	LS3	n/a
SONNENSCHEIN	SL-750/S	1107 501 100
TADIRAN	½AA/S	1551-02-210-000

WARNING: Handle lithium batteries carefully - observe warnings on battery casing. Dispose of in accordance with local regulations.

Battery Life

The IR circuitry draws virtually zero current when it is turned off. Because of this, if it is permanently off, the battery life of the EL-2-IR will be practically the same as a normal EL-2. When the IR circuitry is turned on, current consumption dramatically increases. If it is permanently on, the battery life will be drastically reduced. However, if this is not a problem (e.g. if using an external power supply) making solder link 1, as shown in the diagram, will cause the IR circuitry to stay on all the time.

REAR VIEW of EL-2-IR with back cover removed



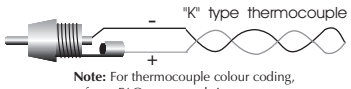
OPERATING MODES

Select the correct measurement range in EL-WIN before connecting a sensor or applying a voltage to the module.

Re-calibrate the EL-2 via EL-WIN prior to use.

Pluggable Links (Links 1 & 3)

On-Board Link (Link 2)

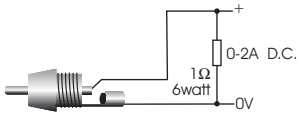


Note: For thermocouple colour coding, refer to FAQ on our website.

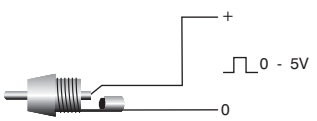
Temperature (with thermocouple)
Connect a K-type thermocouple to the EL-2-IR via the phono socket.

Temperature (internal)
Short Link 3 to use the internal sensor or use a short circuited phono plug.

Voltage (0-2V/0-20V)
Connect the voltage to the EL-2-IR via the phono socket. Voltages exceeding 20V require an external potential divider network.

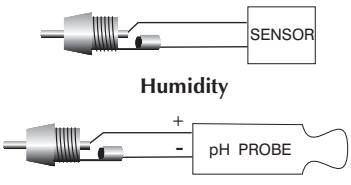


Current (0-2A)
Connect a 1R6 Watt resistor to the EL-2-IR via the phono socket. Select the 0-2V range in EL-WIN. Select "A" in Display Symbols.

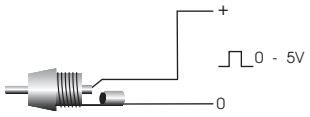


Note: Check Link 3 is open, Link 2 is shorted.

Frequency*
The frequency can be measured in the range 40 to 400Hz.



pH (with internal reference)
See FAQ on our website for more detailed information.



Rate Count
Connect a 0-5V pulse to the EL-2-IR via the phono socket. The counter increments on the falling edge.