Highlights

- N.8/16 analog inputs, 4 digital inputs, n.1 RS232 input;
- Inputs extension using MASTER/SLAVE units;
- Available with built-in ZigBee radio;
- Very low power consumption (< 4 mW);
- N.99 channels for acquisition or calculation;
- 2 MB Flash data memory;
- LSI-LASTEM, Modbus RTU, TTY communication protocols;
- Spontaneous data transmission in ASCII format by TCP protocol;
- N.2 RS232 serial ports
- Built-in calculation library for derived quantities;
- Built-in mathematical calculations library;
- Outputs actuation over programmable events to activate external devices;
- Sampling rate 1 sec. to 12 hrs;
- Elaboration time-base 1 sec. to 24 hrs;
- PC connection via RS232/radio/modem PSTN/GSM/GPRS/Ethernet;
- Display and keyboard;
- Compatibility with CommNET, GIDAS and XPanel programs.

LSI Lastem E-LOG has been explicitly designed for environmental applications. It features specific inputs and calculations for environmental sensors while maintaining an all-time-low power consumption. E-LOG stores data sampled from connected sensors and supports a wide range of communication protocols.
Rugged and durable, E-LOG ensures prolonged data-logging in even the most severe environments, while the 16-bit design of the A/D converter ensures data accuracy and reliability of measurements in meteorological and hydrological applications, for air quality and outdoor environmental monitoring.

Main Features

Inputs

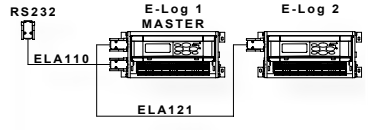
N.8 differential (n.16 single-ended) inputs for analog signals (voltage, current and resistance).
N.4 digital inputs programmable as frequency or on/off digital inputs
N.1 RS 232 input for sensors with serial interface.
The number of inputs can be increased using MASTER/SLAVE design. MASTER E-Log can manage up to 99 total channels.

Built-in radio

The ELO515 series is equipped with a built-in ZigBee radio. The Zigbee Radio network allows connecting of several LSI LASTEM devices, including E-Logs, radio sensors (S-Log) and R-Log-SLAVE units.

Derived environmental and mathematical calculations

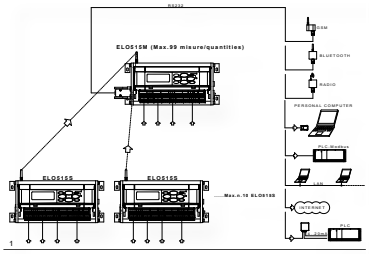
E-Log has an internal library of derived environmental quantities. These calculated quantities can use inputs from monitoring measures, user-defined constants and other derived quantities This library also includes mathematical calculations. (see *Calculated Quantities*)



Inputs extension: MASTER/SLAVE units by cable

Data storage

E-Log stores statistical elaborations with time bases from 1 sec. to 24 hrs:
-instant values;
-arithmetical average, minimum, maximum, standard deviation;
-totalization and integration time measurements;
-wind elaborations:
resulting/prevailing direction, resulting speed, direction standard deviation (sigma-theta), calm %.
Memory structure is circular.



Inputs extension: MASTER/SLAVE units by radio

Output actuation at event/time

E-Log has seven digital outputs to power up external systems or alarm devices. Outputs are activated according to user-defined actuation logics:
- Greater/less than, within a range;
- Wind alarm;
- Alarm for beginning of precipitations;
- Flood Alarm;
- Scheduled event;
- Snow level alarm;
- Error state of the unit.

Sampling rate
Programmable for each sensor (1 sec -12 hrs). E-Log manages up to n.12 channels from sensors and n.8 derived quantities in 1 sec

Sensors power supply actuation
E-Log can feed sensors requiring power supply for their operation, with user-defined warm-up time.

Battery
Batteries are normally included in ELF enclosures (see Accessories). LSI-LASTEM supplies 2-15-40 Ah rechargeable battery packs and 1.5-Volt, D-shaped disposable battery packs. Batteries can be recharged using main power supply or solar panels.
Models ELO310 and ELO515 come with an internal 1.2 Ah battery.

Power supply
E-Log runs at 12 Vdc input voltage power supply. It has an extremely low power consumption (< 4 mW).
LSI-LASTEM offers a wide range of power supply systems and battery packs according to the requested power source and autonomy.

Serial ports for data communication
E-Log is equipped with two RS232 serial ports. Both of them can be used for local or remote communication for data download or real-time update of instantan eous and diagnostic values.
COM2 port can also be used to connect sensors with RS232 output.
In models equipped with built-in radio, COM2 port is not available.

Direct connection to PC
E-Log can be directly connected to a PC with the following interfaces:
- USB: using included adapter;
- RS485: distances up to 1 km, using DEA504 converter;
- Ethernet: using DEA550 converter;
- Bluetooth: using DEA300 adapter.

Remote connection to PC
E-Log can be remotely connected to a PC with the following interfaces:
- Telephone System: GSM modem;
- GPRS net: GSM/GPRS modem;
- Long distances UHF radio communications.

CommNetEG program can help managing both direct and remote connections with automatic/ scheduled communications.

Data communication in ASCII format using GPRS and TCP/IP protocols
E-Log can send data in ASCII format in spontaneous way at programmable timing.
Communication can take place via GPRS modem and FTP protocol or TCP/IP converter (over LAN or WAN).

Installation
E-Log is normally installed in IP65 protection portable or fix box wall or pole mounting (see ELF series in Accessories part) for protection against shocks, water, dust and atmospheric agents; the IP65 box normally hosts also power supply systems, communication devices, additional batteries and, when present, barometric sensors.

Data output protocols
Serial port COM1:
- LSI LASTEM native (CISS)

Serial port COM2:
- Reduced native (CISS)
- TTY: instantaneous values (spontaneous or by external request);
- Modbus RTU: instantaneous values and diagnostic information

Data input protocols
E-Log Serial port COM2 can also be used to connect sensors with RS232 interface. Supported protocols include:
- Gill: Sonic Gill anemometers (Gill format Polar, continuous).
- HYDROLAB water quality probes
- CLIMATRONICS: AIO probe
- AEROQUAL: AQM60 base module

Order numb.	ELO105	ELO305	ELO310	ELO515
Built-in 2.4 GHz radio	NO			YES
RS232 port	n.2			n.1
LCD 4 x 20 chars. display	NO	YES		
n.8 keys keyboard	NO	YES		
Tripod use	NO		YES	
Internal 1.2 Ah battery	NO		YES	

continued

Common features		Range	Resolution	Accuracy (@ 25°C)
Analogue inputs	*Voltage*	-300 ÷ 1200 mV	40 µV	±160 µV
		±78 mV	3 µV	±30 µV
		±39 mV	1.5 µV	±15 µV
	Pt100	-50 ÷ 70 °C	0.003 °C	±0.1°C
		-50 ÷ 600 °C	0.011 °C	±0.3°C
		0 ÷ 6000 Ω	0.1 Ω	±1.5 Ω
	Thermocouples	E-IPTS 68	< 0.1 °C	±0.6 °C
		J-IPTS 68	< 0.1 °C	±0.6 °C
		J - DIN	< 0.1 °C	±0.6 °C
		K-IPTS 68	< 0.1 °C	±0.5 °C
		S-IPTS 68	0.22 °C	±2.0 °C
		T-IPTS 68	< 0.1 °C	±0.5 °C
	Inputs number	N. 8 (n. 16 single-ended)		
	ESD protections	±8 kV contact discharge IEC 1000–4-2		
	Max input signal	1.2 V		
	EMC filters	on all inputs		
	Temperature error (@ -10÷30°C)	300 ÷ 1200 mV < ±0.01% FSR; ±39 mV < ±0.01% FSR ±78 mV < ±0.01% FSR		
Digital inputs	*Inputs number*	n.4		
	Programmable functions	N. 2 frequency inputs (optoelectronic sensors, max 10 kHz) N. 2 frequency inputs (max 1 kHz) N. 4 logic state inputs ON/OFF (0 ÷ 3 Vdc signals)		
	Max error	3 Hz @ 5 kHz		
	Protection	Transient voltage suppressor 600 W, <10 µs		
Digital outputs	*Output number*	N. 7 (n. 4 sensors power-up, n.3 on events)		
	Max current on each output	150 mA		
	Protection	Thermal and over current (> 0.15 A)		
Power supply	*Power supply*	8 ÷ 14 Vdc		
	Power consumption	Display ON: 60 mA, OFF: 20 mA		
	Power consumption (Stand-by)	Stand-by: 0.2 mA		
	Protections	Transient voltage suppressor: 600 W, t = 10 µs; on polarity inversion		
Radio (see MODELS)	*Type*	ZigBee		
	Frequency	ISM 2.4 GHz direct sequence channels		
	Power	10 mW (+10 dBm)		
Other features	*Internal clock*	Accuracy 30 s/month (T=25°C)		
	Display (see MODELS)	LCD 4 x 20 car		
	Keyboard (see MODELS)	n.8 keys		
	Processor	1 RISC 8 bit, clock 16 MHz		
	ADC resolution	16 bit		
	Sampling time	80 ms (rejection 50 Hz)		
	Environmental limits	-20 ÷ 60 °C, 15 ÷ 100 % RH (not condensing)		
	Protection	IP 40		
	Weight	500 g		
	Dimensions	140 x 120 x 50 mm		
RS232 ports (see MODELS)	*Speed*	1200 ÷ 115200 bps		
	Type	9 pins/Female/Male/DTE/DCE		

Thank you for reading this data sheet.

For pricing or for further information, please contact us at our UK Office, using the details below.

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