M-Log Environmental Data Loggers

LSI M-Log Environmental Data Loggers Owner's Manual

Contents

LSI M-Log Environmental Data Loggers

Accessories

LSI LASTEM data loggers share a range of common accessories for their installation, communication, and power supply.

Sensors and data logger arms for indoor applications
M-Log used for temporary applications can be mounted on an arm fixed on a tripod, together with sensors.

	**BVA320**	Sensors and data logger arm. Fixing to BVA304 tripod or to wall	
		Dimensions	850x610x150 mm
		Number of sensors	N.6 using threaded screws + N.1 ri ng for ESU403.1-EST033 sensors
		Weight	0.5 kg
	**BVA315**	Sensors and N.2 data logger arm. Fixing to BVA304 tripod	
		Dimensions	400x20x6 mm
		Number of sensors	N.22 using threaded screws + support for N.4 ESU403.1-EST033 sensors
		Weight	1.6 kg
	**BVA304**	Three arm tripod	
		Occupied area size	Max 1100×1100 mm
		Maximum height	1600 mm
		Weight	1.6 kg
		Bag for transportation	Included

Power supplies

When the data logger (see Compatibility) isn’t supplied with an ELF box, we recommend having external power supply units.

	**BSC015**	Power supply converter/battery charger for indoor applications.	
		Voltage	230 V AC -> 9 V DC (1.8 A)
		Connection	On data logger power plug
		Protection degree	IP54
		Compatibility	M-Log (ELO009)
	**DEA261**	Power supply converter/battery charger for indoor applications to data logger	
	DEA261.1	Voltage	10W-90..264V AC->13.6 V DC (750 mA)
		Connection	DEA261: with 2C connector DEA261.1: free wires to data logger
			terminal board
		Protection degree	IP54
		Compatibility	DEA261: E-Log DEA261.1: E-Log, Alpha-Log, ALIEM

	DEA251	Power supply converter/battery charger for outdoor applications. N.2 out puts	
		Voltage	85…264 V AC -> 13.8 V DC
		Power	30 W
		Max output current	2 A
		Connection to sensors or data logg er	On free terminals board
		Protection degree	IP65
		Protections	· Short Circuit · Overvoltage · Overcurrent
		Operative temperature and humidit y	-30…+70 °C ; 20…90 %
		Compatibility	E-Log, Alpha-Log, ALIEM
	DYA059	Bracket for DEA251 on poles of 45…65 mm diameter	

RS485 modules
Required to connect RS485 sensors (up to 3 signals) to Alpha-Log's RS485 port.

	**TXMRA0031**	Three signal RS485 active star wiring hub. The unit has three independent RS485 input and output channels, each with their own driver, which can transmit sig- nals across 1200 m of cable on each channel.	
		Input	N.3 RS485 Channel: Data+, Data-
		Output	N.1 RS485 Channel: Data+, Data-
		Speed	300…115200 bps
		ESD protection	Yes
		Power supply	10…40 V DC (not insulated)
		Power consumption	2.16 W
	**EDTUA2130**	Three signal RS485 active star wiring hub.	
		Input	N.3 RS485 Channel: Data+, Data-
		Output	N.1 RS485 Channel: Data+, Data-
		Maximum current	16 A
		Voltage	450 V DC
		Protection degree	IP68

Radio signals receiver

	**EXP301**	Radio signal receiver from radio sensors or from EXP820 RS-232 Output compatible with data loggers (M/E-Log) · Maximum number of receivable sensors 200 · Battery NiCd 9 V · Power supply 12 V DC · Antenna included
	DWA601A	Serial cable L=10 m for connection of EXP301 to E/M-Log data logger RS-232 port
	DYA056	Support for EXP301 to pole D=45…65mm

Radio signals repeaters

	**EZB322**	Zig-Bee radio signals repeater	
		Mounting	Universal AC socket
		Power supply	85…265 V AC, Universal AC socke t
		Protection degree	IP52
		Environmental limits	0…70 °C
		Compatibility	E-Log radio (ELO3515)
	EXP401	IP64 radio signals repeater “Store and forward”. Power supply: 12 V DC	
	DEA260.2	Power supply 230->13,8V 0,6A for EXP401 repeater	
	EXP402	IP65 radio signals repeater “Store and forward”. Power supply: 12 V DC	
	DYA056	Support for EXP401-402 to pole D=45…65mm	
	DWA505 A	Cable for EXP402, L=5 m	
	DWA510 A	Cable for EXP402, L=10 m	

Batteries
External batteries are required for E-Log, and Alpha-Log operation when not powered from the mains and or to increase the M-Log battery life. Batteries are usually mounted inside ELF boxes and connected to the data logger using the terminal power supply input.

	**MG0558.R**	12 V Pb 18 Ah battery	
		Type	Rechargeable Sealed Lead-Acid
		Dimensions and weight	181x76x167 mm; 6 kg
		Operating temperature	· Charge -15…40 °C · Discharge -15…50 °C · Storage -15…40 °C
	**MG0560.R**	12 V Pb 40 Ah battery	
		Type	Rechargeable Sealed Lead-Acid
		Dimensions and weight	151x65x94 mm; 13.5 kg
		Operating temperature	· Charge -15…40 °C · Discharge -15…50 °C · Storage -15…40 °C
	**MG0552.R**	12 V Pb 2.3 Ah battery	
		Type	Rechargeable Sealed Lead-Acid
		Dimensions and weight	178x34x67 mm; 1.05 kg
		Operating temperature	· Charge -15…40 °C · Discharge -15…50 °C · Storage -15…40 °C
	**MG0564.R**	12 V Pb 2.3 Ah battery	
		Type	Rechargeable Sealed Lead-Acid
		Dimensions and weight	330x171x214 mm; 30 kg
		Operating temperature	· Charge -15…40 °C · Discharge -15…50 °C · Storage -15…40 °C

Mini-DIN Adapters

To connect sensors with free-wires to data loggers with min-DIN input (ELO009), these adapters are needed:

	**CCDCA0010 CCDCA0020**	Terminal board/mini-DIN adapter+cable	
		N. contacts	CCDCA0010: 4 + shield (for digital sensor) CCDCA0020: 7 + shield (for analogic sensor)
		Cable	L=2 m

RS232 cables, USB interface
To connect data loggers to PC via RS232 or USB cable. In each pack of M-Log and E-Log , the ELA105.R serial cable and the DEB518.R USB adapter are included.

	ELA105.R	L= 1,8 m serial cable Included in each M-Log and E-Log pack
	**DEB518.R**	RS232->USB converter Included in each M-Log and E-Log pack

RS485 converters, TCP/IP
To obtain a long cable (more than 1 Km) beetween the data logger and the PC. It is possible to use a RS232-485 converter. A TCP/IP connection to the Ethernet web, allows to send data to the PC within a network also connected via the Internet. These devices can be mounted inside ELF boxes.

	**DEA504.1**	RS232<->RS485/422 422 converter with electrical protections	
		Insulation (optically)	Optically insulated (2000 V)
		Insulation (surge protection)	From electrostatic discharge (25KV ESD)
		Bit rate	300 bps…1 M bps
		RS232 connector	DB9 female
		RS422/485 connector	DB9 male, 5-pin terminal
		Power supply	9…48 V DC (power supply include d)
		Fixing	DIN bar
		Cable	DB9M/DB9F (included)
	MN1510. 20R	Cable LAN Category 5 to connect DEA504 converters. L= 20 m	
	MN1510. 25R	Cable LAN Category 5 to connect DEA504 converters. L= 25 m	
	MN1510. 50R	Cable LAN Category 5 to connect DEA504 converters. L= 50 m	
	MN1510. 200R	Cable LAN Category 5 to connect DEA504 converters. L= 200 m	

	**DEA553**	Industrial secure serial port to Ethernet device server with 1xRS-232/422 /485 and 2×10/100Base-T(X)	
		Input	RS232/422/485 (DB9)
		Output	Ethernet 10/100Base-T(x) Auto M DI/ MDIX
		Protocols	ICMP, IP, TCP, UDP, DHCP, BOOT P, SSH, DNS, SNMP, V1/V2c, HTT PS, SMTP
		Power supply	12…48 V DC
		Consumption	1.44 W
		Operative Temperature	-40…70 °C
		Fixing	DIN bar
		Protection degree	IP30
		Weight	0,227 kg
	**DEA509**	Gateway Modbus-TCP. Modbus-RTU in Modbus TCP converter	
		Input	RS232/422/485 (DB9)
		Output	Ethernet 10/100 M
		ESD protection	15 KV for serial port
		Magnetic protections	1.5 KV for Ethernet port
		Power supply	12…48 V DC
		Consumption	200 mA @ 12V DC, 60 mA@ 48V DC
		Operative Temperature	0…60 °C
		Fixing	DIN bar
		Protection degree	IP30
		Weight	0.34 kg

Converter RS232/RS485 – > optical fibre

	**TXMPA1151**	Serial converter RS232 / optical fibre mono modal
	TXMPA1251	Serial converter R485 / optical fibre mono modal

Dropping resistors

	EDECA1001	Five 50 ohm-resistors kit (1/8 W, 0.1%, 25 ppm) to convert 4…20 mA -> 200…1000 mV

Modem GPRS, 3G, 4G. UMTS Router. Wi-Fi Module
For remote connections, 3G-4G modems are available. Via modem, is possible to send (“push mode”) data to FTP server or, using the program P1-CommNET, to LSI LASTEM GIDAS database. These devices can be mounted inside ELF boxes.

	**DEA718.3**	Modem GPRS – GSM-850 / EGSM-900 / DCS-1800 / PCS-1900 MHz Quad-Band. GPRS class 10	
		Operative temperature	-20…70 °C
		Power supply	9…24 V DC from data logger
		Consumption	Sleep: 30 mA, during com. 110 mA
		Weight	0.2 kg
		Compatibility	E-Log
	ELA110	Connection cable between E-Log and DEA718.3 modem	
	MC4101	Fixing bar for DEA718.3 in ELF boxes	
	DEA609	Modem adapter DEA718.3 / external antenna DEA611	
		Modem 4G/LTE/HSPA/WCDMA/GPRS Quadband/class 10/class12	
		LTE FDD	Download speed 100Mbps Upload speed 50Mbps
		Frequency band (MHz)	850/900/1800/1900MHz
		Input	2 x RS232, 1 x RS485
		Cellular Antenna	Standard SMA female interface, 50 ohm, lighting protection(optional)

	**TXCMA2200**	SMS	Yes
		Connection cable to data logger	Included
		Operative Temperature	-35…75 °C
		Power supply	5…36 V DC from data logger
		Consumption @12 V	Sleep: 3 mA. Standby: 40-50 mA. Communication mode: 75-95 mA
		Casing	Iron, IP30
		Mounting	DIN bar
		Weight	0.205 kg
		Compatibility	Alpha-Log
	**DEA611**	External antenna for 3G, LTE modem TXCMA2200 double gain GPRS/UMTS/LTE	
		Frequencies	GSM/GPRS/EDGE: 850 / 900 / 1800 / 1900 MHz. UMTS/WCDMA: 2100 MHz LTE: 700 / 800 / 1800 / 2600 MHz
		Free license ISM band	Field 869 MHz, UHF Frequency
		Irradiation	Omnidirectional
		Gain	2 dBi
		Power (max)	100 W
		Impedance	50 Ohm
		Cable	L=5 m
		Fixing accessory	Included
		Compatibility	TXCMA2200, DEA718.3 (with DEA 609)

		High-Gain 2.4 GHz Wi-Fi USB adapter	
		Wireless data rate	Up to 150 Mbps

	**TXMPA3770**	Port	USB 2.0
		Security	WEP, WPA, WPA2, WPA-PSK/WPA2-PSY Encryptions
		Standard	IEE802.11
		Environmental limits	0…40 °C (Not condensing)
		Weight / Dimensions	0.032 kg / 93.5 x 26 x 11 mm
	**TXCRB2200 TXCRB2210 TXCRB2200.D**	Dual SIM Industrial 4G/LTE Wi-Fi router, 3 models depending on number of LAN ports (e.g. data logger and camera with ethernet) and region covered	
		Mobile	4G (LTE), 3G
		Max data rate	LTE: 150 Mbps. 3G: 42 Mbps
		WiFi	WPA2-PSK, WPA-PSK, WEP, MAC Filter
		Ethernet WAN port	N.1 (config. to LAN) 10/100 Mbps
		Ethernet LAN port ()10/100 Mbps	· N.1 (TXCRB2200, TXCRB2200.1) · N.4 (TXCRB2210)
		Network protocols	TCP, UDP, IPv4, IPv6, ICMP, NTP, DNS, HTTP, HTTPS, FTP, SMTP, SSL v3, TLS, ARP, VRRP, PPP, PPPoE, UPnP, SSH, DHCP, Telnet, SMNP, MQTT, Wake On Lan (WOL)
		Region (operator)	· TXCRB2200, TXCRB2210: Global · TXCRB2200.D: Europe, The Middle East, Africa

		Frequencies	· TXCRB2200, TXCRB2210: **4 G (LTE- FDD)**: B1, B2, B3, B4, B5, B7, B8, B12, B13, B18, B19, B20, B25, B26, B28. **4G (LTE-TDD)**: B3 8, B39, B40, B41. 3G: B1, B2, B4, B5, B6, B8, B19. **2G**: B2, B3, B5, B 8 · TXCRB2200.1: **4G (LTE-FDD)**: B1, B3, B5, B7, B8, B20. **4G (LTE-FDD)**: B1, B3, B7, B8, B20. **3 G**: B1, B5, B8. **2G**: B3, B8
		Power supply	9…30 V DC (<5W)
		Operating temperature	-40…75 °C
		Weigth	0.125 kg
		Compatibility	Alpha-Log
	**TXANA3033**	Network directional antenna 28dBi	
		Weight / Dimensions	550 g / 110 x 55 mm
		Cable	H=3 m
		Compatibility	TXCRB2200-00.1, TXCRB2210

	**TXRMA4640**	Satellite Modem (GPS+GLONASS L1 freq.) Thuraya M2M	
		Narrowband IP	UDP and TCP/IP
		Frequency band	TX 1626.5 to 1675.0 MHz R X 1518.0 to 1559.0 MHz
		Typical latency	< 2 s 100 bytes
		Power	10…32 V DC
		Wi-Fi	IEEE 802.11 B/G, 2.4 GHz
		Weight / Size (L x W x H)	< 900 g / 170 x 130 x 42 mm
		Operative temperature	-40°C…+71 °C
		Support to pole	DYA062

	**TXCRA1300**	Industrial router 3G/LTE dual SIM, removable magnetic antenna. Input RS232/485 for communication of independent devices	
		Max data rate	3G: 14 Mbps
		SMS	Sì
		Ethernet LAN port	N.1 LAN port, 10/100BT
		Network protocols	PPP,PPPoE,TCP, UDP,DHCP,ICMP,NAT, DMZ, RIPv1/v2,OSPF, DDNS, VRRP, HTTP,HTTPs,DNS, ARP,QoS,SNTP, Telnet
		Power supply	9…26 V DC (<5W)
		Operating temperature	-40…75 °C
		Compatibility	M-Log, E-Log
		Communication ports	RS232, RS485
		Antenna	3G/2G Omnidiretional Quad-Band included + second connector
	**TXRGA2100**	Router/repeater/client Wi-Fi industrial	
		Wi-Fi	N.1 radio IEEE 802.11a/b/g/n, MIMO 2T2R, 2.4 / 5 GHz
		Sensitivity	Receiver: -92 dBm for 802.11 b/g/n and -96 dBm for 802.11a/n
		Ethernet LAN Port	N.1 LAN port Gigabit 10/100/1000 Base TX auto-sensing, auto MDI/MDIX
		Power Supply	9…48 V DC
		Operative temperature	-20…60 °C
		Compatibilità	Alpha-Log
		Flat antennas	N.2 3dBi@2,4 GHz/4dBi@5GHz
		Mounting on DIN bar	With kit MAOFA1001
		Omnidirectional antenna SISO “stick” 2 dB	

	**TXANA1125**	Bandwidth	Broad 698..3800 MHz
		Gain	2 dB
		Length	16 cm
		Cable	3 m with SMA connector
		Mounting	Pole/wall mounting kit included

	**TXANA1125.1**	Omnidirectional antenna SISO “stick” 6 dB	
		Bandwidth	2.4 GHz
		Gain	6 dB
		Length	25 cm
		Cable	2 m with N-f/RSMA connector
		Mounting	Pole/wall mounting plate included

Long distance VHF radio
VHF radios allow easy, cost-free connections, several kilometers away. Via radio, it is possible to connect several data loggers with MASTER/SLAVE logic or to connect a data logger to a PC. These devices can be mounted inside ELF boxes.

<table>
<tr><td rowspan="10">  </td><td rowspan="10">TXRMA2132</td><td colspan="2">160 MHz radio modem for PC or data logger connection, VHF-500 mW erp; includes 3 elements Yagi antenna. Transmitting part of the system, connected with ELA110+ELA105 to a data logger, included in M-Log and E-Log.</td></tr>
<tr><td>Operating band</td><td>169.400. 169.475 MHz</td></tr>
<tr><td>Output power</td><td>500 mW ERP</td></tr>
<tr><td>Number of channels</td><td>12.5 – 25 – 50 kHz</td></tr>
<tr><td>Radio data rate (Tx/Rx)</td><td>4.800 bps@12.5kHz, 9600 bps@25kHz, 19200 bps @50 kHz</td></tr>
<tr><td>Power supply</td><td>9…32 V DC</td></tr>
<tr><td>Consumption</td><td>140 mA (Rx)</td></tr>
<tr><td>Operative temperature</td><td>-30…70 °C</td></tr>
<tr><td>Antenna</td><td>Included. N.3 elements antenna Yagi. L=10 m cable</td></tr>
<tr><td>Line-of-sight</td><td>7…10 km</td></tr>
<tr><td>Weight</td><td>0.33 kg without antenna</td></tr>
<tr><td>Communication port</td><td>RS232, RS485</td></tr>
<tr><td rowspan="3">  </td><td rowspan="3">TXRMA2131</td><td colspan="2">160 MHz radio modem for PC or data logger connection, VHF-200 mW erp; includes dipole antenna. Receiving part connected with ELA105.</td></tr>
<tr><td>Main features</td><td>See TXCMA2132</td></tr>
<tr><td>Antenna</td><td>Included Dipole antenna L=5 m cable</td></tr>
<tr><td></td><td>ELA110</td><td colspan="2">Connection cable radio/data logger</td></tr>
<tr><td></td><td>ELA105</td><td colspan="2">Serial cable L=1.8 m. To be quoted to connect TXMA2131 to PC. Included in
each package of M-Log and E-Log for data logger connection.</td></tr>
<tr><td>  </td><td>DEA260.1</td><td colspan="2">230 V AC/12V DC power supply for radio TXRMA2131 PC side</td></tr>
<tr><td></td><td>DEA605</td><td colspan="2">Serial adapter null-modem 9M/9F</td></tr>
<tr><td></td><td>DEA606.R</td><td colspan="2">Serial adapter null-modem 9M/9M</td></tr>
</table>

Solar panel

For applications where mains power is not available or where a double power supply is required, the data logger can be powered by a photovoltaic panel. In these cases it is advisable to place the data logger inside an ELF345-345.1 box that in-cludes DYA115 regulator that doesn't have to be supplied separately. When a solar panel supply is present, an external bat-tery must be housed in the ELF345 box model MG0558.R (18 Ah) or MG0560.R (44 Ah), chosen according to the autonomy required and the availability of hours of sunshine. The solar panel is

mounted on a pole through a tiltable support (DYA064).

	**DYA109**	80 Wp solar panel	
		Power	80 Wp
		Operative voltage (VMP)	21.57 V
		VOC voltage	25.45 V
		Dimensions	815×535 mm
		Weight	4.5 kg
		Technology	Monocristalline
		Frame material	Aluminium
		Cable	L=5 m
		Regulator (DYA115)	· Battery Voltage: 12/24V · Charge/Discharge Current: 10 A · Battery type: Lead/Acid · Float voltage: 13.7 V · Auto Power Off Voltage: 10.7 V · Auto Reconnect Voltage: 12.6 V · Self-consumption: < 10 mA · USB Output: 5 V /1.2 A Max · Operating temperature: -35…60 °C · included inside ELF345-345.1 boxes · Inside Alpha-Log
	**DYA064**	Tiltable support for solar panel fixing to poles of diam. 45…65 mm Weigth: 1.15 kg	

Shockproof case to contain data loggers in portable applications

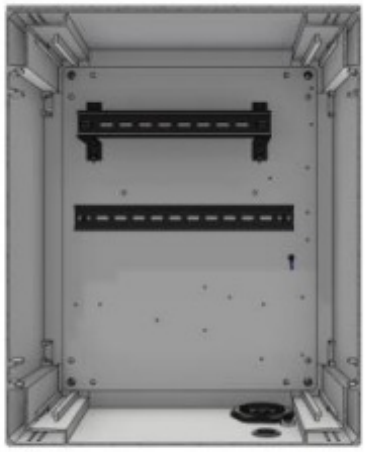
For portable applications, data loggers can be mounted inside IP66 cases to be protected against shocks, water, dust and atmospheric agents. Inside the case can be also be housed the communication device.

	**ELF432**	Portable IP66 shockproof case. Complete with rechargeable battery (18 Ah) and power supply/battery charger (230 V AC/13,8 V DC)	
		Dimensions	520 x 430 x 210 mm
		Weight	12 kg
		Compatibility	E-Log, Alpha-Log

IP66 boxes for data logger fix installations
For fix outdoor installations, data loggers can be mounted inside IP66 enclosures that give protection against shocks, water, dust and atmospheric agents. Each box houses the relative power supply system as well as specific accessories, and has the predisposition to house the communication device that can be chosen from the list of Accessories. Each box can be equip-ped with a support for pole or wall fixing.

ELF345	IP66 box. Complete with regulator for photovoltaic panels. Compatibility with 18 or 44 Ah batteri es	
	Power supply	From solar panel using regulator
	Solar panel regulator	Included
	Dimensions	H 502 x L 406 x D 230 mm
	Weight	7 kg (battery excluded)
	Material	Fiberglass
	Compatible batteries (not included)	MG0558.R (18 Ah), MG0560.R (44 Ah)
	Compatibility	E-Log, Alpha-Log
ELF345.1	IP66 box. Complete with regulator for photovoltaic panels and 85-264 V AC bat- tery charger power supply. Compatibility with 18 or 44 Ah batteries.	
	Solar panel regulator	Included
	Power supply	85-264 V AC-> 13.8 V DC Thermal magnetic switch. Power: 50W
	Dimensions	H 502 x L 406 x D 230 mm
	Weight	17.5kg (battery excluded)
	Material	Fiberglass
	Compatibility	E-Log, Alpha-Log
	IP66 box for Alpha-Log connection to photovoltaic panels. Compatibility with 18 or 44 Ah batteri es	
	Power supply	From solar panel using regulator in- side Alpha -Log
	Dimensions	H 502 x L 406 x D 230 mm

ELF345.3	Weight	7 kg (battery excluded)
	Material	Fiberglass
	Compatible batteries (not included)	MG0558.R (18 Ah), MG0560.R (44 Ah)
	Compatibility	Alpha-Log
ELK340	IP66 box. Complete with 85-240 V AC-> 13.8 V DC power supply (30 W) and 2 Ah battery.	
	Power supply	85-240 V AC-> 13.8 V DC Thermal magnetic switch. Power: 30W
	Dimensions	H 445 mm × L 300 mm P 200 mm
	Weight	5 kg
	Material	Polyester
	Battery	2 Ah rechargeable, included
	Compatibility	E-Log, Alpha-Log, ALIEM



ELF340	IP66 box. Complete with 85-264 Vca-> 13.8 V DC power supply (50 W) and 2 Ah battery. Comp atibility with 18 or 44 Ah batteries	
	Power supply	85-264 V AC-> 13.8 V DC Thermal magnetic switch. Power: 50W
	Dimensions	H 502 x L 406 x D 230 mm
	Weight	7 Kg
	Material	Fiberglass
	Battery	2 Ah rechargeable, included
	Compatibility	E-Log, Alpha-Log
ELF340.10	IP66 box. Complete with 85-264 V AC-> 13.8 V DC power supply and 2 Ah batte- ry and 230/24V transformer. With provision for installation of Relays for actua- tions (MG3023.R type) and IN-OUT terminal for analogue signals	
	Power supply	85-264 V AC-> 13.8 V DC 30W 230V AC/24V AC 40VA Thermal magnetic
	Provision for Relays (not included)	Up to N.5 Relays (MG3023.R type)
	IN-OUT signals terminal board	Terminal for analog signals input N.7 IN signals N.7 OUT signals
	IP66 box. Complete with 85-264 V AC-> 13.8 V DC power supply and terminal board for up to N.3 RS485 signals. Compatibility with 2, 18 or 40 Ah batteries. Used to receive digital signals	

ELF340.8	Power supply	85-264 V AC-> 13.8 V DC 50W Thermal magnetic
	Dimensions	H 502 x L 406 x D 230 mm
	Weight	7,5 kg
	Compatibility	E-Log, Alpha-Log
ELF344	IP66 box. Complete with 85-264 V AC-> 13.8 V DC power supply, 2Ah battery and 230 V AC/24 V AC transformer for heated sensors	
	Power supply	85-264 V AC-> 13,8 V DC 2A 30W
	Transformer	230V AC/24V AC 4.1 A 100VA
	Dimensions	H 502 x L 406 x D 230 mm
	Weight	7.5 kg
	Battery	2Ah rechargeable, included
	Compatibility	E-Log, Alpha-Log

ELK347	IP66 box. Complete with 85-240 V AC-> 13,8 V DC power supply, 2Ah battery and 85-260 V A C -> 24 V DC transformer for ALL IN ONE heated version sensors	
	Power supply	85-240 V AC -> 13,8 V DC 30W
	Transformer	85-260 V AC -> 24 V DC 150 W
	Dimensions	H 445 mm × L 300 mm P 200 mm
	Weight	5,5 kg
	Battery	2 Ah rechargeable, included
	Compatibility	Alpha-Log
DYA074	Support for ELF enclosures H 502 x L 406 x P160 mm to pole Ø 45…65 mm	
DYA072	Support for ELF enclosures H 502 x L 406 x P 160 mm to wall	
DYA148	Support for two ELF enclosures H 502 x L 406 x P160 mm to pole Ø 45…65 mm	
MAPFA2000	Support for ELK enclosures H 445 × L 300 P 200 mm to pole Ø 45…65 mm	
DYA081	Door lock for ELFxxx boxes	
MAPSA1201	Protection tile for ELFxxx boxes. Dimensions: 500 x 400 x 230 mm	
SVSKA1001	Fixing kit for Alpha-Log in ELFxxx boxes when E-Log is already installed	
MAGFA1001	Cable gland for ELF340-340.7-345-345.1-345.3-344-347 box and RJ45 / Ethernet cable	

Carrying cases

To transport data loggers and their accessories, LSI LASTEM supplies the following cases.

BWA314	Shockproof case, watertight (52x43x21 cm) for data loggers and probes Weight:3.9 kg
BWA319	Shockproof case with wheels, watertight (68x53x28 cm) for data loggers and probes Weight: 7 kg
BWA047	Soft bag for data logger transport Weight: 0.8 kg
BWA048	Bag to transport BVA304 tripod and stands Weight: 0.4 kg

Relay
Data logger versions with terminal inputs can switch external devices on/off via their digital outputs. The voltage available at the outputs corresponds to the supply voltage of the data logger (normally 12 V DC). In order to convert the output into a clean On/Off contact, LSI LASTEM provides relay suitable for mounting inside ELF boxes.

MG3023.R	Relay for On-Off actuation of the digital output. DPDT type.	
	Maximum switching voltage contact Minimum switching voltage contact Min. switching curre nt contact Limiting continuous current contact Typical input current coil Coil voltage Protective circuit Operating voltage display	250 V AC/DC 5 V (at 10 mA) 10 mA (At 5 V) 8 A 33 mA 12 V DC Damping diode Yellow LED
MG3024.R	Maximum switching voltage contact Minimum switching voltage contact Min. switching curre nt contact Limiting continuous current contact Typical input current coil Coil voltage Protective circuit Operating voltage display	400 V AC/DC 12 V (at 10 mA) 10 mA (At 12 V) 12 A 62.5 mA 12 V DC Damping diode Yellow LED

USB Drive

XLA010	USB Pen drive 3.0 Industrial Grade, Flash type MLC	
	Capacity	8 Gb
	Power consumption	0.7 W
	Operative temperature	-40…85 °C
	Vibration	20 G @7…2000 Hz
	Shock	1500 G @ 0.5 ms
	MTBF	3 million hours

Data logger protections

EDEPA1100	Protection unit (SPD) for power line, single phase 230 V.	
	Mounting	DIN bar
	Compatibility	Alpha-Log, E-Log
EDEPA1101	Protection unit (SPD) for RS-485 communication line.	
	Mounting	DIN bar
	Compatibility	Alpha-Log, E-Log
EDEPA1102	Protection unit (SPD) for Ethernet communication line.	
	Mounting	DIN bar
	Compatibility	Alpha-Log, G.Re.T.A.

Optical/acoustic signallers

SDMSA0001	Optical/acoustic signaller for indoor use	
	Lens colour	Red
	Power supply	5…30 V DC
	Protection grade	IP23
	Operative temperature	-20…60 °C
SDMSA0002	Optical/acoustic signaller for outdoor use with 8 SMT LED	
	Lens colour	Red
	Power supply	10..17 V AC/DC
	Protection grade	IP65
	Operative temperature	-20…55 °C

Graphic displays

SDGDA0001	Graphic display with touch screen and graphic interface for local management (configuration, diagnostic, data download, etc) of the datalogger	
	Memory dimension	6 GB
	Storage capacity	128 GB
	Display	8’’ touch screen
	Ports	USB-C
	Connectivity	Wi-Fi
	Protection grade	IP68
	Dimensions / Weight	126,8 x 213,8 x 10,1 mm / 0,433 kg
	Operative temperature	-40…60 °C
	Data logger compatibility	Alpha-Log

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Specifications

- **Dimensions:** 850x610x150 mm
- **Weight:** 0.5 kg
- **Number of Sensors:** 6 using threaded screws + 1 ring for ESU403.1-EST033 sensors

Product Usage Instructions

Sensors and Data Logger Arm Installation

For indoor applications, mount the M-Log on an arm fixed to a tripod along with the sensors.

Power Supply Connection

Connect the power supply unit to the data logger following the provided instructions based on the model and application.

RS485 Modules Setup

To connect RS485 sensors, use the TXMRA0031 or EDTUA2130 active star wiring hub. Follow the specifications for input/output channels and power requirements.

Radio Signals Receiver Setup

When using the EXP301 radio signals receiver, ensure proper antenna installation and connection to the data logger.

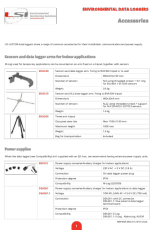
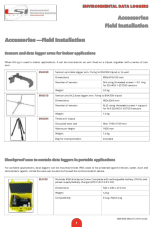
FAQ

Q: What power supply units are recommended for outdoor applications?
A: For outdoor use, the DEA251 or DYA059 power supply converter/battery charger is suitable, providing 30W power with IP65 protection.

Q: How many sensors can be connected to the data logger arm?
A: The larger data logger arm supports up to 22 sensors using threaded screws and additional support for 4 ESU403.1-EST033 sensors.

Q: What is the maximum height of the three-arm tripod?
A: The three-arm tripod can reach a maximum height of 1600 mm.

Documents / Resources

	**LSI M-Log Environmental Data Loggers** [pdf] Owner's Manual BVA320, BVA315, BVA304, BSC015, DEA261, DEA261.1, DEA251, DYA059, TXMRA0031, M-Log Environmental Data Loggers, M-Log, Environmental Data Loggers, Data Loggers, Loggers
	**LSI M-Log Environmental Data Loggers** [pdf] Owner's Manual BVA320, BVA315, BVA304, ELF432, ELF345, ELF345.1, ELF345.3, ELK340, M-Log Environmental Data Loggers, M-Log, Environmental Data Loggers, Data Loggers, Loggers

References

- lastem.com
- Sensors for Environmental Monitoring - LSI LASTEM
- User Manual