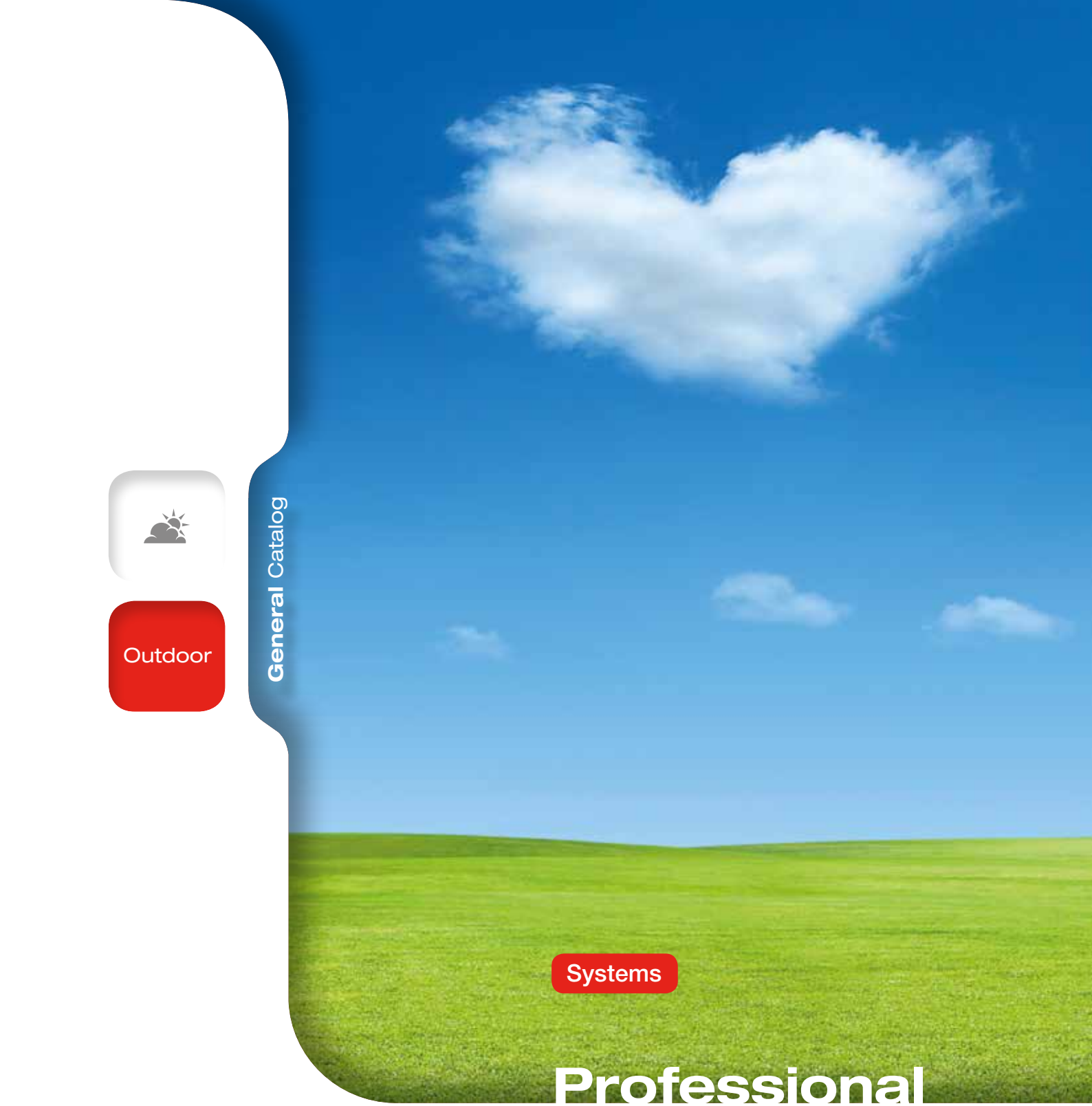


Outdoor

General Catalog

Systems

Professional Automatic Weather Stations

LSI LASTEM

Milano
ITALY

> Weather Station

Professional Automatic **Weather Stations**

Automatic weather stations including data logger, sensors and data management software

LSI LASTEM stations are professional and complete solutions for obtaining the typical weather parameters such as air temperature and relative humidity, wind speed and direction, atmospheric pressure, solar radiation and rainfall. The station consists of a basic kit that includes a selection of sensors, a 12-input data logger and a software selection for data programming and communication. Starting from the selected basic kit, it is possible to integrate additional sensors, communication systems, power supply, assembly accessories and other software apps, selected from LSI LASTEM range. Each component is specifically designed for long-lasting operation in extreme conditions. Accuracy and technical specifications comply with WMO standards. Simple use and quick assembly are additional features of these stations, offering to users an optimal solution for their meteorological monitoring requirements.

Applications

- Meteorological monitoring for professional purposes
- Research and education
- Meteorological measurements in air pollution analysis
- Agriculture
- Renewable energy
- Building automation

Professional Weather Stations

- Advance AWS technology
- Good quality and rugged sensors
- Extended enviromental operative conditions
- Low power requirements
- Wide Range of communication devices and ready to use pc programs

Professional Automatic **Weather Stations**

Highlights

- Professional weather station
- Suite of sensors for the measurement of the seven typical parameters in meteorological applications
- Free inputs for additional sensors
- High-quality sensors designed according to WMO (World Meteorological Organization) directives
- Operational limits suitable for all climatic conditions
- Extremely low power consumption
- Fixed and portable configurations
- Wide range of communication modes
- Web-based and PC based applications for data display and management
- Featuring data handling programs on local PC
- Sales kits containing sensors and data loggers

For over 40 years LSI LASTEM has been designed and distributed worldwide high-quality weather stations. This document shows a range of pre-configured solutions consisting in three possible basic packages (KME) and accessories for their completion.
All sensors, except rain gauge and barometer, are mounted on a single aluminum arm that is fixed on top of a meteorological mast. The 12-input data logger is normally mounted inside a IP65 box where barometer, power supply and data communication systems are housed as well. LSI LASTEM catalogue includes a complete selection of IP65 boxes for fixed or portable uses and different solutions to obtain the best energy autonomy. Additionally, different types of communication devices (GPRS, radio and TCP/IP) are available for the data transfer to local PC programs or web application. The systems can also send and receive data using MODBUS and TTY protocols for connecting the station to other devices.

Main Features

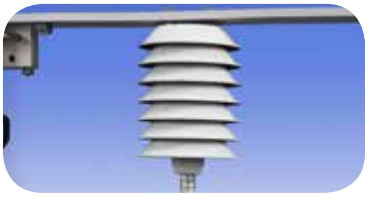
Professional solutions

Complete weather stations specifically designed by LSI LASTEM to meet professional requirements, when ensuring long-lasting operations operation and accuracy of data are primary needs, even in extreme environmental conditions. For this purpose, design solutions have been oriented toward selecting performing and reliable materials, electronic and mechanical parts.

Low energy consumption

The station, as a whole, has a very low energy consumption (25 mA without modem). This performance is the outcome of LSI LASTEM long experience in the field of equipment for environmental applications, where limiting power consumption is essential.

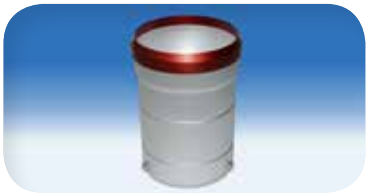
Temperature and Humidity



Each KME kit includes an high quality thermo-hygrometer (DMA672.1) specifically designed for meteorological applications.

The sensor includes a high-efficiency anti-radiation shield ensuring reliable temperature measurements even in conditions of strong solar radiation.

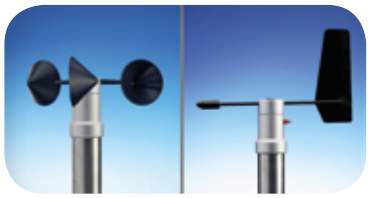
Rainfall



According to the selected kit, a rain gauge (DQA230.1) made in aluminum and designed according to WMO directives can be included.
This ensures measurement accuracy even with high-intensity rainfalls. The rain gauge is normally mounted on the ground by means of a fixing base.

continued

Anemometers



Each KME kit contains DNA202 (wind speed) and DNA212 (wind direction) sensors.
They combine a very low measurement threshold with operational limits up to 75 m/s.

Pressure

Each KME kit includes a good quality barometer with 0,5 hPa accuracy.
It can be installed inside the same IP65 box housing the data logger.

Solar Radiation

According to the selected kit, the station can be equipped with ISO9060 Second Class Pyranometer (DPA053).

Meteorological mast

Each KME kit includes a T-shaped aluminum arm for mounting the sensors on a 45÷65 mm diameter cylindrical mast. LSI LASTEM offers a wide range of masts, towers and tripods for mobile or continuous applications.

Data logger for long-term investigations

The core of the station is a 12-input data logger with 8 Mb memory, where data are stored in the form of statistical values with programmable time base (default 10 minutes), ensuring in this case 14 months of memory operation.

Data logger containment boxes

The data logger should be protected against external atmospheric agents.
LSI LASTEM offers different enclosures for fixed or mobile installations. Each enclosure includes also the power supply system and housing for the selected communication system and barometer.

Accessories

Each KME kit contains accessories and cables for sensors installation on 45÷65 mm diameter masts. These kits do not include other accessories useful for the station installation, such as:
- Data logger enclosure (mobile or fixed solutions).
- Solutions for solar panel or 220 VAC power supply.
- Communication accessories: GPRS modem, TCP/IP converters or RS485 line amplifiers.

These accessories should be selected according to the specific requirements.

LSI LASTEM Web-based Solution

Measurements can be automatically uploaded to a web space managed by LSI LASTEM, where users will be able to perform further analysis.
Data communication shall occur through a GPRS modem or TCP/IP converter.

Software

Each KME kit includes a program (3DOM) for configuring the data logger and downloading the data stored in memory in ASCII format. LSI LASTEM offers additional software solutions, such as:
- GIDAS. Solution for the management of the data downloaded on the SQL data base with graph visualization and reporting functions.
- XPanel. A completely configurable graphical dashboard for dynamic data display.
- CommNetEG. The module for the automatic management of communications with no operator presence.

Serial Ports and data output protocols

The data logger included in each kit has two RS232 serial ports. The main port is used to receive new configurations and download data from memory. The secondary port can be configured for receiving data from serial sensors or sending instant data even via Modbus-RTU or TTY protocols, in this way the data logger can be considered as an interface among meteorological sensors and third party data acquisition systems.

Remote connection to a PC

The data logger can be connected to a remote PC with the following interfaces:
- GPRS network: GSM/GPRS modem;
- LAN/WAN network: TCP/IP Converter
- Radio

CommNetEG software can help managing both direct and remote connections with automatic and programmed communications.

Connection to a local PC

Each KME kit includes a serial cable and a USB adapter for direct connection of the data logger to a PC. Different devices, such as TCP/IP converters for LAN networks or RS485 converters can be selected to fit specific communication needs.

Push ASCII data to FTP site

E-Log can spontaneously upload data to FTP site in ASCII format with programmable temporization, by means of a GPRS modem or TCP/IP converter.

LSI LASTEM offers 3 different configurations, prearranged in specific sales kits.

KIT 1

Weather station for fixed installations, powered by 220 Vac. KME kit shall be selected in accordance with the type of sensors required. For a complete installation, some of the following accessories can be selected:

- IP65 box for data logger protection and containment of: 220 Vac power supply system (includes 2Ah battery), selected data communication system and barometer.
- Mast for sensors mounting, selected between two sizes (H. 2 and 3 m). The mast can be fixed to a concrete plinth or directly to the ground.
- Communication accessories, if remote connection is required.
- Software for data management on a PC or the web.

KIT 2

Weather station for fixed installations, powered by a rechargeable battery and a solar panel. KME kit shall be selected in accordance with the type of sensors required. For a complete installation, some of the following accessories can be selected:

- IP65 box for data logger protection and containment of: solar panel regulator, selected data communication system and barometer.
- Solar panel and rechargeable battery, selected between 15 and45 Ah.
- Mast for sensors mounting, selected between two sizes (H. 2 and 3 m). The mast can be fixed to a concrete plinth or directly to the ground.
- Communication accessories, if remote connection is required.
- Software for data management on a PC or the web.

KIT 3

Weather station for mobile use, powered by a rechargeable battery (with 220 Vac charger). KME kit shall be selected in accordance with the type of sensors required. For a complete installation, some of the following accessories can be selected:

- IP65 box for the transport and protection of the data logger and the containment of: battery charger, selected data communication system and barometer.
- Portable telescopic tripod.
- Communication accessories, if a remote connection is required.
- Software for data management on a PC or the web.

Code		Description	KIT 1	KIT 2	KIT 3
KME101		**Includes**	●	●	●
	ELO105	12 inputs data logger, 12 Vdc power supply, 8 Mb memory, n. 2 RS232 ports. Includes RS232 cable with USB adapter and 3DOM PC program			
	DNA202	Wind speed sensor, cable L = 3 m			
	DNA212	Wind direction sensor, cable L = 3 m			
	DMA672.1	Temperature & Relative Humidity sensor cable L = 3 m			
	DYA233	Radiant screen for DMA672.1			
	DQA240.1	Pressure sensor			
	DYA046	"T" shape arm for DNA202, DNA212, DMA672.1 sensors on top of pole Ø 45-65 mm			
KME102		**Includes**	●	●	●
	ELO105	12 inputs data logger, 12 Vdc power supply, 8 Mb memory, n. 2 RS232 ports. Includes RS232 cable with USB adapter and 3DOM PC program			
	DNA202	Wind speed sensor, cable L = 3 m			
	DNA212	Wind direction sensor, cable L = 3 m			
	DMA672.1	Temperature & Relative Humidity sensor cable L = 3 m			
	DYA233	Radiant screen for DMA672.1			
	DQA240.1	Pressure sensor			
	DQA230.1#	Rain gauge			
	DWA510	Cable L = 10 m for rain gauge			
	DYA039	Ground base for DQA130.1 rain gauge			
	DYA046	"T" shape arm for DNA202, DNA212, DMA672.1 sensors on top of pole Ø 45-65 mm			
KME103		**Includes**	●	●	●
	ELO105	12 inputs data logger, 12 Vdc power supply, 8 Mb memory, n. 2 RS232 ports. Includes RS232 cable with USB adapter and 3DOM PC program			
	DNA202	Wind speed sensor, cable L = 3 m			
	DNA212	Wind direction sensor, cable L = 3 m			
	DMA672.1	Temperature & Relative Humidity sensor cable L = 3 m			
	DYA233	Radiant screen for DMA672.1			
	DPA053	Class 2 (ISO9060) pyranometer, cable L = 5 m			
	DYA034	Arm for fixing DPA053 on DYA046 arm			
	DQA240.1	Pressure sensor			
	DQA230.1#	Rain gauge			
	DWA510	Cable L = 10 m for rain gauge			
	DYA039	Ground base for DQA230.1 rain gauge			
	DYA046	"T" shape arm for DNA202, DNA212, DMA672.1, DPA053 sensors on top of pole Ø 45-65 mm			
	Box for data logger in fixed applications. Room for data logger, pressure sensor, communication and power supply (220 Vac and 2Ah battery) devices				
ELF340	Box 30x40 cm, with rechargeable battery (2Ah) and power charger (220/24-12 Vac/Vdc, 50 W)		●		
DYA074	Mounting for ELF340 box on Ø 45-65 mm pole		●		
DYA072	Mounting for ELF340 box on wall		Note 2	Note 2	Note 2

Code	Description	KIT 1	KIT 2	KIT 3
	Box for data logger in fixed applications whitout main power supply. Room for data logger, pressure sensor, communication device battery and solar panel regulator			
ELF345	Box 50x40 cm, with solar panel regulator and fixing for 15 or 40 Ah batery (battery not included)		●	
MG0560	Pb 45Ah rechargeable battery		●	
MGO558	Pb 15Ah rechargeable battery	Note 3	Note 3	Note 3
DYA101	50 W solar panel		●	
DYA064	Arm for fixing solar panel on Ø 45-65 mm pole		●	
	Box for data logger in portable applications. Room for data logger, pressure sensor, communication and power supply (220 Vac and 15 Ah battery) devices			
ELF432	Portable enclosure complete with 15 Ah rechargeable battery and power charger (220Vac/13,8 Vdc).			●
	Meteorological pole	Note 4	Note 4	Note 4
DYA006.1	Meteo pole H = 2 m Ø 50 mm	●	●	
DYA010.1	Meteo pole H = 3 m Ø 50 mm			
DYA020	Tripod for meteo pole Ø 50 mm on concrete plinth	●	●	
DYA020.1	N. 3 pickets for fixing DYA020 on concrete plinth	●	●	
DYA021	Tripod for meteo pole Ø 50 mm on the ground			
DYA023	N. 3 pickets for fixing DYA021 on the ground			
	H. 4 telescopic portable pole			
DYA340	H. 4 telescopic portable pole			●
DYA043	N. 3 pickets for fixing DYA340 on the ground			●
	Tie-rods for pole			
DYA028	N. 3 tie rods complete with collar to secure pole on the ground	●	●	●
DYA026	N. 3 pickets for fixing DYA028 on the ground	●	●	●
	GSM/GPRS modem	Note 5	Note 5	Note 5
DEA718.1	GSM-GPRS modem			
ELA110.1	Connection cable for DEA718.1 to data logger			
	Ethernet TCP/IP converter	Note 5	Note 5	Note 5
DEA550	RS232-Ethernet converter			
	RS485 Line-driver	Note 6	Note 6	Note 6
DEA504	RS232-Ethernet converter, data logger side			
DEA504	RS232-Ethernet converter, PC side			
ELA105	Connection cable L = 1,8 m DEA504 to PC			
MN1510	4x2xAWG24/I-S/FTP-CMX Cat.5 connection cable between DEA504 (each meter)			
	PC program	Note 7	Note 7	Note 7
BSZ311	GIDAS: storing received data into SQL database Database queries and output in tables and charts			
BSZ306.1	CommNetEG: program for automatic data communication from datalogger to PC			
BSZ306.2	CommNetEG: program for automatic data communication from datalogger to PC. GPRS communication module with “push” mode from data logger			
BSZ411	XPanel: dynamic dashboard for instant values			
	Web-based application	Note 8	Note 8	Note 8
DZZDAT	ASCII format data downloading from LSI LASTEM FTP site by web Browser. Data display, reports and data downloading on the web			

Note 1 Selection of the base kit (KME101, KME102 or KME103) in accordance with the required meteorological sensors.

Note 2 ELF340 box can be fized onthe same pole with sensors and on a wall. Attention the sensor's standard cable lengh is 3 m (additional cable length is available)**Note 3** 15 Ah battery should be enough for climates with high radiation values.

Note 4 H. 2 and H 3 meters poles are available. Poles can be installed on a concrete plinth, using DYA020 tripod and DYA020.1 screws, or directly on the ground using DYA021 tripod with DYA023 pickets.

Note 5 For remote communication, two options are available: GSM/GPRS and Ethernet protocol converter. Using the latter, data can be sent through an internet router with TCP/IP protocol, virtually free-of-charge.

Note 6 For direct connection between data logger and PC and distances is up to 1000 m, RS485 line drivers are available with Cat. 5 cable between them.

Note 7 Each data logger comes with 3DOM software for data logger setup and data communication on ASCII file. Additional software can be added for complete data management. GIDAS (BSZ311) stores data into a SQL data base and shows reports in chart and tables. For automatic data communication between data logger and PC, ComNet-EG (BSZ306.1) is available (in case of GPRS data communication BSZ306.2 option is required). For dynamic data display on a dashboard, XPanel (BSZ411) software is available.

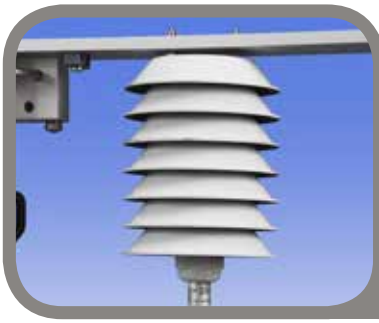
Note 8 Subscription to a web-based application, over an internet site managed by LSI LASTEM. This service is available when data logger is equipped with GPRS or TCP/IP data transmission protocol.

Data Logger
Technical features - MODELS

Data Logger

Explicitly designed for environmental applications, E-Log data logger features specific inputs and calculations for environmental sensors while maintaining an all-time-low power consumption. It stores statistical values “min/max/average/Standard deviation” for temperature, RH%, pressure, solar irradiance and wind speed, vector averaging for wind direction (prevalent sector, average and max gust) and intensity calculation for rain.

Order numb.	**ELO105**	
Analogue inputs	*Input number*	N. 8
	ESD protections	±8 kV contact discharge IEC 1000–4-2
	Max input signal	1,2 V
	EMC filters	On all inputs
Digital inputs	*Input number*	N. 4
Actuators output	*Use*	Power for sensors and communication devices
	Output number	N. 7
	Max current on each output	150 mA
	Protection	Thermal and over current (> 0.15 A)
Power supply	*Power supply*	12 V ± 10%
	Power consumption (during acquisition)	20 mA
	Power consumption (Stand-by)	Stand-by: 0,2 mA
	Protections	Transient voltage suppressor: 600 W, t = 10 µs; inv.polarity
Other features	*RS232 port*	N. 2x9 pins/Female/Male/DTE/DCE, 1200÷115200 bps
	Memory	8 Mb
	Internal clock	Accuracy 30 sec/month (T=25°C)
	Environmental limits	-40 ÷ 60 °C, 15 ÷ 100 % UR/RH (not condensing)
	Protection	IP 40
	Weight	720 g
	Dimensions	242 x 108 x 80 mm



Thermo-Hygrometer

Air temperature and RH% sensor. This sensor is suitable for long-term operation in severe environments and in presence of steep thermal and hygrometric variations. The high-efficiency radiant screen protects it from external radiant sources ensuring the best accuracy of the temperature measurement.

Order numb.	**DMA672.1**	
Temperature	*Principle*	Pt100 1/3 DIN B
	Measuring range	-50÷+70°C
	Uncertainty	0,1°C (0°C)
	Resolution	0,01°C
Relative Humidity	*Principle*	Capacitive
	Measuring range	0-100%
	Uncertainty	±1% RH (5-95%)
	Cable	L = 3 m
General information	*Power consumption*	3 mA
	Mounting	On DYA046 arm using DYA233 radiant screen

Wind speed

With compact size and high mechanical strength, this sensor combines a very low threshold with rugged rotating components, to measure from light breezes to gusts up to 75 m/s. The sensing element is a high-efficiency and long-lasting relay reed. The sensor body is made of anodized aluminum, while the 3-cup rotor of carbon-fiber-reinforced plastic. The anemometer comes with a 3 m cable and IP65 connector.

Order numb.	**DNA202**	
Wind speed	*Principle*	Relay Reed
	Measuring range	0÷75 m/s
	Uncertainty	2,5%
	Threshold	0,5 m/s
General information	*Housing*	Anodized aluminum
	Power consumption	No-power
	Mounting	On DYA046 arm or ø 48÷50 mm pole

Wind direction

With compact size and high mechanical strength, this sensor combines a very low threshold with rugged rotating components, to endure strong winds without maintenance. The sensing element is a Hall effect magnetic transducer. The sensor body and vane are made of anodized aluminum. The anemometer comes with a 3 m cable and IP65 connector.

Order numb.	**DNA212**	
Wind speed	*Principle*	No contact Hall effect sensor
	Measuring range	0÷360°
	Uncertainty	5°
	Threshold	0,25 m/s
General information	*Housing*	Anodized aluminum
	Power consumption	10 mA
	Mounting	On DYA046 arm or ø 48÷50 mm pole

Global irradiance

Radiometer for solar irradiance measurement, according to ISO 9060 and WMO No. 8 (Part I, Chapter 7) standards. This sensor is classified as ISO 9060 Second Class. Light and compact, this sensor is the ideal solution for basic environmental, meteorological, and solar energy applications.

Order numb.	**DPA053**	
Global irradiance	*Principle*	Thermopile
	Classification	Second class (ISO9060)
	Spectral range	305÷2800 nm
	Uncertainty	10% daily
General information	*Cable*	L = 5 m
	Power consumption	No-power

Rain gauge

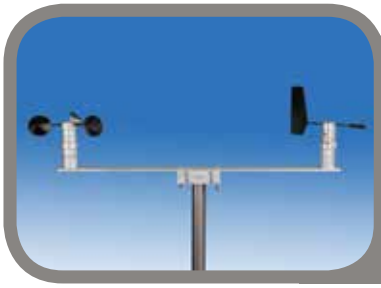
A rain gauge is a sensor to measure rain quantity.
The external body is made of anodized aluminum. The measurement device is composed of a collector cone and a tipping bucket connected to a magnet that operates one reed switch, which generates impulses: each impulse is equal to 0.2 mm of rain.

Order numb.	**DQA230.1**	
Rain gauge	*Principle*	Tipping bucket
	Design	WMO accordance
	Diameter	200 mm
	Inlet area	324 cmq
	Resolution	0,2 mm
	Uncertainty	Intensity 0÷1 mm/min: ± 0,2 mm Intensity 1÷10 mm/min: 1%
General information	*Output*	Pulses 0,5 A/24V non inductive
	Housing	Aluminum
	Power consumption	No-power

Atmospheric pressure

Sensors designed for accurate measurement of atmospheric pressure. The 1 hPa uncertainty is excellent for most meteorological applications.

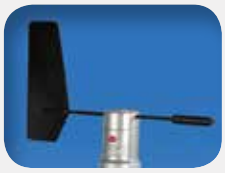
Order numb.	DQA240.1	
Pressure	*Principle*	Piezoelectric
	Range	800÷1100 hPa
	Uncertainty	0,5 hPa
	Thermal drift	0,1 hPa/°C
General information	*Output*	60÷300 mV
	Power supply	12 Vdc
	Power consumption	10 mA



Sensors mounting accessory

Every sales KME kit includes a single aluminum arm for fixing anemometers, temperature & Relative Humidity and irradiation sensors on top of a pole.

Order numb.	DYA049	
Pressure	*Dimension*	L x H: 100x11 cm
	Weight	2,8 Kg
	Installation	On top pf poles 45÷65 mm
	Material	Aluminium
	Compatibility	Wind speed, wind direction, temperature&humidity, global irradiance sensors



Accessories
for LSI Lastem Weather Station - MODELS

www.lsi-lastem.com

IP65 boxes for continuous operation

For long-term, continuous installations, data logger is normally installed in IP65 enclosure to protect it from shocks, water, dust and atmospheric agents; each enclosure includes a power supply system of different capacity.

Order numb.		
ELF340 	IP65 box complete with (2 Ah) rechargeable batteries and power supply/charger (220 Vca/13,8 Vdc).	
	Dimension	30x40 cm
	Weight	7,5 Kg
	Battery duration	4 days
DYA074	*Support*	For pole installation
DYA072	*Alternative support to DYA074*	For wall installation
ELF345 	IP65 50x40 cm box. Complete with solar panel regulator. Free space for 15 or 40 Ah battery	
	Dimension	50x40 cm
	Weight	8 Kg (battery not included)
DYA074	*Support*	For pole installation
DYA072	*Alternative support to DYA074*	For wall installation
MG0558	*Battery*	15 Ah
	Battery duration	30 days
	Weight	6 Kg
MG0560	*Alternative battery to MG0558*	50 Ah
	Battery duration	100 days
	Weight	15 Kg
DYA101	*Solar panel*	50 Watt
DYA064	*Solar panel arm*	

Portable IP65 carrying cases

For portable applications, data logger can be mounted inside IP65 carrying cases to protect it from shocks, water, dust and atmospheric agents; each of our case includes a power supply system of different capacity. The case has also room for one or more communication devices, to be selected in the following section.

Order numb.		
ELF410		Portable shockproof IP65 case. Complete with battery pack (n. 8 1,5 V D-shaped batteries not included)
	Dimension	48x35x18 cm
	Weight	5 Kg
	Battery duration	15 days
ELF412		Portable shockproof IP65 case. Complete with (4 Ah) rechargeable battery. Battery charger 220 Vac/13,8 Vdc not included
	Dimension	48x35x18 cm
	Weight	6 Kg
	Battery duration	8 days
DEA260	*Battery charger*	220 Vac/13,8 Vdc. IP54 for indoor use
ELF432		Portable shockproof IP65 case. Complete with (15 Ah) rechargeable batteries and power supply/charger (220/13,8 Vdc)
	Dimension	53x45x23 cm
	Weight	12 Kg
	Battery duration	30 days

Communication devices

E-Log data logger comes with a 1,5m RS232 cable and USB converter for local connection to a PC. To upload data to a remote PC, you can choose other type of communication devices, such as GPRS modem, TCP/IP converters for LAN.

Order numb.		
DEA718.1		**GSM-GPRS Modem**
		GSM-850 / EGSM-900 / DCS-1800 / PCS-1900 MHz Quad-Band. GPRS class 10
	Operative temperature	-20÷+70°C
	Power supply	9÷24 Vdc from data logger
	Power consumption	Sleep: 8 mA During communication: 110 mA
ELA110.1		Connection cable from DEA718.1 to E-Log
DEA550		**TCP/IP LAN device**
		Universal port device server. RS232-to-Ethernet converter.
	Serial speed	75 bps to 230 Kbps
	Hardware flow control	RTS/CTS
	Software flow control	Xon/Xoff
	Network interface	10/100 Base-Tx Ethernet with RJ45 Ethernet connector
	Address	Support static and dynamic IP address
	Operative temperature	0÷50°C
	Power supply	9÷30 Vcc
DEA504		**RS232/485 converter**
		RS232-RS485 converter data logger side
DEA504		RS232-RS485 converter PC side
ELA105		L = 1,8 m cable from DEA504 to PC. Always included in each data logger package
MN1510		4x2xAWG24/I-S/FTP-CMX Cat. 5 cable for the connection between two DEA504 devices

PC software

Weather station includes application for data management and display.
- 3DOM is a free PC-based software package, it is included in each KME kit
- LSI-LASTEM offers a wide range of additional applications: GIDAS, X-Panel, CommNET.
- Web base solution: data communication to a web site managed by LSI LASTEM.

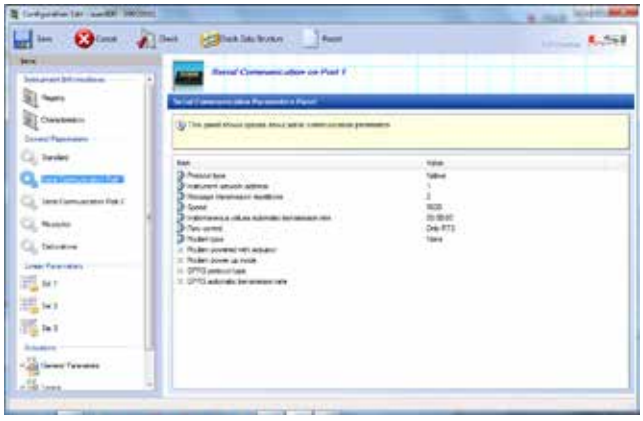
3DOM

3DOM program always comes with every weather station, for data logger setup, diagnostics and data downloading.

General

- Data logger configuration import&export
- Edit data logger communication properties
- Data downloading in ASCII formats, also via GSM modem and TCP/IP
- Data logger clock synchronization
- On-line data display

interface - **3DOM main window**



Communication setup

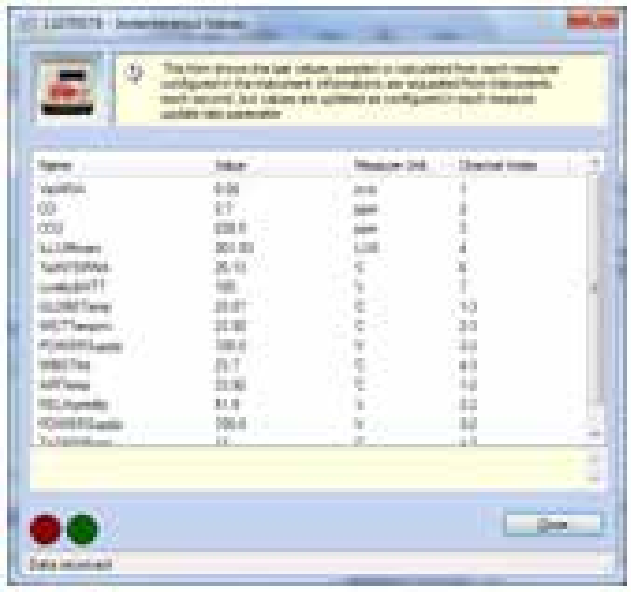
- Data output protocol configuration (Native, Modbus, TTY)
- Data output mode (push or poll mode)
- Modem type configuration
- ASCII file configuration
- Host connection setup (GPRS, FTP, TCP/IP)

interface - **Configuration edit**

Data communciation

- On-line Instant values and Data downloading on operator command
- Instant values display

interface - **Configuration edit**

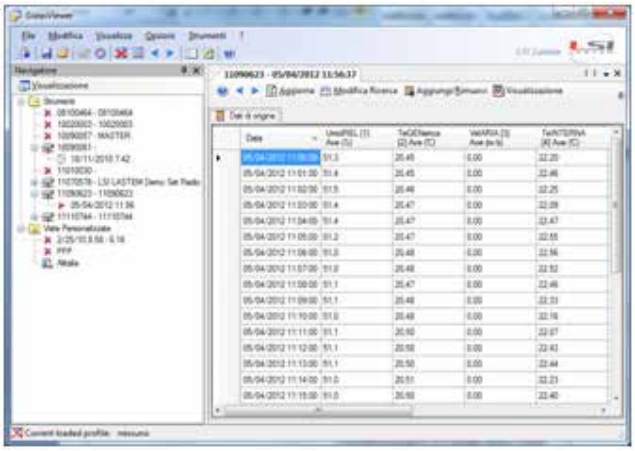


interface - **Instantaneous values**

interface - **Download elaborated data**

SQL-GIDAS VIEWER

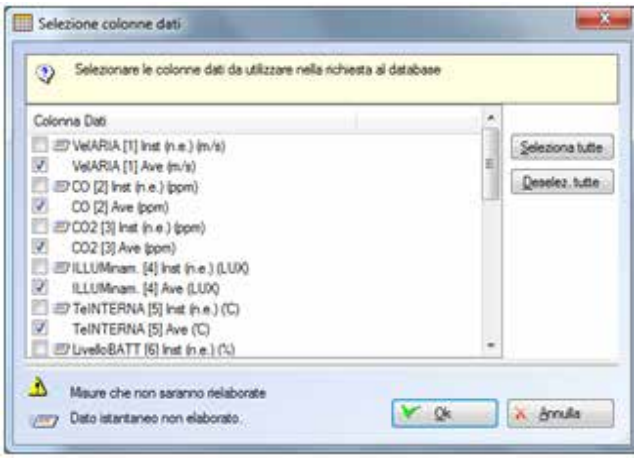
Gidas Viewer is a post-processing solution that allows for data display, management and analysis.The user can access data in various tabular and chart form (including Wind Roses), elaborate over longer time-bases, aggregate data and instruments. Gidas Viewer is based on a powerful SQL Database for better data security and management, including tools for data backup and storage.
Gidas Viewer SQL database can be installed locally or in networks and is also accessible from third-party software for custom-made software applications and web data display.



General

- Instrument Browser, including all data loggers and surveys for fast data selection;
- Selection of one or more time base for displaying statistical data;
- Reports (table and charts) with measurement selection;
- Wind rose option for wind analysis (including Weibull analysis);
- Export data to ASCII table and Excel;
- Recall of selected data filters for fast reports update using fresh data.

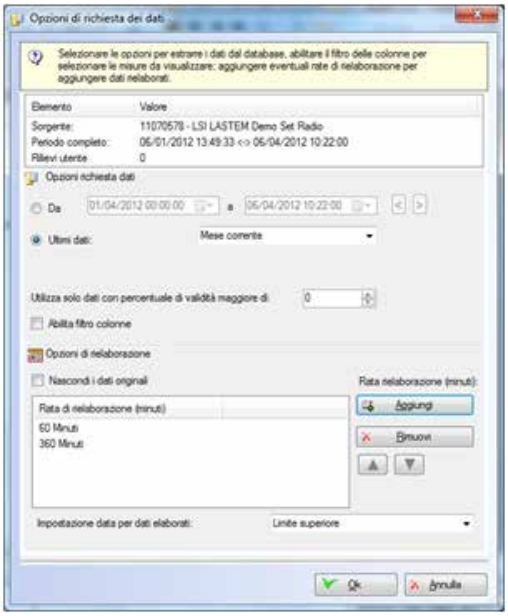
interface - **Gidas viewer**



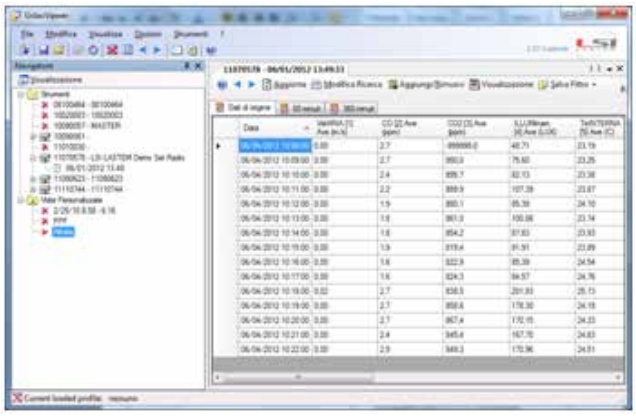
Measurement selection

- Data selection by date;
- Selection of one or more elaboration time base;
- Selection of the row to be placed inside the report.

interface - **Data selection**



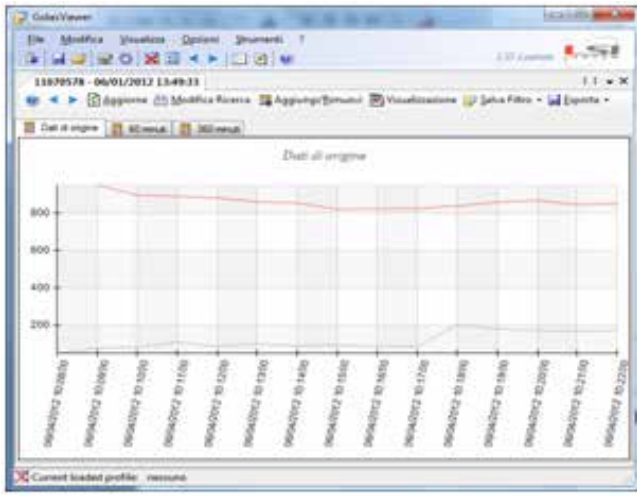
interface - **Data selection**



Data report

- Table and chart view of the selected data;
- Export tables in ASCII or Excel;
- Wind rose;
- Weibull analysis

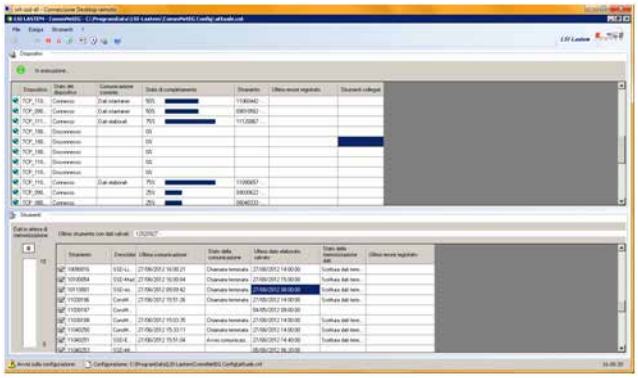
interface - **Data report**



interface - **Data report**

CommNET-EG

CommNetEG is the solution for automatic data download from LSI LASTEM data loggers to PCs and Servers. CommNetEG can manage several simultaneous communication channels and protocols, including parallel COM, serial COM, PSTN, GSM and GPRS modem, VHF/UHF radio and TCP/IP.

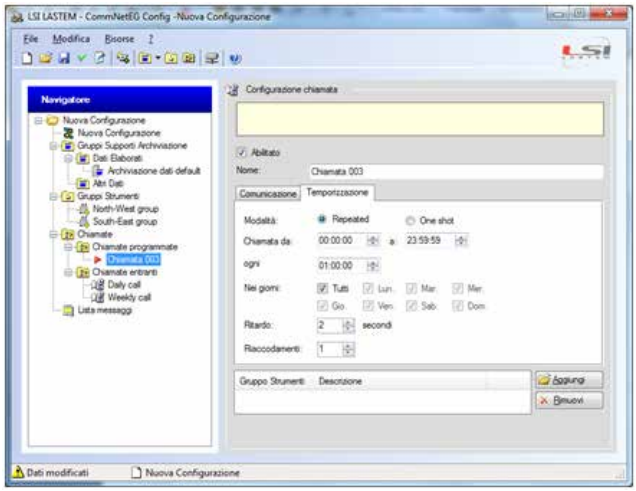


General

- Data downloading from one or more data loggers in automatic mode;
- Simultaneous use of different communication devices (VHF/UHF radio, GSM, GPRS, LAN, USB, RS232 cable) using different communication channels;
- Data storing in several formats, including ASCII files, SQL databases and Binary for successive data management with SQL-GIDAS Viewer, XPanel, SYNOP, Evapotranspiration, TEA Thermal Environment Application, InfoFlux programs.

interface - **CommNET-EG**

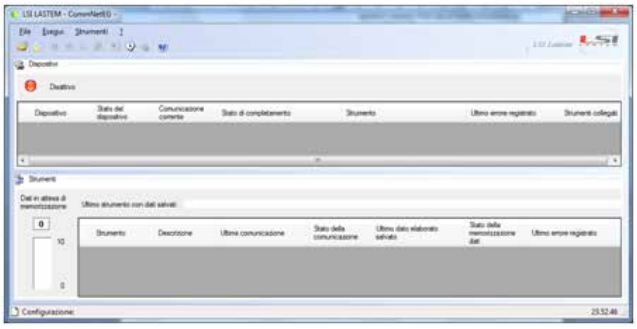
Cyclical data download at programmed times or on operator's request, from one or more instruments (or groups of them).



Configuration module

- Setup module to program all the communication parameters;
- Wizard tool for configuration procedure;
- Group of stations each using its own communication parameter: device, day/ time starts, repetitions;
- Communication devices setup;
- Data storing formats setup: ASCII, SQL-GIDAS, SQL Enview, Binary, formats;
- PC and data logger clock synchronization;
- Switch-off data logger communication device after data communication;
- Save one or more configurations.

interface - **CommNET-EG config**



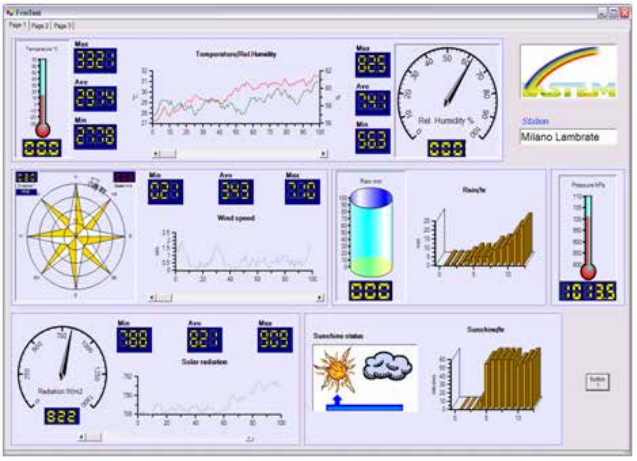
Configuration module

- Operative service displaying all the communication status
- Selection of the configuration to be used.
- Log book of the events
- Communication statistical analysis
- Start/Stop communication
- Manual calls
- Entry calls from data logger by GPRS modem in “push” mode.

interface - **CommNET-EG config**

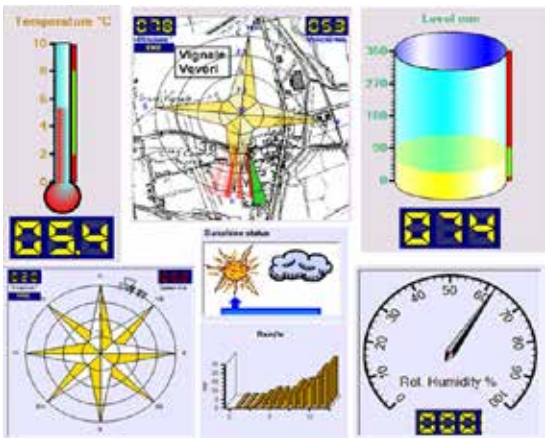
XPanel

XPanel is the dynamic data display solution for LSI Lastem data-loggers. XPanel includes a communication module for data exchange and update and a display unit to create real-time dashboards.



General

- Digital and numerical controls referred to every measurement, Including dynamic wind rose;
- Instant values and statistical values (running statistics over a programmable time base) display;
- Real-time charts of the last “n” instant values or statistical values;
- Alarms features;
- Running over many PC of the network using same data base;
- Auto-change multi-page.

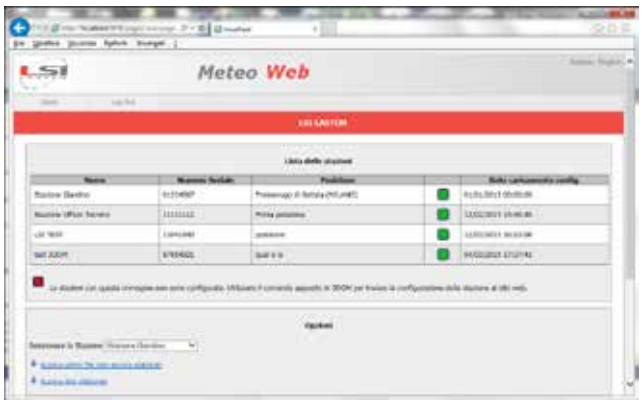


Controls

- Instant values controls;
- Wind rose with background map;
- Single or double charts with scrolling feature;
- Visual alarm setup.

LSI LASTEM Web-based application

LSI LASTEM provides two web solutions. The weather station should be equipped with a GPRS modem (DZZWEB1 and DZZWEB2) or a TCP/IP (only DZZWEB2) converter.
Data are automatically uploaded to LSI LASTEM area.
DZZWEB1: it is a simple application which receive automatically data from E-Log data logger by GPRS and store them inside a FTP site managed by LSI LASTEM.
User can access to this FTP site and download the data in ASCII file.



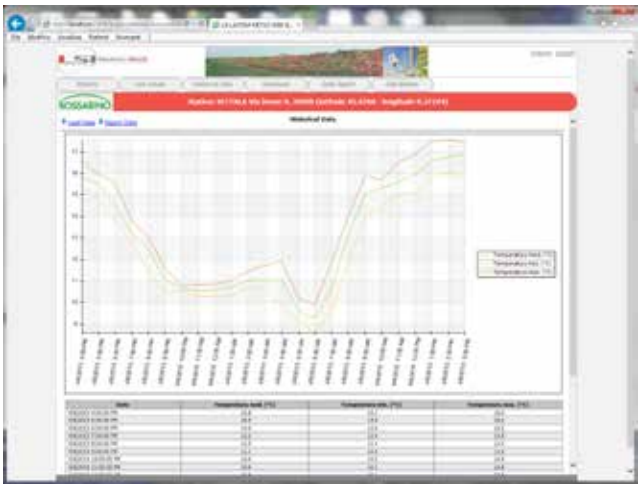
E-Log push data to LSI LASTEM FTP site using the programmed rate. Each 24 hrs the program make available the data in its monthly ASCII file. Features of the ASCII file are programmable.

DZZWEB2: this solution allows to analyze data from an internet browser. The website data base, where data are sent and published, is managed by LSI LASTEM, that offers this service under yearly subscription. . User can read the last acquired data and the daily, weekly, monthly, annual reports are displayed, with the possibility to export these data from the database in the most common used formats (ASCII, Excel).

DZZWEB1: it is a simple application which receive automatically data from E-Log data logger by GPRS and store them inside a FTP site managed by LSI LASTEM.
User can access to this FTP site and download the data in ASCII file.

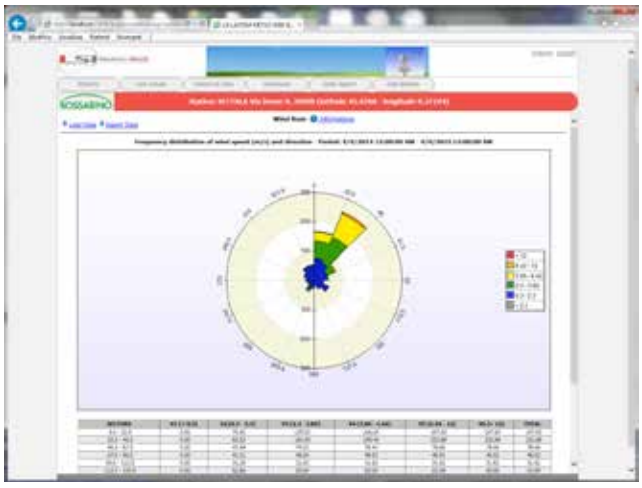
Main features

- Map and weather station owner information
- Last received data
- Table and charts of the row data and elaborations using different time fraime
- Data download in TXT and XLS formats



Data Report

- Data reports can be obtained in printable tables and charts showing time of the day, day and month values.



Wind Rose

- Wind rose and wind occurance distribution tables: wind speed classes ([<0,3 m/s]; [0,3 - 2,3 m/s]; [2,3 - 3,9 m/s]; [3,9 - 6,5 m/s]; [6,5 – 12 m/s]; [> 12 m/s]; and wind direction sectors.

SETTORI GRADI	V1 (< 0.3)	V2 (0.3 - 2.3)	V3 (2.3 - 3.85)
0.0 - 22.5	0.00	14.39	0.00
22.5 - 45.0	0.00	14.39	0.00
45.0 - 67.5	0.00	21.58	0.00
67.5 - 90.0	0.00	43.17	0.00
90.0 - 112.5	0.00	64.75	0.00
112.5 - 135.0	0.00	50.36	0.00
135.0 - 157.5	0.00	86.33	0.00
157.5 - 180.0	0.00	79.14	0.00
180.0 - 202.5	0.00	14.39	0.00
202.5 - 225.0	0.00	71.94	0.00
225.0 - 247.5	0.00	172.66	0.00
247.5 - 270.0	0.00	165.47	0.00
270.0 - 292.5	0.00	7.19	0.00
292.5 - 315.0	0.00	50.36	0.00
315.0 - 337.5	0.00	57.55	0.00
337.5 - 360.0	0.00	35.97	0.00
VARIABILI	0.00	0.00	0.00
CALMA DI VENTO	50.36	0.00	0.00
TOTALE	50.36	949.64	0.00

Visit the website: **www.lsi-lastem.com/meteo** to check for the data of our weather station mounted in our Headquarters in Milan (Italy).

Important information

LSI LASTEM Srl is not responsible for data communication from station to site.

Reference List

Some of the customers who choose our systems:

Italy:

End users

-ACEA - Roma
-AMIAT - Torino
-AMSA SpA - Milano
-ARPA Lombardia – Milano
-ARPA Marche - Ancona
-Augusta Westland - Varese
-BASF - Roma
-CGP Società Astronomica - Varese
-Comitato EV-K2 - Bergamo
-Consorzio Parco Nazionale dello Stelvio - Sondrio
-Discoteca di Stato - Roma
-ENEA CRE Saluggia – Vercelli
-ENEA Ente Nuove Tecnologie ENEL SPA
-ENI SPA - Roma
-ERSAL Ente Regionale Sviluppo Agricolo - Milano
-FS Ferrovie dello Stato SpA
-Ferrarelle - Caserta
-FIAT Engineering SPA – Torino
-Fonti Guizza - Pescara
-Gruppo Italcementi - Bergamo
-GRUPPO HERA - Bologna
-ISPESL - Roma
-Energia e Ambiente - Napoli
-RAI Radio Televisione Italiana - Roma
-RFI Rete Ferroviaria Italiana SpA - Roma
-ROHM & HAAS Srl - Como
-WTE Voltri Terminal Europe - Genova
-San Pellegrino SpA – Bergamo
-San Benedetto acque - Venezia
-Sartec - Milano
-SECH Porto di Genova - Genova
-Siemens Italia – Monza
-Veolia


Monte Bianco
(Courtesy of Università di Milano)

Research and development

-CNR-IBAM
-CNR-ISMAR, Genova
-CCR ISPRA, Varese
-Politecnico Milano
-Politecnico di Torino
-Università di Bolzano
-Università di Milano - Dep. Hearth Science
-Università di Messina
-Università di Trento
-Università di Trieste
-Università di Milano - Dep.Applied Physics
-Università degli studi Aquila
-Università di Salerno


Fonti San Pellegrino
(Courtesy of San Pellegrino SpA)


Meazza Stadium Milano
(Courtesy of Sartec)

8000 m Coll South Mount Everest
(Courtesy of EV K2-CNR)

CNR Laboratory in Nepal
(Courtesy of EV K2 – CNR)

Foreign countries:

-**Fujian Academy of Agricultural Sciences** - China
-**Fujian Academy of forestry** - China
-**Fujian Agriculture and Forestry University** - China
-**Fujian Normal University** - China
-**Fujian Water and Soil Conservation Experiment Station** - China
-**Fuzhou Environmental Monitoring Station** - China
-**Wuyishan Nature Reserve Administration** - China
-**Institute of Botany. The Chinese Academy of Sciences** - China
-**Jiangsu University of Science And Technology** China
-**Xiamen Environmental Monitoring Station** - China
-**Xiamen Overseas Chinese Subtropical Plant Introduction Garden** - China
-**Xiamen University** - China
-**Xinjiang University** - China
-**Henan Academy of forestry** - China
-**Henan Institute of Science and Technology** - China
-**Nanjing Institute of Geography & limnology Chinese Academy of Sciences** - China
-**Nanjing Normal University** - China
-**Shanghai City Environmental Science Research Institute** - China
-**Zhengzhou Fruit Research Institute, Chinese Academy of Agriculture Sciences** - China
-**Zhenjiang University of science and technology** China
-**Cyprus Meteorological Service** - Cyprus
-**Ministry of Environnement PMU** - Czech Republic
-**Instituto Hidrografico** - Domenicana Repubblic
-**Met Autority** - Egypt
-**Alstom Power Systems** - France
-**Chonbuk National University, Jenju City** - Korea
-**Ministry of Environment** - Korea
-**Suwon Environment Affair Agency** - Korea
-**Malaysia Food Corporation Berhad** - Malaysia
-**Monier Malaysia Sdn Bhd** - Malaysia
-**Universiti Teknonogi Mara** - Malaysia
-**Universiti Malaya** - Malaysia
-**Universiti Kebangsaan Malaysia** - Malaysia
-**Universiti Putra Malaysia** - Malaysia
-**EV K2-CNR** - Nepal
-**Ministry of Infractrusture** - Rwanda
-**Iberdrola** - Spain
-**Valencia Municipality** - Spain
-**Shoiba Oil fired Power Plant** - Saudi Arabia
-**PUB Public Utility Board** - Singapore
-**Environment EGAT - Electricity Governor Authority** Thailand
Royal Irrigation Dep. - Thailand
Al Ain Municipality Agriculture Dept. - UAE
Dubai Municipality - UAE
Protection&Safety Section - UAE
U.A.E Ministry of Environment - UAE
Microensure - USA

SHARE
Network station on Central Karakorum National Park
(Courtesy of EV K2 – CNR)

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