AUTOMATIC WEATHER STATIONS

ISMMA Weather Stations



- Professional-grade weather stations equipped with data loggers, sensors for measuring the seven key meteorological parameters, and accompanying accessories.
- High-quality sensors that meet the standards of the WMO (World Meteorological Organization)
- Operating limits suitable for all climatic situations Extremely low power consumption
- Used in typical environmental and industrial applications
- Wide range of data communication options to remote servers: 4G modem, LTE router, satellite, Wi-Fi, Ethernet
- SMS and e-mail in case of alarms
- Internal Web server for viewing and downloading data and for diagnostic purposes
- Local electrical outputs for activating devices based on programmable events

LSI LASTEM provides both stationary and portable weather stations for synoptic and climatological applications that require advanced technical capabilities. These stations adhere to WMO standards and are ideal for national monitoring networks, as well as environmental and industrial applications. ISMMA stations feature the Alpha-Log data logger for remote data storage and trans-mission, along with AIO (All-In-One) or individual sensors for key parameters (Temperature, Humidity, Wind Speed and Direction, Solar Radiation, Rain, Atmospheric Pressure), as well as mounting accessories.

Available models are listed below:







ISMMA2300	ISMMA2100	ISMMA2200	ISMMA1100	ISMMA1200
Separate sensors	AIO sensor (Standard)	AIO sensor (Compact)	AIO sensor (Standard)	AIO sensor (Compact)
Fixed stations			Portable stations	

List of included items

PN	ISMMA2300	ISMMA2100	ISMMA2200	ISMMA1100	ISMMA1200
Temperature sensor	DMA672.1	AIO DNB302 Standard	AIO DNB202 Compact	AIO DNB302 Standard	AIO DNB202 Compact
RH% sensor	DMA672.1				
Wind speed sensor	DNA131				
Wind direction sensor					
Atm. pressure sensor	Inside Alpha-Log				
Solar rad. sensor	DPA983				
Rain sensor	DQA230.1	Optional			
Data Logger	Alpha-Log (DLALB0100)				
Mast	H.3 m (DYA010.1)			Movable telescopic H.4 m (DYA340) + adapter (DYA345)	
Mast base	Tripod for concrete plinth (DYA020) + Pullers DYA020.1			NA	NA
Mast tie rods	Tie rods+collar (DYA028) + N.3 pickets (DYA023)				
IP66 box	Box (ELK001)			Connectorized carrying case (ELK002)	
Solar panel	Optional			Solar Panel DYK101 + Bracket DYA064	

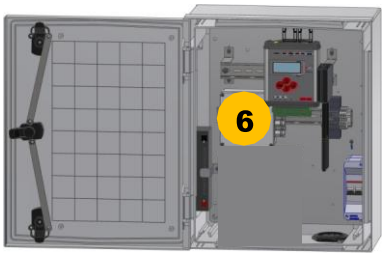
Sensors technical features

PN		ISMMA2300	ISMMA1100 ISMMA2100	ISMMA1200 ISMMA2200
Temperature	Model	DMA672.1	DNB302	DNB202
	Sensor	Combined T+RH	All-In-One Standard	All-In-One Compact
	Technology	Pt100 Class A IEC60751	Diode	
	Range	-40…60 °C	-40…80 °C	
	Accuracy	±0.15 K @ 0 °C	±0.3° C (-35...60 °C); or ±0.5 °C	
	Resolution	0.01 °C	0.1°C	
	Response time	180 s	1 s	
RH%	Model	DMA672.1	DNB302	DNB202
	Sensor	Combined T+RH	All-in-One Standard	All-in-One Compact
	Technology	Capacitive	Capacitive	
	Range	0...100%	0...100%	
	Accuracy	1% (10...30 °C)	3%	
	Resolution	0.1%	0.1%	
	Response time	15 s	1 s	

PN		ISMMA2300	ISMMA1100 ISMMA2100	ISMMA1200 ISMMA2200
Wind speed	Model	DNA121	DNB302	DNB202
	Sensor	Combined WS+WD	All-in-One Standard	All-in-One Compact
	Technology	Cups-Optoelectronic	Ultrasonic	
	Range	0...75 m/s	0...60 m/s	
	Accuracy	± 0.1 m/s or ±1%	± 0.2 m/s; 3% (0.02...35 m/s) 5% (>35 m/s)	± 0.3 m/s; 5% (0.02...35 m/s); 10% (>35 m/s)
	Resolution	0.06 m/s	0.01 m/s	
	Response time	Delay path: 4.8 m	250 ms	
Wind direction	Model	DNA131	DNB302	DNB202
	Sensor	Combined WS+WD	All-in-One Standard	All-in-One Compact
	Technology	Vane-Hall	Ultrasonic	
	Range	0...360°	0...360°	
	Accuracy	1%	±2° (>1 m/s)	±3° (>1 m/s)
	Resolution	0.3°	0.1°	0.1°
	Response time	Delay path: 4.8 m	250 ms	
Pressure	Model	Internal to Alpha-Log	DNB302	DNB202
	Sensor	-	All-In-One Standard	All-In-One Compact
	Technology	Piezoresistive	Piezoresistive	
	Range	500...1100 hPa	600...1100 hPa	
	Accuracy	±1 hPa	±0.5 hPa @ 25 °C	
	Resolution	0.084 hPa	0.1 hPa	
	Response time	0.1 s	1 s	
Solar radiation	Model	DPA983	DNB302	DNB202
	Sensor	Class C IEC 61724-1:2017	NA	
	Technology	Thermopile	Photodiode	
	Range	0...2000 W/m^2	0...2000 W/m^2	
	Accuracy	10%	5%	
	Resolution	1 W/m^2	1 W/m^2	
	Response time	20 s	1 s	
Rain	Model	DQA230.1	DQA230.1 (OPTIONAL) + DWK505A	
	Sensor	Tipping bucket rain gauge		
	Technology	Tipping bucket		
	Range	0...500 mm/h		
	Accuracy	0...20 mm/h: ± 0.2 mm; 20...240 mm/h: 1%; >240 mm/h: 2%		
	Resolution	0.2 mm		

All sensors can be supplied with calibration certificates. LSI LASTEM has an in-house ISO17025 accredited laboratory for temperature and air velocity.

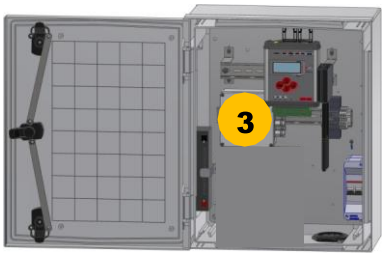
ISMMA2300





#	Products
1	DNA131 Wind speed and wind direction
2	DPA983+TYA200+TYA050 Solar radiation
3	DQA230.1+DYA040.2+DYA058 Rain gauge
4	DMA672.1+DYA230+DYA049 Temp+RH%
5	ELK001 IP66 Box with 18 Ah battery
6	DLALB0100 Alpha-Log
7	DYA010.1 Pole H.3 m
8	DYA020+DYA020.1 Tripod and pullers

ISMMA2100 / ISMMA2200





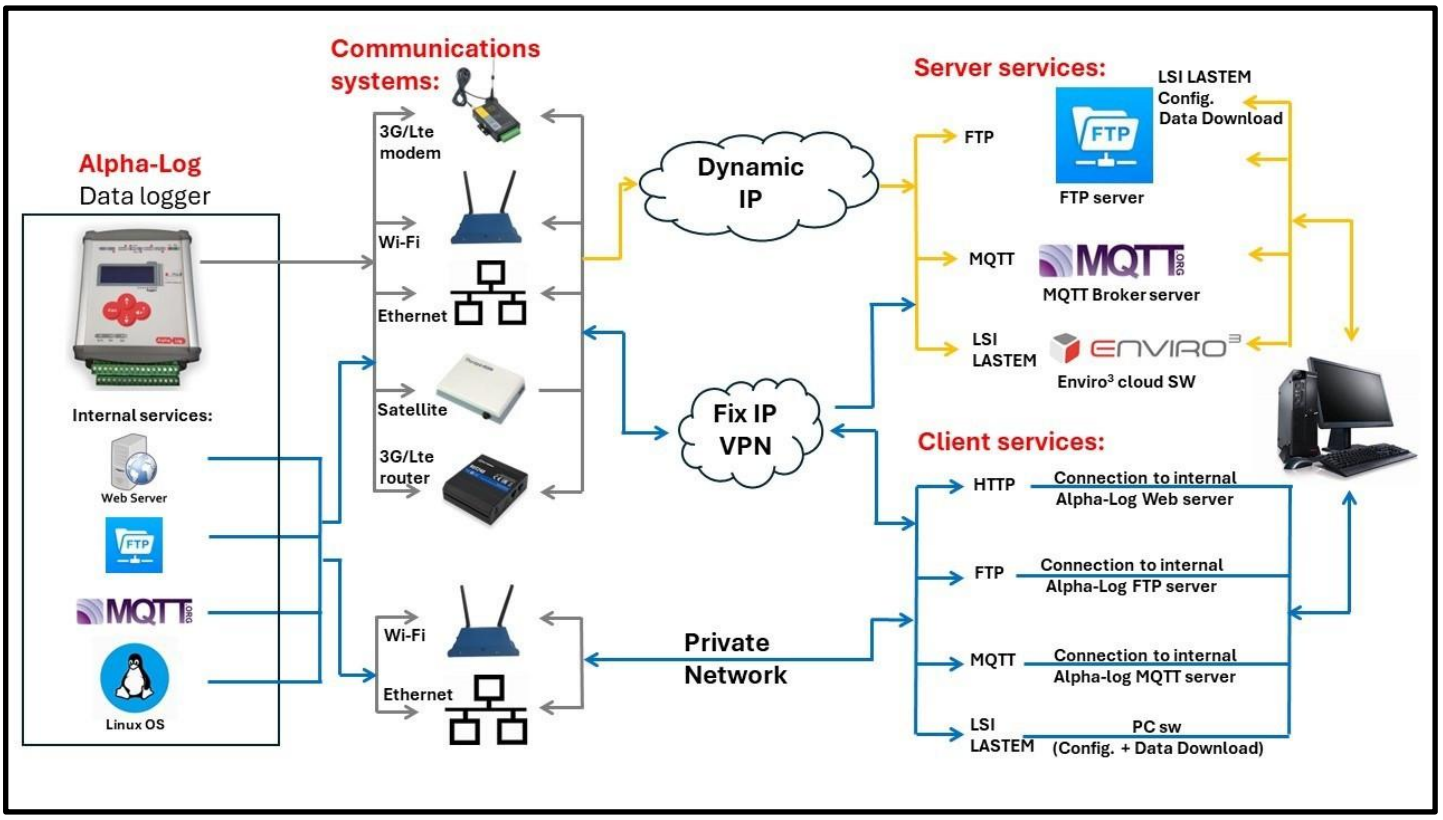
#	Products
1	DNB302 AIO Standard (only ISMMA2100) DNB202 AIO Compact (only ISMMA2200)
2	ELK001 IP66 Box with 18 Ah battery
3	DLALB0100 Alpha-Log
4	DYA010.1 Pole H.3 m
5	DYA020+DYA020.1 Tripod and pullers

ISMMA1100 / ISMMA1200





#	Products
1	DNB302 AIO Standard (only ISMMA2100) DNB202 AIO Compact (only ISMMA2200)
2	ELK002 IP66 Carrying case, 18Ah battery, charger
3	DLALB0100 Alpha-Log
4	DYA340+DYA028+DYA023 Telescopic pole, tie rods and pickets
5	DYK001+DYA064 Solar panel, bracket



The availability and accessibility of data within the network will depend on the type of communication equipment selected and whether the communication allows for outgoing data only from the data logger (Dynamic IP) or both outgoing and incoming data (Fixed IP, VPN, Private Network).

Real-time remote data communication and alarms

Data communication via GPRS modem, Wi-Fi, Ethernet, Satellite or Wireless Router to remote PC, directly or via MQTT broker server and FTP server.

Data management applications (read page 8)

LSI LASTEM provides the following software applications (not included):

- GIDAS-Viewer: graphs, tables and measurement reports.
- X-Panel: dynamic real-time dashboards.
- ENVIRO CUBE: data analysis and alarms via web application (annual subscription).

Internal web-server

The Alpha-Log data logger has an internal web-server. Using any Internet browser, the following information is available:

- Diagnostic information (system date/time, IP address).
- Battery status, event/alarm history, output status, etc.
- Instant values.
- Data download from memory (ASCII, CSV, Excel, ZIP).

Internal FTP and MQTT servers

Alpha-Log has internal FTP and MQTT servers that hold the acquired data. They can then be read by external services that manage these protocols.

Output actuators

N.3 independent electrical outputs that can be activated with configurable logic. The outputs are useful for activation of external actuatable devices such as, for example, alarm devices.

Modbus RTU and TCP outputs

It is possible to connect the Master data logger to SCADA via Modbus (RTU or TCP).

Alerts through SMS, E-mail and MQTT

Notification/alarm delivery:

- E-mail: with editable text, scheduling, and distribution lists. The e-mail attachment contains the file with the data that generated the event.
- SMS: with editable text, scheduling and distribution lists for up to 5 users. Active only via 4G modem.
- MQTT: delivery of messages to an MQTT Broker server.

For more information, read datasheet Alpha-Log (MW9005-ITA-01)

Accessories

	PN		
	**DYA109**	Solar panel 80 Wp —OPTIONAL in fixed stations (ISMMA2100, ISMMA2200, ISMMA2300), INCLUDED in portable stations (ISMMA1100, ISMMA1200)	
		Power	80 Wp
		Operative voltage (VMP)	21.57 V
		VOC voltage	25.45 V
		Dimensions	815x535 mm
		Weight	4.5 kg
		Technology	Monocrystalline
		Cable	L=5 m
	**DYA064**	Tilting bracket for pole-mounted solar panel diam. 45...65 mm - OPTIONAL in fixed stations (ISMMA2100, ISMMA2200, ISMA2300), INCLUDED in portable stations (ISMMA1100, ISMMA1200)	
	**TXCMA2200**	Modem 4G/LTE/HSPA/WCDMA/GPRS Quadband/class 10/class12 — OPTIONAL in all stations.	
		LTE FDD	Download speed 100Mbps Upload speed 50Mbps
		Frequency band (MHz)	850/900/1800/1900 MHz
		Alpha-Log connection	Via RS232 port
		Cellular antenna	Standard SMA female interface, 50 Ω, lightning protection (optional)
		SMS	Yes
		Alpha-Log connection cable	Included
		Operating temperature	-35...75 °C
		Power supply	5...36 V DC dal data logger
		Energy consumption @12 V	Sleep: 3 mA. Standby: 40-50 mA. Communication: 75-95 mA

	PN		
	**TXCRB2200** **TXCRB2210** **TXCRB2200.1**	Dual SIM industrial 4G/LTE Wi-Fi router, 3 models depending on the number of LAN ports (ex: data logger and camera with Ethernet output) and regions covered -OPTIONAL at all stations	
		Cellular	4G (LTE)
		Max data frequency	LTE: 150 Mbps. 3G: 42 Mbps
		Wi-Fi	WPA2-PSK, WPA-PSK, WEP, MAC Filter
		Ethernet WAN port	N.1 (configurable 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: Globale TXCRB2200.1: Europe, Middle East, Africa
		Frequencies	TXCRB2200, TXCRB2210: 4G (LTE-FDD): B1, B2, B3, B4, B5, B7, B8, B12, B13, B18, B19, B20, B25, B26, B28. 4G (LTE-TDD): B38, B39, B40, B41. 3G: B1, B2, B4, B5, B6, B8, B19. 2G: B2, B3, B5, B8 TXCRB2200.1: 4G (LTE-FDD): B1, B3, B5, B7, B8, B20. 4G (LTE-FDD): B1, B3, B7, B8, B20. 3G: B1, B5, B8. 2G: B3, B8
		Power supply	9...30 V DC (<5W)
		Operating temperature	-40...75 °C
		Weight	0.125 kg
		Compatibility	Alpha-Log

Data management software (not included)

BSZ309—Alpha-Log CommNET

Service application that allows data to be downloaded automatically from the FTP servers where the Alpha-Log data logger sent them. Once received, you can manage the data for different purposes:

- Use the data with LSI LASTEM programs that support the SQL-GIDAS database
- Make flexible and immediate use of the data in the SQL-GIDAS database through third-party applications made for the purpose
- Make backups of ASCII data from an FTP area to folders local or sha-red

- Saving Alpha-Log data to SQL-GIDAS database for the use via LSI LASTEM applications
- Saving data to SQL database on local or shared folder (visible on local or remote network)
- LSI LASTEM space rental on FTP server

BSZ311—GIDAS Viewer

GIDAS Viewer is the program for viewing historical data downloaded from data loggers (through 3DOM, or Alpha-Log CommNET).
The program uses the data in the GIDAS SQL database and produces tables and graphs, both raw data and the reprocessed data, according to various user-selectable time bases.
The reprocessing can be exported as Excel files (*CSV) or text files (*TXT), and the graphs can be saved as images (*JPG).
The program allows saving data display filters (Views), with the possibility of including data from more than one station simultaneously.

- Visualization and extraction of data stored in the GIDAS SQL database
- Elaborated data on different time bases
- Creation of graphs and tables
- Creation of Wind Rose
- Setting up queries to manage visualization of selected data

BSZ411—X-Panel

X-Panel is a control panel that dynamically displays instantaneous values from Alpha-Log data loggers in real time.

The software receives data directly from the MQTT broker server present in Alpha-Log, or from an external MQTT broker server where Alpha-Log sent the data. With X-Panel, the configuration of each page is fully customizable according to the data loggers and the quantities you want to display.

- Real-time information on dynamic control panels from connected data loggers
- Complete programmability
- Multi-parameter and multi-station control panel

SWCLA3100— ENVIRO CUBE

The ENVIRO CUBE cloud platform is a cloud-based service offered by LSI LASTEM on a subscription basis to access data from weather stations installed in the territory from any Internet location.
ENVIRO CUBE is an extensively user-configurable platform for viewing, downloading, and processing data collected from weather stations. The website is modular and allows the enabling of different users with different permissions to access the data and different functionality.

- Extensive user configurability by 'organization (users and roles) and stations
- Multi-tenant platform open to integration into third-party systems
- Measured values of the last 72 hours with dynamic update in graphical format
- Display of historical values in graphical and tabular format from different stations
- Data exports in text or Excel format
- Configurable map-based aggregation of data from different stations
- Configuration of alarms with validity range or thresholds exceeded. Alarms Module.
- Data security through database authentication and partitioning.

LSI LASTEM Srl
Via Ex SP. 161 Dosso, 9
20049 Settala (MI)
Italy

Tel. +39 02 954141
Email info@lsi-lastem.com
www.lsi-lastem.com