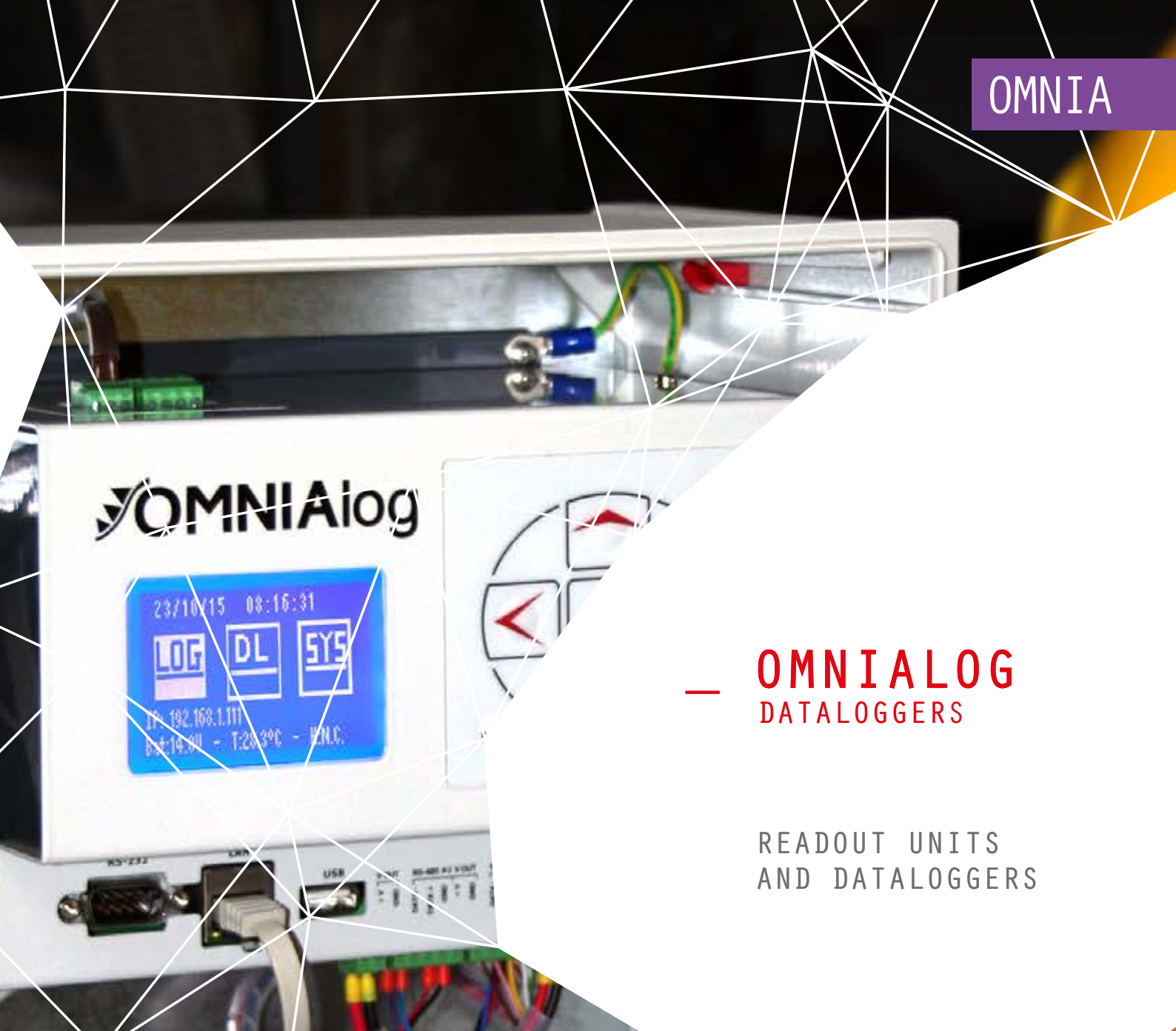
OMNIA



OMNIALOG
DATALOGGERS

READOUT UNITS
AND DATALOGGERS

SISGEO®

OMNIALOG_EN_08_11/2025

OMNIALOG DATALOGGER

The OMNIAlog has been designed "in house" by Sisgeo and is the result of over 25 years experience using different dataloggers in geotechnical field.

OMNIAlog is a versatile, cost effective and low powered datalogger supporting vibrating wire and all major geotechnical sensors.

OMNIAlog has a mini web server on board, 24 local analog channels, expandable to 408 channels through multiplexers and 2 digital opto-isolated input ports. It can be managed by any Internet browser and also includes a USB flash drive support.

APPLICATIONS

- Tunnelling
- Dam surveillance
- Structural monitoring
- Mining exploration
- Deep excavation
- Landslide safety implementation
- Retaining walls
- Geotechnical investigation campaign

FEATURES

- No software required
- LAN Ethernet, USB and RS232 Comm ports
- High performances
  (resolution, accuracy, environment -30°C +70°C)
- 32GB internal memory
- Stand alone or part of network
- Vibrating wire built-in interface
- Digital sensors support
- Compatible with all major geotechnical sensors

Meet the essential requirements of the EMC directive 2014/30/UE (OMNIAlog modules)
Safety Low Voltage Directive 2014/35/UE (OMNIAlog modules)

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TECHNICAL SPECIFICATIONS

	OMNIALOG GT-2400	OMNIALOG GT-100D
CPU AND MEMORY		
Processor	ARM Cortex-M3 MCU with 1 MB Flash, 120 MHz CPU, ART Accelerator, Ethernet	
RAM Memory	1 Mbyte RAM with backup	
Mass storage	SD CARD 32 GB (*) and WEB pages	
Clock accuracy	High precision RTC (real time clock with battery back-up) self compensated in temperature (3ppm @ 25°C, 10ppm @ -30 +70°C)	
On-board sensors	Temperature measured on the electronic board (accuracy ±1%)	
INPUT		
Analog differential inputs	24 differentials individually configured. Channel expansion provided by SISGEO multiplexers	-
Digital inputs	Two opto-isolated digital inputs individually selectable for switch closure, high frequency pulse and trigger. Independent 32-bit counters for each input. Max Input Voltage: 24V (Max Current: 10mA) Min Input Voltage: 5V (Max Current: 2mA)	
INTERFACES		
Display & Keyboard	Small backlight graphic LCD 128x64 dpi with membrane keyboard for the minimal local management without the PC. Keyboard for start a uniscan, sequential display of the last memorized readings for each channel (sensor ID, converted unit reading, UM), device status, data download and FW/web pages update by USB pen drive, safe mode (back-up/format/restore internal SD card)	
LAN ethernet isolated	10/100 Mbps, RJ45	
RS232	9-pin, DE9: DCE port for GSM/GPRS modem connection Baud Rates: selectable from 9600 bps to 115.2 kbps (default setting) Default Format: 8 data bits; 1 stop bits; no parity	
USB	USB 2.0 flash drive only (FAT 32), 5 V 200 mA	
RS485#1 opto-isolated	5 screw clamp: DCE port for max. No.250 SISGEO digital sensors Communication interface: RS485 Communication protocol: MODBUS RTU (SISGEO Protocol) The voltage 'V OUT' is switched on and off under program control. V OUT is the unregulated input power supply 'V IN' (1 A) Power supply management (always on or energy safe)	
RS485#2 opto-isolated	5 screw clamp: DCE port for max. 16 SISGEO multiplexer boards connection. Communication interface: RS485 Communication protocol: MODBUS RTU (SISGEO Protocol) The voltage 'V OUT' is switched on and off under program control. V OUT is the unregulated input power supply 'V IN' (1 A) Every channel of each multiplexer board is completely independent.	
SWITCHED OUTPUT POWER SUPPLY	The voltage 'V OUT' is switched on and off under program control. V OUT is the unregulated input power supply 'V IN' (2 A)	

(*) Including system files

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ANALOG MEASUREMENTS	OMNIALOG GT-2400	OMNIALOG GT-100D
Measurement rate (MR)	**High precision measurement (low speed, 5 sps):** Init. analog (with auto-calibration): 27.80 sec Instrument warm-up: depending on sensor configuration Measurement: 5.41 sec **Standard measurement (20 sps):** Init. analog (with auto-calibration): 7.1 sec Instrument warm-up: depending on sensor configuration Measurement: 1.57 sec **Fast measurement (High speed 40 sps):** Init. analog (no auto-calibration): 2.65 sec Instrument warm-up: depending on sensor configuration Measurement: 0.45 sec **Note1: times indicated not valid for vibrating wire measures** **Note2: init. analog phase is made only one time before the measurement cycle**	-
Type of measurements	mA, mV, V, mV/V, °C, Hz (µsec, digit)	-
ADC	24-bit (22 true bit) differential Analog-to-Digital Converters, 5SPS, 0-24 Average Function, auto-calibration and auto-range	-
Range and power supply	**Current loop (2 wires)**: range 0÷25 mA Power supply (selectable by the software, up to 100 mA): 24V DC, 10V DC, external **Transmitter (3-4 wires)**: range 0÷25mA Power supply (selectable by the software, up to 100 mA): 24V DC, 10V DC, external **Voltage (4 wires):** range ±100mV, ±1V, ±10V Power supply (selectable by the software, up to 100 mA): 24V DC, 20V DC, 10V DC, 5 V DC ,external **Servo inclinometer:** range ±5V Power supply (selectable by the software): ±12V DC (dual), external **Wheatstone bridge (6 wires, with sensing)**: range ±10mV/V Power supply (selectable by the software, up to 80 mA): 10 V DC , 5 V DC, external (max 10 Vdc) Maximum bridge resistance: 10 kΩ Minimum bridge resistance: 200 Ω **Platinum RTD (Pt100)**: range -150°C to +150°C Power supply: 1.2 mA **Potentiometer:** range ±2.5V Power supply (selectable by the software): 10V DC, 5V DC **Thermistor (NTC)**: range -50°C to +150°C Power supply: 0.05mA / 0.1mA / 1.2mA **Vibrating Wire**: range 400Hz to 6000Hz Excitation sine wave signal (adaptive): ±10 V	-
Reading resolution	1 µA at range 20 mA 10 µV at range ±100 mV - 100 µV at range ±1 V 1 mV at range ±10 V - 0.1 °C for Pt100 - 0.1 °C for NTC 0.1 Hz at range 6000 Hz - 0.001 mV/V at range ±10 mV/V	-
Measurement accuracy	0.03% F.S. (0.1% F.S. for Pt100 and NTC) with Standard Measurement Calibration in Sisgeo laboratories recommended every 2 years.	-

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	OMNIALOG GT-2400	OMNIALOG GT-100D
Temperature drift	< 10 ppm / °C, range -30°C to +70°C	-
Input noise voltage	5,42 µVpp	-
Input limits	±12V	-
Sustained input voltage w/o damage	±50V DC max	-
DC common mode rejection	>105dB	-
Normal mode rejection	>90dB	-
Input impedance	20 MΩ typical	-

OUTPUT	
Digital output	One relay output (for alarm, etc.): volt-free closure (low voltage 30V, 2A)

DIGITAL INPUTS	
Measurement rate (MR)	Max frequency 1kHz
Accuracy	0.1 Hz

PROTECTIONS	**Electro-mechanical relays for each measuring channel:** Electrical endurance: min. $2x10^5$ operations, Mechanical endurance: $10x10^8$ operations. **Circuit protection: Gas Discharge Tubes (GDT):** DC Breakdown Voltage 75V (± 20%@100V/µs) Impulse Breakdown Voltage 250V (@100V/µs) typical Overvoltage and reverse polarity protection on power supply input. Short circuit protection on every outputs of sensor power supply.

SYSTEM POWER REQUIREMENTS	
Voltage (external power supply)	10 to 30 V DC (reverse polarity protected), max 5 A
External rechargeable batteries	12V DC nominal
Typical current drain (@12Vdc, external power supply)	Sleep mode: 100 µA ON: 62 mA - ON with ethernet connected: 87 mA - ON with display ON: 115 mA ON with display ON and ethernet connected: 142 mA Analog initialisation: 115 mA Measurement: 123 mA (with 12 mA @ 24 V sensor consumption)

ENVIROMENTAL CONDITIONS	
Operating temperature	-30 to +70°C (display -20 to +70°C)
Storage temperature	-40 to +85°C (display -30 to +80°C)
Humidity	80%
Overvoltage category	II
Pollution degree	2
Sound levels	< 74dBA
Maximum height of use	3000m

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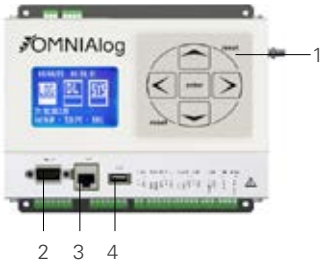
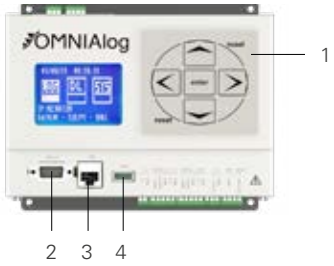
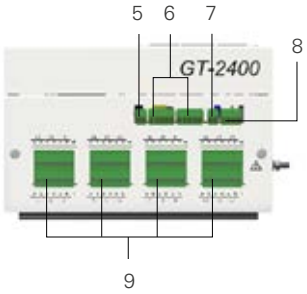
	OMNIALOG GT-2400	OMNIALOG GT-100D
SOFTWARE & FIRMWARE	Web server on board (independent OS platform). Live update (firmware and web pages). FTP client to send data/alarms on a FTP server (SFTP not supported) MAIL to sent data/alarms to max 5 email address (SMTPS / SSL not supported) SMS to sent alarms to max 5 telephone numbers Data download (readings, logs) in .csv file (compatible with Microsoft Excel) Virtual channels management (max No.80 channels) Languages: Italian, English and French	
PHYSICAL CHARACTERISTICS		
Dimensions (L x W x H)	183 x 144 x 118 mm	183 x 144 x 76 mm
Weight	1500 grams	1000 grams
Material	Plastic and metal	Plastic and metal
Wiring	Removable connector	Removable connector

TOP VIEW

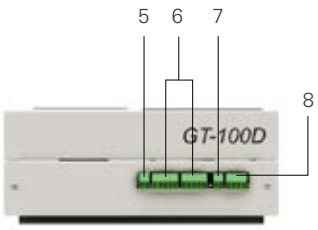




FRONT VIEW



OMNIALOG GT-2400



OMNIALOG GT-100D

1	Membrane keyboard	4	USB	7	"V" IN
2	RS-232	5	"V" OUT	8	PWR input
3	LAN	6	RS-485	9	Analogical inputs

SISGEO S.R.L.
Via F. Serpero 4/F1
20060 Masate (MI) Italy
Phone +39 02 95764130
Fax +39 02 95762011
info@sisgeo.com

TECHNICAL ASSISTANCE

SISGEO offers customers e-mail and phone assistance to ensure proper use of instruments and readout and to maximize performance of the system.

For more information, email us: *assistance@sisgeo.com*