miniOMNIAlog
DATALOGGER

NI-400

NEXT industries

mini OMNIAlog

miniOMNIAlog is ultra low power data logger with optional integral modem designed specifically for remote and stand alone applications. miniOMNIAlog is designed for hard environment field use with IP67 box, USB memory stick and electromechanical relays for each measuring channel.

Available Measure (it depends on the model)

- mV
- mA
- mV/V
- NTC
- Thermocouple
- Vibrating Wire

4
differential analog channels

1
1 USB port, 1 RS 485

2
GB sd card

3G
- World coverage
- Sim included (optional)
- Ftp data
- Email alarm

M-Bus wireless
- Long distance up to 15 km
- Standard EN 13757
- Tx power of up to 35mW 169Mhz / 868 Mhz

SIGFOX
One network A billion dreams
- Long life battery
- Long range distance
- Global reach
- Out of the box connectivity

APPLICATIONS

industry monitoring

logistic monitoring

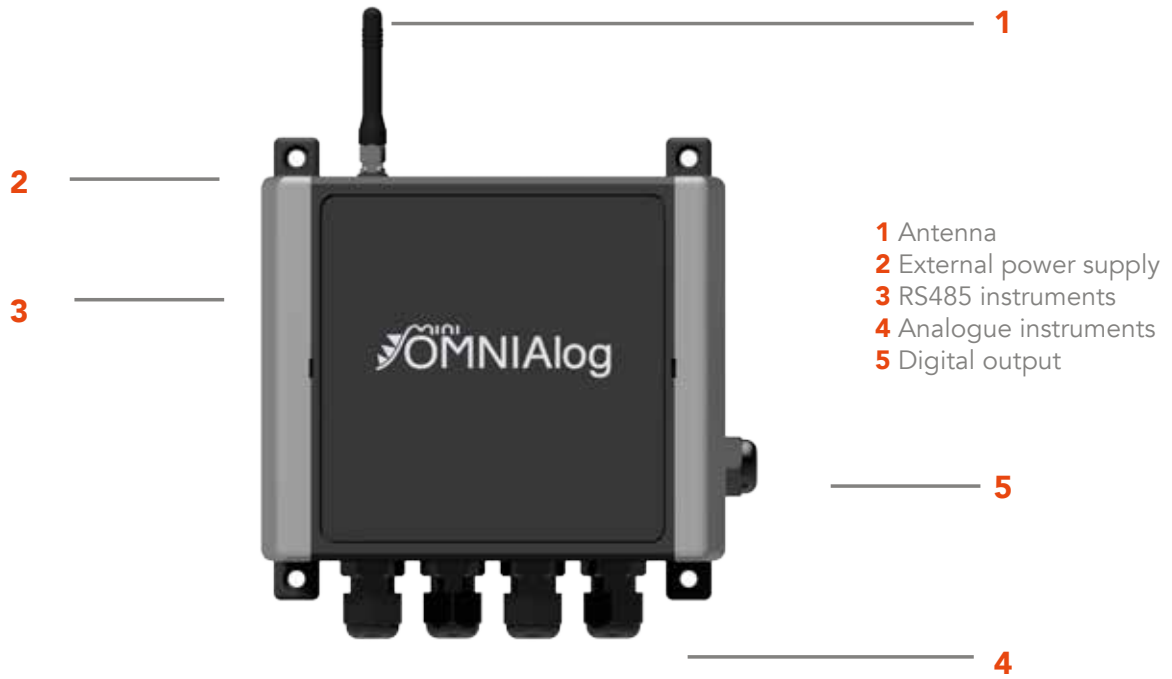HVAC monitoring

Building monitoring

Water quality monitoring

Oil gas monitoring

Energy monitoring

DATALOGGER
mini OMNIAlog

1 Antenna
2 External power supply
3 RS485 instruments
4 Analogue instruments
5 Digital output

FEATURES

- 4 differential analog channels
- Measures: mV, mA, mV/V, NTC,Thermocouple Vibrating Wire (it depends on the model)
- 0,05% F.S. Accuracy with mV measure

- 2G, 3G, SIGFOX optionals
- Web Server on board
- Internet Of Things Technology
- Cloud Base Dashbord Management

PHYSICAL CHARACTERISTICS	
Weight	780 grams (batteries included)
Dimensions (L x W x H)	151 x 125 x 90 mm (without cable gland and antenna)
Material	Polycarbonate
Wiring	Spring-cage PCB termination blocks; it clamps solid and stranded conductors up to 0.5 mm² (20 AWG)
Calibration	Recommended every 1 year

We reserve the right to change our product without prior notice.

DATALOGGER
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	miniOMNIALOG Thermocouple	miniOMNIALOG 4Ch MAVT	miniOMNIAlog WIRELESS
Case and Protection	IP67	IP67	IP67
2G/3G option	Y	Y	Y
Wireless	N	N	Y
Relay Output (30V 2A)	1	1	1
Analog Input Number	4	4	4
Voltage	Y	Y	Y
Current	-	Y	Y
mV/V	-	-	Y
Vibrating Wire	-	-	Y
PT100 - NTC	-	Only NTC	Only NTC
Thermocouple	Y	Y	-
Switchable Power supply (selectable by the software): 24 V, 20V , 10V , 5V	N	N	Y
RS485	-	-	1
Power Supply RS485	-	-	Y
Display	7 segment	7 segment	7 segment
USB HOST	-	-	-
PC Connection with USB	Y	Y	Y
Relè Protection/Gas Discharge	Y	Y	Y
Memory	2GB	2GB	2GB
Software Web Server	Y	Y	Y
Cloud Dashboard Management	Y	Y	Y

SIGFOX	Networking: Sigfox Network
	Frequency: 868-870 MHz Modulation: BPSK
	Broadcast 1.6 sec
	ETSI: 140 messages of 12 bytes, per object per day
WMBus*	169 MHz band and runs Wireless M-Bus N mode protocol,
	defined by EN13757-4 2012 for this band, on Tx power of up to 35 mW.
3G	UMTS | HSPA bands (MHz) 900 / 2100 900 / 2100 850 / 1900 850 / 1900 GSM
	GPRS | EDGE bands (MHz) 900 / 1800 900 / 1800 850 / 1900 850 / 1900
2G	GPRS class 10 Quad-band EGSM 850/900/1800/1900 MHz

* Available in 2017

SPECIFICATIONS

CPU AND MEMORY	
Processor	ARM Cortex - M3 MCU with 1 MB Flash, 20 MHz CPU, ART Accelerator
RAM Memory	128 Kbyte internal RAM
Mass storage	SD CARD 2 GB for data (about 5 Mega data points) 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 (±1% F.S. accuracy with m/V measure)

INPUT	
Analog differential inputs **(it depends on model)**	4 differentials channels, individually configured at factory, according to the following sensors: - Thermocouples - Vibrating Wire + Thermistor - 4-20 mA current loop (2 wires) - 4-20 mA (3-4 wires) - Voltage (4 wires) - Wheatston bridge (6 wires, utilize No. 2 channels)

INTERFACES	
Display & Keyboard	7 segment LED display and two selection keys for the minimal local management without PC: device status, data download and FW/web pages update by USB pen drive
USB Host	USB 2.0 full speed (Type A connector) 5V, max 500 mA, pen drive only (FAT 16 or FAT 32)
USB Device	USB 2.0 full speed (Mini B connector) 5V, max 500 mA, PC connection only
Modbus RTU sensor slave RS485 **(it depends on model)**	5 screw clamp: DCE port for max. No.64 Modbus digitized sensors. Communication interface: RS485 Communication protocol: MODBUS RTU The voltage 'V OUT' is switched on and off from the software. V OUT is the unregulated power supply input 'V IN' (1 A) Power supply management (always on or energy safe)

WIRELESS	
2G / 3G	Quad-band EGSM 850/900/1800/1900 MHz, GPRS class 10, integrated SIM holder Extended temperature range (-40° to 85°C). Stubby antenna with SMA connector
SIGFOX	SIGFOX, class 0 Long range distance rapid access to internet
WMBus	169 MHz band and runs Wireless M-Bus N mode protocol, defined by EN13757-4 2012 for this band, on Tx power of up to 35 mW

ANALOG MEASUREMENTS	
ADC	24-bit (22 true bit) differential Analog-to-Digital Converters, 5SPS, 0-24 Average Function, auto-calibration and auto-range
Measure type and power supply (configured at factory)	Current loop (2 wires): range 0÷25 mA
	Power supply: 24V DC, 12V DC (up to 25 mA), external
	Transmitter (3-4 wires): range 0÷25mA
	Power supply: 24V DC, 12V DC (up to 50 mA), external
	Voltage (4 wires): range ±10mV, ±100mV, ±1V, ±10V
	Power supply: 24V DC, 12V DC, 5 V DC (up to 50 mA), external
	Wheatstone bridge (6 wires, with sensing, 2 channels used): range ±10mV/V
	Max bridge resistance: 10 kΩ, min. bridge resistance: 200 Ω
	Power supply: 5 V DC (up to 50 mA)
	Thermistor (NTC 3KΩ): range -50°C to +150°C
	Vibrating Wire
	Power supply: 0.05mA / 0.1mA
Cold Juntion Compensation Accuracy	± 0.25°C * With stable temperature conditions. Tested in climatic chamber.
Supported Thermocouples (optional)	K-J-T-R-B-E-N-S
Reading resolution	1 µA at FS 20 mA - 1 µV at FS ±10 mV - 10 µV at FS ±100 mV - 100 µV at FS ±1 V - 1 mV at FS ±10 V
	0.1 °C for NTC - 0.1 Hz at FS 6000 Hz - 0.001 mV/V at FS ±10 mV/V
Measurement accuracy	<0.05% F.S. with m/V measure (0,1% F.S. for NTC) - with Standard Measurement
Temperature drift	< 10ppm/°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 rejectio	>105dB
Normal mode rejection	>90dB
Input impedance	20 GΩ typical
OUTPUT	
Digital output	One relay output (for alarm, etc.): volt-free closure (low voltage 30V, 1A)
PROTECTIONS	
	Electro-mechanical relays for each measuring channel: Electrical endurance: min. 2.5×10^6 operations, Mechanical endurance: 100×10^6 operations.
	Circuit protection: Gas Discharge Tubes: DC Breakdown Voltage(@100v/s) 90; tolerance of DCBV ± 20%; impulse Breakdown Voltage (@100v/µs) 250. impulse Breakdown Voltage (@1kv/µs) 500.
	Overvoltage and reverse polarity protection
	Short circuit protection on every outputs.

SYSTEM POWER REQUIREMENTS

Voltage	7.2 to 14 V DC (reverse polarity protected), max 12 W
External rechargeable battery	12V DC nominal
(i.e. solar panel system)	
Internal non-rechargeable	6 batteries size AA, chemistry Lithium/ Iron disulfide (Life s2), nominal voltage 1.5 V,
batteries (no external power supply)	min 2 A continous current discharge, min 2 A pulse capability, min 3 Ah capacity
Operating time with internal batteries	> 2 months with 1 acquisition every 1 hour with no.4 instruments (24V DC @12 mA @25 °C, 5 sec warm up), data transmitted via FTP/email after every acquisition, datalogger configured in " Timed mode"
	> 6 months with 1 acquisition every 1 hour with no.4 instruments (24V DC @12 mA @25 °C, 5 sec warm up), data transmitted via FTP/email once a day, datalogger configured in "Timed mode".
	> 7 months with 1 acquisition every 1 hour with no.4 instruments (24V DC @12 mA @25 °C, 5 sec warm up), no data transmission, datalogger configured in "Timed mode".
Typical current drain (@9 V)	Sleep mode: 60µA
	On: 10 mA
	On with display on: 40 mA
	Analog initialisation: 27 mA
	Measurement: 70 mA (with 12 mA @ 24 V sensor consumption)
	On with GPRS module: 104 mA (typically), 350 mA peak

ENVIROMENTAL CONDITIONS

Operating temperature	-30 to +70°C (batteries -20 to +60°C)
Storage temperature	-40 to +85°C (batteries 0 to +40°C)
Protection	IP67
Humidity	80%
Overvoltage category	II
Pollution degree	2
Sound levels	< 74dBA
Maximum height of use	3000m

SOFTWARE & FIRMWARE

|	
	Web server on board (independent OS platform)
	Live update (firmware and web pages)
	FTP client to sent 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
	Languages: Italian, English and French

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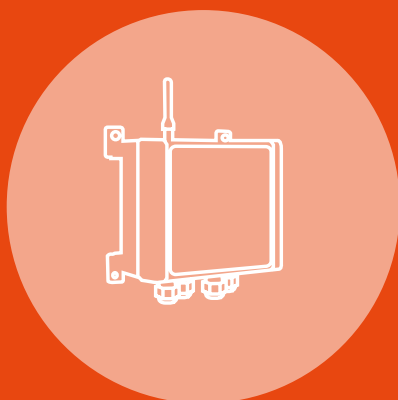
DATALOGGERS

INTERNET OF THINGS **SENSORS**

WEB **SOFTWARE**

industries