

# Produkt-Datenblatt

## Technische Daten, Spezifikationen

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auskünfte, Angebote, Test-Geräte, Beratung vor Ort:**

Tel: (0 81 41) 52 71-0

FAX: (0 81 41) 52 71-129

Aus dem Ausland:

Tel: ++49 - 81 41 - 52 71-0

FAX: ++49 - 81 41 - 52 71-129

E-Mail: [sales@meilhaus.com](mailto:sales@meilhaus.com)

### Internet:

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# miniOMNIAlog datalogger

NI-400-T



# miniOMNIAlog

## Applications



INDUSTRY MONITORING



HVAC MONITORING



LOGISTIC MONITORING



OIL & GAS MONITORING



WATER QUALITY MONITORING



ENERGY MONITORING



BUILDING MONITORING



## miniOMNIAlog

Technology skills of Next Industries plus 25 years of expertise in geotechnical instruments of Sisgeo srl have produced miniOMNIAlog - a versatile, high accurate "smart" data acquisition system - with 4 analog inputs.

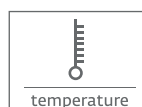
With miniOMNIAlog no other configuration/analysis software package is needed as it is provided with webserver on board; just a browser and it is ready to use.

Logged data is ready to be showed in graphic "real time" mode or exported in CSV.

### Features

- Available Measures: mV, Thermocouple
- Available Webserver
- RS485 (optional) and two USB connections
- 0,05% F.S. Accuracy
- 2GB internal memory and real time data
- 4 differential analog channels
- Available GPRS version

### Available Measure



# Specifications

CPU AND MEMORY

|                  |   |
|------------------|---|
| Processor        | ARM Cortex - M3 MCU with 1 MB Flash, 20 MHz CPU, ART Accelerator, Ethernet  |
| 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)<br>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 | 4 differentials channels for temperature reading |
| Modbus RTU sensor slave    | max No. 64 with RS-485                           |

INTERFACES

|                            |  |
|----------------------------|--|
| Display & Keyboard         | 7 segment LED display and two selection keys for the minimal local management without PC:<br>device status, data download and FW/web pages update by USB pen drive   |
| Serial port                | Only for GSM/GPRS internal module connection   |
| 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   |
| RS485 (optional)           | 5 screw clamp: DCE port for max. No.64 SISGEO digitized sensors.<br>Communication interface: RS485<br>Communication protocol: MODBUS RTU<br>The voltage 'V OUT' is switched on and off from the software. V OUT is the unregulated power supply input 'V IN' (1 A)<br>Power supply management (always on or energy safe) |
| GSM/GPRS module (optional) | Quad-band EGSM 850/900/1800/1900 MHz, GPRS class 10, integrated SIM holder<br>Extended temperature range (-40° to 85°C).<br>Stubby antenna with SMA connector  |

ANALOG MEASUREMENTS

|                                     |  |
|-------------------------------------|--|
| Measurement rate (MR)               | STANDARD SPEED<br>Init. analog: 3.40 sec<br>Instrument warm-up: depending on sensor configuration<br>Measurement: 0.90 sec Accuracy : 0.05% FS                         |
| ADC                                 | 24-bit (22 true bit) differential Analog-to-Digital Converters, 5SPS, 0-24 Average Function, auto-calibration and auto-range   |
| Cold Junction Compensation Accuracy | ± 0.25°C * With stable temperature conditions. Tested in climatic chamber.   |
| Supported Thermocouples             | 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<br>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% FS (0.1% FS 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 rejection            | >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.  $2.5 \times 10^6$  operations, Mechanical endurance:  $100 \times 10^6$  operations.

Circuit protection: Gas Discharge Tubes: DC Breakdown Voltage ( @100v/s ) 90; tolerance of DCBV  $\pm 20\%$ ; impulse Breakdown Voltage ( @100v/ $\mu$ s ) 250. impulse Breakdown Voltage ( @1kv/ $\mu$ s ) 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 (i.e. solar panel system)

12V DC nominal

Internal non-rechargeable batteries (no external power supply)

6 batteries size AA, chemistry Lithium/ Iron disulfide (Life s2), nominal voltage 1.5 V, 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: 60 $\mu$ A  
 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

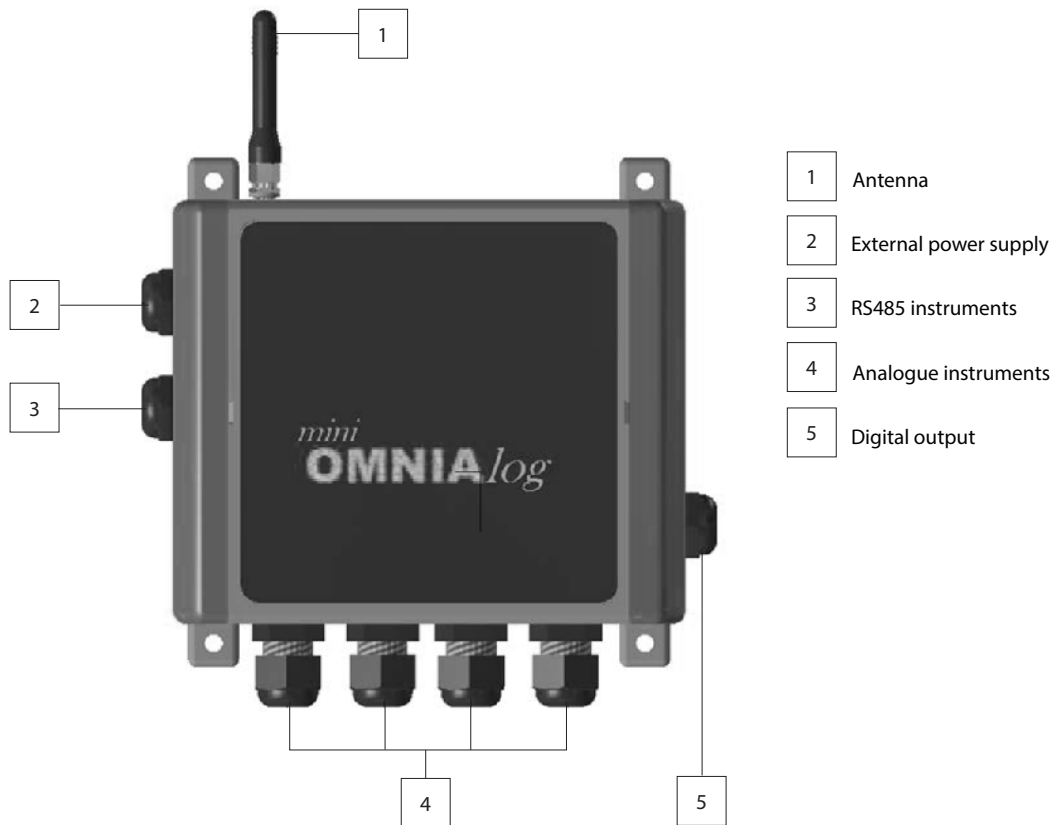
SOFTWARE & FIRMWARE

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

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 mm <sup>2</sup> (20 AWG) |
| Calibration            | Recommended every 2 years  |

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



ORDER CODE

NI400 - T  
option G

miniOMNIAlog 4 channels datalogger thermocouple  
modem