NI200/NI400
DATALOGGER

NI200/NI400

4 CHANNELS WIRELESS DATA LOGGER
with Embedded Web Server

next industries MILANO

DATASHEET
Rev. 15 del 17/11/17
Redatto da R&D
Approvato da MKT

SPECIFICATIONS

- 4 differential analog channels
- Measures: mV, mA, mV/V, NTC,Thermocouple
- Vibrating Wire (it depends on the model)
- 3G Diventa 3G/SigFox/Wifi
- Web Server on board
- Internet Of Things Technology
- 0,05% F.S. Accuracy with mV measure
- Cloud Based 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	5 screws clamp termination blocks; it clamps solid and stranded conductors up to 1,3 mm² (16 AWG)
Calibration	Recommended every 1 year

We reserve the right to change our product without prior notice

DETAILED SPECIFICATIONS

NI200 - NI400				
	SigFox Pulse	SigFox Full	Wifi Full	3G Full
	NI202	NI203	NI204	NI400
2G/3G	N	N	Y	Y
WiFi	N	N	Y	N
SigFox	Y	Y	N	N
Pulse Counter (2 inputs)	Y	OPTION	OPTION	OPTION
Relay Output (30v 1A)	Y	Y	Y	Y
Analog Input Number	0	4	4	4
Voltage	N	Y	Y	Y
Current	N	Y	Y	Y
mV/V	N	Y	Y	Y
Vibrating Wire	N	Y	Y	Y
PT100	N	N	N	N
NTC	N	Y	Y	Y
Internal CJC Sensor	N	Y	Y	Y
Thermocouple	N	Y	Y	Y
Switchable Power Supply	N	Y	Y	Y
(Selectable by Factory: 24V, 12V, 5V)				
RS485	Y	Y	Y	Y
Power Supply RS485	Y	Y	Y	Y
Display	7 segments	7 segments	7 segments	7 segments
USB HOST	Y	Y	Y	Y
PC Connection with USB	Y	Y	Y	Y
Memory	2GB	2GB	2GB	2GB
Software Web Server	Y	Y	Y	Y
Cloud Dashboard Management Option	Y	Y	Y	Y
Weight (Batteries Included)				780g

DETAILED SPECIFICATIONS

NI200 - NI400	
Case and Protection	IP67
Dimensions (L x W x H, without cable glands and antenna)	151 x 125 x 90 mm
Material	Polycarbonate
Wiring	5 screws clamp termination block up to 1,3mm2 (16AWG)
Calibration	Recommended every 1 year
Operating Voltage	7,2 to 14V DC, 12W Max
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)
On-board sensors	Temperature measured on the electronic board
INPUT	
Analog differential inputs	4 differentials channels, individually configured at factory, according to the following sensors: - Thermocouples - Vibrating Wire + Thermistor (NTC) - Thermistor (NTC) - 4-20 mA current loop (2 wires) - 4-20 mA (3-4 wires) - Voltage (4 wires) - Wheatston bridge (6 wires, utilize No. 2 channels)

DETAILED SPECIFICATIONS

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	5 screw clamp 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' (0,75 A) Power supply management (always on or energy safe)

WIRELESS	
3G	Integrated SIM holder Extended temperature range (-40° to 85°C). Stubby antenna with SMA connector

	EUD	NAD	BRAZIL
UMTS | HSPA BANDS (MHz)	900 / 2100	850 / 1900	850 / 2200
GPRS | EDGE BANDS (MHz)	900 /1800	850 / 1900	850 / 900 / 1800 / 1900
WIFI	802.11b/g/n 16mbps		
Security	WPA-WPA2 PSK		

ANALOG MEASUREMENTS	
ADC	24-bit (22 true bit) differential Analog-to-Digital Converters, 5SPS to 1000SPS, 0-24 Average Function, auto-calibration and auto-range
Measures type and power supply	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 Min. bridge resistance: 200 Ω Power supply: 5 V DC (up to 50 mA) Thermistor (NTC 3KΩ): range -50°C to +150°C Power supply: 0.05mA / 0.1mA

DETAILED SPECIFICATIONS

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
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, 1A)
PROTECTIONS	
	Electro-mechanical relays for each measuring channel: Electrical endurance: min.relays for each measuring channel: Electrical endurance: min. $2x10^5$ operations Mechanical endurance: $100x10^6$ operations. Circuit protection: Gas Discharge Tubes: DC Breakdown Voltage(@100v/s) 75; tolerance of DCBV ± 20%; impulse Breakdown Voltage (@100v/µs) 250. impulse Breakdown Voltage (@1kv/µs) 525. Short circuit protection on every outputs.
Voltage	7.2 to 14 V DC, 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

DETAILED SPECIFICATIONS

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, data-logger 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%
SOFTWARE & FIRMWARE	
	• Web server on board (independent OS platform) • Live update (firmware) • FTP client to sent data/alarms on a FTP server (SFTP not supported) • MAIL to send data/alarms to max 5 email address (SMTPS / SSL not supported) • SMS to send 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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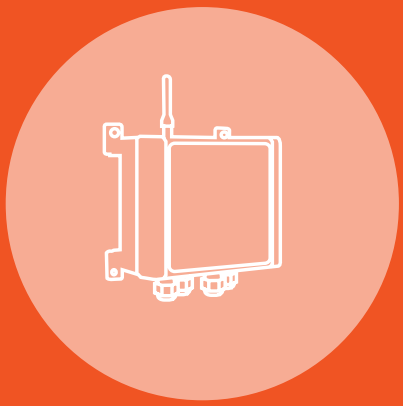

DATALOGGERS

INTERNET OF THINGS
SENSORS

WEB **SOFTWARE**

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