

**Excellence in automation**  
for a wide range of  
**market segments and applications**



**NOVUS**  
We Measure, We Control, We Record

# Products and solutions for automation present in over 60 countries



## About NOVUS

For the last 40 years, **NOVUS** has developed and manufactured innovative and reliable products for data acquisition, temperature control, process control, signal conditioning and transmission of field variables. All devices comply with worldwide quality requirements, thus providing solutions that exceed customers' expectations.

**NOVUS** is present in over 60 countries through a network of more than 300 distributors in addition to its own sales offices in South America, North America and Europe.

In 2018 **NOVUS** moved its headquarters to Canoas, southern Brazil. The new plant was designed for **NOVUS** specific needs, has three thousand square meters dedicated to the factory and, overall, surpasses five thousand square meters of built area. Its bespoke structure ensures the possibility to expand production capability four times.

All **NOVUS** products are produced in real-time reconfigurable and autonomous manufacturing cells, following Industry 4.0 concepts.

Moving a highly skilled staff to larger and modern facilities opened the path to productivity improvements aligned with **NOVUS** strategic planning. With an advanced production infrastructure and fully equipped research laboratories, the company is now able to achieve higher throughput in a larger portfolio of valued added products, therefore increasing national and international market shares.

Currently, half of what is produced by **NOVUS** is destined for the international market. Export demand keeps growing due to a worldwide recognition of the quality and value of **NOVUS** products.

## Certifications and Approvals



# Summary Business Units



## Data Acquisition and Communication

Data acquisition systems, I/O modules, wireless connectivity and gateways.

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## Sensing, Conditioning and Transmitters

Signal conditioners, temperature, relative humidity and pressure transmitters.

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## Process Control and Indication

Process controllers, temperature controllers, process indicators, electronic thermostats and HMIs.

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## Software Interface

Computer software and smartphone applications (for device configuration, data download and data acquisition), SCADA software, and cloud based platforms.

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## Metrology Services

Metrology services for temperature, relative humidity, pressure and electrical parameters.

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# Data Acquisition

## Wireless Multichannel Data Loggers - LogBox Connect

**LogBox Connect** provides data acquisition and connectivity for any type of application. With all its wireless options, it is the gateway to the connected IoT world.

### Bluetooth Data Logger

- Suitable for **battery operated** applications
- Configuration and downloading data via USB (NXperience) or **Bluetooth (NXperience Mobile)**
- Memory capacity up to **140,000 logs**
- Powered by 4 AA alkaline batteries or external DC power supply
- Input channels - 3 analogs and 1 digital

#### APPLICATIONS



Laboratory



Cold Chain



Data Centers



LogBox BLE

### Wi-Fi Data Logger

- Suitable for distributed environments with existing **Wi-Fi infrastructure**
- Configuration and downloading data via USB or Wi-Fi - Modbus TCP (**NXperience**)
- **E-mail alarm** notification
- **MQTT** communication protocol - Cloud based platforms, **NOVUS Cloud** and **IoT Brokers**
- Input channels - 3 analogs and 1 digital

#### APPLICATIONS



Distribution Centers



Cold Chain



Commercial Refrigeration



LogBox Wi-Fi

### GSM Data Logger

- Suitable for mobile applications in **long distance locations**
- Configuration and data download via USB or **3G (NXperience)**
- **SMS alarm** notification
- Built-in rechargeable **backup battery** with more than **8 hours** autonomy
- Easy integration with **NOVUS Cloud**
- Data communication via 3G network through NXperience and **SCADA softwares**

#### APPLICATIONS



Utility Services



Transportation of Temperature Sensitive Products



Agricultural Greenhouses



LogBox 3G

# Software Interface

## Configuration and Download Software

**NXperience** makes it possible to adjust the device parameters and functionalities, allowing secure data downloading.

Download and complete analysis, graphical viewing, mathematical formulas, and reporting.

With extensive connectivity, powerful data analysis and visualization capabilities, users can access **different NOVUS devices** via USB, Modbus RS485, Ethernet/Wi-Fi (Modbus TCP/IP) and cloud data from **NOVUS Cloud**.



**NXperience**



**Flexibility of Configuration**



**Device Diagnostics**



**Analytical Reports**

## Validation software for Configuration and Download

**NXperience Trust** has GMP (Good Manufacturing Practice) compliance, meeting with the technical requirements of **FDA 21 CFR Part 11** for validation of computer systems. The user has an electronic record of encrypted data, a strong authentication mechanism with password validity, and an application event log for traceability and audit trail. Protocols and execution of validation are optional and offered separately, to complement the solution.



**HARDKEY**  
More reliability in the data record



**NXperience Trust**



**Inviolable Information**



**Data Security**



**Complies with 21 CFR Part 11**

## Configuration and Download Mobile App

**NXperience Mobile** is a smartphone application (Android and iOS) for configuring and downloading data wirelessly from **LogBox BLE** and **LogBox Wi-Fi** devices. Besides, it is possible to run device diagnostics and export registered data.



**Setting Parameters**



**Data Export**



**Alarm Notification**



**NXperience Mobile**



# Data Acquisition

## Micro Data Logger for Temperature and Humidity

**LogBox-RHT-LCD** is a data logger with integrated sensors for temperature and humidity. It uses high-quality sensor, for accurate and reliable transportation applications, storage of perishables, audit processes, among others.

You can quickly check the minimum and maximum values that occurred during acquisitions on **LogBox-RHT-LCD** display. This logger has a **32,000 registers** memory, 16,000 for each channel. The estimated **life battery** life is up to **200 days** with one weekly download and 5 minutes measuring interval.

**NXperience** software enables configuring, collecting, plotting, analysis, and export records.



**LogBox-RHT-LCD**

## Rugged Data Loggers



|                                | LogBox AA   | LogBox DA                           | LogBox RHT  |
|--------------------------------|---|-------------------------------------|---|
| <b>Input Signals</b>           | 2 analog Inputs   | 1 digital Input<br>1 analog Input   | Temperature and relative humidity sensors               |
| <b>Analog Signal Type</b>      | Thermocouples J, K, T, N, R, S, and B, Pt100, 0-50 mV, 0-10 V, 0-20 mA, 4-20 mA | (0-50 mV, 0-10 V, 0-20 mA, 4-20 mA) | -   |
| <b>Digital Outputs</b>         | 1 electronic switch   |                                     | -   |
| <b>Resolution</b>              | 14 bits   |                                     | Temperature 14 bits<br>humidity 12 bits                 |
| <b>Memory Capacity</b>         | 64000 records   |                                     | 64000 records<br>(32000 temperature and 32000 humidity) |
| <b>Logging Interval</b>        | 1 sec to 18 h   |                                     |   |
| <b>Logging Mode</b>            | Instantaneous, average, minimum or maximum                                      |                                     |   |
| <b>Logging Trigger</b>         | Date/time, start button or digital input  | Date/time                           | Date/time, start button or setpoint                     |
| <b>Alarms</b>                  | 2 alarms (one per channel) minimum and maximum values                           |                                     |   |
| <b>Communication Interface</b> | Infrared through IR Link-3  |                                     |   |
| <b>Configuration Software</b>  | NXperience (Window based)   |                                     |   |
| <b>Power Supply</b>            | 3.6 V replaceable lithium battery (1/2 AA)                                      |                                     |   |
| <b>Battery Life</b>            | Typically 1 year  |                                     |   |
| <b>Housing Protection</b>      | IP65  |                                     | IP40  |



## Industrial Multichannel Data Logger - FieldLogger

**FieldLogger** is a high-performance instrument for reading and recording variables. It has high inputs/outputs density and several options for displaying, logging and processing information. It can also be used as an analog + digital I/O expansion for PLCs in monitoring and control applications.

### I/Os

- 8 Universal analog inputs
  - Thermocouples (J, K, T, N, E, R, S, and B), 0-5V, 0-10V, mV, mA, Pt100, and Pt1000
  - 128 virtual channels (refer to Mathematical Functions)
  - Sampling rate up of to 1000 readings/second (24-bit A-D conversion)
- 2 Relay outputs
- 8 Digital I/Os individually configurable as input or output

### RECORDING

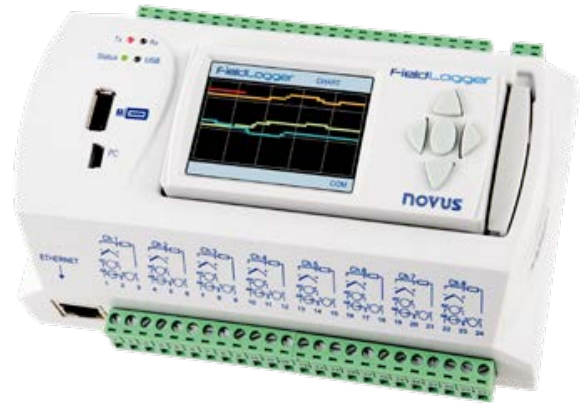
- Internal memory of up to 512,000 recordings
- Memory extension with SD or SDHC card
- Records up to 100 channels (local, remote or virtual variables)
- Recording rate of 1000 logs/second (max)
- Data download through configuration software (USB device, RS485, Ethernet or USB drive)

### HMI

- 2.4" color QVGA screen and 96 x 48 mm format
- Screen menu with current channel value, history chart, and status information
- Allows to view and configure parameters
- Local or remote installation with RS485 communication



Optional HMI with color QVGA display



FieldLogger

### COMMUNICATION INTERFACES

- RS485 "Master" for reading from up to 64 remote channels (Modbus protocol)
- RS485 "Slave" for communicating with SCADA software or Host
- USB "Device" port for instrument configuration and data download
- USB "Host" port for downloading recorded data into USB drive)
- Ethernet (10/100 Mbps) – Optional
  - Protocols DHCP, HTTP, FTP, SNMP, SMTP Client, and
- Modbus TCP
  - Custom webpage server in XML format
  - Operates as a gateway between a Modbus TCP network and a Modbus RTU network

### MATHEMATICAL FUNCTIONS

- Supports up to 128 virtual channels
- Each virtual channel is a mathematical or logical operation performed over any input channel
- The result of one virtual channel can be used as input to another, which allows one to create complex formulas

### ALARMS

- Up to 32 configurable alarms (with local, remote or virtual channels)
- The occurrence of an alarm allows:
  - Relay activation
  - Digital outputs activation
  - Sending emails to multiple recipients
  - Sending SNMP traps
  - Start and stop logging

# I/O Modules

## Ethernet I/O Module

- Mixed I/Os (analog and digital)
- Ethernet with Modbus TCP/IP protocol
- RS485 with Modbus RTU protocol
- Configurable via USB
- Advanced I/O functions

**DigiRail Connect** is a versatile DIN rail I/O module with Ethernet interface which can be easily integrated to any automation system. With a flexible mix of industry-standard inputs and outputs, it performs field analog and digital signal handling with outstanding accuracy. Specially designed to comply with international electromagnetic compatibility standards, it ensures robustness and reliability in the most demanding industrial applications.



### APPLICATIONS



Industry



Energy



Steel Industry



Distribution Center



## Programmable I/O Module

- Mixed I/Os (analog and digital)
- Rugged and reliable for industrial applications
- RS485 interface
- High-Level Programming with Arduino IDE

**DigiRail NXprog** is a programmable I/O module compatible with Arduino integrated development environment (IDE). With a mix of both analog and digital I/Os, **DigiRail NXprog** can be used as a controller in custom applications for machine or process automation. Flexible user programmability allows access to the local I/Os and the communication interface. The device can run complex algorithms and can connect with other devices via Modbus RTU protocol. **DigiRail NXprog** can run Arduino library codes or custom ones, providing great versatility in a wide range of applications.



### APPLICATIONS



General Automation



Food and Beverage



Plastics and Packaging



Water and Wastewater





# Communication

## I/O Module for OEE/MES

**DigiRail OEE** is an I/O module designed for OEE (Overall Equipment Effectiveness) and MES (Manufacturing Execution System) industrial systems. It is the ideal tool to read the sensors that monitor the operation of machines, devices, or processes. Among its many applications, it allows to count operation time and downtime, the amount of approved and rejected parts, signal the need for preventive or corrective maintenance.

Provided with Modbus TCP and secure MQTT protocol, **DigiRail OEE** transmits data natively to Google Cloud, Microsoft Azure, Amazon AWS, **NOVUS Cloud**, or any other compatible IoT cloud platform.

|  |   |
|--|---|
| <b>Communication Interfaces</b>                    | Ethernet or Wi-Fi, RS485 and USB                                    |
| <b>Inputs and Outputs</b>                          | 6 Digital Inputs, 2 Analog Inputs and 2 Digital Outputs             |
| <b>Digital Signals</b>                             | NPN, PNP, and dry contact   |
| <b>Analog Signals</b>                              | 0-5 V, 0-10 V, 0-20 mA and 4-20 mA                                  |
| <b>Buffer Capacity</b>                             | 1800 logs with all inputs enabled<br>7000 logs with 1 input enabled |
| <b>Clock Sync</b>                                  | Synchronize the clock through an NTP (Network Time Protocol) server |
| <b>Maximum Pulse Count Frequency (square wave)</b> | Dry contact: 10 Hz; PNP: 3 kHz; NPN: 3 kHz                          |



**DigiRail**  
OEE



## Modbus IO Modules

**DigiRail** signal conditioning modules can easily integrate different analog or digital signals into PLCs or supervisory systems in a cost-effective way being the right choice for input and output expansion with great flexibility.

- Communication and status LED indicators
- Universal and configurable inputs and outputs
- Configuration and calibration can be performed with the free **DigiConfig** software

### DigiRail 2A

#### Two universal analog inputs

- Analog inputs: type J, K, T, E, N, R, S and B T/Cs, Pt100, mV, V, mA
- Resolution: 17 bits
- Isolation: 1000 Vac between inputs and power or communication port

### DigiRail 4C

#### Four digital I/Os

- Fast inputs allow up to 1000 Hz digital signals
- Resolution: 32-bit counting
- Isolation: 1000 Vdc between input



### DigiRail 2A, 2R e 4C

### DigiRail 2R

#### Two relay outputs

- 8 A / 250 Vac SPDT relay, resistive load
- Configurable activation time
- Isolation: 2000 Vac between power and communication

## Electrical Parameters Transmitter

**DigiRail-VA** is a cost effective electrical parameters signal conditioner and transmitter specifically designed for single phase AC power analysis and measurement applications.

- Measures voltage, current, active power, apparent power, reactive power, frequency, and power factor
- Retransmits the measured variables in both analog and digital (RS485 Modbus) ways
- Features a USB interface for configuration and reading
- Easy-to-use DigiConfig configuration software (free of charge)



**DigiRail VA**

# Communication

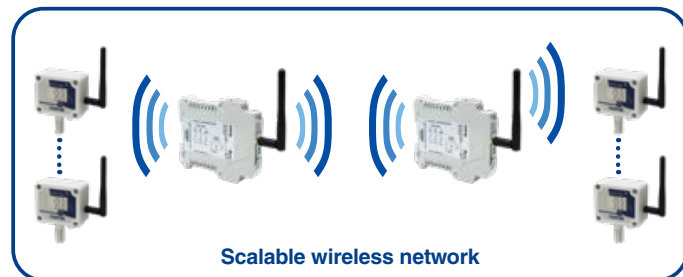
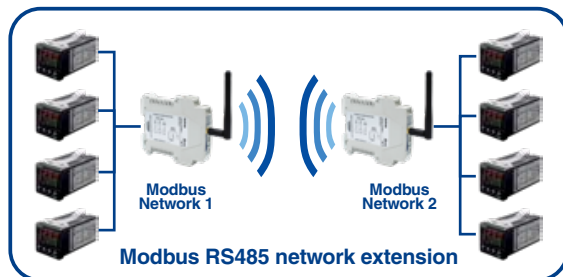
## Wireless Modbus Gateway

**AirGate Modbus** is a multifunctional device that can be used as a wireless repeater, Modbus master multiplexer, Modbus network wireless segment or as an RS485 USB converter.

- Wireless branches for any wired RS485 network node
- Four operation modes
- Automatic configuration of a wireless tree topology network
- Connects devices up to 1000 meters apart
- Easy-to-use configuration software



**AirGate Modbus**



## USB to RS485 Converter

Fast and reliable solution for interfacing between PCs and RS485 or RS422 industrial communication buses.

- **Plug and Play USB** Interface
- Compatible with any serial communication application
- **Compact** and easy to use in the field
- 1500 Vdc **galvanic isolation** between the USB port and RS485/RS422



**USB i485**

## Profibus to Modbus Gateway

**DigiGate Profibus** is a cost-effective gateway for communication between Profibus and Modbus RTU networks. The gateway takes care of all protocols specificities to forward Profibus DP commands to devices connected in a Modbus network.

- LED indicators for communication status
- Reliable interconnection between a Profibus and a Modbus network
- Profibus network acts as the master to Modbus devices
- Easy configuration via **DigiConfig** for Windows®



**DigiGate Profibus**

# Software Interface

## SCADA – Supervisory Software

**SuperView** is an industrial process control and supervision software (SCADA) that presents a visual development model to the user for building applications. Besides the communication with Modbus RTU and Modbus TCP devices, it is also possible to use **SuperView** workstations as Client and Server to manage geographically distributed processes on TCP/IP networks.



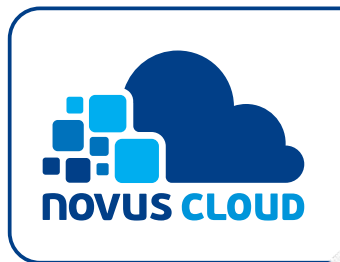
SuperView



SuperView Mobile

## Dashboard and IoT Cloud Platform

**NOVUS Cloud** is a platform focused on Internet of Things solution that expands the horizons of data viewing. Combined with **NOVUS** devices, this platform receives, stores, analyzes and displays on dashboards measurements of temperature, humidity, pressure, geolocation or any other variable of interest. Data access via the Internet is particularly necessary for several market segments, such as logistics, health, building, energy, sanitation, and agribusiness areas.

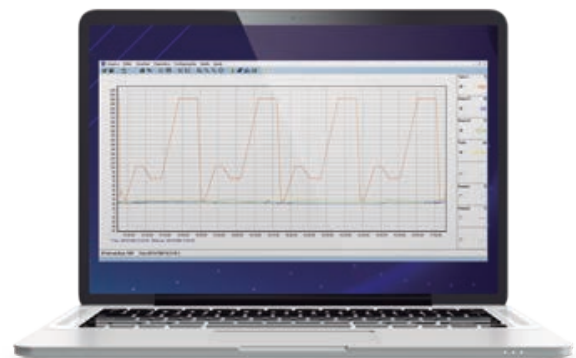


## Data Acquisition Software

**FieldChart** is a data acquisition software, which allows the monitoring and recording of data from **NOVUS** devices in an easy, fast and intuitive way.

Suitable for use in any process, **FieldChart** also allows the configuration of alarms, as well as their acknowledgment, and the automatic saving of real-time data in a file.

The software is offered in two versions: **FieldChart-Lite** (limited to 8 monitoring channels) and **FieldChart-64C** (allows up to 64 monitoring channels). **FieldChart** makes the recorded data available in graph format or as a variable list.



FieldChart

# Relative Humidity and Temperature Transmitters

## Wireless Relative Humidity and Temperature Transmitter

**RHT Air** is a wireless relative humidity and temperature transmitter which operates over long distances and allows configuration and parameters reading over a wireless network within 500 m distance. It has a long operating battery life combined with the convenience of a wireless sensor that avoids electrical noise susceptibility ensuring a robust and secure solution. Operation without cables or wires simplifies installation and relocation of devices. **RHT Air** operates on its own wireless network and works independently from the company's IT infrastructure.

- Relative humidity and temperature measurement over long distances
- Independent industrial wireless network
- Long operating battery life
- Easy network scalability
- Noise immunity



**RHT Air**

### Wall mounting



|                                       | RHT WM  | RHT WM 485 LCD   | RHT XS   | RHT P10  | RHT Air   |
|---------------------------------------|---|--|--|--|---|
| <b>Input Type</b>                     | Integrated RHT probe  |  | Extended RHT probe (3 m cable)                                       | Extended RHT probe (flange mounting) (3 m cable) | Integrated RHT probe  |
| <b>Measurement Range</b>              | Temperature: -10 to 65 °C (14 to 149 °F)<br>Humidity: 0 to 95% RH               | Temperature: -40 to 70 °C (-40 to 150 °F)<br>Humidity: 0 to 95% RH | Temperature: -40 to 120 °C (-40 to 248 °F)<br>Humidity: 0 to 100% RH |  | Temperature: -10 to 70 °C (14 to 158 °F)<br>Humidity: 0 to 95% RH |
| <b>Accuracy</b>                       | Temperature: ± 2 °C (3.6 °F)<br>RH: ± 3 % (20 - 80% RH) and ± 5 % (0 - 100% RH) |  |  |  |   |
| <b>Analog Output Type</b>             | 4-20 mA   | -  | 4-20 m   |  | -   |
| <b>Advanced Functions</b>             | Dew point retransmission  | Dew point indication   | Dew point retransmission   |  | Battery level<br>dew point indication                             |
| <b>Communication</b>                  | Through TxConfig adapter  | RS485 Modbus RTU   | Through TxConfig adapter   |  | USB mini-B type NOVUS Air (IEEE 802.15.4)                         |
| <b>Approvals</b>                      | CE  |  |  |  |   |
| <b>Operating Conditions (Housing)</b> | -10 to 65 °C (14 to 149 °F)<br>0 to 95% RH                                      | -40 to 70 °C (-40 to 150 °F)<br>0 to 95% RH                        | -10 to 65 °C (14 to 149 °F)<br>0 to 95% RH                           |  | -10 to 70 °C (14 to 158 °F)<br>0 to 95% RH                        |
| <b>Power Supply</b>                   | 12-30 Vdc   | 12-30 Vdc  | 12-30 Vdc  |  | 12-30 Vdc or Replaceable 3.6 V Lithium battery                    |
| <b>Ingress Protection</b>             | Housing: IP65<br>Probe: IP40  |  |  |  |   |



## High Accuracy Relative Humidity and Temperature Transmitter

**RHT Climate** relative humidity and temperature transmitter provides highly accurate and stable measurements and transmits both signals via two independent analog outputs and the RS485 Modbus RTU communication. The **RHT Climate** is fully USB configurable through its free **NXperience** software which also performs diagnostics and input/output simulation, installation and commissioning tasks.

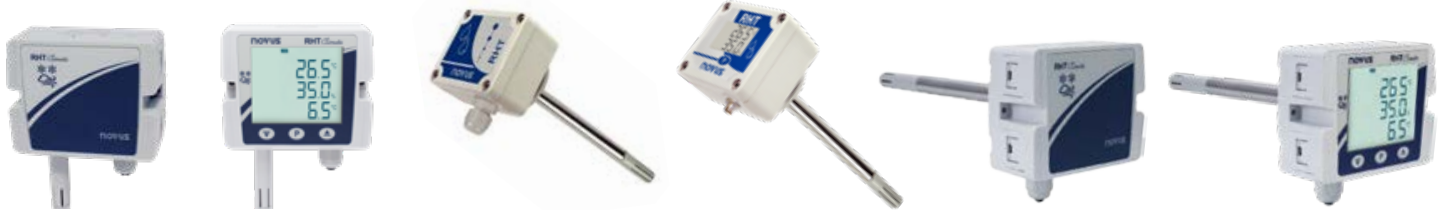
**RHT Climate** is available with or without LCD display for duct or wall mounting with different probe lengths.

- High accuracy measurement
- Large display with backlight
- Configurable analog outputs
- Configuration via USB or front keys
- Alarm outputs and buzzer



**RHT Climate**

### Duct Mounting



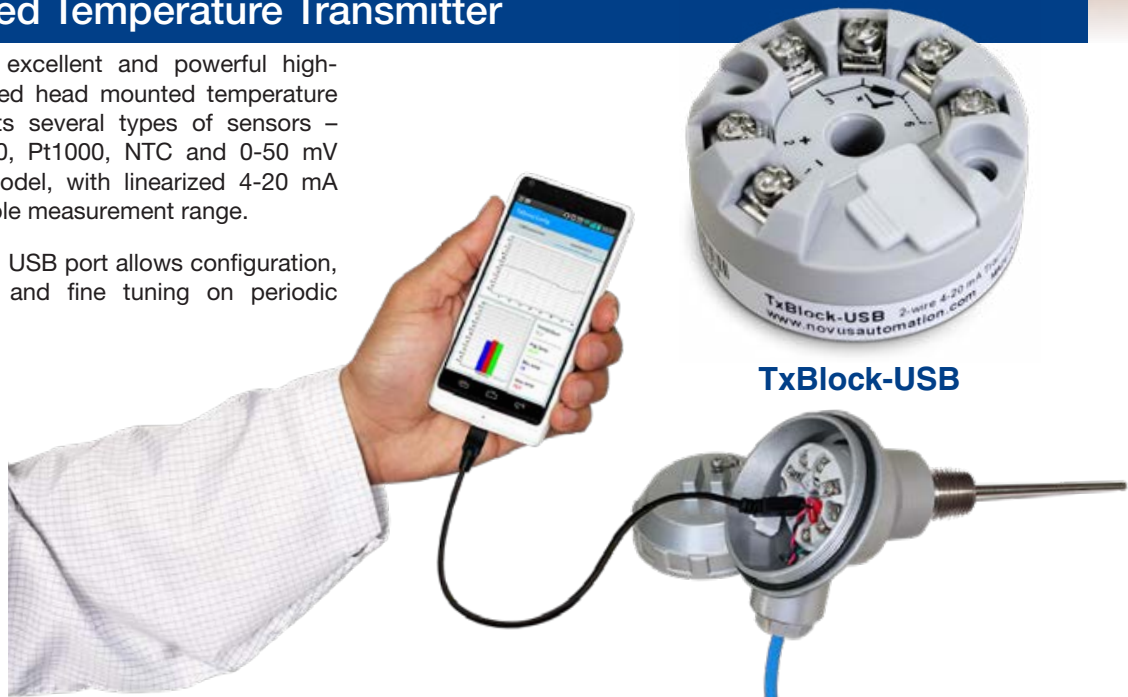
| RHT Climate WM   | RHT Climate WM LCD | RHT DM  | RHT DM 485 LCD  | RHT Climate DM   | RHT Climate DM LCD |
|--|--------------------|---|---|--|--------------------|
| Integrated RHT probe   |                    | Integrated RHT probe (options: 150, 250, and 400 mm)                            |   |  |                    |
| Temperature: -40 to 60 °C (-40 to 140 °F)<br>Humidity: 0 to 100% RH  |                    | Temperature: -40 to 120 °C (-40 to 248 °F)<br>Humidity: 0 to 100% RH            | Temperature: -40 to 100 °C (-40 to 212 °F)<br>Humidity: 0 to 100% RH            |  |                    |
| Temperature: ± 0.2 K (0 to 60 °C) (32 to 140 °F);<br>Humidity: ± 1.8 % RH and 23 °C (0 - 90 % RH)  |                    | Temperature: ± 2 °C (3.6 °F)<br>RH: ± 3 % (20 - 80% RH) and ± 5 % (0 - 100% RH) | Temperature: ± 2 °C (3.6 °F)<br>RH: ± 3 % (20 - 80% RH) and ± 5 % (0 - 100% RH) | Temperature: ± 0.2 K (0 to 60 °C) (32 to 140 °F);<br>Humidity: ± 1.8 % RH and 23 °C (0 - 90 % RH)  |                    |
| 4-20 mA or 0-10 V (10-0 V)   |                    | 4-20 mA   | -   | 4-20 mA or 0-10 V (10-0 V)   |                    |
| Psychrometric properties, alarm buzzer, 2 digital outputs, maximum and minimum values, simulation of inputs, simulation of outputs, custom calibration and front keys (LCD version only) |                    | Dew point retransmission  | Dew point indication  | Psychrometric properties, alarm buzzer, 2 digital outputs, maximum and minimum values, simulation of inputs, simulation of outputs, custom calibration and front keys (LCD version only) |                    |
| USB Micro-B Type and RS485 Modbus RTU  |                    | Through the TxConfig adapter  | RS485 Modbus RTU  | USB Micro-B Type and RS485 Modbus RTU  |                    |
| CE   |                    | CE  |   |  |                    |
| -40 to 60 °C (-40 to 140 °F)<br>0 to 95% RH  |                    | -10 to 65 °C (14 to 149 °F)<br>0 to 95% RH                                      | -40 to 70 °C (-40 to 158 °F)<br>0 to 95% RH                                     | -40 to 60 °C (-40 to 140 °F)<br>0 to 95% RH  |                    |
| 12-30 Vdc  |                    | 12-30 Vdc   |   |  |                    |
| Housing: IP65<br>Probe: IP30 or IP40   |                    | Housing: IP65<br>Probe: IP40  |   | Housing: IP65<br>Probe: IP30 or IP40   |                    |

# Temperature Transmitters

## Head Mounted Temperature Transmitter

**TxBLOCK-USB** is an excellent and powerful high-accuracy loop-powered head mounted temperature transmitter. It accepts several types of sensors – thermocouples, Pt100, Pt1000, NTC and 0-50 mV signal – all-in-one model, with linearized 4-20 mA output and configurable measurement range.

The innovative built-in USB port allows configuration, easy commissioning and fine tuning on periodic calibration reviews.



**TxBLOCK-USB**

|                                | Sensor Probe Mounting                       | Wall Mounting                          | Head Mounting                                 |
|--------------------------------|---|--|---|
|                                |   |  |   |
|                                |   |  |   |
|                                | <b>TxMini M12</b>                           | <b>TxMini M12 485</b>                  | <b>TxMini DIN43650</b>                        |
| <b>Type</b>                    | Pt100 / Pt1000 sensor programmable range    | Pt100 sensor programmable range        | Pt100 / Pt1000 sensor programmable range      |
| <b>Accuracy</b>                | 0.2% of span                                |  | 0.9% of span                                  |
| <b>Input Type</b>              | Pt100 and Pt1000                            | Pt100                                  | Pt100 and Pt1000                              |
| <b>Output Type</b>             | 4-20 mA<br>20-4 mA                          |  | 4-20 mA<br>20-4 mA                            |
| <b>Range</b>                   | -200 to 650°C<br>(-328 to 1202 °F)          | -200 to 600°C<br>(-328 to 1112 °F)     | -200 to 650°C<br>(-328 to 1202 °F)            |
| <b>Configuration Interface</b> | TxConfig M12 interface                      |  | TxConfig DIN43650 interface                   |
| <b>Software</b>                | TxConfig II                                 | DigiConfig                             | TxConfig II                                   |
| <b>Operating Conditions</b>    | -40 to 85 °C (-40 to 185 °F)<br>0 to 90% RH |  | -20 to 65 °C<br>(-4 to 149 °F)<br>0 to 90% UR |
| <b>Power Supply</b>            | Loop powered 4-20 mA<br>(8 - 35 Vdc)        | 7 - 40 Vdc                             | 12 - 30 Vdc                                   |
| <b>Dimensions</b>              | 51.2 mm x 20 mm<br>(2.01 in x 0.79 in)      | 59.7 mm x 20 mm<br>(2.35 in x 0.79 in) | 28.5 mm x 28.5 mm<br>(1.12 in x 1.12 in)      |
| <b>Housing</b>                 | Polyamide                                   |  | Polycarbonate                                 |
| <b>Format/ Mounting</b>        | M12 Connector Thread PG9 to Probe           |  | DIN43650 Connector<br>M24x2 Screw             |
|                                |   |  | Wall  |
|                                |   |  | Head  |

# HART® Temperature Transmitters

The **TxlsoRail-HRT** temperature transmitter combines the proven quality of HART® certification with the robustness of **NOVUS** devices. It is compatible with HART® certified devices and has electrical isolation between input and output, supporting voltage surges up to 1.5 kVrms.

Using a worldwide known protocol, with over 40 million field instruments supporting HART® technology, **NOVUS TxlsoRail-HRT** temperature transmitter enables the use of standard HART® configuration and supervision software that provides users with great flexibility in remote configuration and calibration capability through the two-wire 4-20 mA current loop without having to remove it from the plant.

**TxlsoRail HRT** and **TxlsoBlock HRT**, the **NOVUS HART®** temperature transmitters, are fully compatible with HART® certified devices from worldwide market. Full configuration can be done only with two-wire 4-20 mA current loop, providing more features for device configuration and monitoring and this is the big spotlight of the HART® devices. When a configuration change is needed, for example, remote interaction can be done without removing it from the installation place.



## DIN Rail Mounting



| TxBlock-USB  | TxlsoPack                                     | TxlsoBlock HRT   | TxRail USB   | TxlsoRail  | TxlsoRail HRT  |
|--|---|--|--|--|--|
| Universal programmable   | Universal isolated programmable               | Universal isolated HART programmable   | Universal programmable   | Universal isolated programmable  | Universal isolated HART programmable                                 |
| Pt100 / mV: 0.2 % span<br>T/C: 0.15% range ±1 °C<br>(± 1.8 °F)<br>NTC: 0.7% span | Pt100 / mV: 0.2 % span<br>T/C: 0.7% span      | Pt100 / mV: 0.15 % span<br>T/C: 0.15 % span<br>±1 °C (± 1.8 °F)<br>NTC: 0.45% span | Pt100 / mV: 0.2 % span<br>T/C: 0.15% span ±1 °C (± 1.8 °F)<br>NTC: 0.7% span | Pt100, mV e mA:<br>0.2 % span<br>T/C: 0.2% span ±1 °C                      | Pt100 / mV: 0.15 % span<br>T/C: 0.15 % span ±1 °C<br>NTC: 0.45% span |
| J, K, T, N, R, S, B, E,<br>Pt100, Pt1000, NTC, and<br>0-50 mV                    | J, K, T, N, R, S, B, E, Pt100, and<br>0-50 mV | J, K, T, N, R, S, B, E, Pt100,<br>Pt1000, NTC, and 0-50 mV                         | J, K, T, N, R, S, B, E, Pt100,<br>Pt1000, NTC and 0-50 mV                    | J, K, T, N, R, S, B, E, Pt100,<br>0-50 mV, 0-10 V, 0-20 mA, and<br>4-20 mA | J, K, T, N, R, S, B, E, Pt100,<br>Pt1000, NTC and 0-50 mV            |
| 4-20 mA<br>20-4 mA   | 4-20 mA<br>20-4 mA                            | 4-20 mA  | 4-20 mA (20-4 mA)<br>0-10 V (10-0 V)   | 4-20 mA<br>20-4 mA   | 4-20 mA  |
| See manual   |   |  | See manual   |  |  |
| USB Micro-B Type   | USB Mini Type                                 | Through TxConfig-HRT interface<br>or HART® certified handheld                      | USB Micro-B Type   | TxConfig-USB interface   | Through TxConfig-HRT interface<br>or HART® certified handheld        |
| TxConfig II  | TxConfig                                      | TxConfig II or HART® certified<br>software   | TxConfig II  | TxConfig   | TxConfig II or HART® certified<br>software                           |
| -40 to 85 °C (-40 to<br>185 °F)<br>0 to 90% RH                                   | -20 a 75 °C<br>0 a 90% RH                     | -40 to 85 °C<br>(-40 to 185 °F)<br>0 to 90% RH                                     | -40 to 85 °C (-40 to 185 °F)<br>0 to 90% RH                                  |  |  |
| Loop powered<br>4-20 mA<br>(12 - 35 Vdc)   | Loop powered<br>4-20 mA<br>(8.5 - 36 Vdc)     | Loop powered<br>4-20 mA<br>(8.5 - 36 Vdc)  | Loop powered<br>4-20 mA<br>(12 - 35 Vdc)                                     | Loop powered<br>4-20 mA<br>(8.5 - 36 Vdc)                                  | Loop powered<br>4-20 mA<br>(8.5 - 36 Vdc)                            |
| 34 mm x 18 mm<br>(1.34 in x 0.71 in)   | 44 mm x 24 mm<br>(1.73 in x 0.94 in)          | 43.5 mm x 20.5 mm<br>(1.71 in x 0.79 in)   | 114 mm x 99.5 mm<br>(4.49 in x 3.92 in)                                      | 77 mm x 72 mm<br>(3.03 in x 2.83 in)                                       | 114 mm x 99.5 mm<br>(4.49 in x 3.92 in)                              |
| ABS UL94-HB  | ABS   | ABS UL94-HB  | ABS UL94-HB  | -  | ABS UL94-HB  |
| Head   |   |  |  | 35 mm DIN rail   |  |

# Pressure Transmitters

## Current Loop Indicator

**LoopView** is a two-wire 4-20 mA loop-powered indicator. Its excellent accuracy allows to indicate several variables like temperature, pressure, differential pressure, flow, pH, acceleration and others.

**LoopView** is powered by the current loop itself and it is meant to be inserted into sensors already installed in industrial facilities.

This device has a 4-digit display and 2 keys, which allow for quick and easy adjustment of indication range, decimal point position, digital signal filter and user calibration.

Parameter configuration is password protected and can be done directly via the front panel keys of the loop indicator.

- No extra power supply required
- DIN43650 standard sandwich assembly
- Legacy installation compatibility
- Push-button easy configuration



LoopView

## Ultra Low Differential Pressure Transmitter

Ideal for **HVAC, clean-room and flow measurement** applications, the **NP785** is an ultra low differential pressure transmitter for measuring very small overpressure, under-pressure and differential pressure in neutral, non-corrosive gaseous media. It provides a pressure proportional linear signal output with configurable measuring range via USB using the configuration software.

**NP785** can operate bi-directionally, providing the ability to measure differential pressure ranges **from vacuum to positive pressure**. It is housed in a DIN rail mountable ABS/PC enclosure and its nickel plated brass fittings accept pneumatic hoses with 4 or 6 mm internal diameter.

The analog output can be set to either 0-10 V or 4-20 mA while having an RS485 port with Modbus RTU communication protocol. Designed for HVAC and industrial environment, the NP785 ensures temperature compensation for long-term stability and complies with EMC standards, providing robustness and reliability for a wide range of applications.

- Available nominal ranges:  $\pm 50$  Pa ( $\pm 0.2$  inH<sub>2</sub>O) to  $\pm 1000$  mbar ( $\pm 14.5$  Psi)
- Ranges fully configurable by software within rated range
- Temperature compensated for higher stability at low pressures
- Output signal DC 0 to 10 V or 4 to 20 mA and slave Modbus RTU, in one-only-model
- Resistant to overpressure
- Auto-zero Key
- Diagnostic LED



NP785





## Pressure Transmitters

The rangeability of **NP640** pressure transmitter brings versatility, allowing its transmission ranges to be turned down to up to 1/3 of its nominal range. Featuring high accuracy coupled with temperature stability, the **NP640** performs well in the most challenging applications and in harsh environments.

- Customer configuration of range via USB
- All stainless steel media compatibility
- High accuracy 0.25% of full scale
- USB Configuration via free software and adapter interface



**NP640**

Through the **TxConfig DIN43650** interface and the free **TxConfig II** software the **NP6xx** pressure transmitters series can be fully configured according to customer's preferred range and unit needs (bar, mbar, Mpa, kPa, kgf / m<sup>2</sup>, kgf / cm<sup>2</sup>, atm, mH<sub>2</sub>O, psi).

In addition, output status can be set up for upscale or downscale alarm in case of error and zeroing function is also available. The **TxConfig II** software brings great versatility to the end user by allowing range configuration right in the process.



**Configuration via the TxConfig DIN43650 interface and the free TxConfig II software**



|   | NP400   | NP640   |
|---|---|---|
| <b>Pressure Sensor</b>  | Piezoresistive (ceramic)                                      | Polyisilicon piezoresistive (oil filled)                    |
| <b>Software Configuration</b>                                       | -   | TxConfig II (Via NOVUS Interface TxConfig DIN 43650 NOVUS)  |
| <b>Transmission Rangeability</b>                                    | -   | 3:1   |
| <b>Pressure Range (bar)</b>   | 0...2, 5, 10, 16, 25, 40, 60, 100, 160, 250, 400              | 0...1, 4, 10, 16, 25, 40, 60, 100, 160, 250, 400            |
| <b>Pressure Range (psi)</b>   | 0...30, 75, 150, 200, 400, 600, 900, 1500, 2000, 4000, 6000   | 0...15, 60, 150, 250, 375, 600, 900, 1500, 2000, 4000, 6000 |
| <b>Material in Contact with the Medium</b>                          | Stainless steel 316 / FKM / ceramic (Al 203 96%) <sub>3</sub> | All stainless steel 316                                     |
| <b>Housing Material</b>   | Stainless steel 316   |   |
| <b>Power Supply</b>   | 11 ~ 33 Vdc   |   |
| <b>Output Signal</b>  | 4-20 mA   |   |
| <b>Accuracy (Including Hysteresis, Linearity and Repeatability)</b> | <60 bar ± 0.5 % FS<br>>100 bar ± 1.0 % FS                     | ± 0.25 % FS   |
| <b>Process Connection</b>   | ¼ NPT , ½ NPT , ½ BSP , ¼ G                                   |   |
| <b>Electrical Connection</b>  | DIN 43650 connector   |   |
| <b>Operating Temperature</b>  | - 20 to 70 °C (-4 to 158 °F)                                  |   |
| <b>Thermal Drift</b>  | < ± 0.06 % FS/°C  | < ± 0.05 % FS/°C  |
| <b>Dynamic Response</b>   | < 30 ms   |   |
| <b>Overpressure</b>   | 2 x FS  |   |

# Controllers

## PID Controller with LCD Display

**N1050** is a PID temperature controller with LCD that combines high performance and vivid design. It combines the proven robustness of **NOVUS** PID algorithm with a large and bright easy-to-read dual color 11-segment LCD display with alphanumeric mnemonics and crystal clear status signaling.

It also features 5 ramp-and-soak profile programs, soft start output and timer function which complement the advanced features of the controller.

- Wide and high contrast dual color LCD display
- Distinguished multi angle viewing
- Compact depth, suitable for restricted spaces
- Elegant design for machines
- Ramp and Soak programs and timer function



**N1050**

### Temperature PID Controllers



|                             | N1030                                     | N1030T | N1040  | N1040T | N1020                                 | N1050                                     | N480D                                     |
|-----------------------------|---|--------|--|--------|---------------------------------------|---|---|
| <b>Input Sensor</b>         | J, K, T and Pt100                         |        |  |        | J, K, T, R, S, E, N, Pt100 and 0-50mV | J, K, T, S and Pt100                      | J, K, T, R, S, E, N and Pt100             |
| <b>PID Control Features</b> | Auto tune                                 |        |  |        | Auto tune<br>Self adaptive            | Auto tune                                 | Analog (optional)<br>Auto tune            |
| <b>Control Action</b>       | Heating or cooling                        |        |  |        |                                       |   | Heating or cooling                        |
| <b>Control Output</b>       | 1 pulse<br>Up to 2 relays                 |        | 1 pulse<br>Up to 3 relays                                    |        | 1 pulse<br>1 relay                    | 1 pulse<br>Up to 3 relays                 | Up to 3 relays<br>Analog (optional)       |
| <b>Ramp and Soak</b>        | -   | -      | -  | -      | 1 ramp                                | 5 programs<br>4 segments                  | 1 program<br>9 segments                   |
| <b>Special Functions</b>    | 1 alarm (6 types)                         |        | Soft-start<br>PID loop break detection<br>2 alarms (6 types) |        |                                       | 2 alarms<br>(7 types)                     | 2 alarms<br>(8 types)                     |
| <b>Advanced Functions</b>   | -   | Timer  | -  | -      | Timer                                 | -   | -   |
| <b>Optional Resources</b>   | -   | -      | RS485<br>Modbus  | -      | -                                     | RS485<br>Modbus                           | -   |
| <b>Bluetooth</b>            | -   |        |  |        |                                       |   | -   |
| <b>USB Configuration</b>    | -   | -      | Quicktune  |        |                                       |   | Quicktune                                 |
| <b>Certification</b>        | CE, UL                                    | CE, UL | CE, UL   | CE, UL | CE, UL                                | CE, UL                                    | CE, UL                                    |
| <b>Power Supply</b>         | 100-240 Vac/dc or<br>12-24 Vdc (optional) |        |  |        | 100-240 Vac/dc                        | 100-240 Vac/dc or<br>12-24 Vdc (optional) | 100-240 Vac/dc or<br>12-24 Vdc (optional) |
| <b>Housing</b>              | 48x48<br>DIN 1/16                         |        | 48x24<br>DIN 1/32  |        | 48x48<br>DIN 1/16                     | 48x48<br>DIN 1/16                         | 48x48<br>DIN 1/16                         |



## Compact PID Controller

**N1030** is a temperature controller that features a high performance PID algorithm in a **very compact housing** with **only 35 mm depth**.

Its innovative compact construction and the convenient **detachable connector** provide an easy set up on short profile panels, optimizing scarce space and reducing installation cost. It has two outputs always available which can be configured both as a control or an alarm.

- Compact profile, only 35 mm depth
- Detachable connector simplifies device installation, commissioning and maintainance
- IP 65 protection rate ensures resistance to water jets
- Protection and safety according to UL94 V-2 anti-flame housing
- Timer and two relay options to suit different processes



**N1030**

### Process PID Controllers



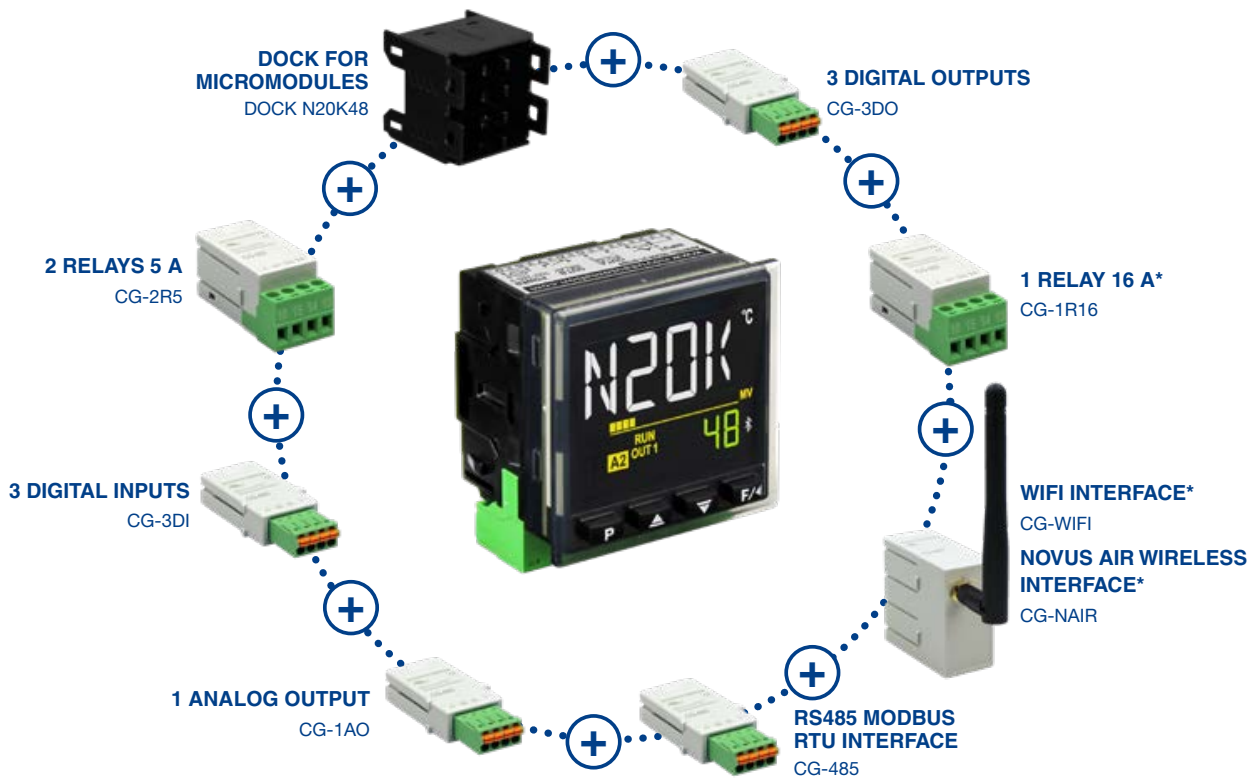
| N960   | N120  | N3000   | N1200   | N1200 HC                                 | N20K48   | N2000   | N2000 S  |
|--|---|---|---|--|--|---|--|
| J, K, T, R, S, E, N and Pt100                | J, K, T, R, S, E, B, N, Pt100, 4-20mA, 0-50mV, 0-5V and 0-10V                 | J, K, T, R, S, E, B, N, Pt100, 4-20mA, 0-50mV and 0-5V                          | J, K, T, R, S, E, B, N, Pt100, 4-20mA, 0-50mV, 0-5V and 0-10V                 |  | J, K, T, R, S, E, B, N, Pt100, 4-20mA, 0-50mV, 0-5V and 0-10V  | J, K, T, R, S, E, B, N, Pt100, 4-20mA, 0-50mV and 0-5V                          | J, K, T, R, S, N, Pt100, 4-20mA, 0-50mV and 0-5V                   |
| Analog (optional)<br>Auto-tuning             | Auto-tuning   | Analog (optional)<br>Auto-tuning  | Auto-tuning<br>Auto-adaptive  |  | PWM & analogic<br>Auto-tuning<br>Auto-adaptive                 | Auto-tuning   |  |
| Heating or cooling                           | Heating & cooling with overlap  | Heating or cooling  |   | Heating & cooling with overlap           | Heating or cooling   |   | Slave  |
| 1 pulse<br>2 relays<br>1 analog              | 1 pulse<br>2 relays   | 1 pulse<br>Up to 4 relays<br>1 analog   | 1 pulse<br>Up to 3 relays<br>1 analog   |  | Up to 25 pulse*<br>Up to 9 relays*<br>Up to 8 analog*          | 1 pulse<br>Up to 4 relays<br>1 analog   |  |
| 1 program<br>9 segments                      | 20 programs<br>9 segments   | 7 programs<br>7 segments  | 20 programs<br>9 segments   |  | 7 programs<br>7 segments                                       |   |  |
| 2 alarms<br>(8 types)                        | Soft-Start<br>Bumpless<br>Manual/auto<br>PID loop break<br>2 alarms (7 types) | Soft-Start<br>Bumpless<br>Manual/auto<br>4 alarms<br>(7 types)                  | Soft-Start<br>Bumpless<br>Manual/auto<br>PID loop break<br>4 Alarms (8 types) |  | Soft-Start<br>Bumpless<br>Manual/auto<br>4 alarms<br>(7 types) | Soft-Start<br>Bumpless<br>Manual/auto<br>2 alarms<br>(9 types)                  |  |
| -  | Digital input   | Digital input<br>Remote SP<br>SP retransmission<br>Square root<br>24 Vdc output | Digital Input<br>Remote SP<br>SP retransmission<br>Square root                |  | Digital Input*<br>Remote SP*<br>Square root                    | Digital input<br>Remote SP<br>SP retransmission<br>Square root<br>24 Vdc output | Digital input<br>Retransmission SP<br>Square root<br>24 Vdc output |
| -  | Data logger   | RS485 Modbus  | RS485 Modbus<br>Heater break<br>24 Vdc output<br>+ 2 I/O                      | RS485 Modbus<br>24 Vdc output<br>+ 2 I/O | RS485 Modbus*  | RS485 Modbus  |  |
| -  | -   |   | -   |  | Yes  | -   | -  |
| Quicktune                                    | Quicktune   |   |   |  | Quicktune and<br>Quicktune Mobile                              | Quicktune   | -  |
| CE, UL                                       | CE, UL  | CE, UL  | CE, UL  | CE, UL                                   | CE, Anatel and FCC   | CE, UL  | CE, UL   |
| 100-240 Vac/dc<br>or 12-24 Vdc<br>(optional) | 100-240 Vac/dc or<br>12-24 Vdc (optional)                                     |   |   |  |  |   |  |
| 96x96<br>DIN 1/4                             | Open board<br>Dual display  | 96x96<br>DIN 1/4  | 48x48<br>DIN 1/16   |  | 48x48<br>DIN 1/16  | 96x48<br>DIN 1/8  |  |

\*Using micromodules

# Controllers

## Modular Process Controller

- **Adaptable resources** by adding micromodules
- **Wireless** diagnostics and easy field maintenance
- **Lowest depth** controller in the market
- Smartphone and PC **friendly configuration**



# Software Interface

## Configuration Software to Controllers and Indicators

**QuickTune** is a free software tool to configure **NOVUS** controllers and indicators. With its clean interface, any user can friendly access and modify all device functions for proper configuration. Designed to easy and quick commissioning, it provides diagnosis and monitoring resources to field technicians. More than a software, **QuickTune** is a tool. Furthermore, **QuickTune** offers the main features to meet most users and profile needs in the industry.

- Friendly and Clean Interface
- Allows Quick Commissioning
- Provides Device Configuration Management
- Unified tool for Controllers and Indicators
- Graphic Ramp and Soak Assistant



**QuickTune**



### BATCH CONFIGURATION

Certain applications require annoying tasks, which is to replicate the configuration of many devices. The batch configuration offers the appropriate environment to set plug-and-play device configuration in sequence.



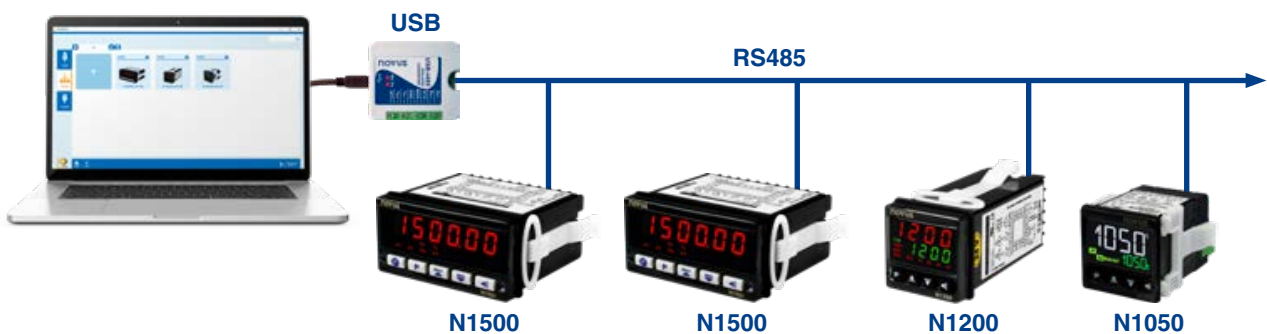
### GRAPHIC RAMP AND SOAK ASSISTANT

Temperature applications with complex profiles should be translated from process recipe requirements to ramp and soak parameters. The assistant tool provides a wide graphical perspective of the process with intuitive features such as sliders, drag-and-drop and clicks over the chart, transcribing all setting automatically to ramp and soak data table.

### VIA USB AND BLUETOOTH



### VIA RS485 (MODBUS RTU)



# Electronic Thermostats

## Refrigeration Thermostat with Defrost

- Refrigeration control with automatic defrost
- Defrost by compressor stop, resistance heating or reverse cycle
- Programmable defrost cycle intervals
- Keeps indication during defrosting cycle
- Programmable delay on power-up to prevent simultaneous loads
- Control relay can directly switch compressor up to 1 hp

### Models:

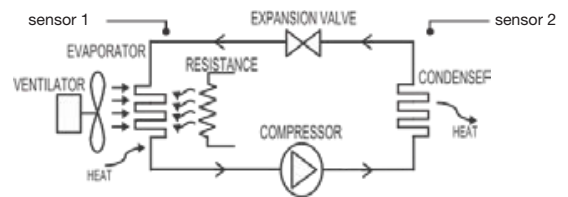
**N321R:** one output for compressor, accepts sensor type NTC, Pt100 or Pt1000 and optional voltage protection for compressor

**N323R:** three outputs (compressor, defrost and fan), monitors 2 NTC sensors (chamber and evaporator)

**N323TR:** similar to **N323R** plus real time clock for scheduling defrost events, with weekly timer,

### Typical application:

Refrigeration cooling counters and air conditioning systems



## Solar Heating Controller

- Ideal for solar panels applications
- Operates by the temperature difference between the solar collector and the storage tank
- Uses 2 NTC type sensors (included)
- Output control relay drives the water circulation pump
- Protection against pipeline overheating or freezing

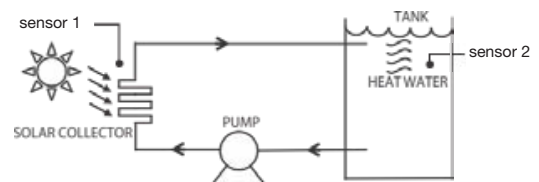
### Models:

**N321S:** one output for circulation pump

**N322S:** two outputs for circulation pump and waer heater booster

### Typical application:

Thermal tank, pool heating, and boiler



## Cooling/Heating Controller

- Control with alarm or multi-stage
- Direct drive of compressors or electric heaters
- Programmable delay on powerup to avoid simultaneous switching
- Low, high or differential alarm functions
- Sensor type: NTC, Pt100, Pt1000, and thermocouples J, K and T

### Models:

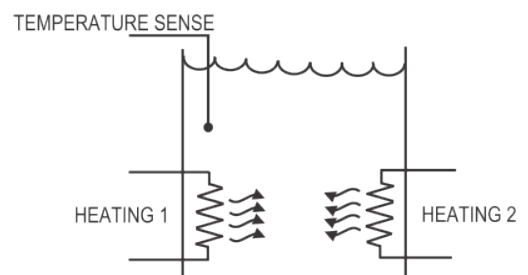
**N321:** one relay output control

**N322:** two outputs (control and alarm or second control)

**N323:** three outputs (control and 2 alarms or 3 control stages)

### Typical application:

Cold chambers, ovens, food industry, and commercial refrigerators





## Controller with Timer

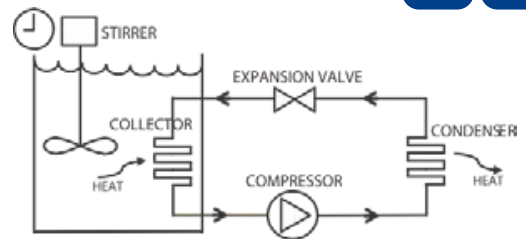
- Suitable for processes with cyclic operation requirement
- Timer for forced defrost cycle or stirring of liquids
- Accepts the following sensors: NTC, Pt100, Pt1000, and thermocouples J, K and T
- Programmable delay on powerup to avoid simultaneous switching
- Control relay can directly switch compressor up to 1 hp
- Optional: audible alert and voltage protection for compressor

### Models:

**N322T:** two outputs (control and defrost or timer output)

### Typical application:

Milk cooling and ice cream machines



## Electronic Humidistat

- Environment control, displays temperature and humidity
- Configurable interval between temperature and humidity indication
- Control relay can directly switch compressor up to 1 hp
- Heating or cooling temperature control
- Humidification or dehumidification control
- Uses integrated RHT probe (sold separately)

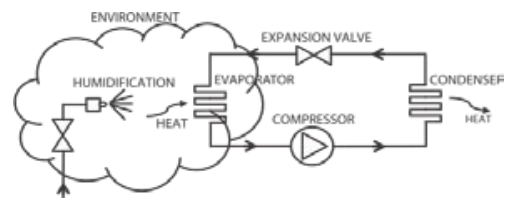
### Models:

**N322RHT:** two relay outputs (either control or alarm)

**N323RHT:** three relay outputs (control, alarm or timer function)

### Typical application:

Climate chambers, textile processes, and environmental control



## Egg Incubator Controller

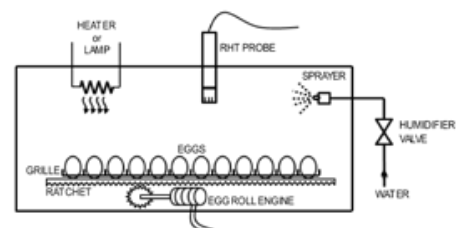
- Control of humidity and temperature in the incubator (heating and humidification or refrigeration and dehumidification)
- Cycle timing control for egg rolling
- Configurable interval between temperature and humidity indication
- Uses integrated RHT probe (sold separately)

### Models:

**N323RHT (EI):** three outputs (humidifier, heating and egg roll motor)

### Typical application:

Egg incubators



# Indicators

## Panel Meters

**N1540** is a high technology process indicator designed for the best performance and reliability in most demanding applications. Based on an advanced and rugged hardware platform, the **N1540** can be fully configured from the frontal keyboard or USB port. The exclusive USB interface allows, for example, to configure several devices with the same parameters in an easy way, saving time in the setup. Compact, the device has a 34 mm depth and can be easily installed in panels where space is restricted.

- Universal input: TCs J, K, T, E, N, R, S, B, Pt100, 0-50 mV, 0-5 V, 0-10 V, 0-20 mA, and 4-20 mA
- Sampling rate up to 50 samples per second
- Two relays SPST 1.5 A / 240 Vca
- Holds minimum and maximum values



**N1540**

### Cost Effective

### Advanced Features



|                                | N1040i  | N1540  | N1500G  | N1500   | N1500 FT  | N1500 LC  |
|--------------------------------|---|--|---|---|---|---|
| <b>Indicator Type</b>          | Universal   |  | Universal   |   | Flow rate   | Load cell   |
| <b>Input Type</b>              | Thermocouples, Pt100, voltage and current   |  | Thermocouples, Pt100, voltage and current   |   | 4-20 mA, NPN, PNP, dry contact or magnetic signal   | Voltage and current   |
| <b>Accuracy</b>                | J, K, T, E: 0.25% ± 1 °C (± 1.8 °F)<br>N, R, S, B: 0.25% ± 3 °C (± 5.4 °F)<br>Pt100: 0.20%<br>Voltage/Current: 0.2% |  | J, K, T, E: 0.25% ± 1°C (± 1.8 °F)<br>N, R, S, B: 0.25% ± 3°C (± 5.4 °F)<br>Pt100: 0.20%<br>Voltage/Current: 0.2% |   | 4-20 mA: ±0.2% of span<br>Pulse: ±30 ppm @25 °C (77 °F)<br>Magnetic: ±0.1 % @25 °C (77 °F)  | 0.2 % span  |
| <b>Resolution</b>              | 15 bits   |  | >14 bits  | 17 bits   | 15 bits   | 17 bits   |
| <b>Programmable Range</b>      | -1999 to 9999   | -2000 to 30000   | -1999 to 9999   | -31000 to 31000<br>0 to 60000<br>0 to 120000                                | Scale factor  | -31000 to 31000<br>0 to 60000<br>0 to 120000  |
| <b>Sampling Rate</b>           | 55 sps  |  | 5 sps   | 5 to 15 sps   | -   | 15 sps  |
| <b>Alarms</b>                  | 2 setpoints<br>7 alarm types<br>2 relay outputs   |  | 2 setpoints<br>7 alarm types<br>4 timing modes<br>2 relay outputs   | 4 setpoints<br>7 alarm types<br>4 timing modes<br>2 (up to 4) relay outputs | 2 (up to 4) setpoints<br>4 alarm types<br>4 timing modes<br>2 (up to 4) relay outputs   | 4 setpoints<br>7 alarm types<br>4 timing modes<br>2 (up to 4) relay outputs                           |
| <b>Special Features</b>        | Optional 24 Vdc output  | Hold maximum / minimum custom linearization<br>24 Vdc output | Hold maximum / minimum custom linearization<br>Square root<br>Digital Input retransmission<br>24 Vdc output       |   | Hold maximum / minimum Custom linearization<br>Square root<br>Digital input<br>Analog retransmission<br>Pulse retransmission<br>24 Vdc output | Hold maximum / minimum Custom linearization<br>Digital input retransmission<br>10 Vdc or 5 Vdc output |
| <b>Communication Interface</b> | USB (Mini-B type)<br>Optional RS485 Modbus  |  | Optional RS485 Modbus   |   |   |   |
| <b>Certification</b>           | CE,UL   |  | -   |   | CE, UL  |   |
| <b>Frontal Protection Rate</b> | IP65  |  | IP30  |   | IP65  |   |
| <b>Power Supply</b>            | 100-240 Vac/dc or 12-24 Vdc   |  | 100-240 Vac/dc or 12-24 Vdc   |   |   |   |
| <b>Housing</b>                 | 48x48<br>DIN 1/16   | 96x48<br>DIN 1/8   | 310 x 110 x 37 mm panel<br>(12.20 x 4.33 x 1.46 in)   |   | 96x48<br>DIN 1/8  |   |



## Accessories

### SSR - Solid State Relay

Increased lifetime, due to the fact that there are no moving parts, and thus, no mechanical wear. Internal protection circuit (Snubber) of the Output. **Zero cross switching**, which implies lower electrical noise. Silent operation. Control INPUT signal **optically isolated** from the OUTPUT. Suitable for replacing the contactor in AC installation.



### Power Supply

The **NOVUS EDA Power Supplies** have **full range voltage input**, high efficiency, **DIN rail support** and operation temperature up to 70 °C. Attending **international standards and certifications** they are a robust solution to provide 24 Vdc for any industrial application.



### Power Supply

The **FTR power supply** is a switching mode power supply to be connected directly to the line providing an isolated output. It is suitable for powering instruments such as 4-20 mA field transmitters.

The **FTR power supply** is designed to DIN rail mounting, inside electrical panel. Avoid excessive vibration, humidity, temperature and electromagnetic interference.



### USB Port (Mini-B type) Panel Extension

**USB port (Mini-B type) panel extension** so that the USB is accessible on the panel. With a 30 cm extension, it makes the USB connection of the controller / indicator providing a mini-B type USB to fix on the panel with rubber-cap protection.



# Vertical Energy

## Switchgear Temperature Monitoring

**NOVUS** has launched **Telik Gardo**, a wireless remote temperature monitoring system for assets such as switchgear in power distribution systems. This solution enables online information for maintenance or loss management.

With wireless temperature sensors, **Telik Gardo** is simple and easy to install and deploy. It can be integrated with any SCADA system directly or any Cloud platform using an IoT Gateway, like the **AirGate 4G**.



Telik Gardo

## Wireless Electrical Transformer Monitoring

**NOVUS** is launching the **Telik Trafo**, a wireless smart device capable of remote monitoring of current, voltage and temperature of distribution transformers. It provides assertive information for asset, energetic balance or loss management, checkinf transformer performance and load characteristics, allowing operation and maintenance teams to react on time.

Its wireless communication allows electricity companies to widespread monitoring.



Telik Trafo

## Wireless Temperature Transformer Monitoring

**NOVUS** is launching the cost effective **Telik Trafo Lite**, a wireless device capable of remote monitoring of distribution transformers **temperature**. It checks continously the transformer body temperature, providing undstanding of load characteristics and thus predicting any anomaly or degradation. This assertive information of the assets allows management to react on time, moving operation and maintenance teams to the field to the right location.

Telik Trafo Lite features **long-range communication**, **battery operation** and **5-year lifespan**.



Telik Trafo Lite

# Metrology Laboratory



## Choosing the right partner ensures your customer satisfaction

**NOVUS Metrology Lab** is ISO-17025 accredited by the Brazilian National Calibration Body, a signatory of the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Agreement (MRA). Its calibration certificates are recognized in over 70 countries, covering metrology services for temperature, relative humidity, pressure, electrical parameters, conductivity and pH instruments.

Customized services to meet our customer's expectations of deadline and application is what makes **NOVUS Metrology Laboratory** the right partner for your business bringing all the credibility that an accredited service with internationally recognized certificate can offer.



### Economy

- Calibration at **NOVUS** facilities.
- You buy the device and the service with just one process.
- Avoid additional logistic costs.



### Productivity

- Field calibration services (please check covered regions).
- Highly qualified professionals.
- The device is calibrated at the points and ranges you need.



### Agility

- Devices calibrated from the factory.
- Customized and scheduled services.



### Trustworthy

- High accuracy: significantly lower uncertainty values.
- ABNT NBR ISO/IEC 17025.

## SCOPE OF ACCREDITATION



Temperature and Humidity



Electricity and Magnetism



Pressure





**We measure with accuracy.  
We control with excellency.  
We record with reliability.**

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**NOVUS**  
We Measure, We Control, We Record