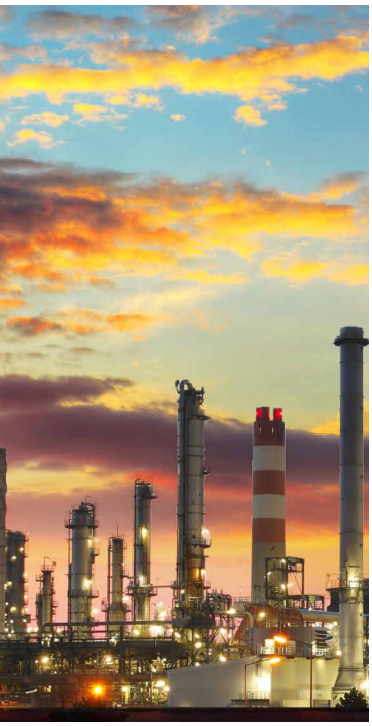
Excellence in automation
for a wide range of
market segments and applications








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.

Sensing, Conditioning and Transmitters

Signal conditioners, temperature, relative humidity and pressure transmitters.

Process Control and Indication

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

Software Interface

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

Metrology Services

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

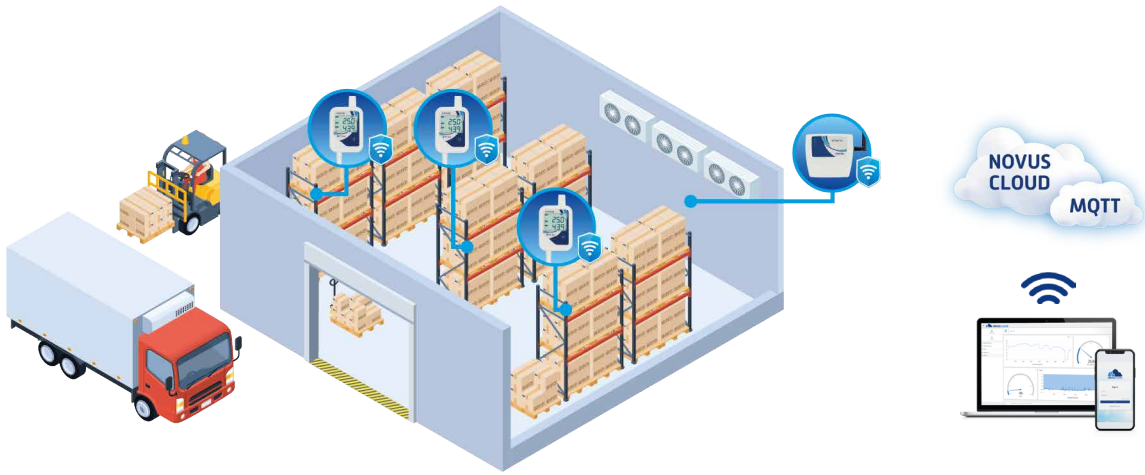
Environmental Monitoring

Climate Air+

Climate Air+ is the ideal solution for continuous temperature and humidity monitoring in critical environments such as pharmaceutical warehouses and data centers. Advanced wireless technology ensures regulatory compliance, protects sensitive products, and guarantees safe and efficient operations. Designed to overcome communication challenges, **Climate Air+** uses **RHT Air+** and **AirGate Air+** for stable data transmission, even in environments with physical barriers and interference. Compatible with open protocols such as MQTT, the solution easily integrates with existing systems, eliminating extra costs and avoiding process interruptions. With long-lasting sensors, low maintenance, and advanced encryption, **Climate Air+** delivers security, efficiency, and traceability. Companies that adopt this solution reduce risks, ensure compliance, and optimize their operations with reliable and scalable monitoring.

RHT Air+ **Airgate Air+**

Resilient coverage to maintain an uninterrupted data history



MQTT protocol with security

Compatible with industry-standard protocols

Up to 2 years of operation

Consistent data for precise decision-making

Effective in environments with barriers

FDA CFR 21 Part 11 and GMP

- Continuous and reliable monitoring for controlled environments
- Uninterrupted data recording with global reach
- Flexible integration, compatible with legacy systems
- Secure and low-maintenance communication for several applications
- Resilient connectivity, ideal for pharmaceutical warehouses and data centers

Climate Air+

		RHT Air+		
TEMPERATURE MEASUREMENT	Range: -10 to 70 °C (14 to 158 °F) Resolution: 0.1 °C Accuracy: ± 0.2 °C			
RELATIVE HUMIDITY MEASUREMENT	Range: -10 to 70 °C (14 to 158 °F) Resolution: 0.1 °C Accuracy: ± 0.2 °C			
MEMORY	Type	Circular		
	Capacity	15,000 logs (2 quantities) 50 days with a 5-minute recording interval		
RECORDING INTERVAL	2 to 720 minutes*			
COMMUNICATION INTERFACES	USB-C	For configuration, download and diagnostics		
	LoRa		Models	
			915 MHz	868 MHz	865 MHz
		Frequency [MHz]	915,4~927,4	865,15~869,85	865,15~866,86
		Bandwidth [kHz]	500	250	250
		Spreading factor	7~11	7~12	7~12
		Transmission power [dBm]	20	14	20
		Reception sensitivity	-136 dBm		
		Radio coverage	Up to 3km with a clear line of sight**		
POWER SUPPLY	Non-rechargeable batteries	Up to 2 years (publication interval of 10 minutes, SF10 and power of 14dBm)		
	USB-C	It is recommended to use a 5 V ~ 1 A power supply (Do not use cables longer than 1.5 m)		
DISPLAY	2 lines, 4 digits			
PROTECTION INDEX	IP65, Sensor: IP40			
ENVIRONMENT	Operating temperature: -10 to 70 °C (14 to 158 °F)			
	Storage temperature: -20 to 70 °C (-4 to 158 °F)			
	Humidity: 5 to 95 % RH (Non-condensed)			
DIMENSIONS	70 mm x 175 mm x 45 mm			
HOUSING	Polycarbonate (V2 flame retardant)			
SOFTWARE	NXperience (via USB)			
	NXperience Trust (FDA 21 CFR part 11)			
CERTIFICATIONS	Anatel	07860-24-07089		
	FCC	Contains LoRA module, FCC ID: 2ADHKR34M		
	ISED	Contains LoRA module, IC: 20266-R34M[1]		

		AirGate Air+		
MEMORY	Type	Circular		
	Capacity	480,000 logs (2 quantities)		
RECORDING INTERVAL	2 to 720 minutes*			
COMMUNICATION INTERFACES	USB-C	For configuration, download and diagnostics		
	LoRa		Models	
			915 MHz	868 MHz	865 MHz
		Frequency [MHz]	915,4~927,4	865,15~869,85	865,15~866,86
		Bandwidth [kHz]	500	250	250
		Spreading factor	7~11	7~12	7~12
		Transmission power [dBm]	20	14	20
		Reception sensitivity	-136 dBm		
		Radio coverage	Up to 3km with a clear line of sight**		
	Ethernet	10/100 Mb/s, IEEE standard 802.3u.			
	Wi-Fi	IEEE standard 802.11 b/g/n 2.4G GHz. Support for WPA-Personal (PSK) WPA/WPA2 TKIP/AES/TKIP and AES encryption			
PROTOCOLS	IP	SMTP, NTP, MQTT, and Modbus-TCP			
POWER SUPPLY	External power supply	8~30 Vdc			
PROTECTION INDEX	IP20				
ENVIRONMENT	Operating temperature: -10 to 60 °C (14 to 140 °F)				
	Storage temperature: -20 to 70 °C (-4 to 158 °F)				
	Humidity: 5 to 95 % RH (Non-condensed)				
DIMENSIONS	220 mm x 180 mm x 38 mm				
HOUSING	ABS + PC				
SOFTWARE	NXperience (via USB)				
	NXperience Trust (FDA 21 CFR part 11)				
CERTIFICATIONS	Anatel	07859-24-07089			
	FCC	Contains Wi-Fi module, FCC ID: 2AC7Z-ESPWROOM32D			
		Contains LoRA module, FCC ID: 2ADHKR34M			
	ISED	Contains Wi-Fi module, IC: 21098- ESPWROOM32D[1]			
		Contains LoRA module, IC: 20266-R34M			

* The 915 MHz model can be configured with a log interval of 1 to 720 minutes, but it is recommended to use a log interval of 5 minutes or more. To increase performance, consider the maximum number of devices on the network in the ratio of 6 devices for each minute of logging interval.

** The communication distance decreases as the number of obstacles between the Gateway and the sensor increases.

[1]https://ised-isde.canada.ca/site/spectrum-management-telecommunications/en/devices-and-equipment/radio-equipment-standards/radio-standards-specifications-rss/rss-gen-general-requirements-compliance-radio-apparatus#s4.3 (itens 4.3, 8.4)

Data Acquisition

IoT Multi Channel Data Logger

LogBox LTE is an IoT data logger with NB-IoT, Cat.M1 or GPRS communication network. This device allows monitoring and data recording remotely, in installations with LTE infrastructure, perfectly suitable for mobile applications at long-distance locations or sites that do not need to use IT infrastructure.

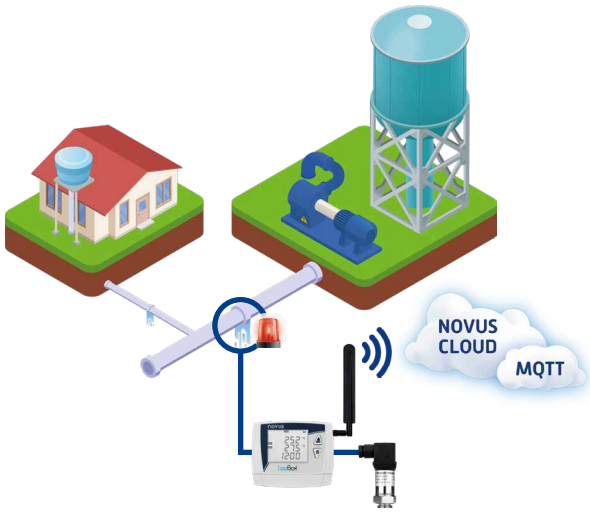
The device has two analog inputs, plus a digital input and one digital output. **LogBox LTE** works with MQTT protocol both in publisher and subscriber mode, therefore it can publish data to IoT brokers and also read commands, enabling to remotely execute some commands. Remote connection with low-cost infrastructure and application versatility are the highlights of this product.

LogBox LTE has a built-in rechargeable backup battery to keep data safe during a power outage. SMS notication and easy integration with **NOVUS Cloud** will also help commissioning this device quickly. **LogBox LTE** uses **NXperience** software, wich has the **NXperience Trust**, a version that meets GMP (Good Manufacturing Practice) compliance, meeting with the technical requirements of FDA Regulation Title 21 CFR Part 11 for validation of computer systems.

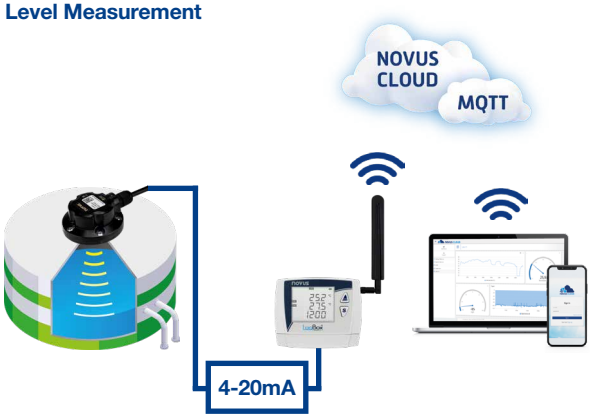
- Suitable for mobile applications in long distance locations
- Conguration and data download via USB or **NOVUS Cloud**
- SMS alarm notication
- Built-in rechargeable backup battery
- Easy integration with **NOVUS Cloud**
- Data communication via LTE network through **NXperience** and SCADA

LogBox LTE

Waste Management in Sanitation



Level Measurement



Alarm Notication

Up to 80 hours* of Operation, in Energy Saving Mode

MQTT Protocol (Publisher and Subscriber)

Easy Comissioning

GMP and FDA Regulation Title 21 CFR Part 11 Compliance

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

LogBox BLE

APPLICATIONS

Laboratory | Cold Chain | Data Centers

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

LogBox Wi-Fi

APPLICATIONS

Distribution Centers | Cold Chain | Commercial Refrigeration

Vaccine Monitoring

Condition Monitoring

Asset Condition Monitoring

Telik Geter delivers **1-second vibration monitoring** with edge intelligence, turning raw sensor signals into actionable indicators directly at the asset. This high-rate approach goes beyond traditional predictive maintenance, capturing transient events and process-related anomalies that can be missed by minute-based sampling. The solution combines the **Telik Geter** sensor (installed on the asset) with the **AirGate Geter** gateway for reliable connectivity and secure data delivery to **Novus Geter**, the all-in-one platform to organize assets, set condition alarms, build dashboards, and generate reports.

With a triaxial accelerometer, Telik Geter provides a complete vibration toolkit: RMS acceleration and VRMS for trending and severity tracking, plus FFT spectrum and raw acceleration for deeper diagnostics. For industrial integration, AirGate Geter can also provide **Modbus RTU** connectivity to local Modbus devices and SCADA systems.

- **1-second vibration monitoring** to capture fast anomalies and process events (beyond predictive maintenance)
- Turn sensor signals into actionable insights with dashboards, trends, alarms and reports in the **Novus Geter** platform
- **Open integration via API** to connect Telik Geter data to third-party software and platform for unified asset management
- Detect anomalies early and reduce unplanned downtime with 24/7 asset condition monitoring and configurable alarms
- **Edge intelligence**: RMS/VRMS/FFT and raw signal indicators ready for decisions

Long Battery Life
Up to 10 years on battery

Remote Monitoring
No more manual inspection rounds

Long-range Communication
Up to 50 m (line of sight, no obstacles)

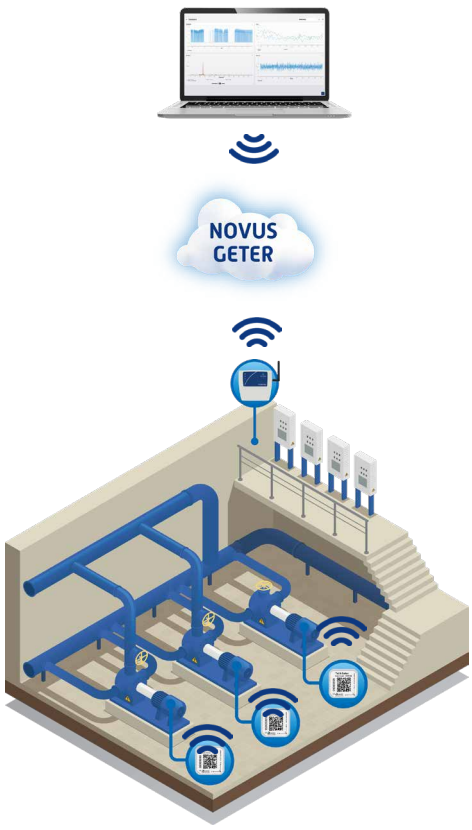
Complete Vibration Analysis
RMS, VRMS, FFT, and raw signal for advanced diagnostics

High Sampling Rate
Readings at intervals as fast as 1 second

Telik Geter

Real-time Vibration Monitoring

Asset Condition Monitoring



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.

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.

NXperience Mobile

Setting Parameters

Data Export

Alarm Notification

Data Acquisition

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

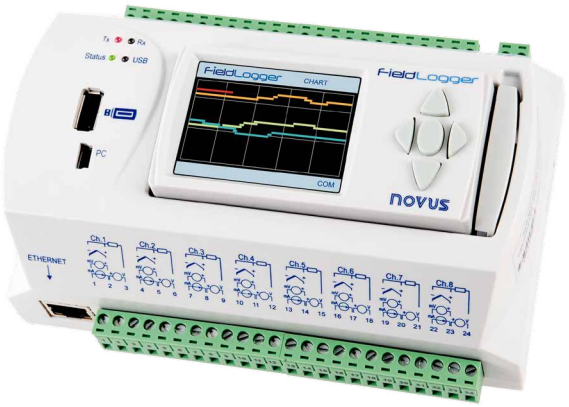
RECORDING

- 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

Industrial IoT Gateway

DigiRail IoT is a gateway with inputs and outputs that meets the demands of companies seeking to connect their sensors and actuators to the Internet of Things. **DigiRail IoT** is available in two versions: Wi-Fi and Ethernet. The Wi-Fi version has a range of up to 100 meters, while the Ethernet version offers transmission speeds of up to 100 Mbps.

DigiRail IoT provides an RS485 connection for operation as a gateway, modbus master or slave, with the ability to monitor and publish up to 8 variables from other devices, via the MQTT protocol or Modbus TCP/IP. Its message management system also guarantees security in data traffic. It is configured using **NXperience** software and is connected to the main market clouds, such as Google Cloud, Microsoft Azure, Amazon AWS, **NOVUS Cloud** or any other compatible IoT cloud platform. It also offers support, via **NXperience Trust** software, for validatable systems according to FDA 21 CFR part 11 and GMP (Good Manufacturing Practice).

DigiRail IoT

Industrial Data for IoT Platforms

Integration with Legacy Modbus Networks

Guaranteed Data Delivery

Easy Setup

Compatible with FDA CFR 21 and GMP

IoT Manager* for Legacy Networks

*One that adds IoT connectivity

Connectivity and I/O Expansion

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

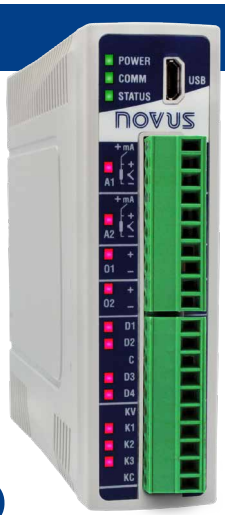
applicable for INDUSTRY 4.0

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

SUPPORTED ARDUINO

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

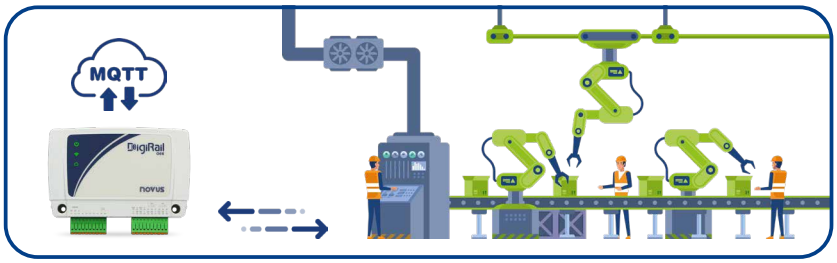
Programmable via Arduino IDE

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.



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, 2R e 4C

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 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

Industrial IoT Gateway

The **AirGate 4G** and **AirGate 4G Lite** gateways ensure remote and secure access to distributed applications via 4G mobile networks. Both use encryption protocols and firewall functions that are very common in IT infrastructures. They operate at higher temperatures, have CE Mark certification and dual SIM cards to guarantee operator redundancy and automatic failover. They also have RS485 / RS232 interfaces, are compatible with multiple communication protocols, allow remote management via web and offer SMS and e-mail alerts.

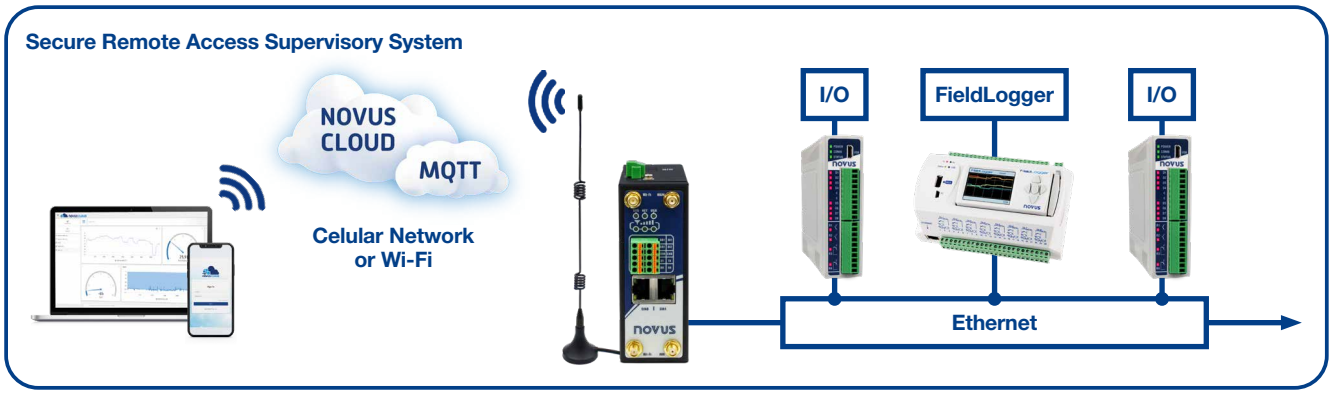
AirGate 4G has Wi-Fi and two Ethernet ports, which offers greater flexibility and connectivity, and this is the main difference between the models. Both have DIN rail mounting clips and external magnetic antennas, simplifying the installation on panels. **AirGate 4G** also simplifies the device access architecture, no longer requiring PLCs or SCADA systems to manage the network.

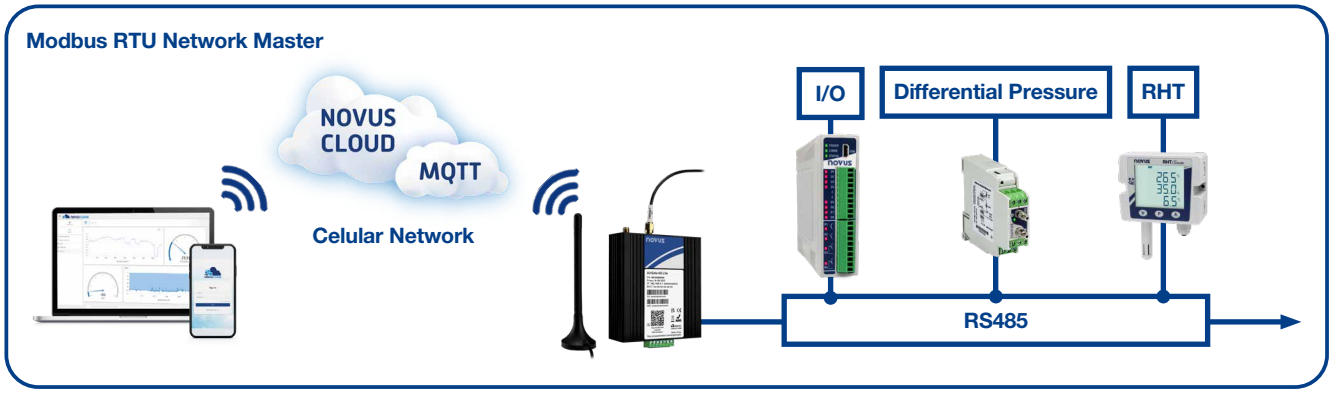
Meanwhile, **AirGate 4G Lite** is an excellent cost-effective option, designed without Wi-Fi and with a single Ethernet port. Ideal for industrial applications that require an efficient and economical gateway, it operates as a master in a Modbus RTU network, allowing it to read multiple process variables.

They are designed for use on IoT platforms, guaranteeing secure data communication via MQTT protocol. According to the specific needs of the application, **AirGate 4G** or **AirGate 4G Lite** will be the ideal choice to ensure that remote access is performed securely and efficiently.

AirGate 4G

AirGate 4G Lite





Industrial IoT Gateway

	AirGate 4G	AirGate 4G Lite
Cellular Interface	4G LTE: LTE FDD, LTE TDD 3G UMTS: DC-HSDPA, HSUPA, WCDMA 2G GSM: EDGE, GPRS 2 x SMA female antenna connector 2 x SIM (3.0 V and 1.8 V)	
Wi-Fi Interface	Standards: 802.11 b/g/n, 300 Mbps 2 x RP-SMA male antenna connector Support Wi-Fi Access Point and Client modes Security: WEP, WPA and WPA2 encryption Encryption: TKIP and CCMP	-
Ethernet Interface	Standards: IEEE 802.3, IEEE 802.3u 2 x ports 10/100 Mbps, RJ45 connector 1 x WAN interface (conFigureble on Web GUI interface) 1.5KV magnetic isolation protection	Standards: IEEE 802.3, IEEE 802.3u 1 x 10/100 Mbps port, RJ45 connector 1.5KV magnetic isolation protection
Serial Interface	1 x RS232 (3 pin): TX, RX, GND 1 x RS485 (2 pin): D1, D0 Baud Rate: 300 bps to 115.200 bps 15 KV ESD protection	1 x RS232 (3 pin): TX, RX, GND 1 x RS485 (2 pin): A, B Baud Rate: 300 bps to 115.200 bps 15 KV ESD protection
Digital Input and Digital Output	2 x Digital Inputs 2 x Digital Outputs Isolation: 3 KVDC or 2 KVrms Absolute maximum VDC: 36 VCC Absolute maximum ADC: 100 mA	-
LEDs	SYS LED: Operation NET LED: Mobile network USR LED: SIM Card 1/2 3 RSSI LEDs: Strength of the cellular signal	
Software	Network protocols: DHCP, ICMP, PPPoE, HTTP, HTTPS, DNS, VRRP, NTP, MQTT, FTP, TCP, Modbus RTU master, Modbus TCP client VPN: IPSec, GRE, OpenVPN, DMVPN Policy: RIPv1 / RIPv2 / OSPF / BGP (optional) Firewall & Filter: Port forwarding, DMZ, anti-DoS, ACL Serial Port: TCP, UDP Management: Web Interface	
Alerts	SMS and e-mail	
Power Supply	Connector: 3-pin 3.5 mm female socket with lock Input voltage range: 9 to 48 VDC	Input voltage range: 9 to 48 VDC
Power Consumption	Idle: 100 mA @ 12 V Data Link: 400 mA (peak) @ 12 V	Inactive: 50 mA to 12 V Data connection: 200 mA (peak) @ 12 V
Dimension	106 mm x 106 mm x 40 mm (excluding antenna)	82.4 mm x 93.3 mm x 28.8 mm (excluding antenna)
Mounting	DIN rail mounting	
Environmental	Operation temperature: -40 to 60 °C (-40 to 140 °F) Storage temperature: -40 a 85 °C (-40 to 185 °F) Operation humidity: 5 to 95 % non-condensing	Operation temperature: -40 to 75 °C (-40 to 167 °F) Operation humidity: 5 to 95 % non-condensing
Housing Metal	300g	200g
Protection	IP30	
Certification	CE, Anatel (07661-19-12560), RoHS	CE, Anatel (13384-23-12560), RoHS, EN50155 Vibration

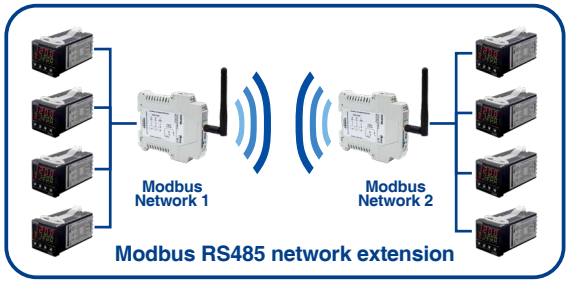
Communication

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



Modbus RS485 network extension

Scalable wireless network

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

Dashboard and IoT Cloud Platform

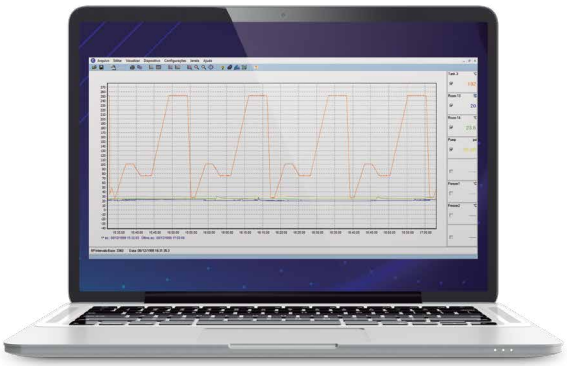
NOVUS Cloud is a platform focused on Internet of Things solution that expands the horizons of data viewing. Combined with **NOVUS** devices, this platform receives, stores, analyzes and displays on dashboards measurements of temperature, humidity, pressure, geolocation or any other variable of interest. Data access via the Internet is particulary 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

Topology FieldChart

Relative Humidity and Temperature Transmitters

Wireless Relative Humidity and Temperature Transmitter

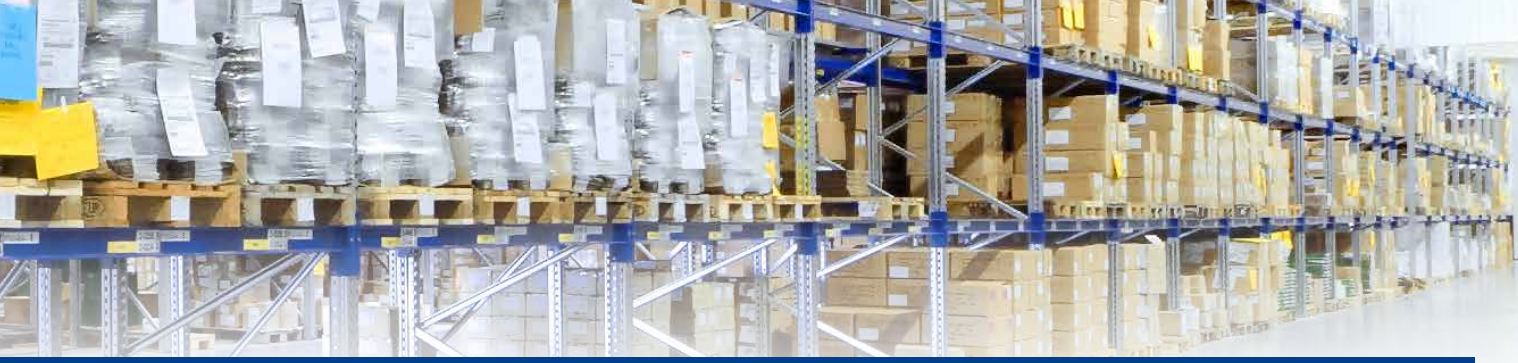
RHT Air is a wireless relative humidity and temperature transmitter which operates over long distances and allows configuration and parameters reading over a wireless network within 500 m distance. It has a long operating battery life combined with the convenience of a wireless sensor that avoids electrical 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 XS	RHT P10	RHT Air
Input Type	Integrated RHT probe	Extended RHT probe (3 m cable)	Extended RHT probe (flange mounting) (3 m cable)	Integrated RHT probe
Measurement Range	Temperature: -10 to 60 °C (14 to 140 °F) Humidity: 0 to 100% RH	Temperature: -40 to 120 °C (-40 to 248 °F) Humidity: 0 to 100% RH		Temperature: -40 to 100 °C (-40 to 212 °F) Humidity: 0 to 100% RH
Accuracy	Temperature: ± 0.4 °C @ 25 °C (32.8 °F @ 77 °F) Humidity: ± 3% @ 25 °C (77 °F) and 20 - 80% RH			
Analog Output Type	4-20 mA	4-20 mA		-
Advanced Functions	Dew point retransmission	Dew point retransmission		Battery level dew point indication
Communication	Through TxConfig adapter	Through TxConfig adapter		USB mini-B type NOVUS Air (IEEE 802.15.4)
Approvals	CE			Anatel (0172-13-7089) FCC and CE
Operating Conditions (Housing)	-10 to 65 °C (14 to 149 °F) 0 to 95% RH	-10 to 65 °C (14 to 149 °F) 0 to 95% RH		-10 to 70 °C (14 to 158 °F) 0 to 95% RH
Power Supply	12-30 Vdc	12-30 Vdc		12-30 Vdc or Replaceable 3.6 V Lithium battery
Ingress Protection	Housing: IP65 Probe: IP40			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 **SigNow** software which also performs diagnostics and input/output simulation, instalation and comissioning 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 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) Humidity: 0 to 100% RH		Temperature: -40 to 120 °C (-40 to 248 °F) Humidity: 0 to 100% RH	Temperature: -40 to 100 °C (-40 to 212 °F) Humidity: 0 to 100% RH	
Temperature: ± 0.4 °C (0 to 60 °C) (32 to 140 °F); Humidity: ± 1.8% RH @ 0 - 60 °C (32 to 140 °F) and 0 - 90% RH		Temperature: ± 0.4 °C @ 25 °C (32.8 °F @ 77 °F) Humidity: ± 3% @ 25 °C (77 °F) and 20 - 80% RH	Temperature: ± 0.4 °C (0 to 60 °C) (32 to 140 °F); Humidity: ± 1.8% RH @ 0 - 60 °C (32 to 140 °F) and 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	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	USB Micro-B Type and RS485 Modbus RTU	
CE		CE		
-40 to 60 °C (-40 to 140 °F) 0 to 95% RH		-10 to 65 °C (14 to 149 °F) 0 to 95% RH	-40 to 60 °C (-40 to 140 °F) 0 to 95% RH	
12-30 Vdc		12-30 Vdc		
Housing: IP65 Probe: IP30 or IP40		Housing: IP65 Probe: IP40	Housing: IP65 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
				
	TxMini M12	**TxMini M12 485**	**TEMP WM 4-20mA**	**TxBlock-USB**
Type	Pt100 / Pt1000 sensor programmable range	Pt100 sensor programmable range	Integrated probe	Universal programmable
Accuracy	0.2% of span		0.9% of span	Pt100 / mV: 0.2 % span T/C: 0.15% range ±1 °C (± 1.8 °F) NTC: 0.7% span
Input Type	Pt100 and Pt1000	Pt100	Integrated temperature sensor	J, K, T, N, R, S, B, E, Pt100, Pt1000, NTC, and 0-50 mV
Output Type	4-20 mA 20-4 mA		4-20 mA 20-4 mA	4-20 mA 20-4 mA
Range	-200 to 650°C (-328 to 1202 °F)	-200 to 600°C (-328 to 1112 °F)	-50 to 120°C (-58 to 248°F)	See manual
Configuration Interface	TxConfig M12 interface		TxConfig USB interface	USB Micro-B Type
Software	SigNow	SigNow	SigNow	SigNow
Operating Conditions	-40 to 85 °C (-40 to 185 °F) 0 to 90% RH		-20 to 65 °C (-4 to 149 °F) 0 to 90% RH	-40 to 85 °C (-40 to 185 °F) 0 to 90% RH
Power Supply	Loop powered 4-20 mA (8 - 35 Vdc)	7 - 40 Vdc	12 - 30 Vdc	Loop powered 4-20 mA (12 - 35 Vdc)
Dimensions	51.2 mm x 20 mm (2.01 in x 0.79 in)	59.7 mm x 20 mm (2.35 in x 0.79 in)	70 mm x 60 mm (2.75 in x 2.36 in)	34 mm x 18 mm (1.34 in x 0.71 in)
Housing	Polyamide		PA-GF	ABS UL94-HB
Format/ Mounting	M12 Connector Thread PG9 to Probe		Wall	Head

HART® Temperature Transmitters

The **TxIsoRail-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 TxIsoRail-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.

TxIsoRail HRT and **TxIsoBlock 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 with the device without removing it from the installation place.

TxIsoBlock HRT

TxConfig HRT Configurator

TxIsoRail HRT

HART® COMMUNICATION PROTOCOL

		DIN Rail Mounting		
				
TxIsoPack	**TxIsoBlock HRT**	**TxRail USB**	**TxIsoRail**	**TxIsoRail HRT**
Universal isolated programmable	Universal isolated HART programmable	Universal programmable	Universal isolated programmable	Universal isolated HART programmable
Pt100 / mV: 0.2 % span T/C: 0.7% span	Pt100 / mV: 0.15 % span T/C: 0.15 % span ±1 °C (± 1.8 °F) NTC: 0.45% span	Pt100 / mV: 0.2 % span T/C: 0.15% span ±1 °C (± 1.8 °F) NTC: 0.7% span	Pt100, mV e mA: 0.2 % span T/C: 0.2% span ±1 °C	Pt100 / mV: 0.15 % span T/C: 0.15 % span ±1 °C NTC: 0.45% span
J, K, T, N, R, S, B, E, Pt100, and 0-50 mV	J, K, T, N, R, S, B, E, Pt100, Pt1000, NTC, and 0-50 mV	J, K, T, N, R, S, B, E, Pt100, Pt1000, NTC and 0-50 mV	J, K, T, N, R, S, B, E, Pt100, 0-50 mV, 0-10 V, 0-20 mA, and 4-20 mA	J, K, T, N, R, S, B, E, Pt100, Pt1000, NTC and 0-50 mV
4-20 mA 20-4 mA	4-20 mA	4-20 mA (20-4 mA) 0-10 V (10-0 V)	4-20 mA 20-4 mA	4-20 mA
See manual		See manual		
USB Mini Type	Through TxConfig-HRT interface or HART® certified handheld	USB Micro-B Type	TxConfig-USB Interface	Through TxConfig-HRT interface or HART® certified handheld
SigNow	SigNow or HART® certified software	SigNow	SigNow	SigNow or HART® certified software
-20 a 75 °C 0 a 90% RH	-40 to 85 °C (-40 to 185 °F) 0 to 90% RH	-40 to 85 °C (-40 to 185 °F) 0 to 90% RH		
Loop powered 4-20 mA (12 - 35 Vdc)	Loop powered 4-20 mA (8.5 - 36 Vdc)	Loop powered 4-20 mA (12 - 35 Vdc)		Loop powered 4-20 mA (8,5 - 36 Vdc)
44 mm x 24 mm (1.73 in x 0.94 in)	43.5 mm x 20.5 mm (1.71 in x 0.79 in)	114 mm x 99.5 mm (4.49 in x 3.92 in)	77 mm x 72 mm (3.03 in x 2.83 in)	114 mm x 99.5 mm (4.49 in x 3.92 in)
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

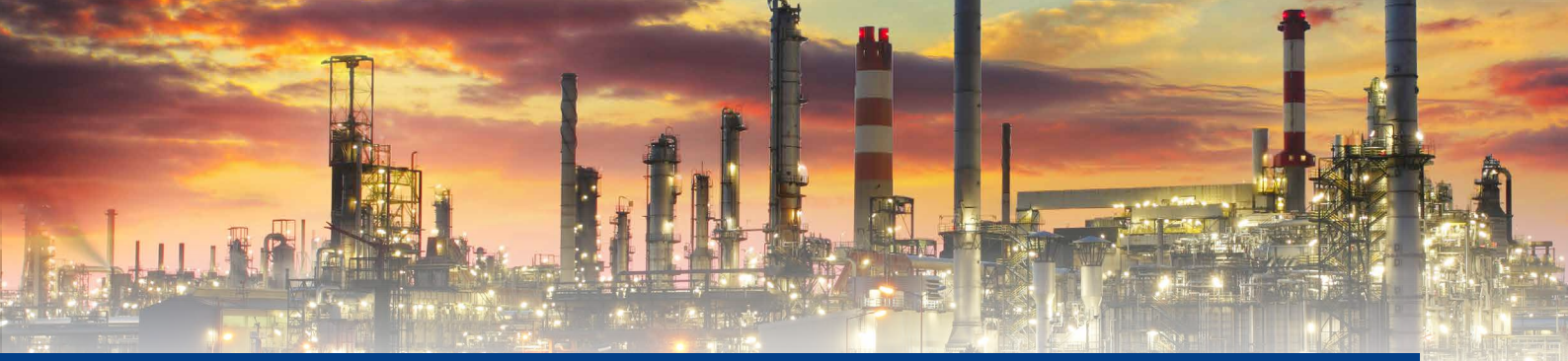
Ideal for **HVAC**, **clean-room and flow measurement** applications, the **NP785** is an ultra low differential pressure transmitter for measuring very small over-pressure, under-pressure and differential pressure in neutral, non-corrosive gaseous media. It provides a pressure proportional linear signal 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: ± 50 Pa (± 0.2 inH2O) to ± 68 mbar (± 1 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
- Configuration by **SigNow** software and **TxConfig USB** interface

NP640

Through the **TxConfig DIN43650** interface and the free **SigNow** software the **NP6xx** pressure transmitters series can be fully configured according to customer's preferred range and unit needs (bar, mbar, Mpa, kPa, kgf / m2, kgf / cm2, atm, mH20, 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 **SigNow** 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 SigNow software

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

Level Sensors

Non-Intrusive Level Sensor

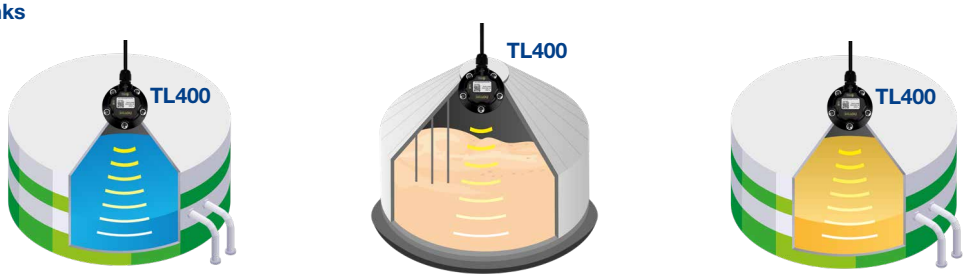
The **TL400** is an advanced level and volume sensor with a non-intrusive approach, making it well-suited to detect liquids, grains, fluids, and bulk solids in static and moving applications.

Employing a low-power laser beam, the device performs multiple measurements per second, and an advanced algorithm calculates the precise level and converts it to volume and distance in various units.

The device can be easily customized with a configurator app via Bluetooth, allowing users to save customized points and obtain accurate measurements even in irregular tanks.

TL400

Liquid Level/Volume in Reservoirs or Tanks



Rugged Housing

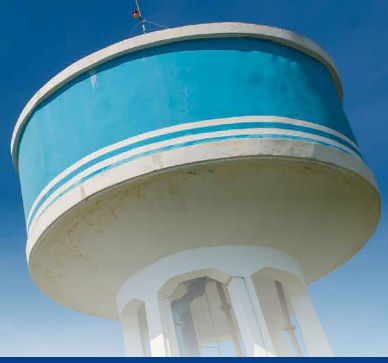
IP68 Rating

Highly Accurate (± 3 mm)

Bluetooth Configuration

Built-In Digital Filters

	TL400-I	TL400-V
Measurement Range	Up to 4.000 mm (13.1 ft)	
Accuracy	± 2 mm (0.08 in)	
Tank Geometry	In addition to the standard formats, it allows to save up to 20 linearization points	
Output Signal	4 to 20 mA	0.5 to 4.5 V
Connector Type	150 mm cable with M12 4-pin male connector	150 mm cable with SuperSeal male connector
Communication Interface	Bluetooth	
Configuration Software	SigNow Mobile	
Power Supply	8 to 33 Vdc Internal protection against reverse polarity	
Operating Temperature	-20 to 80 °C (-4 to 176 °F)	
Dimensions	Ø66 x 31 mm	
Housing	Polycarbonate with NBR gasket	
Mounting Pattern	SAE 5 Bolt Hole	
Protection Rating	IP68	
Certification	CE, UKCA and LASER CLASS 1	
Warranty	3-year	



Level Sensors

Submersible Hydrostatic Level Sensor

The submersible hydrostatic level transmitter **WL420** has been designed for continuous liquid level monitoring in water wells, reservoirs, tanks, boreholes, rivers, and other liquids.

The submersible unit measures the static pressure of the liquid column above the transmitter and transmits a current signal proportional to the water column to the instrumentation above.

The highly stable 316L stainless steel diaphragm sensor is fully compatible with raw or chlorinated water and most semi-aggressive liquids.

Supplied with a special vented cable to compensate for the atmospheric pressure changes, it accurately transmits the measured liquid level. The application-dependent cable length can be defined to the desired extent at the time of purchase and can be adapted by the customer at the application site.

Several measurement ranges are available for a wide range of applications, allowing their use with local or remote panel meters, data loggers, or PLCs.

WL420

Water Level in Dams or Reservoirs

PUR Vented Cable

IP68 Rated

Rugged Stainless Steel Construction

High Accuracy (0,5 % F.S.)

	WL420	WL320
Measuring Ranges	1 ... 100 mH2O (1, 1.6, 2.5, 4, 6, 10, 16, 25, 40, 60 and 100 mH2O) 1.5 to ... 150 PSI (1.5, 2.4, 3.75, 6, 9, 15, 24, 37.5, 60, 90 and 150 PSI)	
Cable Lenght	5 ... 120 m (5, 10, 15, 20, 30, 40, 50, 80, 120 m) 16.40 ... 393.70 ft (16.4, 32.8, 49.2, 65.6, 98.4, 131.2, 164, 262.5, 393.7 ft)	
Analog Output	4-20 mA	
Accuracy	0.5% F.S. @25 °C (@ 77 °F)	
Cable	PUR (Polyurethane) 2x conductors, shield and vent tube	
Operating Conditions	0 to 60 °C (32 to140 °F), range < 4 mH2O (6 PSI) -10 to 70 °C (14 to 158 °F), range >= 4mH2O (6 PSI)	-40 to 80 °C (-40 to 176 °F)
Power Supply	4-20 mA loop-powered (12 - 36 Vdc)	
Housing Material	Sensor - SS 316L Case - SS 304	SS 316L
Dimensions	Lenght: 105 mm (4.13 in) Diameter: 26.5 mm (1.04 in)	Lenght: 140 mm (5.51 in) Diameter: 19 mm (0.75 in)
Ingress Protection	IP68	
Electrical Protection	Polarity inversion and current limiter	
Approvals	CE, RoHS	
Warranty	1 year	

Controllers

PID Controller with LCD Display

N1020 is a high-performance temperature controller that combines the proven robustness of the **NOVUS PID** algorithm with a compact profile. The detachable connectors simplify installation in panels with limited space. The five Ramps and Soaks programs for configuring a Setpoint profile, the Soft Start output and the timer function complete the controller's advanced features.

- High performance
- Compact profile
- Detachable connector

N1020

Temperature PID Controllers







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

Compact PID Controller

N1030

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

DIN Rail Mount

Process PID Controllers







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

*Using micromodules

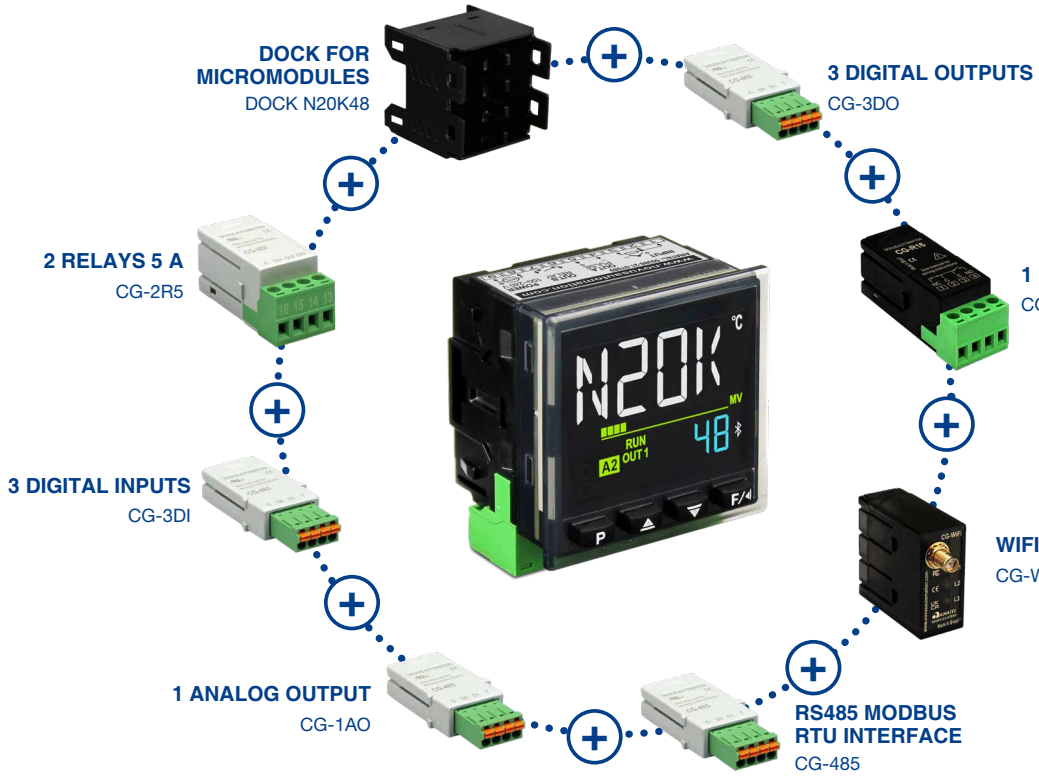
Controllers

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**

N20K48

MICROMODULES + DOCK + N20K48



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

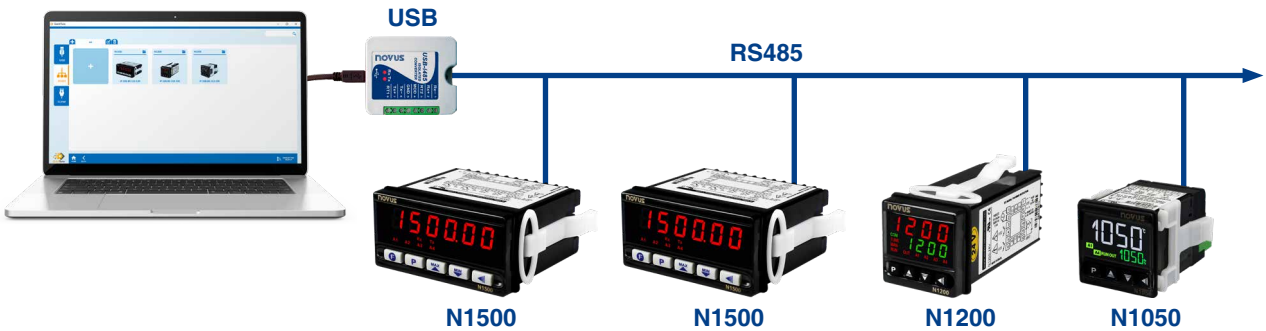
Certain applications require annoying tasks, which is to replicate the configuration of many devices. The batch configuration offers the appropriate environment to set plug-and-play device configuration in sequence.

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

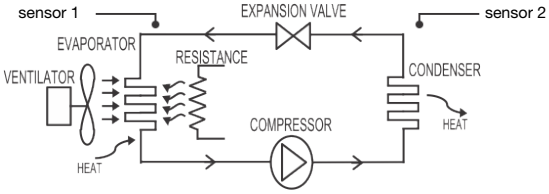
VIA RS485 (MODBUS RTU)



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

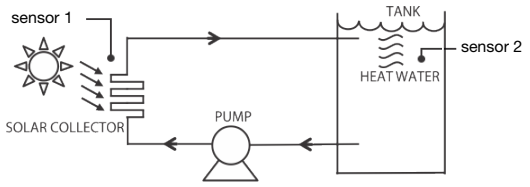


Models:
N321R: one output for compressor, accepts sensor type NTC, Pt100 or Pt1000 and optional voltage protection for compressor
N323R: three outputs (compressor, defrost and fan), monitors 2 NTC sensors (chamber and evaporator)
N323TR: similar to **N323R** plus real time clock for scheduling defrost 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

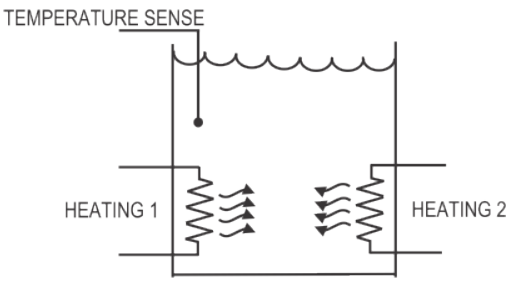


Models:
N321S: one output for circulation pump
N322S: two outputs for circulation pump and waer heater booster

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)

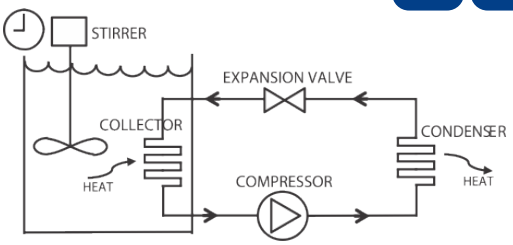
Typical application:
Cold chambers, ovens, food industry, and commercial refrigerators

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

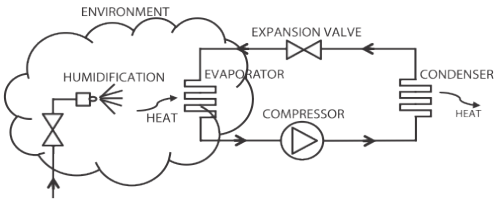


Electronic Humidistat

- 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

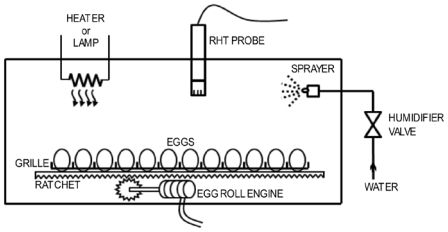


Egg Incubator Controller

- 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, P100, 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**
Indicator Type	Universal		Universal		Flow rate	Load cell
Input Type	Thermocouples, Pt100, voltage and current		Thermocouples, Pt100, voltage and current		4-20 mA, NPN, PNP, dry contact or magnetic signal	Voltage and current
Accuracy	J, K, T, E: 0.25% ± 1 °C (± 1.8 °F) N, R, S, B: 0.25% ± 3 °C (± 5.4 °F) Pt100: 0.20% Voltage/Current: 0.2%		J, K, T, E: 0.25% ±1°C (± 1.8 °F) N, R, S, B: 0.25% ±3°C (± 5.4 °F) Pt100: 0.20% Voltage/Current: 0.2%		4-20 mA: ±0.2% of span Pulse: ±30 ppm @25 °C (77 °F) Magnetic: ±0.1 % @25 °C (77 °F)	0.2 % span
Resolution	15 bits		>14 bits	17 bits	15 bits	17 bits
Programmable Range	-1999 to 9999	-2000 to 30000	-1999 to 9999	-31000 to 31000 0 to 60000 0 to 120000	Scale factor	-31000 to 31000 0 to 60000 0 to 120000
Sampling Rate	55 sps		5 sps	5 to 15 sps	-	15 sps
Alarms	2 setpoints 7 alarm types 2 relay outputs		2 setpoints 7 alarm types 4 timing modes 2 relay outputs	4 setpoints 7 alarm types 4 timing modes 2 (up to 4) relay outputs	2 (up to 4) setpoints 4 alarm types 4 timing modes 2 (up to 4) relay outputs	4 setpoints 7 alarm types 4 timing modes 2 (up to 4) relay outputs
Special Fetaures	Optional 24 Vdc output	Hold maximum / minimum custom linearization 24 Vdc output	Hold maximum / minimum custom linearization Square root Digital Input retransmission 24 Vdc output		Hold maximum / minimum Custom linearization Square root Digital input Analog retransmission Pulse retransmission 24 Vdc output	Hold maximum / minimum Custom linearization Digital input retransmission 10 Vdc or 5 Vdc output
Communication Interface	USB (Mini-B type) Optional RS485 Modbus		Optional RS485 Modbus			
Certification	CE,UL		-	CE, UL		
Frontal Protection Rate	IP65		IP30	IP65		
Power Supply	100-240 Vac/dc or 12-24 Vdc		100-240 Vac/dc or 12-24 Vdc			
Housing	48x48 DIN 1/16	96x48 DIN 1/8	310 x 110 x 37 mm panel (12.20 x 4.33 x 1.46 in)	96x48 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.

SSR

NDR Power Supply

NDR sources are ideal for complex industrial applications. As they have a Full Range power input that reduces energy consumption and operating costs, they guarantee high energy efficiency. They also ensure a constant 24 V supply, which is essential for the continuous and safe operation of equipment, and offer overvoltage and overcurrent protection.

With an extremely fast start-up (less than 1 second), they minimize downtime and increase productivity. In addition, its easy integration simplifies implementation, providing flexibility and adaptability in several industrial applications. Certified by international standards, **NDR sources** are robust and reliable.

NDR

FTR Power Supply

The **FTR power supply** is a switching mode power supply to be connected directly to the line proviiding na 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 electromagnetical interference.

FTR

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 undestanding 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 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 adittional 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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