

# Complete Automation Solution



NOVUS

We Measure, We Control, We Record

## General Catalogue

• Controllers • Transmitters • Data Loggers • Thermostats • Indicators • Software • Sensors • Wireless



**Temperature °Controls Pty Ltd**  
Specialists in Industrial Temperature Measurement

# About NOVUS

Exceeding the expectations of our customers and employees has been a priority for NOVUS. This, coupled with social and environmental responsibility, demonstrates our deep and ongoing commitment to the community and to the environment.

With the economic opening of the 1990's in Brazil, and consequent influx of imports, NOVUS management responded and seized the opportunity to reinvent the company, seeking new challenges. The goal was to develop a strategy aimed at producing products that appealed to international markets, expanding its boundaries beyond the borders of Brazil, looking at the world as a potential customer. The same product that comes off of our assembly lines can find its way to a small town in Brazil or to an advanced center of any European or American city.

With modern high precision automatic SMT assembly equipment, NOVUS is technologically able to meet stringent requirements in line with the strictest environmental standards.

NOVUS is not here by chance. Our achievements are the result of hard work, investment and innovation.

## We Measure, We Control, We Record.



## Universal Indicator - N1540

**N1540** process meter was designed with advanced technology for highest performance and reliability in the most demanding applications. Based on an advanced and robust hardware platform, the **N1540** can be fully programmed via its front keypad or via a USB interface. The unique USB interface makes the programming task a simple one step fool proof operation. It allows, for example, the set up of several instruments with the same programming parameters with extreme ease while saving precious time. The USB interface also provides an invaluable means for continuous monitoring of the measured process variable. With a very short 34 mm (1.34 inches) depth enclosure, the **N1540** can be easily installed in panels and enclosures where space is at a premium. Dual alarm relays and a convenient 24 V auxiliary power supply are also available in this competitively priced process meter.



- Accepts thermocouples J, K, T, E, N, R, S, B, Pt100, 0-50 mV, 0-5 Vdc, 0-10 Vdc, 0-20 mA and 4-20 mA
- Temperature in °C or °F
- Adjustable indication offset
- Adjustable digital filter
- Programmable indicating range from -1999 to 9999
- Sampling rate: up to 50 measurements per second
- Two relay alarms: SPST 1.5A/240 Vac
- Alarm functions: LO, HI, differential, differential LO, differential HI, sensor break
- Alarm initial blocking
- Alarm hysteresis
- Flash function (display flashes under alarm condition)
- Detachable wire connectors
- Bright: 14 mm display
- Recorded maximum HI and minimum LO values can be retrieved via keypad
- Password for configuration protection

- Auxiliary 24 Vdc voltage source
- USB Interface for configuration and monitoring
- Factory configuration parameters retrieval
- IP65 UL 94 V-2 front; IP20 UL 94V-0 enclosure
- Silicone rubber keypad
- CE and UL certification
- Size: 96 x 48 x 34 mm
- Power: 100~240 Vac/dc ±10%

### OPTIONS:

- RS485 Modbus RTU serial communication
- Power: 24 Vdc



USB Interface



NConfig Software Configuration (See page 11)

## Universal Indicator - N1040i

This low cost universal indicator can be installed and programmed by operators with little or no skill in instrumentation. It features up to two alarm relays and a 24 Vdc power supply for remote transmitters.



- Sensor inputs J, K, T, E, N, R, S, B, Pt100, 0-50 mV, 0-5 Vdc, 0-10 Vdc and 4-20 mA
- Programmable indicating range from -1999 to 9999
- Alarm functions: LO, HI, differential, LO differential, HI differential and sensor break
- Simplified configuration menu
- Access password for configuration protection
- Detachable wire connector
- IP65 UL 94 V-2 front panel; IP20 UL 94V-0 enclosure
- Silicone rubber keypad
- CE and UL certification

- Size: 48 x 48 x 80 mm
- Power: 100~240 Vac/dc ±10%  
48~240 Vdc ±10%  
24~240 Vdc ±10% (model N1040i-F)

### OPTIONS:

- SPST 3A/250 Vac relay + 24Vdc power supply
- Process Variable retransmission: 0-20/4-20 mA
- RS485 Modbus RTU serial communication
- Two relay alarms: SPST 3A/240 Vac
- Auxiliary 24 Vdc voltage source
- Power: 24 Vac/dc

## Universal Indicator - N1500 & N1500LC

This high performance universal indicator features a 16-bit resolution converter, up to 4 relays, digital communication, power supply for remote transmitter or load cell excitation, one digital input and analog retransmission.



- Accepts thermocouples J, K, T, E, N, R, S, B, Pt100, 0-50 mV, 0-5 Vdc, 0-10 Vdc and 4-20 mA
- Programmable indicating range from -31000 to 31000 or 0 to 60000
- Sampling rate: up to 15 measurements per second
- Adjustable digital filter
- Alarms relays: 2 SPDT 3A/240 Vac
- Programmable alarm functions: H, LO, differential and sensor break
- Internal power supply for remote transmitters: 24 Vdc
- N1500LC - dedicated for load cell application
- Functions: HOLD, MAX, MIN, TARE and ZERO through F (function) key or digital input

- Internal load cell excitation: 10 Vdc
- CE and UL certification
- Size: 96 x 48 x 92 mm
- Power: 100~240 Vac/dc ±10%

### OPTIONS:

- Process Variable retransmission: 0-20/4-20 mA
- RS485 Modbus RTU serial communication
- Two relay alarms: SPST 1.5A/240 Vac
- Power: 24 Vac/dc

## Universal Indicator - N1500G

This high performance universal Indicator features a large 56 mm (2.2 inches) display for high visibility at long distances and offers the most relevant requirements of a modern DPM. Setup can be done via its keyboard or remotely via RS485. It offers a 4-20mA retransmission output and a digital input with special functions.



- Accepts thermocouples J, K, T, E, N, R, S, B, Pt100, 0-50 mV, 0-5 Vdc and 4-20 mA
- Programmable indicating range from -1999 to 9999
- Sampling rate: up to 5 measurements per second
- Alarm relays: 2 SPST 3A/240 Vac
- Programmable alarm functions: H, LO, differential and sensor break
- Internal power supply for remote transmitters: 24 Vdc
- Process Variable retransmission: 4-20 mA

- RS485 Modbus RTU serial communication
- HOLD, PEAK, MAX and MIN functions
- Digital input: hold, zero tare or reset
- Zero and tare via digital input or keypad
- Internal load cell excitation: 10 Vdc
- CE certification
- Size: 310 x 110 x 37 mm
- Power: 100~240 Vac/dc ±10%

High 56 mm Display

## Flow Meter- N1500FT



Tailor made for flow applications, this instrument measures and displays both the instant measured value and the totalized value. One model is capable of reading a 4-20 mA signal or a pulsed signal. Input type is fully software selected. Several display modes are available and instrument can be ordered with up to 4 relays plus digital communication. It boasts dual retransmission outputs: one 4-20 mA output, typically for instant flow, and the other is a pulse (NPN) output, typically for totalized flow. Both outputs are isolated.

- Inputs: 4-20 mA, NPN, PNP, dry contact or coil signal
- Capable of reading pulsed signals from 0.1 to 8000 Hz
- Fully customized scale factors
- With pulsed input being used, the 4-20 mA input can be used as an auxiliary input (example: pressure reading)
- Isolated 4-20 mA output (instant flow) and pulse output (NPN – totalized)
- Dosage monitoring functions ensure product quality and consistency
- Dual 6-digit displays, allows for several display messaging configuration
- Configuration can be password protected
- Alarms: 2 SPDT 3A/250 Vac relays
- Auxiliary 24 Vdc voltage source
- Size: 96 x 48 x 92 mm
- Power: 100~240 Vac/dc  $\pm 10\%$
- OPTIONS:**
- RS485 Modbus RTU serial communication
- Dual SPST 3A/250 Vac extra relays
- Power: 24 Vac/dc

## Universal Controller - N1100



One single instrument provides all the main features needed for the vast majority of industrial processes. Both input and output are selected through the front keypad without hardware change.

- Accepts thermocouples J, K, T, E, N, R, S, B; Pt100, 0-50 mV, 0-5 Vdc and 4-20 mA
- Outputs: 2 relays SPST, pulse for SSR and linear 4-20 mA
- Up to 2 alarms with timers from 0 to 6500 s
- Input resolution: 12000 levels
- PV or SP retransmission in 0-20/4-20 mA
- Bumpless Auto/Manual function
- Remote setpoint input (4-20 mA)
- Programmable soft start (0 to 9999 s)
- Auto tuning PID
- Access password for configuration protection
- Ramp and soak: seven 7-segment profiles or one 49-segment profile
- IP65 UL 94 V-2 front panel; IP20 UL 94 V-0 enclosure
- CE and UL certification
- Size: 48 x 48 x 110 mm
- Power: 100~240 Vac/dc  $\pm 10\%$
- OPTIONS:**
- RS485 Modbus RTU serial communication
- SPDT 3A/250 Vac relay or 2 digital I/Os
- 24 Vac/dc power supply

USB Interface



## Universal Controller - N2000 & N2000S



These two instruments contain all of the features required for most high performance industrial processes. The S model has two time proportionally driven relays to control servo-positioning valves and dampers.

- Accepts thermocouples J, K, T, N, R, S; Pt100, 0-50 mV, 0-5 Vdc and 4-20 mA
- Outputs: 2 SPDT and 2 SPST relays, pulse for SSR and linear 4-20 mA
- 4 software configurable alarms
- Up to 2 alarms with timers from 0 to 6500 s
- Input resolution: 12000 levels
- Built-in auxiliary 24 Vdc voltage source
- PV or SP retransmission in 4-20 mA
- Bumpless Auto/Manual function
- Remote setpoint input (4-20 mA)
- Programmable soft start (0 to 9999 s)
- Ramp and soak: seven 7-segment profiles or one 49-segment profile
- Auto tuning PID
- IP65 UL 94 V-2 front panel; IP20 UL 94 V-0 enclosure
- Silicone rubber keypad
- CE and UL certification
- Size: 48 x 96 x 92 mm
- Power: 100~240 Vac/dc  $\pm 10\%$
- OPTIONS:**
- RS485 Modbus RTU serial communication
- Power: 24 Vac/dc

USB Interface



## Universal Controller - N3000



This is a fully featured high performance controller designed to satisfy the most advanced industrial process applications. Input and outputs can be easily configured from the keypad.

- Accepts thermocouples J, K, T, E, N, R, S; Pt100, 0-50 mV, 0-5 Vdc and 4-20 mA
- Outputs: 2 SPDT relays, 2 SPST relays, pulse for SSR and linear 4-20 mA
- 4 software configurable alarms
- Up to 2 alarms with timers from 0 to 6500 s
- Input resolution: 12000 levels
- Auxiliary 24 Vdc voltage source
- PV or SP retransmission in 4-20 mA
- Bumpless Auto/Manual function
- Remote setpoint input (4-20 mA)
- Programmable soft start (0 to 9999 s)
- Ramp and soak: seven 7-segment profiles or one 49-segment profile
- Auto tuning PID
- IP65 UL 94 V-2 front panel; IP20 UL 94 V-0 enclosure
- Silicone rubber keypad
- CE and UL certification
- Size: 96 x 96 x 92 mm
- Power: 100~240 Vac/dc  $\pm 10\%$
- OPTIONS:**
- RS485 Modbus RTU serial communication
- Power: 24 Vac/dc

USB Interface



## Temperature Controller - N480D



This user-friendly dual display PID temperature controller incorporates many functions such as single ramp & soak, logic pulse and relay outputs that provide quick and effective control action.

- Accepts thermocouples J, K, T, E, N, R, S and Pt100 RTD
- Red display for process variable and green display for setpoint
- Control outputs: SPST relay and voltage pulse
- Ramp & soak profile programming with successive repetition
- Auto tuning PID
- Detects any sensor failure
- Easy-to-set programming menu
- IP65 UL 94 V-2 front panel; IP20 UL 94 V-0 enclosure
- Silicone rubber keypad
- CE and UL certification
- Size: 48 x 48 x 110 mm
- Power: 100~240 Vac/dc  $\pm 10\%$
- OPTIONS:**
- 4-20 mA control output
- Dual SPST 3A/240 Vac relay outputs
- Power: 24 Vac/dc

USB Interface



## Temperature Controller - N1030

**N1030** is a temperature controller that features a high performance PID algorithm in a compact housing, with only 35 mm depth. Its compact construction and the convenient detachable connector provide an easy set up on short profile panels, optimizing the space and reducing costs. It has two outputs always available which can be configured both as a control or an alarm.

- Single Loop PID and ON/OFF controller
- PID auto tuning
- Two independent outputs available
- 3A relay output
- Dual relay output or 1 pulse and 1 relay versions
- Six alarm functions LO, HI, differential, differential LO, differential HI, sensor break
- Initial blocking alarm function
- Adjustable alarm hysteresis
- Thermocouples J, K, T, E and Pt100 input
- Temperature unit °C or °F
- Decimal place indication
- Configurable setpoints limits
- Password protected configuration
- Factory configuration parameters recovery
- Dual red and green four-digit display
- Front panel material PC UL94 V-2
- Enclosure material: PC UL94 V-2
- Front panel protection: Ip65
- Operating environment: 0 to 60 °C, 20 to 80 % RH
- Dimensions: 48 x 48 x 35 mm
- Power supply: 100 to 240 Vac/dc or 12 to 24 Vdc / 24 Vdc/ac
- Detachable terminal block



## Universal Controller - N1200

This self-adaptive PID process controller boasts an advanced tuning algorithm which continuously monitors process performance and automatically adjusts the PID settings to always attain the best possible control response. The same model accepts most common analog signals and sensors featuring the necessary signal to connect the process actuators. The complete instrument configuration can be made using the keypad or the USB interface and the NConfig software.



- Accepts thermocouples J, K, T, E, N, R, S, B; Pt100, 0-50 mV, 0-5 Vdc, 0-10 Vdc, 0-20 mA and 4-20 mA
- Outputs: 2 relays SPST 1.5A/250Vac, pulse for SSR and linear 4-20 mA
- 16 bit/A/D converter, 55 samples per second
- PV or SP retransmission in 0-20/4-20 mA, 12 bits
- Bumpless Auto/Manual function
- Loop break detection function
- Remote setpoint input (0-20 mA, 4-20 mA, 0-5 Vdc, 0-10 Vdc)
- Programmable soft start (0 to 9999 s)
- Ramp and soak: twenty 9-segment profiles or one profile with up to 180 segments
- Access password for configuration protection
- USB 2.0 interface for configuration
- IP65 UL 94 V-2 front panel, IP20 UL 94 V-0 enclosure
- CE and UL certification
- Size: 48 x 48 x 110 mm
- Power: 100-240 Vac/dc ±10%

USB Interface



## Temperature Controller - N1020

This controller features an advanced tuning algorithm which continuously monitors the temperature and automatically adjusts the PID settings resulting in the best possible control response. With front dimensions of only 48x24 mm (1/32 DIN) it is the right choice when panel space is at a premium.



- Accepts thermocouples J, K, T, E, N, R, S, B; Pt100 and 0-50 mV
- High efficiency LED Display
- Auto-adaptive PID algorithm
- Auto-tuning PID
- 2 outputs: 1 pulsed 5 Vdc/25 mA and 1 relay SPST 1.5A/240 Vac
- Output functions: Control, Alarm1, Alarm2
- Configurable alarms with 8 functions
- Alarm initial blocking at power up
- Programmable timer
- "F" key with 3 special functions
- Soft-start function
- Ramp to soak function
- Access password for configuration protection
- Factory settings restoration feature
- Front panel: IP65, Polycarbonate, UL94 V-2
- Enclosure: IP20, Polycarbonate, UL94 V-2
- Silicone rubber keypad
- CE and UL certification
- Size: 48 x 24 x 105 mm
- Power: 100-240 Vac ±10% / 24 ~ 240 Vdc ±10%

USB Interface



## Temperature Controller - N1040

Designed for low cost and space sensitive applications and yet achieving a high degree of accuracy. It features a short depth enclosure of only 80 mm (3.15 inches), an efficient universal power supply, auto tuning PID, dual control outputs and a detachable electrical wire connector block.



- Accepts thermocouples J, K, T and Pt100 RTD
- Control output: 5 Vdc/20 mA logic pulse or one SPST 1.5A/250 Vac relay
- Sampling rate: 10 readings per second
- Internal resolution: 15000 levels
- Configurable limits for setpoint
- Dual red and green 4-digit displays
- Access password for configuration protection
- °C or °F indication
- Front panel and enclosure: PC (UL94 V-2)
- Programmable alarm functions: LO, HI or differential
- IP65 front protection, IP30 housing protection
- Silicone rubber keypad
- CE and UL certification
- Size: 48 x 48 x 80 mm
- Power: 100-240 Vac/dc ±10%  
48-240 Vdc ±10%  
24-240 Vdc ±10% (model N1040-PR-F)

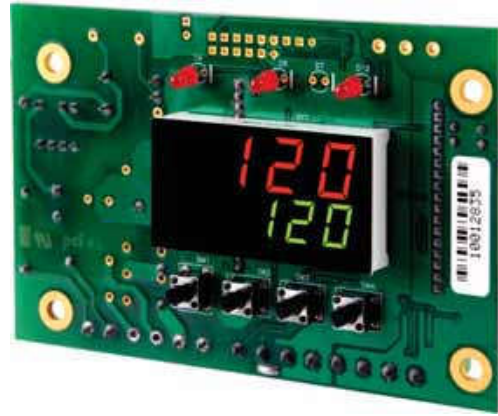
## Universal Controller - N120

This open frame process controller is a perfect solution for behind the panel mounting for machine manufacturers. Many custom dedicated functions and features are readily available.

- Accepts thermocouples J, K, T, E, N, R, S, B, Pt100, 0-50 mV, 0-5 Vdc, 0-10 Vdc, 0-20 mA e 4-20 mA
- Outputs: 2 SPST relays, logic pulse for SSR
- Auto-adaptive PID control
- Up to 4 alarms with timers from 0 to 9999 s
- 16-bit A/D converter, 55 samples per second
- Bumpless Auto/Manual function
- Ramp and Soak: twenty 9-segment profiles or 1 profile with up to 180 segments
- Data Logging function with RTC and Internal memory for 32 K loggings
- Programmable soft start (0 to 9999 s)
- Access password for configuration protection
- USB 2.0 port for configuration
- Digital input for multiple functions
- Timer function
- Size: 100 x 67 mm
- Power: 100-240 Vac/dc  $\pm 10\%$
- Configurable through the NConfig software

### OPTIONS

- RS485 Modbus RTU serial communication
- SPDT relay for up to 10 A loads
- Single and dual display versions
- Power: 24 Vac/dc
- Customized versions available



USB Interface



NConfig Software Configuration  
(See page 11)



LogChart  
(See page 11)

## Temperature Controller - N320, N321, N322 & N323

The **N320** electronic thermometer is used to indicate temperature with a high degree of accuracy. The **N321**, **N322** and **N323** controllers can be configured via keypad for heating or refrigeration control. **N322** has 2 relays and **N323** has 3 relays. The alarm outputs can be configured for high, low or differential alarm.



- Configurable protection password
- Sensors: NTC Thermistor (-50 to 120 °C), Pt100 (-50 to 300 °C), Pt1000 (-200 to 530 °C), T/C J (0 to 600 °C), T/C K (-50 to 1000 °C) or T/C T (-50 to 400 °C)
- Control relay: SPDT, 16 A/240 Vac
- Alarm relay 1: SPST, 3 A/240 Vac (**N322** and **N323**)
- Alarm relay 2: SPST, 3 A/240 Vac (**N323**)
- Accuracy: 0.6 °C (NTC), 0.7 °C (Pt100 and Pt1000), 3 °C (thermocouple)
- IP65 front face plate
- Display: 3½ LED digits, 13 mm height
- Resolution: 0.1 °C between -19.9 and 199.9 °C
- Sampling: 1.5 per second
- CE and UL certification
- Size: 75 x 33 x 75 mm
- Power: 100-240 Vac/dc  $\pm 10\%$

### OPTIONS:

- RS485 Modbus RTU serial communication
- Pulse output for SSR: 5 Vdc / 25 mA (**N322**)
- Power: 12-24 Vac/Vdc

## Temperature Controller - N322T

**N322T** finds application in heating and cooling processes. It features a built-in timer function for forced defrost cycles, programmed liquid stirring and other timed or interval related actions. The time base can be adjusted for seconds, minutes or hours.



- Configurable protection password
- Sensor offset calibration
- Program retention during power failure
- Sensors: NTC thermistor, Pt100, Pt1000 or Thermocouples type J, K, or T
- Control relay: SPDT, 16 A/250 Vac
- Timer relay: SPST, 3 A
- IP65 front protection
- Display: 3½ LED digits, 13 mm height
- Resolution: 0.1 °C from -19.9 to 19.9 °C
- Accuracy: 0.6 °C (NTC), 0.7 °C (Pt100 and Pt1000), 3 °C (T/Couple)
- Working temperature: 0 to +40 °C
- CE and UL certification
- Size: 75 x 33 x 75 mm
- Power: 100-240 Vac/dc  $\pm 10\%$

### OPTIONS:

- RS485 Modbus RTU serial communication
- Pulse output for SSR: 5 Vdc / 25 mA
- Built-in alarm buzzer
- Voltage monitor for compressor protection: 150-250 Vac (models with NTC sensor)
- Power: 12-24 Vac/Vdc

## Temperature Controller - N321S & N322S

**N321S** and **N322S** were designed for solar water heating applications. Water circulation system is controlled based on the difference of temperature between the solar collector and the storage tank. With two NTC-type temperature sensors and a control output for activating the water circulation pump. **N322S** has also a relay output for booster control.



- **N321S** has one SPDT relay output, 1 HP (16 A resistive) / 250 Vac for pump control. **N322S** has a second 3 A/250 Vac SPST relay as a secondary output (booster)
- Temperature measurement: NTC: -50 to 120 °C
- Display: 3½ LED digits, 13 mm height
- Sensor offset calibration
- Adjustable hysteresis
- Program retention during power failure
- Configurable protection password
- Accuracy: 0.6 °C (NTC)
- Resolution: 0.1 °C from -19.9 to 120.0 °C
- IP65 front protection
- CE and UL certification
- Size: 75 x 33 x 75 mm
- Power: 100-240 Vac/dc  $\pm 10\%$

### OPTIONS:

- RS485 Modbus RTU serial communication
- Power: 12-24 Vac/dc

## Humidity Controller - N322RHT & N323RHT

**N322RHT** and **N323RHT** are temperature and relative humidity digital controllers. **N322RHT** has two relay outputs that can be configured as control or alarm. **N323RHT** has three outputs that can be independently configured as control, alarm or timer.



- Selectable variable indication
- IP65 front protection
- Output 1: one SPDT, 16 A/ 250 Vac relay
- Output 2: one SPST 3 A/ 250 Vac relay
- Output 3: one SPST 3 A/ 250 Vac relay (on **N323RHT**)
- Humidity:
  - Measuring range: 0 to 100% relative humidity (RH)
  - RH accuracy: 3% @ 25 °C
  - RH measuring resolution: 1% of full scale
- Temperature:
  - Measuring range: -20 to 80 °C
  - Accuracy: 0.5 °C @ 25 °C
  - Measuring resolution: 0.1 °C from 19.9 to 80.0 °C
- CE and UL certification
- Size: 75 x 33 x 75 mm
- Power: 100~240 Vac/dc  $\pm$ 10%
- **OPTIONS:**
  - RS485 Modbus RTU serial communication
  - Voltage pulse output for SSR: 5 Vdc / 25 mA (**N322RHT**)

## Refrigeration Controller - N321R

**N321R** performs automatic defrost cycles by stopping the compressor at programmable intervals and duration or via a manual defrost key. It features a programmable power-on delay function and compressor protection against voltage fluctuation.



- Access password for configuration protection
- Sensor offset calibration
- Adjustable hysteresis
- Program retention during power failure
- Sensors: NTC thermistor, Pt100, Pt100C
- Control relay: SPDT, 16 A/250 Vac
- IP65 front protection
- Display: 3 1/2 LED digits, 13 mm height
- Resolution: 0.1 °C from -19.9 to 199.9 °C
- Accuracy: 0.6 °C (NTC), 0.7 °C (Pt100 and Pt100C)
- CE and UL certification
- Size: 75 x 33 x 75 mm
- Power: 100~240 Vac/dc  $\pm$ 10%
- **OPTIONS:**
  - RS485 Modbus RTU serial communication
  - Compressor protection against voltage fluctuation programmable from 150~250 Vac (models with NTC)
  - Power: 12~24 Vac/Vdc

## Refrigeration Controller - N323R & N323TR

**N323R** has 3 relays: one for compressor, one for defrost and the other for fan control. It operates with dual temperature sensors, one for chamber temperature and the other for evaporator temperature for defrost control. **N323TR** adds a built-in real time clock for time programmed defrost cycles at specific days of week and times. It holds 3 relays: one for compressor, one for defrost and one for fan control.



- Access password for configuration protection
- Sensor offset calibration
- Adjustable hysteresis
- Program retention during power failure
- Sensors: NTC thermistor (2 sensors)
- Control relay: SPDT, 16 A/250 Vac
- Alarm relay: SPST, 3 A/ 240 Vac
- Resolution: 0.1 °C from -19.9 to 199.9 °C
- Accuracy: 0.6 °C
- IP65 front protection
- Silicone rubber keypad
- Display: 3 1/2 digits LED, 13 mm height
- Sampling: 1.5 readings per second
- CE and UL certification
- Size: 75 x 33 x 75 mm
- Power: 100~240 Vac/dc  $\pm$ 10%
- **OPTIONS:**
  - RS485 Modbus RTU serial communication
  - Power: 12~24 Vac/Vdc

## DAQ, Recording & Supervision - LogBox-AA, LogBox-DA & LogBox-RHT

These self-contained data loggers accept several analog and digital industrial sensors and accurately record the measurements in non-volatile memory. Setup and data retrieval is done in a PC via the IR-Link3 infrared wand with the use of LogChart software which plots and prints graphs, lists loggings and exports data to spreadsheets. Special mathematical functions can also be programmed.



- **LogBox-AA:** 2 analog inputs for thermocouples J, K, T, N, R, S, B, Pt100, 0-50 mV, 0-10 Vdc, 0-20 mA and 4-20 mA
- **LogBox-DA:** 1 analog input for 0-50 mV, 0-10 Vdc, 0-20 mA or 4-20 mA
- 1 digital input for voltage pulse or dry contact
- Counts pulses within a time interval
- **LogBox-RHT:** Built-in industrial grade humidity and temperature sensors
- The measured values are shown on the **LogBox-RHT** LCD display which also present maximum and minimum values occurred while logging
- Resolution: 14 bits
- Memory: 64000 recordings
- Recording interval: from 1s to 18 days
- Power: internal 3.6 V lithium battery
- Battery life: 1 year typical
- Operating temperature: -40 to 70 °C
- IP65 or IP67 housing
- Size: 70 x 60 x 35 mm



LogChart Configurator (SCC) (page 11)



Compatible USB

## DAQ, Recording & Supervision - TagTemp-NFC

Compact with external temperature sensor, memory capacity of 4000 records. Wireless configuration and data acquisition through its NFC interface (Near Field Communication) by using android smartphones or labels. Internal battery life of 400 days (not replaceable).



- Measure range: -40 °C to +70 °C
- Temperature Accuracy:  $\pm$ 0.5 °C to 25 °C;  $\pm$ 1.0 °C on all range
- Measurement resolutions: 0.1 °C
- Memory capacity: 4,020 logs
- Measurement interval: programmable between 5 min and 2 h
- Configuration and acquisition: RFID ISO 15693 (NFC-V)
- Free Android App **LogChart-NFC** available for Android 4.0 and higher smartphones with NFC interface
- Optional USB to NFC computer interface allows communication using LogChart-I software on Windows operating system
- Optional USB to NFC computer interface allows communication using LogChart-II software
- Power: Lithium Battery, 3 V, internal, not replaceable
- Battery Autonomy: 400 days with 15 min acquisition break
- Housing: Polyamide body injected. Protection length IP67
- Dimensions: 65 x 44 x 8 mm (temperature sensor not included)



LogChart Configurator (SCC) (page 11)



NFC-USB Interface (page 14)



## DAQ, Recording & Supervision - TagTemp-USB

**TagTemp-USB** is a compact waterproof temperature data logger housed in an IP67 enclosure. Configuration is easy connecting straight to a PC USB port. **LogChart** software allows logger configuration, recorded data retrieval, plotting, historical analysis and exporting data to spreadsheets. Its high resolution 14 bit ADC and 32k logging memory capacity make it the ideal product for accurate temperature monitoring for long periods or fast sampling.

- Operating Temperature: -20.0 °C to 70.0 °C
- Dimensions: 55 x 37.5 x 7.5 mm
- Temperature measurement accuracy:  $\pm 0.1$  °C @ 25 °C
- Measurement resolutions: 0.1 °C
- Memory capacity: 32,000 (32 k) logs
- Measurement Interval: 5 seconds to 18 hours
- Supply: 3.0 V lithium battery (CR2032), built-in
- Estimated autonomy: More than 400 days - Sampling rate of 1 minute
- Case: PC-ABS
- Degree of protection: IP67
- PC Interface: Micro-USB cable
- Equipment-PC data transfer time
- **LogChart** software operation environment

LogChart  
(See page 11)



## DAQ, Recording & Supervision - TagTemp-Stick

**TagTemp-Stick** is an electronic temperature data logger, compact and robust, that dispenses use of cables for configuration and data collecting. Plugs directly into a USB interface of a computer with Windows® to communicate with the application **LogChart II**, which is the configuration and data analysis software for data loggers from TagTemp series. The **TagTemp-Stick** has a high accuracy internal temperature sensor and is waterproof and can operate submerged up to 1m deep.

It is ideal for temperature recording in the transport and storage of refrigerated and frozen products, such as vaccines, blood products and food. As well as wide application in the fields of bio-cy, chemistry, pharmacy, logistics and industry.

- Measurement range: Temperature: -20.0 °C to 70.0 °C
- Accuracy:  $\pm 0.5$  °C @ 25 °C
- Measurement resolutions: Temperature: 0.1 °C
- Memory capacity: 32,000 (32 k) logs
- Measurement Interval: 5 seconds to 18 hours
- Power Supply: 3.0 V lithium battery (CR2032), built-in
- Estimated battery autonomy: More than 400 days - Sampling rate of 1 minute
- Operating temperature: from -20 °C to 70 °C
- Protection: Up to IP67
- Dimensions: 78 x 23 x 10 mm
- 20 seconds to 32,000 records
- PC Interface: Connector USB

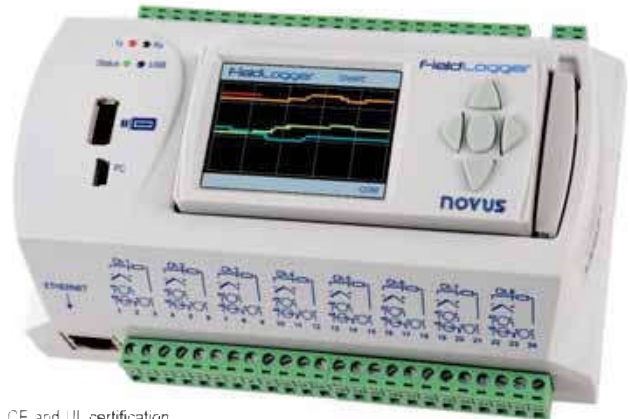
LogChart  
(See page 11)



## Acquisition and Data Recording - FieldLogger

**FieldLogger** is a versatile, powerful, and yet cost effective data logger capable of analog and digital variables recording with email plus automated data and alarm transfer. It features USB memory stick support, 24 bit resolution, extensive communications capabilities and optional LCD display which can be remotely mounted. Stand alone or easily integrated into existing systems **FieldLogger** can act as a Modbus RTU master and read registers from slaves. Capable of performing mathematical operations in the input channels, it is a high-speed reading and logging device with plenty of available memory, along with high connectivity and ease of configuration and operation.

- 8 analog channels: thermocouples J, K, T, E, N, R, S, B; 4-20 and 0-20 mA, Pt100 and Pt1000, 0-20 mV, 0-50 mV, 0-60 mV, 0-5 V and 0-10 V with no hardware changes or strap selection
- Ethernet interface 10/100 with: DHCP, DNS, SMTP, HTTP, FTP (client and server), SNMP (with traps) and Modbus TCP
- Custom web pages
- A/D converter: 24 bits, up to 1000 samples/s
- Accuracy: 0.20% of the span for I/c, 0.15% of the span for other input types
- 8 digital channels individually configured as input or output
- 2 relay output
- Accumulation and variation functions available for Analog and Digital channels
- RS485 interface (Modbus master or slave)
- Can act as a Modbus TCP - Modbus RTU gateway
- Able to read up to 64 registers from Modbus slaves (remote channels)
- Up to 128 channels for mathematical and logical operations
- Data download available via USB flash drive, RS485, USB (cable), FTP (client and server) and Modbus TCP
- Configuration available via USB interface (cable), RS485 and Modbus TCP
- Up to 32 alarms with plenty of actions: outputs switching, e-mails sending, SNMP traps sending and logging control
- Internal memory for up to 512k loggings or optional SD card expansion
- Intuitive configuration, download and export software tool included
- 24 Vdc output capable of powering up to eight 4-20 mA transmitters (standard)



- CE and UL certification
- Dimensions: 164 x 117 x 70 mm
- Power: 100-240 Vac/dc  $\pm 10\%$

### OPTIONS:

- Exclusive 320 x 240 pixel color HMI that allows local or remote mounting
- Extension kit for HMI remote mounting
- 24 Vdc/dc powered model
- **FieldLogger** is also available without on-board memory and HMI expansion, remote channels and Ethernet interface at reduced price. Consult sales for details.



FieldLogger remote HMI mounting kit

## Gateway - AirGate-Modbus

**AirGate-Modbus** is a wireless multifunction gateway. It allows the transparent and easy insertion of wireless branches into existing wired RS485 networks. The **AirGate-Modbus** has four operation modes: Modbus master, multiplexer, USB-RS485 converter and wireless RS485 extension. Supports multiple network topologies: star, point to point and tree, enabling efficient slave distribution in mixed wired and wireless network segments.



- Frequency Band: ISM 2.4 GHz
- Wireless protocol: IEEE 802.15.4
- Up to 15 channels with automatic adaptive selection
- Programmable transmission power up to 100 mW (20 dbm)
- Typical wireless range: 100 m indoor, 1000 m in open field
- Wireless communication speed: 250 Kbps
- Encryption: AES-CBC-128
- USB device interface with Mini-B receptacle, virtual COM port driver
- Auto-adaptive wireless repeater
- Wired communication interface: two RS485, Modbus RTU protocol
- Wired interface speed: 1200 to 115200 bps
- Enclosure protection: IP20
- Enclosure: ABS+PC for DIN rail mount
- Certification: CE and ANATEL
- Power Supply: 10 to 35 Vdc, up to 70 mA at 24 Vdc
- **OPTIONAL:**
- Magnetic base antenna with 2.5m cable



## Router - AirGate-3G

The **AirGate-3G** is a cellular router for Internet of Things (IoT) applications and provides remote access to local networks. It acts as a Modbus RTU master and reads up to 64 registers of Modbus remote channels. All data generated can be published on **NOVUS Cloud** platform, which allows access anytime and anywhere, besides providing efficient and reliable storage.

- Dual SIM card redundancy for continuous cellular connection, supports 2G/3G
- Modbus Gateway provides routing between Modbus RTU/ASCII and Modbus TCP networks
- Up to 32 alarms signaling through SMS and e-mail
- Digital Input and output with pulse counting
- Auto reboot via SMS, through identified phone call and by watchdog timer
- Two fully configurable RS232 and RS485 serial interface
- Dual port ethernet interface 10/100 Mbps (for 2 LANs or 1 LAN + 1 WAN)
- NOVUS Cloud service connectivity for data storage and browsing
- USB 2.0 host port allows local firmware update and configuration
- Temporary local data recording ensure data integrity even during long connection lost events. Storage on USB flash drive, local memory or MicroSD card
- NOVUSLink: M2M centralized management platform for remote monitoring, configuration and firmware updates
- Flexibility both on monitoring and set up methods: Web, CLI, SNMP v1/v2/v3, SIVS, NOVUSLink
- Firmware update via Web, CLI, USB, SMS, NOVUSLink
- Opening VPN tunnel possibility for full safety during remote access
- Metal enclosure with DIN35 mm mounting kit
- ANATEL, CE and FCC certified
- Dimensions: 45 x 125 x 105 mm
- Operating temperature: -40 to 85 °C / 5 to 95% RH
- Power supply: 9 to 60 Vdc

### OPTIONAL:

- GPS for real time location and tracking
- Articulating antenna



**NOVUS Cloud**  
(see page 15)



## Gateway - DigiGate Profibus

**DigiGate Profibus** is the ideal device for interconnecting a Profibus DP network to Modbus RTU devices. Acting as a master station in the Modbus network and as a Slave in the Profibus network, **DigiGate** reads the data from the Modbus slave devices and relays them to the Profibus master. Likewise, **DigiGate** writes into the Modbus slaves outputs according to the Profibus master requests thus providing complete control of the Modbus network over the Profibus network.

- Profibus: operates from 9600 bps to 12 Mbps
- Modbus: operates from 1200 bps to 115200 bps
- Built-in terminating and polarizing resistors (jumper enabled)
- Electrical insulation between device and Profibus interface: 1000 Vac
- Frontal LEDs for status and communication indication
- Operating environment: 0 to 50°C, 5 to 90%RH (non-condensing)
- Assembly: 35 mm DIN rail
- Includes Windows<sup>®</sup> software for device configuration and diagnostic
- Power Supply: 10 to 35 Vdc



## Data Acquisition - DigiRail

The **DigiRail I/O** modules provide a simple, convenient, flexible and inexpensive way for integrating digital and analog signals into PLCs and SCADA systems via RS485 interface with Modbus RTU protocol.

- Communication: RS485, Modbus RTU. 3aud rate from 1200 to 115200 bps
- Windows<sup>®</sup> based configuration software
- Dimensions: 72 x 77 x 19 mm
- Power supply: 10 to 35 Vdc
- **DigiRail-2R**: dual 8A/250 Vac SPDT relays with timer function
- **DigiRail-4C**: 4 isolated digital counters, input 1 accepts 100 KHz, inputs 2 to 4 accept 1 KHz
- **DigiRail-2A**: dual universal channels, accept t/c types J, K, T, E, N, R, S, B, Pt100 RTD, 0-20 mV, 0-50 mV, 0-5 V, 0-10 V; 0-20 mA, 4-20 mA
- Sensor break detection for t/c and RTD
- A/D resolution: 17 bits
- User defined linearization option for the analog inputs
- Accuracy: 0.25% of span  $\pm 1$  °C for t/c; 0.15% for Pt100 RTD, mV, V and mA
- Analog inputs isolation from device: 1000 Vac for 1 minute



## Data Acquisition - DigiRail-VA

The **DigiRail-VA** is the latest addition to the successful and cost effective DigiRail family. Specifically designed for single phase AC power analysis applications, it is able to measure the most important AC signals and retransmit them in both analog and digital ways.

- Voltage: 0 to 300 Vac (True-RMS)
- Current: 0 to 5 Aac (True-RMS)
- Frequency: 45 to 65 Hz
- Two Rangeable analog output: 4-20mA and 0-10V
- Galvanic Isolation from inputs to outputs and communication interfaces
- Accuracy:
  - Voltage, current and power readings over RS485 is 0,25%; frequency and power factor is 0,5%
  - Voltage, current and power readings over 4-20mA is 0,5%; frequency and power factor is 1%
  - Voltage, current and power readings over 0-10 V is 0,25%; frequency and power factor is 0,5%
- Power supply: 10 to 40 Vdc

## Isolated Converter - USB-i485

The **USB-i485** module is a cost-effective way to convert RS485 or RS422 industrial buses to a USB interface. When connected to a PC USB port the **USB-i485** module is automatically detected and installed as a native COM port compatible with any existing serial communications application. Multiple modules can be installed using USB hubs thus allowing a hassle-free configuration of a multi serial system. 1500 V isolation protects the PC from spikes or possible misconnections.



- USB (V1.1 and V2.0) Plug and Play interface
- Virtual COM port driver for Windows® Mac & Linux
- Jumper selected RS485 / RS422
- Automatic flow control for RS485
- Transmission rate: 300 bps to 250 kbps
- Dual RS485 bus: Connection of up to 64 unit load RS485 devices
- Powered from the USB port
- Isolation: 1500 Vdc from USB interface and the RS485/RS422 interface
- RS485/422 bus protection:  $\pm 60$  Vdc, 15 kV ESD
- Dimensions: 70 x 60 x 18 mm

## Pressure Transmitter - NP600 & NP620

**NOVUS NP600** product family of industrial pressure transmitters features programmable range and digital field calibration capabilities. They are offered in two pressure front-end technologies: ceramic thick film (**NP600**) and piezoresistive oil-filled (**NP620**), both with a wide range of relative pressure measurement options.

The **NP600** family of transmitters retransmission output range is user configurable from nominal to 1/3 of nominal range. Calibration parameters can be adjusted in the field or laboratory. Optional **TxConfig-DIN43650** interface is used to alter factory settings.

- Process connection: external thread 1/4 NPT, 1/2 NPT or 1/2 BSP
  - Wetted material: stainless steel 316L, FKM (Viton®) o-ring and ceramic (only for NP600)
  - Retransmission can be re-scaled to 3:1 with no accuracy loss
  - Operation temperature: -10 to 70 °C
  - Output: loop powered 4-20 mA
  - Electrical connection: DIN43650
  - Over-pressure: 2 times nominal pressure
  - Dynamic response: < 30 ms
  - Power: 11-33 Vdc
- NP600**
- Available pressure ranges:
    - 0.2 MPa (2 bar)
    - 0.5 MPa (5 bar)
    - 1 MPa (10 bar)
    - 2 MPa (20 bar)
    - 5 MPa (50 bar)
    - 10 MPa (100 bar)
  - Accuracy, including hysteresis, linearity and repeatability: 0.5% of full scale (1.0% for the 100 bar model)
  - Dimension:
    - 1/4 NPT:  $\varnothing 27 \times 81.0$  mm
    - 1/2 NPT:  $\varnothing 27 \times 85.5$  mm
    - 1/2 BSP:  $\varnothing 27 \times 79.5$  mm
- NP620**
- Available pressure ranges:
    - 0.1 MPa (1 bar)
    - 0.4 MPa (4 bar)
    - 1 MPa (10 bar)
    - 4 MPa (40 bar)
    - 10 MPa (100 bar)
  - Accuracy, including hysteresis, linearity and repeatability: 0.25% of full scale
  - Dimension:
    - 1/4 NPT:  $\varnothing 27 \times 88.0$  mm
    - 1/2 NPT:  $\varnothing 27 \times 92.5$  mm
    - 1/2 BSP:  $\varnothing 27 \times 86.5$  mm



## Pressure Transmitter - NP300

The **NP300** line of industrial pressure transmitters boasts a unique state-of-the-art digital technology that features programmable range and digital field calibration capabilities. They are offered in five basic pressure ranges and final application range can be user configured by means of a convenient USB interface and the easy-to-use **TxConfig** configuration software. The same configuration interface and software are used for calibration. These features bring flexibility, allowing the field calibration, and inventory reduction through the rangeability.



- Models available:
  - 0.1 MPa (1 bar): gauge pressure
  - 0.3 MPa (3 bar): gauge pressure
  - 1 MPa (10 bar): gauge pressure
  - 3 MPa (30 bar): gauge pressure
  - 10 MPa (100 bar): absolute pressure
- Rangeability: 3:1
- Working temperature: -10 to 70 °C
- Media contact material: 316L stainless steel
- Accuracy: 0.5% of full scale, including hysteresis, linearity and repeatability
- Process connection: 1/4" - 18 NPT
- Electrical connection: mini DIN 43650
- Over pressure: 1.5 times rated pressure
- Output: two-wire 4-20 mA
- Dimensions:  $\varnothing 23 \times 132$  mm
- Power: 11-33 Vdc

## Pressure Transmitter - NP430D

The **NP430D** series of pressure transmitters have been developed for general industrial applications including hydraulics, pneumatics, water and sewage utility companies, machine manufacturers and especially for safety and monitoring in refrigeration equipment.



- Measuring ranges: 0 to 120 bar (several combinations)
- Output signal: two-wire 4-20 mA
- Excitation voltage (Vexc): 12 to 28 Vdc
- Maximum load (RL):  $RL_{max} = (V_{dc} - 12V) / 20$  mA
- Accuracy: < 1% of full scale (FS)
- Over pressure: 1.5 times full scale
- Burst pressure: 3 times full scale
- Protection level: IP65
- Weight: 90 g
- Working temperature: -40 to 75 °C
- Process fluid temperature: -40 to 100 °C
- Dynamic response: < 10 ms (0-99%)
- Process connection: external thread 1/4" - 18 NPT
- Electrical connection: DIN 175301-803
- Wetted parts: 304 SS, ceramic diaphragm (Al2O3 - 96%)
- Seal: Nitrile Buna Rubber-N (NBR)



## Signal Isolator - TxIsoLoop

The loop isolators **TxIsoLoop-1** (1 channel) and **TxIsoLoop-2** (2 channels) provide signal protection by electrically isolating 0(4)-20 mA signals. They avoid measurement errors due to different voltage potentials or undesirable ground loops typically encountered in instrument installations. The 0(-)-20 mA input is measured and an identical isolated signal is reproduced at the output. Power is drawn from the input current loop thus not requiring any other power supply for its operation.

- Electrical isolation: 3000 Vac / 10 seconds, 240 Vac continuously
- Input signal: 0-20 mA and 4-20 mA
- Output signal: 0-20 mA and 4-20 mA
- Voltage drop input/output: < 3 Vdc
- Response time: 2 ms
- Minimum operating current: > 0,1 mA
- Maximum input current: < 40 mA
- Maximum load : 1450 Ω
- Total accuracy: 0.2 % @ 0 to 60 °C  
0,3 % @ -20 a 75 °C
- npu: protection against reversed polarity
- DIN mounting enclosure, IP40 protection
- Operating conditions: -20 to 75 °C, 20 to 90 % relative humidity



## Electronic Counter - NC400-6

This programmable 6-digit counter is also a batch counter and totalizer, performs quadrature counting and accepts remote reset. Its 2 outputs with built-in timers can be activated at any of the 3 counter presets: unit, batch or totalizer. It features a programmable function key, full scale adjustment and several other advanced configuration options.

- Input types: (2 for counting, 1 for reset) type NPN/PNP, dry contact or voltage pulse
- Max. count frequency: 55 Hz, 4 kHz or 20 kHz
- Counter scale factor: 0.00001 to 9.99999
- Counting: UP or DOWN
- F key functions: hold, reset, outputs reset
- Outputs: 2 SPST 3A relays, 250 Vac or 1 SPST relay and 1 logical pulse 5V/25 mA
- Output timer: 10 ms to 9999 s
- Internal battery for counting retention
- Sensor supply output: 12 Vdc/50 mA
- IP65 UL94 V-2 front panel; IP20 UL94 V-0 enclosure; silicone rubber keypad
- CE arc UL certification
- Dimensions: 48 x 48 x 110 mm
- Power: 100~240 Vac/dc
- **OPTIONS:**
- RS485, Modbus RTU protocol
- 24 Vdc power supply



## Programmable Timer - NT240

With a 4-digit display, this timer offers a relay output to be switched at pre-programmed intervals according to eleven distinct timing functions. The LED display shows the running time and the digital inputs execute start, hold and reset functions.

- Input types: NPN/PNP, dry contact and voltage pulse.
- Output type: 3A/250 Vac relay or 5 Vdc/25 mA voltage pulse
- Display: high efficiency 10 mm LED
- Time range from 0.01 seconds to 9999 hours
- Up and down counting
- Eleven pre-defined timer modes plus one user defined
- Auxiliary supply output for sensor: 12 Vdc/50 mA
- Time Base Accuracy: 0.05%
- Digital input for start, hold and reset
- Frontal key to execute one pre-programmed special function
- P65 UL94 V-2 front panel; IP20 UL94 V-0 enclosure; silicone rubber keypad
- Dimensions: 48 x 48 x 110 mm
- Power: 100~240 Vac/dc
- **OPTION:**
- 24 Vdc power supply

## LogChart



**LogChart** is an easy to use data management tool with features to configure, download and analyze data obtained from **NOVUS LogBox** and **TagTemp** data loggers. With this software it is possible to configure all datalogger parameters, download data from a time interval, display and print data in a trend graph, save and export the downloaded along with other functions. **LogChart** also features advanced solutions for data analysis. Among them is the union of the data downloaded from different devices. The instant values can be displayed in the graph using the mouse. The sample time and the corresponding values acquired are viewed with a simply mouse click. Through the zoom feature, you can perform a more detailed analysis of the data presented in charts. Besides the chart data is also presented in a table together with general configuration information. In addition to download data is also possible to view measurements online, in graph form, through the on-line monitoring.

## NConfig Software Configuration



The **NConfig** is the software used to configure all compatible **NOVUS** controllers and indicators via standard USB port. The **NConfig** lets you simply and quickly set all instrument parameters. By presenting a detailed description of each parameter, this tool allows the user to put the instrument into operation without consulting the printed user's manual, making this process fast and friendly. Users can also copy instrument settings to other devices of the same model by using the batch setup function. The **NConfig** is a free software that can be downloaded from our website and can be used **NOVUS** with all controllers and indicators that include USB configuration interface feature.

## Temperature Transmitter - TxMini-M12 & TxMini-DIN43650

The TxMini, TxMini-M12 and TxMini-DIN43650 are 4-20 mA two wire compact and valuable transmitters. Configuration can be done through a USB interface without any power supply. These transmitters are the ideal solution to be used in places with space restrictions.



- 4-20 mA output on power loop
- Power supply: 8 to 35 Vdc
- Pt100/Pt1000 in
- Pt100/Pt1000 3-wire connection
- Configurable measurement range
- Dist. nctive accuracy (Tamb 25 °C): 0.1% on span
- Operating temperature: -40 to 85 °C
- Windows® configurator with USB interface
- Linearized output
- Resolution: 2 µA
- Sensor's failure: configurable output on up-scale or down-scale
- Dimension:
  - TxMini-M12: 51.2 x 12.2 x 8.0 mm
  - TxMini-DIN43650: 28.5 x 28.5 x 14.0 mm
  - TxMini: 30 x 12.2 x 8.0 mm

## Temperature and RH Wireless Transmitter - RHT-Air

The RHT-Air is a wireless transmitter that when coupled with the AirGate-Modbus provides an excellent solution for wireless monitoring of temperature, humidity and dew point.

Through the IEEE 802.15.4 wireless interface, multiple RHT-Air wireless transmitters can talk to one or more AirGate-Modbus gateways providing USB and RS485 communication paths to the main application.

The RHT-Air uses high accuracy sensors for measurement of the temperature, relative humidity and dew point. It also provides a LCD display for local viewing of the measurements while allowing reconfiguration of the transmitter parameters without having to run the configuration software on PC. The RHT-Air internal battery provides stand-alone operation. Optional external source is available. RHT-Air is offered in wall mount (WM) and duct mount (DM) versions.



- Operating limits:
  - Sensor and probe: -20 to 80 °C, 0 to 100 % RH
  - Electronic circuit: 0 to +65 °C, 0 to 95 % RH
- Power supply
  - Internal battery: Lithium 3AA, 3.6V
  - Battery autonomy: typically 12 months
  - External supply (optional): 10 to 35 Vdc, 70 mA max
- Wireless Protocol: IEEE 802.15.4
- Configurator software **DigiConfig** for Windows®
- Accuracy: ±3 % RH from 20 to 80 % RH (at 25 °C) and ±1 °C for temperature
- ABS housing with IP65 protection, for wall mounting (WM mode)
- Probe extension (DM model): Stainless steel 150 or 250 mm of length
- Dimensions: 70 x 60 x 35 mm

## Temperature and RH Transmitter - RHT-WM / DM / XS / P10

The RHT-WM and RHT-DM temperature, relative humidity and dew point transmitters integrate a high accurate and robust sensor for delivering precise and stable measurements. The RHT-WM model was designed for wall mounting, while the RHT-DM with its long probe is aimed at ducts or through the wall applications. There are versions for remote sensor (XS) and for pressurized ducts (P10). The microprocessed based construction allows easy configuration by a PC.



- Configurable measurement range
- Operating limits:
  - Sensor and probe: -20 to 80 °C, 0 to 100% RH
  - Electronic circuit: 0 to +65 °C, 0 to 95 % RH
- Two 4-20 mA loop powered outputs or two 0-10 Vdc outputs
- Accuracy: ±3 % RH from 20 to 80 % RH (at 25 °C) and ±1 °C for temperature
- Response time: 8 s for RH, 30 s for temperature
- Power supply: 12 to 30 Vdc (4-20 mA) or 18 to 30 Vdc (0-10 V)
- ABS housing, IP65 protection, Nylon probe (WM mod.)
- Probe sheath (DM mode): Stainless steel 150 or 250 mm of length
- Dimensions: 70 x 60 x 35 mm
- Sensor cable length: 3 m (XS and P10 versions)
- Maximum working pressure: 10 bar (P10 version)
- **OPTION:**
  - Windows® software and USB configuration interface

## Temperature and RH Transmitter with RS485 - RHT-485-LCD

This transmitter provides the temperature, relative humidity and dew point data through a RS485 serial communication interface with Modbus RTU protocol. The high contrast LCD local display provides in the field monitoring capability and allows for local change of parameters without the need of connecting it to the PC configuration software.



- Operating limits:
  - Sensor and probe: -20 to 80 °C, 0 to 100% RH
  - Electronic module: 0 to +65 °C, 0 to 95 % RH
- Power supply: 10 to 35 Vdc, 10 mA max
- Accuracy: ±3 % RH from 20 to 80 % RH (at 25 °C) and ±1 °C for temperature
- Response time: 8 s for RH  
30 s for temperature
- RS485 (Modbus RTU protocol) serial communication
- **DigiConfig** configurator software for Windows® (free of charge)
- ABS housing, IP65 protection, Nylon probe (WM model).
- Probe extension (DM model): Stainless steel 150 or 250 mm of length
- Dimensions: 70 x 60 x 35 mm

## Temperature Transmitter - TEMP-WM & TEMP-DM

The TEMP-WM and TEMP-DM transmitter series incorporate high accuracy and great stability for temperature measurement. The microprocessor based circuit enables full configuration of the temperature range through the USB communication interface along with the TxConfig software for Windows®. Model TEMP-WM is designed for wall mounting and TEMP-DM has a sheathed probe for duct and through-the-wall mounting.

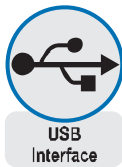


- Programmable measuring range
- Operating limits:
  - Electronic Module: -20 to +65 °C, 0 ~ 95% RH
  - Sensor and probe: (TEMP-DM): -40 ~ +100 °
- CLoop powered 4-20 mA output
- Optional 0-10 Vdc output
- Accuracy: 0.5 °C @ 25 °C
- Response time: up to 30 seconds in slow motion air
- Power: 12 to 30 Vdc (4-20 mA) or 18 to 30 Vdc (0-10 V)
- ABS enclosure with IP65 protection for wall mounting. Polyamide sensor protecting cap
- Probe sheath (TEMP-DM): Stainless steel, 150 or 250 mm length
- Dimensions: 70 x 60 x 35 mm
- **OPTIONS:**
  - Txconfig interface and software for Windows®
  - Dimensions: 70 x 60 x 35 mm

## Temperature Transmitter - TxBlock-USB & TxRail-USB

The **TxBLOCK-USB** and the **TxRAIL-USB** are high precision temperature transmitters. The universal input reduces inventory while the native USB port allows easy configuration, calibration and online monitoring in the lab or in the field. Sensor type and output range can also be configured and, for the **TxRail-USB** the output type can be defined by software as 4-20 mA - 10 V.

- Universal input accepts Thermocouples J, K, T, E, N, R, S, B, Pt100, Pt1000, NTC and voltage 0 to 50 mV
- Internal cold junction compensation for thermocouples
- Cable resistance compensation for 3 or 4 wire Pt100 connection
- Programmable sensor break signaling for upscale or downscale
- Configurable output range
- Thermocouple and mV Typical Accuracy:  $\pm 0.1\%$
- Loop powered 4-20 mA output
- Power supply: 12 to 30 Vdc
- Linearized 4 to 20 mA or 20 to 4 mA output
- Output resolution: 2  $\mu$ A on 4-20 mA
- Output resolution: 0.0025 V on 0-10 V
- Working temperature: -40 to +85 °C (-40 to +185 °F)
- Free Windows configuration software
- Zero correction through the configuration software
- USB micro-B port allows direct PC connection for configuration.
- Dimensions:
  - **TxBLOCK-USB:** 43.5 mm x 20.5 mm (D x H)
  - **TxRAIL-USB:** 99.5 x 114 x 2.5 mm



## Temperature Transmitter - TxIsoPack USB & TxIsoRail

**TxIsoPack USB** and **TxIsoRail** are programmable temperature transmitters powered by loop and isolated between input and output. A single model accepts PT100 and thermocouple sensors. The configuration flexibility by PC turns into a single model for all conditioning and isolation applications. **TxIsoPack USB** is used for head mount assembling and **TxIsoRail** for DIN rail assembly.

- Loop powered 2-wire 4-20 mA or 0-10 Vdc\* output
- Power supply: 10 to 35 Vdc for 4-20 mA and 18 to 35 Vdc for 0-10 Vdc output
- Universal input accepts Thermocouples J, K, T, E, N, R, S, B, Pt100, linear 0-50 mV, 0-10 V\*, 0-20 mA\* and 4-20 mA\*
- Accuracy:
  - **TxIsoPack USB:**  $\pm 0.25\%$  of span for t/c;  $\pm 0.15\%$  for Pt100 and mV
  - **TxIsoRail:**  $\pm 0.20\%$  of span for Pt100, 0-50 mV and 4-20 mA
- Operating temperature: -20 to 75 °C
- Manual zero correction on the front panel (**TxIsoRail**)
- Windows compatible configurator with USB adaptor (optional)
- Linearized output
- Internal cold junction compensation for thermocouples
- 2 or 3-wire Pt100 connection
- Programmable sensor break signaling for upscale or downscale
- Electrical isolation: 1000 Vac/1 min
- Dimensions:
  - **TxIsoPack USB:** (D x H): 44 x 24 mm
  - **TxIsoRail:** 72 x 77 x 19 mm

\*For TxIsoRail only



## Temperature Transmitter - TxIsoPack-HART & TxIsoRail-HART

The **TxIsoPack-HART** (head mount) and **TxIsoRail-HART** (DIN rail mount) transmitters convert thermocouples, RTDs and voltage signals into an isolated 4-20 mA signal along with a superimposed HART protocol digital communication.

- Programmable input:
  - Thermocouple types B, E, J, K, R, S, T, N
  - Pt100, Pt500, Pt1000
  - Cu50, Cu100
  - Ni100, Ni500, Ni1000 (5000 ppm/K)
  - Ni100, Ni500, Ni1000 (6180 ppm/K)
  - 0 to 400  $\Omega$ , 0 to 2000  $\Omega$ , 0 to 10 K $\Omega$
  - -10 to 75 mV, -100 to 100 mV, -100 to 500 mV, -100 to 2000 mV
- Programmable working range
- 2-wire loop powered 4-20 mA output
- Cold junction compensation for thermocouples
- Configurator TxConfig-HART for PC (sold separately)
- Power supply: 10 to 35 Vdc
- Accuracy: 0.2% max. of full span for Pt100 and 0-50 mV / 0.3% max. of full span for thermocouples
- Working temperature: -40 to +85 °C (-40 to 185 °F)
- Maximum load: (Vdc - 1C, 5V) / 0.022

**TxConfig-HRT Configurator**  
(see page 14)



## Temperature Transmitter - TxMiniBlock

The **TxMiniBlock** is a small size programmable RTD temperature transmitter for head mounting. Its microprocessed based technology features full PC sensor range configuration and calibration.

- Two-wire loop powered 4-20 mA output
- Power supply: 12 to 35 Vdc
- Input: Pt100 RTD
- Programmable working range
- Accuracy (Tamb 25 °C): 0.2% of span
- Operating temperature: -40 to 50 °C
- TxConfig for Windows® configurator software
- USB configuration interface (accessory)
- Manual zero (offset) adjustment on the front panel
- Linearized output
- Output resolution: 4  $\mu$ A
- 3-wire Pt100 connection
- Programmable burnout upscale or downscale sensor failure protection
- Dimensions: (D x H): 34 x 18 mm (fits small heads)





### Configurator - TxConfig USB

The **TxConfig USB** is the interface for configuring the NOVUS transmitter products, providing at the same time the needed power for the transmitters with 0-10 Vdc or 4-20 mA outputs. It is used with the configuration software **TxConfig**.

- Easy installation
- USB communication with the PC and serial with the transmitter
- No external power required for exciting the transmitters during the configuration process.
- Easy wiring to the transmitters
- Dedicated version for pressure transmitters available
- Compatible with USB 1.1 and 2.0
- Operational system: Windows®



### Universal HART Configurator - TxConfig - HRT

The **TxConfig-HRT** is an universal configuration interface for transmitters with HART protocol. It is used together with the **TxConfig** configuration software.

- USB communication with the PC and serial with the transmitter
- Pins to HART device: polarity insensitive test clips
- Compatible with USB 1.1 and 2.0
- Rx / Tx LED indicators
- Power: no need for external power
- Operating temperature: 0 to 50 °C
- Storage temperature: -40 to 80 °C
- Humidity: 0 to 95 % (non condensing)
- Isolation: 1500 Vdc galvanic isolation between transmitter and PC
- Operational systems: Windows®
- Dimensions: 88 x 57 x 26 mm



### Configurator - NFC-USB Interface

The **NFC-USB Interface** can provide communication between the **TagTemp-NFC** data loggers family and a computer. It is used with the **LogChart II** software tool both for configuration and data downloading.

- Power: 5 Vdc (from USB port)
- Communication range: up to 2 cm
- Compatible with USB 1.1 and 2.0
- Dual color LED
- Dimensions: 64 x 102 x 13 mm
- Operational Systems: Windows®
- Certifications: CE, FCC, USB IF
- Supports ISO 14443 and ISO 15693 (NFC-V)
- Working temperature: -20 a 80 °C

## NOVUS cloud



**NOVUS CLOUD** is an IoT (Internet of Things) solutions platform that broadens data presentation horizons. Applied in conjunction with **NOVUS** products, the platform receives, stores, analyzes and presents temperature, humidity, pressure, location or any other measurement information online. Accessing physical quantities via internet is especially beneficial in the industrial, logistics, health, building, energy, sanitation and agribusiness fields.

The measurements can be done through any sensor or Modbus equipment connected to FieldLogger or AirGate-3G, which sends the measurement information to NOVUS Cloud. Temperature data acquisition applications, through Android LogChart-NFC, TagTemp-NFC, are also able to send data to the platform.

The platform is safe and scalable and has an user friendly application development environment. The cloud applications are completely customizable and allow widget screen creation to display data, set alarms and events for the business rules, send out email notifications and configure scripts for transformation or logic data programming.

Contact: [iot@novusautomation.com](mailto:iot@novusautomation.com)  
[iot.novusautomation.com](http://iot.novusautomation.com)

**NOVUS  
Cloud**



## THERMOCOUPLES

Temperature Controls operate a full workshop in Sydney manufacturing thermocouples for Plastic, Petrochemical, Steel, Furnace & Metal processing industries.

- Mims Thermocouples 0,5 mm to 12,7 mm dia.
- Multipoint Thermocouples
- High Temperature Ceramics / Platinum Wire

Temperature Controls have IECEX Certificate of Conformance for Ex d Flameproof, Ex e Increased Safety and Ex tD Dust atmosphere use.



## RTD SENSORS PT 100 Ω PT 1000 Ω

A complete range of RTD sensors for use from  $-200^{\circ}\text{C}$  up to  $+600^{\circ}\text{C}$ , vibration resistant and rugged depending upon the configuration. High Accuracy 3 or 4 wire sensors in Class A or 1/10th DIN tolerances custom made to order.

Applications

- Electric Motor Windings
- Food / Beverage Tridlover
- Environmental monitoring
- Pharmaceutical
- Autoclave



## THERMOWELLS

Using CNC lathes and Gun drilling machinery Temperature Controls manufacture barstock flanged, weld-in & screwed thermowells as well as protection tubes for extreme temperature and corrosive industrial applications.

Quality Assurance

- Welding Procedures
- Wake Frequency Calculations
- Pressure Testing
- Weld X ray

Materials Available

- Stainless Steel 316 / 304 / Duplex
- Inconel 600/601
- Hastelloy
- Titanium



# THERMOCOUPLE CABLE EXTENSION & COMPENSATING

## THERMOCOUPLE COLOUR CODE CONNECTION CHART

EXTENSION/COMPENSATING CABLE COLOURS					THERMOCOUPLE MATERIALS	
CODE	AMERICAN TO ANSI /MC 96,1	INTERNATIONAL IEC 584-3	GERMAN TO DIN 43714	JAPAN JIS C 1610 (1995)	POSITIVE CONDUCTOR	NEGATIVE CONDUCTOR
<b>K</b>					<b>NICKEL CHROMIUM</b> Also Known as Chromel KP or N-Cr	<b>NICKEL ALUMINIUM</b> Also known as Alumel, KN or Ni-Al (Magnetic)
<b>V</b>					<b>COPPER</b>	<b>COPPER-NICKEL</b> Also known as Constantan
<b>T</b>					<b>COPPER</b>	<b>COPPER-NICKEL</b> Also known as Constantan
<b>J</b>					<b>IRON</b> Also known as Fe (Magnetic)	<b>COPPER-NICKEL</b> Also known as Constantan
<b>E</b>					<b>NICKEL CHROMIUM</b> Also Known as Chromel KP or N-Cr	<b>COPPER-NICKEL</b> Also known as Constantan
<b>N</b>					<b>NICKEL-CHROMIUM- SILICON</b> Also known as Nicrosil	<b>NICKEL-CHROMIUM- MAGNESIUM</b> Also known as Nisil (Lightly Magnetic)
<b>R</b>					<b>PLATINUM / 13% RHODIUM</b>	<b>PLATINUM</b>
<b>S</b>					<b>PLATINUM / 10% RHODIUM</b>	<b>PLATINUM</b>
<b>B</b>					<b>PLATINUM / 30% RHODIUM</b>	<b>PLATINUM / 6% RHODIUM</b>

With reference to the ANSI MC 1=96.1 colour coding it is noted that a brown overall sheath colour replacing that shown denotes the incorporation of thermocouple grade conductors where relevant.

Download a copy from our web site : Reference No . **SD 1514**

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