

Complete Automation Solution



General Catalog

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

NOVUS

We Measure, We Control, We Record

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.



- 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 $\pm 10\%$
- 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

OPTIONS:

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

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 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 $\pm 10\%$
- 48~240 Vdc $\pm 10\%$
- 24~240 Vdc $\pm 10\%$ (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: HI, 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 $\pm 10\%$

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: HI, 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 $\pm 10\%$

High 56 mm Display

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 obtain 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 1.5 A/ 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 $\pm 10\%$
- OPTIONS:**
- RS485 Modbus RTU serial communication
- SPDT 3 A/ 250 Vac relay or 2 digital I/Os
- Loop break detection function
- 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, 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



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 and 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



Temperature Controller - N1030 & N1030T

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
- Timer Trigger: Run, SV, key F, DI, PowerOn (**N1030T**)
- Time interval setting: 00:00 to 99:59 (MM:SS or HH:MM), counting direction configurable (**N1030T**)



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 output: 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 ±10%

OPTIONS:

- 4-20 mA control output
- Dual SPST 3A/240 Vac relay outputs
- Power: 24 Vac/dc



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 & N1040T

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 tunig 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)
- Timer Trigger: Run, SV, key F, DI, PowerOn (**N1040T**)
- Time interval setting: 00:00 to 99:59 (MM:SS or HH:MM), counting direction configurable (**N1040T**)



USB Interface



Electronic Thermostats



- Size: 75 x 33 x 75 mm
- Power supply: 100~240 Vac/dc (50~60 Hz)
Optional 12~24 Vdc
- Display: 3½ LED digits, 13 mm height
- Configuration protected by password
- NTC sensor included
- Optional RS485 Modbus RTU
- Output 1: 1HP 250 Vac, 1/3 HP 125 Vac (16A relay)
Optional pulse output for SSR
- Output 2 (when available): 3 A / 240 Vac relay
- Output 3 (when available): 3 A / 240 Vac relay

N321, N322, N323



Cooling/Heating Electronic Thermostat

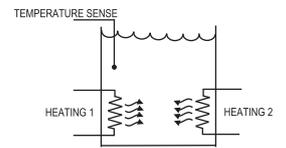


- Heating or refrigeration applications (ex: control with alarm or multi-stage control)
- Directly switch of compressors or electrical heaters
- Control action delayed on powerup (avoid simultaneous drives)
- Alarms can be configured for high, low or differential alarm
- Accepts NTC, Pt100, Pt1000 and thermocouples J, K, T sensors

N321: one control output relay, economical version of this family
N322: has 2 outputs (control and alarm or second control)
N323: has 3 outputs (control and 2 alarms or second and third control)

Typical Applications:

Chambers and Ovens
Food Industry
Commercial Fridges



N321R, N323R, N323TR



Refrigeration Controller with Defrost

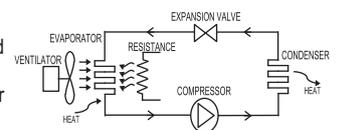


- Suitable for refrigeration control with automatic defrosting
- Defrost by compressor stop, heating resistances or hot gas (compressor reverse cycle)
- Programmable defrost cycle interval and duration and manual defrost key
- Keeps indication during defrosting cycle
- Programmable post-startup delay to avoid simultaneous compressor drives
- Internal control relay can directly switch compressors up to 1hp

N321R: one output for compressor, it accepts NTC, Pt100 and Pt1000 type sensors and optional compressor voltage protection
N323R: has 3 outputs (compressor, defrost and fan), it operates 2 NTC-type sensors (chamber and evaporator), programmable fan behavior
N323TR: similar to N323R and adds a built-in real time clock for up to 8 programmable events per day full week for defrost cycles

Typical Applications:

Cooling Counters
Air Conditions Systems



N321S, N322S



Electronic Thermostat for Solar Heating

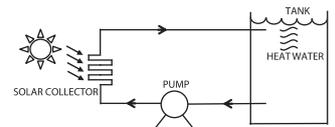


- Solar heating applications
- Operates based on the temperature difference between solar collector and storage tank
- Uses 2 NTC-type sensors (Included)
- Control output activates water circulation pump, internal relay can drive loads up to 1hp
- Protection against overheating and freezing to the piping

N321S: one output for circulation pump
N322S: has 2 outputs (circulation pump and booster control for the water heating)

Typical Applications:

Thermal Tanks
Pool Heating
Boilers



N322T



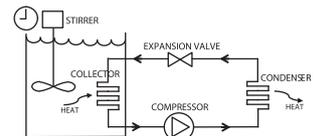
Electronic Thermostat with Timer



- Suitable for heating and cooling processes that needs cyclic operation requirements
- Built-in timer for forced defrost cycles, programmed liquid stirring or other timed actions
- Accepts NTC, Pt100, Pt1000 and thermocouples J, K and T sensors
- Programmable post-startup delay to avoid simultaneous compressor drives
- Internal control relay can directly switch compressors up to 1hp
- Has 2 outputs (control and defrost or timed output)
- Optional built-in buzzer for sound alerts and compressor voltage protection

Typical Applications:

Milk Refrigerator
Ice Cream Machines



N322RHT, N323RHT



Electronic Humidistat

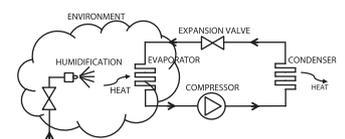


- Suitable for environment control, the display shows alternately temperature and humidity
- Configurable interval between indications
- Internal control relay can directly switch loads up to 1hp
- When set to temperature control, output can actuate as heating or cooling
- When set to humidity control, output can actuate as humidification or dehumidification
- Integrated RHT probe (not included)

N322RHT: has 2 relay outputs (either control or alarm – temperature or humidity)
N323RHT: has 3 relay outputs (either control, alarm or timer function – temperature or humidity)

Typical Applications:

Climate Chambers
Textile Processing
Environment Control



Portable Data Logger - TagTemp-S

Cost-effective, reconfigurable and reusable wireless data logger. The **TagTemp-S** can be configured, monitored and downloaded either through a smartphone or a PC. In addition to its compact dimension, the PVC housing can guarantee IP65 protection which allows the logger to be used in many applications such as transportation, long period storage and so on. The configuration tool is called **NX Software** for PC platforms and **LogChart-NFC** for Android smartphones. Both software/app are available for free.

- Measuring Range: -30 °C to 60 °C
- Temperature measurement accuracy: ± 0.5 °C to 25 °C ± 1.0 °C in full range
- Resolution: 0.1 °C / 0.1°F
- Logging Capacity: 4.020 acquisitions
- Acquisition interval: Programmable between 1 minute and 4 hours
- Power Supply: Lithium Battery, 3V, internal, non-replaceable
- Battery Autonomy: More than 2 years with 5 min acquisition interval
- Housing: Polyvinyl Chloride (PVC)
- Degree of protection: IP65
- CE Certification

Compact PVC Structure ✓
 Low cost ✓
 Ideal for cold chain ✓
 1 Year autonomy ✓



NOVUS Experience
 (see page 17)



NFC-USB



LogChart-NFC



Portable Data Logger - 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 tablets. Internal battery life of 400 days (not replaceable).



- Measure range: -40 °C to +70 °C
- Temperature Accuracy: ± 0.5 °C to 25 °C; ± 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-II 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 II
 Configurator
 (see page 17)



NFC-USB
 Interface
 (see page 17)

Portable Data Logger - 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 15 mm
- Temperature measurement accuracy: ± 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 II
 (See page 17)



Portable Data Logger - 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 has wide application in the fields of biology, chemistry, pharmacy, logistics and industry.



- Measure range: Temperature: -20.0 °C to 70.0 °C.
- Accuracy: ± 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

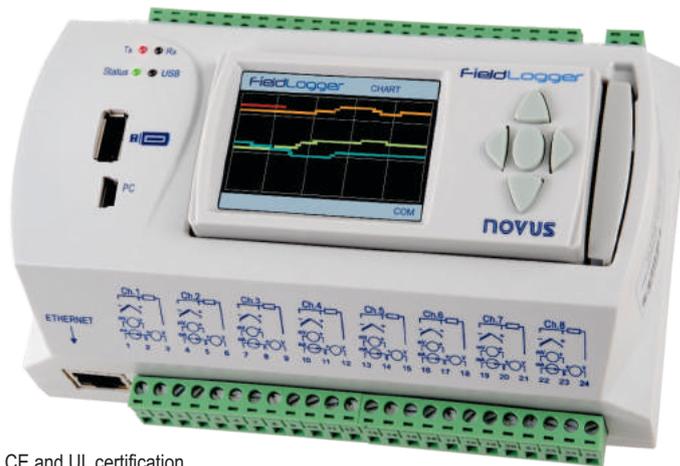
LogChart II
 (See page 17)



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 t/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 Vac/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

Portable Data Logger - 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.

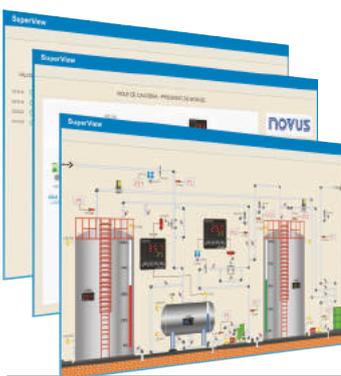


- **LogBox-AA:** 2 analog inputs for thermocouples J, K, T, N, R, S, B, Pt100, 0-50 mV, 0-10 Vdc, 0-20 mA and 4-20 mA
- **LogBox-DA:** 1 analog input for 0-50 mV, 0-10 Vdc, 0-20 mA or 4-20 mA
- 1 digital input for voltage pulse or dry contact
- Counts pulses within a time interval
- **LogBox-RHT:** Built-in 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



SCADA Software - SuperView

Scalable, functional and user-friendly, **SuperView** is a SCADA (Supervisory Control and Data Acquisition) platform that allows supervision of local and geographically distributed applications. Its simplicity of configuration gives the users ability to build an effective graphical representation of the process. Acting as a control for supervision, the users have a set of tools that allows to describe logic to read and write to Modbus devices. It comprises functions such as historic, event logs, alarm monitoring and e-mail sending. A client/server module provides TCP/IP distributed supervision.



- Geographically distributed supervision and control
- User-friendly interface to configure recipes
- Management of formulae and mathematical statements
- Encrypted historical files, protected against data tampering
- User profile configuration for each user, limiting their policies
- Individual alarm supervision with visual, sound and email notification
- Electronic signature when acknowledge alarm events
- Complies with technical requirements of FDA21 CFR Part 11

Data Acquisition and Recording - FieldChart

FieldChart is a data acquisition and monitoring software tool dedicated to and easy to use with **NOVUS** devices such as **FieldLogger**, **FieldLogger I/O** and all **NOVUS** controllers and indicators with digital communication capability.

The main module collects data from **FieldLogger** and **FieldLogger I/O** memories to a PC, displays the data in both digital and online trend charts and generates historical views. It can zoom in and out, it shows values as a list, it can join and overlay graphs, print and export data to txt and spreadsheets.

When online, it communicates using Modbus RTU and Modbus TCP protocols to monitor up to 64 channels from **NOVUS** devices like **FieldLogger**, **FieldLogger I/O** and controllers or DPMs. High and low alarms can be associated to each channel of the trend chart and their values will be shown on the screen whenever and alarm becomes active.



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: ± 60 Vdc, 15 kV ESD
- Dimensions: 70 x 60 x 18 mm



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 5Aac (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



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. Baud rate from 1200 to 115200 bps
- Windows® 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 ± 1 °C for t/c; 0.15% for Pt100 RTD, mV, V and mA
- Analog inputs isolation from device: 1000 Vac for 1 minute

PORTABLE DATA LOGGERS

Temperature monitoring
and recording
along the entire **cold chain**



Remote Access - AirGate-3G

The **AirGate-3G** is a cellular RTU 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, SMS, NOVUSLink
- Firmware update via Web, CLI, USB, SMS, NOVUSLink
- Opening VPN tunnel possibility for full safety during remote access
- Metal enclosure with DIN 35 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 19)



Wireless ModbusGateway - 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-adaptative 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

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 ½AA, 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 model)
- Probe extension (DM model): Stainless steel 150 or 250 mm of length
- Dimensions: 70 x 60 x 35 mm

Profibus to Modbus Gateway - DigiGate Profibus



DigiGate Profibus is the ideal device for interconnecting a Profibus DP network to Modbus RTU devices. Acting as a gateway, it behaves 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® software for device configuration and diagnostic
- Power Supply: 10 to 35 Vdc

Remote Connectivity

Easy, Safe and Complete!

3G E-MAIL VPN
GPS SMS
Safety IoT Connection
modbus Industrial Practicality
public network

The AirGate-3G is an industrial 3G cellular router for Internet of Things (IoT) applications and provides remote access to local networks.

- ✓ Remote access through 3G network
- ✓ Data encryption
- ✓ Robust housing
- ✓ Dual SIM card for redundancy
- ✓ VPN tunnel capability
- ✓ ANATEL, CE and FCC certified

NOVUS

Temperature Transmitter - TxMini-M12 & TxMini-DIN43650

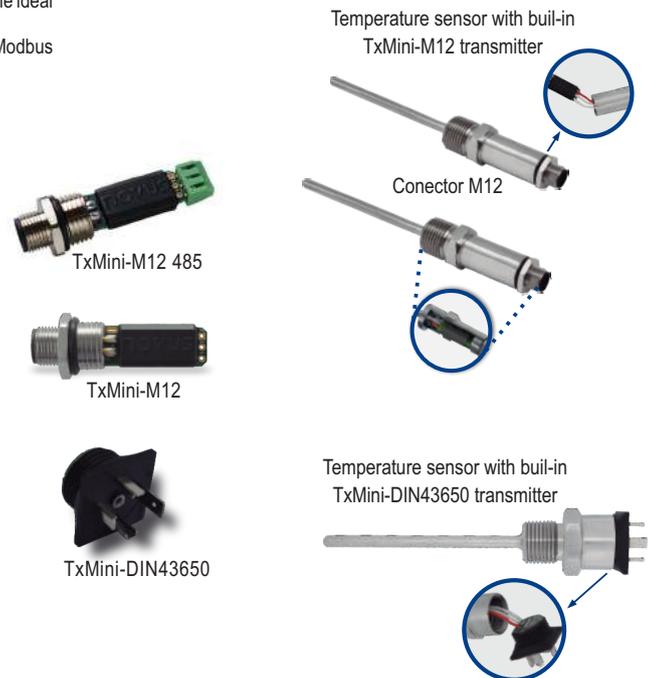
The **TxMini**, **TxMini-M12** and **TxMini-DIN43650** are 4-20 mA two wire compact and valuable transmitters. Configuration can be done through a USB interface without any power supply. These transmitters are the ideal solution to be used in places with space restrictions.

These transmitters can come with different output options such as 4-20 mA loop powered or RS485 Modbus communication.

- 4-20 mA output on power loop
- Power supply: 8 to 35 Vdc
- Pt100 / Pt1000 in
- Pt100/Pt1000 3-wire connection
- Configurable measurement range
- Typical accuracy @ 25 °C: 0.1% of the 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

Connector types

- **TxMini-M12-MP** – 4-20 mA temperature transmitter, M12 connector, stainless steel 316L probe (6x100 mm), ½" BSP connection (comes with female connector and 1m cable)
- **TxMini-M12-RS485-MP** – RS485 Modbus temperature transmitter, M12 connector, stainless steel 316L probe (6x100 mm), ½" BSP connection (comes with female connector and 1m cable)
- **TxMini-DIN43650-MP** – 4-20 mA temperature transmitter, DIN43650 connector, stainless steel 316L probe (6x100 mm), ½" BSP connection (comes with female connector)



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 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 e 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 model): 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 Transmitter - TEMP-WM & TEMP-DM

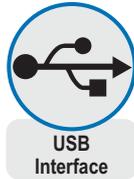
The **TEMP-WM** and **TEMP-DM** transmitter series incorporate high accuracy and great stability for temperature measurement. The microprocessor based circuit enables full configuration of the temperature range through the USB communication interface along with the TxConfig software for Windows®. Model **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 wires 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 μ 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 12.5 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-HRT & TxIsoRail-HRT

The **TxIsoPack-HRT** (head mount) and **TxIsoRail-HRT** (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 Ω , 0 to 2000 Ω , 0 to 10 K Ω
 - -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 - 10,5V) / 0.022

TxConfig-HRT Configurator
(see page 17)



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(4)-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
- Input protection against reversed polarity
- DIN mounting enclosure, IP40 protection
- Operating conditions: -20 to 75 °C, 20 to 90 % relative humidity

Pressure Transmitter - NP400, NP600, NP620 & NP640

NP400, NP600, NP620 and NP640 relative pressure transmitters from NOVUS can be configured and recalibrated in the field or laboratory. These transmitters feature a wide range of calibration curves as well as the ability to set the transmission range up to 1/3 of full scale. This configuration is achieved through TxConfig II configuration software, via a TxConfig-DIN43650 interface.



TxConfig II
Configuration Software

Family of Transmitters	NP400	NP600	NP620	NP640
Type of Measurement	Positive Relative Pressure			
Pressure Sensor	Piezoresistive			
Output Zoom (rangeability)	No	3:1	3:1	3:1
Software Configuration	TxConfig II (Using NOVUS TxConfig DIN 43650 interface) ¹			
Pressure Ranges ₃	0-2 / 0-5 / 0-10 / 0-20 / 0-50 / 0-100 bar	0-2 / 0-5 / 0-10 / 0-20 / 0-50 / 0-100 bar	0-1 / 0-4 / 0-10 / 0-40 / 0-100 bar	0-1 / 0-4 / 0-10 bar
Process Fluids	Gases and Liquids compatible with 316 Stainless Steel (not including Amonia)			
Material in Contact with the Medium	Stainless Steel 316L (FKM sealing ring)	Stainless Steel 316L (96% Al ₂ O ₃ ceramic) ₂	Stainless Steel 316L (FKM sealing ring)	Stainless Steel 316L
Housing Material (body)	Stainless Steel 316L			
Power Supply	11-33 Vca			
Output Signal	4-20 mA			
Measurement Accuracy	≤ 50 bar ± 0.5 % FS 100 bar ± 1.0 % FS	≤ 50 bar ± 0.5 % FS 100 bar ± 1.0 % FS	± 0.25 % FS	± 0.25 % FS
Process Connection	½" NPT / ¼" NPT / ½" BSP			
Electric Connection	DIN 43650 Connector / EN175301-803			
Approximate Dimensions	¼ NPT: Ø 27 x 79.5 mm ½ NPT: Ø 27 x 84 mm ½ BSP: Ø 27 x 78 mm	¼ NPT: Ø 27 x 79.5 mm ½ NPT: Ø 27 x 84 mm ½ BSP: Ø 27 x 78 mm	¼ NPT: Ø 27 x 86.7 mm ½ NPT: Ø 27 x 91.2 mm ½ BSP: Ø 27 x 85.5 mm	¼ NPT: Ø 27 x 86.7 mm ½ NPT: Ø 27 x 91.2 mm ½ BSP: Ø 27 x 85.5 mm
Protection Rating	IP65			
Operating Temperature Range	- 30 to 100 °C	- 20 to 70 °C	- 20 to 70 °C	- 20 to 70 °C
Thermal Deviation	< ± 0.05 % FS / °C			
Dynamic response	< 30 ms			
Overpressure	2 x FS			

¹NOVUS TxConfig DIN 43650 interface is sold seperately.

²Al₂O₃ is the formula of aluminum oxide (alumina). Alumina is a ceramic with excellent corrosion resistance, high hardness and good cost /benefit.

³Inquire for different ranges

RANGEABLE TRANSMITTERS

Calibration in different ranges
in a **single model**



Pressure Transmitter - 692



The **692** series of differential pressure transmitters measure differential pressures with high accuracy from 0 to 0.1 bar up to 0 to 25 bar and yet withstanding high one-side static overpressures.

- Ranges: from 0 to +0.1 bar up to 0 to a 2.5 bar
- Working temperature: -15 to 80 °C
- Media contact material: ceramic and 1.4305 SS (AISI 303)
- Accuracy: 0.5% of full scale, including hysteresis, linearity and repeatability
- Process connection: 6 mm pressure tube tip
- System pressure: 25 bar for 6 bar range, 50 bar for 25 bar range
- Burst pressure: 1.5 x system pressure
- Connector DIN 43650-AIP65
- Output: two-wire 4-20 mA
- Power: 11-33 Vdc
- Electromagnetic compatibility according to CE 89/336
- Weight: 430 g
- Size: Ø 45 x 89 mm

Pressure Transmitter - 699



The **699** series of differential pressure transmitters are ideal for high accuracy monitoring and control of low air flow in air-conditioning systems, in clean room applications, fine pressure laboratories and in critical filters protection with non-corrosive gases. They are similar to the **694** series adding the advantage of being dip switch configurable. An optional LCD display is available for PV visualization.

- Ranges: -1 to 1 mbar; 0 to 0.3 - 50 mbar
- Available with or without LCD display
- Working temperature: 0 to 70 °C
- Silicone LSR bi-component diaphragm
- Burst pressure: 2 x range at room temperature or 1.5 range at 70 °C
- Accuracy: ±1%
- Process connection: dual 6.2 mm Ø tubes
- Electrical connection: 6.3 mm fast-on lugs and Pg11 gland
- Output: 0-20 mA or two-wire 4-20 mA / 0-10 Vdc (adjustable via dip switch)
- Response time: less than 20 ms
- Power: 11-33 Vdc
- Electromagnetic compatibility according to CE 89/336
- Plastic housing according to UI94
- Weight: 90 g
- Size: 92 x 75 x 49 mm

Pressure Transmitter - 691



The **691** series of pressure transmitters were designed for high performance industrial applications in relative pressure up to 600 bar or absolute applications up to 16 bar.

- Maximum range: -1 to 600 bar (relative pressure); 0 to 16 bar (absolute pressure)
- Working temperature: -15 to 80 °C
- Media contact material: ceramic and 1.4305 SS (AISI 303)
- Accuracy: 0.3% of full scale, including hysteresis, linearity and repeatability
- Process thread: 1/4" - 18 NPT. Others under request
- Protection: 2 x measuring range
- Burst pressure: 3 x measuring range limited to 900 bar
- Dynamic response: <5 ms
- Connector: DIN 43650-AIP65
- Output: two-wire 4-20 mA
- Power: 11-33 Vdc
- Electromagnetic compatibility according to directive CE 89/336
- Weight: 245 g
- Size: Ø 36 x 64 mm

Pressostat - 604



The **604** series differential pressure switches are used as DP flow switches in ventilation ducts for the control of filters and fans and in primary and secondary control systems for air dampers. They are also ideally suited to protect heating coils from overheating and for monitoring industrial air cooling circuits. Precise setpoint adjustment is done through individual scale and by turning the knob.

- Ranges: 0.2 to 3 mbar; 0.5 to 5 mbar; 1 to 10 mbar; 0 to 50 mbar and 10 to 50 mbar
- Electrical contact: 5A/250 Vac SPDT 4A/30 Vdc relay
- Life span: 1,000,000 commuting cycles
- Working temperature: -30 to 85 °C
- Silicone LSR bi-component diaphragm
- Minimum switching pressure: 0.2 mbar
- Repeatability: ±0.025 mbar (0.2-3 mbar), ±0.05 (0.5-20 mbar); ±0.15 (10-50 mbar)
- Over-pressure protection: 75 mbar
- Hysteresis: 0.1 mbar
- Process connection: dual 6.2mm Ø tubes
- Electrical connection: 6.3 mm spade lugs and PG11 gland
- Fiber-reinforced PC
- Protection: IP54
- Weight: 144 g
- Size: 103 x 88 x 55 mm

Pressure Transmitter - 520 & 528

The pressure transmitters series **520** and **528**, are compact, accurate and have a rugged construction. They have a quick coupler system (Quickon System), which substantially saves time through quick cable mounting by the customer with swift connector. The model **520** is based upon developed thick film technology where the pressure measuring cell is fully welded. This transmitter meets the high burst protection demands and is suitable for the use in all types of refrigerants including ammonia. The model **528** is based upon the well proven ceramic technology. These pressure transmitters are suitable for applications across a broad spectrum of industries.

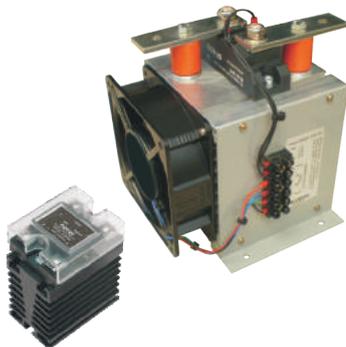


- Outside thread 1/4" - 18 NPT
- Output: 4-20 mA 2 wire (7 to 33 Vdc)
- Dynamic response: Response time < 2 ms 1 ms typ. / Load cycle: < 100 Hz
- Accuracy: ± 0.3% fs (25 °C, 45% RH, power Supply 24 Vdc)
- UL and CE certification
- Weight: ~ 90 g
- Tolerable overload: ≤ 6 bar = 5 x fs / >6 bar = 3 x fs (max. 1500 bar)
- Rupture pressure: ≤ 6 bar = 10 x fs / >6 bar = 6 x fs (max. 2500 bar)
- Dimensions: Ø 24 x 61 mm (IP7 model); Ø 24 x 88 mm (IP65 model)

528 - Ceramic technology

- Materials in contact with medium: Pressure connection = 316L / Sensor = Ceramic / Sealing: FPM
- Operating conditions: Medium = Liquids and gases -15 a 120 °C
- Electrical connection: Swift connector IP67
- Tolerable overload/ Rupture pressure: ≤ 4 bar = 3 x fs / > 4 bar = 2.5 x fs
- Dimensions: Ø 24 x 55 mm
- Materials in contact with medium: Pressure connection / Sensor = Stainless steel
- Operating conditions: Medium = Liquids, gases and refrigerants (incl. ammonia) -40 a 135 °C
- Electrical connection: Swift connector IP67 or connector DIN EN 175301-803-A IP65 (optional)

SSR and Solid State Module



These electronic devices are used for switching resistive or inductive loads with many advantages over conventional electromechanical relays. They provide years of reliable high speed switching operation without electrical noise, sparks or mechanical wear coupled with driving power make the SSRs the perfect choice where high control accuracy is essential. The **Solid State Module with SSR** consists of an equipment with heatsink, fan, overheating protection and wiring terminals.

- Currents: 10, 25, 40, 60, 80, 100, 150, 200 and 300 A
- Maximum voltage: 480 Vac
- LED for status indication
- Internal snubber for dv/dt protection
- Zero crossing switching
- Trigger voltage: 4 to 32 Vdc
- High switching speed
- Optical isolation between input and output
- High EMI and RFI noise immunity
- Requires minimum power for switching
- Heat sink without voltage
- Does not generate EMI or RFI
- Switch 1, 2 or 3 phases*
- Overheating protection*
- Connections compatible with the load*
- Built in heat sink and cooling fan*

* For Solid State Module only

Power Controller



These devices control and limit the electrical power delivered to electrical loads. By using state of the art technology one can achieve significant reduction in energy consumption while attaining best process performance, with high efficiency, precision, endurance and economy. They execute the important function of protecting the controlled load and the thermal system due to the built-in ultra-fast protection fuses on all versions. Available in two versions, PCW and PCWE, the latter features electrical power limitation to the load.

- Load voltage: 180-440 Vac; 50/60 Hz
- Switching signal: 0-20 mA, 4-20 mA, 0-5 V, 1-5 V, 0-10 V and 2-10 V 10 k potentiometer
- Control type: pulse width modulation and phase angle
- Controller power supply: 220 Vac; 50/60 Hz
- Relay alarm SPST; 3 A/ 250 Vac
- Electrical isolation between input and output: 2500 V
- Operating temperature: -10 to 60 °C
- Plastic enclosure: ABS+PC / UL-94V0
- Fuses included

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 3 A relays, 250 Vac or 1 SPST relay and 1 logical pulse 5 V/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 and 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: 3 A/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
 - IP65 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

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 obtain 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 1.5 A/ 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
- Size: 75x32x75 mm
- Power Supply: 100-240 Vac/Vdc (Optional 12-24 Vac/Vdc)
- Display 3

LogChart II



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.

Data Acquisition and Recording - NOVUS Experience



The **Nx software** is the main interface for configuration and data retrieval for **NOVUS** data loggers. It is a complete tool for deep analysis of recorded data, since it offers resources for the creation of personalized reports, application of formulas, data export to multiple formats and share them on the Internet.

The Nx can perform data collection of multiple loggers and publish the data in the **NOVUS Cloud**, a platform for hosting data on the Internet, where records can be viewed at any time, and from anywhere.

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 version
- 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.

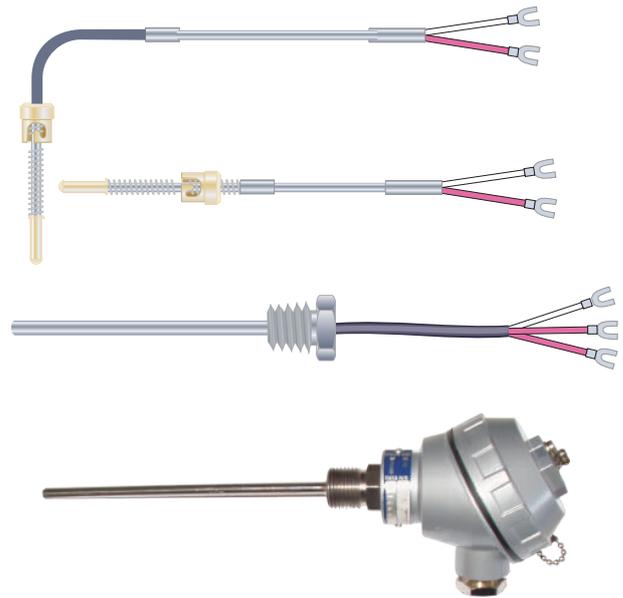
- Power: 5 Vdc (from USB port)
- Communication range: up to 2 cm
- Compatible with USB 1.1 and 2.0
- Dual color LED
- Dimensions: 64 x 102 x 13 mm
- Operational Systems: Windows®
- Certifications: CE, FCC, USB IF
- Supports ISO 14443 and ISO 15693 (NFC-V)
- Working temperature: -20 a 80 °C

Temperature Sensors

NOVUS has the complete temperature measurement solution your business needs. We manufacture open sensors, mounted in ceramic tubes, with stainless steel sheath or mineral insulated, flexible or for insertion.

They can be supplied with:

- Universal Temperature Transmitters (4-20 mA)
- RBC Calibration Certificate
- Sensors for injectors and thermoplastic extruders
- Sensors for generators stators and electric motors
- Sensors for air and gases
- Fast response surface contact sensors
- Complete head mounted sensors with stainless steel sheath and process thread
- Flexible or insertion sensors
- Sensors with stainless steel housing and Modbus-RTU Protocol (TxMini-M12-RS485-MP)
- The RTDs are manufactured in thin film technology on flat ceramic substrates or wire wound in ceramic or glass body, and provide high accuracy in temperatures between -200 and 650 ° C.
- Thin film: -50 to 600 ° C, class A and B
- Dimensions: 1.6x3.2 mm and 2x5 mm
- Wire wound RTD: -200 to 650 ° C, class A and B
- Dimensions: 0.7 x 5 mm to 2.8 x 30 mm



Relay Interface - NIO

The **NIO** series of DIN rail relays are interfaces used extensively in switching applications in industrial automation. They are built with high quality components that deliver superior performance and comply with highly demanding automation standards.

- Width at only 6.2 mm
- 35 mm DIN rail mounting
- Switching time: 5 ms
- Electrical insulation input/output: 1000 Vdc
- Enclosure protection: IP20
- Wiring gauge: 0.2 ~ 1.5 mm²
- Terminal blocks for connections with screws
- Input:
 - Switching rated voltage (UN): 12/24/220 Vac/dc
 - Consumption: 0.2/0.3/0.9 VA (W)
 - Holding voltage: 0.8 ... 1.1 UN
 - Must drop-out voltage: 0.6 UN
- Output:
 - Output type: SPDT relay
 - Rated current: 6 A (resistive)
 - Maximum instantaneous current: 10 A
 - Working voltage: 250 Vac/dc
 - Maximum working voltage: 400 Vac/dc
- OPTIONS:**
 - Identification and interconnecting accessories

EDA Power Supply



NOVUS EDA for DIN rail mounting power supplies feature Full Range universal power input, high efficiency and operate in temperatures up to 70° C. Certified under international standards, these robust industrial equipment are ideal for supplying 24Vdc in a wide range of applications. Among its differentials, we can mention various worldwide certifications including UL 508, considered one of the most important for the power supplies category. The protections go beyond the classic short-circuit protection and they include over voltage, over current and overheating, among others. A new 20A model with single-phase input is now available:

- Input: 100 - 240 VAC
- Output: 24 vcc
- Protection: Short-circuit, Overload, Overvoltage, Overheating
- Overload protection range: 105 to 150%
- Overvoltage protection range: 115 to 135%
- Global certifications
- Operating temperature: -25 ° C to 70 ° C
- DIN rail mounting
- Available models: 2A, 3.13A, 5A, 10A, 20A

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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.

NOVUS
Cloud

Contact: iot@novusautomation.com
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metrology laboratory



The **NOVUS Metrology Laboratory** is equipped with the most modern and technologically advanced resources dedicated to the calibration of measuring instruments. With experienced and highly trained personnel we offer a comprehensive range of calibration services both internally and externally.

The **Temperature and Relative Humidity Laboratory** provides calibration services for thermo-hygrometers, thermocouple and RTD sensors, digital thermometers, digital panel meters, temperature controllers, simulators and calibrators and temperature recorders. The **Electrical Parameters Laboratory** calibrates electrical equipment that measure and generate AC/DC voltage, AC/DC current and resistance measurements. The **Pressure Laboratory** calibrates instruments that require error verification to determine the measurement reliability. All our labs are accredited by RBC/CGCRE.

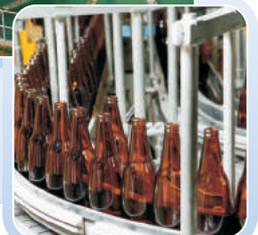
In addition to calibration within the laboratory, we also calibrate instruments at customer's site with the same quality and reliability. Our lab is also able to perform traceable calibration.

Contact: labmetrology@novusautomation.com
+55 (51) 3323-3628

systems integration

Industrial automation technologies can be applied to all market segments for better understanding the processes resulting in quality and productivity gains. **NOVUS** not only provides a complete range of automation technology products but also offers a dedicated and experienced team of **Application Engineers** able to implement world-class automation solutions in industries such as food and beverage, dairy, pharmaceutical, building automation, water and sewage treatment, sugar and alcohol and many other sectors demanding measurement, control and data acquisition.

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