NOVUS

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CONTROLLERS · TRANSMITTERS · DATA LOGGERS · THERMOSTATS · INDICATORS · SOFTWARES · SENSORS

SHORT FORM CATALOG

N1100

It holds in one single instrument all the main features that are needed for the vast majority of industrial processes.
Both input and output are selected through the front keypad without hardware change.

- Accepts J, K, T, N, R, S, Pt100, 4 to 20 mA, 50 mV, 0-5 Vdc without any hardware change
- Outputs: 2 SPST relays, linear 4-20 mA and logic pulse for SSR
- 2 alarms with timers up to 6500 s
- Input resolution: 12,000 levels
- Power: 100~240 Vac/dc ±10%
- PV or SP retransmission in 4 to 20 mA
- Bumpless Auto/Manual function
- Remote Setpoint input (4 to 20 mA)
- Programmable soft start (0 to 9999 sec.)
- Ramp and soak: seven 7-segment profiles or one 49-segment profile with events
- PID auto tuning
- IP65 UL94 V-2 front panel; IP20 UL94 V-0 enclosure; silicone rubber keypad
- CE and UL marked
- Size: 48 x 48 x 110 mm
  OPTIONS:
- Third relay or 2 digital I/O
- RS-485, Modbus RTU protocol
- Heater break detection
- 24 Vdc/Vac power supply

N1200

An advanced self-adaptive PID controller that constantly monitors process performance and adjusts PID settings to always obtain the best possible control response.

- Accepts thermocouples J, K, T, N, R, S, B, E; Pt100; 0-20 mA, 4-20 mA; 50 mV, 0-5 Vdc and 0-10 Vdc
- Outputs: 2 SPST relays, logic pulse for SSR and 0-20 or 4-20 mA linear output
- Up to 4 alarms with timers up to 9999 s
- A/D converter: 16 bits, 55 samples per second
- Power: 100~240 Vac/dc ±10%
- PV or SP retransmission: 0-20/4-20 mA, 12 bits
- Bumpless auto/manual function
- Remote SP input: 0-20/4-20 mA or 0-5/0-10 V
- Programmable soft start (0 to 9999 s)
- Ramp and soak: twenty 9-segments profiles or one 180-segments profile with events
- PID self adaptive
- Password protected configuration
- IP65 UL94 V-2 front panel; IP20 UL94 V-0 enclosure; silicone rubber keypad
- CE and UL marked
- Size: 48 x 48 x 110 mm
  OPTIONS:
- Third relay or 2 digital I/O
- RS-485, Modbus RTU protocol
- Heater break detection
- 24 Vdc/Vac power supply

N3000

This is a fully featured high performance controller which copes with most advanced industrial process applications. Input and outputs can be easily configured.

- Accepts J, K, T, N, R, S, Pt100, 4-20 mA, 50 mV and 0-5 Vdc
- Outputs: 2 SPDT and 2 SPST relays, linear 4-20 mA and logic pulse for SSR
- 4 software configurable alarms
- Up to 2 time relays (0 to 6500 s)
- Input resolution: 12,000 levels
- 24 Vdc output for remote transmitters
- Power: 100~240 Vac/dc ±10%
- PV or SP retransmission in 4 a 20 mA
- Bumpless Auto/Manual function
- Remote Setpoint input (4 to 20 mA)
- Programmable soft start (0 to 9999 sec.)
- Ramp and soak: 7 seven-segment profiles or one 49-segment profile with events
- PID auto tuning
- IP65 UL94 V-2 front panel; IP20 UL94 V-0 enclosure; silicone rubber keypad
- CE and UL marked
- Size: 96 x 96 x 92 mm
  OPTIONS:
- RS-485, Modbus RTU protocol
- 24 Vdc/ac power supply

N440

N440 is a very low cost ON/OFF temperature controller with digital display aimed at simple processes that require good accuracy.

- Accepts thermocouples J or K or Pt100 (specify type when ordering)
- Sensor offset adjustment
- Power: 100~240 Vac/dc ±10%
- 1 SPDT relay for contol or alarm
- Independent hysteresis for each output
- Heat/cool action independent for each output
- Configurable Setpoint limits
- Configurable °C or °F
- MIN, MAX and DIFFERENTIAL alarm functions
- 3½ digit display with 0.1 degree resolution in the range -19.9 to 199.9 °C (for Pt100 input only)
- 4-level keypad protection prevents unauthorized parameter changes
- IP65 UL94 V-2 front panel; IP20 UL94 V-0 enclosure; silicone rubber keypad
- CE and UL marked
- Size: 48 x 48 x 110 mm
  OPTIONS:
- SPST relay or buzzer for alarm
- 24 Vdc/Vac power supply

N480D

This user-friendly PID temperature controller incorporates many functions such as ramp & soak setpoint profile, pulse and relay outputs and yet at a very affordable cost.

- Dual 4-digit display, red PV and green SV
- Accepts thermocouples J, K, S, T, E, N, R and Pt100
- Control output: SPST relay and voltage pulse, both available in the basic model
- Power: 100~240 Vac/dc ±10%
- Ramp and soak: one controlled ramp and one timed soak are standard
- Auto tuning PID
- Detects any sensor failure
- Easy-to-set programming menu
- 4-level keypad protection prevents unauthorized parameter changes
- Circuitry can be removed via front panel
- IP65 UL94 V-2 front panel; IP20 UL94 V-0 enclosure; silicone rubber keypad
- CE and UL marked
- Size: 48 x 48 x 110 mm
  OPTIONS:
- 4 to 20 mA control output
- Up to 2 alarms with 3 A/250 Vca SPST relays
- 24 Vdc/Vac power supply

N960

This PID controller is a great substitute for the old analog controllers for holding extreme simplicity in operation and yet featuring the highly accurate performance of digital technolgy. The high efficiency 18 mm upper display can be viewed from far away.

- Accepts thermocouples J, K, T, N, R, S, and Pt100
- Outputs: 2 SPDT relays, logic pulse for driving SSR and 4 to 20 mA control output
- Up to 2 software configurable alarms
- Up to 2 time relays (0 to 6500 s)
- Dual display, 18 mm for measured value and 13 mm for Setpoint
- Resolution: 12,000 levels
- Power: 100~240 Vac/dc ±10%
- Ramp and soak: 1 seven-segment profile
- Auto tuning PID
- IP65 UL94 V-2 front panel; IP20 UL94 V-0 enclosure; silicone rubber keypad
- CE and UL marked
- Size: 96 x 96 x 92 mm
  OPTIONS:
- 24 Vdc/ac power supply

N2000

Ideal for high performance applications, this instrument has all the features needed for most industrial processes. Both input and output are selected through the front keypad without hardware change.

- Accepts J, K, T, N, R, S, Pt100, 4-20 mA, 50 mV and 0-5 Vdc
- Outputs: 2 SPDT and 2 SPST relays, linear 4-20 mA and logic pulse for SSR
- 4 software configurable alarms
- Up to 2 time relays (0 to 6500 s)
- Input resolution: 12,000 levels
- 24 Vdc output for remote transmitters
- Power: 100~240 Vac/dc ±10%
- PV or SP retransmission in 4 to 20 mA
- Bumpless Auto/Manual function
- Remote Setpoint input (4 to 20 mA)
- Programmable soft start (0 to 9999 sec.)
- Ramp and soak: seven 7-segment profiles or one 49-segment profile with events
- PID auto tuning
- IP65 UL94 V-2 front panel; IP20 UL94 V-0 enclosure; silicone rubber keypad
- CE and UL marked
- Size: 48 x 96 x 92 mm
  OPTIONS:
- RS-485, Modbus RTU protocol
- 24 Vdc/ac power supply

N2000-S

Dedicated to servo-positioning valves and dampers by a linear output or two relays which are time proportionally driven according to the PID output.
Input and output are selected through the front keypad without hardware change.

- Accepts J, K, T, N, R, S, Pt100, 4-20 mA, 50 mV and 0-5 Vdc
- Dual SPST relay control output and linear 4-20 mA for servo positioning
- 2 SPDT relays for alarm
- Input resolution: 12,000 levels
- 24 Vdc output for remote transmitters
- Power: 100~240 Vac/dc ±10%
- PV or SP retransmission in 4 to 20 mA
- Bumpless Auto/Manual function
- Feedback potentiometer input
- Ramp and soak: seven 7-segment profiles or one 49-segment profile with events
- PID auto tuning
- Password protection
- IP65 UL94 V-2 front panel; IP20 UL94 V-0 enclosure; silicone rubber keypad
- CE and UL marked
- Size: 48 x 96 x 92 mm
  OPTIONS:
- RS-485, Modbus RTU protocol
- 24 Vdc/ac power supply
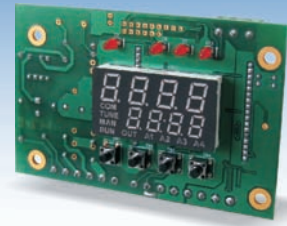
N120

A complete open frame process controller that is a perfect fit for machine internal panel mount. With most of the features of N1200, can be customized to fit customer's needs.

- Easy to operate
- Accepts thermocouples J,K,T,N,R,S,B,E; Pt100; 0-20mA, 4-20mA; 50mV, 0-5Vdc and 0-10Vdc
- Outputs: 2 SPST relays, logic pulse for SSR
- PID self adaptive
- Up to 4 alarms with timers up to 9999 s
- A/D converter: 16 bits, 55 samples per second
- Bumpless auto/manual function
- Ramp function
- Ramp and soak: twenty 9-segments profiles or one 180-segments profile with events
- Programmable soft start (0 to 9999 s)
- Password protected configuration
- Digital input with multiple functions
- Timer function
- Ultra bright display
- Power: 100~240 Vac/dc ±10%
  OPTIONS:
- RS-485 Modbus RTU protocol
- SPDT relay for 16 A / 1 hp loads
- 24 Vdc/Vac power supply
- Single display, lower cost version

N480i

N480i is a low cost and easy-to-use universal indicator which can be easily configured by non-experienced users. Optional features include a 24 Vdc output for remote transmitters and up to two alarm relays.

- Accepts thermocouples J, K, T, E, N, R, S, Pt100, 50 mV, 10 V and 4-20 mA
- Programmable range from -1999 to +9999
- Alarm functions: LO, HI, differential, diff. HI, differential LO and sensor failure
- Power: 100~240 Vac/dc ±10%
- 24 Vdc output for transmitters (optional)
- Detects any sensor failure
- Easy to use programming menu makes operator interfacing a snap
- 4-level keypad protection prevents unauthorized parameter changes
- Circuitry can be removed via front panel
- IP65 UL94 V-2 front panel; IP20 UL94 V-0 enclosure; silicone rubber keypad
- CE and UL marked
- Size: 48 x 48 x 110 mm
  OPTIONS:
- 1 SPST 3 A/250 Vac relay + 24 Vdc supply output
- 2 SPST 3 A/250 Vac relays
- 24 Vdc/ac power supply

N1500 & N1500LC

This high performance universal indicator comes in 2 versions: standard (**N1500**) and for load cell applications (**N1500LC**).
It features 16-bit input resolution, up to 4 relays, digital communication, field transmitter or load cell excitation, analog retransmission and digital input.

- Accepts t/c J, K, T, E, N, R, S, B, Pt100, 4-20 mA, 0-50 mV, 0-5 Vdc and 0-10 Vdc. **N1500LC** accepts ±20mV signals from load cells
- Programmable range from -31000 to +31000 or zero to 60,000 with adjustable digital filter
- Input sampling: up to 15 per second
- Alarms: two SPDT relays. Functions: LO, HI, differential, diff. LO, diff. HI and sensor break
- HOLD, PEAK, MAX and MIN functions
- Power: 100~240 Vac/dc ±10%
- 24 Vdc or 10 Vdc supply output
- Keypad or remote tare & zero (**N1500LC**)
- IP65 UL94 V-2 front panel; IP20 UL94 V-0 enclosure; silicone rubber keypad
- CE and UL marked
- Size: 96 x 48 x 92 mm
  OPTIONS:
- RS-485, Modbus RTU protocol
- Process variable 4-20 mA retransmission
- 2 relays SPST 3A/250Vac
- 24 Vdc/ac power supply

N1500-G

This high performance universal digital panel meter features a bright 56 mm high display for high visibility at long distances. Setup can be done via its keyboard or via a remote PC since it features RS485 comm and a digital input with special functions

- Accepts termocouples J, K, T, E, N, R, S, B, Pt100, 4-20 mA, 0-50 mV and 0-5 Vdc
- Programmable range from -1999 to +9999 with adjustable filter
- Alarms: two 3 A SPST relays
- Functions: LO, HI, differential, diff. LO, diff. HI and sensor break
- HOLD, PEAK, MAX and MIN function
- Remote tare/zero or via keyboard
- 24 Vdc output for remote transmitters
- Power: 100~240 Vac/dc ±10%
- Process variable retransmission
- RS485, Modbus RTU digital communication
- Digital input: hold, tare zero or reset
- Dimensions: 310 x 110 x 37 mm
  OPTIONS:
- 10 Vdc output for load cells

N320, N321, N322 & N323

The **N320** electronic thermometers are used to indicate temperature with high degree of accuracy. **N321** (1 relay)**, N322** (2 relays) and **N323** (3 relays) controllers can be configured via keypad for heating or refrigeration control. Alarm outputs can be independently configured as maximum, minimum or differential alarms.

- Sensor: NTC thermistor (-50 to 120°C), Pt100 (-50 to 300°C), Pt1000 (-200 to 530°C), J thermocouple (0 to 600°C), K t/c (-50 to 1000°C or T t/c (-50 to 400°C)
- Control relay: SPDT, 16 A/ 1 HP 250 Vac (N321, N322 & N323)
- Alarm relay 1: SPST, 3 A (N322 and N323)
- Alarm relay 2: SPST, 3 A (N323)
- Accuracy: ±0.6 °C (NTC), ±0.7°C (Pt100 and Pt1000), ±3 °C (thermocouples)
- IP65 front panel with silicone rubber keys
- Display: 3½ LED digits, 13 mm height
- Resolution: 0.1 from -19.9 to 199.9 °C
- Configurable protection password
- Working temperature: 0 to +40 °C
- Power: 100~240 Vac/dc±10%
- CE and UL marked
- Dimensions: 75 x 33 x 75 mm
  OPTIONS:
- RS485, Modbus RTU protocol
- Power supply: 12 to 24 Vdc/ac. Sensor: NTC

N322T

N322T finds applications in heating and cooling processes. One output controls the temperature and the second output has a built-in timer function for forced defrost periods, liquids mixing or other timed or interval related actions. The time base can be adjusted for seconds, minutes or hours.

- Sensor: NTC thermistor (-50 to 120°C), Pt100 (-50 to 300°C), Pt1000 (-200 to 530°C), J thermocouple (0 to 600°C), K t/c (-50 to 1000°C or T t/c (-50 to 400°C)
- Control relay: SPDT, 16 A/ 1 HP 250 Vac
- Timer relay: SPST, 3 A
- Accuracy: ±0.6 °C (NTC), ±0.7°C (Pt100 and Pt1000), ±3 °C (thermocouples)
- IP65 front panel with silicone rubber keys
- Display: 3½ LED digits, 13 mm height
- Resolution: 0.1 from -19.9 to 199.9 °C
- Configurable protection password
- Input sampling: 1.5 samples per second
- Working temperature: 0 to +40 °C
- Power: 100~240 Vac/dc±10%
- CE and UL marked
- Dimensions: 75 x 33 x 75 mm
  OPTIONS:
- RS485, Modbus RTU protocol
- Power supply: 12 to 24 Vac/dc

N321S

The **N321S** is a controller intended for solar water heating applications. It controls the water circulation system based on the difference of temperature between the solar collector and the storage tank (or swimming pool).
It has two NTC-type temperature sensors and a control output for activating the water circulation pump. Protects against overheating and freezing to the piping, preventing damages to the system

- Sensors: 2 NTC thermistors (-50 to 120°C)
- Control relay: SPDT, 16 A/ 1 HP 250 Vac
- Accuracy: ±0.6 °C
- IP65 front panel with silicone rubber keys
- Display: 3½ LED digits, 13 mm height
- Resolution: 0.1 from -19.9 to 199.9 °C
- Adjustable sensors offset
- Programmable hysteresis
- Configurable protection password
- Input sampling: 1.5 samples per second
- Working temperature: 0 to +40 °C
- Power: 100~240 Vac/dc±10%
- CE and UL marked
- Dimensions: 75 x 33 x 75 mm
  OPTIONS:
- RS485, Modbus RTU protocol
- Power supply: 12 to 24 Vac/dc

N322RHT & N323RHT

N322RHT and **N323RHT** are temperature and relative humidity digital controllers. **N322RHT** has 2 relay outputs independently configurable as control or alarm. **N323RHT** has 3 outputs that can be configurable as control, alarm or timer. Applications include air conditioning, egg incubation, food and pharmaceutical storage.

- Indication of the selected variable or alternate
- Relay 1: SPDT, 16 A/ 1 HP 250 Vac
- Relay 2 and 3 (N323RHT): SPST, 3 A
- Humidity:
  - Measuring range: 0 to 100% of relative humidity (RH)
  - Accuracy for RH: 3% @ 25 °C
  - Measuring resolution: 1% over full range
- Temperature:
  - Measuring range: -20 to 80 °C
  - Accuracy for Temp: 0.5 °C @ 25 °C
  - Resolution: 0.1 °C from19.9 to 120.0 °C
- IP65 front panel with silicone rubber keys
- Power: 100~240 Vac/dc±10%
- CE and UL marked
- Dimensions: 75 x 33 x 75 mm
  OPTIONS:
- RS485, Modbus RTU protocol
- Power supply: 12 to 24 Vac/dc

N321R

N321R is a temperature controller for refrigeration applications. Defrost interval and duration and periodical compressor stops are all programmable. Additional features include compressor protection timers, manual defrost key, programmable power-on delay and temperature hold during defrost cycle.

- Sensor: NTC thermistor (-50 to 120°C), Pt100 (-50 to 300°C), Pt1000 (-200 to 530°C)
- Control relay: SPDT, 16 A/ 1 HP 250 Vac
- Accuracy: ±0.6 °C (NTC), ±0.7°C (Pt100 and Pt1000)
- IP65 front panel with silicone rubber keys
- Display: 3½ LED digits, 13 mm height
- Resolution: 0.1 from -19.9 to 199.9 °C
- Configurable protection password
- Input sampling: 1.5 samples per second
- Working temperature: 0 to +40 °C
- Power: 100~240 Vac/dc±10%
- CE and UL marked
- Dimensions: 75 x 33 x 75 mm
  OPTIONS:
- RS485, Modbus RTU protocol
- Power supply: 12 to 24 Vac/dc

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 final defrost control.

N323TR adds a built-in real time clock for time programmed defrost cycles at specific days of week and times.

- Sensors: 2 NTC thermistors (-50 to 120°C)
- Control relay: SPDT, 16 A/ 1 HP 250 Vac
- Fan relay: SPST, 3 A
- Defrost relay: SPST, 3 A
- Accuracy: ±0.6 °C (NTC)
- Adjustable sensors offset
- Programmable hysteresis
- IP65 front panel with silicone rubber keys
- Display: 3½ LED digits, 13 mm height
- Resolution: 0.1 from -19.9 to 199.9 °C
- Configurable protection password
- Working temperature: 0 to +40 °C
- Power: 100~240 Vac/dc±10%
- CE and UL marked
- Dimensions: 75 x 33 x 75 mm
  OPTIONS:
- RS485, Modbus RTU protocol
- Power supply: 12 to 24 Vac/dc

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 special function key, full scale adjustment and several other advanced configuration options.

- Input types: (2 for counting, 1 reset) type NPN/PNP, dry contact or voltage pulse
- Max. count frequence: 55 Hz, 4 kHz or 20 kHz
- Counter scale factor: 0.00001 to 9.99999
- Counting: UP or DOWN
- F key: hold, reset, outputs reset
- Outputs: 2 SPST 3 A relays, 250 Vac or 1 SPST relay and 1 pulse 5 V/25 mA output
- Output timer: 10 ms to 9999 s
- Power: 100~240 Vac/dc ±10%. Internal battery for data hold
- Sensor supply output: 12 Vdc/50 mA
- IP65 UL94 V-2 front panel; IP20 UL94 V-0 enclosure; silicone rubber keypad
- CE and UL marked
- Size: 48 x 48 x 110 mm
  OPTIONS:
- RS-485, Modbus RTU protocol
- 24 Vdc/ac power supply

NT240

With a 4-digit display, this timer offers a relay output to be switched at pre-programmed intervals according to eleven different 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. Start, Hold and Reset functions
- Output type: 3 A/250 Vac relay or 5 Vdc/25 mA voltage pulse
- Power: 100~240 Vac/dc ±10%
- Time range from 0.01 seconds to 9999 hours
- Time Base Accuracy: 0.05%
- Up and down counting
- Display: high efficiency 10 mm LED
- Eleven timer modes. One is user defined
- Frontal key to execute one pre-programmed special function
- Auxiliar supply output: 12 Vdc/50 mA
- IP65 UL94 V-2 front panel; IP20 UL94 V-0 enclosure; silicone rubber keypad
- CE and UL marked
- Size: 48 x 48 x 110 mm
  OPTIONS:
- RS-485, Modbus RTU protocol
- 24 Vdc/ac power supply

TM-619 & TM-6331

The weekly timers TM-619 and TM-6331 are used whenever electrical equipment must be periodically switched on and off at preprogrammed daily or weekly times. The programmed events are then repeated during the next periods accordingly. They find broad application in heating and refrigerating systems, boilers, ovens, dryers, defrosting equipment, swimming pools, hatcheries, illumination, etc.

- Easy to program
- 8 ON/OFF simultaneous programs
- 14 different weekly switching configurations: every day the same, every day different, from Monday to Friday, from Sat. to Sun., 3 alternate days
- Power Supply: 12 Vdc, 24 Vdc, 127 Vac or 220 Vac, 50/60 Hz
- Minimum switching interval: 1 minute
- Relay output: SPDT 16 A/250 Vac (resisitive) or 8 A/250 Vac (inductive load)
- Working temperature: 0 to 60°C
- Activated output indication
- Screw panel mounting
  OPTIONS:
- DIN rail mounting adaptor

SmartMeter

SmartMeter is a portable dual channel temperature meter which accepts 2 simultaneous thermocouples or Pt100 sensors. It features a slick yet sturdy enclosure with protective rubber corners and improved hand grip. The swivel stand provides bench position and is also a belt carrying fixture.

A high contrast multi-segment LCD display with specific icons shows min/max, hold, difference and average measurements.

- Measures 2 simultaneous thermocouples (types J, K, T, E, N, R, S or B), mV and Pt100
- One K type thermocouple included
- Compensates for Pt100 three-wire cable resistance and for t/c cold junction
- Accuracy: 0.2% FS for Pt100 and 0.25% FS ±1°C for thermocouples
- Sampling: 2 measurements per second
- Power: 9 V battery (400 hours typical life)
- Input for external power adaptor
- Internal buzzer for max/min alarm indication
- Dual sub-miniature compensated thermocouple and Pt100 input connectors
- Operating conditions: 0-50 °C, 10-90% RH
- Programable auto shutt off time
- Dimensions: 165 x 73 x 36 mm

N305 e N306

The portable thermometers models **N305** and **N306** accurately show in their high contrast LCD display the temperature being measured by the connected thermocouple sensor.

N305 has one sensor input and **N306** has two sensor inputs. The temperature difference between the two sensors can also be shown. Both models have Celsius / Fahrenheit selection, display hold and maximum temperature detection. **N305** may display temperature with decimals.

- Measurement range: -50 to 1300 °C (-58 to 1999 °F)
- Resolution: 1 °C or 1 °F (model N306); 0.1 °C or 0.1 °F (model N305)
- Accuracy:
  0.3% of reading ±1°C: from -50 to 1000 °C
  0.5% or reading ±1°C: from 1000 to 1300°C
  0.3% of reading ±2°F: from -58 to 1999°F
- Input protection: 60 Vdc or 24 Vac max
- Sampling rate: 2.5 readings/second
- Operating conditions: 0 °C to 50 °C, 0 to 80% RH
- 3½ digits liquid crystal display (LCD)
- 9V battery for 200 hours typical use. Low battery indication
- Dimensions: 147 x 70 x 39 mm
- Weight: 215g (7.6 oz)

TM1210 & TM1010

These high contrast LCD thermometers are provided with a water proof external sensor. They are accurate and simple to use devices and installation can be done in a panel cut-out or as a stick-on device. Applications: HVAC, freezers, food displays, pools, aquariums, boilers, ovens, solar heating systems.
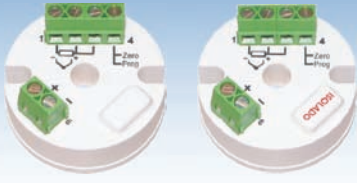
- **TM1210:**
  - Range: -40 °C to 95 °C
  - Accuracy: ±0.3 °C @ 20°C, ±1 °C @ extremes
  - Resolution: 0.1 °C
  - NTC thermistor sensor with nickel plated probe, 3 m cable
  - Power: 1.5V LR44 battery good for 1 year
- **TM1010:**
  - Range: -50 °C to 70 °C
  - Accuracy: ±1 °C
  - Resolution: 0.1 °C
  - NTC thermistor sensor with PVC probe, 1 m cable
  - Power: dual 1.5V AG13 battery good for 1 year
- Dimensions: 48 x 28.6 x 13.5 mm

TxBlock & TxIsoBlock

TxBlock and **TxIsoBlock** (isolated) are fully programmable head mount temperature transmitters dedicated to Pt100 and thermocouple sensors.

In-the-field configuration of input type and working range can be achieved by means of an USB configurator interface to PC.

- Programmable input: Pt100 RTD, 0-50mV, and thermocouples type J, K, T, E, N, R, S, B
- Two-wire loop powered 4-20 mA output
- Power supply: 12 to 35 Vdc
- Linearized output and cold junction compensation for thermocouples
- 2 or 3-wire Pt100 with linearization
- Programmable working range
- Windows® configurator software
- Manual frontal zero (offset) adjustment
- Accuracy: ±0.2% full scale for Pt100 and 0.3% max. of FS for thermocouples
- Temperature effect: 0.003% SPAN/°C
- Working temperature: -40 to +85 °C
- Programmable burnout upscale or downscale sensor failure protection
- Isolation (**TxIsoBlock**): 1000 Vac/1min
- Dimensions: Ø 44 x 25 mm

TxPack

TxPack represents the state of art technology in loop-powered isolated temperature transmitters. By using advanced signal processing technology **TxPack** accepts total configuration through USB connection directly to a PC.

- Two-wire loop powered 4-20 mA output
- Power supply: 12 to 35 Vdc
- Programmable input for thermocouples types J, K, T, E, N, R, S, B, Pt100 and 0-50 mV
- Programmable working range
- Accuracy: ±0.25% of span for thermocouple ±0.15% for Pt100 and mV
- Operating temperature: -20 to 75 °C
- Configurator for Windows®
- Native USB interface with Mini-B connector
- Linearized output
- Output resolution: 4 µA
- Cold junction compensation for t/cs
- 2, 3 or 4-wire Pt100 connection
- Programmable burnout upscale or downscale sensor failure protection
- Electrical isolation: 1000 Vac/1 min
- Dimensions: (D x H): 44 x 24 mm

TxMiniBlock

TxMiniBlock is a cost-effective programable RTD temperature transmitter for head mounting. With a unique mocroprocessor based technology it features full PC configuration of range and calibration.

- Two-wire loop powered 4-20 mA output
- Power supply: 12 to 35 Vdc
- Intpu: Pt100 RTD
- Programmable working range
- Accuracy: 0.2% of span
- Operating temperature: -40 to 85 °C
- Windows® configurator software
- Programming through a USB or RS-232 configuration interface (accessory)
- Manual frontal zero (offset) adjustment
- Linearized output
- Output resolution: 4 µA
- 3-wire Pt100 connection
- Programmable burnout upscale or downscale sensor failure protection
- Dimensions: (D x H): 34 x 18 mm
- Specially convenient for being mounted in small inexpensive heads

TxRail & TxIsoRail

TxRail and **TxIsoRail** (isolated) are fully programmable DIN rail mounting temperature transmitters for Pt100 and thermocouple sensors. Both units can be ordered for 0 to 10 Vdc output in a 3-wire configuration.

The flexibility of in-the-field configuration translates into a one-model-fits-all signal conditioning and isolator module.

- Programmable input: Pt100 RTD and thermocouples type J, K, T, E, N, R, S, B
- 2-wire loop powered 4-20 mA output
- Power supply: 10 to 35 Vdc
- Linearized output and cold junction compensation for thermocouples
- 2 or 3-wire Pt100 with linearization
- TxIsoRail isolation: 1000 Vac
- Programmable range and offset correction
- Windows configurator or Palm (optional)
- Accuracy: 0.2% full scale for Pt100 and 0.3% max. of FS for thermocouples
- Temperature effect: 0.003% SPAN/°C
- Working temperature: -40 to +85°C
- Programmable burnout upscale or downscale sensor failure protection
- Dimensions: 72 x 77 x19 mm

TxIsoLoop

The loop isolators **TxIsoLoop-1** (1 channel) and **TxIsoLoop-2** (2 channels) provide signal protection by electrically isolating the input signal from the output.

They avoid the undesirable ground loops by providing single and dual loop galvanic isolation. The 0/4-20 mA input is measured and an identical isolated signal is reproduced at the output. Power is drawn from the 0(4)-20 mA input loop, thus no auxiliary power or an external power supply is needed.

- Electrical isolation: 3000 VAC / 10 seconds, 240 VAC continuously
- Input signal: 0(4) to 20 mA
- Output signal: 0(4) to 20 mA
- Voltage drop input/output: < 3 Vdc
- Response time: 2 ms
- Operating current: > 0,1 mA
- Maximum input current: < 40 mA
- Maximum load : 1450 Ohms
- Total accuracy: 0.2 % @ 0 to 60 °C 0.3 % @ -20 to 75 °C
- Input protection against reversed polarity
- EMC: EN 61326-1
- DIN mounting enclosure ,IP40 protection
- Operating conditions: -20 to 75 °C, 20 to 90 % relative humidity

FTL / FTR / FTR-60

These switching mode electronic power supplies are ideal for powering small industrial devices as signal transmitters and isolators. Internal panel mounting on DIN 35 mm rail is quick and the easy access to the screw terminal connectors make final assembly easy.

- Input voltage: 100~240 Vac/dc ±10%
- Output voltage: 24 Vdc, ±2%
- Output power:
  - 3 W (FTR/FTL)
  - 60 W (FTR-60)
- Isolation voltage between input and output: 600 V
- Enclosure protection: IP40
- Operating temperature: -20 to +50 °C
- Operating relative humidity: 0 to 90% RH
- Mouting mode:
  - DIN rail35 mm (FTR)
  - With screws (FTL)
- Short circuit protection
- Overload protection
- Input overvoltage protection
- On status indication

TEMPERATURE TRANSMITTERS

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 Windows® based **TxConfig** software. 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 from -50°C to 120 °C
- Operating limits:
  - Electronic Module: -20 ~ +65 °C, 0 ~ 95% RH
  - Sensor & Probe: (TEMP-DM): -40 ~ +100 °C
- Loop powered 4-20 mA output
- Optional 0-10 Vdc output
- Accuracy: 0.5 °C @ 25 °C
- Response time: up to 30 seconds in slow air motion
- Power supply: 12 to 30 Vdc (4-20 mA) or 18 to 30 Vdc (0-10 V)
- ABS enclosure with IP65 protection for wall mounting. Polyimide sensor protecting cap
- Probe sheath (TEMP-DM): 304 stainless steel, 150 or 250 mm length
- Dimensions: 70 x 60 x 35 mm

HUMIDITY AND TEMPERATURE TRANSMITTERS

RHT-WM & RHT-DM

The **RHT-WM** and **RHT-DM** transmitter series incorporate high accuracy and great stability relative humidity and temperature sensors even in harsh environments. The microprocessor based circuit enables full configuration of the dual independent range outputs when used with the **TxConfig** PC interface and the Windows® based software. The **RHT-WM** model is dedicated to wall mounted applications and the **RHT-DM** version is suitable for duct and through-the-wall applications.

- Operating limits:
  - Sensor & Probe: -20 to100 °C, 0 to 100% RH
  - Electronic Module: -10 to 65 °C, 0 to 95% RH
- Dual 4-20 mA loop powered outputs, or dual 0-10 Vdc outputs
- Accuracy: ±3% RH from 20 to 80% RH @ 25 °C and ±1 °C for temperature
- Response time: RH: 8 s, Temperature: 30 s
- Power: 12 to 30 Vdc (4-20 mA) or 18 to 30 Vdc (0-10 V)
- ABS enclosure with IP65, for wall mounting Polyimide sensor protecting cap
- RHT-DM sensor sheath: PVC or stainless steel, 150 or 250 mm long
- Dimensions: 70 x 60 x 35 mm

RHT-RS485

This transmitter provides the temperature, relative humidity and dew point data through an 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 for connecting to the PC configuration software.

- Operating limits:
  - Sensor & Probe: -20 to 80 °C, 0 to 100% RH
  - Electronic Module: 0 to +65 °C, 0 to 95%UR
- Power: 10 to 35 Vdc, maximum 10 mA
- RS485 communication, Modbus RTU, 1200 to 115,200 bps, configurable parity
- The Windows® **DigiConfig** configurator software is provided free of charge
- Accuracy: ±1 °C for temperature and ±3% RH from 20 to 80% RH @ 25 °C
- Response time: 8 s for humidity 30 s for temperature
- ABS enclosure with IP65, for wall mounting Polyimide sensor protecting cap
- RHT-DM sensor sheath: PVC or stainless steel, 150 or 250 mm long
- Dimensions: 70 x 60 x 35 mm

SWITCHING AND POWER CONTROL

NIO - Relay Interface

The **NIO** series of DIN rail relays are interfaces used extensively in switching applications in industrial automation. They are built with high quality components for beyond normal performance and comply with the 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
- **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
  - Maximum instantaneous current: 10 A
  - Working voltage: 250 Vac/dc
  - Maximum working voltage: 400 Vac/dc
  - **OPTIONS:**
- Identification and interconnecting accessories

Solid State Relays

Solid State Relays are used for switching resistive and inductive loads and outperform the conventional mechanical relays with great advantages.
The life cycle with millions of operations, the high switching speed without mechanical or electrical noise, no dangerous sparks or wearing, and the low power needed for switching make the solid state relays a perfect choice when high control accuracy is fundamental.

- Currents from 10, 25, 40, 60, 80, 100, 150, 200 and 300 A
- Maximum voltage: 250 Vac or 480 Vac
- Status LED
- Internal snubber for dv/dt protection
- Switching at zero crossing
- Switching voltage: 4 to 32 Vdc
- High switching speed
- Optical isolation between gate and power
- High noise reduction
- Requires minimum power for switching
- Heat sink without voltage
- Does not generate EMI or RFI

Solid State Module

The **Solid State Modules SSR** are all-in-one solutions for electrical load switching.
They include heatsink, fan, over-temperature protection (in some models) and connector block.
These devices are used for switching single, bi or triphase resistive and inductive loads.
They can be triggered directly by digital controllers with Pulsed Width Modulation action thus performing very accurate results and significantly reducing power consumption.

- Currents from 40 to 300 Ac
- Maximum voltage: 480 Vac
- Switching 1, 2 or 3 phases
- Over-temperature protection
- Heavy duty screw connection for load cables
- Heat sink and fan incorporated
- Status LED
- Internal snubber for dv/dt protection
- Zero cross switching
- Switching voltage: 4 to 32 Vdc
- Optical isolation between trigger and power
- Heat sink without voltage (isolated)
- Very low EMI or RFI

LogBox-AA & LogBox-DA

These self-contained loggers accept several analog 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 through the use of **LogChart II**, a Windows® software which plots and prints graphs, lists loggins and exports data to spreadsheets. Special mathematical functions can be programmed. A PDA using Palm/OS® can be used for configuration and data download through IrDA interface.

- **LogBox-AA:** dual analog universal inputs for thermocouples (J,K,T,E,N,R,S,B), Pt100, 0-50 mV 4-20 mA or 0-10 Vdc
- 14 bit A/D resolution
- **LogBox-DA**: 1 analog input for 0-20mA, 4-20mA, 0-50mV or 0-10Vdc. 1digital input (voltage or contact) for interval pulse counting
- Capacity: 32768 measurements.
- Recording rate: from 1s to 18 days/reading.
- Powered by internal 3.6 V lithium battery.
- Battery life: 2 years typical.
- Operating temperature -40°C to 70°C.
- IP65 or IP67 enclosure, 70 x 60 x 36 mm.
- Free LogChart-II Configurator

LogBox-RHT

LogBox-RHT and **LogBox-RHT-LCD** are self-contained loggers with built-in humidity and temperature sensors.
They can be easily programmed and configured with the **IR-Link3** infrared interface connected to a USB port in Windows® environment or with PalmOS via IrDA.
LogChart II software allows for logger configuration, recorded data retrieval, plotting, historical analysis and exports data to spreadsheets.
In model **LogBox-RHT-LCD** the measured values are shown on the LCD display which also states maximum and minimum values occurred while logging.

- Built-in industrial grade temperature and humidity sensors
- Memory capacity: 32664 samples
- Recording interval: 1s to 18 days
- Power: internal lithium battery 3.6 V,
- Typical battery life: 1 year
- Operating temperature: -40 to 70 °C
- IP65 or IP67 enclosure, 70 x 60 x 35 mm
- Free LogChart-II Configurator

TagTemp

TagTemp is a compact water proof temperature data logger housed in an IP67 enclosure. Programming is easy with the handy **IR-Link3** infrared interface connected to a USB port under Windows® software or with a Palm PDA IrDA interface under PalmOS. **LogChart II** software allows for logger configuration, recorded data retrieval, plotting, historical analysis and exports data to spreadsheets. Its high resolution 14 bit ADC and 16k logging memory capacity make it the ideal product for accurate temperature monitoring for long periods or fast sampling.

- Enclosure: IP67, flame retardant, 47x30x12 mm
- Temperature measurement accuracy: ±0.5 ºC
- Reading resolution: 14 bits (16,384 levels)
- Memory capacity: 16,000 loggings
- Reading intervals: from 1 second to 18 hours
- Internal button for START and STOP logging
- Software for Windows® and PalmOS
- Loggings can be programmed to stop: at full memory; at some specified date and hour, number of samples or never (circular memory)
- Infrared comm.: up to 50 cm, 30° angle
- Operating temperature: -20 °C to +70 °C
- Replaceable lithium battery (type 2032), with average life time of 1 year

myPCLab

RTD, V, mA
Thermocouples
Digital input

myPCLab is a very compact DAQ tool which connects to a PC via a USB port and monitors two universal input analog variables along with one digital input.
From hobbyists to scientists, from simple technical tasks to complex engineering activities, **my**PCLab can be an invaluable tool for on-line monitoring and data logging in schools, laboratory research, machine data recording and industrial understanding.
It comes with an intuitive and easy-to-use Windows® software which plots and records data, shows gauges, bargraphs and digital readouts.

- Dual analog inputs for t/c, Pt100, mV, mA, V
- A/D resolution: 11 to 15 bits
- Sampling: selectable from 8 to 128/second, depending on sampling rate
- Accuracy: 0.25% FS ±1°C for thermocouples or 0.2% FS for other signals
- Digital input: voltage level or dry contact
- USB V1.1. & V2.0 Virtual Serial Port driver, Modbus RTU protocol
- Windows® software provides communication to multiple **my**PCLab devices

myPCProbe

myPCProbe is a temperature or temperature and humidity sensor which connects to a PC via a USB port. It is an invaluable tool for on-line monitoring and data logging in school, laboratory research, machine data recording and industrial understanding.
myPCProbe comes with a Windows® software which plots and records data, shows gauges, bargraphs and digital readouts.

- **my**PCProbe-RHT: temperature and humidity measurements from -20°C to +100°C and 0 to 100 %RH (also available as dew point). Accuracy: up to ±3 %RH and ±0.5 °C
- **my**PCProbe-TEMP: Pt100 RTD and K thermocouple temperature measurement. Others types under request
- Accuracy: ±1.5 °C for Pt100, ±4.5 °C for thermocouple K, ±1.5 °C for room temperture
- Sampling rate: 8 to 128 samples per second, depending on the A/D resolution
- A/D resolution: programmable from 15 to 11 bits, depending on the sampling rate
- USB Interface (V1.1 & V2.0) Plug and Play
- Communication: ASCII & Modbus RTU
- Multipoint custom calibration possibility for increased accuracy with special sensors

WebServer
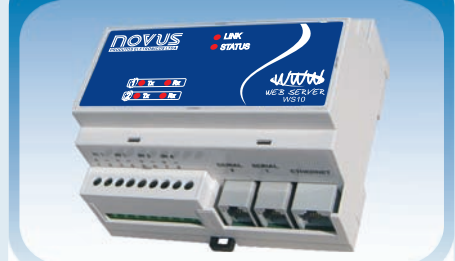
The **WS10** is targeted at the acquisition and transmission of data. It is capable of integrating instruments and sensors to the Internet and Ethernet. The **WS10** comprises an Ethernet interface, the TCP/IP protocol, 2 serial communication ports, 2 relay outputs and 4 analog or digital inputs.
As a Modbus RTU Master, **WS10** can set and get information from external devices, and as a ModbusTCP Server or Gateway, can be easily integrated to SCADA systems.
WS10 can serve dynamic HTML pages, send e-mail, monitor alarm conditions and communicate with SCADA software.

- Flash memory for HTML and Data Logging
- Comm ports: 1 RS232, 1 RS485, Ethernet 10BaseT. Optional: Internal V32 Modem
- Protocols: TCP/IP, PPP, HTTP, FTP, SMTP, DHCP, DNS, Modbus (TCP and RTU)
- Inputs: 4 digital or analog (0-5 V or 0-20 mA), 10 bits resolution
- Outputs: 2 Relays. SPST 3 A/250 V
- Power: 100~240 Vac/dc±10% or 24Vac/dc
- Consumption: 4 VA
- Enclosure: 105 x 90 x 60 mm, DIN rail mount

FieldLogger

This microprocessor based data acquisition and recorder can handle any analog input and will operate as an RTU linked to a PC for on line recording and supervision or as a stand alone data logger with real time clock and data memory.

DIN rail compatible, it has 8 universal channels that will accept different input sensors at the same time and can be easily expanded.

- 8 universal analog channels per module
- Accepts t/c J, K, T, E, N, R, S, B; 4-20 mA, Pt100, 0-50 mV without hardware change
- Input resolution: 13,000 levels
- Accuracy: 0.25% FS ±1°C for t/c or 0.2% FS for other signals
- Acquisition rate: from 0.5 s to 1 day
- Power: 100~240 Vac/dc±10% or 24 Vdc/ac
- Alarms: 2 relays 3 A for the 8 channels
- Digital input for remote START/STOP
- RS-485, ModbusRTU, 19200 bps
- 35 mm DIN rail mounting
- ABS enclosure: 105 x 90 x 60 mm
  OPTIONS:
- Internal memory (optional) for 128,000 recordings and real time clock
- Power: 24 Vdc/ac

FieldChart

FieldChart is a Windows® 98, 2000, XP and Vista compatible software which performs the communication, data treatment and plotting for the **FieldLogger** Virtual Recorder and all **NOVUS** controllers with RS485.

This easy-to-use intuitive system does not require previous user training. The practical configurator module performs the setup of the **FieldLogger** parameters and allows the user to check general status.

The main module collects data to the PC, displays the data in both digital and graphic formats in batches or in real time and provides trend and historical views.

It can zoom in and out, superimpose or link graphs in one screen, print graphs or lists and export to spreadsheets or word processors.

FieldChart supports up to 8 **FieldLogger** units and the **NOVUS** family of controllers and DPMs simultaneously when connected on line, thus plotting up to 64 analog channels.

HI and LO alarms can be set for each channel and their values will be displayed on the screen whenever an alarm becomes active.

SuperView

Superview is a Supervisory Control and Data Acquisition (SCADA) software for the supervision of Modbus RTU networked devices. Being fully configurable, it allows the user to create his own supervision forms and manage applications in a scalable and configurable way. The user can create windows with images of the process and freely insert the desired supervision objects. It comprises functions such as historic, event logs, alarm monitoring and e-mail sending. A client/server module provides TCP/IP distributed supervision.

- User friendly development interface
- Fully documented: Help file and PDF manual
- Dual-level user authentication controller
- Logged data export to multiple formats: XLS, PDF, RTF, XML, HTML, DBF, TXT, CSV
- Communication protocol: Master Modbus RTU
- Read and write operations to Modbus slaves
- Supports Modbus commands: 1, 2, 3, 4, 5 and 6
- Comm interface: Serial port 1200 to 115200 bps
- Object types in a supervision form: Image, Label, Text Box, Button, Chart, Level Bar, Alarm Table, and Historic List
- Alarms with visual, audible and e-mail notification can be assigned individually to each monitored variable
- Easy setup of NOVUS devices in the network.
- Download of NOVUS Field Logger data

FieldLogger-BD

Designed for automation and recording of biodigestors biogas burning this device is capable of efficiently recording all necessary data for calculating the reduction of greenhouse gases (GHG)emition. **FieldLogger-BD** is the ideal tool for efectively deploying clean development projects in a compact and reliable package with full and automatic control of the flare and electrical energy generation with digital recording of the operation.

- Auxiliary power supply with 24 Vdc ouput to power remote sensors and transmitters
- Memory capacity for 1 million samples
- LCD display for system and configuration status
- Data retrieval and configuration through a USB pendrive
- Power: 100~240 Vac/dc ±10%
- Operating temperature: 5 to 50 °C
- Nine inputs with pre-configured sensor types for thermocouples, thermistor current, voltage or digital signals
- Six 3A SPST output relays
- Dimensions: 105 x 90 x 60 mm

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 Profibus network over the Modbus network.

- Profibus: operates from 9600 bps to 12 Mbps
- Modbus: operates from 1200 bps to 115200 bps
- Terminating and polarizing resistors included (jumper activated)
- Electrical insulation between Profibus ouput and the device: 1000 Vac
- Power: 10 to 35 Vdc
- Frontal LEDs for status and comm indication
- Operating environment: 0 to 50 °C, 5 to 90% relative humidity, non-condensing
- Assembly: DIN rail 35 mm
- Includes Windows® software for device configuration

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.

- Power: 10-35 Vdc
- Consumption: 50 mA
- RS485 (2-wire) Modbus RTU communication
- Windows® software configurator
- Dimensions: 71 x 77 x 19 mm
- **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/cs types J, K, T, E, N, R, S, B, Pt100 RTD, 0-20 mV, 0-50, mV, 0-5 V, 0-10V; 0-20 mA, 4-20 mA
- Sensor break detection for t/c and RTD
- Analog input resolution: 17 bits
- User defined linearization option for the analog inputs
- Accuracy (@ 25 °C): ±0.25% FS ±1°C for thermocouples, ±0.15% FS for Pt100, mV, V and mA
- Isolation: 1000 Vac/1 min from digital or analog input to power or comm port

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 is installed as a native COM port which is compatible with any existing serial communication application. Muliple modules can be installed when 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 in the RS485 industrial bus.

- USB V1.1 Plug and Play interface
- Virtual COM port driver for Windows® 98/ME/2000/XP/CE/Vista, 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
- Power: from the USB port
- Isolation: 1500 Vdc from USB interface and the RS485/RS422 interface
- RS485/422 bus protection: ±60 Vdc, 15 kV ESD
- Dimension: 70 x 60 x 18 mm

TEMPERATURE SENSORS
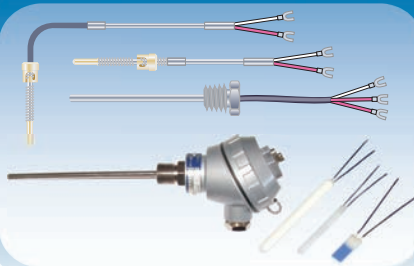
- Bare thermocouples
- Ceramic tube thermocouples
- SS sheathed mineral thermocouples
- Thermocouple probes for plastic processing machinery
- SS sheathed RTDs
- Mineral insulation RTDs
- Pt100 RTDs for electric motors and generator stator slots
- Flexible probes
- Air and gases temperature probes
- Fast response surface temperature probes

Pt100 manufactured with thin film technology on a flat ceramic substrate or wire wound on cylindrical ceramic or with glass body, they provide an excellent means for high accuracy temperature detection.

- Thin film: -50 °C to 600 °C, class A and B
- Sizes: 1.6 x 3.2 mm and 2 x 5 mm
- Wire wound: -200 °C to 650 °C, class A & B
- Sizes: 0.7 x 5 mm to 2.8 x 30 mm

SENSOR HEADS

Thermocouple heads are widely used in temperature sensing to connect sensors to extension or compensating cables.
With built-in ceramic connection block or with temperature transmitter, they ease cabling and protect the sensor element and cables from oxidation and wearing.

These sensor heads are offered in die cast aluminium body with epoxy coating in DIN sizes A and B. Optionally offered in polyamide, these thermocouple heads and terminal blocks are good for peaks of up to 220 °C (438 °F).

  ACCESSORIES:
- Connection blocks
- Compensating cables
- Extension cables

PROXIMITY SENSORS

Inductive

Inductive Proximity Sensors are electronic sensors which generates an electromagnetic field to sense metal objects passing close to its face. Typical detection distance are an inch or two.
When compared to electromechanical detectors they provide longer life, higher switching speed and reliability. They are widely used in packaging applications, conveyors, mechatronics, etc.

- Wide range of sensing distances
- Multiple options of output stages:
  - NPN/PNP dual outputs (NO + NC)
  - NPN and PNP single output (NO or NC)
  - NO or NC contact
  - NAMUR
- Maximum load current: 200 mA
- Switching speed up to 1000 Hz
- Power supply options:
  10 to 30 Vdc / 12 to 30 Vdc / 24 to 230 Vac
- Tubular body with 6, 8, 12, 18 or 30 mm
- Flush and non-flush versions
- Built-in cable or removable M8 or M12 connector

Capacitive

Capacitive Proximity Sensors will sense metal as well as nonmetallic materials such as paper, glass, liquids, and cloth. In level sensing applications they can "look through" non-metallic walls or containers to sense level inside. The sensor produces an electrostatic field and detect capacitance changes when an object enters or leaves its field.

- Wide range of sensing distances
- Detects solid, liquid and powder materials
- Multiple options of output stages:
  - NPN/PNP dual outputs (NO + NC)
  - NPN and PNP single output (NO or NC)
  - NO or NC contact
  - NAMUR
- Maximum load current: 200 mA
- Switching speed up to 1000 Hz
- Power supply options:
  10 to 30 Vdc / 12 to 30 Vdc / 24 to 230 Vac
- Built-in cable or removable M8 or M12 connector
- Can detect plastics, glass, wood, metals, etc

Optical

Optical Proximity Sensors use light beams to detect the presence of objects. An invisible infra red light beam is reflected or interrupted by the detected object. This light change is used to trigger sensor output. Transmitter and receiver may be in the same or in a separate enclosure, depending if it is a thru-beam type or retro reflective type

- Non contact object detection
- High switching speed
- High immunity to vibration and harsh environments
- Wide range of sensing distances
- Multiple options of output stages:
  - NPN/PNP dual outputs (NO + NC)
  - NPN and PNP single output (NO or NC)
  - NO or NC contact
  - NAMUR
- Maximum load current: 200 mA
- Switching speed up to 1000 Hz
- Power supply options:
  10 to 30 Vdc / 12 to 30 Vdc / 24 to 230 Vac
- Built-in cable or removable M8 or M12 connector

NP-430D

The **NP-430A** series of pressure transmitters have been developed for general industrial applications including refrigeration technology.

They can be used with most refrigerant gases and liquids but is NOT compatible with ammonia (Nh3).

- Pressure range: 0 to 120 bar (several combinations)
- Signal output: two-wire 4-20 mA
- Excitation voltage (Vexc): 12 to 28 Vdc
- Maximum load (RL): RLmax = (Vdc - 12 V) / 20 mA
- Accuracy: < 1 % o full scale (FS)
- Over load: 150% FS
- Rupture pressure: 300% FS
- Enclosure protection: IP65
- Weight: 120 g
- Ambient temperature : -40 to 75 °C
- Process fluid temperature: -40 to 100 °C
- Dinamic response: < 10 ms (0~99 %)
- Process connection: outside thread ¼ - 18 NPT
- Electrical connection: DIN 175301-803
- Wetted parts: 304 stainless steel, ceramic diaphragm (Al2O3 - 96%)
- Sealing: Buna-N nitrile (NBR) o'ring

510 & 511

The **510** and **511** series of pressure transmitters were designed for high volume and low cost OEM industrial and commercial applications.

The **510** has a unique stainless steel diaphragm for all media compatibility suited for refrigeration and industrial cryogenics and compressors systems while the **511** features a high stability ceramic sensor which withstands a broad temperature range being suited for industrial compressors and steam measurements.

- Range: -1 to 160 bar in several steps (for 510); -1 to 600 bar (for 511)
- Working temperature: -40 to 85 °C(510), -25 to 85 °C (for 511)
- Media contact material: SS 1.4305 (510); ceramic and 1.4305 stainless steel (511)
- Process thread:1/4" - 18 NPT
- Rupture pressure:
- 510: 6 times FS limited to 900 bar
- 511: 2.5 times FS limited to 900 bar (patented PPS media stopper avoids fluid leakage)
- Accuracy: < ±0.5(510)/±0.3% (511) FS including hysteresis, linearity & repeatability
- Quickon electrical connector, IP 67 protection
- Output: two-wire 4-20 mA
- Power supply: 8-33 Vdc
- Weight: 98 g
- Dimensions: Ø 23 x 82 mm

691

Designed for high performance applications, the **691** series of pressure transmitters features great accuracy at moderate cost in the range of 600 bar relative pressure or 16 bar absolute.

- Maximum range:
  -1 to 600 bar (relative pressure)
  0 to 15 bar (absolute pressure)
- Working temperature: -15 to 80 °C
- Media material: ceramic and 1.4305 stainless steel (AISI 303)
- Accuracy: 0.3% FS including hysteresis, linearity and repeatability
- Pressure connection: 1/4"-18 NPT or external ½"-14 NPT
- Protection: 2 X measuring range
- Rupture pressure: 3 X measure range
- Electrical connector: DIN 43650-A, IP65 or cable gland with 1.5m cable
- Output: two-wire 4-20 mA. Other under request
- Electromagnetic compatibility: CE conformity to EC directive 89/336
- Power supply: 11 to 33 Vdc
- Weight: 245 g
- Dimensions: Ø 36 x 64 mm

692

The **692** series of differential pressure transmitters use unique ceramic technology to accurately measure from 0 to 0.1 bar up to 0 to 25 bar differential and yet withstanding high one-side overloads .

- Ranges: 0 to 0.1 bar and up to 0 to 2.5 bar
- Working temperature: -15 to 80 °C
- Media material: ceramic and 1.4305 stainless steel (AISI 303)
- Accuracy: 0.5% FS including hysteresis, linearity and repeatability
- Pressure connection: 1/8" NPT thread or push-on spigot
- System pressure: 25 bar for 10 bar range unit and 50 for 25 bar range unit
- Rupture pressure: 1.5X system pressure
- Electrical connector: DIN 43650-A, IP65 or cable gland with 1.5 m cable
- Output: two-wire 4-20 mA. Other signals under request
- Electromagnetic compatibility: CE conformity to EC directive 89/336
- Power supply: 11 to 33 Vdc
- Weight: 430 g
- Dimensions: Ø 45 x 89 mm

694

The **694** series of differential transmitters are ideal for high accuracy monitoring and controlling low air flow in air-conditioning systems, in clean rooms applications, fine pressures in laboratories and in critical filters of non-corrosive gases.

- Possible ranges: 0 to 1 mbar; 0 to 3; 0-5; 0-10; 0-16; 0-25 and 0 to 50 mbar
- Working temperature: 0 to 70 °C
- Silicone diaphragm LSR bi-component
- Rupture pressure: 2 times FS at ambient temperature, 1.5 times FS at 70°C
- Accuracy: ±1% at 0-1mbar (worst case)
- Pressure connections: 2 Ø 6.2 mm pipes
- Electrical connections: 6.3 mm lugs and PG11 cable gland
- Output: two-wire 4-20 mA or 0-10 Vdc
- Response time: less than 10 ms
- Optional: square root extraction
- Power supply: 11 to 33 Vdc
- Electrical magnetic compatibility conforms to CE standards
- Enclosure conforms to UL94
- Weight: 90 g
- Dimensions: 92 x 75 x 49 mm

604

Used as DP flow switch in ventilation ducts for the control of filters and fans, and in primary and secondary control systems for the control of dampers.

Precise setpoint adjustment is done through individual scale and by turning knob.

- Ranges: 0.2 to 3 mbar; 0.5 to 5mbar; 1-10 mbar; 0 to 50 mbar and 10 to 50 mbar
- Electrical contact: 5 A @ 250 Vac SPDT; 2 A @ 30 Vdc
- Service life: 10^6 switching cycles
- Working temperature: -30° to 70 °C
- Silicone LSR diaphragm
- Lowest turn-on pressure: 0.2 mbar
- Hysteresis: 0.1 mbar
- Repeatability: ±0.025 mbar (0.2-3 mbar); ±0.05 (0.5-20 mbar); ±0,15 (10-50 mbar)
- Overpressure protection: 75 mbar
- Pressure connection: 2 pipes Ø 6.2 mm
- Electrical connection: 6.3 mm lugs and PG11 gland
- Fiber glass reinforced plastic enclosure
- Protection: IP54
- Weight: 144 g
- Dimensions: 103 x 88 x 55 mm

NOVUS
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