

**INTRODUCTION**

The **N1500** series of Universal Process Indicators are high performance instruments used for monitoring analog signals in the vast majority of industrial and laboratory processes. Configuration from the front panel is fast and easy, accepting thermocouples, Pt100 and 4-20mA or voltage signals. Available in two models: **N1500** with universal input, and **N1500LC**, with load cell input and excitation. Both models come with key panel programmable range, selectable decimal point, universal switching power supply, 24Vdc output for field transmitters excitation (10Vdc output in **N1500LC**), ultra bright six digit LED display and 2 relay alarms with 6 programmable functions and temporization. Available options are 4 to 20 mA output for retransmission of measured variable to a recorder or PLC, two extra alarm relays, and RS485 digital comm interface with MODBUS protocol.



**FEATURES & SPECIFICATIONS**

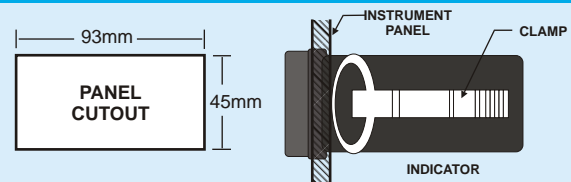
- Easily configurable through the front keypad.
- Configurable Input:
  - **N1500**: J, K, T, E, N, R, S and B type thermocouples, Pt100, 4-20 mA, 0-50 mV, 0-10 Vdc and 0-5 Vdc;
  - **N1500LC**: 0-20mV, -20 to 20mV, 0-50mV, 0-20 mA and 4-20 mA.
- 62000 counts display resolution. Keyboard programmable range from -31000 to +31000. Configurable decimal point indication
- Adjustable digital filter.
- Accuracy:
  - J, K, T, E, B and N thermocouples: 0.25% of max. span  $\pm 1^{\circ}\text{C}$ .
  - R, S and B thermocouples: 0.25% of max. span  $\pm 3^{\circ}\text{C}$ .
  - Pt100: 0.20% of maximum span.
  - Linear voltage and current: 0.15% of maximum span.
- Input sampling rate: 15 samples/sec for V and mA input, 7.5 samples/sec for mV and 5 samples/sec for other signals.
- Input Resistance:
  - 0-50 mV, Pt100 and Thermocouples: 10 M  $\Omega$
  - 0-5 V, 0-10 V > 1 M  $\Omega$
  - 4-20 mA: 15  $\Omega$  +2 Vdc.
- Pt100 measurement: 3 wire circuit. Bias current 750  $\mu\text{A}$ .
- 4-20 mA input signals can be linearized according to thermocouples curves.
- Programmable custom linearization, in up to 30 linear segments.
- Key panel protection to avoid tampering.
- Alarms: Two 3A/250 Vac SPDT relays in the standard version. Two optional SPST relays. All alarms allow temporization and start-up blocking.
- Alarm functions: High, Low, Differential high, Differential low, Differential, sensor break.
- High brightness 13 mm, 6- digit display.
- Display hold and minimum/maximum detection functions.
- Tare and zero from the keypad or digital input (**N1500 LC**).
- 4-20/0-20mA output for process variable retransmission (optional).
- RS485 Modbus RTU communication interface (optional).
- Power supply: 85 to 264 Vac/Vdc, 50/60 Hz, 6 VA. Optional: 24Vac/Vdc.
- Circuitry can be removed from housing without disconnecting wires.
- Power supply output: 24 Vdc  $\pm 10\%$ , 35 mA (**N1500**) or 10 Vdc  $\pm 0.5\%$ , 35 mA (**N1500LC**).
- Environment conditions: 0 to 55°C, 20 to 95% RH, non-condensing.
- Front panel: IP65, Polycarbonate UL94 V-2.
- Back panel: IP30, ABS+PC UL94 V-0.
- Dimensions: 96 x 48 x 92 mm. 93 x 45 mm panel cutout.
- Approximate weight: 240g (standard) to 265g (complete).

**SENSOR TYPES AND RANGES**

| TYPE            | CHARACTERISTICS  |
|-----------------|--|
| J               | range: -130 to 940 °C (-202 to 1724 °F)                    |
| K               | range: -200 to 1370 °C (-328 to 2498 °F)                   |
| T               | range: -200 to 400 °C (-328 to 752 °F)                     |
| E               | range: -100 to 720 °C (-148 to 1328 °F)                    |
| N               | range: -200 to 1300 °C (-328 to 2372 °F)                   |
| R               | range: 0 to 1760 °C (32 to 3200 °F)                        |
| S               | range: 0 to 1760 °C (32 to 3200 °F)                        |
| B               | range: 500 to 1800 °C (932 to 3272 °F)                     |
| Pt100           | range: -200.0 to 850.0 °C (-328.0 to 1562.0 °F)            |
| 0 - 50 mV       | Linear. Programmable range: -31000 a 31000                 |
| 0 - 5 V         | Linear. Programmable range: -31000 a 31000                 |
| 0 - 10 V        | Linear. Programmable range: -31000 a 31000                 |
| 4 - 20 mA       | Linearized as J. Programmable range: -130 a 940 °C         |
| 4 - 20 mA       | Linearized as K. Programmable range: -200 a 1370 °C        |
| 4 - 20 mA       | Linearized as T. Programmable range: -200 a 400 °C         |
| 4 - 20 mA       | Linearized as E. Programmable range: -100 a 720 °C         |
| 4 - 20 mA       | Linearized as N. Programmable range: -200 a 1300 °C        |
| 4 - 20 mA       | Linearized as R. Programmable range: 0 a 1760 °C           |
| 4 - 20 mA       | Linearized as S. Programmable range: 0 a 1760 °C           |
| 4 - 20 mA       | Linearized as B. Programmable range: 500 a 1800 °C         |
| 4 - 20 mA       | Linearized as Pt100. Programmable range: -200.0 a 850.0 °C |
| 0 - 20 mV       | Linear. Programmable range: -31000 a 31000                 |
| 4 - 20 mA       | Linear. Programmable range: -31000 a 31000                 |
| <b>N1500LC:</b> |  |
| 0 - 20 mV       | Linear. Programmable range: -31000 a 31000                 |
| -20 - 20 mV     | Linear. Programmable range: -31000 a 31000                 |
| 0 - 50 mV       | Linear. Programmable range: -31000 a 31000                 |
| 0 - 20 mA       | Linear. Programmable range: -31000 a 31000                 |
| 4 - 20 mA       | Linear. Programmable range: -31000 a 31000                 |

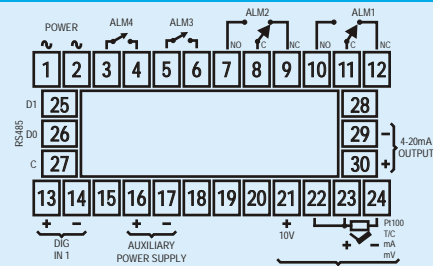
Note: a custom 30-segment linearization profile can be programmed for the linear input types.

**PANEL ASSEMBLY**



Panel Mounting the Indicator

**ELECTRICAL CONNECTIONS**



**HOW TO SPECIFY**

The standard unit includes 2 SPDT relays, 1 digital input and 24 Vdc (**N1500**) or 10 Vdc (**N1500LC**) supply output..

**Option 1:** 2 SPST alarm relays (ALM3 and ALM4). **Option 2:** 4-20 mA / 0-20 mA analog output. **Option 3:** RS485 Modbus communication interface.

**Option 4:** 24 Vac/Vdc power supply input.