

- **Great readability**
- **Display:** 100 000 points
- **Fully configurable**
- **Universal** > 10 input types
- **2 slots in option:**
analog output, relay, RS485 link



The INL144 is a numeric mainly designed for application requiring high precision and a wide range of input type.

DESCRIPTION:

Measure:

- thermocouples linearized (type: B, E, J, K, R, S, T), cold junction compensation (internal or external),
- Pt100 2, 3 or 4 wires, resistance line length compensation,
- mA, sensor supply, mV, V, resistance variation,
- strain gauge, potentiometer, frequency.

Calculation functions:

Indicator mode:

- measure range,
- square root extraction,
- special linearization on 14 pts.

Calculator mode:

- 2 not isolated mV voltage inputs,
- 1 measure range on each inputs,
- 2 coefficients $Ax+B$ for each inputs,
- 1 operation between this 2 inputs : +, -, *, /,
- 1 range for the analog output.

Output:

The device have 2 internal slot able to have:

- an analog output. configurable isolated or not :
current or voltage output, output range, security value (sensor breaking), response time, limitation.
- a configurable relay:
breaking sensor detection, threshold detection (alarm), sense, threshold, hysteresis, delays, security.
- a RS485 Modbus RTU link (option):
address, baud from 600 to 38400 bds, parity, data format (32bits float IEEE format, 16bits integer).
- a RS232 link (option).

Display:

- 100 000pts resolution, 5 digits LED, 25 mm height,
- display filter configurable,
- automatic or manual decimal point position,
- sensor breaking indication, alarms indications.

Environment:

- pluggable terminal blocks, wiring on screw terminal blocks,
- DIN panel case: 96 x 72 x 144mm ,
- protection rating IP20 (kit IP65, available separately),
- galvanic isolation input / output / power supply,

Security:

The device was designed according to need of industrial sectors:

- saving of setting parameters on EEPROM, data retention >10 years,
- great immunity, programmable measure input filter,
- Watch dog to monitoring the device operating,
- neutralization of ambience effects with the auto-zero function of acquisition circuit.

CONFIGURATION:

Setting of alarms threshold with front face buttons.

Locking of threshold setting possible by RS232.

The device can be configured by RS232 with any system who emulate a terminal,

Attention : the RS232 is not isolated with the input measure.

With the terminal communication, the user can:

- read the actual measure, read the active configuration,
- setting the device, offset the measure.

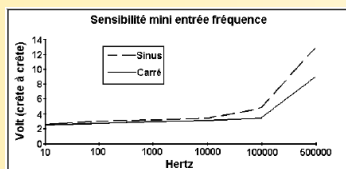
The configuration mode allows le choice of:

- type and value of input signals,
- display range and decimal point,
- use of relay,
- use of output ...

Version and order code:

INL144 : standard version

TYPE	INPUT RANGE	ACCURACY
Voltage low level on 8 scales impedance	from +/- 8 mV to +/- 1024 mV 22 Mohms	+/- 10 μ V +/- 100 μ V
voltage high voltage on 8 scales impedance	from +/- 1.6 V to +/- 205 V 1 Mohms	+/- 1 mV +/- 100 mV
Current on 8 scales impedance	from +/- 0.8 mA to +/- 102 mA 10 ohms	+/- 1 μ A +/- 100 μ A
Resistance 2, 3 wires I = 0,4 mA	from 0 / 160 ohms to 0 / 320 ohms	+/- 0.1 ohms +/- 0.1 ohms
Resistance 4 wires I = 0,4 mA	from 0 / 160 ohms to 0 / 320 ohms	+/- 0.03 ohms +/- 0.03 ohms
Frequency on 2 scales measure range impedance	1 / 35 000 Hz 35 kHz / 500 kHz 3 à 50 V~ pp. 100 kohms	+/- 0.01 % +/- 0.028 % of measure value



PT100 (2 ou 3 -200 / 600 +/- 0.3 °C		wires) °C
PT100 (4 wires)	-200 / 600 °C	+/- 0.1 °C
Tc B	200 / 1800 °C	+/- 2 °C
Tc E	-250 / 1000 °C	+/- 0.25 °C
Tc J	-200 / 600 °C	+/- 0.4 °C
Tc K	-200 / 1350 °C	+/- 0.5 °C
Tc R	0 / 1750 °C	+/- 1.5 °C
Tc S	0 / 1600 °C	+/- 1.5 °C
Tc T	-250 / 400 °C	+/- 0.4 °C
T° compensation	-10 / +60 °C	+/- 0.2 °C
other thermocouple on request		

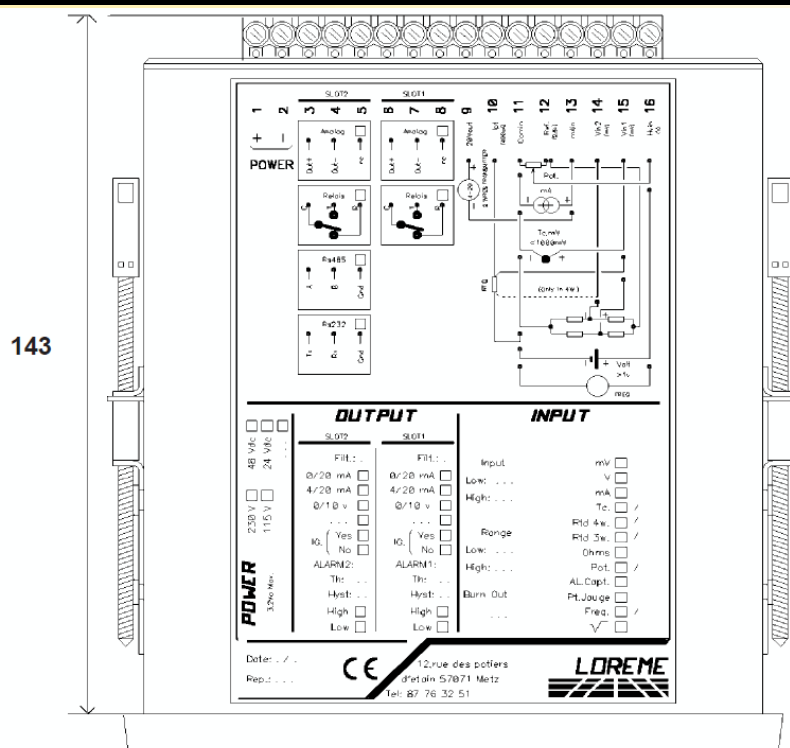
RELAYS

changeover contact 1500 Vac isolation
switching power 5 A / 250 V

AUXILIARY		
Sensor supply	17 V (filtered)	
for strain gauge supply, potentiometer reference		2.5V regulated
OUTPUT		
TYPE	RANGE	ACCURACY
Current	0 ... 4 ... 20 mA	+/- 10 uA
Load	600 Ω (750 Ω without isolation)	
Voltage	0 ... 5 ... 10 V	+/- 5 mV
on external 500 ohms shunt		
response time	200 ms to 60 s (programmable)	
noise	< 30 mV (pp) maxi on 500 Ω load	
resolution	12 bits.	
POWER SUPPLY (on request)		
230 Vac 50-60 Hz +/- 10 %, 3.2 VA Max.		
115 Vac 50-60 Hz +/- 10 %, 3.2 VA Max.		
24 Vac 50-60 Hz +/- 10 %, 3.2 VA Max.		
24 Vcc / 48 Vcc +/- 10 %, 3 W		
(reverse polarity protected)		
ENVIRONMENT		
operating temperature	-10 to +60 °C	
storage temperature	-20 to +85 °C	
thermal influence (% of full scale)	< 0.005 % / °C	
Humidity	85 % (non condensed)	
weight	~ 450 g	
Protection rating	IP20 (kit IP65, provided separately)	
Dielectric strength	1500 Vac (for supply 115/230 V~)	
(Input/Supply/output)	1000 Vac (for supply 24/48 Vdc)	
MTBF	450.000 hours	

Electromagnetic compatibility 2014/30/UE / Low Voltage Directive 2014/35/UE

Immunity standard for industrial environments EN 61000-6-2		Emission standard for industrial environments EN 61000-6-4
EN 61000-4-2 ESD	EN 61000-4-8 AC MF	EN 55011
EN 61000-4-3 RF	EN 61000-4-9 pulse MF	group 1 class A
EN 61000-4-4 EFT	EN 61000-4-11 AC dips	
EN 61000-4-5 CWG	EN 61000-4-12 ring wave	
EN 61000-4-6 RF	EN 61000-4-29 DC dips	

**WIRING AND OUTLINE DIMENSIONS:**

Cutting : 135 x 66 mm