

Isolated loop powered transmitter Temperature and process inputs

CNL45



• Programmable temperature and process input

Volt ,mV, mA, potentiometer
thermocouple, RTD PT100

• 2 wire Loop powered

powered by 4-20mA current loop

• Galvanic isolation

1000V input / output

• Fully configurable

RS232 link

• High thermal stability

50 ppm



The CNL 45 is an isolated numeric transmitter powered by the 4-20 mA current loop, combining the ease of use of loop powered device with the flexibility of programmable converters.

DESCRIPTION:

Temperature input :

- thermocouples with linearization and cold junction compensation
- platinum RTD probe (PT100 2 or 3 wires mounting) with linearization and line length compensation.

Process input :

- voltage mV, V,
- current mA,
- potentiometer from 1 kOhm to 200 kOhms,
- resistance,

Output :

- 2 wires 4-20mA current (loop powered),
- programmable response time from 0.2 to 60 seconds,
- programmable output security value when sensor breaking,
- normal or reverse output,

Additional functions :

- special linearization configurable on 20 points,
- square root extraction,
- adjustment of measure offset.

Front face :

- Jack 3.5 plug for device configuration
- Green led for loop current presence,

Feature:

- DIN rail mounting, IP20
- connection on 2.5 mm² screw-terminals,
- protection against reverse polarity,
- test terminals for controlling current without opening the loop,
- configuration settings saved in FLASH, data retention > 20 years,
- "Watchdog" controls the good program running,
- input / output galvanic isolation,
- conformal coating.

CONFIGURATION:

The CNL45 can be configured via the serial RS232 link (jack 3.5), with any system emulating a terminal.

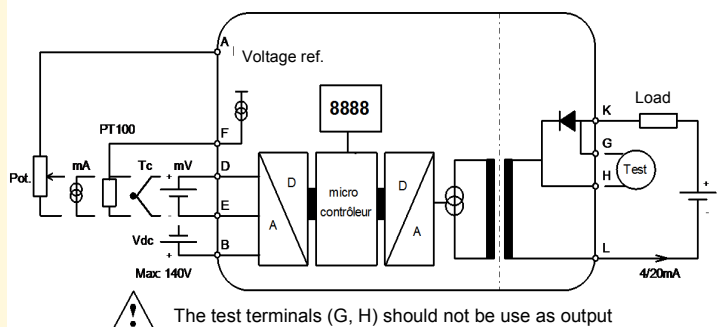
- No specific software required.
- USB - jack 3.5 adapter provide separately.

Via the terminal, the user will can:

- see the measures, shift the measure
- setting the transmitter parameters: input range, output range, filter, ...

Warning the RS232 link is not isolated from measure inputs (check the absence of hazardous voltage on inputs before any configuration).

Synoptic



Version and order code :

CNL45 : Standard version

CNL45L : Low cost version

| INPUT | RANGE | ACCURACY | |
|--|--------------------------|---|-------------------------------|
| | | CNL45 (24bits resolution) | CNL45L (20bits resolution) |
| Low level voltage input impedance | -10/ 140 mV > 2 MOhms | ± 0.01 mV | ± 0.02 mV |
| High level voltage input impedance | -10/ 140V 1 MOhms | ± 10 mV | ± 15 mV |
| Current impedance | 0/ 35 mA 2 Ohms | ± 0.02 mA | ± 0.02 mA |
| Resistance 2, 3 wires measure current | 0 / 384 Ohms 400 µA | ± 0.1 Ohms | ± 0.1 Ohms |
| Potentiometer | 1K to 1MOhms | ± 0.1 % | ± 0.1% |
| Potentiometer reference (according to potentiometer) | | ~ 140 mV for 1 MOhms ~ 55 mV for 1 kOhms | |
| PT100 2, 3 wires | -200 / 800 °C | ± 0.35 °C | ± 0.4 °C |
| Influence of the line | < 0.4 °C / 10 Ohms | | |
| Thermocouples | | | |
| Tc B | 200 / 1800 °C | ± 2 °C | ± 2.2 °C |
| Tc E | -250 / 1000 °C | ± 0.4 °C | ± 0.6 °C |
| Tc J | -200 / 600 °C | ± 0.4 °C | ± 0.6 °C |
| Tc K | -200 / 1350 °C | ± 0.5 °C | ± 0.6 °C |
| Tc R | 0 / 1750 °C | ± 1.5 °C | ± 1.6 °C |
| Tc S | 0 / 1600 °C | ± 1.5 °C | ± 1.6 °C |
| Tc T | -250 / 400 °C | ± 0.5 °C | ± 0.5 °C |
| Other couples on request | | | |
| T° compensation input impedance | -10 / 60 °C > 2 MOhms | | ± 0.3 °C |

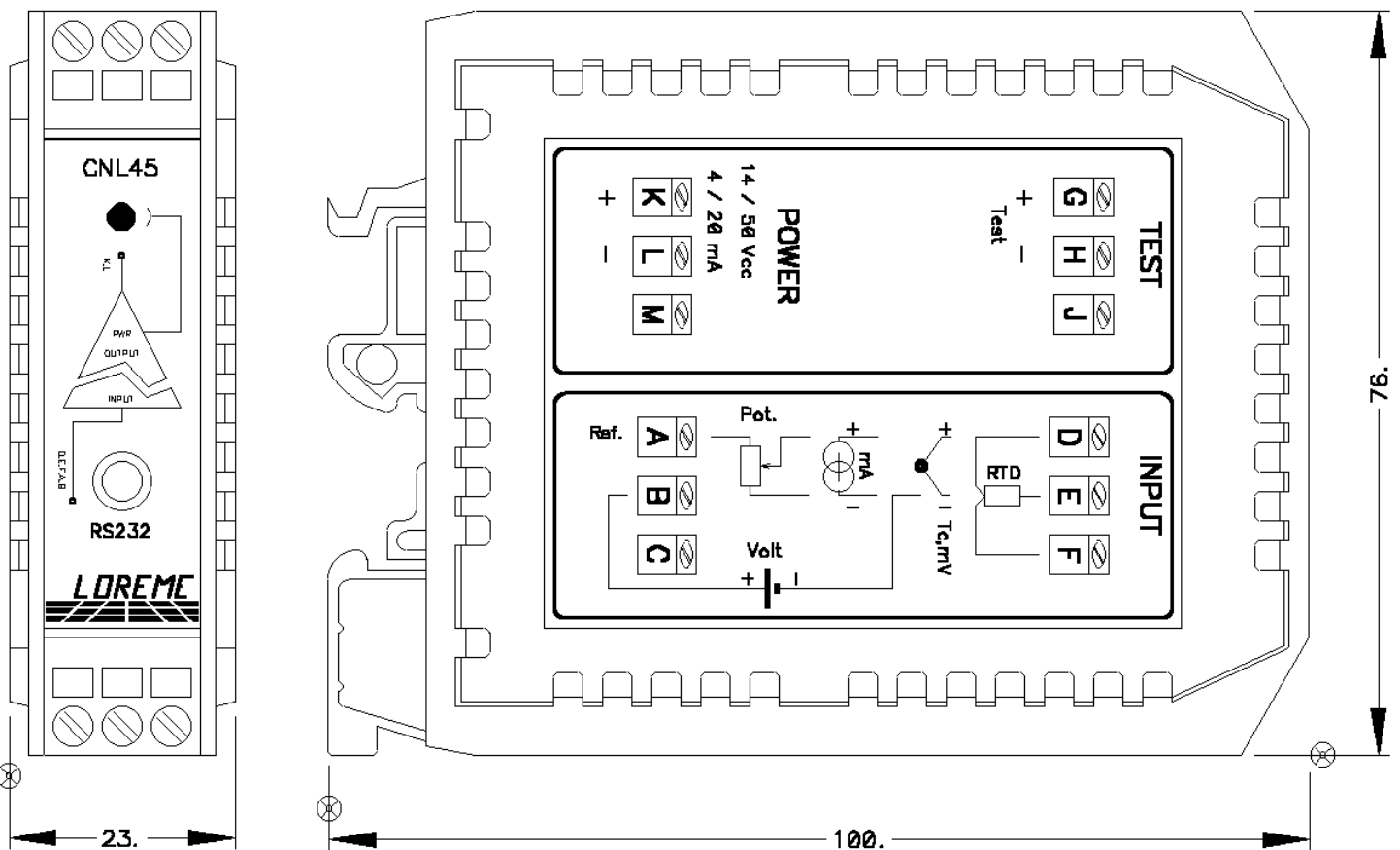
| OUTPUT | RANGE | ACCURACY |
|------------------------|--------------------------------------|-------------|
| Current | 4 / 20 mA (14 bits resolution) | ± 0.01 mA |
| Power supply Load max. | 14 to 50 Vdc | |
| Current max. | 500 Ohms at 24Vcc = (Vpwr -14) /0.02 | |
| Noise | 22 mA | |
| Response time | < 50 mV pp. | on 500 Ohms |
| security value | 200 ms to 60 s | |
| power supply influence | 3.5 to 22 mA | |
| Load influence | 0.002 % / V | |
| | 0.004 % / 100 Ohms | |

| ENVIRONMENT | |
|---------------------------------|---------------------------------------|
| Operating temperature | -20 to 60 °C |
| storage temperature | -20 to +85 °C |
| influence (% of the full scale) | < 0.004 % / °C |
| Humidity | 85 % (not condensed) |
| Weight | 105 g |
| Protection rating | IP 20 |
| Dielectric strength | 1000 Veff continuous (input / output) |
| MTBF (MIL HDBK 217F) | > 4 500 000 Hrs @ 25°C |
| Life time | > 200 000 Hrs @ 30°C |

| 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:



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