

**Isolated temperature converter with LCD display
powered by the 4-20mA current loop type: CNL70**



• **Temperature and process input**

RTD, thermocouple,
mV, mA, Potentiometer

• **Two-wire 4-20mA current loop**

loop powered

• **Galvanic insulation**

Input / output

• **Display**

4 digits LCD, 10 000 pts

• **Fully configurable**

RS232 and HART

• **CNL70-H**

HART protocol

Driver DTM HART FDT certified



• **SIL2 conformity** according to IEC 61508



The CNL70 is a loop powered programmable converter with LCD display allowing measurement of temperature (thermocouple and pt100) and process signals (mV, mA).
In option it can be provided with HART protocol, SIL2 conformity according to IEC 61508.

Temperature inputs:

- Thermocouples with linearization and internal cold junction compensation,
- Platinum RTD probe (2 or 3 wires mounting) with linearization and line length compensation.

Process inputs:

- Voltage (mV),
- Current (mA) on external shunt,

Functions:

- Square root calculation (on process measurement),
- programmable sensor breaking security value,
- response time programmable from 0.2 to 60 sec, (Filtering function of the measures)
- normal or reverse output,
- measure offset adjustment,
- neutralization of the effects of thermal environment variations.

Display

- STN liquid crystal displays (wide temperature range),
- 4 digits, 13mm height, 10 000 pts resolution,
- display from -999 to 9999,
- automatic decimal point setting,
- display range programming.

General characteristics

- DIN Rail mounting (symmetrical)
- Screw-terminals block (up to 1.5mm²),
- reverse polarity protected,
- input/ output isolation,
- saving of the configuration parameters in Flash, data holding warranty > 30 years,
- conformal coating,
- protection rating (enclose/terminal) : IP20

Configuration:

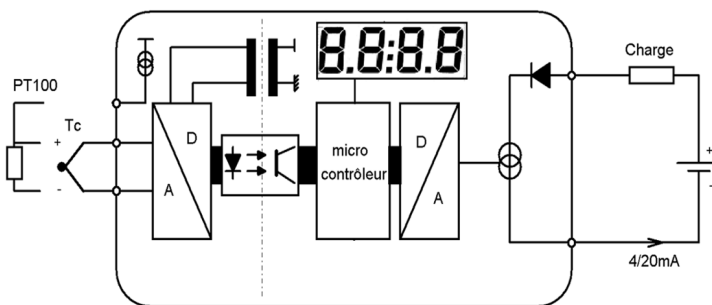
- parameters setting with serial RS 232 link. (terminal mode without specific software installation)
- USB / RS232 cable order separately.
- CNL70-H : Communication and setting via a standard HART pocket

Operational safety data:

Type B components, HFT = 0
 λ_f : 458 fit (1/MTBF)
 DC : 91.8 % (Diagnostic Coverage)
 PFH : 21 fit (Probability of Failure per Hour)
 SFF : 95.4.1 % (Safe Failure Fraction)



Synoptic:




Version and order code :

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CNL70 : standard version
CNL70-H : + HART communication
Option : /SIL2 SIL2 version according to IEC 61508

INPUT (24 bits resolution)		
TYPE	RANGE	ACCURACY
Tc B	200 / 1800 °C	+/- 2 °C
Tc E	-250 / 1000 °C	+/- 0.4 °C
Tc J	-200 / 600 °C	+/- 0.4 °C
Tc K	-200 / 1350 °C	+/- 0.4 °C
Tc R	0 / 1750 °C	+/- 1 °C
Tc S	0 / 1600 °C	+/- 1.5 °C
Tc T	-250 / 400 °C	+/- 0.5 °C
T° Compensation	-20 / 60 °C	+/- 0.3 °C
Impedance		> 1 MOhms
Pt100 2, 3 wires	-200 / 800 °C	+/- 0.3 °C
Excitation current		300 µA
Cable compensation error		0.3 °C / 10 Ohms
Voltage input impedance	0 / 120 mV	+/- 0,02 mV > 1 MOhms
Current on external shunt	0 / 30 mA 2,5 Ohms	+/- 0,025 mA
Rate measurement	6 per second	

POWER SUPPLY / OUTPUT (14 bits resolution)	
Loop voltage supply	13 to 40 Vdc
Loop current	4 / 20 mA ± 0.01 mA
Security current	3.7 / 22 mA (user programmable)
Load @ 24 Vdc	550 Ohms
Load influence	0.004 % / 100 Ohms
Power supply influence	0.002 % / V
Response time	200 ms to 60 s
Self current consumption	< 3.7 mA
ENVIRONNEMENT	
Dielectric rigidity (input/output)	1000Vrms continuous
Operating temperature	-20 to 60 °C
Storage temperature	-20 to 85 °C
Influence (% full scale)	< 0.01 % / °C
Relative humidity	85 % not condensed
Protection rating	IP20
Weight	120 g
MTBF (MIL HDBK 217F)	> 2 180 000 Hrs @ 30°C
Life time	> 250 000 Hrs @ 30°C
<i>Electromagnetic compatibility 2004/108/CE / Low Voltage Directive 2006/95/EC</i>	
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 61000-4-3 RF	EN 61000-4-9 pulse MF
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
	EN 55011
	group 1 class A
	

WIRING AND OUTLINE DIMENSIONS:

