



DIN rail Pt100 temperature transmitter CORD-P

DESCRIPTION

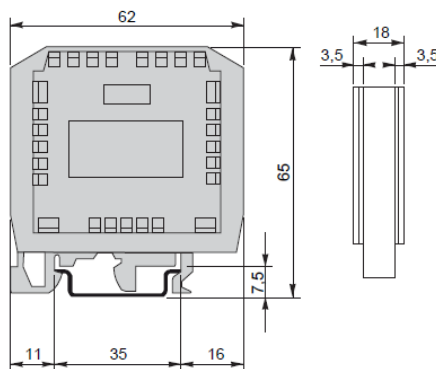
CORD-P transmitter is a **Pt100** temperature transmitter into a **4-20 mA (or 20-4 mA)** electrical signal at adjustable microprocessor.

It allows to convert variations of temperature reported by a standard Pt100 sensor (**100 Ω at 0 °C**) for a measuring range going from **-200 to +850 °C** into an electrical linear signal at 2 wires in the **4-20 mA** range.

Configuration of the transmitter is simply made through a configuration button. It is also possible to use the **LCC101** configuration software to configure the transmitter. A led warns when an alarm situation appears (out of range or short-circuit).

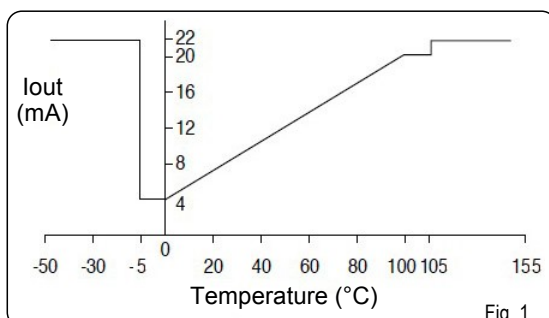
The transmitter is protected against inversions of polarity.

DIMENSIONS (mm)



OUTPUT CURRENT WITH RELATION TO TEMPERATURE

(on range from 0 to +100 °C)



TECHNICAL FEATURES OF THE TRANSMITTER

(at 20 °C and for a power supply voltage of 24 Vdc)

• Input

Sensor	Pt100 (100Ω at 0 °C)
Mounting of the element	2 or 3 wires
Linearisation	EN60751, IEC 751
Current in the sensor	<1 mA
Measuring range	From -200 to +850 °C
Range by default	From 0 to +100 °C
Minimum measuring range	25 °C
Influence of connection wires	Negligible with coupled wires
Speed conversion	2 measurements per second
Accuracy	From -100 to +500 °C: ±0.1 °C ±0.1% of reading. Beyond: ±0.2 °C ±0.2% of reading
Sensitivity to variations of ambient temperature	0.01 °C / °C
Sensitivity to variations of voltage supply	0.005% FC / Vdc (FS: full scale)
Storage temperature	From -40 to +80 °C
Working temperature	From 0 to +70 °C

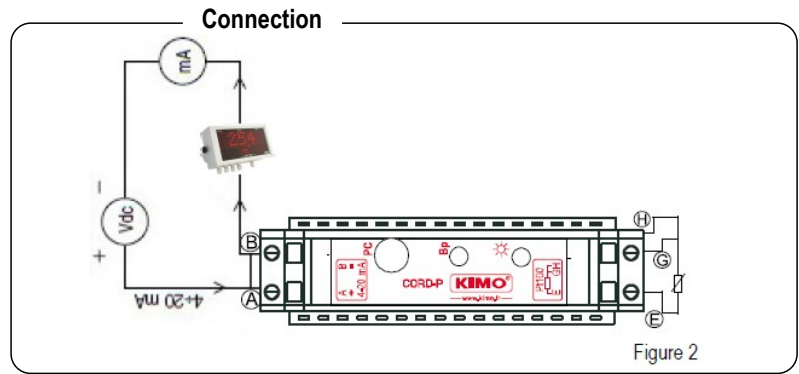
• Output

Output	4-20 mA (or 20-4 mA), 22 mA in case of programming error or temperature out of range* (fig1)
Resolution	2 μA
Power supply voltage	7-30 VDC (protection against inversions of polarity)
Load resistance	$R_{Lmax} = \frac{Vdc - 7}{0,022}$ => $R_{Lmax} = 770 \Omega @ Vdc = 24 Vdc$
Red led	Lights up during the programming phase and when the measured temperature is outside the set range.

* If the measured temperature T is outside the set range T1...T2 (T1<T2), the transmitter maintains 4 mA for T<T1 and 20 mA for T>T2 for a dead band of 5 °C before going into error status at 22 mA.

CONNECTION

Figure 2 shows the wiring diagram of the transmitter in the current loop. To get a better accuracy, use 3 wires with the same section to plug to the Pt100, this allows to guarantee the same impedance to each branch. A device can be introduced in the current loop such as a display, a controller or a data logger.



ADJUSTMENT

It is possible to set different measuring ranges using the following accessories:

- ① Continuous power source 7-30 Vdc
- ② Precision ammeter with minimum range of 0 to 25 mA
- ③ Pt100 calibrator

Procedure:

- Connect the converter to set to the power supply, to the ammeter and to the Pt100 calibrator (see figure 2). then make a long press on the configuration button. The led blinks twice during the push. When the blinks become faster, release the button: programming mode is active.

a – Configuration of T1 point

- Led blinks one time at regular intervals: set the required temperature for the 4 mA output.
- Validate instructions with a brief press on the programming key. Led stays on then blinks 4 times quickly: temperature for 4 mA output is recorded.

b – Configuration of T2 point

- Led blinks 2 times faster at regular intervals: set the required temperature for 20 mA output.
- Validate instructions with a brief press on the programming key. Led stays on then blinks 4 times quickly: temperature for 20 mA output is recorded.

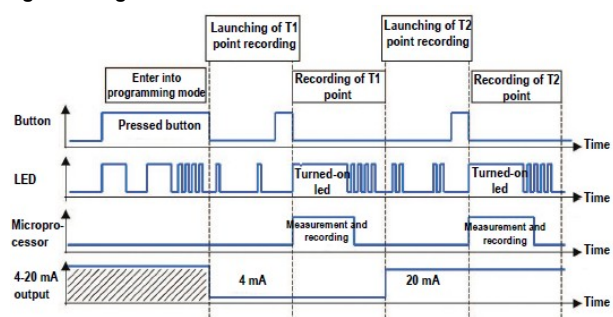
In case of error whilst programming, if temperature is out of range or in alarm situation, led blinks 6 times quickly.

Configuration



Programming the temperature range can be carried out by using the precise resistances with constant values which simulate the Pt100 sensor values (see table of Pt100 values below).

Programming scheme



PT100 VALUES IN OHMS COMPARED TO THE MEASURED TEMPERATURE

Temp °C	PT100 value
-200	18.52
-150	39.72
-100	60.26
-50	80.31
0	100.00
50	119.40
100	138.51
150	175.86

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