KIMO INSTRUMENTS

Technical Data Sheet

Pressure / Temperature / Humidity / Air Velocity / Airflow / Sound level

CE

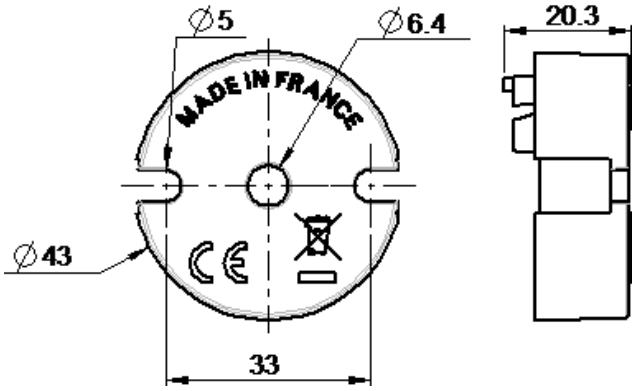
Pt100 temperature converter CO-LC

DESCRIPTION

The **CO-LC** converter is a converter of Pt100 temperature in a **4-20 mA** electric signal adjustable for Pt100 temperature sensors.
It enables to convert the temperature variations measured by a standard Pt100 sensor (**100 Ω at 0 °C**) for a measuring range in linear signal of a 2-wire current in the **4-20 mA** domain.

The converter is protected against the polarity inversion and has been designed to be placed in a **DIN B** probe head.

DIMENSIONS (in mm)



OUTPUT CURRENT ACCORDING TO TEMPERATURE

(in a 0 to +100 °C domain)

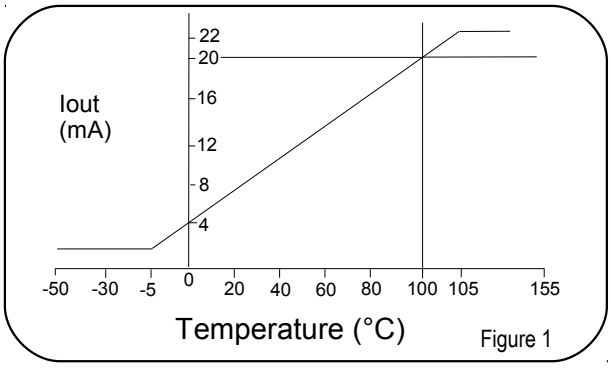


Figure 1

CONVERTER FEATURES

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

• Input

Sensor	Pt100 (100 Ω at 0 °C)
Element mounting	2 or 3 wires
Linearization	EN60751, IEC 751
Current in the sensor	<1 mA
Measuring range	From -50 to +100 °C
Range by default	From 0 to +100 °C
Other available ranges	From 0 to 50 °C From -20 to 80 °C From -50 to 50 °C
Minimal measuring range	50 °C
Connection wires influence	Negligible with coupled wires
Accuracies	±0.2 °C ±0.2% of reading
Sensitivity to the ambient temperature variations	0.01 °C/°C
Sensitivity to the supply voltage variations	0.005% FS / Vdc (FS : full scale)
Storage temperature	From -40 to +80 °C
Operating temperature	From 0 to +50 °C

• Output

Output	4-20 mA
Resolution	2 µA
Supply voltage	7-30 VDC (protection against polarity inverions)
Output burden	$R_{Lmax} = \frac{Vdc-7}{0,022}$ $=>R_{Lmax}$ = 825 Ω at Vdc = 24 Vdc

CONNECTION

The **figure 2** shows the connection diagram of the converter in the current loop. In order to obtain a better accuracy, use 3 wires with the same diameter to make the connection to the Pt100 probe to ensures the same impedance in each connection. A device can be introduced in the current loop like a display unit, a controller or a datalogger.

Connection

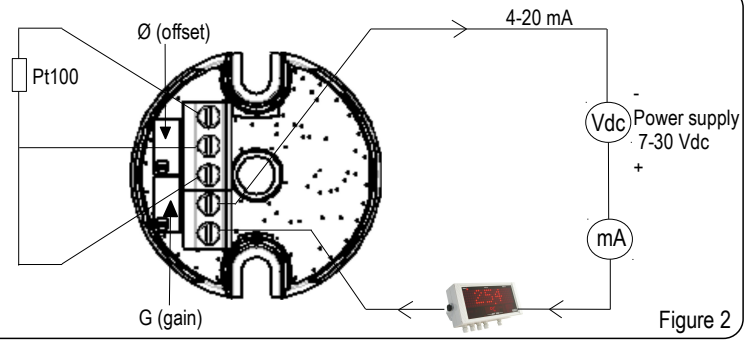


Figure 2

ADJUSMENT

It is possible to set a different measuring range by using the following accessories:

Continuous 24 Vdc power supply source

① Very precise ammeter with aminimal range from 0 to 20 mA.

② Pt100 calibrator

③

Configuration

Procedure:

- Connect the converter to configure to the source of the power supply, to the ammeter and to the Pt100 (see figure 2).

a – Configuration of T1 point

Generate the corresponding resistance to the T1 temperature (For example: for 0 °C simulate 100 Ω). With the help of the potentiometer Ø (offset), adjust the current output of the transmitter to obtain 4 mA.

b – Configuration of T2 point

Generate the corresponding resistance to the T2 temperature (For example: for 100 °C simulate 138,51 Ω or 100 °C on the Pt100 calibrator). With the help of the G potentiometer (gain), adjust the current output of the transmitter to obtain 20 mA.

c – Check the adjustment

Redo the a and b points until you obtain the 4 mA and 20 mA signals for the T1 and T2 setpoints.

A modification of the gain or the offset can influence the adjustment.

NOTE 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).

PT100 VALUES IN OHMS ACCORDING TO THE MEASURED TEMPERATURE (FOR REFERENCE ONLY)

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

www.kimo.fr

Distributed by :

afaq ISO 9001 Qualité AFNOR CERTIFICATION

EXPORT DEPARTMENT
Tel : + 33. 1. 60. 06. 69. 25 - Fax : + 33. 1. 60. 06. 69. 29
e-mail : export@kimo.fr