

Double channel programmable transmitter for Pt100 DAT 2066

FEATURES

- Pt100 input
- Input range programmable either with °C or °F unit measure
- Zero e Span values programmable by DIP-switches
- 4÷20 mA linearised output
- Good accuracy and performance stability
- EMC compliant – CE mark
- DIN rail mounting in according to EN-50022 and EN-50035 standards



GENERAL DESCRIPTION

The double channel transmitter DAT 2066 is designed to provide on the output two linearised 4÷20 mA current loop signals proportional with the temperature characteristics of the Pt100 sensors connected on its inputs. It is possible to connect on the input both 3 wire Pt100 and 2 wire Pt100.

The user can program the input ranges of each channel by the proper DIP-switches available after opening the suitable door located on the side of device.

The regulation of Zero and Span values is made by the ZERO and SPAN potentiometers located on the front side of device.

Moreover, an isolation of 1000 Vac is provided among the channels; it allows to avoid signal errors due to the ground loops and to reduce eventual R.F. Interferences.

It has been made in compliance with the Directive 2004/108/EC on the Electromagnetic Compatibility.

It is housed in a plastic enclosure of 12.5 mm thickness suitable for DIN rail mounting in according to EN-50022 and EN-50035 standards .

OPERATIVE INSTRUCTIONS

The DAT 2066 transmitter must be powered by a direct voltage included in the 10 V to 30 V range. The power supply must be applied between the terminals N (+V1) and M (-V1) for the channel 1, between the terminals R (+V2) and Q (-V2) for the channel 2.

The 4÷20 mA output signals are available on the power loop as shown in the section "Power supply/output connections"; Rload is the input impedance value of the instruments located on the current loop; for a correct measure, it is recommended that the maximum value of Rload must be calculated as function of the power supply value (refer to the section " Load characteristic ").

The input connections must be made as shown in the section "Input connections".

The channel 1 three wires Pt100 must be connected between the terminals G and I, while the third wire must be connected to the terminal L . If the measure is made with a two wires Pt100, the sensor must be connected between the terminals G and L, connecting the terminal I to the terminal L.

The channel 2 three wires Pt100 must be connected between the terminals E and H, while the third wire must be connected to the terminal F. If the measure is made with a two wires Pt100, the sensor must be connected between the terminals H and F, connecting the terminal E to the terminal F.

The configuration of input range values is made by DIP-switches (refer to the section "Input range table").

After the transmitter configuration, it is necessary to calibrate it using the ZERO and SPAN; this operation is shown in the section "DAT 2066: Configuration and calibration ".

To install the device refer to the section "Installation instructions".

TECHNICAL SPECIFICATIONS (Typical @ 25 °C and in nominal conditions)

Inputs

Sensor type	2 or 3 wire Pt100 in according to IEC60751 standard
Minimum input Span	40 °C (104 °F)
Zero programmability	From -80 °C (-112 °F) up to + 50 °C (122 °F)
Span programmability	From 40 °C (104 °F) up to 450 °C (842 °F)
Sensor excitation current	1 mA
Line resistance influence	0.05 % of f.s./ohm (100 ohm max. balanced per wire)

Outputs

Signal type	4 ÷ 20 mA on current loop
Sensor burn-out signalling	Positive out of scale (>20 mA)
Maximum output signal	35 mA
Response time (from 10 to 90 % of f.s.)	300 ms
Warm-up time	3 minutes
Load resistance (Rload)	see "Load characteristic"

Performances

Calibration error	± 0.1 % of f.s.
Linearity error (*)	± 0.15 % of f.s.
Thermal drift	0.03 % of f.s./°C
Power supply voltage(**)	10÷30 Vdc
Isolation among the channels	1000 Vac @ 50 Hz, 1 min.
Electromagnetic Compatibility (EMC) (for industrial environments)	Immunity: EN 61000-6-2; Emission : EN 61000-6-4.
Operating temperature	-20 ÷ 70 °C
Storage temperature	-40 ÷ 85 °C
Relative humidity (not cond.)	0 ÷ 90%
Weight	approx. 90 g.

(*) inclusive of hysteresis, power supply variation and linearisation error.

(**) internally protected against polarity reversion.

DAT 2066: CONFIGURATION & CALIBRATION

- 1) Calculate the difference between the maximum and the minimum value of the input range (Span).
 - 2) Refer to the " Input range table " and determine in the column " SPAN " the position where the calculated value is included, then referring to the position obtained determine in the column "ZERO", the line in which the minimum value is included .
 - In the correspondent line is shown how to set the DIP-switches .
 - 3) Set the DIP-switches as indicated .
 - 4) Connect on input a 3 wire Pt100 simulator programmed to supply the maximum and minimum values of the input range or a fixed resistor of the same values.
 - 5) Set the simulator at the minimum temperature or to connect a fixed resistor correspondent to the minimum value .
 - 6) By the ZERO potentiometer of the channel in use calibrate the output at the 4 mA value .
 - 7) Set the simulator at the maximum temperature or to connect a fixed resistor correspondent to the maximum value .
 - 8) By the SPAN potentiometer of the channel in use calibrate the output at the 20 mA value .
 - 9) Repeat the operation from the step 5 to the step 8 until the output value will be correct (3 attempts typically required).
- Note: the configuration procedure is the same for twice measure channels.

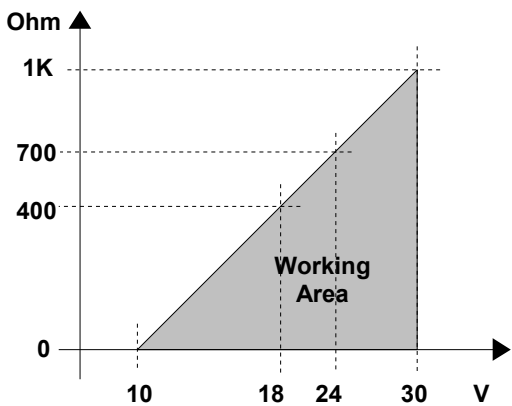
Example of configuration: -50/200 °C.
Span => 200°C - (-50°C) = 250°C;
Input switches configuration: (SW1 and/or SW2): Off, Off, Off, Off.

INPUT RANGE TABLE

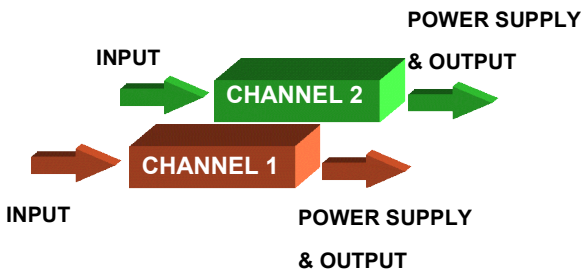
Channels 1 & 2		SW1 & SW2			
SPAN	ZERO	1	2	3	4
< 95°C (203°F)	- 80÷-30°C(-112÷-22°F)		●		
< 95°C (203°F)	- 30÷15°C(-22÷59°F)		●	●	
< 95°C (203°F)	15 ÷ 50°C(59÷122 °F)		●	●	●
95÷200°C(203÷392°F)	- 80÷-30°C(-112÷-22°F)	●	●		
95÷200°C(203÷392°F)	- 30÷15°C(-22÷59°F)	●	●	●	
95÷200°C(203÷392°F)	15÷50°C(59÷122 °F)	●	●	●	●
200÷300°C(392÷572°F)	- 80÷50°C(-112÷122°F)				
300÷450°C(572÷842°F)	- 80÷50°C(-112÷122°F)	●			

● = DIP SWITCH " ON "

LOAD CHARACTERISTIC



ISOLATIONS

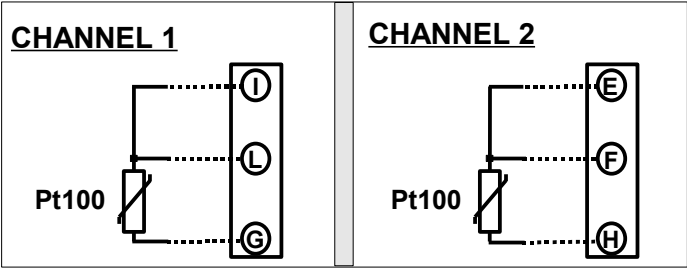


INSTALLATION INSTRUCTIONS

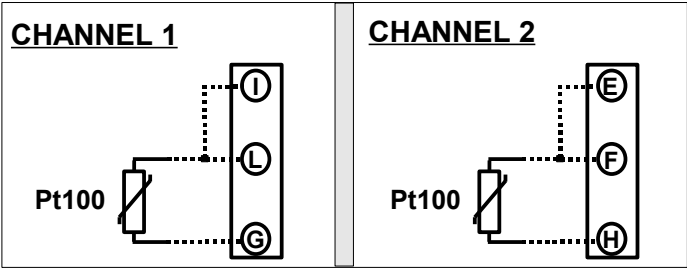
The device is suitable for DIN rail mounting in vertical position. It is necessary to install the device in a place without vibrations . Moreover, it is recommended to use shielded cable to connecting signals and to avoid routing conductors near power signal cables.

DAT 2066: CONNECTIONS

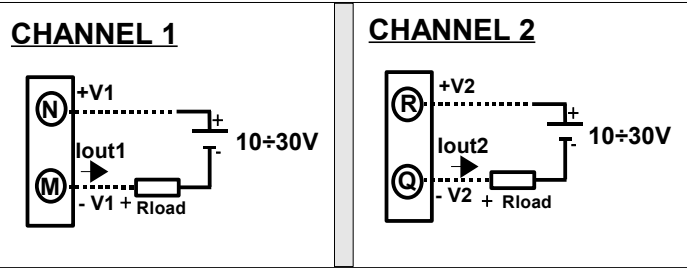
INPUT CONNECTIONS - Pt100 3 WIRES



INPUT CONNECTIONS - Pt100 2 WIRES

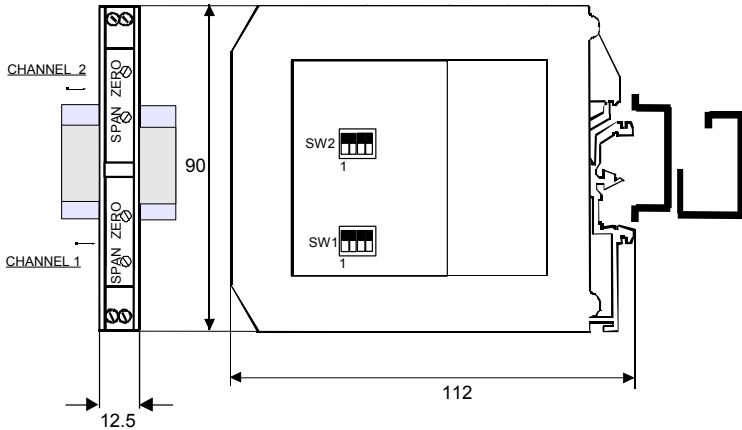


POWER SUPPLY/OUTPUT CONNECTIONS



Note: terminals O and P not connected (NC).

DIMENSIONS (mm) & REGULATIONS



HOW TO ORDER

The DAT 2066 will be provided as requested from the Customer in phase of order. In case of the configuration is not specified, the parameters must be set by the user.

ORDER CODE EXAMPLE:

DAT2066 CH1=0÷200 °C/°F, CH2=0÷200 °C/°F
Input channel 1 Unit measure channel 1 Input channel 2 Unit measure channel 2