

Fixed range transmitter for Thermocouple

DAT 1030



FEATURES

- Input for thermocouple type E, J, K, N, R, S and T
- Input range in °C or °F
- Span and Zero values adjustable by potentiometer
- 4÷20 mA “ voltage linear ” output on current loop
- High accuracy
- EMC compliant – CE mark
- Suitable for DIN B in-head mounting
- Option for mounting on DIN rail in compliance with DIN 50022 (Option DIN RAIL)

GENERAL DESCRIPTION

The transmitter DAT1030 is designed to provide a 4÷20 mA output on current loop linear and proportional with the value of voltage generated from the thermocouple connected to its input.

The DAT1030 doesn't execute the linearisation of the input signal; this feature allows to use the transmitter with acquisition systems with an internal linearisation software.

The potentiometers ZERO and SPAN allow to adjust the begin and the full scale value .

The DAT1030 is in compliance with the Directive 2004/108/EC on the Electromagnetic Compatibility.

It is housed in a self extinguish plastic enclosure for DIN B in-head mounting.

Moreover it is possible to mount (by proper mounting kit) the device on DIN RAIL .

USER INSTRUCTIONS

The transmitter DAT1030 must be powered by a direct voltage between 12 to 32 V and applied to the terminals +V and -V.

The 4÷20 mA output signal is measurable in the power loop as shown in the section “Output/Power supply connections”; Rload is the input impedance of instruments on the current loop; to obtain a correct measure, the value of Rload will be calculated as function of the power supply value (see section “Technical specification – Load characteristic”).

The input sensor must be connected to the terminals 1(-TC) and 3 (+TC) as show in the section "Input connections"; in case of use of a shielded cable, connect the shield to the terminal 1 .

To adjust the output measure use the potentiometers ZERO (begin scale value) and SPAN (full scale value).

This operation can be made on field refer to a calibrated thermometer or using a simulator of thermocouple; in case of use of simulator of thermocouple with internal CJC, the value of voltage corresponding to the ambient temperature must be subtracted from the input voltage .

To install the transmitter refer to the section “ Installation Instructions”.

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

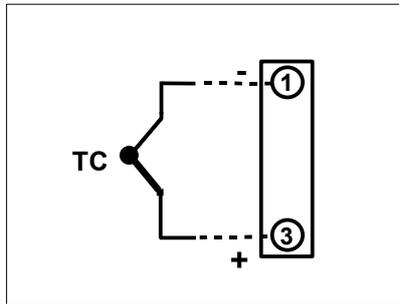
Input	
Sensor	Thermocouple type E, J, K, N, R, S and T
Input range	see section “Sensor Table”
Line resistance influence	0.2 uV / Ω
Output	
Signal	4 ÷ 20 mA on current loop
Burn -out signalling	Positive out of scale (> 20 mA)
Maximum output signal	35 mA
Load resistance (Rload)	see section ” Load characteristic”
Response time (from 10 to 90 % of f.s.)	300 ms
Warm-up time	3 minutes
Performances	
Calibration error	the bigger than ± 0.1 % of f.s. or 0.2 °C
Linearity error (*)	± 0.1 % of f.s.
Cold Junction Compensation (CJC)	± 0.5 °C
Thermal drift	0,02 % of f.s./°C (per Span > 300 °C / 500 °F)
Supply voltage (**)	12 ÷ 32 Vdc
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 condensed)	0 ÷ 90%
Weight	about 35 g
(*)inclusive of hysteresis and variation of the power supply .	
(**) internally protected against reverse polarity .	

INSTALLATION INSTRUCTIONS

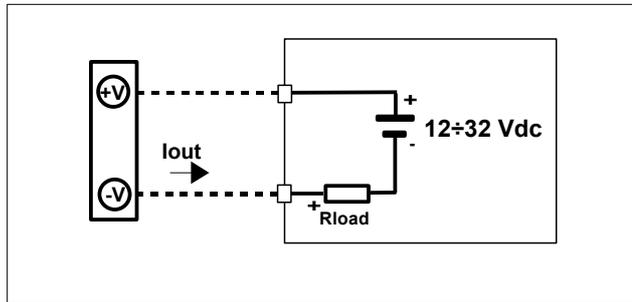
The device DAT1030 is suitable for direct DIN B in-head mounting. The transmitter must be fixed inside the probe by the proper kit. By apposite stirrup, provided on request, it is possible to mount the device on DIN rail in compliance with EN-50022. It is necessary to install the device in a place without vibrations; avoid to routing conductors near power signal cables .

DAT1030: CONNECTIONS

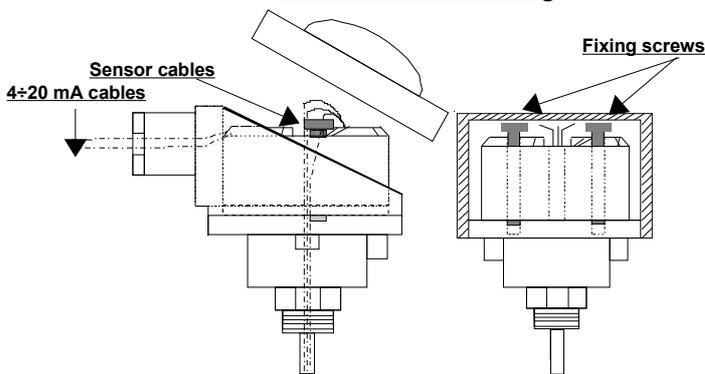
INPUT CONNECTION



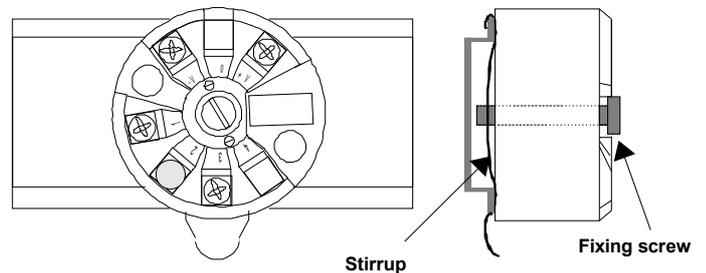
OUTPUT/POWER SUPPLY CONNECTIONS



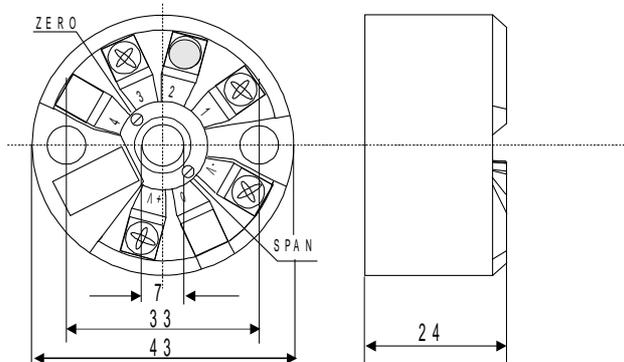
DIN B In-head mounting



DIN rail mounting (DIN RAIL Option)



DIMENSIONS (mm) & REGULATIONS



SENSORS TABLE

Use this table to determine the type and range of the thermocouple to order the device.

SENSOR	MIN. SPAN	MAX.SPAN	ZERO
E	100°C / 210°F	1050°C / 1920 °F	-50÷50 °C / -58÷122°F
K	100°C / 210°F	1370°C / 2500 °F	-50÷50 °C / -58÷122°F
J	100°C / 210°F	950°C / 1750 °F	-50÷50 °C / -58÷122°F
N	150°C / 300°F	1350°C / 2460 °F	-50÷50 °C / -58÷122°F
R	650°C / 1200°F	1760°C / 3200 °F	-50÷50 °C / -58÷122°F
S	650°C / 1200°F	1760°C / 3200 °F	-50÷50 °C / -58÷122°F
T	100°C / 210°F	450°C / 842 °F	-50÷50 °C / -58÷122°F

Notes:

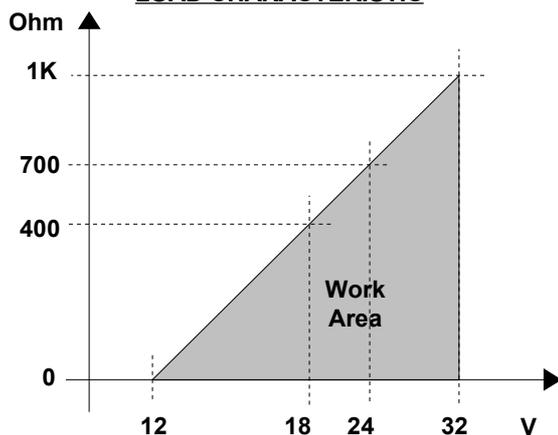
Sensor: indicates the type of thermocouple to connect to the input.

Min. Span: indicates the minimum working span (minimum difference between full scale and begin scale values).

Max. Span: indicates the maximum working span (maximum difference between full scale and begin scale values).

Zero: indicates the group of values where must be included the begin scale value.

LOAD CHARACTERISTIC



HOW TO ORDER

The DAT 1030 is supplied as request from the Customer in phase of order: to determine the working range and the type of thermocouple refer to the section "Sensor Table".

ORDER CODE EXAMPLE:

