

OEM Thermocouple Sensor

FEATURES

- Configurable input for RTD, mV,Tc and Resistance
- 4 ÷ 20 mA configurable output on current loop with damping function
- Configurable by Personal Computer by PRODAT and cable CVPR_OEM
- High accuracy
- On-field reconfigurable
- EMC compliant CE and UKCA mark



DAT1015-OEM

GENERAL DESCRIPTION The compact transmitter DAT1015-OEM is able to execute many functions such as : measure and linearisation of the temperature characteristic of RTDs sensors, conversion of a linear resistance variation, conversion of a voltage signal connected on its input. Moreover the DAT 1015-OEM is able to measure and linearise the standard thermocouples with internal cold junction compensation. The measured values are converted in a 4+20 mA current signal. The device guarantees high accuracy and performances stability both in time and in temperature. The programming of the DAT1015-OEM is made by a Personal Computer using the software DATAPRO, developed by DATEXEL, that runs under the operative system "Windows™". By use of DATAPRO, it is possible to configure the transmitter to interface it with the most used sensors. In case of sensors with a no-standard output characteristic, it is possible to execute, via software, a "Custom" linearisation (per step) to obtain an output linearised signal . For Resistance and RTDs sensors it is possible to program the cable compensation with 3 or 4 wires. For Thermocouples it is possible to program the Cold Junction Compensation (CJC) as internal or external.

It is possible to set the minimum and maximum values of input and output ranges in any point of the scale, keeping the minimum span shown in the table below.

Moreover it is available the option of alarm for signal interruption (burn-out) that allows to set the output value as high or low out of scale

On the device is provided the function "Damping" that allows the user to set a programmable filter up to 30 seconds to reduce eventual sudden variations of the input signal.

The transmitter is designed to be mounted inside a cylindrical probe sensor.

USER INSTRUCTIONS

The input connections must be made as shown in the sections "Output/Power supply connections" and "Input connections".

To configure, calibrate and install the transmitter refer to sections "Configuration DAT1015-OEM" and "Installation Instructions".

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

				OUTPUT				GENERAL SPECIFICATIONS	
Input type	Min	Max	Min Span	Output type	Min	Max	Min Span	Power supply voltage	10 32 Vdc
TC(*) CJC int./ext. J	-200°C	1200°C	100 °C	Direct current Reverse current	4 mA 20 mA	20 mA 4 mA	4 mA 4 mA	Reverse polarity protection	60 Vdc max
K S R B E T N	-200°C -50°C 400°C -200°C -200°C -200°C	1370°C 1760°C 1760°C 1820°C 1000°C 400°C 1300°C	100 °C 400 °C 400 °C 400 °C 100 °C 100 °C 100 °C	Output calibration Current Thermal drift (1) Full scale Burn-out values	1	± 7 uA ± 0.01%	/ °C	Operative temperature Storage temperature Humidity (not condensing) Maximum Altitude Installation Category of Installation Pollution Degree	-40°C +85°C -40°C +85°C 0 90 % 2000 m slm Sensor Probe II 2
Voltage mV	-100 mV	+700 mV	2 mV	Max. output value Min. output value Max. fault value		about 20 about 3.8 about 21	.5 mA 3 mA .6 mA	MECHANICAL SPECIFICAT Dimensions	L = 40 mm H = 15.8 mm
RTD(*) 2,3,4 wires Pt100	-200°C	850°C	50°C	Min. fault value		about 3.5	5 mA	Weight	about 5 g.
Pt1000 Ni100 Ni1000	-200°C -60°C -60°C	200°C 180°C 150°C	50°C 50°C 50°C	Damping time con Selectable Value 0:	nstant	from 0.3 function	to 30 s. not active.	CERTIFICATIONS EMC (for the Industrial En Immunity El	vironments) N 61000-6-2
RES. 2,3,4 wires				Response time (10	0÷ 90%)	about 40	0 ms	Emission El	N 61000-6-4
Low	0 Ω	300 Ω	10 Ω	Load characteristic - Rload (maximum load			UKCA (ref S.I. 2016 N°1091		
High	0Ω	2000 Ω	200 Ω	value on current lo	op per pov	ver supply	value)	Emission B	S EN 61000-6-2 S EN 61000-6-4
Input calibration (1)RTDthe higher of $\pm 0.1\%$ f.s. $\& \pm 0.2^{\circ}$ CRes. Lowthe higher of $\pm 0.1\%$ f.s. $\& \pm 0.15 \Omega$ Res. Highthe higher of $\pm 0.2\%$ f.s. $\& \pm 1 \Omega$ mV,Tcthe higher of $\pm 0.1\%$ f.s. $\& \pm 10$ uVInput Impedance				Ohm 1K					
mV,Tc	>= 10 MΩ			Area					
RTD	± 0.1 % f.s.			0					
Тс	± 0.2 % f.s.			10	18 2	4 32 \	/		
Line resistance influence (1)									
mV,IC	<=0.8 uV/Ohm								
RTD 3 wires									
RTD 4 wires 0.005%/22 (100 22 max balanced)									
Typical 0.350 mA									
CJC comp.	± 1.5 °C			 (1) referred to input Spar values) (*) For the temperature s measurement also in °F 	n (difference b ensors it is po	etween max. ossible to set	and min. the		

CONFIGURATION DAT1015-OEM

<u>Warning: during these operations the device must always be powered.</u> <u>- CONFIGURATION</u>

1) Power-on the device by a direct voltage between 10 \div 32 V or (only to configure) by a 9 V battery .

2) Connect the interface PRODAT to the Personal Computer and to device. (see section " DAT1015-OEM: PROGRAMMING").

3) Run the software DATAPRO.

4) Set the parameters of configuration .

5) Program the device.

- CALIBRATION CONTROL

1) Connect on the input a calibrator setted with minimum and maximum values referred to the electric signal or to the temperature sensor to measure.

- 2) Set the calibrator at the minimum value.
- 3) Verify that the device provides on output the minimum value.
- 4) Set the calibrator at the maximum value.
- 5) Verify that the device provides on output the maximum value.

6) In case of regulation of value obtained in the step 3 and 5, use the ZERO and SPAN regulators of software DATAPRO.

The variation introduced from these regulators must be calculated as percentage of the input range .

7) Program the device with the new parameters .

DAT 1015-OEM: PROGRAMMING



TERMINAL ASSIGNMENT





BOTTOM VIEW





The symbol reported on the product indicates that the product itself must not be considered as a domestic waste

It must be brought to the authorized recycle plant for the recycling of electrical and electronic waste. For more information contact the proper office in the user's city, the service for the waste treatment or the supplier from which the product has been purchased.

INSTALLATION INSTRUCTIONS

The device DAT1015-OEM is designed to be mounted inside the probe. The pins must be soldered in function of the section "Terminal

assignment "

DAT1015-OEM WIRING

INPUT CONNECTIONS



OUTPUT/POWER SUPPLY CONNECTIONS



PROGRAMMING CONNECTIONS



NOTE: PRODAT connected involves an output current error.

Disconnect it to obtain a correct measure on output.

MECHANICAL DIMENSIONS (mm)



HOW TO ORDER

The DAT1015-OEM is provided as requested on the Customer's order. Refer to the section "Technical specification" to determine input and output ranges. In case of the configuration is not specified, the parameters must be set by the user. ORDER CODE EXAMPLE:

DAT1015-OEM/[Pt100]/[3 wires/[0÷200 °C]/[S.L.]/[4÷20 mA]/[Burn-out up]									
Input type	High or low Out of scale								
Sensor options : RTD/RES:2,3,4 wires	Output range								
	(*) Linearisation options: S.L.: standard linearisation.								
Input range	N.L.: no linearisation. C.L.: linearisation by step (Custom):								
	specify input curve								