

Two wire universal transmitter programmable by PC DAT 1015



FEATURES

- Configurable input for RTD, TC, mV, Resistance and Potentiometer
- 4 ÷ 20 mA configurable output on current loop
- Configurable by Personal Computer
- High accuracy
- On-field reconfigurable
- EMC compliant – CE mark
- Suitable for DIN B in-head mounting
- Option for DIN rail mounting in compliance with EN 50022 (DIN RAIL Option)

GENERAL DESCRIPTION

The transmitter DAT 1015 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 even coming from a potentiometer connected on its input. Moreover the DAT 1015 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 DAT 1015 is made by a Personal Computer using the software PROSOFT, developed by DATEXEL, that runs under the operative system "Windows™". By use of PROSOFT, 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 .

The DAT 1015 is in compliance with the Directive 2004/108/EC on the Electromagnetic Compatibility.

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

Moreover (by proper mounting kit) it is possible to mount the DAT 1015 on DIN rail.

USER INSTRUCTIONS

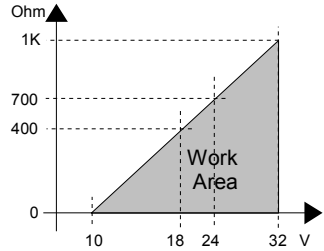
The transmitter DAT 1015 must be powered by a direct voltage between 10 to 32 V and applied to the terminals +V and -V.

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

To configure, calibrate and install the transmitter refer to sections " DAT1015: configuration and calibration" and "Installation Instructions".

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

Input type	Min	Max	Min. span	Input calibration (1)	Response time (10÷ 90%)
TC(*) CJC int./ext.				RTD > of ±0.1% f.s. or ±0.2°C Low res. > of ±0.1% f.s. or ±0.15 Ω High res. > of ±0.2% f.s. or ±1 Ω mV, TC > of ±0.1% f.s. or ±18 uV	about 400 ms
J	-200°C	1200°C	2 mV	Output calibration Current ± 7 uA Input impedance TC, mV ≥ 10 MΩ Linearity (1) TC ± 0.2 % f.s. RTD ± 0.1 % f.s. Line resistance influence TC, mV ≤ 0.8 uV/Ohm RTD 3 wires 0.05%/Ω (50 Ω balanced max.) RTD 4 wires 0.005%/Ω (100 Ω balanced max.) RTD excitation current Typical 0.350 mA CJC comp. ± 0.5°C Thermal drift (1) Full scale ± 0.01% / °C CJC ± 0.01% / °C Burn-out values Max. value about 22.5 mA Min. value about 3.6 mA	
K	-200°C	1370°C	2 mV		
S	-50°C	1760°C	2 mV		
R	-50°C	1760°C	2 mV		
B	400°C	1820°C	2 mV		
E	-200°C	1000°C	2 mV		
T	-200°C	400°C	2 mV		
N	-200°C	1300°C	2 mV		
RTD(*) 2,3,4 wires					Power supply Power supply voltage 10 .. 32 Vdc Reverse polarity protection 60 Vdc max Load characteristic - Rload (maximum load value on current loop per power supply value) 
Pt100	-200°C	850°C	50°C		
Pt1000	-200°C	200°C	50°C		
Ni100	-60°C	180°C	50°C		
Ni1000	-60°C	150°C	50°C		
Voltage mV	-100mV	+700mV	2 mV		Temperature & humidity Operative temperature -40°C .. +85°C Storage temperature -40°C .. +85°C Humidity (not condensed) 0 .. 90 %
Potentiometer (Nominal value)	0 Ω 200 Ω 0.5 KΩ	200 Ω 500 Ω 2 KΩ	10% 10% 10%		Housing Material Self-extinguish plastic Mounting DIN B head or bigger Weight about 50 g. Dimensions Ø = 43 mm ; H = 24 mm
RES. 2,3,4 wires					EMC (for industrial environments) Immunity EN 61000-6-2 Emission EN 61000-6-4
Low	0 Ω	300 Ω	10 Ω		
High	0 Ω	2000 Ω	200 Ω		
Output type	Min	Max	Min. span		
Direct current	4 mA	20 mA	4 mA		
Reverse current	20 mA	4 mA	4 mA		

(1) referred to input Span (difference between max. and min. values)

(*) For temperature sensors it is possible to set the input range also in F degrees; to made the conversion use the formula: °F = (°C*9/5)+32)

DAT 1015: CONFIGURATION AND CALIBRATION

Warning: during these operations the device must always be powered.

- CONFIGURATION

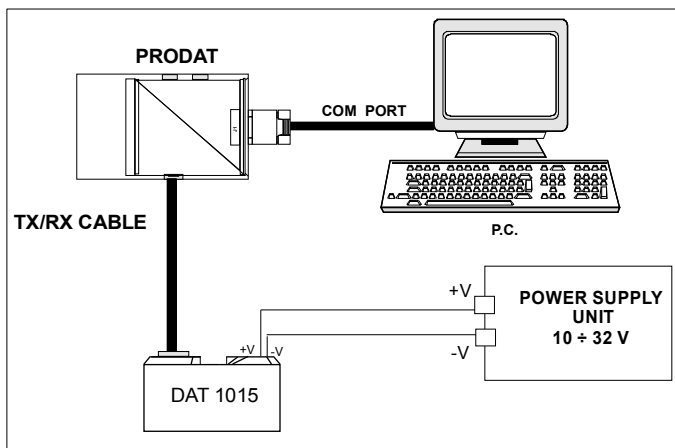
- 1) Power-on the DAT1015 by a direct voltage between 10 ± 32 V or (only to configure) by a 9 V battery .
- 2) Remove the protection plastic cap on DAT 1015.
- 3) Connect the interface PRODAT to the Personal Computer and to device. (see section " DAT1015: PROGRAMMING").
- 4) Run the software PROSOFT.
- 5) Set the parameters of configuration .
- 6) Program the device.

- CALIBRATION CONTROL

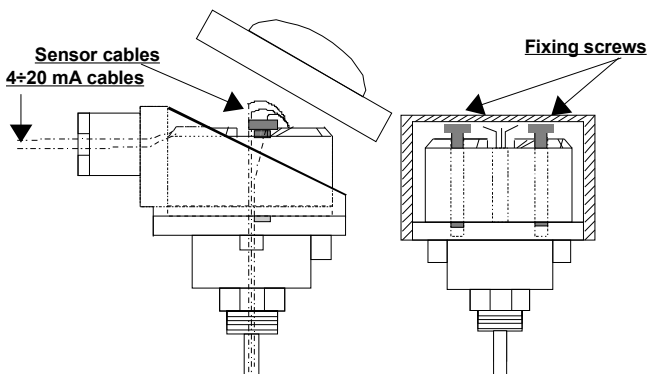
With software PROSOFT running:

- 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 DAT 1015 provides on output the minimum setted value.
- 4) Set the calibrator at the maximum value.
- 5) Verify that the DAT 1015 provides on output the maximum setted value.
- 6) In case of regulation of value obtained in the step 3 and 5, use the ZERO and SPAN regulators of software PROSOFT. The variation introduced from these regulators must be calculated as percentage of the input range .
- 7) Program the device with the new parameters .

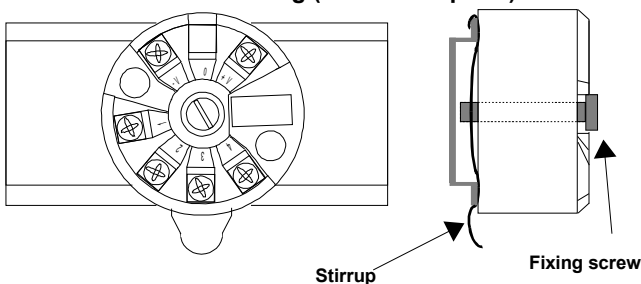
DAT 1015: PROGRAMMING



DIN B in-head mounting



DIN rail mounting (DIN RAIL Option)



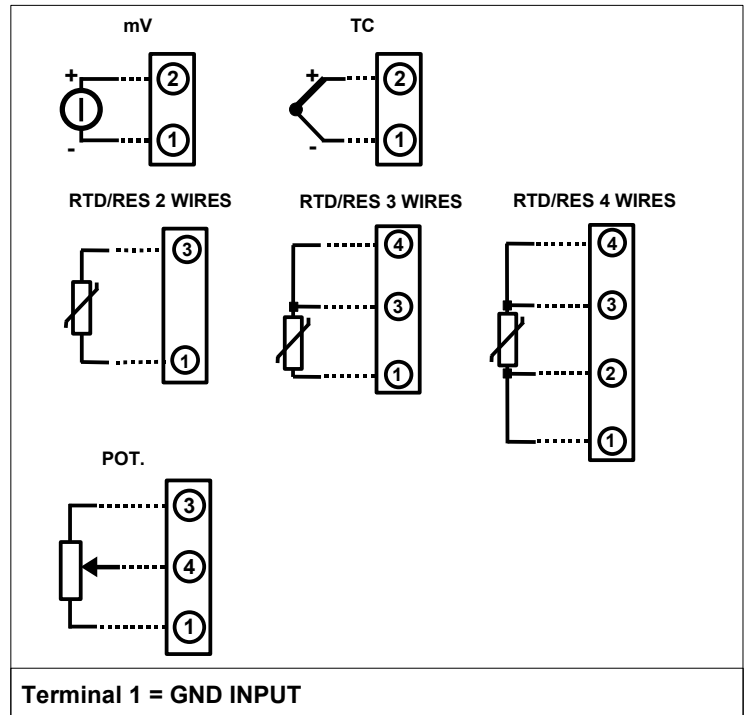
INSTALLATION INSTRUCTIONS

The device DAT 1015 is suitable for direct DIN B in-head mounting. The transmitter must be fixed inside the probe by the proper kit.

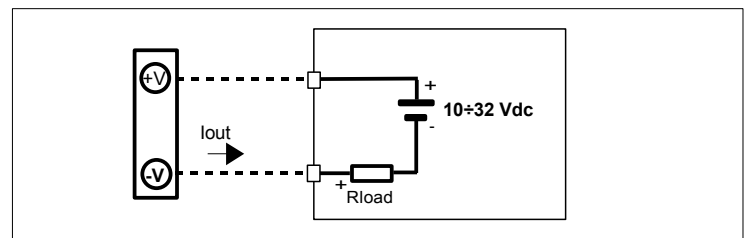
By apposite stirrup, provided on request, it is possible to mount the device on DIN rail in compliance with EN-50022. It is necessary to install the device in a place without vibrations; avoid to routing conductors near power signal cables .

DAT1015: CONNECTIONS

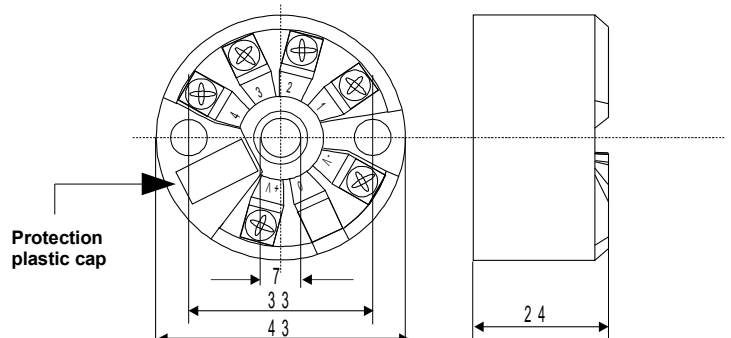
INPUT CONNECTIONS



OUTPUT/POWER SUPPLY CONNECTIONS



MECHANICAL DIMENSIONS (mm)



HOW TO ORDER

The DAT1015 is provided as requested on the Customer's order. Refer to the section "Technical specification" to determine input and output ranges. The mounting kit for DIN rail is provided **only on request** with code DIN RAIL. In case of the configuration is not specified, the parameters must be set by the user.

ORDER CODE EXAMPLE:

