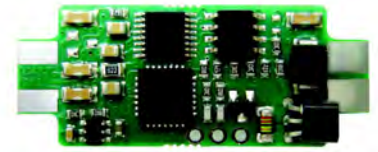


**FEATURES**

- Configurable input for RTD, mV and Resistance
- 4 ÷ 20 mA configurable output on current loop
- Configurable by Personal Computer
- High accuracy
- On-field reconfigurable
- EMC compliant – CE mark



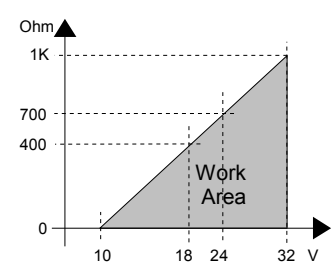
**GENERAL DESCRIPTION**

The compact transmitter DAT1010-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 and conversion of a voltage signal. 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 DAT1010-OEM 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. 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.

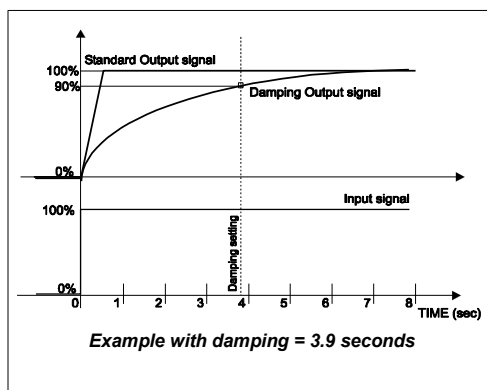
**USER INSTRUCTIONS**

The transmitter DAT1010-OEM must be powered by a direct voltage between 10 to 32 V and applied to the terminals J8 (+V) and J7 (-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 " DAT1010-OEM: configuration and calibration" and "Installation Instructions".

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

<table border="1"> <thead> <tr> <th>Input type</th> <th>Min</th> <th>Max</th> <th>Min. span</th> </tr> </thead> <tbody> <tr> <td><b>RTD(*) 2,3,4 wires</b></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Pt100</td> <td>-200°C</td> <td>850°C</td> <td>50°C</td> </tr> <tr> <td>Pt1000</td> <td>-200°C</td> <td>200°C</td> <td>50°C</td> </tr> <tr> <td>Ni100</td> <td>-60°C</td> <td>180°C</td> <td>50°C</td> </tr> <tr> <td>Ni1000</td> <td>-60°C</td> <td>150°C</td> <td>50°C</td> </tr> <tr> <td><b>Voltage</b></td> <td></td> <td></td> <td></td> </tr> <tr> <td>mV</td> <td>-100mV</td> <td>+700mV</td> <td>2 mV</td> </tr> <tr> <td><b>RES. 2,3,4 wires</b></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Low</td> <td>0 Ω</td> <td>300 Ω</td> <td>10 Ω</td> </tr> <tr> <td>High</td> <td>0 Ω</td> <td>2000 Ω</td> <td>200 Ω</td> </tr> <tr> <td><b>Output type</b></td> <td><b>Min</b></td> <td><b>Max</b></td> <td><b>Min. span</b></td> </tr> <tr> <td>Direct current</td> <td>4 mA</td> <td>20 mA</td> <td>4 mA</td> </tr> <tr> <td>Reverse current</td> <td>20 mA</td> <td>4 mA</td> <td>4 mA</td> </tr> </tbody> </table>	Input type	Min	Max	Min. span	<b>RTD(*) 2,3,4 wires</b>				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	<b>Voltage</b>				mV	-100mV	+700mV	2 mV	<b>RES. 2,3,4 wires</b>				Low	0 Ω	300 Ω	10 Ω	High	0 Ω	2000 Ω	200 Ω	<b>Output type</b>	<b>Min</b>	<b>Max</b>	<b>Min. span</b>	Direct current	4 mA	20 mA	4 mA	Reverse current	20 mA	4 mA	4 mA	<p><b>Input calibration (1)</b></p> <p>RTD &gt; of ±0.1% f.s. or ±0.2°C</p> <p>Low res. &gt; of ±0.1% f.s. or ±0.15 Ω</p> <p>High res. &gt; of ±0.2% f.s. or ±1 Ω</p> <p>mV &gt; of ±0.1% f.s. or ±18 uV</p> <p><b>Output calibration</b></p> <p>Current ± 7 uA</p> <p><b>Input impedance</b></p> <p>mV &gt;= 10 MΩ</p> <p><b>Linearity (1)</b></p> <p>RTD ± 0.1 % f.s.</p> <p><b>Line resistance influence</b></p> <p>mV &lt;=0.8 uV/Ohm</p> <p>RTD 3 wires 0.05%/Ω (50 Ω balanced max.)</p> <p>RTD 4 wires 0.005%/Ω (100 Ω balanced max.)</p> <p><b>RTD excitation current</b></p> <p>Typical 0.350 mA</p> <p><b>Thermal drift (1)</b></p> <p>Full scale ± 0.02% / °C</p> <p><b>Burn-out values</b></p> <p>Max. output value about 20.5 mA</p> <p>Min. output value about 3.8 mA</p> <p>Max. fault value about 21.6 mA</p> <p>Min. fault value about 3.5 mA</p> <p><b>Damping time constant</b></p> <p>Selectable from 0.3 to 30 s.</p> <p>Value 0: function not active.</p> <p>(1) referred to input Span (difference between max. and min. values)</p>	<p><b>Response time (10+ 90%)</b> about 400 ms</p> <p><b>Power supply</b></p> <p>Power supply voltage 10 .. 32 Vdc</p> <p>Reverse polarity protection 60 Vdc max</p> <p><b>Load characteristic - Rload</b> (maximum load value on current loop per power supply value)</p>  <p><b>Temperature &amp; humidity</b></p> <p>Operative temperature -40°C .. +85°C</p> <p>Storage temperature -40°C .. +85°C</p> <p>Humidity (not condensed) 0 .. 90 %</p> <p><b>Size and weight</b></p> <p>Dimensions L = 40 mm ; H = 15.8 mm</p> <p>Weight about 5 g.</p> <p><b>EMC ( for industrial environments )</b></p> <p>Immunity EN 61000-6-2</p> <p>Emission EN 61000-6-4</p>
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**DAMPING FUNCTION**



(\*) 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)

## DAT1010OEM: CONFIGURATION AND CALIBRATION

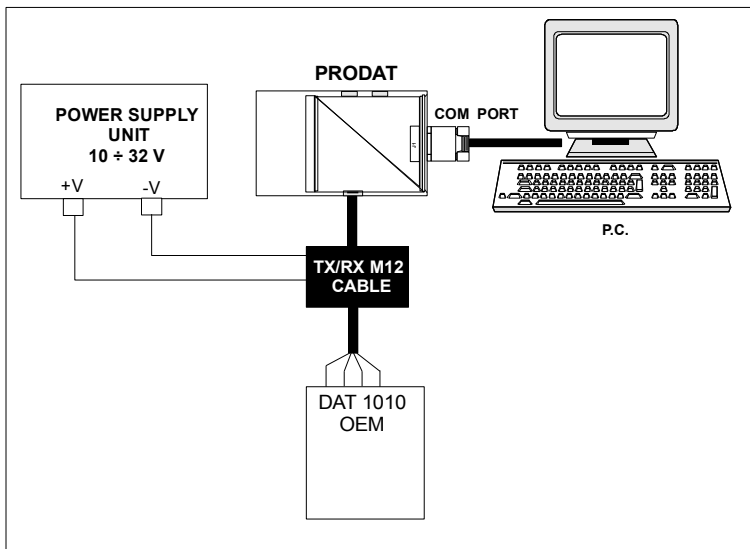
**Warning: during these operations the device must always be powered.**  
**- CONFIGURATION**

- 1) Power-on the DAT1010 by a direct voltage between  $10 \div 32$  V or (only to configure) by a 9 V battery .
- 3) Connect the interface PRODAT to the Personal Computer and to device. (see section " DAT1010OEM: PROGRAMMING" ).
- 4) Run the software PROSOFT.
- 5) Set the parameters of configuration .
- 6) Program the device.

### - CALIBRATION CONTROL

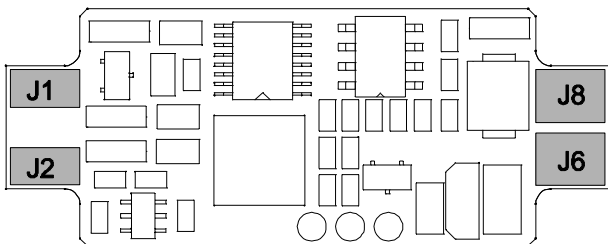
- 1) Connect on the input a calibrator setted with minimum and maximum values referred to the electric signal or to the temperature sensor to measure.
- 2) Set the calibrator at the minimum value.
- 3) Verify that the DAT1010OEM provides on output the minimum setted value.
- 4) Set the calibrator at the maximum value.
- 5) Verify that the DAT1010OEM 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 1010OEM: PROGRAMMING

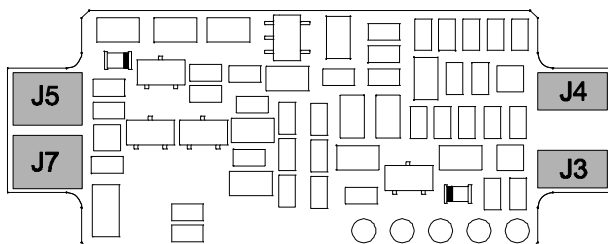


## TERMINAL ASSIGNMENT

### TOP VIEW



### BOTTOM VIEW



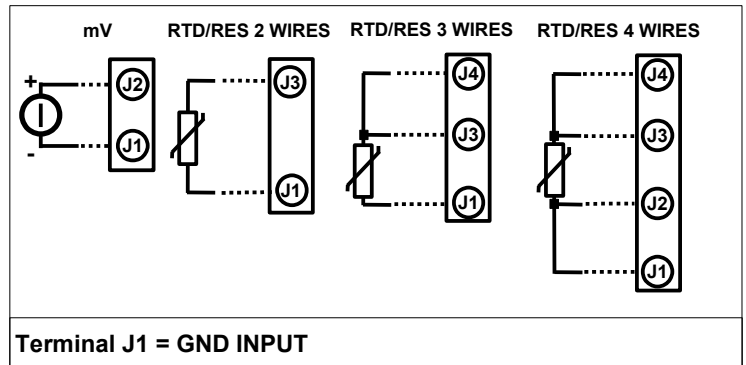
## INSTALLATION INSTRUCTIONS

The device DAT1010-OEM is designed to be mounted inside the probe.

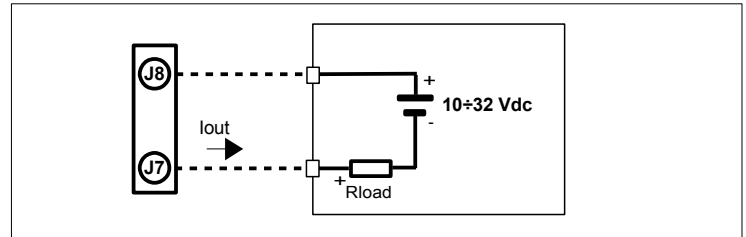
The pins must be soldered in function of the section "Terminal assignment "

## CONNECTIONS

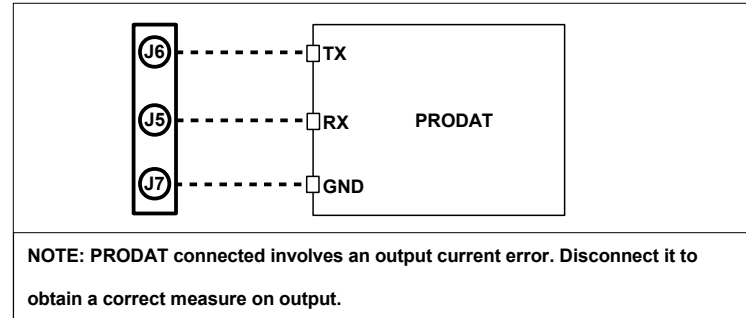
### INPUT CONNECTIONS



### OUTPUT/POWER SUPPLY CONNECTIONS

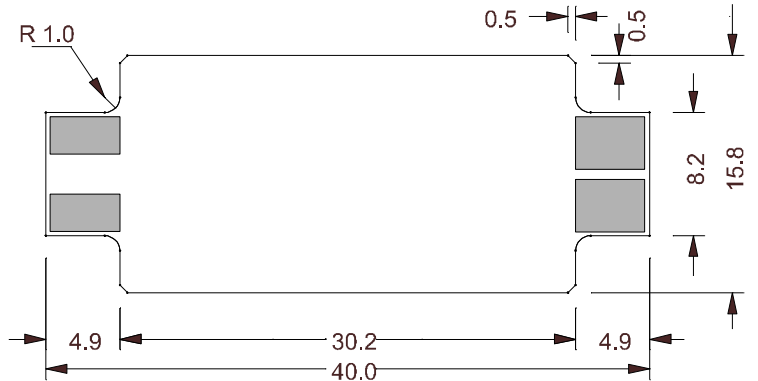


### PROGRAMMING CONNECTIONS



## MECHANICAL DIMENSIONS (mm)

SCALE 2:1



## HOW TO ORDER

The DAT1010-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:

