# GENERAL DESCRIPTION

The isolated transmitter DAT 4035 IS 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 4035 IS 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.

# USER INSTRUCTIONS

To configure, calibrate and install the transmitter refer to sections "DAT 4035 IS: configuration and calibration" and "Installation Instructions".

In order to guarantee a correct and safe operation of the transmitter the following requirements must be strictly satisfied:

1. The maximum power supplied by the safety barrier must be not higher than 0.75 W.

2. The maximum power supplied by the safety barrier must be not higher than 0.75 W.

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

<table>
<thead>
<tr>
<th>Input type</th>
<th>Min</th>
<th>Max</th>
<th>Min. span</th>
</tr>
</thead>
<tbody>
<tr>
<td>TC(*) CJC int./ext.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>J</td>
<td>-200°C</td>
<td>1200°C</td>
<td>100 °C</td>
</tr>
<tr>
<td>K</td>
<td>-200°C</td>
<td>1370°C</td>
<td>100 °C</td>
</tr>
<tr>
<td>S</td>
<td>-50°C</td>
<td>1760°C</td>
<td>400 °C</td>
</tr>
<tr>
<td>R</td>
<td>-50°C</td>
<td>1600°C</td>
<td>400 °C</td>
</tr>
<tr>
<td>B</td>
<td>400°C</td>
<td>1820°C</td>
<td>400 °C</td>
</tr>
<tr>
<td>N</td>
<td>-200°C</td>
<td>1000°C</td>
<td>100 °C</td>
</tr>
<tr>
<td>T</td>
<td>-200°C</td>
<td>400°C</td>
<td>100 °C</td>
</tr>
<tr>
<td>N</td>
<td>-200°C</td>
<td>1300°C</td>
<td>100 °C</td>
</tr>
<tr>
<td>RTD(*) 2,3 wires</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>N1000</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>Voltage</td>
<td>mV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>mV</td>
<td>-100mV</td>
<td>+700mV</td>
<td>2 mV</td>
</tr>
<tr>
<td>Potentiometer (Nominal value)</td>
<td>0</td>
<td>200</td>
<td>10%</td>
</tr>
<tr>
<td></td>
<td>500</td>
<td>10%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 KΩ</td>
<td>10%</td>
<td></td>
</tr>
<tr>
<td>RES. 2.3 wires</td>
<td>0</td>
<td>300</td>
<td>10 Ω</td>
</tr>
<tr>
<td>Low</td>
<td>0</td>
<td>2000</td>
<td>200 Ω</td>
</tr>
<tr>
<td>High</td>
<td>0</td>
<td>2000</td>
<td>200 Ω</td>
</tr>
<tr>
<td>Output type</td>
<td>Min</td>
<td>Max</td>
<td>Min. span</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>4 mA</td>
<td>20 mA</td>
<td>4 mA</td>
</tr>
</tbody>
</table>

(*) For temperature sensors it is possible to set the input range also in F degrees; to make the conversion use the formula: °F = (°C*9/5)+32
**DAT 4035 IS: CONFIGURATION AND CALIBRATION**

**Warning:** during these operations the device must always be powered by a safety barrier; to connect the interface Prodat, use the protection cable CVPR-03.

**- CONFIGURATION**

1. Power-on the DAT 4035 IS by a safety barrier (see Ex data).
2. Remove the protection plastic cap on DAT 4035 IS.
3. Connect the interface PRODAT to the Personal Computer and to device, using the protection cable CVPR-03. (see section “DAT 4035 IS: 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 4035 IS provides on output the minimum setted value.
4. Set the calibrator at the maximum value.
5. Verify that the DAT 4035 IS 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 4035 IS: PROGRAMMING**

**DAT 4035 IS: CONNECTIONS**

**INPUT CONNECTIONS**

**OUTPUT/POWER SUPPLY CONNECTIONS**

**DAT 4035 IS: CONFIGURATIONS**

**INSTALLATION INSTRUCTIONS**

In order to guarantee the safety requirements, before to install the device, refer to the “Safety Instructions” provided with the device.

The transmitter must be mounted in order to guarantee it an IP54 protection grade or more for external environments and an IP4X protection grade or more for internal environments or protected area.

The device DAT 4035 IS is suitable for DIN rail mounting.

It is necessary to install the device in a place without vibrations; avoid to routing conductors near power signal cables.

The protection enclosure type for DAT 4035 IS must be selected according to the installation Zone:

- **Zone 0:** enclosure exclusively in stainless;
- **Zone 1** or **2:** enclosure in aluminium or plastic; if plastic, apply on the enclosure the following warning:
  
  “Electrostatic discharge: Clean only with a damp cloth or anti-static products.”

**DAT 4035 IS: CONNECTIONS**

**INPUT CONNECTIONS**

**OUTPUT/POWER SUPPLY CONNECTIONS**

**ISOLATION STRUCTURE**

**HOW TO ORDER**

The DAT 4035 IS 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:**

DAT 4035 IS

DAT 4035 IS/HT

**Input type**

Sensor options:

- RTD/RES 2, 3, 4 wires
- TC: CJC int. or ext

**Input range**

**Output range**

High or low Out of scale

**Burn-out up**

S.L.: standard linearisation.

N.L.: no linearisation.

C.L.: linearisation by step (Custom): specify input curve

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