**FEATURES**
- Field Bus data acquisition
- CAN open protocol
- Baud rate and ID Node programmable by dip-switch
- Configurable input for RTD, Resistance and Potentiometer
- 3 ways 2000 Vac galvanic isolation
- EMC compliance – CE Mark
- In compliance with EN-50022 DIN rail mounting

**GENERAL DESCRIPTION**
The device DAT 7014 is able to acquire up to 4 analogue inputs as RTD 2 / 3 wires or potentiometer sensors. The data are transmitted by the CANopen protocol.

By means of 16 bit converters, the device guarantees high accuracy and a stable measures both versus time and temperature.

The 2000 Vac galvanic isolation between inputs, power supply and data line eliminates the effects of all ground loops eventually existing and allows the use of the device in heavy environmental conditions found in industrial applications.

The DAT 7014 is housed in a rough self-extinguishing plastic enclosure of 22.5 mm thickness, suitable for DIN rail mounting in compliance with the EN 50022 standard.

**COMMUNICATION PROTOCOLS**
On the DAT7000 modules the following communication protocol is implemented:
CANopen Protocol: one of the most used standard communication protocol; it allows to interface the modules of DAT7000 series directly to the CAN Controllers that accept devices in compliance with the CiA DS 301 and CiA DS 401 standards. For communication setting, refer to the User manual.

**OPERATING INSTRUCTIONS**
Before to install the device, please read carefully the “Installation instructions” section.
Connect the power supply, the data line and the Input signals as shown in the “Wiring” section.
Refer to the “Led signalling” section to verify the correct working of the device.
To make easy the maintenance or the substitution of the device, it is possible the “hot swap” of the terminals.

**INSTALLATION INSTRUCTIONS**
The device DAT 7014 is suitable to be mounted on DIN rail, in vertical position.
For a correct working and a long life of the device, read the following indications.

In case of the devices are mounted side by side, please leave about 5mm between in the following situations:
- Temperature in the cabinet higher than 45 °C and high supply voltage ( >27Vdc ).
- Avoid to place raceways or other objects which could obstruct the ventilation slits. It is suggested to avoid that devices are mounted above appliances generating heat; their ideal place should be in the lower part of the panel.
- Avoid to install the devices in a site where vibrations are present.
- It is recommended to use shielded cable for connecting signals. The shield must be connected to an earth wire provided for this purpose. Moreover it is suggested to avoid routing conductors near power signal cables.

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

<table>
<thead>
<tr>
<th>Input type</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTD 2,3 wires</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pt100</td>
<td>-200°C</td>
<td>850°C</td>
</tr>
<tr>
<td>Pt1000</td>
<td>-200°C</td>
<td>200°C</td>
</tr>
<tr>
<td>Ni100</td>
<td>-60°C</td>
<td>180°C</td>
</tr>
<tr>
<td>Ni1000</td>
<td>-60°C</td>
<td>150°C</td>
</tr>
<tr>
<td>RES. 2,3 wires</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>0 Ω</td>
<td>500 Ω</td>
</tr>
<tr>
<td>High</td>
<td>0 Ω</td>
<td>2000 Ω</td>
</tr>
<tr>
<td>Potentiometer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nom. value</td>
<td>20 Ω</td>
<td>50 KΩ</td>
</tr>
</tbody>
</table>

**Input Calibration (1)**
- RTD 100 Ω ±0.05 % f.s.
- RTD 1000 Ω ±0.1 % f.s.
- Res. 600 Ω ±0.1 % f.s.
- Pot. 2000 Ω ±0.1 % f.s.

**Linearity (1)**
- RTD ± 0.1 % f.s.

**Lead wire resistance influence (1)**
- RTD/Res. 3 wires 0.05 %/Ω (50 Ω max balanced)

**RTD excitation current**
- Typical 0.350 mA

**Thermal drift (1)**
- Full scale ± 0.01 % / °C

**Sample time**
- 40 ms

**Data Transmission**
- Baud rate up to 1 Mbps
- Max. Distance in function of the Baud rate

**Warm-up time**
- 3 min.

**Power Supply**
- Supply Voltage 10 ... 30 Vdc
- Current consumption 45 mA @ 24 Vdc
- Polarity inversion protection 60 Vdc max

**Isolation Voltage**
- 2000 Vac 50 Hz, 1 min. (Inputs/Can Network/Power supply)

**Environmental Conditions**
- Operative Temperature -10°C .. +60°C
- Storage Temperature -40°C .. +85°C
- Humidity (not condensed) 0 .. 90 %
- Maximum Altitude 2000 m

**Installation**
- Indoor
- Category of installation II
- Pollution Degree 2

**Mechanical specifications**
- Material Self-extinguish plastic
- IP Code IP20
- Wiring wires with diameter 0.8±0.1 mm² /AWG 14-18
- Tightening Torque 0.8 N m
- Mounting in compliance with DIN rail standard EN-50022
- Weight about 150 g.

**EMC (for industrial environments)**
- Immunity EN 61000-6-2
- Emission EN 61000-6-4

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

INPUT WIRING

**RTD/RES 2 WIRES**
- Channel 0
- Channel 1
- Channel 2
- Channel 3

**RTD/RES 3 WIRES**
- Channel 0
- Channel 1
- Channel 2
- Channel 3

**POTENTIOMETER**
- Channel 0
- Channel 1
- Channel 2
- Channel 3

Terminals 3, 8, 14, and N = input negative reference.
Terminals 13 and M not connected (NC).
NOTES: the input channels are not insulated between them.

CAN NETWORK WIRING

POWER SUPPLY WIRING

DIP SWITCH POSITION

DIP-SWITCH CONFIGURATION TABLES

<table>
<thead>
<tr>
<th>TAB.1 Address setting 1÷127 (Pos. 1 LSB; Pos. 7 MSB)</th>
<th>TAB.2 Bit rate setting (Pos. 5 LSB; Pos. 8 MSB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Addr 1: 1234567</td>
<td>SWB 5678</td>
</tr>
<tr>
<td>Addr 2: 1234567</td>
<td>10 Kbps</td>
</tr>
<tr>
<td>Addr 3: 1234567</td>
<td>50 Kbps</td>
</tr>
<tr>
<td>Addr 4: 1234567</td>
<td>125 Kbps</td>
</tr>
<tr>
<td>Addr 5: 1234567</td>
<td>500 Kbps</td>
</tr>
<tr>
<td>Addr 127: 1234567</td>
<td>800 Kbps</td>
</tr>
<tr>
<td></td>
<td>1 Mbps</td>
</tr>
</tbody>
</table>
**CABLING**

- POWER SUPPLY UNIT
- CAN NETWORK
- CANL
- GND
- ANALOGUE CHANNEL #3
- ANALOGUE CHANNEL #0
- ANALOGUE CHANNEL #1
- ANALOGUE CHANNEL #2

**ISOLATION STRUCTURE**

- ANALOGUE INPUTS
- CAN NETWORK
- POWER SUPPLY

**MECHANICAL DIMENSIONS (mm)**

- Height: 120 mm
- Width: 120 mm
- Depth: 22.5 mm

**LED SIGNALLING**

<table>
<thead>
<tr>
<th>LED</th>
<th>COLOR</th>
<th>STATE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>RUN</td>
<td>GREEN</td>
<td>ON</td>
<td>Device in Operational mode</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BLINKING</td>
<td>Device in Pre-Operational mode</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SLOW BLINKING</td>
<td>Device stopped</td>
</tr>
<tr>
<td>ERR</td>
<td>RED</td>
<td>OFF</td>
<td>No error</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ON</td>
<td>Bus off</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BLINKING</td>
<td>Invalid configuration</td>
</tr>
</tbody>
</table>

**HOW TO ORDER**

DAT 7014

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