Phone: +1 561 779 5660 E-mail : Info@datexel.com Web Site : www.datexel.com

CANopen Slave device RTD, Resistance Potentiometer

DAT 7014

FEATURES

- **Field bus data acquisition**
- **CAN open protocol**
- **Baud rate and Node ID configurable by dip-switch**
- **Configurable input for RTD, Resistance and Potentiometer**
- **LEDs of signalling for power supply and error status**
- **3 ways Galvanic Isolation**
- **Connection by removable screw terminals**
- **CE/UKCA mark**
- **DIN rail mounting in compliance with EN-50022**

GENERAL DESCRIPTION

The device DAT 7014 is able to acquire up to 4 analogue inputs as RTDs 2 / 3 wires or potentiometer sensors. The data are transmitted by CANopen protocol. By means of 16 bit converters, the device guarantees high accuracy and a stable measures both versus time and temperature.
The configuration of the Node ID and bit rate is made by the setting of the dip-switches located on the rear of the device.
On the DAT7000 modules it is implemented the CANopen Protocol that is 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.
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 device is housed in a self-extinguishing plastic enclosure of 22.5 mm thickness, suitable for DIN rail mounting in compliance with the EN 50022 standard .

USER INSTRUCTIONS

Before to install the device, please read the “Installation Instruction” section.
Connect power supply, serial bus and analogue inputs as shown in the “Wiring” section.
The LEDs state depends on the working condition of the device: see the "Light Signalling" section to verify the device working state.
To simplify handling or replacing of the device, it is possible to remove the wired terminals even with the device powered.

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

INPUT

Input type	Min	Max
RTD 2 or 3 wires		
Pt100	-200 °C	850 °C
Pt1000	-200 °C	200 °C
Ni100	-60 °C	180 °C
Ni1000	-60 °C	150 °C
RES. 2 or 3 wires		
Low	0 Ω	500 Ω
High	0 Ω	2000 Ω
POT. (nom. value)	20 Ω	50 kΩ

Input Accuracy (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 (50 Ω max balanced)	0.05 %/Ω
RTD excitation current	
Typical	0.350 mA
Thermal drift (1)	
Full scale	± 0.01 % / °C
Sample time (per channel)	40 ms
Warm-up time	3 min.

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

CAN OPEN INTERFACE

Device profile in compliance with the **CiA DS 301** and **CiA DS 401** standards.

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

GENERAL SPECIFICATIONS

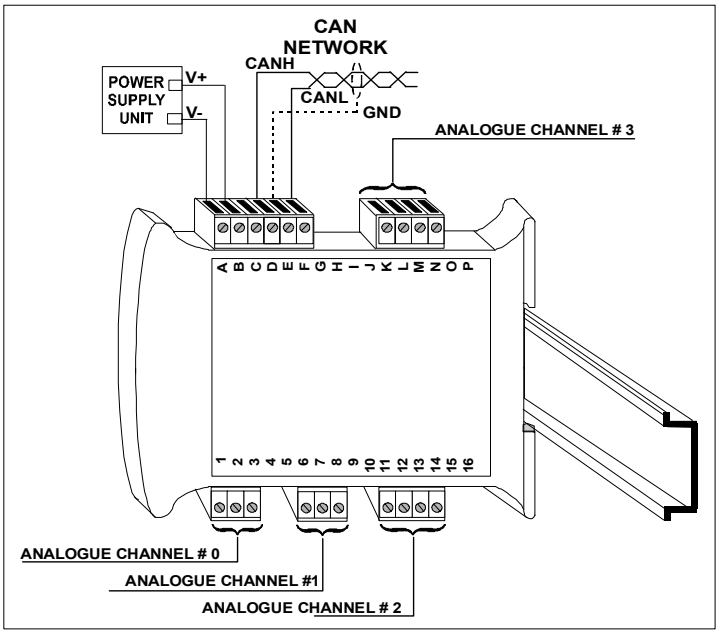
Supply Voltage	10 .. 30 Vdc
Current consumption	45 mA max
Polarity inversion protection	60 Vdc max
ISOLATION (test time 1 minute)	
Power supply / Can bus	2000 Vca, 50 Hz
Inputs / Power Supply	2000 Vca, 50 Hz
Inputs / Can bus	2000 Vca, 50 Hz
ENVIRONMENTAL CONDITIONS	
Operative Temperature	-10°C .. +60°C
Storage Temperature	-40°C.. +85°C
Humidity (not condensed)	0 .. 90 %
Maximum Altitude	2000 m
Installation	Indoor
Category of installation	II
Pollution Degree	2
CONNECTIONS	
CAN interface	Removable screw-terminals
Inputs	Removable screw-terminals
Power Supply	Removable screw-terminals
MECHANICAL SPECIFICATIONS	
Material	Self-extinguish plastic
IP Code	IP20
Wiring	wires with diameter 0.8÷2.1 mm² /AWG 14-18
Tightening Torque	0.8 N m
Mounting	in compliance with DIN rail standard EN-50022
Weight	about 150 g.
CERTIFICATIONS	
EMC (for the Industrial Environments)	
Immunity	EN 61000-6-2
Emission	EN 61000-6-4
UKCA (ref S.I. 2016 N°1091)	
Immunity	BS EN 61000-6-2
Emission	BS EN 61000-6-4

INSTALLATION INSTRUCTIONS

The device 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.

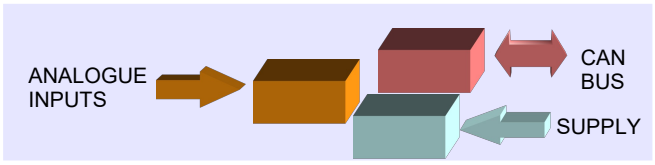
TERMINALS OVERVIEW



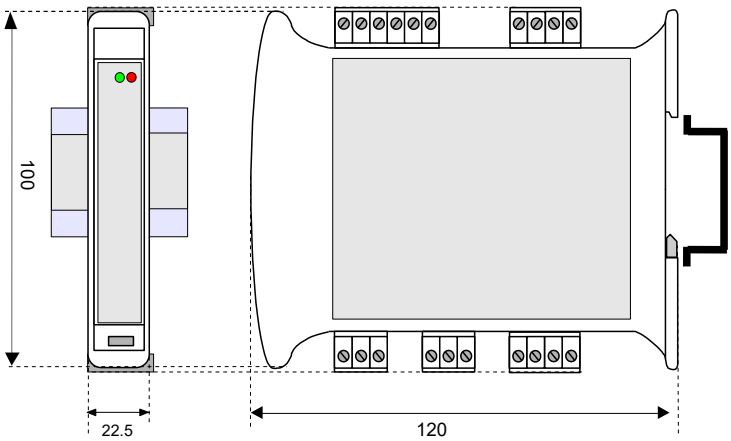
LIGHT SIGNALLING

LED	COLOUR	STATE	DESCRIPTION
RUN	GREEN	ON	Device in Operational mode
		BLINKING	Device in Pre-Operational mode
		SLOW BLINKING	Device stopped
ERR	RED	OFF	No error
		BLINKING	Communication error

ISOLATION STRUCTURE



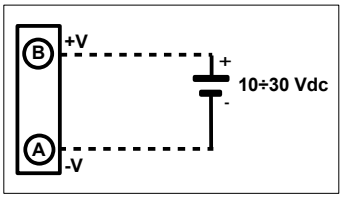
MECHANICAL DIMENSIONS (mm)



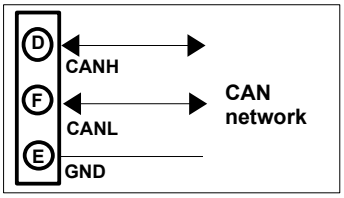
The symbol reported on the product indicates that the product itself must not be considered as a domestic waste.
It must be brought to the authorized recycle plant for the recycling of electrical and electronic waste.
For more information contact the proper office in the user's city , the service for the waste treatment or the supplier from which the product has been purchased.

WIRING

POWER SUPPLY

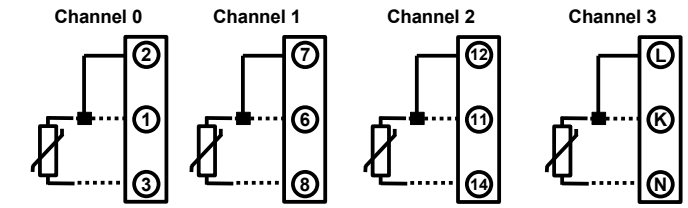


CAN NETWORK

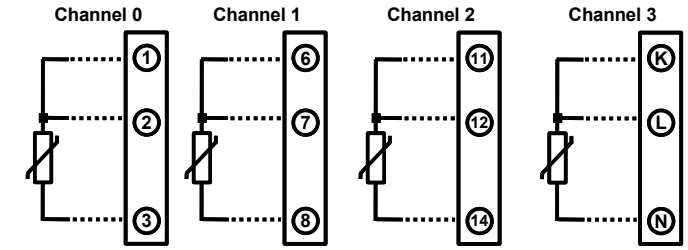


ANALOGUE INPUTS

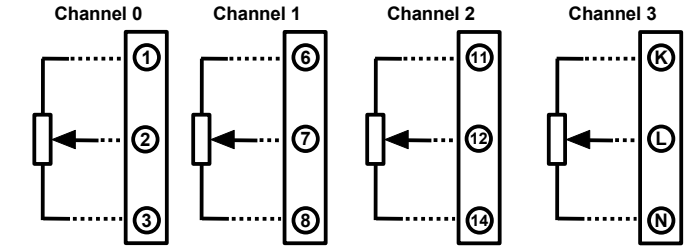
RTD/RES 2 WIRES



RTD/RES 3 WIRES



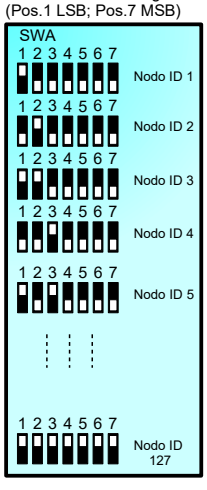
POTENTIOMETER



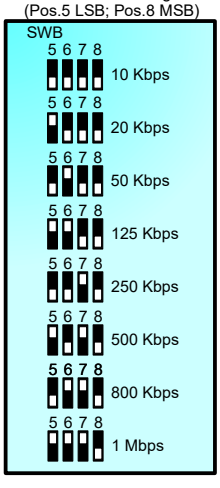
Terminals 3,8,14 and N = negative input reference.
Terminals 13 and M not connected (NC).
NOTE: the input channel aren't isolated between them.

DIP-SWITCH CONFIGURATION TABLE

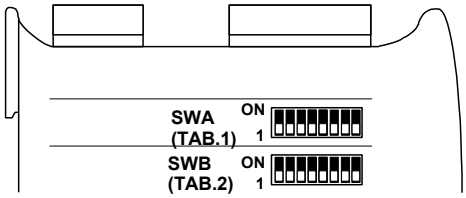
TAB.1 Address setting 1÷127 (Pos.1 LSB; Pos.7 MSB)



TAB.2 Bit rate setting (Pos.5 LSB; Pos.8 MSB)



DIP-SWITCH POSITION



HOW TO ORDER

" DAT 7014 "