CANopen Slave device Thermocouple and mV
Phone: 561 779 5660 - e-mail:datexel@datexel.com - www.datexel.com

UNI EN ISO 9001:2008

CANopen Slave device
4 mV / Tc analogue inputs

DAT 7016

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

GENERAL DESCRIPTION
The device DAT 7016 is able to acquire up to 4 Thermocouple or mV inputs. 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 7016 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 7016 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)

Input type	Min	Max
TC		
J	-200°C	1200°C
K	-200°C	1370°C
S	-50°C	1760°C
R	-50°C	1760°C
B	400°C	1820°C
E	-200°C	1000°C
T	-200°C	400°C
N	-200°C	1300°C
Voltage		
mV	-50 mV	+50 mV
mV	-100 mV	+100 mV

Device profile
In compliance with the **CiA DS 301** and **CiA DS 401** standard.

Input Calibration (1)	
mV, TC	> of ±0.05 % f.s. or ±5uV
Input impedance	
TC, mV	>= 10 MΩ
Linearity (1)	
TC	± 0.2 % f.s.
Lead wire resistance influence (1)	
TC, mV	<=0.8 uV/Ohm
CJC comp.	± 0.5°C
Thermal drift (1)	
Full scale	± 0.01 % / °C
CJC	± 0.02°C / °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.

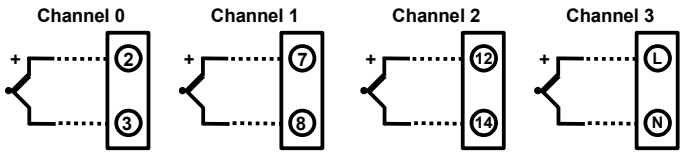
Power Supply	
Supply Voltage	10 .. 30 Vdc
Current consumption	45 mA @ 24 Vdc
Polarity inversion protection	60 Vdc max
Isolation Voltage	
	2000 Vac 50 Hz, 1 min. (Inputs/Can Network/Power supply)
Environmental Conditions	
Operative Temperature	-10°C .. +60°C
Storage Temperature	-40°C.. +85°C
Humidity (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÷2.1 mm^2 /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)

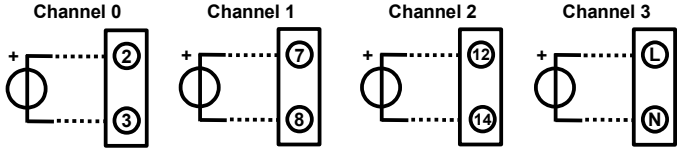
WIRING

INPUT WIRING

Thermocouple



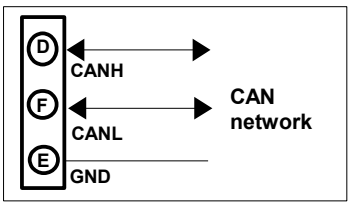
Voltage (mV)



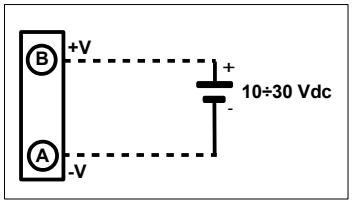
Terminals 3,8,14, and N = input negative reference

NOTES: the input channels are not insulated between them

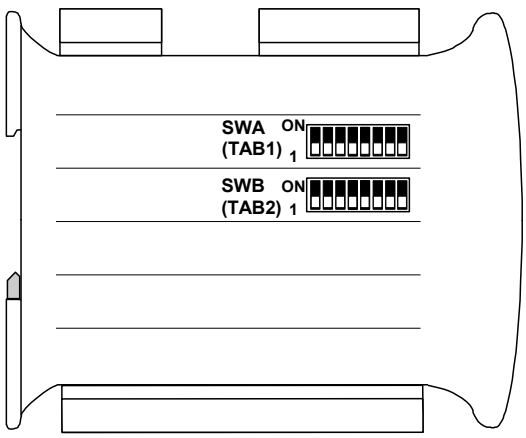
CAN NETWORK WIRING



POWER SUPPLY WIRING

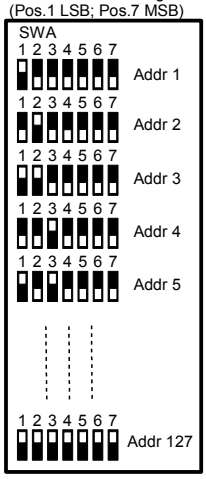


DIP SWITCH POSITION

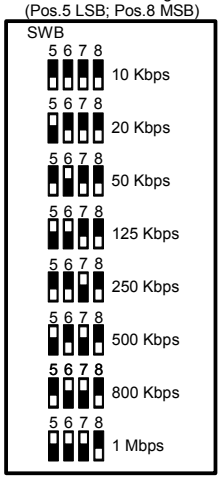


DIP-SWITCH CONFIGURATION TABLES

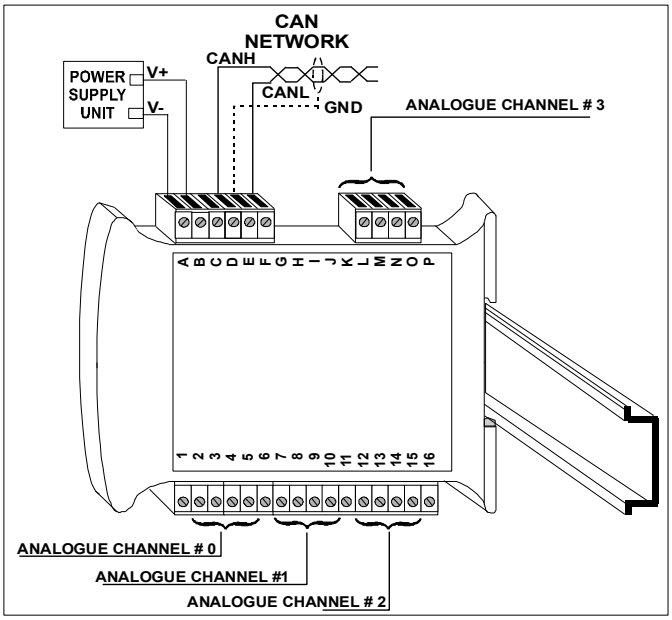
TAB.1 Address setting 1÷127 (Pos.1 LSB; Pos.7 MSB)



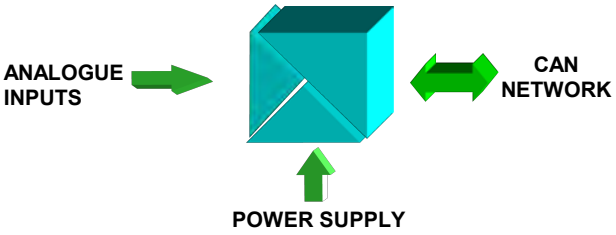
TAB.2 Bit rate setting (Pos.5 LSB; Pos.8 MSB)



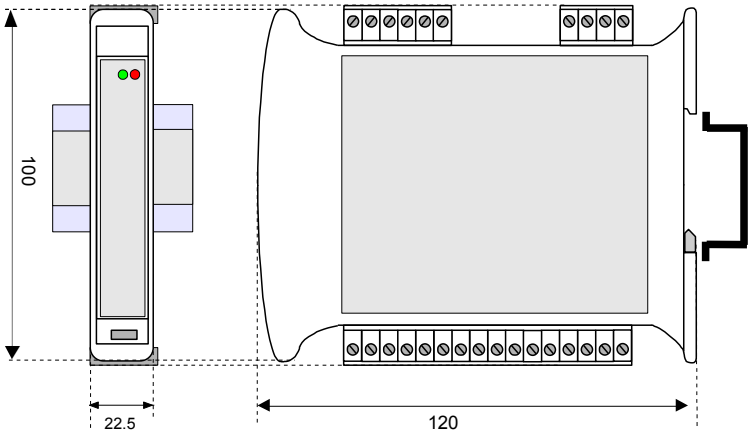
CABLING



ISOLATION STRUCTURE



MECHANICAL DIMENSIONS (mm)



LED SIGNALLING

LED	COLOR	STATE	DESCRIPTION
RUN	GREEN	ON	Device in Operational mode
		BLINKING	Device in Pre-Operational mode
		SLOW BLINKING	Device stopped
ERR	RED	OFF	No error
		ON	Bus off
		BLINKING	Invalid configuration

HOW TO ORDER

DAT 7016