DATEXEL

UNI EN ISO 9001:2000

4 ways isolated programmable signal converter

DAT 5022

FEATURES

- **Input for voltage and current signal**
- **Input range configurable by DIP-switches**
- **Two independent output channels**
- **Voltage or current outputs configurable by DIP-switches**
- **Isolated power supply source for passive current transmitter on input**
- **Isolated power supply source for passive loads on outputs**
- **Galvanic isolation at 2000 Vac between input, power supply and outputs**
- **Good accuracy and performance stability**
- **EMC compliant – CE mark**
- **DIN rail mounting in compliance with EN-50022 and EN-50035**

CE

GENERAL DESCRIPTION

The converter DAT 5022 is designed to provide on its output two voltage or current signals proportional with the value of the normalised signal applied on its input.
The user can program the input and outputs ranges by the proper DIP-switches available after opening the suitable door located on the side of device (see “Input ranges table” and “Outputs ranges table” sections).
The regulation of Zero and Span values is made by the ZERO and SPAN potentiometers located on the top of device.
The 2000 Vac isolation between input, power supply and the outputs eliminates the effects of all ground loops eventually existing and allows the use of the converter in heavy environmental conditions found in industrial applications.
The DAT 5022 provides on the input side an auxiliary supply source to connect both active and passive current loops.
Moreover it provides on each output side an auxiliary supply source to connect both active and passive loads.
It has been made in compliance with the EEC/336/89 standard on the Electromagnetic Compatibility.
It is housed in a plastic enclosure of 12.5 mm thickness suitable for DIN rail mounting in according to EN-50022 and EN-50035 standards .

OPERATIVE INSTRUCTIONS

The converter DAT 5022 must be powered by a direct voltage included in the 18 V to 32 V range. The power supply must be applied between the terminals Q (+Vdc) and R (GND).
The output 1 connections must be made as shown in the section "Output 1 connections".
Voltage output: between the terminals L (Out1) and G (Out1 GND); **passive current output**: between the terminals L (Out1) and G (Out1 GND) for the sink currents; **active current output** : between the terminals I (Aux supply 1) and L (Out1) for the source currents.
The output 2 connections must be made as shown in the section "Output 2 connections".
Voltage output: between the terminals F (Out2) and H (Out2 GND); **passive current output**: between the terminals F (Out2) and H (Out2 GND) for the sink currents; **active current output** : between the terminals E (Aux supply 2) and F (Out2) for the source currents.
The input connections must be made as shown in the section "Input connections".
Voltage input: between the terminals N (Input V) and P (Input GND); **passive current input**: between the terminals O (Input I) and P (Input GND) for the sink currents; **active current input** for the source current (for example coming from a passive transmitter) : between the terminals M (Aux supply) and O (Input I).
The configuration of input and output ranges is made by DIP-switches; the output channels can be set independently (refer to the section “Input ranges table” and “Outputs ranges table”).
After the converter configuration, it is necessary to calibrate it using the ZERO and SPAN regulations; this operation is illustrated in the section “DAT 5022: Configuration and calibration”.To install the device refer to the section “Installation instructions”.

TECHNICAL SPECIFICATIONS (Typical @ 25 °C and in nominal conditions)	
Input	
Signal type (configurable)	Current: 4 ÷ 20 mA, 0 ÷ 20 mA, Voltage: 0÷10 V, 2÷10 V, 0÷5 V, 1÷5 V
Input impedance	Voltage: >/= 1 MΩ, Current: ~ 50 Ω
Auxiliary supply (Aux. supply)	18 Vdc min @ 20 mA
Output 1 & 2	
Signals type (configurable)	Current: 4 ÷ 20 mA, 0 ÷ 20 mA, Voltage: 0÷10 V, 2÷10 V, 0÷5 V, 1÷5 V
Zero regulations	± 5 % min.
Span regulations	± 5 % min.
Load resistance (Rload)	Current output: </= 500 Ω, Voltage output: >/= 5 KΩ
Auxiliary supplies (Aux. Supply 1 & 2)	12 Vdc min @ 20 mA
Performances	
Calibration error	± 0.1 % of f.s.
Linearity error (*)	± 0.05 % of f.s.
Thermal drift	0.02 % of f.s./°C
Response time (from 10 to 90 % of f.s.)	< 10 ms
Power supply voltage (**)	18÷32 Vdc
Current consumption(***)	Current output: 120 mA max. Voltage output: 70 mA max.
Electromagnetic Compatibility (EMC) (for industrial environments)	Immunity: EN 61000-6-2; Emission : EN 61000-6-4
Isolation voltage	2000 Vac, 50 Hz, 1 min.
Operating temperature	-20 ÷ 60 °C
Storage temperature	- 40 ÷ 85 °C
Relative humidity (non cond.)	0 ÷ 90%
Weight	approx. 90 g

(*) inclusive of hysteresis and power supply variation.
(**) internally protected against polarity reversion.
(***)Current: with both input and outputs Auxiliary supplies operative; Voltage: with input Auxiliary supply operative.

DAT 5022: CONFIGURATION & CALIBRATION

1) Refer to the “Input ranges table”, determine in the column " Input " the position of the input value.
Refer to the “ Outputs ranges table " and determine in the column " Output 1 & 2 " the position of the output values.
In the correspondent lines is shown how to set the DIP-switches .
2) Set the DIP-switches as indicated .
3) Connect on input a voltage or current simulator programmed to supply the maximum and minimum values of the input range.
4) Set the simulator at the minimum value of the input range or regulate the potentiometer at the minimum value .
5) By the ZERO potentiometers calibrate the output of each channel at the minimum value .
6) Set the simulator at the maximum value of the input range or regulate the potentiometer at the maximum value.
7) By the SPAN potentiometers calibrate the output of each channel at the maximum value .
8) Repeat the operation from the step 4 to the step 7 until the output value will be correct (3 attempts typically required).

Configuration ex. : in: 4÷20 mA out 1: 0÷10 Vdc, out 2: 4÷20 mA.
Input switches configuration (SW1): On, Off, On, Off.
Output 1 switches configuration (SW2): Off, On, Off, Off, Off.
Output 2 switches configuration (SW3): On, Off, Off, On, On.

INPUT RANGES TABLE

INPUT	SW1			
	1	2	3	4
0 ÷ 10 V		●		
2 ÷ 10 V	●			
0 ÷ 5 V		●		●
1 ÷ 5 V	●			●
0 ÷ 20 mA		●	●	
4 ÷ 20 mA	●		●	

OUTPUTS RANGE TABLE

OUTPUT 1 & 2	SW2 & SW3				
	1	2	3	4	5
0 ÷ 10 V		●			
2 ÷ 10 V		●		●	●
0 ÷ 5 V		●	●		
1 ÷ 5 V		●	●	●	●
0 ÷ 20 mA	●				
4 ÷ 20 mA	●			●	●

● = DIP SWITCHES " ON"

INSTALLATION INSTRUCTIONS

The DAT 5022 device is suitable for fitting to DIN rails in the vertical position. For optimum operation and long life follow these instructions:

When the devices are installed side by side it may be necessary to separate them by at least 5 mm in the following case:
- If panel temperature exceeds 45°C and **at least one** of the overload conditions exists.
- If panel temperature exceeds 35°C and **at least two** of the overload conditions exist.
- If **all** the overload conditions exist.

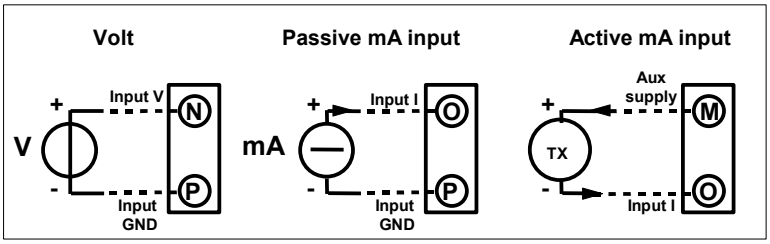
Overload conditions:
- Use of input auxiliary supply (terminal M).
- Use of output 1 auxiliary supply (terminal I).
- Use of output 2 auxiliary supply (terminal E).

Make sure that sufficient air flow is provided for the device avoiding to place raceways or other objects which could obstruct the ventilation slits. Moreover 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. Install the device in a place without vibrations.
Moreover it is suggested to avoid routing conductors near power signal cables (motors, induction ovens, inverters, etc...) and to use shielded cable for connecting signals.
Warning: when the voltage input (terminal N) is not used, it is suggested to not connect cable to it or connect the terminal N to the terminal P.

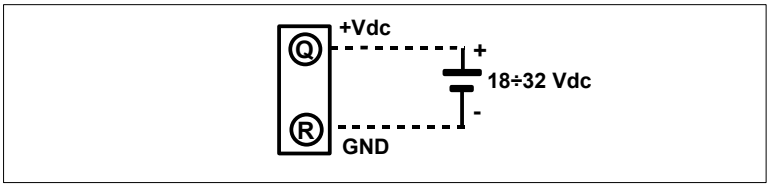
ISOLATIONS STRUCTURE

DAT 5022: CONNECTIONS

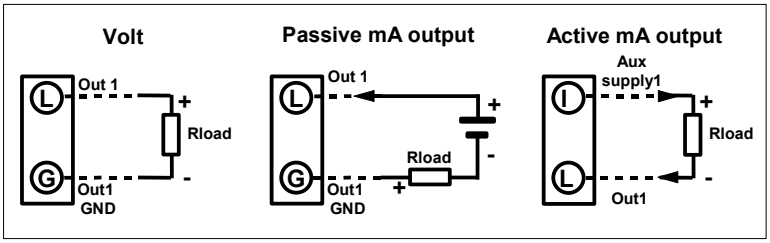
INPUT CONNECTIONS



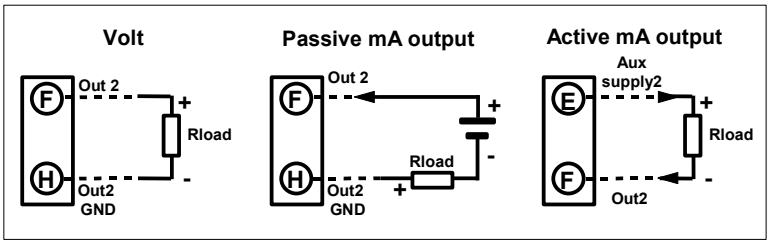
POWER SUPPLY CONNECTIONS



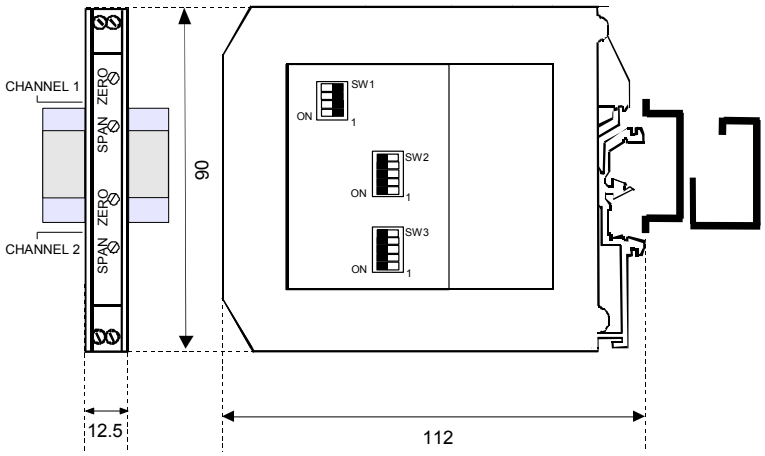
OUTPUT 1 CONNECTIONS



OUTPUT 2 CONNECTIONS



DIMENSIONS (mm) & REGULATIONS



HOW TO ORDER

The DAT 5022 is supplied as requested on the order.
In case of the configuration is not specified, the parameters must be set by the user.

ORDER CODE EXAMPLE: DAT 5022 0÷10 V - 0÷10 V - 0÷10 V
Input range
Output 1 range
Output 2 range