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Low Cost Signal Splitter

DAT 5022

FEATURES

- **Input for voltage and current signal**
- **Input and output ranges configurable by DIP-switches**
- **Two independent output channels**
- **Isolated power supply source for passive current transmitter on input**
- **Isolated power supply source for passive loads on outputs**
- **Galvanic isolation at 1500 Vac between input, power supply and outputs**
- **Led for signalling correct power supply condition**
- **UL / CE / UKCA mark**
- **DIN rail mounting in compliance with EN-50022 and EN-50035**

GENERAL DESCRIPTION

The converter DAT 5022 is designed to provide on 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).
On the top of device there are the led PWR to signal the correct power supply condition and the ZERO and SPAN potentiometers for the regulation of Zero and Span values. The 1500 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.
The DAT 5022 is in compliance with the Directive UL 61010-1 for US market and with the Directive CSA C22.2 No 61010-1 for the Canadian market.
Moreover it provides on each output side an auxiliary supply source to connect both active and passive loads.
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 connections must be made as shown in the section "Wiring".
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)	Min	Max
Voltage	0 V 2 V 0 V 1 V	10 V 10 V 5 V 5 V
Current	0 mA 4 mA	20 mA 20 mA

Input Impedance
Volt ≥ 1 MΩ
Current ~ 50 Ω

Auxiliary power supply(Aux. Supply)
18 Vdc min @ 20 mA

OUTPUT (2 CHANNELS)

Signal Type (configurable)	Min	Max
Voltage	0 V 2 V 0 V 1 V	10 V 10 V 5 V 5 V
Current	0 mA 4 mA	20 mA 20 mA

Output Adjustment
Zero ± 5 % of f.s. minimum
Span ± 5 % of f.s. minimum
Load resistance - Rload
Current: ≤ 500 Ω
Voltage: ≥ 5 KΩ
Auxiliary power supply(Aux. Supply out)
12 Vdc min @ 20 mA

Accuracy ± 0.1 % del f.s.

Linearity Error (*) ± 0.05 % del f.s.

Thermal Drift ± 0.02 % del f.s./°C

Response Time(10÷ 90%) < 10 ms

(*) inclusive of hysteresis and power supply variation.
(**)Current: with both input and output Auxiliary supplies operative;
Voltage: with input Auxiliary supply operative.

GENERAL SPECIFICATIONS

Power supply voltage	20 .. 32 Vdc
Reverse polarity protection	60 Vdc max
Current consumption @ 24 Vdc	
Current output	80 mA max.
Voltage Output	40 mA max
Max. Current consumption(**)	100 mA

ISOLATION

Among all the ways	1500 Vac, 50 Hz, 1 min

ENVIRONMENTAL CONDITIONS

Operative Temperature	-20°C .. +60°C
UL 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 mm² /AWG 14-18
Tightening Torque	0.8 N m
Mounting	in compliance with DIN rail standard EN-50022 and EN-50035
Weight	about 90 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
UL	
US Standard	UL 61010-1
Canadian Standard	CSA C22.2 No 61010-1
CCN	NRAQ/NRAQ7
Typology	Open Type device
Classification	Industrial Control Equipment
File Number	E352854

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, On, Off.
Output 1 switches configuration (SW2): Off, On, Off, Off, Off, Off.
Output 2 switches configuration (SW3): On, Off, Off, On, On, Off.

INPUT RANGES TABLE

INPUT	SW1					
	1	2	3	4	5	6
0 ÷ 10 V		●				
2 ÷ 10 V	●					
0 ÷ 5 V		●		●		
1 ÷ 5 V	●			●		
0 ÷ 20 mA		●	●		●	
4 ÷ 20 mA	●		●		●	

OUTPUT RANGES TABLE

OUTPUT1 & 2	SW2 & SW3					
	1	2	3	4	5	6
0 ÷ 10 V		●				
2 ÷ 10 V		●		●	●	
0 ÷ 5 V		●	●			
1 ÷ 5 V		●	●	●	●	
0 ÷ 20 mA	●					
4 ÷ 20 mA	●			●	●	

● = DIP SWITCHES " ON"

INSTALLATION INSTRUCTIONS

The 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.

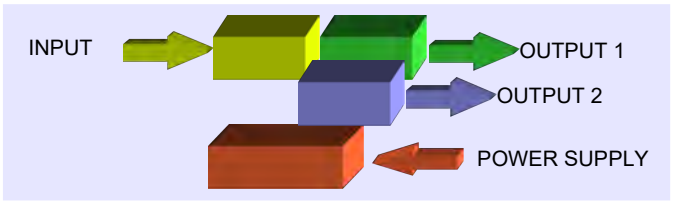
Overload conditions:
- Use of input auxiliary supply (terminal M) .
- Use of output 1 auxiliary supply (terminal I) .
- Use of output 2 auxiliary supply (terminal E) .

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.
Notice: 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.

LIGHT SIGNALLING

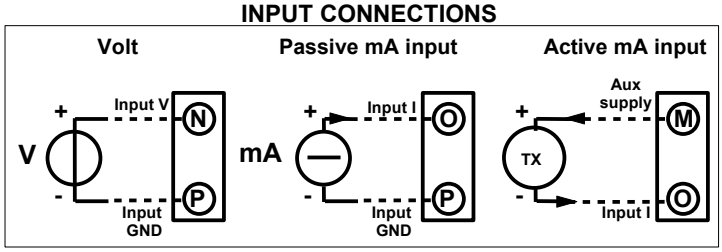
LED	COLOUR	STATE	DESCRIPTION
PWR	GREEN	ON	Device powered
		OFF	Device not powered

ISOLATION STRUCTURE

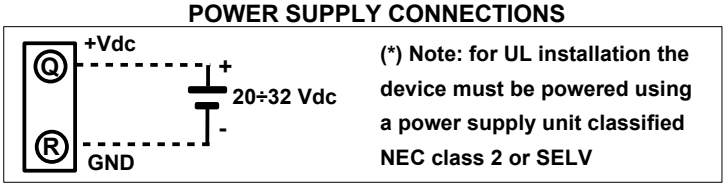


WIRING

INPUT CONNECTIONS

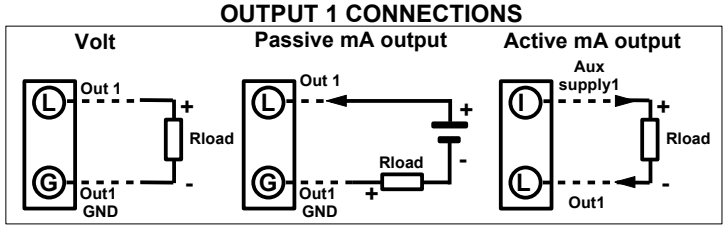


POWER SUPPLY CONNECTIONS

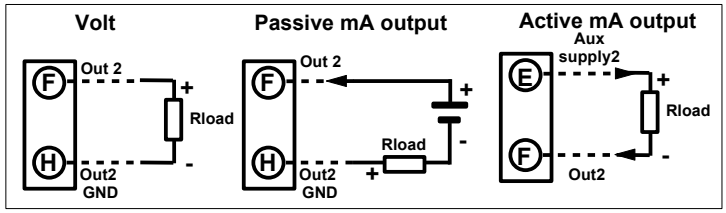


(*) Note: for UL installation the device must be powered using a power supply unit classified NEC class 2 or SELV

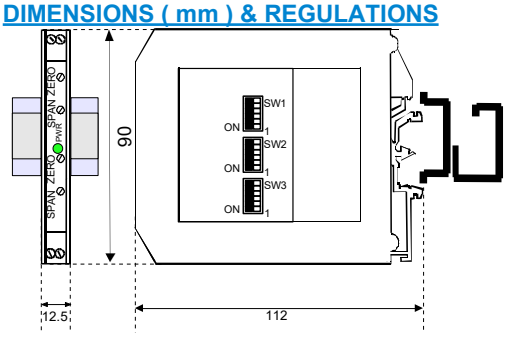
OUTPUT 1 CONNECTIONS



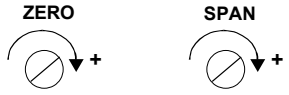
OUTPUT 2 CONNECTIONS



DIMENSIONS (mm) & REGULATIONS



POTENTIOMETER ROTATION (OUT 1 & 2)



HOW TO ORDER

The device 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

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.