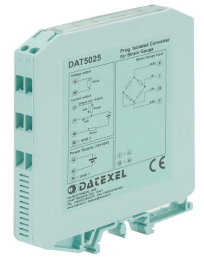


Isolated programmable converter for Strain Gauge / Bridge sensors

DAT 5025

FEATURES

- Input for Strain Gauge
- Input range configurable from 0÷10 mV up to 0÷200 mV or from ± 5 mV up to ± 200 mV
- Accurate bridge excitation voltage at 3.6 and 10 Vdc with current limiter
- Isolated power supply source for passive loads on output
- Input and output ranges configurable by DIP-switches
- Galvanic isolation at 2000 Vac between input, power supply and output
- Good accuracy and performance stability
- EMC compliant – CE / UKCA mark
- DIN rail mounting in compliance with EN-50022 and EN-50035



GENERAL DESCRIPTION

The converter DAT 5025 is designed to provide on its output a voltage or current signal linear and proportional with the output voltage coming from the output of a bridge transducers applied on its input.

The user can program the bridge excitation voltage value, the input and the output ranges by the proper DIP-switches available after opening the suitable door located on the side of device (see "Input ranges table" and "Output 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 output 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 device provides on the 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 .

USER INSTRUCTIONS

The output connections must be made as shown in the section "Wiring".

The configuration of the bridge excitation voltage, the input and output ranges values is made by DIP-switches (refer to the section "Input ranges table" and "Output ranges table").

Once the device has been configured, it is necessary to calibrate it using the ZERO and SPAN regulations; this operation is described in the section "Configuration and calibration".

To install the device refer to the section "Installation instructions".

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

INPUT			OUTPUT			GENERAL SPECIFICATIONS			
Signal type (Configurable)	Min	Max	Signal type (Configurable)	Min	Max				
Input Voltage (1)	0 mV	10 mV	Voltage	0 V	10 V	Power supply voltage 18 .. 30 Vdc			
	0 mV	20 mV		0 V	5 V	Reverse polarity protection 60 Vdc max			
	0 mV	50 mV		1 V	5	Current consumption @ 24 Vdc			
	0 mV	100 mV	Current	0 mA	20 mA	Current output 100 mA max.			
	0 mV	200 mV		4 mA	20 mA	Voltage Output 80 mA max			
	-5 mV	5 mV	Output adjustment			ISOLATION			
	-10 mV	10 mV	Zero	± 40 % of f.s. max.		Among all the ways 2000 Vac,			
	-20 mV	20 mV	Span	± 40 % of f.s. max.		50 Hz, 1 min			
	-50 mV	50 mV	Load resistance - Rload			ENVIRONMENTAL CONDITIONS			
	-100 mV	100 mV	Current:	≤ 500 Ω		Operative temperature -20°C .. +60°C			
-200 mV	200 mV	Voltage:	≥ 5 KΩ		Storage temperature -40°C .. +85°C				
<p>(1) The value in mV represents the whole voltage range generated by the output of the bridge and it is obtained multiplying the value of sensitivity expressed as mV/V by the value of the excitation voltage of the bridge (Vexc). If the output of the bridge is not dual refer to positive values only. Example: 2 mV/V * 10 Vdc = 20 mV</p> <p>Bridge excitation voltage(Vexc) 3,60 Vdc ± 0.1% For bridge's resistance included between 100 Ω and 10 KΩ 10 Vdc ± 0.1% For bridge's resistance included between 300 Ω and 10 KΩ</p> <p>Bridge excitation current 65 mA max.</p>			Auxiliary supply (Aux. supply out)			Humidity (not condensing) 0 .. 90 %			
			12 Vdc min @ 20 mA					Maximum Altitude 2000 m slm	
			Accuracy			± 0.1 % of f.s.		Installation Indoor	
			Linearity error (*)			± 0.1 % of f.s.		Category of Installation II	
			Thermal Drift			± 0.01 % of f.s./°C		Pollution Degree 2	
			Response time (10÷ 90%)			40 ms		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 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				

(*) inclusive of hysteresis and power supply variation.

(**)Current: with Auxiliary supply operative.

CONFIGURATION & CALIBRATION

- 1) Refer to the "Input ranges table", determine in the column " Input " the position of the input value.
Refer to the " Output ranges table " and determine in the column " Output " the position of the output value.
In the correspondent lines is shown how to set the DIP-switches .
- 2) Set the DIP-switches as indicated .
- 3) Set the minimum value of the input range .
- 4) By the ZERO potentiometer calibrate the output at the minimum value .
- 5) Set the maximum value of the input range .
- 6) By the SPAN potentiometer calibrate the output at the maximum value .
- 7) 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: $0 \div 10$ mV, $V_{exc} = 10$ Vdc, out $0 \div 10$ Vdc
 Input switches configuration (SW1): On, On, On, On, Off, Off(*).
 Output switches configuration (SW2): Off, Off, Off, On
 (*) = switch for the configuration of the Bridge excitation voltage value .

INPUT RANGES TABLE

INPUT	DSI				
	1	2	3	4	5
$0 \div 10$ mV	●	●	●	●	
$0 \div 20$ mV	●	●	●		
$0 \div 50$ mV	●		●	●	
$0 \div 100$ mV			●	●	
$0 \div 200$ mV			●		
± 5 mV	●	●	●	●	●
± 10 mV	●	●	●		●
± 20 mV	●	●			●
± 50 mV			●	●	●
± 100 mV			●		●
± 200 mV					●

OUTPUT RANGES TABLE

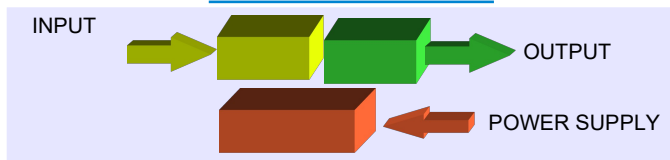
OUTPUT	DSO			
	1	2	3	4
$0 \div 20$ mA				
$4 \div 20$ mA	●	●		
$1 \div 5$ V	●	●	●	●
$0 \div 5$ V			●	●
$0 \div 10$ V				●

EXCITATION VOLTAGE TABLE

BRIDGE VOLTAGE (V_{exc})	DSI
3.60 Vcc	●
10 Vcc	

● = DIP SWITCHES " ON"

ISOLATION STRUCTURE



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 **both** the overload conditions exist.

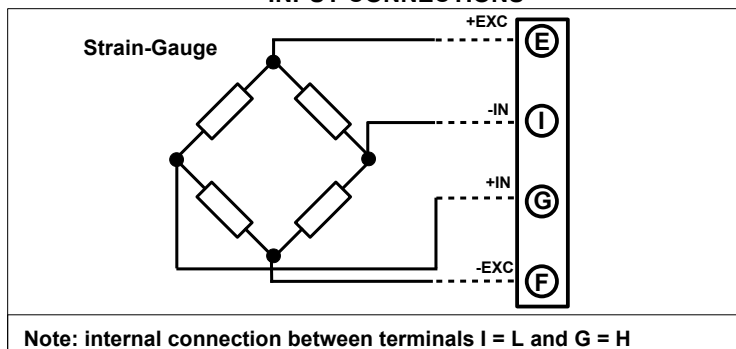
Overload conditions:

- Use of the current output (terminal P).
- Use of output auxiliary supply (terminal O).

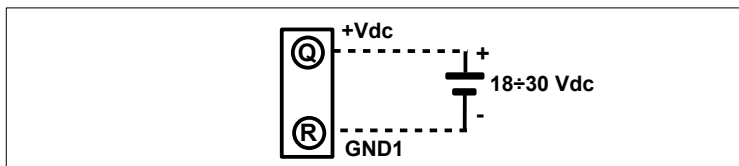
Make sure that sufficient air flow is provided for the device avoiding to place raceways or other objects which could obstruct the ventilation slits. Moreover it is suggested to avoid that devices are mounted above appliances generating heat; their ideal place should be in the lower part of the panel. 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.

WIRING

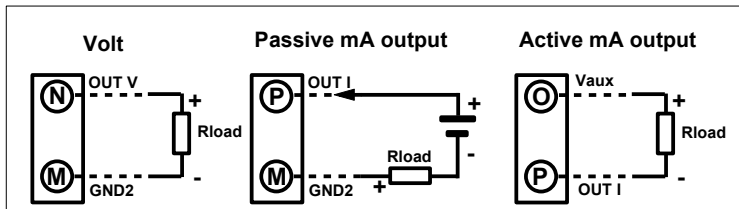
INPUT CONNECTIONS



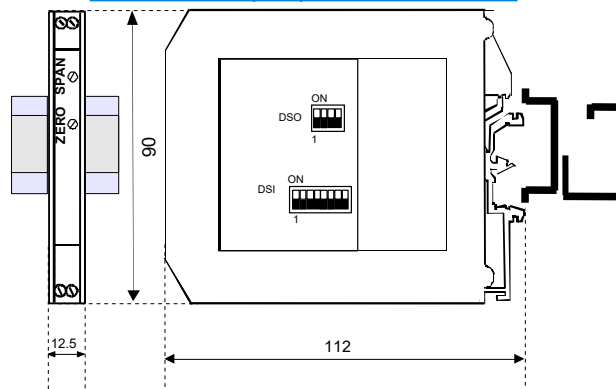
POWER SUPPLY CONNECTIONS



OUTPUT CONNECTIONS



DIMENSIONS (mm) & ADJUSTMENTS



HOW TO ORDER

The device is supplied as requested on the order.

ORDER CODE EXAMPLE:

DAT5025 $0 \div 10$ mV - $0 \div 10$ V - 10 V

Input range

Output range

Bridge voltage (V_{exc})



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.