

FEATURES

- Configurable input for active or passive 0÷20 mA or 4÷20 mA signal
- Isolated power supply source for passive transmitter on input
- Isolated power supply source for passive loads on output
- Two independent output channels
- Voltage or current outputs configurable by dip-switches
- HART compatible on both the outputs
- Galvanic isolated
- EMC compliance – CE mark
- DIN rail mounting in compliance with EN-50022

GENERAL DESCRIPTION

The converter DAT 5030H is designed to provide on its outputs two voltage or current signals proportional to the value of current signal applied on its input. The user can program the output ranges by the proper DIP-switches located on the side of the enclosure (see "Configuration table" section). The regulation of Zero and Span values for each channel is made by the proper ZERO and SPAN potentiometers located on the side of the enclosure. The input can measure 0-20 mA or 4-20 mA current loops, both in active or passive mode. The measure is converted on output as voltage (0-10V or 2-10V) or current (0-20mA or 4-20mA) signal. An auxiliary power supply is available to power the current loop connected to the output. The DAT 5030H is isolated on all the ways: the input is 2000 Vac isolated from power supply and outputs; the power supply and outputs are 1500 Vac isolated between them. The device must be powered by a voltage included between 20 and 30 Vdc; the "PWR" green led turned on indicates the correct power supply condition. The device is capable to transfer the bidirectional HART signal between input and outputs; the input must be active; this means that the current loop must be powered by the auxiliary supply. It is housed in a plastic enclosure of 22.5 mm thickness suitable for DIN rail mounting in according to EN-50022 standard .

OPERATIVE INSTRUCTIONS

The connections must be made as shown in the section "Wiring".
 The converter DAT 5030H must be powered by a direct voltage included in the 20 V to 30 V range. The power supply must be applied between the terminals J (V+) and I (V-).
Output 1: voltage output: between the terminals B (V) and C (GND1); **passive current output:** between the terminals A (I) and C (GND1) for the sink currents; **active current output :** between the terminals D (AUX 1) and A (I) for the source currents.
Output 2: voltage output: between the terminals Q (V) and P (GND2); **passive current output:** between the terminals R (I) and P (GND2) for the sink currents; **active current output :** between the terminals O (AUX 2) and R (I) for the source currents.
Input: passive current input: between the terminals 16 (Input I) and 5 (GND) making a short circuit between the terminals 14 and 6 for the sink currents; **active current input** between the terminals 4 (AUX I) and 16 (Input I) making a short circuit between the terminals 14 and 6.
 The configuration of output ranges is made by DIP-switches; the output channels can be set independently (refer to the section "Configuration table"). After the converter configuration, it is necessary to calibrate it using the ZERO and SPAN potentiometers; this operation is described in the section "DAT 5030H: Configuration and calibration". To install the device refer to the section "Installation instructions".

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

Input	
Signal type	Active or passive current loop
Range	0÷20 mA or 4÷20 mA configurable
Auxiliary Supply	> 15V @ 20mA
Input impedance	< 50 Ω
Outputs	
Signal type	4÷20 mA, 0÷20 mA, 0÷10 V or 2÷10 V configurable
Zero regulation	± 5 % of f.s.
Span regulation	± 5 % of f.s.
Load resistance	Voltage: > 5 KΩ; Current: < 500 Ω
Auxiliary Supply	> 12V @ 20mA
Power Supply	
Supply Voltage	20 ÷ 30 Vdc
Current consumption	100 mA with Vaux connected
Polarity reverse protection	60 Vdc max.
Performances	
Calibration error	± 0.1 % f.s.
Linearity error (*)	± 0.2 % f.s.
Thermal drift	0.02 % f.s./°C
Response time	< 0.2 sec.
Frequency response (HART Protocol)	bidirectional 0.5 ÷ 4 Khz @ 3dB
Isolation voltage input/output	2000 Vac @ 50 Hz, 1 min.
Isolation voltage input/supply	2000 Vac @ 50 Hz, 1 min.
Isolation voltage supply/output	1500 Vac @ 50 Hz, 1 min.
Isolation voltage between channels	2000 Vac @ 50 Hz, 1 min.
Electromagnetic Compatibility (EMC)	Immunity: EN 61000-6-2; Emission : EN 61000-6-4
Operating temperature	-20 ÷ 60 °C
Storage temperature	-40 ÷ 100 °C
Relative humidity (non condensing)	0 ÷ 90%
Weight	about 160 g
* inclusive of hysteresis, power supply variation and linearisation error.	

DAT 5030H: CONFIGURATION & CALIBRATION

- 1) Refer to the "Configuration table" and in function of the input used (4÷20 or 0÷20 mA) determine in the column " Output " the position of the output value. In the correspondent line, in the column "Switch" is shown how to set the DIP-switches .
- 2) Set the DIP-switches relative to each channel as indicated .
- 3) Connect on input a 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.
- 5) By the ZERO potentiometer of each channel calibrate the outputs at the minimum value.
- 6) Set the simulator at the maximum value of the input range.
- 7) By the SPAN potentiometer of each channel calibrate the outputs at the maximum value.
- 8) Repeat the operation from the step 4 to the step 7 until the output values will be correct (3 attempts typically required).

Configuration ex. : in: 4÷20 mA; out1 4÷20 mA; out2 4÷20 mA

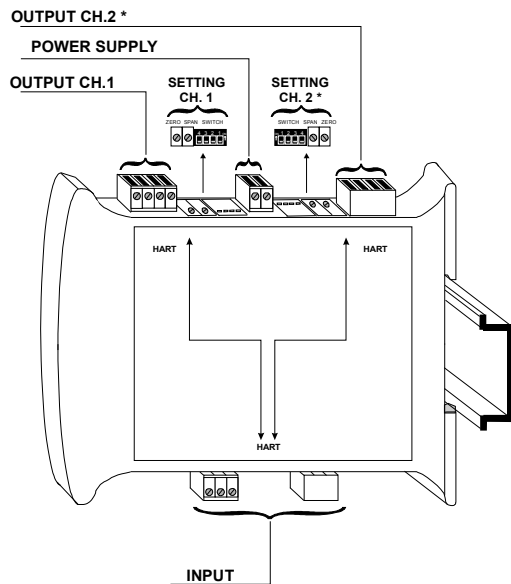
Switches configuration:

Channel 1: Off, On, Off, Off; Channel 2: Off, On, Off, Off.

CONFIGURATION TABLE

Channels 1 & 2		SWITCH			
INPUT	OUTPUT	1	2	3	4
0÷20 mA	0÷20 mA	●			
	4÷20 mA		●	●	●
	0÷10 V		●		
	2÷10 V		●	●	●
4÷20 mA	0÷20 mA	●			
	4÷20 mA		●		
	0÷10 V	●			
	2÷10 V		●		

● = DIP SWITCH " ON "



INSTALLATION INSTRUCTIONS

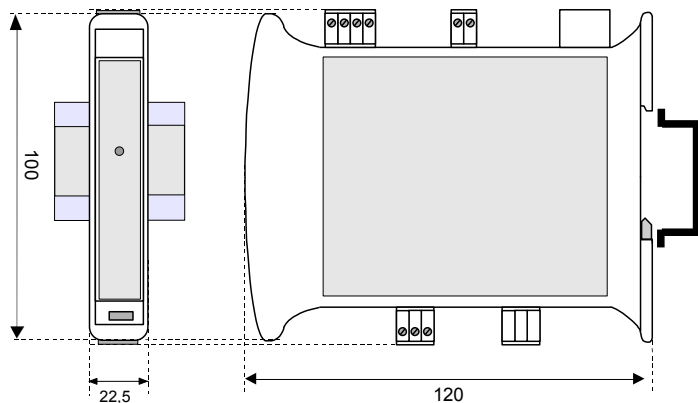
The device DAT 5030H is suitable for fitting to DIN rail in the vertical position. For optimum operation and long life, follow the instructions below.

- When two or more devices are installed side by side, it may be necessary to separate them by at least 5mm 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.
- The overload conditions are the following:
- High supply voltage: >27Vdc.
 - Use of the input or output auxiliary supplies.

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.

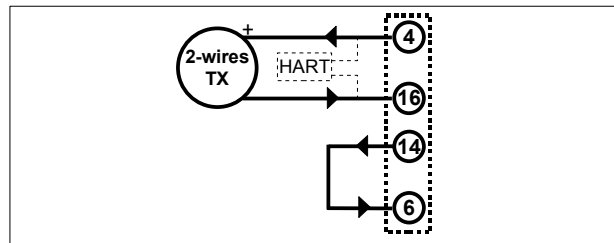
It is recommended to use shielded cable for connecting signals. The shield must be connected to an earth wire provided for this purpose. Moreover it is suggested to avoid routing conductors near power signal cables (motors, induction ovens, inverters etc...).

MECHANICAL DIMENSIONS (mm.)

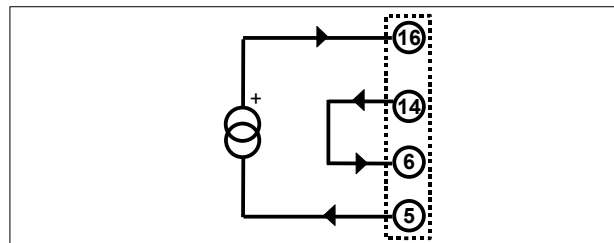


WIRING

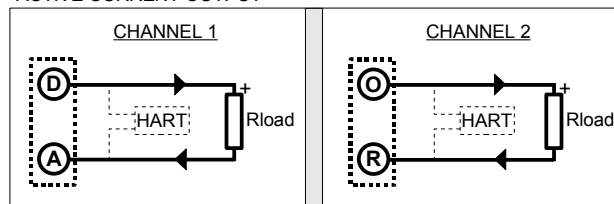
ACTIVE INPUT (2 WIRES TRANSMITTER)



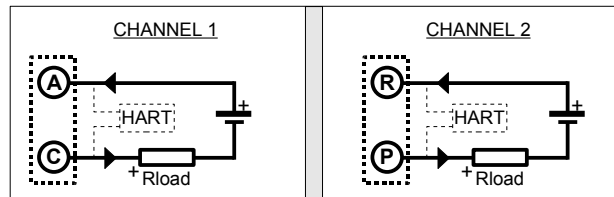
PASSIVE INPUT (CONVERTER / CURRENT GENERATOR)



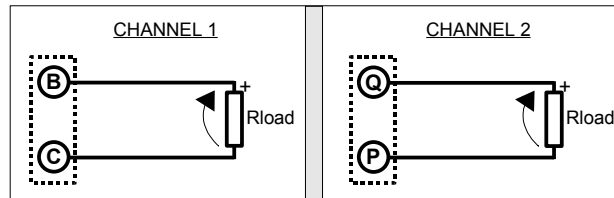
ACTIVE CURRENT OUTPUT



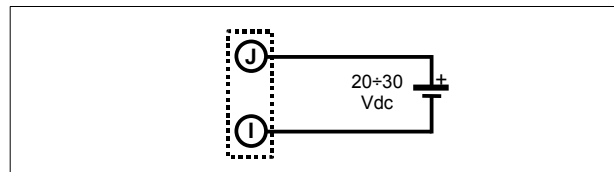
PASSIVE CURRENT OUTPUT



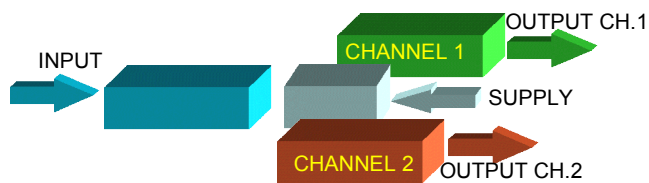
VOLTAGE OUTPUT



POWER SUPPLY



ISOLATION DIAGRAM



HOW TO ORDER

The device DAT 5030H can be provided as requested on the order. In case of the configuration is not specified, the device will be supplied with the standard configuration :

ORDER CODE: DAT 5030H **4÷20 mA** - **4÷20 mA** - **4÷20 mA**
 Input range Output 1 range Output 2 range