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UNI EN ISO 9001:2008
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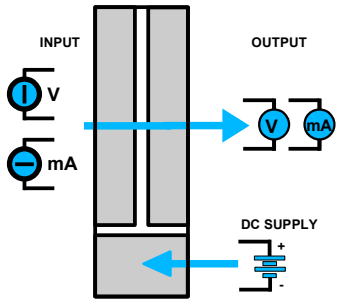
Isolated converter for voltage and current configurable by Dip-Switch or PC

DAT 4531 D

FEATURES
- **Configurable input for voltage and current**
- **Configurable output in current or voltage**
- **Configurable by dip-switch or PC**
- **High accuracy**
- **On-field reconfigurable**
- **Galvanic isolation among the ways**
- **EMC compliant – CE mark**
- **Suitable for DIN rail mounting in compliance with EN-50022 and EN-50035**



GENERAL DESCRIPTION

The isolated converter DAT 4531 D is able to measure voltage and current signals. In function of programming, the measured values are converted in a current or voltage signal. The device guarantees high accuracy and performances stability both versus time and temperature.
The programming is made by the dip-switch located in the window on the side of the enclosure. By means of dip-switches it is possible to select the input type and range and the output type without recalibrate the device.
Moreover, by Personal Computer the user can program all of the device's parameters for his own necessity.
The terminals of the current signal on input side must be only connected to active current loop.
The 1500 Vac galvanic isolation on all ways (input, output and power supply) 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 4531 D is in compliance with the Directive 2004/108/EC on the Electromagnetic Compatibility.
It is housed in a plastic enclosure of 12.5 mm thickness suitable for DIN rail mounting in compliance with EN-50022 and EN-50035 standards.

USER INSTRUCTIONS

The converter must be powered by a direct voltage applied to the terminals Q and R.
The input channel measures the value from the sensor connected to the terminals I, L and G and transmits the output measure on the terminals N and M.
The input and output connections must be made as shown in the section "Connections".
It is possible to configure the converter on field by dip-switch or Personal Computer as shown in the section " Programming ". The configuration by dip-switches can be made also if the device is powered (note: after the configuration the device takes some seconds to provide the right output measure).

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

INPUT

Input type	Min	Max	Min.Span
Voltage	0 V	10 V	1 V
Current	0 mA	20 mA	1 mA

Input Calibration (1)
Volt the higher of ±0.1% f.s. and ± 2 mV
mA the higher of ±0.1% f.s. and ± 6 uA

Linearity (1)
Volt, mA ± 0.05 % f.s.

Input impedance
Voltage >= 1 MΩ
Current <= 50 Ω

Thermal drift (1)
Full scale ± 0.01% / °C

(1)referred to the input Span (difference between max. and min.)

OUTPUT

Output type	Min	Max	Min Span
Current	0 mA	20 mA	4 mA
Voltage	0 V	10 V	1 V

Output calibration
Current ± 7 uA
Voltage ± 5 mV

Burn-out values
Max. output value 22 mA or 10.6 V
Min. output value 0 mA or -0.6 V

Output load Resistance - Rload
Current output < 500 Ω
Voltage output > 10 KΩ
Short circuit current 26 mA max.

Response time (10÷ 90%) about 100 ms

POWER SUPPLY

Power supply voltage 18 .. 30 Vdc
Reverse polarity protection 60 Vdc max

Current consumption
Current output 35 mA max.
Voltage output 20 mA max.

ISOLATION

Among all ways 1500 Vac, 50 Hz, 1 min

TEMPERATURE AND HUMIDITY

Operative temperature -20°C .. +60°C
Storage temperature -40°C.. +85°C
Humidity (not condensed) 0 .. 90 %

HOUSING

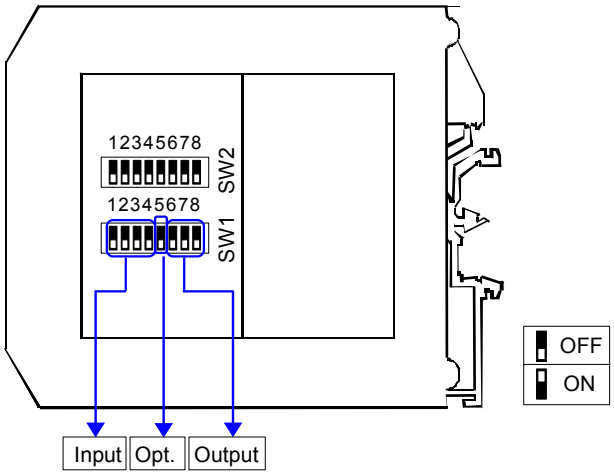
Material Self-extinguishing plastic
Mounting DIN rail in compliance with EN-50022 and EN-50035
Weight about 90 g.

EMC (for industrial environments)

Immunity EN 61000-6-2
Emission EN 61000-6-4

PROGRAMMING

CONFIGURATION BY DIP-SWITCHES



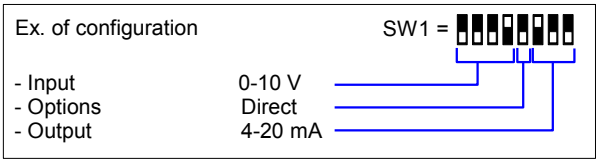
1) Open the suitable door on the side of the device.

Refer to TAB.1

2) Set the input type by the dip-switch SW1 [1..4]

3) Set the output type by the dip-switch SW1 [6..8]

4) Set the options by the dip-switch SW1 [5]



NOTE:
- It is also possible to set the dip-switches using the wizard of the configuration software following the procedure described in the section "Configuration by PC" until the step 6 and clicking on "Switch".

DIP-SWITCH CONFIGURATION TABLES

TAB.1 – Settings

Input	Output	Options
SW1 1 2 3 4	SW1 6 7 8	SW1 5 Out:
Default *	0÷20 mA	Direct
0÷20 mA	4÷20 mA	Reverse
4÷20 mA	0÷10 V	
0÷10 V	2÷10 V	
2÷10 V	0÷5 V	
0÷5 V	1÷5 V	
1÷5 V		

NOTES:

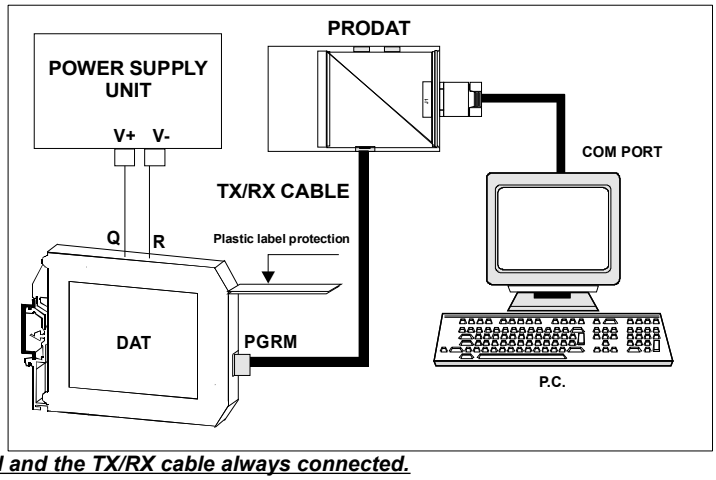
* If the dip-switches SW1 [1..4] are all set in the position 0 ("Default"), the device will follow the configuration programmed by PC (Input and output type and options).

* Eventual wrong dip-switches settings will be signalled by the blinking of the led "PWR".

CONFIGURATION BY PC

By software DATESOFT it is possible to:
- set the default programming of the device;
- program the options not available with the dip-switch;
- read, in real time, the input and output measures;
- follow the dip-switches configuration wizard.

To configure the device follow the next steps:
1) Power-on the device.
2) Open the protection plastic label on the front of the device.
3) Connect the interface PRODAT to the PC (COM port) and to the device (PGRM connector).
4) Open DATESOFT.
5) Select the COM port in use.
6) Click on "Open COM".
7) Click on "Program".
8) Set the programming data.
9) Click on "Write" to send the programming data to the device.



Warning: during these operations the device must always be powered and the TX/RX cable always connected.
For information about DATESOFT refer to the software's user guide.

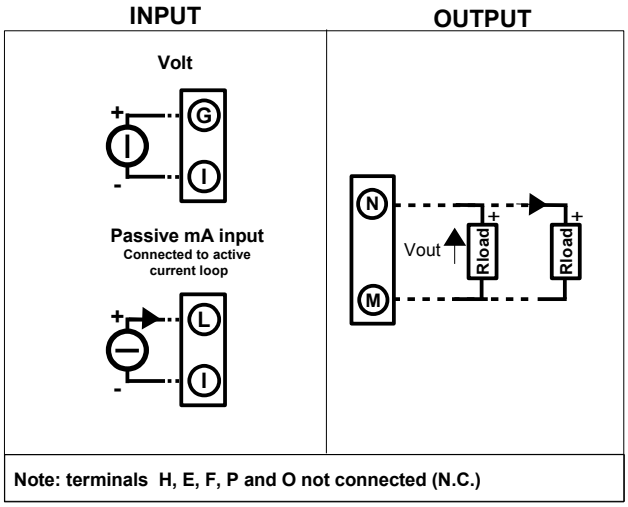
INSTALLATION INSTRUCTIONS

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 cases:
- If panel temperature exceeds 45°C.
- Use of high power supply value (> 27 Vdc).
- Use of output current.

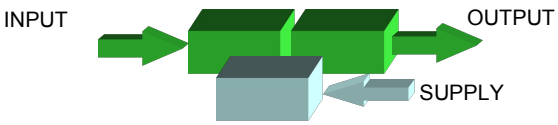
Make sure that sufficient air flow is provided for the device avoiding to place raceways or other objects which could obstruct the ventilation slits. Moreover it is suggested to avoid that devices are mounted above appliances generating heat; their ideal place should be in the lower part of the panel.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

CONNECTIONS

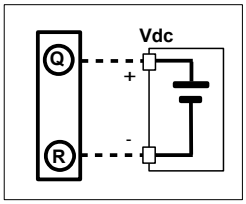


Note: terminals H, E, F, P and O not connected (N.C.)

ISOLATION STRUCTURE



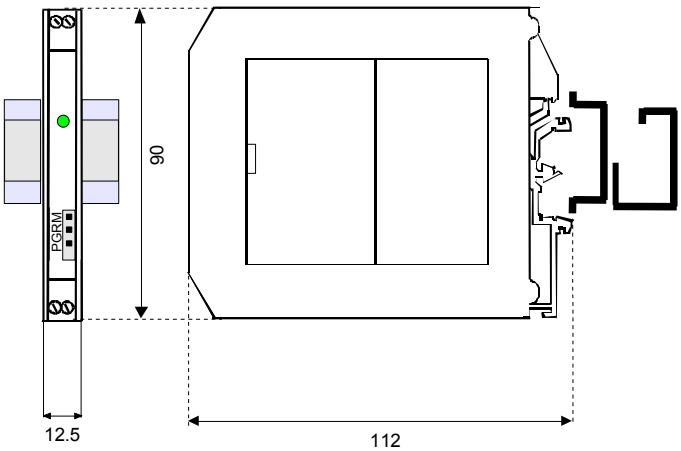
POWER SUPPLY



LIGHT SIGNALLING

LED	COLOUR	STATE	DESCRIPTION
PWR	GREEN	ON	Device powered
		OFF	Device not powered
		BLINKING	Wrong dip-switches setting

DIMENSIONS (mm)



HOW TO ORDER

The device is provided as requested on the Customer's order.
Refer to the section “Programming” to determine the input and output ranges.
In case of the configuration is not specified, the parameters must be set by the user.

ORDER CODE EXAMPLE:

DAT 4531D / 4 ÷ 20 mA / 4 ÷ 20 mA / Direct