DATEXEL

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UNI EN ISO 9001:2008

PC programmable signal converter Trip Amplifier

DAT 4520

CE

FEATURES

- Tc, RTD, Res, mV, V, mA, Potentiometer configurable input
- 0 to 10V, 0 to 20mA configurable output
- PC configurable
- 2000 Vac galvanic isolation between input, output
- EMC compliance – CE mark
- Suitable for DIN rail mounting

GENERAL DESCRIPTION

The DAT 4520 device measures mV, V, mA or resistance signals, and can be directly connected to Thermocouple, RTD or potentiometer sensors.
The input signal is filtered, linearised, amplified and transfered to the output circuit, that converts it in a 0-10V range or 0-20mA range signal. Auxiliary power supply allows to supply the output current loop. Moreover, the device is able to control two trip alarm relay outputs.
DAT 4520 has a 3 way isolation: input is 2000 Vac isolated from power supply and output; power supply and output are 1500 Vac isolated between them.
Programmation and configuration is made by means of personal computer through the PRODAT interface.
The device must be powered with a voltage between 20 and 30 Vdc; the "PWR" green led turned on indicate the correct power supply; the "RL1" and "RL2" red led indicates the trip alarm status.
The DAT 4520 is in compliance with the Directive 2004/108/EC on the electromagnetic compatibility. The device is housed in a rough self-extinguish plastic enclosure of 22.5 mm thickness suitable for DIN rail mounting .

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

Input type	Min	Max	Span min
Tc(*)			
J	-200°C	1200°C	2mV
K	-200°C	1370°C	2mV
S	-50°C	1760°C	2mV
R	-50°C	1760°C	2mV
B	400°C	1820°C	2mV
E	-200°C	1000°C	2mV
T	-200°C	400°C	2mV
N	-200°C	1300°C	2mV
RTD(*)			
Pt100	-200°C	850°C	50°C
Pt1000	-200°C	200°C	50°C
Ni100	-60°C	180°C	50°C
Ni1000	-60°C	150°C	50°C
Voltage			
mV	-100mV	+700mV	2mV
V	0 V	10 V	500mV
Current			
mA	0 mA	20 mA	2 mA
Potentiometer (nominal value)	0 Ω	200 Ω	10%
	200 Ω	500 Ω	10%
	0.5 KΩ	2 KΩ	10%
Resistance			
Ohm	0 Ω	300 Ω	10 Ω
KOhm	0 Ω	2000 Ω	200 Ω

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

Input Calibration
RTD	> of ±0.1% fs or ±0.2°C
Res. Ohm	> of ±0.1% fs or ±0.15 Ω
Res. KOhm	> of ±0.2% fs or ±1 Ω
mV, Tc	> of ±0.1% fs or ±10 uV
V	> of ±0.1% fs or ±2 mV
mA	> of ±0.1% fs or ±6 uA

Output Calibration
Current	± 7 uA
Voltage	± 10 mV

Output Load Resistance
Current	< 650 Ω
Voltage	> 4.7 KΩ

Input Impedance
Tc, mV	>= 10 MΩ
V	>= 1 MΩ
mA	~ 50 Ω

Linearity
Tc	± 0.2 %fs
RTD	± 0.1 %fs

Lead wire resistance influence
Tc, mV	<=0.8 uV/Ohm
RTD 3-wires	0.05%/Ω (50 Ω max balanced)
RTD 4-wires	0.005%/Ω (100 Ω max balanced)

Thermal drift
Full Scale	± 0.01%/°C
CJC	± 0.01%/°C

RTD excitation current
Typical	0.350 mA

CJC Comp.   ± 0.5°C

Response time   ~ 0.4 sec.

Trip alarms
Output type	n° 2 SPDT Relays
Contact rating	2A , 250 Vac
	2A , 30 Vdc
Load	resistive
Minimum load	5Vdc, 10mA
Max Voltage	250 Vac (50/60 Hz)
	110 Vdc
Isolation	coil-to-contacts: 2000Vac
	between contacts: 1000Vac

Power Supply
Supply Voltage	20 ÷ 30 Vdc
Polarity inverted protection	60 Vdc max

Isolation
Input/Output	2000 Vac, 50 Hz, 1min.
Input/Supply	2000 Vac, 50 Hz, 1min.
Supply/Output	1500 Vac, 50 Hz, 1min.

Temperature & Humidity
Operating Temperature	-20°C .. +60°C
Humidity (non condensing)	0 .. 90 %

Housing
Material	Self-extinguish plastic
Mounting	DIN Rail
Weight	~ 150 g.
Dimensions (mm) :	120 x 100 x 22.5

EMC (for industrial environments)
Immunity	EN 61000-6-2
Emission	EN 61000-6-4

(*) For temperature sensors it is possible to set the input range also in F degrees; to made the conversion use the formula: °F=(°C*9/5)+32

CONFIGURATION & CALIBRATION

*Note: during these phase the device must be always powered.*

- CONFIGURATION
1) Open the plastic protection on the front of the enclosure.
2) Connect the PRODAT interface to the Personal Computer and to the device on the PGRM connector, as show below.
3) Open the PROSOFT configuration program.
4) Set the programming data *.
5) Send the programming data to the device *.

- CALIBRATION CONTROL
With software PROSOFT running:
1) Connect on the input a calibrator setted with minimum and maximum values referred to the electric signal or to the temperature sensor to measure.
2) Set the calibrator at the minimum value.
3) Verify that the device provides on output the minimum setted value.
4) Set the calibrator at the maximum value.
5) Verify that the device provides on output the maximum setted value.
6) In case of regulation of value obtained in the step 3 and 5, use the ZERO and SPAN regulators of software PROSOFT.
The variation introduced from these regulators must be calculated as percentage of the input range .
7) Program the device with the new parameters (*) .

* = refer to the Prosoft user guide.

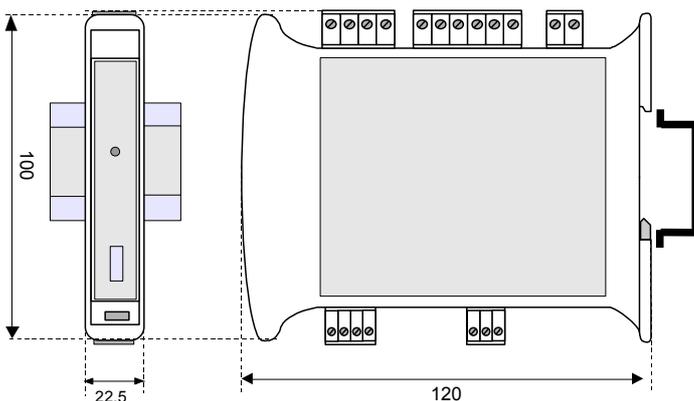## WIRING
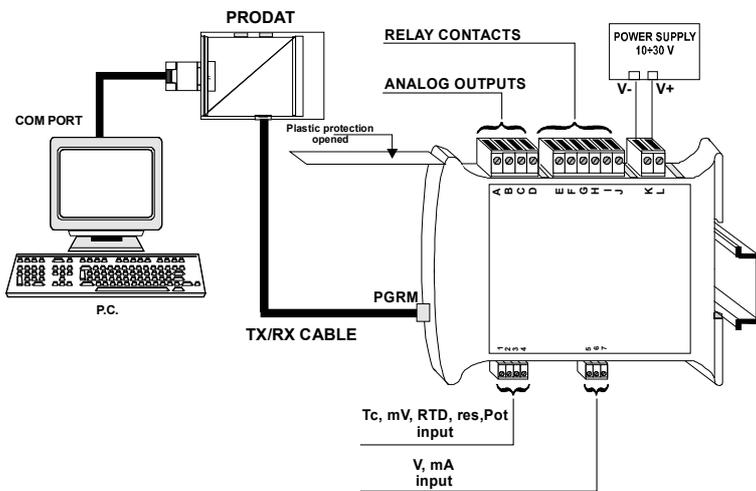
INSTALLATION INSTRUCTIONS

The DAT 4520 device is suitable for fitting to DIN rails in the vertical position.
For optimum operation and long life, follow the instructions above.

When 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 exist.
- If panel temperature exceeds 35°C and at least two of the overload conditions exists.
The overload conditions are the following:
- High supply voltage: >27Vdc
- Use of the auxiliary power supply (terminal D)

Make sure that sufficient air flow is provided for the device avoiding to place racewais 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...).
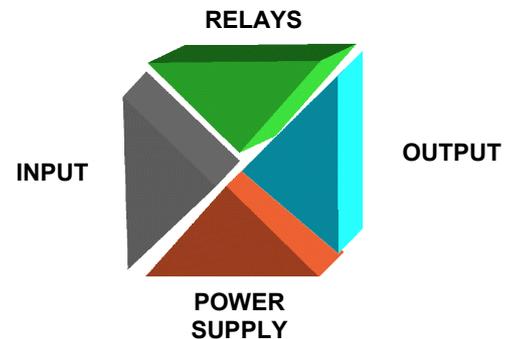
ISOLATION STRUCTURE

MECHANICAL DIMENSIONS (mm.)
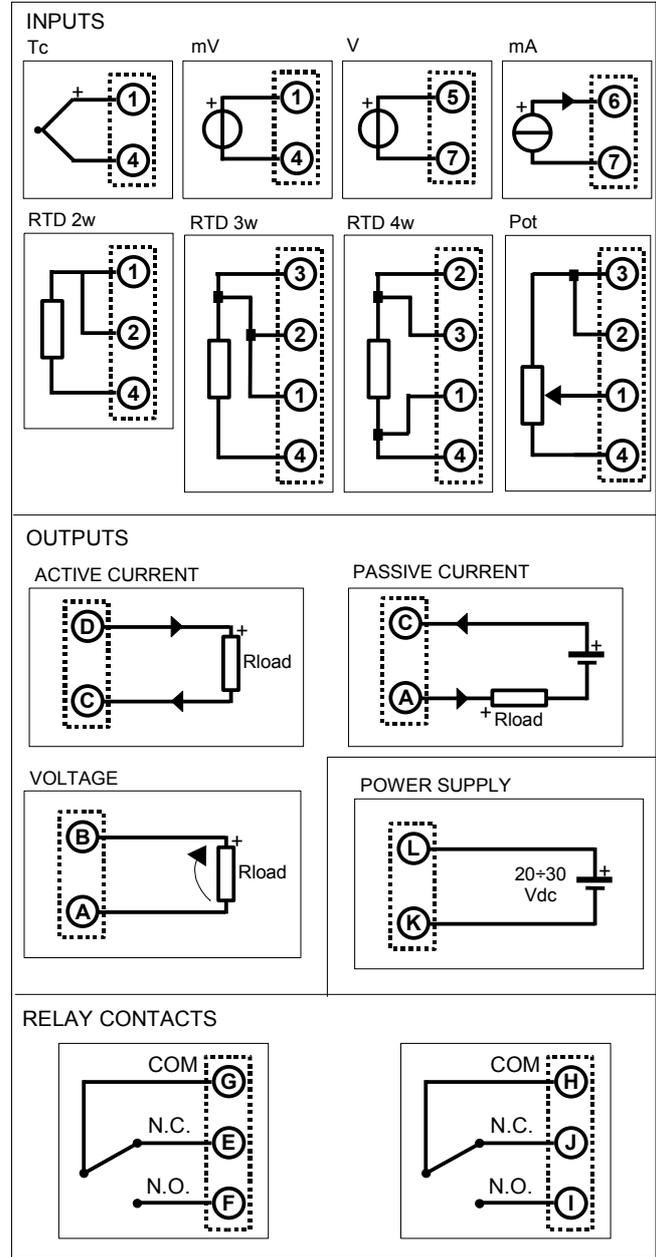
HOW TO ORDER
DAT 4520 can be supplied in the configuration requested by the customer in the order phase. In case of the configuration is not specified, the parameters must be set by the user.

ORDER CODE EXAMPLE:

DAT 4520 - Input – Output - Options

■ = Request
□ = Optional

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