



## RAYLEIGH INSTRUMENTS LIMITED

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# 3 way galvanically isolated configurable conditioner for Pt100 E&OE

## DAT 2060

### FEATURES

- Pt100 input isolated from output and power supply
- Input range and output signal configurable
- Linearized output, voltage or current
- Configurable by means of DIP switches
- 2000Vac galvanic isolation on the 3 ways
- Independent zero and full scale regulations
- Good accuracy and performance stability
- EMC compliant - CE mark
- 12,5mm only enclosure thickness
- DIN rail mounting

### APPLICATIONS

- Control and monitoring of the temperature for:
- Process controls
  - Automation systems
  - Energy sources management



### GENERAL INFORMATION

The DAT 2060 signal conditioner accepts at its input Pt100 sensor connected in two or three wire configuration. It provides to convert the Pt100 signal into a correspondent output analog normalized signal. Moreover it operates at 2000Vac full isolation among input, output and power supply. This allows to eliminate the problems coming from the reciprocal influence of the various circuits, and coming from the induced noise through the ground loops. The input signal range and the type and the value of the output signal are configurable in a wide range of combinations (see table "Configurability"). They are selected by means of suitable DIP switches.

The DAT 2060 unit, developed, manufactured and tested in strict accordance with the quality assurance standard ISO 9001 / EN 29001, is in compliance with the directive 89/336/CEE on the electromagnetic compatibility. It is packaged into a strong plastic enclosure of only 12,5mm thickness, allowing a high density mounting capability on DIN rail.

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

#### INPUT

Sensor type	Pt100 according to IEC 751, other Rtd type available on request.
Zero	Programmable in the -50°C to +50°C range
Span	Programmable from 50°C to 650°C
Sensor current	1 mA
Influence of line resistance	0.05% of f.s./Ohm for f.s. max.(100 Ohm max. balanced on each wire).

#### OUTPUT

Output signal	configurable: V, +/- V, mA (see table "Configurability")
Max output signal	15Vdc or 30mAdc
Load resistance	>/=5 KOhm or </=500 Ohm
Reverse polarity protection	60 V reverse max.
Response time (from 10 % to 90% e.s.)	0.5 s.
Warm up time	3 min.

#### CHARACTERISTIC PERFORMANCES

Calibration error	± 0.1% of f. s. or ± 0,1°C
Transmission error	± 0.15% of f.s.
(inclusive of hysteresys, linearization error and power supply voltage variations)	
Electro Magnetic Compatibility (EMC)	In compliance with EN50081-2 and EN50082-2
Thermal drift	0.02% of f.s./°C
Power Supply Voltage	18 ÷ 32 Vdc
Current consumption	</= 70 mA
Isolation among the 3 ways	2000 Vac, 50 Hz, 1 min.
Operating temperature	- 20 ÷ 60 °C
Storage temperature	- 40 ÷ 100 °C
Relative humidity (non condensing)	0 ÷ 90 %
Weight	approx. 90 g.

CONFIGURABILITY									
INPUT SELECTION					OUTPUT SELECTION				
SPAN	ZERO	DSI		4	OUT	DSO		7	8
		1	2	3		1	2	3	4
< 80°C	-50 to -25°C			●		●	●	●	●
< 80°C	-25 to 12°C	●		●		●			
< 80°C	12 to 50°C	●	●	●					
80 to 200°C	-50 to -25°C			●	●				
80 to 200°C	-25 to 12°C	●		●	●				
80 to 200°C	12 to 50°C	●	●	●	●				
200 to 250°C	-50 to 50°C								
250 to 650°C	-50 to 50°C								●

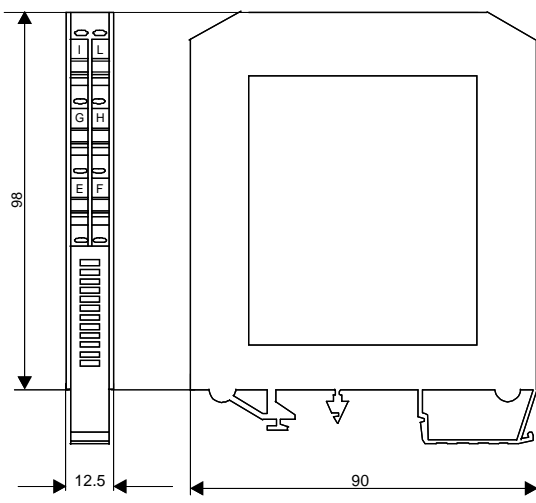
● : DIP SWITCHES ON

### OPERATING INSTRUCTIONS

The converter must be powered with a Power Supply Voltage comprised in the 18V to 32V range which must be connected to the terminals R(+24Vdc) and Q(GND3). The green LED switched on indicates the situation of a correct power supply. The Pt100 sensor must be connected between terminal G and terminal L while the third wire has to be connected to terminal I.

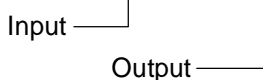
The output signal, voltage or current, is available between the terminals N(OUT V/I) and M(GND2). The input and output configuration is possible by means of the two DIP switches DSI and DSO. They are accessible only after the opening of the apposite door on the housing side. The table "Configurability" shows the lists of the possible input ranges and output signals and the positioning of the switches to obtain their combinations. After the programming of the conditioner, it is necessary to proceed to its calibration by means of the two regulations of ZERO and SPAN available on the top of the enclosure. The DAT 2060 unit is supplied with the requested configuration at the moment of the order. In case of order without this specification, the unit is supplied with a standard setting: IN=0-200°C and OUT= 0-10V. In the case it is necessary a calibration of the device, it can be done in a very simple manner thanks to the complete independence of the zero and span regulations.

### DIMENSIONS ( mm.)

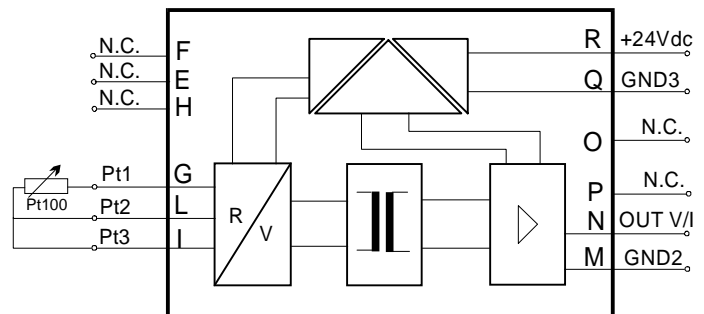


### HOW TO ORDER:

DAT 2060 0-200°C - 4/20mA



### BLOCK DIAGRAM



### TERMINAL ASSIGNMENT

TERMINAL ASSIGNMENT	
E	N.C.
F	N.C.
G	Pt1
H	N.C.
I	Pt3
L	Pt2
M	GND2
N	OUT V/I
O	N.C.
P	N.C.
Q	GND3
R	+24Vdc

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