

R/I TRANSMITTER/ TRIP AMPLIFIER



- Input for Pt100, Ni100, or Ohm
- Sensor cable compensation
- Linearised analogue output
- 24 VDC supply
- Adjustable alarm limit
- For mounting in 11-pole relay socket



Application:

Linearised temperature measurement with Pt100 or Ni100 sensor. • Conversion of linear resistance change to standard analogue current / voltage signal from e.g. valves or linear movements with attached potentiometer. • As trip amplifier with adjustable alarm limit which may be used as an alarm detector or a simple controller.

Technical characteristics:

General:

The unit is built around a microprocessor core with an efficient program flow. The supply voltage is 24 VDC with the same reference point for supply and output ground. The adjustment range for 0% (P4) and 100 % (P6) trimmers is as standard set to 5% of span, but can be ordered with an adjustment range up to 50% of span. The sensor connection is always a 3-wire connection with cable compensation for up to 10 Ω in each wire. If a 2-wire connection is requested, pins 7 and 6 must be short-circuited in the socket (no cable compensation).

Sensor error detection is standard set to Upscale, but may be ordered to Downscale.

Input:

Linearised Pt100 temperature input according to the norm IEC 751 within the range -200...+850°C. Linearised Ni100 temperature input according to the norm DIN 43760 within the range -50...+250°C. Linear resistance input within the range 0...10 k Ω .

Measurement range should be specified when placing the order e.g. 0...150°C. For RTD input the min. span is 50°C, for linear resistance 30 Ω . The RTD input can be delivered as multiples of the main type (e.g. Pt1000). The input can be reversed so that 0% e.g. is 150°C and 100% is 0°C.

Analogue output:

Analogue standard current output of 0/4...20 mA. The output may be ordered to any value within the standard values with a max. offset of 50% of the max. value and a min. span of 5 mA. The maximum load is 600 Ω / 12 VDC. By short-circuiting pins 3 and 2 the output current will be converted to standard voltage of 0/0.2...1 VDC (JP1 ON) or 0/2...10 VDC (JP2 ON). The voltage signal is available between pin 2 and 1. The min. load resistance for voltage signals is 500 k Ω .

Relay output:

Potentiometer for alarm limit adjustment is front panel-mounted and covers the entire measurement range (scale 0...100%). The setpoint adjustment may be ordered with knob or notch for screwdriver adjustment. The relay output is an uncommitted change-over contact which can be programmed to activate for increasing (inc) or decreasing (dec) input signal with JP3. The hysteresis can be set to 1...10% of span with P5. By increasing relay function the hysteresis is below the setpoint, by decreasing above. An LED in the cassette front indicates an activated relay.

Electrical specifications:

Specifications range:

(@ -20°C to +60°C)

Common specifications:

Supply voltage.....	24 VDC \pm 20%
Internal consumption	1.6 W (relay active)
Warm-up time.....	< 5 min.
Signal / noise ratio.....	Min. 60 dB
Signal dynamics, input	17 bit
Signal dynamics, output.....	16 bit
Response time (0...90%, 100...10%) ...	< 165 ms
Calibration temperature.....	20...28°C
Temperature coefficient:	
Span < 100°C.....	\pm 0.01°C / °Camb.
Span > 100°C.....	\pm 0.01% of span/°Camb.
Linearity error	< 0.1% of span
EMC immunity influence	< \pm 0.5%
Relative air humidity	< 95% RH (non-cond.)
Dimensions (HxWxD).....	80.5 x 35.5 x 84.5 mm
Tightness.....	IP50
Weight	130 g

Input:

Type	Min. value	Max. value	Min. span	Norm
Pt100	-200°C	+850°C	50°C	IEC 751
Ni100	-50°C	+250°C	50°C	DIN 43760
Lin.R	0 Ω	10 k Ω	30 Ω	-----

Max. offset.....	50% of selec. max. value
Adjustment acc. to order	\pm 2.5... \pm 25% of span
Cable resistance per wire max.	10 Ω
Sensor current	> 0.2 mA, < 0.4 mA
Basic accuracy.....	< \pm 0.3°C
Temp. coefficient for span < 100°C....	< \pm 0.01°C/°Camb.
Sensor error indication	Upscale / Downscale

Output:

Signal range	0...20 mA / 0...10 VDC
Min. signal range.....	5 mA / 250 mV
Max. offset.....	50% of selec. max. value
Load (max.).....	20 mA / 600 Ω / 12 VDC
Load stability	< 0.01% of span / 100 Ω
Current limit.....	< 28 mA

Relay output:

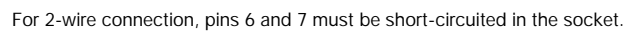
Isolation, test / operation	1.4 kVAC / 150 VAC
Scale accuracy.....	Better than 5%
Hysteresis, adjustable	1...10% of span
Max. AC power.....	300 VA / 150 VRMS, 2 A
Max. load at 24 VDC	1 A

Observed authority requirements:


EMC 89/336/EEC, Emission	Standard: EN 50 081-1, EN 50 081-2
Immunity	EN 50 082-2, EN 50 082-1
Emission and immunity.....	EN 61 326
LVD 73/23/EEC.....	EN 61 010-1

Of span = Of the presently selected range


Block diagram:



PR



50



0 % 100

● Relay on

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