

R/I TRANSMITTER/ TRIP AMPLIFIER



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..... 19.2...28.8 VDC
 Internal consumption..... 1.6 W (relay active)
 Warm-up time..... < 5 min.
 Signal / noise ratio..... Min. 60 dB
 Signal dynamics, input / output 17 bit / 16 bit
 Response time (0...90%, 100...10%) .. < 165 ms
 Calibration temperature..... 20...28°C
 Temperature coefficient:
 Span < 100°C $\pm 0.01^\circ\text{C} / ^\circ\text{C}_{\text{amb}}$
 Span > 100°C $\pm 0.01\%$ of span/ $^\circ\text{C}_{\text{amb}}$
 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	Standard
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 < $\pm 0.3^\circ\text{C}$
 Temp. coefficient for span < 100°C... < $\pm 0.01^\circ\text{C}/^\circ\text{C}_{\text{amb}}$
 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

GOST R approval:

VNIIM, Cert. no. Ross DK.ME48.V01899

Observed authority requirements: Standard:

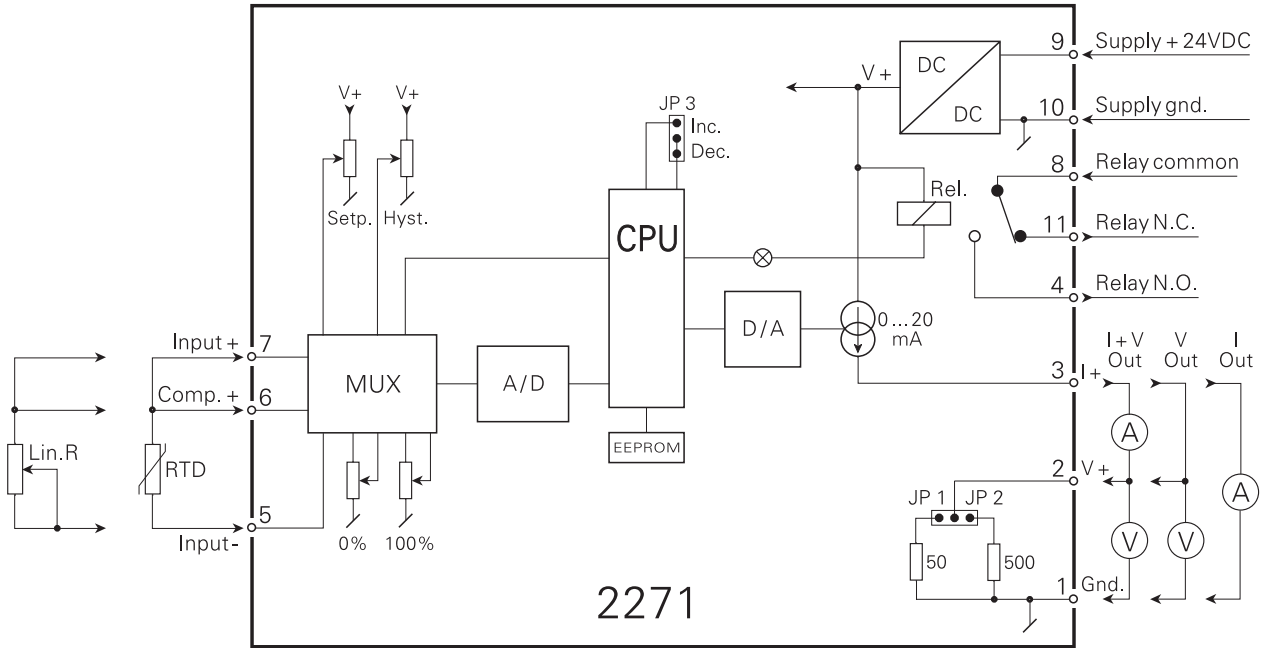
EMC 2004/108/EC
 Emission and immunity EN 61326
 LVD 73/23/EEC..... EN 61010-1

Of span = Of the presently selected range

Order : 2271

Type	Input	Output	Relay action	Setpoint
2271	Pt100 : L	Spec. : 0	At increas. input : A	Setpoint knob : 1
	Ni100 : N	0...20 mA : 1	At decreas. input : B	Setpoint notch : 2
	Lin. R : R	4...20 mA : 2		
	Spec. : X	0...5 mA : 3		

Block diagram:



For 2-wire connection, pins 6 and 7 must be short-circuited in the socket.

Front layout:

