2-WIRE R/I TRANSMITTER

- Input for Pt100, Ni100, or Ohm
- Sensor cable compensation
- Linearised 4...20 mA output
- 2-wire connection
- 10...35 VDC supply voltage
- 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 4...20 mA signal simulator via externally mounted 10-turn potentiometer.

Technical characteristics:
General:
The unit is built around a microprocessor core with an efficient program flow. The supply voltage of 10...35 VDC is converted to a 4...20 mA signal on the 2-wire output. The output has voltage supply ground as reference and is protected against polarity reversal. Adjustment range for 0 and 100% trimmers is as standard set to 5% of span, but may 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 in the range 0...10 kΩ.
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.

Output:
Analogue 2-wire current output of 4...20 mA.
Maximum load depends on the voltage supply as
$R_{load} = (V_{supply} - 10) / 0.02$ [Ω].

Electrical specifications:
Specifications range:
-20°C to +60°C
Common specifications:

Supply voltage	10...35 VDC
Internal consumption	40 mW...0.5 W
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	±0.01°C/°$C_{amb.}$
span > 100°C	±0.01% of span/°$C_{amb.}$
Linearity error	< 0.1% of span
EMC immunity influence	< ±0.5%
Relative air humidity	< 95% RH (non-cond.)
Dimensions (HxWxD)	80.5 x 35.5 x 84.5 mm
Protection degree	IP50
Weight	120 g

Input:

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

Max. offset	50% of selected max. value
Adjustment acc. to order	±2.5...±25% of span
Cable resistance per wire max.	10 Ω
Sensor current	> 0.2 mA, < 0.4 mA
Basic accuracy	< ±0.3°C
Temperature coefficient for span < 100°C	< ±0.01°C/°$C_{amb.}$
Sensor error indication	Upscale / Downscale

Output:

Signal range	4...20 mA
Min. signal range	16 mA
Load (max.)	(V_{supply} - 10) / 0.02 [Ω]
Load stability	< 0.01% of span/ 100 Ω
Current limit	< 28 mA
Upscale / Downscale	≥ 23 mA / ≤ 3.6 mA

GOST R approval:

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

Observed authority requirements:	**Standard:**
EMC 2004/108/EC	
Emission and immunity	EN 61326

Of span = Of the presently selected range

PR electronics
DS CERTIFIED QUALITY SYSTEM AND ENVIRONMENTAL MANAGEMENT SYSTEM DS/EN ISO 9001 DS/EN ISO 14001
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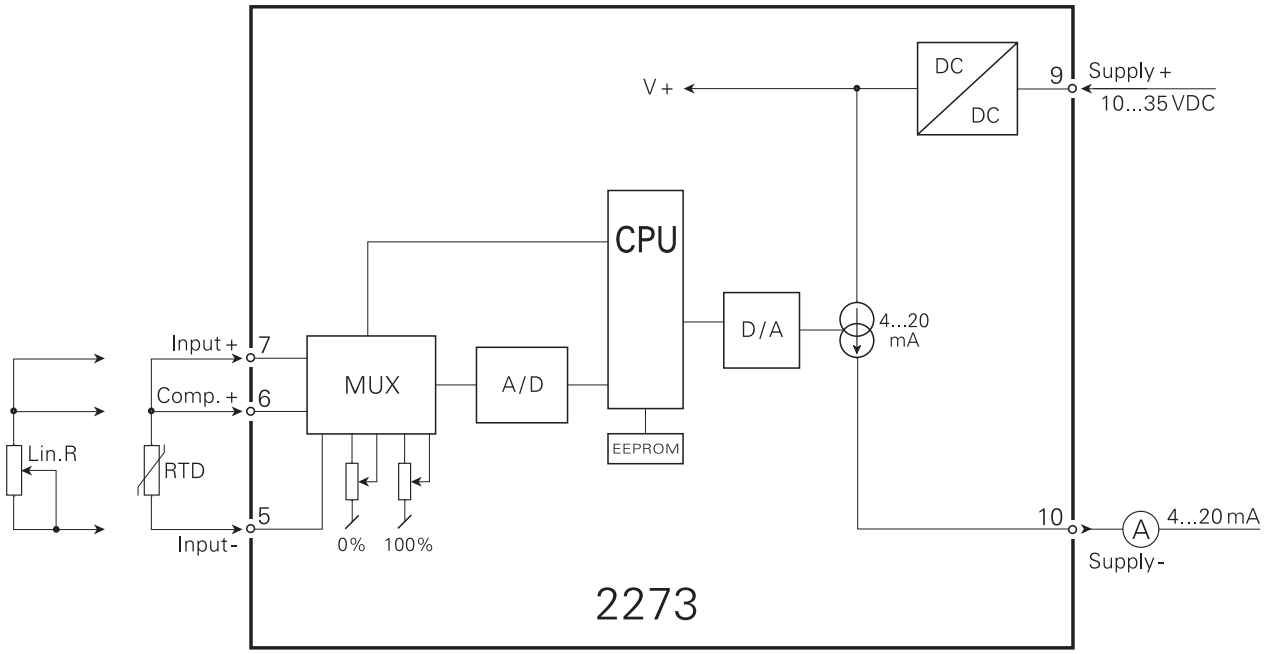
Order : 2273

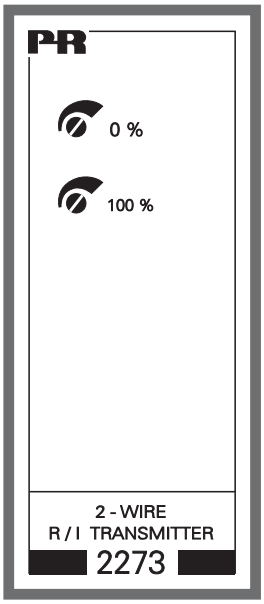
Type	Input		Output		Range
2273	Pt100	: L	4...20 mA	: 2	Acc. to order
	Ni100	: N			
	Lin. R	: R			
	Spec.	: X			

Block diagram:



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

Front layout:



Standard ranges Pt100
-50...+50°C
0...+50°C
0...+100°C
0...+120°C
0...+150°C
0...+200°C
0...+250°C
0...+300°C
0...+400°C
0...+500°C
+100...+300°C
+200...+500°C