

TRANSDUCER OF TEMPERATURE AND STANDARD SIGNALS P20 TYPE

NEW



APPLICATION

The P20 programmable transducer is destined to convert the temperature, resistance, voltage from shunt and standard signals into a constant-current or constant-voltage standard signal. The output signal is galvanically isolated from the input signal and the supply.

The transducer compensates automatically the resistance of wires in case of the resistance value measurement in a three-wire system and automatically compensates the temperature of terminals in case of measurements from thermocouples.

The transducer is fully configurable through the PD14 programmer. By means of this programmer one can change the input type, the averaging time of the measurement and rescale the analog output acc. to the individual output characteristic, and also read out the measured value.

TECHNICAL DATA

Basic parameters:

- analog output galvanically isolated:
 - current 0/4... 20 mA
 - voltage 0...10 V
 - load resistance of the current output $\leq 500 \Omega$
 - load resistance of the voltage output $\geq 500 \Omega$
- accuracy class¹⁾ 0.2
- averaging time of the transducer:
 - range: d.c. current [mA], d.c. voltage [V] ≥ 0.1 s
 - other ranges ≥ 0.3 s
- power consumption < 3 VA

- preheating time of the transducer 10 min
- response time of the transducer:
 - range: d.c. current [mA], d.c. voltage [V] ≥ 0.2 s
 - other ranges ≥ 0.4 s
- current flowing through RTD < 0.2 mA
- resistance of wires connecting RTD with the transducer $\leq 10 \Omega$

Rated operating conditions:

- supply depending on the execution code
 - 85... 253 V a.c./d.c.
 - 20... 40 V a.c./d.c.
- frequency of the supply a.c. voltage 45... 65 Hz
- ambient temperature - 20...23...55°C
- storage temperature - 25...85°C
- related air humidity < 95% (condensation inadmissible)
- working position any

Input parameters:

- resistance of voltage input [V] > 1 M Ω
- resistance of current input [mA] 12 Ω $\pm 1\%$

Sustained overload:

- TC and RTD 1.1 X_n
- voltage, current and resistance 1.3 X_n

Short duration overload:

- input voltage 5 U_n
- current input 10 I_n

Ensured protection level

acc. to EN 60529:

- housing IP 40
- electrical connections IP 20

Weight

0.125 kg

Dimensions

22.5 × 120 × 100 mm

Fitting

on a 35 mm rail holder

Electromagnetic compatibility:

- noise immunity acc. to EN 61000-6-2
- noise emission acc. to EN 61000-6-4

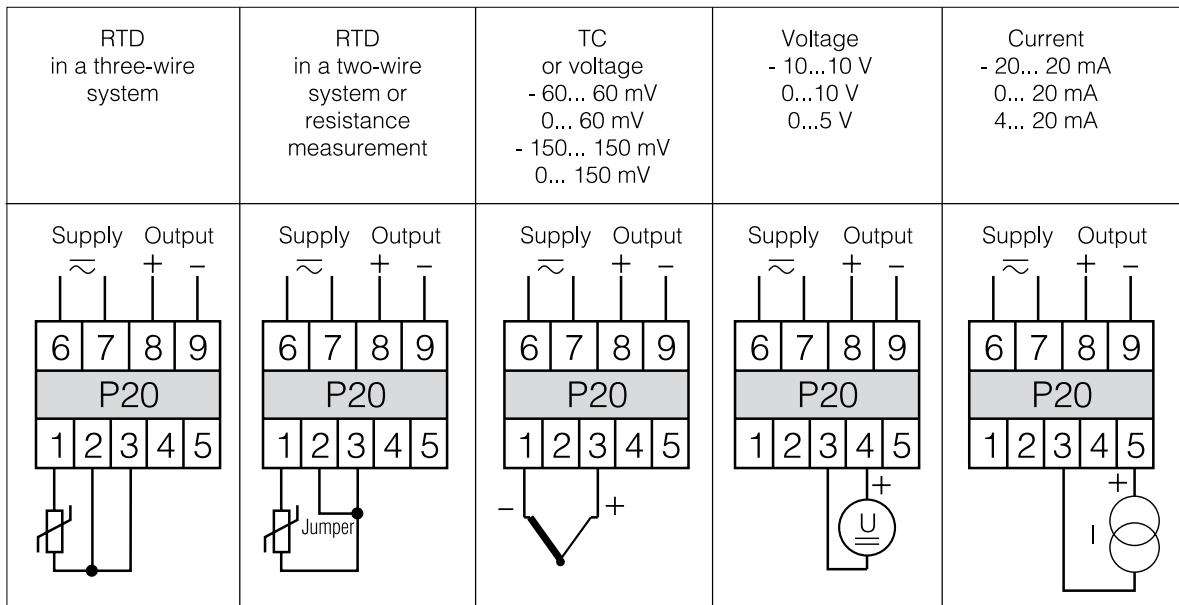
Safety requirements acc. to EN 61010-1:

- installation category III,
- level of pollution 2,
- phase-to-earth working voltage:
 - supply 300 V²⁾
 - input 50 V
 - output 50 V
- altitude above sea level < 2000 m

¹⁾ A part of sub-ranges for thermocouples and RTD has a specified individual class (see table 1)

²⁾ Execution for supply voltage 230 V

DIAGRAMS OF EXTERNAL CONNECTIONS



Coding of the P20 transducer input kind

Table 1

Type of sensor/input	Range [°C]	Code	TC of K type	TC of S type	TC of N type	d.c. voltage	d.c. current	Resistance	Custom-made
Pt 100 RTD	-200...850	01	-200...1370	0...1760	-200...1200	0...10 V	0...20 mA	0...400 Ω	XX
	0...850	02	0...1200	0...1600	0...1200	0...5 V	4...20 mA	XX	
	0...600	03	0...1000	0...1400*	0...1000	-10...10 V	0...5 mA		
	0...400	04	0...800	0...1200*	0...1000	-5...5 V	20...20 mA		
	0...200	05	0...600	0...1000*	0...800	0...60 mV			
	-200...200	06	0...400*	0...1000*	0...600*	-60...60 mV			
	-100...100*	07	-200...200*	0...1000*	0...400*	0...150 mV			
Pt 250 RTD	-200...850	08	-200...1370	0...1760	-200...1200	-10...10 V	0...20 mA	0...400 Ω	XX
	0...850	09	0...1200	0...1600	0...1200	0...5 V	4...20 mA	XX	
	0...600	10	0...1000	0...1400*	0...1000	-10...10 V	0...5 mA		
	0...400	11	0...800	0...1200*	0...1000	-5...5 V	20...20 mA		
	0...200	12	0...600	0...1000*	0...800	0...60 mV			
	-200...200	13	0...400*	0...1000*	0...600*	-60...60 mV			
	-100...100	14	-200...200*	0...1000*	0...400*	0...150 mV			
Pt 500 RTD	-200...850	15	-200...1370	0...1760	-200...1200	-10...10 V	0...20 mA	0...400 Ω	XX
	0...850	16	0...1200	0...1600	0...1200	0...5 V	4...20 mA	XX	
	0...600	17	0...1000	0...1400*	0...1000	-10...10 V	0...5 mA		
	0...400	18	0...800	0...1200*	0...1000	-5...5 V	20...20 mA		
	0...200	19	0...600	0...1000*	0...800	0...60 mV			
	-200...200	20	0...400*	0...1000*	0...600*	-60...60 mV			
	-100...100	21	-200...200*	0...1000*	0...400*	0...150 mV			
Pt 1000 RTD	-200...850	22	-200...1370	0...1760	-200...1200	-10...10 V	0...20 mA	0...400 Ω	XX
	0...850	23	0...1200	0...1600	0...1200	0...5 V	4...20 mA	XX	
	0...600	24	0...1000	0...1400*	0...1000	-10...10 V	0...5 mA		
	0...400	25	0...800	0...1200*	0...1000	-5...5 V	20...20 mA		
	0...200	26	0...600	0...1000*	0...800	0...60 mV			
	-200...200	27	0...400*	0...1000*	0...600*	-60...60 mV			
	-100...100	28	-200...200*	0...1000*	0...400*	0...150 mV			
TC of J type	-200...1200	29	-200...1370	0...1760	-200...1200	-10...10 V	0...20 mA	0...400 Ω	XX
	0...1200	30	0...1200	0...1600	0...1200	0...5 V	4...20 mA	XX	
	0...1000	31	0...1000	0...1400*	0...1000	-10...10 V	0...5 mA		
	0...800	32	0...800	0...1200*	0...1000	-5...5 V	20...20 mA		
	0...600	33	0...600	0...1000*	0...800	0...60 mV			
	0...400*	34	0...400*	0...1000*	0...600*	-60...60 mV			
	-200...200*	35	-200...200*	0...1000*	0...400*	0...150 mV			

* accuracy class 0,5

EXECUTION CODES

TRANSDUCER	P20 -	X	X	XX	XX	X
Analog outputs:						
current 0... 20 mA.....						1
current 4... 20 mA.....						2
voltage 0... 10 V.....						3
Supply:						
85...253 V a.c./d.c.						1
20...40 V a.c./d.c.						2
Kind of input:						
write the code from table 1.....						XX
Execution:						
standard						00
custom-made*.....						XX
Acceptance tests:						
without additional requirements						8
with an extra quality inspection certificate						7
acc. to customer's requirements*.....						X

* after agreeing with the producer

EXAMPLE OF ORDER:

When ordering, please respect successive code numbers.

The code **P20 - 1 1 04 00 7** means:

P20 - transducer of temperature and standard signals

1 - with current analog output: 0... 20 mA

1 - voltage supply 85... 253 V a.c./d.c.

04 - Pt 100 output signal on the 0...400°C range

00 - standard execution

7 - with an extra quality inspection certificate