

# 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 class<sup>1)</sup> 0.2
- averaging time of the transducer:
  - range: d.c. current [mA], d.c. voltage [V]  $\geq 0.1$  s
  - other ranges  $\geq 0.3$  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]  $\geq 0.2$  s
  - other ranges  $\geq 0.4$  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 $\Omega$
- resistance of current input [mA] 12  $\Omega \pm 1\%$

### Sustained overload:

- TC and RTD 1.1 X<sub>n</sub>
- voltage, current and resistance 1.3 X<sub>n</sub>

### Short duration overload:

- input voltage 5 U<sub>n</sub>
- current input 10 I<sub>n</sub>

### 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

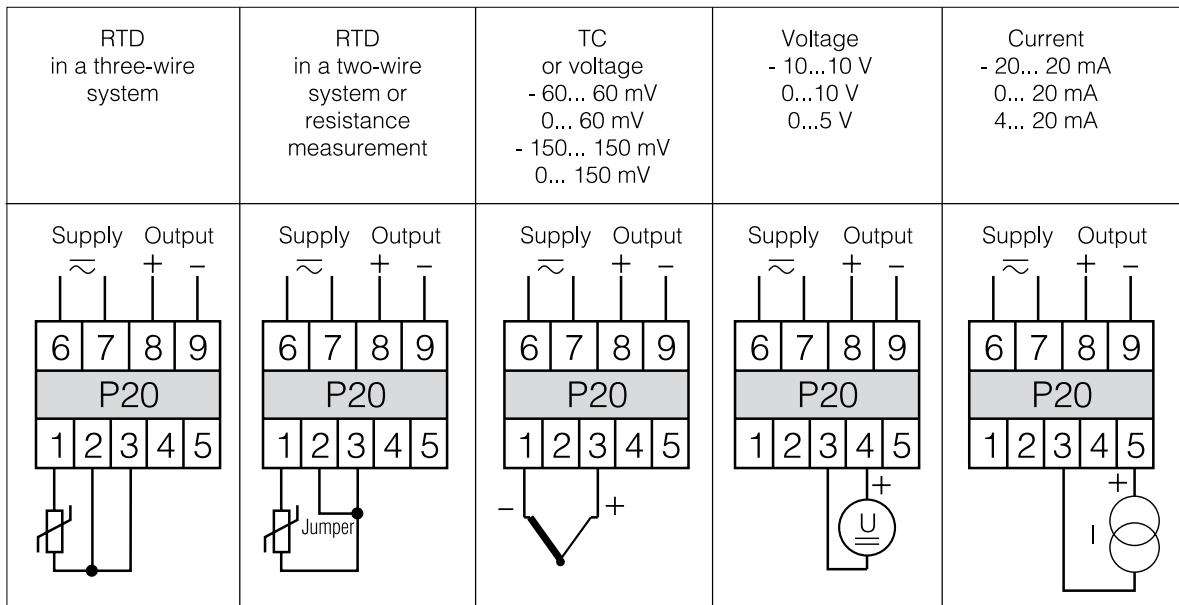
### Safety requirements acc. to EN 61010-1:

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

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

<sup>2)</sup> 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	Range [mV]	Code	
Pt 100 RTD	-200...850	01	TC of K type	-200...1370	36	
	0...850	02		0...1200	37	
	0...600	03		0...1000	38	
	0...400	04		0...800	39	
	0...200	05		0...600	40	
	0...400*	41		0...400*	41	
	-200...200	06		-200...200*	42	
Pt 250 RTD	-200...850	08	TC of S type	0...1760	43	
	0...850	09		0...1600	44	
	0...600	10		0...1400*	45	
	0...400	11		0...1200*	46	
	0...200	12		0...1000*	47	
	-200...200	13		TC of N type	-200...1200	48
	-100...100*	07			0...1200	49
Pt 500 RTD	-200...850	15	TC of N type		0...1000	50
	0...850	16			0...800	51
	0...600	17			0...600*	52
	0...400	18			0...400*	53
	0...200	19			-200...200*	54
	-200...200	20		d.c. voltage	0...10 V	55
	-100...100	21			0...5 V	56
Pt 1000 RTD	-200...850	22	d.c. voltage		-10...10 V	57
	0...850	23			-5...5 V	58
	0...600	24			0...60 mV	59
	0...400	25			-60...60 mV	60
	0...200	26			0...150 mV	61
	-200...200	27		-150...150 mV	62	
	-100...100	28		d.c. current	0...20 mA	63
TC of J type	-200...1200	29	4...20 mA		64	
	0...1200	30	0...5 mA		65	
	0...1000	31	-20...20 mA		66	
	0...800	32	Resistance		0...400 Ω	67
	0...600	33			0...4000 Ω	68
	0...400*	34	Custom-made			XX
	-200...200*	35				

\* accuracy class 0,5

## EXECUTION CODES

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

\* 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