

## Transmitter for temperature headmounting for Pt100, programmable Type series PA2250



### Application area

- Food/pharmaceutical/biotechnology
- Chemicals/petrochemicals
- Maschinen- und Anlagenbau

### Features

- Digital programmable transmitter
- Suitable for installation in connecting heads in accordance with DIN, form B
- Input for resistance thermometer and resistance
- Can be configured by PC
- Output signal: 4...20 mA invertible, 2-wire technology
- Programmable output signal for sensor breakage and sensor short circuit
- Power supply: 8...35 V DC  
8...30 V DC (Ex)
- Increased ambient temperature

### Options

- Explosion protection for gases and dust
- Configuration per PC

### Application

The digital transmitter converts a temperature-dependent change in resistance into a current signal typical of process control systems. Likewise, linear changes in resistance, e.g. by valves or level transmitters can be converted into an analog current signal. An extensive range of configuration options is available.

## Technical data

### Mechanical design

case material plastic Valox 815  
 type of protection:  
 case IP 68  
 terminals IP 00

### Mounting

borings for mounting in connection heads per DIN form B or larger

### Connections

terminal screws for wire or flexible lead  
 $\leq 1.5 \text{ mm}^2$

### Housing temperature

operation and storage:  $-40 \dots +85 \text{ }^\circ\text{C}$

### Auxiliary energy supply

function range:  $8 \dots 35 \text{ V DC}$   
 $8 \dots 30 \text{ V DC (Ex)}$   
 internal consumption:  $25 \text{ mW} \dots 0.8 \text{ W}$

### Influence of the supply voltage on the output signal

$\leq 0.005 \%$  of span/V

### Signal input

- resistance thermometer (RTD) 2- or 3-wire technology  
 Pt100...Pt1000, Ni100...Ni1000
- resistance input (Lin.R) 2- or 3-wire technology  $0 \dots 10 \text{ k}\Omega$

sensor current:  $> 0.2 \text{ mA}$ ,  $< 0.4 \text{ mA}$   
 cable resistance: max.  $10 \text{ }\Omega$  per wire

### Measuring ranges/measuring spans

type	min-value	max-value	min-span
Pt 100	$-200 \text{ }^\circ\text{C}$	$+850 \text{ }^\circ\text{C}$	25 K
Ni 100	$-60 \text{ }^\circ\text{C}$	$+250 \text{ }^\circ\text{C}$	25 K
Lin. R	$0 \text{ }\Omega$	$10 \text{ k}\Omega$	$30 \text{ }\Omega$

offset: 50 % of selec. max. value

### Output signal

signal range:  $4 \dots 20 \text{ mA} / 20 \dots 4 \text{ mA}$   
 RTD: temperature linear  
 Lin.R: resistance linear  
 updating time: 135 ms

### Burden

$\leq (\text{Uvers.} - 8\text{V}) / 0.023 \text{ A}$

### Burden influence

$< 0.01 \%$  of span /  $100 \text{ }\Omega$

### Sensor error

sensor breakage and sensor short circuit  
 programmable:  $3.5 \dots 23 \text{ mA}$   
 NAMUR NE43 upscale: 23 mA  
 NAMUR NE43 downscale: 3.5 mA

### Accuracy

accuracy, the greater of general and basis values:

general values		
input type	absolute accuracy	temperature coefficient
all	$\leq \pm 0.1 \%$ of span	$\leq \pm 0.1 \%$ of span/ $^\circ\text{C}$
basic values		
input type	basic accuracy	temperature coefficient
RTD	$\leq \pm 0.3 \text{ }^\circ\text{C}$	$\leq \pm 0.01 \text{ }^\circ\text{C}/^\circ\text{C}$
Lin.R	$\leq \pm 0.2 \text{ }\Omega$	$\leq \pm 20 \text{ m}\Omega / ^\circ\text{C}$
EMC immunity influence..... $\leq \pm 0.5 \%$ of span		
response time (programmable) 0.33...60s		
warm-up time 5 min		

### Certificates/tests

EMC directives 2014/30/EC  
 Noise immunity EN 61000  
 EN 61326  
 Interference emission EN 55011  
 ATEX directive 2014/34/EC

Explosion protection  
 (PR electronics A/S, Type 5333D)

### Ex approval

KEMA 03 ATEX 1535  
 Ex II 1G Ex ia IIC T4/T6 (gas)  
 Ex II 1D Ex iaD 20 T105  $^\circ\text{C}$  / T80  $^\circ\text{C}$  (dust)  
 Ambient temperature max.:  
 $85 \text{ }^\circ\text{C}$  for T4 and T105  $^\circ\text{C}$   
 $60 \text{ }^\circ\text{C}$  for T6 and T80  $^\circ\text{C}$   
 Zones 0, 1, 2, 20, 21, 22  
 $U_i$ : 30 V DC  
 $I_i$ : 120 mA DC  
 $P_i$ : 0.84 W  
 $C_i$ : 1.0 nF  
 $L_i$ : 10  $\mu\text{H}$

Vibration: IEC 68-2-6 Test FC  
 Lloyd's specification No. 1: 4g/2...100 Hz

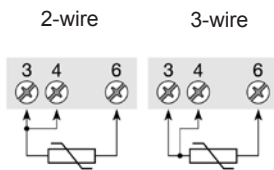
### Weight

approx. 50 g

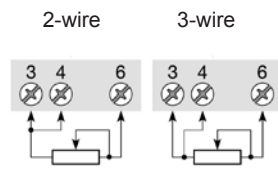
## Connection diagram

input:

resistance thermometer

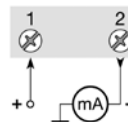


resistance/potentiometer

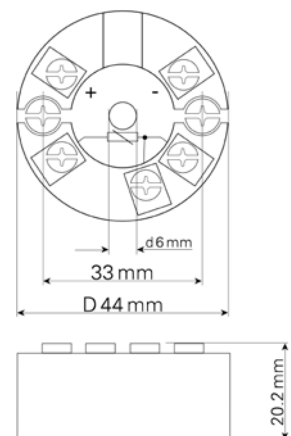


output:

2-wire installation

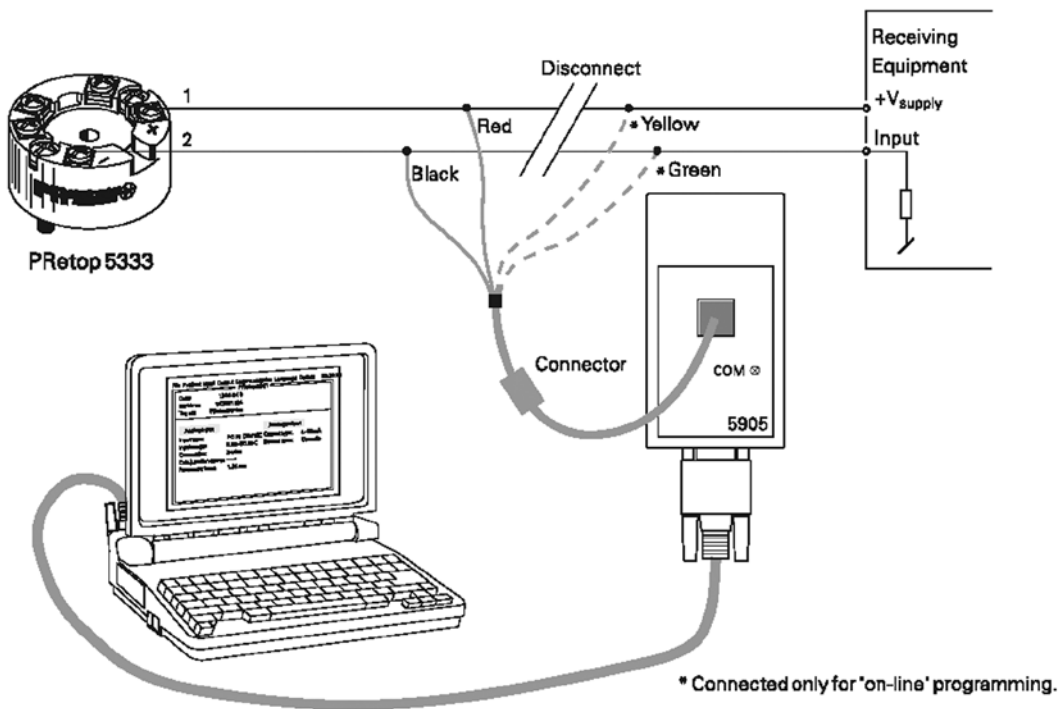


## Dimensions



## Programming

- Loop Link is a battery-powered communications interface that is needed for programming PA 2250/51 (internal software art.-no. PRetop 5333)
- For programming please refer to the drawing below and the help functions in PReset.



## Order details

Transmitter for temperature head mounting programmable			
design	· standard	PA2250	
	·  II 1G Ex ia IIC T4/T6, II 1D Ex iaD 20 T105 °C / T80 °C (PR electronics A/S Type 5333D)	PA2251	
without configuration <sup>1</sup>			F11
per customer choice			F12
	signal input		
	measuring range		
	output		
	sensor break		
	response time (damping)		
order code (example)		PA2250	F11

### Accessory

program "Loop Link 5905"	MC1070
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<sup>1</sup> adjusted at factory:

signal input	Pt 100, 3-wire
measuring range	0...150 °C
output	4...20 mA
sensor break	23 mA
response time (damping)	1 s