

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 μH

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

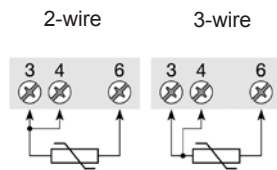
Weight

approx. 50 g

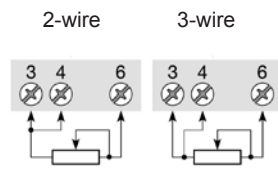
Connection diagram

input:

resistance thermometer

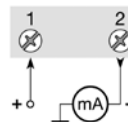


resistance/potentiometer

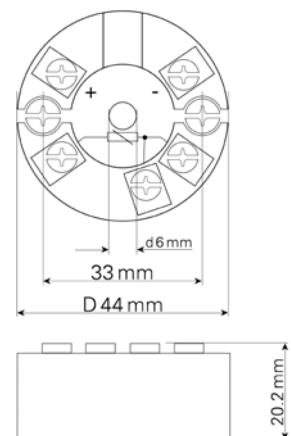


output:

2-wire installation

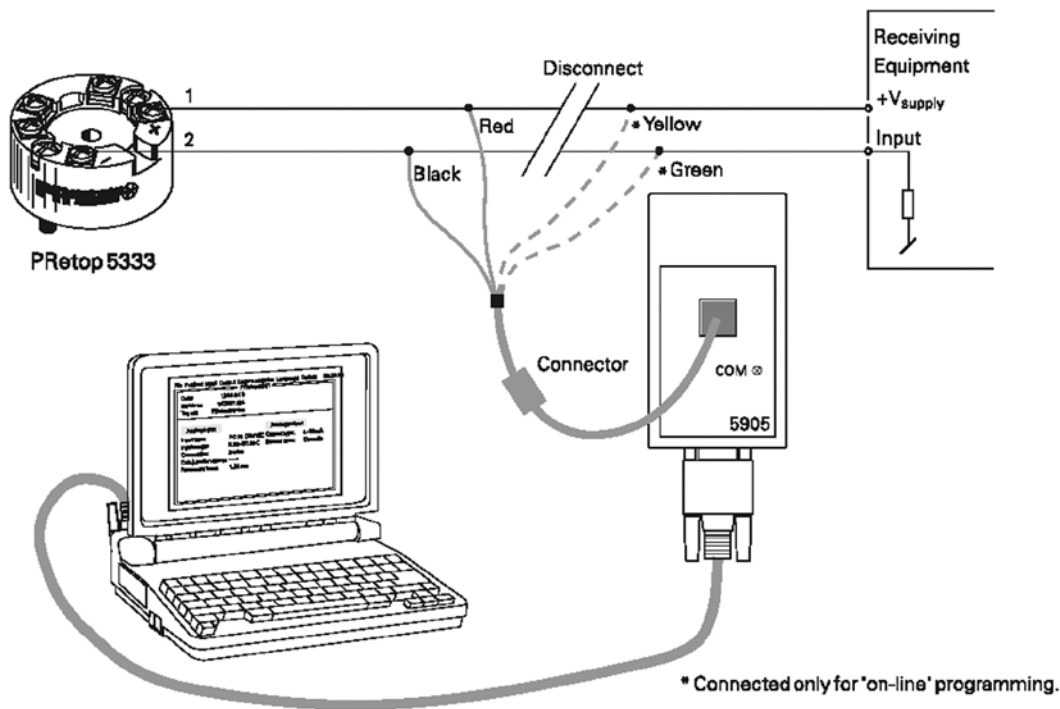


Dimensions



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 ¹ | | | 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 |
|--------------------------|--------|

¹ 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 |