RESISTANCE TEMPERATURE DETECTORS FOR ALL PROCESS APPLICATIONS – RT100

ATEX MODEL

High quality constructed RTDs with fast response and mineral insulated probes.

APPLICATIONS

- For all temperature measurements requiring short response timeMounting on pipes, and open or closed vessels
- For a wide range of media: vapours, gases, liquids, non-abrasive substances
- Special executions for explosive environments
  ATEX certified :

0496
ATEX 94/9/CE

ATEX approvals available under our PCI TEMA brand.

DESCRIPTION

These “Thermo-Sensor” probes may be fitted with one or two resistance temperature detectors (RTDs). Each probe consists of a temperature sensor, a terminal head, and a process connection
For explosive environments, executions meeting the requirements of EN 60079-0 “Electrical apparatus for potentially explosive atmospheres

(general requirements)”, EN 60079-1 (flameproof enclosure “d”) or EN 60079-11 (intrinsic safety “i”) are available.

OPTIONS

Temperature probes may be assembled on request with temperature transmitters directly mounted into the connection head or remote

- analogue 4-20mA output
- digital output “HART”® or “PROFIBUS” ®
- thermowell
- various connections available
- lag extension
- reduced tip
- various terminal head types
- duplex type (two RTD sensors)
- ATEX version

HOW TO ORDER

Please specify: model, range, probe immersion and diameter, process connection, options if any
Example :
RT100, 0/100°C,100mm x 6mm,1.1/2”IDF, 4/20mA

THERMO-SENSOR

1. Terminal heads:
Internal terminal board is used for every version when internal temperature transmitter is not mounted.

Standard Head for ambient temperatures from 0 to + 200°C. Degree of protection: IP 65, according to execution. Cable gland: to be chosen according to the cable entry.

EExd head
Injected aluminium casting, degree of protection IP 65 for lag extension with incorporated sealing compression fitting.

Limited installation position: maximum 60° from the vertical.

If installed without lag extension, or mounting with connection head, the free length of the sheathed cable is limited (due to the weight of the head) to following values: 100 mm (dia. d 6 mm) to 200 mm (dia. d 1/2"/ 12.70 mm), depending on mechanical conditions.

(For more terminal head types please see data sheet "Terminal Head Options")

2. Operating position:

Unrestricted, provided that the connection head is suitably remote from the heat source.

3 Immersion length:

This is the depth to which the probe is immersed in the medium, measured from the tip. To minimize errors, the following minimum immersion lengths are recommended (but smaller is possible):

Inset	in liquid	in gas/vapour
RTD 3 mm dia.	45 mm	55 mm
RTD 6 mm dia.	60 mm	75 mm

4. Response time:
The values given are for insets without thermowell. This is the time by which the reaction of the inset lags the change in temperature;
t0,5 time necessary for the variation in temperature to attain
50% of its total value.
t0,9 time necessary for the variation in temperature to attain 90% of
its total value.
The response times given below are indicative only, and can vary by 30% or more, according to manufacturing tolerances.

Response time:

Inset	in water approx. 0.2 m/s		in air approx. 1 m/s	
	t0.5	t0.9	t0.5	t0.9
RTD 3 mm dia.	1.6 s	5.5 s	25 s	86 s
RTD 6 mm dia.	5 s	16 s	60 s	200 s

5. Temperature probes for explosive environments:

The connection head and temperature sensor must be located in zone 1 or 2 (class 1 div. 1; class 1 div. 2). The zone 0 (class 1 div. 1) must be separated from zone 1 or zone 2 by thermowells as follows: stainless steel, minimum wall thickness 1 mm (3 mm or thicker for other types of steel).

PCI shall not be responsible for the consequences of any application not conforming to the regulations or recommendations concerning explosive environments.

Type of protection "flameproof enclosure", for EExd execution: EEx d IIC T6*, *, DNV ATE 03.0103.06/2536X
The system comprises an EExd connection head, a lag extension and an inset with clearance according to EN 60079-1, and a type-approved cable gland. The sensor marking plate gives directions on use of the probes in explosive environments.

No particular restrictions apply to the measuring circuits. The connection head is provided with ground terminals.

Type of protection "intrinsic safety EExi"
The normative EN60079-11 consider the temperature sensors "simple apparatus" and do not needs of certification by an external notified body. They must be connected to the safe area by means of certified safety barrier. They are supplied with conformity declaration.