Frode Pedersen temperature sensors

Resistance Thermometer BS

with screw-in pocket

Data sheet 1814

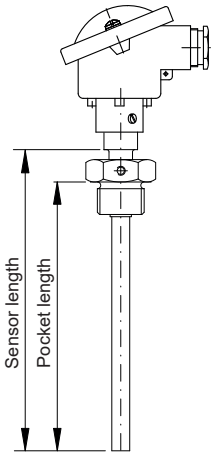
Application

- Measurement of temperature in closed pipes with gaseous and liquids media, such as gasses and water
- The operating range is up to 200°C
- Fields of application
  - Heat and ventilation (HVAC)
  - Heat- and energy distribution
  - Energy management

Technical features

- Pt100 and Pt1000 resistance thermometer acc. to IEC 751 (EN60751)
- Special designed screw-in pocket means fast response time
- Can be supplied with head mounted transmitter as an option

Sensor with pocket



Ordering

The requested sensor is selected from the table below
The colour code means:

Standard: Built of standard modules (short delivery time)

Variant: Modified standard modules

We are specialist in temperature measurement.
Please contact us and we shall do our utmost to solve your specific measuring task

Ordering information

Specification number 1814- | **Sensor** | **Transmitter** 4mA: °C 20mA: °C 2)

Protective tube

SS, acidproof steel, W.no. 1.4571 (AISI 316Ti)

8mm OD. 0.5mm wall 0

Insertion length (mm), pocket with sensor

85	(Pocket). Sensor length: 97mm	0	8	5
120	(Pocket). Sensor length: 132mm	1	2	0
150	(Pocket). Sensor length: 162mm	1	5	0
200	(Pocket). Sensor length: 212mm	2	0	0
Special (max. 250)		x	x	x

Insertion length, sensor (mm) wo. pocket

97	(Sensor). Pocket length: 85mm	0	9	7
132	(Sensor). Pocket length: 120mm	1	3	2
162	(Sensor). Pocket length: 150mm	1	6	2
212	(Sensor). Pocket length: 200mm	2	1	2
Special (max. 262)		x	x	x

Process connection (see page 2)

- No pocket 0
- 1/2" BSP 1
- ISO 7/1-R1/2" 2

Connection head

B: Degree of protection IP 53 ..... 1 0

Electrical connection

- 0 None
- 1 FPTM as terminal block (Sensor only 3-wire)
- 2 FPTU galvanic isolated. As terminal block
- 4 FPTU galvanic isolated. EEXiallCT4/6. As terminal block

Note 2: Please specify measuring range in °C

Connection. Wiring configuration

- 0 ... 3-wire
- 1 ... 4-wire
- 2 ... 2-wire

Tolerance acc. to IEC 751 (EN60751)

- 0 ..... Class B, i.e. ± (0.3°C + 0.005 x t_{actual})°C
- 1 ..... Class A, i.e. ± (0.15°C + 0.002 x t_{actual})°C
- 5 ..... Special, i.e. ± (0.05°C + 0.0013 x t_{actual})°C

Resistance value (Ω) acc. to IEC 751 (EN60751)

- 0 ..... 1xPt100
- 2 ..... 1xPt1000

Measuring range

-50 +200°C

Note 1: Max 85°C at connection between sensor and pocket

Accessesories

Transmitter: See data sheet 9168

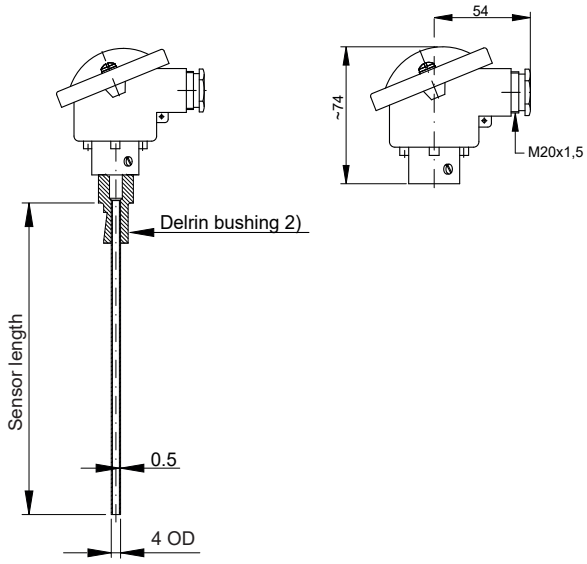
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TECHNICAL DATA

All dimensions in mm

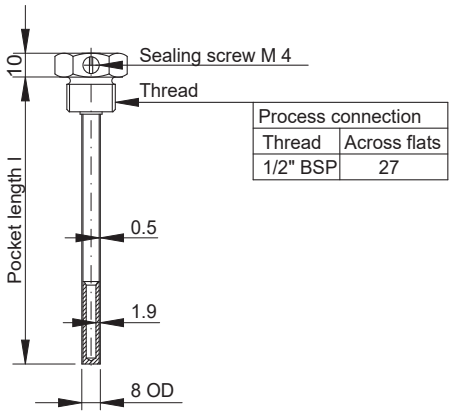
Dimensions

Resistance thermometer BS
Connection head
Type B



Note 2: Max 85°C

Pocket



Process connection	
Thread	Across flats
1/2" BSP	27

Pocket length l = Sensor length - 12mm

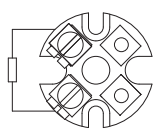
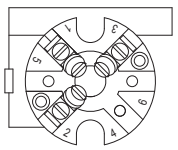
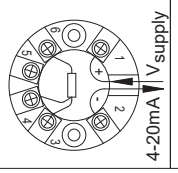
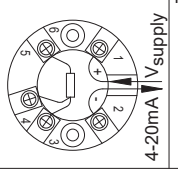
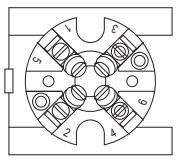
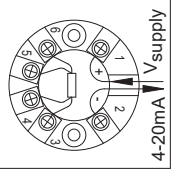
Response time

Protective tube	Response time in seconds (guidelines)			
	In water @ 0.4m/sec.		In air @ 3m/sec.	
	$t_{0.5}$	$t_{0.9}$	$t_{0.5}$	$t_{0.9}$
With pocket 8 OD	11	33	60	180

Note:

The 0.5/0.9 time is the time that it takes the sensor to reach 50%/90% of the final value of a temperature change of a medium.
If media and velocity are different from the ones stated, the time can change significantly.

Connection diagram

2-wire configuration	3-wire configuration			4-wire configuration	
Resistance	Resistance	Transmitter FPTU	Transmitter FPTM	Resistance	Transmitter FPTU
1xPt100/Pt500/Pt1000	1xPt100/Pt500/Pt1000			1xPt100/Pt500/Pt1000	
					

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Frode Pedersen temperature sensors

Resistance Thermometer RM 2

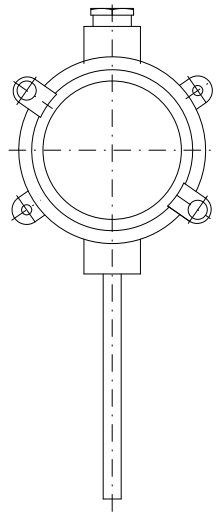
room sensor for wall mounting

Data sheet
1815

Application

- Measurement of temperature in rooms f. inst. refrigeration, freeze and cargo stores, outdoor temperature.
- The operating range is from -40 to 80°C
- Fields of application
  - Refrigeration industry
  - Heating and ventilation (HVAC)
  - Engine room

RM 2



Technical features

- Pt100 resistance thermometer acc. to IEC 751 (EN60751)
- 3-wire connection is standard
- Wall -mounting
- Sensor tube in stainless steel AiSi 316
- Can be supplied with transmitter as an option

Ordering

The requested sensor is selected from the table below
The colour code means:

Standard: Built of standard modules (short delivery time)

Variant: Modified standard modules

We are specialist in temperature measurement.
Please contact us and we shall do our utmost to solve your specific measuring task

Ordering information

Specification number	1815-	Sensor						Transmitter				
								4mA:	°C	20mA:	°C	1)

Type

RM 2 Outdoor, refrigeration freeze and cargo stores 1

Measuring range

-40 +80°C 0

Resistance value (Ω) acc. to IEC 751 (EN60751)

1xPt100 0
1xPt1000 2

Electrical connection

0 Terminals with screws
1 Transmitter FPTM. (Sensor only 3-wire)
3 Transmitter FPTU galvanic isolated
4 Transmitter FPTU galvanic isolated. EEXiaIICT4/6.

Note 1: Please specify measuring range in °C

Connection. Wiring configuration

0 . . . 3-wire
1 . . . 4-wire
2 . . . 2-wire

Tolerance acc. to IEC 751 (EN60751)

0 . . . . . Class B, i.e. ± (0.3°C + 0.005 x t_{actual})°C
1 . . . . . Class A, i.e. ± (0.15°C + 0.002 x t_{actual})°C
5 . . . . . Special, i.e. ± (0.05°C + 0.0013 x t_{actual})°C

Accessesories

Transmitter: See data sheet 9168

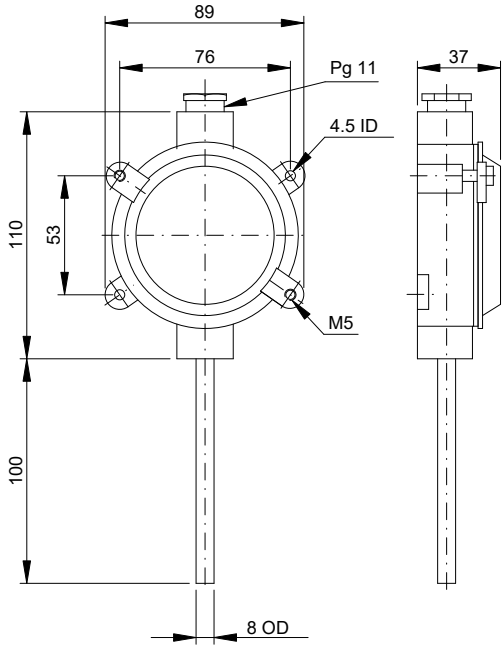
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TECHNICAL DATA

All dimensions in mm

Dimensions

RM 2



Enclosure

RM 2	silumin,	grey.	Degree of protection: IP67

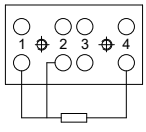
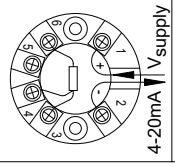
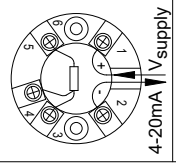
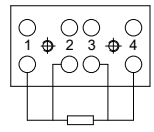
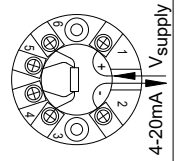
Response time

Protective tube	Response time in seconds (guidelines)	
	In air @ 3m/sec.	
	$t_{0.5}$	$t_{0.9}$
8 OD	60	190

Note:

The 0.5/0.9 time is the time that it takes the sensor to reach 50%/90% of the final value of a temperature change of a medium.
If media and velocity are different from the ones stated, the time can change significantly.

Connection diagram

3-wire configuration			4-wire configuration	
1xPt100 / 1xPt1000	Transmitter FPTU	Transmitter FPTM	1xPt100 / 1xPt1000	Transmitter FPTU
RM 2 3-wire			RM 2 4-wire	
				

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Frode Pedersen temperature sensors

Resistance Thermometer OFM

for surface measurement, cable sensor

Data sheet
1816

Application

- For measurement and surveillance of temperature on tubes, tools and machine constructions,
- Operating range is on sufaces up to 180°C
- Fields of application
  - Machinery, chemical apparatus
  - Process industry



Technical features

- Pt100 resistance thermometer acc. to IEC 751 (EN60751)
- 3-wire connection is standard
- Direct contact to the measuring element (RTD) gives fast response time
- Solid construction with high resistance against vibration
- Quick mounting with screws or straps

Ordering

The requested sensor is selected from the table below
The colour code means:

Standard: Built of standard modules (short delivery time)

Variant: Modified standard modules

We are specialist in temperature measurement.
Please contact us and we will do our best to solve your specific measuring task

Ordering information **Sensor**

Specification number **1816-**

Protection enclosure
Material: Brass
15 x 30 x 10mm 0

Measuring range
-20 +180°C 0

Resistance value (Ω) acc. IEC 751 (EN60751)
1xPt100 0

Cable length (meter)
0 1 1 meter
x x,x Special (Min 0.1 meter)

Cable type
0 ..... 0.382mm^2 Teflon insulated with inner screen, max 200°C

Connection. Wiring configuration
0 ..... 3-wire
1 ..... 4-wire
2 ..... 2-wire

Tolerance iht. IEC 751 (EN60751)
0 ..... Class B, i.e. ± (0.3°C + 0.005 x t_{actual})°C

Accessories

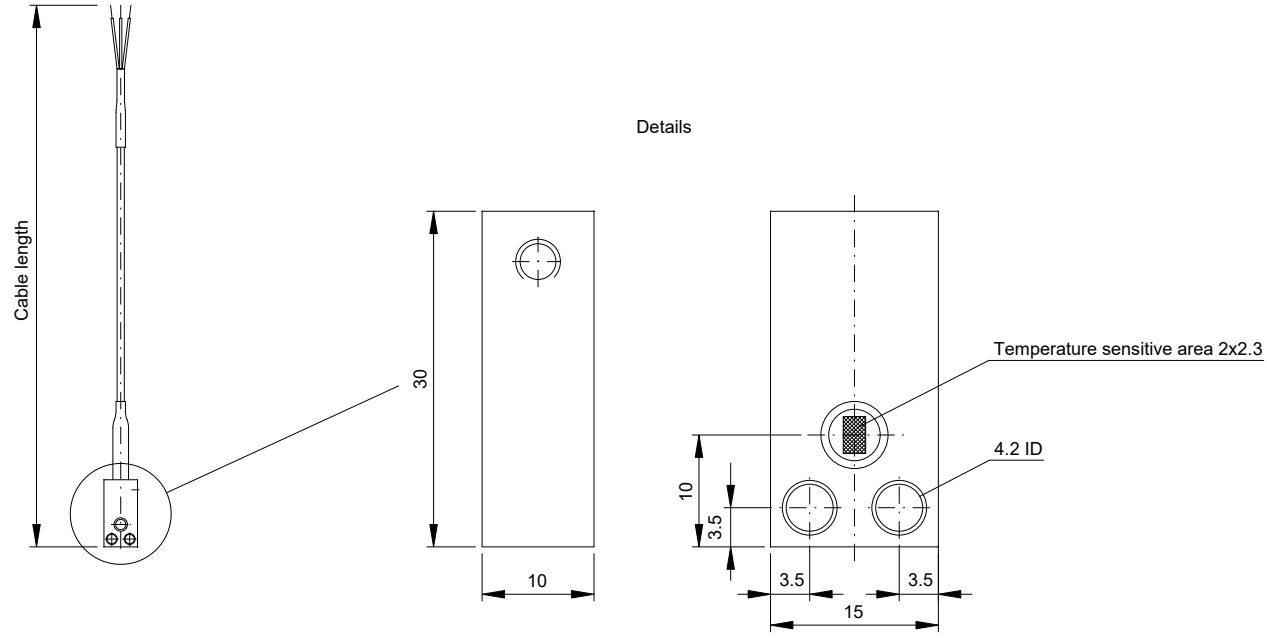
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TECHNICAL DATA

All dimensions in mm

Dimensions

Type OFM



Installation

With 4mm screws or straps.
It is recommended to use heat zink compound between surface and sensor (measuring point), and insulate the back of the sensor

Properties for cable

Insulation	Temperature range	Application
Teflon	-50 +200°C	Corrosion and heat resistance

Response time

Measuring element (RTD)	Response time in seconds (guidelines)	
	In water @ 0.2m/sec.	In air @ 2m/sec
	$t_{0.5}$	$t_{0.9}$
	0.1	3
	0.5	10

Note:

The 0.5/0.9 time is the time that it takes the sensor to reach 50%/90% of the final value of a temperature change of a medium.
If media and velocity are different from the ones stated, the time can change significantly.

Connection diagram - cable

Teflon w/screen Screen connected to outer sheath	
1xPt100 2- 3- 4-wire	2xPt100 2-wire
Red Red White White	Red Red White White

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