ENGINEERING
TOMORROW

Data sheet

Bearing temperature sensor
MBT 5310

The MBT 5310 temperature sensor series is specially designed for measuring the temperature in bearings where there is a risk of overheating.

To get a very short reaction time the measuring element is placed in a way to secure a reaction time of down to $t_{0.5}$ = 6 sec. in water.

The sensor is fitted with an adjustable spring loaded protection tube which ensures metallic contact between bearing and sensor at all times.

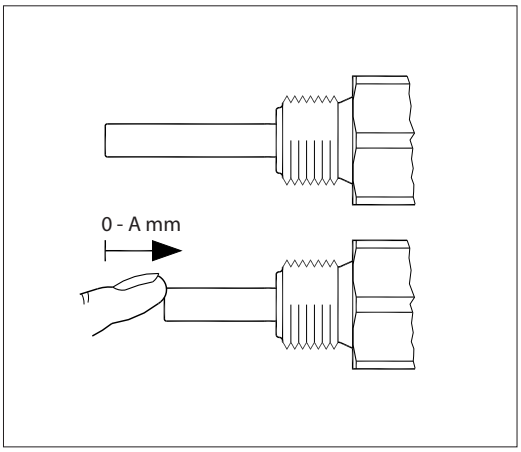
Features

- For monitoring of bearing temperatures where there is risk of overheating, in applications such as:
  - Wind Turbines
  - Engines
  - Gearboxes
- Based on Pt 100 / Pt 1000 technology for use up to 200 °C
- Spring loaded to ensure good contact with the bearing

Approvals

Det Norske Veritas, DNV
Registro Italiano Navale, Rina
Bureau Veritas, BV
American Bureau of Shipping, ABS
Korean Register of Shipping, KR
China Classification Society, CCS

Spring function



Brass process connection	A = 15 mm
Stainless steel process connection	A = 12 mm

Technical Data

General data

Measuring range	-50 – 200 °C
Sensing element	Pt 100, Pt 1000
Protection tube	ø8 × 1 mm

Response time

Protection tube	Indicative response times			
	Water 0.2 m/s		Air 1 m/s	
	$t_{0.5}$	$t_{0.9}$	$t_{0.5}$	$t_{0.9}$
ø8 × 1 mm	6 s	20 s	35 s	140 s

Materials

Protection tube in contact with the media	AISI 316
O-ring	FPM
Nut	Nickel plated brass
Process connection	AISI 316 / Brass
Gasket	Silicone
Plug EN 175301-803-A	PA (max. 125 °C)
B-head	Die cast aluminium

Mechanical and environmental specifications

Sensor tolerance		EN 60751 Class B: ± (0.3 °C + 0.005 × t) t = temperature of medium, numerical value
Vibration stability	Shock	100 g/6 ms
	Vibrations	4 g sine function 2 – 100 Hz, acc. to IEC 60068-2-6
Enclosure		IP65 according to IEC 60529
B-head		Pg 11
Plug EN 175301-803-A		Pg 9, Pg 11

Ordering standard Plug and B-head

Type MBT 5310

Resistance value

1 × Pt 100	0
2 × Pt 100 [1])	1
1 × Pt 1000	2
2 × Pt 1000 [1])	3
Other	9

Protection Tube, W.nr. 1.4571 (AISI 316 Ti)

Acid-proof steel, ø8 × 1mm	0
Other	9

Insertion length (working range)

Brass	Stainless	
70 – 85 mm	73 – 85 mm	85
85 – 100 mm	88 – 100 mm	100
145 – 160 mm	148 – 160 mm	160
210 – 225 mm	213 – 225 mm	225
225 – 240 mm	228 – 240 mm	240
555 – 570 mm	558 – 570 mm	570
Other		xxx

Tolerance

0	EN 60751 Class B

Process connection

0	G ½ A Stainless steel
1	G ¾ A Stainless steel
2	G ½ A Brass
3	G ¾ A Brass
7	½ –14 NPT Stainlees steel
9	Other

Electrical Connections

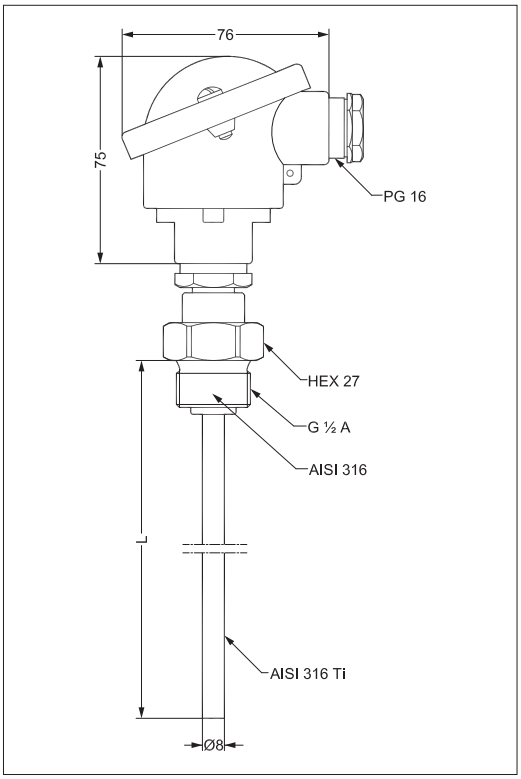
0	EN 175301-803-A, plug Pg 11 (IP65) 2 wire / 3 terminals
1	EN 175301-803-A, plug Pg 9 (IP65) 2 wire / 3 terminals
3	B-mini head 2 wire / 3 terminals
4	B-mini head 4 wire / 4 terminals
5	B-head standard, 4 wire / 4 terminals
6	B-mini head 2 wire / 2 terminals
7	EN 175301-803-A, plug Pg 9 (IP65) 4 terminals no grounding pin
8	EN 175301-803-A, plug Pg 11 (IP65) 4 terminals no grounding pin
A	M12 plug 2 wire 4 pins
B	M12 plug 4 wire 4 pins

Preferred versions

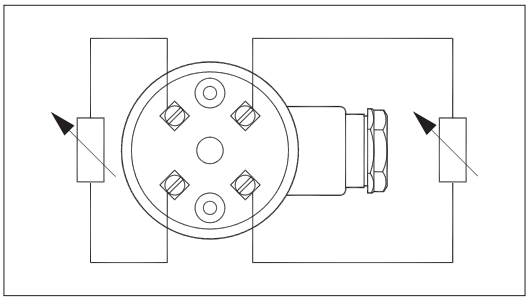
[1]) Not all electrical connections are possible

Technical Data

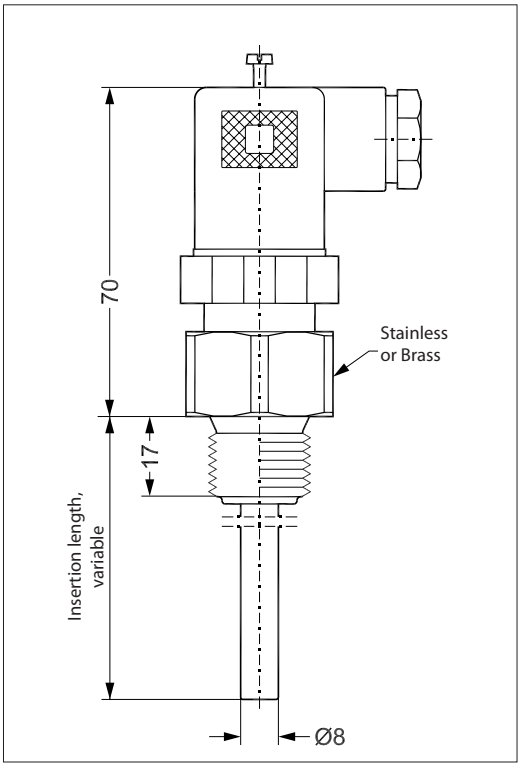
Dimensions [mm]

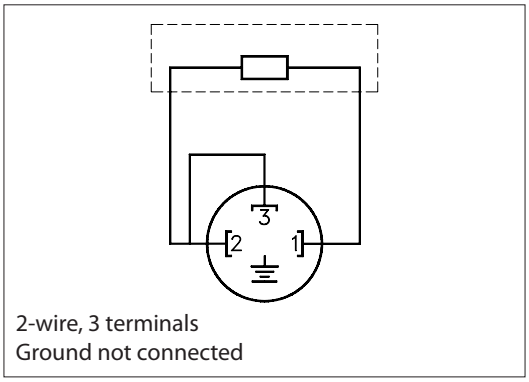


Electrical connection



Electrical connection and dimensions





2-wire, 3 terminals
Ground not connected

Technical data
Cable version

General data

Measuring range	-50 – 200 °C
Sensing element	Pt 100, Pt 1000
Protection tube	ø8 × 1 mm

Response time

Protection tube	Indicative response times			
	Water 0.2 m/s		Air 1 m/s	
	$t_{0.5}$	$t_{0.9}$	$t_{0.5}$	$t_{0.9}$
ø8 × 1 mm	6 s	20 s	35 s	140 s

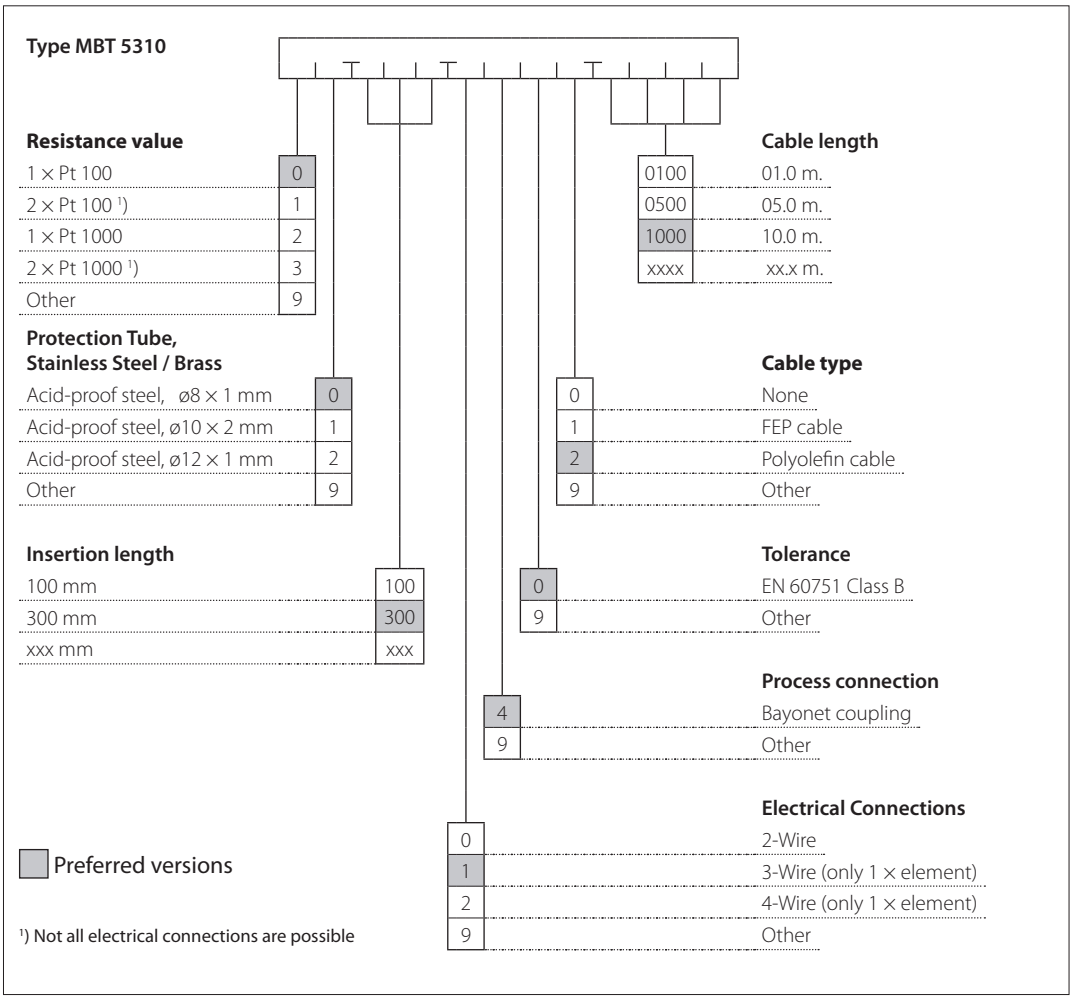
Materials

Protection tube in contact with the media	AISI 316
Spring material	Stainless steel
Cable	FEP or Polyolefin, depending on selection
Process connection, bayonet	AISI 316

Mechanical and environmental specifications

Sensor tolerance		EN 60751 Class B: ± (0.3 °C + 0.005 × t) t = temperature of medium, numerical value
Vibration stability	Shock	100 g/6 ms
	Vibrations	4 g sine function 2 – 100 Hz, acc. to IEC 60068-2-6
	Enclosure	IP67 according to IEC 60529

Ordering standard cable version



Dimensions [mm]