ENGINEERING
TOMORROW

Data sheet

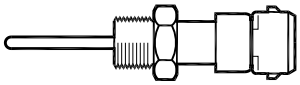
Temperature sensor
Type MBT 3270

The flexible temperature sensor MBT 3270 can be used in many industrial applications such as: Air Compressors, Mobile Hydraulics and Exhaust gas return systems. In other words applications where robustness, size and performance are essentials.
The sensor can be equipped with different sensing elements (RTD, NTC and PTC) and is available with different electrical connections (Cable, Delphi Metri Pack, AMP junior power Timer, Deutch DT04).

Features

- OEM Temperature Sensor program
- Various sensor elements available (RTD, NTC, PTC)
- Robust, high protection against moisture
- Fixed measuring insert
- Brass or stainless steel
- Very low response times
- Temperature range up to 300 °C
- Avaiable with cable or integrated plug (Delphi Metri Pack, AMP junior power Timer, Deutsch DT04)

Technical data, Integrated Plug version



General data

Ambient temperature	Plug	-40 °C – 125 °C
Media temperature	Pt 1000, Pt 100 NTC PTC	-50 °C – 300 °C -50 °C – 150 °C, special versions up to 300 °C -50 °C – 150 °C
Max. external pressure	Operating pressure	500 bar
	Burst pressure	> 900 bar
Max. tightening torque	M10 M14	17 Nm 24 Nm

Performance

Sensor Element		Pt 100, Pt 1000, NTC, PTC
Process Connection		Refer to ordering standard page 3
Sensor insertion length	Brass	80 mm @ d ≥ 8 mm
		60 mm @ 8 > d > 5 mm
		40 mm @ d ≤ 5 mm
	Stainless steel	70 mm @ d ≥ 8 mm
		50 mm @ 8 > d > 5 mm
		35 mm @ d ≤ 5 mm
Electrical Connection		AMP Junior Power Timer Delphi Metri Pack Deutsch DT04 Other on request
Connection		2-wire

Indicative response times

Material protection tube	**Protection tube**	**Indicative response times**	
		Water 0,2 m/s	
		$t_{0.5}$	**$t_{0.9}$**
Stainless Steel	ø6 mm	6.0 s	18 s
	ø4 mm	2.0 s	6.0 s
	ø3 mm	0.5 s	1.5 s

Response times can vary very much depending on the design of the sensor and the temperature element chosen.

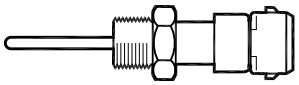
Mechanical and environmental specifications

Sensor Tolerances	Pt 1000 / Pt 100 NTC PTC 2000 (KTY 81 – 210)	EN 60751 Class B On request ± 1% at 25 °C
Vibration stability	Shock	50 g / 6 ms
	Vibrations, x-y-z directions	15.3 g sine, 20 – 2000 Hz, 8 hours
Enclosure	AMP Junior Power Timer Delphi Metri Pack Deutsch DT04	IP65 according to IEC 60529

Materials

Protection tube in contact with media	AISI 316 Brass
Process connection	AISI 316 Brass
Gasket	Viton, NBR (other on request)
Plug	PPS (Ryton 4)

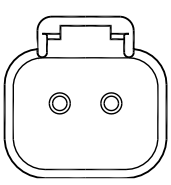
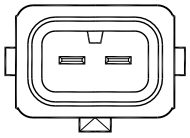
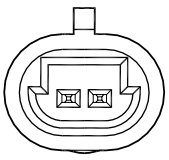
Ordering standard
Integrated Plug version



Type MBT 3270

Measuring range		
-50 – 150 °C	0	
-50 – 200 °C	1	
-50 – 300 °C	2	
Other	9	
Resistance value		
1 × Pt 100	0	
1 × Pt 1000	2	
NTC 2000, B25/85 2880 - 4570	6	
NTC 2700, B25/85 2880 - 4570	K	
NTC 3000, B25/50 3499	A	
NTC 5000, B25/100 3988	L	
Other (e.g. NTC)	9	
Tolerance		
EN 60751 Class B	0	
± 1%	1	
± 2%	2	
± 3%	3	
Other	9	
NTC characteristic		
No NTC	0	
Other	9	
Protection tube		
Brass	0	
Acid-Proof Steel, AISI 316	1	
Other	9	
Insertion length (80 mm max)		
24 mm	0 2 4	
28 mm	0 2 8	
40 mm	0 4 0	
Other (21 – 80)	x x x	
	0	**Insert**
		Fixed
		Process connection
	0	G ¼ A
	1	G ⅜ A
	2	G ½ A
	3	M10 × 1
	B	M14 × 1.5
	9	Other
	0	**Plug**
		None
	3	AMP Junior Power Timer
	4	Delphi Metri-pack Integrated – 102
	C	Deutsch Integrated DT04 – 2 pin
	9	Other
	0	**Connection**
		2-wire
	9	Other

Electrical connections

Deutsch DT04	AMP Junior Power Timer	Delphi Metri Pack 102
		

Technical data, Cable version

General data

Ambient temperature	Cable	PVC Silicon Teflon Polyolefin (oil resistant)	-40 °C – 100 °C -40 °C – 200 °C -40 °C – 200 °C -40 °C – 150 °C
	Plug	AMP spade AMP Junior Power Timer Delphi Metri Pack 102 Deutsch DT04-3P	-40 °C – 200 °C -40 °C – 125 °C -40 °C – 125 °C -40 °C – 125 °C
Media temperature		Pt 100 NTC PTC	-50 °C – 300 °C -50 °C – 150 °C, special versions up to 300 °C -50 °C – 150 °C
Max. external pressure		Operating pressure	500 bar
		Burst pressure	> 900 bar
Max. tightening torque		M10 M14	17 Nm 24 Nm

Performance

Sensor Element		Pt 100, Pt 1000, NTC, PTC
Process Connection		Refer to ordering standard page 5
Sensor insertion length	Brass	80 mm @ d ≥ 8 mm
		60 mm @ 8 > d > 5 mm
		40 mm @ d ≤ 5 mm
	Stainless steel	70 mm @ d ≥ 8 mm
		50 mm @ 8 > d > 5 mm
		35 mm @ d ≤ 5 mm
Electrical Connection		Stripped wire ends Cable with AMP spade (6.35) Cable with AMP Junior Power Timer Cable with Delphi Metri Pack 102 Cable with Deutsch DT04-3P-2P Other on request
Connection		2, 3 or 4 wire (depending on electrical connection)

Indicative response times

Material protection tube	**Protection tube**	**Indicative response times**	
		Water 0,2 m/s	
		$t_{0.5}$	**$t_{0.9}$**
Stainless Steel	ø6 mm	6 s	18 s
	ø4 mm	2 s	6 s
	ø3 mm	0.5 s	1.5 s

Response times can vary very much depending on the design of the sensor and the temperature element chosen.

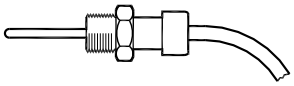
Mechanical and environmental specifications

Sensor tolerances	Pt 1000 / Pt 100 NTC PTC 2000 (KTY 81 – 210)	EN 60751 Class B: ± (0.3 + 0.005 × t) On request ± 1% at 25° C
Vibration stability	Shock	50 g / 6 ms
	Vibrations, x-y-z directions	15.3 g sine, 20 – 2000 Hz, 8 hours
Enclosure	Sensor only Cable with AMP spade Cable with AMP Junior Timer Cable with Delphi Metri Pack 102 Cable with Deutsch DT04	IP67 according to IEC 60529 IP00 according to IEC 60529 IP65 according to IEC 60529 IP65 according to IEC 60529 IP65 according to IEC 60529

Materials

Protection tube in contact with media	AISI 316 Brass
Process connection	AISI 316 Brass
Cable	PVC, Silicon, Teflon (Other on request)
Gasket	Viton, NBR (Other on request)
Plug	PPS (Ryton 4)

Ordering standard
Cable version



Type MBT 3270

Measuring range

-50 – 150 °C	0
-50 – 200 °C	1
-50 – 300 °C	2
Other	9

Resistance value

1 × Pt 100	0
1 × Pt 1000	2
NTC 2000, B25/85 2880 - 4570	6
NTC 2700, B25/85 2880 - 4570	K
NTC 3000, B25/50 3499	A
NTC 5000, B25/100 3988	L
Other (e.g. NTC)	9

Tolerance

EN 60751 Class B	0
± 1%	1
± 2%	2
± 3%	3
Other	9

NTC characteristic

No NTC	0
Other	9

Protection tube

Brass	0
Acid-Proof Steel, AISI 316	1
Other	9

Insertion length (80 mm max)

24 mm	024
28 mm	028
40 mm	040
Other (21 – 80)	xxx

Cable length

050	0.5 m
100	1.0 m
200	2.0 m
xxx	x.x m

Cable

1	Silicone
2	Silicone, screened
3	Teflon
4	Teflon, screened
5	PVC
6	PVC, screened
7	Polyolefine, screened
8	Polyolefine, screened 80 °C
9	Other

Connection

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

Plug

0	None
1	AMP (Spade 6.35)
3	AMP Junior Power Timer
5	Deutsch Flying DT04 – 3 pin
D	Deutsch Flying DT04 – 2 pin
E	Delphi Metri Pack flying – 102
9	Other

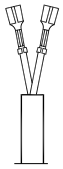
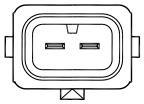
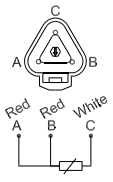
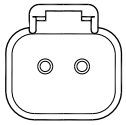
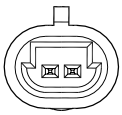
Insert

0	Fixed

Process connection

0	G ¼ A
1	G ⅜ A
2	G ½ A
3	M10 × 1
B	M14 × 1.5
9	Other

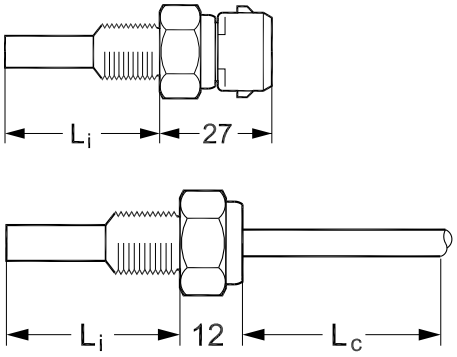
Electrical connections

AMP spade (6.35)	AMP Junior Power Timer	Deutsch DT04 3 pin	Deutsch DT04 2 pin	Delphi Metri Pack 102
				

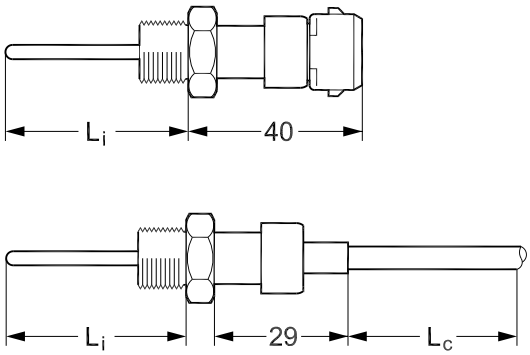
Dimensions

Examples

-50 – 150 °C



-50 –150 °C / 300 °C



Insertion length:
L_i = 21 to xx (max. 80 mm)

Cable length:
L_c = 0.5 m to x.xx m

Tube diameter depends on the chosen sensor element and the wanted response time.

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