

Data sheet

Temperature sensor

Type MBT 3270

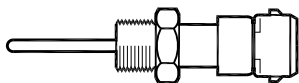


The flexible temperature sensor MBT 3270 can be used in many industrial applications such as: Air Compressors, Mobile Hydraulics and Exhaust gas return systems. In other words applications where robustness, size and performance are essentials.

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
- Available 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	-50 °C – 300 °C -50 °C – 150 °C, special versions up to 300 °C
	PTC	-50 °C – 150 °C
Max. external pressure	Operating pressure	500 bar
	Burst pressure	> 900 bar
Max. tightening torque	M10	17 Nm
	M14	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.

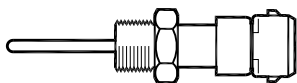
Mechanical and environmental specifications

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

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	17 Nm
		M14	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

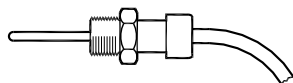
Sensor tolerances	Pt 1000 / Pt 100 NTC PTC 2000 (KTY 81 – 210)	EN 60751 Class B: $\pm (0.3 + 0.005 \times t)$ On request $\pm 1\%$ at 25° C
Vibration stability	Shock	50 g / 6 ms
	Vibrations, x-y-z directions	15.3 g sine, 20 – 2000 Hz, 8 hours
Enclosure	Sensor only Cable with AMP spade Cable with AMP 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			Cable length
-50 – 150 °C	0	050	0.5 m
-50 – 200 °C	1	100	1.0 m
-50 – 300 °C	2	200	2.0 m
Other	9	xxx	x.x m
Resistance value			Cable
1 × Pt 100	0	1	Silicone
1 × Pt 1000	2	2	Silicone, screened
NTC 2000, B25/85 2880 - 4570	6	3	Teflon
NTC 2700, B25/85 2880 - 4570	K	4	Teflon, screened
NTC 3000, B25/50 3499	A	5	PVC
NTC 5000, B25/100 3988	L	6	PVC, screened
Other (e.g. NTC)	9	7	Polyolefine, screened
		8	Polyolefine, screened 80 °C
		9	Other
Tolerance			Connection
EN 60751 Class B	0	0	2-wire
± 1%	1	1	3-wire
± 2%	2	2	4-wire
± 3%	3		
Other	9		
NTC characteristic			Plug
No NTC	0	0	None
Other	9	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
Protection tube			Insert
Brass	0	0	Fixed
Acid-Proof Steel, AISI 316	1		
Other	9		
Insertion length (80 mm max)			Process connection
24 mm	024	0	G ¼ A
28 mm	028	1	G ⅜ A
40 mm	040	2	G ½ A
Other (21 – 80)	xxx	3	M10 × 1
		B	M14 × 1.5
		9	Other

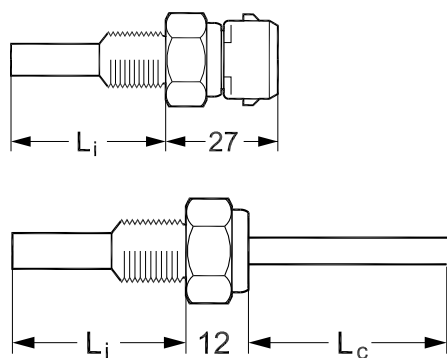
Electrical connections

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

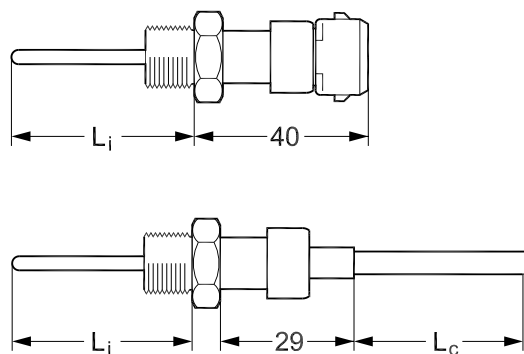
Dimensions

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.

ENGINEERING
TOMORROW



Danfoss can accept no responsibility for possible errors in catalogues, brochures and other printed material. Danfoss reserves the right to alter its products without notice. This also applies to products already on order provided that such alterations can be made without subsequential changes being necessary in specifications already agreed. All trademarks in this material are property of the respective companies. Danfoss and the Danfoss logotype are trademarks of Danfoss A/S. All rights reserved.
