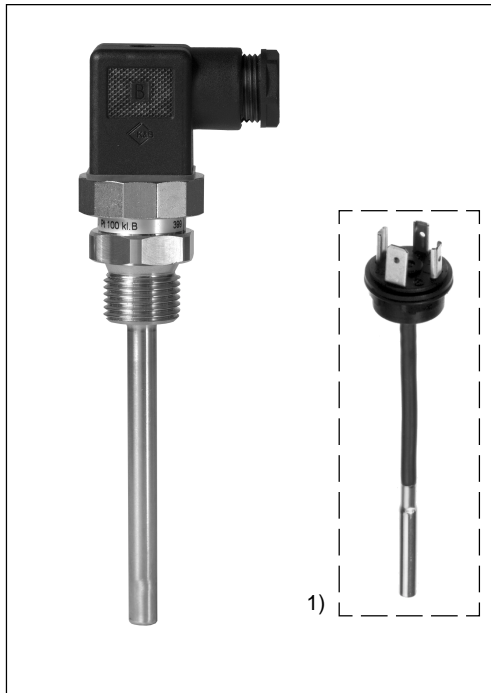


Temperature sensors
types MBT 5250, 5260 and 5252

Temperature sensors, types MBT 5250, 5260 and 5252

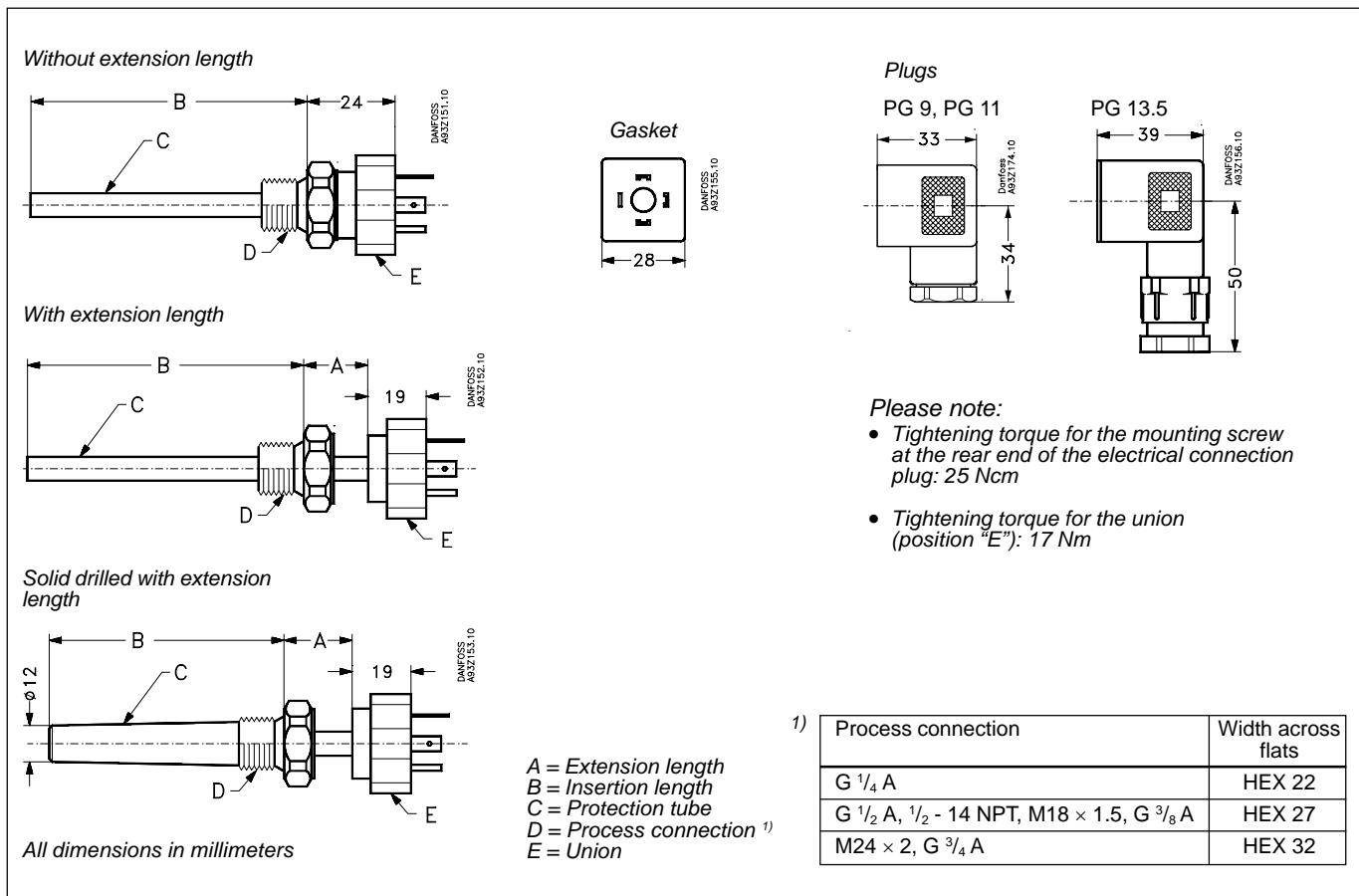
Features and application



- For temperature measurement and regulation in piping systems and refrigeration plants on ships – or points where reliable, robust and accurate equipment is required
- Gaseous or liquid media, e.g. air, gas, vapour, water or oil.
- Up to +200°C media temperatures
- Pt100 or Pt1000 resistance element
- Can be used with 2- or 3-wire connections
- Gold plated male and female connector
- MBT 5250 with interchangeable measuring insert
- MBT 5260 with fixed measuring insert
- Approvals
 - Lloyds Register of Shipping, LR
 - Germanischer Lloyd, GL
 - Bureau Veritas, BV
 - Det Norske Veritas, DNV
 - Nippon Kaiji Kyokai, ClassNK
 - Registro Italiano Navale, RINA
 - American Bureau of Shipping, ABS
 - Korean Register of Shipping, KRS

1) Measuring insert for MBT 5250

Dimensions



Temperature sensors, types MBT 5250, 5260 and 5252

Technical data

Response times

Type	Protection tube	Indicative response times according to VDI/VDE 3522			
		Water 0.2 m/s		Air 1 m/s	
		$t_{0.5}$	$t_{0.9}$	$t_{0.5}$	$t_{0.9}$
MBT 5250 with interchangeable measuring insert	$\varnothing 8 \times 1$ mm	9 s	33 s	95 s	310 s
	$\varnothing 8 \times 1$ mm, filled with heat conductive compound ¹⁾	3 s	10 s	90 s	300 s
	$\varnothing 10 \times 2$ mm	12 s	42 s	111 s	391 s
	$\varnothing 10 \times 2$ mm, filled with heat conductive compound ¹⁾	4 s	14 s	96 s	323 s
	Solid drilled	12 s	36 s	220 s	900 s
	Solid drilled, filled with heat conductive compound ¹⁾	5 s	15 s	210 s	850 s
MBT 5260 with fixed meas. ins.	$\varnothing 8 \times 1$ mm	2 s	6 s	82 s	260 s
	Solid drilled	4 s	13 s	225 s	850 s

¹⁾ The sensors are supplied **without** heat conductive compound

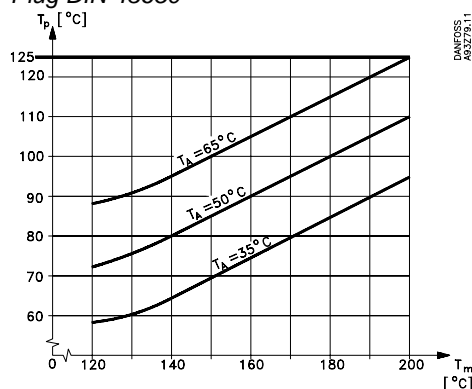
Materials

Protection tube in contact with media	W.no. 1.4571 (AISI 316 Ti)
Process connection	W.no. 1.4571 (AISI 316 Ti)
Extension length	W.no. 1.4571 (AISI 316 Ti)
Union	Nickel plated brass
Gasket	Silicone
Plug DIN 43650	PA 6.6 (max 125°C)

Mechanical and environmental specifications

Sensor tolerance	EN 60751 Class B: $\pm (0.3 + 0.005 \times t)$ $\frac{1}{3}$ EN 60751 Class B: $\pm (0.1 + 0.005 \times t)$ $\frac{1}{6}$ EN 60751 Class B: $\pm (0.05 + 0.005 \times t)$	t = temperature of medium, numerical value
Vibration stability	Shock: 100 g in 6 ms Vibrations: 4g sine function 5 - 200 Hz, measured acc. to IEC 68-2-6	
Enclosure	IP 65 according to IEC 529	
Cable entry DIN 43650	PG 9, PG 11 or PG 13.5	

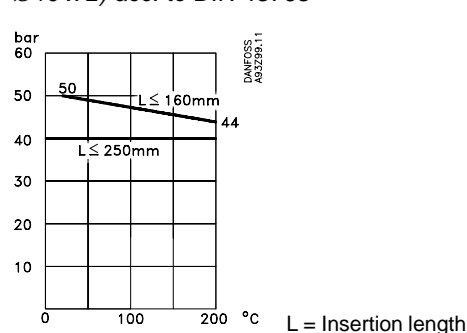
Max. temperature (Ext. length "None") Plug DIN 43650



T_m = Media temperature
 T_p = Temperature for electric plug
 T_A = Ambient temperature

Note: for extension length = 50 mm no limitations up to 200 °C media temperature and 90 °C ambient temperature

Max. load on protection tube ($\varnothing 8 \times 1$, $\varnothing 10 \times 2$) acc. to DIN 43763

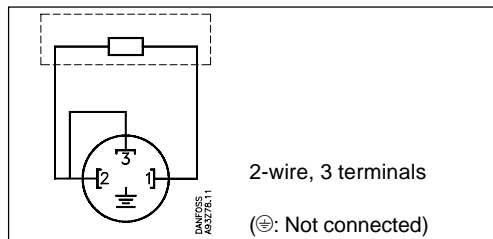


Permissible media velocity	Air	25 m/s
	Water	3 m/s

Process connection	G $\frac{1}{4}$ A – G $\frac{1}{2}$ A G $\frac{3}{8}$ A – M18	G $\frac{3}{4}$ A M24
Max. tightening torque	50 Nm	100 Nm

Temperature sensors, types MBT 5250, 5260 and 5252

Electrical connections



MBT 5250 ordering

Standard programme

- Measuring range: -50 to $+200^{\circ}\text{C}$
- Resistance value: $1 \times \text{Pt}100$
- Protection tube: $\varnothing 8 \times 1$ mm, W. No. 1.4571 (AISI 316 Ti)
- Extension length: None
- Tolerance: EN 60751, Class B

Insertion length [mm]	Process connection	Electrical connection		
		PG 9 Code no.	PG 11 Code no.	PG 13.5 Code no.
50	G $\frac{1}{2}$ A	084Z8011	084Z8036	
100	G $\frac{1}{2}$ A	084Z8012	084Z8039	
150	G $\frac{1}{2}$ A	084Z8010	084Z8008	
200	G $\frac{1}{2}$ A	084Z8022	084Z8043	
50	G $\frac{3}{4}$ A		084Z8037	084Z8058
100	G $\frac{3}{4}$ A		084Z8006	084Z8013
150	G $\frac{3}{4}$ A		084Z8041	084Z8014
200	G $\frac{3}{4}$ A		084Z8044	084Z8218
50	$\frac{1}{2}$ – 14 NPT		084Z8066	
80	$\frac{1}{2}$ – 14 NPT		084Z8019	
100	$\frac{1}{2}$ – 14 NPT		084Z8067	
150	$\frac{1}{2}$ – 14 NPT		084Z8065	
200	$\frac{1}{2}$ – 14 NPT		084Z8068	

Other specifications on request

MBT 5260 ordering

Standard programme

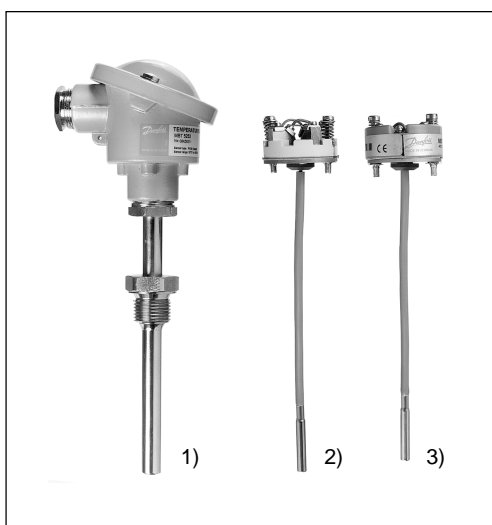
- Measuring range: -50 to $+200^{\circ}\text{C}$
- Resistance value: $1 \times \text{Pt}100$
- Protection tube: $\varnothing 8 \times 1$ mm, W. No. 1.4571 (AISI 316 Ti)
- Extension length: None
- Tolerance: EN 60751, Class B

Insertion length [mm]	Process connection	Electrical connection	
		PG 9 Code no.	PG 11 Code no.
50	G $\frac{1}{2}$ A	084Z8033	084Z8229
100	G $\frac{1}{2}$ A	084Z8021	084Z8132
150	G $\frac{1}{2}$ A	084Z8034	084Z8096
200	G $\frac{1}{2}$ A		084Z8238

Other specifications on request

Temperature sensors, types MBT 5250, 5260 and 5252

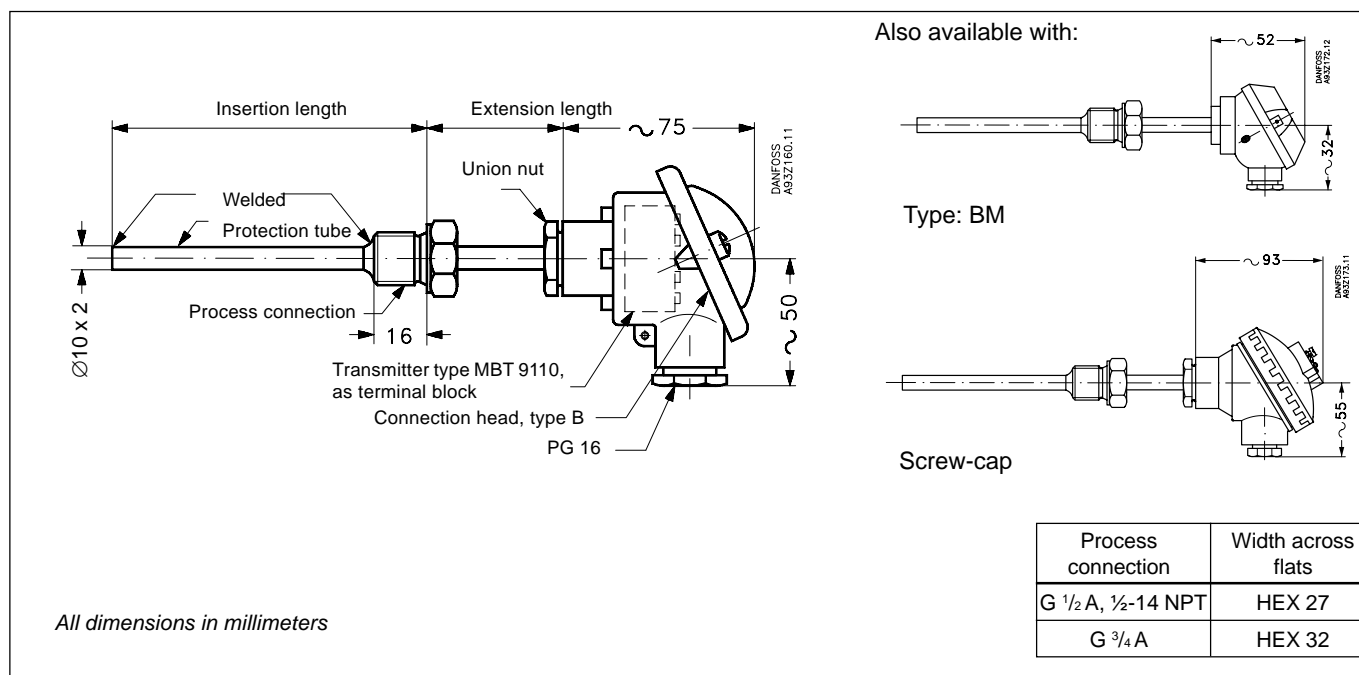
Features and application



- 1) MBT 5252
Measuring insert type MBT 152
2) with terminal block
3) with temperature transmitter

- For measuring and regulating temperature in piping systems and refrigeration plant on ships - or at all points where reliable, robust and accurate equipment is required.
- Gaseous or liquid media, e.g. air, gas, vapour, water or oil.
- Up to +400°C media temperatures.
- Pt100/ Pt1000 resistance element.
- Available with built-in transmitter.
- Approvals
 - Lloyds Register of Shipping, LR
 - Germanischer Lloyd, GL
 - Bureau Veritas, BV
 - Det Norske Veritas, DNV
 - Nippon Kaiji Kyokai, ClassNK
 - Registro Italiano Navale, RINA
 - American Bureau of Shipping, ABS
 - Korean Register of Shipping, KRS

Dimensions



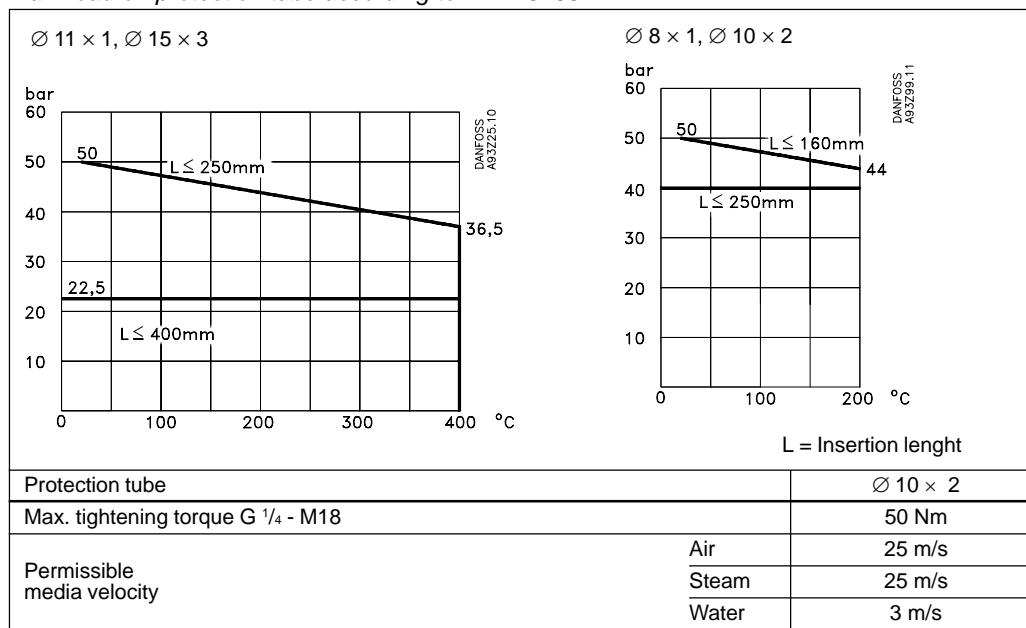
Temperature sensors, types MBT 5250, 5260 and 5252

Technical data (continued)

Weight

Insertion length [mm]	Electrical connection	Transmitter setting	Process connection		
			G 1/2 A	G 3/4 A	1/2-14 NPT
50	2-wire, 3 terminals	Sensors are without transmitter	430	480	430
100			460	510	460
150			490	540	490
200			520	570	520
250			550	600	550
50	4 - 20 mA, 2-wire universal temperature transmitter	0 → +100°C	420	470	420
100			450	500	450
150			480	530	480
200			510	560	510
250			540	590	540

Max. load on protection tube according to DIN 43763



Materials

Protection tube in contact with media	W. no. 1.4571 (AISI 316 Ti)
Process connection in contact with media	W. no. 1.4571 (AISI 316 Ti)
Extension length	W. no. 1.4571 (AISI 316 Ti)
Union nut	Nickel plated brass
Connection head	Die cast aluminium

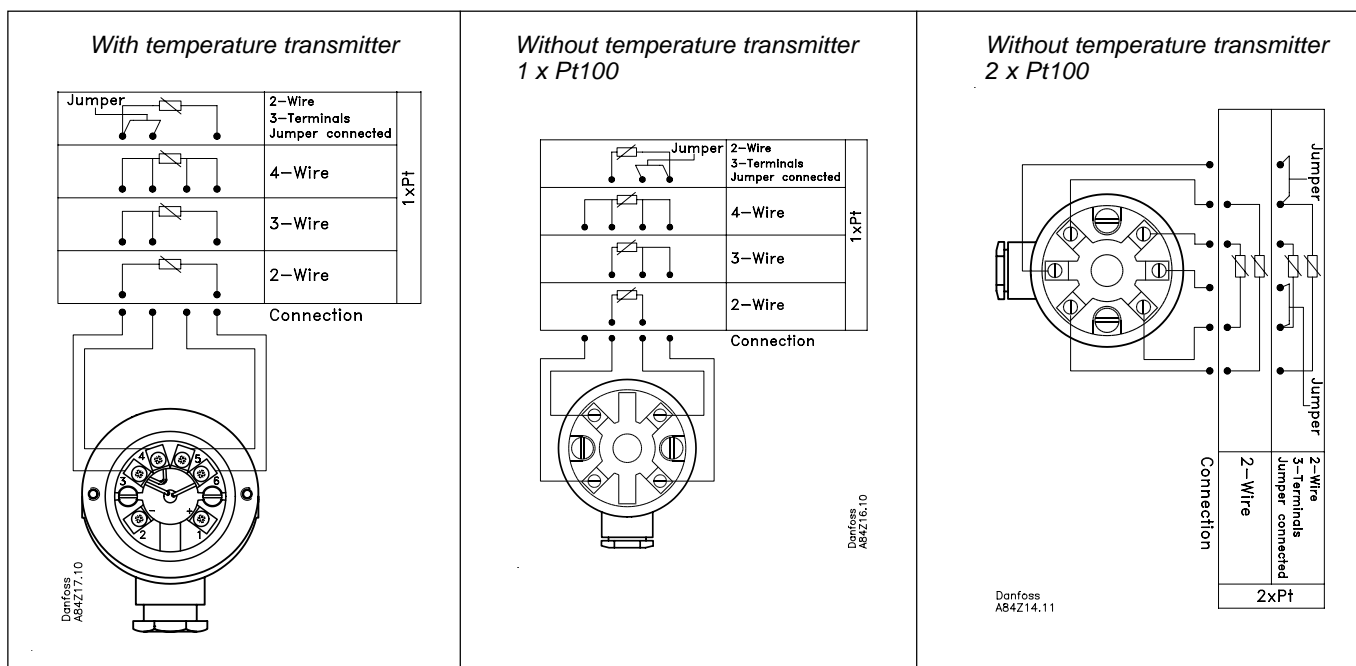
Mechanical and environmental specifications

Max. temperature ¹⁾	Ambient: 90°C for sensors without temperature transmitter	
	Transmitter: 85°C for sensors with temperature transmitter	
Sensor tolerance	EN 60751 Class B: ±(0.3 + 0.005 × t) 1/3 EN 60751 Class B: ±(0.1 + 0.005 × t) 1/6 EN 60751 Class B: ±(0.05 + 0.005 × t)	t = temperature of medium, numerical value
Vibration stability	Shock: 100 g in 6 ms Vibrations: 4g sine function 2 - 100 Hz, measured acc. to IEC 68-2-6	
Enclosure	IP 65 according to IEC 529	
Cable entry B-head/screw-cap	PG 16	
Cable entry BM	PG 9	
Temperature transmitter MBT 9110	Supply voltage: 8 - 35V d.c. Output: 4 - 20 mA	

¹⁾ The temperature of the temperature transmitter is influenced by media temperature, ambient temperature and ventilation in the engine room. If the temperature of the temperature transmitter exceeds the max. allowed temperature the temperature transmitter must be placed in a separated enclosure, as described in the separate data sheet for MBT 9110.

Temperature sensors, types MBT 5250, 5260 and 5252

Electrical connection



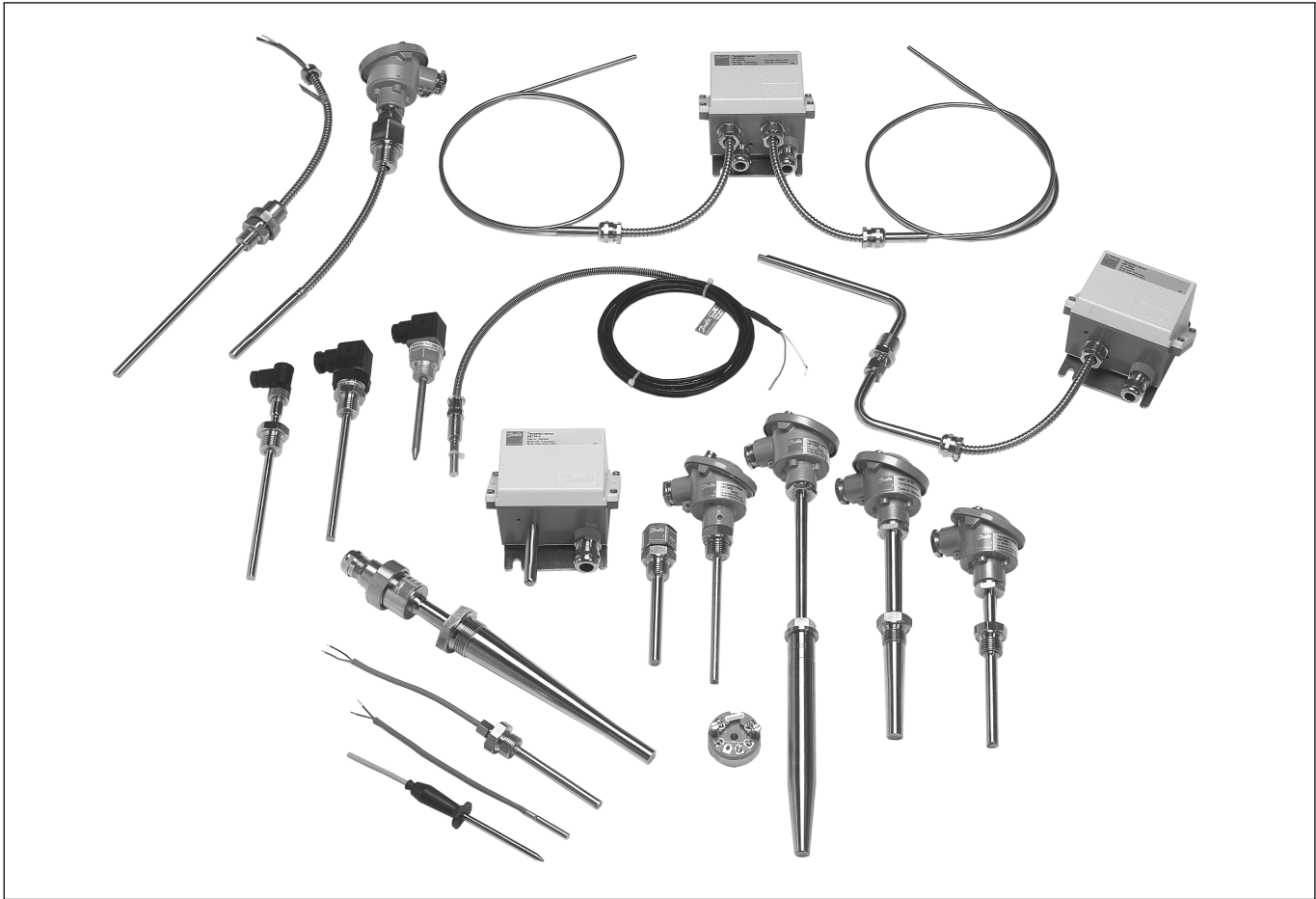
Ordering MBT 5252 Standard programme

- Extension length: 50 mm
- Element: Pt 100, EN 60751, Class B
- Connection head: B-head
- Protection tube: Low temperature range: \varnothing 10 x 2 mm
High temperature range: \varnothing 11 x 1 mm

Temperature range [°C]	Insertion length [mm]	Connection	Transmitter output	Transmitter setting	Process connection							
					G ½A	G ¾A	½-14 NPT					
					Code no.	Code no.	Code no.					
-50 to 200	50 80 100 150 200 250	2-wire, 3 terminals	None	None	084Z8210	084Z8230	084Z6165					
					084Z6140	084Z6164	084Z6166					
					084Z8211¹⁾	084Z8231¹⁾	084Z6167¹⁾					
					084Z8212¹⁾	084Z8232¹⁾	084Z6168¹⁾					
					084Z8213¹⁾	084Z8233¹⁾	084Z6169¹⁾					
					084Z6139	084Z6141	084Z6170					
	50 80 100 150 200 250	2-wire	4 - 20 mA, standard	0 to +100°C	084Z8214	084Z8234	084Z6171					
					084Z6142	084Z6144	084Z6172					
					084Z8215¹⁾	084Z8235¹⁾	084Z6173¹⁾					
					084Z8216¹⁾	084Z8236¹⁾	084Z6174¹⁾					
					084Z8217¹⁾	084Z8237¹⁾	084Z6175¹⁾					
					084Z6143	084Z6145	084Z6176					
					-50 to 400	50 80 100 150 200 250	2-wire 3 terminals	None	None	084Z6272	084Z6148	084Z6154
										084Z6146	084Z6149	084Z6155
084Z6273	084Z6150	084Z6156										
084Z6274	084Z6151	084Z6157										
084Z6275	084Z6152	084Z6158										
084Z6147	084Z6153	084Z6159										
50 80 100 150 200 250	2-wire	4 - 20 mA, standard	0 to +400°C	084Z6276						084Z6162	084Z6181	
				084Z6160		084Z6163	084Z6182					
				084Z6277		084Z6177	084Z6183					
				084Z6278		084Z6178	084Z6184					
				084Z6279		084Z6179	084Z6185					
				084Z6161		084Z6180	084Z6186					

¹⁾ Preferred versions

Temperature sensors, types MBT 5250, 5260 and 5252



MBT programme

Danfoss offers a complete range of MBT temperature sensors for all types of applications. The range consists of exhaust

gas sensors, universal sensors, bearing sensors, cargo sensors, stern tube sensors as well as general purpose sensors.

General features

- Fixed or replaceable measuring insert
- Pt100, Pt1000 resistance element or thermocouple
- Wide temperature range
 - up to +800°C with thermocouple
 - up to +600°C with resistance element

Further information

Further information about our temperature sensors type MBT can be found in separate data sheets, which can be ordered by contacting your local Danfoss representative.

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