

Data Sheet

Temperature sensor
Type **MBT 5410**

For measuring temperature in industrial refrigeration, freezing installations and marine applications



The MBT 5410 is a heavy-duty temperature sensor that can be used for controlling freezing installations and room temperature within general industry and marine applications.

This temperature sensor is based on a standardized Pt 100 or Pt 1000 element, which gives a reliable and accurate measurement. If needed a transmitter (MBT 9110) can be ordered as an integrated part of the sensor.

Features

- For measuring temperature in marine and industrial refrigeration, freezing installations
- Temperature range: From -50 – 70 °C
- High measuring accuracy
- Robust construction with resistance to shock and vibration
- Available with built-in transmitter

Product specification

Technical data

Table 1: Mechanical and environmental specifications

Ambient temperature	Approval from Lloyds Register of Shipping covers measuring range -30 – 70 °C. Because of this limitation the products are marked -30 – 70 °C.	
	Max. ambient temperatures for sensors with temperature transmitter are:	
	Standard:	-40 – 70 °C (Brief in max. 2 hours: 80 °C)
Sensor tolerance	Without transmitter:	-50 – 70 °C (Brief in max. 2 hours: 80 °C)
	EN 60751 class B: $\pm (0.3 + 0.005 \times t)$	t = temperature of medium, numerical value
	Shock:	100 g/6 ms
Vibration stability	Vibrations:	4 g sine function, 2 – 100 Hz, measured acc. to IEC 60068-2-6
Enclosure	Sensor tube IP67 according to IEC 60529; Terminal box IP65 according to IEC 60529	
Cable entry	Pg 13.5	
Material (sensor tube)	W.no. 1.4571 (AISI 316 Ti)	

Further information about temperature transmitter type MBT 9110 available in separate data sheet

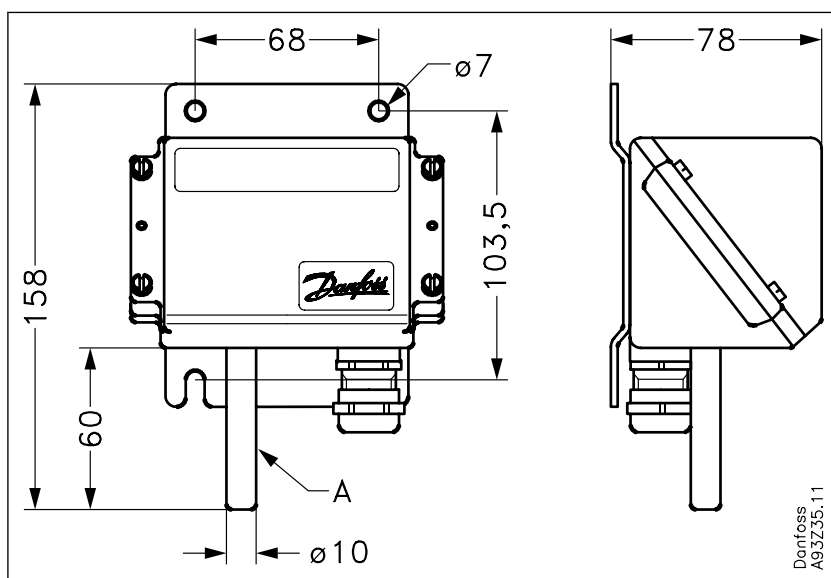
Table 2: Response time

Protection tube	Indicative response times	
	Air 1 m/s	
	$t_{0,5}$	$t_{0,9}$
$\varnothing 10 \times 2$	150 s	450 s

Table 3: Net weight

	Without temperature transmitter	With temperature transmitter
Net weight, approx.	550 g	600 g

Dimensions in [mm]



A Protection tube

Ordering

Ordering standard

Type MBT 5410	Sensor				Transmitter			
Temperature range -50 – 100 °C (-30 – 70 °C) ¹⁾	0				00			Transmitter setting, end of range 0 °C (or none)
Resistance value 1 × Pt 100	0				05			50 °C
1 × Pt 1000	2				10			100 °C
Other	9				11			110 °C
Protection Tube, W.nr. 1.4571 (AISI 316 Ti) ø10 mm	0				99			Other
Other	9							
Insertion length 60 mm			060					Transmitter setting, start of range None
100 mm			100		0			0 °C
Tolerance EN 60751 Class B				0	1			-10 °C
Other				9	2			-30 °C
Connection 2 wire 3 terminals					3			-50 °C
3 wire					4			-20 °C
4 wire					6			Other
					9			
								Transmitter type None
					0			Standard
					G			
								Connection box KPS with plastic lid
					0	0		KPS with metal lid
					1	1		
					2			

Preferred versions

¹⁾ Approval from Lloyds Register of Shipping covers measuring range -30 – 70 °C. Because of this limitation the products are marked -30 – 70 °C

Certificates, declarations, and approvals

The list contains all certificates, declarations, and approvals for this product type. Individual code number may have some or all of these approvals, and certain local approvals may not appear on the list.

Some approvals may change over time. You can check the most current status at danfoss.com or contact your local Danfoss representative if you have any questions.

Table 4: Certificates and declarations

File name	Document type	Document topic	Approval authority
NKK TA19235M	Marine - Safety Certificate	-	NKK
LR 18-20061	Marine - Safety Certificate	-	LR
DNV GL TAA000012Z	Marine - Safety Certificate	-	DNV GL
KR DLN 34014-AE002	Marine - Safety Certificate	-	KR
RINA ELE-061415XG	Marine - Safety Certificate	-	RINA
ABS 20-1993817-PDA	Marine - Safety Certificate	-	ABS
BV 06512-E1 BV	Marine - Safety Certificate	-	BV
CCS GB19PTB00025	Marine - Safety Certificate	-	CCS
084R1019.01	EU Declaration	EMCD/ROHS	Danfoss
DK.C.32.004.A 41460	Measuring - Performance Certificate	-	GOST
DK.C.32.004.A 41461	Measuring - Performance Certificate	-	GOST
EAC RU Д-ДК.А187.В.00022_19	EAC Declaration	EMC	EAC
084R1022.01	Manufacturers Declaration	China RoHS	Danfoss
097R0004.01	Manufacturers Declaration	RoHS	Danfoss
SMS.W.II-2179-B.0	Marine - Manufacturing Permission	-	BV
087R0017.00	Manufacturers Declaration	Simple apparatus	Danfoss