

Temperature transmitter type MBT 9110

Features and application



- 2-wire universal transmitter for industrial and maritime applications
- Pt100, Pt1000 or thermocouple input
- 4 - 20 mA standard output
 - with or without galvanic isolation
- For mounting in DIN B connection head or in a separate enclosure
- CE-marked: EMC protected in accordance with EU EMC directive
- Advanced sensor fault indication
- Temperature linearized
- Approvals
 - Lloyds Register of Shipping, LR
 - Germanischer Lloyd, GL
 - Bureau Veritas, BV
 - Det Norske Veritas, DNV
 - Nippon Kaiji Kyokai, ClassNK

Ordering - Standard program

Type	Temperature range	Sensor element	Connection	MBT 9110-	Code no.
Standard in separated enclosure	-50 → +50°C	Pt100	3-wire	000B-D405	084Z8115
	-10 → +40°C	Pt100	3-wire	000B-D204	084Z8116
	0 → +100°C	Pt100	3-wire	000B-D110	084Z8117
	0 → +150°C	Pt100	3-wire	000B-D115	084Z8121
	-10 → +150°C	Pt100	3-wire	000B-D215	084Z8118
	0 → +250°C	Pt100	3-wire	000B-D125	084Z8119
	0 → +400°C	Pt100	3-wire	000B-D140	084Z8120
	0 → +600°C	Pt100	3-wire	000B-D160	084Z6135
Galv. iso. in separated enclosure	0 → +600°C	Thermocouple type K	2-wire	005A-E160	084Z8129
	0 → +800°C	Thermocouple type K	2-wire	005A-E180	084Z8130

Other specifications on request

Technical data
Performance

Primary accuracy	Pt100 <math><\pm 0.3^{\circ}\text{C}</math> Type E,J,K,L,N,T,U <math><\pm 1.0^{\circ}\text{C}</math> Type B,R,S <math><\pm 2.0^{\circ}\text{C}</math>
Linearity error	<math>< 0.1\% \text{ FS}</math>
Temp. coefficient	<math><\pm 0.01\% \text{ FS}/^{\circ}\text{K}_{\text{amb}}</math>
Response time	Programmable 1 - 60 sec. 1 sec. standard
Cold solder point compensation (CJC)	<math><\pm 1.0^{\circ}\text{C}</math>
Warm-up time	5 min.
Update time	440 ms
Effect of sensor cable resistance (3/4 wires)	<math>< 0.002\Omega/\Omega</math>

 K_{amb} = Ambient temperature change

Electrical specifications

Supply voltage	8 - 35 V d.c.
Effect of supply voltage variation	<math>< 0.005\% \text{ FS}/\text{V d.c.}</math>
Output	4 - 20mA current loop
Sensor fault indication	Namur NE43 upscale 23mA
Input	Standard Pt100 (EN 60751) 2, 3 - wire $-200 \rightarrow 800^{\circ}\text{C}$ Pt1000 (EN 60751) 2, 3 - wire
	Galvanic isolation Pt100 (EN 60751) 2, 3, 4 - wire $-200 \rightarrow 800^{\circ}\text{C}$ Pt1000 (EN 60751) 2, 3 - wire Thermocouple (EN 60584)
Signal/noise ratio	Min. 60 dB
Max. lead cross-section	$1 \times 1.5 \text{ mm}^2$
Max. cable resistance	5 Ω /core

Environmental conditions

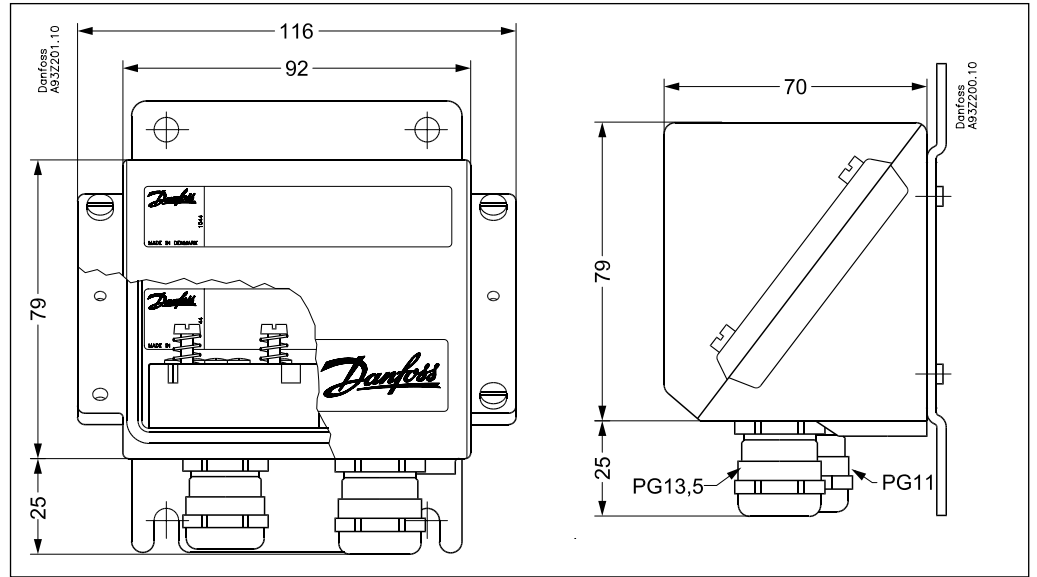
Insulation voltage	1500 VAC
EMC-data	Emission: EN 50 081 Immunity: EN 50 082
Vibration/shock	IEC 68-2-6/IEC 68-2-84
Vibration	4g/2 - 100 Hz
Humidity	0 - 98% RH, according to IEC 68-1, IEC 68-2-2
Ambient temperature	-40 to $+85^{\circ}\text{C}$
Protection (housing/terminals)	IP 68/IP 00
In separate enclosure	IP 54

Mechanical characteristics

Max. offset	50% of max. input value (Pt100: 400°C) (Thermocouple, type R: 650°C)
Weight	In heightened lid for B-head: 0.080 kg In a separate enclosure: 0.360 kg

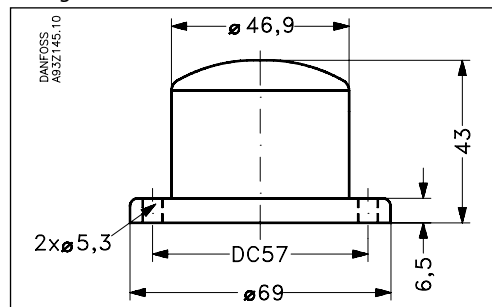
Dimensions

In separate enclosure



All dimensions in millimeters

In heightened lid



All dimensions in millimeters

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