

Precision analog 2-wire Pt1000 immersion probe



- Ergonomic handle with high operating temperature up to 120 °C
- Interchangeable with good accuracy
- Fast response time
- Pt1000 platinum sensor for 2-wire reference instruments (e.g. ECO 120)
- Robust for many years of professional use
- Easy to clean
- Water-protected according to IP67

DESCRIPTION

The AX 121 is a precision analog Pt1000 temperature probe based on **thin film sensor technology**.

The probes are designed for reliable use in gases, liquids and soft materials.

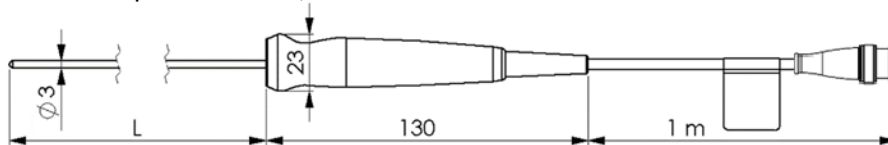
The stem material is corrosion and temperature resistant stainless steel (V4A), which is suitable for continuous food contact. Bendable versions are optionally available (**mineral-insulated/sheathed element**).

The cable is either terminated with a BNC-connector, 2 x banana plugs (Ø 4 mm) or loose ends with wire end ferrules.

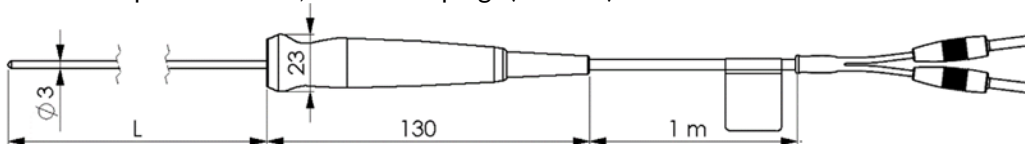
The probes can optionally be supplied with ISO 9001 or DAkkS-/ACCREDIA accredited calibration ISO/IEC 17025 when combined with a suitable display instrument (e.g. ECO 120 / ECO 120-Gourmet).

The probe tip / probe stem is available with a diameter of 3 mm:

- Immersion probe Ø 3 mm, BNC-connector:



- Immersion probe Ø 3 mm, 2 x banana plugs (Ø 4 mm):



Tip with rigid -D3 stem



Tip with bendable mineral insulated -M3 stem

Numerous configuration options enable a customized selection to suit your technical challenge and your budget, please refer to the standard articles below.

TECHNICAL SPECIFICATION

Measuring element	AX 121- D	Pt1000, 2-wire thin film sensor
	AX 121- M	Pt1000, 2-wire thin film sensor with mineral insulated sheathed element
Construction	AX 121- D	Rigid probe stem Ø3 mm
	AX 121- M	Mineral insulated *), bendable probe stem Ø 3 mm
Accuracy	Tolerance classes B, AA Attention: Note the scope of applicability of the classes **)	
Measuring range ***)		
	AX 121- D	-50 ...+250 °C
	AX 121- M	-200 ...+600 °C
Response time (T ₉₀)	- D3 water: 0.4 m/s < 2 s, air 2 m/s approx. 40 s - M3 water: 0.4 m/s < 5 s, air 2 m/s approx. 60 s	
Output	Pt1000 2-wire	
Connection options	- BNC-connector - 2 x banana plugs (Ø 4 mm) - Loose ends with wire end ferrules	
Dimensions	Stem: Ø 3 mm, L = 100 / 150 / 230 / 300 mm Handle: Ø 23 mm, L = 130 mm Cable: Ø 4 mm, L = 1 m or 2 m; coiled cable: L = approx. 1.2 m stretched	
Weight	Approx. 60 g with 1 m cable	
Materials	Stem: AISI 316 (V4A stainless steel) Handle: Polyamide (PA6-GF30, max. 120°C), optionally molded, for permanent underwater use (-WD, PVC cable only) Cable: Silicone (-50 ... +200 °C) or PVC (permanently up to +80 °C / short-term approx. 2 hours per session up to +105 °C)	
Protection degree	IP67, with option "waterproof molded handle" for continuous operation under water	
Applications	Immersion	

*) Mineral-insulated temperature probes are filled with ceramic powder inside the sensor tube, thus achieving a higher temperature resistance, and the probes can be bent within certain limits (except the first 4 cm from the tip).

) following **tolerance classes of platinum resistors are standardized according/aligning to IEC 751 and EN 60751:

Tolerance class	Norm	limiting deviation in °Kelvin	wire wound	thin film
B	IEC 751 / EN 60751	$\pm (0,30 + 0,00500 \bullet \text{temperature})$	-196 to +600 °C	-50 to +500 °C
A	IEC 751 / EN 60751	$\pm (0,15 + 0,00200 \bullet \text{temperature})$	-100 to +450 °C	-30 to +300 °C
AA (= 1/3 B)	IEC 751 / EN 60751	$\pm (0,10 + 0,00167 \bullet \text{temperature})$	-50 to +250 °C	0 to +150 °C

Depending on the class, the limiting deviation is only valid within the named limited range.

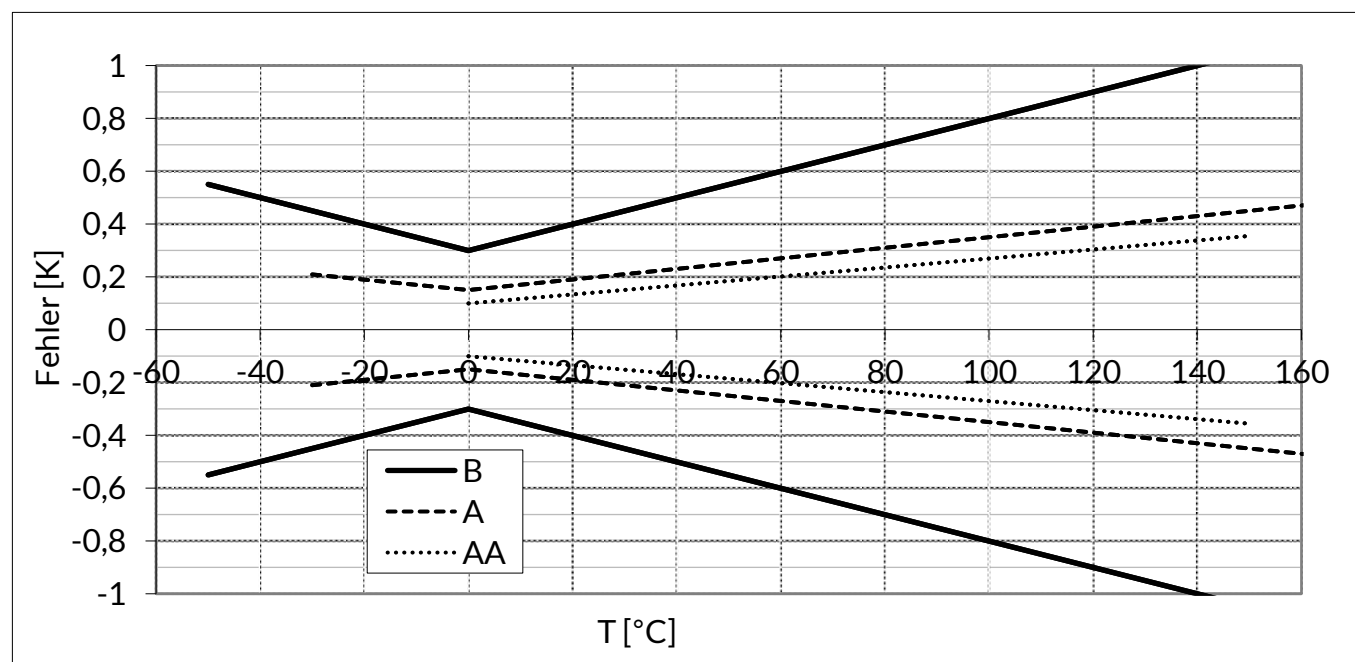
Higher deviations are to be expected outside the limited range of validity.

Ageing and vibration can lead to drift, which further reduces accuracy.

***) The final measuring range depends on the design of the sensor (mineral insulated or not) and the sensor type (wire-wound/thin film). Repeatedly falling significantly below/exceeding the validity range can have negative effects on sensor accuracy.

The measuring range must not be exceeded under any circumstances, otherwise in the worst case the sensor may be destroyed or at least the accuracy reduced.

Error band of Pt1000 thin film resistors:



ORDER CODE

AX121 - 1 - 2 - 3 - 4 - 5 - 6 - 7

1	Measuring element & construction	
	D	2-wire, thin film sensor, up to 250 °C, rigid stem, fast
	M	2-wire, thin film sensor, mineral insulated stem, up to 600 °C, bendable
2	Probe tube diameter	
	3	Ø 3 mm
3	Accuracy	
	B	Class B
	AA	Class AA
4	Probe length	
	100	100 mm
	150	150 mm
	230	230 mm
	300	300 mm
5	Cable length and material	
	L01-S	1 m silicone cable, -50 ... + 200 °C
	L02-S	2 m silicone cable, -50 ... + 200 °C
	L01-P	1 m PVC cable, -20 ... +105 °C
	L02-P	2 m PVC cable, -20 ... +105 °C
	L01.2SK	Coiled cable approx. 1.2 m stretched (up to 2 m at max. extension)
6	Connection	
	BNC	BNC-connector
	BS	2 x banana plugs
	LE	Loose ends with wire end ferrules
7	Option	
	WD	Waterproof molded handle for permanent underwater use

STANDARD ARTICLES

AX121-D3-B-100-L01-S-BNC	Pt1000 immersion probe, -50 ... +250 °C, thin film class B, 3 (Ø) x 100 mm (L), 1 m silicon cable with BNC-connector	Art. No. 488537
AX121-D3-B-230-L01-S-BNC	Pt1000 immersion probe, -50 ... +250 °C, thin film class B, 3 (Ø) x 230 mm (L), 1 m silicon cable with BNC-connector	Art. No. 489665

SUITABLE INSTRUMENTS

ECO 120	Waterproof Pt1000 2-wire alarm thermometer for BNC exchangeable probes - no probe included. -200 ... +450 °C. Device in carton box, incl. 2 x AA alkaline batteries, manual, test protocol.	Art. No. 486749
ECO 120-Gourmet	Waterproof Pt1000 2-wire alarm thermometer for BNC exchangeable probes - no probe included. -200 ... +450 °C. Suitable for cooking, baking and barbecue with removable protective rubber cover and 2 strong magnets. Device in carton box, incl. 2 x AA alkaline batteries, manual, test protocol.	Art. No. 489728