

AX 121-I



Precision analog 2-wire Pt1000 insertion 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-I is a precision analog Pt1000 insertion probe based on **thin film sensor technology**.

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

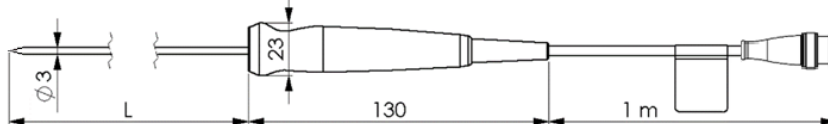
The stem material is corrosion and temperature resistant stainless steel (V4A), which is suitable for continuous food contact.

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

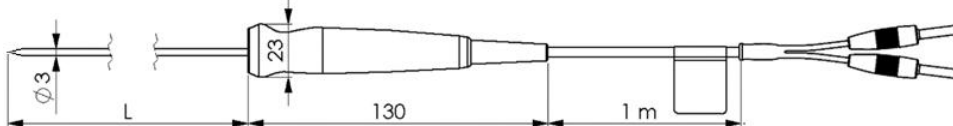
The probes can optionally be supplied with ISO 9001 or DAkkS-/ACCREDIA accredited calibration ISO/IEC 17025 when combined with a suitable display instrument (e.g. ECO 120 / ECO 120-Gourmet).

The probe tip / probe stem is available with a diameter of Ø3 mm and Ø1.5 mm:

- Insertion probe Ø 3 mm, BNC-connector:



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



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	Pt1000, 2-wire thin film sensor
Construction	Rigid probe stem, cold formed tip
Accuracy	Tolerance classes B, AA (except Ø 1.5 mm), A (Ø 1.5 mm only) Attention: Note the scope of applicability of the classes *)
Measuring range **)	
AX 121-I	-50 ... +250 °C
AX 121-IH	-50 ... +400 °C, class B
Response time (T ₉₀)	- I water 0.4 m/s < 2 s, air 2 m/s approx. 40 s - IH water 0.4 m/s < 10 s, air 2 m/s approx. 120 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, Ø 1.5 mm, L = 100 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, Insertion

*) 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.

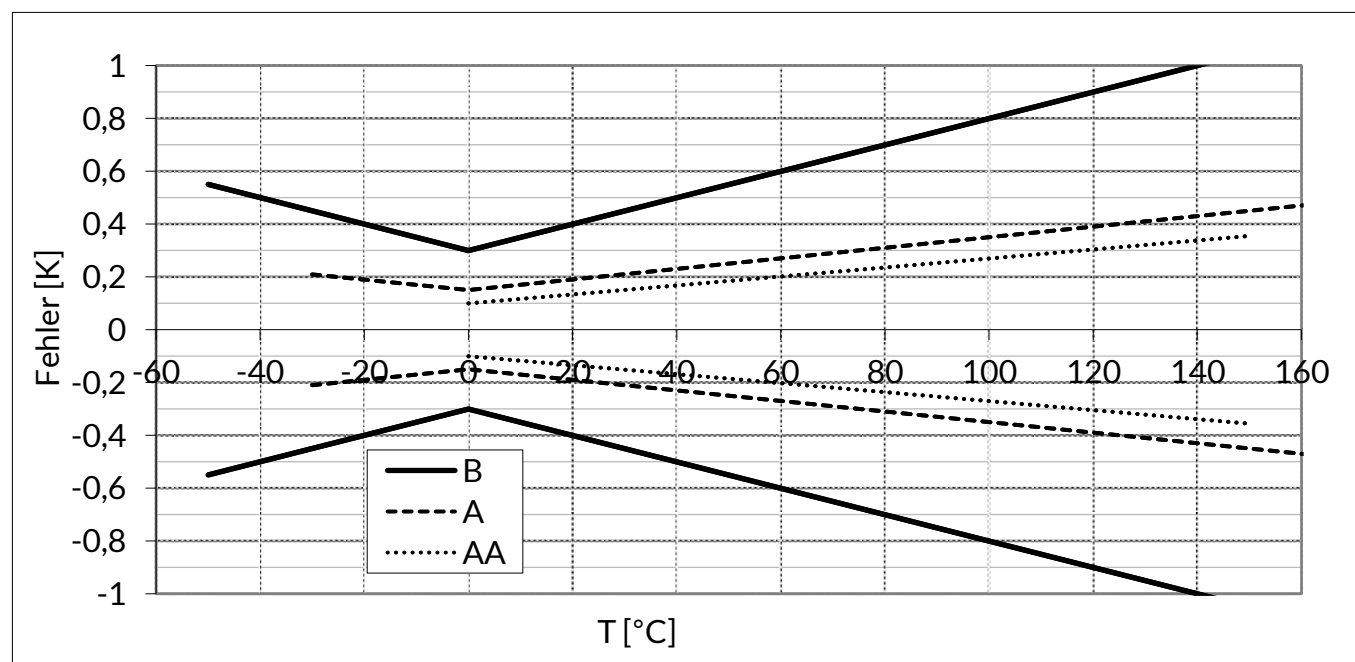
Higher deviations are to be expected outside the limited range of validity.

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	
I	2-wire, thin film sensor, up to 250 °C, rigid stem, fast	
IH	2-wire, thin film sensor, up to 400 °C, rigid stem, high temperature	
2	Probe tube diameter	
1.5	Ø 1.5 mm	(only with 100 mm probe tube length)
3	Ø 3 mm	
3	Accuracy	
B	Class B	
AA	Class AA	(not with Ø 1.5 mm probe tube diameter)
A	Class A	(only with Ø 1.5 mm probe tube diameter)
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-I3-B-100-L01-S-BNC	Pt1000 insertion probe, -50 ... +250 °C, thin film class B, 3 (Ø) x 100 mm (L), 1 m silicon cable with BNC-connector	Art. No. 488517
AX121-I1.5-A-100-L01-S-BNC	Pt1000 insertion probe, -50 ... +250 °C, thin film class A, 1.5 (Ø) x 100 mm (L), 1 m silicon cable with BNC-connector	Art. No. 488535

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