AX 111-I / AX 115-I

Precision analog 4-wire Pt100 insertion probe

- Ergonomic handle with high operating temperature up to 120 °C
- Interchangeable with good accuracy
- Fast
- Stem is suitable for food use
- Pt100 platinum sensor for 4-wire reference instruments (e.g. PRO 115)
- Robust for many years of professional use
- Easy to clean
- Water-protected according to IP67

DESCRIPTION

The AX 111 are precision analog Pt100 temperature probes based on thin film sensor technology.
The AX 115 are analog probes incorporating wire wound Pt100 sensors for highest precision demands.

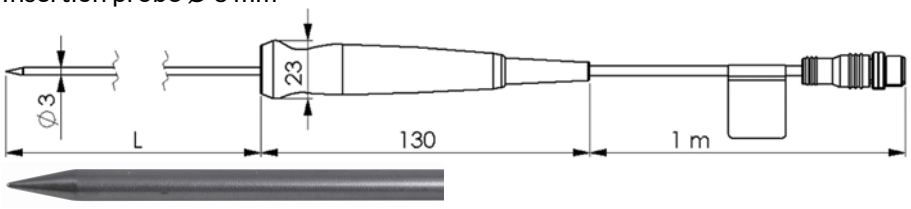
The probes are designed for use in gases, liquids and soft materials.

Stem material is corrosion and temperature resistant stainless steel, which is suitable for continuous food contact.

The cable is optionally terminated with M12 male connector, Mini-DIN or loose ends.

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. PRO 111 / PRO 115 Pt 100 thermometer).

Insertion probe Ø 3 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		
	AX 111-xx	Pt100, **thin film sensor**
	AX 115-xx	Pt100, **wire-wound sensor**
Construction	AX 11x-**I3 / -IH3**	Insertion probe Ø3 mm, rigid probe stem
Accuracy		Tolerance classes B, A, AA, 1/10 B Attention: Note the scope of applicability of the classes *)
Measuring range **)		
	AX 111-I3	-50…+250 °C, available classes: B, A or AA, thin film, rigid stem
	AX 115-I3	-50…+250 °C, class 1/10 B wire-wound, rigid stem
	AX 111-IH3	-50…+400 °C, class B, thin film, rigid stem
	AX 115-IH3	-100…+400 °C, class A, wire wound, rigid stem
Response time (T_{90})		- I3 water 0.4 m/s < 2 s, air 2 m/s approx. 40 s - IH3 water 0.4 m/s < 10 s, air 2 m/s approx. 40 s
Output		Pt100 4-wire
Connection options		- M12 4-pole male A-coded, - Mini-DIN 4 pole (for GMH 37xx) - loose ends
Dimensions		Stem: Ø3 mm, L = 150/300 mm (other lengths on request) Cable: Ø4 mm, L = 1, 2 or 5 m
Weight		110 g approx. with 1 m cable
Materials		Stem: AISI 316L (1.4404) Handle: Polyamide (PA6-GF30, max. 120°C), optionally molded, for permanent underwater use (-WD, PVC cable only) Cable: PVC (permanently up to +80 °C / short-term2 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:

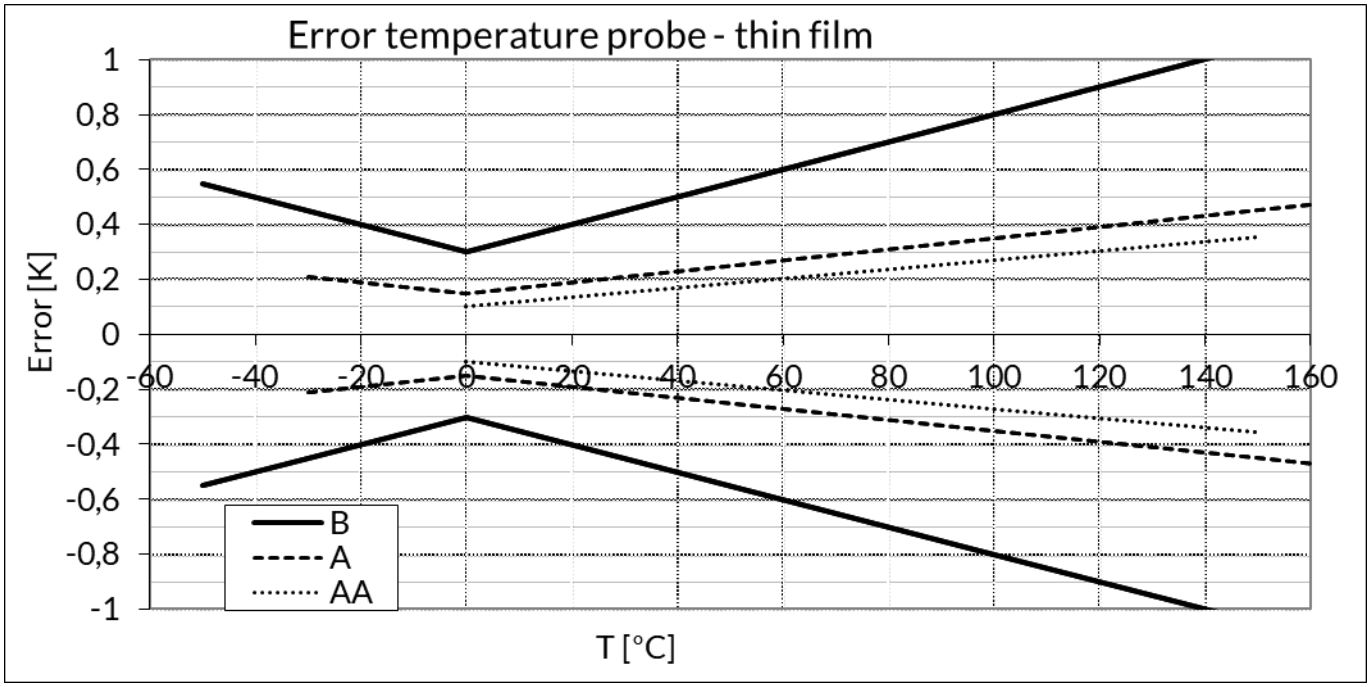
Tolerance class	Norm	limiting deviation in °Kelvin	wire wound	thin film
B	IEC 751 / EN 60751	± (0,30 + 0,00500 • |temperature|)	-196 to +600 °C	-50 to +500 °C
A	IEC 751 / EN 60751	± (0,15 + 0,00200 • |temperature|)	-100 to +450 °C	-30 to +300 °C
AA (= 1/3 B)	IEC 751 / EN 60751	± (0,10 + 0,00167 • |temperature|)	-50 to +250 °C	0 to +150 °C
1/10 B	none	± (0,03 + 0,00050 • |temperature|)	-50 to 100 °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.

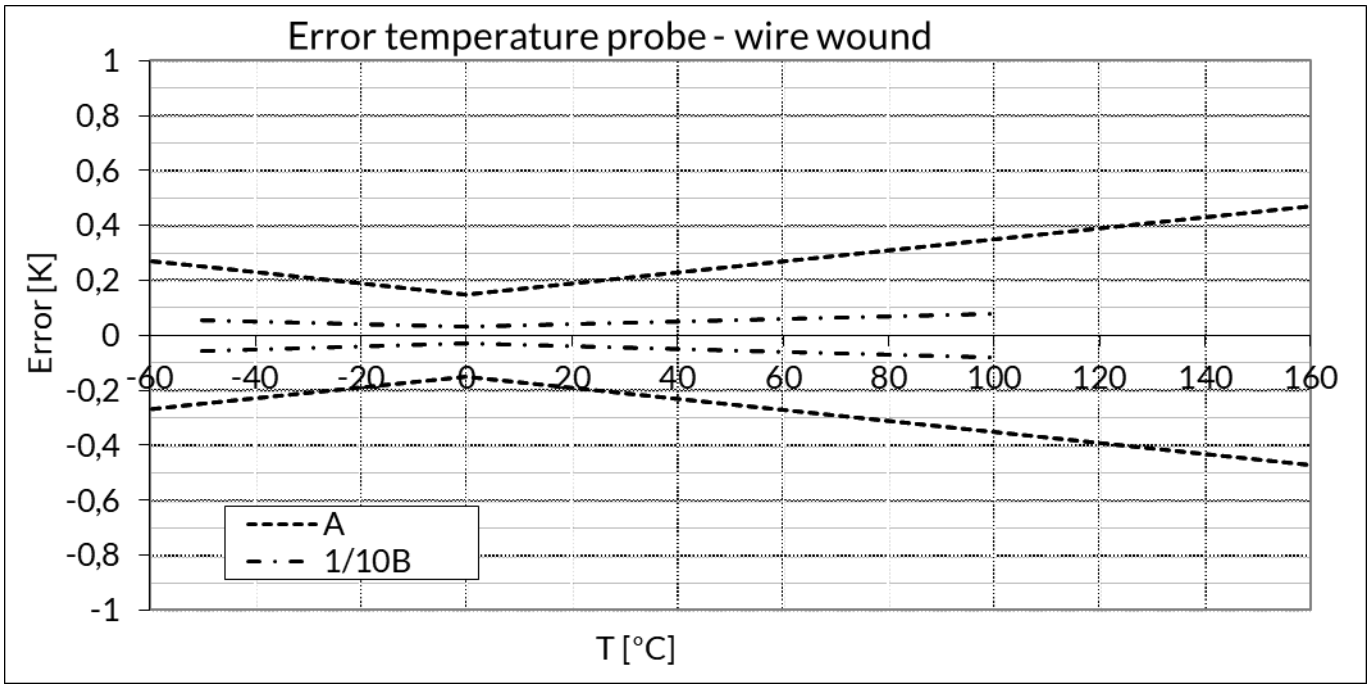
**) The final measuring range depends on the design of the sensor (mineral insulated or not) and the sensor type (wire-wound/thin film). Repeatedly falling significantly below/exceeding the validity range can have negative effects on sensor accuracy.

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 Pt100 thin film resistors



Error band of Pt100 wire wound resistors



ORDERING CODE

AX11	1.	-	2.	-	3.	-	4.	-	5.	-	6.	-	7.

1.	Measuring element & construction	
	1	4 wire, thin film sensor
	5	4 wire, wire wound sensor
2.	Stem construction	
	I3	Ø3 mm insertion tip, 4 wire, up to 250 °C, rigid stem, fast
	IH3	Ø3 mm insertion tip, 4 wire, up to 400 °C, rigid stem,
3.	Accuracy	
	B	Class B
	A	Class A
	AA	Class AA
	01B	1/10 class B
4.	Stem length	
	-150	150 mm
	-300	300 mm
	-XXX	other length on request
5.	Cable length and material	
	-L01-P	1 m PVC cable, -20 ... +105 °C
	-L02-P	2 m PVC cable, -20 ... +105 °C
	-L05-P	5 m PVC cable, -20 ... +105 °C
	-L01.2SK	Spiral cable stretchable to 1.2 m
6.	Connection	
	-M12	M12 connector, 4-pin (e.g. PRO 11X)
	-MD	Mini-DIN plug, 4 wire (GMH 37xx)
	-LE	Loose ends with wire end ferrules, 4-wire
7.	Option	
	-WD	Waterproof molded handle for permanent under water use

STANDARD ARTICLES

AX 111-I3-B-150-L01-P-M12 **fast & economic** Pt100 insertion probe, -50 ... +250 °C, thin film sensor class B, Ø3 x 150 mm, PVC cable 1 m, M12 **Art no. 489005**

AX111-I3-AA-150-L01-P-M12 **fast & accurate** Pt100 insertion probe, -50 ... +250 °C, thin film **class AA**, Ø3 x 150 mm, PVC cable 1 m, M12 **Art no. 486830**

AX111-IH3-B-150-L01-P-M12 **high temp. & economic** Pt100 insertion probe, -50 ... +**400** °C, thin film class B, Ø3 x 150 mm, PVC cable 1 m, M12 **Art no. 489029**

AX115-I3-01B-150-L01-P-M12 **fast & highest accuracy** Pt100 insertion probe, -50 ... +250 °C, **wire wound** class 1/10B, Ø3 x 150 mm, PVC cable 1 m, M12 **Art no. 489004**

Extract from portfolio, others on request

SUITABLE INSTRUMENTS

PRO 111 High precision thermometer for Pt100 4 wire probes, M12 socket 4-pole, graphic display. Supplied in carton box, with 4 x AA alkaline batteries, QuickStart, test-protocol

Art no. 486650

PRO 115 High precision thermometer for Pt100 4 wire probes, M12 socket 4-pole, graphic display. Supplied with 4 x AA alkaline batteries, QuickStart, test-protocol, USB cable. Free Software ProXware downloadable from Senseca website

Art no. 486651