Sheathed sensors



- These reasonably priced sensors are for universal use (-200 to +1100 °C) and suitable for immersion measurements in liquids, air, and gases. The sheathed line, depending on diameter, can be bent - within certain limits.
- Different connection variants:
  With cable and ALMEMO® connector Order no. FxAxx,
  with cable and free ends, Order no. Fx0xx.
  Connector options:
  With THERM circular connector: Option T9020RS,
  with miniature Thermo flat connector: Option OT9020FS.

Thermocouple sheathed sensors FTAxx and FTANxx

Accuracy:	FTAxx; NiCr-Ni thermocouple, type K, DIN class 1* FTANxx; NiCrSi-NiSi thermocouple, type N, DIN class 1*
Sensor tip, sheathed line:	diameter, length, operating temperature; see table; material Inconel 2.4816 Here the sensor tip and sheathed line are of the same diameter. These types are therefore also suitable for mounting with clamped screw connections.
Cable sleeve:	Brass, hexagonal, L = 65 mm, circumdiameter = 9 mm, operating temp. –40 to +160 °C
Standard cable:	1.5 meter FEP / silicone thermal line (stranded wire)* Operating temp. -50 to +200 °C There is no adverse temperature effect at the juncture from measuring element to cable.
Cable options:	Compensation line, PVC / PVC, insulated, operating temperature –20 to +105 °C The compensation line is also available, on request, with FEP / FEP, insulated.
ALMEMO® connector:	FTAxx NiCr-Ni ZA9020FS with resolution 0.1 K FTANxx NiCrSi-NiSi ZA9021FSN with resolution 0.1 K

Pt100 sheathed sensors FPAxx

Accuracy:	Pt100 film resistor, DIN class B*
Options:	DIN class A, 1/5 DIN class B Pt100 wire wound measuring resistor
Sensor tip:	diameter, length, operating temperature; see table; material stainless steel
Sheathed line:	diameter, length; see table; material stainless steel On certain types the sensor tip and sheathed line are of different diameter; (i.e. the sensor tip is thicker). These types are therefore not suitable for mounting with clamped screw connections. Types suitable for clamped screw connections are available on request.
Cable sleeve:	Brass, hexagonal, L = 65 mm, circumdiameter = 9 mm, operating temp. –40 to +160 °C
Standard cable:	1.5 meters line, FEP / silicone, insulated, operating temperature –50 to +200 °C
Cable options:	Line, PVC / PVC, insulated, operating temperature –20 to +105 °C The line is also available, on request, with FEP / FEP, insulated.
ALMEMO® connector:	Pt100, ZA9030FS1, with resolution 0.1 K Option: Pt100 ZA9030FS2 with resolution 0.01 K (standard with 1/5 DIN class B)

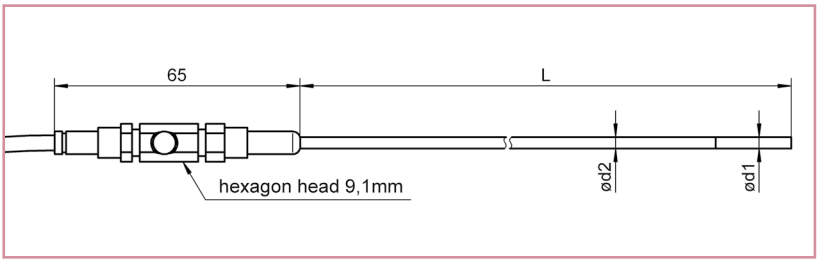
NTC sheathed sensors FNAxx

Accuracy:	NTC type N (see beginning of chapter)
Sensor tip:	diameter, length, operating temperature; see table; material stainless steel
Sheathed line:	diameter, length; see table; material stainless steel On certain types the sensor tip and sheathed line are of different diameter; (i.e. the sensor tip is thicker). These types are therefore not suitable for mounting with clamped screw connections. Types suitable for clamped screw connections are available on request.
Cable sleeve:	Brass, hexagonal, L = 65 mm, circumdiameter = 9 mm, operating temp. –40 to +160 °C
Standard cable:	1.5 meters line, PVC / PVC, insulated, operating temperature –20 to +105 °C
Cable options:	Line, FEP / silicone, insulated, operating temperature –50 to +200 °C The line is also available, on request, with FEP / FEP, insulated.
ALMEMO® connector:	NTC, ZA9040FS, with resolution 0.01 K.

* Range of validity see beginning of chapter
** No temperature influence at the transition from the measuring element to the cable (see beginning of chapter)

DAkkS accredited calibration or factory calibration KT90xx temperature for sensor or measuring chain (sensor + device), see chapter „Calibration certificates“. DAkkS accredited calibration meets all the requirements regarding test resources laid down in DIN EN ISO/IEC 17025.

Sheathed sensors



Sensor with:
Sensor tip, dimensions d1,
sheathed line, dimensions d2,
overall length (including sensor tip) L,
Cable sleeve, dimensions length = 65 mm,
circumdiameter = 9 mm, Cable

Thermocouple sheathed sensors NiCr-Ni, type K

Typical Application: universal, in range -40 °C to 900 °C

Diameter d1=d2	Operating temperature Sensor tip	Length L	Order no.
0.5 mm	-200...900 °C	50 mm	FTA05L0050
0.5 mm	-200...900 °C	100 mm	FTA05L0100
0.5 mm	-200...900 °C	250 mm	FTA05L0250
0.5 mm	-200...900 °C	500 mm	FTA05L0500
0.5 mm	-200...900 °C	1000 mm	FTA05L1000
1.5 mm	-200...1100 °C	100 mm	FTA15L0100
1.5 mm	-200...1100 °C	250 mm	FTA15L0250
1.5 mm	-200...1100 °C	500 mm	FTA15L0500
1.5 mm	-200...1100 °C	1000 mm	FTA15L1000
3.0 mm	-200...1100 °C	100 mm	FTA30L0100
3.0 mm	-200...1100 °C	250 mm	FTA30L0250
3.0 mm	-200...1100 °C	500 mm	FTA30L0500
3.0 mm	-200...1100 °C	1000 mm	FTA30L1000

Connection cable	Operative range	Length	Order no.
FEP/silicone Thermal line (stranded wire)	-50...200 °C	1.5 m	default
		5 m	OTK01L0050
PVC/PVC Compensation line	-20...105 °C	1.5 m	OTK02L0015
		5 m	OTK02L0050

Thermocouple sheathed sensors NiCrSi-NiSi, type N

Typical application: in the range -200 °C to 1150 °C, long-term stability at high temperatures

Diameter d1=d2	Operating temperature Sensor tip	Length L	Order no.
1.5 mm	-200...1150 °C	500 mm	FTAN15L0500
1.5 mm	-200...1150 °C	750 mm	FTAN15L0750
1.5 mm	-200...1150 °C	1000 mm	FTAN15L1000
3.0 mm	-200...1150 °C	500 mm	FTAN30L0500
3.0 mm	-200...1150 °C	750 mm	FTAN30L0750
3.0 mm	-200...1150 °C	1000 mm	FTAN30L1000
6.0 mm	-200...1150 °C	500 mm	FTAN60L0500
6.0 mm	-200...1150 °C	750 mm	FTAN60L0750
6.0 mm	-200...1150 °C	1000 mm	FTAN60L1000

Connection cable	Operative range	Length	Order no.
FEP/silicone Thermal line (stranded wire)	-50...200 °C	1.5 m	default
		5 m	OTNK01L0050

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11/2025 • We reserve the right to make technical changes.

Resistor-based sensors Pt100 4L

Typical Application: universal, in range -40 °C to 400 °C

Diameter d1 Sensor tip	Diameter d2, Sheathed line	Operating temp. Sensor tip	Length L	Order no.
1.5 mm	1.5 mm**	-40...400 °C	100 mm	FPA15L0100
1.5 mm	1.5 mm**	-40...400 °C	250 mm	FPA15L0250
1.5 mm	1.5 mm**	-40...400 °C	500 mm	FPA15L0500
2.2 mm*	2.0 mm	-40...400 °C	100 mm	FPA22L0100
2.2 mm*	2.0 mm	-40...400 °C	250 mm	FPA22L0250
2.2 mm*	2.0 mm	-40...400 °C	500 mm	FPA22L0500
3.2 mm*	2.8 mm	-40...400 °C	100 mm	FPA32L0100
3.2 mm*	2.8 mm	-40...400 °C	250 mm	FPA32L0250
3.2 mm*	2.8 mm	-40...400 °C	500 mm	FPA32L0500

* This sensor type (reinforced tip) is not suitable for clamped screw connections.
Suitable types FPA20Lx or FPA30Lx with same end-to-end diameter are available on request.
** Too strong bending of / kinking of the sheathed line should be avoided.

Options	Order no.
Accuracy class B	default
Accuracy class A	OPG2
Accuracy class 1/5 DIN Class B*	OPG5
Wire-wound measuring resistor	
operating range -100 ... 450 °C	OPM1
* at 0 °C	

Connection cable	Operative range	Length	Order no.
FEP/silicone	-50...200 °C	1.5 m	default
		5 m	OPK01L0050
PVC/PVC	-20...105 °C	1.5 m	OPK02L0015
		5 m	OPK02L0050

Resistor-based sensors NTC

Typical Application: universal, in range 0 °C to typ. 70 °C

Diameter d1 Sensor tip	Diameter d2, Sheathed line	Operating temp. Sensor tip	Length L	Order no.
2.0 mm	2.0 mm	-20...100 °C	100 mm	FNA20L0100
2.0 mm	2.0 mm	-20...100 °C	250 mm	FNA20L0250
2.0 mm	2.0 mm	-20...100 °C	500 mm	FNA20L0500
3.2 mm*	2.8 mm	-20...100 °C	100 mm	FNA32L0100
3.2 mm*	2.8 mm	-20...100 °C	250 mm	FNA32L0250
3.2 mm*	2.8 mm	-20...100 °C	500 mm	FNA32L0500

* This sensor type (reinforced tip) is not suitable for clamped screw connections.
Suitable types with same end-to-end diameter are available on request.

Connection cable	Operative range	Length	Order no.
PVC/PVC	-20...105 °C	1.5 m	default
		5 m	OPK02L0050

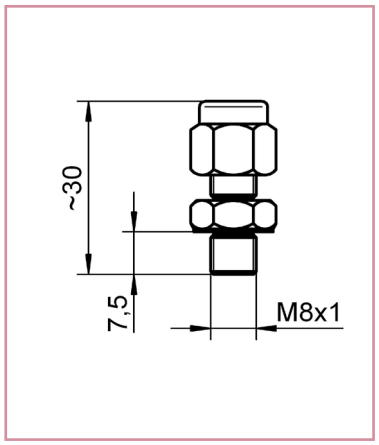
DAkkS accredited calibration or factory calibration KT90xx temperature for sensor or measuring chain (sensor + device), see chapter „Calibration certificates“. DAkkS accredited calibration meets all the requirements regarding test resources laid down in DIN EN ISO/IEC 17025.

Handle for sensors with hexagonal cable sleeve



Option Handle including fitting **Order no. OFH1**

Clamp srew connection ZT943xKV



Operative range
For sheath elements

Option:
Notched steel ring
(once fitted, cannot be removed)
T_{max} = 800 °C
For ZT9431KV
Order no. OT9431ST
For ZT9432KV
Order no. OT9432ST

Variants (with PTFE clamping ring)	**Order no.**
for types FTA15Lxxxx, FPA16Lxxxx	**ZT9431KV**
for types FTA30Lxxxx, FPA30Lxxxx and FNA30Lxxxx	**ZT9432KV**

Technical data

Operating temperature	up to maximum 250 °C with option up to 800 °C
Thread	M8x1, 13 AF

Heat-conducting paste ZB9000WP

For surface measurement, operative range -30 to +200 °C, heat-conducting paste, tube 20 ml **Order no. ZB9000WP**

09/2026 • We reserve the right to make technical changes.

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NiCr-Ni-sensor FTA 15 P1



For immersion measurement

Accuracy:	NiCr-Ni class 1*
Measuring tip:	Operative range -200...+1100 °C 200 x 1.5 mm, sheathed line, Inconel
T_{90}*:	1.5 s
Cable:	1.5 m FEP/silicone thermal line** with ALMEMO® connector

L = 200 mm **Order no. FTA15P1**
(No variants available)
Option: Handle mounted **Order no. OFH1**

Pt100-sensor FPA 32 P1



For immersion measurement

Accuracy:	Pt100 film resistor, class B*
Measuring tip:	Operative range -40...+400 °C 200 x 2.8 Measuring tip reinforced 3.2 mm, sheathed line stainless steel
T_{90}*:	10 s
Cable:	1.5 m PVC / PVC with ALMEMO® connector

L = 200 mm **Order no. FPA32P1**
(No variants available)
Option: Handle mounted **Order no. OFH1**

NTC-sensor FNA 305



For Indoor air measurements

Accuracy:	NTC, see beginning of chapter
Measuring tip:	Operative range -10 to +60 °C (non-condensing) Protective tube in stainless steel Diameter = 3.0 mm, length = 50 mm mounted directly on ALMEMO® connector
T_{90}:	8 s

L = 50 mm **Order no. FNA305**
(No variants available)

* Range of validity see beginning of chapter
** There is no adverse temperature effect at the juncture from measuring element to cable. See beginning of chapter

DAkkS accredited calibration or factory calibration KT90xx temperature for sensor or measuring chain (sensor + device), see chapter „Calibration certificates“. DAkkS accredited calibration meets all the requirements regarding test resources laid down in DIN EN ISO/IEC 17025.