Zertifiziertes QM-System
DIN EN ISO 9001
Zertifikat-Nr. 01017

Resisitve Temperature Sensor

hygienic design

KOBOLD

measuring • monitoring • analysing

LTS

- Measuring range: -50 … +250 °C
- Accuracy Class A according to DIN IEC 751
- p_{max}: 10 bar
- Process connection: G ½ standard, G ½ or M 12 cavity free with sleeve LZE (EHEDG and 3-A reports), without thread
- Sensor completely made of stainless steel 1.4404
- Optional with integrated transmitter (4 - 20 mA)
- Temperature sensor also with neck well for high temperatures
- As compact version for measurements in reduced mounting space

L1

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Description

The change in resistance of platinum in relation to the temperature to be measured is used for temperature measurement with the KOBOLD Resitive Temperature Sensors LTS.

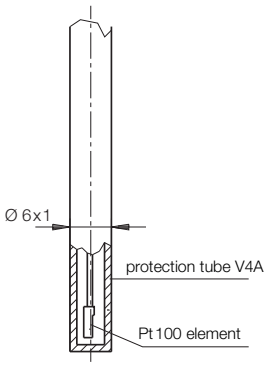
The devices are connected electrically with 2- or 3-wire technology, depending on the input of the evaluation device and the line length. Alternatively, the temperature sensor can be connected to a 4 - 20 mA current input (2-wire current loop) through the built-in 2-wire transmitter. The temperature sensors with a connection that is cavity free (...T, ...M) are fitted with a food-compatible metallic sealing system, that forms a hygienic measuring point in conjunction with the associated weld-in sleeve LZE (confirmed by the EHEDG).

The temperature sensors with neck well are suited for measuring permanently high temperatures (up to 250 °C).

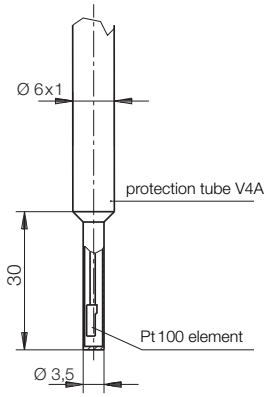
Sensor Tips and Response Times

All temperature sensors are available with tapered tips to ensure faster response times.

The times specified below refer to a resitive temperature sensor immersed in boiling water.



Sensor tip ø 6 mm
Halftime: t50 ≤3,0 s
90 %-time: t90 ≤8,0 s



Sensor tip ø 3.5 mm
Halftime: t50 ≤0,5 s
90 %-time: t90 ≤1,5 s

Areas of Application

- Temperature measurement for food applications
- Measuring high temperatures
- Temperatue measurment for reduced mounting space

Technical Details

Measuring sensor

Measuring principle:	Pt100, Klasse A nach DIN IEC 751
Sensors:	1 or 2 Pt100 per device (2-wire)
Measuring range:	without transmitter: -50 … +250 °C (from 70 °C use only with neck well!)
Ambient temperature:	-20 … +80 °C
Tolerances Class A:	0 °C: ±0,15 K, 100 °C: ±0,35 K
Max. pressure:	10 bar
Material:	stainless steel 1.4404
Process connection:	M12 x 1,5 hygienic (with sleeve LZE), G½ hygienic (with sleeve LZE), G½ ,ale without screw thread (for clamp screwing LZE-M1, LZE-S1)
Sensor length:	20, 50, 100, 150, 250 mm, special length up to max. 1000 mm

Electrical connection

Compact device:	LTS-K: M12 x 1-plug
Connection box:	LTS-A: cable connection M16 x 1.5 optional: M12 x 1-plug
Max. current:	1 mA
Protection:	IP 67
Weight:	LTS-K: 0.3 - 2 kg LTS-A: 0.5 - 2 kg

No responsibility taken for errors;
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Technical Details (continued)

Transmitter for LTS-K (compact version)

Material

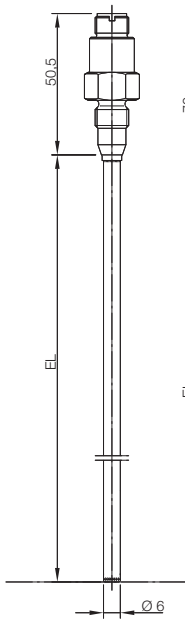
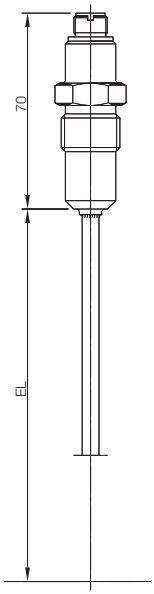
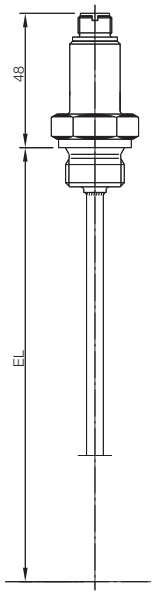
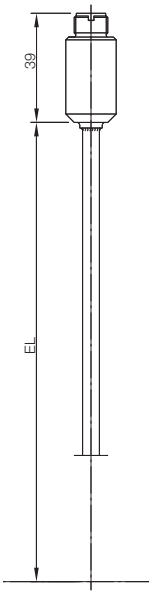
Standard meas. range:	-10 … +40 °C 0 … 50 °C 0 … 100 °C 0 … 150 °C 0 … 200 °C (from 70 °C only with neck well)
Special meas. range:	within -50 … +250 °C min. measuring range: 50 °C
Accuracy of electronics:	± 0.2 % of reading ± 0.2 °C
Accuracy of sensor:	DIN Class B
Output:	4 - 20 mA corresponds to measuring range (2-wire)
Power supply:	10 … 30 V_{DC}
Allowable load:	$R_A \leq (U_V - 10\ V) / 0{,}022\ A$
Ambient temperature:	-25 … +70 °C
Humidity:	0 … 98 % r. H. (non-condensing)
Electrical connection:	M 12 x 1-plug

Transmitter for LTS-A (with connection box)

Input:	3-wire, Pt 100
Standard meas. range:	-10 … +40 °C 0 … 50 °C 0 … 100 °C 0 … 150 °C 0 … 200 °C (from 70 °C only with neck well)
Special meas. range:	within -50 … +250 °C min. measuring range: 10 °C
Typical accuracy:	± 0,15 % of measuring range
Output:	4 … 20 mA, temperature linear
Function:	sensor breakage detection
Power supply:	8 … 32 V_{DC}
Ambient temperature:	-40 … +85 °C
Galvanic isolation:	no
Electrical connection:	screw terminal

Dimensions

LTS-K (compact version), without transmitter
Process connection (without neck well)

M 12 x 1.5 hygienic	G ½ hygienic	G ½ Standard	Without screw thread
			
LTS-K0xxxM3xM0	**LTS-K0xxxG4xM0**	**LTS-K0xxxR4xM0**	**LTS-K0xxxK0xM0**

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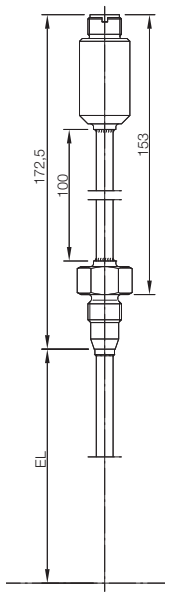
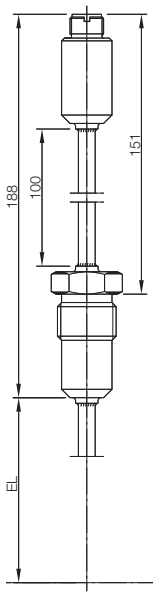
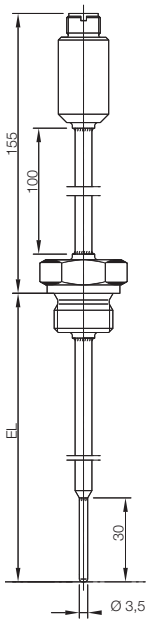
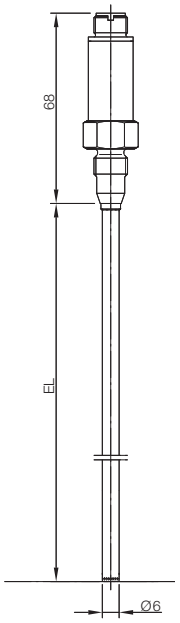
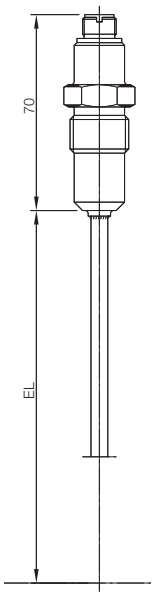
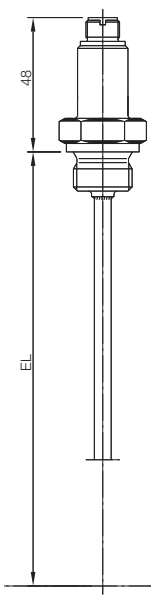
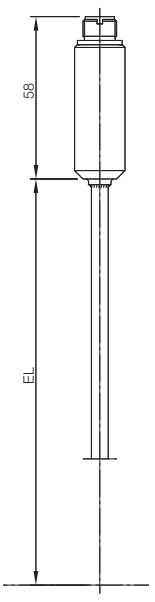
LTS-K (compact version), without transmitter
Process connection (with neck well)

M 12 x 1,5 hygienic	G ½ hygienic	G ½ Standard
		
LTS-KHxxxM3xM0	LTS-KHxxxG4xM0	LTS-KHxxxR4xM0

Sensor tip Ø 3.5 mm possible for all connection versions, however not for 2 Pt 100 sensors

LTS-K (compact version), with transmitter
Process connection (without neck well)

M 12 x 1,5 hygienic	G ½ hygienic	G ½ Standard	Without screw thread
			
LTS-K0xxxM3xMx	LTS-K0xxxG4xMx	LTS-K0xxxR4xMx	LTS-K0xxxK0xMx

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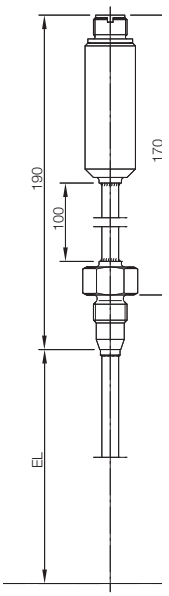
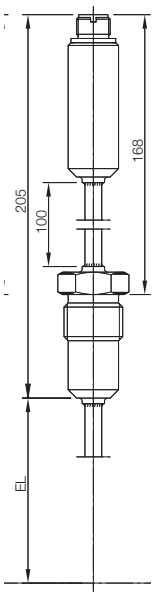
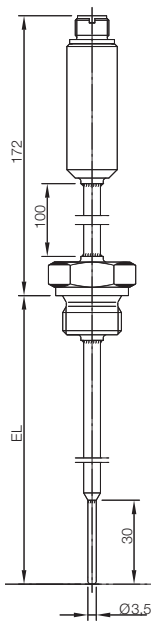
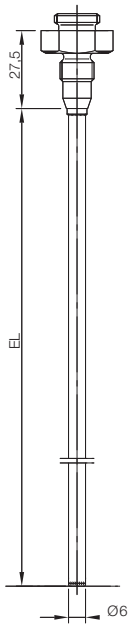
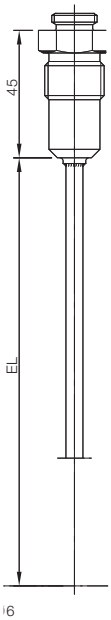
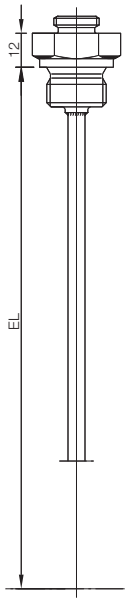
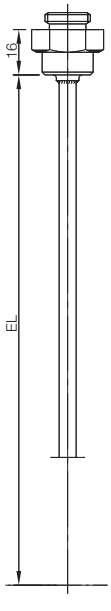
LTS-K (compact version), with transmitter
Process connection (with neck well)

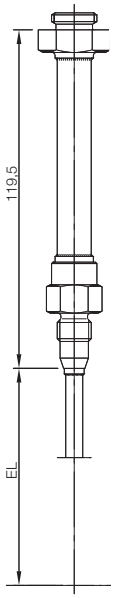
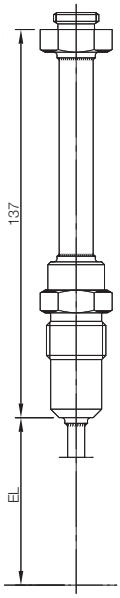
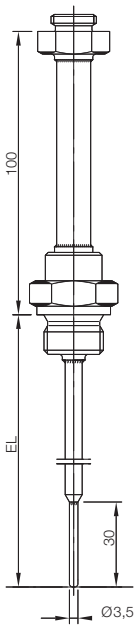
M 12 x 1,5 hygienic	G ½ hygienic	G ½ Standard
		
LTS-KHxxxM3xMx	LTS-KHxxxG4xMx	LTS-KHxxxR4xMx

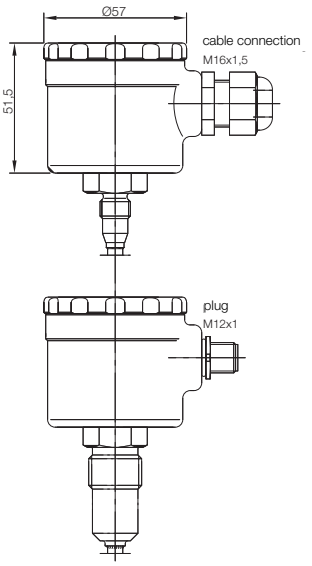
Sensor tip Ø 3.5 mm possible for all connection versions, however not for 2 Pt 100 sensors

LTS-A (with connection box)
Process connection (without neck well)

M 12 x 1,5 hygienic	G ½ hygienic	G ½ Standard	Without screw thread
			
LTS-K0xxxM3xMx	LTS-K0xxxG4xMx	LTS-K0xxxR4xMx	LTS-K0xxxK0xMx

LTS-A (with connection box)
Process connection (with neck well)

M 12 x 1,5 hygienic	G ½ hygienic	G ½ Standard
		
LTS-AHxxxM3xxx	LTS-AHxxxG4xxx	LTS-AHxxxR4xxx



Sensor tip Ø 3.5 mm possible for all connection versions, however not for 2 Pt 100 sensors

Order Details (Example: **LTS- K 0 3 02 M3 1 K 0**)

Model	Version	Screw thread	Sensor tip	Sensor length	Process connection
LTS-	**K** = compact **A** = connection box	**0** = without neck well **H** = with neck well	**3** = Ø 3.5 mm (not for 2 sensors)	**02** = 20 mm	**M3** = M 12 x 1,5 hygienic
			3 = Ø 3.5 mm (not for 2 sensors) **6** = Ø 6 mm	**05** = 50 mm **10** = 100 mm **15** = 150 mm **25** = 250 mm **YY** = special length max. 1000 mm	**M3** = M 12 x 1,5 hygienic **G4** = G ½, hygienic **R4** = G ½, standard (for threaded jacket) **K0** = without screw thread

Order Details (continued)

Sensor	Electrical connection	Transmitter
1 = 1 Pt 100, Class A, 2-wire (not for compact version K) **2** = 2 Pt 100, Class A , 2-wire **3** = 1 Pt 100, Class A, 3-wire	**K** = cable connection M16x1,5 (not for compact version) **M** = M12-plug	**0** = without transmitter
6 = with transmitter		**A** = -10 ... +40 °C **B** = 0 ... 50 °C **C** = 0 ... 100 °C **D** = 0 ... 150 °C **E** = 0 ... 200 °C **S** = special

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