



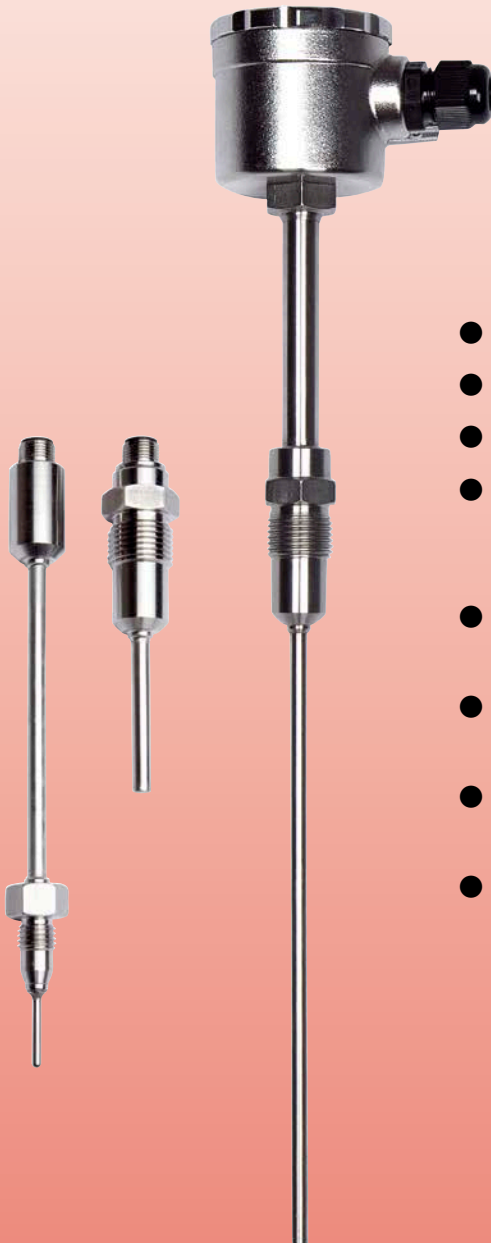
## Resistive Temperature Sensor

hygienic design



measuring  
•  
monitoring  
•  
analysing

LTS



- Measuring range: -50 ... +250 °C
- Accuracy Class A according to DIN IEC 751
- $p_{max}$ : 10 bar
- Process connection: G 1/2 standard, G 1/2 or M 12 cavity free with sleeve LZE, 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



T2

KOBOLD companies worldwide:

ARGENTINA, AUSTRALIA, AUSTRIA, BELGIUM, BULGARIA, CANADA, CHILE, CHINA, COLOMBIA, CZECHIA, EGYPT, FRANCE, GERMANY, GREAT BRITAIN, HUNGARY, INDIA, INDONESIA, ITALY, MALAYSIA, MEXICO, NETHERLANDS, PERU, POLAND, REPUBLIC OF KOREA, ROMANIA, SINGAPORE, SPAIN, SWITZERLAND, TAIWAN, THAILAND, TUNISIA, TURKEY, USA, VIETNAM

KOBOLD Messring GmbH  
Nordring 22-24  
D-65719 Hofheim/Ts.  
Head Office:  
+49(0)6192 299-0  
+49(0)6192 23398  
info.de@kobold.com  
www.kobold.com

## Description

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

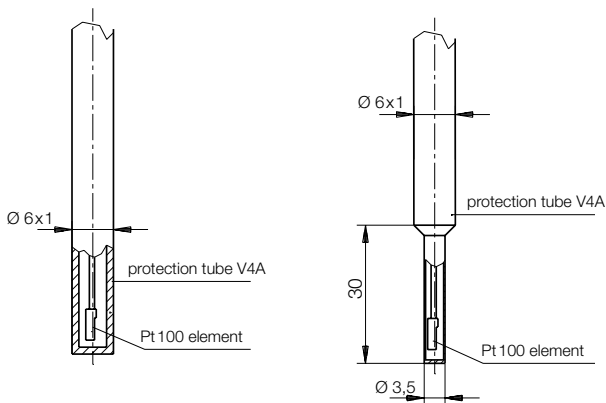
The devices are connected electrically with 2- or 3-wire technology, depending on the input of the evaluation device and the line length. Alternatively, the temperature sensor can be connected to a 4-20 mA current input (2-wire current loop) through the built-in 2-wire transmitter. The temperature sensors 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.

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 resistive temperature sensor immersed in boiling water.



Sensor tip  $\varnothing$  6 mm  
 Halftime:  $t_{50} \leq 3,0$  s  
 90%-time:  $t_{90} \leq 8,0$  s

Sensor tip  $\varnothing$  3.5 mm  
 Halftime:  $t_{50} \leq 0,5$  s  
 90%-time:  $t_{90} \leq 1,5$  s

## Areas of Application

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

## Technical Details

### Measuring sensor

Measuring principle:	Pt 100, Klasse A nach DIN IEC 751
Sensors:	1 or 2 Pt 100 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: $\pm 0,15$ K, 100 °C: $\pm 0,35$ K
Max. pressure:	10 bar
Material:	stainless steel 1.4404
Process connection:	M 12 x 1,5 hygienic (with sleeve LZE), G 1/2 hygienic (with sleeve LZE), G 1/2, 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: M 12 x 1-plug
Connection box:	LTS-A: cable connection M 16 x 1.5 optional: M 12 x 1-plug
Max. current:	1 mA
Protection:	IP 67
Weight:	LTS-K: 0.3-2 kg LTS-A: 0.5-2 kg

**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<sub>DC</sub>  
 Allowable load:  $R_A \leq (U_V - 10 \text{ V}) / 0,022 \text{ A}$   
 Ambient temperature: -25 ... +70 °C  
 Humidity: 0 ... 98% r. H. (non-condensing)  
 Electrical connection: M12 x 1-plug

**Transmitter for LTS-A (with connection box)**

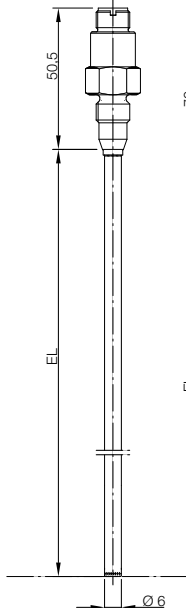
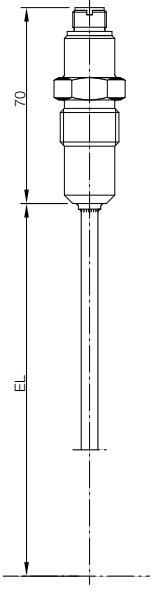
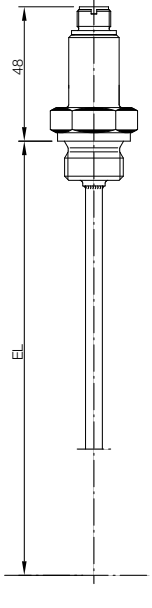
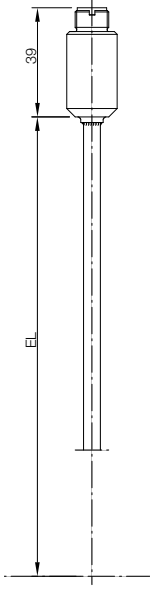
Input: 3-wire, Pt 100  
 Standard meas. range: -10 ... +40 °C  
 0 ... 50 °C  
 0 ... 100 °C  
 0 ... 150 °C  
 0 ... 200 °C  
 (from 70 °C only with neck well)

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<sub>DC</sub>  
 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

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

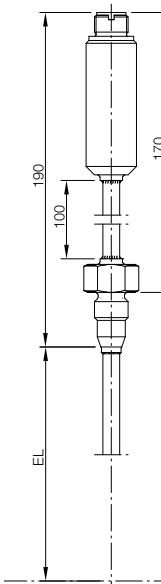
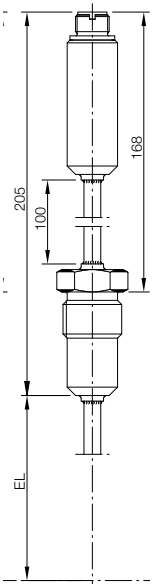
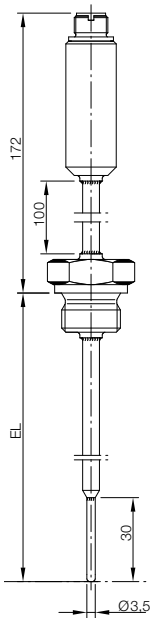
M 12 x 1,5 hygienic	G ½ hygienic	G ½ Standard
LTS-KHxxxM3xM0	LTS-KHxxxG4xM0	LTS-KHxxxR4xM0

Sensor tip  $\varnothing$  3.5 mm possible for all connection versions, however not for 2 Pt100 sensors

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

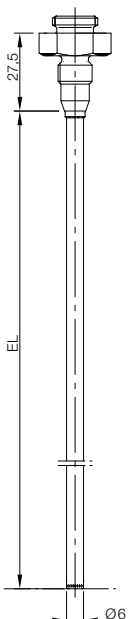
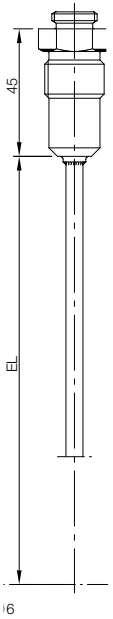
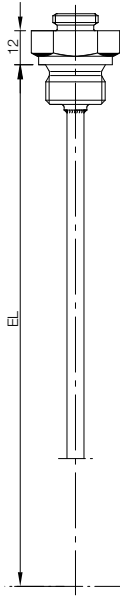
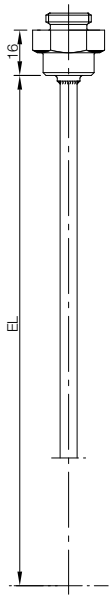
M 12 x 1,5 hygienic	G ½ hygienic	G ½ Standard	Without screw thread
LTS-K0xxxM3xMx	LTS-K0xxxG4xMx	LTS-K0xxxR4xMx	LTS-K0xxxK0xMx

**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

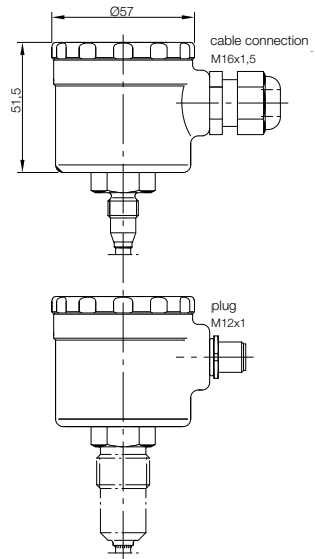
Sensor tip Ø 3.5 mm possible for all connection versions, however not for 2 Pt100 sensors

**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