



TS01-001

TS0116E300U200PT100

Spring-loaded temperature sensor

Centers (mm/mil)	5,00 / 197
Sensor Type	PT100
Temperature	-40 °C ... + 200 °C

Spring Force (cN ±20%)

Version	Preload	Nominal
Standard	70	200

Travel (mm)

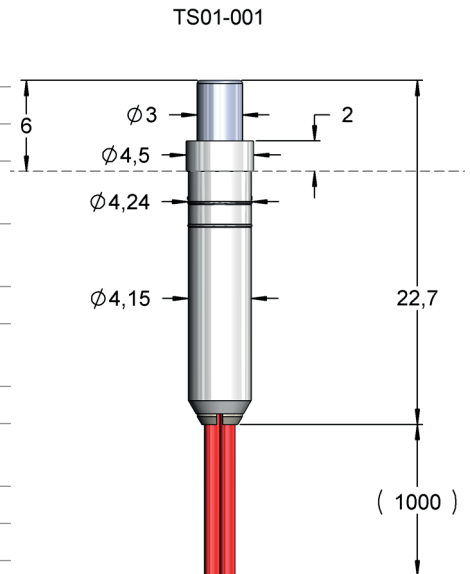
Version	Nominal	Maximum
Standard	3,0	4,0

Materials and Plating

Sensor head	Stainless steel, unplated
Barrel	Syntetic, unplated
Spring	Stainless steel, unplated

Specifications

Measuring principle	resistance
Accuracy / grade	B
Response time t63 related to medium water	ca. 2 sec.
Response time t63 related to metal contact in air	ca. 30 sec.
Switching type	2-wire
Receptacle potential-free / galvanically isolated	yes
Cable diameter	ca. 2,0 mm
Cable length	1,0 m (extendable)
Cable insulation	Teflon
Cable end	stripped
Protection class	watertight IP67
Drill size [mm]	4,2 H7



Platinum measuring resistors are designated according to their material and their nominal resistance R_0 at a temperature of 0 °C (PT100 = R_0 = 100 Ω). The PT100 is a fast-response, waterproof miniature temperature sensor suitable for universal temperature measurement even in small of spaces.

TS02-001

TS0216E300U200PT1000

Spring-loaded temperature sensor

Centers (mm/mil)	5,00 / 197
Sensor Type	PT1000
Temperature	-40 °C ... + 200 °C

Spring Force (cN ±20%)

Version	Preload	Nominal
Standard	70	200

Travel (mm)

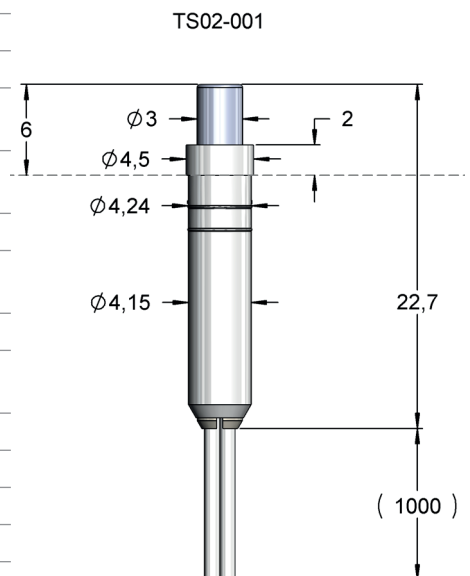
Version	Nominal	Maximum
Standard	3,0	4,0

Materials and Plating

Sensor head	Stainless steel, unplated
Barrel	Syntetic, unplated
Spring	Stainless steel, unplated

Specifications

Measuring principle	resistance
Accuracy / grade	A
Response time t63 related to medium water	ca. 2 sec.
Response time t63 related to metal contact in air	ca. 30 sec.
Switching type	2-wire
Receptacle potential-free / galvanically isolated	yes
Cable diameter	ca. 2,0 mm
Cable length	1,0 m (extendable)
Cable insulation	Teflon
Cable end	stripped
Protection class	watertight IP67
Drill size [mm]	4,2 H7



Platinum measuring resistors are designated according to their material and their nominal resistance R_0 at a temperature of 0 °C (PT1000 = R_0 = 1000 Ω). The PT1000 is a fast-response, waterproof miniature temperature sensor and suitable for universal temperature measurement even in small of spaces.



TS03-001

TS0316E300U200NTC5k Spring-loaded temperature sensor

Centers (mm/mil)	5,00 / 197
Sensor Type	NTC (5kOhm)
Temperature	-40 °C ... + 200 °C

Spring Force (cN ±20%)

Version	Preload	Nominal
Standard	70	200

Travel (mm)

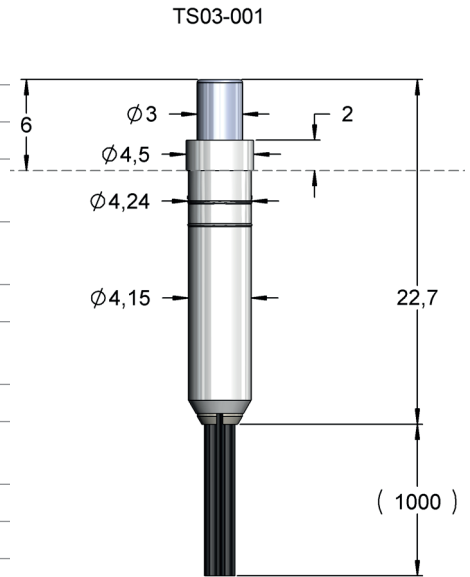
Version	Nominal	Maximum
Standard	3,0	4,0

Materials and Plating

Sensor head	Stainless steel, unplated
Barrel	Syntetic, unplated
Spring	Stainless steel, unplated

Specifications

Measuring principle	thermistor
Accuracy / grade	B
Response time t63 related to medium water	ca. 2 sec.
Response time t63 related to metal contact in air	ca. 30 sec.
Switching type	2-wire
Receptacle potential-free / galvanically isolated	yes
Cable diameter	ca. 2,0 mm
Cable length	1,0 m (extendable)
Cable insulation	Teflon
Cable end	stripped
Protection class	watertight IP67
Drill size [mm]	4,2 H7



The NTC sensor (NTC = Negative Temperature Coefficient) is a temperature-dependent component. If the temperature rises, the resistance of the NTC sensor decreases. Its characteristic curve is non-linear.

TS04-001

TS0416E300U200TYPK Spring-loaded temperature sensor

Centers (mm/mil)	5,00 / 197
Sensor Type	Typ K (NiCr/Ni)
Temperature	-40 °C ... + 200 °C

Spring Force (cN ±20%)

Version	Preload	Nominal
Standard	70	200

Travel (mm)

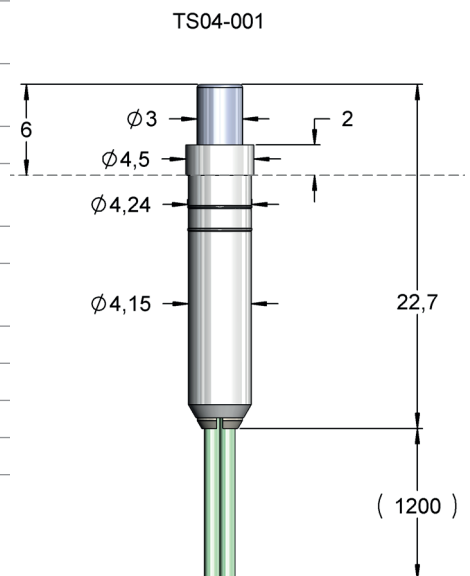
Version	Nominal	Maximum
Standard	3,0	4,0

Materials and Plating

Sensor head	Stainless steel, unplated
Barrel	Syntetic, unplated
Spring	Stainless steel, unplated

Specifications

Measuring principle	thermocouple
Accuracy / grade	2
Response time t63 related to medium water	ca. 2 sec.
Response time t63 related to metal contact in air	ca. 30 sec.
Switching type	2-wire
Receptacle potential-free / galvanically isolated	yes
Cable diameter	ca. 1,0 mm
Cable length	1,2 m (not extendable)
Cable insulation	Teflon
Cable end	unassembled
Protection class	watertight IP67
Drill size [mm]	4,2 H7



Thermocouple type K is the most common thermocouple type with a large measuring range. Thermocouple connector not included in scope of delivery.



TS04-002

TS0416Z110UTYPK Rigid temperature sensor

Centers (mm/mil)	1,90 / 75
Sensor Type	Type K
Temperature	-50 °C ... + 250 °C

Materials and Plating

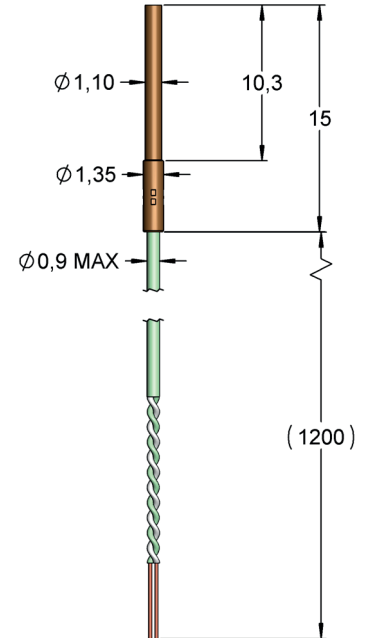
Sensor head	Bronze, unplated
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Thermocouple type K is the most common thermocouple type with a large measuring range. Thermocouple connector not included in scope of delivery.

Specifications

Temperature Sensor Typ K

Measuring principle	thermocouple
Accuracy / grade	+/-2 °C
Response time t63 related to medium water	ca. 0,2 sec.
Response time t63 related to metal contact in air	ca. 1 sec.
Switching type	2-wire
Receptacle potential-free / galvanically isolated	yes
Cable diameter	ca. 0,9 mm
Cable length	1,2 m (not extendable)
Cable insulation	Teflon
Cable end	unassembled
Protection class	watertight IP65



TS04-004

TS0416Z110U130TYPK Spring-loaded temperature sensor

Centers (mm/mil)	2,54 / 100
Sensor Type	Type K
Temperature	-50 °C ... + 250 °C

Spring Force (cN ±20%)

Version	Preload	Nominal
Standard	50	130

Travel (mm)

Version	Nominal	Maximum
Standard	3,5	4,3

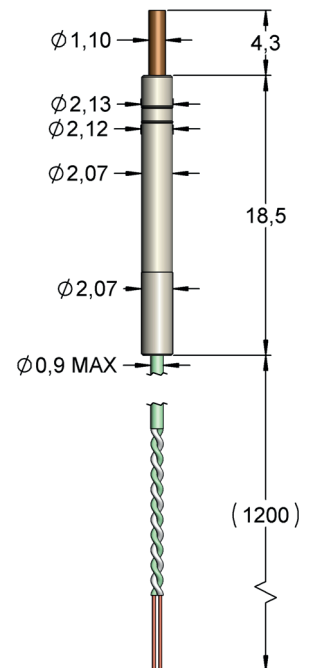
Materials and Plating

Sensor head	Bronze, unplated
Barrel	Syntetic, unplated
Spring	Stainless steel, unplated

Specifications

Temperature Sensor Typ K

Measuring principle	thermocouple
Accuracy / grade	+/-2 °C
Response time t63 related to medium water	ca. 0,2-0,3 sec.
Response time t63 related to metal contact in air	ca. 1-2 sec.
Switching type	2-wire
Receptacle potential-free / galvanically isolated	yes
Cable diameter	ca. 0,9 mm
Cable length	1,2 m (not extendable)
Cable insulation	Teflon
Cable end	unassembled
Protection class	watertight IP65



Thermocouple type K is the most common thermocouple type with a large measuring range. Thermocouple connector not included in scope of delivery.



TS04-003

Spring-loaded temperature sensor

Centers (mm/mil)	16,0 / 406
Sensor Type	Typ K (NiCr/Ni)
Temperature range	-20°C...+80°C

Spring Force (cN ±20%)

	Preload	Nominal
Sensor	-	200

Travel (mm)

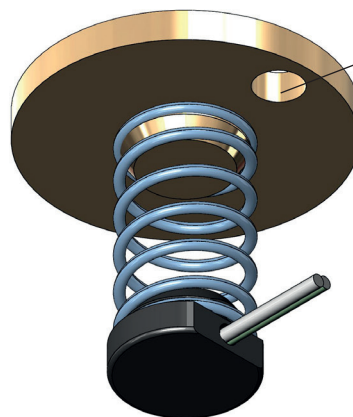
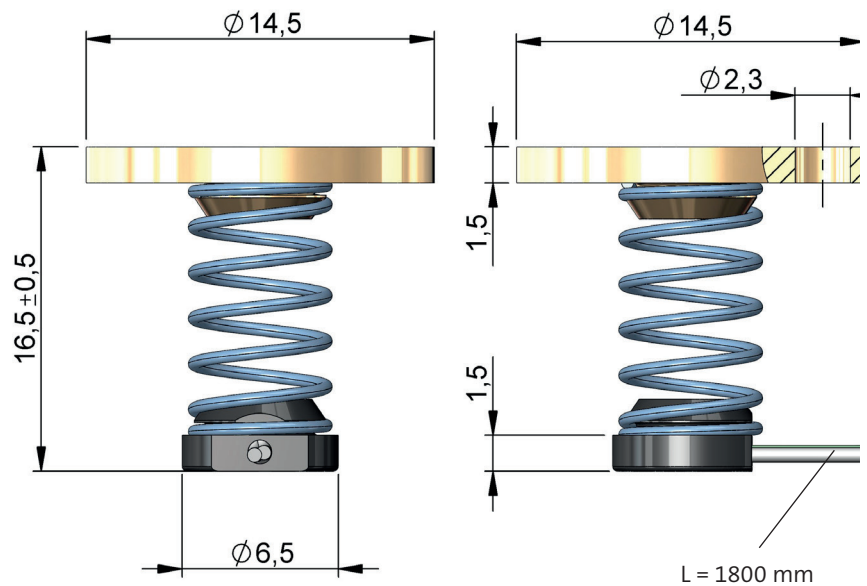
Version	Nominal	Maximum
Sensor	3,0	6,0

Materials and Plating

Sensor head	Aluminum, anodised
Spring	Stainless steel, unplated
Sensor plate	Brass, unplated

Specifications

Measuring principle	thermocouple
Accuracy / grade	2
Response time t63 related to medium water	ca. 2 sec.
Response time t63 related to metal contact in air	ca. 30 sec.
Switching type	2-wire
Receptacle potential-free / galvanically isolated	yes
Cable diameter	ca. 1,0 mm
Cable length	1,8 m (not extendable)
Cable insulation	Teflon
Cable end	Thermo-plug yellow



Mounting hole for
fixing screw M2
available.

Thermocouple type K (NiCr/Ni),
electrically insulated to the sensor head
Thermocable teflon insulated,
length 1800mm
Miniature TE plug type K at free end



TS0x-001

Spring-loaded temperature sensor

Centers (mm/mil)	5,00 / 197
Temperature	-40 °C ... + 200 °C

Spring Force (cN ±20%)

Version	Preload	Nominal
Standard	70	200

Travel (mm)

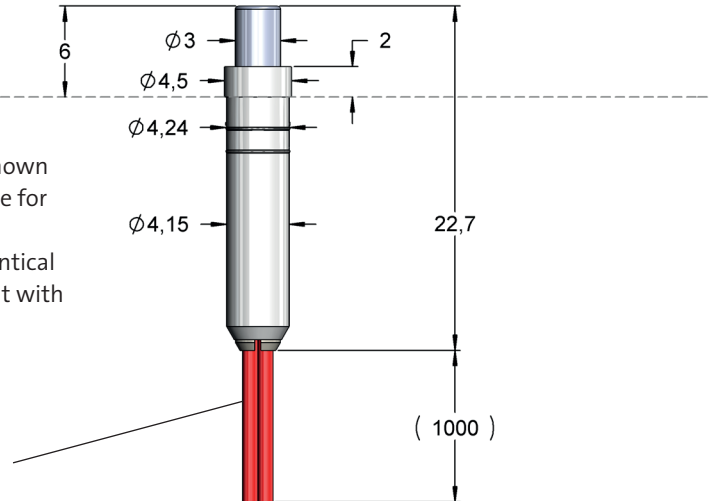
Version	Nominal	Maximum
Standard	3,0	4,0

Materials and Plating

Sensor head	Stainless steel, unplated
Barrel	Syntetic, unplated
Spring	Stainless steel, unplated

The TS01-001 is shown here as an example for all sensors.
All sensors are identical in construction but with different sensors:

PT100 = Red
PT1000 = White
NTC = Black
Type K = Green



Spezifikationen	TS01-001	TS02-001	TS03-001	TS04-001
Description	TS0116E300U200PT100	TS0216E300U200PT1000	TS0316E300U200NTC5k	TS0416E300U200TYPK
Sensor Type	PT100	PT1000	NTC	Type K
Measuring principle	resistance	resistance	thermistor	thermocouple
Accuracy / grade	B	A	B	2
Response time t63 related to medium water	ca. 2 sec.	ca. 2 sec.	ca. 2 sec.	ca. 2 sec.
Response time t63 related to metal contact in air	ca. 30 sec.	ca. 30 sec.	ca. 30 sec.	ca. 30 sec.
Switching type	2-wire	2-wire	2-wire	2-wire
Receptacle potential-free / galvanically isolated	yes	yes	yes	yes
Cable diameter	ca. 2,0 mm	ca. 2,0 mm	ca. 2,0 mm	ca. 1,0 mm
Cable length	1,0 m (extendable)	1,0 m (extendable)	1,0 m (extendable)	1,2 m (not extendable)
Cable insulation	Teflon	Teflon	Teflon	Teflon
Cable end	stripped	stripped	stripped	unassembled
Protection class	watertight IP67	watertight IP67	watertight IP67	watertight IP67
Sensor cable colour	red	white	black	green
Drill size [mm]	4,2 H7	4,2 H7	4,2 H7	4,2 H7
Application	Platinum measuring resistors are designated according to their material and their nominal resistance R ₀ at a temperature of 0 °C (PT100 = R ₀ = 100 Ω). The PT100 is a fast-response, waterproof miniature temperature sensor suitable for universal temperature measurement even in small of spaces.	Platinum measuring resistors are designated according to their material and their nominal resistance R ₀ at a temperature of 0 °C (PT1000 = R ₀ = 1000 Ω). The PT1000 is a fast-response, waterproof miniature temperature sensor and suitable for universal temperature measurement even in small of spaces.	The NTC sensor (NTC = Negative Temperature Coefficient) is a temperature-dependent component. If the temperature rises, the resistance of the NTC sensor decreases. Its characteristic curve is non-linear.	Thermocouple type K is the most common thermocouple type with a large measuring range. Thermocouple connector not included in scope of delivery.



Resistance Table Sensors

Temperature in °C	Resistance in Ohm			
	PT100	PT1000	NTC5kOhm	NTC10kOhm
-50	80	803,1	333914	667830
-40	84	842,7	167835	335670
-30	88	882,2	88342	176680
-20	92	921,6	48487	96670
-10	96	961	27649	55300
0	100	1000	16325	32650
10	104	1039	9952	19900
20	108	1078	6247	12490
25	110	1097	5000	10000
30	112	1117	4028	8060
40	116	1155	2662	5320
50	119	1194	1800	3600
60	123	1232	1244	2490
70	127	1270	876	1750
80	131	1309	628	1260
90	135	1347	458	920
100	139	1385	339	680
110	142	1422	255	510
120	146	1461	194	390
130	150	1498	150	300
140	154	1536	117	230
150	157	1573	92	180