

## Contents

Technical Information .....	03
HH00 - Standard .....	07
HH01 - Standard (90° bend) .....	08
HH10 - Standard with fixed thread .....	09
HH11 - Standard with fixed thread (90° bend) (type 1) .....	10
HH12 - Standard with fixed thread (90° bend) (type 2) .....	11
HH13 - Standard with fixed thread (offset) .....	12
HH20 - Reduced tip .....	13
HH21 - Pointed tip .....	14
HH22 - Open air .....	15
HH23 - Open air with fixed thread .....	16
HH24 - Open air with reduced tip .....	17
HH25 - Contact block (surface mount) .....	18
HH30 - Flange sanitary mounting .....	19
HH31 - Tri-clamp sanitary mounting .....	20
HH32 - Disc DIN11851 (screw-on) sanitary mounting .....	21
HH40 - Exchangeable insert .....	22
HH41 - Exchangeable insert with fixed thread .....	23
HH42 - Exchangeable insert with fixed thread (offset) .....	24
HH50 - For aggressive environments .....	25
HH51 - For aggressive environments with fixed thread .....	26
HH60 - Spring loaded .....	27
HI00 - Disc plate insert .....	28
HI01 - Insert with terminal block (spring loaded) .....	29
HI02 - Insert with transmitter block (spring loaded) .....	30



## Thermistors with terminal head - Technical information



### What is an RTD sensor ?

An RTD (Resistance Temperature Detector) is a type of sensor used to measure temperature.

RTDs are used for accurate, stable and reliable temperature measurements in generally high temperature ranges.

### How does an RTD work ?

An RTD is a sensor that measures temperature using the variation of the electrical resistance of a conductive material. RTDs are usually made from platinum, gold or nickel. The operating principle of RTDs is based on Ohm's law of electrical resistance, which establishes a relationship between the electrical resistance of a conductor and its temperature.

According to this law, the electrical resistance of a conductor generally increases when its temperature increases.

### Types of terminal heads

Many alternative types of terminal head are available to meet the requirements of various applications. Variations exist in size, material, accommodation, resistance to media, resistance to fire or even explosion and in other parameters.

Common types are shown below but there are many special variants available to meet particular requirements.

### What are terminal heads ?

Terminal heads are a type of cold end termination which are common on industrial type temperature sensors. A temperature sensor will be encased in a ceramic or metal sheath which will be terminated at the cold end with a terminal head. Inside the head, terminal blocks or temperature transmitters are placed to carry the sensor signal to instrumentation.

These are protected from the external environment as terminal heads often provide good ingress protection (IP) and temperature protection. Most commonly terminal heads are made from aluminum but can be stainless steel, cast iron or plastic depending on the application. There are many standardized designs of head, the most common being KNE, ALA and BUZ.

### Inside terminal head





# Thermistors with terminal head - Technical information

## RTDs advantages

RTDs have several advantages over other types of temperature sensors:

### High precision

RTDs have high temperature sensitivity, typically in the range of 0.1 to 0.2% per °C, allowing for accurate temperature measurement.

### Long term stability

RTDs have long-term stability and longer life than thermistors, making them more reliable for long-term applications.

### Wide operating temperature range

RTDs can operate in a temperature range of -200 to +850°C, making them suitable for many industrial applications.

### Low ohmic resistance

RTDs have a low ohmic resistance compared to thermistors, which makes them easier to use with electronic circuits.

## What is a thermistor ?

A thermistor is an electrical component that changes its resistance according to temperature. It consists of a conductive material that is wrapped in an insulating material. As the temperature increases, the resistance of the conductive material decreases (NTC), or increases (PTC), which can be detected and measured.

## What are the two types of thermistor ?

**NTC** (*Negative Temperature Coefficient*) are made of a conductive material based on transition metals and are used to measure temperatures up to 300 °C.

**PTC** (*Positive Temperature Coefficient*) are made of a conductive material based on polymer or ceramic and are used to measure temperatures up to 200 °C.



## What is the difference between an NTC and a PTC ?

NTCs and PTCs are both thermistors, i.e. temperature sensors that change resistance depending on the temperature.

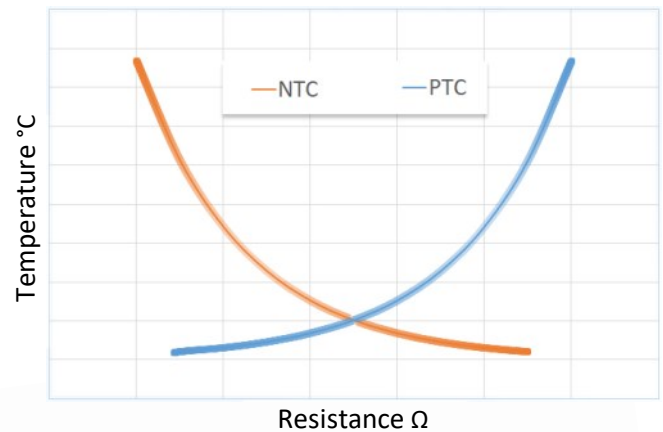
However, there is a major difference between these two types of thermistors:

### NTC thermistors

NTCs have a resistance that decreases as the temperature increases. They are commonly used in thermostats and temperature control devices to measure room temperature.

### PTC thermistors

PTCs have a resistance that increases as the temperature rises. They are commonly used in thermostatic fuses and overcurrent protection devices to shut off power in the event of overheating.





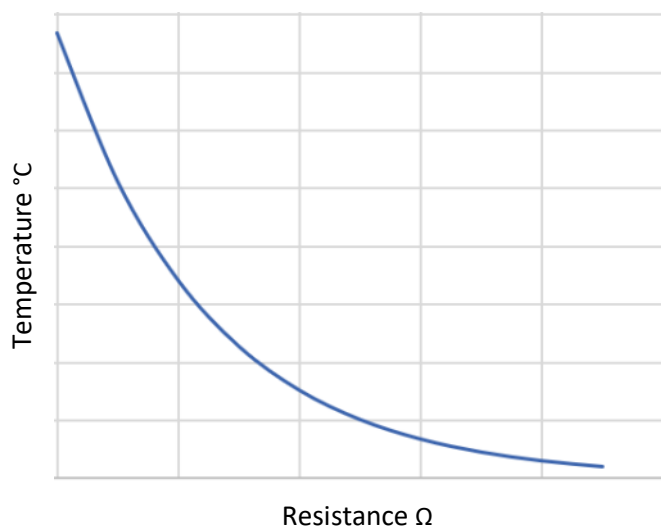
# Thermistors with terminal head - Technical information



## The $\beta$ beta value

A thermistor's " $\beta$ " value, or beta value, is an indication of the shape of the curve representing the relationship between resistance and temperature of an NTC thermistor.

Calculating the beta value is a vital step in the component selection process as it gives the characteristic at a given temperature vs the resistance for a specific application.



NTC thermistors are non-linear resistors that alter their resistance characteristics with temperature. Simply put, as temperature increases the thermistor's resistance decreases.

The manner in which the resistance of a thermistor decreases is related to a constant known in the thermistor industry as beta ( $\beta$ ). Beta is measured in degrees Kelvin (K) and is computed based on the formulation given below.

### Where:

Rt1 = Resistance at Temperature 1

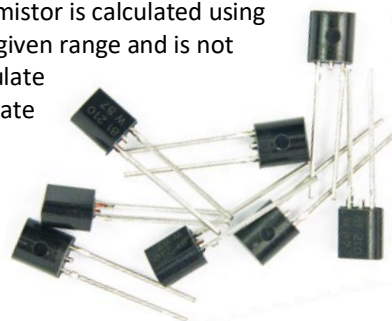
Rt2 = Resistance at Temperature 2

T1 = Temperature 1 (K)

T2 = Temperature 2 in (K)

$$\beta = \frac{\ln\left(\frac{R_{T1}}{R_{T2}}\right)}{\left(\frac{1}{T_1} - \frac{1}{T_2}\right)}$$

The beta value of an NTC Thermistor is calculated using only two temperatures over a given range and is not the most accurate way to calculate the R vs. T curve. A more accurate method is to use the Steinhart and Hart method, which uses three temperatures over a given range.



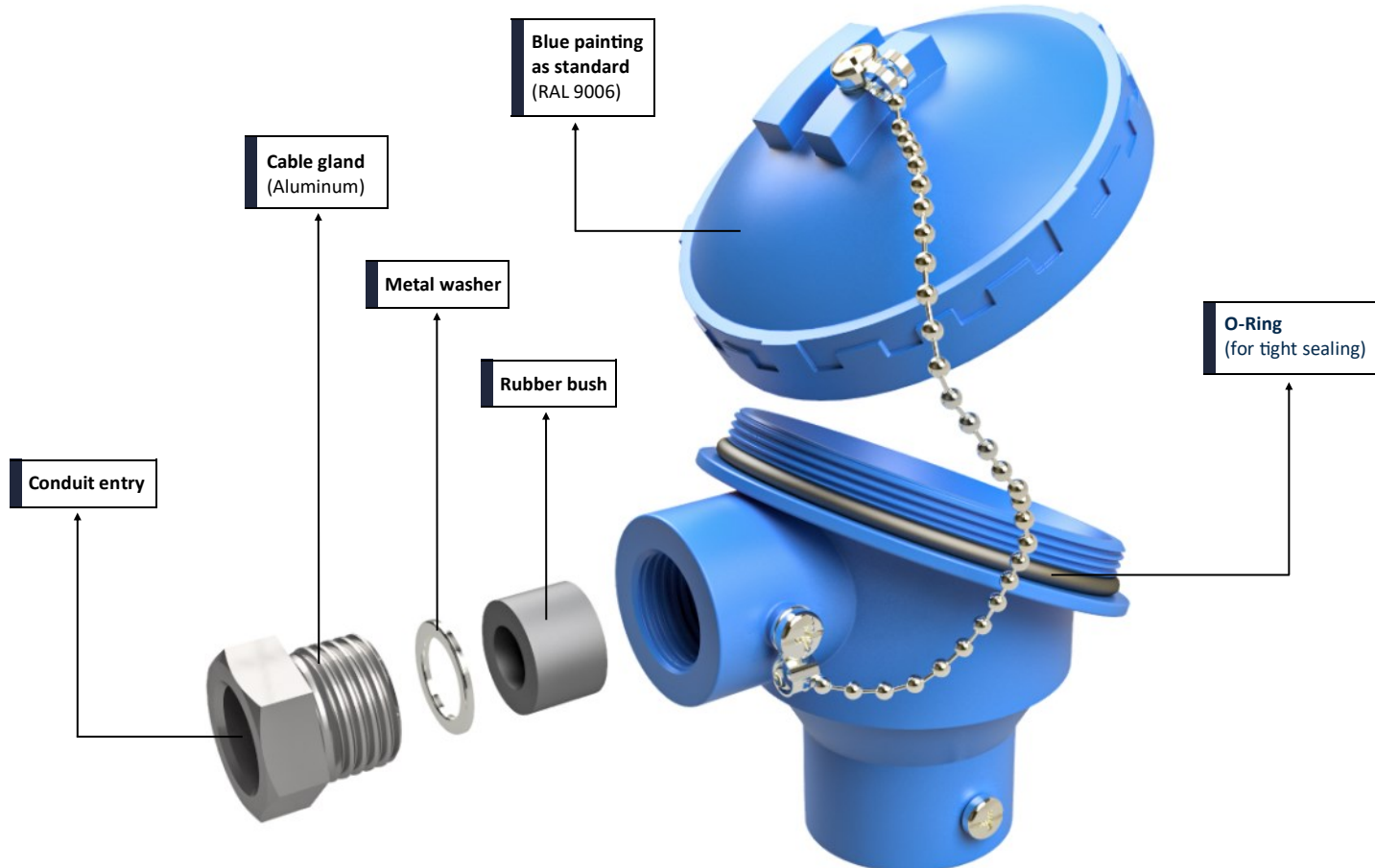
## Types of thermistors

Type	Resistance	Beta value	Temperature
PTC KTY81/121	990 $\Omega$ at 25°C	/	T° (-55/+150°C)
NTC	3,3k $\Omega$ at 100°C	$\beta=3970$	T° (-40/+200°C)
NTC	10k $\Omega$ at 25°C	$\beta=3977$	T° (-40/+125°C)
NTC	10k $\Omega$ at 25°C	$\beta=3435$	T° (-40/+150°C)
NTC	20k $\Omega$ at 25°C	$\beta=4260$	T° (-40/+125°C)



# Thermistors with terminal head - Technical information

## Terminal head component breakdown



## What is a terminal block ?

Terminal block located in a “head” allow for the connection of extension wires. Various materials are used for screw or solder terminations including copper, plated brass and, for the best performance in the case of thermocouples, thermoelement alloys. The various head styles cater for a wide variety of probe diameters and cable entries.

Terminal blocks provide a secure and organized way to terminate multiple wires. The wires are inserted into a clamping mechanism that holds them in place, making it easier to manage and connect different wires within a circuit. Terminal blocks provide a convenient and secure way to connect thermocouple wires to the measuring instrument or control system when using thermocouples. Terminal blocks are available in 2, 3, 4, and 6 poles with center hole (spring loading).



## What is a temperature transmitter ?

A Temperature transmitter is a device that converts the signal produced by a temperature sensor into a standard instrumentation signal representing a process variable temperature being measured and controlled. The most common transmitter instrumentation output signal is 4 to 20 mA. The signal from the temperature transmitter is sent to a Controller that determines what action is required and generates an appropriate output signal.

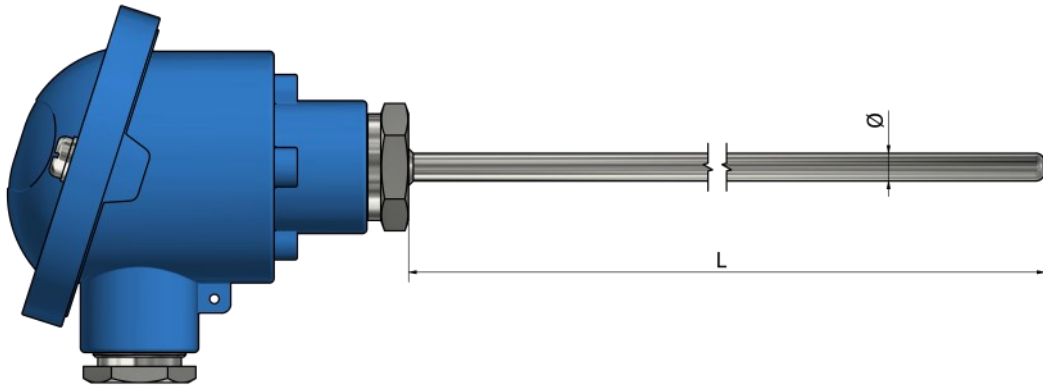
Controllers are either a PLC or a DCS in process control today.

More on temperature transmitters and terminal blocks. See in the part “Accessories”.





# HH00 – Thermistors with terminal head Standard



\*Tube material *Stainless steel 316L*

## Ordering information

### 1. Element type:

- PTC KTY 81/110 (-40°C / +150°C)
- PTC KTY 81/121 (-40°C / +150°C)
- NTC 10kΩ at 25°C β3977 (-40°C / +125°C)
- NTC 20kΩ at 25°C β4260 (-40°C / +125°C)
- NTC 3,3kΩ at 100°C β3970 (-40°C / +200°C)
- Other:  
( NTC / PTC , T° ( min / max ) , β value , tolerance )

### Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:  
See the part "Accessories"

Quantity:

Note:

### 2. Wiring configuration: (number of wires)

- 2
- Other:

### 3. Length L (mm):

### 4. Diameter Ø (mm):

### 5. Connection head: (see the part "Accessories")

- Type B
- Type DAN
- Type M
- Type N
- Type Ex
- Type NS
- Other:

### 6. Mounting:

- Wires
- Terminal block
- Transmitter (°C):  
Specify temperature range

## How to order?

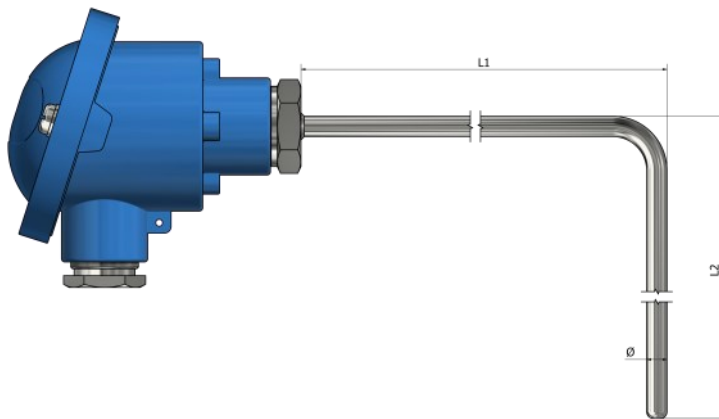


Choose the desired characteristics of your sensor by marking the checkboxes and by filling up the text. You can provide sketches, images, personal notes, special requirements or any important data. For additional questions and assistance, feel free to contact us.



# HH01 – Thermistors with terminal head

## Standard (90° bend)



\*Tube material **Stainless steel 316L**

### Ordering information

#### 1. Element type:

- PTC KTY 81/110 (-40°C / +150°C)
- PTC KTY 81/121 (-40°C / +150°C)
- NTC 10kΩ at 25°C β3977 (-40°C / +125°C)
- NTC 20kΩ at 25°C β4260 (-40°C / +125°C)
- NTC 3,3kΩ at 100°C β3970 (-40°C / +200°C)
- Other:  
( NTC / PTC , T° ( min / max ) , β value , tolerance )

#### Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:  
See the part "Accessories"

Quantity:

Note:

#### 2. Wiring configuration: (number of wires)

- 2
- Other:

#### 3. Lengths L1 and L2 (mm):

L1 \_\_\_\_\_ L2 \_\_\_\_\_

#### 4. Diameter Ø (mm):

#### 5. Connection head: (see the part "Accessories")

- Type B
- Type DAN
- Type M
- Type N
- Type Ex
- Type NS
- Other:

#### 6. Mounting:

- Wires
- Terminal block
- Transmitter (°C):  
Specify temperature range

### How to order?

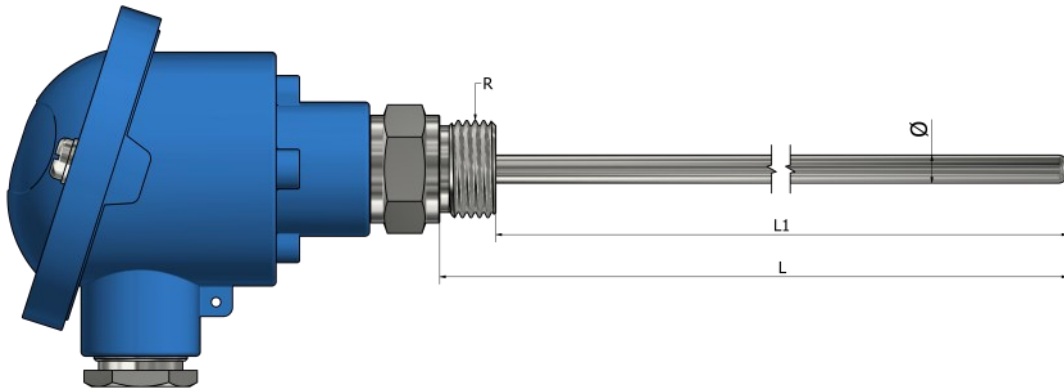


Choose the desired characteristics of your sensor by marking the checkboxes and by filling up the text. You can provide sketches, images, personal notes, special requirements or any important data. For additional questions and assistance, feel free to contact us.



# HH10 – Thermistors with terminal head

## Standard with fixed thread



\*Tube and thread material **Stainless steel 316L**

### Ordering information

#### 1. Element type:

- PTC KTY 81/110 (-40°C / +150°C)
- PTC KTY 81/121 (-40°C / +150°C)
- NTC 10kΩ at 25°C β3977 (-40°C / +125°C)
- NTC 20kΩ at 25°C β4260 (-40°C / +125°C)
- NTC 3,3kΩ at 100°C β3970 (-40°C / +200°C)
- Other:

( NTC / PTC , T° ( min / max ) , β value , tolerance )

#### 2. Wiring configuration: (number of wires)

- 2
- Other:

#### 3. Length L or L1 (mm):

L \_\_\_\_\_ L1 \_\_\_\_\_

#### 4. Diameter Ø (mm):

#### 5. Thread:

- 1/2" BSPP
- 1/4" BSPP
- 1/4" BSPT
- M10
- 1/2" NPT
- Other:

#### 6. Connection head: (see the part "Accessories")

- Type B
- Type DAN
- Type M
- Type N
- Type Ex
- Type NS
- Other:

#### 7. Mounting:

- Wires
- Terminal block
- Transmitter (°C):  
Specify temperature range

#### Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:  
See the part "Accessories"

Quantity:

Note:

### How to order?

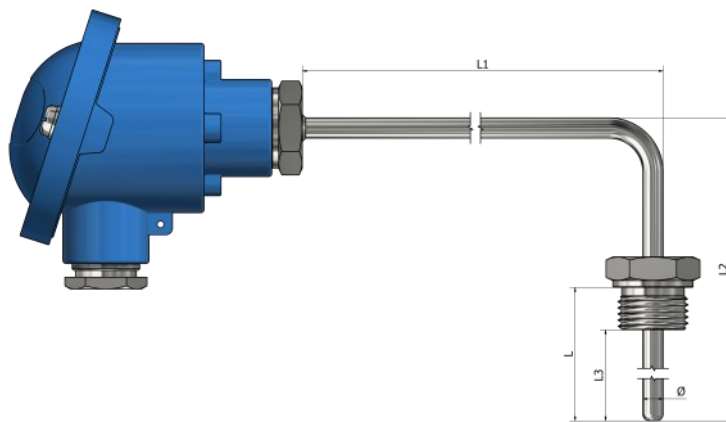
Choose the desired characteristics of your sensor by marking the checkboxes and by filling up the text. You can provide sketches, images, personal notes, special requirements or any important data. For additional questions and assistance, feel free to contact us.





# HH11 – Thermistors with terminal head

## Standard with fixed thread (90° bend) (type 1)



\*Tube and thread material **Stainless steel 316L**

### Ordering information

#### 1. Element type:

- PTC KTY 81/110 (-40°C / +150°C)
- PTC KTY 81/121 (-40°C / +150°C)
- NTC 10kΩ at 25°C β3977 (-40°C / +125°C)
- NTC 20kΩ at 25°C β4260 (-40°C / +125°C)
- NTC 3,3kΩ at 100°C β3970 (-40°C / +200°C)
- Other:

( NTC / PTC , T° ( min / max ) , β value , tolerance )

#### 2. Wiring configuration: (number of wires)

- 2
- Other:

#### 3. Lengths L1 and L2 (mm):

L1 \_\_\_\_\_ L2 \_\_\_\_\_

#### 4. Length L or L3 (mm):

L \_\_\_\_\_ L3 \_\_\_\_\_

#### 5. Diameter Ø (mm):

#### 6. Thread:

- 1/2" BSPP
- 1/4" BSPP
- 1/4" BSPT
- M10
- 1/2" NPT
- Other:

#### 7. Connection head: (see the part "Accessories")

- Type B
- Type DAN
- Type M
- Type N
- Type Ex
- Type NS
- Other:

#### 8. Mounting:

- Wires
- Terminal block
- Transmitter (°C):  
Specify temperature range

#### Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:  
See the part "Accessories"

Quantity:

Note:

### How to order?

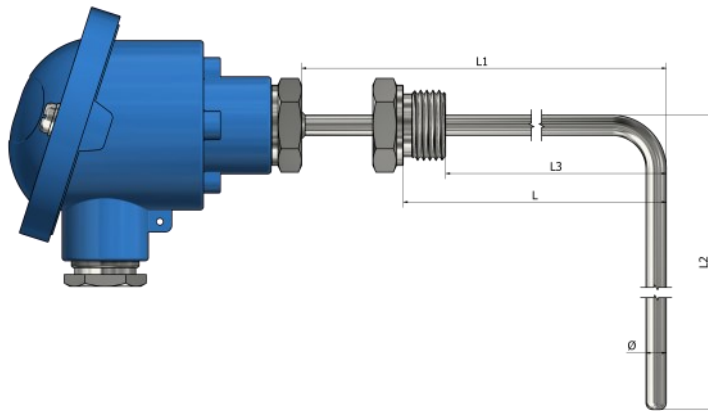


Choose the desired characteristics of your sensor by marking the checkboxes and by filling up the text. You can provide sketches, images, personal notes, special requirements or any important data. For additional questions and assistance, feel free to contact us.



# HH12 – Thermistors with terminal head

## Standard with fixed thread (90° bend) (type 2)



\*Tube and thread material **Stainless steel 316L**

### Ordering information

#### 1. Element type:

- PTC KTY 81/110 (-40°C / +150°C)
- PTC KTY 81/121 (-40°C / +150°C)
- NTC 10kΩ at 25°C β3977 (-40°C / +125°C)
- NTC 20kΩ at 25°C β4260 (-40°C / +125°C)
- NTC 3,3kΩ at 100°C β3970 (-40°C / +200°C)
- Other:

( NTC / PTC , T° ( min / max ) , β value , tolerance )

#### 2. Wiring configuration: (number of wires)

- 2
- Other:

#### 3. Lengths L1 and L2 (mm):

L1 \_\_\_\_\_ L2 \_\_\_\_\_

#### 4. Length L or L3 (mm):

L \_\_\_\_\_ L3 \_\_\_\_\_

#### 5. Diameter Ø (mm):

#### 6. Thread:

- 1/2" BSPP
- 1/4" BSPP
- 1/4" BSPT
- M10
- 1/2" NPT
- Other:

#### 7. Connection head: (see the part "Accessories")

- Type B
- Type DAN
- Type M
- Type N
- Type Ex
- Type NS
- Other:

#### 8. Mounting:

- Wires
- Terminal block
- Transmitter (°C):  
Specify temperature range

#### Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:  
See the part "Accessories"

Quantity:

Note:

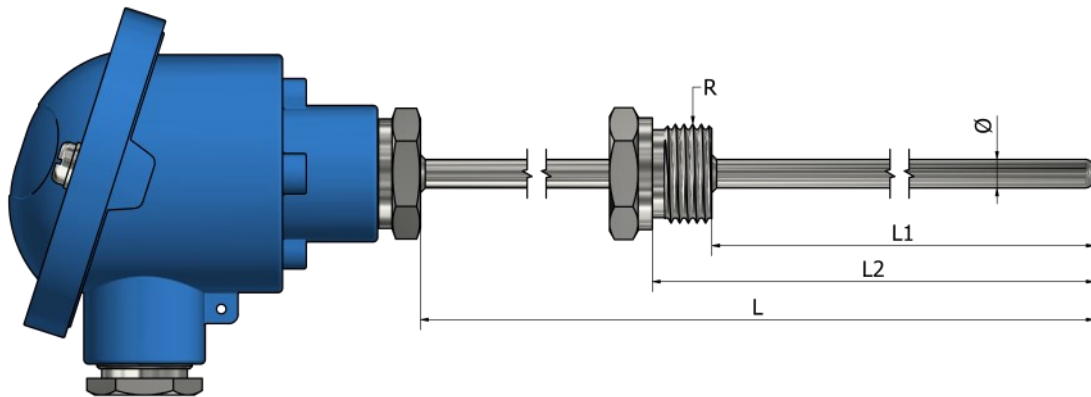
### How to order?

Choose the desired characteristics of your sensor by marking the checkboxes and by filling up the text. You can provide sketches, images, personal notes, special requirements or any important data. For additional questions and assistance, feel free to contact us.



# HH13 – Thermistors with terminal head

## Standard with fixed thread (offset)



\*Tube and thread material **Stainless steel 316L**

### Ordering information

#### 1. Element type:

- PTC KTY 81/110 (-40°C / +150°C)
- PTC KTY 81/121 (-40°C / +150°C)
- NTC 10kΩ at 25°C β3977 (-40°C / +125°C)
- NTC 20kΩ at 25°C β4260 (-40°C / +125°C)
- NTC 3,3kΩ at 100°C β3970 (-40°C / +200°C)
- Other:

( NTC / PTC , T° ( min / max ) , β value , tolerance )

#### 2. Wiring configuration: (number of wires)

- 2
- Other:

#### 3. Lengths L and L1 or L2 (mm):

L \_\_\_\_\_ L1 \_\_\_\_\_ L2 \_\_\_\_\_

#### 4. Diameter Ø (mm):

#### 5. Thread:

- 1/2" BSPP
- 1/4" BSPP
- 1/4" BSPT
- M10
- 1/2" NPT
- Other:

#### 6. Connection head: (see the part "Accessories")

- Type B
- Type DAN
- Type M
- Type N
- Type Ex
- Type NS
- Other:

#### 7. Mounting:

- Wires
- Terminal block
- Transmitter (°C):  
Specify temperature range

#### Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:  
See the part "Accessories"

Quantity:

Note:

### How to order?

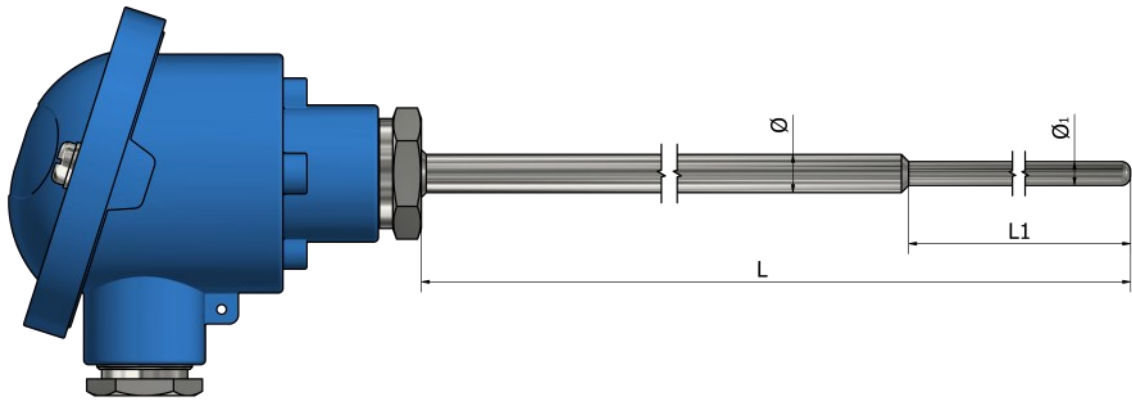


Choose the desired characteristics of your sensor by marking the checkboxes and by filling up the text. You can provide sketches, images, personal notes, special requirements or any important data. For additional questions and assistance, feel free to contact us.



# HH20 – Thermistors with terminal head

## Reduced tip



\*Tube material **Stainless steel 316L**

### Ordering information

#### 1. Element type:

- PTC KTY 81/110 (-40°C / +150°C)
- PTC KTY 81/121 (-40°C / +150°C)
- NTC 10kΩ at 25°C B3977 (-40°C / +125°C)
- NTC 20kΩ at 25°C B4260 (-40°C / +125°C)
- NTC 3,3kΩ at 100°C B3970 (-40°C / +200°C)
- Other:  
( NTC / PTC , T° ( min / max ) , β value , tolerance )

#### Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:  
See the part "Accessories"

Quantity:

Note:

#### 2. Wiring configuration: (number of wires)

- 2
- Other:

#### 3. Dimensions L and Ø (mm):

L \_\_\_\_\_ Ø \_\_\_\_\_

#### 4. Dimensions L1 and Ø1 (mm):

L1 \_\_\_\_\_ Ø1 \_\_\_\_\_

#### 5. Connection head: (see the part "Accessories")

- Type B
- Type DAN
- Type M
- Type N
- Type Ex
- Type NS
- Other:

#### 6. Mounting:

- Wires
- Terminal block
- Transmitter (°C):  
Specify temperature range

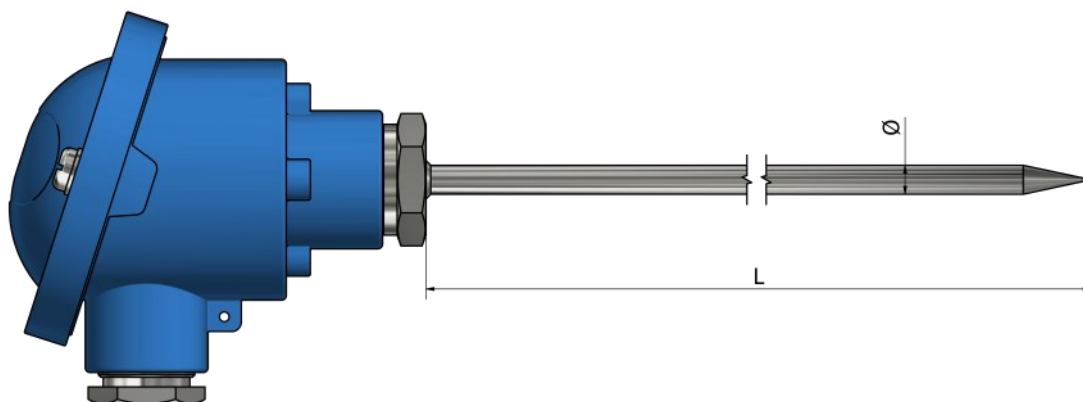
### How to order?

Choose the desired characteristics of your sensor by marking the checkboxes and by filling up the text. You can provide sketches, images, personal notes, special requirements or any important data. For additional questions and assistance, feel free to contact us.



# HH21 – Thermistors with terminal head

## Pointed tip



\*Tube material *Stainless steel 316L*

### Ordering information

#### 1. Element type:

- PTC KTY 81/110 (-40°C / +150°C)
- PTC KTY 81/121 (-40°C / +150°C)
- NTC 10kΩ at 25°C β3977 (-40°C / +125°C)
- NTC 20kΩ at 25°C β4260 (-40°C / +125°C)
- NTC 3,3kΩ at 100°C β3970 (-40°C / +200°C)
- Other:  
( NTC / PTC , T° ( min / max ) , β value , tolerance )

#### Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:  
See the part "Accessories"

Quantity:

Note:

#### 2. Wiring configuration: (number of wires)

- 2
- Other:

#### 3. Length L (mm):

#### 4. Diameter Ø (mm):

#### 5. Connection head: (see the part "Accessories")

- Type B
- Type DAN
- Type M
- Type N
- Type Ex
- Type NS
- Other:

#### 6. Mounting:

- Wires
- Terminal block
- Transmitter (°C):  
Specify temperature range

### How to order?

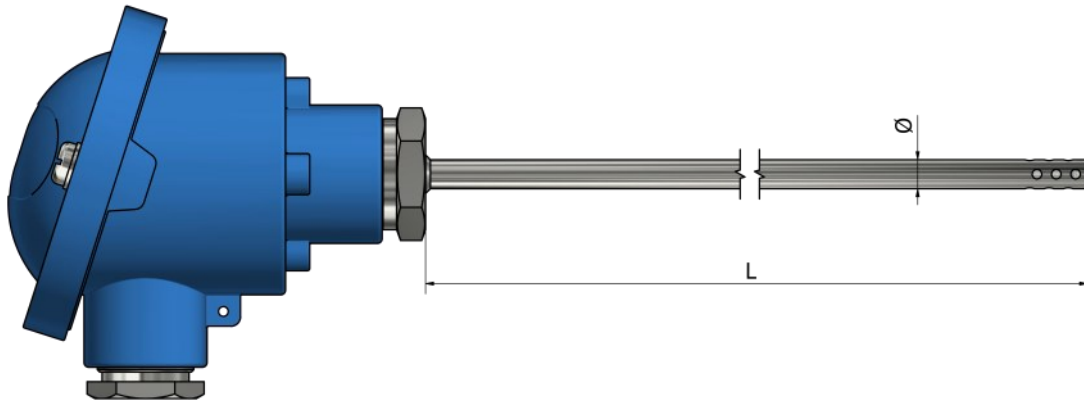


Choose the desired characteristics of your sensor by marking the checkboxes and by filling up the text. You can provide sketches, images, personal notes, special requirements or any important data. For additional questions and assistance, feel free to contact us.



# HH22 – Thermistors with terminal head

## Open air



\*Tube material **Stainless steel 316L**

### Ordering information

#### 1. Element type:

- PTC KTY 81/110 (-40°C / +150°C)
- PTC KTY 81/121 (-40°C / +150°C)
- NTC 10kΩ at 25°C β3977 (-40°C / +125°C)
- NTC 20kΩ at 25°C β4260 (-40°C / +125°C)
- NTC 3,3kΩ at 100°C β3970 (-40°C / +200°C)
- Other:  
( NTC / PTC , T° ( min / max ) , β value , tolerance )

#### 2. Wiring configuration: (number of wires)

- 2
- Other:

#### 3. Length L (mm):

#### 4. Diameter Ø (mm):

#### 5. Connection head: (see the part "Accessories")

- Type B
- Type DAN
- Type M
- Type N
- Type Ex
- Type NS
- Other:

#### 6. Mounting:

- Wires
- Terminal block
- Transmitter (°C):  
Specify temperature range

#### Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:  
See the part "Accessories"

Quantity:

Note:

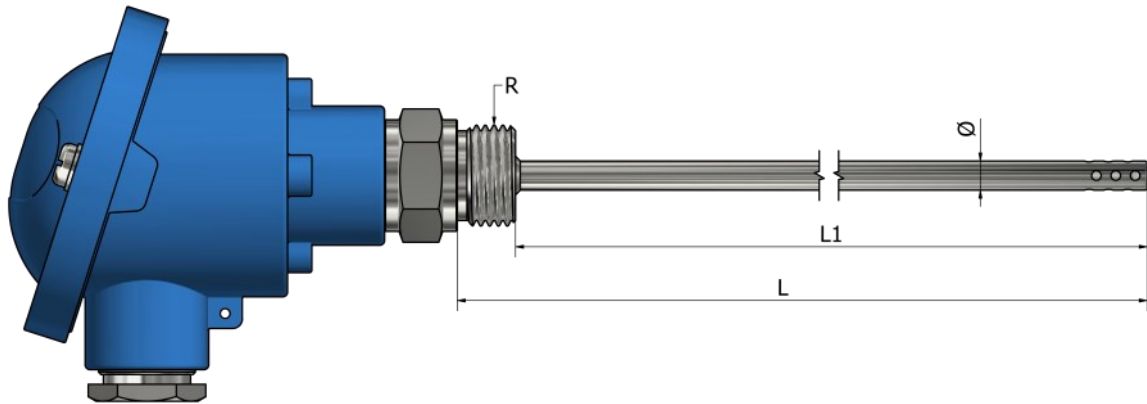
### How to order?

Choose the desired characteristics of your sensor by marking the checkboxes and by filling up the text. You can provide sketches, images, personal notes, special requirements or any important data. For additional questions and assistance, feel free to contact us.



# HH23 – Thermistors with terminal head

## Open air with fixed thread



\*Tube and thread material **Stainless steel 316L**

### Ordering information

#### 1. Element type:

- PTC KTY 81/110 (-40°C / +150°C)
- PTC KTY 81/121 (-40°C / +150°C)
- NTC 10kΩ at 25°C β3977 (-40°C / +125°C)
- NTC 20kΩ at 25°C β4260 (-40°C / +125°C)
- NTC 3,3kΩ at 100°C β3970 (-40°C / +200°C)
- Other:  
( NTC / PTC , T° ( min / max ) , β value , tolerance )

#### 2. Wiring configuration: (number of wires)

- 2
- Other:

#### 3. Length L or L1 (mm):

L \_\_\_\_\_ L1 \_\_\_\_\_

#### 4. Diameter Ø (mm):

#### 5. Thread:

- 1/2" BSPP
- 1/4" BSPP
- 1/4" BSPT
- M10
- 1/2" NPT
- Other:

#### 6. Connection head: (see the part "Accessories")

- Type B
- Type DAN
- Type M
- Type N
- Type Ex
- Type NS
- Other:

#### 7. Mounting:

- Wires
- Terminal block
- Transmitter (°C):  
Specify temperature range

#### Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:  
See the part "Accessories"

Quantity:

Note:

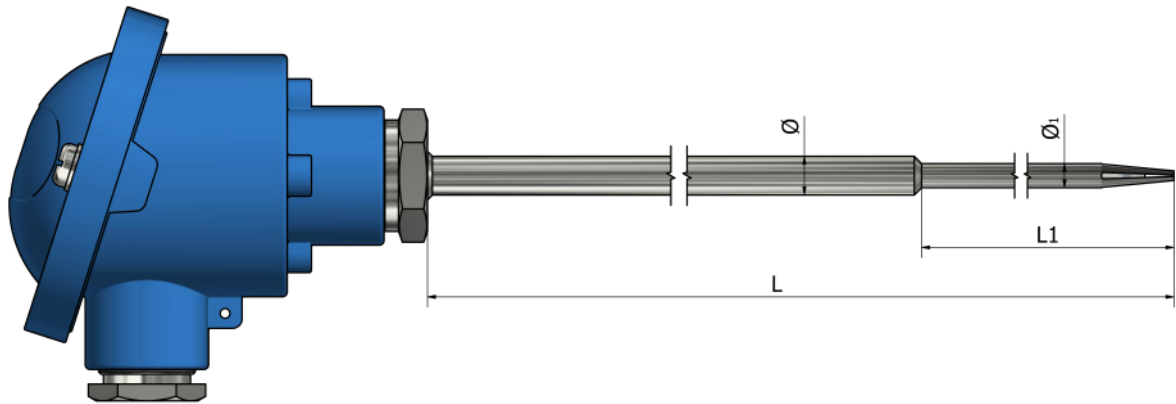
### How to order?

Choose the desired characteristics of your sensor by marking the checkboxes and by filling up the text. You can provide sketches, images, personal notes, special requirements or any important data. For additional questions and assistance, feel free to contact us.



# HH24 – Thermistors with terminal head

## Open air with reduced tip



\*Tube material **Stainless steel 316L**

### Ordering information

#### 1. Element type:

- PTC KTY 81/110 (-40°C / +150°C)
- PTC KTY 81/121 (-40°C / +150°C)
- NTC 10kΩ at 25°C β3977 (-40°C / +125°C)
- NTC 20kΩ at 25°C β4260 (-40°C / +125°C)
- NTC 3,3kΩ at 100°C β3970 (-40°C / +200°C)
- Other:  
( NTC / PTC , T° ( min / max ) , β value, tolerance )

#### Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:  
See the part "Accessories"

Quantity:

Note:

#### 2. Wiring configuration: (number of wires)

- 2
- Other:

#### 3. Dimensions L and Ø (mm):

L \_\_\_\_\_ Ø \_\_\_\_\_

#### 4. Dimensions L1 and Ø1 (mm):

L1 \_\_\_\_\_ Ø1 \_\_\_\_\_

#### 5. Connection head: (see the part "Accessories")

- Type B
- Type DAN
- Type M
- Type N
- Type Ex
- Type NS
- Other:

#### 6. Mounting:

- Wires
- Terminal block
- Transmitter (°C):  
Specify temperature range

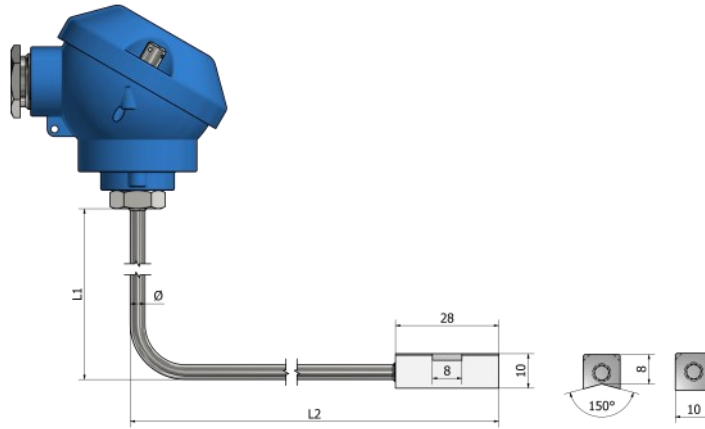
### How to order?

Choose the desired characteristics of your sensor by marking the checkboxes and by filling up the text. You can provide sketches, images, personal notes, special requirements or any important data. For additional questions and assistance, feel free to contact us.





# HH25 – Thermistors with terminal head Contact block (surface mount)



\*Tube material **Stainless steel 316L**

## Ordering information

### 1. Element type:

- PTC KTY 81/110 (-40°C / +150°C)
- PTC KTY 81/121 (-40°C / +150°C)
- NTC 10kΩ at 25°C β3977 (-40°C / +125°C)
- NTC 20kΩ at 25°C β4260 (-40°C / +125°C)
- NTC 3,3kΩ at 100°C β3970 (-40°C / +200°C)
- Other:  
( NTC / PTC , T° ( min / max ) , β value , tolerance )

### 2. Wiring configuration: (number of wires)

- 2
- Other:

### 3. Lengths L1 and L2 (mm):

L1 \_\_\_\_\_ L2 \_\_\_\_\_

### 4. Diameter Ø (mm):

### 5. Connection head: (see the part "Accessories")

- Type B
- Type DAN
- Type M
- Type N
- Type Ex
- Type NS
- Other:

### 6. Mounting:

- Wires
- Terminal block
- Transmitter (°C):  
Specify temperature range

### 7. Contact block material:

- Brass
- Aluminum
- Other:

### 8. Contact block shape:



V-shape



Flat

### Additional:

Application: \_\_\_\_\_

Operating temperature (min/max): \_\_\_\_\_

Type of environment: \_\_\_\_\_

Accessories:  
See the part "Accessories"

Quantity: \_\_\_\_\_

Note: \_\_\_\_\_

## How to order?

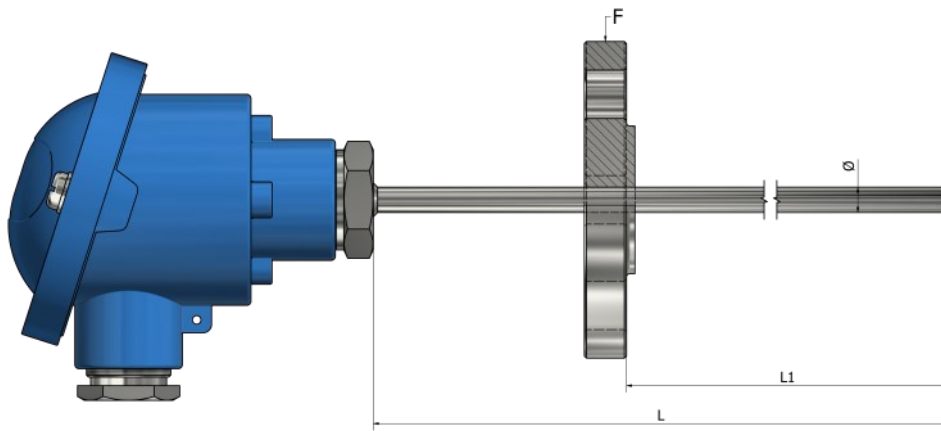
Choose the desired characteristics of your sensor by marking the checkboxes and by filling up the text. You can provide sketches, images, personal notes, special requirements or any important data. For additional questions and assistance, feel free to contact us.





# HH30 – Thermistors with terminal head

## Flange sanitary mounting



\*Tube material **Stainless steel 316L**

### Ordering information

#### 1. Element type:

- PTC KTY 81/110 (-40°C / +150°C)
- PTC KTY 81/121 (-40°C / +150°C)
- NTC 10kΩ at 25°C β3977 (-40°C / +125°C)
- NTC 20kΩ at 25°C β4260 (-40°C / +125°C)
- NTC 3,3kΩ at 100°C β3970 (-40°C / +200°C)
- Other:  
( NTC / PTC , T° ( min / max ) , β value , tolerance )

#### 2. Wiring configuration: (number of wires)

- 2
- Other:

#### 3. Dimensions L and L1 (mm):

L \_\_\_\_\_ L1 \_\_\_\_\_

#### 4. Diameter Ø (mm):

#### 5. Connection head: (see the part "Accessories")

- Type B
- Type DAN
- Type M
- Type N
- Type Ex
- Type NS
- Other:

#### 6. Mounting:

- Wires
- Terminal block
- Transmitter (°C):  
Specify temperature range

#### 7. Flange sanitary mounting:

- DIN2527 (DN10 – PN6)
- Other:

#### Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:  
See the part "Accessories"

Quantity:

Note:

### How to order?

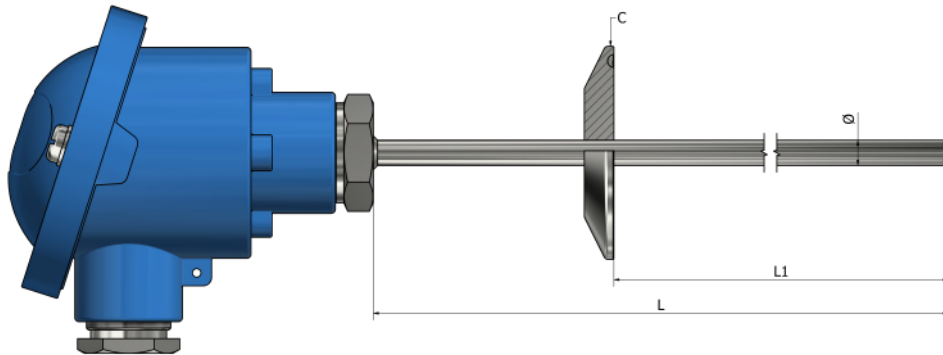
Choose the desired characteristics of your sensor by marking the checkboxes and by filling up the text. You can provide sketches, images, personal notes, special requirements or any important data. For additional questions and assistance, feel free to contact us.





# HH31 – Thermistors with terminal head

## Tri-clamp sanitary mounting



\*Tube material **Stainless steel 316L**

### Ordering information

#### 1. Element type:

- PTC KTY 81/110 (-40°C / +150°C)
- PTC KTY 81/121 (-40°C / +150°C)
- NTC 10kΩ at 25°C B3977 (-40°C / +125°C)
- NTC 20kΩ at 25°C B4260 (-40°C / +125°C)
- NTC 3,3kΩ at 100°C B3970 (-40°C / +200°C)
- Other:  
( NTC / PTC , T° ( min / max ) , β value , tolerance )

#### 2. Wiring configuration: (number of wires)

- 2
- Other:

#### 3. Dimensions L and L1 (mm):

L \_\_\_\_\_ L1 \_\_\_\_\_

#### 4. Diameter Ø (mm):

#### 5. Connection head: (see the part "Accessories")

- Type B
- Type DAN
- Type M
- Type N
- Type Ex
- Type NS
- Other:

#### 6. Mounting:

- Wires
- Terminal block
- Transmitter (°C):  
Specify temperature range

#### 7. Flange sanitary mounting:

- DIN2527 (DN10 – PN6)
- Other:

#### Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:  
See the part "Accessories"

Quantity:

Note:

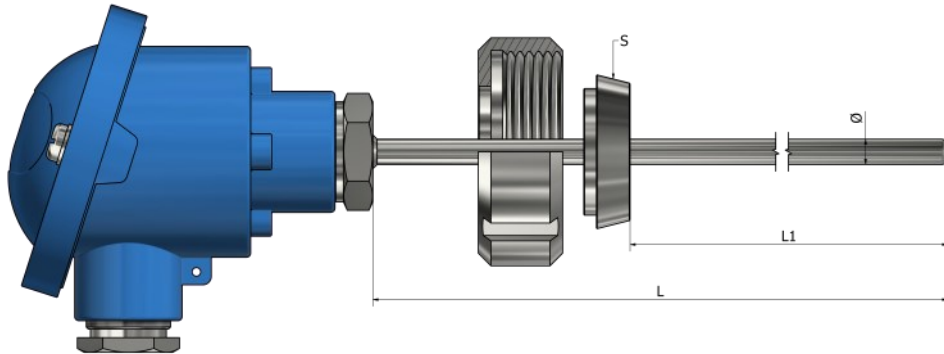
### How to order?

Choose the desired characteristics of your sensor by marking the checkboxes and by filling up the text. You can provide sketches, images, personal notes, special requirements or any important data. For additional questions and assistance, feel free to contact us.





# HH32 – Thermistors with terminal head Disc DIN11851 (screw-on) sanitary mounting



\*Tube material **Stainless steel 316L**

## Ordering information

### 1. Element type:

- PTC KTY 81/110 (-40°C / +150°C)
- PTC KTY 81/121 (-40°C / +150°C)
- NTC 10kΩ at 25°C B3977 (-40°C / +125°C)
- NTC 20kΩ at 25°C B4260 (-40°C / +125°C)
- NTC 3,3kΩ at 100°C B3970 (-40°C / +200°C)
- Other:  
( NTC / PTC , T° ( min / max ) , β value , tolerance )

### 2. Wiring configuration: (number of wires)

- 2
- Other:

### 3. Dimensions L and L1 (mm):

L \_\_\_\_\_ L1 \_\_\_\_\_

### 4. Diameter Ø (mm):

### 5. Connection head: (see the part "Accessories")

- Type B
- Type DAN
- Type M
- Type N
- Type Ex
- Type NS
- Other:

### 6. Mounting:

- Wires
- Terminal block
- Transmitter (°C):  
Specify temperature range

### 7. Flange sanitary mounting:

- DIN2527 (DN10 – PN6)
- Other:

### Additional:

Application: \_\_\_\_\_

Operating temperature (min/max): \_\_\_\_\_

Type of environment: \_\_\_\_\_

Accessories:  
See the part "Accessories"

Quantity: \_\_\_\_\_

Note: \_\_\_\_\_

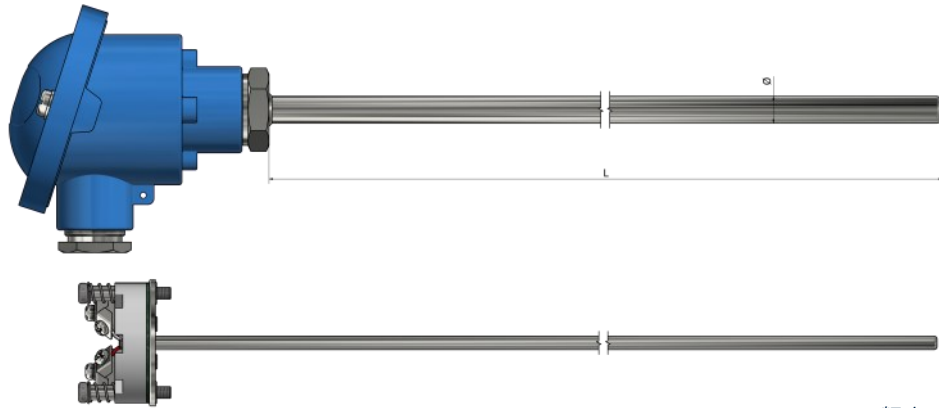
## How to order?

Choose the desired characteristics of your sensor by marking the checkboxes and by filling up the text. You can provide sketches, images, personal notes, special requirements or any important data. For additional questions and assistance, feel free to contact us.



# HH40 – Thermistors with terminal head

## Exchangeable insert



\*Tube material **Stainless steel 316L**

### Ordering information

#### 1. Element type:

- PTC KTY 81/110 (-40°C / +150°C)
- PTC KTY 81/121 (-40°C / +150°C)
- NTC 10kΩ at 25°C B3977 (-40°C / +125°C)
- NTC 20kΩ at 25°C B4260 (-40°C / +125°C)
- NTC 3,3kΩ at 100°C B3970 (-40°C / +200°C)
- Other:  
( NTC / PTC , T° ( min / max ) , β value, tolerance )

#### 2. Wiring configuration: (number of wires)

- 2
- Other:

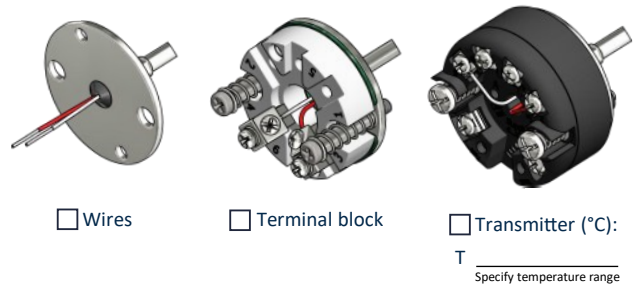
#### 3. Length L (mm):

#### 4. Diameter Ø (mm):

#### 5. Connection head: (see the part "Accessories")

- Type B
- Type DAN
- Type M
- Type N
- Type Ex
- Type NS
- Other:

#### 6. Type of exchangeable insert:



#### Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:  
See the part "Accessories"

Quantity:

Note:

### How to order?

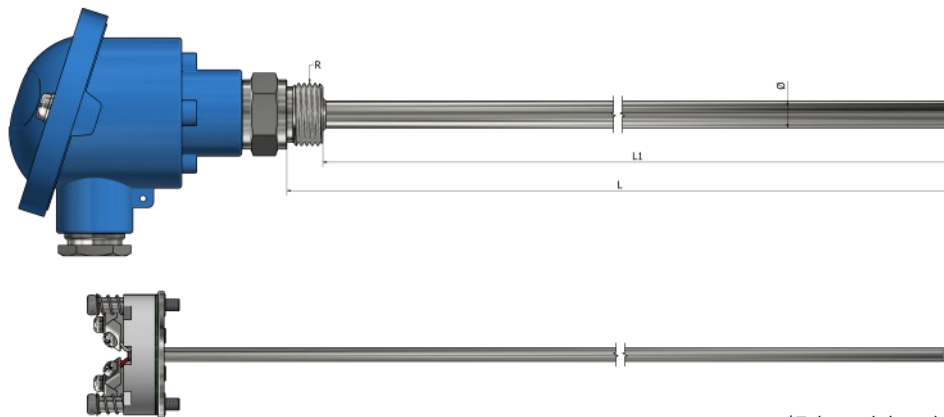
Choose the desired characteristics of your sensor by marking the checkboxes and by filling up the text. You can provide sketches, images, personal notes, special requirements or any important data. For additional questions and assistance, feel free to contact us.





# HH41 – Thermistors with terminal head

## Exchangeable insert with fixed thread



\*Tube and thread material **Stainless steel 316L**

### Ordering information

#### 1. Element type:

- PTC KTY 81/110 (-40°C / +150°C)
- PTC KTY 81/121 (-40°C / +150°C)
- NTC 10k $\Omega$  at 25°C  $\beta$ 3977 (-40°C / +125°C)
- NTC 20k $\Omega$  at 25°C  $\beta$ 4260 (-40°C / +125°C)
- NTC 3,3k $\Omega$  at 100°C  $\beta$ 3970 (-40°C / +200°C)
- Other:  
( NTC / PTC , T° ( min / max ) ,  $\beta$  value, tolerance )

#### 2. Wiring configuration: (number of wires)

- 2
- Other:

#### 3. Length L or L1 (mm):

L \_\_\_\_\_ L1 \_\_\_\_\_

#### 4. Diameter $\phi$ (mm):

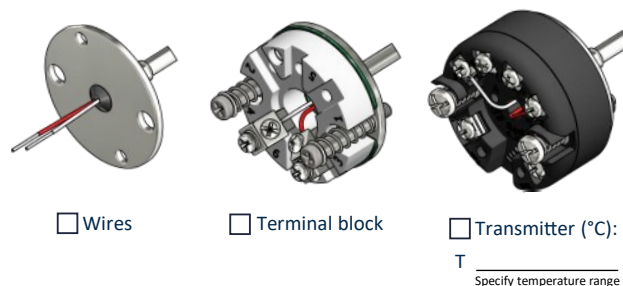
#### 5. Thread:

- 1/2" BSPP
- 1/4" BSPP
- 1/4" BSPT
- M10
- 1/2" NPT
- Other:

#### 6. Connection head: (see the part "Accessories")

- Type B
- Type DAN
- Type M
- Type N
- Type Ex
- Type NS
- Other:

#### 7. Type of exchangeable insert:



#### Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:  
See the part "Accessories"

Quantity:

Note:

### How to order?

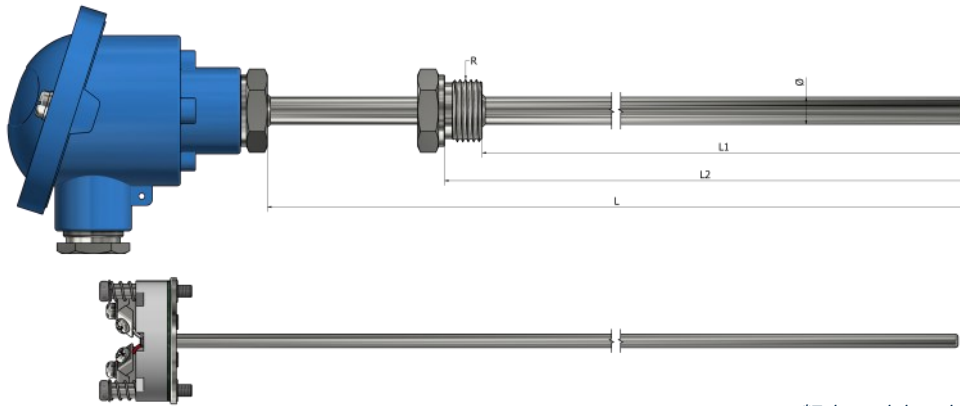


Choose the desired characteristics of your sensor by marking the checkboxes and by filling up the text. You can provide sketches, images, personal notes, special requirements or any important data. For additional questions and assistance, feel free to contact us.



# HH42 – Thermistors with terminal head

## Exchangeable insert with fixed thread (offset)



\*Tube and thread material **Stainless steel 316L**

### Ordering information

#### 1. Element type:

- PTC KTY 81/110 (-40°C / +150°C)
- PTC KTY 81/121 (-40°C / +150°C)
- NTC 10kΩ at 25°C B3977 (-40°C / +125°C)
- NTC 20kΩ at 25°C B4260 (-40°C / +125°C)
- NTC 3,3kΩ at 100°C B3970 (-40°C / +200°C)
- Other:  
( NTC / PTC , T° ( min / max ) , β value, tolerance )

#### 2. Wiring configuration: (number of wires)

- 2
- Other:

#### 3. Lengths L, L1, L2 (mm):

L \_\_\_\_\_ L1 \_\_\_\_\_ L2 \_\_\_\_\_

#### 4. Diameter Ø (mm):

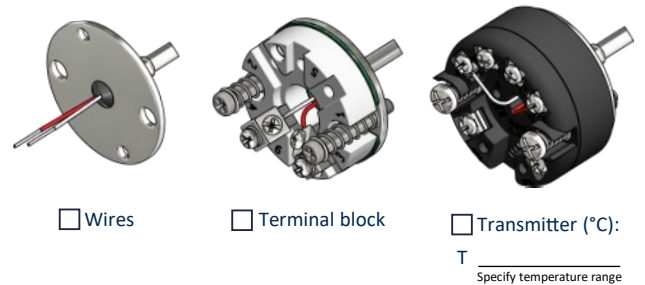
#### 5. Thread:

- 1/2" BSPP
- 1/4" BSPP
- 1/4" BSPT
- M10
- 1/2" NPT
- Other:

#### 6. Connection head: (see the part "Accessories")

- Type B
- Type DAN
- Type M
- Type N
- Type Ex
- Type NS
- Other:

#### 7. Type of exchangeable insert:



#### Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:  
See the part "Accessories"

Quantity:

Note:

### How to order?

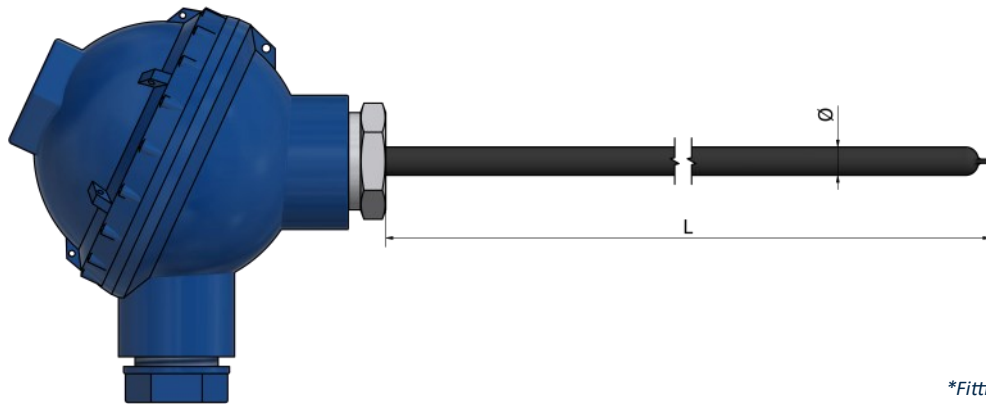
Choose the desired characteristics of your sensor by marking the checkboxes and by filling up the text. You can provide sketches, images, personal notes, special requirements or any important data. For additional questions and assistance, feel free to contact us.





# HH50 – Thermistors with terminal head

## For aggressive environments



\*Fitting material **PTFE** (260°C)

\*Tube material **Stainless steel 316L** with **PTFE** protection

### Ordering information

#### 1. Element type:

- PTC KTY 81/110 (-40°C / +150°C)
- PTC KTY 81/121 (-40°C / +150°C)
- NTC 10kΩ at 25°C β3977 (-40°C / +125°C)
- NTC 20kΩ at 25°C β4260 (-40°C / +125°C)
- NTC 3,3kΩ at 100°C β3970 (-40°C / +200°C)
- Other:  
( NTC / PTC , T° ( min / max ) , β value , tolerance )

#### 2. Wiring configuration: (number of wires)

- 2
- Other:

#### 3. Length L (mm):

#### 4. Diameter Ø (mm):

#### 5. Connection head: (see the part "Accessories")

- Type B
- Type DAN
- Type M
- Type N
- Type Ex
- Type NS
- Other:

#### 6. Mounting:

- Wires
- Terminal block
- Transmitter (°C):  
Specify temperature range

#### Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:  
See the part "Accessories"

Quantity:

Note:

### How to order?

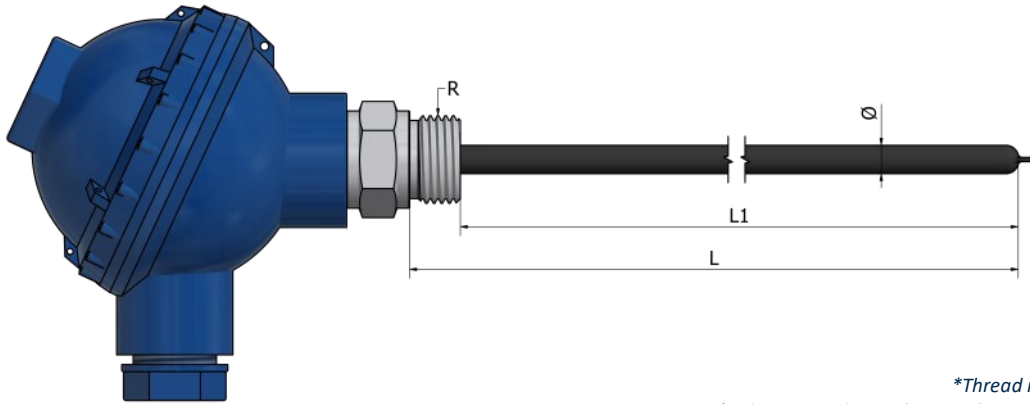
Choose the desired characteristics of your sensor by marking the checkboxes and by filling up the text. You can provide sketches, images, personal notes, special requirements or any important data. For additional questions and assistance, feel free to contact us.





# HH51 – Thermistors with terminal head

## For aggressive environments with fixed thread



\*Thread material **PTFE** (260°C)  
 \*Tube material **Stainless steel 316L** with **PTFE** protection

### Ordering information

#### 1. Element type:

- PTC KTY 81/110 (-40°C / +150°C)
- PTC KTY 81/121 (-40°C / +150°C)
- NTC 10kΩ at 25°C β3977 (-40°C / +125°C)
- NTC 20kΩ at 25°C β4260 (-40°C / +125°C)
- NTC 3,3kΩ at 100°C β3970 (-40°C / +200°C)
- Other:  
( NTC / PTC , T° ( min / max ) , β value, tolerance )

#### 2. Wiring configuration: (number of wires)

- 2
- Other:

#### 3. Length L or L1 (mm):

L \_\_\_\_\_ L1 \_\_\_\_\_

#### 4. Diameter Ø (mm):

#### 5. Thread:

- 1/2" BSPP
- 1/4" BSPP
- 1/4" BSPT
- M10
- 1/2" NPT
- Other:

#### 6. Connection head: (see the part "Accessories")

- Type B
- Type DAN
- Type M
- Type N
- Type Ex
- Type NS
- Other:

#### 7. Mounting:

- Wires
- Terminal block
- Transmitter (°C):  
Specify temperature range

#### Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:  
See the part "Accessories"

Quantity:

Note:

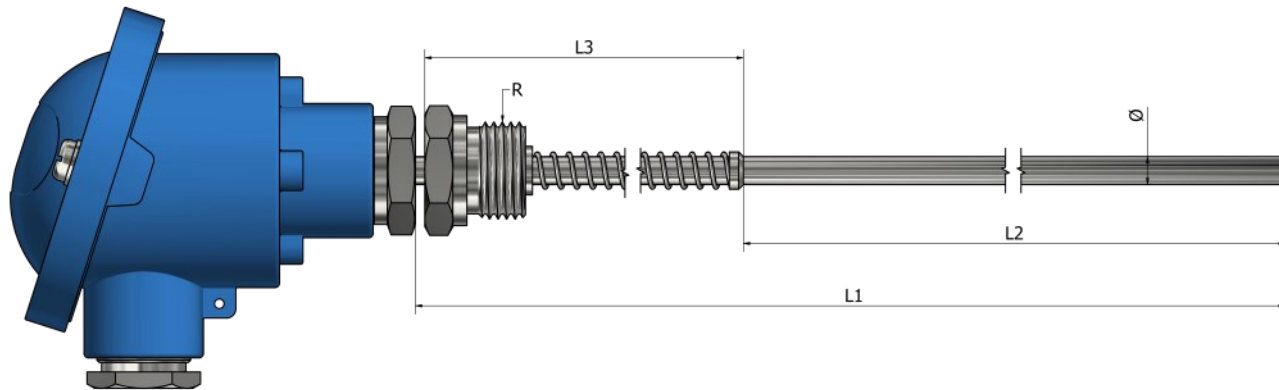
### How to order?

Choose the desired characteristics of your sensor by marking the checkboxes and by filling up the text. You can provide sketches, images, personal notes, special requirements or any important data. For additional questions and assistance, feel free to contact us.



# HH60 – Thermistors with terminal head

## Spring loaded



\*Tube and thread material **Stainless steel 316L**

### Ordering information

#### 1. Element type:

- PTC KTY 81/110 (-40°C / +150°C)
- PTC KTY 81/121 (-40°C / +150°C)
- NTC 10kΩ at 25°C B3977 (-40°C / +125°C)
- NTC 20kΩ at 25°C B4260 (-40°C / +125°C)
- NTC 3,3kΩ at 100°C B3970 (-40°C / +200°C)
- Other:

( NTC / PTC , T° ( min / max ) , β value , tolerance )

#### 2. Wiring configuration: (number of wires)

- 2
- Other:

#### 3. Lengths L1, L2, L3 (mm):

L1 \_\_\_\_\_ L2 \_\_\_\_\_ L3 \_\_\_\_\_

#### 4. Diameter Ø (mm):

#### 5. Thread:

- 1/2" BSPP
- 1/4" BSPP
- 1/4" BSPT
- M10
- 1/2" NPT
- Other:

#### 6. Connection head: (see the part "Accessories")

- Type B
- Type DAN
- Type M
- Type N
- Type Ex
- Type NS
- Other:

#### 7. Mounting:

- Wires
- Terminal block
- Transmitter (°C):  
Specify temperature range

#### Additional:

Application: \_\_\_\_\_

Operating temperature (min/max): \_\_\_\_\_

Type of environment: \_\_\_\_\_

Accessories:  
See the part "Accessories"

Quantity: \_\_\_\_\_

Note: \_\_\_\_\_

### How to order?



Choose the desired characteristics of your sensor by marking the checkboxes and by filling up the text. You can provide sketches, images, personal notes, special requirements or any important data. For additional questions and assistance, feel free to contact us.



# HI00 – Thermistors with terminal head

## Disc plate insert



\*Tube material **Stainless steel 316L**

### Ordering information

#### 1. Element type:

- PTC KTY 81/110 (-40°C / +150°C)
- PTC KTY 81/121 (-40°C / +150°C)
- NTC 10kΩ at 25°C β3977 (-40°C / +125°C)
- NTC 20kΩ at 25°C β4260 (-40°C / +125°C)
- NTC 3,3kΩ at 100°C β3970 (-40°C / +200°C)
- Other:  
( NTC / PTC , T° ( min / max ) , β value, tolerance )

#### 2. Wiring configuration: (number of wires)

- 2
- Other:

#### 3. Sheath length L (mm):

#### 4. Diameter Ø (mm):

#### Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:  
See the part "Accessories"

Quantity:

Note:

### How to order?

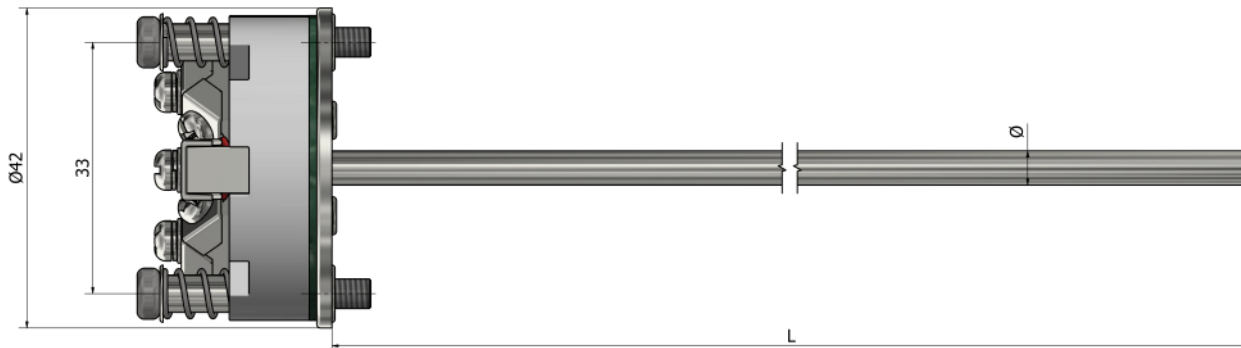
Choose the desired characteristics of your sensor by marking the checkboxes and by filling up the text. You can provide sketches, images, personal notes, special requirements or any important data. For additional questions and assistance, feel free to contact us.





# HI01 – Thermistors with terminal head

## Insert with terminal block (spring loaded)



\*Tube material **Stainless steel 316L**

### Ordering information

#### 1. Element type:

- PTC KTY 81/110 (-40°C / +150°C)
- PTC KTY 81/121 (-40°C / +150°C)
- NTC 10kΩ at 25°C β3977 (-40°C / +125°C)
- NTC 20kΩ at 25°C β4260 (-40°C / +125°C)
- NTC 3,3kΩ at 100°C β3970 (-40°C / +200°C)
- Other:  
( NTC / PTC , T° ( min / max ) , β value , tolerance )

#### Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:  
See the part "Accessories"

Quantity:

Note:

#### 2. Wiring configuration: (number of wires)

- 2
- Other:

#### 3. Sheath length L (mm):

#### 4. Diameter Ø (mm):

### How to order?

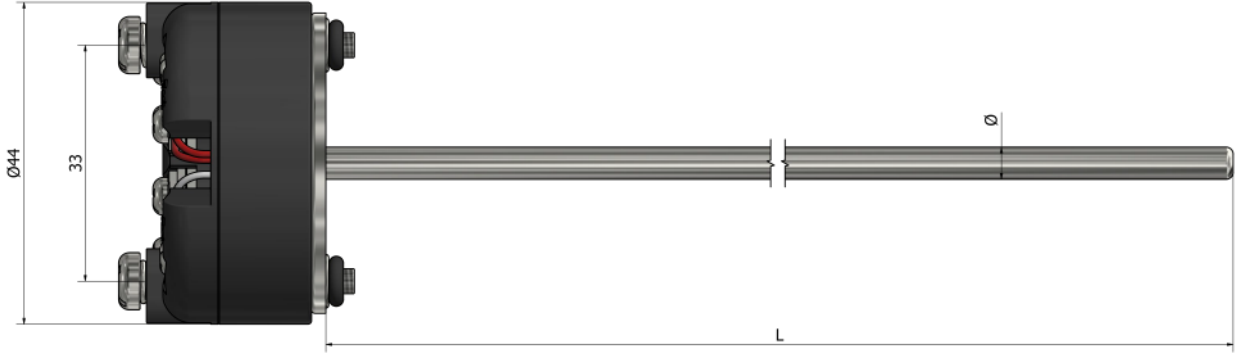


Choose the desired characteristics of your sensor by marking the checkboxes and by filling up the text. You can provide sketches, images, personal notes, special requirements or any important data. For additional questions and assistance, feel free to contact us.



# HI02 – Thermistors with terminal head

## Insert with transmitter block (spring loaded)



\*Tube material **Stainless steel 316L**

### Ordering information

#### 1. Element type:

- PTC KTY 81/110 (-40°C / +150°C)
- PTC KTY 81/121 (-40°C / +150°C)
- NTC 10kΩ at 25°C β3977 (-40°C / +125°C)
- NTC 20kΩ at 25°C β4260 (-40°C / +125°C)
- NTC 3,3kΩ at 100°C β3970 (-40°C / +200°C)
- Other:

( NTC / PTC , T° ( min / max ) , β value , tolerance )

#### 2. Wiring configuration: (number of wires)

- 2
- Other:

#### 3. Sheath length L (mm):

#### 4. Diameter Ø (mm):

#### 5. Transmitter (°C):

Specify temperature range

#### Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:  
See the part "Accessories"

Quantity:

Note:

### How to order?

Choose the desired characteristics of your sensor by marking the checkboxes and by filling up the text. You can provide sketches, images, personal notes, special requirements or any important data. For additional questions and assistance, feel free to contact us.

