



## FICHA TÉCNICA DE PRODUTO

## PRODUCT DATASHEET

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HMI – Automação e Instrumentação, Lda.

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# SensyTemp TSHY (HY R) Resistance thermometer for the food and beverage industries

## Measurement made easy



### For insertion in pipelines and vessels

#### Fast response

- Halftime < 2.5 s

#### Various designs

- Sensor smooth, with threaded compression fitting or welded flange

#### Corrosion-resistant

- Sensor and connection head made of stainless steel, IP 66

#### Hygienic

- Materials permissible for use with food, surface polished smooth, mounting suitable for CIP (Cleaning In Place)

### Selectable transmission of measured values

- Pt 100 signal or 4 ... 20 mA with installed transmitter

### High operational reliability

- Components have long-term stability and are maintenance-free, environment-resistant and vibration-resistant

### Type approved

- for use in milk-heating plants which require approval, in accordance with Directive 85/357/EEC or the German Milk Executive Order (MVO)



### Temperature sensor TSHY (SensyTemp HY R-2E)

The typical features of the HY R-2E sensor are its fixed insertion length and the small dimensions of the temperature-sensitive sensor tube and the high pressure resistance up to 140 bar.

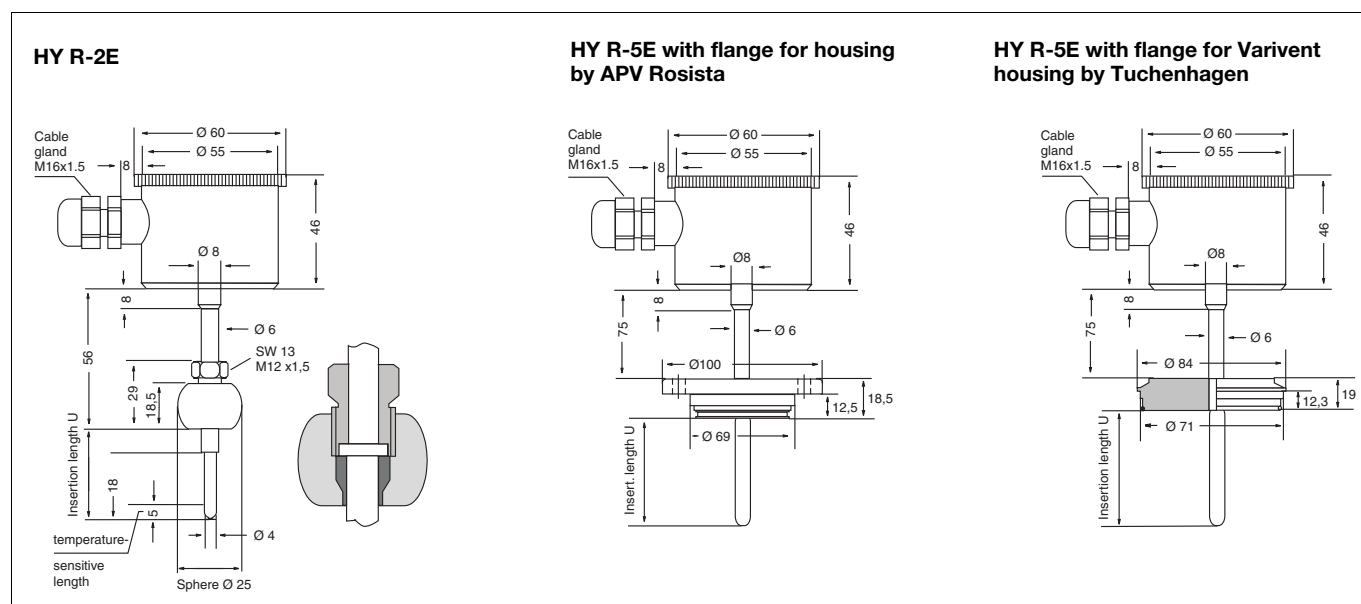
It is possible to choose between the insertion lengths 20 and 60 mm. The spherical welded bushing is fixed by a collar welding onto the sensor tube.

An additional PEEK ring prevents the formation of an annular gap between the sensor tube and the welded bushing. The HY R-2E sensor thus meets the highest hygiene and cleaning requirements.

### Temperature sensor TSHY (SensyTemp HY R-5E) (inline)

The typical feature of the HY R-5E sensor is the flange which is welded to the sensor tube. The flange allows inline mounting in connection with housings of make "APV-Rosista" or "Tuchenhagen".

With inline technology, measuring junctions for various process variables are standardized. This technology, which has been specially developed for the food and beverage industries, also meets the highest hygiene and cleaning requirements.

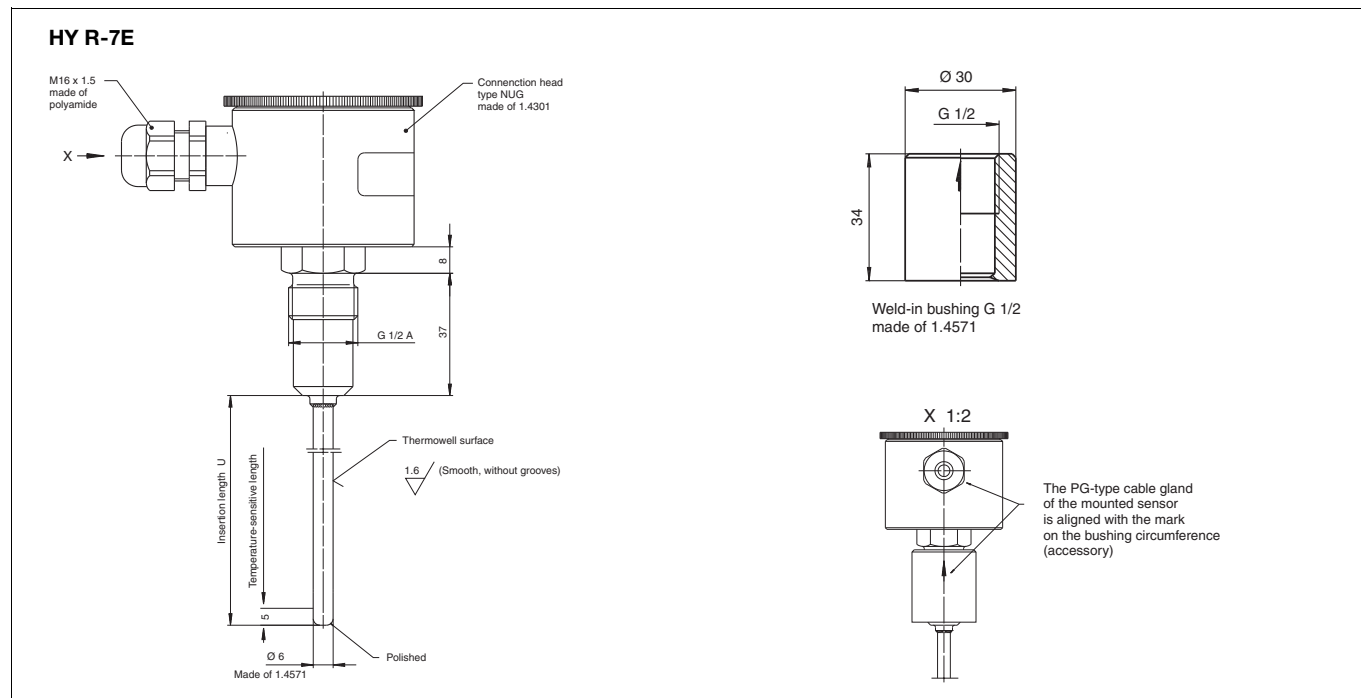


## Temperature sensor TSHY (SensyTemp HY R-7E)

The typical features of the HY R-7E sensor are its fixed insertion length and the metal-type sealing system. In conjunction with the appropriate welded bushing this design ensures sealing without clearance volume and in compliance with the hygienic requirements of food applications. No additional seal is required.

When the system is mounted properly, the temperature sensor's cable gland is aligned with the mark on the bushing circumference.

A tightening moment of 30...50 Nm should be applied. The sealing system is pressure-resistant up to 10 bar. Various insertion lengths are available.

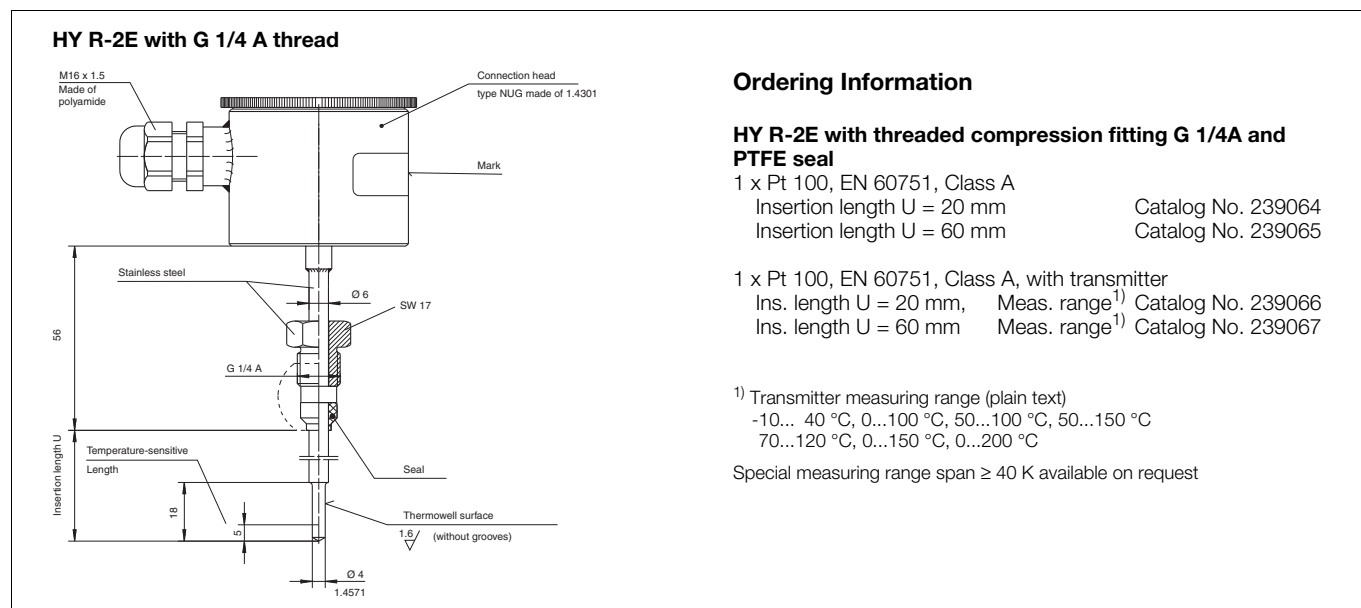


## Temperature sensor TSHY (SensyTemp HY R-2E) with G 1/4 A thread

This sensor is intended to be used as a spare part for existing systems with spherical welded bushing, with G 1/4 thread and PTFE seal.

Since this type has been replaced with the welded bushing M12 x 1.5 with PEEK seal, the welded sphere G 1/4 is not included in the scope of delivery.

If the welded sphere should be defective, please use type M12 x 1.5 with PEEK seal.



## Technical data

### Temperature sensor

#### Resistance element

1 x Pt 100 in accordance with EN 60751, class A, 3-wire circuit  
or  
2 x Pt 100 in accordance with EN 60751, class B, 2-wire circuit

#### Measuring range

Temperature: -50...+250 °C  
Pressure: For HY R-1E see details about compression fitting on page 2  
max. 140 bar  
For HY R-2E in accordance with the pressure class of the housing  
For HY R-5E

#### Response time

acc. to VDE/VDI 3511, media water,  $v = 0,4 \text{ m/s}$   
HY R-1E + R-5E + R-7E    HY R-1E with SR    HY R-2E  
 $t_{0,5}$  < 2.5 s    5.0 s    2.0 s  
 $t_{0,9}$  < 5.2 s    11.4 s\*    3.4 s

\* This value can be reduced to 6 s by using heat-conductive paste.

#### Insulation voltage

Max. 250 V DC

#### Sensor tube

For HY R-1E Smooth without compression fitting  
For HY R-2E With fixed insertion length, spherical welded bushing  
  
For HY R-5E With fixed insertion length and weld-on flange  
For HY R-7E With fixed insertion length, metal sealing system  
Length In accordance with order details or dimensional drawings  
Diameter 6 or 6/4 mm (see dimensional drawings)  
Material Stainless steel 1.4571 (AISI 316-TI)

#### Connection head

Stainless steel 1.4301 (AISI 304) with screwed lid, sealable  
Degree of protection IP 66  
Cable gland M16 x 1.5 for cable diameter 3.5...8.0 mm  
Screw terminals for the connection cable

## Transmitter

### Design TSHY (SensyTemp HY R)

Installation design, suitable for the connection head of the HY R temperature sensor, only possible in connection with a single winding

#### Input

Pt 100 (EN 60751),  
3-wire circuit, fixed ranges

#### Output

4...20 mA, temperature linear

#### Power supply

$U_s = 10.5...30 \text{ V DC}$ , polarity safe

## Climatic conditions

### Ambient temperature

-40...+85 °C

### Relative humidity

≤ 100 % (condensation possible)

### Characteristics at rated conditions

(percentage referred to the measuring span)

### Measurement deviation (upper-range value)

nominal value 0 °C: ≤ 0.15 % or 0.15 K  
nominal value < or > 0 °C: ≤ 0.2 % or 0.2 K

### Deviation of linearity

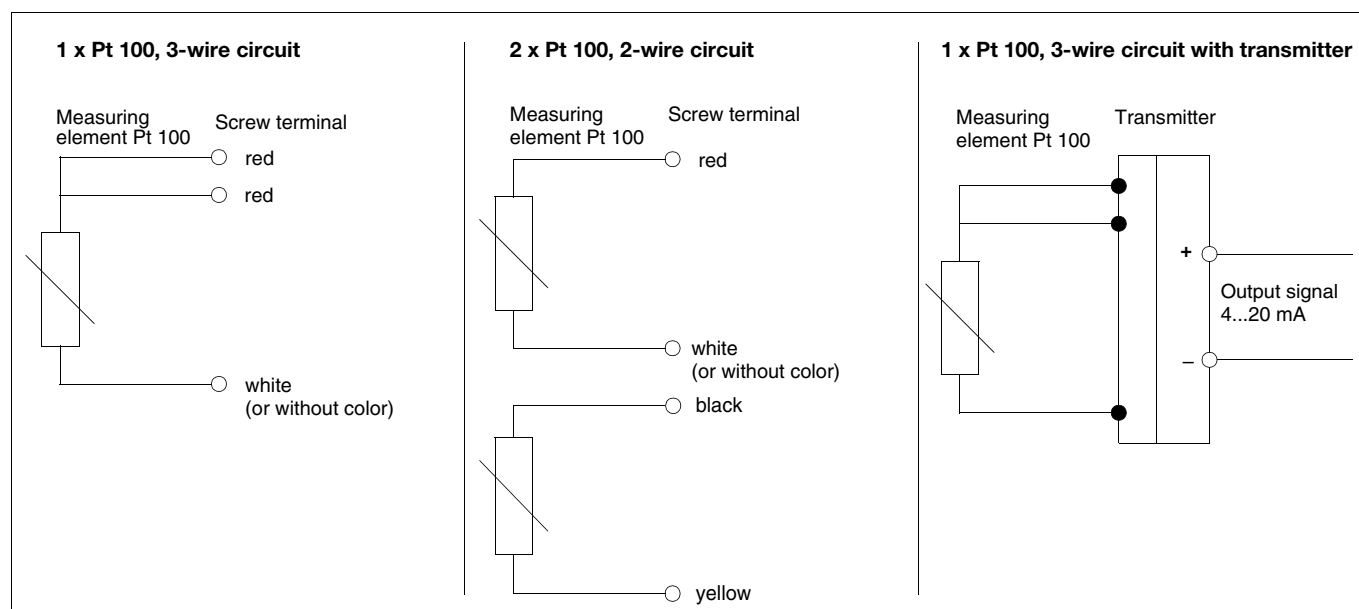
< 0.10 %

### Electromagnetic compatibility

according to NAMUR NE 21

### CE conform

## Connection diagram



## Ordering Information

	Catalog No.		
<b>Temperature sensor TSHY (SensyTemp HY R-1E)</b>			
<b>Sensor smooth, without threaded compression fitting</b>			
1 x Pt 100, EN 60751, class A, 3-wire circuit			
Sensor nominal length	N = 100 mm		7963706
	N = 250 mm		7963705
	N = 450 mm		7963704
2 x Pt 100, EN 60751, class B, 2-wire circuit			
Sensor nominal length	N = 100 mm		7963703
	N = 250 mm		7963702
	N = 450 mm		7963701
1 x Pt 100, EN 60751, class A, 3-wire circuit with head mounted transmitter 4...20 mA			
Sensor nominal length	N = 100 mm	Measuring range -10...+40 °C	7958188
	N = 100 mm	Measuring range 0...100 °C	2) 7958189
	N = 100 mm	Measuring range 50...100 °C	2) 7958190
	N = 100 mm	Measuring range 50...150 °C	7958191
	N = 100 mm	Measuring range 70...120 °C	7958192
	N = 100 mm	Measuring range 0...150 °C	7958219
	N = 100 mm	Measuring range 0...200 °C	7958218
	N = 100 mm	Measuring range	1) 7963709
	N = 250 mm	Measuring range	1) 7963708
	N = 450 mm	Measuring range	1) 7963707
<b>Temperature sensor TSHY (SensyTemp HY R-2E)</b>			
<b>Sensor with fixed spherical welded bushing M12 x 1,5</b>			
1 x Pt 100, EN 60751, class A, 3-wire circuit			
Insertion length	U = 20 mm		7963710
	U = 60 mm		7963711
2 x Pt 100, EN 60751, class B, 2-wire circuit			
Insertion length	U = 20 mm		7963714
	U = 60 mm		7963715
1 x Pt 100, EN 60751, class A, 3-wire circuit with head mounted transmitter 4...20 mA			
Insertion length	U = 20 mm	Measuring range	1) 7963712
	U = 60 mm	Measuring range	1) 7963713
<b>Temperature sensor TSHY (SensyTemp HY R-5E)</b>			
<b>Sensor with fixed flange for "inline" mounting</b>			
1 x Pt 100, EN 60751, class A, 3-wire circuit			
Flange for Varivent housing DN 40...125 by Tuchenhausen			
Insertion length	U = 25 mm		7963723
Flange for case DN 40...125 by APV-Rosista			
Insertion length	U = 25 mm		7963724
2 x Pt 100, EN 60751, class B, 2-wire circuit			
Flange for Varivent housing DN 40...125 by Tuchenhausen			
Insertion length	U = 25 mm		7963725
Flange for case DN 40...125 by APV-Rosista			
Insertion length	U = 25 mm		7963726
1 x Pt 100, EN 60751, class A, 3-wire circuit with head mounted transmitter 4...20 mA			
Flange for Varivent housing DN 40...125 by Tuchenhausen			
Insertion length	U = 25 mm	Measuring range	1) 7963727
Flange for case DN 40...125 by APV-Rosista			
Insertion length	U = 25 mm	Measuring range	1) 7963728

1) Measuring range of the head mounted transmitter (clear text)

-10...+40 °C, 0...100 °C, 50...100 °C, 50...150 °C

70...120 °C, 0...150 °C, 0...200 °C

2) Certified for use in milk-heating plants acc. to MVO

Other versions on request

## Ordering Information (continued)

	Catalog No.		
<b>Temperature sensor TSHY (SensyTemp HY R-7E)</b>			
<b>with fixed insertion length and metal-type conical nipple</b>			
1 x Pt 100, EN 60751, class A, 3-wire circuit			
Insertion length U = 50 mm	238380		
U = 100 mm	7958106		
U = 250 mm	7958107		
1 x Pt 100, EN 60751, class A, 3-wire circuit with head mounted transmitter			
Insertion length U = 50 mm      Measuring range 0...100 °C	238376		
U = 50 mm      Measuring range 1)	238374		
U = 100 mm      Measuring range 1)	238375		
U = 250 mm      Measuring range 1)	241664		

<b>Accessories</b>			
	Catalog No.		
<b>Mounting material for the TSHY (SensyTemp HY R-1E) sensor</b>			
Spherical bushing M12 x 1.5, made of 1.4571, clamping ring made of PEEK	7963731		
Spherical bushing M12 x 1.5, made of 1.4571, clamping ring made of VA	7962518		
Weld-on bushing M12 x 1.5, made of 1.4435, clamping ring made of PEEK	239904		
Collar bushing M12 x 1.5, made of 1.4404, clamping ring made of PEEK	240604		
Adjustable threaded compression fitting G 1/4A, made of stainless steel, clamping ring made of VA	7962519		
Thermowell with spherical bushing M12 x 1.5, made of 1.4571, clamp. ring made of VA			
Insertion length U = 50 mm	7963729		
U = 180 mm	7963730		
<b>Mounting material for the TSHY (SensyTemp HY R-7E) sensor</b>			
Weld-in bushing G 1/2 made of 1.4571	7958116		

1) Measuring range of the head mounted transmitter (clear text)

-10...+40 °C, 0...100 °C, 50...100 °C, 50...150 °C











70...120 °C, 0...150 °C, 0...200 °C

Other versions on request





## Our offering:

	Actuators and Positioners		Analytical Instruments
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