

## Data Sheet

# HIGH PRESSURE HOUSING (HPH)

## Magnetostrictive Linear Position Sensors

- Precise position measurement in harsh environments
- Cost-efficient solution for use in hazardous areas
- Easy sensor replacement



## MEASURING TECHNOLOGY

For position measurement, the absolute, linear Temposonics® position sensors make use of the properties offered by the specially designed magnetostrictive waveguide. Inside the sensor a torsional strain pulse is induced in the waveguide by momentary interaction of two magnetic fields. The interaction between these two magnetic fields produces a strain pulse, which is detected by the electronics at the head of the sensor. One field is produced by a moving position magnet, which travels along the sensor rod with the waveguide inside. The other field is generated by a current pulse applied to the waveguide. The position of the moving magnet is determined precisely by measuring the time elapsed between the application of the current pulse and the arrival of the strain pulse at the sensor electronics housing. The result is a reliable position measurement with high accuracy and repeatability.

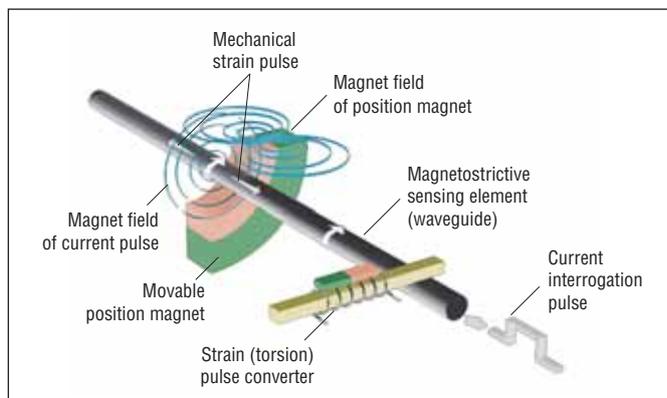


Fig. 1: Time-based magnetostrictive position sensing principle

## HIGH PRESSURE HOUSING (HPH)

This High Pressure Housing (HPH) is ATEX-IECEX as well as UL and cUL approved for use in hazardous areas with Temposonics® position sensors. The ATEX-IECEX, UL and cUL approvals cover flammable gases, vapors, liquids and dust.

This housing is made to fit Temposonics® R- and G-Series sensors and could be used with cable or connector versions.

Several design combinations are available to fit the application:

- M18 or ¾" UNF mounting flange
- M20 or ½" NPT cable gland thread
- Long or short housing, top or side mounted, as well as double side cable mounting



Fig. 2: Typical application: e.g. petrochemical industry

## HPH ROTATION ADAPTER

This adapter allows you to adjust the position of the side opening when the HPH housing is mounted in a cylinder. The adaptor is pressure tested to 600 bar (8400 psi).

- **RTA-M18** with M30x1.5 mounting thread for standard M18 housing thread.
- **RTA-¾" UNF** with 1 ¼" UNF mounting thread for 1 ¾" UNF housing thread.
- **253 961** with 1 ¼" UNF mounting thread for ¾" UNF housing thread.



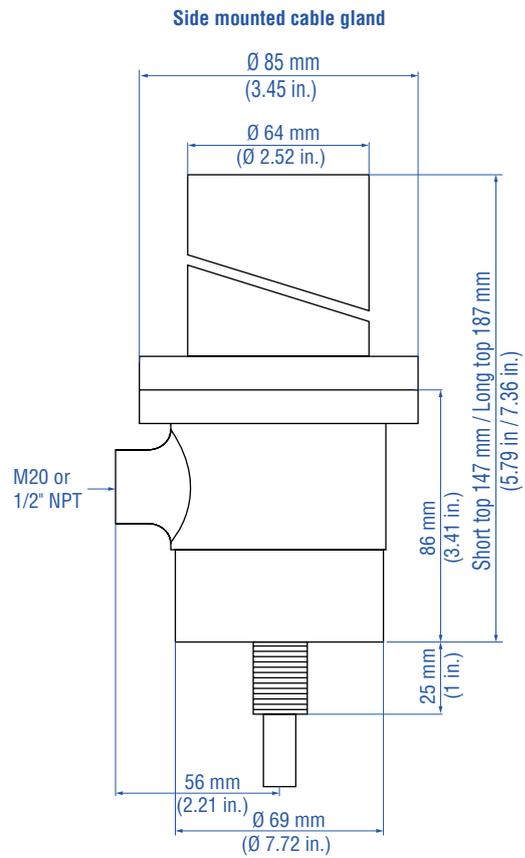
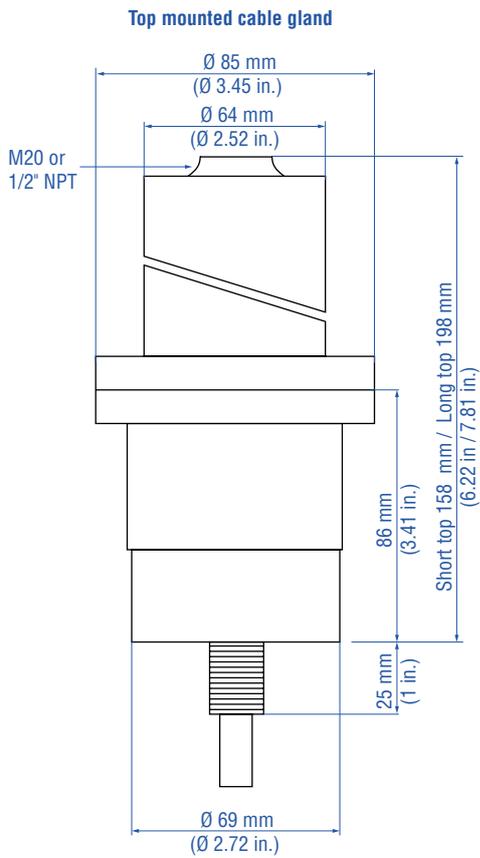
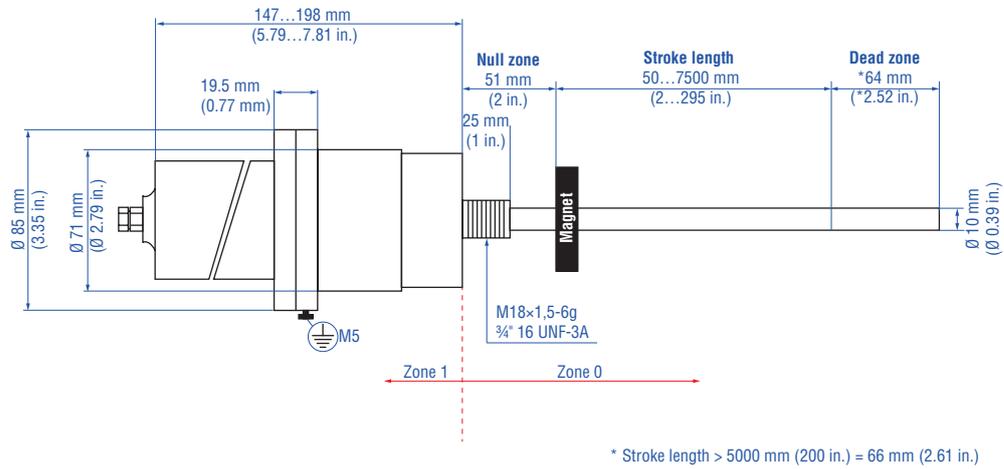
Fig. 3: HPH rotation adapter

## TECHNICAL DATA

Explosion protection	
ATEX, IECEx	TÜV 13 ATEX 121172 X IECEx TUN 13 0011 X  II 1/2 G Ex d IIC T5 Gb  II 1/2 D Ex tb IIIC T100°C Db $T_{amb}$ -40...+75 °C (-40...+167 °F) <sup>1</sup> In accordance with EN 60079-0, EN 60079-1, EN 60079-31 Only with ATEX and IECEx approved cable glands
Classification	
	Class 1, Division 1, Groups A, B, C, and D hazardous areas, temperature class T5 Certified to fire, electrical shock and explosion hazards according to UL no. 2PDO. In accordance with UL 1203 standard. Only with UL approved cable glands
Operating conditions	
Operating temperature <sup>1</sup>	-40...+75 °C (-40...+167 °F)
Humidity	90 % rel. humidity, no condensation
Ingress protection	IP68 (only with IP68 approved cable gland)
Magnet movement velocity	Any
Design/Material	
Sensor rod	Stainless steel 1.4404 (AISI 316L)
Cable gland threads	M20×1.5 or ½" NPT
Stroke length	50...7500 mm (2...295 in.)
Mechanical mounting	
Mounting flange	M18×1.5 or ¾" - 16UNF - 3A
Mounting instructions	Please consult the technical drawings and the operation manual (document no.: 551751)
Approved sensors	
Temposonics® position sensors	G-Series Analog+Digital R-Series Analog R-Series Profibus R-Series CANBUS R-Series SSI R-Series DeviceNet

<sup>1</sup>/T<sub>amb</sub><sup>+</sup> is limited to max T<sub>amb</sub><sup>+</sup> of used sensor -10 °C (-14 °F)

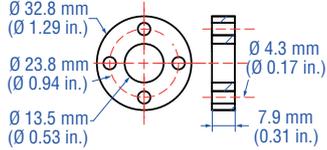
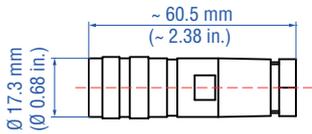
TECHNICAL DRAWING



Controlling design dimensions are always in metric units.  
Unless otherwise stated, apply to the general tolerances according to DIN ISO 2768-m

**ACCESSORIES** (More accessories see  551444)

**Position magnets      Cable connectors**

			
<p><b>Standard ring magnet</b> <b>Part no. 201 542-2</b></p> <p>Material: PA ferrite GF20 Weight: ca. 14 g Operating temperature: -40...+105 °C (-40...+221 °F) Surface pressure: max. 40 N/mm<sup>2</sup> Fastening torque for M4 screws: max. 1 Nm</p>	<p><b>Female, straight, 6 pin</b> <b>Part no. 370 423</b></p> <p>Housing: zinc nickel plated Termination: solder Contact insert: silver plated Cable clamp: PG9 Cable Ø: 6...8 mm (0.24...0.32 in.)</p>	<p><b>Female, straight, 6 pin with 10 m PUR cable</b> <b>Part no. 530 052 / 10 m 530 052</b></p>	

**Spanner tool      Cable glands ATEX**

<p><b>Part no. DIN 1018A AMF 80-90 mm</b></p>	<p><b>M20×1.5</b> <b>Part no. CG-816679</b></p> <p>Type no. ADE1F-4 Material: Stainless steel Cable-Ø: 4...8.5 mm (0.16...0.33 in.)</p>	<p><b>M20×1.5</b> <b>Part no. CG-816609</b></p> <p>Type no. ADE1F-6 Material: Stainless steel Cable-Ø: 8.5...16 mm (0.16...0.63 in.)</p>	<p><b>½" NPT ATEX/CSA US, 180 °C (356 °F) ; Part no. 403 042</b></p> <p>Type no. A3LF/16 1/2 NPT Material: Nickel plated brass Cable-Ø: 4...8.4 mm (0.16...0.33 in.)</p>
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**HPH rotation adapters**

<p><b>For M18, M30×1.5</b> <b>Part no. RTA-M18</b></p>	<p><b>For 3/4" UNF; 1 1/16"</b> <b>Part no. RTA-3/4" UNF-2</b></p>	<p><b>For 3/4" UNF; 1 1/4"</b> <b>Part no. 253 961</b></p>
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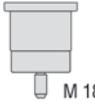
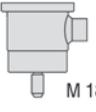
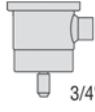
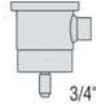
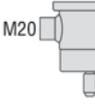
## ORDER CODE

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
H	P	H																
a			b				c				d	e						

<b>a</b>	<b>Housing model</b>
H P H	High Pressure Housing (HPH)

<b>b</b>	<b>Design combination</b>
X X X X	Choose a design combination from the chart below

### Design combination chart

Bottom \ Top	 M 18	 M 20	 3/4" UNF	 3/4" UNF	 M 20
Approval	ATEX-IECEX	ATEX-IECEX	ATEX-IECEX	UL and cUL	ATEX-IECEX
 M 20	0100				
		0900	1000 ATEX	1000 UL/cUL	1300
 M 20	0300				
					2100*

\* upon request

<b>c</b>	<b>Stroke length</b>
X X X X M	50...7500 mm
X X X X U	002.0...295.0 in.

<b>d</b>	<b>Version</b>
A	Approved
N	Non-approved

<b>e</b>	<b>Type of approval for version 1000 (optional)</b>
A T E X	ATEX
U L / c U L	UL/cUL

### Example:

Approved short housing with M18 mounting threads and one side mounted cable gland with M20 threads and a stroke length of 650 mm:

**HPH-0900-0650-A**

## DELIVERY



High Pressure Housing (HPH)

Accessories order separately. To order the basis sensors RH-B-... and GH-B-... please contact our application team Tel. +49 2351-9587-0.

Operation manuals & software are available at:  
**www.temposonics.com**

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