Temposonics®
Magnetostrictive Linear Position Sensors

High Pressure Housing (HPH) Data Sheet

- 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.

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

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.
**TECHNICAL DATA**

### Explosion protection

ATEX, IECEx

<table>
<thead>
<tr>
<th>TÜV 13 ATEX 121172 X</th>
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<tbody>
<tr>
<td>IECEx TÜV 13 0011 X</td>
</tr>
<tr>
<td>II 1/2 G Ex d IIC T5 Gb</td>
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<tr>
<td>IECEx TUN 13 0011 X</td>
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<tr>
<td>II 1/2 D Ex tb IIC T100°C Db</td>
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</table>

\[ T_{\text{amb}} = -40 \ldots +75 \ °C \ (-40 \ldots +167 \ °F) \]

In accordance with EN 60079-0, EN 60079-1, EN 60079-31

Only with ATEX and IECEx approved cable glands

### Classification

UL

- 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. 2PD0.
- In accordance with UL 1203 standard.
- Only with UL approved cable glands

### Operating conditions

**Operating temperature**

\[ -40 \ldots +75 \ °C \ (-40 \ldots +167 \ °F) \]

**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

**Tempsonics® position sensors**

- G-Series Analog+Digital
- R-Series Analog
- R-Series Profinbus
- R-Series CANBUS
- R-Series SSI
- R-Series DeviceNet

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1/ \( T_{\text{amb}} + \) is limited to max \( T_{\text{amb}} + \) of used sensor \(-10 \ °C \ (-14 \ °F)\)
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)

<table>
<thead>
<tr>
<th>Position magnets</th>
<th>Cable connectors</th>
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<tbody>
<tr>
<td><img src="image" alt="Diagram" /></td>
<td><img src="image" alt="Diagram" /></td>
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<table>
<thead>
<tr>
<th>Standard ring magnet</th>
<th>Female, straight, 6 pin</th>
<th>Female, straight, 6 pin with 10 m PUR cable</th>
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<tbody>
<tr>
<td>Part no. 201 542-2</td>
<td>Part no. 370 423</td>
<td>Part no. 530 052 / 10 m 530 052</td>
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</tbody>
</table>

Material: PA ferrite GF20  
Weight: ca. 14 g  
Operating temperature: −40…+105 °C (−40…+221 °F)  
Surface pressure: max. 40 N/mm²  
Fastening torque for M4 screws: max. 1 Nm

<table>
<thead>
<tr>
<th>Spanner tool</th>
<th>Cable glands ATEX</th>
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<tr>
<td><img src="image" alt="Diagram" /></td>
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<tr>
<th>Part no. DIN 1018A AMF 80-90 mm</th>
<th>M20×1.5</th>
<th>M20×1.5</th>
<th>1/2” NPT ATEX/CSA US, 180 °C (356 °F) ; Part no. 403 042</th>
</tr>
</thead>
</table>
| Part no. CG-816679              | Type no. ADE1F-4  
Material: Stainless steel  
Cable-Ø: 4…8.5 mm (0.16…0.33 in.) | Type no. ADE1F-6  
Material: Stainless steel  
Cable-Ø: 8.5…16 mm (0.16…0.63 in.) | Type no. A3LF/16 1/2 NPT  
Material: Nickel plated brass  
Cable-Ø: 4…8.4 mm (0.16…0.33 in.) |

<table>
<thead>
<tr>
<th>HPH rotation adapters</th>
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</table>
| For M18, M30×1.5 | For 3/4” UNF; 1 1/16”  
Part no. RTA-M18  
Part no. RTA-3/4” UNF-2 | For 3/4” UNF; 1 ¼”  
Part no. 253 961 |

Controlling design dimensions are always in metric units
ORDER CODE

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a **Housing model**

H P H High Pressure Housing (HPH)

b **Design combination**

Choose a design combination from the chart below

**Design combination chart**

<table>
<thead>
<tr>
<th>Top</th>
<th>Bottom</th>
<th>Approval</th>
<th>ATEX-IECEx</th>
<th>ATEX-IECEx</th>
<th>ATEX-IECEx</th>
<th>UL and cUL</th>
<th>ATEX-IECEx</th>
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<tbody>
<tr>
<td>M 20</td>
<td>M 18</td>
<td>M 20</td>
<td>0100</td>
<td>0900</td>
<td>0300</td>
<td>0300</td>
<td>2100*</td>
</tr>
<tr>
<td>M 20</td>
<td>M 18</td>
<td>M 20</td>
<td>1000 ATEX</td>
<td>1000 UL/cUL</td>
<td>1300</td>
<td>1300</td>
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* upon request

c **Stroke length**

X X X X M 50...7500 mm
X X X X U 002.0...295.0 in.

d **Version**

A Approved
N Non-approved

e **Type of approval for version 1000 (optional)**

ATEX
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**

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.mlssensors.com