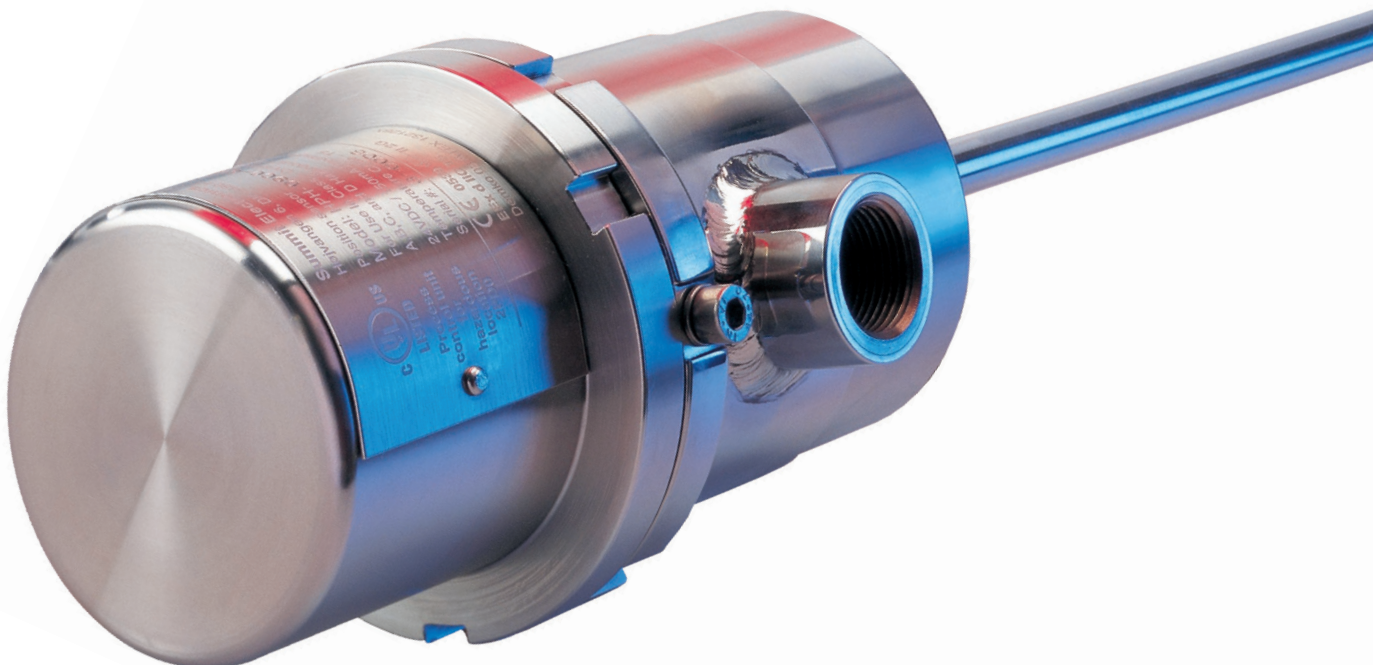


Temposonics®

Magnetostrictive Linear Position Sensors

OPERATION MANUAL
High Pressure Housing (HPH)



ATEX



PRECISION POSITION MEASUREMENT – HPH

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

This housing is made to fit Temposonics® G-Series Analog + Start/Stop Sensors and R-Series sensors with analogue and digital outputs.

Both fixed cable and connector versions can be used. When using a standard sensor in this housing you get a cost efficient solution for use in hazardous locations which also allows easy sensor replacement.

Several design combinations are available to fit your application:

M18 or ¾"UNF mounting flange - M20 or ½" NPT cable gland thread - top mounted or single/dual side-mounted. See combination chart. All parts are made of 316L stainless steel. The housing is also available in non-approved versions ensuring an outstanding protection to the sensor when used in rigged applications with high humidity and aggressive gases.

Safety Instructions

The sensor must only be used according to the EX-certificate no. Demko 07 ATEX 142619X or UL listing no. 2PD0 See product name plate for actual approvals.

To reduce risk of ignition in hazardous atmospheres, disconnect the equipment from the supply circuit before opening. Keep assembly tightly closed when in operation.



For use according to UL-listing, conduit seals must be installed within 18" of the inclosure. Must be connected to a Class 2 power supply. The housing parts must be kept as one unit.

They are not interchangeable with parts from similar housings.

Only tools applicable for use in explosive atmosphere must be used. When mounting the rod in "ZONE 0" it is necessary to prevent any leakage between "ZONE 0" and the surrounding environment.

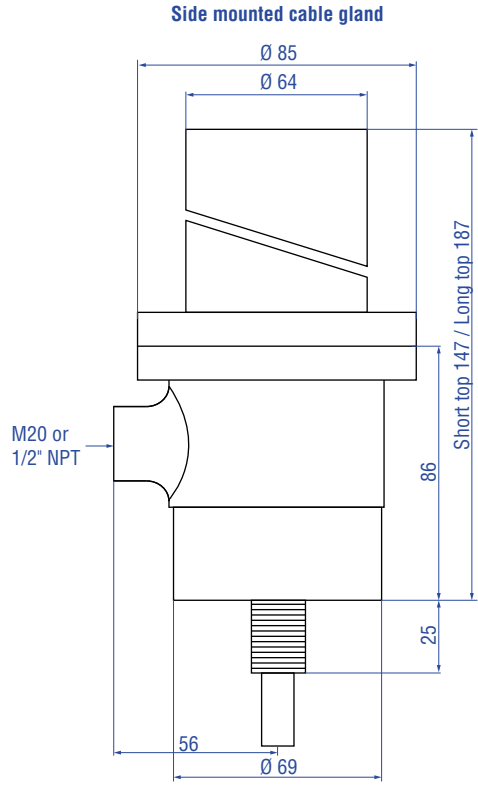
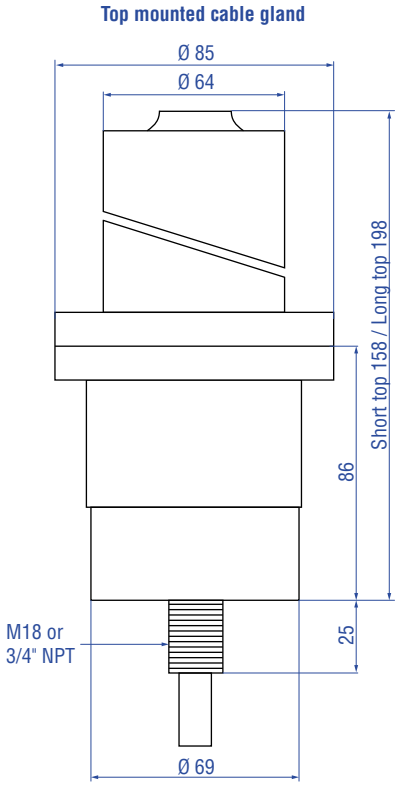
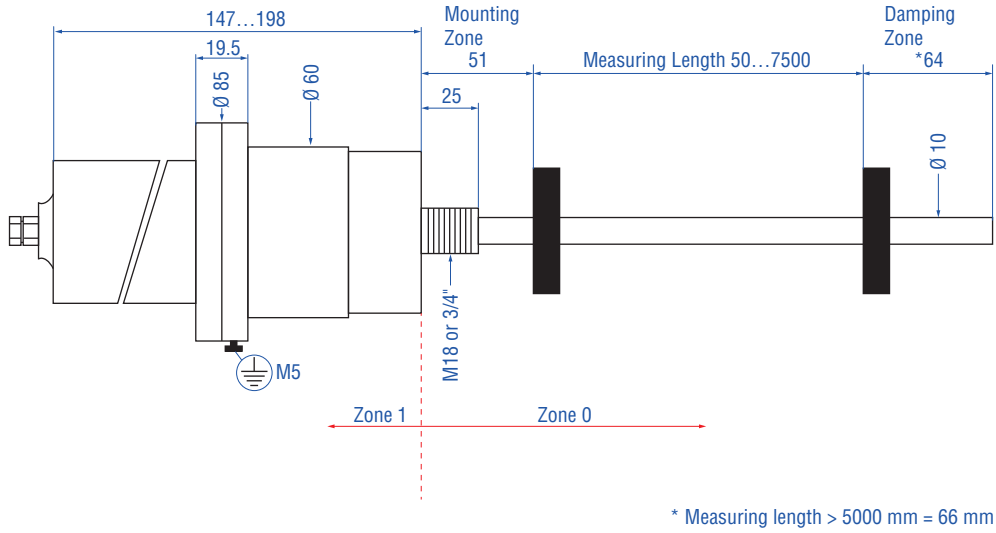
The sensor house must be connected to an equipotential bonding system or an earthing system.

TECHNICAL DATA

ATEX, IECEX	 IECEX TUN 13 0011 X II ½ G Ex d IIC T5 Gb Tamb -40 °C to +75 °C ⁽¹⁾ II ½ D Ex tb IIIC T100C Db In accordance with IEC 60079-0:2011, IEC 60079-1:2007, IEC 60079-26:2006, IEC 60079-31, EN 60079-0:2009, EN 60079-1:2007, EN 60079-26:2007, EN 60079-31:2009 Only with ATEX and IECEX approved cable glands
	Class 1, Division 1, Groups A, B, C, and D hazardous locations, temperatur code T5 As to fire, electrical shock and explosion hazards only UL certificated no. 2PD0. In accordance with UL 1203 standard. Only with UL approved cable glands
Material	Stainless steel AISI 316L (1.4404)
Cable gland threads	M20 × 1.5 or ½" NPT
Ingress protection code	IP68 (only with IP68 approved cable gland)
Approved sensors	G-Series Analog+Digital R-Series Analog R-Series Profibus R-Series CANBUS R-Series SSI R-Series DeviceNet
Mounting flange	M18 × 1,5 or ¾" - 16UNF - 3A
Pressure rating	350 bar
Peak pressure	530 bar
Magnet type	Ring magnets
Level Measurement	Float on request
Operating temperature	-40...+75 °C ⁽¹⁾

2/ T_{amb+} is limited to max T_{amb+} of used sensor -10°C

TECHNICAL DRAWING



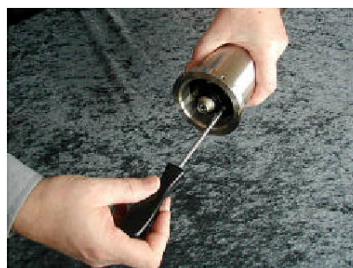
All dimensions in mm

MOUNTING DISCRPTION

1. Open the housing by turning the top counter clockwise. When opening after a sensor is installed, it is very important to completely loosen the cable gland in order to protect the cable against twisting and physical damage. The normal way is that the sensor and the HPH housing are in one order and then MTS Sensors supply the sensor mounted in the WPH housing. Go to step 7.

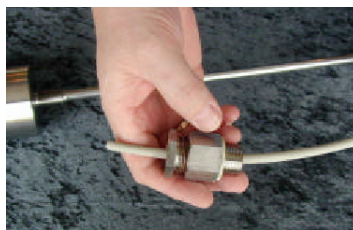


2. Remove rod or profile from the sensor. Separate the plastic tube from the sensor.

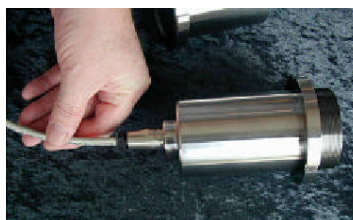


3. **Cable gland**

- 3.1 Insert the cable through the gland



- 3.2 Insert the connector through the top.



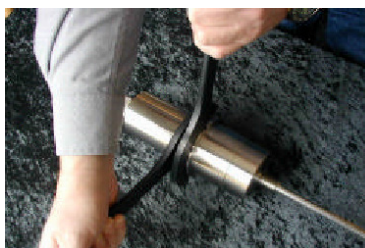
- 3.3 Connect to the sensor and insert a bag of Desiccant in the top.



3.4 Assemble the top and bottom turning clockwise.



3.5 Tighten firmly until the top and bottom flanges come together.



3.6 Tighten cable gland according to the manufacturer's specifications.

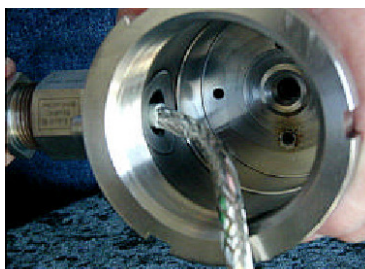


4. Side mounted cable gland(s)

4.1 Enter the cable through the gland without tightening.



4.2 For cable sizes larger than 7mm or very rigid cables, you may need to remove the outer insulation jacket from inside the cable gland to the connector



- 4.3** Insert and fasten the sensor.



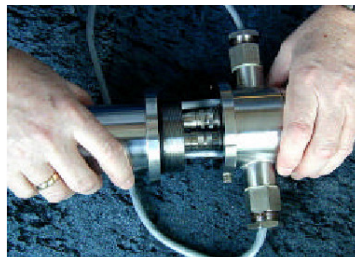
- 4.4** Make the connections.



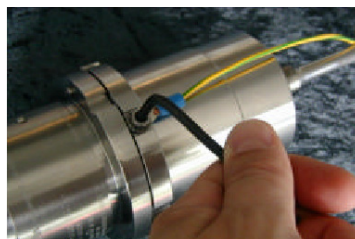
- 4.5** Insert a bag of Desiccant in the top.



- 4.6** Assemble the top and bottom turning clockwise and tighten firmly until top and bottom flanges come together. (see fig. 11) Tighten the cable glands according to manufacturer's specifications.



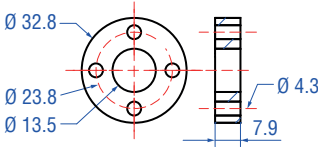
- 5.** Mount the grounding cable.



- 6.** Tighten the lock screw with min. 1.5 Nm torque.



ACCESSORIES

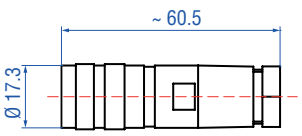
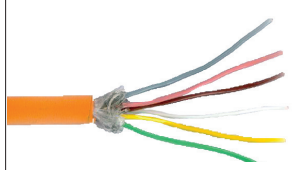
Position magnet ⁴		Cable glands ATEX	
			
Ring magnet OD33 Part no. 201 542-2	M20 × 1,5 Part no. CG-816679	M20 × 1,5 Part no. CG-816609	½" NPT cable gland ATEX/CSA US, 180 °C; Part no. 403 042
Material: PA ferrite GF20 Weight: ca. 14 g Operating temperature: -40...+100 °C Surface pressure: max. 40 N/mm ² Fastening torque for M4 screws: max. 1 Nm	Type no. ADE1F-4 Material: stainless steel Cable Ø: 4...8,5 mm	Type no. ADE1F-6 Material: stainless steel Cable Ø: 8.5...16 mm	Type no. A3LF/16 ½ NPT Material: nickel plated brass Cable Ø: 4...8.4 mm

Spanner tool
Part no. DIN 1018A AMF 80-90 mm

HPH rotation adapters

For M18, M30×1,5 Part no. RTA-M18	For ¾" UNF; 1 1/16 Part no. RTA-¾" UNF-2	For ¾" UNF; 1 ¼" Part no. 253 961
--	---	--

Cable connectors

	
Female, straight, 6 pin Part no. 370 423	Female, straight, 6 pin with 10 m PUR cable Part no. MTS-A-370423-1000-530052
Housing: zinc nickel plated Termination: solder Contact insert: silver plated Cable clamp: PG9 Cable Ø: 6...8 mm	

See document "551 444" for further accessories.

Document Part Number:
551612 Revision A (EU.EN) 07/2014

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ISO 9001
CERTIFIED

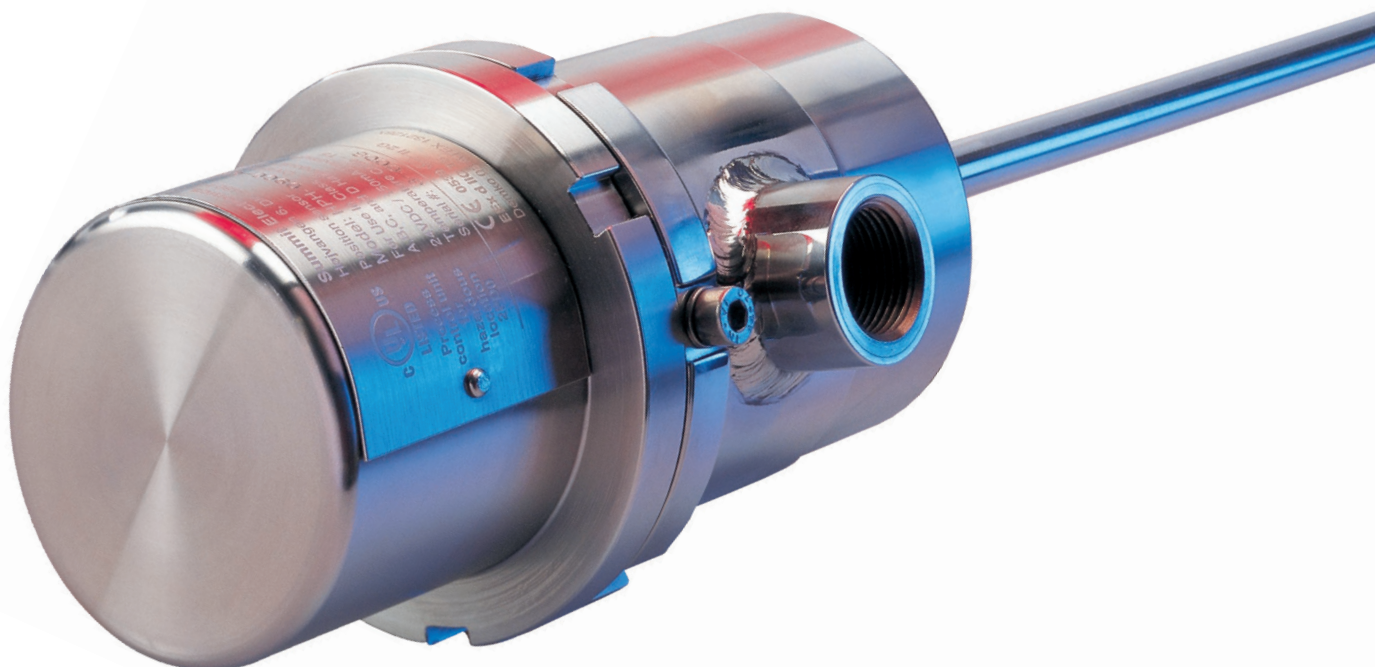


Temposonics®

Magnetostriktive lineare Positionssensoren

BETRIEBSANLEITUNG

High Pressure Housing (HPH)



ATEX





PRÄZISE POSITIONSMESSUNG IM DRUCKFESTEN GEHÄUSE

Das High Pressure Housing (Druckfestes Gehäuse) ist **ATEX EEx**, sowie **UL und cUL zugelassen** für die Nutzung von Temposonics Positionssensoren in **explosionsgefährdeten Bereichen**.

Die ATEX, UL und cUL Zulassungen beeinhalt leicht entflammbare Gase, Dämpfe und Flüssigkeiten.

Dieses Gehäuse wurde passend für die Temposonics® R-Serie und G-Serie Sensoren mit Analog und Digitalausgang entwickelt. Beide Versionen, Kabel- und Stecker, können verwendet werden. Durch die Nutzung eines Standardsensors im HPH- Gehäuse können Temposonics® Sensoren kostengünstig in gefährlichen Bereichen eingesetzt werden und bietet Ihnen den Vorteil eines einfachen Sensoraustausches.

TECHNISCHE DATEN

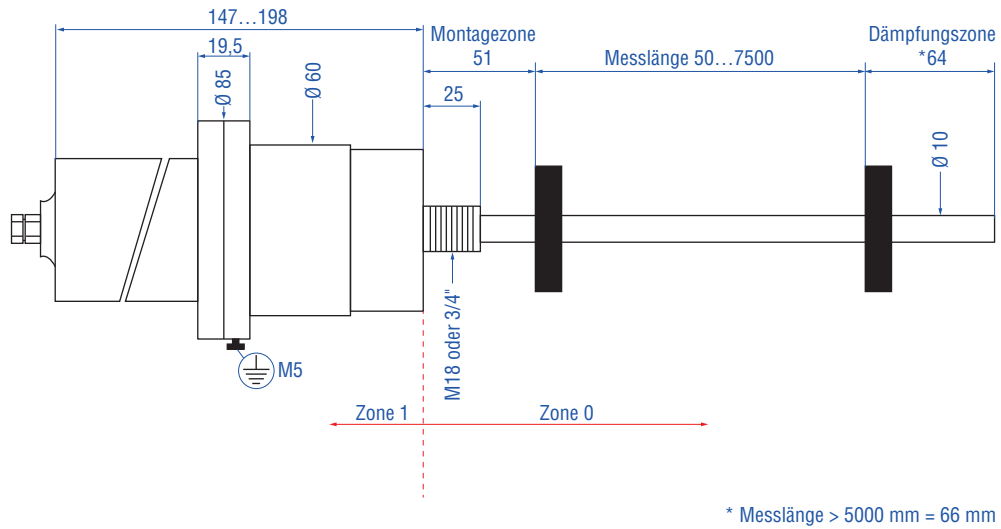
ATEX, IECEx	 IECEx TUN 13 0011 X II 1/2 G Ex d IIC T5 Gb Tamb -40°...+75 °C ⁽¹⁾ II 1/2 D Ex tb IIIC T100C Db In Übereinstimmung mit IEC 60079-0:2011, IEC 60079-1:2007, IEC 60079-26:2006, IEC 60079-31, EN 60079-0:2009, EN 60079-1:2007, EN 60079-26:2007, EN 60079-31:2009 Nur ATEX und IECEx zugelassene Kabelverschraubung verwenden.
	Klasse 1, Bereich 1, Gruppen A, B, C, und D explosionsgefährdete Bereiche, Temperaturklasse T5 Offene Flamme, elektrischer Schock und Explosionsrisiken nach UL zertifiziert Nr. 2PDO. In Übereinstimmung mit UL 1203 Standard. Nur UL zugelassene Kabelverschraubung verwenden.
Material	Edelstahl AISI 316L (1.4404)
Kabelverschraubung	M20 × 1,5 oder ½" NPT
Schutzart	IP68 (nur mit IP68 zugelassener Kabelverschraubung)
Zugelassene Sensoren	G-Series Analog + Digital R-Series Analog R-Series Profibus R-Series CANbus R-Series SSI R-Series DeviceNet
Flanschbefestigung	M18 × 1,5 oder ¾" - 16UNF - 3A
Betriebsdruck	350 bar
Spitzendruck	530 bar
Magnet Typ	Ringmagnet
Niveaumessung	Schwimmer auf Anfrage
Betriebstemperatur	-40...+75 °C ⁽¹⁾

Instandhaltung & Service

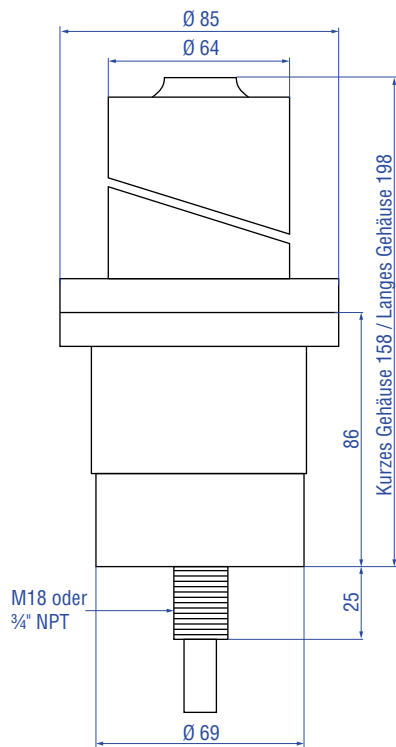
Das Gehäuse ist wartungsfrei. Falls der eingebaute Sensor defekt ist, öffnen Sie das Gehäuse und entfernen den Sensor. Schließen Sie anschließend das Gehäuse entsprechend der Montageanleitung in dieser Betriebsanleitung. Ersetzen Sie nur zugelassene Sensoren wie oben aufgeführt.

¹/T_{amb}⁺ ist begrenzt die maximale T_{amb}⁺ des verwendeten Sensors -10 °C

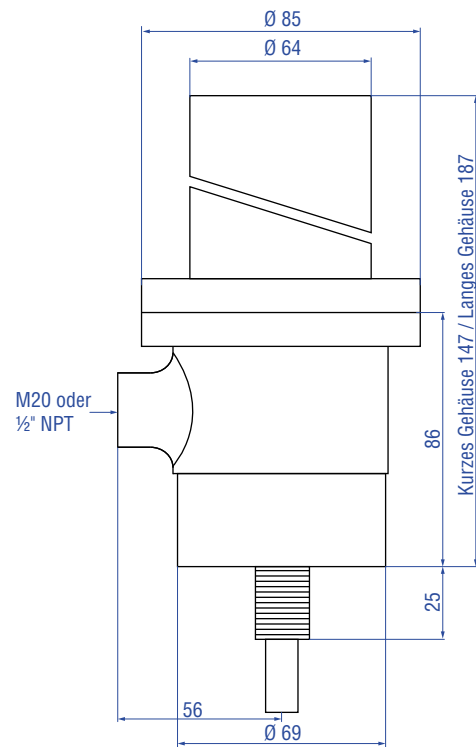
TECHNISCHE ZEICHNUNG



Aufsatz mit Kabelverschraubung im Kopf



Boden mit seitlicher Kabelverschraubung



Alle Maße in mm

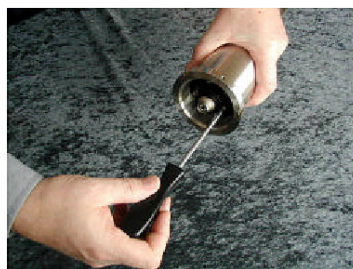
MONTAGEANLEITUNG

Öffnen Sie das Gehäuse, indem Sie den Deckel des Gehäuses im Uhrzeigersinn drehen. Beim HPH-Gehäuse mit montiertem Kabel ist vor dem Öffnen des Gehäuse die Kabelverschraubung zu lockern. So wird das Kabel vor dem Verdrehen und Sachschäden geschützt.

1. Normalerweise wird das HPH-Gehäuse zusammen mit dem Sensor geliefert. Der Sensor wird von MTS Sensors in das HPH-Gehäuse eingebaut.

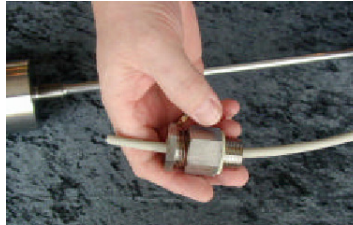


2. Um den Anschluss zu erleichtern kann der Basissensor, nach dem Lösen der zwei Befestigungsschrauben, aus dem HPH-Gehäuse gezogen werden.

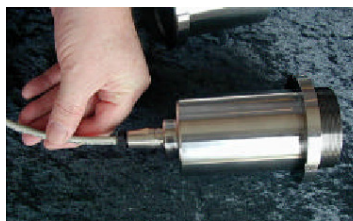


3. **Kabelverschraubung am Gehäusekopf**

- 3.1 Ziehen Sie die Flachdichtung und dann das Kabel durch die Kabelverschraubung.



- 3.2 Schließen Sie den Kabelanschluss an den Kopf des Gehäuses an.



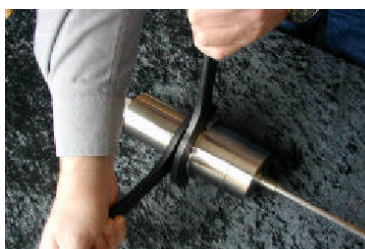
- 3.3 Schließen Sie den Sensor an und geben Sie einen Beutel Trockenmittel mit in das Gehäuse.



-
- 3.4** Fügen Sie beide Gehäuseteile durch Drehen des oberen Gehäuseteils zusammen.



-
- 3.5** Ziehen Sie beide Teile mit den Hakenschlüsseln fest an.



-
- 3.6** Ziehen Sie die Kabelverschraubung nach Angaben des Herstellers an. Weitere Information siehe Anhang.

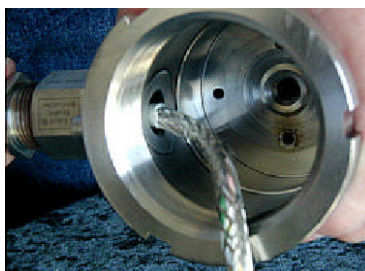


4. Seitliche Kabelverschraubungen

-
- 4.1** Führen sie die Kabel durch die Kabelverschraubung ohne Sie festzuziehen.



-
- 4.2** Bei einem Kabel dessen Durchmesser dicker als 7 mm oder das sehr unbiegsam ist, muss die Kabelummantelung zwischen der Kabelverschraubung und den Kabelausgängen entfernt werden.



- 4.3 Setzen Sie den Sensor ein und befestigen ihn.



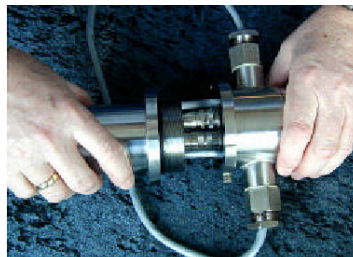
- 4.4 Schließen Sie die Kabelausgänge an.



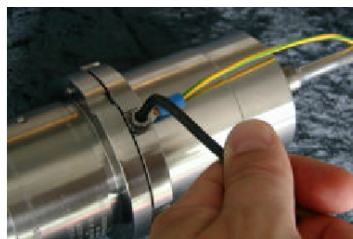
- 4.5 Den Gehäusekopf mit einem Beutel Trockenmittel füllen.



- 4.6 Schrauben Sie die beiden Gehäuseteile im Uhrzeigersinn zusammen und ziehen Sie sie unterhalb des Flansches fest an.
Ziehen Sie die Kabelverschraubung nach Angaben des Herstellers an.



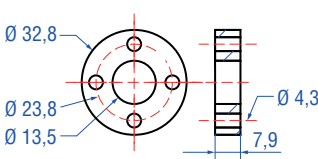
5. Montieren Sie das Erdungskabel.



6. Ziehen Sie die Sicherheitsschraube mit einem Drehmoment von min. 1,5 Nm an.

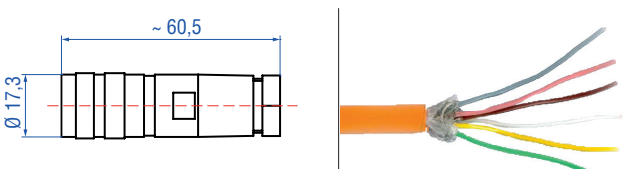


ZUBEHÖR

Positionsmagnet ⁴		Kabelverschraubung ATEX	
			
Ringmagnet OD33 Artikelnr. 201 542-2 Material: PA ferrite GF20 Gewicht: ca. 14 g Betriebstemperatur: -40...+100 °C Flächenpressung: max. 40 N/mm ² Anzugsmoment für M4 Schrauben: max. 1 Nm	M20 × 1,5 Artikelnr. CG-816679 Typ Nr. ADE1F-4 Kabel Ø: 4...8,5 mm Material: Edelstahl	M20 × 1,5 Artikelnr. CG-816609 Typ Nr. ADE1F-6 Kabel Ø: 8,5...16 mm Material: Edelstahl	1/2" NPT cable gland ATEX/CSA US, 180 °C; Artikelnr. 403 042 Typ Nr. A3LF/16 ½ NPT Kabel Ø: 4...8,4 mm Material: vernickeltes Messing

Hakenschlüssel
 Artikelnr. DIN 1018A AMF 80-90 mm

HPH Drehadapter		
Für M18, M30×1,5 Artikelnr. RTA-M18	Für ¾" UNF; 1 1/16 Artikelnr. RTA-¾" UNF-2	Für ¾" UNF; 1 ¼" Artikelnr. 253 961

Kabeldosen	
	
6-polige Kabeldose, gerade Artikelnr. 370 423 Gehäuse: Zink vernickelt Anschlussart: löten Kontakteinsatz: Buchsen (Ag) Kabelklemme: PG9 Kabel Ø: 6...8 mm	6-polige Kabeldose, gerade 10 m PUR Kabel Artikelnr. MTS-A-370423-1000-530052

Für weiteres Zubehör finden Sie in unserer Zubehörbroschüre (551 444).

Dokumentennummer:

551612 Revision A (DE) 07/2014

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RECHTLICHE HINWEISE

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ISO 9001
CERTIFIED



Reg.-No. 003095-011

Translation

(1) **EC-Type-Examination Certificate**

(2) Equipment and protective systems intended for use in potentially explosive atmospheres, **Directive 94/9/EC**



(3) **Certificate Number** TÜV 13 ATEX 121172 X

(4) for the equipment: High Pressure Housing for Magnetic Position Sensor

(5) of the manufacturer: **Summit Electronics ApS**

(6) Address: Stamholmen 147, 2950 Hvidovre, Denmark

Order number: 8000420799

Date of issue: 2014-03-07

(7) The design of this equipment or protective system and any acceptable variation thereto are specified in the schedule to this EC-Type-Examination Certificate and the documents therein referred to.

(8) The TÜV NORD CERT GmbH, notified body No. 0044 in accordance with Article 9 of the Council Directive of the EC of March 23, 1994 (94/9/EC), certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive. The examination and test results are recorded in the confidential report No. 14 203 121172.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0:2012


EN 60079-1:2007

EN 60079-31:2009

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

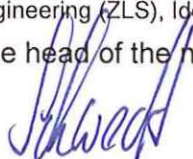
(11) This EC-type-examination certificate relates only to the design, examination and tests of the specified equipment in accordance to the Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.

(12) The marking of the equipment or protective system must include the following:

 II 1/2 G Ex d IIC T5 Gb
II 1/2 D Ex tb IIIC T100°C Db

TÜV NORD CERT GmbH, Langemarckstraße 20, 45141 Essen, notified by the central office of the countries for safety engineering (ZLS), Ident. Nr. 0044, legal successor of the TÜV NORD CERT GmbH & Co. KG Ident. Nr. 0032

The head of the notified body



Schwedt

Hannover office, Am TÜV 1, 30519 Hannover, Phone +49 (0)511 986 1455, Fax +49 (0)511 986 1590

(13) **SCHEDULE**

(14) **EC-Type-Examination Certificate No. TÜV 13 ATEX 121172 X**

(15) Description of equipment

The High Pressure Housing is designed for use with a Magnetic Position Sensor. The flameproof enclosure is designed in AISI 316L or 304 Stainless Steel, with a probe which can be placed in Zone 0/20.

Type key:

HPH – abc – efgh – i – s – ATEX (optional)

abcd: Reference to the types stated in table below

efgh: Measuring length – up to 9 meters

i: Approved or Non-approved version

s: S=304 (stainless steel) or "blank"= 316L

Type: abcd	Mounting flange thread/fits	Cable thread top/side thread	Short/long size
0100	M18	Top M20	158 mm / -
0300	M18	Top M20	- / 198 mm
0600	3/4" UNF	Top M20	158 mm / -
0800	3/4" UNF	Top M20	- / 198 mm
0900	M18	Side M20	147 mm / -
0920	M18	Side M20	120mm/-
0950	M18	Side M20	110 mm / -
1000	3/4" UNF	Side 1/2" NPT	147 mm / -
1300	M18	2 sides M20	147 mm / -
1700	M18	Side M20	- / 198 mm
2100	M18	2 sides M20	- / 198 mm
2600	M18	Side M20	- / 198 mm
3000	Fits Ø25 f7	2 on 1 side M20	120 mm / -
3100	Fits Ø25 f7	2 sides M20	120 mm / -
3200	M18	2 on 1 side M20	120 mm / -
3300	M18	2 sides M20	120 mm / -
3400	Fits Ø25 f7	2 sides 3 M20	120 mm / -
3500	M18	2 sides 3 M20	120 mm / -
4040	M45X2	2 sides 3 M20	120mm/-
4300	M45X2	2 sides M20	147mm/-
4320	M45X2	2 sides M20	120mm/-
4330	M45X2	2 on 1 side M20	120mm/-

Schedule EC-Type Examination Certificate No. TÜV 13 ATEX 121172 X

4900	M45X2	Side M20	147mm/-
4920	M45X2	Side M20	120mm/-
5030	M24X1,5	2 on 1 side M20	120 mm / -
5040	M24X1,5	2 sides 3 M20	120mm/-
5300	M24X1,5	2 sides M20	147mm/-
5320	M24X1,5	2 sides M20	120 mm / -
5900	M24X1,5	1 side M20	147 mm / -
5920	M24X1,5	1 side M20	120mm/-

Technical data:

Can be mounted with any Temposonics Transducers with ratings kept within:

Max 24 Vdc

Max 150 mA

Max 3,6 W

Permissible range of ambient temperature:

-40°C to +75°C

(16) Test documents are listed in the test report No. 14 203 121172

(17) Special conditions for safe use

- Ambient temperatures are -40 °C to +75 °C

- Only suitable certified cable glands may be used.

- Routine Overpressure tests according to EN 60079-1:2007 shall be performed with a minimum overpressure of 29 bar

- For ambient temperatures below -10 °C use field wiring cable suitable for both minimum and maximum ambient temperatures.

- May in addition be marked T3

- When used in Dust environment, end-user must ensure overcurrent protection rated less than 250 mA according to cl. 4.2.1.2 of IEC 60079-31

(18) Essential Health and Safety Requirements

no additional ones



IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: **IECEx TUN 13.0011X** issue No.: **0** Certificate history:

Status: **Current**

Date of Issue: **2014-07-09** Page 1 of 3

Applicant: **SUMMIT Electronics ApS**
Stamholmen 147
2650 Hvidovre
Denmark

Electrical Apparatus: **High Pressure Housing for Magnetic Position Sensor**
Optional accessory:

Type of Protection: **Flameproof enclosure and Protection by enclosure**

Marking: **Ex db IIC T5 Gb**
Ex td IIIC T100°C Db

Approved for issue on behalf of the IECEx
Certification Body:

Karl-Heinz Schwedt

Position:

Head of the IECEx Certified Body

Signature:
(for printed version)

Date:

2014-07-09

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the [Official IECEx Website](http://www.iecex.com).

Certificate issued by:

TÜV NORD CERT GmbH
Hanover Office
Am TÜV 1
30519 Hannover
Germany





IECEX Certificate of Conformity

Certificate No.: IECEX TUN 13.0011X

Date of Issue: 2014-07-09

Issue No.: 0

Page 2 of 3

Manufacturer: **Summit Electronics ApS**
Stamholmen 147
2650 Hvidovre
Denmark

Additional Manufacturing location
(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEX Quality system requirements. This certificate is granted subject to the conditions as set out in IECEX Scheme Rules, IECEX 02 and Operational Documents as amended.

STANDARDS:

The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2011 Edition: 6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-1 : 2007-04 Edition: 6	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
IEC 60079-31 : 2008 Edition: 1	Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure 't'

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:
DE/TUN/ExTR13.0015/00

Quality Assessment Report:

DE/TUN/QAR11.0005/00

DE/TUN/QAR11.0005/01



IECEx Certificate of Conformity

Certificate No.: IECEx TUN 13.0011X

Date of Issue: 2014-07-09

Issue No.: 0

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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

High Pressure Housing for Magnetic Position Sensors.

The High Pressure Housing is designed for use with a Magnetic Position Sensor, Model HPH-abcd-efgh-i-s. The enclosure is designed in AISI 316L or 304 Stainless steel, with a probe which can be placed in Category 1

CONDITIONS OF CERTIFICATION: YES as shown below:

- Ambient temperatures are -40 °C to +75 °C
- Only suitable certified cable glands may be used
- Routine Overpressure tests according to EN 60079-1:2007 shall be performed with a minimum overpressure of 29 bar
- For ambient temperatures below -10 °C use field wiring cable suitable for both minimum and maximum ambient temperatures.
- May in addition be marked T3
- When used in Dust environment, end-user must ensure overcurrent protection rated less than 250 mA according to cl. 4.2.1.2 of IEC 60079-31