



Operating Manual Microwave Position Measuring System 500 mm V3.0



Classification	Open
Category	MP21
Area of responsibility	Administration
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Document history

Version	Date	Author	Changes
V1.0	28.09.2021	Sebastian Lüttich	Initial version Astyx MPS
V2.0	20.10.2022	Sebastian Lüttich	Changes see marking [1]
V3.0	17.01.2025	Sebastian Lüttich	New IZ drawings and glands on the FPH

Company history

The company Astyx GmbH has been sold February 2021 to GM Cruise. The microwave positioning sensor division has been carved out from Astyx GmbH and all products and services are now being provided by Astyx MPS GmbH in Germany and Verve Satcom Inc., our subsidiary in the United States.



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1. Introduction

The purpose of this document is the safe installation, commissioning, and maintenance of the Microwave Position Measuring System (MPMS) according to DIN EN 60079-0 Explosionsfähige Atmosphäre – Teil 0: Geräte - Allgemeine Anforderungen .

Failure to observe the following instructions as well as any improper intervention in the apparatus terminates all liability of the manufacturer. It also terminates the warranty on the apparatus and any accessories.

Observe all instructions in this operating manual as well as operating conditions and allowed data stated in the data sheets and certificates.

The MPMS may only be mounted and dismounted by specifically trained and experienced personnel. The manufacturer is to be contacted with any questions or in case of any ambiguity.

The explanations, information, and data in this operating manual are depicted as clearly as possible. The publisher of this operating manual is not liable for any damage caused by improper handling, installation, operation, maintenance, or repair.

There cannot be any guarantee that the same performance will be achieved as described in this operating manual, since the manufacturer has no control over the deployment of the systems. It is the responsibility of each user to assess whether the system is appropriate under the given operating conditions.

This operating manual is the property of the manufacturer. Creating copies of this operating manual or passing it to third parties is prohibited without written approval by the manufacturer.

2. System Description

The Microwave Position Measuring System (MPMS) determines the position of a piston within a cylinder which is filled with air or nitrogen on the side of the measurement.

The system consists of two components: an antenna sub-assembly and an Evaluation Box sub-assembly.

The antenna sub-assembly is mounted inside of the air or nitrogen filled cylinder in a cavity in the end-cap.

The Evaluation Box is installed in a flame proof housing (FPH) which is mounted on the outside of the cylinder. The FPH consists of an Ex d and an Ex e housing, both robust against hostile environments. These two housings are firmly connected to each other.

A reflector plate is mounted on the piston to increase the accuracy of the measurement and minimize the susceptibility to interference by small quantities of hydraulic fluid.

During operation the Evaluation Box transmits a very low energy high frequency signal to the antenna. The antenna transmits this signal to the reflector plate and the reflector plate reflects the signal back to the antenna. Subsequently the signal is forwarded from the antenna to the evaluation unit and analyzed. Depending on the distance between piston and antenna the value of the signal varies. The evaluation unit calculates an actual distance from the end cap to the piston of the cylinder. This information is transmitted to the customer interface.



The MPMS requires calibration (See Paragraph 8 Calibration). This is the only way to guarantee the specified performance. A „Certificate of Calibration“ can be issued for each successfully calibrated system. Any changes in the hardware of the MPMS require a new calibration.

3. Explosion Protection

The antenna sub-assembly is deployable in:

- See chapter 15 and 16.

The Evaluation Box sub-assembly is deployable in:

- See chapter 15 and 17.

4. Safety Measures

The MPMS is applicable for operation in areas with gas explosion risk of „Zone 1“ for the antenna sub-assembly and „Zone 1“ for the Evaluation Box sub-assembly conforming to EN-IEC 60079-10-1 Explosionsfähige Atmosphäre – Teil 10-1: Einteilung der Bereiche – Gasexplosionsgefährdete Bereiche.

The MPMS is not designed for environments exposed to X-rays or radioactive radiation.



5. Apparatus

Antenna Sub-assembly

Subject	Microwave sensor MPMS antenna sub-assembly diameter 500 mm Atex Zone 1 / Astyx MPS Project Nr. 7065
Manufacturer	ASTYX MPS GmbH, Caroline-Herschelstrasse 4, 82251 Ottobrunn, Germany
Basis for standards	Directive 2014/34/EU
Datasheet	see Chapter 15
EC Type Examination Certificate	see Chapter 16
Dimensions	D x H = Ø130 mm x 183 mm (without cable)
Material	Stainless steel AISI 316 / 1.4401
Temperature	Suitable for –20 to +65 degree Celsius ambient temperatures



Evaluation Box Sub-assembly

Applicable to complete enclosure assembly TNCD Ex d + TNCC Ex e

Subject	Microwave sensor MPMS Evaluation box sub-assembly diameter 500 mm Atex Zone 1 / Astyx MPS Project Nr. 7065
Manufacturer	Bartec GmbH, Max-Eyth-Straße 16, 97980 Bad Mergentheim, Germany
Type	AST 282815
Certificate	see Chapter 17
Datasheet / specification	see Chapter 15
Declaration of conformity	see Chapter 17
Enclosure assembly	Explosion-proof enclosure assembly consisting of flameproof 'd' compartment attached to an increased safe 'e' connection terminal compartment.
Dimensions	H x W x D = 470 x 280 x 270 mm
Material	Stainless steel AISI 316L
Containment	Ex d compartment with EMV box for electronics PCB and some interconnection terminals. Ex e compartment with interconnection terminals and customer interface connections.
Voltage	24 VDC
Typical Power	typ. maximum 9 Watt, absolute maximum 12 W
Ingress protection	IP 66
Temperature	Suitable for -20 to +40 degree Celsius (ambient temperatures)
Connection diagram	IZ 7065 2002 D for the "Profibus" version

6. Commissioning

The commissioning of the antenna is performed by the MPMS-manufacturer at the MPMS-manufacturer's facility.

The commissioning of the Evaluation Box is performed by the MPMS-manufacturer when the system is installed at the cylinder manufacturer.



7. Installation

The respective Ex-regulations have to be observed during installation, maintenance or repair; particularly EN 60079-14 „Explosionsfähige Atmosphäre – Teil 14 Projektierung, Auswahl und Errichtung elektrischer Anlagen.

7.1. Antenna sub-assembly

The O-ring seal surfaces have to be clean and in a technically flawless condition. The antenna sub-assembly is firmly mounted with 4 screws on the inside of the cylinder. The housing of the antenna sub-assembly has to be connected to the cylinder and the Evaluation Box in a permanently conductive manner for the purpose of potential equalization. The cylinder completely encloses the antenna like a housing. The internal chamber of the cylinder on the antenna side is filled with air or nitrogen. The operator of the cylinder ensures that at least an appropriate positive pressure exists relative to the environment.

The minimal bending radius for the coaxial cable of 25 mm may not be under-cut. The damage and contamination protection of the coaxial cable must be maintained. A damaged antenna or a damaged cable may not be installed or operated. The coaxial cable installed by the manufacturer may not be modified and may only be connected to the designated Evaluation Box.

7.2. Evaluation Box sub-assembly

The enclosures flame paths (=interface between two parts that prevents the transmission of an explosion inside the housing into an explosion hazardous environment) must be securely protected to avoid damage during transport, handling, installation and maintenance.

At installation ensure that there are no damages; in particular inspect the gasket and cover of the increased safe connection terminal enclosure.

Before commissioning of the system the MPMS markings have to be compared to the designated operating conditions to ensure an appropriate operating environment.

The Evaluation Box has to be mounted by 4 steel bolts of size M10 or equivalent. The total weight is around 35 kg.

The Hawke SB474 gland offers a thread to attach an external protective pipe for the antenna and sensor cable.

- During mounting of the housing ensure that support is strong enough to accept the full weight of the housing (approx. 35 Kg).
- If any twisting or bending is likely, use washers or packing plates as necessary before screws or nuts are tightened.
- DO NOT OPEN LID BEFORE THE ENCLOSURE IS SECURELY FASTENED AND IN AN UPRIGHT POSITION. THE WEIGHT OF THE LID OF THE FLAMEPROOF ENCLOSURE IS 8 Kg, BE AWARE OF THIS WEIGHT AND ACT ACCORDINGLY WHEN HANDLING THE LID.
- When connecting external cabling, ensure the incoming cables/wires are isolated from all sources of power.



- Perform installation according installation standard for explosion safe equipment IEC 60079-14 and/or equivalent local requirements valid on the site of installation
- **NOTE! It is a must to read the instructions and requirements mentioned in the certificate and in the documentation of the enclosure (wiring diagram etc.), before connecting the housing to a power source and other equipment intended for the housing.**
- **It is the responsibility of the company mounting the housing that the technical data for the housing match the technical data to which the cabinet is connected. Special attention is to be made to all safety and explosion safety aspects.**
- All openings must be closed according the same protection degree against ignition as applicable to the housing: Use certified Ex d cable glands or blind plugs to the flameproof compartment and certified Ex e cable glands or blind plugs to the connection terminal compartment.
- Make sure during installation that there is no damage to the housing or cable. In particular inspect the gasket and cover of the increased safe connection terminal enclosure.
- When un-installing the enclosure, the same precautions are to apply as those to be observe when installing the enclosure.

8. Calibration

Calibration of the MPMS is required after installation to achieve the best possible performance of the system. Calibration can only be performed by personnel trained by the system manufacturer.

The first measurement data of the MPMS are compared to the output of a reference measurement system. Any deviations are used to calculate a cylinder specific correction factor and saved in the Evaluation Box. The process requires one stroke from position zero to full stroke and back to position zero.

Each cylinder with MPMS is calibrated by the manufacturer.

The calibration will be documented in the Certificate of Calibration. Changes of any hardware after calibration require re-calibration. For guidance contact ASTYX MPS.



Warning!

Calibration of the Microwave Position Measuring System is required after mounting for best performance

Calibration and use of the CAN bus interface is only allowed to Astyx MPS personnel or personnel trained by Astyx MPS.



9. Usage, Mounting, Maintenance, and Dismounting

9.1. Antenna sub-assembly

The antenna sub-assembly is an integral part of the Microwave sensor 7065 and cannot be operated without the Evaluation Box.

The antenna sub-assembly consists of a housing (stainless steel); an antenna pin (stainless steel) is screwed into the housing using a fastener (PPS GF40). The antenna transmits and receives RF-signals which are processed to determine the distance to an opposing external object. A non-removable coaxial cable (Huber und Suhner Enviroflex 142) is used to feed the signal for distance measurement into the antenna. The cable is connected to the Evaluation Box which is mounted on the outside of the cylinder end-cap.

The operational environment for the antenna sub-assembly is inside of a metallic cylinder with a diameter of 500 mm.

The antenna sub-assembly may not be detached from the other system components without ensuring that the system has no power and that the area is safe.

The operator has to ensure that the operating conditions inside the cylinder are of sufficient quality for the antenna sub-assembly.

Should any failure or malfunction occur during operation, the system needs to be shut down immediately and the manufacturer needs to be contacted. To dismount the sensor the 4 screws need to be loosened which connect the antenna to the inside of the cylinder end-cap. It needs to be ensured that the system is cut off from the power supply and that all electrical connections have been disconnected. Disconnecting the electrical connections may only be performed by a qualified electrician observing any national regulations.

10. Electrical Connection

The respective Ex-regulations have to be observed. The drawing below describes the electrical connections. System connection may only be performed by a qualified electrician observing any national regulations (in Germany VDE 0100).

a) Antenna sub-assembly connection, high frequency signal

- The cylinder built-in antenna transmits and receives RF signals (440-585 MHz) necessary to calculate the distance between the antenna and the cylinder piston.
- The RF signal feeds through a coaxial cable (Huber und Suhner Enviroflex 142) coming from the antenna sub-assembly.
- The antenna cable enters the evaluation box through a Hawke SB474 gland. Therefore the gland requires a cable opening in its sealing with the correct size for the Antenna cable.
- The coaxial cable (antenna cable) enters the Ex d compartment through the specified gland. The SMA connector of the coaxial antenna cable has to be connected to the SMA connector of the Electronic Box inside the Evaluation Box according the wiring scheme. Use a torque of 0.8 to 1.1 Nm. **NOTE: The lead through of the coaxial cable (antenna cable) is relevant to the Explosion Safety of the zone 1 Ex d compartment. Coaxial cable and the gland have to be clean and in good condition.**
- The antenna cable outside the Evaluation Box has to be well protected against damage and contamination.

1



- The bending radius for the coaxial cable may not go below the minimum of 25 mm.

b) Power supply and Profibus interface cable

- The power supply 24V input and the Profibus signal connect to cable terminals inside the Ex e compartment according the wiring scheme.
- The combined cable enters the terminal housing by the Hawke 501/453/UNIV gland.
- Unused wires of the interface cable are connected to PE.

c) Grounding concept

The Ex d and Ex e compartment each include an external grounding clamp. Both have to be grounded to the cylinder on the same potential.

d) Commissioning and operation require that all electrical connections are done properly. The Evaluation Box must not be disconnected from the other system components unless the system is without power or the area is safe.

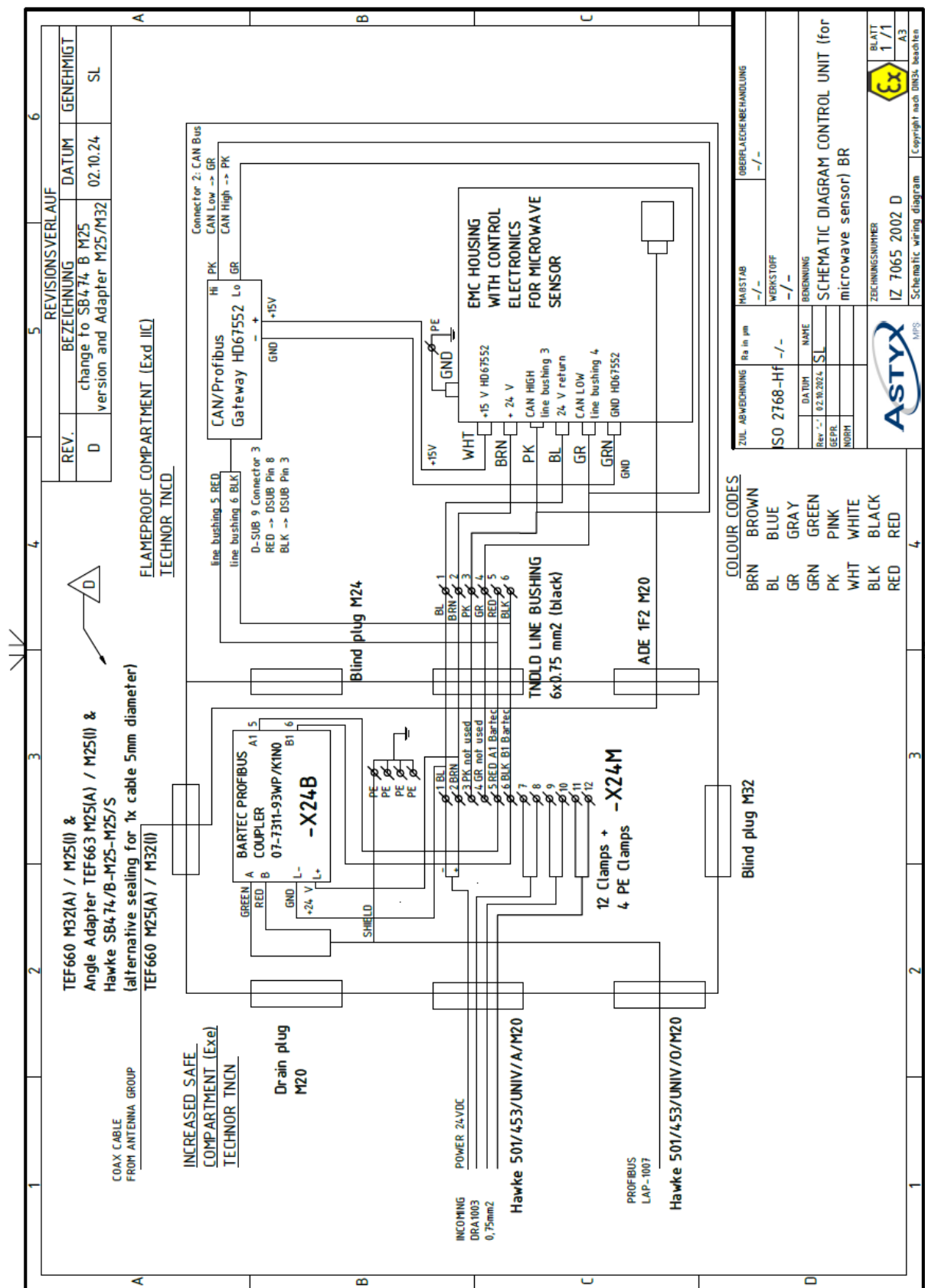



Abbildung 1 Profibus Version



INTERFACEZEICHNUNG				
Projekt:	Bosch-Rexroth			<u>Pneumatik</u> 500 mm
Dokumentnummer:	IZ 7065 0800	Rev.	-	Ab SN 1
Baugruppe:	MP50-7065			05/05/2011

Power supply, analog output and CAN diagnostic- terminal strip

PE: shield

- **Power supply information**

Pin 1: 24Vdc-

Pin 2: 24Vdc+

- **CAN diagnostic**

Pin 3: CAN H

Pin 4: CAN L

- **Profibus information**

Pin 5: A1 Bartec

Pin 6: B1 Bartec

The coaxial cable must be screwed on the SMA adaptor which is placed on the EMV Box with a torque of 0.8 to 1.1 Nm



11. Handling

- Due to the weight and nature of the antenna and the housing precautions have to be taken to avoid damages to the equipment and individuals.
- The antenna and the housing must be protected to avoid damage during transport, handling and installation. The antenna and the enclosure shall be packed in a proper manner that no damage during shipment can occur.

12. Inspection / Maintenance

12.1. Antenna sub-assembly

- The antenna sub-assembly has to be protected from strong contamination (grease, dust, etc.).

12.2. Evaluation Box sub-assembly

- Both flameproof Ex d and increased safe Ex e compartments are manufactured in stainless steel and therefore not subject to corrosion.
- Apply copper grease to threading of lid, bolts and threaded holes etc.
- For maintenance Bartec recommend to apply IEC 60079-17 and IEC 60079-1 standards.
- It is vital to apply fresh copper grease or similar approved greases after threading contact has been disassembled and they will be assembled again.
- If any damage is found, the enclosure should be put out of service and the manufacturer should be contacted.

13. Operation

Special conditions for the safe operation of the MPMS:

- The cylinder is completely assembled.
- The antenna sub-assembly is installed.
- The ATEX protection category „Zone 1“ of the environment is given permanently for the antenna sub-assembly.
- The system consisting of antenna, Evaluation Box, and cylinder is calibrated.
- The antenna is in flawless condition.
- A damaged Evaluation Box may not be installed or operated.
- The operator guarantees that the installation was performed by observing all relevant regulations.
- The MPMS may only be operated in cylinders approved by the MPMS manufacturer.
- The Ex e- and Ex d-housings may only be opened and connected by authorized personnel in a safe and clean environment.



14. Markings

Marking of the antenna sub-assembly:

see Chapter 15 and 16

Markings of the Evaluation Box sub-assembly:

see Chapter 15 and 17



15. Specification

Microwave sensor

ASTYX MPS mark 7065

Continuous and absolute measurement system for use in cylinders filled with air or nitrogen. For use in hydraulic equipment.

Cylinder Bore	500 mm
Measuring range	up to 20 meter
Non-Linearity	typ. +/- 10 mm (calibrated at 6 bar, 20°C)
Non-Linearity	max. +/- 20 mm (calibrated at 6 bar, 20°C)
Measurement rate	> 125 Hz
Velocity	4 m/s max.
Operating voltage	20 ... 30 Vdc
Power	typical maximum 9 W absolute maximum 12 W
Customer interface	Profibus ID 10 and 11, pressure value has to be provided by AKER/MHWirth
Frequency band	440...585 MHz, wave guided
Medium	air or nitrogen
Operating pressure	210 bar max.
Test pressure	≤ 315 bar
Vibration	10 Hz - 60 Hz with ± 0.35 mm, 1 oct/min, number of 5 cycles 60 Hz - 150 Hz with 5 g sine according IEC 68 part 2-6, 1 oct/min, number of 5 cycles
Shock	30 g, 11 ms half sine according IEC 68 part 2-27, number of 3 each direction 15 g, 6 ms half sine according IEC 68 part 2-29, number of 1000 each direction

Usage requires sensor to cylinder calibration by ASTYX MPS.

The Microwave Sensor may only be used with special designed cylinders released by ASTYX MPS.



Antenna module

The antenna module has to be installed properly to a cylinder according required mechanical interface description. To reduce the influence of liquid inside the measuring area, the piston requires a special designed cover plate. The antenna module is installed in a downward direction. For operation the Evaluation Box is needed.

Housing	Stainless steel AISI 316 / 1.4401
Antenna	Stainless steel AISI 316 / 1.4401
Dimensions	Ø130 x 183 mm
Weight	< 10 kg
IP class	IP67
Conformity	2014/34/EU (ATEX)

Explosion safety 0123 II 2G Ex ib IIB T4 Gb

Antenna Cable Huber & Suhner Enviroflex 142
Cc: 94,5 pF/m

Cable length to EV-Box 2,5m. Protect SMA cable against environmental impact for use under harsh conditions.

Recommended backside sealing (not delivered)

Axial: O-ring 42 mm x 3.53 mm, NBR 90 shore A lubricated, ISO 3601

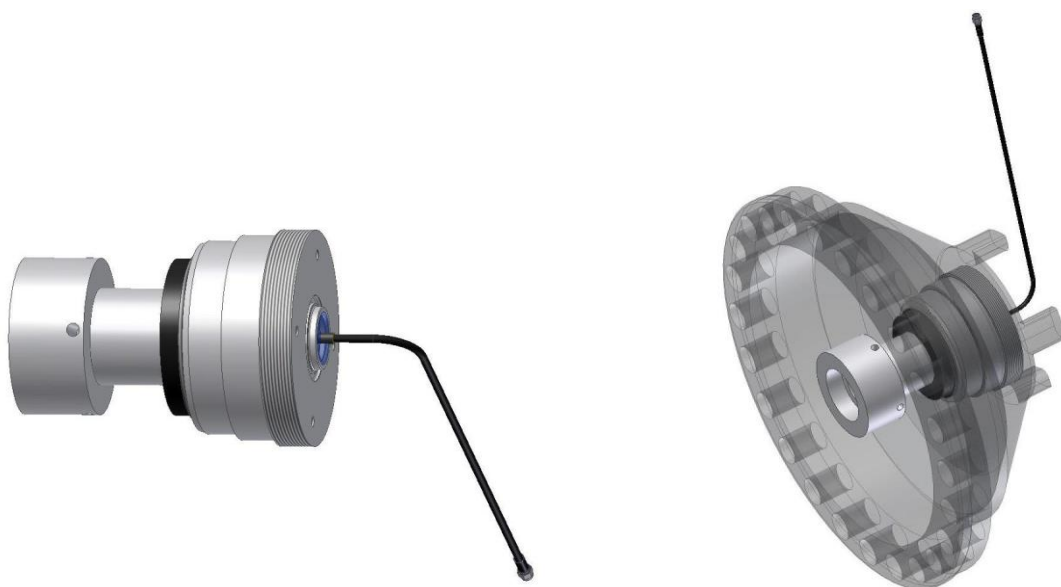
Recommended mounting bolts (not delivered)

4xM8, DIN4762, A4-70 (stainless steel)

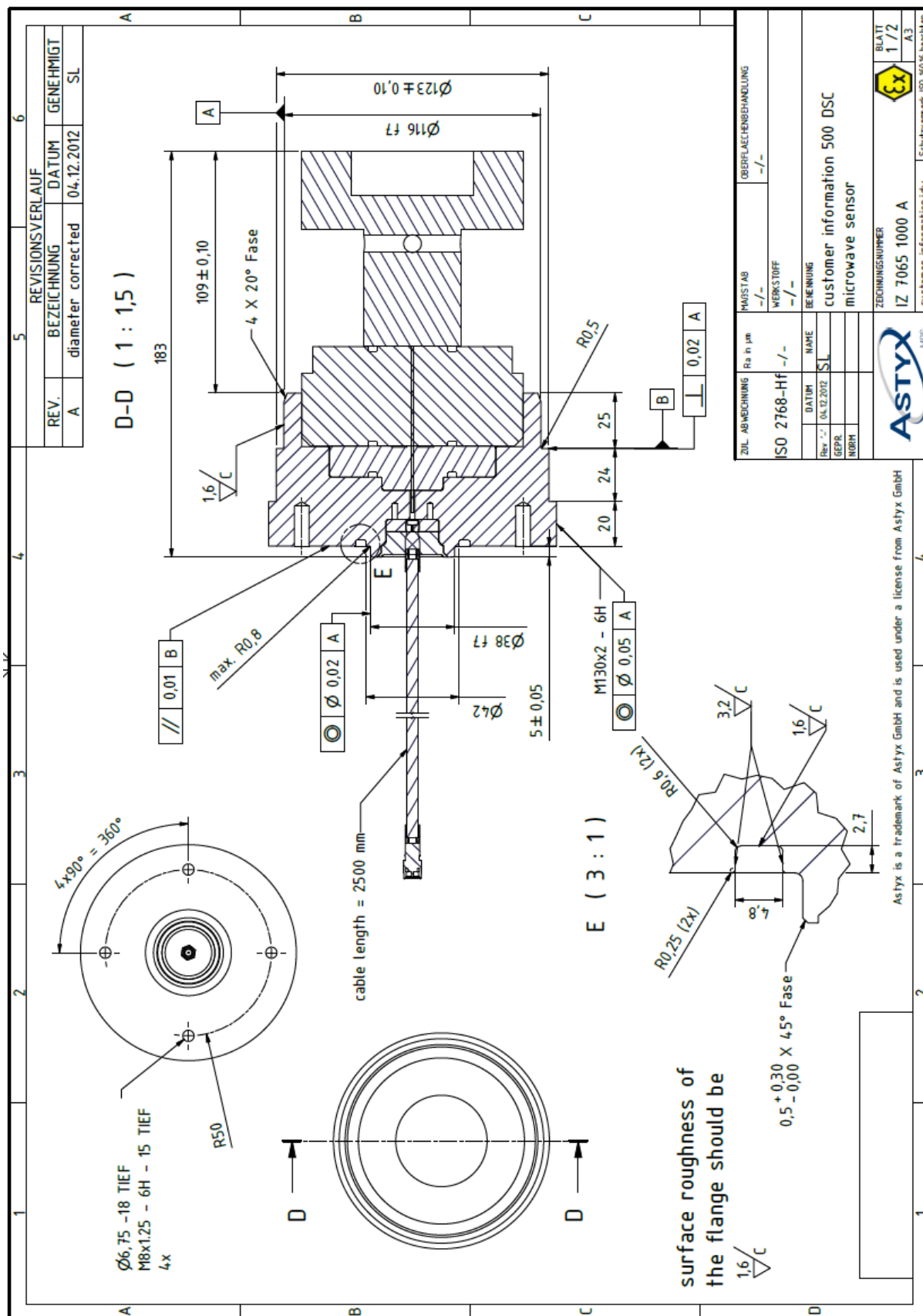
Electrical Interface see Manual

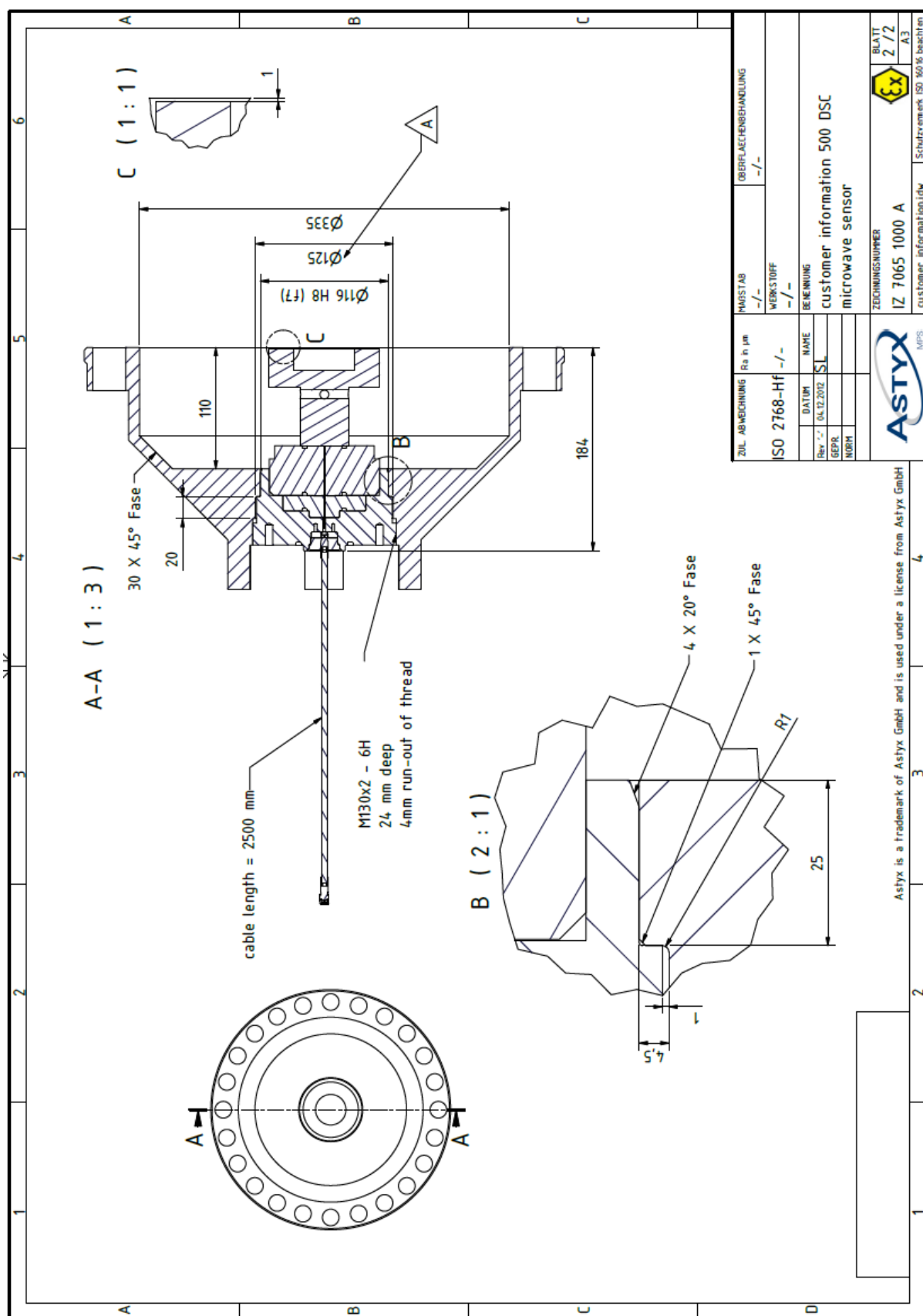
Electrical parameters $U_i = 1,77 \text{ V r.m.s.}$
 $I_i = 35,4 \text{ mA}$
 $P_i = 63 \text{ mW}$
 $C_i = 5,65 \text{ nF}$
 L_i : negligible

Regard to the manual for installation and operation “Operating manual 7065: MP03-MV Antenne 7065-500mm-” for functional, safety and explosion safety reasons. Installation has to be in accordance to IEC/EN 60079-14.



Cylinder End Cap Requirements







Evaluation Box

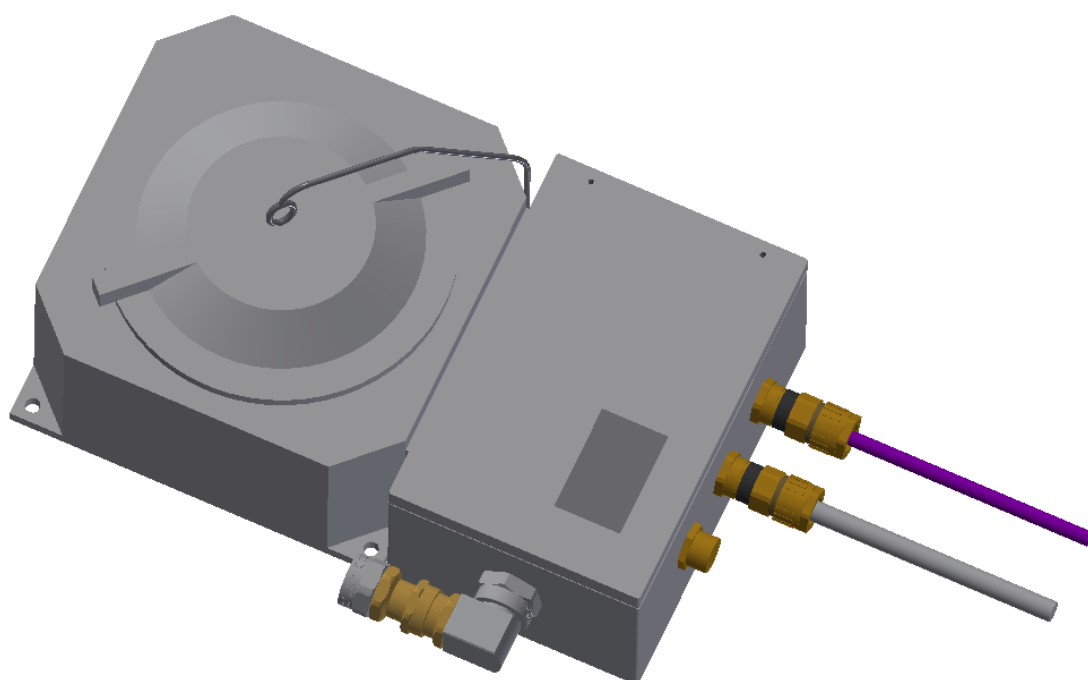
The Evaluation Box operates together with an antenna module. It carries the software and device dependent calibration data. Device means a fix combination of antenna module, Evaluation Box and cylinder.

Housing	Stainless steel AISI 316L / 1.4404 Technor TNCD282815 Ex d enclosure Technor TNCN281915 Ex e connection enclosure
Power Gland	Hawke 501/453/Universal A M20
Recommended cable	DRA-1003 4pair 0.75 (not delivered)
Communication Gland	Hawke 501/453/Universal O M20
Recommended cable	LAP-1007 1pair (not delivered)
Drain Plug M20	
Antenna Cable Gland	Hawke SB474/B-M25-M25/S (alternative sealing for 1x cable 5mm diameter)
Dimensions	280 mm x 470 mm x 150 mm
Weight	< 35 kg
IP class	IP66
EMC / EMI	Radiated Emission Electric Field, 30 MHz to 1 GHz, CISPR 11:2003/A2:2006
Build-in Electronic Box	Immunity to radiated electromagnetic fields, 80 MHz to 2,7 GHz 10 V/m, IEC 61000-4-3:2006 Immunity to electrostatic discharges, IEC 61000-4-2:1995 +A1:1998 +A2:2000 Immunity to electrical fast transients, IEC 61000-4-4:2004 Immunity to asymmetric RF, 150 kHz to 80 MHz
Conformity	2014/34/EU (ATEX)
Explosion safety	  II 2G Ex de IIC T6 Gb (Certificate: Dekra 01-45300571-7C0002_3)
Build-in temperature sensor	Yes.
Electrical Interface	see manual

Included equipment:

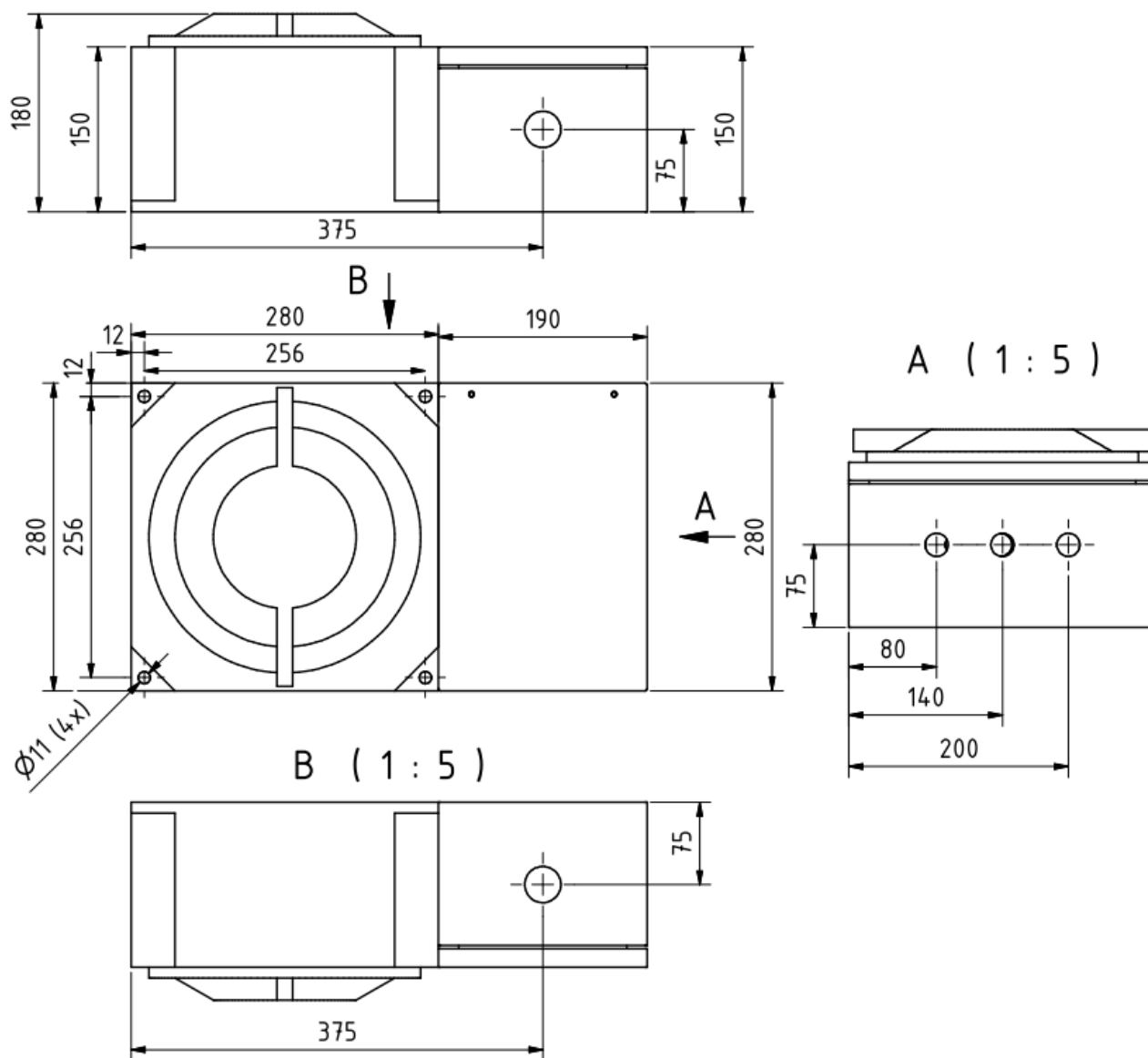
- A Security line of stainless steel with around 60 cm length for cover of Exd enclosure.
- A vapour space inhibitor is provided inside the Evaluation Box.

Regard to this manual for installation and operation for functional, safety and explosion safety reasons. Installation has to be in accordance to IEC/EN 60079-14.



(Illustration, details may be different)

Dimensions of the Evaluation Box





Warning!

- Voltages higher than 30 VDC applied to any of the electrical connection points might damage the sensor electronics.
- Mechanical contact between antenna and piston will damage the sensor.
- Calibration of the sensor in a cylinder with identical geometrical properties (bore, piston geometry) is required after mounting.
- Fluid on top of the piston or in the antenna will influence measurements and might cause unexpected offset changes in the output signal.
- Opening of enclosures or disassembly of the microwave sensor is allowed to authorized staff only.



Danger !

- To avoid electrical discharges, the shell and the piston rod of the hydraulic cylinder must be grounded properly whenever the microwave sensor is in operation.
- Never power up the sensor outside the grounded cylinder or without proper shielding against electromagnetic radiation (refer to local authorities for applicable regulations).
- A damaged sensor (Antenna or Evaluation Box) may not be powered or used



16. Declaration of Conformity Antenna



MP20-CoC 7065-500mm-V2.0



ATEX II 2G

EU-DECLARATION OF CONFORMITY UNIT ASSESSMENT CERTIFICATE

DOCUMENT NO. ASTYX MPS: MP20-CoC 7065-500mm

Declaration of conformity in accordance with directive 2014/34/EU

We, Astyx MPS GmbH, Caroline-Herschel-Strasse 4, 85521 Ottobrunn, Germany hereby declares under our sole responsibility, that the below mentioned product

Apparatus: Microwave Sensor Unit
Type: MPMS ANTENNA PART Bore 500 MM ATEX Zone 1 / 7065

Manufactured and tested by:
Astyx MPS GmbH, Caroline-Herschel-Str. 4, 85521 Ottobrunn, Germany.

is in accordance with following European Union directive

- 2014/34/EU (ATEX)


and that the following harmonized standards have been applied:

- EN IEC 60079-0:2018/AC:2020-02
- EN 60079-11:2012

Technical documentation number:

TPS 22 ATEX 114343 0002 X

The applicable marking of the apparatus concerns the distinctive community mark:

CE 0123  II 2G

In addition, the marking includes the CENELEC code regarding to the protection degree against ignition and temperature class:

EX ib IIB T4 Gb



This declaration relates only to the unique example marked by ASTYX MPS GmbH with Ex codes, type and serial number as mentioned above.

Modifications, which were not arranged with ASTYX MPS GmbH result in the expiration of the declaration.

This declaration does not imply the apparatus meets all statutory requirements in any particular industry or circumstance.

Manufacture is controlled by ASTYX MPS Quality Assurance system in accordance with annex VII of directive 2014/34/EU.

Ottobrunn, 2024 February 02

Signed
Astyx MPS GmbH

Manuel Wolf
Explosion Safety Representative



17. Declaration of Conformity Evaluation Box

EU Konformitätserklärung
EU Declaration of Conformity
Déclaration UE de conformité
N° 01-4000-7C0001-B

BARTEC

Wir	We	Nous
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BARTEC GmbH
Max-Eyth-Straße 16
97980 Bad Mergentheim
Germany

erklären in alleiniger Verantwortung, dass das Produkt Steuer- / Verteilerkasten	declare under our sole responsibility that the product Control / distribution panels	attestons sous notre seule responsabilité que le produit Panneau de contrôle / distribution
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Type BARTEC B/C/D/E and BARTEC B/C/D/E-Combo
(Type 07-4**-****/****)**

auf das sich diese Erklärung bezieht den Anforderungen der folgen- den Richtlinien (RL) entspricht ATEX-Richtlinie 2014/34/EU RoHS-Richtlinie 2011/65/EU und mit folgenden Normen oder nor- mativen Dokumenten übereinstimmt	to which this declaration relates is in accordance with the provision of the following directives (D) ATEX-Directive 2014/34/EU RoHS-Directive 2011/65/EU and is in conformity with the following standards or other normative documents	se référant à cette attestation correspond aux dispositions des direc- tives (D) suivantes Directive ATEX 2014/34/UE Directive RoHS 2011/65/UE et est conforme aux normes ou docu- ments normatifs ci-dessous
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EN IEC 60079-0:2018 EN 60079-1:2014 EN 60079-5:2015 EN 60079-7:2015/A1:2018 EN 60079-11:2012 EN 60079-18:2015/A1:2017 EN 60079-28:2015 EN 60079-30-1:2017 EN 60079-31:2014	EN 60529:1991/A2:2013/AC:2019 EN 60204-1:2018 EN 60947-1:2007 + A1:2011+A2:2014 EN 60947-7-1:2009 EN 60947-7-2:2009 EN 60947-7-3:2009 EN 61439-1:2011 EN IEC 63000:2018
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Eine Übereinstimmung mit den auf- geführten Normen ist variabel und abhängig von den eingebauten Komponenten. Produktspezifische Normen der Ein- bauteile können der jewei- ligen Konformitätserklärung ent- nommen werden.	A conformity with the listed stand- ards is variable and depends on the installed components. Product-specific standards of the built-in components can be found in the respective declaration of con- formity.	La conformité aux normes citées est variable et dépend des composants installés. Les normes spécifiques aux pro- duits des composants encastrés peuvent être consultées dans la dé- claration de conformité correspon- dante.
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Verfahren der EU-Baumuster- prüfung / Benannte Stelle	Procedure of EU-Type Examination / Notified Body	Procédure d'examen UE de type / Organisme Notifié
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DEKRA 13 ATEX 0209X, Issue 5

0344, DEKRA Certification B.V., Meander 1051, 6825 MJ Arnhem, NL

CE 0044

Bad Mergentheim, 21.11.2024

ppa. J. Kirschner

Senior Vice President
Business Unit ESS

i.A. Steffen Mika

Team Leader Certification
Management R&D ESS



18. Partlist Evaluation Box

Siehe Stückliste: MP50-7065-FPH-V2.0