

## Operating manual: ISD-10-NB-GD-S339

### Inductive Sensor

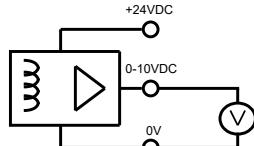
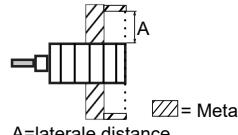
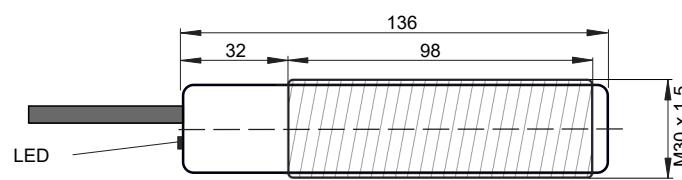


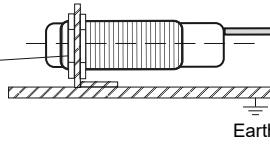
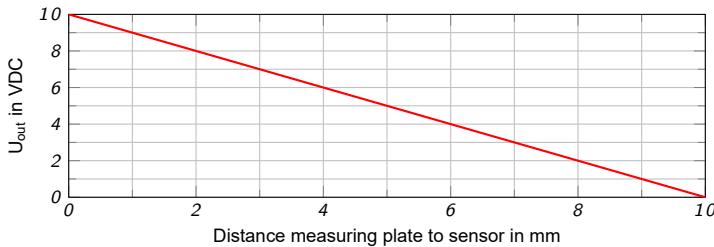
1258

IECEx BVS 18.0022X

Ex db IIC T5 Gb  
Ex tb IIIC T100°C Db

- With analog voltage output

Type	ISD-10-NB-GD-S339			
<b>Technical Data</b>				
Gas Ex protection designation	II 2G Ex db IIC T5 Gb			
Dust Ex protection designation	II 2D Ex tb IIIC T100°C Db			
For use in Ex Zones	Zones 1, 2, 21, 22			
Linearity deviation	±0.4mm			
Response time	5ms			
Pollution degree	3 (according to EN 60664-1)			
Installation Method	embeddable			
Rated operating distance sn	0 - 10mm, (on steel 37, (sn x 3) <sup>2</sup> x 1mm), non flush mounting			
Supply voltage, Ue	24VDC ±10%			
Current consumption	20mA			
Maximum power dissipation	0.53W			
Power up delay time	3s			
Analog voltage output	0 - 10V, PNP, output impedance appr. 1k Ω			
Housing	M30, Ms, brass nickel plated / sensing area: Synthetic PEEK mod.			
Enclosure rating	IP67			
Ambient working temperature range, T <sub>amb</sub>	-10°C up to +60°C			
EMC, shock and vibration resistance	300m/s <sup>2</sup> , 10 - 55Hz, in all directions (according to IEC 60947-5-2)			
Options	Cable length: Up to 100m, upon request			
Accessories	Included	Optional		
	<ul style="list-style-type: none"> <li>• 2x nuts M30</li> <li>• 2x shim rings DIN 988, stainless steel A2, 30/42/1mm</li> </ul>			
LED indication	 Object detected, LED shows red, equal to the output voltage level	 No object detected, LED goes off		
Output function:	 +24VDC			
Installation: Lateral protection plates must not rise above the sensor. Sensors for non flush mounting arrangement have the highest operating distance, but a part of the parasitic lateral electromagnetic field can disturb the function. Lateral protection plates or other metallic objects must not influence the Sensor. For proper function a lateral free space around the sensor must be guaranteed.				
 A = laterale distance				
Ex related markings	CE 1258 Ex designation according to 2014/34/EU ATEX certification number: IECEx certification number: T <sub>amb</sub> Date of construction: Numerals 5 to 8 of the serial number (year/calendar week)	Manufacturer with address  BVS 07 ATEX E 044 X IECEx BVS 18.0022X -10°C up to +60°C Numerals 5 to 8 of the serial number (year/calendar week)		
Electrical data according to the table "Technical data"				
Dimensions and wiring	 136 32 98 LED M30 x 1.5	Lead-No 1 2 3 yellow-green Function +24VDC 0V OUT PA/PE		

Installation prescriptions for Ex hazardous locations	<p>Ensure local equipotential bonding by means of a corrosion-resistant PE connection.</p>  <p>The end of the cable must be connected outside the hazardous locations.</p> <p>The cable shield is to connect to PE in a wide area.</p>														
<p><b>Output characteristic for axial approximation</b> On plate stainless steel 1.4301 (45mm x 45mm x 1mm). Sensor non-flush mounted.</p>	 <table border="1"> <caption>Data points estimated from the graph</caption> <thead> <tr> <th>Distance measuring plate to sensor in mm</th> <th>U<sub>out</sub> in VDC</th> </tr> </thead> <tbody> <tr><td>0</td><td>10</td></tr> <tr><td>2</td><td>8</td></tr> <tr><td>4</td><td>6</td></tr> <tr><td>6</td><td>4</td></tr> <tr><td>8</td><td>2</td></tr> <tr><td>10</td><td>0</td></tr> </tbody> </table>	Distance measuring plate to sensor in mm	U <sub>out</sub> in VDC	0	10	2	8	4	6	6	4	8	2	10	0
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### Operating Manual / EC-/EU-declaration of conformity

#### Installation prescriptions for Ex hazardous locations

Only applicable in Ex Zones 1, 2, 21, 22. It is necessary to take into consideration the valid international and national rules and regulations (EN 60079-14). Do not exceed the maximum ratings. The local equipotential bonding have to be done reliable and noncorrosive. The protective earth (PE/PA) is solid connected with the housing and the cable shielding. The cable have to be installed and protected against damages. The cable with termination fittings, or in cable tray systems and installed in a manner to avoid tensile stress at the termination fittings. To connect cables inside hazardous locations only use certificated Ex e housings. All cable terminals must be connected outside hazardous locations.

#### Additional safety information related Ex protection

BVS 07 ATEX E 044 X: X = The plastic part of the housing (sensitive area) must be protected against direct sunlight and UV irradiation.

#### General mounting prescriptions

Lateral protection plates must not rise above the sensor. Electrolytic fluids, graphitized greases or other magnetizable substances can disturb the correct function. The electrical connections must be exactly as shown in the connection diagram. The cable shield must be connected short. The cable shield must be connected to the protection earth, large-surfaced. Connection cables must not be installed parallel to high voltage cables.

Equal to the damping of the electromagnetic field, the output various between 0V and 10V. A strong damping generates a higher voltage. The output characteristic is determined with a measure plate, stainless steel 1.4301 (45mm x 45mm x 1mm) at non-flush mounting.

#### Chemical resistance

The sensor must not be exposed to the following substances: Chromic acid, CAS-No. 7738-94-5. Hydrochloric acid, CAS-No. 7647-01-0. Sulfuric acid, CAS-No. 7664-93-9 / CAS-No. 7783-05-3. Hydrobromic acid 100%, CAS-No. 10035-10-6. Nitric acid, CAS-No. 7697-37-2. Bromine, CAS-No. 7726-95-6. Chlorine, CAS-No. 7782-50-5. Ferric(III) chloride, CAS-No. 7705-08-0 (anhydrous), CAS-No. 10025-77-1. Fluorine, CAS-No. 7782-41-4. Iodine, CAS-No. 7553-56-2. Sodium (hot), CAS-No. 7440-23-5. Concentrated phenol, CAS-No. 108-95-2.

#### Maintenance

The sensor does not require any special maintenance. Magnetic precipitations must be cleared. Equipment must only be repaired or serviced by the manufacturer.

#### General notes to the operating distance

The nominal operating distance  $s_n$  (IEC 60947-5-2) does not take into account production tolerances and influences of temperature or voltage. The output characteristic is determined with a measure plate, stainless steel 1.4301 (45mm x 45mm x 1mm) at non-flush mounting. On other materials or smaller objects a reduction factor must be taken into account.

Material	Reduction factor
Steel 37	1.2
Stainless steel	1.0
Aluminum	0.4

#### General safety instructions

The mounting of the sensor in dusty locations without fixed cordset or protection cap results in a high ignition risk. The sensors must not be used for Accident-Prevention! In worst case the output can change to any state! When installing and operating with the sensor, it is necessary to take into consideration the relevant international and other national regulations.

#### General notes, disposal

We reserve the right to modify our equipment. Our equipment is designed such way, that it has the least possible adverse effect on the environment. It neither emit or contain any damaging or siliconized substances and use a minimum of energy and resources. No longer usable or irreparable units must be disposed of in accordance with local waste disposal regulations.

#### EU-Declaration of Conformity

The product meets the requirements of the following standards and directives: EN IEC 60079-0:2018, EN 60079-1:2014, EN 60079-28:2015, EN 60079-31:2014, EN 60825-1:2006, EN 60825-2:2004, EN 60529, EN 61000-4-2 to EN 61000-4-6, EN 61000-6-1/2, EN 61000-6-4, ATEX directive 2014/34/EU, Machine directive 2006/42/EC, EMC directive 2014/30/EU, RoHS directive 2011/65/EU

#### ATEX/IECEx-Designation:

Gas: II 2G Ex db IIC T5 Gb

Dust: II 2D Ex tb IIIC T100°C Db

ATEX EU-type examination certificate No.: BVS 07 ATEX E 044 X

IECEx CoC No.: IECEx BVS 18.0022X

Ex CB IECEx: DEKRA Testing and Certification GmbH, Carl-Beyling-Haus, Dinendahlstrasse 9, D-44809 Bochum.

ATEX certification of quality management system, type production of Ex devices, in accordance to the directive 2014/34/EU:

Certification No.: SEV 21 ATEX 4580, QAR No.: CH/SEV/QAR21.0009/00, CB: Eurofins Electric & Electronic Product Testing AG, Luppmenstrasse 3, CH-8320 Fehraltorf CE 1258.

Pablo Ledengerber, Matrix Elektronik AG, is authorized to generation of documentation.

The conformity of the devices with all used standards and directives and the EC-type examination certificate and the observation of the Quality Management System ISO 9001:2015, declares:

Ehrendingen, 4.4.2023



Pablo Ledengerber, Matrix Elektronik AG