

## IRD-DAB-CIE-OP Photoelectric proximity switch



1258



- Also for using with different types of fibre optics.
- Robust sensor for industrial applications

Technical Data	IRD-DAB-CIE-OP													
Gas Ex protection designation	II 2(1)G Ex d [op is Ga] IIC T6 Gb													
Dust Ex protection designation	II 2(1)D Ex tb [op is Da] IIC T100°C Db													
For use in Ex Zones	(0), 1, 2, (20), 21 and 22													
Light Source	Infrared 870nm													
Maximum optical radiant power	<=15mW													
Maximum optical radiant intensity	<=5mW/mm <sup>2</sup>													
Optical aperture angle	approx. 10°													
Output type	NPN, output impedance approx. 500Ω, RLoad: 0Ω to 100Ω													
Device designation according to EN 60947-5-1/2	R3A30AP1													
Utilization category according to EN 60947-5-1	DC13													
Supply voltage, Ue	24VDC ±10%													
Absolute maximum supply voltage, Um	30VDC													
Current consumption	max. 60mA													
Power consumption	2.1W													
Input type	Current Input (CI): 4-20mA													
Power up delay time	500ms													
Housing	M30, brass, nickel plated													
Enclosure rating	IP67													
Ambient working temperature range, T <sub>amb</sub>	-20°C up to +50°C													
Storage temperature range	-20°C up to +70°C													
Connection cable	TPU insulation, AWM 20236, 4+PE x 0.5mm <sup>2</sup> , halogen free, shielded, leads numbering marked, oil resistant cable for trailing, length: 5m													
Accessories	<b>Included</b>	<b>Optional</b>												
	• 2x Nuts M30													
Wiring and Dimensions														
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>1</td><td>24VDC</td></tr> <tr><td>2</td><td>0V</td></tr> <tr><td>3</td><td>Output</td></tr> <tr><td>4</td><td>CI 4-20mA</td></tr> <tr><td>yellow-green</td><td>PE</td></tr> <tr><td>white</td><td>cable-shield</td></tr> </table>	1	24VDC	2	0V	3	Output	4	CI 4-20mA	yellow-green	PE	white	cable-shield	
1	24VDC													
2	0V													
3	Output													
4	CI 4-20mA													
yellow-green	PE													
white	cable-shield													
Function and LED indication	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>LB with fibre optic </p> <p>Proximity sensor </p> <p>Proximity sensor with fibre optics </p> <p style="text-align: center;">Reflection, LED glows analogous to the intensity of the diffused and reflected light and thus the output</p> </div> <div style="width: 45%;"> <p>LB with fibre optic </p> <p>Proximity sensor </p> <p>Proximity sensor with fibre optics </p> <p style="text-align: center;">no light detected, LED remains off</p> </div> </div>													
Input/Output Circuitry	<p><b>Current input</b></p>	<p><b>Current output</b></p>												
	<p><b>Safe equipotential bonding for Ex devices</b></p> <div style="display: flex; justify-content: space-around;"> <div style="width: 45%;"> <p>Ensure local equipotential bonding by means of a corrosion-resistant PE connection.</p> </div> <div style="width: 45%;"> <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> </div> </div>													

IRD-DAB-CIE-OP\_e3/2024-03-04/MP

Matrix Elektronik AG (Manufacturer)  
Kirchweg 24, CH-5420 Ehrendingen  
Tel.: +41 56 20400-20, Fax -29  
info@matrix-elektronik.com

Tippkemper-Matrix GmbH  
Meesgerer Str. 43, D-51491 Overath  
Tel.: +49 2206 9566-0, Fax -19  
info@tippkemper-matrix.de

**EX related markings**

C € 1258

Typ: IRD-DAB-CIE-OP

Gas: Ⓜ II 2(1)G Ex d [op is Ga] IIC T6 Gb

ATEX:

IECEX:

Tamb:

Manufacturing date:

Manufacturer with Address

Electrical data according to table

Dust: Ⓜ II 2(1)D Ex tb [op is Da] IIIC T100°C Db

BVS 10 ATEX E130 X

IECEX BVS 14.0108X

-20°C up to +50°C

Number 5 to 8 of the Serial Number (Year / CW)

**Operating Manual / EU-declaration of conformity****Ex installation prescriptions**

It is necessary to take into consideration the valid international and national rules and regulations (IEC 60079-14). The maximum ratings must not be exceeded. The electrical connections must be done according to the wiring diagram. The local equipotential bonding must be connected corrosion resistant and permanently. The protective earth (PE) is solidly connected with the housing.

The cable shield must be solidly connected to protection earth. 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 housings. All cable terminals must be connected outside hazardous locations.

Other than original manufacturer, additional optical lenses are not allowed in hazardous locations.

The product IRD-DAB-CIE-OP may only be installed and operated within Ex zones 1, 2, 21 and 22. The limited optical radiation may operate inside Ex zones 0 and 20.

**Function**

The sensor works basically as proximity switch for diffuse optical reflections. When the sensor detects reflected light, the output provides an analog output signal of 4 - 20mA, depending on the amount of light received. If no reflections are received, the output provides 4mA and the LED remains dark. The load must be connected to 0V(-). The light output power can be regulated using the Current Input (CI): 4mA = low optical power, 20mA = high optical power.

**Range**

The nominal optical range is specified on white paper A4, 80g. The range will be influenced by the color, kind of surface and shape of the object.

**Fibre optics**

For efficiently detection solutions look for our multiple program of certificated fibre optics, also for high temperature areas.

**General safety**

The sensor must not be used for Accident-Prevention! In worst case the output can change to any state! When installing and operating the product, it is necessary to take into consideration all relevant international and other national regulations, especially those regarding explosion protection.

**Safety information about light sources**

WARNING! Do not look into the light source, a direct look into the light source can lead to eye damage.

**Maintenance**

No special maintenance is required.

Protect the product and any optical ports (if applicable) from pollution. Clean with **non-aggressive** solvents only. Strong solvents may damage certain fibre optics. The equipment must only be repaired or serviced by the manufacturer.

**General notes and disposal**

We reserve the right to modify our products. Our products are designed in such a way, that it has the least possible adverse effect on the environment. It neither emits or contains 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, IEC 60079-1:2014, IEC 60079-15:2010, IEC 60079-28:2015, IEC 60079-31:2013, EN 60529:2014, 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 2(1)G Ex d [op is Ga] IIC T6 Gb

Dust: II 2(1)D Ex tb [op is Da] IIIC T100°C Db

ATEX EU-type examination certificate No.: BVS 10 ATEX E130 X

IECEX CoC No.: IECEX BVS 14.0108X

Ex CB IECEX: DEKRA Testing and Certification GmbH, Carl-Beyling-Haus, Dinen-dahlstrasse 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/QAR21.0009/01, CB: Eurofins Electric & Electronic Product Testing AG, Luppmenstrasse 3, CH-8320 Fehraltorf CE 1258 Ident. Number: 1258

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

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

Ehrendingen, 4.3.2024

  
Pablo Ledergerber, Matrix Elektronik AG