

IRD-LTD-GFO-OP-S345 Opto-electronic sensor



1258



- Well applicable with plastic and glass
- Laser-emitter, red light 650nm
- Speed control up to 100'000 RPM
- Very high reliability (EMC)

Technical Data	IRD-LTD-GFO-OP-S345													
Gas Ex protection designation	II 2(1)G Ex db [op is Ga] IIC T6 Gb													
For use in Ex Zones	(0), 1 and 2													
Laser class	Laser, visible red, 650nm, class II													
Maximum optical radiant power	< 1mW													
Maximum optical radiant intensity	<=5mW/mm ²													
Output type	1 x Push-Pull, short circuit protected, maximum 10mA													
Device designation according to EN 60947-5-1/2	D3A30CS1													
Supply voltage, Ue	24VDC ±10%													
Absolute maximum supply voltage, Um	30VDC													
Current consumption	70mA													
Power consumption	max. 1.85W													
Housing	M30, brass, nickel plated													
Enclosure rating	IP67													
Ambient working temperature range, T _{amb}	0°C up to +50°C													
Connection cable	TPU insulation, AWM 20236, 3+PE x 0.5mm ² , halogen free, shielded, leads numbering marked, oil resistant cable for trailing, length: 10mm													
Accessories	Included	Optional												
	<ul style="list-style-type: none"> • 2 x Nuts M30 • 1x Warning plate "LASER RADIATION. DO NOT STARE INTO BEAM. CLASS 2 LASER PRODUCT", self-adhesive for gluing near to the sensor. 													
Wiring and Dimensions	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 20%;">Wire number</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>+24VDC</td> </tr> <tr> <td>2</td> <td>0V</td> </tr> <tr> <td>3</td> <td>OUT</td> </tr> <tr> <td>white</td> <td>cable-shield</td> </tr> <tr> <td>yellow-green</td> <td>PE</td> </tr> </tbody> </table>		Wire number	Function	1	+24VDC	2	0V	3	OUT	white	cable-shield	yellow-green	PE
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1	+24VDC													
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3	OUT													
white	cable-shield													
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Output / Function	<div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;"> <p>Rotary indicator is static: LED shows the output state.</p> <p>Output undefined: "L" or "H"</p> </div> <div style="text-align: center;"> <p>Rotary indicator is turning: LED is flashing equal to the rotation speed.</p> <p>Output generates pulses equal to the rotation speed.</p> </div> </div>													
<p>Safe equipotential bonding for Ex devices</p> <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>EX related markings</p> <p>CE 1258</p> <p>Typ: IRD-LTD-GFO-OP-S345</p> <p>Gas: II 2(1)G Ex db [op is Ga] IIC T6 Gb</p> <p>ATEX:</p> <p>IECEX:</p> <p>Tamb:</p> <p>Manufacturing date:</p>	<p style="text-align: center;">Manufacturer with Address</p> <p style="text-align: center;">Electrical data according to table</p> <p style="text-align: center;">BVS 10 ATEX E 130 X</p> <p style="text-align: center;">IECEX BVS 14.0108X</p> <p style="text-align: center;">0°C up to +50°C</p> <p style="text-align: center;">Number 5 to 8 of the Serial Number (Year / CW)</p>													

IRD-LTD-GFO-OP-S345_e2/2024-07-23/MP

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

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

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-LTD-GFO-OP-S345 may only be installed and operated within Ex zones 1 and 2. The limited optical radiation may operate inside Ex zones 0.

Function

The sensor can only be used with connected fibre optics. Light reflection alterations, generated by the turning marking disc of the spraying apparatus, will be amplified and formed.

Using the fibre optics

The sensor must not go into operation without mounted fibre optics. The fibre optics must be handled careful. The functional safety of the sensor is given by the condition of the marking disc and the careful working up of the optical fibres. The fibre optics must not be buckled or laid with a small radius. Buckled or bad laid fibre optics results to a strong decrease of performance. Avoid performance decreasing and failures caused by wear, by a functional mounting of the fibre optics.

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 for laser class 2 devices



By the installation, the going into operation and the application, it is necessary to take into consideration the valid rule EN 60825-1/-2 (Parts 12.5.1/12.6.2). Laser Class 2 without connected fibre optics. Do not stare into the beam!

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.

JP-Declaration of Conformity

DEKRA Certification B.V. certifies that this equipment has been found to comply with the Type Approval according to Ordinance No. 45 of 30 September 1972 and the latest amendment: Ordinance No. 121 of 30 June 2016 by the Japanese Ministry of Health, Labour and Welfare.

Group, Temperature Class and EPL: II 2(1)G Ex db [op is Ga] IIC T6 Gb, Dust: None

Applicable Standards:
JNIOOSH-TR-46-1:2020, JNIOOSH-TR-46-2:2018, JNIOOSH-TR-46-11:2020

Certificate number: DEK24.0022X, Issue number: 0

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 60825-1:2014, EN 60825-2:2004 + A1:2007 + A2:2010, DIN EN IEC 61000-6-2:2019, DIN EN 61000-6-4:2018, EN 61000-4-5:2014, EN 61000-4-4:2012, DIN EN 61000-4-6:2014, DIN EN IEC 61000-4-3:2020, EN 61000-4-2:2009, ATEX directive 2014/30/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 db [op is Ga] IIC T6 Gb

ATEX EU-type examination certificate No.: BVS 10 ATEX E 130 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, Ident number: 0158.

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, 23.7.2024

Pablo Ledergerber, Matrix Elektronik AG