

PSD-CER-AFA-OP Photoelectric proximity switch



1258



- Range selectable 20cm / 40cm
- Suitable for connecting fiber optics
- Light/dark switching selectable via polarity of supply voltage

Technical Data	PSD-CER-AFA-OP	
Gas Ex protection designation	II 2(1) G Ex db [op is Ga] IIC T6 Gb	
Dust Ex protection designation	II 2(1) D Ex tb [op is Da] IIIC 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 ²	
Optical aperture angle	approx. 10°	
Response time	1ms / 500 Hz	
Output type	PNP type, 100mA, short-circuit protected	
Working range	20cm/40cm	
Pollution degree	4	
Device designation according to EN 60947-5-1/2	D3A18SP1	
Supply voltage, U _e	24VDC ±10%	
Absolute maximum supply voltage, U _m	30VDC	
Current consumption	32mA	
Power consumption	0.9W	
Input type	RSEL (range selection): PNP compatible	
Housing	M18, brass Ms 58, nickel plated	
Enclosure rating	IP67	
Ambient working temperature range, T _{amb}	-10°C up to +50°C	
Relative humidity	15% ... 90%, noncondensing	
Connection cable	PVC cable shielded black 4xAWG24, Length: 6m	
Accessories	Included • 2x Nuts M18	Optional
Dimensions		
Function and LED Indication	<p style="text-align: center;">Light detected, LED lights up</p>	<p style="text-align: center;">no light detected, LED remains off</p>
Wiring Diagram	<p style="text-align: center;">PNP=ON</p>	<p style="text-align: center;">PNP=OFF</p>
Wiring Diagram, inverted function	<p style="text-align: center;">PNP=OFF</p>	<p style="text-align: center;">PNP=ON</p>

PSD-CER-AFA-OP_e2/2025-01-16/MP

Wire number	Function
brown	+24VDC
black	0V
red	Output
orange	RSEL
white	Cable shield
Housing	PE/PA

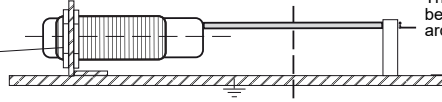
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Safe equipotential bonding for Ex devices

Ensure local equipotential bonding by means of a corrosion-resistant PE connection.



The end of the cable must be connected outside the hazardous locations.

The cable shield is to connect to PE in a wide area.

EX related markings

CE 1258

Typ: PSD-CER-AFA-OP

Gas: II 2(1) G Ex db [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 E 130 X

IECEX BVS 14.0108X

-10°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 PSD-CER-AFA-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 operates according to the diffuse reflection scanning principle. The switching direction of the output can be inverted by reversing the polarity of the power supply. If light reflected by an object is detected, the LED lights up yellow and the output switches to +24V or 0V, depending on the polarity of the power supply. If no light is detected, the LED goes out and the output switches off. The load must be connected to 0V.

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.

RSEL Input

To eliminate unwanted switching of the sensor output, the RSEL input can be set to +24VDC. This reduces the range of the sensor by 50%. The RSEL input is PNP compatible.

RSEL	=	0V or not connected	=	Range 40cm
RSEL	=	High (24VDC)	=	Range 20cm

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.

Maintenance

No special maintenance is required.

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:

IEC 60079-0:2017, IEC 60079-1:2014, IEC 60079-28:2015, IEC 60079-31:2013, IEC 60529:2013, IEC 61000-4-2, IEC 61000-4-6, IEC 61000-6-1/-2, IEC 61000-6-4, ATEX directive 2014/34/EU, EMC directive 2014/30/EU, Machine directive 2006/42/EC, RoHS directive 2011/65/EU

ATEX/IECEX-Designation:

Gas: II 2(1) G Ex db [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 E 130 X

IECEX CoC No.: IECEX BVS 14.0108X

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, CB: Eurofins Electric & Electronic Product Testing AG, Luppenstrasse 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, 16.1.2025


Pablo Ledergerber, Matrix Elektronik AG