

Original Operating Manual:

Photoelectric proximity switch type IRD-10I-Z81-OP



ATEX designation:

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

II 2(1)D Ex tb [op is Da] IIIB T100°C Db IP67

IECEX BVS 14.0108X



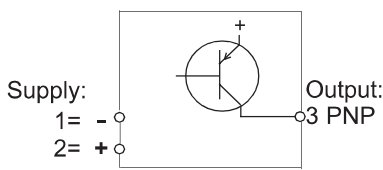
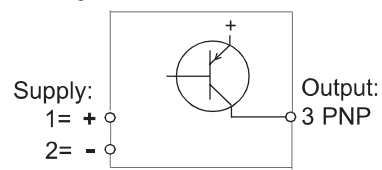
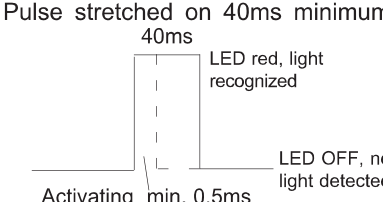
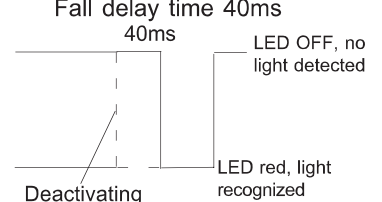
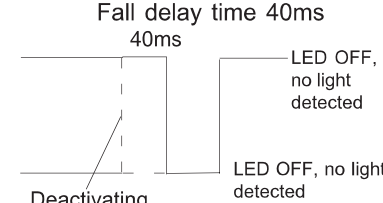
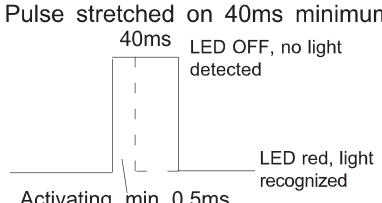
IECEX designation:

Ex d [op is Ga] IIC T6 Gb

Ex tb [op is Da] IIIB T100°C

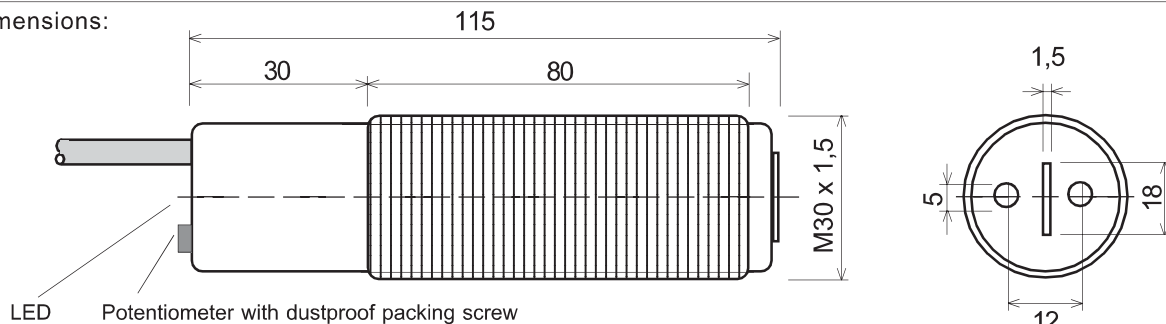
Db IP67

- ATEX and IECEx certification
- For use in Ex Zones (0), 1, 2, (20), 21, 22
optical radiation can operate into Ex Zones 0, 20
- 1 kHz switching frequency with 40ms pulse stretching
- Also for using with certificated fibre optics
- Robust sensor for industrial applications

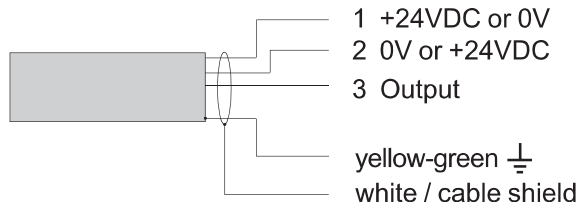
Type		IRD-10I-Z81-OP
Technical data		
Optical range		1m, adjustable
Type of Ex protection Gas, 2014/34/EU		II 2(1)G Ex d [op is Ga] IIC T6 Gb
Type of Ex protection Dust, 2014/34/EU		II 2(1)D Ex tb [op is Da] IIIB T100°C Db IP67
For use in Ex Zones		Zones (0), 1,2, (20), 21, 22
Maximum optical radiant power		≤15mW
Maximum optical radiant intensity		≤5mW/mm²
Light source		Infrared 870nm
Optical Beam pattern		appr.10°
Response time		0.5ms
Time function		Pulse stretching on 40ms
Power-up delay time		500ms
Supply voltage		24 VDC ±15%
Absolute maximum supply voltage Um		30VDC
Current consumption		60mA
Maximum power dissipation		1.66W
Output		PNP type, 100mA, short-circuit protected
Utilization category, at EN 60947-5-1		DC13
Housing		M30, brass, nickel plated
Enclosure rating at EN 60529		IP67
Ambient working temperature range Tamb		-20°C up to +60°C
Storage temperature range		-20°C ... +70°C
Relative humidity		15% ... 90%, non-condensing
Vibration and shock resistance		Vibration: 30g over 20Hz to 2kHz. Shock: 100g for 3ms
Pollution degree at EN 60664-1:2007		4
Device designation, at EN 60947-5-2		D3A30AP1
Connection cable		3 + PE x 0.5mm², TPU, shielded, halogen free, leads numbering marked, for drag chaining, length: 3m
Accessories		-2x nuts M30 (or optional 1 clamp) -1x Spare safety screw with packing ring for potentiometer sealing
Function and wiring:		Wiring: 1 = 0V / 2 = +24VDC  Wiring: 1 = +24VDC / 2 = 0V 
Function proximity switch:		Pulse stretched on 40ms minimum  Fall delay time 40ms 
Function light barrier:		Fall delay time 40ms  Pulse stretched on 40ms minimum 
ATEX related designation of the devices		CE 1258 Type IRD-10I-Z81-OP: ATEX EC-type Certification IECEX Certification Tamb: -20°C up to +60°C Date of production: (X designation of the certification number: Fibre optics must only be applied with sensors with certificated limited optical power)

IRD-10I-Z81-OP-IECEX_e5/2022-02-17/MP

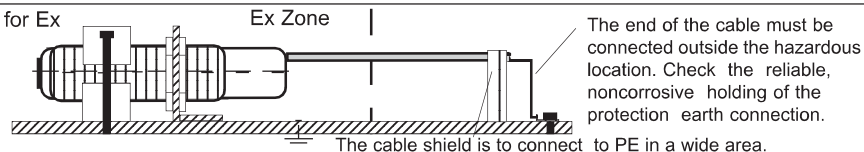
Dimensions:



Wiring:



Equipotential Bonding prescription for Ex Devices:



Operating Manual, EU - Declaration of Conformity:

Mounting prescriptions

Ex Protection:

It is necessary to take into consideration the valid international and national rules and regulations (EN 60079-14). The maximum input voltage $U_m=30VDC$ must not be exceeded. The local equipotential bonding have to be done. The protective earth (PE) is solid connected with the housing. 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 optical lenses are not allowed in hazardous locations. In dust Ex zones, do not operate the sensors without fixed dustproof sealing crew. After adjust the potentiometer, the dustproof sealing crew with undamaged packing ring, must be screwed down. Damaged or lost screws or packing rings must be replaced.

Type IRD-10I-Z81-OP: Applicable in Ex zones 1, 2, 21, 22. The limited optical radiation can operate into hazardous locations 0 or 20 over certificated fibre optics or through a viewing glass.

General mounting prescriptions:

Do not exceed the maximum ratings. The electrical connections must be exactly as shown in the connection diagram. The cable shield must be connected short. The cable shield should be connected to the protection earth, large-surfaced. Connection cables must not be installed parallel to high voltage cables. Do not exceed the maximum ratings.

Function

The photoelectric sensors type IRD-10I-Z81 are well applicable for the detections of small or very fast moved objects. The internal response time is 0.5ms. For an optimal data processing pulses shorter than 40ms will be stretched to 40ms. Please note, that the delay function is different as the polarity of the supply voltage and the using as proximity switch or as light barrier. (See page 1). The optimal range can be adjusted by the potentiometer. The load must be connected to 0V(-).

Range

The nominal optical range is specified on white paper A4, 80. 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, also for high temperature areas.

Maintenance

Protect the sensor and the optional fibre optics against pollution. If the fibre optics or the sensor lenses are contaminated, clean with alcohol. Do not use aggressive solvents. Optical fibres can be destroyed by strong solvents. Equipment must only be repaired or serviced by the manufacturer.

General safety instructions

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: EN 60079-14, single directive 1999/92/EC.

The sensors are conform to the following directives and standards:

IEC/EN 60079-0:2012 + A11:2013, IEC/EN 60079-1:2007, IEC/EN 60079-28:2007, IEC/EN 60079-31:2010, EN 60529:2014, EN 60950-1:2006; 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.

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:

IECEX certification: Ex d [op is Ga] IIC T6 Gb, Ex tb [op is Da] IIIB T100°C Db IP67. Certification No. IECEX BVS 14.0108X.

ATEX certification: II 2(1)G Ex d [op is Ga] IIC T6 Gb, II 2(1)D Ex tb [op is Da] IIIB T100°C Db IP67. Certification No. BVS 10 ATEX E 130 X, DEKRA EXAM GmbH, Zertifizierungsstelle, Carl-Beyling-Haus, Dinendahlstrasse 9, D-44809 Bochum, Ident No. CE 0158.

ATEX certification of quality type production of Ex devices in accordance to the ATEX directive 2014/34/EU, CE 1258, Eurofins. Certification No: SEV 21 ATEX 4580. The conformity of the devices with the EC standards and directives and the EC-type examination certificate and the observation of the Quality Safety System ISO 9001:2015 with the ATEX module "Production", declares:

Pablo Ledergerber, Matrix Elektronik AG

Tippkemper - Matrix GmbH

Matrix Elektronik AG (Manufacturer)