Tippkemper®

ISO 9001:2008 / ATEX

MATRIX elektronik ag

Photoelectric Proximity Switch IRD-10XB2-Z9

CE 0158

Ex **II 2G Ex d IIC T6**
II 1/2D Ex tD A20/A21 IP67 T90°C

Housing M30

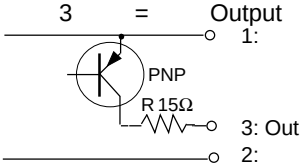
- Well applicable with Matrix glass fibre optics
- Applicable in Ex Zones 1, 2, 20/21, 22
- 0.5ms response time with 40ms one-shot function
- Potentiometer for performance adjustment

Specifications / Type	IRD-10XB2-Z9
Type of Ex protection Gas, at 94/9/EG	II 2G Ex d IIC T6
Type of Ex protection, Dust at 94/9/EG	II 1/2D Ex tD A20/A21 IP67 T90°C
Applicable in Ex Zones	1, 2, 20/21, 22
Light source	Infrared 880nm
Beam pattern	appr.12°
Maximum radiant intensity	5mW/mm²
Range (adjustable) on white paper (80g), 20x30cm	1000mm
Supply voltage	24 VDC (20 to 28VDC)
Current consumption	80mA
Maximum power dissipation	2.24W
Output	1 x PNP, short circuit protected
Maximum output current	100mA
Output response time	0.5ms
Integrated delay function	Pulse wide expansion function to 40ms
Power up delay time	500ms
Hysteresis: axial	ca. 10% from range
Hysteresis: radial	ca. 2% from range
Working temperature range TA	-20°C < TA < +50°C
Relative humidity	90% @ 50° C (non-condensing)
Connection cable	3 + PE x 0,5mm², TPE, oil resistent, shielded, leads numbering marked, L=3m
Enclosure rating	IP67 at EN 60529
Vibration and shock resistance	Vibration: 30g over 20Hz to 2kHz. Shock: 100g for 3ms
Accessories included	- 2 nuts M30 (or 1 clamp, on request) - 1x Spare safety screw with packing ring for potentiometer sealing

Function and supply voltage connection:

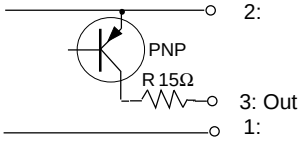
Standard connection layout, standard output function:

1 = +24VDC
2 = 0V
3 = Output



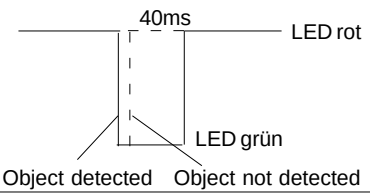
Inverse polarity of supply voltage, inverse output function:

1 = 0V
2 = +24VDC
3 = Output

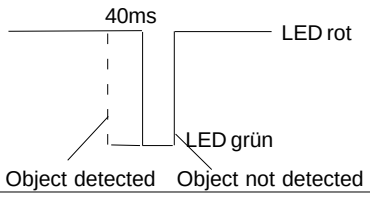


Function as proximity switch:

Pulse wide expansion at 40ms

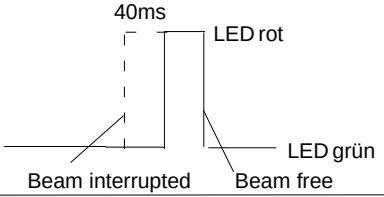


Fall-delay time 40ms

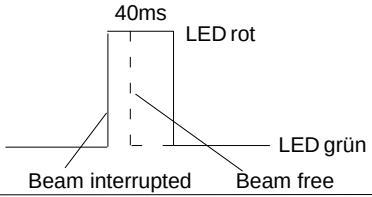


Function as light barrier:

Rise-delay time 40ms



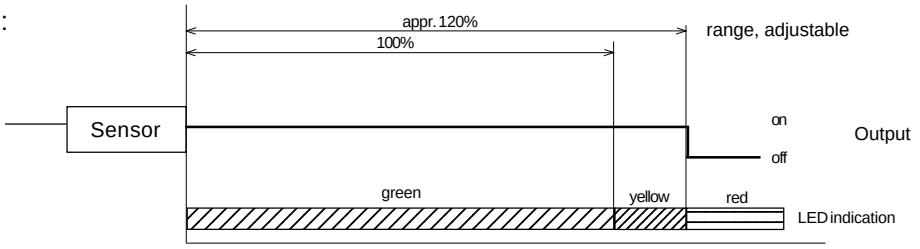
Pulse wide expansion at 40ms



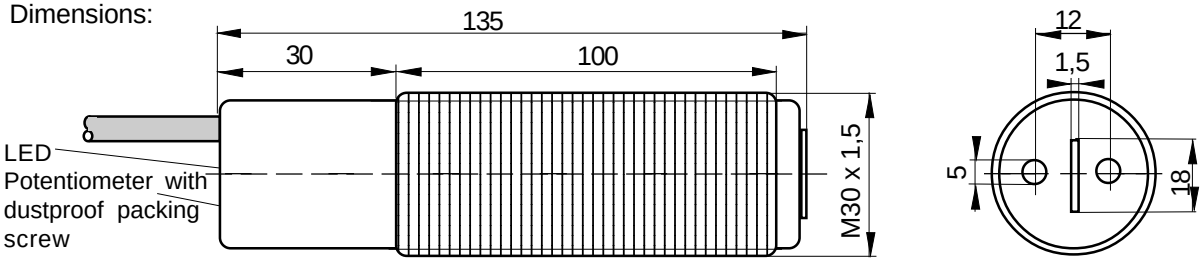
ATEX RELATED MARKINGS ON THE SENSORS:

CE 0158	Manufacturer with address	Production date: Numbers 4 to 7 of the serial number
Device type: IRD-..:	II 2G Ex d IIC T6, II 1/2D Ex tD A20/21 IP67 T90°C	EC type certification. No: DMT 99 ATEX E 056, DEKRA
TA: -20°C < TA < +50°C	Electrical data according to the chart	Ex 0158

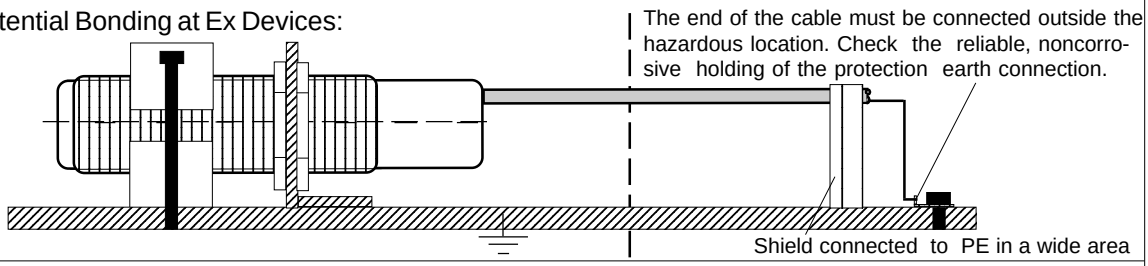
LED indication:



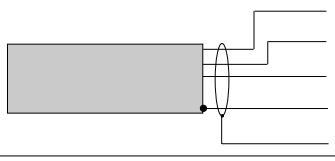
Dimensions:



Equipotential Bonding at Ex Devices:



Connection layout:



1	+24VDC or 0V
2	0V or +24VDC
3	Output
yellow-green	PE/PA ⏚
white	Cable shield

Operating Manual / EC - Declaration of Conformity:

Ex Protection

The sensors type IRD are applicable in Ex zones 1, 2 and 20/21, 22. For the zones 20/21 only the front part (optical lens) can be mounted inside the zone 20. The rear part with the cable must be in the zone 21.

It is necessary to take into consideration the valid international and national rules and regulations (EN 60079-14). The local equipotential bonding have to be done. The protective earth (PE) is solid connected with the housing. The cable have to be protected against damages. To connect cables inside hazardous locations only use certificated Ex housings. All cable terminals must be connected outside hazardous locations. Use only original manufactured fibre optics and additional optical lenses, other additional optical lenses are not allowed in hazardous locations. In Ex zones 20/21 and 22, 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.

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 PE. Connection cables must not be installed parallel to high voltage cables.

Function

The sensor works basically as proximity switch on diffuse optical reflections. If the sensor detects reflected light, the LED sows green and the output switches to +24VDC or 0V, dependent of the polarity of the supply voltage. If the sensor works under safe conditions the LED shows green. If the sensor detects only poor reflected light, the LED shows yellow. If no reflected light will be recognized, the LED shows red and he output switches ON or OFF dependent of the polarity of the supply voltage. The sensor has a fast response time of 0.5ms. Dependent of the configuration, the output signal will be expanded to 40ms, or a rise- or fall-delay time of 40ms will be generated.

The load must be connected to 0V(-).

Fibre optics

For efficiently detection solutions look for our multiple program of fibre optics, 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.

Safety Informations

WARNING These photoelectric sensors do NOT include the self-checking redundant circuitry necessary to allow their use in personnel safety applications. A sensor failure or malfunction can result in *either* a any sensor output voltage. Never use these products as sensing devices for personnel protection. Their use as safety devices may create an unsafe condition which could lead to serious injury or death. When installing and operating with the sensor, it is necessary to take into consideration the relevant international and other national regulations. EN 60079-14, ATEX118a, UVV, BetrSichV, Directive 1999/92/EC

Standards met:

EN 60079-0:2004, EN 60079-1:2004, EN 60241-0:2004, EN 61241-1:2004; EN 60529; EN 61000-4-2 to EN 61000-4-6, EN 61000-6-1/-2, EN 61000-6-4.

Ex protection: 94/9/EC. Machine directive: 2006/46/EC. EMC 2004/108/EC. RoHS: 2002/95/EC

General Notes

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. The warranty does not cover damage or liability for the improper use of Matrix Elektronik AG products.

EC-Declaration of Conformity

ATEX: EC type certification. No: DMT 99 ATEX E 056

ATEX certification of quality type production of Ex devices at the directive 94/9/EC Certification No: BVS 03 ATEX ZQS / E118. 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 9001:2008 with the ATEX module "Production", declares:

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