PRK 92/3 L Ex — Retro-reflective photoelectric sensors with polarization filter

en 2022/05/11 50111475-06

0.2 … 5m

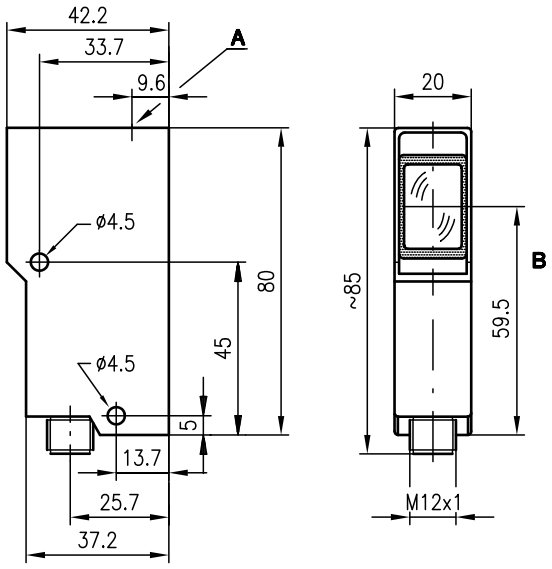
- Compact construction with glass optics, degree of protection IP 67 for industrial application
- Switching output acc. to IEC 60947-5-6 (NAMUR)
- EU type examination certificate
  DMT 03 ATEX E 029 Supplement 4 onwards
  - ⟨Ex⟩ II 2G Ex ia IIC T6 Gb
  - ⟨Ex⟩ II 2D Ex ia IIIC T 80°C Db
- For explosive gas atmospheres of subgroup IIC and conductive dusts acc. to subgroup IIIC
- IECEx certificate
  IECEx BVS 21.0011
  - Ex ia IIC T6 Gb
  - Ex ia IIIC T80 °C Db

Accessories:

(available separately)

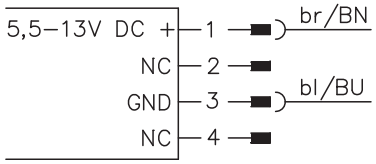
- Mounting systems (BT 92, UMS 1)
- Reflectors
- Reflective tapes
- Blue connection cable for intrinsically safe circuits:
  KB-092-5000-4 … Ex 50113399
  KB-092-5000-4A … Ex 50113400
- Isolated switching amplifier (VS 403…)

Dimensioned drawing



A Indicator diode
B Optical axis

Electrical connection



Leuze electronic GmbH + Co. KG In der Braike 1 D-73277 Owen Tel. +49 (0) 7021 573-0
info@leuze.com • www.leuze.com

Technical data

Optical data

Operating range (TK(S) 100x100) [1]	0.2 … 5m
Light source	LED (modulated light)
Wavelength	660nm (visible red light, polarized)
Intensity	< 1.1mW/mm²

Time behavior

Switching frequency	60Hz
Response time	8.5ms
Readiness delay	≤ 100ms

Electrical data

Nominal voltage	8.2VDC
Operating voltage U_B	5.5 … 13VDC (incl. residual ripple)
Residual ripple	Max. 0.35V_{SS}
Bias current (light path interrupted)	≤ 1mA
Switching output	NAMUR (IEC 60947-5-6)
Function	Light switching (light/dark setting on switching amplifier)

Indicators

Yellow LED	Light path free

Mechanical data

Housing	Diecast zinc
Surface	Anti-static epoxy coating
Optics	Glass
Weight	140g
Connection type	M12 connector

Environmental data

Ambient temp. (operation/storage)	-20°C … +50°C/-30°C … +70°C
VDE protection class [2]	II
Protective circuit [3]	2
Degree of protection	IP 67
Light source	Exempt group (in acc. with EN 62471)
Standards applied	IEC 60947-5-2

Explosion protection

Certification ATEX	⟨Ex⟩ II 2G Ex ia IIC T6 Gb	⟨Ex⟩ II 2D Ex ia IIIC T 80°C Db
Certification IECEx	Ex ia IIC T6 Gb	Ex ia IIIC T80 °C Db
Maximum safe voltage	U_{max} 13V	
Maximum safe current	I_{max} 40mA	
Maximum safe power	P_{max} 90 mW	
Internal capacitance C_i	≤ 70nF	
Internal inductance L_i	≤ 200µH	

1) Operating range: recommended range with function reserve
2) Rating voltage 250VAC
3) 2=polarity reversal protection

Order guide

Designation	Part no.
PRK 92/3 L Ex	50080723

Tables

Reflectors		Operating range
TK(S)	100x100	0.2 … 5.0m
TK(S)	50x100	0.2 … 4.0m
TK(S)	50x50	0.2 … 3.5m
TK(S)	30x50	0.2 … 2.0m
TK	82	0.5 … 3.5m
TK	60	0.2 … 2.0m
TK	45	0.3 … 2.5m
Film 2	100x100	0.4 … 2.5m

TK … = adhesive
TKS … = screw type
Film 2 = adhesive

Diagrams

Notes

Observe intended use!

- This product is not a safety sensor and is not intended as personnel protection.
- The product may only be put into operation by competent persons.
- Only use the product in accordance with its intended use.

- For operation in potentially explosive atmospheres, an isolated switching amplifier is required.

PRK 92/3 L Ex — Retro-reflective photoelectric sensors with polarization filter

Operating instructions for the 92 Ex series for use in potentially explosive areas.

The sensors produced by Leuze electronic GmbH + Co. KG for use in potentially explosive areas are sensors which function on the optical electronic principle. Without making physical contact, these sensors detect objects which are located in or which pass through the light beam.

The devices of the 92 Ex series (LS throughbeam photoelectric sensor, PRK retro-reflective photoelectric sensor and FRK diffuse reflection sensor) were designed for use in explosive gas atmospheres of group II, subgroup IIC (according to Directive 2014/34/EU, corresponds to device group II, device category 2G, zone 1) and for conductive dusts (subgroup IIIC) in compliance with standards EN IEC 60079-0:2018 and EN 60079-11:2012, IEC 60079-0:2017 and IEC 60079-11:2011. The EU Declaration of Conformity can be found under www.leuze.com.

The intrinsic safety of the sensors is ensured only in combination with corresponding electrical equipment according to IEC 60947-5-6 (NAMUR), e.g. isolated switching amplifier VS 403.

NOTE

- An isolated switching amplifier must be used for each sensor. In the case of the throughbeam photoelectric sensor, an isolated switching amplifier is required for both the transmitter and the receiver.
- The sensors must not be connected together at an isolated switching amplifier.
- When using an isolated switching amplifier, it must be ensured that the characteristic data specific to explosion protection of both devices are not exceeded.

Installation, commissioning

⚠ ATTENTION!

- Due to the physical circumstances, the photoelectric sensors of the 92 Ex series must not be used for the protection of persons or for E-Stop purposes.
- The photoelectric sensors of the 92 Ex series must only be installed and maintained by trained electricians.
- The respective applicable national regulations for the installation of electrical equipment in potentially explosive areas must be observed.
- The metal housing of the photoelectric sensor has to be mounted at the mounting location electrostatically conductive (< 1 MΩ).

During installation and commissioning of the devices, the Supplement 4 onwards of EU type examination certificate DMT 03 ATEX E 029 and IECEx certificate IECEx BVS 21.0011 is to be observed.

To connect the intrinsically safe sensors with corresponding equipment, it is possible to use, for example, the blue interconnection cableKB-092-5000-4 Ex (angular connector, part no. 50113399) or KB-092-5000-4A Ex (axial connector, part no. 50113400) from Leuze electronic GmbH + Co. KG.

Maintenance

No changes may be made to the devices of the 92 Ex series for potentially explosive areas.

Repairs to the sensors may only be performed by persons trained for such work or by the manufacturer.

Defective devices must be replaced immediately.

Cyclical maintenance of the sensors is not necessary.

Depending on the environmental conditions, it may occasionally be necessary to clean the light-emission surfaces of the sensors.

This cleaning must only be performed by persons trained for performing this task.

Chemical resistance

The 92 Ex series sensors demonstrate good resistance against many diluted acids and bases.

Exposure to organic solvents is possible only under certain circumstances and only for short periods of time.

Resistance to chemicals should be examined on a case by case basis.