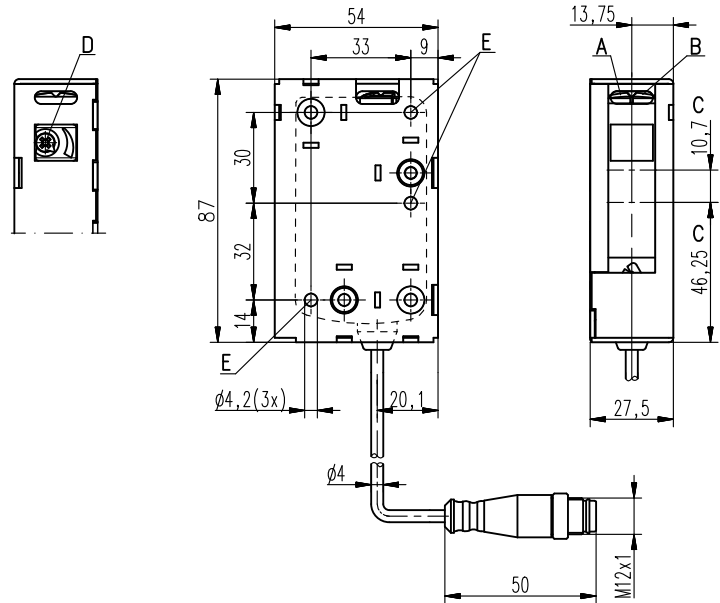


## PRK 46B Ex n

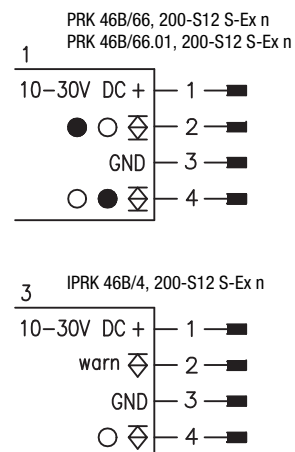
## Retro-reflective photoelectric sensors with polarization filter

### Dimensioned drawing



- A** Green indicator diode
- B** Yellow indicator diode
- C** Optical axis
- D** Optional operating range adjustment
- E** Fastening hole

### Electrical connection



0.05 ... 18m



- Polarized retro-reflective photoelectric sensor
- Fast alignment through *brightVision*®
- A²LS - Active Ambient Light Suppression
- Push-pull switching outputs
- Relay output - for operation without reference potential
- Operating range adjustment
- Warning output - for increased availability
- Ex II 3G Ex nA op is IIB T4 Gc X
- Ex II 3D Ex tc IIIC T90°C Dc IP67 X



### Accessories:

(available separately)

- Mounting systems (BT 46, BT 46.1, BT 46.1.5, BT 46.2)
- M12 connectors (KD ...)
- Ready-made cables (K-D ...)
- Reflectors
- Reflective tapes
- Interlocking guard K-VM12-Ex (Part no. 501 09217)

## Specifications

### Optical data

Typ. op. range limit (TK(S) 100x100) <sup>1)</sup>  
Operating range <sup>2)</sup>  
Light source <sup>3)</sup>  
Wavelength

0.05 ... 18m  
see tables  
LED (modulated light)  
620nm (visible red light, polarized)

### Timing

Switching frequency  
Response time  
Delay before start-up

transistor: 500Hz, relay: 20Hz  
transistor: 1 ms, relay: 25ms  
≤ 300ms

### Electrical data

#### With transistor switching outputs

Operating voltage  $U_B$   
Residual ripple  
Open-circuit current  
Switching output .../66. ...

10 ... 30VDC (incl. residual ripple)  
≤ 15% of  $U_B$   
≤ 20mA  
2 push-pull switching outputs <sup>4)</sup>  
pin 2: PNP dark switching, NPN light switching  
pin 4: PNP light switching, NPN dark switching  
push-pull switching output <sup>5)</sup>  
pin 4: PNP light switching, NPN dark switching  
2 PNP switching outputs, pin 2: PNP dark switching,  
pin 4: PNP light switching  
PNP switching output, pin 4: light switching  
≥ ( $U_B - 2V$ ) / ≤ 2V  
max. 100mA

Signal voltage high/low  
Output current

#### With relay switching output

Operating voltage  $U_B$   
Open-circuit current  
Switching output.../7D ...

24VDC ±10%  
≤ 30mA  
relay, make-contact between pin 2 and pin 4,  
dark switching <sup>5)</sup>  
30VAC/DC / max. 200mA  
6VA, cos φ = 1  
adjustable, 270° (PRK 46B/66.01... only)

Switching voltage/switching current  
Switching power  
Operating range

### Indicators

Green LED  
Yellow LED  
Yellow LED, flashing

ready  
light path free  
light path free, no performance reserve

### Mechanical data

Housing <sup>6)</sup>  
Optics cover  
Weight (with connector/with cable and conn.)  
Connection type

plastic (PC-ABS)  
plastic (PMMA)  
50g/65g  
cable with M12 connector, cable length: 200mm

### Environmental data

Ambient temp. (operation/storage)  
Protective circuit <sup>7)</sup>  
VDE safety class <sup>8)</sup>  
Protection class  
Light source  
Standards applied

-30°C ... +60°C/-30°C ... +70°C  
2, 3  
II, all-insulated  
IP 67, IP 69K  
exempt group (in acc. with EN 62471)  
IEC 60947-5-2

### Explosion protection

Certification (CENELEC)

Ⓔ II 3G Ex nA op is IIB T4 Gc X  
Ⓔ II 3D Ex tc IIIC T90°C Dc IP67 X

### Options

#### Warning output autoControl

Signal voltage high/low  
Output current

PNP transistor, counting principle  
≥ ( $U_B - 2V$ ) / ≤ 2V  
max. 100mA

- 1) Typ. operating range limit: max. attainable range without performance reserve
- 2) Operating range: recommended range with performance reserve
- 3) Average life expectancy 100,000 h at an ambient temperature of 25°C
- 4) The push-pull switching outputs must not be connected in parallel
- 5) Suitable spark extinction must be provided with inductive or capacitive loads
- 6) Model "S"=standard housing, model "W"= with lateral flange
- 7) 2=polarity reversal protection, 3=short circuit protection for all transistor outputs
- 8) Rating voltage 50VAC

## Order guide

Cable with M12 connector, length: 200mm

Complementary switching output + operating range adjustment

Housing model S (standard) PRK 46B/66.01, 200-S12 S-Ex n

Complementary switching output

Housing model S (standard) PRK 46B/66, 200-S12 S-Ex n

PNP switching output light switching, warning output

Housing model S (standard) IPRK 46B/4, 200-S12 S-Ex n

PRK 46B/66... S-Ex n - 05

IPRK 46B/4... S-Ex n - 05

Part no.

501 08593

501 08591

501 08945

## Tables

Reflectors			Operating range
1	TK(S)	100x100	0.05 ... 15m
2	TK 82.2		0.25 ... 11m
3	TK(S)	50x50	0.05 ... 10m
4	TK(S)	40x60	0.05 ... 8m
5	TK(S)	20x40	0.05 ... 3m
6	Tape 4	50x50	0.2 ... 2m

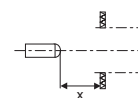
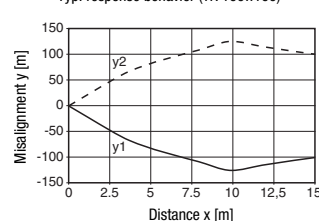
1	0.05	15	18
2	0.25	11	14
3	0.05	10	1
4	0.05	8	1
5	0.05	3	5
6	0.2	2	3

Operating range [m]  
Typ. operating range limit [m]

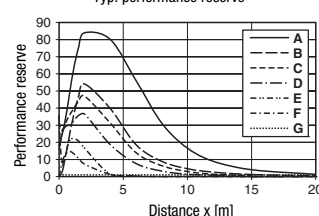
TK ... = adhesive  
TKS ... = screw type  
Tape 4 = adhesive

## Diagrams

Typ. response behavior (TK 100x100)



Typ. performance reserve



- A TK 100x100
- B TK 82.2
- C TK 50x50
- D TKS 40x60
- E TKS 20x40
- F Tape 4 50x50
- G Switching point

## Remarks

### Operate in accordance with 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 the intended use.

## Ex devices

### Notices for the safe use of sensors in potentially explosive areas

This document is valid for devices with the following classifications:

Device group	Device category	Equipment protection level	Zone
II	3G	Gc	Zone 2
II	3D	Dc	Zone 22



#### Attention!

- Check whether the equipment classification corresponds to the requirements of the application.
- The devices are not suited for the protection of persons and may not be used for emergency shutdown purposes.
- A safe operation is only possible if the equipment is used properly and for its intended purpose.
- Electrical equipment may endanger humans and (where applicable) animal health, and may threaten the safety of goods if used incorrectly or under unfavorable conditions in potentially explosive areas.
- The applicable national regulations (e.g. EN 60079-14) for the configuration and installation of explosion-proof systems must be observed without fail.

### Installation and Commissioning

- The devices must only be installed and commissioned by trained electricians. They must be aware of the regulations and operation of explosion-proof equipment.
- To prevent unintentional separation under voltage, devices with connector (e.g. Series 46B) must be equipped with a safeguard or a mechanical interlocking guard (e.g. K-VM12-Ex, part no. 50109217). The warning sign "Do not disconnect under voltage" that is supplied with the device must be attached to the sensor or its mounting bracket so that it is clearly visible.
- Devices with terminal compartment lid (e.g. Series 96) must only be commissioned if the terminal compartment lid of the device is properly sealed.
- Connection cables and connectors must be protected from excessive or unintended pulling or pushing strain.
- Prevent dust deposits from forming on the devices.
- Metallic parts (e.g. housing, mounting devices) are to be integrated into the potential equalization to prevent electrostatic charge.

### Maintenance

- No changes may be made to explosion-proof devices.
- Repairs may only be performed by a person trained for such work or by the manufacturer.
- Defective devices must be replaced immediately.
- Cyclical maintenance is generally not necessary.
- Depending on the environmental conditions, it may occasionally be necessary to clean the optical surfaces of the sensors. This cleaning must only be performed by persons trained for this task. We recommend using a soft, damp cloth. Cleaning agents that contain solvents must not be used.

### Chemical resistance

- The sensors demonstrate good resistance against diluted (weak) acids and bases.
- Exposure to organic solvents is possible only under certain circumstances and only for short periods of time.
- Resistance to chemicals must be examined on a case by case basis.

### Special conditions

- The devices must be installed in such a way that they are protected from direct exposure to UV rays (sunlight).
- Static charge on plastic surfaces must be avoided.



the **sensor** people

## EG-KONFORMITÄTS- ERKLÄRUNG

## EC DECLARATION OF CONFORMITY

## DECLARATION CE DE CONFORMITE

Der Hersteller

The Manufacturer

Le constructeur

**Leuze electronic GmbH + Co. KG**  
In der Braike 1, PO Box 1111  
73277 Owen, Germany

erklärt, dass die nachfolgend  
aufgeführten Produkte den  
einschlägigen Anforderungen  
der genannten EG-Richtlinien  
und Normen entsprechen.

declares that the following  
listed products fulfil the  
relevant provisions of the  
mentioned EC Directives and  
standards.

déclare que les produits  
identifiés suivants sont  
conformes aux directives CE  
et normes mentionnées.

Produktbeschreibung:

Description of product:

Description de produit:

**Reflexions-Lichtschränken mit  
Polarisationsfilter (I)PRK  
46B/...S-Ex n**


**Retro-reflective photoelectric  
sensor with polarization filter  
(I)PRK 46B/... S-Ex n**

**Reflex sur réflecteur avec filtre  
polarisant  
(I)PRK 46B/... S-Ex n**

Kennzeichnung Gas / Staub:

Marking for gas / dust:

Marquage gaz / poussière:

 II 3G Ex nA op is IIB T4 Gc X

 II 3D Ex tc IIIC T90° C Dc IP67 X

Angewandte EG-Richtlinie(n):

Applied EC Directive(s):

Directive(s) CE appliquées:

**94/9/EG  
2004/108/EG**

**94/9/EC  
2004/108/EC**

**94/9/CE  
2004/108/CE**

Angewandte Normen:

Applied standards:

Normes appliquées:

**EN 60079-0: 2009  
EN 60079-28: 2007  
EN 60947-5-2: 2007**

**EN 60079-15: 2005  
EN 60079-31: 2009**

22.3.2013

Datum / Date / Date

Ulrich Balbach, Geschäftsführer / Director / Directeur

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Persönlich haftende Gesellschafterin Leuze electronic Geschäftsführungs-GmbH,  
Sitz Owen, Registergericht Stuttgart, HRB 230550  
Geschäftsführer: Ulrich Balbach, Dr. Matthias Kirchherr  
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