

**PRK 96 Ex n**

**Retro-reflective photoelectric sensors with polarization filter**

en 05-2017/02 50111464-04



**0.1 ... 18m**



- Polarized retro-reflective photoelectric sensor with large operating range in visible red light
- Robust metal housing with shock-resistant optical window, protection class IP 67/ IP 69K for industrial application
- Complementary outputs for standard applications and a wide range of input and output variants for optimal adaptation to the application
- Connection via comfortable terminal compartment
- $\text{Ex}$  II 3G Ex nA op is IIB T4 Gc X
- $\text{Ex}$  II 3D Ex tc IIIC T70°C Dc IP67 X

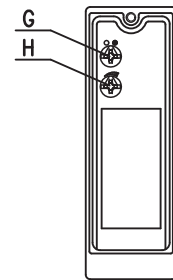
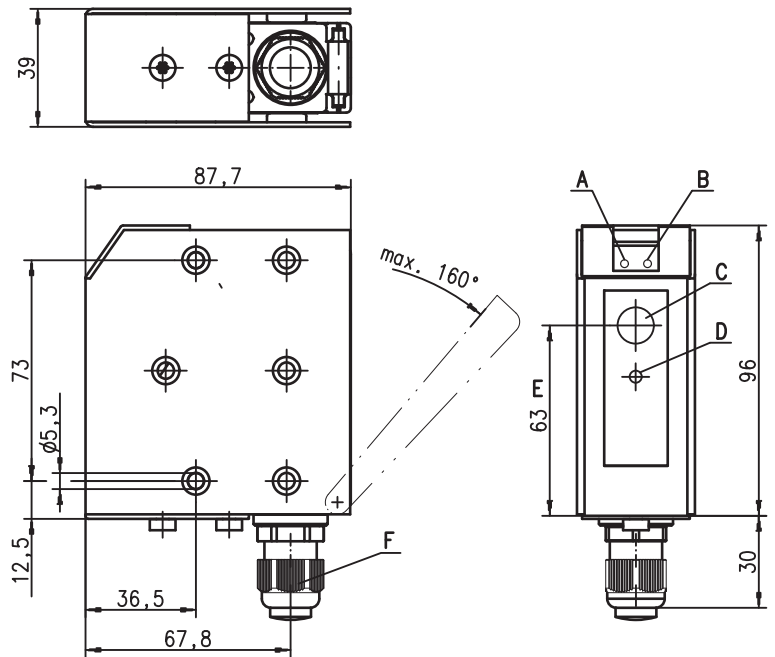


**Accessories:**

(available separately)

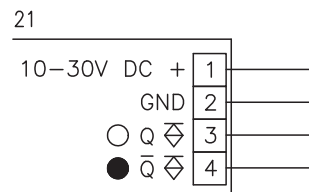
- Mounting systems (BT 96, BT 96.1, UMS 96, BT 450.1-96)
- Reflectors
- Reflective tapes

**Dimensioned drawing**



- A** Green indicator diode
- B** Yellow indicator diode
- C** Receiver
- D** Transmitter
- E** Optical axis
- F** Screwed cable gland M16x1.5 for  $\varnothing$  5 ... 9mm
- G** Light/dark switching
- H** Sensitivity adjustment

**Electrical connection**



We reserve the right to make changes • PAL\_PRK96MP3369Ex\_en\_50111464\_04.fm

## Specifications

### Optical data

Typ. op. range limit (TK(S) 100x100) <sup>1)</sup>	18 m
Operating range <sup>2)</sup>	see tables
Light spot diameter	approx. 130mm at 6m
Light source	LED (modulated light)
Wavelength	660nm (visible red light, polarized)

### Timing

Switching frequency	1000Hz
Response time	0.5ms
Delay before start-up	≤ 200ms

### Electrical data

Operating voltage $U_B$	10 ... 30VDC (incl. residual ripple)
Residual ripple	≤ 15% of $U_B$
Open-circuit current	≤ 40mA
Switching output	PNP transistor
Function characteristics	light/dark switching (reversible)
Signal voltage high/low	≥ ( $U_B - 2V$ ) / ≤ 2V
Output current	max. 100mA
Sensitivity	adjustable

### Indicators

Green LED	ready
Yellow LED	light path free
Yellow LED, flashing	light path free, no performance reserve

### Mechanical data

Housing	diecast zinc
Optics cover	glass
Weight	380g
Connection type	terminals, cable diameter 5 ... 9mm
Screwed cable gland	EEx e II clamping torque 3.5Nm

### Environmental data

Ambient temp. (operation/storage)	-20°C ... +50°C / -40°C ... +55°C
Protective circuit <sup>3)</sup>	1, 2, 3, 4
VDE safety class <sup>4)</sup>	II, all-insulated
Protection class	IP 67, IP 69K <sup>5)</sup>
Light source	exempt group (in acc. with EN 62471)
Standards applied	IEC 60947-5-2

### Explosion protection

Labeling (CENELEC)	II 3G Ex nA op is IIB T4 Gc X
	II 3D Ex tc IIIC T70°C Dc IP67 X

- 1) Typ. operating range limit: max. attainable range without performance reserve
- 2) Operating range: recommended range with performance reserve
- 3) 1=transient protection, 2=polarity reversal protection, 3=short circuit protection for all outputs, 4=interference blanking
- 4) Rating voltage 250VAC
- 5) IP 69K test acc. to DIN 40050 part 9 simulated, high pressure cleaning conditions without the use of additives, acids and bases are not part of the test

## Order guide

Designation	Part No.
PRK 96M/P-3369-21 Ex n	50111088

## Tables

### 18m models

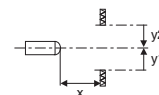
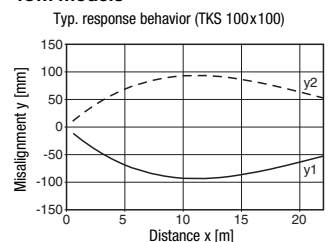
Reflectors	Operating range
1 TK(S) 100x100	0.3 ... 15m
2 MTK(S) 50x50	0.3 ... 11m
3 TK(S) 30x50	0.3 ... 6m
4 TK(S) 20x40	0.3 ... 5m
5 TK(S) 82	0.3 ... 11m
6 Tape 2 100x100	0.3 ... 6m

1	0.1	15	18
2	0.1	11	12
3	0.1	6	7.5
4	0.1	5	6
5	0.1	11	11.5
6	0.1	6	7.5

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

## Diagrams

### 18m models



## 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.

## PRK 96 Ex n Retro-reflective photoelectric sensors with polarization filter

### 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.

