



0 ... 8.5m

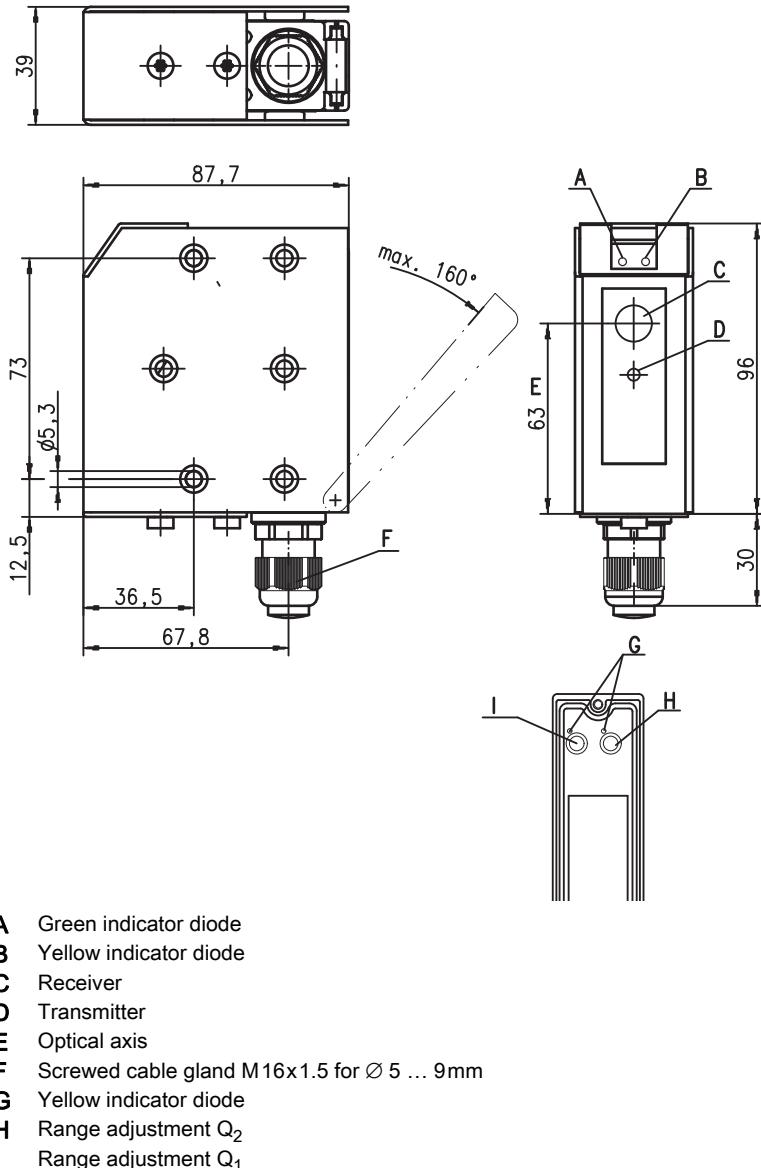
- Retro-reflective photoelectric sensor for detection of transparent media
- Robust metal housing with glass cover, degree of protection IP 67/IP 69K for industrial application
- Sensitivity adjustment
- The autocollimation principle used ensures that the device functions reliably over the entire range (0 ... max.)
- High switching frequency for detection of fast events
- Connection via terminal compartment
- ATEX certification:
 - Ex II 3G Ex ec IIB T4 Gc
 - Ex II 3D Ex tc IIIC T70 °C Dc
- IECEx BVS 21.0054:
 - Ex ec IIB T4 Gc
 - Ex tc IIIC T70 °C Dc

Accessories:

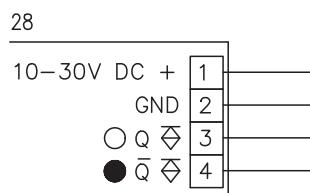
(available separately)

- Mounting systems (BT 96, UMS 96, BT 450.1-96)
- Reflectors
- Reflective tapes
- Alignment aid ARH 96

Dimensioned drawing



Electrical connection



Technical data

Optical data

Typ. op. range limit (TK(S) 100x100) ¹⁾
Operating range ²⁾
Light source
Wavelength

0 ... 8.5m
See tables
LED (modulated light)
660nm (visible red light, polarized)

Time behavior

Switching frequency
Response time
Delay before start-up

1000Hz
0.5ms
≤ 200ms

Electrical data

Operating voltage U_B
Residual ripple
Open-circuit current
Switching output
Function
Signal voltage high/low
Output current
Sensitivity

10 ... 30VDC (incl. residual ripple)
≤ 15% of U_B
≤ 30mA
2 antivalent PNP transistor outputs
Light/dark switching
≥ $(U_B - 2V)/2V$
Max. 100mA
Adjustable with potentiometer

Indicators

Yellow LED
Yellow LED, flashing

Light path free
Light path free, no function reserve

Mechanical data

Housing
Optics cover
Weight
Connection type
Screwed cable gland

Metal housing
Diecast zinc
Glass
380g
Terminals, cable diameter 5 ... 9mm
Wire cross section 0.5 ... 1.5 mm²
EEx e II clamping torque 3.5Nm
Terminal clamping torque 0.5 Nm

Environmental data

Ambient temp. (operation/storage)
Protective circuit ³⁾
VDE protection class ⁴⁾
Protection class
Light source
Standards applied

-20°C ... +50°C/-30°C ... +55°C
1, 2, 3, 4
II, all-insulated
IP 67, IP 69K ⁵⁾
Exempt group (in acc. with EN 62471)
IEC 60947-5-2

Explosion protection

Certification ATEX:

Ex II 3G Ex ec IIB T4 Gc
Ex II 3D Ex tc IIIC T70 °C Dc
Ex ec IIB T4 Gc
Ex tc IIIC T70 °C Dc

- 1) Typ. operating range limit: max. attainable range without function reserve
- 2) Operating range: recommended range with function 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

Tables

Reflectors	Operating range
1 TK(S) 100x100	0 ... 7m
2 MTK(S) 50x50	0 ... 6m
3 TK(S) 30x50	0 ... 4m
4 TK(S) 20x40	0 ... 3.5m
5 TK(S)	0 ... 5m
6 Film 2 100x100	0 ... 3m

1	0.1	7	8.5
---	-----	---	-----

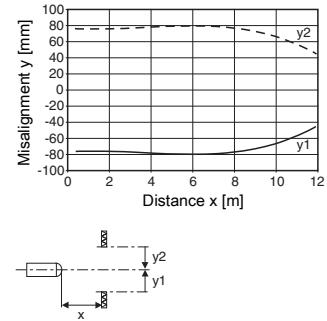
2	0.1	6	7.5
3	0.1	4	5
4	0.1	4	5
5	0.1	5	6
6	0.1	3	3.5

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

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

Diagrams

Typ. response behavior (TKS 100x100)



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 its intended use.

Order guide

	Designation	Part no.
With terminals	PRK 96M/P-2838-28 Ex n	50109523

Notices for the safe use of sensors in potentially explosive areas

This document is valid for devices with the following classifications according to the ATEX certification:

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.
- 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 performing this task. We recommend the use of a soft and damp cloth. Cleaning agents containing 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.