

LSR 46B... Ex n

Throughbeam photoelectric sensor with alignment display

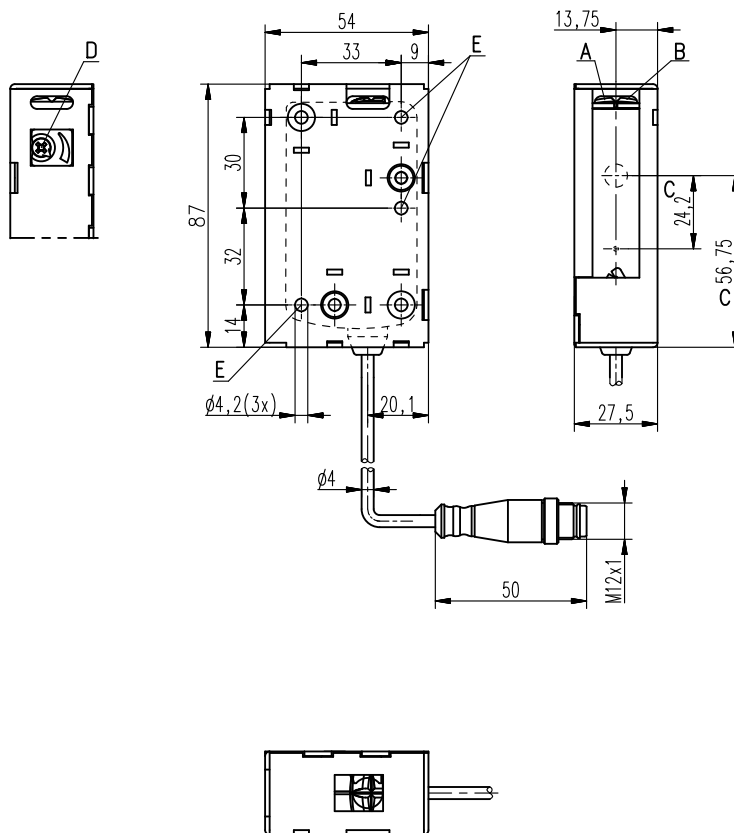
en 2020/08/20 50112942-05



60m

- Throughbeam photoelectric sensor with visible red light
- Fast alignment through *brightVision*[®]
- Indicator for fast, precise alignment
- Push-pull switching outputs
- Sensitivity adjustment (optional)
- Warning output - For increased availability
- Further options for adapting to the respective application
- Ex II 3G Ex nA op is IIB T4 Gc X
- Ex II 3D Ex tc IIIC T90°C Dc IP67 X

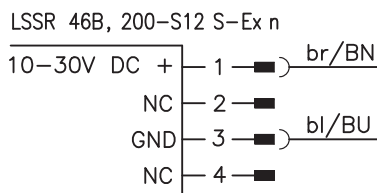
Dimensioned drawing



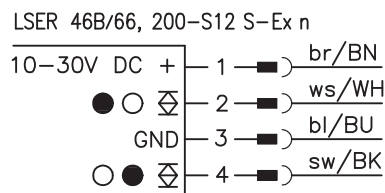
- A Green indicator diode
- B Yellow indicator diode
- C Optical axis
- D Optional sensitivity adjustment
- E Fastening hole

Electrical connection

Transmitter:



Receiver:



Accessories:

(available separately)

- Mounting systems (BT 46, BT 46.1, BT 46.1.5, BT 46.2)
- M12 connectors (KD ...)
- Ready-made cables (KD ...)
- Alignment aid (SAT 5)
- Interlocking guard K-VM12-Ex (part no. 501 09217)

We reserve the right to make changes ? PAL_LSR46BSExn_en_50112942_05.fm

Technical data

Optical data

Typ. operating range limit ¹⁾	60m
Operating range ²⁾	50m
Light source ³⁾	LED (modulated light)
Wavelength	620nm (visible red light, polarized)

Time behavior

Switching frequency	500Hz
Response time	1ms
Readiness delay	≤ 300ms

Electrical data

With transistor switching outputs

Operating voltage U_B	10 ... 30VDC (incl. residual ripple)
Residual ripple	≤ 15% of U_B
Open-circuit current	≤ 20mA
Switching output ⁴⁾	2 push-pull switching outputs
	Pin 2: PNP dark switching, NPN light switching
	Pin 4: PNP light switching, NPN dark switching
	≥ ($U_B - 2V$) / ≤ 2V
	Max. 100mA

Signal voltage high/low	
Output current	

Indicators

Green LED	Ready
Yellow LED	Light path free
Yellow LED, flashing	Light path free, no function reserve

Mechanical data

Housing	Plastic (PC-ABS)
Optics cover	Plastic (PMMA)
Weight (with cable and connector)	65g
Connection type	Cable with M12 connector, cable length: 200mm

Environmental data

Ambient temp. (operation/storage)	-30 °C ... +60 °C / -30 °C ... +60 °C
Protective circuit ⁵⁾	2, 3
VDE protection class ⁶⁾	II, all-insulated
Degree of protection	IP 67, IP 69K
Light source	Exempt group (in acc. with EN 62471)
Standards applied	IEC 60947-5-2

Explosion protection

Certification (CENELEC)	Ex II 3G Ex nA op is IIB T4 Gc X
	Ex II 3D Ex tc IIIC T90°C Dc IP67 X

- 1) Typ. operating range limit: max. attainable range without function reserve
- 2) Operating range: recommended range with function 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) 2=polarity reversal protection, 3=short circuit protection for all transistor outputs
- 6) Rating voltage 50VAC

Order guide

Cable with M12 connector, length: 200mm

Antivalent push-pull switching output

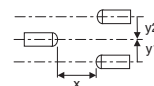
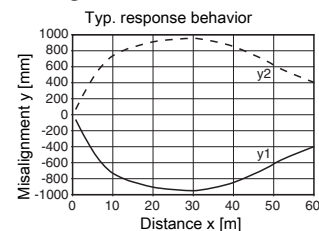
	Designation	Part no.
Transmitter, housing model S (standard)	LSSR 46B, 200-S12 S-Ex n	50111519
Receiver, housing model S (standard)	LSER 46B/66, 200-S12 S-Ex n	50111520

Tables

0	50	60
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	Operating range [m]
	Typ. operating range limit [m]

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.

A light axis consists of a transmitter and a receiver with the following designations:

LSR = complete light axis
 LSSR = transmitter
 LSER = receiver

- **Alignment indicator:**
 ('E' see dimensioned drawing)
Yellow LED =
 light path free - with reserve
Yellow LED, flashing =
 light path free - no function reserve

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 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.

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.