

**LSR 46B... Ex n Throughbeam photoelectric sensor with alignment indicator**

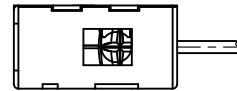
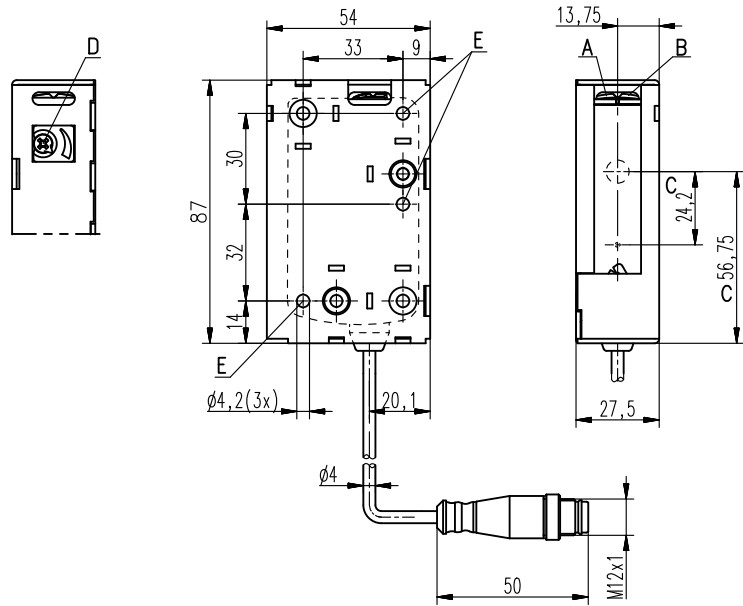
en 05-2016/01 50112942-03



500 Hz
 **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

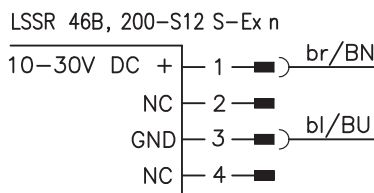
**Dimensioned drawing**



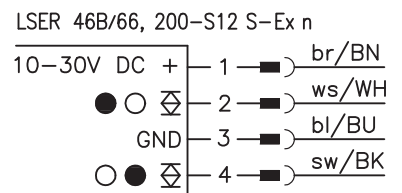
- A** Green indicator diode
- B** Yellow indicator diode
- C** Optical axis
- D** Optional sensitivity adjustment
- E** Fastening hole

**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 (K-D ...)
- Alignment aid (SAT 5)
- Interlocking guard K-VM12-Ex (Part No. 501 09217)

We reserve the right to make changes • DS\_LSR46BSExn\_en\_50112942\_03.fm

**Specifications**

**Optical data**

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

**Timing**

Switching frequency	500Hz
Response time	1 ms
Delay before start-up	≤ 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 <sup>4)</sup>	2 push-pull switching outputs pin 2: PNP dark switching, NPN light switching pin 4: PNP light switching, NPN dark switching $\geq (U_B - 2V) \leq 2V$ max. 100mA

Signal voltage high/low	
Output current	

**Indicators**

Green LED	ready
Yellow LED	light path free
Yellow LED, flashing	light path free, no performance 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 ... +70°C
Protective circuit <sup>5)</sup>	2, 3
VDE safety class <sup>6)</sup>	II, all-insulated
Protection class	IP 67, IP 69K
Light source	exempt group (in acc. with EN 62471)
Standards applied	IEC 60947-5-2

**Explosion protection**

Certification (CENELEC)	$\text{Ex}$ II 3G Ex nA op is IIB T4 Gc X $\text{Ex}$ II 3D Ex tc IIIC T90°C Dc IP67 X
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- 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) 2=polarity reversal protection, 3=short circuit protection for all transistor outputs
- 6) Rating voltage 50VAC

**Order guide**

**Cable with M12 connector, length: 200mm**

**Complementary push-pull switching output**

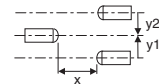
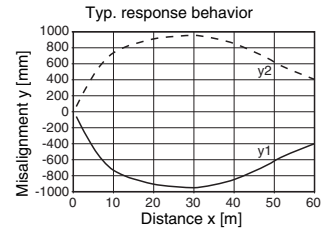
	Designation	Part no.
Transmitter, housing model S (standard)	LSSR 46B, 200-S12 S-Ex n	50111519
Receiver, housing model S (standard)	LSER 46B/66, 200-S12 S-Ex n	50111520

**Tables**

0	50	60
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<input type="checkbox"/>	Operating range [m]
<input type="checkbox"/>	Typ. operating range limit [m]

**Diagrams**



**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.

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 performance reserve

## LSR 46B... Ex n Throughbeam photoelectric sensor with alignment indicator

### 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.

#### 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.

**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:

**Einweg-Lichtschranke mit  
Ausrichtanzeige LS(x)R  
46B/...S-Ex n**


**Throughbeam photoelectric  
sensor with alignment  
indicator  
LS(x)R 46B/... S-Ex n**

**Barrère unidirectionelle avec  
affichage de l'alignement  
LS(x)R 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:

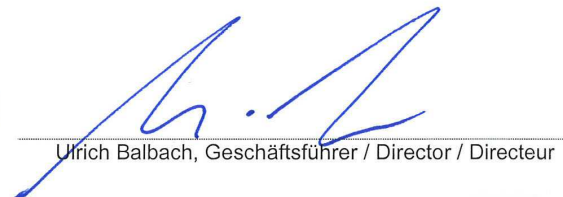
Normes appliquées:

**EN 60079-0: 2009  
EN 60079-28: 2007  
EN 609478-5-2: 2007**

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

22. 3. 2010

Datum / Date / Date



Ulrich Balbach, Geschäftsführer / Director / Directeur