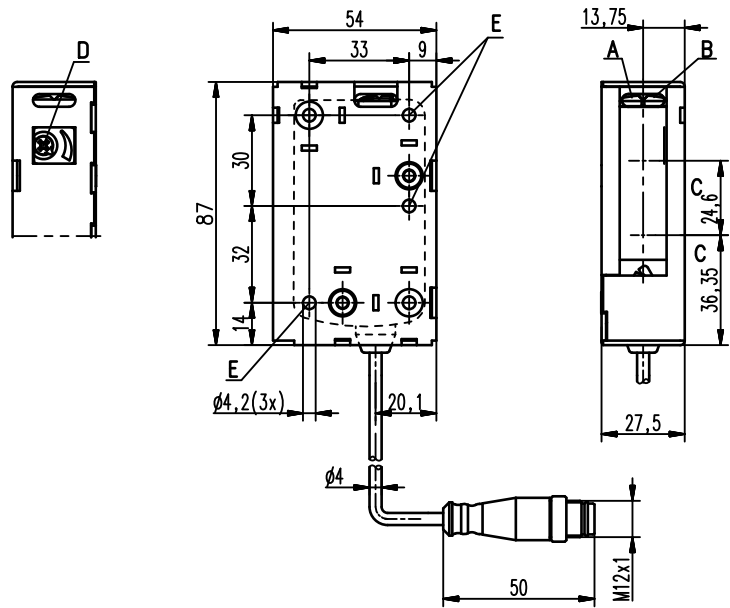


HRTL 46B Ex n Laser diffuse reflection light scanner with background suppression

en 01-2013/05 50123270



Dimensioned drawing



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

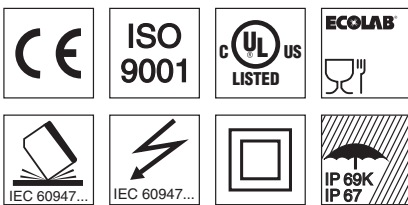
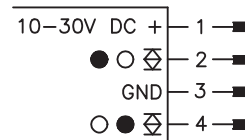
50 ... 1,200 mm
800mm with
black-white error < 10%



- Adjustable scanner with background suppression
- Exact positioning and detection of small parts by means of a laser beam
- Exact scanning range adjustment through multiturn potentiometer
- Fast alignment through *brightVision*®
- High switching frequency for detection of fast events
- A²LS - Active Ambient Light Suppression
- Complementary switching outputs for optimal adaptation to the application
- Activation for e.g. muting or test function
- Ex II 3G Ex nA op is IIB T4 Gc X
- Ex II 3D Ex tc IIIC T90°C Dc IP67 X

Electrical connection

HRTL 46B/66, 200-S12 S-Ex n



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 ...)

We reserve the right to make changes • DS_HRTL46BEx_en_50123270.fm

Specifications

Optical data

| | |
|---|--------------------------------|
| Typ. scanning range limit (white 90%) ¹⁾ | 50 ... 1,200mm |
| Scanning range ²⁾ | see tables |
| Adjustment range | 120 ... 1,200mm |
| Light source | laser (modulated light) |
| Wavelength | 655 nm (visible red light) |
| Light spot | approx. 3 mm x 5 mm at 1,000mm |
| Max. output power | 2.2 mW |
| Pulse duration | 13.8 μs |

Timing

| | |
|-----------------------|---------|
| Switching frequency | 1,000Hz |
| Response time | 0.5ms |
| Delay before start-up | ≤ 100ms |

Electrical data

| | |
|---------------------------------------|--|
| Operating voltage U_B ³⁾ | 10 ... 30VDC (incl. residual ripple) |
| Residual ripple | ≤ 15% of U_B |
| Open-circuit current | ≤ 30mA |
| Switching output | 2 push-pull switching outputs ⁴⁾ |
| | pin 2: PNP dark switching, NPN light switching |
| | pin 4: PNP light switching, NPN dark switching |
| | push-pull switching output ⁴⁾ |
| | pin 4: PNP light switching, NPN dark switching |
| Signal voltage high/low | ≥ ($U_B - 2V$) / ≤ 2V |
| Output current | max. 100mA |

Indicators

| | |
|----------------------|------------------------------------|
| Green LED | ready |
| Yellow LED | reflection |
| Yellow LED, flashing | reflection, no performance reserve |

Mechanical data

| | |
|-----------------|---|
| Housing | plastic |
| Optics cover | plastic |
| Weight | 50g (with connector) / 65g (with cable and conn.) |
| Connection type | M12 connector, or cable with M12 connector, cable length: 200mm |

Environmental data

| | |
|-----------------------------------|---|
| Ambient temp. (operation/storage) | -30°C ... +55°C / -40°C ... +70°C |
| | -10°C ... +40°C / -40°C ... +70°C ⁵⁾ |
| Protective circuit ⁶⁾ | 2, 3 |
| VDE safety class ⁷⁾ | II, all-insulated |
| Protection class | IP 67, IP 69K |
| Laser class | 2 in accordance with EN 60825-1:2007 |
| Standards applied | 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

| | |
|-------------------------------|-----------------|
| Activation input active | |
| Transmitter active/not active | ≥ 8V / ≤ 2V |
| Activation/disable delay | ≤ 1 ms / ≤ 2 ms |
| Input resistance | 10KΩ ± 10% |

- 1) Typ. scan. range limit: max. achievable scanning range for light objects (white 90%)
- 2) Scanning range: recommended scanning range for objects with different diffuse reflection
- 3) For UL applications: for use in class 2 circuits only
- 4) The push-pull switching outputs must not be connected in parallel
- 5) Temperature range for UL applications
- 6) 2=polarity reversal protection, 3=short circuit protection for all outputs
- 7) Rating voltage 50V

Order guide

The sensors listed here are preferred types; current information at www.leuze.com.

| Cable with M12 connector, length: 200mm | Designation | Part no. |
|--|-----------------------------|----------|
| Complementary push-pull switching output | | |
| Housing model S (standard) | HRTL 46B/66, 200-S12 S-Ex n | 50114409 |

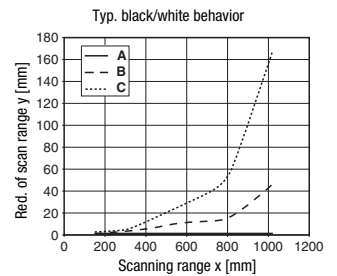
Tables

| | | |
|---|----|-------|
| 1 | 50 | 1,200 |
| 2 | 60 | 850 |
| 3 | 80 | 750 |

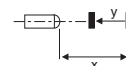
| | |
|---|-----------|
| 1 | white 90% |
| 2 | gray 18% |
| 3 | black 6% |

☐ Scanning range [mm]

Diagrams

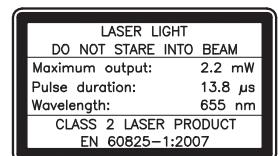


- A white 90%
- B gray 18%
- C black 6%



Remarks

- **Approved purpose:**
This product may only be used by qualified personnel and must only be used for the approved purpose. This sensor is not a safety sensor and is not to be used for the protection of persons.
- With the set scanning range, a tolerance of the upper scanning range limit is possible depending on the reflection properties of the material surface.
- **Laser warning signs:**
It is important to attach the stick-on labels delivered with the device! If the signs could be covered due to the installation location of the device, attach them close to the device so that it is not possible to look into the laser beam when reading the notices.



HRTL 46B Ex n Laser diffuse reflection light scanner with background suppression

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.

**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:

**Laser-Reflexions-Lichttaster
 mit Hintergrundausblendung
 HRTL 46B/...S-Ex n**
**Laser diffuse reflection light
 scanner with background
 suppression
 HRTL 46B/... S-Ex n**
**Cellule reflex laser à détection
 directe avec élimination de
 l'arrière-plan
 HRTL 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
 EN 60825-1: 2007**

3.6.2013

Datum / Date / Date


 Ulrich Balbach, Geschäftsführer / Director / Directeur

 Leuze electronic GmbH + Co. KG
 In der Braike 1
 D-73277 Owen
 Telefon +49 (0) 7021 573-0
 Telefax +49 (0) 7021 573-199
 info@leuze.de
 www.leuze.com

LEO-ZQM-149-02-FO

 Leuze electronic GmbH + Co. KG, Sitz Owen, Registergericht Stuttgart, HRA 230712
Persönlich haftende Gesellschafterin Leuze electronic Geschäftsführungs-GmbH,
 Sitz Owen, Registergericht Stuttgart, HRB 230550

Geschäftsführer: Ulrich Balbach, Dr. Matthias Kirchherr
 USt-IdNr. DE 145912521 | Zollnummer 2554232

 Es gelten ausschließlich unsere aktuellen Verkaufs- und Lieferbedingungen
 Only our current Terms and Conditions of Sale and Delivery shall apply