HRTR 46B Ex n Diffuse reflection light scanner with background suppression

Part No. 501 09198

5 … 1,800 mm
800 mm with black-white error < 10%

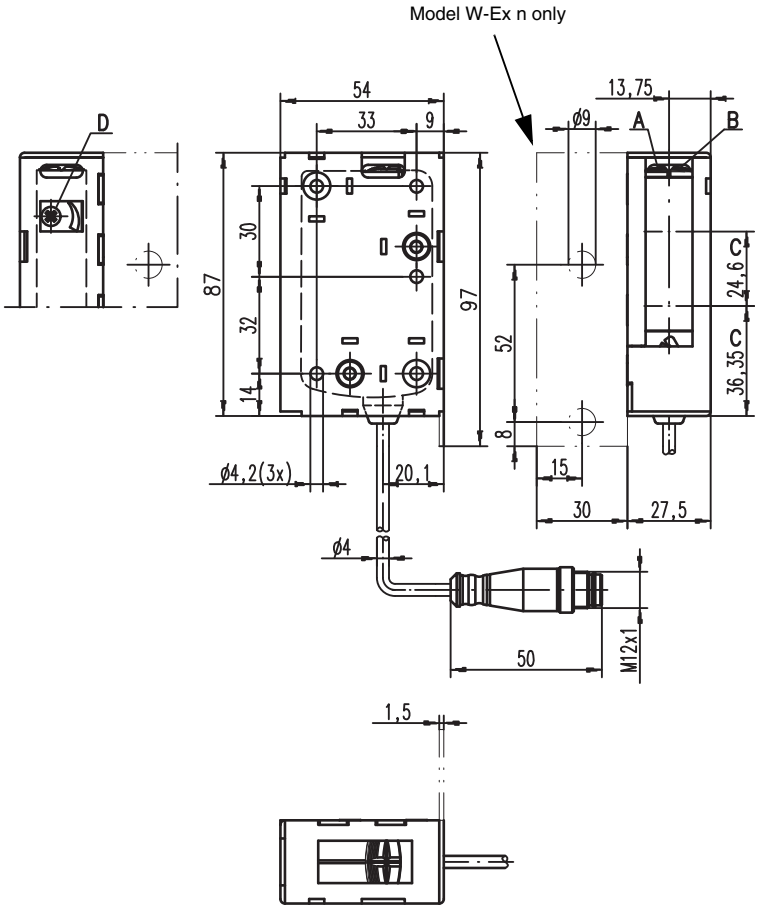
- Adjustable scanner with background suppression
- Reliable detection of light and dark, as well as inclined or sloped surfaces
- Exact scanning range adjustment through multiturn potentiometer
- Fast alignment through *brightVision*®
- Fast connection through Ultra-Lock™ fast locking
- A²LS - Active Ambient Light Suppression
- Complementary switching outputs for optimal adaptation to the application
- ⟨Ex⟩ II 3G EEx nA II T4
- ⟨Ex⟩ II 3D tD A22 IP 67 T 90°C

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 …)
- Interlocking guard K-VM12-Ex (Part No. 501 09217)

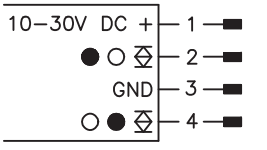
Dimensioned drawing



A Green indicator diode
B Yellow indicator diode
C Optical axis
D Scanning range adjustment

Electrical connection

HRTR 46B/66, 200-S12 S-Ex n
HRTR 46B/66, 200-S12 W-Ex n



Specifications

Optical data		**Red light**
Typ. scanning range limit (white 90%) [1]		5 … 1,800mm
Scanning range [2]		see tables
Adjustment range		120 … 1,800mm
Light source		LED (modulated light)
Wavelength		620nm (visible red light)
Timing		
Switching frequency		200Hz
Response time		2.5ms
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		≤ 20mA
Switching output	…/66. …	2 push-pull switching outputs [4] pin 2: PNP dark switching, NPN light switching pin 4: PNP light switching, NPN dark switching
	…/4. …	PNP switching output pin 4: PNP light switching
	…/4D. …	PNP switching output pin 4: PNP dark switching
Signal voltage high/low		≥ (U_B-2V)/≤ 2V
Output current		max. 100mA
Indicators		
Green LED		ready
Yellow LED		reflection
Flashing yellow LED		reflection, no performance reserve
Mechanical data		
Housing [5]		plastic
Optics cover		plastic
Weight		50g (with connector) / 65g (with cable and conn.)
Connection type		Cable with M12 connector, cable length: 200mm
Environmental data		
Ambient temp. (operation/storage)		-30°C … +60°C/-40°C … +70°C
Protective circuit [6]		2, 3
VDE safety class [7]		II, all-insulated
Protection class		IP 67, IP 69K
LED class		1 (acc. to EN 60825-1)
Standards applied		IEC 60947-5-2
Explosion protection		
Labelling (CENELEC)		⟨Ex⟩ II 3G EEx nA II T4 ⟨Ex⟩ II 3D Ex tD A22 IP 67 T 90°C

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) Model "S"=standard housing, model "W"= with lateral flange
6) 2=polarity reversal protection, 3=short-circuit protection for all outputs
7) Rating voltage 50VAC

Order guide

Cable with M12 connector, length: 200mm	**Designation**	**Part No.**
Complementary push-pull switching output		
Housing model S (standard)	HRTR 46B/66, 200-S12 S-Ex n	501 08589
Housing model W (lateral flange)	HRTR 46B/66, 200-S12 W-Ex n	501 08590

Tables

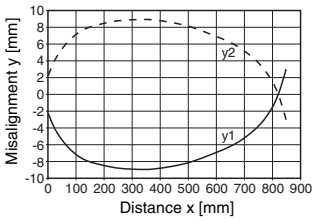
1	0	1.800
2	15	1.000
3	20	700

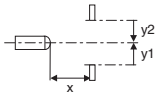
1	white 90%
2	grey 18%
3	black 6%

Scanning range [mm]

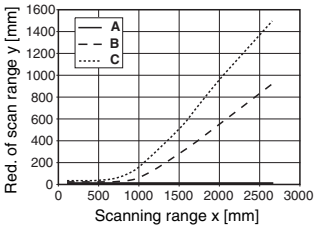
Diagrams

Typ. response behaviour (white 90%)

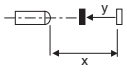




Typ. black/white behaviour



A white 90%
B grey 18%
C black 6%



Remarks

- **Approved purpose**: The light scanners are optical electronic sensors for optical, contactless detection of objects.
- With the set scanning range, a tolerance of the upper scanning range limit is possible depending on the reflection properties of the material surface.

Ex devices

Operating instructions for sensors for use in potentially explosive areas of Group II, Category 3, Zones 2 ("Gas Ex") and 22 ("Dust Ex")

The sensors produced by Leuze electronic GmbH + Co. KG for use in potentially explosive areas are sensors which function on the optical electronic principle. Without making physical contact, these sensors detect objects which are located in or which pass through the light beam.

Attention!

Electrical equipment may endanger humans and (where applicable) animal health, and may threaten the safety of goods if used incorrectly and under unfavourable conditions in potentially explosive areas.

A safe operation in potentially explosive areas is only possible if the equipment is used properly and for its intended purpose.

This requires that the installation and operating instructions are adhered to and that appropriate measures are taken to ensure that this is effectively and permanently ensured.

Notes!

- In order to achieve a safe operation of sensors of Group II, Category 3, in potentially explosive areas, installation and protective devices appropriate to the application must ensure that operational events do not damage or overload the equipment.

Installation, Commissioning

In order to comply with the requirements acc. to EN 50 281-1-1 and EN 60 079-15, the following prerequisites must be met:

- Devices with connector (e.g. Series 46B) must be equipped with an additional safeguard or a mechanical Interlocking guard K-VM12-Ex (Part No. 501 09217) to avoid unintended separation of the connectors. 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.

- The requirements according to EN 50281-1-2 regarding dust deposits and temperatures must be observed.

Attention!

- Due to the physical circumstances, the sensors must not be used for the protection of persons or for purposes of emergency shutdown.
- The sensors must only be installed and maintained by trained electricians.
- The applicable regulations for the installation of electrical equipment in potentially explosive areas must be observed.

Maintenance

No changes may be made to the sensors for potentially explosive areas.

Repairs to the sensors may only be performed by persons trained for such work or by the manufacturer. Defective devices must be replaced immediately.

Cyclical maintenance of the sensors is not necessary.

Depending on the environmental conditions, it may occasionally be necessary to clean the optical surface of the sensors. This cleaning must only be performed by appropriately trained persons. We recommend using a soft, damp cloth for this purpose. Cleaning agents that contain solvents must not be used!

Chemical resistance

The sensors demonstrate good resistance against many diluted acids and bases.

Exposure to organic solvents is possible only under certain circumstances and only for short periods of time.

Resistance to chemicals should be examined on a case by case basis.

Leuze electronic

the sensor people

EG-Konformitätserklärung — *EC Declaration of Conformity*

Name des Herstellers: — *Name of the manufacturer*

Leuze electronic GmbH+Co. KG

Anschrift: — *Address:*

In der Braike 1 D-73277 Owen/ Teck

erklärt unter alleiniger Verantwortung, dass das Produkt: — *declares under sole responsibility that the products:*

Bezeichnung/ *Designation:*	Bestellnummer/ *Order Number:*
HRTR 46B/66,200-S12 S-Ex n	***50108589***
HRTR 46B/66,200-S12 W-Ex n	***50108590***
HRT 46B/66,200-S12 S-Ex n	***50108587***
HRT 46B/66,200-S12 W-Ex n	***50108588***
IHRT 46B/4,200-S12 S-Ex n	***50108943***
IHRT 46B/4,200-S12 W-Ex n	***50108944***

Kennzeichnung Gas: — *Marking for gas:*

II 3G EEx nA II T4

Kennzeichnung Staub: — *Marking for dust:*

II 3D Ex tD A22 IP67 T90°C

folgenden Richtlinien und Normen für die Gerätegruppe II, Gerätekategorie 3 entsprechen und bei bestimmungsgemäßer Verwendung und Beachtung der Betriebsanleitung die grundlegenden Sicherheits- und Gesundheitsanforderungen erfüllen.

conform to the following directives and standards for equipment group II, equipment category 3. They fullfil the basic health and safety requirements if used as intended and in accordance with the operating manual.

Richtlinie 94/9/EG
Richtlinie 89/336/EWG

Directive 94/9/EC
Directive 89/336/EEC

EN 60947-5-2 1998+A1: 1999
EN 60825-1: 1994+A1: 2002+A2: 2001
EN 60079-15: 2005
EN 50281-1-1: 1998+A1: 2002
DMT 02 ATEX ZQS/ E 166

Owen, den 7-7-2008

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