

**HRT 96 Ex n**

**Diffuse reflection light scanner with background suppression**

Part No. 501 11376

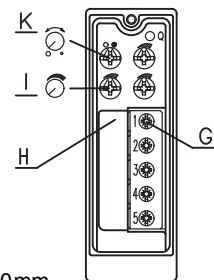
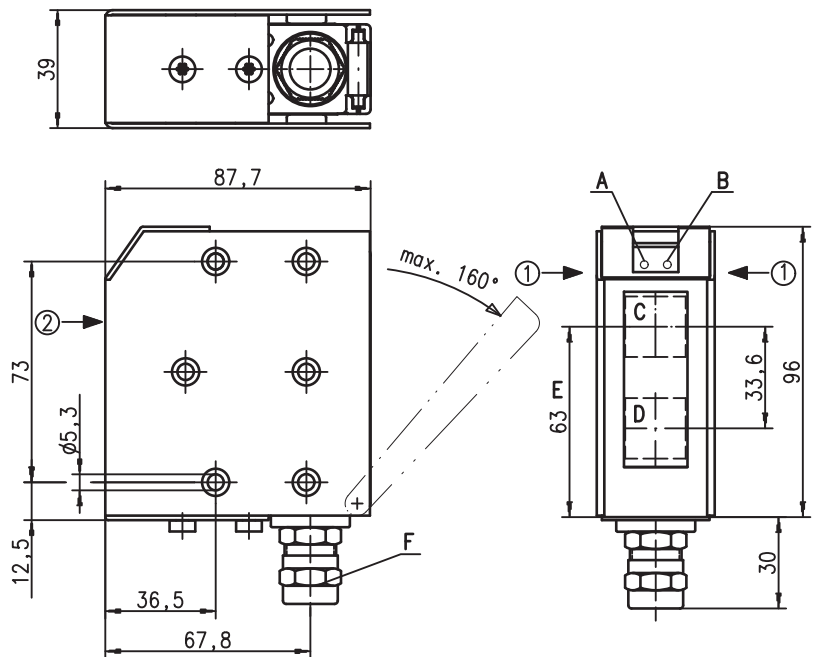


**100 ... 1200 mm**



- Scanner with adjustable background suppression using visible red light
- Robust metal housing with shock-resistant optical window, protection class IP 67/ IP 69K for industrial application
- General light/dark switching and scanning range adjustment
- Switching delay for optimal adaptation to the application
- Connection via comfortable terminal compartment
- $\text{Ex}$  II 3G Ex nA II T4
- $\text{Ex}$  II 3D Ex tD A22 IP 67 T 70°C

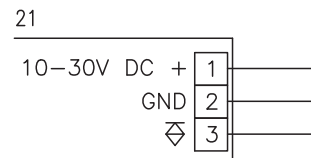
**Dimensioned drawing**



- A** Green indicator diode
- B** Yellow indicator diode
- C** Transmitter
- D** Receiver
- E** Optical axis
- F** Screwed cable gland M16x1.5 for  $\varnothing$  5 ... 10mm
- G** Connection terminals
- H** Cable entry
- I** Scanning range adjustment
- K** Light/dark switching

Preferred entry direction for objects: ① + ②

**Electrical connection**



**Accessories:**

(available separately)

- Mounting systems (BT 96, BT 96.1, UMS 96, BT 450.1-96)

We reserve the right to make changes • 96\_ex\_d14gb.fm

**Specifications**

**Optical data**

Typ. scanning range limit (white 90%) <sup>1)</sup>  
 Scanning range <sup>2)</sup>  
 Adjustment range  
 Light source  
 Wavelength

**Red light**

100 ... 1200mm  
 see tables  
 100 ... 800mm  
 LED (modulated light)  
 660nm

**Timing**

Switching frequency  
 Response time  
 Delay before start-up

300Hz  
 1.67ms  
 ≤ 200ms

**Electrical data**

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

10 ... 30VDC (incl. residual ripple)  
 ≤ 15% of  $U_B$   
 ≤ 35mA, ≤ 75mA with optics heating  
 PNP transistor  
 light or dark switching (reversible)  
 ≥ ( $U_B - 2V$ ) / ≤ 2V  
 max. 100mA

**Indicators**

Green LED  
 Yellow LED

ready  
 reflection

**Mechanical data**

Housing  
 Optics cover  
 Weight  
 Connection type  
 Screwed cable gland

**Metal housing**

diecast zinc  
 polycarbonate  
 380g  
 terminals, cable diameter 5 ... 10mm  
 EEx e II clamping torque 3.5Nm

**Environmental data**

Ambient temp. (operation/storage)  
 Protective circuit <sup>3)</sup>  
 VDE safety class <sup>4)</sup>  
 Protection class  
 LED class  
 Standards applied

-20°C ... +70°C / -40°C ... +70°C  
 1, 2  
 II, all-insulated  
 IP 67, IP 69K <sup>5)</sup>  
 1 (acc. to EN 60825-1)  
 IEC 60947-5-2

**Options**

**Switching delay** (slow oper./release)

0 ... 10s (separately adjustable)

**Explosion protection**

Labelling (CENELEC)

Ⓔ II 3G Ex nA II T4      Ⓔ II 3D Ex tD A22 IP67 T70°C

- 1) Typ. scanning range limit: max. attainable range without performance reserve
- 2) Scanning range: recommended range with performance reserve
- 3) 1=transient protection, 2=polarity reversal protection
- 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**

Red light

1	100	800	1200
2	100	770	1140
3	100	730	1050

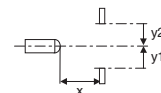
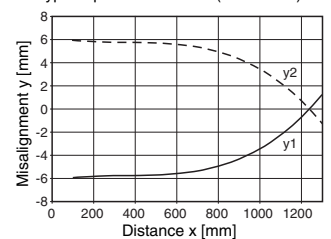
1	white 90%
2	grey 18%
3	black 6%

□ Scanning range [mm]  
 □ Typ. scanning range limit [mm]

**Diagrams**

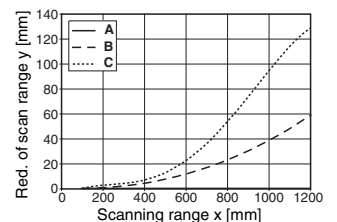
Red light

Typ. response behaviour (white 90%)

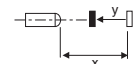


Red light

Typ. black/white behaviour



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



**Order guide**

	Designation	Part No.
	HRT 96M/P-1639-800-21 Ex n	501 11087
With switching delay	HRT 96M/P-1649-800-21 Ex n	501 11089

**Remarks**

- With the set scanning range, a tolerance of the upper scanning range limit is possible depending on the reflection properties of the material surface.

## 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 61 241-1 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 61 241-1 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.

the **sensor** people**EG-Konformitätserklärung**

- EC Declaration of Conformity
- Déclaration CE de conformité
- Declaración de conformidad CE

**Name des Herstellers:**

- Name of the manufacturer:
- Le constructeur:
- Nombre del fabricante:

**Leuze electronic GmbH+Co. KG****Anschrift:**

- Address:
- domicilé:
- Dirección:

**In der Braike 1 D-73277 Owen/ Teck**

Erklärt unter alleiniger Verantwortung, dass das Produkt mit der Bezeichnung:

- declares under sole responsibility that the products with the designation:
- assumant sa pleine et entière responsabilité déclare que les produits avec la Référence:
- declara bajo su propia responsabilidad, que los productos con el Número de pedido:

<b>HRT 96M/P-3360-2500-21 Ex n</b>	<b>50108464</b>
<b>HRT 96M/P-1639-800-21 Ex n</b>	<b>50111087</b>
<b>HRT 96M/P-1649-800-21 Ex n</b>	<b>50111089</b>

**Kennzeichnung Gas:**

- Marking for gas:
- Certification gaz:
- Certificación gas:

 **II 3G Ex nA II T4****Kennzeichnung Staub:**

- Marking for dust:
- Certification poussière:
- Certificación polvo:

 **II 3D Ex tD A22 IP67 T70°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 fulfill the basic health and safety requirements if used as intended and in accordance with the operating manual.
- sont conformes aux directives et normes ci-dessous pour les appareils du groupe II, catégorie 3 et que sous réserve d'utilisation conforme et du respect des consignes du manuel d'utilisation ceux-ci répondent aux exigences fondamentales pour la sécurité et la santé.
- corresponden a las directivas y normas para grupo de aparatos II categoría de aparatos 3 y que cumplen los requerimientos de seguridad y de salud al ser empleados debidamente teniendo en cuenta las instrucciones de uso.

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

- Directive 94/9/EC / Directive 89/336/EEC
- Directive 94/9/CE / Directive 89/336/CEE
- Directiva 94/9/CE / Directiva 89/336/CEE

**EN 60947-5-2:1998+A1:1999+A2:2004**

- EN 60825-1:1994+A1:2002+A2:2001**
- EN 60079-15:2005**
- EN 61241-1:2004**

Owen, den 11. Februar 2009

  
Dr. Harald Grübel (Geschäftsführer/ General Manager/ Directeur / Gerente)

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UStIdNr. DE145912521 | Zollnummer 2554232  
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