

HRT 96 Ex n Diffuse reflection light scanner with background suppression

en 02-2010/02 50111376-01



100 ... 1200mm



- 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
- Complementary switching outputs, scanning range adjustment and delay before start-up for optimal adaptation to the application
- Switching delay for optimal adaptation to the application
- Connection via comfortable terminal compartment
- Ex II 3G Ex nA II T4
- Ex II 3D Ex tD A22 IP 67 T 70°C

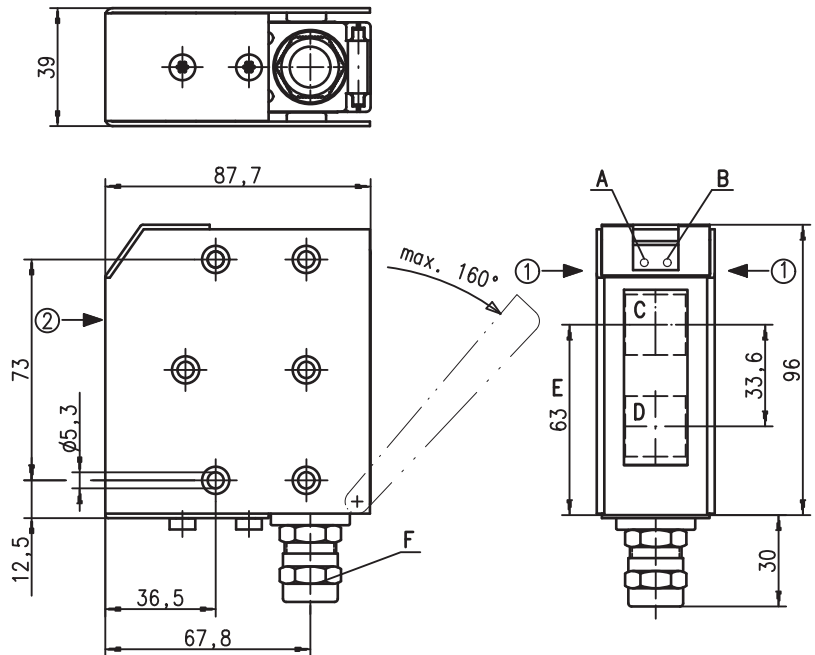


Accessories:

(available separately)

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

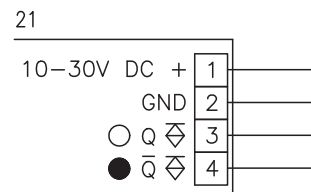
Dimensioned drawing



- A** Green indicator diode
- B** Yellow indicator diode
- C** Transmitter
- D** Receiver
- E** Optical axis
- F** Screwed cable gland M16x1.5 for \varnothing 5 ... 9mm
- G** Connection terminals
- H** Cable entry
- I** Scanning range adjustment
- K** Light/dark switching

Preferred entry direction for objects: ① + ②

Electrical connection



We reserve the right to make changes • DS_HRT_96_M_P_1639_1649_ex_n_en.fm

Specifications

Optical data

Typ. scanning range limit (white 90%) ¹⁾
 Scanning range ²⁾
 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 ... 9mm
 EEx e II clamping torque 3.5Nm

Environmental data

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

-20°C ... +50°C / -40°C ... +55°C
 1, 2
 II, all-insulated
 IP 67, IP 69K ⁵⁾
 1 (acc. to EN 60825-1)
 IEC 60947-5-2

Options

Switching delay (slow oper./release)

0 ... 10s (separately adjustable)

Explosion protection

Labeling (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

Order guide

	Designation	Part No.
With switching delay	HRT 96M/P-1639-800-21 Ex n	50111087
	HRT 96M/P-1649-800-21 Ex n	50111089

Tables

Red light

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

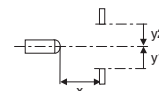
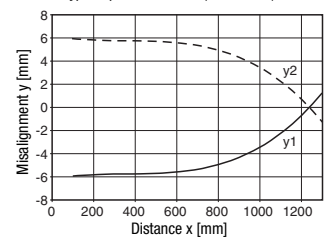
1	white 90%
2	grey 18%
3	black 6%

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

Diagrams

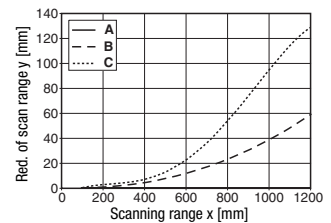
Red light

Typ. response behavior (white 90%)



Red light

Typ. black/white behavior



A white 90%
 B grey 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.

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 unfavorable 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.

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:
-domicilié:
-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:
-assurant 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:

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

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 fulfil 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 Gröbel (Geschäftsführer/ General Manager/ Directeur / Gerente)

Leuze electronic GmbH + Co. KG
 In der Braike 1
 D-73277 Owen
 Telefon +49 (0) 7021 573-0
 Telefax +49 (0) 7021 573-109
 info@leuze.de
 www.leuze.com

Leuze electronic GmbH + Co. KG, 73277 Owen, Regelsgericht Stuttgart, HRB 235717
 Partnerschaft bürgerliches Gesellschaften Leuze electronic Geschäftsbildungs-GmbH
 Sitz: Owen, Regelsgericht Stuttgart, HRB 235650
 Geschäftsführer: Dr. Harald Gröbel (Vorsitzender), Kerstin Just
 USt-IdNr. DE 430125271 | Zollerstrasse 256A/232
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