

**HRT 96 Ex n**

**Diffuse reflection light scanner with background suppression**

en 04-2014/09 50111376-03



**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
- $\text{Ex}$  II 3G Ex nA op is IIB T4 Gc X
- $\text{Ex}$  II 3D Ex tc IIIC T70°C Dc IP67 X

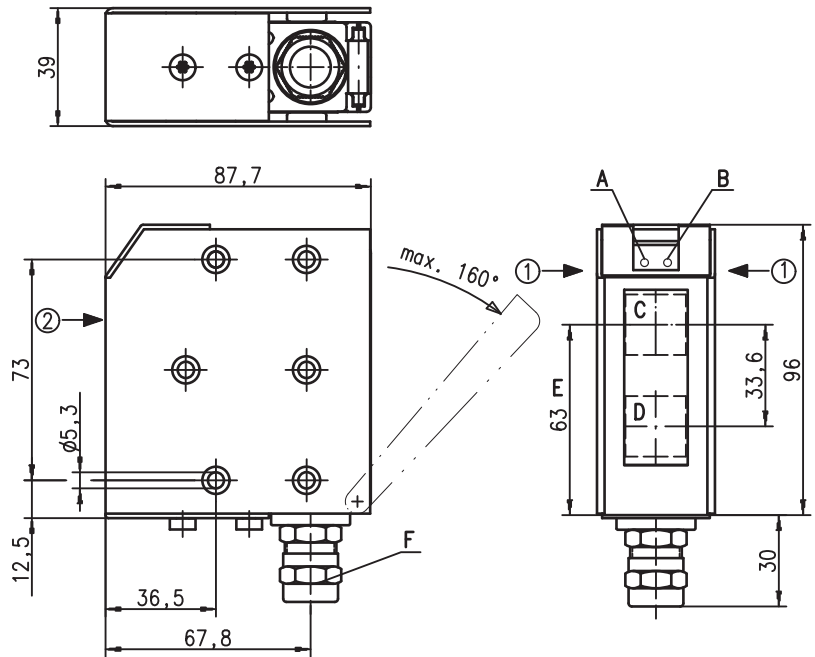


**Accessories:**

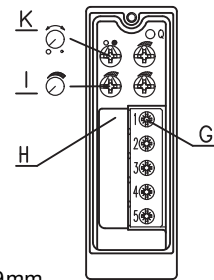
(available separately)

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

**Dimensioned drawing**

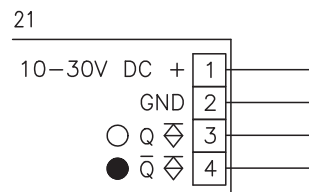


- A** Green indicator diode
- B** Yellow indicator diode
- C** Transmitter
- D** Receiver
- E** Optical axis
- F** Screwed cable gland M16x1.5 for  $\varnothing$  5 ... 9mm



Preferred entry direction for objects: ① + ②

**Electrical connection**



We reserve the right to make changes • DS\_HRT96MP16x9\_800Ex\_en\_50111376\_03.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 ... 9mm  
 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  
 Light source  
 Standards applied

-20°C ... +50°C / -40°C ... +55°C  
 1, 2  
 II, all-insulated  
 IP 67, IP 69K <sup>5)</sup>  
 exempt group (in acc. with EN 62471)  
 IEC 60947-5-2

**Options**

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

0 ... 10s (separately adjustable)

**Explosion protection**

Labeling (CENELEC)

$\text{Ex}$  II 3G Ex nA op is IIB T4 Gc X  
 $\text{Ex}$  II 3D Ex tc IIIC T70°C Dc IP67 X

- 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

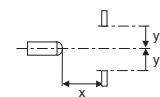
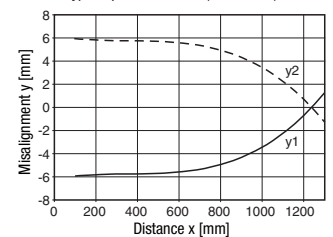
1	white 90%
2	grey 18%
3	black 6%

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

**Diagrams**

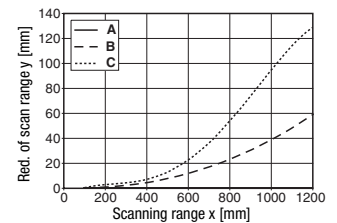
Red light

Typ. response behavior (white 90%)



Red light

Typ. black/white behavior



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

**Remarks**

**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.

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

## HRT 96 Ex n 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:

**Reflexions-Lichttaster mit  
Hintergrundaussblendung  
HRT 96M/P-1639-800-21 Ex n**


**Diffuse reflection light scanner  
with background suppression  
HRT 96M/P-1639-800-21 Ex n**

**Détecteur avec élimination de  
l'arrière-plan  
HRT 96M/P-1639-800-21 Ex n**

Kennzeichnung Gas / Staub:

Marking for gas / dust:

Marquage gaz / poussière:

 II 3G Ex nA op is IIB T4 Gc X

/

 II 3G Ex tc IIIC T70°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:



Datum / Date / Date



Ulrich Balbach, Geschäftsführer / Managing Director / Gérant

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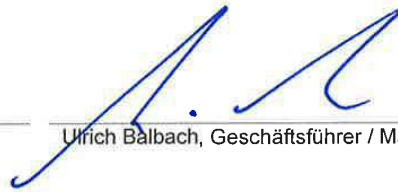
Angewandte Normen:

Applied standards:

Normes appliquées:

10.9.14

Datum / Date / Date



Ulrich Balbach, Geschäftsführer / Managing Director / Gérant

