

HRT 96 Ex n

Diffuse reflection light scanner with background suppression

en 05-2017/02 50111376-04



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 op is IIB T4 Gc X
- Ex II 3D Ex tc IIIC T70°C Dc IP67 X

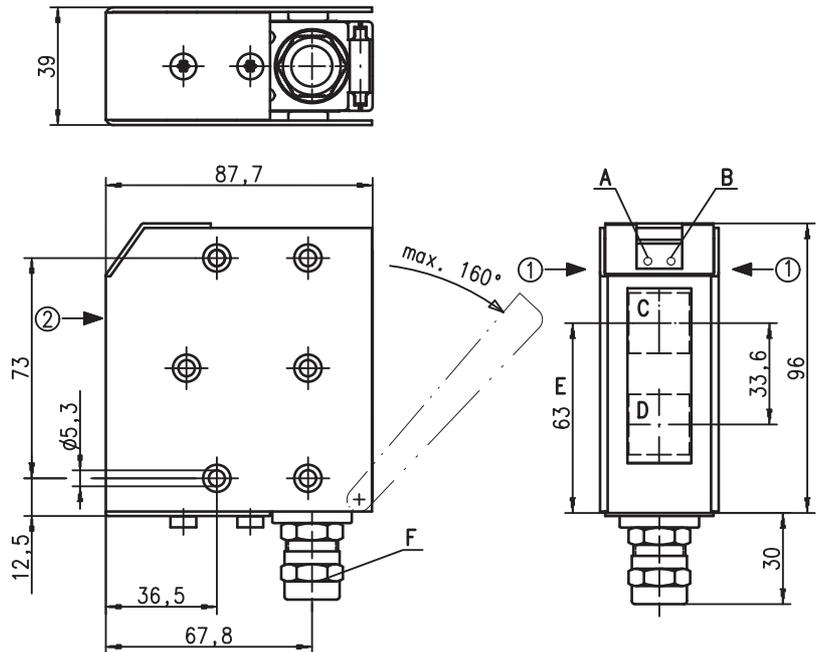


Accessories:

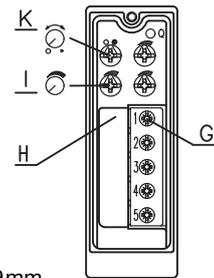
(available separately)

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

Dimensioned drawing

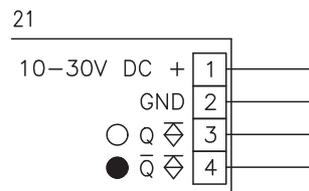


- A** Green indicator diode
- B** Yellow indicator diode
- C** Transmitter
- D** Receiver
- E** Optical axis
- F** Screwed cable gland M16x1.5 for Ø 5 ... 9mm



Preferred entry direction for objects: ① + ②

Electrical connection



We reserve the right to make changes • PAL_HRT96MP16x9_800Ex_en_50111376_04.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
 Light source
 Standards applied

-20°C ... +50°C / -40°C ... +55°C
 1, 2
 II, all-insulated
 IP 67, IP 69K ⁵⁾
 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)

Ex II 3G Ex nA op is IIB T4 Gc X
 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

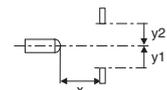
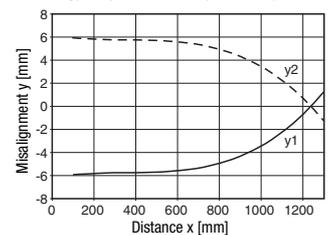
1	white 90%
2	grey 18%
3	black 6%

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

Diagrams

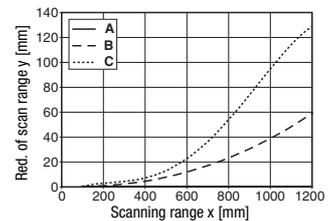
Red light

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.

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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.

