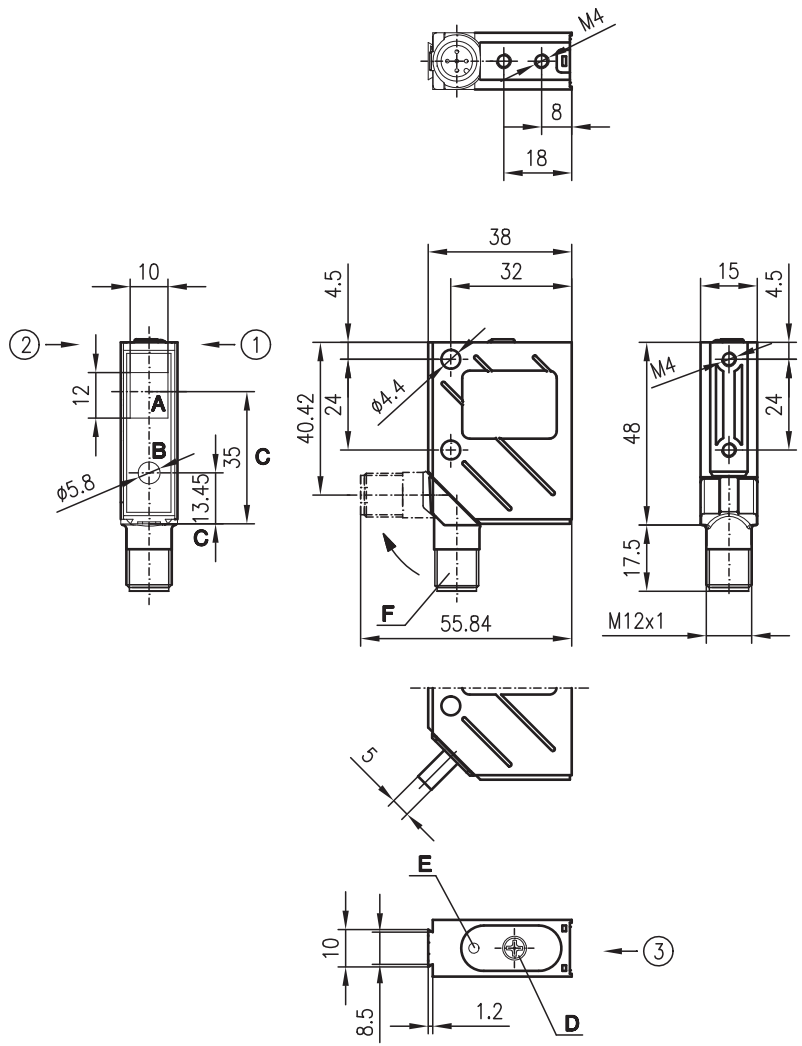


HRTL 8 Laser diffuse reflection light scanner with background suppression

en 09-2014/09 50116483-02



Dimensioned drawing

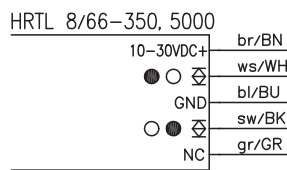
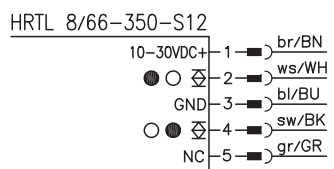
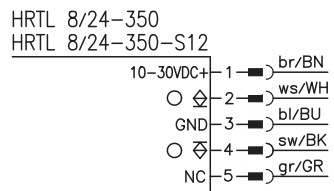


- A** Receiver
 - B** Transmitter
 - C** Optical axis
 - D** Operational control
 - E** Yellow LED
 - F** Turning connector, 90°
- Preferred entry direction for objects ① + ② + ③

5 ... 400mm
2 kHz
10 - 30 V DC
A²LS

- Laser-generated red light, laser class 2
- Adjustable background suppression
- A²LS - Active Ambient Light Suppression
- Push-pull switching outputs
- M12 turning connector or cable connection

Electrical connection



We reserve the right to make changes • DS_HRTL8_350_en_50116483_02.fm

Accessories:
(available separately)

- M12 connectors (KD ...)
- Ready-made cables (K-D ...)
- Mounting systems
- Control guard

Specifications

Optical data

Typ. scanning range limit (white 90%)¹⁾
 Scanning range²⁾
 Mechanical adjustment range
 Light beam characteristic
 Beam spread
 Light source
 Wavelength
 Max. output power
 Pulse duration

Laser class 2

5 ... 400mm
 see tables
 50 ... 400mm
 focussed
 ≥ 0.5 mrad
 laser
 655nm (visible red light)
 3mW
 $\leq 8\mu$ s

Timing

Switching frequency 2000Hz
 Response time 0.25ms
 Delay before start-up ≤ 100 ms

Electrical data

Operating voltage U_B ³⁾ 10 ... 30VDC
 Residual ripple $\leq 15\%$ of U_B
 Open-circuit current ≤ 35 mA
 Signal voltage high/low $\geq (U_B - 2V) \leq 2V$
 Switching output/function .../24 PNP and NPN transistor output, light switching
 .../66 2 push-pull switching outputs⁴⁾
 pin 2: PNP dark switching, NPN light switching
 pin 4: PNP light switching, NPN dark switching
 max. 100mA
 mechanical via multiturn potentiometer

Output current
 Scanning range adjustment

Indicators

Yellow LED object detected

Mechanical data

Housing metal
 Optics cover glass
 Weight (plug/cable) 70g/140g
 Connection type M12 connector, 5-pin or cable: 2000mm, 5x0.25mm²

Environmental data

Ambient temp. (operation/storage) $-10^\circ\text{C} \dots +40^\circ\text{C} / -40^\circ\text{C} \dots +70^\circ\text{C}$
 Protective circuit⁵⁾ 2, 3
 VDE safety class⁶⁾ II, all-insulated
 Protection class⁷⁾ IP 67, IP 69K⁸⁾
 Laser class 2 (acc. to EN 60825-1)
 Standards applied IEC 60947-5-2
 Certifications UL 508, C22.2 No.14-13³⁾ 9)

- 1) Typ. scanning range limit: max. attainable range without performance reserve
- 2) Scanning range: recommended range with performance reserve
- 3) For UL applications: for use in class 2 circuits according to NEC only
- 4) The push-pull switching outputs must not be connected in parallel
- 5) 2=polarity reversal protection, 3=short-circuit protection for all outputs
- 6) Rating voltage 250VAC
- 7) In stop position of the turning connector (turning connector locked)
- 8) 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
- 9) These proximity switches shall be used with UL Listed Cable assemblies rated 30V, 0.5A min, in the field installation, or equivalent (categories: CYJV/CYJV7 or PVVA/PVVA7)

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.

Order guide

	Designation	Part No.
With M12 connector	HRTL 8/24-350-S12	50036370
With 2m cable	HRTL 8/24-350	50036371
With M12 connector	HRTL 8/66-350-S12	50102705
With 5m cable	HRTL 8/66-350, 5000	50103709

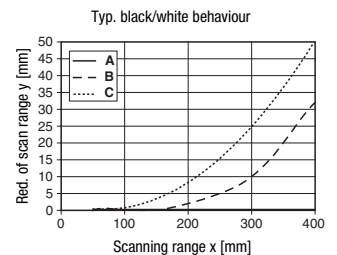
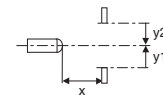
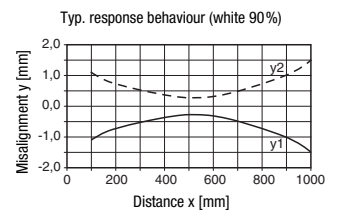
Tables

1	7	350	400
2	10	330	370
3	12	300	340

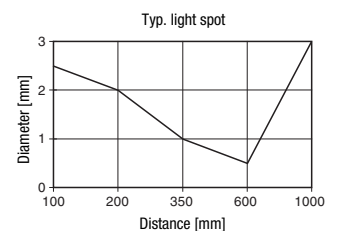
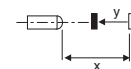
1	white 90%
2	gray 18%
3	black 6%

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

Diagrams



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



Remarks

- Install sensor inclined at angle of approx. 10° if used to detect objects with shiny surfaces.

HRTL 8 Laser diffuse reflection light scanner with background suppression

Laser safety notices

 **ATTENTION, LASER RADIATION – LASER CLASS 2**

Never look directly into the beam!

The device fulfills the EN 60825-1:2008-05 (IEC 60825-1:2007) safety regulations for a product in **laser class 2** as well as the U.S. 21 CFR 1040.10 regulations with deviations corresponding to "Laser Notice No. 50" from June 24th, 2007.

- ↳ Never look directly into the laser beam or in the direction of reflecting laser beams!
If you look into the beam path over a longer time period, there is a risk of injury to the retina.
- ↳ Do not point the laser beam of the device at persons!
- ↳ Intercept the laser beam with an opaque, non-reflective object if the laser beam is accidentally directed towards a person.
- ↳ When mounting and aligning the device, avoid reflections of the laser beam off reflective surfaces!
- ↳ **CAUTION!** Use of controls or adjustments or performance of procedures other than specified herein may result in hazardous light exposure.
The use of optical instruments or devices (e.g., magnifying glasses, binoculars) with the product will increase eye hazard.
- ↳ Adhere to the applicable legal and local regulations regarding protection from laser beams acc. to EN 60825 (IEC 60825) in its latest version.
- ↳ The device must not be tampered with and must not be changed in any way.
There are no user-serviceable parts inside the device.
Repairs must only be performed by Leuze electronic GmbH + Co. KG.

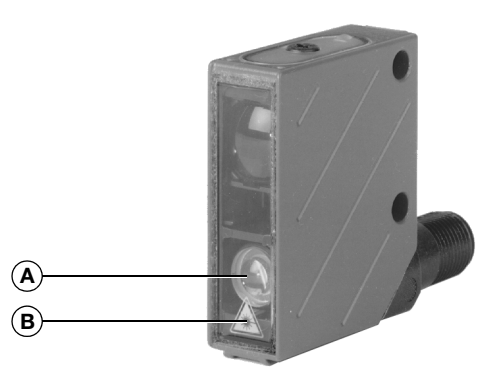
NOTICE

Affix laser information and warning signs!

Laser information and warning signs are affixed to the device(see ①). In addition, self-adhesive laser information and warning signs (stick-on labels) are supplied in several languages (see ②).

- ↳ Affix the laser information sheet with the language appropriate for the place of use to the device.
When using the device in the US, use the stick-on label with the "Complies with 21 CFR 1040.10" notice.
- ↳ Affix the laser information and warning signs near the device if no signs are attached to the device (e.g. because the device is too small) or if the attached laser information and warning signs are concealed due to the installation position.
Affix the laser information and warning signs so that they are legible without exposing the reader to the laser radiation of the device or other optical radiation.

①



A Laser exit opening
B Laser warning sign

②

50107525-03

<p style="text-align: center; font-size: small;">LASERSTRAHLUNG NICHT IN DEN STRAHL BLICKEN</p> <p style="font-size: x-small;">Max. Leistung (peak): 3 mW Impulsdauer: 8 µs Wellenlänge: 655 nm</p> <p style="text-align: center; font-size: x-small;">LASER KLASSE 2 DIN EN 60825-1:2008-05</p>	<p style="text-align: center; font-size: small;">RADIACION LASER NON FISSARE IL FASCIO</p> <p style="font-size: x-small;">Potenza max. (peak): 3 mW Durata dell'impulso: 8 µs Lunghezza d'onda: 655 nm</p> <p style="text-align: center; font-size: x-small;">APPARECCHIO LASER DI CLASSE 2 EN 60825-1:2007</p>
<p style="text-align: center; font-size: small;">LASER RADIATION DO NOT STARE INTO BEAM</p> <p style="font-size: x-small;">Maximum Output (peak): 3 mW Pulse duration: 8 µs Wavelength: 655 nm</p> <p style="text-align: center; font-size: x-small;">CLASS 2 LASER PRODUCT EN 60825-1:2007</p>	<p style="text-align: center; font-size: small;">RAYONNEMENT LASER NE PAS REGARDER DANS LE FASCIAU</p> <p style="font-size: x-small;">Puissance max. (crête): 3 mW Durée d'impulsion: 8 µs Longueur d'onde: 655 nm</p> <p style="text-align: center; font-size: x-small;">APPAREIL À LASER DE CLASSE 2 EN 60825-1:2007</p>
<p style="font-size: x-small;">AVOID EXPOSURE – LASER RADIATION IS EMITTED FROM THIS APERTURE</p>	<p style="font-size: x-small;">EXPOSITION DANGEREUSE – UN RAYONNEMENT LASER EST EMIS PAR CETTE OUVERTURE</p>
<p style="text-align: center; font-size: small;">RADIACION LASER NO MIRAR FIJAMENTE AL HAZ</p> <p style="font-size: x-small;">Potencia max. (peak): 3 mW Duración del impulso: 8 µs Longitud de onda: 655 nm</p> <p style="text-align: center; font-size: x-small;">PRODUCTO LASER DE CLASE 2 EN 60825-1:2007</p>	<p style="text-align: center; font-size: small;">RADIACÃO LASER NÃO OLHAR FIXAMENTE O FEIXE</p> <p style="font-size: x-small;">Potência máx. (peak): 3 mW Período de pulso: 8 µs Comprimento de onda: 655 nm</p> <p style="text-align: center; font-size: x-small;">EQUIPAMENTO LASER CLASSE 2 EN 60825-1:2007</p>
<p style="text-align: center; font-size: small;">LASER RADIATION DO NOT STARE INTO BEAM</p> <p style="font-size: x-small;">Maximum Output (peak): 3 mW Pulse duration: 8 µs Wavelength: 655 nm</p> <p style="text-align: center; font-size: x-small;">CLASS 2 LASER PRODUCT EN 60825-1:2007 Complies with 21 CFR 1040.10</p>	<p style="text-align: center; font-size: small;">激光辐射 勿直视光束</p> <p style="font-size: x-small;">最大输出 (峰值): 3 mW 脉冲持续时间: 8 µs 波长: 655 nm</p> <p style="text-align: center; font-size: x-small;">2 类激光产品 GB7247.1-2012</p>

