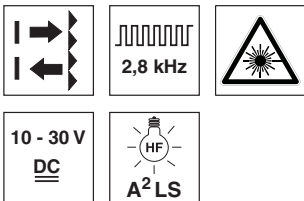


PRKL 8

Laser retro-reflective photoelectric sensor

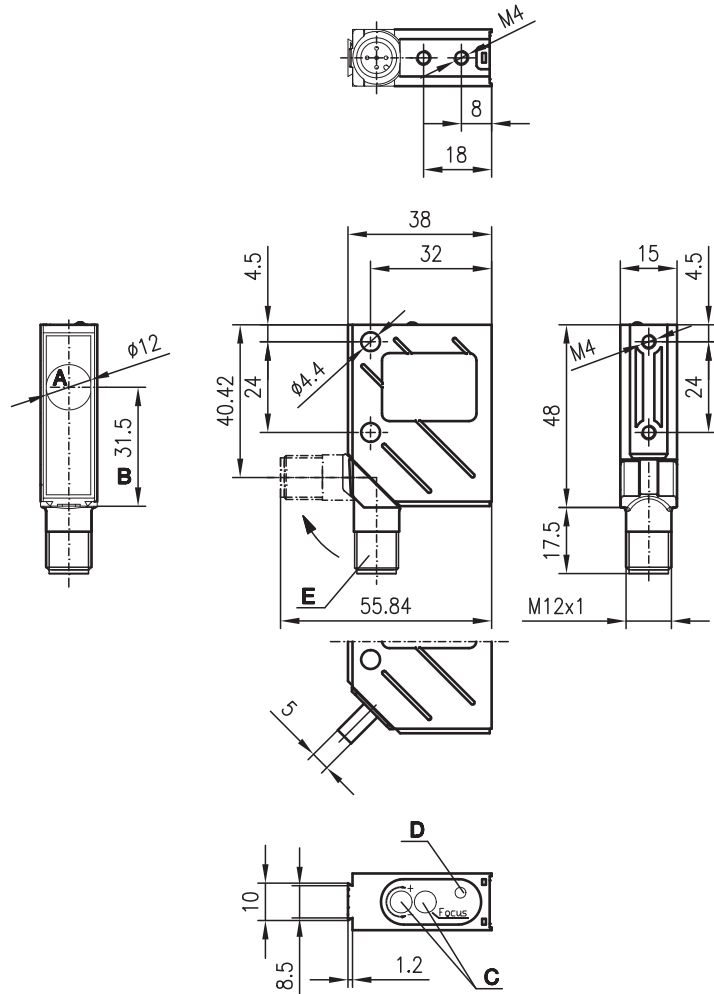
en 10-2014/11 50115718-03



0 ... 22m
0 ... 14m

- Laser, red light, laser class 1 and 2
- The autocollimation principle used ensures that the device functions reliably over the entire range (0 ... max.)
- A²LS - Active Ambient Light Suppression
- Adjustable focus
- M12 turning connector or cable connection

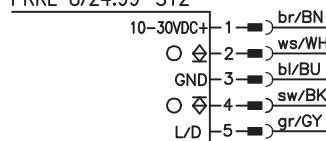
Dimensioned drawing



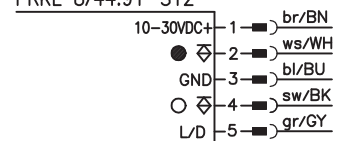
- A Transmitter and receiver
- B Optical axis
- C Operational control
- D Yellow LED
- E Turning connector, 90° rot. angle

Electrical connection

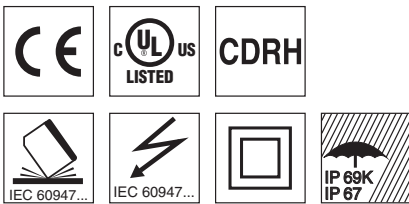
PRKL 8/24.91
PRKL 8/24.91-S12
PRKL 8/24.99-S12



PRKL 8/44.91-S12



We reserve the right to make changes • DS_PRKL8_en_50115718_03.fm



Accessories:

(available separately)

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

Specifications

Optical data

Typ. op. range limit (MTK(S) 50x50)¹⁾
 Operating range ²⁾
 Light spot diameter

Focus adjustment range
 Beam divergence
 Light source
 Wavelength

Timing

Switching frequency
 Response time
 Delay before start-up

Electrical data

Operating voltage U_B ³⁾
 Residual ripple
 Open-circuit current
 Switching output

Function
 Signal voltage high/low
 Output current
 Sensitivity

Indicators

Yellow LED
 Yellow LED, flashing

Mechanical data

Housing
 Optics cover
 Weight (plug/cable)
 Connection type

Environmental data

Ambient temp. (operation/storage)
 Protective circuit ⁴⁾
 VDE safety class ⁵⁾
 Degree of protection ⁶⁾
 Laser class
 Standards applied
 Certifications

Options

L/D input

Dark/light switching
 L/D delay

Laser class 2

0 ... 21m
 see tables
 ≥ 0.1 mm adjustable with 16 rotations
 (see diagram)
 140mm ... ∞ (see diagrams)
 ≥ 0.5 mrad

laser, pulsed
 655nm (visible red light)

Laser class 1

0 ... 12m

670nm (visible red light)

10 ... 30VDC
 $\leq 15\%$ of U_B
 ≤ 35 mA
 1 PNP and 1 NPN transistor output, light switching
 2 PNP transistor outputs,
 pin 4 light switching, pin 2 dark switching
 light/dark switching via pin 5
 $\geq (U_B - 2V) / \leq 2V$
 max. 100mA
 adjustable with 12-turn potentiometer

light path free
 light path free, no performance reserve

metal
 glass
 70g/140g
 M12 connector, 5-pin or
 cable: 2000mm, 5x0.25mm²

-10°C ... +40°C / -40°C ... +70°C
 2, 3
 II, all-insulated
 IP 67, IP 69K ⁷⁾
 2 (acc. to IEC 60825-1:2007) 1 (acc. to IEC 60825-1:2007)
 IEC 60947-5-2
 UL 508, C22.2 No.14-13 ^{3) 8)}

$U_B/0V$ or not connected
 < 0.5 ms

- 1) Typ. operating range limit: max. attainable range without performance reserve, focus = 16m
- 2) Operating range: recommended range with performance reserve, focus = 16m
- 3) For UL applications: for use in class 2 circuits according to NEC only
- 4) 2=polarity reversal protection, 3=short circuit protection for all outputs
- 5) Rating voltage 250VAC
- 6) In end position of the turning connector (turning connector engaged)
- 7) 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
- 8) 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.
Laser class 2		
With M12 connector	PRKL 8/24.91-S12	50036364
With M12 connector	PRKL 8/44.91-S12	50127932
With 2m cable	PRKL 8/24.91	50036365
Laser class 1		
With M12 connector	PRKL 8/24.99-S12	50115689

Tables

Laser class 2:

Reflectors	Operating range
1 TK(S) 100x100	0 ... 19.0m
2 MTK(S) 50x50	0 ... 17.0m
3 TK(S) 30x50	0 ... 7.0m
4 TK(S) 20x40	0 ... 7.0m
5 REF 6-S- 20x40	0 ... 8.0m
6 Tape 6 50x50	0 ... 8.0m

1	0	19	22
2	0	17	21
3	0	7	9
4	0	7	9
5	0	8	9
6	0	8	9

Laser class 1:

Reflectors	Operating range
1 TK(S) 100x100	0 ... 12.0m
2 MTK(S) 50x50	0 ... 10.0m
3 TK(S) 30x50	0 ... 4.0m
4 TK(S) 20x40	0 ... 4.0m
5 REF 6-S- 20x40	0 ... 5.0m
6 Tape 6 50x50	0 ... 5.0m

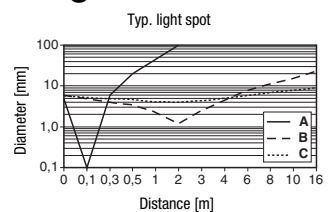
1	0	12	14
2	0	10	12
3	0	4	5
4	0	4	5
5	0	5	6
6	0	5	6

- Operating range [m] *
- Typ. operating range limit [m] *

* for focus adjusted to 16m (right limit stop)

- TK ... = adhesive
- TKS ... = screw type
- Tape 2 = adhesive

Diagrams



- A Focus adjusted to 0.144m (left limit stop)
- B Focus adjusted to 2m
- C Focus adjusted to 16m (right limit stop)

Remarks

- Use reflectors with small tripel structure – MTK(S), REF 6-S... or tape 6

Laser safety notices - PRKL 8/... .99...**ATTENTION, LASER RADIATION – LASER CLASS 1**

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

- ↳ Adhere to the applicable legal and local regulations regarding protection from laser beams.
- ↳ 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.

Laser safety notices - PRKL 8/... .91...



ATTENTION, LASER RADIATION – LASER CLASS 2

Never look directly into the beam!

The device satisfies the requirements of IEC 60825-1:2007 (EN 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.

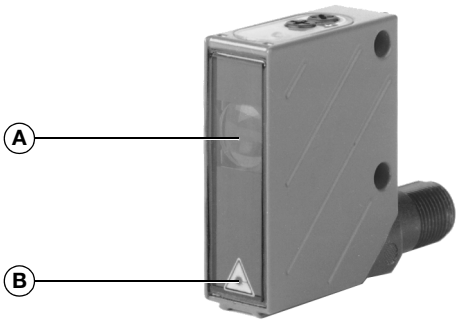


- ↳ Never look directly into the laser beam or in the direction of reflecting laser beams!
If you look into the beam path over a longer time period, there is a risk of injury to the retina.
- ↳ Do not point the laser beam of the device at persons!
- ↳ Interrupt the laser beam using a non-transparent, 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.
- ↳ Adhere to the applicable legal and local regulations regarding protection from laser beams.
- ↳ 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.

<p>①</p>  <p>A Laser exit opening B Laser warning sign</p>	<p>②</p> <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%; border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p style="text-align: center; border: 1px solid black; border-radius: 5px; margin: 0;">50107525-04</p> <table border="1" style="width: 100%; border-collapse: collapse; font-size: 8px;"> <tr><td colspan="2" style="text-align: center;">LASERSTRAHLUNG NICHT IN DEN STRAHL BLICKEN</td></tr> <tr><td>Max. Leistung (peak):</td><td style="text-align: right;">3 mW</td></tr> <tr><td>Impulsdauer:</td><td style="text-align: right;">8 µs</td></tr> <tr><td>Wellenlänge:</td><td style="text-align: right;">655 nm</td></tr> <tr><td colspan="2" style="text-align: center;">LASER KLASSE 2 DIN EN 60825-1:2008-05</td></tr> </table> </div> <div style="width: 50%; border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <table border="1" style="width: 100%; border-collapse: collapse; font-size: 8px;"> <tr><td colspan="2" style="text-align: center;">RADIACION LASER NO MIRAR FIJAMENTE AL HAZ</td></tr> <tr><td>Potencia máx. (peak):</td><td style="text-align: right;">3 mW</td></tr> <tr><td>Duración del impulso:</td><td style="text-align: right;">8 µs</td></tr> <tr><td>Longitud de onda:</td><td style="text-align: right;">655 nm</td></tr> <tr><td colspan="2" style="text-align: center;">PRODUCTO LASER DE CLASE 2 EN 60825-1:2007</td></tr> </table> </div> <div style="width: 50%; border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <table border="1" style="width: 100%; border-collapse: collapse; font-size: 8px;"> <tr><td colspan="2" style="text-align: center;">LASER RADIATION DO NOT STARE INTO BEAM</td></tr> <tr><td>Maximum Output (peak):</td><td style="text-align: right;">3 mW</td></tr> <tr><td>Pulse duration:</td><td style="text-align: right;">8 µs</td></tr> <tr><td>Wavelength:</td><td style="text-align: right;">655 nm</td></tr> <tr><td colspan="2" style="text-align: center;">CLASS 2 LASER PRODUCT EN 60825-1:2007</td></tr> </table> </div> <div style="width: 50%; border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <table border="1" style="width: 100%; border-collapse: collapse; font-size: 8px;"> <tr><td colspan="2" style="text-align: center;">RADIACION LASER NO OLHAR FIXAMENTE O FEIXE</td></tr> <tr><td>Potência máx. (peak):</td><td style="text-align: right;">3 mW</td></tr> <tr><td>Período de pulso:</td><td style="text-align: right;">8 µs</td></tr> <tr><td>Comprimento de onda:</td><td style="text-align: right;">655 nm</td></tr> <tr><td colspan="2" style="text-align: center;">EQUIPAMENTO LASER CLASSE 2 EN 60825-1:2007</td></tr> </table> </div> <div style="width: 50%; border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <table border="1" style="width: 100%; border-collapse: collapse; font-size: 8px;"> <tr><td colspan="2" style="text-align: center;">LASER RADIATION DO NOT STARE INTO BEAM</td></tr> <tr><td>Maximum Output (peak):</td><td style="text-align: right;">3 mW</td></tr> <tr><td>Pulse duration:</td><td style="text-align: right;">8 µs</td></tr> <tr><td>Wavelength:</td><td style="text-align: right;">655 nm</td></tr> <tr><td colspan="2" style="text-align: center;">CLASS 2 LASER PRODUCT IEC 60825-1:2007 Complies with 21 CFR 1040.10</td></tr> </table> </div> <div style="width: 50%; border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <table border="1" style="width: 100%; border-collapse: collapse; font-size: 8px;"> <tr><td colspan="2" style="text-align: center;">激光辐射 勿直视光束</td></tr> <tr><td>最大输出(峰值):</td><td style="text-align: right;">3 mW</td></tr> <tr><td>脉冲持续时间:</td><td style="text-align: right;">8 µs</td></tr> <tr><td>波长:</td><td style="text-align: right;">655 nm</td></tr> <tr><td colspan="2" style="text-align: center;">2 类激光产品 GB7247.1-2012</td></tr> </table> </div> <div style="display: flex; justify-content: center; gap: 20px;">   </div> </div>	LASERSTRAHLUNG NICHT IN DEN STRAHL BLICKEN		Max. Leistung (peak):	3 mW	Impulsdauer:	8 µs	Wellenlänge:	655 nm	LASER KLASSE 2 DIN EN 60825-1:2008-05		RADIACION LASER NO MIRAR FIJAMENTE AL HAZ		Potencia máx. (peak):	3 mW	Duración del impulso:	8 µs	Longitud de onda:	655 nm	PRODUCTO LASER DE CLASE 2 EN 60825-1:2007		LASER RADIATION DO NOT STARE INTO BEAM		Maximum Output (peak):	3 mW	Pulse duration:	8 µs	Wavelength:	655 nm	CLASS 2 LASER PRODUCT EN 60825-1:2007		RADIACION LASER NO OLHAR FIXAMENTE O FEIXE		Potência máx. (peak):	3 mW	Período de pulso:	8 µs	Comprimento de onda:	655 nm	EQUIPAMENTO LASER CLASSE 2 EN 60825-1:2007		LASER RADIATION DO NOT STARE INTO BEAM		Maximum Output (peak):	3 mW	Pulse duration:	8 µs	Wavelength:	655 nm	CLASS 2 LASER PRODUCT IEC 60825-1:2007 Complies with 21 CFR 1040.10		激光辐射 勿直视光束		最大输出(峰值):	3 mW	脉冲持续时间:	8 µs	波长:	655 nm	2 类激光产品 GB7247.1-2012	
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