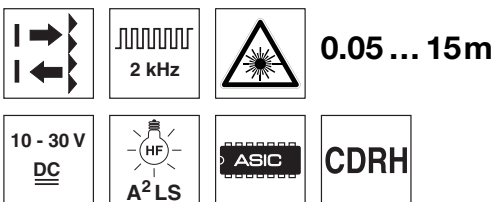


## PRKL 25B

## Laser retro-reflective photoelectric sensor with polarization filter

en 06-2016/03 50108919-03



- Polarized retro-reflective photoelectric sensor with visible red laser light
- High performance reserve
- Small and compact construction with robust plastic housing, degree of protection IP 66/IP 67 for industrial application
- A²LS - Active Ambient Light Suppression
- Push-pull switching outputs
- High switching frequency for detection of fast events and small parts
- Warning output for increased availability
- Optimized light beam propagation for the detection of small objects.
- Operating range adjustment

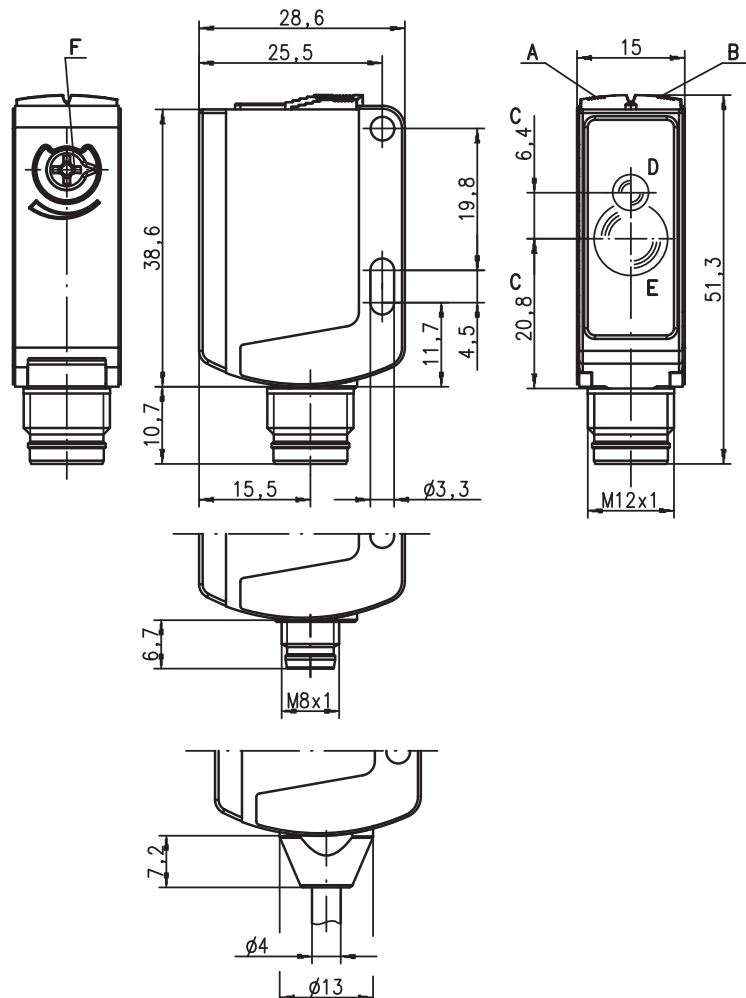


### Accessories:

(available separately)

- Mounting systems (BT 25, UMS 25...)
- Cable with M8 or M12 connector (K-D ...)
- Reflectors
- Reflective tapes

### Dimensioned drawing



- A Green indicator diode
- B Yellow indicator diode
- C Optical axis
- D Transmitter
- E Receiver
- F Operating range adjustment

### Electrical connection

PRKL 25B/66.1-S8  
PRKL 25B/66.1-S12

|             |   |       |
|-------------|---|-------|
| 10-30V DC + | 1 | br/BN |
| ● ○ ⊗       | 2 | ws/WH |
| GND         | 3 | bl/BU |
| ○ ● ⊗       | 4 | sw/BK |

PRKL 25B/66.1

|             |   |       |
|-------------|---|-------|
| 10-30V DC + | 1 | br/BN |
| ● ○ ⊗       | 2 | ws/WH |
| GND         | 3 | bl/BU |
| ○ ● ⊗       | 4 | sw/BK |

PRKL 25B/6.81-S12

|             |   |       |
|-------------|---|-------|
| 10-30V DC + | 1 | br/BN |
| activ       | 2 | ws/WH |
| GND         | 3 | bl/BU |
| ○ ⊗         | 4 | sw/BK |

PRKL 25B/4.1, 200-S12

|             |   |       |
|-------------|---|-------|
| 10-30V DC + | 1 | br/BN |
| NC          | 2 |       |
| GND         | 3 | bl/BU |
| ○ ⊗         | 4 | sw/BK |

PRKL 25B/4D.1-S12

|             |   |       |
|-------------|---|-------|
| 10-30V DC + | 1 | br/BN |
| NC          | 2 |       |
| GND         | 3 | bl/BU |
| ● ⊗         | 4 | sw/BK |

## Specifications

### Optical data

|                                                   |                                                       |
|---------------------------------------------------|-------------------------------------------------------|
| Typ. op. range limit (MTKS 50 x 50) <sup>1)</sup> | 0.05 ... 15m                                          |
| Operating range <sup>2)</sup>                     | see tables                                            |
| Light beam characteristic                         | collimated                                            |
| Light spot diameter                               | 3x5mm <sup>2</sup> at 1m, 10x20mm <sup>2</sup> at 10m |
| Light source <sup>3)</sup>                        | laser (pulsed)                                        |
| Laser class                                       | 2 in accordance with IEC 60825-1:2007                 |
| Wavelength                                        | 655nm (visible red light, polarized)                  |
| Max. output power (peak)                          | 1.5mW                                                 |
| Pulse duration                                    | 8.1µs                                                 |

### Timing

|                       |         |
|-----------------------|---------|
| Switching frequency   | 2,000Hz |
| Response time         | 0.25ms  |
| Delay before start-up | ≤ 300ms |

### Electrical data

|                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operating voltage $U_B$ <sup>4)</sup> | 10 ... 30VDC (incl. residual ripple)                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Residual ripple                       | ≤ 15% of $U_B$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Open-circuit current                  | ≤ 20mA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Switching output <sup>5)</sup>        | 2 push-pull switching outputs<br>pin 2: PNP dark switching, NPN light switching<br>pin 4: PNP light switching, NPN dark switching<br>1 push-pull switching output<br>pin 4: PNP light switching, NPN dark switching<br>1 activation input<br>1 PNP switching output light switching, pin 2: not connected <sup>6)</sup><br>1 PNP switching output dark switching, pin 2: not connected <sup>6)</sup><br>light/dark switching<br>≥ ( $U_B - 2V$ )/≤ 2V<br>max. 100mA<br>adjustable with potentiometer |
| Function                              | ...                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Signal voltage high/low               | ...                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Output current                        | ...                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Operating range                       | ...                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

### Indicators

|                      |                                         |
|----------------------|-----------------------------------------|
| Green LED            | ready                                   |
| Yellow LED           | light path free                         |
| Yellow LED, flashing | light path free, no performance reserve |

### Mechanical data

|                 |                                                                                                                      |
|-----------------|----------------------------------------------------------------------------------------------------------------------|
| Housing         | plastic (PC-ABS)                                                                                                     |
| Optics cover    | plastic (PMMA)                                                                                                       |
| Weight          | with connector: 15g<br>with 2m cable: 55g<br>cable 2m (cross section 3x0.20mm <sup>2</sup> ),<br>M8 or M12 connector |
| Connection type |                                                                                                                      |

### Environmental data

|                                                 |                                                                   |
|-------------------------------------------------|-------------------------------------------------------------------|
| Ambient temp. (operation/storage) <sup>7)</sup> | -40°C ... +40°C/-40°C ... +60°C                                   |
| Protective circuit <sup>8)</sup>                | 2, 3                                                              |
| VDE safety class <sup>9)</sup>                  | II                                                                |
| Degree of protection                            | IP 66, IP 67                                                      |
| Standards applied                               | IEC 60947-5-2                                                     |
| Certifications                                  | UL 508, C22.2 No.14-13 <sup>4)</sup> <sup>7)</sup> <sup>10)</sup> |

### Options

|                               |            |
|-------------------------------|------------|
| Activation input activ        |            |
| Transmitter active/not active | ≥ 8V/≤ 2V  |
| Activation/disable delay      | ≤ 1ms      |
| Input resistance              | 10KΩ ± 10% |

- 1) Typ. operating range limit: max. attainable range without performance reserve
- 2) Operating range: recommended range with performance reserve
- 3) Average life expectancy 50,000h at an ambient temperature of 25°C
- 4) For UL applications: for use in class 2 circuits according to NEC only
- 5) The push-pull switching outputs must not be connected in parallel
- 6) Pin 2: unassigned, hence especially suitable for the connection to AS-interface I/O coupling modules
- 7) UL certified in the temperature range -10°C to 40°C
- 8) 2=polarity reversal protection, 3=short circuit protection for all transistor outputs
- 9) Rating voltage 50V
- 10) 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)

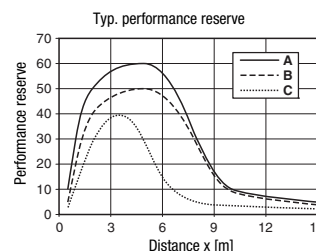
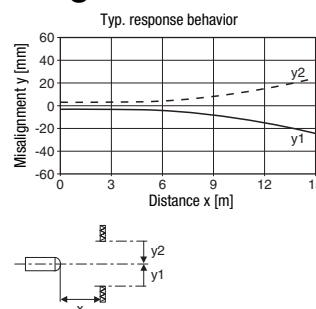
## Tables

| Reflectors |       |         | Operating range |    |
|------------|-------|---------|-----------------|----|
| 1          | TK(S) | 100x100 | 0.30 ... 12.0m  |    |
| 2          | MTKS  | 50x50   | 0.05 ... 12.0m  |    |
| 3          | MTKS  | 20x20   | 0.05 ... 6.0m   |    |
| 1          | 0.30  |         | 12              | 15 |
| 2          | 0.05  |         | 12              | 15 |
| 3          | 0.05  | 6       | 7               |    |

□ Operating range [m]  
 □ Typ. operating range limit [m]

TK ... = adhesive  
 TKS ... = screw type  
 MTKS ... = micro triple, screw type

## Diagrams



- A TK(S) 100x100
- B MTKS 50x50
- C MTKS 20x20

## 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.

### UL REQUIREMENTS

Enclosure Type Rating: Type 1

#### For Use in NFPA 79 Applications only.

Adapters providing field wiring means are available from the manufacturer. Refer to manufacturers information.

**CAUTION** – the use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

**ATTENTION** ! Si d'autres dispositifs d'alignement que ceux préconisés ici sont utilisés ou s'il est procédé autrement qu'indiqué, cela peut entraîner une exposition à des rayonnements et un danger pour les personnes.

# PRKL 25B Laser retro-reflective photoelectric sensor with polarization filter

## Order guide

| Selection table    |                                                                         | PRKL 25B/66.1-S12<br>Part no. 50104231 | PRKL 25B/4D.1-S12<br>Part no. 50104232 | PRKL 25B/6.81-S12<br>Part no. 50104233 | PRKL 25B/66.1-S8<br>Part no. 50104234 | PRKL 25B/66.1<br>Part no. 50104235 | PRKL 25B/4.1.200-S12<br>Part no. 50110921 |
|--------------------|-------------------------------------------------------------------------|----------------------------------------|----------------------------------------|----------------------------------------|---------------------------------------|------------------------------------|-------------------------------------------|
| Order code →       |                                                                         |                                        |                                        |                                        |                                       |                                    |                                           |
| Equipment ↓        |                                                                         |                                        |                                        |                                        |                                       |                                    |                                           |
| Switching output   | 2 x push-pull switching output                                          | ●                                      |                                        |                                        | ●                                     | ●                                  |                                           |
|                    | 1 x push-pull switching output                                          |                                        |                                        | ●                                      |                                       |                                    |                                           |
|                    | 1 x PNP output                                                          |                                        | ●                                      |                                        |                                       |                                    | ●                                         |
| Switching function | 1 PNP light switching and NPN dark switching output                     | ●                                      |                                        |                                        | ●                                     | ●                                  |                                           |
|                    | 1 PNP dark switching and NPN light switching output                     | ●                                      |                                        |                                        | ●                                     | ●                                  |                                           |
|                    | 1 PNP light switching and NPN light switching output                    |                                        |                                        | ●                                      |                                       |                                    |                                           |
|                    | 1 x PNP light switching output                                          |                                        |                                        |                                        |                                       |                                    | ●                                         |
|                    | 1 x PNP dark switching output                                           |                                        | ●                                      |                                        |                                       |                                    |                                           |
| Connection         | M8 connector, 4-pin                                                     |                                        |                                        |                                        | ●                                     |                                    |                                           |
|                    | M12 connector, 4-pin                                                    | ●                                      | ●                                      | ●                                      |                                       |                                    |                                           |
|                    | cable 2,000mm                                                           |                                        |                                        |                                        |                                       | ●                                  |                                           |
|                    | M12 metal connector, 4-pin, with 200mm cable tail                       |                                        |                                        |                                        |                                       |                                    | ●                                         |
| Indicators         | green LED: ready                                                        | ●                                      | ●                                      | ●                                      | ●                                     | ●                                  | ●                                         |
|                    | yellow LED: light path free                                             | ●                                      | ●                                      | ●                                      | ●                                     | ●                                  | ●                                         |
| Options            | operating range adjustment via potentiometer                            | ●                                      | ●                                      | ●                                      | ●                                     | ●                                  | ●                                         |
|                    | activation input                                                        |                                        |                                        | ●                                      |                                       |                                    |                                           |
|                    | for direct connection to AS-i I/O coupling modules (pin 2 not assigned) |                                        | ●                                      |                                        |                                       |                                    | ●                                         |
|                    | High performance reserve                                                | ●                                      | ●                                      | ●                                      | ●                                     | ●                                  | ●                                         |

## Laser safety notices



### 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!
- ⚠ 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.
- ⚠ 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.

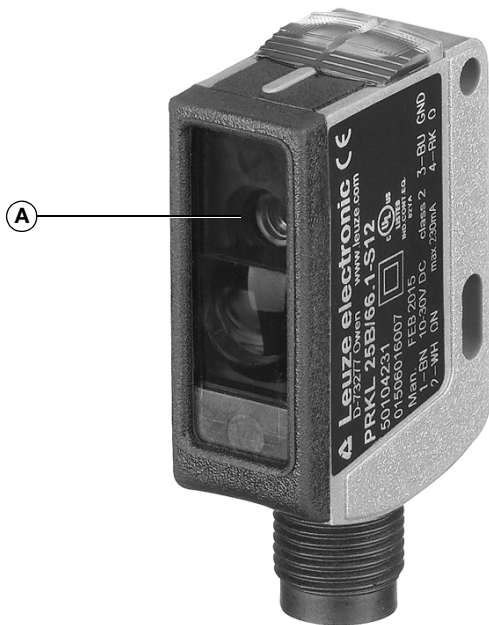
### NOTICE

#### 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.

①



**A** Laser exit opening

②

**50105324-03**

|                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>LASERSTRAHLUNG</b><br/>NICHT IN DEN STRAHL BLICKEN</p> <p>Max. Leistung (peak): 1,5 mW<br/>Impulsdauer: 8,1 µs<br/>Wellenlänge: 655 nm</p> <p><b>LASER KLASSE 2</b><br/>DIN EN 60825-1:2008-05</p>                                  | <p><b>RADIAZIONE LASER</b><br/>NON FISSARE IL FASCIO</p> <p>Potenza max. (peak): 1,5 mW<br/>Durata dell'impulso: 8,1 µs<br/>Lunghezza d'onda: 655 nm</p> <p><b>APPARECCHIO LASER DI CLASSE 2</b><br/>EN 60825-1:2007</p>           |
| <p><b>LASER RADIATION</b><br/>DO NOT STARE INTO BEAM</p> <p>Maximum Output (peak): 1,5 mW<br/>Pulse duration: 8,1 µs<br/>Wavelength: 655 nm</p> <p><b>CLASS 2 LASER PRODUCT</b><br/>EN 60825-1:2007</p>                                   | <p><b>RAYONNEMENT LASER</b><br/>NE PAS REGARDER DANS LE FASCIAU</p> <p>Puissance max. (crête): 1,5 mW<br/>Durée d'impulsion: 8,1 µs<br/>Longueur d'onde: 655 nm</p> <p><b>APPAREIL A LASER DE CLASSE 2</b><br/>EN 60825-1:2007</p> |
| <p>AVOID EXPOSURE – LASER RADIATION<br/>IS EMITTED FROM THIS APERTURE</p>                                                                                                                                                                 | <p>EXPOSITION DANGEREUSE – UN RAYONNEMENT<br/>LASER EST ÉMIS PAR CETTE OUVERTURE</p>                                                                                                                                               |
| <p><b>RADIACIÓN LASER</b><br/>NO MIRAR FIJAMENTE AL HAZ</p> <p>Potencia máx. (peak): 1,5 mW<br/>Duración del impulso: 8,1 µs<br/>Longitud de onda: 655 nm</p> <p><b>PRODUCTO LASER DE CLASE 2</b><br/>EN 60825-1:2007</p>                 | <p><b>RADIAÇÃO LASER</b><br/>NÃO OLHAR FIXAMENTE O FEIXE</p> <p>Potência máx. (peak): 1,5 mW<br/>Período de pulso: 8,1 µs<br/>Comprimento de onda: 655 nm</p> <p><b>EQUIPAMENTO LASER CLASSE 2</b><br/>EN 60825-1:2007</p>         |
| <p><b>LASER RADIATION</b><br/>DO NOT STARE INTO BEAM</p> <p>Maximum Output (peak): 1,5 mW<br/>Pulse duration: 8,1 µs<br/>Wavelength: 655 nm</p> <p><b>CLASS 2 LASER PRODUCT</b><br/>IEC 60825-1:2007<br/>Complies with 21 CFR 1040.10</p> | <p><b>激光辐射</b><br/>勿直视光束</p> <p>最大输出 (峰值): 1,5 mW<br/>脉冲持续时间: 8,1 µs<br/>波长: 655 nm</p> <p><b>2 类激光产品</b><br/>GB7247.1-2012</p>                                                                                                    |