

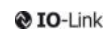


Figure can vary

Part no.: 50137166

PRK3C/LP-M8

Polarized retro-reflective photoelectric sensor



Contents

- Technical data
- Reflectors & reflective tapes
- Dimensioned drawings
- Electrical connection
- Diagrams
- Operation and display
- Accessories
- Notes



Technical data

| Basic data | |
|-------------------------------------|---|
| Series | 3C |
| Operating principle | Reflection principle |
| Optical data | |
| Operating range | Guaranteed operating range |
| Operating range | 0.1 ... 5 m, With reflector TK(S) 100x100 |
| Operating range limit | Typical operating range |
| Operating range limit | 0.1 ... 6 m, With reflector TK(S) 100x100 |
| Light source | LED, Red |
| LED light wavelength | 633 nm |
| LED protection class | Exempt group (in acc. with EN 62471) |
| Transmitted-signal shape | Pulsed |
| Electrical data | |
| Protective circuit | Polarity reversal protection Short circuit protected |
| Performance data | |
| Supply voltage | 10 ... 30 V, DC, Incl. residual ripple |
| Residual ripple | 0 ... 15 %, From U_B |
| Open-circuit current | 0 ... 20 mA |
| Outputs | |
| Number of digital switching outputs | 2 Piece(s) |
| Switching outputs | |
| Voltage type | DC |
| Switching current, max. | 100 mA |
| Switching voltage | Low: $\leq 2V$ High: $\geq (U_B - 2V)$ |
| Switching output 1 | |
| Assignment | Connection 1, pin 4 |
| Switching element | Transistor, Push-pull |
| Switching principle | IO-Link / light switching (PNP)/dark switching (NPN) |
| Switching output 2 | |
| Assignment | Connection 1, pin 2 |
| Switching element | Transistor, PNP |
| Switching principle | Dark switching |
| Timing | |
| Switching frequency | 1,500 Hz |
| Response time | 0.33 ms |
| Readiness delay | 300 ms |
| Interface | |
| Type | IO-Link |

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IO-Link

| | |
|------------------|---------------|
| COM mode | COM2 |
| Frame type | 2.5 |
| Specification | V1.1 |
| SIO-mode support | Yes |
| Min. cycle time | COM2 = 2.3 ms |

Connection
Connection 1

| | |
|--------------------|------------------------------|
| Type of connection | Connector |
| Function | Signal OUT Voltage supply |
| Thread size | M8 |
| Type | Male |
| Material | Metal |
| No. of pins | 4 -pin |

Mechanical data

| | |
|----------------------------|---|
| Design | Cubic |
| Dimension (W x H x L) | 11.4 mm x 34.2 mm x 18.3 mm |
| Housing material | Plastic, PC-ABS |
| Lens cover material | Plastic / PMMA |
| Net weight | 10 g |
| Housing color | Red |
| Type of fastening | Through-hole mounting Via optional mounting device |
| Compatibility of materials | ECOLAB |

Operation and display

| | |
|-----------------|------------|
| Type of display | LED |
| Number of LEDs | 2 Piece(s) |

Environmental data

| | |
|--------------------------------|---------------|
| Ambient temperature, operation | -10 ... 60 °C |
| Ambient temperature, storage | -40 ... 70 °C |



Certifications

| | |
|----------------------|-----------------|
| Degree of protection | IP 67 IP 69K |
| Protection class | III |
| Certifications | c UL US |
| Standards applied | IEC 60947-5-2 |

Classification

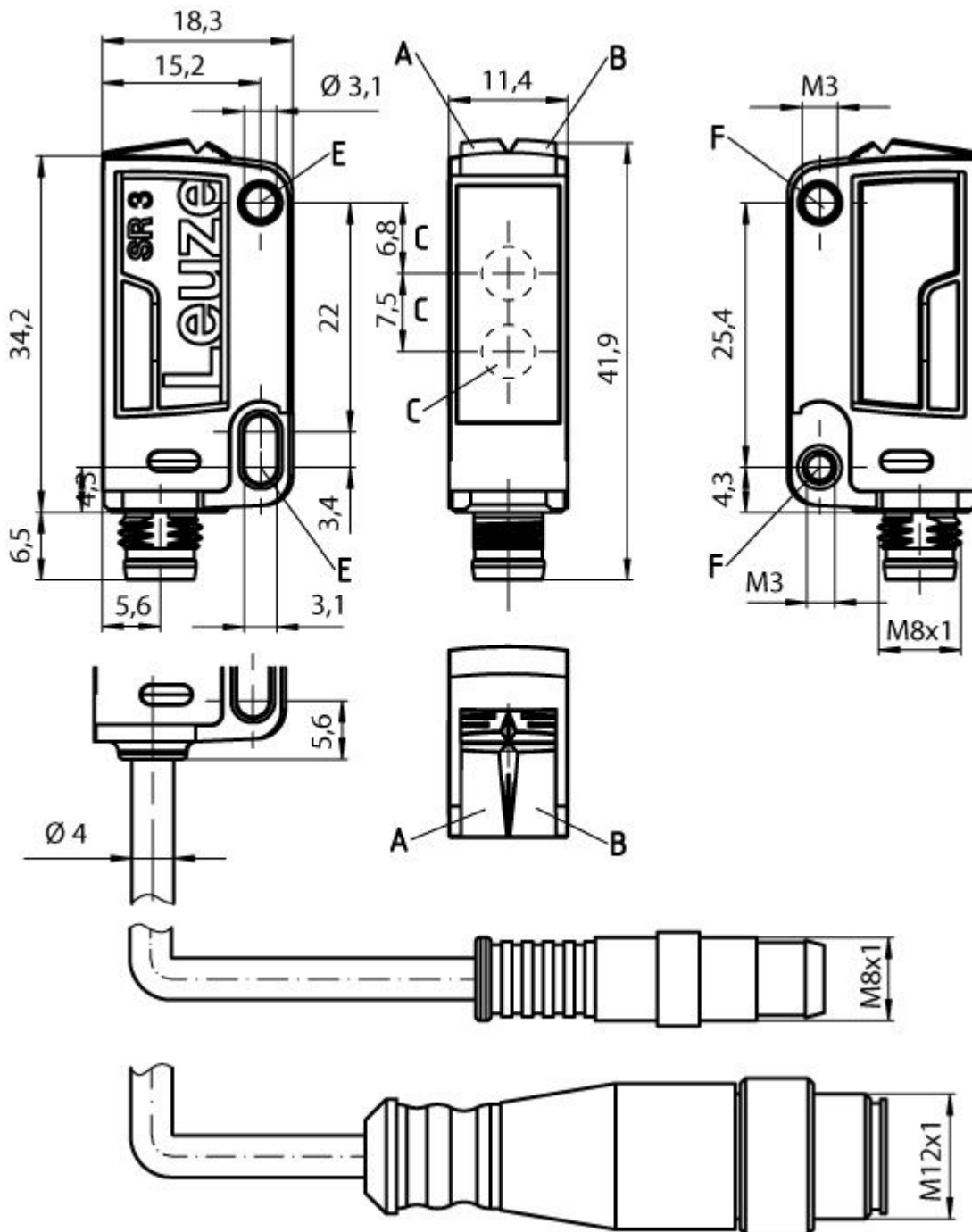
| | |
|------------|----------|
| eCl@ss 8.0 | 27270902 |
| eCl@ss 9.0 | 27270902 |
| ETIM 5.0 | EC002717 |

Reflectors & reflective tapes

| | Part no. | Designation | Operating range/ Operating range limit | Description |
|---|----------|---------------|---|--|
|  | 50108300 | REF 4-A-50x50 | 0.1 ... 1.2 m 0.1 ... 1.6 m | Design: Rectangular Reflective surface: 50 mm x 50 mm Material: Plastic Chemical designation of the material: PMMA Fastening: Self-adhesive |
|  | 50003192 | TK 100x100 | 0.1 ... 5 m 0.1 ... 6 m | Design: Rectangular Reflective surface: 96 mm x 96 mm Triple reflector size: 4 mm Material: Plastic Base material: Plastic Chemical designation of the material: PMMA8N Fastening: Adhesive |
|  | 50003189 | TK 30x50 | 0.1 ... 1.2 m 0.1 ... 1.6 m | Design: Rectangular Reflective surface: 29 mm x 45 mm Triple reflector size: 4 mm Material: Plastic Base material: Plastic Chemical designation of the material: PMMA8N Fastening: Adhesive |
|  | 50024127 | TK 82.2 | 0.1 ... 1.2 m 0.1 ... 1.6 m | Design: Round Triple reflector size: 4 mm Reflection surface diameter: 79 mm Material: Plastic Base material: Plastic Chemical designation of the material: PMMA8N Fastening: Through-hole mounting, Adhesive |
|  | 50022816 | TKS 100X100 | 0.1 ... 5 m 0.1 ... 6 m | Design: Rectangular Reflective surface: 96 mm x 96 mm Triple reflector size: 4 mm Material: Plastic Base material: Plastic Chemical designation of the material: PMMA8N Fastening: Through-hole mounting, Adhesive |
|  | 50081283 | TKS 20X40 | 0.1 ... 1.5 m 0.1 ... 2 m | Design: Rectangular Reflective surface: 16 mm x 38 mm Triple reflector size: 2.3 mm Material: Plastic Base material: Plastic Chemical designation of the material: PMMA8N Fastening: Through-hole mounting, Adhesive |
|  | 50023525 | TKS 30X50 | 0.1 ... 1.2 m 0.1 ... 1.6 m | Design: Rectangular Reflective surface: 27 mm x 44 mm Triple reflector size: 3 mm Material: Plastic Base material: Plastic Chemical designation of the material: PMMA8N Fastening: Through-hole mounting, Adhesive |
|  | 50040820 | TKS 40X60 | 0.1 ... 3 m 0.1 ... 3.6 m | Design: Rectangular Reflective surface: 37 mm x 56 mm Triple reflector size: 4 mm Material: Plastic Base material: Plastic Chemical designation of the material: PMMA8N Fastening: Through-hole mounting, Adhesive |

Dimensioned drawings

All dimensions in millimeters

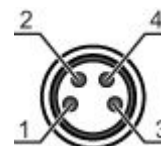


- A Green LED
- B Yellow LED
- C Optical axis
- E Mounting sleeve (standard)
- F Threaded sleeve (3C.B series)

Electrical connection

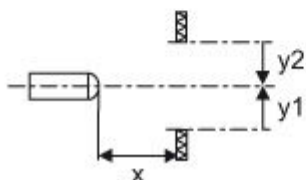
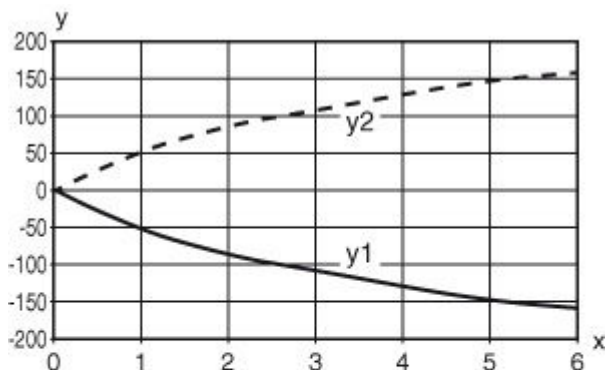
| Connection 1 | |
|--------------------|------------------------------|
| Type of connection | Connector |
| Function | Signal OUT Voltage supply |
| Thread size | M8 |
| Type | Male |
| Material | Metal |
| No. of pins | 4 -pin |
| Encoding | |

| Pin | Pin assignment |
|-----|-----------------|
| 1 | V+ |
| 2 | OUT 2 |
| 3 | GND |
| 4 | IO-Link / OUT 1 |



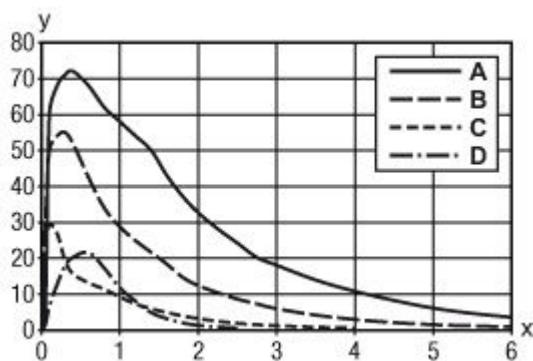
Diagrams

Typ. response behavior



x Distance [m]
y Misalignment [mm]

Typ. function reserve



x Distance [m]
 y Function reserve
 A TKS 100x100
 B TKS 40x60
 C TKS 20x40
 D Film REF 4-A-50x50







Operation and display

LEDs




| LED | Display | Meaning |
|-----|--------------------------|--------------------------------------|
| 1 | Green, continuous light | Ready |
| 2 | Yellow, continuous light | Light path free |
| | Yellow, flashing | Light path free, no function reserve |

Accessories




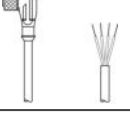

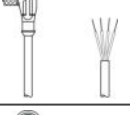

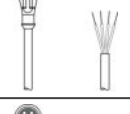


Connection technology - Connection cables

| | Part no. | Designation | Article | Description |
|--|----------|-------------------|------------------|--|
|   | 50130854 | KD U-M8-4A-P1-020 | Connection cable | Connection 1: Connector, M8, Axial, Female, 4 -pin Connection 2: Open end Shielded: No Cable length: 2,000 mm Sheathing material: PUR |
|   | 50130856 | KD U-M8-4A-P1-050 | Connection cable | Connection 1: Connector, M8, Axial, Female, 4 -pin Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: PUR |
|   | 50130857 | KD U-M8-4A-P1-100 | Connection cable | Connection 1: Connector, M8, Axial, Female, 4 -pin Connection 2: Open end Shielded: No Cable length: 10,000 mm Sheathing material: PUR |


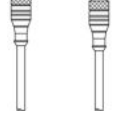

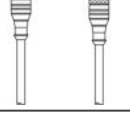

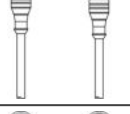

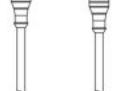
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| | Part no. | Designation | Article | Description |
|---|----------|----------------------|------------------|--|
|  | 50130848 | KD U-M8-4A-V1-020 | Connection cable | Connection 1: Connector, M8, Axial, Female, 4 -pin Connection 2: Open end Shielded: No Cable length: 2,000 mm Sheathing material: PVC |
|  | 50130850 | KD U-M8-4A-V1-050 | Connection cable | Connection 1: Connector, M8, Axial, Female, 4 -pin Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: PVC |
|  | 50130851 | KD U-M8-4A-V1-100 | Connection cable | Connection 1: Connector, M8, Axial, Female, 4 -pin Connection 2: Open end Shielded: No Cable length: 10,000 mm Sheathing material: PVC |
|  | 50130873 | KD U-M8-4W-P1-020 | Connection cable | Connection 1: Connector, M8, Angled, Female, 4 -pin Connection 2: Open end Shielded: No Cable length: 2,000 mm Sheathing material: PUR |
|  | 50130880 | KD U-M8-4W-P1-020-DP | Connection cable | Connection 1: Connector, M8, Angled, Female, 4 -pin Connector, LED: Yes, 1 Piece(s) Connection 2: Open end Shielded: No Cable length: 2,000 mm Sheathing material: PUR |
|  | 50130875 | KD U-M8-4W-P1-050 | Connection cable | Connection 1: Connector, M8, Angled, Female, 4 -pin Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: PUR |
|  | 50130881 | KD U-M8-4W-P1-050-DP | Connection cable | Connection 1: Connector, M8, Angled, Female, 4 -pin Connector, LED: Yes, 1 Piece(s) Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: PUR |
|  | 50130876 | KD U-M8-4W-P1-100 | Connection cable | Connection 1: Connector, M8, Angled, Female, 4 -pin Connection 2: Open end Shielded: No Cable length: 10,000 mm Sheathing material: PUR |
|  | 50130882 | KD U-M8-4W-P1-100-DP | Connection cable | Connection 1: Connector, M8, Angled, Female, 4 -pin Connector, LED: Yes, 1 Piece(s) Connection 2: Open end Shielded: No Cable length: 10,000 mm Sheathing material: PUR |
|  | 50130869 | KD U-M8-4W-V1-020 | Connection cable | Connection 1: Connector, M8, Angled, Female, 4 -pin Connection 2: Open end Shielded: No Cable length: 2,000 mm Sheathing material: PVC |

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| | Part no. | Designation | Article | Description |
|--|----------|----------------------|------------------|--|
|   | 50130877 | KD U-M8-4W-V1-020-DP | Connection cable | Connection 1: Connector, M8, Angled, Female, 4 -pin Connector, LED: Yes, 1 Piece(s) Connection 2: Open end Shielded: No Cable length: 2,000 mm Sheathing material: PVC |
|   | 50130871 | KD U-M8-4W-V1-050 | Connection cable | Connection 1: Connector, M8, Angled, Female, 4 -pin Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: PVC |
|   | 50130878 | KD U-M8-4W-V1-050-DP | Connection cable | Connection 1: Connector, M8, Angled, Female, 4 -pin Connector, LED: Yes, 1 Piece(s) Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: PVC |
|   | 50130872 | KD U-M8-4W-V1-100 | Connection cable | Connection 1: Connector, M8, Angled, Female, 4 -pin Connection 2: Open end Shielded: No Cable length: 10,000 mm Sheathing material: PVC |
|   | 50130879 | KD U-M8-4W-V1-100-DP | Connection cable | Connection 1: Connector, M8, Angled, Female, 4 -pin Connector, LED: Yes, 1 Piece(s) Connection 2: Open end Shielded: No Cable length: 10,000 mm Sheathing material: PVC |

Connection technology - Interconnection cables





| | Part no. | Designation | Article | Description |
|--|----------|--------------------------|-----------------------|---|
|   | 50130913 | KDS U-M8-4A-M8-4A-P1-003 | Interconnection cable | Connection 1: Connector, M8, Axial, Female, 4 -pin Connection 2: Connector, M8, Axial, Male, 4 -pin Shielded: No Cable length: 300 mm Sheathing material: PUR |
|   | 50130914 | KDS U-M8-4A-M8-4A-P1-006 | Interconnection cable | Connection 1: Connector, M8, Axial, Female, 4 -pin Connection 2: Connector, M8, Axial, Male, 4 -pin Shielded: No Cable length: 600 mm Sheathing material: PUR |
|   | 50130915 | KDS U-M8-4A-M8-4A-P1-010 | Interconnection cable | Connection 1: Connector, M8, Axial, Female, 4 -pin Connection 2: Connector, M8, Axial, Male, 4 -pin Shielded: No Cable length: 1,000 mm Sheathing material: PUR |
|   | 50130916 | KDS U-M8-4A-M8-4A-P1-020 | Interconnection cable | Connection 1: Connector, M8, Axial, Female, 4 -pin Connection 2: Connector, M8, Axial, Male, 4 -pin Shielded: No Cable length: 2,000 mm Sheathing material: PUR |

Part no.: 50137166 – PRK3C/LP-M8 – Polarized retro-reflective photoelectric

Mounting technology - Mounting brackets

| | Part no. | Designation | Article | Description |
|---|----------|-------------|---------------------|--|
|  | 50118542 | BT 200M.5 | Mounting bracket | Design of mounting device: Angle, L-shape Mounting bracket, at system: Through-hole mounting Mounting bracket, at device: Screw type Type of mounting device: Adjustable Material: Stainless steel |
|  | 50124651 | BT 205M | Mounting device set | Contains: 10x Design of mounting device: Angle, L-shape Mounting bracket, at system: Through-hole mounting Mounting bracket, at device: Screw type Type of mounting device: Rigid Material: Metal |
|  | 50060511 | BT 3 | Mounting device | Design of mounting device: Angle, L-shape Mounting bracket, at system: Through-hole mounting Mounting bracket, at device: Screw type Type of mounting device: Rigid Material: Metal |
|  | 50105585 | BT 3.1 | Mounting strap set | Contains: 10x Design of mounting device: Retaining clip Mounting bracket, at system: Through-hole mounting Mounting bracket, at device: Screw type Type of mounting device: Rigid Material: Metal |
|  | 50105546 | BT 3B | Mounting device | Design of mounting device: Angle, L-shape Mounting bracket, at system: Through-hole mounting Mounting bracket, at device: Screw type Type of mounting device: Rigid Material: Metal |

Mounting technology - Rod mounts


| | Part no. | Designation | Article | Description |
|---|----------|----------------|-----------------|--|
|  | 50117256 | BTU 200M-D10 | Mounting system | Contains: 2x M3 x 18 screw, 2x position washers Design of mounting device: Mounting system Mounting bracket, at system: For 10 mm rod, Sheet-metal mounting Mounting bracket, at device: Screw type Type of mounting device: Clampable, Adjustable, Turning, 360° Material: Metal |
|  | 50117255 | BTU 200M-D12 | Mounting system | Contains: 2x M3 x 18 screw, 2x position washers Design of mounting device: Mounting system Mounting bracket, at system: For 12 mm rod, Sheet-metal mounting Mounting bracket, at device: Screw type Type of mounting device: Clampable, Adjustable, Turning, 360° Material: Metal |
|  | 50117254 | BTU 200M-D14 | Mounting system | Contains: 2x M3 x 18 screw, 2x position washers Design of mounting device: Mounting system Mounting bracket, at system: For 14 mm rod, Sheet-metal mounting Mounting bracket, at device: Screw type Type of mounting device: Clampable, Adjustable, Turning, 360° Material: Metal |
|  | 50120426 | BTU 200M.5-D12 | Mounting system | Contains: 2x M3 x 18 screw, 2x M3 mounting nut, 2x position washers Design of mounting device: Mounting system Mounting bracket, at system: For 12 mm rod Mounting bracket, at device: Screw type Type of mounting device: Turning, 360°, Clampable, Adjustable Material: Stainless steel |

Part no.: 50137166 – PRK3C/LP-M8 – Polarized retro-reflective photoelectric

Standard reflectors

| | Part no. | Designation | Article | Description |
|---|----------|-------------|-----------|--|
|  | 50003192 | TK 100x100 | Reflector | Design: Rectangular Reflective surface: 96 mm x 96 mm Triple reflector size: 4 mm Material: Plastic Base material: Plastic Chemical designation of the material: PMMA8N Fastening: Adhesive |
|  | 50003189 | TK 30x50 | Reflector | Design: Rectangular Reflective surface: 29 mm x 45 mm Triple reflector size: 4 mm Material: Plastic Base material: Plastic Chemical designation of the material: PMMA8N Fastening: Adhesive |
|  | 50024127 | TK 82.2 | Reflector | Design: Round Triple reflector size: 4 mm Reflection surface diameter: 79 mm Material: Plastic Base material: Plastic Chemical designation of the material: PMMA8N Fastening: Through-hole mounting, Adhesive |
|  | 50022816 | TKS 100X100 | Reflector | Design: Rectangular Reflective surface: 96 mm x 96 mm Triple reflector size: 4 mm Material: Plastic Base material: Plastic Chemical designation of the material: PMMA8N Fastening: Through-hole mounting, Adhesive |
|  | 50081283 | TKS 20X40 | Reflector | Design: Rectangular Reflective surface: 16 mm x 38 mm Triple reflector size: 2.3 mm Material: Plastic Base material: Plastic Chemical designation of the material: PMMA8N Fastening: Through-hole mounting, Adhesive |
|  | 50023525 | TKS 30X50 | Reflector | Design: Rectangular Reflective surface: 27 mm x 44 mm Triple reflector size: 3 mm Material: Plastic Base material: Plastic Chemical designation of the material: PMMA8N Fastening: Through-hole mounting, Adhesive |
|  | 50040820 | TKS 40X60 | Reflector | Design: Rectangular Reflective surface: 37 mm x 56 mm Triple reflector size: 4 mm Material: Plastic Base material: Plastic Chemical designation of the material: PMMA8N Fastening: Through-hole mounting, Adhesive |

Reflective tapes for standard applications

| | Part no. | Designation | Article | Description |
|---|----------|---------------|-----------------|---|
|  | 50108300 | REF 4-A-50x50 | Reflective tape | Design: Rectangular Reflective surface: 50 mm x 50 mm Material: Plastic Chemical designation of the material: PMMA Fastening: Self-adhesive |

Notes

Observe 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 its intended use.

For UL applications:

- For UL applications, use is only permitted in Class 2 circuits in accordance with the NEC (National Electric Code).
- 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)

- Light source: Average life expectancy 100,000 h at an ambient temperature of 25 °C
- Response time: For short decay times, an ohmic load of approx. 5 kOhm is recommended
- Sum of the output currents for both outputs, 50 mA for ambient temperatures > 40 °C
- The push-pull switching outputs must not be connected in parallel.