



Figure can vary

**Part no.: 50137061**

**PRK3C.T3/6T-M8**

**Polarized retro-reflective photoelectric sensor**



## Contents

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



## Technical data

<b>Basic data</b>	
Series	3C
Operating principle	Reflection principle
Application	Detection of highly transparent bottles
<b>Special design</b>	
Special design	Autocollimation
<b>Optical data</b>	
Operating range	Guaranteed operating range
Operating range	0 ... 3 m, With reflector TK(S) 100x100
Operating range limit	Typical operating range
Operating range limit	0 ... 3.6 m, With reflector TK(S) 100x100
Light source	LED, Red
LED light wavelength	635 nm
LED protection class	Exempt group (in acc. with EN 62471)
Transmitted-signal shape	Pulsed
<b>Electrical data</b>	
Protective circuit	Short circuit protected Polarity reversal protection
<b>Performance data</b>	
Supply voltage	10 ... 30 V, DC, Incl. residual ripple
Residual ripple	0 ... 15 %, From $U_B$
Open-circuit current	0 ... 15 mA
<b>Inputs</b>	
Number of teach inputs	1 Piece(s)
<b>Teach inputs</b>	
Voltage type	DC
Switching voltage	high: $\geq 0,65 \times U_B$ low: $\leq 0,35 \times U_B$
Delay	1 ms
Input resistance	20,000 $\Omega$
<b>Teach input 1</b>	
Function	Keyboard lockout Light/dark switching Sensitivity adjustment
Active switching state	High
<b>Outputs</b>	
Number of digital switching outputs	1 Piece(s)
<b>Switching outputs</b>	
Voltage type	DC
Switching current, max.	100 mA
Switching voltage	High: $\geq (U_B - 2V)$ Low: $\leq 2V$
<b>Switching output 1</b>	
Assignment	Connection 1, pin 4
Switching element	Transistor, Push-pull
Switching principle	Light switching (PNP)/dark switching (NPN)

**Part no.: 50137061 – PRK3C.T3/6T-M8 – Polarized retro-reflective photoelectric**

<b>Timing</b>	
Switching frequency	1,500 Hz
Response time	0.33 ms
Readiness delay	300 ms
Response jitter	110 µs

<b>Connection</b>	
<b>Connection 1</b>	
Type of connection	Connector
Function	Voltage supply Signal IN Signal OUT
Thread size	M8
Type	Male
Material	Metal
No. of pins	4 -pin

<b>Mechanical data</b>	
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	Via optional mounting device Through-hole mounting
Compatibility of materials	ECOLAB







<b>Operation and display</b>	
Type of display	LED
Number of LEDs	2 Piece(s)
Operational controls	Teach button
Function of the operational control	Scanning range adjustment

<b>Environmental data</b>	
Ambient temperature, operation	-40 ... 60 °C
Ambient temperature, storage	-40 ... 70 °C

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

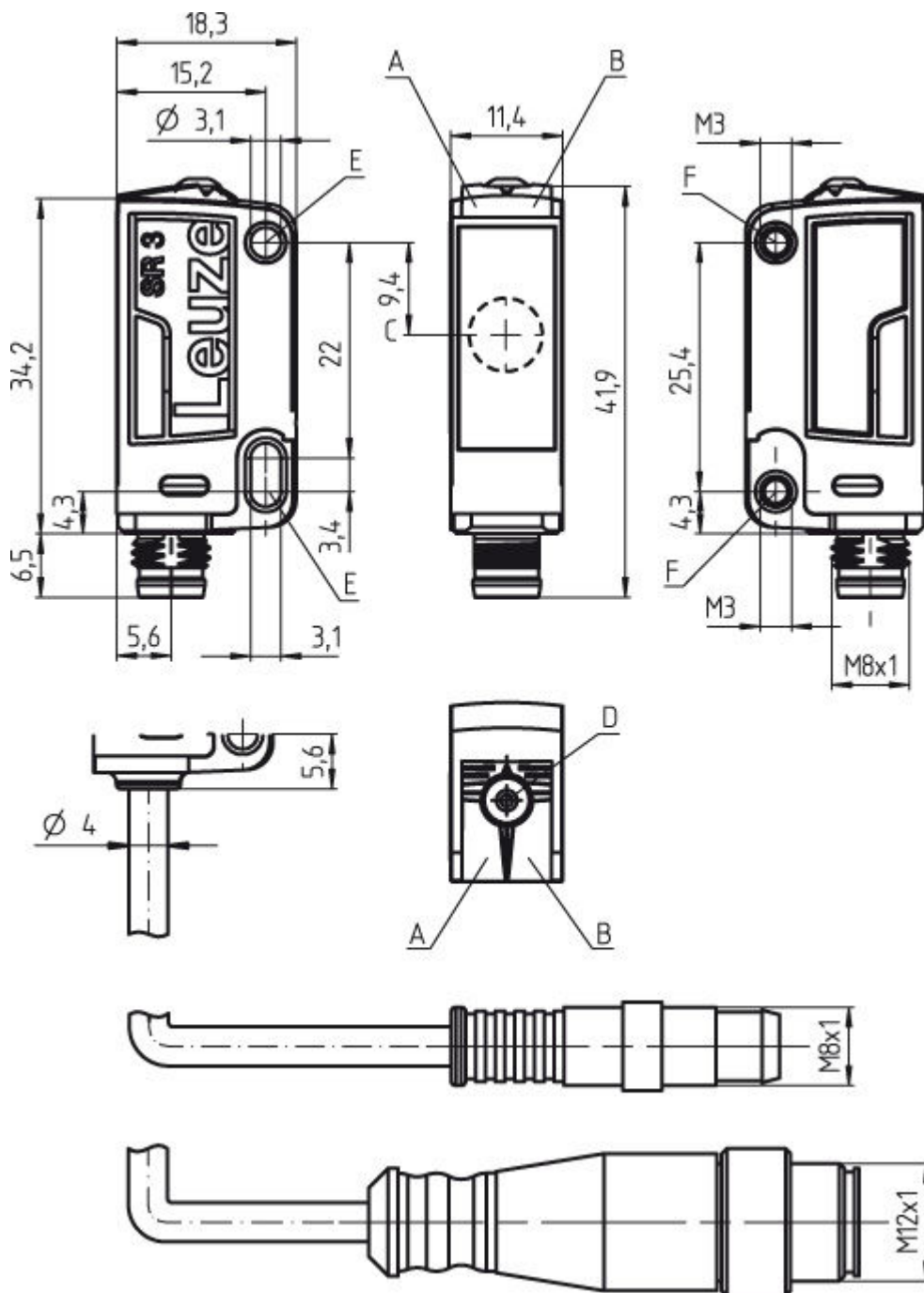
<b>Classification</b>	
eCl@ss 8.0	27270902
eCl@ss 9.0	27270902
ETIM 5.0	EC002717

## Reflectors & reflective tapes

	Part no.	Designation	Operating range/ Operating range limit	Description
	50117583	MTKS 50x50.1	0 ... 1.3 m 0 ... 1.6 m	Design: Rectangular Reflective surface: 50 mm x 50 mm Material: Plastic Base material: Plastic Chemical designation of the material: PMMA8N Fastening: Through-hole mounting, Adhesive
	50110192	REF 6-A-50x50	0 ... 1.2 m 0 ... 1.4 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 ... 3 m 0 ... 3.6 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
	50022816	TKS 100X100	0 ... 3 m 0 ... 3.6 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 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
	50040820	TKS 40X60	0 ... 2 m 0 ... 2.4 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
- D Teach button
- E Mounting sleeve (standard)
- F Threaded sleeve (3C.B series)

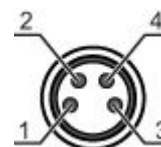
## Electrical connection

Connection 1	
Type of connection	Connector

Part no.: 50137061 – PRK3C.T3/6T-M8 – Polarized retro-reflective photoelectric

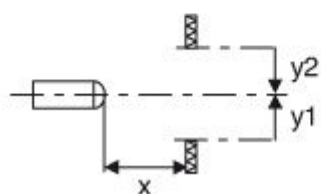
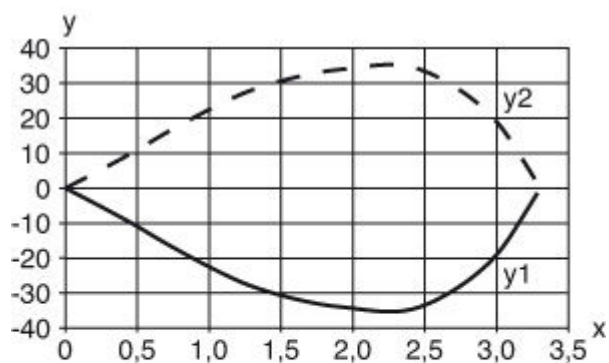
Connection 1	
Function	Signal OUT Signal IN Voltage supply
Thread size	M8
Type	Male
Material	Metal
No. of pins	4 -pin
Encoding	

Pin	Pin assignment
1	V+
2	Teach-in
3	GND
4	OUT 1



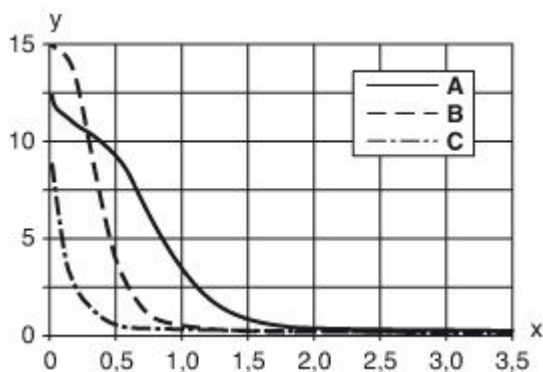
## Diagrams

Typ. response behavior



x Distance [m]  
y Misalignment [mm]

### Typ. function reserve



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


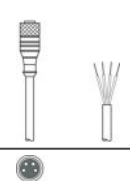

## Operation and display

### LEDs








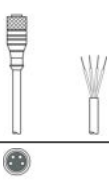
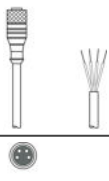

LED	Display	Meaning
1	Green, continuous light	Operational readiness
2	Yellow, continuous light	Light path free
	Yellow, flashing	Light path free, no function reserve

## 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
	50130855	KD U-M8-4A-P1-030	Connection cable	Connection 1: Connector, M8, Axial, Female, 4 -pin Connection 2: Open end Shielded: No Cable length: 3,000 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

**Part no.: 50137061 – PRK3C.T3/6T-M8 – Polarized retro-reflective photoelectric**


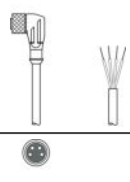

	Part no.	Designation	Article	Description
	50130857	KD U-M8-4A-P1-100	Connection cable	Connection 1: Connector, M8, Axial, Female, 4 -pin Connection 2: Open end Shielded: No Cable length: 10,000 mm Sheathing material: PUR
	50130858	KD U-M8-4A-P1-150	Connection cable	Connection 1: Connector, M8, Axial, Female, 4 -pin Connection 2: Open end Shielded: No Cable length: 15,000 mm Sheathing material: PUR
	50130859	KD U-M8-4A-P1-200	Connection cable	Connection 1: Connector, M8, Axial, Female, 4 -pin Connection 2: Open end Shielded: No Cable length: 20,000 mm Sheathing material: PUR
	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
	50130849	KD U-M8-4A-V1-030	Connection cable	Connection 1: Connector, M8, Axial, Female, 4 -pin Connection 2: Open end Shielded: No Cable length: 3,000 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
	50130852	KD U-M8-4A-V1-150	Connection cable	Connection 1: Connector, M8, Axial, Female, 4 -pin Connection 2: Open end Shielded: No Cable length: 15,000 mm Sheathing material: PVC
	50130853	KD U-M8-4A-V1-200	Connection cable	Connection 1: Connector, M8, Axial, Female, 4 -pin Connection 2: Open end Shielded: No Cable length: 20,000 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




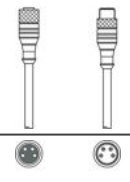
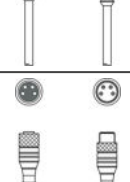
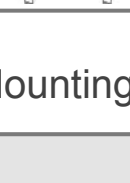
**Part no.: 50137061 – PRK3C.T3/6T-M8 – Polarized retro-reflective photoelectric**

	Part no.	Designation	Article	Description
	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
	50130874	KD U-M8-4W-P1-030	Connection cable	Connection 1: Connector, M8, Angled, Female, 4 -pin Connection 2: Open end Shielded: No Cable length: 3,000 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
	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
	50130870	KD U-M8-4W-V1-030	Connection cable	Connection 1: Connector, M8, Angled, Female, 4 -pin Connection 2: Open end Shielded: No Cable length: 3,000 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


**Part no.: 50137061 – PRK3C.T3/6T-M8 – Polarized retro-reflective photoelectric**

	Part no.	Designation	Article	Description
	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





**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






**Part no.: 50137061 – PRK3C.T3/6T-M8 – Polarized retro-reflective photoelectric**

	Part no.	Designation	Article	Description
	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.: 50137061 – PRK3C.T3/6T-M8 – Polarized retro-reflective photoelectric**
**Standard reflectors**

	Part no.	Designation	Article	Description
	50134985	MTKS 20x30.1	Reflector	Design: Rectangular Reflective surface: 18.5 mm x 28.5 mm Triple reflector size: 1 mm Material: Plastic Base material: Plastic Chemical designation of the material: PMMA Fastening: Through-hole mounting, Adhesive
	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
	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
	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

**Micro-triad-type reflectors**

	Part no.	Designation	Article	Description
	50117583	MTKS 50x50.1	Reflector	Design: Rectangular Reflective surface: 50 mm x 50 mm Material: Plastic Base material: Plastic Chemical designation of the material: PMMA8N Fastening: Through-hole mounting, Adhesive

**Reflective tapes for laser and clear-glass applications**

	Part no.	Designation	Article	Description
	50110192	REF 6-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 light spot may not exceed the reflector.
- Use of MTK(S) or REF 6-A- reflective tape is preferred.
- For REF 6-A reflective tape, the sensor's side edge must be aligned parallel to the side edge of the reflective tape.