

## Technical data sheet

### Polarized retro-reflective photoelectric sensor

Part no.: 50137503

PRK15.XD1/4P-M12



For illustration purposes only

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## Technical data

### Basic data

Series	15
Operating principle	Reflection principle
Application	Detection of stretch-wrapped objects

### Optical data

Operating range	0.05 ... 7 m (guaranteed operating range), With reflector TK(S) 100x100
Operating range limit	0.05 ... 9 m (typical operating range), With reflector TK(S) 100x100
Light source	LED, Red
Wavelength	640 nm
Transmitted-signal shape	Pulsed
LED group	Exempt group (in acc. with EN 62471)

### Electrical data

Protective circuit	Polarity reversal protection Short circuit protected
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### Performance data

Supply voltage $U_B$	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)
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#### Switching outputs

Type	Digital switching output
Voltage type	DC
Switching current, max.	100 mA
Switching voltage	high: $\geq(U_B - 2.5V)$ low: $\leq 2.5 V$

#### Switching output 1

Assignment	Connection 1, pin 4
Switching element	Transistor, PNP
Switching principle	Light switching

#### Switching output 2

Assignment	Connection 1, pin 2
Switching element	Transistor, PNP
Switching principle	Dark switching

### Time behavior

Switching frequency	500 Hz
Response time	1 ms
Readiness delay	300 ms

### Connection

Number of connections	1 Piece(s)
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#### Connection 1

Function	Signal OUT Voltage supply
Type of connection	Connector
Thread size	M12
Type	Male
Material	Plastic
No. of pins	4 -pin
Encoding	A-coded

### Mechanical data

Dimension (W x H x L)	15 mm x 42.7 mm x 30 mm
Housing material	Plastic
Plastic housing	ABS
Lens cover material	Plastic
Net weight	15 g
Housing color	Black
Type of fastening	Through-hole mounting Via optional mounting device
Recommended tightening torque for M3 fastening	0.9 N·m
Recommended tightening torque for M4 fastening	1.4 N·m

### Operation and display

Type of display	LED
Number of LEDs	2 Piece(s)
Operational controls	270° potentiometer
Function of the operational control	Sensitivity adjustment

### Environmental data

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

### Certifications

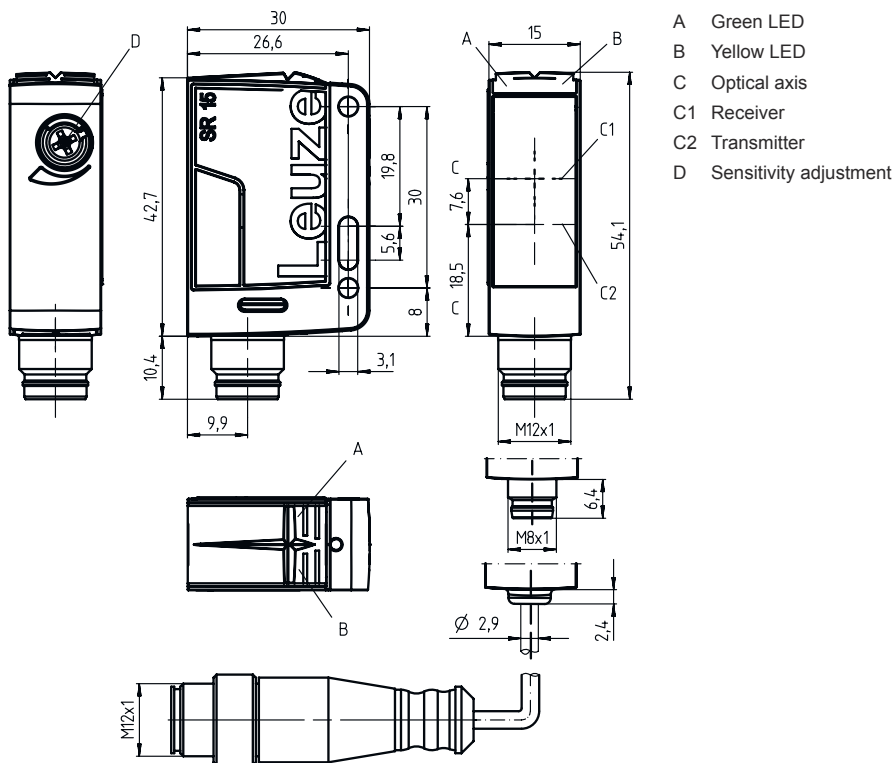
Degree of protection	IP 67 IP 69K
Protection class	III
Approvals	c UL US
Standards applied	IEC 60947-5-2

### Classification

Customs tariff number	85365019
ECLASS 5.1.4	27270902
ECLASS 8.0	27270902
ECLASS 9.0	27270902
ECLASS 10.0	27270902
ECLASS 11.0	27270902
ECLASS 12.0	27270902
ECLASS 13.0	27270902
ECLASS 14.0	27270902
ECLASS 15.0	27270902
ECLASS 16.0	27270902
ETIM 5.0	EC002717
ETIM 6.0	EC002717
ETIM 7.0	EC002717
ETIM 8.0	EC002717
ETIM 9.0	EC002717
ETIM 10.0	EC002717
UNSPSC 26.08	39121528

# Dimensioned drawings

All dimensions in millimeters

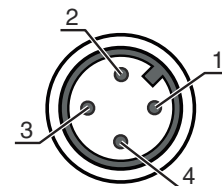


## Electrical connection

### Connection 1

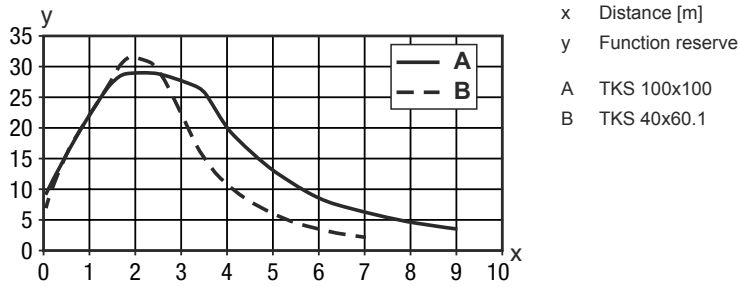
Function	Signal OUT
	Voltage supply
Type of connection	Connector
Thread size	M12
Type	Male
Material	Plastic
No. of pins	4 -pin
Encoding	A-coded

Pin	Pin assignment
1	V+
2	OUT 2
3	GND
4	OUT 1

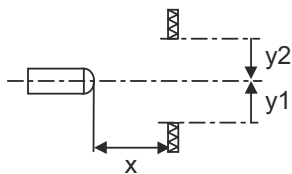
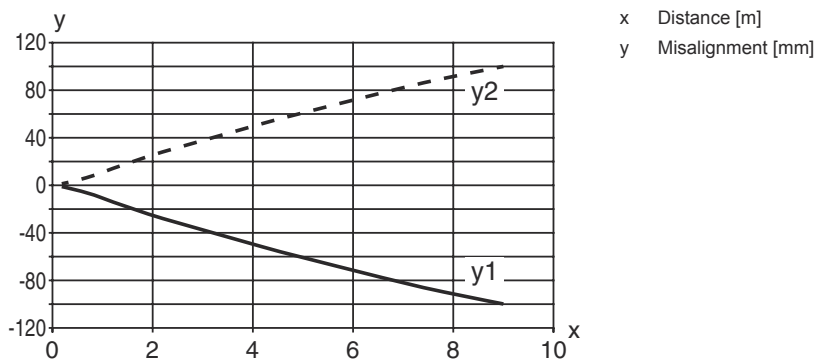


# Diagrams

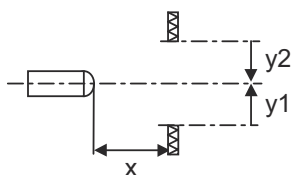
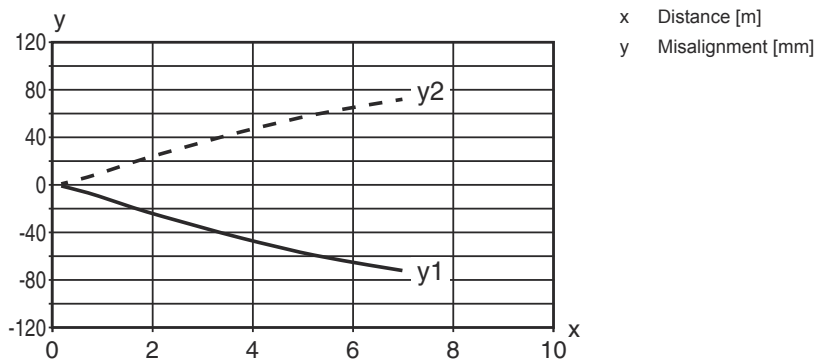
## Typ. function reserve



## Typ. response behavior (TKS100x100)





## Typ. response behavior (TKS 40x60.1)



## Operation and display

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

## Reflectors & reflective tapes

	Part no.	Designation	Operating range Operating range limit	Description
	50022816	TKS 100X100	0.07 ... 7 m 0.05 ... 9 m	Design: Rectangular Triple reflector size: 4 mm Reflective surface: 96 mm x 96 mm Material: Plastic Base material: Plastic Chemical designation of the material: PMMA8N Fastening: Through-hole mounting, Adhesive
	50109257	TKS 40x60.1	0.05 ... 5.7 m 0.05 ... 7 m	Design: Rectangular Triple reflector size: 2.3 mm Reflective surface: 37 mm x 56 mm Material: Plastic Base material: Plastic Chemical designation of the material: PMMA8N Fastening: Through-hole mounting, Adhesive

## Part number code

Part designation: AAA15d.EE/ ff-HH

<b>AAA15</b>	<b>Operating principle / construction</b> HT15: diffuse reflection sensor with background suppression PRK15: retro-reflective photoelectric sensor with polarization filter LS15: throughbeam photoelectric sensor transmitter LE15: throughbeam photoelectric sensor receiver
<b>d</b>	<b>Light type</b> n/a: red light I: infrared light
<b>EE</b>	<b>Equipment</b> 1: adjustable range D: Detection of stretch-wrapped objects
<b>ff</b>	<b>Switching output / Function</b> 2: NPN transistor output, light switching N: NPN transistor output, dark switching 4: PNP transistor output, light switching P: PNP transistor output, dark switching X: pin not used
<b>HH</b>	<b>Electrical connection</b> n/a: cable, standard length 2000 mm, 3-wire M8: M8 connector, 4-pin (plug) 200-M12: cable, length 200 mm with M12 connector, 4-pin, axial (plug) M12: M12 connector, 4-pin (plug)

### Note



A list with all available device types can be found on the Leuze website at [www.leuze.com](http://www.leuze.com).

## Notes

<b>Observe intended use!</b>	
	<ul style="list-style-type: none"> <li>⌘ This product is not a safety sensor and is not intended as personnel protection.</li> <li>⌘ The product may only be put into operation by competent persons.</li> <li>⌘ Only use the product in accordance with its intended use.</li> </ul>

## Further information

- Light source: Average life expectancy 100,000h at an ambient temperature of 25 °C
- Sum of the output currents for both outputs 100 mA

## Accessories

### Connection technology - Connection cables

	Part no.	Designation	Article	Description
	50130654	KD U-M12-4A-P1-020	Connection cable	Application: Oil and lubricant resistant Connection 1: Connector, M12, Axial, Female, A-coded, 4 -pin Connector, LED: No Connection 2: Open end Shielded: No Cable length: 2,000 mm Sheathing material: PUR
	50130657	KD U-M12-4A-P1-050	Connection cable	Application: Oil and lubricant resistant Connection 1: Connector, M12, Axial, Female, A-coded, 4 -pin Connector, LED: No Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: PUR

### Mounting technology - Rod mounts

	Part no.	Designation	Article	Description
	50117255	BTU 200M-D12	Mounting system	Contains: 2x M3 x 16 screw, 2 M3 x 20 screws, 2x position washers Design of mounting device: Mounting system Fastening, at system: For 12 mm rod, Sheet-metal mounting Mounting bracket, at device: Screw type, Suited for M3 screws Type of mounting device: Clampable, Adjustable, Turning, 360° Material: Metal

<b>Note</b>	
	<ul style="list-style-type: none"> <li>⌘ A list with all available accessories can be found on the Leuze website in the Download tab of the article detailed page.</li> </ul>