

## Technical data sheet

### Polarized retro-reflective photoelectric sensor set

Part no.: 50153174

SETPRK5B.D/4X-200-M12+TKS 40X60.A+BT205M



#### Contents

- Set consists of
- Technical data
- Dimensioned drawings
- Electrical connection
- Diagrams
- Operation and display
- Part number code
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- Accessories



## Set consists of

Quantity	Part no.	Designation	Article	Description
1	50139831	BT 205M	Mounting device	Fastening, at system: Through-hole mounting Mounting bracket, at device: Screw type Type of mounting device: Rigid Material: Metal
1	50150255	PRK5B.D/4X-200-M12	Polarized retro-reflective photoelectric sensor	Application: Detection of stretch-wrapped objects Operating range limit: 0.03 ... 5 m Light source: LED, Red Supply voltage: DC Digital switching outputs: 1 Piece(s) Switching output 1: Transistor, PNP, Light switching (dark switching by reversing polarity of UB) Switching frequency: 500 Hz Connection: Cable with connector, 200 mm, M12, Plastic, 3 -wire, 4 -pin



## Technical data

### Basic data

Series	5B
Operating principle	Reflection principle
Contains	1x BT 205M 1x TKS 40x60.A 4x M3 x 8 screw
Application	Detection of stretch-wrapped objects

### Special version

Special version	Article set
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### Optical data

Operating range	0.04 ... 2 m (guaranteed operating range), With reflector TKS 40x60.A
Operating range limit	0.03 ... 2.5 m (typical operating range), With reflector TKS 40x60.A
Light source	LED, Red
Wavelength	645 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	1 Piece(s)
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### Switching outputs

Type	Digital switching output
Voltage type	DC
Switching current, max.	50 mA
Switching voltage	high: $\geq(U_B-2.5V)$ low: $\leq 2.5 V$

### Switching output 1

Switching element	Transistor, PNP
Switching principle	Light switching (dark switching by reversing polarity of $U_B$ )

### 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	Cable with connector
Cable length	200 mm
Sheathing material	PVC
Cable color	Black
Number of conductors	3 -wire
Wire cross section	0.14 mm <sup>2</sup>
Thread size	M12
Type	Male
Material	Plastic
No. of pins	4 -pin
Encoding	A-coded

### Mechanical data

Dimension (W x H x L)	11 mm x 32.4 mm x 20 mm
Housing material	Plastic
Plastic housing	PC-ABS
Lens cover material	Plastic
Net weight	40 g
Housing color	Black Red
Type of fastening	Two M3 threaded sleeves Via optional mounting device
Recommended tightening torque for M3 fastening	0.9 N·m
Compatibility of materials	ECOLAB

## Technical data

### Operation and display

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

### Environmental data

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

### Certifications

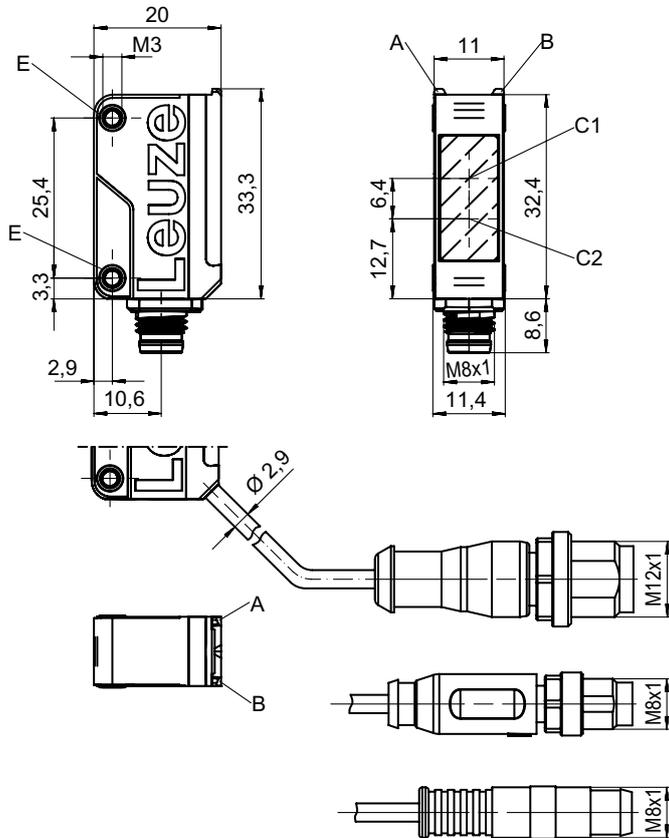
Degree of protection	IP 67
Protection class	III
Approvals	c UL US
Standards applied	IEC 60947-5-2

### 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

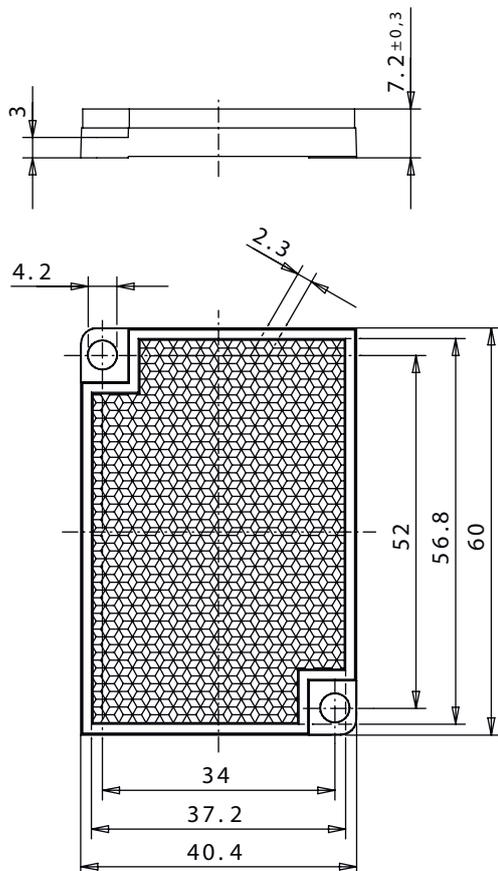
## Dimensioned drawings

All dimensions in millimeters

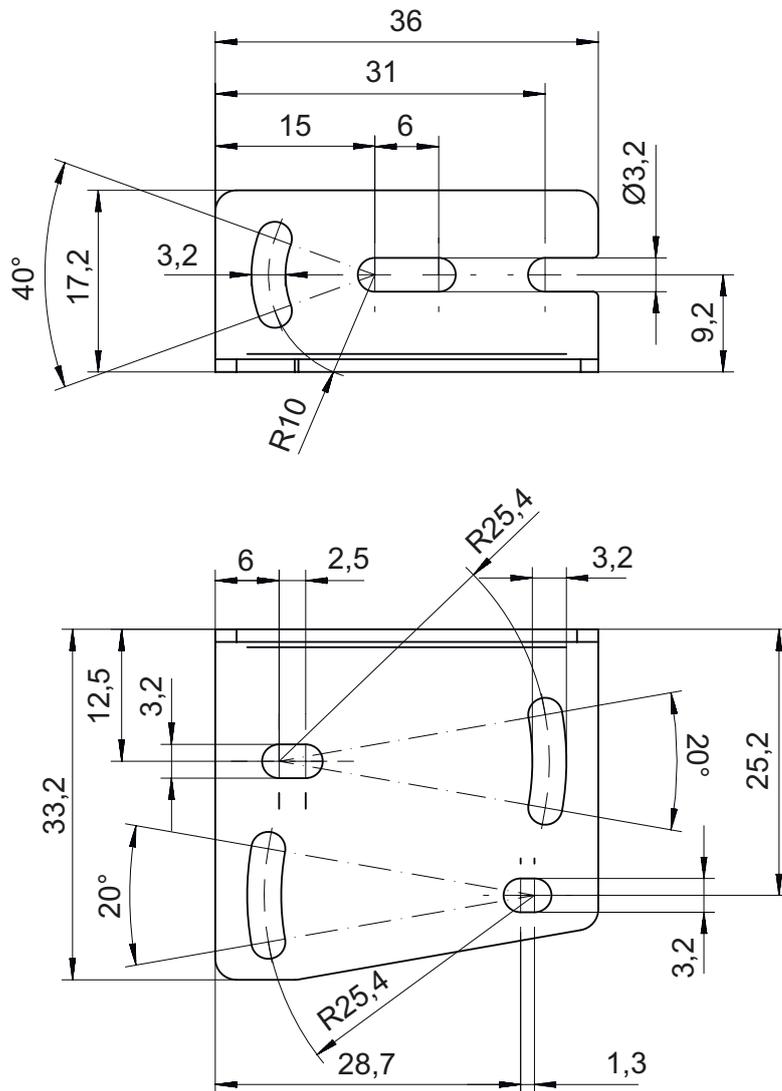


- A Green LED
- B Yellow LED
- C1 Receiver
- C2 Transmitter
- E Threaded sleeve

## Dimensioned drawings



## Dimensioned drawings



## Electrical connection

### Connection 1

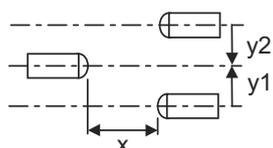
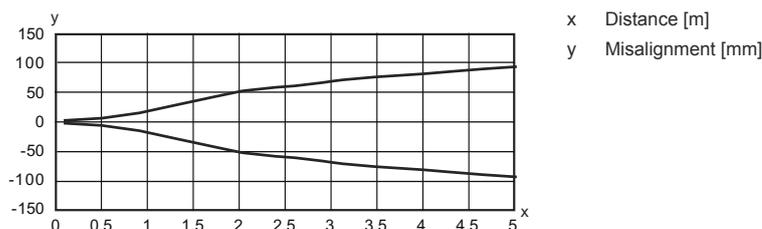
Function	Signal OUT
	Voltage supply
Type of connection	Cable with connector
Cable length	200 mm
Sheathing material	PVC
Cable color	Black
Number of conductors	3 -wire
Wire cross section	0.14 mm <sup>2</sup>
Thread size	M12
Type	Male
Material	Plastic
No. of pins	4 -pin
Encoding	A-coded

## Electrical connection

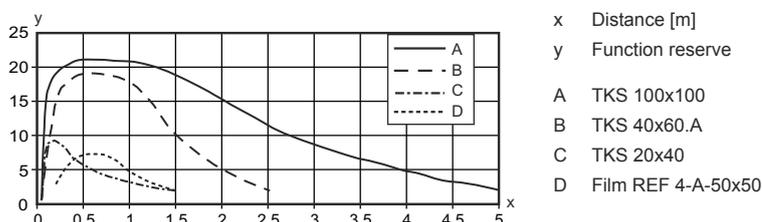
Pin	Pin assignment	Conductor color
1	V+	Brown
2	n.c.	Blue
3	GND	Black
4	OUT 1	

## Diagrams

### Typ. response behavior (TKS100x100)



### Typ. function reserve



## Operation and display

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

## Part number code

Part designation: AAA5B D-E.FF/GG.HH-JJ

AAA5B	Operating principle / construction
	LS5B: Throughbeam photoelectric sensor transmitter
	LE5B: Throughbeam photoelectric sensor receiver
	PRK5B: Retro-reflective photoelectric sensor with polarization filter
	HT5B: Diffuse reflection sensor with background suppression
	ET5B: Energetic diffuse reflection sensor

## Part number code

<b>D</b>	<b>Light type</b> n/a: red light l: infrared light PP: Power PinPoint® LED
<b>E</b>	<b>Preset range (optional)</b> n/a: operating range acc. to data sheet xxxF: Preset range [mm]
<b>FF</b>	<b>Equipment</b> 1: 270° potentiometer D: Detection of stretch-wrapped objects M: Detection of semi-transparent media and transparent films XL: Extra long light spot n/a with retro-reflective photoelectric sensors (PRK): operating range not adjustable n/a with ET / HT: range adjustable via 8-turn potentiometer
<b>GG</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 9: deactivation input (deactivation with high signal) 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) 200-M8: cable, length 200 mm with M8 connector, 4-pin, axial (plug) 200-M8.3: cable, length 200 mm with M8 connector, 3-pin, axial (plug) 200-M8.1: Cable, length 200 mm with snap-in M8 connector, 4-pin (plug) M8.3: M8 connector, 3-pin (plug)
<b>JJ</b>	<b>Version</b> Y1: mounting holes without threaded sleeve

### Note



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

## 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:



- ⌘ Only for use in "class 2" circuits
- ⌘ 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)

## Accessories

### Mounting technology - Mounting brackets

	Part no.	Designation	Article	Description
	50118542	BT 200M.5	Mounting bracket	Design of mounting device: Angle, L-shape Fastening, at system: Through-hole mounting Mounting bracket, at device: Screw type, Suited for M3 screws Type of mounting device: Adjustable Material: Stainless steel
	50124651	BT 205M-10SET	Mounting device set	Contains: 10x Design of mounting device: Angle, L-shape Fastening, 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
	50117829	BTP 200M-D12	Mounting system	Design of mounting device: Protection hood Fastening, at system: For 12 mm rod 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 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

#### Note



A list with all available accessories can be found on the Leuze website in the Download tab of the article detailed page.