

Technical data sheet

Unpolarized retro-reflective photoelectric

Part no.: 50143107

RK46C.DL3/4P-M12



Figure can vary

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Technical data

Basic data

Series	46C
Operating principle	Reflection principle
Application	Detection of irregular objects on conveyor belt Detection of polybags on conveyor belt
Switching distance S_n	0 ... 1,500 mm

Special version

Special version	Light-band
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Optical data

Operating range	0.55 ... 1.5 m
Operating range limit	0.55 ... 1.5 m
Light source	LED, Red
LED light wavelength	620 nm
LED group	Exempt group (in acc. with EN 62471)
Transmitted-signal shape	Pulsed
Light spot size [at sensor distance]	25 mm x 19 mm [1,000 mm]
Type of light spot geometry	Rectangular

Measurement data

Minimum object size	5 mm
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Electrical data

Protective circuit	Polarity reversal protection Short circuit protected Transient protection
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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

Voltage type	DC
Switching current, max.	100 mA
Switching voltage	high: $\geq(U_B - 2V)$ Low: $\leq 2V$

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

Timing

Switching frequency	250 Hz
Response time	2 ms
Readiness delay	300 ms

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)	20.5 mm x 76.3 mm x 44 mm
Housing material	Plastic
Plastic housing	PC-PBT
Lens cover material	Plastic / PMMA
Net weight	60 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)
Operational controls	Teach button
Function of the operational control	Light/dark switching Sensitivity adjustment

Environmental data

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

Certifications

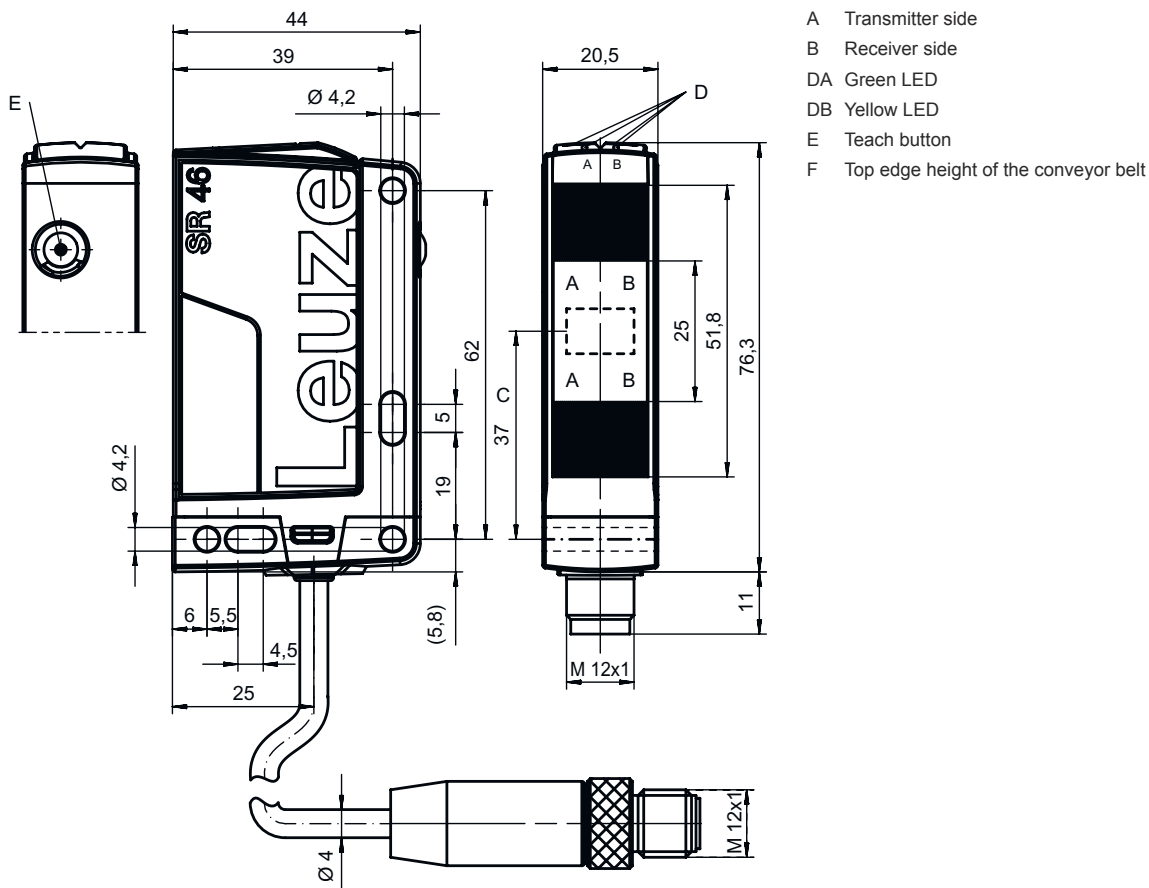
Degree of protection	IP 67 IP 69K
Protection class	III
Certifications	c UL US
Standards applied	IEC 60947-5-2

Classification

Customs tariff number	85365019
eCl@ss 5.1.4	27270902
eCl@ss 8.0	27270902
eCl@ss 9.0	27270902
eCl@ss 10.0	27270902
eCl@ss 11.0	27270902
ETIM 5.0	EC002717
ETIM 6.0	EC002717
ETIM 7.0	EC002717

Dimensioned drawings

All dimensions in millimeters



- A Transmitter side
- B Receiver side
- DA Green LED
- DB Yellow LED
- E Teach button
- F Top edge height of the conveyor belt

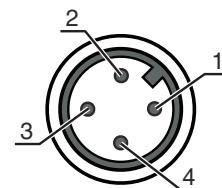
Electrical connection

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



Operation and display

Display LED 1	Display LED 2	Meaning
Green, continuous light	Off	Operational readiness
Green, continuous light	Yellow, continuous light	Light path free
Green, flashing	Yellow, flashing	Teach event active

Reflectors & reflective tapes

	Part no.	Designation	Operating range Operating range	Description
	50143109	BT ARH 46C.DL	0.55 ... 1.5 m 0.55 ... 1.5 m	Type of article: Alignment aid for fast and reproducible alignment of RK46C.DL above the conveyor belt. For a reliable operation, the RK46C.DL should always be aligned with this alignment aid
	50108300	REF 4-A-50x50	0.55 ... 1.5 m 0.55 ... 1.5 m	Design: Rectangular Reflective surface: 50 mm x 50 mm Material: Plastic Chemical designation of the material: PMMA Fastening: Self-adhesive
	50022816	TKS 100X100	0.55 ... 1.5 m 0.55 ... 1.5 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
	50109257	TKS 40x60.1	0.55 ... 1.5 m 0.55 ... 1.5 m	Design: Rectangular Reflective surface: 37 mm x 56 mm Triple reflector size: 2.3 mm Material: Plastic Base material: Plastic Chemical designation of the material: PMMA8N Fastening: Through-hole mounting, Adhesive
	50022814	TKS 50X50	0.55 ... 1.5 m 0.55 ... 1.5 m	Design: Rectangular Reflective surface: 47 mm x 48 mm Triple reflector size: 4 mm Material: Plastic Base material: Plastic Chemical designation of the material: PMMA8N Fastening: Through-hole mounting, Adhesive

Part number code


Part designation: **AAA46C d EE-f.GG H/i J-K**

AAA46C	Operating principle / construction HT46C: diffuse reflection sensor with background suppression LS46C: throughbeam photoelectric sensor transmitter LE46C: throughbeam photoelectric sensor receiver PRK46C: retro-reflective photoelectric sensor with polarization filter RK46C: retro-reflective photoelectric sensor
d	Light type n/a: red light l: infrared light
EE	Light source n/a: LED L1: laser class 1 L2: laser class 2
f	Preset range (optional) n/a: operating range acc. to data sheet xxxF: preset range [mm]



Part number code

GG	Equipment n/a: standard 1: 270° potentiometer 8: activation input (activation with high signal) 01: diffuse reflection sensor with background suppression (HT): HG tape (HighGain tape) is not detected from a distance of 900 mm with a set operating range of ≤ 450 mm (diffuse reflection: 6%, black) D: depolarizing media E: diffuse reflection sensor with background suppression (HT): optimized for dusty environments SL: diffuse reflection sensor with background suppression (HT): slit diaphragm 25 mm x 3 mm P: throughbeam photoelectric sensor receiver (LE): edge filter for parallel operation L: Light-band XL: extra long light spot
H	Operating range adjustment & version n/a with diffuse reflection sensor with background suppression (HT): range adjustment via mechanical adjusting spindle n/a with retro-reflective photoelectric sensors (PRK): operating range not adjustable 1: retro-reflective photoelectric sensors (PRK/RK): sensitivity adjustment via potentiometer 3: teach-in via button P2: resolution 2 mm
i	Switching output/function OUT 1/IN: Pin 4 or black conductor 2: NPN transistor output, light switching N: NPN transistor output, dark switching 4: PNP transistor output, light switching P: PNP transistor output, dark switching L: IO-Link
J	Switching output / function OUT 2/IN: pin 2 or white conductor 2: NPN transistor output, light switching N: NPN transistor output, dark switching 4: PNP transistor output, light switching P: PNP transistor output, dark switching 8: activation input (activation with high signal) 9: deactivation input (deactivation with high signal) W: warning output X: pin not used
K	Electrical connection n/a: cable, standard length 2000 mm, 4-wire 200-M12: cable, length 200 mm with M12 connector, 4-pin, axial (plug) M12: M12 connector, 4-pin (plug) 500-M12: cable, length 500 mm with M12 connector, 4-pin, axial (plug) 1000-M12: cable, length 1000 mm with M12 connector, 4-pin, axial (plug)


Note

	<ul style="list-style-type: none"> ↪ A list with all available device types can be found on the Leuze website at www.leuze.com.
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Notes

 Observe intended use!	
	<ul style="list-style-type: none"> ↪ 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:



	<ul style="list-style-type: none"> ↪ 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)
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Further information


- Light source: Average life expectancy 100,000h at an ambient temperature of 25 °C
- Rating voltage 50V
- Detection range: Depending on the object size and the set sensor sensitivity
- Temperature compensation $\pm 15^{\circ}\text{C}$
- Response time: For short decay times, an ohmic load of approx. 5kOhm is recommended

Accessories



Connection technology - Connection cables

	Part no.	Designation	Article	Description
	50130652	KD U-M12-4A-V1-050	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 4 -pin Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: PVC
	50130690	KD U-M12-4W-V1-050	Connection cable	Connection 1: Connector, M12, Angled, Female, A-coded, 4 -pin Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: PVC

Mounting technology - Mounting brackets

	Part no.	Designation	Article	Description
	50105315	BT 46	Mounting device	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
	50117252	BTU 300M-D12	Mounting system	Design of mounting device: Mounting system Fastening, at system: For 12 mm rod, Sheet-metal mounting Mounting bracket, at device: Screw type, Suited for M4 screws Type of mounting device: Clampable, Adjustable, Turning, 360° Material: Metal
	50128380	BTU 460M-D12	Mounting system	Design of mounting device: Mounting system Fastening, at system: For 12 mm rod Mounting bracket, at device: Screw type Type of mounting device: Adjustable, Turning, 360° Material: Metal

Accessories

Standard reflectors

	Part no.	Designation	Article	Description
	50143109	BT ARH 46C.DL	Alignment aid	Type of article: Alignment aid for fast and reproducible alignment of RK46C.DL above the conveyor belt. For a reliable operation, the RK46C.DL should always be aligned with this alignment aid
	50109257	TKS 40x60.1	Reflector	Design: Rectangular Reflective surface: 37 mm x 56 mm Triple reflector size: 2.3 mm Material: Plastic Base material: Plastic Chemical designation of the material: PMMA8N Fastening: Through-hole mounting, Adhesive
	50022814	TKS 50X50	Reflector	Design: Rectangular Reflective surface: 47 mm x 48 mm Triple reflector size: 4 mm Material: Plastic Base material: Plastic Chemical designation of the material: PMMA8N Fastening: Through-hole mounting, Adhesive

Note



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