

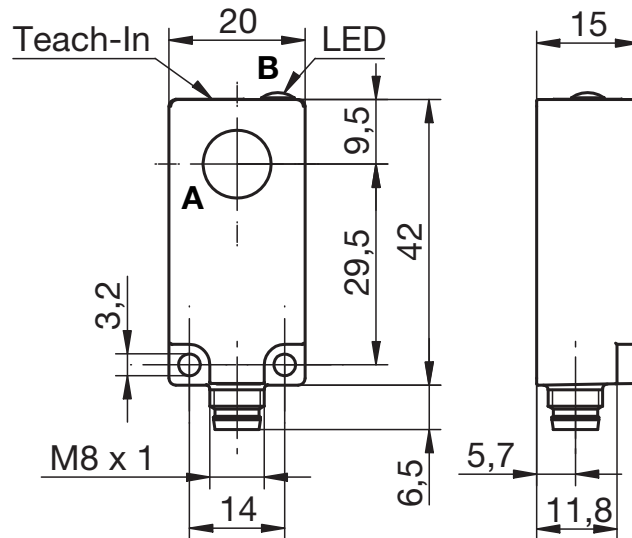
RKU 420

Retro-reflective ultrasonic sensor

en 02-2016/02 50130124



Dimensioned drawing



- A** Active surface
- B** Green indicator diode

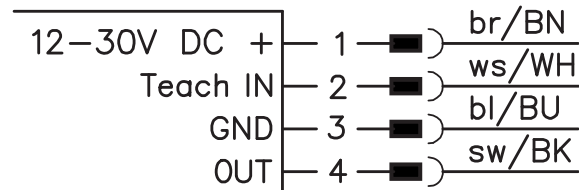


0 ... 400 mm



- Small retro-reflective ultrasonic sensor in plastic housing with degree of protection IP 67
- No dead zone on the sensor
- Switching behavior largely independent of surface properties
- Reflector distance pre-set to 122mm
- Teach-in via teach button or cable
- Protection against erroneous operation by automatically locking teach button

Electrical connection

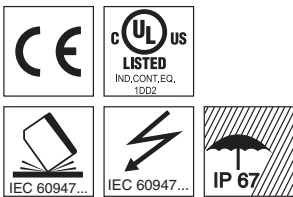


Accessories:

(available separately)

- M8 connectors (D M8...)
- Ready-made cables (K-D ...)

We reserve the right to make changes • DS_RKU420_en_50130124_fm



Specifications

Ultrasonic data	RKU 420/...	
Operating range	0 ... 400mm	
Reflector distance	100 ... 400mm	
Reflector size	> 30 x 30mm ¹⁾	
Sound frequency	290kHz	
Repeatability	≤ 1.5mm (relative to the reflector distance)	
Temperature drift	≤ 2%/K (relative to the reflector distance)	
Timing		
Switching frequency	20Hz	
Response time	≤ 25ms	
Decay time	≤ 25ms	
Readiness delay	≤ 200ms	
Electrical data		
Operating voltage U_B ²⁾	12 ... 30VDC incl. taking into account the residual ripple	
Residual ripple	≤ 10% of U_B	
Open-circuit current	≤ 35mA	
Switching output/function	.../4NO... pin 4: PNP transistor, make-contact (NO)	
	.../4NC... pin 4: PNP transistor, break-contact (NC)	
	.../2NO... pin 4: NPN transistor, make-contact (NO)	
	.../2NC... pin 4: NPN transistor, break-contact (NC)	
Output current	≤ 200mA	
Load	$C_{max} = 10nF, L_{max} = 20\mu H$	
Teach input	pin 2: active high	
Signal voltage high/low	≥ ($U_B - 2V$) / ≤ 2V	
Indicators		
Green LED	switching state (off = object detected)	
Green LED slowly flashing	teach event active	
Green LED quickly flashing	teaching error	
Mechanical data		
Housing	plastic (PE), color: red (RAL 3000)	
Active surface	plastic (PC)	
Standard measurement object	15 x 15mm	30 x 30mm
Fastening	through-holes for 2 x M3	
Weight	~ 10g	
Connection type	M8 connector, 4-pin	
Environmental data		
Ambient temp. (operation/storage)	-10°C ... +60°C / -40°C ... +85°C	
Protective circuit ³⁾	1, 2, 3	
VDE safety class	III	
Degree of protection	IP 67	
Standards applied	IEC/EN 60947-5-2	
Certifications	UL 508 ²⁾	

- 1) Aligned perpendicular to sensor reference axis
- 2) Observe the safety regulations and installation instructions regarding power supply and wiring; for UL applications: only for use in "Class 2" circuits acc. to NEC
- 3) 1=polarity reversal protection, 2=short circuit protection, 3=overload protection for all outputs

Tables

1	0	400
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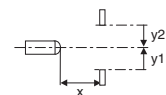
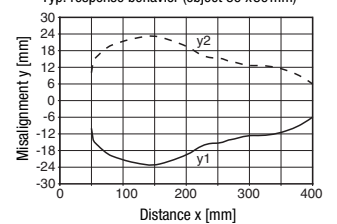
1	RKU 420/...
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Scanning range [mm]

Diagrams

RKU 420/...

Typ. response behavior (object 30 x 30mm)



Remarks

Operate in accordance with 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 the intended use.

RKU 420

Retro-reflective ultrasonic sensor

Part number code

R K U 4 2 0 / 2 N C . 2 - S 8

Operating principle / construction

RKU Retro-reflective ultrasonic sensor

Series

420 Small cubic construction with housing width of 20mm

Output function

- 4NO** PNP transistor, NO contact
- 4NC** PNP transistor, NC contact
- 2NO** NPN transistor, NO contact
- 2NC** NPN transistor, NC contact

Equipment

.2 Teach input

Electrical connection

S8 M8 connector, 4-pin, axial

Order guide

The sensors listed here are preferred types; current information at www.leuze.com.

Design

Pre-set to reflector distance 122mm

Designation

RKU 420/2NC.2-S8

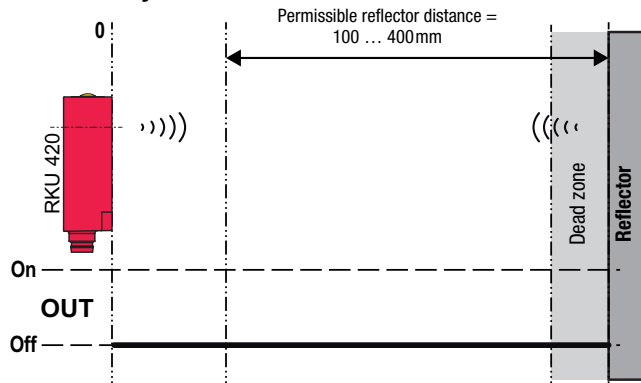
Part no.

50132082

Function

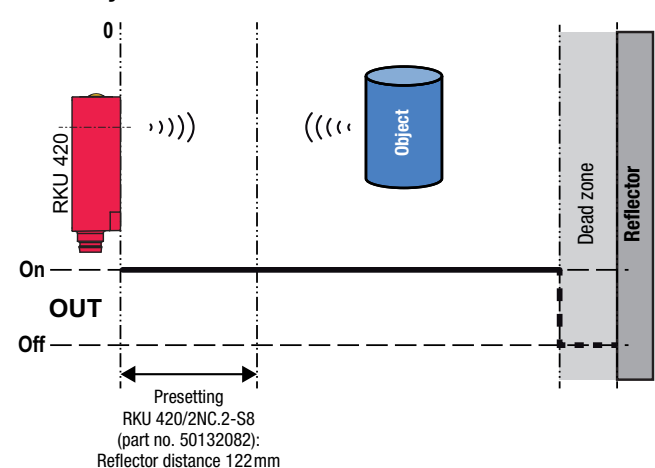
The sensor detects objects from 0mm up to the reflector distance minus the dead zone. The dead zone is max. 5% of the selected reflector distance. In the dead zone, the switching behavior of the sensor is not defined.

Without object



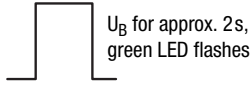
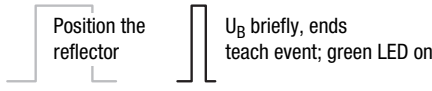
Switching output **OUT** = not active (**Off**)
Green **LED** is on (**no object detected**)

With object



Switching output **OUT** = active (**On**)
Green **LED** is off (**object detected**)


Teach-in of the reflector distance

Teach button	Teach-in input PIN 2
① Activate teach-in	
Press the teach button for approx. 2s until the LED flashes - then release the button.	
② Place the reflector at the desired position and conclude the teach event	
LED flashes. If the reflector is at the desired position, briefly press the teach button again. The teach event ends after 2s. The sensor now detects objects that are located in the sound path between sensor and reflector. When an object is detected, the green LED is off.	

Teaching error

If the reflector is located outside of the operating range during the teach event, a teaching error occurs. The LED flashes quickly and the switching output is reset to the factory setting (switching point at the max. operating range).

Resetting the sensor to factory setting

Teach button	Teach-in input PIN 2
Restoring the standard operating range	
Press the teach button for at least 6s until the LED flashes quickly - then release the button. The sensor setting now corresponds to the standard operating range.	

Locking the teach button

The sensor automatically locks the teach button after either 5 min. after power-on or 5 min. after the last teach event is ended. A new teach event is only possible after disconnecting the sensor from voltage.



If the **Teach-IN** input is not used, it must be connected to GND!