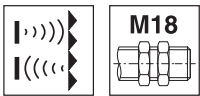


RKU318

Ultrasonic sensors with 1 switching output

en 01-2017/02 50135687



0 ... 300mm
0 ... 800mm

10 - 30 V
DC

- Function largely independent of surface properties, ideal for detection of liquids, bulk materials, transparent media, ...
- Small dead zone at long scanning range
- Adjustment of the reflector distance can be taught
- NO/NC function reversible
- 1 switching output (PNP or NPN)
- Extra short construction
- **NEW** – Stable plastic design
- **NEW** – Temperature-compensated scanning range

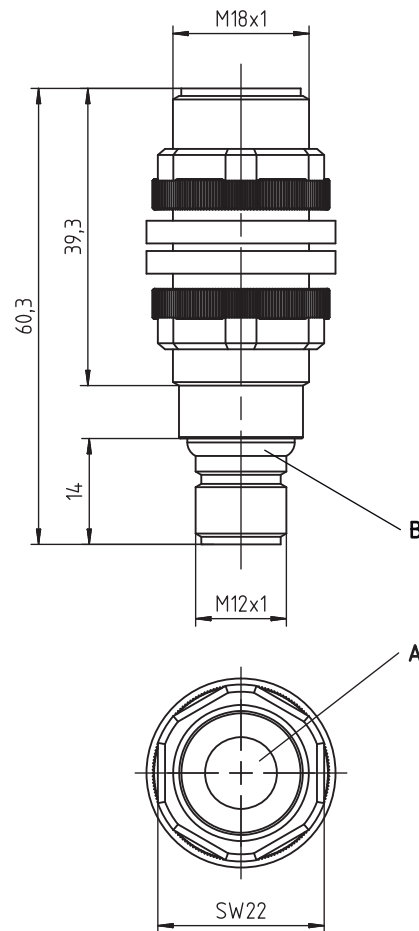


Accessories:

(available separately)

- Mounting systems
- Mounting adapter M18-M30: BTX-D18M-D30 (Part no. 50125860)
- Cables with M12 connector (KD ...)
- Teach adapter PA1/XTSX-M12 (Part no. 50124709)

Dimensioned drawing



- A Active sensor surface
B Indicator diodes

Electrical connection



We reserve the right to make changes • PAL_RKU318_300_800_1SWO_en_50135687.fm

Technical data

Ultrasonic specifications

Operating range ¹⁾
 Reflector distance
 Object distance to background (reflector)
 Ultrasonic frequency
 Typ. opening angle
 Resolution
 Direction of beam
 Reproducibility
 Switching hysteresis
 Temperature drift

RKU318-300/...-M12

0 ... 300mm ²⁾
 50 ... 300mm
 ≥ 50mm
 300kHz
 7° ± 2°
 < 2mm
 Axial
 ± 0.5% ^{1) 3)}
 1% ³⁾
 ≤ 5% ⁴⁾

RKU318-800/...-M12

0 ... 800mm ²⁾
 80 ... 800mm
 ≥ 80mm
 230kHz
 8° ± 2°
 < 2mm
 Axial
 ± 0.5% ^{1) 3)}
 1% ³⁾
 ≤ 5% ⁴⁾

Timing

Switching frequency
 Response time
 Readiness delay

8Hz
 62ms
 < 100ms

5Hz
 100ms
 < 100ms

Electrical data

Operating voltage U_B ⁵⁾
 Residual ripple
 Open-circuit current
 Switching output

10 ... 30V DC (incl. ± 5% residual ripple)
 ± 5% of U_B
 ≤ 35mA
 1 PNP transistor switching output
 1 NPN transistor switching output
 NO (normally open), preset
 Max. 100mA
 Teach-in (pin 2) 2 ... 7s for U_B
 Teach-in (pin 2) > 12s to U_B

Function
 Output current
 Setting the reflector distance
 Changeover
 NO/NC

.../4...
 .../2...

Indicators

Yellow LED
 Flashing yellow and green LEDs
 Green LED

OUT1: object detected
 Teach-in / teaching error
 Object within the scanning range

Mechanical data

Housing
 Active surface
 Weight
 Ultrasonic transducer
 Connection type
 Fitting position

Plastic (PBT)
 Epoxy resin, glass fiber reinforced
 65g
 Piezoceramic ⁶⁾
 M12 connector, 4-pin
 Any

Environmental data

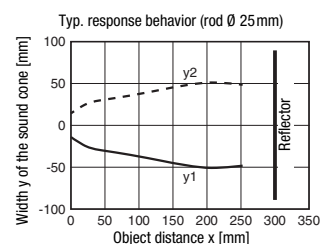
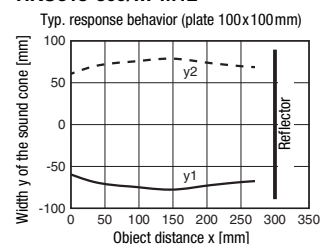
Ambient temp. (operation/storage)
 Protective circuit ⁷⁾
 VDE protection class
 Degree of protection
 Standards applied
 Certifications

-20° ... +70°C/-20° ... +70°C
 1, 2, 3
 III
 IP 67
 EN 60947-5-2
 UL 508, CSA C22.2 No.14-13 ^{5) 8)}

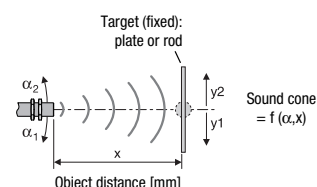
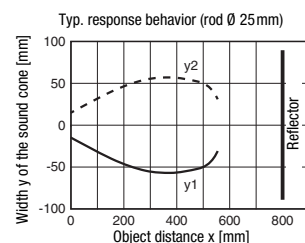
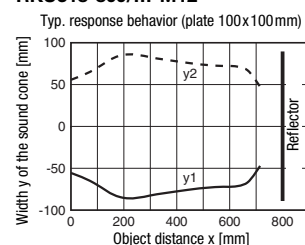
- 1) At 20°C
- 2) Target: 100mm x 100mm plate
- 3) From end value
- 4) Over the temperature range -20°C ... +70°C
- 5) For UL applications: use is permitted exclusively in Class 2 circuits according to NEC
- 6) The ceramic material of the ultrasonic transducer contains lead zirconium titanate (PZT)
- 7) 1=short-circuit and overload protection, 2=polarity reversal protection, 3=wire break and inductive protection
- 8) 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)

Diagrams

RKU318-300/...-M12



RKU318-800/...-M12



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.

RKU318

Ultrasonic sensors with 1 switching output

Part number code

R	K	U	3	1	8	-	8	0	0	.	3	/	4	T	-	M	1	2
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Operating principle

HTU	Ultrasonic sensor, scanning principle, with background suppression
DMU	Ultrasonic sensor, distance measurement
RKU	Ultrasonic sensor, retro-reflective ultrasonic sensor

Series

318	318 series, cylindrical short M18 design
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Operating ranges in mm

300	0 ... 300
800	0 ... 800

Equipment (optional)

.3	Teach button on the sensor
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Pin assignment of connector pin 4 / black cable wire (OUT1)

4	PNP output, NO contact preset
P	PNP output, NC contact preset
2	NPN output, NO contact preset
N	NPN output, NC contact preset
C	Analog output 4 ... 20 mA
V	Analog output 0 ... 10V

Pin assignment of connector pin 2 / white cable wire (Teach-IN)

T	Teach input
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Connection technology

M12	M12 connector, 4-pin
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Order guide

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

	Designation	Part no.
Operating range / switching output / teach-in		
0 ... 300 mm / PNP / Teach input	RKU318-300/4T-M12	50136078
0 ... 300 mm / NPN / Teach input	RKU318-300/2T-M12	50136079
0 ... 800 mm / PNP / Teach input	RKU318-800/4T-M12	50136080
0 ... 800 mm / NPN / Teach input	RKU318-800/2T-M12	50136081

Device functions and indicators

The sensor detects objects from 0 mm to the reflector distance less the dead zone.
The dead zone is max. 10% of the selected reflector distance.

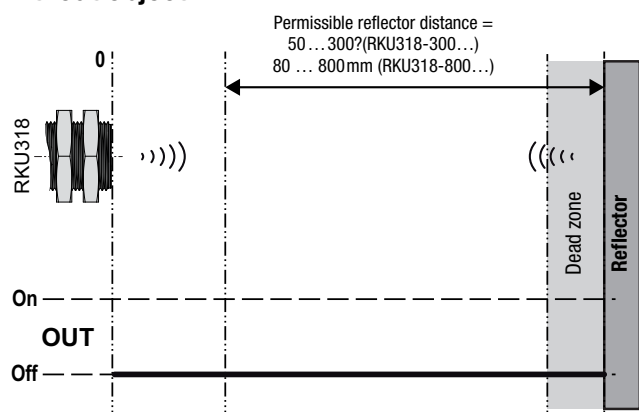


Note!

The switching behavior is not defined in the dead zone.

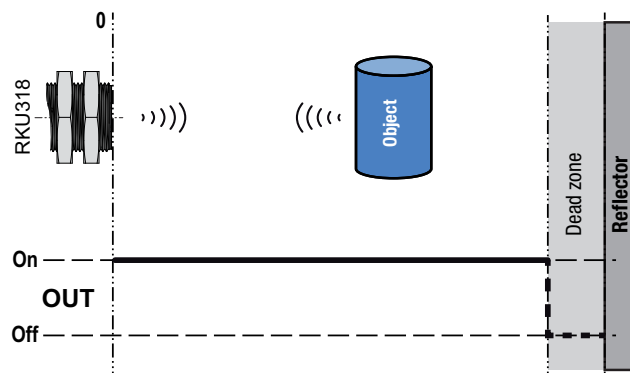
All settings on the sensor are taught-in via the **Teach-IN** input. Device status and switching states are indicated as follows by means of a LED:

Without object



Switching output **OUT 1 = not active (Off)**
Green **LED** is **on**

With object



Switching output **OUT 1 = active (On)**
Green **LED** is **off**

RKU318


Ultrasonic sensors with 1 switching output

Adjusting the reflector distance via the teach input

The reflector distance of the sensor is set to 300mm or 800mm on delivery.

Through a simple teach event, the reflector distance can be taught in within the respective operating range.

The Leuze **PA1/XTSX-M12** Teach Adapter can be used for this purpose. The adapter can also be used to easily switch the output function from NO contact to NC contact.

Teach-in input PIN 2	
Place the reflector at the desired position and perform the teach event	
 <p>Position the reflector</p>	<p>U_B for 2 ... 7 s, yellow LED flashes briefly and is OFF afterwards</p>
<p>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 on.</p>	

Adjusting the switching function (NC/NO) via the teach input

The switching function of the sensor is set to normally open (NO) on delivery.

The output function can be switched from NO contact (NO - normally open) to NC contact (NC - normally closed) and vice versa. If the switching function is changed, the switching output is changed to the opposite state (toggled).

Changeover of the switching function
<p>1. To change the switching function, connect the Teach-IN input to U_B for more than 12s (Leuze Teach Adapter: position "Teach-U_B"). The current state of output OUT1 is frozen while the adjustment is made.</p>
<p>2. The green and yellow LEDs flash alternately at 2Hz. The switching function was changed over. The switching behavior corresponds to the diagram shown above.</p>

Resetting to factory settings

The sensor can be reset to the factory setting (reflector distance at 300 mm or 800 mm).

Leuze Teach Adapter **PA1/XTSX-M12** can be used for this purpose.

Resetting to factory settings
1. When switching on the supply voltage (during Power-On) , connect the Teach-IN input to U_B for > 5s (Leuze Teach Adapter position "Teach-U _B "). The green and yellow LEDs flash alternately and very quickly for a brief time.
2. Disconnect the Teach-IN input from U_B . The sensor was reset to the factory setting: reflector distance 300 mm or 800 mm.