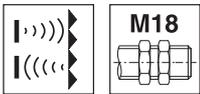


RKU318

Ultrasonic sensors with 1 switching output

en 01-2017/02 50135687

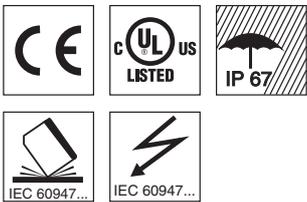


0 ... 300 mm
0 ... 800 mm

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

We reserve the right to make changes • PAL_RKU318_300_800_1SWO_en_50135687_fm

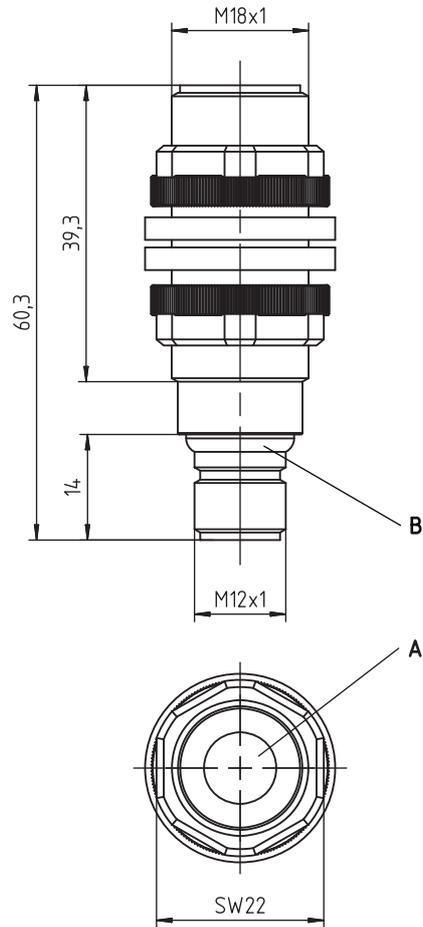


Accessories:

(available separately)

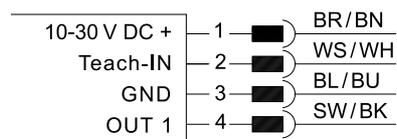
- Mounting systems
- Mounting adapter M18-M30: BTX-D18M-D30 (Part no. 50125860)
- Cables with M12 connector (KD ...)
- Teach adapter PA1/XTSX-M12 (Part no. 50124709)

Dimensioned drawing



- A** Active sensor surface
- B** Indicator diodes

Electrical connection



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

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

Function
 Output current
 Setting the reflector distance
 Changeover
 NO/NC

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

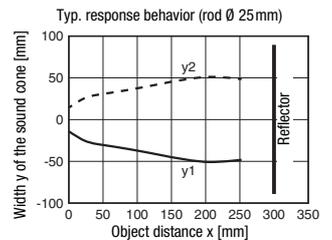
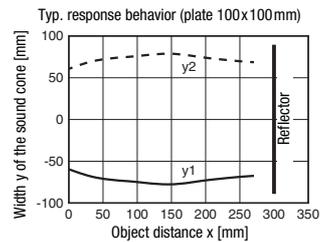
Ambient temp. (operation/storage)
 Protective circuit ⁷⁾
 VDE protection class
 Degree of protection
 Standards applied
 Certifications

-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)}

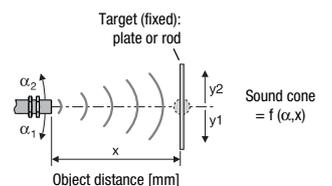
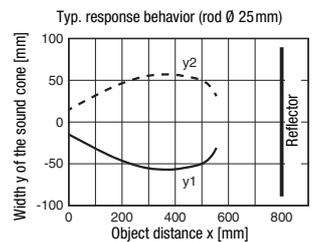
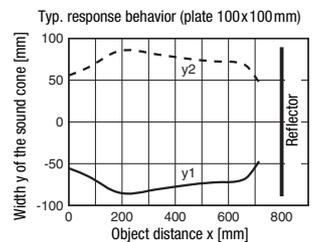
- 1) At 20°C
- 2) Target: 100mm x 100mm plate
- 3) From end value
- 4) Over the temperature range -20°C ... +70°C
- 5) For UL applications: use is permitted exclusively in Class 2 circuits according to NEC
- 6) The ceramic material of the ultrasonic transducer contains lead zirconium titanate (PZT)
- 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
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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

Operating ranges in mm

300 0 ... 300

800 0 ... 800

Equipment (optional)

.3 Teach button on the sensor

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

Connection technology

M12 M12 connector, 4-pin

Order guide

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

Operating range / switching output / teach-in	Designation	Part no.
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

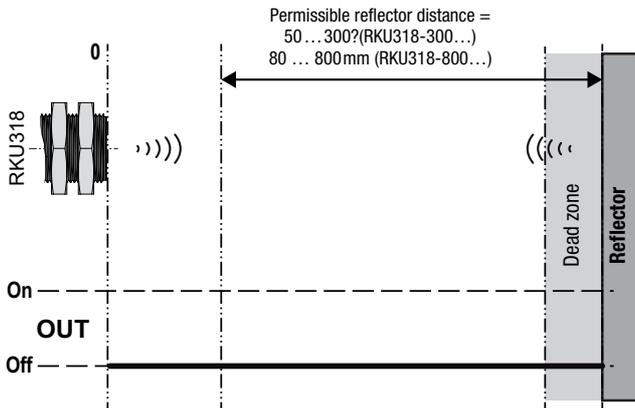
The sensor detects objects from 0 mm to the reflector distance less the dead zone.
 The dead zone is max. 10% of the selected reflector distance.



Note!
 The switching behavior is not defined in the dead zone.

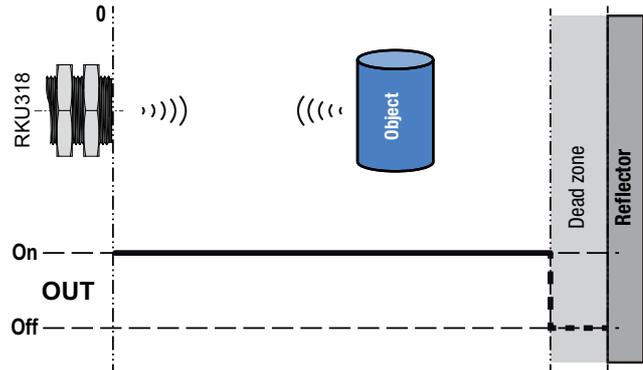
All settings on the sensor are taught-in via the **Teach-IN** input. Device status and switching states are indicated as follows by means of a LED:

Without object



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

With object



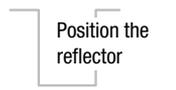
Switching output **OUT 1 = active (On)**
 Green **LED** is off

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	
 Position the reflector	 U _B for 2 ... 7 s, yellow LED flashes briefly and is OFF afterwards
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.	

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
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.
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.

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.