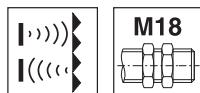


## RKU318

en 01-2017/02 5 0135809



M18

0 ... 400mm  
0 ... 1600mm10 - 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)
- NEW** – Stable plastic design
- NEW** – Temperature-compensated scanning range

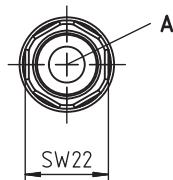
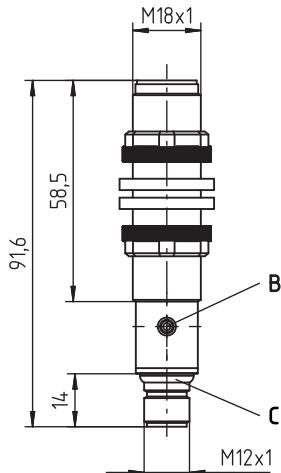


## Accessories:

(available separately)

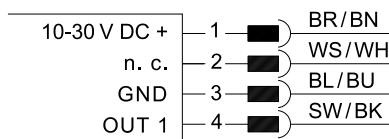
- Mounting systems
- Mounting adapter M18-M30: BTX-D18M-D30 (Part no. 50125860)
- Cables with M12 connector (KD ...)
- Teach adapter PA1/XTSX-M12 (Part no. 50124709)

## Dimensioned drawing



**A** Active sensor surface  
**B** Teach-in button  
**C** Indicator diodes

## Electrical connection



## Technical data

### Ultrasonic specifications

Operating range <sup>1)</sup>	RKU318-400/...-M12	RKU318-1600/...-M12
Reflector distance	0 ... 400mm <sup>2)</sup>	0 ... 1600mm <sup>3)</sup>
Object distance to background (reflector)	100 ... 400mm	250 ... 1600mm
Ultrasonic frequency	$\geq 100\text{ mm}$	$\geq 250\text{ mm}$
Typ. opening angle	300kHz	230kHz
Resolution	$8^\circ \pm 2^\circ$	$8^\circ \pm 2^\circ$
Direction of beam	< 2mm	< 2mm
Reproducibility	Axial	Axial
Switching hysteresis	$\pm 0.5\%$ <sup>1)</sup> <sup>4)</sup>	$\pm 0.5\%$ <sup>1)</sup> <sup>3)</sup>
Temperature drift	1% <sup>3)</sup>	1% <sup>3)</sup>
	$\leq 5\%$ <sup>5)</sup>	$\leq 5\%$ <sup>4)</sup>

### Timing

Switching frequency	8Hz	1Hz
Response time	62ms	500ms
Readiness delay	< 500ms	< 500ms

### Electrical data

Operating voltage $U_B$ <sup>6)</sup>	10 ... 30V DC (incl. $\pm 5\%$ residual ripple)
Residual ripple	$\pm 5\%$ of $U_B$
Open-circuit current	$\leq 50\text{mA}$
Switching output	.../4... .../2...
Function	1 PNP transistor switching output
Output current	1 NPN transistor switching output
Setting the reflector distance	NO (normally open), preset
Changeover NO/NC	Max. 100mA
	Teach-in button 2 ... 7s
	Teach-in button > 12s

### Indicators

Yellow LED	OUT1: object detected
Flashing yellow and green LEDs	Teach-in / teaching error
Green LED	Object within the scanning range

### Mechanical data

Housing	Plastic (PBT)
Active surface	Epoxy resin, glass fiber reinforced
Weight	70g
Ultrasonic transducer	Piezoceramic <sup>7)</sup>
Connection type	M12 connector, 4-pin
Fitting position	Any

### Environmental data

Ambient temp. (operation/storage)	-20° ... +70°C/-20° ... +70°C
Protective circuit <sup>8)</sup>	1, 2, 3
VDE protection class	III
Degree of protection	IP 67
Standards applied	EN 60947-5-2
Certifications	UL 508, CSA C22.2 No.14-13 <sup>6)</sup> <sup>9)</sup>

1) At 20°C

2) Target: 100mm x 100mm plate

3) Target: 200mm x 200mm plate

4) From end value

5) Over the temperature range -20°C ... +70°C

6) For UL applications: use is permitted exclusively in Class 2 circuits according to NEC

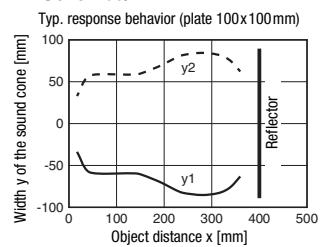
7) The ceramic material of the ultrasonic transducer contains lead zirconium titanate (PZT)

8) 1=short-circuit and overload protection, 2=polarity reversal protection, 3=wire break and inductive protection

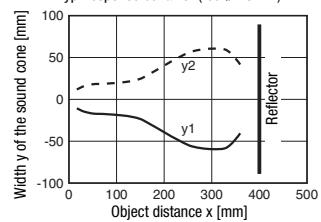
9) These proximity switches shall be used with UL Listed Cable assemblies rated 30V, 0.5A min, in the field installation, or equivalent (categories: CYJV/CYJV7 or PVVA/PVVA7)

## Diagrams

### RKU318-400/...-M12

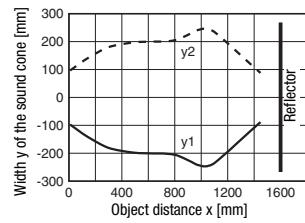


### Typ. response behavior (rod Ø 25mm)

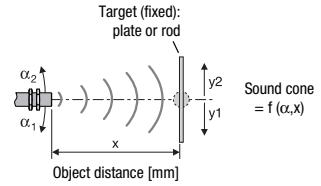
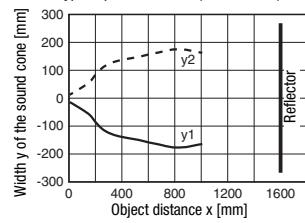


### RKU318-1600/...-M12

#### Typ. response behavior (plate 200x200mm)



#### Typ. response behavior (rod Ø 25mm)



## 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.

## Part number code

R	K	U	3	1	8	-	1	6	0	0	.	3	/	4	X	-	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

## Operating ranges in mm

**400** 0 ... 400

**1600** 0 ... 1600

## 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 ... 20mA

**V** Analog output 0 ... 10V

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

**T** Teach input

**X** Not assigned (n. c.)

## Connection technology

**M12** M12 connector, 4-pin

## Order guide

The sensors listed here are preferred types; current information at [www.leuze.com](http://www.leuze.com).

	Designation	Part no.
<b>Operating range / switching output / teach-in</b>		
0 ... 400mm / PNP / teach button	RKU318-400.3/4X-M12	50136094
0 ... 400mm / NPN / teach button	RKU318-400.3/2X-M12	50136095
0 ... 1600mm / PNP / teach button	RKU318-1600.3/4X-M12	50136096
0 ... 1600mm / NPN / teach button	RKU318-1600.3/2X-M12	50136097

## 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.

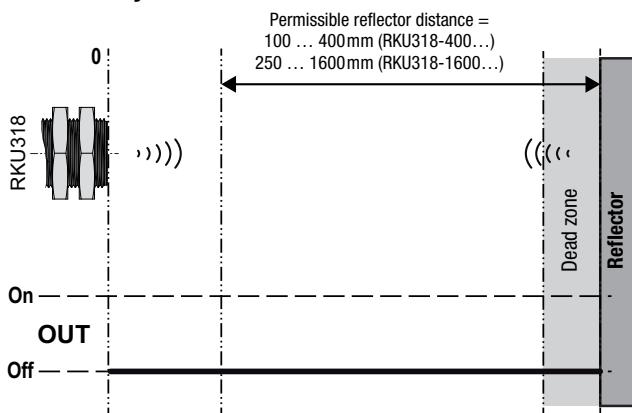


### Note!

The switching behavior is not defined in the dead zone.

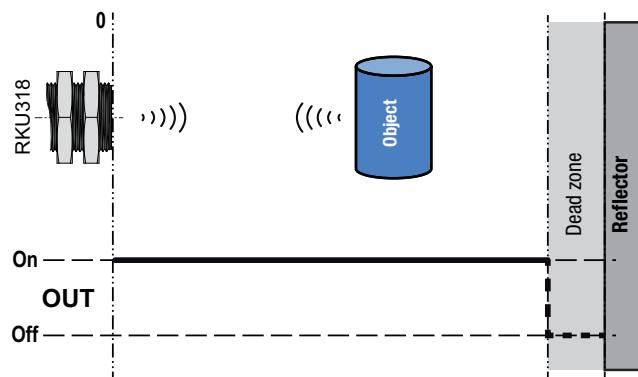
All settings on the sensor are taught-in via the **teach button**. Device status and switching states are indicated as follows by means of a LED:

### 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 button

The reflector distance of the sensor is set to 400mm or 1600mm on delivery.

Through a simple teach event, the reflector distance can be taught in within the respective operating range. This is performed via the teach button, which can also be used to easily changeover the output function from NO contact to NC contact.

Teach button
<b>Place the reflector at the desired position and perform the teach event</b>
If the reflector is at the desired position, press the teach button for 2 ... 7 s until the yellow LED flashes briefly - release the button. Green LED on. 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 button

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
<b>1. To change the switching function, press the teach button for longer than 12s.</b> The current state of output OUT1 is frozen during the adjustment process.
<b>2. The green and yellow LEDs flash alternately at 2Hz.</b> The switching function was changed over.

## Resetting to factory settings

The sensor can be reset to the factory setting (reflector distance at 400 mm or 1600 mm).

### Resetting to factory settings

- 1. When switching on the supply voltage (during power-on), press the teach button for > 5s.**
- 2. Release the button. The green and yellow LEDs flash alternately and very quickly for a brief time.**  
The sensor was reset to the factory setting:  
reflector distance 400 mm or 1600 mm.