

Part No. 501 09148



**400 ... 3000 mm**



- Ideal for detection of levels of liquids, bulk materials, transparent media, ...
- Distance information largely independent of surface properties
- PC-configuration software for configuring sensor and switching output
- Up to 10 devices can be synchronised via the SYNC input
- Separate adjustment of start and end of switching range (Q1) via potentiometer and PC

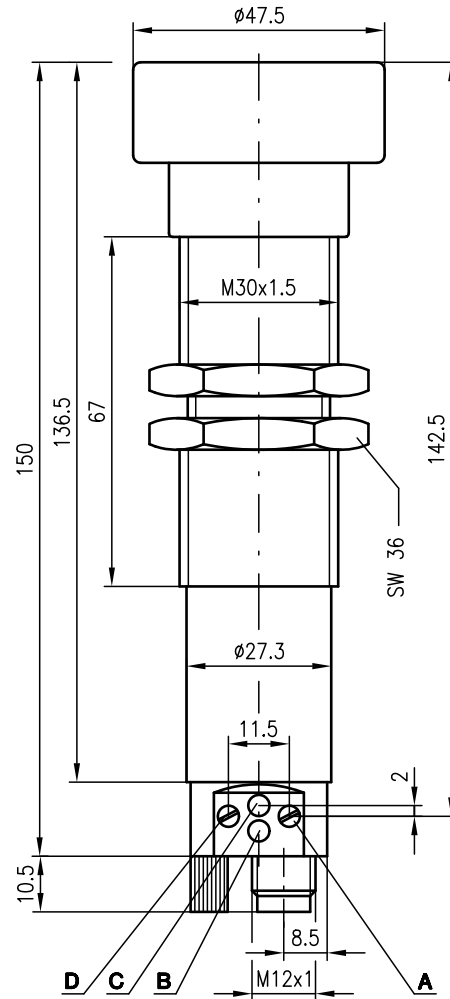


**Accessories:**

(available separately)

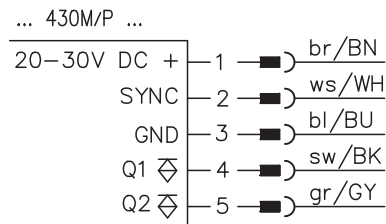
- Cable with M12 connector (K-D ...)
- "USDS-Config" configuration software (free download from [www.leuze.com](http://www.leuze.com))
- PGU 01 (programming unit)

**Dimensioned drawing**



- A** Potentiometer for cut-out point Q1
- B** Indicator diode Q2 (only for ... 430M/P ...)
- C** Indicator diode Q1
- D** Potentiometer for cut-in point Q1/cut-out point Q2

**Electrical connection**



Switching outputs Q1 and Q2 switch alternately!

We reserve the right to make changes • USDS\_04gb.fm

## Specifications

### Ultrasonic specifications

Operating range <sup>1)</sup>	400 ... 3000mm
Ultrasonic frequency	120kHz
Opening angle	6°
Resolution	≥ 1mm
Absolute measurement accuracy	± 1.5% of the measurement range end value
Reproducibility	± 5mm
Switching hysteresis	20mm

### Timing

Switching frequency (min.) <sup>2)</sup>	2Hz
Response time (max.) <sup>2)</sup>	200ms
Delay before start-up	280ms

### Electrical data

Operating voltage $U_B$	20 ... 30VDC (incl. ± 10% residual ripple)
Residual ripple	± 10% of $U_B$
Bias current	≤ 50mA (without load)
Switching output	2 PNP transistors
Function characteristics	switching in case of object recognition
Output current	300mA
Switching range adjustment	potentiometer 270°

### Indicators

Yellow LEDs	output activated
Flashing yellow LEDs	programming error

### Mechanical data

Housing	metal / CuZn
Weight	340g
Connection type	M12 connector, plastic, 5-pin

### Environmental data

Ambient temp. (operation/storage)	-25°C ... +70°C/-40°C ... +85°C
Protective circuit <sup>3)</sup>	1, 2, 3
VDE safety class	III
Protection class	IP 65
Standards applied	IEC 60947-5-2
Fitting position	any

1) For the complete temperature range, measured object ≥ 50x50mm

2) Can be configured up to 3 times faster using "USDS-Config"

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

## Remarks

- **Approved purpose:**  
The ultrasonic sensors are used for acoustic, contactless detection of objects.

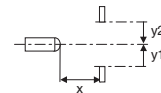
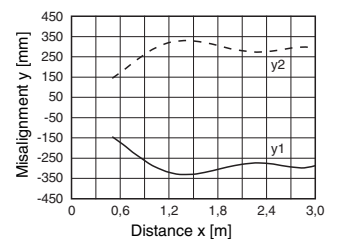
## Order guide

Designation	Part No.
VRTU 430M/P-2110-3000-S12	500 36263

## Tables

## Diagrams

Typ. response behaviour (object 50x50mm)



## Remarks

- **Synchronisation:**  
Mutual interference is excluded by connecting the sensors with the SYNC input.

### Configuration software "USDS-Config"

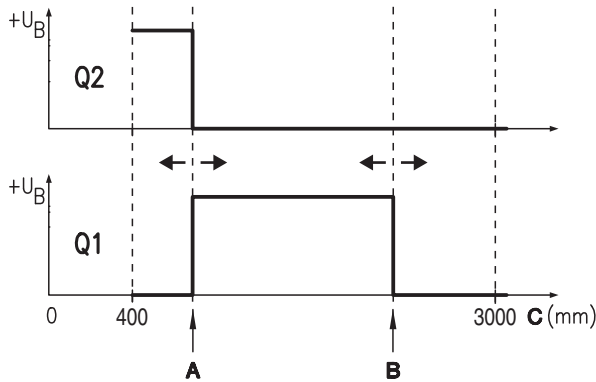
The configuration software runs under Windows 95/98/NT/2000/XP and offers the following features:

- Configuration of multiplex operation
- Configuration of the sensor (attenuation, switching frequency, response time)
- Adjustment of the switching output (cut-in/cut-out point, hysteresis, object present yes/no)
- Support of various languages

**Switching behaviour of the switching outputs:**

**a) 2 switching outputs Q1 and Q2**

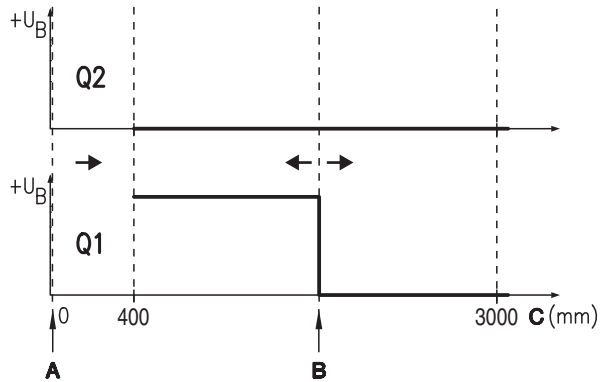
Configuration of the outputs as make-contacts (factory setting)



- A** Cut-in point Q1 = Cut-out point Q2 (potentiometer **D**, see dimensioned drawing)
- B** Cut-out point Q1 (potentiometer **A**, see dimensioned drawing)
- C** Measurement distance

**b) Only 1 switching output Q1**

Configuration of the outputs as make-contacts (factory setting)



- A** Cut-in point Q1 = Cut-out point Q2 = 0! (potentiometer **D** on **min. distance / limit stop**, see dimensioned drawing)   
 => Output Q2 no function.
- B** Cut-out point Q1 (potentiometer **A**, see dimensioned drawing)
- C** Measurement distance

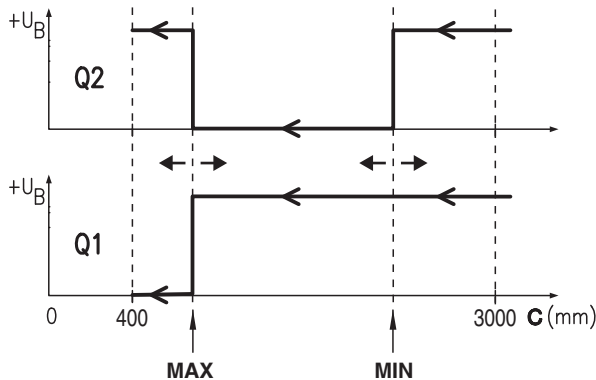


Switching point **A** must always be set to a shorter distance than switching point **B**!  
If the distance between switching points **A** and **B** is less than the configured hysteresis, the yellow LEDs flash (programming error).

**c) Filling level control**

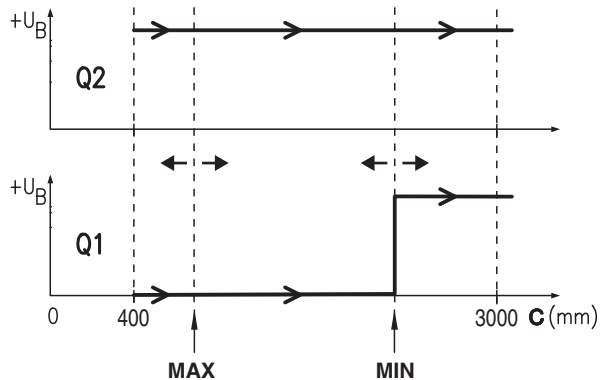
Can be activated using the "USDS-Config" configuration software via Settings -> Mode -> Level Control.  
Output function: NC (break-contact)

**Rising level**



- MAX** Switching point at maximum fill level (potentiometer **D**, see dimensioned drawing)
- MIN** Switching point at minimum fill level (potentiometer **A**, see dimensioned drawing)
- C** Measurement distance

**Falling level**



- MAX** Switching point at maximum fill level (potentiometer **D**, see dimensioned drawing)
- MIN** Switching point at minimum fill level (potentiometer **A**, see dimensioned drawing)
- C** Measurement distance

