

Part No. 501 09147



60 ... 300 mm
200 ... 1300 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

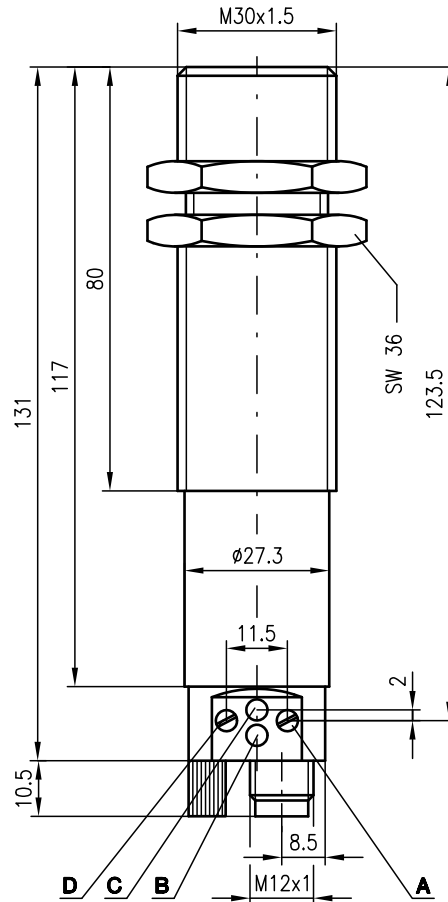


Accessories:

(available separately)

- Cable with M12 connector (K-D ...)
- "USDS-Config" configuration software (free download from www.leuze.com)
- 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

... 430M/P ...		
20-30V DC +	1	br/BN
SYNC	2	ws/WH
GND	3	bl/BU
Q1	4	sw/BK
Q2	5	gr/GY



Switching outputs Q1 and Q2 switch alternately!

We reserve the right to make changes • USDS_05gb.fm

Specifications

Ultrasonic specifications

	VRTU...-5110-300...	VRTU...-3110-1300...
Operating range ¹⁾	60 ... 300mm	200 ... 1300mm
Ultrasonic frequency	400kHz	200kHz
Opening angle	6°	
Resolution	≤ 1mm	≥ 1mm
Absolute measurement accuracy	± 1.5% of the measurement range end value	
Reproducibility	± 0.45 mm	± 2mm
Switching hysteresis	10mm	10mm

Timing

	VRTU...-5110-300...	VRTU...-3110-1300...
Switching frequency (min.) ²⁾	8Hz	4Hz
Response time (max.) ²⁾	80ms	110ms
Delay before start-up	280ms	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 LED	output activated
Flashing yellow LED	programming error

Mechanical data

Housing	metal / CuZn
Weight	210g
Connection type	M12 connector, plastic, 5-pin

Environmental data

Ambient temp. (operation/storage)	-25°C ... +70°C/-40°C ... +85°C
Protective circuit ³⁾	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 ≥ 10x10mm
 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

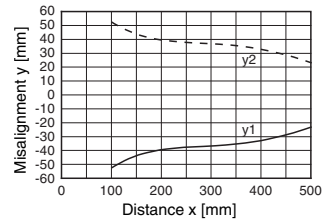
Designation	Part No.
VRTU 430M/P-5110-300-S12	500 36261
VRTU 430M/P-3110-1300-S12	500 36262

Tables

Diagrams

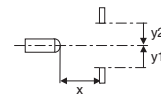
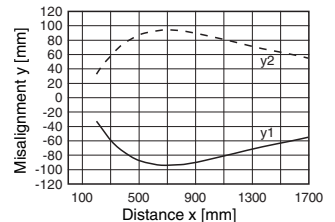
VRTU...-5110-300...

Typ. response behaviour (object 10x10mm)



VRTU...-3110-1300...

Typ. response behaviour (object 10x10mm)



Remarks

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

Configuration software "USDS-Config"

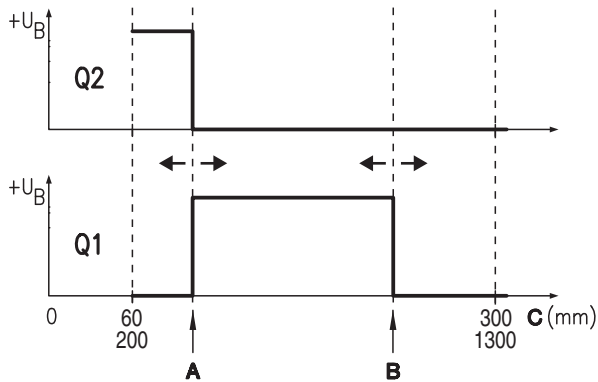
The configuration software runs under Windows 95/98/NT/2000/XP and offers the following features:

- 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

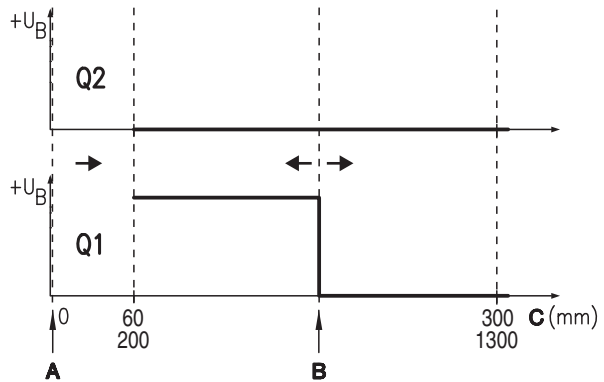
Configuration of the outputs as make-contacts (factory setting)



- 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

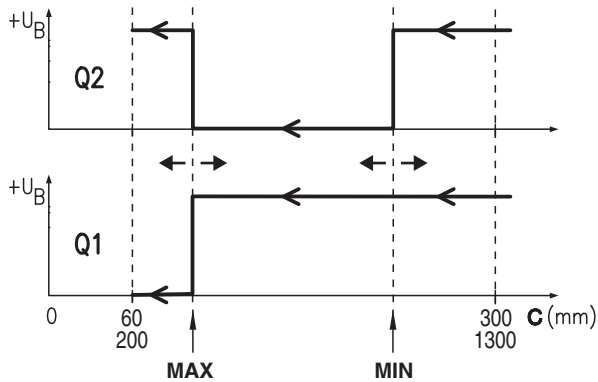


Switching point **A** must always be set to a shorter distance than switching point **B**!
If the distance between switching points **A** and **B** is less than the configured hysteresis, the yellow LEDs flash (programming error).

c) Filling level control

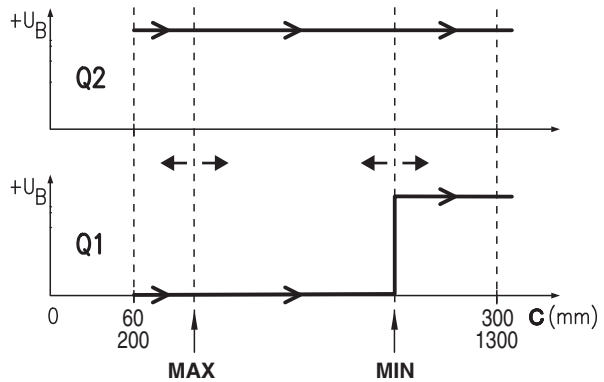
Can be activated using the "USDS-Config" configuration software via Settings -> Mode -> Level Control.
Output function: NC (break-contact)

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

