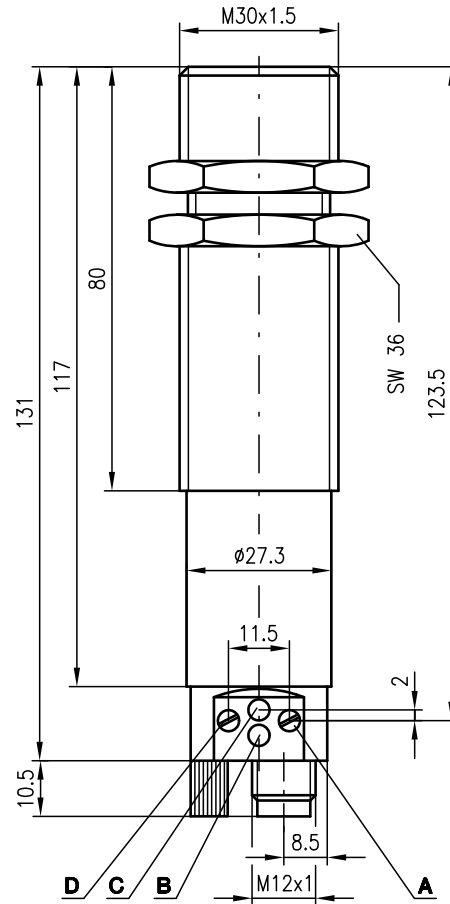


Part No. 501 09147



**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

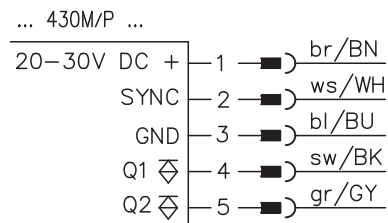


**60 ... 300mm**  
**200 ... 1300mm**



- 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

**Electrical connection**



Switching outputs Q1 and Q2 switch alternately!



**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)

We reserve the right to make changes • USDS\_05gb\_fm

## Specifications

### Ultrasonic specifications

|                               | VRTU...-5110-300...                       | VRTU...-3110-1300... |
|-------------------------------|---|----------------------|
| Operating range <sup>1)</sup> | 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.) <sup>2)</sup> | 8Hz                 | 4Hz                  |
| Response time (max.) <sup>2)</sup>       | 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 <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 ≥ 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

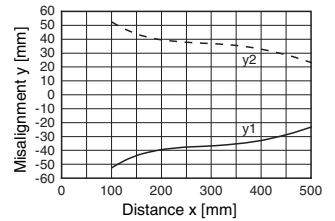
| Designation               | Part No.  |
|---------------------------|-----------|
| VRTU 430M/P-5110-300-S12  | 500 36261 |
| VRTU 430M/P-3110-1300-S12 | 500 36262 |

## Tables

## Diagrams

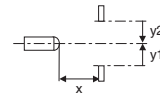
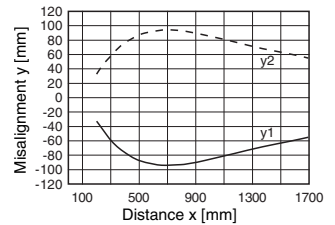
### VRTU...-5110-300...

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"

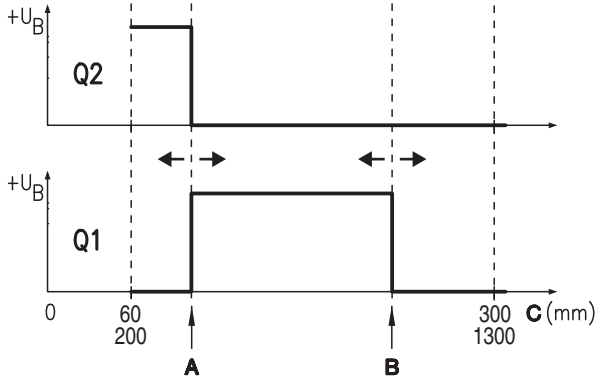
The configuration software runs under Windows 95/98/NT/2000/XP and offers the following features:

- 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)
- Adjustment of the analogue output
- Support of various languages

**Switching behaviour of the switching outputs:**

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

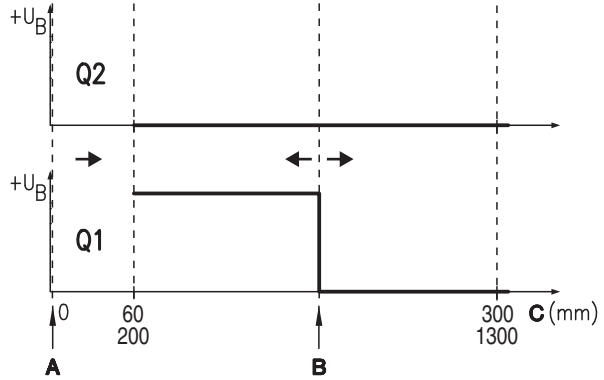
Configuration of the outputs as make-contacts (factory setting)



- 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

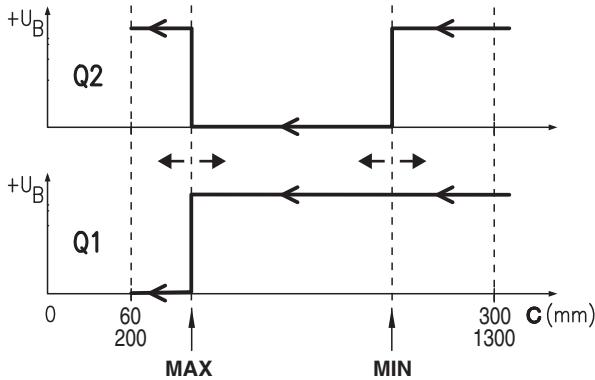


Switching point **A** must always be set to a shorter distance than switching point **B**!  
If the distance between switching points **A** and **B** is less than the configured hysteresis, the yellow LEDs flash (programming error).

**c) Filling level control**

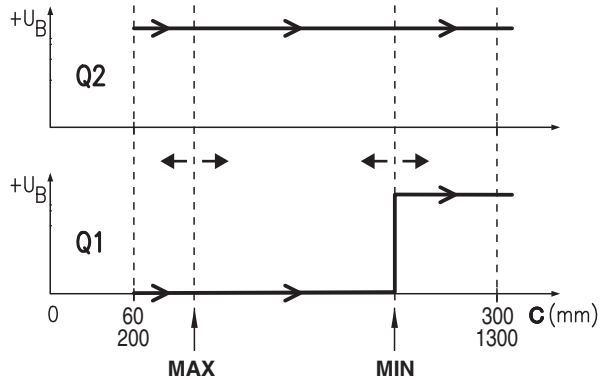
Can be activated using the "USDS-Config" configuration software via Settings -> Mode -> Level Control.  
Output function: NC (break-contact)

**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

