Ultrasonic Level Sensor
HR-0601

- **contactless continuous level measurement**
- **analogue output (voltage or current)**
- **serial interface**
- **temperature compensated**
- **polarity reversal protected**
- **parameterizeable**

Epoxy resin membrane

HR-060110

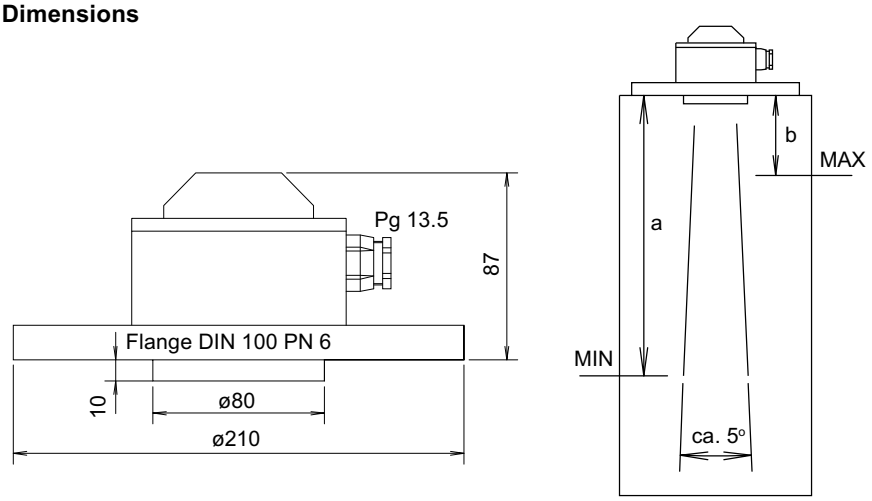
PTFE membrane

HR-060111

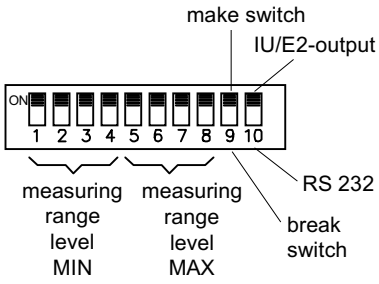
Function principle

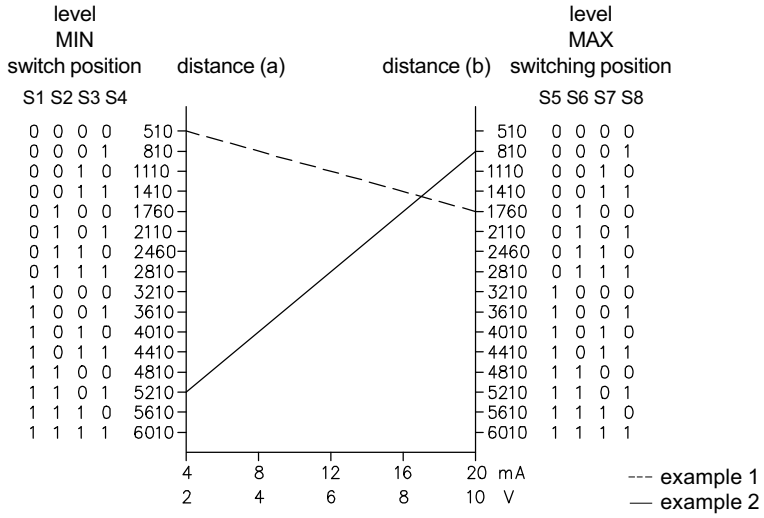
The ultrasonic sensor transmits an ultrasonic pulse which is reflected at the mediums surface. After the reflected pulse returned to the sensor, the level is calculated by a microprocessor. Changes of the ultrasonic speed caused by changing temperatures are compensated.

Dimensions



Control elements in the terminal compartment



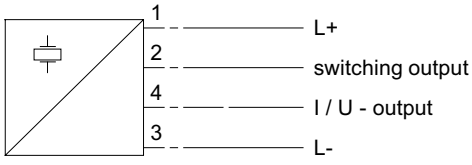


S1 - S4 > S5 - S8 rising level = rising characteristic curve
S1 - S4 < S5 - S8 rising level = falling characteristic curve
S5 - S8 = S1 - S4 not allowed

Types

HR- 06011 □
membrane material

Connection



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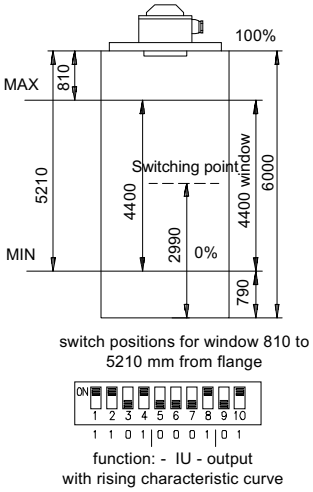
Technical data	
Measuring ranges Measuring ranges US - converter frequency	 0.51 m ... 6.01 m (entspr. S1 ... S8, see table) ca. 90 Hz
Supply Supply voltage Ripple wave Current consumption	 DC 20 ... 30 V ± 10% U_B = 33 V ≤ 90 mA
Output Analogue output Current Voltage Output ramp Switching output Voltage drop Switching function Switching hysteresis RS 232 - Interface	 4 ... 20 mA, R_C ≤ 500 Ω; 2 ... 10 V, R_C ≥ 1 kΩ Automatically switching according to load rising / falling programmable (S1 ... S8) (pnp), 200 mA (k) short circuit proof / overload proof 3 V make switch / break switch switchable (S9) The switching point lies in the middle of the window selected by means of S1 ... S8 10% of the adjusted switching distance existing
Indicators Operation Fault Switching output	 LED green LED red, flashing 2 Hz LED yellow
Environmental conditions Temperature	 -10 °C ... +50 °C (263 K ... 323 K)
Process conditions Temperature Pressure	 -10 °C ... +50 °C (263 K ... 323 K) atmospheric
Electrical connection	Terminal compartement, max. 2.5 mm², Pg 13.5
Housing material	Flange DN 100, PN 6, PP (Polypropylene)
Protection class acc. to DIN 40 050	IP 55

Note:

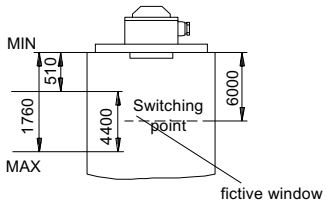
1. Analogue IU-value for continuous level / rising characteristic curve (Example 1)
   - S10 to ON
   - S1 ... S4 = window limit "far" (a) / min. level MIN
   - S5 ... S8 = window limit "close" (b) / max. level MAX
   - S1 ... S4 > S5 ... S8 = rising characteristic curve (IU ramp)

2. Adjusting the switching point (example 2)
   - S10 to ON
   - S9 to ON = make switch
S9 to OFF = break switch
   - S1 ... S4 / S5 ... S8 = calculate window
   - Switching point = middle of the window



switch positions for window 810 to 5210 mm from flange

function: - IU - output with rising characteristic curve



switch positions for switching point 1135 mm from flange

function "break switch"

A measuring system consists out of:
- an ultrasonic level sensor HR-06011□ and a display DA4/B8L or a 3-wire-transmitter repeater unit, but can also be connected directly to a PLC

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