

Description of operation

This remote sensor is a solid state proximity type for 24 VDC which uses the echo delay time method for distance sensing. It senses a sound-reflecting object which enters the sound cone from any direction. The objects to be sensed can be solid, liquid or powdery.

Installation

Figure I (dimensions in mm)
 any mounting position
 Keep a free space around the sound cone of a distance "x" (= 60 mm) from reflecting objects (figure II).

Connection

By means of cable socket (figure III) part no. 237-13442-4 (included in delivery range)

| | | |
|-----|----|------------------------------------|
| Pin | | |
| 1 | L+ | DC 20 ... 30 V |
| 2 | S | Switching output "High level" (NO) |
| 3 | L- | Ground (GND) |
| 4 | S2 | Switching input "Low level" |

The connections are polarized, short-circuit proof and overload-proof. In the case of electrical faults it is recommended to use shielded lines.

Operation

- Switching range (figure IV)
- a Unusable blind zone
- b Sensing range
- c Overfill range
- HV Hysteresis high level
- HL Hysteresis low level

The objects are sensed reliably in the set switching range within an opening angle of the sound cone of 5°. If the reflecting conditions are good, the objects can also be sensed outside the sound of cone. Keep the blind zone "a" free from objects. These would lead to undefined switching states. Take care that the surface of the transducer is clean.

Display:

| | |
|--------------------|------------------|
| Reservoir empty | H2 is lit |
| Filling level O.K. | H2 is not lit |
| Reservoir full | H1 is lit |
| Supply voltage | H3 is lit: green |
| Overfill signal | H3 is lit: red |

Technical Data

| | |
|--|-------------------------------|
| Ambient temperature..... | - 25...70°C |
| Sensing range | 190...1300 mm * |
| Sensing distance "High level" ... S1 | 200 mm * |
| Sensing distance "Low level" S2 | depends on the reservoir size |
| Hysteresis "High level" ... HV | 20 mm |
| Hysteresis "Low level" HL | 100 mm |
| Switching point fault | 0,17% / K |
| * measured on the housing surface | |

Supply:

| | | |
|----------------------------------|----------------------|-------------|
| Rated operational voltage | U _E | 24 VDC |
| Operating voltage range..... | U _B | 20...30 VDC |
| Admissible residual ripple | | 10 % |
| Open-circuit..... | | < 60 mA |

Switching output:

| | | |
|--|----------------------|--------------------------------|
| Rated normal current | I _e | ≤ 200 mA |
| Voltage drop..... | U _d | ≤ 3 V |
| Spurious switch-on pulse | | suppressed |
| Switching function "High level" | | NO contact switching on "plus" |
| "Low level" | | NC contact switching on "plus" |

Typical values:

| | |
|----------------------------|------------|
| Availability delay..... | 280 ms |
| Reflection area | 10 x 10 mm |
| Ultrasonic frequency | 200 kHz |
| Switching frequency | 58 Hz |
| Reproducibility..... | 2 mm |

Protection IP 65

Part-Number

| | | |
|---|--|-------------|
| Ultrasonic sensor set for reservoirs: | | Part-No.: |
| 80L (sensing distance low level S2 = 700 mm) | | 664-34009-1 |
| 200L (sensing distance low level S2 = 800 mm) | | 664-34009-2 |

Extra Equipment

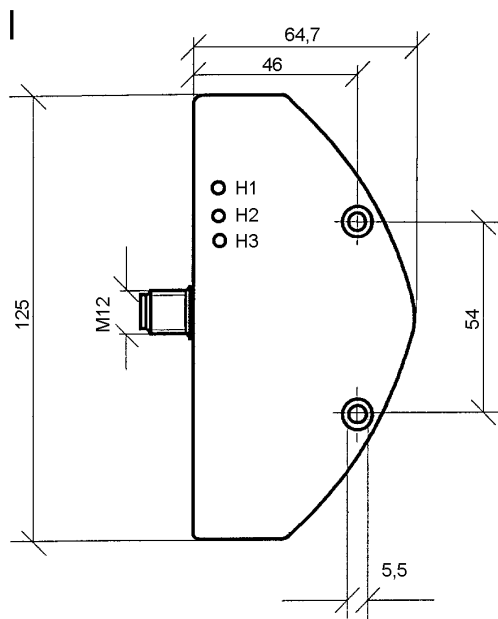
Cable socket with 5 m cable part-no. 237-13429-6

Data Sheet

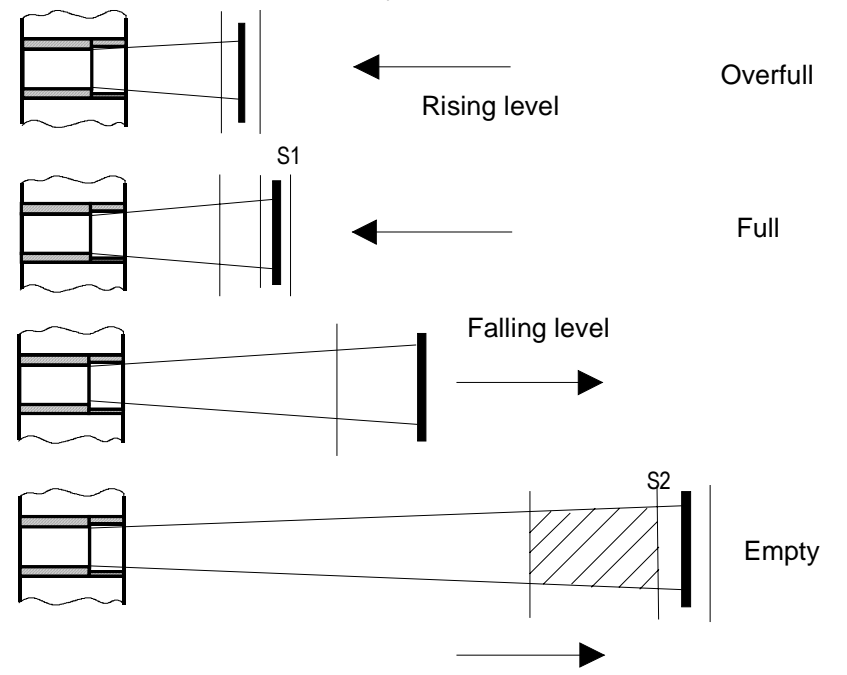
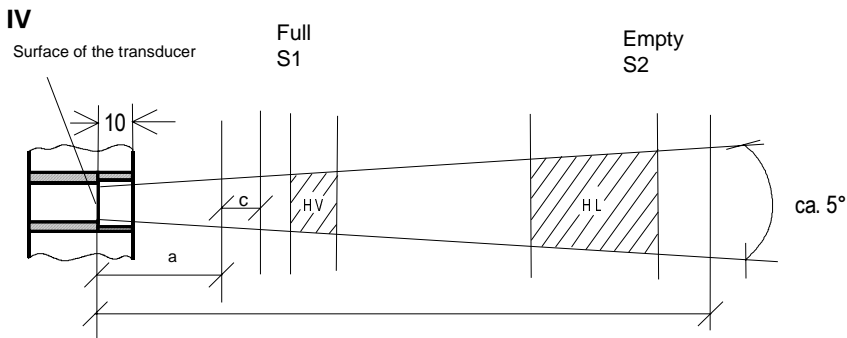
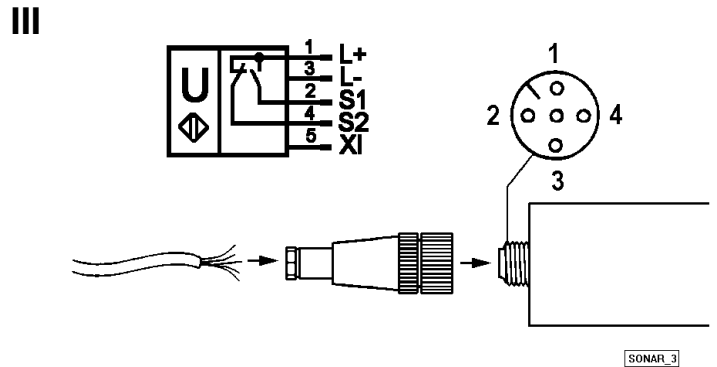
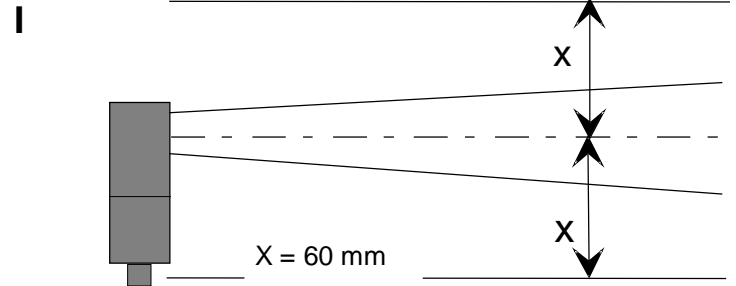
Ultrasonic Sensor Sensing Range 190 - 1300 mm



9.3A-70006-A00



30 mm high



| Full | | Empty | |
|------|-----|-------|-------|
| S1 | S2 | | |
| 1 | 1 | | |
| H1 | H2 | H3 | |
| on | off | | red |
| | | | |
| S1 | S2 | | |
| 1 | 1 | | |
| H1 | H2 | H3 | |
| on | off | | green |
| | | | |
| S1 | S2 | | |
| 0 | 1 | | |
| H1 | H2 | H3 | |
| off | off | | green |
| | | | |
| S1 | S2 | | |
| 0 | 0 | | |
| H1 | H2 | H3 | |
| off | on | | green |