WICLOLOUIC



Operating Instructions

Ultrasonic sensor with one analogue output

pms-15/CI/A1 pms-15/CU/A1 pms-25/CI/A1 pms-25/CU/A1 pms-35/CI/A1 pms-35/CU/A1 pms-100/CI/A1 pms-100/CU/A1

Product Description

The pms sensor has a stainless steel housing and is designed for applications with hygienic requirements. The ultrasonic transducer surface of the pms sensors is laminated with a PTFE film (Teflon film). The transducer itself is sealed against the housing by a joint ring.

The pms sensor with a D12 adapter shaft can be fitted in a mounting clip which meets hygiene standards like the sensor screw connection BF-pms/A1.

The special housing design ensures that any cleaning fluids are able to run off completely, regardless of the intstallation situation.

The pms sensor is ECOLAB certified. The pms sensor variant D12 adapter shaft offers a non-contact measurement of the distance to an object present within the sensor's detection zone. Depending on the set window limits, a distance-proportional analogue signal is the result.

For sensor setting, the accessory LinkControl adapter LCA-2 is recommended in combination with Link-Control software for Windows®. Alternatively, the sensor can also be set by Teach-in via pin 2.

Safety Notes

- Read the operating instructions prior to start-up.
- Connection, installation and adjustment works should be carried out by expert personnel only.
- No safety component in accordance with the EU Machine Directive.

Proper use

pms ultrasonic sensors are used for non-contact detection of objects. The sensor must be mounted in an EHEDG-approved mounting clip, such as the sensor screw connection BF-pms/A1 for a EHEDG-complaint

Installation

- Assemble the sensor and its hygienic D12 sensor screw connection BF-pms/A1 or an equivalent sensor mounting clip at the installation
- Pull sensor cable through the sensor gland, connect it to the M8 sensor plug.
- Push the sensor with its shaft into the sensor screw connection BFpms/A1 and adjust (see figure 3-

5). Tighten with lock nut (maximum tightening torque 12 Nm).

Start-Up

- Connect the power supply.
- Carry out the sensor adjustment with LinkControl or alternatively Teach-in procedure in accordance with the diagram.

$\begin{pmatrix} 2^{\bigcirc} & \bigcirc_4 \\ \bigcirc & \bigcirc \\ 1 & 3 \end{pmatrix}$		colour
1	+U _B	brown
3	-U _B	blue
4	IĮU	black
2	Com	white

Fig. 1: Pin assignment with view onto sensor plug and colour coding of the microsonic connection cable

Factory Setting

■ Rising analogue characteristic curve between the blind zone and the operating range.

Maintenance

microsonic sensors are maintenancefree. For cleaning in areas with hygienic requirements, access to the sensor must be guaranteed from all sides. Cleaning is permitted up to a cleaning temperature of 85°C. Do not use a high-pressure cleaner to clean the sensor.

		□⊶□
pms-15	≥0.25 m	≥1.30 m
pms-25	≥0.35 m	≥2.50 m
pms-35	≥0.40 m	≥2.50 m
pms-100	≥0.70 m	≥4.00 m

Fig. 2: Assembly distances to avoid a mutual influence of the sensors

Notes

■ If several pms sensors are operated in a small space, the minimum

- mounting for parallel or opposite arrangement of the sensors shown in figure 2 must be maintained.
- The pms sensors are equipped with an internal temperature compensation. Due to the sensors self heating, the temperature compensation reaches its optimum working-point after approx. 45 seconds of operation.
- The sensor can be reset to its factory setting (see »Further settings«).
- For Teach-in procedure when using the LinkControl adapter (optional accessory) the additional adapter 5G/M12-4G/M12/M8 is needed.
- If the sensor is cleaned wet during operation, all surfaces must be inclined at least 3° from the horizontal alignment so that the cleaning agents can run off completely (see figure 3).

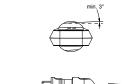
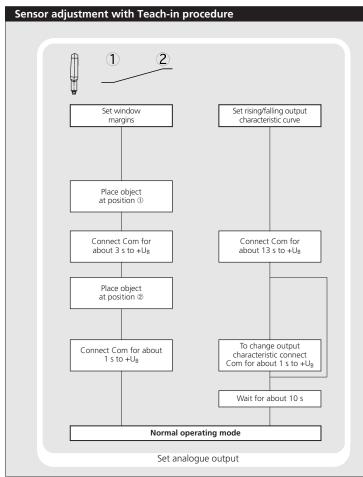
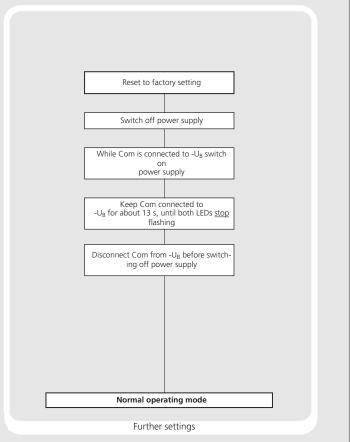


Fig. 3: pms sensor D12-adapter shaft with sensor screw connection BF-pms/A1, all surfaces must be inclined at least 3°.

- The D12 adapter shaft of the pms sensor has to stick out at least 6 mm from the screw connection (see figure 5).
- The sealing ring has to fill space between D12 sensor shaft and cap nut. Sealing ring should not to be pressed out excessively from the shaft gland.





■ The sensors of the pms family have a blind zone. Within this zone a distance measurement is not possible.

Technical data pms-15... pms-25... all exterior surfaces Ra < 0.8 Ra < 0.8 Ra < 0.8 Ra < 0.8 ø20— + 37,6 37,6 37,6 37,6 \Diamond Com 1 analogue output M8x1 Ø12 g6 M8x1 Ø12 g6 M8x1 blind zone 20 mm 30 mm 65 mm 120 mm operating range | 150 mm 250 mm 350 mm 1,000 mm maximum range 250 mm 350 mm 1.300 mm 600 mm angle of beam spread | See detection zone See detection zone See detection zone See detection zone transducer frequency 380 kHz 320 kHz 400 kHz 200 kHz resolution 0.069 mm 0.069 mm to 0.10 mm, depending on the 0.069 mm to 0.17 mm, depending on the 0.069 mm to 0.38 mm, depending on the analogue window analogue window analogue window reproducibility ± 0.15 % ± 0.15 % ± 0.15 % ± 0.15 % **accuracy** ± 1 % (Temperature drift internal compensated) detection zones for different objects: The dark grey areas are determined with a round bar and indicate the typical operating range of a sensor. In order to obtain the light grey areas, a plate (100 x 100 mm) is introduced into the beam spread from the side. In doing so, the optimum angle between plate and sensor is always employed. 8 cm This therefore indicates the maximum detection zone of the sensor. It is not possible to evaluate ultrasonic 30 cm 12 cm reflections outside this area. 35 cm -0.8 m 16 cm 40 cm 1 0 m 50 cm 1 0 m 1 3 m - 60 cm 1.4 m no-load current consumption | < 40 mA < 40 mA < 40 mA < 40 mA ±10 % operating voltage ripple ±10 % ±10 % ±10 % stainless steel 1.4404/316L stainless steel 1.4404/316L: housing stainless steel 1.4404/316L; stainless steel 1.4404/316L; ultrasonic transducer: PTFE, FKM ultrasonic transducer: PTFE, FKM ultrasonic transducer: PTFE, FKM ultrasonic transducer: PTFE, FKM ECOLAB ves class of protection to EN 60 529 IP 66, IP 67, IP 68 EN 60947-5-2 EN 60947-5-2 norm conformity EN 60947-5-2 EN 60947-5-2 4-pin M8 initiator plug 4-pin M8 initiator plug type of connection : 4-pin M8 initiator plug 4-pin M8 initiator plug controls | Teach-in via pin 2 (Com) programmable Teach-in, LinkControl Teach-in, LinkControl Teach-in, LinkControl Teach-in, LinkControl cleaning temperature to +85°C to +85°C to +85°C to +85°C operating temperature | -25°C to +70°C -25°C to +70°C -25°C to +70°C -25°C to +70°C storage temperature -40°C to +85°C -40°C to +85°C -40°C to +85°C -40°C to +85°C 110 g 110 a 110 g weight: 110 g 24 ms 48 ms response time 1) 24 ms 60 ms time delay before availability 1) < 300 ms < 300 ms < 300 ms < 300 ms analogue output 4-20 mA : $R_L \le 500 \Omega$, rising/falling characteristic $R_L \leq 500 \Omega$, rising/falling characteristic $R_L \leq 500 \Omega$, rising/falling characteristic $R_L \leq 500 \Omega$, rising/falling characteristic operating voltage U_R : 10 - 30 V DC for $R_I \le 100 \Omega$, $10 - 30 \text{ V DC for } R_1 \leq 100 \Omega$ 10 - 30 V DC for $R_1 \le 100 \Omega$, $10 - 30 \text{ V DC for } R_1 \leq 100 \Omega$ 20 - 30 V DC for $R_1 > 100 \Omega$, 20 - 30 V DC for $R_1 > 100 \Omega$, 20 - 30 V DC for $R_1 > 100 \Omega$, 20 - 30 V DC for $R_1 > 100 \Omega$, terminal reverse polarity protected terminal reverse polarity protected terminal reverse polarity protected terminal reverse polarity protected order no. pms-15/CI/A1 pms-25/CI/A1 pms-35/CI/A1 pms-100/CI/A1 analogue output 0-10 V $R_L \ge 100 \text{ k}\Omega$, short circuit proof, $R_1 \ge 100 \text{ k}\Omega$, short circuit proof, $R_1 \ge 100 \text{ k}\Omega$, short circuit proof, $R_1 \ge 100 \text{ k}\Omega$, short circuit proof, rising/falling characteristic rising/falling characteristic rising/falling characteristic rising/falling characteristic operating voltage U_B: 15 - 30 V DC, terminal reverse polarity protected 15 - 30 V DC, terminal reverse polarity protected 15 - 30 V DC, terminal reverse polarity protected 15 - 30 V DC, terminal reverse polarity protected order no. pms-15/CU/A1 pms-25/CU/A1 pms-35/CU/A1 pms-100/CU/A1 1) Can be programmed with LinkContol microsonic GmbH / Phoenixseestraße 7 / 44263 Dortmund / Germany / T +49 231 975151-0 / F +49 231 975151-51 / E info@microsonic.de / W microsonic.de The content of this document is subject to technical changes. Specifications in this document are presented in a descriptive way only. They do not warrant any

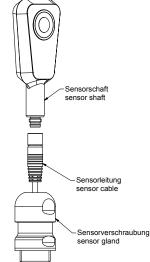


Fig. 4: Mounting of pms sensor with sensor screw connection BF-pms/A1

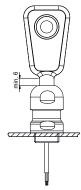


Fig. 5: Mounting of pms sensor with sensor screw connection BF-pms/A1

Mounting accessory

■ D12 sensor screw connection BF-pms/A1

Accessory for programming

- LinkControl adapter LCA-2
- Adapter 5G/M12-4G/M12/M8





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