

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 installation 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



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

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 LinkControl 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 use.

Installation

- Assemble the sensor and its hygienic D12 sensor screw connection BF-pms/A1 or an equivalent sensor mounting clip at the installation location.
- 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 BF-pms/A1 and adjust (see figure 3-5).

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.

		colour
1	+U _B	brown
3	-U _B	blue
4	I/U	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 maintenance-free. 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.

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).

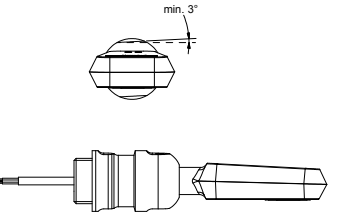
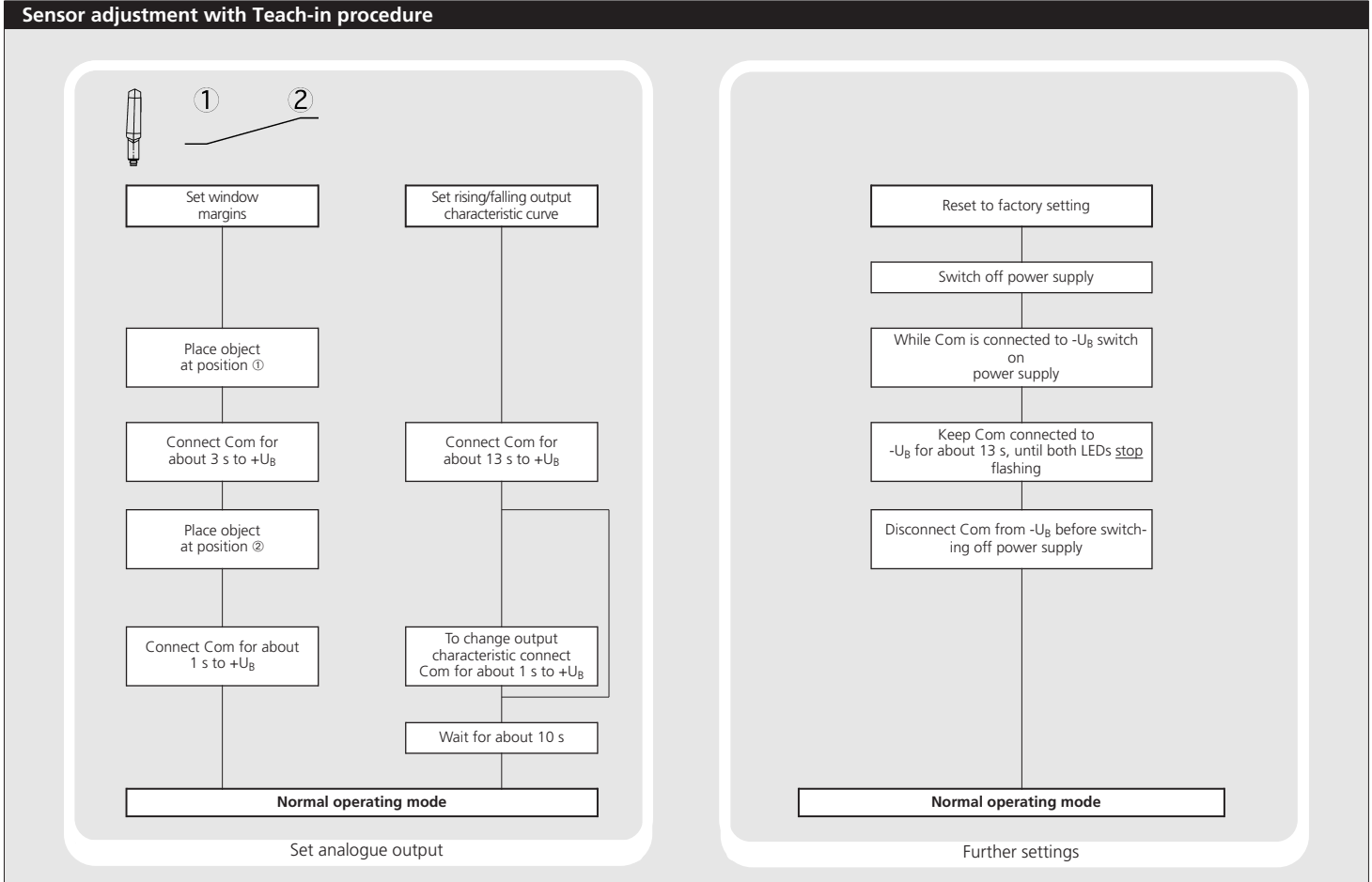


Fig. 3: pms sensor D12-adapter shaft with sensor screw connection BF-pms/A1, all surfaces must be inclined at least 3°.



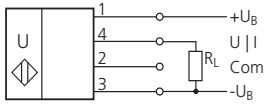
	≥0.25 m	≥1.30 m
	≥0.35 m	≥2.50 m
	≥0.40 m	≥2.50 m
	≥0.70 m	≥4.00 m

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

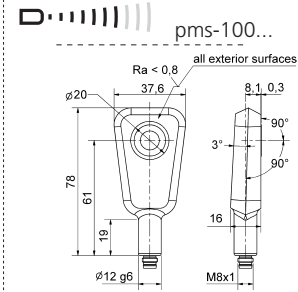
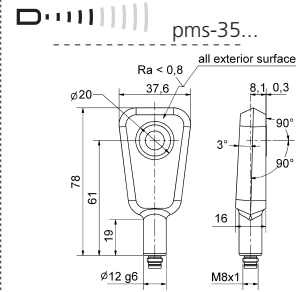
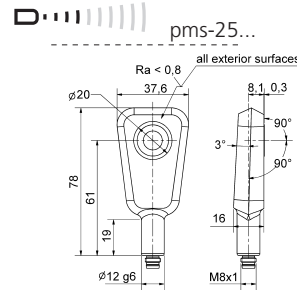
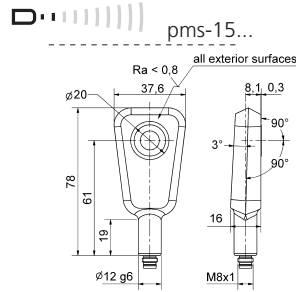
Notes

- The sensors of the pms family have a blind zone. Within this zone a distance measurement is not possible.
- If several pms sensors are operated in a small space, the minimum

Technical data



1 analogue output

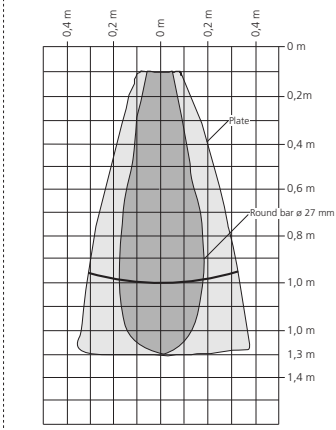
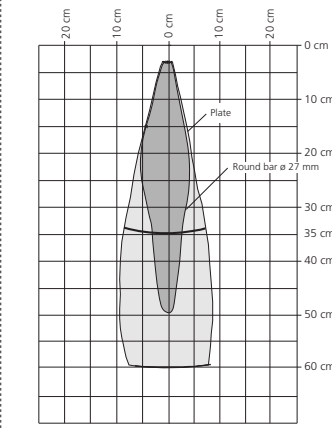
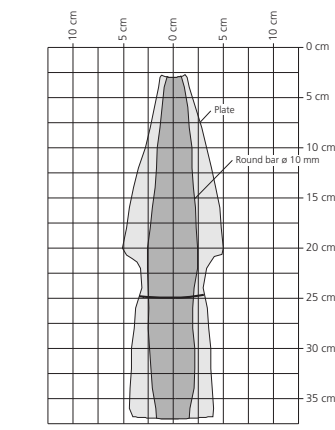
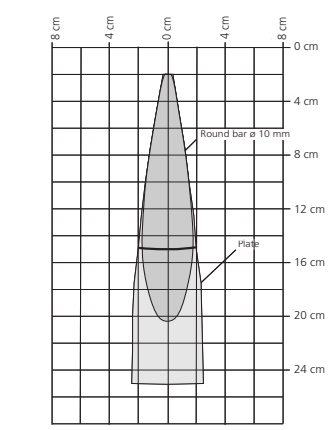


blind zone	20 mm
operating range	150 mm
maximum range	250 mm
angle of beam spread	See detection zone
transducer frequency	380 kHz
resolution	0.069 mm
reproducibility	± 0.15 %
accuracy	± 1 % (Temperature drift internal compensated)

blind zone	30 mm
operating range	250 mm
maximum range	350 mm
angle of beam spread	See detection zone
transducer frequency	320 kHz
resolution	0.069 mm to 0.10 mm, depending on the analogue window
reproducibility	± 0.15 %
accuracy	± 1 % (Temperature drift internal compensated)

blind zone	65 mm
operating range	350 mm
maximum range	600 mm
angle of beam spread	See detection zone
transducer frequency	400 kHz
resolution	0.069 mm to 0.17 mm, depending on the analogue window
reproducibility	± 0.15 %
accuracy	± 1 % (Temperature drift internal compensated)

blind zone	120 mm
operating range	1,000 mm
maximum range	1,300 mm
angle of beam spread	See detection zone
transducer frequency	200 kHz
resolution	0.069 mm to 0.38 mm, depending on the analogue window
reproducibility	± 0.15 %
accuracy	± 1 % (Temperature drift internal compensated)



no-load current consumption	< 40 mA
operating voltage ripple	±10 %
housing	stainless steel 1.4404/316L; ultrasonic transducer: PTFE, FKM
ECOLAB	yes
class of protection to EN 60 529	IP 66, IP 67, IP 68
norm conformity	EN 60947-5-2
type of connection	4-pin M8 initiator plug
controls	Teach-in via pin 2 (Com)
programmable	Teach-in, LinkControl
cleaning temperature	to +85°C
operating temperature	-25°C to +70°C
storage temperature	-40°C to +85°C
weight	110 g
response time 1)	24 ms
time delay before availability 1)	< 300 ms

no-load current consumption	< 40 mA
operating voltage ripple	±10 %
housing	stainless steel 1.4404/316L; ultrasonic transducer: PTFE, FKM
ECOLAB	yes
class of protection to EN 60 529	IP 66, IP 67, IP 68
norm conformity	EN 60947-5-2
type of connection	4-pin M8 initiator plug
controls	Teach-in via pin 2 (Com)
programmable	Teach-in, LinkControl
cleaning temperature	to +85°C
operating temperature	-25°C to +70°C
storage temperature	-40°C to +85°C
weight	110 g
response time 1)	24 ms
time delay before availability 1)	< 300 ms

no-load current consumption	< 40 mA
operating voltage ripple	±10 %
housing	stainless steel 1.4404/316L; ultrasonic transducer: PTFE, FKM
ECOLAB	yes
class of protection to EN 60 529	IP 66, IP 67, IP 68
norm conformity	EN 60947-5-2
type of connection	4-pin M8 initiator plug
controls	Teach-in via pin 2 (Com)
programmable	Teach-in, LinkControl
cleaning temperature	to +85°C
operating temperature	-25°C to +70°C
storage temperature	-40°C to +85°C
weight	110 g
response time 1)	48 ms
time delay before availability 1)	< 300 ms

no-load current consumption	< 40 mA
operating voltage ripple	±10 %
housing	stainless steel 1.4404/316L; ultrasonic transducer: PTFE, FKM
ECOLAB	yes
class of protection to EN 60 529	IP 66, IP 67, IP 68
norm conformity	EN 60947-5-2
type of connection	4-pin M8 initiator plug
controls	Teach-in via pin 2 (Com)
programmable	Teach-in, LinkControl
cleaning temperature	to +85°C
operating temperature	-25°C to +70°C
storage temperature	-40°C to +85°C
weight	110 g
response time 1)	60 ms
time delay before availability 1)	< 300 ms

analogue output 4-20 mA	$R_L \leq 500 \Omega$, rising/falling characteristic
operating voltage U_B	10 - 30 V DC for $R_L \leq 100 \Omega$, 20 - 30 V DC for $R_L > 100 \Omega$, terminal reverse polarity protected
order no.	pms-15/CI/A1
analogue output 0-10 V	$R_L \geq 100 \text{ k}\Omega$, short circuit proof, rising/falling characteristic
operating voltage U_B	15 - 30 V DC, terminal reverse polarity protected
order no.	pms-15/CU/A1

analogue output 4-20 mA	$R_L \leq 500 \Omega$, rising/falling characteristic
operating voltage U_B	10 - 30 V DC for $R_L \leq 100 \Omega$, 20 - 30 V DC for $R_L > 100 \Omega$, terminal reverse polarity protected
order no.	pms-25/CI/A1
analogue output 0-10 V	$R_L \geq 100 \text{ k}\Omega$, short circuit proof, rising/falling characteristic
operating voltage U_B	15 - 30 V DC, terminal reverse polarity protected
order no.	pms-25/CU/A1

analogue output 4-20 mA	$R_L \leq 500 \Omega$, rising/falling characteristic
operating voltage U_B	10 - 30 V DC for $R_L \leq 100 \Omega$, 20 - 30 V DC for $R_L > 100 \Omega$, terminal reverse polarity protected
order no.	pms-35/CI/A1
analogue output 0-10 V	$R_L \geq 100 \text{ k}\Omega$, short circuit proof, rising/falling characteristic
operating voltage U_B	15 - 30 V DC, terminal reverse polarity protected
order no.	pms-35/CU/A1

analogue output 4-20 mA	$R_L \leq 500 \Omega$, rising/falling characteristic
operating voltage U_B	10 - 30 V DC for $R_L \leq 100 \Omega$, 20 - 30 V DC for $R_L > 100 \Omega$, terminal reverse polarity protected
order no.	pms-100/CI/A1
analogue output 0-10 V	$R_L \geq 100 \text{ k}\Omega$, short circuit proof, rising/falling characteristic
operating voltage U_B	15 - 30 V DC, terminal reverse polarity protected
order no.	pms-100/CU/A1

1) Can be programmed with LinkControl

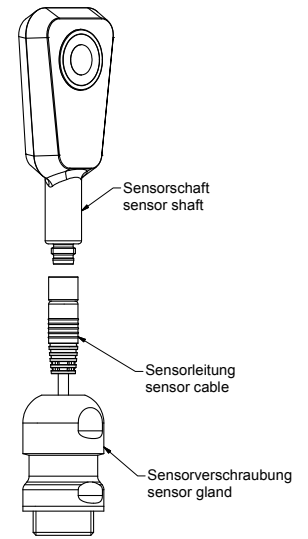


Fig. 4: Mounting of pms sensor with sensor screw connection BF-pms/A1

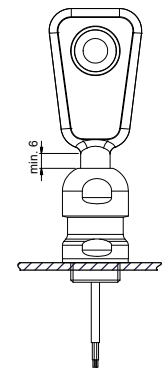


Fig. 5: Mounting of pms sensor with sensor screw connection BF-pms/A1

Mounting accessory

- D12 sensor screw connection BF-pms/A1

Accessory for programming

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



2014/30/EU

