

Level Monitoring with Filling-Signal-Recognition

PROCESS MONITORING SYSTEMS FOR SOLIDS

Product Information



FEATURES:

- absolute insensitive to material caking
- can be used up to a profile of 25 m (larger profiles on request)
- can be used with adapter up to 220 °C and 20 bar
- with ceramic mounting, usable up to 1.000 °C
- usable in dust Ex-zones
- Flow/NoFlow and level signalling possible
- Detection through non-conductive walls
- extra short sensor with separate analysis unit



certificated
according to **ATEX**

TECHNOLOGY

USING / FUNCTION

The microwave barrier ProGap 2.0-BS is an universally and flexibly usable sensor, consisting of a transmitter and a receiver based on the latest microwave technology.

It is brought into action for level detection or for positioning of items. Because of the filling-signal recognition the ProGap 2.0-BS is able to detect a correct level even if there is a filling process which interrupt the field between transmitter and receiver.

The microwave barrier is a contactless measuring method. It can be installed in bunkers, ducts, shafts or at freefalling stretches. The range of the measurement belongs 0.1 ... 25 m.

Higher ranges are as well possible but have to be discussed. In case that container sides, housings or

ducts are not of metal. It is possible to measure from the outside.

By means of appropriate windows of non-metallic material, the metering thus can be completely decoupled from the process. That's particularly interesting for the measurement of aggressive, abrasive or bulky material or at extreme pressures and temperatures.

The ProGap 2.0-BS can also be applied in difficult circumstances like high temperatures and pressures and DustEx-zones (ProGap 2.0-BS Ex) by means of a process adapter (see page 4). By using microwaves there is a high insensitivity to build up on the sensor window.

APPLICATION EXAMPLES

Recognition of salt

The ProGap 2.0-BS activates an alarm before there is a salt blockage that would cause a decrease in flow.

The ProGap 2.0-BS is installed in such a manner that it views the salt through a non metallic pipe and will detect a blockage quickly that could prevent damage to the conveying system.

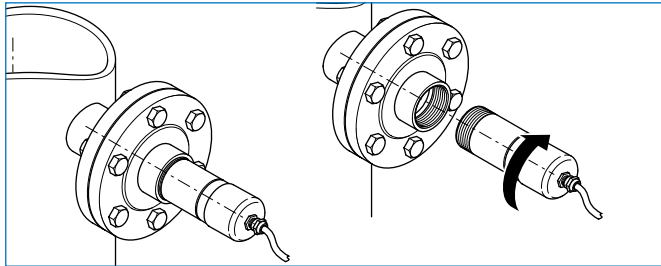


MONTAGE / SERVICE

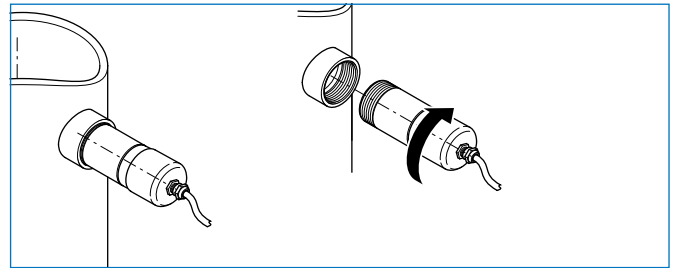
MONTAGE

The installation of the ProGap 2.0-BS is easily made by the following ways:

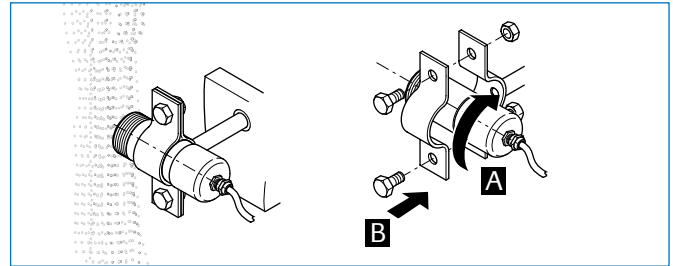
- screwing it into a G 1½-inch-screw neck
- by means of a DN 40 flange
- by means of a pipe clip or an other mounting



Mounting with separating flange



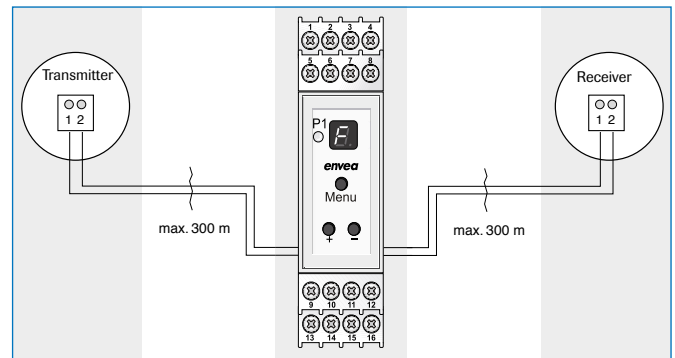
Thread mounting



Mounting with pipe clamp

SERVICE

Commissioning of the measuring point takes place via the evaluation unit. All parameters for the level- and flow-detection are set via the 7-segment display.



TECHNICAL DATA

Sensor	
Material	Housing: Stainless steel 1.4571 Sensor-Isolation: POM
Protective system	IP65
Using in Ex-zones	Outside pipe: Cat 3D Inside pipe: Cat 1/3D (only with process adapter)
Dimensions ProGap 2.0-BS	Housing: L 107 mm / 52 mm Thread: L 30 mm / G½
Dimensions ProGap 2.0-BS Ex	Housing: L 155 mm / 60 mm Thread: L 30 mm / G½
Process temperature	20 ... +80 °C 20 ... +220 °C (with process adapter) max. 1000 °C (with ceramic flange)
Ambient temperature	20 ... +60 °C
Working pressure	max. 1 bar max. 20 bar (with process adapter)
Detection range: Level	0.1 ... 25 m / >25 m (on request)
Detection range: Flow	0.1 ... 12.5 m / >12.5 m (on request)
Power supply	24 V DC powered by DIN Rail electronic
Power consumption	approx. 20 VA
Current consumption	max. 850 mA
Measuring frequency	K-Band 24.125 Ghz (± 100 MHz)
Transmitting power	max. 5 mW
Cable gland	M16 (5-10 mm)
Weight ProGap 2.0-BS	approx. 560 g
Weight ProGap 2.0-BS Ex	approx. 880 g

Din Rail electronic	
Power supply	24 V DC ± 10 %
Power consumption	3.5 W
Current consumption	120 mA à 24 V
Relay contact	Max. rated load: 250 V AC Max. peak current: 6 A Max. rated load 230 V AC: 250 VA Max. breaking capacity DC1: 3/110/220 V: 3/0.35/0.2 A Min. switching load: 500 mW (10 V/5 mA)
Fall-delay time	0.25 ... 5 s (continuously adjustable)
Weight	approx. 172 g
Protective system	IP40

USE AS PRESSURE ADAPTER

The ProGap 2.0-BS sensor can be used at a pressure of 1 bar and process temperatures up to 80 °C.

For higher pressures (up to 20 bar) a pressure adapter made of POM, for higher temperatures a Tecapeek

adapter (max 220 °C) and a ceramic adapter (max +1000 °C) are available.

A process adapter for applications in the food industry is also available.

MOUNTING OF PRESSURE ADAPTER

The mounting of the pressure adapter / temperature adapter is identical. It is screwed into a welded G 1½ inch thread neck, provided by the customer.

Only the ceramic adapter is supplied as a flange and must be mounted separately. The housing of the ProGap 2.0-BS is screwed into the internal thread of the adapter.

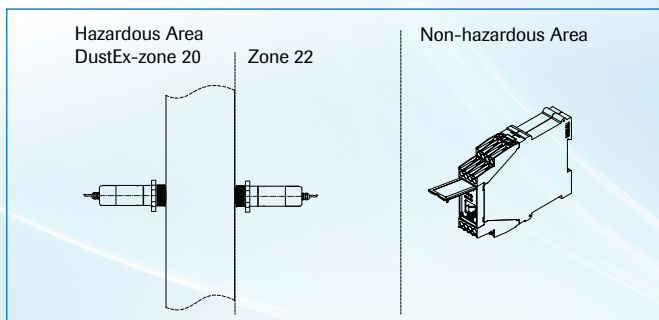
TECHNICAL DATA

	Pressure adapter	Temperature adapter	Food adapter	High temperature adapter
Material	Stainless steel 1.4571 POM diaphragm	Stainless steel 1.4571 Tecapeek diaphragm	Stainless steel 1.4571 Tecapeek GF30 diaphragm	Steel Ceramic diaphragm
Temperature	-20 ... +80 °C	Max. +220 °C	Max. +220 °C	Max. 1000 °C
Pressure	Max. 20 bar	Max. 20 bar	Max. 20 bar	Max. 40 bar
Thread	G 1½" on both sides	G 1½" on both sides	G 1½" on both sides	G 1½" on sensor side
Wrench width	55 mm	55 mm	55 mm	17 mm

USE FOR SEPARATION OF EXPLOSION AREAS

Both types of adapters can be used for the separation of explosion areas (dust).

According to the European DIN EN 13463-1 devices of class II D have to be constructed that way, that under application conditions, it is impossible to create an ignition.



This can be achieved by a limited surface of the non-conductive part of the process adapter (diaphragm made out of POM or tecapeek).

The maximum allowed surface area of the non-conductive part according to DIN EN 13463-1 is:

- Cat. 1: DustEx-zone 20 (250 cm²)
- Cat. 2: DustEx-zone 21 (500 cm²)
- Cat. 3: DustEx-zone 22 (no limit)

With a non-conductive surface of the process adapter of 10.75 cm² the allowed limits are not being crossed.

Therefore with use of the process adapter in combination with ProGap 2.0-BS Ex-sensor it can be measured from outside into all dust explosion areas, if there is at most a DustEx-zone 22 outside of the conveying pipe or hopper.

