MF 3000

Mass Flow of Solids

Compact and Economical Inline-Measurement – without Weighing

Application and Function

Our solid flow meter MF 3000 is designed for flow measurement in metallic pipes from a few kg/h to many t/h. The system is suitable for on-line measurements of powders, dust, pellets, and granular from 1 nm up to 2 cm in pneumatic or free fall condition.

The measurement principle of the MF 3000 is based upon the physical Doppler-Effect, whereas the sensor generates a uniform field in the microwave frequency range inside the pipe. These microwaves are being reflected by particles passing through the pipe. Calculation of frequency and amplitude changes allows for accurate determination of solid flow. Non-moving particles like dust accumulation are excluded from calculations.

Installation is simple and cost effective via a welded base, through which the sensor is screwed flush with the inside of the pipe. The sensor is connected to a DIN-rail mounted transmitter with 4...20 mA, RS232 and RS485 output. Calibration is easy with our MF – SMART software and a reference flow amount.

Benefits

- IN-LINE measuring without weighing
- Easy installation and putting into work
- Contact less and integral measuring
- Inside flush fitting
- Adjustable sensitivity
- Long-term stable
- Robust, compact, abrasion-free
- DIN-Rail Transmitter with COM-Interface for direct Online-connection
- Galvanic separated RS485-Interface for PLC-Connection
- MF-Sensor supply for connections up to 1.200 m
- Limit alarm monitoring with alarm contact

Applications

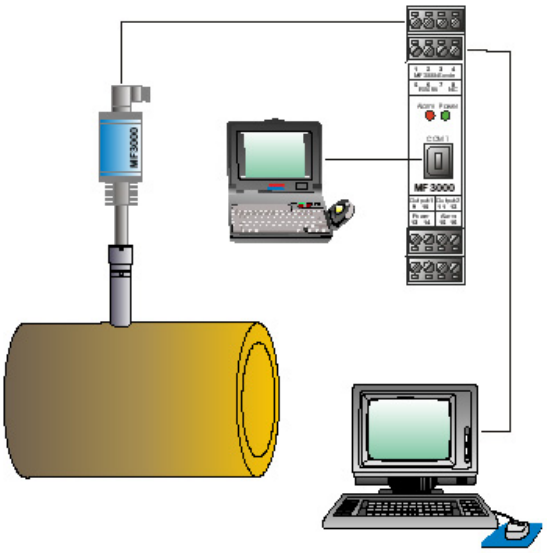
MF 3000 is measuring in pneumatic transportations and free falling processes. The diameter of the product can be between 1 nm and 20mm. The changing of the moisture in the material can be up to 12%.

Materials: all dust, powders, granules, panels, threads also sticking or abrasive materials	**Range of detection:** from kg/h to many t/h
Industries: animal feed industry building materials industry production of ceramics cement industry chemical industry detergent industry engineering companies food industry glass production	 metal production pharmaceuticals pigment production plastic industry production of rubber goods recycling industry synthetic materials production of textiles tobacco industry washing powder industry

Technical Datas

Process data		**Technical data of sensor**	
Measurement start free fall:	ca. 1 kg/h	Medium touched parts:	Stainl. steel 1.4307 and PA 6.6
Measur. start pneum. transport:	ca 1 kg/h	Process connecting:	welding flange
Max. pipe diameter:	DN 300 (bigger diameter on request)	Housing material:	Stainl. steel 1.4307 or ST52
Grain size:	1 Nanometer up to 20 mm	Form of protection:	IP 65
Moisture:	depending from the product	Power supply:	via transmitter
Pressure:	Up to 6 bar Option up to 30 bar	**Electrical data of transmitter:**	
Temperature:	-20 up to +95°C Option up to+180°C	Construction:	DIN-Rail, 22,5mm
		Auxiliary energy:	24 V AC/DC,
		Power consumption:	2,5 W up to max. 12W
		Ambient temperature:	-10 up to +65°C
		Form of protection:	IP 20
EX-classification (optional)	II 3G Ex nA II T4 II ½ D IP67 T130°C	Exit signal:	0/4-20 mA (max. 750 Ω) 0/2 – 10 Volt
		Interfaces:	RS 232, RS 485

Type



Putting into work

A base is welded onto the pipe. A 18 mm hole is drilled, the sensor is inserted flush with the inner diameter of the pipe. For commissioning and calibration a notebook with our MF-SMART software is needed. Calibration can be performed with either one or multiple reference flow amounts. The measurement value is output either analog or as digital signal.
A serial COM interface is available at the front of the transmitter to connect a notebook computer and a RS485 interface for connection to a PLC system.
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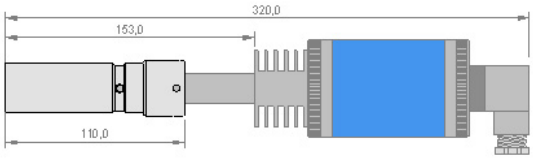
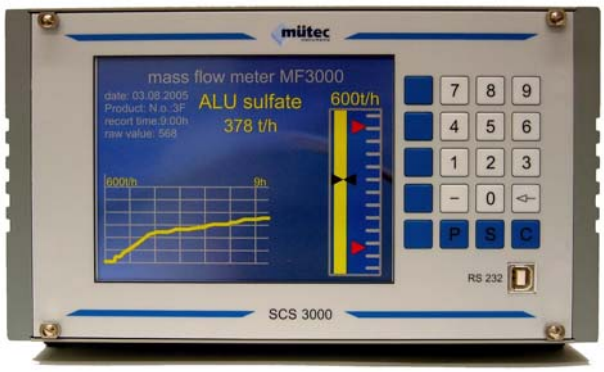
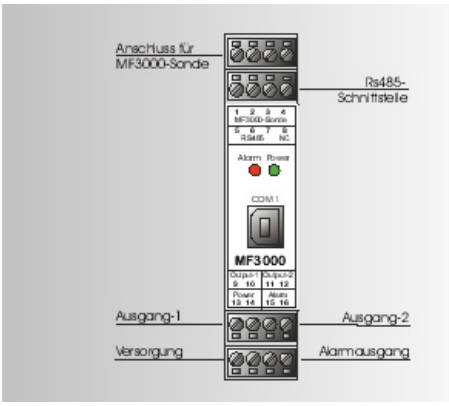
Sensor



Communication unit
(Optional)



Transmitter



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