

**Flow monitoring**  
for all bulk solids  
Microwave transmitter and receiver

**FSM51**

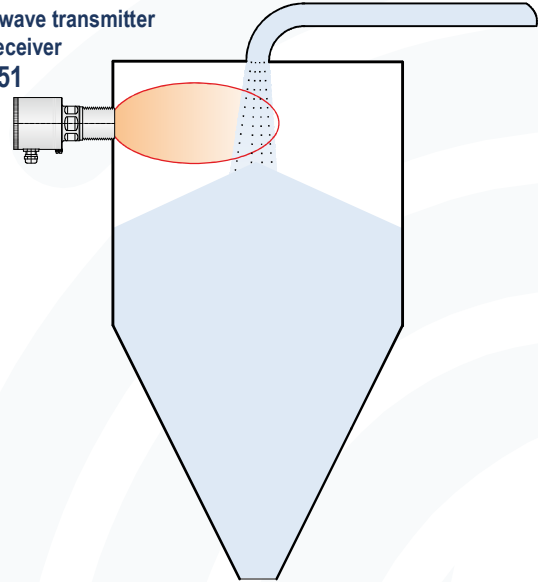
# Appliance information

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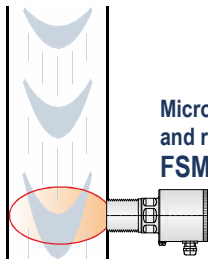
## Sample applications

### Flow monitoring in silos

Microwave transmitter  
and receiver  
FSM51

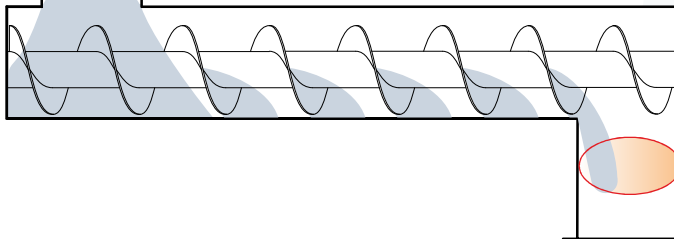


Microwave transmitter  
and receiver  
FSM51

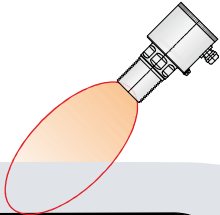


### Flow monitoring in pipes

Microwave transmitter  
and receiver  
FSM51

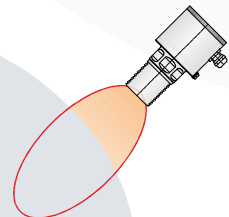


Microwave transmitter  
and receiver  
FSM51



### Flow monitoring on conveying belts

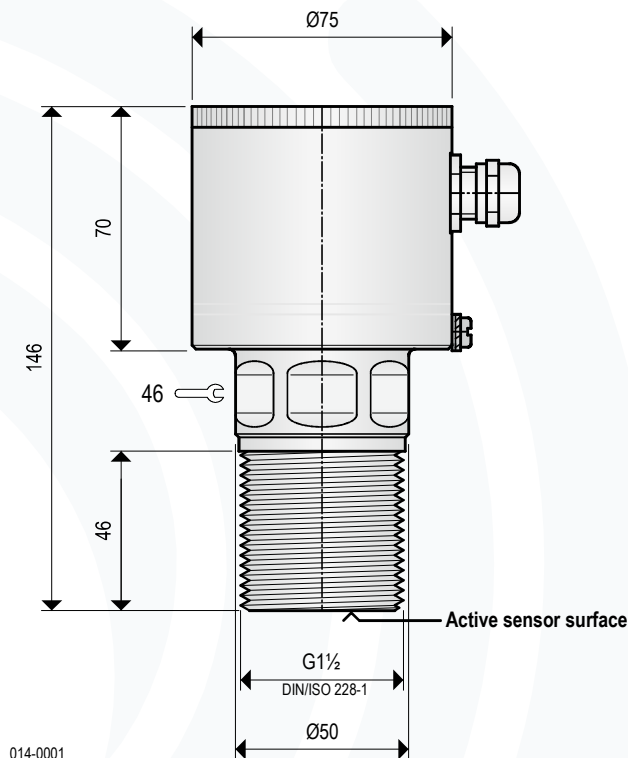
Microwave transmitter  
and receiver  
FSM51



## Appliance information

### Dimensions

Microwave transmitter and receiver FSM51



014-0001

001-0150

### Advantages

- Reliable microwave principle
- For all bulk solids
- For flow monitoring
- Easy installation due to compact design
- Process connection with flange, thread, and others
- Adjustable: sensitivity, signal damping, hysteresis and filter settings
- Easy and cost-effective installation in pipes, on conveying belts and fall plates or similar conveyors and although possible afterwards.

### Use

The flow monitoring device **FSM51** is transmitting and receiving microwaves in order to monitor the flow of bulk solids. With this device flow disturbances, material jams and absence of bulk solids during the transport of powder, dust, pellets or granulates can be reliably and early detected. Plant breakdowns will be avoided.

### Function

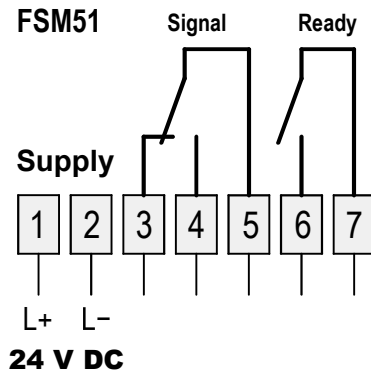
The measurement method of the flow monitoring device **FSM51** is based on the physical principle of the Doppler effect. For this purpose, the sensor emits a microwave field. If bulk solids are moved through this field, microwaves will be reflected and received from the sensor. This triggers a switching operation.

### Technical data

<b>Material</b>	housing	stainless steel 1.4301 / 304
	active sensor surface	PTFE (optional ceramic)
<b>Process temperature</b>	$T_{(Process)}$	-20 °C ... +90 °C
<b>Ambient temperature</b>	$T_a$	-20 °C ... +70 °C
<b>Supply voltage</b>	<b>Supply</b>	24 V DC (18 - 30 V DC)
<b>Power consumption</b>		approx. 80 mA at 24 VDC
<b>Transmission power</b>		10 dBm
<b>Measuring range</b>		10 mm ... 500 mm (depending on bulk solids)
<b>Signal contact</b>	<b>Contact</b>	1 potential free change-over contact 1 normally open contact for Ready
<b>Capacity of contact</b>		10 µA ... 1 A 35 V AC or 45 V DC
<b>Connection terminals</b>		maximum 1.5 mm <sup>2</sup> (pluggable)
<b>Cable entry</b>		gland 2x M16x1.5
<b>Type of protection</b>	<b>IP</b>	<b>IP65</b> according to DIN EN 60529
<b>Protection class</b>		I ⊕
<b>Process pressure</b>	$p_{(Process)}$	up to 2 bar (optional 25 bar)
<b>Weight</b>		1,25 kg
<b>Maintenance</b>		none
<b>Installation position</b>		any
<b>Adjustable parameters</b>		sensitivity, signal damping, hysteresis and filter settings
<b>Parameterization</b>		at the device
<b>Display</b>	LED green LED yellow Bargraph	operation switch output signal power

## Appliance information

### Electrical connection



014-AP00

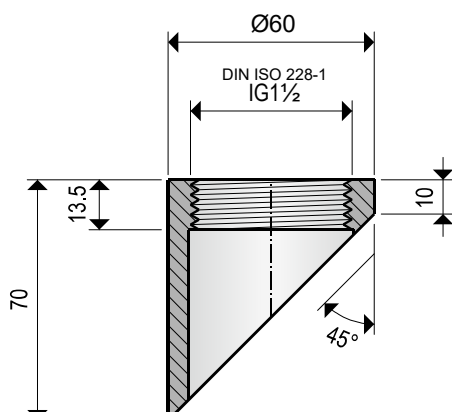
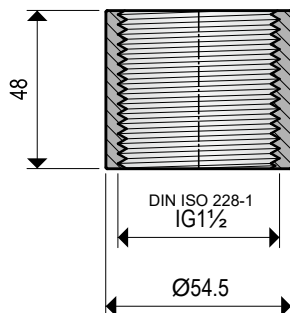
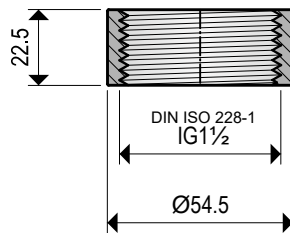
### Sealing ring

#### DRG thread flat seal ring

PTFE (white)

Dimensions (mm)	Order number
60x47x3	K-SZIG2 DRG-PT

### Mounting accessories



014-0002

#### Welding socket short

Size	Order number	Material
IG1½	MK3ST	St 37
IG1½	MK3V4	1.4571 / 316 Ti

#### Welding socket long

Size	Order number	Material
IG1½	ML3ST	St 37
IG1½	ML3V4	1.4571 / 316 Ti

#### Welding socket angled

Size	Order number	Material
IG1½	MW3ST	St 37
IG1½	MW3V4	1.4571 / 316 Ti