

# FlowSwitch FS 780

Dust monitoring and filter break detection  
adaptable for any application



## Application

The FlowSwitch FS 780 monitors the dust concentration behind a bag or cartridge filter. It is installed on the clean air side of the filter. It identifies if a filter is damaged, e.g. by cracks, fractures or assembly errors. This allows to replace a damaged or broken filter in time, without losing production time and without polluting the shopfloor or environment.

Dust monitors are especially important in case of heavily contaminated air, recirculation into the factory, strict external emission limits or dust reuse.

The FS 780 is the most flexible device of its class and can be adjusted perfectly to your process. It is available with a relay or analog output, in high temperature versions, as food version and can be adapted for continuous or non-continuous operation.

## Scope of use

Aluminum  
Bakeries  
Building materials  
Cement industry  
Chemical industry  
Fertilizer industry  
Food industry  
Glass production  
Mills  
Pharmaceuticals  
Power plants  
Pulp and Paper  
Steel industry  
Surface cleaning  
Wood industry  
etc.

## Main Benefits

- Prevents uncontrolled dust emissions and unnecessary cleaning due to damaged dust filters
- Ensures recircled air is always clean
- Ensures that strict emission limits are fulfilled
- Saves the company from investing into additional police/ emergency filters
- Very reactive and fast detection of filter damage
- Is not affected by dust buildup on the rod
- Wear- and maintenance free
- Easy to install into existing air ducts
- Adjustable sensitivity and damping
- Very flexible, can be used for nearly all applications, with multiple options

## Function

The measurement system of the FS 780 is based on the triboelectric effect. Particles collide permanently with each other and are charged in a natural way. If these electrically charged particles are flying next to the sensor rod of the FS 780 or touch it, the particles are detected via a charge transfer. Resting particles, such as deposits etc., do not affect the measurement. An installation into an existing exhaust duct is possible without any problems.

The sensor is available either with a relay or with analog output (4-20 mA). The sensor rod can be individually selected between 45 and 800 mm length. A wide temperature range can be addressed with optional versions for 130°C, 200°C or 290°C process temperature, and ATEX zone 2 and 22 are possible. The sensor material is prepared for use in the food industry. Alternative sensor isolations made out of PA or PTFE and seals out of NBR, FPM or silicone are available. In addition, several settings at the sensor can be adjusted, e.g. for sensitivity and damping.

To install a FS 780 a threaded socket is welded onto the pipe and a small hole for the sensor rod drilled. The sensor is fixed on the socket. The rod length should be at least 1/3 of the pipe diameter and the rod must not touch the opposite side. The sensor can also be connected with a Tri-clamp adapter. Calibration is done manually and allows to adapt the sensor to any process.

## Technical Data

Housing material	Stainless Steel (1.4305)
Sensor rod	Stainless Steel (1.4571)
Rod length	45 - 800 mm, customized
Mech. connection	G 0,5" (standard) G 1,5" (high temp. versions) Tri-clamp adapter as option
Ambient temperature	-20°C to +70°C
Process temperature	-20°C to +90°C 130°C, 200°C, 290°C as option
Process pressure	0 - 6 bar
Protection class	IP67
Ex protection / ATEX	Optional zone 2 or 22
Power supply	17-31 VDC
Current consumption	Max. 60 mA (relay version) Max. 90 mA (analog version)
Output	relay or 4-20 mA
Switching voltage	48 VAC or 48 VDC (relay vers.)
Switching current	Max. 1 A (relay version)
Output load	<500 Ω (analog version)
Adjust. parameter	Sensitivity, damping
Calibration	Manually
Indicators	LEDs inside of the housing

