

FW 56

Dust measuring device



Measuring task

Dust is a critical component, as a contaminant, transporting current or as residue of production processes. High quality measuring systems offer distinct advantages, i.e. reliability of plant processes, optimization of the plant operation mode or lower costs due to increased productivity to greater economic efficiency. FW 56-D/T and FW 56-I are part of the FW 56 family, a dust monitoring system which has a proven success record for the following tasks:

- High quality monitoring of particles (FW 56-D/T)
- Quantitative determination of constantly changing dust concentrations (FW 56-I)
- Control of customized limit values

The FW 56 is certified for monitoring applications by BImSchG¹⁾

¹⁾Federal German Pollution Control Act (Implementing Ordinance).

Application

- Monitoring of individual filter bags or caskets at filter plants
- Control of the product flow in the chemical industry, food- and animal fodder industry
- Ventilation control in metallurgical plants
- Building materials industry (cement works, lime-sand brick and plaster production)
- Paper and glass production
- Furnace gas monitoring in the steel industry
- Monitoring of silos and filling plants handling dust-forming products
- Coal mills and ash removal plants
- Testing bench for filter
- Ambient air monitoring during storage and transfer processes inside factory halls

Key features

FW 56-D/T and FW 56-I

- Continuous, inertialess measurement of transmission and differential transmission
- Measuring value output (0 to 20 mA), status signals
- MEPA-Software for parameter setting and data queries
- Simple installation, low maintenance

FW 56-I

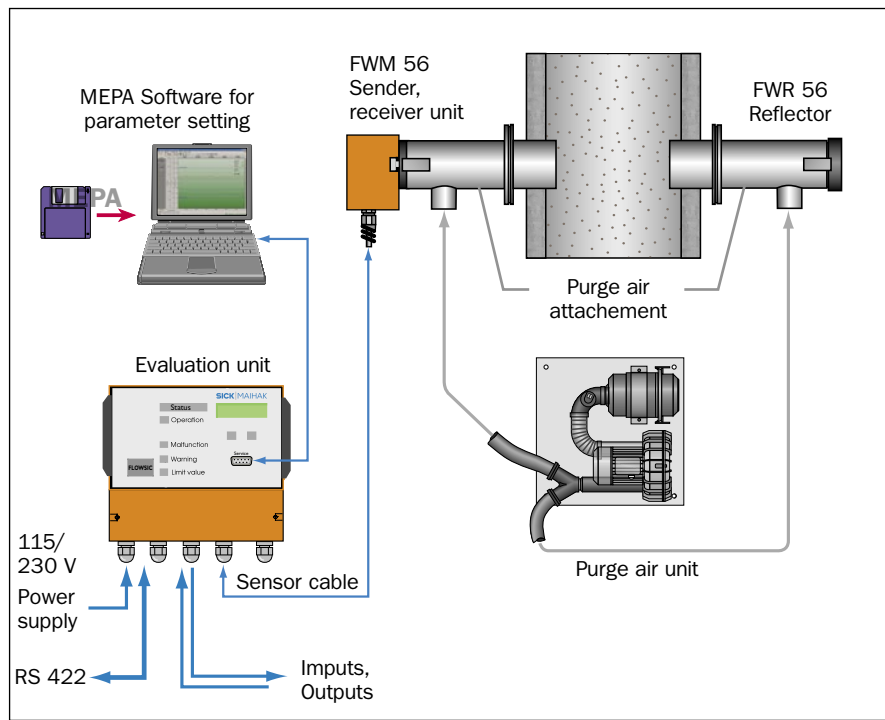
- Additional measuring variables: opacity, extinction, dust concentration
- Synchronized averaging to suppress exceptional interference
- Storage of up to 5000 measuring values and 500 events including date and time.

System components

The FW 56 consist of:

- Sender/receiver unit
- Reflector FWR 56
- Evaluation unit FWA 56-D/T or FWA 56-I
- 2 flange with tube
- 2 purge air attachment
- Purge air unit

The components FWM 56 and FWR 56 are each mounted with an purge air supply onto flanges which are installed on the opposite sides in the stack wall. The evaluation unit must be mounted close to the sender/receiver unit (cable length: 3m; optionally up to 10 m). Optical surfaces are protected from aggressive gases and contamination by fitting an optional air purge unit.



Measuring principle

The transmitted light beam is attenuated by the dust present in the exhaust gas duct. This attenuation of light, taken in relation between the

received and transmitted light (= transmission) provides the basis to measure the attenuation and therefore the dust concentration in the waste gas. The Signal processing

and the modulation procedure enable a extreme sensitivity as well as minimizing the influence of contamination during measuring of the differential transmission.

Technical Data	
Measuring data	
Measuring components	
<ul style="list-style-type: none"> ■ Transmission ■ different. transmission ■ Opacity ■ Extinction ■ Dust concentration¹⁾ 	
Response time	
Plant data	
Meas. gas temperature	
Ambient temperature	
Inner duct pressure	
Device data	
Purge air supply	
Power supply	
Display	
Measuring value memory	
Event memory	
Data smoothing	
Protection class	
Interfaces and signals	
Interfaces	
Analog output	
Relay output	
Digital input	

FW 56-DT		FW 56-I	
Measuring range	Accuracy	Measuring range	Accuracy
100 ... 0 %, freely selectable	±2 %	100 ... 0 %, freely selectable	±2 %
100 ... 0 %, freely selectable	±2 %	100 ... 0 %, freely selectable	±0.2 %
–	–	0 ... 100 %, freely selectable	±2 %
–	–	0 ... 0.3 to 2.0	±2 %
–	–	0 ... 20 mg/m ³ to 100 mg/m ³	
Response time			
1...255 s			
Plant data			
Meas. gas temperature			
> dewpoint ... 250 °C (480 °F), > 140 °C (284 °F) purge air necessary; higher temp. on request			
Ambient temperature			
–20...+50 °C (–4 ... 120 °F)			
Inner duct pressure			
± 20 hPa (+0.3 psi)			
FW 56-DT		FW 56-I	
Purge air supply			
Refer to SLV 4 data sheet; order no. 8 008 088			
Power supply			
90...260 V AC; 50/60 Hz; 24 V DC optional			
Display		4 LEDs, 2 line LC display	
Measuring value memory		up to 5000 meas. values incl. date and time	
Event memory		up to 500 meas. values incl. date and time	
Data smoothing		suppression of exceptional interference	
Protection class			
IP 65			
FW 56-DT		FW 56-I	
Interfaces			
RS 232 service interface			
RS 422 interface (option) via additional module			
Analog output			
0/2/4 ... 20 mA; load 750 Ω max. (el. isolated); 8 Bit, resolution ± 1 %			
Relay output			
max. 250 V DC/125 V AC; 1 A; 60 W; for status signals (operation/fault, mainten., limit value)			
2: maintenance and limit value acknowledge		3: Maint., limit value acknowledge, sync signal	

¹⁾ actual

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