

FW300 Laser Transmissiometer

Precise and instant measurement in harsh conditions



Measuring Task

No matter whether monitoring of transmission, opacity, extinction or dust concentration is required, the FW300 dust measuring device can take care of it. Each measured quantity can be freely selected. The measurement of the FW300 are immediate and precise even during difficult conditions such as sticky dust loads, high gas temperatures or variation in gas velocities.

Usage

- Monitoring emissions of industrial plants on the retention of limit values
- Filter plant monitoring for filter breaks
- Measurement of dust concentrations in processes
- Monitoring of dust loads in factory buildings
- Measurement of the dust emissions on garbage dumps, in quarries and mill works

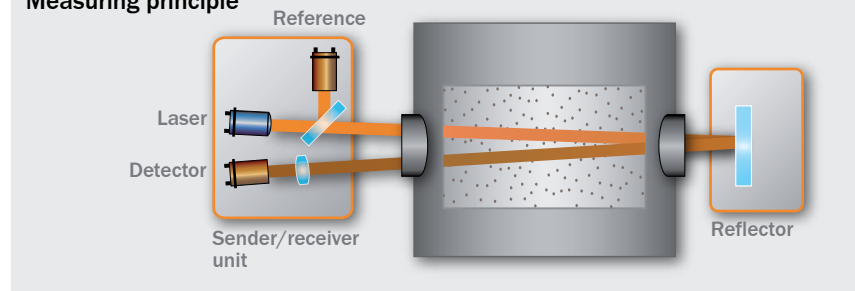
Key Features

- Measuring paths from 0.5 to 15 m (1.6 up to 49 ft)
- Modular system design
- Measurement independent from gas velocity and particle characteristics
- Easy installation and commissioning
- Simple operation
- Automatic check cycle
- Very low maintenance demand

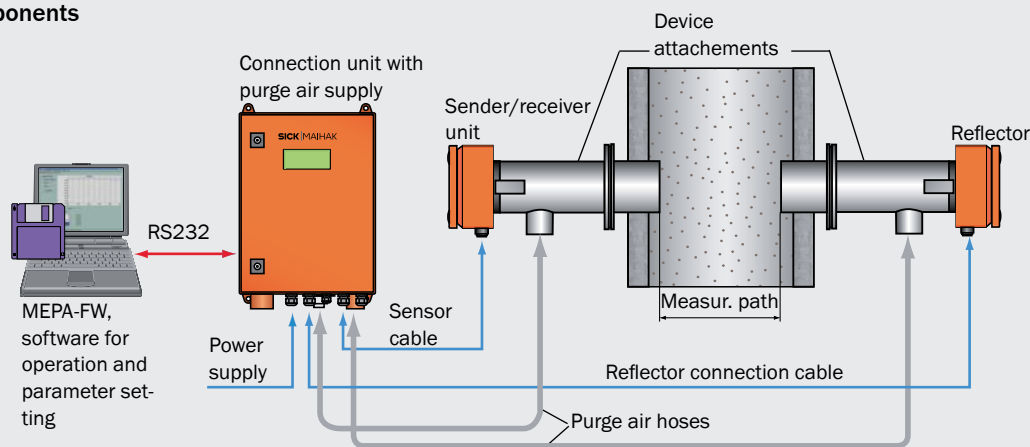
Area of Application

- Power generation
- Building material industry
- Metallurgy
- Food and feeding production
- Chemical industry Industrie

Measuring principle



FW300 Components



| Technical Data FW300 | | | | |
|------------------------------------|---|---|---------------------------------------|---|
| Measuring data | | | | |
| Measuring principle | Transmission | | | |
| Measuring range | Min. range | Accuracy | Max. range | Accuracy |
| Transmission | 100 ... 80 % | ± 0.4 % | 100 ... 0 % | ± 0.4 % |
| Opacity | 0 ... 20 % | ± 0.4 % | 0 ... 100 % | ± 0.4 % |
| Extinction | 0 ... 0.1 | ± 0.002 % | 0 ... 2.5 | ± 0.002 % |
| Dust concentration | 0 ... 13 g/m ³ at 1 m (3.3 ft) measuring path ¹ ; 0 ... 890 mg/m ³ at 15 m (49 ft) measuring path ¹ | | | |
| Response time | 0.1 ... 600 s, freely adjustable | | | |
| Measuring path | Reflector I (fixed reflector) | Reflector II (rotary reflector) | | Reflector III (rotary reflector) |
| | 0.5 ... 2 m (1.6 ... 6.6 ft) | 1.5 ... 8 m (5 ... 26 ft) | | 6 ... 15 m (20 ... 49 ft) |
| Deviation | ± 0.8 % at 1 m (3.3 ft) | ± 0.8 % at 1 m (3.3 ft) ± 1.5 % at 8 m (26 ft) | | ± 1 % at 6 m (20 ft) ± 1.5 % at 15 m (49 ft) |
| Deviation angle | 1° at 1 m (3.3 ft) | 1° at 1 m (3.3 ft) 0.15° at 8 m (26 ft) | | 1° at 1 m (3.3 ft) 0.15° at 15 m (49 ft) |
| Application data | | | | |
| Measuring gas temperature | Max. 600 °C (1,100 °F) (above dew point) | | | |
| Ambient temperature | - 20 ... +55 °C (-4 ... 130 °F) for FW310-SE; -20 ... +50 °C (-4 ... 122 °F) for FW320-SE; - 20 ... +45 °C (-4 ... 113 °F) for connect. unit with purge air supply and purge air suction temperature | | | |
| Inner duct pressure | Connection unit with purge air supply | | External purge air unit ²⁾ | |
| | - 50 ... +2 hPa (-50 ... +2 mbar) | | - 50 ... +30 hPa (-50 ... +30 mbar) | |
| Device data | Sender/receiver unit | Reflector | | Connection unit |
| Dimensions L x B x H in mm (in) | 150 x 150 x 110 (6 x 6 x 4.3) | Ø 80 x 34 (fixed reflector) (3.1 x 1.3) | | 300 x 400 x 220 (with purge air) (12 x 16 x 9) |
| | | 150x150x110 (rot. reflector) (6 x 6 x 4.3) | | 200 x 200 x 130 (without purge air) (8 x 8 x 5) |
| Weight | 2 kg (4.4 lb) | 0,4 kg (0.9 lb) (fixed reflector) 2,2 kg (4.8 lb) (rot. reflector) | | 13,5 kg (30 lb) (with purge air) 3,7 kg (8 lb) (without purge air) |
| Protection class | IP 65/ NEMA 4X | | | |
| Power supply | 100 ... 240 V AC; 47 ... 63 Hz; 24 V DC optional, consumption: max. 15 W ³⁾ ; max. 70 W ⁴⁾ | | | |
| Interfaces and signals | | | | |
| Interfaces | RS232 interface for parameter setting/ service tasks; (9600, 8, N, 1) | | | |
| Signals | <ul style="list-style-type: none"> • 1 analog output: 0/2/4 ... 20 mA; max. load 750 Ω; electrically isolated • 3 relay outputs: 48 V, 1 A (float. cont.) for signals: operation/malfunction, limit value, maintenance • 1 digital input for maintenance switch (floating contact) | | | |
| Options | <ul style="list-style-type: none"> • 2 lines of LC display for the indication of measured quantities, warning and malfunction messages, with additional relay outputs: 48 V, 1 A (float.contact) for maintenance • 2nd analog output or CAN bus interface (connection of FW300 on an evaluation unit) | | | |

¹⁾ Measuring range limit for medium particle size of 10 µm and medium density of 2.5 g/m³

²⁾ SLV4, external purge air unit, data sheet, order no. 8007691

³⁾ with purge air supply

⁴⁾ without purge air supply