The PFM 14 is a highly sensitive system for continuous, tribo-electric in-situ filter monitoring. Thereby a qualitative monitoring of the exhaust gas is done. Depending on the configuration of the device it can be used as a filter monitoring device as well as a dust measuring device.

The device consists of a probe with separated operating unit. These are connected via a cable by plug-in connections.

Thereby, for the operating unit a mounting separated from the measuring point can be provided.

### Application

The PFM 14 serves the permanent control of dust emissions. Applied as filter monitoring device it is an effective implement to detect and localise damages at filtering precipitators at early stage. Configured as dust measuring device it can be used for continuous monitoring of clean gas contents and dust contents of filtering precipitators.

By the device visible and invisible exhaust plumes can be avoided. The monitoring furthermore enables directed maintenance procedures and serves the avoidance of product losses.

### Function

The measurement with the PFM 14 is carried out via the tribo-electric measuring method.

For that matter the measuring gas in the exhaust gas flow is gathered by means of the probe rod. By the passing as well as impinging dust particles a charge exchange takes place between these and the probe rod.

From the discharged current a signal is generated which depends on the mechanical and electrical characteristics of the dust. The dust-proportional signal which is generated by the microcontroller integrated in the device is the degree for the dust content of the exhaust.
### Technical data

**Probe:**
- tribo-electric probe, IP 65, protection class 1;
- approx. 100 mm x 100 mm x 530/730 mm (w x h x d), weight approx. 2.1 kg;
- probe rod: electrically isolated from housing, length: 300 mm resp. 500 mm (possible to shorten mechanically);
- immersion depth: 400 mm resp. 600 mm (dependent on application)

**Operating unit:**
- graphic display, 4 operating buttons; IP 65, protection class 1;
- approx. 160 mm x 160 mm x 70 mm (w x h x d), weight approx. 3.0 kg

**Distance probe - operating unit:**
- max. cable length 50 m

**Operating unit:**
- -20...+50 °C
- no special sensitivity
- min. +5 K
- max. 280 °C
- from approx. 3 m/s
- qualitative: 0...100%; quantitative: 0.5...10 mg/m³ (0.5...1000 mg/m³)
- 4
- after approx. 5...10 min
- by gravimetric comparison measurements (for trend measurement and filter analyses not required)
- 4...20 mA, galvanically isolated to device ground, max. burden 500 Ω
- status signals max. 24 V DC at 0.1 A (for failure, maintenance, maintenance requirement, limit value 1 and 2); load capacity: max. 60 Vp, max. 75 mA; forward resistance: max. 10 Ω
- Triclamp
- 2x M20 x 1.5 / 9...13 mm
- 230/110 V AC, 50-60 Hz, 24 V DC, 5 VA

### Highlights of the device
- compact device consisting of probe and operating unit → no separate operating device necessary
- variable application possibilities through probe rod modification
- local diagnosis of system state by combined operating unit with graphic display
- real-time display with line diagram or in text mode with display in % or mg/m³
- no purge air blower required
- low operational costs
- easy mounting
- first-class price-performance ratio

### Operating unit