

## RM 210 Dust Concentration Monitor



### Equipped for versatile measuring functions

Based on the scattered light measuring principle, the RM 210 detects dust concentrations within a range of  $< 0.5$  to  $200 \text{ mg/m}^3$ . Suitable device versions with different measuring penetration depths are available for outputting of representative measurement results:

- Version 1 for small gas ducts with  $\varnothing 0.2 \dots 1.5 \text{ m}$
- Version 2 for ducts and small stacks with  $\varnothing 1.5 \dots 3.5 \text{ m}$
- Version 3 for stacks with  $\varnothing > 3.5 \text{ m}$

The highly flexible RM 210, with its robust design, is ideal for use in harsh industrial environments. Due to freely adjustable measurement ranges the RM 210 is equipped for versatile measuring functions and fulfills the 13<sup>th</sup> and 17<sup>th</sup> BImSchV stipulations and meets the Clean Air Act specifications.

### Measurement principle

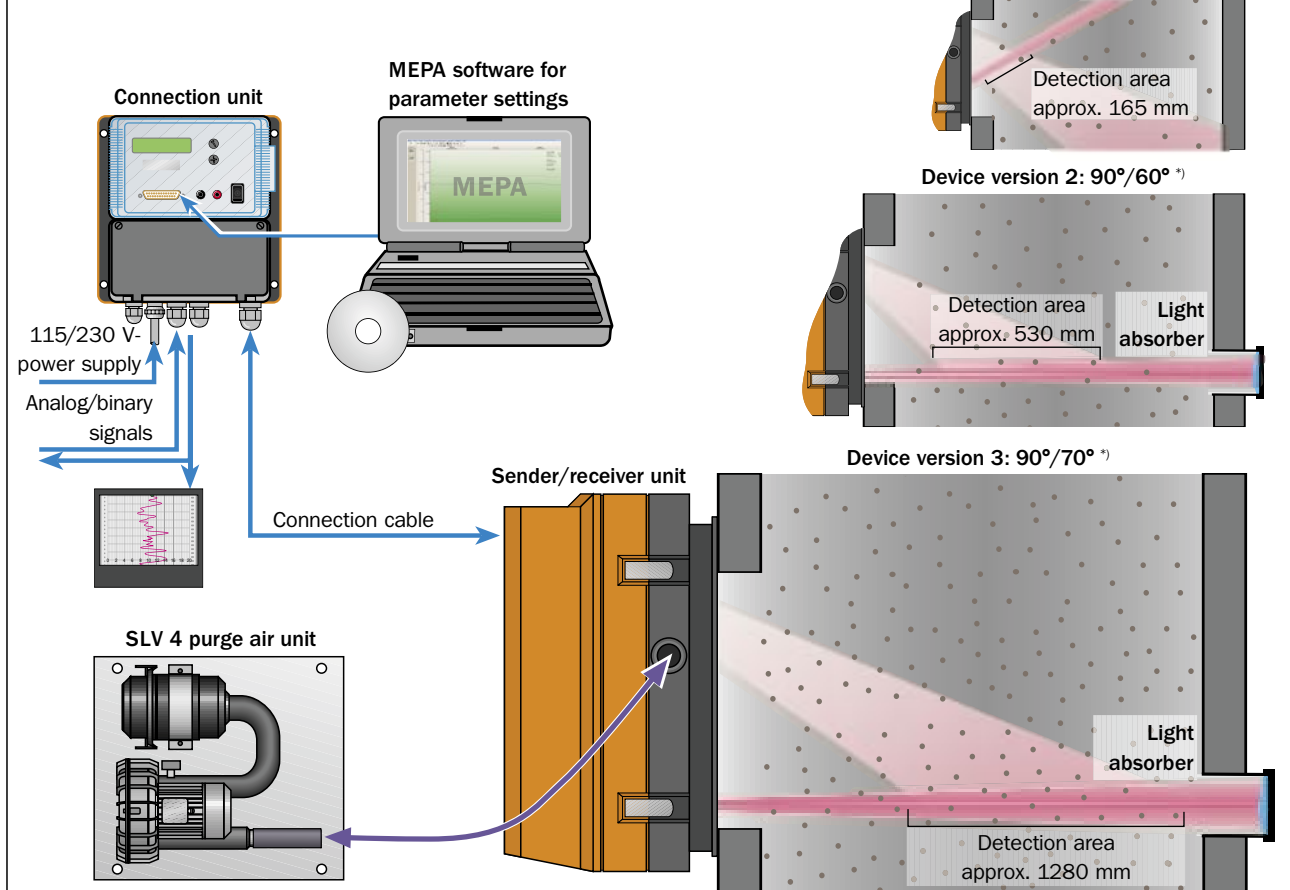
The insitu technology of the RM 210, i.e. direct measurement in the gas duct, guarantees instantaneous measured values. The measured quantity of the RM 210 is scattered light. The light source transmits infra-red light which is scattered by the particles in the gas stream and detected by a highly sensitive sensor. This measurement principle enables precise dust concentration measurements from the scattered light intensity measurement (calculated on the basis of gravimetric calibration).

- In clean gas upstream of electrostatic precipitators or fabric filters
- Monitoring of exhaust and fresh air systems
- Protection of gas turbines

### Key features of RM 210

- Representative determination of dust loads in large diameter ducts and/or with thick walls
- Add. recognition and display of defective filter pockets in parallel with overall dust measurement
- Cyclic monitoring of device functions via zero-point and reference point comparison
- Automatic contamination measurement of all optical components and measurement value correction. No influence through contamination
- Linearity measurements easy to perform (4 measurement points)
- Data transmission (via RS 232) by modem for fault diagnosis, parameterization and measured value registration.

## RM 210 Device Overview



<sup>\*)</sup> Angle position of the optical axis sender/receiver with respect to the housing front

| Technical Data                                  |  |
|---|--|
| <b>Measuring data</b>                           |  |
| Measuring principle                             |  |
| Measuring ranges                                |  |
| ■ Smallest range                                |  |
| ■ Largest range                                 |  |
| Accuracy  |  |
| Response time                                   |  |
| <b>Plant data</b>                               |  |
| Measuring gas temperature                       |  |
| Ambient temperature                             |  |
| Measuring gas pressure                          |  |
| <b>Device data</b>                              |  |
| Purge air supply                                |  |
| Power supply                                    |  |
| Storage temperature                             |  |
| Dimensions                                      |  |
| L x W x D in mm <sup>3</sup> (in <sup>3</sup> ) |  |
| Weight  |  |
| Protection class                                |  |
| <b>Interfaces and signals</b>                   |  |
| Interfaces to periphery                         |  |
| Signals   |  |

| RM 210   |                                   |                                |
|--|-----------------------------------|--------------------------------|
| Scattered light principle (scattered light intensity proportional to dust concentration) |                                   |                                |
| 0...0.5 mg/m <sup>3</sup>  |                                   |                                |
| 0...200 mg/m <sup>3</sup>  |                                   |                                |
| ± 2% of full scale value   |                                   |                                |
| 1...255 s  |                                   |                                |
| above dew point up to 500 °C (932 °F), higher temperatures on request                    |                                   |                                |
| -20 to +55 °C (-4 to 130 °F)   |                                   |                                |
| max. +0.6 hPa/+60 mbar (24 in WC)  |                                   |                                |
| <b>Sender/receiver unit</b>  | <b>connection unit</b>            |                                |
| refer to SLV4 data sheet; order no. 8 008 080  |                                   |                                |
| 90 to 260 V AC; 47 to 63 Hz; 20 VA power consumption                                     |                                   |                                |
| -20 to +65 °C (-4 to +150 °F); storage humidity 50% r.h.                                 |                                   |                                |
| Sender/receiver unit:  | connection unit:                  |                                |
| 210 x 495 x 276 (8 x 19.5 x 11)  | 196 x 203 x 162,5 (7.7 x 8 x 6.4) |                                |
| approx. 12 kg (26.5 lb)  | approx. 3.5 kg (7.7 lb)           | flange: approx. 4.5 kg (10 lb) |
| IP 65/NEMA 4x  |                                   |                                |
| RS 232 service interface   |                                   |                                |
| RS 422 interface to remote control unit (option) or host computer                        |                                   |                                |
| 2 analog outputs: 0...20 mA, 100 Ω (electrically isolated)                               |                                   |                                |
| 4 status inputs: 10...35 V DC/10...25 V AC; selectable                                   |                                   |                                |
| 4 relay outputs: 48 V DC/1 A; selectable   |                                   |                                |