

Reinhold Environmental Ltd.



***2007 APC Round Table & Expo
Presentation***

***July 8-10, 2007
Chattanooga, TN
Hosted by TVA***

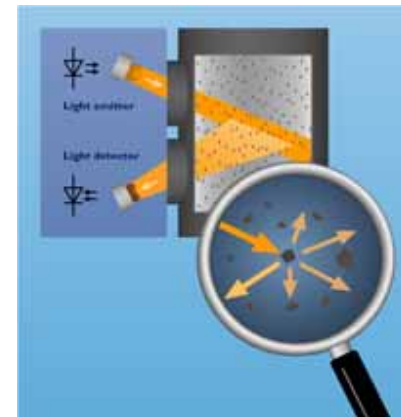
PM Measurement according to PS11.



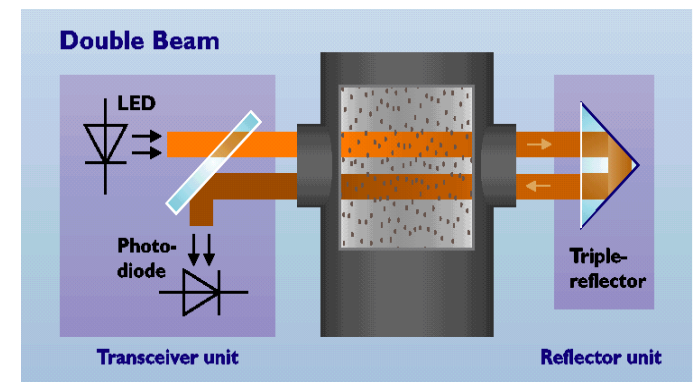
PM Measurement according to PS11.

Sick MAIHAK uses two different technologies for continuous PM measurement in **dry** gas.

Scatter light principle for measuring of low dust concentration

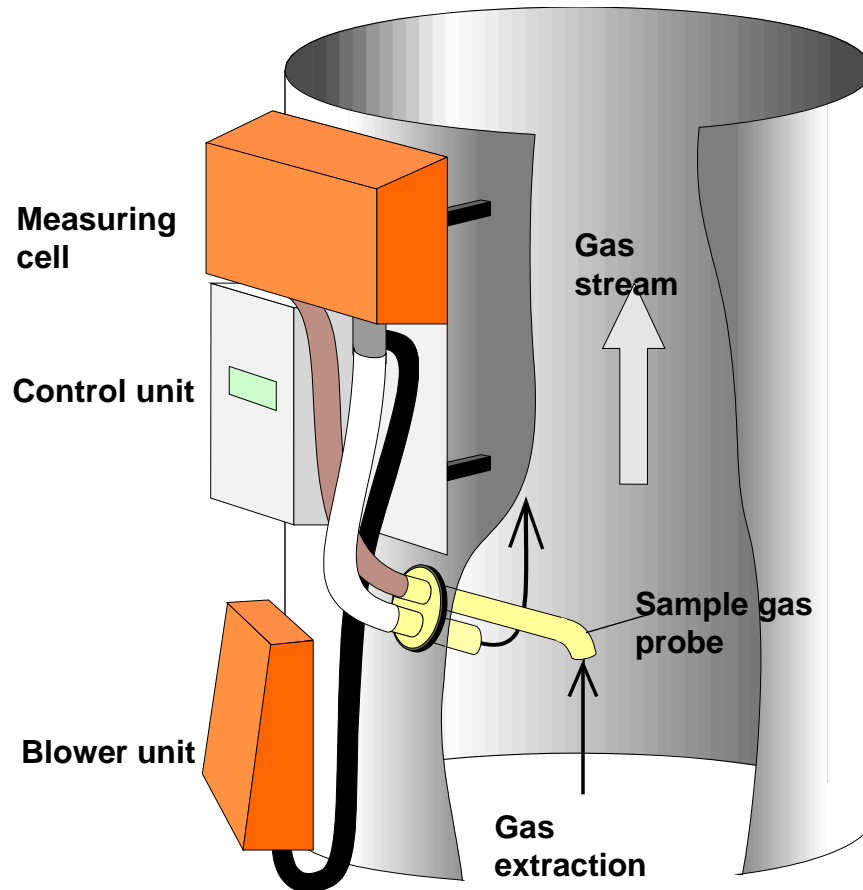


Opacity principle (Optical density) for Measuring of medium to high dust concentration



PM Measurement according to PS11.

Scatter light principle for continuous PM measurement in **wet** gas.



FWE200

a Bypass System for
measurement in wet gas

Measuring range max:	0...200mg/m ³
Measuring range min:	0...5mg/m ³
Electrical power:	approx. 2,5KW
Gas extraction volume:	15m ³ /h
Total weight::	approx. 120lbs

Why a Bypass System?

- The light of the opacity- or scatter light monitor attenuated through particles in the light beam.
- Therefore water droplets or dust particles in the light beam influence the measuring result.
- The water droplets must be eliminated.
- The heated Bypass System is the solution for a correct measurement.

PM Measurement according to PS11.

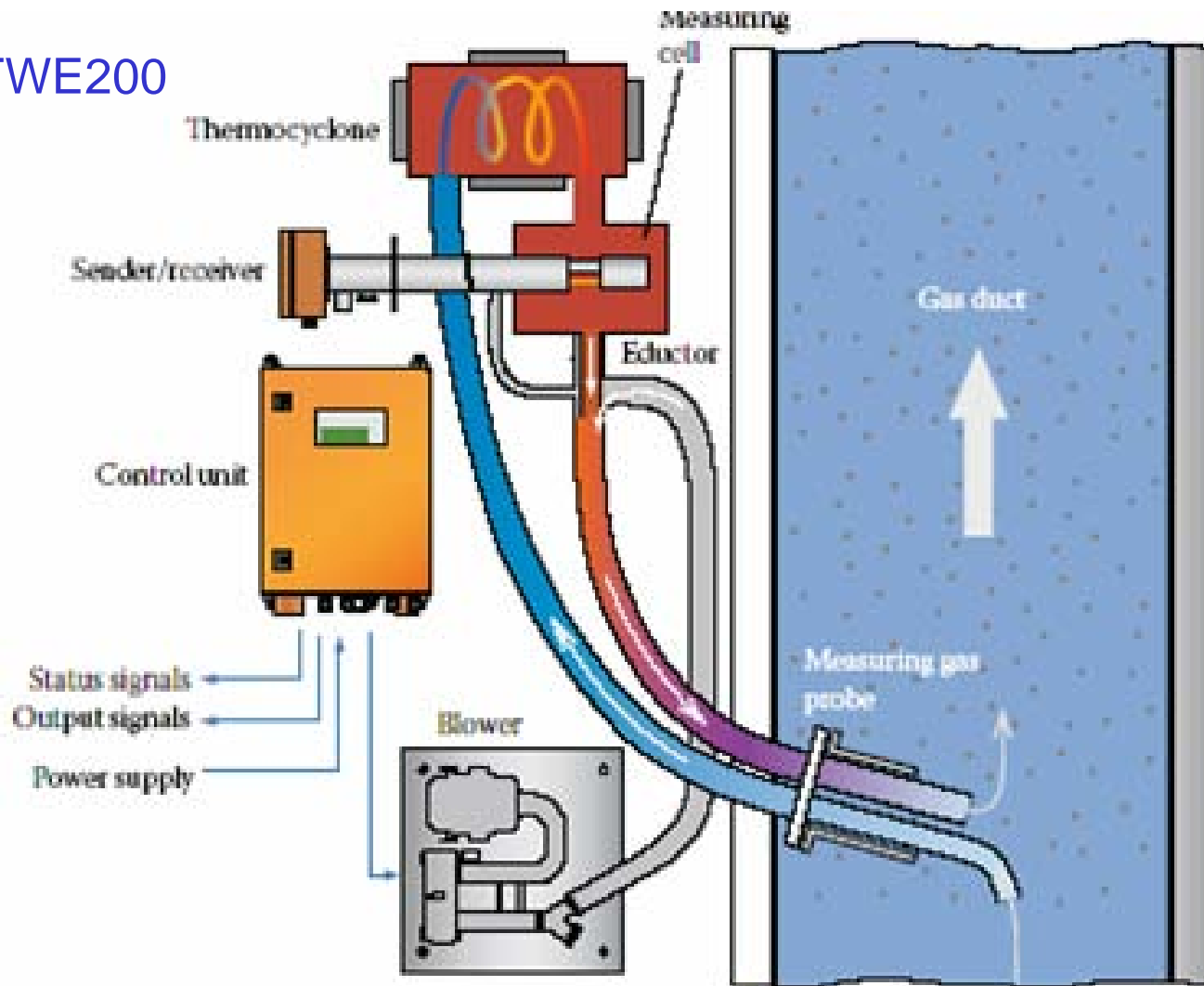
Application:



PM Measurement according to PS11.

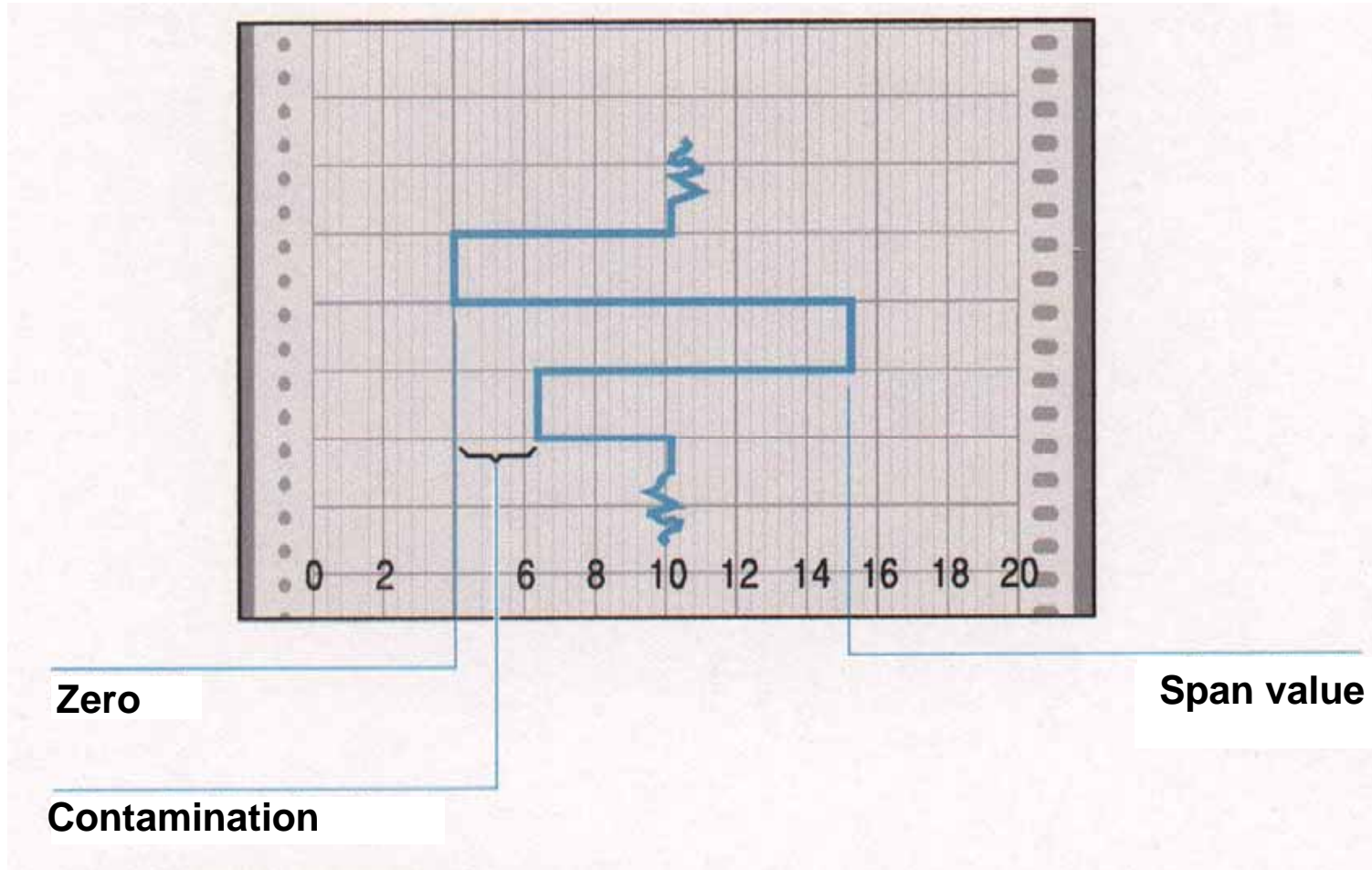
Scatter light principle in wet gas

FWE200



PM Measurement according to PS11.

FWE200: Control cycle



PM Measurement according to PS11.

Certifications for dust measurement in saturated flue gases

TÜV approved

MCERT approved

Meets the Specification PS 11



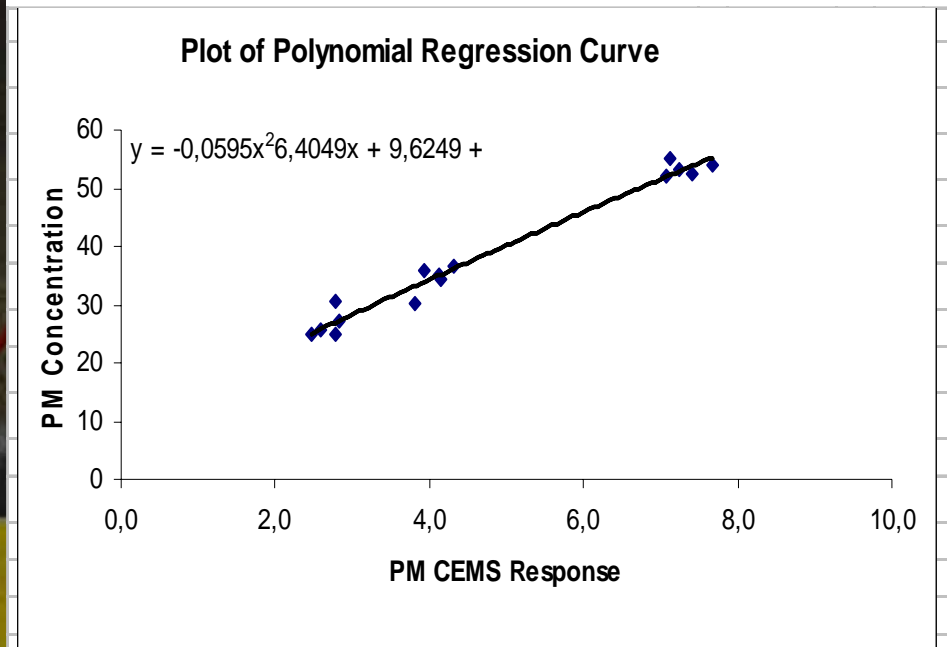
PM Measurement according to PS11.

Application:



Summary of Acceptance Criteria for PS-11

Criterion	Actual	Allowable	Acceptable?
Correlation coefficient	0,988	≥ 0.85	yes
Confidence interval	2,44%	$\leq 10\%$	yes
Tolerance interval	5,3%	$\leq 25\%$	yes

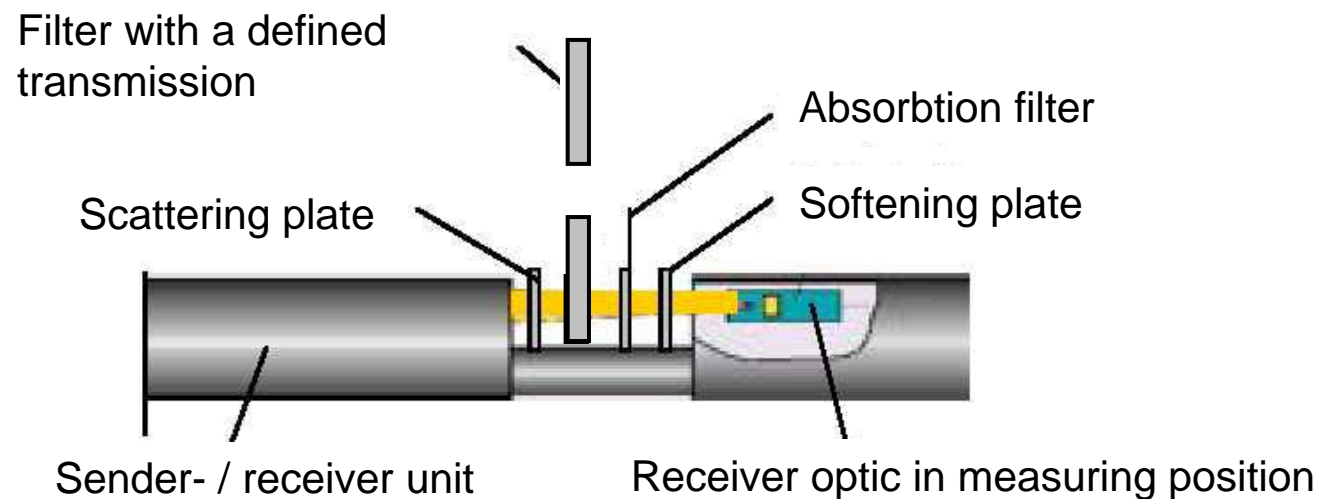


PM Measurement according to PS11.

Absolute Correlation Audit check

An ACA must be performed each quarter by means of 3 audit points within the monitor's measurement.

The FWE 200 uses a "Check Filter Set" to fulfil the ACA.



The laser beam is attenuated by the additional filter elements and is reduced to a defined value.

PM Measurement according to PS11.

Features:

- Continuous measurement of PM concentration, no batch measurement
- Mounting of the measuring device via one flange
- Allows detection of lowest practical relevant concentrations
- Simple installation and simple start up
- Reliable proven Technology

PM Measurement according to PS11.

SICK | MAIHAK

Thanks for your attention

Questions?