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MECONTROL

Boiler Combustion Optimization

Advanced Instrumentation for Improved Plant Operation

Headquarters in Germany
Privately Held
PROMECON USA Inc.
Sales & Service in North America

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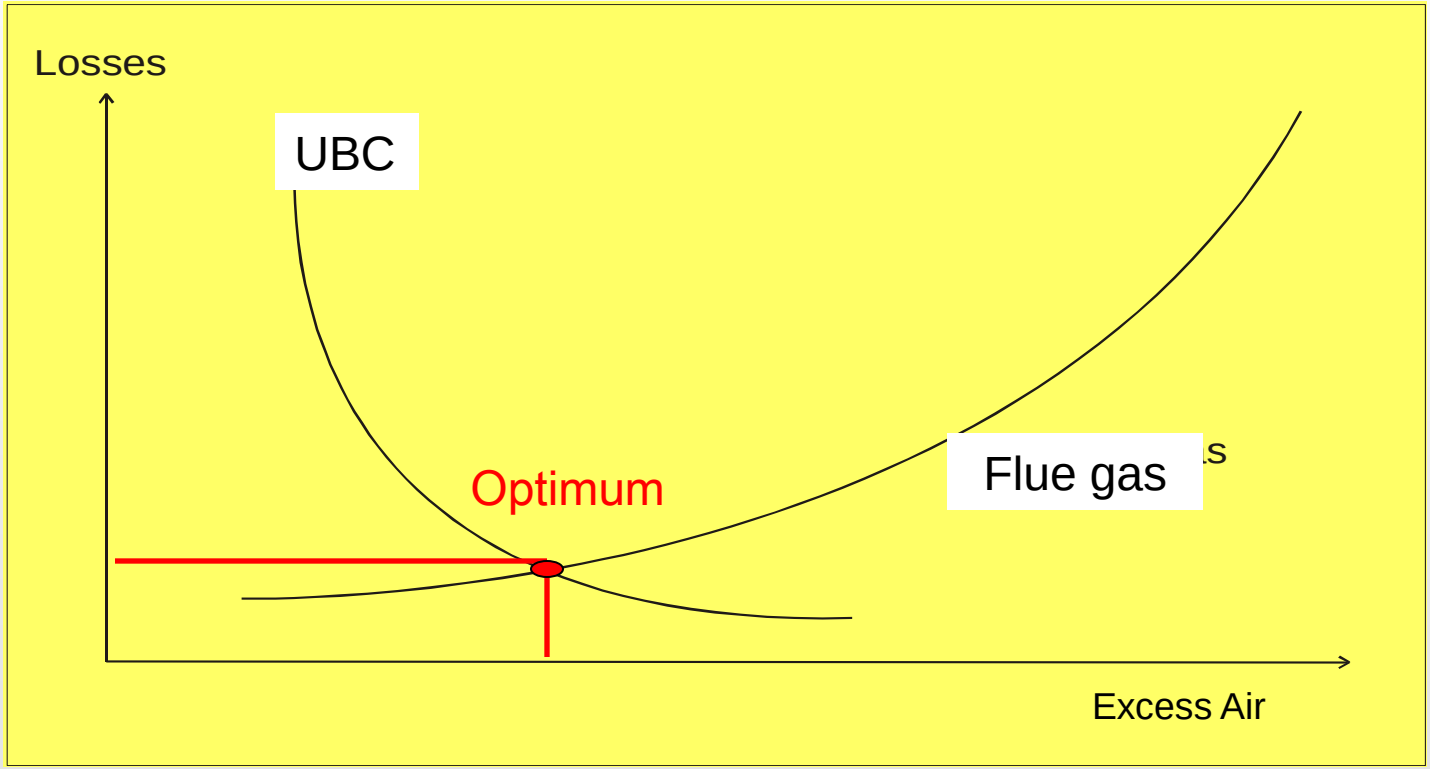
On-line Real Time UBC Measurement

- Optimize mill/boiler performance
- Accurate (+/- 0.6 percentage points)
- Certified ash for sale in Europe
- Minimal maintenance & calibration (1 moving part)
- Easy installation & operation
- Dependable with high market share
- Over 160 sensors operating worldwide
- Improves consistency of fly ash & sales
- Many advantages over extractive systems

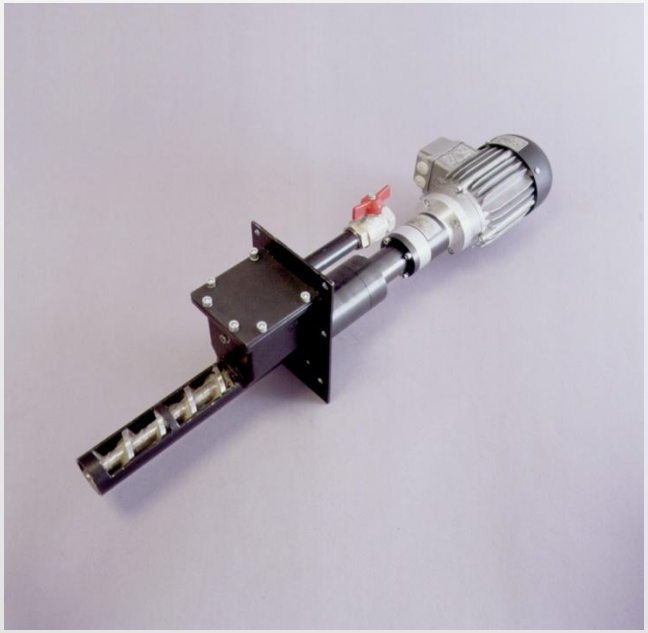
Efficiency Optimization Principle

Minimize energy losses from unburned carbon & flue gas -- function of excess air levels



PROMECON UBC Measurement Principle

Dielectric constant of fly ash is a function of the carbon content. Measuring the shift of frequency (microwave) in a resonator (Δ f) enables the carbon content to be calculated.

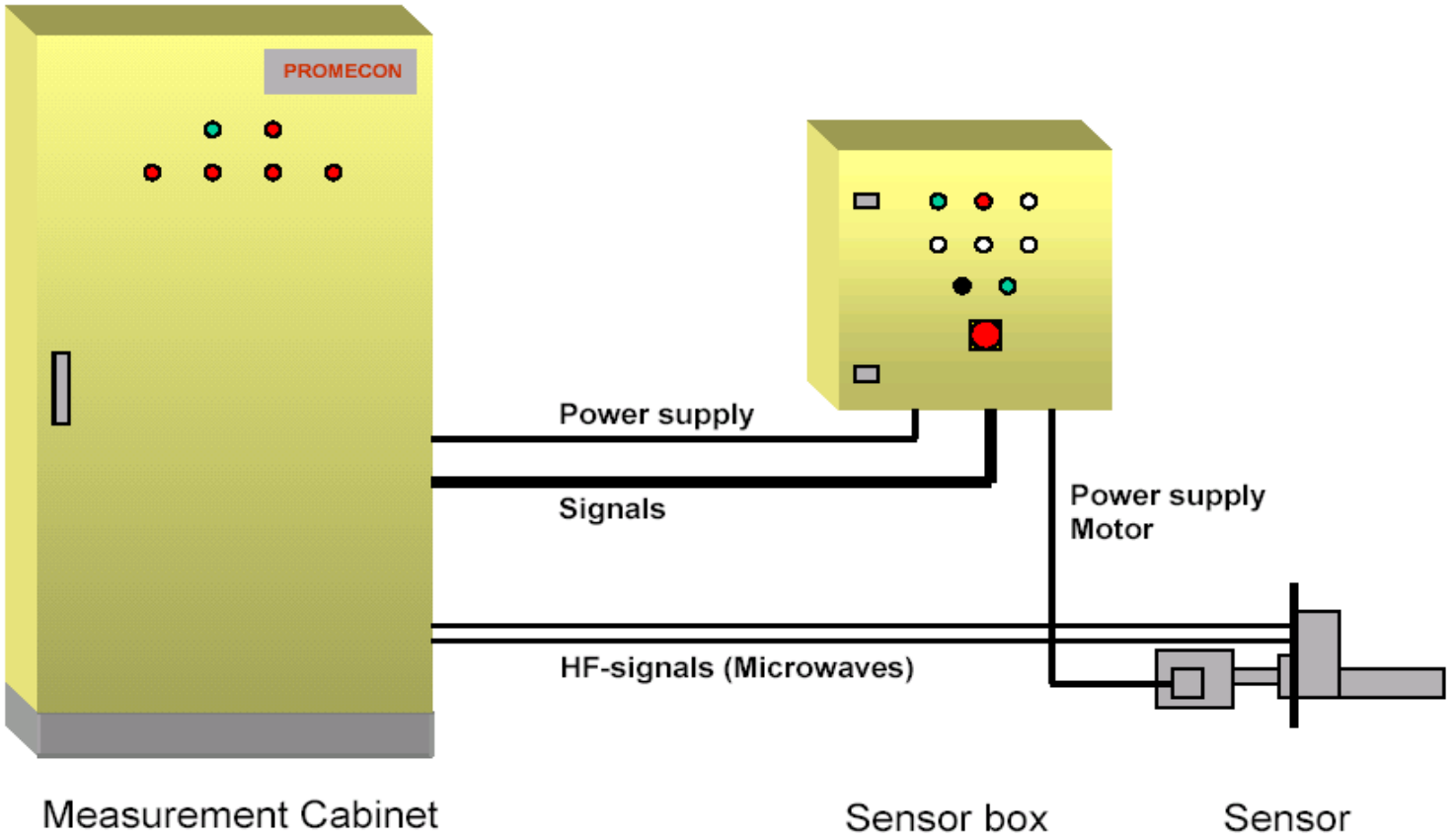


$$UBC = A + B \cdot \Delta f$$

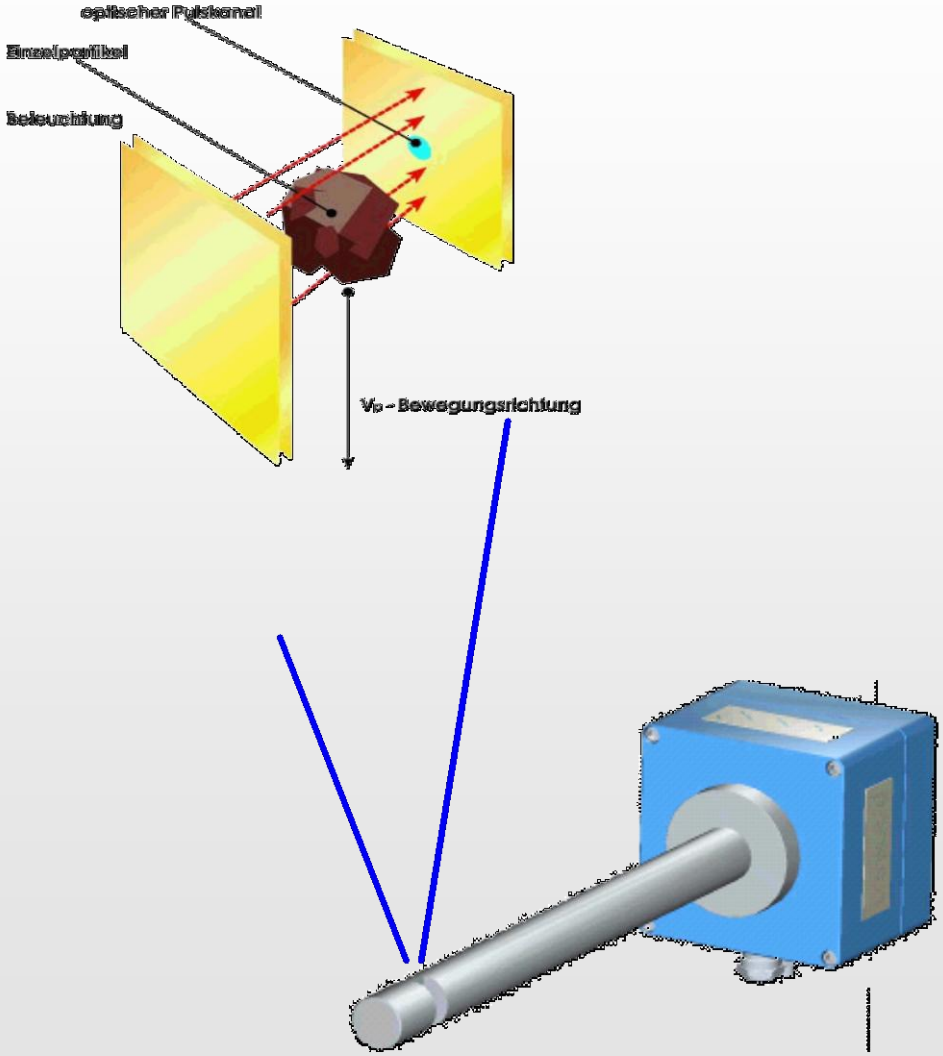
A and B are the calibration coefficients

MECONTROL UBC Design

we focus on your proces



Particle Size Analysis (PSA)



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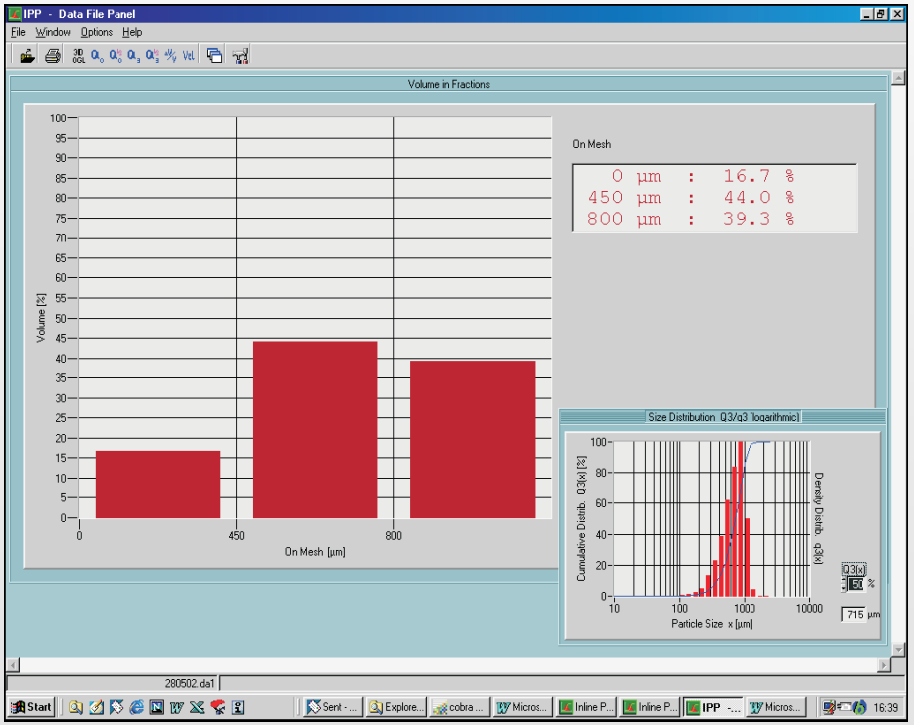
Particle Size Analysis (PSA)



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Particle Size Analysis (PSA)

Technical Data:

Measurement range:	Particle Size 30 - 6000 µm, Velocity 0.01 - 50 m/s
Materials	316L SS for In-line probe, Sapphire, epoxy resin optics
Pressure-cast aluminium for electronics enclosure	
Data rate:	Up to 10,000 particles per second, dependent on process conditi
Max Operating Pressure	4 bar
Operating Temp	-20°C to 130°C at measuring point, -10°C to 60°C on housing
Dimensions	Tube length = 280 mm (11 in), Tube diameter = 25 mm (1 in)
Air Supply	adjustable air flow meters, Pulse flow with adjustable timer or
continuous air,Flow Requires instrument grade compressed air	
Maximum cable length:	100 m

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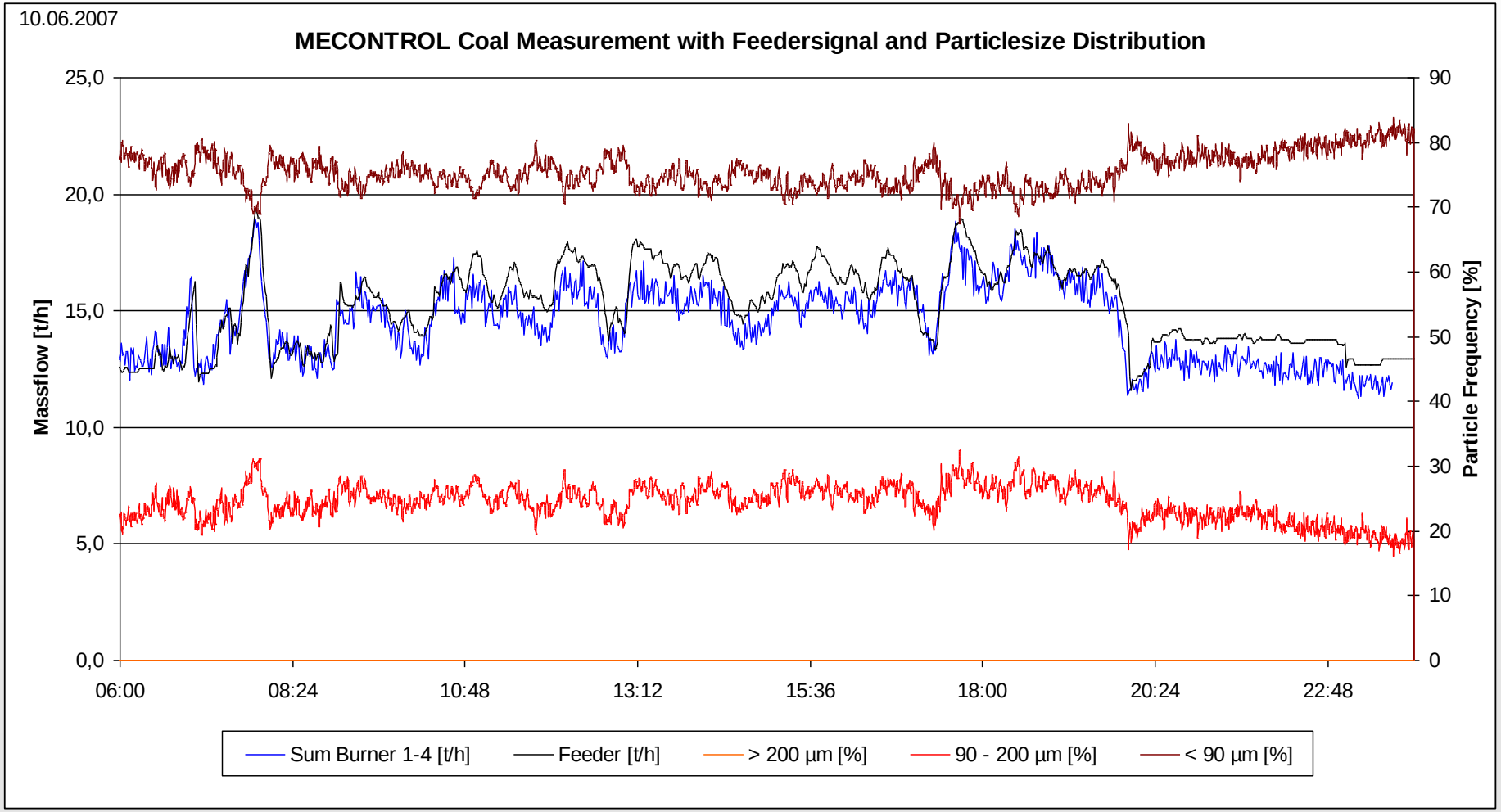
Particle Size Analysis (PSA)

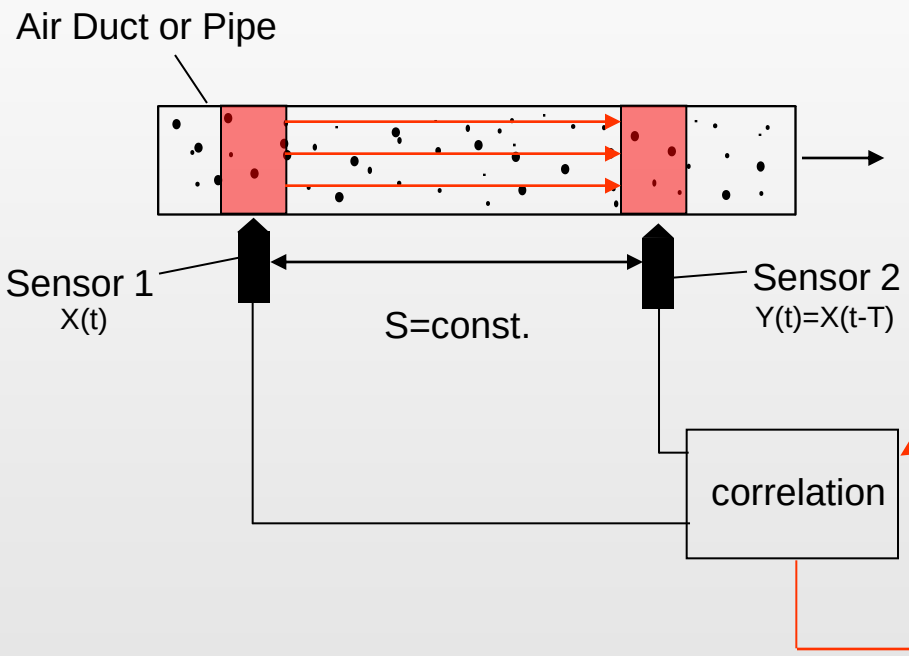
Test Data: PS Reuter West, Berlin

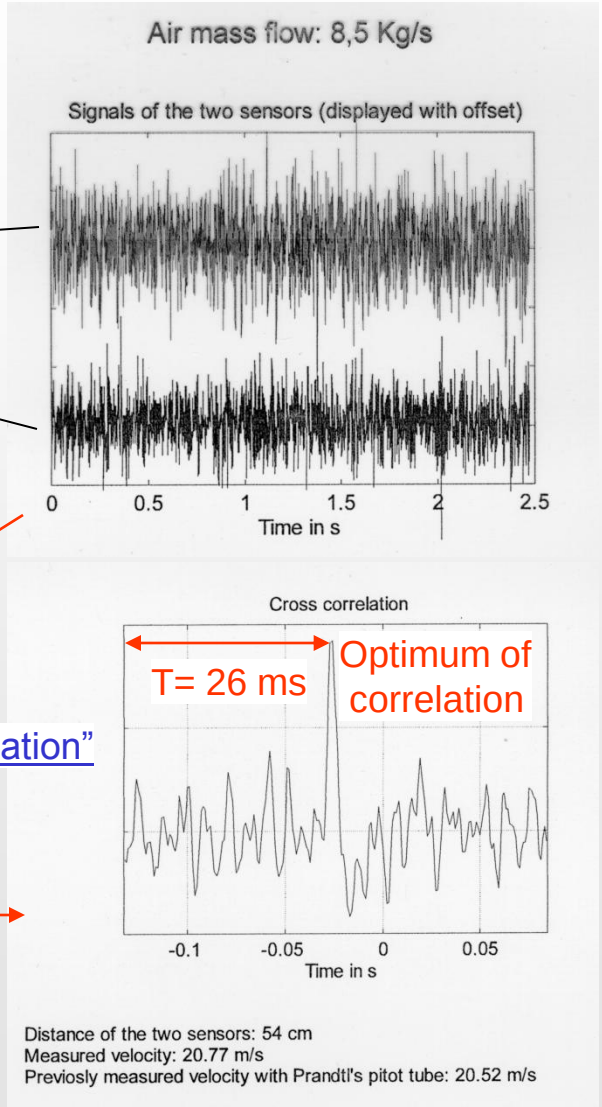


Air Flow System Specifics

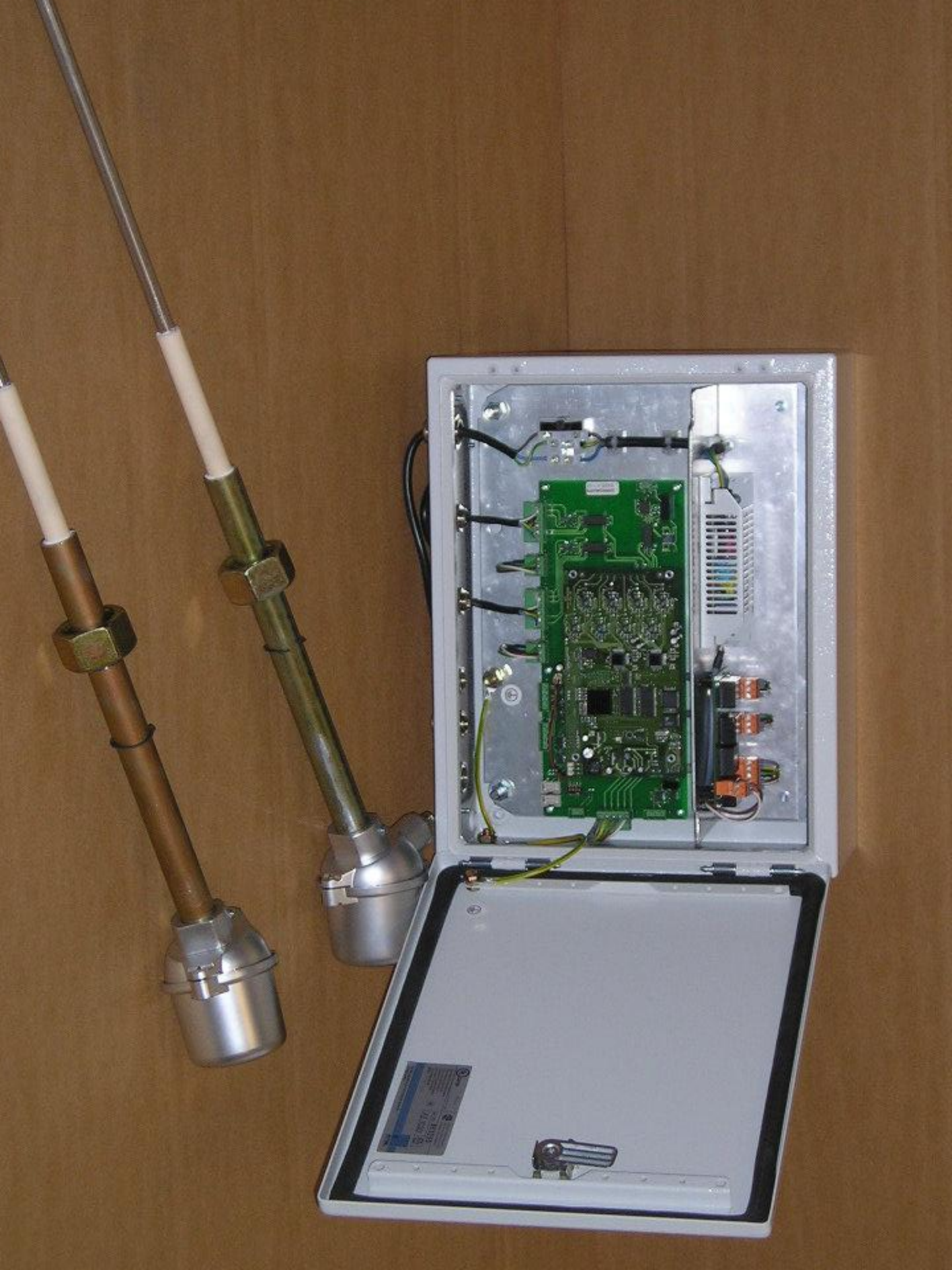
Time of flight (no pressure or temperature)
No calibration, no pressure drop
Very small amount of particulate required (1-2 mg/Nm3)
Solid stainless steel sensor rods, on-line installation
Average velocity over sensor length
Accurate (within 2%)
No influence from fouling & erosion
Each measurement requires 2 sensors 14” apart
Much less inflow length (2-3 diameters)
Pressure correlation sensors for clean air (FD fan)

MECONTROL Air/FG
Measurement Principle





Example
S=54 cm
T=26 ms → w=20.8 m/s (average velocity of the air !)



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Contact Information

Todd Melick
330-683-9074
todd.melick@promecon.us