

## Application Notes – Emissions Monitoring Power Industry

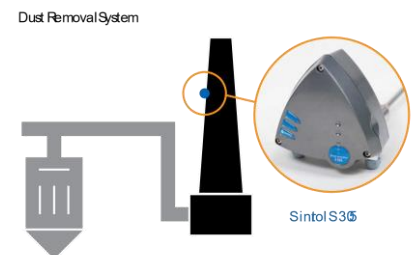
At Sintrol, we are committed to implementing solutions for our customer's problems. Our products are based on our unique Inductive Electrification technology and developed using a flexible modular based platform that allows us to tailor our products for the customer. While many dust monitoring systems are tailored towards the government regulated emissions limits, there are intermediary measurement points that can be just as critical to the costs and regulatory compliance of the end user. Managing the filtration systems is not only good for emissions, but also a strong indicator to help with maintenance and overall plant costs.

### Objective

Measure dust concentrations in the stack as part of a continuous emissions monitoring system for environmental regulatory control.

### Problem

A Spanish coal fired power plant was looking for a solution to measure its dust emissions from the stack. After the turbine process, the air is filtered using a baghouse and then released into the atmosphere. Due to the QAL 1 standard of European legislation, which certifies that the manufacturer's instrument has been evaluated and passed the EN standard, the monitor equipped needed to be TÜV certified for this application. The application was also challenged by the process temperatures in the power plant, which reached as high as 400–500°C at the point of measurement.



### Solution

Sintrol provided the power plant a customized S305 monitor equipped with a special configuration for the high temperature application. In addition to the monitor, a longer probe was provided to allow the electronics to stay further away from the process temperature. For further protection a cooling socket was provided to the plant that improved the cooling process from the stack to the electronics. The S305 monitor is TÜV certified to the QAL 1 standard, enabling the plant to meet the regulatory needs. The customer also looked into opacity meters as an option and chose Sintrol due to its reliability and lower cost. After the initial installation was complete and running, the customer purchased two additional units for other emissions points in the plant

### Principle of Operation

Sintrol dust monitors are based on a unique Inductive Electrification technology. The measurement is based on particles interacting with an isolated probe mounted into the duct or stack. When moving particles pass nearby or hit the probe a signal is induced. This signal is then processed through a series of Sintrol's advanced algorithms to filter out the noise and provide the most accurate dust measurement output.

Classic triboelectric technology is based on the DC signal, which is caused by particles making contact with the sensor to transfer charges. Compared to DC based measurements, the Inductive Electrification technology is more sensitive and minimizes the influence of sensor contamination, temperature drift and velocity changes. By using the Inductive Electrification technology, it is possible to reach dust concentration measurement thresholds as low as 0.01 mg/m<sup>3</sup>.

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