

# SO<sub>3</sub> MONITOR



**Continuous SO<sub>3</sub> Measurement**



**Online Monitoring**

# SO<sub>3</sub> Monitor

How much SO<sub>3</sub> do you generate?



Sulphur trioxide (SO<sub>3</sub>) is formed as a by-product during the combustion of fossil fuels for power generation and is also used or produced in many industrial processes. At temperatures below about 200°C, it combines with water vapour to form sulphuric acid which has deleterious effects on plant surfaces and on the environment.

In power generation, SO<sub>3</sub> measurements provide data to allow the operator to burn fuel in the most efficient way to minimise corrosion of the plant and limit acid discharges to the environment. Monitoring of SO<sub>3</sub> is also important where it is formed as a by-product, e. g. in DeNO<sub>x</sub> systems.

The Pentol SO<sub>3</sub> monitor has been designed to meet a wide range of measuring requirements. The instrument is portable and suitable for long- and short-term measurements.

The unit is auto-calibrating in a user defined cycle.

In addition to the analogue 4 ... 20mA output, the SO<sub>3</sub> monitor is equipped with an electronic data logger to record the measurements. Data can be exported to Excel for further processing.





## OPERATING PRINCIPLE

The SO<sub>3</sub> or H<sub>2</sub>SO<sub>4</sub> in the gas sample is absorbed as sulphate ions (SO<sub>4</sub><sup>2-</sup>) in an aqueous solution of propan-2-ol in water. The solution is passed through a bed of barium chloranilate. The acid chloranilate ions created are measured in a continuous flow photometer. By maintaining a constant ratio of flow rates for the gas and the propan-2-ol absorbing solution, the concentration of acid chloranilate ions can be directly related to the sulphate ion concentration in the absorbing solution, and hence the SO<sub>3</sub> concentration in the gas.



## TECHNICAL SPECIFICATION

Range	1 - 200 ppm
Accuracy	+/- 5 % of reading (in calibrated range)
Lag time	approx. 60 seconds
Response (90 % FSD)	approx. 120 seconds (depending on umbilical length)
Solution consumption	0.25 - 2 cm <sup>3</sup> /min (adjustable as required)
Ambient temperature	0 - 40 °C
Module dimensions	
Analysis Module	19" unit, 6U high, 500 mm deep (27 kg)
Control Module	19" unit, 4U high, 500 mm deep (13 kg)
Power Requirement	230 V 50/60 Hz or 110 V 50/60 Hz, 350 W
Probe Length	1 m, 1.2 m, 1.5 m, 2 m
Signal Output	4 ... 20 mA output for recorder RS232 to PC connector on request

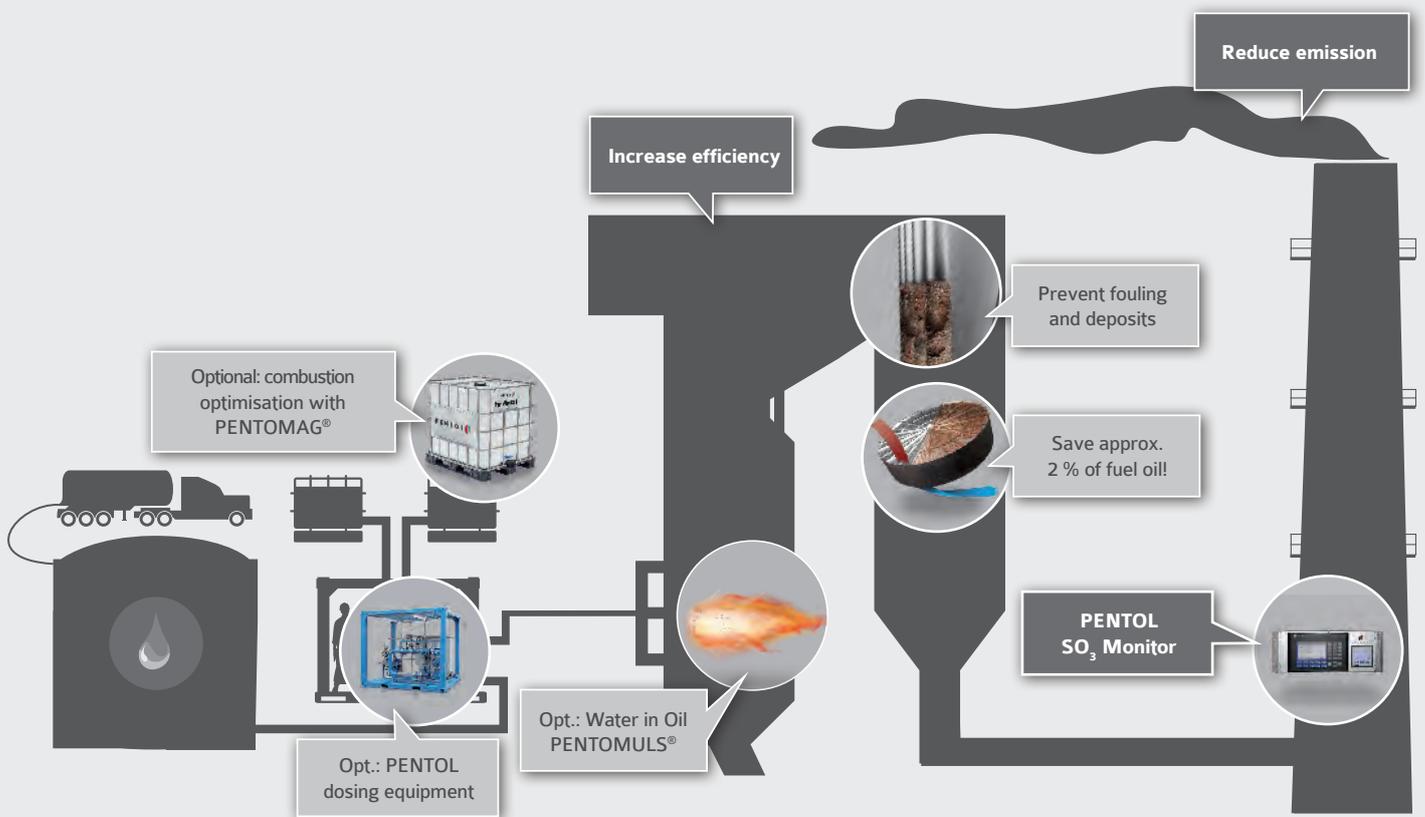


Measuring SO<sub>3</sub> is one thing. Pentol offers complementing products to reduce SO<sub>3</sub> emissions and to neutralise any condensing SO<sub>3</sub>.

Visit our website to find out more or contact our sales staff.  
[www.pentol.com](http://www.pentol.com)

# SO<sub>3</sub> Monitor

Continuous SO<sub>3</sub> Measuring in Industrial Applications and Power Plants



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