

SO₃ Monitor

HOW MUCH SO₃ DO YOU GENERATE?



Sulphur trioxide (SO₃) 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 vapor to form sulphuric acid which has deleterious effects on plant surfaces and on the environment.

In power generation SO₃ measurements provide data to allow the operator to burn fuel in the most efficient way to minimize corrosion of the plant and limit acid discharges to the environment. Monitoring of

SO₃ is also important where it is formed as a by-product, e.g. in De-NO_x systems.

The Pentol SO₃ 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.

An optional RS232 connector allows to record the measurements on a laptop.





OPERATING PRINCIPLE

The SO₃ or H₂SO₄ in the gas sample is absorbed as sulphate ions (SO₄²⁻) 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 SO₃ concentration in the gas.



TECHNICAL SPECIFICATION

Range	0 - 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 ³ /h (adjustable as required)
Ambient temperature	0 - 40°C
Module dimensions	
Analysis	19" unit, 6U high, 500mm deep (27 kg)
Control	19" unit, 4U high, 500mm deep (13 kg)
Power Requirement	230V 50/60 Hz or 110V 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 SO₃ is one thing. Pentol offers complementing products to actually reduce SO₃ emissions and to neutralize any condensing SO₃. Visit our website to find out more or contact our sales staff.

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