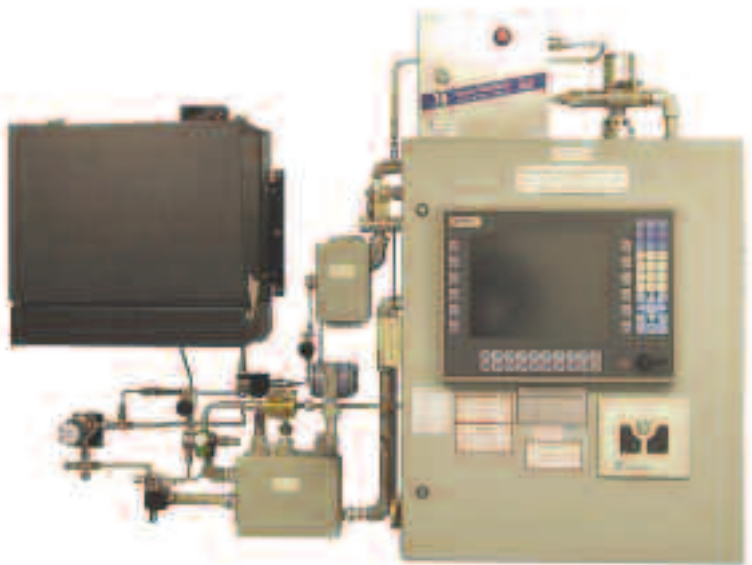


SO2 CONTINUOUS EMISSION MONITOR SYSTEM



**MODEL
BRM 997
CEMS SYSTEMS**

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Continuous Emission Monitoring (CEM) Systems are mandatory on virtually all industry waste chimneys or stacks today.

Depending on the industrial process and regulatory agency requirements, the CEM could be required to report the pollutant of interest on an oxygen (O₂) free, dry basis or, on a mass basis (tons per day, pounds per hour).

Brimstone Instrumentation Ltd. offers systems that comply with both requirements.

THE BRIMSTONE INSTRUMENTATION SYSTEM

Because the O₂ free basis system measures the pollutant on a dry basis, a sample dryer is incorporated in the sample system. The concentration of oxygen is also measured and the measured dry pollutant concentration is corrected to zero oxygen.

The mass emission system measures the pollutant concentration on an as-is (hot/wet) basis and incorporates gas stream velocity and temperature measurement devices.

The volume flow rate of the effluent is determined along with the mass emission rate of the pollutant of interest.

BRIMSTONE'S CEM SYSTEM

The mass style of CEM system is complete with a velocity measuring device suitable for an accurate measurement of the gas velocity for a given chimney or stack. A variety of different measurement techniques and hardware devices (pitot tube, annubar, Kurz probe, etc.) are available and necessary since no one sensor is applicable for all ranges of velocities, temperatures, etc. Brimstone selects the appropriate device based on the engineering data for your application. The stack gas temperature measurement is achieved with a thermocouple selected and calibrated for your stack gas temperature range.

The stack gas volumetric flow rate is calculated by the system computer using the data from the velocity device, the gas temperature and other parameters including the stack diameter, specific gravity, profile factor, etc. The SO₂ concentration and volume flow rate are combined and the mass emission rate for the SO₂ is calculated and output in terms of either SO₂ or sulfur. Outputs provided are the instantaneous values for SO₂ concentration, volume flow rate and mass emission rate.

SAMPLE CONDITIONING UNIT

The sample conditioning unit is installed at the sample point. It is complete with the sample probe assembly and filter assemblies. The sample probe assembly typically includes the velocity and temperature measuring devices.

SO₂ ANALYZER SYSTEM

The SO₂ analyzer system may be mounted either up the stack near the sample point or at grade. For either case, the sample is transported from the sample conditioning unit to the SO₂ analyzer in a heated sample line. The plumbing, fittings and valving required for the introduction of calibration gases as specified by the appropriate regulatory agency, are included with the analyzer system. The calibration gas cylinders and their associated regulators and shut-off valves are not included as part of the analyzer system. Materials in contact with either the sample or the calibration gases are stainless steel, anodized aluminum or Teflon®. A version of the SO₂ analyzer system suitable for use in Class I Division 2 Groups C & D T3 areas is available.

VELOCITY PANEL

The velocity panel is usually installed adjacent to the SO₂ analyzer system. In cases where the velocity measuring device is an "S type" pitot tube, the valving required for back purging of the pitot tubes and the differential pressure measuring device are mounted to this panel.

MODEL BRM 991 CEM SYSTEMS

PERFORMANCE SPECIFICATIONS:

Auto Calibration:	User Selectable Frequency
Zero Drift:	< 0.25% of Full Scale Per Day (based on Auto Zero once per hour)
Accuracy:	± 1.0% of Full Scale
Sensitivity:	± 1.0% of Full Scale
Linearity:	± 1.0% of Full Scale
Repeatability:	± 1.0% of Full Scale
Response Time:	Analyzer - instantaneous Total system – sample line dependant

OUTPUTS

Ranges:	0 to 100 ppm up to 0 to 100%
Signals:	4 - 20 mA (loop or self-powered) Various DC Voltages Alarm Relay Contacts

SERVICES REQUIRED:

Electrical:	110/220V - 1Ø – 50/60 Hz – 1500W for analyzer assembly 110/220V - 1Ø – 50/60 Hz – 1500W for on-stack devices
Instrument Air:	17 SCFM at 80 psi (maximum case with vortec cooler)
Calibration Standards:	Bottled, Regulated

AREA CLASSIFICATION:

SO2 Analyzer System:	General Purpose or Class I Division 2 Groups C & D T3
Sample Conditioning Unit:	General Purpose

SPECIFICATIONS SUBJECT TO CHANGE

PLEASE NOTE:

This document and any drawings accompanying it are provided for information only. They are not to be used for construction and are subject to change without notice.

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