

Model 914 Continuous Emission Monitor (CEM)

Description

The Continuous Emission Monitor (CEM) uses dry extractive sampling techniques designed to meet government regulations for all types of compliance monitoring.

The sample extraction system is designed for primary conditioning of the sample gas. Combining a temperature-controlled conditioning unit and a heated sampling line ensures integrity of the sample gas. The sample gas is then dried (moisture removed) as required and introduced into the instruments.

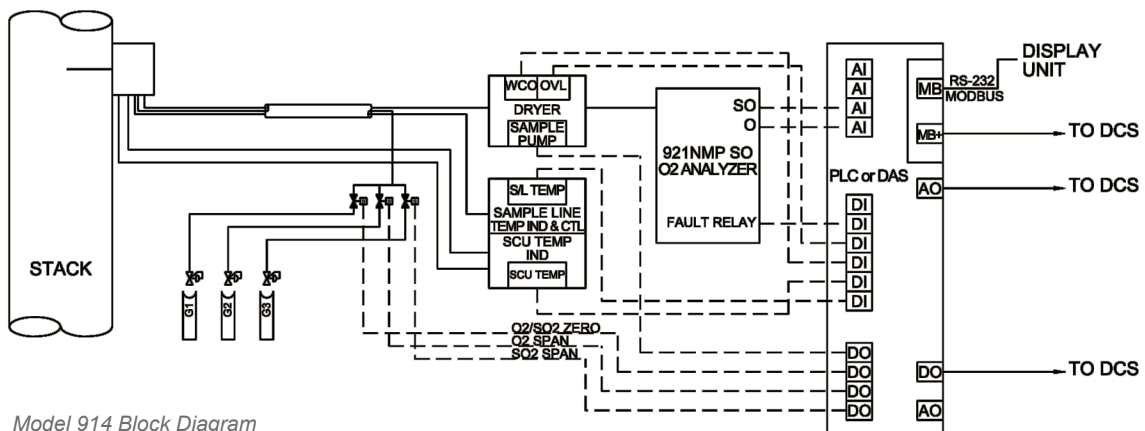
The CEM uses AMETEK Western Research's Model 9000RM for SO₂ and NO_x analysis, which are the standard parameters. Model 9000RM can do other species like H₂S, NO₂, NO, NH₃, Cl and the measurement of O₂ can be provided in addition to that by an integrated paramagnetic cell. For CO and CO₂ analysis, when required, an appropriate analyzer is integrated in to the system. Mass flow measurement to determine mass emission of measured species is provided by utilizing devices like S-type Pitot tube or optical detection along with temperature measurement.

The instruments are mounted in a free-standing standard 19-inch open rack. Optional considerations are: an enclosed rack, a free-standing enclosure or a walk-in shelter for environmental reasons.

Optional on the CEM is the computer data acquisition system or programmable logic controller providing data collection and control functions for customer specific reporting and auto calibration.



Example of a Model 914 mounted in a free-standing enclosure



Model 914 Block Diagram

Model 914 Continuous Emission Monitor (CEM)

Performance Specifications

Methodology: Standard - NDUV, NDIR, Zirconium Oxide, Paramagnetic O₂

Calibration: DAS/DCS/PLC or selected analyzer, initiated automatically using instrument air and calibration gas standards

Sensitivity: Instrument dependent

Outputs: Designed to meet customer specifications (standard voltage, current or serial)

Range: Designed to meet customer specifications

Reporting: Customer-defined format for reporting or regulatory agencies. EPA Part 60 and Part 75.

Alarms/Calculations: Designed to meet customer specifications

Electrical Requirements: 120/208 VAC or 110/220/240 VAC 50-60 Hz

Typical Flow: 2 to 10 SCFH

Ambient Temperature: 7 to 49 °C (45 to 120 °F), 5 to 95% relative humidity, non-condensing

Physical Dimensions: Application dependent

Current Configurations

Analyzers Available

Multi species NDUV + paramagnetic oxygen

Model 9000RM for SO₂, H₂S, NO, NO₂, NOx, O₂, NH₃, Cl

Mass flow

S-type pitot tube, optical, etc.

Single species NDIR

Various analyzer models available (Siemens, California Analytical, Servomex)

Zirconium oxide

Thermox O₂ analyzers

Probes Available

AWR emission probe

AWR mass emission probe

M&C probe, c/w calibration port, (optional, blow back, and sample isolation valving)

AWR velocity probe (used separate with M&C for mass)

Universal probe for Division II applications

Sample System

Sample lines – temperature controlled, self-limiting electrical (O'Brien, Technical Heaters)

Sample dryers – thermoelectric (Baldwin Environmental, Inc. and others)

Rack Components

Basic 19" x 24" rack (no panels)

Pressure control panel

Temperature control panel

Customer termination and system alarm panel

Flow distribution panel(s)

Rack fans (optional)

Data Acquisition and Control System

Allan Bradley PLC

WTC and VIVICOM DAS (others available upon request)

Shelter/Enclosure

Open 19" x 24" rack

Enclosed 19" x 24" rack

Fiberglass or metal free-standing enclosure

AMETEK's standard walk-in shelters (optional desk/workbench)

Area Classifications

Model 914 CEM rack system in General Purpose and Division II (purged)

Wetted Components

316 SS tubing, fittings (Swagelok only) and cell construction

Teflon tubing

Quartz glass (cell windows)

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