

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 only instruments that have proven reliable over many years of use. Recommended analyzers include the AMETEK Western Research Model 921 (SO₂) and 922 (SO₂/NO_x) analyzers.

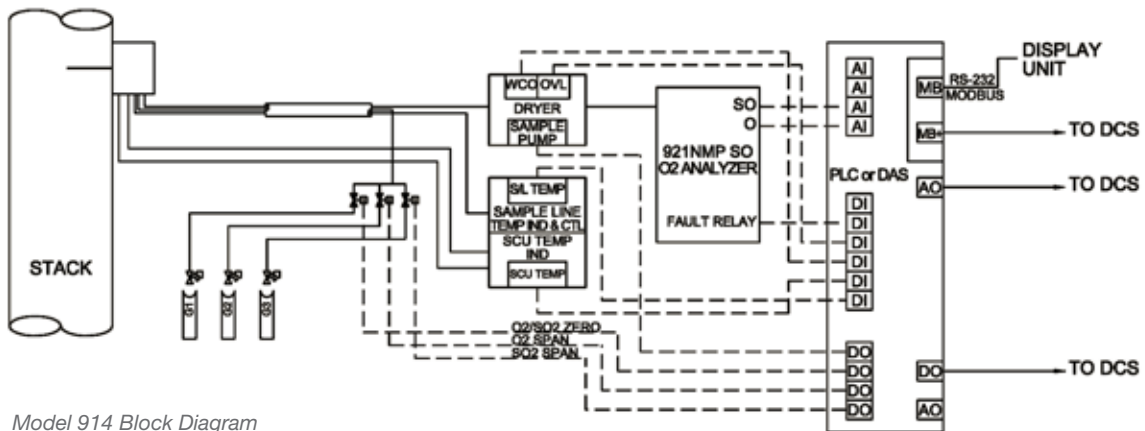
The AMETEK standard parameters are listed above. Other species for the 921 and 922 are SO₂, H₂S, NO₂, NO, (NO_x – 922 only), NH₃, Cl, and O₂ provided by an integrated paramagnetic cell. If CO/CO₂ or stand-alone analysis is required, an appropriate analyzer may be incorporated and integrated into the system. Mass flow measurements (to determine mass emission of a measured species) may be provided utilizing a variety of flow devices (S-type pitot tubes or optical detection) along with a temperature transmitter and thermocouple.

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

Single species NDUV + paramagnetic oxygen

Model 921 SO₂, H₂S, NO, NO₂, O₂, NH₃, Cl

Multi species NDUV + paramagnetic oxygen

Model 922 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)



PROCESS INSTRUMENTS
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One of a family of innovative process analyzer solutions from AMETEK Process Instruments.
Specifications subject to change without notice.

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