Monitoring | Solutions

Leaders in Environmental Monitoring Systems & Services

CODEL Monitoring Solutions

VCEM5100

GAS FLOW MONITOR

The VCEM 5100 is a low-cost flue gas flow monitor that can be utilized in both non-compliance process and EPA compliance applications.

Description

The **VCEM 5100** is a gas flow monitoring system that can be used as a stand-alone monitor or easily integrated into a complete CEM system. It includes a dedicated Data Display Unit for local data interrogation.

The **VCEM 5100** measures the velocity of stack gases using a highly accurate time of flight measurement that is derived from a cross-correlation analysis of the infra-red emissions of the turbulent gas. Two robust infrared detectors are used for the prime sensing, mounted on the stack or duct typically 1m apart in the direction of flow. High-efficiency air curtains are fitted to considerably extend the time between maintenance periods and window cleaning (typically 1 year). The total release is then calculated as follows: Mass flow = Mass concentration x Gas velocity x Area of Duct

Operating Principle

The method used is similar in principle to the technique of flow measurement by the injection of chemical dye or radioactive tracers, where the velocity is derived from the transport time of the tracer between two measuring points a known distance apart. Instead of an artificial tracer being added, the naturally occurring turbulence of the gas stream is used as the tracer.

Features and Benefits

- Non-contact technology enables operation on hot, dusty and aggressive gases
- It measures directly the bulk gas velocity
- No moving components delivering low maintenance, and high measurement availability
- Can operate at gas temperatures more than 1832°F
- Equipped with full high and low span automated calibration checks

Signal Processor Unit (SPU)

Data Display Unit (DDU)

APPLICATIONS

- Compliance CEMS
- Part 75 Plants
- Non-compliance stacks and ducts

MONITORING SOLUTIONS

Complete source for all your Continuous Emissions Monitoring (CEMS) needs:

- Both Dilution and Extraction CEMS systems
- Data Acquisition Systems (DAS)
- Flow Monitoring
- Opacity Monitoring
- Oxygen Monitoring Systems
- Particulate (PM) Monitoring
- Process Monitoring Systems

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TECHNICAL SPECIFICATIONS

Receiver Unit

Operating Principle	Infrared correlation
Measuring units	m/s, m^3/s
Detectors	Lithium tantalite pyroelectric
Receiver Separation	0.5 to 1m
For duct Diameters	0.5 to 15m
Accuracy	+/- 2% of measurement
Linearity	+/- 1% of measurement
Response Time	Minimum 10 seconds
Measuring Range	Fully selectable from 0-1 up to 0-50m/s
Certified Range	3 - 50 m/s
Resolution	0.1 m/s
Drift	0.1 m/s per month
Averaging	4 rolling averages selectable from 10 seconds to 30 days
Calibration	Auto low and high span check (US EPA compliant)
Ambient Temperature	-20°C to +70°C
Flue Gas Temperature	70°C minimum, No upper limit
Power Supply	48V DC from Signal Processor Unit (SPU)
Construction	Corrosion resistant epoxy coated aluminum housing sealed to IP66

Signal Processor Unit (SPU)

Construction	Epoxy-coated aluminum to IP67
Ambient Temperature	-20°C to +50°C
Power Supply	48V DC supplied from Power Supply Unit (PSU)

Power Supply Unit (PSU)

Construction	Epoxy-coated aluminum to IP67
Ambient Temperature	-20°C to +50°C
Power Supply	Mains 110/230 VAC, single phase, 50/60Hz - 48V DC output to Signal Processor Unit (SPU)

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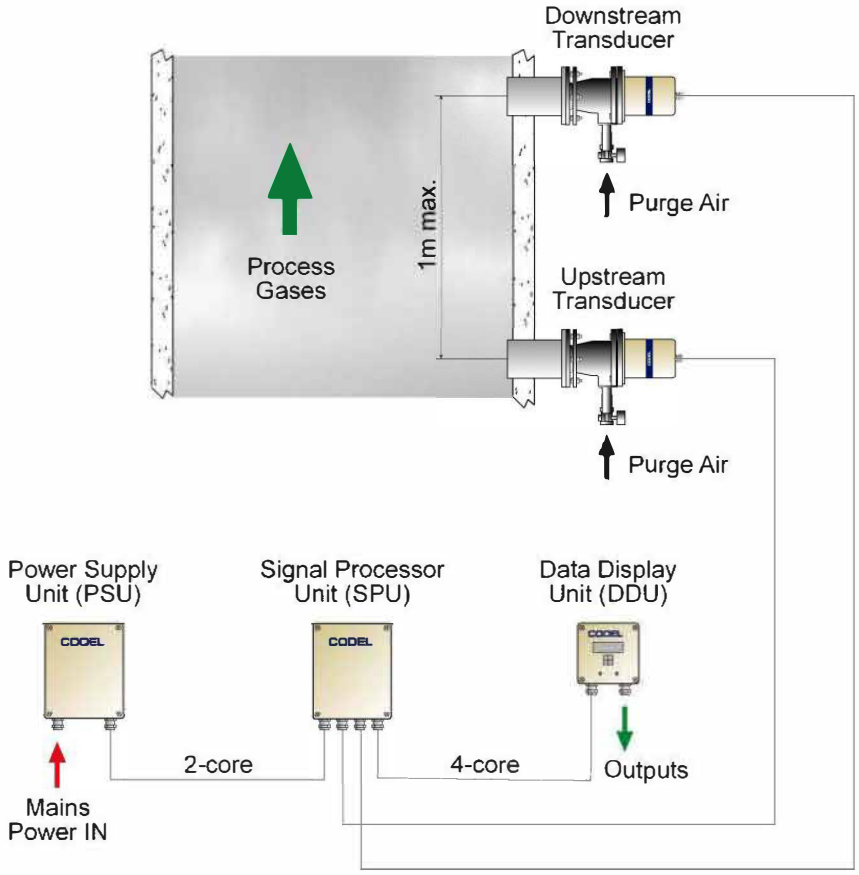
Services

Power	Mains 110/230 VAC, single phase, 50/60Hz
Air Requirement	Clean and dry compressed air, 1 litre/sec @ 2 bar

Optional Items

Fail-safe Shutter	Automatic shut-off valve in case of compressed air or power failure



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