

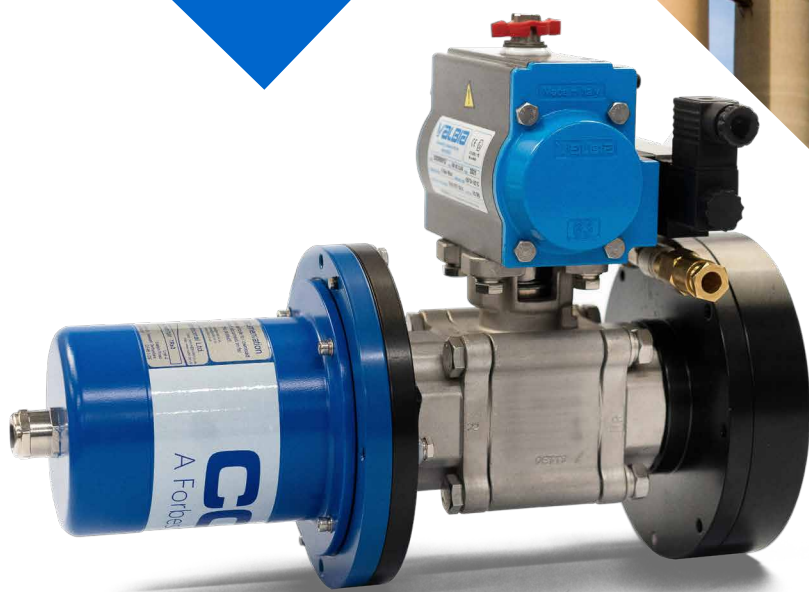
CODEL

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Product Brochure

DCEM2100 Opacity/Dust Monitor

Opacity, mg/m³, mg/Nm³, Extinction



The DCEM2100 represents the latest generation of CODEL's unique opacity/dust monitors.

The DCEM2100 is a CEMS dual-pass dust monitor configured for the continuous measurement of opacity and dust in flue gases.



ISO 9001:2015

Quality Certification

ISO 14001:2015

Environmental Certification

Monitoring Solutions

SmartCem

www.codel.co.uk

The DCEM2100 provides a continuous measurement of opacity or dust concentration in flue gases by continuously measuring the transmissivity of visible light across a process duct or stack.

Its dual-pass optical arrangement is based on twin transmissometers measuring in opposing directions through the same section of the gas stream, providing not only an accurate average of the dust loading, but also providing a unique dynamic assessment of any misalignment errors due to stack movement.

The measurement of opacity or particulate (dust) emissions from a process stack by measuring changes in optical transmission is simple in concept, but the monitor must be insensitive to any other factors that degrade the optical transmission such as contamination of optical surfaces or gross misalignment.

Features and Benefits

- ▶ Various path lengths from 0.5m to 15m with longer path lengths available on request
- ▶ Certified range of 0 to 0.1 Ext (0 - 20% opacity or 0 - 10 mg/m³ at 5m)
- ▶ Automatic shut-off valve in case of compressed air or power failure
- ▶ Fully selectable measurement range in % opacity, mg/m³, mg/Nm³, extinction
- ▶ TUV and MCERT certified.

Typical Applications

- ▶ Cement industry
- ▶ Waste incineration
- ▶ Power industry
- ▶ Wood industry
- ▶ Monitoring of filter plants
- ▶ Monitoring of ventilation units
- ▶ Chemical industry
- ▶ Steel industry

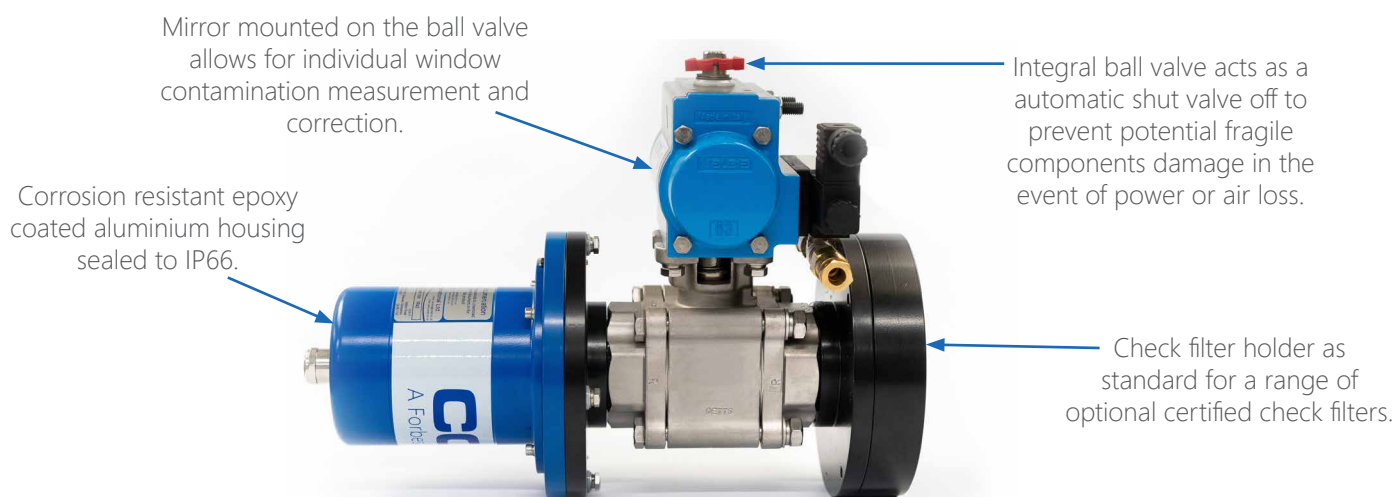
The DCEM2100 is CODEL's proven dust monitor, designed for use in various applications and certified to QAL1.

Dust Density Output

The outputs can be expressed in % opacity, extinction and after gravimetric calibration, in mg/m³ or mg/Nm³ (corrected to standard oxygen, temperature, pressure and H₂O).

Contamination Compensation

A mirror mounted on the ball of the instrument can be automatically rotated into and out of the optical path of each transceiver. This enables the individual window contamination to be measured and corrected for each transceiver.



Technical Specification

Sensor Unit

Operating Principle	Dual-pass transmissometer
Measuring units	% opacity, mg/m ³ , mg/Nm ³ , extinction
Optical Path Length	0.5 to 15m, longer path lengths available on request
Accuracy	+/- 0.2% opacity
Response Time	10 Seconds
Measuring Range	Fully selectable in % opacity, mg/m ³ , mg/Nm ³ , extinction (Example 0 - 5000 mg/m ³)**
Certified Range	0 to 0.1 Ext (0 - 20% opacity or 0 - 10 mg/m ³ at 5m)
Resolution	0.1% Opacity or 0.1 mg/m ³
Calibration	Auto zero and auto span
Ambient Temperature	-20°C to +50°C (Certified) / -20°C to + 60°C (Maximum)
Flue Gas Temperature	600°C maximum (Red LED) - up to 850°C Available On Request
Power Supply	48V DC from Signal Processor Unit (SPU)
Construction	Corrosion resistant epoxy coated aluminium housing sealed to IP66

Compliances

EMC	89/336/EEC directive compliant
Low Voltage	73/23/EEC directive compliant
TUV Certified (QAL1)	EN 15267-1 : 2009 & EN 14181 : 2004 , EN 15267-2 2009 & EN 15267-3 2007

Customer Interface

Analogue Outputs	2 x 4-20mA current outputs as standard, isolated, 500Ω load max, fully configurable from keypad
Logic Outputs	2 x volt-free SPCO contacts, 50V, 1A max, configurable as alarm contacts 1 x volt-free SPCO contact, 50V, 1A max, for data valid signal
Inputs	1 x volt free logic input for plant status or remote calibration initiation
Serial Data	RS485 MODBUS protocol (Optional)
Display	32 Character alpha-numeric back-lit LCD
Keypad	4-key soft-touch entry

Services

Power	Mains 88 - 264 VAC, single phase, 50/60Hz 50VA
Air Requirement	Clean and dry compressed air, 1 litre/sec @ 6bar

Stack Gas Temperature

Check Filter Holder	For insertion of optical Check Filter
Check Filters	20%, 40%, 60%, 80% Check Filters available

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