

## Product Data Sheet

# Model D-CEM2000 Opacity Monitor

### Dual-Pass Transmissometer

The D-CEM2000 Opacity Monitor is a dual-pass transmissometer configured for the measurement of opacity and dust concentration within the flue gas. Its unique optical arrangement provides continuous measurements of transmissivity of visible light across the flue in opposite directions, providing not only an accurate average of the dust loading within the duct, but a dynamic assessment of any mis-alignment errors that may occur due to duct movement.

The monitor incorporates integral automatic procedures for determining zero and span and interfaces directly with the SmartCEM Station local data bus so that all diagnostic and measurement data may be accessed by the SmartCEM Control Unit.

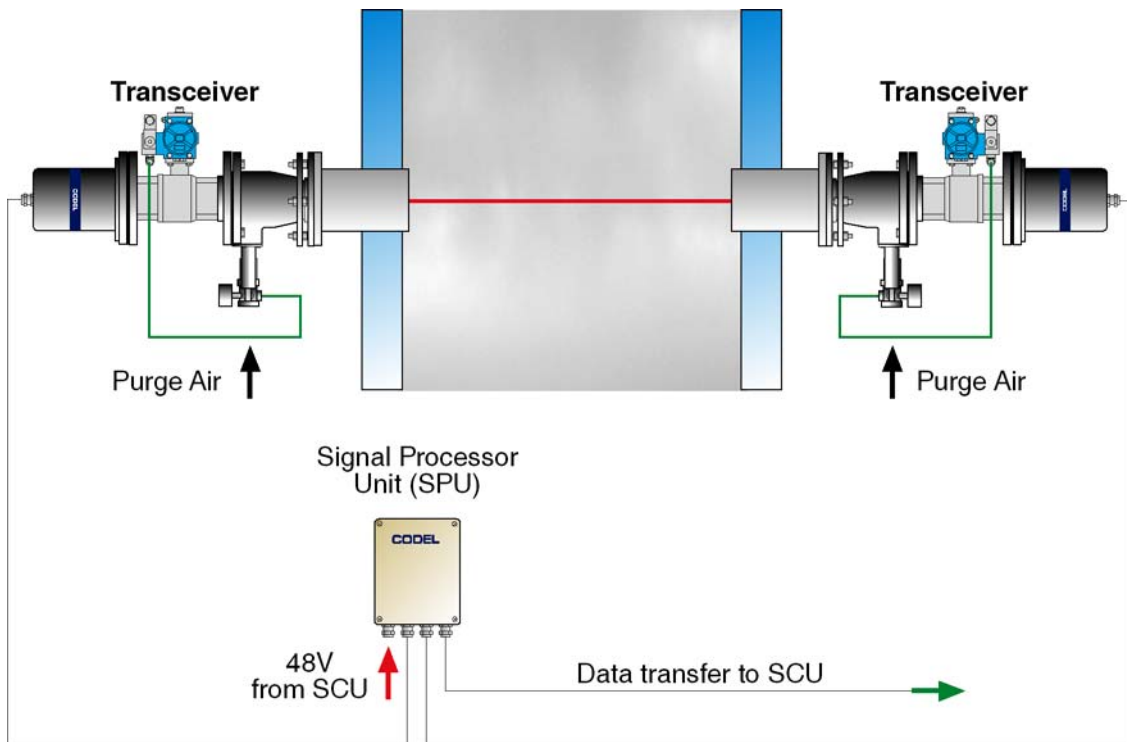
- dual-pass transmissometer
- auto zero and span check
- dynamic mis-alignment check
- normalised reporting
- data in % opacity,  $\text{mg}/\text{m}^3$ ,  $\text{mg}/\text{Nm}^3$  dust

### Measurements

Opacity %

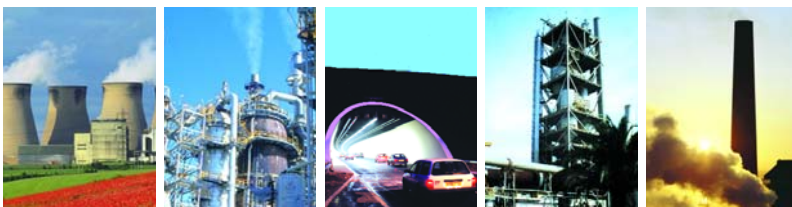
Dust in  $\text{mg}/\text{m}^3$

Normalised dust in  $\text{mg}/\text{Nm}^3$

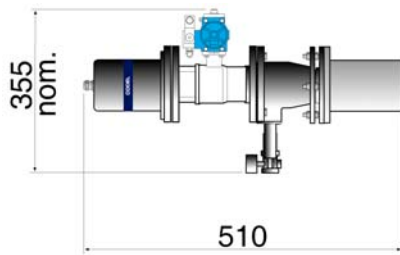


**Total Solutions - Total Confidence**

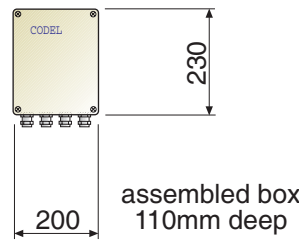
*SmartCem*



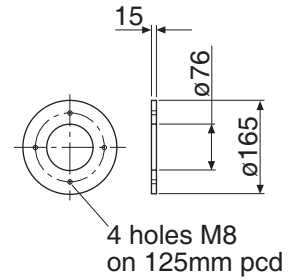
## Overall Unit Dimensions



**Transceiver**  
(wt. 14kg)



**SPU**  
(wt. 4kg)



**Site Flange**

SmartCem

## Specification

### Analyser

Operating Principle	: dual-pass transmissometer
Light Source	: modulated high-intensity LED @ 637nm wavelength
Span	: fully selectable in % opacity, extinction, mg/m <sup>3</sup> & mg/Nm <sup>3</sup>
Averaging	: 4 rolling averages selectable from 10 secs to 30 days
Accuracy	: ±0.2% opacity
Drift	: <1% opacity per month
Resolution	: 0.1% opacity
Optical Path Length	: 0.5 - 15m
Calibration	: auto zero & auto span US EPA compliant
Flue Gas Temperature	: 850°C max.

### Compliances

EMC	: 89/336/EEC directive compliant
Low Voltage	: 73/23/EEC directive compliant

### Input & Outputs

Analogue Outputs	: 2 x 4-20mA current outputs, 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
Inputs (optional)	: 4 x 4-20mA inputs for normalisation data - temperature, oxygen, pressure & water vapour

### General

Construction	: epoxy-coated aluminium to IP67
Ambient Temperature	: -20°C to +70°C
Power	: 48V DC, 50VA from SCU
Air Purge	: compressed air, 1 litre/sec @ 1bar
Options	: heated flanges to prevent condensation on lenses

CODEL International Ltd.  
Station Building, Station Road  
Bakewell, Derbyshire DE45 1GE  
England

Tel: +44 (0) 1629 814 351  
Fax: +44 (0) 8700 566 307  
e-mail: [codel@codel.co.uk](mailto:codel@codel.co.uk)  
web site: [www.codel.co.uk](http://www.codel.co.uk)

### Distributor :

