

# CODEL

A Forbes Marshall Company

## Product Brochure

### EnergyTech 101/102 - Opacity Monitor



A low cost opacity monitor using well-proven technology providing accurate and rapid results whilst meeting legislative requirements.

ISO 9001:2015

Quality Certification

ISO 14001:2015

Environmental Certification

Monitoring Solutions  EnergyTech

[www.codel.co.uk](http://www.codel.co.uk)

The EnergyTech 101/102 Opacity Monitors consist of a visible light transmitter and receiver arrangement with digital data processing in a local display unit.

The monitors can display data in either opacity, extinction or dust density in mg/m<sup>3</sup> or normalised dust density in mg/Nm<sup>3</sup>.

The EnergyTech 101/102 possesses four analogue inputs for normalisation data; temperature, oxygen, pressure and water vapour.

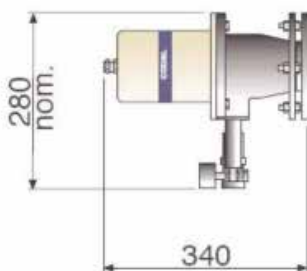
Pressure, temperature and oxygen levels can be used by the the EnergyTech 102 to normalise the dust level to standard measurement conditions. This data can be brought in via 4-20mA inputs, the keypad or the serial communications highway, if the instrument is part of an integrated system

## Features and Benefits

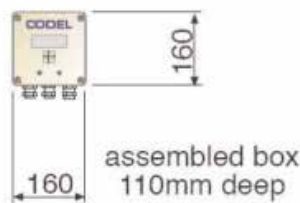
- ▶ Suits small boiler applications
- ▶ No moving parts means low maintenance
- ▶ Data in % opacity, mg/m<sup>3</sup>, mg/Nm<sup>3</sup>, dust
- ▶ Proven reliable technology

## Typical Applications

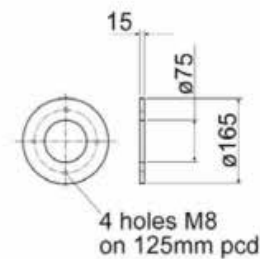
- ▶ Large Combustion Plants
- ▶ FGD Process
- ▶ Renewable Energy
- ▶ Small Combustion Plants
- ▶ SCR and SNCR Process
- ▶ Power Generation
- ▶ Cement Plants
- ▶ Energy From Waste
- ▶ Pharmaceutical
- ▶ Dust Collectors
- ▶ Incinerators
- ▶ Petrochemical



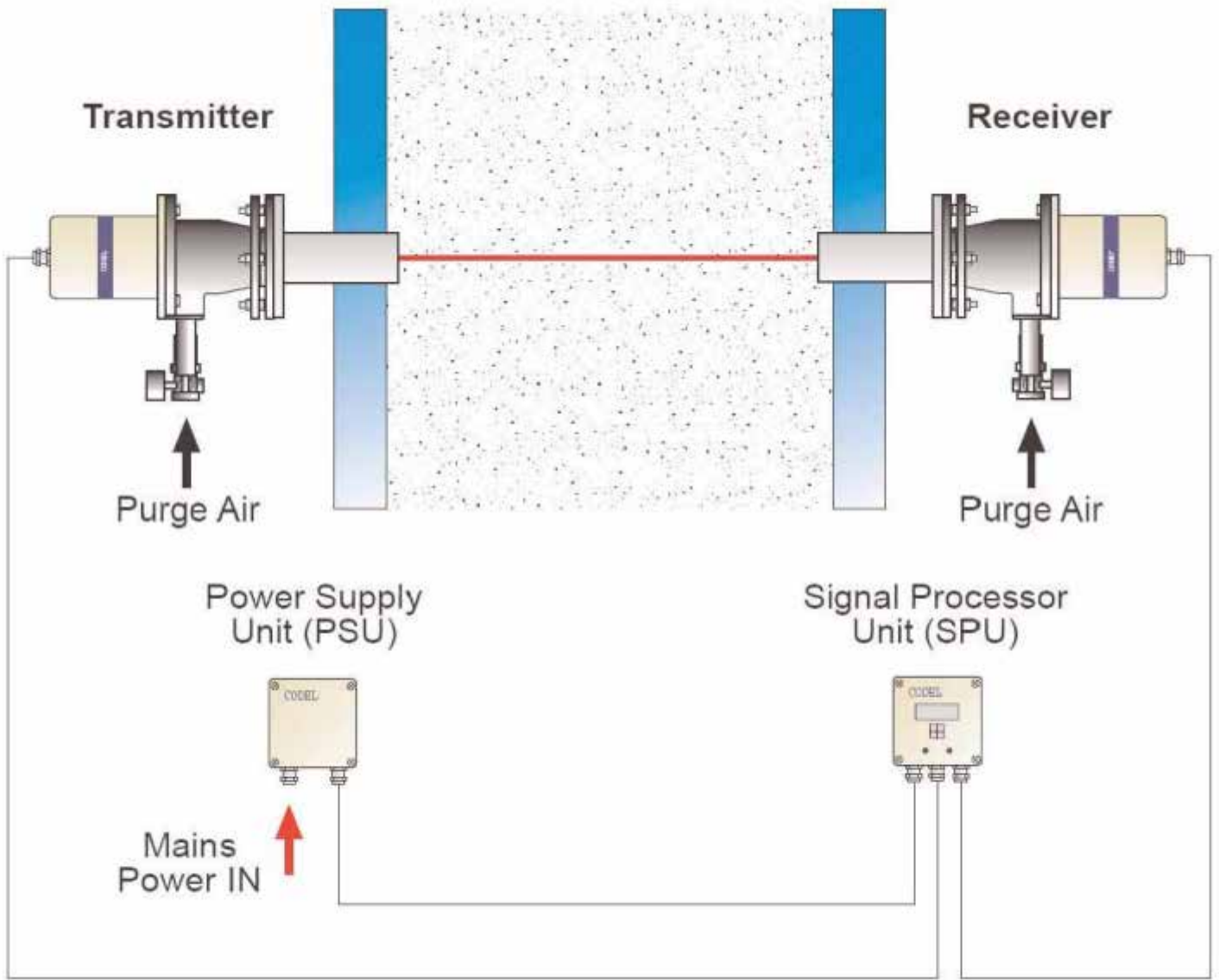
**Transceiver**  
(wt. 5.5kg)



**SPU/PSU**  
(wt. 3kg)



**Site Flange**



## Technical Specification

### Sensor Unit

Operating Principle	Single 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
Air Purge	Compressed air, 1 litre/sec @ 1bar
Ambient Temperature	-20°C to +70°C
Power Supply	76V to 265V AC @ 50/60Hz, 20VA
Construction	Epoxy-coated aluminium to IP6

### Compliances

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

### Analyser Cabinet

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
Digital Output	RS485 Modbus
Input (EnergyTech 102 only)	4 x 4-20mA inputs for normalisation data - temperature, oxygen, pressure & water vapour
Display	32 Character alpha-numeric back-lit LCD
Keypad	4-key soft-touch entry

# CODEL

A Forbes Marshall Company

CODEL International LTD  
Unit 4  
Station Road  
Bakewell, Derbyshire  
DE45 1GE

Tel : +44 (0)1629 814351  
Fax : +44 (0)1629 566307  
Web : [www.codel.co.uk](http://www.codel.co.uk)  
email : [Sales@codel.co.uk](mailto:Sales@codel.co.uk)



Distributor

**Monitoring Solutions**



**[www.codel.co.uk](http://www.codel.co.uk)**