

# CODEL

A Forbes Marshall Company

## Product Brochure

### EnergyTech 601/602 - Flue Gas Flow Monitor



Non-contact infra-red sensing containing no moving components



Monitoring Solutions



ISO 9001:2015

Quality Certification

ISO 14001:2015

Environmental Certification

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

The EnergyTech 601/602 represents the latest generation of CODEL's unique flow monitors. These systems measure 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).

Fully configurable analogue and alarm outputs are exportable to the plant data acquisition system to provide real-time visibility data. This data is also exported via the RS 485 serial port along with the temperature data. This link delivers MODBUS RTU encoded data to a SCADA system located in the plant control centre and/or a local display module.

In addition, the IP65 rated enclosure are coated to resist attack from harsh and aggressive atmospheres. In areas where extremely low temperatures may be experienced, optional transmitter and receiver insulation jackets are available to reduce the effect.

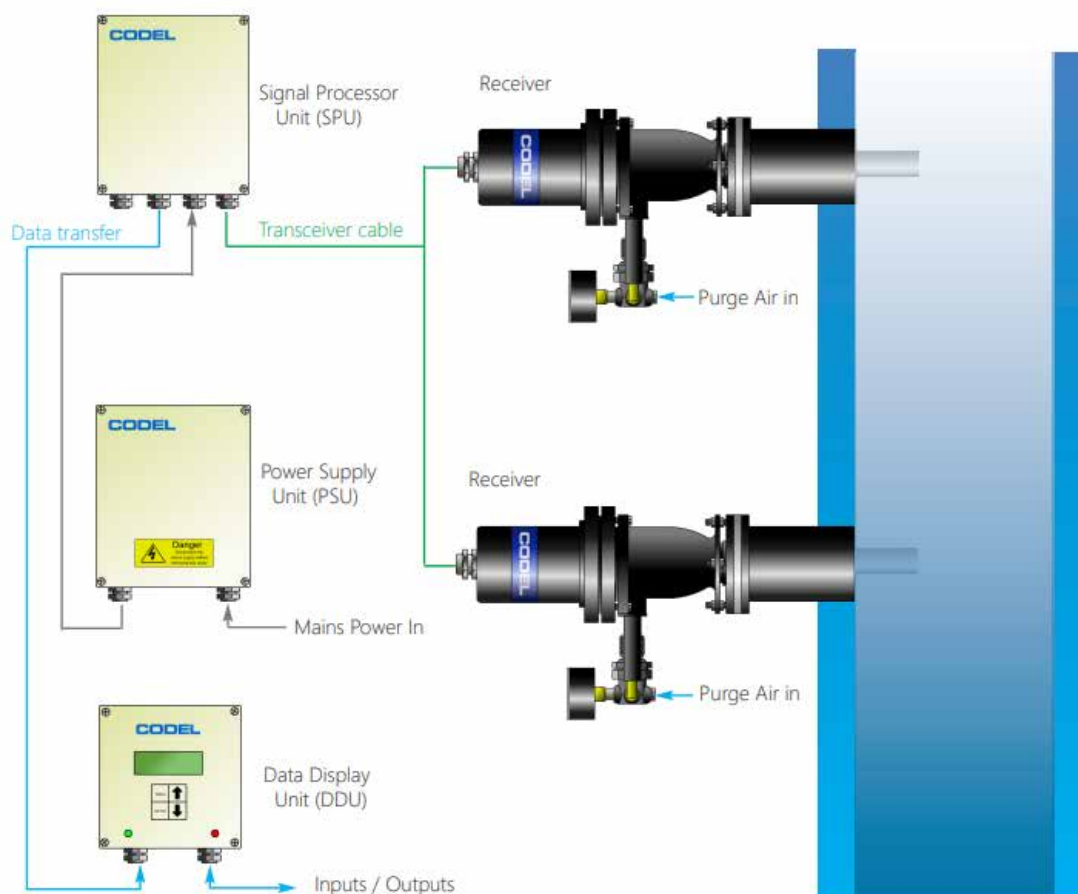
The optionally local display driven from the RS485 out enables operators to view output data, diagnostics and alarm setpoints.

## Features and Benefits

- ▶ Minimal maintenance requirements.
- ▶ No limit on upper gas temperature.
- ▶ Continuous measurement suitable for hot & dirty gases.
- ▶ Non-contact infra-red sensing with no moving components.

## Typical Applications

- ▶ Large Combustion Plants
- ▶ FGD Process
- ▶ SCR and SNCR Process
- ▶ Small Combustion Plants
- ▶ Cement Plants
- ▶ Energy From Waste
- ▶ Dust Collectors
- ▶ Petrochemical



## Technical Specification

### Sensor Unit

Operating Principle	Infrared correlation
Measuring units	m/s, m3/s
Detectors	Lithium tantalate 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 0-3 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 +50°C
Flue Gas Temperature	70°C minimum, No upper limit
Power supply	48V DC from Signal Processor Unit (SPU)
Construction	Corrosion resistant epoxy coated aluminium housing sealed to IP66

### Signal Processor Unit (SPU) & Power Supply Unit (PSU)

Construction	epoxy-coated aluminium to IP67
Ambient Temperature	-20°C to +50°C
Power Supply (SPU)	48V DC supplied from Power Supply Unit (PSU)
Power Supply (PSU)	Mains 88 - 264 VAC, single phase, 50/60Hz - 48V DC output to Signal Processor Unit (SPU)

### Data Display Unit (DDU)

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
Serial Data	RS232/RS485 MODBUS protocol (Optional)
Display	32 Character alpha-numeric back-lit LCD
Keypad	4-key soft-touch entry
Construction	epoxy-coated aluminium to IP67
Ambient Temperature	-20°C to +50°C
Power Supply	48V DC supplied from Signal Processor Unit (SPU)

### Compliances

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

### Services

Power	Mains 88 - 264 VAC, single phase, 50/60Hz
Air Requirement	Clean and dry compressed air, 1 litre/sec @ 4bar

# CODEL

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