

# FGA SERIES

COMPACT MULTIGAS CEMS



● Measures CO O<sub>2</sub> NO - Calculates CO<sub>2</sub> and NO<sub>x</sub>



**LAND**  
**AMETEK**<sup>®</sup>  
PROCESS & ANALYTICAL INSTRUMENTS



QUALITY CUSTOMER SOLUTIONS

# FGA SERIES

## AMETEK LAND HAS BEEN MANUFACTURING PRECISION MEASURING EQUIPMENT SINCE 1947.

WE ARE SPECIALISTS IN NON-CONTACT TEMPERATURE MEASUREMENT AND COMBUSTION MONITORING WITH APPLICATIONS ACROSS DIVERSE INDUSTRIES SUCH AS STEEL AND GLASS MAKING, POWER GENERATION AND CEMENT MANUFACTURE.

As part of AMETEK Process & Analytical Instruments Division since 2006, our customers benefit from the worldwide AMETEK sales and service team.

### COMPACT CEMS FOR SMALLER PROCESSES

The FGA provides accurate measurement of carbon monoxide, nitric oxide and oxygen in flue gases. It is a compact, integrated CEMS for flue gas measurements on processes burning natural gas and biomass. It features a fully weatherproof enclosure sealed to IP65 and optional heating or cooling for extreme environments.

It has MCERTS QAL1 approval for emissions measurements in Europe and meets the requirements of US EPA Performance Specifications 2, 3 and 4 for the relevant gases. Engineered for ease of maintenance, the FGA is simple to install and operate.



#### FEATURES ▼

Integrated, compact design

International approvals

Fully weatherproof

Dual-sensor technology

Calculated Efficiency, NO<sub>x</sub> and CO<sub>2</sub>

Low maintenance

Automatic calibration

#### BENEFITS ▼

Easy to install and service

Suitable for compliance measurements

Install indoors or outdoors

High sensitivity and low drift

More information allows better process control

No specialist skills needed

Unattended operation

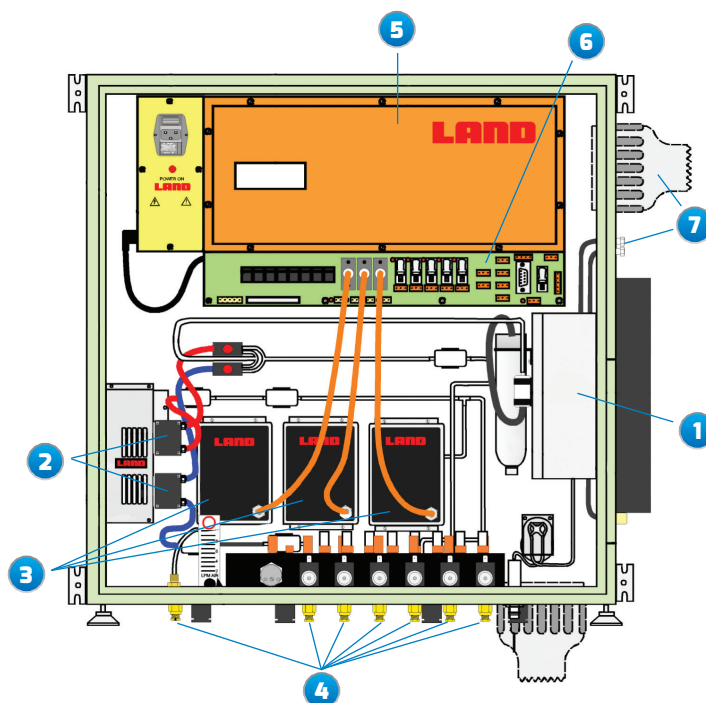
**THE FGA IS A SIMPLE, RUGGED AND RELIABLE ANALYZER FOR MEASURING EMISSIONS FROM SOURCES BURNING NATURAL GAS AND BIOMASS**

# SPECIFICATION & DESIGN

## FGA IS AN EXTRACTIVE SAMPLING MULTI-GAS ANALYZER.

Flue gas is extracted through a sample probe and transported via a sample line to the analyzer. A chiller removes moisture and the sample is filtered to remove particulates. A pair of sensors is used to measure each species, with the sensors alternating every 30 minutes. This sequence extends the sensor lifetime and ensures a stable baseline, essential for low-level measurements.

- 1: SAMPLE CHILLER
- 2: SAMPLE AND AIR PUMPS
- 3: SENSOR MODULES
- 4: AUTOMATIC CALIBRATION MANIFOLD (OPTIONAL)
- 5: POWER SUPPLY AND CONTROL ELECTRONICS
- 6: RELAY AND 4-20 mA CONNECTIONS
- 7: SAMPLE INLET

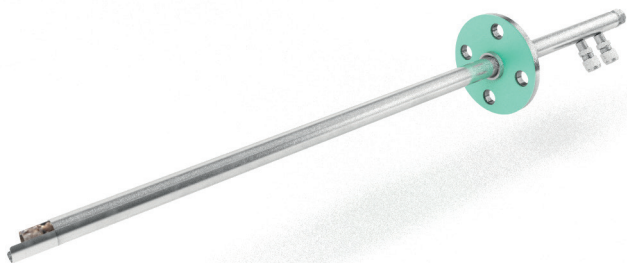


QAL 1 AND  
MCERTS  
APPROVAL TO  
BS EN 15267



## SAMPLE SYSTEM

A full range of heated and unheated probes, filters and sample lines is available to meet all requirements and, more importantly, to keep operating continuously and very efficiently with the minimum of maintenance.



## APPLICATIONS

FGA CAN BE USED IN ANY COMBUSTION PROCESS WHERE THE SO<sub>2</sub> CONCENTRATION IS LESS THAN 50 PPM

- Natural gas-fired boilers
- Biomass boilers
- Reciprocating engines
- Distributer power generation
- Process heaters

*FGA is not recommended for processes burning coal or fuel oil*

# FGA SERIES

## COMPACT MULTIGAS CEMS

## SPECIFICATIONS

### Certified Measurement Ranges (user selectable)

<b>CO:</b>	0 - 150 up to 0-2500 mg/m <sup>3</sup> (0 - 120 up to 0 - 2000 ppm)
<b>NO:</b>	0 - 200 up to 1500 mg/m <sup>3</sup> (0 - 150 up to 0 - 1100 ppm)
<b>Linearity:</b>	2% of range
<b>Resolution:</b>	1 ppm
<b>Zero Stability:</b>	2% of range
<b>O<sub>2</sub>:</b>	0 - 12% up to 0 - 25%
<b>Linearity:</b>	0.2% v/v
<b>Resolution:</b>	0.1%
<b>Zero Stability:</b>	0.2% v/v - <i>Lower ranges can be selected but do not carry QAL1 approval</i>
<b>Response time (all gases):</b>	90 s
<b>Approvals:</b>	BS EN 15267, QAL1, MCERTS Meets requirements of US EPA PS-2, PS-3 and PS-4 for the relevant gases
<b>I/O:</b>	
<b>Analog Outputs:</b>	Four 4-20 mA isolated
<b>Relays:</b>	One alarm for each gas, System OK, Maintenance / calibration
<b>Relay Types:</b>	Isolated changeover 1A at 240V
<b>Environmental:</b>	
<b>Ingress Protection:</b>	IP65 (NEMA 4)
<b>Temperature:</b>	0 °C to 35 °C (32 °F to 95 °F); High temperature option to 50 °C (122 °F); Low temperature option from -20 °C (-4 °F)
<b>Calibration:</b>	None included
<b>Type:</b>	Two point using standard calibration gases
<b>Cal Gas Requirement:</b>	20 litres (0.7 cu. ft) per calibration
<b>Display:</b>	LCD
<b>System Enclosure</b>	
<b>Enclosure Type:</b>	Powder-coated steel
<b>Dimensions:</b>	600 x 600 x 350 mm (24 in x 24 in x 14 in)
<b>Enclosure Weight:</b>	53 kg (117 lb)
<b>Options</b>	
<b>Calibration:</b>	Automatic calibration
<b>Efficiency Calculation:</b>	Combustion efficiency calculation to BS845
<b>Probe:</b>	Variety of probes available to suit process conditions MCERTS applications require SP2000 probe with heated filter
<b>Sample Line:</b>	Unheated or freeze-protected sample line
<b>Electrical Supply (Analyzer):</b>	100 - 120 V ac, 50-60 Hz, 300 VA; 190 to 240 V ac, 50-60 Hz, 300 VA
<b>Compliance</b>	
<b>EMC:</b>	Conforms to EN-50 081 and EN-50 082
<b>Electrical Safety:</b>	Conforms to EN-61010-1

SEE OUR OTHER EMISSIONS MEASUREMENT PRODUCTS LITERATURE:



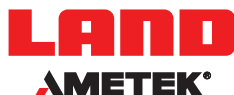
**MODEL 4500mkIII**  
COMPLIANCE DUST  
AND OPACITY  
MONITOR



**LANCOM 4**  
PORTABLE FLUE  
GAS MONITORING

**DISCOVER HOW OUR BROAD RANGE  
OF NON-CONTACT TEMPERATURE  
MEASUREMENT AND COMBUSTION &  
EMISSIONS PRODUCTS OFFER A  
SOLUTION FOR YOUR PROCESS**

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