

# LANCOM4

PORTABLE FLUE GAS MONITORING

WWW.LANCOM4.COM



● CO low · CO high · O<sub>2</sub> · NO · NO<sub>2</sub> · NO<sub>x</sub> · CO<sub>2</sub> · H<sub>2</sub>S · SO<sub>2</sub> · C<sub>x</sub>H<sub>y</sub>



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



QUALITY CUSTOMER SOLUTIONS

# LANCOM4

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

WE ARE SPECIALISTS IN NON-CONTACT TEMPERATURE MEASUREMENT AND COMBUSTION MONITORING WITH OUR PRODUCTS FINDING 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.

THE LANCOM 4 IS THE MOST ACCURATE, ROBUST AND FLEXIBLE PORTABLE FLUE GAS ANALYSER CURRENTLY AVAILABLE.

In excess of two thousand Lancom analysers are in use today, in a wide range of applications - all subjected to very different measurement conditions.

## THE WORLD'S MOST VERSATILE PORTABLE FLUE GAS ANALYSER



### FEATURES ▼

Monitoring of up 17 measurement parameters  
Up to 9 gas measurements in a single instrument  
High quality color display  
Multiple Language support  
USB Communications Support  
Weighs only 6 kg (13 lbs)  
Robust, industrial design  
Wake and Sleep, semi-continuous operation mode  
Range of user selectable options  
Data acquisition & analysis software  
Simple field upgrade  
Meets ASTM D-6522 with Dry Sampler probe  
Convenient Catchpot - Visible and Accessible  
Clip-In Filters - Quick to change

### BENEFITS ▼

One instrument to meet all requirements  
User selectable  
Visualise your data with new widescreen display  
Navigate the menu in 6 major languages (others available upon request)  
Simple interface to PC and data transfer - supports USB memory sticks  
Easily carried around plant with shoulder strap  
For daily use in the harshest plant environments  
For periodic unattended operation  
Ideally matched to application requirements  
Capture, calculate, and report data on your PC  
Add features and options as and when required  
Report generation to recognised standards  
Side mounted, highly visible for fast and easy removal and emptying  
Recessed into the side; replacement is straightforward



## SIMPLICITY IS BUILT IN

SET-UP AND MEASURE IN MINUTES;  
THE LONG LIFE BATTERY LASTS  
8 HOURS ON A SINGLE CHARGE;  
INTEGRAL SAMPLE CONDITIONING  
- ALL IN ONE BOX.

LANCOM4 IN ACTION ▼



# LANCOM4

## SPECIFICATION & DESIGN

### HIGH COLOR DISPLAY

New high resolution color display supports a multilingual, simple user interface.

### FLUE GAS & AMBIENT TEMPERATURE

The analyser takes a direct thermocouple temperature measurement of the flue gas, and has an ambient temperature sensor fitted. These are required for making accurate combustion efficiency calculations.

### EASY ACCESS SENSORS

Each sensor is installed in its own unique position. Replacing a sensor is a simple process and takes only a few minutes. Unclip the side panel for access, swap the sensor and re-calibrate.

### STRAIGHTFORWARD SERVICING

Service is simple via the menu driven software. Self diagnostic checks are run continuously on calibration status and battery life.

### SETUP AND MEASURE WITHIN MINUTES

Simply switch on, an automatic zero calibration is performed by the analyser. Plug in the sample probe and take real-time gas readings in a matter of minutes.

### STANDARD FEATURES

- Standard Sample Probe
- USB Interface
- Data Logging
- RS 232 or RS 485 Serial Communications Interface



**CAPABLE OF MONITORING UP TO 9 DIFFERENT GASES**

### SELECTING THE ANALYZER ▼

**THE USER SELECTS WHICH GASES (BETWEEN 3 AND 9), THEN THE OPTIONS THAT ARE REQUIRED FOR THEIR APPLICATION**

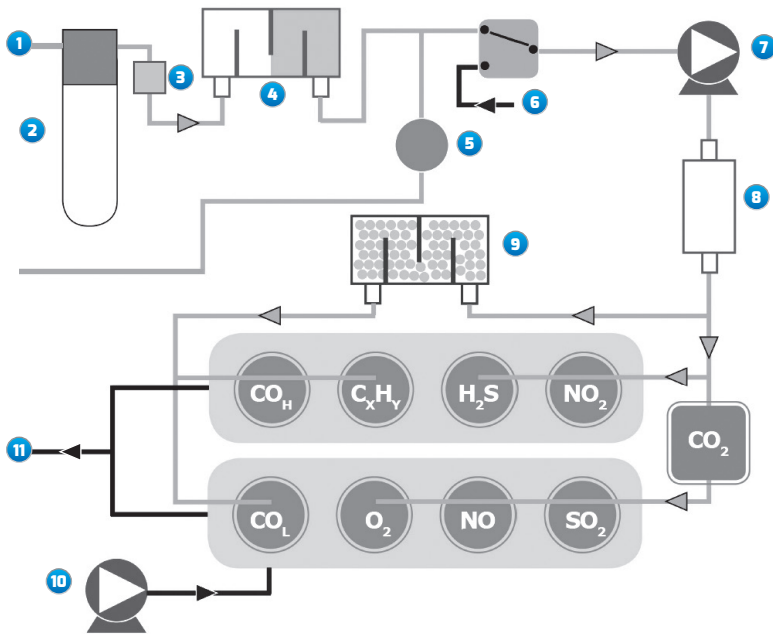
OPTIONS	DESCRIPTION
Draft Measurement	Internal stack pressure in hPa or inches water gauge
Flow Measurement	Flue gas velocity, flow rate and mass emissions rate
Smoke Measurement	Readings of Smoke spot number

OPTIONS	DESCRIPTION
Range of Sample Probes	Smoke, Flow, DrySampler* and High Temperature
Insight Data Acquisition Software system	Simple-to-use Windows™ reporting software
Analog outputs	Eight 4-20 mA signals, independently user configurable
Wake and Sleep facility (Semi-continuous monitoring)	Takes gas measurement at user defined intervals (see Measurement Specs)
Language display options	English, French, German, Italian, Spanish & Chinese



\*US Patent No. 6782767. European patent no. EP 1236 988B1

# HOW THE ANALYSER WORKS



## KEY

- |                            |                      |
|----------------------------|----------------------|
| 1. Sample Gas Inlet        | 7. Sample Pump       |
| 2. Catchpot for condensate | 8. Expansion Chamber |
| 3. Overflow Protector      | 9. Chemical Filter   |
| 4. Particulate Filter      | 10. Purge Pump       |
| 5. Pressure Sensor         | 11. Exhaust          |
| 6. Air Input               |                      |

## INTEGRAL SAMPLE CONDITIONING

The gas sample is drawn into the analyser via a sample probe and hose connected to the input connection on the side panel of the analyser. The sample enters the water catchpot where residual water is removed. The sample gas is then passed through a 0.1 micron particulate filter.

## FILTERING OUT DAMAGING CHEMICALS - PROLONGING SENSOR LIFE

The sample gas is routed to the sensor manifolds, after removing flow and pressure variations. To ensure that the CO and CxHy sensors are not contaminated by other gases the sample gas is fed through a chemical filter prior to being routed to these sensors. This action prolongs sensor life and improves measurement accuracy.

## AUTOMATIC SENSOR PROTECTION

To protect the CO Low sensor from excessive levels of CO (normally levels >2000 ppm), the system automatically switches to the high range CO sensor (up to 40,000 ppm if fitted). The CO low sensor is then automatically purged using a dedicated pump which blows ambient air to protect the sensor, ensuring rapid recovery time and maximum sensor life.

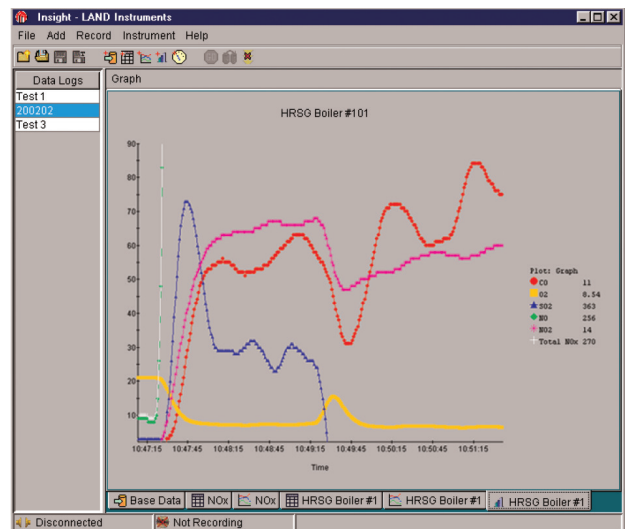
## SENSOR ACCURACY & LONGEVITY

The Lancom 4 performs a zero calibration every time it is switched on, and purges the sensors with ambient air before switching off. This ensures maximum accuracy and sensor longevity.

## INSIGHT DATA ACQUISITION & ANALYSIS SOFTWARE

### A SIMPLE TOOL FOR ON-SITE RECORD KEEPING, ANALYSIS AND REPORTING

- Real-time data display, capture and storage
- Range of display formats
- Integrated statistical analysis functions
- Range of calculations
- User definable alarms with event monitoring
- User-programmable averaging algorithms
- Export data to Microsoft Excel or text file
- Simple to use Windows-based software
- Range of user-configurable sample triggers
- Local or remote operation
- Ideal for USEPA CTM-034 reporting



## SAMPLE PROBES

A WIDE RANGE OF SAMPLE PROBES SUITABLE FOR SPECIFIC APPLICATION AND MEASUREMENT REQUIREMENTS ARE AVAILABLE.

### 1: DrySampler Probe

- The first truly portable sample dryer probe, incorporating a revolutionary design. (US Patent No. 6782767)
- No electrical power required
- No heated sample line required
- Removes moisture from sample gas at the probe, giving the most accurate, reliable analysis of soluble gases
- Low cost

### 2: Standard Probe

Suitable for most applications. High quality, stainless steel probe with a sintered, replaceable filter tip and an adjustable collar to control insertion length

### 3: Smoke Probe

Provides smoke measurements using the smoke spot number,

### 4: Flow Probe

Designed for making gas flow measurements using proven pitot design for high accuracy.

- Flow Rate
- Flue Gas Velocity
- Mass Emissions Rate

### 5: High Temperature Probe

- Specifically designed for use in high temperature gas streams
- Suitable for flue gas temperatures up to 1400 °C / 2552 °F (higher temperatures available upon request)
- Unique handle designed to dissipate heat from sample
- Ceramic probe tube easily replaced
- Special heat-deflecting shield to protect user from hot gases escaping from the flue
- Does not measure flue temperature



## PROBE SPECIFICATIONS ▼

PROBE	LENGTH	MAX TEMPERATURE	OPTIONS/ACCESSORIES
1. DrySampler and 2. Standard	0.3, 1.0, 1.5, 2.0, 3.0 m / 0.9, 3.3, 5.0, 6.6, 9.8 ft.	600 °C 1112 °F	3 m or 10 m / 10 ft. or 33 ft. hose available
3. Smoke	0.3, 0.75, 1.0 m 0.9, 2.4, 3.3 ft.	600 °C 1112 °F	3 m / 10 ft. hose available
4. Flow	0.7, 1.0, 2.2, 3.0 m 2.3, 3.9, 7.2, 9.8 ft.	600 °C 1112 °F	3 m / 10 ft. hose, filter papers, smoke spot chart, In-line flowmeter
5. High Temp	0.5, 1.0, 1.5, 2.0 m 1.6, 3.5, 5.0, 6.6 ft.	1400 °C 2552 °F	3 m or 10 m / 10 ft. or 33 ft. hose available

# MEASUREMENT SPECIFICATIONS

Sensor	Detection Limit	Full Scale Range	Upscale Repeatability	Resolution
O <sub>2</sub>	0.2 %	0 to 30 % v/v	±1 %	0.1 % v/v
CO (low)	2 ppm	0 to 6000 ppm	±2 %*	0.1 ppm
CO (H <sub>2</sub> compensated)	2 ppm	0 to 4000 ppm	±2 %*	0.1 ppm
CO (high)	20 ppm	0 to 10 %	±2 %*	0.1 ppm
SO <sub>2</sub>	2 ppm	0 to 4000 ppm	±2 %*	0.1 ppm
NO	2 ppm	0 to 5000 ppm	±2 %*	0.1 ppm
NO <sub>2</sub>	2 ppm	0 to 1000 ppm	±2 %*	0.1 ppm
H <sub>2</sub> S	4 ppm	0 to 1000 ppm	±2 %*	0.1 ppm
CO <sub>2</sub> **	0.2 %	0 to 20 % v/v	±2 %*	0.1 % v/v
Hydrocarbons (CxHy)	(Application dependent)	0 to 5 % v/v	±4 %*	0.1 % v/v
Flue Gas/Ambient Temperature	Measured			
Draft	± 50 hPa / 20" Water Gauge ***			
Flow (velocity)	1 to 50 m/s			

\*Calibration per ASTM D-6522 or LAND factory procedure

\*\*True measurement if sensor fitted (calculated if not)

\*\*\*Reduced to ± 25 hPa / 10" Water Gauge

when used with flow probe.

#Operating at maximum possible range may

affect sensor life and accuracy

## SENSOR TYPES

Electrochemical	CO Low, CO High, CO Low H <sub>2</sub> compensated, O <sub>2</sub> , NO, NO <sub>2</sub> , SO <sub>2</sub> and H <sub>2</sub> S
Infrared	CO <sub>2</sub>
Pellistor/Catalytic	CxHy

## SEMI-CONTINUOUS MONITORING

Wake and Sleep monitoring takes gas measurements at user defined intervals. This is achieved by cyclically sampling and logging gas concentrations over a period of time (alternate 'wake' and 'sleep' phases). User settings include wakeup interval, number of samples between wakeup, sample interval and first wakeup.

## LEADING THE WAY IN PORTABLE FLUE GAS MONITORING

## COMBUSTION & ENVIRONMENTAL CALCULATIONS

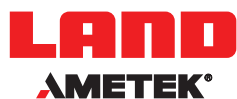
- Combustion efficiency
- Loss
- Excess Air
- CO<sub>2</sub> (where no sensor fitted)
- Oxygen normalisation
- Total NO<sub>x</sub>
- Wet or dry basis
- Automatic conversions  
- ppm, mg / m<sup>3</sup>, lb / mmBtu, ng / J

## SPECIFICATIONS

<b>Display:</b>	Full function color LCD with backlight, wide QVGA display
<b>Keypad:</b>	Tactile membrane (integral with display) function keys and cursors
<b>Indicators:</b>	LED for ON (Power), Stand-by, Charge, Low Battery, Fault
<b>Power Supply:</b>	95-265 V AC, 50-60 Hz, 30 Watts. Battery, rechargeable lead-acid (internal). Typical 8 hour operation, dependent on options fitted
<b>Ambient Temperature:</b>	-5 °C to 45 °C (+23 °F to 113 °F)
<b>Case:</b>	Medium density blended polyethylene
<b>Dimensions:</b>	453 x 120 x 245 mm (17.8" x 4.7" x 9.6 inches)
<b>Weight:</b>	6 kg (13 lb)
<b>Standard Accessories:</b>	Integral water catchpot and filters, battery charger supply, probe handle, hose and probe pipe (Lengths listed below under options), data logging
<b>Options:</b>	Min of 3 to max 9 gases in total, from a selection of 9 gases
	Probe length options - 0.3, 1.0, 1.5, 2.0, 3.0 m/1, 3.3, 5, 6.5, 10 ft
	Hose length options - 3 m/10 ft or 10 m/33 ft
	Draft Measurement
	Flow Measurement
	Smoke Measurement
	Insight Data Acquisition Software
	Analogue outputs (eight 4-20 m A outputs)
	Wake and Sleep facility (Semi-continuous monitoring)
	Languages - English, French, German, Italian, Spanish & Chinese; others available
	Carry Case
	External Printer

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

WWW.LANDINST.COM | WWW.AMETEK.COM



**Land Instruments International**  
Dronfield, S18 1DJ, England  
Tel: +44 (0) 1246 417691  
Fax: +44 (0) 1246 410585  
Email: land.enquiry@ametek.co.uk  
[www.landinst.com](http://www.landinst.com)

**AMETEK Land - Americas**  
150 Freeport Road, Pittsburgh, PA 15238, U.S.A.  
Tel: +1 (412) 826 4444  
Fax: +1 (412) 826 4460  
Email: irsales@ametek.com  
[www.ametek-land.com](http://www.ametek-land.com)

**AMETEK Land - Asia Pacific**  
No. 43, Changi South Ave 2, #04-01,  
Singapore 486164, Singapore  
Tel: +65 6505 9031  
Fax: +65 6481 6588  
[www.landinst.com](http://www.landinst.com)

