LANCOM4

PORTABLE FLUE GAS MONITORING

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CO low · CO high · CO low/H_2 Comp · NO · NOx · NO_2 · CO_2 · H_2S · SO_2 · CxHy

LAND

AMETEK®

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	BENEFITS
Monitoring of up 17 measurement parameters	One instrument to meet all requirements
Up to 9 gas measurements in a single instrument	User selectable
High quality color display	Visualise your data with new widescreen display
Multiple Language support	Navigate the menu in English, French, German, Italian, Spanish and Chinese (other languages available upon request)
USB Communications Support	Simple interface to PC and data transfer - supports USB memory sticks
Weighs only 6 kg (13 lbs)	Easily carried around plant with shoulder strap
Robust, industrial design	For daily use in the harshest plant environments
Wake and Sleep, semi-continuous operation mode	For periodic unattended operation
Range of user selectable options	Ideally matched to application requirements
Data acquisition & analysis software	Capture, calculate, and report data on your PC
Simple field upgrade	Add features and options as and when required
Meets ASTM D-6522 with Dry Sampler probe	Report generation to recognised standards

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

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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.

CAPABLE OF MONITORING UP TO 9 DIFFERENT GASES

FEATURES

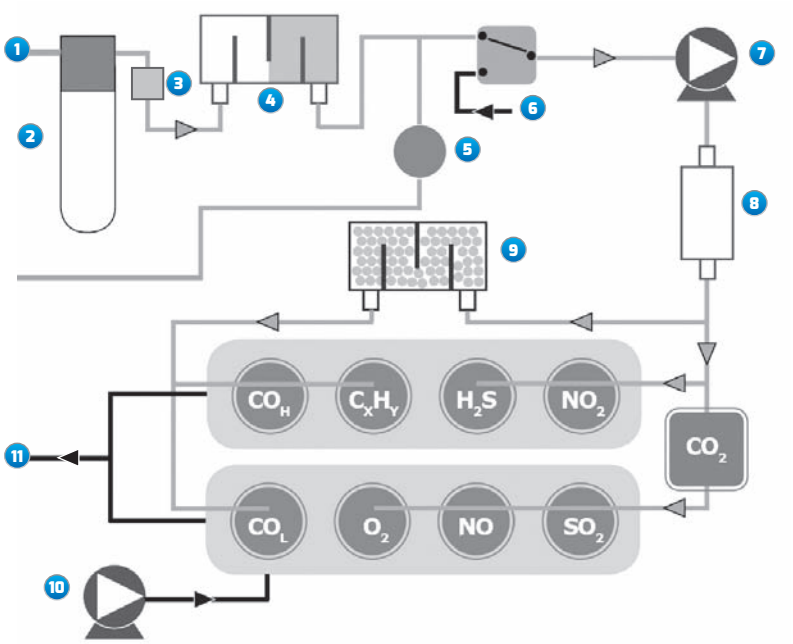
CONVENIENT CATCHPOT - VISIBLE AND ACCESSIBLE

Moisture in the sample condenses and collects in the catchpot. Emptying the condensate is fast and easy with the side mounted catchpot. It is fully protected and highly visible for rapid checking, removal and emptying.

CLIP-IN FILTERS - VISIBLE AND QUICK TO CHANGE

The chemical and particulate filters are recessed into the side of the instrument. Visible inspection and replacement are straightforward. The rugged case design protects all components from damage.

HOW THE ANALYSER WORKS



KEY

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

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.

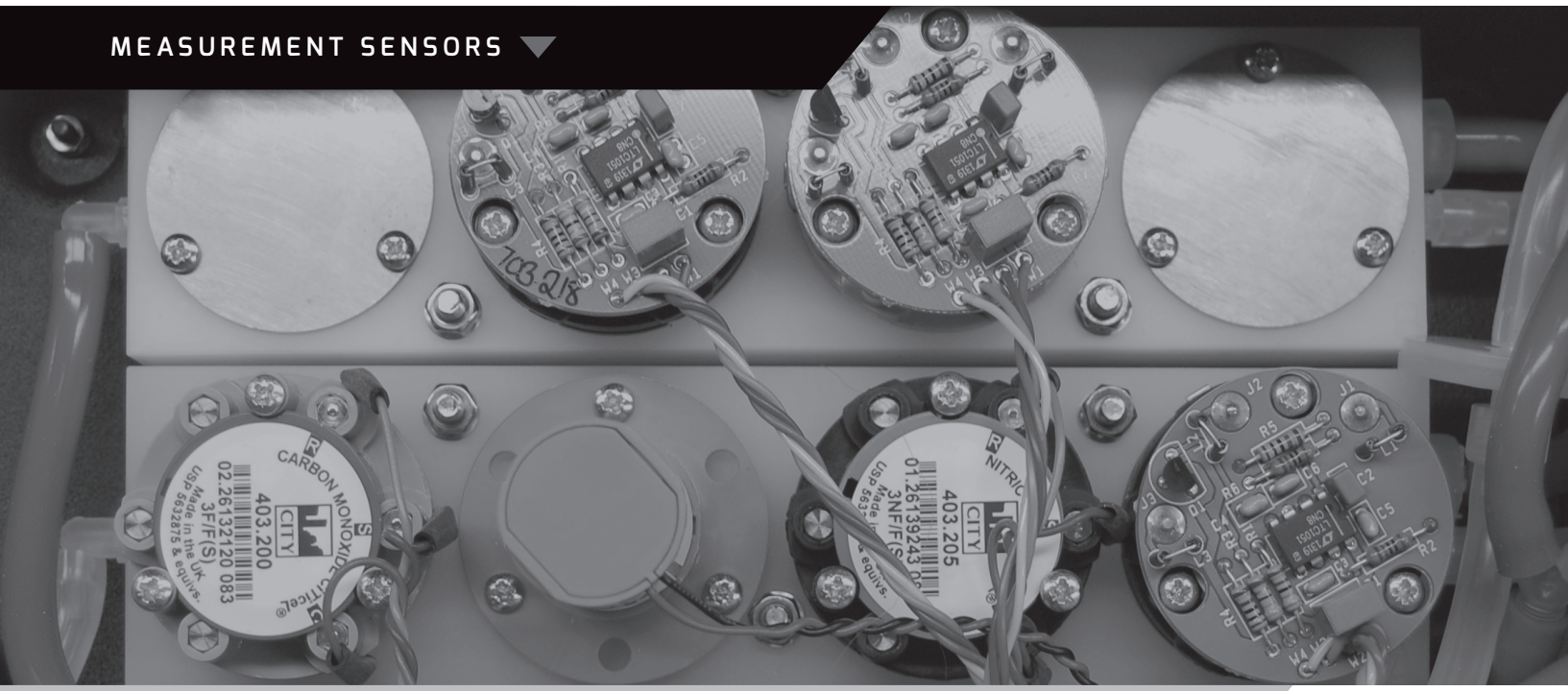
AUTOMATIC SENSOR PROTECTION

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.

MEASUREMENT SENSORS



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SELECTING THE ANALYSER

THE FOLLOWING FEATURES ARE STANDARD ON ALL INSTRUMENTS:

- Standard Sample Probe
- USB Interface
- Data Logging
- RS 232 or RS 422 Serial Communications Interface

The user selects which gases (between 3 and 9) and then the options that are required for their application. (See list adjacent)

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

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

SAMPLE PROBES

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

Request Information ref. PDS 198

1: DrySampler Probe
2: Standard Probe
3: Smoke Probe
4: Flow Probe
5: High Temperature Probe

MEASUREMENT SPECIFICATIONS

Sensor	Detection Limit	Full Scale Range	Upscale Repeatability	Resolution
O_2	0.2 % v/v	0 to 30 % v/v	±1%	0.1 % v/v
CO (low)	2 ppm	0 to 4000 ppm	±2%*	0.1 ppm
CO (H_2 compensated)	2 ppm	0 to 6000 ppm	±2%*	0.1 ppm
CO (high)	20 ppm	0 to 10 %	±2%*	0.1 ppm
SO_2	2 ppm	0 to 5000 ppm	±2%*	0.1 ppm
NO	2 ppm	0 to 5000 ppm	±2%*	0.1 ppm
NO_2	2 ppm	0 to 1000 ppm	±2%*	0.1 ppm
H_2S	4 ppm	0 to 1000 ppm	±2%*	0.1 ppm
CO_2 **	0.2 % v/v	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_2 compensated, O_2, NO, NO_2, SO_2 and H_2S
Infrared	CO_2
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_2 (where no sensor fitted)
- Oxygen normalisation
- Total NOx
- Wet or dry basis
- Automatic conversions
  - ppm, mg / m3, lb / mmBtu, ng / J

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PORTABLE FLUE GAS MONITORING

SPECIFICATIONS

Display:	Full function color LCD with backlight, wide QVGA display
Keypad:	Tactile membrane (integral with display) function keys and cursors
Indicators:	LED for ON (Power), Stand-by, Charge, Low Battery, Fault
Power Supply:	95-265 V AC, 50-60 Hz, 30 Watts. Battery, rechargeable lead-acid (internal). Typical 8 hour operation, dependent on options fitted
Ambient Temperature:	-5 °C to 45 °C (+23 °F to 113 °F)
Case:	Medium density blended polyethylene
Dimensions:	453 x 120 x 245 mm (17.8" x 4.7" x 9.6 inches)
Weight:	6 kg (13 lb)
Standard Accessories:	Integral water catchpot and filters, battery charger supply, probe handle, hose and probe pipe (Lengths listed below under options), data logging
Options:	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
	Alternative probes available - Refer to Data Sheet Reference PDS198 for details
	Hose length options - 3 m/10 ft or 10 m/33 ft
	Draft Measurement
	Flow Measurement, probe length options - 0.7, 1.2, 2.2, 3.0 m/2.3, 3.9, 7.2, 9.8 ft
	Smoke Measurement, probe length options - 0.3, 0.75, 1.0 m/1, 2.4, 3.3 ft
	Insight Data Acquisition Software system - Refer to Data Sheet Reference PDS205 for details
	Analogue outputs (eight 4-20 m A outputs)
	Wake and Sleep facility (Semi-continuous monitoring)
	Language display options - English, French, German, Italian, Spanish & Chinese, others available
	Carry Case
	External Printer

SEE OUR OTHER RELATED LITERATURE FOR THE LANCOM4:

LANCOM SAMPLE PROBES

INSIGHT DATA ACQUISITION SYSTEM

DISCOVER HOW OUR RANGE OF NON-CONTACT TEMPERATURE MEASUREMENT PRODUCTS OFFER A SOLUTION FOR YOUR PROCESS

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Applies in the UK

Applies in the US