Hand Held Gas Analyser

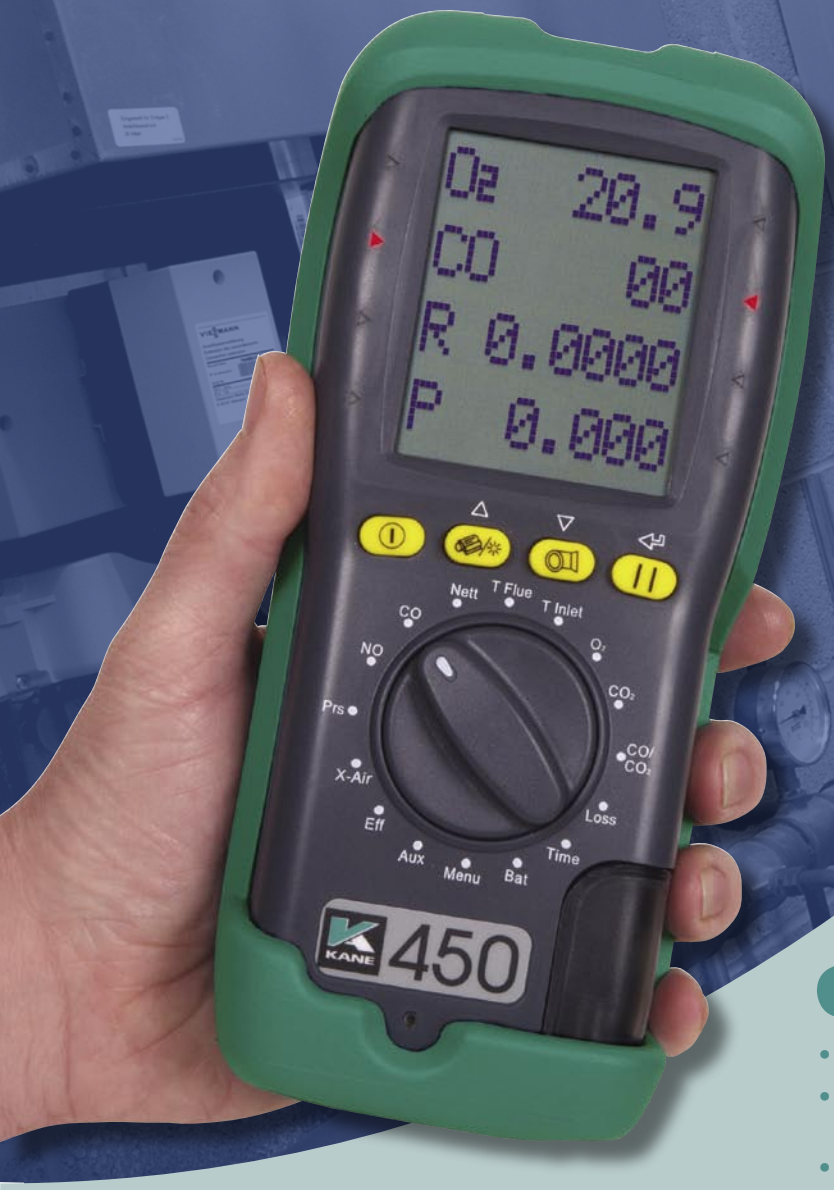
KANE450

it's easy with Kane

GAS ANALYSERS

450

O_2
CO
NO
CO_2
CO/CO_2 Ratio
Temp
Pressure



INDEPENDENTLY APPROVED TO EN50379

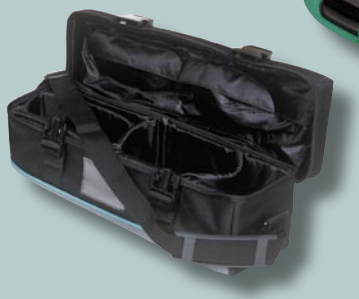
Features

- Four line backlit display controlled by rotary switch
- Protective rubber sleeve with integral magnet for "hands free" use
- O_2, CO, CO_2, CO/CO_2 ratio, temperature and efficiency readings
- Multi-fuel (natural gas, propane, butane, LPG, 28/35 sec oils)
- High accuracy differential manometer with resolution to 0.001 mbar with range to ± 80 mbar
- Differential thermometer for flow / return / ΔT (using optional Type K thermocouple probes)
- Hold, store and auto-store readings
- Reports include combustion test, tightness test, CO build-up and differential temperature
- Infra-red output to optional printer
- Torch light and backlit display
- Designed to meet BS7967
- 5 year extended warranty if serviced annually by Kane

Optional Extras

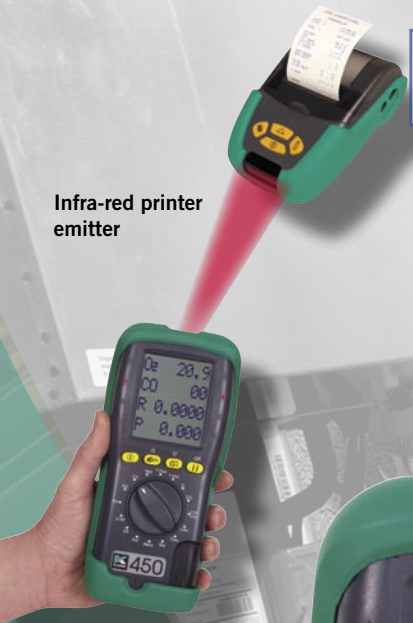
- Gas leak detector
- O-4,000 ppm CO sensor with H_2 compensation - standard in UK
- O-1,000 ppm or O-100 ppm NO sensor
- A range of Type K thermocouple probes
- 2 psi ± 160 mbar pressure sensor
- Bluetooth™ data transfer
- KMIRP infra-red thermal paper printer
- KANE ImPrint infra-red plain paper printer
- NiMH rechargeable batteries
- 220v fast charger
- 12v in-vehicle charger

TEST	11	
DATE		13/04/06
TIME		12:21:35
FUEL		NATU GAS
02	%	9.3
CO2	%	6.6
CO	ppm	21
FLUE	°C	148.6
INLT	°C	-0C-
NETT	°C	125.8
EFF	(N)	92.5
PRS	mBAR	0.001
LOSSES	%	7.5
XAIR	%	80.1
CO/CO2		0.003



KANE®

KANE450 Boiler Analyser takes the pressure



The NEW KANE450 has all the features of a "top of the range" combustion analyser and is controlled by an "easy to use" rotary switch similar to the popular KANE250. Any four parameters can be viewed on the large backlit display. To change a parameter simply select the new one on the dial and press the enter button!

It performs all combustion, pressure, temperatures and CO tests necessary to commission and service condensing and high efficiency boilers. A gas leak detector wand option is also available. Live tests, stored tests or full reports can be printed using an infra-red printer or sent to a laptop or PDA via a Bluetooth™ option.

An outstanding feature of the KANE450 is the high accuracy and stability of its pressure readings. Difficult tasks like measuring flue draught or setting the differential pressure of air/fuel ratio valves can be performed with confidence. At low pressures it displays to 0.001 mbar and is accurate to ±0.005 mbar - significantly better than any standard electronic manometer! The excellent stability of readings is particularly important when the analyser performs an automatic "tightness test" sequence.

Battery life is typically 12 hours when fitted with either alkaline or rechargeable NiMH batteries. A 12v in vehicle charger option is available.

ON / OFF
Turns the analyser ON / OFF.

PUMP / CAL PRESSURE
Turns the pump ON / OFF.
Press for 2+ seconds to zero the pressure sensor.

PRINT / BACKLIGHT
Press to print "live" or "frozen" data. Press again to abort.
Press for 2+ seconds to switch backlight & torch ON / OFF.

LINE SELECT / FREEZE
Press to select active line on display as indicated by LED's.
Press for 2 seconds to "HOLD".
Press longer to "LOG".

KANE

The combustion analyser that's easy to use

KANE450 Reports

AUTO STORE ~ (stores up to 255 tests)

From the menu select STORE, AUTO STORE, YES.
Set the time interval (in seconds) between logs. The analyser starts logging as soon as you exit the menu and stops when you select STORE, AUTO STORE, NO.

To view the results select STORE, VIEW, then enter the log number required. Use the rotary dial and line selector to view the readings as normal. Use scroll up/down to view other log numbers.

To delete select DEL ALL, YES

TEST		11
DATE		03/08/05
TIME		16:27:32
FUEL		NATU GAS
O2	%	9.3
CO2	%	6.6
CO	ppm	21
FLUE	°C	148.6
INLT	°C	-OC-
NETT	°C	125.8
EFF	(N)	92.5
PRS	mBAR	0.001
LOSSES	%	7.5
XAIR	%	80.1
CO/CO2		0.003

etc.

PRESSURE ~ (stores up to 8 tests)

From the menu select REPORT, PRESSURE, TEST.

Press the "Pump" key to zero the pressure sensor.

CONNECT the pressure hose to pressure connection P1.
Press "Enter" to start the 1 minute stabilization period.
Press "Enter" again to start the 2 minute tightness test.

To view the results select REPORT, PRESSURE, VIEW.
Use scroll up/down to view other log numbers.

To exit press "Enter". To delete select DEL ALL, YES

TIGHTNESS TEST

LOG 05	
TIME 15:40	03/08/05
PRS_1 mBAR	20.110
PRS_2 mBAR	19.998
DURATION MINS	3:00
.....	
Customer	
.....	
Appliance	

etc.

TEMPERATURE ~ (stores up to 8 tests)

From the menu select REPORT, TEMP, TEST.
CONNECT the thermocouples, "flow" to T1, "return" to T2.
Press "Enter" once to view readings and once more to log.

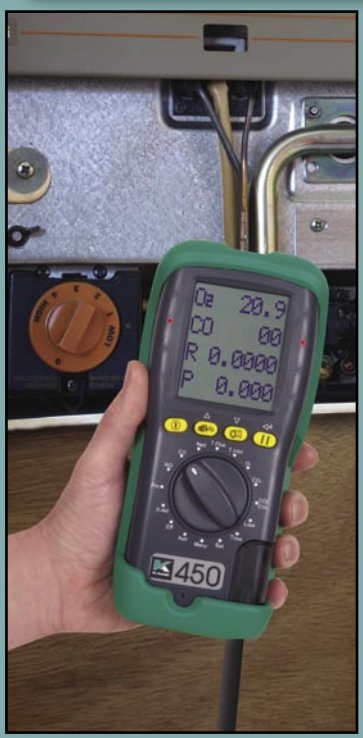
To view the results select REPORT, TEMP, VIEW.
Use scroll up/down to view other log numbers.

To exit press "Enter". To delete select DEL ALL, YES

TEMP TEST

LOG	02	
TIME 16:37		03/08/05
FLOW	°C	48.3
RETURN	°C	39.7
NETT	°C	8.6

etc.



ROOM CO ~ (stores up to 8 tests)

From the menu select REPORT, ROOM CO, TEST.
The pump will run and the analyser will log the CO reading every minute for 15 minutes.

To view the results select REPORT, ROOM CO, VIEW.
Use scroll up/down to view other log numbers.
Use "Enter" to view each reading within the ROOM CO TEST

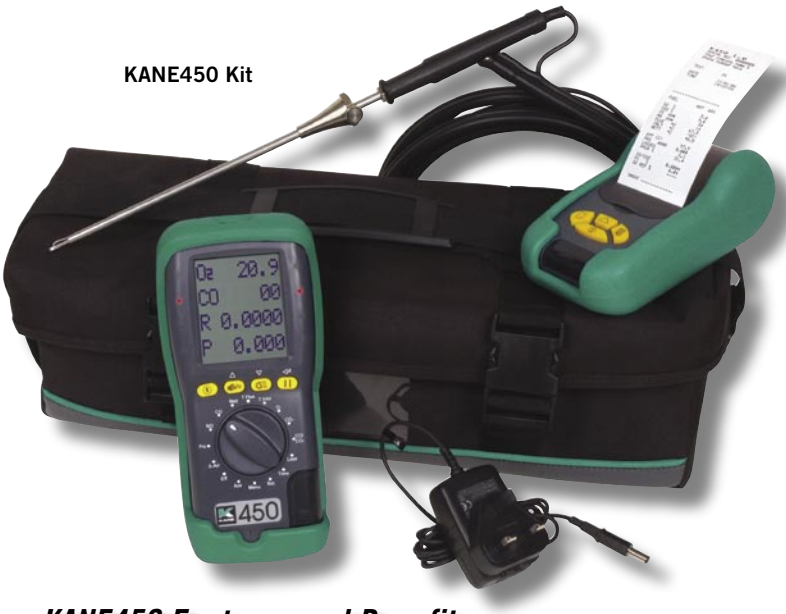
To exit use rotary switch.
To delete select DEL ALL, YES

ROOM CO TEST

LOG 01	
TIME 09:20	04/08/05
TEST	CO ppm
0	00
1	02
14	02
15	01
MAXIMUM CO	02

etc.

KANE450 Kit



KANE450 Features and Benefits

Feature	Benefit
Rotary switch	Quick and easy to use
Large display with backlight	Clear and easy to read
4 line display	Any four parameters can be selected and displayed using the rotary switch
Multifuel	Test any boiler using Natural Gas, Light Oil, Propane, Butane, LPG
Efficiency calculations include Nett, Gross and Condensing	Suitable for all boilers including condensing
High accuracy pressure sensor with quick zero function and fast/slow response settings.	Ideal for flue draught tests, let-by tests, tightness tests and checking air/gas ratio valves as it measures differential pressure to 0.001 mbar resolution.
Measures differential temperature (using optional Type K thermocouple probes)	Accurately checks flow, return and differential temperatures simultaneously
"Quick start" feature for temperature and pressure readings	Saves time when you don't need flue gas analysis
Infra-red output to printers	Thermal or impact printer available. Printout includes two line header, date/time.
Instant one button printout	Quick and easy to print test results
Instant one button logging	Quick and easy to log test results
Reports feature	Combustion logging Tightness Test – complies with IGE/UP/1B CO room build up – complies with BS7967 Temperature report – ideal for Benchmark
Optional Bluetooth upgrade	Download results direct to a PC or PDA
4 x AA alkaline batteries	Battery life typically more than 12+ hours
NiMH rechargeable battery option	12 v "in car" charger. No more flat batteries!
Rubber boot with integral magnet	Provides extra protection and "hands free" operation
Task light	Never got a torch when you need one? You have now!
Optional H compensated CO sensor	Increased CO range, 0-4,000ppm fitted as standard in UK. Fast recovery from overranging.
Optional NO upgrade	Includes low range 0-100ppm
Optional Leak Detector	Easy to detect gas leaks
Low running costs	As standard!

KANE450 ANALYSER SPECIFICATION *(NOTE: MAY BE SUBJECT TO CHANGE)*

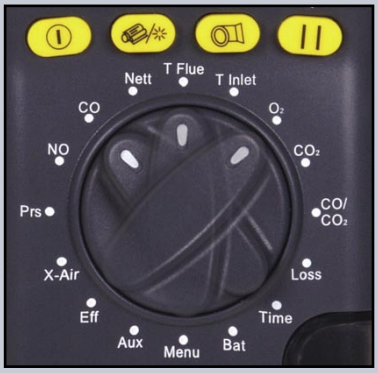
Parameter	Range	Resolution	Accuracy
Temp Measurement			
Flue Temperature	0-600°C *(0-1200°C with special probe)*	0.1°C	±1.5°C or ±1% reading
Inlet Temperature			
(Internal sensor)	0-50°C	0.1°C	±1.0°C
(External sensor)	0-600°C	0.1°C	±1.5°C or ±1% reading
Gas Measurement			
Oxygen	0-21%	0.1%	±0.2% *1
Carbon Dioxide*2	0-30%	0.1%	±0.3%
Carbon Monoxide (KANE450CO)	0-2,000ppm nom 4,000ppm max for 15 mins	1ppm	±2ppm <20ppm*1 ±5ppm <100ppm ±5% reading >100ppm
(KANE450COH) (hydrogen compensated)	0-4000ppm	1ppm	±5ppm <100ppm*1 ±5% reading >100ppm
Nitric Oxide (NO low range)	0-100ppm	1ppm	±2ppm <30ppm*1 ±5ppm <100ppm
(NO high range)	0-1000ppm	1ppm	±5ppm <100ppm*1 ±5% reading >100ppm
Calculated values *3			
Efficiency	0-99.9%	0.1%	
Excess Air	0-250%	0.1%	
CO/CO_2 ratio	0-0.9999	0.0001	
Pressure (differential)			
Nominal range ±80 mbar *(Maximum over range without damage to sensor is ±400 mbar)*	±0.2 mbar ±1 mbar ±80 mbar	0.001 mbar to 24.999 bar then 1.01 mbar	±0.005 mbar ±0.03 mbar ±3% of reading

*1 Using dry gases at STP

*2 Derived from O_2 measurement

*3 All calculations in accordance with BS EN50379 approval.

Pre-programmed Fuels	Natural gas, Propane, Butane, LPG, Light Oils (28/35 sec), Wood Pellets
Storage Capacity	99 Combustion tests 20 Pressure tests 20 Temperature tests 20 Room CO tests
Ambient Operating Range	0°C to +45°C 10% to 90% RH non-condensing
Battery Type / Life	4 AA cells >12 hours using Alkaline AA cells
Chargers (optional)	220v charger, for NiMH batteries only 12v in vehicle charger, for NiMH batteries only
Dimensions	
Weight:	0.8kg handset with protective cover
Handset:	200 x 45 x 90mm
Standard Probe:	300mm long including handle. 6mm diameter x 240mm long stainless steel shaft with 3m long neoprene hose. Type K thermocouple.



Using The Menu

Select "Menu" on the rotary switch and navigate using the function buttons...

△ = Scroll up ▽ = Scroll down ⬅ = Enter

Main Menu	Sub Menu	Options / Comments
SETUP	SET FUEL	NAT GAS, L OIL, PROPANE, BUTANE, LPG
	N ← C → G	Select the combustion efficiency calculation required ~ N = nett eff, G = gross eff, C = for condensing boilers
	SET TIME	Uses "Military" time. 7am = 07:00, 7pm = 19:00
	SET DATE	DD-MM-YY, MM-DD-YY
	C ← → F	°C, °F
	PPM ← → MG	PPM, MG/M^3
	O2 REF	NO, YES
	LANGUAGE	Various Languages
PRESSURE	SMOOTH	OFF = fast response. ON = slow response
	RESOLVE	HIGH, LOW, selects the number of decimal places
	PS UNITS	mBar, mmH_2O, Pa, kPa, PSI, mmHg, hPa, InH_2O
STORE	VIEW	View logged readings
	AUTO STO	See KANE450 REPORTS page
	DEL ALL	NO, YES
REPORT		See KANE450 REPORTS page
SCREEN	CONTRAST	Factory setting is 04
	AUX	User selectable parameters
	HEADER	Sets printout header, 2 lines, 20 characters per line