





# KANE457

## Quick Reference Guide



	<p><b>ON / OFF</b> Turns the analyser ON / OFF</p>		<p><b>BACKLIGHT</b> Switches backlight &amp; torch light ON / OFF</p>
	<p><b>PUMP</b> Turns the pump ON / OFF Hold button to zero pressure</p>		<p><b>SEND / ENTER</b> Send readings to printer (Press button for 1 second.) Send readings to memory (Hold button down for 2+ secs.)</p>



Flue probe temperature (T1)

Battery charger connection

Inlet temperature (T2)

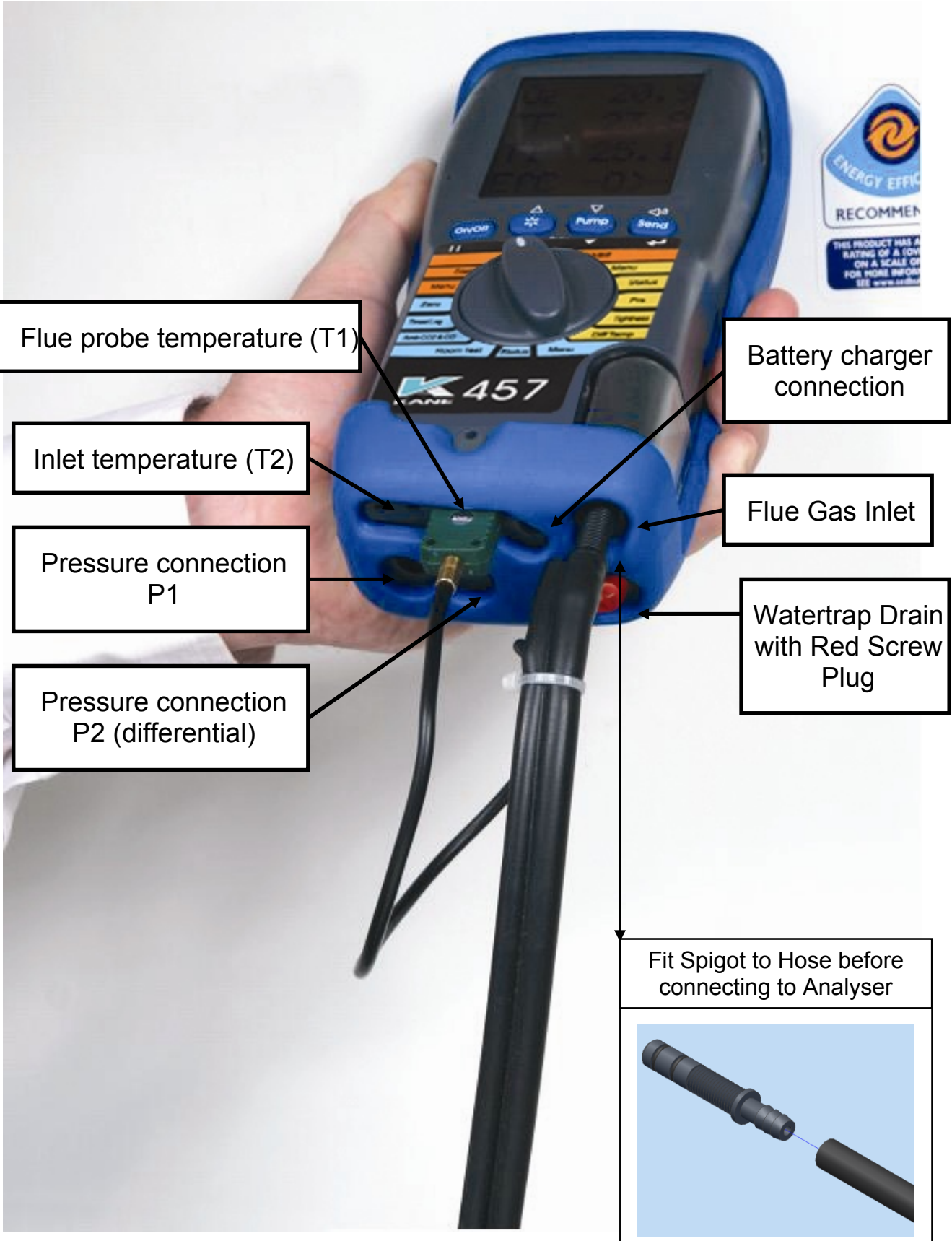
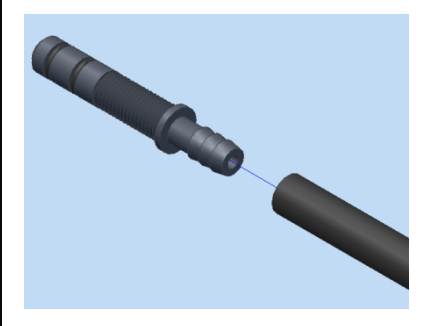
Flue Gas Inlet

Pressure connection P1

Watertrap Drain with Red Screw Plug

Pressure connection P2 (differential)

Fit Spigot to Hose before connecting to Analyser



## 1. BEFORE USING ANALYSER CHECK THE FOLLOWING:

- Particle filter is not dirty or wet.
- Water trap and flue probe hose are empty of water
- Water trap and red screw plug are fitted correctly to the analyser
- Flue probe hose is connected properly to the flue gas inlet
- Flue probe temperature plug is connected into T1 temperature connection

***Please read the Safety Warnings in the User Manual***

## 2. FRESH AIR PURGE


Position the flue probe in fresh air, then press the “On/Off” button. The analyser auto-calibrates for approximately 90 seconds. When complete...

Select “Ratio” on the dial. **In fresh air the CO reading = 0ppm**

Select “O<sub>2</sub>/Eff” on the dial. **In fresh air the O<sub>2</sub> reading = 20.9%**

Select “Status” on the dial to view the following...

### STATUS display

BAT	
11 : 46 : 29	
15 / 05 / 13	
CAL	283

- Battery status. If less than 1 bar recharge or replace, (see section 10)
- Current time. Can be set via the “Menu”, (see section 11)
- Current date. Can be set via the “Menu”, (see section 11)
- Number of days until re- calibration is required

Note: Boiler inlet air temperature can either be...

- a) Set automatically by the flue probe during the fresh air purge, or
- b) Continuously measured if a thermocouple is plugged into the T2 socket

## 3. COMBUSTION TESTS

Select “Ratio” on the dial to check that the analyser is set for the correct fuel. To change fuel select MENU / SETUP / SET FUEL then use scroll and enter, (see section 11).

Position the flue probe as per the boiler manufacturer’s instructions; typically the tip of the flue probe is inserted to the centre of the flue. The readings will stabilise after 60 seconds assuming the boiler conditions are stable.

The rotary switch can be used to display the following information...

### RATIO display

NAT GAS	
R	0.0001
CO <sub>P</sub>	12
CO <sub>2</sub> %	8.8

- Fuel type can be changed via “Menu”, (see section 11)
- CO/CO<sub>2</sub> ratio
- Carbon Monoxide, (ppm)
- Carbon Dioxide, (%)

Press SEND to print a full combustion test. (Also sends to PC if Bluetooth fitted).  
Hold SEND for 2+ seconds to log a full combustion report.

## O<sub>2</sub>/EFF display

O <sub>2</sub> %	5.4	- Oxygen left after combustion. Should be 20.9% in fresh air.
TF <sub>C</sub>	55.1	- Flue temperature, (°C)
TI <sub>C</sub>	17.2	- Inlet temperature. Normally set by flue probe during fresh air purge.
EfC%	98.3	- Condensing boiler efficiency (EfC). Can be changed via "Menu"

Press SEND to print a full combustion test. (Also sends to PC if Bluetooth fitted).  
Hold SEND for 2+ seconds to log a full combustion report.

## AUX display: a user defined display

O <sub>2</sub> %	20.9	- The default AUX (auxiliary) display is shown
CO <sub>P</sub>	00	The parameters on lines 1, 2, 3 and 4 can be set independently
11 : 55 : 02		To customise the AUX display select MENU / SCREEN / AUX.
BAT	59	They remain the AUX parameters until changed again by the user.

Press SEND to print a full combustion test. (Also sends to PC if Bluetooth fitted).  
Hold SEND for 2+ seconds to log a full combustion report.

## 4. PRESSURE TEST (Also see section 9)



Select "Prs". The pump stops. Press the PUMP button to auto-zero the pressure sensor. Using the black connectors and manometer hose connect to P1 for single pressure or P1 and P2 for differential pressure.

### PRS display


PRESSURE		- Defaults to smoothing 'off' on start-up. Can be changed via "Menu".
P	-0.04	- Defaults to 'low' resolution on start-up. Can be changed via "Menu".
mbar		- Pressure units can be changed via "Menu".
12 : 56 : 29		- Displays time to enable manually timed tests.

Press SEND to print a pressure test. (Also sends to PC if Bluetooth fitted).  
Hold SEND for 2+ seconds to log a pressure report.


## 5. LET-BY and TIGHTNESS TESTING (Also see section 9)

Select "Tightness". The pump stops. Press the PUMP button to auto-zero the pressure sensor. Select "yes" or "no" for the let-by test by using  $\Delta$  or  $\nabla$ , then press . Connect from the test point to P1 using a black connector and manometer hose. Adjust the gas pressure as you would with a "U" tube manometer. Press  to start either the let-by test or the stabilisation period...

LET BY		- Let-by test display.
P1	10.35	- Pressure at the start of the let-by test
P2	10.35	- Real time pressure reading
TIME	59	- Let-by default time is 1 minute. Can be changed via "Menu".

When complete adjust the gas pressure if necessary then press  to start the stabilisation period...


STABIL'N	- Stabilisation display.
P1 20.00	- Real time pressure reading
mbar	
TIME 59	- Stabilisation default time is 1 minute. Can be changed via "Menu".

When complete adjust the gas pressure if necessary then press  to start the tightness test...

TIGHTN'S	- Tightness test display.
P1 20.33	- Pressure at start of tightness test
P2 20.33	- Real time pressure reading
TIME 119	- Tightness default time is 2 minute. Can be changed via "Menu".

When complete the display will show...

LOG 06	- Let-by and tightness test are automatically stored as a log number
P1 20.33	- Pressure at start of tightness test
P2 20.26	- Pressure at end of tightness test
PRINT ↓	- The test can be printed immediately or later from the memory

Note: The analyser's memory can store up to 20 tightness tests. Tightness tests are logged automatically therefore the tightness section of the memory will be full after the 20<sup>th</sup> tightness test is complete. Before the 21<sup>st</sup> tightness test can be performed the tightness section of the memory must be cleared. To do this select MENU / REPORT / TIGHTN'S / DEL ALL / YES then press .

## 6. DIFFERENTIAL TEMPERATURE

Select "Diff Temp" to measure flow, return and differential temperatures

DIFF TEMP display

TEMP	- Pump automatically switches off when dial is moved to Diff Temp
T1c 60.1	- Use the T1 connection for the flow temperature sensor
T2c 47.0	- Use the T2 connection for the return temperature sensor
ΔTc 13.1	- Real time temperature difference

Press SEND to print a differential temperature test. (Also sends to PC if Bluetooth fitted). Hold SEND for 2+ seconds to log a differential temperature report.

## 7. AMBIENT TESTS

### ROOM AIR TESTING

Select "Room Test" for CO and CO<sub>2</sub> investigations. Tests can be 15 or 30 minutes and can be stopped at any time by pressing the PUMP key. Please refer to user manual.

#### ROOM AIR display

CO <sub>p</sub>	02	- Real time CO reading (ppm)
CO <sub>2P</sub>	600	- Real time CO <sub>2</sub> reading, (ppm)
TEST	14	- Test 00 = start. To stop the Room CO test press the PUMP button
LOG	01	- The complete Room CO test is automatically stored as a log number

Ambient CO<sub>2</sub> & CO ideal for 'walk around' testing.

CO <sub>p</sub>	8	- Real time CO reading, (ppm)
CO <sub>2P</sub>	900	- Real time CO <sub>2</sub> reading, (ppm)
CO <sub>x</sub>	14	- Maximum CO reading (ppm)
CO <sub>2x</sub>	985	- Maximum CO <sub>2</sub> reading (ppm)

#### Timed LOG

Select logging period from 4 to 24 hours to take 240 sets of readings

CO <sub>p</sub>	9	- Real time CO reading, (ppm)
CO <sub>2P</sub>	800	- Real time CO <sub>2</sub> reading, (ppm)
CO <sub>v</sub>	11	- Average CO reading (ppm)
CO <sub>2v</sub>	950	- Average CO <sub>2</sub> reading (ppm)

#### ZERO

Follow the instructions on the screen. 60 second ambient zero is followed by a true zero.

ZEROING	-
CO <sub>2p</sub>	0
TIME	59

60 second countdown

## 8. OTHER DISPLAY CODES

- PO- = Pump Off
- OC- = Open Circuit on temperature input

## 9. FOR BEST PRESSURE SENSOR ACCURACY

- 1) Switch the analyser on for 5 minutes to let the temperature stabilise.
- 2) Zero the pressure sensor when the analyser in the exact position that it will be used.

## 10. MANO-MODE

A limited mode for pressure and temperature only that avoids the 90 second countdown

With the KANE457 switched off, press and hold down  /  and then press and release  / . Release  /  after MANO\_MOD is displayed on top line.

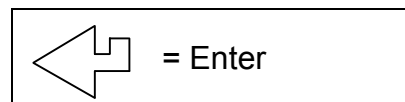
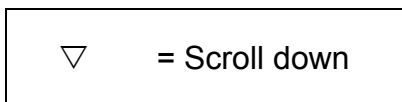
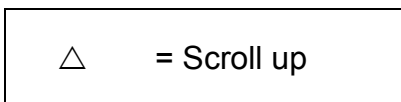
The KANE457 will now operate as a fixed display thermometer/pressure meter with the pump off and inhibited. The readings can be printed but not stored.

## 11. TO FULLY CHARGE NiMH RECHARGEABLE BATTERIES

- 1) The analyser must be switched on.
- 2) Connect the charger and switched it on; charging indicator illuminates.
- 3) Switch the analyser off; the display will show "BATTERY CHARGING".

## 12. USING THE MENUS

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



### COMBUSTION MENU

MAIN MENU	SUB MENU	OPTIONS / COMMENTS	
<b>SETUP</b>	SET FUEL	NAT GAS, L OIL (28/35 sec), PROPANE, BUTANE, LPG, PELLETS (Wood)	
	N ← C → G	EfN = nett efficiency, EfG = gross efficiency, EfC = condensing efficiency	
	SET TIME	Uses Military time. 7am = 07:00, 7pm = 19:00	
	SET DATE	Uses DD-MM-YY format	
	OUTPUT	KMIRP1 or KMIRP2 or BLUETOOTH or XML DATA	
	PASSKEY	1111	
<b>REPORT</b>	COMB'N	Stored combustion tests, VIEW, DEL ALL or EXIT (max = 99 tests)	
<b>SCREEN</b>	CONTRAST	Factory setting is 04	
	AUX	Enables users to customise the parameters on the AUX display User can set any parameter on lines 1, 2, 3 and 4	
	HEADER	Sets printout header, 2 lines, 20 characters per line	
<b>SERVICE</b>	CODE	Password protected for authorised service agents. Leave set to 0000.	

To EXIT each Sub MENU select EXIT.

To EXIT the MENU move the rotary switch to any position other than "Menu".

Any changes that have not been "entered" will be ignored.

### TEMP + PRESS. MENU

<b>SETUP</b>	PASSKEY	1 1 1 1
	SET TIME	Uses Military time. 7am = 07:00, 7pm = 19:00
	SET DATE	Uses DD-MM-YY format
	EXIT	



<b>MAIN MENU</b>	<b>SUB MENU</b>	<b>OPTIONS / COMMENTS</b>
<b>PRESSURE</b>	SMOOTH	OFF = normal response. ON = slower (damped) response
	RESOLVE	LOW = e.g. 0.01mBar resolution. HIGH = displays to an extra decimal place
	PS UNITS	mBar, mmH <sub>2</sub> O, Pa, kPa, PSI, mmHg, hPa, InH <sub>2</sub> O
	TIME	LET BY = Set duration of let-by test in minutes. Default = 1 minute STABIL'N = Set duration of stabilisation in minutes. Default = 1 minute TIGHTN'S = Set duration of tightness test in minutes. Default = 2 minute
	EXIT	
<b>REPORT</b>	PRESSURE	Stored pressure tests, VIEW, DEL ALL or EXIT (max = 20 tests)
	TIGHTN'S	Stored let-by and tightness tests, VIEW, DEL ALL or EXIT, (20 tests)
	TEMP	Stored differential temperature tests, VIEW, DEL ALL or EXIT (20 tests)
<b>SCREEN</b>	CONTRAST	Factory setting is 04
	AUX	Enables users to customise the parameters on the AUX display User can set any parameter on lines 1, 2, 3 and 4
	HEADER	Sets printout header, 2 lines, 20 characters per line
<b>SERVICE</b>	CODE	Password protected for authorised service agents. Leave set to 0000.

## AMBIENT MENU

<b>SETUP</b>	PASSKEY	1 1 1 1
	SET TIME	Uses Military time. 7am = 07:00, 7pm = 19:00
	SET DATE	Uses DD-MM-YY format
	EXIT	
<b>REPORT</b>	ROOM AIR	Stored Room AIR tests, VIEW, DEL ALL or EXIT (max = 20 tests)
	AMBIENT	Stored Amb CO2 & CO tests, VIEW, DEL ALL or EXIT, (20 tests)
	TIMED	Stored Timed Logs, VIEW, DEL ALL or EXIT (20 tests)
<b>SCREEN</b>	CONTRAST	Factory setting is 04
	AUX	Enables users to customise the parameters on the AUX display User can set any parameter on lines 1, 2, 3 and 4
	HEADER	Sets printout header, 2 lines, 20 characters per line
<b>SERVICE</b>	CODE	Password protected for authorised service agents. Leave set to 0000.

# 13. Printouts

KANE457 V 1.00G  
 SERIAL NO. 000000000  
 YOUR COMPANY NAME & PHONE NUMBER HERE

DATE 01/07/14  
 TIME 12:00:08

COMBUSTION

FUEL		NAT GAS
O2	%	5.4
CO2	%	8.8
CO	ppm	12
FLUE	°C	55.1
INLT	°C	17.2
NETT	°C	37.9
EFF	(C)	98.3
LOSSES		1.7
XAIR	%	34.8

Cal. due on 01/07/15

CO/CO2		0.0001
PRS	mbar	0.00

Customer

Appliance

Ref.

KANE457 V 1.00G  
 SERIAL NO. 000000000  
 YOUR COMPANY NAME & PHONE NUMBER HERE

AMBIENT CO/CO2

DATE 01/07/14  
 TIME 12:00:08

CO ppm	0
CO2 ppm	223
MAXIMUM CO	0
MAXIMUM CO2	223

Customer

Appliance

Ref.

KANE457 V 1.00G  
 SERIAL NO. 000000000  
 YOUR COMPANY NAME & PHONE NUMBER HERE

PRESSURE

DATE 01/07/14  
 TIME 12:00:08

PRS	mbar	-0.037
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Customer

Appliance

Ref.

KANE457 V 1.00G  
 SERIAL NO. 000000000  
 YOUR COMPANY NAME & PHONE NUMBER HERE

ROOM AIR TEST

LOG 01  
 DATE 01/07/14  
 TIME 12:00:08

TEST	CO ppm	CO2 ppm
0	0	0
1	0	222
2	0	192
3	0	177
4	0	178
5	0	183
6	0	189
7	0	192
8	0	200
15	0	235

MAXIMUM CO 0  
 MAXIMUM CO2 235

Customer

Appliance

Ref.

KANE457 V 1.00G  
 SERIAL NO. 000000000  
 YOUR COMPANY NAME & PHONE NUMBER HERE

DIFF TEMP

DATE 01.07/14  
 TIME 12:00:08

T1	°C	60.1
T2	°C	47.0
ΔT	°C	13.1

Customer

Appliance

Ref.

KANE457 V 1.00G  
 SERIAL NO. 000000000  
 YOUR COMPANY NAME & PHONE NUMBER HERE

LOG 01  
 DATE 01/07/14  
 TIME 12:00:08

LET BY TEST

PRS-1	mbar	10.12
PRS-2	mbar	10.11
LET-BY	MINS	1:00

TIGHTNESS TEST

PRS-1	mbar	20.12
PRS-2	mbar	20.10
ΔPRS	mbar	-0.02
STABIL'N	MINS	1:00
TIGHTN'S	MINS	2:00

Customer

Appliance

Ref.



# PRODUCT REGISTRATION

Please complete, detach and return to: Kane International Ltd  
Kane House, Swallowfield, Welwyn Garden City, Hertfordshire, AL7 1JG

<b>Your Details</b>	
Name:	
Job Title:	
Company Name:	
Company Address 1:	
Address 2:	
Town/City:	
County:	
Postcode:	
Country:	
Phone Number:	
Fax Number:	
Mobile Number:	
Email Address:	

<b>Product Details</b>	
<i>Note: Proof of Purchase may be required for warranty claims.</i>	
Date Purchased: as numbers (28.01.14):	
Purchased From:	
Model Number:	<b>KANE457</b>
Product Serial Number: Located on the rear product label beneath the protective rubber sleeve	



Why did you buy a Kane Product?

- Made in the UK
- Value for Money
- Kane Brand
- Not your Decision
- Previous Owner
- Our Fixed Price Servicing Programme
- Dealer Recommendation
- Other:

What brand was your previous analyser?

How did you hear about Kane?

- Magazine Advert
- Training School
- Personal Recommendation
- Exhibition
- Trade Counter
- Previous Owner
- Internet Search
- Other:

Which do you read most often?

	Often	Sometimes	Hardly Ever
Registered Gas Engineer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gas Installer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P.H.P.I.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P.H.A.M. News	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Heating Ventilating & Plumbing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Heating & Plumbing Monthly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Your feedback is important to us, please add any additional comments you would like to make with regard to your recent Kane purchase:

Thank you for completing this survey.  
All the information we have collected is confidential.  
We do not sell or share data with any other company or organisation.





Thank you for buying this  
analyser.

Before use, please register on  
our website

**[www.kane.co.uk](http://www.kane.co.uk)**



Scan the QR code to go directly to  
Register your Product on-line  
or complete, detach and return  
the Product Registration form in  
this manual.