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KANE456

Quick Reference Guide

On/Off	**ON / OFF** Turns the analyser ON / OFF	✳	**TORCH LIGHT** Switches torch light ON / OFF
Pump	**PUMP** Turns the pump ON / OFF Hold button to zero pressure or zero gas	Send	**SEND / ENTER** Send readings to printer (Press button for 1 second.) Send readings to memory (Hold button down for 2+ secs.)

Stock No. 19739 March 2016


NAT GAS
Ra 0.0010
CO 80P
CO2 8.3%
XAIR 42.4%
PRS 0.03m
On/Off
Pump
Send
456
Flue probe temperature (T1)
Inlet temperature (T2)
Pressure connection P1
Pressure connection P2 (differential)
Battery charger connection
Flue Gas Inlet
Watertrap Drain with Red Screw Plug
Fit Spigot to Hose before connecting to Analyser

1. BEFORE USING ANALYSER CHECK THE FOLLOWING:

Particle filter is not dirty
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 between 90 and 30 seconds depending on ambient temperature. When complete…

Select "Ratio" on the dial. **In fresh air the CO reading = 0ppm**
Select "O_2/Eff" on the dial. **In fresh air the O_2 reading = 20.9%**
Select "Status" on the dial to view the following…

STATUS display

NAT GAS	- Fuel selected. Can be set using △ / ▽
11 : 46 : 29	- Current time. Can be set via the "Menu" (see section 11)
15 / 03 / 16	- Current date. Can be set via the "Menu" (see section 11)
Ta 20.0°C	- Ambient temperature
CAL 283	- Number of days until next check and calibration is required
BAT	- Battery status. If one bar recharge or replace (see section 10)

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 / UNITS / FUEL TYPE then use scroll and enter, (see section 11). Can also be set in STATUS using △ / ▽ .

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	- Fuel type can be changed via “Menu”, (see section 11)
R 0.0001	- CO/CO2 ratio
CO 12p	- Carbon Monoxide, (ppm)
CO2 8.8%	- Carbon Dioxide, (%)
XAIR 35.1%	- Excess air
PRS 0.00m	- Pressure in mBar

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

O2/EFF display

NAT GAS	- Fuel selected
O2 5.4%	- Oxygen left after combustion. Should be 20.9% in fresh air.
EfC 98.3%	- Condensing boiler efficiency (EfC). Can be changed via “Menu”
TF 55.1C	- Flue temperature, (°C)
TI 17.2C	- Inlet temperature. Normally set by flue probe during fresh air purge.
ΔT 37.9C	- Differential temperature

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

AUX display: **can be set to any 6 parameters**

O2% 20.9	- The default AUX (auxiliary) display is shown
COP 00	- The parameters on all 6 lines 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.
EfC 98.3%	
PRS 0.00m	

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

4. PRESSURE/TEMP TEST (Also see section 9)

Select “PRS/TEMP”. 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

PRS -0.04m m = mbar T1 55.1C T2 17.2C ΔT 37.9C	- Defaults to smoothing 'off' on start-up. Can be changed via "Menu". - Defaults to 'low' resolution on start-up. Can be changed via "Menu". - Pressure units can be changed via "Menu".

Press SEND to print a test. (Also sends to PC if Wireless module fitted).
Hold SEND for 2+ seconds to log a 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 △ or ▽, 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 PR1 10.35 PR2 10.35 TIME 59	- Let-by test display. - Pressure at the start of the let-by test - Real time pressure reading - 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 PR1 20.00 mbar TIME 59	- Stabilisation display. - Real time pressure reading - 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.
PR1 20.33	- Pressure at start of tightness test
PR2 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 NO. 6	- Let-by and tightness test are automatically stored as a log number
PR1 20.33	- Pressure at start of stabilisation test
PR2 20.26	- Pressure at end of stabilisation test
PR1 20.25	- Pressure at start of tightness test
PR2 20.23	- Pressure at end of tightness test
PRINT ↓	- The test can be printed immediately or later from the memory

NOTE: **T**he 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 20th tightness test is complete. Before the 21st 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 ⇦ or DEL ALL on TIGHTNESS TEST page

6. COMMISSIONING TEST

Select "COM TEST" to conduct a commissioning test to TB143

TEST 1: Checks the inlet to a boiler at maximum gas rate by
zeroing the analyser
checking the inlet air

TEST 2: Checks the flue gas at max gas rate by
taking a flue gas reading

TEST 3: Checks the flue gas at min gas rate (if possible) by
taking a flue gas reading

TEST 4: Checks flow and return temperatures

7. ROOM CO TESTING

Select “Room CO” for CO investigations. Please refer to user manual.

You can select the following tests:

General Appliance test
Type A space heater
Type A water heater
Type A cooker
Type B open flued boiler
Type C Sealed Appliance
Migration Test
Sweep Test

Typical ROOM CO display (Water Heater)

ROOM	CO	
TEST	1/5	- Test 1 of 5 tests
INT.	14s	- Countdown time for this test
CO	0p	- Real time CO reading, (ppm)
LIMIT	10p	- Pass limit in ppm
ALARM	30p	- Alarm/stop limit in ppm

The complete Room CO test is automatically stored as a log number

ROOM	CO
LOG NO.	10
TEST	15
CO	00p
WATER	
PRINT	↓

8. OTHER DISPLAY CODES

-PO- = Pump Off or P-OFF

-OC- = Open Circuit on temperature input

9. FOR BEST PRESSURE SENSOR ACCURACY

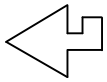
1) Switch the analyser on for 5 minutes to let the temperature stabilise.
2) Zero the pressure sensor when the analyser in the exact position that it will be used.

10. TO FULLY CHARGE NiMH RECHARGEABLE BATTERIES

1) The analyser must be switched off.
2) Connect the charger; charging indicator illuminates.
3) The display will show “BATTERY CHARGING” if the batteries need charging.

11. 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	LANGUAGE	Select language
	SET TIME	Uses Military time. 7am = 07:00, 7pm = 19:00
	SET DATE	Uses DD-MM-YY format. Can be changed using △ / ▽
	PRINTER	KANEIRP2, KMIRP, SERIAL & WIRELESS if fitted
	PASSKEY	Set Passkey 1 1 1 1
	BACK	

UNITS	FUEL TYPE	NAT GAS, WOOD PELLS, LIGHT OIL, LPG, BUTANE, PROPANE
	FUEL ORIGIN	Select country: UK, FRENCH, N. AMERICA
	EFFICIENCY	Gross, Nett, Gross Cond, Nett Cond.
	PRESSURE	See next table below
	GAS	ppm, ppm(n)
	TEMP	C or F
	O2 REF	Set O2 ref level (0-15%)
	NOx CALC	Set NOx calculated level (needs optional NO sensor to be fitted) (0-20%)
	BACK	

PRESSURE	FILTER	ON or OFF
	RESOLUTION	LOW or HIGH
	UNITS	Mbar, psi, hPa, Pa, mmHg, InH2o, kPa, mmH20
	TIME	Set Let By, Stabilisation and Tightness test times.
	BACK	

SCREEN	CONTRAST	Default = 14
	BACKLIGHT	Set OFF delay 0 to 300secs (in increments of 30 secs)
	AUX	Configure 6 lines of the AUX screen
	BACK	

REPORT	AUX	
	COMBUSTION	Stored tests, VIEW, DEL ALL or EXIT (max = 99 tests)
	COMMISSION	Stored tests, VIEW, DEL ALL or EXIT (max = 20 tests)
	PRS/TEMP	Stored tests, VIEW, DEL ALL or EXIT (max = 20 tests)
	TIGHTNESS	Stored tests, VIEW, DEL ALL or EXIT, (20 tests)
	ROOM CO	Stored room CO tests, VIEW, DEL ALL or EXIT (max = 20 tests)
	HEADER	Set 2 lines of HEADER details
	BACK	

SERVICE	CODE	Password protected for authorised service agents. Leave set to 000000.

To EXIT EACH Sub MENU select BACK.

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

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

PRINTOUTS

COMBUSTION

KANE456 SW19392 V0.12

YOUR COMPANY NAME &
PHONE NUMBER HERE

SERIAL NO. 9876543210

LOG NO. 01

DATE 19/01/16
TIME 11:06:09

CAL DUE ON 18/12/16

COMBUSTION

FUEL TYPE		NAT GAS
CO2	%	9.0
O2	%	5.1
CO	ppm	50
NO	ppm	-N/F-
NOx	ppm	-N/F-
FLUE	°C	65.2
INLET	°C	17.2
NETT	°C	48.0
CO/CO2		0.0005
NET	%	97.9
LOSS	%	2.1
XAIR	%	32
PRS	mbar	0.21

CUSTOMER

APPLIANCE

REFERENCE

COMMISSION TEST

KANE456 SW19392 V0.12

YOUR COMPANY NAME &
PHONE NUMBER HERE

SERIAL NO. 9876543210

LOG NO. 08

DATE 19/01/16
TIME 11:50:04

CAL DUE ON 18/12/16

COMMISSION TEST

ANALYSER ZERO

CO2	%	0.00
CO	ppm	0

FLUE INTEGRITY

CO2	%	0.00

MAX GAS FLOW

CO2	%	9.1
CO	ppm	50
CO/CO2		0.0005

MIN GAS FLOW

CO2	%	9.0
CO	ppm	48
CO/CO2		0.0005

FLOW & RETURN

T1	°C	65.5
T2	°C	48.2
ΔT	°C	17.3

CUSTOMER

APPLIANCE

REFERENCE

PRS/TEMP

KANE456 SW19392 V0.12

YOUR COMPANY NAME &
PHONE NUMBER HERE

SERIAL NO. 9876543210

LOG NO. 20

DATE 19/01/16
TIME 12:23:59

CAL DUE ON 18/12/16

PRS/TEMP

PRS	mbar	18.01
T1	°C	75.5
T2	°C	65.2
ΔT	°C	10.3

CUSTOMER

APPLIANCE

REFERENCE

SWEEP TEST

KANE456 SW19392 V0.12

YOUR COMPANY NAME &
PHONE NUMBER HERE

SERIAL NO.	9876543210
LOG NO.	06
DATE	19/01/16
TIME	10:11:11
CAL DUE ON	18/12/16

ROOM CO
SWEEP TEST

LIMIT	10ppm
ALARM	30ppm
TESTS	1

M	CO ppm
01	0
MAXIMUM CO ppm	0

CUSTOMER

APPLIANCE

REFERENCE

TYPE C SEALED APPLIANCE

KANE456 SW19392 V0.12

YOUR COMPANY NAME &
PHONE NUMBER HERE

SERIAL NO.	9876543210
LOG NO.	03
DATE	19/01/16
TIME	12:25:27
CAL DUE ON	18/12/16

ROOM CO
TYPE C
SEALED
APPLIANCE

LIMIT	10ppm
ALARM	30ppm
TESTS	15

TEST	CO ppm
01	0
02	0
03	0
04	0
05	0
06	0
07	0
08	0
09	0
10	0
11	0
12	0
13	0
14	0
15	0
MAXIMUM CO ppm	0

CUSTOMER

APPLIANCE

REFERENCE

TIGHTNESS TEST

KANE456 SW19392 V0.12

YOUR COMPANY NAME &
PHONE NUMBER HERE

SERIAL NO.	9876543210
DATE	19/01/16
TIME	11:09:16
CAL DUE ON	18/12/16

LET BY TEST

PRS 1	mbar	10.80
PRS 2	mbar	10.78
LET BY	MINS	1:00

TIGHTNESS TEST

PRS 1	mbar	20.14
PRS 2	mbar	20.13
ΔP	mbar	-0.01
STABILIS'N	MINS	1:00
TIGHTNESS	MINS	2:00

CUSTOMER

APPLIANCE

REFERENCE

PRODUCT REGISTRATION

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

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

Product Details *Note: Proof of Purchase may be required for warranty claims.*	
Date Purchased: as numbers (28.01.14):	
Purchased From:	
Model Number:	**KANE456**
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	☐	☐	☐
Gas Installer	☐	☐	☐
P.H.P.I.	☐	☐	☐
P.H.A.M. News	☐	☐	☐
Heating Ventilating & Plumbing	☐	☐	☐
Heating & Plumbing Monthly	☐	☐	☐

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

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.