KANE455

Quick Reference Guide

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

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Flue probe temperature (T1)
Inlet temperature (T2)
Pressure connection P1
Pressure connection P2 (differential)
Battery charger connection
Flue Gas Inlet
Rubber Bung
Fit Spigot to Hose before connecting to Analyser
455
Pump
Send

1. BEFORE USING ANALYSER CHECK THE FOLLOWING:

Particle filter is not dirty inside
Water trap and flue probe hose are empty of water
Water trap and rubber bung 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_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

BAT 59	- Battery status. If less than 20 recharge or replace, (see section 10)
11 : 46 : 29	- Current time. Can be set via the "Menu", (see section 11)
15 / 05 / 08	- Current date. Can be set via the "Menu", (see section 11)
CAL 283	- Number of days until next check and 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	- Fuel type can be changed via "Menu", (see section 11)
R 0.0001	- CO/CO_2 ratio
CO_P 12	- Carbon Monoxide, (ppm)
CO_2% 8.8	- 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_2/EFF display

O_2% 5.4	- Oxygen left after combustion. Should be 20.9% in fresh air.
TFC 55.1	- Flue temperature, (°C)
TIC 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

O_2% 20.9	- The default AUX (auxiliary) display is shown
COP 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 △ 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	- 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 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 ⇦.

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
△TC 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. ROOM CO TESTING

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

ROOM CO display

ROOM	CO	- Duration of this test is variable from 0 to 30 minutes as per BS7967
COP	00	- Real time CO 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

8. OTHER DISPLAY CODES

-PO- = Pump Off

-OC- = Open Circuit on temperature input

9. FOR BEST PRESSURE SENSOR ACCURACY

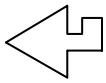
1) Switch the analyser on for 5 minutes to let the temperature stabilise.
2) Zero the pressure sensor when the analyser in the exact position that it will be used.

10. 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”.
4) The BAT status number of fully charged NiMH batteries is typically 70+

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	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
PRESSURE	SMOOTH	OFF = normal response. ON = slower (damped) response
	RESOLVE	LOW = normal. HIGH = displays to an extra decimal place
	PS UNITS	mbar, mmH_2O, Pa, kPa, PSI, mmHg, hPa, InH_2O
	TIMES	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
REPORT	COMB’N	Stored combustion tests, VIEW, DEL ALL or EXIT (max = 99 tests)
	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)
	ROOM CO	Stored room CO tests, VIEW, DEL ALL or EXIT (max = 20 tests)
SCREEN	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
SERVICE	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.

12. Printouts

```
K455  1.0
YOUR COMPANY NAME &
PHONE NUMBER HERE


TEST          10

DATE          15/05/08
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

CO/CO2          0.0001

PRS   mBAR        0.00



.....................
Customer

.....................
Appliance

.....................
Ref.

.....................
```

```
K455  1.0
YOUR COMPANY NAME &
PHONE NUMBER HERE

PRESSURE
.....................

LOG                 04
TIME  12:56 15/05/08

PRS   mBAR       6.28


.....................
Customer

.....................
Appliance

.....................
Ref.

.....................
```

```
K455  1.0
YOUR COMPANY NAME &
PHONE NUMBER HERE

DIFF TEMP
.....................

LOG                 03
TIME  12:10 15/05/08

T1      °C       60.1
T2      °C       47.0
ΔT      °C       13.1

.....................
Customer

.....................
Appliance

.....................
Ref.

.....................
```

```
K455  1.0
YOUR COMPANY NAME &
PHONE NUMBER HERE



LOG                 04
TIME  11:53 15/05/08

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.

.....................
```

```
K455  1.0
YOUR COMPANY NAME &
PHONE NUMBER HERE

ROOM CO TEST
.....................

LOG                 01
TIME  12:50 15/05/08

TEST            CO ppm
 0                  00
 1                  00
 2                  10
 3                  04
 4                  01
 5                  00
 6                  00
 7                  10
 8                  03
 9                  00
10                  00
11                  00
12                  07
13                  11
14                  02
15                  00
.....................
MAXIMUM CO          11

.....................
Customer

.....................
Appliance

.....................
Ref.

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Thank you for reading this data sheet.

For pricing or for further information, please contact us at our UK Office, using the details below.

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Please note - Product designs and specifications are subject to change without notice. The user is responsible for determining the suitability of this product.