# KANE425
## QUICK REFERENCE GUIDE


**ON / OFF**
Turns the analyser ON / OFF

**PUMP**
Turns the pump ON / OFF
Hold button to zero pressure

**BACKLIGHT**
Switches backlight & torch light ON / OFF

**SEND / ENTER**
Send readings to printer
(Press button for 1 second.)
Send readings to memory
(Hold button down for 2+ secs.)

Stock No: 18347-2

## 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 30 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% ± 0.1%.**
Select "Status" on the dial to view the following…

STATUS display

| | |
|---|---|
| BAT 79 | - Battery status. If less than 20% recharge or replace as appropriate |
| 11:46:29 | - Current time. Can be set via the "Menu", (see section 11) |
| 15/05/06 | - Current date. Can be set via the "Menu", (see section 11) |
| CAL 283 | - Shows number of days until next calibration is due |

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 within 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” |
| R 0.0001 | - $CO/CO_2$ ratio |
| CO 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

| | |
|---|---|
| O2 5.4 | - Oxygen left after combustion. Should be 20.9% ±0.1% in fresh air. |
| TF 55.1 | - Flue temperature, (°C) |
| TI 17.2 | - Inlet temperature. Normally set by flue probe during fresh air purge. |
| Ef C 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

| | |
|---|---|
| O2 20.9 | - The default AUX (auxiliary) display is shown |
| CO 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 79 | 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 ENTER. 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 ENTER to start either the let-by test or the stabilisation test…

| | | |
|---|---|---|
| LET BY | | - This is the let-by test display. The stabilisation test display is similar. |
| 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 press ENTER to start the stabilisation or tightness test…

| | | |
|---|---|---|
| TIGHTN’S | | |
| 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 this 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 |

## 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 |
| T1 | 60.1 | - Use the T1 connection for the flow temperature sensor |
| T2 | 47.0 | - Use the T2 connection for the return temperature sensor |
| △T | 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 | - This is a 15 minute test to check for migration of CO as per BS7967 |
| CO | 00 | - Real time CO reading, (ppm) |
| TEST | 14 | - Test 00 = initial reading, Test 15 = final reading |
| LOG | 01 | - Log number for the complete test. |

## 8. ERROR CODES

PO = Pump Off

-O>- = Oxygen greater than 18% so calculation is disabled

-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

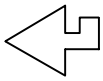
1) The analyser must be switched on.
2) Connect the charger and switched it on; charging indicator illuminates.
3) The analyser can now be switched off; the display will show “BATTERY CHARGING”.

# 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** | 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<br>**KANE 425 always defaults to EfC on start-up** |
| | 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<br>**KANE 425 always defaults to normal response on start-up** |
| | RESOLVE | LOW = normal. HIGH = displays to an extra decimal place<br>**KANE 425 always defaults to low resolution on start-up** |
| | 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<br>STABIL’N = Set duration of stabilisation in minutes. Default = 1 minute<br>TIGHTN’S = Set duration of tightness test in minutes. Default = 2 minute |
| **REPORT** | COMB’N | Stored combustion tests, VIEW, DEL ALL or EXIT |
| | PRESSURE | Stored pressure tests, VIEW, DEL ALL or EXIT |
| | TIGHTN’S | Stored let-by and tightness tests, VIEW, DEL ALL or EXIT |
| | TEMP | Stored differential temperature tests, VIEW, DEL ALL or EXIT |
| | ROOM CO | Stored room CO tests, VIEW, DEL ALL or EXIT |
| **SCREEN** | CONTRAST | Factory setting is 04 |
| | AUX | Enables users to customise the parameters on the AUX display<br>User can set any parameter on lines 1, 2, 3 and 4 |
| | HEADER | Sets printout header, 2 lines, 20 characters per line |

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

```
K425  1.0
YOUR COMPANY NAME &
PHONE NUMBER HERE

TEST          10

DATE          15/05/06
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.

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

```
K425  1.0
YOUR COMPANY NAME &
PHONE NUMBER HERE

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

TIME  12:56 15/05/06

PRS   mBAR    -0.037


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

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

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

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

```
K425  1.0
YOUR COMPANY NAME &
PHONE NUMBER HERE

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

LOG                03
TIME  12:10 15/05/06

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

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

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

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

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

```
K425  1.0
YOUR COMPANY NAME &
PHONE NUMBER HERE



LOG                04
TIME  11:53 15/05/06

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.

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

```
K425  1.0
YOUR COMPANY NAME &
PHONE NUMBER HERE

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

LOG                01
TIME  12:50 15/05/06

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.

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