KANE 258

Flue Gas Analyser with direct O2 measurement and CO sensor protection

Stock No: MAN00100 Rev: 0.00000

JULY 2020

CONTENTS

KANE 258 OVERVIEW

The KANE 258 combustion analyser measures:

- Carbon Monoxide (CO)
- Oxygen (O2)
- Temperature
- CO Over Range Protection

Depending on fitted options the following parameters are calculated:

- CO/CO2 ratio
- Carbon Dioxide (CO2)
- Combustion Efficiency
- Losses
- Excess Air
- Differential Temperature

Your KANE258 has a protective rubber cover with magnets for “hands-free” operation and is supplied with a flue probe with integral temperature sensor.

Your KANE258 has a low flow detector system to switch off the analyser’s pump if it detects an over filled water trap.

Your KANE258 has a large 6 line display showing data and test results based on your actions. The display’s bottom line also highlights analyser status at all times.

Your KANE258 stores up to 30 logs of any combination of Combustion & Temperature test results.

Your KANE258 can send test readings to our optional KANE IRP-2 infrared printer or KANE’s wireless App if wireless is fitted.

Two lines of 16 characters can be added to the header of the printouts.

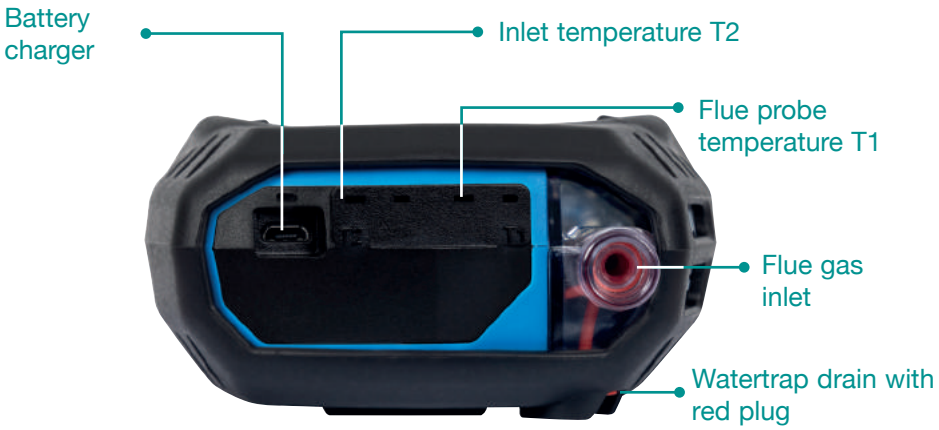
INSTRUMENT FEATURES AND KEYPAD

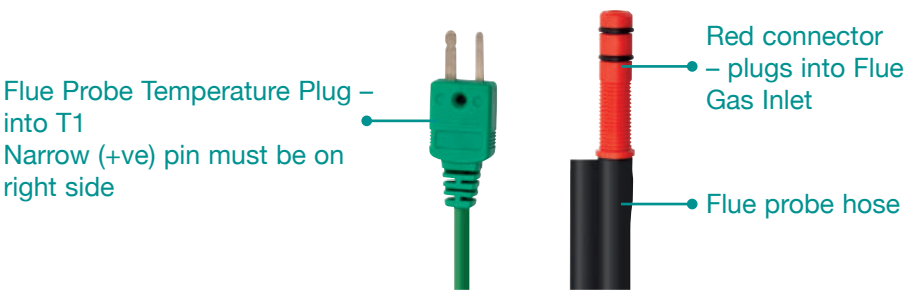
KEYPAD BUTTONS

Function keys

ICON	DESCRIPTION
	Save log-long press to store data
	Print report-short press to print a report (will enter a print destination if both wireless and irda fitted)
	Navigate up-short press to scroll up
	Enter key-used to select the current option
	Navigate down-short press to scroll down
	Data hold - short press to hold current data on screen (see status bar section)
	Pump toggle - long press to toggle pump on and off

INSTRUMENT LAYOUT






Thermocouple
Stainless steel
Shaft
Depth stop cone
Gas path
KCP2
Magnets x2
Watertrap drain
with red plug
Thermocouple
wire

BATTERIES

BATTERY TYPE

Your KANE258 uses rechargeable Nickel Metal Hydride (NiMH) batteries.
- Using other battery types may void your KANE258's warranty.

⚠ WARNING

Although you can use Alkaline batteries you must not charge your KANE258 with Alkaline batteries fitted.

Do not mix NiMH cells with different capacities or from different manufacturers - All batteries must be identical.

REPLACING BATTERIES

Turn over your analyser & remove its protective rubber cover to find the battery compartment & fit 3 NiMH "AA" rechargeable batteries ensuring they are fitted with correct battery polarity. Replace battery cover & protective rubber cover.

TIME AND DATE

After changing batteries reset your analyser's time & date.

CHARGING NIMH BATTERIES

Your KANE258 uses a standard Micro USB connector - For best results turn off then connect your charger. The charging indicator illuminates and turns off when charging is over.

Your first charge should be for 8 hours - Thereafter NiMH batteries can be topped up any time, even for short periods.

If your batteries discharge so the analyser enters a low power shutdown, 1 hour's charge provides approx 2 hours continuous use.

BATTERY DISPOSAL

Always dispose of depleted batteries using approved disposal methods that protect the environment.

GENERAL SAFETY

SAFETY WARNING

Your KANE258 extracts combustion gases that may be toxic in low concentrations. These gases are exhausted from the bottom of the analyser. This analyser must only be used in well-ventilated locations by trained and competent persons after due consideration of all the potential hazards.

Portable gas detectors users should conduct “bump” tests before relying on units to verify atmospheres are free from hazard.

A “bump” test is a way to check an instrument works within acceptable limits by briefly exposing it to known gas mixtures to change the output of all sensors present.

NOTE: This is different from a calibration where your analyser is also exposed to known gas mixtures but allowed to settle to a steady figure with readings adjusted to the stated gas concentration of the test gas.

Protection Against Electric Shock (In accordance with EN 61010-1: 2010):

This analyser is designed as Class III equipment and should only be connected to SELV circuits. The battery charger is designated as:

- Class II equipment
- Installation category II
- Pollution degree 2
- Indoor use only
- Altitude to 2000m
- Ambient temperature 0°C-40°C
- Maximum relative humidity 80% for temperatures up to 31°C decreasing linearly to 50%RH at 40°C
- Mains supply fluctuations not to exceed 10% of the nominal voltage

WARNING

Your analyser’s protective cover is fitted with strong magnets – magnetic fields can cause damage to magnetic storage media. Certain electronic devices are sensitive to magnetic fields and may be damaged permanently if exposed to a strong magnetic field.

FIRST TIME USE

Charge your KANE258's batteries for 8 hours - An overnight charge should be sufficient for an average 8-hour day.

Take time to read this manual fully and be aware your analyser's configuration may not support all features explained in this manual.

Take time to set it up to your requirements before using your analyser.

NOTE: Your analyser's STATUS bar displays current time, date & battery status - Check time & date are correct as they can only be changed when you have no stored logs in Memory to protect the integrity of your stored data.

GENERAL OPERATING PRINCIPLE

Using your KANE258 is simple with the rotary dial and user interface. Most tests can be made with little user activity.

Your analyser's status bar offers options based on tasks you are performing and displays useful information and messages.

QUICK START

Turn on your KANE258 pressing the ⏻ button for 2 seconds until it starts. Your KANE258 starts a 30 second zero calibration - once completed select the tests you want by turning the analyser's rotary dial.

USER INTERFACE

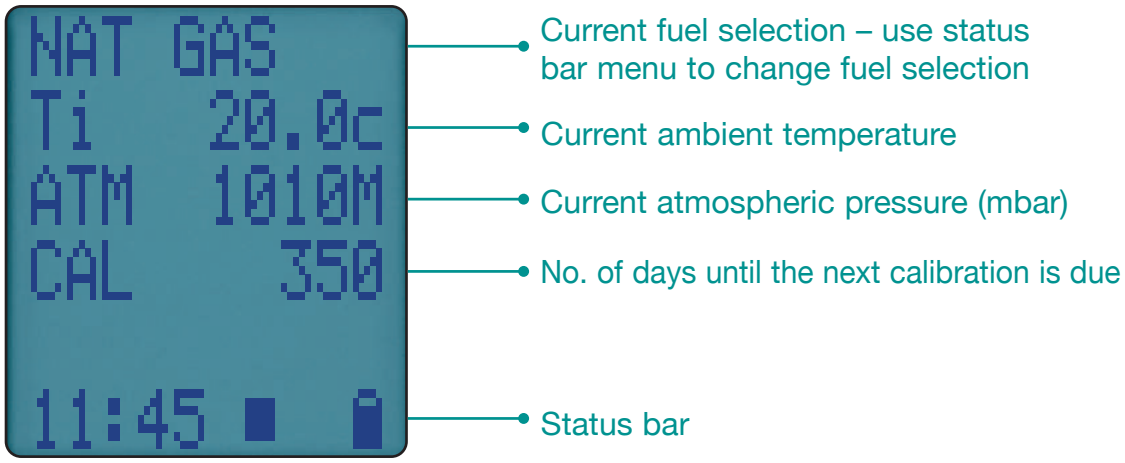
Your KANE258's large display shows 5 lines of tests & a status bar. The backlight activates on each button press then turns off after 10 seconds.

Navigate through your options and menu choices via the 3 dedicated ▲ ▼ & ↵ buttons.

Button presses are either short or long presses.

STATUS

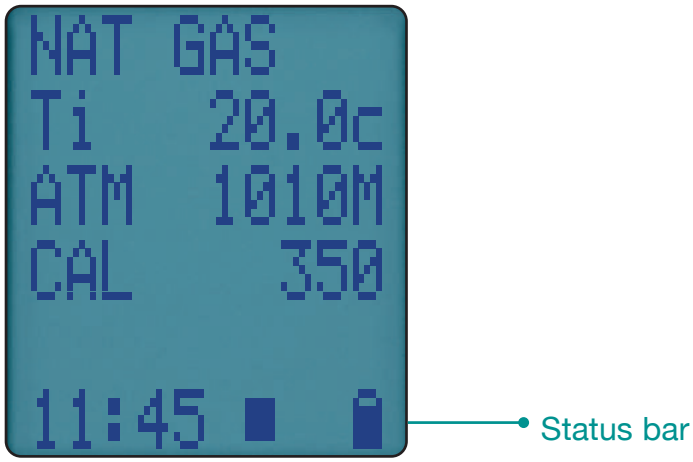
Rotate dial to “Status” on the dial to view:



STATUS BAR

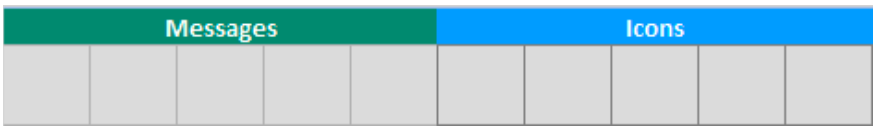
The Status bar shows instrument status & offers options based on your settings.

Navigate through the status bar options via the ▲ & ▼ buttons when the status bar is on the display.



STATUS BAR LAYOUT

Status bar splits into 2 zones - Messages & Icons:



STATUS BAR MESSAGE ZONE

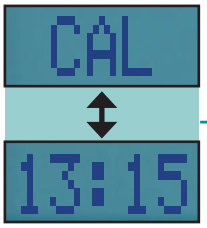
CLOCK FUNCTION

Displays current time

DATA HOLD FUNCTION

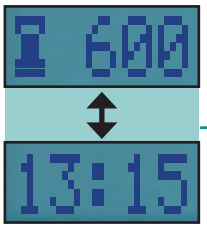
Display alternates between hold symbol & time stamp of held data

CALIBRATION DUE WARNING MESSAGE



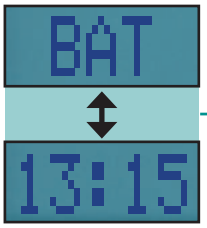
Display alternates between calibration due symbol & current time

AIR PURGE "SNOOZE" TIMER



Display alternates air purge delay symbol & current time

LOW BATTERY WARNING MESSAGE

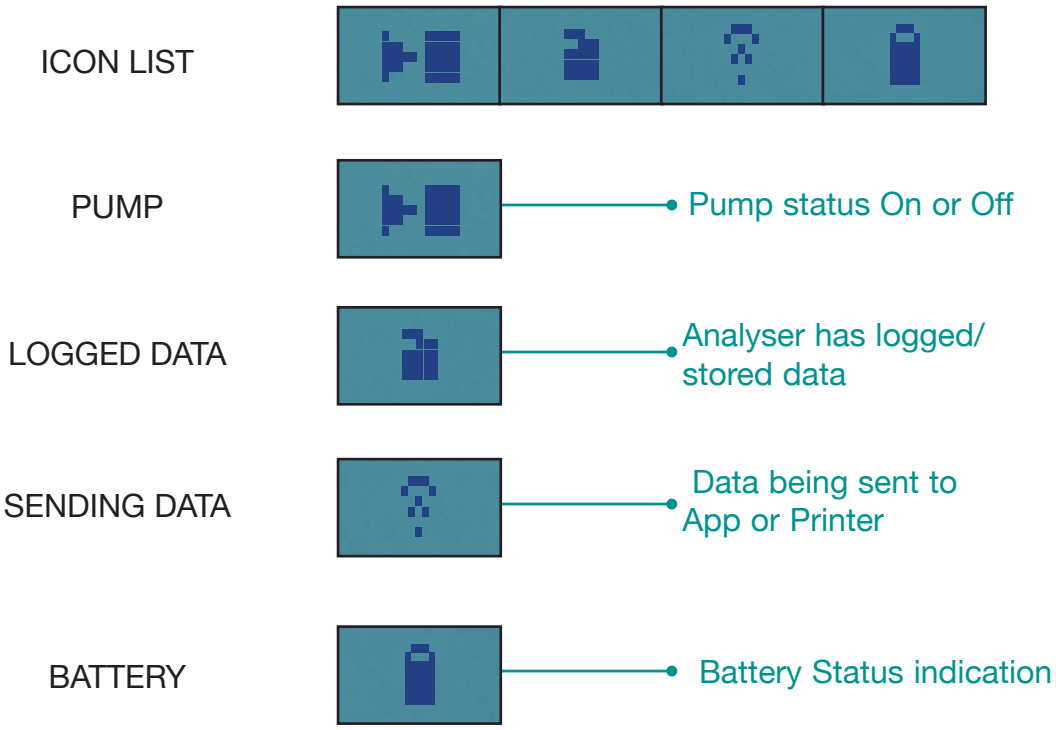


Display alternates between BAT symbol & current time

STATUS BAR ZONES

Icons give quick and simple status information:

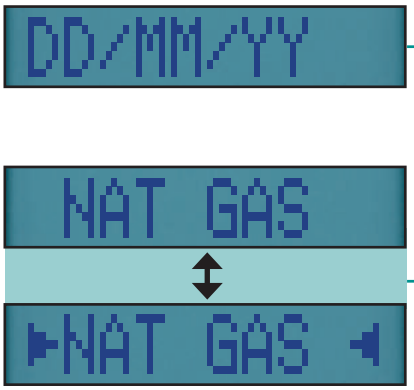
STATUS BAR ICONS



STATUS BAR MENU OPTIONS

Status Bar offers helpful menu options based on your screen.

STANDARD OPTIONS



Date

Displays selected fuel type - To change, long press ↵ button to display selection indicators. Press ▲ or ▼ buttons to select fuel then press ↵ button

USING THE MENU

Rotate dial to MENU to customise your analyser's default settings to your requirements.

Navigate through the Menu system using these buttons ▲ ▼ & ↵.

Menu option to edit

NOTE: To exit Menu turn your analyser's rotary dial to any position – changes not entered are not stored.

MENU ITEMS

MENU ITEM	MENU TEXT	OPTIONS/COMMENTS
TIME	TIME	HH:MM:SS format E.g.. 7am = 07:00:00, 7pm = 19:00:00
DATE	DATE	DD/MM/YY format
HEADER	HEADER	Edit the 2 Line Header on your printouts
LOGS	LOGS	View current memory usage & stored reports
EFFICIENCY	EFF	Efficiency calculation analyser set to Gross or Net — Condensing automatically selected based on selected fuel type
GAS SCALE	ppm/mg	Select, ppm, ppm(n), mg/m3, mg/m3(n), mg/kWh, mg/kWh(n)
PRINTER TYPE	IR PRINT	Select, KMIRP, IRP-2
02 REF	02 REF	Used for “Normalised” readings. Default set to 3%, can be adjusted up or down
LANGUAGE	LANG	Select required language from the list
CODE	CODE	Efficiency calculation analyser set to Gross or Net — Condensing automatically selected based on selected fuel type

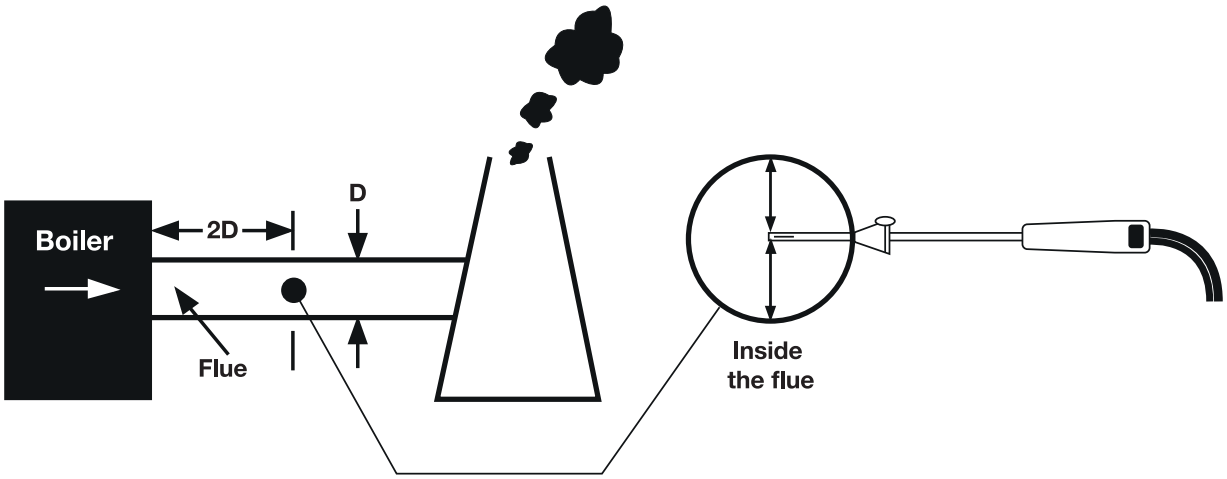
MEASURING FLUE GASSES

After countdown is finished and your analyser is correctly set up, put its flue probe into the appliance’s sampling point. The probe tip should be in the centre of the flue – use the flue probe’s depth stop cone to set the position.

With balanced flues, make sure the probe is positioned far enough into the flue so no air can “back flush” into the probe.

⚠ SAFETY WARNING

Ensure your flue probe handle does not get hot!



Make sure you do not exceed the analyser's operating specifications. In particular:

• Do not exceed the flue probe's maximum temperature (600°C)
• Do not exceed the analyser's internal temperature operating range
• Do not put the analyser on a hot surface
• Do not exceed the water trap's levels
• Do not let the analyser's particle filter become dirty and blocked

Look at your analyser's displayed data to ensure stable operating conditions are achieved and readings are within expected range.

PRINTING

Press and release ᯤ to send your test results to our optional KANE IRP-2 printer or KANE App. You can stop printing by pressing the ᯤ button again.

KANE INFRARED PRINTER

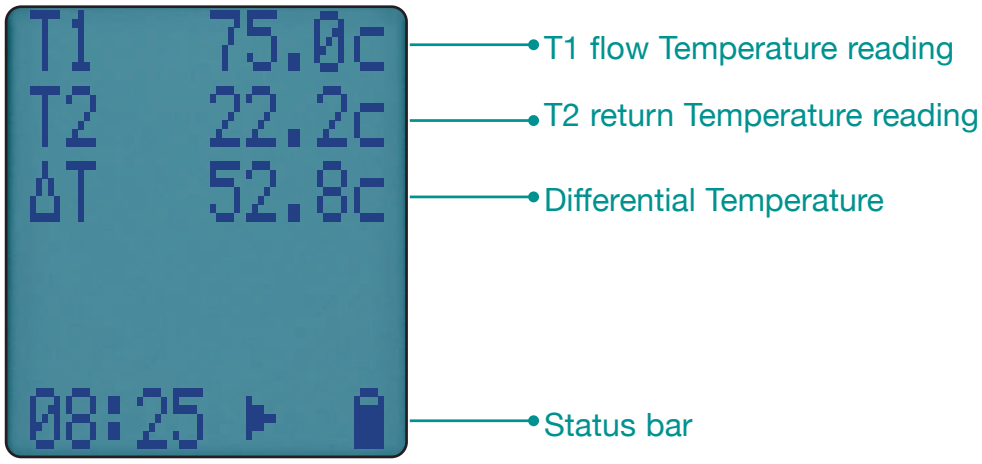
To use your printer, switch it on and place its infrared receiver in line with the emitter on top of your analyser – allow a 15cm gap between your analyser and printer.

CO PROTECTION PUMP OPERATION

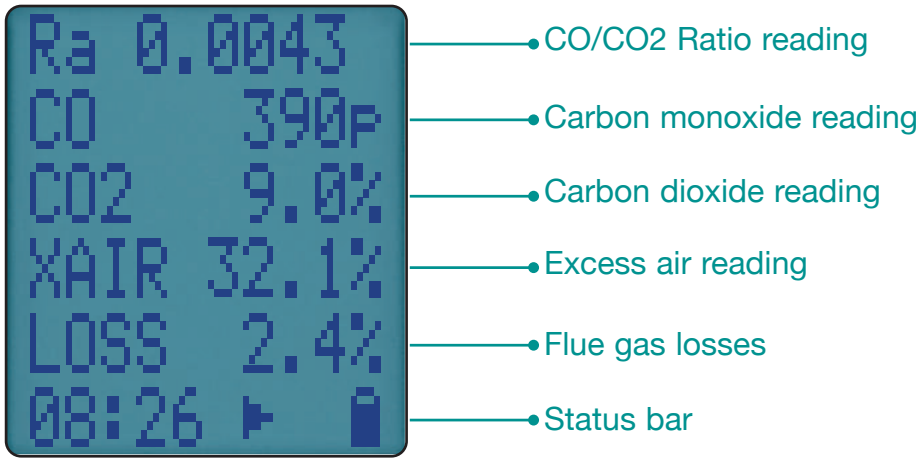
Your analyser's CO sensor is automatically protected from high levels of CO. When levels of CO rise above 2000ppm the analyser's pump stops and its CO purge pump starts.

Your analyser displays P-OFF until CO levels fall below 2000ppm.

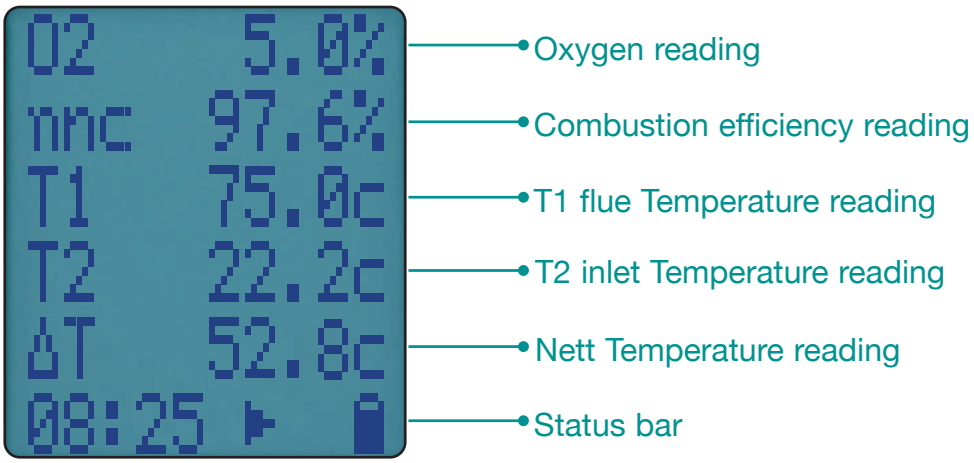
TEMPERATURE SCREEN



CO/CO2 SCREEN



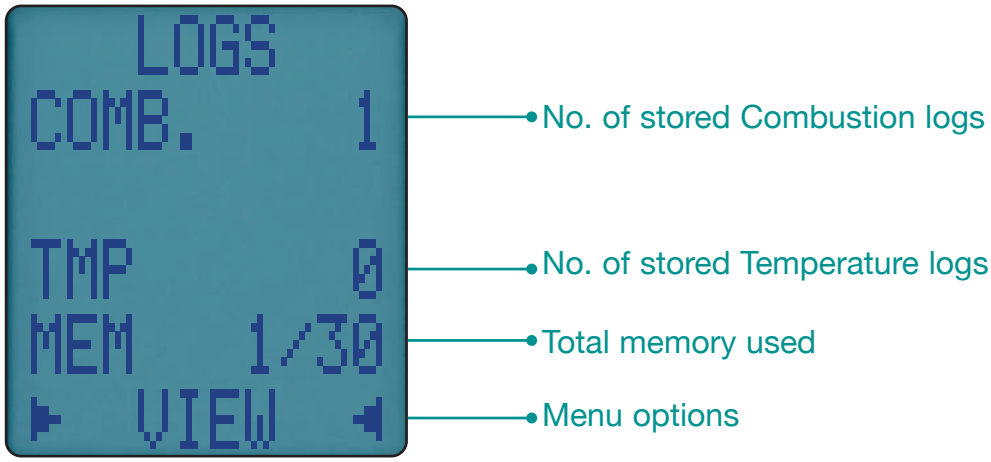
O2/EFF SCREEN



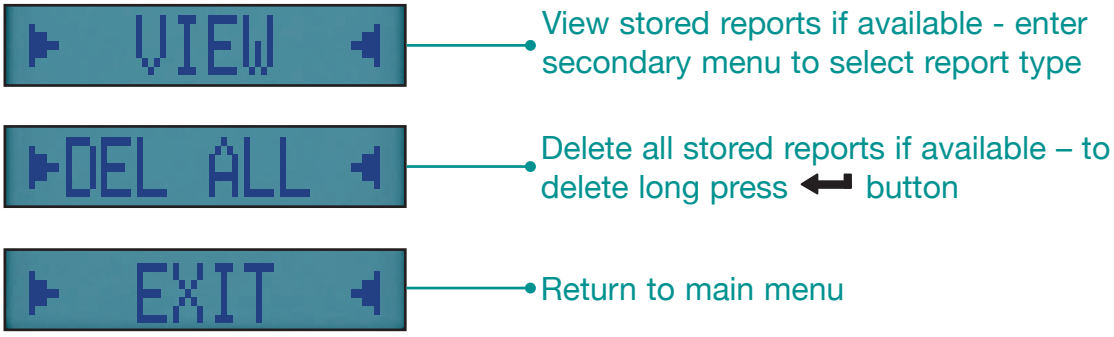
STORED MEMORY LOGS

Your KANE258 utilises a shared memory system which means your stored logs are not limited by type.

An icon displays when your analyser has stored data. To view current memory turn rotary dial to MENU then select LOGS.



MENU OPTIONS



VIEWING STORED LOGS

To view your reports, select VIEW option from the LOGS Menu:

List of available LOGS
Navigation and selection via ▲ ▼ & ↵

LOG VIEW MENU OPTIONS

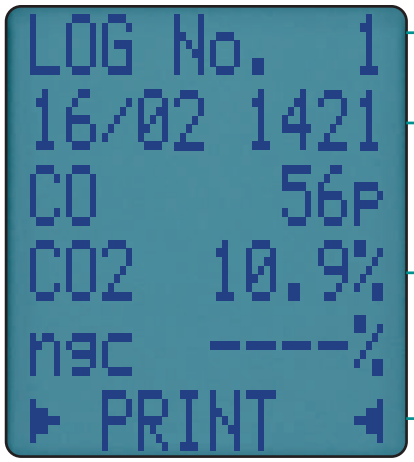
View stored Combustion Reports – if any

View stored Temperature Reports – if any

Returns to previous menu

NAVIGATING STORED REPORTS

Once you select your report the first report is displayed:



LOG Number of that type

Time and date of the LOG - alternates between both

Report readings specific to report type

Navigation menu options

REPORT NAVIGATION MENU OPTIONS

Print currently selected report

Navigate to next available report if more than one report

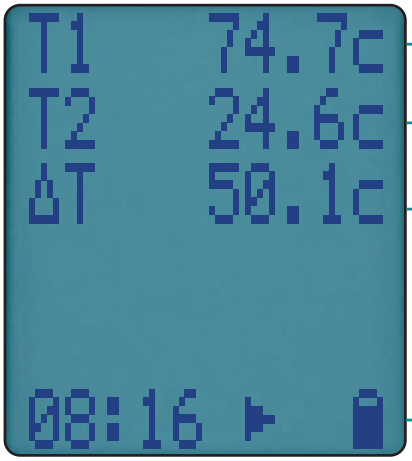
Navigate to previously selected report - only once navigation begins

Return to main menu

TEMPERATURE TESTING

Rotate dial to TEMP & connect your K type thermocouples to T1 to measure temperature or T1 & T2 to measure differential temperature.

TEMPERATURE DISPLAY



Use T1 connection for flow temperature sensor

Use T2 connection for return temperature sensor

Real time temperature difference

Status bar

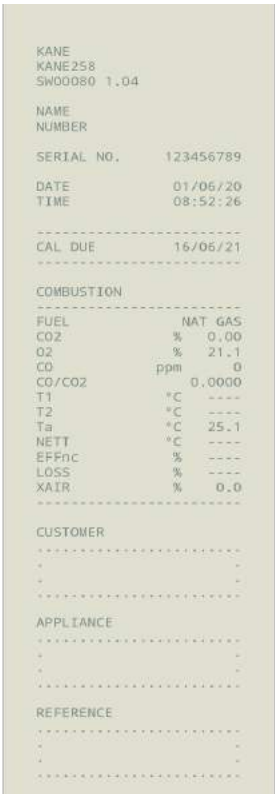
VIEWING/PRINTING

Press the ᯤ button to send your Temperature report to our optional KANE IRP-2 printer or send to KANE App if Wireless module is fitted.

Press and hold the ᯤ button for 2 seconds to log a temperature report.

PRINTOUTS

Combustion



Temperature

SPECIFICATIONS

PARAMETER	RANGE	RESOLUTION	ACCURACY
Temperature Measurement			
Flue Temperature	0 - 600°C	0.1°C	±0.5°C
Inlet temperature (Internal Sensor)	0 50°C	0.1°C	±1°C
Inlet temperature (External Sensor)	0 - 600°C	0.1°C	±0.5°C
Flue Gas Measurement			
Carbon Monoxide	0 - 2000ppm	1ppm	±3ppm or ±5% of reading (whichever is greater)
Oxygen	0 - 21%	0.1%	±0.3% Volume
Calculations			
Carbon Dioxide	0 - 20%	0.1%	±0.3% Volume
CO/CO2 Ratio	0 - 0.9999	0.0001	±5% of reading
Efficiency (Net or Gross)	0 - 99.9%	0.1%	±1% of reading
Efficiency High (C)	0 - 119.9%	0.1%	±1% of reading
Excess Air	0 - 119.9%	0.1%	±0.2% of reading
Pre-programmed Fuels			
UK, USA & France	Natural Gas, Propane, Butane, LPG, Light Oil, Digester Gas, Wood Pellets Heavy Oil		
European	Natural Gas, Light Oil, Bio Oil, Coke, LPG, Wood, Town Gas, Butane & Propane		
Battery Life	>8 hours (continuous with pump on)		
Certification	The KANE458s is independently tested and certified to EN 50379, Parts 1-3 in accordance to 1st German Federal Emission Control Ordinance (Bim5chV)		
Operating Conditions			
Temperatures	0 - 45°C		
Humidity	15 to 90% RH, (non-condensing)		
Power Supply	Rechargeable batteries, USB Charging		
Physical Characteristics			
Weight	Approx. 0.625g		
Dimensions	216mm x 105mm x 45mm		

EU DECLARATION OF CONFORMITY

This declaration of conformity is issued under the sole responsibility of the manufacturer:-

Kane International Ltd.
Kane House, 11 Bessemer Road, Welwyn Garden City, Hertfordshire. AL7 1GF, UK.

Tel: +44 1707 375550 Web: www.kane.co.uk

The KANE458s is in conformity with the relevant Union harmonization legislation below:

DIRECTIVE	TITLE
201430EU	Electromagnetic Compatibility (EMC)
201165EU	Restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

The following harmonised standards and technical specifications have been applied:

CERTIFICATION

The KANE458s is independently tested and certified to EN 50379, Parts 1 & 3 in accordance to 1st German Federal Emission Control Ordinance (BImSchV)

EMC

EN50270:2015

SAFETY

EN61010-1:2010

ROHS

IEC62321-2:2013, IEC62321-1:2013, IEC62321-3-1:2013, IEC62321-5:2013, IEC62321-4:2013, IEC62321-7-2:2017, IEC62321-7-1:2015, IEC62321-6:2015

Signed for on behalf of:- Kane International Ltd.

01. July 2020

Paul Morrison
Engineering Manager

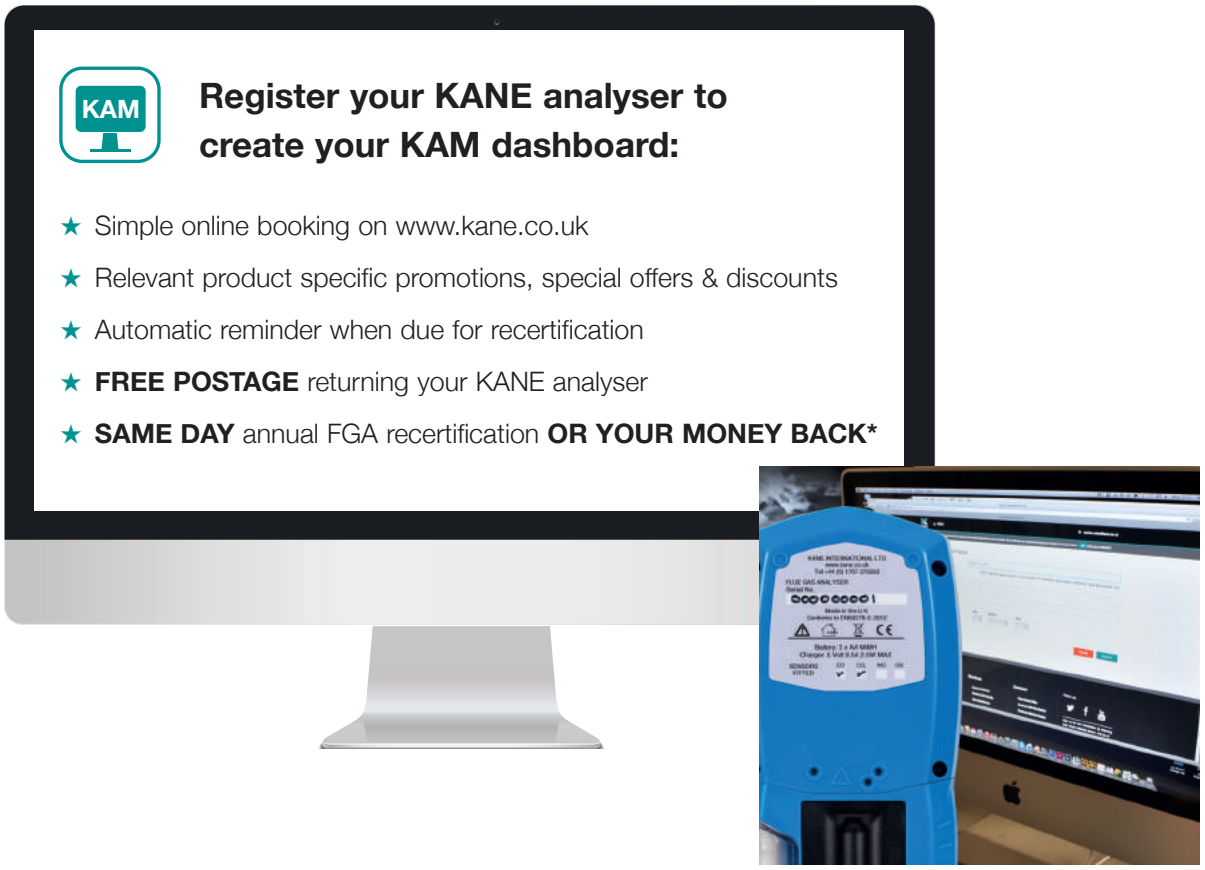
SERVICE – CALIBRATE – RECERTIFY

All analysers & pressure meters should be recertified annually.

Extend your KANE analyser and pressure meter's 'no quibble' warranty up to 10 years by returning your analyser & pressure meter via your KAM dashboard annually.

KANE ASSET MANAGER (KAM)

The fastest way to manage your analyser's recertification with FREE postage using www.kane.co.uk



Use your KAM dashboard to:

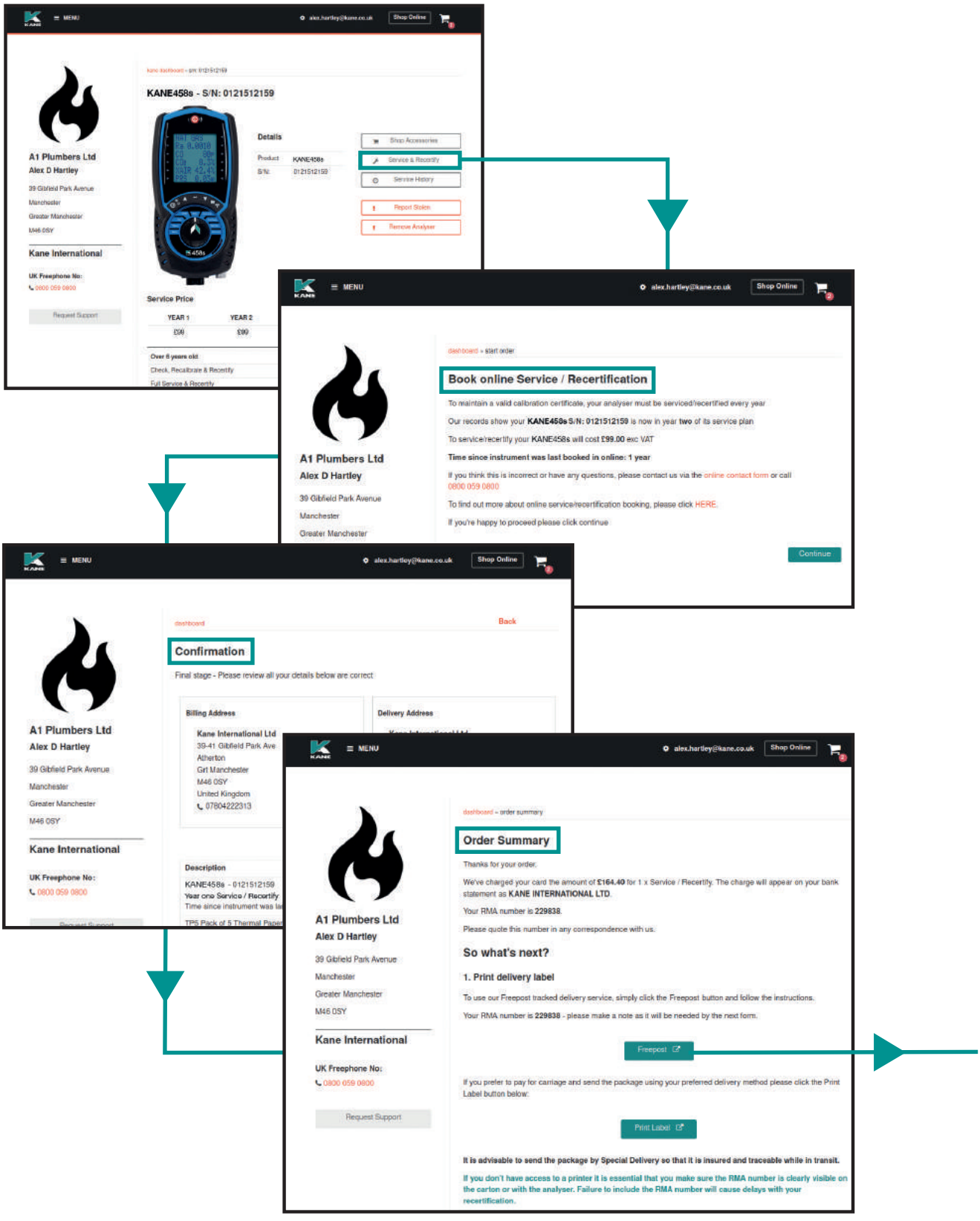
- View - your Payment History / Company Details / Analyser Details / Service Pricing
- Buy KANE products, accessories, spares & consumables with FREE delivery
- Manage your KANE analyser's recertification online to receive same day turnaround
- Service History: Access, view & email electronic Calibration Certificates when required for compliance
- Report Stolen: Reporting your analyser stolen ensures our Stolen Analyser Register is up-dated & helps prevent industry colleagues unknowingly buying stolen goods
- Remove your KANE Analyser once sold so its new owner can also benefit

There are different KAM options & we'd be delighted to discuss your individual requirements

More than 4 FGAs? Contact: support@kane.co.uk

*Excludes KANE '9 series' analysers & UKAS certificates

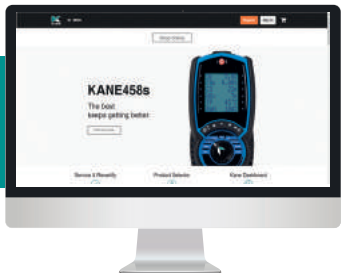
Your support - our way

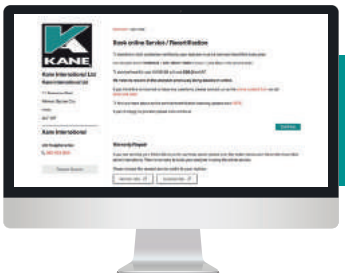


GUARANTEED SAME DAY DESPATCH

Analyser Service & Recertification

Register your analyser on www.kane.co.uk





Book & pay to Service & Recertify via your KAM dashboard

Select FREEPOST for tracked carriage - UK mainland only

Your analyser will be despatched on the same day we receive it...

OR YOUR MONEY BACK*

WHERE TO SEND YOUR ANALYSER

Northern Customer Service
Kane International Ltd
Gibfield Park Avenue
Atherton,
Manchester
M46 0SY, UK
e: nservice@kane.co.uk
t: 0800 059 0800

Outside UK Call +44 1707 375550

Southern & International Customer Service
Kane International Ltd
Kane House, 11 Bessemer Road
Welwyn Garden City
Hertfordshire
AL7 1GF, UK
e: sservice@kane.co.uk
t: 0800 059 0800

COLD WEATHER PRECAUTIONS

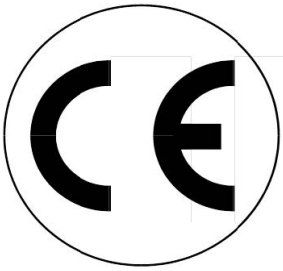
It is important you keep your flue gas analyser in a warm place overnight.

Electronic devices that become really cold, by being left in a vehicle overnight, suffer when taken into a warm room the next morning. Condensation may form which can affect the analyser's performance & cause permanent damage.

Electrochemical sensors used in flue gas anlysers can be affected by condensation or water being sucked into the analyser, as the small apertures on top of sensors can become blocked with water, stopping sensors seeing flue gas. When this happens, oxygen or carbon dioxide reading will display as "—" & sensors may be permanently damaged.

If you think that your analyser is affected by condensation or water ingress, it may be possible to rectify the problem yourself. Simple leave the analyser running in a warm place, with the pump 'ON' sampling fresh air for a few hours (use mains adapter/battery charger if needed). If, after doing this, you still experience problems please contact our Service Centres.

THIS PRODUCT CONFORMS WITH THE FOLLOWING



PLEASE RECYCLE

MADE IN THE UK

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 online.

Kane International Ltd
Kane House, 11 Bessemer Road
Welwyn Garden City
Hertfordshire
AL7 1GF, UK
email: sales@kane.co.uk
telephone: 0800 059 0800