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KANE3500

Pressure Meter



Stock No: 18854-2 June 2014

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General Operation

When the instrument is first switched on using , the top line of the display shows in sequence the date, the time, the model version number, the battery status and the pressure units. The bottom line of the display shows a countdown number that starts at 10 and reduces to zero. At zero the meter display two lines of data.

The display shows 2 lines of data and all data can be printed via an optional infrared printer. The printed data can be 'live' data, 'frozen data' or stored data. 255 sets of tests can be stored in non-volatile memory.

Two lines of 20 characters can be added to the header of printouts.

The meters are controlled using 8 buttons

The eight buttons are:

ON/OFF 

Press for ON or OFF.

The meter counts down from 10 after OFF is pressed

Press  to cancel OFF .

MENU 

Press and hold for MENU.

ZERO 

Press and hold until there is a beep to ZERO the reading

BACKLIGHT 

Press and hold until there is a beep to toggle the BACKLIGHT

HOLD/ PRINT 

A quick press to HOLD the reading and the display flashes.

A longer press to PRINT

UP / DOWN



Press either to change the bottom line of the display.

ENTER



Press  to cancel OFF .

The buttons ,  and  also change settings such as date, time, and other menu items when MENU mode has been selected.

1. BEFORE USING THE METER FOR THE FIRST TIME:

Remove the cover and fit a new battery in the battery compartment. **Take great care to ensure that the battery is fitted with the correct battery polarity.** Then replace the battery cover. Always check that the meter is working correctly after replacing the battery.

Set the meter's correct time, date and units. These are then stored when the meter is switched off.

2. BEFORE USING THE METER EVERY TIME:

After switch on, check that date and time are correct and battery power is sufficient and the displayed units are the ones required.

SAFETY WARNING

Never connect to a pressure source where you are not sure what the maximum pressure might be. Always ensure that the meter you are using is correctly rated for the pressure that you intend to measure. Excessive pressure (>5 times nominal range) can permanently damage the meter's pressure sensor.

NOTE : Use the + input for all single input measurements of pressure or vacuum. Only use the – input when taking a differential measurement.

3. THE MENU FUNCTIONS

The MENU structure comprises main menu options. STORE, SETUP and PRESSURE have a sub-menu structure. SERVICE is for use by an approved service organisation only.

MENU

Press  and use the  button to select the following function for change:

STORE
SETUP
PRESSURE
SERVICE
EXIT

Press  to select a main menu function

When you have selected the function to change, press  to select.

Repeat this to scroll through the menu and select (using the  key) and change (using the  /  keys) the function.

The final, logical  returns you to the main menu display.

To exit the MENU function the final logical  is pressed. No changes are made if the MENU function is aborted by pressing .

PRESSURE

SMOOTH

OFF = Normal

ON = Readings filtered to damp out fluctuations

RESOLVE

HIGH = maximum number of decimal places

LOW = one less decimal place displayed

PS UNITS

mBAR, inH2O, hPa, mmHg, PSI, kPa, Pa, mmH2O

SETUP

Temperature units - °F or °C

AUTO-OFF adjusts the auto power off time.

A setting of 00 sets the meter for manual switch off only.

Time – Uses “Military” time as standard: 7am = 07:00, 7pm = 19:00

Date user defined format

Header – 2 lines each of up to 20 characters that appear on the printout.

Use  and  / .

Language : English, French, Italian, German, Spanish

The display's contrast.

EXIT

STORE

VIEW:

The test number appears on the top line.

Use  or  to change test number.

The bottom line shows the measured value.

Use  to exit this mode.

LOG :

Saves a set of results when  is pressed. Storage capacity is 255 sets of results

AUTO STO :

Automatically stores readings at a preset interval. Press  then select YES or NO. If

YES set the desired time interval between 2 and 99 seconds and then press  to activate and exit.

DEL ALL:

Clears all the memory when YES and  pressed.

EXIT

BOTTOM LINE OPTIONS

Max Pressure

Min Pressure

Time

Date

Pressure units

Battery Status

Instrument Internal Temp

Max Pressure is displayed as:

P	1.3
-	1.9

Min Pressure is displayed as:

P	1.3
-	1.1

4. MEASURING

Make sure you do not exceed the meter's operating specifications.

- Do not exceed the meter's internal temperature operating range
- Do not put the meter on a hot surface

When taking critical draft measurements always re-zero the meter in the position you are taking the readings and hold the meter still during the test.

Differential Port **Port 1**



IR Printer Output

Always use the top right hand port (Port 1) for taking single channel measurements (pressure or vacuum). Only use the left hand port for differential measurements.

If the pressure being measured exceeds the meter's design range the display will show **OR** for "over-range"

When taking draft readings at very low pressure or draft levels, for maximum accuracy, re-zero the meter in the orientation that it is being used. This eliminated gravity effects on the very sensitive pressure transducer. It is also recommend that the meter is switched on for at least five minutes and then re-zeroed before taking such sensitive measurements.

EXAMPLE PRINTOUTS

The standard printout is:

The MAX and MIN readings are those observed since last switch on



```
K3500 V1.0
.....
DATE      29/12/09
TIME      10:28:38
.....
PRS  mbar   0.36
MAX  mbar   0.72
MIN  mbar   0.00
.....
```

NOTE: Printouts of stored readings will also include the TEST NO. below the header.



```
K3500 V1.0
.....
TEST      02
DATE      29/12/09
TIME      10:29:13
.....
PRS  mbar   0.45
.....
```

5. METER ANNUAL RECALIBRATION AND SERVICE

The meter should be re-calibrated and serviced annually by a Kane approved service centre.

Local regulations may require more frequent re-calibration.

Calibration is performed in firmware and there are no user accessible adjustments or user serviceable parts.

6. SPECIFICATION

Model: KANE3500-1

Nominal Pressure Ranges

mBar	mmH ₂ O	Pa	kPa
80.00	800.0	8000	8.000

PSI	mmHg	hPa	inH ₂ O
1.000	60.00	80.00	30.00

Model: KANE3500-2

Nominal Pressure Ranges

mBar	mmH ₂ O	Pa	kPa
160.00	1600.0	16000	16.000

PSI	mmHg	hPa	inH ₂ O
2.000	120.00	160.00	60.00

Model: KANE3500-5

Nominal Pressure Ranges

mBar	mmH ₂ O	Pa	kPa
400.0	4000	32000	40.00

PSI	mmHg	hPa	inH ₂ O
5.000	300.0	400.0	150.0

Model: KANE3500-15

Nominal Pressure Ranges

mBar	kPa	PSI
1040.0	100.00	15.00

mmHg	hPa	inH ₂ O
780.0	1040.0	400.0

Model: KANE3500-30

Nominal Pressure Ranges

mBar	kPa	PSI
2070.0	207.00	30.00

mmHg	hPa	inH ₂ O
1560.0	2070.0	800.0

Pressure Measurement

Model: KANE3500-1

Max. overrange without damage to sensor is 5 times nominal range

<u>Range</u>	<u>Resolution</u>	<u>Accuracy</u>
± 20 Pa	0.1 Pa	± 0.5 Pa
± 100 Pa	0.1 Pa	± 3 Pa
± 2000 Pa	1 Pa	$\pm 3\%$ of reading
± 80 hPa	0.01 hPa	$\pm 3\%$ of reading

Model: KANE3500-2

Max. overrange without damage to sensor is 5 times nominal range

<u>Range</u>	<u>Resolution</u>	<u>Accuracy</u>
± 20 Pa	0.3 Pa	± 2 Pa
± 2000 Pa	0.3 Pa	± 5 Pa
± 160 hPa	0.01 hPa	$\pm 3\%$ of reading

Model: KANE3500-5

Max. overrange without damage to sensor is 5 times nominal range

<u>Range</u>	<u>Resolution</u>	<u>Accuracy</u>
± 3000 Pa	1 Pa	± 5 Pa
± 300 hPa	0.1 hPa	± 0.1 hPa
± 400 hPa	0.1 hPa	$\pm 3\%$ of reading

Model: KANE3500-15

Max. overrange without damage to sensor is
5 times nominal range

<u>Range</u>	<u>Resolution</u>	<u>Accuracy</u>
± 309.99 hPA	0.01 hPa	± 10 hPa
± 1040.0 hPA	0.1 hPa	± 3% of reading

Model: KANE3500-30

Max. overrange without damage to sensor is 5 times nominal range

<u>Range</u>	<u>Resolution</u>	<u>Accuracy</u>
± 1076 hPA	0.1 hPa	± 10 hPa
± 2070.0 hPA	1 hPa	± 3% of reading

Dimensions

Weight	295 grams with battery
Handset	160mm x 80mm x 40mm (180mm incl. spigots)
Ambient Operating Range	+0°C to +45°C 10% to 90% RH non- condensing
Power Supply	9 Volt PP3 alkaline battery

7. ELECTROMAGNETIC COMPATIBILITY

European Council Directive 89/336/EEC requires electronic equipment not to generate electromagnetic disturbances exceeding defined levels and have adequate immunity levels for normal operation. Specific standards applicable to this meter are stated below.

As there are electrical products in use pre-dating this Directive, they may emit excess electromagnetic radiation levels and, occasionally, it may be appropriate to check the meter before use by:

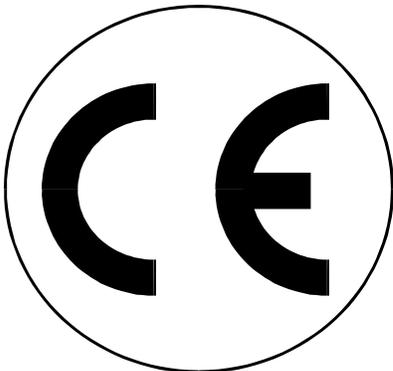
Use the normal start up sequence in the location where the meter will be used.

Switch on all localized electrical equipment capable of causing interference.

Check all readings are as expected. A level of disturbance is acceptable.

If not acceptable, adjust the meter's position to minimize interference or switch off, if possible, the offending equipment during your test.

At the time of writing this manual (June 2014) Kane International Ltd are not aware of any field based situation where such interference has occurred and this advice is only given to satisfy the requirements of the Directive.



This product has been tested for compliance with the following generic standards:

EN 61000-6-3 :2011
EN 61000-6-1 :2007

and is certified to be compliant

Specification EC/EMC/KI/KANE3500 details the specific test configuration, performance and conditions of use.

Please Note:

Batteries used in this instrument should be disposed of in accordance with current legislation and local guidelines.

At the end of its life the meter should be sent to the appropriate recycling centre in accordance with current legislation and local guidelines

APPENDIX 1 – Main Parameters :

UNITS : User selectable from :
PSI
hPa
inH2O
mBar
mmH2O
Pa
kPa

NOTE! Not all units available on all models.

DATE : Date shown as day, month and year. The order can be changed using the menu function. Date is recorded when each test is printed.

TIME : The time is shown in hours and minutes, expressed in « Military » time or the 24 hr clock. Time is recorded when each test is stored/printed.

NOTE ! When changing the batteries on the instrument the memory will store the date and time for up to one minute, if outside this time it may be necessary to re-enter the details.

SYMBOLS used on the display.

T The internal temperature of the meter

P The pressure reading in the user's selected units



Displays the Battery power available in %

When the LO BAT symbol appears this indicates the batteries are less than 10% of charge and should be replaced, readings may be affected if used with low power batteries

RETURNING YOUR KANE3500 TO KANE

When returning your KANE3500, please always ensure that you enclose:

- ✓ Your full contact details
- ✓ A daytime telephone number
- ✓ Details of faults you might have experienced

Packing your KANE3500

When returning your KANE3500, please pack it appropriately to prevent any damage during transit.

Before sealing your package, please ensure that you have enclosed the items listed above and that it is clearly marked for the attention of:

Southern Service Centre

Kane International Ltd
Kane House
Swallowfield
Welwyn Garden City
Hertfordshire
AL7 1JG

Sending your KANE3500

Once your KANE3500 has been securely packed then your package is ready for shipment back to Kane. If you do not have an account with a courier company you can take your package to your local Post Office. It is advisable to send the package by Special Delivery so that it is insured and traceable while in transit.

When we receive your KANE3500

On receipt of your package, our Service Engineers will inspect your KANE3500 and any accessories and confirm to you the total service cost. Once you have accepted this the work will be carried out, and upon completion the analyser returned to you.

If you have any questions that we haven't answered, please feel free to contact our Southern Service Centre:

Tel: +44 (0) 1707 384834
Fax: +44 (0) 1707 384833
Email: sservice@kane.co.uk

Service Returns (Simply cut out and attach to your package)

Southern Service Centre
Kane International Ltd
Kane House, Swallowfield
Welwyn Garden City
Hertfordshire
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Hertfordshire
AL7 1JG



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	
<i>Note: Proof of Purchase may be required for warranty claims.</i>	
Date Purchased as numbers (05.01.10):	
Purchased From:	
Model Number:	
Product Serial Number:	



Why did you buy a Kane Product?

- | | |
|--|--|
| <input type="checkbox"/> Dealer Recommendation | <input type="checkbox"/> Other Recommendation |
| <input type="checkbox"/> Value for Money | <input type="checkbox"/> Our Fixed Price Servicing Programme |
| <input type="checkbox"/> Kane | <input type="checkbox"/> Previous Owner |
| <input type="checkbox"/> Not your Decision | <input type="checkbox"/> Other: |

What brand was your previous analyser?

How did you hear about Kane?

- | | |
|--|---|
| <input type="checkbox"/> Magazine Advert | <input type="checkbox"/> Trade Counter Literature |
| <input type="checkbox"/> Personal Recommendation | <input type="checkbox"/> Internet |
| <input type="checkbox"/> Exhibition | <input type="checkbox"/> 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"/>

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
pressure meter.

Before use, please register on
our website

www.kane.co.uk

or complete, detach and return
the Product Registration page.