

lion alcolmeter® 900
CMI intoxilyzer® 900
Instrument Version: 900 CMI

User Handbook

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Product conforms to the requirements of:
BS EN 15964:2011
AS 3547:2019

PLEASE...

Read this handbook carefully – BEFORE using the instrument for the first time: then retain it for future reference.

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Glossary

Terminology	
BAC	Blood Alcohol Concentration
BrAC	Breath Alcohol Concentration
Calibration Adjustment	Adjusts the calibration of the instrument
Calibration Check	Checks the calibration of the instrument
Configuration	PC application that sets up the functionality of the instrument
Deep-lung air	Air within the lungs that is in intimate contact with the blood
Dry Gas	Dry alcohol gas of a known concentration provided from a gas cylinder
Operator	Person who is carrying out the breath test
PIN	Personal Identification Number, used to unlock features
Sampling Port	Metal protrusion in top channel of the instrument that fits into the mouthpiece
Service lock	Time until the next service should be carried out
Subject	Person being breath tested
Suck back	Intake of breath by the subject during the sampling routine
Suspicious liquid	Liquid with an unknown alcohol content
Trigger Flow	Minimum air flow speed necessary for automatic sampling
Wet vapour	Wet alcohol vapour of a known concentration provided by a simulator

Introduction

The **lion alcolmeter® 900** devices are hand-held portable instruments for fast, on the spot determination of a subject's breath (or blood) alcohol concentration level. The **900** is the latest in the range of lion alcolmeter® instruments produced by Lion Laboratories Limited of Barry, South Wales, in the United Kingdom. Lion Laboratories Limited is a company specialised in breath alcohol detection technology for applications in traffic law enforcement, commercial health and safety and in medicine.

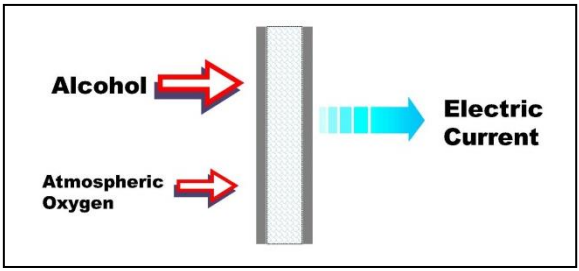
This handbook explains the following aspects of the instrument, so please read it carefully:

- Basic principles of operation.
- How to run a breath test.
- Interpretation of results.
- Care and basic maintenance.
- Calibration checking.
- Calibration adjustment.
- System configuration.

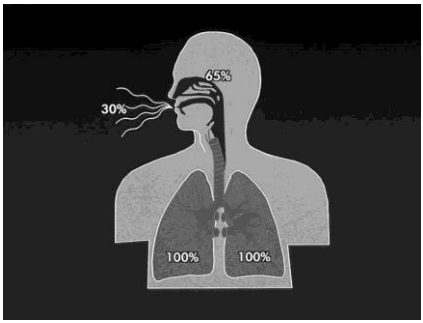
Principle of Operation

The **lion alcolmeter® 900** uses an electrochemical fuel cell sensor to measure the concentration of alcohol vapour in the subject's expired breath. A measured amount of the breath sample is drawn from the mouthpiece into the fuel cell using the instrument sampling system.

In the fuel cell, a current is generated in proportion to the breath alcohol concentration; this is converted into a Voltage, amplified and displayed in terms of the subject's alcohol level.



The breath sampling system is factory-set to sample deep-lung air; *it is the breath from the bottom of the lungs that truly reflects the amount of alcohol in the body.*



To ensure repeatable and accurate results across the temperature range, and particularly at low temperatures, the **lion alcolmeter® 900** uses a heater to heat the metal sampling port and the inlet port of the fuel cell. This prevents the build-up of condensation, which can affect the alcohol concentration in the sample.

Technical Details

Factor	Target	Comments
Specificity	Specific to alcohol	Not sensitive to acetone, paint and glue vapour, CO, food, sweets, methane, and non- alcoholic materials which may be found in human breath
Measurement range	0.000 %BAC Note 2	Minimum Note 1
	0.500 %BAC Note 2	Maximum
Measurement Accuracy	<±0.005 %BAC or <±5% (whichever is greater)	In Active Mode
Measurement step	0.001 %BAC	0.0001 %BAC (metrological mode)
Response time (zero)	≤ 2 seconds	at 20°C and above
Response time	< 10 seconds	
Recovery time	< 30 seconds	at 0.080 %BAC
Sampling frequency	< 10 seconds	Zero test result

Operating temperature range	-10°C Note 2	Minimum
	50°C Note 2	Maximum

Ready time	10 seconds <60 seconds	From switch on at 20°C (with no data entry) From switch on at -5°C
Operating humidity range	20% to 95%	Non-condensing
Storage temperature	-20°C	Minimum
	70°C	Maximum
Measurement method	Active	Using the mouthpiece, with automatic sampling
Trigger Flow	9L/min Note 2	In active test mode only
Trigger Volume	1.2L Note 2	In active test mode only
Power supply	4 x AA Alkaline batteries	Refer to page 16
Number of tests	>8000 on a set of batteries Note 3	Zero alcohol repeat tests
Database capacity	10000 records	When full, the database rolls over and replaces the oldest record with the latest record

Instrument weight	210g	Without any accessories or batteries
Audible notes	Instrument will beep	When ready, sample taken, result displayed

Radio frequency immunity	Compliance	EN 61326-1:2013 (compliance to 6GHz) EN 15964:2011 (compliance to 6GHz) OIML R126 Section 5.10.1.1
Radio frequency emissions	Compliance	EN 61326-1:2013
Mechanical stress testing	Compliance	EN 15964:2011
Mechanical impact testing	Compliance	EN 62262:1995 / A1:2002 (IK05)
Dust and ingress protection	Compliance	EN 60529:1992+A2:2013 (IP54)
Calibration frequency	Every 6 months	The instrument shall display, and lock if the instrument is not calibrated within this calibration period

Note 1: The instrument will report zero below 0.005g/210L.

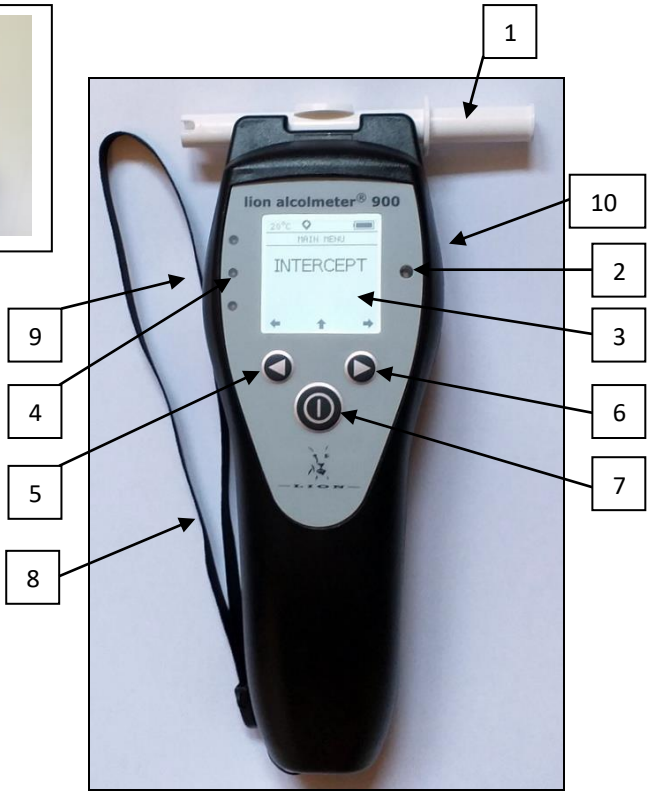
Note 2: These values are configurable and may vary depending upon the customer's requirements.

Note 3: Testing was carried out by performing tests without alcohol present sequentially at +5^{o}C ambient temperature.

Instrument Features



Mouthpiece port illumination



Please note the following features of the instrument:

1 – Disposable mouthpiece	5 – Left button (L)
2 – Light sensor for display backlight	6 – Right button (R)
	7 – Confirm / Action button (C)
3 – Display	8 – Wrist strap
4 – LEDs for status and banded result.	9 – Internal sounder
	10 – Connector for data downnload, configuration and printing.



Confirmation / Action Button

The Confirmation / Action Button (**C**), bears a power symbol and is located below the display and two other buttons. This switches the instrument **ON**. To do this, simply press and hold for 2 seconds, then release. Confirmation / Action Button (**C**), is also used at certain stages in the **lion alcolmeter® 900** operation, to select menu options and to power down the instrument.



Left and Right Button

Located directly above (**C**), the smaller two buttons are Left Button (**L**) and Right Button (**R**). These are used to scroll through the menus.

The left (**L**) button can also be used to move out of an option and back to the previous option.

Graphics display

The display prompts the operator during the subject breath test procedure and displays the subject's breath alcohol reading. In the banner at the top of the display are icons, indicating the instrument's status.

Sounder

This provides various audible tone messages to the instrument operator, and the subject.

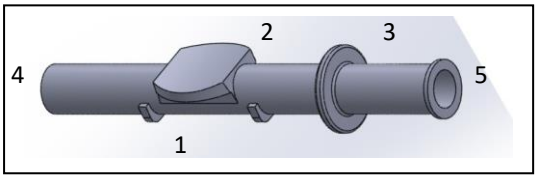
Breath sampling port

The port located in the top channel of the instrument is the inlet to the fuel cell alcohol detector and to the breath flow sensor. **Do not allow fluids to enter this port, or serious damage to the instrument may result.**



Disposable Mouthpiece

The disposable mouthpiece is supplied packed in individual, hygienic wrappers. These are easy to tear open or pop to access the mouthpiece.



The mouthpiece contains unique features that make it easy to use. It has gross alignment features (1), a mouthpiece removal grip (2), a lip guard (3), a castellated exhaust hole (4) and a restrictor (with optional non-return valve) (5).

The gross alignment feature allows the operator to easily locate the mouthpiece onto the top of the instrument. The fine alignment is made by the sampling port and the hole in the mouthpiece, as the two parts come together.

The mouthpiece removal grip is slightly concave on the top, which makes it easier for the operator to correctly locate the mouthpiece. It also provides a means of gripping the mouthpiece when removing it from the instrument without the need to handle either end, thus reducing contact with breath condensates or saliva.

The lip guard prevents the subject coming in to contact with the instrument and provides a visual guide to the subject to assist in positioning their lips, prior to providing a breath sample.

The castellated exhaust hole ensures that exhaust hole cannot be blocked.

The restrictor ensures that the subject cannot blow too hard and affect the quality of the sample. The restrictor also makes it easier for the subject to provide a consistent breath sample. A disposable mouthpiece fitted with a non-return valve prevents the subject from sucking breath through the mouthpiece.

To fit the mouthpiece, simply place it on the top of the instrument and push the removal grip down until it clicks into place.



To remove the mouthpiece, hold the removal grip between finger and thumb and pull the mouthpiece away from the instrument.



A NEW mouthpiece MUST be used for each complete breath test.

Power unit

The power unit is located in the rear of the instrument. It holds 4 x AA alkaline batteries.





The low power warning message appears when there is enough power for approximately twenty further breath tests (depending on conditions of usage).

When inserting the battery pack into the instrument, ensure that the two contacts with the tabs attached are facing towards the top and the rear of the instrument and are thus in contact with the two contacts within the battery pack compartment.



DO NOT USE RECHARGEABLE AA BATTERIES AS THESE HAVE A LOWER POWER CAPACITY THAN ALKALINES AND THE INSTRUMENT MAY NOT ACHIEVE THE STATED SPECIFICATION

Subject Breath Test Procedure

Step by Step

STEP 1 – Preliminary questions to the subject

As far as possible, ensure the subject has taken nothing by mouth (alcoholic or otherwise) in the last twenty minutes, and has not smoked in the last two minutes. If necessary, wait.

STEP 2 – Switch on

Press Confirm / Action Button (**C**) and hold for approximately 2 seconds until the operator hears a beep. The instrument will scroll through its start-up screens displaying the instrument temperature, time, date, serial number and the software version of the instrument. If the instrument is within 15 days of the service lock, the start-up screens will be followed by a warning message showing the next service date and the number of days remaining.

STEP 3 – Function selection

Within the OPERATOR MENU there are two breath test options, a last test recall option, an option to power down the instrument and an option to access the Supervisor menu.



The Mouthpiece Test option allows the Operator to perform an active breath test using a mouthpiece to obtain a subject sample.



The Cup Test option allows the Operator to perform a passive breath test using a sample cup to obtain a subject sample.



The Last Test Recall option allows the Operator to view the last test result details and provides a link to the database of results.



The Switch Off option allows the Operator to use the Confirm / Action button (C) to power down the instrument.



The Supervisor Menu option allows the Operator to access the Supervisor Menu using the Confirm / Action (C) button.

STEP 4 – Test Preparation

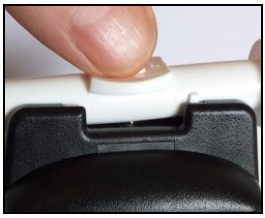
Mouthpiece Test – allows the user to carry out a test with a mouthpiece. To carry out a test using a mouthpiece, proceed as follows; below.

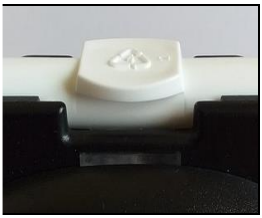


Attach a new mouthpiece

The mouthpiece must be attached in a hygienic manner, or the subject could justifiably object to putting it in their mouth. Tear open the wrapper from the non-lipped end and peel back far enough to expose the hole in the side. Now, holding the mouthpiece through the wrapper around the blowing (lipped) end, roughly align the mouthpiece in its alignment channels and push the mouthpiece firmly down. When home, a clicking sound will be heard. The operator may attach the mouthpiece either way round, whichever is more convenient. Finally, remove the wrapper completely (or have the subject do this themself).







Cup test – allows the user to carry out a test with a cup.

To carry out tests using a cup, select the cup test option. If this option does not appear automatically, scroll through the OPERATOR MENU options by pressing the Left or Right buttons.



Attach a new cup

The cup must be fitted so that it is held securely onto the top of the instrument. It is advisable to replace them on a regular basis, or when they appear to be contaminated. The cup allows for rapid screening of subjects to determine if alcohol is present. It is advisable to carry out a mouthpiece test if a quantifiable alcohol level is needed.

The cup test may be affected by environmental conditions such as the presence of alcohol in the ambient air, or high winds.

This test is an indicative test and will only give a pass or fail result; it should only be used to determine if there is alcohol present in the exhaled breath from a subject. For more accurate testing, it is recommended that a mouthpiece test is carried out.

STEP 5 – Instruct the subject

Instruct the subject to take in a deep breath and provide a sample. When providing a sample, the subject is required to provide a constant, steady flow of air, similar to whistling. Blowing too hard or too soft could result in an invalid sample; the instrument will report this to the operator.

If using a mouthpiece, instruct the subject to form a seal around the lipped-end of the mouthpiece with their lips and then blow.

If using a cup, they should blow towards the cup, held about 10cm from their mouth.

The sample provided should be blown steadily and continuously until **THE OPERATOR** says stop. He or she does **NOT** have to blow **VERY HARD**: a **LONG, MODERATE BREATH** is all that is required. The subject must keep his or her hands away from the instrument, so they cannot hide the display from the operator's view. If necessary, warn the subject not to try to 'beat the instrument'.

STEP 6 – Take the breath specimen

The subject should blow hard enough for the message FLOW to be displayed and to sound the continuous beep tone; and then for long enough for the sample to be taken into the sensor for analysis.

If enabled in the instrument software, a manual sample can be taken at any point during the routine by pressing the Confirm / Action Button (**C**).

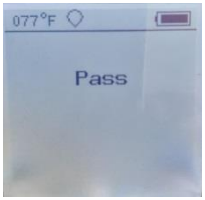
The instrument can be configured to provide two options for addressing subjects that either refuse to provide a sample or fail to satisfy the breath sample requirements. These options are explained in the section Configurable Sample Options.

STEP 7 – Analysis and alcohol reading

The fuel cell sensor in the **lion alcolmeter® 900**, in addition to its controlling electronics and software-based systems, will now determine the alcohol level in the specimen. The result will then be displayed, as will the time and date when the specimen was actually taken.
In cup mode, the instrument will state whether alcohol was present (Fail) or not (Pass) and only at the end of the analysis stage.

The indication lights to the left of the display will show how the test result fits within the instrument's pre-configured bands. Green indicates "PASS", amber indicates "WARN" and red indicates "FAIL".
These bands may be different for both the cup test and the mouthpiece test.





STEP 8 – Prepare for the next test

Following the successful completion of the mouthpiece test, remove and discard the mouthpiece, and the wrapper. Do not reuse the mouthpiece, except in the case of a repeat blow by the same subject, for the same specimen.
The cup does not need to be removed unless the operator has decided to replace it with a new cup or a mouthpiece.

STEP 9 – Test next subject or switch off

Once the result has been displayed, it is possible to move to the next test by pressing the Confirm / Action Button (**C**), or waiting for the screen to automatically move on. The instrument will return to the OPERATOR MENU.

The Breath Test Procedure Summarised

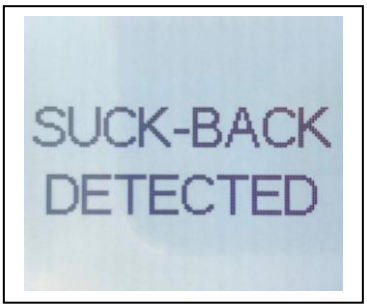
STEP	ACTION
1	Ask preliminary questions
2	Switch **On** the instrument
3	Select **New** function
4	Attach a new mouthpiece or cup
5	Instruct the subject
6	Take breath specimen
7	Note alcohol reading
8	Prepare for next test
9	Test next subject, or switch **Off**

Configurable Sample Options

If the subject does not blow for long enough or sucks back before the breath specimen is taken into the fuel cell sensor for analysis, then no sample is taken. If the subject does not blow for long enough, the display shows the following warning:



If the subject sucks back whilst the instrument is taking the sample, in such a way that it could affect the analytical result, then a sample is not taken and the display shows the following warning:



In all instances, the instrument will reset and display again that it is ready. Re-instruct the subject to blow into the mouthpiece.

There is no requirement to change the mouthpiece for this repeat attempt, though the operator may choose to do so.

Manual Breath Sampling

If enabled, it is possible to take a manual sample of the sample provided by the subject. With the screen in the **READY** mode, instruct the subject to provide the sample. As the subject blows into the unit, press the Confirm / Action Button (**C**).

The unit will carry out the analysis and display the result as detailed previously. This feature may be disabled in the configuration if not required.

Last Test Recall

In the OPERATOR MENU screen, as well as having the ability to select the reason for test, the operator has the option to review the last test record.

When the LAST TEST RECALL screen is displayed, press the Confirm / Action Button (**C**) to access the last test record.
This will be displayed for 20 seconds and shows the following details about the last test:

- The test number (00056)
- The time and date of the last test (hh:mm mm/dd/yy)
- The result (0.0000)
- The alcohol units (%BAC)
- The test mode (MOUTHPIECE)



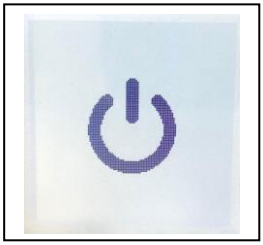


The operator can exit the LAST TEST RECALL screen using the Left button (L) or by waiting the 20 seconds for the instrument to return to the

OPERATOR MENU. By pressing the Right button (R), the operator can access the entire test database. This allows the operator to scroll through the tests and calibration history stored in the instrument. To return to the OPERATOR MENU, press Confirm / Action Button (**C**).

Switch Off

This option is provided in the OPERATOR MENU for powering down the instrument. Use the Confirm / Action button (**C**) to select this option in order to shut down the instrument after use. The power symbol will be displayed before the instrument switches off.



Alternatively, the operator may power off the instrument by pressing and holding the Confirm / Action button (**C**) until the above display occurs.

Supervisor Menu

The **lion alcolmeter® 900** can be configured to give the operator access to the SUPERVISOR MENU by selecting this option using the Confirm / Action Button (**C**).



In the SUPERVISOR MENU the operator can access the following options:

- Calibration check
- Calibration adjustment
- Wireless
- Set time and date
- Set Language (English, French, German, Italian & Spanish)
- Information
- Database
- Delete Database
- LCD Contrast
- Switch Off
- Exit to Operator Menu

The SUPERVISOR MENU may be protected by a PIN. This PIN and each of the features that may be available are enabled or disabled through the configuration application.

Features within this menu may be disabled and may not appear.

These verification and adjustment operations must be conducted by trained, competent persons.

PIN Entry

When requested to enter the four-digit PIN number, use the Left and Right buttons to select the individual numbers and select them using the Confirm / Action Button (**C**). Once all four digits are selected correctly, the screen will display a TICK mark to confirm successful input of the PIN and will then display the software version fitted to the instrument before displaying the first option in the SUPERVISOR MENU.

Please contact your supervisor for the PIN number setting.

Calibration Procedures

Dependent on the instrument software, it may be possible to check and adjust the calibration of the instrument using either a Dry Gas Reference Standard or a Wet Reference Standard. The Use of the Dry Gas Standard is more common, and so the procedures outlined below are based on the use of a Dry Gas Standard. For further information on the use of Wet Standards contact Lion Laboratories.

During the calibration check or adjustment procedure the operator will have to define the **Standard Type**, in order for the instrument to set the appropriate compensation.

It is imperative in such cases that the correct setting is made, or the instrument will not be calibrated correctly.

Calibration Check

Why Calibration CHECKS?

To ensure the **lion alcolmeter® 900** remains fully operational and accurate, its calibration must be CHECKED periodically, such as every three months. The CHECK procedure is carried out using a known alcohol concentration reference standard; this can be obtained from the local Lion distributor.

Instrument calibration **ADJUSTMENT** is needed when the **CHECK** procedure produces a reading that is greater or less than 0.03 mg/L from the known value of the reference standard.

As a guide, because of the high stability of the alcohol sensor and electronics used in the **lion alcolmeter® 900,** recalibration should not be needed more often than every six months.

Calibration CHECK Option

This mode enables the operator to take the gas sample manually, irrespective of how the **lion alcolmeter® 900** is set up for breath analysis.

The **Calibration CHECK Mode** also ensures the instrument is in its proper temperature range for checking purposes. A screen message will appear if its temperature is below +15°C or higher than +30°C.

The Reference Standard

The **lion alcolmeter® 900** is checked for accuracy by means of an alcohol standard of known concentration. This standard is a mixture of alcohol in air at a known proportion. This known mixture is compressed into a cylinder, suitable for long-term 'field' use.
The breath alcohol reference standard supplied by Lion is called **AlcoCal®**. The alcohol level in this gas is precisely known and is shown in units of mg/L. The label also carries an expiry date, beyond which the gas must not be used.
Please follow the instructions for use for the breath alcohol standard in use to check the **lion alcolmeter® 900**, including making any relevant adjustment for local altitude.

The AlcoCal® Connector Tube

Push the connector tube on to the cylinder outlet tube. The mouthpiece on the instrument should be placed over this tube so as to sample the alcohol gas from the cylinder during the checking procedure.
Replace the **Connector Tube** if it is cracked or split. Each **AlcoCal®** cylinder is supplied with a pack of five tubes.

Procedure for carrying out a check

Firstly, the instrument to be checked should not have analysed any sample containing alcohol in the preceding 30 minutes. Follow the instructions given above to enter the SUPERVISOR MENU and then select **Calibration CHECK** Option.

Because this is a checking procedure, for technical reasons, the instrument temperature **MUST** be in the range +15^{0}C to +30°C. If this condition is not met the calibration checking procedure is not possible. Assuming the temperature is in range, the instrument allows the user to select either DRY or WET compensation method; use the Right Button to switch between the two options and the Left Button to return to the SUPERVISOR MENU. Select the desired method using the Confirm / Action Button (**C**). The instrument will run diagnostics and enter a READY state.

Prepare the **AlcoCal®** for use: check the expiry date has not passed and that the gauge shows there is enough gas. If the cylinder has not been used in the last two hours, hold down the push-button for a few seconds, to flush the regulator of any 'stale' gas. Firmly attach the **Connector Tube** to the outlet port, and attach a clean, **dry** mouthpiece to the sampling port on the **lion alcolmeter® 900**.

This mouthpiece MUST be DRY: do NOT blow through it!

Push the lipped end of the mouthpiece on the **lion alcolmeter® 900** over the **Connector Tube,** to form a tight fit. Hold down the **AlcoCal®** control button to allow gas to flow through the mouthpiece. After at least five seconds of flow, press and release the Confirm / Action Button (**C**) to take the sample. It is important that the gas flows for at least a further second, **after** pressing button (**C**), **before** releasing the **AlcoCal®** button. The mouthpiece should then be detached from the instrument.

Once the **AlcoCal®** sample has been taken, the result of the analysis will be shown.

Did the reading agree with the **AlcoCal®** value? If the reading is outside of the acceptable range then the **lion alcolmeter® 900** requires a **Calibration ADJUSTMENT**.

What Is An Acceptable CHECK Value?

A satisfactory CHECK result is generally one that is within ±0.03mg/L of the value of the **AlcoCal®** gas standard.
If the alcohol value of the standard is 0.35mg/L, a CHECK result between 0.32 and 0.38mg/L inclusive would be acceptable.

Calibration Adjustment

The Calibration ADJUSTMENT Procedure

1. Switch on and access the **Calibration Adjustment** option of the SUPERVISOR MENU, as described above.

2. The instrument temperature must be in the range 15^0C - 35°C. Assuming this condition is met, the next screen to appear will be:

3. Use the Left and Right buttons to change the displayed number, to agree with the known alcohol standard (after making any allowance for altitude for a dry-gas); then press button (**C**) to select.

4. Next select either “dry” or “Wet” depending upon whether the operator is using a dry gas or wet vapour.

5. When the instrument is ready, take a sample of the alcohol standard gas using the sample procedure outlined above in the check procedure:

6. The instrument now calibrates itself, automatically:

The process is now complete.

7. Before returning the **lion alcolmeter® 900** to service, the operator may wish to verify the calibration, by using the Check procedure again. This will confirm that the above adjustment process has been carried out satisfactorily.

The Calibration ADJUSTMENT Date

The alcohol setting, date and time of the last calibration **Adjustment**, is stored automatically by the **lion alcolmeter® 900**.

Wireless

This option allows the user to set up the instrument to be paired either with a Bluetooth printer or the AlcoHub portal available for iOS and Android systems.

Select the Wireless option which will display the following screen:



The display as shown indicates that the Bluetooth module is enabled, if necessary the Bluetooth module can be disabled by pressing button (**C**) when the Bluetooth symbol is highlighted as shown.

Pairing to Bluetooth Printer

To pair the instrument with a Bluetooth printer use the Right button to move down to the CLOUD symbol and press button (**C**), the symbol will change to display a printed page from a printer and will show a further menu option see below:



Switch on your Bluetooth printer, use the Right button to move down to the next symbol and press button (**C**) in order for the instrument to search for the printer. Once located the display will indicate the printer details as seen below:



Press button (**C**) to confirm the selection, if there are more than one device shown then use the Right button to scroll through the devices until the correct device can be selected. On the next screen use the Right button to highlight the PRINTER icon and press button (**C**), the display will show a TICK if successful pairing is achieved or a CROSS if not. If successful pairing is not achieved initially, use the Left button to return to the Wireless Option in the SUPERVISOR menu and start the process again ensuring the Bluetooth printer is switched on throughout the process.

With the display showing the TICK for successful pairing press the Left button to return to the Wireless menu and use the Right button to highlight the last menu option which provides a test print feature, see below:



Use button (**C**) to select this and send the following three line test print to the printer.

>>>>
LION 900 TEST BT PRINT 000114
>>>>

Now that the instrument is paired to the printer the results of breath tests using a mouthpiece or cup and calibration checks will be printed. A printed copy of all these types of results and calibration adjustments can be retrieved from the instrument database.

Pairing to the AlcoHub application

Select the Wireless option which will display the following screen:



The display as shown indicates that the instrument is ready to be used with the AlcoHub Cloud application, if the second menu symbol indicates the instrument is setup to work with a printer then the Right button should be used to highlight the PRINTER symbol and button (**C**) used to change the setting to the CLOUD symbol.

Close down the instrument either by navigating to the SWITCH OFF option or by pressing button (**C**) until the power down symbol appears. Restart the instrument then when the screen displays **900** press and hold the Left button until a two tone alarm sounds. The following screen will be shown:



Press the Right button to start the pairing of the instrument with the Cloud, this is demonstrated by the Bluetooth symbol appearing in the dark box, see below:



Use the Left button to exit this process to return to the SUPERVISOR MENU.

Set Time and Date

Selecting this option allows the operator to adjust the time and date on the instrument. The screen initially allows the user to adjust the date using the buttons to determine the correct number and then selecting it. The format used will depend on the instrument configuration. Once the date is accepted the screen will display the time.

Set Language

Use this option to select a language using the Right button, the © button to select it and the Left button to return to the SUPERVISOR MENU. The selected new language will take effect when the instrument is next powered up. The languages available are English (GBR), French (FRA), German (GER), Italian (ITA) and Spanish (ESP). See the display below:



Information

This information page provides useful information about the instrument concerning the software version, the serial number, the configuration and the date and time, see the example below:



Use the Left button to return to the SUPERVISOR MENU.

Database

Selecting this option provides access to the log of test results, calibration checks and adjustments. On access the screen will display the latest record, use the Right button to access the earliest record and the Left button to work back through the records, see an example of a record below:



While viewing the records the display will reset to the SUPERVISOR MENU if left for 15 seconds, or else the button (**C**) can be used to print the record if a printer is connected or paired, if no printer is available this action will return the instrument to the SUPERVISOR MENU.

Delete Database

This option when selected deletes all records from the database.

LCD Contrast

This option allows the user to set the screen contrast using the Left and Right buttons then selecting this with button (**C**). See the example below:



Switch Off

This option is provided in the SUPERVISOR MENU for powering down the instrument. Use the button (**C**) to select this option in order to shut down the instrument after use. The power symbol will be displayed before the instrument switches off.

Exit

Selecting this option using button (**C**) returns the user to the OPERATOR MENU.

Other Instrument Functions

The auto power down function

If the **lion alcolmeter® 900** is left switched on but no action is taken, it will automatically switch itself off after five minutes, to conserve battery life. This is preceded by a series of five warning beeps.

The auto power down function can be stopped at any point by pressing either of the Left or Right buttons. This resets the five-minute counter.

The duration of the auto-power down can be adjusted from OFF to 60 minutes in the configuration if required. The standard setting is 5 minutes.

Mouthpiece port illumination

The **lion alcolmeter® 900** is fitted with mouthpiece port illumination. This is activated when the instrument is ready to carry out a test. This essential feature is used when fitting the mouthpiece in low light conditions and is used to indicate to the operator when the subject can blow a sample.

Indication LEDs

The **lion alcolmeter® 900** is fitted with three indication LEDs, one red, one yellow and one green. The alcohol level at which these LEDs change colour is set and maintained in the configuration program.

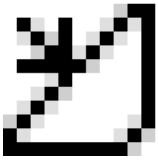
It is also possible to configure these LEDs to indicate the status of the instrument.

Fuel cell heater

To maintain the instrument's performance at both low temperatures and when multiple tests are carried out, it is fitted with a heater. The heater functionality is automatically controlled by the instrument and requires no operator intervention.

Internal GPS

The **lion alcolmeter® 900** is fitted with an internal GPS module. This will automatically power up at switch-on and initiate the process of acquiring a GPS coordinate fix. Whilst trying to obtain a fix, the data acquisition symbol will flash in the top toolbar.

	Flashing image denoting that the GPS is searching
	Symbol indicating GPS fix has been acquired

The GPS coordinates will be saved with every subsequent test record.

Internal Bluetooth

The **lion alcolmeter® 900** is fitted with an internal Bluetooth module. This module allows the operator to connect wirelessly to mobile devices running the Alcohub application, which allows for connectivity to the cloud-based database system, automatic ticketing system and Bluetooth printers.

Warning messages

The **lion alcolmeter® 900** will inform the operator if any of the self-checks fail. Self-checks may fail due to environmental conditions or an internal fault.

If the reason for the warning can be easily rectified, the instrument will display a message to assist the operator. If it cannot be easily rectified, the

instrument will display an error code. If an error code is shown, the instrument should be returned to the supervisor.

Care and maintenance

To ensure optimum performance, follow these simple instructions:

- Do not immerse the device in water or other liquids. **It is not watertight**.
- To clean the device, use a soft cloth slightly dampened with water.
- Never use aggressive cleaning agents, thinners, benzene, isopropyl alcohol or abrasive brushes.
- Do not use or store the device in an environment where the ambient temperature or humidity is too high or too low (see operating conditions in the 'Technical Specification' section), in direct sunshine, in the vicinity of static electricity or in a dusty environment.
- Remove the power unit if you do not wish to use the device for an extended period to prevent damage from batteries that may leak.
- If the device is used as described in these instructions, a bi-annual service is recommended to ensure accuracy is maintained.

Disposal

Do not throw away or dispose of in a landfill site. Return to the local dealer or manufacturer.

Please remove the batteries before disposing of the device. Dispose of old batteries at a battery collection point, a recycling site, or in a shop. Consult your municipal authority or your dealer for information about disposal.



The mouthpieces are manufactured from LDPE and marked with the symbol denoting its type and suitability for recycling.



System Configuration

The **lion alcolmeter® 900** is a highly configurable instrument. The configuration is performed using a PC application that connects to the instrument using a USB-C cable.
The instrument is configured with the agreed Customer settings prior to leaving the factory. For the full list of configurable settings, refer to the **Support-900** user guide.

No settings should be changed without prior consultation with your Distributor or Lion Laboratories Limited.

Dos and Don'ts

Dos

DO...Change batteries when **Low Battery** appears.

DO...When changing batteries, replace **all 4** cells.

DO...Use the correct mouthpiece for this instrument.

DO...Use a clean, new mouthpiece for each **COMPLETE** breath test.

DO...Ensure the subject blows into the lipped end of the mouthpiece.

DO...Read this handbook carefully and comply with its contents.

Don'ts

DO NOT...Test the subject if the operator thinks the subject may have consumed alcohol or taken **ANYTHING** by mouth in the last 15 minutes.

DO NOT...Test the subject if the subject has smoked in the last 2 minutes.

DO NOT...Let the subject hyperventilate before supplying breath. This cools the mouth and upper airways, so that alcohol is lost (by condensation) from the breath on expiration, and so produces a falsely low reading. If necessary, wait a minute or so before proceeding to take the breath sample, after any such action by the subject.

DO NOT...Store the **lion alcolmeter® 900** in extremes of temperature, hot or cold.

DO NOT...Subject the **lion alcolmeter® 900** to violent shock.

DO NOT...Clean the case with chemical or abrasive products.

DO NOT...Allow the sampling port to become blocked or damaged.

DO NOT...Block or restrict the end of the mouthpiece while the subject is blowing. This can seriously damage the instrument.

DO NOT...Re-use mouthpieces, for hygiene **and** accuracy.

DO NOT...Open the case: this will invalidate the warranty/service.

DO NOT...Deviate from the instructions in this handbook.

Appendix I: Supplier's Details

Lion's exclusive distributor and service support company is:

Appendix II: Manufacturer's Details

Mail

Lion Laboratories Limited
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