FC10 and FC10 *Plus*
Portable
Breath Tester

Operations Manual

Lifeloc Technologies, Inc.

Patent No. 6,596,153

Users Manual
Version 3.0

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Lifeloc Technologies, Inc.

OPERATION FOR MODELS FC10 & FC10*Plus*

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Lifeloc Technologies, Inc.

Introduction

To the FC Portable Breath Tester Operator:
WELCOME!

The FC breath alcohol tester is manufactured in Denver, Colorado, by Lifeloc Technologies, Inc. Lifeloc offers premium quality products combined with exceptional service and technical support.

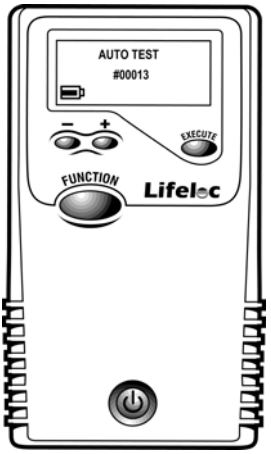
The FC is a state-of-the-art breath alcohol tester that is software based and thus incorporates unique cutting edge technologies. Because of the advanced FC design:

- Results on a positive test register in 10 seconds.
- You can take another test 30 seconds after a positive.
- Your FC will automatically take the test when it senses a deep lung sample is delivered.
- Your FC will provide an accurate test, or else explain to you why it cannot, and even provide suggestions on how to proceed to complete an accurate test on your subject.

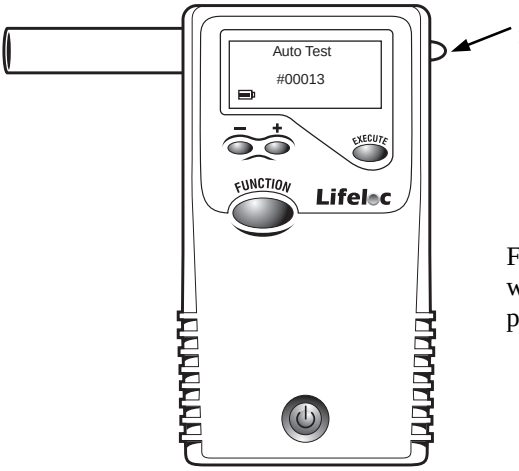
The following pages will explain in detail the operation of your FC Series portable breath tester.

Introduction

FC FRONT VIEW



Front view without mouthpiece.



Mouthpiece removal tab.

Front view with mouth-piece attached.

Introduction

STANDARD FEATURES

Large graphic LCD display, capable of showing numbers, letters, icons and plain-English text messages

Automatic Calibration, software controlled adjustments, no screwdriver or tools necessary

AutoTest Mode, the easiest, simplest way to take a test. A unique Lifeloc feature, AutoTest is fast, accurate and virtually "hands-free"

Auto Shut-Off, preserves battery life

Fast Simple Operation, while the FC contains a host of features, it is still easy to use

Automatic Backlight, easy viewing of test results either day or night.

Exceptional Battery Life, up to 160 hours of operation on one set of 4 "AA" batteries

Passive Test Mode, check for the presence of alcohol without using a mouthpiece (FC10*Plus*)

User Selectable Test Order, allows choice of either Auto Test or Passive Test default mode (FC10*Plus*)

Preparation

INSTALLING BATTERIES

Press in and down on the battery door located on the back of the FC.

Install the 4 AA Alkaline batteries in the direction of the symbols in the battery case.

Close the case by pushing up on the battery door until it locks shut.

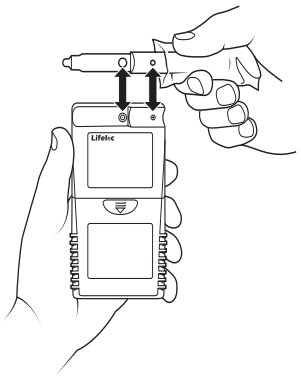
ATTACHING A MOUTHPIECE

Remove the mouthpiece from its wrapper, making sure not to touch the end which the subject will be blowing into.

Attach the mouthpiece to the port on the back of the FC.

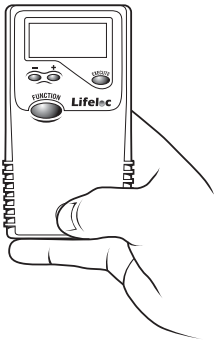
Line up the mouthpiece port over the hole in the back of the mouthpiece. Press in place.

Ensure it is snuggly fit.



Preparation

TURNING THE FC ON & OFF



Press and hold the power button on the bottom of the front of the unit until it beeps. The FC performs an automatic internal diagnostics check.

To turn the unit off, press and hold the *Power* button until it beeps. The unit will shut down.

OBSERVING THE SUBJECT

The FC provides a highly accurate reading of breath alcohol acquired by sampling deep lung air. However, the reading can be corrupted by residual mouth alcohol.

To prevent mouth alcohol from affecting a test, make certain that the subject is not allowed to put anything in their mouth for 15 minutes prior to taking a test.

If the subject just took a drink, a 15 minute observation period in which he/she is not permitted to put anything in his/her mouth, should be observed before testing. This will ensure all residual alcohol from any source is completely dissipated and test results will be valid.

Operation

TAKING AN AUTO TEST

Attach the mouthpiece to the back of the unit.

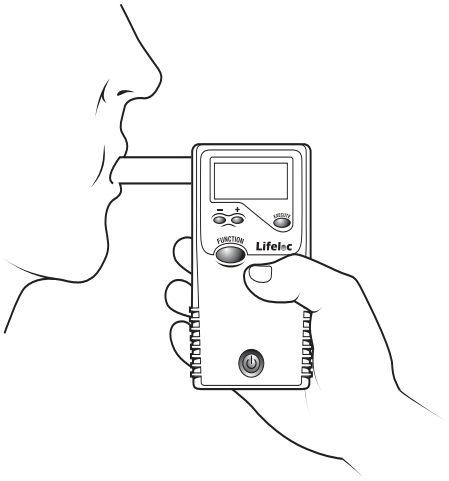
Verify the display reads “AUTO TEST”.

Instruct subjects to blow into the mouthpiece firmly and steadily for as long as they can. (Not necessarily as hard as they can.)

Read the result.

After taking a test, the FC will display the results in large numbers on the display.

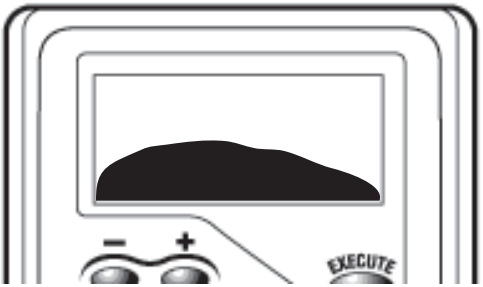
Press the *Function* button to return to the test mode.



Operation

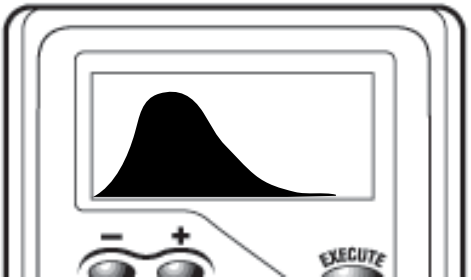
BREATH FLOW

As the subject blows into the mouthpiece the FC will show a graph of the breath flow on the display.



ALCOHOL CURVE

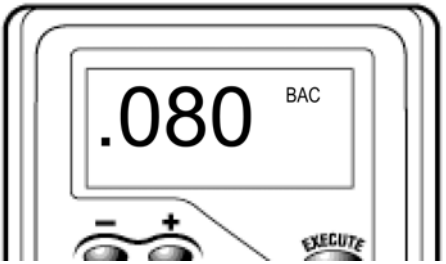
If the FC detects alcohol, the alcohol level is graphed and will be displayed before the result.



Operation

TEST RESULT

After the alcohol is graphed, the test result is displayed.



The result will remain on the screen for 90 seconds, or until the *Function* or *Power* button is pressed.

The last test result is retained in memory until the next test is administered.

REMOVING THE MOUTHPIECE

Remove the mouthpiece by pushing against the back of the tab located on the exhaust end.

VIEWING PREVIOUS TEST RESULTS

Press the *Function* button repeatedly until "Last Test Result" is displayed. The results of the last test will be displayed.

Press the *Function* button to return to the testing mode.

Breath Testing Modes

EXPLAINED

The FC10 is capable of conducting Automatic and Manual breath tests, while the FC10*Plus* is capable of conducting Automatic, Manual, and Passive tests.

- **Automatic Test** is the most used and highest accuracy test. The FC monitors the subject's breath and automatically takes the sample near the end of the breath flow.
- **Manual Test** is normally used only when the subject is unable to provide a sufficient air sample for the automatic test.
- **Passive Test** is a quick screen to detect alcohol but is not designed to quantify the results. Passive results are reported as POS if alcohol is detected, NEG if alcohol is not detected. In this mode, no mouthpiece is required.

CONDUCTING AN AUTOMATIC TEST

Turn the FC on.

Attach a mouthpiece to the back of the unit.

Verify the display reads "AUTO TEST".

Instruct subjects to blow into the mouthpiece firmly and steadily for as long as they can. (Not necessarily as hard as they can.)

Read the result.

Breath Testing Modes

CONDUCTING A MANUAL TEST

Turn the FC on.

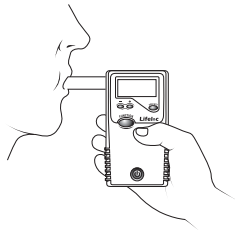
Attach the mouthpiece to the back of the unit.

Press the *Function* button until the display reads "MANUAL TEST".

Instruct subjects to blow into the mouthpiece firmly and steadily for as long as they can.

When they are near the end of their breath, press the *Execute* button.

Read the result.



MANUALLY OVERRIDING AN AUTOMATIC TEST

Note: This feature allows the completion of a test in the occasional instance when the subject may have diminished lung capacity and cannot activate the Auto Test .

Turn the FC on.

Attach a mouthpiece to the back of the unit and verify the display reads "AUTO TEST".

Instruct the subject to blow into the mouthpiece firmly and steadily for as long as they can.

When they are near the end of their breath, press the *Execute* button.

Read the result.

Breath Testing Modes

CONDUCTING A PASSIVE TEST (FC10*Plus* Model)

Turn the FC10*Plus* on.

Press the *Function* button if necessary, until the display reads "PASSIVE TEST".

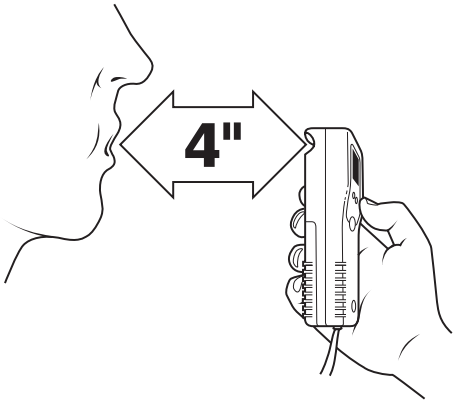
To take the test:

Hold the FC10*Plus* sample port (orange-colored opening labeled Port on the back label of the FC10*Plus*) about 4 inches from the subject's mouth.

Have the subject blow towards the port.

Press the *Execute* button while the subject is blowing.

Read the result. ("POS" or "NEG")



Summary

OK, was that easy or what!

Now that you have been through the first part of this manual, you know everything necessary to begin using your FC. You are capable of conducting Auto, Manual and Passive tests (FC10*Plus*) with ease… but that's not the entire story.

The following pages will guide you through the user settings as well as the calibration and calibration check procedures for the FC. We will take you through step-by-step processes for calibration of your FC, as well as give you some recommendations regarding maintenance to keep your unit functional for years of trouble-free use.

Finally, in the warranty and service section, you can find the details of your factory warranty on your FC, as well as information on service and high quality supplies available through Lifeloc Technologies.

Fast, accurate, and easy to use, the FC Series breath alcohol tester is a premium quality precision state-of-the-art breath alcohol tester, designed for professional use.

User Settings FC10Plus

SETTING THE DEFAULT TEST ORDER

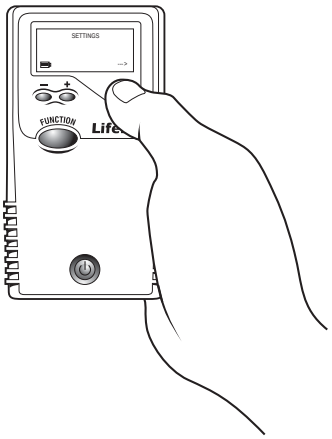
Turn the FC10*Plus* on.

Press the *Function* button until the display reads "TEST ORDER".

Press the *Execute* button to choose between "Auto" (test order 1 below) or "Passive" (test order 2 below) as the default when you turn the unit on.

Press the *Function* button to save the changes and return to the testing mode.

Test Order 1	**Test Order 2**
Auto Test (Default)	Passive Test (Default)
Manual Test	Auto Test
Passive Test	Manual Test



Calibration Settings

CALIBRATION EXPLAINED

Calibration of an FC compares its internal settings to a known alcohol standard thereby providing it with the baseline from which it can accurately calculate the subject's alcohol level.

You can use most available BAC levels of gas or solution to calibrate your FC, however, most commonly used are: .100, .080 or .040 BAC.

The FC must be between 67° and 100° Fahrenheit to calibrate. (19° - 37° C)

Lifeloc recommends you calibrate your FC:

Once every 12 months, regardless of how many tests you have performed;

OR, after two failed Calibration Checks;

OR, at intervals specified by your Internal Policies, Quality Assurance Plan, or State Regulations.

A Calibration Check simply verifies the FC was calibrated correctly and is within the acceptable accuracy range. (Commonly called "External Calibration Check", "Accuracy Check", or "Verification".)

Lifeloc recommends you perform a calibration check on your FC:

Once every 30 days;

OR, at intervals specified by your Internal Policies, Quality Assurance Plan, or State Regulations.

Calibration Settings

CALIBRATION EXPLAINED

There are two types of Calibration/Calibration Check methods:

- **Wet Bath Simulator**
- **Dry Gas**

You can calibrate and check your FC using either method. However, you must **first** set your FC to recognize which method, or which 'Standard Type', you will be using.

Once you choose the standard type, the FC will store that information in memory and you do not have to set it again unless you change to a different method of performing a calibration/calibration check.

Dry Gas Calibration requires that you enter the corrected Standard Value, before calibration, based on your altitude or elevation. Using the chart on the outside of the canister, multiply the number next to your elevation by the standard.

Example: Denver Colorado elevation 5280 Ft. above sea level. Correction factor from tank .820
x .100 = .082 corrected standard.

If you move to a location at a significantly different altitude you will have to change the standard in the FC .

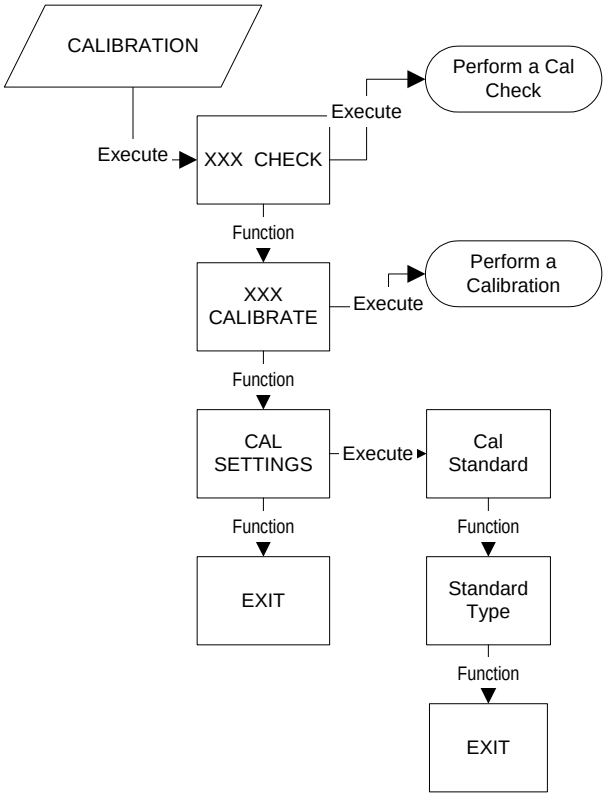
Wet Bath calibration does not require altitude compensation.

Note: The FC comes from the factory set for wet bath simulator and a .100 solution standard.

Calibration Settings

CALIBRATION DISPLAY CHART

Refer to the chart below while reading the next section.



Calibration Settings

SETTING THE CALIBRATION STANDARD

From the "CALIBRATION" display, press the *Execute* button. The display now reads "XXX CHECK".

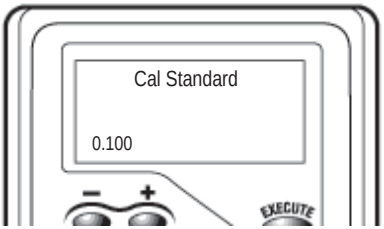
Press *Function* button until the display reads "CAL SETTINGS".

Press the *Execute* button and the display will read "Cal Standard".

Use the + and – buttons to change the number to the BAC level of standard you will be calibrating to (it should be the same as on the bottle of certified solution or your corrected standard if using a dry gas tank).

Press the *Function* button to move to the next setting or repeatedly until the display reads Exit. Press the *Execute* button to save the changes and return to the testing mode.

Once you set the standard you do not have to set it again unless you change to a different method of performing a calibration/calibration check.



Calibration Settings

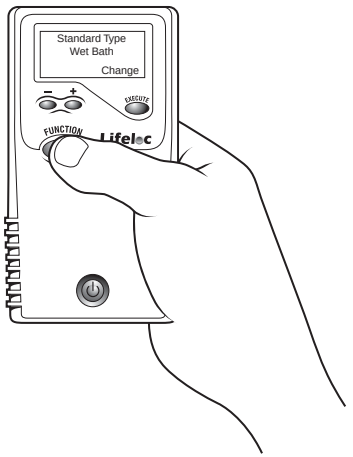
SETTING THE STANDARD TYPE

From the "CAL SETTINGS" display, press the *Execute* button.

Press the *Function* button until the display reads "Standard Type XXX XXX".

Press the *Execute* button to choose between "Dry Gas" and "Wet Bath".

Press the *Function* button until the display reads "Exit". Press the *Execute* button to save the changes and return to the testing mode.



Wet Bath Calibration

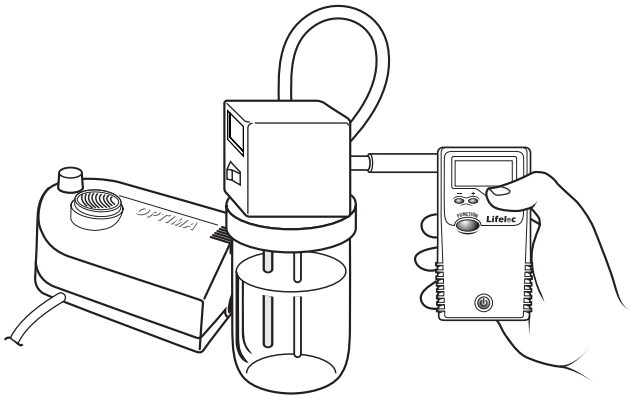
SIMULATOR SET-UP

Pour a bottle of alcohol solution into the simulator glass jar, tighten lid securely.

Turn on the simulator.

The simulator automatically heats the solution to 34°C.

Attach a mouthpiece adapter snuggly to the outlet port on the simulator lid.



Wet Bath Calibration

CALIBRATION

Turn the FC ON. Attach a mouthpiece to the back of the unit.

Verify the "Cal Standard" is set to the concentration you will be using when you calibrate.

Verify the "Standard Type" is set to "Wet Bath".

Press *Function* button until display reads "CALIBRATION" then press the *Execute* button.

Press *Function* button until display reads "WET CALIBRATE".

Attach the wet bath mouthpiece adapter to the simulator, then slide the FC mouthpiece over the other end of the adapter.

Blow through the input tube (or use a calibration pump) to create 1/2" bubbles on the surface of the solution.

After 3 seconds of blowing press the *Execute* button to take the sample, while continuing to blow for another 3 seconds.

Stop blowing.

If successful, the display will read "CAL COMPLETE".

Disconnect the equipment and wait two minutes before conducting a Cal Check.

Wet Bath Calibration

CALIBRATION CHECK (Wet Check)

Prepare the wet bath simulator according to its instructions, making certain it has reached proper operating temperature.

Turn the FC ON. Attach a mouthpiece to the back of the unit.

Verify the Standard Type is set to Wet Bath.

Press *Function* button until display reads "CALIBRATION".

Press *Execute* button. The display will read "WET CHECK".

Slide the FC mouthpiece over the mouthpiece adapter.

Blow through the input tube (or use a calibration pump) to create 1/2" bubbles on the surface of the solution.

After 3 seconds of blowing press the *Execute* button to take the sample, while continuing to blow for another 3 seconds.

Stop blowing.

Read the result. It should be within +/- .005 BAC of the standard used.

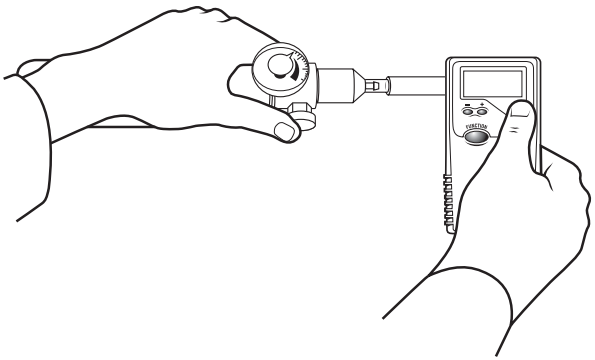
Example: a .100 BAC solution should read between .095 and .105 BAC.

Dry Gas Calibration

DRY GAS SET-UP

Screw the regulator onto the dry gas tank.

Attach the mouthpiece adapter to the outlet port on the regulator.



Dry Gas Calibration

CALIBRATION

Verify the “Calibration Standard” is set correctly.

Verify the “Standard Type” is set to Dry Gas.

Turn FC ON. Attach a new mouthpiece to the back of the unit.

Press *Function* button until display reads “CALIBRATION”.

Press *Execute* button. The display will read “DRY CHECK”.

Press *Function* button until display reads “DRY CALIBRATE”.

Attach the FC mouthpiece to the regulator by sliding it over the mouthpiece adapter, ensuring a snug fit.

Press and hold down the regulator button to deliver a gas sample .

After the gas flows for 3 seconds, press and release the *Execute* button to take the sample.

After 3 more seconds release the valve button to discontinue the flow of gas from the tank.

If successful, the display will read “CAL COMPLETE”.

Disconnect the equipment and wait two minutes before conducting a cal check.

Dry Gas Calibration

CALIBRATION CHECK (Dry Check)

Verify the Standard Type is set to Dry Gas.

Turn FC ON. Attach a mouthpiece to the back of the unit.

Press *Function* button until display reads "CALIBRATION".

Press *Execute* button. The display will read "DRY CHECK".

Attach the FC mouthpiece to the regulator by sliding it over the mouthpiece adapter, ensuring a snug fit.

Press and hold down the regulator button to deliver a gas sample .

After the gas flows for 3 seconds, press and release the *Execute* button on the FC to take the sample.

After 3 more seconds release the regulator button on the tank to discontinue the flow of gas from the tank.

The display will read a result that should be within +/-.005 BAC of the standard if you are using a .100 BAC or less standard.

Check your result against the actual tank standard (not the corrected standard).

Maintenance

FUEL CELLS

Fuel cells are highly durable sensors that are capable of providing accurate breath alcohol results for years. There are however, a few precautions you should take to make certain that these devices perform for the longest period of time possible.

Use the device. Fuel cells like moisture, so it is a good idea to take tests periodically to provide needed moisture to the fuel cell, especially in dry climates. You do not need alcohol, just breath.

Avoid cigarette smoke! Make certain no one is permitted to blow cigarette smoke into the unit. This can damage or destroy the fuel cell.

CLEANING

Use of a mild disinfectant cleaner and a soft cloth on the outside of the case is recommended periodically to keep your unit clean. Do not use alcohol to clean the unit.

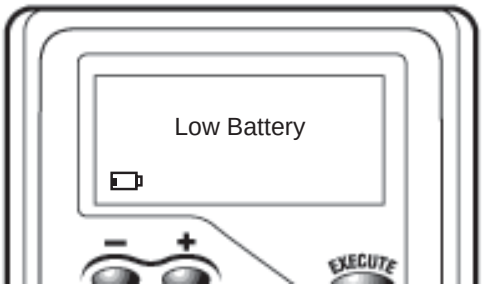
BATTERIES

The 4 AA batteries in your FC should last for about 160 hours of "on" time which can equate to as many as 6000-8000 tests. It is recommended you use high-quality alkaline batteries with your unit.

Error Messages

ERROR MESSAGES FC10 AND FC10*Plus*

ERROR MESSAGES	COURSE OF ACTION
Flow Error Retry & Blow Steadily	Exhalation not complete or interrupted. Instruct subject to blow steadily as long as they can.
<1.3L Retest or Try Manual Test	Breath flow ended before the subject blew 1.3 liters of breath. Instruct subject to try again or use manual test mode.
Temperature	When taking a test unit is outside of temperature limits for taking a test.
Low Battery	Battery voltage is too low to take a test. Replace batteries.
Pump Failure or Pump Reset Needed	The pump needs reset. Restart unit or follow screen instructions. If this problem persists contact Lifeloc support.
External Interference	External interference (such as RF noise) has been detected. Move to a different location and try again.



Warranty

FACTORY LIMITED WARRANTY ON NEW UNITS

The FC comes with a one year limited parts and labor warranty, effective on the date of purchase by the end-user.

The Warranty covers:
Parts and labor on covered repairs

- Software updates as applicable
- Airfreight back to the customer after the unit is repaired (U.S. only)

The Warranty does not cover:
- Freight to the Lifeloc factory
- Misuse, abuse, negligence or accidents

The warranty is not valid if the product was not purchased and paid for in full. Proof of purchase

EXTENDED SERVICE PLANS

Extended service plans are available for your FC. These provide complete coverage for an additional year at a reasonable cost and include free Factory Diagnostic Checks. Call Lifeloc for additional details, or apply online.

SERVICE

If your FC should require repairs or maintenance, Lifeloc is there for you. Just an email or phone call will put you in contact with our technical support personnel.

Lifeloc typically repairs a unit within 4 working days from the time it is received.

Notice

The FC10 and FC10*Plus* are professional devices designed to be used by trained operators in conjunction with a specified, periodic maintenance and calibration / calibration check regimen. *Use by untrained operators or without periodic calibration or calibration checks may result in invalid results or incorrect interpretation of results.*

DO NOT DRINK AND DRIVE. Lifeloc strongly recommends that no vehicle be operated after alcohol consumption. Even small quantities of alcohol can result in driving impairment.

Lifeloc TECHNOLOGIES
Premium Quality Breath Alcohol Testing Equipment Since 1983

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Order by fax, phone or online at www.lifeloc.com.