

ALCOSCAN™

PASSIVE BREATH ALCOHOL TESTER



Calibration manual

Federal Communications Commission (FCC) Disclaimer

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC rules. Operations are subject to the following 2 conditions:

1. This device may not cause harmful interference
2. This device must accept any interference received, including interference that may cause undesired operations

Industry Canada

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions:

1. This device may not cause interference, and
2. This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

1. L'appareil ne doit pas produire de brouillage, et
2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.



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ALCOSCAN BREATH ALCOHOL TESTER FEATURES

FRONT VIEW

SIDE VIEW

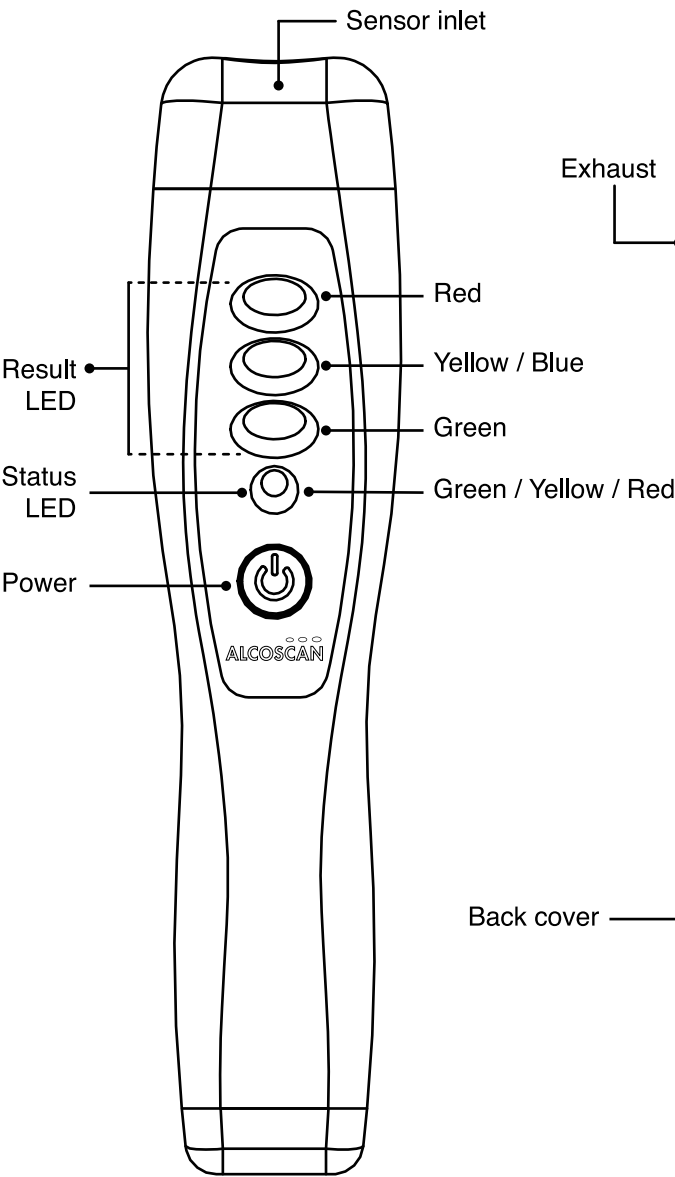


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SAFETY AND PRECAUTIONS

WARNING! READ CAREFULLY before beginning the calibration process.

GENERAL

- This guide is intended for authorized service technicians only
- Do not use the ALCOSIM simulator with toxic liquids, flammable liquids or in explosive atmospheres
- Use the product for its intended purpose only; failure to do so will void the warranty, may cause injury and damage the components
- CAUTION – Hot Surface! Avoid contact with the ALCOSIM simulator heating element
- Only use parts supplied by Alcohol Countermeasure Systems Corp
- Ensure that the proper amount of solution is added; do not under-fill or over-fill the ALCOSIM simulator
- If the ALCOSIM simulator overheats considerably beyond 34 °C, turn it off and contact an authorized service provider
- Before use, inspect all components for visible cracks or damage; failure to do so may cause injury or additional damage
- Never run the ALCOSIM simulator without adding alcohol reference solution
- Perform calibration within a room temperature environment (23 °C ± 2 °C and approx. 50% RH)
- DO NOT overtighten the solution container

MOISTURE, CONTAMINATION AND CLEANING

- Always disconnect the ALCOSIM simulator power before cleaning
- If the simulator was on: before removing the top housing, ensure that the simulator is switched off, unplugged AND allow at least 15 minutes for the heater to cool down
- Remove the ALCOSIM simulator top housing before cleaning the solution container
- Wash the solution container with plain water and dry with a paper towel
- Clean the top housing by wiping with a damp cloth; DO NOT submerge the top housing in water
- Before setup, ensure that all moisture has been completely removed from the ALCOSIM simulator
- Before setup, all tubing and mouthpieces must be completely dry. Even slight condensation may disrupt calibration
- Completely empty the ALCOSIM solution container at the end of the work day

POWER

- Check that the ALCOSIM simulator power ratings conform to the local supply rating
- Power off the ALCOSIM simulator after use
- When assembling, disassembling or preparing the ALCOSIM simulator for use, ensure that it is not plugged into an electrical outlet
- Do not disconnect any components while calibration is in progress

ALCOHOL REFERENCE SOLUTION

- Keep solution away from eyes. In case of contact, flush eyes with water. If irritation continues, contact your local poison control centre
- Do not ingest. In case of ingestion, do not induce vomiting. Contact your local poison control centre
- Do not use a solution bottle with a broken seal, or a solution bottle that has expired. Keep at room temperature. Do not freeze or refrigerate
- Never use artificial methods to reheat or cool the solution or the solution container
- Excessive usage of solution will reduce calibration accuracy. Replace solution every 5 days or 20 tests
- It is safe to dispose of alcohol reference solution in the drain. Refer to your local environmental regulations for more information about safe disposal amounts

INTRODUCTION

This guide describes the steps for calibrating the ALCOSCAN breath alcohol tester using the ALCOSIM breath alcohol simulator and an alcohol reference solution.

NOTE: For information about the general usage of the ALCOSCAN tester and ALCOSIM simulator, refer to their respective instruction manuals.

ASSISTANCE

For assistance, contact your local authorized service provider or visit acs-corp.com.

WHEN TO CALIBRATE THE ALCOSCAN TESTER

For optimal performance, calibration is required every 12 months or 5,000 tests. The WARN result LED will blink blue on startup to indicate that the device needs to be calibrated within the next 10 days or 100 tests. The WARN result LED will continue to blink blue after startup if the device is overdue for a calibration.

WARNING: Removing the batteries for a long period of time may result in loss of date/time and log events, causing a premature request for calibration.

CALIBRATION

The simulator calibration method uses a known water alcohol solution to produce an air to alcohol vapor. To simulate the human breath, this vapour is thermostatically maintained at a constant temperature of 34 °C. The result is an accurate method of recreating a known breath alcohol concentration (BrAC).

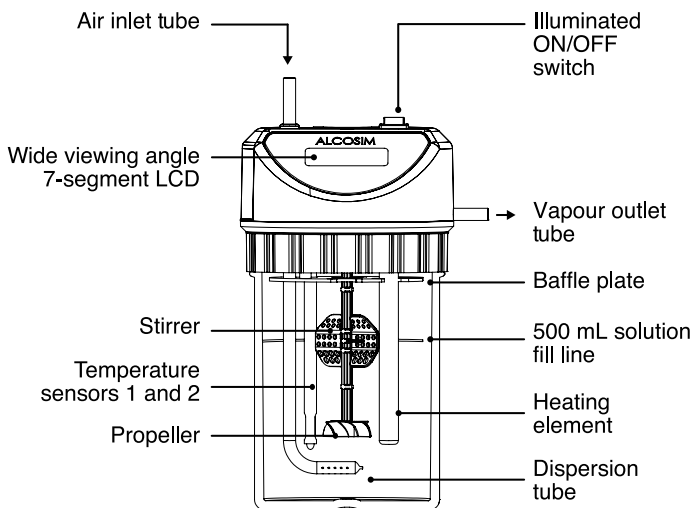
CALIBRATION EQUIPMENT

The calibration setup includes the following components. Use the appropriate ACS part numbers to order additional stock:

- ALCOSIM breath alcohol simulator 79-007600
- Vinyl tubing 70-000002
- Diffuser 58-000707
- Alcohol reference solution 20 mg% 95-000302
- Round mouthpiece (for blowing into the **AIR INLET TUBE**) 95-000250



Alcohol reference solution



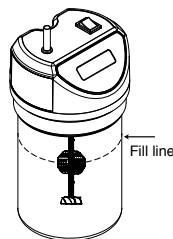
FRONT

ALCOSIM SIMULATOR SETUP

CAUTION! Ensure that all equipment is unplugged before assembling or disassembling. Failure to do so may result in damage to the heater element and risk of electric shock.

Visually inspect the ALCOSIM simulator top housing and container to verify that they are clean and free of any cracks.

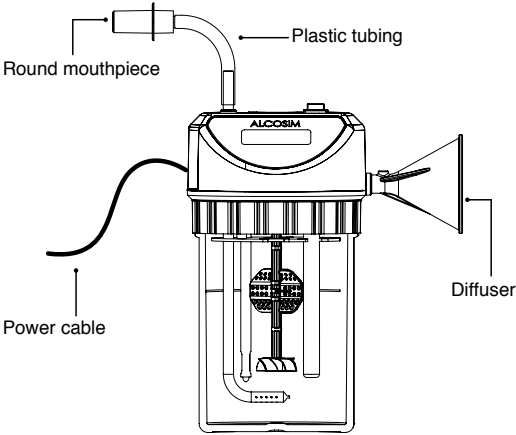
1. Unscrew the top housing and remove by lifting it up.
2. Set the top housing aside and fill the solution container with a new bottle of 20 mg% alcohol reference solution. **Do not fill above or below the 500 mL fill line.**
3. Place the top housing back onto the solution container and tighten securely. Do not over tighten as this may crack the container.
4. Connect the vinyl tubing to the **AIR INLET TUBE** on the simulator. Connect a round mouthpiece to the tubing from the **AIR INLET TUBE**.
5. Check for leaks in the seal by blowing into the round mouthpiece and covering the **VAPOUR OUTLET TUBE**. Air should not bubble through the solution. In case of bubbling, refer to the “Troubleshooting” section of this manual.
6. Connect a diffuser to the **VAPOUR OUTLET TUBE**.
7. Plug in the simulator power cable and switch the simulator on. The mixing propeller starts to rotate.
8. Set the ALCOSIM simulator aside to warm up.



NOTE:

- ***It takes approximately 15 minutes for the solution to reach 34 °C. The current temperature is displayed on the LCD display***
- ***Replace the alcohol reference solution every 20 tests / 5 days to maintain proper alcohol concentration and accuracy***

ALCOSIM SIMULATOR ASSEMBLY DIAGRAM

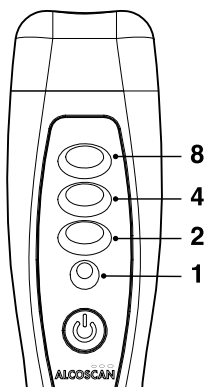


ENTERING ADMIN MODE

The ALCOSCAN tester must be in ADMIN Mode in order to calibrate. Follow these steps to enter ADMIN Mode:

1. Press the power button 4 times in quick succession and hold (click, click, click, click and hold). Release the power button when 1 beep is heard.

A combination of LED lights will illuminate. Each light indicates a number, as shown in the diagram below.



2. Add up the numbers indicated by the illuminated LEDs. Take that sum and press the power button that many times in quick succession.

The WARN LED light will blink blue when the appropriate number is entered. The ALCOSCAN tester is now in ADMIN Mode and can be calibrated.

Three beeps indicate that the number entered is not correct.

Continue to the next section.

CALIBRATION PROCEDURE

This calibration procedure requires that the ALCOSCAN tester be in ADMIN Mode. Refer to the “Entering ADMIN Mode” section of this manual for more information.

NOTE: *Ensure that the unit is within the ambient temperature range of 20 to 30 °C.*

1. Position the ALCOSCAN tester 10 cm away from the diffuser and ensure that drafts of air (e.g. from air conditioners, fans, etc.) cannot interfere with the sample.
2. Blow moderately and continuously into the round mouthpiece. After 5 seconds, while still blowing, press the power button on the ALCOSCAN tester.
3. The tester will vibrate as it collects the breath sample. Stop blowing when the vibration ends.

The Status LED will blink amber while it analyzes the sample. If the alcohol detected is not the expected concentration, the Status LED will blink red and the blue/red Result LEDs will blink.

NOTE: *When an error at any stage has occurred the procedure will restart from step 1.*

NOTE: *An otherwise flawless procedure can be impacted by environmental conditions, improper distance from the diffuser, sensor age and use, etc.*

4. When the WARN LED turns back to blue, repeat the sampling process (steps 2 to 4).

The Status LED will blink green to indicate that the ALCOSCAN tester was calibrated successfully and the green result LED will blink for 3 seconds. The success of the final sample ensures that the final reading is within the range of the required ± 5 mg%.

TROUBLESHOOTING

NOTE: Refer to the ALCOSIM simulator Instruction Manual for a list of error codes that may appear on the simulator display.

ADMIN MODE PASSWORD INPUT

The ALCOSCAN tester returns to a ready state if the password is not entered within 15 seconds. The tester will also return to a ready state after the password has been entered incorrectly with a “three beeps” indication.

The ALCOSCAN tester will automatically shut down if left inactive for over 3 minutes.

LED COLOURS

If the Status LED blinks red and the blue and red Result LEDs blink, then the alcohol concentration detected is outside of the acceptable range. Use only 20 mg% alcohol reference solution. Keep the correct distance of 10 cm from the diffuser (use only ACS p/n 58-000707 diffuser). Ensure proper setup and follow the procedure step by step.

If the Status LED blinks red and a result LED blinks green after taking a test, then the calibration has been attempted in an environment outside the temperature range of 20°C to 30°C.

SERVICE

Any product being returned for service must be properly packaged and shipped (prepaid) to a local authorized service provider.

For more information, contact an authorized service provider or visit acs-corp.com.

