ALERT™ J5

BREATH ALCOHOL TESTER

Calibration manual

Alcohol Countermeasure Systems Corp

60 International Boulevard
Toronto, Ontario M9W 6J2 CANADA

T +1 416 619 3500
F +1 416 619 3501

info@acs-corp.com
acs-corp.com

ALERT J5 HANDSET COMPONENTS

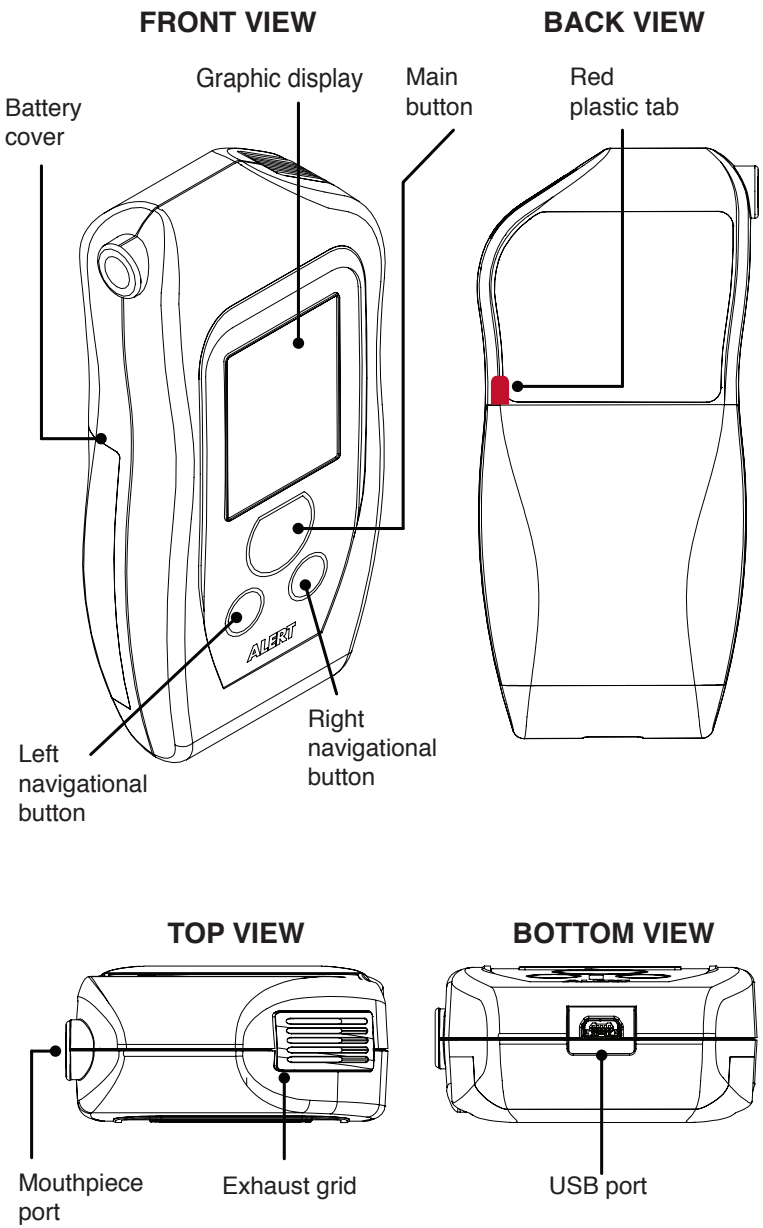


TABLE OF CONTENTS

SAFETY AND PRECAUTIONS

WARNING! Failure to comply with the warnings and precautions in this manual may cause personal injury, product damage, voiding of product warranty or a failed calibration.

GENERAL

- The ALCOSIM breath alcohol simulator is intended for authorized technicians only
- Use the ALCOSIM simulator for its intended purpose only
- Use parts specified by ACS only
- Before use, check that the simulator power supply rating (24Vdc, 2.5A) conforms to local supply ratings
- Do not disassemble product, except as specified
- Do not attempt to repair product; you must contact an authorized service provider
- It is recommended that calibration be done indoors, in a service facility

COMPRESSED GAS SAFETY

- Damaged or broken valves can turn a canister into a dangerous projectile. Attach the valve in a safe location
- Calibration should be performed indoors, in a service facility, where the gas standard cylinder can be properly stored
- Transportation and storage of compressed gases in vehicles is dangerous and should be avoided
- Examine the canister and valve for any damage; pay close attention to the expiration date on the label
- Observe all cautions and safety warnings found on the canister
- Never remove or alter canister labels
- Never modify the delivery tubing in any way
- Always remove the valve and install the protective cap on cylinders when not in use
- Store cylinders in a cool, well ventilated area, away from sources of heat

ALCOSIM SETUP, USAGE AND DISASSEMBLY

- CAUTION! When assembling, disassembling or preparing the ALCOSIM breath alcohol simulator for use, ensure that it is not plugged into an electrical outlet
- CAUTION! Hot surface – avoid contact with the heating element
- Place the ALCOSIM simulator on a flat surface, free from obstruction
- Do not expose the simulator to direct sunlight for extended periods of time
- Do not use the simulator with any toxic or flammable liquids, or in explosive atmospheres

- Recommended: Use the simulator within room temperature environments (23 °C ± 2 °C and approx. 50% RH)
- The solution container, tubing and mouthpieces must be completely dry; even slight condensation may disrupt calibration
- Fit tubing on an aquarium air pump or a similar setup for drying
- CAUTION! Never connect the simulator to an electrical outlet without first adding solution and attaching the top housing
- The simulator requires 500 mL of solution; the fill line is marked on the simulator container
- Do not under or over fill the simulator container
- Do not over tighten the top housing
- Connect the simulator cables neatly to ensure simple disconnection after use
- Do not force a misaligned cable connector into place
- If solution overheats considerably beyond 34 °C, disconnect the simulator power immediately
- Disconnect the simulator power after use
- CAUTION! After disconnecting the simulator power, allow 10 to 15 minutes for the heating element to cool before detaching the top housing
- Empty out the solution container at the end of a work day
- Store the simulator in an environment of 5 to 40 °C and 10 to 85% RH

ALCOHOL REFERENCE SOLUTION

- Use the solution concentration specified in the manual for breath testing devices
- Replace solution every 5 days or 20 tests
- Use of solution over time affects alcohol concentration
- Do not use a solution bottle with a broken seal, or an expired bottle
- Never use artificial methods to reheat or cool solution, or the solution container
- Keep solution at room temperature
- Do not freeze or refrigerate solution
- Do not ingest solution
- Keep solution away from eyes
- If solution comes in contact with eyes, flush eyes with water; if irritation continues, contact your local poison control centre
- Refer to your local environmental regulations for more information about safe solution-disposal amounts

CLEANING THE ALCOSIM BREATH ALCOHOL SIMULATOR

- Disconnect the ALCOSIM breath alcohol simulator power before cleaning
- CAUTION! After disconnecting the ALCOSIM simulator power, allow 10 to 15 minutes for the heating element to cool off before detaching the top housing
- Do not submerge the top housing in water
- Clean the top housing by wiping with a water dampened cloth
- Wash the solution container with plain water and dry with paper towel

CALIBRATION TYPES

There are 2 methods of calibration for the ALERT J5 breath alcohol tester:

- Gas Standard, which uses a gas standard cylinder. See “Gas Standard Calibration”
- Alcohol Reference Standard (ARS), which uses at least 2 ALCOSIM breath alcohol simulators. See “Alcohol Reference Standard (ARS) Calibration”

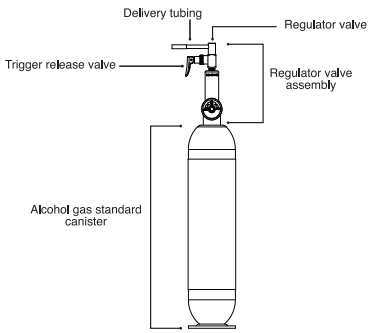
4 tests are required to ensure proper calibration. The first cycle starts the calibration and subsequent cycles are used to ensure that the same threshold is met.

GAS STANDARD CALIBRATION

CALIBRATION MATERIALS

- 105 L, 260PPM cylinder of gas standard (100 mg/dL), ACS #95-000430
- Regulator valve assembly (6 L/min flow rate): ACS #94-000225 (trigger); ACS #94-000226 (push button)

DRY GAS CALIBRATION PROCESS



1. Remove the protective cap of the canister and screw on the regulator valve assembly.

2. Attach the delivery tubing to the regulator valve.

3. Press the *main* button to power on the ALERT J5 tester.

4. In the *main* menu, scroll to the **Settings** icon with the navigation buttons and press the *main* button to select. Scroll to the **Device Settings** icon with the navigation buttons and select with the *main* button. Scroll to the entry labelled **PCB serial number**.

   The last 4 digits of the PCB serial number will be used as a password for the next step.

5. In the *main* menu, scroll to the **Troubleshooting** icon with the navigation buttons and select with the *main* button. Scroll to the **Advanced** option with the navigation buttons and select with the *main* button.

   The password field will flash on the display. Enter the password with the navigation buttons and enter with the *main* button. Select **OK** with the *main* button to confirm.

6. The current screen displays the different calibration types. Scroll to **Dry Gas** with the navigation buttons and select with the *main* button.

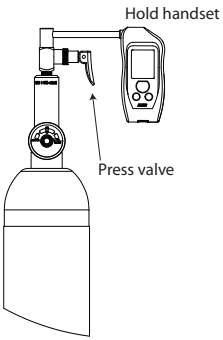
   NOTE: You must input the altitude prior to a gas standard calibration. Check the altitude of your exact location online.

7. Wait until the tester returns to **Ready** and displays **CALIBRATION ST.1**. The number indicates the sample number you are providing.

   4 samples are required to calibrate this device.

8. Attach the delivery tubing to the mouthpiece port of the tester. Hold the tester in place for the next step.

9. Press and hold the regulator valve down to release the gas while still holding the tester. A tone will be heard.



10. Release the regulator valve when the tone ends and the results are displayed.

11. Repeat the calibration process as indicated by the device (4 times total).

When the test is accepted and the calibration is completed, **CALIBRATION DONE** will be displayed.

NOTE: If the calibration fails on numerous attempts, the sensor may need to be replaced. Contact an authorized service provider for return instructions.

ALCOHOL REFERENCE STANDARD (ARS) CALIBRATION

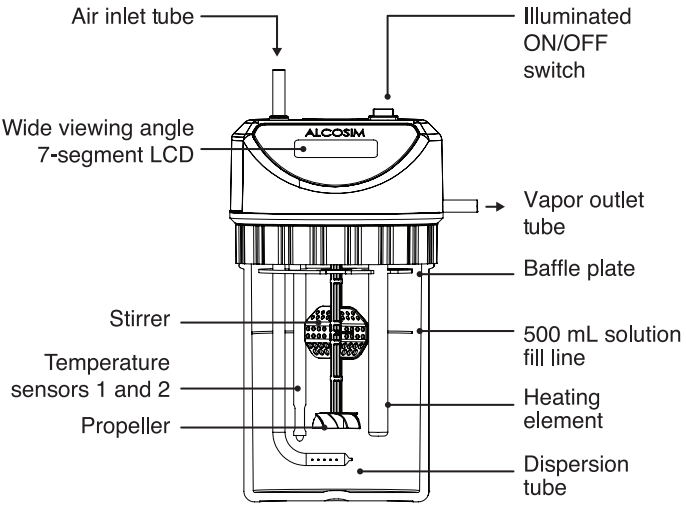
CALIBRATION MATERIALS

- Alcohol Reference Solution, 100 mg% ACS #95-000310
- ALCOSIM kit (includes the ALCOSIM breath alcohol simulator and all accessories):
    - Australian kit ACS #94-001200
    - UK kit ACS #94-001210
    - European kit ACS #90-001220
    - North American kit ACS #94-001230
    - Japanese kit ACS #94-001240
    - Brazilian kit ACS #94-001250
- ALCOSIM kit contents include:
    - ALCOSIM breath alcohol simulator ACS #79-007600
    - AC power cord: Part number depends on your region
    - Power supply (24Vdc, 2.5A) ACS #07-000075
    - 1.5 feet of vinyl tubing ACS #70-000002
    - Square mouthpiece ACS #95-000121
    - Round mouthpiece ACS #95-000250

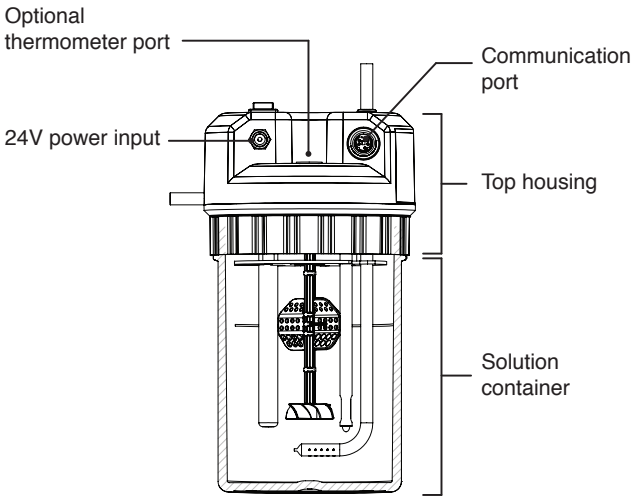
ALCOSIM BREATH ALCOHOL SIMULATOR – OVERVIEW

At least 2 ALCOSIM simulators must be used to properly calibrate the ALERT J5.

PARTS DIAGRAM

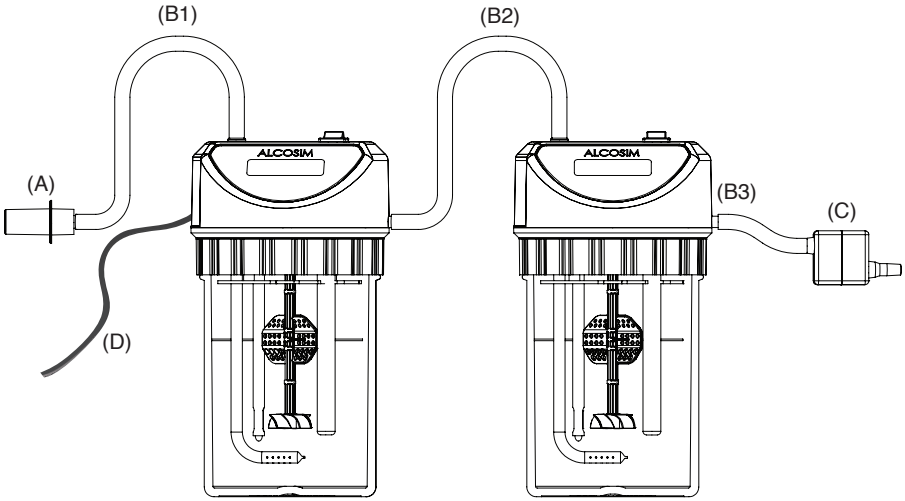


FRONT



BACK

KIT CONNECTION DIAGRAM



A	Round mouthpiece (for manually blowing into the simulator)
B1, B2, B3	Vinyl tubing (cut to size by a technician)
C	Square mouthpiece (connects to a breath tester)
D	Power cord

ALCOHOL REFERENCE SOLUTION – OVERVIEW

2 bottles of 100 mg% solution must be used to properly calibrate the ALERT J5. The ARS solution is:

- Supplied in 500 mL tamper-sealed bottles
- Premixed and ready for immediate use with the ALCOSIM simulator

For availability, pricing and ordering, contact your local authorized service provider or visit acs-corp.com.

ALCOSIM SETUP AND OPERATION STEPS

1. With both ALCOSIM breath alcohol simulators power disconnected, turn the top housings counter clockwise and detach them from each container.

2. Add the entire contents of a 500 mL bottle of 100 mg% alcohol reference solution into each ALCOSIM solution container.

   Each bottle contains the exact liquid volume required for calibration, which is also marked on each ALCOSIM container.

3. Return the top housings onto each container; be careful not to over tighten.

4. Connect vinyl tubing with the round mouthpiece to the first ALCOSIM simulator air inlet and another piece of tubing to the vapor outlet. Connect the piece of tubing from the vapor outlet of the first simulator to the air inlet of the second. Place another piece of tubing with a square mouthpiece to the vapor outlet of the second simulator.

5. Perform a leak check by blocking the open end of the square mouthpiece with your thumb and blowing into the round mouthpiece.

   Air bubbles should not appear in the solution. In case of bubbling, refer to the "Troubleshooting" section in this manual.

6. Connect the power cable to each simulator power input and to a wall outlet.

7. Switch on each simulator. The following occurs:
   - Each LCD display illuminates
   - The propellers rotate and each heating element activates
   - **Cold** is displayed until solution reaches 32 ºC, wherein the LCD screens display actual solution temperature
   - Each simulator maintains solution at a constant 34 ºC ± 0.2 ºC

   Solution heat-up takes about 10 minutes. When **34 ºC** ± 0.2 ºC is displayed, the simulators are ready to provide a breath sample.

ARS CALIBRATION PROCESS

1. Press the *main* button to power on the ALERT J5 tester.

2. In the *main* menu, scroll to the **Settings** icon with the navigation buttons and press the *main* button to select. Scroll to the **Device Settings** icon with the navigation buttons and select with the *main* button. Scroll to the entry labelled **PCB serial number**.

The last 4 digits of the PCB serial number will be used as a password for the next step.

3. In the *main* menu, scroll to the **Troubleshooting** icon with the navigation buttons and select with the *main* button. Scroll to the **Advanced** option with the navigation buttons and select with the *main* button.

   The password field will flash on the display. Enter the password with the navigation buttons and enter with the *main* button. Select **OK** with the *main* button to confirm.

4. The current screen displays the different calibration types. Scroll to **Wet Calibration** with the navigation buttons and select with the *main* button.

5. Wait until the tester returns to **Ready** and displays **CALIBRATION ST.1**. The number indicates the sample number you are providing.

   4 samples are required to calibrate the device.

6. Insert the tip of the square mouthpiece from the simulator into the sensor inlet of the tester.

7. Blow into the round mouthpiece of the simulator. Keep blowing until the tone ends and the results are displayed. The tester will emit a tone to indicate proper breath flow.
8. Repeat the calibration process as indicated by the device (4 times total).

   When the test is accepted and the calibration is completed, **CALIBRATION DONE** will be displayed.

   NOTE: If the calibration fails on numerous attempts, the sensor may need to be replaced. Contact an authorized service provider for return instructions.

TROUBLESHOOTING

In the event of a calibration failure using the ALCOSIM simulator, consult the “Troubleshooting — Error Codes” section of the ALCOSIM Breath Alcohol Simulator Instruction Manual (ACS #60-000180).

If a calibration fails while using a gas standard cylinder, it may be due to the following:

- Vinyl tubing has been overused or condensation is present
- The gas standard cylinder is expired or is empty
- Connections to and from the gas valve are not secured properly

ACS
ALCOHOL COUNTERMEASURE SYSTEMS

CAM-ENG-60-000633-B