ALCOLOCK™ V3
SERIES B-2

Calibration manual

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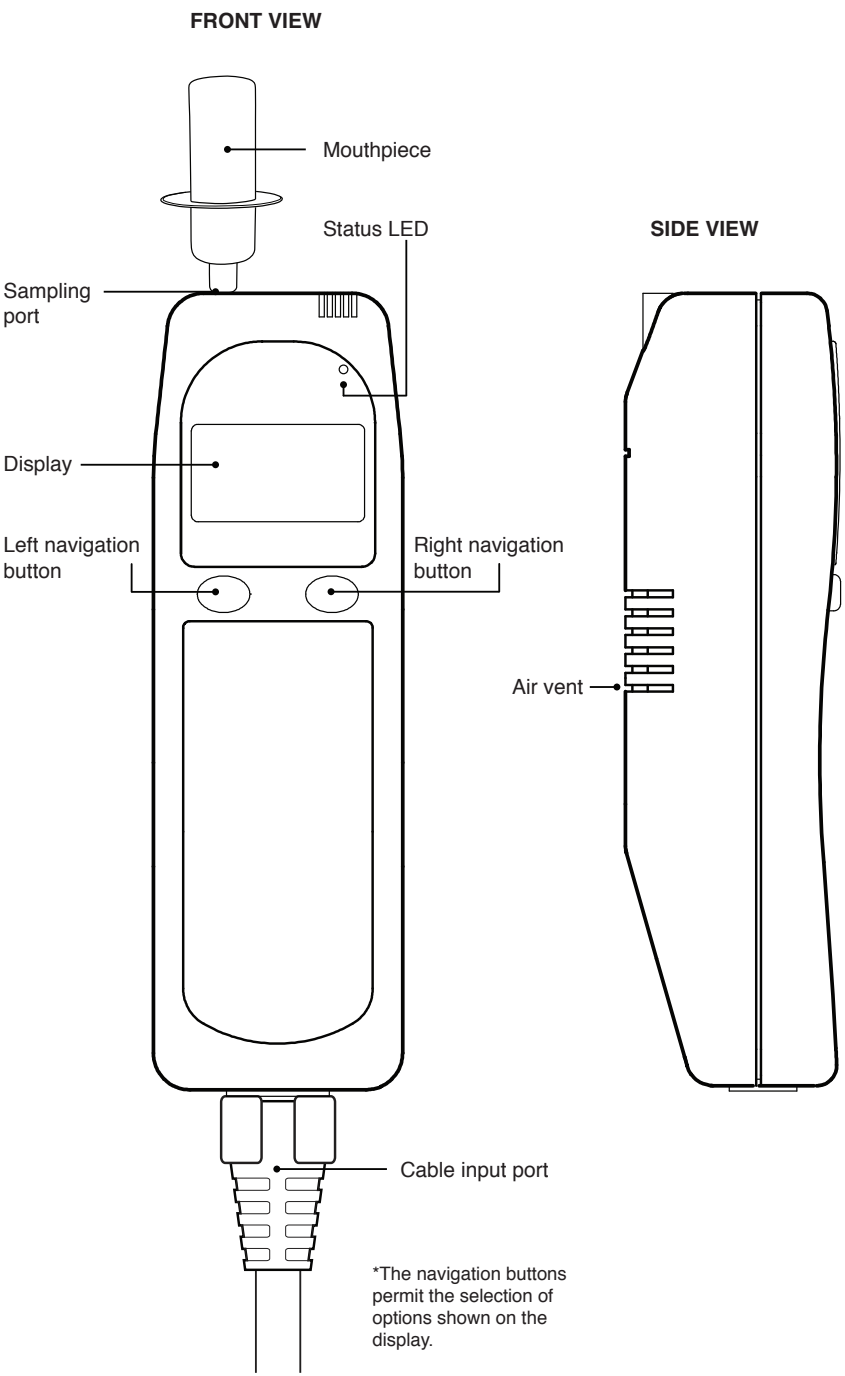

FRONT VIEW
Mouthpiece
Status LED
SIDE VIEW
Sampling port
Display
Left navigation button
Right navigation button
Air vent
Cable input port
*The navigation buttons permit the selection of options shown on the display.

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 an unguided missile. 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 rigid delivery tube 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 or mouthpieces 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 the 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
- If solution is ingested, do not induce vomiting; contact your local poison control centre
- 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
- Dispose solution down a drain

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 ALCOLOCK V3 alcohol interlock:

- Alcohol Reference Standard (ARS), which uses the ALCOSIM breath alcohol simulator. See the “Alcohol Reference Standard (ARS) Calibration” section of this manual
- Gas Standard, which uses an alcohol gas standard cylinder. See the “Gas Standard Calibration” section of this manual

To ensure accurate results, 3 calibration cycles may be necessary. The first cycle starts the calibration and subsequent cycles are used to ensure that the same threshold is met

Read the following section, then proceed to the method being used to calibrate your handset.

HANDSET PREPARATION

Regardless of the method being used, calibration is possible both with the ALOCOLOCK V3 Download Station or a maintenance code (without the ALCOLOCK V3 Download Station).

Do **A** or **B**.

A. WITH THE ALCOLOCK V3 DOWNLOAD STATION

1. Connect the ALCOLOCK V3 Download Station to a power source.

2. Disconnect the handset from the ECU of the vehicle.

Connect the handset to the ALCOLOCK V3 Download Station. The handset powers on automatically.

3. Select **CAL**. The handset displays the current date and time.

4. In the **Date / Time** screen, do **I** or **II**:

I. If the date and time are correct, press **OK** – the **Select method** menu is displayed.

II. If the date or time is incorrect, press **Set** to automatically synchronize handset time with download station time and press **OK** – the **Select method** menu is displayed.

NOTE: If a tachograph is installed, the date and time cannot be changed.

5. In the **Select method** menu, press **Next** to scroll to **Manual** and press **Select**. The **Select type** menu is displayed.

6. Choose either **Dry Gas** or **Wet Bath** in the **Select type** menu. The **Select value** menu is displayed.

Proceed to the “Gas Standard” section if you are using a gas standard cylinder or to the “Alcohol Reference Standard (ARS)” section if you are using the ALCOSIM breath alcohol simulator.

B. BY MAINTENANCE CODE (WITHOUT THE ALCOLOCK V3 DOWNLOAD STATION)

NOTE: The handset must be connected to an ECU in a vehicle or a demonstration stand.

1. Power the handset on by holding down either the *right* or *left* navigation button.

2. Access the menu screen by pressing and holding the *left* button.

NOTE: Where available, press and hold the* right *navigation button to exit a current screen / menu.

3. Press **Next** to scroll to **System Maintenance** and press **Select**.

4. Input the daily System Maintenance Code (contact an authorized dealer orACS). To do so:

   - Press **[+]** repeatedly to increment a digit
   - Press **Next** to move the cursor to the next digit

5. With the code entered, press **Next** to move the cursor to **OK** and press **Select**.

6. In the service menu, press **Next** to scroll to **Calibration** and press **Select**. The **Date / Time** menu is displayed.

7. In the **Date / Time** screen, do **I** or **II**:

    I. If the date and time are correct, press **OK** – the **Select type** menu is displayed.

    II. If the date or time is incorrect, change as follows:

NOTE: If a tachograph is installed, the date and time cannot be changed.

a. Press **Set** to enter the **Set Clock** screen.

b. Press **[+]** repeatedly to increment a digit.

c. Press **Next** to move the cursor to the next digit.

NOTE: Press and hold the* left *button anytime to cancel time set and to return to the Date / Time screen.

d. With the time adjusted, press **Next** to scroll through the options until **Set** is displayed, then select **Set**. The **Select type** menu is displayed.

8. In the **Select type** menu, press **Next** to scroll between **Dry Gas** and **Wet Bath** (depending on whether you are using a gas standard cylinder or the ALCOSIM breath alcohol simulator) and press **Select**. The **Select value** menu is displayed.

Proceed to the “Gas Standard” section if you are using a gas standard cylinder or to the “Alcohol Reference Standard (ARS)” section if you are using the ALCOSIM breath alcohol simulator.

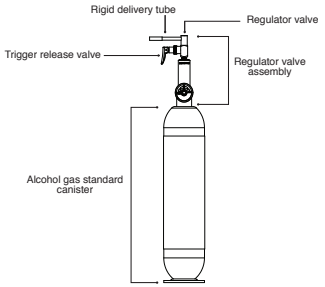
GAS STANDARD

CALIBRATION MATERIALS

- 105 L, 70 F cylinder of alcohol gas standard 0.24 mg/L (50 mg/dL), ACS #95-000426
- Regulator valve assembly (6 L/min flow rate): ACS #94-000225 (trigger); ACS #94-000226 (push button)

CYLINDER SETUP

Remove the protective cap of the canister and screw on the regulator valve assembly. Attach the rigid delivery tube to the regulator valve. Continue to the next section.



GAS STANDARD CALIBRATION

See the “Handset Preparation” section of this manual if you are using the ALCOLOCK V3 Download Station or a maintenance code.

1. The **Select value** menu contains the gas standard concentration options. Verify your canister label, press **Next** to scroll to **130 PPM** and press **Select**. This enters the **Altitude** menu.

Altitude is preset to 0 (meters).

2. Determine the altitude of your exact location.

NOTE:

- ***Find exact altitude online***
- ***Altitude may vary within general region or city; always use exact values***

3. If your altitude is:

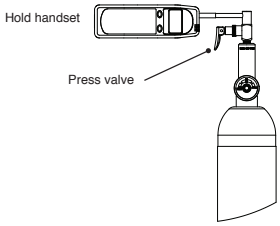
- 100 m or lower – leave it at 0 m. Press **Accept**.
- 101 m or higher – press **[+]** to adjust the value (increases by increments of 200 m). Round to the nearest increment (see the “Altitude Reference Table” section of this manual). Press **Accept**.

4. **Wait** is displayed followed by a 2 minute warm-up. The handset is ready for calibration when **Turn on gas** is displayed.

5. Insert the rigid delivery tube from the regulator valve into the mouthpiece port of the handset.

   Hold the handset in place for the next step.

6. Press and hold the regulator valve down to release the gas while still holding the handset.



   Blowing is displayed and the handset emits a tone.

7. Continue holding the valve down until the handset tone stops, even after the handset clicks.

   Analyzing is displayed followed by **Wait** and a 45 second countdown. The handset is ready for the second sample when **Turn on Gas** is displayed.

   Depending on the sensor calibration drift, up to 4 samples may be required.

   If only 2 tests are required, **Verification OK** is displayed when the calibration is complete.

   If 3 or 4 tests are required, **Calibration OK** is displayed when the calibration is complete.

8. Do **I** or **II**:

   I. For calibration with the ALCOLOCK V3 Download Station, disconnect the handset from the download station and reconnect it to the ECU of the vehicle.

   II. For calibration without the ALCOLOCK V3 Download Station, press the *right* button to finish (there is also the option to retry by pressing the *left* button).

CALIBRATION IS COMPLETE

The V3 handset returns to a ready state and **Blow for 5 seconds** is displayed.

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

ALCOHOL REFERENCE STANDARD (ARS)

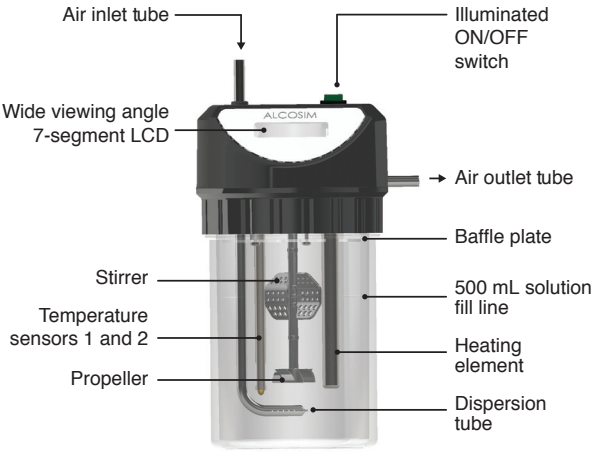
CALIBRATION MATERIALS

- Alcohol Reference Solution, 50 mg% ACS #95-000305
- ALCOSIM kit (includes the ALCOSIM breath alcohol simulator and all accessories):
    - Australian kit ACS #94-001200
    - UK kit ACS #94-001210
    - European kit ACS #94-001220
    - 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

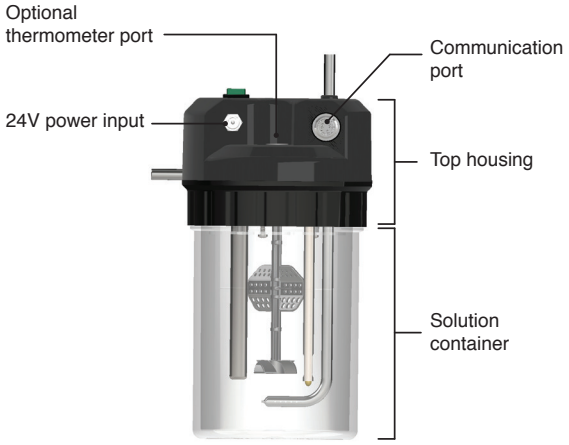
ALCOSIM BREATH ALCOHOL SIMULATOR – OVERVIEW

The ALCOSIM simulator is used by technicians to calibrate and verify breath alcohol testing devices. The simulator is a wet-bath calibration / verification device.

PARTS DIAGRAM

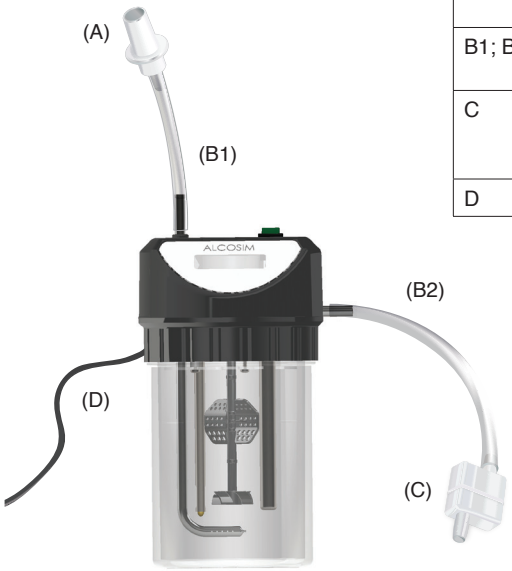


FRONT



BACK

KIT CONNECTION DIAGRAM



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

ALCOHOL REFERENCE SOLUTION – OVERVIEW

The technician adds solution of precise BrAC to the ALCOSIM breath alcohol simulator for calibration / verification of breath testing devices.

- Supplied in 500 mL tamper-sealed bottles
- Premixed and ready for immediate use with the ALCOSIM simulator
- This calibration requires a bottle of 50 mg% solution

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

ALCOSIM SETUP AND OPERATION STEPS

1. With the ALCOSIM breath alcohol simulator power disconnected, turn the top housing counter clockwise (to the left) and detach it from the container.

2. Add the entire contents of the 500 mL bottle of 50 mg% alcohol reference solution into the ALCOSIM solution container.

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

3. Return the top housing onto the container, be careful not to over tighten.

4. Connect tubing with the round mouthpiece to the ALCOSIM simulator air inlet and tubing with the square mouthpiece to the air outlet.

5. Perform a leak check by covering the air outlet tube with your thumb and blowing into the air inlet tube.

   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 the simulator power input and to a wall outlet.

7. Switch on the simulator. The following occurs:

   - The LCD display illuminates and the simulator beeps
   - The propeller rotates and the heating element activates
   - **Cold** is displayed until solution reaches 32 ºC, wherein the LCD screen displays actual solution temperature
   - The 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 simulator is ready to provide a breath sample.

ALCOHOL REFERENCE STANDARD (ARS) CALIBRATION

See the “Handset Preparation” section of this manual if you are using the ALCOLOCK V3 Download Station or a maintenance code.

1. The **Select value** menu contains the Alcohol Reference Standard (ARS) options. Press **Next** to scroll to **50mg%** and press **Select**. The display will count down 2 minutes and then show **Ready** with a solid green indicator light.

2. Insert the tip of the square mouthpiece into the sensor inlet of the handset.

3. Blow into the round mouthpiece of the ALCOSIM breath alcohol simulator. **Blowing** is displayed on the handset and a continuous tone is heard. Continue until the handset clicks.

4. The handset displays **Analyzing** followed by **Wait** and a 45 second countdown. The handset is ready for the second sample when **Ready** is displayed.

   Depending on the sensor calibration drift, up to 4 samples may be required.

   If only 2 tests are required, **Verification OK** is displayed when the calibration is complete.

   If 3 or 4 tests are required, **Calibration OK** is displayed when calibration is complete.

5. Do **I** or **II**:

   I. For calibration with the ALCOLOCK V3 Download Station, disconnect the handset from the download station and reconnect it to the ECU of the vehicle.

   II. For calibration without the ALCOLOCK V3 Download Station, press the *right* button to finish (there is also the option to retry by pressing the *left* button).

CALIBRATION IS COMPLETE

The V3 handset returns to a ready state and **Blow for 5 seconds** is 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 an alcohol gas standard cylinder, it may be due to the following:

- Vinyl tubing has been overused or condensation is present
- The alcohol gas standard cylinder is expired
- The alcohol gas standard value is not 130 PPM, or the value has been incorrectly entered in the **Select Value** menu
- The value entered in **Altitude** menu is incorrect

ALTITUDE REFERENCE TABLE

The altitude adjustment is in increments of 200 meters. Round the altitude up or down to the closest value as follows:

IF ALTITUDE IS	THEN SET TO
0 - 100 m	0
101 - 300 m	200
301 - 500 m	400
501 - 700 m	600
701 - 900 m	800
901 - 1100 m	1000
1101 - 1300 m	1200
1301 - 1500 m	1400

ACS
ALCOHOL COUNTERMEASURE SYSTEMS

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