

Alcolab™

Public Electronic
Breath Alcohol Tester

Safety and Precautions

Breath alcohol testers (BATs) are designed for easy and safe operation. The following precautions should be followed:

- Do not open the BAT case. Opening the case will void the warranty and could potentially damage the components within.
- Avoid exposing the BAT to direct sunlight for extended periods of time.
- If any liquid is spilled on the BAT, remove all excess fluid with a cloth. Allow the BAT to dry thoroughly before attempting to power on.
- Keep all strong magnets and transmitting devices (such as cell phones) away from the BAT to ensure minimal RF interference.

Warranty

All ACS products are warranted to be free of defects in workmanship and materials for a period of one year from the date of shipment.

ACS agrees to replace or repair any defective BAT, provided the defect was not caused by misuse or mishandling.

BATs being returned for warranty repairs must be properly packaged and shipped prepaid to the authorized service facility.

Maintenance

BATs are made for field use, making them susceptible to dirt and debris. The BAT should be cleaned with a damp cloth and mild soap. Do not use abrasive cleaners or solvents.

Periodic maintenance and calibration is required. Contact ACS for more information.

Contact Information

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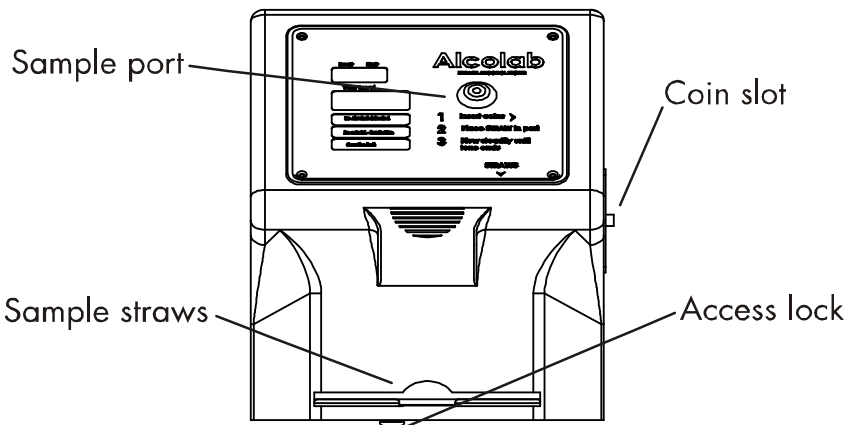
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Alcolab

Alcolab is a public electronic breath alcohol tester. It gives patrons in places such as bars, clubs and social events the capability to test their blood alcohol concentration (BAC).



Alcolab's functions can be customized with features such as pass/fail levels, the number of coins to insert, audio level and the maximum BAC displayed.

BAC/BrAC Format

The blood alcohol concentration (BAC) format is customizable at the factory and available in four formats: %mg, mg/L, %BAC and Promille.

$$0.08 \%BAC = 80 \text{ mg}\% = 0.80\% \text{ Promille}$$

A breath alcohol concentration (BrAC) format is available in units of mg/L, mg/210L, $\mu\text{g}/100\text{mL}$.

$$100 \text{ mg}\% = 100 \text{ mg}/210\text{L} = 0.48 \text{ mg/L} = 48 \mu\text{g}/100\text{mL}$$

Installation

The Alcolab electronic module is the main component of Alcolab. It is installed in the cabinet, and fastened to the four standoffs on the cabinet door. The connection to the power and coin mechanism is through the **Main Harness** which plugs into the bottom of the module.

Functions

There are two buttons at the back of the module labeled **Operator controls**. To access the desired function, press the **Select** button to put Alcolab in setup mode. In setup mode, the function code and value are displayed in the top and bottom screens respectively. Pressing the **Set** button changes each functions settings.

Cou xxx	Coin Count (number of coins in bin)
Coi 00x	Coins to Insert (coins to insert for 1 test)
Aud 00x	Audio Level (Loudness level)
PAS 0xx	Pass Level (BAC)
FAL xxx	Fail Level (BAC)
UPP xxx	Maximum displayed (Max. BAC)
SOL xxx	Standard solution (Calibration reference value*)
CAL SET	Calibration (Calibration mode*)

**See Calibration section for more information.*

Pass and Fail BAC Levels

The pass level can be between 20 and 80 mg%. The fail level is from 50 to 120 mg%. The legal driving limit depending on the jurisdiction is between 20 to 80 mg%, and should be set accordingly.

Number of Coins

A test is typically one dollar. Alcolab can be set to accept up to 5 coins. To set Alcolab up for free play, 0 coins are needed.

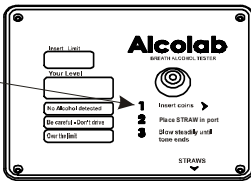
Audio Level

The audio level can be adjusted from 0-5, lowest to highest (0=mute).

Maximum BAC

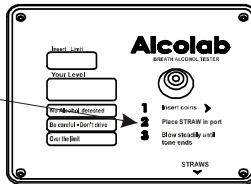
The maximum BAC displayed can be set from 50 to 450 mg%.

Taking a Test

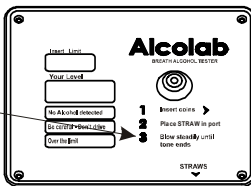


1. Wait for the **Insert coins** message to light up. Insert coin(s) into coin slot. If this is a free trial, go to step 2.

Note! Do not drink or smoke 15 minutes prior to the test. The breath sample may become contaminated.

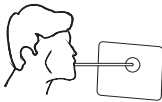


2. Take a straw from the bottom of Alcolab and wait for the **Place STRAW in port** message to light up.



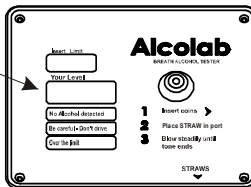
3. Once lit, insert the straw into the port and wait for the **Blow steadily until tone ends** message to light up. Blow moderately and continuously into the straw for approximately 5 seconds, a tone sounds to indicate proper breath flow.

Note! If breath is not hard enough, or is interrupted, a tone will sound. Blow again properly into the straw.



Please wait

4. Stop blowing when Alcolab beeps, in a few seconds the tone stops and a clicking sound is heard. The **Please Wait** message lights up, and the analyzing process takes a few seconds depending on the alcohol content of the sample.



5. Alcolab beeps and displays the result in the **Your level** box. The **Legal limit** is displayed in the box above. If alcohol is detected, the **Be careful - Don't drive** or **Over the limit** indicators light up. If no alcohol is detected, the **No alcohol detected** indicator lights up.

Please wait

6. **Please wait** flashes again as Alcolab prepares for another test. The **Insert coins** message lights up when Alcolab is ready. There may be up to a 30 second delay depending on the alcohol content of the previous test.

CALIBRATION

Calibration is performed after a certain amount of tests or a certain number of days. It is done with a breath alcohol simulator (also known as a wet bath or Toxitest), and a standard alcohol reference solution.

The calibration period can be customized at the factory. The recommended calibration period is 500 tests or 30 days, whichever comes first. The breath alcohol simulator, or Toxitest, utilizes a known water alcohol solution heated to 34°C to simulate breath temperature. When air is blown through it, the result is an accurate method of recreating a known breath alcohol concentration.

When the Alcolab calibration has expired, one of the following error messages is displayed:

- **Err60** indicates the maximum number of days have expired
- **Err61** indicates the maximum number of tests have expired

Breath Alcohol Simulator (Wet Bath) Calibration



Equipment:

- Toxitest breath alcohol simulator ACS part number #94-000140 (for 110V), or #94-000150 (for 220V)
- Plastic tubing (2)

- Ethyl alcohol standard solution (recommended)
100 mg% ACS part number #95-000310

Note! The ethyl alcohol solution is usable for 25 tests or 5 days, whichever comes first. Using expired solution may result in incorrect calibration results.

- Air pump source

Note! The ACS Calibration station may be used as an air pump source, but it does NOT track the number of tests performed with the ethyl alcohol standard solution.

Toxitest setup

CAUTION! Make sure the Toxitest is unplugged before assembling or disassembling. Failure to do so results in damage to the heater element and increases the chance of electric shock.

1. Visually inspect the unit and verify the solution container is clean and free of any cracks.
2. Remove the top housing by holding the solution container and turning the large knob until it is released.
3. Lift up the top housing, and ensure that the mercury column on the thermostat and thermometer has no separation. If any separation is present, refer to the troubleshooting section of this document.



4. Set the top housing aside, upright on its feet. Fill the solution container with a new **100 mg%** (recommended) ethyl alcohol standard. **Do not fill past the fill line.**

5. Place the top housing assembly back into the solution container. Lift the solution container to meet the top housing and turn the knob to tighten. Do not over tighten.
6. Check for leaks in the seal by connecting the tube with the mouthpiece to the **AIR IN** port. Then blow into the Toxitest with the **VAPOR OUT** port covered. No air should bubble through the solution. In case of a leak, refer to the troubleshooting section of this document. Remove the tube and mouthpiece when the test is complete.
7. Plug in the Toxitest power cable and switch to the **ON** position. The mixing propeller begins to rotate as power is being supplied to the heating element. Set the Toxitest aside to warm up, it takes approximately 15-20 minutes for the alcohol solution to reach 34°C. The ready light is located on the top housing beside the thermometer, and it indicates when the temperature has been reached. If the Toxitest does not reach or maintain this temperature, refer to the troubleshooting section of this document.

Calibration Procedure

1. Open Alcolab using the access lock on the bottom of the cabinet. Swing the faceplate open carefully. Turn the power on if it is not on already.
2. Locate the **Operator Controls** at the back of the Alcolab electronic module. Press the **Select** button to enter setup mode and keep pressing until **SOL** is displayed. SOL stands for the standard solution.
3. Press the **Set** button to choose the value of reference solution being used (020-200 option available, 100 recommended).
4. Press the **Select** button one more time until **CAL - - -** is displayed. CAL stands for calibration mode.
5. Press the **Set** button to display **CAL SEL**. Alcolab is now in calibration mode. Press the **Select** button to exit setup mode. The upper display reads **C2.1** and **Please Wait** is lit.
6. Wait until **Place STRAW in port** is lit. Attach the tube from the **VAPOR OUT** port of the Toxitest to a straw, and Insert it into the Alcolab port.
7. Turn on the air source. A tone sounds indicating proper air flow.
8. Stop the air flow when Alcolab beeps. The tone stops and a click sound is heard. The upper display reads **C2.2** and **Please Wait** is lit.
9. Wait until **Place STRAW in port** is lit. Turn on the air source again, a tone indicates proper air flow.
10. Stop the air flow when Alcolab beeps. The tone stops and a click sound is heard. The lower display reads the calibration factor and Alcolab automatically goes back to regular test mode and is ready for normal operation.

If any errors occur, refer to the Troubleshooting section.

TROUBLESHOOTING

Error Codes

Code	Meaning	Action
10	Sensor heater failure	Return to ACS for service
20	Power supply voltage low	Return to ACS for service
21	Power supply voltage high	Return to ACS for service
22	Low battery	Return to ACS for service
40	Baseline low	Return to ACS for service (sensor)
41	Baseline high	Return to ACS for service (sensor)
50	Coin switch stuck	Check mechanism/connections
52	High humidity	Let sample tube dry
53	Pump piston stuck	Retry test a few times (no cost), if problem persists, return to ACS
54	Pressure switch error	Return to ACS for service
60	Calibration required, exceed maximum number of days	Recalibrate (see Calibration section)
61	Calibration required, exceed maximum number of tests	Recalibrate (see Calibration section)
63	Calibration range low	Return to ACS for service (sensor)
64	Calibration range high	Return to ACS for service (sensor)
72	Calibration factor error	Return to ACS for service
73	Calibration error	Return to ACS for service
81	Watchdog timer reset	N/A

Calibration Troubleshooting

In the event of a calibration failure, first check these common causes of errors:

- Overuse of plastic tubing, or presence of condensation in the tubing.
- The alcohol standard solution value is NOT between 20-200mg% BAC (100 mg% recommended).
- The alcohol standard solution is expired, or has been in the Toxitest for more than 5 days.
- Loose connections to and from the Toxitest (make sure all connections are secure).

Toxitest

If the Toxitest...	Action
Has separation in the Mercury column of either the thermostat or thermometer	Remove the top housing and spray an aerosol "chiller" solution onto the bulb of the thermostat or thermometer. Alternatively, place the assembly in the freezer for 2 hours. The mercury column will shrink within the bulb and rejoin.
Has a leak in the seal	The rubber "O" ring seal is damaged or misaligned. Remove the top housing and re-position the seal. Replace the seal if it is worn or damaged.
Does not reach or maintain 34°C temperature	The thermostat or heating element may be defective. The Toxitest must be sent for service.
Has condensation in the plastic tubing	Fit the plastic tubing on an aquarium air pump or similar setup for drying.

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