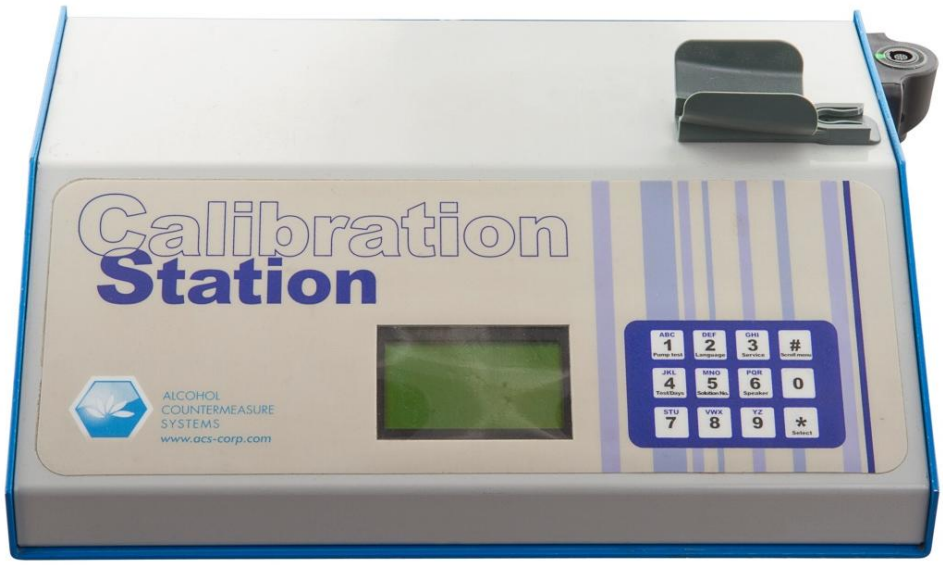
ALCOLOCK™



WR3 Calibration Station
Instruction 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'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

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Contents

1.0 Introduction

The ACS Calibration Station (CS) is diagnostic equipment designed to establish and maintain compliance of the ALCOLOCK WR3 alcohol interlock Handset (HS). The following are the main components required for calibration:

- Calibration Station (CS)
- ALCOSIM breath alcohol simulator
- INTERTRACK™ Enterprise Software (ITE)

For successful calibration, ensure that all components of the CS assembly are connected correctly. This manual will show you how to safely connect and operate the CS assembly, and to calibrate the ALCOLOCK WR3 device.

ATTENTION!

General

- **This manual is for authorized service technicians only**
- **Do not use 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 and may cause injury and damage the components**
- **Avoid contact with the ALCOSIM heating element: CAUTION – Hot Surface**
- **Only use parts supplied by Alcohol Countermeasure Systems**
- **Do not open any enclosures. Doing so will void the warranty and may cause injury and damage the components within. Contact your Service Provider if any hardware is not working**
- **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 your Service Provider**
- **Before use, inspect all components for visible cracks or damage. Failure to do so may cause injury or additional damage**
- **Do not force a cord into a port or input, as doing so will damage the components**

Moisture, contamination and cleaning

- **The mouthpieces and all tubing must be completely dry before setup. Even slight condensation may disrupt the procedure. Before beginning a calibration, make sure that all moisture has been completely removed from the ALCOSIM simulator**
- **The ALCOSIM jar must be completely clean and dry before you apply the alcohol reference solution. Remove the ALCOSIM top housing before cleaning the solution jar**
- **If liquid spills onto the CS or any other components, remove liquid with a cloth and allow the CS to dry thoroughly. If there is substantial moisture damage, keep all components powered off and contact your Service Provider**
- **To clean the CS and ALCOSIM simulator: use a water dampened cloth to remove dirt or dust from the surface, and allow it to dry thoroughly. Do not use cleaning products on the surface, as doing so may cause damage**
- **After drying, remove all cloths or paper towels from the UCS and its components**

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 ALCOSIM simulator for use, ensure that it is not plugged into an electrical outlet until you have been instructed to do so**
- **Do not switch on the ALCOSIM simulator and CS until instructed**
- **Do not plug in the ALCOSIM simulator and CS power cables until instructed**
- **If the ALCOSIM was powered on, wait 15 minutes for the components to cool off before removing the top housing**
- **Never open the ALCOSIM top housing when the simulator is switched on or plugged in**
- **Do not disconnect any components while calibration is in progress**
- **Failure to follow these instructions may result in injury or may damage the devices**

Alcohol reference solution

- **Keep 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**
- **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**

2.0 ACS part numbers

The following section lists parts supplied by ACS that are required by the Service Centre for calibration of the ALCOLOCK WR3 device. Contact ACS to order the following parts (for contact information, refer to acs-corp.com).

Product	ACS Part #	Qty
ALCOSIM breath alcohol simulator	79-007600	1
Calibration Station	79-006103	1
ALCOSIM communication cable	79-007850	1
Power cord	07-000062 (N.A.) 07-000061 (EU)	1
Plastic tubes	70-000002	2
Liquid trap mouthpiece	79-001957	1
Alcohol reference solution 50 mg/dL (0.50 g/L)	95-000305	1 bottle

3.0 Part descriptions

Read the following part summaries before beginning calibration setup.

3.1 ALCOSIM breath alcohol simulator

The simulator calibration method uses a known water alcohol solution to produce an air to alcohol vapour. 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).

3.2 Calibration Station (CS)

The CS provides the air supply to the ALCOSIM simulator, and logs the number of tests performed with each bottle of alcohol reference solution. The CS also downloads event logs recorded in the WR3 HS.

3.3 ITE

A proprietary computer-software application, and its suite of applications, developed by ACS and provided as a service over the internet for use by Service Providers, Service Centres, and others authorized by ACS for the delivery of Program Services – including any upgrades thereto.

Depending on the jurisdiction, it may be necessary to download the event log once calibration is complete.

To learn more about ITE, refer to the ITE application manual.

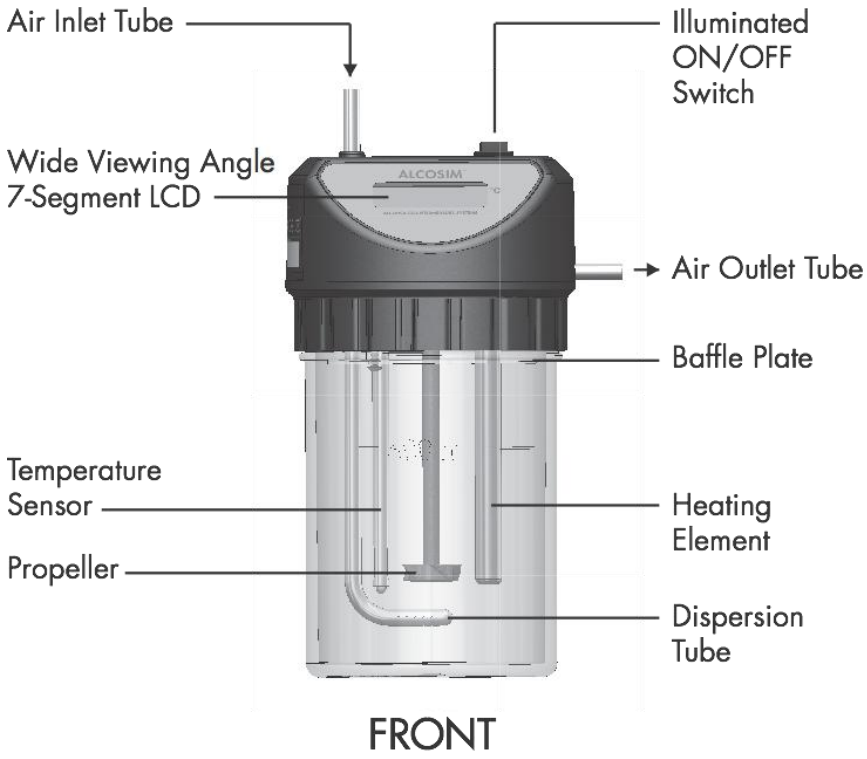
3.4 Alcohol reference solution

The alcohol reference solution used in the CS is provided by ACS Corp in 500 mL containers. Each container is labelled with:

- BAC value of the solution
- Lot number of the solution
- Serial (bottle) number of each container
- Date of manufacture
- Expiry date

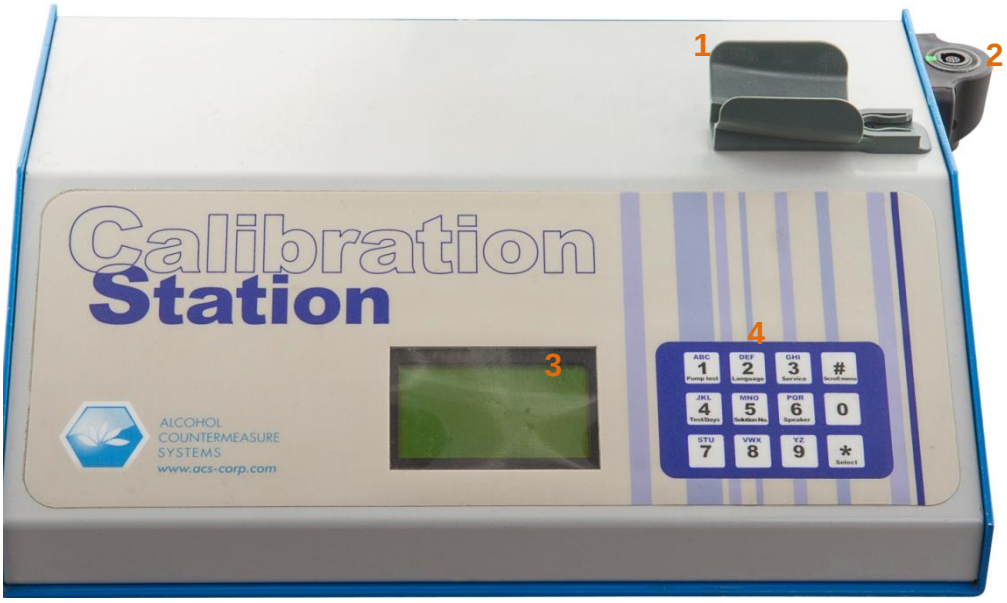
Check that the solution is the correct value – 50 mg/dL (0.50 g/L) – required for calibrating, and the date is not expired.

4.0 ALCOSIM breath alcohol simulator diagram



5.0 CS diagram

CS front view



CS rear view

1	HS cradle
2	CPC connector (for HS)
3	Display
4	Option / number pad
5	Communication port (for ALCOSIM)
6	Air outlet
7	Main power switch
8	Main power input

6.0 Unpacking, inspection and operating check

ATTENTION! ***Note the following before unpacking any components or adding water to the ALCOSIM simulator:***

- ***Do not switch on the ALCOSIM simulator and CS until instructed***
- ***Do not plug in the ALCOSIM simulator and CS power cables until instructed***
- ***If the ALCOSIM was powered on, wait 15 minutes for the components to cool off before removing the top housing***
- ***Never open the ALCOSIM top housing when the simulator is switched on or plugged in***
- ***Failure to follow these instructions may result in injury or may damage the device***

6.1 Inspecting the ALCOSIM simulator

1. Carefully unpack and visually inspect the unit.
2. Disassemble the solution jar from the top housing by turning the top housing counter clockwise.
3. Carefully lift the top housing so that the internal components (e.g., the propeller) do not touch the jar.
4. Place 500 ml of tap water into the container and replace the top housing. Do not over-tighten.
5. Connect plastic tubing to the air outlet **(side)** and the air inlet **(top)**.
6. Cover the air outlet tube with your thumb and blow into the air inlet tube.

   It should not be possible to blow into the ALCOSIM simulator and cause bubbling of air through the solution. If air can be freely blown into the ALCOSIM simulator, the rubber "O" ring seal is either damaged or misaligned. In this case, remove the top assembly and reposition the seal. Replace the seal if it is worn or damaged.
7. Check that the ALCOSIM simulator power rating conforms to the local supply rating.
8. Connect the power cord to the ALCOSIM power input and to the AC wall port and switch on the ALCOSIM simulator.

ALCOSIM power input:

ALCOSIM power switch:

   The ALCOSIM heaters and mixing propellers *automatically* activate. The ALCOSIM simulator begins heating the solution to 34°C. This takes up to 20 minutes. The ALCOSIM screen displays the solution temperature.
9. If the ALCOSIM simulator operates correctly, turn the power switch off and disconnect power. Wait 15 minutes for the components to cool off
10. Remove top housing from the container. Discard water, dry out the container and wipe off components attached to the top housing. Reassemble the top housing for storage.

6.2 Inspecting the CS

Unpack the CS and check for physical damage. Check all electrical and tube connections. Connect to power supply and check functionality.

7.0 Detailed operation

7.1 ALCOSIM simulator setup

ATTENTION! ***Note the following before adding solution to the ALCOSIM simulator:***

- ***Do not switch on the ALCOSIM simulator and CS until instructed***
- ***Do not plug in the ALCOSIM simulator and CS power cable until instructed***
- ***If the ALCOSIM was powered on, wait 15 minutes for the components to cool off before removing the top housing***
- ***Never open the ALCOSIM top housing when the simulator is switched on or plugged in***
- ***Failure to follow these instructions may result in injury or may damage the devices***

Preparation of the ALCOSIM simulator is critical to successful and repeat calibrations, and departure from even minor details can create extra work. The following steps are required to ensure correct operation.

1. Disassemble the solution jar from the top housing by turning the top housing counter-clockwise.

2. Clean the ALCOSIM jar.

3. Add a new 50 mg/dL solution into the ALCOSIM jar, filling to (but not above) the fill line marked midway up the jar.

4. Note batch number and serial number of solution used.

   NOTE: *Keep the empty bottle to input to the CS.*

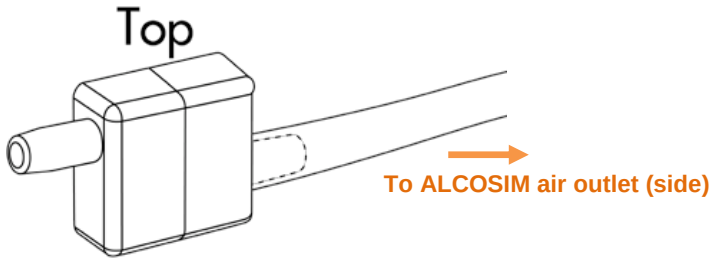
5. Connect the ALCOSIM power input to a wall port. Switch on the ALCOSIM simulator.

ALCOSIM power input:

ALCOSIM power switch:

The propeller begins turning and the solution automatically begins heating up to 34°C. This takes up to 20 minutes. The ALCOSIM screen displays the temperature.

6. Connect a plastic tube from the ALCOSIM air outlet (side) to the mouthpiece, setting the mouthpiece as follows:



NOTE:

- *Change the mouthpiece after every 6 tests (e.g., two handset calibrations), or if droplets of liquid collect inside the spit traps.*
- *Incorrect use of the mouthpiece (i.e. upside down or with condensation) will lead to aborts of calibration.*
- *Fit the mouthpiece for drying onto aquarium air pumps immediately after removal to ensure adequate supply of mouthpieces*

7.2 CS Setup

ATTENTION! Ensure that the CS is switched off and unplugged until instructed.

1. Connect the CS power input **(back)** to a wall port.

2. Connect a plastic tube from the ALCOSIM air inlet **(top)** to the CS air outlet **(back)**.

3. Using cable 79-007850, connect the ALCOSIM communication port to the CS port.

ATTENTION!

- ***The white dots on the CS plug and port must align, and the plug will click into place***
- ***Ensure that the pegs align; the plugs are brittle***

4. Place the HS into the CS cradle. Connect the HS cable to the CS circular plastic connector **(top)**.

5. Insert the mouthpiece into the HS inlet.

   All components are connected. Continue to the next section.

7.3 Calibrating the HS

NOTE: *There are different versions of firmware that display slightly different messages. This manual uses the newest version, with the older version in parentheses { }, where applicable.*

1. Switch on the CS, at the back.

   The CS initializes and displays the following:

   - HS serial number
   - ALCOSIM simulator state (e.g., **ready** or **not ready**)
   - Date and time

2. Press **#** to enter the menu, use **#** to scroll to **Solution** and press ***** **/ Select**.

   The CS beeps until you enter the bottle information.

3. Referring to your solution bottle label, enter the lot number and bottle number (see example circled below):

   - Press **#** to scroll through digits
   - Use the number pad to enter a number

4. Press **#** to scroll to **Enter**, press ***** / **Select**.

5. Press **0** to exit.

   The CS and the HS display **Select HS function**.

Using the HS, do the following:

1. Press the left button to select **CAL**.

   NOTE: *The PC option is used for downloading with a PC and ITE software.*

   The current date and time of the HS are displayed.

2. Verify the date and time:

   - If correct, press the right button to select **OK**
   - If incorrect, press the left button to select **Set** {**Next**}. The date and time of the CS is used to set the clock. If correct, press the right button to select **Yes**

3. **Method: Automatic** is displayed. Press the right button to select **OK**. **{The older firmware does not support this option – continue to the next step.}**

4. **Simulator: Wet Bath** is displayed. Press the right button to select **OK**.

5. **Standard: 50mg%** is displayed. Press the right button to select **OK**. **{The older firmware does not support this option – continue to the next step.}**

   The HS beeps and displays a **Ready** {**Wait**} message. The CS LED is solid amber. The CS displays the message: **Wait 2:00 for Handset to warm up**.

   After the two minute countdown, the CS beeps and displays the message: **Press HS right button to start test**. The CS LED is flashing green.

   The HS will display **Ready** and **Press to start**.

6. Press the right navigation button to begin the test.

   ATTENTION!

   - ***A Calibration cannot commence unless the ALCOSIM communication cable is connected and the solution is at the correct operating temperature (34°C)***
   - ***If the ALCOSIM simulator is not ready, the CS beeps***
   - ***A "Wait for ALCOSIM" message displays until the ALCOSIM simulator is ready***

   If the CS is ready, the CS beeps and the air pump activates. The **Blowing air…** and **Blowing…** messages are displayed on both the HS and CS. The CS LED is solid green.

   After approximately 8 seconds, the pump stops and the CS displays **Wait for results…** followed by:
   1st test OK, wait 0:45 for next test.

   After the 45 second countdown, the CS beeps and the air pump reactivates.

   After a second test, the CS displays one of the following:

   - **Verification Passed/OK**, if only two tests are required
   - **Wait for result…** followed by: **2nd test OK, wait 0:45 for next test**, if a third test is required

   After the 45 second countdown, the CS beeps and the air pump reactivates.

   After the third test, the CS displays one of the following:

   - **Calibration Passed/OK,** if three tests are required
   - **Wait for result**… followed by: **3rd test OK, wait 0:45 for next test**, if a fourth test is required

   The CS may repeat the test up to 4 times. When all tests are complete, **Calibration Passed** / **OK** displays on both screens. The CS LED flashes green.

   The **Hold HS right button to download data** message is applicable if the setup is being used with a PC or ITE. Refer to the ITE application manual for more information on setup and downloading.

7.4 Successful Testing

On completion of successful testing, the HS can be used for up to 67 days. All calibrations completed on the CS are retained in the memory of the HS for uploading during the ITE transaction procedure. The HS must be calibrated every time the customer comes in for service. This will ensure the proper accuracy of the WR3 HS and provide a calibration record for every service.

7.5 Failed Testing

If the test failed, the CS LED will flash red and an error message will be displayed on the CS display. Ensure that the mouthpiece has not been overused and that the solution is not past due and has a BAC value of 50. Also, ensure that the mouthpiece is well connected to the HS and the ALCOSIM simulator. Refer to section 8.0 "Troubleshooting".

8.0 Troubleshooting

8.1 ALCOSIM simulator – troubleshooting checklist

In the event of a calibration failure, first check that:

- The plastic tubing is not overused, and it is free of condensation
- The alcohol reference solution value is 50 mg/dL (0.50 g/L)
- The alcohol reference solution is not expired and has not been in the ALCOSIM simulator for more than 5 days
- All connections to and from the ALCOSIM simulator are correct and secure

8.2 ALCOSIM simulator – troubleshooting table

If	Then
There is leak in the seal	The rubber “O” ring seal is damaged or misaligned. Remove the top housing and reposition the seal. Replace the seal if it is worn or damaged. Call service if you need a replacement “O” ring.
The ALCOSIM simulator does not reach or maintain a solution temperature of 34°C.	The thermostat or heating element may be defective. Send for service.
There is condensation in the plastic tubing.	Fit the plastic tubing on an aquarium air pump, or similar setup, for drying.

8.3 CS error messages

Error Message	Description	Action
Air flow abort: Retry calibration	Second consecutive test has failed due to air flow issues. The HS LED is flashing red.	Check air line connections in and out of the ALCOSIM simulator and the HS.
Air flow abort: Press button to start test	First test has failed due to air flow abort and the HS is ready for another test. The HS LED is flashing red.	Check air line connections in and out of the ALCOSIM simulator and the HS. Press the right button to start the test.
Air flow abort: Wait until HS ready	First test has failed due to air flow abort and the HS is warming up for another test. The HS LED is flashing red.	Wait for the HS to be ready.
Air flow abort: Wait 0:15 for next attempt	First test has failed due to air flow abort and the HS is warming up for another test. The HS LED is flashing red.	Wait for the HS to be ready.
Ambient Temperature too high, cannot calibrate handset.	The temperature of the surrounding air is too high.	Perform calibration in a cooler location.
Ambient Temperature too low, cannot calibrate handset.	The temperature of the surrounding air is too low.	Perform calibration in a warmer location.
Service Lockout, perform cal station download.	The Service Date of the CS has passed.	Perform a CS download.
No access	Real time clock cannot be read.	Exchange HS for a new one and return the old to ACS.
Not ticking	Real time clock is not functioning properly.	Exchange HS for a new one and return the old to ACS.
Low Lithium Battery	Real Time Clock battery level is low.	Exchange HS for a new one and return the old to ACS.

8.4 HS error messages

Error Message	Description	Action
Invalid Sample	Improper conditions for sample to be analyzed. The HS LED is flashing red.	Ensure all air line connections are properly secured and free from moisture. If the problem persists, exchange the HS.
HS RTC ERROR	The real time clock of the HS is not functioning properly.	Exchange HS for a new one and return the old to ACS.
Calibration Failed	The calibration procedure has failed in some way. The HS LED is flashing red.	Check air line connections as well as solution value being used. Ensure that the ALCOSIM simulator is properly assembled. Recommence calibration procedure. If the problem persists, send the HS back to ACS for repair.

8.5 CS states

The CS has 4 states prior to calibration:

State	LED or tone	Action
HS not connected	Cal station LED solid green	None or connect HS
HS connected	Cal station LED off	Wait for display to indicate **Ready**
HS displays **Ready**, but ALCOSIM turned off or ALCOSIM communication cable disconnected or ALCOSIM not up to operating temperature	Cal station LED flashing amber, along with warning tone	Turn ALCOSIM simulator on, connect communication cable, wait for solution to warm-up to 34°C
HS displays **Ready** and the ALCOSIM simulator is ready	Cal station LED flashing green	Press right navigation button on HS to start test.

9.0 CS functions

The CS incorporates various features to allow the technician to set the device according to various criteria. These features include:

- Pump Test
- Language
- Service
- Tests / days remaining
- Solution change
- Speaker
- LED test
- Keypad Test
- Service date

To access the main menu of the CS: from the main display screen, press the # button in the upper right corner of the CS option / number pad. The main menu appears, followed with a list of items to select from.

To scroll through each item in the main menu, press the # button in the top right corner. To access the item, press the ***** button.

9.1 Pump test

This feature allows the user to see if the pump is functioning properly. This will help in diagnosing problems that may be encountered during routine testing. To perform a pump test, press the # button from the main screen to access the main menu. Using the # button, scroll to the **Pump Test** item in the menu. Next, press the ***** button again to select this item.

The **Pump Test** screen displays two options, **Test** and **Exit**. To highlight either option, press the # button and to select that item, press the ***** button. If **Test** is selected, the pump will operate for 8 seconds. To return to the main menu, highlight the **Exit** option by pressing the # button and press the ***** button. To return to the main display screen, scroll through the menu options by pressing the # button and select **Exit** by pressing the ***** button.

9.2 Language

This feature allows the user to select the language which they would like to see displayed on the display screen. To access the **Language** menu, press the # button from the main screen to access the main menu. Using the # button, scroll to the **Language** item in the menu. Next, press the ***** button to access this item.

The **Language** display screen displays a list of languages that can be selected. To access a certain language, press the # button to scroll to that language and press ***** to select that language. To return to the main menu, highlight the **Exit** option by pressing the # button and press the ***** button. To return to the main display screen, scroll through the menu options by pressing the # button and select **Exit** by pressing the ***** button.

9.3 Service

This feature allows the user to set the clock on the CS if ITE software is not used in that application. To access the **Service** menu, press the # button from the main screen to access the main menu. Using the # button, scroll to the **Service** item in the menu. Next, press the ***** button to access this item.

The **Service** feature requires a code to be entered before changing the above mentioned items. Contact your local Service Provider to obtain this code. The 4-digit code is entered simply by entering the number with the key pad. To select enter, press the ***** button to access the **Service** menu.

9.3.1 Set clock

To select the **Set clock** feature, press the # button to scroll to that item and select that item by pressing the ***** button. The date and time may now be set, entering the numbers on the key pad and pressing # to highlight **Set** and pressing *****. To exit the set clock menu, highlight **Exit** using the # key and press ***** to select. To return to the main display screen, scroll through the menu options, pressing the # button, and select **Exit** by pressing the ***** button.

9.3.2 Baud rate

This feature allows the user to select the rate at which the CS will communicate with the PC. The default value of the baud rate is set to 115200. To change this, select **Change** by pressing the # button and ***** to select the desired baud rate. Once the desired baud rate is selected, highlight **Exit** by pressing # and ***** to select and return to the main menu. To return to the main display screen, scroll through the menu options, pressing the # button, and select **Exit** by pressing the ***** button.

9.4 Tests / days remaining

This menu item allows the user to validate the number of tests remaining before changing the spit traps and solution, as well as the number of days left that the solution may be used before replenishing it. To select the **Tests/Days Remaining** function from the main display screen, press the # button and scroll to **Tests/Days Remaining** using the # key and ***** to select.

To exit the **Tests/Days Remaining** menu, highlight **Exit** by pressing # and ***** to select and return to the main menu. To return to the main display screen, scroll through the menu options, pressing the # button, and select **Exit** by pressing the ***** button.

9.5 Solution

This feature allows the user to change the lot number of the bottle as well as the serial number. This is used whenever the solution in the ALCOSIM simulator must be changed. The CS indicates how many days remaining that a bottle of solution has as well as how many uses, and indicates to the user when the bottle must be changed.

To change the solution lot and serial number, press the # button from the main screen and scroll to **Solution** using the # key and pressing ***** to select. The **Solution Change** menu displays **Lot number** and **Serial #**. The value of these numbers is found on the label of each bottle of solution and entered using the numeric key pad.

Once the lot and serial number have been entered, select **Enter** using the # button and ***** to select and return to the main menu. To return to the main display screen, scroll through the menu options, pressing the # button, and select **Exit** by pressing the ***** button.

9.6 Speaker

This menu item allows the user to turn the audio feature off or on. To select the **Speaker** function from the main display screen, press the # button and scroll to **Speaker** using the # key and ***** to select. In the Speaker menu, the speaker may be turned off or on by scrolling to the **On/Off** item using the # key and toggling by pressing the ***** key. The speaker may also be tested by scrolling to **Test** using the # key and pressing ***** to select. To exit the **Speaker** menu, highlight **Exit** by pressing # and ***** to select and return to the main menu. To return to the main display screen, scroll through the menu options, pressing the # button, and select **Exit** by pressing the ***** button.

9.7 LED test

This menu item allows the user to verify that the LED light of the CS is working properly. To select the **LED Test** function from the main display screen, press the # button and scroll to **LED Test** using the # key and ***** to select. To scroll through the various test colours, highlight **Change** using the # key select using *****. To exit the **LED Test** menu, highlight **Exit** by pressing #, and ***** to select and return to the main menu. To return to the main display screen, scroll through the menu options, pressing the # button, and select **Exit** by pressing the ***** button.

9.8 Keypad test

This menu item allows the user to verify that the keypad is working properly. To select the **Keypad Test** function from the main display screen, press the # button and scroll to **Keypad Test** using the # key and ***** to select.

In the **Keypad Test** menu, the user may verify that each numeric key pad is operating correctly by pressing each numeric key pad and verifying that that corresponding number is displayed on the display screen. To exit the **Keypad Test** menu, highlight **Exit** by pressing # and ***** to select and return to the main menu. To return to the main display screen, scroll through the menu options, pressing the # button, and select **Exit** by pressing the ***** button.

9.9 Service date

This menu item allows the user to view the date and time of the Service date and the days remaining before the CS is due for service. To select the **Service Date** function from the main display screen, press the # button and scroll to **Service Date** using the # key and ***** to select.

To exit the **Service Date** menu, highlight **Exit** by pressing # and ***** to select and return to the main menu. To return to the main display screen, scroll through the menu options, pressing the # button, and select **Exit** by pressing the ***** button.