



Alcohol Interlock Technology

ALCOLOCK™ V3 alcohol interlock measures the breath alcohol concentration (BrAC) of a driver and prevents the vehicle from starting if the driver's BrAC is over a preset limit. It's durable construction ensures reliability in all environments such as trucks, ships and heavy machinery.

ALCOLOCK™ V3

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Quality engineering

Work environments are demanding. ALCOLOCK™ V3 is engineered to withstand vibration, dirt, dust, humidity and extreme temperatures typically found in commercial applications.

Easy breath sampling

Drivers simply blow into the handset and within seconds, the ALCOLOCK™ V3 analyses the breath sample and displays instructions to the driver. Sensors help ensure mechanical devices such as air pumps cannot be used to circumvent the system.

Emergency override

ALCOLOCK™ V3 includes an electronic override for emergency situations. Override activation is evident to employers in cases where employees may attempt to circumvent the system.

Programmable to suit your business

Drivers can be tested at the beginning of their shift, or throughout the day, by programming the ALCOLOCK™ V3 to meet your company's safety policy. Optional software allows valuable reporting of logged events such as breath test results, times, dates and more. Event logs can be accessed from a central server or downloaded locally to a personal computer.

Warranty

ALCOLOCK™ V3 alcohol interlocks are warranted to be free from defects in workmanship and material for one year from the date of purchase. Only qualified technicians should install an interlock.



Specifications

Handset Size:	150 x 48 x 50mm
Handset Weight:	220 grams
Sensor:	Electrochemical (fuel cell)
Specificity:	Alcohol only; no response to ketones or hydrocarbons
Temperature Range:	-40° C to +85° C
Initial Test:	30 seconds
Breath Sample:	5 second moderate and continuous breath sample
Analysis Time:	5 to 25 seconds
Recycle (Recovery) Time:	10 to 30 seconds
BAC Result:	Tri-colour LED (Pass, Warn, Fail)
Range of Measurement:	0 to 1.00 mg/L
Accuracy:	± 0.03 @ 0.20 mg/L
Display:	Graphic LCD
Memory:	100,000 events log
Automatic Power Down:	After one hour of inactivity (programmable)
Mouthpiece:	Round (model: 95-000140)
Calibration:	Alcohol Reference Solution or Dry Gas
Operating Voltage:	12 volt or 24 volt DC

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ALCOLOCK™ – Why is it the answer?

ALCOLOCK™ is a breath alcohol ignition interlock that measures the breath alcohol concentration (BrAC) of the driver and prevents a vehicle from being started if the driver's BrAC is over a predetermined limit.

In layman's terms that means that if a driver does not provide and pass a breath test the vehicle is immobilised. **ALCOLOCK™** removes the possibility of a drunk driver driving a vehicle – which in turn makes our roads a much safer place and will without doubt save many lives. It also provides piece of mind to fleet operators, that their vehicles and goods are being operated and transported by sober, coherent drivers.

Over and above the safety aspect of using an **ALCOLOCK™**, each **ALCOLOCK™** keeps highly detailed information about the driver's behaviour; from extremely accurate BrAC readings, start attempts, vehicle run time, retest information and any attempt to circumvent the **ALCOLOCK™** system. This information can be received in real time via a telematics unit – giving fleet managers up-to-date information on their driver's behaviour.

ALCOLOCK™ technology is being used extensively in Europe and North America. The French government recently passed a law that makes it mandatory for all vehicles that transport school children to be fitted with an **ALCOLOCK™** unit. Hopefully a similar law will be passed in our country one day.

ALCOLOCK™ is the next level in fleet management. For commercial truck and bus operators, earth moving equipment and ships, using an **ALCOLOCK™** is a proactive preventative measure to reduce the carnage on our roads, in our construction yards and in our oceans.

Don't be left wondering what could have been if you had fitted an **ALCOLOCK™**. Prevention is better than cure – especially when there are lives on the line.

The **ALCOLOCK™** is complete **Safety. In the palm of your hand.**

Don't settle for imitations when it comes to safety. Choose the industry leader in breath alcohol interlocks. Choose **ALCOLOCK™**.

FAQ's and Features of the ALCOLOCK™

USING THE ALCOLOCK™ V3

Q: How does the ALCOLOCK™ V3 work?

A: The ALCOLOCK™ V3 alcohol ignition interlock measures the breath alcohol concentration (BrAC) of the driver and prevents the vehicle from being started if the BrAC is over a predetermined limit. It consists of a handset and Relay Module (ECU). The Relay Module enables or disables the ignition of the motor and stores the handset settings.

Q: What certifications does the ALCOLOCK™ V3 have?

A: The ALCOLOCK™ V3 is Tier 1 certified. ACS is the only alcohol interlock device manufacturer to achieve TS 16949, asserting our commitment to the automotive OEM market and to overall manufacturing quality. This quality certification accorded ACS Tier-one supplier status to several OEM truck and bus manufacturers including the Volvo Group.

Q: What are the ALCOLOCK™'s other features?

A: The ALCOLOCK™ V3 works as an immobiliser when the Handset is removed from the cabin. This is because without a Handset, no breath sample can be given and as such the vehicle cannot be started.

Q: Can it be overridden in emergencies?

A: In emergency situations the ALCOLOCK™ V3 can be overridden using an override code. This code changes daily and is given to administrators of the commercial Interlock program.

Q: How long does it take to warm up?

A: Between 5-25 seconds. However in the South African climate it seldom takes 25 seconds to warm up.

Q: What is the lockout period after a failed breath test?

A: This is customisable to the client's requirements. The default setting is 1 minute. This allows for a driver change or an emergency override in emergency situations.

Q: What if there is a problem with the ALCOLOCK™ and it does not accept the breath sample?

A: Even though that situation would be extremely rare, Discover Nine and/or any authorised person with access to the daily online codes can provide the driver with a code to be used in an emergency. That code would allow the vehicle to start without passing a test. The code allows the vehicle to run until the end of the day, after which a new code would need to be used as these codes change every 24 hours. The ALCOLOCK™ will need to be serviced as soon as possible.

Q: Does the ALCOLOCK™ V3 work in extreme temperatures? What about harsh work conditions?

A: The ALCOLOCK™ V3 was designed to operate in temperatures between -40°C to +85°C. Also, it's not affected by dust or vibration, which are normal in the working environment of certain types of vehicles. The ALCOLOCK™ V3 is considered the toughest alcohol interlock system on the market.

Q: Is there a function that caters for stalling of a vehicle?

A: Yes there is. This allows for the driver to start the vehicle without taking a test within a certain time period. This time period is customisable to fit the client's needs.

Q: Does a test have to happen prior to every start (i.e. even if the driver turns the vehicle off for 3 minutes or so)?

A: The industry norm is to allow the driver to start the vehicle without providing a breath test within 30 minutes after the vehicle has been turned off. This is customisable to any time frame the client deems fit for their needs. This is convenient for delivery businesses as drivers can make a delivery, get back into the vehicle and start the vehicle as normal without providing a breath sample.

Q: How long does a breath test take to be analysed?

A: 5-25 seconds. In the South African environment, these times are significantly shorter.

Q: How accurate is the measurement?

A: +0.03@0.20mg/L.

Q: When the ALCOLOCK™ V3 enters the lockout mode, is it possible to cancel it?

A: No. The lockout mode is customisable, but once the driver fails the test and the vehicle enters the lockout mode, it will only be possible to start the vehicle after the lockout time is over and the driver either passes the breath test or enters the correct emergency override code into the handset. The standard lockout time is 1 minute. In emergency situations the ALCOLOCK™ can be overridden using a code supplied by the administrator. These codes can be accessed off the internet using an authorised username and password. These codes change daily.

Q: Are the fail, warn and pass limits fixed?

A: Yes, however they are customisable at the factory, according to the client's requirements. Any adjustments to the limits will need to be signed off by the client to waive any liability away from ACS and Discover Nine.

Q: If the handset is not connected to the vehicle, what happens?

A: If the handset is not connected to the vehicle, the vehicle will be immobilised as it will be impossible to provide a breath sample which is required to start the vehicle. This is an added anti-theft benefit of the ALCOLOCK™.

REPORTING**Q: How are the logs produced?**

Note: Your telematics service provider will give you more detail on how they report and store your ALCOLOCK™ information.

A: Your telematics service provider will provide you more detail. If you do not integrate the ALCOLOCK™ with a telematics service provider then the logs can be downloaded at any interval using the ACS Download Station. This can be arranged and will form part of the purchase contract (additional expense) if the client would like this information.

Depending on the client's needs, the telematics companies' software can report all of the following:

- Pass test
- Failed test
- Alcohol Value (BrAC)
- Start violation
- Calibration due/calibration date approaching

These alert messages can also be obtained using the ACS Download Station.

Q: What software does the ALCOLOCK™ V3 use?

A: The standard software is called InterTrack. This is used to download data/logs, calibrate the device, configure the device and install/uninstall the device.

Q: Can I get exception reports? If so how often?

A: This depends on whether you have chosen to integrate your device with a telematics device or not.

If you have chosen to integrate with your telematics device then this can be requested from your service provider at any time.

The request will be made directly with your telematics service provider.

If not, then Discover Nine can arrange logs to be downloaded at your convenience. This will then be submitted in the form of a full log and exceptions. Otherwise you can buy an ACS Download Station and download the logs yourself. Both options have cost implications.

Q: How many events can an ALCOLOCK™ V3 unit store?

A: A unit can hold up to 100 000 events.

CIRCUMVENTION**Q: What if the driver asks someone else to provide the breath sample?**

A: The ALCOLOCK™ V3 does not use a recognition system. We understand that a client could be fooled by a driver allowing a passenger or pedestrian to take the test on their behalf. However, even with recognition systems, drivers sometimes wear winter clothes (scarf, beanie) or sunglasses, which makes the use of a cost-effective recognition system really not practical and feasible. Since it's a voluntary program, it's advised that the companies make the use of the ALCOLOCK™ V3 part of an Alcohol Policy that the company would implement. According to numbers resulting from studies carried out by TIRF (Traffic Injury Research Foundation), in voluntary programs, the compliance rate would be around 97%. That means that when the drivers understand the importance of the program, they tend not to try to find ways to tamper with the device. It is very important that the alcohol policy implemented by the company states what the consequences are if a person fails tests, misses retests and specially, if the driver tries to tamper with the system, which would include finding a "friend" to blow for them. We also believe that the chances are that this "friend" would have been drinking with them anyway or would choose not to put



their lives into the hands of a drunk driver. It is possible to link a camera to the device to take a picture of the cabin when a test is being taken, however, this is a costly addition. Other means around the problem are programming the unit to ask for random retests. These tests happen at random times and therefore make circumvention by the use of a "friend" more difficult, as the buddy may be dropped off prior to the final destination.

Q: Would the driver be able to circumvent the system by using an air compressor, balloon, or any other devices to blow into the handset?

A: The ALCOLOCK™ V3 has anti-circumvention features. It not only monitors the flow pressure, but also checks for the temperature and humidity of the air sample provided. The driver would not be able to reproduce the correct pressure, flow and humidity in order to circumvent the system.

Q: Can the vehicle be pushed/jump started?

A: In certain cases, yes. This action is however recorded as a 'Start Violation' on the unit's log. This is most prevalent in buses were a mechanic can start it from the rear engine compartment.

Q: What happens if the driver tries to tamper with the wiring of the system?

A: Any attempt to tamper with the wiring is registered in the log and the information will be in the highlighted section of the report generated after downloading the data from the handset.

Q: Does the ALCOLOCK™ test for substances other than alcohol?

A: The ALCOLOCK™ V3 tests for alcohol only; it does not respond to ketones or hydrocarbons.

MANUFACTURE

Q: Does the ALCOLOCK™ V3 work in extreme temperatures? What about harsh work conditions?

A: The ALCOLOCK™ V3 was designed to operate in temperatures of between -40°C to +85°C. Also, it's not affected by dust or vibration, which are normal in the working environment of certain types of vehicles. The ALCOLOCK™ V3 is considered the toughest interlock system on the market.

Q: How much does the Handset weigh?

A: 220 grams

INSTALLATION

Q: Is each Handset linked to a vehicle or an individual?

A: The unit can be linked to either an individual or a vehicle depending on the client's needs.

Q: Can the ALCOLOCK™ V3 be programmed to suit my needs?

A: Absolutely!

You can customise the following:

- Blow pressure
- If you want a hum tone
- If you want random retests
- Alcohol limit (a waiver will need to be signed if this is done)
- Restart available' period
- Lockout period

Q: How is installation performed? Do I have to take the vehicle to a specific service centre?

A: Discover Nine can provide the installation service. Installation can happen at your company or at Discover Nine's installation centre. Clients who employ mechanics can have the mechanic's trained to perform the installation. Training will be arranged by Discover Nine.

TELEMATIC INTEGRATION

Q: How does the telematics integration work?

A: The ALCOLOCK™ V3 can connect to a telematics unit using either a:

- RS232
- CAN Bus
- Analog Signal

At present the ALCOLOCK™ V3 has been integrated with Mix Telematics using RS232, Faltcom using CAN Bus, and Actia using an Analog Signal.

Programming for other service providers can be obtained from Discover Nine.

OTHER

Q: What happens when my vehicle goes in for a service?

A: When a vehicle fitted with an ALCOLOCK™ goes in for servicing a service override code can be supplied by Discover Nine or obtained off the InterTrack software. These codes change daily.

Q: Does the ALCOLOCK™ V3 interfere with the other devices installed in the vehicle (GPS, tachograph, etc.)?

A: No. The ALCOLOCK™ V3 is E1 certified, the European standard covering radiation and electro-magnetic interference within enclosed metallic spaces.

CALIBRATION

Q: How is calibration performed?

A: The calibration guide is provided for the client. Calibration can be performed in the client's facilities (once the client has been trained to do this) but Discover Nine would also provide this kind of service.

Q: How often does the unit get calibrated?

A: Annually, which is less frequent than all other units on the market. Calibration will be done at a minimal cost per unit annually.

The truth behind drinking and driving

18 000 PEOPLE DIE ON SOUTH AFRICA'S ROADS EVERY YEAR

50% of truck drivers and 30% of taxi drivers were found drinking or smoking marijuana during a substance abuse investigation

Road fatalities result in a huge socio-economic cost, estimated at **\$30 billion per annum**

We have come to accept the prevalence of road carnage as part of our daily lives. This shouldn't be the case

At night, **1 out of every 7 drivers** sharing the road with you is drunk

6 out of 10 drivers who die in accidents are drunk

3000 Adult pedestrians are killed in motor accidents per year. 70% of them are drunk

Roughly **94% of killers** on the road are **men**. Men account for 61% of all drivers

The conviction rate for drunk drivers is not known. Between 2010 and 2012 it is estimated that on average 45 000 people have been arrested for drunk driving per year

Legal Limit Explanation

Legal limits are either explained as a Blood Alcohol Concentration (BAC) or Breath Alcohol Concentration (BrAC) measurement.

BLOOD ALCOHOL CONCENTRATION (BAC)

The results of a breath analysis may be expressed in any of the common methods for blood alcohol concentration:

- mg% - milligrams of alcohol in 100 millilitres of blood
- %BAC- grams of alcohol in 100 millilitres of blood
- Promille - grams of alcohol in 1 litre of blood

The relationship between these expressions is illustrated as follows:

20 mg % = 0.02 % BAC = 0.20 % Promille

BREATH ALCOHOL CONCENTRATION (BrAC)

The results of a breath analysis may also be expressed directly in terms of breath alcohol concentration:

- mg/litre - milligrams of alcohol in 1 litre of breath
- mg/210L - milligrams of alcohol in 210 litres of breath
- $\mu\text{g}/100\text{ mL}$ - micrograms of alcohol in 100 millilitres of breath

The relationship between these expressions is illustrated as follows:

$$20\text{ mg \%} = 0.1\text{ mg/L} = 20\text{ mg/210L} = 10\ \mu\text{g}/100\text{ mL}$$

Note: The above illustrations illustrate the legal driving limit for professional drivers.

BAC				BrAC		
mg %	%BAC	% Promille	g/L	mg/L	mg/210 L	µg/100 mL
10	0.01	0.10	0.11	0.05	10	5
20	0.02	0.20	0.21	0.10	20	10
30	0.03	0.30	0.29	0.14	30	14
40	0.04	0.40	0.40	0.19	40	19
50	0.05	0.50	0.50	0.24	50	24
60	0.06	0.60	0.61	0.29	60	29
80	0.08	0.80	0.80	0.38	80	38
100	0.10	1.00	1.01	0.48	100	48
110	0.11	1.10	1.09	0.52	110	52
150	0.15	1.50	1.49	0.71	150	71
200	0.20	2.00	2.00	0.95	200	95
300	0.30	3.00	3.00	1.43	300	143

Limit pre-set on the V3 ALCOLOCK™ (legal limit for professional drivers)

South African legal limit for non-professional drivers

WHAT DOES THIS ACTUALLY MEAN?

The rule of thumb is a maximum of one unit of alcohol per hour, which constitutes 10ml of pure alcohol, based on an adult weighing 68kg. Our bodies can process only one unit of alcohol each hour. However, it is important to be aware that if you weigh less than 68kg your body will need more time to process the same amount of alcohol.

WHAT DOES ONE UNIT REPRESENT IN LAYMAN'S TERMS?

- It is equal to two thirds (225ml) of a beer or spirit cooler per hour with 5% alcohol content (a whole being 340ml).
- For those who drink wine, 75ml of red or white wine per hour with an alcohol content of 12% to 14% is acceptable.
- Whisky and brandy connoisseurs can drink up to one 25ml tot of alcohol per hour.

In case you are wondering if there are any quick-fix solutions, drinking coffee to get sober is a myth, as is taking a cold shower or drinking a litre of water. Once the alcohol is in your system your liver is going to need time to process it, and restricting yourself to only one unit per hour will give your body the time it needs to stay sober in the eyes of the law.