



Instruments

## Operating manual

# Breathalyzer

## ACE one

### Author liability

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### Short description

The ACE Instruments one is a digital electrochemical alcohol testing device, which measures the alcohol concentration in the breath and calculates the blood alcohol level from that. The device can be operated by only two buttons. The fuel cell sensor inside the ACE Instruments one can be calibrated. You can send the device to ACE Technik for a calibration service. For each breath test a mouthpiece is needed.

### Scope of delivery:

- 1 Digital fuel cell breathalyzer ACE Instruments one
- 2 AAA batteries (1.5 V)
- 3 Mouthpieces
- 1 Manual
- 1 Soft Pouch



### Introduction

Thank you for purchasing our breathalyzer ACE Instruments one. It measures alcohol concentration in human breath using an electrochemical sensor and offers reliable breath alcohol test results. The test results have got a tolerance of +/- 0.005 % BAC. The device must only be used on basis of the instructions mentioned in this manual.

### Label of individual components

Mouthpiece



Breath out  
(do not cover!)

Display window

Power switch  
(ON / OFF)

Battery compartment cover  
(at the back)

### This way you receive a result as accurately as possible

- Wait at least 15 minutes after your last sip of alcohol. Do not eat, drink or smoke during that time.
- Do not open the casing.
- Do not keep the ACE Instruments one in cold, hot, moist or badly ventilated places.
- Keep the ACE Instruments one out of the reach of children.
- Conduct three inlet tests after long storage before conducting the actual alcohol test.
- Do not let the ACE Instruments one fall.
- Change batteries after battery alarm. Diminished battery capacity leads to incorrect test results.
- Do not conduct tests in loud (sound waves disrupt the sensor), draughty or badly ventilated places.
- After a test result of 0.10 % BAC or higher the sensor needs a resting time. In this case wait at least three minutes before the next test.
- Do not conduct tests in very cold, very hot or unventilated, smoky ambience.
- Store the ACE Instruments one in a way to avoid penetration by dust or liquids.
- Blowing too hard may cause damage to sensor as saliva flows into sensor.

### Preparation for the test

- Install 2 pieces of AAA batteries (alkaline, 1.5 V) in the battery compartment. Remove the battery compartment cover at the back of the device carefully and insert the 2 pieces of AAA batteries. Mind the battery polarity in the process (+/-).
- For the active mode operation put a mouthpiece on the mouthpiece connection, which is on the side of the device. Make sure it is attached properly. Use a different mouthpiece for each test person. Avoid blowing cigarette smoke into the tester!

### ACE Technik recommends

- Always use a new mouthpiece for each person and each test which is conducted. ACE Technik assumes no liability for any damages which arise when several people use the same mouthpiece for multiple tests.
- Don't use the enclosed but the hygienic mouthpieces from the ACE series! During each test the ACE Instruments one internal and external gets in contact with human secretion (saliva, blood, sweat etc.)!
- Use safety gloves when pulling out a mouthpiece which was used by another person than yourself! You can buy appropriate gloves at ACE Technik.

### Explanation of the display and the warn signals

The test result is displayed in % BAC.

The green LED will turn on when the device is ready for a test and also if the test result is below the warning.



The measure unit is set to the regional standard (% BAC).

If the result is over 0.05 % BAC, the red WARN LED will light up.

Green: Ready  
Yellow: Battery low  
Red: Warning

The yellow warn LED will flicker if the battery voltage is low. Please replace both AAA 1.5 V Alkaline batteries.

### Conducting the measurement

- Insert a mouthpiece into the mouthpiece inlet.
- Push the ON/OFF power switch that is located on the right side under the display window. The unit will show "Full display" firstly and "on" along with a welcome sound. Then the device starts a countdown which takes about 15 up to 35 seconds. This warm-up process prepares the sensor and circuit for testing.
- When you hear a beep sound and see "bLo" on the display, please blow steadily into the mouthpiece until you hear the "Beep" sound again. Stop blowing. If you don't blow within 20 seconds after seeing "bLo" on the display, the device automatically turns off. Try to power on again.
- If you have been testing successfully you will see a circling line on the display (for 3 - 22 seconds), then test result will be displayed for 20 seconds along with a beep sound. If the test result is over 0.50‰ (default setting) the "WARN" signal (Red LED) will light up along with the "Alarm" sound. The result will be displayed for 20 seconds. A test result is always shown together either with "READY" (green LED) or with "WARN" (red LED) for the first 15 seconds and for another 5 seconds when the LED is already off. If you push the power switch when the Green or Red LED is off, the unit goes back to countdown stage for another test.
- Finally, the unit will show "OFF" and turn off automatically along with a sound.
- For the successive testing, try again from No.2 to No.4.
- It is recommended to wait at least 2 minutes between two sequent tests (so the sensor can evaporate the measured alcohol completely and obtain a precise test result during the next test).

After conducting a test you can turn the device off by pressing the power switch for 2 sec. If you want to test again, press the power button to restart the device.

### Important notes:

**When you have eaten, drunken alcohol or smoked a cigarette, wait at least 20 minutes before starting the measurement.**

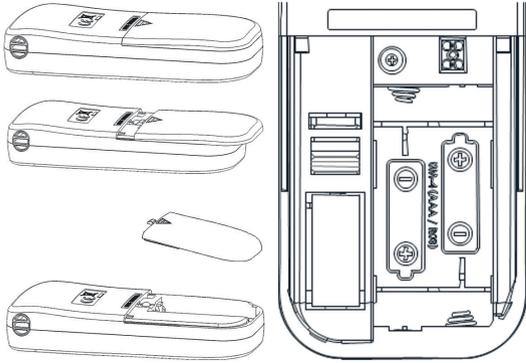
If the test result is below 0.005 % BAC then the device shows 0.00 % BAC on the display. This happens because at a low range of alcohol concentration, there is a possibility to measure other material in your mouth.

Only the usage of original ACE mouthpieces  
- guarantees the accuracy of the test results  
- guarantees 100 % safety of hygiene  
- guarantees full warranty of this device

**ACE Technik warns:** Even if you get a result with the meaning „Safe range“, you should not drive after having consumed alcohol or do any other activities which are badly affected by the consumption of alcohol.

## Battery replacement

Apply a small amount of pressure on the battery cover located on the back of the unit and push down and away from the unit to release the cover. See the following diagram.



**Attention: Mind the battery polarity in the process (+/-).**

### Notes to the battery law (BattG)

The device for which this operating manual is contains two AAA alkaline batteries (1.5 V) in delivery condition. Those batteries are not made for recharging.

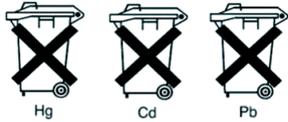
Trying to recharge can cause damage to property or persons. Also the use of rechargeable batteries is not possible with this device, because it can cause damage to the device.

When the batteries are depleted, they must not be thrown in the household waste. Used batteries may contain harmful substances that can cause damage to the environment or health. Please return batteries / rechargeable batteries to the store or to the buyback centre. The return is free of charge and mandatory by law. Please throw only depleted batteries into the containers and tape over the poles of lithium batteries.

For battery exchange only pull off the battery compartment cover and change the depleted batteries for new ones. Mind the polarity: The negatives poles of the batteries are in contact with the springs in the battery trough. Slide the battery compartment cover over the casing until it snaps in.

All batteries and rechargeable batteries will be recycled. This way, precious resources like iron, zinc and nickel are gathered. Battery recycling is the easiest lesson in environmental.

The garbage bin means: Batteries and rechargeable batteries must not be thrown into the household waste.



The signs below the garbage bins stand for:

**Hg: Batterie enthält Quecksilber**

**Cd: Batterie enthält Cadmium**

**Pb: Batterie enthält Blei**

## Calibration

To maintain the accuracy of the ACE Instruments one you can send the device for a calibration to ACE Technik. The calibration is not mandatory, but the accuracy of ACE Instruments one will decrease steadily without it. Send the device with the note 'Alkomat calibration service' to the company address stated on the invoice you received with the device. **We recommend sending it as a parcel, so that in cases of loss an inquiry or proof of delivery is possible.**

Due to changes in the product, the procedures stated can change. This can take place without prior notice or adaptation of the operating manual and is no cause for complaint, return or price reduction. The user is responsible to recognise deviations between the operating manual and the actual handling of the ACE INSTRUMENTS ONE and he has to react accordingly.

## Error / Warning Notifications

### Display notification

### Cause & Action



If the result is higher than 0.05 % BAC a "WARN" signal is displayed along with an "ALARM" sound.



### Display notification

### Cause & Action



The battery voltage is too low to perform a test. The device will turn off automatically after showing this signal. Replace the 2 pieces of 1.5V Alkaline Batteries.



If the result is above 0.40 % BAC a "Hot" signal is displayed along with an alarm sound.



The user had a short exhale time during the test, which likely means the user did not exhale steadily and continuously for at least 3-5 seconds. Push the power button to perform another test.



When you have done 500 tests, then the unit shows "CAL". Even if the unit still works, a re-calibration is required. Consult ACE and send your device to the calibration service.



When the ambient temperature is out of working temperature range (5°C ~ 40°C) the unit shows "OUT" and then turns off. Keep and use the unit within the recommended temperature range.

## Technical data

Sensor  
Accuracy  
Detection Range  
Warm-up Time  
Response Time  
Dimension  
Weight  
Power Supply  
Working Temp.  
Storage Temp.  
Calibration

Fuel Cell sensor  
±0.005 % BAC at 0.05 % BAC  
0.00 ~ 0.40 % BAC  
15 ~ 35 seconds  
3 ~ 22 seconds  
114mm x 47mm x 24mm (L x W x H)  
61.5g, (84g Battery included)  
Two 1.5V AAA size Alkaline Batteries  
5°C ~ 40°C  
0°C ~ 40°C  
Every 6 months or after 500 tests

## Warranty and liability

**Warranty:** The ACE Handels- und Entwicklungs GmbH will give a warranty of two years after purchase for material and processing errors for the product, to which this warranty and liability declaration is attached, in all versions and designations; a warranty of one year for the sensor. This warranty includes the electronics as well as the casing or the sensor without sampling components. Components that are inevitably destroyed upon effectiveness (such as fuses) are not part of this warranty. The warranty is valid from the date of delivery or from the date of first activation (always the shorter period), if this is not stated otherwise in the accompanying literature of the product by ACE Handels- und Entwicklungs GmbH.

### Limitation of warranty and liability

**1. Product description:** The ACE Handels- und Entwicklungs GmbH rejects any further expressly stated or implied warranty, including the marketability and suitability for a determined purpose. This warranty especially excludes calibration. After changing the sensor, calibration is absolutely necessary. When an exchange of the sensor or a calibration is necessary for a product, the user may receive an estimate of costs. Should the user refuse the estimate, the ACE Handels- und Entwicklungs GmbH will send the product back unrepaid / uncalibrated and the product will be labelled accordingly. Should the product not fulfil the warranty, the claim of the buyer and the obligations of the ACE Handels- und Entwicklungs GmbH are limited exclusively and at the discretion of the ACE Handels- und Entwicklungs GmbH to an exchange or repair of the affected goods or to a reimbursement of the purchasing price for the faulty goods.

**2. Application restriction:** The ACE Handels- und Entwicklungs GmbH is on no account liable for additional damage, incidental damage or consequential damage such as, among others, lost profit and downtime that result from selling, producing or using products, which are part of this application restriction. This is independent of any claims, such as from contracts, negligence or other culpable actions. **The product, which is accompanied by this warranty and liability declaration, no matter in which version or designation, can especially not be used legally binding to determine capability to operate vehicles or to execute action that could lead to damage to oneself or others under the influence of alcohol.** The thorough check for damage of all products upon receipt, a calibration suitable for the given use by the buyer and the proper use, maintenance and service according to the instructions of the accompanying product literature by the ACE Handels- und Entwicklungs GmbH are mandatory prerequisites for this warranty. Maintenance and service work by non-qualified persons, as well as using non-approved consumables or spare parts lead to an expiry of this warranty. As for all technically challenging products, it is a fundamental prerequisite and mandatory for the warranty by ACE Handels- und Entwicklungs GmbH, that all users of these product are familiar with the properties and restrictions of the product as stated in the respective literature.

**3. Advice restriction:** The buyer confirms that he has checked the intended use and suitability of purchased goods for any purpose in sole responsibility. Between the two parties it is expressly agreed upon that all technical or other advice by ACE Handels- und Entwicklungs GmbH regarding use of the goods or services is free of charge and was made with to the exclusive risk of the buyer. Therefore no obligation or liability can arise to the ACE Handels- und Entwicklungs GmbH from any recommendation or their result.



