

Breathalyzer

ACE II Basic plus

Operating manual – EN

Author's Liability

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Introduction

Thank you for purchasing our ACE II Basic plus Breathalyzer! It measures the alcohol concentration in human breath using an electrochemical sensor and calculates the blood alcohol level. The test results are very reliable and have a tolerance of $\pm 0,05\%$ (per mill) with reference to $0,50\%$ at 25°C ambient temperature. The measurement results are displayed as a 4-digit number with 3 decimals and are interpretable 1: 1 (for example the display shows the value 0.36 = 0.36 per mill).

The sensor inside the device can be calibrated. To maintain the measurement accuracy of this device and the sensor warranty, it should be calibrated regularly. For a calibration service you can send the device to the service address specified at www.alkomat.net.

The device must only be used pursuant to the instructions mentioned in this manual. All measured values determined by this breathalyzer are always a guide only and are not legally binding. Breath tests should be carried out using clip-on mouthpieces (one new mouthpiece should be used per test for reasons of hygiene and to avoid falsified readings).

Note to country-specific measurement units

Customers in the EU get the breathalyzer with $\%$ (per mill) as default setting, in the UK the default setting is mg/L and in the USA it is % BAC. In the chapter „Technical data“ you will find information about the accuracy concerning the different measurement units. Please check e.g. the website of the department of transportation, the website of the Ministry of Transport or of automotive clubs to get informed about the current alcohol limits in your country.

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PRECISION OR NOTHING.

Scope of delivery

- 1 Digital ACE II Basic plus Breathalyzer with fuel cell sensor
- 2 AAA batteries (1.5 V)
- 5 Mouthpieces
- 1 Plastic Carrying Case
- 1 Carrier bag
- 1 Hand strap
- 1 Quick Start Guide (in German & English)
- 1 Manual (multilingual)

Label of individual components



1. Mouthpiece and Mouthpiece Slot
2. Digital LC Display (4 digits)
3. Power Button
4. Air Outlet (always keep this part unblocked)
5. Battery Compartment Cover (at the back of the device)

This way you receive results that are as accurate as possible

- A) Wait at least 15 minutes after your last sip of alcohol. Do not eat, drink or smoke during that time.
- B) Do not open the casing.
- C) Do not keep the breathalyzer in cold, hot, moist or badly ventilated places.
- D) Keep the breathalyzer out of the reach of children.
- E) Conduct three inlet tests after long storage before conducting the actual alcohol test.
- F) Do not drop the breathalyzer.
- G) Change the battery if it is depleted. Diminished battery capacity leads to incorrect test results.
- H) Do not conduct tests in loud (sound waves disrupt the sensor), drafty or poorly ventilated places.
- I) After a test result of 1,000 per mill (per mill = EU setting) / 0,100% BAC (% BAC = US setting) / 0,500mg/L (mg/L = UK setting) or higher the sensor needs rest time. In this case wait at least three minutes before starting the next test.
- J) Do not conduct tests in very cold, very hot or an unventilated, smoky ambience.
- K) Store the breathalyzer in a way to avoid penetration by dust or liquids.
- L) Blowing too hard may cause damage to the sensor as saliva flows into it.

Preparation for the test

1. Install batteries

Push the battery cover (on the back of the device) downwards and open it. Install the 2 AAA batteries (delivered together with the device) in the battery compartment while taking note of the battery polarity. Close the battery cover again.

2. Insert a mouthpiece

Insert a mouthpiece into the slot on the left front side of the breathalyzer. Ensure whether it securely fits or not. It is highly recommended to use an extra mouthpiece for every test for sanitary reasons.

Conducting the measurement

1. Press the start button on the front of the alcohol tester. The device beeps 1x and alternately displays the number of tests performed so far and the last test result (as long as the start button remains pressed). If you no longer press the start button, „WAIT“ will be displayed at the top of the display and a countdown will start.
2. Wait for the countdown, there are several lines moving on the display, the device warms up. At the end of the countdown the device beeps 2x and „blow“ appears on the display.
3. As soon as „blow“ appears on the display, start to blow into the attached mouthpiece (just breathe slowly and without interruption, as if you were whistling). The device beeps continuously during the breath test.
4. Once the beep stops and you hear 2 clack tones, the test is finished. If the breath sample was interrupted or too weak, „Flo“ appears on the display. In this case, perform the test again and press the start button for 3 seconds.
5. After a successful breath test, the device immediately evaluates the measurement result. The digit „0“ moves briefly from the left to the right side of the display and at the end of the evaluation you hear 1 beep sound. The measurement result is finished and then on the display the test result is shown with 4 digits (and 3 decimals in the standard measuring unit per mille). After 10 seconds, you hear 5 beeps and the backlight will turn off (but the measurement result will still be displayed). For a new test, simply press the start button for 3 seconds.

Note: The device switches off automatically after approx. 3 minutes. You can also switch off the device manually by pressing the start button continuously for approx. 5 seconds, then you hear a double beep sound and you will see „Out“ on the display (additionally on top right „WAIT“ is shown), then the device is switched off.

ACE Instruments recommends

- Always use a new mouthpiece for each person and test that is conducted. ACE Instruments assumes no liability for any damages which arise when several people use the same mouthpiece for multiple tests.
- Only use the provided single packed and hygienic ACE Instruments mouthpieces. During each test the Breathalyzer's internal and external parts come into contact with human secretion (saliva, blood, sweat, etc.)!
- Use safety gloves when pulling out a mouthpiece used by another person! You can buy appropriate gloves at ACE Technik (www.ace-technik.de).

IMPORTANT NOTICE

- WHEN YOU HAVE EATEN, DRUNKEN ALCOHOL OR SMOKED A CIGARETTE, WAIT AT LEAST 15 MINUTES BEFORE STARTING THE MEASUREMENT. ANY TEST CONDUCTED PRIOR TO THE EXPIRATION OF THE RECOMMENDED WAITING PERIOD WILL RESULT IN INACCURATE RESULTS.
- IF THE TEST RESULT IS BELOW 0,100‰ (PER MILL) OR 0,010% BAC (US setting) OR 0,050mg/L (UK setting) THEN THE DEVICE SHOWS 0,00‰ (OR % BAC OR mg/L – depending on the setting) ON THE DISPLAY. THIS HAPPENS BECAUSE AT A LOW RANGE OF ALCOHOL CONCENTRATION IT IS POSSIBLE TO MEASURE OTHER MATERIALS IN YOUR MOUTH.

- This breathalyzer is a high quality and sensitive measurement device. To maintain the accuracy of the sensor, it should regularly be used. If the device is not used for an extended period of time, the sensor can dry out. ACE Instruments recommends to use the breathalyzer at least 2 times per month (even if you have not been drinking alcohol).
- 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 for recognizing discrepancies between the operating manual and the actual handling of the breathalyzer and must react accordingly.

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Only the usage of original ACE Instruments mouthpieces

- Guarantees test result accuracy
- Guarantees 100% hygieny
- Guarantees full warranty of this device

ACE INSTRUMENTS ADVISES

EVEN IF YOU GET A RESULT MEANING „SAFE RANGE“, YOU SHOULD NEVER DRIVE AFTER CONSUMING ALCOHOL OR DO ANY OTHER ACTIVITIES THAT ARE SEVERELY IMPAIRED BY ALCOHOL CONSUMPTION AND MIGHT ENDANGER YOUR HEALTH AND SAFETY OR THE HEALTH AND SAFETY OF OTHERS.



Display indications

Display	Meaning	Action
<i>Flow</i>	The sampling volume or blow power is not enough to analyze the breath sample.	Press the start button for 3 seconds, the countdown will start again and "BLOW" will appear on the display. You can now perform a new test (Tip: Blow like you would whistle without a tone).
<i>bAt</i>	The testing cannot be performed because the battery power is low.	Replace with new batteries.
<i>CAL</i>	The total number of breath tests performed has reached 1,000. The device should be calibrated promptly to maintain the warranty and accuracy.	Contact your seller for a calibration service. You can send the device for calibration to the service address specified at www.alkomat.net .

Calibration

To maintain the accuracy of the breathalyzer, ACE Instruments recommends a calibration after 1,000 tests or approx. every 12 months (depending which incident happens first). For a calibration service you can send the device to ACE Instruments (see www.alkomat.net). The calibration is not mandatory, but the accuracy of the breathalyzer will decrease steadily without it and additionally the warranty for the sensor expires.

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 for recognizing discrepancies between the operating manual and the actual handling of this Breathalyzer and must react accordingly.

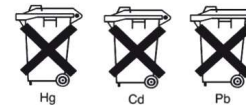
Battery notices

The device associated with this operating manual contains 2 AAA Alkaline batteries (1.5 V) in delivery condition. These batteries are not made for recharging. The use of a rechargeable battery is not possible with this device and can damage it. If the included batteries are depleted, they must not be thrown into the household waste. Used batteries may contain harmful substances that can cause environmental or health damage. Please return all depleted batteries to electrical appliance stores, who collect them for free.

Battery exchange

To replace the batteries, push the battery cover on the rear of the unit downwards and replace the discharged batteries with new ones. Be aware of the polarity when inserting the batteries (+/- pole). Close the battery compartment cover again. In the EU the return of used batteries is mandatory by law. All depleted batteries and also rechargeable batteries will be recycled. This way valuable resources like iron, zinc and nickel can be retrieved and are reusable then. Battery recycling is the easiest lesson in environmental protection – so please support it!

The shown garbage bins mean that batteries or rechargeable batteries must not be thrown into the household waste. The signs below the garbage bins are acronyms for the chemical substances inside the battery:



- Hg: Battery contains Mercury
- Cd: Battery contains Cadmium
- Pb: Battery contains Lead

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Technical data*

Sensor	Fuel Cell sensor
Accuracy	+/- 0.050‰ (per mill) with reference to 0.500‰ at 25°C (per mill = default setting) OR +/- 0.005% BAC (Blood Alcohol Concentration) with reference to 0,050% BAC at 25°C OR +/- 0.025mg/l with reference to 0.25mg/l at 25°C
Detection Range	0.000 up to 4.000‰ (per mill) OR 0.000 up to 0.400% BAC (USA) OR 0.000 up to 2.000mg/L (UK)
Warm-up Time	Within max. 30 seconds at 0.5‰, it may vary depending on the measured value of per mill or % BAC or mg/L
Response Time	Within 10 seconds
Dimension	106 x 50 x 20mm (L x W x H)
Weight	100g (battery included)
Power Supply	2 pieces of 1.5V AAA Alkaline batteries (= energy for up to 400 tests)
Working Temperature	0°C up to 40°C
Storage Temperature	0°C up to 50°C
Calibration	Every 12 months or after 1,000 tests. For a calibration service you can send the device to ACE Instruments (see www.alkomat.net).

* The technical data are subject to change without prior notice for functional improvements.

Warranty and liability

The ACE Handels- und Entwicklungs GmbH (ACE Instruments) provides a warranty of two years after purchase for material and processing errors for the product (see attached warranty and liability declaration) in all versions and designations; and a warranty of one year for the sensor. This warranty includes the electronics as well as the casing or 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 not stated otherwise in the accompanying ACE Instruments product literature.

Limitation of warranty and liability

1. PRODUCT DESCRIPTION

ACE Instruments 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. If an exchange of the sensor or a calibration is required for a product, the user may receive a cost estimate. Should the user reject the estimate, ACE Instruments will send the product back unrepaid/not calibrated and the product will be labeled accordingly. Should the product not fulfill the warranty, the claim of the buyer and the obligations of ACE Instruments are limited exclusively to the discretion of ACE Instruments for exchange, repair of the affected goods or reimbursement of the purchasing price for the faulty merchandise.

2. APPLICATION RESTRICTION

ACE Instruments is by any means liable for additional, incidental or consequential damage such as, among others, lost profit and downtime that result from selling, producing or using products that are part of this application restriction. This is independent of any claims emanating from, for instance, contracts, negligence or other culpable actions. The product, which is accompanied by this warranty and liability declaration (no matter the version or designation), in particular cannot be used in a legally binding manner to determine one's capability to operate vehicles or execute action that could lead to personal injury or injury to others under the influence of alcohol. The thorough check for damage of all products upon receipt, calibration suitable for the given use by the buyer and the proper use, maintenance and service according to the instructions of the accompanying ACE Instruments product literature are mandatory prerequisites of this warranty. Maintenance and service work performed by non-qualified persons as well as the use of non-approved consumables or spare parts results in the voiding of this warranty. As for all technically challenging products, it is a fundamental prerequisite and mandatory for ACE Instruments warranty that all users of these product are familiar with the properties and restrictions of the devices as stated in the respective literature.

3. ADVICE RESTRICTION

The buyer is solely responsible and confirms that they have checked the intended use and suitability of purchased goods for any purpose. Between the two parties it is expressly agreed that all technical or other advice given by ACE Instruments regarding the use of goods or services is free of charge and made under risk to the buyer exclusively. Therefore, no obligation or liability can result to ACE Instruments from any recommendation or their consequences.

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