ACE **ALP-1 med**

Alkoholtester
Bedienungsanleitung

Breathalyzer
Operating Manual

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Operating Manual

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ACE Instruments

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Introduction:
Thank you for purchasing our ACE ALP-1 med Breathalyzer.
This breathalyzer complies with the Medical Device Directive 93/42/EEC and the DIN Norm EN 15964:2011. This device measures 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 +/- 0.05‰ (per mill) with reference to 1.00‰. The device must only be used pursuant to the instructions mentioned in this manual. The measurement ‰ (per mill) is the default setting for the usage in the EU.

Short description:
The ACE ALP-1 med Breathalyzer is an easy-to-use alcohol tester with an electrochemical sensor. The test results can be saved in the device or printed via a cable or IrDA connection on the mobile ACE printer (optional available).

It can be used in a normal mode (with mouthpieces) and in a fast mode (with the delivered breath funnel). In the normal mode the test result is shown on the display with 3 digits (2 decimals*) with measurement setting „per mill" and it can be interpreted 1:1 – so if the shown test resultis, e.g., 0.36 then this means 0.36‰ = per mill (for UK: if the shown test result is, e.g., 0.18, then this means 0.18mg/L, for USA: if the shown test result is, e.g., 0.036, then this means 0.036% BAC).

In the fast mode you only see „PASS" on the display (= your alcohol level is below the Individually defined limit) or „FAIL" (= your alcohol level is above the limit). The default setting = „PASS" up to 0.50‰ and „FAIL" above 0.50‰.

The fuel cell sensor inside the ACE ALP-1 med Breathalyzer can be calibrated and as alternative the sensor can also be exchanged against a new one.
For a calibration service you can send the device or the exchanged sensor to ACE Instruments (see www.ace-instruments.net). For each breath test in normal mode please use a new mouthpiece as rests of alcohol inside the used mouthpiece can negatively influence another measurement with this used mouthpiece.
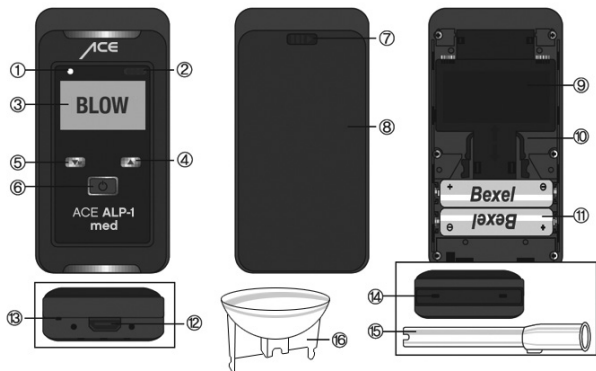
*4 digits and 3 decimals if the measurement setting is % BAC.

Scope of delivery:
- 1 Digital fuel cell ACE ALP-1 med Breathalyzer
- 2 AA batteries (1.5 V)
- 5 Mouthpieces & 1 Breath funnel (for tests in fast mode)
- 1 MAX30 CD (PC Software)
- 1 USB cable (for the connection with a PC)
- 1 Leather bag
- 1 Hand strap
- 1 Quick Start Guide
- 1 Operating Manual
- 1 Medical certificate

Optional equipment: ACE printer for ACE ALP-1 med

Label of individual components:

1. LED light
2. IrDA window
3. Digital LC display
4. Up button
5. Menu / down button
6. Power / select button
7. Button for opening battery cover
8. Battery cover

9. Sensor module
10. Handle of sensor module
11. Batteries
12. USB cable connector
13. Connection for hand strap
14. Mouthpiece receptacle
15. Mouthpiece
16. Breath funnel (for tests in fast mode)

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) / 0.500 mg/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. Installing a battery
Push the button on the back of the device to the right side. Pull the battery cover
downwards and remove the battery compartment cover. A new device is delivered
with already included batteries and you first have to remove the small paper inside
the battery compartment (this paper prevents the 2 inserted batteries from dischar-
ging). Close the battery compartment cover again.

2. Inserting a mouthpiece
Insert a mouthpiece into the port on top of the device. Mouthpieces can be used
with orientation to the right or left side. Ensure that the mouthpiece securely fits.
For sanitary and accuracy reasons it is highly recommended to use an extra
mouthpiece for every test.

Conducting the measurement:
1. Press the power button. If you release the power button you can see initial window and check the information, date, time and serial number.
2. The device warms up until you can see the "BLOW" sign and hear one beep sound. During the display WAIT sign you can go into menu mode if you press the button "M". If you leave the menu mode, warming up is automatically done.
3. When "BLOW" is shown on the display also a green light is blinking above the display, this green light blinks until you start your test.
4. Now blow into the mouthpiece for 3 seconds until a "tictac" tone concludes the breath sample. Tip: Blow into the moutpiece as if you would whistle without a tone.
5. After taking your breath sample the LC display shows "Analyzing/wait".
6. The result is displayed with one beep sound, you can see the result for a time period of 15 seconds.
7. The device automatically turns off after 15 seconds without using it*.
If you want to do another test, then press the power button again.

*If you keep press and hold the power switch for 3 seconds, you can see "Power off" on display. After showing this message for 2 seconds the device turns off.

Note on the storage of measurement results:
The ACE ALP-1 med Breathalyzer stores up to 500 measurement results. If the storage is full, the oldest stored measurement will be deleted and the new one saved.

Explanation of the tones/lights in normal and in fast mode (you can choose the fast mode in the measurment settings of the User or Administer menu):
The default setting for the level "PASS" is 0.20‰ (per mill), for the level "ALERT" it is 0.50 per mill and for the level "FAIL" it is 1.00 per mill. If needed you can change the levels in the Administer menu. Please choose "Administer menu", then "Measurement set." and then "Limits Level".

1. Normal mode:
▪ Within Pass level range, the device will show a numerical result on the display together with a short beep sound and a green light
▪ Over Pass level up to Alert Level, the device will show a numerical result on the display together with a slow & continuing beep sound and a red light
▪ Over Alert Level up to Fail level, the device will show a numerical result on the display together with a fast & continuing beep sound and a red light
▪ Over the Fail level, the device will show a numerical result on the display together with a long beep sound and a red light

2. Fast mode:
If the fast mode is activated then you will see the letter "F" right above on the display.

▪ Within Pass level range, the device will show "PASS" on the display together with a short beep sound and a green light
▪ Over Pass level up to Alert Level, the device will show "FAIL" on the display together with a slow & continuing beep sound and a red light
▪ Over Alert Level up to Fail level, the device will show "FAIL" on the display together with a fast & continuing beep sound and a red light
▪ Over the Fail level, the device will show "FAIL" on the display together with a long beep sound and a red light

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 mouthpieces (more are available at www.ace-instruments.net). 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 0.10‰ (PER MILL) OR 0.050 mg/L (UK SETTING) OR 0.010% BAC (US setting) THEN THE DEVICE SHOWS 0.00 (‰ OR mg/L OR % BAC – 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 fuel cell 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.

Only the usage of original ACE mouthpieces...
- Guarantees test result accuracy
- Guarantees 100 % hygenity
- 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:

FLOW	If you see "FLOW" on the display, the breath sample was not strong enough for a measurement. Please wait until you can see "BLOW" on the display again and then make sure that the breath is strong and steady during the sampling.
Battery Change	If you see this on the dirplay then the battery power is low, please replace the batteries with 2 new ones.
Service required Calibration	This message is shown 6 months after the last calibration or by setting CAL required number.
C. Test No	Number of tests after a calibration (memorized in the sensor module).
T. total	Number of tests after a calibration (memorized in the device).
Sensor empty Check to connect system	Error with sensor module, please replace the sensor with a new one.
Over Temperature Keep the operating temperature range	Error because of critical temperature during usage, the device must not be used under -5°C.
System Error 1 Service required device	Condensor charging error, please contact ACE customer service.
Sensor empty Check to connect system	Sensor leakage, please contact ACE customer service.

Administer menu:
To get into the administration area please turn on the device by pressing the power button and afterwards press the button "m" on the front of the device constantly for 2-3 seconds. Press the power button again and then type in the pin code (default: 0530), to connect with a printer type in pin code "1000".

To change between the single menus please use the buttons Up/Down on the front of the device) and press the power button to confirm your choice.

A. Contents of administer menu:
I. Information
II. General Setting
III. Measurement Setting
IV. Calibration

B. Details of chooseable contens in the administer menu:

I. Information:
a. Last tests
b. Last maintenance
c. Total test count
d. Date & Time
e. Configuration
f. Device info

II. General setting
a. Set language (changes can only be done concerning the text which is shown on the display before, during and at the end of a test operation; you can choose English, German, Italian, Spanish and Russian)
b. Set date
c. Set time
d. Printer (printer settings, please check that the device is with the printer cable before you choose the connection "cable". A bluetooth connection is optional and not available with this model. You can buy an optional mobile printer, with which you can print "last data" (the data of your last measurement) and "selected data" (the data which before have been defined in the menu under "range").
You can print "last data" also via an IrDA connection, therefore you have to hold the IrDA-window on the front of the ACE ALP-1 med near to the IrDA-window of the printer, then press the power button on the ACE ALP-1 med and the print of "last data" will start.
e. Save to SD card (not available with this model)
f. Change PIN
g. Bluetooth (not available with this model)

III. Measurement set.
a. Measurement unit
b. Passive mode (on/off)
c. Limits level (set the measurement limits, this influences the warning tone + lightning)
d. Blow criteria (setting of the minimum breathing volume and minimum blowing time)
e. Sampling type (Setting of 2 possible types of sampling:
1. Fixed volume = sampling is finished when the minimum volume is reached
2. End of breath = sampling is finished at the end of the exhalation)
f. Backlight (on/off)
g. Test count option (Since last CAL = a number of tests after the last calibration; Lifetime total = total number of ever with the device done tests; OFF = function off)
h. CAL required No. (setting of the calibration period)
i. Tachograph (connection to the tachometer of a vehicle, this function is optional and not chooseable with this model)
j. Measurement mode (Normal or Fast), the default setting is Normal mode. To get exact test results you always should use "Normal" mode. In the "Fast" mode tests are done by using the bretah funnel which is in the scope of delivery and fixed on top of the device. Be aware that in the „Fast" mode the test result is more imprecisely and not shown as number on the display but only with the letter "P" (Pass) and "F" (Fail).

IV. Calibration (this menu must only be used by the ACE customer service!)
a. Last maintenance
b. Accuracy CHK date (date/time, the device saves max. values)
c. Calibration (for service tasks only)
d. Accuracy check (check of accuracy, for service tasks only)
e. Pressure Cal. (for service tasks only)
f. Set last CAL date (for service tasks only)
g. Set last ACC date (for service tasks only)

Calibration:
To maintain the accuracy of the breathalyzer, ACE recommends a calibration after 6 months (see reminder on the display). For a calibration service you can send the device or the exchangeable sensor to ACE Instruments (see www.ace-instruments. net). The calibration is not mandatory, but the accuracy of the breathalyzer will decrease steadily without it.
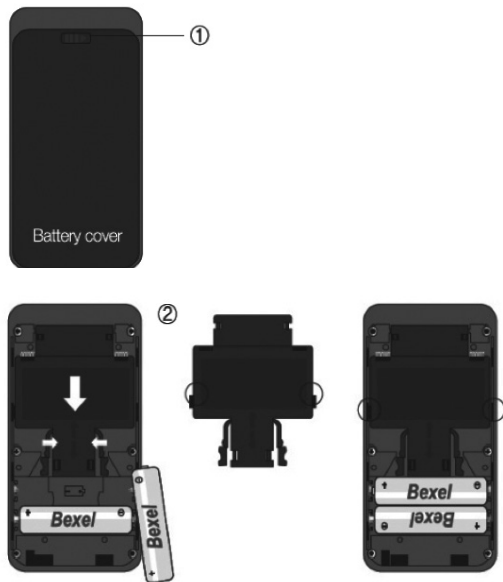
We recommend sending it as a parcel, so that in cases of loss an inquiry or proof of delivery is possible.

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

Replacing the sensor module:
1. Push the button on the back of the device to the right side (see fig. 1).
2. Pull the battery compartment cover downwards and remove the battery cover.
3. Remove both batteries.
4. Grab both handles to the left and right of the sensor (see fig. 2).
5. Pull down side and take out the existing sensor module.
6. Place new sensor carefully in the device with orientation shown in the third figure until you hear a click tone.
7. Put inside both batteries again.
8. Fix the battery compartment cover on the device.
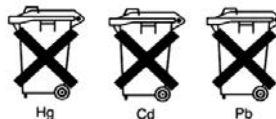

Battery notices:
The device associated with this operating manual contains 2 AA Alkaline batteries (1.5 V) in delivery condition. This batteries are not made for recharging. The use of a rechargeable battery is not possible with this device and can damage it.

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 button on the back of the device to the right side, then pull the battery compartment cover downwards and remove the battery cover. Now you can replace both batteries. Be aware of the polarity when inserting the battery (+/- pole). Put the battery compartment cover on the rear panel and press it gently on the device until it clicks. 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!
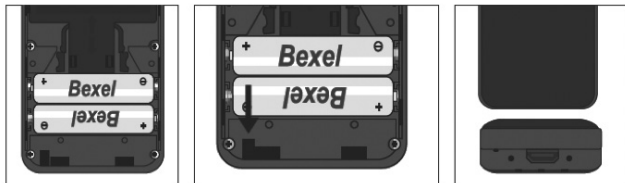
The shown garbage bins mean that batteries or rechargeable batteries must not be thrown into the household waste. The signs below the garbage bins are acronyms for the chemical substances inside the battery:

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

Fixing the hand strap:
1. Push the button on the back of the device.
2. Pull the battery cover downwards.
3. Insert hand strap thorough the small hole in the housing (see picture below).
4. Fit the strap in the inside grip.
5. Fix the battery cover on the device.

Technical data*:

Sensor	Fuel Cell sensor
Accuracy	**+/- 0.050‰ (per mill) with reference to 1.000‰ at 25°C (per mill = default setting)** OR +/- 0.005% BAC (Blood Alcohol Concentration) with reference to 0.100% BAC at 25°C OR +/- 0.025mg/l with reference to 0.500mg/l at 25°C
Detection Range	0.000 - 5.000‰ (per mill = default setting; you can change the measurement unit in the Administration menu by choosing "Measurement set." and then choose "Measurement unit" where you can do the change yourself)
Warm-up Time	5 seconds up to max. 2 minutes (the higher the measurement result the longer is the time needed by the sensor to evaporate the measured alcohol)
Reaction time	Within 10 seconds with reference to 1.000‰ (per mill)
Dimension	133 x 64 x 33 mm (H x W x D)
Weight	198g (battery included)

Power Supply	2 pieces of 1.5V AA size Alkaline batteries
Battery capacity	Approx. 3000 tests
Storage capacity	500 tests (Storage of serial number, time and date, measurement result and test number)
Working Temperature	-5°C up to 40°C
Storage Temperature	-10°C up to 50°C
Calibration	Every 6 months, see the reminder on the display when starting the device. ACE can calibrate the device or the exchangeable sensor, new sensors are available at ACE Instruments. For a calibration service you can send the device to ACE Instruments (see www.ace-instruments.net).

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

Warranty and liability:

WARRANTY

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 Handels- und Entwicklungs GmbH product literature.

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. 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, the ACE Handels- und Entwicklungs GmbH will send the product back unrepaired/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 Handels- und Entwicklungs GmbH are limited exclusively to the discretion of the ACE Handels- und Entwicklungs GmbH for exchange, repair of the affected goods or reimbursement of the purchasing price for the faulty merchandise.

2. APPLICATION RESTRICTION

The ACE Handels- und Entwicklungs GmbH 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 Handels- und Entwicklungs GmbH 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 the ACE Handels- und Entwicklungs GmbH 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 by ACE Handels- und Entwicklungs GmbH 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 Handels- und Entwicklungs GmbH from any recommendation or their consequences.

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