ENVITEC
by Honeywell

AlcoQuant 6020 plus

Operating manual

059-07-1001779_A6020plus_GB-5.2.1

GB

These instructions have been prepared with the utmost care. If, however, you should find details that are not consistent when handling the system, please send us a brief comment to enable us to rectify the inconsistencies.

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1 General Safety and Service Notes

Handling the device requires exact knowledge of these operating instructions and their observance. The device is intended for the application described only.

- **Do not operate in explosion hazardous areas!**
  The device is not licensed for operation in explosion hazardous areas.
- Portable and mobile HF communication devices can interfere with and disrupt electrical devices.
- If the AlcoQuant 6020 plus is exposed to electromagnetic radiation that corresponds with the carrier frequency of the wireless interface, the wireless connection may be interrupted. In that case remove the device from the radiation source and reconnect.

Commissioning

Prior to commissioning, check the calibration stickers on the device housing. If the date shown on the plate has been reached or exceeded, the AlcoQuant 6020 plus must be recalibrated and/or sent for servicing and should not be used for measuring. Maintenance and calibration must be carried out by qualified and authorised personnel only.

The rechargeable batteries must be fully charged before first using the device.
The charging time in the included charger station is around 4 hours, depending on the ambient temperature and initial battery charge level.

Maintenance

Calibration and maintenance must be performed by authorised experts at six-monthly intervals (concluding in a report).

Maintenance work must be carried out on the device by authorised service personnel only. Only original parts from Honeywell Healthcare Solutions GmbH may be used for repairs.

Six-monthly calibration of the device is necessary to guarantee the specified measuring accuracy
(see specifications) over the entire period.

Safety warnings

Designates risks for man and/or machine. Non-compliance will create risks to man and/or machine. The level of risk is indicated by the word of warning.

Important information on a topic or a procedure and other important information!

Disposal

In accordance with Directive 2002/96/EG (WEEE), after being dismantled, electrical and electronic equipment is taken back by the manufacturer for proper disposal!

2 Designated use and description

The AlcoQuant 6020 plus is designed for a quick and accurate determination to check the presence of alcohol or alcohol intake and is the optimal solution for the following applications:

- police routine alcohol verification
- testing of prison inmates
- ensuring safety at work

The AlcoQuant 6020 plus determines the breathed air volume while expiration procedure and takes a sample after 1.2 litres (standard setting).

The AlcoQuant 6020 plus contains a special electrochemical sensor, which reacts only to alcohol. The unique characteristic of this sensor is its specific reaction to alcohol as well as its long-term stability, allowing a 6-month calibration interval.

The influence of other substances that may be contained in the expiration air, such as acetone, eucalyptol, etc. is negligible owing to the electrochemical measuring principle applied. The sample collection system, which has been developed for maximum precision, permits short measuring intervals, thus facilitating extremely short waiting periods between measurements.

Thanks to the use of the new, improved ethanol sensor E 100 and the innovative sample collection system, a high degree of reproducibility of measuring results is guaranteed. State-of-the-art technologies for the prevention of faulty measurements and to ensure maximum measuring precision are implemented in the device. To achieve this, the following functions and components are constantly controlled.

- Device temperature
- Sample collection
- Signal generator
- LEDs
- Battery
- Alcohol sensor
- Internal memory
- Calibration intervals

The device comes with a memory module and a universal interface (USB + RS-232). This ensures that the device is completely backwards compatible. The data can be transferred to a computer with the >Datamanager Alco 60XX< software and the data cable and analysed.

The device is also available with an optional wireless interface which can be used exclusively to connect to an approved wireless printer (article no. E1002255).

Label symbols

Follow the instructions given in the operating manual!	**SN** Serial number
Date of manufacture	**PN** Product number
Manufacturer	Follow the disposal instructions!
CE certification	Wireless interface

Symbols shown on the display

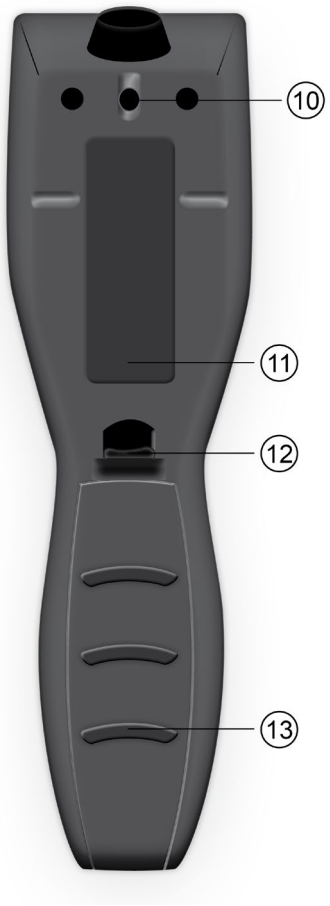
Measurement mode	PC
Memory	Wireless printing activated
Printer test	Battery symbol
Setting	Mains operation/charge
Service	Scroll / Change selection
Info	

3 Operation

The device is operated using the three membrane keys. These membrane keys can be cleaned with a damp cloth in order to comply with hygiene requirements. All of the system's status and error messages are shown in plain text on the illuminated screen.

Front view

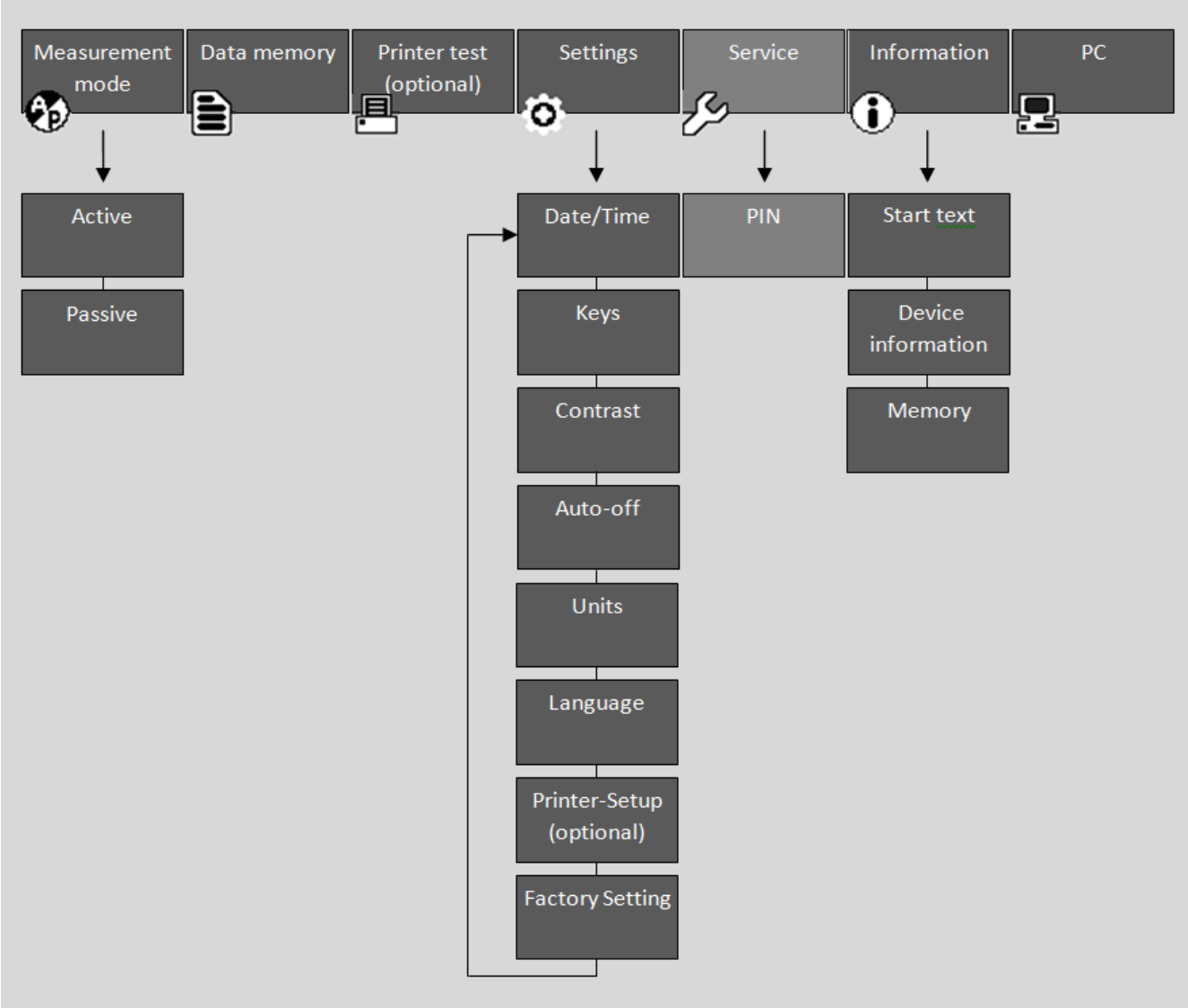
Rear view



No.	Description	No.	Description
①	ON / OFF key / Exit / Home	⑧	Right softkey
②	Left softkey	⑨	USB + RS-232 data interface
③	Display	⑩	Expiration aperture
④	LED red – Error signal	⑪	Device label
⑤	LED yellow - Measurement in progress / Attention	⑫	Battery compartment opener
⑥	Mouthpiece port	⑬	Battery compartment lid
⑦	LED green - Ready for measuring		

3.1 Operating menu (overview)

Main menu



The >Service< menu item is for authorised service personnel use only.

Keys

	Left function key	The current function is shown on the display.
	Right function key	Confirm the selected menu item
	ON/OFF/Exit/Home button	Exit: Briefly press key → Go back one level Home: Hold down key for more than 1 second → Start screen Off: Hold down key for around 3 seconds → device switches off

3.2 Switch-on / Switch-off

Once the device has been switched on, it will automatically test all of its internal functions and components. While performing these tests, the screen displays information about the "next calibration" and "software revision status" for about 2 seconds.

Hold down the button for around 1 second.

Within 10 seconds the device is now ready to start measuring (green LED blinking at an interval of 1 second).

Example: Information displayed while the unit is being switched on:

The device is at the >Active measurement mode< menu item when switched on.

The device is ready for use. The green LED blinks every second to indicate readiness for start of the measurement.

The "Active/Passive" measurement modes can be switched between in the operating menu or with the right softkey.

Switch-off

➔ Press key for approx. 3 seconds

If no measurement or key entry is made within the time set in the "Auto off" menu item, the AlcoQuant 6020 plus turns itself off automatically.

3.3 Settings

The different menu items for setting the basic functions are available in the >Settings< menu.

3.3.1 Date/Time

The device's date and time is set in this menu item.

Select >Date/Time< from the >Settings< menu.

Confirm the selection with >OK<.

Time

To change the time, select the >Time< menu item and confirm.

Press the >Edit< key to start setting the hours.

Accept the hours entry and move to the minutes entry.

The minutes are set in the same way.

Date

The Date is not changeable in the device. You can use the Datamanager PC-Software to synchronize your Device Date to the PC-System date

- Daylight savings time is automatically taken into account.
- The date display format depends on the selected language.

3.3.2 Keys

This menu item determines whether an acoustic beep is made when a key is pressed and whether the background light for the keys is on or off.

Select >Keys< from the >Settings< menu.

Confirm the >Keys< selection with >OK<.

Tone (ON/OFF)

Select and confirm the >Tone< menu item to switch the acoustic beep on or off. Then select the desired function, either >ON<or >OFF< and confirm again.

Lighting (ON/OFF)

Select and confirm the >Lighting< menu item to switch the lighting on or off. Then select the desired function, either >ON<or >OFF< and confirm again.

3.3.3 Contrast

This menu item determines the contrast level of the display screen information.

Select >Contrast< from the >Settings< menu.

Confirm the >Contrast< selection with >OK<.

Press the >Edit< key to start setting the contrast.

The setting range extends from "dark" to maximum possible display contrast (ten grey fields).

Press >OK< to accept the setting and exit the function.

3.3.4 Auto-off

This menu item determines whether the device automatically switches itself off after a certain length of time in ready for operation mode.

Auto-off helps extend the operating time of the device. This setting applies to the device's "Standby" mode.
The auto-off function is disabled when a measurement is being taken and during continuous use.

Select >Auto-off< from the >Settings< menu.

Confirm the >Auto-off< selection with >OK<.

Set the desired auto-off period and confirm again.
Once this period of inactivity has been reached, the device switches off to preserve battery power.

The >0 minute< setting effectively disables the auto-off function. The device will remain on until switched off manually or the batteries are dead.

3.3.5 Unit

This menu item determines the unit of measurement (e.g. per mille or mg/l) in which the measurement result should be displayed.

Select >Unit< from the >Settings< menu.

Confirm the >Unit< selection with >OK<.

Now select the desired unit and confirm again.

3.3.6 Language

This menu item determines the display and system text language (e.g. German or English).

Select >Language< from the >Settings< menu.

Confirm the >Language< selection with >OK<.

Now select the desired language and confirm again.

3.3.7 Printer settings (optional)

This menu items determines Settings regarding the printer output.

Within the menu >Settings<, select the menu item >Printer Setup<. This item is only available for devices with wireless option.

Confirm > Printer Setup< with >OK<.

Then select the desired printing option: >Cable< requires that a cable is installed between printer and device.
The subsequent key >Print< will initiate a test printout.

Having selected the option >Wireless<, an appropriate wireless printer can be used. Prior to the initial wireless operation, the printer and the AlcoQuant 6020 plus need to be paired with each other by using the Connection ID of the printer. The single digits of the printer Connection ID have to be set with the key >Edit<. Finally confirm the Connection ID with >OK<. A printer test can then be performed with >Print<.
The six digit Connection ID is stated on the label of the printer but can also be found on the self test printout (→See the printer's instructions for use).

3.3.8 Factory settings

This menu item resets the device back to its factory settings.

Select >Factory settings< from the >Settings< menu.

Confirm the >Factory settings< selection with >OK<.

Press >Yes< to reset the device.

All personalised settings such as choice of measurement value, info texts, volume, etc., will be deleted and replaced with the factory defaults.

The device switches itself off once the reset is complete.

The data in the memory module is not affected by the reset.

3.4 Printer Test

Select main menu item >Printer Test<.
Confirm with >OK<.

Press >Print< to for a test printout. Whether >Cable< or >Wireless< printing is used, depends on the option that has been selected in >Printer Setup<.
The AlcoQuant 6020 plus will identify itself on the printout with its own serial number.

If wireless printing is activated, the upper status line will display a wireless symbol. The wireless printer has to be set ready-to-receive prior to the test print. If no connection with the printer is established within 30 seconds, the print test will be aborted with an error message.

3.5 Information

3.5.1 Start text

The personalised start text is entered using the PC software.

Select >Start text< from the >Information< menu.

Confirm the >Start text< selection with >OK<. The entered start text is shown.

This start text is displayed when the device is switched on. This text enables an assignment to an office, person or general device identification.

No start text is set.

3.5.2 Device information

Select >Device information< from the >Information< menu.

Confirm the >Device information< selection with >OK<.

The device-specific information about this AlcoQuant 6020 plus is displayed. To change the information screens, press OK.

Information screens:

- Date of next calibration
- Software revision of the device: Rxx
- Configuration of the device
- Wireless module address and software version (optional)

Have this information available when making enquiries to the technical customer service.

Exit function.

3.5.3 Memory

Select >Memory< from the >Information< menu.

Confirm the >Memory< selection with >OK<.

The amount of internal memory used is shown as a percentage.

3.6 Printing measurement results

The measured value displayed can be printed on the connected printer.
If more than one type of printer is available (option wireless), the correct printer type has to be selected in >Printer Setup<, either >Wireless< or >Cable<.

After pressing the key >Print< the printout starts. If printing does not start while using the wireless option, please check the correct setting of the Connection ID.

The measurement result is displayed again after printing.

3.7 Connect to PC

Install the >Data manager for AlcoQuant 6020 plus (Version 4.x)< PC software and connect the device to the PC.

The required drivers for the AlcoQuant 6020 plus are installed automatically. Now switch on the device, launch the PC software and follow the instructions on the screen.

Now select the item >PC< from the device menu.

Confirm the >PC< selection with >OK<.

The connection is established and the device data is displayed in the PC software.

The complete functionality of the PC software is now available.

Further information can be found in the >Datamanager< PC software's online help.

4 Measurement

There are two different types of measurement, active and passive.

Active mode
In active mode, the test subject blows into the device using the mouthpiece.

Passive mode
In passive mode the device can recognise alcohol at a certain distance from the test subject or from another source.

4.1 Measurement in the active mode

Measuring in the active device operating mode serves to determine the precise alcohol level in the expired air.
It is ensured that for this process only deep lung air is delivered to the sensor.

This is necessary because the only clear correlation is between the alcohol content of deep lung air and the blood alcohol level.

Tobacco smoke

Tobacco smoke in the expiration air spoils or destroys the measuring system. Hence it must be ensured that the test person has not been smoking immediately before measuring is carried out. Waiting time: At least **5 minutes** after smoking.

Non residual alcohol in the mouth

Residual alcohol in the mouth distorts the measurement. Hence it must be ensured that the test person has not consumed any alcohol immediately before measuring is carried out. Waiting time: At least **15 minutes** after the last alcohol was consumed.

Mouth sprays containing alcohol, medical syrups and drops can cause residual alcohol in the mouth, as can burping and vomiting. Rinsing the mouth with water or non-alcoholic beverages is no substitute for the waiting time!

Hyperventilation

Prior to measuring the test person should breathe normally and calmly and not repeatedly breathe in or out deeply (hyperventilation) because the breath alcohol level can be briefly reduced because the tidal air cools down, thus causing the measuring result to be distorted.

Water trap

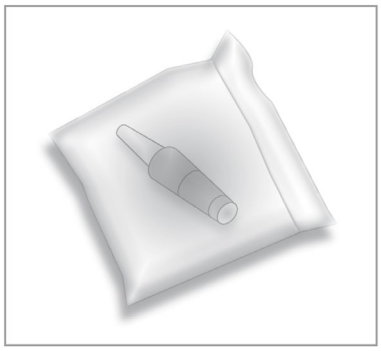
Use only original Honeywell Healthcare Solutions GmbH mouth pieces. Do not remove the small round disc inside the mouth piece! The mouth pieces are equipped with a water trap that will strip away excess moisture from the breath. Even if the person that blows in does not change, don’t use a mouth piece for more than three blow in attempts, otherwise the water trap in the mouth piece can’t hold back the moisture anymore and there’s a potential risk that the sensor might get damaged.

Cold ambient conditions

In very cold ambient conditions change the mouth piece after every single blow to avoid an excess of water in the device. Always put down the device with display side showing up, this orientation will make sure that any drops that passed the water trap will run out of the tube system again.

How to insert the mouthpiece

The prepared original mouthpiece must be inserted into the mouthpiece port of the AlcoQuant 6020 plus before measuring is performed. For this purpose the hygienic packaging of the mouth piece must first be removed. Please use the hygienic packaging as an hygienic protection (refer to pictures).



Possible faults – Cancel measurement

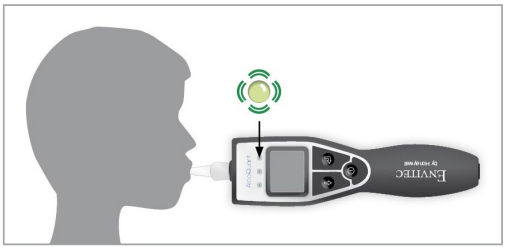
If the blowing-in process is interrupted before sample collection is completed, a long dual tone can be heard and an error message is displayed. The blowing-in process must be repeated.

- For every measurement please use a new mouth piece
- The expiration aperture must be kept free during the blowing-in process, otherwise the measured value is distorted.
- If it is suspected that the test subject is under the influence of alcohol despite a zero reading, on account of his or her behavior or the smell of alcohol on his or her breath, the device must be checked by trained service personnel.
- Patients with reduced lung capacity may not achieve the required expiration air of 1.2 l. In this case, a measurement is to be performed in the passive measurement mode (without mouthpiece).

Start active mode measurement

After switch-on the device operates automatically in the active mode and the Display shows “Start Measure“.

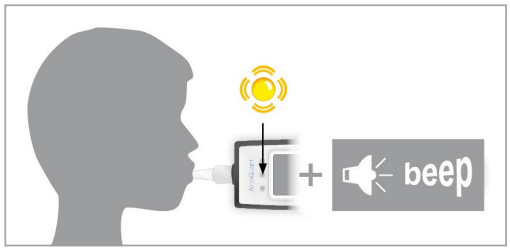
The measurement is automatically started by blowing into the device.



Start

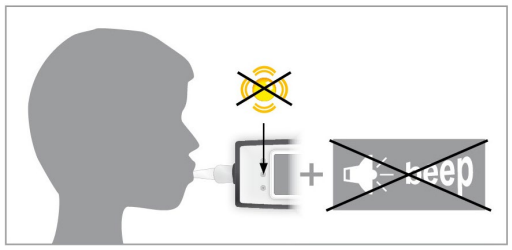
Green LED starts to flash.

During sample collection the test person must breathe into the device with a sufficiently large respiratory flow, evenly and without interruptions. A breathed air volume from 1.2 liters must achieved.



Audible + Optical Signal

A proper blow-in procedure is indicated by an audible signal and the flashing yellow LED.



End

The blow-in procedure is finished if no audible signal is present and the yellow LED turns off.

The yellow LED is flashing during the evaluation of the breath sample. Depending on the alcohol concentration this can take several seconds. Device indicates end of the analysis with a single audible signal.

Display of the measurement data and alcohol value.

The result is saved automatically into the device memory.

If the measurement result exceeds the upper limit of the specified measurement range the device will not show any numeric result but indicating “ > ”.

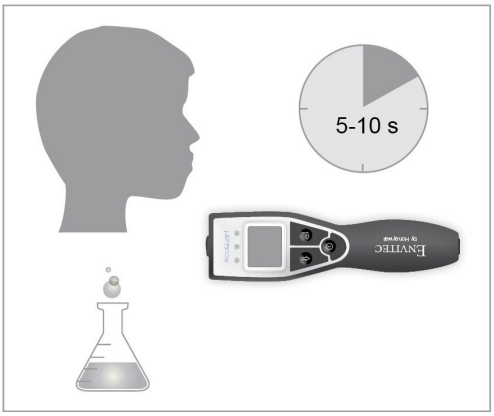
Click on the >OK< button to return to ready mode.

4.2 Measurement in passive mode

The passive mode (without mouthpiece) serves to check the ambient air for any alcohol content it may contain, e.g. for possible presence of alcohol content in the case of patients who are not responsive.

It is only to check if there is any alcohol in the ambient air. Any values that vary from zero (0.00) indicate that there is alcohol in the ambient air.

Select the >passive measurement mode< by pressing the >Passive< key or via the menu.



Place the device which is ready to take measurements (without mouthpiece) close to the point to be measured (e.g. in front of the patient's mouth and nose) for about 5–10 seconds (s).

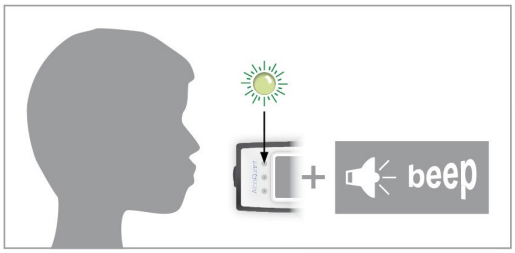
Green LED starts to flash.

The sampling system should be triggered when the test subject exhales.

Then trigger the sampling system by briefly pressing the >OK< key.
The breath sample is taken immediately.

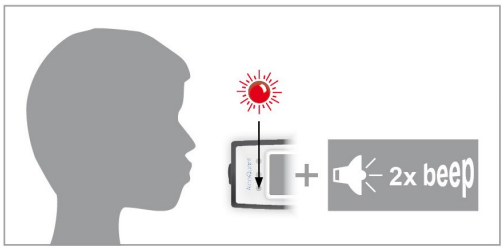
The yellow LED is flashing during the evaluation of the breath sample. Depending on the alcohol concentration this can take several seconds.

Press the ON/OFF key to return to active mode.



No alcohol detected

If no alcohol is detected, a high signal sounds off and the green LED lights up.



Alcohol detected

If alcohol is detected, the device beeps low twice and the red LED illuminates.

The values measured in the passive mode do not correspond to the breath alcohol concentration in the deep lung air and therefore do not lead to any conclusions on the blood alcohol concentration. The exact breath alcohol concentration in the lung air can be determined exactly only in the active device mode.

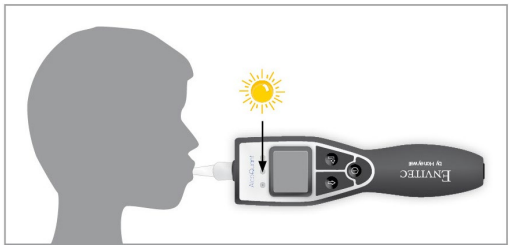
Passive-auto-trigger mode (P-AT) – limited use

Depending on the customer specific configuration, the device could be equipped with the optional measurement mode >>passive auto trigger<<. In this mode the passive mode sample taking can be triggered by a short blow in, instead of pressing a button to start the sample. Since this this mode is taking only a quick breath sample instead of deep lung air with long blow in time, this mode is much faster for mass control measurements, but not as accurate as an >>Active mode<< test.
It's strongly recommended to use a mouth piece for this mode to improve the accuracy. If the alcohol limit is zero alcohol this mode must not be used, since very small breath alcohol concentrations need to be tested at deep lung air to be detected.

4.3 Data memory

The device provides a data memory to log measured values. Each alcohol measurement performed is automatically stored with date, time, measured value and log number. The last 9999 data records are stored in the data memory.

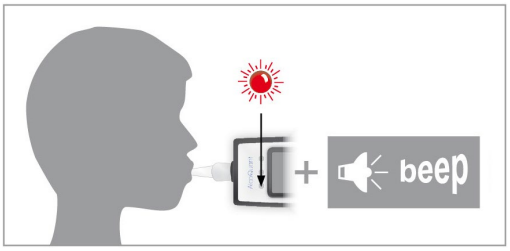
Once the internal memory is 95% full (9,499 measurements), a "Memory 95% full" message appears in the display.



The yellow LED illuminates to indicate that the internal memory is (almost) full.

This warning must also be confirmed pressing >OK< once.

After the 9,999th measurement, the message "Memory full" appears on the display. If any further measurements are taken, a query appears asking whether old data should be overwritten. This has to be confirmed once by pressing >YES< or >NO< and does not appear again until the device is restarted.



The red LED illuminates to indicate that the internal memory is full. The full state is also indicated with a beep.

This warning must also be confirmed by pressing >OK< once. Then the oldest measurement will be automatically overwritten by the new measurement value!

The measured values stored in the data memory will be retained even if the batteries are replaced.

5 Maintenance

Calibration

The device must be calibrated every 6 months. This involves the following points:

- Calibration of the device
- Test whether device functions are in proper working order
- Test of calibration
-  The device may only be serviced by Honeywell Healthcare Solutions GmbH or service personnel who have been trained by Honeywell Healthcare Solutions GmbH.

Please contact your dealer or send the device and all of its accessories to the following address for servicing:

Honeywell Healthcare Solutions GmbH
Service
Alter Holzhafen 18
23966 Wismar, Germany

envitec-service@honeywell.com

To speed up the repair process, please obtain an RMA (Return Material Authorisation) number. You can acquire an RMA from our website: http:\\envitec.com\.
Please state your RMA number in all your correspondence!

Cleaning

Please use only an impregnated disposable cloth with mild cleaning agents to clean the device without excessive pressure

Disinfection

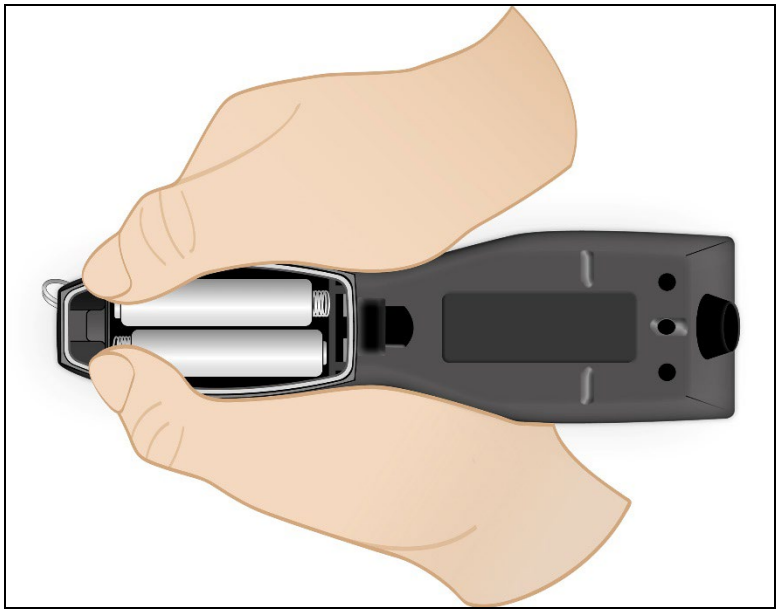
Please use only an impregnated disposable cloth with Isopropyl-Alcohol to clean the device without excessive pressure (EN 60601-1) (Check of the permanency of the inscription).

 Keep battery cover closed while cleaning and disinfection. Humidity must not enter the holes of the device.
The electrical contacts inside the device (battery/accumulator) and at the USB port must be clean and dry at all times to ensure that the device will function properly.

 If alcohol has been used for cleaning/disinfection, a waiting time of min. 15 minutes until the next measurement must be maintained!

5.1 Battery

A repeated beep and the status display “Change battery” indicates that the batteries must be replaced. The device switches itself off after 10 seconds. The batteries can be replaced by lightly pressing on the battery compartment opener, which releases the lock and enables the battery compartment cover to be removed. Then the battery block (see figure below) press out with both hands.



The battery compartment holds a battery block with 4x LR6 (AA) alkaline Mignon batteries (Industrial by Duracell recommended). As a general rule, all four batteries should be replaced at the same time. Ensure the polarity of the batteries is correct. The battery block is then reinserted into the case. The battery block connections (arrow) must face towards the device and be on top as shown in the following image. The battery compartment cover can now be closed again.

Do not insert rechargeable batteries of the same size (LR6, AA) in the battery block! The battery capacity bar display on the screen will give incorrect values and device malfunctions can occur.

5.2 Accumulator and charging adaptor

A rechargeable battery pack and a charging station are available as optional accessories.
The signals and switch-off process for a empty accumulator are the same as that for a regular battery.

The charger AN-IS-2001-003 (P/N 1001923) is intended to be used only to charge the build-in rechargeable NiMh battery pack (P/N 1001871, 2100mAh, 4.8V) in the breathalyzer device AlcoQuant®6020 plus (P/N 1001779 and P/N 1001940). Do not use the charger on any other battery packs or devices!

5.2.1 Charging

The rechargeable batteries can be recharged within the device, using the special charging adaptor. The charging adaptor is connected to the device via the data interface connector.

While charging, the device will not be able to make any measurements. A toggling battery symbol will indicate that charging is in progress and the device will switch off after some seconds.

The charging time is around 4 hours, depending on the ambient temperature and initial battery charge level.
If the rechargeable batteries are too empty to operate the device, a charging time of approx. 15 minutes will be sufficient to perform several measurements.

When the battery pack is fully charged, the charger will switch to trickle mode. Therefore the device can remain connected to the charger without danger of overcharging the battery pack.

5.2.2 Function indicators on the charger

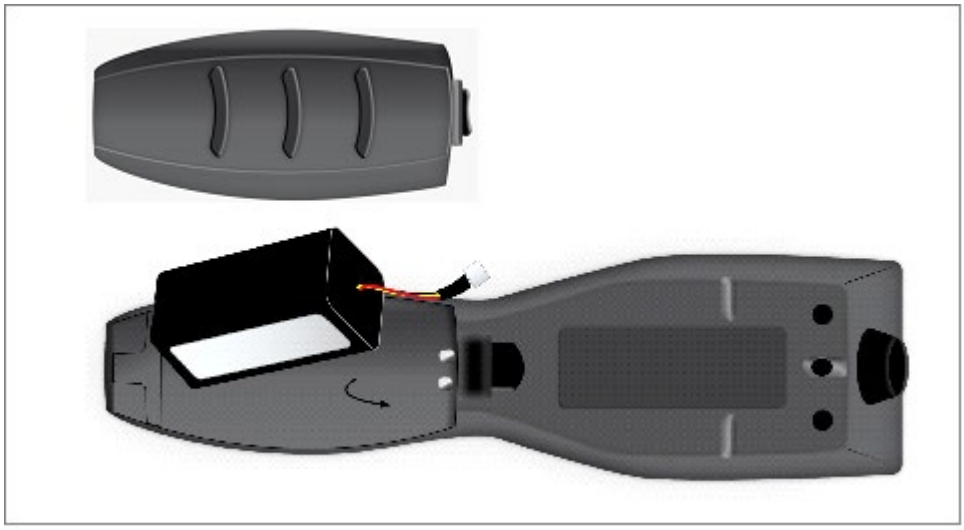
LED off – no device connected
LED green flashing – charging in progress
LED green on – charging finished
LED red flashing – Error

5.2.3 Charging with car adaptor

It’s possible to use the charging adaptor with the 12V car adaptor cable. Connect the charger to permanent 12V supply if available. If only ignition switched 12V are available avoid frequent on/off cycles while charging and disconnect device after finishing the charging process.

5.2.4 Replacing the accumulator

To replace the accumulator, the cover must be removed and the accumulator cable disconnected. The accumulator compartment holds a block of 4x Honeywell Healthcare Solutions GmbH Nickel-Metallhydride rechargeable batteries (NiMH) 4.8 V (4x 2100 mAh). The entire accumulator block must be replaced. The battery block is then reinserted into the case, the accumulator cable connected and the cover closed again.



Disposing of the device, alcohol sensor, battery/accumulator

Do not dispose of the device and alcohol sensor as household waste. Please return all of them to Honeywell Healthcare Solutions GmbH clearly labelled "ENTSORGUNG (Please dispose of)".

The batteries/rechargeable batteries must be disposed of in accordance with the European Battery Directive (EU 91/157/EEC) as special waste.

Honeywell Healthcare Solutions GmbH
Alter Holzhafen 18
23966 Wismar, Germany

Do not throw batteries into fire or force them open. Risk of explosion!

6 Error messages and removal of errors

Each device error is signalised acoustically by a short dual signal and optically either by the yellow LED (error that does not impair measurement) or by the red LED (error impairing measurement). It leads to a corresponding error message on the display.
This error message must be confirmed by briefly pressing >OK<.

Phase	Display on device	Result	LED signals	Cause/solution
Operation	***ERROR 000 - ERROR 100***	Device switches off after confir-mation	RED	Replace batteries; if problem persists the device is faulty. Contact service.
Operation	***Error C001 - C100***	Error sound Return to menu	RED	Error in program sequence Update required. Contact service.
Switching on	**Error Calibration**	Confirm with key	RED, then blinks permanently	Device must be recalibrated. No measurements are possible. Contact service.
Switching on	**Error Buzzer**	Confirm with key	YELLOW	Buzzer defective. Measurements are still possible. Contact service, if necessary.
Switching on	**Error Temperature**	Confirm with key	YELLOW	Device temperature is outside of the permitted temperature range. Warm or cool the device accordingly.
Switching on	**Error LED**	Confirm with key	YELLOW	The red, green and/or yellow LED is faulty. Measurements are still possible. Contact service.
Switching on	**Error Hardware**	Confirm with key	RED, remains on permanently	Replace batteries; if problem persists the device is faulty. No measurements are possible. Contact service.
Switching on	**Calibration expired**	Confirm with key	YELLOW	Calibration period expired. Device must be recalibrated. Measurements still possible, but level of accuracy cannot be guaranteed. Contact service.

Phase	Display on device	Result	LED signals	Cause/solution
Switching on	**Error Calibration**	Confirm with key	RED	Device must be recalibrated. No measurements are possible. Contact service.
Measurement	**Error sound Return to menu**	Error sound Return to menu	RED, remains on permanently or RED flashes	Errors prevent measurement readiness. No measurements are possible. Contact service.
Measurement	**Error Sampling system**			The sampling system cannot be set into initial position. Replace batteries; if problem persists the device is faulty. Contact service.
Measurement	**Residual concen-tration too high**	Error sound Return to menu	RED	High concentration of alcohol from previous measurement or alcohol residue and moisture in the blow-in tract. Wait for a few minutes. Blow through/dry the device with a new mouthpiece. Replace mouthpiece after every measurement.
Measurement	**Blow-in error**	Automatically returns to measurement readiness	RED	Blow-in was too strong or too weak. Blow into the device slowly and constantly until the acoustic beep stops.
Measurement	**Error Sampling system**	No measurement value is displayed	RED	Sampling system not in nominal position after measurement. Hold the device still during the sampling system and analysis. Replace batteries; if problem persists the device is faulty. Contact service.
Measurement	**Error Temperature**	No measurement value is displayed	YELLOW	The device temperature was not within the permitted range at the time of analysis.

Phase	Display on device	Result	LED signals	Cause/solution
Measurement	**Warning Memory full**	Confirm with key	YELLOW	The measurement memory is 100% full. The oldest measurements are overwritten from now on (ring memory). Download data with PC software and/or delete old measurements.
Measurement / Printer Test	**Connecting Printer**	Printout does not start	YELLOW Flashing	(Option Wireless) The wireless module of AlcoQuant 6020 plus tries to establish a connection to the printer. If the connection attempt takes more than a few seconds, check >Printer Setup< to confirm that the Connection ID corresponds with the Connection ID of the used printer. While printing, move device closer to the printer.
Measurement	**Error Printing**	Printout does not start	YELLOW	(Option Wireless) The wireless module of the AlcoQuant 6020 plus can not establish or has lost the connection to the printer. Check >Printer Setup< to confirm that the Connection ID corresponds with the Connection ID of the used printer.
Printer Test	**Error Wireless Module**	Printout does not start	RED	(Option Wireless) The built in wireless module of AlcoQuant 6020 plus is not accessible. Restart device. If error persists, contact service.
Printer Test	**No Connection**	Printout does not start	YELLOW	(Option Wireless) The wireless module of the AlcoQuant 6020 plus cannot establish or has lost the connection to the printer. Check >Printer Setup< to confirm that the Connection ID corresponds with the Connection ID of the used printer.

				Move AlcoQuant 6020 plus closer to the printer. Check, if the used printer has wireless printing capability at all. Set >Printer Setup< to >Cable< and have a test printout, to check if there is a general printing problem.

Operation	**PC icon**			PC connection active No measurements are possible.
Operation	**Battery icon with continuous bars**			Charging adapter connected. No measurements are possible.
Operation	**Device switches off automatically after a certain period of time**			The device switches itself off automatically after 2 minutes of non-activity to save energy. The auto-off function is configurable in the Setting menu.
Operation	**Battery icon blinks and cyclical warning tone**			The battery voltage is very low. The batteries/accumulator must be replaced/recharged as soon as possible. Measurements are still possible.
Operation	**Battery empty**	Device beeps and switches off after a short period of time.	RED flashes	The battery voltage is too low. Device switches off. Replace/charge the batteries/accumulator.

7 Technical specifications

Measurement mode	:	active and passive
Measuring range	:	0 to 5.5 ‰ BAC*
Measuring accuracy	:	Max. error tolerance in temperature range from -5°C to 45°C
• Range 0 to 1 ‰	:	± 0.05 ‰ absolute
• Range > 1 to 2 ‰	:	± 5% of measurement value
• Range > 2 ‰	:	± 10% of measurement value
		Reproducibility with ethanol standard in temperature range from -5°C to 45°C
• Range 0 to 1 ‰		0,017 ‰
• Range ≥ 1 ‰		1,7 % of measurement volume, the higher volume is valid
Ambient conditions		
• Operating temperature range	:	-10°C to +50°C
• Storage temperature range	:	-25°C to +70°C
• Storage temperature (sensor)	:	0°C to +25°C, optimal
• Ambient pressure	:	600 to 1400 hPa
• Ambient humidity	:	20 to 98% rel. humidity
• Minimum exhalation volume	:	1.2 litres
Batteries or accumulator (optional)	:	4x LR6 (AA) alkaline Mignon batteries (Industrial by Duracell recommended) or Honeywell Healthcare Solutions GmbH -Akku NiMH 4.8V (4 x 2100 mAh)
Charging station (optional)	:	protection class II Input: AC 100–240 V/50–60 Hz/93 mA Output: DC 5.6 V/500 mA/2.8 VA
Charging time	:	approx. 4 hours
Measurements per battery pack/accumulator charging	:	approx. 2000 measurements, depending on the batteries and the ambient conditions
Device interface	:	USB and RS-232 interface Data can be transmitted to a PC.
		Part no. 1002249 and 1002251: Wireless interface (IEEE 802.15.1) for usage with wireless printer (part no. 1002255).

Dimensions (L x W x H)	:	195 mm x 60 mm x 47 mm
Weight	:	275 g incl. batteries
Protection class	:	IP54
Impact resistance	:	IK 03

*AlcoQuant 6020plus measures breath alcohol concentrations. The blood alcohol concentrations (BAC) have been calculated using a conversion factor of 1:2100 (Germany) in the device. It should be noted, that the conversion factor may varies by country.

Other specifications

Ready for measurement after switching on	:	approx. 6 s
Measurement readiness after 0 ‰ measurement:	:	approx. 2 s
Measurement readiness after 1 ‰ measurement:	:	approx. 5 s
Sensor type	:	electrochemical measurement cell E100
Cross-sensitivities	:	substances present in breath, such as acetone, are negligible
Units	:	user-configurable: ‰, mg/l (further units available upon request)
Input	:	dial operation
Energy conservation mode	:	automatic device switch-off and deactivation of the background lighting can be set in the >Auto off< menu.
Display	:	backlit, fully graphic
Memory	:	storage of 9999 measurement values with date and time
Mouthpieces	:	single-use Honeywell Healthcare Solutions GmbH mouthpiece (type S or D)
Software	:	PC software for statistical analysis, data transfer and logging
Calibration	:	every 6 months
Standards	:	DIN EN 15964
Declaration of conformity	:	Please see CD Instructions for use AlcoQuant 6020 plus

Subject to technical changes!

8 Warranty

As of the purchase date, Honeywell Healthcare Solutions GmbH offers a two year warranty for faults arising from material or manufacturing defects. Excepted from this is the battery (see the General Terms of Business).

Faults that are covered by warranty will be corrected within the framework of our warranty conditions. Honeywell Healthcare Solutions GmbH offers no warranty if the operator endangers the functioning of the device through failure to heed the operating manual and technical documentation, inappropriate handling, improper use or unauthorized modifications or repair attempts. The warranty expires if the device is affected by chemicals owing to leaking batteries or if batteries are used after their date of expiry. In these cases, the liability is transferred to the operator!

Transport to customer service and back for repairs not covered under warranty takes place at the customer's expense.

Please contact your dealer if you wish to make a warranty claim!

To return the unit directly to Honeywell Healthcare Solutions GmbH under the warranty, you will need an RMA (Return Material Authorization) number (please always state this number in all of your correspondence!)

through our website, www.envitec.com, under Service / Returns.
Once you have obtained this number, please send the unit along with all accessories to the following address:

Honeywell Healthcare Solutions GmbH
Service
Alter Holzhafen 18
D-23966 Wismar
Germany

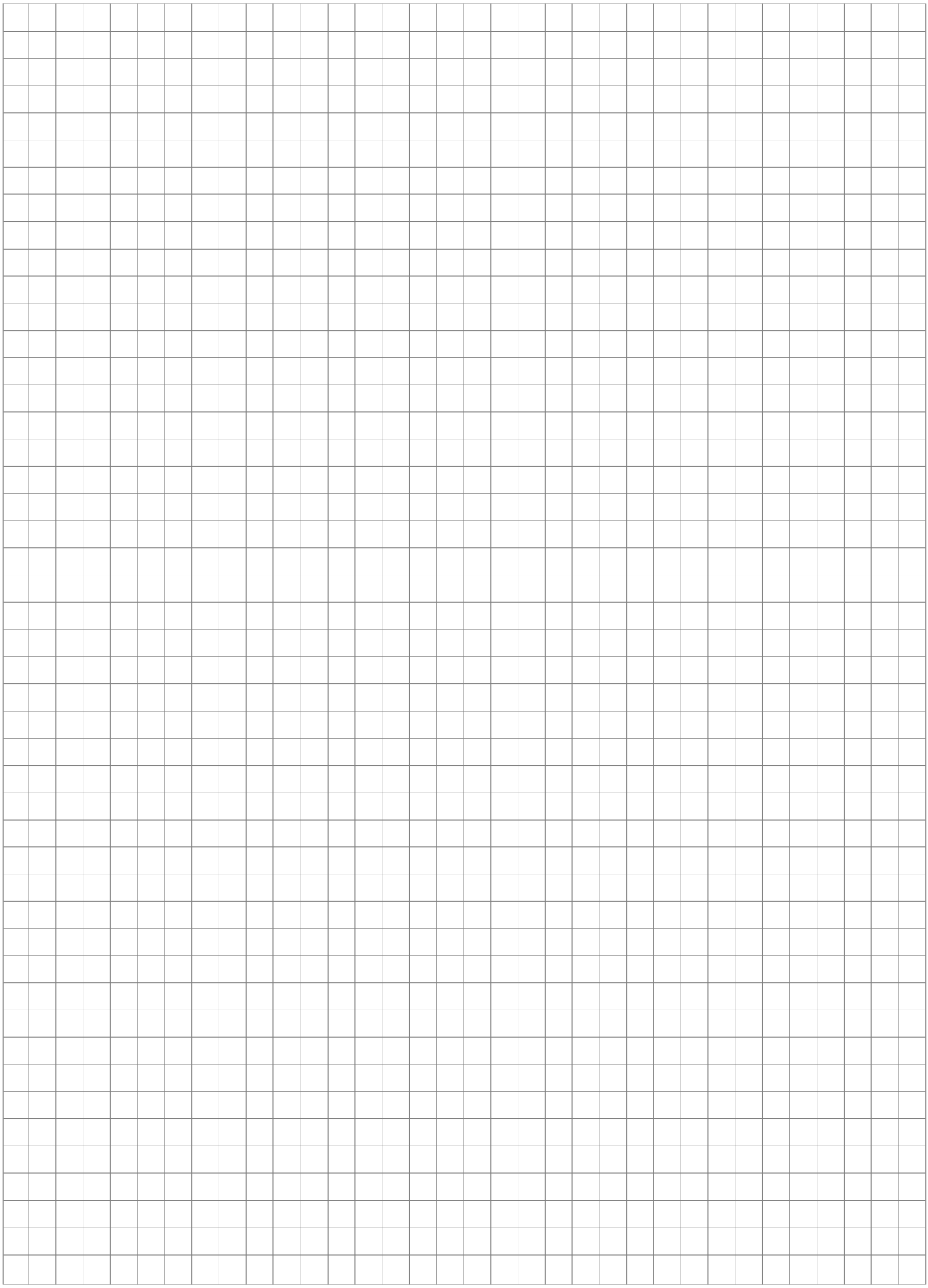
envitec-service@honeywell.com

Warranty claims are only accepted on presentation of the purchase receipt!

9 Order information

AlcoQuant® 6020 plus – complete alcohol breathalyser	Order no.
AlcoQuant® 6020 plus, battery version (case, 4x R6/AA batteries, 25 mouthpieces, operating manual)	E1001779
AlcoQuant® 6020 plus, accumulator version (case, 4x 2.1 Ah rechargeable batteries, 25 mouthpieces, operating manual)	E1001940
AlcoQuant 6020 plus, wireless printer Interface, battery version (case, batteries 4 x R6/AA, 25 mouthpieces, operating manual)	E1002249
AlcoQuant 6020 plus, wireless printer interface, accumulator version (carry case, batteries 4 x R6/AA, 25 mouthpieces operating manual)	E1002251
Mouthpieces	**Order no.**
Mouthpiece, S type (25 pcs)	E31-30-0022
Mouthpiece, D type (25 pcs)	E31-30-0024
Accessories	**Order no.**
Mobile printer, thermal	E1002012
Mobile printer, thermal, wireless	E1002255
Paper for thermal printer, 10 years permanent (5 rolls)	E1002033
AlcoQuant® 6020 plus accumulator, NiMh 4x 2.1Ah	E1001871
AlcoQuant® 6020 plus charger with car adapter	E1001923
Transport case, Alco 60XX	E1000644
System case	E31-30-0007
"Datamanager Alco 60XX" PC software	E1000520
AlcoQuant® 6020 plus USB Type A PC cable	E1001843
Alco 60XX RS-232 PC cable	E1000519
Case for Alco 60XX, yellow (soft case)	E1001105

Notes



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