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Ovahygi Neo

User Manual

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Introduction

Ovahygi Neo is a portable luminometer for ATP sampling surface hygiene measurements. What makes the Ovahygi Neo special is its wireless *Bluetooth*® Low Energy data transfer and seamless operation with Ova mobile app. Ovahygi Neo uses Hygiena UltraSnap swabs. Ovahygi Neo is fast, it analyzes the sample in less than 40 seconds including the self-calibration time. This enables quick feedback on the effectiveness of any cleaning work.

Use

Ovahygi Neo can be used as a stand-alone measuring instrument, but it can also be used together with Ova mobile app and Ovaport web service. When used together with them, all results are wirelessly transferred to the cloud. Ova mobile app can be installed on both iOS and Android mobile devices.

Surface hygiene sampling consists of two phases: **sampling** and **analyzing** with Ovahygi instrument.

Sampling

1. Take the required number of UltraSnap swabs from the cold storage into room temperature, and let them temper at least 15 minutes. **The swab must be room temperature when used**.
2. Pull the swab out of its protective tube. Be careful not to touch the swab with your fingers.
3. Collect the sample by wiping the surface thoroughly with the swab over an area of about 10 x 10 cm. Keep the swab almost parallel with the surface when wiping. Rotate the swab in your fingers when wiping to evenly deposit the swab with the sample. **Always repeat this phase as identically as possible**.
4. Immediately insert the swab back into the protective tube.
5. **Do not break the reagent container's seal just yet.** The sample can be stored in this state for 4 hours.

Analyzing with Ovahygi Neo

6. Press the power button. The device performs self-calibration for 10-20 seconds.
7. Meanwhile, break the reagent container's seal by twisting the valve back and forth.
8. Squeeze the reagent container 2-3 times to force all the liquid down to the protective tube.
9. Gently shake the swab for 5-10 seconds to properly soak the sample with the reagent.
10. The sample has now been activated and you have no more than **60 seconds** to analyze it.
11. Open the lid by grabbing the Ovahygi as illustrated and snap it open with your thumb. Insert the swab all the way.
12. Hold the device upright and close the lid. Analysis starts immediately.
13. Wait for 10-20 seconds for the analysis to complete. The display shows the progress.
14. The result is shown on the display. The same result is also displayed in Ovaterm, if used.
15. Open the lid and **remove the swab**. It can be disposed of in normal household waste.
16. **Close the lid**.

Representation of the result

Ovahygi Neo has a two-digit LED display that can show results between 0 and 99 directly. Results 100 and higher are shown as follows:

Result	Ovahygi display
1	1
99	99

100-199	1_
900-999	9_
1000-1999	1-
9000-9999	9-
10000-19999	1‾
90000-99999	9‾

Results 100–900 are displayed in such a way, that the left digit shows hundreds and the right digit shows horizontal line in the bottom segment. Results 1000–9000 are displayed in such a way, that the left digit shows thousands and the right digit shows horizontal line in the middle segment. Results 10000–90000 are displayed in such a way, that the left digit shows tens of thousands and the right digit shows horizontal line in the top segment. For example 3 and the low segment indicates result 300, whereas 7 and the middle segment indicates result 7000.

Ova mobile app shows all results directly as a number with full resolution. The result is also transferred, stored and shown in full resolution in Ovaport web service.

Interpreting the results

The result is a pure number, but the unit RLU (Relative Light Unit) is often used. This number is proportional to the total amount of **ATP** (Adenosine triphosphate) contained in the collected sample. Result of **0 RLU** means that the amount of ATP in the collected sample is lower than what can be detected with this method. The sample could still contain traces of ATP. Result of **1 RLU** means the smallest detectable amount of ATP. Result of **10 RLU** means there is 10 times as much ATP and so on.

The following table gives guideline limits for different surfaces and purposes. Final acceptance limits must always be determined for the specific surface and purpose.

Surface / purpose	Good surface hygiene	Acceptable surface hygiene	Unacceptable surface hygiene
Clean glazed tile or metal surfaces in sanitary spaces	**< 40 RLU**	**40–60 RLU**	**> 60 RLU**
Clean patient and instrument spaces in hospitals. Washed worktops, lines, conveyors and pipes in industry. Washed chopping boards and kitchen equipment.	**< 20 RLU**	**20–40 RLU**	**> 40 RLU**
Clean hospital instruments and equipment. Dish washing machines and hospital washing machines. Critical points and equipment in the industry, such as nozzles and valves that come into contact with the product.	**< 10 RLU**	**10–20 RLU**	**> 20 RLU**

The use together with Ova mobile app

Ovahygi Neo is designed to be used together with Ova mobile app and with the Ovaport web service. This chapter summarizes the steps needed to get started.

Add new Unit and Usage

1. Log in to Ovaport service with administrative credentials.
2. Open the **Settings** page and then select the **Usage types** tab.
3. Click **Add unit**.
4. Type in **RLU** and click **Add**.
5. Click **Add usage**.
6. Type in a name for the usage type, for example **Worktop**.
7. Select the unit **RLU** from the dropdown list.
8. Select **0** decimals from the dropdown list.
9. Set desired High limit, for example **40**.
10. Leave the Low limit blank.
11. Click **Add**.

Add new Measuring point

12. Select the **Measuring points** tab.
13. Click **Add measuring point**.
14. Select the desired Target, type in a number or position and a name for the measuring point.
15. Select Measuring type **Sample** from the dropdown list.
16. Type in a descriptive name for the measurement channel. The channel represents the actual spot or surface where the sample is to be taken from.
17. Set Transm. ID to **0**.
18. Select the usage type created earlier, from the dropdown list.
19. Give all the other information that is needed.
20. Click **Add**.
21. application you just added will appear in the Ovaterm's main menu.

Measuring with Ova mobile application

22. Start the Ova app and select the Surface hygiene sample application from the main menu.
23. Select the measuring point and channel where you are taking the sample from. The quickest way to accomplish this is to read a measuring point barcode or QR code with the camera. Tap the camera icon to start the code reader.
24. Perform the sampling and analyzing as instructed in chapter Use.
25. Ova app shows the progress and instructions during Ovahygi Neo operating procedure.
26. When the analysis is complete the result is shown in full resolution on the Ova app. At this point you can either save the result or reject it and start over.
27. The measurement is complete. Ovahygi Neo and Ova app is ready for the next measurement.

Maintenance

Ovahygi Neo is a delicate instrument that must be handled with care. It must not get wet, hit hard or be dropped. Even though the enclosure is very durable, the delicate internal electronics can still be damaged upon impact. If there's reason to suspect that the device has been damaged, it should be sent to the manufacturer for inspection and verification of proper operation.

Replacing the battery

Ovahygi Neo works with one AA size 1.5 V alkaline cell. It is not user replaceable. The battery should be replaced every three years. If the battery gets depleted earlier, send the Ovahygi to service. When the battery needs replacing, the display shows error code **E.1**.

Storage and cleaning

Ovahygi Neo must be kept clean and stored protected from dust, dirt and direct sunlight. Store the device in steady room temperature, protected from temperature extremes. Water must not be used for cleaning the device. Regularly clean the outer surfaces of the device by wiping it with a soft, dry lint-free cloth.

Error codes

Code	Reason	Corrective action
E.1	Battery depleted	Send the device to service.
E.2	Memory error	Restart the device. If the error persists, send the device to service.
E.3	Temperature	Measurements must be made in steady room temperature (20…30°C). Avoid warming the device with your hand or in the pocket prior to use.
E.4	Zero error	Check that the lid closes seamlessly. Try to measure in a place with lower ambient light level. If the device has accumulated moisture, let it dry in a well ventilated space with the lid open. Send the device to service.
E.5	Attitude	Hold the device steady and upright during the measurement.
E.6	Unstable	See E.4
E.7	Over range	See E.4
E.8	Interrupted	Do not open the lid or press the power button during analysis, unless you want to interrupt it. If this error repeats without proper cause, send the device to service.

Specifications

Environment

Storage temperature	+5…+40 °C
Operating temperature	+20...+30 °C
Relative air humidity	5-95 %, non-condensing
Protection class	IP20

Dimensions

Weight	Approx. 190 g, not including swab
Outer dimensions	Width 47 mm Height 198 mm Depth 27 mm

Measuring method

Description	Luminometry based on a photodiode.
Measuring time	approx. 15 seconds
Measurement unit	RLU (Relative Light Unit, where 1 RLU is roughly equivalent to 1 fmol ATP)
Display resolution	1 RLU
Measuring range	0…99999 RLU
Measuring noise	±5 RLU
Measuring accuracy	±20% ± 5 RLU

Sampling method

Single-use swab	Hygiena UltraSnap ATP surface hygiene sampling swab

Power source

Internal battery	1.5 V type LR6 (AA) alkaline cell, ”heavy-duty”.
Typical life span	3 years in normal use. Not user replaceable. Replaced in the periodic maintenance.

User interface

Display	Two-digit 7-segment-LED
Power button	Tactile silicone rubber switch

Internal radio transmitter

Type	Bluetooth® Low Energy, version 4.1
Antenna	Internal chip antenna
Compatible software	Nokeval Ova mobile application

Conformity

CE marked	
Standards	EN 61326, ETSI EN 300 328, ETSI EN 301 489

Warnings

Read this manual carefully before operating the instrument.

Warning! This device contains a Bluetooth® Low Energy radio device operating in the 2.4GHz license-free ISM band. Observe local regulations concerning the use of such radio transmitters. Never start or use this device near explosion hazard areas or in areas where the use of radio transmitters has been limited, such as in airplanes, near medical instruments, near flammable liquids or chemicals or near explosion work sites.

- **Do not drop, shock or immerse the device**
- **Never insert a swab without its protective tube**
- **Never leave the swab inside the device after use**
- **Do not use dry swabs**
- **Do not use swabs after their use by date**
- **Store the swabs in +2…+8°C temperature, protected from light**
- **The swabs can be stored up to 4 weeks in room temperature before use**
- **Light, especially sunlight, quickly destroys the swabs**

The device must not be disposed of in household waste. Observe local regulations concerning the disposal of electrical waste. The device contains a battery.

Only Nokeval Oy and its authorized distributors can open or service the unit. The device contains no user serviceable parts.

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