



# Ovasense Neo Series

## User Manual

# Introduction

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Nokeval **Ovasense Neo** series measuring instruments are *Bluetooth*<sup>®</sup> Low Energy compatible devices designed to be used together with Nokeval Ova<sup>®</sup> mobile application and Ovaport service.

Ovasense Neo product family includes the following models:

**Ovasense Neo:** thermometer equipped with an 80 mm long, 2 mm diameter stainless-steel probe with a sharp needle tip. This model is intended for measuring the **internal temperature** of soft, penetrable products like food.

**Ovasense IR Neo:** non-contact thermometer equipped with an infrared (IR) sensor. This model is intended for measuring the **surface temperature** of objects without touching them.

## Use

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### Preparations

1. Download and install Nokeval Ova mobile application on your mobile device from Apple App Store or Google Play Store.
2. Ensure that Bluetooth is turned on in your mobile device and that you give all requested permissions to the Ova mobile application.
3. Log in to the Ova mobile application (Ova app) with your Ova / Ovaport user account.

### Measuring

1. Start Temperature measuring function within the Ova app. You are instructed to turn on the measuring device.
2. Turn on the device by briefly pressing its power button.
3. Blue LED light on the device starts blinking in bursts of two blinks. This means the device is searching for a connection. Move the Ovasense Neo close to the mobile device. Ovasense Neo connects to the closest mobile device it detects.
4. When Ovasense Neo and the Ova app have connected, the blue LED blinks steadily and the measuring result updates on the Ova app display continuously. Note that the Ovasense Neo will turn off automatically after 3 minutes. If this happens, restart and reconnect the device by pressing its power button again.
5. Start measuring. Refer to model specific measuring instructions on the next page.
6. When the reading on the Ova app display has stabilized, press the power button on the Ovasense Neo or tap the round trigger button on the Ova app display below the reading. The measurement reading is locked.
7. At this phase, you can reject the result by tapping the grey button with a cross symbol. If you do this, the Ovasense Neo automatically resumes operation. Continue measuring and lock the reading again when ready.

8. Save the measuring results by tapping the **Save** button on the Ova app display.



# Measuring with Ovasense Neo

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**Push** the sensor probe carefully into the product at least 30 mm deep. Do not use excessive force for example to try to push the probe into a frozen or hard product. Be careful also when penetrating plastic foils or similar surfaces. The sensor probe can be damaged or bent if you use excessive force on it.

**Wait** until the reading has sufficiently stabilized on the Ova app display. You can speed up the measuring process by pushing the probe into the product before turning on the device and connecting it to the app. This way the temperature starts to stabilize even before the readings appear on the display.

**Lock** the measuring result by pressing the power button on the Ovasense Neo or tapping the round trigger button on the Ova app display. Save the result.

# Measuring with Ovasense IR Neo

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**Point** the lens of the IR sensor directly towards the target object. Measuring distance should be between 5 to 20 cm. The smaller the target the closer the distance should be. The distance should be at most 4 times the smallest dimension of the target object. The surface of the target object must be matt or rough in texture, it should not gleam or reflect light. **Shiny or transparent objects cannot be accurately measured.**

**Check** the measuring results on the Ova app display. It should stabilize in seconds. If the result is not what was expected, make sure that the measuring distance is as short as possible. **Measurement error of couple of degrees is possible depending on the surface properties of the target object.**

**Lock** the measuring result by pressing the power button on the Ovasense IR Neo or tapping the round trigger button on the Ova app display. Save the result.

# Maintenance

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Ovasense Neo series devices are delicate measuring instruments that need to be handled with care. Even though the case is made of durable plastics the sensor or internal electronics can be damaged by drops or hard impacts. If there is any suspicion that the device is damaged, send it to be checked and serviced.

## Replacing the battery

Device is powered by one LR03 (AAA) size 1.5 V alkaline battery. The battery is not user replaceable. Annual service and calibration subscription of the device includes the periodic calibration of the sensor and battery replacement. Under normal use and conditions, the battery will last for at least a year. If needed, send the device to service for battery replacement.

## Storage and cleaning

It is important to keep the device and especially the sensor or lens clean. Clean the device using a soft, non-abrasive cloth moistened with a mild detergent solution. Be careful not to scratch the IR sensor's lens. **Do not use any abrasive devices or substances when cleaning.**

# Technical data

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## Ovasense Neo

### Environment

|                      |  |
|----------------------|--|
| Storage conditions   | -40...+60°C, relative humidity 5-95%, non-condensing |
| Operating conditions | -20...+45°C, relative humidity 0-100%                |
| Protection class     | IP65   |

### Dimensions

|                     |                  |
|---------------------|------------------|
| Weight              | ~65g             |
| External dimensions | 224 x 28 x 23 mm |

### Temperature measurement

|                 |   |
|-----------------|---|
| Sensor          | 80 mm x 2 mm hollow stainless-steel probe, Pt100 sensor element inside the tip  |
| Measuring range | -200...+600°C, practical range -50...+200°C   |
| Accuracy        | ±0,5 °C within range -30...+100 °C, when device temperature is +5...+45°C and stable<br>±1 °C withing range -40...+120 °C, when device temperature is +5...+45°C and stable |

## Ovasense IR Neo

### Ympäristö

|                      |  |
|----------------------|--|
| Storage conditions   | -40...+60°C, relative humidity 5-95%, non-condensing |
| Operating conditions | -20...+45°C, relative humidity 5-95%, non-condensing |
| Protection class     | IP65   |

### Dimensions

|                     |                  |
|---------------------|------------------|
| Weight              | ~58 g            |
| External dimensions | 119 x 28 x 23 mm |

### Temperature measurement

|                   |   |
|-------------------|---|
| Sensor            | Gradient compensated thermopile type infrared (IR) sensor with integrated optics  |
| Measuring beam    | 12°   |
| Emissivity factor | 0,95  |
| Measuring range   | -70...+380°C  |
| Accuracy          | ±1 °C within range -20...+100°C, when device temperature is +5...+45°C and stable<br>±2 °C within range -40...+120°C, when device temperature is +5...+45°C and stable<br>Stated accuracies are valid only when the target emissivity is 0,95 |

## All models

### Power source

|                      |   |
|----------------------|---|
| Battery              | 1.5 V type LR03 (AAA) alkaline primary battery, "heavy-duty", not user replaceable                              |
| Typical battery life | 1 year in normal use. Normal use is maximum of 40 measurements per day with one measurement lasting 30 seconds. |

### Radio transmitter

|               |  |
|---------------|--|
| Type          | Bluetooth® Low Energy, version 4.1, internal chip antenna  |
| Compatibility | Ova® and Fredman Pro mobile applications, <b>protocol documentation available from manufacturer upon request</b> |

### Conformity

|           |  |
|-----------|--|
| Standards | EN 61326, ETSI EN 300 328, ETSI EN 301 489 |
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# Warnings

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Read this manual in full before operating the device.



**Warning! The device contains a Bluetooth® Low Energy radio module operating on 2.4 GHz frequency band. Observe local regulations concerning the use of such radio transmitters. Never switch on or operate the device in hazardous areas, or in areas where the use of radio equipment is restricted, such as aircraft, medical equipment, flammable liquids, chemicals, or blasting equipment.**



**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 the manufacturer or an authorized service partner may service or repair the device. The device contains no user serviceable parts.**

# Trademarks

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# Manufacturer

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