

**TECHNICAL MANUAL**  
**BD500**

# TABLE OF CONTENTS

§1 Purpose, principle and algorithm of BD500 operation	page 3
§ 2 Getting the BD500 ready for use	page 4
§ 3 WARNING	page 5
§ 4 Displayed information	page 5
§ 5 Technical data	page 6
§ 5 Specifications	page 6
§ 6 Packing list	page 7
§ 7 Warranty	page 7

# Purpose, principle and algorithm of BD500 operation



The BD500 is intended for measurement of concentration of biological aerosols in rooms with a limited concentration; the basic model has a sensitivity limit of 8 particles per cubic meter, the version for surgical rooms - 4 particles per cubic meter.

The principle of operation is based on the registration of the fluorescence of the amino acid tryptophan as a marker of presence of proteins in aerosols, the excitation radiation wavelength is 280nm, the fluorescence is recorded by a photon counter in a 40nm band with an average wavelength of 357nm.

After turning on the BD500, the device is calibrated for 30 seconds without pumping air through the detection zone, thereafter the fans are turned on and data is accumulated within 5 minutes. In 5 minutes, 25 liters of air pass through the detection zone. Thereafter the calibration-measurement cycles are repeated automatically.

The optical power of the UV LED excitation significantly depends on the temperature of the p-n junction, and after turning on the device, the process of temperature stabilization begins, which takes 90-120 minutes.

Maximum sensitivity and reliability of measurement results is guaranteed after 90-120 minutes of device operation.

## GETTING THE BD500 READY FOR USE

1. Remove the cap that protects the detection channel from contamination during transportation. It is not recommended to turn on the device with the plug installed, since the airflow through the detection channel has an essential role in thermal stabilization.



2. Insert an angled swivel tube, intended to provide additional protection from strong external light and selection of the optimal direction for air intake, into the detector inlet.



3. To selectively register bio aerosols having only the size of viruses, insert cylinder with membrane filter with an average pore size of 200 or 450 nanometers into the free end of the tube.



4. Connect the power cord and turn on the power

# WARNING

1. Use only supplied power card.
2. Open space use only (ventilation purposes).
3. Avoid direct sunlight
4. Do not look into the inlet, marked with UV light warning label (see below).



5. Keep out of reach of children.
6. The BD500 is intended for "clean rooms" measurement of concentration in rooms with a limited concentration of biological aerosols. High concentration above 300000 may contaminate the biodetector and temporarily decrease its sensitivity. Self-cleaning process may take up to several hours depending on contamination level.

# DISPLAYED INFORMATION

1. Information on the display:

The first measurement cycle – accumulation of first data, informational red inscription at the top of the screen





**3. Mechanical**

Width	390mm
Height	105mm
Depth	220mm

**4. Weight**

Without packaging	5,5 kg
With packaging	10.0 kg

**5.**

<b>RoHS</b> conformity	Yes
------------------------	-----

## PACKING LIST

Whole unit: 1 pc

Power cord: 1 pc

Angled swivel tube: 1 pc

Cylinder with membrane filter: 1pc (optional)

User manual: 1pc

Transportation case: 1pc

## WARRANTY

1. IKO Science warrants the product to be free from any defects for a period of 8500 (eight thousand five hundred) operating hours and/or 12 (twelve) months, whichever occurs earlier, from the date of purchase.
2. The guarantee shall not apply if the product is used the way, undefined by the manufacturer and/or if any of the following occur: damage to the seal, mechanical damage, unauthorized disassembly, repair or modifications.
3. Only accessories, being part of the product, are allowed to be used during operation. End user is not allowed to change the type of the power cord.
4. The repair method shall be determined by the guarantor.

# MANUFACTURER



## **IKO Science OÜ**

Laki 26, 12915 Tallinn, Estonia

[www.ikoscience.ee](http://www.ikoscience.ee)

Email: [info@ikoscience.ee](mailto:info@ikoscience.ee)