Grant bio

UV-cabinet – DNA/RNA
UVT-B-AR

Operating instructions

For versions: V.3GB
V.3GD

Contents

1. Safety

The following symbols mean:

Caution: Read these operating instructions fully before use and pay particular attention to sections containing this symbols.

Caution: Do not work in the box or open the front protective screen while the open UV-lamp is switched ON. Otherwise it can expose the operator to a dangerous level of UV light.

GENERAL SAFETY

- Use only as specified in the operating instructions provided.
- The unit should not be used if dropped or damaged.
- After transport or storage allow the unit to dry out (2-3 hrs) before connecting to the mains.
- Before using any cleaning or decontamination method except those recommended by the manufacturer, check with the manufacturer that the proposed method will not damage the equipment.
- Do not attempt to modify the unit.

ELECTRICAL SAFETY

- Connect only to the mains with a voltage corresponding to that on the serial number label.
- Ensure that the switches and plug are easily accessible during use.
- Do not plug the unit into the main outlet without grounding, and do not use extension lead without grounding.
- Before moving the unit, disconnect the power plug from the mains outlet.
- If liquid is spilled inside the unit, disconnect it from the mains and have it checked by a competent person.

DURING OPERATION

Do not operate the unit in environments with aggressive or explosive chemical mixtures.

- Do not operate the unit if you think it may have been incorrectly installed or repaired.
- For indoor use only.
- Do not use outside laboratory rooms.
- Do not work in the box while the open UV-lamp is switched ON.

BIOLOGICAL SAFETY

It is the user's responsibility to carry out appropriate decontamination if hazardous material is spilt on or inside the equipment.

2. General Information

UV-cabinet – DNA/RNA, the UVT-B-AR is designed for operation in laboratories working in the fields of DNA analysis, genetic engineering and molecular biology.

The front panel with protective screen, that can be raised to one of three positions, are made of special glass coated with protective film. Side panels are made of steel and coated with powdered enamel; on the top the side panels are mutually connected by means of lateral steel square pipes coated with powdered enamel. The working surface and rear panel are made of stainless steel, they are fixed to the side panels. Located on the rear panel there is an additional mains outlet for connection of equipment situated inside the box; opposite this place on the external side there is located a housing with the mains switch and intermediate connector for connection of the upper unit to mains. On the top there is located a block, which has a front panel with switches and a digital timer for control of open UV lamp radiation duration. On its base there are located the flow UV recirculator with the UV lamp 25 W, the day light luminescent lamp 15 W for lighting of the working surface and the open UV lamp 25 W for disinfection of the work surface. DNA/RNA amplicons are inactivated within 15-30 min of irradiation with the open UV lamp.

UV-recirculator consists of a UV lamp, fan and dust filters organized in a special box, i.e. a person working in the UVT-B-AR is not exposed to UV-radiation and therefore processing the airflow with UV-light can be performed practically all the time, without interrupting working process. UV-recirculator increases the density of UV-light to maximum (1000 x fold) leading sufficiently to effectivity of DNA inactivation. UV-recirculator generates 100 Volumes of the cabinet per 1 hour air flow exchange giving maximum aseptic conditions inside the Box.

Advantages:

- No HEPA filters;
- Ozone free high density UV decontamination;
- Automatic open UV-lamps switch off when the protective screen is open;
- Long living UV lamps (8000 hr average);
- Low noise and energy consumption;
- Compact “bench top” model for personal labs;
- UV-recirculator;
- Optional table with drawer T-4 (on request).

According to a microbiological investigation further information available, please enquire, UV-cabinet – DNA/RNA, UVT-B-AR has shown a high level biosafety and effectiveness (1-3 CFU/ Box volume on the standard LB agar plate after 1 hr petri plate exposure).

UV-cabinet is not recommended for work with dangerous infectious and viral materials.

3. Getting started

3.1. Unpacking

Remove packaging carefully and retain for future shipment or storage of the unit.

Caution! Due to its size and weight (31.2 kg) the unit requires two people to lift or move it.

3.2. Complete set

The unit set includes:

Standard set

- UV-cabinet – DNA/RNA, UVT-B-AR .....1 pce.
- Spare dust filters.....2 pcs.
- Spare fuse (inside the fuse holder) .....1 pce.
- Power cord .....1 pce.
- Operating instructions, Declaration of conformity .....1 copy

Optional accessories

- Moving table for UV-cabinet T-4.....on request

T-4

3.3. Set up

- For moving table T-4: carefully unpack the table and assemble it using as a giude the enclosed assembling scheme;
- Place UV-cabinet on a stable surface. Ensure that the unit is placed on a solid, level surface (not less than 720x550 mm), which is able to support weight (31.2 kg), for instance T-4. Place UV-cleaner box upon surface;
- Position the unit so that there is easy access to the power switches and mains plug.

4. Operation of UVT-B-AR

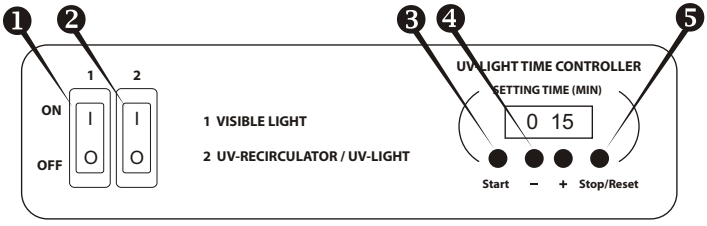

Fig.1. Control Panel

4.1. Plug the power cord to the grounded mains outlet. Switch ON the **Power** switch at the rear panel (position I).

4.1.1. Check the cable connections strength of the control block and the intermediate mains cord.

4.2. UV-exposition of the working place.

Caution! Do not work in the box or opened the protective front screen while the open UV-lamp is switched ON. Otherwise it can expose the operator to a dangerous level of UV light.

4.2.1. Turn ON **switch 2** (Fig.1/❷). This automatically turns on the UV-recirculator with the hidden UV-lamp and activates the timer of open UV-lamp. The UV-recirculator will operate all the time until **switch 2** is turned OFF.

Note! Open UV-lamp operation can be checked with the visible light off (**switch 1** is OFF). Use the indicator in the center of the recirculator cover to check the operation of the UV lamp inside the recirculator. If the indicator is lit from the inside while **switch 2** is ON, then the UV lamp is functioning.

4.2.2. Use the timer keys **+** and **-** (Fig.1/❹) to set the time (UV-LIGHT TIME CONTROLLER) of direct UV light exposure of the working place:

(+) to increase exposure time (step 1 min);

(-) to decrease exposure time (step 1 min).

If the key is pressed more than 2 sec the increment becomes bigger.

Recommended time of exposition 15-20 min.

4.2.3. Press the **Start** key (Fig.1/❸), the open UV lamp automatically will be turned on and timer starts counting up the exposure time. Timer indicator shows actual time: until 1 hour - in minutes and seconds (min:sec), after 1 hour - in hours and minutes (hh:mm).

After reaching the set time the timer will automatically turn off the open UV-lamp.

4.2.4. The open UV-lamp can be switched off by pressing **Stop/Reset** key (Fig.1/❺). The set time of exposition is preserved in the memory. The set time won't be preserved after the complete switching off the UV-cleaner box.

4.2.5. If the set time of direct UV light exposition is 0:00, pressing the **Start** key unit operates continuously during 24 hrs or until the **Stop/Reset** key is pressed.

UV-cleaner box is ready for use.

4.3. Work in the Box.

Note! Opening the front protective screen automatically shuts off the open UV light, but the timer continues counting up exposure time.

4.3.1. Turn ON **switch 1** (Fig.1/❶) for lighting of the working place (this turns ON the Luminescent (Visible light) lamp).

4.3.2. Open the front protective screen up for work in the box.

4.3.3. After the task is done close the front protective screen.

4.3.4. At the end of operation turn OFF **switch 2** and **switch 1**.

4.4. Turn OFF the unit with the **Power** switch (position O) and disconnect the power plug from the mains outlet.

5. Specifications

The product is designed for operation indoors in a laboratory at altitudes up to 2000 m, with ambient temperature from +4°C to +40°C and maximum relative humidity 80% for temperatures up to 31°C decreasing linearly to 50% relative humidity at 40°C.

- Direct UV-lamp light .....TUV 25W G13 UV-C
- Radiation type .....Ultraviolet (254 nm), ozone free
- UV-lamp life time .....8000 hrs
- UV-recirculator .....TUV 25W G13 UV-C
- Digital time setting of direct UV-exposure .....1 min - 24 h
- Luminescent (Visible light) lamp.....15W/830 G13
- Glass type.....Euroglass, (Germany)
- Side walls material type.....painted steel
- Optical transmission 95%
- UV protection 96%
- Protection film type .....4 MIL CLEAR
- Thickness of upper front panel .....8 mm
- Thickness of protective front screen .....4 mm
- Working place .....650x475 mm
- Overall size .....690x585x555 mm
- Power outlet inside the unit.....1 piece
- Operating voltage / power consumption .....100–240 V, 50/60 Hz, 67 W
- Weight, not more.....31.2 kg

Consumed power of device connected via internal power socket should not exceed 1000 W for 230 V and 600 W for 120 V.

Optional accessories	Description
T-4	moving table with a drawer and wheel locks, dimensions 800x600x745 mm

Grant is committed to a continuous programme of improvement, specifications may be changed without notice.

6. Guarantee and Service

6.1. Guarantee

When used in laboratory conditions and according to these operating instructions, this product is guaranteed for TWO YEARS against faulty materials or workmanship (excludes UV-lamps and dust filters).

6.2. Service

There are no user-serviceable parts inside the unit. For all maintenance and repairs (exept as defined below) return to our service department in the UK or in other countries, our distributor.

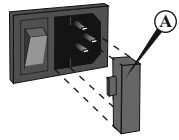

Fig.2 Fuse replacement

6.3. Technical Maintenance

Replacement of fuses. Disconnect the unit from the mains outlet. Remove the power plug from the rear of the unit. Pull out the fuse drawer by applying leverage in recess (Fig.2/A). Remove the fuse from the holder. Check and replace with the correct fuse if necessary (3,15 A for 100–240 V, 50/60 Hz).

Replacement of UV-lamps. Average life time of UV lamps supplied is 8000 hrs. Replacement is necessary after lamp stops functioning or at the end of manufacturer specified life time. Only trained personnel should replace the lamps. Open UV-lamp operation can be checked with the visible light off (switch 1 is OFF). Use the indicator in the center of the recirculator cover to check the operation of the UV lamp inside the recirculator. If the indicator light is lit from the inside while switch 2 is ON, then the UV lamp is functioning.

6.4. **Disinfecting.** For decontamination it is recommended to use:

- 70% Ethanol;
- sodium hypochlorite solution;
- DNA/RNA removing solution (e.g. DNA-Exitus PlusTM, RNase-Exitus PlusTM).

After washing the inside parts of the box it is necessary to rub them dry.

Caution! Do not allow moisture to enter the control box.

6.5. Routine safety tests

If routine tests are to be made, we recommend a test of the integrity of the protective earth conductor and an insulation test at 500 Vdc. Routine flash tests are not recommended for any electrical equipment, because repeated high voltage tests degrade insulation materials.

6.6. Replacement of Dust Filters

The dust filters on either end of the UV-recirculator with the hidden UV-lamp should be checked monthly and cleaned or replaced when they become clogged. To check, replace or clean the filters, simply unclip the covers, if it is necessary fit a new or rinse in water, dry and set up existing filters. Clip covers back in place.

Declaration of Conformity

Equipment name:	**UVT-B-AR**
Type of equipment:	UV-cabinet for PCR operations
Directive:	EMC Directive 2004/108/EC Low Voltage Directive 2006/95/EC
Manufacturer:	SIA BIOSAN Ratsupites 7, build.2, Riga, LV-1067, Latvia
Applied Standards:	**EN 61326-1:** Electrical equipment for measurement, control and laboratory use EMC requirements. General requirements **EN 61010-1:** Safety requirements for electrical equipment for measurement, control and laboratory use. General requirements

We declare that this product conforms to the requirements of the above Directive(s)

Signature

Svetlana Bankovska
Managing director

15.10.2012
Date

Signature

Aleksandr Shevchik
Engineer of R&D

15.10.2012
Date

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