

**Grant bio**

# **UV-cabinet – DNA/RNA UVC/T-M-AR**

*Operating instructions*

*For version V.4GD*



**DOMINIQUE DUTSCHER SAS**

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# 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 control block, 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

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UV-cabinet for PCR operations, the UVC/T-M-AR is designed for operation in laboratories working in the fields of DNA analysis, genetic engineering and molecular biology.

The skeleton, working surface and the rear side are made of stainless steel. The front panel with raising front protective screen, side panels are made of glass coated with protecting film. The front protective screen can be raised to one of three positions. On the rear wall there is located opening with rising cover for connection of equipment to the power supply or power sockets, which will be used inside the box.

Located on the top there is a unit, 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 white light luminescent lamp 15 W for lighting of the work 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 UVC/T-M-AR is not exposed to UV-radiation and therefore processing the air-flow 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 front 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, UVC/T-M-AR, UV-cabinet for PCR operations 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-cleaner box 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 (28.8 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, UVC/T-M-AR ..... 1 pce.
- Spare dust filters ..... 2 pcs.
- A 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 ..... 1 pce.



T-4

## 3.3. Set up

- For moving table T-4: carefully unpack the table and assemble it using as a guide the enclosed assembling scheme;
- Place UV-cabinet upon stable surface. Ensure that the unit is placed on a solid, level surface (not less than 720x550 mm), which is able to support weight (28.8 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 UVC/T-M-AR

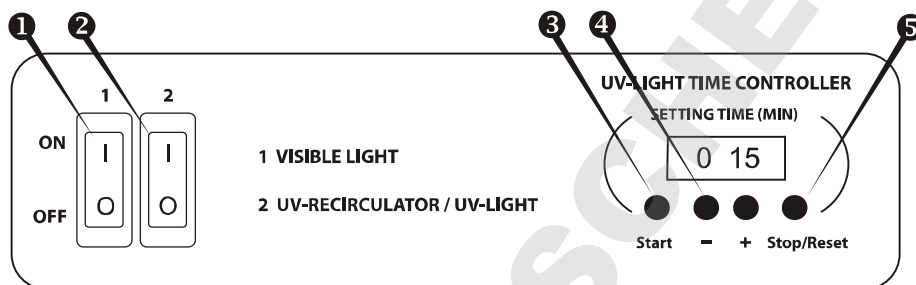


Fig.1. Control Panel

4.1. Connect the power plug to the grounded mains outlet.

4.2. UV-exposure of the working place.



**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.

4.2.1. Turn ON **switch 2** (Fig.1/②). 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.1/④) 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 exposure 15-20 min.

4.2.3. Press the **Start** key (Fig.1/③), 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.1/⑤). The set time of exposure 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 exposure 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.1/①) 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. 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
- Visible light lamp .....15W/830 G13
- Glass type.....Euroglass, (Germany)
- Optical transmission .....95%
- UV protection .....96%
- Protection film type .....4 MIL CLEAR
- Thickness of sides panels.....4 mm
- Thickness of upper front side .....8 mm
- Thickness of front protective screen .....4 mm
- Working place .....650x475 mm
- Overall size .....690x535x555 mm
- Operating voltage / power consumption .....100–240 V, 50/60 Hz, 67 W
- Weight, not more.....28.8 kg

| 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 (except as defined below) return to our service department in the UK or in other countries, our distributor.

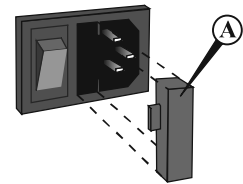


Fig.2 Fuse replacement

## 6.3 Technical Maintenance

**Replacement of fuses.** Disconnect from the outlet. Remove the power plug from the rear of the unit. Pull out the fuse holder 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 Plus™, RNase-Exitus Plus™).

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

|                             |   |
|-----------------------------|---|
| Manufacturer:               | BIOSAN LTD.<br>Ratsupites 7, build.2, Riga, LV-1067, Latvia   |
| Equipment name/type number: | UVC/T-M-AR  |
| Description of Equipment:   | DNA/RNA UV-cleaner box  |
| Directives:                 | EMC Directive 2004/108/EC<br>Low Voltage Directive 2006/95/EC |

|                       |   |
|-----------------------|---|
| Applied Standards     |   |
| Harmonized Standards: | <u>EN 61326-1:</u><br>Electrical equipment for measurement,<br>Control and laboratory use -<br>EMC requirements<br><u>Part 1:</u> General requirements<br><br><u>EN 61010:</u><br>Safety requirements for electrical equipment<br>for measurement, control<br>and laboratory use. |

I declare that this apparatus conforms to the requirements of the above Directive(s)

  
Svetlana Bankovska  
Executive Director  
Biosan Ltd.

Dated 31.01.2011

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