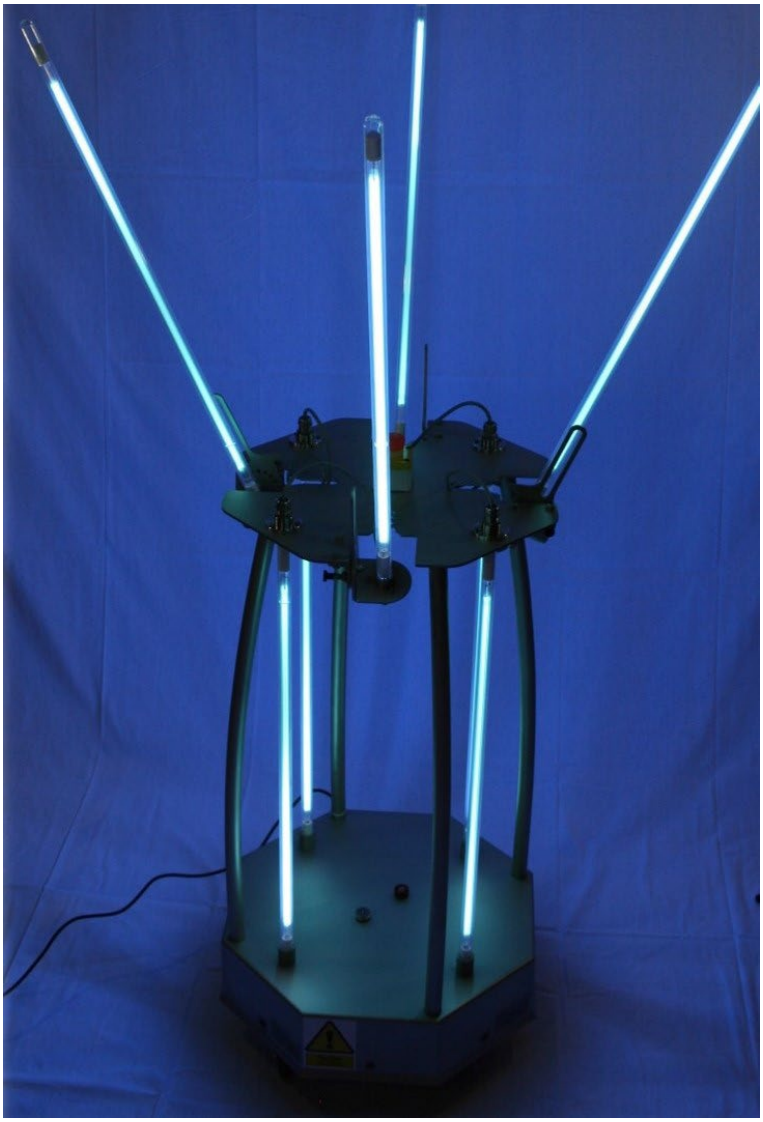
NATDIS
disinfect with the power of nature

CleanMove 8

Mounting and operating instructions



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1. Revision summary

Revision	Date	Comments/Changes
1.0	15-03-2021	Document created
2.0	11-04-2022	Added section

2. Hazard markings and safety signs

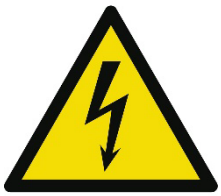
The following hazard markings are used on the equipment and have the following meaning:

Danger of non-coherent radiation

In this case UV light

Attention:

Protect eyes and skin against UVC light.



Danger

Electric current

Attention:

Access only for authorized personnel

3. Equipment information

3.1 Equipment purpose

The UV equipment is constructed to treat all light-accessible surfaces in the selected area in a chosen timeframe and area.

3.2 Definition of UVC-disinfection:

UVC unit is dimensioned to deliver a dose of (as per by agreement) J / m2 on all light-accessible surfaces after a full cycle of the time (by agreement).

The effect of UVC is calculated on the surfaces where the light can reach. I.e. the places where the light can reach directly. This means that shadow areas or areas where there can be no direct light or areas that can only be reached by reflection, will not be considered as treated areas.

Areas completely or partially covered by other material (eg dust), will only the available surface be treated and not the back of the particle, nor the material or particles that may be hidden by other particles, and not inside particles / dirt etc.

A high efficiency of UV treatment is based on the fact that the surfaces are not contaminated with particles.

3.3. Function of UVC-installations:

- UV-installations are controlled by an on / off switch
- UVC-lamps are switched on for the agreed time
    - If delivered with a timer:
        - Time is set on the timer
- UVC-lamps are switched off if:
    - The on / off contact is switched off
    - End of timer (if timer delivered)
- Restarting of the system
    - Prerequisite for switching on must be present
    - The timer starts again

When observing faults: switch off main switch (switch off system) and consult service manual.

3.4 About the documentation

This manual has been made as a basis for the CE marking and is completed in accordance with Directive 2006/42 / EC of the European Parliament and of the Council of 17 May 2006.

The folder contains important information about the installation, including service manual and safety instructions.

It is recommended to keep the folder visible and close to, the machine and inform your staff about it.

4. Equipment overview

The UV unit contains of:

CleanMove 8 for surface and air disinfection.

4.1 Environment for the equipment

4.1.1 Surface
The installation must be placed on a flat surface without inclination and fastened according to the instructions.

4.1.2. Placement
The equipment may only be used in places where the surface is level and can be securely fastened.

4.1.3 Temperature and humidity
The equipment can be used in temperatures between 10-40°C and max. 60% humidity as standard.

4.1.4. Storage and environment
The equipment is not designed for outdoor use or storage.
If the equipment comes into contact with saline or acidic moisture or liquid, this should be removed from the system as soon as possible to prevent corrosion.

4.1.5. Requirement before use
The equipment should be used as a disinfection solution with the purchaser:

- The equipment must not be used until the system has been installed in accordance with the regulations.
- The equipment may only be operated by personnel who have been properly instructed in its use.
- Repairs, service, and maintenance may only be carried out by qualified persons with proper training.
- If constructive changes are made to the equipment, the CE marking will lapse.

4.1.6 Disposal of parts
Consumables must be disposed of in accordance with current legislation.

- UVC- lamps contain mercury and must be disposed of in accordance with current regulations for lamps containing mercury.

4.2. Mounting instructions
Installation of UV systems must be done according to specifications or further agreement.
The UVC light is outside the visible spectrum and therefore bulbs should be replaced according to the following instructions.

• Installations with light 24/7 in normal temperature ranges	Change after 14 months of continuous operation
• Installations with light 24/7 in temperatures >40C eller <10C	Change after 12 months of continuous operation
• Installations with frequent switch on and off	Max. 3000 on/off
• Installations with other type of use	Max. 2 years from delivery date
Avoid short-term (<5 min.) Switching on / off of bulbs. It has a strong degenerative effect on the life of the bulbs and is not covered by the warranty obligation.	

4.2.1 Connecting the device

1. Connect 230V power cable to the socket on the floor in the UV system.

2. Place the lamps in the desired position.

3. Make sure that no one is in the room with the UVC unit.

4. Set desired treatment time in hours.

5. Switch on the unit on the main switch on the stand itself (red / yellow switch on the top). The warning light illuminates and sends an audible signal.

6. leave the area immediately!

7. It now takes 30 seconds for the lamp to turn on.

Make sure there are no people within range of the UV light during and after ignition. Make sure there are glass, walls or doors between the UV light and people.

4.2.2 Turn of the UV device

- The UV unit now lights up in the pre-programmed time and switches off even at the end of the set time. If you want to switch off the UV system before expiration, switch off the safety switch or the socket used.
- Unlock the wheels before moving the UV unit.

5. Safety in and around UV equipment

5.1 UVC physical:

UVC is shortwave radiation that loses its energy quickly in relation to distance from the source. The type of source for UVC used here loses its energy in relation to distance (meters). UVC is effectively stopped by transparent materials such as ordinary glass, plexiglass, plastic, most kind of clothing. Opaque materials usually block UVC.

Risk factors assessed:

- People in rooms, while UVC light is operating
- Access to rooms, when UVC light is operating

Dosage:

UV systems work with a treatment dose of: (see guide in section 3.4.) xx J / m2 per treatment (on light-accessible surfaces).

The table below taken from "A Non-binding guide to the Artificial Optical Radiation Directive 2006/25 / EC" indicates the recommended maximum dose for "NON COHERT" radiation per day.

Duration of exposure per 8 hour day	Irradiance (Effective) – W m^{-2}
8 hours	0,001
4 hours	0,002
2 hours	0,004
1 hour	0,008
30 minutes	0,017
15 minutes	0,033
10 minutes	0,05
5 minutes	0,1
1 minute	0,5
30 seconds	1,0
10 seconds	3,0
1 second	30
0,5 second	60
0,1 second	300

5.2 About the risk using UVC*:*

When using normal work clothes with full cover of skin and safety glasses, the risk of permanent damage from short-term exposure to UVC light is limited to the effect on the skin and the minimal risk of damage to the eyes.

In connection with the use of UVC systems, warning signs should be placed warning about the use of UVC. Systems may only be switched on when the room is secured. I.e. it has been inspected and found empty.

People at and around UVC systems will therefore not be able to be surprised by exposure without knowing this. (Hidden injuries).

When opening the door to the room, UVC light should be switched off.

Direct view to the UV equipment should be measured with UVC radiometer and assessed in the specific cases.

5.3 UVC damages

Possible damage when exceeding the dosage of UVC light in accordance with current instructions, see section 5.1 above

5.3.1 One-time injuries:
In case of minor exceedance, factor 4 -6

Risk of:

- Eyes, short-term irritation 24-48 hours (welding eyes)
- Skin, slight redness

In case of moderate exceedance, factor 6 -10

Risk of:

- Eyes, severe irritation 24-48 hours (severe cases of welding eyes, with short-term loss of vision)
- Skin, severe redness like light to medium sunburn.

In case of severe exceedance factor +10

Risk of:

- Eyes, permanent damage, impaired vision
- Skin, Severe sunburn; 2nd degree combustion.

5.3.2 Repeated daily dose overruns:

- Eyes, permanent damage, impaired vision
- Skin, development of various types of skin cancer (presumed, not detected)

In the situation in question, it has been included in the assessment that this is a production area with the use of full clothing in the work area.

5.4 Environment:

5.4.1 Staff:
The UVC-lamps are installed in a professional work environment where instructions are part of everyday life and where unauthorized personnel should not have access to turn on the UVC light.

5.4.2 Installation:
The UVC lamps are installed in closed rooms, with door switches on the access road.

The control box that is to be used for starting UVC systems is fitted with a switch with the option of using a padlock and thus secured against unintentional use.

5.4.3. Access to area:
Access to UV lamps must be via access doors. Personnel must be instructed in the function and procedure of the UVC system.
All work in rooms, in addition to normal operation, requires that the on button is locked before work begins.

5.5 Safety:

The following safety systems may be installed in connection with UVC systems:

5.5.1 Active safety:

- Door switches on access ways

5.5.2 Passive safety:

- Sign's warning of the use of "Non-Coherent Optical Radiation" (in this case UVC LIGHT)
  - In and around the room.
- Instructions for personnel using the system

5.5.3 Disposal

- Before dismantling the installation, a plan for disassembly must be prepared.
- The plan must include a risk assessment for the work as well as for disposal of installation and the spare parts.
- Plan and risk assessment must be prepared in accordance with current rules at the time of dismantling.

Scrapping

- The system is dismantled and sorted into categories as required by applicable environmental requirements.
- The installation is subject to Directive 2008/98 / EC and Directive 2002/96 / EC on waste.
- When the system is obsolete, all existing components must be sorted and handed in at an approved recycling site, or at an approved recycling company.
- The system must not be disposed of with unsorted household waste. Use the local collection points for the disposal of electrical and electronic components and ensure that all relevant regulations are observed.

The system consists of the following parts and must be sorted accordingly:

- Iron.
- Aluminum
- Plastic. (hard and soft)
- Rubber.
- Electrical components.
- Elektronics
- Copper
- Other metals.

- If parts of the systems are resold for purposes other than disposal, it is the owner's responsibility to make the recipient aware of the disposal rules.

5.5.4 Procedure when a bulb containing mercury is crushed

1. Evacuate people and animals from the room
2. Ventilate the room for at least 15 minutes before starting the clean-up
3. Use protective equipment such as gloves and safety goggles
4. Pick up the broken pieces and dirt with two pieces of cardboard
5. You can use tape to pick up small pieces
6. After cleaning up, clean the area with a damp cloth or towel to remove small particles
7. Collect all pieces and dirt in a tight container and dispose of as special waste (recycling site)

6. Service and maintenance

Gloves should comply with: 2019-4121X.

All service and maintenance must be performed without danger.

System must be shut off and cooled down before service is performed.

Access to bulb change or quartz glass change can be done by detaching lamps from fittings / clips.

6.1 Bulb change:

1. Switch off and let the system cool down for at least 30 minutes.
2. Hold on to the quartz glass with clean gloves.
3. Carefully pull the quartz glass free of the clips.
4. Loosen the screw connection around the cable.
5. Carefully pull back on cord until the bulb comes free of flange.
6. Carefully tilt the plug free of the bulb. NOTE Hold on to the bulb!
7. Carefully pull the bulb out of the quartz glass.
8. Switch to a new bulb and insert it into the quartz glass.
9. Attach the plug to the new bulb and refit the screw connection.

6.2. Change of quartz glass:

1. Switch off and let the system cool down for at least 30 minutes.
2. Remove bulb as specified in section 6.1.
3. Hold on to quartz glass and flange.
4. Carefully pull the quartz glass straight ahead.
5. Carefully pull on quartz glass until it releases the flange – CAUTION Beware of glass splinters.
6. Attach new quartz glass to flanges and re-insert bulb.
7. Attach plug to bulb and close with screw connection.
8. Place the quartz glass in the same position and reassemble.

7. Cleaning of UVC-Systems

7.1 Purpose

Systematic cleaning is part of the maintenance of the equipment and contributes to the optimal function of the equipment. At the same time, cleaning will ensure ongoing inspection of the condition of the equipment.

The following sections provide procedures that describe how routine cleaning is performed for equipment provided by NATDIS.

7.2. Precautions

WARNING!

Danger of non-coherent radiation

In this case UVC light.

Attention:

Protect eyes and skin against UVC-light.

Equipment supplied by NATDIS may only be cleaned when the system is switched off and in a safe condition.

All work on UVC systems requires that the system is secured before work begins. Cleaning must only be done when the system has stopped and cooled down!

Use clean gloves are required

Attention:

Protect your hands from heat, sharp edges, and glass splinters with gloves. Must comply with EN388: 2019-4121X

Always comply with local regulations when choosing a cleaning agent. Follow the warnings and safety descriptions on the individual containers and safety data sheets. Abrasives must not be used.

7.3. Cleaning

Cleaning includes a thorough vacuuming of the components. A vacuum cleaner equipped with a suitable filter for product and material residues must be used.

Never wipe product dust off dry, and never use compressed air for dry cleaning, as product dust will not be removed via these methods; and the product dust will simply be distributed around the area.

7.3.1 Cleaning frequency

	Daily	Monthly	Yearly
In general	Visual inspection of glass and bulbs. If possible, check through a window, that the operation is normal		Control measurement of UVC effect, depending on number of hours and use in general
Quartz glass	Inspection for dirt and dust. If there are coatings on the glass, vacuum and wipe off the coating		Inspection for damage. Action in case of damage; change glass
Teflon	Inspection for dirt and dust. If there are coatings on the glass, vacuum and wipe off the coating		Inspection for damage. Action in case of damage; change glass
Flanges	Inspection for dirt and dust. If there are coatings on the glass, vacuum and wipe off the coating	Inspect for damage from UVC light. Action in case of damage; change flanges	

The cleaning frequency depends on the production facilities. The cleaning intervals may therefore vary from the above.

It is also recommended to minimize the general amount of dust around UVC systems, as this can result in coating on quartz glass and thereby impair UVC function and shorten the life of the lamps.

Vacuuming can be supplemented with wiping with a soft cloth and detergent. Here the local legal regulations in the area must be complied with.

Abrasives must not be used.

7.3.2 Detergents

Always observe the legal regulations when choosing detergent. Follow the warnings and safety descriptions on the individual containers and safety data sheets.

Information on suitable cleaning agents can be found in the following table:

Material	Suitable cleaning agent	Important instructions
Teflon (glass coating) if supplied	Isopropanol or other non-abrasive cleaner for metal and glass	Use a soft cloth
Stainless steel	Isopropanol or other non-abrasive cleaner for metal and glass	Use a soft cloth
Glass	Isopropanol	Use a soft cloth

7.4. Cleaning procedure and inspection

The cleaning procedure must ensure efficient daily operation.

1. Clean gloves must be worn.
2. Cleaning is performed at least once a month, or according to requirements.
3. UV-equipment is cooled down and ready for cleaning.
   a. Wipe UV tubes with a dry cloth (antistatic cloth or hard-wrung cloth)

In connection with the cleaning, the UV equipment must be inspected for breaks and defects.

Check the following:

1. The glass is intact without cracks and crushes.
2. Cables are seated and installed correctly.

8. Liability and Warranty

We are only liable for warranty claims under national law. The following warranty is provided on bulbs as standard; 10,000 hours burning time with continuous operation or 3000 on / off or max. 2 years from time of delivery.

Avoid many short-term on and off switching of UV equipment. It has a strong degenerative effect on the life of the bulbs and is not covered by the warranty obligation.

Breakage and glass damage are not covered by the warranty.

Our general terms of sale and delivery are always valid.

We cannot be held responsible for damages caused by:

- Operating errors caused by non-compliance with these guidelines.

Warranty lapses upon:

- Operation with spare parts that are non-original.
- Defective or incorrect installation
- Installation of unsuitable accessories
- Incorrect operation
- Removal, manipulation, or removal of safety equipment
- Unproper performance of service and maintenance
- Wear and lack of maintenance
- Effects on vibrations from the installation site
- Impacts in the environment or installation, which we did not have the opportunity to anticipate at the time of dimensioning.