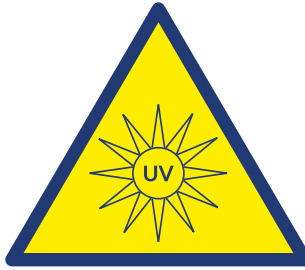


UV222™

(Filtered Far UV-C)

Technical & Installation Manual





CAUTION UV LIGHT

THE PRODUCT AS DESCRIBED HEREIN CONTAINS COMPONENTS THAT EMIT FILTERED FAR UV LIGHT.

DO NOT USE THE PRODUCT BEFORE CAREFULLY READING THIS MANUAL.

ALWAYS KEEP THIS MANUAL WITH THE PRODUCT AND CONSULT IT REGULARLY.

GRUPE DE RISQUE 3

AVERTISSEMENT :
Ce produit émet des UV.
Éviter d'exposer vos yeux et
peau à un produit non blindé.

ATTENTION :
Radiations optiques nuisibles
peuvent être émises de
ce produit. Ne pas fixer une
lampe en cours d'utilisation.



IEC/TR 62471-2:2009

RISK GROUP 3

WARNING:
UV emitted from this product.
Avoid eye and skin exposure
to unshielded product.

CAUTION:
Possibly hazardous
optical radiation emitted
from this product. Do not
stare at operating lamp.

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1. USING THIS MANUAL – GENERAL

This manual (hereinafter referred to as the “**Manual**”) is intended to be used as work of reference for professional, well trained and authorised users to be able to safely install and use the product mentioned on the cover of this document (hereinafter referred to as the “**Product**”). The observation of the Manual does not dispense the user from the observance of the local safety instructions and regulations other than provided by the Manual. Such safety instructions and regulations must be observed at all time.

For information about specific adjustments, maintenance or repair jobs which are not dealt with in this manual, please contact your Product supplier or UV Medico A/S.

If you suspect that the Product is damaged or detect a potential or actual danger when using the Product, immediately discontinue use of the Product and contact your supplier of the Product.



1.1. BASIC SAFETY INSTRUCTIONS

To minimise the risk of injury, the following basic safety precautions should be observed with each use of the Product:

Do not remove the sticker on the front of the unit until the UV222 is commissioned by a qualified installer.

Do not put any object in close front of the surface of the UV222.

Do not put plastic or glass in front of the UV222. It does not transmit UV.

Make sure the UV222 has an unobstructed path towards the area to be disinfected.

Do not use flammable substances near the lamp module.

Do not use flammable or combustible gases or liquids, such as oxygen, hydrogen, or chemicals, near a lamp module. Failure to obey may result in fire or explosion.

If Front glass is broken, disconnect UV222 immediately and and contact an authorised installer.

Do not turn on any UV222 with a broken front glass.

Do not disassemble or modify the lamp module.

Disassembly or modification may result in fire, electric shock, or injury.

Turn off the electrical power during lamp module maintenance.

Do not remove any safety labelling or parts.

Do not touch the lamp module during operation.

Otherwise, it may result in fire, electric shock, or injury.

Ground the device or metal parts of the housing that are close to the lamp module.

Otherwise, it may result in fire, electric shock, or injury.

For those with photosensitivity, take measures similar to those for daily sunlight ultraviolet rays.

Due to the absorption characteristics of ultraviolet rays in the skin, it is considered that the effect of 222nm light sensitivity on people exposed to ultraviolet rays will be less than when exposed to sunlight. For those with photosensitivity, take measures similar to those for daily sunlight ultraviolet rays, such as long sleeves and hats.

Do not use the unit for purposes other than disinfection.

The unit is designed for disinfection. Using it for any other purpose may result in unexpected accidents.

2. DISCLAIMERS

UV Medico A/S with registered office at Søren Frichs Vej 40E, 8230 Åbyhøj - Denmark, or any of its affiliates, does not accept any liability for material damage, including damage to the Product or personal injury caused by non-observance by the user of the safety instructions in the Manual or the applicable laws. As such UV Medico A/S shall among others not be liable for any damage or injury if the Product is used contrary to or for purposes other than its intended use, is installed, used, maintained or repaired negligently or contrary to the instructions mentioned in the Manual or on the Product; also in the case the Product is modified, and when safety devices and features are disregarded or overridden.

3. SAFETY INSTRUCTIONS AND WARNINGS

3.1. User manual

Every person using the Product must read and understand the contents of the Manual and familiarise themselves with it before any use of the Product, and must strictly observe the instructions set out herein. If you are an employee or are acting on behalf of another person, your employer/that person must instruct you in accordance with the Manual and ensure that all instructions set out herein are complied with.

Do not use the Product if that is not the case.

3.2. Intended use and installation

The Product is intended exclusively for air and surface disinfection. Using the Product for other purposes is contrary to its intended use and is done at own risk.

To ensure safe use of the Product, its installation, including all its safety features and devices, and its maintenance and repair must be carried out correctly by a qualified installer. All of the Product safety features and devices must be mounted and may not be removed but for the purpose of maintenance and repair.

The Product is not intended to be used by minors. Any use of the Product by minors, regardless of whether or not under the supervision of an adult, is at own risk.

3.3. Safety features of the Product

Each Product is equipped with the following safety features:

- Motion sensor: To detect motion.
- Lidar sensor: To measure distance to the occupancy of the room.
- Multicolour LED to signal the operation and state of the unit.

It is strictly forbidden to override these safety devices or to use the Product if the safety features are not fully present or disfunction.

The safety features should be regularly checked for their proper functioning, and if required, be immediately repaired or replaced.

The pictograms, warnings and instructions attached to the Product are part of its safety features. They must not be covered or removed and must be present and legible during the entire use of the Product.

Immediately replace or repair missing, damaged or illegible pictograms, warnings and instructions.

3.4. Modification

No modification of the product is allowed. All warranty and liability are void if any modifications are done to the UV222.

4. GENERAL CHARACTERISTICS AND TECHNICAL SPECIFICATIONS

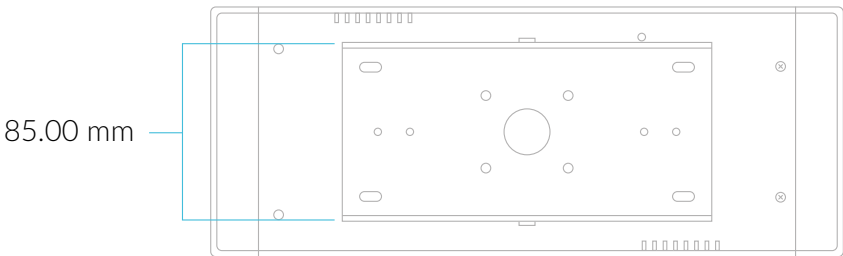
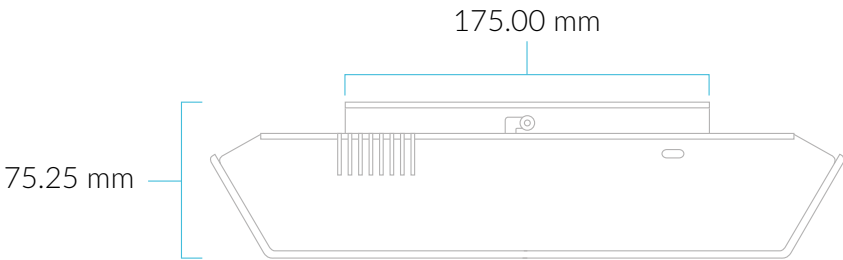
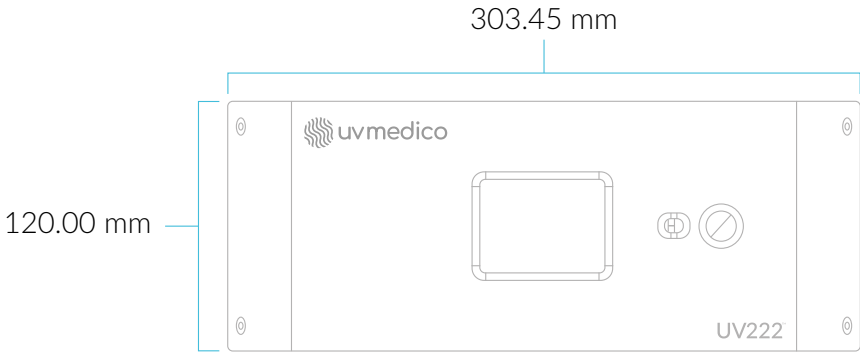
The Product is designed to emit Far UV-C radiation with a wavelength of 222 nm, in order to eliminate viruses, bacteria, fungi, and other pathogens, from air and surfaces.

The Far UV-C lamps are designed for 5,000 hours of efficient operation. Far UV-C lamps used longer than this, may no longer emit the required level of ultraviolet radiation to ensure the desired germicidal efficacy on harmful microorganisms.

Technical data

Light Source	Kr-Cl Excimer lamp
Wavelength	222 nm
UV output power	130 mW (typical)
Input voltage	85-305V AC 50/60HZ
Max power consumption	17 W
Weight	1.9 KG
Dimensions	303.45 x 120 x 75.25
Power lead	3 x 0.75 mm ² -18AWG
Operating temperature	0 to +50°C

5. CONSTRUCTION



6. INSTALLATION OF THE PRODUCT

Perform the following steps for the installation of the Product.

Outside every room where Far UV-C light is used, there must be information signs in clear line of sight.

Installation must be done according to the local regulations by a qualified installer.

6.1. Choose the appropriate location

Choosing the appropriate location is important for the proper functioning and safe use of the Product.

A dialux simulation can help you to choose the right position for disinfection.

Install the Product in a protected area where the temperature does not fall below 0° C and the humidity level is low. The Product functions ideally in a temperature range from 0°C to +50° C.

Select a Product mounting location that is close to surface/area that you want to disinfect.

6.2. Unboxing and inspection

Read and save all notices, warnings and safety instructions received with the Product.

Open the box and carefully take the unit out of the box. Take the unit out of the plastic bag. Do not remove the protection label on the front of the UV222. The protection label is intended to avoid unexpected UV radiation. Make a visual inspection of the unit.

Do not power on the unit until installed by a qualified installer!

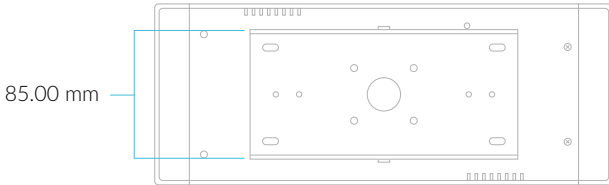


CAUTION: Do not touch the glass of the lamp without gloves. Doing so may result in damage to the lamp. Oil from fingerprints will permanently etch the glass of the lamp and weaken the structure.

6.3. UV222 fixture installation

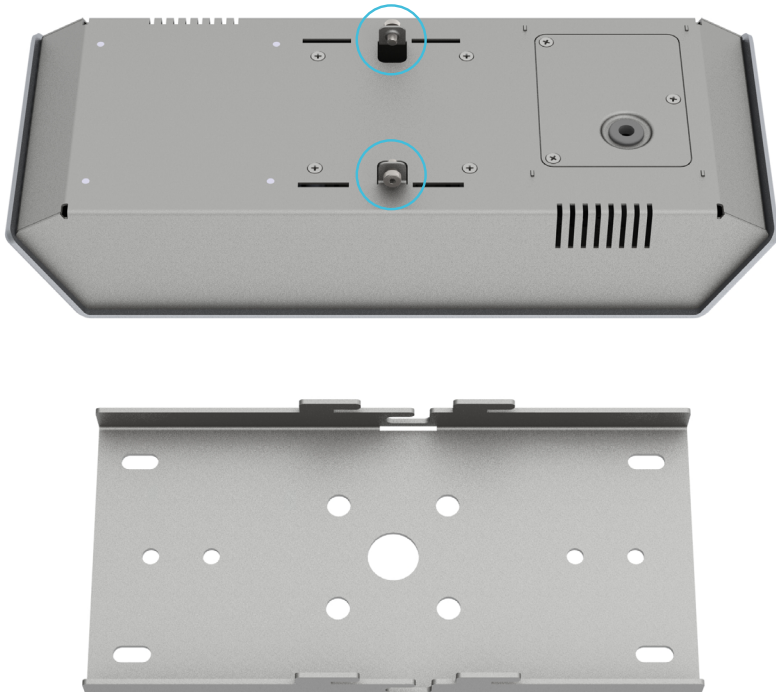
The unit must be attached to a surface by means of at least 4 mounting pins, preferably near electrical wires with grounding.

The mounting pins and surface must be strong enough to hold 4 times the weight of the unit.



Take out the 2x DIN 912 M4 on the bottom sides to take off the installation plate of the unit.

The installation plate can be now installed to the surface with 4 mm screws or M4 bolts:



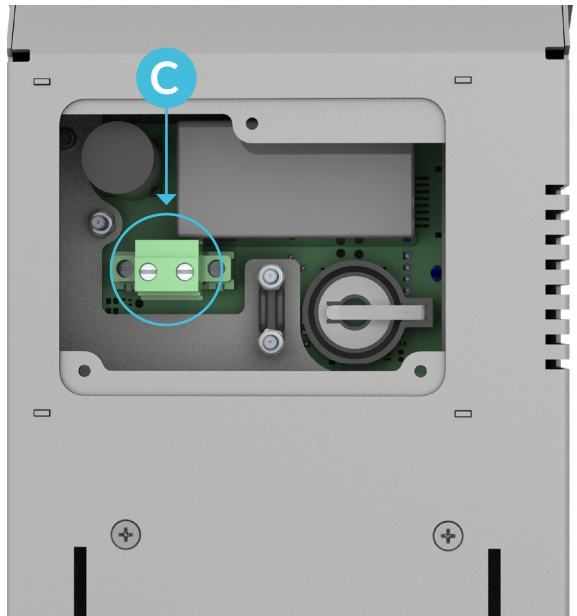
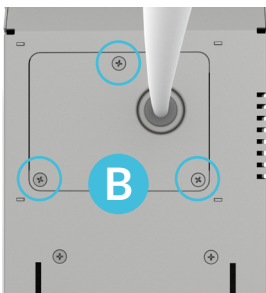
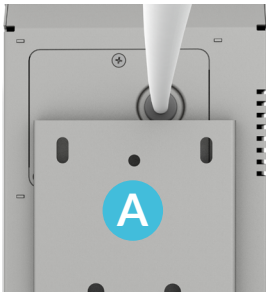
6.4. Wiring the Product to power source

Far UV-C lamps must be operated continuously from a separate, dedicated, 85-305 V 50/60Hz power source.

Standard wiring:	Phase / Hot +	(brown) (black)
	Neutral / Cold -	(blue) (white)
	Earth	(green/yellow) (green)

How to wire the UV222

- 1) Take of the installation plate (foot plate) **A**
- 2) Unscrew 3x din965 with T15 screwdriver **B**
- 3) Take off the service plate.
- 4) Unscrew 2x ph1 (cable blockage) **C**
- 5) Unscrew 2x ph1 (cable connector).
- 6) Unscrew nut for earth connection.
- 7) Rewire the connector correctly.
- 8) Put cable trough service plate and screw back the cable blockage.
- 9) Close the backplate with 3x din965.
- 10) Put the unit back on its installation plate (foot).



6.5. Understanding the unit's operation

The maximum permissible UV-C exposure shall not exceed the ACGIH TLV and NIOSH REL of 22,0 mJ/cm² for an 8 h day, 40 h work week exposure to UV radiation at 222 nm. (UV Medico A/S expects positive changes into the ACGIH that will result in a higher exposure than allowed at this moment. If this changes, UV Medico A/S will update the software of the unit to align with the new threshold of exposure).

To achieve the correct radiation within these limits, following information will be programmed into the UV222 before the start-up of this installation.

6.6. Setting up the UV222

The installer will need a Microsoft Windows computer with the UVMEDICO application installed. Contact your distributor to get access to the latest software and firmware for the UV222.

To launch the app, go to the installed folder and open the file:

UV Medico Configuration App.exe

The app includes two different set up modes: simple and advanced.

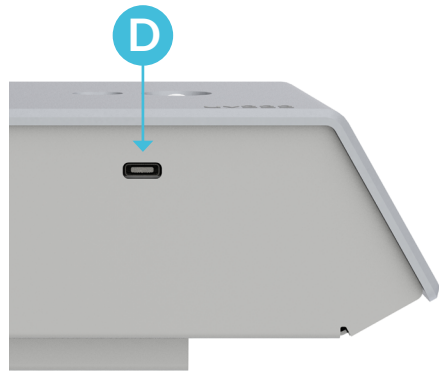
For the simple mode, follow the instructions that will appear on the screen.

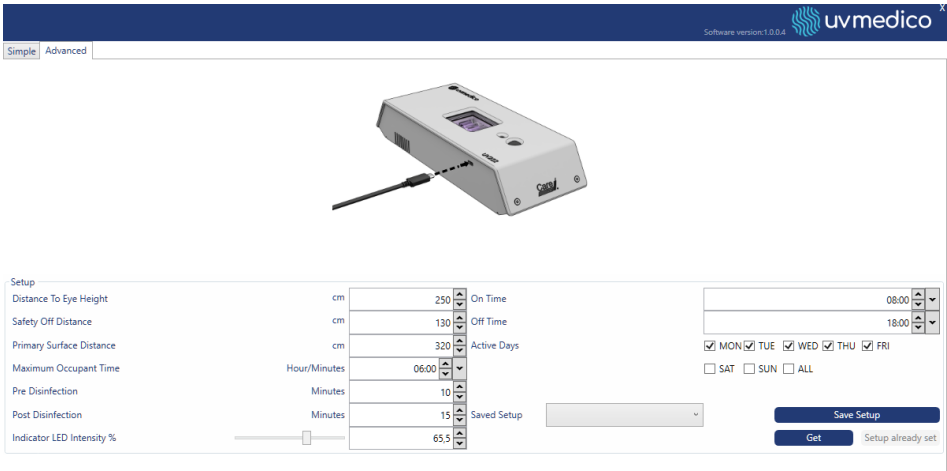
For the advanced mode, see below:

There is a USB-C connection **D** on the side of the unit to connect to a computer with a USB cable.

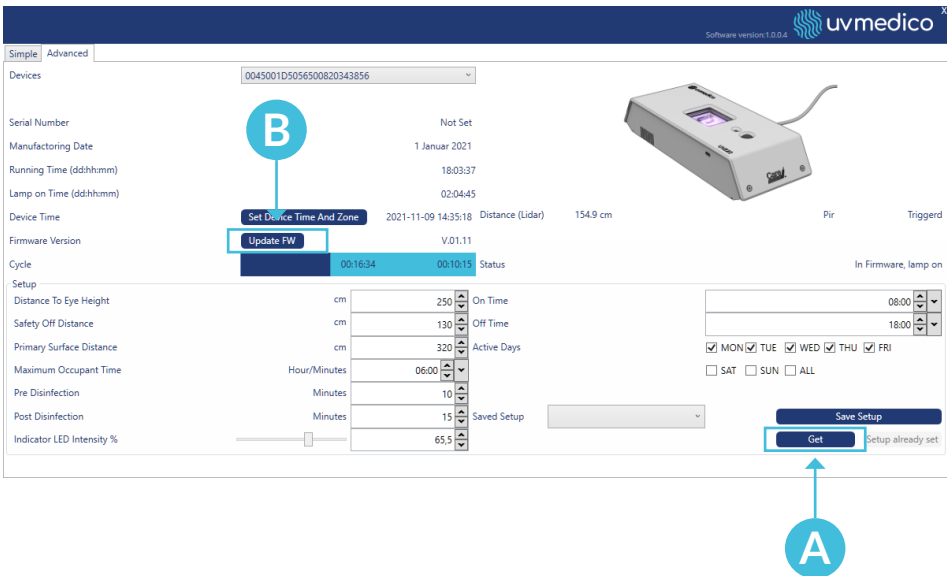
Connect your computer to the UV222 unit and it will show up automatically on the application.

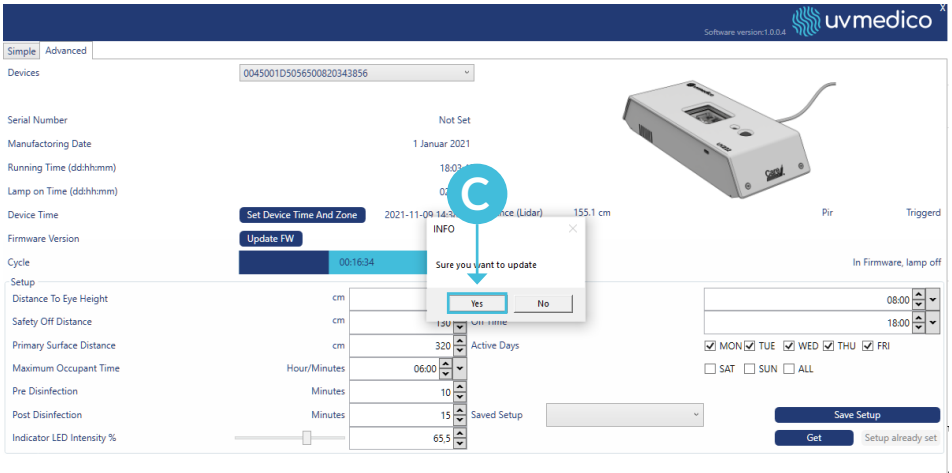
When the app is launched, following steps needs to be taken:



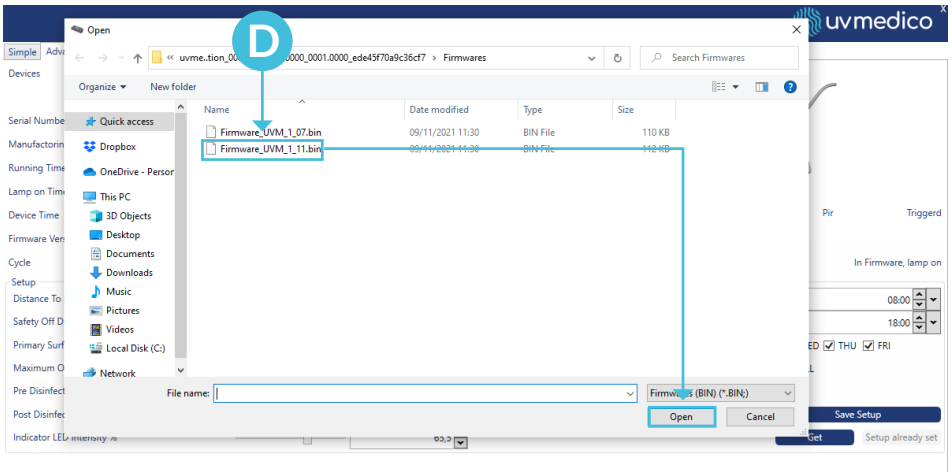


- 1) If the UV222 was already installed, you can read out the setting of the unit by pressing “Get” all settings will be shown in the application. **A**
- 2) Check if software version is the latest version. If not, press “Update SW” button **B** and confirm the pop up by pressing “Yes”. **C**





Select the correct software version **D** and press “Open” to upload the software. When finished installing, the software should be up to date.



- 3) Set the correct hour by pressing “Set Device Time”. **A**
The date and hour are now the same as your computer.
- 4) Define the timing of the use (duty cycle) of the room where the UV222 is installed:
 - “On time”: Time from which the room will be occupied by people. **B**
 - “Off time”: Time from which the room will not be occupied. **C**

The screenshot shows the UVmedico software interface. At the top right, the logo and 'uvmedico' text are visible, along with 'Software version: 1.0.0.4'. The interface is divided into a 'Simple' and 'Advanced' view. The 'Advanced' view shows device information for ID 0045001D5056500820343856. A 'Cycle' section is highlighted in blue, showing a cycle from 00:16:34 to 00:10:15. Below this is a 'Setup' section with various parameters. A table within the setup section defines the duty cycle:

Parameter	Value	Unit	Notes
Distance To Eye Height	250	cm	On Time
Safety Off Distance	130	cm	Off Time
Primary Surface Distance	320	cm	Active Days
Maximum Occupant Time	06:00	Hour/Minutes	
Pre Disinfection	10	Minutes	
Post Disinfection	15	Minutes	
Indicator LED Intensity %	65,5		

The 'Active Days' section is checked for MON, TUE, WED, THU, and FRI. The 'On Time' is set to 08:00 and the 'Off Time' is set to 18:00. Callout A points to the 'Set Device Time And Zone' button. Callout B points to the 'On Time' field. Callout C points to the 'Save Setup' button.

- 5) Add the pre and post cleaning cycle. **D** The unit will/can light up before and after the duty cycle so you can ensure it when people enter or leave.

uvmedico Software version 1.0.0.4

Simple | Advanced

Devices: 0045001D5056500820343856

Serial Number: Not Set
 Manufacturing Date: 1 Januar 2021
 Running Time (ddhh:mm): 18:03:37
 Lamp on Time (ddhh:mm): 02:04:45

Device Time: **Set Device Time And Zone** 2021-11-09 14:35:18 Distance (Lidar) 154.9 cm Pir Triggered

Firmware Version: **Update FW** V.01.11

Cycle: **00:16:34** - **00:10:15** Status In Firmware, lamp on

Setup

Distance To Eye Height	cm	250	On Time	08:00
Safety Off Distance	cm	130	Off Time	18:00
Primary Surface Distance	cm	320	Active Days	<input checked="" type="checkbox"/> MON <input checked="" type="checkbox"/> TUE <input checked="" type="checkbox"/> WED <input checked="" type="checkbox"/> THU <input checked="" type="checkbox"/> FRI
Maximum Occupant Time	Hour/Minutes	06:00		<input type="checkbox"/> SAT <input type="checkbox"/> SUN <input type="checkbox"/> ALL
Pre Disinfection	Minutes	10		
Post Disinfection	Minutes	15		
Indicator LED Intensity %		65%		

Buttons: Save Setup, Get (Setup already set)

D

- 6) Add the "Maximum Occupant Time": how long the room is occupied during the duty cycle. **E**

uvmedico Software version 1.0.0.4

Simple | Advanced

Devices: 0045001D5056500820343856

Serial Number: Not Set
 Manufacturing Date: 1 Januar 2021
 Running Time (ddhh:mm): 18:03:37
 Lamp on Time (ddhh:mm): 02:04:45

Device Time: **Set Device Time And Zone** 2021-11-09 14:35:18 Distance (Lidar) 154.9 cm Pir Triggered

Firmware Version: **Update FW** V.01.11

Cycle: **00:16:34** - **00:10:15** Status In Firmware, lamp on

Setup

Distance To Eye Height	cm	250	On Time	08:00
Safety Off Distance	cm	130	Off Time	18:00
Primary Surface Distance	cm	320	Active Days	<input checked="" type="checkbox"/> MON <input checked="" type="checkbox"/> TUE <input checked="" type="checkbox"/> WED <input checked="" type="checkbox"/> THU <input checked="" type="checkbox"/> FRI
Maximum Occupant Time	Hour/Minutes	06:00		<input type="checkbox"/> SAT <input type="checkbox"/> SUN <input type="checkbox"/> ALL
Pre Disinfection	Minutes	10		
Post Disinfection	Minutes	5		
Indicator LED Intensity %		65%		

Buttons: Save Setup, Get (Setup already set)

E

7) Add 3 distances:

- a. "Distance to eye height": Closest distance of the unit to the eye of a human (even with people walking around). **A**
- b. "Safety distance": Closest distance people are allowed to get to the lamp before it turns itself off. The unit will turn itself back on after 10 sec. when/if the safety distance is regained. **B**
- c. "Primary surface distance": Distance from the unit to the main surface to disinfect. **C**

All measurements are in centimetres.

Software version 1.0.0.4 uvmedico

Simple Advanced

Devices 0045001D5056500820343856

Serial Number Not Set

Manufacturing Date 1 January 2021

Running Time (ddhh:mm) 00:00:00

Lamp on Time (ddhh:mm) 00:00:00

Device Time 2021-11-05 09:18 Distance (Lidar) 1549 cm Pir Triggered

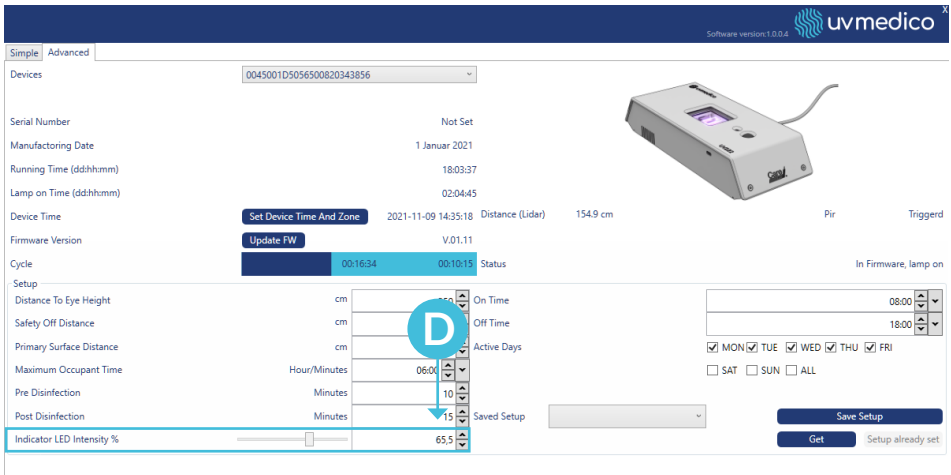
Firmware Version 01.11

Cycle 00:16:34 03:10:15 Status In Firmware, lamp on

Setup

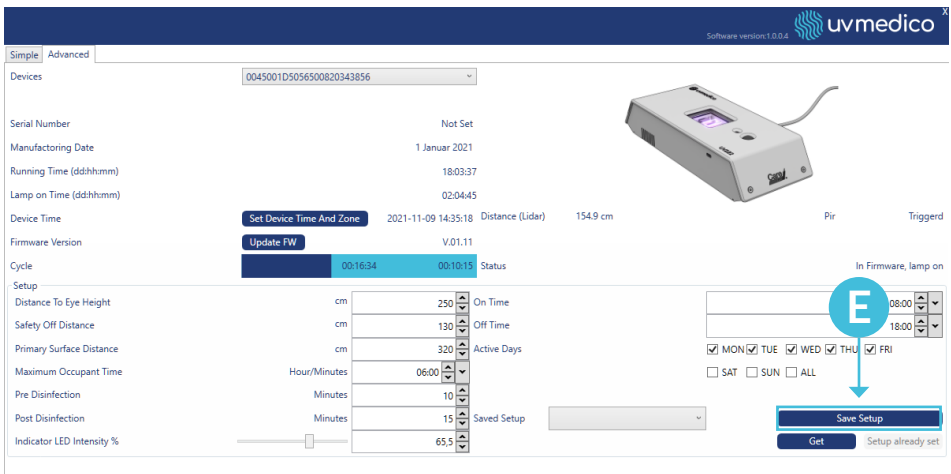
Distance To Eye Height	cm	250	On Time	08:00
Safety Off Distance	cm	130	Time	18:00
Primary Surface Distance	cm	320	Active Days	<input checked="" type="checkbox"/> MON <input checked="" type="checkbox"/> TUE <input checked="" type="checkbox"/> WED <input checked="" type="checkbox"/> THU <input checked="" type="checkbox"/> FRI
Maximum Occupant Time	Hour/Minutes	06:00		<input type="checkbox"/> SAT <input type="checkbox"/> SUN <input type="checkbox"/> ALL
Pre Disinfection	Minutes	0	Saved Setup	Get
Post Disinfection	Minutes	5		Save Setup
Indicator LED Intensity %				Get Setup already set

8) Change the intensity of the LED signal to the desired output. **D**



The screenshot shows the 'uvmedico' software interface in the 'Advanced' tab. The 'Devices' dropdown is set to '0045001D5056500820343856'. The 'Setup' section includes various parameters: Distance To Eye Height (250 cm), Safety Off Distance (190 cm), Primary Surface Distance (320 cm), Maximum Occupant Time (06:00), Pre Disinfection (10 minutes), Post Disinfection (15 minutes), and Indicator LED Intensity % (65.5%). A blue circle with the letter 'D' is overlaid on the 'Indicator LED Intensity %' slider. The 'Save Setup' button is visible at the bottom right of the setup section.

9) Save setup into template by pressing “Save Setup”. **E**
Name the template. This can be recalled whenever you have similar settings.



The screenshot shows the 'uvmedico' software interface in the 'Advanced' tab, identical to the previous one. The 'Indicator LED Intensity %' slider is still highlighted with a blue circle and the letter 'D'. A blue circle with the letter 'E' is overlaid on the 'Save Setup' button. The 'Save Setup' button is highlighted in blue, and the 'Get' button is also visible below it.

10) Press “Set” to upload the settings into the UV222. **A**

The screenshot shows the UV222 web interface with the following settings:

- Devices: 0045001D5056500820343856
- Serial Number: Not Set
- Manufacturing Date: 1 Januar 2021
- Running Time (dd:hh:mm): 18:03:37
- Lamp on Time (dd:hh:mm): 02:04:45
- Device Time: Set Device Time And Zone 2021-11-09 14:35:18
- Distance (Lidar): 154.9 cm
- Pir: Triggered
- Firmware Version: Update FW V.01.11
- Cycle: 00:16:34 - 00:10:15 Status
- Setup:
 - Distance To Eye Height: 250 cm
 - Safety Off Distance: 130 cm
 - Primary Surface Distance: 320 cm
 - Maximum Occupant Time: 06:00
 - Pre Disinfection: 10 Minutes
 - Post Disinfection: 15 Minutes
 - Indicator LED Intensity %: 65.5
 - On Time: 08:00
 - Off Time: 18:00
 - Active Days: MON, TUE, THU, FRI

The 'Get' button is highlighted with a blue circle and the letter 'A', indicating the step to save the settings.

Once this information is saved and programmed into the unit, it is ready to test/start up. The unit will calculate the radiation automatically to stay within the limits of the ACGIH like the example below:



If during the duty cycle a person comes closer to the unit than the programmed distance from the eye, UV222 will automatically stop, and it will resume the activity 10 sec. after this security distance is cleared.

If movement in the room is detected during the pre or post disinfection cycle, the unit will stop working, and will resume its activity after no more movement is detected.

If the information programmed into the UV222 when installed is different than the use/ occupancy of the room, UV Medico A/S cannot be held liable for any injuries or misuse of these units.

If the room changes of use, occupancy or any change that has an influence on the risks of exposure, the installer needs to be contacted so the Product is reprogrammed.

11) Testing the Product.

Right click on the photo of the UV222 **B** and a pop up of the test mode will show up. Here you can quickly light up the UV222 and test the signal LED.

When you press “On” **C** at 222 LightSource section, it will turn on the UV222 with no safety! This is only to test the source, (the box “Enable” will be automatically ticked)

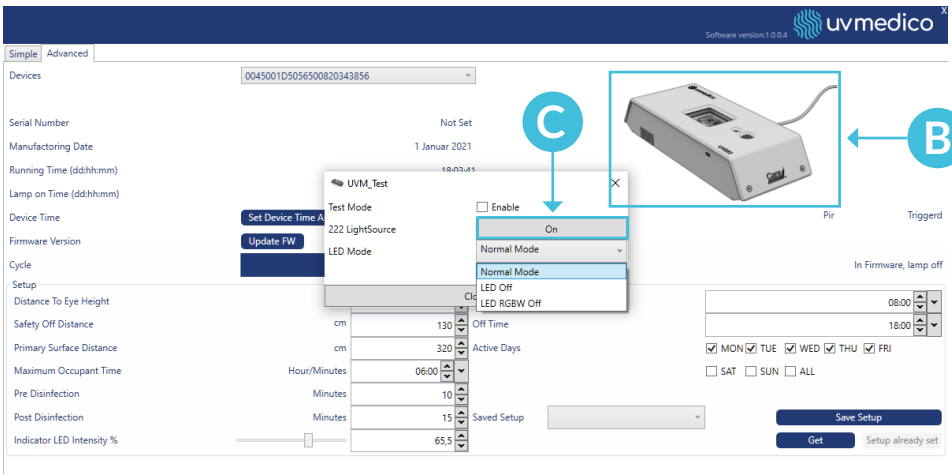
When you go to LED Mode you have 3 possibilities to choose:

“Normal Mode” Work as UV222 is programmed.

“Led Off” Turns the LED off.

“Led RGBW Off” LED test cycle.

When you untick the “Enable” box it goes back to normal configuration/use.



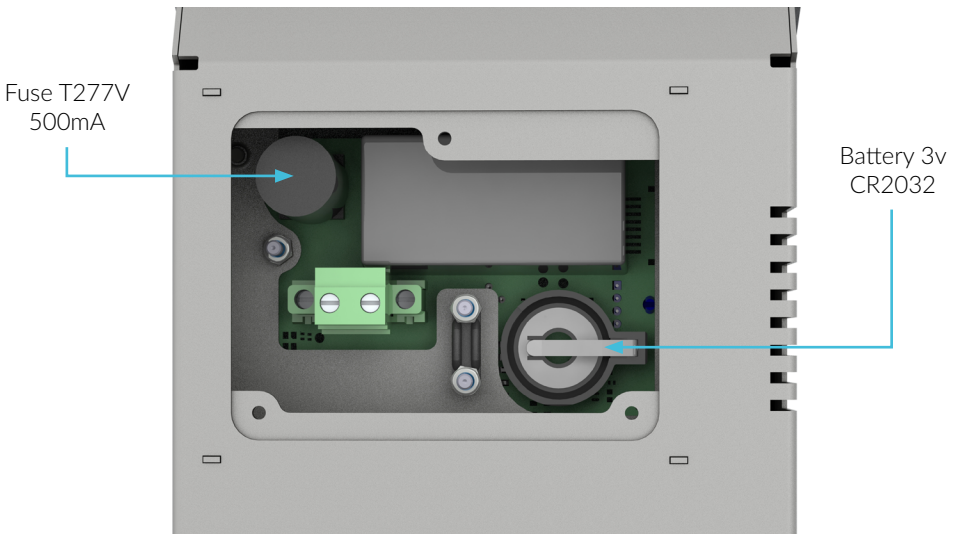
6.7. Understanding the function of the signal LED

LED	MEANING
No light	No power.
Red continuous	Error: no feedback from UV222 light source.
Cyan continuous	Pre disinfection / after disinfection light source on.
Magenta continuous	Light source is on.
Blue continuous	In-cycle UV off.
Green continuous	Out of cycle.
Flashing red	Object to close.
Flashing cyan	Pre disinfection / after disinfection per seen movement.

6.8. Replacements

The UV222 has an internal battery and fuse that can be replaced if broken/empty.

Take the unit off the installation plate and unscrew the 3x din965. Take off the cover and you will see the fuse (T250V 500mA) and battery (3V CR2032). Replace only with correct fuse and battery to prevent damage.



7. PRODUCT FAILURE

FAILURE	TO DO
Unit does not light up	Check incoming power. Check cable damage. Replace fuse. Check if UV222 is correctly installed.
Unit flickers	Check if UV222 is correctly installed. If not, contact your local distributor.
White flash	Power cycle the unit.
Does not hold settings	Replace battery.

If the failure is unsolved or recurring, please return the unit to an official UV Medico dealer/ service centre for repair or replacement (see point **10. REPAIRS**).

8. CLEANING AND MAINTENANCE

Clean the external surfaces with a soft cloth and non-aggressive cleaning agents only.

Before performing any maintenance always unplug the Product and disconnect the power supply.



CAUTION: Turn off and lock out ALL unit power before performing any cleaning. Do not wash the Product with a pressure washer or by immersion.

9. LIGHT SOURCE REPLACEMENT

UV Medico A/S recommends replacing the Far UV-C light source when LED signals red-blue-green (loop).

Contact your supplier/installer for replacement. The unit has no user-serviceable parts.

10. REPAIRS

If the Product is damaged, malfunctions, or for other specific inquiries, please contact your authorised UV Medico distributor.

Warranty

2-year warranty is given from invoice date regardless on the hours the unit is used.

UV222™ and its logo are registered trademarks of UV Medico A/S. All rights reserved. No part of this manual may be copied or published by means of printing, photocopying, microfilm or otherwise without the prior written consent of the manufacturer. This restriction also applies to the corresponding drawings.

The information given in this manual has been collected for the general convenience of our customers. It has been based on general data pertaining to construction material properties and working methods known to us at the time of issue of the manual and is therefore subject at any time to change or amendment, and the right to change or amend is hereby expressly reserved. The instructions in this manual only serve as a guideline for installation, use, maintenance and repair of the Product mentioned on the cover page of this document. This manual is to be used for the standard model of the Product of the type given on the cover page. Thus, the manufacturer cannot be held responsible for any damage resulting from the application of this manual to any other product.

This manual has been written with great care. However, the manufacturer cannot be held responsible, either for any errors occurring in this manual or their consequences.

NOTES:



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