



UV222 Cleanroom Downlight

Far-UVC Light Fixture
Instructions for Use



Read and retain this document for reference on the UV222 Cleanroom Downlight

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01 | INTRODUCTION

About these instructions

The purpose of these instructions is to ensure the correct and safe installation, operation, and maintenance of the UV222 Cleanroom Downlight in cleanrooms. Read and retain this document. These Instructions for Use cover how to install and operate the fixture, how to clean and maintain it, how to replace the light source, and the product's technical and regulatory information.

For questions about ordering, replacement parts, troubleshooting or installation support, contact UV Medico or your authorized distributor ([Section 16](#)).

Overview of the UV222 Cleanroom Downlight

The UV222 Cleanroom Downlight is a ceiling-installed luminaire that delivers filtered Far-UVC (222 nm) decontamination of air and surfaces from a compact recessed housing designed to fit suspended ceilings. It provides continuous, chemical-free reduction of airborne and surface microorganisms and is suitable for use in occupied spaces when installed and operated as specified. The front module is IP65-rated against dust and water jets, the housing is powder-coated aluminum with a sealed quartz-glass window, and UV Medico's patented active dehumidification protects the internal optics against humidity and corrosive molecules. It is intended for but not limited to controlled environments with the highest hygiene requirements: pharmaceutical and biotechnology cleanrooms, GMP production, and semiconductor manufacturing, including cleanrooms up to ISO Class 5 (Grade A/B).

Before installing, ensure an installation-specific exposure assessment has been completed to establish the number of units and their placement in each room, so that performance is optimized and exposure limits are met (Section 5.3). UV Medico can provide photometric data and simulation support on request.

Far-UVC exposure assessment

Luminaire quantity, positioning, mounting height and configuration are determined by an installation-specific exposure assessment carried out by the qualified personnel responsible for the installation, in accordance with applicable regulations and these instructions. The requirements are set out in Section 5.3.

Overview of Far-UVC (222 nm) technology

Far-UVC is the 200-230 nm part of the germicidal UV-C band (100–280 nm). UV222 operates at 222 nm. At 222 nm it inactivates bacteria, viruses and fungi by damaging their nucleic acids and proteins. The same wavelength is absorbed within the first few micrometers of the skin and the eye, in the outer non-living cell layers, so very little reaches the living cells beneath. This is why 222 nm can be used continuously in occupied rooms. Exposure limits still apply, and are met through correct design, commissioning, and the unit's active safety control (Sections 4 and 7).

UV222 uses a mercury-free krypton-chloride (KrCl) excimer lamp with an optical band-pass filter to deliver a narrow output centered on 222 nm. It contains no mercury, leaves no chemical residue, and generates only negligible ozone under normal room ventilation. The filter removes emission above ~230 nm, so the wavelength-specific 222 nm exposure limit (ACGIH TLV / ICNIRP) applies. It is integral to every UV222 fixture and is not user-removable or optional; all performance values and safety behavior in these instructions apply to the filtered condition.

02 | INDICATIONS FOR USE

Intended use

The UV222 Cleanroom Downlight is intended to provide continuous decontamination of air and surfaces in cleanrooms and other controlled indoor environments when installed and operated per these instructions. It is not designed to replace regular manual cleaning protocols, ventilation, or the required air changes per hour (ACH).

Regulatory compliance (summary)

The product is CE marked and designed for regulated cleanroom environments (ISO Class 5/Grade A/B). When installed per these instructions and commissioned with the correct safety distances, exposure remains within the applicable exposure limits [ACGIH TLVs / ICNIRP] for the intended installation. A full list of standards is in [Section 13](#).

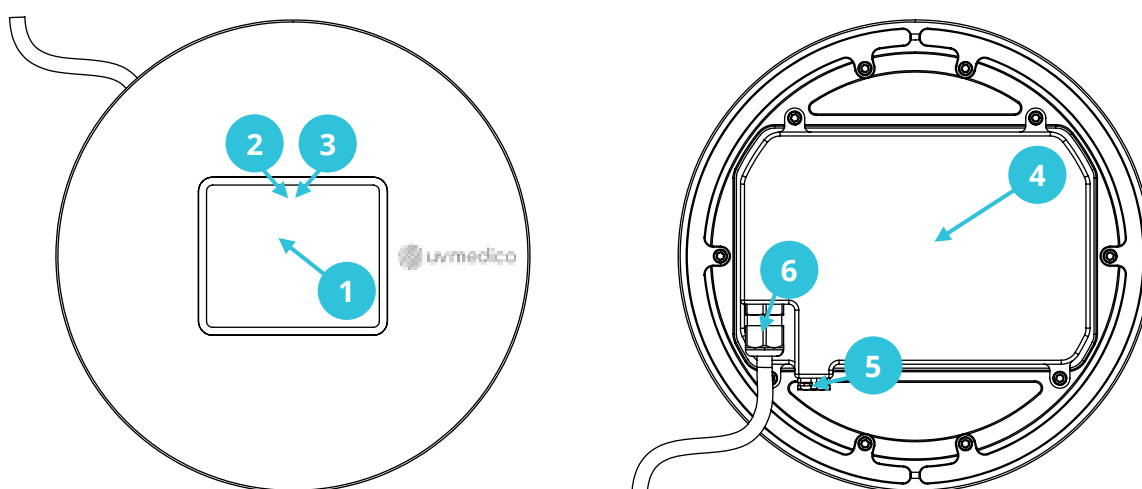
Use recommendations and suitable environments

Intended for indoor spaces with adequate ventilation. Operating conditions:

- Temperature: 0–50 °C (32–122 °F)
- Humidity: 5–90 % RH, non-condensing
- Mounting: ceiling grid only

03 | PRODUCT DESCRIPTION

Feature identification



#	Feature	Description
1	Far-UVC lamp	KrCl excimer emitter, 222 nm, with optical band-pass filter
2	Radar sensor	Measures distance to occupants for safety control; detects occupancy
3	Status LED indicator	Multi-color operating and lamp-life status
4	Rear service module	Screw-lock access to service/replace the light source
5	USB-C port	Commissioning and configuration (behind removable vent)

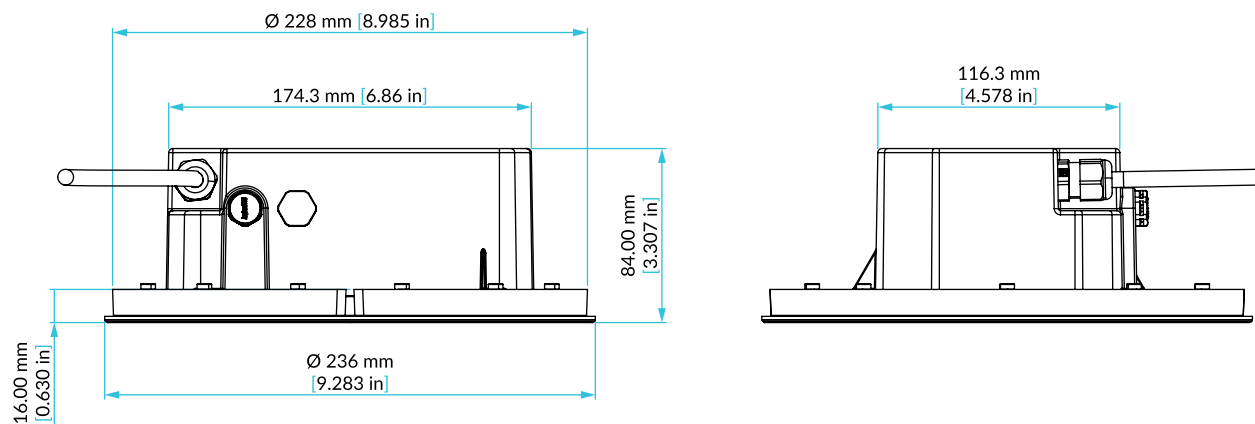
#	Feature	Description
6	Mains terminal	100–240 V AC, 50/60 Hz

Product views



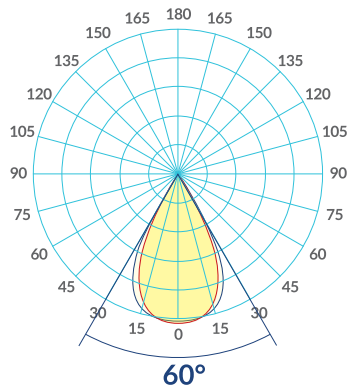
Dimensions and technical drawings

Overall dimensions: Ø 236 mm x 84 mm (Ø 9.29 in x 3.31 in). The drawings below give the panel footprint, build-up height above the ceiling line, and the electrical entry position.



Optics and beam

Beam angle: **60°**. Typical 222 nm output: **115 mW**. Minimum mounting height and coverage are determined by the site plan ([Section 5.3](#)).



Technical specifications

Fixture, electrical and environmental

Input voltage	100-240 V AC, 50/60 Hz
Max power consumption	20 W
Operating mode (programmable)	Continuous/duty cycle/motion activated
Sensors	Radar (distance + motion)
Dimensions	Ø 236 mm x 84 mm (Ø 9.29 in x 3.31 in)
Weight	1.6 kg (3.5 lbs)
Mounting	Recessed; diameter of opening should be min. 204 mm (8.03 in) and max. 234 mm (9.21 in), minimum depth of 87 mm (3.43 in)
Operating temperature	0° to + 50° C (32° to 122° F)
Ambient humidity	5–90 % RH, non-condensing

Far-UVC (222 nm) light

Light source	Krypton-Chloride (KrCl) excimer lamp
Peak wavelength	222 nm
Beam angle	60°
Typical output	115 mW
Average irradiance (at center)	13.8 mW/cm ² @ 1 meter
Lamp life	17,500+ hours

04 | SAFETY INFORMATION

WARNING - UV LIGHT

This product emits filtered Far-UVC radiation at 222 nm. Read and follow these instructions before installation or use.

The product is intended for use in occupied spaces only when installed, configured, and commissioned by qualified personnel (see [Section 6](#)) in accordance with the specified mounting height, Safety Off Distance, and other installation requirements in [Section 7](#). UV-C exposure can injure eyes and skin if the product is installed or operated outside the specified mounting height, Safety Off Distance, or other requirements in Section 7. Do not operate the product if the optical filter, protective components, or proximity safety function are damaged, disabled, bypassed, or not operating correctly.

4.1 Warnings & precautions - UV radiation

Install in accordance with the applicable exposure limits and recommendations for the intended installation (see Section 13). This requires authorized personnel who understand those limits and recommendations and are able to apply them to the specific room, including luminaire placement, minimum distances, and protection from line-of-sight exposure. Reflective ceiling/wall surfaces affect exposure and must be accounted for in that assessment. Mount where the unit cannot readily be tampered with. As an additional safety measure, the unit uses radar motion and distance sensing to shut the lamp down if a person comes within the programmed safety distances, protecting against overexposure from close-range proximity. These distances are set to standard values at commissioning and may be adjusted to meet customer requirements.

Electrical safety

- Disconnect power from the breaker before installing or servicing.
- Electrical connection must comply with national and local regulations; where required by law, verification should be performed by qualified personnel.
- Verify that the supply is within 100-240 V AC, 50/60 Hz before connecting.
- Do not install if the enclosure is damaged; protect wiring from sharp edges.

Operating environment hazards

- Never touch or clean the lamp glass while energized. Turn off and allow 15 minutes to cool first.
- Do not touch the lamp glass without gloves. Fingerprint oils permanently etch and weaken it.
- Do not place objects, plastic or glass close to the emitting surface; keep the path to the target area clear.
- Avoid prolonged short-range exposure of plastics/wallpaper, which may discolor; avoid exposing plants.

4.2 Precautions

- **Maintenance:** Power to the unit must be off during maintenance. Do not open the unit while powered.
Repair and replacement of safety-relevant parts must be done by authorized personnel only (see Section 15).
- **Safe distances:** Install at the positions, mounting heights and spacing established by the exposure assessment and site plan (see Section 5.3).
- **Signage:** Provide signage at every entrance to the room, positioned so it is visible before entry. Installation and signage must also comply with applicable local regulations and

codes; where local requirements differ from the guidance above, the stricter requirement applies.

4.3 Contraindications

- Do not use if the fixture or light source is damaged, or for any non-intended use.

05 | PREPARATION FOR USE

5.1 Unboxing and inspection - packaging content

Unbox in or near the installation room. Inspect for transport damage, defects or tampering; verify labels. Do not remove the protective film on the emitting surface until commissioning. Record each unit's serial number and location.

Packaging content:

- UV222 Cleanroom Downlight panel
- Installation clamps or brackets (depending on product variant)
- Far-UVC safety pamphlet
- Light measurement report

5.2 Power requirements and connections

A dedicated 100-240 V AC, 50/60 Hz circuit with a means of isolation is recommended to switch and power-cycle the unit. Maximum power consumption is 20 W. Verify circuit capacity on the main panel and follow local electrical codes.

5.3 Recommended room layout & placement

Unit count, positions, mounting height, and spacing are specific to each room and are not fixed in these instructions. They are determined for the individual installation by the qualified personnel responsible for the installation (see Section 6), so that coverage is effective while exposure stays within limits. Follow the resulting installation layout, do not install below the minimum mounting height it specifies, and plan placement before cutting or modifying the ceiling.

That layout shall be based on an installation-specific exposure assessment carried out by those personnel in accordance with ANSI/IES RP-27.1-22, the applicable exposure limits and regulations for the intended market and installation, and the requirements of these instructions. Install in accordance with the installation layout and specified operating parameters based on such assessment. Any change to luminaire quantity, position, mounting height, orientation or operating configuration requires reassessment of predicted UV exposure.

06 | INSTALLATION

Who can install this product

People with the education, training, and experience necessary to install, configure, and commission the product safely in accordance with these instructions. They shall understand applicable electrical requirements, UV-radiation hazards, exposure limits, and risk-control measures, and be competent to perform and document the required commissioning measurements. Where required by law, they shall hold the necessary license or authorization.

This section gives the generic installation sequence only. The exact mounting method, cable entry, and electrical termination depend on the product variant and on the site. The steps below do not replace either.

6.1 Before you start

- Confirm the room and mounting position are suitable and match the project site plan ([Section 5.3](#)).
- Confirm the structure can carry the unit and that there is enough depth and cabling room behind it.
- Isolate the supply at the breaker, lock it out, and verify dead before any work.
- Have the product installation manual, the correct tools and PPE, and (for commissioning) a computer with the UV Medico Configuration App to hand.

6.2 Installation

The unit is recommended to be installed into a suspended ceiling or similar surface able to carry its weight, preferably close to earthed electrical wiring. Prepare a circular opening of min. 204 mm (8.03 in) and max. 234 mm (9.21 in), and min. 87 mm (3.43 in) of clear depth behind the ceiling line.

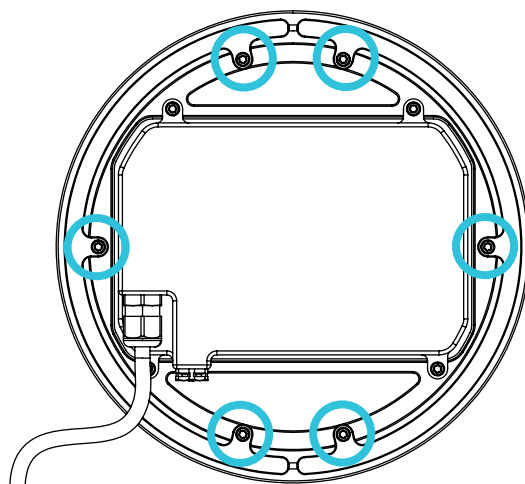
WARNING

Do not remove the protective film or place the room in service until the unit has been configured ([Section 7](#)). The unit is not safe for occupied use until it has been commissioned with the correct safety distances; incorrect settings can lead to overexposure.

There are two Cleanroom Downlight product variants, each with different fastening devices.

6.2.1 Bracket installation

Remove the six screws holding the front module to the brackets.



Seat the front plate in the opening made on the installation surface.

Make the electrical connection in line with local wiring regulations, ensuring correct polarity and protective earth. Protect wiring from sharp edges. The supply must be within the unit rated range (see [Technical specifications](#)).

Restore power and confirm normal start-up. Check the status LED ([Section 8.2](#)) to confirm operation. Configure the unit before reattaching the brackets.

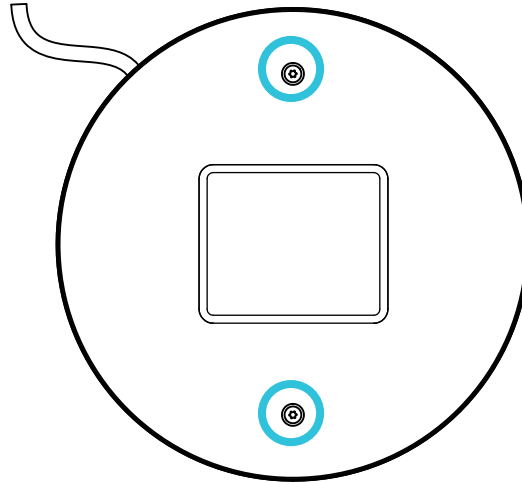
Apply joint sealant (per site operating procedure) around the front plate's rim before the unit is placed in service ([Section 7](#)).

6.2.2 Clamps installation

Seat the front plate in the opening made on the installation surface.

Make the electrical connection in line with local wiring regulations, ensuring correct polarity and protective earth. Protect wiring from sharp edges. The supply must be within the unit rated range (see [Technical specifications](#)).

Restore power and confirm normal start-up. Check the status LED ([Section 8.2](#)) to confirm operation. Configure the unit before tightening the clamps using the screws on the front plate.



Apply joint sealant (per site operating procedure) around the front plate's rim and screws (if required) before the unit is placed in service ([Section 7](#)).

6.3 Handover

- Once operation is confirmed, remove the protective film from the emitting surface.
- Place Far-UVC information signage outside the room, in line of sight.
- Record the serial number, location, and commissioning settings, and hand these instructions to the operator.

07 | CONFIGURATION

The unit is configured before the room is placed in service. Configuration sets the operating schedule, the operating mode, and the safety distances the unit uses to keep 222 nm exposure within the applicable exposure limits for the installation.

This is done with the **UV Medico Configuration App**, which allows for direct setup over USB-C using the app on a Windows computer ([Section 7.1](#)). Required for first-time commissioning and for setting the safety distances.

WARNING

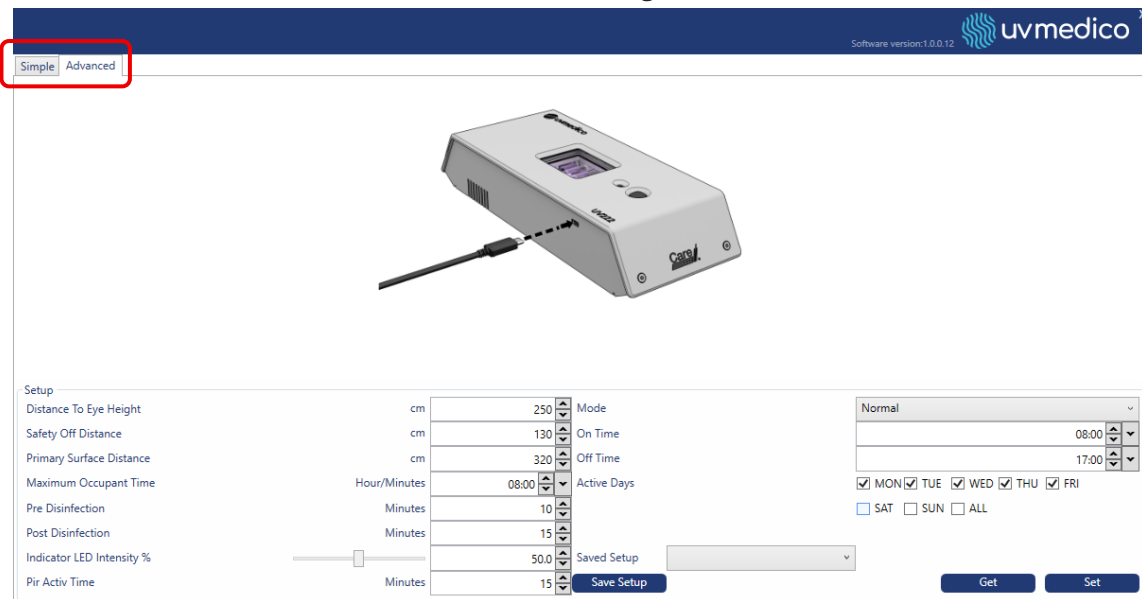
The safety distances can only be set with the Configuration App and must reflect the actual room and mounting height.

7.1 Configuration with the UV Medico Configuration App

Requirements: a Microsoft Windows computer with the UV Medico Configuration App installed, and a USB-C cable. Contact your distributor for the latest software and firmware. There is a USB-C connection on the side of the unit, behind a removable vent.

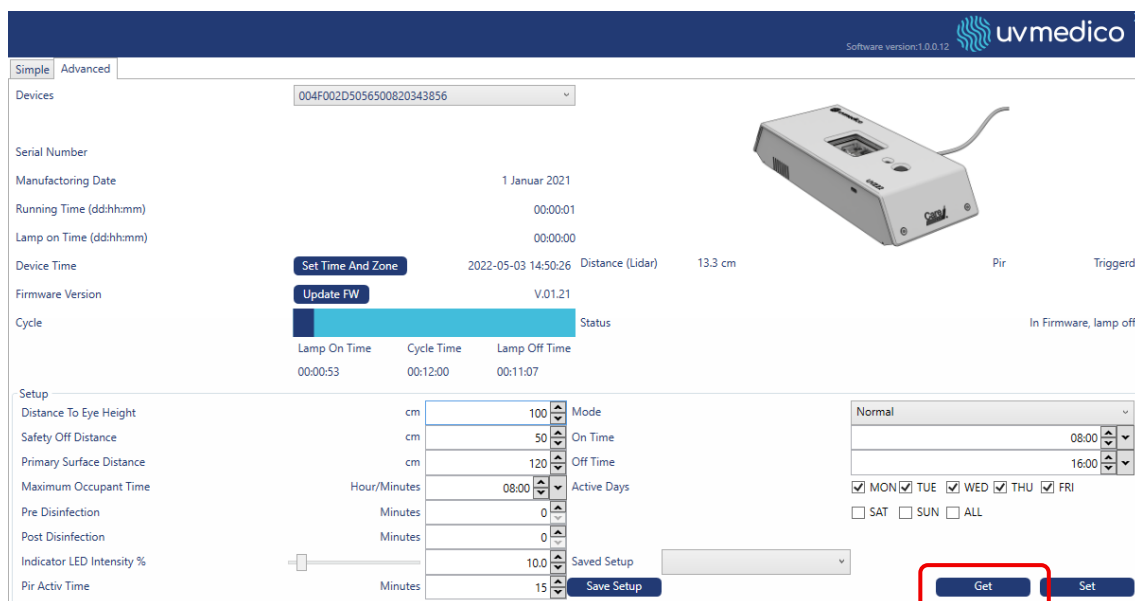
Launch the app by opening “UV Medico Configuration App.exe”. Connect the computer to the unit's USB-C port; the unit appears automatically in the app. The app has two set-up modes:

- **Simple mode** - follow the on-screen instructions - recommended for standard rooms.
- **Advanced mode** - full manual control of all settings, as described below.



Advanced mode - step by step

1. Read current settings: **Get** - if the unit was already installed, press “Get” to read out and display its current settings.



2. Firmware: check the firmware version. If it is not the latest, click **Update FW**, select the correct version, click “Open”, then confirm with “Yes”.

uvmedico Software version:1.0.0.12

Simple Advanced

Devices: 004F002D5056500820343856

Serial Number

Manufacturing Date: 1 Januar 2021

Running Time (dd:hh:mm): 00:00:01

Lamp on Time (dd:hh:mm): 00:00:00

Device Time: 2022-05-03 14:50:26 Distance (Lidar): 13.3 cm Pir Triggerd

Firmware Version: V.01.21

Cycle: Set Time And Zone Update FW Status: In Firmware, lamp off

Lamp On Time: 00:00:53 Cycle Time: 00:12:00 Lamp Off Time: 00:11:07

Setup

Distance To Eye Height: cm 100 Mode: Normal

Safety Off Distance: cm 50 On Time: 08:00

Primary Surface Distance: cm 120 Off Time: 16:00

Maximum Occupant Time: Hour/Minutes 08:00 Active Days: ☒ MON ☒ TUE ☒ WED ☒ THU ☒ FRI

Pre Disinfection: Minutes 0 ☐ SAT ☐ SUN ☐ ALL

Post Disinfection: Minutes 0

Indicator LED Intensity %: 10.0 Saved Setup: Get Set

Pir Activ Time: Minutes 15 Save Setup

uvmedico Software version:1.0.0.12

Simple Advanced

Devices: 004F002D5056500820343856

Serial Number

Manufacturing Date

Running Time (dd:hh:mm)

Lamp on Time (dd:hh:mm)

Device Time

Firmware Version

Cycle

Setup

Distance To Eye Height

Safety Off Distance

Primary Surface Distance

Maximum Occupant Time

Pre Disinfection

Post Disinfection

Indicator LED Intensity %

Pir Activ Time

Open

Program Files (x86) > UV Medico > UV Medico Configuration App > Firmwares

Name	Date modified	Type	Size
Firmware_UVM_1_07.bin	06/07/2021 15:18	BIN File	110 KB
Firmware_UVM_1_11.bin	09/11/2021 09:21	BIN File	112 KB
Firmware_UVM_1_12.bin	24/11/2021 09:50	BIN File	112 KB
Firmware_UVM_1_13.bin	08/12/2021 22:13	BIN File	112 KB
Firmware_UVM_1_14.bin	15/12/2021 10:42	BIN File	113 KB
Firmware_UVM_1_15.bin	20/12/2021 10:51	BIN File	112 KB
Firmware_UVM_1_17.bin	10/01/2022 10:32	BIN File	112 KB
Firmware_UVM_1_18.bin	19/01/2022 13:46	BIN File	126 KB
Firmware_UVM_1_20.bin	16/03/2022 09:44	BIN File	127 KB
Firmware_UVM_1_21.bin	23/03/2022 09:39	BIN File	127 KB

File name: Firmwares (BIN) (*.BIN) Open Cancel

3. Time: press **Set Time and Zone** - the unit's date and time are set to match the computer.

uvmedico Software version:1.0.0.12

Simple Advanced

Devices: 004F002D5056500820343856

Serial Number

Manufacturing Date: 1 Januar 2021

Running Time (dd:hh:mm): 00:00:01

Lamp on Time (dd:hh:mm): 00:00:00

Device Time: 2022-05-03 14:50:26 Distance (Lidar): 13.3 cm Pir Triggerd

Firmware Version: V.01.21

Cycle: Set Time And Zone Update FW Status: In Firmware, lamp off

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Setup

Distance To Eye Height: cm 100 Mode: Normal

Safety Off Distance: cm 50 On Time: 08:00

Primary Surface Distance: cm 120 Off Time: 16:00

Maximum Occupant Time: Hour/Minutes 08:00 Active Days: ☒ MON ☒ TUE ☒ WED ☒ THU ☒ FRI

Pre Disinfection: Minutes 0 ☐ SAT ☐ SUN ☐ ALL

Post Disinfection: Minutes 0

Indicator LED Intensity %: 10.0 Saved Setup: Get Set

Pir Activ Time: Minutes 15 Save Setup

4. Duty cycle: set **On time** (when the room starts being occupied) and **Off time** (when it is no longer occupied).
5. Set the **Maximum Occupant Time** - how long the room is occupied during the duty cycle.
6. Optional: enable a pre- and post-decontamination cycle; the unit then runs before and after the duty cycle.
7. Set the multicolor status-LED intensity to the desired level.

Software version: 1.0.0.12

Devices: 004F002D5056500820343856

Serial Number

Manufacturing Date: 1 Januar 2021

Running Time (dd:hh:mm): 00:00:01

Lamp on Time (dd:hh:mm): 00:00:00

Device Time: 2022-05-03 14:50:26 Distance (Lidar): 13.3 cm Pir: Triggerd

Firmware Version: V.01.21

Cycle: Status: In Firmware, lamp off

Setup:

Distance To Eye Height: cm: 100 Mode: Normal

Safety Off Distance: cm: 50 On Time: 08:00

Primary Surface Distance: cm: 120 Off Time: 16:00

Maximum Occupant Time: Hour/Minutes: 08:00 Active Days: ☒ MON ☒ TUE ☒ WED ☒ THU ☒ FRI

Pre Disinfection: Minutes: 0 ☐ SAT ☐ SUN ☐ ALL

Post Disinfection: Minutes: 0

Indicator LED Intensity %: 10.0 Saved Setup: Save Setup

Pir Active Time: Minutes: 15 Get Set

8. Select the operating **Mode**:
 - **Normal**: runs to the programmed settings.
 - **Only on when movement**: runs only when the sensor detects movement; "PIR active time" sets how many minutes the cycle runs after movement is detected.
 - **Always on (safety-off distance only)**: runs continuously and turns off only when something comes closer than the safety-off distance. (Select this mode only where qualified personnel manually keep operation within the applicable exposure limit.)
9. Set the three distances (in centimeters): **Distance to eye height** (closest distance from the unit to a person's eyes, including people walking around); **Safety-off distance** (closest a person may get before the unit turns off; it resumes 10 s after the distance is regained); **Primary surface distance** (distance from the unit to the primary target surface).

Software version: 1.0.0.12

uvmedico

Simple Advanced

Devices: 004F002D5056500820343856

Serial Number

Manufacturing Date: 1 Januar 2021

Running Time (dd:hh:mm): 00:00:01

Lamp on Time (dd:hh:mm): 00:00:00

Device Time: 2022-05-03 14:50:26

Firmware Version: V.01.21

Cycle: Status: In Firmware, lamp off

Distance (Lidar): 13.3 cm

Pir: Triggerd

Set Time And Zone

Update FW

Distance To Eye Height: 100 cm

Safety Off Distance: 50 cm

Primary Surface Distance: 120 cm

Maximum Occupant Time: 08:00

Pre Disinfection: 0 Minutes

Post Disinfection: 0 Minutes

Indicator LED Intensity %: 10.0

Pir Activ Time: 15 Minutes

Mode: Normal

On Time: 08:00

Off Time: 16:00

Active Days: ☒ MON ☒ TUE ☒ WED ☒ THU ☒ FRI ☐ SAT ☐ SUN ☐ ALL

Save Setup

Get Set

10. Optional: **Save Setup** as a named template to reuse for units with similar placement.

11. Press **Set** to upload the settings to the unit. The unit is then ready to test and start up.

Software version: 1.0.0.12

uvmedico

Simple Advanced

Devices: 004F002D5056500820343856

Serial Number

Manufacturing Date: 1 Januar 2021

Running Time (dd:hh:mm): 00:00:01

Lamp on Time (dd:hh:mm): 00:00:00

Device Time: 2022-05-03 14:50:26

Firmware Version: V.01.21

Cycle: Status: In Firmware, lamp off

Distance (Lidar): 13.3 cm

Pir: Triggerd

Set Time And Zone

Update FW

Distance To Eye Height: 100 cm

Safety Off Distance: 50 cm

Primary Surface Distance: 120 cm

Maximum Occupant Time: 08:00

Pre Disinfection: 0 Minutes

Post Disinfection: 0 Minutes

Indicator LED Intensity %: 10.0

Pir Activ Time: 15 Minutes

Mode: Normal

On Time: 08:00

Off Time: 16:00

Active Days: ☒ MON ☒ TUE ☒ WED ☒ THU ☒ FRI ☐ SAT ☐ SUN ☐ ALL

Save Setup

Get Set

How the unit stays within limits

After configuration, the unit calculates the 222 nm dose automatically to stay within the applicable exposure limit (ACGIH TLV / ICNIRP). If a person comes closer than the programmed eye-height or safety-off distance during a cycle, the unit stops and resumes 10 seconds after the distance is cleared. If movement is detected during a pre-/post-decontamination cycle, the unit restarts its duty cycle. If the room's use, occupancy or layout changes, the unit must be reprogrammed - contact the installer.

Test mode

Right-click the image of the unit in the app to open test mode. Activating the 222 light source here runs the unit with no safety control - use only to verify the light source, and only when no person can be exposed. LED mode offers Normal, LED Off, and an RGBW LED test cycle. Un-tick "Enable" to return to normal configuration.

08 | OPERATING INSTRUCTIONS

8.1 Device control and modes

After configuration the unit runs automatically according to the selected mode (Section 7.1). The available modes are **Normal**, **Only on when movement**, and **Always on (safety-off distance only)**.

8.2 Status LED indicator

LED	Meaning
No light	No power
Red, continuous	Error - no feedback from light source
Cyan, continuous	Pre-/post-decontamination light source on
Magenta, continuous	Light source on
Blue, continuous	In cycle, UV off
Green, continuous	Out of cycle
Flashing red	Object too close - within safety distance
Flashing magenta	Pre-/post-decontamination triggered by movement
Red-blue-green (loop)	Far-UVC light source replacement recommended

09 | CLEANING, REPLACEMENT & MAINTENANCE

9.1 Routine cleaning of external surfaces

Turn off and lock out power; allow 15 minutes to cool. Clean external surfaces with a soft, non-abrasive, anti-static microfiber cloth and a material-compatible, non-aggressive agent. Do not spray liquids on the emitting surface; do not pressure-wash or immerse.

9.2 Material compatibility

Exterior component	Material
Housing/panel	Powder-coated aluminum
Lamp window	Quartz glass (chemically inert, non-porous)

9.3 Inspection and replacement of components

The Far-UVC light source is field-replaceable via the rear service module (screw-lock), without removing the unit from the ceiling. Replace when the status LED shows the red-blue-green loop. Wear gloves; do not touch the lamp glass. Contact UV Medico for parts ([Section 16](#)).

Repair and replacement of safety-relevant parts must be done by authorized personnel only (see Section 15).

10 | TROUBLESHOOTING

Symptom	Cause	Action
Unit does not light up	No power/wiring	Check supply and cable; verify installation
Unit flickers	Installation fault	Verify installation; if unresolved, contact UV Medico
White flash	Transient	Power-cycle the unit (off 10 s, on)
Does not hold settings	Programming error	Verify with qualified installer; if unresolved, contact UV Medico
Status LED flashing red	Object within safety distance	Clear the area; operation resumes automatically

If a fault persists or recurs, disconnect power and contact UV Medico.

11 | STORAGE

Keep the unit and accessories in the original packaging for transport or long-term storage. Store within the operating environment limits and protect from moisture and impact.

12 | DISPOSAL

Dispose of in accordance with local regulations for electrical and electronic waste. The unit separates into four streams: metal, plastic, electronics, and light source. KrCl excimer lamps are mercury-free and contain no hazardous materials. Consult your local waste authority or return to UV Medico for recycling.

13 | REGULATORY & COMPLIANCE INFORMATION

The UV222 Cleanroom Downlight is a CE-marked, indoor germicidal luminaire combining filtered 222 nm UVC irradiation for environmental air and surface decontamination. It is designed for installation in controlled indoor environments, including appropriately assessed cleanroom applications.

Product conformity and safety are assessed using the applicable requirements of:

- EN IEC 60598-1: Luminaires: general requirements and tests.
- EN IEC 60598-2-1 or EN IEC 60598-2-2: particular luminaire requirements, according to whether installation is surface-mounted or recessed.
- EN IEC 62471-6:2022: photobiological safety of ultraviolet lamp products.
- ISO 15858:2016: UVC-device safety information and permissible human exposure, where applicable to the installation and supported by the product risk assessment.
- IEC PAS 63313:2021: supplementary germicidal UVC safety guidance.
- Applicable UV exposure limits and guidelines, including ICNIRP exposure guidelines and ACGIH Threshold Limit Values (TLVs), as applicable to the intended market and installation.

UV Medico's quality and environmental management systems are certified to ISO 9001:2015 and ISO 14001:2015.

14 | VALIDATION & QUALIFICATION (GMP ENVIRONMENTS)

For use in GMP and other controlled environments, UV Medico provides a qualification protocol so that pharmaceutical QA/QC can verify UV222 efficacy and safe operation before routine use. This section summarizes that approach; the full protocol is issued separately as *Qualification of UV222 Efficacy in a GMP Cleanroom Environment* (Doc. PQ-UV222-CLE).

14.1 Qualification approach (IQ/OQ/PQ)

Stage	Focus	Key acceptance
IQ - Installation	Correct installation per these instructions: wiring and voltage, filter and glass integrity, labelling, and occupancy/motion-sensor function.	Fixtures installed and verified in line with the installation manual.
OQ - Operational	Dose mapping: irradiance vs distance/angle at the intended duty cycle; cumulative dose (mJ/cm ²) per location, measured in at least triplicate.	Dose uniformity and minimum-dose thresholds meet the risk-based specification while personnel exposure stays below limits.
PQ - Performance	Microbiological control under routine occupancy: air, settle and contact sampling across the study phases, with UV kept off the sampling points during collection.	Statistically significant CFU reduction (e.g. ≥ 1 -log median at high-risk locations) within site EM limits, with no adverse flora shift.

14.2 Requalification

Requalify at least annually, or after changes such as relocation, firmware updates, duty-cycle changes or HVAC changes, with periodic verification (e.g. quarterly passive dosimetry at sentinel points) to confirm dose consistency.

Note

This section and the referenced protocol are provided as guidance. The facility remains responsible for compliance with all applicable regulatory requirements, standards, and validation procedures.

15 | WARRANTY & SERVICE

2-year warranty from invoice date, regardless of hours used. For more details, refer to UV Medico's general terms and conditions.

Replacement parts

Part	Description
Far-UVC light source	KrCl 222 nm replacement module for the Cleanroom Downlight

Order replacement parts or request service from UV Medico or your authorized distributor ([Section 16](#)). Provide product serial number when ordering.

Authorized Repair Only

Repair, modification, or replacement of the UV source, optical components, driver, enclosure seals, or any other safety-relevant part must only be performed by UV Medico A/S or a service partner authorized in writing by UV Medico A/S, as such work may require re-verification before the unit is returned to service. Work carried out by unauthorized parties voids the warranty, may invalidate the EU Declaration of Conformity for that unit, and is undertaken entirely at the owner's own risk.

16 | CONTACT INFORMATION

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17 | REVISION HISTORY

This section records the approved revisions of these Instructions for Use.

Version	Date	Description	Approved by
v26.01	2026-08-28	Approved release of Instructions for Use	MBA