

User Manual

APM LED UV-Cube III

UV-LED-curing oven for UV curing adhesives



Keep this manual for future reference!



Important!

This manual is an integral part of the curing system and must be available to the user.



EG - Konformitätserklärung

im Sinne der

2006/25/EG

Richtlinie über Mindestvorschriften zum Schutz von Sicherheit und Gesundheit der Arbeitnehmer vor der Gefährdung durch physikalische Einwirkungen (künstliche optische Strahlung)

2014/35/EG

Richtlinie betreffend elektrische Betriebsmittel zur Verwendung innerhalb bestimmter Spannungsgrenzen

2004/108/EG

Richtlinie zur Angleichung der Rechtsvorschriften der Mitgliedstaaten über die elektromagnetische Verträglichkeit

Der Hersteller:

APM Technica AG
Max-Schmidheiny-Str. 201
CH - 9435 Heerbrugg

erklärt hiermit, dass das nachstehend beschriebene Gerät:

UV-LED-Aushärteschrank für UV härtende Klebstoffe und UV härtende optische Feinkitte

APM Art.Nr.: 105400 mit UV-LED 365nm

APM Art.Nr.: 105401 mit UV-LED 365/405nm

APM Art.Nr.: 105402 mit UV-LED 405nm

Baujahr

gem. Typenschild

Serie-Nr.

gem. Typenschild

in Übereinstimmung mit den oben angeführten EG-Richtlinien entwickelt, konstruiert und gefertigt ist.

Folgende harmonisierte Normen und Spezifikationen sind angewandt:

EN ISO 12100

Sicherheit von Maschinen - Allgemeine Gestaltungsleitsätze - Risikobewertung und Risikominderung

EN 60204-1

Sicherheit von Maschinen - Elektrische Ausrüstung von Maschinen Teil 1: Allgemeine Anforderungen

EN 12198-1

Sicherheit von Maschinen, Bewertung und Verminderung des Risikos der von Maschinen emittierten Strahlung Teil 1: Allgemeine Leitsätze

EN 12198-3

Sicherheit von Maschinen, Bewertung und Verminderung des Risikos der von Maschinen emittierten Strahlung Teil 3: Verminderung der Strahlung durch Abschwächung oder Abschirmung

EN 62471

Photobiologische Sicherheit von Lampen und Lampensystemen

Heerbrugg, Jänner 2023

Arthur Philipp
Chairman

Andreas Hedinger
CEO

Die unterzeichnenden Personen, Arthur Philipp und Andreas Hedinger, APM Technica AG, Max-Schmidheiny-Str. 201, CH-9435 Heerbrugg, sind Dokumentationsbevollmächtigte.

1	User Information	5
1.1	Scope	5
1.2	Definition of Directions.....	5
1.3	Definition of Symbols.....	5
1.4	Display of Safety Information.....	6
2	General Safety Information	7
2.1	Appropriate Usage.....	7
2.2	Inappropriate Usage.....	8
2.3	Possible Dangers Resulting from Usage.....	9
2.4	Residual Risks.....	9
2.5	Responsibilities of the Owner	9
2.6	Responsibilities of the Operators	9
2.7	Qualifications of Personnel	10
2.7.1	Safety and Protective Features.....	11
2.8	User Workspace.....	12
2.9	Identification and Warning Plaques.....	13
2.10	Fire Protection	13
3	Description of the Device	14
3.1	Function	14
3.2	Features.....	14
3.3	Important Components	15
3.4	Technical Data	17
4	Transport and Installation	18
4.1	AC Power Connention	18
5	Operation	19
5.1	General	19
5.2	Operation	20
5.2.1	Normal Operation	20
5.2.2	Standard Settings.....	24
5.2.3	Optional settings.....	24
5.2.4	Optional settings O2 sensor	25
5.2.5	Optional Settings Rotation stage	26
5.3	Maintenance.....	27
5.3.1	Cleaning Device	27
6	Servicing	28
7	Decommissioning	29
7.1	Temporary Decommissioning	29
7.2	Storage Conditions.....	29
7.3	Final Decommissioning.....	29
7.4	Recycling.....	29
8	Trouble Shooting	30
9	Warranty	31
10	Appendix	32
10.1	Important Events and Changes	32

Congratulations on purchasing the APM LED UV Cube III. You have acquired a robust and efficient device for use in your assembly processes. Please transfer the serial number and assembly date of the device into the following table.

Identification of device

Manufacturer:	APM Technica AG
Product:	APM LED UV Cube III
Manufacturing date:	See identification plaque on rear of device
Serial number:	See identification plaque on rear of device

Manufacturer information

APM Technica AG
Max-Schmidheiny-Str. 201
CH-9435 Heerbrugg
Tel: +41 71 788 3100
info@apm-technica.com
www.apm-technica.com

Identification of user guide

Document no.:	302047_UV_Cube_III_V01_EN.docx
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Every effort has been made to insure information in this manual is accurate; however, information in this manual is subject to change without notice and does not represent a commitment on the part of the authors.

Limitation of liability

We have checked the content of this manual for correctness. All the same, deviations from actual hardware and / or functionality thereof may occur.
APM Technica AG reserves the right to change the content of this manual without prior notice.

1 User Information

1.1 Scope

This user manual

- describes the function, usage and maintenance of the LED UV Cube III.
- contains safety information.

1.2 Definition of Directions



1.3 Definition of Symbols

User Instructions and Reactions of the LED UV Cube

Tasks which the user has to perform are listed numerically. The numerical sequence has to be followed by the user. The reaction of the LED UV Cube to a specific action by the user is indicated by an arrow. For example:

- 1 User action 1
→ Reaction to action 1
- 2 User action 2
→ Reaction to action 2







Listings

Listings which do not demand sequential actions are preceded by bullets. For example:

- description 1
- description 2

1.4 Display of Safety Information

Safety information is displayed using pictograms and a warning key word. The key word indicates the gravity of the safety risk.

	Danger!	Imminent danger to life or health of humans (serious bodily harm or death).
	Warning!	Possible danger to life or health of humans (serious bodily harm) or serious material damage.
	Careful!	Possible dangerous situation (light bodily harm or material damage).
	Information!	Indicates important information .
	Important!	Special requirement for safe usage or manipulation of the device.
	Hint!	User hints or other useful information.

Specific Danger Warning

 Follow the user manual!	 Warning: UV Radiation!
--	--

2 General Safety Information



Warning!

Incomplete instruction of operators can cause serious bodily harm or material damage. Only authorised personnel may operate the APM LED UV Cube III, after comprehensive instruction and understanding of the user manual. Operators under instruction may only operate the APM LED UV Cube III under supervision by an experienced user.



Warning!

Operating a defective APM LED UV Cube III can cause serious bodily harm or material damage. Abnormal operation, defects or damage of the APM LED UV Cube III must be immediately reported to the department responsible. The APM LED UV Cube III may never be operated until any abnormalities, defects or damage have been removed or repaired.



Warning!

If maintenance work, repair work, or cleaning has to be performed on the APM LED UV Cube III, it must be switched off and the AC power line must be detached. Never override the safety interlocks! This can result in exposure to harmful UV radiation. Operators must wear appropriate safety equipment (UV blocking goggles, gloves and closed working clothes).

2.1 Appropriate Usage

The APM LED UV Cube III is manufactured according to the most recent EG regulations and contains state-of-the-art safety features. However, usage of the APM LED UV Cube III may endanger the user, third parties, or cause material damage to the APM LED UV Cube III or other materials.



Danger!

The APM LED UV Cube III may only be used in accordance with the appropriate usage defined here and only if all safety features are fully functional. Operational safety of the APM LED UV Cube III is only maintained during appropriate usage.

Appropriate Usage

The APM LED UV Cube III contains a module with UV LEDs radiating at 365 nm (optional 365&405, 405nm) . The APM LED UV Cube III is used for low stress curing of UV adhesives. The temperature of the curing parts only rises insignificantly which reduces mechanical stress.

2.2 Inappropriate Usage

Inappropriate Usage

Any usage which deviates from the „appropriate usage“ described above, constitutes inappropriate usage.

For damage caused by inappropriate usage

- the user is solely responsible,
- the manufacturer and / or supplier of the APM LED UV Cube III does not accept any responsibility.



Danger!

Inappropriate usage can cause dangerous situations! The following usage is prohibited:

- Operating in explosive environments.
- Operating the APM LED UV Cube III without reading and understanding the user manual.
- Operating the APM LED UV Cube III outside the defined operating conditions.
- Removing or tampering with the safety features.
- Removing or tampering with the warning signs on the APM LED UV Cube III.
- Modifying the APM LED UV Cube III without written consent of the manufacturer.
- Operating the APM LED UV Cube III with obvious defects or damage.
- Installing replacement parts without the written consent of the manufacturer.

Modifications

Modifying the APM LED UV Cube III voids the warranty and relieves the manufacturer of any liability. Modifications may change the electromagnetic behaviour of the APM LED UV Cube III. Never modify the APM LED UV Cube III without the written consent of the manufacturer. If any of the hardware or software components are replaced, the safe operation of the APM LED UV Cube III must be retested and revalidated.

Replacement Parts and Auxiliary Components

Using replacement parts or auxiliary components from third parts manufacturers can cause dangerous situations. Only use original parts or parts from suppliers approved by the manufacturer.


The manufacturer is not liable for any damage caused by using third party replacement parts or auxiliary components.

2.3 Possible Dangers Resulting from Usage

When using the APM LED UV Cube III possible danger may result to

- the health of the operator or third parties,
- the device itself,
- other materials or equipment.

The contents of this manual, the knowledge and implementation thereof forms the basis of a safe and defect free usage of the APM LED UV Cube III.

 <p>Important!</p>	<p>This user manual must be kept in the vicinity of the APM LED UV Cube III and must be readily accessible to the operators at all times.</p> <p>In addition local safety and environmental regulations must be observed and followed..</p>
--	---

2.4 Residual Risks

The APM LED UV Cube III has been engineered and manufactured to current state-of-the-art safety technology.

All the same, operating the APM LED UV Cube III may results in danger to the health of the operator or third parties as well as to other materials or equipment.

2.5 Responsibilities of the Owner

The owner of the APM LED UV Cube III is responsible for only allowing operation by personnel who

- are trained in procedures regarding work safety and accident avoidance;
- are trained for operating the APM LED UV Cube III;
- have studied and understood this user manual.

Other regulations such as EG rules for the usage of workplace tools (98/391/EWG) or specific local regulations have to be observed.

2.6 Responsibilities of the Operators

All personnel that operate the APM LED UV Cube III are responsible to make sure before commencing operations that they

- adhere to procedures regarding work safety and accident avoidance;
- adhere to the safety and warning information contained in this manual.

In case of questions refer to the manufacturer, see page 2 of this manual.

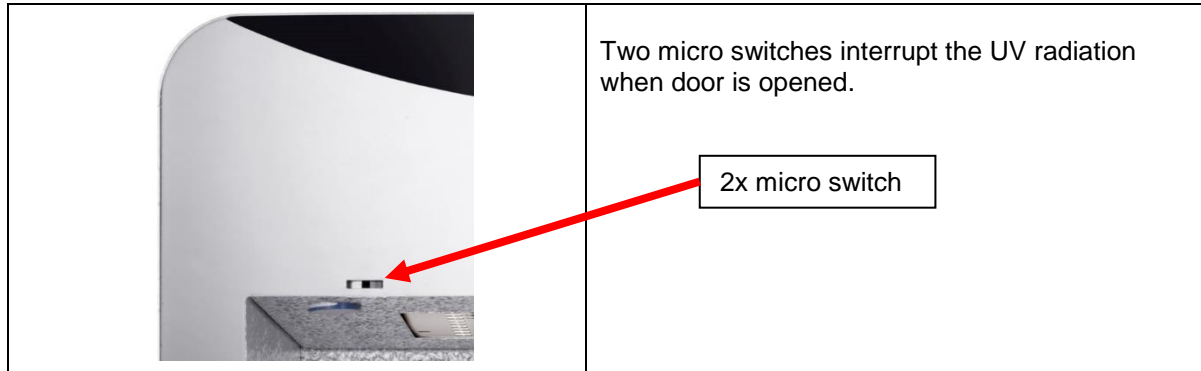
2.7 Qualifications of Personnel

<i>Personnel Procedures</i>	<i>Manufacturer or personnel authorised by manufacturer</i>	<i>Comprehensively instructed users</i>	<i>Personnel with specific skills (i.e.. supervisors, mechanical or electronic engineers, ...)</i>
Transport	Shipping company	--	Shipping company
Assembly and initial operation	Manufacturer	--	--
Setting up at work place	--	After comprehensive instruction according to the user manual	X
Operation	--	After comprehensive instruction according to the user manual	X
Maintenance	--	After comprehensive instruction according to the user manual	X
Trouble shooting and repairs	X	--	Personnel authorised by the manufacturer or specifically trained personnel
Disposal	X	--	X

Legend: X: allowed --: not allowed

2.7.1 Safety and Protective Features

The following image shows the location of the safety interlock.



Important!

Only operate the APM LED UV Cube III when all safety features are present and operational!



Warning!

If the micro switches are bypassed, operators may be harmed!
Bypassing the micro switches constitutes inappropriate operation of the APM LED UV Cube III.

Damaged or Malfunctioning Safety Features

- Damaged or malfunctioning safety features can lead to dangerous operating conditions. Therefore
- Switch off APM LED UV Cube III;
 - Secure APM LED UV Cube III against being operated;
 - Remove AC power connection.

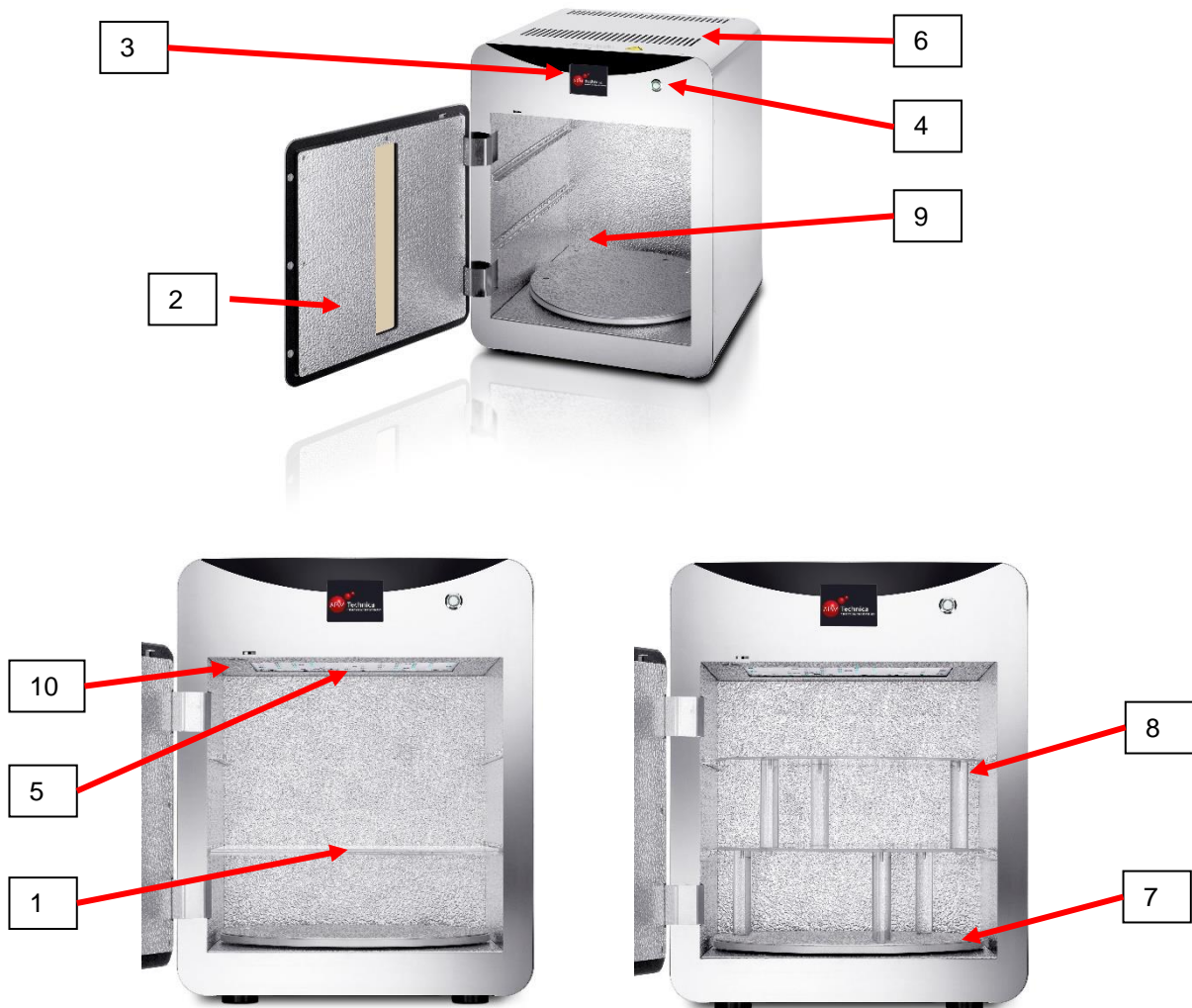
Testing Safety Features

All safety features have to be tested regularly.

Safety Feature	Test Interval
UV radiation interrupting micro switches	3 months

2.8 User Workspace

The APM LED UV Cube III is designed to be operated by one person.



- 1 Curing volume. Objects can be placed on bottom or on trays at two different levels. Trays consist of UV transmitting material so the number of objects to be cured can be optimised.
- 2 Close door so curing process can be started.
- 3 Touch screen for setting curing parameters.
- 4 Start- / stopp-switch for curing process.
- 5 LED-module.
- 6 Ventilation slits.

Options: Rotation Stage and Rotating Trays

- 7 Rotation Stage
- 8 Rotating trays.

Options: Nitrogen Purge

- 9 Entrance duct for nitrogen.
- 10 Oxygen pressure sensor.

2.9 Identification and Warning Plaques

Warning plaques are present on the front top of the APM LED UV Cube III.
An identification plaque is positioned at the rear side:

APM Technica AG	
Max-Schmidheiny-Strasse 201	
CH-9435 Heerbrugg	
info@apm-technica.com	
Made in Switzerland	
Art.Nr.	105400
Gerätebezeichnung	UV-Cube III
Serie-Nr.	V03_A_001
Baujahr	2022
Wellenlänge	365 nm
Kategorie	0 EN 12198
Anschlussspannung	88-264 VAC / 47-63 Hz
Max.Leistungsaufnahme	540W

Warning!

Removal of the warning plaques or non-replacement of damaged plaques increase the operating risks of the APM LED UV Cube III.
Warning and identification plaques may not be removed.
Damaged or illegible plaques must be replaced.

2.10 Fire Protection



Warning!

Local regulations concerning fire protection must be observed!
Observe the relevant information on the material to be cured as noted in the technical data sheets and in the MSDS.

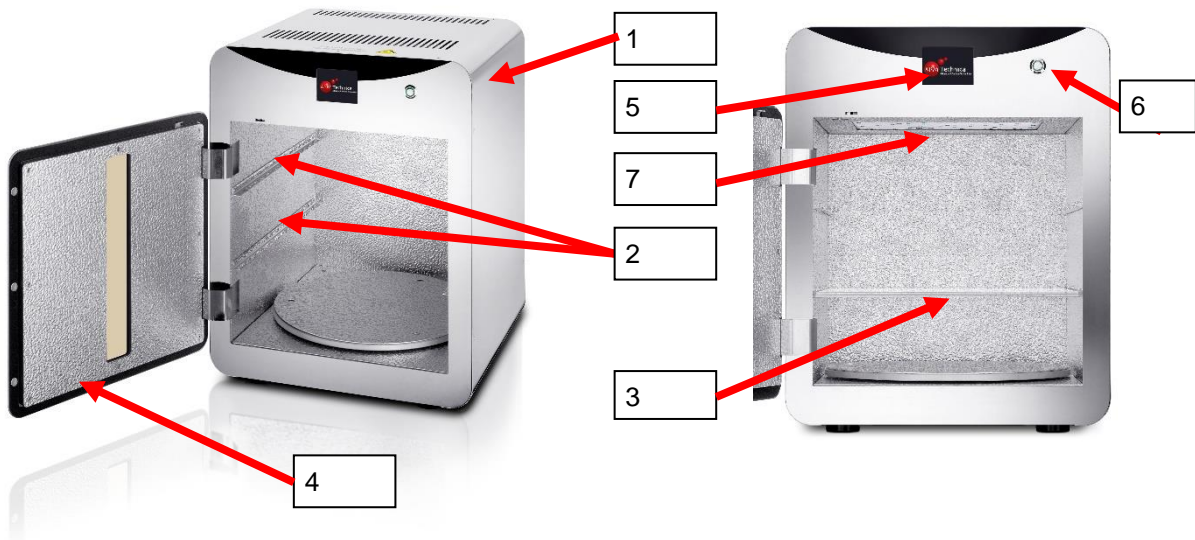
3 Description of the Device

3.1 Function

The APM LED UV Cube III is fitted with a UV LED module radiating at 365 nm (other wavelengths optional). The APM LED UV Cube III is used for low stress curing of UV curing resins.

3.2 Features



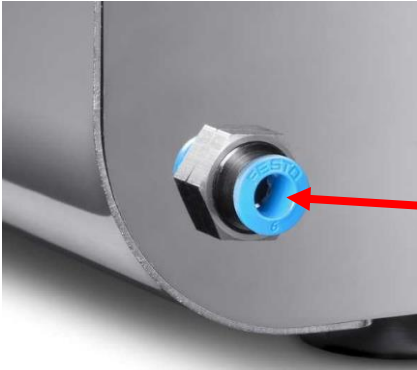
The main features and their location in the APM LED UV Cube III are shown in the following image.





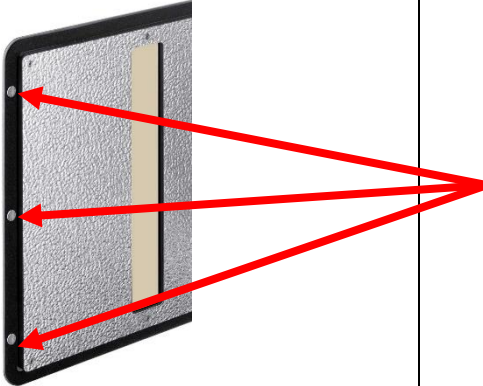


- 1 Stainless steel outer body.
- 2 Rails for shelving.
- 3 UV transmitting tray for positioning work piece.
- 4 Door with UV blocking view port.
- 5 Touch screen control.
- 6 On / Off switch.
- 7 LED-module.

The APM LED UV Cube III is engineered from stainless steel with the inner walls covered in specially structured UV reflectors designed to homogenise scattered radiation. A rotation stage and a nitrogen purge duct combined with an O₂ pressure sensor, which triggers the curing cycle when a certain O₂ threshold is reached, are implemented in UV Cube III.

3.3 Important Components

	<p>AC power connection and fuse.</p> <p>Plug for AC</p> <p>Fuse</p> <p>Mains switch</p>
	<p>View port made from UV blocking material.</p> <p>View port</p>
	<p>Connector for N₂ purge function</p> <p>N₂ connector</p>

 <p>Do not cover Nicht abdecken</p>	 <p>Warning!</p> <p>Do not cover the ventilation slits! Overheating and failure of the LED module may result. Do not cover the UV warning plaque! Do not open the outer housing! There are no user serviceable parts inside. If the curing chamber has to be cleaned or other maintenance work needs to be performed, the APM LED UV Cube III must be switched off and the AC power must be disconnected.</p>
	<p>Touch panel for programming curing parameters:</p> <ul style="list-style-type: none"> - duration - UV intensity - rotation stage on/off/speed - O₂ sensor on /off/settings - PW-protection on/off <p>Switch for curing on / off.</p>
	<p>Two micro switches that shut off UV radiation when door is opened during curing cycle.</p>
	<p>Magnets keep door shut.</p> <div style="border: 1px solid black; padding: 2px; display: inline-block;">Magnets</div>

3.4 Technical Data

Mechanical	Outer dimensions	Length: 362 mm Width: 345 mm Height: 454 mm
	Tray dimensions	Length: 292 mm Width: 292 mm
	Weight	22kg
	Wavelength	Part no. 105400 365 nm, Part no. 105401 365/405nm, Part no. 105402 405nm
Optical	UVA- intensity at 100% power (measured with EIT UVICURE PLUS II at 365 nm)	Part no. 105400 > 150 mW / cm ² centre of upper tray > 80 mW / cm ² centre of middle tray > 50 mW / cm ² centre of floor
	UVA- intensity at 100% power (measured with EIT UVICURE PLUS II at 365 nm)	Part no. 105401 > 65 mW / cm ² centre of upper tray > 35 mW / cm ² centre of middle tray > 25 mW / cm ² centre of floor
	UVV- intensity at 100% power (measured with EIT UV Power Puck at 405 nm)	Part no. 105401 > 55 mW / cm ² centre of upper tray > 30 mW / cm ² centre of middle tray > 20 mW / cm ² centre of floor
	UVV- intensity at 100% power (measured with EIT UV Power Puck at 405 nm)	Part no. 105402 > 90 mW / cm ² centre of upper tray > 50 mW / cm ² centre of middle tray > 35 mW / cm ² centre of floor
Electrical	AC Power	100 – 240 VAC, 50-60 Hz, 2.5A
	Protection	Over- and undervoltage, overcurrent, overtemperature, elctr. fuse: 250VAC/T2.5A
	Visual status indication	On/off switch green continuous: UV radiation on. On/off switch green off: no UV radiation On/off switch green blinking: UV radiation interrupted. Wait mode (door open or O ₂ level too high)
Environmental conditions	Operating / storage temperature	+15 °C to +30 °C / -20 °C to +50 °C
	Humidity	5 % to 85 % r. H. (non condensing)
Optional accessory	UV radiation meter for process assurance	EIT UVICURE PLUS II
Conformity	CE, RoHS	

4 Transport and Installation

Only use qualified shipping companies!.

4.1 AC Power Connection

Standard IEC socket and mains switch. Current and voltage requirements, see chapter 3.4 „Technical Data“.



5 Operation

5.1 General



Warning!

If the micro switches are bypassed, operators may be harmed!
Bypassing the micro switches constitutes inappropriate operation of the APM LED UV Cube III.



Warning!

If the AC power shuts down during operation, the APM LED UV Cube III will shut down. When AC power is restored the APM LED UV Cube II will resume operation.
In such cases the curing process might be compromised. Check the curing result achieved on the work piece.



Warning!

If the O₂ purge option is used, i.e. N₂ is used to flush the APM LED Cube III, the device may only be used in a well ventilated environment.

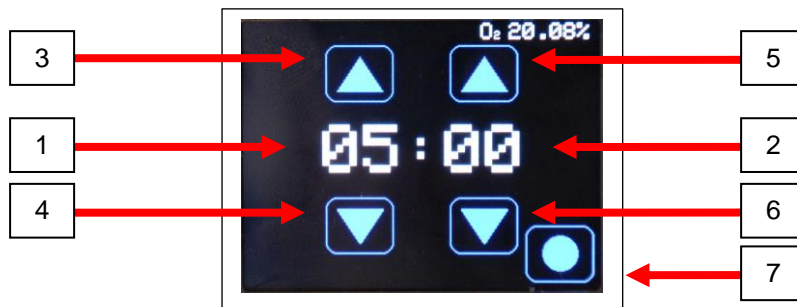
5.2 Operation

Precondition

→ The APM LED UV Cube III is connected to AC power and mains switch is on.

5.2.1 Normal Operation

The unlocked start up touch screen display is shown in the following image.



- 1 Minutes display (optional hour display)
- 2 Seconds display (optional minutes)
- 3 Increment button one minute (optional hour)
- 4 Decrement button one minute (optional hour)
- 5 Increment button one second (optional minute)
- 6 Decrement button one second (optional minute)
- 7 Go to menu „settings“

The time setting and display from mm:ss to hh:mm can be changed.

The buttons are active when the APM LED UV Cube III is in standby mode, i.e. no curing process is running.

5.2.1.1 Password protection

The password protection prevents from unauthorized changes of curing parameters.

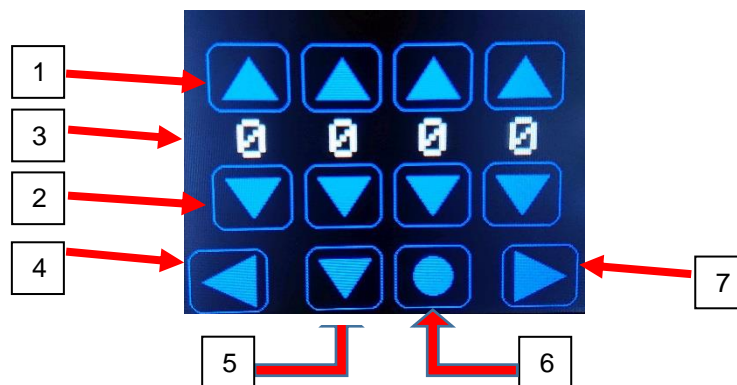
The locked start up screen display is shown in the following image.



1 Go to PW-Menue

To enter the PW-display press button 1.

The Password display is shown in the following image.

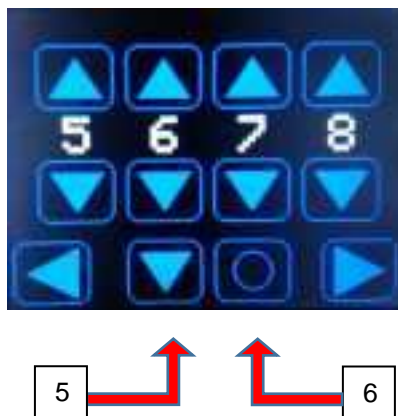


- 1 Increment button
- 2 Decrement button
- 3 PW display
- 4 Previous display
- 5 Lock button
- 6 Save PW button
- 7 Next display

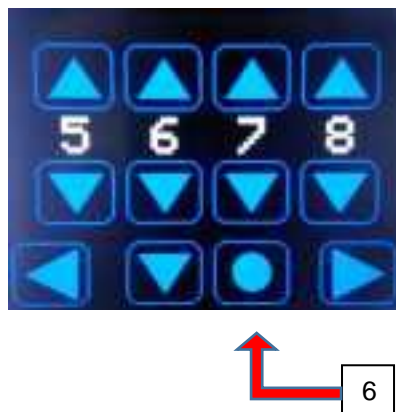
Enter the preset Password 1234, afterwards you are able to enter the setup displays by pushing button 7 or go back to the start display to change the curing time by using button 4.



To change the preset Password, please enter the new Password. Button number 6 is then greyed out.



Please confirm the PW-change by pressing button 6. Button 6 will be highlighted. To lock the system again press button 5. Choosing "0000" will deactivate the PW-request for entering the setup displays.



5.2.1.2 Start / Stopp UV Curing

1. Position the work pieces as centrally as possible on a tray of the APM LED UV Cube III.
2. Position the tray on the base or one of the two rails in the curing chamber.
3. Close the door.
4. Start the curing process by pressing the on / off switch.
 - On / off switch is continuously illuminated green.
 - The time countdown starts.
5. The door may be opened at any time during the curing process.
 - UV radiation is interrupted immediately, time countdown stops, and the on / off switch blinks green.
6. Closing the door restarts the curing process.
 - UV radiation is switched on.
 - Timer countdown resumes.
7. When the timer countdown reaches zero, UV radiation is switched off and the on / off switch is not illuminated.

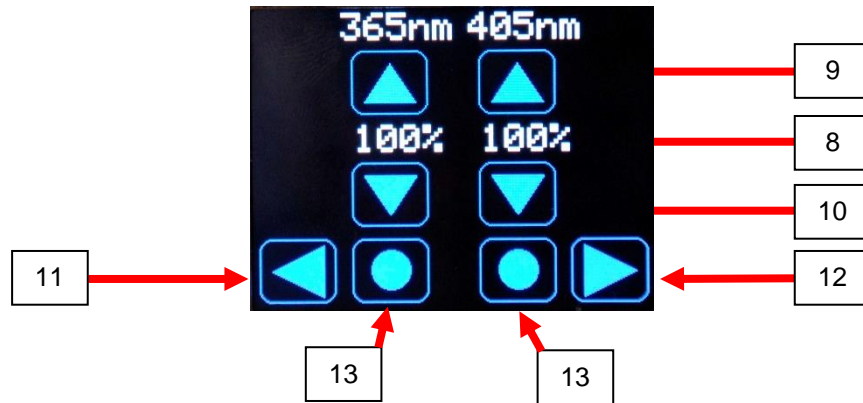


Information!

If the timer setting is set to „99:00“, the countdown is inactive, i.e. the UV radiation is continuous.

5.2.2 Standard Settings

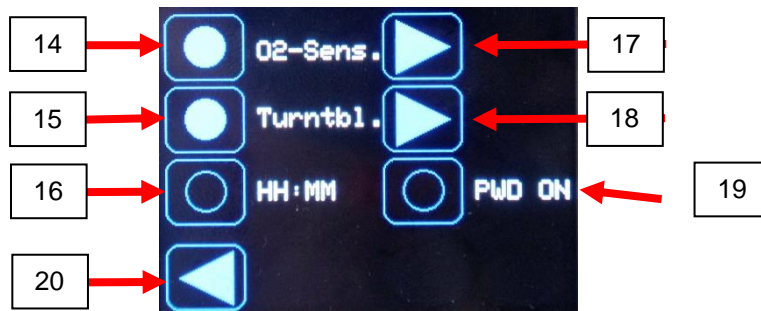
The settings menu is accessed with button at the lower right of touch screen (see 5.2.1). The following image shows the standard settings screen for a combined (365 & 405nm) UV Cube III.



- 8 LED power setting in % of full power.
- 9 Increment LED power by 5%
- 10 Decrement LED power by 5%
- 11 Go to previous menu.
- 12 Go to next menu
- 13 Activate/deactivate the corresponding wavelength

5.2.3 Optional settings

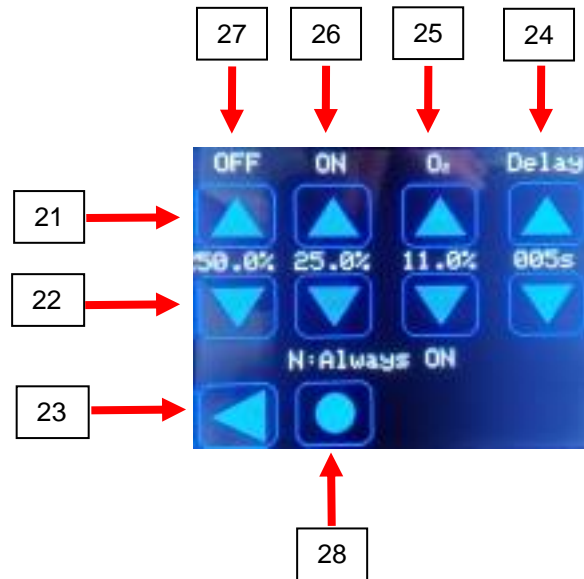
The following image shows the buttons in the optional settings menu.



- 14 O₂ sensor active / inactive
- 15 Rotation stage on / off
- 16 HH:MM or MM:SS in the time menu
- 17 O₂ sensor optional settings
- 18 Rotation stage optional settings
- 19 Password protection active / inactive
- 20 Go back to previous menu

5.2.4 Optional settings O₂ sensor

The menu „optional settings O₂ sensor“ is only available when the O₂ sensor is active. The following image shows the buttons in the optional settings menu.

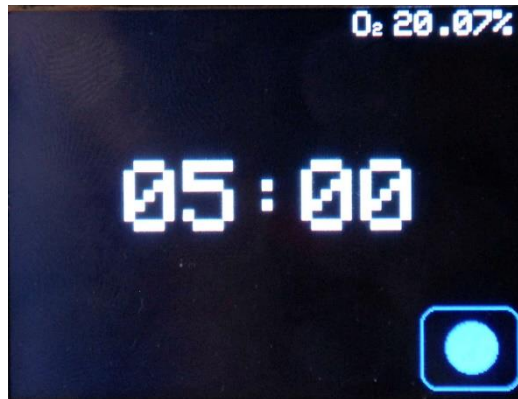


- 21 Increase the corresponding value
- 22 Decrease the corresponding value
- 23 Go back to previous menu.
- 24 Delay time.

After reaching the preset O₂ level the cube will wait for the delay time before switching on the LED's.

- 25 Desired O₂-level in %. Operation will start, when the current O₂-value goes below this value. (default value 6.5%)
- 26 Hysteresis upper level in % of the installed O₂ Level (25), (default value 25%)
=> when the actual O₂-value in the chamber goes above this threshold, the valve will reopen to purge the chamber with nitrogen again, to maintain the current O₂-level below the desired and set O₂-level (25)!
- 27 Hysteresis lower level in % of the installed O₂ Level (25), (default value 50%)
=> when the actual O₂-value in the chamber goes below this threshold, the valve will close to preserve nitrogen!
- 28 Nitrogen always on
After reaching the desired O₂ level for the first time, the nitrogen purging will stay switched on till the end of the curing process.

When the O₂ Sensor is active and the nitrogen line is connected, the current O₂ concentration inside the curing chamber is displayed at the top right.

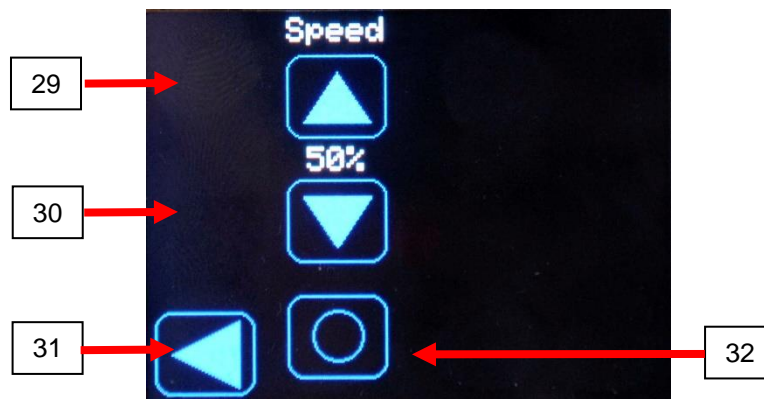


After the start button is pressed, the nitrogen valve opens and the chamber is purged. While the O₂ level is above the pre-set value (default is 6.5%), the start button flashes and the rotation stage and LEDs are disabled.

When the O₂ concentration drops below the pre-set value, the rotation stage and the LEDs are activated. The start button is lit continuously and the process time counts down.

5.2.5 Optional Settings Rotation stage

The menu „optional settings Rotation stage“ is only available when the Rotation stage is active. The following image shows the buttons in the optional settings menu.



- 29 Increase the corresponding value
- 30 Decrease the corresponding value
- 31 Go back to previous menu
- 32 Positioning button, rotation stage moves as long as button is activated, even if the door is open

5.3 Maintenance

<i>Action</i>	<i>Interval</i>
Check safety features	After installation, then every 6 months
Check touch display	After installation
Clean device	As necessary

5.3.1 Cleaning Device

Clean the surfaces with a damp lint free cloth. Weak solvents such as IPA are permissible.



Danger!

Always disconnect the AC power connection when cleaning the APM LED UV Cube III.

Never use water near any electrical connections or ventilation slits of the APM LED UV Cube III.

If electric components get wet, the APM LED UV Cube III may not be reconnected to the AC power. A complete drying out must be ensured before normal operation may be resumed. If in any doubt, contact the manufacturer.

6 Servicing

The APM LED UV Cube III has no user serviceable parts.



Danger!

Never open the outer housing of the APM LED UV Cube III.

7 Decommissioning

7.1 Temporary Decommissioning

- 1 Switch off the APM LED UV Cube III with the mains switch.
- 2 Disconnect the AC power connection.
- 3 Clean the APM LED UV Cube III as necessary.

7.2 Storage Conditions

No special conditions need be ensured apart from the environmental conditions referred to in the technical data sheet.

7.3 Final Decommissioning




- 1 Switch off the APM LED UV Cube III with the mains switch.
- 2 Disconnect the AC power connection.

7.4 Recycling



Warning!

When decommissioning the APM LED UV Cube III it must be ensured that the UV LED module cannot be reused. Otherwise inappropriate usage may result in bodily harm and material damage. Only used qualified companies or personnel when recycling the materials of the APM LED UV Cube III.

 <p>Important!</p>	<p>Electronic equipment must be sorted according to materials. All relevant local recycling regulations must be observed.</p> 
 <p>Information!</p>	<p>Refer to your local authorities with questions about recycling.</p>

8 Trouble Shooting

The following table lists possible malfunctions, their causes and remedial actions.

In case of a malfunction which is not covered by the following table or which cannot be corrected by the user, contact the manufacturer.

Manufacturer contact:

APM Technica AG
 Max-Schmidheiny-Str. 201
 CH – 9435 Heerbrugg
 www.apm-technica.com

Failure	Possible cause	Remedial action
No LED radiation.	Device is not switched on.	Switch on device.
	Main AC power plug not connected.	Connect power plug.
	Mains power socket has not power.	Check mains voltage or fuse.
Housing gets too hot and device switches off.	Ventilator not working (high power version).	Switch off device immediately and return to manufacturer for repair.
	Ventilation slits on top and back of device covered	Ensure free air circulation through ventilation slits.
Error message appears on screen.	Unique occurrence due to electronic interference.	Confirm message and continue normal usage.
	Repeated occurrence due to electronics failure.	Switch off device and contact manufacturer.

9 Warranty

APM Technica AG guarantees the original buyer that the device will be free from material faults or production defects for a period of one (1) year from the date of purchase. There is a 90-day guarantee on all repairs.

To assert claims under this warranty, the device must be sent shipping paid to the APM Technica service center. Devices returned are only accepted with a return approval number (RA no.), which is issued by the service center.

To enable us to help you as quickly as possible, please include a description of the problem that has occurred and the name and telephone number of a contact person with the device, who can be contacted in the event of queries.

Devices delivered with material faults or production defects must be reported to the APM Technica service centre within 30 days of the original date of receipt of the device. APM Technica AG will repair or replace damaged devices free of charge if they are returned shipping paid within 30 days of receiving the report.

Please return the device if possible in the original packaging, but at any rate in packaging suitable to protect it against damage during transport.

In the event of damage caused by wear, careless treatment, negligence or by force, and operator actions and repairs not carried out by the service center of APM Technica AG, the warranty lapses. This warranty does not constitute the basis for any claims to damages. This applies in particular to claims to compensation on the grounds of consequential damage. The warranty may not be transferred.

This warranty does not apply to consumer non-durables (purchased separately or included in the systems) such as fuses, cables and LEDs.

Please note This warranty expires if the housing of the device is opened.

10 Appendix

10.1 Important Events and Changes

Use the following table to record important events or changes to the device.

Date	Description	Signature