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**INSTRUCTION MANUAL
OF
UV Cabinet**

TECHOPTIMA - 1

(CAT. No. 35-08001 OR CAT. No. 35-08002)

TECHOPTIMA - 2

(CAT. No. 35-08003 OR CAT. No. 35-08004)

TECHOPTIMA - 3

(CAT. No. 35-08005 OR CAT. No. 35-08006)

Manufactured and Marketed by:

TechResource

188, Nagdevi Street, 2nd Floor, Mumbai 400003.

Tel: 9819095429

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Dear Customer,

*Congratulations on procuring the **TechOptima!***

The TechOptima is a robust and flicker free UV-cabinet specially designed and manufactured for Indian Laboratories.

*The TechOptima range of UV cabinets are extremely sensitive and on par with imported models. They are **safe** for use and enable management even by undergraduate students and most importantly; are very **economical**.*

A post fluorescence filter absorbs the UV light to give the high sensitivity in addition to the inherent safety characteristics.

*The UV Cabinet is indigenously manufactured with high quality components and is specifically designed to suit Indian laboratory conditions. It works on an integrated circuit controlled electronic ballast which gives a **flicker free** result. The small foot print enables it to fit easily on a work bench.*

This UV cabinet will give you many years of trouble free use. In any event that there is a problem our long warranty of 3 years covers all manufacturing defects.

We sincerely hope you that you gain as much satisfaction in using this instrument as we achieved in designing and manufacturing it.

Regards,

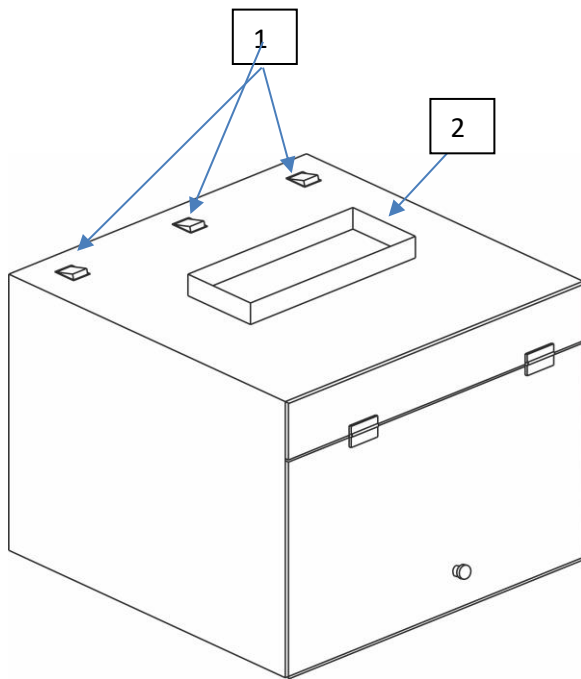
The Production Team of TechResource

Precautions:

1. Always keep the UV Cabinet dry.
2. Avoid using when the input AC voltage has fluctuations.
3. Please read the manual carefully before using the UV cabinet.
4. Do not use Alcohols or other cleaning agents to clean the filter on the window of the UV cabinet.

Check before installation

- A. Check for any physical damage to the UV cabinet that may have occurred in transit
 - B. Check the mains supply with a multi-meter for proper and correct voltage (within limits 220 – 245 V)
 - C. Functionality test
 1. Connect the UV cabinet through a stabilizer to the mains and switch it ON via the mains switch on the front
 2. Upon activating the UV cabinet unit, the UV tubes will start glowing
- Note: To ensure long life of the ballast and UV lamps connect the UV cabinet to a stabilizer.

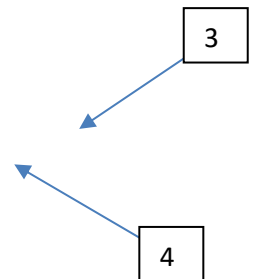
Diagrammatic representation of the TechOptima

1 – Switches for turning ON the UV lamps and white light lamps.

2 – Viewing window

3 – Door to access the platform

4 – Knob for the door



Complete Specifications:

Model	TechOptima 1		TechOptima 2		TechOptima 3	
Catalog No.	36-08001	36-08002	36-08003	36-08004	36-08005	36-08006
Number of UVA tubes	2	2	2	2	2	2
Number of UVB tubes	-	1	-	1	-	1
Number of UVC tubes	1	-	1	-	1	-
Number of white light tubes	1	1	1	1	1	1
Lamp life UVA/UVB/UVC	3000 hrs	3000 hrs	3000 hrs	3000 hrs	3000 hrs	3000 hrs
UVA Output wavelength (radiation peak in nm)	315-400 nm (352 & 368)	315-400 nm (352 & 368)	315-400 nm (352 & 368)	315-400 nm (352 & 368)	315-400 nm (352 & 368)	315-400 nm (352 & 368)
UVA Total tube wattage (No. of tubes x watt/ tube)	8 Watt (2 x 4 W)	8 Watt (2 x 4 W)	12 Watt (2 x 6 W)	12 Watt (2 x 6 W)	16 Watt (2 x 8 W)	16 Watt (2 x 8 W)
UVA Total UV output wattage (no. of tubes x UVA watt/ tube) as measured after 1000 hrs of usage	0.5 W (2 x 0.5 W)	0.5 W (2 x 0.5 W)	2 W (2 x 0.5 W)	2 W (2 x 0.5 W)	3.6 W (2 x 0.9 W)	3.6 W (2 x 0.9 W)
UVB Output wavelength (radiation peak in nm)		280-360 nm (306)		280-360 nm (306)		280-360 nm (306)
UVB Total tube wattage (No. of tubes x watt/ tube)		4 Watt (1 x 4 W)		6 Watt (1 x 6 W)		8 Watt (1 x 8 W)
UVB Total UV output wattage (no. of tubes x UVA watt/ tube) as measured after 1000 hrs of usage		0.5 W (1 x 0.5 W)		1.0 W (1 x 1.0 W)		1.6 W (1 x 1.6 W)
UVC Output wavelength (radiation peak in nm)	253.7 nm (253.7)		253.7 nm (253.7)		253.7 nm (253.7)	
UVC Total tube wattage (No. of tubes x watt/ tube)	4 Watt (1 x 4 W)		6 Watt (1 x 6 W)		8 Watt (1 x 8 W)	
UVC Total UV output wattage (no. of tubes x UVA watt/ tube) as measured after 1000 hrs of usage	0.8 W (1 x 0.8 W)		1.7 W (1 x 1.7 W)		2.5 W (1 x 2.5 W)	
Viewing window (w) x (l) cm	20 x 10	20 x 10	20 x 10	20 x 10	20 x 10	20 x 10
Platform size (w) x (l) cm	20 x 20	20 x 20	30 x 30	30 x 30	35 x 35	35 x 35
Dimensions of the base [measurement excludes pro- jecting knobs and switches]	21 (w) x 21 (h) x 21 (d) cm	21 (w) x 21 (h) x 21 (d) cm	31 (w) x 31 (h) x 31 (d) cm	31 (w) x 31 (h) x 31 (d) cm	36 (w) x 36 (h) x 36 (d) cm	36 (w) x 36 (h) x 36 (d) cm
ON/ OFF switch position	Top	Top	Top	Top	Top	Top
Fusing position (Fuse rating)	Internal (1.5 mA)	Internal (1.5 mA)	Internal (1.5 mA)	Internal (1.5 mA)	Internal (1.5 mA)	Internal (1.5 mA)
Voltage input	230V rms, 50 Hz	230V rms, 50 Hz	230V rms, 50 Hz	230V rms, 50 Hz	230V rms, 50 Hz	230V rms, 50 Hz
Operating temp. range	15-45 °C		15-45 °C		15-45 °C	
Humidity tolerance (non-condensing)	up to 85%		up to 85%		up to 85%	

Using the TechOptima

1. Make sure all the switches on the top of the UV cabinet are switched off
2. Connect the mains plug to a stable source of power outlet (230V, 50Hz, single phase, with functional grounding)
3. Switch ON the mains switch for White light
4. Place your chromatogram or gel inside the UV cabinet
5. Shut the door of the TechOptima
6. Switch OFF the white light and switch ON the mains switch of the UV source that is required on the Top – the UV tube/s should start glowing immediately
7. When visualization is complete switch OFF the mains switch on the top
8. Open the door and lift off the chromatogram or gel
9. Clean the platform with a tissue paper dampened with distilled water. Wipe excess distilled water with a dry tissue paper
(DO NOT USE ANY OTHER CLEANING AGENTS such as alcohol, cleaning spirits etc)

About UV light

a. UVA bulbs:

UVA is a normal component of sunlight (it is responsible for giving a skin tan). It is not mutagenic or harmful to eyes and skin. It does not dimerize thymidine nor break the DNA backbone.

[Photobleaching effect of different wavelengths can be represented as: **UVC >> UVB > UVA**]

However, the UVA tubes emit large amount of violet-blue light, adversely affecting the contrast when viewing faint fluorescent bands.

b. UVB bulbs:

UVB is absorbed by (carbon-carbon) C-C bonds. It results in C-C bond breakage of the DNA backbone. It causes retinal damage and sunburn. The bulbs emit a small fraction (~5%) of UVC light whose deleterious properties have been outlined in section 'c'. UVB bulbs also emit some white light

c. UVC bulbs:

These tubes are used for a germicidal action. UVC damages eyes and skin and is highly mutagenic. It causes DNA damage (nicks, photo-bleaching and dimerization). It is highly recommended that protective clothing and gear is worn to ensure safety.

Trouble shooting procedure

SR. NO.	Indication	Cause	Remedy
1	Mains switch is not illuminated AND UV tubes are not glowing	Faulty main supply	Restore the mains supply
		Instrument fuse blown	Try replacing with correct fuse of 1.5A, only once. If fuse blows again contact us at sales@techresource.in
2	Mains switch is illuminated but UV tubes are not glowing	Electronic ballast is blown	Ballast needs to be replaced. (We use specially designed ballasts. DO NOT attempt to replace with commercially available ballast)
		UV tubes are not functional	UV tubes need to be replaced (Please contact us to get the correct UVA tubes)
3	Mains switch is not illuminated but UV tubes are glowing	The bulb in the mains switch is blown.	Mains switch needs to be replaced (Please contact us at sales@techresource.in)
4	UV tubes are ON but no bands seen on the chromatogram or in the gel	Sample has degraded	A ladder (or any control) would help to visualize if the gel has run properly.
		Inadequate amount of sample	Load a larger amount of sample.
		Tubes have crossed their functional life of 3000 hrs	Ask for replacement set of tubes (with 1 hr of usage per day*, the tubes should remain efficient for ~ 10 yrs)
		Sample has not run.	Check if fluorescence is present at the spotting point or in the wells . If yes, please follow the trouble shooting guide for chromatography or electrophoresis.
		Sample has run out of the gel	Compare your band position with respect to the dye front. Bromophenol blue runs at approximately 0.5Kb-0.4Kb in 0.5 – 1.5% gels (xylene cyanol at 10Kb-4Kb) and at ~ 0.1Kb in 2-3% gels (xylene cyanol at ~ 0.5Kb).
		Low amount of samples	Use a higher concentration or larger volume of sample
5	High EtBr background in electrophoresis gels	High background of EtBr observed on the platform	Remove the gel from the platform and clean the excess EtBr using tissue paper made damp with D/W. (Do not use any other cleaning agent) If problem persists contact us at sales@techresource.in
		High background of EtBr in the gel	De-staining of the agarose gel should be performed using a 0.1M MgCl ₂ in D/W or buffer. (de-staining in D/W or buffer will not reduce the background completely)

*Calculated with 5 working days in a week, with one hour of continuous usage at the high intensity setting, at operating temperature of 25°C. Repeated ON-OFF cycles will shorten the life span.

If you are facing any difficulty in understanding the instruction or operating the UV cabinet, kindly contact us at: sales@techresource.in with your feedback on steps given above. This will provide us with necessary information to advise you properly.