

# High Performance UV Transilluminators

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## *Instruction Manual*



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81-0278-01 Rev D

## Introduction

The UVP Transilluminator offers the researcher uniform and intense sources of ultraviolet light (radiation) in a compact package. The special design emits high intensity excitation UV wavelength for back-illumination of transparent fluorescent materials. The 302nm UV back-illumination provides a highly sensitive method to detect double-stranded nucleic acids that have been labeled with fluorescent dyes such as ethidium bromide or acridine orange. Single stranded nucleic acids may be detected, but with a lower excitation wavelength more sensitive for nucleic acid visualization than the 365nm model.

High Performance UV Transilluminators are fitted with the exclusive 25 watt UV tubes. The transilluminator is uniquely designed with increased UV intensity and uniformity, instant on capabilities, no lamp flicker and reduced electrical consumption. Select models include variable intensity with High, Medium and Low settings. The electronic ballast has a universal voltage capabilities.

**NOTE:** Though the manual refers to the midrange UV waveband as 302nm, others refer to this region as 300nm or 312nm. The spectral output of all these regions is the same.

**A Word of Caution:** UV Transilluminators are powerful sources of UV radiation that will cause damage to unprotected eyes and skin. Before operating any unit, be sure all personnel in the area are properly protected. If not using the transilluminator with an imaging system darkroom, a UV Blocking Cover should be attached to the transilluminator. Even though this cover blocks the ultraviolet radiation emitted by the unit, UV Blocking Eyewear should be worn as well.

UVP UV Transilluminator features:



## Specifications

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### Single UV High Performance Transilluminators

Single UV High Performance Transilluminators are designed with **variable intensity settings**. Units are equipped with an electronic ballast and 25 watt tubes.

**Width:** 19.13" (486mm) **Depth:** 13.25" (336mm) **Height:** 5.63" (143mm) Height includes cover

The following models have 302nm midrange UV:

<b>Model</b>	<b>Part Number</b>	<b>Wave-length</b>	<b>Volts/Hz</b>	<b>Filter Size</b>	<b>No. of Tubes</b>	<b>Intensity Style</b>
TFM-20V	95-0423-01	302nm	100-115V/60Hz	20 x 20 cm	4 x 25W	Variable
TFM-20V	95-0423-02	302nm	230V/50Hz	20 x 20 cm	4 x 25W	Variable
TFM-26V	95-0422-01	302nm	100-115V/60Hz	21 x 26 cm	4 x 25W	Variable
TFM-26V	95-0422-02	302nm	230V/50Hz	21 x 26 cm	4 x 25W	Variable
TFM-30V	95-0424-01	302nm	100-115V/60Hz	25 x 30 cm	4 x 25W	Variable
TFM-30V	95-0424-02	302nm	230V/50Hz	25 x 30 cm	4 x 25W	Variable
TFM-40V	95-0421-01	302nm	100-115V/60Hz	20 x 40 cm	4 x 25W	Variable
TFM-40V	95-0421-02	302nm	230V/50Hz	20 x 40 cm	4 x 25W	Variable

The following models have 365nm longwave UV:

TFL-40V	95-0420-01	365nm	100-115V/60Hz	20 x 40 cm	4 x 25W	Variable
TFL-40V	95-0420-02	365nm	230V/50Hz	20 x 40 cm	4 x 25W	Variable

The following models have 254nm shortwave UV:

<b>Model</b>	<b>Part Number</b>	<b>Wave-length</b>	<b>Volts/Hz</b>	<b>Filter Size</b>	<b>No. of Tubes</b>	<b>Intensity Style</b>
TFS-20V	95-0427-01	254nm	100-115V/60Hz	20 x 20 cm	4 x 25W	Variable
TFS-20V	95-0427-02	254nm	230V/50Hz	20 x 20 cm	4 x 25W	Variable
TFS-26V	95-0428-01	254nm	100-115V/60Hz	21 x 26 cm	4 x 25W	Variable
TFS-26V	95-0428-02	254nm	230V/50Hz	21 x 26 cm	4 x 25W	Variable
TFS-30V	95-0429-01	254nm	100-115V/60Hz	25 x 30 cm	4 x 25W	Variable
TFS-30V	95-0429-02	254nm	230V/50Hz	25 x 30 cm	4 x 25W	Variable
TFS-40V	95-0430-01	254nm	100-115V/60Hz	20 x 40 cm	4 x 25W	Variable
TFS-40V	95-0430-02	254nm	230V/50Hz	20 x 40 cm	4 x 25W	Variable

## 2UV High Performance Transilluminators

Units are equipped with an electronic ballast and 25 watt tubes. Four tubes of each wavelength are installed. These models have a single intensity. The physical dimensions of all models are:

Width: 14" x Depth: 11" x Height: 4.8" (356 x 279 x 122mm)

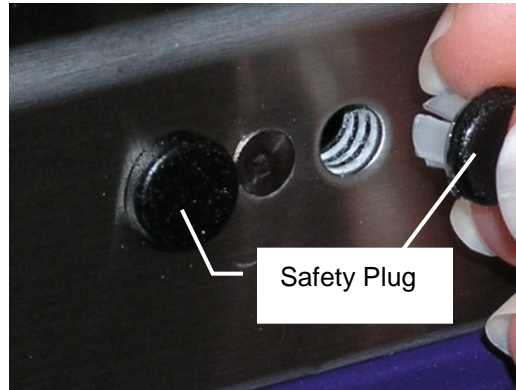
<i>Model</i>	<i>Part Number</i>	<i>Wave-length</i>	<i>Volts/Hz</i>	<i>Filter Size</i>	<i>No. of Tubes</i>	<i>Intensity Style</i>
TFML-20	95-0431-01	302/365nm	100-115V/60Hz	20 x 20 cm	4 x 25W	Single
TFML-20	95-0431-02	302/365nm	230V/50Hz	20 x 20 cm	4 x 25W	Single
TFML-26	95-0425-01	302/365nm	100-115V/60Hz	21 x 26 cm	4 x 25W	Single
TFML-26	95-0425-02	302/365nm	230V/50Hz	21 x 26 cm	4 x 25W	Single
TFML-30	95-0432-01	302/365nm	100-115V/60Hz	25 x 30 cm	4 x 25W	Single
TFML-30	95-0432-02	302/365nm	230V/50Hz	25 x 30 cm	4 x 25W	Single
TFML-40	95-0436-01	302/365nm	100-115V/60Hz	20 x 40 cm	4 x 25W	Single
TFML-40	95-0436-02	302/365nm	230V/50Hz	20 x 40 cm	4 x 25W	Single

## Transilluminator Operation

### Safety Precautions

When the UV Blocking Cover is not being used, UV light may escape through the holes dedicated to accepting the bracket pins of the UV Blocking Cover.

- Remove the black safety plugs from their package
- Insert the safety plugs through the holes as shown.



### Set-Up

- Place the transilluminator on a level work surface. Be sure that an air space exists around the bottom of the work surface. This space allows for the proper air circulation through the unit.
- Plug the female end of the power cord into the transilluminator. For 230 volt models, or those requiring special power cord connectors, ensure that the proper configuration of male connector or plug is properly connected to the power cord.
- Plug the male end of the power cord into a properly grounded electrical outlet. The proper voltage of the transilluminator is found on the product information label. If using the transilluminator with an imaging system, a jumper cable is required for connecting to the darkroom. Refer to the imaging system documentation for additional instructions.
- The transilluminator may be equipped with a UV Blocking Cover. Remove the brown protective paper from the cover. Insert the bracket pins on the cover into the

holes on the front of the transilluminator. The cover is adjustable to varying angles for access to the filter surface.

If you are not using the transilluminator with an imaging system darkroom, do not operate the unit without securing the cover. If the cover is missing, a UV Blocking Faceshield must be worn to avoid UV exposure to the skin. UV Blocking Eyewear should be worn even with the cover in place to avoid accidental UV exposure.

### Permanently Installing the Safety Cover (*Optional*)

Your UVP transilluminator includes a UV-blocking safety shield which can be installed temporarily (as described elsewhere in this manual) or permanently, if desired. The following instructions will explain the process of permanently installing the UVP-supplied UV blocking cover onto the UVP transilluminator.

To complete this procedure, the following tools and parts will be required:

- Phillips-head screwdriver
- 5/16" nut driver
- 3/8" narrow walled nut driver
- (4) hollow 3/8" nuts (supplied with safety cover)

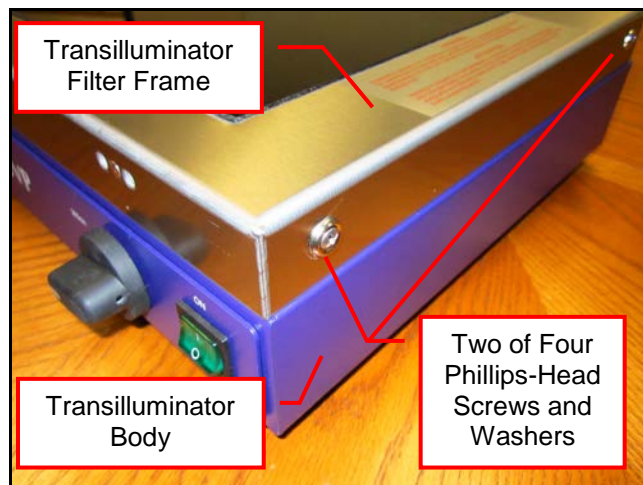
**CAUTION:** This procedure requires a moderate level of technical competence. If you are not comfortable working with electronics, tools and/or related components, contact UVP for assistance.

**Note:** The transilluminator images shown in this procedure may differ in appearance from your transilluminator. However, the procedure is the same.

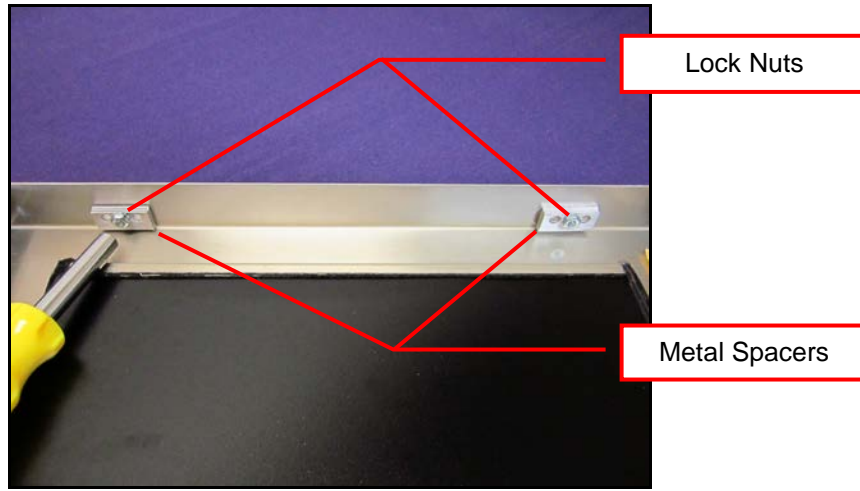
#### Removal Procedure

When performing the following procedure, place all components (screws, nuts, etc.) in a secure location, as some will be reused for installation.

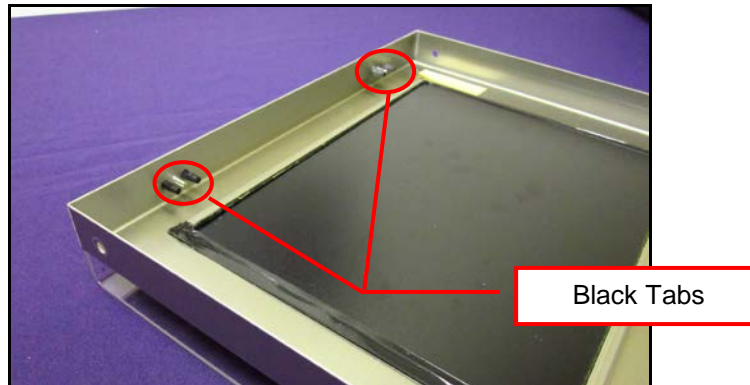
1. Turn off the transilluminator by placing the power switch on the front of the unit in the OFF position. Then, unplug the unit from the wall power.
2. Remove the four Phillips-head screws and washers securing the transilluminator filter frame to the body of the transilluminator. Lifting up, remove the transilluminator filter frame from the transilluminator body and place it upside-down on a flat, smooth surface to avoid scratching the filter glass.



3. Locate the two sets of lock nuts and three metal spacers on the inside of the transilluminator filter frame, as shown in the image below. Use the 5/16" nut driver to remove the two sets of lock nuts and spacers.



4. Lift the transilluminator filter frame and place the UV blocking cover below the frame. Insert the black tabs, located on the UV blocking cover's hinges, through the filter frame as shown.



5. Use the narrow walled 3/8" nut driver to secure the four supplied 3/8" hollow nuts to the black UV blocking cover hinge tabs.

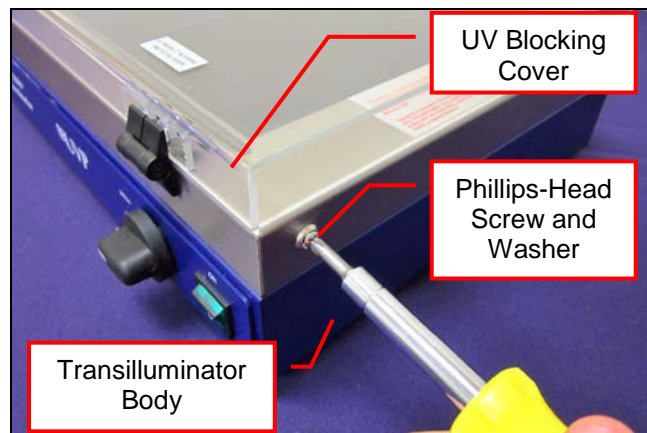


### **Installation Procedure**

1. With the UV blocking cover hinges at the front of the unit, replace the transilluminator filter frame on top of the body of the transilluminator.



2. Reinstall the four Phillips-head screws and washers on the sides of the transilluminator to secure the transilluminator filter frame to the transilluminator body.



### **Using the Transilluminator**

Place gel/sample on the filter area. It is recommended to place the gels on a Gel-Tray to protect the filter surface from cuts and scratches. It is recommended that gloves be worn to avoid contact with gel and staining agents.

Press the ON/OFF switch to ON. The UV tubes within the unit should be glowing beneath the filter. If using the transilluminator with an imaging system, the system's main power is required to be in the ON position.

When using a transilluminator with multiple UV wavelengths, dial the knob to the appropriate wavelength setting.

When using the Variable Intensity models, use the variable intensity settings as follows:

- **High:** allows for UV excitation of fluorophores on gels for routine photography and for excitation of gels with low sample concentration
- **Medium:** Excellent for viewing and quick single-band excision

- **Low:** Allows for positioning and preparation of gels, excising multiple bands and focusing for photography

After viewing/photographing the sample, turn the transilluminator off.

## **Cleaning and Care of the Transilluminator**

Clean unit surface with a damp soft cloth or sponge. Never use abrasive cleaners (can damage the UV filter surface).

To protect the filter glass and minimize moisture and liquids on the glass, it is recommended that you use a UV transmitting Gel-Tray. Refer to the Replacement Parts for ordering information.

## **Replacing Tubes in the Transilluminator**

1. Disconnect the transilluminator from the electrical supply.
2. Remove the filter cover: Use a Phillips head screwdriver to remove the four screws on the sides of the unit. Lift the filter cover off the unit.
3. Remove the reflectors on the left and right side of the unit: Slide the reflectors up out of the unit.
4. Remove the tube: Carefully rotate the tube and slide out of the socket. Replace with a new tube by sliding the tube into the socket and rotating into place.
5. Insert the reflectors back into place and reattach the filter cover.



## Maintenance/Repair/Technical Assistance

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### Replacement Parts/Accessories

For replacement parts or components not shown here, contact UVP Customer Service or place of purchase. Please have the transilluminator model number available when you call.

<u>Replacement Part Description</u>	<u>Part Number</u>
Filter Assembly (TFM-20V, TFS-20V, TFML-20)	38-0190-02
Filter Assembly (TFM-26V, TFS-26V, TFML-26)	38-0190-09
Filter Assembly (TFM-30V, TFS-30V, TFML-30)	38-0190-11
Filter Assembly (TFL-40V)	38-0190-10
Filter Assembly (TFM-40V, TFS-40V, TFML-40)	38-0190-04
Cover, UV blocking	19-0112-01
Tube, 25 Watt, 302nm midrange UV	34-0072-01 ( <b>Qty. 4 Required</b> )
Tube, 25 Watt, 365nm longwave UV	34-0060-01 ( <b>Qty. 4 Required</b> )
Tube, 25 Watt, 254nm shortwave UV	34-0073-01 ( <b>Qty. 4 Required</b> )
Switch	53-0126-03

<u>Accessories Description</u>	<u>Part Number</u>
Gel-Cutter	85-0002-01
Gel-Scooper	85-0006-01
Gel-Tray, UV Transmitting, Sm. 11.5"W x 9"D (29 x 23cm)	85-0007-01
Gel-Tray, UV Transmitting, Lg. 16.5"W x 10.5"D (42 x 27cm)	85-0005-01
Gel-Tray, High Performance UV Transmitting (25 x 26cm)	38-0296-03
Gel-Ruler, UV Fluorescing	85-0003-01
Spectacles, UV Blocking	98-0002-01
Goggles, UV Blocking	98-0002-02
Faceshield, UV Blocking	98-0002-04

## Contacting Technical Support

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UVP offers expert technical support on all of our products. If you have any questions about the product's use, operation or repair, please contact our offices at the locations below.

Note: A **Returned Goods Authorization (RGA)** number must be obtained from UVP's Customer Service prior to returning any product.

<b>If you are in North America, South America, East Asia or Australia:</b>	<b>If you are in Europe, Africa, the Middle East or Western Asia:</b>
<b>Call (800) 452-6788 or (909) 946-3197</b> , and ask for <b>Technical Support</b> during regular business days, between 7:00 am and 5:00 pm, PST.	<b>Call +44(0) 1223-42002</b> , and ask for <b>Customer Service</b> during regular business days between 8:30 am and 5:30 pm.
<b>E-mail</b> your message to: info@uvp.com or techsupport@uvp.com	<b>E-mail</b> your message to: uvp@uvp.co.uk
<b>Fax</b> Technical Support at <b>(909) 946-3597</b>	<b>Fax</b> Customer Service at <b>+44(0) 1223-420561</b>
<b>Write to:</b> UVP, LLC 2066 W. 11 <sup>th</sup> Street, Upland, CA 91786 USA	<b>Write to:</b> Ultra-Violet Products Ltd. Unit 1, Trinity Hall Far Estate, Nuffield Road, Cambridge CB4 1TG UK

## Warranty

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UVP, LLC warrants its Ultraviolet Transilluminators to be free of defects in materials and workmanship for a period of two (2) years from date of purchase. The foregoing warranty of UVP shall be of no force and effect if buyer has modified or damaged the product. Tubes and filters are warranted for 90 days.

All warranties or merchantability and fitness for any purpose and all other warranties, expressed or implied, except those expressly set forth herein, are deemed waived and excluded.

UVP's duty under the warranty is limited to replacement and/or repair of the defective part at the option of UVP, LLC. UVP shall not be liable for any expenses or damages incurred by the purchaser except as expressly set forth herein, and in no event shall UVP be liable for any special, incidental or consequential damages of any kind. This warranty does not supersede any statutory rights that may be available in certain countries.

UVP ... Providing Quality Products for the Researcher Since 1932

From its start in 1932, UVP has become a story of growth and value fulfillment. Today, UVP services the needs of science, industry and education throughout the world. A special significance of UVP research and development arises from our constant communication with customers. UVP continually invites your comments toward the improvement of UVP products or the development of custom types of ultraviolet light sources. UVP will work with you through development and production of a product that meets your specific needs. From all of us at UVP, Thank You.