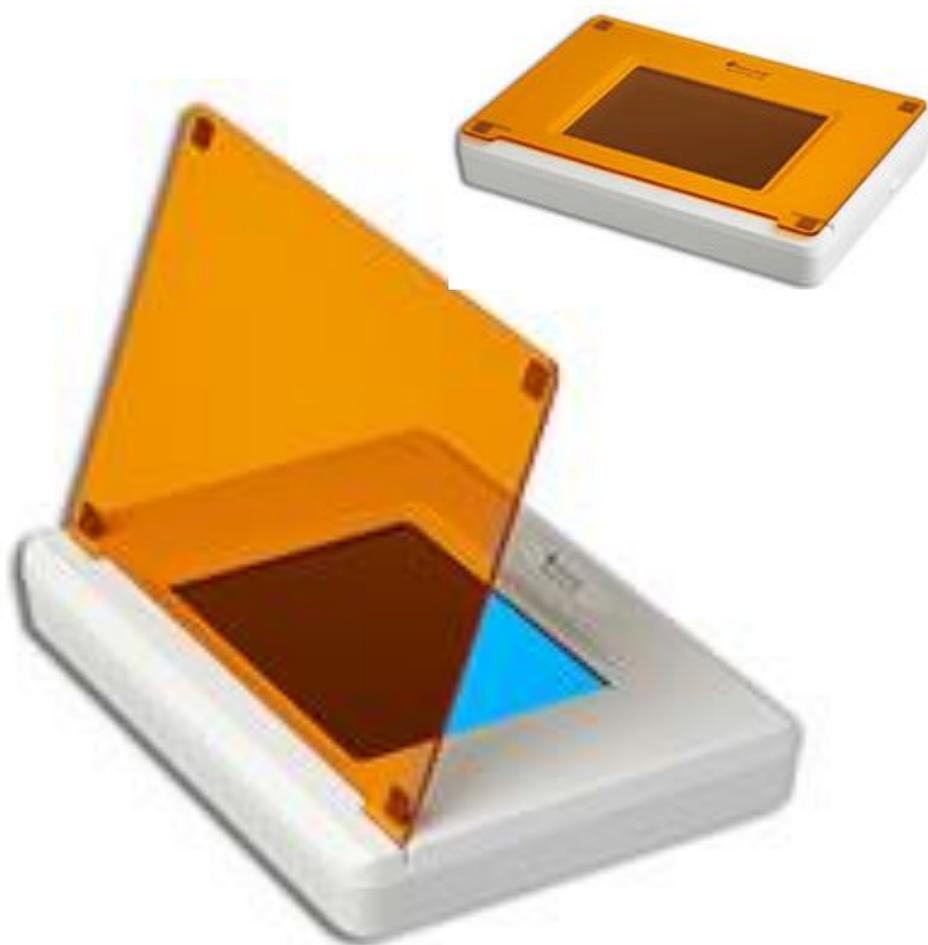


**INSTRUCTION MANUAL**  
**CAT. 87058-01, 87058-02**  
**EMS SmartBlue™ Transilluminator**



**Electron Microscopy Sciences**

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## *Introduction*

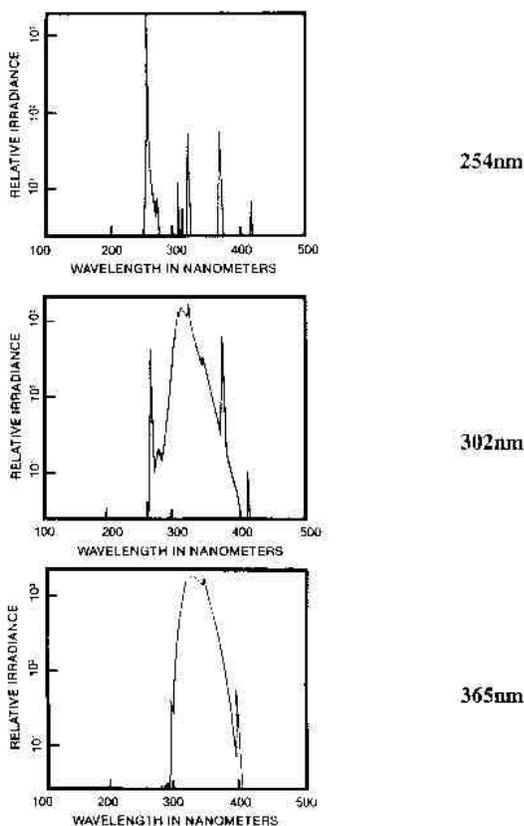
The EMS SmartBlue Transilluminator Series offers the researcher uniform and intense sources of ultraviolet light (radiation) in a compact package. Their special design emits either one, two or three high intensity excitation UV wavelengths for back-illumination of transparent fluorescent materials.

The 302nm UV back-illumination included in all EMS SmartBlue Transilluminator 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.

## *Important Safety Information*

All EMS SmartBlue 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. It is preferable that the transilluminator be installed and operated in a darkroom where access and exposure is limited while the unit is in operation. Electron Microscopy Sciences has a complete line of UV Blocking Eyewear: Spectacles, goggles, and face shields designed for UV protection.

## *Ultraviolet Spectral Output Charts*



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## *Transilluminator Operation*

### **Single UV Transilluminator**

1. 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.
2. 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 has been properly connected to the power cord.
3. 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.
4. The transilluminator comes equipped with a UV Blocking Cover. If this cover is not in place or has been removed, do not operate the unit without securing the cover. If the cover is missing, a UV Blocking Face shield 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.
5. Place gel/sample on the filter area. It is recommended to place the gels on a UVP Gel-Tray (see Section 10 for part number) to protect filter surface from cuts and scratches. It is recommended that gloves be worn to avoid contact with gel and staining agents.
6. Press the ON/OFF switch to ON. The UV tubes within the unit should be glowing beneath the filter after a momentary flickering during the start-up period.
7. After viewing/photographing the sample, turn the unit off.
8. Clean unit surface with a damp soft cloth or sponge. Never use abrasive cleaners (can damage the UV filter surface).
9. If you have any questions, call Electron Microscopy Sciences at 1-800-523-5874.

### **2UV Transilluminator**

The 2UV Benchtop Transilluminator operates the same as the single UV version (Section 5.1) except that it is equipped with a 365/302nm switch. The transilluminator can be turned on with the UV selector switch in any position.

### **3UV Transilluminator**

The 3UV Benchtop Transilluminator operates the same as the single UV version except that it is equipped with a 365/302/254nm switch. The transilluminator can be turned on with the UV selector switch in any position. However, when switching between wavelengths, the following should be done to avoid any merging of wavelengths.

1. Turn main power switch (green) off.
2. Actuate three-position switch to desired wavelength location.
3. Turn main power switch on.

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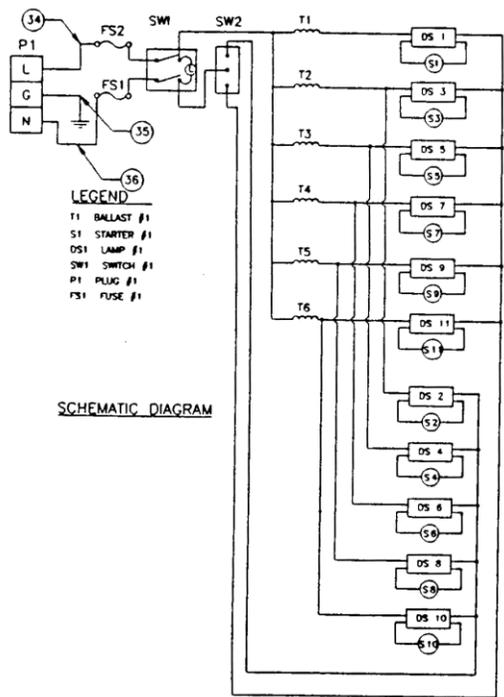
## Maintenance/Repair/Technical Assistance

Electron Microscopy Sciences offers technical support for all of its products. If you have any questions about the product's use, operation or repair, please call Customer Service at 1-800-523-5874.

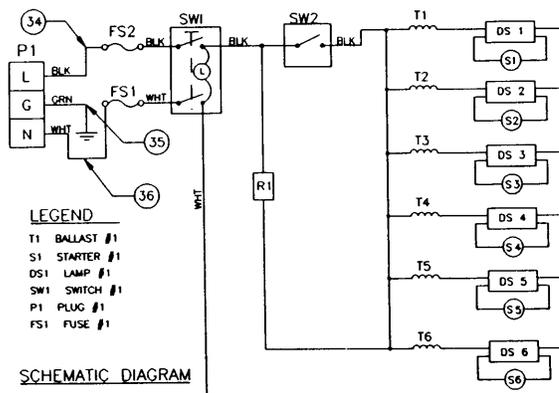
NOTE: A Returned Goods Authorization (RGA) number must be obtained from Electron Microscopy Sciences Customer Service before returning any product.

## Single UV Transilluminator Schematics

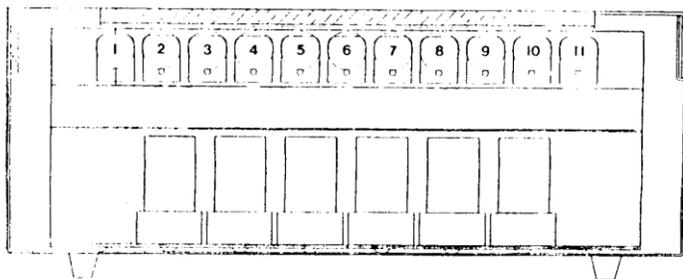
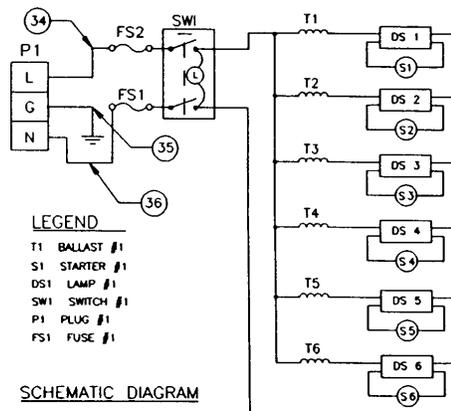
### 2 UV Transilluminator Schematics



### Schematic Diagram Hi/Lo Intensity Models (M-15, M-20, M-26)



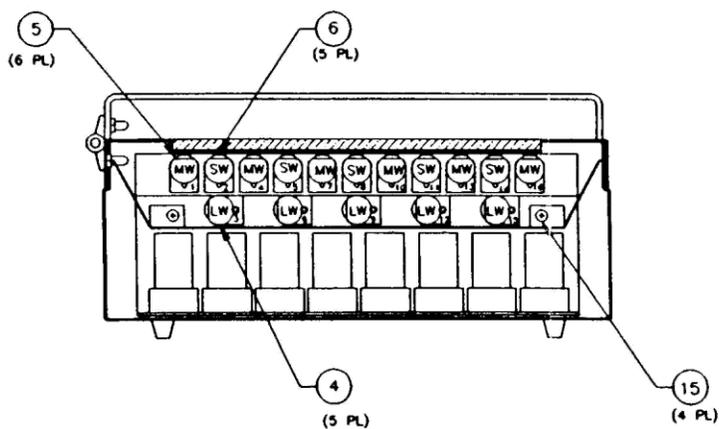
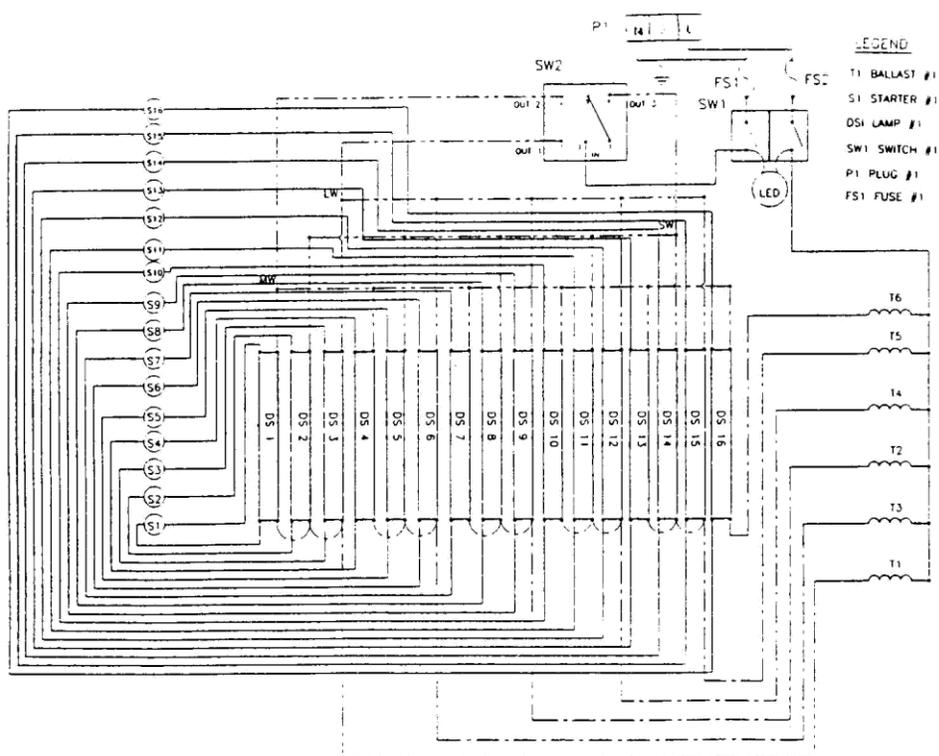
### Schematic Diagram for Single Intensity Models (M-15E, M-20E, M-26E)



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### 3UV Transilluminator Schematics



### Replacing the UV Tubes

*In the Single UV Transilluminator:*

1. Disconnect the transilluminator from the electrical supply.
2. A Phillips head screwdriver is required to remove the filter cover.
3. Carefully twist the UV Tubes from their sockets.
4. Fit with the proper replacement tubes.

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*In the 2UV Transilluminator:*

1. Care must be taken to replace the proper UV wavelength tube into the proper socket location. The 2UV transilluminator is fitted with alternating 302/365 nm tubes: 6 of the 302 nm UV wavelength and 5 of the 365 UV wavelength.
2. Disconnect the transilluminator from the electrical supply. A Phillips head screwdriver is required to remove the filter cover.
3. It is best to remove the tubes in sequence and replace in the same manner.
4. Fit each location with the proper replacement tubes.

*In the 3UV Illuminator:*

1. Care must be taken to replace the proper UV wavelength tube into the proper socket location. The tubes in the top row of the 3UV transilluminator consist of alternating 302/254 nm tubes. Beneath each 254 nm UV tube is a 365 nm UV tube.
2. Disconnect the transilluminator from the electrical supply.
3. A Phillips head screwdriver is required to remove the filter cover.
4. It is best to remove the tubes in sequence and replace in the same manner.
5. Fit each location with the proper replacement tubes.

**Cleaning the UV Transilluminator**

The painted surfaces and filter areas of the transilluminator should be cleaned with water, soap, and a sponge or cloth towel. Never use abrasive cleaners, solvent-based cleaners or scouring pads.

**\*\*ALWAYS DISCONNECT THE TRANSILLUMINATOR FROM THE ELECTRICAL POWER PRIOR TO CLEANING.\*\***

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