

Operating Instructions

DE-4 EPROM Erasing System

Tube Replacement

To replace the tube, first unplug the EPROM Eraser from the AC outlet. Turn the unit upside down on the bench and remove the three screws from the bottom. Lift off the drawer assembly and set it aside. Lift off the lamp housing to expose the tube. Carefully grasp both ends and twist it approximately 1/4 turn until it works free from the sockets. Insert the tube in the reverse fashion, being sure that it snaps snugly in place with the 1/4 twist. Reassemble the unit in the reverse order.

Jammed Drawer

In the event an EPROM become lodged internally and cannot be removed, the unit will have to be disassembled to retrieve the EPROM and free the drawer movement. To do this and free the drawer, unplug the unit from the AC outlet. Place the unit upside down on the bench. Push the drawer fully closed. Using a Phillips head screwdriver, remove the two screws from the end opposite drawer. Then remove the third screw at the end where the drawer handle is located. This is accessible through the hole at the bottom of the EPROM Eraser. Carefully lift the entire bottom assembly off of the lamp assembly and set it aside. Turn the ray assembly over and observe the location of the EPROM. Readjust the EPROM so it is not engaging any part of the drawer assembly and slide the drawer out. Remove the EPROMs from the foam pad.

Foam Pad Replacement

If the pad needs replacing, remove the drawer cover by sliding it off the lower drawer fixture. This will free the drawer completely from the housing so that the drawer can be removed and the foam pad removed and replaced. To reassemble the unit, place the drawer back in the lower drawer housing and slide the cover back in place. Place the drawer assembly back on top of the lamp housing and reinsert the screws.

Replacement Parts and Accessories

<i>Product</i>	<i>Part Number</i>	<i>Complete Assembly</i>	
Replacement Tube	34-0003-01	DE-4 115V	95-0095-03
Foam Pad	72-0006-03	DE-4 230V	95-0095-02
UVX Radiometer	97-0015-01	DE-4 100V	95-0095-01
UVX-25 Sensor	97-0016-01		
115V Ballast	42-0003-01		
215-250 Ballast	42-0004-02		

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Page 4

Introduction

Ultraviolet Light

The invisible band of radiation just beyond the violet end of the visible spectrum is called ultraviolet. In this band is a region called shortwave ultraviolet light, which includes the wavelength that is instrumental in erasing EPROMs (254nm). The intensity of this radiant energy or irradiance, as it is now called, at the location of the EPROM is a function of the distance between the light source and the EPROM and the geometry of the light. The design of this DE-4 EPROM Erasing System optimizes all of these elements to give you the best possible performance.

Design

The DE-4 EPROM Erasing System is designed to provide a safe tool for exposure of EPROMs to shortwave ultraviolet radiation. The unit incorporates a light-tight captive drawer. Thus, the unit will not leak any hazardous UV radiation regardless of the drawer position.

Operating Instructions

This unit is built using a captive drawer feature. The lamp will operate, independent of the drawer position, until the lamp is turned off.

WARNING: Do not operate continuously to avoid excess temperatures. Turn off after each use cycle.

Eraser Operation

Plug your eraser into a standard AC outlet and pull out the drawer. Place the EPROMs on the foam pad. For optimum erase times, use the layout formats of Figure 1 for the number of EPROMs to be erased. Push the drawer closed until it snaps. Use Table 1 to establish the erase time for the EPROMs in use. Depress the red button on the upper portion of the eraser for three to five seconds, then release. This will light the lamp. You can determine this by observing faint glow of light through the plastic at the bottom of the lamp housing. If the lamp does not light the first time, depress the red button for an additional five seconds. After completion of the erase, turn off the lamp by depressing the black button.



Page 1

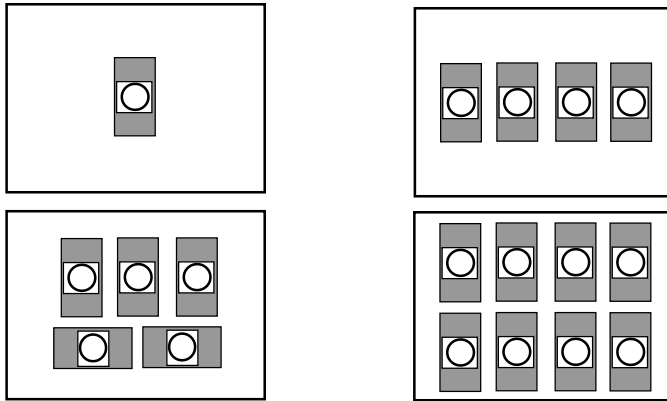


Figure 1

Knowing the erase energy from the manufacturer's literature and the layout pattern of the EPROMs in the drawer, refer to Table 1 to obtain the required erase time. Example: if you have five EPROMs arranged in the drawer per Figure 1, and their erase energy is 10 W-Sec/cm², the required time to complete the erasure is 29 minutes.

For numbers of EPROMs not covered in Figure 1, very close estimates of the required erase time can be obtained by interpolating between the numbers used in the Table 1. In the event, the manufacturer's specified erase energy is not one of the three listed in Table 1, then the required erase time can be computed in the following manner.

Suppose the manufacturers specified erase energy is 20 W-Sec/cm² (Joules/cm²) and you are erasing one EPROM. On Table 1 you will note that one EPROM requiring 15 W-Sec/cm² erase energy, requires 37 minutes for erasure. To compute the erase time, multiply 37 (minutes) by 20 (W-Sec/cm²). This will give you the erase time (in minutes) required for this new EPROM and any quantity of EPROMs that will fit within the drawer. In the calculation, it is best to choose the erase time (in minutes) most closely corresponding to the UV erase energy needed for the appropriate number of EPROMs you wish to erase at any one time.

Erase time for:

Number of EPROMs	6 W-Sec/cm ² EPROM (Minutes)	10 W-Sec/cm ² EPROM (Minutes)	15 W-Sec/cm ² EPROM (Minutes)
1	15	25	37
4	16	27	40
5	18	29	42
8	21	34	51

Table 1

Specifications

The DE-4 EPROM Erasing System has the following specifications:

Size:	9"L x 3.7"W x 2.6"H (23 x 9.4 x 6.6 cm)
Weight:	1.5 lbs (0.7 kg)
Tray Size:	2.9" x 2.5" (7.4 x 6.4 cm)
Capacity:	8 (24 pin EPROM)
Power:	100 to 115V, 50 to 60 Hz 215 to 250V, 50 to 60 Hz
Erase Time:	See Table 1

Applications

Intensity

The Model DE-4 EPROM Eraser System produces an intensity of approximately 6800 uW/cm² at the center of the drawer with the original or new replacement tube. This intensity varies at different locations over the pad area of the chip arrangements. Lamp intensity decreases as the lamp ages. A representative intensity for a lamp that has been operated for the 1000 hours is 50% of new. This varies according to the operation cycles and other considerations.

Erase Time

An EPROM requires a given amount of 254nm irradiance for a minimum amount of time to obtain a complete erasure. In this system, two factors will determine the erase time. One is the required erase energy of the EPROM itself while the other is the location of the EPROM in the incidence energy field.

The erase energy is specified by the EPROM manufacturer in Joules/cm² or Watt-Seconds/cm² and varies between EPROMs and manufacturers. The specific value for a given EPROM can be obtained from the manufacturer's literature.

Maintenance

WARNING: Do not attempt to disassemble this unit while plugged into the AC outlet. Failure to unplug the unit from the AC outlet while disassembling the unit will result in an electrical shock hazard.

WARNING: Do not attempt to operate this unit in the disassembled condition. Operating the unit in the disassembled condition may expose the eyes and skin to shortwave UV that is harmful to the unprotected eyes and skin.