Lawtronics

Eprom Eraser ME5E

General Information

The ME5E eprom eraser is designed for simple low-volume applications requiring controlled UV exposure. This model is a robust table top design that is constructed to operate consistently and reliably over a long life. The ME5E incorporates advanced features to ensure dependable erasure and operator safety. A safety interlock prevents any UV leakage and the filtering action of the quartz glass tube minimises ozone separation. A panel indicator shows the erasing cycle and the sample tray is designed to facilitate on-board erasing.

The UV wavelength of 253.7nm at initial exposure levels of 4000uW/sq cm ensures complete erasure in typically 15 minutes or less but the light output reduces with use, causing the time to increase. For more information on exposure time and how to replace UV lamps see "Operating Instructions". The ME5E unit is designed to operate from 230V at 50Hz. At lower voltages, satisfactory operation is achieved with slightly extended exposure time proportional to the voltage reduction.

ME5E

Capacity:	5 eproms 28-40 pin
UV Intensity:	4000uW/sqcm
Board area:	150 x 60 x 20mm
Timer:	not fitted
Indicators:	Erase only
Weight:	2kg
Dimensions:	190w x 165d x 95h mm

Standard Features

Erase Indicator
Safety Interlock
On Board Erasing
Anti-static Foam
IEC Input Connector
Moulded mains lead not supplied unless specified

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Eprom Erasers

Operating Instructions

Each individual cell in an eprom is programmed by injection of high energy electrons and due to the absence of any electrical connections each gate acts as a charged capacitor. Programming converts each addressed cell to a "0" state. Again, as there are no connections, erasure is achieved by non electrical means. The standard method is to expose the whole cell array to high intensity ultra violet light at 253.7nm for a defined period of time. The UV radiation causes an ionising action resulting in the charge leaking into the silicon substrate. When sufficient charge has been drawn from the cell it is no longer programmed in the "0" state. Neither programming nor erasure occur instantaneously.

Programming may require 100 or more pulses to achieve the required change of cell charge and a considerable exposure time to UV light is required to remove the programme. Eprom manufacturers specify the desired exposure level in watt-seconds/sq cm and since the light output of a new UV tube is determined by the lamp manufacturer the end user only has control of the exposure period. One of the most common causes of failure in equipment containing MOS eproms is improper or incomplete erasure before programming. Correct erasure requires the use of a high quality eraser and the application of the correct UV exposure for an adequate period. The duration of the period varies with the device to be erased, previous programing-erasing history, power of the UV source, cleanliness of both the eprom window and UV lamp surface.

Each manufacturer specifies minimum erase dosage usually in the range 6 - 15 watt-sec/sq cm but in practice these should only be used as a rough guide.

As the UV lamp ages, its intensity gradually diminishes increasing the required exposure time. Similarly, reduced AC voltage supplies, increased distance from the lamp and dirt or finger marks on the lamp and eprom window surface also extend the erase time.

For these reasons it is recommended to check the correct erase time periodically as shown below.

Erase Time

1. Place a programmed device under the UV source for a measured period of time, say 10 minutes.
2. Place the eprom in a programmer and check to see if it is blank.
3. If it is not, replace under the UV light for a further period, say 5 minutes.
4. Repeat 1,2 and 3 until the device reads blank.
5. Multiply the total time to blank by three and use this value as the minimum erase time.

This method ensures a completely blank device is ready for further programming.

When the erase time becomes unacceptably long, replacement of the UV lamps will restore the optimum period.

UV Lamp Replacement

WARNING!

Short wave UV is injurious to the eyes and can cause painful skin burns. Always disconnect from the mains supply before and during any lamp replacement. Never look directly at a working lamp.

Disconnect the mains supply

Remove the eraser top cover by removing the four screws to expose the tube support plate. This is identified by the snap in plastic tube holders on each side.

Remove the tube support plate screws and the UV lamps are now accessible.

Reverse the procedure to fit new lamps.

NOTE: Do not handle tube glass as finger marks are opaque to UV and light output is reduced.

UV Tube Requirement

Model No	Lamp No	Quantity
ME5E	G4T5	x1
ME5	G4T5	
