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FINAL REPORT OF DIPLOMA PROJECT

UNIVERSAL REMOTE CONTROLLED LAMP DIMMER

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ABSTRACT

"UNIVERSAL REMOTE CONTROLLED LAMP DIMMER" is a home remote controlling system to control the brightness of any standard 110VAC incandescent lamp (up to 300W). Many household items are now supplied with remote control handsets. Single channel remote control dimmers like this are designed to control the brightness for special purposes.

The prototype was used as a stand-alone system, connected to table lamps and a desk fan or elsewhere. Ambitious constructors could consider incorporating the unit into the household wiring, if they are satisfied that the installation will comply with the relevant wiring regulations.

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CHAPTER 1
INTRODUCTION

1.1 Background

The *Universal Remote Controlled Lamp Dimmer* is a compact electronic device used to control the brightness of any standard 240VAC incandescent lamp (up to 300W). The lamp brightness can be adjusted using push buttons on the unit or by sending it infrared signals from most standard *universal* remote control transmitters. The advantage of this controller over other lamp controllers is its ability to easily learn and remember the codes sent to it from almost any button on a *universal* transmitter. Since this controller adapts to transmitters that you likely already use to control a TV, VCR, cable converter, or other equipment, it doesn't need to be sold with its own unique transmitter. We can *program* the lamp controller to respond to almost any button that we desire to control the lamp. In most cases, users do not make full use of their universal remotes and as a result there is often at least one *mode* that is not in use. That unused mode can be programmed to operate the lamp controller without interfering with other devices. Since the lamp controller can be programmed to respond to almost any button on the transmitter, several lamp controllers in the same room can be programmed for different buttons such that they respond individually. Programming the lamp controller is a very quick & simple process.

The lamp controller is comprised of a compact, transformer less circuit, built on a printed circuit board that contains several modern electronic components. The main components on the circuit board are a microcomputer chip, the infrared signal detector, power management components, and the lamp driver. The microcomputer chip is the component that performs all of the intelligent functions of the lamp controller including learning and storing function codes as well as controlling the lamp.

The part in electronics equipment is very different from the one the electrician finds in electric installations of buildings, cars, and others. Knowing how these electronics components work, how they are used and how to read and interpret their specification is an important item to everyone who intends to be an electronics technician. It is also very important to know how these parts can be tested.

As a briefing introduction of electronics to the electrician, the principal electronic component is described. These are found in some equipment for use in domestic installation and also the automobile. From this description, the electrician will be able to recognize these components when working with electronics equipment. These acknowledge is also a starting point for a basic course in electronics.