

COMPUTER INTERFACED REMOTE CONTROL FOR
SOLID STATE LIGHT SWITCHING

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ABSTRACT

This project describes a control circuit which is used to control the intensity of the light remotely (similar to light dimmer concept). The intensity of the light can be controlled by using a personal computer. Experimental results and a study of solid state light switching are also presented. The scope of project covers developing the transmitter and receiver unit, light sensor unit and control software.

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1.0 INTRODUCTION

The Computer Interfaced Remote Control For Solid State Light Switching can be used in many applications. Most of those applications are based on controlling the level of light intensity of the particular area. In this project, personal computer (PC) is used as a main controller of the system. The peripheral units are used as an interfacing unit between the driver unit and the PC.

The block diagram of the system is shown in Figure 1.0. In general, the system consists of transmitter, receiver, DAC, phase angle controller, light sensor, ADC and *interfacing card*.

Operation of the remote control relies upon a coded signal which consists of pulses of infrared light. The operating concept of the transmitter is to receive the parallel data form from interface card and transmit the data serially to the receiver. The receiver uses an infrared diode detector to detect the transmitted infrared light. The resulting pulsed waveform is applied to a decoder IC which provides an output to select the function determined by the transmitter.

The phase angle controller is used to fire the thyristor for delay angle in the range 0° to 180° . This range is equivalent to analog output voltage of DAC. By varying the delay angle, the level of light intensity is varied. The light sensor is a feedback element and will detect the level of light intensity and transform to voltage values. The voltage from sensor is fed to ADC in order to convert the signal into digital form. The ADC is used to interface light sensor to the interfacing card.