**DUAL CONVERTER USING THYRISTORS**

**ABSTRACT**

Dual converter is a power electronics control system to get either polarity DC from AC rectification by forward converter and reverse converter . It can run a DC motors in either direction with speed control too .This single phase converter is achieved by using a pair of thyristor controlled bridge (4 SCRs X 2 ) that enables the DC motor to get reversed polarity for either direction rotation and speed control also lowered in steps by Microcontroller triggering each bridge SCR bank of duly interfaced through opto-isolators. A pair of switches is used to input logical signal for the desired output. If input of 230 volt ac is given to the dual SCR bridge we can have a 100 watt lamp load and the DC polarity across the lamp is checked. Alternatively we can use 12 volt ac at the input and a 12 volt DC motor to verify either direction rotation as the polarity gets reversed.

The power supply consists of a step down transformer 230/12V, which steps down the voltage to 12V AC. This is converted to DC using a Bridge rectifier. The ripples are removed using a capacitive filter and it is then regulated to +5V using a voltage regulator 7805 which is required for the operation of the microcontroller and other components.

**HARDWARE REQUIREMENTS:**

PIC Microcontroller, Crystal Oscillator, SCRs, Opto- isolators, Transformer, Diodes, LED, Switches, Capacitors, Resistors, Operational amplifiers, Lamp or a 12 volt DC motor.

**SOFTWARE REQUIREMENTS:**

## MPLAB, HI-TECH PICC Tool suite

## Languages**:** Embedded Or Assembly

**BLOCK DIAGRAM**

