Analog SSR Dimmer

ORDER CODE: RDL804

DOCUMENT VERSION: 1.0

- Switch off the supply voltage of this product as well as of attached devices before connecting or disconnecting them.
- Always use insulated tools while working.
- Do not touch any components of the board in open hand during power ON

Contents

INTRODUCTION

The board uses BTA12-600B, Triac suitable for general purpose mains power AC switching. They can be used as ON/OFF function in applications such as static relays, heating regulation or induction motor starting circuit. They are also recommended for phase control operations in light dimmers and appliance motors speed controllers.

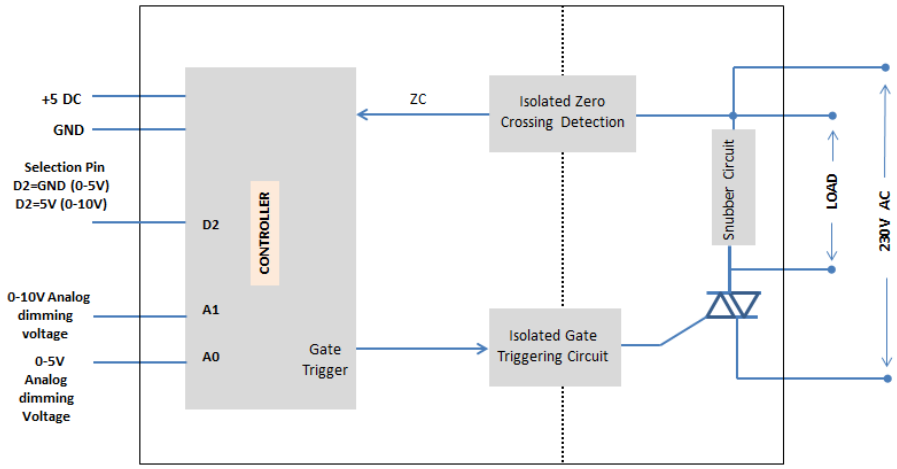
The dimmer board enabled with snubber circuit, especially recommended for use on inductive loads (Motor/Fan), because of their high commutation performance. The dimmer board controls up to 0-600V AC 50/60Hz. Selectable Analog 0-5v / 0-10V of input can be given to Analog SSR dimmer from any controllers / PLC to control dimming 0-100% or ON / OFF.

FEATURES

- **Dimming method: Phase dimming**
- On/Off and dimming control
- Circuit enabled with snubber
- Auto Zero cross detection
- Accurate firing angle control and smooth dimming
- Operating Voltage 12V/24V DC
- Isolated power section from the input
- 0-100% dimming
- Load Capacity 6 Amp AC (Up to 1500 Watt)
- Control up to 250V

APPLICATIONS

- LED light dimming using phase control
- Motor/Fan speed control
- High speed ON/OFF control application
- PID Heater/Temperature control
- PID speed control application



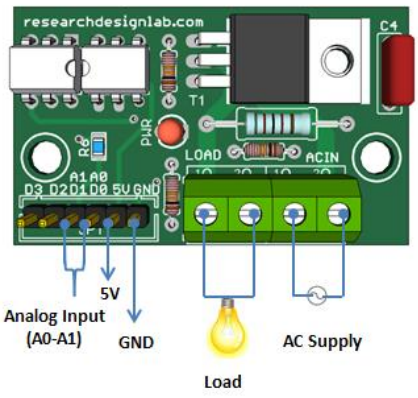
SPECIFICATIONS

Specifications	
Digital Input Voltage(D0-D1)	Max input voltage 5V
Operating Voltage	5V
Control input Voltage	0-5v / 0-10V
Triac Max Load current	6A
Max Voltage	250V
Frequency	50/60 Hz
Dimension (L * W)	50MM * 30MM
Weight	20g

ADVANTAGES

- Unlike electromechanical relays, there are no moving parts.
- Complete electrical isolation between input and output contacts.
- No contact bounces issues.
- AC loads can be easily controlled with a low current DC voltage using a solid state relay providing long life and high switching speeds.
- Zero voltage turn-on and zero current turn-off eliminating electrical noise and transient.
- Ability to switch OFF AC loads at the point of zero load current, thereby eliminating the arcing, electrical noise and contact bounce.

PIN DETAILS



NAME	DETAILS
GND	Power supply Ground
+5V	Power Supply
A0	0-5V Analog input voltage selection
A1	0-10V Analog input voltage selection
D2	Selection Pin

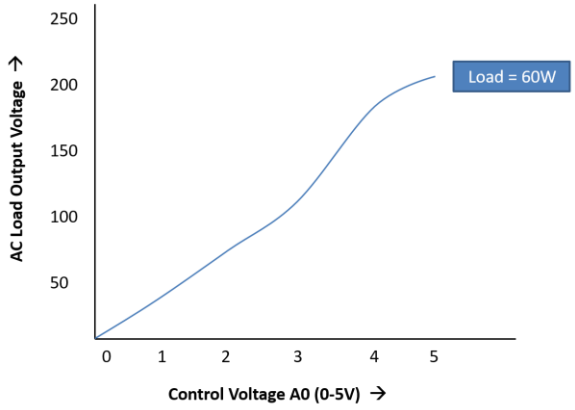
WORKING

Another common type of triac switching circuit uses phase control to vary the amount of power applied to a load. In this case a load, for both the positive and negative halves of the input waveform can be controlled. Inductive or Resistive load gives a fully variable and linear control of the voltage can be adjusted from zero to the maximum applied voltage as shownin Fig A), Fig B) and Fig C).

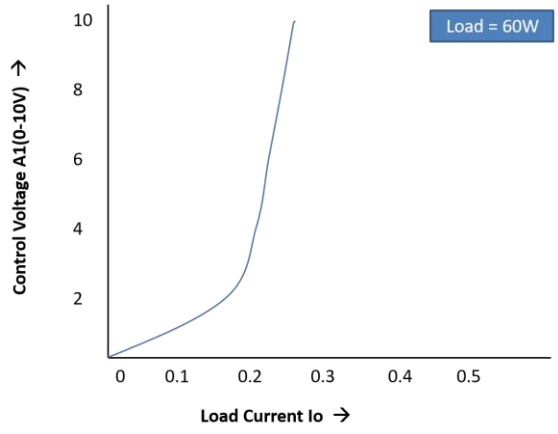
This basic phase triggering circuit uses the triac in series with the load across an AC sinusoidal supply. 0-5V / 0-10V input control voltage can control the firing angle of triac**,** which in turn controls the amount of voltage applied to the load.

ANALOG SSR DIMMER CHARACTERISTICS

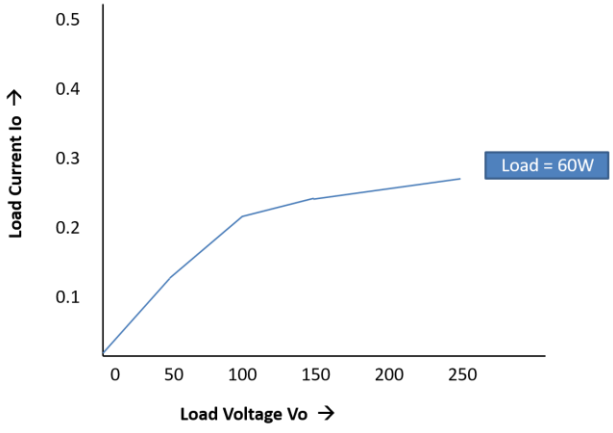
Analog SSR dimmer - Control Voltage Vs Load Voltage



Analog SSR dimmer - Control Voltage Vs Load Current

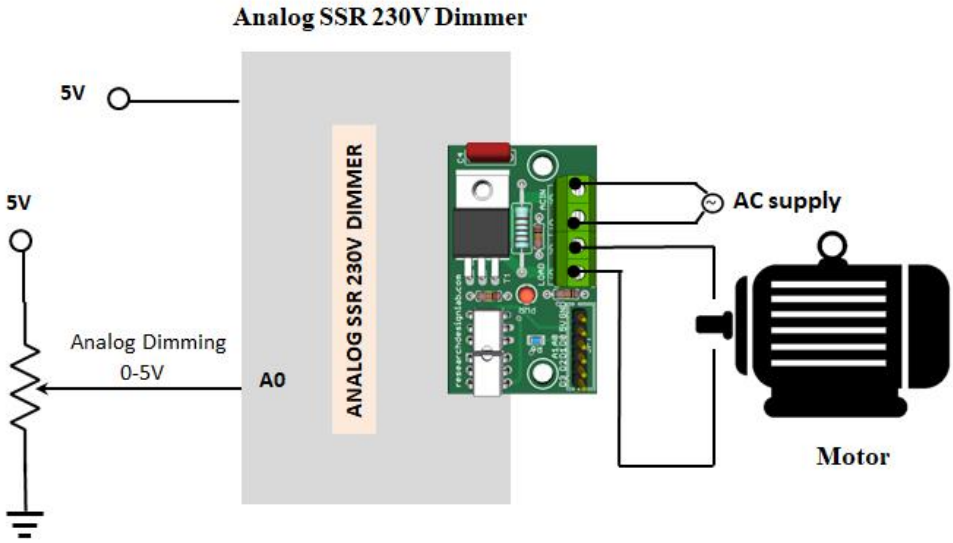


Analog SSR dimmer - Load Current Vs Load voltage

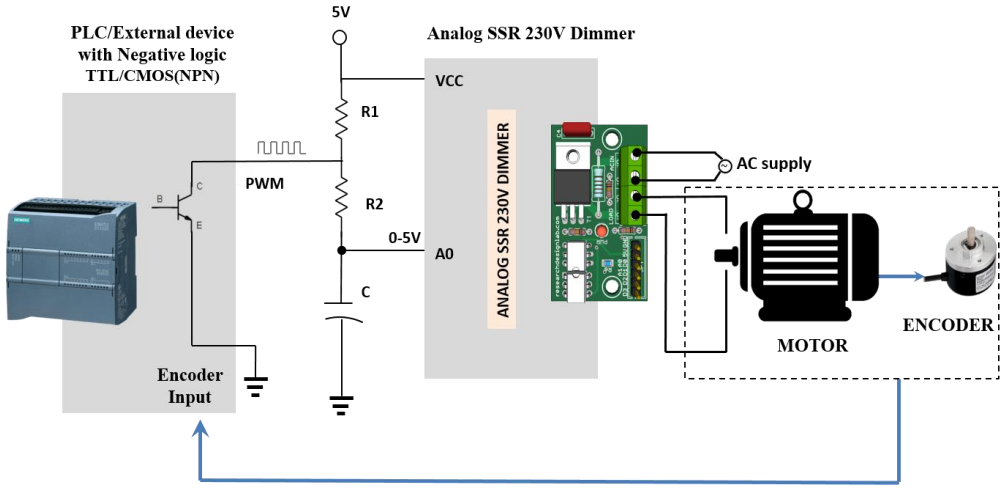


APPLICATION WIRING DIAGRAM

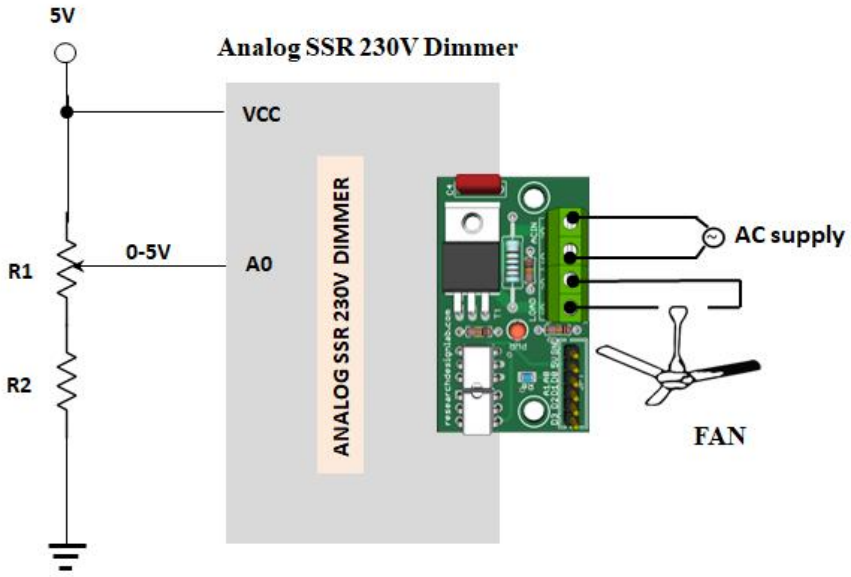
STANDALONE ANALOG DIMMER



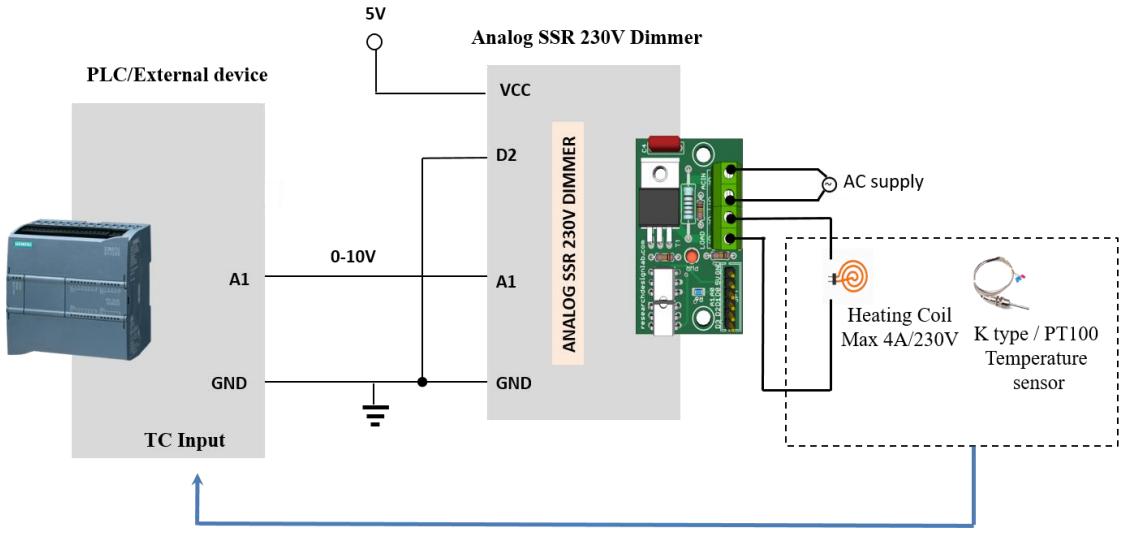
PID SPEED CONTROL USING PWM TECHINQUE



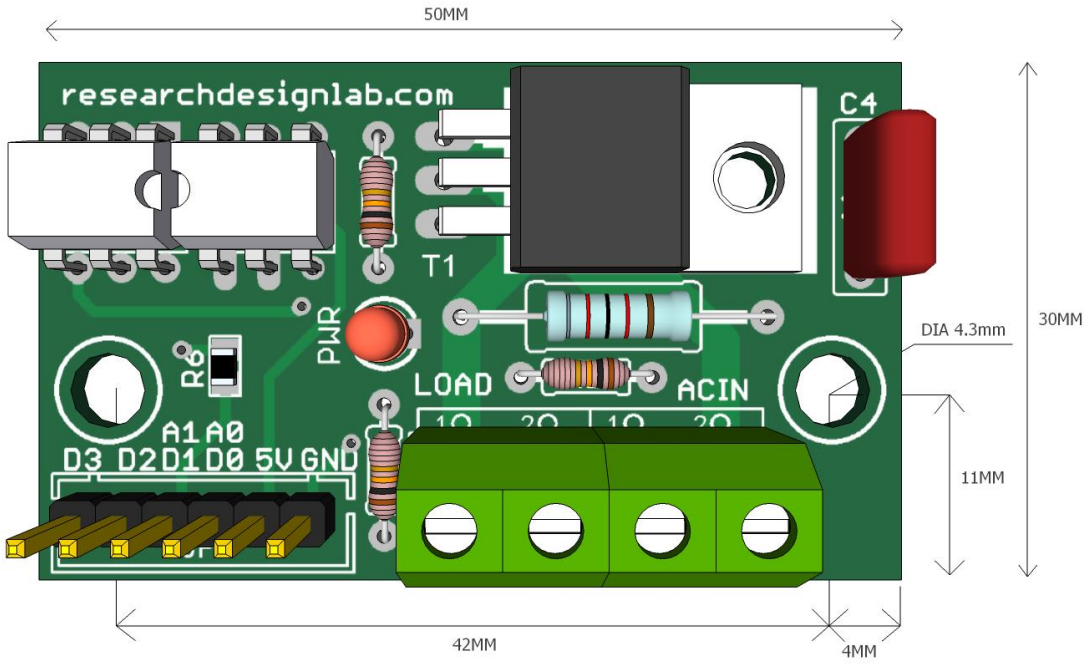
SPEED CONTROL OF FAN USING VARIABLE RESISTOR (POTENTIOMETR)



PID HEATER COIL TEMPERATURE CONTROL USING ANALOG 0-10V



DIMENSIONS


50MM
researchdesignlab.com
C4
T1
PWR
R6
LOAD
ACIN
A1 A0
D3 D2 D1 D0 5V GND
DIA 4.3mm
30MM
11MM
42MM
4MM

RELATED PRODUCTS

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Digital Dimmer Module Analog

ORDER CODE: RDL/LDC/13/001/V1.0

SSR 230V 8A Dimmer Module

ORDER CODE: RDL802

SSR 230V 8A Dimmer-ON/OFF Switch

ORDER CODE: RDL628

SSR 230V 4A Dimmer-ON OFF Switch

ORDER CODE: RDL677

Wi-Fi Dimmer SSR 230V 4A-ESP8266

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4 Channel SSR 230V 8A Dimmer Module

ORDER CODE: RDL811