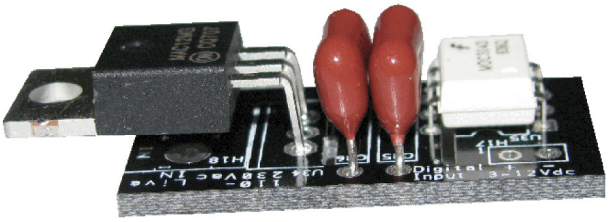
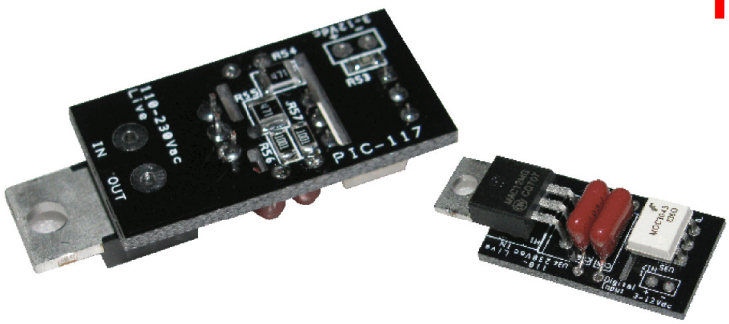
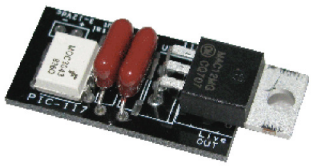
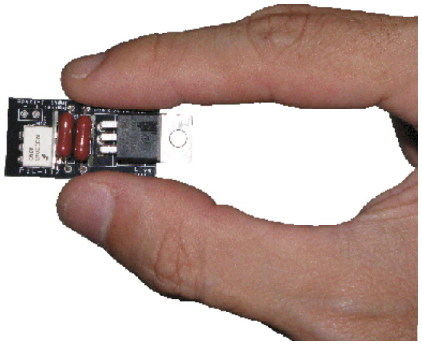
Warning: Operate this circuit with care. Take care not to touch the device when in operation.









Mini AC Switch Relay

1. Description

PIC-117 This is a non-mechanical SPST (single pole single throw) relay switch which does not have any moving mechanical part. This AC switch is suitable for 110Vac-230Vac on/off operation. The isolated low voltage input requires only a minimum of 3.3V 5mA to activate the AC power. The digital input voltage can range from 3.3V-12V.

A typical mechanical relay requires a typical trigger input of 5-24V 30-150mA. It also introduce noise from the switching mechanism of the relay. Mechanical relay for high voltage/current operation will easily generate arcing. The arcing can weld the relay contact and developed a permanent joint after a period of time operating. Mechanical relay has a higher chance of failure resulting in a shorter lifespan.

The AC switch is made of semiconductor material and do not have mechanical issues. The AC switch will switch during the zero crossing, therefore minimize suddenly surge/spark upon switching on.

2. Features

1. Ultra mini size (40 x 16.5 x 12mm)
2. Ultra light weight (5g)
3. No moving parts, , no mechanical relay noise, no wear and tear.
4. Longer operating lifespan
5. Robust to moisture environment
6. Low power consumption
7. Low voltage/current (3.3V-12V 5mA) isolated input to switch on the AC power
8. Soft turn on.
9. No spark generated. (Less hazard to a hash environment).
10. No latch up.
11. No electric current arcing resulting in contact welding or sticking.
12. Compatible to your existing mechanical relay.

Warning: Operate this circuit with care. Take care not to touch the device when in operation.

3. Application Notes

Note take note that the switch has different models for 2 type of AC load (AC appliances). Model no. PIC-117R is for general purpose switching. If the load is an inductive load, you can use PIC-117I for switching.

PIC-117R for resistive load. (incandescent bulb, television set, radio, iron, LED lighting)
PIC-117I. For inductive load. (motor, washing machine, fridge)

Example 1: The input can accept voltage from 3.3V to 12V. It requires a very small minimum current of 5mA to activate the switch.

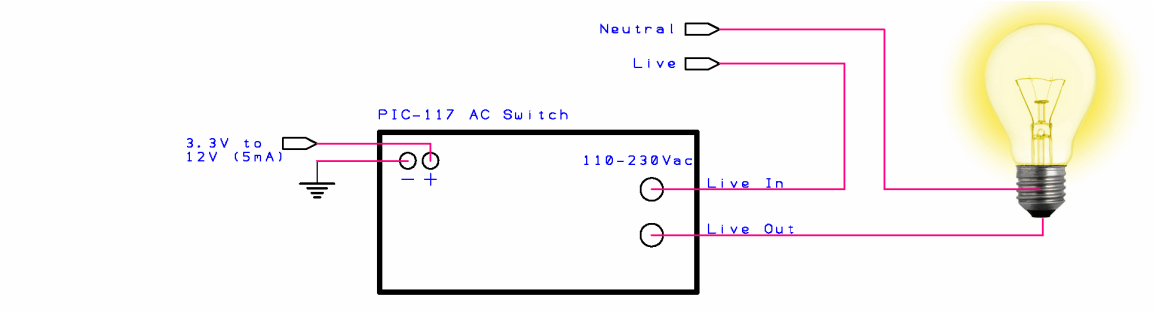


Fig: I/O interface to switch AC appliance.

Example 2: This AC switch draws very small current and can be interface directly to a micro-controller.

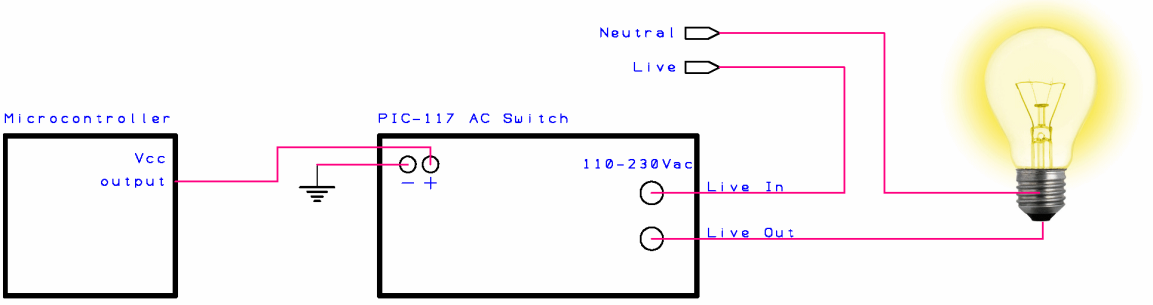


Fig: Micro-controller interface to switch AC appliance.

4. **Mechanical Dimension**

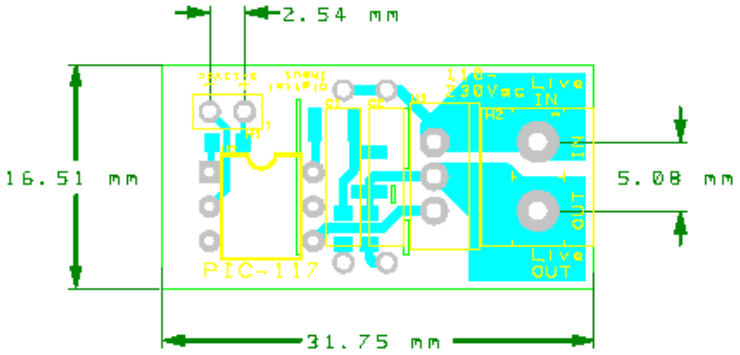


Fig: Dimension

5. Specifications & Features

Input	
Input Trigger	3.3V to 12V (5mA)
Power Source	
Output Triac Switch	110-230Vac (12A max)
Environment	
Operating Temperature	**-40˚C to 85˚C**
Storage Temperature	**-55˚C to 125˚C**
Size	**40 x 16.5 x 12 mm** L x W x H
Weight	**5g** (±0.5g)
Accessories	---

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