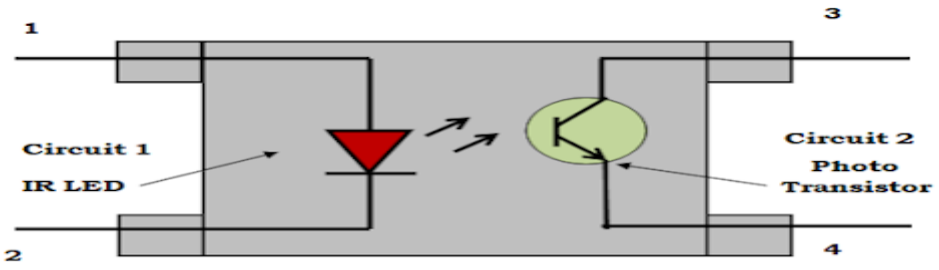
OPTOCOUPLER

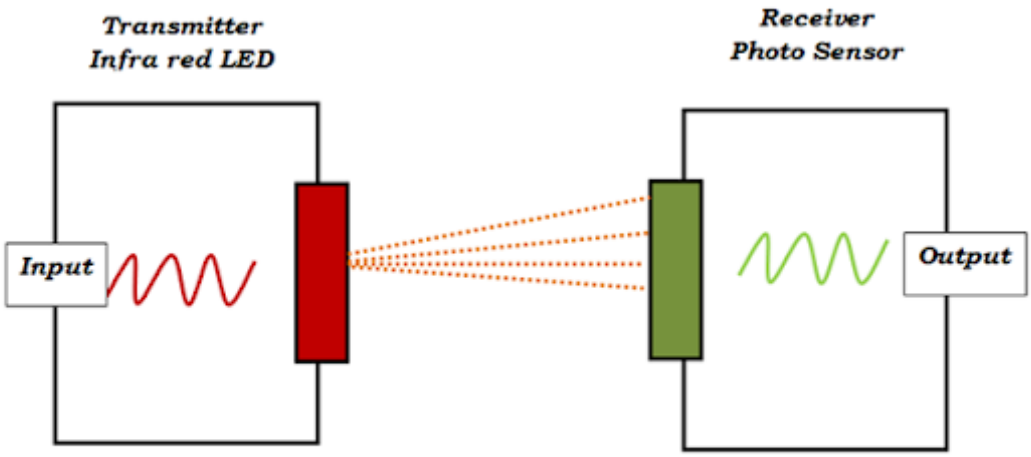
Optocoupler is a electronic device which connects two isolated circuits by light. Basically Optocoupler consists of LED and a photo sensitive device. Both the circuits are enclosed in a package. The circuits cannot be changed externally. Optocouplers are used to prevent the system from high voltage.

Structure of Optocoupler:



Structure of Optocoupler

It consists of two circuits which are electrically isolated. The first circuit infra red emitting diode and the second circuit is infra red sensitive device, it can be photo diode, photo transistor, photo TRAIC, photo SCR. The space between the two circuit can be made of glass, air or transparent plastic. The LED emits the light and the photo transistor receives the light and amplifies it. The 1st and 2nd pins are the anode and cathode of LED, 3rd and 4th pins are the emitter and collector of the photo transistor.



Working of Optocoupler

The basic working principle of Optocoupler is the output of the electrically isolated circuit is controlled by varying the input of the circuit. Input is given to the Infra red LED by a voltage source, the intensity of the voltage source is adjusted by varying the input voltage. The emitted light is of particular wavelength. The photo detector detects this light and converts light energy into photo current. The output current produced is then amplified. The output current is proportional to the intensity of the light incident on it.

Advantages of Optocoupler:

- Compact and less weight
- Low cost
- Works very fast
- Less noise

Disadvantages of Optocoupler:

- Optocouplers are not capable to handle high current

Applications of Optocoupler:

- Used for ground isolation
- Used in high voltage monitoring circuits
- Used in lighting control circuits
- Used in dimmer circuits