

## ④ Power Supply Summary

An isolated DC power supply HLK-EM05 Hi-Link - 5V 2W

Can be used for both sensor and OP-Amp.

It can supply 5V ~~DC~~ DC from 120V AC - 230V AC and has a power rating of 2 watt.

### Advantage

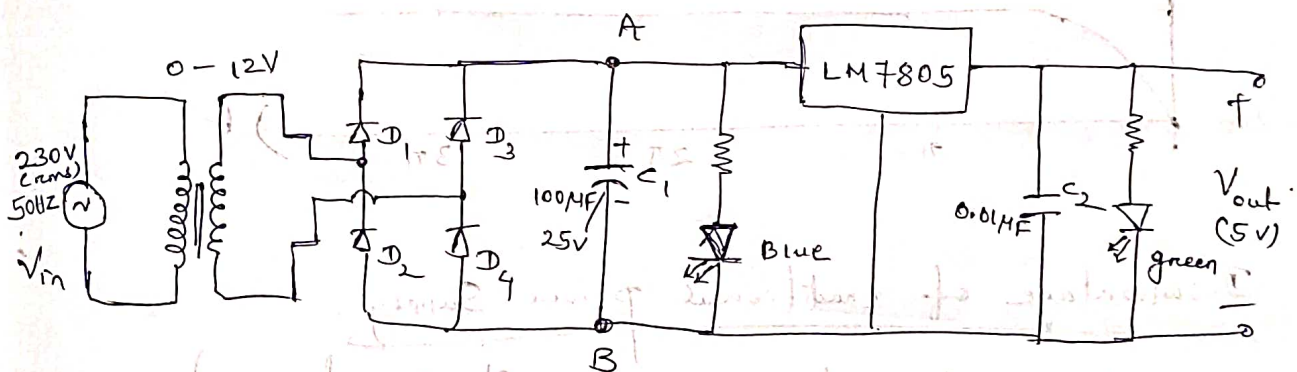
→ This isolated DC power supply makes the system compact.

→ Less cost than traditional power supply containing diode, voltage regulator & transformer.

→ Low ripple and low noise.

→ overload & short circuit protection.

The 5V power supply can be implemented using traditional linear power supply.



The step down transformer will convert 230V AC to 12V. Then it will pass through a bridge rectifier to make it DC.

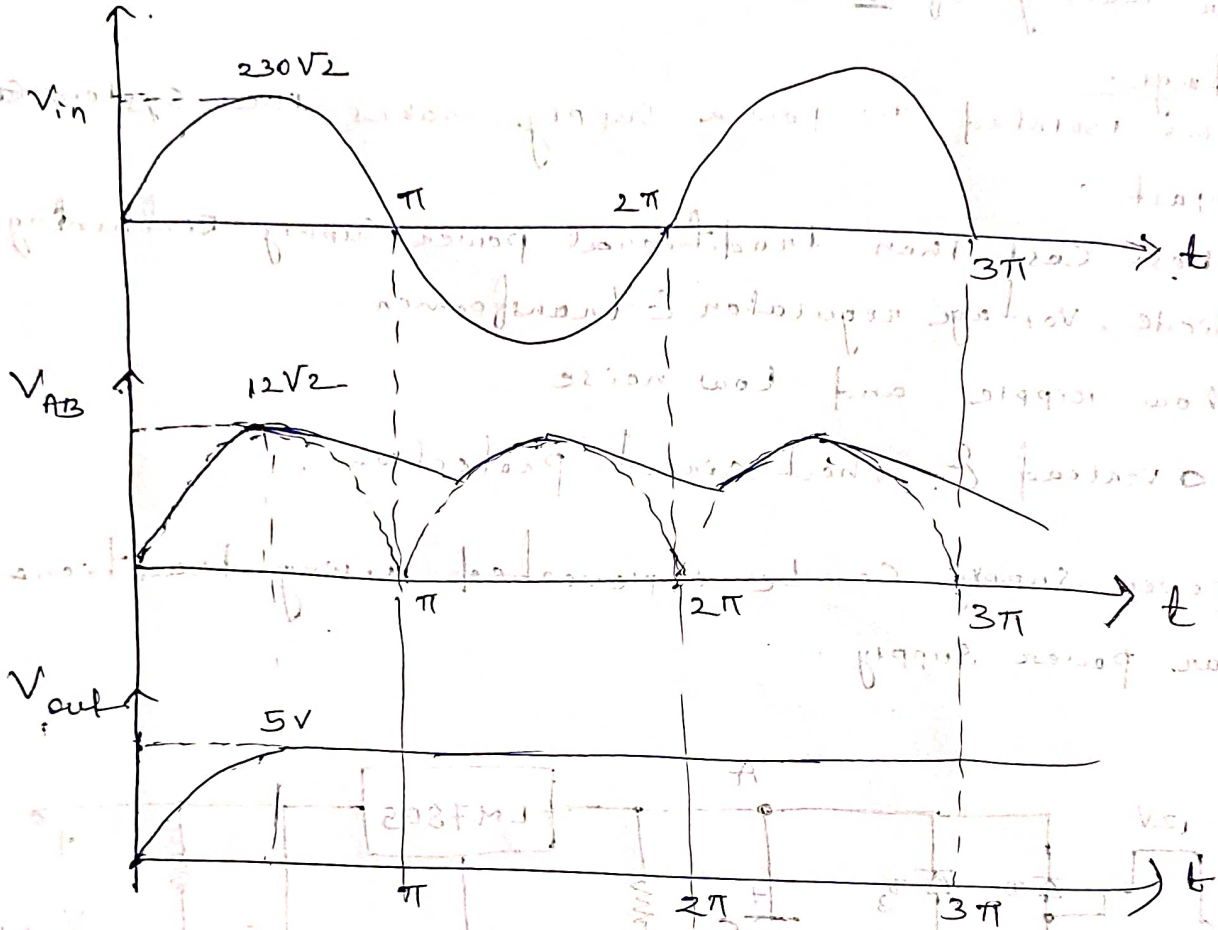
→ The  $C_1$  capacitor is electrolytic in nature. It is present to remove the unnecessary ripple in the input DC & to make it constant voltage source.

→ The Blue LED is used to check the power supply & a resistor is connected in series to limit the current.

→  $C_2$  is a ceramic capacitor, used to remove the high frequency component present in the circuit.

→ LM7805 is the voltage regulator whose output is +5V.

### Waveform



### Disadvantage of traditional power supply.

→ Heavy. (present in presence of transformer)

→ ~~Costly~~

→ larger size

→ higher heat loss

### Advantage

→ provide isolation due to the presence of transformer, so, good in terms of safety.

→ Robust

→ Cheap.

The above ~~advantages~~ advantages are present in HLK-3105 Hi-Link