AUTO SELECTION OF ANY AVAILABLE PHASE, IN 3 PHASE SUPPLY SYSTEM

ABSTRACT

The project is designed to provide uninterrupted AC mains supply i.e., 230 volt to a single phase load. This is achieved by automatic changeover of the load from the missing phase to the next available phase in a 3 phase system.

It is often noticed that power interruption in distribution system is about 70% for single phase faults while other two phases are in normal condition. Thus, in any commercial or domestic power supply system where 3 phase is available, it is advisable to have an automatic changeover system for uninterrupted power to critical loads in the event of missing phase.

In this system auto selection is achieved by using a set of relays interconnected in such a way that if one of the relay feeding to the load remains energized always. Under the phase failure condition the corresponding step down transformer secondary delivers zero voltage which is duly rectified to DC and then fed to the logic gates comprising of AND & OR to switch on the next relay that delivers the power to the load. It also has a provision of connecting to an inverter source which delivers uninterrupted power to the load incase all the 3 phases go missing. The project is supplied with three transformers connected to the 3 phases supply.

Further the project can be enhanced by incorporating power semiconductor devices such as thyristors/IGBTs for instantaneous changeover to the next available phase. This overcomes the drawback of the changeover time generally witnessed by relay switching operations.

HARDWARE REQUIREMENTS

NAND gate IC, Regulator, Relays, Relay driver IC,

Transformer, Lamp Load, Resistors, Capacitors, Diodes

LEDs