

PROTECTION FOR YOUR ELECTRICAL APPLIANCES

Here is a very low-cost circuit to save your electrically operated appliances, such as TV, tape recorder, refrigerator, and other instruments during sudden tripping and resumption of mains supply. Appliances like refrigerators and air-conditioners are more prone to damage due to such conditions.

The simple circuit given here switches off the mains supply to the load as soon as the power trips. The supply can be resumed only by manual intervention. Thus, the supply may be switched on only after it has stabilised.

The circuit comprises a step-down transformer followed by a full-wave rectifier and smoothing capacitor C1 which acts as a supply source for relay

RL1. Initially, when the circuit is switched on, the power supply path to the step-down transformer X1 as well as the load is incomplete, as the relay is in de-energised state. To energise the relay, press switch S1 for a short duration. This completes the path for the supply to transformer X1 as also the load via closed contacts of switch S1. Meanwhile, the supply to relay becomes available and it gets energised to provide

a parallel path for the supply to the transformer as well as the load.

If there is any interruption in the power supply, the supply to the transformer is not available and the relay de-energises. Thus, once the supply is interrupted even for a brief period, the relay is de-energised and you have to press switch S1 momentarily (when the supply resumes) to make it available to the load.

Very-short-duration (say, 1 to 5 milliseconds) interruptions or fluctuations will not affect the circuit because of presence of large-value capacitor which has to discharge via the relay coil. Thus the circuit provides suitable safety against erratic power supply conditions.

