# Battery Discharge Monitor

Here is a battery monitor circuit which disconnects the load when the battery is discharged, preventing a a deep discharge which could cause permanent battery damage. The battery is automatically reconnected when a battery charger or other DC source is connected across the load. Select a relay which requires less than 100ma coil current and with contacts capable of handling the load and charging currents.
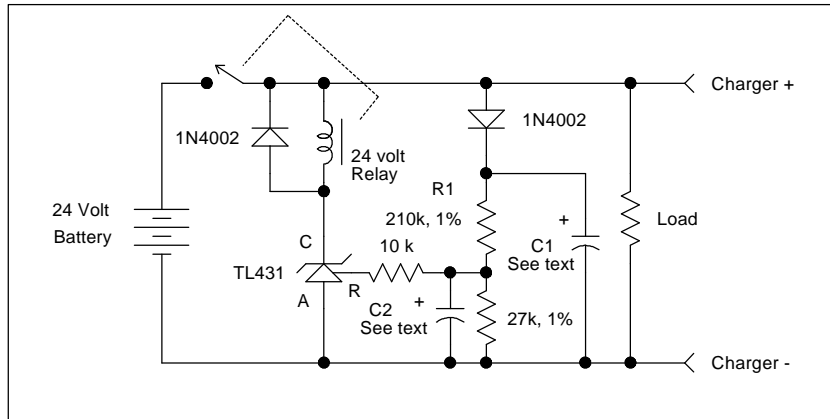
C1 should be about one hundred micro-farads and C2 may be near 1 micro-farad. C2 simply delays the closing of the relay long enough for C1 to charge and C1 keeps the relay closed long enough for the battery voltage to climb above the cut-off point (about 22 volts for the circuit as shown). The 210k resistor may be reduced to 92k for 12 volt batteries. These R1 values may be reduced if a lower drop-out voltage is desired. The circuit may cycle on and off several times if the battery is deeply discharged with a delay proportional to the value of C1. The load sees the full voltage of the charger before the relay connects the battery in this circuit and in some applications the version below may be more desireable.
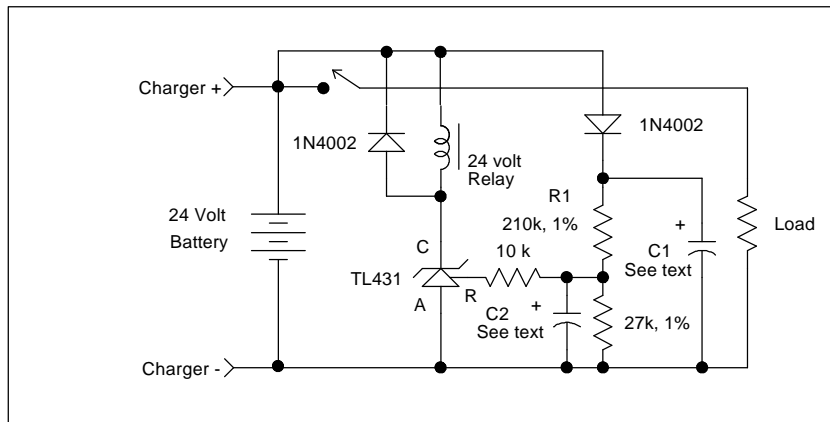
In this circuit, the battery will buffer the load from the charger a bit but the load will not receive power until the battery voltage has risen above the set-point.