

HAMSOURCE EZ-Gate

OR-Gate Battery Backup System

With Battery Charger

Thank you for purchasing the EZ-Gate, a UPS for powering the ham shack. The PWR-Gate is made up of two Schottky diodes connected as an Or-Gate. Connections are Anderson Powerpoles. **Red is positive, black is negative.**

The radio, or other equipment, connects to the Or-Gate output. One input comes from the 12 volt power supply, and the other input is connected to a 12 volt battery.. Whichever voltage is higher passes through to the output. Connections are marked on metal cover as Battery, Output, and Power Supply.

A standard 12 volt power supply for running radios has an output voltage of 13.8 volts. A fully charged battery sits at 13.5 volts. When the power supply is connected and operating, the power supply current is passed through the Or-Gate. If the power supply shuts down then power is supplied from the battery. Switching is at the speed of electrons...there is no glitch! If the power mains go out, the radio switches to the battery. As soon as power is restored, the power supply will drive the EZ-Gate's output again. Switching is instantaneous.

Also, there is a current limited charge circuit built into the EZ-Gate. It will charge the battery from the power supply. The float charge on the on the battery will reach 0.2 volts below the power supply, or 13.6 volts for a 13.8 volt power supply. The charging rate depends upon the battery voltage. If the battery were heavily discharged to be at 10 volts, then the charging current would be 1.2 amperes. At 11.5 volts the charging current drops to 0.7 amperes; at 12 volts, the charging current becomes 0.5 ampere. As the battery's voltage rises, the charger will then drop to a few milli-amperes to keep the battery float charged at 13.6 volts.

The maximum current for the product is 40 amperes. Note that 80-ampere diodes are used in the Or-gate, making it very robust. The maximum voltage drop across the diodes is 0.25 volts. If you are using the EZ-Gate with a 100 watt radio for SSB or CW, the current will peak up to 20 amperes, but the average current will be less than 10 amperes. The temperature of the OR-Gate will remain low. If you are using it for more than 20 amperes continuously, we suggest that the EZ-Gate be mounted on a metal surface for more heat dissipation. At 40 amperes the heat sink will be dissipating 10 watts.

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