

CIRCUIT DESCRIPTIONS

The product is a computer powered wire(less) ultra-intelligent real-time monitor. This monitor is comprised of a high-speed electronic sensor/transmitter, a 2x3AAA nickel metal hydride battery operated repeater and battery charger, a receiver, and a computer software program. The particular application depicted in the operating instructions is comprised of a sensor that measures voltage pulses on the skin of a human being or animal. Each pulse corresponds to a heartbeat. Various sensors can be used to measure different variables, including but not limited to biological heart rate, oxygen saturation, blood pressure, blood sugar, brain waves, temperature, industrial electrical voltage, electrical current, temperature, speed etc., and create data representing these variables.

Data are transmitted by very low power 5KHz wireless means to a 5KHz receiver inside a repeater where it is fed via a 2.2Kohm resistor to a 900 MHz transmitter, which re-transmits the data at 900MHz to a 900 MHz receiver, which transmits it via a MAX233 TTL to RS232 line driver and a shielded hardwire, to the serial port of a computer.

The 900 MHz transmitter in the repeater and the 900 MHz receiver each contain a 4 station dip switch. One station is the on off switch. The other three are used to make a binary selection from $2^3 = 8$ possible frequencies from 903.37, 906.37, 907.87, 909.37, 912.37, 915.37, 919.87 & 921.37 MHz.

The schematics show a 3 PicoFarad, a 0.1 MicroFarad and a 22 MicroFarad noise suppression capacitor. The repeater contains a pnp transistor, an npn transistor, a 5.1Kohm resistor and 51Kohm resistor that operate together as an electronic switch to turn on the battery current when the battery voltage is at or above 1volt per cell and turn off current from the battery when the battery voltage drops below 1volt per cell. This prevents damage to the battery due to over discharge. The battery connectors are polarized to prevent damage to the repeater. The electronic switch also serves to block current to the repeater if the battery polarity is forcibly reversed. A zener diode limits the charging voltage to below 12 volts to protect the repeater and to prevent over charging of the battery. The charging jack is polarized to prevent damage to the battery and the repeater. A diode blocks current from the charger to the battery and the repeater in the event that the charging voltage is forcibly reversed.

All components of the repeater and the receiver are connected via a mother board (pcb) with a large integrated ground plane. This provides for maximal environmental noise suppression, for reliable transmission of data from the repeater to the receiver, ease of manufacture and a repeatable manufacturing process.

