

## **Technical Description**

The SZ990 chest belt is a one way wireless chest belt that operates in conjunction with SE833 or other compatible watches. It is worn on the chest of the user and detects the user's heart rate. The microcontroller in the chest belt calculates the heart rate of the user and transmits the heart rate to the watch. Then the watch display the heart rate reading on its LCD and the received heart rate information can be stored in its internal memory.

The SZ909 chest belt contains a pair of heart rate detection electrodes (D1) and an amplifier (Q1 – Q6) to detect and convert the ECG signal from the chest of the user into digital signal which can be read by the microcontroller (U5 AXH01). The microcontroller calculates the heart rate and sends this information to the RF IC (U4 nRF24L01). The data will be transmitted to the watch via a radio link. It is operating at single frequency at 2.457 GHz.

The RF output of the 2.4GHz transmitter IC is connected to the antenna via an Antenna matching network (L1, L2, L3, L4, C39, C29, C23 and C24). This network is used to match the impedance of the antenna to the RF IC and suppress unwanted spurious transmission.

NRF24L01 is a single-chip 2.4GHz transceiver for operation in the ISM band.

This transceiver includes:

### **RF Synthesizer**

1. Fully integrated synthesizer
2. Accepts low cost 16MHz crystal

### **Transmitter**

1. Worldwide 2.4GHz ISM band operation
2. Common Rx and Tx pins
3. GFSK modulation
4. 1 and 2Mbps air data rate
5. Programmable output power:0,-6,-12 or -18dBm
6. Integrated channel filters

### **Power Management**

1. Integrated voltage regulator
2. 1.9 to 3.6V supply range
3. Idle modes with fast start-up times for advanced power management

### **Host Interface**

1. 4-Pin hardware SPI (serial peripheral interface),through SPI all configuration registers is available
2. 3 separate Tx and Rx FIFOs

### **Enhanced ShockBurst**

1. Automatic packet handling
2. Auto packet transaction handling

The radio front end uses GFSK modulation