

ePA-08 B4 BLOOD PRESSURE MONITOR

circuit structure & working principle

structure

The machine is composed of an air pump, exhaust valve, cuff, measurement and display parts. Measure and display part comprises a pressure sensor, LCD display, IC, cell structure, block diagram of circuit structure (Figure 1), the circuit principle diagram.

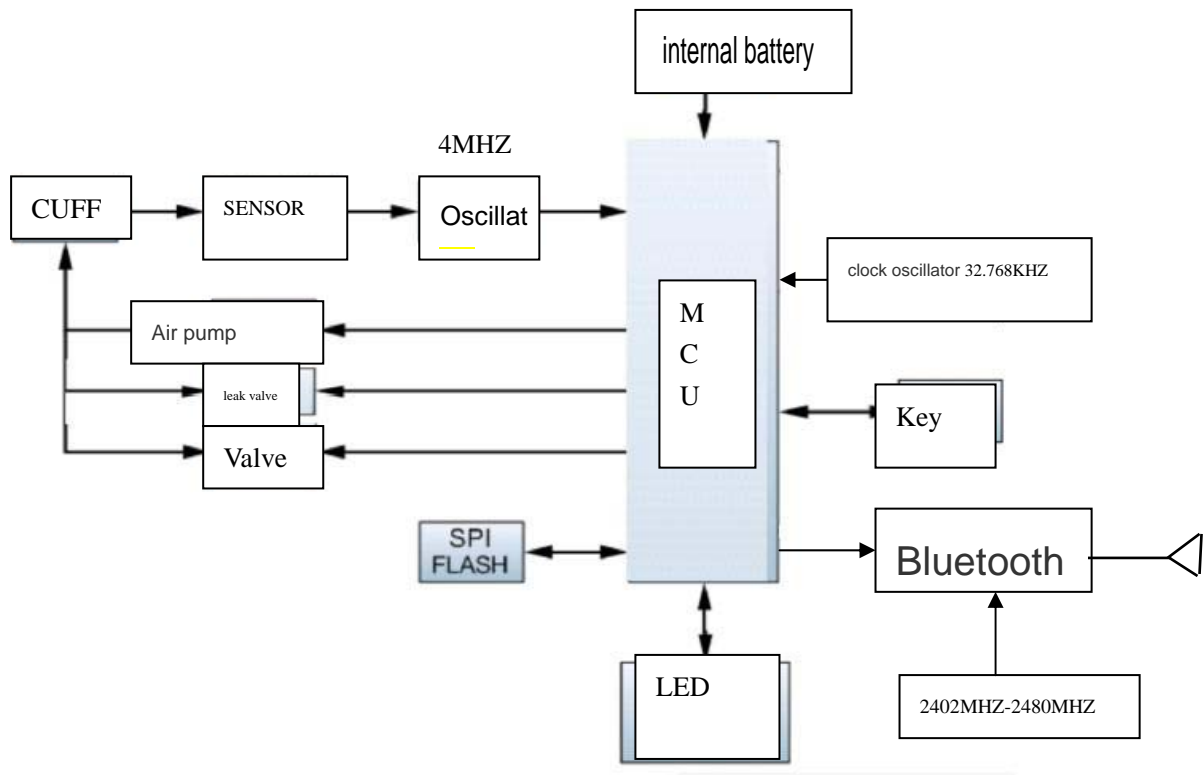


Figure 1

1, capacitive gas pressure sensor, and its role is to the pressure change with capacity of the capacitor, is an important component in electronic blood pressure monitor. Capacitor plate is circular, static state (no inflation, shown as 0.0kPa), measured the capacity for 17pF. When the gas from the inlet into the rear, elastic membrane gas chamber will vary with the height of pressure and deformation, which drives the capacitor to plate distance change. By the principle of the parallel plate capacitor, change the distance between the electrodes, it can change the capacity of the capacitor, the higher pressure, the distance between the electrodes is small, the capacity of the

capacitor is greater.



Figure 2

Blood pressure is a heart to promote blood flow, blood pressure in the arteries. Systolic blood pressure (pressure), called the systolic pressure diastolic when called the diastolic blood pressure (low pressure). The machine adopts pneumatic method for the indirect measurement of blood pressure. When measuring, the cuff is wrapped around a Bo to the upper arm, to inflate the cuff with balloon. When the gas pressure is higher than the systolic blood pressure, artery is compressed, under the cuff blood flow was completely blocked, pulse disappeared, as the pressure increases, the capacitance pressure sensor is increased, the oscillator's output frequency will decline, at this time, the inside by giving up the gas valve slowly deflated, the cuff pressure is lowered, the output frequency of the oscillator increased gradually, when the cuff pressure drop to flattened vascular can suddenly be blood slid open, pulse recovery beats, the cuff pressure due to the influence of the pulse, after changing the output frequency oscillator. Pulse modulation phenomenon will appear, when the measured pressure value is the systolic pressure

As the cuff pressure drops further, and pulse modulation phenomenon more obvious and periodic modulation frequency, the value is the number of pulse.

When the pressure in the cuff is reduced to the arterial pressure completely removed, blood flow, disappeared on the oscillation frequency of pulse modulation phenomenon, the oscillator output for single frequency, the measured pressure value is the diastolic pressure

The pressure changes, the pressure sensor, the oscillator (IC2), into the frequency change, into MCU (IC1) internal processing, can obtain the corresponding pressure value, and the results show the LCD screen.

The product is a BT4.0 device, with one integral antenna, and the antenna gain is 1.21dBi. The frequency range is 2402-2480MHz.