

2. Functional Description Of KPC Reader, Model KR951

2.1 Power Supply

The power supply converts free voltage(100~240V, 50~60Hz) AC power into 12V DC power

2.2 433 MHz Receiver

The signal received in the antenna undergoes, in the antenna switch, the conversion of both transmission and reception that is essential to the TDD(Time division duplex) method. During the reception period, the signal is sent to the band pass filter. At this time, transmission is blocked. Band pass filter only the signal of 433.92MHz bandwidth, and then sends it to LNA(Low noise amplifier). LNA(Low noise amplifier) amplifies the signal sent from band pass filter, and sends it to a transceiver IC.

A transceiver IC receives the signal from antenna switch, goes through LNA(Low noise amplifier) and mixer, separates the I signal and Q signal of 307.2 KHz, filters and amplifies both of them, generates the baseband digital signal via both ADC (analog to digital converter) and FSK demodulator, and sends it to the MCU of a main board.

2.3 433 MHz Transmitter

The digital data in the MCU of a main board is modulated into FSK in the transceiver IC, and then converted into the reference signal of VCO. The RF signal of 433.92 MHz transmitted from VCO is converted into the single ended signal via a phase shifter and MUX. It is also sent to antenna switch via power AMP and LPF . The RF signal inputted in the antenna switch is sent to the antenna for a certain time. At this time, reception is blocked. The RF signal inputted into the antenna is also transmitted from the antenna.

2.4 CPU

A Intel PXA255 with a clock frequency of 400 MHz. 32-bit RISC.

2.5 SDRAM

Dual 256Mbit(32MBytes) SDRAM 4M x 16bit x 4 Banks Synchronous DRAM LVTTL.
Total 64MBytes SDRAM.

2.6 BOOT FLASH

8Mbit(1MBytes) Nor Flash memory organized as 1MBytes of 8bits each.

2.7 NAND FLASH

64M x 8Bit NAND Flash Memory

2.8 ETHERNET

Wired LAN : CS8900A, 10BASE-T (The CS8900A includes on-chip RAM, 10BASE-T transmit and receive filters, and a direct ISA-Bus interface with 24 mA Drivers.)

Wireless LAN : 802.11b, 11Mbps

2.9 PCMCIA & CF SLOT

PCMCIA : Type-II, 16-bit

CF : Type-I, 16-bit

2.10 CONSOLE UART

Serial Communication for Debug.

115200bps, 8 Data Bit, None Parity, 1 Stop Bit, None Flow Control