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Technical Description of PCR325W

PCR325W is operated by single micro-controller. The MCU provides the features of Indoor Thermo (by sensing the thermistor RT1), the communication of the remote thermo module, Radio Controlled Clock and Weather Forecast in US. For the remote thermo part, it is simply a UHF (Ultra High Frequency) receiver and its center frequency is 433.92 MHz. It employs the super-regenerative receiver technique. The LC circuitry L3, C8, C9 and C6 provides frequency selection and it is set to 433.92 MHz.

Signal is received by an antenna and amplified by Q1. By extracting the collector output of the transistor Q2 a regenerated signal is obtained. The circuitry R11 and C14 acts as a low-pass filter that extracts the envelope of the regenerated signal. Demodulated signal is obtained from the output port of the operational amplifier, pin 1 of U1-A. The other part of U1 composes a schmitter-trigger circuitry that converts the demodulated signal into pulses that can be read by micro-controller.

On the other hand, U1 also provides a Radio Controlled alarm clock function to receive the time automatically by the low-frequency receiver U4.

User can adjust the clock by setting keys.

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After the time and temperature are received, U1 will transfer the time and temperature data to Projection Display. If the adaptor is connected, the Light sensor will turn on the backlight in the dark. The Light sensor will switch off the backlight in daytime. U2 provides the Weather forecast function to predict the Weather for next 24 hour.