

General

The system build of 2 main units: Terminal and Base. The main purpose of the system is to transmit keypad data from the terminal to the base. Some commands send control and data messages from the base to the terminal.

Terminal

The terminal is powered from 4 AA rechargeable batteries. After power up, the unit continuously monitors the battery voltage. If power is low the units turn off.

The controller also monitors if external power is connected. If external power exists, the unit stops normal operation and starts charging sequence. During charging, battery voltage and units temperature is sample. Charging stops if batteries' voltage exceeds the required voltage or if temperature is too high. When external power is disconnected the unit turn off.

Power from the batteries transferred to a voltage regulator and regulated to 3.3V for all system requirements.

In normal operation keypad scan performed continuously to detect key-press. When key-press detected, the unit gives feedback according to the system state and if needed transmits data.

RF receive also monitored during normal operation. If needed the unit change its state according to the incoming message or update the display.

The PC interface is in power down until external connector is connected. When PC is connected the RS-232 become active and allows SW update of the system via PC RS-232 interface.

The system has 2 crystals. The main crystal is 14.7456MHz. This crystal runs the MCU and entered into a PLL to generate the RF carrier. The PLL is programmed by the MCU for proper channel operation. The system can work in 4 different channels in the 915MHz band.

BASE

The base has no batteries and it must be connected the external power source. Power from external is regulated to 3.3V same as the terminal. MCU crystals and the communication operation of the base is similar to the terminal.

The base I/O is only PC serial channel. The base is connected to a PC via RS-485 channel. There is no keypad on the base.

The display of the base is very limited and shows the channel it works.