

Theory of Operation

The Genesis II cordless hand remote is a replacement of the standard corded hand remote used in the Genesis II family of traffic safety radars. It was developed for law enforcement agencies that desire to use a cordless hand remote. It consists of two distinct pieces: a hand remote and a receiver/speaker module.

The hand remote contains two circuit boards: S778-118-A-0 LED Bezel Board and S778-220-A-0 Hand Remote Board. S778-118-0 is entirely passive and its only function is to provide keyboard backlighting for nighttime use.

Embedded processor U1 on S778-220-A-0 periodically scans the keyboard. U1 uses a 4MHz oscillator that is built in to the device. Once a key press is detected, U1 turns on the keyboard back lighting, forms a serial packet that consists of an ID code and key code and serially sends the information to U2 at 2400 baud. U2 is a low-cost modular transmitter from Linx Technologies. It is designed to need no external RF components other than an antenna and uses On-Off Keying. Its frequency range is 417.925 – 418.075MHz. The antenna is a surface mounted patch antenna, also provided by Linx Technology and was designed to be used with this transmitter module. The antenna is soldered to the S778-220-A-0 printed circuit board and cannot be removed by the customer.

The receiver/speaker module also consists of two circuit boards: S778-46-A-0 Receiver board and S778-45-A-0 Micro Controller board

U1 on S778-46-A-0 is a receiver module that is the mate of the transmitter (U2) on S778-220-A-0. It is also designed by Linx Technologies to need no external RF components other than an antenna. Its antenna is a trace on the S788-46-A-0 circuit board. U1 demodulates RF energy and sends this to S778-45-A-0 via J1.

Embedded processor U1 on S778-45-A-0 monitors the information sent from S778-46A-0. It is clocked at 8MHz. Upon activity, it lights D1 to inform the operator that it is receiving a key press. If the received ID code matches its internal ID code, it sends the key code serially at 19.2k baud to the Genesis II computer. Pressing S1 allows an arbitrary receiver module to be synchronized to an ID code from a hand remote. The receiver/speaker module also contains a speaker that is driven by circuitry in the Genesis II computer.