

## ***Operation***

The **LPX2** reads the users input from either the TAKE or RETURN buttons on the transmitter. Based on this user input, the transmitter's microprocessor outputs a corresponding packet of data, which is then modulated and radiated via antennae to a local receiver. The information is then demodulated by a local receiver, which outputs the communicated information. This information is then transferred to a local database.

Theory of Operation and Operating Procedures

LPX2

Designed and Developed by

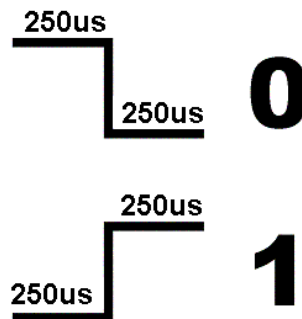
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***Introduction***

The **LPX2** is a wireless supply-monitoring transmitter that can be used for the collection of business supply data. This document outlines the principles of operation of this transmitter, and provides information necessary to aid in Federal Communications Commission Certification Procedures. Any questions that are not adequately addressed in this document should be directed to Mr. Ken Arnold HiTech Equipment Corporation at phone # (858) 566-1892.

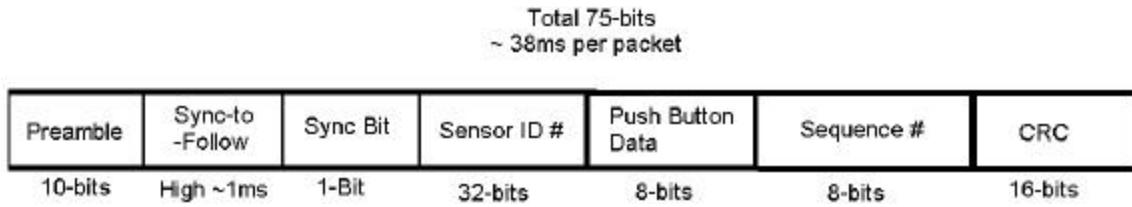
***Modulation Format***

The transmitter data is sent utilizing a Manchester Coding (state change modulation) in which, a zero (0) is represented as a transition from High to Low and a one (1) is represented as a transition from Low to High. Representing a zero (0) is a High time of 250us followed by a Low time of 250us. Representing a one (1) is a Low time of 250us followed by a High time of 250us. Shown in Figure-1.



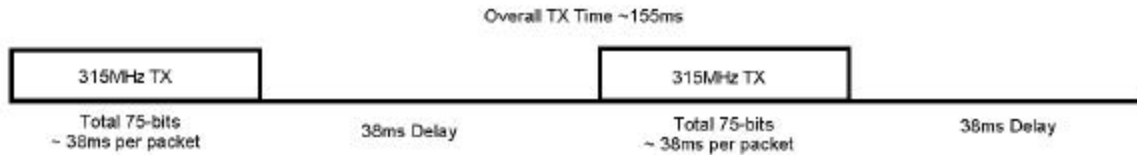
**Figure-1 Manchester Coding**

LPX2 message consists of 10 preamble bits followed by a Sync-to-Follow period of ~1ms on High state. The Sync bit is a one (1). This is followed with 64 information bits. One entire packet is sent in approximately 38ms. Shown in Figure-2.



**Figure-2 Packet Structure**

This packet of bits transmitted alternates twice between 315MHz and 433.92MHz. Thus the total resulting time of transmission for the four packets is ~155ms. Shown in Figure-3.



**Figure-3 315MHz Transmission Sequence**