Rider 100 Data Transmission Format Description

The Rider system name stands for "radio identification event recording" system

The Reader/transmitter contains an AT89C2051 microprocessor. In operation the reader sensor touches (makes contact with) an ID Button "waking up" the microprocessor to read identificaion codes from the ID Button ROM. When read, the code content and its CRC are verified. If verification is correct, the microprocessor turns on the TXM418 LC transmitter and outputs data several times while producing an audio tone.

Below is a copy of characters transmitted within a single transmission. The transmission is in ASCII with "F"'s as a leader, followed by reader serial number (#0128) and ID button information. That information is printed in hex notation and includes button type (01), button identification code (0000023C0C97), and button CRC (3D) along with calculated CRC (3D). Each line is terminated with a carriage return and line feed.

Below are data from a typical transmission sequence:

```
FFFFFFFFFFFFFFFFFFFF#0128 01 0000023C0C97 3D 3D
FFFFFFFFFFFFFFFFFFFF#0128 01 0000023C0C97 3D 3D
FFFFFFFFFFFFFFFFFFFF#0128 01 0000023C0C97 3D 3D
FFFFFFFFFFFFFFFFFFFF#0128 01 0000023C0C97 3D 3D
FFFFFFFFFFFFFFFFFFFF#0128 01 0000023C0C97 3D 3D
FFFFFFFFFFFFFFFFFFFF#0128 01 0000023C0C97 3D 3D
FFFFFFFFFFFFFFFFFFFF#0128 01 0000023C0C97 3D 3D
FFFFFFFFFFFFFFFFFFFF#0128 01 0000023C0C97 3D 3D
FFFFFFFFFFFFFFFFFFFF#0128 01 0000023C0C97 3D 3D
FFFFFFFFFFFFFFFFFFFF#0128 01 0000023C0C97 3D 3D
FFFFFFFFFFFFFFFFFFFF#0128 01 0000023C0C97 3D 3D
FFFFFFFFFFFFFFFFFFFF#0128 01 0000023C0C97 3D 3D
```

The UART of the microprocessor is wired directly to the TXM418LC data input (DIN) pin. The UART transmitts at 2400 BAUD directly to the DIN pin on the transmitter. Since baud refers to changes, the maximum bit rate applied to the transmitter does not exceet 2400 bits per second (square wave, 50% duty cycle).

The receiver is designed to physically stand alone located for the best reception. The receiver output is coupled to a personal computer, or integrated as a component of an embedded system. The receiver uses the RXM418 and its data out (DO) pin is directly connected to a MAX 232 buffer chip which translates the voltages to acceptable RS-232 values.

The output of the receiver can be observed by attaching a serial cable between the RS-232 output connector of the receiver and the COM input (COM1 or COM2) of a personal computer. Any type of terminal emulation software will work. The baud rate is set to 2400, no parity, 1 stop bit. The above fields can then be seen on the screen when a transmission is made.

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