



Couchboy Serial Data Interface Specification

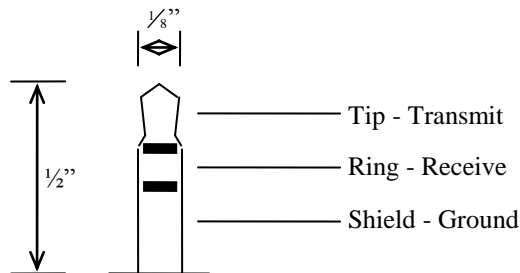
2/25/99, Ken Lyons

The serial data port exists on the back of the Tunerone (Multi-Room Interface). It is designed to offer visibility into and control of the Couchboy system, for test purposes and for third-party add-ons. The serial protocol is standard asynchronous with start and stop bits. Standard ASCII is used to convey information. The technical specifications are as follows:

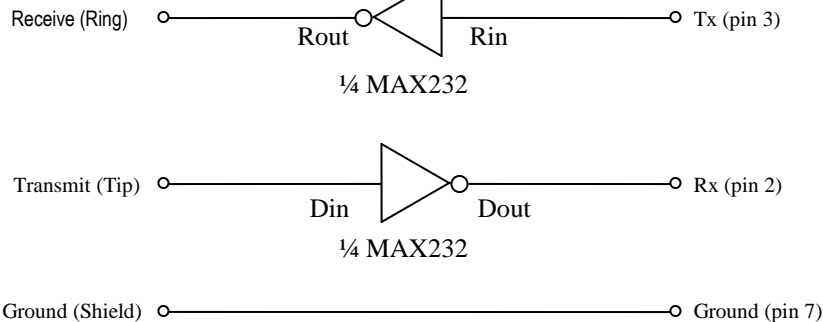
Protocol:	Standard Asynchronous Serial
Directionality:	Half Duplex
Bit Rate (Baud):	4800
Data Bits:	8
Stop Bits:	1
Parity:	None
Logic Levels:	TTL
Logic 1 (Mark):	3.75V min., 5V max.
Logic 0 (Space):	0V min., 0.8V max.

It is not possible to communicate directly with the Tunerone using TIA/EIA-232-E (RS232) levels. You will need to purchase or build a circuit that converts between TTL and RS232. One such product is the RS232-to-TTL converter (Model 232TTL) by B&B Electronics. A chip that performs this function is the MAX232 or equivalent, available from numerous chip makers.

The serial connector accommodates a male three conductor 1/8" phone plug. The arrangement of the plug is as follows:

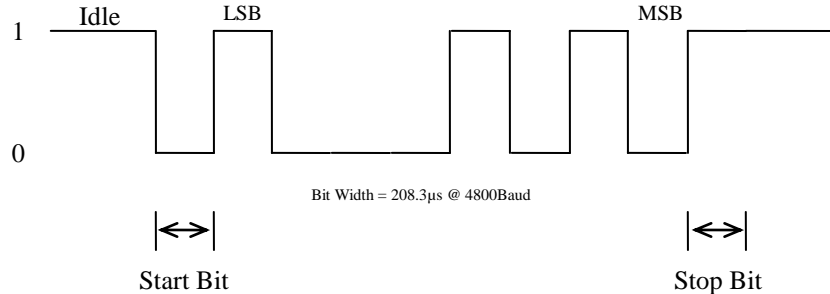


The transmit signal is for data originating at the Tunerone, to be received by the connected device. The receive signal is for data originating at the connected device, to be received by the Tunerone. The circuit for connection to a standard TIA/EIA-232-E connector is as follows:



Standard Async Data Bits is Serial Protocol

The following illustration shows the time-varying signal generated to represent the binary value 81 (\$51).



Communications Basics for Human-Tunerone Interaction

After the hardware interface is complete, communication with the Tunerone can be performed by any “dumb” terminal that can communicate through RS232 or TTL, or by a program such as HyperTerm or Kermit running on a PC. The terminal type that best suits the Tunerone is TTY if available, or VT100. You may use 7-bit or 8-bit ASCII. If you do not see what you are typing, you must turn local echo on, or issue the EC command to cause the Tunerone to echo any characters. All strings from the Tunerone are terminated with a single ASCII carriage return. If your terminal program is displaying everything on one line, you must change its settings so that it moves to a new line when it receives a carriage return (this is called a line-feed).

Upon power-up, the Tunerone emits the string “Reset!”, followed by a single ASCII carriage return character from the serial port. A short time later it will print the module name, the version number, and the copyright notice. It may also include some additional information, such as the results of any power-on self tests. Commands can then be issued using ASCII strings followed by a carriage return, line-feed, or both. Refer to the Couchboy ETAP specifications and command sets for the list of available commands.

Communications Basics for Machine-Tunerone Interaction

Any computer controlled device can talk to the Tunerone through its interface using TTL levels and the same command set outlined in the ETAP specification and other documentation. For a machine interface, terminal type, local echo, or line-feed settings are meaningless, as the two machines can communicate with each other using raw ASCII streams according to the specifications presented in this and other documentation.