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RCP Protocol and Serial Port Operations

Introduction

RCP communicates with the RC210 much the same way a DTMF equipped radio does with 2 notable exceptions:

- A handshaking protocol is used to regulate communications between the RC210 and computer running RCP
- When using serial communications, there is no need for Unlock codes as the RC210 assumes you're physically connected to it.

The RC210 treats communications via the serial port as a 4th DTMF with the above exceptions.

If your firmware installed in your RC210 is earlier than Version 7.60, the parameters are 9600 baud, 8 bits, no parity and 1 stop bit (9600, 8, N, 1).

If the firmware installed in the RC210 is Version 7.60 to 7.6511, the serial communications parameters are 57600 baud, 8 bits, no parity and 1 stop bit (57600, 8, N, 1)

And finally, if the firmware installed in the RC210 is Version 8.00, the serial communications parameters are 19200 baud, 8 bits, no parity and 1 stop bit (19200, 8, N, 1)

Conventions Used In This Document

Digits sent to and from the serial port will be shown in bold *italics*. For example: **5678**

Responses from the RC210 are shown as non-bold *italics*. For example: +12345

Keys pressed on a computer keyboard are surrounded by brackets. For example: <ENTER>

The Basics

Whenever data is received on the RC210's serial port, the controller temporarily disables all other functions within the controller, INCLUDING basic repeat functions (COS, PTT, hang time, etc). This is done in order to prevent conflicts that may arise as serial port communications requires accurate and precise timing. Disabling all other functions allows the 210 to "concentrate" on getting the serial data correctly timed. Two seconds after the last bit of data is received by the 210, a timer restores full functionality.

Protocol

If the command received is perceived as being valid by the RC210, it sends back a plus sign (+), followed by the first 5 digits of the command string sent. If the command is invalid (or otherwise not understood by the RC210) it sends back a minus sign (-), followed by the first 5 digits received.

When sending commands to the RC210 via the serial port, the 210 expects that the first digit sent represents the Port number you're wishing to program. For example, let's say you wanted to program Port 2's Hang Time to 5 seconds. The string sent to the serial port would be:

2*100050

The controller should send back +*1000 in response. Notice the leading 1, 2 or 3 (representing the Port to program) is stripped and not sent back. As you can see (and as previously mentioned), there is no need to unlock or lock the RC210 when communicating via the serial port.

Important Note:

All data sent to the RC210 must end with a CR/LF - (which is the same as pressing the ENTER key on a computer keyboard.)

When communicating via a Terminal Program, the RC210 will not generate a spoken response, even if the Terminator Digit is used.

When using Manual Data Send (MDS) from RCP, a command sent with (or without) the Terminator Digit or calling a Macro with speech content, will result speech output.

MDS example: Disable receiver while repeater active on port 1 - send 11100 - RC210 responds with 'Receive One Off' and immediately disables receive. Sending same command when repeater is idle will result in no response. (11101 will restore receive.)

What Commands Are Valid

All commands that may be sent via DTMF may also be sent serially but a few rules must be followed.

- Any command sent to the RC210 serially MUST start with a 1, 2 or 3, representing the Port to be programmed

Note: When sending non-Port specific commands (for example, running a Macro), you can use whichever Port number you want.

- To run a Macro, use the format 1 * * <Macro's DTMF code>
- To run a Remote Base Command, use the format 1 * * <Remote Base Prefix><command>
- To run an Autopatch Command, use the format 1 * * <Autopatch Prefix><command>
- If you want to change a setting that doesn't start with an asterisk (*), use 1<command> For example, to link Ports 1 & 2 serially, use the format 1A71
- If you want to run a Macro via a serial command, prefix the DTMF code for that Macro with 1**. For example, to run a Macro with the code "123", use 1**123 <ENTER>. Keep in mind however that any speech created by that Macro will not be generated but the Macro Functions in that Macro will be run.