Using Auxiliary Audio Inputs As Additional Ports for IRLP, EchoLink Or Other Half-Duplex Links

Introduction

While the RC210 is a 3 port design, it is easy to use the Auxiliary Audio Inputs as a means to connect additional non-repeating radios or other half-duplex sources without the need to "tie up" one of the 3 Radio Ports. This extends the capability and usefulness of the RC210 tremendously.

In this Paper, we make the following assumptions:

1) We are connecting an IRLP node to the RC210 using Aux Audio 1 and Alarm 1
2) There is a repeater on Port 1.
3) The "link" to the IRLP node is to be selectable via DTMF. In other words, we can disable access to/from IRLP if we want.

While this example is specific, it should give you more than ample information for using a different Port, Aux Audio Input or Alarm Input if you so prefer. Furthermore, you could substitute an actual radio or EchoLink node if so desired as well.

Basic Overview

By programming up an Alarm Input to simulate COR activity from an Auxiliary Audio Input, we have a way of getting audio from the IRLP node to whichever Port we wish. This also allows for proper PTT control of that Port. Note however that there will be no hang time generated using this method however that should not be a problem in most applications.

In addition to the above, we obviously need a way of controlling the "PTT" of the node as well, which we do by using the COR signal from Port 1's receiver. And we allow enabling/disabling of node access by using a Logic Output.

External Hardware Needed

It takes a minimum of hardware in order to implement this method.
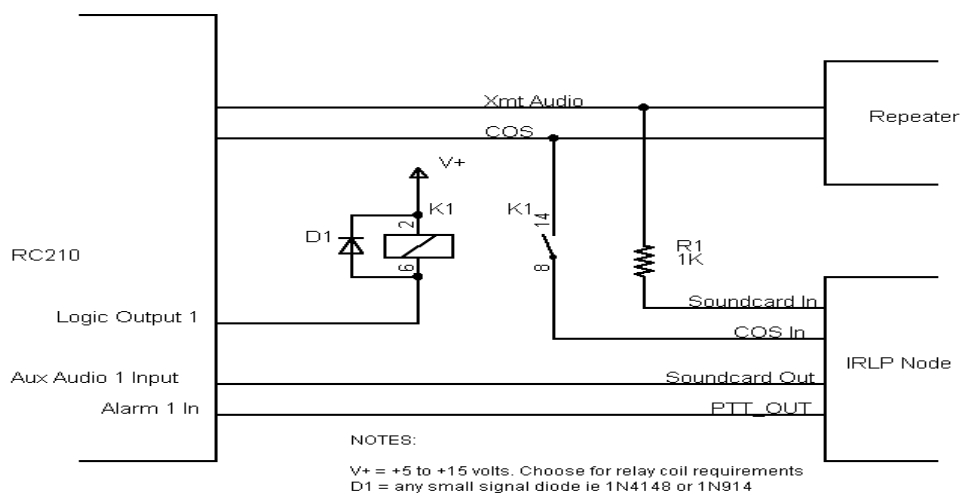
Note that the relay is used to allow remote control of access to/from IRLP (think of it as "link/unlink"). If you want IRLP access full time and don't need to be able to disconnect it from your system, you may ignore the relay and make a direct connection from the repeater's COS to the IRLP COS input. Either way, set the IRLP COS selection to Active High or Low depending on your COS signal.

Programming

Now that the hardware connections are made, we need to program the RC210 for the behavior we want (we give the DTMF codes but you can obviously use RCP instead):

Next, let's make sure Aux Audio will time out in 3 minutes (180 seconds) as a failsafe:

*1013 180

Now to program up a couple of Command Macros. In our example, we'll use Macros 2, 3, 4 and 5 but you can use whichever ones are free in your setup:

Macro 2 will simulate active COS from the IRLP Node, so we want it to turn on Aux Audio 1 and route it to Port 1

*4002 02 162 146

Macro 3 will simulate inactive COS from the IRLP Node, so we want it to turn Aux Audio 1 back off: (don't forget we need to use the Steering Function to properly turn off Aux Audio too):

*4002 03 162 149

Macro 4 will allow us to link/unlink IRLP on command. This Macro does 2 things. Turn on Alarm 1 and turn on User Logic Output 1 to control the external relay. You can, of course, add a message to be spoken when you "link" and "unlink" as well (in our example, we don't).

*4002 04 152 095

And of course, Macro 5 will turn it all off again:

*4002 05 157 102

Don't forget to program the Command Codes for Macros 4 and 5 to be whatever you want them to be.

*2050 04 xxxxxx
*2050 05 xxxxxx

And finally, we need to program up Alarm 1 to call the appropriate Macro for active/inactive COS:

*2101 1 2 ←----Alarm 1's high-to-low transition calls Macro 2

*2102 1 3 ←----Alarm 1's low-to-high transition calls Macro 3

And that's all there is to it. Using the above information should give you all you need to also connect an Echolink node, a link radio or use different Alarms and Aux Audio Inputs as your needs may dictate.