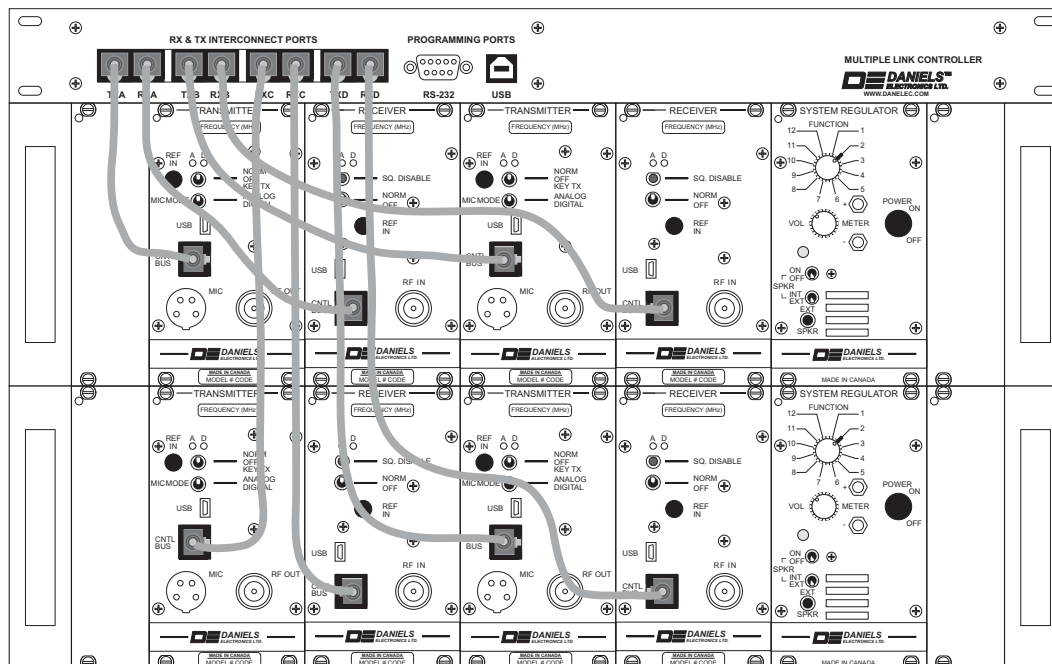


**TN651 CI-RC-4M Multiple Link Controller**

The CI-RC-4M Multiple Link Controller provides control capability for up to four receiver / transmitter pairs in an MT-4 repeater radio system. The CI-RC-4M controller provides the following features:

- interconnection (LVDS Serial Data routing, COR-PTT routing) of up to four receiver and four transmitter modules in any configuration (repeater, repeater with links, crossband systems, etc.).
- multiple CTCSS tones and NAC codes may be selected to operate each connection between receivers and transmitters (up to seven CTCSS/NAC for each link).
- DTMF control of receiver to transmitter links.
- setting of receiver priorities.
- transmitter channel switching based on received CTCSS or NAC.
- auxiliary E&M connections.
- current draw of 20 mA to 30 mA dependant on system configuration.
- 4 independent general purpose outputs that can be controlled by NAC, CTCSS or DTMF (open collector 750 mA / 30 Vdc max).

The MT-4 receiver and transmitter modules all plug into the CI-RC-4M repeater controller via cables that plug into the RJ45 jacks on the front panel of all the modules. The CI-RC-4M comes with eight different cable lengths to plug into the eight repeater receiver and repeater transmitter modules. If the system only uses some of the cables, the other cables can be kept for future system expansion or as spare cables. The CI-RC-4M is 19" rack mountable in 1 RU of rack space.



The CI-RC-4M is available in two different models. The CI-RC-4M-00 is the standard controller used for digital configurations requiring NAC codes. The CI-RC-4M-01 includes the tone expansion board (CI-RC-4M-TONE) for analog configurations requiring CTCSS or DTMF tones, as well as the E&M expansion board (CI-RC-4M-EM/EXP) for interfacing external control equipment.

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### MT-4 Radio Systems

#### TN651 CI-RC-4M Multiple Link Controller

##### Installation:

In addition to the RJ45 interconnect cables on the front panel, the +9.5 Vdc power must be connected on the back panel. Figure 1 shows a diagram of the back panel of the CI-RC-4M.

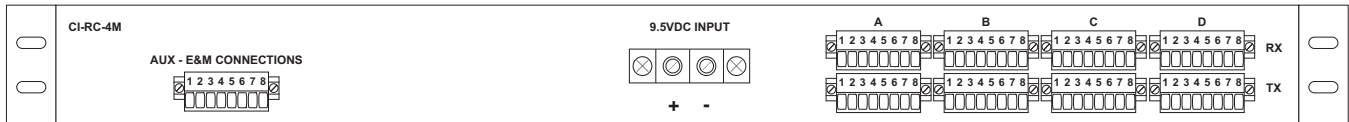


Figure 1: CI-RC-4M Back Panel

Depending on the features used on the CI-RC-4M, further connections may be required by connecting the Daniels Electronics subrack with A-PNL-AUX96-3 auxiliary connector to the CI-RC-4M as shown in Figure 2. The information in brackets is the function that uses that particular connection. For example, if you are using CTCSS tones, the Rx Disc O/P must be connected. The diagram only shows connections for Receiver and Transmitter A.

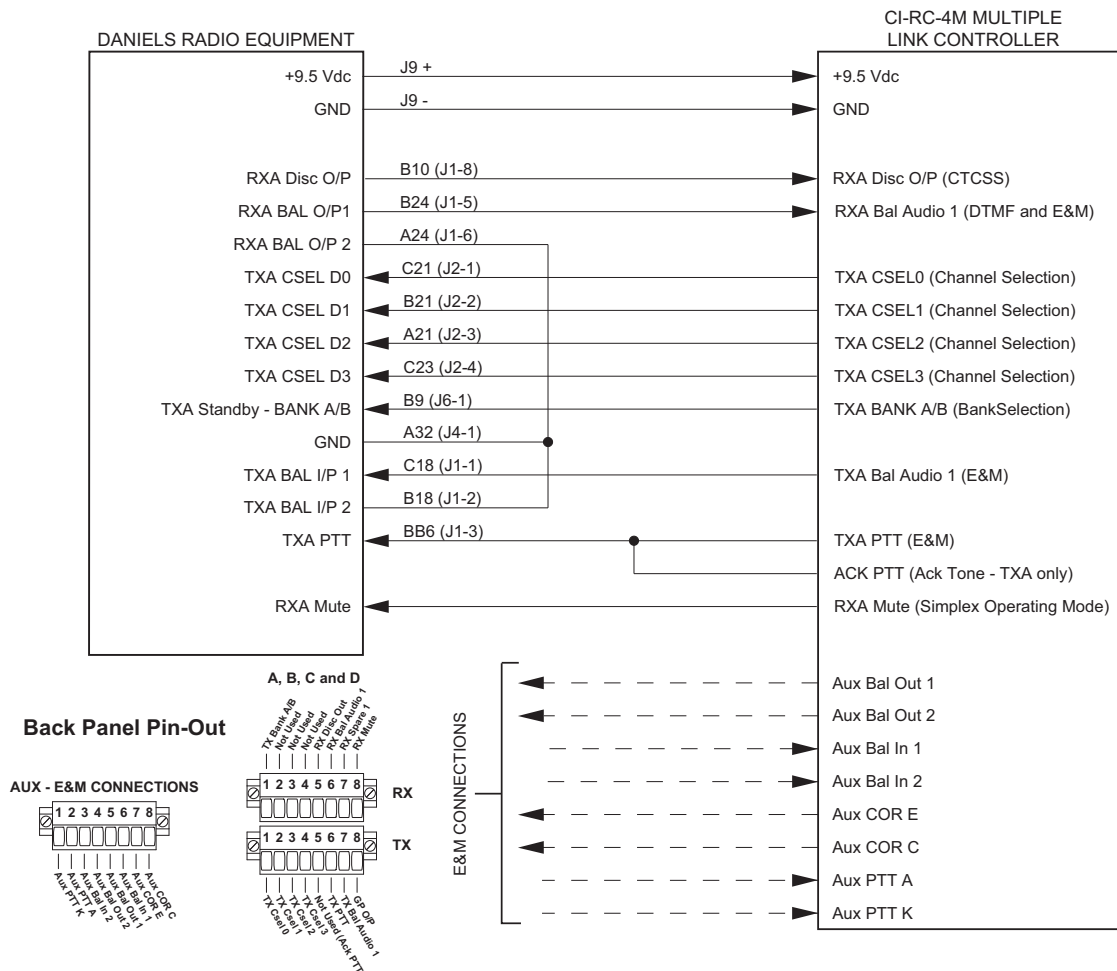


Figure 2: CI-RC-4M Connection Diagram

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**TN651 CI-RC-4M Multiple Link Controller****Multiple Link Controller Programming:**

The CI-RC-4M multiple link controller is software programmable using the MLCS (Multiple Link Controller Software). The MLCS allows flexible programming options for the radio system. The MLCS connects to the CI-RC-4M using the computer's serial port through a standard serial or USB cable to the front panel of the controller. Both cables are supplied with the controller. The System Settings and Receiver / Transmitter Links windows are shown in Figure 3.

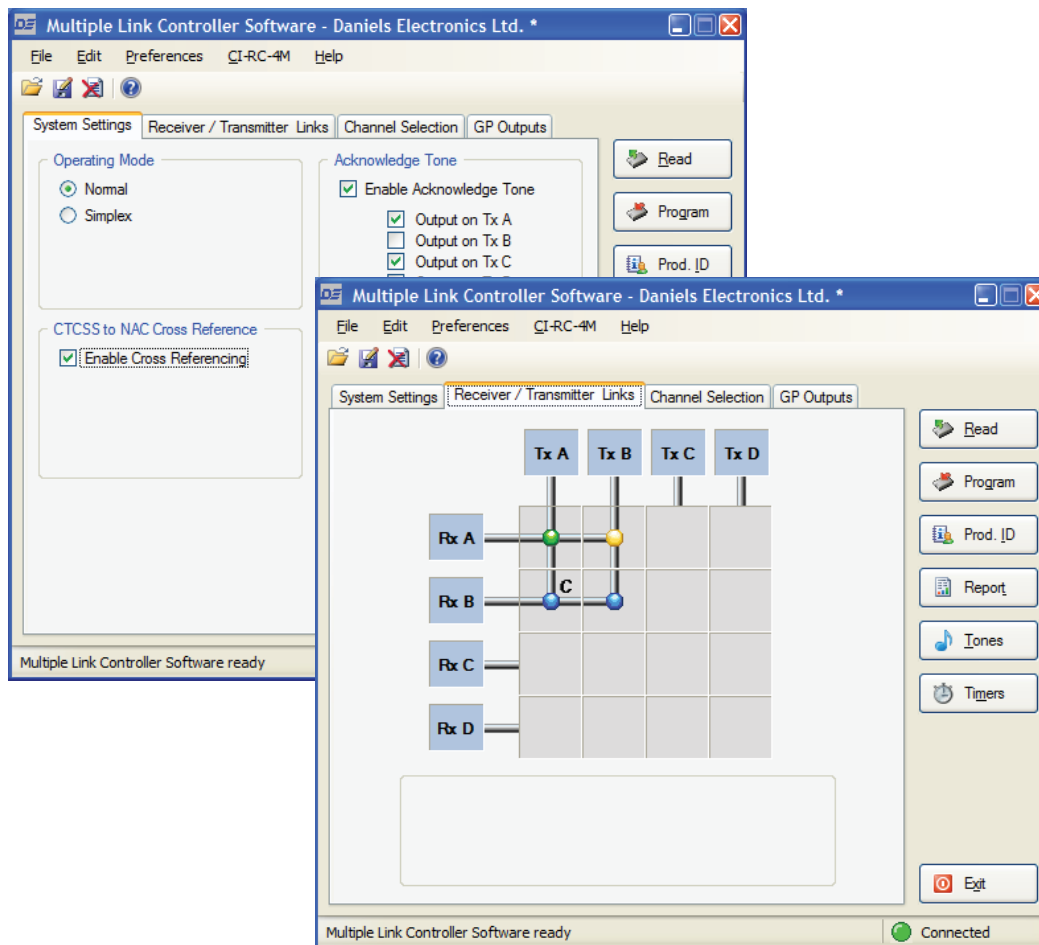


Figure 3: System Settings and Receiver / Transmitter Links

The Receiver / Transmitter Links window allows for a wide variety of complex repeater configurations using a link configuration grid. The grid uses color coding to indicate different connection settings.

## TN651 CI-RC-4M Multiple Link Controller

Each link on the grid can be programmed separately for a different configuration. Three different link configurations are shown in Figure 4: COR Controlled Link, DTMF Controlled Link and a Conditional Link (with both CTCSS and NAC conditions, as well as Channel Selection capability).

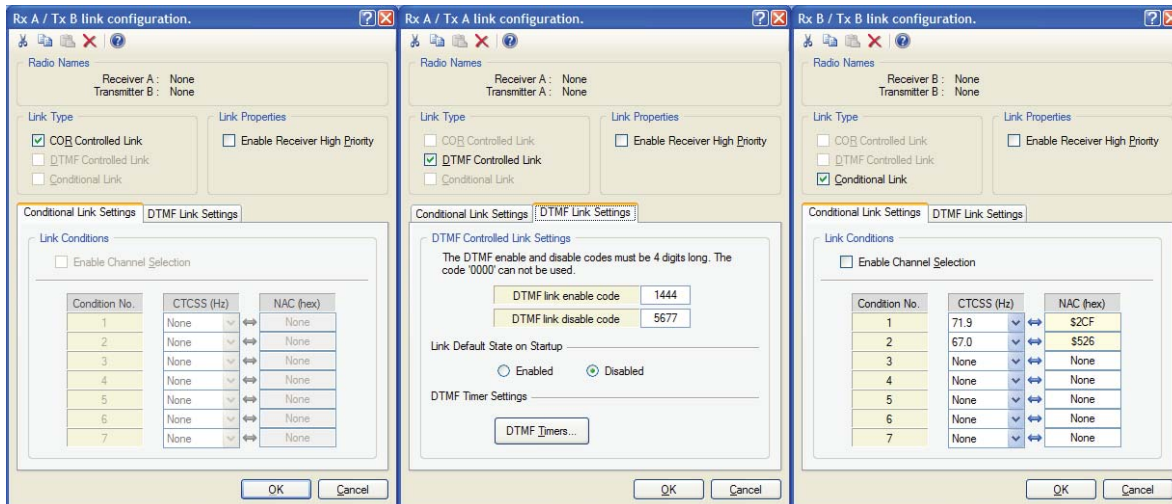


Figure 4: Link Configurations

Figure 5 shows the CTCSS selection window (CTCSS tones need to be selected globally for the CI-RC-4M), Channel Selection window and General Purpose Output window.

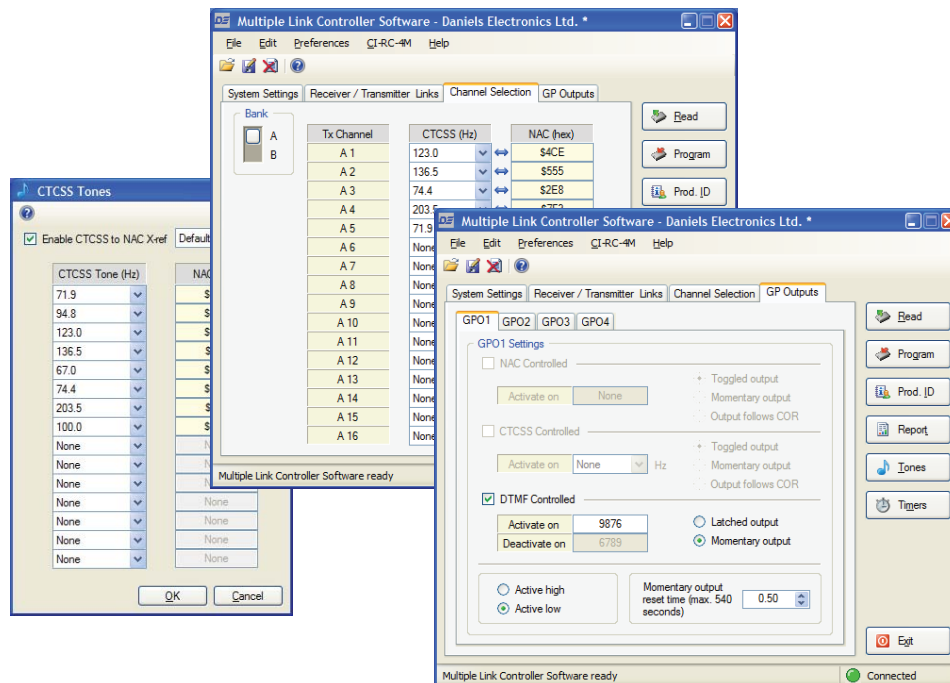


Figure 5: CTCSS Tones, Channel Select and General Purpose Outputs

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