

How to Configure the SCOM 6K to Operate a Link Transceiver

Written October 24, 2008 by Justin Reed NØUJQ

It recently became necessary for our local group to install a half-duplex link on a local Two Meter repeater that was using our trusty old 6K controller. Given the fact that the 6K has a very versatile programming command set, this task is actually quite easy once you understand the programming that is necessary. *Please note the version of firmware we have is v1.02. It is unknown if the RX2-TX PATH command exists in earlier firmware.*

In this example, the repeater is a GE MASTR II, and the link transceiver is GE Phoenix-S, although I'm sure this will work with any working equipment you desire to use. It is important that you verify the repeater and the link transceiver are functioning properly before you interface it to the controller to assist troubleshooting and alignment. Since our link radio is a GE Phoenix, its' RX Mute output goes high upon CAS+valid CG decode. Therefore, it was unnecessary for us to use RX#2 CTCSS input on the 6K. The programming example below assumes your link radio CAS is active high.

It is assumed at this point that you have a fully functioning and configured repeater on the air using the 6K as a controller. If this is not the case, complete your configuration and then resume reading this guide.

- You will need:**
- 1) A small 5K pot. (Such as Mouser #594-63S502)
 - 2) Soldering pencil and solder
 - 3) Cable to interface your link radio to the 6K
 - 4) Small heat shrink tubing
 - 5) Your 6K manual

Step 1: Unsolder your Repeater TX Audio line from J2-11. Solder a short 24 ga. wire from J2-11 to the wiper of the 5K pot. Solder one side of the pot to the wire you previously unsoldered going to your repeater TX audio input. Solder the other side of the pot to the TX audio input going to your link transceiver. Use heat shrink as necessary. The 5K pot, along with the TX pot (R80 on the controller) will allow you to properly adjust the TX audio to both radios, although it will require some careful tweaking to get the proper drive to both transmitters.

Step 2: Connect your link transceiver RX audio to J2-12

Step 3: Connect your link transceiver COR to J2-5

Step 4: Connect your link transceiver PTT to your choice of J2-7, 8, or 9 (Logic Output 1, 2, or 3)

Step 5: Connect your link transceiver A- (ground) to one of the ground pins on J2

Step 6: Enter the following commands: (MAC# represent macro names. Use your own!)

(PW) 20 MAC3 (PW) 70 n*	(Latches Output n ON)
(PW) 20 MAC4 (PW) 71 n*	(Latches Output n OFF)
(PW) 20 MAC1 (PW) 26 35 MAC3*	(COR1 Lo-Hi macro)
(PW) 29 MAC1 (PW) 63 82 1*	(RX2-TX Path ON)
(PW) 29 MAC1 (PW) 26 34 MAC4*	(COR1 Hi-Lo macro)
(PW) 20 MAC2 (PW) 26 35*	(COR1 Lo-Hi macro empty)
(PW) 29 MAC2 (PW) 26 34*	(COR1 Hi-Lo macro empty)
(PW) 29 MAC2 (PW) 63 82 0*	(RX2-TX Path OFF)

Step 7: At this point you have performed basic programming that will enable and disable the link transceiver. *MAC1* will enable the link, *MAC2* will disable it. You can also do creative things like changing the courtesy beep(s) to alert the user whether the link is up or down – just don't exceed the maximum macro length. Gain macro space by daisy-chaining macros. Example: (PW) 29 *MAC1 MAC5*

Note: Firmware v1.02 seems to have a bug that prevents RX#2 COMMAND TERMINATION upon COR from working. Therefore, you must terminate commands with * when sending commands via the link port.