

SCOM 7330 CAT RLS-1000B Wiring Diagram

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(A special thank you to Dave, G1WYG, for his help improving the accuracy of this document)



Before using this document, always check for an updated version. Download the latest version of this file at: <http://www.wa8kim.com/files/SCOM%207330%20CAT%20RLS-1000B%20Wiring%20Diagram.pdf>

For more information, visit: <http://www.wa8kim.com/repeater.html>

The CAT RLS-1000B module essentially adds two more radio ports to your SCOM 7330.

The CAT RLS-1000B has three DB9 radio ports. You connect the Cat RLS-1000B's DB15 port to the SCOM 7330's Port 2 (or ports 1 or 3 with modification).

Included Example Script Features:

- Enable / disable (Toggle On / Off) each port with a single command.
- Announces whenever a port is enabled or disabled.
- Disable entire RLS-1000B with a single command.
- Disable only incoming or outgoing audio (great for monitoring nets without interrupting them).

Document Features:

- Includes graphical and chart wiring diagrams for adding the RLS-1000B board.
- Includes wiring diagram for making an optional conversion cable to use your existing radio connectors.

Resources Used On The SCOM 7300:

The programming and wiring diagrams in this document are set up as follows:

- Connect the RLS-1000B Port R to the SCOM's Port 2.
- Uses the SCOM's Logic Output 1 to control the RLS-1000B's port 1.
- Uses the SCOM's Logic Output 2 to control the RLS-1000B's port 2.
- Uses the SCOM's Logic Output 3 to control the RLS-1000B's port 3.

With minor wiring and programming changes, the SCOM's Logic Outputs and Radio Port can be customized to your setup.

This document includes instructions on building two harnesses:

Wiring Harness #1: This is the main wiring harness to connect the CAT RLS-1000B to the SCOM.

Wiring Harness #2: (OPTIONAL) This harness will adapt your existing SCOM-connected devices to the RLS-1000B. With this harness, you won't have to rewire your existing devices. You will be able to interchange your connected devices between the RLS-1000B and the SCOM 7330.

This Setup Requires The Following Hardware:

1. (2) DB25 Male connectors, terminals, housing
(Supplied with the SCOM 7330 & CAT RLS-1000B)
 2. (1) DB9 Male connector, terminals, housing (for conversion jumper - OPTIONAL)
 3. (1) DB9 Female connector, terminals, housing (for conversion jumper - OPTIONAL)
- This setup requires adding four wires to the SCOM's DB25 I/O port.
 - This setup requires adding programming to the SCOM 7330's programming script.

Wiring Harness #1:
SCOM 7330 CAT RLS-1000B Wiring Harness
 (Chart Version – See next page for graphical version of same wiring harness)

CAT RLS-1000B DB25 Male	SCOM 7330 DB9 Male Port 2	SCOM 7330 DB25 Male I/O
1 Ground		
2 +12v In		
10 Ground		16 Ground
11 TX Audio	5 TX Audio	
12 Control Port R		
13 RX Audio	1 RX Audio Center	
14 Control Port 1		3 Logic Output 3
15 Control Port 2		2 Logic Output 2
16 Control Port 3		1 Logic Output 1
17 Repeater COR	2 RX COR	
18 Repeater PTT	4 TX PTT	
19 Output 3		
20 Output 2		
21 Output 1		
22 CTCSS Out	3 RX CTCSS	
23 Ground	9 TX Audio	
24 Ground		
25 Ground	6 RX Audio	

Wiring Harness #1: SCOM 7330 CAT RLS-1000B Wiring Harness

(Graphical Version – See previous page for chart version of same wiring harness)

CAT RLS-1000B DB25 Male

- Ground 1
- +12v In 2
- ~
- Ground 10
- TX Audio 11
- Control Port R 12
- RX Audio 13
- Control Port 1 14
- Control Port 2 15
- Control Port 3 16
- Repeater COR 17
- Repeater PTT 18
- Output 3 19
- Output 2 20
- Output 1 21
- CTCSS Out 22
- Ground 23
- Ground 24
- Ground 25

Power Source

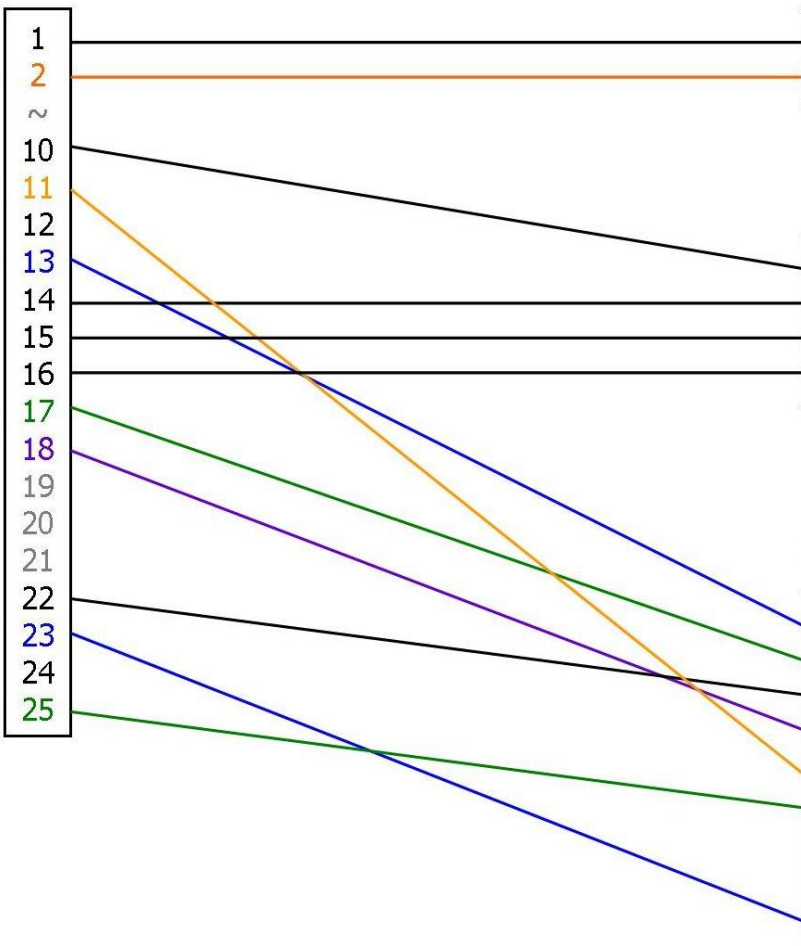
- Blk Ground
- Red +12v

SCOM 7330 DB25 Male I/O

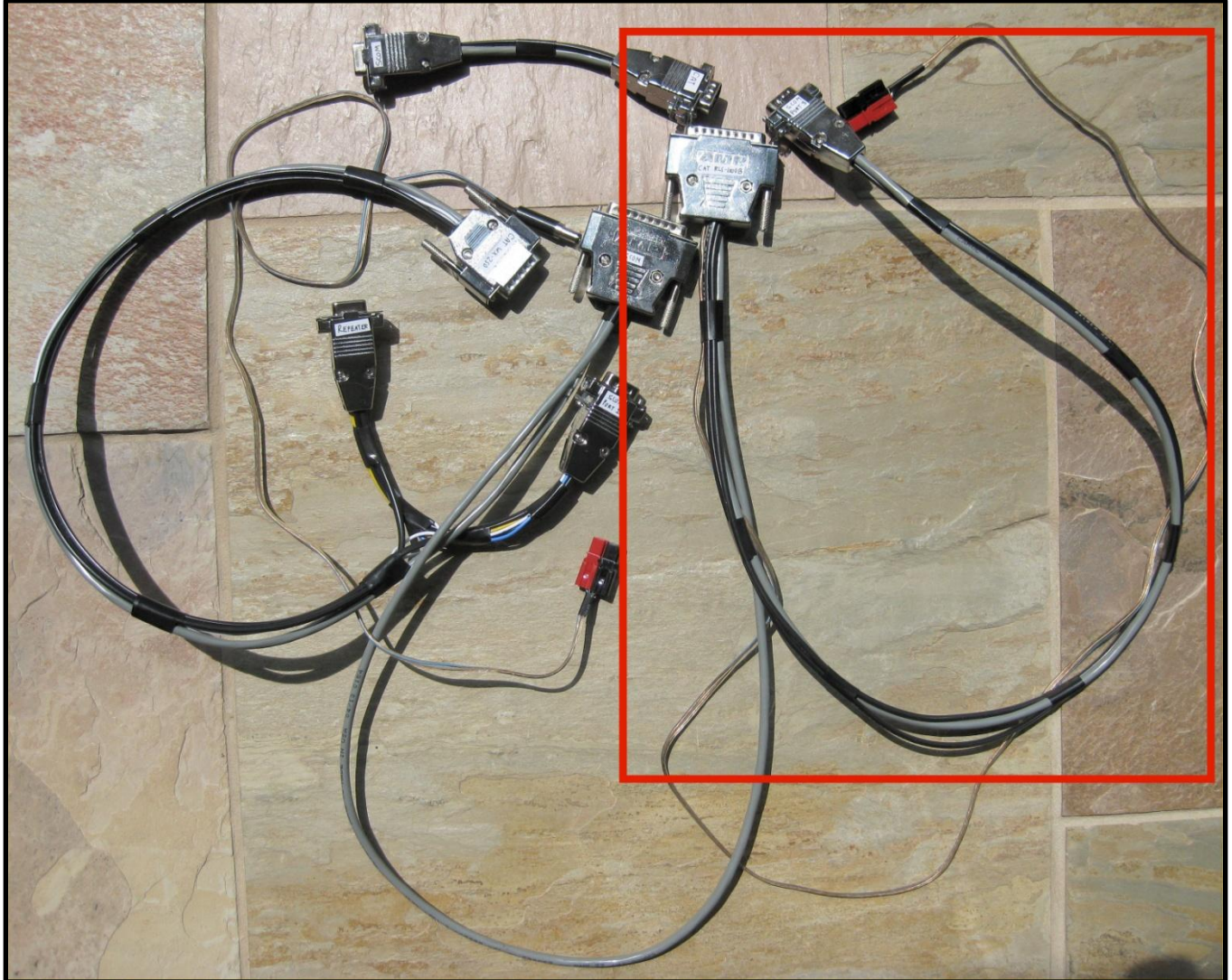
- 16 Ground
- 3 Logic Output 3
- 2 Logic Output 2
- 1 Logic Output 1

SCOM 7330 DB9 Male Port 2

- 1 RX Audio Center
- 2 RX COR
- 3 RX CTCSS
- 4 TX PTT
- 5 TX Audio
- 6 RX Audio Ground
- 7 CTCSS Ground
- 8 CTCSS Center
- 9 TX Audio Ground



Wiring Harness #1: SCOM 7330 CAT RLS-1000B Wiring Harness



Red Highlighted Area: The SCOM 7330 CAT RLS-1000B Wiring Harness

The harness to the left is the DR-1X SCOM 7330 CAT WX-250 Wiring Harness

<http://www.wa8kim.com/files/DR-1X%20SCOM%207330%20CAT%20WX-250%20Wiring%20Diagram.pdf>

The short jumper harness is the SCOM 7330 to CAT RLS-1000B Conversion Cable
(See next page)

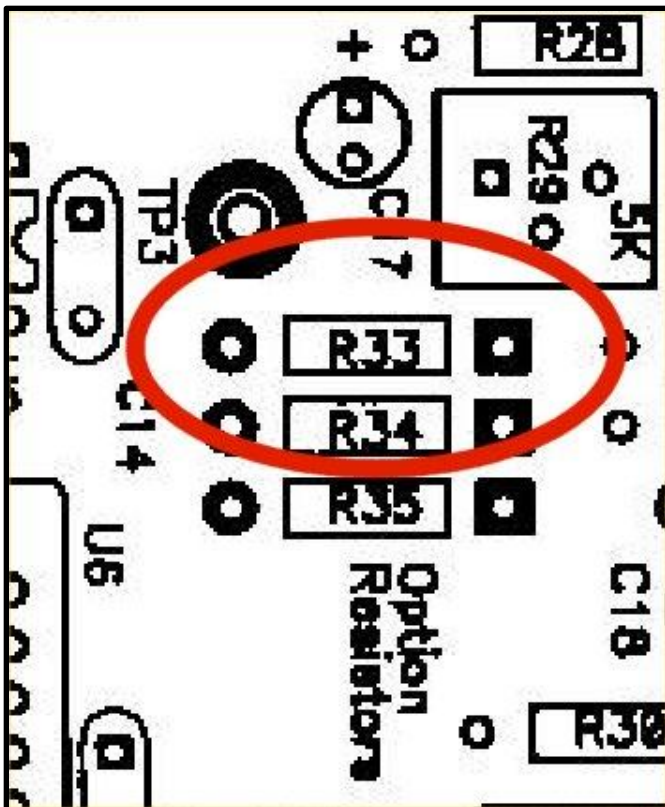
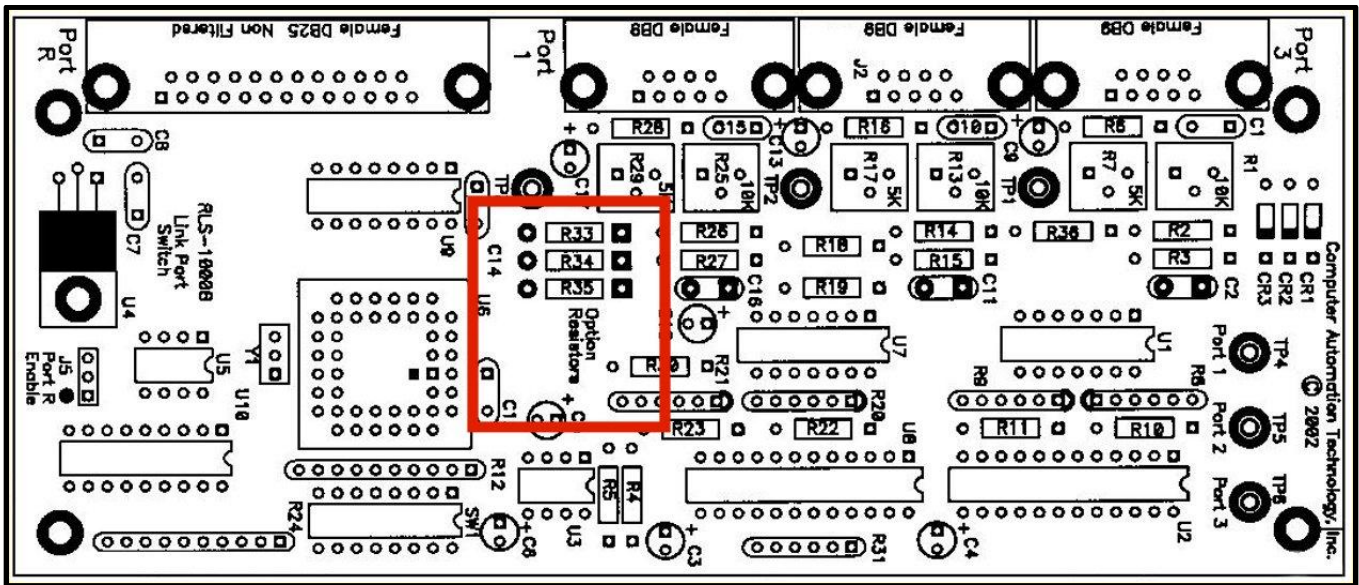
Wiring Harness #2 (OPTIONAL):
SCOM 7330 CAT RLS-1000B Conversion Cable

CAT RLS-1000B DB9 Male	SCOM 7330 DB9 Female
1 COR Input	2 RX COR
2 CTCSS In	3 RX CTCSS Decode
3 PTT Output	4 TX PTT
4 TX Audio	5 TX Audio Center
5 RX Audio	1 RX Audio Center
6 Output 1 - 3	
7 TX Ground	9 TX Audio Ground
8 RX Ground	6 RX Audio Ground
9 +12v	



Only If Needed: I had to add a 2200 Ohm pullup resistor to the RLS-1000B R33 position (port 1) in order for my EchoLink to work properly and set **Switch 1 to ON**.

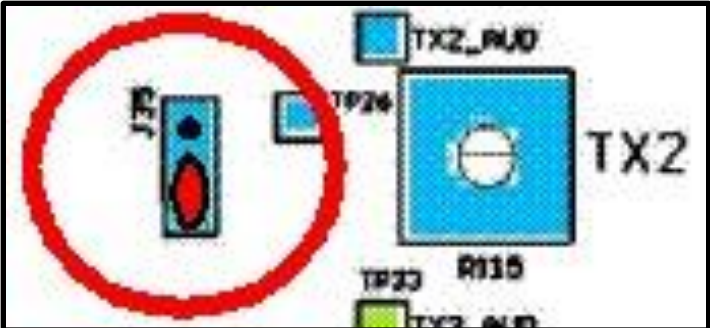
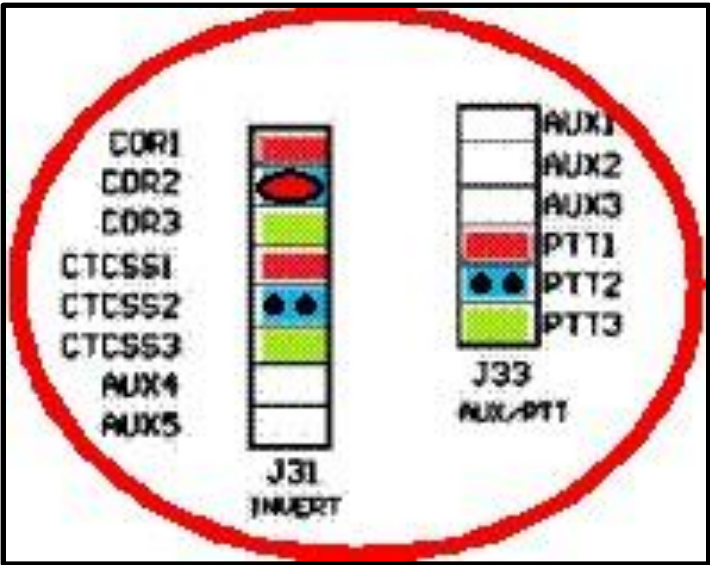
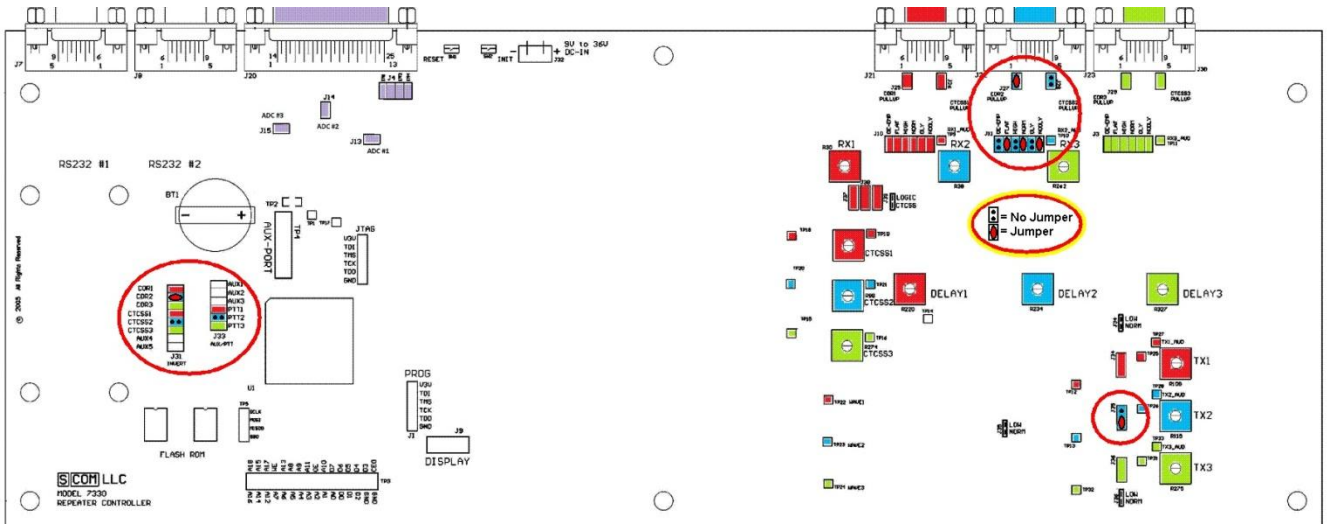
The SCOM wants ground-activated COR, but has a floating ground. The CAT needs to see the voltage drop. (See the RLS-1000B instructions **PAGE 2** for more details)



R33: I had to add a 2200 Ohm resistor here to get my EchoLink to work.

SCOM 7330 Jumper Settings

(These are the settings that are working well for me)



- J31 COR2 (YES) J31 CTCSS2 (NO)
- J27 COR3 PULLUP (YES) J28 CTCSS3 PULLUP (NO)
- J13 DE-EMP (NO) / J13 FLAT (YES) / J13 HIGH (NO) / J13 NORM (YES) / J13 DLY (NO) / J13 NODLY (YES)
- J35 (NORM)

Programming The SCOM 7330

An example script is included on the next two pages. It is designed to work with the program Prog7730. Download link for Prog7330: <http://www.sigridco.com/Prog7330.html>
Prog7330 removes all comments and replaces "MPW" with your actual password.

SCOM 7330 Commands Included In The Following Script:

A1 RLS-1000B Port 1 Toggle On / Off
A2 RLS-1000B Port 2 Toggle On / Off
A3 RLS-1000B Port 3 Toggle On / Off

Individual Commands:

A20 RLS-1000B: Disable ALL
A21 RLS-1000B: Enable ALL
A22 Audio coming from RLS-1000B: Disable
A23 Audio coming from RLS-1000B: Enable
A24 Audio going to RLS-1000B: Disable
A25 Audio going to RLS-1000B: Enable

A60 RLS-1000B Port 1: Disable
A61 RLS-1000B Port 1: Enable

A70 RLS-1000B Port 2: Disable
A71 RLS-1000B Port 2: Enable

A80 RLS-1000B Port 3: Disable
A81 RLS-1000B Port 3: Enable

To view the actual script I use,

- See the "RLS-1000B" section of the [WA8KIM's SCOM 7330 Controller Script.txt](http://www.wa8kim.com/files/WA8KIM's%20SCOM%207330%20Controller%20Script.txt)
Download link: [http://www.wa8kim.com/files/WA8KIM's SCOM 7330 Controller Script.txt](http://www.wa8kim.com/files/WA8KIM's%20SCOM%207330%20Controller%20Script.txt)

Example Programming Script

```
MPW 09 2206 0 * ; Set Transmitter #2 Identifier Message Interval to OFF
MPW 31 0101 9915 57 0052 0080 05 * ; Sets Courtesy Tone for RLS-1000B to C4 & G4
MPW 31 0301 * ; Delete Courtesy message from TX3-RX2
MPW 31 0200 * ; Delete Courtesy message from TX2-RX1
MPW 31 0201 * ; Delete Courtesy message from TX2-RX2
MPW 31 0202 * ; Delete Courtesy message from TX2-RX3
MPW 09 0200 0 * ; Set Courtesy Delay to zero TX2
MPW 09 0201 0 * ; Set Dropout Delay to zero TX2
MPW 09 0202 0 * ; Set Minimum Unkey Delay to zero TX2

MPW 63 0152 1 * ; DTMF Mute Enabled RX2-TX1 (1 = DTMF pass-through disabled)
MPW 63 0251 0 * ; DTMF Mute Disabled RX1-TX2 (0 = DTMF pass-through enabled)
MPW 63 0252 0 * ; DTMF Mute Disabled RX2-TX2 (0 = DTMF pass-through enabled)
MPW 63 0253 0 * ; DTMF Mute Disabled RX3-TX2 (0 = DTMF pass-through enabled)
MPW 63 0352 0 * ; DTMF Mute Disabled RX2-TX3 (0 = DTMF pass-through enabled)
MPW 63 0153 1 * ; DTMF Mute Enabled RX3-TX1 (1 = DTMF pass-through disabled)
MPW 63 0253 0 * ; DTMF Mute Disabled RX3-TX2 (0 = DTMF pass-through enabled)
MPW 63 0351 0 * ; DTMF Mute Disabled RX1-TX3 (0 = DTMF pass-through enabled)
MPW 63 0352 0 * ; DTMF Mute Disabled RX2-TX3 (0 = DTMF pass-through enabled)
MPW 63 0353 0 * ; DTMF Mute Disabled RX3-TX3 (0 = DTMF pass-through enabled)
MPW 57 12 2 * ; Sets RX1-TX2 Access Path Mode to CTCSS
MPW 57 21 1 * ; Sets RX2-TX1 Access Path Mode to COR
MPW 57 22 0 * ; Sets RX2-TX2 Access Path Mode to NO ACCESS
MPW 57 23 1 * ; Sets RX2-TX1 Access Path Mode to COR
MPW 57 31 1 * ; Sets RX1-TX2 Access Path Mode to COR
MPW 57 32 1 * ; Sets RX1-TX2 Access Path Mode to COR
MPW 57 33 0 * ; Sets RX1-TX2 Access Path Mode to NO ACCESS
MPW 63 0203 1 * ; Enables End-of-Transmission Command Execution on Port 2

; ===== RLS-1000B Port 1 Toggle On / Off =====
MPW 21 00A1 * ; Erase Macro
MPW 20 00A1 A101 * ; RLS-1000B Port 1 - Toggle On/Off (Initial Script)

MPW 21 A101 * ; Erase Macro
MPW 20 A101 A61 * ; Enable RLS-1000B Port 1
MPW 29 A101 MPW 21 00A1 * ; Erase the 00A1 Macro
MPW 29 A101 MPW 20 00A1 A102 * ; Create the 00A1 Macro to run A102 Macro

MPW 21 A102 * ; Erase Macro
MPW 20 A102 A60 * ; Disable RLS-1000B Port 1
MPW 29 A102 MPW 21 00A1 * ; Erase the 00A1 Macro
MPW 29 A102 MPW 20 00A1 A101 * ; Create the 00A1 Macro to run A101 Macro

; ===== RLS-1000B Port 2 Toggle On / Off =====
MPW 21 00A2 * ; Erase Macro
MPW 20 00A2 A105 * ; RLS-1000B Port 2 - Toggle On/Off (Initial Script)

MPW 21 A105 * ; Erase Macro
MPW 20 A105 A71 * ; Enable RLS-1000B Port 2
MPW 29 A105 MPW 21 00A2 * ; Erase the 00A3 Macro
MPW 29 A105 MPW 20 00A2 A106 * ; Create the 00A3 Macro to run A106 Macro

MPW 21 A106 * ; Erase Macro
MPW 20 A106 A70 * ; Disable RLS-1000B Port 2
MPW 29 A106 MPW 21 00A2 * ; Erase the 00A3 Macro
MPW 29 A106 MPW 20 00A2 A105 * ; Create the 00A3 Macro to run A105 Macro

; ===== RLS-1000B Port 3 Toggle On / Off =====
MPW 21 00A3 * ; Erase Macro
MPW 20 00A3 A107 * ; RLS-1000B Port 3 - Toggle On/Off (Initial Script)

MPW 21 A107 * ; Erase Macro
MPW 20 A107 A81 * ; Enable RLS-1000B Port 3
MPW 29 A107 MPW 21 00A3 * ; Erase the 00A4 Macro
MPW 29 A107 MPW 20 00A3 A108 * ; Create the 00A4 Macro to run A108 Macro

MPW 21 A108 * ; Erase Macro
MPW 20 A108 A80 * ; Disable RLS-1000B Port 3
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MPW 29 A108 MPW 21 00A3 * ; Erase the 00A4 Macro
MPW 29 A108 MPW 20 00A3 A107 * ; Create the 00A4 Macro to run A107 Macro

; ===== All Ports On The RLS-1000B Board =====
MPW 21 0A20 * ; Erase Macro
MPW 21 0A26 * ; Erase Macro
MPW 20 0A20 MPW 15 9993 05 9961 [r] [l] [s] [one] [thousand] [b] [disabled] 9999 0A26 * ; Announcement
MPW 20 0A26 MPW 63 0219 0 * ; Disable Audio from RLS-1000B (SCOM 7330 Port 2)
MPW 29 0A26 MPW 63 0212 0 * ; Disable PTT

MPW 21 0A21 * ; Erase Macro
MPW 21 0A27 * ; Erase Macro
MPW 20 0A21 MPW 15 9993 05 9961 [r] [l] [s] [one] [thousand] [b] [enabled] 9999 0A27 * ; Announcement
MPW 20 0A27 MPW 63 0219 1 * ; Enable Audio from RLS-1000B (SCOM 7330 Port 2)
MPW 29 0A27 MPW 63 0212 1 * ; Enable PTT

MPW 21 0A22 * ; Erase Macro
MPW 21 0A28 * ; Erase Macro
MPW 20 0A22 MPW 15 9993 05 9961 [audio] [from] [r] [l] [s] [one] [thousand] [b] [disabled] 9999 0A28 *
MPW 20 0A28 MPW 63 0219 0 * ; Disable Audio from RLS-1000B (SCOM 7330 Port 2)

MPW 21 0A23 * ; Erase Macro
MPW 21 0A29 * ; Erase Macro
MPW 20 0A23 MPW 15 9993 05 9961 [audio] [from] [r] [l] [s] [one] [thousand] [b] [enabled] 9999 0A29 *
MPW 20 0A29 MPW 63 0219 1 * ; Enable Audio from RLS-1000B (SCOM 7330 Port 2)

MPW 21 0A24 * ; Erase Macro
MPW 21 0A42 * ; Erase Macro
MPW 20 0A24 MPW 15 9993 05 9961 [audio] [too] [r] [l] [s] [one] [thousand] [b] [disabled] 9999 0A42 *
MPW 20 0A42 MPW 63 0212 0 * ; Disable PTT

MPW 21 0A25 * ; Erase Macro
MPW 21 0A43 * ; Erase Macro
MPW 20 0A25 MPW 15 9993 05 9961 [audio] [too] [r] [l] [s] [one] [thousand] [b] [enabled] 9999 0A43 *
MPW 20 0A43 MPW 63 0212 1 * ; Enable PTT

; ===== RLS-1000B Port 1 Connection Announcement =====
MPW 21 0A60 * ; Erase Macro
MPW 21 0A66 * ; Erase Macro
MPW 20 0A60 MPW 15 9993 05 9961 [r] [l] [s] [one] [thousand] [b] [port] [one] [disabled] 9999 0A66 *
MPW 20 0A66 MPW 71 01 * ; Disable RLS-1000B Port 1 (SCOM 7330 Logic Output 1)

MPW 21 0A61 * ; Erase Macro
MPW 21 0A67 * ; Erase Macro
MPW 20 0A61 MPW 15 9993 05 9961 [r] [l] [s] [one] [thousand] [b] [port] [one] [enabled] 9999 0A67 *
MPW 20 0A67 MPW 70 01 * ; Enable RLS-1000B Port 1 (SCOM 7330 Logic Output 1)

; ===== RLS-1000B Port 2 Connection Announcement =====
MPW 21 0A70 * ; Erase Macro
MPW 21 0A76 * ; Erase Macro
MPW 20 0A70 MPW 15 9993 05 9961 [r] [l] [s] [one] [thousand] [b] [port] [two] [disabled] 9999 0A76 *
MPW 20 0A76 MPW 71 02 * ; Disable RLS-1000B Port 2 (SCOM 7330 Logic Output 2)

MPW 21 0A71 * ; Erase Macro
MPW 21 0A77 * ; Erase Macro
MPW 20 0A71 MPW 15 9993 05 9961 [r] [l] [s] [one] [thousand] [b] [port] [two] [enabled] 9999 0A77 *
MPW 20 0A77 MPW 70 02 * ; Enable RLS-1000B Port 2 (SCOM 7330 Logic Output 2)

; ===== RLS-1000B Port 3 Connection Announcement =====
MPW 21 0A80 * ; Erase Macro
MPW 21 0A86 * ; Erase Macro
MPW 20 0A80 MPW 15 9993 05 9961 [r] [l] [s] [one] [thousand] [b] [port] [three] [disabled] 9999 0A86 *
MPW 20 0A86 MPW 71 03 * ; Disable RLS-1000B Port 3 (SCOM 7330 Logic Output 3)

MPW 21 0A81 * ; Erase Macro
MPW 21 0A87 * ; Erase Macro
MPW 20 0A81 MPW 15 9993 05 9961 [r] [l] [s] [one] [thousand] [b] [port] [three] [enabled] 9999 0A87 *
MPW 20 0A87 MPW 70 03 * ; Enable RLS-1000B Port 3 (SCOM 7330 Logic Output 3)

```

REVISION HISTORY

2015-09-16 Fixed minor typo in last line of comments: Changed SCOM 7330 Logic Output 2 to 3

2015-08-31 MAJOR CORRECTION: Changed to SCOM 7330 Port 2. (I thought I had the RLS-1000B on the SCOM 7330's port 3, but forgot I had switched it to port 2)

2015-08-22 Corrected a couple grammatical errors

2015-08-20 Added SCOM 7330 Jumper settings

2015-08-18 Added example script into document

2015-08-17 Added graphical wiring diagram for harness #1

2015-08-16 Created document