**Setup Antenna Selector**

[Hardware Setup](mk:@MSITStore:C:\Ham%20Radio\Logger32\Help\Draft\Logger32.chm::/HardwareSetup.htm) ›› [Antennas](mk:@MSITStore:C:\Ham%20Radio\Logger32\Help\Draft\Logger32.chm::/Antennas.htm) ››

**Jim Hargrave W5IFP**

**1.0 GENERAL**

**1.1 Support**

Logger32 currently supports four methods of automatically switching antennas:

1.1.0

Using the antenna switch built into some of the later model radios. This method uses CAT commands to the radio and implementation is covered in detail in the [Setup Bands and Modes](mk:@MSITStore:C:\Ham%20Radio\Logger32\Help\Draft\Logger32.chm::/SetupBandsandModes.htm) topic.

1.1.1

Logger32 also provides the capability of using a remote electronic antenna switch to automatically select different antennas as you change bands. This is accomplished by interfacing to the antenna switch through the computer's parallel port and assigning the desired antenna for each band defined in the “aerial" column of the "Bands and Modes" definition. In addition, the user can configure any antenna as a default antenna that will automatically be selected when a frequency is reported by the radio that falls outside of the normal Bandplan entries or an antenna is not defined for a specific Bandplan segment.

1.1.2

Logger32 also supports three methods of controlling the antenna switch using serial ports: Logger32 Data Terminal, [OTRSP protocol](mk:@MSITStore:C:\Ham%20Radio\Logger32\Help\Draft\Logger32.chm::/OpenTwoRadioSwitchingProtocolOTR.htm) and [MicroHAM](mk:@MSITStore:C:\Ham%20Radio\Logger32\Help\Draft\Logger32.chm::/SupportformicroHamControlCommand.htm) are supported. See respective topics for setup details.

Logger32 also supports manual operation of the antenna switch for testing the configuration setup and the antenna switch hardware. The automatic antenna switch must be installed and Logger32 properly configured. See [Testing the Antenna switch](mk:@MSITStore:C:\Ham%20Radio\Logger32\Help\Draft\Logger32.chm::/SetupAntennaSelector.htm# 3.0 TESTING THE ANTENNA SWITCH 3.0 TESTING THE ANTENNA SWITCH)  below:

**1.2 Setup**

This section covers setting up Logger32 to operate the remote programmed antenna switch. A simple antenna switch example is detailed the topic [Automatic Antenna Switch](mk:@MSITStore:C:\Ham%20Radio\Logger32\Help\Draft\Logger32.chm::/AutomaticAntennaSwitch.htm).

There are two programming schemes available, Decimal and Binary. Both of these use the parallel port and provide a digital HIGH state (5V) on the respective line(s).

* 1. Decimal - This option allows up to 8 antenna lines. Logger32 will program the parallel port pins 2 thru 9.  The antenna numbers are in order starting with Pin # 2, antenna number 1, Pin # 3 is antenna #2…etc …with Pin # 9 being antenna #8. Only one pin is high at any given time.
  2. Binary - This option provides a 4-bit Binary output on the parallel port. Pins 2, 7, 8, & 9. The output is in BCD and allows up to 15 selected numbers. Pin # 2 is data line A (1), Pin # 7 is data line B (2), Pin number 8 is data line C (4) and Pin number 9 is data line D (8). The specific antenna number listed in the Bands/Mode chart will result in a BCD equivalent output.

**2.0 ANTENNA SELECTOR SETUP**

2.1 Parallel port

From Logger32 [Main Menu](mk:@MSITStore:C:\Ham%20Radio\Logger32\Help\Draft\Logger32.chm::/MainMenu.htm), select the [Setup | Antenna Selector](mk:@MSITStore:C:\Ham%20Radio\Logger32\Help\Draft\Logger32.chm::/SetupMenu.htm#9.0 ANTENNA SELECTOR MENU ITEM) menu items.

SAS\_1

The Antenna Selector dialog box will be displayed allowing the user to configure and monitor the automatic antenna selection process.

You will also note an LED with caption "Pin 14 (Radio switch)". This LED reflects which radio is in use when two radios are configured in Logger32. The LED will be green when Radio #1 is selected and will turn red when Radio #2 is selected. When the LED is green, pin 14 of the parallel port will have logic 1 (+5vdc). When the LED is red, pin 14 will have logic 0 (0vdc). This signal can be used to switch interface cables, microphones, and operating adapters between the two radios. It can also be combined with the antenna lines to switch antennas and linear amplifiers. Additional information for Pin 14 application is contained in the in the Hardware Setup portion of the [Automatic Antenna Switch](mk:@MSITStore:C:\Ham%20Radio\Logger32\Help\Draft\Logger32.chm::/AutomaticAntennaSwitch.htm) and [SO2R](mk:@MSITStore:C:\Ham%20Radio\Logger32\Help\Draft\Logger32.chm::/SingleOperatorTwoRadiosSO2RSuppo.htm) sections.

Note: The logic level of this pin can be reversed by checking the box “Invert pin 14”. This will result in logic HIGH when radio # 2 is selected.

SAS\_2

Select the "Config" menu item and the Parallel Port address dialog box will appear. Enter the correct parallel port address for your computer and operating system and select the <OK> button.  Typical parallel port addresses are &H378 for LPT1 and &H278 for LPT2.

Note: Some PCI parallel port plug-in cards use an address other than the conventional LPT1 or LPT2 address. You should open the Device Manager and determine the exact address assigned to your parallel port, then enter that address in the Parallel port dialog box.

SAS\_3

2.2 Serial ports

For Antenna switches that operate from a serial port, select the appropriate COM port number from the drop-down menu.

2.2.1 OTRSP

The following shows the drop down menu for antennas using the OTRSP protocol. See the [OTRSP](mk:@MSITStore:C:\Ham%20Radio\Logger32\Help\Draft\Logger32.chm::/OpenTwoRadioSwitchingProtocolOTR.htm) topic for more details.

SAS\_3A

2.2.2 microHAM

The following shows the drop down menu for microHAM antenna switch. Select the <Setup uHam port> button and a drop down menu will appear. See the [Support for microHAM Control Commands](mk:@MSITStore:C:\Ham%20Radio\Logger32\Help\Draft\Logger32.chm::/SupportformicroHamControlCommand.htm) topic for detailed setup.

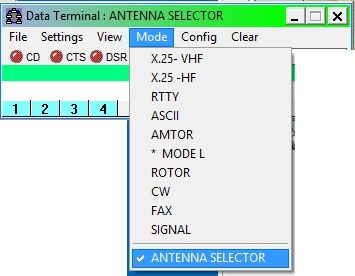
SAS\_3B

2.2.3 Data Terminal

The Data Terminal can communicate directly to an antenna switching device using a dedicated serial port.

The following procedure defines the setup for the KMTronic USB Relay unit (or equivalent). This unit has 8 built in relays suitable of controlling remote antenna switching relays. It can be configured for Decimal or Binary output.

Open the Data Terminal and select “Mode | Antenna Selector”



SAS\_3C

This will open a typical communication terminal. This establishes direct communication between Logger32 and an external serial device by executing command Macros that control the external devise. The Macros can be manually sent by the operator using the F keys or by mouse clicks.

In addition the Macros will be automatically sent when changing bands. Automatic Macro selection is based on the aerial column in the Bands and Mode chart.

Data is sent direct to the serial port using the Macro format: $hexbytes FF xx xx$.

The following are example Macros to control the KMTronic USB Relay unit for decimal output:

F1 $hexbytes FF 0A 00$ $hexbytes FF 01 01$ (clears all relays and turns on #1)

F2 $hexbytes FF 0A 00$ $hexbytes FF 02 01$ (clears all relays and turns on #2)

Etc.….

The following sets the unit for Binary output.

F1 $hexbytes FF 0A 00$ $hexbytes FF 01 01$

F2 $hexbytes FF 0A 00$ $hexbytes FF 02 01$

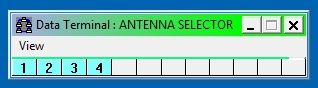
F3 $hexbytes FF 0A 00$ $hexbytes FF 01 01$ $hexbytes FF 02 01$

F4 $hexbytes FF 0A 00$ $hexbytes FF 03 01$

Etc.

The USB Relay set to Binary output can control remote units, such as the Ameritron RCS-10. Parallel units can be converted to serial ports by adding a USB relay between the computer and antenna SWITCH.

Once the Data Terminal is setup, it can reduced in size or minimized.



SAS\_3D

2.2.4 Antenna Name

From the Antenna Selector dialog box, select the default antenna menu item to display the default antenna list. Simply select the desired default antenna to be used for any frequency that is not defined in the [Bandplan](mk:@MSITStore:C:\Ham%20Radio\Logger32\Help\Draft\Logger32.chm::/SetupBandsandModes.htm) or does not have an antenna defined in the Bandplan. The last line allows the operator to select the last selected antenna and ensures that Logger32 will continue using the last selected antenna when the frequency goes out of a frequency defined in the Bandplan as having an antenna. As an example, assume the operator was on 20m and had a beam selected as the operating antenna. If the operator should move outside of the defined Bandplan segment, Logger32 would keep the same beam active until a frequency was entered that was defined in another segment of the Bandplan.

SAS\_4

Click on the "Antenna name" menu item and a list of the eight antenna positions will appear. Move the cursor to one of the positions and left-click to select the antenna to which you wish to assign a name.

SAS\_5

This action will open another window with the space to assign a name to the antenna in the selected position. Type in the name of the antenna and select the <OK> button. Repeat this process until you have named all the antennas you have connected to antenna switch.

SAS\_6

Now, select the <OK> button and the configuration you have selected will be saved in the Logger32 INI file.

On the right side of the Antenna Selector dialog box is a series of LEDs that show which Parallel port pin number and associated antenna are selected. Note: this table shows the correlation of the antenna number and actual Parallel port hardware pin number. LEDs will turn Green indicating which antenna is active. You can open this window during operation to monitor the antenna switching activity and as an aid to troubleshooting the antenna control interface.

Antenna status can also be monitored from the Logger32 [Lower Status bar](mk:@MSITStore:C:\Ham%20Radio\Logger32\Help\Draft\Logger32.chm::/StatusPanels.htm#3.0 LOWER STATUS BAR) [Antenna](mk:@MSITStore:C:\Ham%20Radio\Logger32\Help\Draft\Logger32.chm::/StatusPanels.htm#3.7 Antenna Selector status) panel. Placing the mouse cursor over this pane will pop up a yellow Hint Box with the currently selected antenna.

SAS\_7

After the Antenna Selector setup has been completed, the user must edit the "[Bands & Mode](mk:@MSITStore:C:\Ham%20Radio\Logger32\Help\Draft\Logger32.chm::/SetupBandsandModes.htm)" setup to enter an antenna number in the aerial column of the appropriate frequency segments. See the section on setting up the Bandplan for detailed procedures.

**3.0 TESTING THE ANTENNA SWITCH**

To manually switch the antennas, tune the radio to a frequency that does not have an antenna designated in the Bandplan or just turn the radio OFF so no frequency will be displayed.

From the Logger32 [Main menu](mk:@MSITStore:C:\Ham%20Radio\Logger32\Help\Draft\Logger32.chm::/MainMenu.htm), select the [Setup | Antenna selector](mk:@MSITStore:C:\Ham%20Radio\Logger32\Help\Draft\Logger32.chm::/SetupMenu.htm#9.0 ANTENNA SELECTOR MENU ITEM) menu items and then  “Default antenna”. Select an antenna and the antenna switch should make the selected antenna active. The LED display will show the active parallel pin number. Be sure and re-set to the desired default antenna after you have verified that the switch is working properly.

Created with the Personal Edition of HelpNDoc: [Free Qt Help documentation generator](http://www.helpndoc.com)