Home

My little story

RADIO STATIONS

From 1990 to 1994

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CIV Based remote antenna switch

W3C XHTML 1.1

CI-V based remote antenna switch

Summary   Block diagram   Usage   Configuration   Download & photo

CONTROL BOX CONFIGURATION

Device configuration is performed using an appropriated menu and saved within the Arduino's EEPROM: please remember that this EEPROM has a finite number of write cycle (about 100000) before you need to replace the Arduino board (EEPROM is within the ATMEGA Chip so isn't possible to simply replace a burned out EEPROM). But I think you should not worry about this: even if you change the configuration 10 times a day, you will reach the limit in 10000 days - about 30 years! In any case, I suggest to write down on paper the configuration you need and then start doing in on the board: even a single parameter change will cause all parameters to be saved in the EEPROM.

Configuration changes are saved when exiting the config menu, but only if at least one setting has been changed. Also remember that when in configuration mode, the switching is not operational, meaning that antennas are not switched if you change the frequency con the radio.

Configuration menu can be accessed using the **MENU** key and has 7 main config items: using the 4 buttons you can easily move within menues according to the following simple convention:

- With UP/DOWN keys, you can move within submenu and change values
- Pressing MENU, you will enter in the displayed submenu or, within a submenu, confirm the setting (in the LCD left right angle you will see * *SAVED* as a confirm for setting change).
- Pressing ESC key, you will move to previous item or exit without saving from a submenu (in the LCD left right angle you will see * *CANCEL* and the setting will not be changed).
- To quickly move, hold **UP/DWN** for more than 2 seconds (useful when configuring antenna names and moving between avaliable letters)

Configuration items are:

- CI-V Baud Rate
- CI-V Rtx Address
- CI-V IC-735 Mode
- Band<>Ant config
- Antenna Names
- Software Version
- Factory defaults

To move between menu items, use **UP/DWN**; to enter a specifif setting, press **MENU**. Here a brief explain of every configuration item.

Menu Item	Description	Examples
Switch Config **CI-V Baud Rate**	As you can easily understand, here you can set the proper CIV baud rate, the same as you configured on radio. When entering, the current speed is displayed; pressing **UP/DWN** will cycle among available values (300, 1200, 4800. 9600, 19200). To confirm the value (and go back to previous menu), press MENU or press **ESC** to exit without saving.	CI-V Baud Rate 9600
Switch Config **CI-V Rtx Address**	The second option you need to configure is the CIV address for the radio. As said earlier, within a CIV chain every RTX has its own address (expressed in hex forms). Again, use **UP/DWN** to cycle betweeen all available addresses (from 30h to 2Fh - please take note that are hex value so the sequence will be 31,32...39,3A,3B,3C,3D,3E,3F,40,41.... 49,4A,4B,4C,4D,4E,4F and so on). To exit and save, press **MENU**; to exit without saving, press **ESC**.	CI-V Rtx Address 2Ch
Switch Config **CI-V IC-735 mode**	During time, IV protocol has evolved; to keep things simple, what we must remember is that there are two different CIV operating modes, the oldest one (i.e. IC735 mode ON) which uses 4 byte to send the frequency (from 0 Hz to 99,999999 MHz) and the newest one (i.e. IC735 mode OFF) which uses 5 byte for frequency (from 0 Hz to 9,999999999 GHz). You need to configure this setting based on how you configured your radio. For the range used by the box, the "old" format is enought. To "flip/flop" between the seetings (ON/OFF) simply use **UP/DWN** keys. To exit and save, press **MENU**; to exit without saving, press **ESC**.	CI-V IC-735 mode OFF
Switch Config **Band<>Ant config**	This setting is used to specify which antenna (from 1 to 7) use for each ham radio band (from 160 to 6 meters): if there is no antenna for a band, you need to select the special "antenna 0" (called NoAntenna). Menu sage differs slightly from previous ones, since there are two step to perform a single setting: the first one is to chose the band you want to configure and then chose the appropriate antenna. So, to recap, you need to: - Enter within the menu - Chose the desidered band using **UP/DWN** - When the band is displayed, press **MENU** key to start configuration: antenna number starts blinking. - Using **UP/DWN** scroll all antennas (name is also displayed) until you reach the appropriate one. - Confirm the setting using **MENU** or use **ESC** to cancel. - Repeat above steps for each band you want to configure. Once completed the desidered configuration, press**ESC** to exit this menu.	Band<>Ant config 40 m>4 Dipole Band<>Ant config 160m>0 NoAntenna
Switch Config **Antenna Names**	This is the most complex menu to deal with, because there are three levels to move on: the first one is selecting the antenna, then selecting the char name being edited and finally move trough avaialble chars to select the wanted one. And all operations must be accomplished using only 4 keys (UP, DWN, MENU, ESC). Similar to previous menu, the first part is select the antenna to be renamed and then moving along any antenna name's chars (9) chosing the right one. Please note that for saving a name you must scroll throu all chars until the last one event if you need to modify just one of them because name saving occurs when leaving last char. When scrolling, a blinking cursor shows which char is being edited. Basically, operations needed to change an antenna name are: - Enter within this menu - Use **UP/DWN** keys to scroll all antennas until you reach the one you want to rename - On the desidered antenna, press the **MENU** key to switch to name editing mode: the first char will start blinking - Again, use **UP/DWN** keys to scroll available chars until you reach the desidered one - To move to next char in the name, press **MENU** key. Repeat above steps to edit all other chars. In case you need to go back to previous char, use the **ESC** key - To save the name, use the **MENU** key to move to the last char and then press **MENU** again: display will show * *SAVED*. Otherwise, if you want to abort editing, press the **ESC** key until you reach the first char and then press **ESC** again (display will show * *CANCEL*) - After editing an antenna name (either ending with a SAVE or CANCEL), you will return to antenna selection. Use **UP/DWN** keys to move to another antenna and repeat steps above for another name. To go back to main menu, use **ESC** key.	Antenna Names Ant 3: Dipole Antenna Names Ant 3: Dipole
Switch Config **Software Version**	It simply displays the current firmware version in use on Arduino board. To exit, press **ESC**.	Software Version 1.3 by IK5PWC
Switch Config **Factory defaults**	If your configuration gets corrupted or there are so many changes to do, the best solution is to start from scratch recovering the device to its default values: - Baud Rate: 9600 - CI-V Address: 2Ch - IC-735 Mode: No - Band<>Ant config: all bands configured to Antenna 0 (i.e. no antenna available for any band) - Antenna Names: Antenna 1 ... Antenna 7 To confirm reset operation, press **MENU** otherwise **ESC** to abort reset.	Factory defaults Confirm Reset?