radioInterface3 Documentation

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This basic interface program has been designed to demonstrate the features of the yeasuControl Python class. It is a simple text based program, but it demonstrates all the functions of the class, and the features available from the Yeasu 857d radio, via the CAT control system.

Installation

These directions are for installing the software on a Raspberry Pi computer, as these computers are very popular among Amateur Radio and Electronics enthusiasts, and the standard operating system images all come with Python pre-installed. Because the software is written in Python, it will work on any platform that Python programs run on (Linux, Windows, Mac, Unix, etc.) but the installation may vary.

1. Install pySerial if it is not already installed, via the directions available at

pyserial.sourceforge.net/

2. Copy the file yaesuControl.py to /usr/local/bin

3. Copy the file radioInterface3 to /usr/local/bin

4. At the command prompt, browse to /usr/local/bin

5. Make radioInterface3 executable by typing "chmod +x radioInterface3"

Using radioInterface3

Once installation is complete, the program can be run by typing "radioInterface3" from a terminal window. Upon entering the command you will be presented with the following screen:

```
┌──────────────────────────────────────────────────────────────────┐
│  𝕏            vance@raspberrypi: ~              − + ×              │
│ -------------------------------------------------------------------│
│                        Yeasu 857d                         (Q)uit   │
│ -------------------------------------------------------------------│
│                                                                    │
│ Decrease (-10H)z (-1k)Hz          446.000000      Increase (10H)z (1k)Hz │
│          (-5k)Hz (-10k)Hz          FM   R(X)              (5k)Hz (10k)Hz  │
│                                                                    │
│ Keypad (L)ocked: Y             (C)larifier On: N       (S)plit Mode On: N │
│ Toggle (V)FO                   (Cl)arifier Offset      (Sp)lit Setup      │
│                                                                    │
│ -------------------------------------------------------------------│
│ Modes (type to choose): LSB    USB   CW   CWR   AM   FM   NFM   DIG   PKT │
│                               (Re)peater Operation                 │
│ -------------------------------------------------------------------│
│ Bands (type to choose):                                            │
│  160cw 160ssb 80cw 80ssb 40cw 40ssb 30cw 20cw 20ssb 17cw 17ssb 15cw 15ssb │
│  12cw  12ssb  10cw 10ssb 6cw  6ssb  2cw  2ssb 70cw  70ssb          │
│ -------------------------------------------------------------------│
│           Frequency can be directly input at prompt.               │
│ -------------------------------------------------------------------│
│ >> ▌                                                               │
│                                                                    │
└──────────────────────────────────────────────────────────────────┘
```

To use the program, you simply enter the commands inside the ( ) to use that feature. For example, the line that states Keypad (L)ocked: indicates that typing the letter L and pressing enter will toggle the keypad lock. Following are the available commands, and what they do:

(Q) Quits the program.

(-10H) Decreases the operating frequency by 10 Hertz.

(-1k) Decreases the operating frequency by 1 Kilohertz.

(-5k) Decreases the operating frequency by 5 Kilohertz.

(-10k) Increases the operating frequency by 10 Kilohertz.

(10H) Increases the operating frequency by 10 Hertz.

(1k) Increases the operating frequency by 1 Kilohertz.

(5k) Increases the operating frequency by 5 Kilohertz.

(10k) Increases the operating frequency by 10 Kilohertz.

(X) Toggles between receiving (RX) and transmitting (TX).

(L) Toggles the keypad lock on and off.

(V) Toggles between VFO A and VFO B.

(C) Turns the radio's clarifier feature on and off.

(Cl) Prompts the user for a frequency (positive or negative) and sets the clarifier offset amount and direction.

(S) Turns the radio's split operation mode feature on.

(Sp) Prompts the user for a split amount and sets up split operation, using the current frequency as the receive frequency, and shifting frequency by the split amount for transmitting.

Operating Modes do not have specific commands. You simply type one of the operating modes in the list, at the prompt, to switch the radio to that operating mode. The only unique mode is repeater operation, which uses the (Re) command. Repeater Operation will be detailed later in this document.

Bands are like modes, in that the user simply types the desired band at the prompt. For example, typing 80ssb switches the radio to the low end of the voice portion of the 80 meter band, and sets the radio to the appropriate voice mode. Typing 40cw switches the radio to the low end of the digital portion of the 40 meter band, and sets the radio to the CW operating mode.

In addition to changing the frequency using the increasing and decreasing commands, at any time, the user can enter any frequency within the Amateur Radio allocation, and switch to that frequency. This allows for direct frequency input, so the the user does not have to rely solely on choosing bands, and stepping through frequencies.

Repeater Operations

To begin repeater operations, enter the command that can be seen under the "Modes" section of the main operating interface (Re). Once the (Re) command is entered, the user will see the following display:
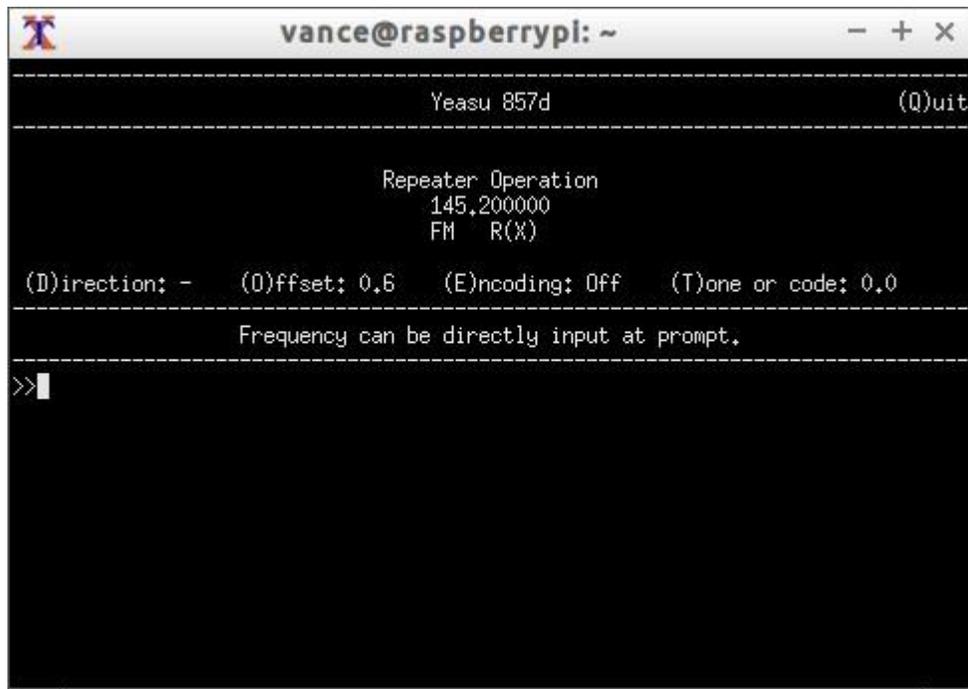
```
 X                    vance@raspberrypi: ~                  — + ×
-----------------------------------------------------------------
                           Yeasu 857d                       (Q)uit
-----------------------------------------------------------------
                       Repeater Operation
                          145.200000
                          FM   R(X)

(D)irection: -    (O)ffset: 0.6    (E)ncoding: Off    (T)one or code: 0.0
-----------------------------------------------------------------
              Frequency can be directly input at prompt.
-----------------------------------------------------------------
>>
```

The operation of this menu follows the format of the main interface. The commands available

from this menu are as follows:

(Q) Quits repeater operation, and returns to the main interface

(X) Toggles between receiving (RX) and transmitting (TX).

(D) Toggles between negative offset, positive offset, and simplex operations.

(O) Prompts the user for a frequency, and sets the offset of the transmit frequency, relative to

the receive frequency displayed.

(E) Prompts the user to enter the type of encoding used by the repeater, and sets the radio

accordingly.

(T) Prompts the user for the tone or code used, based on the encoding used by the repeater.

Frequency is entered directly, by typing the desired frequency at the prompt.

The commands listed above represent all of those that are available via the CAT control

interface. For a detailed description of what each function does, please refer to the yeasuControl Class