

# F8101ALE User's Guide

## RadCommSoft, LLC presents F8101ALE

**F8101ALE** is remote control software for the **ICOM IC-F8101E**®, and includes a modem controller for the **RapidM TC4**® which is internally installed in the radio.

**F8101ALE** allows the user to control ALE linking and de-linking (based on radio programming) directly from the software without touching the radio. This allows the radio to be installed in a position that is not directly accessible to the operator.

The **TC4** modem controller allows the user to set waveform, data rate and interleave settings of the modem and to configure transmit audio level and receive deacquire limit. The modem controller displays the received auto-baud data rate and interleave as well as SNR and BER readings from the modem.

The program also collects information regarding ALE stations heard while scanning. This information is logged and the **NetMon** app aggregates that information and presents it in another window for evaluation. **NetMon** is included in the base software.

## System Requirements

***The F8101E radio MUST have firmware version 4.08 or newer installed.***

**F8101ALE** requires Microsoft® Windows® version 7 or newer. Older versions of the operating system are not supported. Linux versions in 32 and 64 bit are in plan also, but not yet available. An OS-X version is not offered nor is it in the current plan.

## Software Installation

F8101ALE is installed using the supplied installer. Follow the simple instructions supplied in the installer and place the program in a convenient place on the personal computer. A startup shortcut should be created to help the user launch the program from the Start menu or page in Windows.

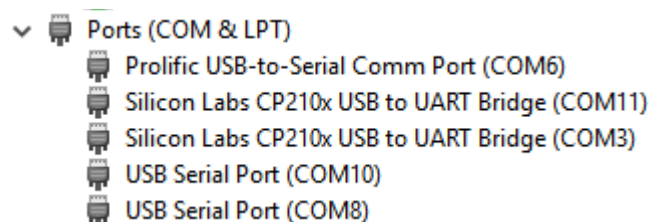
## Software Configuration

### Things you need to find out...and how to do so

1. Radio serial port \_\_\_\_\_
2. Modem serial port \_\_\_\_\_

Plug the USB cable from the ICOM IC-F8101E radio into the personal computer.

In Windows, open Device Manager and expand the twistie labeled “**Ports (COM & LPT)**”



Note the two ports that have loaded the Silicon Labs driver provided by ICOM or by Windows directly. These are your two serial ports to use for the **F8101ALE** software. **TYPICALLY**, the lower number of the two is the **Modem serial port**, and the higher of the two is the **Radio Serial port**. Record those two values above (radio COM11, and modem COM3, for the example above).

You have now gathered all of the basic information necessary to configure **F8101ALE**.

### Start it up!

Using the shortcut created by the installer, start **F8101ALE**. **You will likely receive a serial port error dialog. Simply acknowledge it and continue.**

Once the main screen has loaded, click the gear button in the upper right portion of the window. This will launch a configuration dialog screen with a number of tabs.

The screenshot shows the 'F8101ALE Configuration' dialog box with the 'Radio' tab selected. The 'Connection Settings' section contains the following fields: 'Serial Port Name' (COM11), 'Serial Baud' (38400), 'Bit Params' (8N1), and 'CI-V Timeout (ms)' (50). Below these is a 'Use NetPort' checkbox (unchecked) and a 'Send CI-V' button. The 'Other Settings' section includes six 'Priority Channels' (Alpha Name fields), a 'Load Memory Channels' button, a 'Mic Gain' spinner (set to 6), and a 'Station Name for Logging' field (RADIO1). At the bottom right are 'Save Settings' and 'Cancel' buttons.

On the **Radio** tab, select the Serial Port Name from the list provided that corresponds to the one you recorded in the previous step, above. The defaults for Serial Baud and Bit Params should be left alone. The CI-V timeout is a value that should only be adjusted under very specific circumstances and will be discussed later.

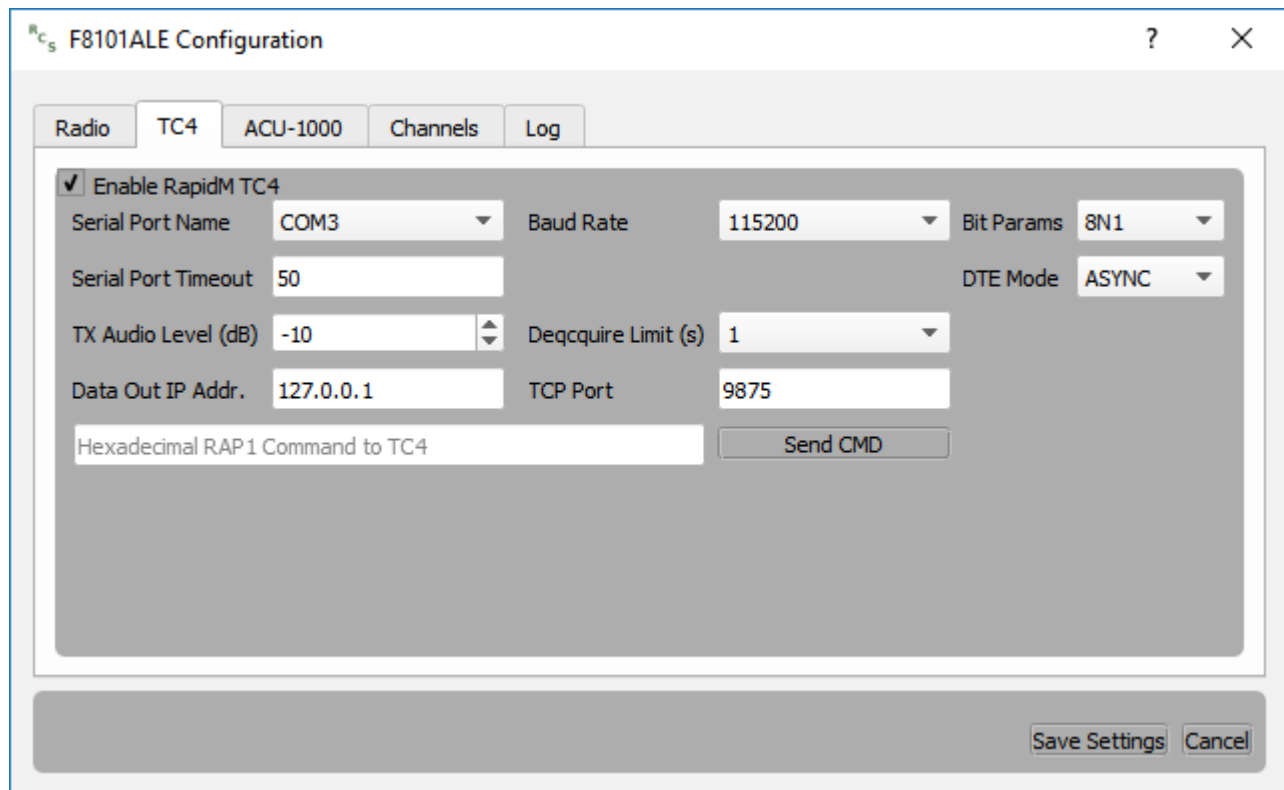
Leave “Use NetPort” unchecked.

Note in the “Other Settings” group box that these are a list of up to 6 priority channel LABELS as they are assigned in the ICOM programming software for particular channels. The text must match EXACTLY what was programmed into the radio (including case).

You may also set the “Mic Gain” on this panel. Whenever you change the value for Mic Gain, it is changed on the radio as soon as the configuration dialog has been saved.

The button, “Load Memory Channels” will interrogate the radio for the memory channel list. This is an immediate command, and you may watch the main program display as it cycles through the list of memory channels. A channel list is saved to the INI file and is loaded when the program starts. Any time programming changes, it is wise to use this button again to refresh the list of memory channels.

**Station Name for Logging** is used to denote this station name in the log file (also displayed by NetMon).

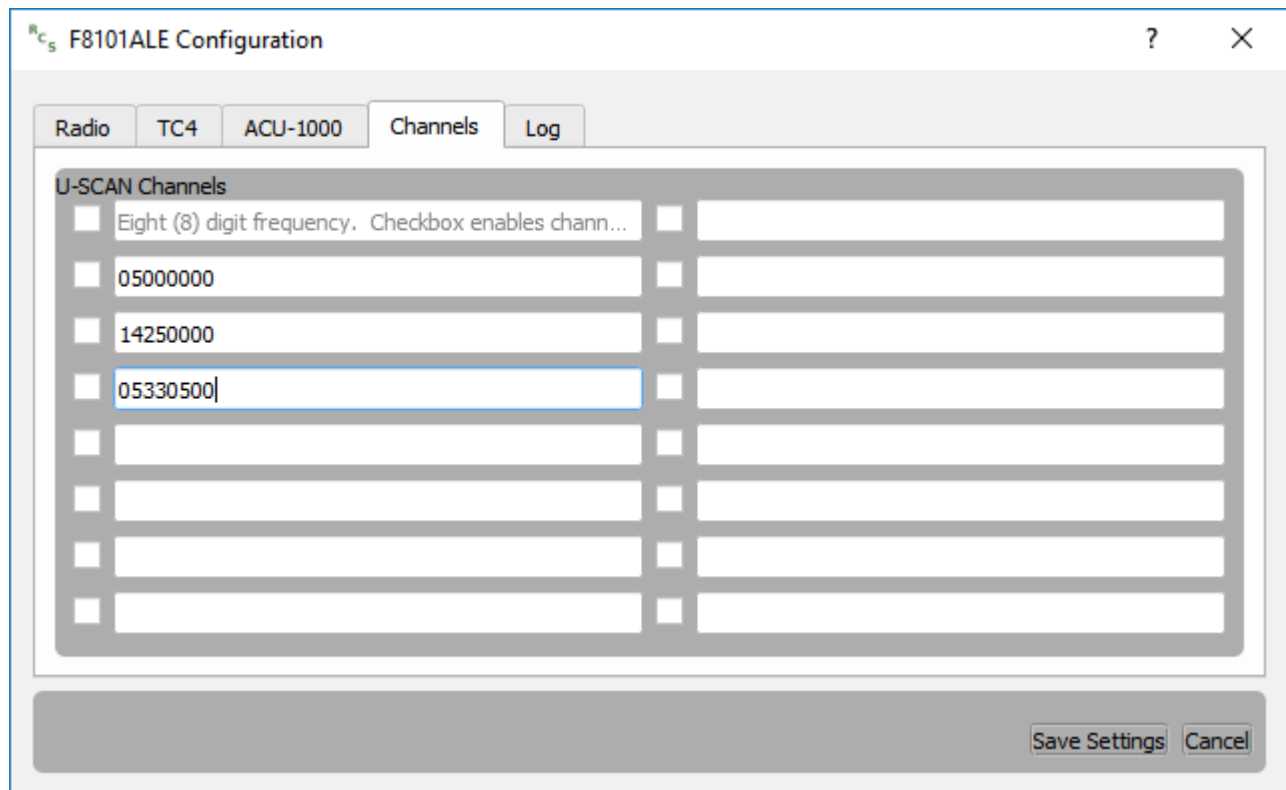


On the **TC4** tab, you will find a similar configuration dialog. Select the **Serial Port Name** from the list provided that corresponds to the one you found in the step above for the Modem Serial Port. The defaults for Baud Rate and Bit Params should be left alone unless there is a compelling reason to change them. The TC4 runs at a default rate of 115200 baud on the serial line. DTE Mode is almost always ASYNC, though High Speed ASYNC is accommodated if required.

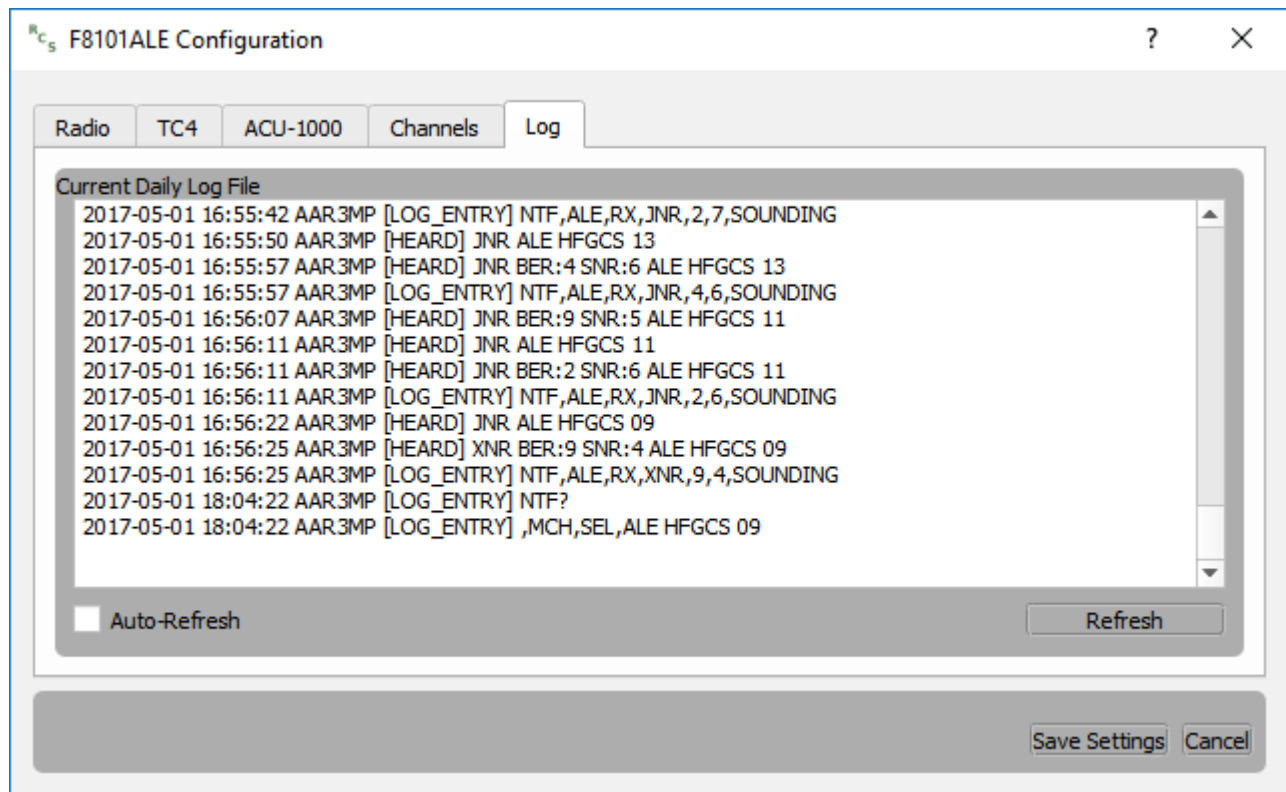
The serial port timeout should also be left at 50 (ms) unless there is a compelling reason to change it.

You may set the values here for the transmit audio level (typically -10 to -15 db) and the Deacquire Limit (typically 1 sec).

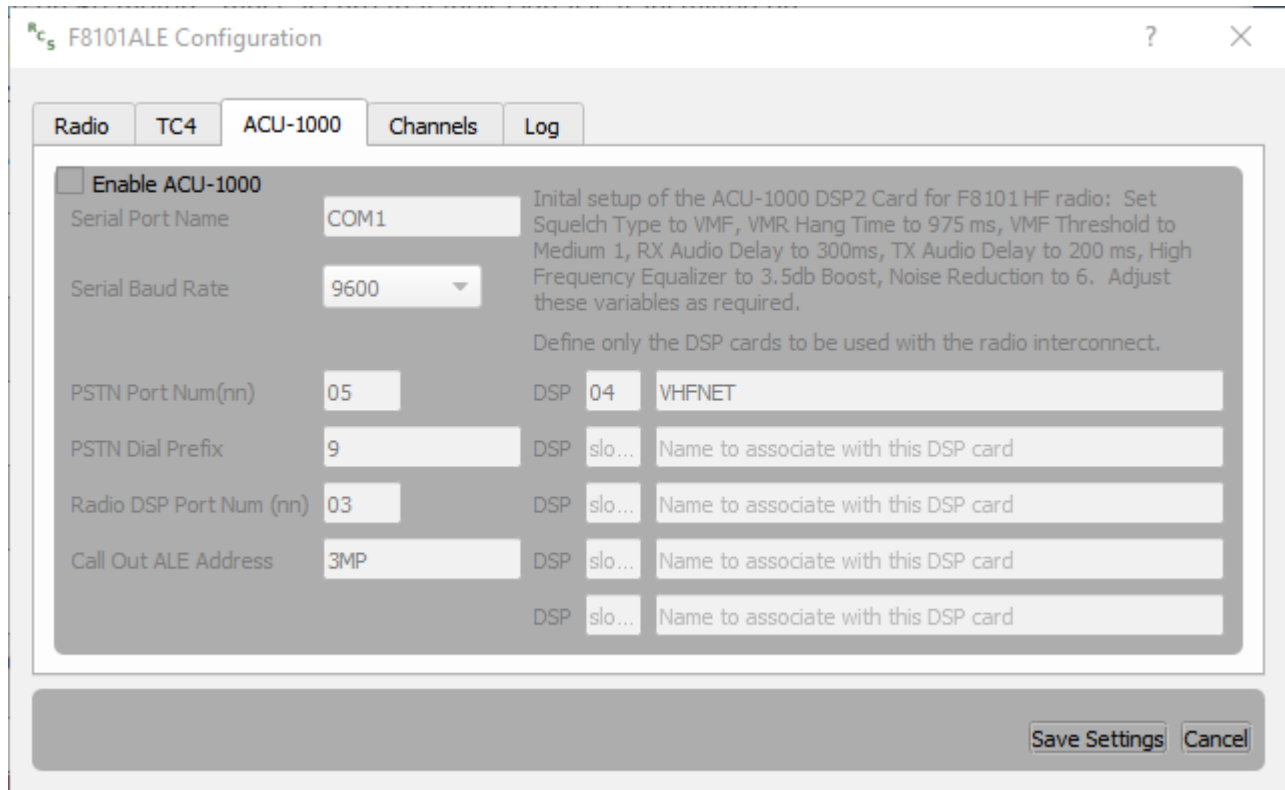
**Data Out IP Addr.** And **TCP Port** should match whatever your terminal software expects for receiving the incoming data from the modem. For example, Station Manager users will set their configuration to "TCP Socket" and set these same to values to match what is set in the **F8101ALE** software. There is NO FACILITY to use serial ports of any kind, including virtual serial ports to transfer data back and forth to a terminal program. Any program which will send and receive data using **F8101ALE** MUST do so using the IP address and TCP provided in this configuration screen.



The **Channels** tab holds USER defined channels for the **U-SCAN** function (discussed later). These frequencies are ***NOT*** programmed into the radio, but are software defined channels which may be scanned. Enter the frequency for each U-SCAN channel in 8 full digits with leading zeros if required. To enable a channel for the U-SCAN function, you must check the checkbox next to the channel or it will not be scanned. This is helpful if a particular channel has a busy state or has heavy interference that makes the squelch open each time. The user may uncheck that channel and it will be skipped in the scanning cycle.

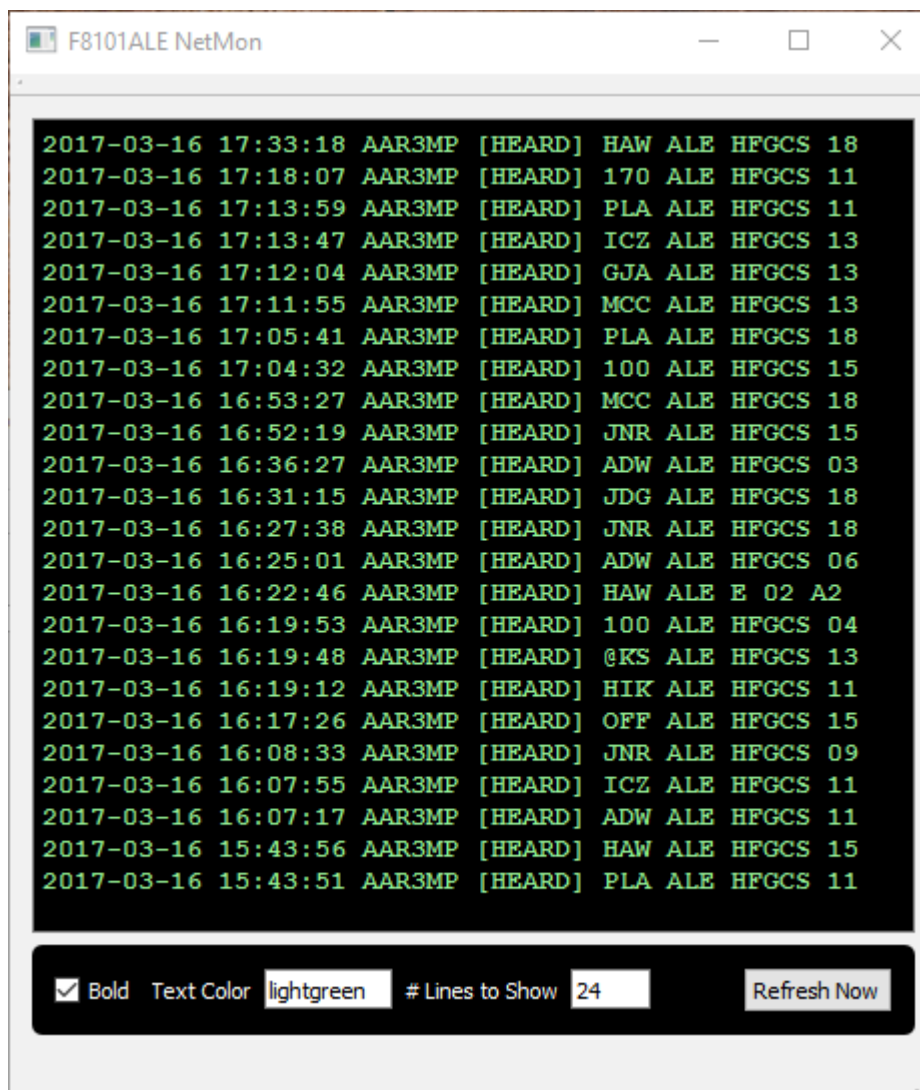


The **Log** tab simply displays the running ZULU day log of activity. The **Auto-Refresh** button may be checked to periodically update the log listing. Otherwise, the user may click the **Refresh** button to manually update the log listing. Activity, ALE soundings, ACK or NACK (error) messages may be viewed here. It is a good diagnostic tool.



Most users will find that the **ACU-1000** ® tab is greyed out and not usable. This tab is related to the **OPTION JP** which allows the software to link ALE calls with specific AMD messages attached to the JPS ® patching hardware for linking disparate nets or radio or PSTN systems. The OPTION JP is an add-on to the base **F8101ALE** software at an additional cost.

Future editions will also include an **OPTION IP** which will allow similar capabilities using the ICOM VE-PG3 ® patching device.

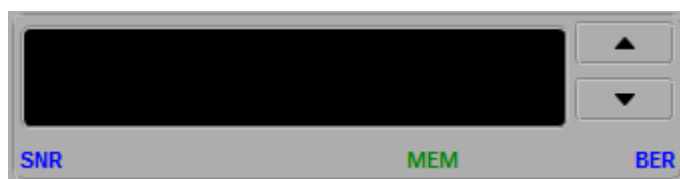


## Using the NetMon App

**F8101ALE** includes an app called **NetMon** which allows the user to view a list of ALE transmissions heard at the local station. This list includes a time stamp, the ALE address and the channel label where the ALE transmission was heard. This data may be used for real-time propagation decisions when scanning one or more ALE networks as programmed into the radio.



## Using the F8101ALE Software

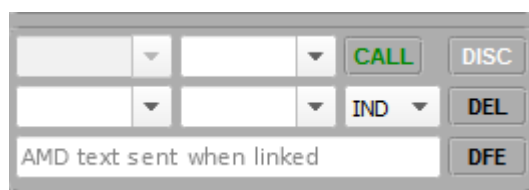


### Frequency and Status Display Area

This part of the main window will display the current frequency (when available) as well as indications for the ALE SINAD measurement as provided by the radio, the BER measurement as provided by the radio and the channel label that corresponds to the frequency (when available) as programmed into the radio using the ICOM supplied programming software.



The up and down arrow buttons allow the user to scroll through the set of programmed channels in the radio once the software has successfully interrogated the radio programming at startup (or has saved the programming to the configuration file).



### ALE Control Area

This part of the main window is where the user controls the linking and de-linking of ALE calls. The **CALL** button initiates an ALE linking call. The *type* of ALE linking call is determined by the small combo box directly below the CALL button. The default setting is **IND** which means an INDIVIDUAL (station to station) ALE linking call. Other options include, LQA (Link Quality Analysis polling call), NET (initiate a call to a pre-defined NET (not network)), and ALL (an ALE ALLCALL).

The four combo boxes to the left of the CALL button allow the user (within the limits of radio programming) to choose which NET, which NETWORK, and which SELF ADDRESS to use. Invalid combinations of any of these values will simply not function. Associations between

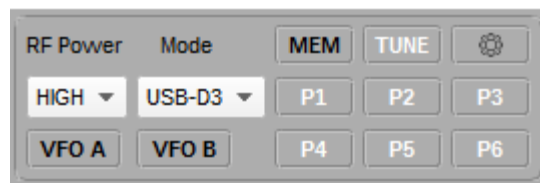
nets, networks and self addresses MUST be programmed into the radio in order for these choices to be valid in the software. **NO PROGRAMMING ASSISTANCE is provided by RadCommSoft, LLC.** Seek help from other qualified individuals, or from ICOM directly.

The **DISC** button allows the user to initiate a de-linking call or to abort a currently in progress calling sequence. ALL links will be dropped.

The **DEL** button allows the user to remove an entry from the Net combo box, or the Other address combo box. Select the address you wish to remove and click the DEL button once.


The **DFE** button allows the user to program a specific frequency on a VFO. This can be used when there is no channel programmed for a specific frequency that the user needs to use. IT IS NOT ASSOCIATED WITH ALE OPERATIONS IN ANY WAY. It is simply a convenient way to use the AMD text line edit for a secondary purpose. To use the DFE function, select either VFO A or VFO B, type the full frequency (in Hz) into the AMD text line edit and click the DFE button. The radio's VFO frequency should be set to this value. If not, ensure that you have specified the frequency in Hz (typically 7 or 8 digits).

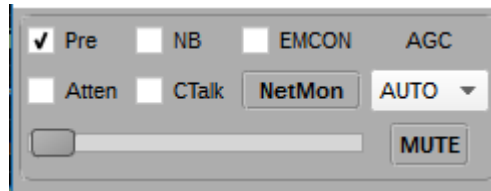
The **AMD Text Line Edit** allows the ALE linking call to include AMD text. The AMD text is included at the appropriate part of the linking exchange based on how the radio is programmed.



## Mode and Priority Channel Area

The mode and priority channel area serves multiple purposes:

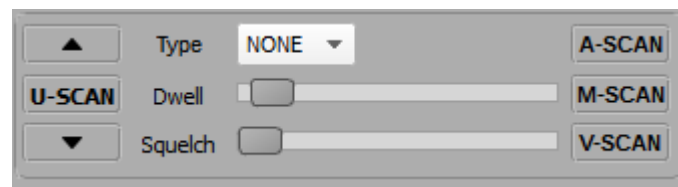
- Change the current RF power in use
- Change the operating mode of the radio
- Select either memory mode (**MEM**) or VFO mode (**VFO A**, **VFO B**)
- Provides a **TUNE** function to key the transmitter in the AM mode to provide a carrier for tuning antennas or to assess SWR
- Provides six priority channels which are configured using the configuration dialog as previously noted
- The gear button  opens the configuration dialog.



## Receive and Audio Area

This area allows the user to set the AF Gain (speaker volume), to **MUTE** the AF Gain, and to set the Pre-amplifier on or off, the Noise Blanker on or off, the Attenuator on or off and the ClearTalk DSP filtering on and off. The user may choose the AGC level as well.

The **NetMon** button launches the NetMon app.



## Scanning Area

This area comprises all of the scanning controls. There are 4 modes of scanning available to the user.

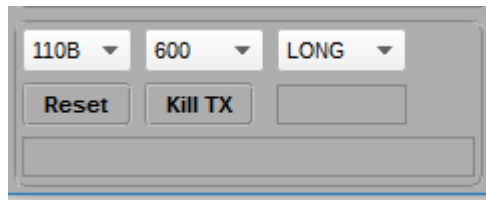
1. **A-SCAN** initiates ALE scanning based on the radio programming.
2. **M-SCAN** initiates squelch based S-meter scanning based on radio programming of S-Meter based networks of programmed channels.
3. **V-SCAN** initiates squelch based Voice scanning based on radio programming of Voice based networks of programmed channels.
4. **U-SCAN** initiates squelch based scanning based on user defined frequencies as explained in the configuration discussion above. User based scanning also allows a zero scan dwell which is useful for making a quick sweep of a set of frequencies to see if there is any interesting activity.

For modes 2., 3., and 4. adjust the squelch to an appropriate level so that the scanner will not stop on channels with no activity. NEVER use squelch for the A-SCAN mode. The Dwell control is set to the number of seconds to wait on a channel where the S-meter or Voice squelch has opened. After you set the Dwell value, hover over the control and it will show you the number of seconds of Dwell time.

For **U\_SCAN** the squelch reading response from the radio sometimes is not quick enough to allow the program to stop at the channel with the activity. The Up and Down buttons allow the user to find the activity manually if it is interesting.

Again, A-SCAN, M-SCAN, and V-SCAN are FULLY dependent upon radio programming.

**RadCommSoft, LLC does not provide any assistance for radio programming.** Seek help from other qualified individuals, or from ICOM directly.



## Data Modem Area

This area allows the user to control the internally installed RapidM TC4 modem for waveform, data rate interleave and allows the user to immediately stop an ongoing transmission. This area also provides the auto-baud indication for data rate and interleave of an incoming signal from another station as well as the SNR and BER values associated with that signal. These link quality indications are for the data modem only and have nothing to do with the ALE LQA data which is reported in the frequency area as discussed above.

The **Reset** button allows the user to perform the equivalent of a power on reset of the data modem. A dialog box will question the user as to whether they truly wish to do this. If the user answers **Yes** then the command will be sent to the TC4 to reset it. The user **MUST RESTART THE SOFTWARE** in order to use the modem for subsequent receptions and transmissions because the link to the software was lost during the reset as well as it's startup configuration. Close and re-open the software to restore connectivity.

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