



## **VS-1200-KW2**

### **Frequency Domain Voice Scrambler**

**Manual Revision: 2008-08-08**

**Covers Software Revisions:**

**VS-1200:** 1.00.00 & Higher

This manual & product supports the following radios:

Portables: TK-2170/3170

## SPECIFICATIONS

Operating Voltage	7.5 VDC
Operating Current	9 mA
Operating Temperature	-30 - +60 C
Frequency Response	300-2600 Hz
Carrier Suppression	60 dB < Peak Voice
Audio Output Impedance	<1K $\Omega$
Encryption Sequences	42.9 Trillion
Random Number Generator	64 bits

## INSTALLATION OVERVIEW

1. Test the radio for functionality.
2. Program the scrambler per the Product Programming Section of this manual.
3. Install the scrambler into the radio per the Hardware Installation Section of this manual.
4. Program the radio per the Radio Programming Section of this manual.

Note: Midian is not responsible for any damage/loss resulting from the use of Midian's products.

## GENERAL INFORMATION

The VS-1200 is a Digital Signal Processor (DSP) based Frequency Domain voice scrambler offering a high level of voice privacy. The DSP converts the analog signal into quantitized digital data. It then converts the "Time Domain" signal into the "Frequency Domain". This results in an audio "frequency spectrum", which is then partitioned into bins that are encrypted by the non-linear key generator. The digitized data is converted back to the analog realm using a digital to analog converter.

The above technique and the lack of synchronization result in excellent audio quality, high security and enable the VS-1200 to be used in virtually any type of radio system. These systems include HF SSB, Conventional Two-Way, Trunking, Voting and Simulcast.

## PRODUCT PROGRAMMING

Midian's VS-1200-KW2 is programmed using the KL-3 programming cable. Please reference the KL-3 manual for setup instructions of the programming software and hardware. From the product selection screen in the KL-3 software, select the VS-1200-KW2 Portable from the list and click OK.

Set the parameters of the VS-1200-KW2 software to fit the application. If any clarifications on a feature are required, move the mouse cursor over the feature name until the question mark appears and right click, a definition of the feature will be shown.

After entering the parameters, save the file by going to File - Save As. Enter the file name in the File Name block and click Save. Saving the file will allow for quick and easy reprogramming of units.

With the scrambler plugged into the radio connect the green KL-3 lead to the Program In hole, the yellow KL-3 lead to the Program Out hole, and the black KL-3 lead to a common ground. It will be necessary to connect the radio to a power supply. Turn on power to the radio.

To program the VS-1200-KW2 click "Program Unit" in the menu bar to send the file to the VS-1200-KW2. To read the unit, select "Read Unit" in the menu bar.

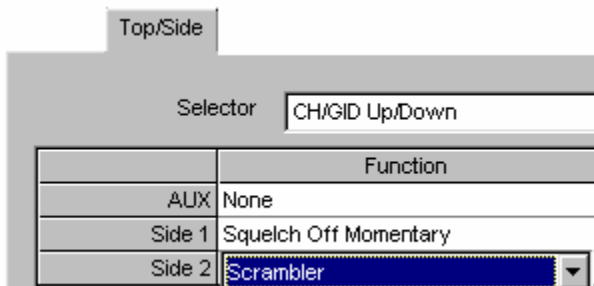


## RADIO PROGRAMMING

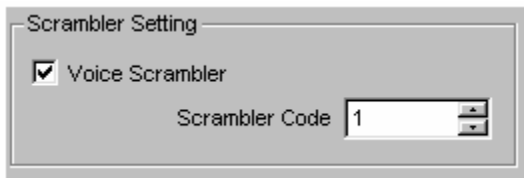
### TK-2170/3170:

This radio requires KPG-101D v 2.20 or higher for programming.

1. Under the "Model" menu select "Product Information" and set "Optional Board" to "Voice Scrambler".
2. Under "Edit" "Extended Function" enable the "Echo PTT".
3. Under the "Edit" menu select "Key Assignment" and set "Side 1" or "Side 2" under the "Top/Side" tab as "Scrambler". This will set the button under the PTT as the mode select button.



4. If scrambling on a per channel basis is desired or a combination of a mode button and per channel, then from the "Zone Information" screen click on the "Channel Edit" button. Under "Scrambler Setting" enable the "Voice Scrambler". For scrambling on a per channel basis, this will need to be done for each channel where scrambling is desired. If the box is checked, the radio will power up in coded mode & when that channel is selected. When per channel scrambling is used, it is still possible to toggle in and out of scramble mode.



## OPERATION

**Mode Select:** Press the radio key that was assigned in the radio programming. A tone will be emitted from the radio and the  $\diamond$  symbol will appear on the display of the radio indicating scramble mode. If scrambling on a per channel basis is being used, then switching between a scrambled or non-scrambled channel will cause the  $\diamond$  symbol to appear or disappear.

## TECHNICAL NOTES

**Radio Compatibility:** Midian has taken the utmost care to ensure the option board integrates into the radio with minimal impact to the features of the radio. However, some features may not be available in the radio when an option board is used. If a feature is not available, please contact Midian to see if the feature can be added.

## MIDIAN CONTACT INFORMATION

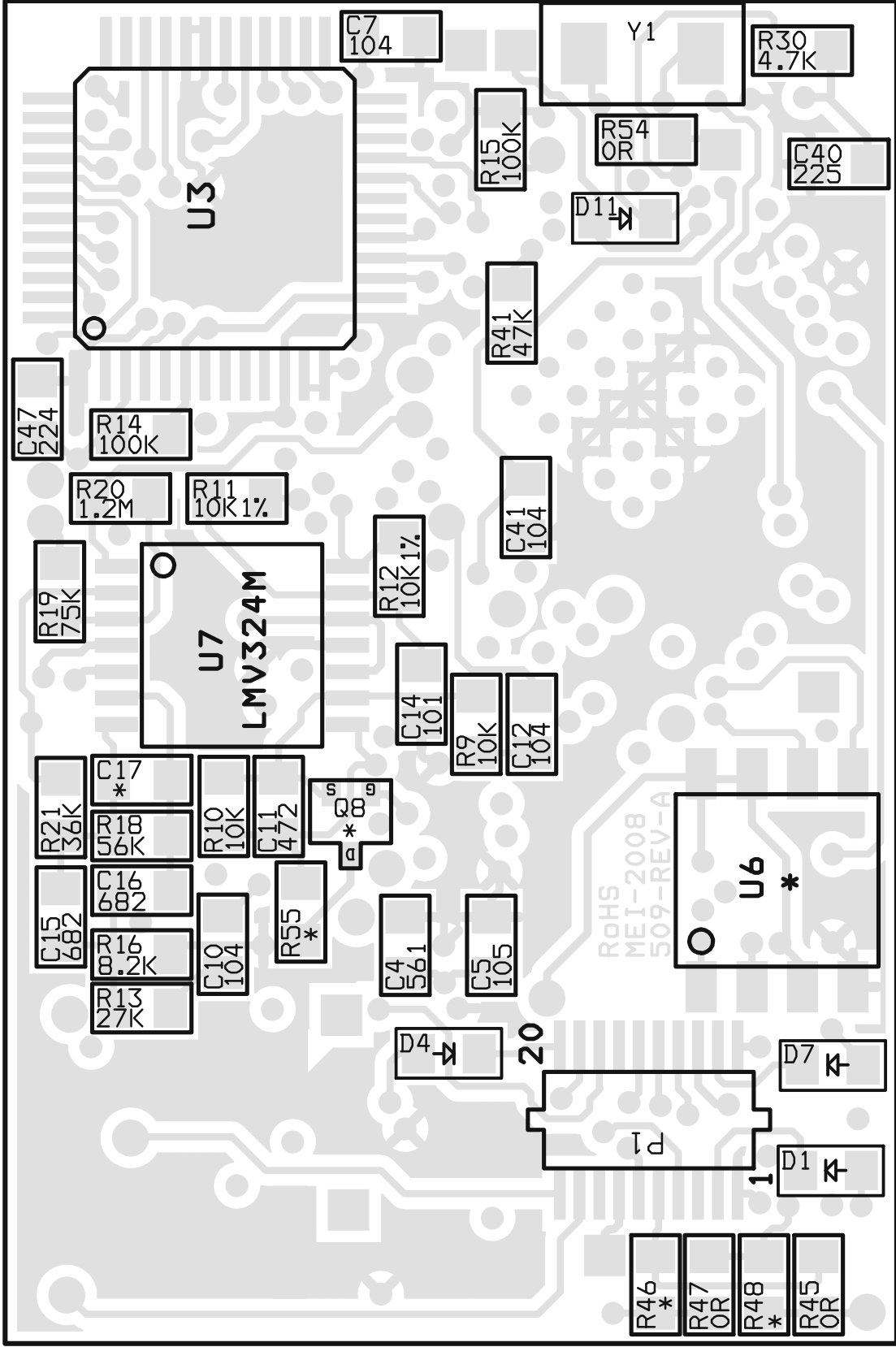
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NOTE: \* = NOT INSTALLED

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