Frequency Domain Voice Scrambler

VS-1200™

High-Level Frequency Domain Voice Scrambler

Midian's VS-1200 is a high-level tactical security voice scrambler to protect two-way radio communications. The VS-1200 uses a Frequency Domain method of security. The scrambler converts the analog audio into digital data. The digital data is partitioned into bins and then the bins are "shuffled" like a deck of cards. The "shuffled" digital data is then converted back to analog as scrambled voice and is then transmitted over the radio channel. This technique eliminates the need for synchronization.

The above technique and the lack of synchronization result in excellent audio quality and security, and enables the VS-1200 to be used in virtually any type of radio system. These radio systems include HF SSB, conventional, trunked, voted and simulcast. Rolling code scramblers may have difficulties in simulcast, voting and HF SSB systems because of the requirement of synchronization. Since the VS-1200 does not require sync, it does not have an issue.

Applications

Midian's voice scramblers can be used to protect communications for:

Public Safety: Police, Fire and Ambulance (HIPAA)

Government: Armed Forces and Homeland Security

Fleets: Taxi, Towing, Fishing, etc

Utilities: Electrical, Water and Gas

Industrial: Mining, Chemical, etc.

Shown: VS-1200

Features

Security: The VS-1200 offers 4 user-programmable levels of security.

- High - 64 bins
- Medium Tactical - 32 bins
- Low Tactical - 16 bins
- Entry Level - Voice Inversion

Multi-Format ANI: The following ANI formats are available:

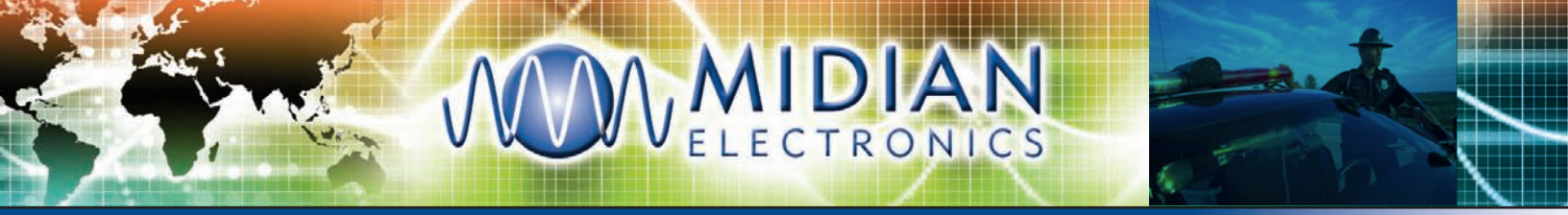
- Motorola's MDC-1200
- Kenwood's FleetSync
- Harris' G-Star (aka GE-Star)
- DTMF
- 5-Tone (all formats)

Programmable Audio Levels: The VS-1200 has programmable gain amplifiers, which eliminates the need to change components on the module to adjust the audio levels.

Voice Quality: Midian's VS-1200 provides excellent voice quality and speaker recognition between scrambled and clear audio.

Plug-In Modules: Plug-in versions of the VS-1200 are currently available for Icom, Kenwood, Motorola and Vertex two-way radios. For radios without a plug-in module Midian offers the VS-1200 as a wire in module or in a speaker microphone configuration. For the wire in version, Midian offers many application notes for installation into various radios.

email: sales@midians.com • website: www.midians.com • phone: 800.643.4267 • 520.884.7981



VS-1200 Specifications

VS-1200: General Specifications	
Operating Voltage	4.75 - 15.5 VDC
Operating Current	
Power Save Mode (COR Operation)	2.5 mA typical
Power Save Mode (VOX Operation)	10 mA typical
Clear or Inversion Operation	29 mA typical
FFT Scrambling Operation	83 mA typical
Average (80-10-10 cycle)	<17 mA*
Average (90-5-5 cycle)	<10.5 mA*
Operating Temperature	-30 to +60 C
RX Input/Output Level	Programmable
TX Input/Output Level	Programmable
VS-1200: Security Specifications	
Total Code Combinations	~6.2 x 10^23
Actual Code Combinations	~4 Billion
# of Selectable Keys	3
Encryption Type	Frequency Domain
Export Controls	Minimal
VS-1200: Signaling Specifications	
MDC-1200 ANI Range	0000-FFFF
MDC-1200 Timing	~180 msec
FleetSync Fleet ID Range	100-349
FleetSync Unit ID Range	1000-3999
G-Star ANI Range	0001-16,383
G-Star Timing	320 msec
DTMF ANI Length	8-digits (maximum)
DTMF Timing	60/40 std (programmable)
5-Tone ANI Length	8-digits (maximum)
5-Tone Timing	Varies per format
Emergency ANI	Yes

* - The current measurement transmit and receive cycles are based on scrambled mode. When used in clear mode, the consumption will decrease.