

Ktechtelecom
VSB-ENC-150E
8-VSB Modulator



Performance

The VSB-ENC-150E is an 8-VSB Modulator. This unit accepts either SMPTE-310M or DVB-ASI signals as its input, modulates the input into an 8-VSB 44.0 MHz I.F. signal, then outputs a RF 8-VSB signal between the frequency range of 55 to 858 MHz.

Baseband Processing

Baseband Processing includes Null Packet Insertion and Removal, PCR Correction and PSIP Modification. The first step in this process is Null Packet Insertion and Removal. **Note:** Baseband Processing only occurs for DVB-ASI Inputs less than or equal to 45 Mbps. If SMPTE-310M output is desired, the DVB-ASI Input should not exceed 19 Mbps.

8-VSB Modulator

An 8-VSB Modulator modulates the Parallel MPEG2 Transport Stream into an 8-VSB 44.0 MHz I.F. signal in accordance with the ATSC AC3 Document.

Upconverter

The Upconverter takes a 44.0 MHz I.F. signal and converts it to a higher frequency. Its RF output is frequency agile in 12.5 KHz steps over a range of 55 MHz to 858 MHz. These frequencies cover both CATV and VHF/UHF bands.

PCR Correction

The Program Clock Reference (PCR), embedded within the transport stream, is used to synchronize a receiver's clock with an encoder's clock. The original PCR values that were stamped into the stream by the original encoder will not be the correct PCR values for the receiver after Null Packets are inserted into or removed from the stream. As a result, PCR values need to be re-stamped so that the receiver will have the correct PCR values, avoiding PCR clock jitter at the receiver's end.

PSIP Updating

PSIP VCT's Station ID and Major and Minor Channel Numbers are modified within the stream.

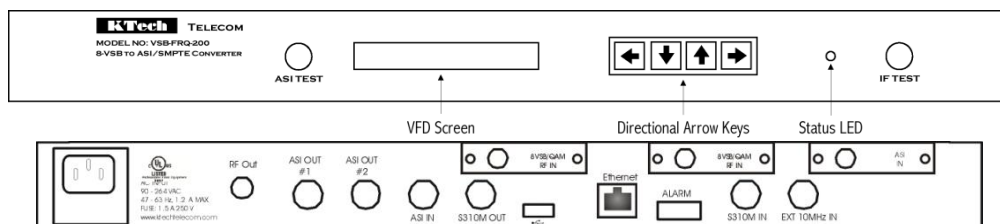
User Interface

All settings and controls can be viewed and set using a web-based GUI or Front Panel Control.

Applications

- ASI to SMPTE-310M Conversion and vice versa
- In-house 8-VSB Cable or CATV
- 8-VSB to ASI and SMPTE-310M Conversion
- PSIP Updating/Rebranding

Features
55-858 MHz Frequency Agile in 12.5 KHz steps
Covers the UHF/VHF and CATV Frequency Range
RF Power Level adjustment from +45 dBmV to +62 dBmV
Accepts SMPTE-310M or DVB-ASI Inputs
RF, SMPTE-310M and (2) DVB-ASI Outputs
Front Panel Test Points: 44.0 MHz IF Out and DVB-ASI Out
PSIP VCT User Modification
Stores TX VCT User Modified Parameters
Performs PC Correction and Null Packet Insertion/Removal with fixed output rate at 19.392 Mbps
Bypass mode to skip PCR Correction and Null Packet Insertion
Loss of Transport Stream Alarm
RS232 and Front Panel Control
1U Mountable Rack



General Specifications		
(All specifications are preliminary and subject to change)		
Description	Range	Units
AC Power		
Frequency	47-63	Hz
Voltage	90-264	VAC
Current	1.2	Amp (max)
Operating Conditions		
Temperature	0-50	°C
Altitude	12,000	Ft (max)
Humidity (Non-condensing)	95	%
Materials		
Aluminum Chassis		
Weight		
Net	10	lbs.
Gross (Shipping)	13	lbs.
Dimensions		
Height	1.75	Inches (1RU)
Width	19	Inches
Depth	18	Inches
Cooling		
Blower	Located on the left side towards the back of the unit	

RF Output		
Parameter	Specification	Comments
Frequency Range	55-858 MHz	Band Center
Frequency Step Size	12.5 KHz	
Frequency Accuracy	<±20 ppm	At 23°C
Frequency Stability	<±2.8 ppm	
Aging	<±1 ppm/year	
RF Output Level	+45 to +62 dBmV	
RF Output Level Step Size	1 dBmV	
Impedance	75 ohm	
Connector	F	
Spurious	-60 dBc	Including Harmonics
Return Loss	>16 dB	
SNR	32 dB	Min

SMPTE310M Serial Interface (Baseband Data Input/Output)		
Parameter	Specification	Comments
Connector	BNC	
Source Impedance	75 ohms	
Output Coupling	AC	AC Inductively Coupled
Signal Overshoot	<10%	
Data Format	Biphase Mark Coding	
Transport Stream Bit Rate	19.39265 Mbps	Raw serial data rate ± 2.8 ppm

DVB-ASI Serial Interface (Baseband Data Input/Output)		
Parameter	Specification	Comments
Connector	BNC	
Source Impedance	75 ohms	
Output Coupling	AC	AC Inductively Coupled
Transport Stream Bit Rate (Input)	2.6 Mbps Min 45 Mbps Max	
Transport Stream Bit-Rate (Output)	19.39265 Mbps	If SMPTE-310M input is selected

PSIP Update		
Parameter	Specification	Comments
Station Identification	Up to seven letters	
Transport Stream ID	TSID	
Major Channel Number	# 2-69	
Minor Channel Number	# 0-9	

U.S. Patent Numbers	
6,785,903	
7,487,533	
7,781,893	
7,984,469	

Ordering Information	
Part Number	Description
VSB-ENC-150E	8-VSB Modulator ATSC