VSB-FRQ-200
8-VSB to DVB-ASI/SMPTE-310M Converter

Features
Demodulates 8-VSB/QAM RF signals to ASI and SMPTE-310M
ASI and SMPTE-310M I/O
PSIP VCT User Modification
PCR Correction
Fail-Over
Fail-Back
Null Packet Insertion/Delete
PSIP Generator Option (SPG)
Bypass mode to skip PCR Correction
Loss of Transport Stream Alarm
Web-based GUI and Front Panel Control

Performance

The VSB-FRQ-200 is an 8-VSB Receiver that demodulates 8-VSB terrestrial and QAM CATV signals (CH 1-125), updates PSIP VCT, and generates DVB-ASI and SMPTE-310 output signals simultaneously. This unit can also be used to convert DVB-ASI to SMPTE-310M, SMPTE-310M to DVB-ASI and RF to ASI and SMPTE-310M.

8-VSB RF Demodulation and I/Os

An 8-VSB Demodulator demodulates 44.0 MHz I.F. signal into MPEG2 baseband signals. Its equalizer and Reed Solomon decoding techniques help correct channel multipath errors. It also performs digitally matched filtering to optimize performance over noise.

DVB-ASI or SMPTE-310M transport streams can be connected to the VSB-FRQ-200. These signals feed into interface decoders that generate output MPEG2 Transport Stream Signals. **Note**: The VSB-FRQ-200 can accept any DVB-ASI signal that has a rate less than or equal to 45 Mbps. If SMPTE-310M output is desired, the DVB-ASI Input should not exceed 19 Mbps.

All three present MPEG2 Streams are fed into the switch and the Input Selector chooses the MPEG2 stream that will be present at the output. The Input Selector is controlled using the Front Panel User Interface and the web-based GUI.

Baseband Processing

The 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.

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 .Therefore, 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 .

PSIP Generation (with OPTION SPG)

A Static PSIP Generator option generates the PSIP Tables required by the ATSC spec. The ATSC requires that every digital transport stream in terrestrial broadcasting includes STT, RRT, VCT, MGT and the first four Event Information Tables (EIT-0, EIT-2, EIT2, EIT-3.) The SPG option generates STT, RRT, VCT, MGT and four static EIT • At power-up, the unit automatically generates PSIP tables based on information stored in its memory • It allows user to create information for the VCT and update the transport stream ID in the PAT, via RS232 • Creates and stores virtual channel information for up to 15 programs

Fail-Over and Fail-Back

Upon user's previous selection, the unit will automatically change its imput selection for Fail-Over (primary to secondary mode) or Fail-Back (secondary to primary mode.)

Interface GUI, Alarms and Notifications sent via Email and IM

In the event of failure, the unit will send a notification to the user's email and text message the user's cell phone with the same notification. 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
- 8-VSB to ASI and SMPTE-310M Conversion
- PSIP Updating/Rebranding, PSIP Generator (SPG Option)

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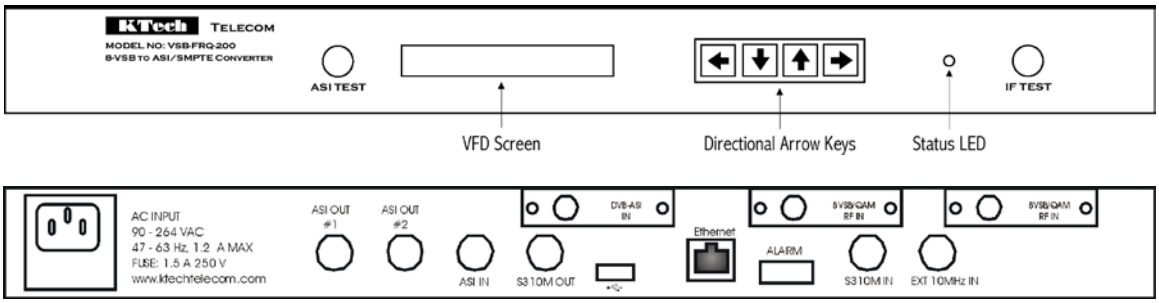

General Specifications (All specifications are preliminary and subject to change)		
Description	**Range**	**Units**
AC Power		
Frequency	47-63	Hz
Voltage	90-264	VAC
Current	1.2	Amp (max)
Operating Conditions		
Temperature	0-50	°C
Altitude	12,000	ft (max)
Humidity (Non-condensing)	95	%
Materials		
Aluminum 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 Input Specifications		
	Specification	**Comments**
Frequency	50-860 MHz	
USA Channel Numbers	2-69	
CATV Channel Numbers	1-125	
Impedance	75 ohms	
Connector	F	
RF Band	6.0 MHz	

Demodulator		
Parameter	**Specification**	**Comments**
Mode	8-VSB Terrestrial	
Equalizer Span	-5.9µS to +40µS	
Data Rate	19.392658 Mbps	
SNR Threshold	15dB	
RF Sensitivity	>43.5 dBuV (UHF) >35.4 dBuV (VHF HIGH) >27.4 dBuV (VHF LOW)	

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	

PSIP Generator (SPG Option)
STT, RRT, VCT, MGT and four static EIT
15 Programs max

Ordering Information	
Part Number	**Description**
VSB-FRQ-200	8-VSB to DVB-ASI/SMPTE-310M Converter
Opt -10M	Option for external 10MHz reference lock
Opt -SPG	Option for PSIP Generator

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