

# FRQ-3000 TS MULTI-TASKER



## Performance

The FRQ-3000 has a program Demux function with a PSIP modification/insertion capability. This unit can be used to convert DVB-ASI to SMPTE-310M, SMPTE-310M to DVB-ASI, and RF to ASI and SMPTE-310M. It will generate Static PSIP tables and insert a Standby Video message at loss of input.

## Inputs and Outputs

The unit supports dual 8-VSB/QAM tuners, dual ASI inputs/outputs, a single SMPTE-310M input/output and a single RJ45 for control via GUI using web-interface.

## Modular Interface

There are three slots to accept tuners and TS inputs/outputs. The empty slots can be used for additional future functions and/or expanded capabilities.

## Program Demux

Supporting 30 programs max at the input and 15 programs max at the output, user can select desired programs from the input that are to be present at the output SMPTE-310M at the rate of 19.39 Mbps. This is useful for when a satellite ASI feed is connected and unwanted programs need to be removed. The total data rate at the output of the SMPTE-310M rate should be equal to 19.39 Mbps.

## Baseband Processing

The baseband processing includes the Null Packet Insertion and Removal, PCR Correction and PSIP Modification. The first step in the 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.

## 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 deleted 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 Generation

PSIP VCT's Station ID and Major and Minor Channel Numbers are modified within the stream. If the unit does not find the PSIP, it will generate Static PSIP (STT, VCT, MGT and four static EIT.)

## Fail-Over and Fail-Back

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

## Standby Video Generator

In the event of loss of signal, the FRQ-3000 will automatically insert a standby video message that had been previously downloaded into the unit via USB or GUI and is useful to indicate if the input is bad. Set Top Box (STB) will show the contents of the video message, such as a "Stay Tuned" technical message, rather than showing no signal or a black picture.

## Alarms and Notifications sent via Email and IM

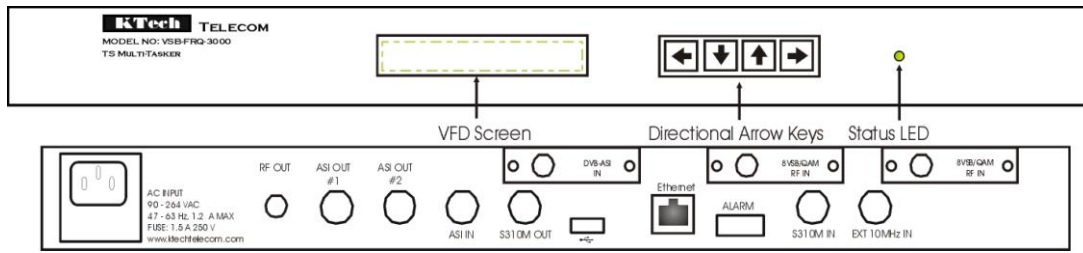
In the event of failure, the unit will send a notification to the user's email and text message the user's cell phone with the same notification.

## User Interface

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

## Features

Demodulates 8-VSB/QAM RF signals to ASI and SMPTE-310M
ASI and SMPTE-310M I/O
PSIP VCT User Modification
Static PSIP Generation
PCR Correction
Standby Video Generation
Fail-Over
Fail-Back
Null Packet Insertion
Null Packet Deletion
Bypass mode to skip PCR Correction
Demultiplexing Capabilities
Loss of Transport Stream Alarm
Web-based GUI and Front Panel Control



General Specifications (All specifications are preliminary and subject to change)		
Description	Range	Units
<b>AC Power</b>		
Frequency	47-63	Hz
Voltage	120-240	VAC
Current	1.2	Amp (max)
<b>Operating Conditions</b>		
Temperature	0-50	°C
Altitude	12,000	Ft (max)
Humidity (Non-condensing)	95	%
<b>Materials</b>		
Aluminum Chassis		
<b>Weight</b>		
Net	10	lbs.
Gross (Shipping)	13	lbs.
<b>Dimensions</b>		
Height	1.75	Inches (1RU)
Width	19	Inches
Depth	18	Inches
<b>Cooling</b>		
Blower	Located on the left side towards the back of the unit	

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

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)	

SMPTE-310M 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

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
FRQ-3000	RF/QAM/TS Converter/Standby Video and Static PSIP Generator/Rebrander

To inquire about pricing and delivery, please contact: [sales@ktechtelecom.com](mailto:sales@ktechtelecom.com) or visit us at: [www.ktechtelecom.com](http://www.ktechtelecom.com)