

# DCC-150E

## DIGITAL CHANNEL CONVERTER



### Performance

The DCC-150E is used for reception of an 8-VSB RF signal and 8-VSB remodulation to another CATV or VHF/UHF Channel. It demodulates an 8-VSB RF signal into baseband signals, updates the PSIP VCT's Station ID, Major and Minor Channel Numbers, remodulates the baseband signal into an 8-VSB 44.0 MHz I.F. signal, and upconverts the 44.0 MHz I.F. signal into an 8-VSB RF signal.

### 8-VSB RF Demodulation

The 8-VSB Demodulator demodulates a 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.

### Interface Decoders

An 8-VSB RF, DVB-ASI or SMPTE-310M transport stream can be fed into the DCC-150E. These signals feed into interface decoders that output MPEG2 Transport Streams. **Note:** The DCC-150E can accept any DVB-ASI signal that has a rate less than or equal to 45 Mbps. If SMPTE-310M and DVB-ASI outputs are desired, the DVB-ASI Input should not exceed 45 Mbps.

### Switch and Input Selector

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 web-based GUI.

### 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 and DVB-ASI outputs are desired, the DVB-ASI Input should not exceed 45 Mbps.

### Modulator

The 8-VSB Modulator modulates the Parallel MPEG2 Transport Stream into an 8-VSB 44.0 MHz I.F. signal.

### 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. Therefore, PCR values need to be re-stamped so 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 .

### Fail-Over and Fail-Back

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

### 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.

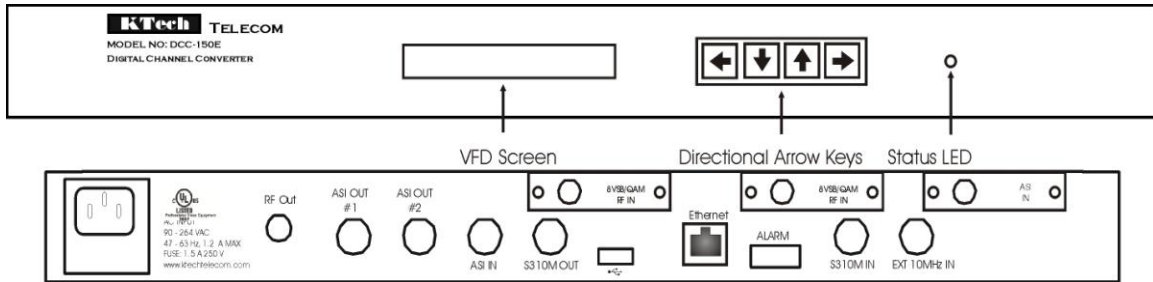
### User Interface

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

### Applications

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

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



General Specifications (All specifications are preliminary and subject to change)		
<b>AC Power</b>		
Frequency	47-63	Hz
Voltage	90-264	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	

RF Input Specifications		
Parameter	Specification	Comments
Frequency	50-860 MHz	
USA Channel Numbers	2-69	
CATV Channel Numbers	1-125	
Impedance	75 ohms	
Connector	F	

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	

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 Output		
Parameter	Specification	Comments
Frequency Range	55-858 MHz	Band Center
Frequency Step Size	12.5 KHz	
Frequency Accuracy	< ±2 ppm	At 23°C
Frequency Stability	< ±2 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	

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)	

Ordering Information	
Part Number	Description
DCC-150E	Digital Channel Converter

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

