EEG Data Sheet
SCTE-104 Inserter Card
Applies to Model: 1452
Last Revised: July 2015

SDI Video Inputs	
Number of Inputs	2
Connector	BNC per IEC 169-8
Format	1.485 Gb/s SMPTE 292M or SMPTE 259M 270 Mb/s
Input Level / Impedance	800 mV p-p ± 10% / 75 Ohm
Equalization	Automatic up to 100m @ 1.5 Gb/s with Belden 1694 or equivalent
SDI Video Outputs	
Number of Outputs	1 relay bypass protected
Connector	BNC per IEC 169-8
Output Level	800 mV p-p ± 10%
Output Impedance	75 Ohm
Format	1.485 Gb/s SMPTE 292M or SMPTE 259M 270 Mb/s (matches input format)
DC Offset	0V ± 0.5V
Rise/Fall Time	200pS nominal
Overshoot	< 10% of amplitude
Wide Band Jitter	< 0.2 UI
Data Input Output Characteristics	
Data Ports	2 DB-9 (RS-232)
Serial Data Format	7 data bits, odd parity, 1 stop bit, 1200 baud default
GPIO	Two 8-pin Molex 87831-0841 connectors, each containing 4 GPIOs; each GPIO can be configured as an input or output
Electrical	
Power	115/230V AC 50/60Hz
Power Consumption	6 W
Physical	
Dimensions	12.75" long x 3" wide x 1" tall
Weight	< 1 lb.
Cards Per Frame	10

Insertion Overview

The 1452 SCTE-104 Inserter Card inserts SCTE-104 packets on a user-configurable VANC line, using the 4107 DID/SDID (as per SMPTE 2010). SCTE-104 messages can either be authored using a built-in preset editor and triggered via GPI (see Figure 1), or can be sent from an external source using the SCTE-104 network protocol over TCP/IP.
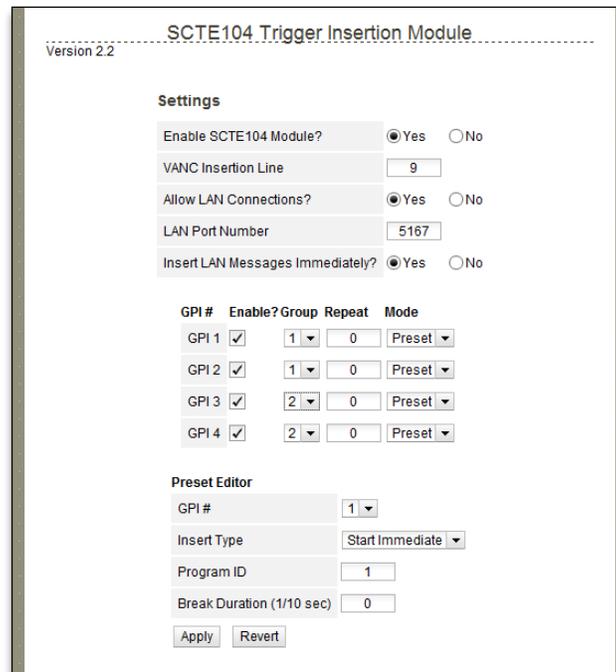
Figure 1: SCTE-104 Trigger Insertion Web Configuration Interface

GPI Triggering

When triggering SCTE-104 presets over GPI, four of the card's GPI inputs can be set to trigger a separate SCTE-104 splice request packet created using the "Preset Editor" section found in the card's web configuration tool. Each splice request message can be configured to any of the standard insert types (Start Normal, Start Immediate, End Normal, End Immediate, or Cancel), with configurable Program ID and Break Duration fields.

Each GPI preset also has Group and Repeat settings. The repeat settings enable a single message or flag to be repeated on a periodic basis after it is first triggered, until it is cancelled, or disabled by another switch in the same group. Setting more than one switch

into the same group number links those triggers so that triggering any of the messages in the group will cancel repeats of the others.

Any of the GPI switches can also be configured to "Use LAN Message" rather than "Preset" - this will cause the GPI to trigger a VANC insertion of the most recent SCTE-104 message loaded over the TCP/IP interface, rather than a message created in the Preset Editor.

TCP/IP Triggering

The TCP/IP interface for sending SCTE-104 data to the card is enabled through the "Allow LAN Messages" setting on the web configuration interface. When enabled, the card will listen for TCP/IP connections on a configurable port. Automation clients should connect to this port, and once the connection is accepted should begin handshaking with the "init_request_data" single operation message, as defined in the SCTE-104 standard. Once the handshake is complete, the card will begin inserting all properly formatted SCTE-104 multi operation messages it receives over the network into the VANC space.

If the "Insert LAN Messages Immediately" check box is unchecked in the web interface, SCTE-104 messages will only be inserted into VANC when triggered through a GPI set to "Use LAN Message". This operational mode enables timing-insensitive pre-loading of future messages over the LAN interface, followed by real-time GPI insertion triggering.

When inserting SCTE-104 messages from the LAN into VANC, the EEG Inserter Card fits in the role of "SDI embedder" as shown in Figure 2 (*taken from the SCTE-104 specification document*). Since VANC embedding is a one-way communication protocol, the system design considerations found in Section 12.1 of the SCTE-104 specification document regarding supported messages and time synchronization must be applied to all authoring interfaces communicating with the EEG VANC inserter, and to the downstream SCTE-35 injector (which may be integrated into the MPEG transport encoder).
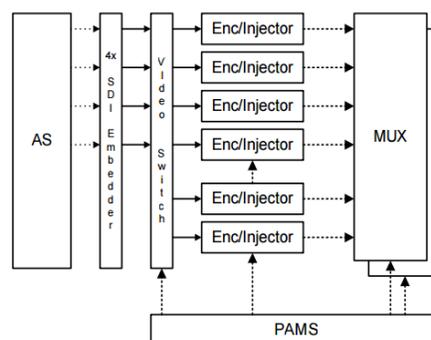

Figure 2: One-way Protocol Embedded in Video with Integrated Injector