

Overview

SCTE-104 and SCTE-35 are standards that define protocols for ad insertion.

- **SCTE-104** markers are placed on **SDI baseband video**
- **SCTE-35** markers are placed in **transport streams (compressed content)**

The two standards are equivalent and have the same functionality – they just apply to different signal types. When appropriately licensed, Cobalt® ancillary data injectors, frame syncs, and cross-converters have the ability to place SCTE-104 markers on SDI baseband video. Cobalt® encoders can convert SCTE-104 within inputted SDI to SCTE-35 in the transport streams, and Cobalt® decoders can perform the inverse operation extracting SCTE-35 and embedding SCTE-104 in the outputted SDI.

Methods for Signaling Injection of SCTE Messages

The Cobalt® devices that provide SCTE ad insertion support all need some sort of signaling from an outside traffic system to inject the SCTE messages at the desired time in the program content. The methodology options for this type of signaling are:

- 1. Manual Insertion by an operator.** All the message parameters are manually entered in the GUI, and a button is pressed to cause the insertion. The Cobalt® proprietary *Reflex* protocol can be used to automate this.
- 2. Automated Insertion Using GPIO.** All the message parameters are pre-defined, and a GPI triggers insertion. This type of insertion is useful for “hard breaks” where insertion of interstitials is fully automated.
- 3. Using the Cobalt® Proprietary XML Interface.** This allows for frame-accurate insertion, based on timecode or UTC time, or immediate injection in a low-latency network.
- 4. Using the Standard SCTE-104 over TCP Interface.** This allows for frame-accurate insertion, based on timecode, or immediate injection in a low-latency network.

Methods 1 and 2 are accommodated by the **+SCTE104** license. These methods are intended for use in simpler setups, where frame accuracy is not required, and the contents of the marker message are static and known ahead of time. Many traffic systems have GPIO interfaces for this purpose.

Methods 3 and 4 are accommodated by the **+SCTE104-FAST** license (which also accommodates methods 1 and 2). These methods are intended for situations where the contents of the marker message change dynamically, and/or frame accuracy is required. The support for SCTE-104 over TCP makes the equipment compatible with any standard traffic system, without the need for custom development.

Methods 1 thru 4 are available in a number of Cobalt® baseband video processors, and result in a SCTE-104 message being inserted in the output SDI signal. If SCTE-35 is required, an encoder can be added to the workflow to convert a SCTE-104 message to SCTE-35 in the transport stream. Conversion of SCTE-104 over SDI to SCTE-35 is a standard feature in Cobalt® encoders.

If there is a need to signal the insertion directly at the encoder, without using a baseband video processor, Cobalt® encoders will support method 4 above. This requires the optional **+SCTE104-TCP** optional license (this license is subject to future availability and is currently pending).