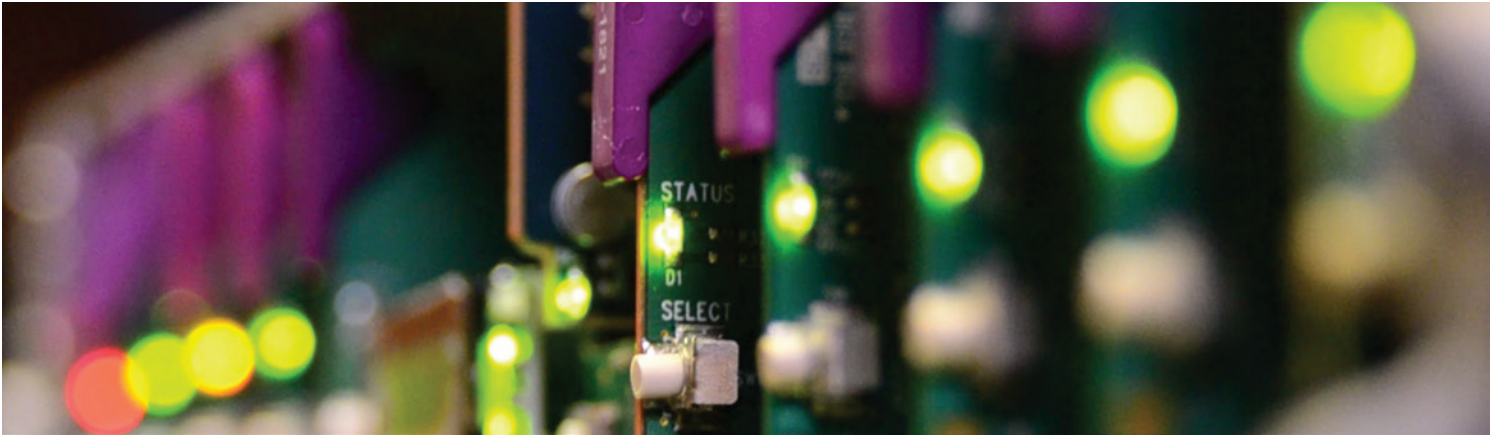# FRS-1103

SDI Frame Synchronizer/Processor/Line Sync

Space-saving, modular platform for advanced signal processing.

The FRS-1103 from Grass Valley, a Belden Brand, is a SDI frame synchronizer used to solve timing issues in a digital facility. The card can be set in delay or synchronizer mode. When adding the proc amp option, the card becomes a high quality processing amplifier providing control and adjustment of the digital video signal for applications such as incoming feeds. VANC data is passed or blanked, while the VBI can be passed, blanked or processed on a line-by-line basis.

When the audio processing option is added, the card allows de-embedding of eight channels of audio, processing (gain, delay and phase) and then re-embedding into the SDI. When the FRS-1103 is combined with one or multiple audio cards, the operator can select any of the audio channels for embedding into the SDI signal. Each audio output channel can be composed of a mix of any two audio input channels.
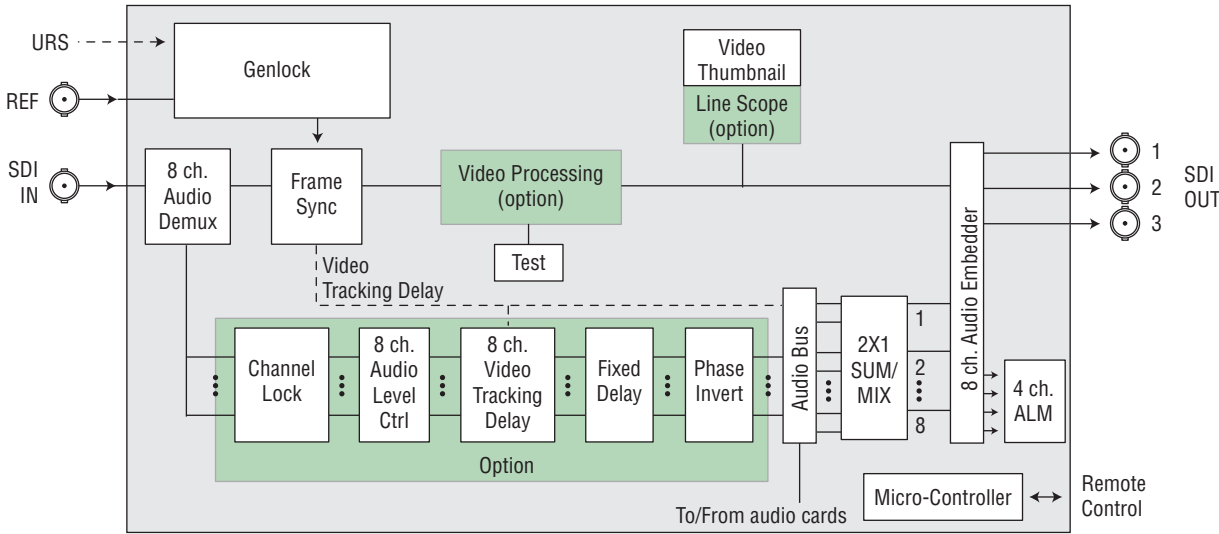
New technology includes thumbnail and audio level meter (ALM) generation and an optional waveform/vectorscope over IP of the output signal which allows the operator to control and see the changes made to the signal.
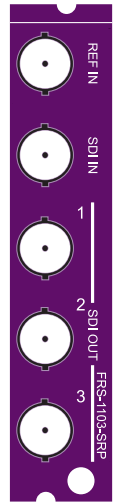
FRS-1103 SDI Frame Synchronizer/Processor/Line Sync

KEY FEATURES

- SDI isolated input with auto-detection 525/625
- Reference input
- 10-bit processing
- Handles hot switching
- Frame sync: timing, full phasing and freeze modes
- Additional delay of up to 2 frames
- Freeze or black on input error detection
- Video processing control (option)

- Ancillary data blanking or pass-through
- Audio processing of 8 channels of embedded audio (option)
- Thumbnail and ALM generation
- Waveform/vectorscope over IP option (operates with iControl)
- Line sync operation mode
- Compatible with REF-1801 using URS internal frame reference
- Supports Motorola set-top box

FRS-1103 Functional Block Diagram

FRS-1103-SRP

SPECIFICATIONS

Input
Signal: SMPTE 259M-C (270 Mb/s)
Embedded audio: SMPTE 272M-C
Cable length: 300m (984 ft.) of Belden 1694A
Return loss: >15 dB up to 270 MHz

External Reference
Signal: NTSC SMPTE 170M, PAL ITU 624-4 or composite sync
Return loss: >35 dB up to 5.75 MHz

No Reference
Format 525: Min: 18.296 µs, adjustment +3 frames
Format 625: Min: 18.296 µs, adjustment +3 frames

Reference
Format 525: Min/max: nominal, adjustment +3 frames
Format 625: Min/max: nominal, adjustment +3 frames

Video Outputs
Signal (3): SDI SMPTE 259M-C (270 Mb/s)
Return loss: >15 dB up to 270 MHz
Jitter: <0.2 UI (0.74 ns) pp (wideband)

Video Processing Performance
Signal path: 10 bits
Processing: 12 bits
Latency: 10 µs (min)
Test generator: 75% color bars with 100% white bars
Power: 3.5W

Audio Processing Performance (Option)
Signal path: 20 or 24 bits
Sampling: 48 kHz
Latency: 20 µs (min)
Test generator: 1 kHz, as per EBU

ORDERING

Densité 2 frame	Densité 3 frame	Description
FRS-1103	FRS-1103-3RU	SDI frame synchronizer (basic)
FRS-1103-SRP	FRS-1103-SRP-3RU	Single rear connector panel

Options	Description
FRS-1103-OPT-PROC	Proc amp option for FRS-1103
FRS-1103-OPT-AUD8	Internal audio processing (8 channels) option
FRS-1103-OPT-LS	Line scope over IP option for FRS-1103
Remote control	iControl, iControl Solo, RCP-200

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