

DSFS6802+D/+RLYD

Dual-Channel SDI Frame Synchronization and Delay



The DSFS6802+ is a configurable, cost-effective and easy-to-use dual-channel frame synchronizer and delay module with embedded audio processing for 3G/HD/SD-SDI signals.

DSFS6802+D modules feature dual, independent SDI video/audio channels on a card, and can be configured to support a wide variety of multichannel applications. Each processing channel has its own video/audio processing blocks, such as audio de-embedder/embedder, SRC, audio delay/synchronizer and frame synchronizer/delay. The modules support one input and two outputs per channel and can support different video standards per channel.

The onboard genlock input can come from either frame reference or card reference. The two processing channels share the same genlock input.

The DSFS6802+RLYD back module was added as a dedicated back module (requires special P/N for ordering) that supports input-to-output relay bypass for frame sync applications.

Features

Main Features

- Dual-channel independent SDI frame sync and delay processing, including audio and VANC data such as WSS/VI/AFD; capable of operating at different formats in the same frame rate domain
- Auto-sensing SD/HD/3G-SDI signal standard per channel
- User-selectable input and output standards/formats
- One SDI video input, two SDI video outputs per channel
- SDI input error monitoring
- Video frame and audio sync with genlock support
- Full 3Gb/s support capabilities (up to Level B-DL)
- Fast-switch for clean/quiet output on hot switch at the input with no output frame freeze
- Dolby® E header adjustment/realignment
- 10-bit video processing
- Passing of all HANC and VANC samples
- VBI pass/delete
- AFD/WSS/VI detection and insertion
- Video thumbnail, selectable between output one and two
- Eight GPI inputs (TTL) and 4 GPI outputs with multiple configuration options to control both channels
- Rules engine: custom GPI in/out, and parameter control scripts
- DSFS6802+ supports two back module types: Standard (+D) and with Relay Bypass (+RLYD)

VIDEO

SDI video standards:

- 525 and 625 (SMPTE 259M)
- 720p (SMPTE 274M/296M)
- 1080i/p (SMPTE 292M)
- 3Gb/s (1080p) (SMPTE 424M/425M) Level A, Level B-DL

Video delay (sync or delay modes):

- 3G-SDI standard more than seven frames in Level B-DL, more than 17 frames in Level A
- HD-SDI standard more than 16 frames
- SD-SDI standard more than 20 frames

A-B sync mode support:

- In A-B sync mode, FS/delay related parameters and Video Proc Amp parameters of channel B will follow the settings for channel A
- The two channels frame sync drop/repeat operations are synchronized
- The two inputs must be in same clock domain (locked together) before fed to DSFS
- The delay between two video inputs must be within three lines

Support genlock from 6800+ frame or genlock from BM:

- Composite (NTSC, PAL)
- Tri-level sync (1080i/p, 720p)

Video proc amp supporting:

- Black level
- Luma gain
- Chroma gain
- Hue

Video test pattern generator supporting:

- Black
- Color bars 75%
- Horizontal sweep Y-only
- Horizontal sweep
- White
- Cross hatch

Loss of video modes:

- Black
- Freeze
- Pass

Video processing amplifier (dual channel version has two) with controls for:

- Luminance gain
- Luminance offset
- Chrominance gain
- Chrominance offset
- White clip
- Black clip
- Hue adjustment

Color corrector with controls (dual channel version has two) for:

- RGB gain
- RGB offset
- RGB white slope
- RGB black stretch
- RGB gamma

Clipping with controls (dual channel version has two) for:

- RGB white clip
- RGB black clip

Audio

- SRC/Synchronization for all embedded audio
- Audio delay
- Mono audio routing for embedding
- Mute and tone for routing selection
- V-Fade for audio switch
- Audio proc amp
 - Gain
 - Phase invert
 - Mute
- Audio tone generator
- Dolby audio metadata pass through
- Dolby E re-alignment
- Pass through Dolby audio
- Eight mixed audio (1A+1B of de-embedded audio) for embedder source selection
- Synchronizer, delay, gain, invert, summing of channel pairs, and muting
- Test tones
- Mono level swapping of audio channels
- 24-bit processing
- Support for compressed and linear PCM in the same audio group
- Dual 16-channel audio embedding and de-embedding
- Sample rate conversion

Specifications

Specifications and designs are subject to change without notice

SDI-BNC VIDEO INPUTS	
Number of Inputs	2
Connector Type	BNC(IEC 169-8)
Standards	3G: 1080p (SMPTE 425M) HD: 1080i/p (SMPTE 274M) 720p (SMPTE 296M) SD: 525/625 (SMPTE 259M-C)
Frame Rate	1080P: 23.98, 24, 25, 29.97, 30, 50, 59.97, 60 Hz 1080PsF: 23.98, 24, 25, 29.97, 30 Hz 1080i: 50, 59.97, 60 Hz 720P: 25, 29.97, 30, 50, 59.97, 60 Hz 525: 59.94 Hz 625: 50 Hz
Impedance	75 ohms
Return Loss	The ports without relay: SD: >15 dB up to 270 MHz HD: >15 dB from 5 to 1485 MHz 3G: >15 dB from 5 to 1485 MHz >10 dB from 1485 to 2970 MHz The ports with relay: SD: >15 dB up to 270 MHz HD: >15 dB from 5 to 1485 MHz
Equalization	The ports without relay: SD: >280 m (918 ft) for Belden 1694A and 8281 HD: >120 m (393 ft) for Belden 1694A 3G: >100 m for Belden 1694A The ports with relay: SD: >280 m (918 ft) for Belden 1694A and 8281 HD: >120 m (393 ft) for Belden 1694A 3G: >80m for Belden 1694A

SDI-BNC VIDEO OUTPUTS	
Number of outputs	4
Connector Type	BNC(IEC 169-8)
Standards	3G: 1080p (SMPTE 425M) HD: 1080i/p (SMPTE 274M) 720p (SMPTE 296M) SD: 525/625 (SMPTE 259M-C)
Frame Rate	1080P: 23.98, 24, 25, 29.97, 30, 50, 59.97, 60 Hz 1080PsF: 23.98, 24, 25, 29.97, 30 Hz 1080i: 50, 59.97, 60 Hz 720P: 25, 29.97, 30, 50, 59.97, 60 Hz 525: 59.94 Hz 625: 50 Hz
Impedance	75 W
Return Loss	The ports without relay: SD: >15 dB up to 270 MHz HD: >15 dB from 5 to 1485 MHz 3G: >15 dB from 5 to 1485 MHz >10 dB from 1485 to 2970 MHz The ports with relay: SD: >15 dB up to 270 MHz HD: >15 dB from 5 to 1485 MHz

Signal Level	800 mV \pm 10%
DC Offset	0 V \pm 0.5 V
Rise and Fall times	3G: <135 ps HD: <270 ps (20% to 80%) SD: 400 to 1500 ps (20% to 80%)
Overshoot/Undershoot	< 10%
Jitter	Timing jitter: 3G: <2UI (pk-pk) HD: <1 UI (pk-pk) SD: <0.2 UI (pk-pk) Alignment jitter: 3G: <0.3 UI (pk-pk) HD: <0.2 UI (pk-pk) SD: <0.2 UI (pk-pk)
Level	1 Vpp + 6 dB/-3.5dB
Signal type	Analog composite 525/625 or tri-level sync (1080i/p/720p)
Connector	BNC(IEC 169-8)
Impedance	75 W
Return Loss	>40 dB to 10 MHz

GPI INPUT

Number of Inputs	8
Connector	SAMTEC mini mate header
Signal Standard	TTL(0-5 V) active low or high
Internal Pull-up	+5 V
Current	Sink 24mA, source 24mA
Baud Rate	<10 Kb/s

GPI OUTPUT

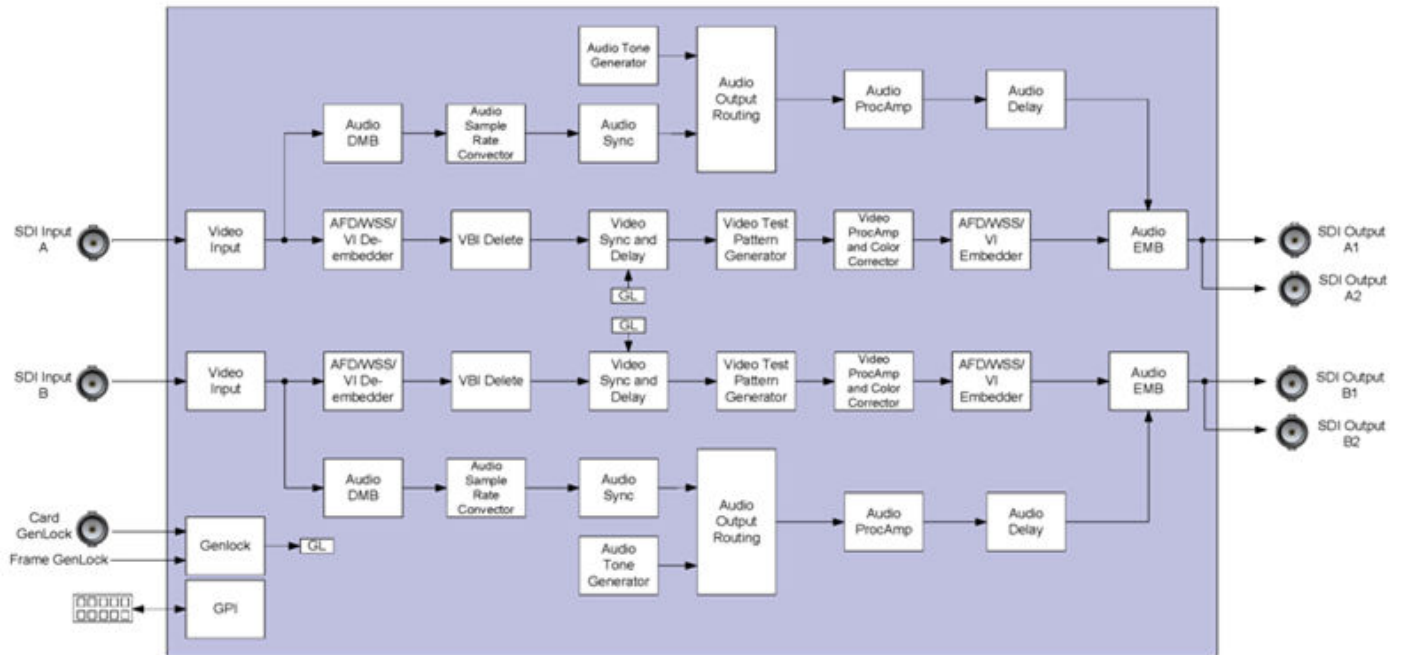
Number of Outputs	4
Signal Standard	TTL active low or high
current	Sink 64mA, source 32mA
Connector	SAMTEC mini mate header
Baud Rate	<10 Kb/s

Ordering Information

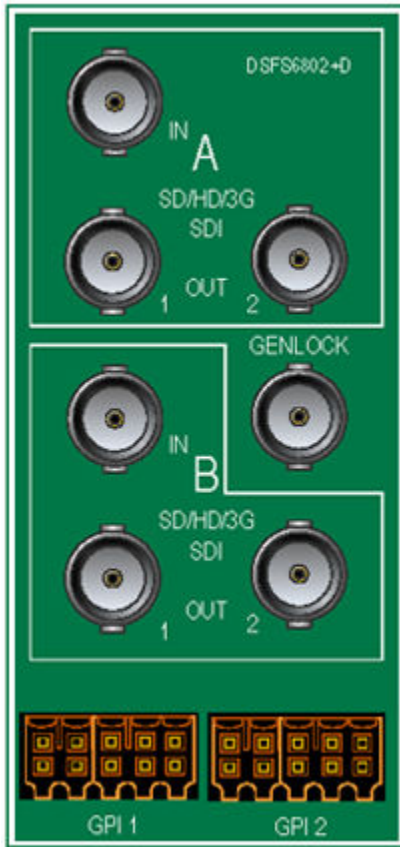
DSFS6802+D	Dual channel 3G/HD/SD-SDI frame sync with embedded audio processing. Includes front module and back module, takes 2 slots in 6800+ frame
DSFS6802+RLYD	Dual channel 3G/HD/SD-SDI frame sync with embedded audio processing with RELAY BYPASS. Includes front module and back module, takes 2 slots in 6800+ frame



Block Diagram



Back Module



Back Module

