



A Cost-Effective Solution for Timing Issues Ideal for Mobile, Incoming Feed and Studio Applications

In today's sophisticated digital broadcast chain or in hybrid analog-digital facilities, maintaining the quality of the received sound and picture has become more challenging than ever. Broadcasters encounter audio and video timing issues, as well as metadata problems, when receiving incoming feeds. Broadcasters today require more than just basic frame synchronization and video line delay solutions to address their issues.

Algogear Frame Synchronizer

More than a basic Frame Sync: Algogear solves timing, metadata, audio and video signal issues

The Algogear™ FRS-1002-MD is a dual channel, SD/HD Frame Synchronizer that will solve audio and video timing issues as well as clean up metadata problems in a digital facility. This high density frame synchronizer includes a Proc. Amp., legalizer, and metadatafilter.

The FRS-1002-MD is designed to synchronize asynchronous video feeds to reference, on 2 separate channels and can delay video up to 11 frames in HD. Users can also process embedded audio by mixing, reassigning, or converting stereo audio pairs to mono. Video and audio delay can be controlled independently.

Improper use of transmitting / receiving devices (with increasingly complex settings) can produce various video signal irregularities such as gamut errors. In order to deliver a complete solution, the FRS-1002-MD contains a video Proc. Amp., which allows for the correction of gamut errors. On other occasions, converting video signal to and from analog, or changing format from SD to HD or vice versa, can also cause amplitude and color errors causing loss of picture information and distortion in the displayed image. The Proc. Amp. allows users to adjust video parameters such as brightness, contrast, saturation and hue for the best possible image quality.

In addition, the card's video legalizer ensures video signals conform to industry-defined «legal» limited ranges. The video legalizer helps you guarantee that you are providing an error-free signal to your encoder before transmission.

Built into the FRS-1002 functionality is a full range of audio processing features such as sample rate conversion to eliminate “pops” and “cracks” which are common when the audio is not synchronized properly, audio mixing for voice over, audio channel re-assignment, delay, audio gain, phase and tone generator. All audio features are supported on each of the 32 audio channels in the FRS.

The increased usage of metadata such as Active Format Descriptors (AFD's) or proprietary DIDs may conflict with legacy equipment causing the improper interpretation of metadata. The FRS-1002 can filter out pre-defined metadata (CC, AFD, etc) or the user can also specify the DID to be filtered out in the metadata.

High-Density, Full Featured Solution Reduces Costs

The FRS-1002-MD provides a full-featured frame synchronization solution that is cost-effective – previously offered options are now included. This high-density, dual channel solution significantly reduces costs by offering many features on one card. Furthermore, each video channel can have separate control of video, audio and metadata.

Easy to Use and Control

openGear™ Dashboard provides an easy-to-use Web interface. Remote control access facilitates control when accessing the card from remote locations, without having to manipulate the card edge.

Ideal for Mobile, Incoming Feed and Studio Applications

By combining DUAL channels, the FRS-1002-MD is particularly well suited for incoming feeds and studio applications. Also, its feature rich audio features will simplify setup and commissioning in mobile applications such as sports or news.

Frame Sync Features

Video Features

- Video Legalizer (min, max)
- Proc Amp (hue, saturation, amplitude)
- Delay (up to 11 frames per channel)
- Frame, line or pixel delay adjustment
- Two outputs per input

Audio Features

- Channel re-assignment and Audio Mixing
 - Audio Mixer
 - Re-assign embedded audio channels without having to use an external audio mixer— ideal for live events, news, satellite feed
 - Convert any stereo pair to mono
 - Signal generator provides you with all the flexibility to create different types of audio tones on each channel or group.
- Audio Sample Rate Converter
- Independent Audio Delay
- Voice Over capability
- 32 channel audio control (Gain, re-assign all channel)

Metadata Features

- Ancillary Data Packet cleaner: a simple Metadata filter interface
 - A dedicated card to clean up the metadata is not required.
 - This simple interface, allows users to turn on or off various metadata as audio, cc, timecodes, AFD, etc....
 - Filter mode (remove packet, passthrough)
 - Customizable DID packet filter

Algogear Video Delay (VLD-1002-MD)

The Algogear [VLD-1002-MD](#) Video Delay is designed for delay applications in both standard and high-definition SDI environments with up to two channels per card. It supports all popular standard-definition and high-definition video formats. Delay programming can be added in time units (sec.) or video units (pixels, lines or frames).

Addresses delay issues between 1 Frame and 10 seconds (HD) on 1 channel

Advanced Video Delay—10 seconds of delay in HD for 1 channel

The [Algogear Video Delay VLD-1002-MD](#) synchronizes signals and fixes timing issues, supporting **10 seconds** of delay in HD and also supports the ability to expand delay capacity with additional memory. The VLD-1002-MD is part of the Algogear suite of applications for the reconfigurable FPGA-based Algogear card. This high density card supports the delay of multiple channels on a single card. Broadcasters are choosing Algogear as it is one of the only cards available that supports **10 seconds** of delay in HD and 59 seconds in SD in a 1 channel configuration. The configurable 10

second delay can be shared between 2 channels. All 10 seconds can be used on 1 channel or shared between 2 channels in one frame increments.

Adjustable Memory

Users have the flexibility to increase the delay if they need and by adding off the shelf memory to expand the delay capacity from 256MB to a maximum of 2 GB* SODIMM (Small Outline Dual Inline Memory Module). This can expand the delay from 1.25 seconds to 10 seconds of HD on one channel.

Easy-to-use remote software control with Dashboard

Being able to access the cards remotely from an easy-to-use Web interface is critical to many broadcasters. Users want to be able to adjust the timing of the delay easily from a laptop, rather than from the card edge. The openGear Dashboard Web-based software is very well suited for remote applications. Dedicated output allows you to easily switch between live feed and delayed output.

A Reliable, Stable Solution

For live events where there is no room for error and project's success is so critical, having stable technology that works easily and reliably is vital.

Ideal for News Broadcasts

The Algogear VLD-1002 Video Delay solution can be used in various applications, and is ideal in a News broadcast scenario. Since audio and video can be controlled separately, it can be used to accommodate various display delays when cameras are in separate multiple sites, for example in news stations.

Algogear VLD used during US Presidential Election Coverage

The Algogear VLD was selected for delaying video during coverage of the 2008 US Presidential Election by a major TV Cable News network. In this situation, the news network had a set up where they required multiple cameras at multiple sites and they need to adjust the time delay. Algolith's VLD solution offered advanced delay capabilities, up to 10 seconds in HD, a solution not readily found with other products.

VLD to be used for "Extreme Fighting" Feed into Canadian market

The Algogear VLD was also used to delay audio for the Quebec-based [Television Quatre Saisons](#) (TQS) *Extreme Fighting* program. The VLD will be used to delay the audio and video by 5-10 seconds to allow live audio translation to French, to accommodate their French language viewers. Other card

manufacturers were not able to easily offer this amount of delay on HD. TQS would have had to cascade many cards together in order to achieve the same result with one Algogear VLD card.

Algogear VLD Features

- High Density with multiple channel processing on a single card
- Dual channel SD/HD video delay
- Delays programming in time units (sec.) or video units (pixels, lines or frames)
- Programmable output settings to main program or delayed main program
- 10 seconds of delay in HD & 59 seconds of delay for SD in a 1 channel configuration
- Supports synchronous 16 channels (group 1 to 4) of 48 KHz audio (PCM 20-bits and 24-bits)
- Passes Ancillary Data
- SNMP Support

Algogear Profanity Delay System PDS-1001-MD

Great for eliminating “wardrobe” malfunctions and unexpected obscenities before content goes on-air, with simple push of a button.

- Multi-definition Profanity Delay
- Up to 10 seconds of delay in HD
- Adjustable reaction time delay
- Clean audio and video transition with programmable user “pre-roll” trigger reaction
- Video blurring or safe input
- Audio switching to embedded safe feed or fade to mute
- Programmable GPI
- Audio / metadata support
- Programmable audio delay

One Card, One Price, More Choices

Reconfigurable, flexible, future-proof

Through Algolith’s One Card, One Price, More Choices Program, Algogear FPGA-based cards can be reconfigured at any time with any other Algogear solution—at no additional cost. Broadcasters can choose when and how often they can repurpose their cards. This program offers advanced image quality, flexibility, and longevity – a solution not found with other vendors.



Common Sync & Delay Scenarios

Common Problems	Algoith Solution
Incoming feed needs audio content to be remapped from audio group 2 to audio group 1	Upload FRS and shuffle your audio track
Incoming signal has random distorted audio	Upload FRS and frame sync your incoming SDI signal
Need to clean up some ancillary data on my feed signal	Upload and use the FRS to rearrange your data
Need two extra frame syncs for my next event	Upload a FRS and use both channel
(Competitive Product) Frame Sync just died on me	Use one Algogear card and reconfigure as a FRS
Need to use a camera feed that is several hundred meters away from my mobile and my video signal is too weak and must be regenerated.	Use the FRS between the two cable run and resync your signal for the next 100m.
Some of my old HD equipment created lots of jitter on his output.	Use the FRS to correct the jitter
Need to sync and align in time a key and a fill video signal	Use the two channels on the FRS and sync and aligned separately both signal. Using a 2 Ch FRS card to re-align a separate key-fill signal. <ul style="list-style-type: none"> • Key is assigned on one channel • Fill is assigned on the second channel. • Both channels could be adjusted in time and position separately
Need to delay an incoming feed by 5 sec...	Use VLD and apply the necessary delay
I need some delay to log shots on the fly in a live recording:	Use the VLD and apply a delay of 3 or 5 sec, for operator to have all the necessary information