

Video Processing Library

The **Video Processing Library** is the foundation for all SightLine Applications video processor products. The library provides a powerful suite of functions key to a wide variety of Intelligence, Surveillance, and Reconnaissance (ISR) applications.

HD Video

Providing a range of solutions to meet demand for HD video capabilities. OEM board specific.

1080p/30 processing/encoding with SLA-3000

- 720p/30 processing/encoding with SLA-1500
- Adaptors for HD cameras, HDSDI, HDMI, CL, LVDS, etc.

Video Stabilization and Roll Correction

The starting point for all video ISR functions, frame to frame registration provides dramatically improved video.

Registration also provides ability to correct camera frame to frame rotation, further improving the user experience.

Scene and Object Tracking

Robust hands-free tracking of scene and designated objects. Onboard tracker provides low latency solution needed for nimble pointing control systems.

Telemetry Data

Tracker functions and MTI provide low latency track location data needed to facilitate gimbal pointing.

Video Encoding with KLV Metadata and Connectivity

Ethernet video outputs support new IP radio options and reduces system bandwidth (H.264 with KLV metadata).

- Remove high frequency jitter (frame to frame movement). Excellent for high frequency (approaching 30 Hz) lower amplitude noise rejection.
- For applications where correction of platform roll motion is desired (aerostats, towers, UAS).
- Where gimbal roll/nod configurations are used.
- Integrators can feed video roll commands to counteract known platform rotation.
- Scene tracking provides a powerful, intuitive gimbal feedback based on the entire scene.
- Advanced image analysis and motion estimation isolate tracked object from background for robust tracks.
- Persistent tracking when view of tracked object is temporarily blocked.
- Tracker Assist and Auto Re-initialization help with robust tracking.
- Telemetry rates up to 30 Hz.
- Pixel space feedback for accurate gimbal pointing.
- Data from object tracking, scene steering, and detection.
- Temperature data from radiometric cameras.
- MPEG2 TS. MPEG4. RTP M-JPEG.
- KLV metadata is generated in accordance with MISB standards 0102.10, 0601.7, 0603.2, 0604.3, and 0903.3.
- Controllable tradeoff of video compression frame rate, and down sampling to meet bandwidth requirements with best possible imagery and system flexibility.
- Metadata on VBI lines for KLV over analog links.
- Connectivity: UDP, TCP, and RTSP connectivity, unicast, multicast, broadcast, serial pass-through, RF IP bridges

Video Processing Library (continued)

SLAnding Aid

Supports landing operations by automatically finding and tracking a landing pattern. Providing pattern position, range, and angle to the vehicle landing logic.

Detection Algorithms

Real time detection algorithms provide important situational awareness information and aid in tracker initialization.

Video / Snapshot Recording

Onboard recording on SLA/SLE-1500. Interface board SD card for SLA/SLE-3000.

Video Enhancement and Overlays

A range of functions are provided to enable enhancement options to optimize video for the needs of each application.

Multi Camera Video Presentation

Flexible display options for optimized presentation, transmission and display of multiple video streams.

Focus Telemetry

Telemetric focus function available independent of tracking telemetry.



- Landing pattern supports landing operations over a wide variety of ranges and approach angles.
- Independent of GPS. Enables accurate landing in GPSdenied environments.
- Autopilot interfaces to simplify system integration.
- Real time onboard MTI provides fast feedback which is essential for effective track initialization on moving objects. MTI modes:
 - Identification of multiple (5) trackable moving objects provides simple track selection method = SV mode.
 - Identification of multiple (100) very small moving targets from an aerial camera = SA mode.
 - Moving object detection from fixed, low angle camera systems = ST mode.
- Histogram difference detection mode finds unique colors within a scene. Plans in development for new blob/size detection options.
- H.264 video to local SD card or remote FTP.
- Full resolution snapshot recording. JPEG snapshots with EXIF data.
- Full pixel depth data .PNG snapshots with metadata (for radiometric data access).
- Telemetry data recording.
- Contrast Limited Adaptive Histogram Equalization (CLAHE) and Local Area Processing (LAP).
- De-Noising of video. Edge sharpening.
- OSD support to add text, shapes, and custom reticle overlays. Customer logo placement.
- False color schemes.
- Extended 14 bit-depth processing.
- Digital Zoom.
- Full screen (switched video); Picture in Picture (selectable PiP window location); Split screen.
- Image Blending. Multi-spectral inputs can be blended into a single image with false color to bring out the best of each spectral image.
- Focus telemetry for autofocus implementations.
- Full autofocus functionality for a range of EO block cameras and lens assemblies.

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