

VIDEO TRACKERS

AIM12

Stand alone format automatic video tracker/image processor



The AIM12 is the smallest and lowest power, full-featured variant in the Octec range of automatic video trackers and image processors. Despite its size, it maintains software compatibility with the entire line and has the powerful processing capability of all our latest designs.

The unit's image processing functionality is primarily software based. The unit is capable of a large number of tracking modes, providing multiple modes of operation. Pre-processors using advanced image processing algorithms are followed by tracking algorithms which include centroid, correlation, edge, multiple target track, phase correlation, combined and SceneLock™. The AIM12 can also provide real-time electronic video stabilization using the SceneLock™ algorithm. Designed to operate as a stand alone unit, the AIM12's modes and functions can be controlled via the on-board RS232/422 serial links.

- Software based, commercial off the-shelf (COTS) product
- Stand alone module, compact and low power consumption
- Multiple analog video inputs and outputs
- NTSC/RS170 and PAL/CCIR (60/50Hz) operation
- Digital video support over expansion interface including;
 - LVDS parallel digital video
 - CameraLink digital video
- RS232/422 communication interfaces built-in
- Video Tracking Features:
 - Multiple algorithm capability including multiple target detection and multiple object track
 - Intelligent Breaklock and Re-acquisition algorithms
 - High clutter rejection using Statistical Target Enhancement Pre-processors
 - Programmable two axis platform drive (PID) filters
 - Symbology overlay of track window, boresight marker, status etc.
- Image processing functions such as real-time electronic scene-based image stabilization
- Menu-Driven PC software allows easy set-up and development

AIM12 SPECIFICATIONS

Functionality/Modes

Detection

- Multiple and Single target detection modes available
- Detection Window
 - Position
 - Movable to any FoV position
 - Size
 - Variable from 4% to 90% of the FoV with manual or adaptive modes (dependent upon selected algorithm)
- Number of Targets: 5 (optionally 10) with selectable discriminants and priority options.

Target Tracking

- Track algorithm selectable from:
 - Centroid
 - Correlation
 - Edge (top, bottom, left, right)
 - Multiple Target Track
 - Phase Correlation
 - Combined
 - SceneLock™
- Track Window
 - Position
 - Automatically controlled to follow target to any FoV position
 - Size
 - Variable from 4% to 90% of the FoV with manual or adaptive modes (dependent upon selected algorithm)
 - Selectable track pre-processor providing statistical target enhancement with automatic, bipolar, positive and negative threshold options.
- Scene Tracking
 - SceneLock™ algorithm is run in parallel with Target Track and Detection modes. Provides “true scene” relative moving track detection and track modes.

Stabilization

- Real-time, high performance video stabilization using SceneLock™ algorithm.

Platform Filters

- Configurable 2-axis PID filters with rate demand or position demand output

Boresight

- Reference for the determination of the track errors. Movable for offset tracking.

Breaklock/Coast

- Automatic two stage track-loss detection and re-acquisition

Electrical Interface

Video Inputs

- Analog Inputs (2)
 - Composite Video 1.0Vp-p, 625/525 Line, CCIR, PAL or RS170, NTSC, differential
- Digital Input (1) (Requires additional Octec proprietary mezzanine expansion board)
- Digital Interface includes:
 - Base CameraLink digital video
 - LVDS parallel digital video

Video Outputs

- Analog Outputs (2)
 - Composite video 1.0V p-p into 75 Ohm, single ended
 - Output 1
 - Selectable input video with symbology overlay and selectable enhanced video within detection/tracking window
 - Output 2
 - Switchable between either video input with no symbology overlay

Control Interfaces

- Serial Interfaces
 - 2 off RS232 and 2 off RS422, asynchronous, up to 115,200 baud, providing access to all configuration and status data

Power Requirements

- +5 V, 1A

Mechanical

Board size

- 90 mm x 77 mm

Connectors

- Analog Video 4 x MMCX jack
- RS232 Serial: 2mm pitch 2 row x 3 pin header. Keyed and lockable
- RS422 Serial: 2mm pitch 2 row x 5 pin header. Keyed and lockable
- Power: 2mm pitch 1 row x 4 pin header. Keyed and lockable
- Connector for Octec proprietary mezzanine expansion board
- Connectors can be arranged either parallel or perpendicular to the board surface

Environmental

Rugged Convection

- Temperature
 - Operating: -40°C to +70°C
 - Storage: -55°C to +90°C
- RH: Up to 95% non condensing
- Vibration
 - Sine: 10g from 15 to 2000Hz
 - Random: 0.04g²/Hz from 15 to 2000Hz
- Shock: >30g 11msec. Sawtooth

*ENVIRONMENTAL SPECIFICATION
SUBJECT TO MOUNTING*

Octec has over 300 man years of experience in applied image processing and is one of the leading independent suppliers of ‘commercial-off-the-shelf’ video tracking and image processing systems to the global aerospace market. Virtually every major European and US aerospace prime contractor is an Octec customer.

Octec’s engineering expertise encompasses not only the hardware and software design of video trackers and image processing elements, but how they are applied to provide new or improved system capabilities. Octec also possesses great expertise in a wide range of complimentary technologies. These include system management processing, digital and analog interfacing and signal distribution as well as electro optical sensor and overall systems integration for applications in the airborne, land and marine environments.



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