MODEL 8210

HIGH DEFINITION
## MINIATURE AUTOMATIC VIDEO TRACKER

The Model 8210 High Definition Standalone Miniature Automatic Video Tracker belongs to the latest tracker product family in E-O Imaging's continued commitment to product innovation and improvement. This board is designed to allow complete interface customization to our customer's required applications. This is accomplished through the incorporation of the latest in digital signal processing (DSP) and field programmable gate array (FPGA) technology (providing a flexible architecture for customization). The Model 8210 Tracker can interface with standard SDI digital video camera outputs and other sources, providing ease in interfacing with a wide variety of sensor systems. **The 3G-SDI digital video interfaces support standard and high definition resolutions up to 1080p60 (SMPTE 259M/344M/292M/424M).** The Model 8210 miniature tracker is designed to meet the demands of the surveillance and UAV markets for a low cost, high performance video tracker. Designed for standalone operation, the tracker operates from a single DC power supply accepting a wide input range from 6 to 28 volts. The system is structured with an open architecture allowing easy incorporation of specialized features and algorithms. The Model 8210's standard features and options permit easy adaptation to even the most complex and demanding surveillance and UAV applications.
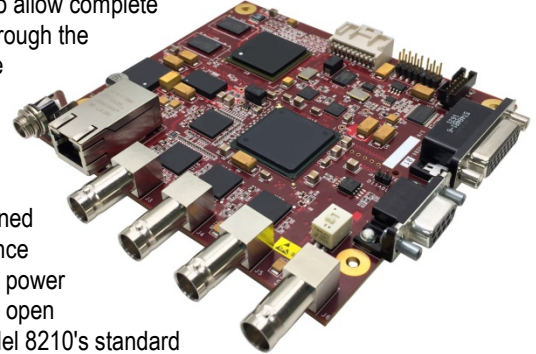
The Model 8211 tracker provides the same performance with a dual target capability.

Standard Features

- Algorithm Processing
  - Selectable Edge, Mass/Intensity Centroid, Vector* and Correlation Algorithms
  - Multi-Target Detection and Acquisition
  - Robust Intrusion Detection, Coast and Target Recovery
- Control Interfaces
  - Gigabit Ethernet Interface (10/100/1000)
  - RS-232/422 Serial Communication Ports (8)
- Video Interfaces
  - 3G-SDI Video Inputs (2) and Outputs (2)
- Standalone Operation
  - Single DC Power Supply
  - Complete Realtime System

- Integration
  - Advanced Motion Compensation (PID) Filter
  - Serial Control of Pan/Tilt and Servo Controller
  - Zoom Lens Scaling and Correction
  - Serial Control of Camera/Lens Systems (IR and Visible)
  - Serial Control of Laser Rangefinder
  - Interface to Remote Controller (Model 702 or 704)
  - Integrated Target Generator and Simulator
  - User-Controlled Text Annotation and Graphics
- Video Handling Capability
  - Interlaced and Progressive Formats
  - Resolutions up to 1080p60

Available Options

- Digital Video Configurations
  - 3G-SDI (up to 1080p60)
  - Camera Link (Base)
  - HDMI
- Video over Ethernet (compressed output)
- Remote Control Unit (Models 702 & 704)
- Environmentally-Ruggedized Camera System (Models 901 & 902)
- Custom Packaging and Form Factor
- Custom Algorithms / Symbology / Annotation
- Trajectory Simulation Capability
- Operator Training Capability
- Image Stabilization
- Image Fusion (IR and Visible)
- Simultaneous Multi-Target Tracking

Typical Applications

- Surveillance
- Real Time Missile and Aircraft Tracking
- Weapon System Director
- Weapon System Evaluation
- Simulator Systems
- Trajectory Analysis
- Bomb and Weapons Scoring
- Image Matching
- Automated Calibration of Tracking Systems
- Laser System Alignment
- ECM Evaluation
- Spatial Measurement of Objects
- Re-entry Vehicle and Satellite Tracking
- Biomedical Analysis

Engineering High Performance Tracking Solutions

MODEL 8210

HIGH DEFINITION MINIATURE AUTOMATIC VIDEO TRACKER SPECIFICATIONS

Video Interfaces

- **Video Interfaces (4)**
  - 3G/HD/SD-SDI, BNC, 2 inputs
  - 3G/HD/SD-SDI, BNC, 1 output, selected video
  - 3G/HD/SD-SDI, BNC, 1 output, unselected video (configurable)
- **Optional Configurations (and other models)**
  - 3G/HD/SD-SDI (480i, 480p, 720p, 1080i, 1080p)
  - Analog Video (NTSC/PAL)
  - Camera Link (Base)
  - HDMI (up to 2048 x 2048)

System Control Interfaces

- **Serial Interfaces (8)**
  - 115.2 kbps maximum (default)
  - Selectable RS-232/422
- **Gigabit Ethernet Interface**
  - Auto-negotiating 10/100/1000 Ethernet interface

Functionality

- **Tracking Algorithms**
  - Mass Centroid
  - Intensity Centroid
  - Selectable Edge (top, bottom, left, right)
  - Correlation (Exhaustive Search)
  - Vector (Leading Edge) Track*
- **Tracking Gate Auto/Manual Size**
  - **Manual**: adjustable from 1% to 90% of the field-of-view area in Edge and Centroid Modes
  - **Adaptive**: automatically adjusts to variations in target size
  - **Correlation Mode**: variable size, adaptive resampling.
- **Threshold (automatic/manual)**
  - Allows identification of white and/or black targets or target gray levels
  - Automatic multi-gray level detection
- **Automatic Coast Mode**
  - Statistical Process determines the validity of the target
  - Optimal recovery from intrusions and disruption of track
- **Reticle**
  - Defines the AZ/EL null point of the system
  - User selectable reticle formats
- **Display Symbology (customized to user requirements)**
  - Tracking Gate Outline (Window/Corners)
  - Reticle (Crosshair)
  - Track Point Indicator (Flag/Crosshair)
  - Offset Track Point
  - Threshold Enhancements (Highlighted Target Data)
  - Characters for displaying system status and mode information
  - Alphanumeric generator for user-defined messages

* Vector Track mode is only available with mount position feedback

- **Graphical User Interface**
  - PC-based program for setup and testing through the RS-232/422 or Ethernet interface
- **Built-In-Test**
  - Performs end-to-end testing
  - Verifies all track modes
- **Field Downloadable Software Updates (DSP/FPGA)**
- **Sophisticated PID Filter**
- **Configuration Save Capability**
  - Stores up to 10 user-defined configurations in FLASH
  - Allows user to define Tracker boot-up configuration
- **Embedded Motion Control Processor**

Physical Specifications

- **Board Dimension**
  - 4.5 inches x 5.0 inches (11.4 cm x 12.7 cm)
  - Conformal coated per MIL-I-46058
- **Temperature Range**
  - Operating: -40° to +85°C
  - Storage: -40° to +85°C
- **Relative Humidity**
  - 0 to 95% non-condensating
- **Power**
  - +6 to +28 VDC
  - 12 watts (nominal)

*Specifications subject to change without notice.
Consult factory for latest specifications and available options.*