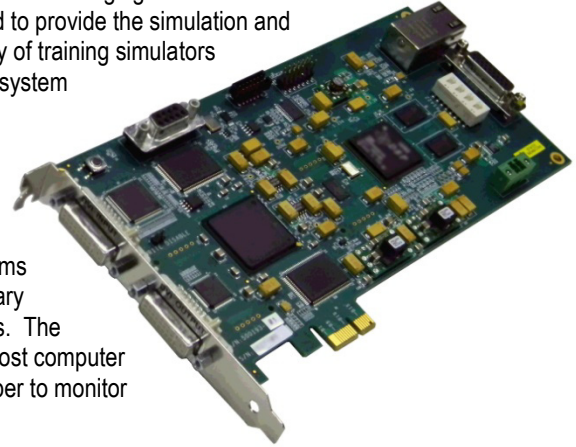# MODEL 7410

PCI EXPRESS
VIDEO TRACKER SIMULATOR

The Model 7410 PCI Express Video Tracker Simulator (VTS) is the latest product in E-O Imaging's continued commitment to product innovation and improvement. The Model 7410 is designed to provide the simulation and training community a flexible tool for simulating video tracker functions for a variety of training simulators including aviation (manned and unmanned flight simulators) and ground (weapon system simulators and operator performance assessment) systems.

The Model 7410 allows the user to configure the tracker simulator to emulate the characteristics of various video tracker components to match the mission scenario generated by the host computer system. The tracker simulator can be programmed to emulate configurations ranging from simple edge/centroid algorithms to more complex correlation and multiple target algorithms. In addition to the primary target gate, two additional gates are optionally available to track secondary targets. The VTS incorporates a standard DVI-D video input to accept video produced by the host computer or an external image/scene generator. The DVI-D video output allows the developer to monitor the operation and behavior of the tracker simulator.

The Model 7410 Video Tracker Simulator is designed with inherent flexibility to meet the needs of advanced-technology trainers and incorporates expansion capability to support the next generation training simulators.

The Model 7410 video tracker simulator is also available with a dual (Model 7411) or triple (Model 7412) 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
  - PCI Express Bus
  - Gigabit Ethernet Interface (10/100/1000)
  - RS-232/422 Serial Communication Ports (4)
- Video Interface
  - DVI-D Video Input (1) and Output (1)
  - Resolutions up to 1920 x 1080 at 60 Hz
- Standalone Operation
  - Single Voltage DC Power Supply
  - Ethernet and Serial Control
- Integration
  - Complete SDK with Device Drivers and Sample Code
  - Integrated Target Generator and Simulator
  - User-Controlled Text Annotation and Graphics

Available Options

- Custom Packaging (Standalone, Rack Mount)
- Custom Algorithms, Symbology and/or Annotation
- Second and Third Tracking Gates
- Simultaneous Multi-Target Tracking

Typical Applications

- Simulation and Training Systems
- Computer Vision Systems
- Biomedical Analysis and Systems

Engineering High Performance Tracking Solutions

MODEL 7410
PCI EXPRESS VIDEO TRACKER SIMULATOR SPECIFICATIONS

Electrical Interfaces
- **Video Interface**
  - DVI-D, 1 input and 1 output

System Control Interfaces
- **PCI Express x1 Interface**
- **Serial Interfaces (4)**
  - Standalone Configuration Only (top of board)
  - 115.2 kbps maximum (default)
  - Selectable RS-232/422
- **Gigabit Ethernet Interface**
  - Standalone Configuration Only (top of board)
  - Auto-negotiating 10/100/1000 Ethernet interface
  - Auto-MDIX

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**: Reference area size from 8 x 8 up to 64 x 64 elements, independent horizontal and vertical size controls. Search area is 128 x 128 pixels/lines.
- **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
- **Overlay 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 simulated pointing angle position feedback

- **Graphical User Interface**
  - PC-based program for setup and testing through the PCIe bus, serial or Ethernet interface
- **Built-In-Test**
  - Performs end-to-end testing
  - Verifies all track modes
- **Downloadable Firmware Updates**
- **Sophisticated PID Filter**
- **Configuration Save Capability**
  - Stores up to 10 user-defined configurations in FLASH
  - Allows user to define Tracker boot-up configuration

Physical Specifications
- **Board Dimension**
  - Half Length PCI Express x1 Card
- **Temperature Range**
  - Operating: 0° to +70°C
  - Storage: -40° to +85°C
- **Cooling**
  - Convection 20 ft/min airflow
- **Relative Humidity**
  - 0 to 95% non-condensing, Operational
  - 0 to 95% non-condensing, Storage
- **Power**
  - PCI Express bus (+12 VDC) or Standalone configuration (+12 VDC connector)
  - 12 watts (nominal)

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