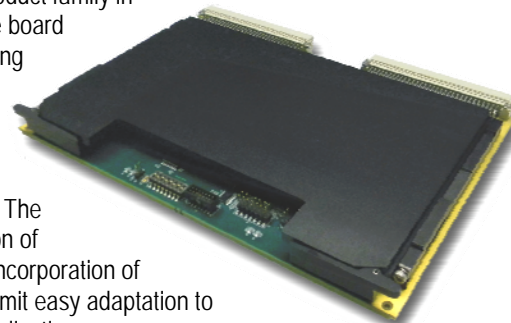


MODEL 7015

VMEBUS AUTOMATIC VIDEO TRACKER CONDUCTION COOLED

The Model 7015 VMEbus Automatic Video Tracker (AVT) belongs to the latest tracker product family in E-O Imaging's continued commitment to product innovation and improvement. This single board tracker is easily adapted to a wide range of target and tracking environments. Incorporating the latest in digital signal processing (DSP) and field programmable gate array (FPGA) technology, the tracker provides a flexible architecture for customization. The Model 7015 interfaces with standard analog video sources providing quick integration with a wide variety of sensor systems. The high quality analog video digitizer provides full 12-bit (4096) gray level capability to achieve optimal performance in low contrast environments. The tracker's design incorporates a multiple DSP implementation allowing concurrent operation of algorithms in realtime. The system is structured with an open architecture allowing easy incorporation of specialized features and algorithms. The Model 7015's standard features and options permit easy adaptation to even the most complex and demanding test range, tactical, surveillance and industrial applications.



The Model 7016 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
 - VMEbus
 - Gigabit Ethernet Interface (10/100/1000)
 - RS-232/422 Serial Communication Ports (4)
- All I/O on VMEbus P2 Connector
- Video Interfaces
 - Analog Video Inputs (4) and Outputs (3)
 - RS-170 / RS-170A / NTSC / PAL / CCIR
 - High Quality 12-bit Video ADC
- Standalone Operation (without VMEbus backplane)
- User-Controlled Text Annotation and Graphics
- Dual Graphic Overlay Planes
- Video Graphic Sprites (4)
- 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

Typical Applications

- Weapon System Director
- Real Time Missile and Aircraft Tracking
- Surveillance
- 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

Available Options

- Remote Control Unit (Models 702 and 704)
- Environmentally-Controlled Video Camera (Models 901 and 902)
- Nonstandard Video Formats
- Custom Packaging
- Custom Symbology and Annotation
- Custom Algorithms
- Trajectory Simulation Capability
- Operator Training Capability
- Image Processor
 - Target Enhancement/Detection
 - User-Definable Filter Characteristics
 - Stored Filters
- Multi-Target Tracking

Engineering High Performance Tracking Solutions

MODEL 7015

VMEBUS AUTOMATIC VIDEO TRACKER SPECIFICATIONS

Electrical Interface (VMEbus P2)

- **Composite Analog Video Inputs (4)**
 - Compatible with Visible and Thermal Video
 - Video Standards RS-170 / RS-170A / NTSC / PAL / CCIR
 - Single-Ended or Differential, Selectable
- **Composite Video Outputs (3)**
 - Three (3) mixed with symbology

System Control Interface (VMEbus P2)

- **Serial Interfaces (4)**
 - 115.2 K bit max. (default) - Software selectable RS-232/422
- **VME Slave Interface (A24/D16)**
 - Base Address Selection: Switch Selectable (Upper 8 bits)
 - Supervisory or Non-Privileged
- **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:** 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 contrast 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**
 - 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

- **Graphical User Interface**
 - PC-based program for configuration setup and testing through the RS-232/422, VME or Ethernet interface
- **Built-In-Test**
 - Performs end-to-end testing
 - Verifies all track modes
- **Field 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
- **Embedded Motion Control Processor**
- **Dual Graphic Overlay Planes**
 - Allows user to draw custom video annotation/symbology
 - Double buffered to eliminate flicker and hide drawing
- **Video Graphic Sprites (4)**
 - Allows user to draw custom symbology which can then be moved around the video scene at up to video field rate
 - Four (4) sprites with up to 128 x 128 pixels/lines

Physical Specifications

- **Board Dimension**
 - Double Euro (6U) VMEbus Format, 160mm
 - Conformal Coated
- **Temperature Range**
 - Operating: -40° to +85°C
 - Storage: -45° to +85°C
- **Cooling**
 - Conduction Cooling per IEEE Standard 1101.2-1992
- **Relative Humidity**
 - 0 to 95% non-condensing



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* Vector Track mode is only available with mount position feedback