



# ADEPT104

## PC104-Plus format automatic video tracker/image processor

### Features

- Compact and low power consumption.
- Multiple algorithm capability including multiple target detection and multiple object track
- Statistical target enhancement pre-processors for high clutter rejection
- Intelligent "Breaklock" and re-acquisition algorithms
- Platform drive filters
- Onboard serial links
- Composite video input/output
- Digital video support over expansion interface including;
  - LVDS parallel digital video
  - CameraLink digital video
- Symbology overlay
- Image processing functions such as real-time electronic scene-based image stabilization
- PC104/PC104-Plus format card
- PC control software

The ADEPT104 is a full-featured PC104 and PC104-Plus format automatic video tracker and image processor. Despite its size, it maintains software compatibility with the entire line and has the powerful processing capability of our latest designs.

The card is particularly well suited to applications where size and weight are critical, such as unmanned vehicles and compact electro-optical systems.

The card is capable of multiple operating modes. Pre-processors using advanced image processing algorithms are followed by tracking algorithms which include centroid, edge, multiple target track, phase correlation, combined and SceneLock. It can also provide real-time electronic video stabilization using the SceneLock algorithm.

Analog and optional CameraLink and LVDS video inputs provide widespread compatibility with electro optical sensors.

This commercial off-the-shelf (COTS) card can be mounted in any standard PC104 or PC104-Plus system.

In common with other products in the ADEPT range, the ADEPT104 incorporates two axis PID platform drive filters and onboard serial links.

Intuitive menu-driven PC software allows easy set-up and development.

The ADEPT tracker family has been developed to provide the highest performance solutions in the smallest, fully environmentally proven hardware packages. Field-proven on military and civilian platforms on land, sea and air, GE Intelligent Platforms' image processing products incorporate the benefits of unrivalled application experience.



# ADEPT104 PC104-Plus format automatic video tracker/image processor

## 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 with selectable discriminants and priority options.

### Target Tracking

- Track algorithm selectable from:
  - Centroid
  - 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.

### 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 track-loss detection and re-acquisition

## Specifications

### 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 GE Intelligent Platforms proprietary mezzanine expansion board)
- Digital Interfaces includes:
  - Base CameraLink digital video
  - LVDS parallel digital video

#### Video Outputs

- Analog Output (2)
  - Composite video 1.0 V p-p into 75 ohm
  - Single-ended
- Output 1
  - Selectable input video with symbology overlay
- Output 2
  - Selected input video

#### Control Interfaces

- **DC Analog** (Requires additional GE Intelligent Platforms proprietary mezzanine expansion board)
- 2 off  $\pm 10$  Vdc outputs normally used for platform rate commands

#### Serial Interfaces

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

#### PC104-Plus Interface

- Specification PCI Rev 2.1
- 32 Bit Target (Slave)

#### PC104 Interface

- Specification ISA
- 8 Bit Slave interface power requirements

### Power Requirements

- +5 V, 1A

### Board Size

- PC104-Plus (95.9 mm x 98.2 mm)

### Connectors

- PC104-Plus / PC104 standard bus connectors
- Analog Video 4 x MMCX jack
- Serial 2 x 2 mm pitch 2 row x 5 pin header
- Connector for GE Intelligent Platforms proprietary mezzanine expansion board

### Environmental

#### Rugged Convection

- Temperature
  - Operating: -40°C to +70°C
  - Storage: -55°C to +90°C
- Relative Humidity
  - Up to 95% non-condensing
- Vibration
  - Sine: 10g from 15 Hz to 2000 Hz
  - Random: 0.04g<sup>2</sup>/Hz from 15 Hz to 2000 Hz
- Shock
  - 30g 11 msec. Sawtooth

*Environmental specification subject to mounting*

## About GE Intelligent Platforms

GE Intelligent Platforms, a General Electric Company (NYSE: GE), is an experienced high-performance technology company and a global provider of hardware, software, services, and expertise in automation and embedded computing. We offer a unique foundation of agile, advanced and ultra-reliable technology that provides customers a sustainable advantage in the industries they serve, including energy, water, consumer packaged goods, government and defense, and telecommunications. GE Intelligent Platforms is a worldwide company headquartered in Charlottesville, VA and is part of GE Home and Business Solutions. For more information, visit [www.ge-ip.com](http://www.ge-ip.com).

## GE Intelligent Platforms Contact Information

Americas: **1 800 433 2682** or **1 434 978 5100**

Global regional phone numbers are listed by location on our web site at [www.ge-ip.com/contact](http://www.ge-ip.com/contact)

[www.ge-ip.com](http://www.ge-ip.com)

