

Sightech Vision Systems, Inc.

PC-Eyebot

Vision Applications – PC-Eyebot versus Frame Grabbers

We're frequently asked how the Eyebot compares to frame grabber solutions in machine vision applications. Here are some comparisons at a generic level.

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Comparative Topic	PC Eyebot	Frame Grabber	Notes
Requires Camera	Yes-multiformats, digital or analog, progressive scan, may be triggered	Good camera flexibility with more expensive cards;	Lower cost F/G may be limited to NTSC type cameras
Interfaces to Color Cameras; processes color	Yes, most color formats	More expensive cards, or multiple cards	Pseudo color generally on lower cost cards
Multiple Cameras	Single camera per eyebot at this time, mono or color	Multiple cameras on more expensive cards	Often 3 cameras or RGB color
Large Formats	Yes to 2k x 2k	More expensive cards for larger cameras	Slows thruput for either solution
Special Lighting	Far less demanding, can be trained for variable lighting	Generally less tolerant of lighting changes	Eyebot may be further trained as lights age or shadows occur
Inspection on High Speed Production Lines—8-12 objects/sec	Progressive Scan camera and inspection ROI adjustment may preclude triggers, strobes	Safer to use Triggers and Strobes on fast inspection lines. Very high end design may avoid	Eyebot includes tools to avoid triggers and strobes where possible.
High Frequency Lights for very fast production line inspection (15-30 objects/second)	Yes	Yes	Avoids uneven lighting and moving dark bars in images
Camera Interfacing	USB, Firewire	Varies with cost	More expensive Frame Grabbers have most interfaces
Host Computer Req'ts	PC Eyebot includes the PC, relays to enunciators, ejectors, etc.	PC generally required, adds to cost; relays need to be added on	Generally doubles cost of Frame Grabber
Software for computer	Included and generated	Included; needs interfacing to Frame Grabber Library, drivers, etc.	Generally involves PC system manager, skilled integrator's time, \$
Application Software	Included and ready to use; user selects tools and tests	Library routines must be generated, configured, tested, modified	Generally significant increase in time and cost over initial F/G price

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Image Pre Processing—Convolutions, pixel ops, segmentations, color handling, etc.	Broad tool selection from menu, with immediate viewable use and feedback for application	Good libraries generally need selection of routines and support programs, then load and test, configure, etc.	Eyebot menus are very strong and practical; im-mediate view of selected tool output saves hours of experimental load and compilation on F/G
Shape analysis from color gradients	New, Included	Rare, may be approximated	Gradient of color analysis generally not included with Vision Libraries. See our demo
Texture and Pattern Processing	Included, requires skill with Eyebot	Difficult to come by in most vision libraries	Powerful, but available with PC Eyebot
Fixture or Non Fixture modes, any orientation	Selectable, Trainable	May be programmed at additional expense	Very expensive to program
Background Clutter Ignore	Included, Selectable, Trainable in minutes	Generally must be engineered out; difficult to program out effectively	Allows many complex applications to come online while you watch
Reflection Handling	Included, Selectable, Trains in minutes	Very difficult to handle, may require special filters and lighting, special software	Generally not an issue with PC Eyebot. Tools to reduce or ignore Sparkle. We learn reflections.
Short run practical	Yes. Retrains to new task quickly; can also reload prior training if camera, lights, products the same	Can be programmed to multiple stations, but at cost for each station; likely high cost times many stations	PC Eyebot is generally installed and ready for production work faster than Frame Grabbers can be tested in PCs
Ready to work immediately out of the box	Yes. Select functions and train in minutes	Generally not. Software development required	PC Eyebot is much lower in cost to implement, cost to own
Keyboard and LCD removable, disconnect	Yes	Can be set up to be	PC Eyebot is Production environment ready.
PC components	P4; 2.5GHz+, 30 GB disk	Whatever you pay for	Fully packaged, ready to work, interconnect