



## High-Performance Augmented Reality Solution

### Technical Overview and Specifications

Sensics offers a high-performance augmented reality system that combines high-quality video feeds with computer generated imagery, without any impact on graphics performance or CPU load. The solution supports stereoscopic video which makes it perfect for HMD based applications such as:

- Training and simulation: allowing integration of live-video images (e.g. user's hands, inside-the-vehicle images with computer-generated out-the-window scenery).
- Vision and balance research: where users can see their hands and feet yet, at the same time, be exposed to a virtual world.
- Augmented reality: allowing the addition of virtual objects or people on top of live video imagery or live video imagery on top of virtual objects.



The Sensics solution is based on lightweight video cameras that are carefully integrated into the Sensics xSight and piSight panoramic HMD product lines using high-performance video mixing hardware. The video mixers combine live video from the cameras with computer-generated graphics and provide a high-resolution stereoscopic video output signal that is compatible with Sensics HMDs. The field of view for each video camera can be selected during purchase and is usually matched to the wide field of view of the HMD.

Two camera options are available:

- Digital cameras with resolutions up to 1600x1200 color pixels per eye. These cameras connect to a Sensics-supplied PC that allows selection of desired region of interest as well as control over the refresh rate and various image parameters. The output from this PC connects to the video mixers.
- Analog cameras that connect directly into the video mixers and provide NTSC, PAL or SECAM signals at 60 Hz.

Camera technology advances rapidly, and additional camera options are often available. Contact us to help you tailor the best augmented reality solution for your need.



**Key specifications:**

Cameras	Dual color/monochrome. Various field of views and packaging options available
Typical camera characteristics	Digital cameras: <ul style="list-style-type: none"> <li>• Resolution: up to 1600x1200 pixels</li> <li>• Refresh rate: up to 60 Hz</li> <li>• Incremental weight: 100 grams</li> <li>• Optional lenses: from 4mm to 24mm focal length (field of view up to 92x70° per eye)</li> <li>• Video output: Dual Composite (BNC) and YC (S-video) input, PAL, SECAM or NTSC</li> </ul> Analog cameras: <ul style="list-style-type: none"> <li>• Effective picture element resolution: 768x494 pixels</li> <li>• Resolution: 480 TV lines</li> <li>• Refresh rate: 60 Hz</li> <li>• Incremental weight: 150 grams</li> <li>• Optional lenses: from 4mm to 24mm focal length (field of view up to 92x70° per eye)</li> <li>• Video output: USB 2.0</li> </ul>
PC video input	Dual DVI input from graphics card (auto detect, up to 1920x1200 pixel resolution)
Adjustments	<ul style="list-style-type: none"> <li>• IPD</li> <li>• Scale</li> <li>• Position</li> <li>• Key color</li> <li>• PC on video or video on PC keying</li> </ul>
HMD Compatibility	<ul style="list-style-type: none"> <li>• Sensics xSight panoramic HMD</li> <li>• Sensics piSight ultra-panoramic HMD</li> </ul>
Typical field of view	<ul style="list-style-type: none"> <li>• Selectable up to 90 degrees per eye (120+ degrees binocular vision)</li> </ul>
Software compatibility	<ul style="list-style-type: none"> <li>• Custom and off-the-shelf software</li> <li>• WorldViz Vizard and VideoVision</li> </ul>

**About Sensics**

Sensics, Inc., offers professional-quality personal displays with panoramic field of view and high resolution, providing stunning image quality, unmatched immersion and realism. These breakthrough immersive displays are delivered either as lightweight, stereoscopic head-mounted displays, or as ultra-light display modules suitable for OEM/ODM use. Unlike other products that feature narrow field of view, limited resolution or both, Sensics delivers products combining panoramic field of view and high definition displays. Dozens of upgradeable models are offered, designed to meet a wide range of performance and budget specifications. Sensics products are used worldwide to enable new and improved virtual reality applications for training, virtual prototyping, visualization and remote presence. For additional information, visit <http://www.sensics.com>