



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 are carefully integrated into the Sensics zSight SXGA HMD 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:

- GigE cameras with typical resolutions of 1280x1024 pixels @ 50 FPS. 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. Furthermore, they allow analysis and processing of the image such as for target and marker detection. The output from this PC connects to the video mixers.
- HDMI cameras that connect directly into the video mixers and provide 1280x720p signals at 60 FPS. The output of these cameras can also be scaled or cropped, but does not offer image processing and target detection. This solution is also compatible with our ultra-low latency wireless video link.

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	<p>Digital cameras:</p> <ul style="list-style-type: none"> • Typical resolution: 1280x1024 pixels • Refresh rate: 50 FPS typical • Incremental weight: 100 grams • Optional lenses: from 4mm to 24mm focal length (field of view up to 92x70° per eye) • Video output: GigE <p>HDMI cameras:</p> <ul style="list-style-type: none"> • Resolution: 1280x720p • Refresh rate: 60 Hz • Incremental weight: 150 grams • Optional lenses: from 4mm to 24mm focal length (field of view up to 92x70° per eye) • Video output: HDMI
PC video input	Dual DVI input from graphics card (auto detect, up to 1920x1200 pixel resolution)
Adjustments	<ul style="list-style-type: none"> • IPD • Scale • Position • Key color • PC on video or video on PC keying
HMD Compatibility	<ul style="list-style-type: none"> • Sensics zSight HMD, xSight HMD, piSight HMD
Typical field of view	<ul style="list-style-type: none"> • Selectable up to 90 degrees per eye
Software compatibility	<ul style="list-style-type: none"> • Custom and off-the-shelf software • WorldViz Vizard
Key HMD characteristics	<ul style="list-style-type: none"> • Field of view: 60 degree diagonal • Resolution: 1280x1024 per eye (zSight) • Display technology: OLED • Peripherals: integrated motion tracker, microphone and audio output • Video input: single or dual HDMI

Specifications subject to change without notice. May 2013. Copyright © Sensics.