

# HemiStar® 180° / 360° Fisheye Projection Lenses

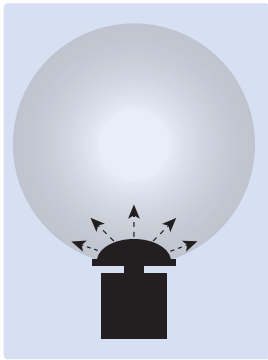
Solutions for Planetariums, Immersive Displays & Spherical Display Systems

Navitar has surpassed current projection optics technology with the creation of the new HemiStar 180° / 360° Fisheye lenses that allow for single projector/lens presentation solutions for multiple applications. Ideal for projection on small planetarium domes, front projection into immersive environments or spherical digital signage, HemiStar lenses allow you to project 360° images inside spherical display systems. *Note: these applications require custom or modified content specifically created for application and image size.*

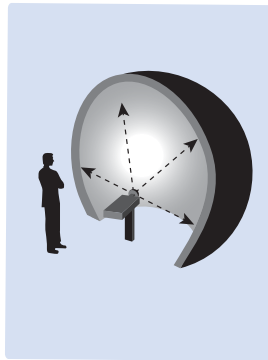


## Ideal Applications

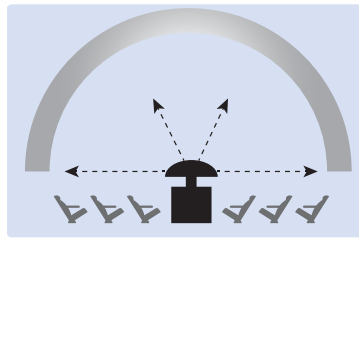
- Spherical-shaped Digital Signage
- Small Portable Planetariums
- Gaming Development
- Theme Park Attractions
- Advertising
- Training & Simulation
- Tradeshow Exhibits
- Interactive Display
- Concert & Theater Special Effects
- Museum Exhibits
- Virtual Reality Environments
- Neuroscience Research



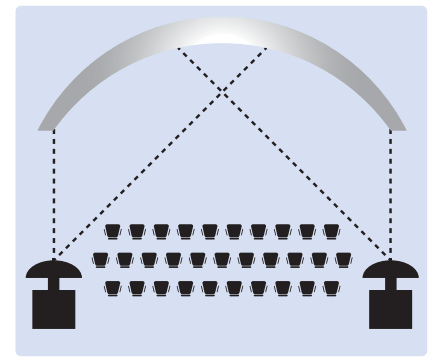
Spherical-Shaped Digital Signage



Immersive Display & Virtual Reality



Mobile Small Planetarium



Large Planetarium & Custom Lenses

## Specifications of Navitar HemiStar® Lenses

HemiStar Lens Series <sup>1</sup>	HS65 Series	HS67 Series	HS95 Series	HS13 Series
<b>Focal Length</b>	2.86 mm	3.00 mm	4.07 mm	6.75 mm
<b>F#</b>	3.0	2.5	3.0	3.0
<b>Image Quality (%MTF)<sup>1</sup></b>	Video 65% Center @ 46 lp/mm 30% Edge @ 46 lp/mm	Video & Data 66% Center @ 66 lp/mm 60% Edge @ 66 lp/mm	Video & Data 65% Center @ 66 lp/mm 35% Edge @ 66 lp/mm	Video 55% Center @ 46 lp/mm 20% Edge @ 46 lp/mm
<b>Color Separation<sup>2</sup></b> Blue-Green: Red-Green:	<¼ pixel with 10.8 µm pixel <½ pixel with 10.8 µm pixel	<¼ pixel with 7.56 µm pixel <½ pixel with 7.56 µm pixel	<¼ pixel with 7.56 µm pixel <½ pixel with 7.56 µm pixel	<1 pixel with 10.8 µm pixel <¼ pixel with 10.8 µm pixel
<b>Focus Range</b>	300 mm - Infinity	500 mm - Infinity	800 mm - Infinity	800 mm - Infinity
<b>Panel Types</b>	1X DLP or 3LCD	1XDLP or 3LCD	1X DLP or 3LCD	1X DLP or 3LCD
<b>Projector Panels and Angles</b>				
<b>Original Panel Design</b>	0.65" WXGA - 1280 x 800 185° x 185° - 800 x 800 500K pixels	0.67" WUXGA - 1920 x 1200 185° x 185° - 1200 x 1200 1.13 Mpx	0.90" WQXGA - 2560 x 1600 180° x 180° - 1600 x 1600 2 Mpx	1.3" XGA - 1024 x 768 180° x 180° - 768 x 768 467K pixels
<b>Alternate Panel 1<sup>3</sup></b>	0.67" WUXGA - 1920 x 1200 198° x 198° - 1200 x 1200 1.13 Mpx	0.65" WXGA - 1280 x 800 185° x 174° - 800 x 800 600K pixels	0.96" WUXGA - 1920 x 1200 195° x 195° - 1200 x 1200 1.13 Mpx	0.96" WUXGA - 1920 x 1200 180° x 113° - 1843 x 1200 2.04 Mpx
<b>Alternate Panel 2<sup>3</sup></b>	0.66" HD1080 - 1920 x 1080 198° x 172° - 1200 x 1080 1.09 Mpx	0.66" HD1080 - 1920 x 1080 185° x 163° - 1200 x 1080 920K pixels	0.67" WUXGA - 1920 x 1200 195° x 131° - 1714 x 1200 1.87 Mpx	0.90" WQXGA - 2560 x 1600 174° x 105° - 2560 x 1600 3.8 Mpx

<sup>1</sup> Ordering part numbers depends on projector. Please call for details.

<sup>2</sup> Wavelengths: 460 nm, 550 nm, 630 nm - Weighting 1:2:1

<sup>3</sup> Contact us with your projector make and model to determine compatibility.

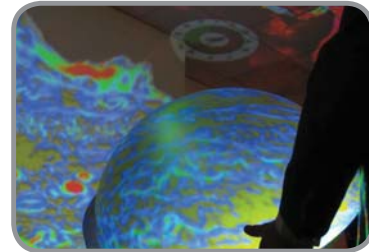
## An Alternative to Multi-Projector Systems

For years, audio visual professionals have used multiple projector systems to project very wide and large images onto non-flat surfaces such as 180° planetarium ceilings or 360° degree spherical-shaped digital signage displays. The only way to hold the focus on a curved surface was to stitch together multiple images on the screen - which was both costly and time consuming.



The market later evolved into using a single fish-eye lens and projector to digitally project into certain size dome applications. Like other fisheye lenses, the HemiStar lens can be used for small dome projection; however, our lens is flexible enough to be used in a wider range of applications. In addition to digital signage and special events applications, the HemiStar lens is also used in neuroscientific research. One such application involved measuring neurological activity of a rodent when placed in an immersive environment.

*Note: Large planetarium applications require custom lens solutions and multiple projector systems. Contact Navitar to discuss your specific application.*



### Sharp & Clear Planetariums

### Spherical Digital Signage

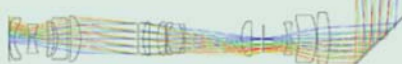
### Immersive Front Display Systems

## Need a Custom Solution?

### Custom Projection Optics

- 4K resolution
- Intermediate image planes
- Custom masking mechanics
- Motorized and manual iris
- Relay & wide field adapter systems
- Blending and pixel mapping
- Precision color

F#3.2, 60 Deg, 30 mm EFL  
JVC Projector Lens



Contact Navitar today to discuss your projection needs.

800-828-6778 or [info@navitar.com](mailto:info@navitar.com)

Navitar's team of optical, mechanical and electrical engineers have decades of combined experience creating optical systems. Our engineering staff works directly with yours to ensure a common understanding of the project requirements - whether for a simple amusement display system or a large-scale planetarium installation.

Navitar offers high-end custom projection solutions for use in planetarium domes of various projection formats and dome sizes. These systems typically have two or more projectors and include provisions for masking, blending, filters and polarization.

Our customers are using Navitar solutions in advanced flight simulators, planetariums, and multiple types of digital signage applications worldwide. We continue to develop cutting edge optical designs to match the rapid improvement in projector resolutions and brightness.

Contact Navitar at 800-828-6778 for additional information and pricing on our new HemiStar series of lenses or for a consultation on a custom lens.

#### Navitar, Inc.

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