

SCHOTT® Wide Field of View Head Mounted Display

Near-eye imaging using bonded fiber optics and lens design by SCHOTT



Performance Characteristics

The SCHOTT® Wide Field of View Head Mounted Display enables a low distortion, wide field of view image from a low power OLED microdisplay. More robust than lens assemblies for other demanding applications, these fused fiber optic components can be optically coupled to the OLED microdisplay, allowing for more simplified and customized imaging solutions.

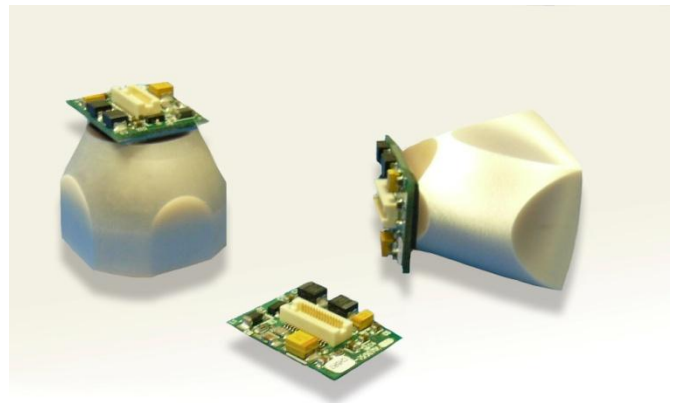
Fiber optic components can be finished with a convex radius for wide viewing angles or a concave radius for integration with existing lens assemblies or simple optic designs. Through the fiber optic components, high resolution images from the microdisplay are transferred to the output surface.

The glass materials provide inert and durable surface properties, for compatibility with optical coatings and bonding materials. With in-house design capabilities, SCHOTT has the ability to perform precision coupling of fused fiber optic imaging components with micro displays, designing custom lens assemblies and mechanical housing for packaging the final assembly. Customized sizes, formats and magnification ratios are available to meet application specific requirements.

The bonded fiber optic taper - OLED subassembly in SCHOTT's Helmet Mounted Display allows for improved imaging performance at wider fields of view. SCHOTT's unique design incorporates a fiber optic taper with a spherical radius on the output surface to minimize the number of lenses in the eyepiece while maintaining a high fidelity image quality. SCHOTT's assembly process also employs an active alignment process step to precisely align the spherical radius of the fiber optic to the center of the OLED to reduce centering errors in the overall system.



Specifications	
Display Technology:	Full Color AMOLED
Resolution:	SVGA (800 x 600) SXGA (1280 x 1024)
Diagonal Field of View (FOV):	60°
Fiber Optic:	Taper with concave radius on output surface
Number of Lens Elements:	4
Eye Relief:	26.5 mm
Exit Pupil:	4 mm



Marines train with the Future Immersive Training Environment (FIME) Joint Capabilities Technology Demonstration (JCTD) Virtual Reality system which operates within Helmet Mounted Display (HMD) technology. Photograph courtesy of the US Navy

Micro-OLED courtesy of eMagin Corp. with bonded SCHOTT Fiber Optics.

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