



VR ENGINEERS - XTAL 3 VIRTUAL REALITY

MAIN CHARACTERISTICS

The **XTAL 3 Virtual Reality** headset has been developed and designed for pilot training, with the input of civil and military pilots, to fulfill their professional expectations. The headset ergonomics complies with Naval Air Station Patuxent River pilots' feedback and provides the expected support for full mission training. Full RGB 4K resolution per eye and patented custom-made non-fresnel VR lenses create realistic simulations with undistorted image across the entire wide field of view. Vrgineers development team designed advanced optical correction algorithms, which can correct optical flaws such as chromatic aberration or barrel distortion.

INTEGRATED EYE TRACKING

Eye-tracking technology tracks and gathers the pilot's gaze in real-time. The instructors can use the data for debriefing and behavioral analyses visualized via heatmaps after the session. The instructors and pilots benefit from identifying problems with scanning patterns, increasing their awareness and efficiency in standard procedures.



	<p>XTAL 3</p> <ul style="list-style-type: none"> + Wide field of view + High resolution + Professional training
	<p>Consumer VR Headset</p> <ul style="list-style-type: none"> - Limited field of view - Low resolution - Gaming industry

TECHNICAL SPECIFICATIONS

RESOLUTION	3840 x 2160 per eye	SIMULATION SUPPORT	Commercial: Prepar3D, DCS World, X-Plane 11/12, Microsoft Flight Simulator, Aerofly FS, FlyInside Professional: Prepar3D, MCS, X-Plane 11/12, Bohemia Interactive Simulations (VBS3, VBS4, Blue IG), MAK, Simigon, multiSim, Metrea
DISPLAYS	Two fast-switching 4K LCD displays for virtual reality		
REFRESH RATE	75 Hz @ 4K per eye, 120 Hz @ QHD per eye		
FIELD OF VIEW	180° horizontal, 120° vertical (maximum experimental values) 140° horizontal, 90° vertical (default values)		
ADVANCED FEATURES	Foveated Rendering, Timewarp		
EYE TRACKING	Gaze analyses, heatmap visualization, running native 120 Hz (up to 210 Hz)	WEIGHT (without headstrap)	600g
POSITIONAL TRACKING	Lighthouse (SteamVR)/ART/Optitrack/Polhemus/Vicon or custom	DIMENSIONS (headset only)	293 x 123 x 113 mm
HAND TRACKING	Embedded Ultraleap Sensor		
IPD	Auto IPD – range 56-74 mm		
HEADSET CONNECTIVITY	VirtualLink (5 m / 16.40 ft) cable or DisplayPort 1.4 , USB 3.2 gen 2, Power 12V, 3A (5m / 16.40 ft)		
OS	Microsoft Windows		
SOFTWARE SUPPORT	Steam VR and OpenXR drivers Unity, Unreal and other game engines plugins C++ libraries (DirectX, OpenGL, Vulkan)		