

Varjo XR-1 Developer Edition: Photorealistic Mixed Reality

Varjo XR-1 is a developer device made for engineers, researchers, and simulation professionals who are pioneering a new reality. Varjo XR-1 makes it possible to build truly photorealistic mixed reality experiences where virtual objects seamlessly merge with reality for the first time in full field of view. XR-1 users can also switch between mixed reality and full VR, as well as use the integrated eye tracking for unique user research and data analytics.

Available for purchase now

XR-1 Developer Edition is now available for purchase globally for €9995. It is sold together with Varjo's Software and Support service at €1995. For business use only.

**“XR-1 is the only device that can be
used to drive in mixed reality.”**

CASPER WICKMAN – TECHNICAL LEADER,
VOLVO CARS



Develop a new reality with XR-1 Developer Edition.

Blend the real and the virtual with XR-1, the only device that lets you build photorealistic mixed reality experiences. XR-1's photorealism is powered by ultra-high definition video pass-through, which is achieved with superior cameras, sensors, optics, ISPs and our patented Bionic Display™.

This gives you pixel-perfect control over everything you see and makes XR-1 the only device to deliver photorealistic mixed reality. XR-1's ultra-low latency image pipeline (< 20 ms) lets you explore true-to-life digital worlds as natural extensions of the real world.

Technical specifications

Camera & optics	2 x 12 megapixel at 90 Hz. Fixed focus, 1/3" sensor size with 1.55µm pixel size. 94° circular viewing angle.
Imaging pipeline	4 streams (2 per eye): 1008 x 1008 downsampled from the full 12 Mpx + foveated 834 x 520 full resolution crop.
VR display system	Bionic Display™ with resolution at over 20/20 vision (over 60 PPD / 3000 PPI), flicker-free screen refresh at 60/90 Hz. Combining two 1920 x 1080 low persistence micro-OLEDs and two 1440 x 1600 low persistence AMOLEDs.
Field of view	87 degrees
Latency	<20 ms
Eye tracking	Industrial-grade, sub-degree accuracy integrated 100 Hz stereo eye tracking delivering unmatched accuracy and precision across real and virtual environments, even when wearing glasses or contact lenses.
Depth	An active IR sensor system consisting of 2 wide-angle cameras and LEDs. The depth system is synchronized with video pass-through to provide low latency and a robust depth map.
Connectivity	10 m active optical Thunderbolt cable
Colors	Infinite contrast ratio (over 10,000:1) enabling the deepest blacks and individually calibrated colors, delivering outstanding accuracy and image quality.
Tracking	Compatible with Steam VR™ and ART™
XR-1 weight	1050 g without counterweight (including head band); 1300 g with counterweight
Comfort & wearability	XR-1 can also be worn by people who wear glasses. It features an active airflow system, adjustable and detachable headband and head strap, comfortable usage with two different sized, easily replaceable face cushions and automatic interpupillary distance (IPD) adjustment for easy and accurate calibration.

System requirements

We are maintaining a list of computers known to work with the XR-1 Developer Edition. It is strongly recommended that you use one of the recommended models on the list. You can find the list at varjo.com/start.

	Recommended
Motherboard	See list of compatible motherboards and laptops at varjo.com/start
Processor	Intel Core i7-7820X
GPU	NVIDIA GeForce® RTX 2080 Ti NVIDIA Quadro RTX 6000
RAM	32 GB
Storage space	2 GB
Video output	2 x DisplayPort 1.2 or 2 x Mini DisplayPort
USB port	1 x USB-A 3.0 port or newer, not using any Hub
Thunderbolt port	1 x Thunderbolt 3 port
Operating system	Windows 10 (64-bit)

Hear what our customers are saying at varjo.com/testimonials