

Varjo XR-1 Developer Edition: Photorealistic Mixed Reality

Varjo XR-1 is a developer device made for engineers, researchers and designers on the cutting edge of mixed 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.

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

CASPER WICKMAN – TECHNICAL LEADER,
VOLVO CARS

Already trusted by:

V O L V O



XR-1 Developer Edition – Available in the second half of 2019

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 (< 15 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 1.55µ pixel size. 82° x 82° viewing angle.
IMAGING PIPELINE	4 streams (2 per eye): 1008 x 1008 downscaled 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 1920 x 1080 low persistence micro-OLED and 1440 x 1600 low persistence AMOLED.
LATENCY	< 15 ms photon-to-photon
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, LEDs and structured light. 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 10000:1) enabling the deepest blacks and individually calibrated colors, delivering outstanding accuracy and image quality.
TRACKING	Compatible with Steam VR™ and ART™
XR-1 WEIGHT	1065 g without counterweight (including head band); 1315 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.

Technical requirements

COMPONENT	RECOMMENDED
Processor	Intel Core i7-8700 AMD Ryzen 7 2700
GPU	NVIDIA GeForce® RTX 2080 NVIDIA Quadro RTX 6000
RAM	32 GB
Storage space	2 GB
Video output	2 x DisplayPort 1.2
USB port	1 x USB-A 3.0
Operating system	Windows 10 (64-bit)
Connector port	Thunderbolt 3

Please note that some of the above details may still be changed before the sales start. For the latest specifications and requirements, see varjo.com/xr-1.