

# VOXON

— P H O T O N I C S —

LVL 3 · FLINDERS UNIVERSITY  
5 LAFFER DRIVE  
MARK OLIPHANT BUILDING  
BEDFORD PARK  
SOUTH AUSTRALIA 5042

**VOXON.CO**  
CONTACT@VOXON.CO

VX1 TECHNICAL DESCRIPTION



## THE VOXON VX1 TECHNICAL DESCRIPTION

The VX1 is technically described as a “swept surface volumetric display” and is powered by the Voxon Photonics Engine. This engine comprises an ultra-high-speed digital projection system, CPU, volumetric graphics engine and reciprocating light diffuser. Volumetric images are created by projecting slices of light at 4,000 frames per second onto a moving screen, so that they diffuse at precisely the right position in physical space. Through persistence of vision, the human eye blends the slices together, and the result is a true three-dimensional digital object that can be viewed in the same way as one would view a real object, from any angle, and without special goggles or glasses.

Users are able to manipulate, and focus on specific areas of any 3D model in intricate detail – with vector files, zooming in right down to the vertex level of the underlying data. The display also supports multi-user interactivity for gaming and other interactive applications.



## SOFTWARE AND CONTENT CREATION

All software on the VX1 is driven by our proprietary Core Graphics Engine (CGE), which is provided to developers free (on a single user license basis). In addition to the CGE, units will be shipped with;

VOXIEDEMO a suite of volumetric graphic demos with source code

SAMPLE 3D MODELS AND ANIMATIONS

SAMPLE APPLICATIONS AND GAMES

These programs provide the functionality to view user generated 3D models, maps, animations and games out of the box. Source code for 'Voxiedemo', together with several applications and games, has been provided to help developers gain an understanding of the numerous volumetric function calls available in the API. The CGE is compatible with many existing 3D file formats and workflows, enabling users to test and interact with their own content.

# HARDWARE SPECIFICATIONS

DISPLAY VOLUME SIZE	18cm x 18cm x 8cm
DISPLAY RESOLUTION	Approximately 1,000 x 1,000 x 200 (200 million voxels)
DISPLAY REFRESH RATE	30 volumes per second
FILL RATE	500 MVox/s
PORTS	USB 3.0 x 7
3D CONTROLLER	3Dconnexion SpaceNavigator included
MULTI-USER CAPABILITY	Supplied demo software supports up to 4 XBOX Controllers
PERIPHERAL SUPPORT	Native support for XBOX Controllers, 3Dconnexion SpaceNavigator, keyboard and mouse. Compatible with any windows supported peripheral such as Leap motion, Intel RealSense, Microsoft Connect and Emotive.
PRODUCT DIMENSIONS	39cm x 39cm x 42cm
OPERATING VOLTAGE	110- 240V 50/60Hz. External 12V DC power supply supplied
BRIGHTNESS	Light projection at 650 lumens
SHIPPING DIMENSIONS	50cm x 50cm x 78cm (when boxed)
WARRANTY	12 Months limited warranty from date of delivery
SHIPPING WEIGHT	14kg unboxed, 19kg when boxed for shipping

# SOFTWARE SPECIFICATIONS

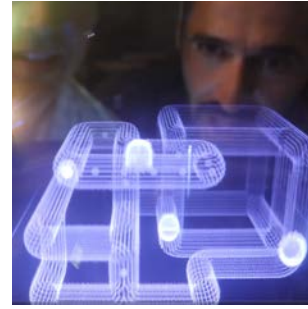
3D MEDIA TYPES	Static 3D models, animations, dynamic content & interactivity (games)
3D WORKFLOW SUPPORT	3DS Max, Maya, Blender, Solidworks, Fusion 360, Inventor, RealFlow, Sketchup, 123D Catch, Meshlab, Unity (via plugin) and many others
FILE TYPE SUPPORT	Native support for STL, OBJ, DICOM and KV6, (3DS supported via POLY2VOX Conversion), PNG/RAW height maps
VOLUMETRIC FUNCTIONS	Volumetric function calls using 64-bit DLL (voxel, sphere, cone, sprite, line, polygon, mesh, plane, cube, elevation map, text etc.
RENDERING	High resolution monochrome R, G, B, C, M, Y, W colour support through spatial and temporal dithering.



# SOFTWARE DEVELOPMENT KIT AND VX1 SIMULATOR

For advanced technical users, we have created a VX1 Simulator within the SDK that allows users to test example volumetric content without requiring the hardware. Whether you run the example programs, or write your own, the results will be rendered to your screen and will be visually similar to the real hardware, but in 2D as opposed to being fully volumetric 3D. Any software that you write for the simulator will work on the real hardware without any modification.

You can download the SDK at <http://voxon.co/developer-kit>



# INTERACT WITH US AND OTHER INNOVATORS

We've opened up a fully featured 3D api for a community of developers around the world to be able to write their own applications, to bring to life their own imaginings. Students at Harvard, MIT, and the University of Twente in the Netherlands all have Voxon VX1 displays and are constantly exploring new ideas and using the greater and shared perspective that comes with holographic display to solve new problems.

The VX1 also comes with numerous games including Voxatron, a multiplayer sandbox game development environment with fully destructive physics.

You can join our community at [www.voxon.co/community](http://www.voxon.co/community)



LVL 3 - FLINDERS UNIVERSITY  
5 LAFFER DRIVE  
MARK OLIPHANT BUILDING  
BEDFORD PARK  
SOUTH AUSTRALIA 5042

**VOXON.CO**  
CONTACT@VOXON.CO