



SOLUTIONS FOR VR & SIMULATION

PERFECT VISUAL SOLUTIONS



PERFECT SOLUTIONS FOR SOPHISTICATED APPLICATIONS INNOVATIONS “MADE IN GERMANY”.



A new dimension of virtual reality and simulation – perfect visual display technology from eyevis. The realistic representation of computer-generated objects and environments is primarily used for the training of pilots, drivers, operators and task forces, but also for the evaluation of three-dimensional generated prototypes, 3D models, and architectures. VR and simulation systems provide an alternative for real training which saves money and avoids unnecessary risks, but the requirements on the technology in use are very high.

The perception of our environment is mainly based on our vision. This also explains the importance of the visual display system in facilities for training, research or virtual reality. The quality of image representation ultimately determines the success of the simulation. Only nearly realistic renderings of the environment enable training results or research results that can be transferred in the real world.

Various professional solutions and years of experience in the implementation of visualisation systems make eyevis an excellent partner for the implementation of high-quality visual display systems in simulation and virtual reality. With our DLP projectors with LED projection technology, the versatile omniSHAPES,

the proven rear-projection cubes and a wide range of professional LCD monitors, we offer a variety of different visualisation technologies for 2D display and different 3D approaches. If there is an additional requirement for the correction of geometry, blending, colour and brightness of the input image signals, eyevis openWARP² technology is the ideal solution.

Due to its outstanding image quality, robust workmanship „made in Germany“ and durability, our products are a top choice for simulators and VR environments. Here, our systems not only create excellent images for a realistic perception, but also provide high reliability, calculable operating costs and long maintenance intervals.

To meet the requirements of each individual project, we also offer a comprehensive range of accessories for signal transmission and distribution. Our experienced engineers are happy to work with you on the technical and mechanical details of your desired application. Thanks to our extensive know-how, our proprietary development and production facilities we can also offer specially customised solutions.

WE'RE AT HOME HERE.

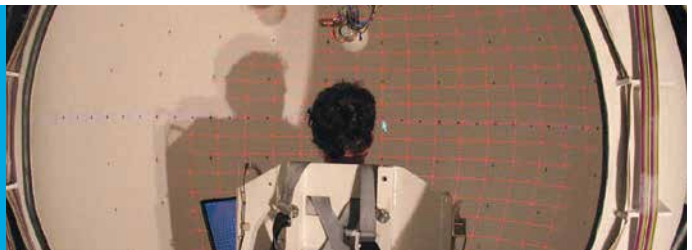
SIMULATION
(DRIVING -, SHIP-, TANK- AND
FLIGHT-SIMULATORS)



DESIGN
(AUTOMOTIVE, ARCHITECTURE, CAD)



SCIENCE AND RESEARCH



TRAINING AND EDUCATION



MILITARY



OPERATING WORLDWIDE MISSION CUSTOMERS WHO PUT THEIR TRUST IN EYEVIS TECHNOLOGY.



B-E-C MOTION SIMULATORS

In order to realise fully realistic experiences of virtual worlds, Buck Engineering & Consulting GmbH (B-E-C) designs special robot-based motion simulators. Unlike hexapod simulators the motion simulators of B-E-C consists of a simulator cockpit that is connected to a robotic arm. With its extensive motion envelope and the possibility to simulate flying upside-down the solution of B-E-C is suitable for different areas of application from perceptual research to helicopter simulation. This way, it was possible to realize a complete motion simulation for the development of excavators, in which the user gets an experience of all acting forces.

For the visualization the virtual environment is directly projected onto the inside of the simulator cockpit through two eyevis DLP projectors of type ESP-LWXT-1000. Since the entire simulator is subject to realistic motions and forces, eyevis' projectors convince through their robust design. Thanks to the durable LED lighting and the innovative Heat-Pipe-Cooling without mobile parts the projectors additionally provide long maintenance intervals and lower operating costs of the simulators.

Equipment used:

- 2x DLP® projectors with WUXGA resolution and LED illumination (Type ESP-LWXT)



DRIVING SIMULATOR AT THE GERMAN AEROSPACE CENTER (DLR) IN BRAUNSCHWEIG, GERMANY

The DLR-Institute for traffic management and vehicle control at the research airport Braunschweig operates an interactive driving simulator that with its performance and dimensions belongs to the largest and most powerful simulation systems of its kind worldwide. The unique version of the motion platform as inverted hexapod allows for completely new methods of movement simulation.

Since a modernisation of the visual display system, a 14 channel solution with eyevis SXGA+ LED projectors (ESP-LXT+) provides a perfect perception of the environment. In this way the system not only benefits from a considerably higher resolution, but also from many other advantages of LED projectors. Our partner domeprojection.com, who also carried out the installation, provided their camera based auto alignment solution that allows for a simple and fast installation and recalibration of the system. Since the visual system, due to the motion platform, is constantly exposed to high mechanical forces, the demand for stability of the projectors is high. The eyevis ESP series meets these requirements and represents the optimal solution for demanding applications.

Equipment used:

- 14x DLP® projectors with SXGA+ resolution and LED illumination (Type ESP-LSXT+)



SKYGUIDE TOWER SIMULATOR IN DÜBENDORF, SWITZERLAND

Antycip Simulation has collaborated with eyevis to upgrade and modernize the tower simulator of skyguide Training Centers (STC) in Dübendorf near Zurich. Fourteen new eyevis LED projectors now provide improved training simulation experience at the STC tower simulator with higher resolution, more detailed colour representation and better brightness.

Antycip Simulation worked with eyevis in the integration of the system as the previous projector solution had reached the end of its life-cycle. The latest improvements now have resulted in higher simulation quality and higher resolution which benefits skyguide and the tower flight controllers who train at the STC. The tower simulator is part of the STC's air navigation service centre in Dübendorf. With a highly modern simulation facility that includes twenty-four workplaces in radar simulators, three tower simulators and two smaller basic simulators on a floor area of 950 sqm, STC is skyguide's centre for basic and advanced training. Using the detailed simulations flight controllers, trainees are provided with the ability to practice and refresh their skills, knowledge and abilities in realistic surroundings. They may even be trained for certification or re-certification.

Equipment used:

- 14x DLP® projectors with WUXGA+ resolution and Cluster-LED illumination (Type ESP-LWXT-1000)



IDAPT REHABILITATION INSTITUTE TORONTO, CANADA

The Institute for Rehabilitation of the University Health Network is home to some of the world's most advanced research facilities and equipment for research and testing of therapeutic procedures and equipments. In various realistic simulators here technologies and methods can be developed which then help patients in rehabilitation or in dealing with permanent physical disabilities to cope with their environment. In various state-of-the-art simulators and virtual environments the students and patients get, for example a realistic impression of walking on ice or of everyday movements at home or while shopping.

To optimize the success of training and research an as real as possible representation of the environment in all its aspects is required. The eyevis projectors from the espSERIES meet any requirements according to image quality and sharpness. For the creation of a uniform openWARP² image processing units perform the appropriate image correction in the multi-projection systems.

Equipment used:

- 6x DLP® projectors with WUXGA+ resolution and LED illumination (Type ESP-LWXT)
- 6x openWARP² image correction processors for blending and geometry adjustment

GOODBYE FICTION PERFECT SOLUTIONS FOR UNBELIEVABLY REALISTIC SIMULATIONS.

HIGH-END VISUAL DISPLAY SYSTEMS FOR SUCCESSFUL TRAININGS AND SIMULATIONS

In a variety of areas, such as in aviation or in military training, where training and education with real objects is not only extremely expensive, but can also be dangerous to a certain extent, the creation of virtual training environments becomes increasingly relevant. Also in research, product planning or architecture they rely on computer-generated simulation scenarios, before the results are put into action.

Here, depending on the requirements and application diverse types of simulations are used, but they all have a core visual display system in common. The extended use of the systems as multifunctional workplaces is now just as important as the multimedia presentation of research results and modelling studies. eyevis provides you with the perfect technical devices in order to upgrade your present system or to build a completely new one, according to your wishes and needs.



OUR PRODUCTS IN USE

) **omniSHAPES**
EYEVIS MICROLINE

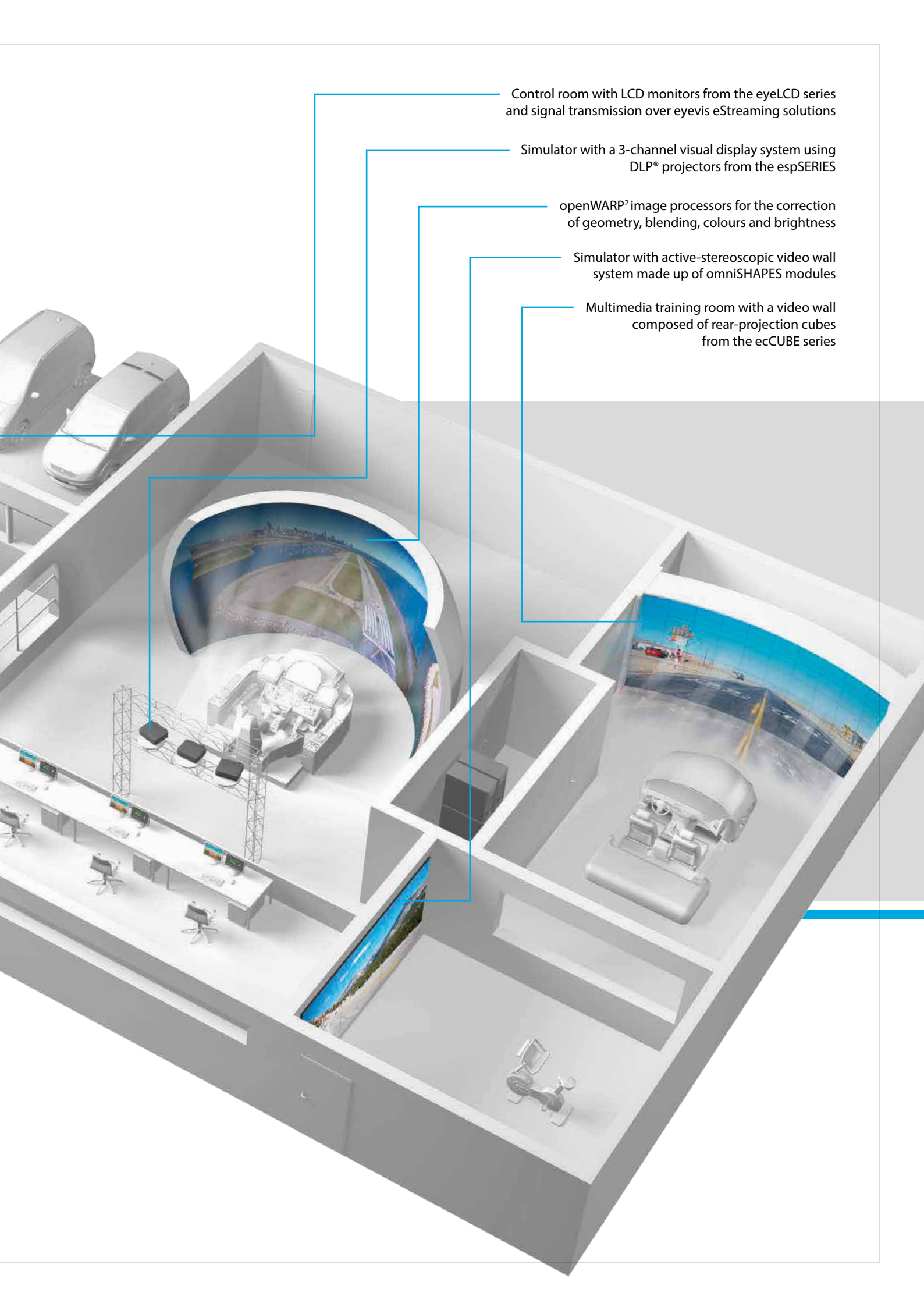
) **eyeLCD**
EYEVIS LCD LINE

) **ecCUBE®**
EYEVIS REAR PROJECTION LINE

) **openWARP²**
EYEVIS IMAGE PROCESSING LINE

) **espSERIES**
EYEVIS PROJECTOR LINE

) **eSTREAMER**
DVI OVER IP NETWORKS



Control room with LCD monitors from the eyeLCD series and signal transmission over eyevis eStreaming solutions

Simulator with a 3-channel visual display system using DLP® projectors from the espSERIES

openWARP² image processors for the correction of geometry, blending, colours and brightness

Simulator with active-stereoscopic video wall system made up of omniSHAPES modules

Multimedia training room with a video wall composed of rear-projection cubes from the ecCUBE series

PERFECT INTERPLAY VISUAL DISPLAY SYSTEMS FOR DEMANDING INSTALLATIONS.



PROFESSIONAL DLP® PROJECTORS FROM THE espSERIES

eyevis stand-alone projectors are well-known for their reliability, robustness and image quality. The projectors were especially developed for sophisticated use in simulation systems. The projectors are available with five different display resolutions: XGA (1024×768 px), SXGA+ (1400×1050 px), Full HD (1920×1080 px), WUXGA (1920×1200 px) and WQXGA (2560×1600 px). A comprehensive range of available optics further enlarges the fields of application of our projectors. According to the required throw distance, the geometry and the size of the projected image, there is a choice from different optics to achieve a perfect result.

The projectors use cluster-LED technology as light source which guarantees a high light output, excellent image quality and outstanding robustness for long-term stable colours and brightness behaviour. As an option there is the eyevis Auto-Colour-Tracking (ACT) system available, which continuously measures the values coming from the projectors in a multi-channel installation and automatically matches these to a common setting. All components of the projectors were chosen for their readiness to be used in professional long-term operation and have proven their reliability in thousands of applications world-wide. The rugged design of the projectors with its metal housing allows their usage in high-vibration environments and in motion-based simulations.

With several optional expansions, the projectors can be upgraded for applications in stereo-projections, night-vision simulations, and optimised use in multi-channel applications. The comfortable software tools allow simple and accurate calibration of systems using more than one projector.



THE REAR PROJECTION CUBES FROM THE ecCUBE SERIES

For the realisation of close-to seamless video walls in simulation environments eyevis DLP® cubes are a proven alternative to front-projection systems or rear-projections on screens. The DLP® cubes from the ecCUBE series offer an almost seamless design, a rugged construction and an especially stable and high image quality thanks to LED-projection technology. The devices are available in many sizes and resolution standards. Cubes can be assembled to video walls of any size. In addition to straight arrays, curved or angled installations are also possible. Depending on the application, various screen types can be used in order to guarantee best picture quality from every angle.

The latest version of our LED cubes uses innovative Cluster LEDs as light source for the projector. These do not only provide higher brightness levels but enhanced reliability and less power consumption.

For the display of active-stereo three-dimensional image contents, selected cube versions can be supplied with 120 Hz image processing. The wide viewing angle allows a perfect view on flicker-free images to anyone standing in front of the cubes. The cubes have been especially designed for VR simulators in training or research environments, but can also be used in representative areas like show rooms or for immersive CAD workstations. Thanks to its little space requirement, thermal load and noise emission, and not least thanks to its modular design the eyevis 3D cube offers totally new possibilities for the planning and realization of flexible high-quality VR systems.



omniSHAPES – FLEXIBLE ALL-ROUNDERS

Surprisingly small but superior in their flexible use! With the omniSHAPES display system eyevis has developed a visual display solution capable of realizing video wall installations of the most versatile shapes. omniSHAPES can even be assembled in curved arrangements, both convex and concave. Also digital display floors have already been realised with our multi-functional display units.

Digital images of the highest quality and reliability can be guaranteed through the use of DLP® technology with an LED light source for the projector. The flexible and user-friendly building block design of the omniSHAPES comprising a robust base frame unit, the projector, and the screen, allow for their simple installation and trouble-free maintenance. The latest generation of our omniSHAPES is optionally available with 120 Hz technology which enables the display of three-dimensional images in combination with active shutter glasses.



THE STREAMING SOLUTIONS

eyevis streaming solutions are the professional tools for the distribution of video signals over standard network (TCP/IP). With the high-end eSTREAMER solution, which provides broadcast quality transmission, the video signal is transformed by a device in encoder mode into a network stream. At any place within the network the stream can be decoded again by a second eSTREAMER in decoder mode which then provide it as a DVI signal again.

Compared to a mere DVI transmission this solution offers several significant advantages. Besides the less extensive cabling it is also possible to transmit audio signals over the network. For networks with a more limited bandwidth, the alternative eyeGATE solution enables the transmission of DVI/HDMI signals using an H.264 compression.



THE LCD MONITORS FROM THE eyeLCD SERIES

These displays were especially developed for sophisticated professional use. All devices provide pin-sharp images and outstanding reliability. Thanks to comprehensive adjustment possibilities for brightness and colour temperature, the devices can be used even in difficult light conditions. In addition to our wide range of stand-alone monitors with screen diagonals up to 90", the eyeLCD series further comprises different super-narrow-bezel displays for the assembly of seamless video walls for applications in simulation or presentation. For certain applications that require especially high resolutions, eyevis offers Quad-Full-HD (3840 x 2160 px) LCD monitors with more than 8 million pixels which fulfil every requirement for pin-sharp images of the highest quality.

For the interactive display of information a high-quality touch solution with up to 32 simultaneous touch events is available for all LCD models or even for video walls with screen diagonals up to 200".



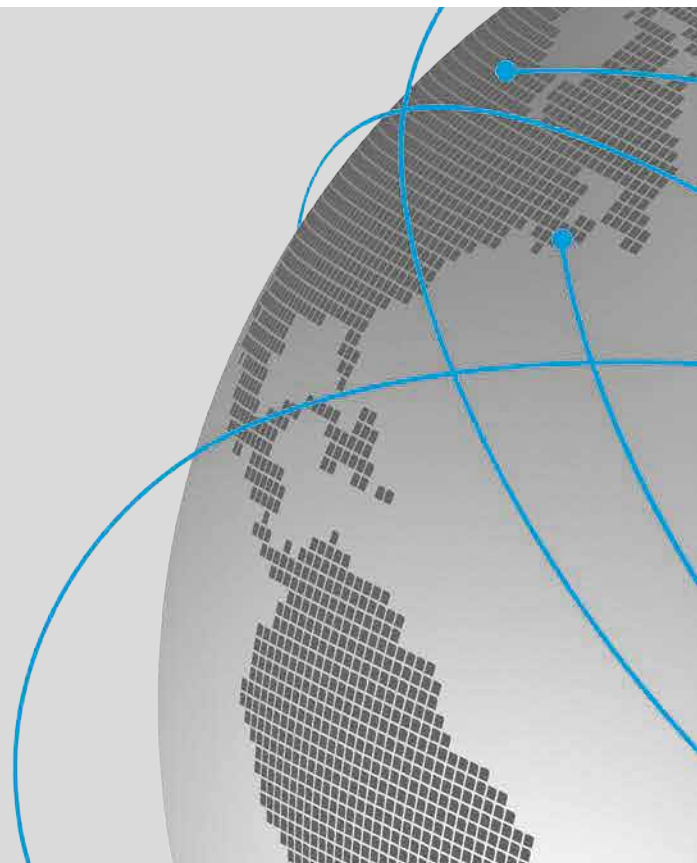
openWARP² IMAGE PROCESSORS

The second generation of our openWARP technology for warping, blending and colour-correcting enables to project any visual content on random surfaces. The projection will be perfect and absolutely sharp as if the surface was flat. The system corrects the projection for a perfect picture in high resolution and in real time.

The extremely quick image processing of openWARP² is predestined for the use in delicate, high quality and time-critical simulation systems. It is absolutely unproblematic to include it in any existing installation of that kind. Comprehensive methods of colour- and brightness-correction, colour-shading, alpha masks and pixel blending complement this system and make it the perfect tool to realize multi-channel-projections.

openWARP² provides a real-time mode which enables image distortions in real-time with a delay of less than one frame, which makes the realisation of highly dynamic applications in interactive simulations with tracking systems possible.

WORKING WORLDWIDE CUSTOMERS WHO TRUST IN EYEVIS TECHNOLOGY.



A SMALL SELECTION OF FURTHERS CUSTOMERS WITH KNOW-HOW FROM EYEVIS

- **Bosch Sensortec GmbH, Testing Laboratories – Reutlingen, Germany**
3x openWARP² image correction processors for blending and geometry adjustment
- **German Aerospace Centre (DLR), 360° Air Traffic Control Simulator – Braunschweig, Germany**
18x DLP[®] projectors with WUXGA resolution and LED illumination (Type ESP-LWXT)
- **German Aerospace Centre (DLR), Helicopter-Simulator – Braunschweig, Germany**
14x DLP[®] projectors with WUXGA resolution and LED illumination (Type ESP-LWXT)
- **Ford, CAVE Project – Cologne, Germany**
6x omniSHAPES with active-stereo option
- **Fraunhofer Institute for Factory Operation and Automation IFF, Virtual Development & Training Centre – Magdeburg, Germany**
8x openWARP² image correction processors for blending and geometry adjustment
- **Institute for Combustion Engines and Automotive Engineering (IVK) at the University of Stuttgart and at the Research Institute for Automotive Engineering and Aircraft Motors Stuttgart (FKFS), Driving Simulator with 8-Axis Motion Platform – Stuttgart, Germany**
12x DLP[®] projectors with WUXGA resolution and LED illumination (Type ESP-LWXT)
12x openWARP² image correction processors for blending and geometry adjustment



- **Max-Planck-Institute for Biological Cybernetics, Panolab – Tübingen, Germany**
6× DLP® projectors with WUXGA resolution and LED illumination (Type ESP-LWXT)
6× openWARP² image correction processors for blending and geometry adjustment
- **University Essen Faculty of Medicine, Emergency Situation Simulator – Essen, Germany**
6× DLP® projectors with SXGA+ resolution and LED illumination (Type ESP-LSXT+)
- **Multimac Technical Centre, Driving Simulator – Toronto, Canada**
3× openWARP² image correction processors for blending and geometry adjustment
- **Planetarium Osnabrück, Presentation of Additional Video and Data on the Dome – Osnabrück, Germany**
5× DLP® projectors with WUXGA resolution and LED illumination (Type ESP-LWXT)
- **SiFaT Road Safety, Truck-Driving-Simulator – Berlin, Germany**
4× DLP® projectors with SXGA+ resolution and UHP illumination (Type ESP-SXT+)
4× openWARP² image correction processors for blending and geometry adjustment
- **TAFE Broome Maritime Simulation Centre, Ship-Simulator – Kimberley, Australia**
7× DLP® rear-projection cubes with XGA resolution and 67" screen diagonal, built up in angled configuration



EYEVIS MAIN OFFICE

- Germany – Reutlingen

PRODUCTION LOCATION

- Germany – Reutlingen

EYEVIS OFFICES INTERNATIONAL

- Germany – Reutlingen
- France – Paris/Saint-Affrique
- Great Britain – Burnley
- Italy – Rome
- Austria – Vienna
- Poland – Kattowitz
- Russia – Moscow
- Scandinavia – Gothenburg (Sweden)
- Spain – Madrid
- South Korea – Seoul
- South-East Asia – Petaling Jaya (Malaysia)
- United Arab Emirates – Abu Dhabi

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Updated information on our projects and products with many photos as well as the possibility of communicating with other interested customers can also be found at:

- twitter.com/eyevis
- www.facebook.com/eyevis
- www.linkedin.com/companies/eyevis



Scan the QR code and visit our website to find more detailed information on all of our products and services, download brochures and data sheets, or watch the product videos.

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