Next-Generation Powerwall with High-Resolution 3D

Transportable, plug-and-play 3D VR flat screen, 5.30 x 2.25 m display size, 6.8 megapixels display resolution at only 1.5 mm pixel size and only 62cm thick.
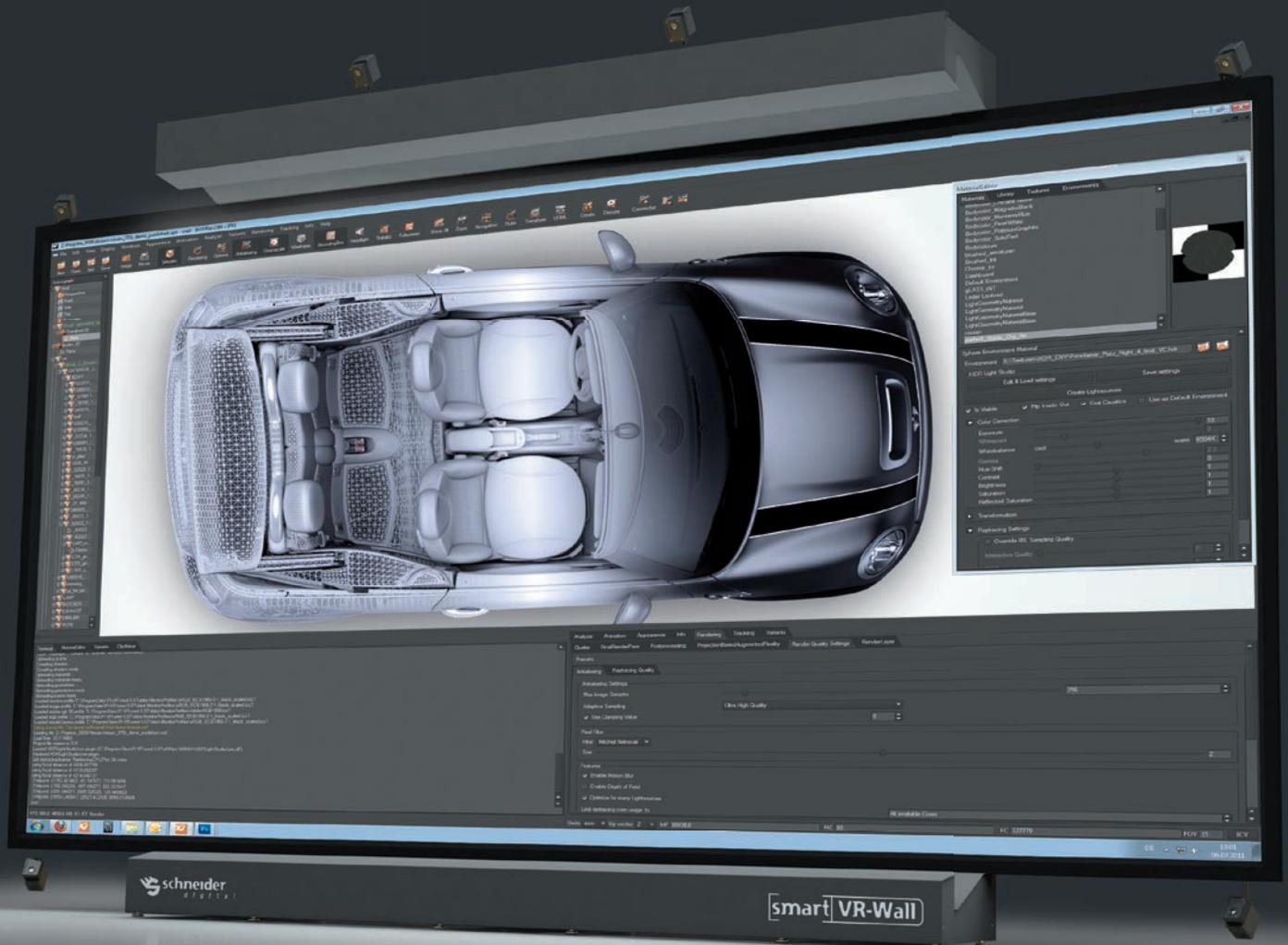
Hold impressive VR demonstrations – any time and anywhere.

For the first time, our engineers have succeeded in developing a high-end powerwall with a viewable image size of 5.30 x 2.25 m, yet with a panel thickness of only around 62 cm. This means you can have large-screen, high-resolution 3D demonstrations in virtually any room you want to.

The image quality remains impressively clear, even from close range.

Whether with front or rear projection, the first-class stereoscopic image quality makes each 3D demonstration an experience worth looking at. At present, we are already realizing up to 6.8 megapixels.
Stereoscopic image data is displayed with the same full resolution throughout. The stereo effect is achieved by page flipping and shutter viewers.

Pixel size only 1.5 mm.

Even more impressive is the small pixel size of only 1.5 mm. This helps you to perceive the image as highly focused, even if you are standing directly in front of the wall, making even long stretches of work far less tiring for the eyes.
All in all, with our new LightEngines, we offer a picture quality that has hitherto been unattained, except by top-level systems costing more than €150,000 – but at around one third of the price.

Up to 12 input sources can be connected simultaneously

The unit of the smart VR-Wall offers up to 12 video input ports for VGA, HDMI, Display Port and DVI dual-link signals. This means that all users can view their familiar software applications on the screen of the smart VR-Wall as usual – just visually more impressively.

Unlike conventional powerwalls and VR caves, the smart VR Wall does not require any building alterations to be done when it is set up. Simply put it where you need it – any office room with the standard ceiling height of 2.5m or more will do.
The smart VR Wall has a modular construction, to make it easy to transport and quick to assemble. This makes it ideal for mobile stereoscopic presentations, whether at trade fairs or other events, or even to take directly to your customers for on-the-spot demonstrations on their premises.

The Schneider Digital

smart VR-Wall

is as easy to use as any other high-resolution monitor. Unlike conventional powerwalls, no complicated cluster solutions or software modifications for warping, blending or color correction are necessary.

Important facts at a glance

Highly compact design – with only 62 cm panel thickness, it can be integrated into virtually any office without requiring any building alterations
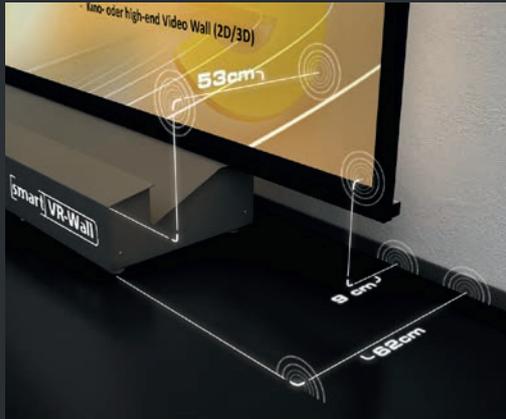
Impressive image quality: Resolution of 1,920 x 1,080 – 4,000 x 1,696 pixels, a luminous intensity and homogeneous light distribution

No shading by the actor, despite brilliant front projection.

Easy to use, thanks to plug-and-play capability – simply plugged in like a standard external monitor (notebook adequate)

Full net 6.8 MP resolution in stereo 3D at 120 Hz

Uncomplicated and versatile use, for anything from simple PowerPoint to complex VR applications No data conversions and no cluster software required.

Performance scaling using optional grabber cards possible more [up to 16-player etc. (32 graphics cards in SLI / Crossfire mode)]

Up to 16 signal sources (teams) can be displayed simultaneously and mixable

Co-review as an option for up to two video cameras

Media controller – the optional wireless touch tablet gives you full control over all the inputs and functions (split-screen, picture-in-picture...)

Full display of stereoscopic content with no compromises. Supports all common stereo formats, full resolution maintained

Live VR interaction with optional tracking system Low input lag (sub 1 frame) means suitability even for flight simulation inputs

Smallest possible pixel size of only 1.5 mm allows interactive use right up to the smart VR-Wall.

Available in three formats: 16:9, 16:10 and CinemaScope 23.5:10 Custom sizes available on request (extra charge)

Revolutionary new camera calibration method based color space for the best possible overall picture with twice the brightness

Sensational value for money: from € 45,000 plus tax (monoscopic) operating costs just € 1.06/hour, including bulb wearand electricity for 16:9 / 16:10 VR Wall, or € 1.60/hour for CinemaScope, no expensive cluster software required low maintenance and repair costs

Future-proof LightEngines can be upgraded to higher resolution/luminous power at any time

Fully flexible and mobile compared with conventional installations. Assembly and conversion times of only approx. 3 hours.

Application scenarios

Digital prototyping finally available for small-to-medium businesses

One key application of the smart VR-Wall is digital prototyping. The digital model is continuously fine-tuned with the product concept and, in addition to the design, contains all the relevant mechanical, electrical or mechatronic data. Compared with physical prototypes, digital models reduce costs and shorten development schedules. The result is a faster time-to-market for the product.

For small-to-medium businesses, the low investment and follow-up costs of the smart VR-Wall finally offer a chance to take that decisive step forward into the digital future. Among other reasons, the costs can be kept low because the smart VR-Wall does without an additional, special software for displaying immersive 3D CAD product models.
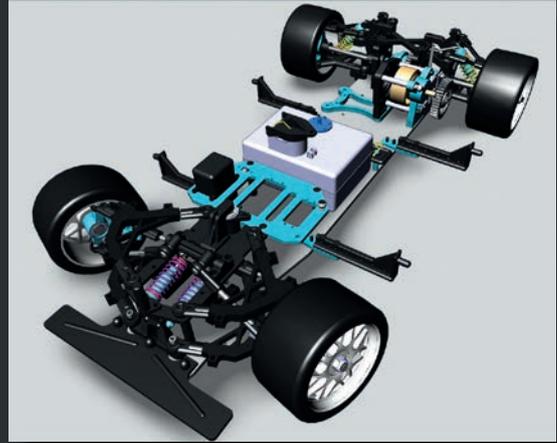
Photo: V S G - Visualization Sciences Group

Local, cost-saving VR applications in each department

Large firms that have hitherto needed to operate an expensive VR center to cover their requirements profit from the compact construction of the smart VR-Wall. With the easier opportunities for integration in every department, designers and engineers can visualize their VR data at any time. It is even possible for two teams to use a smart VR-Wall at the same time, as the screen can be split variably. In this way, digital development processes can be synchronized faster and easier.

Geo-Photogrammetry – Keep a clear view over even the largest amounts of image data

The smart VR-Wall is also suitable for all areas of application in which large quantities of image data simultaneously need to be visualized in large format and intricate detail. For example, for displaying geodata. High-quality visualization gives a better overview over complex information. "Abstract" data is suddenly given a profile, and problems and solutions alike suddenly become intuitively accessible. In geoinformatics, for example, stereoscopic visualizations of complex urban maps are used to model the buildings, roads and infrastructure of the location. Our smart VR-Wall provides a platform for 3D visualizations of full-blown "digital cities", in which statistical data can be linked to graphical models.
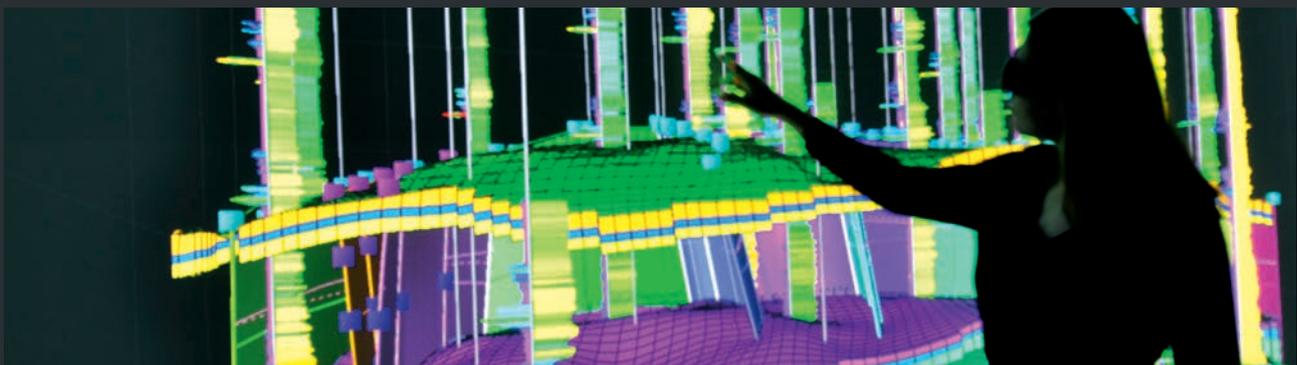
Medicine, Pharmacology

In medical technology, the smart VR-Wall applications focus on 3D analysis and simulation for molecular research, tomography (including mammography) visualizations and digital preparation for surgery. The availability of three-dimensional image models "on-site" significantly enhances the visual perception of the problem in hand, and is a great help to doctors and researchers alike. University research establishments and other academic faculties also profit from the budget-friendly prices and the minimized space requirements. Often enough, VR processing would otherwise not be possible.
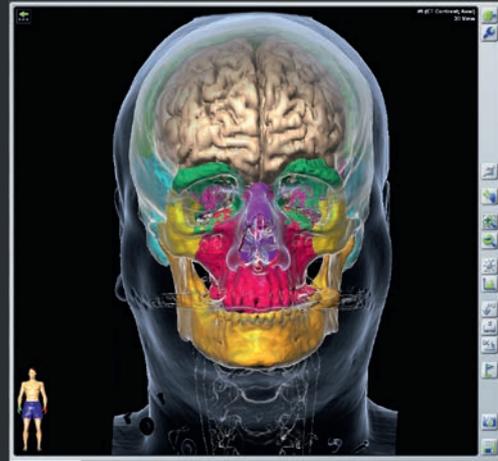
Photo: Brainlab

smart VR-Wall

The innovation in the powerwall class
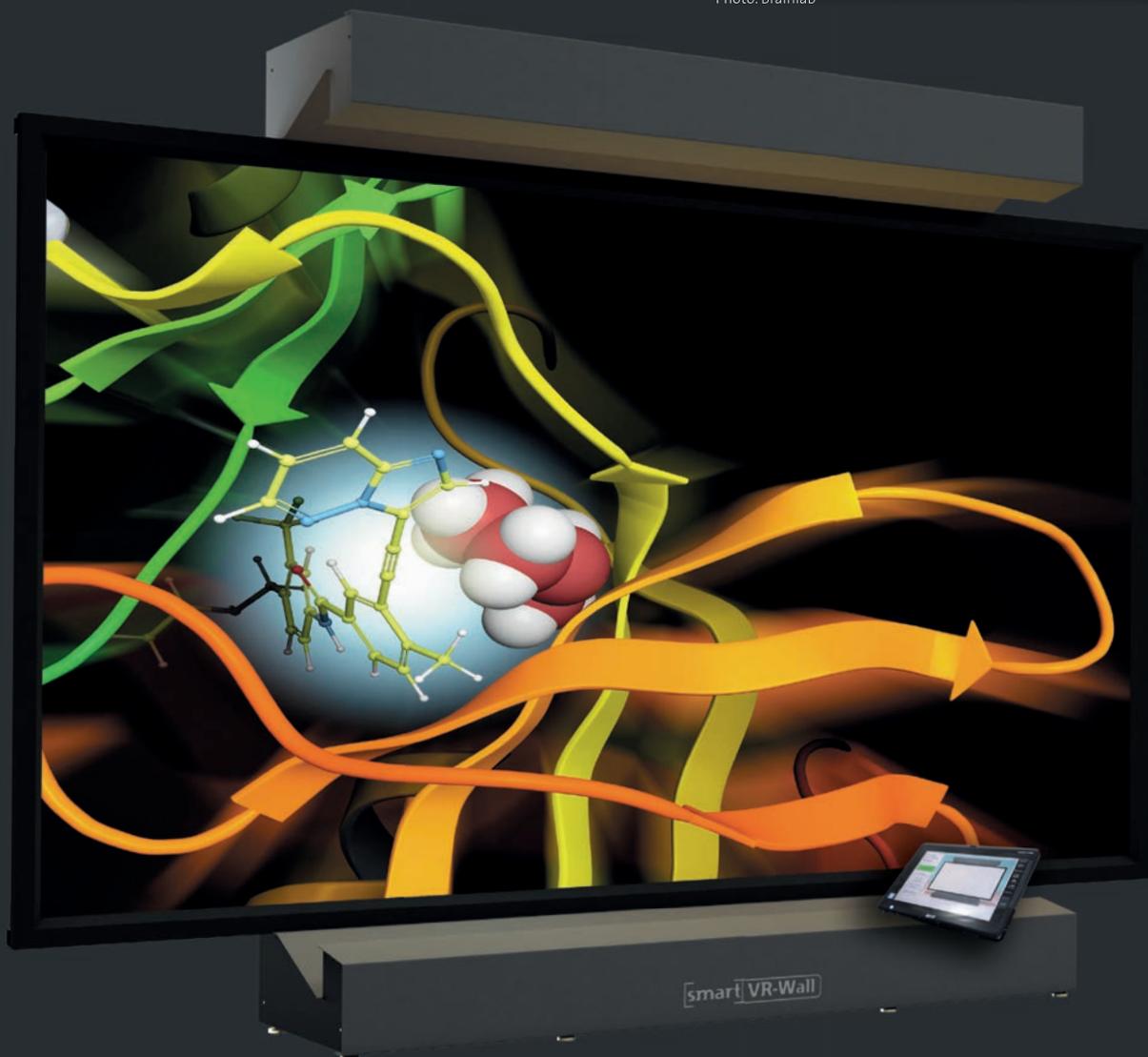
Digital image models of products, production lines and shop floors can be used as the bas
In many areas, three-dimensional image modeling or visualization has become the point o

gy when it comes to more efficiency at all process levels.

is for business decisions in industry.
on which professional communication hinges.

Content image PI-VR

smart VR-Wall

Sales and marketing

These days, 3D product models are now the current state-of-the art even in medium-size businesses. In sales and marketing, as in advertizing, there is still some catching-up to be done in this respect. Schneider Digital offers you possibilities for an efficient preparation of demonstrations, presentations and animations. The perfect medium for this, the smart VR-Wall, is scalable, right up to 3D cinema size with full-format projection.

Planning

Today, not only the product, but even the manufacturing process and assembly tasks can be modeled as digital 3D images. In the near future, virtual operational start-up will also be possible. Yet much too few businesses know which methods and tools are best suited for which purpose. Schneider Digital helps you with these decisions.

VR *(Virtual Reality) and*
AR *(Augmented Reality)*
With little cost and effort these days, whether with or without 3D viewers, 3D models can be visualized so realistically that the viewer is literally immersed in a virtual world. Installation space testing, ergonomics, design and function analysis can all be represented in a form that directly helps the technical developers in their decisions, and these are only a very few examples.

Brilliant VR visualization in the forefront

3DInsight pixel processor – six images become one.

The visualization technology of the smart VR-Wall is based on a development by our technology partner, 3D-Insight GmbH. Schneider Digital and 3D Insight are closely connected with a long-standing and comprehensive history of cooperation.

Technically, the image shown by the smart VR Wall is composed of slightly overlapping, individual segments, projected onto the screen by four or six LightEngines. But, thanks to the 3D Insight pixel processing technology integrated in the smart VR-Wall, all this remains hidden from the viewer.

Pixel-precision calibration in just five minutes

After each reassembly, and from time to time in the course of normal operation, the LightEngines will need to be recalibrated. While this process previously had to be done laboriously and manually by a VR specialist, the smart VR-Wall can be recalibrated in under five minutes by any user. The necessary calibration data is obtained at pixel level with the aid of an automated photographic process. The result of the recalibration is a homogeneous, distortion-free, and intricately detailed picture.

Thanks to its plug-and-play capability, it is as easy to use as if it were just another (large) monitor.

Furthermore, the pixel processing technology makes the smart VR-Wall as easy to use as a high-resolution monitor. Simply plug into your PC, power up, and get working. With the smart VR-Wall, users work with their existing application software as usual, without needing to make any concessions.

No data conversion necessary

The smart VR-Wall supports all common stereo formats, such as Quad Buffer and Side-by-Side. In addition, the product does not require the usual conversion of external data, for example CAD models, for powerwall presentations. Cluster solutions are, of course, supported if a performance enhancement is desired, but, strictly speaking, not necessary.

It is precisely this simplicity of use that makes our smart VR-Wall so accessible and will increase the readiness of your employees to work with it more frequently.

A media controller is included, and an optional wireless touch pad is available as a remote control.

The media controller functions of the 3D insight pixel processor are further enhanced by the interaction with the touch pad. Typical features of the smart VR-Wall, such as split-screen or picture-in-picture, allow input signals to be processed as users wish, making it suitable for use in many different scenarios, e.g. in conference rooms.

Content image: Lumiscaphe

Split-screen as an efficiency feature: Two teams can use the same smart VR Wall simultaneously.

The screen can be split variably to allow two separate project teams to work on different stereoscopic data at the same time. The 3D data input comes from two different PCs, in this case.

Fascinating technology in the background

Picture-in-picture function for the best possible overview

Many people today have a PIP function on their home TV set. This works similarly, and is a great help when working with 3D data: during demonstrations and presentations, and while working with stereoscopic data, you can display an extraneous 2D signal, supplied by another PC, anywhere you like on the screen (for example, an Excel spreadsheet). The 2D data can be clearly read by all viewers, whether with or without a shutter viewer.

You can even use the picture-in-picture function in split-screen mode, once for either team.

Content image Pi-VR

As if it were real - perfect simulations in the smart VR Cave

The low input lag (sub 1 frame) makes the smart VR Wall suitable for flight simulations, without restrictions. If desired, you can combine three walls in a U-shape to form a VR Cave – all on a base area of only 4.7 x 4.2 m.

Maintenance-friendly and future-proof

We are setting new standards in product maintenance, too. The LightEngines used by the smart VR-Wall are optimized to provide the highest resolution and luminous power at the lowest possible cost. And to make sure that this remains so, as soon as a higher resolution or power becomes available, you can upgrade your system easily and cheaply.

Minimal investment and operation costs

Thanks to the many technical innovations we have built into the smart VR-Wall together with our partner 3D Insight, we are able to offer you our powerwall at a previously unheard-of price – both in terms of investment and in terms of operation and maintenance. In its "smallest" variant , the smart VR-Wall costs a mere € 49,000 plus tax (VAT), and comes with a media controller, shutter viewers and DVI cables.

The operating costs lie at between €1.06/hour for the smallest size, and € 1.60/hour for the largest size, including bulb wear and electricity.

Live VR interaction with IR tracking

On request, we can equip the smart VR Wall with 4, 6, 8 or more IR tracking cameras, depending on the tracking area to be covered. This provides a live interaction interface, fast-reacting and with fluid frame sequences.

Content image: Lumiscaphe

Typical areas of application

Digital prototyping

Virtual planning for factory plants, design and function analysis, installation space testing, flow visualization, ergonomics.

Configurator for your POS (at trade fairs and events)

in 3D stereo quality, e.g. for cars, architecture, interior decorating

Demonstrations and presentations

for large, stationary installations (machines, plants, etc.) at trade fairs

Conference room system

PowerPoint, image film in 3D stereoscopics, product marketing, telephone conferences, team meetings

CAx

CAD/CAM/CAE/CAQ (tomography), FEM, CFD, robot simulations, haptic examinations, medical technology

smart VR-Wall **The innovation in the powerwall class**
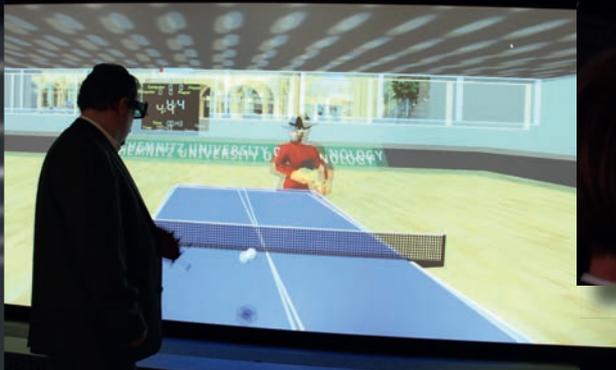
Medical visualizations

3D stereo analysis of protein and molecule chains, tomography (including mammography) visualizations and digital preparation for surgery and operations in 3D stereo.

Geoinformatics

Visualizations of complex urban maps, buildings, roads and infrastructure, "digital cities" (statistical data and augmented reality).

Security center

Live video evaluation of up to 50 HD video sources plus an automatic alarm system.

Educational applications in universities and schools

Visualization of complex interrelationships, e.g. for mechanical engineering studies, chemistry and physics lessons.

Cinema or high-end video wall

The smart VR-Wall is also eminently suitable for use as a high-end, compact platform for 2D and 3D films in the highest resolution.

smart VR-Wall · Incredible performance and image quality

FORMAT	16:9	16:10	Cinemascopic	Cinemascopic (small)
Resolution (native)	2.560 x 1.600 pixels	2.560 x 1.600 pixels	3.840 x 1.600 pixels	3.840 x 1.600 pixels
Effective resolution	2.624 x 1.476 pixels*	2.320 x 1.450 pixels*	4.000 x 1.696 pixels*	4.000 x 1696 pixels*
	3,87 megapixels	3,36 megapixels	6,8 megapixels	6,8 megapixels
Viewable image size	3,53 m x 1,98 m	3,53 m x 2,20 m	5,30 m x 2,25 m	4,30 m x 1,80 m
Front pro dimensions (WxHxD)	3,69 x 2,67 x 0,62	3,69 x 2,90 x 0,62	5,46 x 2,98 x 0,64	4,46 x 2,43 x 0,56
Rear pro dimensions (WxHxD)	3,69 x 2,67 x 0,54	3,69 x 2,90 x 0,54	5,46 x 2,98 x 0,55	4,46 x 2,43 x 0,47
Distance of projection area from room wall	9 cm	9 cm	9 cm	9 cm
Pixel size	1,5 mm	1,5 mm	1,5 mm	1,3 mm
Color depth	8 bit/RGB	8 bit/RGB	8 bit/RGB	8 bit/RGB
Stereo technology	Shutter	Shutter	Shutter	Shutter
Projection	Front projector and rear projector			
Projection material	Front projector: oscillation-damped flexible thin-film screen			
	Rear projection: rear-projection screen			
Brightness (overall)	4 x 2.500 Ansi-Lumen	4 x 2.500 Ansi-Lumen	6 x 2.500 Ansi-Lumen	6 x 2.500 Ansi-Lumen
Angle of view	85°	85°	85°	85°
Luminance factor	appr. 1,0	appr. 1,0	appr. 1,0	appr. 1,0
Light source	Single Chip DLP Engine customized by 3DInsight			
	DLP 1.280 x 800 @ 120 Hz			
Number of LightEngines	4	4	6	6
Lamp type/life	UHP, 2.500 hrs.	UHP, 2.500 hrs.	UHP, 2.500 hrs.	UHP, 2.500 hrs.
Calibration	automatic camera-based	automatic camera-based	automatic camera-based	automatic camera-based
Optional: Additional Video inputs for the Media controller	8 x DVI single link or 8 x HDMI 1.3 or 8 x Display port single link or 8 x VGA	8 x DVI single link or 8 x HDMI 1.3 or 8 x Display port single link or 8 x VGA	6 x DVI single link or 6 x HDMI 1.3 or 6 x Display port single link or 6 x VGA	6 x DVI single link or 6 x HDMI 1.3 or 6 x Display port single link or 6 x VGA
Power consumption	2.200 W	2.200 W	2.900 W	2.900 W
weight appr.	375 kg	385 kg	ca. 485 kg	ca. 425 kg

* available via Duallink Input cards

The technology of the *smart VR-Wall* is based on a joint development of the 3D Insight GmbH and Schneider Digital. The two businesses are closely connected with a long-standing and comprehensive history of cooperation.

3DInsight GmbH was founded in 2007 by members of the faculty for graphic data processing and visualization at the Technical University of Chemnitz. The cumulative years of experience of the staff in the fields of 3D projection, stereoscopic viewers, motion tracking, real-time rendering, distributed rendering, 3D content rendering and geometric modeling for the core competencies of the team. The main areas of business currently concentrate on the conception and installation of custom-built stereoscopic projection systems and VR systems, plus engineering services in these fields The custom-built systems range from small, mobile rear projection systems to stationary, large-area, multi-segment projection solutions. The realization of innovative hardware installations is complemented by the development of high-quality visualization software for a number of application areas.

Product-Website: **www.vrwall.com**