

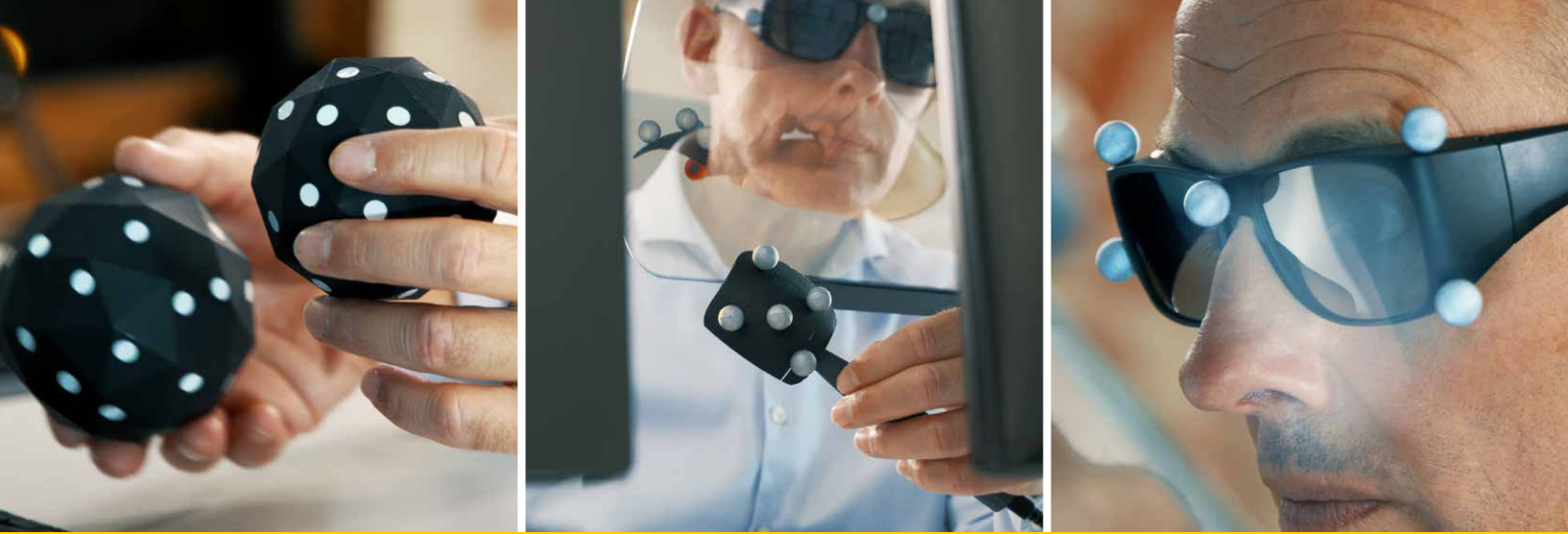
**4K - UHD**  
**Desktop VR/AR-Display**

# **VR PluraView**

## **in Medical Applications**



- Surgery planning and preparation
- 3D computer tomography
- 3D imaging (X-ray, MRI)
- Preparation for medical 3D printing
- Analysis of visual medical data
- Education & training



## VR PluraView – The new passive 3D-stereo display reference for medical applications

Stereoscopic viewing – Virtual Reality with the VR PluraView display

Volumetric 3D images and models are of increasing importance in the medical sector. The high-resolution 3D PluraView stereo monitors from Schneider Digital are a perfect fit for the 3D-stereo display of medical data, especially from CT and MRI scanners. In contrast to other 2D and 3D desktop monitors, the PluraView have dual screens with passive beam-splitter technology to provide a realistic stereo-3D experience, comparable to a highly detailed holographic display. Combined with medical software and a suitable graphics card in a tower or laptop workstation, the PluraView stereo monitors provide a turnkey 3D workplace solution for the medical sector for viewing and analyzing volumetric medical data conveniently and efficiently, while presenting it at maximum resolution and flicker-free, even in daylight office conditions.



Unrestricted communication  
with patients and colleagues  
during the consultation



Object tracking with  
trackballs or 3D-Pens for  
realistic model interaction



Complementary  
to immersive  
VR systems



Flicker-free  
for stress-free  
3D work



Provides 4K monitor resolution  
per eye, compatible with office  
daylight conditions



Compatible with  
any medical stereo-3D  
or VR-capable software

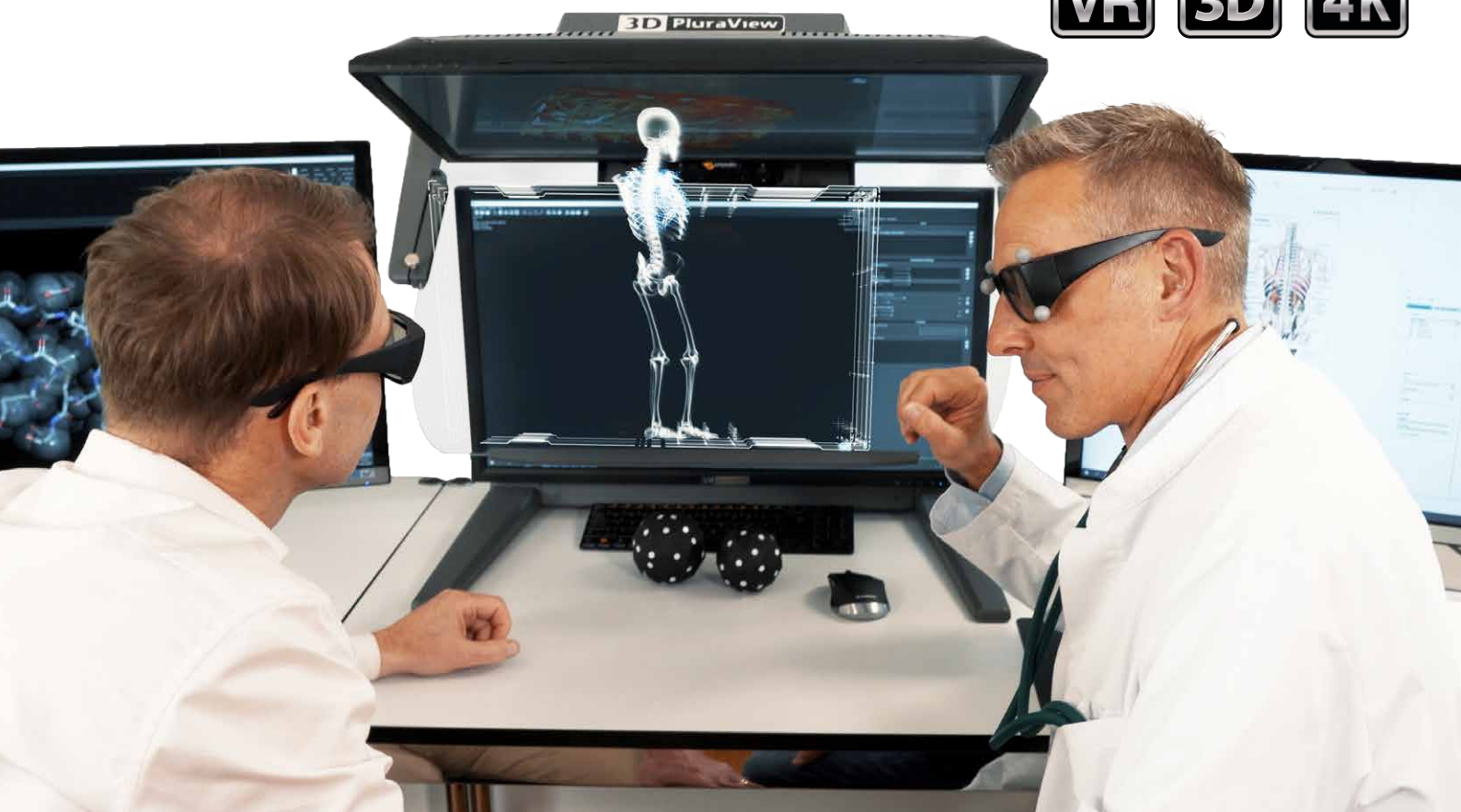
# VR PluraView – Virtual interaction via head-tracking and gesture control included

The VR PluraView is a 'plug and play' monitor system for virtual reality analysis, visualization, and processing of complex medical data in 3D-stereo. While the 3D object is positioned with one hand, the other hand can operate virtual tools, such as a scalpel with tracking markers. Navigating to the right viewing angle and position is intuitive. Through seamless integration of 2D and 3D technology, medical professionals can display images in 2D as well as in 3D mode. Medical imaging data can therefore be analyzed quicker and more accurately, problems identified faster, and the right action can be taken accordingly. Users interact with the 3D model through head tracking and gesture recognition. Additional 2D or 3D controllers can also be deployed, depending on user preference.

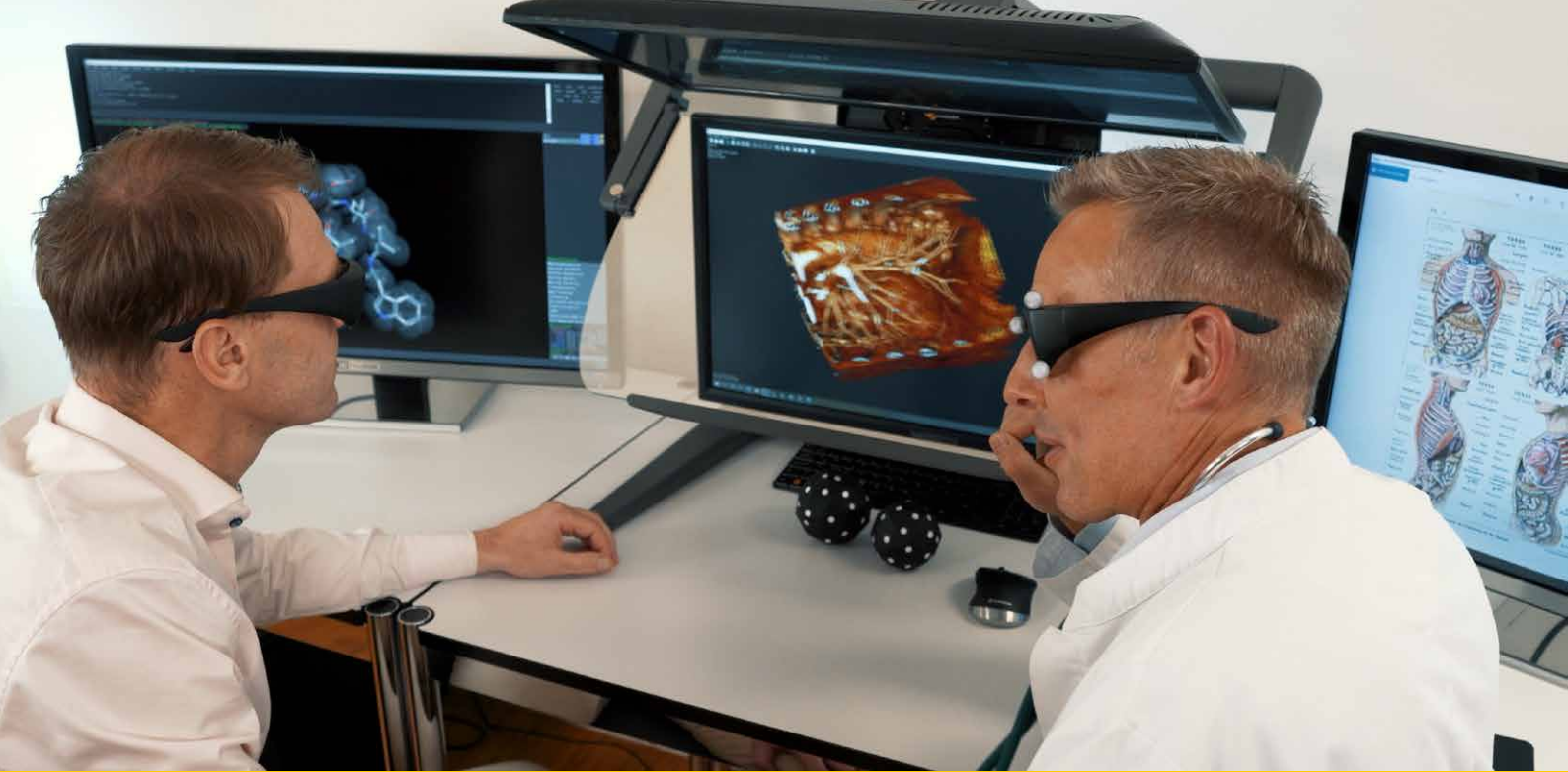
## VR PluraView - flicker-free 3D stereo and VR - even in daylight conditions

The VR PluraView stereo system with the integrated optical PST Pico-Tracker offers an efficient method of

viewing high-resolution 3D stereo images and enables Virtual Reality interaction. The VR PluraView provides extremely precise and pixel-accurate image analysis at full 4K (UHD) resolution on its dual screens and a color depth of up to 10 bits per RGB pixel. Users can therefore work confidently with any 3D-stereo capable medical application. With dual screens, each eye can focus on a separate stereo image at full resolution and brightness. The two images are viewed through the centrally mounted, semi-transparent beam-splitter mirror. In contrast to active 3D single-screen monitors, the passive beam-splitter technology of the VR PluraView is completely flicker-free and therefore suitable for professional use throughout the working day without without any eye-strain. The combination of maximum display brightness and outstanding resolution enables users to work in office daylight conditions – darkened rooms for working in 3D-stereo are a thing of the past! The monitor provides effortless, relaxed stereo viewing with any medical 3D-stereo application.







## Benefits of stereoscopic imaging and VR interaction:

- Quick insight and better understanding of medical details
- More precise and comprehensive analyses and therefore better diagnoses
- Better trained and prepared staff, e.g. in surgery planning or medical training
- A clear view when “touching” models with a truly spatial, three-dimensional impression
- Decision support for easier analyses and diagnoses in medical 3D imaging
- More precise and comprehensive visualization of patient-specific anatomy
- Much easier and more accurate data preparation for medical 3D object printing





# Designed for Medical Applications

VR PluraView use-cases:

## VR PluraView in medical imaging and analysis (X-Ray, CT, MRI, Ultrasound)

Medical professionals need to look at ever more complex and increasing volumes of imaging data to decide on diagnoses and supervise treatments. This is especially important for patients with persistent health problems who need to be CT/MRI-scanned repeatedly and over longer periods of time: diagnosis and treatment is all about identifying minute differences between new and old images, for instance to detect and monitor tumors or very small changes in organ or blood vessel properties.

## VR PluraView in surgery planning and preparation

An integral part of all preparations for surgery involves comprehensive diagnoses, especially for more difficult procedures. Usually, this includes not only current blood counts, an ECG and a physical examination, but in general also X-rays, CT and MRI scans, which are invaluable for procedures planning. Options for surgery are mostly discussed and reviewed within a medical team. Specifically for this purpose, the team-viewing capability of the 3D-stereo display is very valuable to reach conclusions quicker and with more confidence.

## VR PluraView in patient education

As part of surgery preparation, the patient learns about the planned procedure and risks, which must be consented to. The patient-specific anatomy and problems can be displayed and explained much clearer to the patient in a 3D-stereo visualization, as anatomical details are highlighted far more effectively. This is a great way of alleviating the patient's concerns and demonstrate how well prepared the planned surgery actually is.

## VR PluraView for education, training and presentation

The VR PluraView monitors are equally being used in teaching at leading medical faculties and natural sciences universities. In particular, the anatomy and organs of the human body can be displayed with much better clarity and

very realistically to students. The VR PluraView is also used at live conference presentations, group discussions, team meetings, and for in-house training and education. Specialists can explain complex procedures at hospital team meetings, or visualize them in front of larger conference audiences.

## VR PluraView for manufacturers of medical software applications or equipment

Schneider Digital offers the VR PluraView monitor system to all medical software and hardware manufacturers as an option for upgrading, testing and certifying their products on a high-tech VR stereoscopic display. The common goal is to offer and deliver a complete, highly capable solution for stereoscopic work to medical customers. The VR PluraView can display all standard 3D data formats, such as DICOM, and is plug & play compatible with all current 3D-stereo capable medical software applications.





# VR PluraView compatible medical software applications



3D Slicer



Stereotaxy



3mensio-structural-heart



syngo.foursight TEE view



National Institute of Health



VERT



Visage 7



syngo.via



D2P



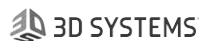
Vived Anatomy



Proton VERT



3mensio.vascular



VSP Technology



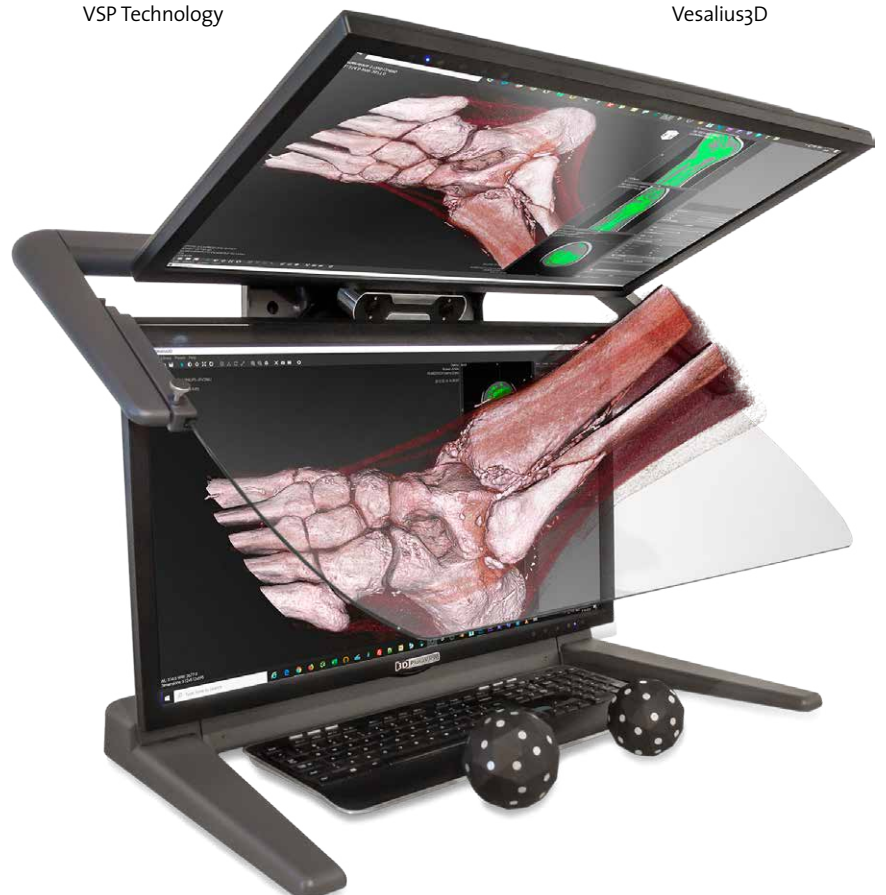
Vesalius3D



Forsina Anatomy



Forsina Radiology





# Stereoscopic viewing – Virtual Reality on the VR PluraView Display

There is a PluraView solution for medical 3D spatial data visualization, especially DICOM, no matter how demanding the requirements and applications of today's high-tech medical industry are! The innovative 3D PluraView passive-stereo monitor family from Schneider Digital is designed for special use with a host of medical applications, e.g. in surgery planning, 3D computer tomography, in anatomical 3D imaging (X-ray, MRI), colorized model building for visualization and 3D printing, or the analysis of ultrasound visual medical data. The monitors are suitable for any 3D stereo-capable software application in the medical sector, including 3D Systems VSP, Brainlab's Stereotaxy, Pie Medical's 3mensio products, Forsina, Vesalius3D, VERT, Healthineer's syngo.foursight or syngo. Via, to name but a few.

The ultimate way to experience volumetric data is in "stereo", as the technology provides depth and true 3D spatial relationships to imaging records.

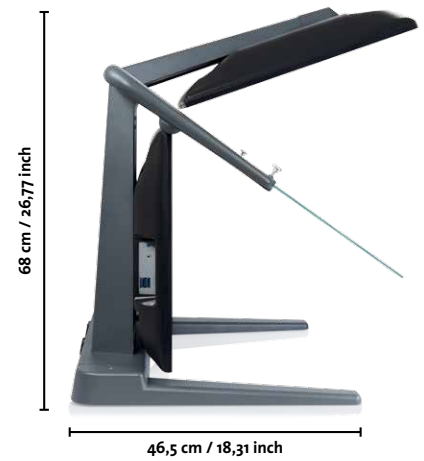
This enables a 'fly-through' of a patient's vessels and individual organs, even the entire anatomy, can be color-enhanced and displayed true-to-detail in stereo-3D. The VR PluraView is perfect for simultaneous stereo viewing in team meetings and enables more detailed and accurate decisions, for instance to plan complex surgical procedures. For large conference audiences 3D-stereo imagery is intuitive to understand and follow on VR Walls. What previously remained hidden behind flat, 2D structures is now revealed in the 3D-stereo visualization, exposing the true structural relationships. Simply speaking - the MD immediately sees whether the relevant tissue lies behind or in front of other anatomical features. Diagnoses can be made with much more confidence and clearly explained, even viewed by the patient, with the help of the VR PluraView stereo display system.





## VR PLURAVIEW MONITOR – TECHNICAL SPECIFICATIONS

	28" 4K/UHD
<b>Display</b>	28" (16:9) screen 2x 3.840 x 2.160 resolution (8,3 MP) 1,073 billion colours (10-bit*) 300 cd/m2 brightness LED Backlight Technology 1 ms response time 170°/160° viewing angle (H/V) BlackTuner for object detection in dark areas Contrast ratio 12 000 000: 1 ACR
<b>3D properties</b>	180 cd/m2 brightness with glasses 3840 x 2160 resolution per eye Linear polarisation 45°/135° Beam splitter: semi-transparent mirror Infrared tracking
<b>3D formats</b>	Quad Buffered OpenGL, Side-by-Side, Top-Bottom, Quad Buffered DirectX
<b>Operating systems</b>	32 & 64 bit Windows / Linux Support
<b>Power consumption</b>	Rating typically 98 watts; maximum 1 W in power management mode, annual power consumption 173 kWh/year Power Management VESA DPMS™, Energy Star 6.0 Power efficiency class B
<b>Weight</b>	27 kg, set with stand
<b>Dimensions</b>	80 x 68 x 54 cm (W x H x D)
<b>Integrated ports</b>	2x DisplayPort 1.2 cable 3 m 2x USB 3.0 for IR tracking 1 x mains connector AC 100 – 240 V, 50 / 60 Hz with main switch and 3.15 A microfuse
<b>Audio</b>	Integrated speakers 2 x 3 W
<b>Highlights</b>	Calibration-free user interaction tracker Supports 15 targets at the same time! Extremely wide viewing angle of almost 180 degrees
<b>Technical information</b>	Easy to use native C / C++ SDK and interface for C# and Python. Interface is also supported through VRPN, Trackd, Dtrack emulation
<b>Warranty</b>	1 year unlimited warranty, can be extended to up to 5 years with CarePack



## Graphics Cards Requirements

Any QuadBuffer-enabled NVIDIA Quadro and AMD FirePRO/RadeonPRO cards, which have at least 2x DisplayPort 1.1 monitor outputs. Use of an additional desktop monitor adapted to the polarisation of the stereo system is recommended for 3D PluraView. The 10-bit colour depth feature with QuadBuffer 3D stereo is only available with AMD graphics cards.



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