Vision ENGINEERING

DRV

Digital stereo visualisation for ophthalmology

CO-OBSERVATION - SLIT LAMP IMAGING - SURGICAL SKILLS TRAINING - DRY LAB - WET LAB - MIGS TRAINING

SLIT LAMP IMAGING SYSTEM

A full HD stereo camera within the optical system of a slit lamp enables glasses-free stereoscopic viewing through the DRV along with the ability for 3D video/image capture. Captured imagery can be played back in stereo on the DRV or in mono on a regular monitor.

The DRV delivers a widescreen digital stereo 3D image. Interfaced with the slit-lamp microscope, the DRV enables real time stereoscopic co-observation of the patient examination delivering superb image quality, depth and magnification parity with the optical image.

Slit Lamp Biomicroscopy

A difficult skill to learn and to teach. In clinical practice, slit-lamp cameras have been shown to accelerate the learning curve for slit-lamp examination skills. Due to issues with exposure and a lack of stereoscopic image, it's often difficult to capture meaningful training materials.

By connecting the slit-lamp microscope to the DRV, observers can view or capture the real-time video feed in 3D for an immersive experience.

Slit Lamp Teaching

The 3D camera system within a slit-lamp can output a stereoscopic video in real time to a DRV, facilitating high-fidelity training and an accelerated learning curve for clinical skills.

For an immersive training experience, the DRV can output in stereo to multiple DRV's or to 2D or 3D monitors for presentation purposes. Whether demonstrating or supervising, procedures can be observed in real-time or recorded in 3D for later review.

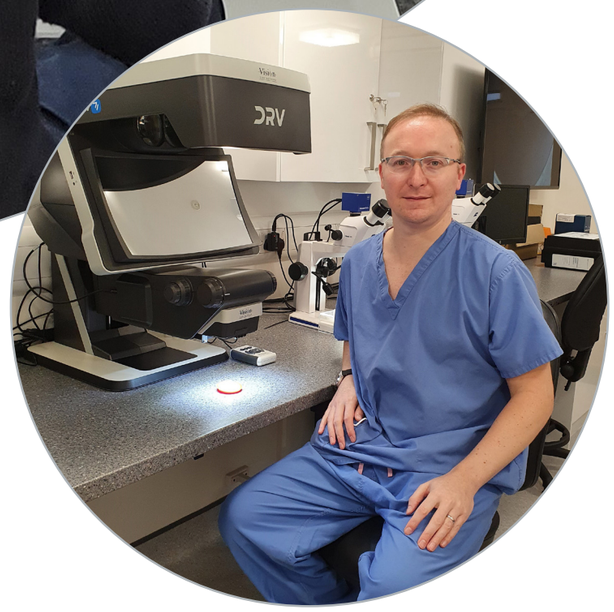
"The quality of the DRV stereo image is superb. The high resolution emulates the slit lamp image well and concurrent real-time viewing of clinical findings in true 3D for both trainee and observer is unique. What's more the observer does not require 3D glasses to view, the DRV image presents a "floating" 3D image in front of the system."

Dan Lindfield, BM MRCOphth PGCME FRCOphth

Royal Surrey County Hospital

SURGICAL TRAINING

The DRV-MZ1 combines a digital stereo display with a microscope which brings significant benefits over conventional table top microscopes. Its ergonomic design improves operator comfort, enabling users to practice for longer periods.



Through the use of the DRV-MZ1 trainees in the Glasgow based surgical simulation suite are reaping the dual benefits of optical stereo microscopy and advanced digital technology in a single system. The DRV-MZ1 provides impressive levels of simulation by delivering fully immersive 3D visualisations with outstanding perception of depth.

David Lockington, MB BCh BAO (Hons) FRCOphth PhD

Gartnaval Hospital

Sub-speciality procedures for glaucoma, retina, cataract and corneal surgery can be rehearsed and refined to ensure competence and confidence.

A significant benefit of the DRV-MZ1 is that it facilitates high quality video recording. Captured video recordings are of the same view as what was seen by the operator, which differs from conventional table top microscopes where the recorded video often suffers from low refresh rate and disparity of the field of view, focus and colour rendition, when compared to the view that is seen by the operator.

Minimally Invasive Glaucoma Surgery Training

The design of the zoom microscope module allows adjustment of the viewing angle which, combined with an engineered holder to mount the model eye, simulates the position and angle of a patient's eye for trainees to practice their surgical skills, for example trabeculotomy and canaloplasty.

Surgical Skills Training

Traditionally, a trainer would supervise performance by viewing a monoscopic image via a teaching tube or by watching a digital image on a mono screen. Viewing only one channel means not only an absence of stereo depth for the trainer, but also raises the risk of important information being missed.

The DRV transforms teaching capabilities as work can be comfortably supervised in stereo and, by swapping seats, a trainer can easily demonstrate techniques. Connecting multiple DRV's in series allows for larger training sessions, all with stereo viewing.

The ergonomic ‘heads up’ design allows users to **comfortably perform**, **demonstrate** and **supervise** in Full HD stereo resolution

Tele-Ophthalmology

DRV’s can be connected side-by-side via twin HDMI cables, or streamed across continents over networks, for real-time collaborativve analysis of data or remote consultation and Hub & Spoke teaching. All in 3D stereo.

Glasses-free visualisation

The TriTeQ^3 technology behind DRV’s stereo image presentation overcomes the need for polarised glasses by projecting independent optical channels to the user’s eyes. One channel for the left eye, the other for the right. Each channel presents the image from a slightly different angle which replicates our natural stereo vision and perception of depth.

TECHNICAL INFORMATION

DISPLAY HEAD	
Resolution	1920 x 1080 per channel
Image Size on concave mirror	400 x 225 mm in 16:9 aspect ratio
Digital Zoom	2x
Working distance (maximum)	182 mm

INPUTS	
Power Supply	100 - 240 VAC 50 / 60 Hz

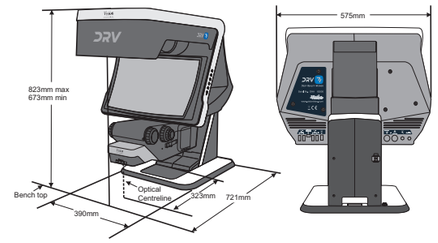
OUTPUTS	
Image Capture	USB 2.0
Video Capture	HDMI cable to an external video capture card
Connection to external 2D/3D monitor	HDMI
Connection to second or multiple DRVs	HDMI daisy chain / Wi-Fi connection

STAND	
Counterbalanced stand with 150 mm vertical travel	
Fully adjustable sub-stage illumination	Optional

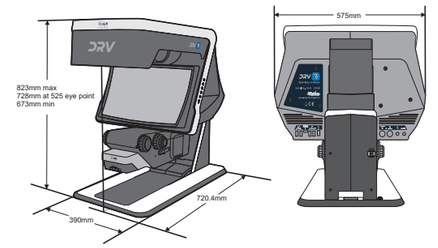
ZOOM MODULE
Module with 10:1 optical zoom and fully adjustable surface illumination

WEIGHT	
Maximum System Weight	**45 kg**

DRV-MZ1



DRV-MZ1 Long base*



*sub-stage illumination is available as an option on the long base

DRV-MZ1 optical data

Objective Lens	Zoom Range	Working Distance 'A'	Field of View at MAX. zoom	Field of View at MIN. zoom
0.33x	6.1x - 61x	182 mm	6.5 mm / 3.7 mm	65 mm / 37 mm
0.4x	7.4x - 74x	138 mm	5.4 mm / 3.0 mm	54 mm / 30 mm
0.5x	9.3x - 93x	93 mm	4.3 mm / 2.4 mm	43 mm / 24 mm

SCM003	
Image Sensors	1 / 2.8”
Channel Resolution	1920 x 1080 (per channel)
Pixel Size	2.9 µm
Colour Depth	8 bit
Power Source	5 V via USB
Power Consumption	4.9 W
Video Transmission Method	2 x HDMI
Frame Rate	60 fps
Aperture Control	Yes
Beam Splitter Ratio	70% Eyepieces - 30% Camera
Power and Video Ports	Located on bottom of Camera
Dimensions (L x W x D)	234 x 120 x 80 mm

STEREO CAMERA MODULE

VISION ENGINEERING + OUR DIFFERENCE

Vision Engineering Ltd. has been designing and manufacturing high quality ergonomic microscopes, digital instruments, inspection, contact and non-contact measuring systems for over 60 years.

Innovation

With a philosophy of design innovation, Vision Engineering holds world patents for a number of optical / digital techniques, significantly improving viewing ergonomics and enabling customer quality and productivity improvements. In 2020, we were awarded a Queen's Award for Enterprise in the Innovation category, for our high tech ergonomic optical inspection microscope Lynx EVO.

Quality

Vision Engineering prides itself on quality products, electronics, mechanics and optics and is certified for the quality management system ISO 9001:2015. We are also now a UKAS accredited calibration laboratory, after attaining ISO 17025:2017. Quality is as important to us as it is to our customers. Our systems have proved themselves many times over and are chosen by the world's leading companies.

Global

Vision Engineering has manufacturing and design facilities in the UK and USA, plus sales and support offices throughout Europe, the Americas, the Far East, and Asia. We support our customers with close technical and service support anywhere in the world.

To see our focused quality, please contact your Vision Engineering branch, local authorised distributor, or visit our website: visioneng.com

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Vision Engineering Ltd. has been certified for the quality management system ISO 9001:2015 and calibration accreditation ISO 17025:2017.

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