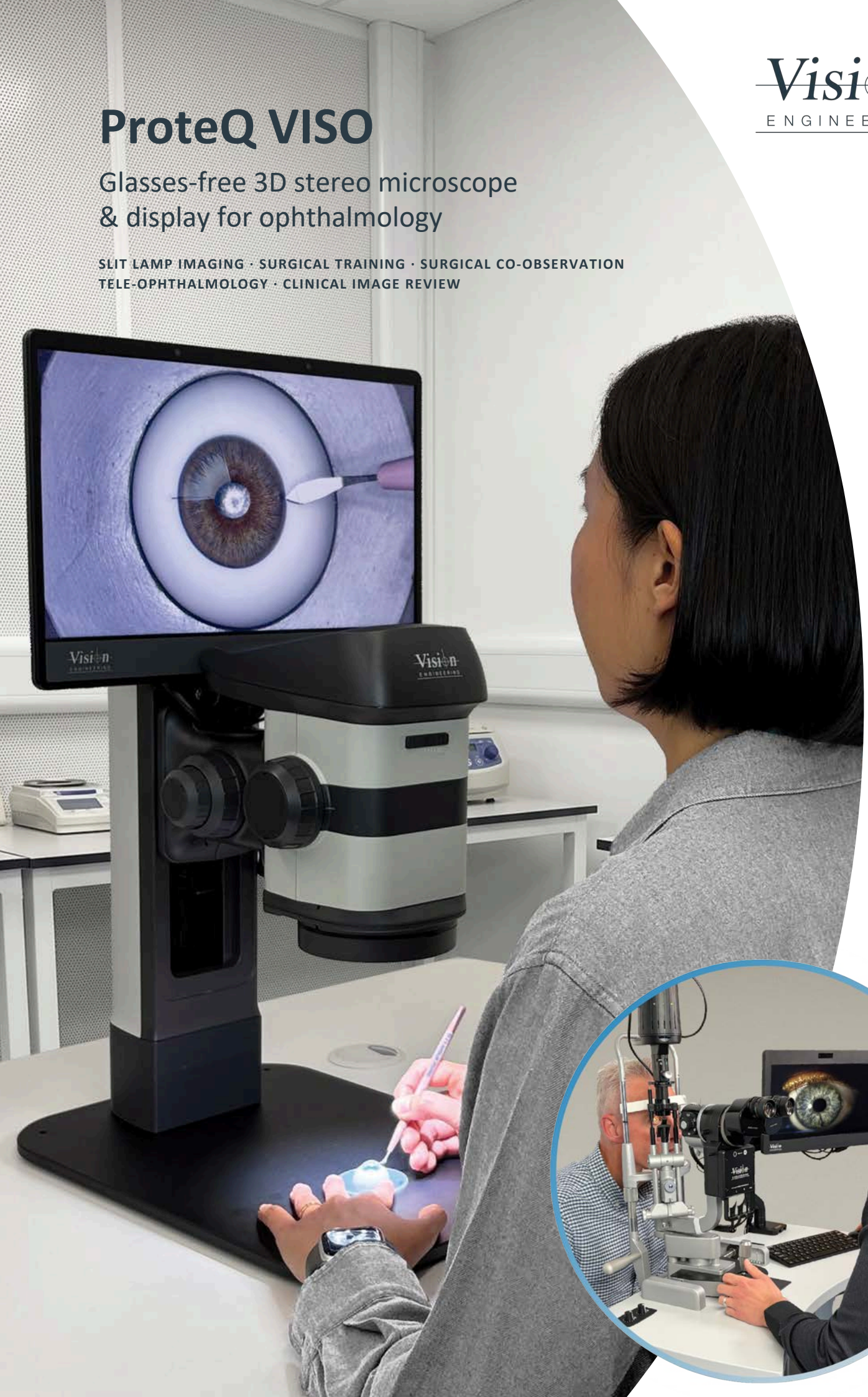
Vision ENGINEERING

ProteQ VISO

Glasses-free 3D stereo microscope & display for ophthalmology

SLIT LAMP IMAGING · SURGICAL TRAINING · SURGICAL CO-OBSERVATION
TELE-OPHTHALMOLOGY · CLINICAL IMAGE REVIEW



QUALITY FOCUSED

SURGICAL SKILLS TRAINING

Trainees rehearse real procedures in stereo, away from the operating theatre. They build confidence in surgical skills without waiting for busy theatre schedules to clear.

The ProteQ VISO desktop microscope gives a heads-up stereo image for simulated ocular surgery. The design improves operator comfort so trainees can work longer sessions with less fatigue. Trainees rehearse and refine cataract, corneal, glaucoma and retinal techniques.

MIGS rehearsal

An adjustable viewing angle on the microscope module, along with a model eye held in an angled holder, lets trainees rehearse minimally invasive glaucoma surgery. Trabeculotomy and canaloplasty practice matches the view experienced in theatre.

High quality video recording

ProteQ VISO can record the same view that the operator sees, in stereo. Table-top microscopes often only record mono video that loses refresh rate, adds latency, and drifts in focus and colour against the live view, but ProteQ VISO overcomes all these issues using an integral custom-built, easy to use controller with on board recording functionality.

Supervised teaching

A secondary user can view the ProteQ VISO in mono with no extra hardware. The trainee practises in 3D at the training bench while the trainer supervises work in mono. Trainer and trainee can swap seats to demonstrate or supervise techniques as needed.





SLIT LAMP IMAGING SYSTEM

A glasses-free 3D display for ophthalmology that mounts directly to your slit lamp table. Vision Engineering's stereo camera module captures and sends a live stereo image to the ProteQ VISO display, viewable without polarised glasses or headset.

The stereo camera module fits onto your slit lamp within the optical path. The live image is presented in stereo on the ProteQ VISO display, with depth and magnification that match the optical image, on the small footprint of a conventional flat panel monitor.

Live stereo viewing

Examine in real time with stereo depth on the display. The display sits beside the slit lamp on a desk arm, so you can view the live image in 3D as you operate the slit lamp, while taking up almost no desk space.

3D image and video capture

Capture the live stereo feed as 3D still images or video. Recordings hold the depth, focus and field of view seen at the slit lamp. Captured material is stored in side-by-side format. It plays back in stereo on the ProteQ VISO display or other 3D visualisation systems, or in mono on a standard monitor.

SURGICAL CO-OBSERVATION

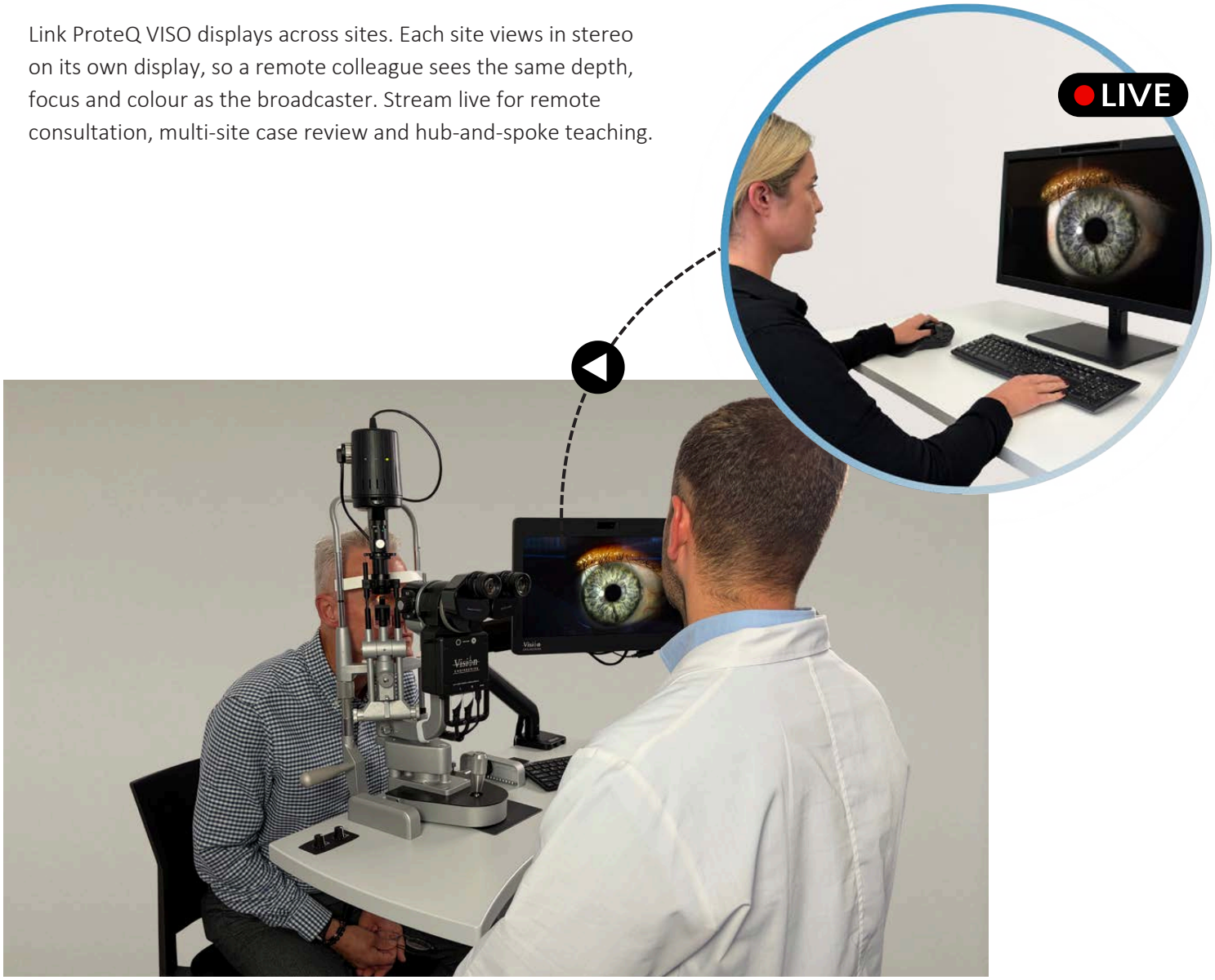
The ProteQ VISO display pairs with a surgical microscope to share the stereo depth the surgeon sees, live in theatre. Record in 3D as you go.

Paired with Vision Engineering's stereo camera module, the display shows the surgeon's exact view from the surgical microscope in real time. Trainees or colleagues observe the procedure as the surgeon operates. Supervisors watch closely as a trainee builds confidence. Recording works here too: capture surgical training material in side-by-side format and play it back at a time that suits you.

TELE-OPHTHALMOLOGY

Stream stereo between sites for remote viewing or hub-and-spoke teaching.

Link ProteQ VISO displays across sites. Each site views in stereo on its own display, so a remote colleague sees the same depth, focus and colour as the broadcaster. Stream live for remote consultation, multi-site case review and hub-and-spoke teaching.



THE FLAT-PANEL DESIGN FITS ANY CLINICAL DESK

Auto-stereo display
Glasses-free 3D viewing with real depth perception.

Magnification
Range of objectives from X0.45 to X2.0.



25° Oblique and Direct Viewer
View at an oblique angle for MIGS.

Eye tracking

ProteQ VISO uses a precision lenticular lens array in a flat panel to project separate left and right eye images. A built-in eye tracking sensor follows your eye position and adjusts the viewing zones as you move, so the stereo image holds steady. You get stable, flicker-free depth across a long session, with no eyewear fatigue and no manual adjustment.



High resolution stereo cameras
Digitalises left and right eye view of the subject in Full HD at 60 fps.



18° display tilt
Accommodates operators of different heights.

10:1 zoom
Continuous zoom with depth of field control and user-selectable position lock for repeatable viewing.

Optimise illumination
Intelligent quick-clip ring light with optional light filters for optimised illumination across different materials.

Keypad
Easy access to controls and presets.

Stereo camera module

Vision Engineering's stereo camera module fits into the optical path of the slit lamp and outputs a Full HD (per channel) stereo feed to ProteQ VISO over HDMI.

Glasses-free visualisation

The lenticular display projects an independent optical channel to each eye: one for the left, one for the right. Each presents the image from a slightly different angle, which replicates natural stereo vision and overcomes the need for polarised glasses or additional headwear.

3D View | Glasses Free | 7.1x - 314x Magnification | 10x Zoom | Ergonomic | 3D Image

TECHNICAL INFORMATION

PROTEQ VISO DISPLAY AND MICROCSCOPE	
Magnification range	7.1x – 314x
Zoom	10:1 zoom with aperture control
Screen tilt	18-degrees
Viewing distance	380 – 800mm (eye to screen)
Resolution	Screen 3840x2160 pixels
	Camera 2x 1920x1080 pixels @ 60fps
Features	Live, low latency 3D stereo viewing
	On board 3D Image & Video capture & playback
	On board 3D streaming capabilities
	Multi-person viewing (primary user receives a 3D image, all subsequent viewers see in 2D)
	Adjustable viewing angle of 0 – 25 degrees (0-degrees straight down viewing, 25-degrees angled away from user)
Technology	Lenticular, glasses-free stereoscopic display with eye tracking
Glasses	Not required. Supports prescription glasses
Power Supply	100–240 VAC, 50/60 Hz
Languages	English, French, German, Spanish, Italian, Portuguese, Chinese, Japanese, and Korean.



Screen sizes available are 15.6” and 27”

Objective lens	Magnification range	Working distance	Min. horizontal field of view	Max. horizontal field of view
X0.45	7.1x – 70.7x	176 mm	4.7 mm	47 mm
X0.62	9.7x – 97.3x	128 mm	3.5 mm	35 mm
X1.0	15.7x – 157x	75 mm	2.2 mm	22 mm
X1.5	23.5x – 235x	43 mm	1.4 mm	14mm
X2.0	31.4x – 314x	29 mm	1.1 mm	11 mm

STEREO CAMERA MODULE	
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	Fixed and selectable options
Power and Video Ports	Located on bottom of Camera
Dimensions (L x W x D)	234 x 120 x 80 mm



For more information and sales support, please contact your Vision Engineering branch, local authorised distributor, or visit our website: visiontriteq.com

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