Aesculap Aeos®
Robotic Digital Microscope
See Your Patients in a Whole New Light
For every inch the head moves forward, the head, neck and upper back muscles must support an additional 10 pounds of weight.¹

Flawed ergonomics take a toll on the health and performance of surgeons.

Torso positions, such as forward flexion, lateral bending and axial twisting are associated with back pain.²
The user experience and overall concept of traditional optical microscopes have remained materially the same for over 20 years. Surgeons are tethered to their oculars which often forces them to choose between the view they need versus the view that’s comfortable.

There are also technology challenges.

- **VISION**
  - Small depth of field and field of view

- **PAIN**
  - Neck and back pain

- **ADJUSTMENTS**
  - Manual repositioning and lack of robotic arm

- **HEAT**
  - Risk of burns from xenon light

- **FLUORESCENCE**
  - Inconvenient fluorescence imaging in 2D only

- **WORKFLOW**
  - Only the surgeon sees in 3D

Potential consequences of this physical stress:
- Headaches
- Chronic pain
- Exhaustion

Muscular pain in the head, neck and back which can radiate down the arms

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Welcome to the Next Generation Surgical Visualization System

The Aesculap Aeos Robotic Digital Microscope combines the ergonomic and educational benefits typically found in “exoscopes” with the high-quality imaging and fluorescence capabilities of traditional optical microscopes along with proprietary digital and robotic functionalities.

“All these things have changed the game enough that I no longer own a traditional microscope, and I’ll never go back. It clearly was a paradigm shift, and it’s changed the whole way I operate.”

Dr. Lee Warren, neurosurgeon
The Aesculap Aeos Robotic Digital Microscope provides heads-up positioning which frees the surgeon from the ocular tether. The surgeon, not the microscope, dictates ergonomics, delivering a highly comfortable experience even in the most demanding procedures.
Neurosurgery is hard enough. It doesn’t need to be so hard on the surgeon.

4 in 5 neurosurgeons report pain after a day of surgery.¹

83% of these had musculoskeletal pain.¹

1 in 2 surgeons confirm a negative effect on their performance.²

ONLY 19% of surgeons report occupational injuries to their institution.³

35% of surgeons performed fewer operations due to the injury.³

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The Aesculap Aeos Robotic Digital Microscope features a fully robotic arm with six degrees of freedom for a range of manual and semi-automated repositioning options. These precise movements, including sub-millimeter micro movements, place the camera head exactly where it needs to be and when the surgeon needs it there.
Handgrip, wireless foot pedal and touchscreen monitor present a wide range of customization and available hands-free control options.

**Lock on Target**
Pivot around a fixed focal point

**Waypoints**
Seamlessly return to a previously saved location, including zoom and focus levels
The Aesculap Aeos Robotic Digital Microscope unlocks the power of the entire OR sharing the same high quality, immersive images at the same time. Full-time 3D visualization and 10x optical zoom allow you to work heads up without sacrificing image quality.
See More Details

- Experience the surgical field in complete focus with outstanding depth of field
- Industry-leading 10x optical zoom delivers full resolution, regardless of magnification level
- Low heat co-axial illumination efficiently lights the entire surgical field, including deep and narrow cavities

Everyone Sees More

- Immersive 3D 4K imaging paired with High Dynamic Range (HDR) means everyone in the room has a great view
- Optimizes hands-on training opportunities for residents and fellows and overall OR teamwork
Aesculap Aeos® Robotic Digital Microscope
See Beyond Tissue

The Aesculap Aeos Robotic Digital Microscope offers visualization beyond the human eye with LED-powered 3D digital fluorescence modes. Experience the same benefits of white light with fluorescence while the entire OR shares the same high-quality 3D image on multiple monitors.

DIR800 3D Digital Infrared
- Adjustable backlight illumination aids visualization of nearby non-fluorescing structures
- Slow-motion playback

Indications For Use
The DIR800 is an accessory for the Aesculap Aeos Robotic Digital Microscope and is used in viewing intraoperative blood flow in the cerebral vascular area including, but not limited to, assessing cerebral aneurysm and vessel branch occlusion as well as patency in neurosurgery. It also aids in the visual assessment of intraoperative blood flow and vessel patency in bypass surgical procedures in neurosurgery.
DUV400 3D Digital Ultraviolet

- Adjustable backlight illumination aids visualization of nearby non-fluorescing structures
- Optional augmented reality (AR) overlay provides additional insights from combined fluorescence and white light images

Indications For Use

The DUV400 is an accessory for the Aesculap Aeos Robotic Digital Microscope and is used in viewing fluorescence of fluorophores, comprising:

- An excitation filter for blue spectral range between 390 nm and 420 nm
- An observation filter for visible light with spectral range greater than 510 nm
Aesculap Aeos® Robotic Digital Microscope
The Future is Digital

The fully digital platform of the Aesculap Aeos Robotic combines the insights of digital visualization with the flexibility of an evolving software-driven ecosystem.

- Future-proof your investment with software updates and an upgradeable digital platform
- Unlimited profiles allow customized user settings for each surgeon and/or procedure
- Standard integrated 4TB hard drive allows for easy capture and export of intraoperative screenshots and 2D/3D video
Seamless, plug-and-play integration of a second digital image source, such as neuroendoscopes and navigation, via split screen or picture-in-picture layouts.

Digitally augment on-screen images with multiple imaging modes.
Aesculap Aeos® Robotic Digital Microscope
Specifications

Robotic Arm
- Six joints
- Servo motors in each axis detect force/direction. Six axes of freedom (up/down, left/right, pitch, roll, yaw, forward/backward)
- Lock on target fixed point orbit
- Waypoint mapping with saved zoom and focus levels and unlimited number of positions

Optics and Illumination
- 3D visualization
- 10x optical zoom
- Automatic or manually focus with press of a button
- 200 to 450 mm working distance
- HDR imaging
- 2x coaxial LED illumination

Base dimensions – 25” x 48” x 78”
Weight – 454 lbs.

Software
<table>
<thead>
<tr>
<th>Software</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DUV400</td>
<td>3D blue light fluorescence, backlight illumination, AR overlay mode</td>
</tr>
<tr>
<td>DIR800</td>
<td>3D infrared fluorescence, backlight illumination</td>
</tr>
<tr>
<td>DICOM</td>
<td>Image and video data integration with PACS</td>
</tr>
</tbody>
</table>
Digital Video

Surgical Monitors: 55” 3D 4K, 31” 3D 4K, 26” 3D HD (optional integrated boom arm)
Digital Aperture: Yes, customizable diameter and opacity
Image Rotation: Assistant 180°, assistant 90° clockwise, assistant 90° counterclockwise
Video Outputs: HDMI, DisplayPort
Video Inputs: HDMI, 6G-SDI
Video Recording: Integrated 4 TB HDD and USB media connectivity
Video Input Visualization: Picture-in-picture integration with Aesculap Aeos monitors, activate/deactivate/swap at press of a button

System Control

- 16” touch screen control
- 22 camera buttons (11 per handle)
- 18 programmable camera buttons (9 per handle)
- 34 programmable camera functions
- Wireless or wired foot switch, joystick plus 10 programmable buttons
Aesculap Aeos® Robotic Digital Microscope

Ordering Information

Please note: PV008 and PV011 not included
**PRODUCT OVERVIEW**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>PV010</td>
<td>Aesculap Aeos® Robotic Digital Microscope</td>
</tr>
<tr>
<td>PV014</td>
<td>Footswitch, wireless</td>
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<tr>
<td>PV012SU</td>
<td>Sterile Drape 5/box</td>
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**SURGICAL MONITORS AND MONITOR STANDS**

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<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>PV011</td>
<td>Upgrade kit for 3D monitor integration (PV008)</td>
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<tr>
<td>PV008</td>
<td>26” Full HD 3D monitor</td>
</tr>
<tr>
<td>PV016</td>
<td>Mobile monitor stand (for 55” monitor)</td>
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<tr>
<td>PV015</td>
<td>55” 4K 3D monitor</td>
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<tr>
<td>PV818</td>
<td>Mobile monitor stand (for PV644 &amp; PV008)</td>
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<tr>
<td>PV644</td>
<td>31” 4K 3D monitor</td>
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<tr>
<td>PV648</td>
<td>32” Full HD 3D monitor</td>
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**SOFTWARE MODULES**

<table>
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<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>PV022</td>
<td>DUV400 software</td>
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<tr>
<td>PV023</td>
<td>DIR800 software</td>
</tr>
<tr>
<td>PV024</td>
<td>DICOM software</td>
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</table>

**ACCESSORIES**

<table>
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<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PV030</td>
<td>White balance cards 5/box</td>
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<tr>
<td>PV032SU</td>
<td>Test card for DUV400</td>
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<tr>
<td>PV033SU</td>
<td>Test card for DIR800, 10/box</td>
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<tr>
<td>PV034</td>
<td>Locking HDMI cable, 5 m</td>
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<tr>
<td>PV035</td>
<td>HDMI cable, 10 m</td>
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<tr>
<td>PV052</td>
<td>DP-HDMI cable, 5 m</td>
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<tr>
<td>PV053</td>
<td>DP-HDMI cable, 10 m</td>
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<tr>
<td>PV056</td>
<td>DP-DVI cable, 5 m</td>
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<tr>
<td>PV052</td>
<td>3D eye shield glasses kit 1 frame + 3 shields/box</td>
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<tr>
<td>PV069</td>
<td>HDMI to DVI cable, 3 m</td>
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<tr>
<td>PV621</td>
<td>3D polarization glasses 15/box</td>
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<tr>
<td>PV622</td>
<td>3D anti-fog glasses 5/box</td>
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Through collaborative excellence we will improve the quality of a patient’s life and meet the needs of the changing healthcare environment.