



Advancing Surgical Precision with 3D Visualization

Purpose-Built for Next-Generation Surgical Imaging

Background

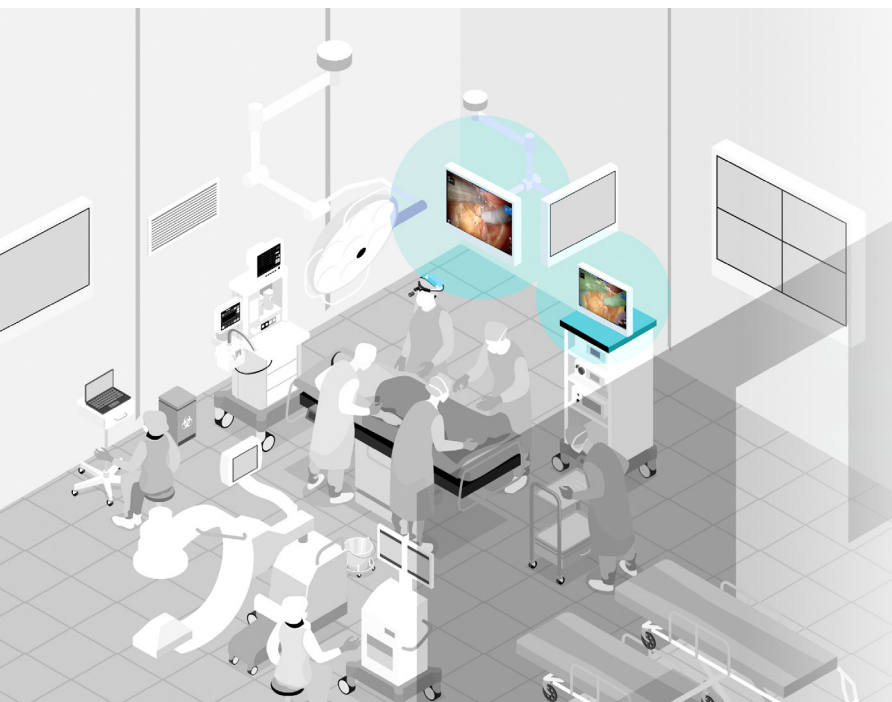
Operating room visualization is shifting from flat 2D displays toward true 3D imaging. Minimally invasive and robotic-assisted surgery now covers a growing range of procedures, yet surgeons often still operate while viewing a 2D monitor, relying on indirect visual cues to perceive depth that would be naturally visible during open surgery.

This shift has been driven by the adoption of 3D cameras, which are becoming standard equipment in robotic-assisted surgery, microsurgery, and endoscopic procedures requiring high precision, such as suturing and dissection around blood vessels and nerves. As 3D cameras become standard, 3D-compatible displays and surgical booms are increasingly specified from the outset, since conventional 2D screens can no longer fully represent the depth information captured by modern imaging systems.

Application

The PAX-332 3D is designed for the full range of applications driving this shift toward 3D visualization, including minimally invasive surgery, robotic-assisted surgery, endoscopy, and microsurgery, where accurate depth perception directly supports surgical precision. The same stereoscopic clarity extends into medical training, where 3D visualization helps trainees develop spatial awareness more quickly than conventional 2D video.

In the operating room, the PAX-332 3D is designed for boom mounting above the clinical workspace, reflecting how most surgical displays are deployed. Positioned overhead rather than at eye level, it serves surgeons, assistants, and scrub staff simultaneously, allowing each user to view the screen from a different height and angle instead of a single fixed position. Its 20° vertical viewing angle (U/D) is optimized for this mounting position, maintaining accurate stereoscopic perception whether staff are looking slightly up at the display or down toward the operating table.



Brightness

850 nits native luminance. Stays clear under bright OR lighting, no washed-out detail.



Crosstalk

Less than 3% crosstalk. Clean, ghost-free stereoscopic imaging through long procedures.



Connectivity

Dual 12G-SDI input. Two high-bandwidth 3D sources at once, no external switching hardware.



PAX-332 3D Product Highlight

- Glasses-Free 3D Visualization
- 850 nits High Brightness & <3% Crosstalk
- Dual 12G-SDI, HDMI & DisplayPort Connectivity
- DICOM Preset with PIP/PBP Multi-View
- IEC 60601 Certified Medical Design

Extending the Platform: PAX-332 3D with USM-500 and AI Recognition

Paired with the Advantech USM-500 medical-grade box PC, the PAX-332 3D forms a complete visualization platform rather than a standalone display. AI-based recognition software running on the USM-500 can overlay real-time guidance, such as tissue or vessel identification, directly onto the live 3D image, relying on the display's low latency and color accuracy to maintain precise registration. Built to the same clinical standards, the two are designed to work together, extending the PAX-332 3D beyond visualization to enable real-time, AI-assisted surgical guidance.

