

Salient Characteristics of the Intraoperative Visualization System:

Intraoperative Visualization System capability:

System must be a fully integrated microscope used for ophthalmic surgery. System must allow for both Microscope and Optical Coherence Tomography (OCT) capabilities in one system. System must allow for visualization of both the anterior segment (e.g. cataract, cornea, glaucoma).

- The intraoperative OCT features spectral domain (SD) OCT with a scan speed of at least 27,000 A-scans per second
- The intraoperative OCT features an A-scan depth of at least 2.0mm in tissue
- The intraoperative OCT features an adjustable scan length of 3-16mm
- The intraoperative OCT features an ability rotate the scan axis 360°
- The intraoperative OCT features the ability to scan the surgical field in real-time
- The intraoperative OCT features the ability to project the OCT images into the eyepieces of the surgical microscope in a heads-up-display like fashion
- The intraoperative OCT features the ability to project into the eyepieces of the surgical microscope a “scan marker” to enable the surgeon to see exactly where the OCT is scanning
- The intraoperative OCT features the ability to scan the surgical field live in 1-line, 5-line and cross hair modes
- The intraoperative OCT features the ability to capture OCT scans of the surgical field in 1-line, 5-line and cube modes
- The intraoperative OCT can be controlled via a capacitive touch screen user interface
- The intraoperative OCT functions can be controlled via the surgical microscope’s foot control panel.
- The intraoperative OCT can be focused independent of the surgical microscope
- The intraoperative OCT enables the user to move the area to be scanned by the OCT without moving the surgical microscope
- The intraoperative OCT features a Z-Tracking function that automatically adjusts the focus of the OCT to enable tracking of a curvilinear structure
- The intraoperative OCT features an autofocus function that allows the OCT to lock on to the structure that produces the strongest OCT signal.
- The intraoperative OCT features the ability to adjust the focal point of the OCT to account for a wide angle viewing system.
- The intraoperative OCT features the ability to adjust the focal point of the OCT to account for a flat contact lens.
- The surgical microscope features apochromatic optics throughout the entire visual pathway to eliminate spherical and chromatic aberrations.
- The surgical microscope features patented stereo coaxial illumination (e.g., zero-degree illumination where the light is piped directly along the visual light path) for a brilliant, high-contrast and homogenous red reflex for optimal anterior segment visualization.

Attachment B: Salient Characteristics

- The surgical microscope features two independently programmable 5-function handgrips from which key system functions can be accessed by the surgeon intra-operatively.
- The surgical microscope features a 14-function programmable footswitch which can be used tethered to the system or wirelessly, enabling hands-free access to key system functions.
- The surgical microscope features motorized zoom & focus adjustment that can be controlled from the programmable handgrips or the foot control panel.
- The surgical microscope features an electronically adjustable depth-of-field that can be activated from the programmable handgrips or the foot control panel.
- The surgical microscope features an integrated beam-splitter for an assistant scope that can be rotated to enable left-side or right-side stereo co-observation without disassembling co-observer.
- The surgical microscope offers an optional integrated assistant's microscope with motorized zoom and focus that can be configured to be linked or adjusted independently of the main observer.
- The surgical microscope offers an optional, tiltable binocular tube that has optical inverters (manual or motorized available) integrated to enable image inversion without a 2-piece inverter and binocular tube setup for lower "stack height."
- If equipped with a binocular tube with motorized inverters, image inversion can be activated from the programmable handgrips or the foot control panel.
- The surgical microscope offers a non-contact fundus viewing system with sterilizable (and thus reusable vs. single use) aspheric lens options to enable customization based on surgeon preference of magnification, field-of-view and depth-of-field.
- When equipped with a binocular tube with motorized inverters and a non-contact fundus viewing system, the surgical microscope can be configured such that activation of the fundus viewing system automatically results in activation of the inverters and any affiliated user profile settings (light intensity, starting zoom and focus values, etc.) to speed transitioning between microscope setups optimal for anterior and posterior segment visualization equipped with Zero to 180 degree views.
- The surgical microscope offers the option of a 100W halogen or 180W xenon illumination.
- Brightness of the illumination can be controlled from the programmable handgrips or the foot control panel.
- The surgical microscope features a backup light source of equal power to the primary light source in case of the first illuminator reaches end-of-life.
- The surgical microscope features a retinal protection (blue barrier) filter.
- If equipped with xenon illumination, the surgical microscope features a Halogen Mode filter that mimics halogen-like characteristics.
- The surgical microscope offers an optional, swing-in fluorescence filter.
- The surgical microscope features a touchscreen central user interface from which all system functions, programming and operations are accessible.
- The surgical microscope enables the programming of at least 20 unique user profiles, each with its own set of preference parameters including initial light intensity, working distance and focus & zoom speeds.

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- The surgical microscope features a manual mode which ensures that a surgical procedure can be completed in the event of failure or malfunction of the motorized functions such as zoom or focus.
- The surgical microscope enables the main surgeon to see the most important system parameters, such as working distance and light intensity without leaving his/her surgical position via an overhead display system.
- The surgical microscope features electromagnetic clutches for all system axes.
- The surgical microscope features an XY drive that enables motorized positioning of the microscope head in the XY plane.
- The surgical microscope features an integrated 1CCD or 3CCD 1080p HD video camera.
- The surgical microscope features the ability to control all video functions from the central, touchscreen user interface.
- The surgical microscope features the ability to control the video on/off from the programmable handgrips or foot control panel.
- The surgical microscope offers an optional integrated keratoscope to enable visualization of corneal astigmatism.
- The surgical microscope offers an optional dual-illumination setup that enables the connection of an external motorized slit lamp.
- The surgical microscope features a fully-integrated design, with all modular accessories, wiring and cabling fully internalized into the chassis.
- The surgical microscope features a modular platform that can be upgraded with additional functionality (i.e., HD video, HD recording, light source options, etc.) as new features become available or clinical needs dictate. These “upgrades” can be integrated into the existing system, with the parts, wiring and cabling fully internalized into the chassis rather than as an external add-on that increases the bulk of the system.