



# rtx1™

Adaptive Optics Retinal Camera\*

## Technical Specifications\*\*

Acquire cellular-level images of the retina in vivo.

### Package contents:

- **rtx1 hardware** - includes: camera instrument head and chinrest mounted on a standard ophthalmic examination table, mirao electronic control unit, medical grade transformer, and cables.
- **Medical PC** - includes PC running Windows XP, framegrabber and I/O cards, and rtx1 software suite preinstalled.
- **User documentation**

\* Research Use Only. Not for use in diagnostic procedures.

\*\* As of February 15, 2011. Subject to change without notice.

### Imaging Specifications

Imaging type	En face reflectance imaging
Illumination type	Flashed, non-coherent flood illumination
Central illumination wavelength	850 nm (infrared)
Detection type	Low-noise CCD camera
Frame rate	9.5 fps
Camera pixel resolution	1.6 $\mu\text{m}$ <sup>1</sup>
Transverse optical resolution	250 line pairs per millimeter (lppmm) <sup>1,2</sup>
Imaging field of view	4° x 4° <sup>1</sup>
System field of view	$\pm 30^\circ$ from locus of fixation <sup>1,3</sup> H $\pm 9^\circ$ / V $\pm 7^\circ$ from locus of fixation <sup>1,4</sup>
Image file format	PNG (Portable Network Graphic)

### Adaptive optics specifications

Spherical ametropia compensation range	-12 / +6 D
Focusing range (retinal equivalent)	600 $\mu\text{m}$ <sup>1</sup>
Adaptive optics control	Fully automated, highly-resistant to blinking
Adaptive optics illumination	750 nm (infrared) SLED (Super Luminescent Diode)

### Other system specifications

Pupil diameter range	4 - 10 mm
Working distance	50 mm
Internal fixation target type	Miniature OLED display
Internal fixation target gaze angle (max)	H $\pm 9^\circ$ / V $\pm 7^\circ$
External fixation target type	LED attached to chinrest
Software interface	rtx1 software suite with the following functionalities: system control, ametropia compensation, pupil alignment, image acquisition, and image processing.



Adaptive optics,  
Adapted to eye care

## General specifications

Intended use	Research use only <sup>5</sup>
Dimensions (instrument head only)	L 35 x W 17.5 x H 50 cm
Weight (instrument head only)	13 kg
Optical power output	Infrared. ISO 15004-2:2007 classification group 1 (no potential hazard)
Input voltage	Medical-grade isolation transformer 100-130 & 220-240 VAC / 50-60 H Transformer complies with EN60601-1 standard
Output Voltage	PC: 12 VDC / 0.5 A Deformable mirror driver: -1 VDC to +1 VDC / 2 A

1. Some specifications are dependent on ocular biometry, pupil diameter, optical defects, ocular media transparency as well as other factors.
2. System can image line pairs of 2  $\mu\text{m}$  in line width.
3. Using external fixation target.
4. Using internal fixation monitor.
5. The rx1 is intended for research use only (RUO). Not for use in diagnostic procedures.

