

Selection/Satisfaction/Service = The AMT Advantage

XR550 sCMOS TEM Camera Series

Large 5.5 Megapixel Scientific sCMOS Sensor

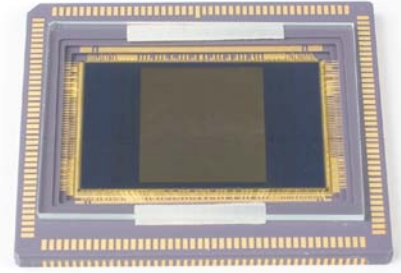
200 MHz High Speed, Low Noise Readout

Non-blooming sensor

Fast Camera Link Interface

Waterless Peltier Cooling

High Performance Lenses



Standard XR550 Camera Configurations

XR550-S

Classic Wide Angle Side-Mount

- 1) ~100% photographic or greater field-of-view imaging with up to a 28x33 mm phosphor (TEM dependent)
- 2) 13 μm square pixels at phosphor
- 3) *Uses AMT's high performance B-lens*

XR550-M

Multi-Discipline Mid-Mount

- 1) 50% photographic or greater field-of-view imaging with up to a 28x33 mm phosphor
- 2) 13 μm square pixels at phosphor depending on lens option
- 3) *Uses AMT's high performance B-lens*

XR550-L

High Magnification Low-Mount

- 1) ~37% photographic field-of-view imaging with 28x33 mm phosphor
- 2) 13 μm square pixels at phosphor
- 3) *Uses AMT's high performance B-lens*

XR550-L

Wide Angle Biological Low-Mount

- 1) ~75% photographic field-of-view imaging with a large 56x66 mm phosphor
- 2) Large 26 μm square pixels at phosphor
- 3) 26 μm square pixels at phosphor
- 4) *Uses AMT's high performance, large format C-lens*

XR550HTV

TV Rate, High Magnification Low-Mount

- 1) High "mag factor" of ~ 20x on display monitor depending on TEM
- 2) Phosphor optimized for kV and user's application
- 3) 6.5 μm square pixels at phosphor
- 4) *Uses AMT's high performance HTV-lens*

Advanced Microscopy Techniques 242 West Cummings Park, Woburn, MA 01801

Tel: (978) 774-5550 Fax: (978) 739-4313

Email: info@amtimaging.com URL: <http://www.amtimaging.com>



XR550 Combo4 Rev 4f

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Finite Conjugate Lens Options For XR-550 Series

AMT B Lens: Combines extraordinary speed with high resolution. This lens maintains a >70% MTF @ 70 line-pairs/mm across the entire image to provide unmatched sharpness at its numerical aperture of 0.23 @image). This low f-number gives B lens systems extremely high sensitivity. The B lens has <1% distortion across the field.

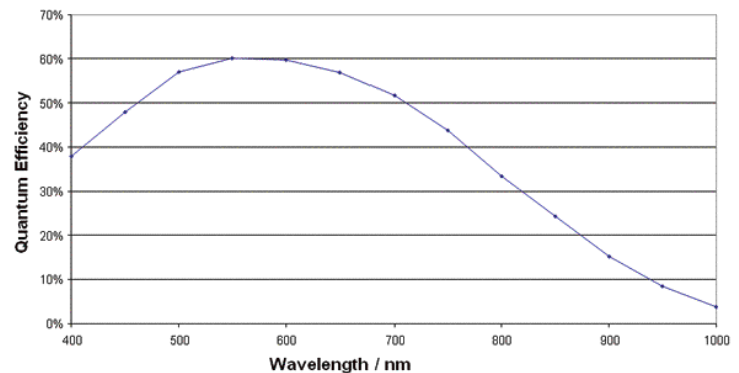
AMT C Lens: This is a sharp 4:1 lens (0.25x magnification) that is also very fast, with a numerical aperture of 0.40 @image. This lens maintains a >60% MTF @100 line-pairs/mm across the entire image of large phosphor screens needed for high definition, biological imaging. It is used at its maximum aperture to achieve low magnification factor bottom mount imaging. The C lens has <1% distortion across the field.

AMT HTV Lens: This is our highest efficiency 1:1 lens with a numerical aperture of 0.50 @image. It maintains a >70% MTF @40 line-pairs/mm across the entire image so that the XR550 can provide sharp images with up to a 2160x2560 pixel format. The HTV lens has <1% distortion across the field.

XR550 Camera Properties

Sensor Geometry: Scientific grade, sCMOS sensor with 2160 x 2560 x 6.5 μm pixels with 14x16 mm active area.

Non-Blooming Architecture: sCMOS naturally drains localized overexposure without compromising the rest of the image in the sensor for inherent blooming immunity.



Shutter: Electronic Shutter with no beam blanking or mechanical shutter required with exposures adjustable from 1 ms to 60 min. Global shutter mode is used to maintain fast readout at longer exposures.

Digital Interface and Electronics: High speed Camera Link digital camera interface for both data transfer and control. All electrical components are outside the TEM vacuum for reliability and maintenance.

Readout Rate: 50 fps readout at full resolution. Raw data acquired at 16 bits resolution 15000:1 dynamic range.

