Key Features

- Accelerate screens to > 10 million cells/hour
- Expand assay window with 3-log dynamic range
- One 384-well, one image
- Reliable assays with < 5% CV of intensities across a plate
- One system, unlimited configurations
- Only truly end-to-end solution for HCS

ImageXpress Micro Widefield High Content Screening System

The ImageXpress® Micro Widefield High Content Screening System is the ultimate combination of speed and flexibility in a turnkey solution to streamline the research and discovery workflow.

Built on over 25 years of cell-based imaging experience, the ImageXpress Micro System captures research-quality images with the widest range of objective lenses, enabling you to work at the resolution appropriate for your biology, including small organism, cellular or intracellular events. The system's best-in-class design precisely locates and identifies sub-cellular features, over multi-day time-lapse experiments when required.

For researchers looking to push the boundaries of science, the XL model of the ImageXpress Micro System leverages large field-of-view optics to map large structures with minimal tiling. In addition, querying of large cell populations is accelerated three fold, speeding up the characterization of highly heterogeneous samples or identification of rare sub-populations.

Combined with mature software, the custom designed ImageXpress Micro System outperforms both automated microscopes built from off-the-shelf components as well as other high content screening systems, providing a fast and robust platform to translate new discoveries into scientific breakthroughs.

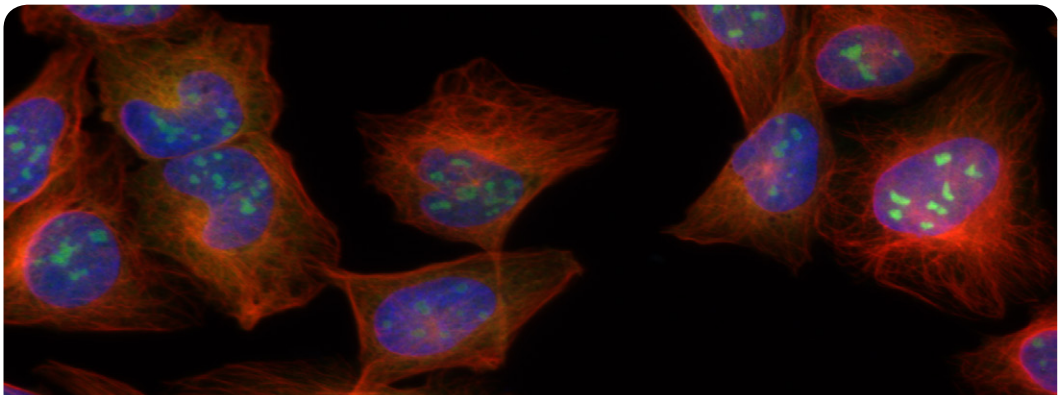


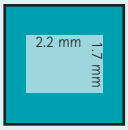
Image of U2OS cells stained for nuclei (blue), tubulin (red) and undisclosed nuclei marker (green) were acquired using standard ImageXpress Micro System configured with 40X S fluor (0.9 NA).

End-to-end solution for high content screening

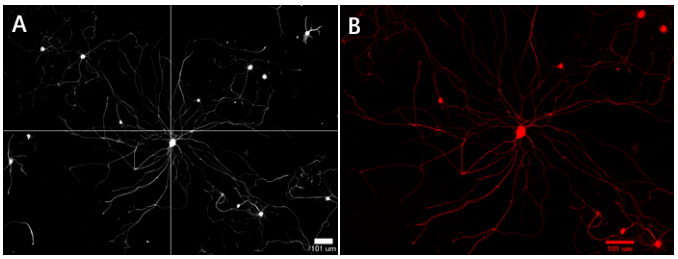
The ImageXpress Micro System does not compromise your assay's throughput or quality. Offering more data points per image, the XL model decreases your time to perform cellular- and high-resolution screens using a large field-of-view camera. Assay window and reliability are enhanced with 3-log dynamic range and < 5% CV for intensities across the plate, making certain your scientific breakthroughs are picture perfect for research publications. ImageXpress Micro Systems feature:

- Highest image flexibility score (IFS) of any widefield high content screening system. Note: IFS = sensor size (4.66 megapixel) x magnification range (100) = 466
- Standard and XL models*
- Adjustable field-of-view focuses on sample area most appropriate for your assay
- Widest selection (> 25) of objectives
  - 1x to 100x magnification
  - 0.05 to 0.95 numerical aperture (NA), air
  - Oil objectives with 1.4 NA available for research imaging
- Industry-leading 100 nm resolution voice coil-driven X, Y, and Z stages enables:
  - Capture of intricate sub-cellular features across images
  - Monitoring of long structures (*e.g.* neurons) across high-resolution tiled or stitched images
  - Ensures repeatability during multi-day time-lapse experiments
- Most extensive sample compatibility
  - Slides to plates
  - 6 to 1536 wells
  - Thin to thick plate bottoms
  - Glass to plastic
  - Transwell
  - Low- to high-profile
- Only truly end-to-end solution for high content screening
  - MetaXpress Software Application Modules: turnkey solutions for your 100 most common analysis routines
  - MetaXpress Software Custom Modules: flexible toolbox for advanced assays
  - MetaXpress Software Journals: powerful macros to analyze unique applications

* Upgrade is available from standard to XL model.

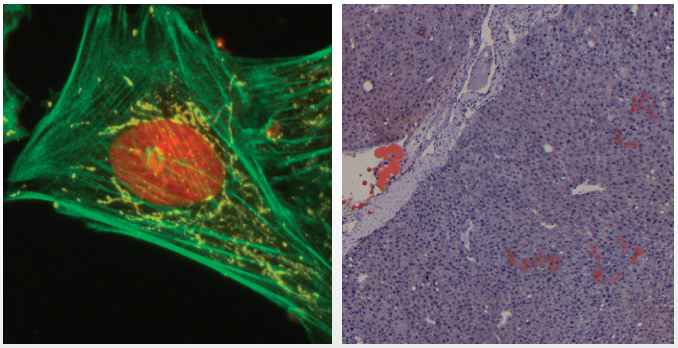
	Standard Model	XL Model
Sensor	1.4 megapixel cooled CCD	4.66 megapixel scientific CMOS
Field-of-view (4x objective shown to scale on 384 well)		
Default light source	300W xenon light source 340/380 nm (Fura-2) to > 650 nm	Solid state light source 380 nm (DAPI) to 650 nm (Cy5) > 10,000 hour life span

Seamless tiling



Precise tiling of images possible with < 100 nm stage resolution. A: Image is a 2 x 2 array of images from a standard ImageXpress System. B: Image (red) shows neurite segmentation is not compromized when it spans multiple images.

Fluorescent and brightfield imaging



Left: Muntjac cells with cells with mouse anti-OxPhos Complex V inhibitor protein, Alexa Fluor 555 goat anti-mouse IgG, Alexa Fluor 488 phalloidin and TO-PRO-3, taken with 100x Plan Fluor 1.3 NA oil objective. **Right:** Slide mounted mouse liver tissue slice stained with Oil Red O (red) and hematoxylin and eosin (purple).

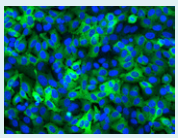
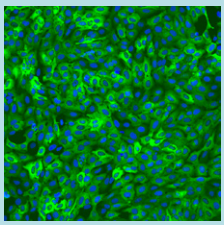
Excellent performance

Performance

- Low-resolution, whole-well, three-color cell scoring application
  - > 10 million cells/hour
  - > 1,100 wells/hour
- High resolution two-color assay (*e.g.* Transfluor® Beta Arrestin Translocation Assay)
  - > 1 million cells/hour
  - > 1,500 wells/hour
- Analysis scaling to be faster than acquisition

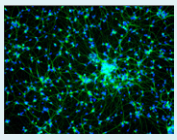
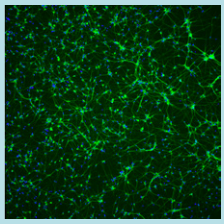
Transfluor Assay

Settings: 20X Plan Apo, no binning, 2 colors, 384-well glass-bottomed plate, <14 minutes with 1 site/well*

Model	Image	Field-of-View	Cells/Field	Sites for 70% Coverage of Well	Assay Quality
Standard		0.45 x 0.34 mm	200	50	Pits: Z' = 0.5 assay window = 3 Vesicles: Z' = 0.67 assay window =11
XL		0.7 x 0.7 mm	600	16	Pits: Z' = 0.64 assay window = 8 Vesicles: Z' = 0.69 assay window = 24

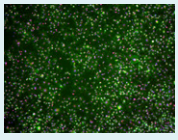
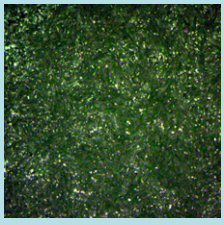
Neurotoxicity Assay

Settings: 10X Plan Fluor, 2x binning, 2 colors, 96-well plate, < 4 minutes with one site/well*

Model	Image	Field-of-View	Cells/Field	Sites for 75% Coverage of Well	Assay Quality
Standard		0.9 x 0.67 mm	120	50	Total outgrowth: Z' = 0.58 assay window = 19.8
XL		1.4 x 1.4 mm	500	16	Total outgrowth: Z' = 0.71 assay window = 19.9

Cytotoxicity Assay‡

Settings: 4X Plan Apo, 2x binning, 3 colors, 384-well plastic-bottomed plate, <19 minutes with one site/well*

Model	Image	Field-of-View	Cells/Field	Sites for 70% Coverage of Well	Assay Quality
Standard		2.2 x 1.7 mm	5,000	2	Cytoskeletal degradation: Z' = 0.71 assay window = 4.4
XL		2.8 x 2.8 mm	> 10,000	1	Cytoskeletal degradation: Z' = 0.72 assay window = 4.3

* Each additional site will double acquisition time. XL model can eliminate half number of sites required by standard camera.

‡Whole-well acquisition reduced custom field of view used to avoid capturing edge of well with 4x.

Unlimited hardware configurations

The open modular design of the ImageXpress Micro System allows for a variety of expansion options at the time of purchase or after market. Pick the right configuration and illumination module to suit your application needs.

ImageXpress Micro XL System with Transmitted Light Option installed.

ImageXpress Micro XL System with Fluidics Option installed.

Option	Feature	Compatibility
Environmental Control	• Multi-day, live cell time-lapse imaging • Select appropriate atmospheric conditions (*e.g.* 5% or 10% CO_2) • Temperature to mimic physiological environment (30–40 °C ± 0.5 °C) • Control humidity and minimize evaporation (0.5 µL/well/hour for 96- or 384-well formats)	• Phase Contrast Transmitted Light • Fluidics

Phase Contrast Transmitted Light	• High contrast imaging where unstained cells are easily viewed or separated from background (4x–60x)
	  • Ideal for non-fluorescent histochemically stained samples
	• Nikon 100W Pillar Diascopic Illuminator with TE-C ELWD Condenser
	  • 0.3 NA with 65 mm WD and PhL, Ph1, and Ph2 selectable phase rings
	• Compare fluorophore-independent morphology visualization with fluorescent imaging overlay.
		• Environmental Control

Brightfield Only Transmitted Light	• Low contrast imaging with environmental control • Eliminate toxic nuclear stains in live cell imaging • Compare fluorophore-independent morphology visualization with fluorescent imaging overlay	• Environmental Control (required) • Fluidics (required)
Fluidics	• Single-channel pipettor • Dispense volumes from 3 µL to 200 µL (±1 µL ±5%) • 96- or 384-well format FLIPR® tips • Holds two plates for compound addition or media exchange • Optional plate heating	• Environmental Control (required) • Brightfield Only Transmitted Light

Flexible light source options

Excitation Light Source	Lifetime (hours)	Features	Compatibility	
			Standard	XL
Broad spectrum xenon light source	500+	Wavelenth: 340-680 nm Suitable for most fluorescent applications, compatible with filter wheel for ratio imaging (*e.g.* Fura-2; BCECF) and Multi-pass excitation cubes for additional flexibility	Included	NA
Solid state white-light engine	10,000+	Wavelength: 380-680 nm Solid state light source with long lifetime, suitable for most fluorescent applications	Optional upgrade	Included
Broad spectrum long-life light source	10,000+	Wavelength: 340-680 nm Long lifetime white light source suitable for most fluorescent applications, 10 position filter wheel included for ratio imaging (Fura-2; BCECF). Compatible with multi-pass excitation cubes for additional flexibility and speed.	Optional upgrade	Optional upgrade
Near-IR optimized solid state white-light engine	10,000+	Wavelength: 380-770 nm Solid state light source with long lifetime, suitable for most fluorescent applications enhanced for near-IR application like Cy7	Optional upgrade	Optional upgrade
Configurable solid state light engine	10,000+	Wavelength: Customizable 380 nm to NIR. Customizable excitation source with independent control of up to 7 wavelengths. Expands flexibility of wavelength selection. Compatible with multi-pass excitation cubes for additional throughput and speed.	Optional upgrade	Optional upgrade

Note: all options, filters, and objectives are available at point of sale or as after market upgrades

Configuration tables shown in this datasheet do not encompass all configurations available.

Contact your sales and support team today to identify the system configuration most suitable for your applications.

Technical specifications

- Industry-leading fast laser autofocus
- 1x-100x Nikon objectives
- 4-position automated objective changer
- 5-position automated filter cube changer, configurable for specific fluorescent dyes and histochemical stains
- Fully automated X-Y sample stage and Z focus stage with resolution greater than 100 nm
- 20" H x 18" W x 27" D, 180 lbs. (not including options)

Contact Us

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Check our website for a current listing of worldwide distributors.

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