DATA SHEET

ImageXpress HCS.ai High-Content Screening System

Our fastest, most versatile, intuitive screening system yet – delivering exceptional data quality for every lab!

The **ImageXpress® HCS.ai High-Content Screening System** captures your imagination with high-quality imaging and analysis, enabling you to acquire the data you need with ease. The system is configurable to match your requirements and can be upgraded as your research needs evolve. Empower your team to obtain high-definition images and robust data from a wide range of 2D and 3D cell assays, and leverage the power of AI for deeper insights.

KEY FEATURES

- Reimagined MetaXpress® Acquire Software for easier, faster image acquisition
- AI-powered IN Carta® Image Analysis Software seamlessly integrated into your workflow
- Six objective turret alongside optional magnification changer giving up to 12 effective levels of magnifications
- Easy switching between widefield mode and up to four confocal disc options
- Configurable system with a simple upgrade pathway to match your current and future research needs

ImageXpress HCS.ai models	Widefield	Confocal	Advanced
Illumination	5 color LED (up to 220 mW per channel)		7 color laser (up to 800 mW per channel)
Fluorophore compatibility	DAPI, FITC, TRITC, TxRed, Cy5, (CFP, YFP = optional)		DAPI, CFP, FITC, YFP, TRITC, TxRed, Cy5, Cy7
Confocal spinning disk	n/a	60µm pinhole (single) 60µm pinhole + 50µm slit (dual)	60µm pinhole (single) 60µm pinhole + 50µm slit (dual) 50µm pinhole Deep Tissue disk (dual)

ImageXpress HCS.ai system

Focus	• High-speed hardware autofocus with multi-surface detection • Integrated image autofocus option
Camera	• >5 mega pixel sCMOS sensor with large sensor size (224mm^2) • >3 log dynamic range with 16-bit detector, 95% peak quantum efficiency
Stage	Linear encoded voice coil driven X, Y, and Z stages with better than 25 nm resolution
Filters	• 4-position software selectable excitation and dichroic filter wheel • 10-position software selectable emission filter wheel
Transmitted light	High-contrast imaging where unstained cells are easily viewed or separated from background
Objectives	• 6-position automated objective changer • High NA air objectives: 2X–60X (up to 0.9 NA) • Extra long working distance objectives 20X–60X (up to 0.7 NA)
Sample compatibility	Microplates (1–1536 wells), round or flat bottom, low to high profile, slide holder

Options (all models)

Magnification changer (optional)	• 1X (standard) and 1.5X modifies objective capability: to provide 2X–90X magnification • Automated switching with software control
Water immersion (optional)	• 20X, 40X, 60X objectives available (up to 1.2 NA) • Increase signal up to four times for brighter intensity at lower exposure times • Increase in penetration depths dependent on sample • Improve z-resolution and decrease optical aberrations • Auto water replenishment enables screening or imaging across a plate
Environmental Control (optional)	• Multi-day, live cell time-lapse imaging • Controls for appropriate atmospheric conditions • Temperature: heating up to 40°C • Integrated gas mixer: CO_2 (0–15%), O_2 (1–21%) • Controls humidity and minimizes evaporation (0.5 µL/well/hour for 96- or 384-well formats) • Robot-friendly loading design

Acquisition	**MetaXpress Acquire software**
Digital Confocal	2D real-time deconvolution technology
Quick ID Targeted Acquisition	Use 2–step acquisitions to identify and selectively image objects of interest
MetaXpress Developer	Utilize journal macro capability for advanced customization
Output data format	16-bit TIFF image files format with folder-based storage management

Analysis	**IN Carta software**
SINAP	• Deep-learning segmentation analysis tool • Train custom AI models for segmentation • Link segmentation in 3D to perform volumetric analyses
Phenoglyphs	• Machine learning object classification • Leverage hundreds of measurements to classify identified objects
Custom Module Editor	Analysis toolbox with wide variety of functions to build analyses for 2D and 3D assays
3D Viewer	Visualize 3D datasets and analysis masks with an immersive viewing tool

Note: all options, filters, and objectives are available at point of sale or as after market upgrades. Configurations shown herein do not encompass all configurations available. Contact your sales and support team today to identify the system configuration most suitable for your applications.

Contact Us

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Check our website for a current listing of worldwide distributors.

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Printed in USA