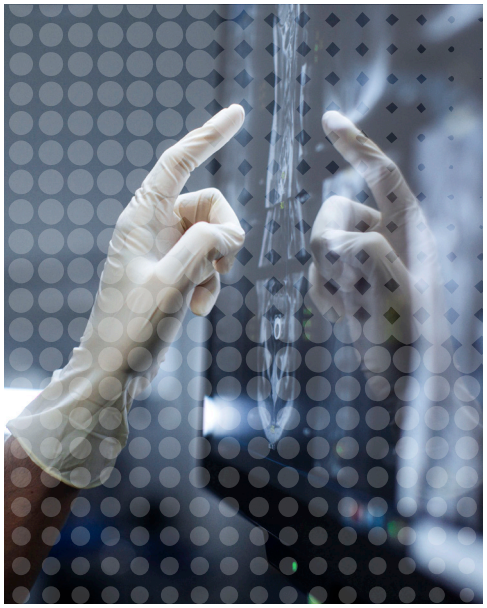
POWERING INNOVATION IN LIFE & HEALTH SCIENCES







INTEGRATED PHOTONICS EXPERTISE
FOR SCALABLE, RELIABLE INSTRUMENTS



Our Role in Life & Health Sciences

For over 75 years, MKS has developed technologies that power advanced Life & Health Sciences instruments. With a global manufacturing, service, and support footprint and recognized brands including Newport™, Spectra-Physics®, and Ophir®, we provide the resources and application support customers need from initial development through production and beyond.

Spanning lasers, optics and optomechanics, precision motion and vibration control, and optical measurement, our integrated photonics portfolio supports instruments used in scientific research, biotechnology, pharmaceutical development, clinical diagnostics, and medical applications.



The MKS Advantage

The value of MKS extends beyond the breadth of this portfolio. Our specialists work closely with customers to understand demanding system requirements, identify the right technologies, and solve complex design and integration challenges.

This combination of an integrated photonics portfolio, application knowledge, and technical expertise helps Life & Health Sciences customers:

- Improve resolution, sensitivity, and signal integrity
- Increase throughput, reliability, and workflow efficiency
- Simplify system integration and reduce development risk
- Accelerate the transition from prototype to production

By looking beyond individual components and considering how technologies work together within the instrument, MKS helps OEMs develop higher-performing systems with greater confidence and efficiency.

"Photonics has become one of the foundational technologies of life science and medicine, enabling breakthroughs that improve our understanding of biology, accelerate innovation, and ultimately enhance the quality of life for people around the world."

John Williams, Executive VP & GM of Photonics Solutions Division

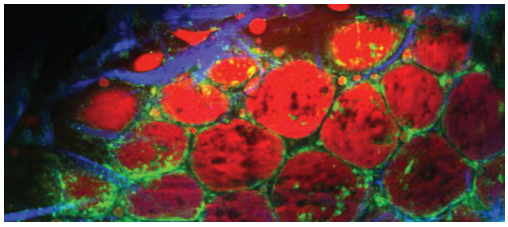
Proven Across Life & Health Sciences

From established clinical and research instruments to rapidly evolving analytical platforms, MKS technologies address critical performance requirements across a broad range of Life & Health Sciences applications.

The examples below illustrate how selected MKS technologies support specific LHS customer challenges.

Imaging & Image Guided Applications

Multiphoton Bioimaging



Challenge: Visualizing structures deep within living tissue requires high resolution while minimizing photodamage.

MKS Solutions

Spectra-Physics® MaiTai® One Box Ti: Sapphire Ultrafast Lasers



Newport® RS2000 Optical Table



Customer Benefit: Advances deep-tissue imaging with exceptional resolution and reduced sample disruption.

Microscopy



Challenge: Producing reproducible, high-resolution images depends on stable illumination and precise optical alignment.

MKS Solutions

Spectra-Physics Excelsior® CW Lasers

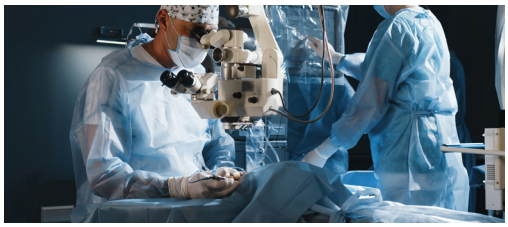


Newport Multi-Axis Picomotor™ Piezo Alignment Stage



Customer Benefit: Supports clear, repeatable imaging performance for advanced biological and clinical research.

Ophthalmic Applications



Challenge: Achieving precise tissue treatment requires exceptional accuracy while minimizing damage to surrounding tissue.

MKS Solutions

Spectra-Physics IceFyre® UV & IR Femtosecond Lasers

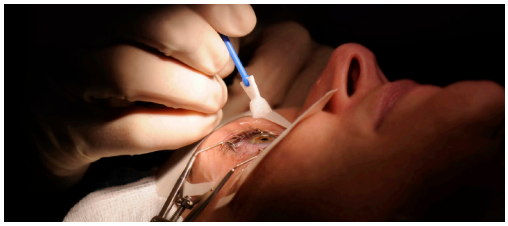


Spectra-Physics Spirit® High-Power Femtosecond Lasers



Customer Benefit: Delivers exact tissue interaction with minimal thermal impact, supporting safer and more accurate surgical procedures.

Ophthalmic Laser Systems



Challenge: Ensuring safe ophthalmic laser treatments through accurate pulse energy verification.

MKS Solutions

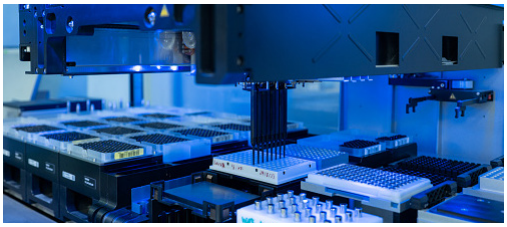
Ophir® Pyroelectric Energy Sensors



Customer Benefit: Delivers accurate laser energy measurements to support compliance and ensure consistent treatment performance.

Cell & Molecular Analysis

Flow Cytometry



Challenge: Accurate cell characterization depends on stable optical alignment and precise positioning throught the measurement process.

MKS Solutions

Newport Optical Mirror Mounts



Newport Linear Translation Stages



Customer Benefit: Maintains consistent optical performance for reliable cell analysis and fluorescence measurements.

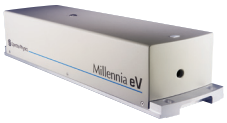
Cell Sorting



Challenge: Isolating targeted cell populations requires steady excitation and consistent measurement conditions.

MKS Solutions

Spectra-Physics Millennia® eV™ Lasers



Customer Benefit: Delivers accurate, repeatable cell identification and sorting through stable laser performance and real-time beam monitoring.

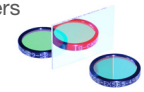
Fluorescence-Based Molecular Diagnostics



Challenge: Delivering reliable diagnostic results requires accurate detection of low-intensity fluorescence signals.

MKS Solutions

Newport Fluorescence Filters



Newport Molded Aspheric Lenses



Customer Benefit: Strengthens detection accuracy and signal quality across diagnostic and molecular testing workflows.

Spectroscopy



Challenge: Detecting subtle molecular signatures requires high spectral resolution and strong signal fidelity.

MKS Solutions

Newport Echelle Diffraction Gratings



Newport Laser Diode Instrumentation



Customer Benefit: Provides sensitive and repeatable molecular analysis for research, diagnostics, and process monitoring.

Healthcare & Laboratory Monitoring

UV Sterilization Monitoring



Challenge: Achieving consistent UV disinfection requires accurate monitoring of UV intensity and dose throughout the sterilization process.

MKS Solutions

Newport UV Silicon Photodiode Sensors



Customer Benefit: Provides confidence in sterilization effectiveness through accurate UV measurement and process validation.

Thermal Monitoring



Challenge: Identifying temperature anomalies requires reliable, non-contact thermal measurement across healthcare and laboratory environments.

MKS Solutions

Ophir IR Thermal Imaging Lenses



Customer Benefit: Supports safety monitoring and process control through accurate, real-time thermal imaging.

Laser Skin Treatment (IPL)



Challenge: Maintaining consistent IPL treatment efficacy and patient safety requires accurate measurement and verification of pulse energy.

MKS Solutions

Ophir Energy Sensors for IPL Sources



Customer Benefit: Delivers precise IPL energy measurements for reliable calibration, consistent treatment performance, and improved quality.

Supporting the Next Generation of Instruments

Life & Health Sciences are entering a new era defined by automation, scalability, precision, and personalization. As instruments become more sophisticated, intelligent, and data-driven, developers face increasing demands for performance, integration, and reliability.

MKS is well positioned to support this evolution by helping instrument developers meet the demanding performance requirements of rapidly advancing applications such as:

- Deep-tissue and multiphoton bioimaging
- Single-cell analysis, high-parameter flow cytometry, and precision cell sorting
- AI-enabled microscopy and automated digital laboratories
- Precision molecular analysis and next-generation spectroscopy

Explore our Life & Health Sciences solutions at **www.newport.com/c/life-and-health-sciences** or contact us here **www.newport.com/contact-us**

From Precision Components to Life-Changing Diagnostics

How MKS Technologies Enable Life & Health Sciences



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MKS Inc. enables technologies that transform our world. We deliver foundational technology solutions to leading edge semiconductor manufacturing, electronics and packaging, and specialty industrial applications.

We apply our broad science and engineering capabilities to create instruments, subsystems, systems, process control solutions and specialty chemicals technology that improve process performance, optimize productivity and enable unique innovations for many of the world's leading technology and industrial companies.

Our solutions are critical to addressing the challenges of miniaturization and complexity in advanced device manufacturing by enabling increased power, speed, feature enhancement, and optimized connectivity. Our solutions are also critical to addressing ever-increasing performance requirements across a wide array of specialty industrial applications.

Additional information can be found at **www.MKS.com**.

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