



Medical Lighting Solutions
High-Performance LED
Short-Arc and Pulsed-Arc Xenon

Illuminating Medicine's Most Critical Applications

EXCELITAS
TECHNOLOGIES®

Excelitas – Your Trusted Partner for Medical Illumination & Lighting

For over 30 years, Excelitas has been your trusted partner in the medical illumination and medical equipment markets. We understand what it takes to get even the most complex projects off the ground and deliver on time and on budget.

From simply supplying an LED or lamp solution to providing a complete, integrated system, Excelitas consistently delivers lighting solutions for the most demanding applications including lighting for surgical / operator suites, endoscopy procedures, dental procedures and clinical diagnostics.



Unequaled Expertise and Global Presence

Our customers benefit from the power of Excelitas' state-of-the-art lighting design and manufacturing facilities located throughout North America, Europe, and Asia. In fact, we have multiple design and manufacturing facilities exclusively dedicated to LED Lighting technology with ISO 13485 certification for medical devices.

Excelitas' leadership in Illumination and medical component design for medical devices is based on many exceptional capabilities:

- Innovative solid-state and Xenon-based technologies
- Laser and/or LED-based light engines
- Fiber optic illuminators, modules and delivery systems
- High-performance arc-lamp power supplies
- Comprehensive design, manufacturing and testing capabilities based in ISO 9001-certified facilities
- Advanced manufacturing in compliance with medical quality system regulations, certified to ISO 13485 for medical device
- Extensive engineering expertise
- Optical design and measurement
- Thermal management design and analysis
- Electrical system and power supply design and integration
- Software systems integration
- Exceptional service, quality and reliability in the medical marketplace

Your Single-Source Partner for End-to-End Photonic Solutions

Excelitas now offers an extensive lighting, optical, optomechanical and detection technologies portfolio to enable our customers to fully leverage the advantages of a single source partner. Engage our full photonics technology capabilities to expedite your time to market and optimize your medical photonics system.

No matter what type of medical lighting application you require, Excelitas has the exact solution... *from source to sensor, and everything in between.*

APPLICATIONS EXPERTISE – Headlamp Lighting	4
APPLICATIONS EXPERTISE – Surgical Lighting	5
APPLICATIONS EXPERTISE – Endoscopy & Surgical Visualization	6
APPLICATIONS EXPERTISE – Dental Lighting & BioAnalytical	7
MEDICAL LIGHTING TECHNOLOGIES – X-Cite® Vitae™ LED Platforms	8
MEDICAL LIGHTING TECHNOLOGIES – Cutom LED Solutions	9
MEDICAL LIGHTING TECHNOLOGIES – Cermax® Xenon	10
MEDICAL LIGHTING TECHNOLOGIES – Pulsed Xenon	11

Illuminating Your Medical Innovation

Precision Bright-White Light

Headlamp Lighting



When perfectly balanced bright-white light is essential, our Cermax® Xenon and solid-state LED lighting solutions are optimal choices for critical medical lighting requirements such as surgical headlamps. Excelitas provides medical OEMs with high-intensity, high-quality white light from either Xenon or LED sources. With Excelitas, you get perfect illumination for viewing the true colors of tissues and vasculature in the surgical field, ensuring accurate analysis and treatment.

Excelitas offers lighting solutions that range from discrete LEDs and modules through to turnkey subassemblies and finished systems. Delivering lighting innovation to meet the many unique requirements of our customers is what we do best.

Lighting technologies and capabilities for headlamp solutions offered by Excelitas include:

- Cermax Xenon technology
- High CRI white light LED technology
- Custom and proprietary luminaire light engine / module design
- Full product design and manufacturing
- Optical design and measurement
- Thermal management design and analysis
- Electrical system design
- ISO-13485

for Critically Accurate Surgical-Field Illumination

Surgical Lighting

Excelitas is a leader in the development of high-efficiency, LED illumination solutions for surgical suites where high CRI and uniform, bright light is critical. Whether your goal is to improve CRI, R9, R13, improve shadow control, uniformity or beam shaping – or all of these objectives – we specialize in customer-specific designs which meet your most unique requirements. With Excelitas illumination technologies, you get perfect bright-white light for viewing the true colors of tissues and vasculature in the surgical field, ensuring accurate diagnosis.

Customers can engage Excelitas for discrete LED components, modules and subassemblies, or complete light source systems. We excel at delivering distinct lighting solutions that match the unique requirements of our customers.

Excelitas offers a wide range of technologies and capabilities for surgical theater lighting solutions:

- High CRI, R9, R13 white light LED technology
- Custom and proprietary light engines/module designs
- Full product design and manufacturing
- Additional wavelength options to excite fluorescence
- Custom chip-on-board LEDs with any available CCT
- Optical design and measurement
- Thermal management design and analysis
- Electrical system design
- Exceptional service, quality and reliability
- ISO-13485



Illuminating Your Medical Innovation

Extensive Application Expertise

Endoscopy & Surgical Visualization



Endoscopy & Surgical Visualization

Excelitas enjoys a long history of providing exceptional lighting products to the medical market. The Cermax® Xenon brand is synonymous with medical lighting with high-intensity, full spectrum white light for endoscopic illumination, surgical headlamps, or robotic surgery equipment. Excelitas also offers a full range of innovative solid-state X-Cite Vitae® fiber optic illuminators, which provide customers the ability to choose between Xenon or LED technology that best meet their application requirements. Product options include various CCT white colors, white plus NIR and RGB for adjustable CCT.

Excelitas offers standard and configurable modules, as well as complete plug-and-play fiber optic assemblies or fully customized solutions. We excel at delivering distinct lighting solutions that match the unique requirements of our customers.

Our wide range of capabilities include:

- Xenon lamp technology – 150W-400W Cermax
- High CRI white light LED technology – X-Cite Vitae FOI
- White + NIR for ICG fluorescence – X-Cite Vitae FOI
- RGB LED option with adjustable CCT – X-Cite Vitae vIR
- *Additional wavelength options to excite fluorescence (ICG or PPIX)
- Multi-wavelength laser engines for surgical visualization
- OEM systems design support
- Custom and proprietary designed light engine / module design
- Full product design and manufacturing
- ISO-13485 and ISO-9001
- Innovative solid-state and Xenon-based technologies

to Ensure Optimal Lighting Performance

Dental Lighting & BioAnalytical

Dental Lighting

Excelitas has proven expertise in developing solutions for dental suite lighting, examination lights, UV curing wands, hand pieces and intra-oral cameras. Excelitas is a leader in custom LED technology for dental applications, delivering high CRI, active shadow control, blue cut off capability, sharp cut offs, tunable CCT. We specialize in customer-specific designs which ensure unique performance and selling features. We work closely with our customers to understand their requirements, and develop solutions to meet both specifications and time to market.

Excelitas offers customers maximum flexibility with a range of discrete lamp and LED components, modules and subassemblies, as well as complete light source systems for a variety of dental lighting needs. Leveraging our innovative technologies and field-proven expertise, Excelitas delivers distinct lighting solutions to meet the most demanding performance requirements.

- High CRI, R9, R13 white light LED technology
- Custom and proprietary light engines / module designs
- Full product design and manufacturing
- Custom chip-on-board LEDs with any available CCT
- Optical design and measurement
- Thermal management design and analysis
- Electrical system design
- ISO-13485

BioAnalytical

Fluorescence biomarker technology is advancing sample analysis from a complex laboratory procedure to a bed-side test. It is crucial that the light source being used in analysis should be uniform, stable and reliable in order to predict an accurate diagnosis.

Excelitas has the expertise to provide various technologies for illumination in analytical and clinical diagnostic instruments including:

- Pulsed Xenon lamp technology – lamps and subassemblies
- LED modules including filters, mirrors, optics and detectors
- Custom chip-on-board LEDs with any available wavelength
- X-Cite® Vitae™ w/ for white light (400-700 nm) fluorescence excitation
- X-Cite Vitae 6 multi-wavelength switchable, Laser or LED solution

Excelitas offers extensive custom design capabilities aligned with customer requirements to deliver an illumination solution optimized to your specifications including wavelength, numerical aperture (NA) and output power, as well as built-in communication and controls required for your instrumentation.



Advancing Medical Innovation with High-Performance LED Technology

From Customizable LED Platforms

X-Cite Vitae LED Platforms



X-Cite® Vitae™ LED Platforms offer easily integrated, customizable solutions with best-in-class manufacturing quality to meet the most demanding applications of medical and analytical instrumentation. X-Cite has been a trusted brand in the life sciences for over 15-years, with expertise in illumination technology, light delivery, and award-winning customer service.

Excelitas has leveraged this expertise in our newest X-Cite Vitae product series of customizable lighting platforms, which deliver cost-effective and streamlined solutions for a growing range of medical lighting requirements. Based on our field-proven solid-state technology, the Vitae series delivers LED illumination to expedite your time to market without compromising performance or functionality.

X-Cite Vitae vIR: RGB Tunable White Light (IR/UV options)

- Customizable, multi-wavelength illumination system
- Flexible LED/Laser modular design
- Reliable replacement for 180W and 300W Xenon technology
- High output power, adjustable color temperature and high CRI
- Optional UV and NIR to excite PPIX and ICG, respectively
- Applications include endoscopy and surgical visualization

X-Cite Vitae wL: White Light Fluorescence

- Powerful white light fluorescence (370-700 nm)
- Various coupling options tailored to your instrument
- Small footprint to easily fit within an existing scanning system
- Applications include fluorescence scanning systems and DMD (digital mirror devices)

X-Cite Vitae 6: Flexible Multi-Wavelength

- Flexible LED/Laser modular design
- Maximum spectral breadth and stability
- Excitation filtering available
- High-speed color switching for high throughput
- Applications include fluorescence imaging and biomarker detection

X-Cite Vitae FOI: Configurable White Light Illuminator

- Compact, configurable, white light, LED light source
- High lumen and high CRI options
- Variety of coupling and control options for easy integration
- Additional wavelengths available for fluorescence
- Four-way turret accepting Storz, Wolf, ACMI, and Olympus ferrules optimized for 5mm, 0.56 NA fibers.
- Applications include surgical headlamps and endoscopy.



to Fully Integrated, Grass-Roots Illumination Solutions

High-Performance, Custom LED Solutions

Excelitas offers fully customizable LED solutions for the most critical medical applications while leveraging a unique combination of innovative technology and application expertise. With a broad range of solutions from Chip-on-Board LED and sensor components to complete solid state illumination system implementation, Excelitas is focused on helping customers accelerate LED lighting designs to their specific application requirements.

With constant advancements in LED technology, the integration of LEDs into medical applications is accelerating due to improved wavelength control, longer service life, and lower power requirements. Additionally, LEDs are more durable, compact and environmentally-friendly than traditional incandescent or mercury halide lamps.

We recognize that every medical lighting application is different and each customer has unique requirements. Whether your goal is to minimize power consumption, reduce heat, meet challenging candela or lux requirements, extend life, or achieve maximum CRI, we have the lighting expertise and ingenuity to fully enable your medical innovation.

At Excelitas, we work closely with our customers to instill confidence and deliver highest quality solutions whether it is a small component or a fully integrated system from concept through post-production.

- Optical design, simulation, qualification and integration
- Thermal management
- Electrical systems design
- Mechanical design
- ACULED® family of custom and standard Chip-on-Board (COB) LED packages
- High CRI, R9, R13 white LED technology
- LED fiber optic illuminators and LED modules
- Turnkey lighting fixtures



Field-Proven Xenon Solutions

Short-Arc and Pulse Guided-Arc Lamps & Light Engines

Cermax Xenon Lighting



Excelitas Cermax® Xenon is the light engine of choice for fiber optic illumination applications including endoscopy, headlamps, surgical microscopy and fluorescence. Our field-proven ceramic- and metal-body designs have set the standard for Xenon light source innovation for decades. Excelitas continues to innovate and refine higher wattage, metal-body lamps to meet the increasing performance requirements for narrower fiber delivery applications.

- Rugged ceramic-body Cermax lamps have been the preferred choice in the medical industry for over 20 years for broad spectrum light, offering a compact and safe alternative to quartz bubble
- Xenon Cermax VQ and ME metal-body lamps offer increased light output, better uniformity, repeatable alignment, longer life and minimized operating temperature
- Unparalleled color performance for optimal rendition of the true colors of tissues, outperforming halogen and solid state solutions
- Integrated parabolic or elliptical reflector for high-intensity, collimated or focused output without alignment issues
- Instant on/off feature resolves design challenges of warm-up- and cool down times
- DC operation enables low-noise, high-stability performance
- Ultra short-arc gap for easy-to-design, high throughput optical systems
- Environmentally safe, inert, non-toxic Xenon gas offers a viable alternative to mercury and halide-based light sources
- Flexible power ranges from 150 to 400 Watts



for Medical, Analytical & Clinical Illumination

Pulsed Xenon Lighting

Excelitas Guided-Arc Xenon Flashlamps are the light engine of choice for a broadband white spectrum from ultraviolet to infrared in life science, analytical and clinical diagnostics. Whether your goal is arc stability, high power, long life – or all these objectives – we offer a wide selection of pulsed Xenon lights ideal for absorption analysis, immunoassay systems, fluorescent photometers, spectroradiometry, liquid chromatography, gas chromatography, colorimetry and ultraviolet applications. Our newly developed μ PAX family offers a precision, pre-aligned lamp system eliminating cumbersome lamp adjustment in the field.

Customers have the option of purchasing discrete lamps with triggers and power supplies or pre-aligned lamp assemblies.

Standard and Custom Xenon Light Engines

- New μ PAX & LS-6 family of precision-aligned Xenon modules
- RSL family of miniature Xenon flashlamp systems
- FlashPacs

Components

- 1100 Series of Xenon lamps
- Power supplies
- Triggers & Lite-Pac™ modules



About Excelitas Technologies

Excelitas Technologies® Corp. is a global technology leader focused on delivering innovative, high-performance, market-driven photonic solutions to meet the lighting, optronics, detection and optical technology needs of global customers. Serving a vast array of applications across biomedical, scientific, safety, security, consumer products, semiconductor, industrial manufacturing, defense and aerospace sectors, Excelitas Technologies stands committed to enabling our customers' success in their end-markets. Excelitas Technologies now has approximately 6,700 employees in North America, Europe and Asia, serving customers across the world.

www.excelitas.com



www.excelitas.com

X-Cite® LED

Tel: (+1) 905.821.2600

Toll-free: (+1) 800.668.8752

Cermax®

Toll-free: (+1) 800.347.2474

For a complete listing of our global offices, visit www.excelitas.com/locations

© 2019 Excelitas Technologies Corp. All rights reserved. The Excelitas logo and design and product trademarks are registered trademarks of Excelitas Technologies Corp. Excelitas reserves the right to change this document at any time without notice and disclaims liability for editorial, pictorial or typographical errors.

L-EX_BR-Medical Lighting Solutions_2019.10-V3