METAPHASE
LIGHTING TECHNOLOGIES



Light Beyond Vision

Technical Catalog

Engineered LED Illumination

For Machine Vision, Security Applications, and More

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METAPHASE
LIGHTING TECHNOLOGIES

ABOUT METAPHASE

METAPHASE LIGHTING TECHNOLOGIES



The Vision Industry's Largest LED Lighting Portfolio

Metaphase Technologies' portfolio comprises more than 4,000 configurable LED lighting solutions, offering unmatched selection and versatility. With such an extensive product line, customers can find the exact type of illumination they need for almost any project — whether they are seeking a specific lighting geometry, some combination of wavelengths, a particular control configuration, or specialized optics.

If a standard product cannot meet your needs, Metaphase engineers specialize in designing customized lighting solutions for the toughest applications and environments.

Whether you need a single highly specialized illumination source or thousands of production units, count on the Metaphase team to work with you from initial concept to real-world deployment.

Mission Statement

To continue innovating LED lighting solutions that inspire our customers to solve difficult challenges and help improve the health, safety, and security of our communities.

Industries Metaphase Serves

For over three decades, Metaphase Technologies has been a leading innovator in advanced LED illumination solutions designed to enhance the capabilities of imaging, automation, and security systems around the world. Our technology and expertise support demanding applications in manufacturing, logistics, and defense as well as cinematography, broadcast studios, and specialty imaging.

Our engineers work directly with manufacturers, automation companies, and system integrators to determine the most effective illumination for each application. This collaborative approach ensures each customer receives lighting solutions that are both technically effective and practical to implement.

- **Next-Generation Products**
  With the world's largest selection of machine vision and specialty LED illumination, we can solve your most challenging applications.
- **Comprehensive Customization**
  What we cannot offer off the shelf, we can often engineer to spec. We work with you to design lighting solutions tailored to your exact specifications and application.
- **Unsurpassed Quality**
  Our reputation for unmatched product performance and reliability sets the standard for LED lighting in the industries we serve.
- **Superior Support**
  Our mechanical and electrical engineers and customer service specialists bring the expertise and resources to help you find solutions to virtually any lighting challenge.
- **Risk Mitigation**
  We employ strict QA/QC testing on all our products and partner with distributors and contract manufacturers to mitigate supply chain disruptions.

METAPHASE LIGHTING TECHNOLOGIES

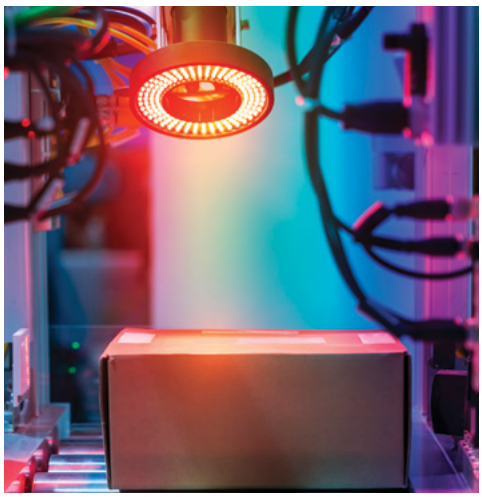
INDUSTRIES

Industries Metaphase Serves

Every machine vision application poses unique challenges. We collaborate with integrators and OEM partners across multiple industry verticals to engineer LED lighting solutions matched to the specific demands of your environment.

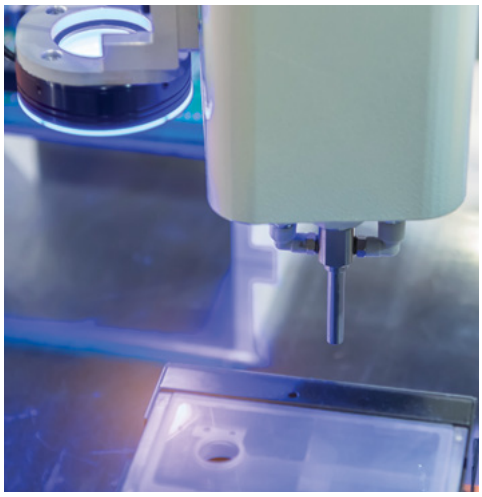
Warehouse & Logistics

LED illumination is critical to the machine vision systems that keep warehouse and distribution centers running efficiently, accurately, and reliably. Metaphase's lighting solutions can help ensure your cameras read barcodes, verify labels, measure parcel dimensions, detect damaged packaging, and direct automated sortation at rates exceeding tens of thousands of items per hour.



Robotics & Automation

From bin picking and palletizing to assembly verification and part sorting, machine vision helps guide today's industrial robots and automation systems. Metaphase's compact, high-intensity LED lighting delivers consistent illumination across changing working distances, tight tooling envelopes, and fast cycle times — giving automated systems the reliable imaging data they need to perform.



Food & Beverage

Machine vision systems ensure food safety, product quality, and regulatory compliance at every stage of production. Metaphase's LED lighting solutions — including IP69K washdown-rated designs — empower vision systems to reliably sort raw ingredients, inspect finished goods, verify fill levels on bottling lines, and maintain performance in demanding food production environments.



Pharmaceutical Production

Pharmaceutical manufacturing leaves no room for inaccurate inspection results. Metaphase's LED lighting enables vision systems to verify tablet integrity, inspect blister packs, authenticate serialization codes, confirm vial fill levels, and detect particulate contamination — all at production speeds and in compliance with regulatory standards.



Web Production

Continuous web production lines run at speeds that challenge even advanced vision systems. Metaphase's LED lighting empowers these systems to inspect metal strip and battery foil, detect flaws in nonwoven fabrics and flexible films, verify print and coating quality, and examine flat glass and display substrates — across the full web width and at full line speeds.



Defense & Law Enforcement

Defense and law enforcement applications demand imaging systems that deliver outstanding performance under the most stringent operational conditions. Metaphase lighting solutions offer advanced illumination for ballistic and projectile research, under-vehicle inspection, and border crossing security. Our specialized lighting delivers the intensity, reliability, and wavelength selection that defense and security tasks require.

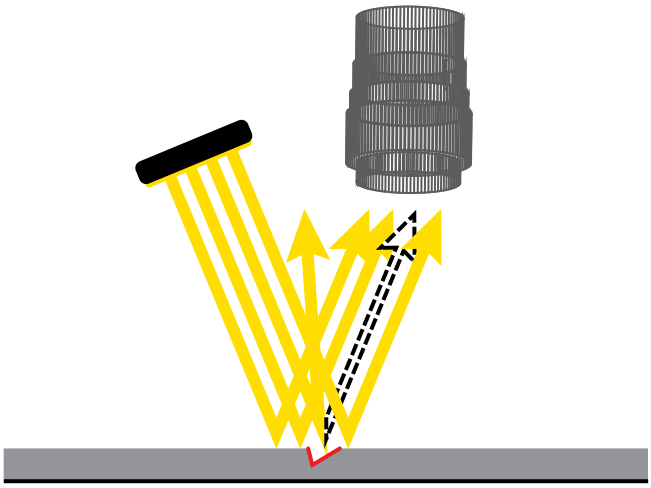


METAPHASE LIGHTING TECHNOLOGIES

LIGHTING GEOMETRIES

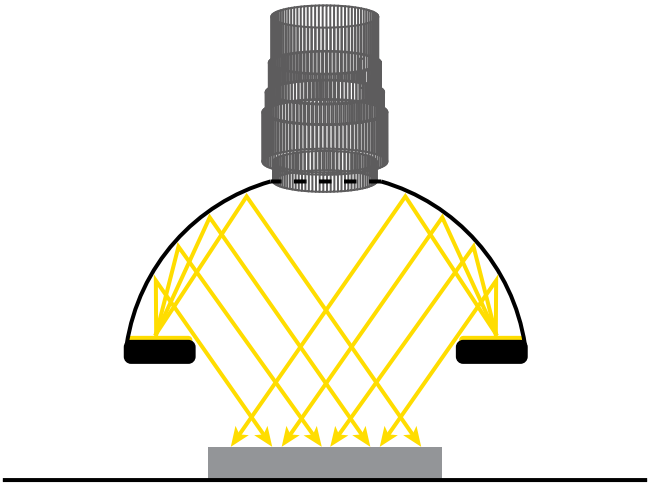
Directional Bright Field

Bright field lighting geometries direct light at an object from above at a high angle (>45 degrees) to illuminate a flat, reflective surface below. Any features deviating from the flat surface - like edges, scratches, or dents - scatter light away to produce a high-contrast image with a bright background and dark features.



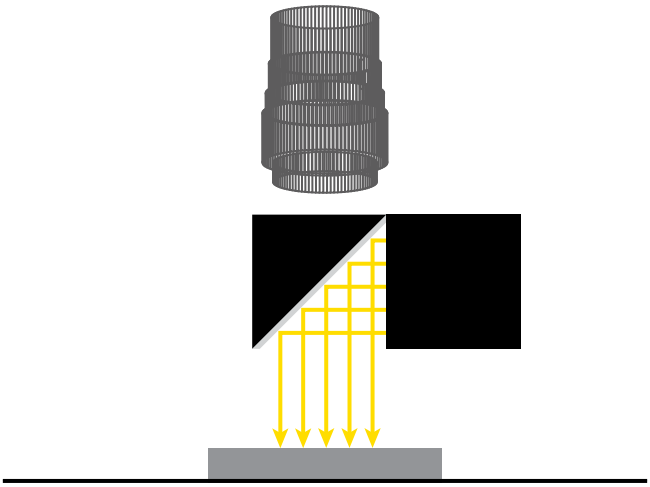
Diffuse Dome

Diffuse dome geometries direct light into the reflective interior of a hemispherical dome to illuminate objects below with a diffuse "cloudy day" effect. The technique minimizes harsh glare and shadows on shiny, curved, or textured surfaces allowing cameras positioned at the top of the dome to inspect even highly reflective surfaces and features.



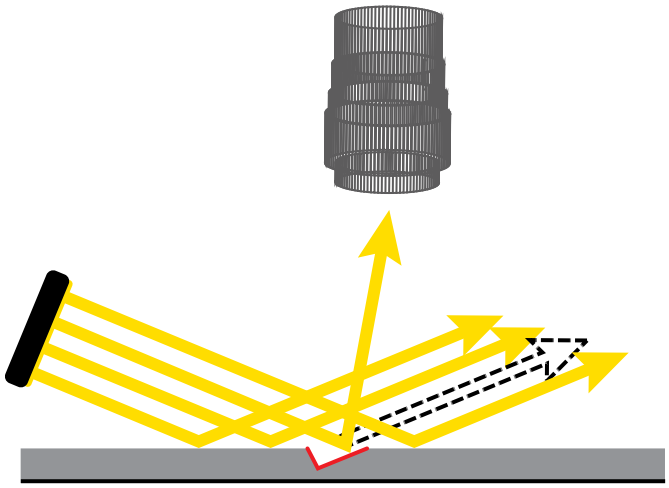
Coaxial (On-Axis)

Coaxial (or on-axis) illumination uses a beam splitter to direct light along the camera's optical axis toward the inspected object. The light reflects back along that same axis, producing even, glare-free coverage ideal for inspecting shiny, polished, or flat surfaces like metal, glass, and wafers.



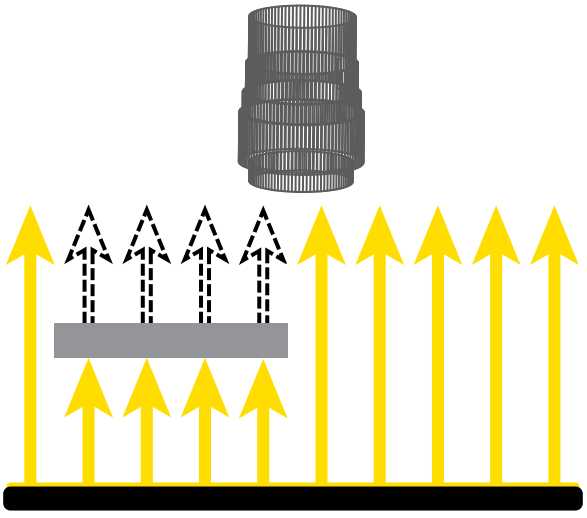
Low-Angle Dark Field Illumination

Low-angle dark field illumination directs light at an angle toward a target surface. Flat portions of the surface reflect the low-angle light away from the camera lens, making them appear dark. Features that deviate from the flat surface scatter light back toward the camera and appear bright.



Backlight Illumination

Backlight illumination positions the light source behind the inspected object, opposite the camera. The resulting image is a high-contrast silhouette suitable for precise dimension measurement, edge detection, and identifying defects or fill levels in transparent materials. It eliminates surface details to focus solely on shape.



METAPHASE LIGHTING TECHNOLOGIES

APPLICATION LAB



Where the Portfolio Meets the Problem

Custom engineering expertise for inspection challenges the catalog doesn't cover

Metaphase offers one of the broadest portfolios of engineered LED lighting available. But no portfolio addresses every inspection challenge.

Specialized applications require custom optics, unusual wavelength combinations, environmental hardening beyond standard ratings, or geometries built specifically for the task.

The Metaphase Application Lab is where those challenges meet the engineering capability to solve them. Our certified application engineers work directly with OEMs, integrators, and end users to characterize their imaging challenge and design a customized lighting solution. The lab supports both area scan and line scan applications with thousands of lighting configurations alongside visible, UV, and SWIR cameras. Modular precision mounting stands replicate customer factory-floor working distances and camera angles for realistic test conditions.

Customers can engage our Lab at no cost — or risk —by either submitting their sample parts for lighting analysis, or by evaluating candidate lights through Metaphase's loaner program. Sample analyses include a Light Analysis Report, with documented recommendations including sample images, hardware specifications, and setup diagrams ready for integration.

Visit our Application Lab webpage at www.metaphase-tech.com/applications or reach out to us at the email below.

Application Lab

200 Rittenhouse Circle West Unit 7 | Bristol, PA 19006

applications@metaphase-tech.com



One Portfolio. Thousands of Tailored Configurations.

Every industrial imaging application presents its own signature lighting demands.

With more than 4,000 lighting configurations available, Metaphase Technologies offers the most comprehensive end-to-end portfolio for solving virtually any illumination challenge, from machine vision to security applications and beyond.

Our portfolio encompasses every lighting geometry, including line lights, bar lights, ring lights, dome lights, coaxial lights, backlights, and spotlights. Within that selection, you'll find output options spanning the UV through SWIR, with multispectral and hyperspectral configurations available in select product families.

Unifying this incredibly diverse range of lighting solutions is our Zeto Controller Family, a single, scalable controller framework designed to integrate with any lighting configuration in our portfolio. Built on a modular DIN-rail platform, our Zeto line coordinates current-controlled drivers and 0–10V dimmers for managing up to 16 expansion units that drive any combination of LED lights.

Metaphase offers more than a single source for a massive selection of lights. We engineered our portfolio to help you build a highly configurable and intuitively controlled lighting system tailored to the signature demands of your application.

METAPHASE LIGHTING TECHNOLOGIES

CONTROLLERS

Lighting controllers translate signal inputs into precise current, intensity, and timing behavior for one or more illumination sources. Metaphase consolidates this capability under the Zeto Controller Family: a modular DIN-rail platform that handles both current-controlled drivers and 0–10V digital dimmers on a single bus, eliminating the need to maintain separate control schemes for different light types. The platform is built around a touchscreen-equipped Core hub that supports up to 16 connected expansion units. All units mount to standard 35 mm DIN rail (NS 35/15) and operate from 24VDC.



Applications

- Coordinated control of multi-light vision systems
- Mixed-driver installations combining current-controlled and 0–10V lights
- Custom software integration via Ethernet (UDP/TCP) or USB-C
- High-speed strobed imaging requiring precise pulse control

Zeto Core

Zeto Core serves as the system hub, combining a touchscreen GUI, embedded web server, and Ethernet and USB-C connectivity. Each Zeto Core supports up to 16 expansion units, allowing any combination of CX and VX modules. It enables integrated control of mixed-driver light installations on a single bus. Configuration and software integration are available through the Core's touchscreen, embedded web browser, Ethernet (UDP/TCP), or USB-C interfaces.

Expansion Units

Zeto CX

- CX universal light controllers are single-channel, current-controlled drivers for any Metaphase lights that lack built-in drivers. The standard CX delivers 60W continuous output and 4A DC. It can reach 40A in strobe mode.

Zeto CX-Plus

- CX Plus high-power controllers are rated to 10A and 150W continuous power in DC mode. They share the standard CX's 40A strobe ceiling.

Zeto VX-4

- VX-4 programmable digital dimmers offer four independently programmable 0–10V outputs and one optically isolated trigger input for Metaphase lights that incorporate built-in drivers.

Zeto VX-16

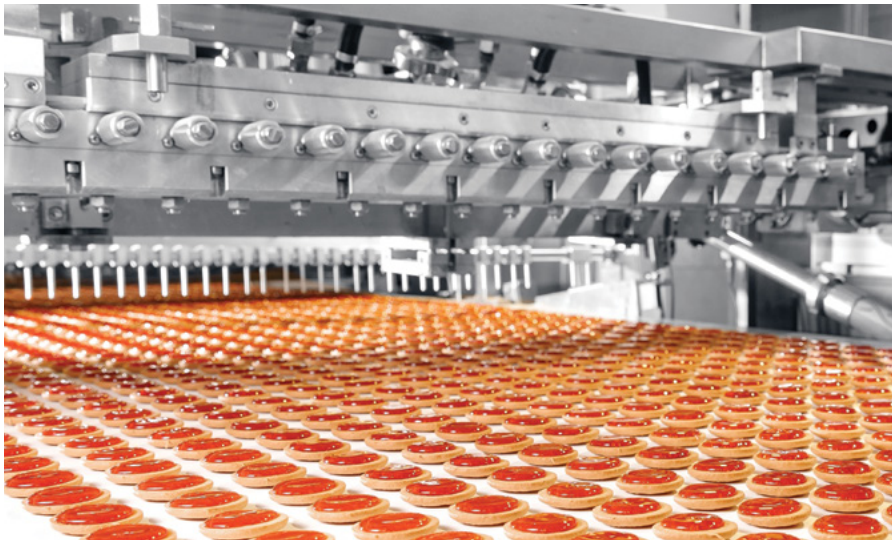
- VX-16 programmable digital dimmers raise the number of 0–10V outputs to 16 and offer four optically isolated trigger inputs. Triggers can be assigned to any combination of channels for grouped switching. Like the VX-4, they are compatible with Metaphase lights that have built-in drivers.



METAPHASE LIGHTING TECHNOLOGIES

LINE LIGHTS

Line lights concentrate LED output into a narrow, high-intensity beam, delivering the brightness and uniformity that line scan cameras require to image surfaces and barcodes at production speed. They suit any inspection task involving continuous travel — webs, conveyors, rotating parts, or long targets moving past the camera. Metaphase offers the most extensive line light portfolio in the industry, spanning the full range of geometries, wavelengths, and form factors used in line scan applications.



Configurable Range

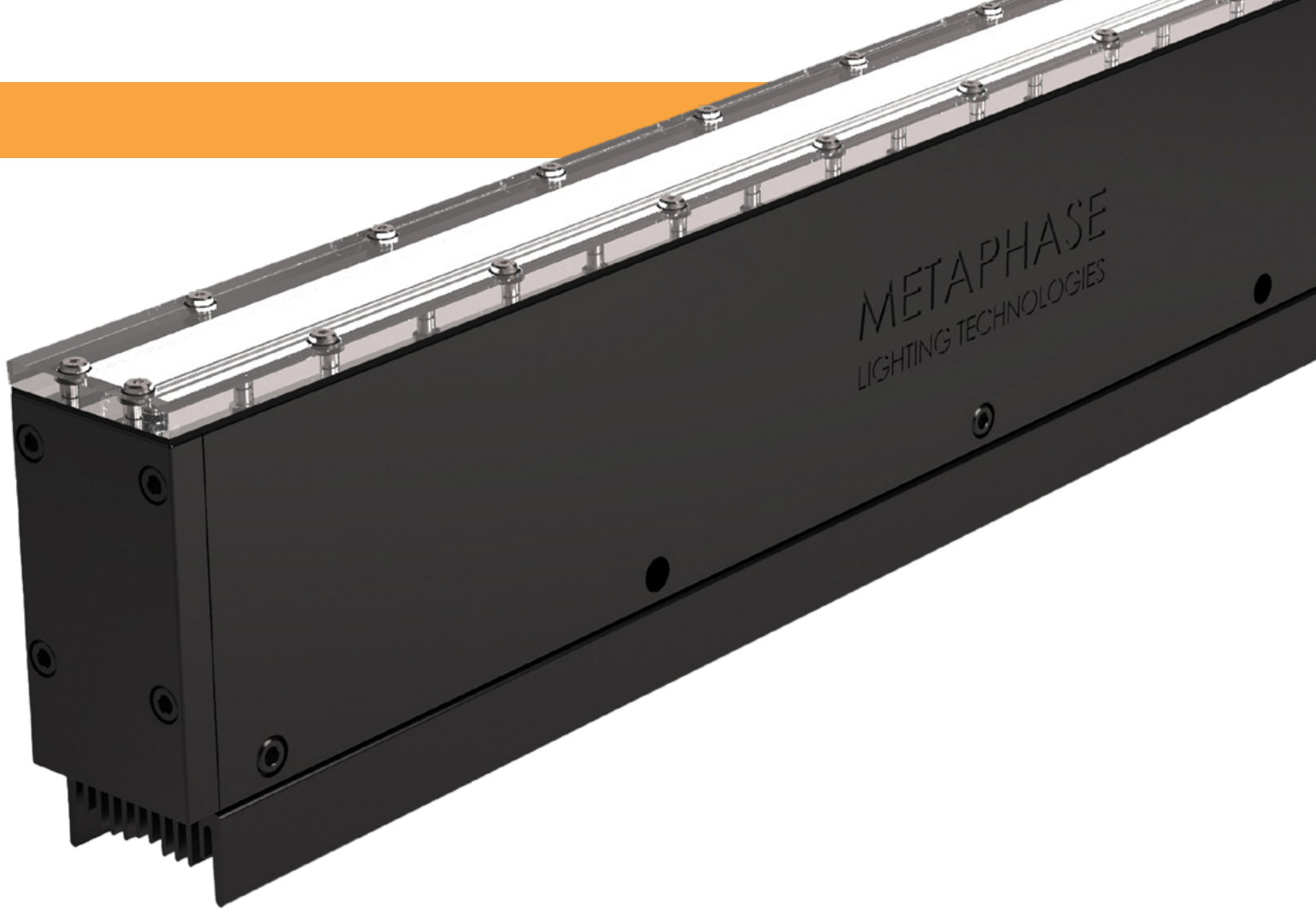
Wavelength options across the portfolio span UV (365–395 nm) through visible and near-infrared into the SWIR band (1050 and 1650 nm), with multi-wavelength combinations and independent intensity control available on select models. Standard lengths run from 5 inches to 10 feet, with longer custom builds and optional liquid cooling for high-output, continuous-duty operation.



Applications

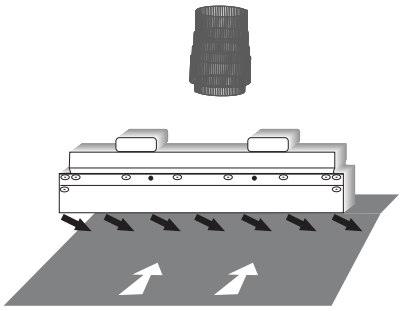
- Machine vision applications
- Continuous web inspection
- Printed circuit board inspection
- Geometric and direct position measurement
- Tube and bottle inspection
- Robotic inspection systems



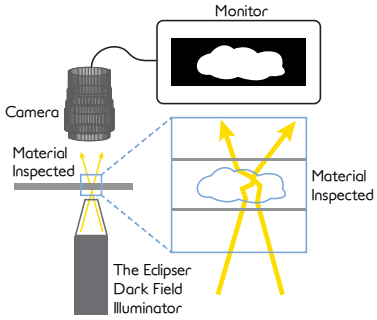


Geometries

- **Standard and high-intensity line lights** offer front, off-axis, or backlit illumination for general line scan tasks. Our passively cooled models can deliver the brightest output currently available.
- **Collimated line lights** integrate proprietary optics to reduce beam divergence and project a structured beam at working distances of several meters — useful when the camera must stand back from robotics, hot processes, or overhead structures.
- **Oblique line lights** angle their LEDs to project an off-axis beam that emphasizes wrinkles, surface texture, and topographical defects.
- **Dark field line lights** use strategic LED placement and beam-shaping optics to illuminate flaws in optically clear glass and plastics, resolving particles, voids, and air pockets to sub-pixel detail.
- **Diffused axial line lights** incorporate beam-splitter optics to deliver coaxial illumination well-suited to imaging reflective and specular surfaces, such as spheres, glass, and printed media.
- **Tube and backlight geometries** extend line lighting into linear dome forms and dedicated backlight configurations for specialized imaging needs.



Oblique geometry



Eclipser geometry

METAPHASE LIGHTING TECHNOLOGIES

BAR LIGHTS

Bar lights deliver directional illumination across a rectangular field. Their angle relative to the camera determines whether they produce bright field illumination for general inspection or dark field illumination that emphasizes surface defects, scratches, and texture variations. Mounted in opposing pairs or in a picture-frame configuration, bar lights can also illuminate large areas with even coverage.



Configurable Range

Metaphase bar lights offer wavelength options spanning the UV through the visible and near-infrared ranges into SWIR (1050–1650 nm). Available in lengths from approximately 50 mm to over three meters, the portfolio includes a range of lensing, polarizer, diffuser, and connector options for application-specific configuration.



Applications

- General-purpose part and surface inspection
- Defect, scratch, and texture detection
- Logistics scanning and warehouse imaging
- High-speed inspection of moving parts
- Inspection in washdown environments (food, pharmaceutical, packaging)





BACKLIGHTS

METAPHASE LIGHTING TECHNOLOGIES



Backlights illuminate from behind the object, producing a high-contrast silhouette that sharply defines edges, profiles, and through-features. This technique excels at dimensional gauging, part orientation, hole detection, and presence/absence checks. In transmissive applications, backlighting can also reveal internal features or contaminants within translucent materials.

Effective backlighting demands uniformity across the entire illumination surface — any unevenness translates directly into measurement error. Our backlights use a full-array LED layout that distributes high-density emitters edge-to-edge for the brightness and uniformity these tasks require.

TX SERIES



Applications

- Dimensional gauging and measurement
- Part orientation
- Hole and through-feature detection
- Inspection of internal features in translucent materials

Configurable Range

Metaphase backlights offer wavelength options spanning from the UV through the visible and near-infrared ranges into SWIR (1050–1650 nm). Multispectral models support up to four independently controllable wavelengths to enable multiple inspection modes from a single light source. Configurable panel sizes accommodate fields of view from small-part inspection to large-format imaging.



METAPHASE LIGHTING TECHNOLOGIES

DOME LIGHTS

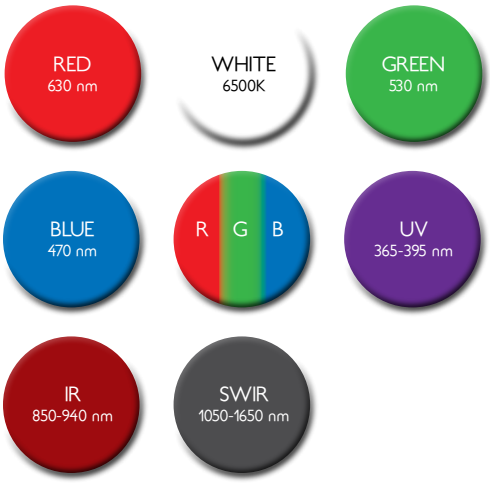
Dome and coaxial lights apply diffuse illumination to eliminate shadows, hot spots, and glare from reflective or irregular surfaces. Though complementary techniques that can be combined in a single assembly, they each represent different geometries that can address unique inspection challenges.





Configurable Range

Metaphase dome and coaxial lights offer wavelength options spanning the UV through the visible and near-infrared ranges and into the SWIR spectrum (1050–1650 nm), with multi-color and independent channel control available across the portfolio. Hemispherical dome diameters range from 178 mm to over 1,100 mm.

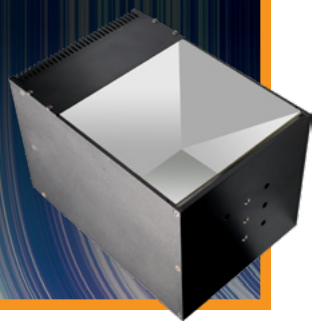


Metaphase Dome/Coaxial Light Configurations

- Hemispherical dome lights surround the part with omnidirectional "cloudy day" illumination from a highly reflective interior, making them ideal for illuminating curved, textured, or irregularly shaped surfaces where directional light would produce uneven contrast.
- Coaxial lights use beam-splitter optics to project diffuse light along the camera's optical axis, eliminating shadows on flat reflective surfaces such as wafers, glass, and printed circuit boards. Metaphase's coaxial lights portfolio offers one of the industry's widest selection of wavelengths as well as multi-color control.
- Integrated dome-and-coaxial assemblies from Metaphase combine both techniques in a single housing to eliminate the dark spot at the dome's camera port, delivering complete, uniform coverage across the full field of view.
- Diffused tube and flat dome configurations extend the portfolio with linear and low-clearance form factors, including SWIR options for fill-level inspection in opaque containers and specialized agricultural and semiconductor imaging.

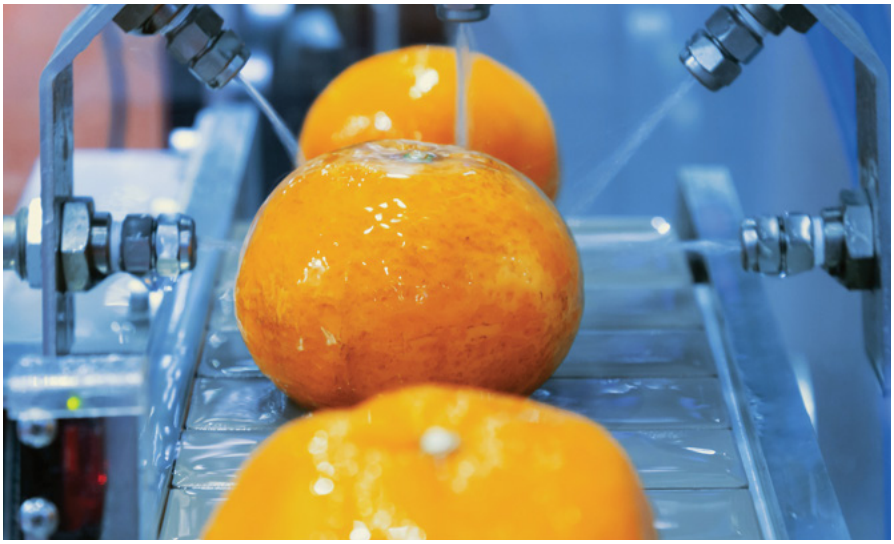
Applications

- Inspection of reflective, specular, and polished surfaces (wafers, PCBs, glass, polished metals)
- Curved, textured, or irregularly shaped parts
- Spheres, ball bearings, and threaded fasteners
- SWIR applications including fill-level inspection in opaque containers



RING LIGHTS

METAPHASE LIGHTING TECHNOLOGIES



Ring lights mount around the camera lens to deliver 360-degree illumination for close-range inspection of parts centered in the field of view. Their concentric geometry can produce bright field illumination for general surface inspection or dark field illumination for highlighting edges, surface defects, and textures, depending on the angle of incidence.



Metaphase Ring Light Configurations

- On-axis ring lights direct illumination at a high angle to produce even bright field coverage for general surface inspection, code reading, and component-level imaging. Polarizer and diffuser windows are available options.
- Off-axis ring lights project illumination at low angles to produce dark field contrast that highlights edges, surface defects, dust, and texture variations on specular surfaces. A half-round form factor is available on select models.
- Washdown ring lights are available in IP67-rated aluminum and stainless steel housings for food processing, pharmaceutical, and harsh-environment applications.



Applications

- Barcode reading and direct part mark identification
- Solder joint and electronic component inspection
- Surface defect detection on specular and reflective parts
- Edge and texture highlighting via dark field illumination
- Inspection in food, pharmaceutical, and washdown environments
- Robotic inspection
- Microscopic stage illumination

Configurable Range

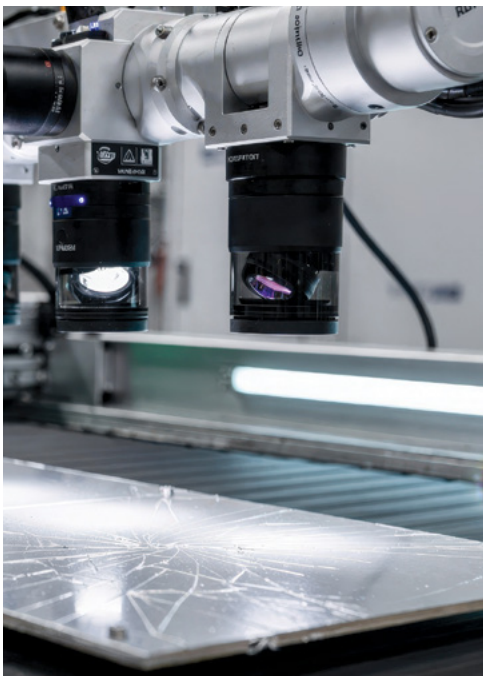
Metaphase's ring lights portfolio offers one of the broadest wavelength ranges available in the category, spanning UV through visible and near-infrared into SWIR (1050–1650 nm). Multi-color configurations and individually controllable RGB are available on select models.



METAPHASE LIGHTING TECHNOLOGIES

SPOTLIGHTS

Spotlights project a concentrated, directional beam over a defined area, making them the ideal solution for illuminating specific zones within a larger field of view, projecting light from a distance, or directing illumination at a precise working point.



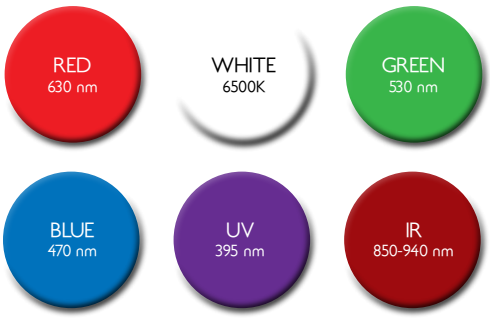


Metaphase Spotlight Configurations

- Washdown spotlights carry IP67-rated waterproof housings and swivel-bracket positioning for high-pressure washdown environments, available in ±12°, ±16°, and ±25° beam angles.
- Standard spotlights offer a compact 38-mm form factor with configurable lens options for application-specific beam angles.
- Collimated spotlights project a tightly bounded, low-divergence beam for illuminating small fields of view at extended working distances.
- Pattern projector spotlights project a structured grid through a C-mount lens for 3D imaging, depth sensing, and alignment applications.

Configurable Range

Metaphase spotlights offer a wide selection of wavelengths. Beam angle, lens, and intensity options allow further configuration for specific working distances and field-of-view requirements.



Applications

- General machine vision and robotic inspection
- Targeted illumination of specific zones within a larger inspection area
- Washdown environments in food and pharmaceutical processing
- 3D imaging and alignment via structured light projection



SPECIALIZED LIGHTING

METAPHASE LIGHTING TECHNOLOGIES

Capabilities Engineered Across the Portfolio for Specialized Inspection Challenges

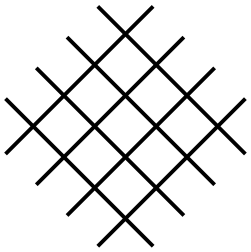
The search for an optimal machine vision lighting solution often begins with a performance requirement rather than a form factor. Engineers designing an inspection cell to operate at production speeds, or to withstand repeated washdowns, or to maximize contrast in a SWIR camera image will typically seek the lighting that offers the best resolution and contrast rather than a specific form factor.

The lights in Metaphase's portfolio offer more than illumination. Most also offer configurations that target specialized applications, including:

- Washdown housings rated up to IP69K, which ensures lights can withstand high-pressure water jets and harsh environments.
- High-speed drivers designed to trigger intense illumination precisely synchronized with camera shutters to freeze motion
- Lights that emit non-visible wavelengths to enhance image contrast in the UV, IR, and SWIR ranges
- Multispectral and hyperspectral lighting that emits multiple wavelengths from a single fixture
- Lights that incorporate a broad range of engineered optics for polarization, collimation, illumination angles, and pattern projection
- A broad range of diffusers for front- and backlighting







Like all lights in Metaphase's portfolio, its specialized lighting is designed to integrate seamlessly with Metaphase controllers as well as other commercial controllers that utilize PNP and NPN signals.

Each of these specialized capabilities is available across multiple product families and lighting geometries. When the inspection task drives the specification, Metaphase's portfolio is engineered to deliver.

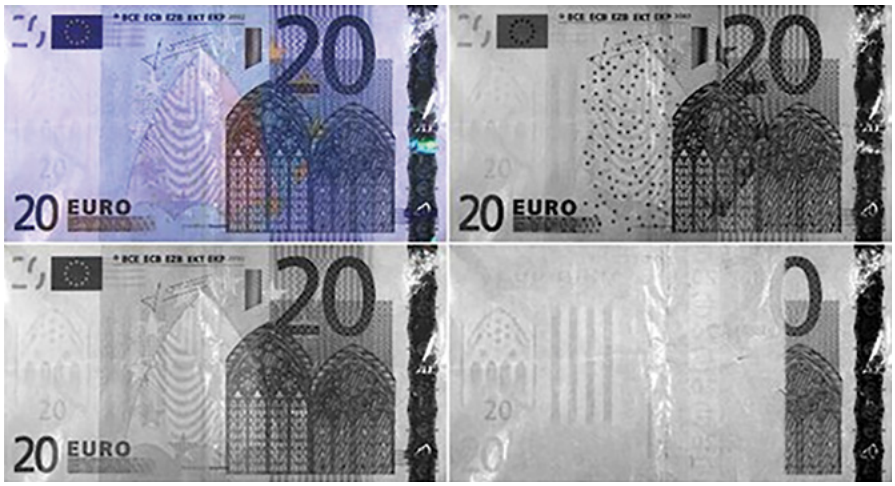


Non-Visible Illumination (UV / IR / SWIR)

Machine vision inspection often requires image data that's invisible to the naked eye. Materials that look identical under visible light reveal sharp contrast under UV, near-infrared, or short-wave infrared (SWIR) illumination — exposing moisture, contamination, coatings, fill levels, defects, and material differences that visible-light inspection cannot resolve.

Metaphase offers SWIR illumination spanning 1050 to 1650 nm, alongside UV options at 365 and 395 nm and near-infrared at 850 and 940 nm. Non-visible illumination is available across all our major form factors — line lights, dome lights, spotlights, backlights, and ring lights — so vision engineers can pair the right geometry with the right spectral band for each inspection.

That breadth of options matters when inspecting everything from bruised fruit to semiconductor and solar cell wafers. Non-visible wavelengths also enable produce grading, anti-counterfeiting and security imaging, leak detection, coating verification, fill-level measurement in opaque containers, and moisture detection.



Multispectral & Hyperspectral Lighting

Multispectral and hyperspectral imaging extend machine vision beyond what a single wavelength can reveal to distinguish different materials, expose contamination, and expose features that monochromatic illumination cannot resolve.



Metaphase's multispectral lights incorporate individually controllable LEDs across multiple wavelengths within a single fixture. That allows a single inspection station to capture sequential images at different wavelengths, replacing multi-station setups that previously required dedicated lighting and cameras for each band.

For hyperspectral imaging systems, Metaphase provides broadband LED illumination across the 400 nm-NIR and 1000–1700 nm SWIR ranges, spectrally matched to hyperspectral camera response curves and tunable to specific application requirements.

Multispectral and hyperspectral lighting solutions excel in sorting applications (fruit, meat, grain), pharmaceutical and chemical analysis, contamination detection, anti-counterfeiting, and other inspection tasks.



IP-Rated Lighting

Food processing, pharmaceutical production, and other industrial inspection environments expose lighting to high-pressure cleaning, corrosive chemicals, moisture, and abrasive contamination — conditions that can degrade conventional LED housings and seals.

Metaphase offers IP67- and IP69K-rated lights across multiple product families, including ring lights, spotlights, bar lights, and more. Housings are available in aluminum or stainless steel, with FDA-approved materials specifiable for direct-contact food and pharmaceutical environments.

Our IP-rated lights withstand the most demanding applications in food and beverage processing, pharmaceutical manufacturing, high-pressure washdown bays, outdoor and weather-exposed inspection systems, chemical handling environments, and medical device production.





High-Speed Imaging

High-speed imaging demands intense illumination that continuous light sources cannot efficiently deliver. Brief camera exposures freeze motion only when the light source can provide peak pulse intensity synchronized precisely to the camera trigger.

Across Metaphase's product portfolio, optical pulse-follow strobing delivers high-intensity bursts up to several times the continuous current rating, synchronized to external triggers for sub-millisecond exposures. For even more demanding line scan applications, the FastTrig driver — one of the fastest in the industry — supports trigger rates up to 600 kHz with microsecond-scale pulse durations, enabling scan-line-by-scan-line switching between wavelengths or illumination geometries. The practical result: a single inspection station can capture multiple synchronized images of the same target under different lighting conditions, replacing setups that would otherwise require multiple cameras and stations.

Metaphase's high-speed lighting solutions address applications in continuous web inspection, alternating front-and-backlight imaging configurations, and other applications that need synchronized, brief-duration, high-intensity illumination.

Engineered Optics

Polarized Illumination

Polarized illumination reduces glare and specular reflection on reflective surfaces, allowing cameras to image labels under shrink wrap, defects in glass, surface details beneath reflective coatings — features that direct reflection would otherwise wash out. When paired with a polarized camera or cross-polarizing filter, it can improve contrast dramatically.

Metaphase offers polarized lighting options across both area scan and line scan portfolios, with 0-degree and 90-degree orientations available as an option on most lighting models.

Applications include glass and clear-plastic inspection, imaging through reflective packaging films, metal surface defect detection, automotive component inspection, and any application where specular reflection compromises image contrast.



Bad

Non-Polarized Imager
& Non-Polarized Light



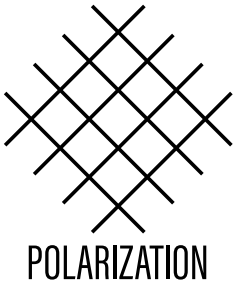
OK

Polarized Imager &
Non-Polarized Light



Great!

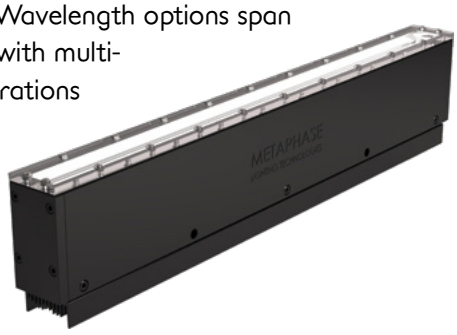
Polarized Imager &
Cross-Polarized Light



Collimated Illumination

Collimated illumination projects a tightly bounded, low-divergence beam that maintains its structured intensity over working distances of several meters rather than spreading and dimming. This illumination is essential when camera systems must capture images from elevated positions, or when lights must illuminate around robotic mechanisms, maintain safe distance from hot or hazardous processes, or project across long tunnels or web spans. Collimated also benefits measurement and gauging applications, where it enables clear and crisp edges in captured images.

Metaphase's collimated lights incorporate proprietary optics designed to preserve beam structure at extended working distances. Wavelength options span UV through SWIR, with multi-wavelength configurations available on select models.



Pattern Projection



Pattern projection illuminators project structured light — typically a grid, dot pattern, or other defined geometric pattern — onto a target surface. By analyzing how the camera sees that pattern deform across the surface, vision systems can extract three-dimensional shape, alignment, depth, and surface topography information that conventional 2D imaging cannot provide. LED pattern projectors offer the same functionality as laser projectors, but deliver better eye safety.

Metaphase pattern projector spotlights deliver structured grid projection through C-mount lens systems, supporting 3D imaging, depth sensing, alignment, and surface topography applications. Pattern projection integrates with the same controller and software framework as the rest of Metaphase's lighting portfolio.

METAPHASE
LIGHTING TECHNOLOGIES

Light Beyond Vision

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