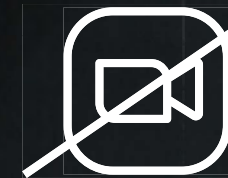




October 28, 2026

WEBINAR

Optimizing Machine Vision: Integrating Remote-Control Optics & S-Mount Lenses



*Please turn off your video, open your chat,
and ask any questions in the chat. Thank you!*

Meet the Speaker



Jonathan Hackney

Director of Sales for
the West Region

Jonathan is an experienced Application Engineer with 17+ years of industrial automation experience.

He holds a Bachelor of Science degree in industrial engineering from Texas Tech University.

For more than 50 years, Computar Optics, part of the CBC Group global conglomerate, has been a leader in developing innovative lenses worldwide.

With its technical expertise, Computar Optics consistently engineers superior optics and custom lenses.

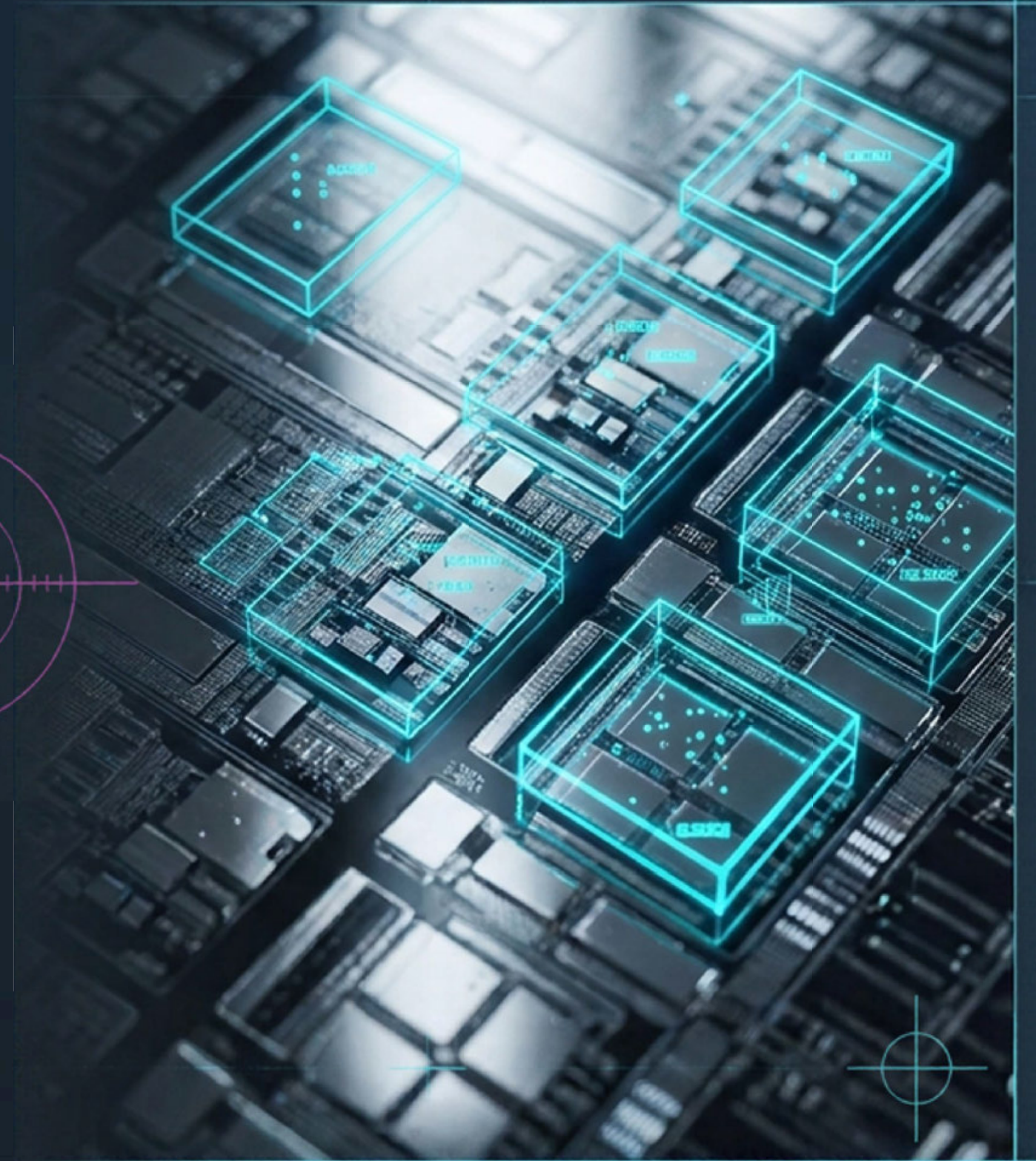
The world
standard for lenses.



Introduction

In industrial automation, robotics, and semiconductor inspection & manufacturing, imaging systems drive real-time decision-making.

While an imaging chain relies on lighting, sensors, optics, data transfer, and software, the lens sets the definitive ceiling on overall performance.



Core Optical Challenges in Precision Metrology

MANDATE: DYNAMIC CONTROL



Enclosed Environments



Requirement: Remote calibration and absolute dimensional accuracy where human hands cannot reach.

MANDATE: EMBEDDED RUGGEDNESS



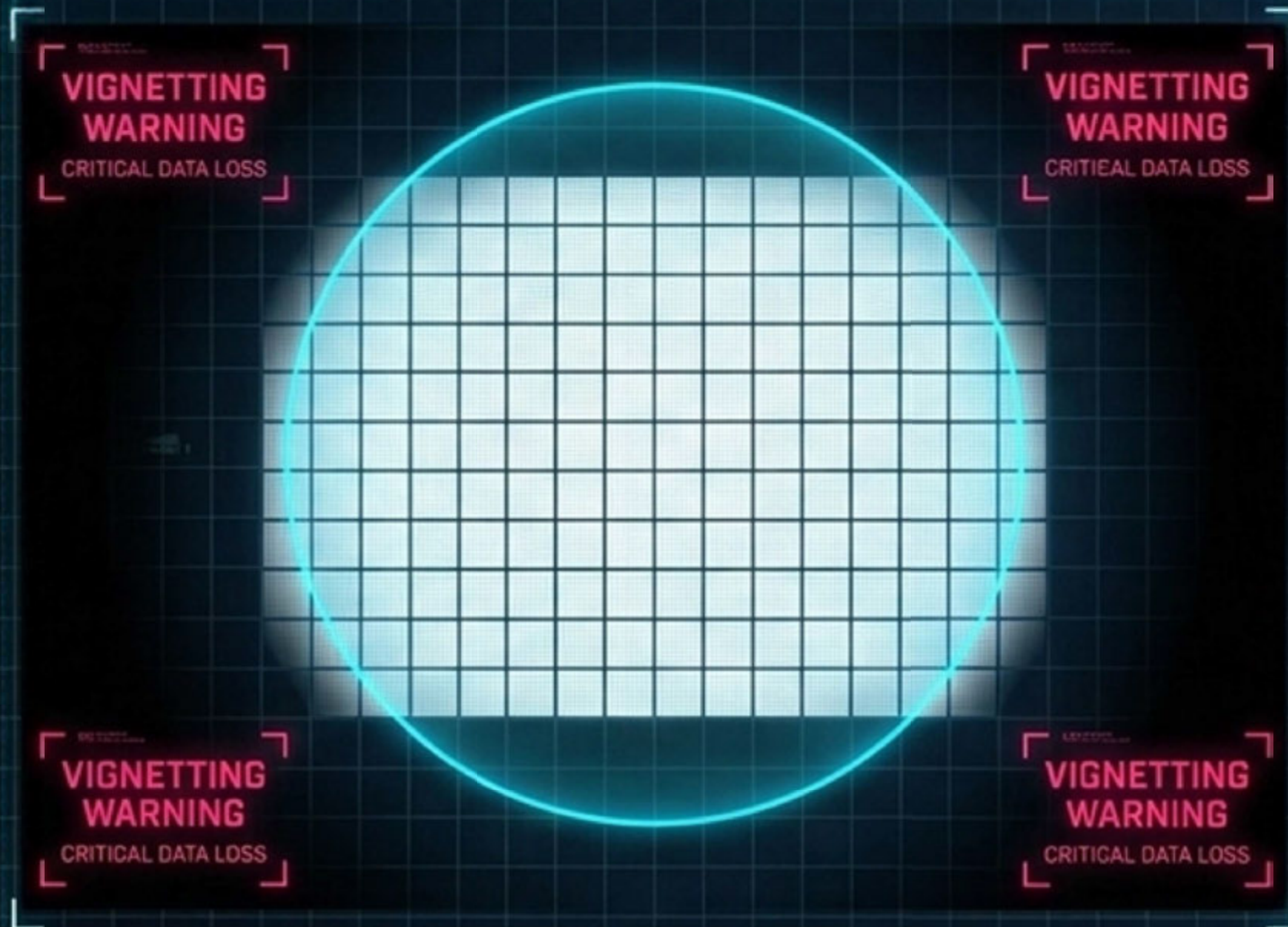
Hostile Spaces



Requirement: High-megapixel resolving power embedded seamlessly into fast-moving, high-vibration and space-constrained machinery.

The MTF and Image Circle Bottleneck

The Sensor Coverage Mandate



An undersized image circle results in vignetting, blinding the system to edge defects during full-frame inspection.

The MTF Bottleneck



Sensor resolution is irrelevant if the lens lacks resolving power. A $1.55\mu\text{m}$ pixel pitch inherently requires a lens with an MTF greater than 300 lp/mm to prevent contrast loss.

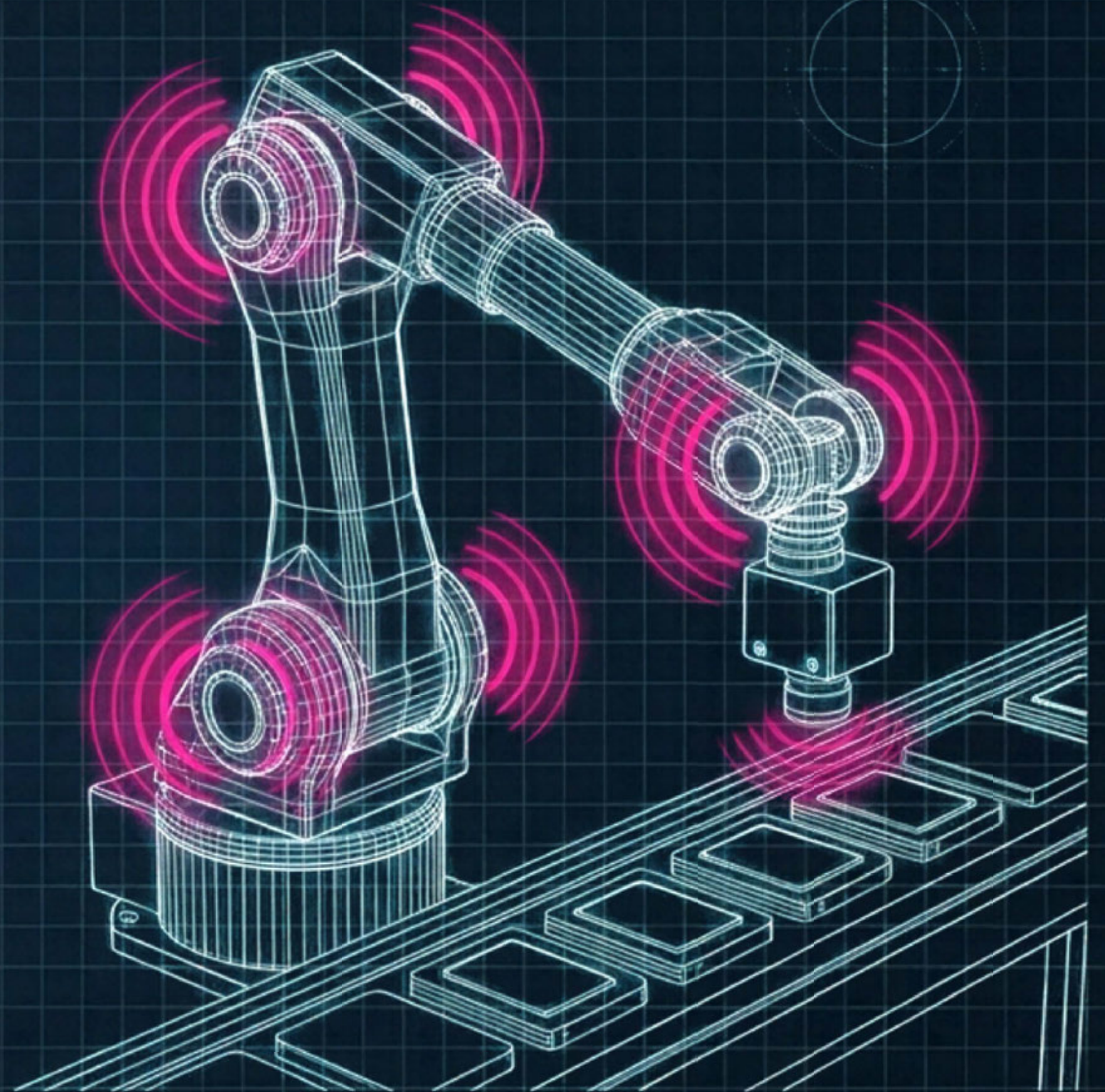
The Edge Topology Problem

Many semiconductor inspection points – particularly robotic guidance and high-speed pick-and-place arms—suffer from two uncompromising physical realities:

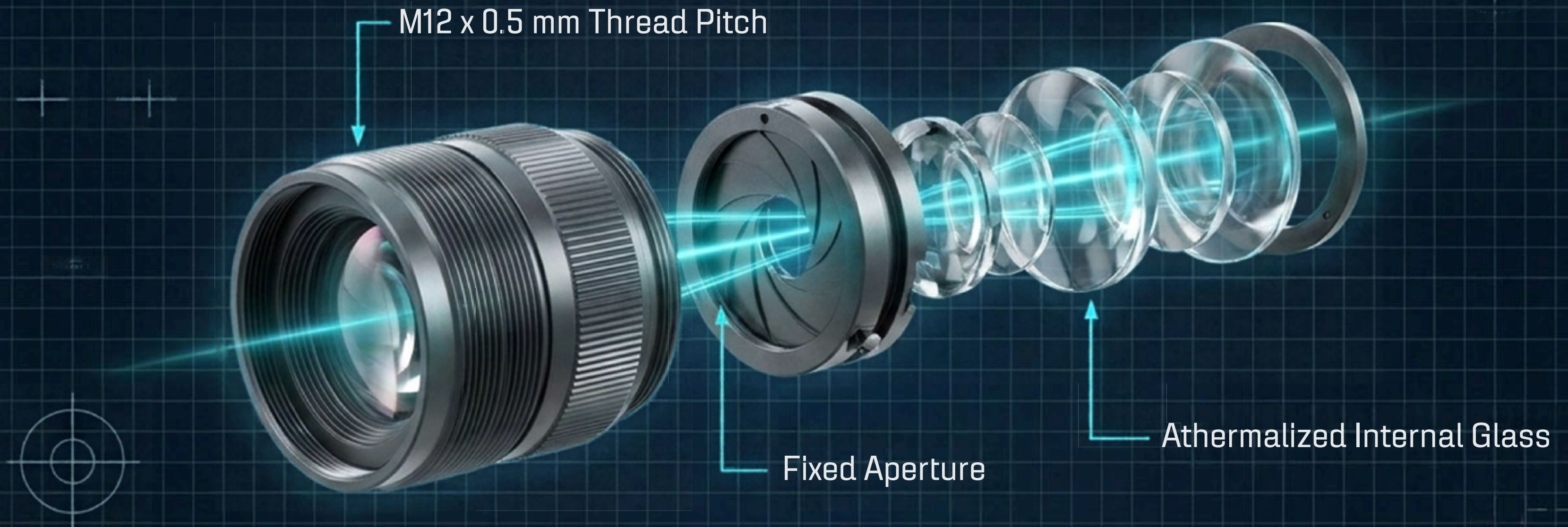
1. Absolute lack of physical space for traditional, bulky C-mount optics.
2. Continuous mechanical stress and high-frequency vibration.

The Engineering Challenge:

Deploying multi-megapixel resolving power into a form factor that survives continuous 3D motion without focus drift.



The Embedded Solution: High-Resolution S-Mount (M12)

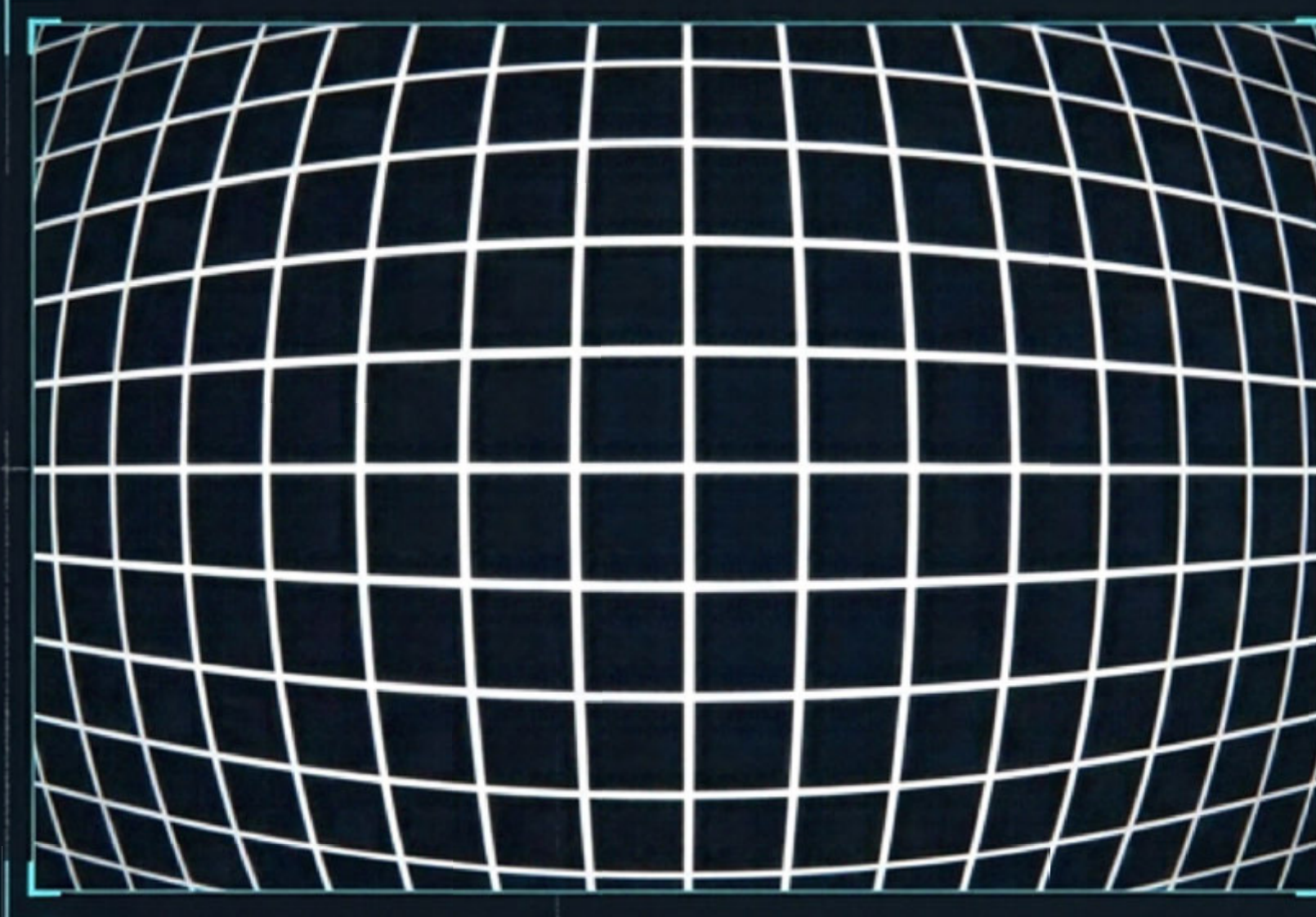


Modern M12 optics (MVS series) deliver 8MP resolution in the smallest possible industrial footprint.

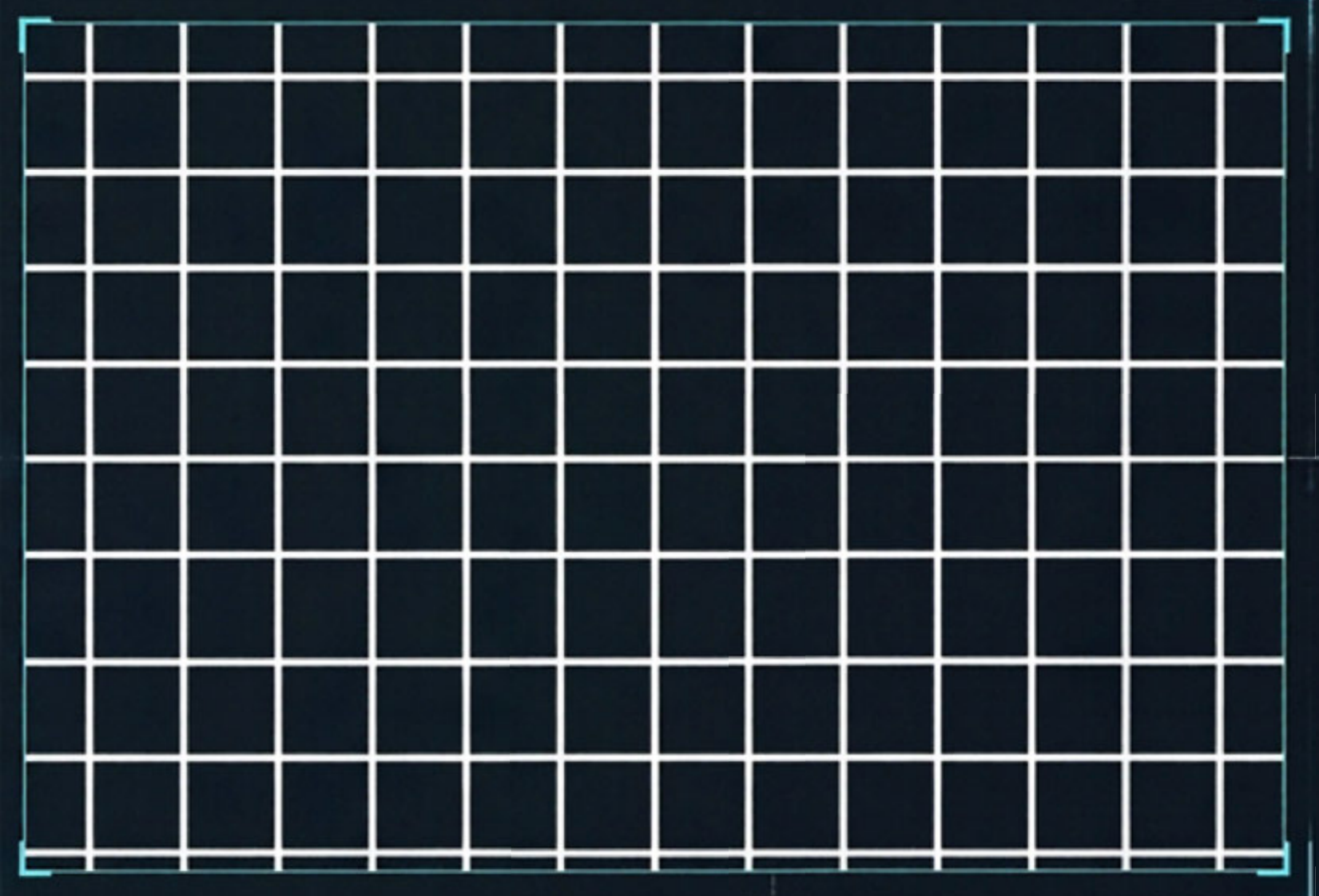
Vibration Immunity: Fixed apertures and locked internal components ensure zero mechanical drift, eliminating defocusing from shock generated by fast-moving robotic platforms.

Defeating Distortion at the Edge

Legacy Lens



MVS Series



Ultra-wide optical distortion (-0.3%) is corrected physically in the glass, not patched in the software.

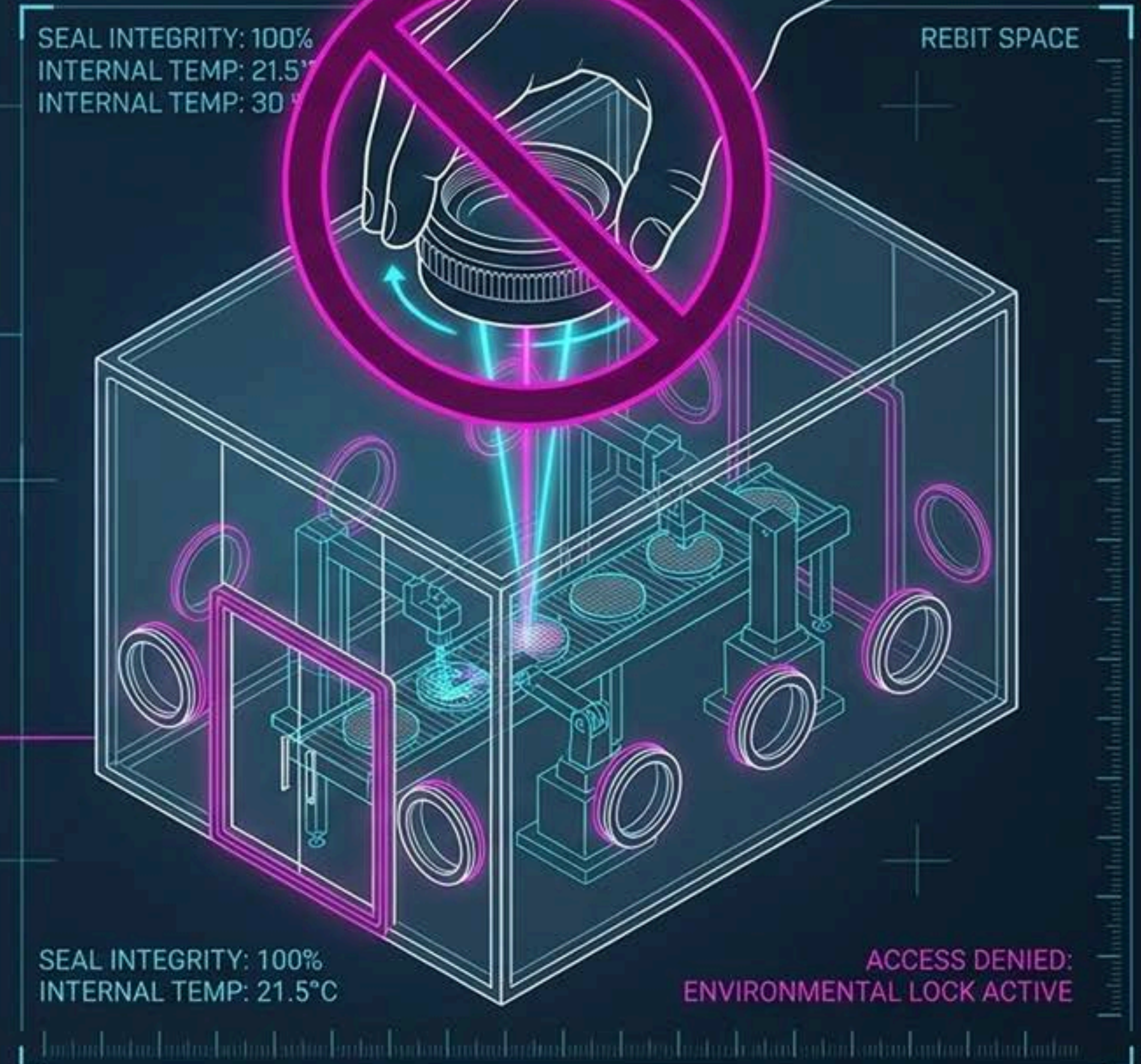
Zero Latency: Bypassing software distortion correction eliminates computational latency, enabling immediate, real-time decision-making for high-speed automated mobile platforms.

The Enclosed Topology Challenge

Modern yield optimization requires **continuous inspection inside fully enclosed machinery**, cleanrooms, and variable-height product lines.

The Engineering Challenge:

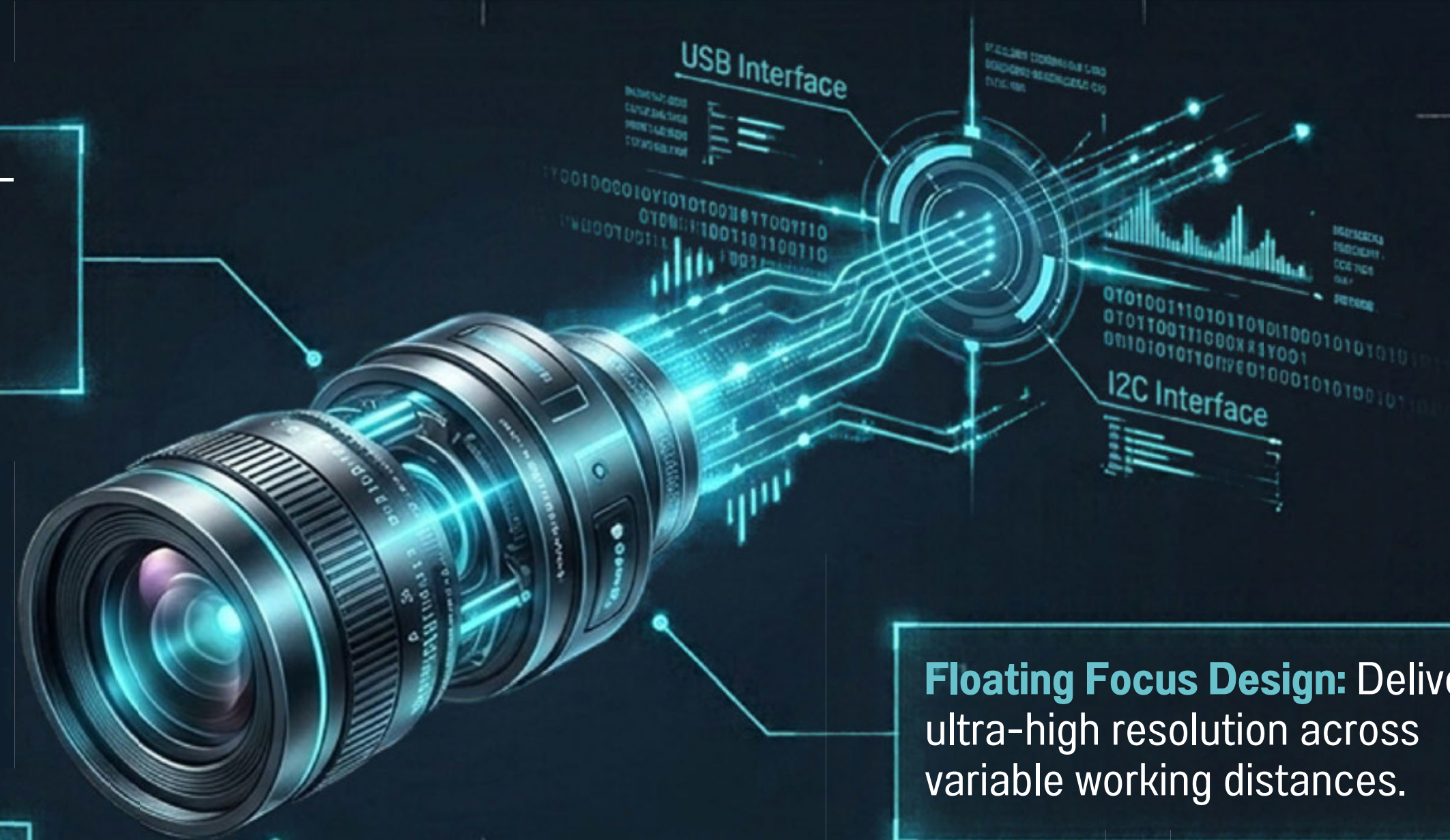
Manual focus, zoom, and iris adjustments are impossible without breaking environmental seals, halting the production line, or introducing contaminants.



The Dynamic Solution: LensConnect Remote-Adjustable Optics

Internal Stepper Motors: Enable high-repeatability, remote manipulation of focus, iris, and zoom without physical machine access.

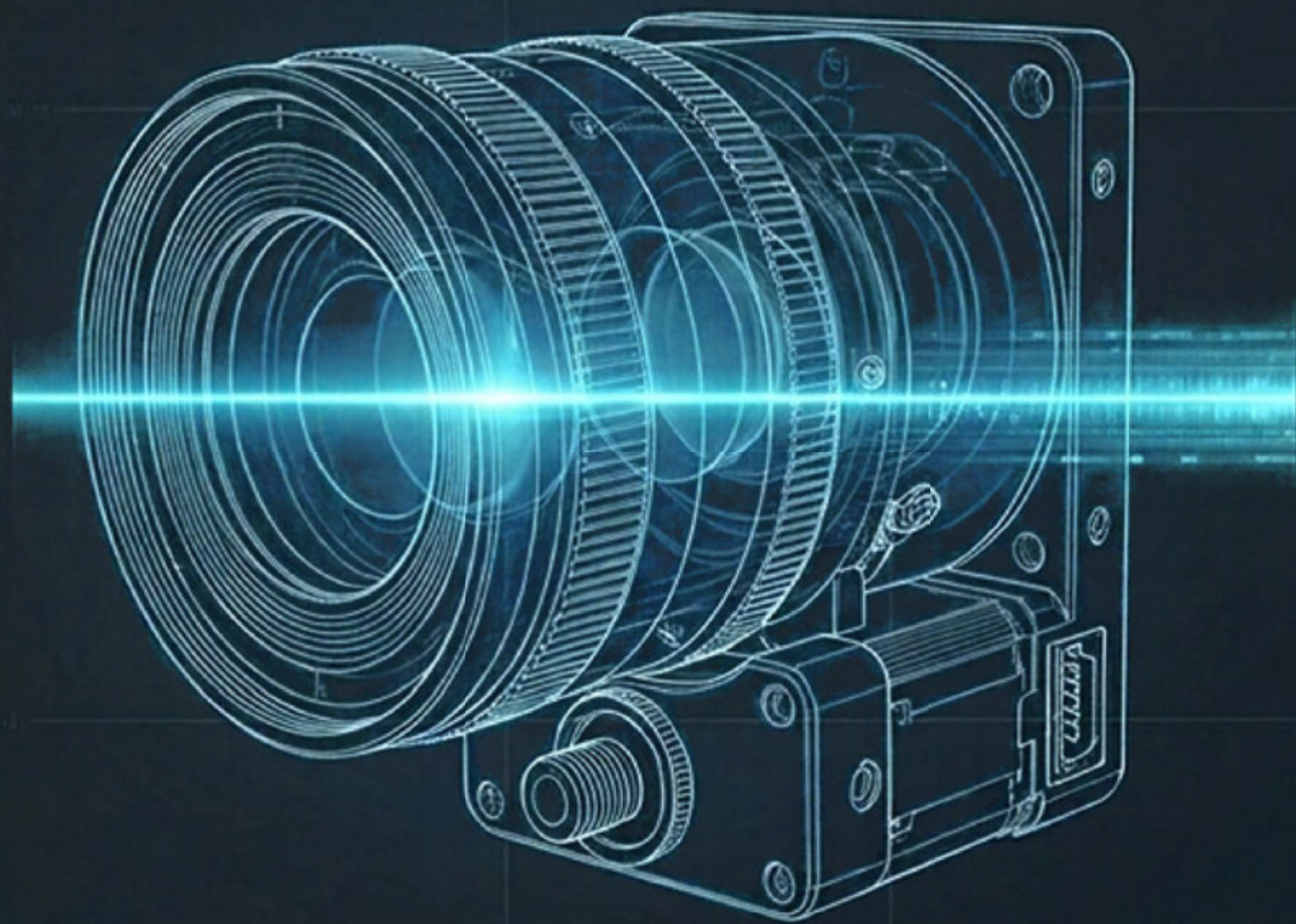
Plug-and-play motorization managed via Python/C++ SDKs or USB/I²C interfaces.



Floating Focus Design: Delivers ultra-high resolution across variable working distances.

Note: LensConnect varifocal models are the only machine vision lenses featuring true optical zoom functionality.

Remote Control Telecentricity LensConnect Telecentric



Combining zero-parallax optics with USB/I²C motorized focus.

Specs: Supports 8MP resolution on 2/3" sensors

Magnification Range: Available in 0.25x, 0.5x, 1.0x, and 2.0x formats.

The MVS Series

computar®

Eliminating Distortion in a Micro Footprint



Computar MVS Series

8MP Low-Distortion Board Lenses

8MP Resolution | 1/1.8" | S-Mount | 8mm, 12mm, and 16mm

Lens nnect™

Telecentric Series



Eliminating Distortion & Parallax
with Telecentric Optics

Remote-adjustable precision for the 2/3" sensor format.

8MP Resolution | F6.5 Constant Aperture | 2.74 μ m Pixel Support | Magnifications: 0.25x, 0.5x, 1.0x, 2.0x

Lens onnect™



Fixed models: 8mm, 12mm, 16mm, 25mm, 35mm, 50mm, and 75mm

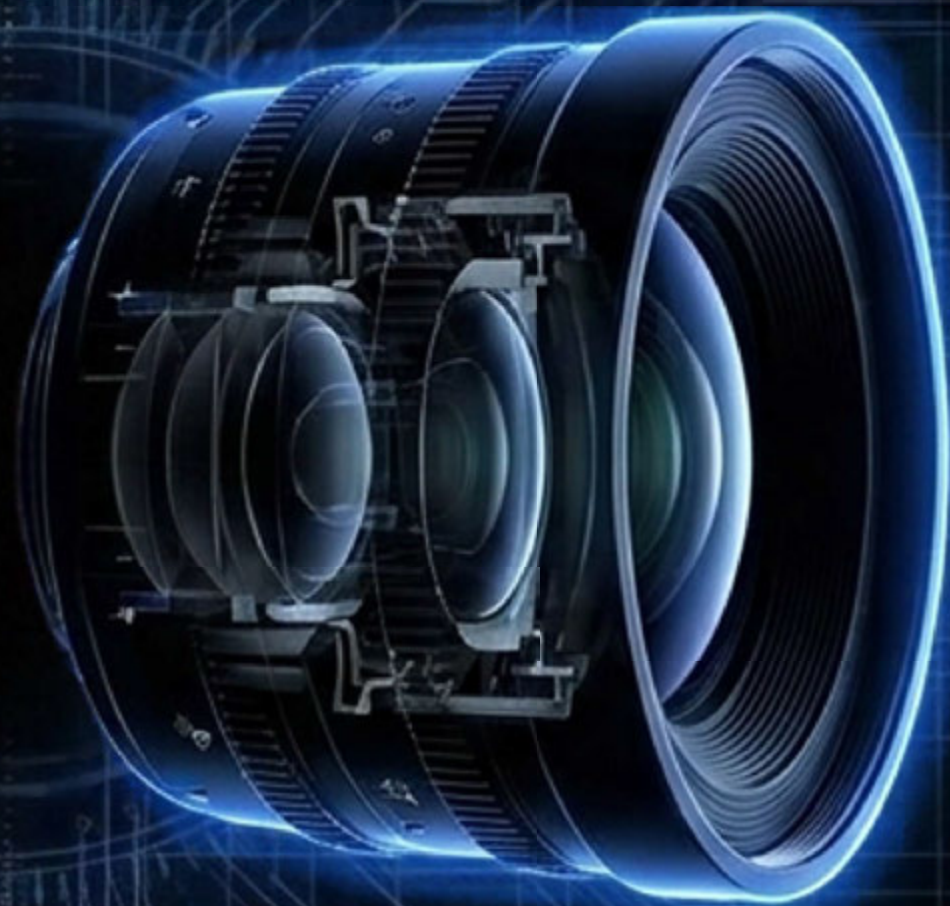


Varifocal models: 4mm-10mm, 9mm-50mm, 12-36mm, 16mm-96mm, & 25-50mm

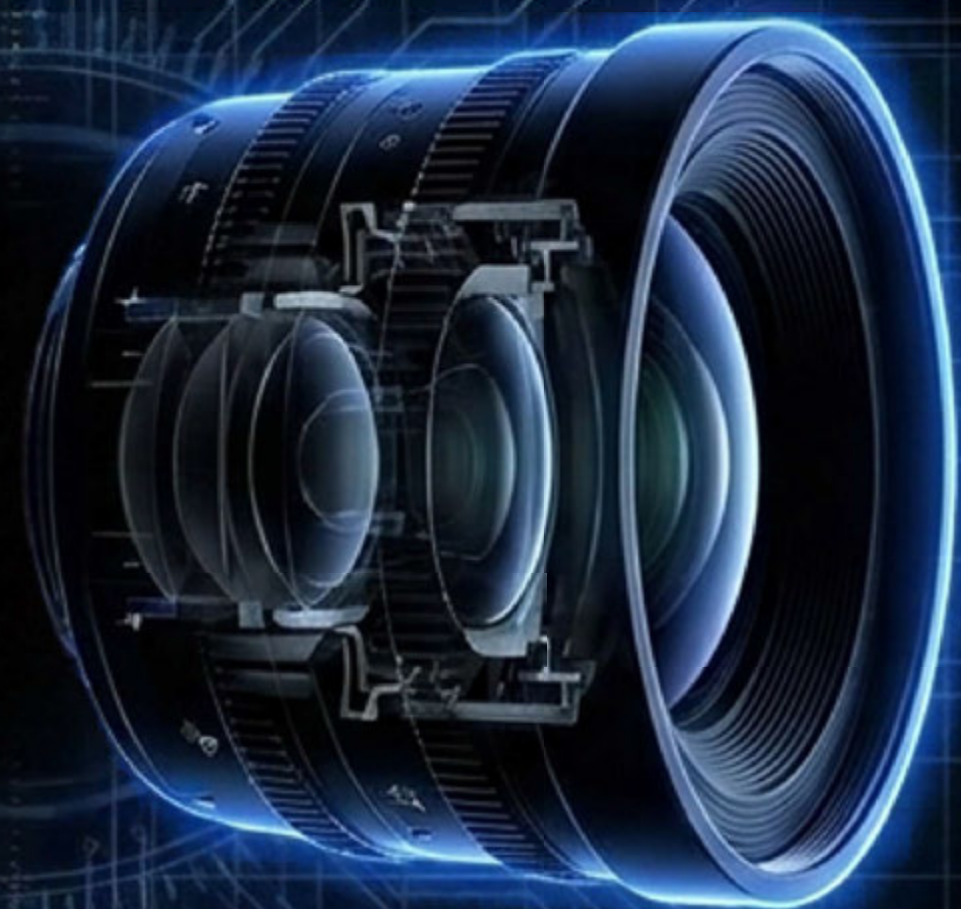
9MP, 12MP & 20MP | 2/3", 1", 1.1/1" and 1.1/8" Formats

Summary

Advanced machine vision requires specialized optical hardware to unlock the full potential of high-resolution sensors and software algorithms.



Architect your vision system with uncompromising clarity.



Q&A



Thank you!

Our team is ready to help you design a system for your specific challenge.

Take the Next Step

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