



R.J. Wilson, Inc.

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IMPROVING IMAGING CAPABILITY IN THE LIFE SCIENCES

In our newsletters, we typically look at our various imaging products from the perspective of using these items in a machine vision-based inspection application. In this edition of our newsletter, we'll look at some of the same industrial imaging products, but from the perspective of how they improve imaging capability in the Life Sciences, including biofilm imaging, cell culture topographic imaging and measurement, fluorescence microscopy, higher resolution imaging, and much more.



Biofilm Measurement with the Zygo ZeGage™ Pro

In a recent collaboration with a major university's bioengineering lab, Zygo put its **ZeGage™ Pro 3D Profiler** to the test, providing sub-nanometer 3D surface measurement capability to successfully evaluate a variety of biofilm characteristics.



- **No special sample preparation was required** - no dyes or staining.
- **The living biofilm samples were not damaged or adversely affected** by the measurement process, as the ZeGage is non-contact and the full area measurement was made in seconds.
- **Fast measurement speed** eliminates a common problem of sample evaporation with prolonged measurement times.
- **Measuring the vertical height of the microbial colony** is key to understanding the life cycle of biofilm development. It involves measuring both the cells and the matrix material.
- **Timelapse evaluation** permitted the user to observe growth in real time, from inoculation to end of life, providing insight into how the biofilm absorbs nutrients and oxygen, grows, interacts with surrounding cells, and is impacted by the surface on which it is located.
- **Zygo's Mx software provides** fast flexible setup, data acquisition, and data analysis.



[Zygo Biofilm Measurement Detailed Application Note](#)
[Zygo ZeGage 3D Surface Profiler Datasheet](#)
[Zygo 3D Optical Surface Profiler Brochure](#)

Navitar's SingleShot™ Super Wide Field-of-View Lens System

The Navitar SingleShot™ Super Wide Field 4K Imaging Lens combines the FOV of a macro lens with the resolution of a microscope objective, providing exceptional images for today's most demanding industrial and life science applications.

- Magnification factors available range from 0.71X to 3.01X, depending on the modular components used.
- SingleShot lenses are designed to support high-resolution image sensors up to 4/3", which is 18mm H X 13.5mm V, with a 22.5mm diagonal measurement.
- Camera mounting adapters are available in F-mount, EF mount, M42X1 mount, C-mount, and TFL mount, ensuring compatibility with a wide range of camera types.
- The SingleShot is designed to replace a complex and expensive microscope, when appropriate, for image capture and analysis in life science applications.
- Available with or without the coax light port, useful when maximizing transmission, such as for fluorescence studies.
- A much larger field-of-view is attained while maintaining the measuring accuracy required, reducing the number of discrete images required and eliminating the need for additional image stitching.
- Ideal for drug discovery and biomedical applications.



[Navitar SingleShot Datasheet and Field-of-View Matrix](#)

Our focus is on working with you to develop and provide the proper image formation solution to support your application. We're ready to discuss your application needs

- Explore the available hardware options including custom solutions
- Help minimize development time
- Provide demo units for evaluation
- Facilitate testing to increase confidence
- Provide the selected components in a timely manner

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