LAMBDA-X
OPHTHALMICS

THE WORLD LEADER
in **wavefront metrology**

LAMBDA-X OPHTHALMICS

Pushing the boundaries of high-quality intraocular lenses (IOLs) and contact lenses (CLEs) metrology.

Originating from the metrology business for most advanced space applications, Lambda-X is now a world leader in the use of wavefront measurement for ophthalmic inspection devices. Since 2005, Lambda-X has been developing and delivering cutting-edge metrology equipment, unleashing the full power of wavefront technology to fully characterize IOLs and CLEs in just seconds. Lambda-X's NIMO® instruments provide lens manufacturers, universities and research institutes with power mapping, MTF, lens aberrations, toric axis deviation in a matter of seconds, while always in full compliance with ISO and ANSI standards.

Patients' expectations of ophthalmic products are changing and need to be met by innovative lens designs, such as diffractive multifocals and various EDoFs, which are becoming increasingly widespread. Manufacturers are facing new challenges, both in R&D and production, and need specialized equipments to meet these new complex designs.

It is in this context that we have developed a range of instruments that meet these new and growing requirements.

MEET THE NIMO FAMILY

Broad range of ophthalmic inspection instruments.

The NIMO metrology instruments provide a full wavefront characterization and measurement of all refractive and diffractive data. NIMO instruments are ideal inspection devices in R&D and Production for any type of contact lenses and intraocular lenses in both wet and dry modes.

Thanks to its broad range of products and in association with Mentor Suite SW, NIMO instruments provide extensive measurement features for the R&D and proved to be high productivity control solutions for production, from small specialty labs to high volume production manufacturers.

Our customers appreciate following main benefits of the NIMO product range:

▷ Speed: measurement of the lens in few seconds
▷ Convenience: operator independent, with approximative lens positioning, no need for optical table
▷ Comprehensive characterization with highest resolution power maps and matchless repeatability & reproducibility

| NIMO EVO | NIMO TEMPO | PMTF | NIMO | NIMO MULTILENS | C-NIMO | NIMO MATRIX |

Contact & spectacle lenses

Intraocular lenses

Refractive IOLs

Diffractive IOLs

BEST MEASUREMENT INSTRUMENTS FOR CONTACT LENSES

Lambda-X's NIMO^{EVO} is a versatile tool suitable for measuring a wide range of contact lens (spherical, multifocal, aspheric, and multifocal toric lenses) as well as both RGP and soft contact lenses. With high resolution power maps and power profiles, it provides accurate and precise measurements of the smallest details of the lens. As such, it is an essential tool for contact lens manufacturers and researchers who require the highest level of accuracy and precision to produce safe, effective, and visually appealing contact lenses.

R&D

- ▷ High accuracy in power and diameter measurements
- ▷ Comprehensive lens characterization
  - > Wavefront maps & Zernike coefficients analysis
  - > Radial power maps and power profile analysis
- ▷ Specific analysis algorithms for new optical designs
- ▷ Unmatched productivity - high analysis speed and post-measurement re-processing

Production

- ▷ Batch measurement templates with comformity criteria tolerance tables, etc.
- ▷ Full traceability of measurement
- ▷ Operator independant measurements
  - > No need for lens centering
  - > QR code identification and tracking
- ▷ Outstanding repeatability and reproducibility
- ▷ High measurement speed for faster production

MARKET-LEADING CONTROL INSTRUMENTS FOR REFRACTIVE AND DIFFRACTIVE IOLS
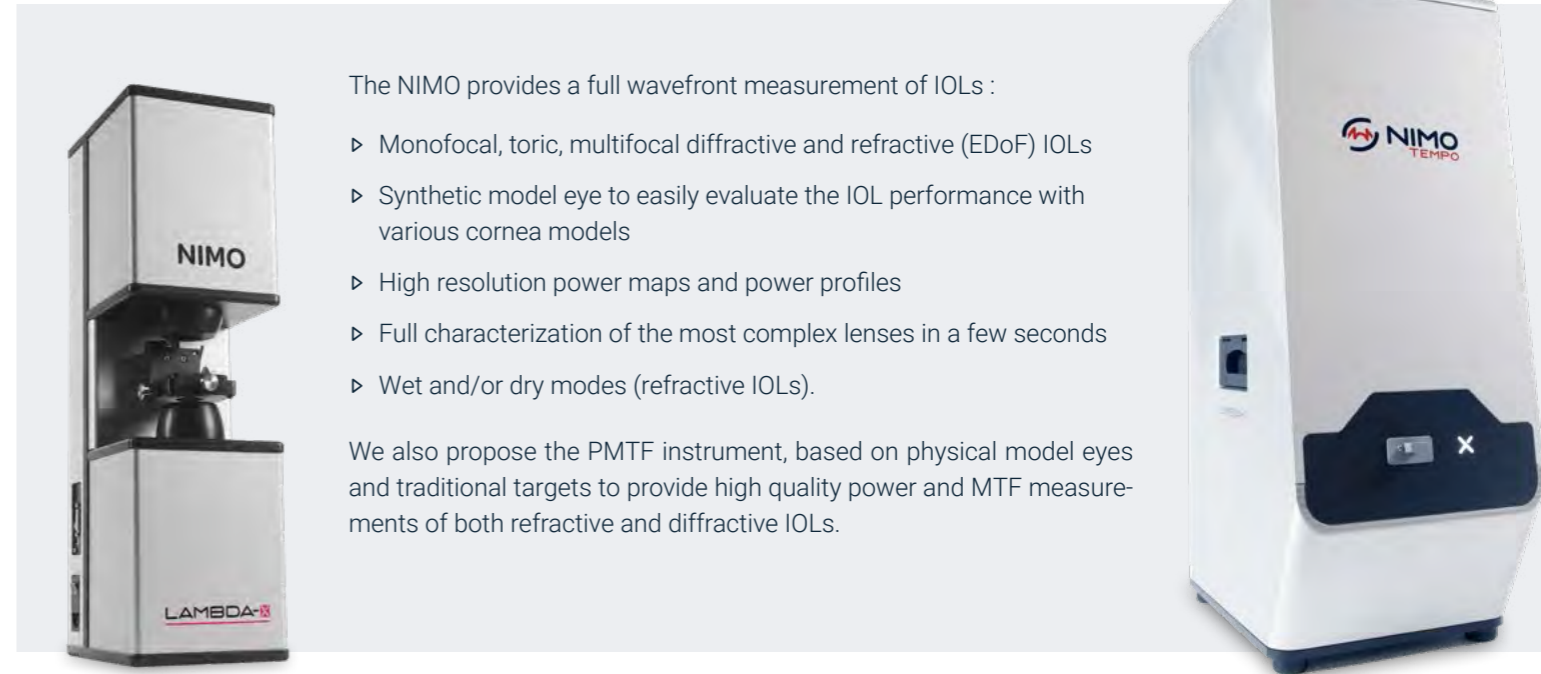
The NIMO provides a full wavefront measurement of IOLs :

- ▷ Monofocal, toric, multifocal diffractive and refractive (EDoF) IOLs
- ▷ Synthetic model eye to easily evaluate the IOL performance with various cornea models
- ▷ High resolution power maps and power profiles
- ▷ Full characterization of the most complex lenses in a few seconds
- ▷ Wet and/or dry modes (refractive IOLs).

We also propose the PMTF instrument, based on physical model eyes and traditional targets to provide high quality power and MTF measurements of both refractive and diffractive IOLs.

R&D

- ▷ Comprehensive measurement:
  - > Tri-dimensional wavefront
  - > Through focus and through frequency
  - > MTF for selected model eye
  - > Power (SEP, additions, cylinder) & PSF
  - > Diffractive steps profile
- ▷ Superior accuracy for power, cylinder, additions and MTF
- ▷ Synthetic Non-Paraxial (ray-tracing) model eyes
- ▷ Lens measurement reprocessing without instrument

ACCELERATE new optics development

Production

- ▷ 20 seconds for full processing of a multifocal toric diffractive IOL: up to 10x faster than legacy instruments
- ▷ Inspection template for production with simple Pass/Fail result
- ▷ No need to center the IOL
- ▷ Unaffected by the operator's capacity

Extended range of solutions from single lens measurement to fully automated high volume production lines.

BOOST production capacity

MENTOR SOFTWARE SUITE

All NIMO and PMTF instruments benefit from the State-of-the-Art modules of MENTOR software Suite running on associated CPU or GPU computers.

CLE-MENTOR

for contact lenses

IOL-MENTOR

for refractive IOLs

TEMPO-MENTOR
PMTF-MENTOR

for diffractive IOLs

All Mentor modules integrate sophisticated and proprietary algorithms for full lens characterization, providing users with accurate and comprehensive measurement data. The data is displayed in convenient and parameterized tables, graphs, and images, making it easy to analyze and interpret. With advanced data integrity, full audit logs, and user management, users can be confident in the reliability and traceability of their results. The modules also offer a consistent user experience, contributing to quick training and efficient operation in production.
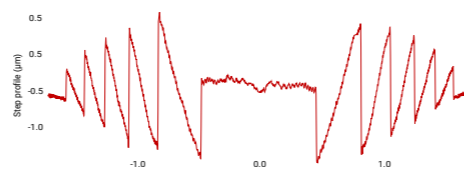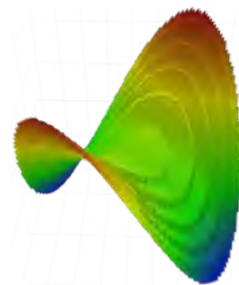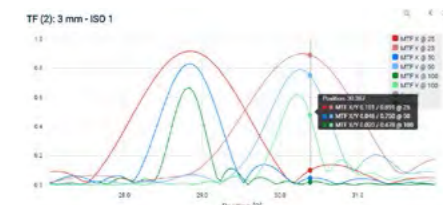
R&D mode

R&D mode provides access to extensive sets of options and measurement parameters.

It is dedicated to R&D staff and comes with standard and customisable workflows to match individual manufacturer's measurement protocols.

Production mode

Production mode is dedicated to shop floor managers and operators to guide them through controlled templates and workflow modes.

Ex: lenses identified by QR codes, automatic reports, projects or results recorded in SQL database.

Offline mode

Offline mode allows for reprocessing lenses at a distance with no need for physical presence of instrument.

The Mentor software suite catalog offers a number of plug-ins that address the specific needs of ophthalmic lenses developers and manufacturers :

▷ Deepen analysis of special lens designs.

▷ Include recognition of specific patterns: toric marks, haptics shape, diameter, etc.

▷ Easy integration into corporate IT systems (user management, production and control management) with full fledged FocalPoint integration.

« I was impressed by the easiness and repeatability of NIMO^{EVO}. Our operators were positively surprised by the rapidity of the measurements. (...)

Another advantage of the equipment is the integration with FocalPoint. NIMO^{EVO} offers the possibility to communicate with FocalPoint using the CLE-MENTOR API option. The installation in our process was done very quickly and efficiently. »

Precilens

Fabrice PAUL,
Manufacturing Manager

API for smooth integration

The API (Application Programming Interface) is available as an option for all MENTOR software. It turns MENTOR into an extremely versatile and fully customizable tool.

Our customers regularly testify to the significant progress made by integrating our instruments and the Mentor SW suite into their production organisation: yield improved up to 10%, drastic risk reduction in logistics, accelerated operator training, etc.
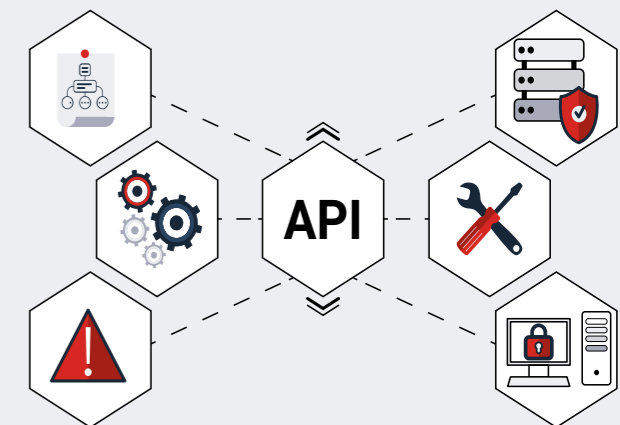
Wishing to know more about available features?

Interested in an exclusive personalized workshop?

We will demonstrate the many features and benefits of our instruments by characterizing your own lenses in a live workshop with your team.

Contact us

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Discover
our other
brochures

NIMO TEMPO

NIMO EVO

World leader in wavefront metrology

LAMBDA-X
OPHTHALMICS

● Countries counting at least one Lambda-x Ophthalmics instrument