New:
with Total
Keratometry

ZEISS IOLMaster 700

Reducing the risk of refractive surprises

ZEISS

Reducing the risk of refractive surprises.

ZEISS IOLMaster 700

// INNOVATION
MADE BY ZEISS

The ZEISS IOLMaster 700 with Total Keratometry

The ZEISS IOLMaster 700 with SWEPT Source Biometry® builds upon almost 20 years of experience in optical biometry. Its latest update features Total Keratometry (TK®) – a unique way to implement posterior corneal surface measurement into IOL power calculation. Once again, the IOLMaster® 700 from ZEISS demonstrates its technological leadership.

Defining next-generation biometry from ZEISS.

Your key benefits

- **Take advantage of Total Keratometry**
  Replacing assumptions with measurements
- **Reduce the risk of refractive surprises**
  Detection of unusual eye geometries and poor fixation, visual measurement verification and a fully integrated Barrett Suite
- **Optimize your workflow**
  Ability to penetrate >99% of cataract[1], indications for macular pathologies, speed and markerless toric IOL implantation
- **Improve your refractive outcomes**
  Repeatability and clinical foundation

Replace assumptions with measurements: Total Keratometry

"Total Keratometry has the potential to reduce refractive surprises to a minimum."

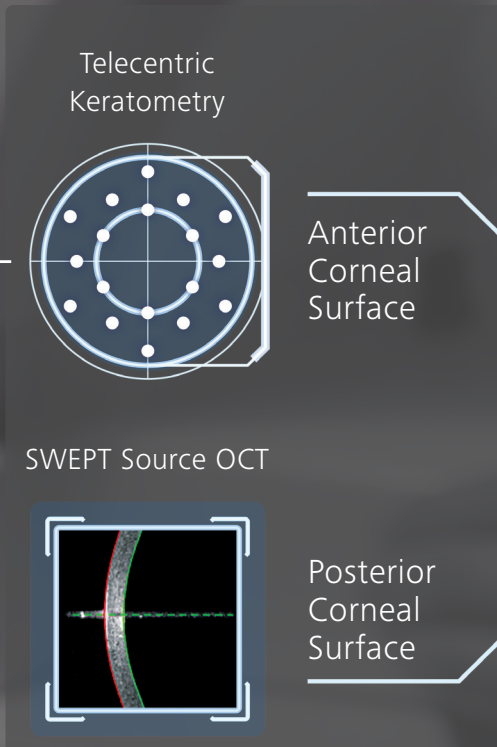
Graham Barrett, M.D.

The current standard in IOL power calculation is based on a measurement of the anterior corneal surface and an estimate of the total corneal power by using eye model assumptions or nomograms. This does not address outliers in cases of unusual eye geometries, which could result in refractive surprises. Now featuring Total Keratometry (TK) the ZEISS IOLMaster 700 allows you to directly measure the posterior corneal surface using SWEPT Source OCT. **Replacing assumptions with measurements.**

New next-generation Barrett formulas
Graham Barrett has developed two new Barrett formulas exclusively for Total Keratometry: the **Barrett TK Universal II and Barrett TK Toric**.

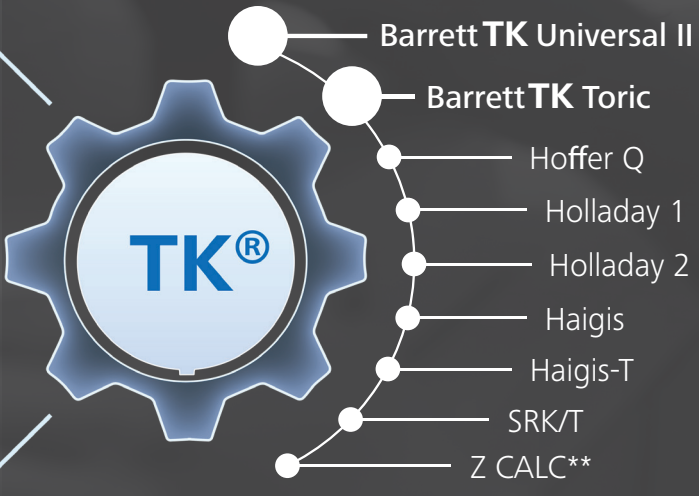
Stick to a familiar workflow
Total Keratometry is compatible with existing IOL constants. It can therefore be used in classic IOL calculation formulas. No need for a second device, third-party software or an online calculator.

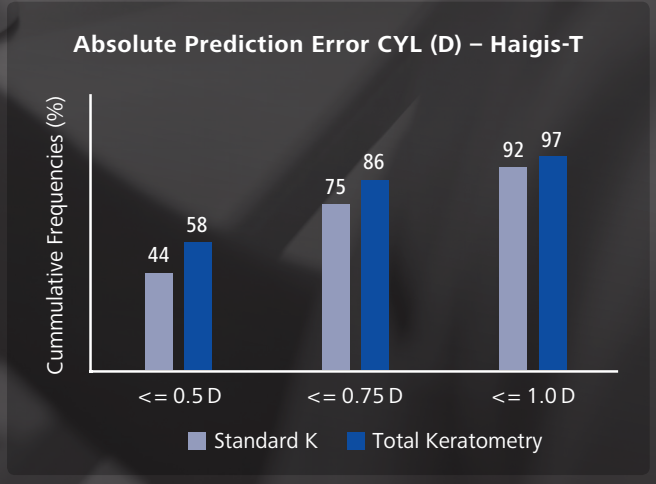
Unique telecentric keratometry
A unique telecentric, and thus distance-independent, keratometry allows robust and repeatable measurements – especially with restless patients – for superior keratometry measurements.



Improves toric IOL power calculation

Initial clinical results indicate that Total Keratometry improves toric IOL power calculations.*





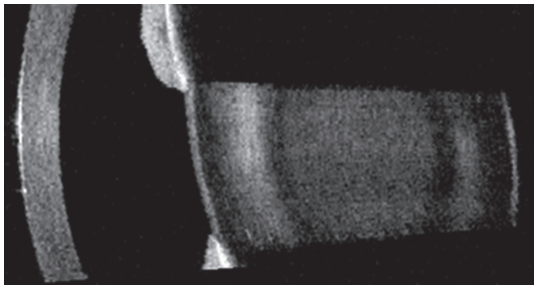
* Study conducted by Fabian and Wehner 2018; n=145; data on file

** Approval pending

Reduce the risk of refractive surprises

Detect unusual eye geometries

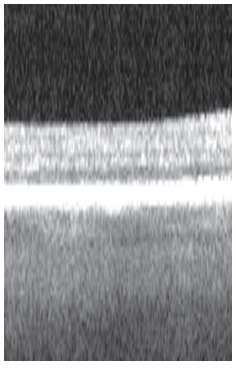
The patented Cornea-to-Retina Scan of the ZEISS IOLMaster 700 shows anatomical details on a longitudinal cut through the entire eye. Thus, unusual eye geometries, such as tilt or decentration of the crystalline lens, can be detected. If left undetected, such critical details can lead to an unsatisfactory post-operative visual experience.



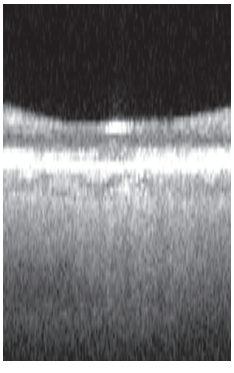
*Suspected tilted lens**

Detect poor fixation

The unique Fixation Check of the ZEISS IOLMaster 700 provides you with more confidence in biometry. Can you see the foveal pit? If so, you can reduce the risk of refractive surprises due to incorrect measurements caused by undetected poor fixation. If not, educate your patients to always fixate on the target.



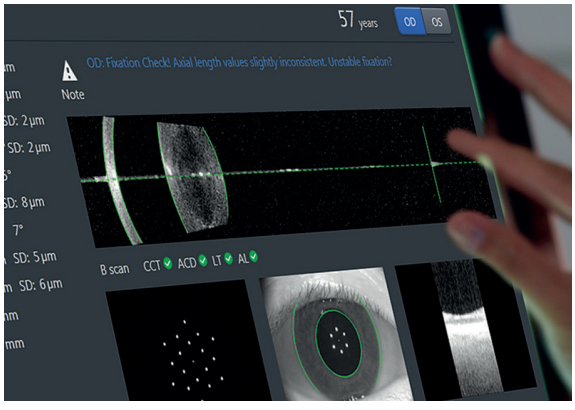
*Poor fixation***



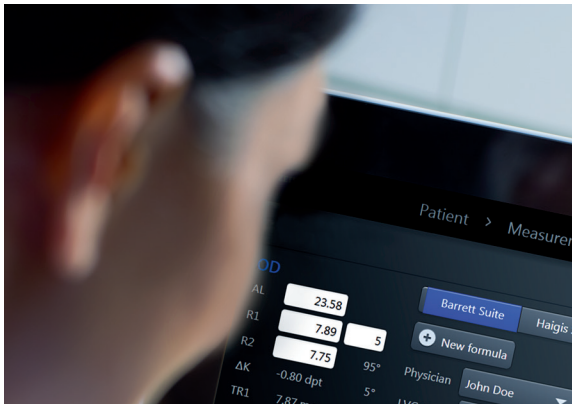
*Correct fixation***

* *Image courtesy of Prof. W. Sekundo, Philipps University Hospital Marburg, Germany*

Visually verify your measurement
All measurement calipers are shown on the patented Cornea-to-Retina Scan generated by the ZEISS IOLMaster 700. This allows you to visually verify what structure of the eye has been measured. The complex interpretation of A-scans and guesswork as to which peak should be measured are no longer necessary. Thus, potential sources of error can be eliminated.



Benefit from the integrated Barrett Suite
The ZEISS IOLMaster 700 fully integrates the Barrett Universal II, True-K and Toric into one suite. This allows you to incorporate the predicted influence of the posterior corneal surface into your IOL calculation.[2,3,4] The directly measured posterior surface can be considered by using Total Keratometry in classic formulas and the new Barrett TK formulas.

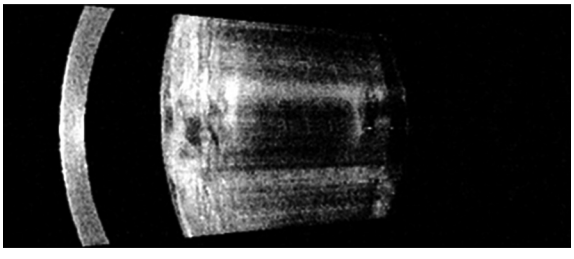


Optimize your workflow

Fast and easy to use
Measure both eyes in less than 45 seconds, thanks to SWEPT Source Biometry.[5] Alignment assistance functions make the results largely independent of the user and therefore easy to delegate.

Multi-touch screen

Ability to penetrate >99% cataract rate
A comparative clinical study with more than 1,200 eyes showed that the ZEISS IOLMaster 700 achieves a cataract penetration rate of more than 99%. As a result, the number of ultrasound cases can be reduced by 92%, saving you valuable time.[6]



*Very dense cataract that was measured successfully**

Implant toric IOLs markerless
The ZEISS IOLMaster 700 is an integral part of the ZEISS Cataract Suite. It acquires a reference image that is used for intra-operative matching with the live eye image during surgery. Pre-operative corneal marking of the toric IOL implantation axis becomes obsolete.

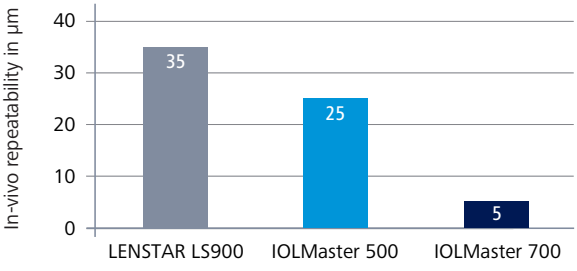
Markerless toric IOL implantion with the ZEISS Cataract Suite

** Image courtesy of Prof. M. de La Torre, DLT Ophthalmic Center, Peru*
**** Findings need to be verified and pathologies diagnosed with a dedicated retina OCT*

Improve your refractive outcomes

Outstanding repeatability

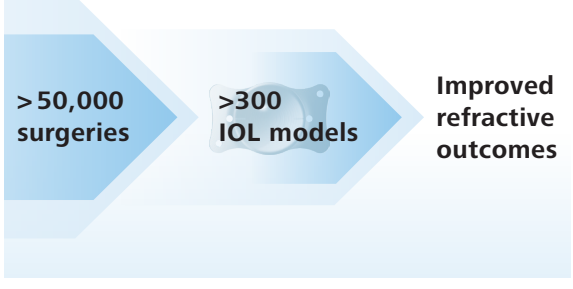
Repeatability is essential for good refractive outcomes. Thanks to its unique SWEPT Source Biometry with 2,000 scans per second, the repeatability of the ZEISS IOLMaster 700 is absolutely outstanding.



Comparison of the repeatability of axial length measurement[9]

Get the broadest basis of clinical data

The biometry of the ZEISS IOLMaster 700 is 100% compatible with former versions of the IOLMaster. Therefore, you can leverage the complete "User Group of Laser Interference Biometry" (ULIB) database. Finding optimized lens constants for more than 300 IOL models based on data from over 50,000 cataract surgeries specifically collected for the IOLMaster will help you improve your refractive outcomes.[10]



Enjoy comprehensive service

Receive support whenever you need it
The ZEISS OPTIME service packages available for the ZEISS IOLMaster 700 set new industry standards. They support outstanding system availability over the long term with the backing of dedicated and reliable assistance from an experienced and trusted partner.

Make a smart investment – financing with ZEISS
Whether you want to start your own practice, fuel expansion or diversify services, tight budgets are an issue almost everywhere these days. ZEISS can offer you financial solutions tailored to your specific requirements. ZEISS financing options cover traditional means of financing medical equipment with leasing contracts and customized full-service contracts.

Technical data

IOLMaster 700 from ZEISS

Measurement range	Axial length 14 – 38 mm
	Corneal radii 5 – 11 mm
	Anterior chamber depth 0.7 – 8 mm
	Lens thickness 1 – 10 mm (phakic eye) 0.13 – 2.5 mm (pseudophakic eye)
	Central corneal thickness 0.2 – 1.2 mm
	White-to-white 8 – 16 mm
Display scaling	Axial length 0.01 mm
	Corneal radii 0.01 mm
	Anterior chamber depth 0.01 mm
	Lens thickness 0.01 mm
	Central corneal thickness 1 µm
	White-to-white 0.1 mm
SD of repeatability[11]	Axial length 5 µm
	Corneal radii 0.09 D
	Cylinder > 0.75 D, axis 3.8°
	Anterior chamber depth 7 µm
	Lens thickness 6 µm
	Central corneal thickness 2.5 µm
	White-to-white 111 µm
IOL calculation formulas	License Total Keratometry*: Barrett TK Universal II and Barrett TK Toric. Barrett Suite* (includes Barrett Toric, Barrett True-K & Barrett Universal II), Haigis Suite (includes Haigis, Haigis-L, Haigis-T), Hoffer® Q, Holladay 1 and 2, SRK®/T
Interfaces	ZEISS FORUM® eye care data management system
	ZEISS computer-assisted cataract surgery system CALLISTO eye (via USB & FORUM)
	Data interface for electronic medical record (EMR) / patient management systems (PMS), Holladay IOL Consultant software and PhacoOptics®
	Data export to USB storage media
	Ethernet port for network connection and network printer
Line voltage	100 – 240 V ± 10 % (self sensing)
Line frequency	50 – 60 Hz
Power consumption	max. 150 VA
Laser class	1

** Optional*

[1] R. Varsits, N. Hirnschall, B. Doeller, O. Findl; Increasing the number of successful axial eye length measurements using swept-source optical coherence tomography technology compared to conventional optical biometry; presented at ESCSR 2016.

[2] Kane, J.X., et al., Intraocular lens power formula accuracy: Comparison of 7 formulas. J Cataract Refract Surg, 2016. 42(10): 1490–1500.

[3] Abulafia, A., et al., Prediction of refractive outcomes with toric intraocular lens implantation. J Cataract Refract Surg, 2015. 41(5): 936–44.

[4] Abulafia, A., et al., Accuracy of the Barrett True-K formula for intraocular lens power prediction after laser in situ keratomileusis or photorefractive keratectomy for myopia. J Cataract Refract Surg, 2016. 42(3): 363–9.

[5] Depending on experience of operator and eye conditions.

[6] R. Varsits, N. Hirnschall, B. Doeller, O. Findl; Increasing the number of successful axial eye length measurements using swept-source optical coherence tomography technology compared to conventional optical biometry; presented at ESCSR 2016.

[7] Hirnschall N, Leisser C, Radda S, Maedel S, Findl O. Macular disease detection with a swept source optical coherence tomography based biometry device in patients scheduled for cataract surgery. JCRS VOL 42, APRIL 2016.

[8] Bertelmann et al.; Foveal pit morphology evaluation during optical biometry measurements using a full-eye-length swept-source OCT scan biometer prototype; European Journal of Ophthalmology, Nov/Dec 2015.

[9] Sources: LENSTAR LS900, HS-Art.No. 1511.7220032.02060, standard deviation (1,σ); IOLMaster 500, Vogel A, Dick B, Krummenauer F: Reproducibility of optical biometry using partial coherence interferometry. Intraobserver and Interobserver reliability. J Cataract Refract Surg, 27: 1961–1968, 2001 standard deviation (1,σ); IOLMaster 700 see technical data.

[10] Aristodemou P, Knox Cartwright NE, Sparrow JM, Johnston RL, Intraocular lens formula constant optimization and partial coherence interferometry biometry: Refractive outcomes in 8108 eyes after cataract surgery, J Cataract Refract Surg, 2011 Jan; 37(1): 50–62.

[11] Carl Zeiss Meditec, clinical trial, IOLMaster 700-2015-1

CE 0297

Carl Zeiss Meditec AG
Goeschwitzer Strasse 51–52
07745 Jena
Germany

Carl Zeiss Meditec, Inc.
5160 Hacienda Drive
Dublin, CA 94568
USA
www.zeiss.com/us/med

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