Optical biometry & topography system

ALADDIN Series

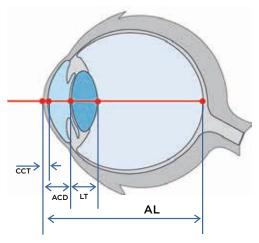


We let you see the complete picture

Today accurate IOL-power calculation is no longer enough. The final optical result and patient's satisfaction are paramount. By incorporating full corneal topography and wavefront analysis of the cornea the ALADDIN addresses the limitations of conventional biometers.

Topcon provides the complete picture with the new ALADDIN HW2.0 and ALADDIN HW3.0 (LT, Lens Thickness). ALADDIN supports the surgeon not only in his/her choice of the spherical power of the IOL, but also assists in the choice of the right premium IOL for each individual eye.

Posterior & Anterior interferometry



Biometry results are complemented with anterior topography, Zernike analysis and pupillometry in one fast, accurate and easy acquisition. The Interferometer of ALADDIN also provides anterior measurements such as the Central Corneal Thickness (CCT)*, Anterior Chamber Depth (ACD) and Lens Thickness (LT)*

You get the complete picture for all cataract surgeries. Whether you are performing standard cataract surgery or premium IOL implantation, you will be screening for corneal aberrations, Keratoconus and previous corneal refractive surgery procedures all at once. The ALADDIN only requires just one Acquisition.



ALADDIN addresses the limitations of conventional biometers ALADDIN HW3.0 8 in 1 1 Axial length 2 Keratometry 3 Topography 4 Anterior Chamber Depth 5 Pupillometry 6 White to white 7 Central Corneal Thickness Lens Thickness

ALADDIN fully featured

»Fully integrated patient database

- »Patient search function
- »Input Post op data

»Easy acquisition 8 in 1 (ALADDIN HW2.0, 6 in 1)

»Pre Op input of lens and vitreous body

»Conventional IOL calculation formulas

- »SRK II, SRK/T, Hoffer Q, Holladay 1, Haigis
- »Connectivity with Olsen PhacoOptics® PC software
- »Multiple surgeon pre-settings
- »ULIB database compatible updates
- »Customisable Database

» Post refractive IOL calculation formulas

»Camellin-Calossi, Shammas (no history)

»Generic Toric IOL calculation

- »Toric IOL rotation simulator
- »Dedicated Oculentis setting

» Topography

- »Full featured corneal mapping
- »Accurate corneal radii
- »Keratoconus probability index

»Corneal wavefront (Zernike) analysis

- »Selectable maps ranging (pupil size from 2,5 to 7.0 mm)
- »Simulation graphs

»Interferometer graphs

- »Axial length
- »Central corneal Thickness*
- »Anterior chamber depth*
- »Lens Thickness*

» Pupillometry

- »Dynamic, Photopic, Mesopic
- »Decentralization and Latency graph

»White to white measurement

» Reports

- »To USB, shared folder and printer
- »Topography report
- »IOL report
- »Biometry report (AL, K, ACD, LT*, CCT* WTW)
- »Pupillometry





The ALADDIN was developed with three key points in mind

Speed

Point and shoot acquisition, all necessary measurements are taken in under five seconds. Single measurement are supported for even faster ACD, AL or topography, as well as a separate full pupillometry.

Accuracy

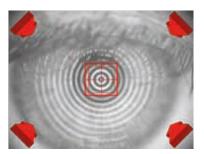
Proven interferometry accuracy combined with new technology for keratometry, provide extremely accurate Axial Length and corneal radii information for precise calculation of IOL spherical and toric powers.

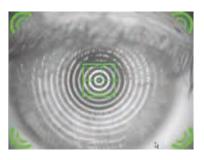
Ease of use

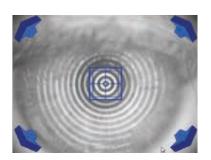
The operator is only three clicks away from printing the ALADDIN report. The 10.1 inch full colour touchscreen monitor is very responsive and comfortable to use. The user-friendly interface guides you through the main functions with ease.

Making an acquisition has never been easier. To ensure complete accurate biometry, the ALADDIN guides you in focus and alignment with visual color coded signs while taking the acquisition.









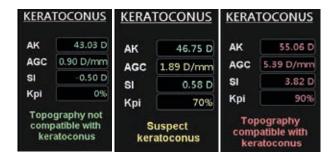
Corneal topography

Keratometry / Topography

Full Corneal topography provides much more information than just K-values. Specific data for toric IOL surgery, instantly detects regular and irregular astigmatism. The keratometry provided by the "Placido" rings of ALADDIN is extremely accurate due to simultaneous use of the interferometer.

- »Axial and tangential map
- »Adjustable absolute, normalized and ISO map scales
- »Milimeters or diopters
- ">Grid, rings, and 3, 5 and 7 mm zones





Keratoconus screening

The ALADDIN is capable to screen the corneal surface for keratoconus probability. This information provides the surgeon in detail the corneal keratometric indices to assist in making the correct toric IOL selection. The Keratoconus Probability Index is shown in percentage as well as in colour codes.

Green Not compatible with Keratoconus

Yellow Suspected Keratoconus

Red Compatible with Keratoconus

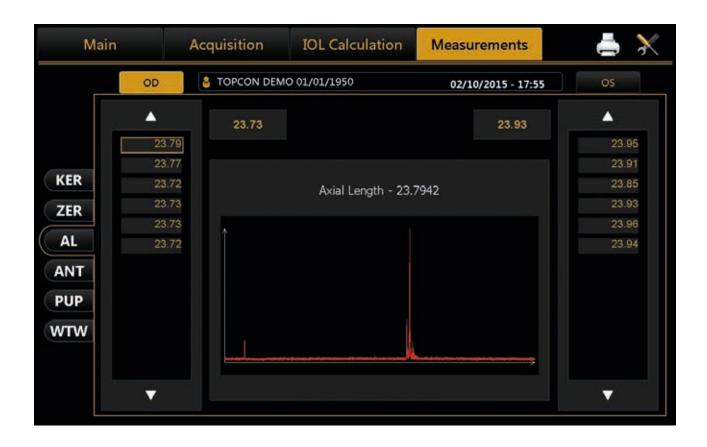
Aberrometry analysis (Zernike)

Zernike analysis of the topographic data provides the Optical Path Difference (OPD) and information on astigmatism, spherical aberrations, higher order aberrations and Coma for pupil sizes of 2.5mm to 7.0mm

When using the actual Spherical Aberration provided by Zernike analysis, you can select the appropriate aspherical IOL with standardised spherical aberration correction according to the patient's individual required spherical aberration.



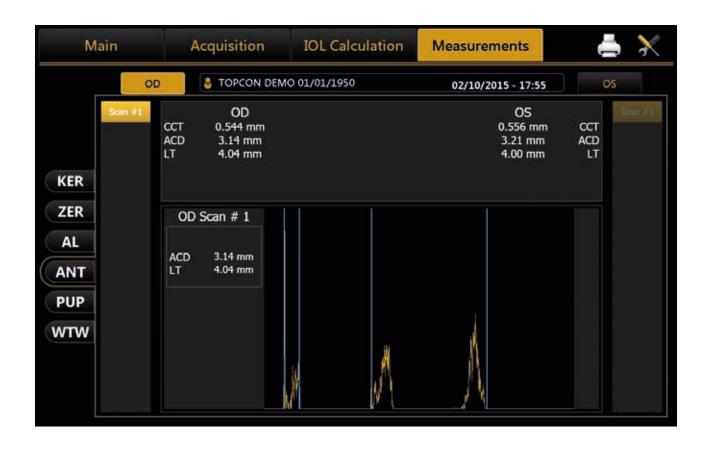
Axial length



Axial length

Using a low-coherence interferometry system with a super luminescent diode of 830 nm and signal processing, the ALADDIN achieves Axial length measurement with high signal-to-noise ratio and is able to penetrate even high grade dense cataracts. Axial length measurements can be done on normal eyes as well as on aphakic, pseudo-aphakic and silicone oil-filled eyes.



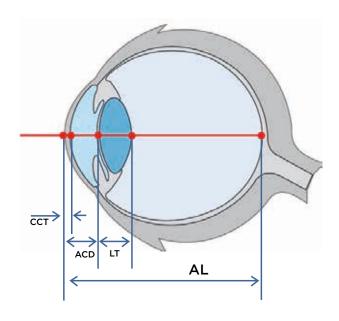


Anterior biometry

Anterior biometry with the ALADDIN allows measuring the Central Corneal Thickness*, Anterior Chamber Depth and the crystalline Lens Thickness*. Pachymetry is a key feature to measure for all cataract surgery procedures. ACD is measured through interferometry* providing high precision and reproducibility. All interferometry measurements are shown in a graph to make it visible.

Lens Thickness*

Lens thickness measurement of ALADDIN HW3.0 in combination with the connectivity to the Olsen PhacoOptics® IOL calculation software ensures an accurate prediction of the ELP and improves the refractive outcome.



Pupillometry

Pupillometry

During Placido evaluation pupillary response is observed to assess a pseudo Photopic and pseudo Mesopic pupil size, indicating response and normal range of the pupil. Full pupillometry screening assists to evaluate eyes for multifocal IOL implantation or refractive surgery. For any refractive procedure it is vitally important to diagnose the pupil very carefully in different light conditions, and exclude cases of extreme small or decentered pupils.



- »Dynamic
- »Photopic
- » Mesopic





White to white

ALADDIN measures automatically white to white dimension which can be manually edited. Reliable white to white measurement is used with anterior chamber intraocular lens and sulcus fixated posterior chamber intraocular lens in highly myopic eyes.



IOL selection

IOL & Toric IOL calculation

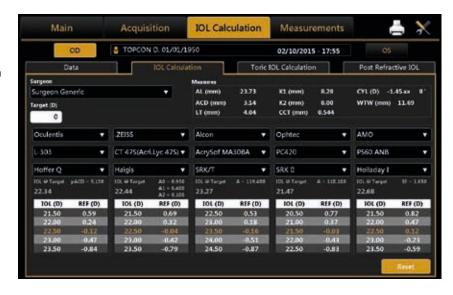
The ALADDIN guides you through the choice of the right IOL for each patient. A combination of IOL brand, type and formulae can be viewed and compared to various chosen combinations, in order to obtain the best post-operative Visual Acuity result for the patient.

A pre-defined IOL selection can be programmed for each individual surgeon.

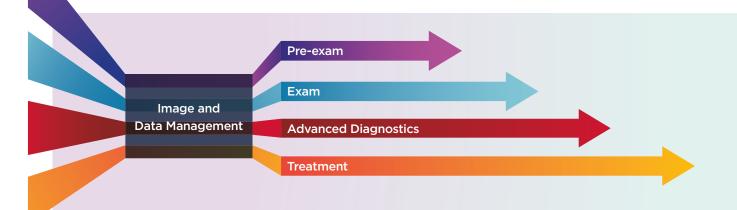
When implanting a toric IOL, specific toric calculation software assist you in calculating the best option.

This integrated toric IOL calculator saves you time and avoid unnecessary mistakes when manually entering data online.

IOL Toric Rotation Simulation Software calculates the induced spherical and cylindrical power for every five degrees toric IOL rotation.



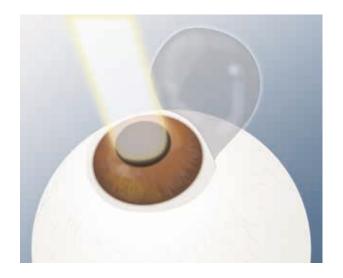




Customisable IOL database

Post refractive IOL

In eyes that have previously undergone refractive surgery such as RK, PRK, Lasik, Lasek, LK and PTK, spherical aberrations are often outside the standard values. In these cases the ALADDIN provide the Camellin Calossi formula. If there is no patient history the Shammas No-history formula can be used for the correct IOL calculation.



Customisable IOL database

The ALADDIN provides a full ULIB database which can be upgraded and customised. You can manually upgrade the A- constant for each individual IOL to obtain even a higher accuracy every time you perform cataract surgery. Your favorite IOL's can be pre-defined and programmed for each individual surgeon, simplifying and personalising IOL selection.



Connectivity

All biometry, pupillometry and topography data and maps that are generated by ALADDIN can be examined and reviewd in image & data management software.

This image & data management software can be integrated in a network enabled hospital set up for an improved and flexible workflow.



Topcon's Cataract Workstation





KR-800S

Auto kerato-refractometer with subjective function

- 1 VA check far vision
- ² VA check near vision
- 3 VA check glare condition
- 4 VA check contrast condition
- 5 Grid test (AMD screening)
- 6 VA simulation Premium IOL



KR-800S



Pre-Operative Subjective Refraction and Pre-OP-diagnostics

Cataract surgery quality control

Cataract surgery quality control

Visual acuity (VA) is the most common clinical measure of the quality results of cataract surgery. It is how we describe and measure the success of surgery and it is therefore critical that it is measured well. Measurement of VA must be standardized and systematic. Topcon's KR-800S Auto Kerato- Refractometer with subjective VA check will do exactly that. With the KR-800S the VA can be subjectively tested pre- and post-operative cataract surgery. With the unique features of the KR-800S such as "Glare" test and "Contrast" test you can even evaluate the progression of cataract and distinct Nuclear cataract from Cortical cataract.

VA Simulation Premium IOL

KR-800S offers a Spherical Equivalent mode which can simulate the benefit of a premium (toric) IOL, to convince the patient for reaching even a higher post-operative VA. The subjective VA test for near will help to convince the patient to choose for a Multifocal IOL.

Cataract workstation

The KR-800S completes the screening workflow of cataract surgery. All necessary cataract pre-op information can be obtained by KR-800S and ALADDIN, while the KR-800S assist you post-op in Visual Acuity evaluation and the success of the cataract surgery. ALADDIN and KR-800S the perfect combination for your cataract practice.



ALADDIN the complete picture



Customized ALADDIN Reports**

Have personalized reports for your clinic that suits your needs. Customized information of your choice in a single report aids workflow.

Remote support

A remote support tool is implemented as standard in ALADDIN. Maintenance of software can be performed by a dedicated ALADDIN engineer. This guarantees minimal interruption of your clinic workflow, and ensures the ALADDIN to be a safe and reliable instrument, enhancing your patient care.



















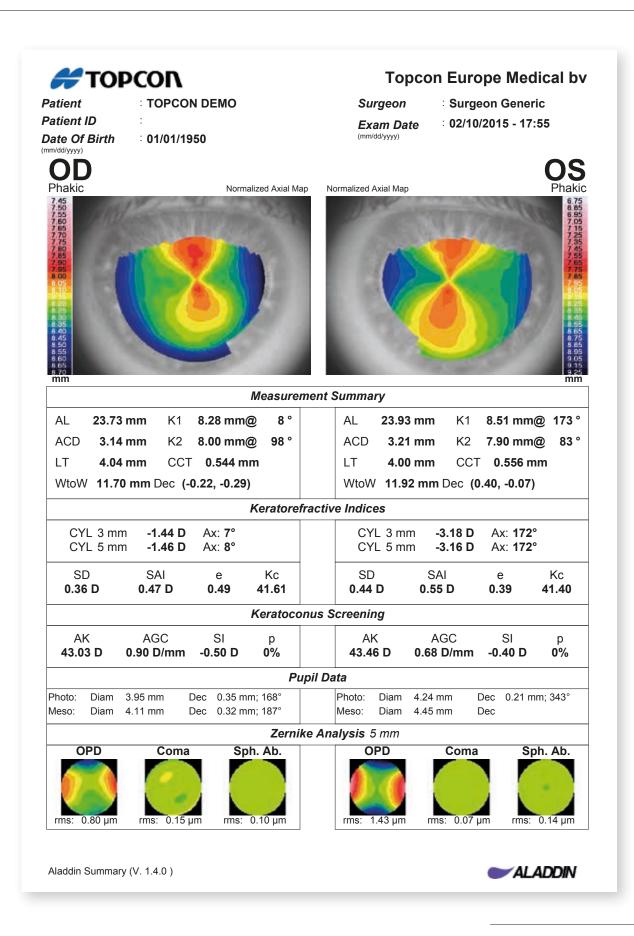




^{*} Available in ALADDIN HW3.0 only

^{**} Ask your Topcon dealer for details

Reports measurement summary



Reports IOL calculation



Patient : TOPCON DEMO

Patient ID

Date Of Birth : 01/01/1950

Data Measurements n: **1.3375**

Aladdin Optical

: 23.73 mm K1 : 8.28 mm @ 8° 98° ACD: **3.14 mm** K2 : 8.00 mm @ 8° LT 4.04 mm CYL : -1.45 D

CCT 0.544 mm

Target Refraction:

Oculentis L-313

L-313		LS-313 N	MF30		
SR	K/T	SR	SRK II		
IOL(D)	REF(D)	IOL(D)	REF(
20.50	0.83	21.00	0.7		
21.00	0.47	21.50	0.37		
21.50	0.10	22.00	-0.0		
22.00	-0.27	22.50	-0.4		
22.50	-0.64	23.00	-0.8		
IOL @ Target	A = 118.100	IOL @ Target	A = 11		
21.64		21.97			

Oculentis Oculentis LU-313 MF30T LS-412Y

Haigis			
IOL(D)	REF(D)		
21.50	0.58		
22.00	0.21		
22.50	-0.16		
23.00	-0.54		
23.50	-0.92		
IOL @ Target	A0 = 0.870		
22 28	A1 = 0.400		

A2 = 0.100

IOL(D) 21.00

Oculentis

REF(D)

0.77

0.37

-0.03

-0.43

-0.83

A = 118.600

REF(D) 0.86 21.50 0.51 22.00 0.16 22.50 -0.20 23.00 -0.56 pACD = 5.070 IOL @ Target 22.22

Hoffer Q

Oculentis LU-800 RZI

LO 000 I	121		
Holladay I			
IOL(D)	REF(D)		
19.00	0.90		
19.50	0.52		
20.00	0.13		
20.50	-0.25		
21.00	-0.65		
IOL @ Target	SF = 0.310		
20 17			

IOL Calculator (V. 1.4.0)

Topcon Europe Medical by

Surgeon : SURGEON GENERIC

Exam Date

: 02/10/2015 - 17:55

n: **1.3375**

Data Measurements

Aladdin Optical ΑL : 23.93 mm K1 : 8.51 mm @ 173 ° ACD : **3.21 mm** K2 : 7.90 mm @ 83° 4.00 mm CYL : -3.06 D ax 173° LT

CCT 0.556 mm

Target Refraction:

Oculentis Oculentis LS-313 MF30 L-313

SRK/T		
IOL(D)	REF(D)	
20.50	0.67	
21.00	0.31	
21.50	-0.06	
22.00	-0.43	
22.50	-0.81	
IOL @ Target	A = 118.100	
21.42		

SRK II REF(D) IOL(D) 0.62 21.00 21.50 0.22 22.00 -0.18 22.50 -0.58 23.00 -0.98 A = 118.600 IOL @ Target 21.77

Oculentis LU-313 MF30T

LO OTO WII OOT			
Haigis			
IOL(D)	REF(D)		
21.00	0.81		
21.50	0.45		
22.00	0.08		
22.50	-0.30		
23.00	-0.67		
IOL @ Target	A0 = 0.870		
22.10	A1 = 0.400		

A2 = 0.100

Oculentis LS-412Y

Hoffer Q		
IOL(D)	REF(D)	
21.00	0.72	
21.50	0.37	
22.00	0.01	
22.50	-0.35	
23.00	-0.71	
IOL @ Target	pACD = 5.070	

22.02

Oculentis **LU-800 RZI**

LO 000 I	121		
Holladay I			
IOL(D)	REF(D)		
19.00	0.76		
19.50	0.38		
20.00	-0.01		
20.50	-0.40		
21.00	-0.80		
IOL @ Target	SF = 0.310		
19 99			



Reports generic toric IOL calculation





Patient Information		
Patient TOPCON DEMO	Surgeon SURGEON GENERIC	
Patient ID	Clinic Topcon Europe Medical bv	os
Date of Birth 01/01/1950 mm/dd/yyyy	Exam Date 02/10/2015 - 17:55 mm/dd/yyyy	

Biometry Data							
AL (mm)	23.93	LT (mm)	4.00	K1 (mm)	8.51	CYL (D)	-3.06@173°
ACD (mm)	3.21	CCT (mm)	0.556	K2 (mm)	7.90	n	1.3375

Surgical Pre Op Data			
SEQ (D)	23.00	SIA (D)	0
Formula	Holladay I	IL (°)	83

SF = 1.980

_	 <u> </u>	

Lens Model

Alcon AcrySof SN6AT6

Spherical Power Cylindrical Power

21.50 D 3.75 D

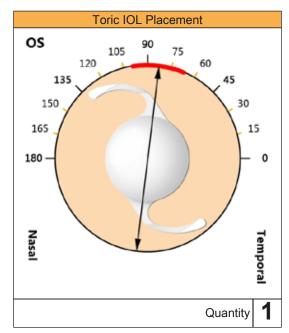
Sph. Equiv. Power Axis Of Placement

23.38 D 83°

Expected Refraction

-0.02D -0.44 D @ 173°

Lens	Residual Astigmatism
AcrySof SN6AT4 (22.00D 2.25C)	-1.48 D @ 173°
AcrySof SN6AT5 (21.50D 3.00C)	-0.96 D @ 173°
AcrySof SN6AT6 (21.50D 3.75C)	-0.44 D @ 173°
AcrySof SN6AT7 (21.00D 4.50C)	-0.08 D @ 83°
AcrySof SN6AT8 (20.50D 5.25C)	-0.60 D @ 83°



Notes

1.4.0

Reports biometry



Topcon Europe Medical by

Patient : TOPCON DEMO Surgeon : Surgeon Generic

Exam Date : 02/10/2015 - 17:55

Patient ID Exam (mm/dd/yyy

Date Of Birth : 01/01/1950

OD

OS

Phakic Phakic

Axial length values			
Comp. AL: 23.73 mm		Comp. AL: 23.93 mm	
AL	AL	AL	AL
23.79 mm		23.95 mm	
23.77 mm		23.91 mm	
23.72 mm		23.85 mm	
23.73 mm		23.93 mm	
23.73 mm		23.96 mm	
23.72 mm		23.94 mm	

25.72 111111		20.04 11111	
	Value Cori	neal Curvature	
KER: 8.28/8.00 mm CYL: -1.4	5 D Ax 8°	KER: 8.51/7.90 mm CYL:	-3.06 D Ax 173°
K1: 8.28 mm @ 8°	40.74 D	K1: 8.51 mm @ 173°	39.64 D
K2: 8.00 mm @ 98°	42.19 D	K2: 7.90 mm @ 83°	42.71 D
CYL: -1.45 D ax 8°		CYL: -3.06 D ax 173°	
	AC	D value	<u>'</u>
ACD: 3.14 mm		ACD: 3.21 mm	
3.14 mm		3.21 mm	
	LT	value	
LT: 4.04 mm		LT: 4.00 mm	
4.04 mm		4.00 mm	
	CCT	value	
CCT: 0.544 mm		CCT: 0.556 mm	
	White	o White	
WTW 11.70 mm Dec (-0.22 mm	ı, -0.29 mm)	WTW 11.92 mm Dec (0.40 i	mm, -0.07 mm)

Overview Biometer Measurements (V. 1.4.0)



TOPCON

Patient : TOPCON DEMO

Patient ID

Date Of Birth : 01/01/1950

(mm/dd/yyyy

Topcon Europe Medical bv

Surgeon Generic

Exam Date : 02/10/2015 - 17:55

Dynamic Pupillography

OD

Diameter (mm)

Min	Max
3.48	4.98

Center (mm)

Mean	Std Dev
x= -0.27	0.07
y= 0.02	

OS

Diameter (mm)

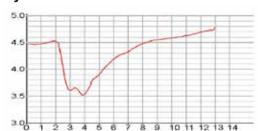
Min	Max
3.27	4.78

Center (mm)

i	
Mean	Std Dev
x= 0.25	0.08
v= -0.04	

Latency





Static Pupillography

Diameter (mm)

	Mesopic	Photopic
Mean	4.57	3.80
Std Dev	0.09	0.09

Diameter (mm)

	Mesopic	Photopic
Mean	4.60	3.71
Std Dev	0.09	0.10

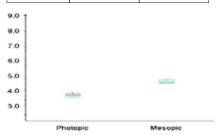
Center (mm)

	Mesopic	Photopic
X	-0.33	-0.27
Υ	0.04	-0.01



Center (mm)

•		
	Mesopic	Photopic
X	0.25	0.21
Υ	-0.15	-0.09



Pupillometry (V. 1.4.0)



xial Length (Interferometry)	Super luminescent diode 8	30nm, 15,00mm - 38,00mm
Corneal Radii	3,30mm - 37,50mm / 9,00D - 101,50D	5,00mm - 12,00mm / 28,00D - 67,50D
ACD measurement	slit illumination 1,50mm - 5,50mm	interferometer 1,50mm - 6,50mm
VTW measurement	6,00mm - 18,00mm	8,00mm - 14,00mm
Pupillometry	Dynamic, Photopic & Mesopic	pupil size 0,50mm - 10,00mm
ens Thickness (interferometry)	×	1,50mm - 6,50mm (phakic) 0,50mm - 3,50mm (pseudo-phakic)
CCT measurement (interferometry)	×	0,300 mm - 0,800 mm
On-board calculation formulas		
OL formulas	Haigis, Hoffer Q, Holli	aday 1, SRK*II & SRK*T
Post Refractive Surgery IOL formulas	Camellin Calossi & Shammas No Hist	ory, Olsen PhacoOptics* connectivity
Placido Topography specifications		
(eratoscopic Cone (topographic map)	24 rings on a 43 dpt spher	e, working distance 80 mm
Points analysed	over 10	00.000
oints measured		6.000
Cornea coverage		sphere) 42,20D with n=1.3375
Guided focus system		/
Ceratoconus screening		
Apical Curvature		/
Apical Gradient of Curvature		/
ymmetry index	✓	
(pi (Keratoconus probability index)	✓	
oftware features		
oric IOL calculator	Generic Toric IOL, Oculentis Toric IOL	
Zernike analysis	Pupil size 2,5 mm - 7,0 mm	
rint to	USB printer, Network printer, PDF to sh	ared network folder & PDF to USB drive
nstrument Specifications		
Display		ch screen
torage	At least 320 GB HDD	At least 320 GB HDD + 32 GB SSD
Operating system	Windows 7 E	mbedded OS
Processor		G-T56N
nternal memory		RAM
Power input		OV 50 - 60Hz
Dimensions		mm (H) x 470 mm (L)
Veight		kg
Connections		2 x USB
Supports		rnal USB keyboard / mouse
1arking	CE,	ETL
Reports		
Aladdin report	✓	
leasurement overview	✓	
Pupillometry	✓	
OL .	✓	
Seneric Toric IOL	✓	

IMPORTANT

Subject to change in design and/or specifications without advanced notice.

In order to obtain the best results with this instrument, please be sure to review all user instructions prior to operation.





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