General Information

Mode	40x	20x
Image Acquisition Speed	25 fps	25 fps
Image Size	768 x 576 pixel	384 x 576 pixel
Inspected Field	460 x 345 µm	460 x 690 µm
Magnification (on 15" display @ 1024 x 768, 1:1 zoom)	500x	250x
Lateral Resolution	0.6 µm/pix	1.2 µm/pix
Number of Images	Up to 350	Up to 200
Programmable Depth of Scan	Yes	Yes
Minimum Axial Step	1.5 µm	1.5 µm
Working Distance	1.98 mm	12 mm
Accuracy of Pachymetry (with Z-Ring)	± 5 µm	–
Refractive Index of Gel (Visidic)	1.34	–
Internal Fixation	9 targets	
Size	55 x 48 x 60 cm – 22" x 19" x 24"	
Weight	32 kg – 70 lbs	
Class	Class I (according to MDD)	
Type	Type 1B (according to IEC 601-1)	

Features

- ***High Precision:*** *Fully automated alignment and scan time is optimised (350 images in ~15 sec/exam) — nine internal fixation targets for increased patient fixation stability and device performance*
- ***Full Cornea Scan:*** *Full-automatic, semi-automatic, manual mode, and customisable exams are available with the possibility to choose the corneal layers to be scanned (endothelium, epithelium, or full cornea) in one unique exam*
- ***Opacity Error Free:*** *Through the confocal principle, high quality imaging through corneal haze and opacities is possible even with the non-contact endothelial microscopy functionality — the new Z-Ring increases the stability of the exam and the reliability of the Z-Scan reference for accurate full thickness optical pachymetry, offering the ability to define the position of any corneal structure and opacity with high precision*
- ***Wide Measurement Area:*** *With the new 20x lens, it's possible to image a wide field of view counting up to 1000 cells per exam — the automatic endothelial analysis displays the density as well as polimegathism and pleomorphism indexes, giving more objective data for medical assessments*

Medical Device Directive 93/42/EEC
Caution: U.S. federal law restricts the device to sale by or on the order of a physician or other licensed practitioner. The process of making a diagnosis shall involve an eye doctor.
Manufactured by Nidek Technologies Srl, Albignasego (Padova), Italy.
Specifications are subject to change for improvement without notice.

Confoscan4
Confocal Diagnostic Microscope

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Rev. 090401

3-in-1 Corneal Diagnostics

Confoscan4
Confocal Diagnostic Microscope

NIDEK

The Art of Eye Care

Full Corneal and Endothelial Microscopy, plus Accurate Pachymetry

Nidek's **Confoscan4** is the only instrument that combines confocal microscopy for full-thickness cornea measurements, non-contact endothelial microscopy with tear film analyzer, plus accurate pachymetry — all in one compact unit. No other confocal device offers the versatility and value of the **Confoscan4**.

Confoscan4
Confocal Diagnostic Microscope

1

Full Corneal Scanning

*Through the gel-immersion 40x lens, the **CS4** is able to achieve full-thickness cornea measurements and localize any intracorneal structures, including haze. Due to the 2mm working distance objective, the high-speed in-vivo histology is accomplished with maximum patient comfort — gel is placed between the cornea and the objective, ensuring no deformation is exerted to the cornea during an exam.*

2

Non-contact Endothelium & Tear-film Analysis

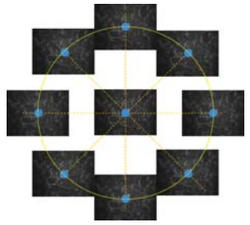
*The new 20x in-air lens enables the **Confoscan4** to fully perform non-contact endothelial microscopy with high-quality imaging through corneal haze and opacities, a wider measurement area, and increased reimbursable exams. Non-contact analysis also makes it possible to automatically acquire images from the tear-film layer. This new technique permits the study of dry-eye pathologies and related treatments.*

3

Precise Optical Pachymetry

*With an optional contact device, the **CS4** yields stabilized scans, accurate optical pachymetry, and allows precise depth location of intra-corneal structures. The contact device, called Z-Ring, is an optional element used to continuously monitor the position of the eye through controlled constant pressure at comfortable levels.*

NIDEK

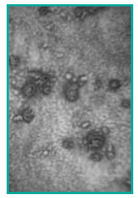


Dedicated Alignment & Fixation

Automated functionalities like alignment and scanning make testing and evaluation of the data easier and faster than with other confocal instrumentation. The new internal fixation targets lead to highly reproducible and accurate exams in nine different corneal locations.

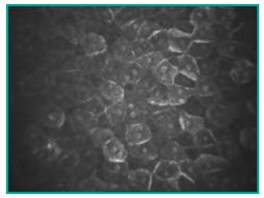
Non-contact Tear-film Analysis — Dry Eye Under Control

Normal tear film (20x)

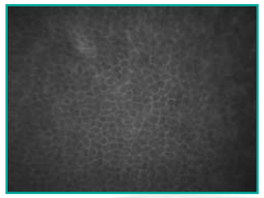


Severe dry eye (20x)

Full Cornea Scanning — Cornea In-vivo at the Cellular Level

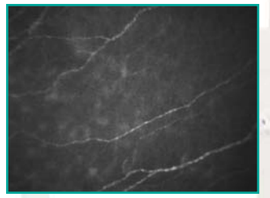


Normal superficial cells (40x)

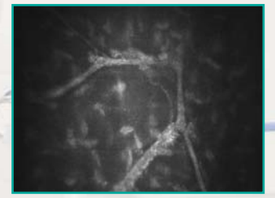


Normal basal epithelium (40x)

Nerve Analysis — Highest Precision on Location of Structures

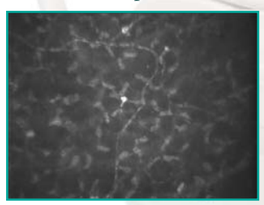


Normal sub-basal nerve plexus (40x)

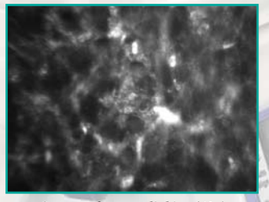


Post-LASIK nerves (40x)

Stromal Inspection — Valuable for Treatment & Follow-up

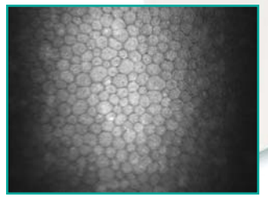


Normal anterior stroma (40x)

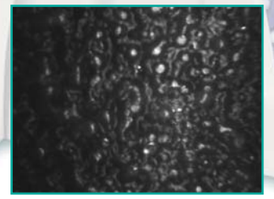


Stroma after cross linking (40x)

Endothelial Microscope — The Advantage of Confocality

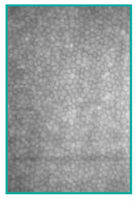


Normal endothelium (40x)

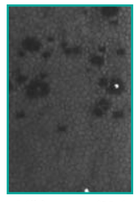


Severe Fuchs' dystrophy (40x)

Non-contact Endothelium Analysis — Easy & Automatic Quantification

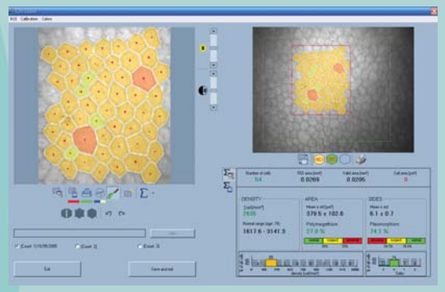


Normal endothelium (20x)



Mild guttata (20x)

Automatic Cell Analysis



*The **CS4** includes automatic cell-analysis software, which detects the number of sides and area of each cell in order to estimate the pleomorphism and polymeghatism indexes as well as endothelial cell density. The automatic analysis is also available for endothelial images acquired with the non-contact, 20x lens.*

Clinical Applications

- *Pre/post operative screening and follow up for:*
  - *Refractive surgery (PRK, DLPK, LASIK, DSAEK, SLAM, etc.)*
    - *Corneal inlays assessment*
    - *Post-operative assessments of generated flap (microkeratome, femtosecond laser)*
  - *Corneal transplant*
  - *Drug therapies*
  - *Haze and interface inflammations*
  - *Corneal nerves analysis*
  - *Early detection of stromal rejection*
- *Pre/post analysis and follow-up in cross-linking treatment*
- *Tear-film analysis for dry-eye evaluation*
- *Quantitative endothelial analysis (i.e., cataract treatment)*
- *Clinical research*
- *Eye-banking applications*

*The **CS4** is used for the diagnosis and follow-up of the following corneal pathologies:*

- *Keratoconus*
- *Fuchs' endothelial dystrophy*
- *Megalocornea in congenital glaucoma*
- *Acanthamoeba keratitis*
- *Polymegethism and pleomorphism*
- *Fungal hyphae*
- *Corneal deposits*
- *Contact-lens induced corneal changes*
- *Schnyder's crystalline dystrophy*
- *Granular dystrophy*
- *Trauma, ulcers, and infections*