SBM Sistemi
from Grafton Optical

OS1000 X

Corneal topographer

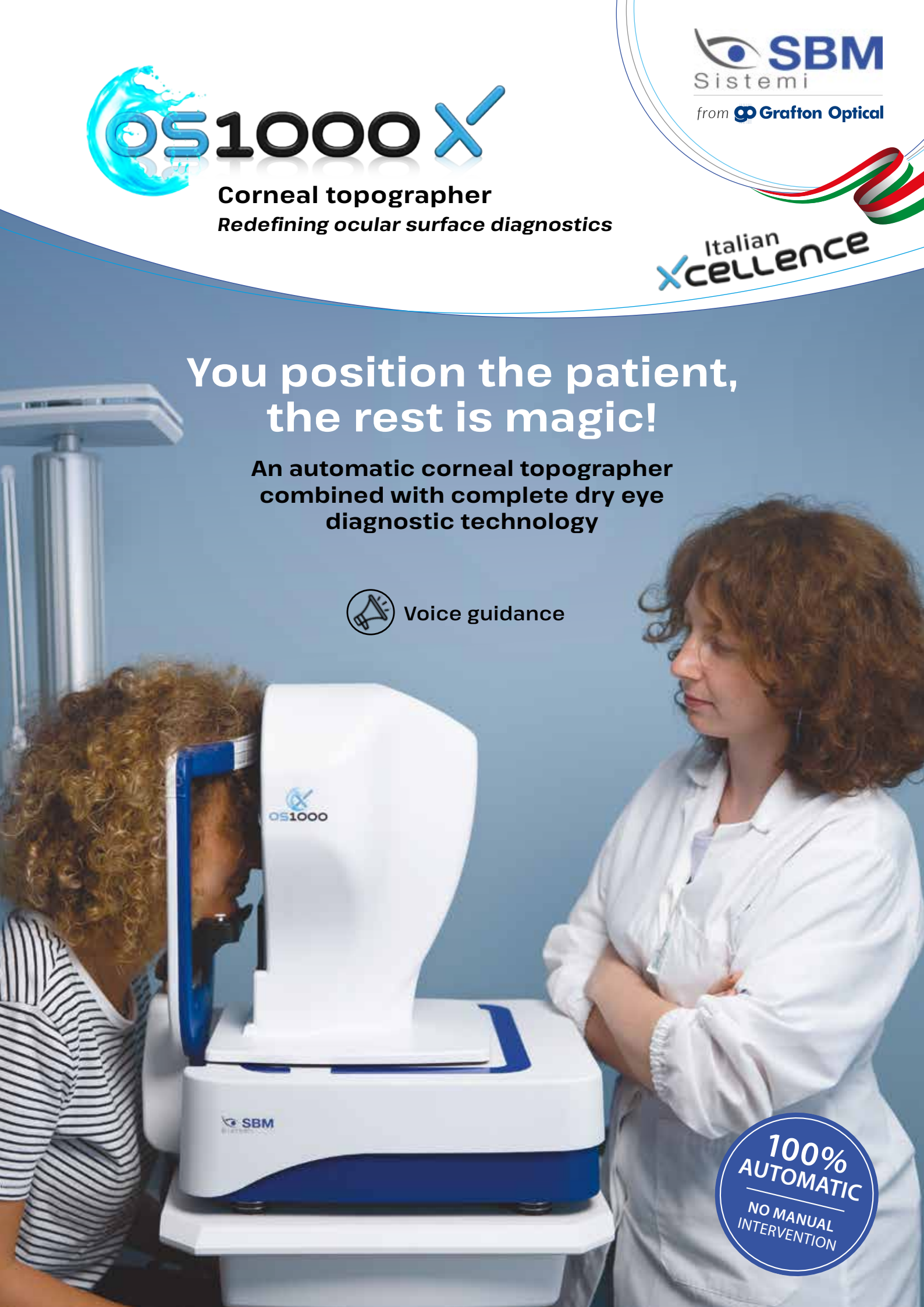
Redefining ocular surface diagnostics

Italian Xcellence

You position the patient, the rest is magic!

An automatic corneal topographer combined with complete dry eye diagnostic technology

Voice guidance



OS1000 X

3 min

Diagnosis with a single acquisition.
OS1000 X automatically detects the patient's eye, adjusts to the optimal focus, and initiates a comprehensive series of dry eye assessments.

OS1000 X is the ultimate expression of innovation in ocular surface analysis

Accurate and thorough assessment of the ocular surface is essential for early diagnosis, treatment planning, and long-term management of ocular surface disorders.

OS1000 X integrated system enhances diagnostic precision, supporting more informed therapeutic decisions and improved patient outcomes.

The OS1000 X enables clinicians to objectively evaluate:

- Anterior corneal aberrations
- Dry eye subtype classification (evaporative vs. aqueous-deficient)
- Lid margin abnormalities
- Inflammatory markers of the ocular surface

Examinations are performed through an automated workflow, streamlining both data acquisition and analysis.

Exams

- Topography
- Keratoconus screening
- Contact lens fitting simulation
- Pupillometry
- White to white measurement

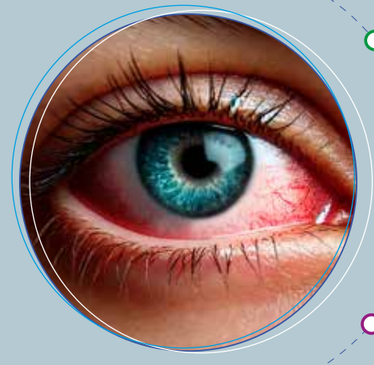
Interferometry

- NIBUT
- Meibography
- 3D Meibography

Transillumination

- Tear Meniscus
- Blink Quality
- Blepharitis
- Ocular redness classification
- Wizard procedure
- Treatment protocol section
- Smartphone App "Dry Eye Follow-Up"
- DEQ5, OSDI, OSDI6, CDEQ, CLDEQ8, SPEED

Product features



- EYE TRACKING TECHNOLOGY
- AUTO FOCUS
- INTEGRATED VOICE GUIDANCE (External speakers are not included)
- TRANSILLUMINATION EXAMINATION
- INTEGRATED BASE AND CHINREST
- HIGHLY OBJECTIVE DIAGNOSTIC EVALUATION
- EFFICIENT ACQUISITION

Together, they perform real-time acquisition, analysis, and evaluation of all essential parameters related to topography and dry eye disease.

White light

Interferometer

Blu light

Near IR light

TFOS DEWS III ready

The new report endorses a simpler patient screening questionnaire and links specific disease characteristics to treatment approaches.

The definition of dry eye has also been tweaked to emphasize symptomatic involvement.

Ocular Surface Disease Index 6: OSDI 6

	Constantly 4	Mostly 3	Often 2	Sometimes 1	Never 0
Have you experienced any of the following during a typical day of the last month?					
Eyes that are sensitive to light?	4	3	2	1	0
2. Blurred vision?	4	3	2	1	0
Have problems with your eyes limited you in performing any of the following during a typical day of the last month?					
3. Driving at night?	4	3	2	1	0
4. Watching TV (or similar)?	4	3	2	1	0
Have your eyes felt uncomfortable in any of the following situations during a typical day of the last month?					
5. Windy conditions?	4	3	2	1	0
6. Places or areas with low humidity?	4	3	2	1	0

Sum of all questions:
Likely Dry Eye if total sum ≥ 4

Normal — 4 — Dry Eye

Upscaled resolution for analyzed image

Standard corneal topographers

An A.I. based algorithm upscales the acquired image to **23 Megapixels**.

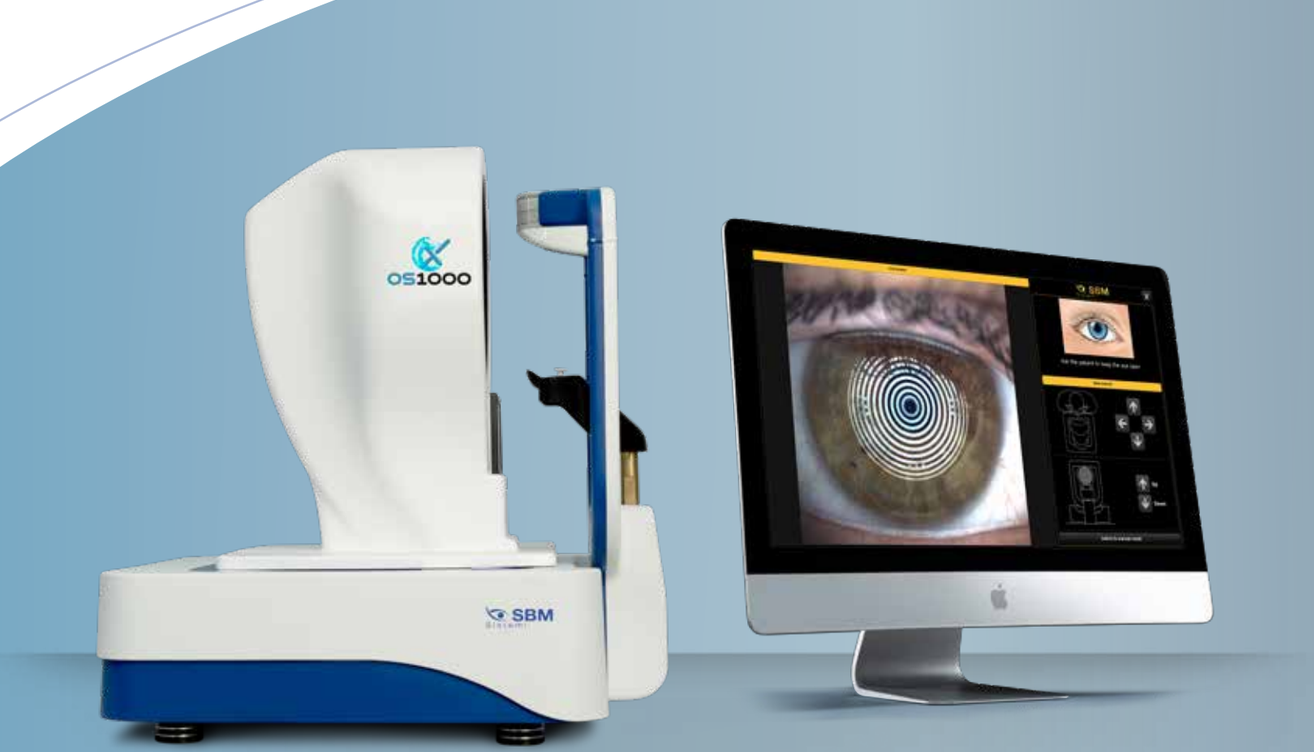
The extreme quality image is then elaborated obtaining new levels of precision in Placido disk based corneal topography measurement.

Why choose OS1000 X?

Ocular surface problems are very important, and it is vital to have good diagnostic devices that enable you to correctly assess the patient's condition. Among other ocular surface problems, dry eye is a very common disease, and it affects a lot of people. Being able to observe dry eye can give you information on the topography outcome, as severe dry eye can impact the cornea health and shape.

Modern lifestyle risk factors – such as prolonged screen exposure, air conditioning, and pollution – are strongly associated with the development and chronic progression of dry eye, potentially impacting other ocular conditions over time.

Implementing an automated, structured, and personalized management strategy today can significantly improve therapeutic outcomes and enhance patient quality of life.



OS1000 X key advantages for your workflow innovation:

Ease of Use:	Save time and reduce staff workload with a system that handles focusing and acquisition entirely on its own. Equipped with an innovative automatic system, our Placido disk-based corneal topographer can detect and focus on the patient's eye entirely autonomously eliminating the need for manual operator adjustments.
High Accuracy:	The automatic function enhances the precision of topographic and dry eye measurements, which is crucial for accurate diagnosis. Our advanced autofocus technology improves the reliability and repeatability of corneal measurements. Every exam is streamlined to deliver fast, precise results, making this corneal topographer an essential tool in any clinic or ophthalmic practice.
Comfort for Both Operator and Patient:	Reduced manual intervention means fewer risks for error and greater patient comfort throughout the exam.

Key Features and Workflow:

Equipped with an automated base, the OS1000 X initiates the data acquisition process with a single click command. Once activated, the device automatically aligns, focuses, and captures the necessary images, guided by an intuitive software interface.

A customized examination guides the process, automatically executing the selected diagnostic tests and processing the results with minimal user input.

Unique technology for automatic and objective analysis of patients with MGD

Tear film interferometry is increasingly being used in research to observe the tear film. Interferometry is a technique that studies the surface refractive pattern and dynamics of the lipid layer of the tear film, thus allowing measurement of tear film stability and lipid layer thickness.

Interferometers are investigative tools used in many fields of science and engineering. They are called interferometers because they work by combining two or more light sources to create an interference pattern, which can be measured and analysed.

The resulting patterns can be mesh and wave, wave only or a fringes of color. SBM Sistemi interferometry studies the amount of lipid content of the tear.

The lipid layer is the outermost component of the tear film and allows protection from evaporation of the underlying aqueous layer.

The lipid layer is deficient in many MGD patients making this examination extremely important.

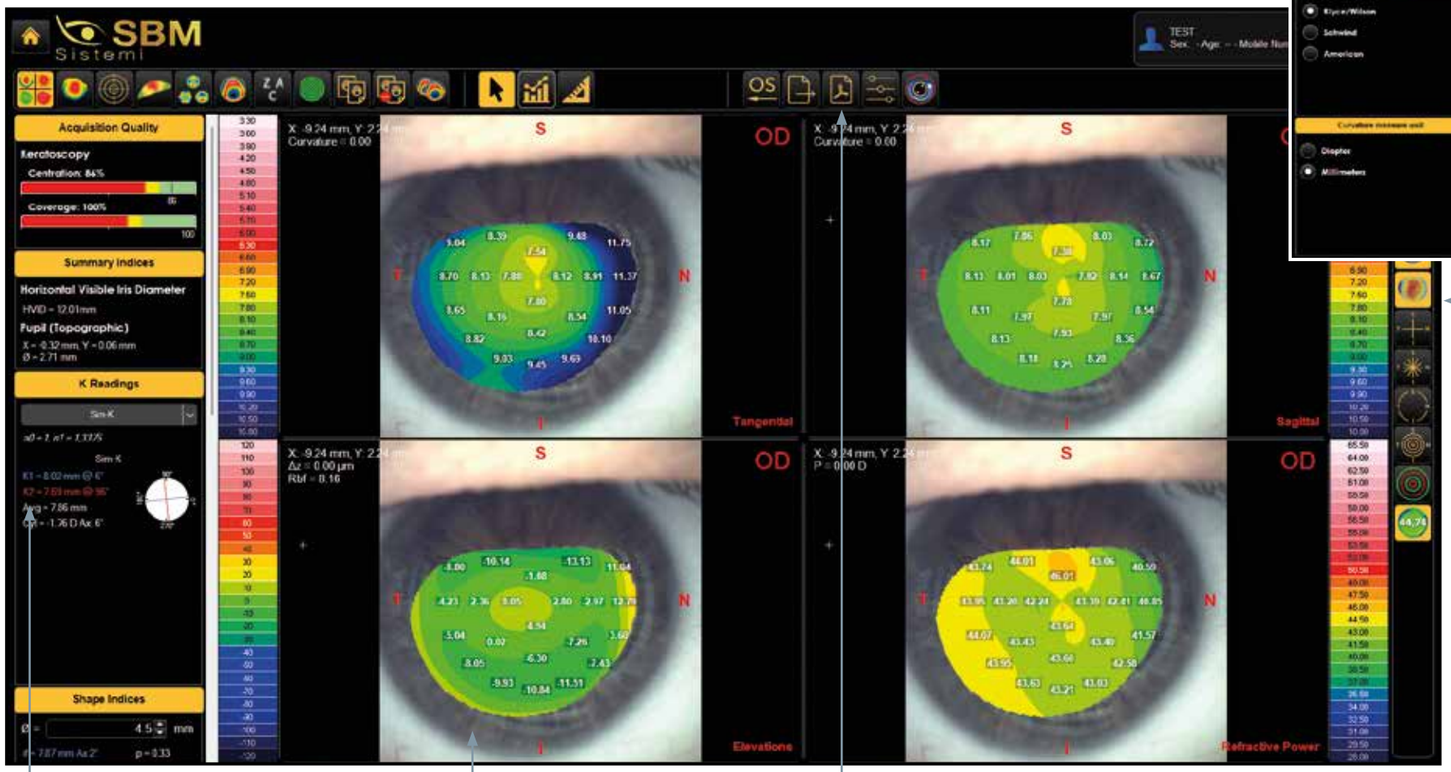
Specification

Rings	24
Measured points	8640
Image resolution	8 Megapixel
Photo resolution	2592×1944 JPEG format
Upscaled analyzed image resolution	23 Megapixel
Acquisition mode	Single shot, multishot, video
Focus	Manual and automatic focus
ISO management	Variable
Image color	Colours - Infrared (IR)
Lighting source	Infrared led - White led - Blue led
Working distance	60 mm - 90 mm from the center of the placid
Output 1	USB 3.0
Electromagnetic compatibility (EMC)	IEC 60601-1-2 (2015)
Supply voltage	100 - 240 V
Device operating voltage	24 V - 5V - 3,3 V
Dimensions	40 cm (L) x 60 cm (A) x 45 cm (P)
Weight	12 Kg
Accuracy	Class A according to UNI EN ISO 1980-2021
Cornea coverage	10 mm

Topography

Corneal topography is a non-invasive exam to obtain a map of the corneal curvature. It is a fundamental examination in the screening and follow-up of keratoconus, in refractive surgery and in contactology, to evaluate the effect of contact lenses on the cornea and for the construction of contact lenses.

Corneal topography allows you to measure the curvature of the corneal surface, building a colored map in which each color corresponds to a different curvature.

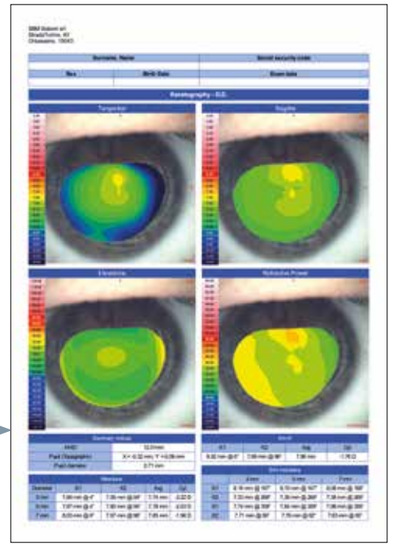


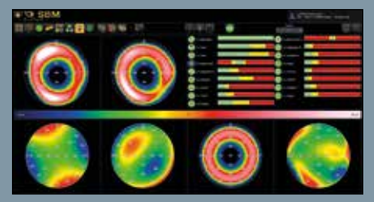
Extended maps visualization options, including iris and pupil toggles, map and eye toggles, rulers, meridians, goniometer, numeric values.

Keratometric data including K-readings and Sim-K, shapes and keratorefractive indexes.

Multiple visualization options, including single map, quadruplet, 3D.

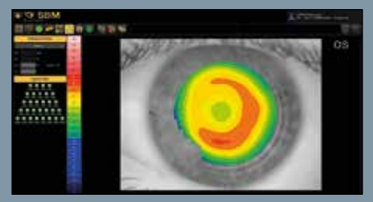
Extended and multi options reporting system that exports PDF to be printed, saved, or sent digitally.





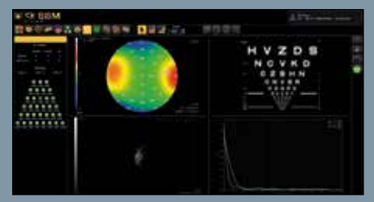
Aberrometry analysis (Zernike)

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 2.5 mm to 7.0 mm.



Advanced altimetry

A differential altimetry map between a reference surface and the patient's eye decomposed in Zernike polynomials up to 7th order.



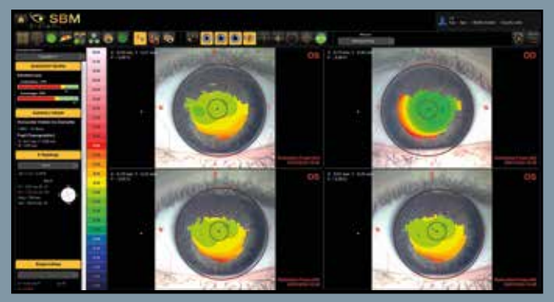
Visual acuity

Simulation of patient's visual acuity based on Zernike wavefront aberration, showing effect of cataract and refractive surgery.

Comparing Exams / Differential map

The "comparing examinations" display shows changes over a certain period of time, e.g. the progressive course of disease of keratoconus. helping you describe even complex situation to your patient.

Is possible to compare up to 4 exams. The "differential map" display shows the differences between two selected maps, is possible to use up to 3 exams.



Contact lenses

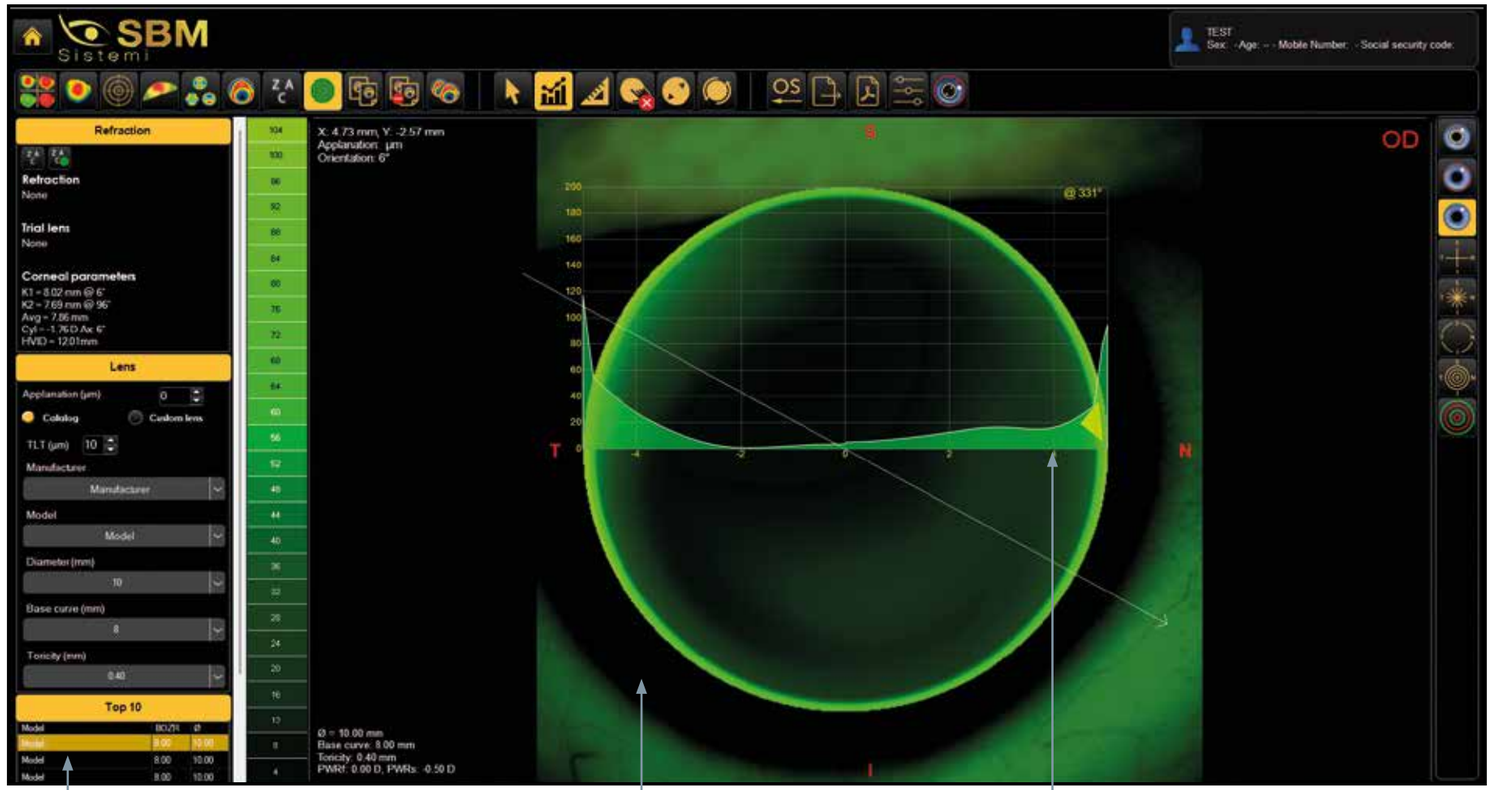
The auto fit module combines the topographic data and RGP lens data, to find and fit the best solution for the patient's eye, simulating the fitting with fluoresceine.

With the OS1000 X it is possible to acquire in vivo fluoresceine image of the lens or testing the fitting with simulated fluorescein visualization.

The contact lens simulation produces an image of how a specific lens fits the eye. The simulation allows you to adjust the angle and position of the contact lens and includes automatic recalculation of the fluorescent image.

The system allows you to order fewer lenses and reduce chair time while increasing your first-fit success rate.

This simplifies the fitting process by providing true elevation data independent of the tear film.



The best lens is chosen by the integrated algorithm among the lenses present in the database.

Large database of contact lenses from which to choose the best lens based on the topography.

Simulated fluorescein image to verify the distance of the lens from the cornea.

Cutaway graph of the distance of the lens from the cornea on the selected meridian.

Pupillometry

With the OS1000 X you can quickly and precisely measure all the data needed for multifocal, bifocal and toric contact lenses.

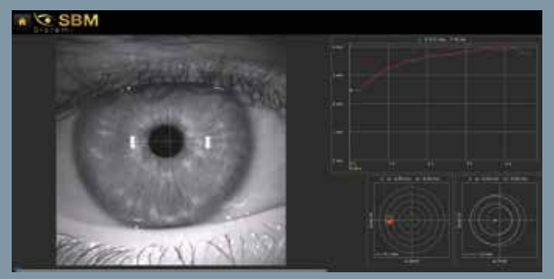
The pupillometry exam capture images or videos in white light and infrared spectrum and allows measurement of the size of the pupil and decentralization in various light conditions (scotopic vision, mesopic, photopic).

This is a quick and easy way to measure the pupil size of your patients under different illumination conditions. This option not only supports you when fitting multifocal lenses, but also when measuring the optical zone before refractive or cataract surgery.

Dynamic Pupillometry

The measurement of the pupil diameter has become increasingly important also in the field of refractive surgery as well. Larger scotopic pupil sizes may be partially responsible for the occurrence of postoperative symptoms such as halos, glare, and monocular diplopia. Refractive surgeons also need an accurate scotopic pupil measurement to determine appropriate treatment zones for excimer laser, corneal, and intraocular surgery.

The dynamic pupillometry measures the transition from a bright photopic to scotopic condition. Dynamic pupillometry is a simple screening tool for quantifying pupillary light reflex (PLR), to indicate autonomic nervous system (ANS) activity. Pupillary light reflex is measured using infrared videography and categorized into different quantitative parameters that reflect ANS activity.



Ocular Surface Analysis - Dry Eye Suite

The fastest and most complete Dry Eye suite

The Tear film and Ocular Surface Society study outlined how the ocular surface should be analyzed to diagnose dry eye syndrome.

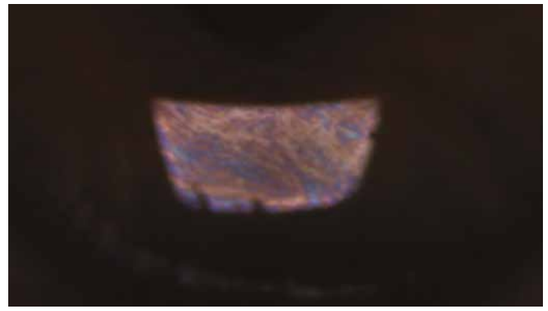
To an important first part of the screening it is necessary to add a classification of the subtype of pathology through the analysis of the lipid layer and the aqueous layer.

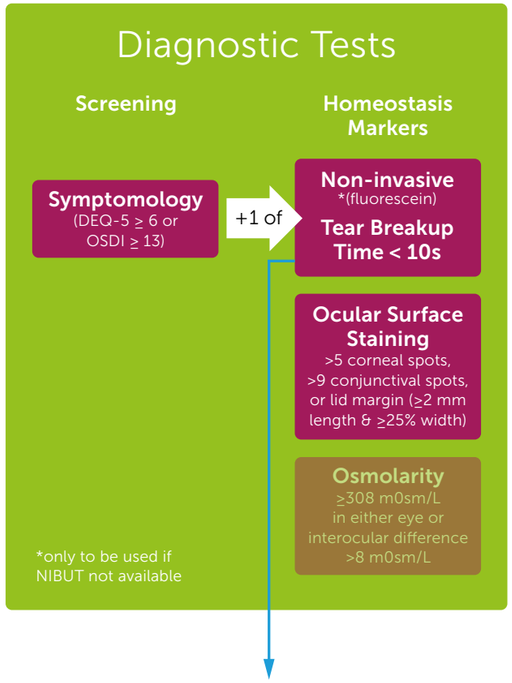
OS1000 X allows the complete analysis using the guidelines in a completely automatic and objective way, providing the results automatically without operator intervention, thus making the analysis incredibly fast and easily delegated.

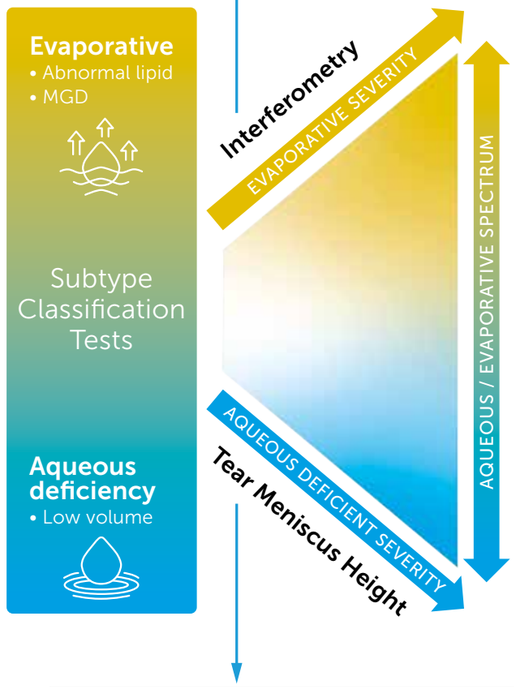
Interferometry

Thanks to the anterior illumination module, OS1000 X can acquire the lipid layer secretion on the cornea.

The device highlights the lipid layer and the software evaluates the quantity and quality of the lipid component on the tear film.

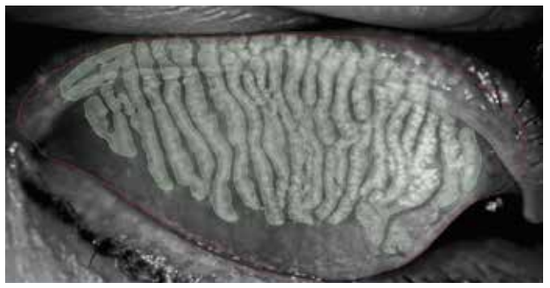






MGD means Meibomian Glands Disfunction

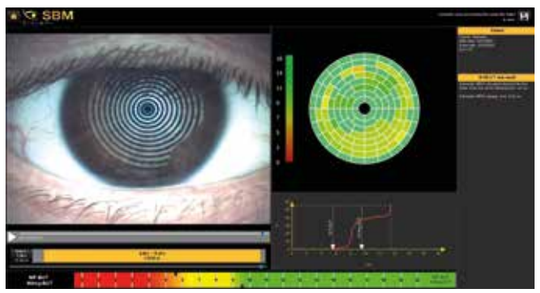
This condition happens when the meibomian glands are not working as needed. To verify this condition a simple Meibography is not enough to know the working condition of the patient's glands.



Automatic NIBUT

The stability of the mucin layer and the whole tear film is assessed through the study of non-invasive break up time (NIBUT), by using the Placido rings projected onto the cornea. Tear film stability automatically evaluated without fluorescein:

- First NIBUT
- Average NIBUT
- NIBUT Map
- TF dinamic graph



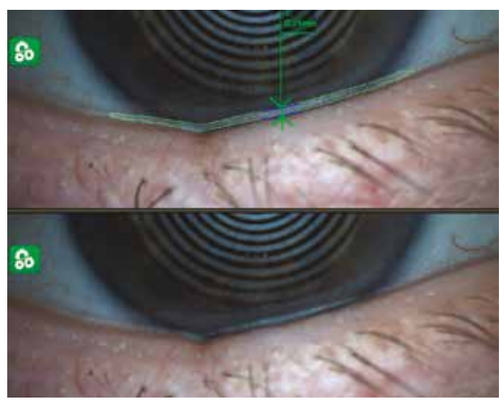
Automatic tear meniscus height

The thickness of the tear meniscus that is observed on the eyelid margins provides useful information on the tear volume.

The tear meniscus can be examined considering its height, regularity and shape.

An artificial intelligence determinates automatically:

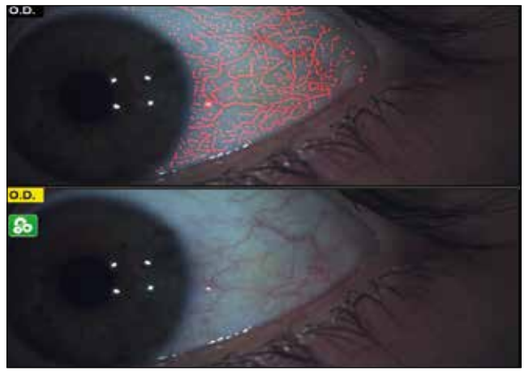
- Position of tear meniscus
- Highest value in TM



Additional Dry Eye exams

Bulbar redness

Acquiring an image of the conjunctiva, it will be possible to compare the patient's condition with different international grading scales.
Once the image of the conjunctiva with its blood vessels is captured, it is possible to compare it with the classification scales of bulbar and limbal redness degrees.



Efron / CCLRU / Jenvis

Comparative tables

Auto Blinking quality

It is well known that using electronic devices and wearing contact lenses can induce significant changes in blinking rate and completeness, leading to MGD. It has been established that **efficient blinking plays an important role in ocular surface health during contact lens wear** and that it improves contact lens performance and comfort. Inefficient blinking during contact lens wear may be related to a low blinking rate or incomplete blinking and can often be a reason for dry eye symptoms.

Meibography (3D and transillumination)

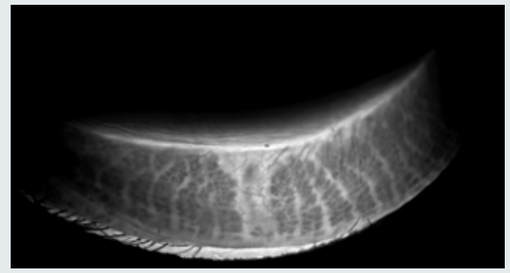
OS1000 X - unveils meibomian gland health like never before.

OS1000 X captures distinct, high-resolution images using advanced infrared technologies:

- **Structural Insight** - Visualize and assess gland architecture with unmatched clarity.
- **Functional Analysis** - Reveal how the glands perform, identifying blockages and meibum flow disruptions with ease.

What sets OS1000 X apart?

Its **transillumination infrared feature**, designed to expose critical details, often missed-detecting gland dysfunction, oil buildup, and vascular changes with striking accuracy.

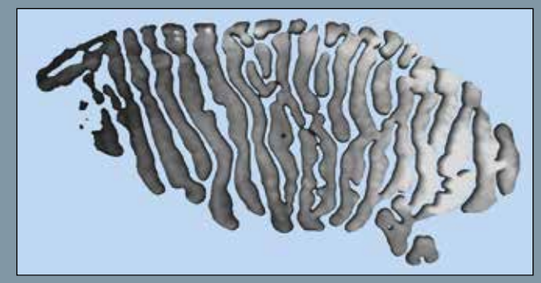


Overall, the OS1000 X meibography system provides strong evidence to support the choice of a specific therapy (for example ACTIVA treatment) and helps the patient to understand why the solution is needed.

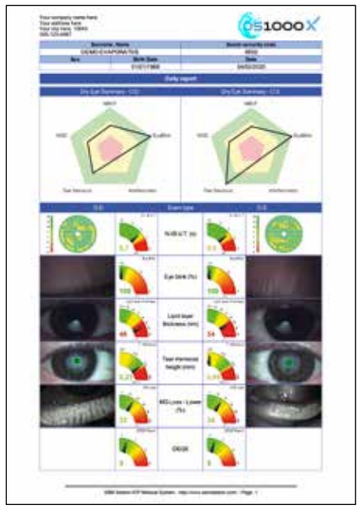
Elevate your analysis and transform meibography with the power of OS1000 X!

Meibography 3D

The revolutionary introduction of the 3D Meibomian Gland imaging gives two big advantages. Firstly, it enables to **confirm the presence of abnormal glands** compared to a healthy subject in a 3D view; secondly, it provides **a clear image to share with the patients**, to help explain the potential reason of their discomfort.



Dry Eye reports

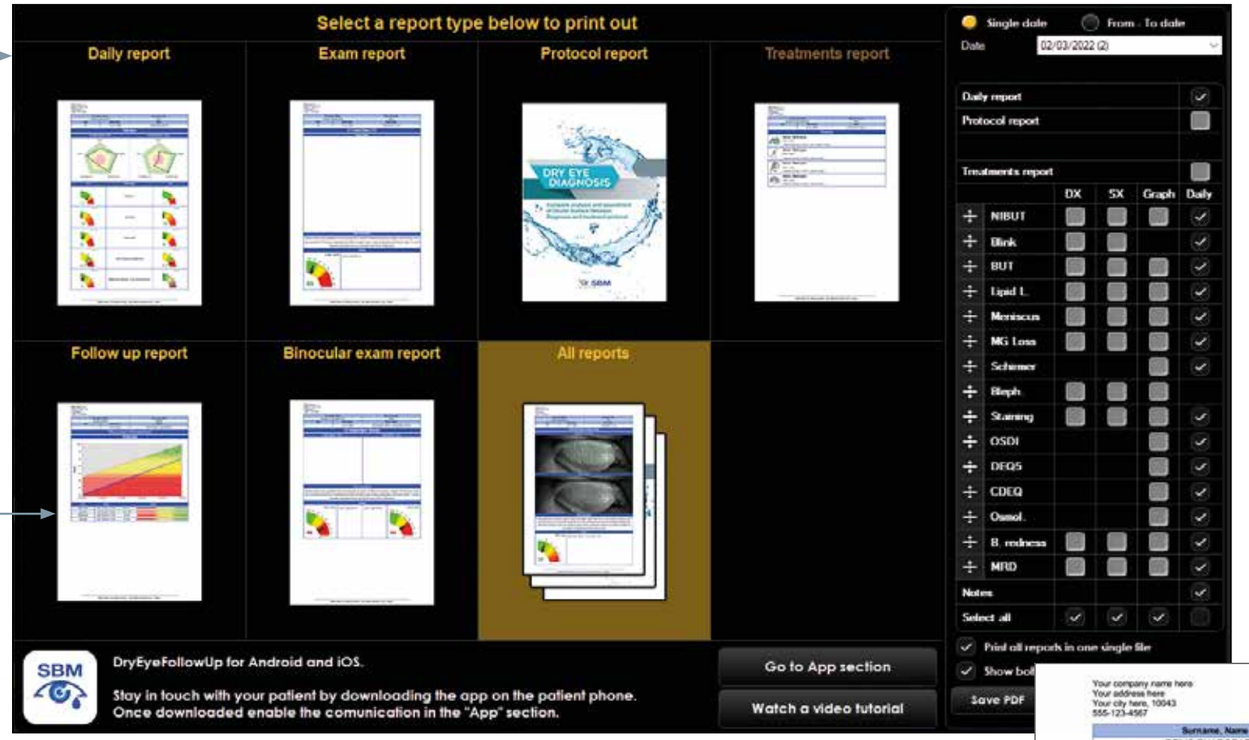


The software is a dedicated platform for dry eye and allows, in addition to helping in the diagnosis and classification of diseases, can print and save medical reports, offering complete information to the patient.

For customer satisfaction, it is often advisable to provide technical documentation relating to the exams taken. Thanks to the various print reports of the SBM device, you will have the possibility to visually explain and simply demonstrate the pathology situation. Furthermore, it's possible to explain how the pathology has changed over time.

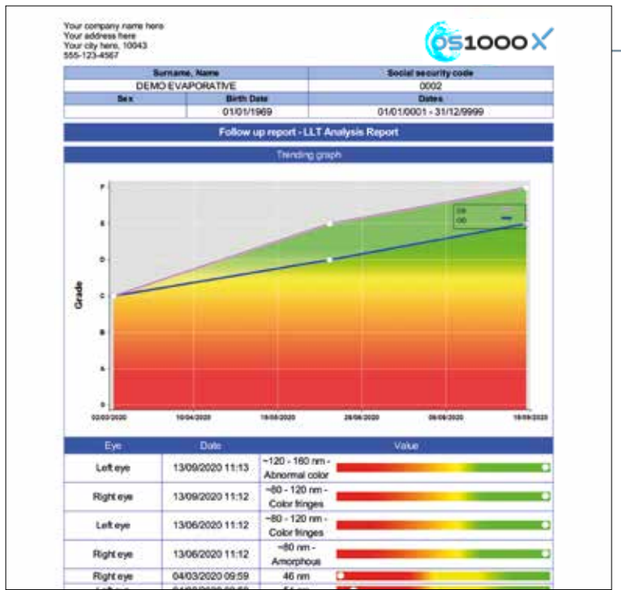
The "Daily report" groups all results of the patient's exams of one single day. Multiple visualization options are available, including with or without pictures of the exams.

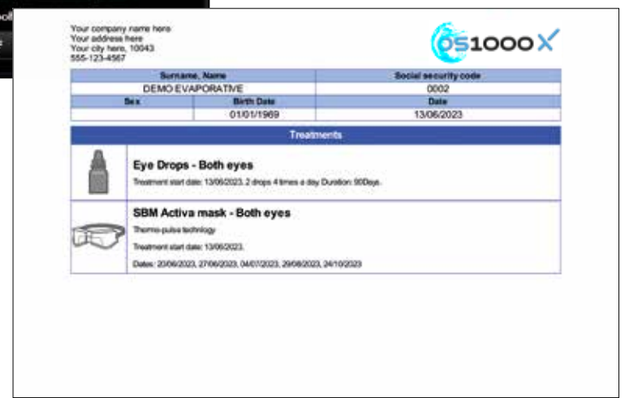
The "Follow-up report" can show to the patient the benefit of the therapy showing the improvement of the symptoms related to the dry eye pathology.



The "All reports" options can print a folder including up to 16 pages. When the patient is paying out-of-pocket, receiving a detailed multi-page report will provide an added value and increase the satisfaction.

The "Treatments report" lists all prescribed treatments for the patient.





Patient follow-up

1. Treatment protocol

The software stands as an advanced platform, presenting multiple versatile solutions meticulously designed to empower medical professionals and users alike in the intricate task of assigning therapy:

Manual

Treatment management

Through TREATMENT MANAGING tab, the software allows the physician to fill in the database with all treatments available in the practice. Treatment brand and type can be loaded in the software to be prescribed to the patients in two clicks.

Automatic

Treatment suggestion

The unique integrated algorithm, developed in collaboration with MD. Luca Vigo from Studio Medico Carones, can provide a dedicated treatment approach based on the results of the analysis.

In addition...

Personalized

Treatment suggestion

All users can customize their own protocol (this makes it possible to delegate the diagnosis to an assistant). Each of the options provides comprehensive and dedicated printable reports.

2. Application

OS1000 X Workflow

1. Customized symptomatology questionnaire
2. Automatic acquisition and objective evaluation of clinical parameters
3. Pathology and treatment suggestions based on integrated protocols
4. Patient education via customizable reports and the dedicated Dry Eye Follow-Up mobile application.

Dry Eye Follow-Up is an app for the smartphone of the patient to receive exams results, therapy, and a complete knowledge about the dry eye disease.

Benefits of Dry eye follow-up

- Fast, simple doctor-patient two-way communication
- Accurate report sharing and updates
- Progress tracking to monitor symptom changes
- Helps schedule regular appointments and clinic interaction
- Sends reminders to patients and notifications to doctors
- Speeds up info delivery, appointment booking, and treatment setup

Stop forgetting your medications!

Set reminders on your mobile phone for all your treatments.

The App will remind you when and how to use the specific suggested drug.

Download on

Patient experience

SBM website

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