

# DermoGenius **ultra**

The advanced video dermoscopy system

- ▶ High-Tech, Lightweight, Handy
- ▶ Outstanding Image Quality
- ▶ Modular Expansion



## DermoGenius ultra at a glance:

- DermoGenius ultra is a perfect combination of a user-friendly software system and a proprietary 5 megapixel camera hand-piece. Excellent image quality exceeding Full-HD resolution (2592 × 1944 pixel)
- Simple handling and mobility with plug & play and USB2-interface for Windows based systems (WIN XP, WIN Vista, WIN7, WIN 8, Mac OS on request)
- Image capturing and storage by patient and localization
- Easy and intuitive software user interface
- Standardized image acquisition guarantees reproducible and comparable images in follow up examinations
- Hand-piece with seamless integrated camera weights only 220 g, allowing ergonomic and fatigue-free operation even on long working days
- Interface to the standard patient management systems
- Networking and multi-station capabilities
- Service friendly design with no accident-sensitive opto-mechanical components



## About us

With DermoScan you are investing in a reliable team with long ongoing experience in the field of medical imaging systems. Leading the field in technology, mobility and flexibility, our dermatoscopy systems are tailored to the requirements of the future - and this at highly attractive prices. We combine High-Tech with quality Made in Germany.

Our systems are modular and thus individually configurable. We will tailor the system to your requirements and working methods, so it fits best into the daily routine of your practice.

Your personal desire determine the solution: whether you work with Notebook or desktop PC, MAC or WIN, our systems can be easily adapted and expanded. The integration of our systems in standard patient management systems and hospital or practice networks is not only possible but highly recommended. If you realize later that additional system options would be beneficial, no problem! Our systems can be extended easily - usually via remote service.

The many capabilities of our systems with the additional analysis features for skin and hair make DermoScan products more and more indispensable in a modern dermatology practice.



# DermoGenius ultra in details

## Camera hand-piece

This ergonomic design contains cutting-edge technology: An excellent optical system »Made in Germany« in combination with a proprietary 5 megapixel camera delivers high resolution images exceeding Full-HD. The handling is intuitive, and the weight (only 220 g) guarantees ergonomic operation.

## Mobility

A quick move from one examination room to the next, to your second practice or to a home visit is easy thanks to the standardized USB camera interface, which allows you to work on different PCs.



## Patient data

The structural basis of the extensive DermoScan software is the patient and image data base. Micro- and macroscopic clinical images are stored and administered according to patient and localization.

The gallery display allows highly comfortable image management, facilitating the selection of lesions in follow-up controls through a chronological arrangement of images.

It goes without saying that DermoGenius can easily communicate with all standard patient management systems.



## Image capturing

At the picture-taking stage we utilize highest quality opto-electronics »Made in Germany«. A standardized image capturing process is indispensable for reproducible image capturing and image analysis. This includes color standardization, shading correction and constant imaging parameters. The camera calibration procedure is an integral part of the DermoGenius software, requires only one image of a calibration card and is done only once a quarter to compensate the slow aging process of LEDs and camera sensor.

## Two Acquisition modes are available:

### Live-Mode:

For rapid mole screening without predefining a localization DermoGenius ultra works like a conventional optical dermoscope; first the image of a lesion is taken, then the localization is assigned.

### Standard mode:

First the localizations are defined, then the pictures are taken one after another down the list (lesion after lesion).

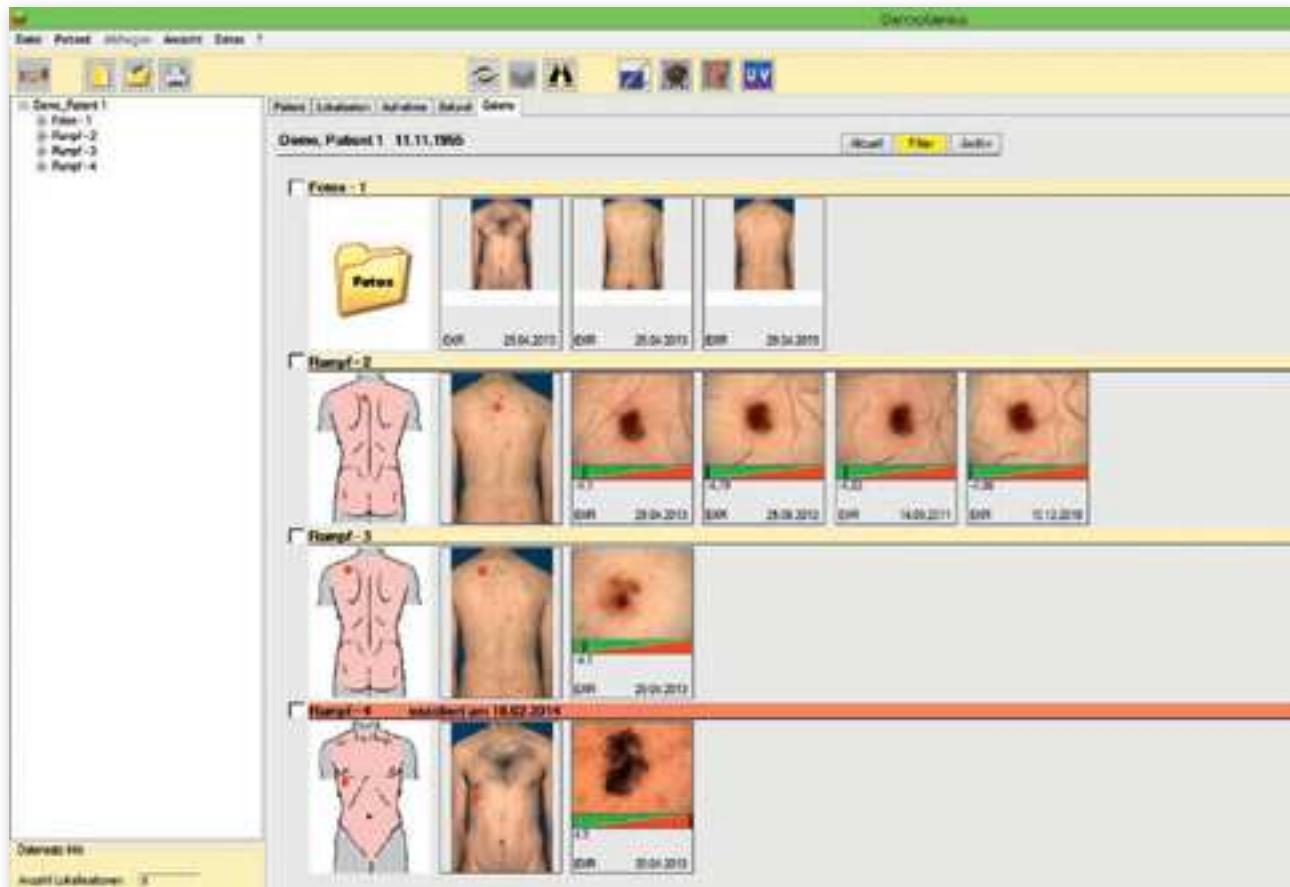
## Localization and Image Gallery

All images are stored according to patient and localization in a data base. Images made with a digital camera can be stored in the non-localization-specific photo folder, e.g. total body photos, which also can be used as localization photo.

## All at a glance

In the gallery all images of a patient are displayed together with all relevant data (e.g. date of examination or excision and image comments), offering quick overview of all images of the treatment of the patient.

This allows a simple choice of lesions for follow-up examinations, and thanks to the chronological display ensures an easy image





Side-by-side comparison of up to 4 images

management. Each image in the gallery can of course be displayed as a single image in maximum resolution. The inbuilt zoom function enables an optimal assessment of details in structure and color of a lesion, which can also be displayed in a side-by-side comparison of up to 4 images.

It is also possible to search for an image by the ICD10 code and add an individual comment to an image.

A date of excision can be entered and assigned to the corresponding image in the gallery. It is clearly flagged (red bar) that the lesion was excised.

## Additional Features

### Documentation

The excellent image quality does not end on the monitor screen; printouts or digital files (PDF), for example from findings or overview images simplify the internal documentation in other patient management programs and can be forwarded to colleagues or given to the patient.

### Multiuser and Networking Capabilities

DermoGenius ultra is available as stand-alone or multiuser system in a network. Larger practices and clinics in particular require network solutions. If needed each PC in a network can be used as image acquisition and evaluation station. We will be happy to work with you to find the optimum solution for your enterprise.

### Safety

The system is a medical device (Class I) and is compliant with the Medical Device Directive and the EU directive 93/42/EWG

### Service

You expect competent service without elaborate and expensive service contracts:  
Our cost free service features include hotline and remote servicing, all of which makes your work easier and minimizes system off times. Also our robust system design serves this goal (i.e. no moving parts or motors) and makes regular service intervals by the manufacturer obsolete.

### Practice Marketing

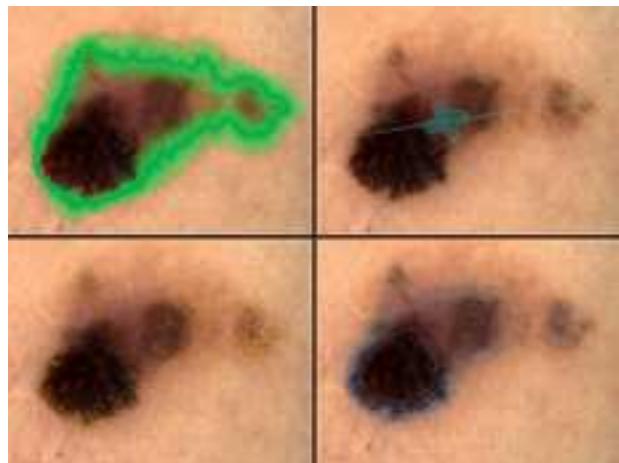
It is our pleasure to support you with image brochures, posters and presentations for your waiting room informing your patients and your practice on such topics as melanoma, alopecia and photodynamic therapy.



## Image Analysis with DermoGenius ultra and MoleExpertMicro

MoleExpertMicro is an optional software solution to evaluate dermoscopic images. It is built on many years of experience in computer-aided analysis of pigmented skin lesions. An important precondition is standardized and well-illuminated images of the lesions in high resolution.

The software was developed to help you reach a diagnosis by delivering information to important dermoscopic criteria (according the ABCD rule and others), including size, symmetry and border of a lesion as well as color and structure. Utilizing complex algorithms a digital point value is



calculated with high sensitivity and specificity, which can support the physician through the diagnostic process.

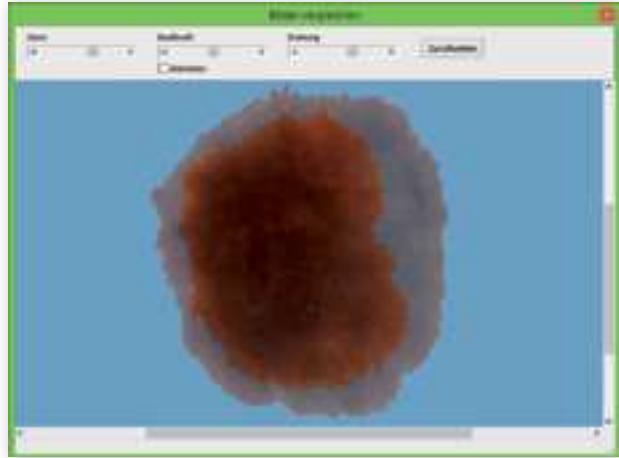


### Side by Side Comparison

Two images can be displayed side-by-side, which is useful when comparing follow-up examinations. With a single mouse-click the images can be superimposed to reveal and display changes in a lesion.

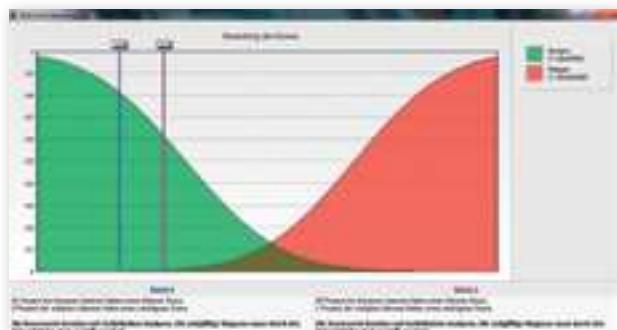
## Superimposition Function

With the superimposition tool, lesions are projected on top of each other. Zoom, intensity, rotation and translation of the superimposition can easily be defined by the user.



## DSDP Value

A specially developed algorithm calculates the Digital Standardized Dermoscopic Pointvalue (DSDP value), which can vary from -5 to +5. Lesions with a high DSDP have a higher probability of being malignant melanoma than those with a low score. However irrespective of this source, it is very important to monitor suspicious lesions to identify changes early. MoleExpertMicro has a unique comparison function to determine and visualize changes.

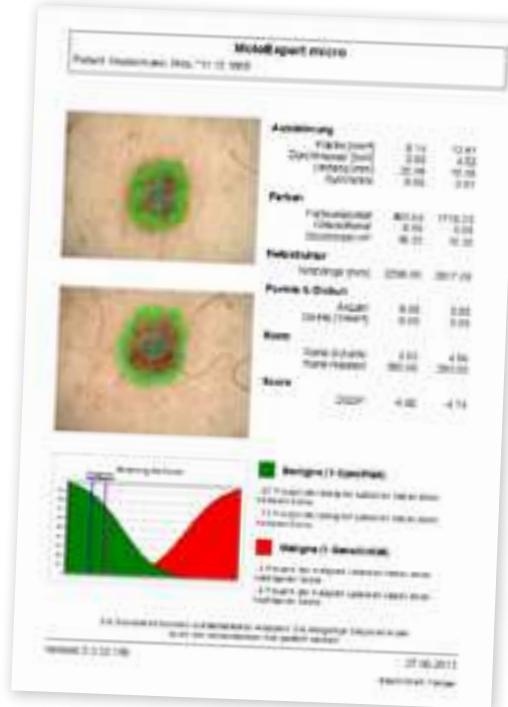


## Statistical Rating of the Score for Pigmented Lesions

The DSDP score is based on the analysis of a large image data set obtained in a study and ranges from -5 (normal) to +5 (highly suspicious). The position of the score is displayed graphically in comparison to the study results.

## Printout for the Patient

Printouts can be given to the patient, informing them about the trend of follow-up examinations by displaying the resulting data side by side.



## Full Body Mapping

# MoleExpertMacro



▲ Side by side display of a 6 month follow-up examination

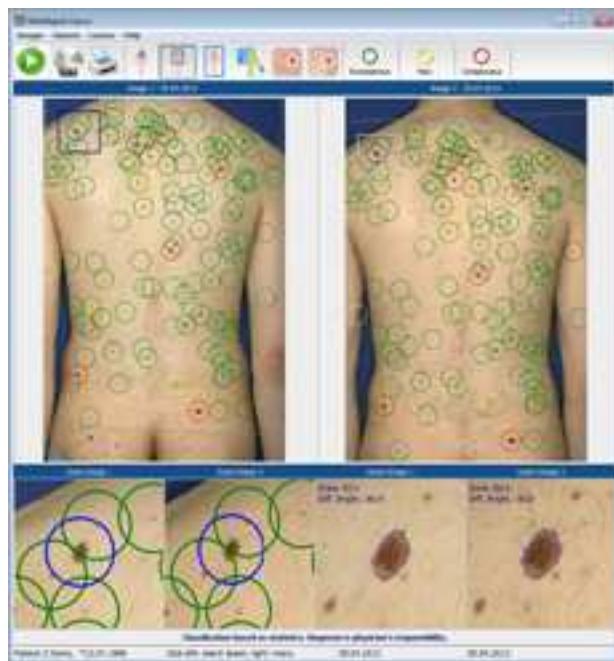
**MoleExpertMacro** is an optional software module to identify newly appeared pigmented lesions and to evaluate changes of existing lesions by means of digital photo documentation.

Changes of existing pigmented lesions or the appearance of new lesions are important hints for the early recognition of melanoma. In patients with multiple pigmented lesions, follow-up examinations are difficult. Recognizing changes of size, shape and color of existing moles or identifying new moles is often difficult and time consuming. In a visual comparison of images of body parts, changes can be easily overlooked.





▲  
Overview and detailed view (red circles mark suspicious lesions or such which have changed between the exams)



▲  
Follow up exam after 6 months  
Green: no changes  
Yellow: new lesions  
Red: suspicious or changed lesions

MoleExpertMacro offers a practical solution for digital mole mapping. It aids the recognition of changed or new moles in follow-up images which have been taken under similar conditions (background, illumination, image region and angle). The recognition and evaluation of the moles is fully automatic.

The images to be compared are usually stored in the photo folder of the DermoGenius data base and can be called up in pairs to perform the macroscopic analysis with MoleExpertMacro. If required, MoleExpertMacro can also be used as a standalone analysis software.

MoleExpertMacro is especially useful in the care of patients with multiple moles, saving physician and patient the long examinations associated with traditional screening methods.

Of course results can be printed and given to the patients or can be stored digitally as PDF. This screening method enables an early recognition of melanoma but should always be combined with epiluminescence microscopy.

### Optimized for the Daily Routine:

- Comparison of overview images
- Automatic recognition of moles in the acquired images
- Automatic correlation of moles in the paired images (corresponding moles are recognized automatically)
- Automatic recognition of changed or of newly developed moles
- Comparison of corresponding moles utilizing a magnifying glass feature
- Determination of size and color changes

## Hair Analysis with DermoGenius ultra and **TrichoScan**



### The Perfect Tool for Hair Consultation: TrichoScan as Software Option for DermoGenius ultra

**T**richoScan is a computer-aided method of determining hair density and hair root status and is best suited for progress monitoring in patients with alopecia. This is very important as the therapies for alopecia extend over a longer period of time and therapy success is usually only visible after a number of months. TrichoScan helps to improve patients trust and allows an optimal therapy control.

#### The two approaches of TrichoScan:

- One approach (anagen mode) serves the immediate determination of number of hair, hair density, number and density of Velus versus Terminal hair.
- With the second approach (trichogram mode) additionally the anagen/telogen ratio is also determined. Here the measurement image is acquired 2-3 days after hair clipping.
- These automatically acquired parameters are more reliable for the evaluation of the therapy success as only the evaluation of the telogen ratio.



To determine hair density an affected spot on the scalp is determined and the hair is clipped with a special electric hair clipper to an area of about 2cm<sup>2</sup>. This is hardly visible if the spot is covered with surrounding hair.



The prepared spot is then colored with black hair dye and an image is acquired with the DermoScan camera hand piece. With the TrichoScan software module the image is analyzed and the relevant hair growth parameters are calculated.

## OPTIONAL SOFTWARE

### 3

These parameters (number of hair, hair density, number and density of Velus and Terminal hair) allow excellent monitoring of therapy and success. Hair clipping, colorization, image acquisition and measurement take about 15-20 minutes.

If the anagen/telogen ratio is to be determined, colorization, image acquisition and analysis are performed 2-3 days after clipping.



Patient 2, Test, *13.09.1978	
<b>Trichogram</b>	
Area [cm <sup>2</sup> ]	0.82
Total hair count	104.0
Hair density [1/cm <sup>2</sup> ]	127.3
Anagen hairs [%]	86.8
Telogen hairs [%]	13.2
Density velus hairs [1/cm <sup>2</sup> ]	25.7
Density terminal hairs [1/cm <sup>2</sup> ]	101.6
Count velus	21.0
Count terminal	83.0
Ratio velus hairs [%]	20.2
Ratio terminal hairs [%]	79.8

TrichoScan Version 3.6.23.112

### 4

After a number of months the procedure is repeated to obtain comparison results in order to monitor therapy success objectively. The advantage of this method lies in the ease of use, quick imaging, lack of pain, reproducibility and the documentation of the results.



UV damage of the skin  
made visible with

## UV Map

The ultraviolet component of the sunlight causes faster aging of the skin. The determination of the grade of sun damage, its evaluation and progress control are important parts of the skin status assessment. Skin which is exposed to UV radiation suffers in particular from:

- Faster aging
- Uneven pigmentation
- Brown spots
- Leather-like appearance
- Wrinkle formation

UV Map helps identify and display hyperpigmentation by utilizing special image analysis algorithms. The resulting b/w image is compared side-by-side with the original color image, revealing the brown and red shades with enhanced contrast.

To make UV damage to the skin visible, UV Map converts the acquired color images in b/w images, without requiring additional UV camera equipment. The comparison of the original color image with the calculated b/w image aids the description of existing pigmentary abnormalities and skin status, allowing these to be better explained and communicated to the patient.





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