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Dear professional

The optical 3D measuring devices PRIMOS are based on digital stripe projection using TI’s DLP® micro mirror displays. They allow a fast and highly precise measuring data acquisition. An assortment of different measuring fields, realised by means of different precise recording optics, ensures a wide spectrum of measuring possibilities with ranges up to micrometers. A closed calibration concept, a calibration method aligned to the measuring system and the use of appropriate adjusting pieces, guarantees compliance with the specified accuracies.

PRIMOS 3D optical measurement – quantitative skin measurement within milliseconds

GFMesstechnik GmbH business areas include the development, manufacturing and marketing of optical measuring and inspection systems as well as appropriate measuring and evaluation software.

GFMesstechnik measurement technology stands for computer-assisted surface measuring systems and software based on non-destructive optical measuring and testing methods. With PRIMOS devices it is possible to capture three-dimensional images of skin surfaces very fast and precisely – beauty becomes measurable!

Treated parts of the skin can be evaluated for all necessary parameters, e.g. roughness, volumes and dimensions of wrinkles or scars, etc. The software allows regaining of highly precise skin areas measured before and after a medical or cosmetic treatment. Application fields are clinical applications, dermatology, aesthetic medicine and biometrics.

Measurement of crow’s feet with PRIMOS
PRIMOS lite – field of view 45 x 30 – simple, flexible 3D measuring

The PRIMOS lite device shows the latest development for 3D skin measurement devices. The compact design of this system and the simple operation grants high flexibility. With its spacer it can be used as a handheld system. The combination with a facial tripod guarantees easy repositioning and reproducible measurement data. The recording speed together with robust measuring modes grants reliable, stable measurements irrespective of movements from user or patient.

The worldwide only, hand-guided 3D in vivo skin measuring system based on digital strip projection combines a high precise 3D skin measurements with maximum flexibility. The capturing speed takes less than 70 ms and provides perfect measurement results.

Features

- Portable, hand-held measuring device for local independent use
- One cable solution – only GigE connection required
- Very fast and precise image acquisition with digital fringe projection
- Excellent cost-effectiveness
- Acquisition time: less than 70 ms
- Dimensions 3D Sensor: 12 x 11 x 5 cm (4.7” x 4.3” x 1.9”)
- Weight: 450 g (0.99lb)
- Integrated light source
- Field of view: 45 x 30 x 30 mm (1.77” x 1.18” x 1.18”)
- 3D Software for data acquisition and evaluation
- Measurement of macro and micro topography of skin
- 3D acquisition and calculation of wrinkles, wounds, scars, etc
PRIMOS lite – field of view 18 x 13 – simple, flexible 3D measuring

PRIMOS lite provides an objective measurement of skin surfaces with a high resolution on a field of 18 mm x 13 mm.

This measurement instrument is mostly used for imaging and measuring smoothness and roughness on in vivo skin surfaces but also to measure skin imprints (replica) with high precision in a time of only a few milliseconds. Attached to our facial tripod it can be used also for invivo measurements on facial wrinkles and skin smoothness in facial areas.

Features

- Stationary measurement system
- One cable solution – only GigE connection required
- Various tripods available
- Very fast and precise image acquisition with digital fringe projection
- Excellent cost-effectiveness
- Acquisition time: less than 70 ms
- Dimensions 3D Sensor: 19,5 x 9 x 4,5 cm (7.6" x 3,54" x 1.77")
- Weight: 450 g (0.99lb)
- Integrated light source
- Field of view: 18 x 13 x 10 mm (0.7" x 0.51" x 0.4")
- 3D Software for data acquisition and evaluation
- Measurement of micro topography smoothness, roughness
- 3D acquisition and calculation
The optical 3D capturing device ShapeSCAN 3D was specially developed for applications that require a larger field of view but without losing the ease of handling. The hand-held scanners can be easily used with spacers as well as it can be used with a tripod solution. The measurement field is matched to applications such as cellulite, large scars or wounds, but also one half of the face can be captured quickly and accurately in 3D. Applications such as measurement of lip volume, eye bags or nasolabial folds are dedicated to this field of view. ShapeSCAN 3D is equipped with our latest 3D smart technology and connected to any PC just by one cable (GigE). Thus, this gauge is ideal as a supplement to your existing PRIMOS 3D skin measurement devices.

Features

- Portable, hand-held measuring device for local independent use
- One cable solution – only GigE connection required
- Use on photo tripods is possible
- Very fast and precise image acquisition with digital fringe projection
- Excellent cost-effectiveness
- Acquisition time: less than 70 ms
- Integrated light source
- Field of view: 130 x 80 x 50 mm (5.5” x 3.1” x 1.9”)
- 3D Software for data acquisition and evaluation
- Measurement of micro topography smoothness, roughness
- 3D acquisition and calculation
PRIMOS $^{\text{shape}}$ – Applications

Measurement of half face and lip area including color texture.

Measurement of cellulite. Calculation of waviness and skin profile

Measurement of wound and scar structures. Profile of the back of the hand.
The PRIMOS premium measuring system was developed, in order to meet the highest requirements for research and science. The skin, as a mirror of the soul and health, takes a key role in the evaluation of pharmaceutical and cosmetic products. The increasing number of these products require objective valuation criteria and measuring instruments with high resolution.

PRIMOS premium combines the advantages of a larger measuring field with a high resolution without compromises! It is a recommended instrument for the user to obtain: skin textures, as well as roughness and smoothness, larger structures, such as crow’s feet or wounds, to measure and/or scars precisely and fast.

**Features**

- Stationary measuring device
- Very fast and precise image acquisition with high resolution digital fringe projection and camera
- Acquisition time: less than 70 ms
- Dimensions 3D Sensor: 32 x 31 x 11 cm (12.6” x 12.2” x 4.3”)
- Weight: 4kg (4.3 lb)
- External cold light source (Schott)
- Field of view: 24 x 14 x 13 mm (0.94” x 0.55” x 0.51”)
- 3D Software for data acquisition and evaluation
- High resolution, high accuracy, high reproducibility
- Measurement of macro and micro topography of skin
- 3D acquisition and calculation of roughness / smoothness

GFM PRIMOS premium sensor combined with Canfield’s Stereotactic face device
PRIMOS premium – Applications

Source 3D image of an area around the eye

Source 3D image of the skin micro profile

Color coded 3D profile after filtering with cut line

Cross section with depth measurement

Automatic evaluation of star or surface roughness parameters such as Ra, Rz,… Sa, Sz,…
FaceSCAN 3D / BodySCAN 3D

Fast 3D measurements of large face and body structures supplemented by acquisition of colour texture. The large field measuring system FaceSCAN 3D and BodySCAN 3D is the recommended device for precise face and body measurements.
You can capture a 3D image in 0.25sec. The use of newest technologies supplies objective measuring results for treatment control and many other applications. The exported polygon data allows direct import into production line for perfect fitting items like masks or artificial replacements. The software supplies all essential functions for the evaluation and presentation of 2D and 3D measuring data. Our new system concept offers a breakthrough in flexibility and usability. Each single pod is a full 3D Sensor and up to 8 sensors can be used at the same time for 360° capturing or imaging of complex body structures.
FaceSCAN 3D / BodySCAN 3D

Features

- 3D sensors based on digital stripe projection
- Contactless 3D in vivo measurement of skin
- High speed and precise 3D imaging
- High resolution and reproducibility
- Capturing with less than 0.25 sec
- Up to 8 sensors on one software
- 360° measurement is possible
- Integrated light source (white light)
- Field of view: 350 x 230 x 300 mm³ (FaceScan)
- Field of View: 500 x 400 x 400 mm³ (BodyScan)
- Imaging of color texture
- 3D measurement and evaluation software
- Objective measurement-results, e.g. for documentation of surgeries
- Exportation of data as polygon – the use of 3D printers makes it possible to create masks and implants
- Integration of 3D face-measurements in maxillo-facial planning-programs

Examples for Applications

- Complete Face (eye bag, lips, oval form)
- Parts of the body (belly, arm, leg…)
- Cellulite
- Breast

Geometrical measurements of breast shape and volume and evaluation of bodyshape – liposuction applications
PRIMOS software

Two functions integrated in the standard software help you with regaining and comparison of the measured skin areas.

Reproducible retakes succeed perfectly with the integrated OVERLAY function. A camera picture of the image is faded in transparency background of the live picture and you can align the sensor millimeter-exactly. A project cross-line screen guarantees the correct focus to the item being tested.

The fine tuning will be done by the matching function of the software. In addition the reference data record and a measuring data set are loaded. The measuring data set is aligned in such a way that the measuring area agrees accurately with the reference. Now, it is possible to compare the data records with each other and to determine differences in the skin structure.
PRIMOS software – complete software solution for skin measurement and evaluation in cosmetics and medicine

Skin measurement in video real time is unthinkable without the use of sophisticated measurement and evaluation software. Only through fast processing and user-oriented presentation of results, measured data are transformed into relevant information.

Our measurement systems and evaluation software are developed completely in Germany by GFM, ensuring a maximum efficiency in the collection and evaluation of measuring data.

From a close and continuing cooperation with users, a software solution offers results which are optimally adapted to the requirements of daily use in the field of cosmetic industry and medicine, e.g. dermatology. Contained in the PRIMOS software package are all necessary functions for the measuring of skin surfaces, including the determination of 2D/3D roughness parameters and of star - and surface roughness.

Also included in the software are geometric measurement options like the measurement of distances, radii, angles and volumes, e.g. of skin wrinkles.

Features
- Fast evaluation algorithms
- Employed in adapted to the skin measurement systems
- Clearly arranged 2D and 3D representation of results
- Integration of special evaluation algorithms for skin measurement, e.g. star roughness, matching of skin areas etc.
- Comprehensive interfaces for export and import data
- Database functionality for the storage and evaluation of large amounts of data or serial measurement
- Rich set of functions for 2D and 3D data evaluation
Canfield’s Stereotactic Face Device

Application

- Measurement of wrinkles, scars, wounds and all topographical characteristics within the face range in combination with a PRIMOS compact sensor from 13 x 18 mm² - 120 x 160 mm²

Characteristics

- Easy positioning of the sensor in X, Y and Z direction
- Angle exact turn of the chin and front mounting plate to the sensor
- Firm footing by suction feet and balanced emphasis

Advantages

- Accuracy and reproducible positioning of the sensor
- Pixel-exact area regaining for process controls of medical and cosmetic treatments
- Simple calibration of the sensor by an easily mountable plate for normal calibration
GFMesstechnik – service & support

User Training

GFMesstechnik wants to supply the best technique in optical 3D measurement. Therefore we always endeavor to improve and develop our products.

To reach optimal results with PRIMOS measuring instrument it will be necessary to work with the optimal system but also to know about the handling of these systems. Therefore we recommend to make use of our offer for user training.

GFM support team employees will complete the installation of your measuring instrument in your office, and they will train your staff in the handling of the equipment and in the evaluation of the raised data.

The recommendation is to get a one day training session after installation and another one, or two, day training session approximately 8 weeks after installation.

The user training contains:

- Hardware installation
- Ancillary conditions for the measurement
- Software handling
- Measurement options
- 3D presentation and result presentation
- Saving results
- Volumetric measurement
- Roughness evaluation and parameter
- Using of database
- Appraisal of results
Scientific publications

PRIMOS measuring devices*


Journal of the American Academy of Dermatology, 08.01.2011
An objective device for measuring surface roughness of skin and scars
Monica C.T. Bloemen, Maaike S. van Gerven, Martijn B. A. van der Wal, Pauline D.H.M. Verheagen, Esther Middelkoop

Eur J Dermatol
A prospective, raterblind, randomized comparison of the effectiveness and tolerability of Belotero® Basic versus Restylane® for correction of nasolabial folds
Prager W., Steinkraus V.

Clinical and Experimental Dermatology
2008, 33, 772-775
Beyond flat wheals: validation of a three-dimensional imaging technology that will improve skin allergy research
R.V. dos Santos, A. Mlynek, H.C. Lima, P. Martus, M. Maurer

Lasers Surg Med.
Chapas AM, Brightman L, Sukal S, Hale E, Daniel D, Bernstein LJ, Geronemus RG.

Journal of Wound Care
Vol. 12, No. 9, October 2003
PRIMOS: an optical system that produces three-dimensional measurements of skin surfaces
Roqués C, Teot L, Frasson N, Meaume S.

Lasers in Surgery and Medicine
Karsai S., Czarnecka A., Jünger M., Raulin C.

* This list is not complete- please find more links on our website
Reference Customer list

Avon, Suffern/ USA
Beiersdorf AG, Hamburg
BioSkin GmbH, Hamburg
Candela Corp., Wayland/ USA
Cetco, Lima/ Peru
Cognis, Pulnoy/ France
Colgate-Palmolive Company
Consumer Product Testing Co.
Derma Laser Inc., Montreal
DermaConsult, Alfter
Dermatest, Muenster
DermaTronnier, Witten
Dermscan, Lyon/ France
Dermscan/ Poland
Dr. Prakash, London/ UK
Dr. Zelickson, Edina/ USA
Ellead Seoul/ Korea
fzmb e.V., Bad Langensalza
Gilette/ UK
Henkel KGaA, Duesseldorf
Hoffman LaRoche AG, Basel
Hospital Neukoelln, Berlin
Institute of Cancer Research
Johnson & Johnson Ci-RoC
Johnson & Johnson Phils. Inc.
Johnson & Johnson, Skillman
Kanebo/ Japan
Kose/ Japan
Laser & Skin Surgery Center, New York/ USA
Light Bioscience, Virginia Beach/ USA
L’Oreal/ Cosmair Cosmetics Corp., Clark/ USA
L’Oreal/ Cosmair Cosmetics Corp./ France
Lumenis, Israel/ USA
Massachusetts General Hospital, Boston/ USA
Neutrogena Corp., Los Angeles/ USA
Nippon Lever/ Japan
Boticario, San Jose dos Pinhas/ Brazil
Pfizer Inc., Morris Plains/ USA
Philips Personal Care Institute
PowerPaper, Israel
Procter & Gamble Company, Egham/ UK
Procter & Gamble Company, Piscara/ Italy
Procter & Gamble Far East Inc., Kobe/ Japan
proDERM GmbH, Hamburg
Renovo Ltd., Manchester/ UK
Rosenparkklinik, Darmstadt
Ruhr University of Bochum
Shiseido
SIT, Hamburg
Skin Biology Center, Hamburg
Technical University of Munich
Unilever Thailand
Unilever, Edgewater/ USA
Unilever/ UK
Unilever Shanhai/ China
Universities: Ulm, Luebeck
University Hospital Charité, Berlin
University of Michigan, Ann Habor/ USA
University of Pavia/ Italy
University of Seoul/ Korea

* This list is not complete- please find more links on our website
Reference Customer – Statements

Charité

„After one year experience with the PRIMOS system, we estimate the possibility in vivo measurement and evaluation of eye folds in our application fields anti-aging and sun protection. The system is very user friendly and is characterised by a good performance during the measurements. At most we estimate the effective technical support and the comprehensive support. Inquiries were always answered within shortest time satisfyingly.“
Prof. Dr. Dr.-Ing. Lademann, Charité - Universitätsmedizin Berlin
Klinik für Dermatologie, Venerologie und Allergologie, Bereich Hautphysiologie (CCP), Berlin/Germany

DERMSCAN performs In-vivo clinical studies and biomedical researches. We are the French leader in the evaluation of safety and efficacy of raw materials, finished cosmetic products, food supplements, medical devices and dermo-pharmaceutical products. Our collaboration with GFM started 10 years ago. We are convinced that primos devices are efficient and they offer reproducible 3D in vivo measurement data with a high precision. Moreover the acquisition is very fast and covers all the areas on face and body with the appropriate instrument. The technical support reacts always very fast and helps in any case of questions.

DERMING

„We from DermIng, an independent private research Institute in Italy, believe in research and innovation, in the importance of ethics in pure and applied research. We carry out a series of clinical trials to measure the activity and tolerance of skin care treatments and products. We highly esteem the PRIMOS 3D skin measuring systems. The PRIMOS gives us objective results and the ability to evaluate effectiveness objectively. Moreover we are very satisfied with the quality of the device. The handling is easy, the software provides us with lots of possibilities for our research applications. We use it mainly for the evaluation of skin roughness. Another outstanding point is the technical support of the very friendly staff of GFMesstechnik. If there are any questions, they are always answered within short time and to our satisfaction. The PRIMOS system is a very useful, precise and professional instrument for high standards.“
(Recommended by: Dr. Adele Sparavigna, Dermatologist, President of DermIng srl.)
The Derma Consult GmbH, Institute specialized in testing of cosmetic, cosmetic raw materials, cleaning products and Dermatika, uses the PRIMOS Compact of systems in the context of effectiveness investigations from Cosmetics to the measurement of the skin roughness and wrinkles depth both in vivo, and for the measurement of skin castings. This flexibility in combination with the high measuring accuracy and minimum gate times convinced us.

(Recommended by: Mr. Boris Nissen, Derma Consult GmbH)

SIT is an independent CRO specialized in performing dermatological studies and research for the cosmetic, chemical, pharmaceutical and food industries. From 1998 to today, SIT has followed the development of various PRIMOS systems and applied them in cosmetic studies for the efficacy testing of in vivo eye wrinkle, skin roughness and cellulite measurements as well as for the analysis of micro profiles on silicon imprints. SIT has always found the PRIMOS systems to be highly precise instruments, which are continuously optimized for an even more efficient and convenient analysis. Its non-contact and fast measurement is indispensable for in vivo analyses. Consequently, we see PRIMOS as the optimal system for the analysis of eye wrinkles and skin roughness without any comparable alternative.

(Recommended by: Dr. Joachim Degwert, President of SIT Skin Investigation and Technology Hamburg GmbH, Germany)

It is the fourth year of our co-operation. In the past 3 years GFM helped us - owing to good services to master our challenges gradually. PRIMOS 3D-Messgeräte - with the ingenious Design and the exact results of measurement - make us possible to win more information about product effects on the skin. Measuring e.g. of folds, fine lines, pores and skin roughness supports our marketing in singular way and leaves our dreams becomes true. We hope for more technical communication between our customers, in order to realize further improvements.

(Recommended by: Mrs. Cissy Li, Unilever Research China)
PRIMOS 3D measuring – recommended system measuring capabilities

<table>
<thead>
<tr>
<th>Condition</th>
<th>PRIMOS lite 18 x 13 mm</th>
<th>PRIMOS lite 45 x 30 mm</th>
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<tbody>
<tr>
<td>Skin Roughness and fine lines</td>
<td>YES</td>
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<tr>
<td>Wrinkle</td>
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<td>YES</td>
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<tr>
<td>Wound</td>
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<tr>
<td>Scar</td>
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<td>YES</td>
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<tr>
<td>Lesion / Wheal</td>
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<td>YES</td>
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<tr>
<td>Nasolabial Fold</td>
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<td>YES</td>
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<tr>
<td>Cellulite</td>
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<td>Breast</td>
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<td>Face</td>
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<tr>
<td>Replica</td>
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<td>PRIMOS premium 24 x 14 mm</td>
<td>ShapeSCAN 3D</td>
<td>Face SCAN 3D BodySCAN 3D</td>
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<td>YES</td>
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<tr>
<td>YES</td>
<td>1/2 Face</td>
<td>YES</td>
</tr>
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<td>YES</td>
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</tbody>
</table>
PRIMOS International GFM products are available worldwide and used in 24 countries. For questions regarding the use of PRIMOS for future tasks in your company or institute as well as for pricing, please feel free to contact us or our authorized GFM international distributor at any time.

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