



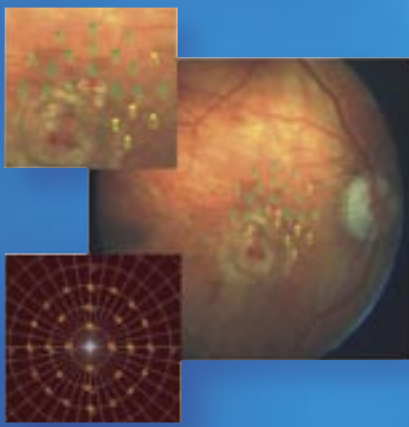
U.S. Patent No. 6,705,726

MP1 - Microperimeter

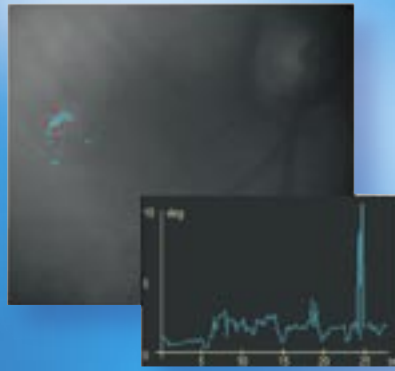
MP1 is the only instrument that combines a Retinographer, a Perimeter, a Fixation Analyser and a Rehabilitating Device in one compact design



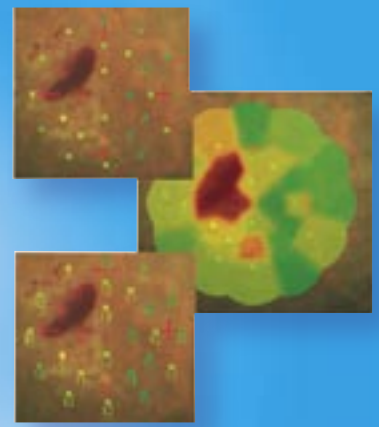
NIDEK TECHNOLOGIES Srl



Retinal - Tracking Perimeter



Real Time Retinal Tracking



Morphological Correlation

The MP-1 is the first perimeter to precisely track retinal movements during an exam.

Microperimetry is, at the moment, the only examination that allows putting into correlation, in an objective way, the morphological aspects of the retina, as observable by using an ophthalmoscope, with the corresponding functional aspects. The sensitivity map is generated by observing a live picture of the examined retina and allows therefore to automatically compensate, during the exam for fixation movements. A 45° digital color photograph, under non-Mydriatic conditions, can be taken and used to present the sensitivity maps directly on the colour picture.

Automated functionalities make testing, registration and evaluation of the results far easier than has ever been possible with past microperimetry instrumentation.

A single button push allows automatic retesting of a patient with exactly the same test variables and highly reproducible and accurate presentation of stimuli.

Differential maps of sensitivity allow evaluation of medical and surgical treatments.

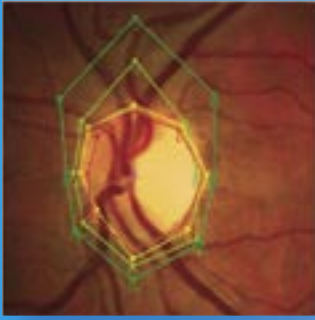
Patients can be trained through a unique biofeedback program to improve the quality or even relocate their subjective area of fixation.

The Real Time Retinal Tracking allows the system to accurately project stimuli, even in patients with poor fixation, mapping even very small relative and dense scotomas.

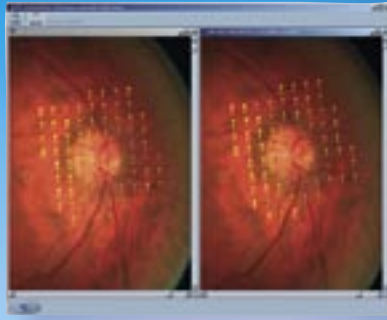
The MP-1 is fully programmable by the physician in stimuli pattern, threshold strategy, and even fixation location.

In addition to Automatic pre-programmed standardized patterns, the operator can also use the MP-1 in Semi-Automatic and Manual modes.

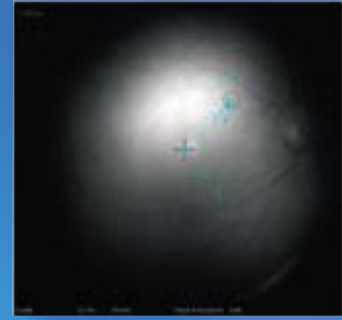




Kinetic Microperimetry



Automatic Follow - Up



Automatic Rehabilitation Programm

Four instruments in one

Color Retinographer

- The color retinographies provide detailed morphological information, that is associated with functional sensitivity maps, for a complete diagnostic evaluation.
- Alignment mires for easy acquisition
- Movable fixation target for peripheral analysis (up to 90°)
- Possibility to choose manually, directly on the colour retinography, where exactly stimuli will be delivered

Automatic Microperimeter

- Highest reliability, resolution (up to 10 Stimuli/degree) and repeatability
- Time saving as Perimetry, Fixation analysis and Retinography are performed simultaneously
- Quantification of retinal sensitivity exactly related to fundus characteristics
- Automatic follow-Up exam on the same retinal points to monitor the evolution of sensitivity upon time
- Flexibility with a New approach and new results in the study of any retinal pathology
- Possibility to measure the evolution of even very small scotomatous areas in time
- New standardization in retinal diagnostics
- Short exam time
- Increased patient comfort: automatic stimuli projection stand-by when the patient blinks
- Easy to use for the operator thanks to an innovative graphical interface
- Exam Customizable

Automatic Fixation Analyzer

- Fast data collection (30 sec) resulting in higher comfort for the patient
- Exam reliability even with poor and unstable fixation
- Automatic classification of stability and location of fixation
- Follow-up exams and differential maps allow to precisely monitor the evolution of fixation in time

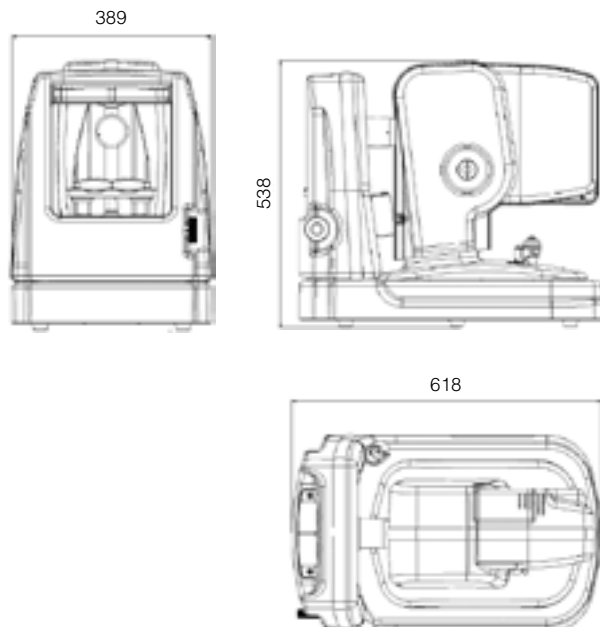
Rehabilitation device

- MP1 is equipped with a Biofeedback function that allows performing rehabilitating sessions to train the patient relocating the fixation. An audio feedback helps the patient to aim at the right retinal location.



Configuration	Table-top instrument
Exam	Automatic/Semi-Auto/Manual - Static or Kinetic Microperimetry - Automatic Rehabilitation Function
Projection system	Internal LCD display
Weight	26 kg / 57 lbs
Internal fixation	Single cross, four crosses, circle. Customizable
Visual field	22.5 deg
Background luminance	1.27 cd/m ² (= 4 asb)
Stimulus dimension	Goldmann I, II, III, IV e V
Stimulus duration	From 100 ms to 2000 ms
Threshold strategies	4-2-1, 4-2, Fast, Raw, Manual
Stimulus pattern	User Customizable
Joystick	3-axes motion control
PC	Pentium 4 at 2.4 GHz - OS: Windows 2000 - HD: 80 GB RAM: 256 MB
Storage	HD/Compact Disc
Display	17" * 15" S-VGA LCD display
Light source	Quartz halogen lamp 12V/100W
Class	1BF (according to IEC 601-1)
Power	100 to 120 & 200 to 230 VAC 50/60 Hz
IR camera resolution	768x576 Pixels
Color Camera Resolution	1392x1040*/780x582 Pixels
Operating temperature	15/30° C – 59/86° F
Relative humidity	Not condensing 30÷75 %

* MP1 Professional



Software features

- Automatic kinectic/static projection of stimuli customizable in color and size (Goldmann stimuli).
- Fully customizable perimetry test: number and location of stimuli, threshold strategy, test mode (automatic, semi-automatic or manual) type, size and colour of fixation target.
- Real time analysis of the patients' fixation during the exam: retinal movements are tracked, memorized and compared with the fixation target position.
- Extra accurate scotoma detection: dense and relative scotomatous areas are identified and delimited with highest resolution.
- Fully automatic follow-up exam repeats the same test upon time, for an accurate monitoring of the progress of any pathologie or effect of a treatment.
- Biofeedback function allows specialists to perform visual rehabilitation trainings.
- Possibility to manually refine an automatic exam at the end of the pattern. Kinetic scotometry. Peri-papillary test. Differential map for both fixation and microperimetry exams.

Medical Device Directive 93/42/EEC - Manufactured by Nidek Technologies Srl – Vigonza (PD) Italy
Design and specifications are subjected to change without notice for improvement



NIDEK TECHNOLOGIES Srl

NIDEK CO., LTD.

HEAD OFFICE: 34-14, Maehama, Hiroishi-cho, Gamagori, Aichi 443-0038 Japan Phone +81 533 67 6611 Fax +81 533 67 6610

Rev.041115

TOKYO OFFICE

International Division 6th Floor, Takahashi Bldg., No. 2,3-chome Kanda-Jinboucho, Chiyoda-ku, Tokyo 101-0051, Japan Phone +81 3 3288 0571 Fax +81 3 3288 0570
URL: <http://www.nidek.co.jp> - <http://www.nidek.com>

NIDEK INCORPORATED NIDEK TECHNOLOGIES AMERICA INC.

47651 Westinghouse Drive, Fremont, CA 94539, U.S.A. Phone +1 510 226 5700 Fax +1 510 226 5750
5500 West Friendly Ave., Suite 101 Greensboro, NC 27408, U.S.A. Phone +1 336 851 0225 (US only) 888 382 5064 Fax +1 336 851 0917 URL: <http://www.nidektechnologies.com>

NIDEK SOCIETE' ANONYME NIDEK TECHNOLOGIES SRL

Europarc 13, rue Auguste Perret 94042 Crèteil, France Phone +33 1 49 80 97 97 Fax +33 1 49 80 32 08
Via Regia, 88 - 35010 Vigonza (Padova), Italy Phone +39 049 89 35 287 Fax +39 049 62 55 84
URL: <http://www.nidektechnologies.it>

NIDEK TECHNOLOGIES GERMANY

Wetterkreuz, 3 91058 Erlangen Germany Phone +49 9131 93 40 990 Fax +49 9131 93 40 999
URL: <http://www.nidektechnologies.de>

MP-1* Basic Retinal Microperimeter Technical specifications and features

Rev. 041112



The Nidek Retinal Microperimeter MP-1 allows an accurate analysis of the retinal functionality, combining a non-mydratic digital retinography (objective exam) and a computerized perimetry (subjective exam) in one unique exam.

The technical specifications and the peculiar features of the MP-1 are specified in the following chapters.

Manufacturer / EU marketing responsible / Authorized service facility:

Nidek Technologies Srl
Via Regia, 88
35010 Vigonza (PD) – ITALIA
Telephone: +39 049 8935287 / 8935191
Fax: +39 049 625584

Production and distribution year:

2002

Microperimeter model: MP-1 Basic

Ergonomics features:

Chin rest of specific design and automatic eye detection allows a quick exam time.

Software features:

Automatic dynamic projection of stimuli customizable in color (white/red) and size (according to Goldmann standard). Background luminance can be set to white or red color.

Full customizable stimuli in light intensity, threshold strategy, number, type and customizable fixation target. Real time digital analysis of the patient's fixation during the exam: the retinal movements are analyzed, memorized and compared with the fixation target position. Differential map for both fixation and microperimetry exams.

Microperimetry

Projection system

Internal LCD display

Visual field

22.5 deg

Background luminance

1.27 cd/m² (= 4 asb)

The luminance values refer to the white background and white stimuli. No nominal data are provided for the red background and stimuli.

Stimulus dimension

Goldmann I, II, III, IV e V, user customizable.

*U.S. Patent No. 6,705,726

Stimulus duration

From 100 ms to 2000 ms, user customizable. Default value is 200 ms.

Stimulus pattern

Set of standard pattern pre-loaded in the internal database. Personal fully customizable pattern can be created.

Threshold strategies

4-2-1, 4-2, Fast, Raw, Manual

Fixation target

Single cross, four crosses, circle. The dimension and the color of all targets can be customized.

Fundus camera

Type

Non-mydratiatic fundus camera

Field of view

36x44 deg

Working distance

47.1 mm (from the camera lens to the patient's eye)

Working distance detection method

Purkinje bright spot created by infrared rays reflected on the cornea

Minimum pupil diameter required

4 mm

Built-in IR camera

IR sensitive ½ - inch CCD, resolution 768x576

Built-in color camera

Color ½ - inch CCD, progressive scan, resolution 780x582

Light sources

For IR image: filtered halogen lamp, 12V 50W

For color image: Xenon flash lamp, 10 Wxs

Instrument stand

Type

Integrated type with power supply

Horizontal movements

Back and forth: 60 mm

Left and right: 60 mm

Vertical movement

40 mm

Chin rest up-and-down movement

47 mm

* U.S. Patent No. 6,705,726

Technical specifications

Class and type of applied part

1, BF (according to IEC 601-1).

IP classification

IPX0 (according to the degree of protection provided by the enclosure with respect to harmful penetration of particulate matter or water).

Power supply

From 100 to 120VAC and from 200 to 230VAC, at 50/60Hz (selector on the isolation transformer; two possible settings: 115 or 230VAC).

Detachable power supply cord section

1.5mm².

Fuses

Isolation transformer: 2 5x20mm fuses, type T (delayed), rated voltage 250V, breaking capacity 1500A, rated current as stated in the following table:

Supply voltage (VAC)	Rated current (A)
From 100 to 120	6.3
from 200 to 230	3.15

MP-1: 2 5x20mm fuses, type T (delayed), rated voltage 250V, breaking capacity 1500A, rated current 2.5A.

Compliance with: EN60127.2.III, VDE 0820, CEI 32.6.2, BS 4265, SEMKO 104, DIN 41661.

Power Consumption

100VA maximum.

Dimensions (W/H/D)

39 x 54 x 59cm.

15 x 21 x 23".

Weight

26kg / 57lbs.

Environmental conditions of use

Temperature: Between 10°C (50°F) and 35°C (95°F).

Pressure: 700-1060 hPa.

Humidity: Between 30 and 75%, not condensing.

Hardware and software PC configuration:

PC processor: Pentium 4 at 2.4 GHz.

Operative system: Windows 2000.

Integrated LAN card

Hard Disk: 80 GB.

RAM: 256 MB

Monitor: LCD 15"

Back up: CD burner 52X24X52

Upgrade procedure: with CD.

MP-1* Advanced Retinal Microperimeter Technical specifications and features

Rev. 041112



The Retinal Microperimeter Nidek MP-1 allows an accurate analysis of the retinal functionality, combining a non-mydratic digital retinography (objective exam) and a computerized perimetry (subjective exam) in one unique exam.

The technical specifications and the peculiar features of the Retinal Microperimeter Nidek MP-1 are specified in the following chapters.

Manufacturer / EU marketing responsible / Authorized service facility:

Nidek Technologies Srl
Via Regia, 88
35010 Vigonza (PD) – ITALIA
Telephone: +39 049 8935287 / 8935191
Fax: +39 049 625584

Production and distribution year:

2004

Microperimeter model: MP-1 Advanced

Ergonomics features:

Chin rest of specific design and automatic eye detection allow a quick exam time.

Software features:

Automatic dynamic projection of stimuli customizable in shape, color and size (Goldmann stimuli). Full customizable stimuli in light intensity, threshold strategy, number, type and customizable fixation target. Real time digital analysis of the patients' fixation during the exam: the retinal movements are analyzed, memorized and compared with the fixation target position. Extra accurate scotoma detection: absolute and relative scotomatous areas are identified and delimited with high resolution. Follow-up exam repeats the same test upon time. Biofeedback tool allows specialists to perform visual rehabilitation trainings. Possibility to manually refine an automatic exam at the end of the pattern. Kinetic scotometry. Peri-papillary test. Differential map for both fixation and microperimetry exams.

Microperimetry

Projection system

Internal LCD display

Visual field

22.5 deg

Background luminance

1.27 cd/m² (= 4 asb)

The luminance values refer to the white background and white stimuli. No nominal data are provided for the red background and stimuli.

Stimulus dimension

Goldmann I, II, III, IV e V, user customizable.

Stimulus duration

From 100 ms to 2000 ms, user customizable. Default value is 200 ms.

*U.S. Patent No. 6,705,726

N I D E K T E C H N O L O G I E S

Stimulus pattern

Set of standard pattern pre-loaded in the internal database. Personal fully customizable pattern can be created.

Threshold strategies

4-2-1, 4-2, Fast, Raw, Manual

Fixation target

Single cross, four crosses, circle. The dimension and the color of all targets can be customized.

Fundus camera

Type

Non-mydratic fundus camera

Field of view

36x44 deg

Working distance

47.1 mm (from the camera lens to the patient's eye)

Working distance detection method

Purkinje bright spot created by infrared rays reflected on the cornea

Minimum pupil diameter required

4 mm

Built-in IR camera

IR sensitive 1/2 - inch CCD, resolution 768x576

Built-in color camera

Color 1/2 - inch CCD, progressive scan, resolution 780x582

Light sources

For IR image: filtered halogen lamp, 12V 50W

For color image: Xenon flash lamp, 10 Wxs

Instrument stand

Type

Integrated type with power supply

Horizontal movements

Back and forth: 60 mm

Left and right: 60 mm

Vertical movement

40 mm

Chin rest up-and-down movement

47 mm

* U.S. Patent No. 6,705,726

Technical specifications

Class and type of applied part

1, BF (according to IEC 601-1).

IP classification

IPX0 (according to the degree of protection provided by the enclosure with respect to harmful penetration of particulate matter or water).

Power supply

From 100 to 120VAC and from 200 to 230VAC, at 50/60Hz (selector on the isolation transformer; two possible settings: 115 or 230VAC).

Detachable power supply cord section

1.5mm².

Fuses

Isolation transformer: 2 5x20mm fuses, type T (delayed), rated voltage 250V, breaking capacity 1500A, rated current as stated in the following table:

Supply voltage (VAC)	Rated current (A)
From 100 to 120	6.3
from 200 to 230	3.15

MP-1: 2 5x20mm fuses, type T (delayed), rated voltage 250V, breaking capacity 1500A, rated current 2.5A.

Compliance with: EN60127.2.III, VDE 0820, CEI 32.6.2, BS 4265, SEMKO 104, DIN 41661.

Power Consumption

100VA maximum.

Dimensions (W/H/D)

39 x 54 x 59cm.

15 x 21 x 23".

Weight

26kg / 57lbs.

Environmental conditions of use

Temperature: Between 10°C (50°F) and 35°C (95°F).

Pressure: 700-1060 hPa.

Humidity: Between 30 and 75%, not condensing.

Hardware and software PC configuration:

PC processor: Pentium 4 at 2.4 GHz.

Operative system: Windows 2000.

Integrated LAN card

Hard Disk: 80 GB.

RAM: 256 MB

Monitor: LCD 15"

Back up: CD burner 52X24X52

Upgrade procedure: with CD.

MP-1* Professional Retinal Microperimeter Technical specifications and features

Rev. 041112



The Retinal Microperimeter Nidek MP-1 allows an accurate analysis of the retinal functionality, combining a non-mydratic digital retinography (objective exam) and a computerized perimetry (subjective exam) in one unique exam.

The technical specifications and the peculiar features of the Retinal Microperimeter Nidek MP-1 are specified in the following chapters.

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Nidek Technologies Srl
Via Regia, 88
35010 Vigonza (PD) – ITALIA
Telephone: +39 049 8935287 / 8935191
Fax: +39 049 625584

Production and distribution year:

2004

Microperimeter model: MP-1 Professional

Ergonomics features:

Chin rest of specific design and automatic eye detection allow a quick exam time.

Software features:

Automatic dynamic projection of stimuli customizable in shape, color and size (Goldmann stimuli). Full customizable stimuli in light intensity, threshold strategy, number, type and customizable fixation target. Real time digital analysis of the patients' fixation during the exam: the retinal movements are analyzed, memorized and compared with the fixation target position. Extra accurate scotoma detection: absolute and relative scotomatous areas are identified and delimited with high resolution. Follow-up exam repeats the same test upon time. Biofeedback tool allows specialists to perform visual rehabilitation trainings. Possibility to manually refine an automatic exam at the end of the pattern. Kinetic scotometry. Peri-papillary test. Differential map for both fixation and microperimetry exams.

Microperimetry

Projection system

Internal LCD display

Visual field

22.5 deg

Background luminance⁶

1.27 cd/m² (= 4 asb)

The luminance values refer to the white background and white stimuli. No nominal data are provided for the red background and stimuli.

Stimulus dimension

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Stimulus duration

From 100 ms to 2000 ms, user customizable. Default value is 200 ms.

Stimulus pattern

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Fixation target

Single cross, four crosses, circle. The dimension and the color of all targets can be customized.

Fundus camera

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Field of view

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Working distance

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Working distance detection method

Purkinje bright spot created by infrared rays reflected on the cornea

Minimum pupil diameter required

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Built-in IR camera

IR sensitive ½ - inch CCD, resolution 768x576

Built-in color camera

Color ½ - inch CCD, progressive scan, resolution 1392x1040

Light sources

For IR image: filtered halogen lamp, 12V 50W

For color image: Xenon flash lamp, 10 W*s

Instrument stand

Type

Integrated type with power supply

Horizontal movements

Back and forth: 60 mm

Left and right: 60 mm

Vertical movement

40 mm

Chin rest up-and-down movement

47 mm

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Detachable power supply cord section

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