

Technology for Life Science

Automatic Perimeter

Kowa AP[®]-7000



Kowa AP-7000

The screenshot displays the Kowa AP-7000 software interface. It features a top menu bar with options: Input, Tool, Result, and Chart. Below this is a sub-menu bar with: Open, Input Data, Registration List, Check Data, Program, and Fundus. The main interface is divided into several sections:

- Patient Information:** Fields for ID, Name, Date of Birth (displaying 'xxxx-xx-xx (xx)'), and Correction (with radio buttons for [L] None and [R] None).
- Program:** A dropdown menu showing 'Initial Program(ThresholdCenter1)'.
- Parameter:** A table with three columns: [Common], [Screening], and [Reprint].

Parameter	[Common]	[Screening]	[Reprint]
Time	Standard		
Interval	Standard		
Size	100		
Color	White/White		
Target	Center		
Case Monitor	ON		
Pupil diameter	ON		

At the bottom right of the interface, there is a small status bar showing 'AP-7000' and '1000-1000'.

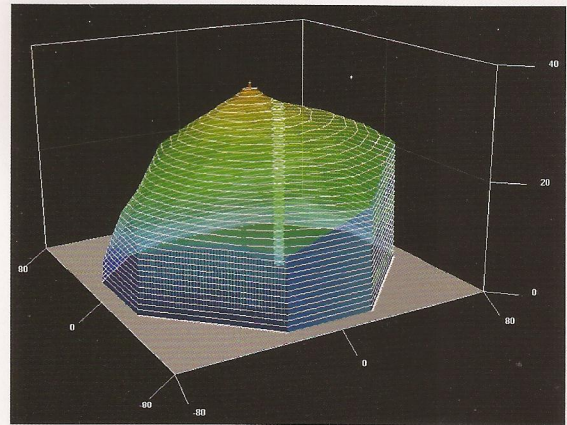


Installed Database of Normal Eyes over 600 People



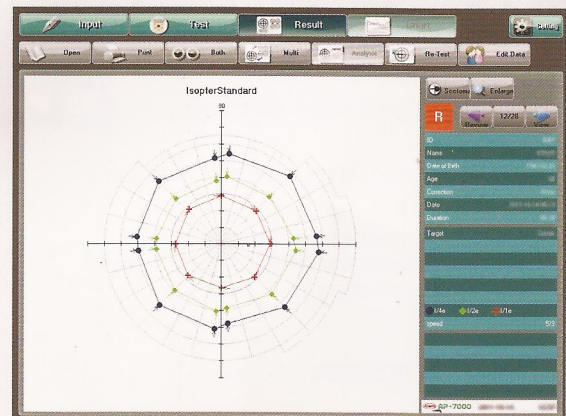
Database of Normal Eyes

Database of normal eyes measured periphery 60° enables more precise judgment of periphery test results.



Kinetic Perimetry

This instrument is equipped as standard specification.



Fundus Oriented Perimetry

Static perimetry test can be applied to abnormal sites on a fundus images, such as a fundus photograph, OCT or SLO.

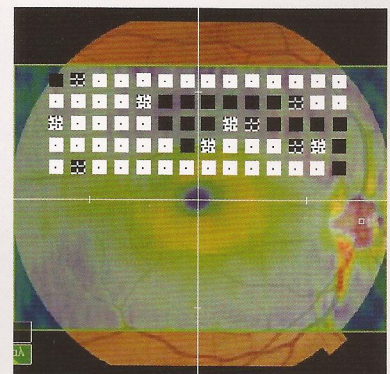
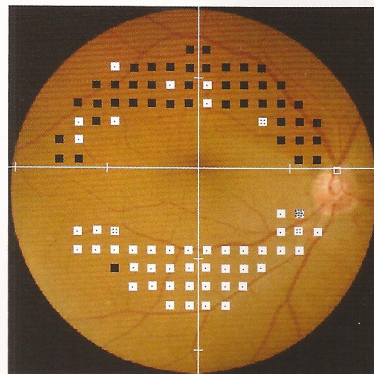


Photo: Kanazawa University Department of Ophthalmology (Sinji Okubo, M.D. and Kazuhisa Sugiyama, M.D.)

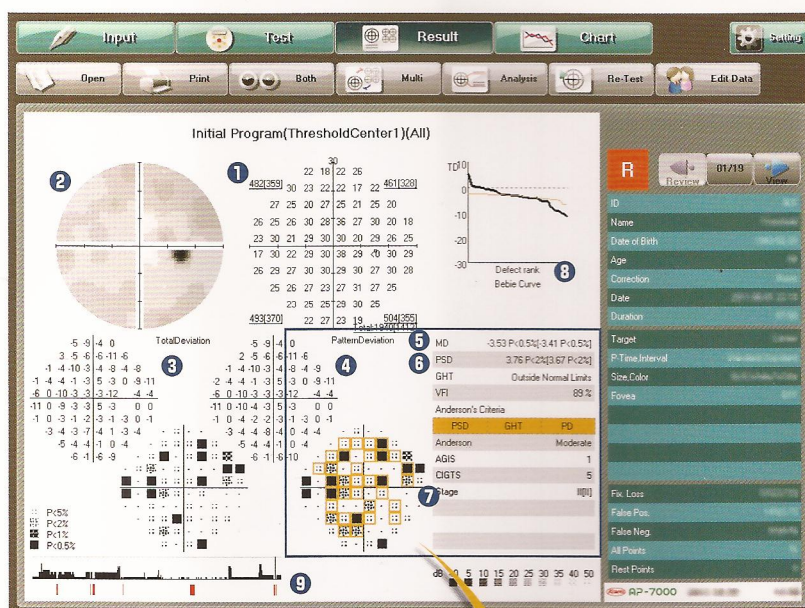
Equipped with Analytical Indices in Line with

Threshold

In addition to test within the central 30° that can observe the progression of glaucoma, test is possible in a wide variety of ranges, including central 10°, which can identify visual field abnormalities in the macula.

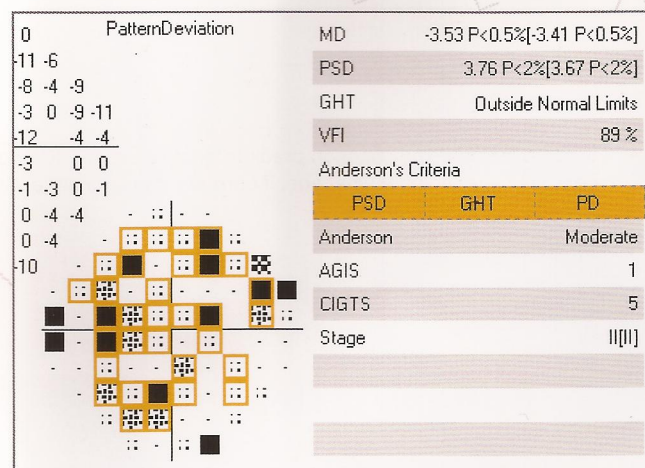
■ Clear Display of Analytical Results

- 1 Threshold (Measured Values)
- 2 Gray Scale
Expressing threshold values in ten levels of gray scale
- 3 Total Deviation
Deviation from the normal value for each age range
- 4 Pattern Deviation
Deviation from the pattern of the normal visual field pattern
- 5 MD
Averaged degree of loss of visual field, across the whole field
- 6 PSD
Degree of deviation from the normal visual field pattern
- 7 Analytical Indices
Display of various analytical indices
- 8 Bebie Curve
All total deviation values expressed as a curve
- 9 Gaze Monitor
Monitoring of eye fixation state from the relative positional relationship between pupil and corneal reflection



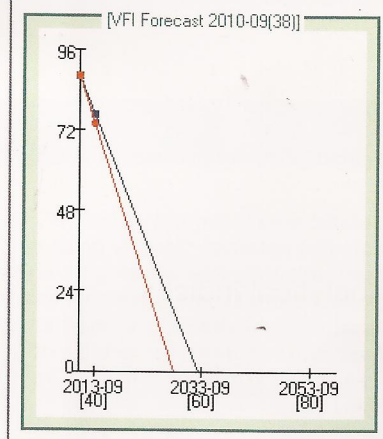
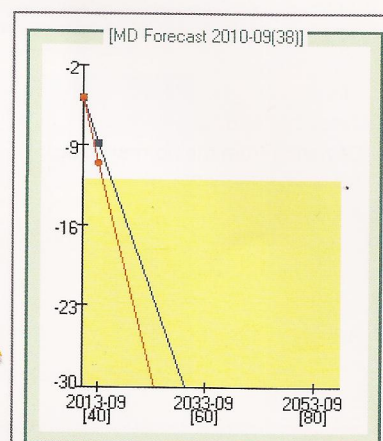
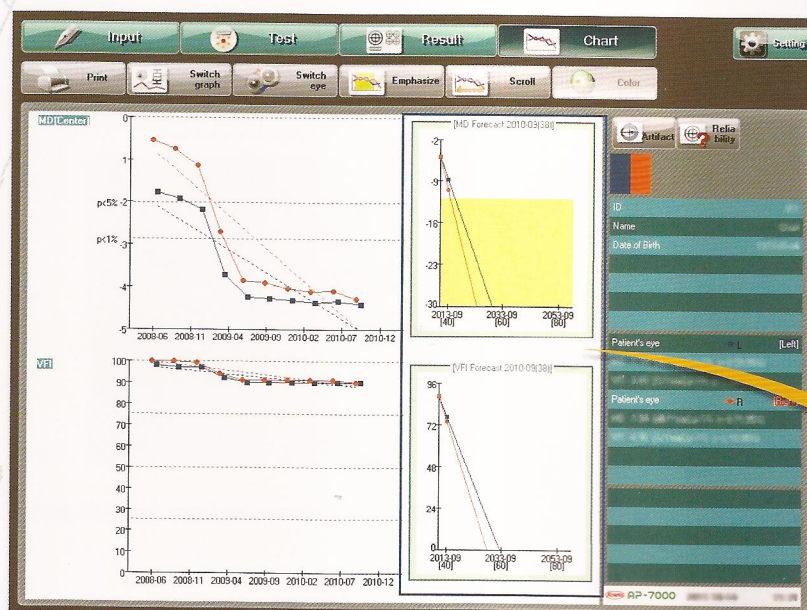
■ Analytical Indices

- GHT (Glaucoma Hemifield Test)
For this index, threshold center test points are divided into ten sectors, and corresponding sectors above and below the axis of the horizontal median are compared.
- VFI (Visual Field Index)
A percentage index in which a normal visual field is 100% and total loss of field is 0%.
- Anderson's Criteria Diagnostic Support Function
If one or more of three consecutive points satisfy one or more of the conditions "PSD has $p < 5\%$ ", "GHT outside normal limits", or "pattern deviation probability plot shows a cluster of three or more nonedge points that have $p < 5\%$, and one of the points has $p < 1\%$ ", this indicator judges the condition to be a glaucoma visual field abnormality. (the physician must judge whether the three points match the NFL movement)



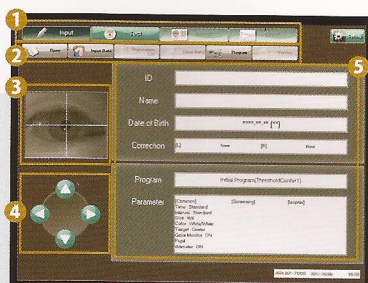
Chronological Change Display

Test result analytical indices can be graphically displayed as time series data to give a clear grasp of changes over time in the tested eyes.



Predictive Display

Predictive graphs are displayed from calculations of linear rates of changes in analytical indices. This function predicts what values of MD and VFI (Visual Field Index) will be reached at what age, if current rates of change in those values continue.



Convenient Tabbed User Interface

Main operation buttons are grouped at the top of the page, and buttons are laid out to follow the progression of tests, from patient information entry through test program selection to result display.

1 Main Menu

Switch between screens for input, test, result and chronological change.

2 Sub Menu

Run individual operations. Content changes to match the screens of the main menu.

3 Eye Fixation Monitoring

Monitor the tested eye. Touch to get an enlarged image.

4 Chin Rest Adjustment

Move the chin rest up, down, left and right.

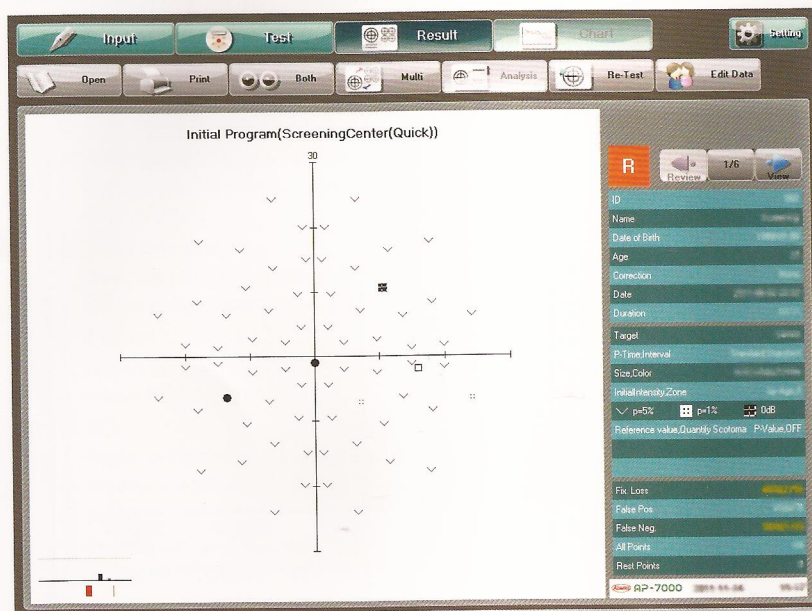
5 Patient information

Patient information entry and test program selection.

Diverse Functions of the AP-7000

Screening

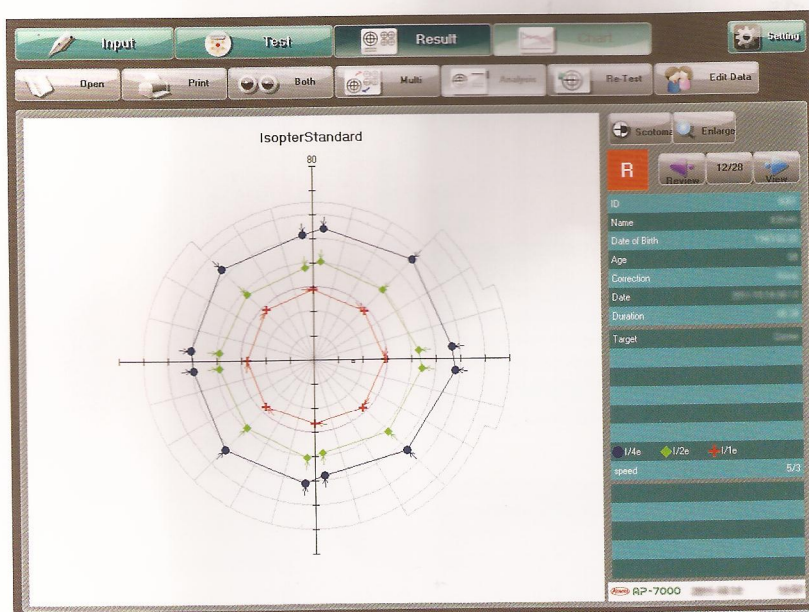
4-zones measurement that goes beyond screening, and programs using probability values (p-values) in intensity steps, are among the features that enable effective test in less time.



Running tests with intensity of probability value (p-value) makes it possible to display the difference between the measured value and the normal value for each age as a p-value, so that evaluation equivalent to total deviation in thresholds can be performed in a shorter time.

Isopter

“Automatic measurement function”, using many median patterns, “Manual measurement function”, allowing free drawing of isopters, and “auto + manual measurement function”, which allows any drawing of median after automatic measurement, are among the diverse measurement method options available.



Fundus Oriented Perimetry

Threshold test within the central 10°, custom optional threshold that allows selection of any desired test point, and custom optional screening tests are available.

The custom optional threshold test can measure test points at intervals of 2°

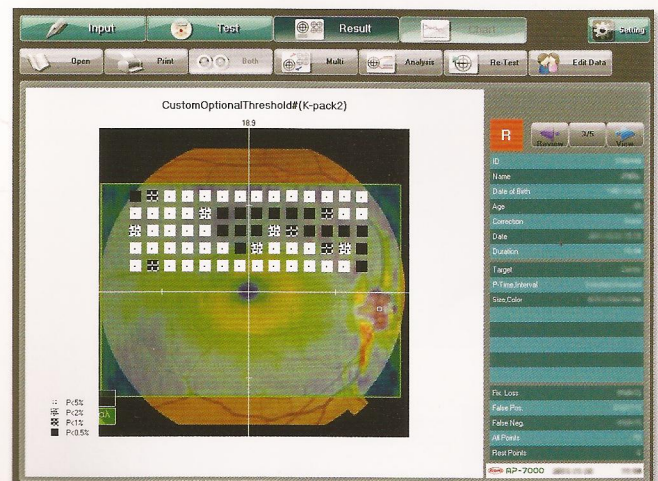
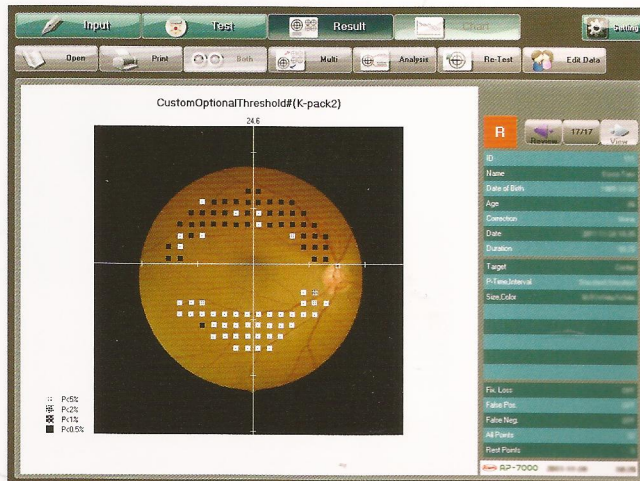
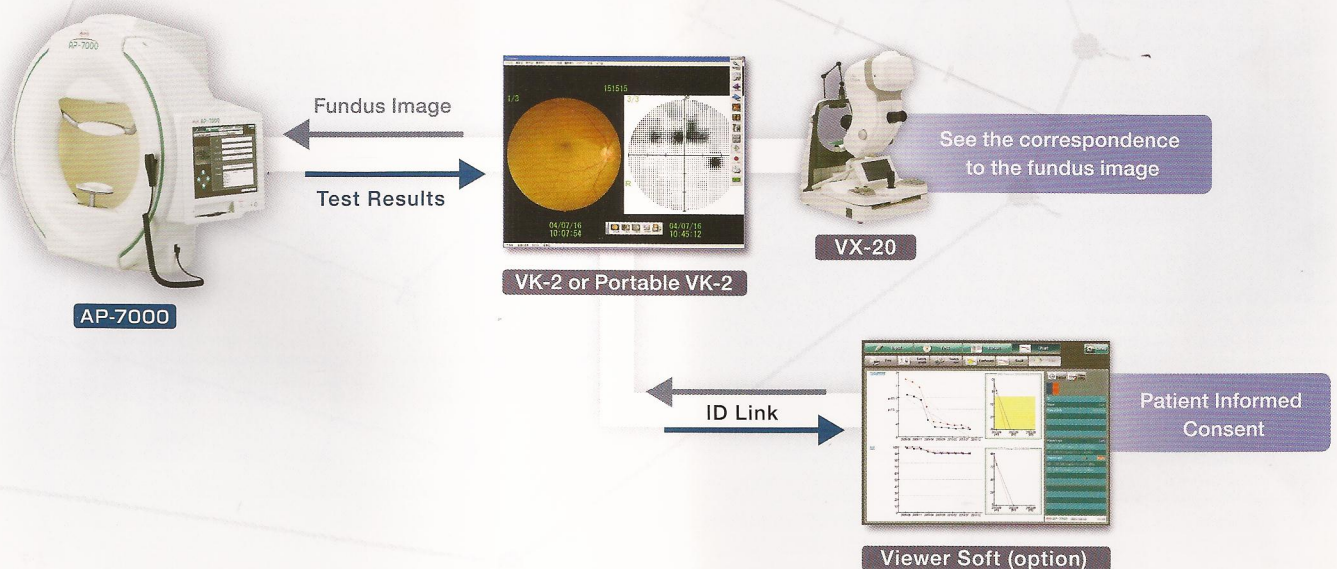


Photo: Kanazawa University Department of Ophthalmology
(Sinji Okubo, M.D. and Kazuhisa Sugiyama, M.D.)

Network Linkage





Technology for Life Science

Automatic Perimeter Kowa AP-7000

Specifications

Stimulus presentation method	Projection
Stimulus color	White, red, blue, green
Stimulus size	Goldmann I, II, III, IV, V
Maximum stimulus intensity	3,183 cd/m ² (10,000 asb): white
Stimulus presentation time	0.2 sec.
Stimulus presentation interval	0.6~3.3 sec. (automatically adjusted)
Background intensity	White: 10 cd/m ² (31.5 asb)
* Automatic light adjustment	Yellow: 100 cd/m ² (314.2 asb)
Examination distance	300 mm
Measurement range	80°
External interface	USB, ethernet
Fixation target	Orange LED Center 1 point, auxiliary 4 point, fovea examination 4 point
Eye fixation monitoring	Heijl - Krakau method, eye fixation monitor, gaze monitor
Printout	USB-connected printer [separately available]
Operation screen	Touch panel color LCD monitor
Data save	Built-in flash memory
Operation support	Oral instruction
Chin rest operation	Motor-driven
Power supply	Input : AC 100-230 V 50/60 Hz Power consumption : 200 VA
Dimensions	730(W)×430(D)×700(H) mm
Weight	26 kg



Examination

Screening	Program	Standard, Precision, Center, Periphery, Glaucoma, V.Meridian, Center #1, Center #2
	Method	2zone, 3zone, 4zone, Quantify Scotoma Intensity step : 5dB / provability variable (p-value) Quick mode is available.
Supra	Program	Standard, Macula, Mariotte, Optional, D-Test
	Method	Same intensity 2 zone
Threshold	Program	Center 1, Center 2, Meridian, Macula 1, Macula 2, Periphery
	Method	All Threshold, Quick 1, Quick 2, Super quick
Isopter (Kinetic)	Program	Standard, Isopter + Screening 1, Isopter + Screening 2, Isopter + Threshold
	Method	Auto, Manual
Custom	Program	Circle threshold, 1 point threshold, Quadrant threshold, Optional threshold#, Optional threshold○, Screening#, Screening○
Perimetry on fundus	Perimetry combined fundus image.	
Fovea examination	It is available in the Threshold Center examination (Threshold - Center 1, Center 2, Isopter + Threshold).	

Analysis

Analysis for threshold	Each examination	Gray/Color scale, 3D display (Hill of Vision), Total value of quadrant, Glaucoma staging (8 steps) GHT, Anderson's Criteria, Anderson, Classification, AGIS, CIGTS, VFI, Total deviation, Pattern deviation, MD (Mean Deviation), PSD (Pattern Standard Deviation), Bebie Curve (Total deviation, Pattern deviation, MD, and shown with actually measured values and p-values.)
	Chronological changes	All analysis data (Scale, Threshold, Total deviation p-value, Pattern deviation p-value, Bebie Curve) Graphically displays (MD, PSD, VFI, AGIS, CIGTS, Quadrant TD, Classification, Anderson, Boxplot)
Comparing	Comparison can be made between results of the Threshold, Screening, or Supra examination executed twice.	
Combination	Center and Periphery examinations can be combined in Threshold and Screening Center examinations. Isopter examination can be combined with Threshold Center or Screening Center examination.	
Display	Both eyes	Results of the examination of both eyes of the same patient executed on the same day are displayed side by side.
	Multi	Results of the examination executed four times (both eyes/either eye) of the same patient are displayed side by side.
Patient information	ID, Name, Date of birth, Sex, Correction, Visual Acuity, Diagnosis, Doctor, Comment	
Normal eye database	Ver.1.0.0.0 issued on 2011/06/09 (Age range) 20s to 70s (Samples) 612 persons (Criteria) Questioning, visual acuity, reflection, eye pressure, visual field, and fundus	

Database

Database	Patient ID list display, all list display, search function, ID extraction function
Data save	Built-in flash memory Capacity: For approx. 20,000 patients (40,000 examinations)

Images in the LCD monitor are compositions.

All other companies and product names stated here are trademark or registered trademark of each company.

Specifications and appearances are subject to change without notice.

Distribution name: Kowa AP-7000



Kowa Company Ltd.

World Sales Headquarters

4-14, Nihonbashi-honcho 3-chome, Chuo-ku,
Tokyo 103-8433, Japan
Phone: +81(3)3279-7639
Facsimile: +81(3)3279-7541
URL: <http://www.kowa.co.jp/e-life/>

Kowa Company Ltd. Hamamatsu Factory

3-1, Shinmiyakoda 1-chome, Kita-ku, Hamamatsu City,
Shizuoka Pref., 431-2103, Japan

Kowa Optimed Inc.

20001 South Vermont Avenue,
Torrance, CA 90502, U.S.A.
Phone: +1(310)327-1913 Facsimile: +1(310)327-4177
URL: <http://kowa-usa.com/>

Kowa Optimed Europe Ltd.

Sandhurst House, 297 Yorktown Road,
Sandhurst, Berkshire GU47 0QA, U.K.
Phone: +44(127)693-7021 Facsimile: +44(127)693-7023
URL: <http://www.kowa.eu>

Kowa Optimed Deutschland GmbH

Immermannstrasse 43B,
40210 Duesseldorf, F.R. Germany
Phone: +49(211)179354-0 Facsimile: +49(211)161952
URL: <http://www.kowa.eu>

[REF] FT10_1299300CO
Printed in Japan.

