APS Fully-automatic Computer Perimeter
(APS-6000CER Touch screen)

Operation

Instruction
Thanks

Thank you very much for choosing automatic computer perimeter manufactured by our company.

Name: APS perimeter

Specification and model: APS-6000BER, APS-6000CER

Model: APS-6000CER

License No.: CQ F&D Authority, Device 20060030

Registration No.: CQ F&D Authority, Device (Approval) 2005, No. 2220036 (add)

Standard No.: YZB /CQ0047-2004

Performance and configuration: It consists of computer, stimulator, controlling card, printer and special software (including module of patient’s information, software of analysis image, documents management, outputting print) and so on.

Scope: It is used to assist diagnose relative disease of eye-field

Caution: Make sure good connection between the instrument and ground.

For your security and benefit, please read the <Operation Instruction> as well as all the datum of the instrument carefully before using it.

If you do not operate the instrument according to the Operation Instruction, our company shall not take any responsibility.

About <Operation Instruction> of this Instrument

The copyright of the operation instruction belongs to our company;

The content of the operation instruction is written according to the physical goods;

If you can not understand some of the content or clause, or if you meet technical problems when using it, please do not hesitate to contact us, our telephone number:

Our company has the right of interpreting and revising this operation instruction.

This Operation Instruction is edited according to CQ YZB/ 0047-2004.

THANKS!
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1. Introduction

1.1 Brief Introduction

The system of APS-6000CER fully automatic perimeter is a new generation based on the old generation. It has two examination resource colors, six examination ways and many kinds of examination scope. It has the characteristics of full-function, high precision and speed. Besides the above characteristics, the whole system also has the characteristic of high dependability and steady performance.

1.2 Registering Information

- Name: Perimeter
- Producing address: China
- Registration address: China
- Specification and model: APS---6000CER
- Model: APS---6000CER
- License No.: CQ F&D Authority, Device 20010024
- Registration No.: CQ F&D Authority, Device (Approval) 2005, No.2220036
- Standard No.: YZB /CQ0047-2004

1.3 Purpose of Instrument

This instrument is used for examining the change of visual field which may be hurt by glaucoma, visual disease, disease of brain surgery and disease of retina.
2. Notes

2.1 Caution:
The local voltage must measure up to the standard voltage required by our Company. If the voltage is not steady, please install a steady- voltage instrument. Our company shall not take any responsibility for the damage due to the unstable voltage.

2.2 Notes:
To avoid being damaged by the environment (Damp, Dusty, Liquid, under the sun and so on), the instrument should be putted at the dry place. Do not let the liquid or any other small objects run into the instrument, otherwise these objects may make the inner parts of the instrument short-circuit, and even make the users get an electric shock or even cause a fire hazard.

2.3 Caution:
Without the permission of our company, do not open the box of the instrument our company will not take the consequences.

2.4 Notes:
The instrument can only be installed in the dark room. And it can only be operated by those who have been trained by engineers of our company.

- It belongs to BF common instrument according to the degree of protecting voltage
- Dangerous Voltage
- Notes! Look through the file
- Earth wire
3. Technical Service of the Parameter

3.1 Transport and Storage
Prevent the instrument from damp, being inverted and being shaken violently. Keep it in the room in which the relative humidity is less than or equal to 85 percent, the environment temperature is between –40 degree and 55 degree, the scope of air pressure: 500hpa~1060hpa and well ventilated without corrosion gases.

If the instrument need moving or transporting in a short distance, you should take apart all the connection wires and be transported by single. If the instrument must be transported in a long distance, re-pack it into its packaging box and then transport it.

3.2 Performance of Perimeter Scanner
3.2.1 Radius of stimulator: 300mm±5mm
3.2.2 Stimulating source of LED: Two visual lights: yellow and red.
3.2.3 Stimulating strength: From 0nt (0asb) to 318.310nt (1000asb), have 14 degree to adjust, the error is±10%.
3.2.4 Error of background brightness:4asb±10%
3.2.5 Light spot: Diameter is 2mm +/- 0.25mm.
3.2.6 The number of stimulating and the stimulating time:
   A. 388 spots (Red light: 61spots, yellow: 327spots);
   B: stimulating retention time: 0.2s--2.0s, the program can adjust (±5%);
   C: stimulating spacing interval: 0.5s --2.0s, the program can adjust (±5%);
3.2.7 Window of eye-position tracking: White-black CCD, directly tracking the testing eye;
3.2.8 The length of chin rest: up-down: 80mm±10%; right-left 115mm±10%
3.2.9 Eye position tracking: When blinking, the system will alarm automatically.

3.3 Working Environment of the Perimeter
3.1 Environment temperature: 5degree –40degree
3.2 Relative humidity: ≤85%
3.3 Atmospheric pressure: 700hPa--1060hPa
3.4 Power: AV 220V±22V; Frequency: 50Hz±1Hz
3.5 Input power: ≤300W

3.4 Characteristics

3.4.1 The instrument belongs to type I, BF Model common instrument

3.4.2 The instrument is supplied by single-phase net power

3.4.3 The form of the instrument is intermittent working form
4. Installation

4.1 Picture of the Whole Instrument

- Display monitor
- Computer
- Mouse
- Keyboard
- Forehead rest
- Stimulator
- Chin rest
- Stick holder
- Responder port
- Chief Switch On/Off
- USB Port
- Total power Input, AC 220V50Hz output, High voltage, Dangerous

Back view of the Perimeter
4.1 Stimulator: It is a hemisphere whose diameter is 600mm. All vision-marks are hidden. There are not to be seen on the face, so they are more hidden, completely avoid domino effect of black-hole.

4.1.2 Electro motion Chin-rest: Move the patient’s eye to the center of the window by computer controlled.

4.1.3 Eye sight: It is used to rectify the patient’s eye-sight.

4.1.4 Background
   Provide 4.0asb background for arc.

4.1.5 Responder
   When the patient is seeing the stimulating light, please press down the sticker to response.

4.2 Installation Environment
   4.2.1 The instrument must be installed in the flat ground with no slope;
   4.2.2 The instrument must be installed in the clean, quiet and dry room;
   4.2.3 The instrument must be installed in the dark room where nothing can be seen within one meter.
   4.2.4 The instrument must be installed with special ground wire;

4.3 Installation
   4.3.1 Instruction for packing box
There are two packing boxes, one is Packing No.1, and another is NO.2.
For No.1: one unit of stimulator
No.2: each unit of printer, kinds of installing parts

4.3.2 Install hardware
The software and driver have been installed completely. So when you use it after you take it out from the package box. You just need take the following steps:

Take out the fixed foam as letter show inside of Perimeter or remove the screw which lock the chinrest (if you do not remove this screw, the chinrest can not move left and right). The screw location is the bottom of the device.

Fix the Stick Holder into the Place Where the Stick is putted.

4.3.2 Connect the power of the perimeter.

4.3.3 Connect the responder (Sticker)
4.4 Install software (only when you reinstall XP system, you need do this step)

4.4.1 Install software of the perimeter: Find out the installing catalogue of perimeter from CD (Click “Software install” on CD interface or from: Software-drivers\KhSetup.exe)

4.4.2 Install software of the touch screen: find out driver program from CD (Software-Driver\touch screen software\Setup.exe), and click setup.exe.

You can finish installing of Touch kit according to the hint. And then click Touch kit twice on desktop into setting surface.

1) Set the linearization as 25 points in setting item. (As picture 1)
2) Select the” Linearization” in tools item (As picture 2). To finish every point emendation according to display (As picture 3). (All in 25 points)
Press the blinking X symbol until stop blinking.

Picture 3
5. Function of the Software

5.1 Two Main Models of the Software

5.1.1 Perimeter Checking Model
The main functions of this model are: finishing perimeter checking, amassing the result, smoothing the grey, storing the data and printing;

5.1.2 File Management Model
The main functions are: looking through the file, folding (opening), and comparing printing and deleting;

5.2 Introduction of the Operation System
Click the “APS6000B” twice continuously so that it can enter into the checking program of perimeter directly.

The top of the main interface is down-pulling menu bar in Chinese. You can choose relevant icon with the mouse. You can see relevant function instructions after the mouse stopping on it for 2s. Anyone who can use the mouse can make it. Under the button is the displaying area of Parameters, Gray graph. There is a status bar at the bottom of the main interface, which is mainly used to display the testing time and other testing information

Hot Key: the keys related on the keyboard, it is convenient for those who prefer using
the keyboard

The Systematic Hot Keys

<table>
<thead>
<tr>
<th>Key</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1</td>
<td>Revise testing parameters</td>
</tr>
<tr>
<td>F2</td>
<td>Start testing</td>
</tr>
<tr>
<td>F3</td>
<td>Fold file</td>
</tr>
<tr>
<td>F4</td>
<td>Save file</td>
</tr>
<tr>
<td>F7</td>
<td>Graph smooth</td>
</tr>
<tr>
<td>F8</td>
<td>Stop testing</td>
</tr>
<tr>
<td>F9</td>
<td>Screen renovation</td>
</tr>
<tr>
<td>F10</td>
<td>Open eye position track</td>
</tr>
<tr>
<td>CTRL+F2</td>
<td>Re-testing</td>
</tr>
<tr>
<td>F11</td>
<td>Re-set eye position standard</td>
</tr>
<tr>
<td>CTRL+G</td>
<td>Choose multi-survey</td>
</tr>
<tr>
<td>CTRL+F1</td>
<td>System setup</td>
</tr>
<tr>
<td>F12</td>
<td>Eye position monitor</td>
</tr>
<tr>
<td>CTRL+F9</td>
<td>Controlled by electro motion</td>
</tr>
<tr>
<td>CTRL+F10</td>
<td>Change precision of eye track</td>
</tr>
</tbody>
</table>

Touch Screen Software Window
Function Translation

- Parameters setup during testing
- Looking through the file
- Old report
- Start testing
- Choose multi-survey
- Screen renovation
- Choose testing area with the mouse
- File comparison

the patient’s information setup
save file
new report
Stop testing
Testing result
Smooth images
Grey, color, 3CD changing
Open the eye position tracking

Changing of chin rest controlling motor (keyboard up/dn/lef/right control, some types of keyboard maybe need shift “num lock” to effect).

5.3 Several Important Models of Perimeter Scanner

5.3.1 Parameters Setup
(1) Examination Methods:

The system has five examination ways:” Estimative examination”, “quantity”, “automatic threshold”, “and fast threshold”, “full threshold”.

1) Estimative

Before the threshold examination, full threshold examination for the four special spots is needed. Then according to the average level of the four thresholds and the characteristic that the visual acuity will decrease when the visual field increase, users set the initial value of each testing spot within the examination scope and then test it. The brightness of the testing spot will keep increasing from the initial value. Then if there is no reaction, the brightness will strengthen with the step length (default value is 2db) until the patient sees it. Press the responder to finish this test. After the interval, test the next one.

Note:

Those whose yellow spot center is not very good and those who have early glaucoma are not suitable to have the estimative examination. Instead, they should have the full threshold examination.

2) Qualitative:

Starting from the initial value, increasing with the largest step length, the light will become the brightest when the responder has reaction.

3) Automatic Threshold:

The initial value of brightness is the largest value near the spot adds that of the threshold value .It increases with the setting step length. It will quickly become to the lightest condition when the responder has reaction.

4) Fast Threshold:

Light starting from the initial value (default value is 26db), becomes lighter with the speed of 4db (default value) until the patient feel it or the brightness increases to the largest level. You can adjust the initial value and the step length. It is convenient for you .The examination process is the same as that of the “2)”.
5) **Full threshold**

The Initial value of brightness is 26db. It will become lighter at the speed of 2db step length until the patient can feel it. The examination process is the same as that of the “2)”.

(2) **Examination Scope:**

Includes quadrant I, II, III, IV periphery, central 30 degree, periphery 60 degree to 90 degree, center 10 degree encrypt, total 7 areas. Blind spot testing choose examination scope at random.

(3) **Initial Value:**

From 26db-0db interval 2db adjustable

(4) **Stimulating Step Length**

1db-10db adjustable

(5) **Over Measure**

2db-10db adjustable

(6) **Keeping Time:**

It is the retention time that the specific brightness can last without patients’ interruption. After that, the brightness will change into another level which can be adjusted within the scope of 0.2 -2s.

(7) **Spacing Interval:**

The duration time from the end of one brightness test to the beginning of the next brightness test.

(8) **Filename**

Every patient’s storage name in the computer.

**Notes:**

If the same person needs to have the different eye checked or have many different eye tests within the same day, the instrument users should add 1 to each of the filename when carrying out a new examination.
(9) Eyes Differential:
The patient’s testing eye

5.3.2 Choose Examination Scope and Ways
1) Choose Examination Scope:
To improve the examination speed and precision, we should make sure that the examination scope is right. We set the examination scope generally according to the clinical symptom. For example:

1.1) Center 30 Degrees:
It is suitable for checking central defect, centrality visual constriction, tuber visual field and so on. (72 testing spots)

1.2) Perionery I, II, III, IV Guardant:
It is suitable for checking the dark spot near the center, the temple; the hemiscotosis and the hemianopia (choose the examination scope for the defect area).

1.3) Focus Encrypt:
It is used to check age-relater macular degeneration, center retina choroidopathy, macular degeneration, and macular blood and so on.

1.4) Blind Spot Testing:
Examination of expands of physiological blind spot, such as papilloretinitis, optic disk edema and so on.

1.5) 60°—90°:
It examines the defect of peripheral part of the temple.

1.6) Choose Examination Scope at Random:
It is suitable for checking all kinds of damage conditions according to the doctor’s willing. Shrink the useless examination scope as much as possible so as to improve its precision. Loose the patient so that we can make sure the result of the examination is true and precise (choosing spots at random).

2) Choose Examination Ways:

2.1) Estimative:
It is suitable to normal examination (The patient with central damage can’t use this way, the speed just ok);

2.2) Automatic Threshold:
It is suit to the patients with many more damages and the scope of damages is rather complex. (The speed is very fast);

2.3) **Fast Threshold**:  
It is suit to the examination of which the requirement for examination precision is not high. (The speed is faster).

2.4) **Quantitive**:  
It is just suit to do perimeter examination (The speed is the fastest)

2.5) **Full Threshold**:  
It is used for perimeter examination with highest precision (The speed is the slowest)
6. Operation Steps

6.1 Patient’s Preparation

6.1.1 Perimeter examination should be done in the dark room, or the result is not precise;

6.1.2 Before examination, the patient should be relaxed and know the whole examination process.

6.1.3 Automatic perimeter will adjust itself and control the testing spot light automatically according to the operator’s requirement (Through the parameters setup of the menu bar);

6.1.4 Make sure the size of the threshold for the patient at the testing spot is suitable according to the patient’s feedback information (press the stick) so that the result of the automatic perimeter examination is the result of people and machine. This spot is very important in the course of examination.

Note: As most of the ophthalmic patients are old men whose comprehension may be
not very good, we should tell them the whole examining process carefully before the examination so that they will not be nervous and in a state of a totally relaxation during the process of examination. Since the patient should stare at the fixing spot for a long time and another hand will also became nervous, they will be likely to feel fatigue. If this happened, the patient would not see things clearly, which may influence the examination result. So during the examination process, let the patient relax and tell them the right reaction. This is very important for a successful examination.

6.2 Doctor’s Preparation

6.2.1 Enter into the perimeter system; click the icon “APS6000” twice continuously to enter;

6.2.2 Click open the patient’s information table, Ctrl + space entering; input the patient’s information;

6.2.3 Click open parameters table, use toleration parameters (click Enter directly to insure)

6.2.4 The operator should let the patient know the examination process before the examination:

1) The patient should be familiar with the stick: demonstrate him the right way of responding, the way of clicking the responder, and make him relax as soon as possible.

2) Demonstration him the fixing sight

3) Cover the patient’s eye with an eye shroud and inquire the patient whether he covers the testing eye.

4) Put the patient’s jaw on the right side of the chin rest when examining the left eye; put the patient’s jaw on the left of the chin rest when examining the right eye.

5) Put his forehead on the ribbon of the forehead bracket slightly.

6) Tell the patient to look at the left one of the three green lights while the line of the sight parallel to the ground.

7) The eyeball can not move and the body is relaxed. Tell the patient that he should click the responder if he /she feel the light.

8) Click aim at the eye position with up, down, left, right on the
keyboard; also can move chin-rest with ← ↑ → ↓.

6.3 Starting Checking

6.3.1 Click to start testing, ask the patient whether he can feel the flash, if he can, you should adjust his eye position by the chin rest controlling motor. If he can still feel the flash, you should adjust the site of blind spot monitoring to make sure that the patient can not feel the flesh.

6.3.2 Let the patient click the responder, and then start testing;

6.3.3 We should pay attention to the patient’s eye position to make sure it is fixed all the time during the examination process.

6.3.4 If the patient wants to have a rest during the examination, let him press the responder all the time so that we can continue checking after the rest.

Notes:

After the check, if the false negative of the blind spot checking is more than 1:3 which means the result is not very precise, you should test again.

6.4 Treating after Checking
6.4.1 If you find the test abnormal or feel the result is wrong, click to check again.

6.4.2 If you are satisfied with the test, please click to save.

6.4.3 Use to smooth.

◆ Click the re-checking spot with the mouse, the spot which needs checking is yellow (AS the above picture)
6.5 Print Report

Use \( \text{ or } \text{ to print report.} \)

◆ If it shows the above picture, use \( \) to print the following report form.

◆ Click \( \) to 3CDs

Use the functional key on the left to adjust the 3cds, click \( \) to print the following picture:
◆ Use to print, then it comes out the graph of summation curves

- 30 degree to check, use comes out multiple graphs
◆ Choose images which need to be printed with Ctrl+End (Only 0 to 30 degree range test can choose 7 models to print)

◆ Make a mark on the images that need to be printed

6.6 The Usage of Other Functions

6.6.1 Look for Files

1) Look for File According to the Name
At the place of name box, input the patient’s name. The left is the patient’s name you want to find.

2) Look File According to Date

The date, the names on the left is all the patients within the same day.

6.6.2 Checking Result
The meaning of each word on the testing report is on the interpretation page at the back of the book.

Notes:
When checking the blind spot, we should make sure that the false positive errors, false negative errors: the molecule compares the denominator is not exceed 1:3

6.6.3 Screen renovation and images smoothing is relevant functional keys, re-new smoothing image is original one.

6.6.4 Choose multi-survey with mouse
Click “yellow “area is testing area. We can choose testing area at random.

6.6.5 File comparation: Compare the two different reports in the different times.

1) Firstly use to open the patient’s file, and then look through the patient’s another file;

2) Comparison of two different files’ statics
6.6.6 Setup for Eye-Position Alarming Strength

- After setting, please click” re-set initial value”, then save the setup.

6.6.7 Introduction of Down-Pulling Menu

Each down-pulling menu in the file management, perimeter testing, and result analysis is showed in the image functional keys of the next.

Introduction of Setup of Down-Pulling Menu
6.6.8 Systematic Setup

1) Controlling parameters setup in the course of testing
   ▲ Active image modes in the window of eye-position monitoring;
   ▲ Manual active: After working for 5s at the window of images monitoring, it will stop automatically;
   ▲ Active all the time: The window of images monitoring will be working from the starting the examination

2) Color setup (As picture showing below)
3) Open or close the window of eye-position monitoring

4) Set the place of blind spot
【Notes】

For the patient whose blind spot has deviated, before checking, we must make sure the place of blind spot by the functional keys of up and down, left-and right.

6.6.9 Choosing program

Click testing mode in the down-pulling menu of perimeter test, enter into the following picture:
◆ Interpretation of Modes

BG mode—— A standard German perimeter testing program (68 testing spots)

LVC mode——Checking Program for the central low-sight It is mainly used to examine the sensitivity of eyes in the tubular visual field at the later stage of glaucoma (64 testing spots)

LVP mode——Checking program for Perionery low-sight It is mainly used to check the sensitivity of eyes in the perionery scope. (91 testing spots)

C08 mode——It is used to check the sensitivity in the scope of central 8 degree of the yellow spot. (49 testing spots)

D1 mode—— Visual field checking program for diabetes. (58 testing spots)

TG2 mode——Choosing program for glaucoma. It is mainly used to check the sensitivity of the central visual field. (83 testing spots)

ST mode——Choosing program for glaucoma. It is mainly used to check the sensitivity of the central or perionery visual field.(96 testing spots)

32 mode——Choosing program for central 30 degree. (64 testing spots)

C07 mode——Common choosing program.(122 testing spots)

M2 mode——Checking program for yellow spot, it is mainly used to check visual field defects in the center or near the center (122 testing spots)

N1 mode——Checking program for psychiatry disease (75 testing spots)

Folding: 0—90 degree full visual field

1. 0—60 degree connects 60—90 degree(Firstly open 0-60 degree picture, then click the right key of the mouse twice on the blank of the soft window, Select the “Display 60-90 degree”, choose file to connect.);

2. 60—90 degree connects 0—60 degree (First open 60-90 degree picture, then click the right key of the mouse twice on the blank of the soft window, Select
the “Display 0-60 degree”, choose file to connect.)

Notes: Folding reports: the name of the patient, eyes differential and the checking ways must be the same, we can do folding.
## 7. Maintenance

### 7.1 Treatment of the Common Problems

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<tr>
<th>Breakdown</th>
<th>Cause</th>
<th>Treating Ways</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nothing can be printed.</td>
<td>The ink uses out</td>
<td>Replace the ink or the ink box</td>
</tr>
<tr>
<td>The printer is paperboard</td>
<td>1. The sheet has static</td>
<td>1. After popping or shivering the paper, put it into the send-paper container</td>
</tr>
<tr>
<td></td>
<td>2. The size of paper is not suitable</td>
<td>2. Use paper that meet the requirements and specifications</td>
</tr>
<tr>
<td>Can’t start system or doesn’t work</td>
<td>COMS setup looses</td>
<td>Re-set COMS parameters</td>
</tr>
<tr>
<td></td>
<td>Voltage isn’t enough or too high</td>
<td>Replace power</td>
</tr>
<tr>
<td></td>
<td>Connection wire in the box is loose when working</td>
<td>Close, re-joint the connection wire</td>
</tr>
<tr>
<td></td>
<td>Each card in the main frame is loose</td>
<td>Insert each card again</td>
</tr>
<tr>
<td></td>
<td>Memory is loose or damaged</td>
<td>Insert again or replace memory</td>
</tr>
<tr>
<td></td>
<td>Infect virus</td>
<td>Use kill software to kill virus</td>
</tr>
<tr>
<td></td>
<td>Crashes while working or show that the program is wrong</td>
<td>Open too many application programs, re-start the computer</td>
</tr>
<tr>
<td></td>
<td>Hard disk is damaged</td>
<td>Replace the hard disk</td>
</tr>
<tr>
<td>Nothing in the screen when opening it</td>
<td>Color display doesn’t get through</td>
<td>Good connection wire, switch on power</td>
</tr>
<tr>
<td></td>
<td>Connection of display card is not very good</td>
<td>Open the box re-insert the display card</td>
</tr>
<tr>
<td>Problem</td>
<td>Solution</td>
<td></td>
</tr>
<tr>
<td>--------------------------------------------------</td>
<td>------------------------------------</td>
<td></td>
</tr>
<tr>
<td>The jointing of color display signals wire is not very good</td>
<td>Insert again</td>
<td></td>
</tr>
<tr>
<td>Color display is damaged</td>
<td>Replace color display</td>
<td></td>
</tr>
<tr>
<td>The sticker does not work</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Connection wire is damaged</td>
<td>Replace the Connection wire</td>
<td></td>
</tr>
<tr>
<td>Pressing key is damaged</td>
<td>Replace the pressing key</td>
<td></td>
</tr>
<tr>
<td>The electrical card does not work</td>
<td>Replace or maintain the controlling card</td>
<td></td>
</tr>
</tbody>
</table>

### 7.2 Maintenance

7.2.1 You should firstly turn on the power switch of the monitor and then turn on the power switch of the main frame when opening the machine. When closing it, you should firstly log out, and then turn off the power supply of the monitor and the main frame.

7.2.2 Scan disk and arrange pieces in a certain period.

7.2.3 Keep air clean, dry; use air-conditioner if possible

7.2.4 If the instrument has not been used for a long time, you should supply power for the main frame at intervals. (Usually three times a week, four hours one time)

7.2.5 If there is something wrong with the instrument, please contact us immediately or ask the special maintainers to maintain.

**Notes:** You should clean the chin rest before and after each time you use it.

### 7.3 Fusing Parts:

**Model of fuse:** 250V 3A

**Replace the fuse:** Screw off the cover of fuse, replace it with a new good fuse, then cover again (see the picture of the perimeter)

### 7.4 Highly Depleted Objects

Ink box and print sheets

**Notes:**

You must use the special purpose ink box; otherwise our company shall not take the responsibility for damage due to that
8. Interpretation

1. False Negative Error:
   In the course of examining, the system will randomly select one spot to test twice. Comparing the visual acuity values of the two tests, that the numerical value of the first test is smaller than that of the second time is called false negative error.

2. False Positive Error:
   In the course of examining, the system will randomly select one spot to test twice. Comparing the visual acuity values of the two tests, that the numerical value of the first test is bigger than that of the second time is called false positive error.

3. Colobama Difference:
   The weighted mean of the visual acuity, which shows the diffusing degree of visual acuity.

4. Standard Deviation of Sensitivity:
   The difference between the average examining visual acuity and the standard images.

5. Ms:
   The average of the examining visual acuity.

6. Blind Spot Monitoring:
   The patient’s responding times for physiological blind spot in the course of examination.

7. Quadrant Defect:
   The average value of visual acuity in every quadrant minus that of the standard image.

8. Compare Digital Picture:
   The normal value of the same age minus the value of sensitivity on the examination
spot. When the value exceeds 3db, it will display the actual value; when it is less than or equal 3db or negative, it is showed with “+”.

9. Add Up Defect Curves:
Firstly get the difference value between the examining sensitivity on every spot and digit of normal value of sensitivity on this spot, which is called the difference value of sensitivity. Then arrange those differences according to its size (from small to big) and draw the picture. Ordinate is the difference; abscissa is the serial number of difference. The nearer the curve near the bottom, the deeper the visual field has defected. It is easy to tell the difference from the damaging degree of diffusibility or limitation in the visual field. By this way, we can evaluate the characteristic and defecting degree clearly and quickly.

10. Rectify Comparing Digital Picture:
Getting rid of the part the sensitivity of which has decreased naturally due to the refractive stromal opacity and other factors, we can say that the result can completely show the function of the optic nerve system without the influences of optic factors. This is called rectify comparing value. The rectify comparing value of this spot equals to comparing value of this spot minus deviation (which can be got by adding up defect curves)

11. Probability:
Compare the actual examination value on every spot with the normal distribution of this spot, and then analysis the probability if they distributes normally. The probability of normal distribute which belongs to the actual measurement value of sensitivity of this spot is showed through symbol. It is so-called probability.

12. Rectify Probability:
Calculating the probability that rectify comparing value belongs to the normal variance scope, we can get rectifying probability. It shows the prominent signification of local visual field defect after getting rid of the normal sensitivity decrease in the whole sensitivity decrease. Compare the comparing digital picture with rectifying comparing digital picture, if the result is almost alike, it shows that there are almost no severely decreases of the normal sensitivity. If it decreased
evenly, it may be caused by cataract.

13. MS:
The total of the standard value of light sensitivity of each spot. Then the result will be divided by all the spots. This is the average of light sensitivity of each spot.

14 Mean Defects: (MD):
The average of the examination value of all spots minus normal value, it shows the condition of the patient’s vision sensitivity comparing with those of the same age.

15. Loose Variance (LV):
The difference between the visual field shape measured and the normal one. It shows the variance of light sensitivity, reflects the partial defect of the visual field. The bigger the value is, the more irregular the shape of the field is.

16. CLV:
When SF increases, LV will be influenced. Getting rid of SF’s influence from LV, we can get CLV. CLV is variation minus SF, which is more sensitivity for judging the early partial defect. It shows the signification of the local dark spot.

17. Short Floating (SF):
It shows the light sensitivity deviation appearing in one perimeter examination process; it shows the reaction consistency in the course of examining. The bigger the value is, the worse the cooperation the patient shows. The short wave will become height in the scope of abnormal visual field. When more scope in the visual field become abnormal or the degree of abnormal increases, the whole wave will become higher.

18. Dependable (RF)
It shows the patient’s cooperation and dependence. Within 0-15%, the smaller the value is, the better the cooperation the patient shows. When the value is more than 15%, you should do the perimeter examination again.
9. Declarations

*Our company can provide you with the information of those parts needing maintained.

1. Our company will provide maintenance and enquiry free for one life.

2. Our company will maintain the machine for free for one year since the date of purchase if the machine is operated according to the operation instruction.

3. During maintenance, Our company will receive fee for the maintenance under the following conditions
   - Do not use, maintain, store the instruments according to operation instruction;
   - Take apart or amend the instruments without the permission of Our company, which cause damage;
   - Damages is caused by accidents, use wrongly or caused by other major nature factors.

▲ Please forgive us for not informing you if the design or the assigned type changes.

▲ If you have any question about our products, please do not hesitate to contact us.