

AUTO LENSMETER

TL-6800

OPERATOR'S MANUAL

CE



BEFORE USE, READ THIS MANUAL.

Thank you for your trust in our company.

The device complies with IEC60601 and UL Standards, in order to use this device properly and safely, please read the user manual carefully and thoroughly understood all the operating procedures before using the device. At the same time, keep this manual handy for verification.

If there is any problems during use this device, please contact us or your local authorized distributors.

This manual is also used as a training reference manual. Please keep this manual as a reference for future communication with other users. If you need additional copies or any questions about the device, please contact our company or authorized dealer.

The information contained in this manual has been confirmed before publication. If change the product model without notice. Ningbo Ming Sing Optical R & D Co., Ltd. reserves the right to change the product contained in this manual without notice. The sold products do not involve such changes.

Without written permission of Ningbo Ming Sing Optical R & D Co., Ltd. isn't available in electronic, mechanical, or any other means reproduction, retrieval and reprint any chapter in this book.

Manufacturer: Ningbo Ming Sing Optical R & D Co., Ltd.

Address: Tiantong Road No. 702, Yinzhou District, Ningbo City, Zhejiang Province

Zip Code: 315192

Telephone: 0574-87198788, 0574-87305541, 0574-87296162

Facsimile: 0574-87296439, 0574-87296162

After sales service provider: Ningbo Ming Sing Optical R & D Co., Ltd.

Customer service hotline: 400-168-6060

Address: Tiantong Road No. 702, Yinzhou District, Ningbo City, Zhejiang Province

Zip Code: 315192

Telephone: 0574-87198788, 0574-87305541, 0574-87296162

Facsimile: 0574-87296439, 0574-87296162

Document NO.: Q/MS-J501D.12-2018

Version NO.: A/0 Date: March. 1st, 2018

Table of Contents

1	Equipment introduction	1
2	Safety precautions.....	3
2.1	During use.....	3
2.2	During Storage	3
2.3	During Moving.....	4
2.4	During Installation	4
2.5	During Connect the power cord.....	5
2.6	After use	5
2.7	During Maintenance.....	5
2.8	During Accident	6
2.9	Label introduction	6
2.10	Label on the device	7
3	Main technical parameters	8
4	Equipment structure.....	10
4.1	Equipment structure	10
4.2	Install the lens	12
5	Screen Display Introduction	16
5.1	Measurement screen.....	16
5.1.1	Normal measurement	16
5.1.2	Progressive lens measurement screen	23
5.1.3	UV transmittance measurement screen	24
5.1.4	Contact lens measurement screen.....	25
5.1.5	Virtual PD and PH measurement screen	26
5.2	Menu display screen	27
5.3	User input screen	28
5.4	Information input interface (Virtual keyboard).....	29

6 Operation instruction	31
6.1 Operation before measurement	31
6.2 Setting lenses	32
6.2.1 Setting uncut lenses.....	32
6.2.2 Setting mounted lenses	33
6.3 Measurement single vision lens	34
6.4 Measurement multifocal lens	36
6.4.1 Measurement bifocal lens.....	36
6.4.2 Measurement trifocal lens	37
6.5 Measurement progressive lens	39
6.5.1 Measurement uncut lenses	39
6.5.2 Measurement mounted lenses	40
6.6 Measurement Contact lens	41
6.7 Measurement PD of frame lenses.....	42
6.7.1 When measuring lens parameters.....	42
6.7.2 The optical center of the lens is marked.....	43
6.8 Measurement lens transmittance	44
6.9 Print operation	45
6.10 Other operation	46
6.10.1 Menu screen operation	46
6.10.2 System software upgrade	50
6.10.3 Connect with other devices.....	52
7 Maintenance	54
7.1 Troubleshooting and countermeasures.....	54
7.2 Error messages and countermeasures.....	54
7.3 Printer paper installation	56
7.4 Marking (ink / oil) replacement.....	57
7.4.1 Pen ink replacement	57

7.4.2 Ink cartridge replacement	58
7.5 Cleaning	59
7.5.1 Cleaning the protective glass	59
7.5.2 Cleaning the lens	59
7.5.3 Cleaning the device exterior	60
7.6 User operation screen	60
8. Accessories	66

1 Equipment introduction

TL - 6800 auto lensmeter is produced by Ningbo Ming Sing Optical R & D Co., Ltd. to measure the vertex and prism of lenses and contact lenses. The auto lensmeter can be used to determine the direction of the axis of the Cylinder (with astigmatism). And mark the center and the axis of the uncut lens. It also could check whether the lens is properly installed on the frame. The device mainly includes three modules: display module, measurement module and output module.

Display module with 7 inch color LCD capacitive touch screen, high sensitivity and clear picture can enhance your experience. The new interface design can display the results of the left and right lenses on the same screen. In the measurement process, with the target display center, it is easy to align the optical center of the lens. TL6800 has a simple menu and corresponding short cut button in the main measurement screen.

The measurement module includes: optical path frame, lens holder mechanism, marking mechanism, lens support, PD measurement mechanism and memory button.

The output module includes: the printer on the right side, the RS232C, LAN, USB and TF card slot at the bottom of the main body.

The main features of the equipment are as follows:

It can measure single vision, multi vision, progressive power lenses and contact lenses.

It can measure pupillary distance (PD) and pupillary high (PH).

It can measure visible light and ultraviolet light transmittance (UV center wavelength of 365nm).

The highest reading accuracy of this digital display auto lensmeter is 0.01D.

It is equipped with a quiet, high-speed, and high-quality thermal printer.


It is equipped with Bluetooth, RS-232C interface, LAN interface, easy to connect with other devices.


It has many kinds of measurement functions, such as automatic identification, automatic reading, automatic R/L switching and automatic ADD functions.

It can adjust the LCD display angle, there is a good view of the operation when you stand or sit down. TL-6800 auto lensmeter implement the enterprise standards, accordance with the national standard GB17341-1998 optics and optical instruments.

2 Safety precautions

The manual uses a signal word to designate the degree or level of safety alerting. The definition is as follows.

 **WARNING:** indicates a potentially dangerous situation, if not avoided, may result in death or serious injury.

 **CAUTION:** indicates a potentially dangerous situation, if not avoided, may result in minor or moderate injury or property damage.

2.1 During use

 **CAUTION:**

- Never open the outer case and touch the internal of device, electric shock or device malfunction may result.
- Using the device with specified power voltage, if the voltage is too high or too low, the device may unable to work properly, and the device will damage.
- Do not place heavy objects(such as the device itself) on the power cord, the damaged power cord may cause short circuit, fire or electric shock
- Immediately replace the power cord with new one if the metal cord is exposed, to avoid fire or electric shock.

2.2 During Storage

Prompt:

- Do not store the device in an area that is exposed to moist or water, or contains poisonous liquid or gas.

- Avoid storage the device in a place exposed to direct sunlight. Maintains the place with proper temperature and humidity.
- NOTICE: The internal optical components will may not work normally when the environment temperature is changing largely and quickly, place the device in normally environment temperature for 3-10 hours, it will works properly.

2.3 During Moving

CAUTION:

- Never pull at the power cord, it will damage the device or injury other people.
- When movement the device, do not catch the LCD display to lift the device, we should hold the base of the device and moving it. Or else it may injury other people or damages the device.

2.4 During Installation

CAUTION:

- Do not install the device in moist place. If the water gets into the device, it will cause electric shock or malfunction.
- Install the device on a horizontal and steady surface, if the device shake and drop by accident, it will injury people or damage the device.

Prompt:

- Do not install the device in a place exposed to direct

sunlight or beside incandescent lamp, strong reflection surface such as mirror, glass display case or polishing desk top is not suitable to install the device, the device may work irregularly or issue error messages.

- Do not install the device where it is exposed to direct air-conditioning or fan flow, dust may get into the lens holder and affect the measurement accuracy.

2.5 During Connect the power cord

CAUTION:

- Do not connect the electrical outlet with too many plugs, it will make it overheating and cause fire.
- The electrical outlet must have a grounding terminal, to ensure the safety of people and device.

2.6 After use

CAUTION:

- While the device is not in use, turn it off and put on the dust cover. Long-term keeps the device turning on will reduce the useful life, if not put on the dust cover for a long time, dust will affect the measurement accuracy.
- Disconnect the power cord from the wall outlet if the device will not be used for a long time, in case of fire.

2.7 During Maintenance

CAUTION:

- When add mark ink, please pull-out the ink cartridge lightly and put it on the desktop firstly, avoid not hurting your fingers.

Prompt:

- When the device malfunction happen, please contact with us or your authorized distributors for maintenance, do not maintenance the device by yourself, we are not responsible for any accident resulted from improper servicing.
- Please pay attention not to scratch the protective glass under the nosepiece. Flaws on the glass substantially lower the reliability of the measurement.

2.8 During Accident

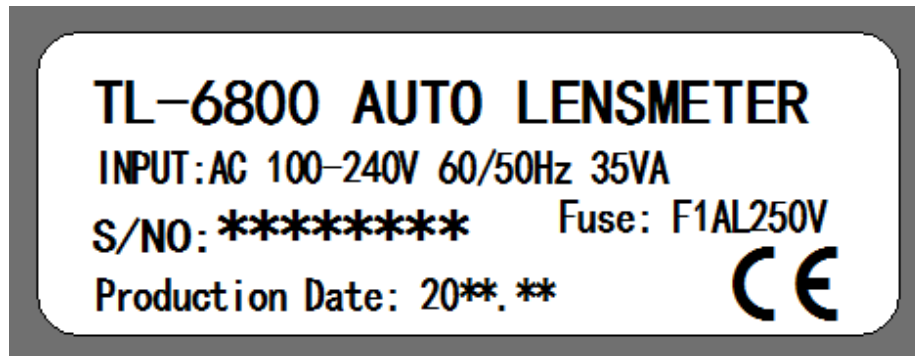
 **CAUTION:**

- In case the LCD display break up, please break it into pieces and use isopropyl alcohol to clean up the LCD, and then burn up it.
- If you hand touch with the break LCD, please clean by water as soon as possible.


2.9 Label introduction


Ensure use the device safety, there are two labels on the reverse side of device, please make sure use the power supply and replace the fuse as specified.


Power supply specifications showing on the label as below figure.



2.10 Label on the device

 Means reading the user manual carefully before use the device.

 Power turned on.

 Power turned off.

3 Main technical parameters

- 3.1 Sphere measurement range: $-25.00\text{DS} \sim +25.00\text{DS}$
Steps: $0.01\text{DS}/0.06\text{DS}/0.12\text{DS}/0.25\text{DS}$
- 3.2 Cylinder measurement range: $0.00 \sim \pm 10.00\text{DC}$
Measurement mode: Mix/ + / -
Steps: $0.01\text{DC}/0.06\text{DC}/0.12\text{DC}/0.25\text{DC}$
- 3.3 Cylinder axis measurement range: $0^\circ \sim 180^\circ$
Steps: 1°
- 3.4 ADD measurement range: $-10\text{DS} \sim +10\text{DS}$
Steps: $0.01\text{DS}/0.06\text{DS}/0.12\text{DS}/0.25\text{DS}$
- 3.5 Prism measurement range: $0 \sim 20\Delta$
Measurement mode: X-Y rectangular coordinates
P-B polar coordinates
Steps: 0.01Δ
- 3.6 Measurable lens diameter: $\phi 10\text{mm} \sim \phi 119\text{mm}$
- 3.7 Measurable lens center thickness: $\leq 20\text{mm}$
- 3.8 PD measurement range: $42\text{mm} \sim 82\text{mm}$
PH measurement range: $8\text{mm} \sim 45\text{mm}$
- 3.9 Measurable frame leg length: $0 \sim 155\text{mm}$
- 3.10 Observation measurement UV transmittance
- 3.11 Vertex power measure wave length: 525nm , UV measure wave length: 370nm
- 3.12 Power supply: AC $100\text{V}-240\text{V}$, $50\text{Hz}-60\text{Hz}$
- 3.13 Rated power: 35VA
- 3.14 Dimension: $203\text{mm(L)} \times 233\text{mm(W)} \times 471\text{mm(H)}$
- 3.15 Weight: 4.5Kg
- 3.16 Display: 800×480 TFT touch screen
- 3.17 Printer: 57mm Thermal printer

3.18 Interface: RS232、ETHNET、USB

3.19 Working temperature, humidity, air pressure range:

Environment temperature: 0 ~ 45°C

Humidity: <=85%

Air pressure: 500~1060 HPa

4 Equipment structure

4.1 Equipment structure

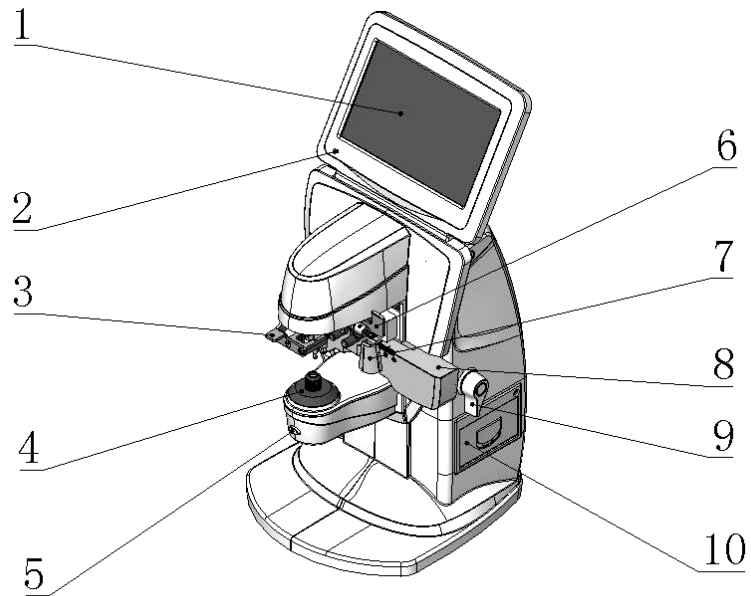


Figure 4-1

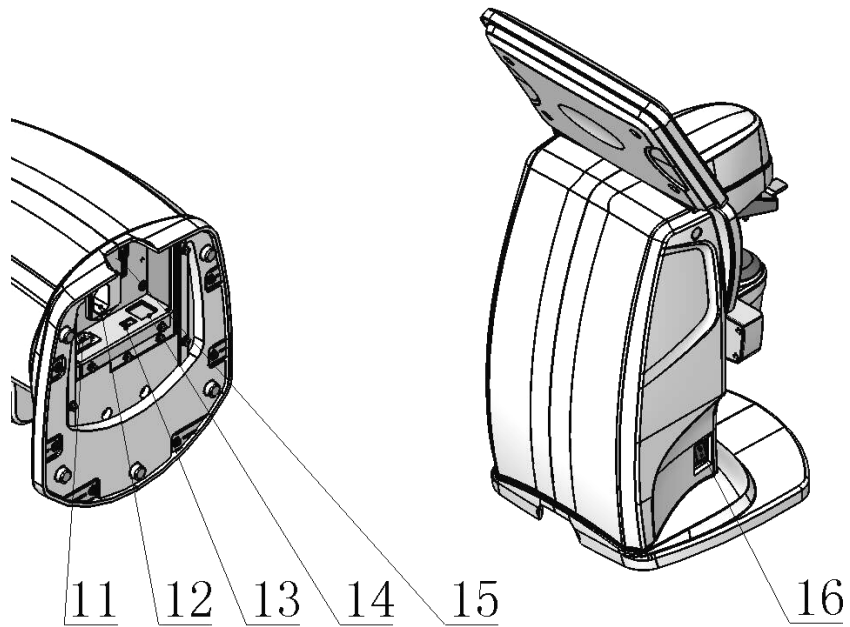


Figure 4-2

1. Touch screen

2. Power indicator

It indicates on or off of the power to the device.

On: Power turned on.

Off: Power turned off.

3. Lens holder mechanism

To secure a lens: Lift once and lower gently.

To release a lens: Lift until it clicks.

4. Lens support

A lens to be measured is placed on the lens support.

When measure contact lenses, replace the standard lens support with the provided one for contact lenses.

5. Memory button

Used to memory measured data. Press this button to display the measurement data on the screen.

6. Marking mechanism

Mark the center point of the lens.

7. PD measurement mechanism

Measure the pupillary distance of frame glasses.

8. Lens flapper

Place the lens so that the edge of the contact lens flapper. Show the diameter of the lens.

9. Flapper handle

Move the lens flapper to forward and backward.

10. Printer

11. RS232 interface

Used for communication.

12. Power inlet

Connect a removal power cord.

13. USB port

Transfer the measured data to a computer and other equipment.

14. Network port

15. SD card port

Upgrade the program.

16. Power switch

Turn on or off power to the device.

4.2 Install the lens

1. Uncut lens installation drawing

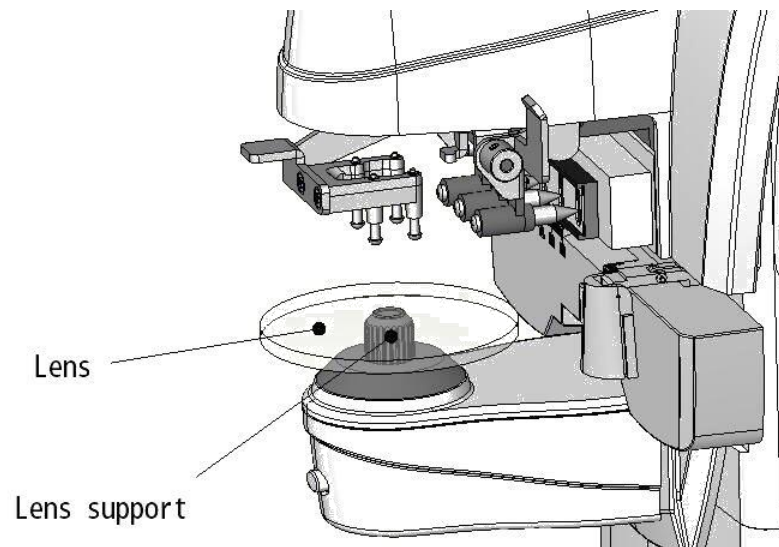


Figure 4-3

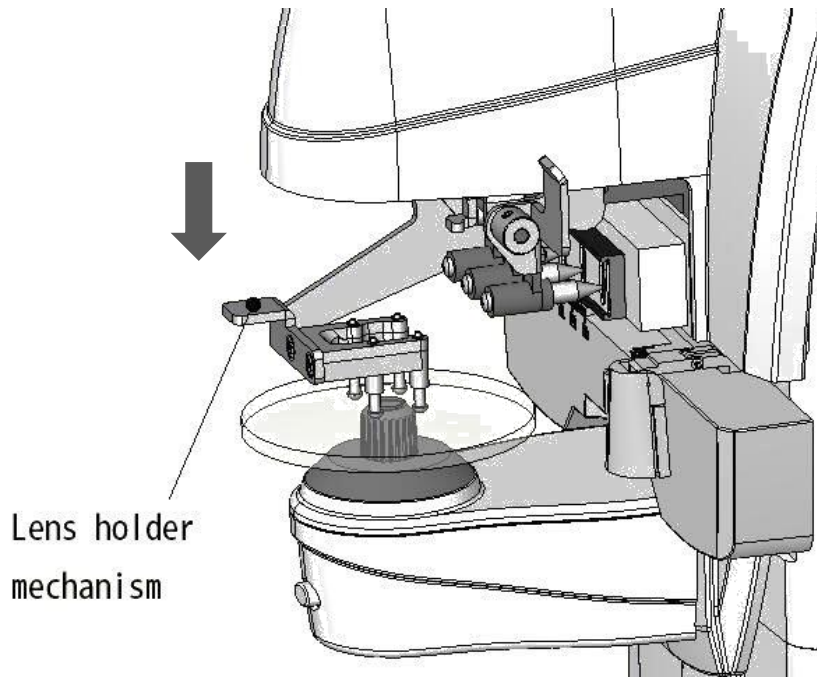


Figure 4-4

2. Frame lens installation drawing

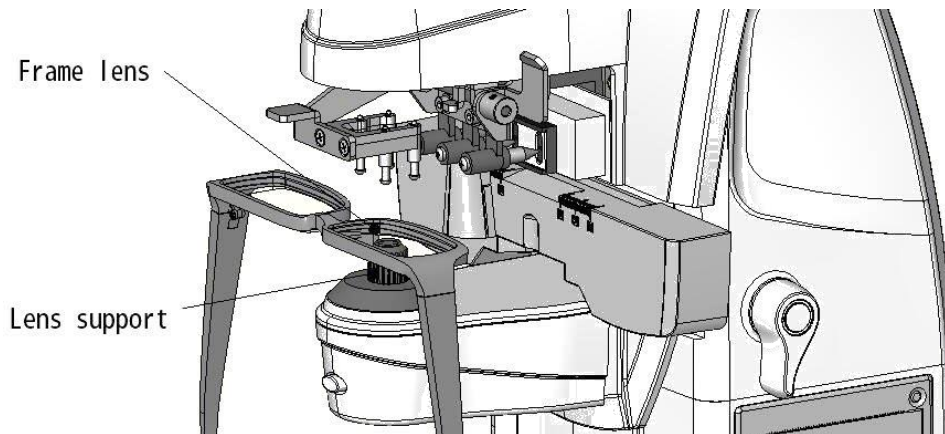


Figure 4-5

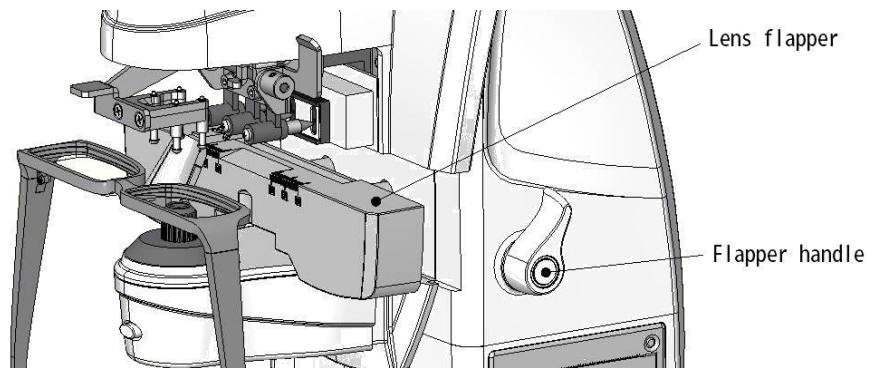


Figure 4-6

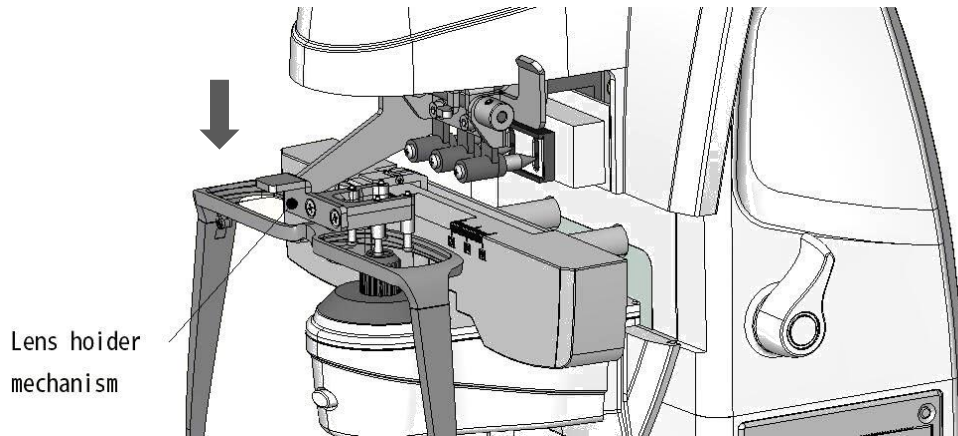


Figure 4-7

3. Bifocal lens installation drawing

Bifocal lens hyperopia zone installation drawing

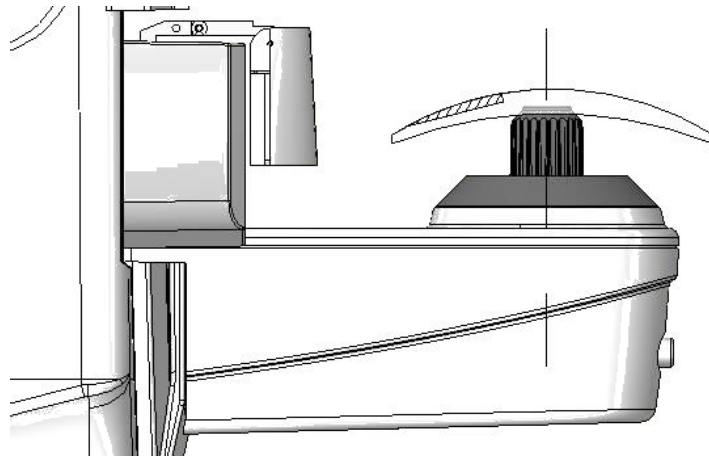


Figure 4-8

Bifocal lens myopia zone installation drawing.

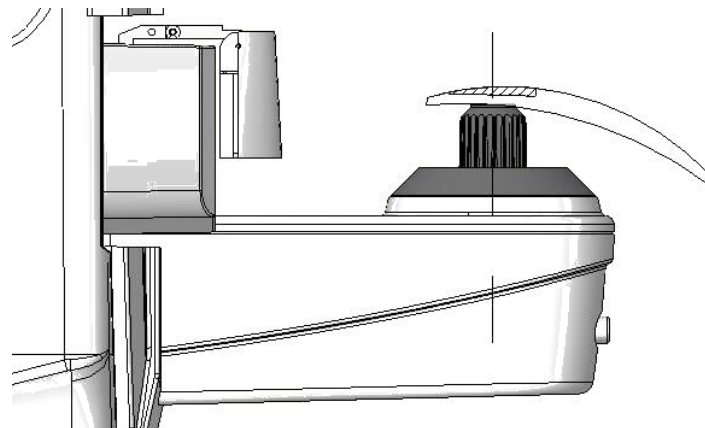


Figure 4-9

4. Progressive lens installation drawing

Progressive lens installation refers to the installation method of the bifocal lens. The difference is that the installation of the progressive lens is the distance portion on the lower (1 refers to the area) and near power portion on the top (2 refers to the area).

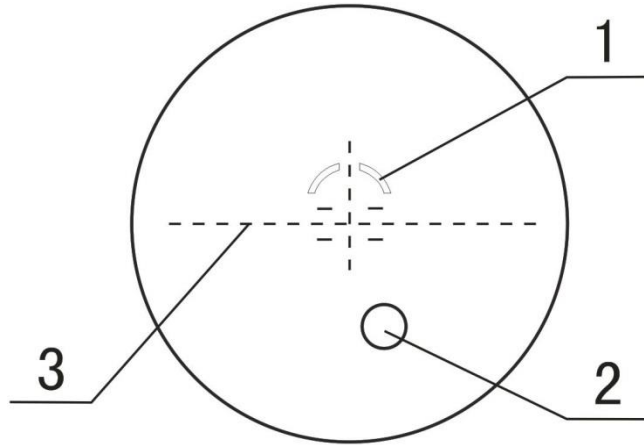


Figure 4-10

5. Contact lens installation drawing

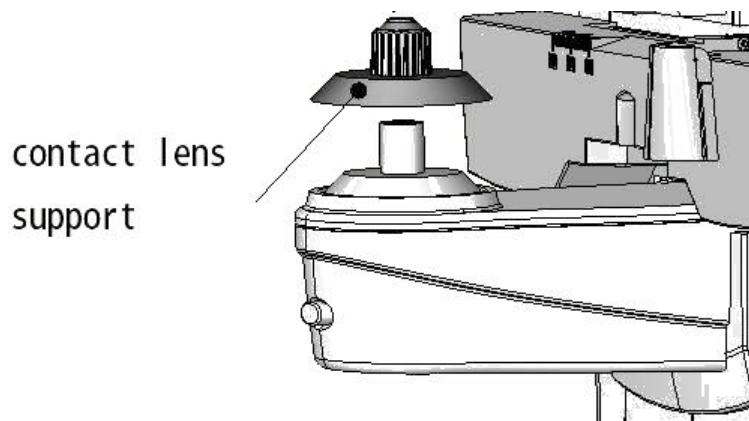


Figure 4-11

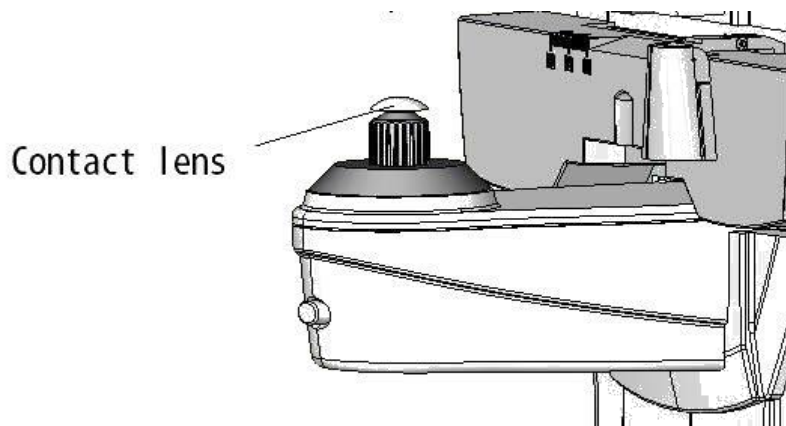


Figure 4-12

5 Screen Display Introduction

5.1 Measurement screen

There are four measurement screens: Auto measurement screen, Normal measurement screen, Progressive power lens (PPL) measurement screen and Contact lens measurement screen. All measurement screens can test single lens or R/L state lens (Frame lens).

5.1.1 Normal measurement

The screen in below figure 5-1 shows the normal measurement screen to measure single vision lenses or bifocal (trifocal) lenses. Below is the brief introduction for all elements in the measurement screen.

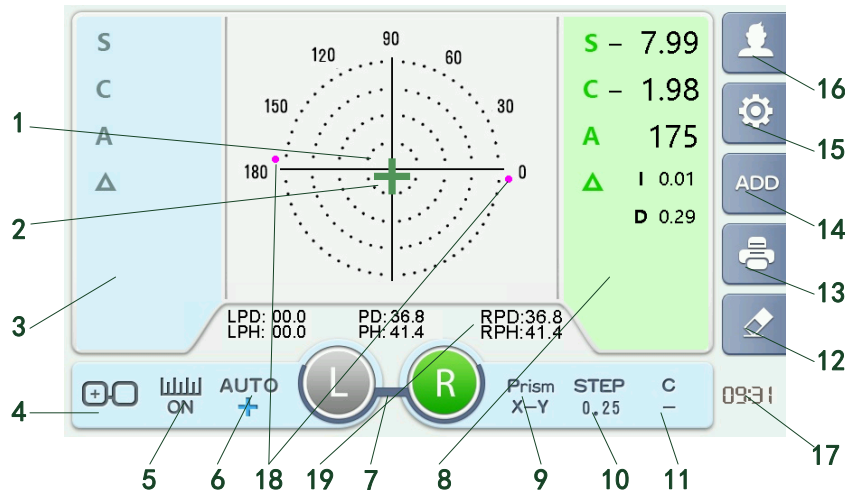


Figure 5-1 normal measurement screen




1. Lens Optical Center Indication

The lens optical center display in this zone, it requires to aim the optical center at the target center when test single vision lens. When test the lens which with cylinder, the target in the display zone can also show the axis of cylinder faintly. When test the lens which with prism, the target in the display zone can also show the prism power.

2. Optical center Target

Show the optical center of a lens to be measure. When test single vision lens from misaligned to aligned, the target will change from circle to big cross, and the color from green becomes blue. See sheet 5-1:

Sheet 5-1 Optical center Target type

Misaligned	Close to Aligned	Aligned
	 (green)	 (blue)

The red point in the symmetric position of cross means the cylinder axis.



3. Left Lens Parameter display area



The left lens display area can shows the SPH, CYL and AXIS, you can choose to shows the Prism and ADD type. In single lens mode, when this zone is not chosen, all parameter will not show.

4. Measurement Screens Switch Buttons

There are four measurement screens, Auto measurement screen, Normal measurement screen, Progressive lens measurement screen and Contact lens measurement screen. The switch buttons shows as below: sheet 5-2. The icon button change might be cause the icon of Lens Optical Center Indication zone and lens parameter Indication zone change.

Sheet 5-2 Measurement Screens Switch Buttons Change



	<p>Auto measurement</p> <p>Under this mode, the measurement screen automatically test the normal lens or PPL, after recognize lens type successfully, the program will proceed into corresponding measurement. When the far zone or near zone of PPL close to the optical cover plate, it may not test as the PPL.</p>
	<p>Normal measurement</p> <p>Measurement of single vision lenses or bifocal (trifocal) lenses</p>

	Progressive lens measurement Measurement progressive lenses
	Contact lens measurement Measurement contact lenses

5. PD and PH control button

As shown in sheet 5-3, there are two states of this button.




Sheet 5-3 PD and PH display button

	The PD and PH display state.
	The PD and PH not display state.

6. Auto read button

Press this button, the program can quickly setting read data way, auto read or manual read. See sheet 5-4:








Sheet 5-4 Function of reading button

	If memory way is auto read, when the optical center of measured lens close to the target center, which is the optical center of the lens indicator into + (blue) cross, auto read data.
	If memory way is auto read, when the optical center of measured lens close to the target center, which is the optical center of the lens indicator into + (green) cross, auto read data.
	If memory way is manual memory, when optical center indicator meets the testing requirement, you can press manual memory button which under the optical system.



7. Measurement mode/switch button

Shows the measurement mode is under Left lens, Right lens or Single lens. The measurement pictures are as below: Sheet 5-5.

Sheet 5-5 measurement mode pictures

 <p>(grey) (green)</p>	<p>Single lens mode, and under measurement condition.</p>
 <p>(grey) (blue)</p>	<p>Single lens mode, and under memory (already read).</p>
 <p>(green) (grey)</p>	<p>R/L lens mode (or Frame lens mode), and Left lens under measurement, but right lens is not measured.</p>
 <p>(green) (blue)</p>	<p>R/L lens mode (or frame lens mode), and Left lens under measurement, right lens is under memory (already read).</p>
 <p>(grey) (green)</p>	<p>R/L lens mode (or frame lens mode), and right lens under measurement, but right lens is not measured.</p>
 <p>(blue) (green)</p>	<p>R/L lens mode (or frame lens mode), and Right lens under measurement, Left lens is under memory (already read).</p>
 <p>(blue) (blue)</p>	<p>R/L lens mode (or frame lens mode), and Left and Right lens are both under memory (already read).</p>

In single lens mode, if you want to enter the R/L lens mode(Frame lens

measurement), you can directly press  ,  or  . If you want to go back to single lens mode, please press  .

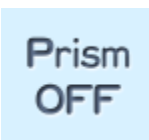

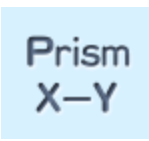
8. Right lens parameter display area

Right Lens Parameter Indication zone can display basic parameter: SPH, CYL, and AXIS, can also choose to show Prism and ADD type. If this region is not chosen and not memory situation, this region will show as not chosen and all parameter is not show.

9. Prism display switch button.

This button is used to change the prism display mode, when press the button, you can choose prism off, prism P-B, prism showing way: BASE I/O U/D(here simply show as X-Y). See sheet 5-6:

Sheet 5-6 Prism display switch button

	<p>Switch off the prism parameter display.</p>
	<p>Prism shows: P-B Mode, it displays in polar coordinates (P-R). Use polar axis to show prism base direction. Use polar diameter length to show the prism absolute value.</p>
	<p>Prism shows: BASE I/O U/D mode, it has prism base towards to inner side, prism base towards to outside, prism base towards upper and prism base towards downside. It is another display way for Cartesian coordinates(X-Y).</p>

10. Step button.

Press the button, you can choose the step in 0.01、0.06、0.12 and 0.25 as the parameter change value. This setting affects the accuracy of the sphere, cylinder, ADD,

and equivalent values of sphere, and the step of prism and the axis angle are always 1.

11. CYL symbol switch button.

Can choose the display CYL symbol, +/- (mix), + and -.

Sheet 5-7 CYL Symbol Switch Button

	<p>According to current CYL measurement result, the CYL power symbol might be + or -.</p>
	<p>Setting current CYL measurement display as +, and use symbol calculation to change the CYL display data.</p>
	<p>Setting current CYL measurement display as -, and use symbol calculation to change the SPH display data.</p>

12. Clear button

Press this button can clear the memory data. If the single lens mode is open, measurement interface will showing single mode when press this button. If the single lens mode is close, measurement interface will showing right eye mode when press this button

13. Print button

Print out the memory data, this button is invalid if measurement data is not memory.

14. Manual ADD button

This button is work when the “Auto ADD” is close. When measurement bifocal or progressive lenses in normal measurement interface and moves the lens to intermediate or near portion after memory the far point power, display area will display ADD power when we press this button.

15. Menu interface switch button

Press this button to switch the menu interface.

16. User button

Press this button to enter into user information interface.

17. Time button

Display the current time, time can be setting in information input menu.

18. Optical axis indication

If the lens has a cylinder power, axis of the cylinder will be amrked by the red dots (about the center of the circle) on the scale of indication.

19. PD and PH indication

If the PD and PH switch is open state, this position will display information PD and PH.

5.1.2 Progressive lens measurement screen

Figure 5-2 shows the progressive lens measurement interface. Most of the item is the same as normal measurement interface, the different is optical center indicate area, as showing in below.

20. Optical center display area in progressive lens

Indicate the position of the optical center of the progressive lens measured. The around arrow indicates the direction of movement lens to reach the far and near measurement point.

21. Distance portion

Cross curve indicates the center of distance portion, move the cross target to this center when measurement the distance portion of Progressive lens.

22. Near portion

Cross curve indicates the center of near portion, move the cross target to this center when measurement the near portion of Progressive lens.

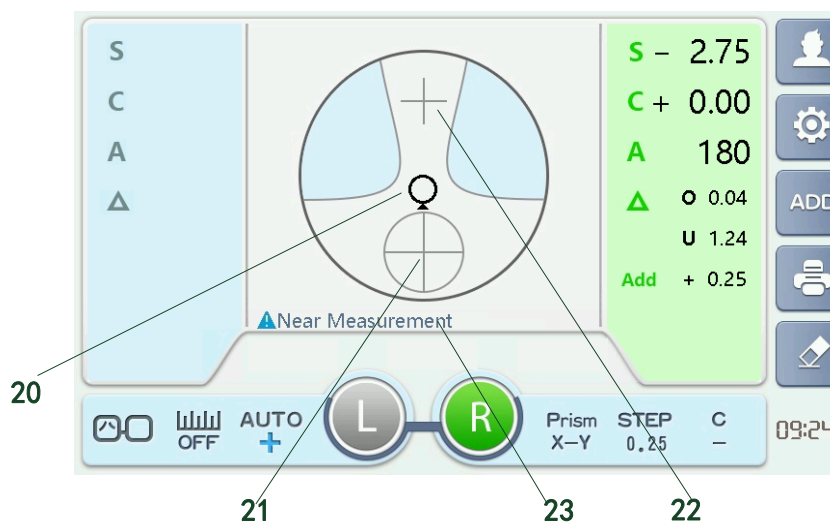


Figure 5-2 Progressive lens measurement screen

23. Indicator Status

Prompt the current measurement phase.

5.1.3 UV transmittance measurement screen

Transmittance measurement screen as shown in Figure 5-3, at the screen to measure the UV transmittance of the lens.

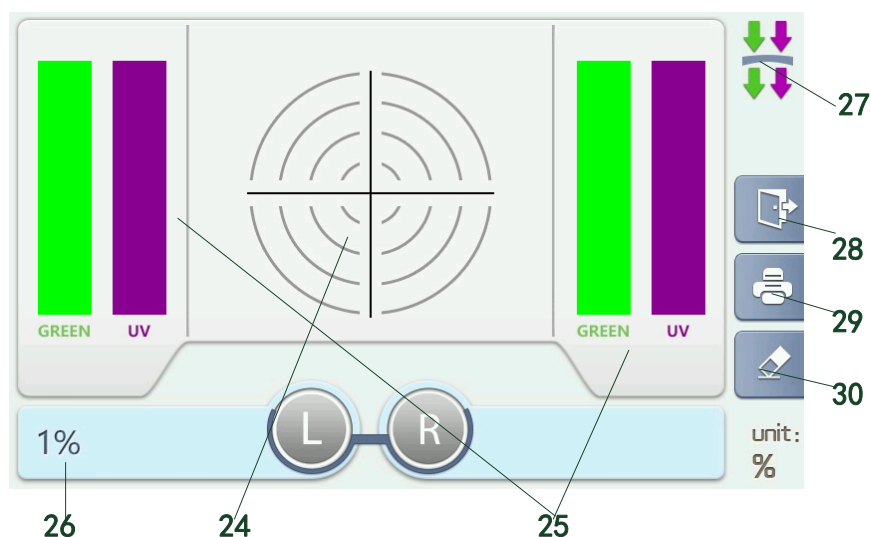


Figure 5-3 UV transmittance measurement screen

24. Target indication

According to the measured position of the optical center of the lens, prism values of measured lens can be roughly measure.

25. Transmittance measurement result display area

Show the percentage charts and figures of green light transmittance and UV transmittance.

26. Data display precision button

Press the button to switch the display precision 1% and 5%.

27. Measurement status indicator

Colored arrows show current measurement status.

28. Exit button

Press this button to exit the transmittance measurement screen back to the main measurement screen.

29. Print button

Press the button to print the transmittance measurement results.

30. Clear / correct button

When the button is pressed and the lens support is not equipped with a lens, the transmittance correction.

5.1.4 Contact lens measurement screen

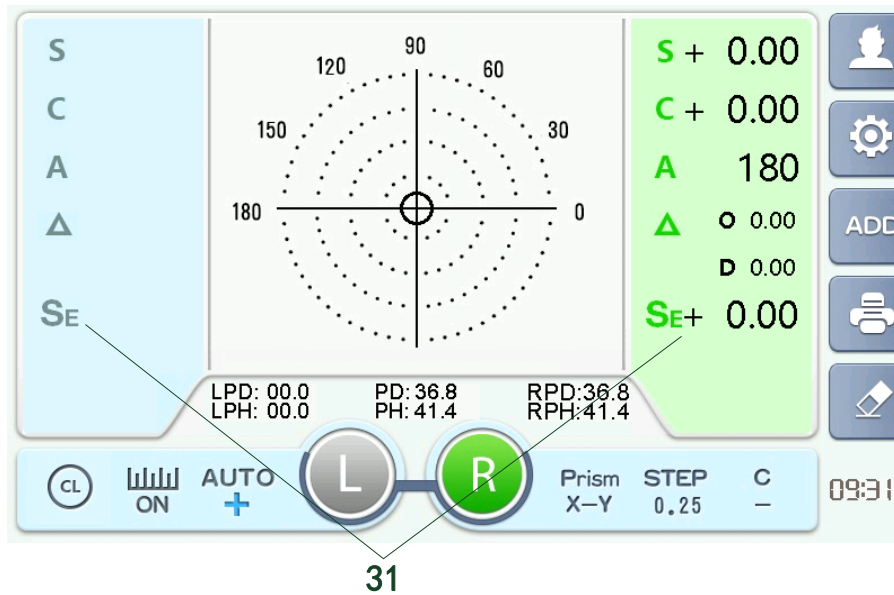


Figure 5-4 contact lens measurement screen

31. Sphere equivalent value

Under the contact lens measurement screen show the sphere equivalent value, that the value is more accurate to reflect the actual effective degree of the contact lens than the single sphere.

5.1.5 Virtual PD and PH measurement screen

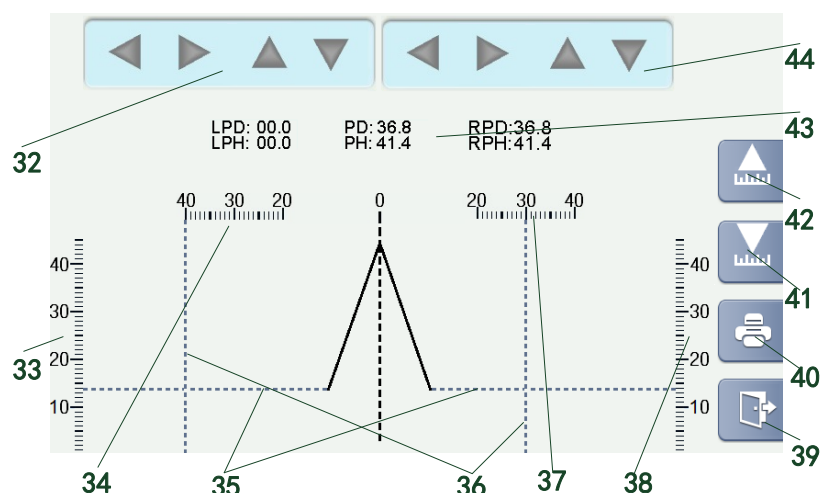


Figure 5-5 virtual PD and PH measurement screen

32. Left PD-PH measurement reference line movement button

Has upper, lower, left, right four moving direction. The left and right keys control the horizontal movement of the vertical reference line. The upper and lower keys control the vertical movement of the horizontal reference line.

33. left eye PH measurement ruler

34. left eye PD measurement ruler

35. PH measurement ruler (horizontal reference line)

36. PD measurement ruler (vertical reference line)

37. right PD measurement ruler

38. right PH measurement ruler

39. exit button

40. print button

41. PH measurement ruler moves down button

42. PH measurement ruler moves up button

43. measurement results display area

44. Right PD-PH measurement reference line movement button

Has upper, lower, left, right four moving direction. The left and right keys control the horizontal movement of the vertical reference line. The upper and lower

keys control the vertical movement of the horizontal reference line.

5.2 Menu display screen

Menu display screen divide into five pages, it contains display parameter setting menu, measure parameter setting menu, function parameter setting menu, output parameter setting menu, message input parameter setting menu. Figure 5-6 is the display parameter setting menu, and below is description of the items.

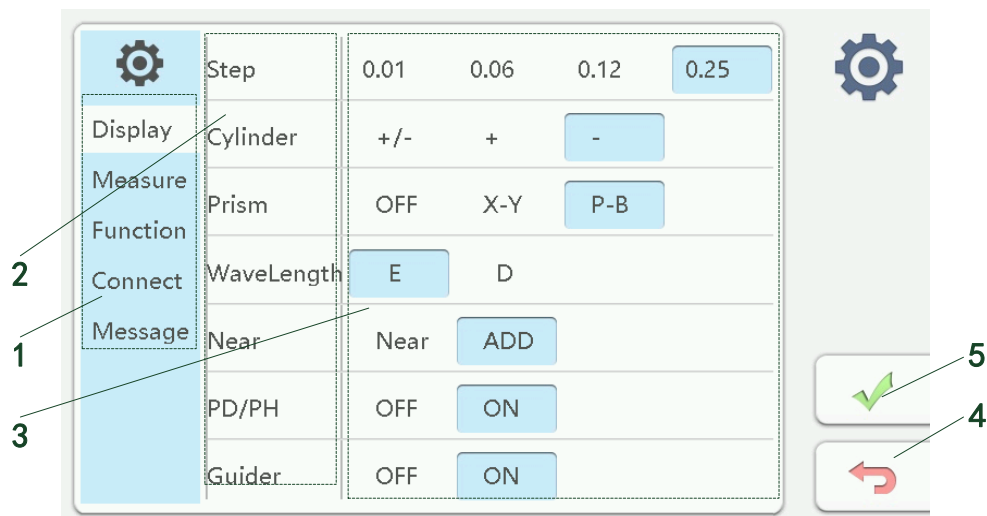


Figure 5-6 display parameter setting menu

1. Menu page shift button

Click these button can shift to the corresponding page, display parameter setting menu will display when enter into the menu screen for the first time.

2. Parameter name

Display the name of parameter.

3. Parameter option

The corresponding line is the optional items, click the button to option the items, and the background will become to blue. In additional, virtual keyboard will appear for input information when click the information display area in information input interface.

4. Exit without save the setting

Click this button to back to the measurement screen.All the setting in menu will

not be saved.

5. Exit and save the setting

Click this button to back to the measurement screen. All the setting in menu will be saved.

5.3 User input screen

Under measurement screen press the button of user screen switch enter the user information input screen shown in figure 5-7, part of the measurement result could be save and transmit to other devices in this interface. Below is the brief introduction for the main component element of this interface.

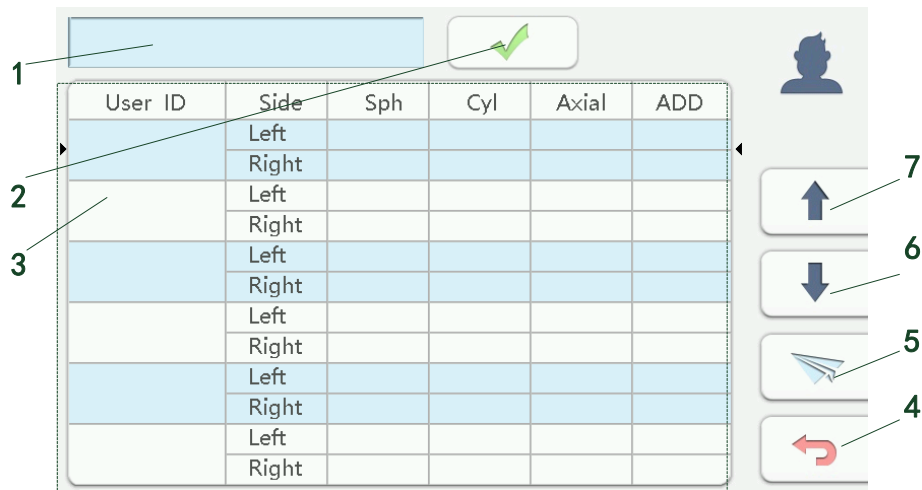


Figure 5-7 user information input screen

1. User ID number input

Click to call the virtual keyboard, enter the user ID.

2. User ID confirm input

Press this button to display the inputted user ID in the information bar , the results will be all stored under the ID unless the add new ID number,

3. Information data bar

This area displays the history of user ID and lens measurement results.

4. Exit button

Press this button to exit the user information input screen and back to the main measurement screen.

5. Send information button

Press this button to send information on both sides of the information data bar to the other device by specifying the hardware interface.

6. Information down selection button

Press this button to move down the arrow on both sides of the information bar to select the message to be sent.

7. Information up selection button

Press this button to move up the arrow on both sides of the information bar to select the message to be sent.

5.4 Information input interface(Virtual keyboard)

Information input screen is showed in below figure 5-8, time input, user information input, IP address and user ID information input all can realize in this screen. This screen can be called out in information input menu. Below is description about the items in this interface.



Figure 5-8 information input screen

1. Display area

Display the input character or data.

2. Letter keyboard

Use the keyboard to type 26 English letters and some punctuations.

3. Numeric keypad

Numbers can be entered in this area.

4. Alphabetic control key

Control the capital/ small alphabet shift.

5. Space key

6. Confirm key

Press this button to save the current input character or data and return to the previous menu.

7. New line key

8. Delete key

Press this key to delete the last input character. Long press this key to empty the input.

6 Operation instruction

6.1 Operation before measurement

1. Turn off the power switch(at 0 position), then connect the device with wall outlet by specified power cord.
2. Turn on the power switch(at 1 position), the follow start screen in figure 6-1 will show.



Figure 6-1 Start screen

3. Measurement interface as showing in figure 6-2 will appear after initialization complete(about 6 seconds). Measurement interface mode can be set in “measurement mode” item in measurement parameters menu.

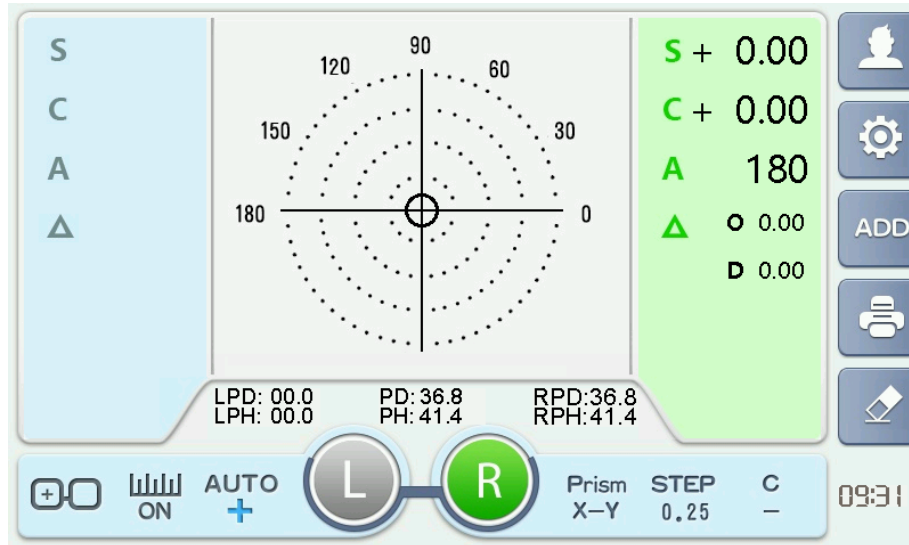


Figure 6-2 Measurement screen

⚠ CAUTION: Red color error display will appear in the lower of measurement interface if lens put on the nosepiece when start the device, or too much dust and other abnormal conditions.

Most of the error display will disappear if we solve the problem, such as move away the lens when start the machine or clean the surface of optical system. Some of the error can be solve after restart the device.

6.2 Setting lenses

Please wipe off the dust on the optical house and cover lens, to make the measurement accuracy. Make the concave side of the lens close to the nosepiece.

6.2.1 Setting uncut lenses

1. Place the lens center on the nosepiece with the (part 2 in follow figure 6-3) convex side up (part 1 in follow figure 6-3).

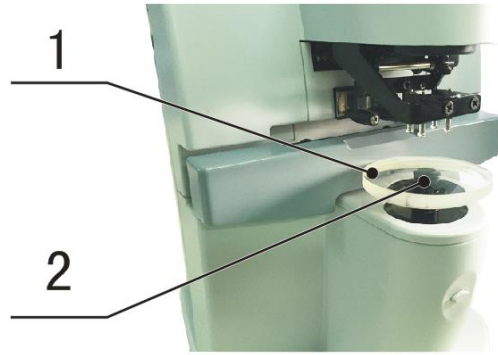


Figure 6-3

2. **Fix the lens with the lens holder (part 3 in follow figure6-4).**

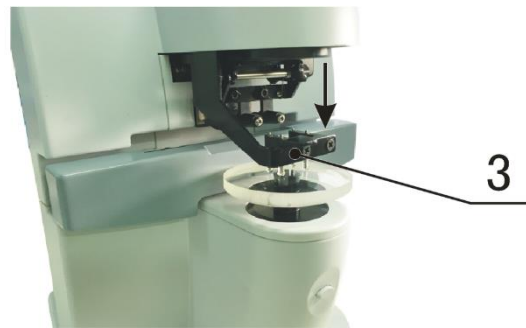


Figure 6-4

6.2.2 Setting mounted lenses

3. **Place the frames on the nosepiece with the front surface up.**



Figure 6-5

4. **Pull the lens table lever toward yourself until it touches the bottom of the frames.**
5. **Fix the lens with the lens holder (part 3 in follow figure 6-6).**



Figure 6-6




6.3 Measurement single vision lens

1. Measurement interface specify the work type of the testing lens

Choose single vision lens, or left and right eye lenses (frame), frame glasses needs to specify the current lens under test is right or left.

Make the working condition display and switch button which under the measuring interface showing as following sheet 6-1.

Sheet 6-1 Specify work type of the tested lens before measurement


 (grey) (green)	single mode choosing
 (green) (grey)	left and right eye lenses mode choosing, and choose left eye working
 (grey) (green)	left and right eye lenses mode choosing, and choose right eye working

Specified reading type, choose automatic reading or manual readings as stated in sheet 5-3.



Specified prism display type, choose closed、 P-B or BASE I/O U/D display as stated in sheet5-4.

2. Place and move the lens to bring the target close to the center of the

alignment circle

As stated in figure 6-7, let the target  close to the center of the alignment circle.

When the lens closes to the center, target  will changed to  (green).

Keep moving the lens, when the lens keep in center of the target, it will changed from  (green) to  (blue).

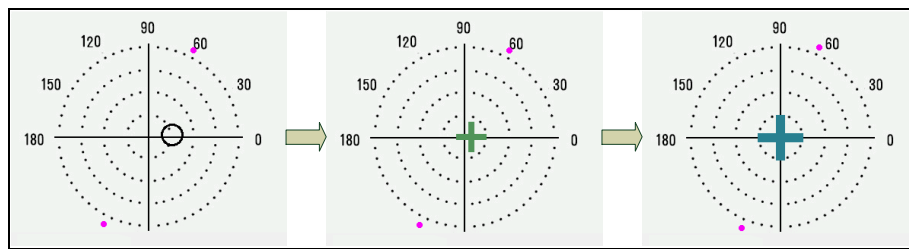




Figure6-7 Move the lens to make it alignment the target

3. If choose manual reading mode, press the button at the bottom of the nose pad

If choose the automatic reading mode, according the setting of "automatic memory" item in measurement parameter settings menu, automatic reading when close to the center(target is green ) or alignment the center(target is blue ) . Then single vision lens finish measurement, and parameter display area changes to memory (finish reading) state.

4. If the current working state is right and left lens, it can measure another lens at this time

According to the setting of the "automatic R/L" item in measurement parameter menu, to decide whether switch to another lens measurement automatically after take out the lens. If the "automatic R/L" item is not open, then you need to manually click the other side working state display and switch button.

5. Change cylinder display symbols according to the demand

In memory (finished reading) state, press cylinder symbol switch also can change the display symbol, cylinder lens symbol changes can refer to the figure 5-6.

6.4 Measurement multifocal lens

Multifocal lens mainly divided into bifocal and trifocal lenses. Bifocal lens containing distance portion and near portion, and trifocal lens add the intermediate portion between distance portion and near portion on the basis of bifocal lens. Measuring multifocal lens should measure the distance portion firstly and then measure the near portion.

6.4.1 Measurement bifocal lens

1. Measurement interface specified the work type of the lens

Specify method is show in chapter 1 of figure 6-7 measuring single lens

2. Put distance portion of bifocal lens on the cover of nose pad

Note convex side face up, near portion inward, distance portion outwards

Move lens to make the target  change to  (green).

3. Far vision area parameters

Far vision area parameters reading have three ways: automatically read, ADD button read, external button read.

To use the automatic reading function, need to set "memory" item in measuring parameters menu as auto, and set the "automatic memory" item as close to the center in measuring parameters menu. Set the measuring parameters "automatically ADD" as (ON) status. After setup is finish, when the target moves to close to the center, lens parameters will be read automatically. The parameter display area will be displayed as memory (finish read).

To use the ADD button reading function, need to set the measurement parameter "automatically ADD" to OFF, After setup is finish, when the target moved to close the center position near, then press the ADD button under measure interface. Interface will be displayed as shown in figure 6-8.

If use the button on the bottom of nose pad cover to read far vision area parameters, firstly we need to set measuring parameters menu "automatic ADD" to

ON. And then we can press external reading buttons directly when the target moves to close the center. Then the parameter display area will be displayed as memory (finish read).

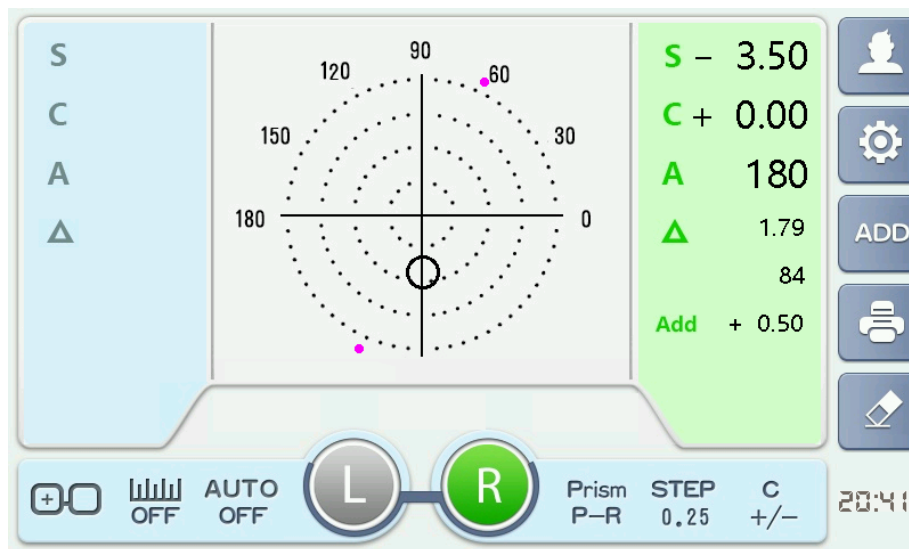


Figure 6-8 ADD display under measuring interface

4. Measurement near portion power

Move lens to the near portion, if the measurement parameters “automatically ADD” is ON, when detected ADD in near portion, the parameters display area will switch from memory (finish read) state to working condition and increase ADD data as shown in figure 6-8. Continue to move the lens, manually press the read button below nose plate when ADD power is stable. Now near portion completes measurement, parameters display area changes to memory (finish read) state.

5. If the current mode is right and left eyes, another lens can be measured at this time

The ways is described in section 4 in 6.3 measuring single vision lenses.

6. Change cylinder symbols according to the demand

The ways is described in section 5 in 6.3 measuring single vision lenses.

6.4.2 Measurement trifocal lens

7 Measuring interface specify work type of lens

The way is the same as section 1 in 6.4.1 bifocal lens.

8 Put the distance portion of the trifocal lens on the nose piece

The way is the same as section 2 in 6.4.1 bifocal lens.

9 Distance portion parameter reading

The way is the same as section 3 in 6.4.1 bifocal lens.

10 Intermediate portion reading

Move the lens to the intermediate portion, if the measurement parameters "automatically ADD" is ON, when detect the ADD power in intermediate portion, the parameters display area will switch from memory (finish read) state to the working condition and increase ADD data as shown in figure 6-8, need to manually press read button at the bottom of the nose piece, the parameters display area will be displayed as memory (finish read). If measuring parameters menu "automatic ADD" is OFF, we need to press the ADD button on the measuring interface, as shown in figure 6-9.

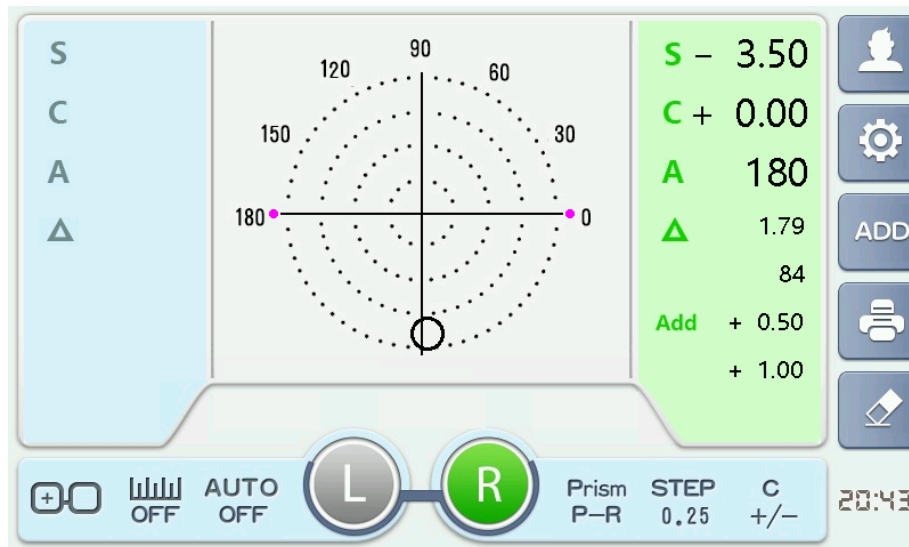


Figure 6-9 The second ADD display in measuring interface

11. Measurement near portion power

Move lens to the near portion area. Manually press the read button at the bottom of the nose piece when present ADD power is stable. Now complete measurement the near portion, parameters display area changes to memory (finish read) status.

12. If the current mode is right and left eyes, another lens can be measured at this time

The way is described in section 4 in 6.3 measuring single vision lenses.

13. Change cylinder symbols according to the demand

The way is described in section 5 in 6.3 measuring single vision lenses.

6.5 Measurement progressive lens

Progressive lens compose of distance portion1, near portion2, progressive portion3 and aberration region 4. Measurement steps must be in accordance with the distance portion area measure firstly, and then measure near portion. When placing a lens for the first time, it is recommended that the progressive area be placed on the lens support .Under automatic measuring interface, need to aim the progressive portion of progressive lenses to the lens support to judge for progressive lenses, the measurement of the progressive lens should be carried out under the special measuring screen. As shown in figure 6-10 partition map of progressive measurement.

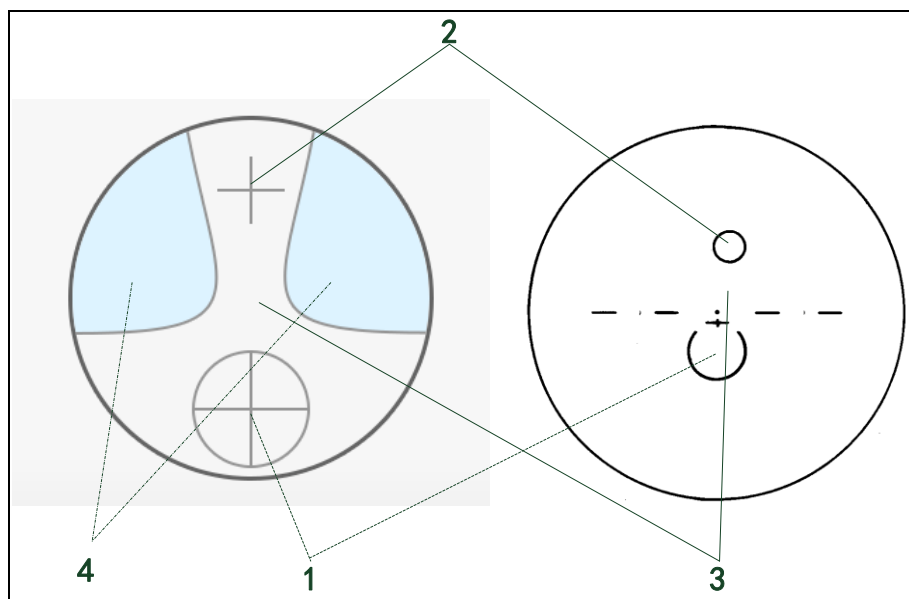


Figure 6-10 partition map of progressive measurement

6.5.1 Measurement uncut lenses

Method of measuring uncut lenses please refers to 6.4.1 measurement bifocal lens.

6.5.2 Measurement mounted lenses



1. Measuring interface specify work type of the lens



The way is the same as sections 1 in 6.3 Measuring single vision lens.

2. Place frame lenses

The step of placing frame lenses is mentioned in section 6.2.2, the difference is progressive portion is in the middle part, and put the progressive portion on the nose piece.

3. Measuring distance portion

Move the lens to distance portion to make the target  close to distance portion, cross curve will change to  (green).

Keep on move the lens slowly, green  will change to blue 

Guidance area will be displaying guidance arrow when moving the lens, as shown in figure 6-11, move lens according to the arrow direction.

If reading way is set as automatic reading, data of distance portion will be read automatically (memory). Otherwise you need to press the read button at the bottom of nose piece to read (memory).

When distance portion measure complete, it will switch to the near portion measurement mode to automatically.

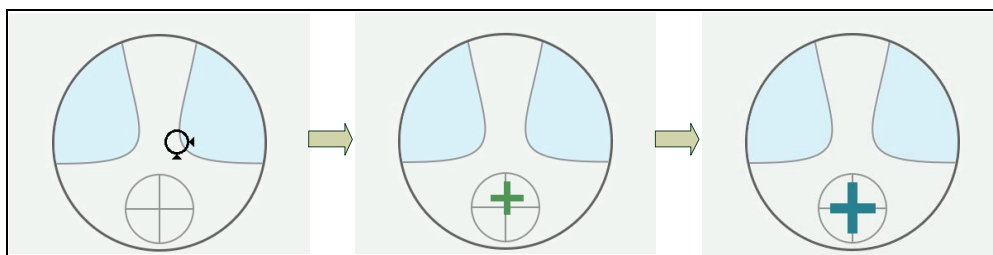



Figure 6-11 move lenses to make cross curve aim the distance portion center

4. Measuring near portion

Under the near portion measurement mode, lens parameter display area will add ADD data.

As shown in figure 6-12, move lenses slowly according to the guiding direction to

make the cross curve to blue 

If reading way chooses for the automatic reading, the data of near portion area will be read automatically (memory). Otherwise you need to press the read button at the bottom of the nose piece to read (memory) the data.

After near portion measurement completed, the bottom of display area will appear blue hint shows that measurement finished.

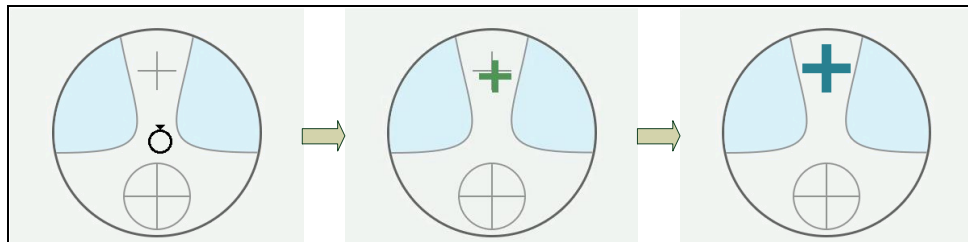



Figure 6-12 move lenses to make cross curve aim the near portion center

5. If the current mode is right and left eyes, another lens can be measured at this time

The ways is described in section 4 of 6.3 measuring single vision lens

6. Change cylinder symbols according to the demand

The ways is described in section 5 of 6.3 measuring single vision lens

 **CAUTION:** we can use the frame holder to move lens back and forth slowly in the process of measurement. Therefore, bottom of the frame racks needs to be close to frame holder.

6.6 Measurement Contact lens




1. Specify the type of lens to be measured on the measuring interface

Specifies the method as described measurement of the single lensin the 6.3 section 1

2. Setting contact lens

The placement method is described measurement of the single lensin the 4.2 section5

3. Alignment contact lens

Use tweezers gently push the edge of contact lens. The light indicator will change from  to  (green) small cross, and continue to move slowly the indicator changing to  (blue) grand cross.

4. Select automatic memory (read) or manual memory (read) lock measurement results

5. Remove contact lens

Use tweezers to remove slowly from the contact lens support.

6. If you are in the right and left eye mode, you can measure the other lens

Method such as measurement of single lens in 6.3 section 4.

7. Can be changed according to the requirements of the lens display symbols

Method such as measurement of single lens in 6.3 section 5.

6.7 Measurement PD of frame lenses

6.7.1 When measuring lens parameters

1. Remove frame lens support

Rotate the knob on the right side of the device. Move the frame lens support to the appropriate position (about the middle of the total stroke).

2. Setting frame lens

The side frame lenses (left or right) placed at the lens support. Place the direction of the lens the bottom inside, the top outward. The bottom of the frame lens is fully resist lens support. And the nose rest slider completely against the nose of the glasses, put down the lens holder.

3. Measurement lens parameters

Under the condition of the nose support slide block and the support table against the glasses move glasses to measure parameters. After align or near the center, select manual / automatic mode locking (memory) parameters. Parameter locking at the same time, the corresponding edge PD and PH will lock.

4. Measure the other side of the lens

The same method measures the other side of the lens.

6.7.2 The optical center of the lens is marked

Virtual PD and PH measurement screen as shown in Figure 6-13.

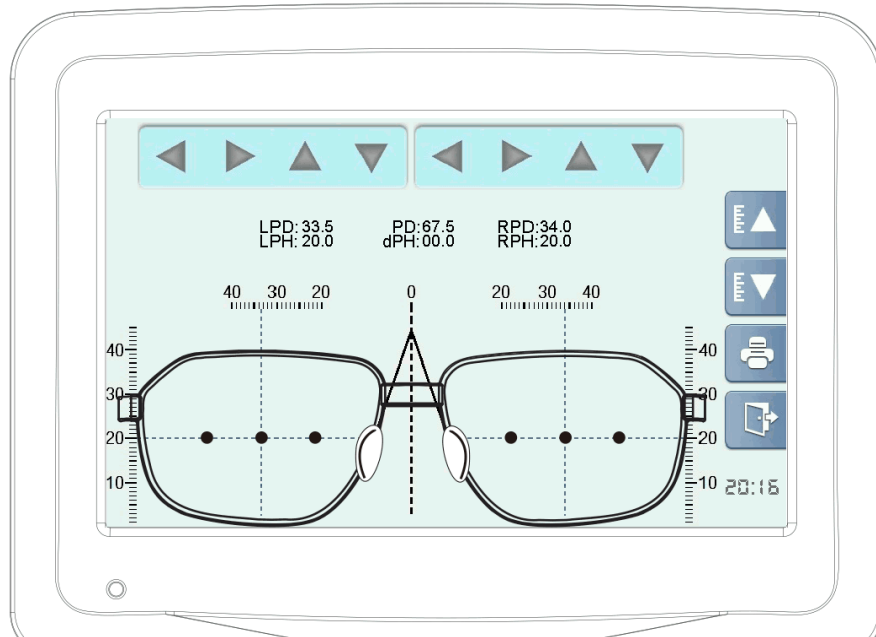


Figure 6-13 setting marked frame glasses

1. Enter the virtual PD and PH measurement screen

In the main measurement screen long press "PD and PH display control button" (section 5.1.1 -4.) about 2S to enter the virtual PD and PH measurement screen.

2. Setting frame lens

The bottom edge of the marked frame lens is aligned with the lower edge of the screen. Nose rest align reference icon, as shown in Figure 6-13. If there is an error between the bottom edge position and the actual starting position, the vertical position of the PH ruler can be adjusted by the right PH ruler moving button (as described in section 5.1.5).

3. Adjust the position of the vertical and horizontal reference lines using the top button of the screen

Adjust the reference line to align the cross point of horizontal and vertical

reference lines.

4. Read or output data

Read the button below the LPD, RPD, PD and PH values.

6.8 Measurement lens transmittance

Measurement transmittance screen as shown in Figure 6-14.

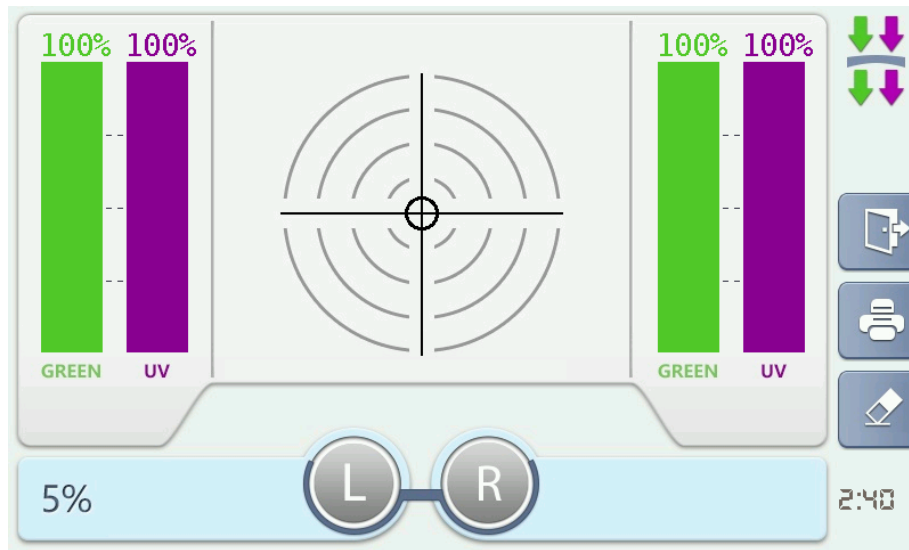


Figure 6-14 measurement transmittance screens

1. Enter measurement transmittance screen

In the main measurement screen long press "measurement screen switch button" (section 5.1.1 -3.) about 2S to enter the measurement transmittance screen.

2. Setting lens

The lens to be measured set on the lens support. According to the center of the target indicates moving lens to close the prism position. Put down the lens holder.

3. Measurement lens transmittance

Press  or  measure the lens transmittance.


The first step is to measure the transmittance of green light and then measure the transmittance of UV. The first step is to measure the transmittance of green light and then measure the transmittance of UV.

⚠ CAUTION: Press the clear key can reset the measuring state, but there are two situations. When the lens is placed on the lens support, the clear key will reset the display state. When the lens is not placed on the lens support, the clearing key will not only reset the display state but also reset the initial value of the transmittance.

⚠ CAUTION: Please do not move the lens before the measurement is completed. Otherwise it will cause some unexpected errors.

⚠ CAUTION: From the other screen enter into the measurement transmittance screen. The system will be reset operation. Please operation after reset completion, otherwise it will cause some unexpected errors.

6.9 Print operation

After measurement completion, press print button  on the right side measuring interface can print the measurement result (some model of the machines with print function), print sample as shown in figure 6-15.

Print content can set according to output parameters menu, such as time display, user information, prism display, PD and PH display and etc.

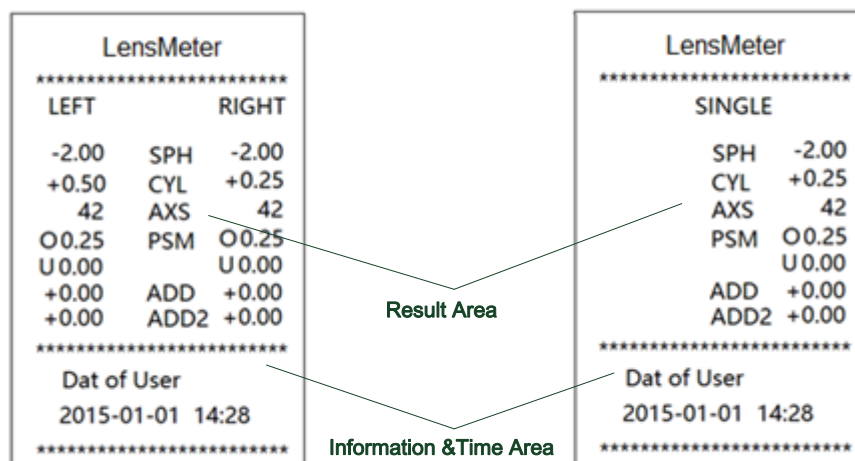





Figure 6-15 print samples

6.10 Other operation

6.10.1 Menu screen operation

Press the setting menu  to enter into the menu setting interface, click the screen to choose menu under the menu interface, after finishing option click  to save and exit or  not save and exit. Now describe each menu as follows:

1. Display the parameter menu

Parameter configuration menu as shown in figure 6-16

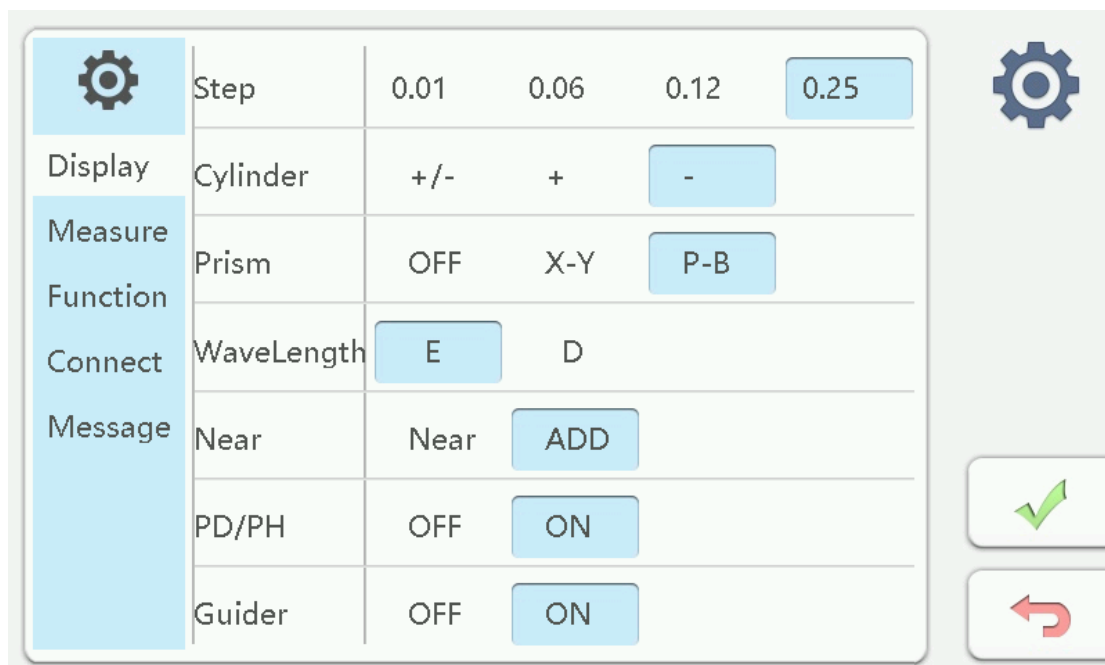


Figure 6-16 Parameter configuration menus

Parameter as shown in sheet 6-2

Sheet 6-2 parameter configuration menu list

Parameter	Configuration	Description
Step length	0.01,0.06,0.12, 0.25	precision/minimum resolution of measured data
cylinder	+/-, +, -	used to select cylinder display mode
prism	OFF, BIO/BUD, P-B	Prism value display method
Wavelength standard	Standard E, standard D	Light source wavelength standard choice

Near vision reading	Near power, distance power	ADD or SADD
Center guidance	OFF, ON,	Progressive lenses guidance arrow open or close (tentative)

2. Measurement parameter menu

Measurement parameters of the menu as shown in figure 6-17



Figure 6-17 measurement parameter menus

Parameters as shown in sheet 6-3

Parameter	Configuration	Description
Measurement mode	Auto/normal/progressive/contact	Measurement mode selection of the measuring interface
Auto R/L	OFF, ON,	Whether automatic switch frame glasses to left/right work mode
Automatic memory	OFF, close the center, aim the center	Choose reading conditions when automatic reading,
Automatic ADD	OFF, ON,	Whether ADD automatic judgment
Single lens mode	OFF, ON,	Whether to use single lens mode

3. Function parameter menu

Function parameter menu as shown in figure 6-18

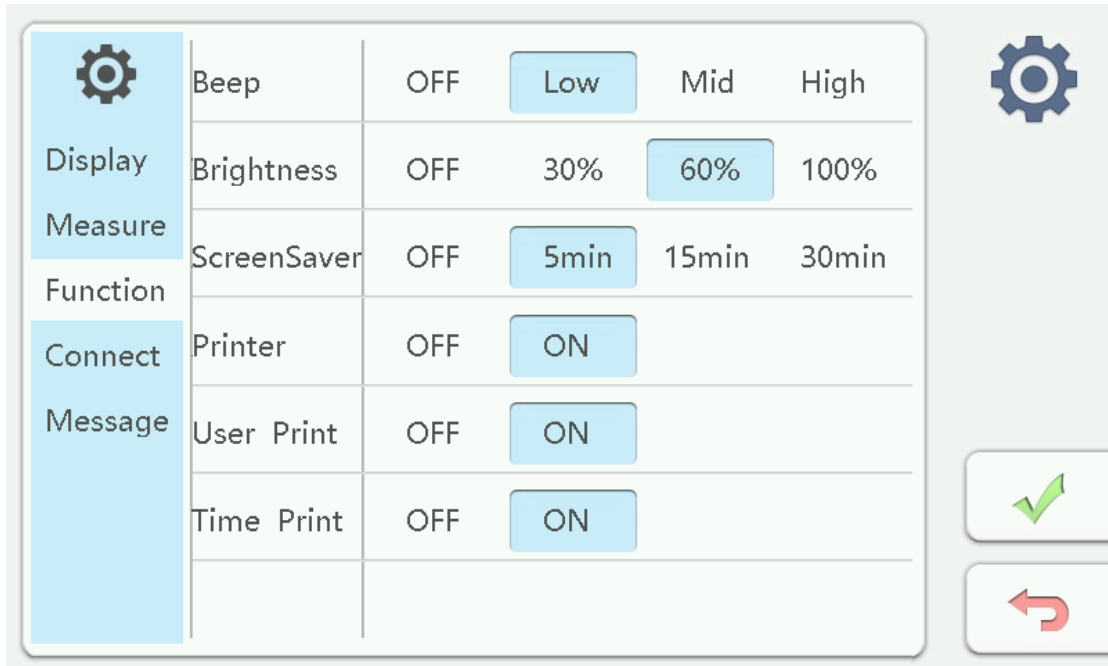


Figure 6-18 Function parameter configuration menus

Parameters as shown in sheet 6-4

Sheet 6-4 measuring parameters menu list

Parameter	Configuration	Description
voice	OFF, low, medium, high	Button and measurement complete volume adjustment
Light intensity	10%, 30%, 60%, 100%	LCD backlight brightness adjustment
Screen protection	OFF, 5mins, 15mins, 30mins	The time without operation to enter into the screen
Print	OFF, ON,	Whether print
Message print	OFF, ON,	Whether print the message
Time print	OFF, ON,	Whether print the time

4. Output parameter menu

Output parameter menu shown in figure6-19

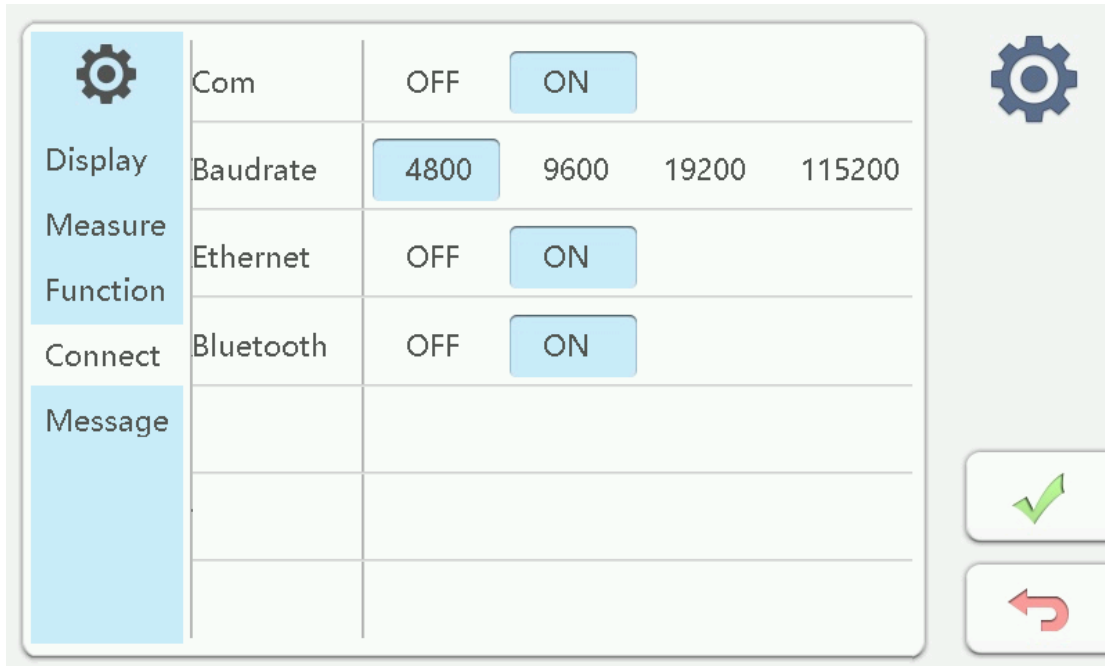


Figure 6-19 Output parameter configuration menus

Parameter as shown in sheet 6-5

Sheet 6-5measure parameter menu configuration list

Parameter	Configuration	Description
Serial communication	OFF, ON,	Whether to open a serial port communication function
communication rate	4800,9600,19200,115200	Set serial port communication rate
Network port	OFF, ON,	Whether use network port to output
Bluetooth Port	OFF, ON,	Whether use Bluetooth port to output

5. Information input menu

Information input menu as shown in figure 6-20

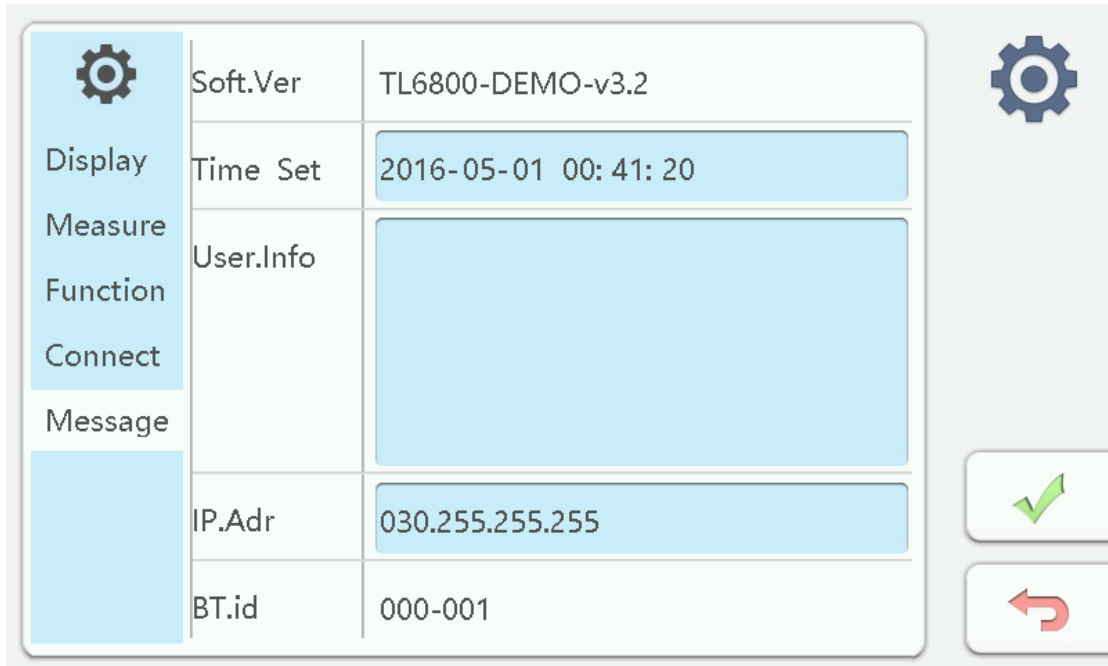


Figure 6-20 information input menu

Click on any input window of the information input menu can operate with virtual keyboard. Please refer to section 5.4 for the operation of the virtual keyboard.

6.10.2 System software upgrade

To facilitate the software update, there is an upgrade interface below the host. Showing in figure 6-21 for the bottom host view

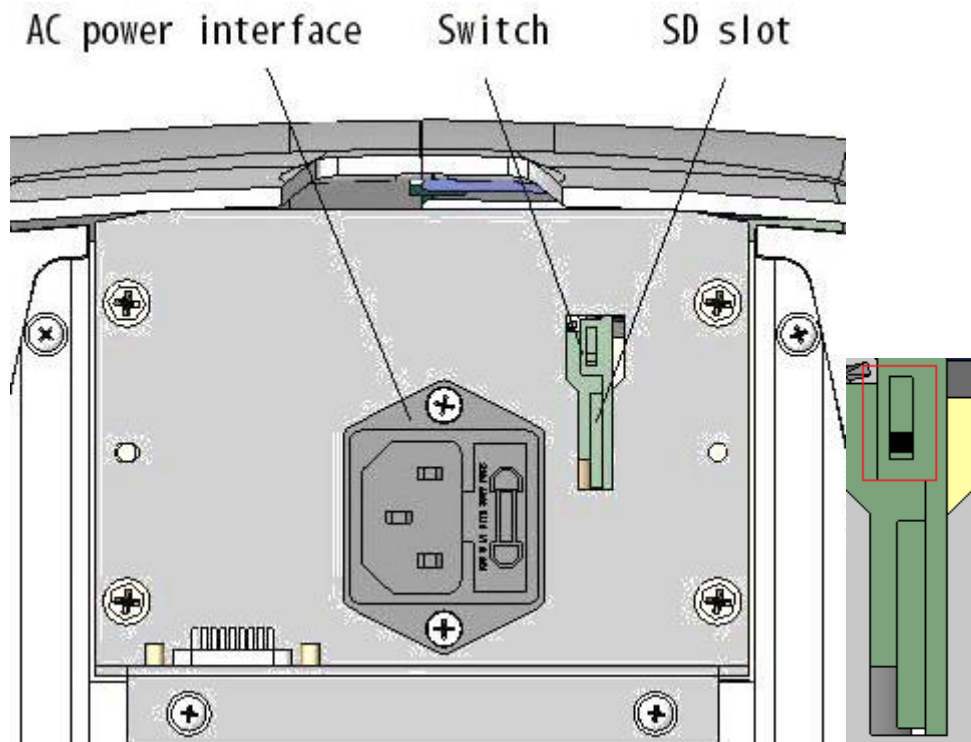


Figure 6-21 host bottom view

If need to upgrade software program

1. Please turn the power off (power switch in the right of the host, switch to 0)
2. Put TF card which have copy the latest version of the software into TF card slot
3. To dial the code switch to the position shown in figure 6-21
4. Turn on the power switch (power switch in the right of the host, switch to 1).At this time can hear the buzzer sound

Buzzer one time and the screen display program updating. If update complete, you will hear buzzer consecutive for three times.

5. Turn the power off (power switch in the right of the host, switch to 0)
6. Pull out the TF card to dial the code switch to the position as shown in figure 6-22, this program update is completed.

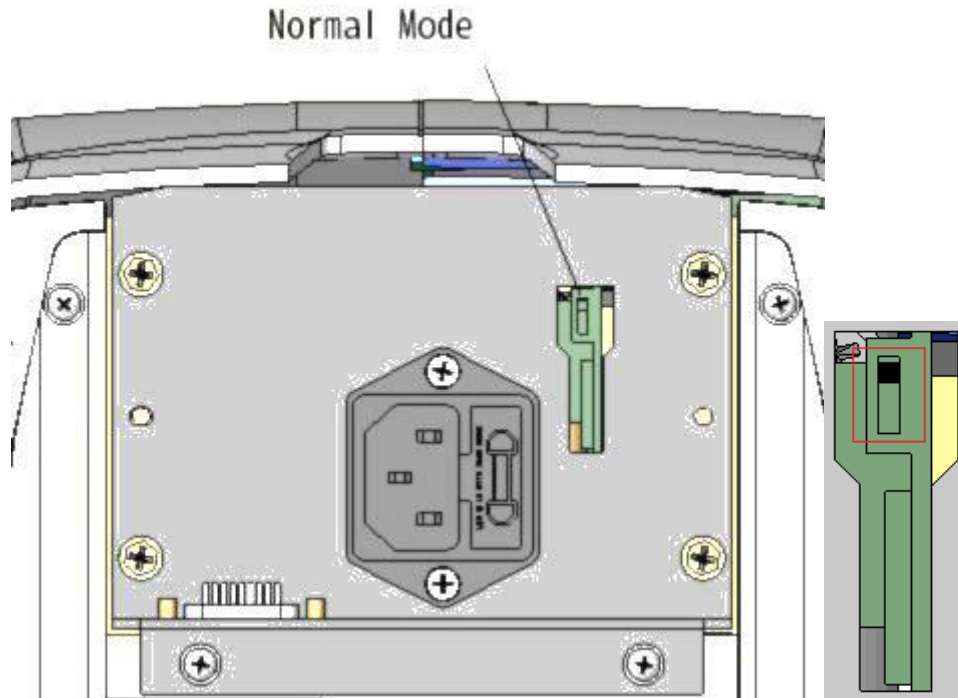


Figure 6-22 dial button in the normal working mode

6.10.3 Connect with other devices

Any data output can be transferred to other devices via Bluetooth, RS232C, and Ethernet interfaces (To support the equipment identified by this instrument).

1. Connect to external devices using the Bluetooth

The Bluetooth port as described in section 6.10.1

The external device is connected to the Bluetooth device as indicated by the Bluetooth address in section 6.10.1.

According to the conventional measurement steps to lock measurement results of .The measuring result can be output through the Bluetooth portby pressing the print button in the main measurement screen.

2. Connect to external devices using the RS232C

Use common RS232C interface cable to connect with other devices.

The RS232C port as described in section 6.10.1, select the communication rate corresponding to the target device.

According to the conventional measurement steps to lock measurement results

of .The measuring result can be output through the RS232C port by pressing the print button in the main measurement screen.

3. Connect to external devices using network port

Use the network port cable to connect the other devices.

The network port as described in section 6.10.1.And set the valid IP under the target LAN.

According to the conventional measurement steps to lock measurement results of .The measuring result can be output through the network port by pressing the print button in the main measurement screen.

7 Maintenance

7.1 Troubleshooting and countermeasures

Symptom	Cause	Action
LCD screen is black and	Device not powered	Power cord plug Switch on Check equipment fuse
Device not print	Print function not open	Enter the menu interface to open the print function
	Print paper not installed	Open the printer cover to check the print paper
	Print condition not met	Non monolithic mode needs to be completely measured the data on both sides before printing
The left and right sides cannot be selected	PD and PH control	Move the nose slider or turn off PD and PH
	Left and right lenses are locked	Clear lock data by clear button

If the device is still not working, please contact us or consult your local dealer according to the information on top of form.

7.2 Error messages and countermeasures

Error message	Cause	Countermeasure
Optical path error	Optical system is blocked	Remove shield
	LED light is not bright	Internal fault, please contact

		local dealer
Please remove the lens from lens support	Lens on the lens holder	Restart after remove the lens
	The initial parameter exceeds the factory preset value	Please reset the factory parameters according to the procedure described in section 7.6
Please clean light path	There is dust or oil on the lens of the lens support	Please clean the lens according to the procedure described in section 7.5
	The initial parameter exceeds the factory preset value	Please reset the factory parameters according to the procedure described in section 7.6
Sensor error	A sudden change in the environment during a measurement, such as an interference of light path	Press the clear key or restart the device. Restart the measurement
	Sensor fault	Internal fault, please contact local dealer
Measurement error	The parameters such as sphere, prism and prism are beyond the preset range	Please check the lens
	The lens moves to the boundary position and has a great influence on the light path	Please check the lens position
	LED lamp or sensor problem	Internal fault, please contact local dealer
Detecting light	The initial parameter may	Please reset the factory

path	exceed the factory preset value	parameters according to the procedure described in section 7.6
------	---------------------------------	----------------------------------------------------------------

7.3 Printer paper installation

1. Open the printer cover




Figure 7-1 open the printer cover

2. Put in the printing paper in the relevant position



Figure 7-2replace printer paper

 **CAUTION:**Make sure that the width of the paper is suitable and correct.

Otherwisethere will be abnormal print.

3. Close the printing cover



Figure 7-3 close the printer cover

7.4 Marking (ink / oil) replacement

7.4.1 Pen ink replacement

1. **Unscrew the screws at the top of the pen. Remove the screws, springs and dotting pens, as shown in Figure 7-4.**

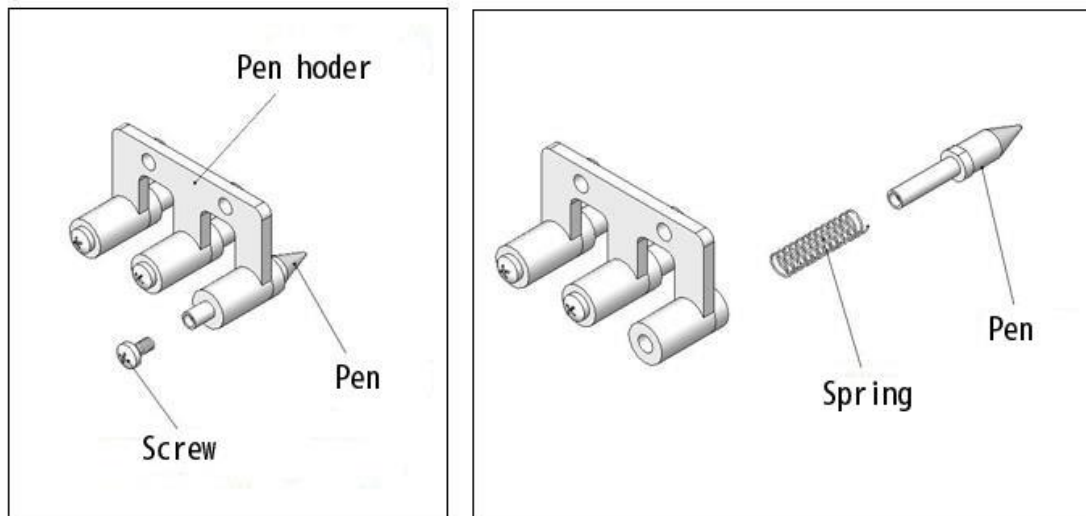


Figure 7-4 removing pen

2. **Insert the spring and new pen into the pen holder and tighten the screws as shown in Figure 7.5.**

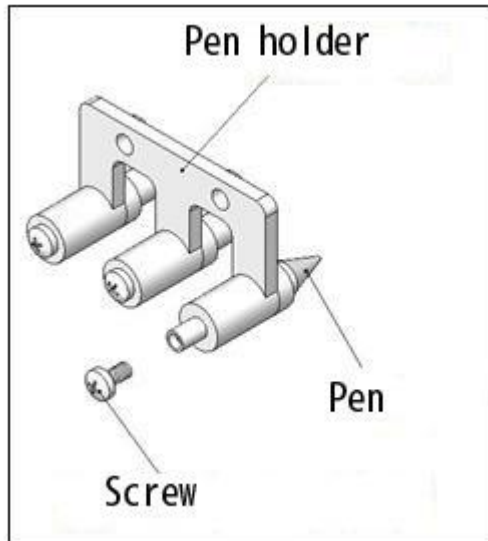


Figure 7-5 installing pen

7.4.2 Ink cartridge replacement

3. Remove the cartridge from the device as shown in Figure 7-6 and install the new cartridge in the same manner.

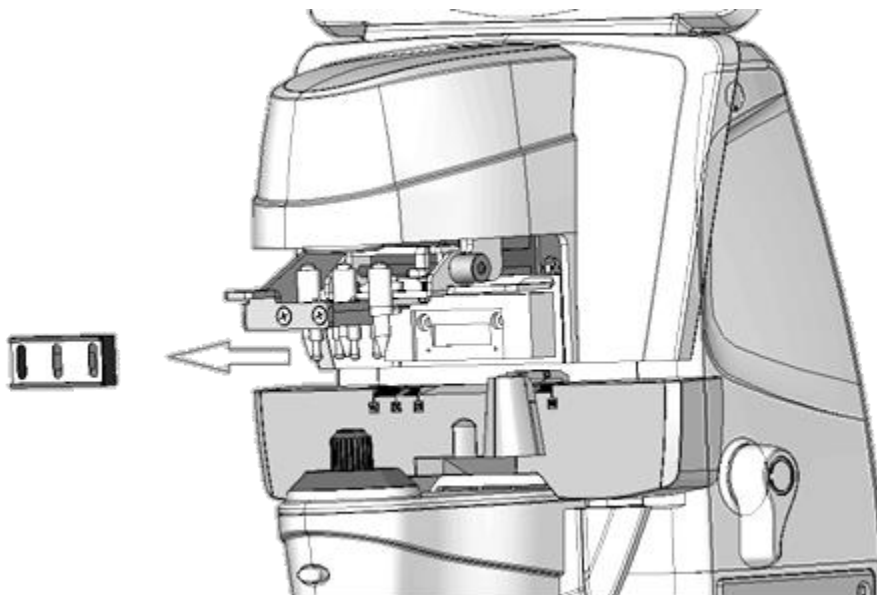


Figure 7-6 remove the cartridge from the device

7.5 Cleaning

7.5.1 Cleaning the protective glass

1. Remove lens support, as shown in figure 7-7.
2. Remove any dust and oil on the glass with a blower brush and paper.
3. When the lens holder is returned to its original position, it must be installed in place to avoid the measurement error.

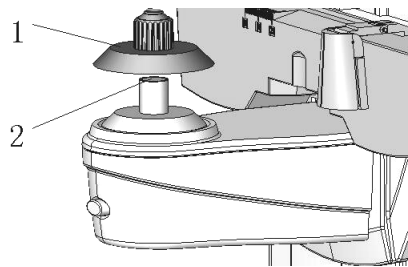


Figure 7-7 cleaning protective lens

⚠ CAUTION: Do not scratch the protective lens. Scratches may reduce the measurement accuracy.

7.5.2 Cleaning the lens

4. Put down the lens holder and leave enough space to clean the lens
5. Use a soft brush or mirror paper gently wipes the lens surface.
6. Lens holder back in place

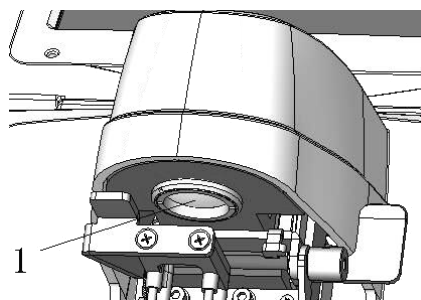


Figure 7-8 cleaning optical path lens



CAUTION: Do not scratch the lens in the lens barrel.

7.5.3 Cleaning the device exterior

When the cover or panel of the device becomes soiled, wipe with a soft cloth. For severe stains, wipe them away with the soaked in a neutral detergent and wrung well. Finally wipe them with a dry and soft cloth.

7.6 User operation screen



CAUTION: Please do the following operation under the guidance of the professionals. Otherwise the error will affect the measurement performance of the equipment.

1. Enter user operation screen

Enter the input menu as described in section 6.8.1. Click the network address input window to enter the virtual keyboard screen. At IP address of the first 4 (excluding decimal point) enter 6743. The other does not need to be modified. As shown in Figure 7-9. Press the Enter key. The screen will display the interface shown in Figure 7-10.



Figure 7-9 virtual keyboard screen

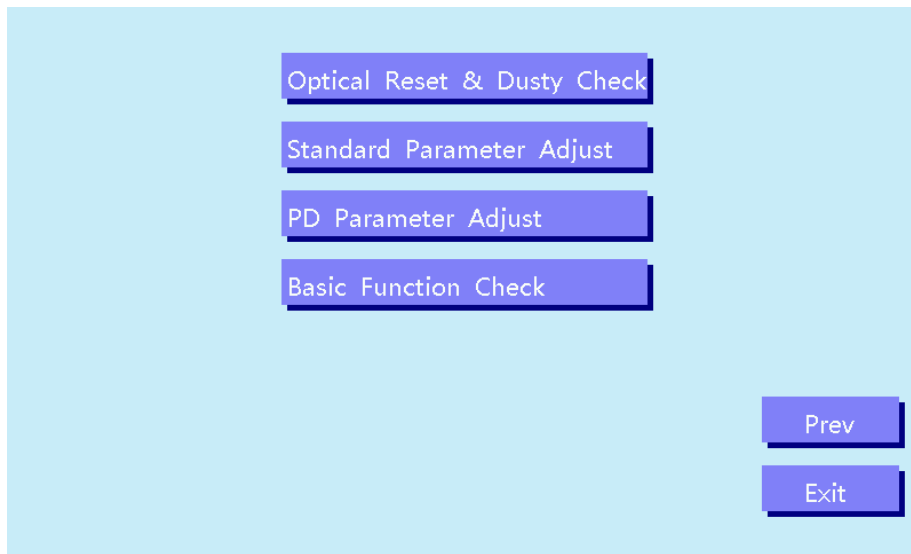


Figure 7-10 user operation screen

! CAUTION: This is through the Enter key to enter the user interface! If you press the OK key will modify the IP address, it may cause the network communication function abnormal.

2. Reset light factory configuration operation

As shown in Figure 7-10, struck the first menu (dust check and optical parameters reset), the screen will appear as shown in Figure 7-11. Press the "MEM" button on the right side of the screen to reset the factory.

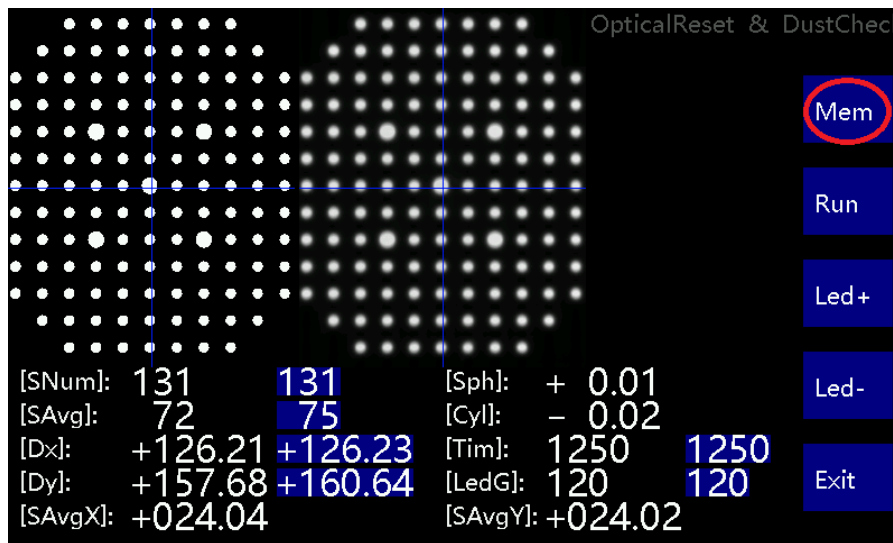


Figure 7-11 dust inspection and optical parameter reset screen

⚠ CAUTION: Make sure that no lens is placed on the lens support before the reset operation, and dust cleaning has been done for the protective lens and the optical path lens.

⚠ CAUTION: If is not possible to determine whether the current parameter state is reset. Please contact us after sales service according to the information of this page. And sent the interface photos and equipment number information to us, we will help you to verify as soon as possible.

3. Standard parameter adjustment operation

As shown in Figure 7-10, struck the second menu (standard parameter adjustment), the screen will appear as shown in Figure 7-12. This screen is used to fine tune the standard lens parameters. "Slct" key on the right side of the screen to select target standard lenses. "GLS+" and "GLS-" are used to adjust the value of fine adjustment.

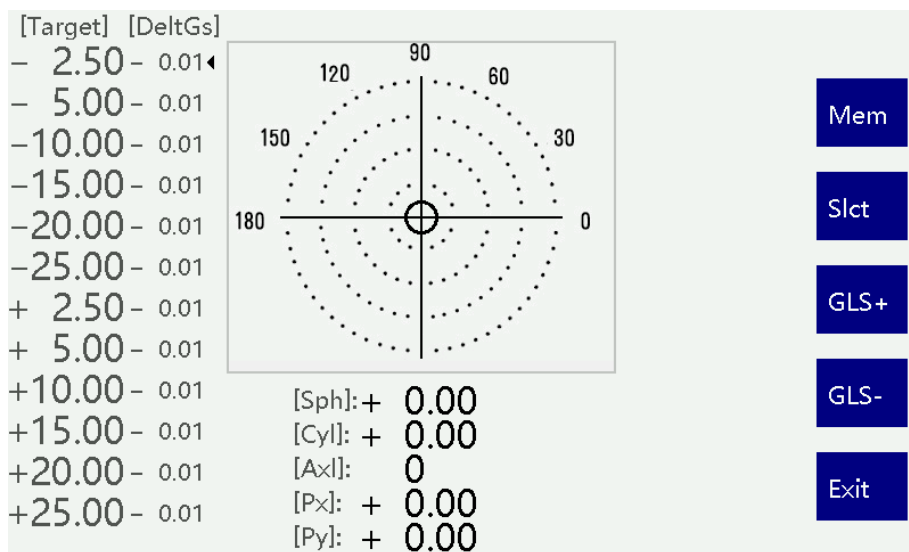


Figure 7-12 standard parameter adjustment screen

4. PD parameter adjustment operation

As shown in Figure 7-10, struck the third menu (PD parameter adjustment), the screen will appear as shown in Figure 7-13. This screen can calibrate the physical parameters of the PD.

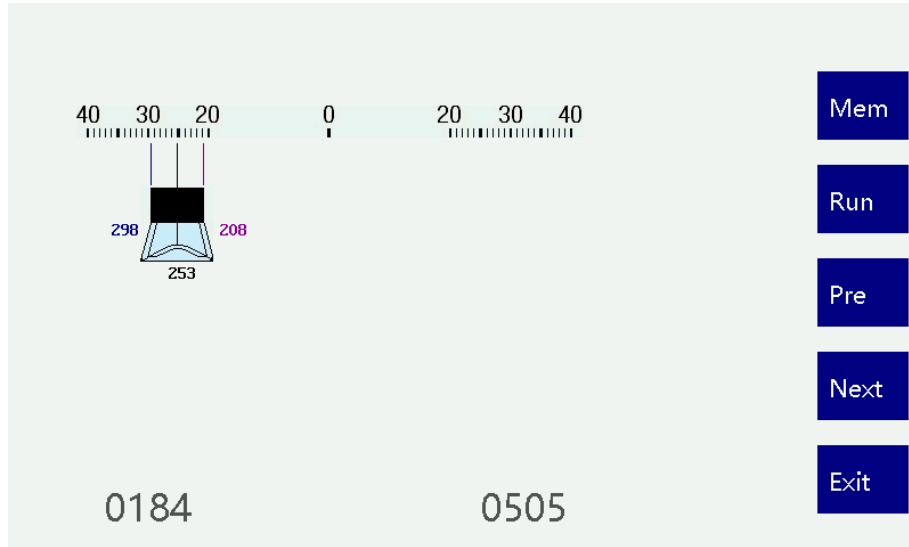


Figure 7-13 PD parameter adjustment screen

(1) Determine whether there is an error in the location of the PD module: Move nose slider to the left 30mm (Figure 7-14). Check whether the left side of the nose slide on the screen is pointing to the left 30mm. Move nose slider to the right 30mm (Figure 7-15). Check whether the right side of the nose slide on the screen is pointing to the right 30mm. If there is an error between the on-screen indication value and the actual value, step (2).

(2) Press "Next" button on the right side of the screen. The screen will display the prompt: "please move the left side of nose slider (black metal) to the left 30mm. After the completion of the move, please press the Next key". Please refer to the prompt to perform the operation.

(3) The screen will display the prompt: "please move the right side of nose slider (black metal) to the right 30mm. After the completion of the move, please press the Next key". Please refer to the prompt to perform the operation.

(4) Repeat step (1), if the error has met the requirements, then press "MEM" key to save.

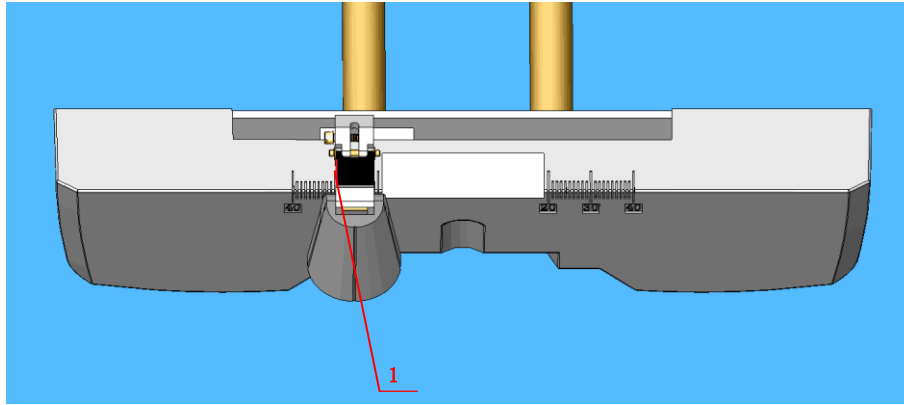


Figure 7-14 the left side of nose slider (black metal) to the left 30mm

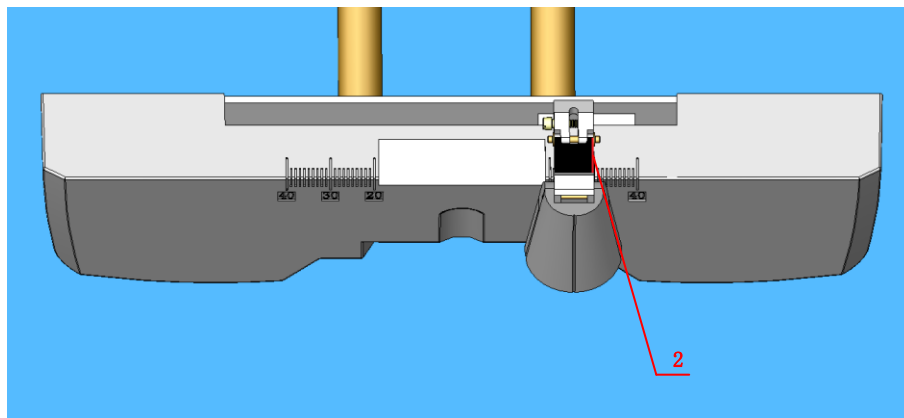


Figure 7-15 the right side of nose slider (black metal) to the right 30mm

⚠ **CAUTION:** Please strictly follow the prompts to calibrate the steps, the wrong operation will cause that the PD measurement function is not available.

5. Basic function inspection operation

As shown in Figure 7-10, struck the fourth menu (basic function self-inspection), the screen will appear as shown in Figure 7-16. This screen can check the basic function of the device.

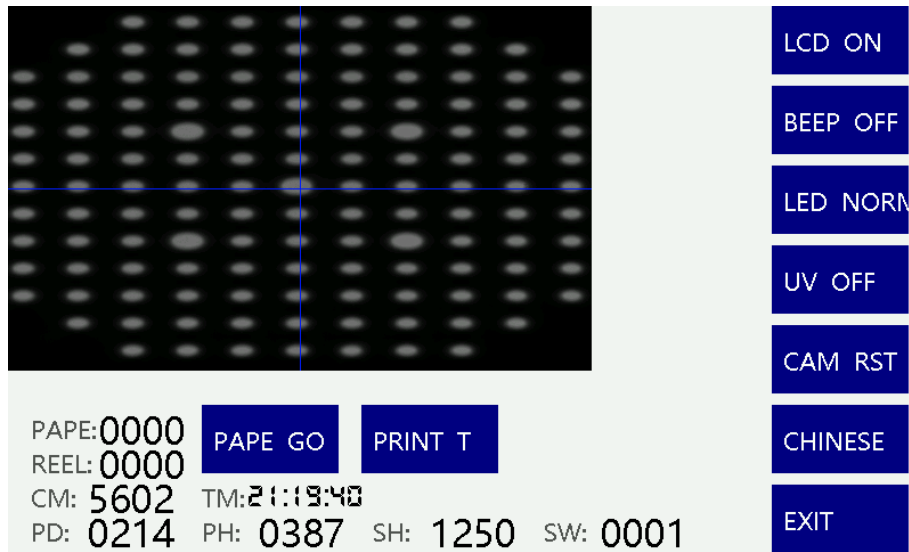


Figure 7-16 basic functions self-inspection

⚠ CAUTION: Please check the function of the equipment under the guidance of the professionals. Otherwise it may cause an unexpected error.

8. Accessories

NO.	Name	Number	
1	Main body		1
	Main body	Printer	1
		Printer paper	1
		1A Fuse	2
2	printer	1	
3	Power cord	1	
4	Certificate	1	
5	Operator's manual	1	
6	Packing list	1	
7	Lens support of Contact lenses	1	
8	Dust cover	1	
9	Ink cartridge/pen	1	
10	Ink	1	