CCQ-1100

AUTO FOCIMETER

User Manual

Preface

Thanks for purchasing and using CCQ-1100 auto focimeter（Focimeter, also the widely called Lensmeter, is offically named in ISO 8598: Optics and optical instruments -- Focimeter）.

⚠️ Please read this User Manual carefully before using this device. We sincerely hope that this User Manual will provide you with sufficient information to use the device.

Our pursuit is to provide people with high-quality, complete-function and more personalized devices. Information in promotional materials and packing boxes is subject to changes due to performance improvement without additional notice. Chongqing Yeasn Science & Technology Co., Ltd. reserves the rights to update the devices and materials.

If you have any questions during using, please contact at our service hotline: (86-023) 62797666, we will be very happy to help you.

Your satisfaction, our impetus!

Information of manufacturer

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1. INTRODUCTION

1.1 Uses

CCQ-1100 auto focimeter mainly measures spherical power, cylindrical power and axis of the cylindrical lens as well as contact lens. It marks on the uncut lens and checks if the spectacle lens is correctly mounted.

1.2 Characteristics

● 7-inch TFT color touch screen;

● Green LED light, ABBE compensation;

● Hartmann sensor;

● High-speed parallel processing system;

● Low transmittance lens measurement;

● Low astigmatism lens measurement;

● 20△ Prism measurement;

● Lens type auto identification;

● PD, PH, UV and blue light measurement;

● Built-in thermal printer;

1.3 Main technical indexes

1.3.1 Spherical power (spectacle lens):	-25.00 D~ +25.00 D
1.3.2 Cylindrical power:	-10.00 D ~ +10.00 D
1.3.3 ADD power:	0 D ~ +10.00 D
1.3.4 Spherical power (contact lens):	-20.00 D ~ +20.00 D
1.3.5 Dioptor step:	0.01 D, 0.06 D, 0.12 D, 0.25 D
1.3.6 Axis:	0º～180º ; Increment: 1º
1.3.7 Prism basal angle:	0º～360º ; Increment: 1º
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	Vertical: 0~20 △; Increment: 0.01 △
1.3.9 Applicable	lenses: φ20mm～φ120mm
1.3.10 Applicable center thickness:	≥20mm
1.3.11 PD measurement:	12mm ~ 135.6mm; Increment: 0.15mm
1.3.12 ΔPH measurement:	0mm ~ 39.6mm; Increment: 0.15mm

1.3.13 Measurement of UVA transmittance: Center 365nm

1.3.14 Measurement of blue light transmittance: Center 420nm

1.3.15 Instrument body power: Input: DC 12V 40W

1.3.16 AC Adapter: Input: AC 100V ~ 240V, 50/60Hz

Output: DC 12V 40W

1.3.17 Size: 190(W)×211(D)×339(H) mm（When the display is flat）

1.3.18 Weight: 4.1 kg

1.3.19 Display: LCD screen, 1024×600 pixs

1.3.20 Printer: Thermal printer, 57mm width

1.3.21 Interface connectors: USB, RS-232

1.4 Name plate and indications

Name plate and indications are pasted on the instrument to arise end-users' notice.

In case the name plate is not pasted well or the characters become unclear to recognize, please contact authorized distributors.

	Manufacturing date
	Manufacturer
CE	Comply to European regulations concerned
EC REP	Authorized European repretative
SN:	Product serial number
	Up
	Fragile
	Vertical stacking limit
	Rain-proof
	Recyclable

2. SAFETY NOTICE

2.1 Before use

⚠️ Please read the following precautions carefully to avoid personal injury, device damages or other possible hazards:

● No technical demands for operator, and read manual before using.

● Do not posit the equipment to make it difficult to operate the power plug which uses to isolate the equipment circuits electrically form the supply mains.

● Do not use the device for other than the intended purpose.

YEASN will not be responsible for accidents or malfunction caused by such carelessness.

● Never modify or touch the internal structure of the device.

This may result in electric shock or malfunction.

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

Corrosion or malfunction of the device may occur.

● Avoid installing the device where it is exposed to direct air-conditioning flow.

Changes in temperature may result in condensation inside the device or adversely affect measurements.

● Avoid using the device in a place exposed to direct sunlight or near incandescent light.

Under such circumstances, the device may work irregularly or issue error messages.

● Be sure to use a wall outlet which meets the power specification requirements.

If the line voltage is too high or too low, the device may not give full performance. Malfunction or fire may occur.

● The electrical outlet must have a grounding terminal.

Electric shock or fire may occur in the event of malfunction or power leakage.

● Insert the main plug into an outlet as far as the prongs of the plug will go.

Fire may occur if the device is used with a loose connection.

● For supplying the device with the power, never use a table tap or extension cable.

The electrical safety may be lowered.

● Do not place heavy objects on the power cord.

The damaged power cord may cause fire or electric shock.

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● Before connecting a cable, turn off the power switch and disconnect the power cord from outlet.

Malfunction of the device may occur.

● To transport the device, use the special packing materials to protect the device from impact of dropping.

Excessive vibration or impact to the device may cause malfunction.

● In installation and operation of the device, observe the following instructions about EMC (electromagnetic compatibility):

- Do not use the device simultaneously with other electronic equipment to avoid electromagnetic interference with the operation of the device.

- Do not use the device near, on, or under other electronic equipment to avoid electromagnetic interference with the operation of the device.

- Do not use the device in the same room with other equipment such as life-support equipment, other equipment that has major affects on the life of the patient and results of treatment, or other measurement or treatment equipment that involves small electric current.

- Do not use the device simultaneously with portable and mobile radio frequency communication systems because it may have an adverse effect on operation of the device.

- Do not use cables and accessories that are not specified for the device because that may increase the emission of electromagnetic waves from the device or the system and decrease the immunity of the device to electromagnetic disturbance.

● Ground wire should be installed indoor and the instrument should be grounded well.

The instrument should not be installed in place where disconnection is not possible.

2.2 Using

● Immediately replace the power cord if the internal wires are exposed, turns on or off the table when the power cord is moved, or the cord and/or plug are too hot to be held with hands.

This may result in electric shock or fire.

In the event of malfunction, disconnect the power cord from the wall outlet. Never touch the inside of the device, then contact your authorized distributor.

● The device has passed electromagnetic compatibility test. Follow below instructions related to EMC (electromagnetic compatibility) when mounting and using the device:

- These limits are designed to provide reasonable protection against harmful interference in a

standard medical installation.

- This device generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to other devices in the vicinity.

- However, there is no guarantee that interference will not occur in a particular installation. If this device does cause harmful interference to other devices, which can be determined by turning the device off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving device.

- Increase the separation between the devices.

- Connect the device to an outlet on a circuit different from that to which the other device(s) are connected.

- Consult the manufacturer or field service technician for help.

● Never use the device with cables or accessories other than the designated ones.

● Never use portable and mobile radio frequency (RF) devices in the vicinity of this device. These devices may adversely affect other electrical equipment and malfunction may occur.

● When moving the device, do not place your hands on the frame of the display but hold the underside and sides with both hands.

Injury or malfunction may occur.

2.3 After use

● When the device is not in use, turn it off and cover the dustproof cover. Otherwise dust will affect the measurement accuracy.

● Clean the prongs of the main plug with a dry cloth often. If dust settles between the prongs, the dust will collect moisture, and short circuit or fire may occur.

● If the device will not be used for a long time, disconnect the power cord from the wall outlet, as fire may occur.

● Unplug the power cable: hold the part indicated by the arrow in the figure below, and then pull it out.
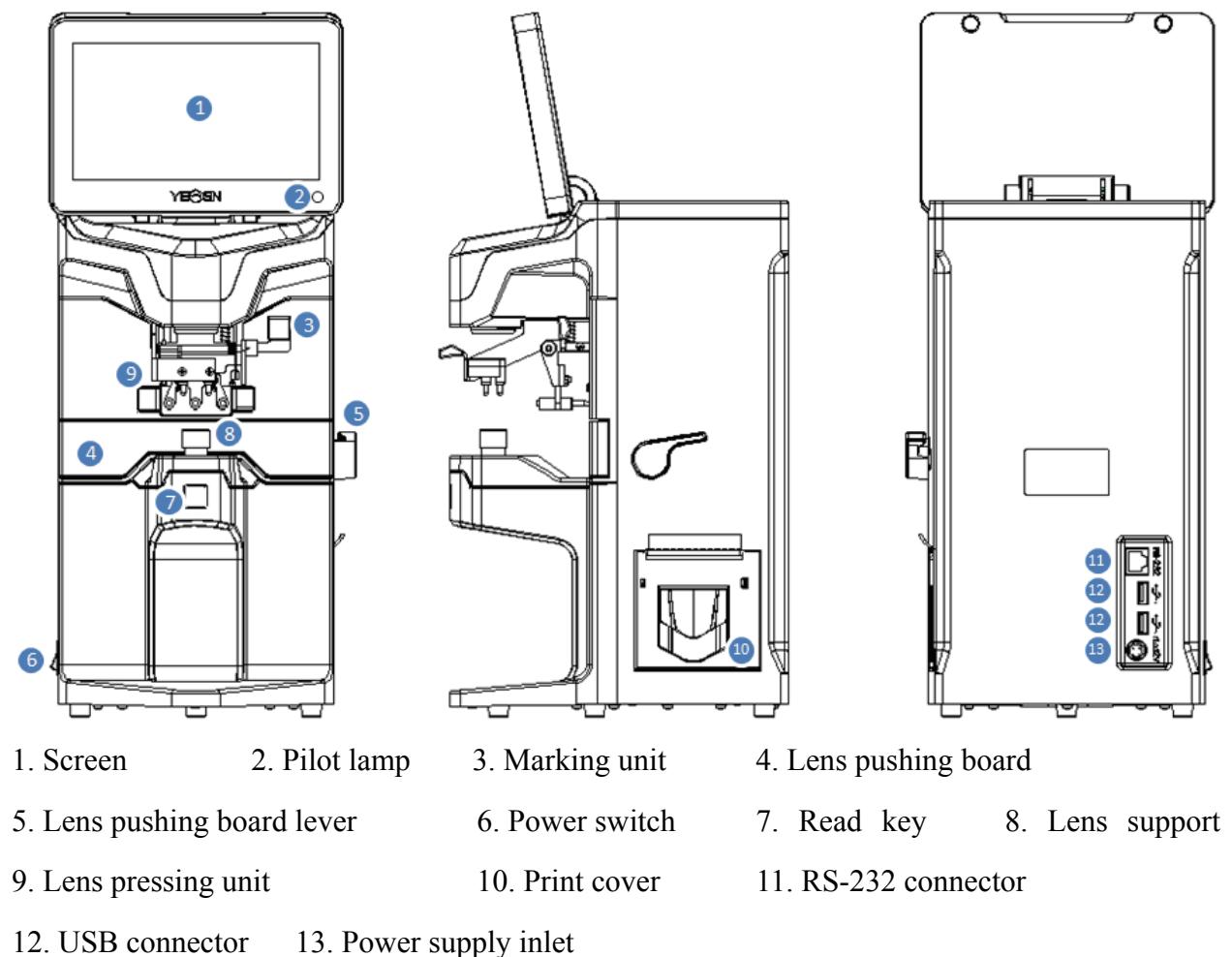
2.4 Maintenance and Check

● Personnel not trained by YEASN do not repair the instrument.

● YEASN is not responsible for any accidents resulted from improper servicing.

● When performing maintenance work, secure a sufficient maintenance space, as Maintenance work in an insufficient space may result in injury.

2.5 Disposal

● When disposing of packing materials, sort them by material and follow local governing ordinances and rescaling plans.

● Follow the local governing ordinances and recycling plans regarding disposal or recycling of device components.

3. CONFIGURATION

1. Screen   2. Pilot lamp   3. Marking unit   4. Lens pushing board

5. Lens pushing board lever   6. Power switch   7. Read key   8. Lens support

9. Lens pressing unit   10. Print cover   11. RS-232 connector

12. USB connector 13. Power supply inlet

4. INTERFACE

4.1 Measurement interface

1. Data area

Display measurement data, divided into two areas of L/R. Click to set it to the working state, and the measured data is highlighted in blue under the working state and refreshed in real time.

2. L / R indication

Display the working status of automatic L/R.

Taking the L area as an example, the meaning of the state is as follows:

L	Start the automatic L / R, and switch to the right lens measurement automatically after the left lens measurement result data is locked
L	Turn off automatic L / R

3. Alignment circle
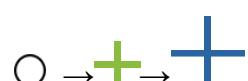
The center of alignment circle shows the optical center, axis bar and target are shown in the alignment circle.

4. Axis bar

It's shown in the alignment circle, and corresponding position indicates axis of measured lens.

5. Target

The position of target in alignment circle indicates direction and distance of measured lens to optical center. When target moves closer to optical center, the shape changes in the shown way:

○ → + → ✚

$\bigcirc$	Far from optical center	
$+$	Near optical center. Measured data can be directly read by pressing Read key	
$+$	In optical center. Measured data automatically gets fixed in auto read mode, and measured data gets fixed by pressing Read key in manual read mode.	

6. Step indication shortcut tab

It shows measurement step, including: 0.01D, 0.06 D, 0.12 D, 0.25 D.

7. Prism indication shortcut tab

The prism result can be indicated in three modes: off、△、XY.

8. Astigmatism indication shortcut tab

Cylinder is indicated in three modes: +,+/- and -.

9. Set

Press the icon, then it comes to parameter setting interface.

10. Clear

It clears the memorized data, and release fixed data, then measured result comes to zero.

11. Print

Do printing according to parameter setting mode in "Printer" and "Print Mode".

12. Information bar

Display Abbe coefficient, measurement number, time and other information.

13. Shift key of reading mode

Choose reading mode including Auto Read, Manual Read and Quick read.

14. Auxiliary grid

Display the auxiliary grid, used to quickly confirm the direction of the progressive belt of the unmarked lens.

4.2 Measurement mode

Click on the focus ring area to change the measurement mode in the popup window.

CCQ-1100 supports measurement modes including

	PD measurement mode
	Standard measurement mode
	Auto identification measurement mode
	Progressive Power Lens measurement mode
	Contact lens measurement mode
	Transmittance measurement mode
	Lens Distortion measurement mode

5. INSTALLATIONS AND CALIBRATION

Place the instrument on fixed table, and connect power. Detailed steps are shown below:

a. Place the instrument on stable and fixed table.

b. Adjust the screen tilt to a suitable position.

c. Connect the plug of power adapter to the socket.

d. Put the DC power output of power adapter into the instrument.

e. Switch on the instrument. The screen becomes working, and then instrument gets started

f. The instrument comes to measurement mode interface.

g. If the brightness are not comfortable, then adjust them.

6. OPERATING PROCEDURES

6.1 Measurement Preparation

Turn on the power switch and the instrument starts.

Wait for the progress bar load finish, and then the instrument automatically enters into measurement interface.

6.2 Setting Lenses

6.2.1 Set uncut lens

a. Set lens on Lens support

Place the lens center on the Lens support with the convex side up.
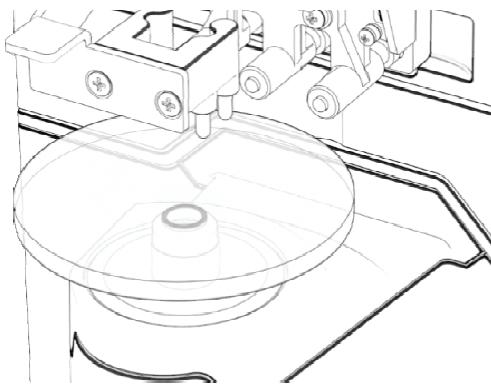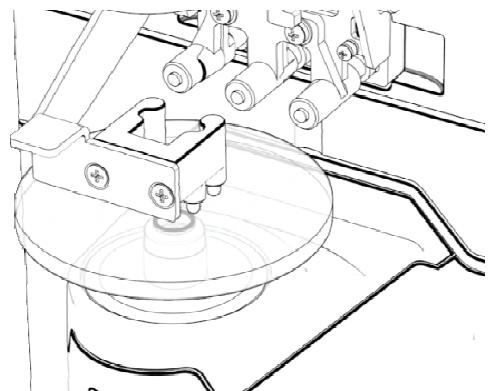
Fig 6.2.1a   Fig 6.2.1b

b. Fix the lens to Lens support

Raise the lens pressing unit, then lower it slowly to fix the lens.

● Lens pushing board is not needed to fix uncut lens.

6.2.2 Set framed lens

a. Set framed lens

Place the framed lens on Lens support with front surface upward.
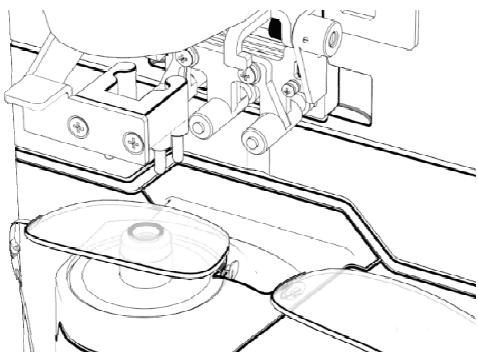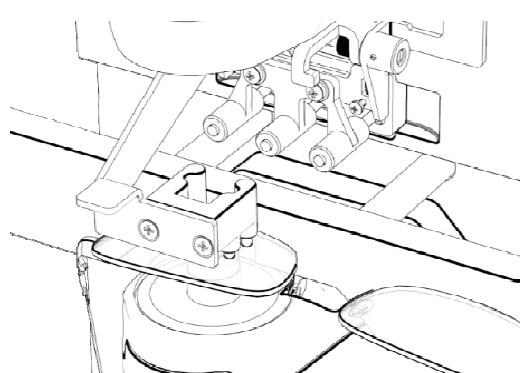
Fig 6.2.2a   Fig 6.2.2b

b. Move lens pushing board

Turn the lens pushing board lever until it touches and parallel the bottom of the frames.

c. Fix lens with lens pressing unit

Raise the lens pressing unit, then lower it slowly to fix the lens.

6.3 Measuring Single Vision Lens

Single vision lenses are measured on the Auto Identification Measurement Mode or Standard Measurement Mode, the procedure is as follows:

a. Specify lens side if necessary

Put L or R data area into working state, specify lens side. If "auto L/R" is set to "on", the lens will be removed after the measurement data is locked, and R and L will be switched automatically.

● If lens side is only specified after measurement, the measured data will be cleared.

b. Perform lens alignment

Move the lens to bring target close to the center of alignment circle. If it's framed lenses, move the lens pushing board along the frames. When alignment is finished, make sure that the bottom of the frames is touched with lens pushing board.

c. Fix measured data

When alignment is finished, the measured data is fixed by pressing Read key in manual read mode or automatically fixed under auto read mode.

● Cylinder indication shortcut tab still works in terms of changing the indication mode of cylinder value even after measured data is fixed.

d. Measuring other lenses

If it is necessary to measure the other lenses, then follow the same step as above.

e. Print measured data
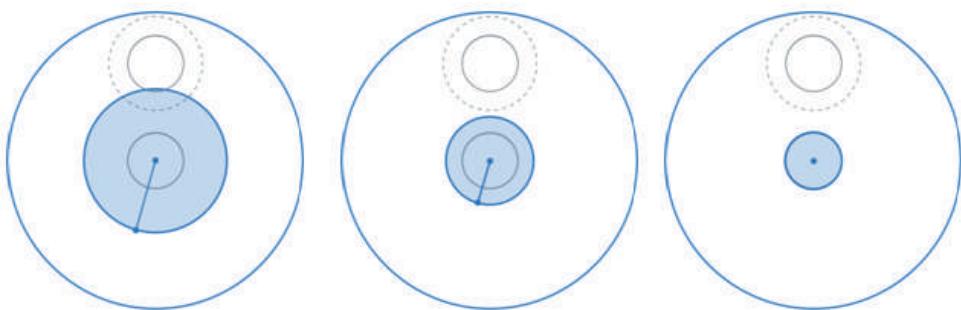
When the measurement is completed, press "Print" to print out the measured data.

6.4 Measuring Multifocal Lens

6.4.1 Measuring Bifocal Lens

Bifocal measure step: distance portion → near portion. Measure lens under Bifocal mode.
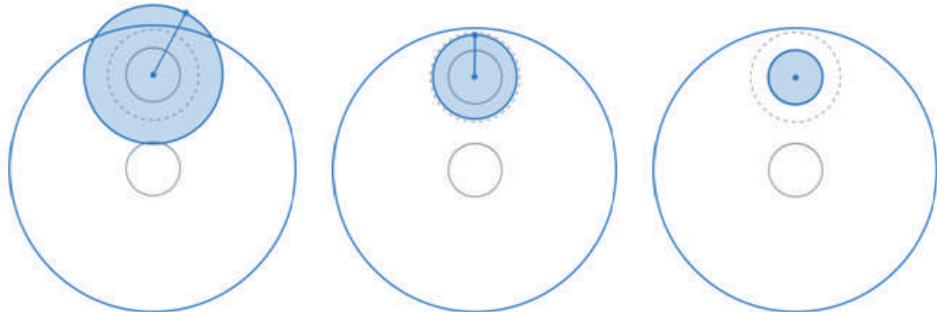
● For bifocal measurement, you need to set "multifocal" to "bifocal" in the parameter setting interface (see 6.14 Parameter Setting). At this time, the automatic identification module and standard measurement module are not available.

a. Determine the left and right of the lens

b. Measure the far vision part

1. After putting in the lens, the screen will display:

1) The connection between the center of the target far-use zone and the center of the predicted lens far vision zone.

2) A circular area diagram with the center of the target remote zone as the center and the length of the line as the radius.

2. Move the tested lens along the connecting direction to reduce the circular area.

3. When the circular area is reduced to the same size as the center of the target distance zone, it is determined that the predicted distance zone center of the lens at this time is the target distance zone center, and the measurement reading of the distance part is completed.

c. Measure the near vision part (Add value)

1. After the remote zone measurement is completed, the screen will display:

1) The connection between the center of the target near vision zone and the center of the near vision zone of the predicted lens

2) A circular area diagram with the center of the target near zone as the center and the length of the line as the radius.

2. Move the tested lens along the connecting direction to reduce the circular area.

3. When the circular area is reduced to the same size as the center of the target near-use zone, it is determined that the estimated near-use zone center of the lens at this time is the center of the target near-use zone, and the near vision part (Add value) measurement reading is completed.

6.4.2 Measuring Trifocal Lens

As to trifocal lenses, the order is distance portion --- middle portion --- near portion.

● For measurement of trifocal, you need to set "multifocal" to "trifocal " in the parameter setting interface (see 6.14 parameter settings). At this time, the automatic identification module and the progressive multifocal measurement module are not available.

a. Make sure the left and right of lens.

b. Measure the degree of distance portion.

First moving the distance portion of lens to the bracket ,and then focus ,when the target change from circle mark to cross mark, Press the Read Key, distance portion measurement complete.

c. Measuring the middle portion add power.(Add: the first add power)

Moving the lens to measurement direction to make the middle portion located on the bracket .When an added reading is detected, Add is displayed.

● Not necessary to alignment the target mark

● Mandatory manual reading during measurement.

● Taking down the lens during the measuring process, please remeasure from distance portion.

Press the Read Key, the first add power (Add) of middle portion measurement complete.

d. Measuring the near portion add power. (Ad2: the second add power)
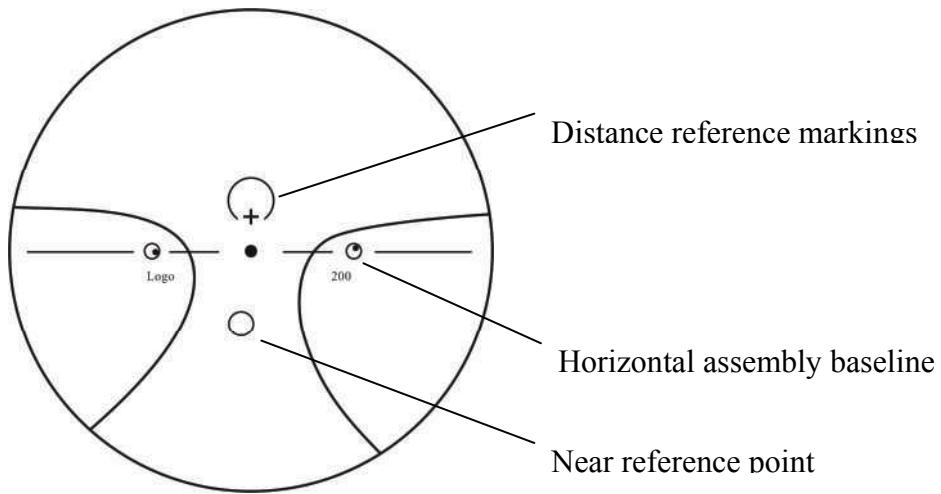
Moving the lens to measurement direction to make the near portion located on the bracket .When an added reading is detected, Ad2 is displayed.

● Not necessary to alignment the target mark

● Mandatory manual reading during measurement.

● Taking down the lens during the measuring process,please remeasure from distance portion.

Press the Read Key, the second add power (Ad2) of near portion measurement complete.

6.5 Measuring Progressive Power Lens

6.5.1 Measure uncut lens

Distance reference markings

Horizontal assembly baseline

Near reference point

Measure the vertex power of the lens at the mark of the far and the near printed on the uncut lens, and measure it manually.

Place the progressive surface of the lens on the measuring holder, place the lens so the near reference point of the lens is centered on the measuring holder, and press the reading key to measure the near vertex power.

Keep the progressive surface of the lens facing the measuring holder, center the distance reference point of the lens on the measuring holder, and press the reading key to measure the distance vertex power.

The difference between the near vertex power and the far vertex power is the near additional vertex power of the progressive lens.

● When placing the lens, its horizontal assembly baseline must be parallel to the Lens pushing board, and try to align the center of the lens marking ring with the center of the light hole of the measuring holder to make the measurement accurate.

6.5.2 Measuring framed lens
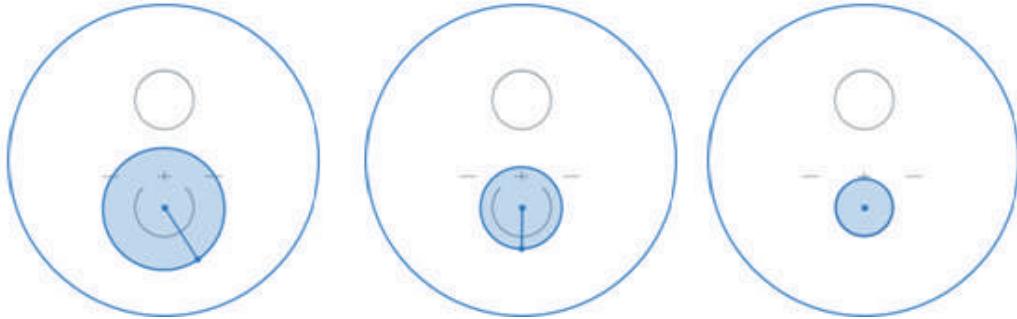
In the automatic recognition mode, when the lens on the holder is detected as a progressive multifocal lens, the screen will automatically jump to the progressive multifocal lens measurement interface. The detailed operation steps are as follows:

a. Switch to progressive multifocal film measurement mode

b. Determine the left and right lens

c. Place the lens

Place the part slightly below the center of the lens on the measuring holder.

d. Measure distance power
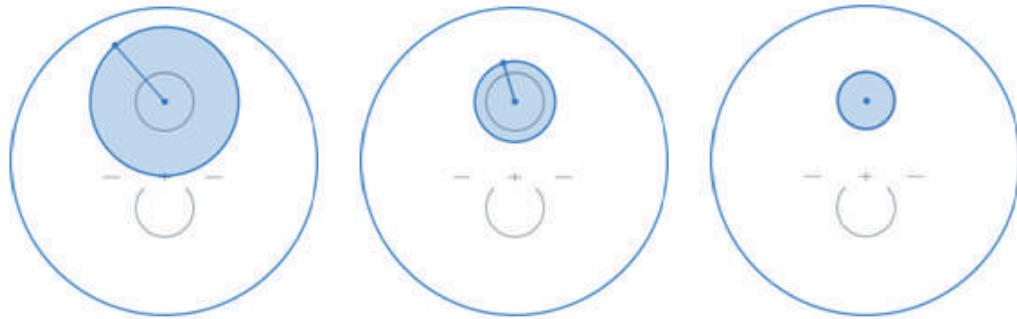
1. After putting in the lens, the screen will display:

1) The connection between the center of the target far-use zone and the center of the predicted lens far-use zone.

2) A circular area diagram with the center of the target remote zone as the center and the length of the line as the radius.

2. Move the tested lens along the connecting direction to reduce the circular area.

3. When the circular area is reduced to the same size as the center of the target distance zone, it is determined that the predicted distance zone center of the lens at this time is the target distance zone center, and the measurement reading of the distance part is completed.

● The lens should always contact the holder; keep the frame close to the push plate when moving the lens.

e. Measure near ADD power

1. After the measurement of the far-use zone is completed, the measurement system will display:

1) The connection between the center of the target near-use zone and the center of the near-use zone of the predicted lens

2) A circular area diagram with the center of the target near zone as the center and the length of the line as the radius.

2. Move the tested lens along the connecting direction to reduce the circular area.

3. When the area chart is reduced to the same size as the center of the target near-use zone, it is determined that the estimated near-use zone center of the lens at this time is the center of the

target near-use zone, and the near vision part (Add value) measurement reading is completed.

● The lens should always be in contact with the measuring holder; keep the frame close to the push plate when moving the lens.

f. Measure other lenses

g. Print measurement result data

● After adding degree measurement, the automatic L/R selection function starts to operate.

● The measurement results are for reference only.

6.6 Measuring Contact Lens

Detailed steps of contact lens measurement are shown as below under Contact Lens Measurement Mode:

a. Change the spectacle lens support into contact lens support especially for contact lens

b. Contact Lens Measurement Mode switch

Come to Parameter Setting interface, and set parameter of "Contact" to "On".

c. Set contact lens

Set the lens onto Lens support with convex side up. If it's soft contact lens, remove moisture from the surface with soft cloth before putting it onto Lens support.

● Hold a contact lens with tweezers. Be careful not to press the lens with lens pressing unit.

d. Align the contact lens, pushing its end lightly with tweezers tips.

e. Get measured result by pressing Read key after alignment

● Auto Read mode is not working for contact lens measurement, which can only be achieved by pressing Read key.

● Among measured data, a SE value will be displayed, which is 1/2 of the cylinder value added to the sphere value. When a non-cylindrical contact lens is measured and still a cylinder value is detected, the SE value will be more reliable than the SPH value to know the total sphere value. It reduces the error in the measured data made by the unintended cylinder value.
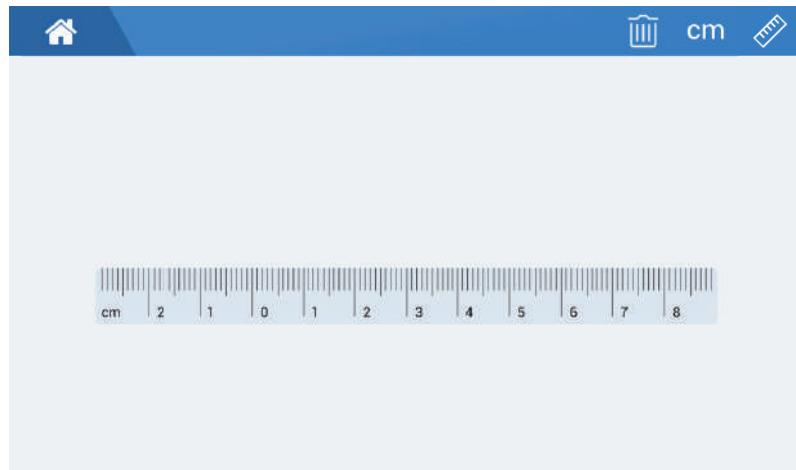
f. Measure other lens if necessary.

g. Print out measured result.

● Measure a soft contact lens as quickly as possible before the lens surface becomes dry. Because the lens contains water and is made of soft material, the lens cannot stay spherical for a long time, altering the measured data.
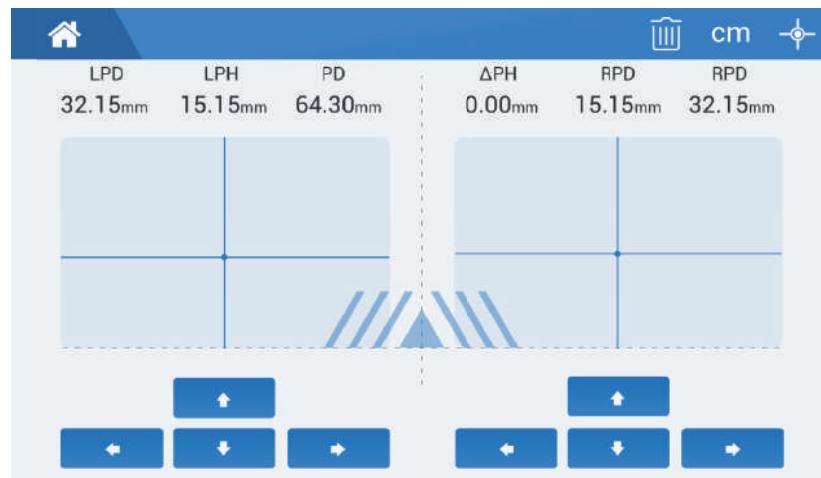
6.7 Quickly measure PD

6.7.1 Click on the focus ring area to press ⊞ to enter the measuring mode of PD quick measurement.

Put mark dot to ruler and fast to read PD.

6.7.2 Press ▱ key to switch to lead measurement mode.
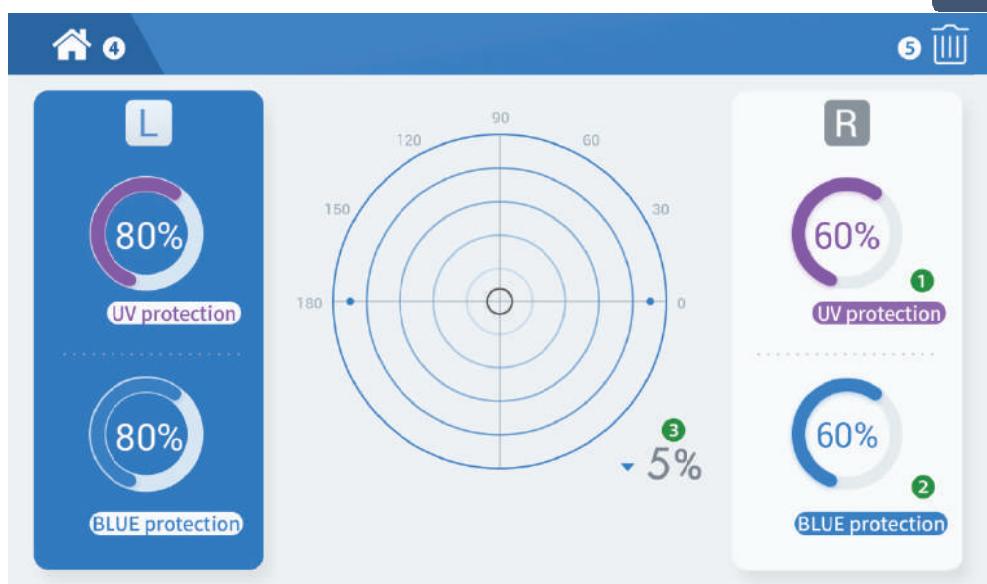
a. Lay the display flat.

b. Put the mirror on the screen, the lower part of the two frames is level with the horizontal dotted line on the screen, and the nose pad is placed on a symmetrical diagonal line, so that the mirror is basically centered.

c. Use the arrow keys to adjust the position of the cross target to coincide with the dot marks on the left and right lenses.

d. Read the interpupillary distance and interpupillary height measurement on the screen.

6.7.3 Press ⊕ to switch back to direct reading mode.

● Measurement data is for reference only.

6.8 Measuring UV / blue light transmittance

6.8.1 Click on the focus ring area and select the transmittance measurement mode

1. UV transmittance display

The ultraviolet light transmittance of the lens was measured using ultraviolet light with a central wavelength of 365nm (UV-A) , expressed as a percentage.

2. Blue light transmittance display

The blue light transmittance of the lens was measured using blue light with a central wavelength of 420 nm, expressed as a percentage.

3. Quick step selection

Scroll to select the step display mode of the measurement result, including: 1%, 5% two steps.

4. Return to home page

5. Clear measurement results

6.8.2 UV / Blue Light Transmission Measurement

Detailed steps of UV / Blue Light Transmission Measurement are shown as below:

a. Place the lens

b. Measuring focus

● When measuring the transmittance of ultraviolet or blue light, if the focus is not performed, the measurement result may be biased.

c. Press the read key

Press the read key to display the measurement result data.

● Harmful effects of UV (ultraviolet rays) on the eyes.

The UV contained in sunlight is roughly classified into three types.

UV-C 280nm or less	It will not reach the earth's surface.
UV-B 280 nm to 320nm	It Was absorbed by the cornea. Causing corneal loss, such as inflammation. Cause sunburn. The skin turns red. Causes skin irritation and skin damage, such as: blemishes, freckles and wrinkles.
UV-A 320nm to 380nm	Gathered in the lens, may cause cataracts. Cause sunburn. The skin darkens.

CCQ-1100 can measure UVA transmittance.

Because UV-A is the most harmful UV light, measuring UV-A transmittance can be an effective assessment of   protection.

6.9 Marking

Detailed steps of optical center and axis of measured lens marking are shown as below:

a. Set the lens onto Lens support.

b. Align the lens and then do the marking.

c. After alignment is finished, fix the lens with lens pressing unit.

d. Mark the lens with marker.

e. Remove the lens by uplifting lens pressing unit.

● Do not touch the marked dots, or the unclear dots will make the axis not able to read.

6.10 Mark prism prescription

This function is used to mark the prescription lenses for implicit strabismus.

Pre - input prism prescription will make the target reverse the distance of the value of the prism data, to the positive lens, to align the target with the center of the focus ring, and to mark the lens.

a. Set "Prism Rp" to "On" in the background settings. At this point, you can press the green highlight in the interface to enter the prism value.

b. Enter the prism prescription via the pop-up keyboard.

c. After prism prescription is input, the target moves the distance of prism data in reverse direction.

● According to the expression of prisms, prism prescription can be input in Cartesian coordinate system and polar coordinate system.

● The maximum 20 delta prism prescription can be put into the polar coordinates. When the prism prescription is shown in a Cartesian coordinate, a value less than 20 delta may not be allowed to input, so that limit the absolute prism value expressed in polar coordinates to 20 Delta.

6.11 Lens Distortion Detection
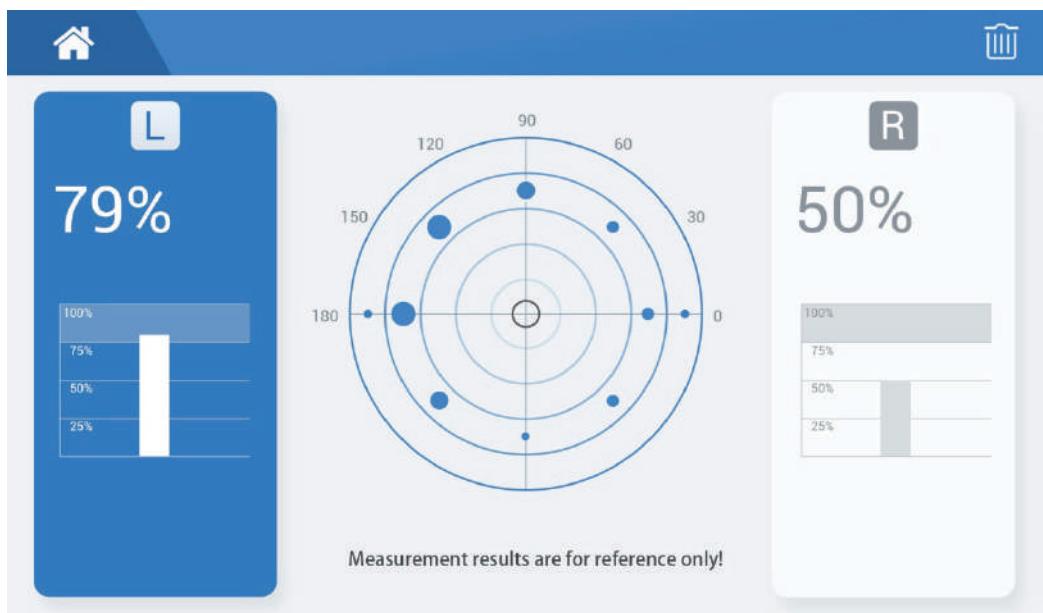
a. This function displays the distortion of the spectacle lens by measuring the difference between the apex power at the center of the customer's spectacle lens and the apex power of the eight parts around the lens.

● Result only for reference.

● To measure progressive lens cannot use distortion check function.

● Aspherical and spherical surface lens which be exceeded ±10D may be falsely informed.

● Aspherical lens may be erroneously assumed to progressive lens. Under this condition, please measure the lens in the condition of single vision lens.

b. Using method

Click on the focus ring area to press the key [⁛] to enter the Lens Distortion measurement mode.

To put lens on measuring supporter.

Measurement results are for reference only!

Examine the distortion of eight distribution points on the lens relative to the degree difference of the center vertex of the lens.

If the lens is not distorted, indicating that all positions in the measurement area have the same degree, the dot ●mark will not appear.

If the lens is distorted, it indicates that there is a difference in the degree between the non-lens center position and the lens center position in the measurement area, 8 dots ● will appear. The size of 8 points is different if the degree difference between the position and the center of the lens is not the same; If the degree difference between the position and the center of the lens is the same, the size of the 8 points ● is the same.

The distortion percentage reflects the degree of lens distortion in the measured area, which is expressed as a weighted average distortion of 8 points, and the corresponding point distortion is shown as a bar chart.

6.12 Printout

6.12.1 "Information output" is set to "Off" mode, printout example:

6.12.2 "Information output" is set to "Off" mode. Example of printout of contact lens measurement results and pupil distance measurement results:

```
No.:                          No.:
      <CONTACT>                      <SINGLE>

RIGHT          LEFT          RIGHT          LEFT
- 0.00    SE   + 0.00        + 0.00   SPH   + 0.00
+ 0.00    SPH  + 0.00        + 0.00   CYL   + 0.00
+ 0.00    CYL  + 0.00            0°   AXS       0°
     0°   AXS      0°         0 0.00  PSM   0 0.00
0 0.00    PSM  0 0.00         U 0.00        U 0.00
U 0.00         U 0.00        ----------- PD ---------------
                               0.0   20.0      20.0
   YEASN     CCQ-1100            YEASN     CCQ-1100
```

6.12.3 Set "Economic print" or "Auto print" at "Printer"and"Information output" is set to "Off" mode. Example of printout of contact lens measurement results and pupil distance measurement results:

```
No.:                          No.:
      <CONTACT>                      <SINGLE>
RIGHT          LEFT          RIGHT          LEFT
- 0.00    SE   + 0.00        + 0.00   SPH   + 0.00
+ 0.00    SPH  + 0.00        + 0.00   CYL   + 0.00
+ 0.00    CYL  + 0.00            0°   AXS       0°
     0°   AXS      0°         0 0.00  PSM   0 0.00
0 0.00    PSM  0 0.00         U 0.00        U 0.00
U 0.00         U 0.00        ----------- PD ---------------
   YEASN     CCQ-1100          0.0   20.0      20.0
                                YEASN     CCQ-1100
```

6.12.4 "Information output" is set to "On" mode, printout example:

```
No.:                          No.:
NAME:YEASN                    NAME:YEASN
     CHONGQING.CHINA               CHONGQING.CHINA
      <SINGLE>                      <SINGLE>

RIGHT          LEFT                         LEFT
- 0.00    SPH  + 0.00         SPH   + 0.00
+ 0.00    CYL  + 0.00         CYL   + 0.00
     0°   AXS      0°         AXS       0°
0 0.00    PSM  0 0.00         PSM   0 0.00
U 0.00         U 0.00         U 0.00

   YEASN     CCQ-1100            YEASN     CCQ-1100
```

6.13 After use

6.13.1 Switch off the instrument

Switch off the instrument under Measurement interface.

6.13.2 Dust-proof

When the device is not in use, turn it off and put the dust cover over the instrument. Dust may affect measurement accuracy.

● If dust on the instrument attracts moisture, it may cause short circuit or fire.

6.14 Parameter settings

1. Press the parameter setting key ⚙ to enter the parameter setting interface;

2. Press the corresponding parameter value after the parameter item that needs to be modified.

The selected parameter value is highlighted and the modification is saved.

Every parameter setting method is described below:

1) Measure Mode: Standard, Auto, PPL. Factory settings: Auto

Standard	Normal measurement mode, measure single, bifocal or trifocal lens
Auto	Single vision lens, bifocal lens, and progressive lens can be automatically identified and measured under such mode
PPL	Progressive Power Lens Measurement Mode

2) Wavelength: e,d. Factory settings :e

It's used to choose e light (wavelength: 546.07nm) or d light(wavelength: 587.56nm)mode.

3) Contact: Off, On, Only. Factory settings: Off

Off	Close contact lens measurement function
On	Start contact lens measurement, and reading modes, function modes, and measurement modes are disable
Only	Contact lens measurement mode is automatically recognized when starting the instrument

4) Multifocal Lens. Factory settings: single vision lens

When doing lens measurement, set the lens types into "single vision lens", "bifocal lens" or "trifocal lens".

5) Auto L/R: Off, On. Factory settings: Off

On	It automatically identify the first lens as right lens, and switch automatically to left lens after the first data is fixed, and displays according to Nose pad position.
Off	Turn off automatic L / R switching

6) Prism Rp: Off, On. Factory settings: Off

To choose if start using prism prescription function.

7) Abbe select: A (58), B (41), C (32).Factory settings: A(58)

ABBE was used for compensating measurement value error when measuring high-power lens.

Can choose ABBE from parameter setting or Information bar

According to lens materials, can input ABBE from A, B, C, scope 20-60

Default as A: 58，B: 41，C: 32.

8)Step: 0.01,0.06,0.12,0.25.Factory settings:0.01。

Choose different increment of displayed data. Increment of axis and prism are always 1º.

9)Cyl: ＋/－,＋,－. Factory settings:＋/－.

＋	Cylinder display in ＋ mode
＋/－	Automatically identify cylinder, display in ＋ or －
－	Cylinder display in － mode

10) Prism: Off, P-B, XY. Factory settings: P-B

Off	Turn Off prism display
P-B	Prism value in the form of polar coordinate representation (Prism△, Base º)
XY	Prism value in the form of rectangular coordinate representation. In,out,up and down

11) Near: N.SPH, ADD. Factory settings:ADD

N.SPH	N: 1st near power(distance power+1st Add power) 2: 2nd near power(distance power+2nd Add power)
Add	Add: 1st added power Ad2: 2nd added power

12) Brightness: 25%,50%,75%,100%；Factory settings:25%。

13) Reading: Auto, Quick, Manual. Factory settings: Auto

Auto	The measured data is fixed without pressing Read Key when target becomes blue in the process of alignment.
Quick	When prism power lower than 0.5cm/m,will automatically lock.
Manual	The measured data is fixed by pressing Read Key when target becomes blue in the process of alignment.

14) Screen Saver: off, 3min.5min, 30min. Factory settings: 5min.

15) Buzzer: off, Low, Middle, High. Factory settings: Middle.

16) Printer: Off, On, Auto. Factory settings: On.

Off	Press "Print", and fixed data is not printed out
On	Press "Print", and fixed data is printed out
Auto	Print measured data automatically after measurement finish, then the data is cleared.

17) Printer Mode: Normal, Economic. Factory settings: Normal.

Normal	Press "Print", and fixed data is printed out in the form of standard space
Economic	Press "Print", and fixed data is printed out in the form of narrowed space

* The print result of "auto print is the same with "economic print".

18) Auto Reset: Off, On. Factory settings: Off.

Off	After pressing" Print", the measurement value result continue existing
On	After pressing" Print", automatically clear the measurement value.

19) Date/Time: Adjust.

Press "Adjust" to change the date and time.

20) Date Format: Off, yyyy.mm.dd,mm/dd/yyyy. Factory settings: mm/dd/yyyy

21)Language: English.

22) Comm Mode: PC, YCP I, YCP II, YCP III. Factory settings: PC.

PC	Communication with PC
YCP I	Communication with Yeasn brand equipment corresponded with YCP I
YCP II	Communication with Yeasn brand equipment corresponded with YCP II
YCP III	Communication with Yeasn brand equipment corresponded with YCP III

23) Baud Rate: 2400, 9600, 19200, 115200.Factory settings: 19200.

Choose communication transmission rate matched with outer equipment.

24) Parity Check: Off, Odd, Even. Factory settings: Off.

Set the operation of odd and even check.

25) Data Bits: 7bit, 8bit. Factory settings: 8bit.

Choose the digit of single character bit used in communication.

26) Stop Bits: 1bit, 2bit. Factory settings: 1bit.

Choose the digit of stop bits in communication.

27) CR Mode: Off, On. Factory settings: Off.

Choose whether to add the additional CR (Carriage Return Character) in the end of the ready transmit data.

28) RS-232 Mode: Off, On. Factory settings: Off.

Off	Don't use RS-232 mode
On	Press "Print", and fixed data is put out through RS-232 connector

This equipment uses RS-232 data cable for data transmission.

First, power on the CCQ-1100 auto focimeter and finish the parameters settings as per NO.21-27. At the same time, connect one end of the data cable to the port of the communication device, and then connect the other end of the data cable to the CCQ-1100 auto focimeter. After the CCQ-1100 measurement is completed, and click the print button on the screen to perform data communication (note: the receiver must open the RS-232 serial port, and the parameter settings need to match the settings of items NO.21-27 and just can be communicated successfully).

29) Data Record: Off, On, Auto. Factory settings: Off.

Set whether to keep the measured data record in the system.

Off	Don't record the data.
On	Press "Print", and record the measured data
Auto	Finished measured data will be automatically record, then the data is cleared.

30) Note: Edit

Press the "Edit" key to display the product serial number, user and note. Among them: the product serial number cannot be edited, users and notes can be edited. Click the input area corresponding to the user and the note to pop up the keyboard.

Keyboard frame is composed of character (upper/lower letter, Arabic number and punctuation) and function key. Click the character or function key on keyboard frame, corresponding operation will display on edit bar.

● After user information edit is completed, the user information can be saved permenantly.

31) Output: Off, On. Factory settings: Off.

Off	Don't print user, note information
On	Print user, note information

32) Guide Page: Off, On. Factory settings: On.

Off	The guide Page is not displayed after the instrument is turned on
On	Guide page displayed after the instrument is turned on

33) Restore: Default

Press this key to restore all parameters to factory settings.

34) Theme: Blue, Classical, Green, Orange. Factory settings: Blue.

7. Maintenance

7.1 Trouble-shooting

If the instrument does not work properly, please find out the symptom and action according the table below:

Symptom	Action
Pilot lamp is off	Check the power connector, and reconnect if there is disconnection
Data is not printed out	Check the printer paper. If the paper has been used up, set new printer paper The "Printer" parameter may be set to OFF, reset the parameter
The printer does work, but printed result cannot be obtained	The printer paper may be set with the wrong side up. Set it with the correct side up. If the paper gets stuck, the paper may not be set correctly. Set it again correctly.

● If the above actions are not working, please contact us for after-sales service.

7.2 Replacing printer paper

When a horizontal red line appears on the edge of the printing paper, please stop using the printer and replace it with new printing paper. The steps are as follows:

a. Pull the transparent printing compartment door and open the printer cover.

b. Put the new printing paper roll into the printing box.

● If the paper is turned upside down, the print data will not be displayed on the paper.

c. Pull out the printing paper along the paper outlet of the printer cover.

d. Close the printer cover, and the transparent printing compartment door will reset automatically to complete the replacement.

● Please do not print without printing paper, or pull the printing paper in the printer forcefully, this kind of operation will reduce the life of the printer.

7.3 Error messages and countermeasures

If a message appears on the screen, find out the symptom and action according to the table below:

Information	Processing method
Init Error	Check the Lens support, press the OK button and restart the instrument
Please remove lens from Lens support	After removing the lens, press the OK button and restart the instrument
Dust detection. Please clean lens	Check Lens support. Remove the dust and dirt from the protective glass. Press the OK button to restart the instrument
Do you want to use Contact Lens support	Replace with spetacle Lens support, press the OK button to restart the instrument; or choose "NO" to quit measuring contact lens
CMOS Error	Failure in the interior of the instrument. Contact authorized distributor

● To guarantee the normal and safe operation of the equipment, a preventive check and maintenance should be conducted for the ME equipment and its parts every 6-12 months (including performance check and safety check).

● If the surface of the lens is not clean or the measuring beam is blocked, measurement may be inaccurate.

● If the rubber support on the measurement base is lost, it will cause measurement inaccuracy. Contact your local dealer or manufacturer.

7.4 Refilling ink
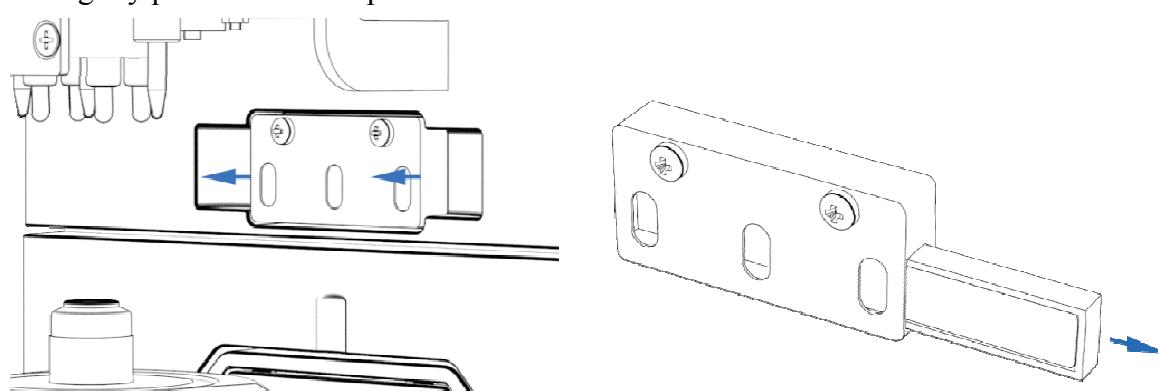
When marking becomes faint, it means you need to refill ink.

7.4.1 Remove the ink pad

a. Hold the mark holder with right hand.

b. Pull it out plumb with left thumb and index finger pressing the two ends of ink pad.

7.4.2 Remove the woolen felt

a. Push the felt box out with tool.

b. Slightly push out the felt pad.

7.4.3 Refill the ink

7.4.4 Put the refilled ink box back to the instrument

● The two screws on the pad are facing up.

7.5 Cleaning the protective glass

Remove the dust and dirt from protective glass regularly.

a. Remove the Lens support.

b. Blow off the dust and dirt on the surface of the protective glass with a blower.

c. If it's still dirty, wipe gently with a lens cleaning paper moistened with alcohol.

● Dust on the protective glass may affect the measurement precision. Take special care not to scratch the protective glass. Flaws on the glass substantially lower the reliability of measurement.

7.6 Cleaning the lens

a. Blow off the dust and dirt on the surface of the lens with a blower.

b. Wipe gently with a lens cleaning paper moistened with alcohol.

● Wipe the lens from the center to the outside clockwise.

c. Check if the window is clean. If not, clean it again with a new paper.

● Change the view angle to check the dirt clearly.

7.7 Others

Clean with soft cloth when the cover or dial becomes dirty. If there is dirt, wipe with cloth moistened with neutral detergent, and then dry it with dry soft cloth.

Clean frequency: Need check if optical path system is dusty when turn on instrument.

● The instrument no touch with patients, needn't disinfect.

● Do not use organic solvents like diluted paint, which will ruin the surface of the instrument.

● Wipe gently the screen or touch screen will be broken and lead to malfunction.

● Do not wipe with watered sponge or cloth, as water may go into the instrument and lead to malfunction.

8. Environmental Conditions

8.1 Environmental conditions for normal operation

Temperature: 10℃ to 35℃

Humidity: 30% to 85% (No condensation)

Environmental pressure: 800hPa to 1060hPa

Clean indoor place, no direct strong light, no vibration and collision

8.2 Environmental conditions for transportation and storage

Transportation temperature: -10℃to 55℃

Transportation humidity: 10% to 85% (No condensing)

Transportation environmental pressure: 700hPa to 1060hPa