VIEWLIGHT
POWERED BY INNOVATION

AUTOREFRACTOR & KERATOMETER

MANUAL

URK-900F

EN

VIEWLIGHT
POWERED BY INNOVATION

Before use this instrument, be sure to read this manual

Table of Contents

1. IMPORTANT NOTICE

1.1 Intended Use

The Auto Refractor/Keratometer **URK-900F** is used to determine the initial, objective refractive values for a patient's eye in the workflow of refraction to determine the optical prescriptions for myopia, hyperopia and astigmatism.

1.2 Classifications

[Classification under the provision of 93/42/EEC(MDD)] Class Ⅱa
The URK-900F is classified as Class Ⅱa device

[Form of protection against electric shock] Class Ⅰ
The URK-900F is classified as Class I.
This product is always protected when you connect the power supply must be connected to ground included. Class I is a product in which the protection against electric shock does not rely on basic insulation only, but which includes an additional safety precaution in such a way that means are provided for the connection of the product to the protective (ground) conductor in the fixed wiring of the installation in such a way that accessible metal parts cannot become live in the event of a failure in the basic insulation. Use a power outlet which is equipped with a grounding terminal.

[Degree of protection against electric shock] Type B Applied Part
The URK-900F is classified as a device with a Type B Applied Part

[Degree of protection against ingress of liquids] IPX0
The URK-900F is classified as IPX0

[Degree of protection against flammability]
The URK-900F is classified as a device not suitable to be used in a potentially flammable environment. Do not use near flammable materials

[Method(s) of sterilization or disinfection recommended by the manufacturer]
The forehead rest and chinrest should be wiped using a cloth dampened with soapy water as necessary

[Mode of operation]
Classification of URK-900F : continuous operation

1.3 Caution

This product may malfunction due to electromagnetic waves caused by portable personal telephones, transceivers, radio-controlled toys, etc.
Be sure to avoid having objects such as, which affect this product, brought near the product. Professional healthcare environment is sutable for use. It should be used under the supervision of medical staff of hospital.
The information in this publication has been carefully checked and is believed to be entirely accurate at the time of publication. URK-900F assumes no responsibility, however, for possible errors or omissions, or for any consequences resulting from the No use of the information contained herein.

URK-900F reserves the right to make changes in its products or product specifications at any time and without prior notice, and is not required to update this documentation to reflect such changes.

	“ Do not modify this equipment without authorization of the manufacturer.” “ If this equipment is modified, appropriate inspection and testing must be conducted to ensure continued safe use of equipment”

VIEWLIGHT LLC
8380 NW 64 ST
Miami Fl 33166, USA
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2. SAFETY

2.1 SAFETY INFORMATION

Accessory equipment connected to the analog and digital interfaces must be certificated according to the respective IEC/EN standards (e.g. IEC/EN 60950 for data processing equipment and IEC/EN 60601-1 for medical equipment).

Furthermore all configurations shall comply with the system standard EN 60601-1-2:2007. Everybody who connects additional equipment to the signal input part or signal output part configures a medical system, and is therefore responsible that the system complies with the requirements of the system standard EN 60601-1-1:2001.

If in doubt, consult the technical service department or your local representative.

For EU Countries

- The following mark, the name & address of the EU Representative shows compliance of the instrument with Directive Council Directive 93/42/EEC of 14 June 1993 as amended by Directive 2007/47/EC concerning medical devices.

ISO 15004

- This report provides information about the hazard to the examinee's eyed in compliance with ISO 15004-1:2006, ISO 15004-2:2007 Ophthalmic instruments – Fundamental requirements and test methods Part2– Light hazard protection. This condition is satisfied even when the instrument is operating at maximum light intensity and maximum aperture! (Maximum intensity is the highest brightness the instrument is capable of delivering, including the highest brightness achievable if overvoltage is provided) detailed radiation information at normal usage of this instrument is like bellows.
  Radiation output: below 117.1 μW/cm2 Limit by ISO15004: 20 mW/cm2

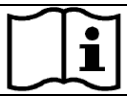
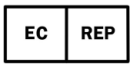
Number	Radiation output [μW/cm2]
1	107.0
2	117.1
3	115.5
4	115.7
5	103.6
6	103.7
7	108.8
8	109.0
9	105.6
10	105.8
average	109.1

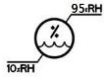
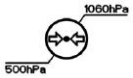
CE
2195

EC REP

Ellegi Medical Optics s.r.l.
Via Pisciarelli 79- 80078,
Pozzuoli(NAPLES) ITALY

2.2 Symbol Information

Symbol	Descriptions
	TYPE B EQUIPMENT
	Protective earth (ground)
	Alternating current
	Off (power: disconnect to the mains)
	On (power: connection to the mains)
	Do not throw away the waste to inappropriate place
	Crushing hazard sign
	Hand hazard sign
	Instruction for user manual
	Operating instructions
	CAUTION
	Keep dry symbol
	DO NOT Hand Hooks symbol
	Fragile symbol
	Recycling symbol
	Handle with care symbol
	Do not build up more than 2 boxes
	Manufacture
	Europe Representative

	Manufacture Date
	Only one unit in the box
	Temperature between - 40˚C ~ 70˚C
	Humidity between 10%RH ~ 95%RH
	Air pressure between 500hPa ~ 1060hPa

2.3 Shape Of Plug

Country	Voltage/frequency	Shape of plug
Mexico	110V/50Hz	Type C&E
Argentina	220V/60Hz	Type A
Peru	220V/60Hz	Type A
Venezuela	110V/50Hz	Type C&E
Bolivia & Paraguay	220V/60Hz	Type A(Most common) / Type H(Infrequently)
Chile	220V/60Hz	Type A
Colombia	110V/50Hz	Type C
Brazil	220V/60Hz 127V/60Hz	Type A Type C
Ecuador	110V/50Hz	Type C&E
USA	120V/60Hz	Type A(Hospital Grade)
Canada	120V/60Hz	Type A(Hospital Grade)

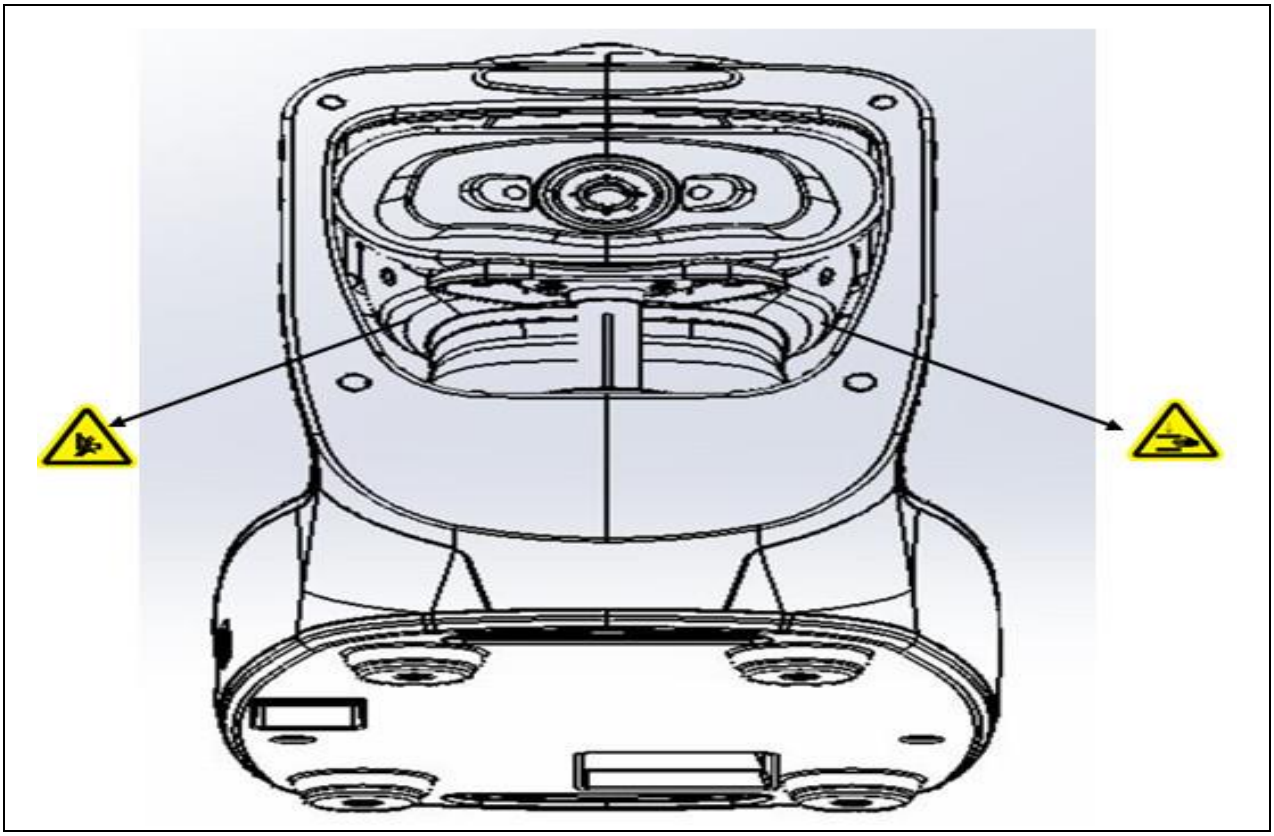
2.4 General Safety Information

If you see any warnings or cautions printed on the warning labels, follow the safety instructions in this manual. Ignoring such cautions or warnings while handling the product may result in injury or accident. Be sure to read and fully understand the manual before using this product.
Keep this manual in easy-to-access place.

Safety Symbols and sign


This indicates hazardous situations which may result in crush your hand.

This indicates hazardous situations which may result insert your hand.
NOTE
This is used to emphasize essential information. Be sure to read this information to avoid incorrect operation.



2.5 Cautions in Installation , Storage and Transportion

● Exposure to the direct sunlight or too bright indoor lights may influence on the result of accurate measurement. Use the appropriate Optometry room.

● Keep the objective glass of the examinee side clean. If it was stained, it may cause on ERROR or inaccurate measurements.

● In case you leave URK-900F without using for certain period, disconnect the power supply and protect the unit with dust cover.

● In case moving this URK-900F, fix the stage by using clamping bolt and stage holding knob, always keep power off, and then lift the bottom of the unit with both hands.

● In case moving this URK-900F, do not hold forehead.

● In case moving and connect other device this URK-900F, keep in touch with qualified technician or service agent and place the equipment plain.

● Get worked, store and move under the following environment conditions for proper operation.

● Operation environment :

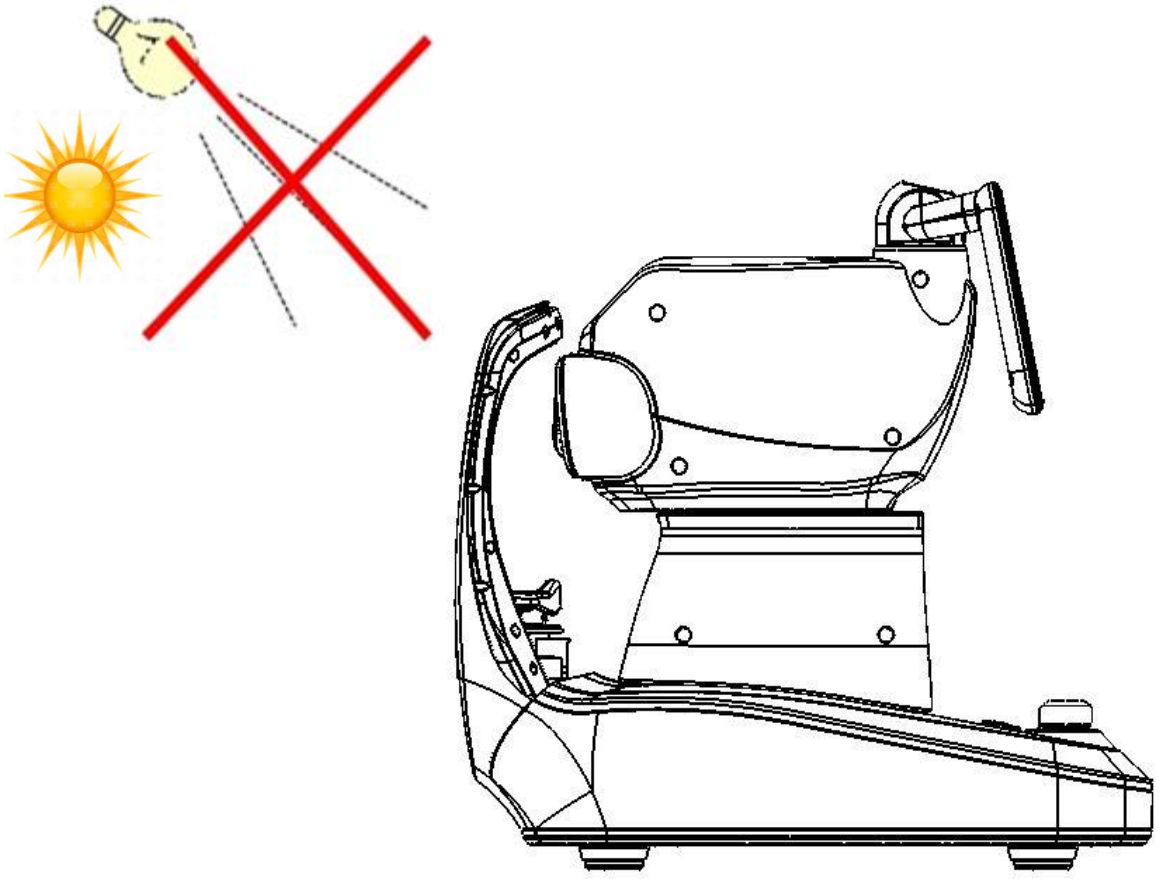
- Temperature : +10℃ ~ +40℃
- Humidity : 30% ~ 90% RH
- Atmospheric pressure range : 700 hPa ~ 1060 hPa

● Storage and Transportion environment :

- Temperature : -40℃ ~ +70℃
- Humidity : 10% ~ 95% RH
- Atmospheric pressure range : 500 hPa ~ 1060 hPa

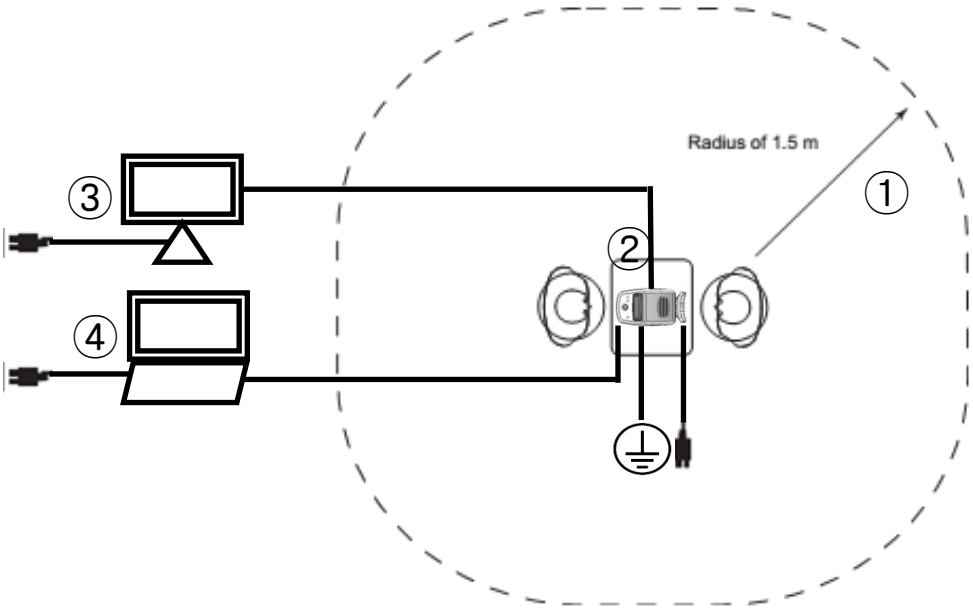
2.6 Environment of installing the device

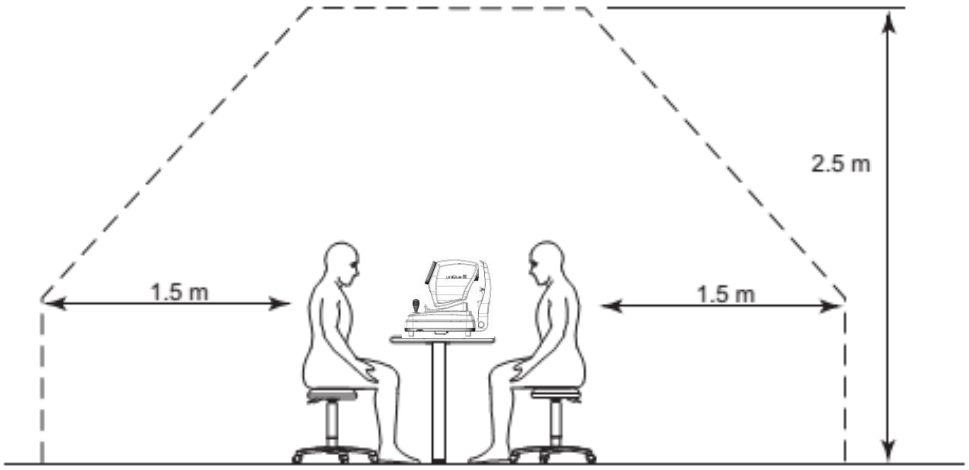
	Avoid installing the device on a place where it is exposed to direct sunlight or near the illumination. Be sure to install the blind when installing the URK-900F near to the window. Exposure to the direct sunlight or too bright indoor lights may influence on the result of accurate measurment.



2.7 Patient environment

The patient environment represents a space where there is a possibility of direct contact between the patient or the operator and third person.
When another type of device is used in the patient environment, use a device that complies with IEC 60601-1. If the devices that do not comply with IEC 60601-1 are used, it is necessary to use an isolating transformer to power the device or to connect the devices to additional protective grounding.





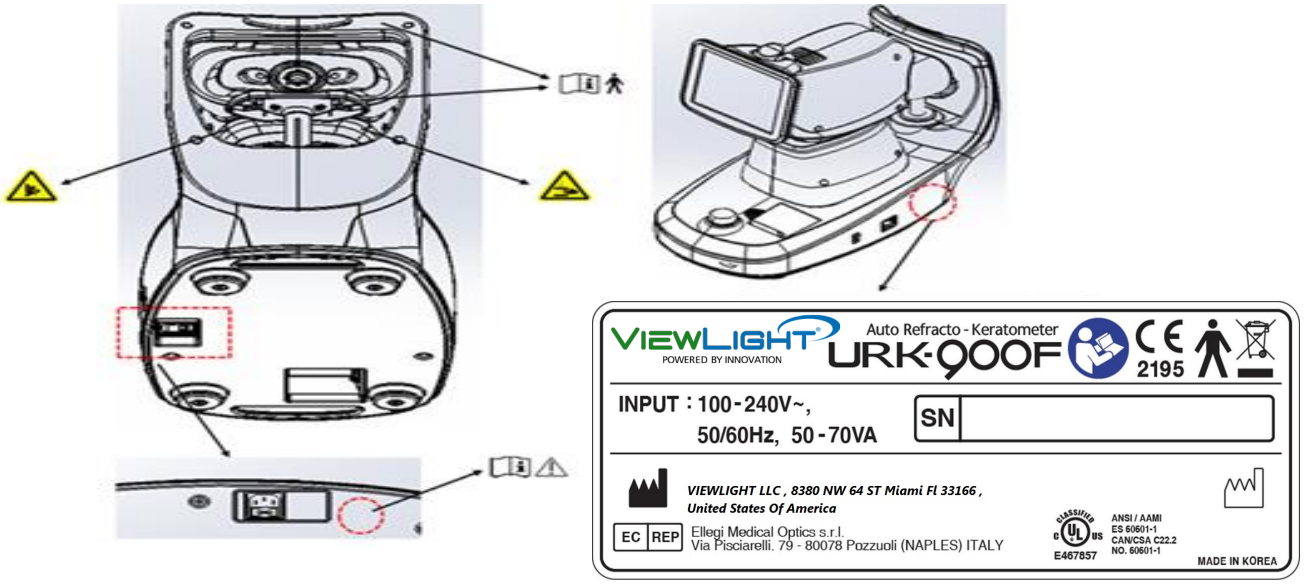
①Patient environment (represented by dotted line, extending exactly 1.5 meters)

②URK-900F equipment ③④ Peripheral equipment(EN XXXXX and IEC XXXXX)

⑥ Power cord(⑤included protective earth)

2.8 External Labels

The following labels and indications are affixed to draw the operator's attention



3. Features

- Various Measurements Supported
  Not only the usual refractometry and keratometry, but also corneal diameter and base curve of contact lens can be measured with this one instrument. Thus, measurements of eye and prescriptions for glasses and contact lenses can be made more efficiently.

- Wide Dioptric Measurement Range
  Because the URK-900F covers a wide measurement range, from -25D to +22D, even an examinee with strong myopia can be measured.

- More accurate Measurement
  The fogging method of the eye fixation target makes examinee's eye comfortable and enables to get more accurate measurement data

- Simple and convenient user's environment
  Deliver more convenient user environment with wide viewed 8.0" TFT COLOR LCD screen and with simple and intimate design.

- Developed illumination
  This function is able to observe eye condition of the cataract or contact lens surface. It is able to save 2 images of each eye and continuous observation.

- Easy Connection with other Equipment
  This instrument is designed to connect other Equipment such as LCD monitor.

4. Notes for Using the Instrument

1. To avoid the risk of electric shock, this equipment as power protective earth
   connection must be connected
2. Ensure that the examinee has not placed his/her hand or fingers under the chin rest. Otherwise, hand or fingers may be hurt.
3. Do not hit or drop the instrument. The impact may cause damage to the function of this instrument. Please handle with care.
4. Only operate the instrument with the power supply indicated on the rating plate. Otherwise, it may result in fire or electric shock.
5. Never disassemble or modify. This can cause fire or electric shock.
6. In case there is smoke, strange odor or noise during operation, disconnect the power supply and consult the distributor.
7. For replacement parts (battery, fuse, or other parts), please contact the distributor from whom you purchased the product.
8. The external connection device is used UL certificate device and the specified power code, paper and fuse are used.

1. A sudden heating of the room in cold areas will cause condensation on the protective glass in the monitor screen and on optical parts inside the instrument. In this case, just wait until condensation disappears before performing measurement.
2. Keep the objective glass of the examinee side clean. If it was stained, it may cause on ERROR or inaccurate measurements.
3. If you leave URK-900F without using for certain period, disconnect the power supply and protect the unit with dust cover.
4. When moving this URK-900F, fix the stage by using clamping bolt and stage holding knob, always keep power off, and then lift the bottom of the unit with both hands.
5. When moving this URK-900F, do not hold forehead.
6. When moving and connect other device this URK-900F, keep in touch with qualified technician or service agent and place the equipment plain.
7. The patient should raise your hands in your lap when measuring
8. When S/W version up, check the label on the main board.
9. Optometry chamber is 55 ~ 100 [lux] illumination suitable.

	1. Don't use organic solvents such as alcohol, thinner, benzene, etc. to clean the surface of this instrument. It may damage the instrument. 2. Do not store alcohol, thinner and other flammable vapors and liquids in the vicinity of this equipment. 3. Do not turn off the instrument before finishing initialization. It may cause motor movement error. 4. Do not use outdoors. The instrument is designed to be used only indoors. 5. Do not use Humidity or dusty environment 6. Never disassemble or modify this instrument because it may result in fire or electric shock. Also, since this instrument incorporates high-voltage parts and other hazardous parts, touching them may cause death or serious injury. 7. Keep it away from other persons but qualified technician. 8. Be sure to turn OFF the power switch before connecting or disconnecting the cables. Also, do not handle them with wet hands. Otherwise, you may get an electric shock that may result in death or serious injury. 9. If you leave this instrument without using for certain period, disconnect the power supply 10. This equipment may be able to be operated improper by micro waves from cellular phones, walkie-talkie, remote controlled electric toys. Keep it away.

At the time of publishing the information in this book carefully identified and has been judged to be correct. However, there are mistakes and omissions that the VIEWLIGHT, the use of the information contained in this book is not responsible for the results that occurred.

5. Prerequisites for safety

5.1 Preparation before use

-. Do not operate under direct sunlight or too strong lights
-. Do not store alcohol, thinner and other flammable vapors and liquids in the vicinity of this equipment.
-. Check the voltage.
-. Check printing papers are ready
-. Check chin rest is working properly
-. Remove dusts, especially on the lens.

5.2 Preparation when you use

-. Place this equipment plain
-. Do not put others on this equipment
-. Do not disassemble or modify on your own
-. Stand 40 minutes and get it worked if it is stored at extended temperate place
-. **Keep it away from other persons but qualified technician.**
-. Be sure to unplug if do not use long.
-. Do not turn off the instrument before finishing initialization.
(Don't power off during loading)

5.3 Instruction and operation sequence

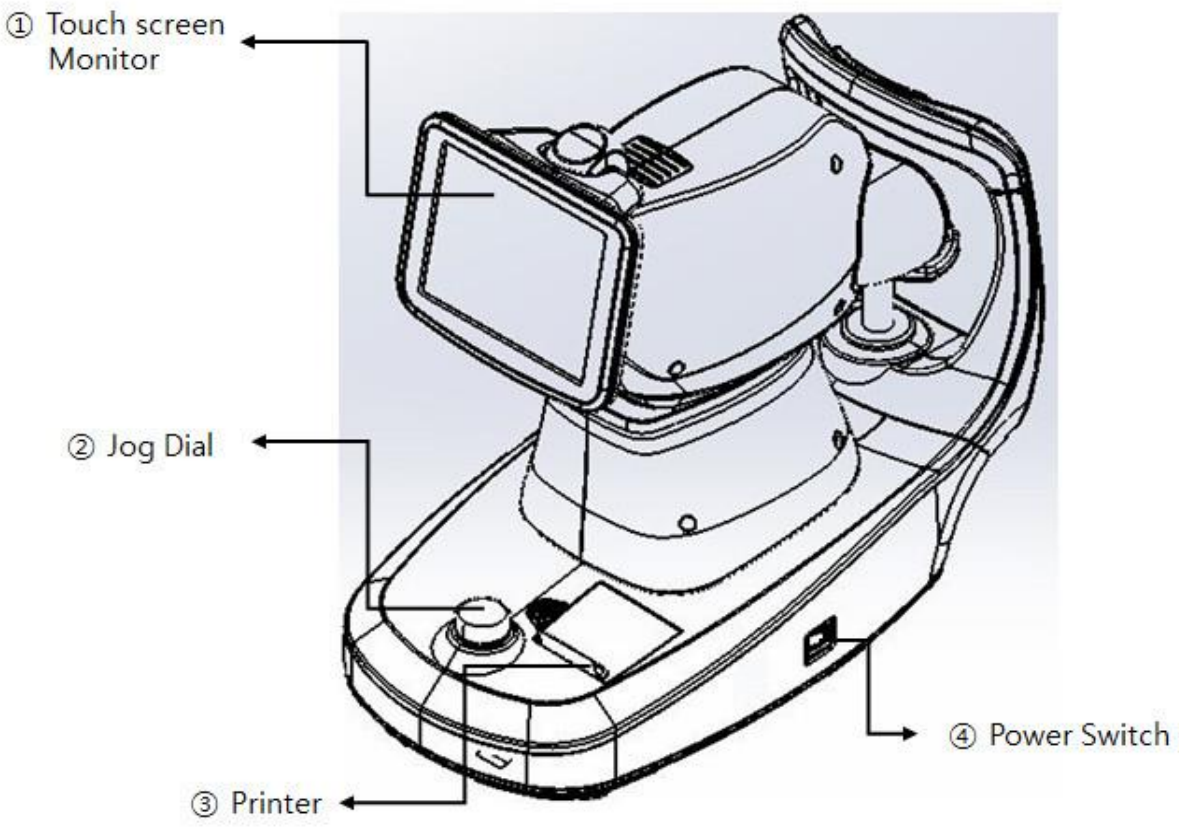
-. Please connect the power plug.
-. Press "ON"
-. Put the chin on chin rest and make forehead stuck on to forehead rest
-. Release stage by turning stage knob
-. Press buttons what you want
-. Try to get it worked as per the instructions of 5 and 7

5.4 Storage after use

-. Cover it up and unplug if do not use long
-. Clean with soft cloth, soaped and rinse, wipe dry
-. Wipe lens and glass' dusts out with wind blower and with soft cloth.
-. Fix by turning the fixation knob and keep it plain when you are about to move or lift up
-. Do store at the following place
    ① Not humid place
    ② Not in the vicinity of water
    ③ Not dusty and not in the vicinity of filthy place with salt or sulphur
    ④ Plain place
    ⑤ Not in the vicinity of vibration or shock
    ⑥ Not in the vicinity of other flammables vapors or liquids
    ⑦ Not in the vicinity of direct sunlight
-. Store the accessories and cords for next operation.

6. Introduction

6.1 Front side of body

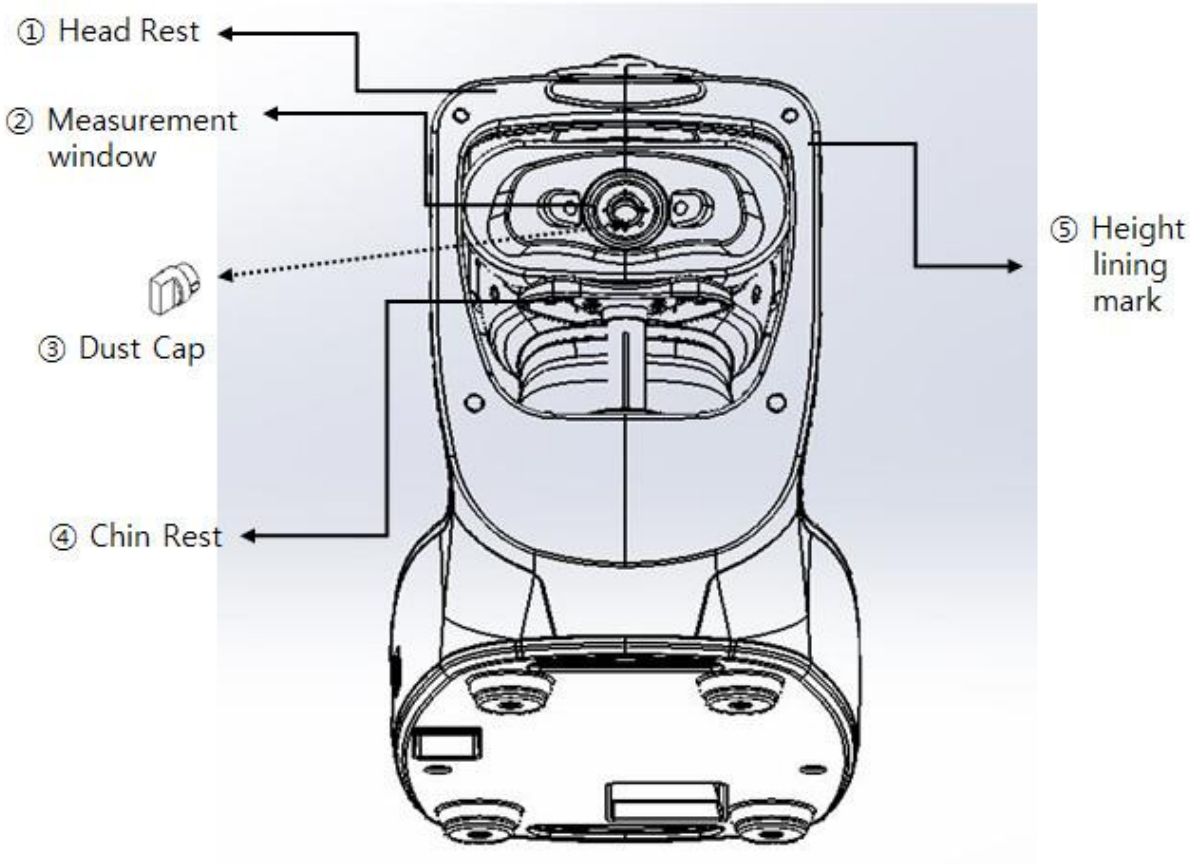


[Drawing 1] Front Side

Name	Functions
① Touch screen Monitor	Monitor that displays Measurement
② Jog Dial	Measurement button and control of moving
③ Printer	Print the measured result
④ Power Switch	Switch for turning power ON and OFF

[Chart 1] Front side

6.2 Back side of body

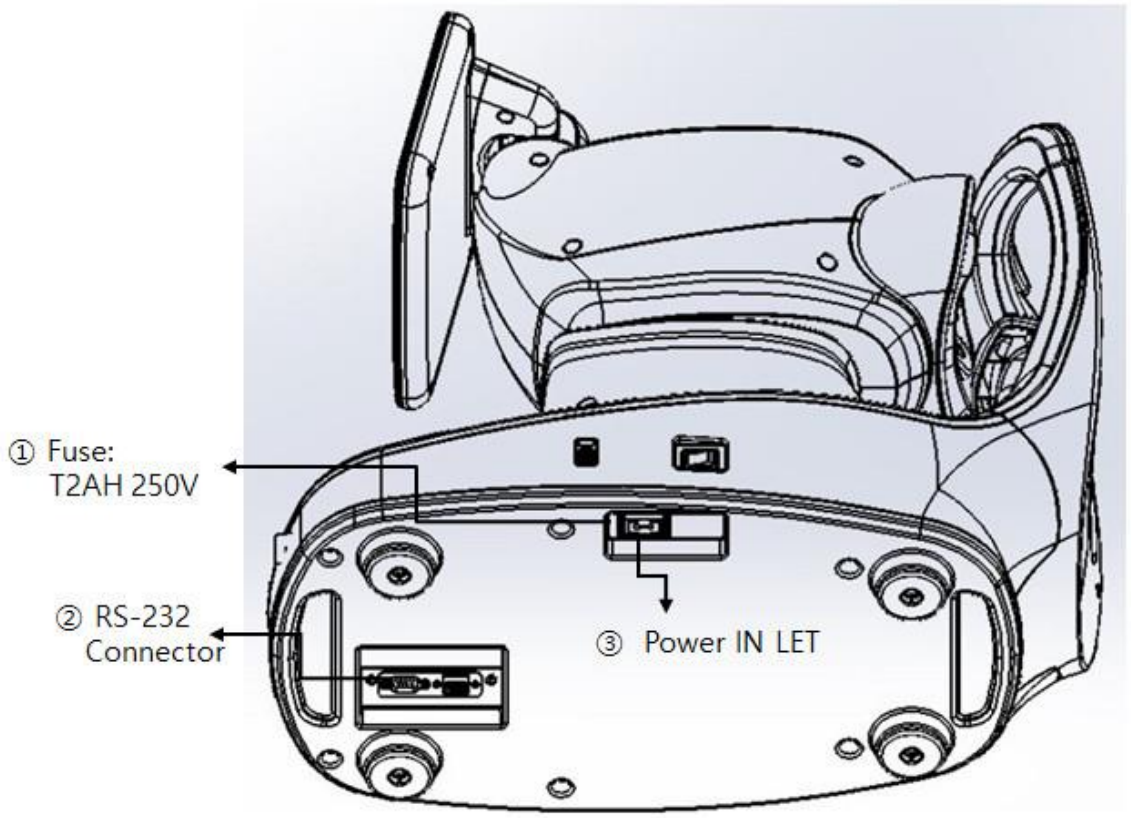


[Drawing 2] Back Side of Body

Name	Function
① Head Rest	Place the examinee's forehead against this rest.
② Measurement window	Window for the examinee to look at for measurement
③ Dust Cap	Anti-dust cap
④ Chin Rest	Place the examinee's chin on the rest.
⑤ Height lining mark	Lining up eye level of patient by regulating chin rest

[Chart 2] Back side of body

6.3 Bottom side of body



[Drawing 3] Bottom Side of Body

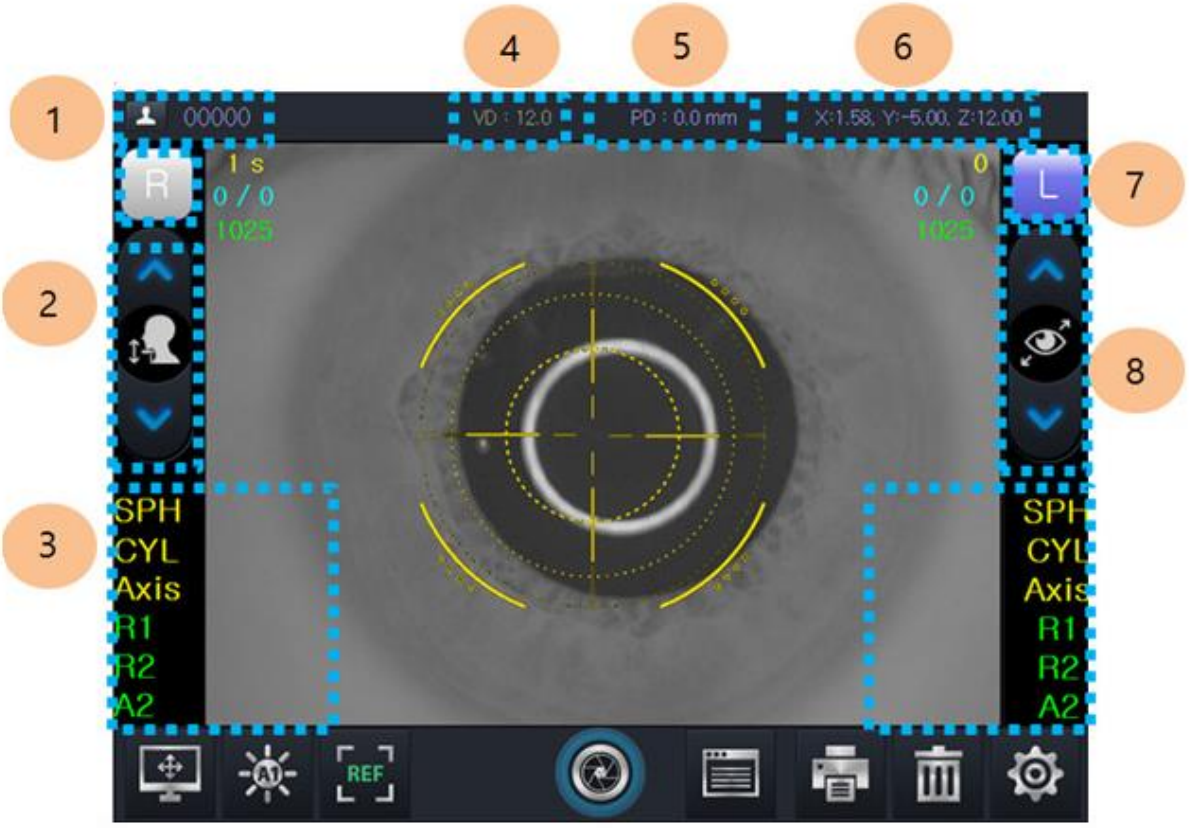
Name	Function
① Fuse: T2AH 250V	Protects instrument from the excess electric power.
② RS-232 Connector	Connect with PC
③ Power IN LET	Connector for the power supply code

[Chart 3] Bottom Side of Body

7. GUI(User Interface)

The user interface was applied to the touch-screen buttons of the URK-900F. So the user's convenience and speed of operation is improved. The frequently used buttons is located on the left and right of the screen frame. In the measurement mode is commonly used. The remaining modes except measurement modes each mode, please refer to the description page

7.1 Main Dialog 1



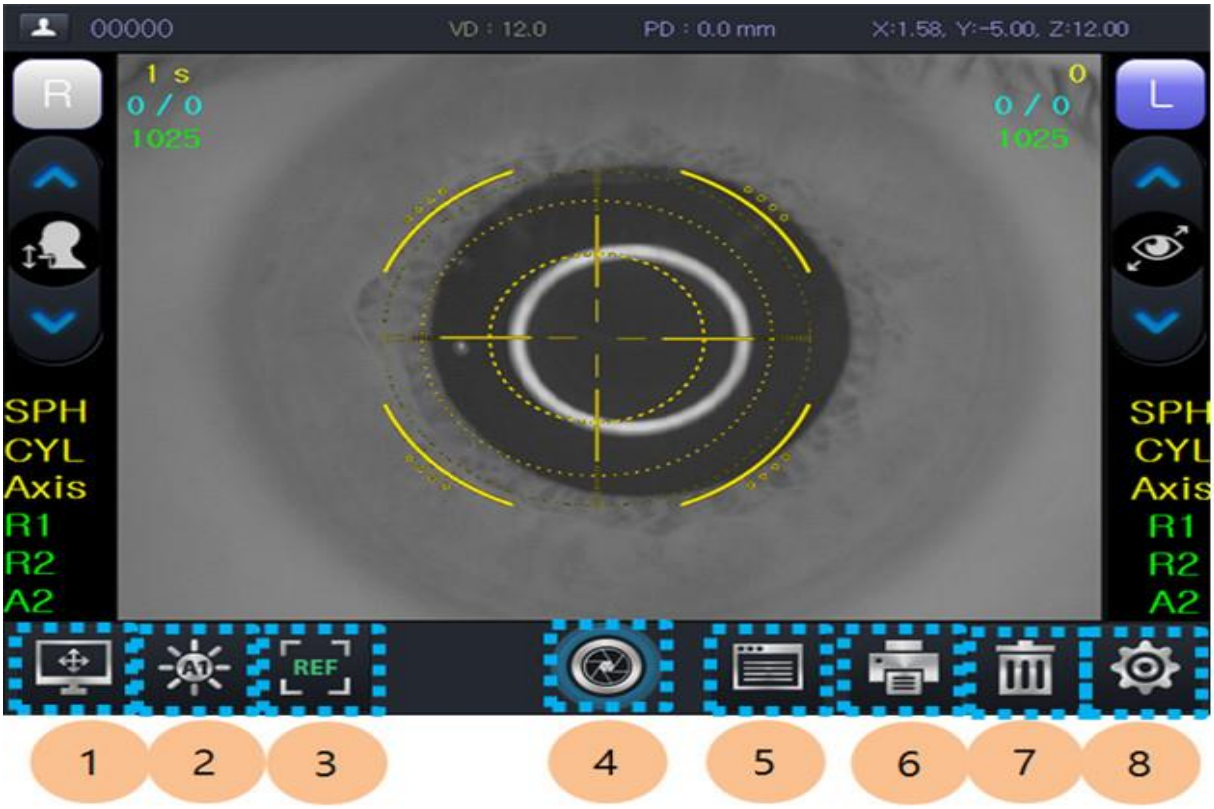
[Drawing 4-1] Touch Screen 1

Name	Function
① Number	The number of patients to be recorded on the print out.
② Chin Rest Up/Down Button	For regulating height of chin rest
③ Measumemet Value (Right / Left)	Displays SPH, CYL., AXIS, R1, R2, A2 of measurement value(Right / Left)
④ VD (Vertex Distance)	Display of VD(Vertex Distance) results. When inactive, the touch screen entries and values VD. When you touch active in the VD is inactive. When you touch the value of the following values change: 0.0→10.0→12.0→13.5→15.0

⑤ PD	Display of PD(Pupil Distance) results.
⑥ X,Y,Z	Displays Current motor position value
⑦ Motor status	Displays Current motor status value
⑧ Focusing button	Control of Focusing

[Chart 4] Operation Button

7.2 Main Dialog 2

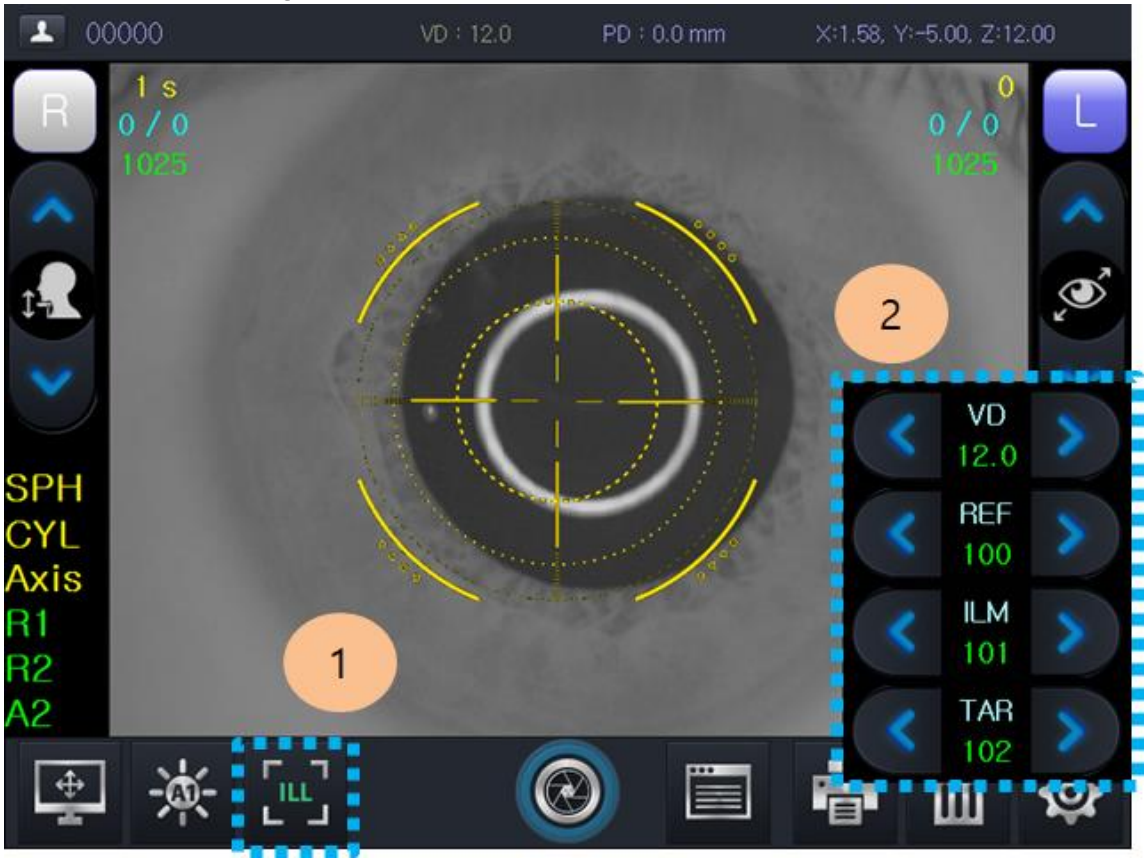


[Drawing 4-2] Touch Screen 2

Name	Function
① Motor initial position	Touch to go for motor initial positiont.
②. Measurement Mode 1	A1 : Auto measurement of monocular vision. A2 : Auto measurement of binocular vision. M : Manual measurement
③ Measurement Mode 2	Selects a measurement from REF, KER, R&K, CLBC, ILLUM,KP and SIZE
④ Start button	Starts measurement
⑤ Measurement Display button	Display of measument results.
⑥ Print out button	Prints measurement results
⑦ Trash can button	Clears measurement data.
⑧ Settings button	Displays the Settings screen.

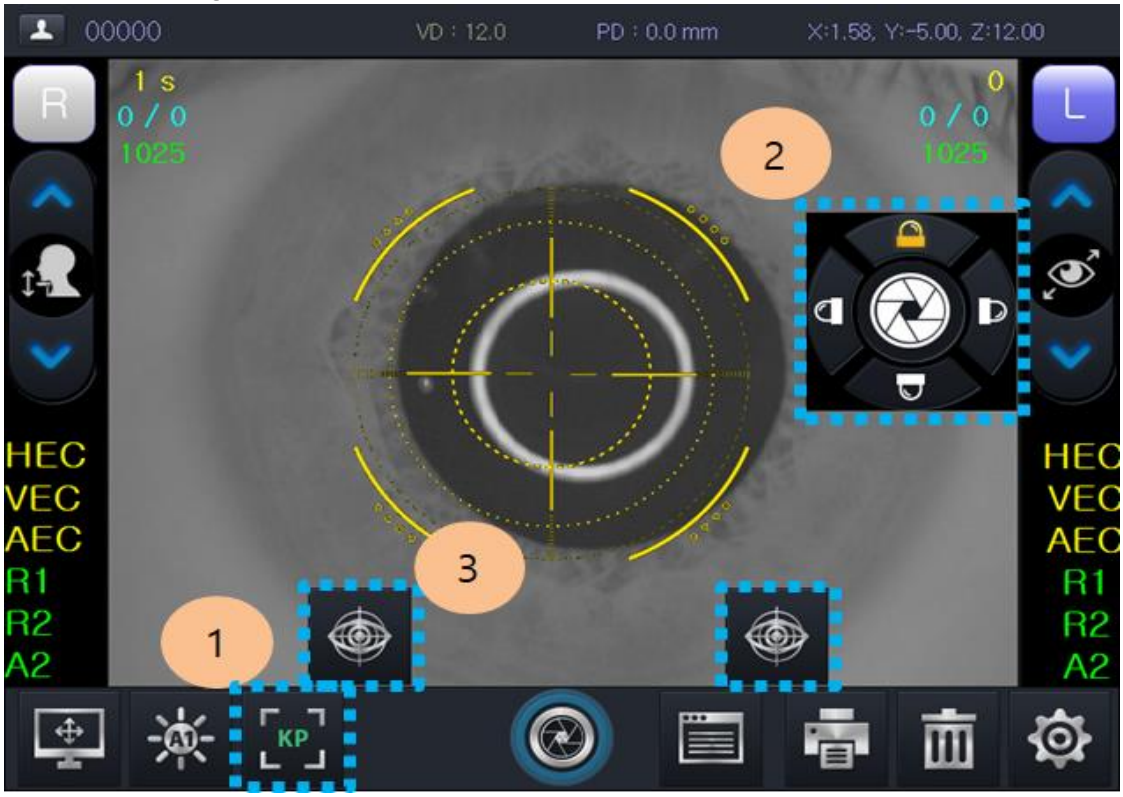
[Chart 4] Operation Button

7.3 ILLUM Dialog



Name	Function
① ILLUM Display mode	Selects a measurement of ILLUM.
②. Control Panel for ILL parameter	Control of VD, REF, ILM, TAR value.

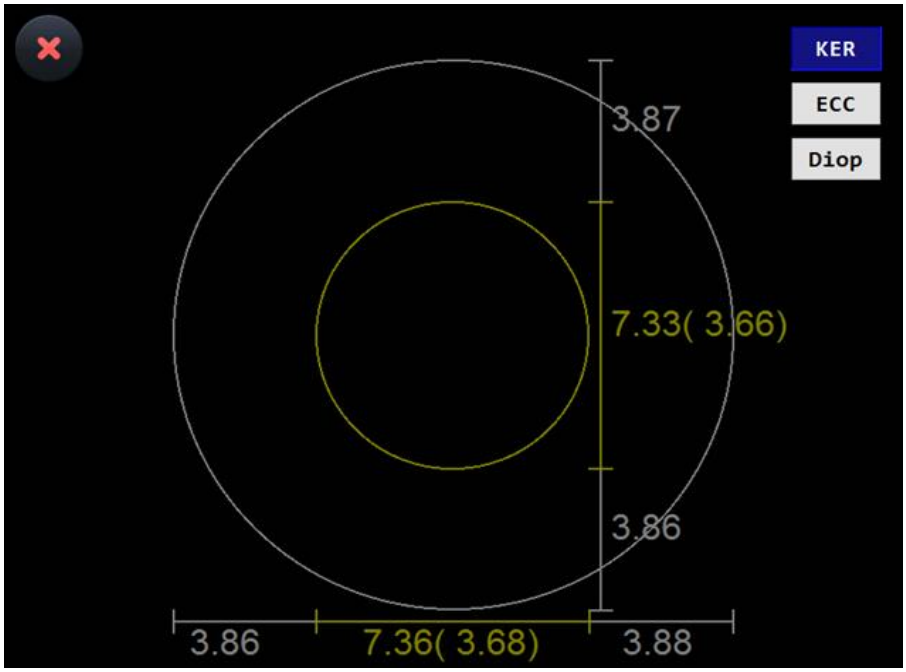
7.4 KP Dialog



You start measurement in KP Mode, measure the Kerator value of the center and then measure the Kerato value of 4 position (up, down, left, right).

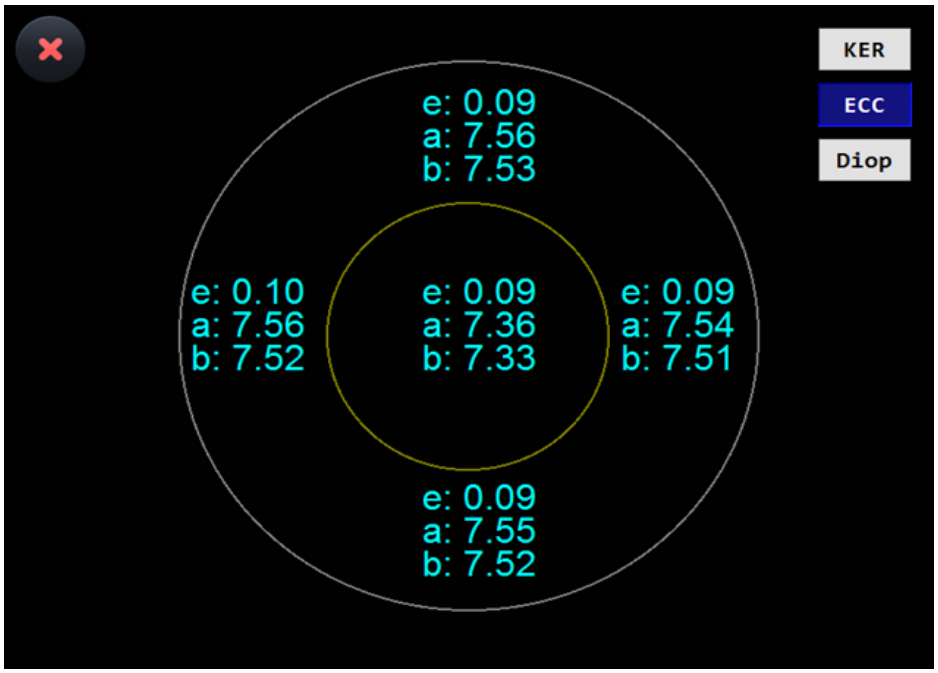
Name	Function
①KP Display mode	Display of KP mode.
②.Measurement Direction Mode	Display of measurement direction
③ KP measurement result	Display of KP measurement result (KP-Ker / KP-ECC, KP-Diop)

7.5 KP-Ker Dialog



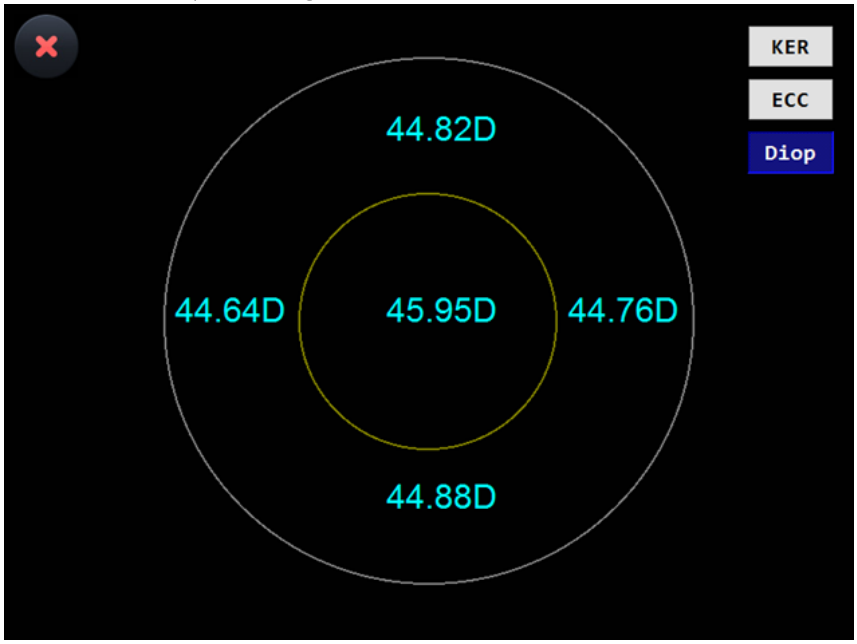
Display of KER measument result.

7.6 KP-ECC Dialog



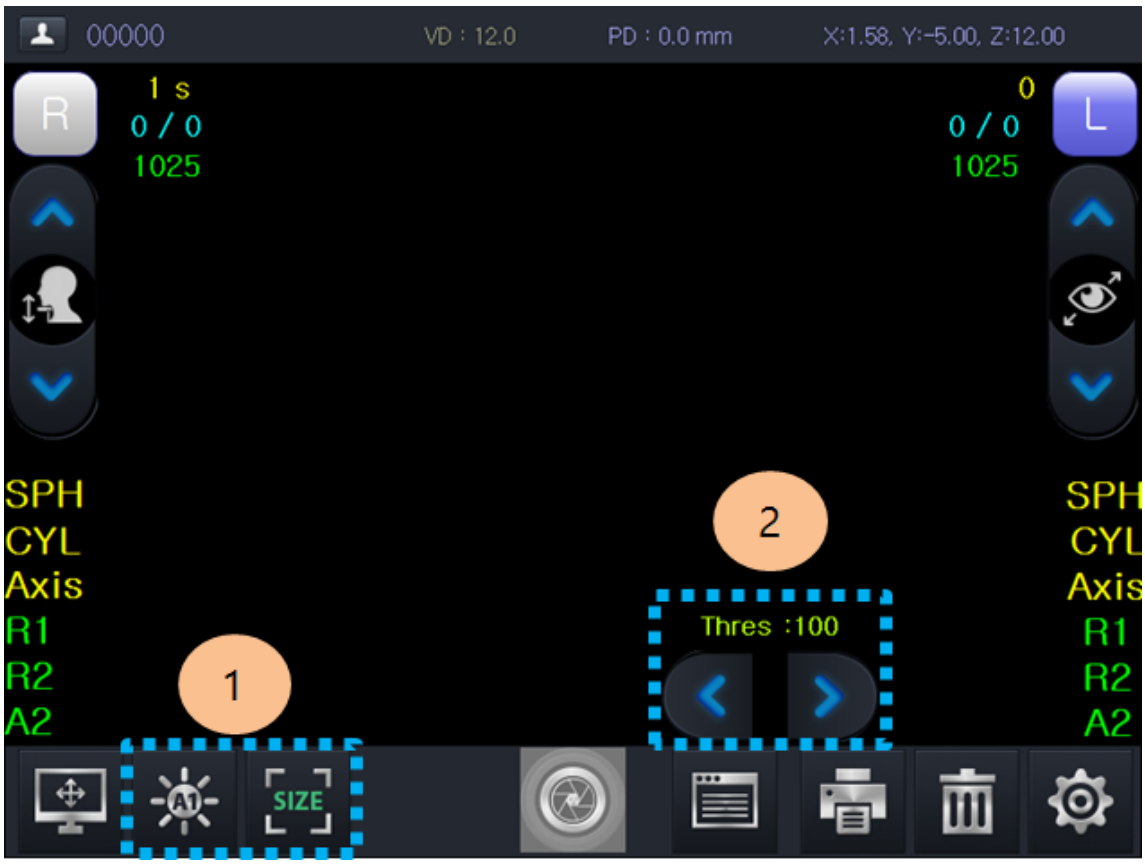
Display of ECC measument result.

7.7 KP-Diop Dialog



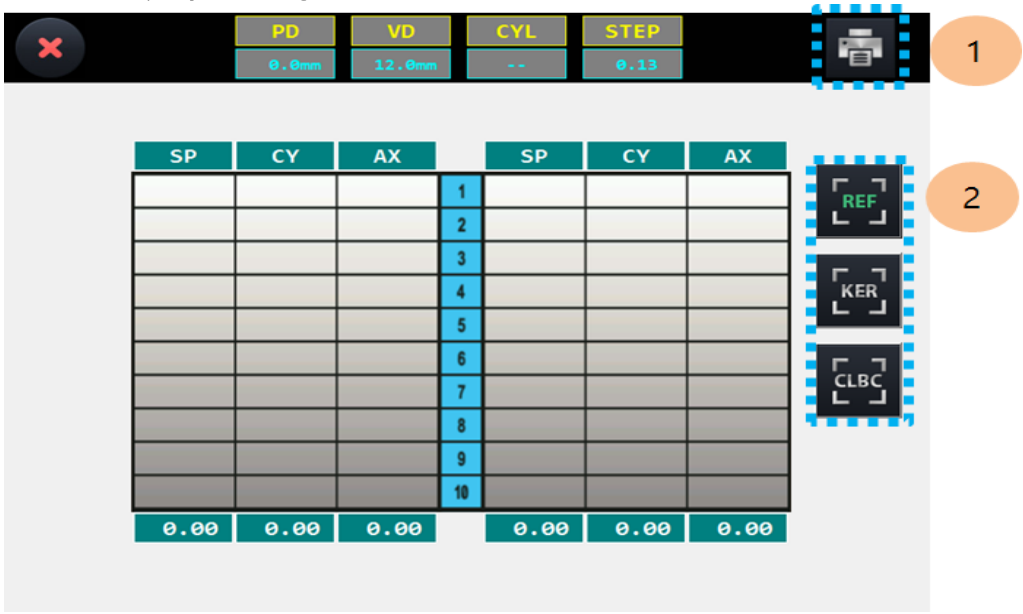
Display of Diop measument result.

7.8 Size Mode



In size mode, you can select Auto or Manual and adjust the ThreshHold value

7.9 Display Dialog

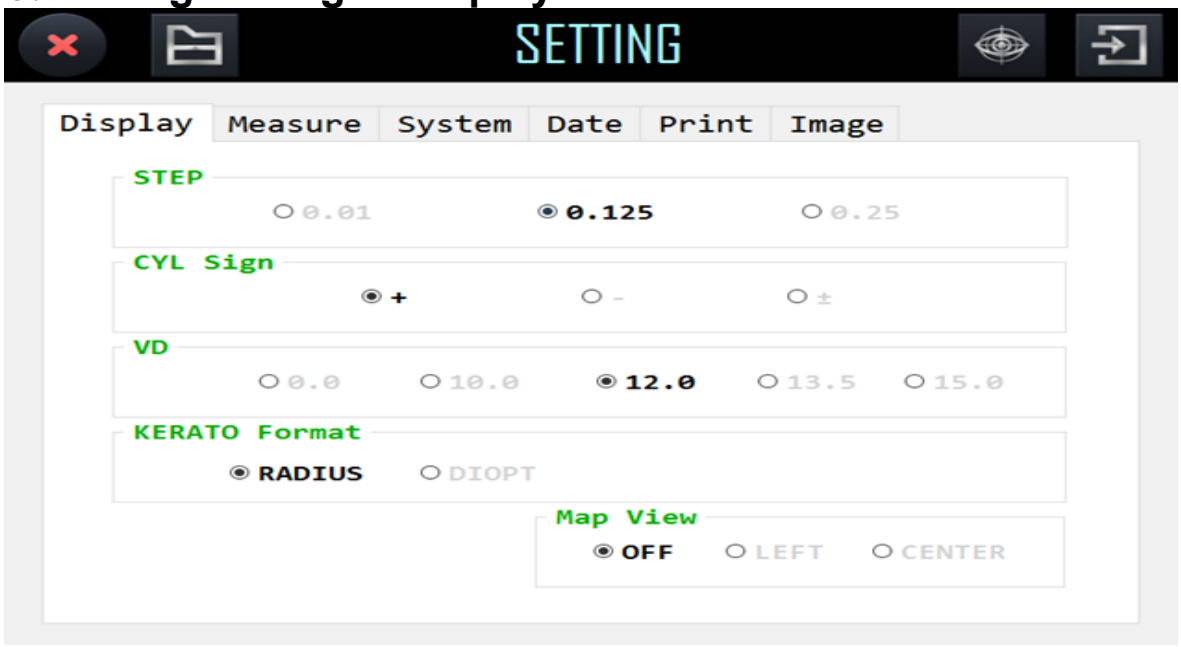


Show the measured value.

① Print the measured value.

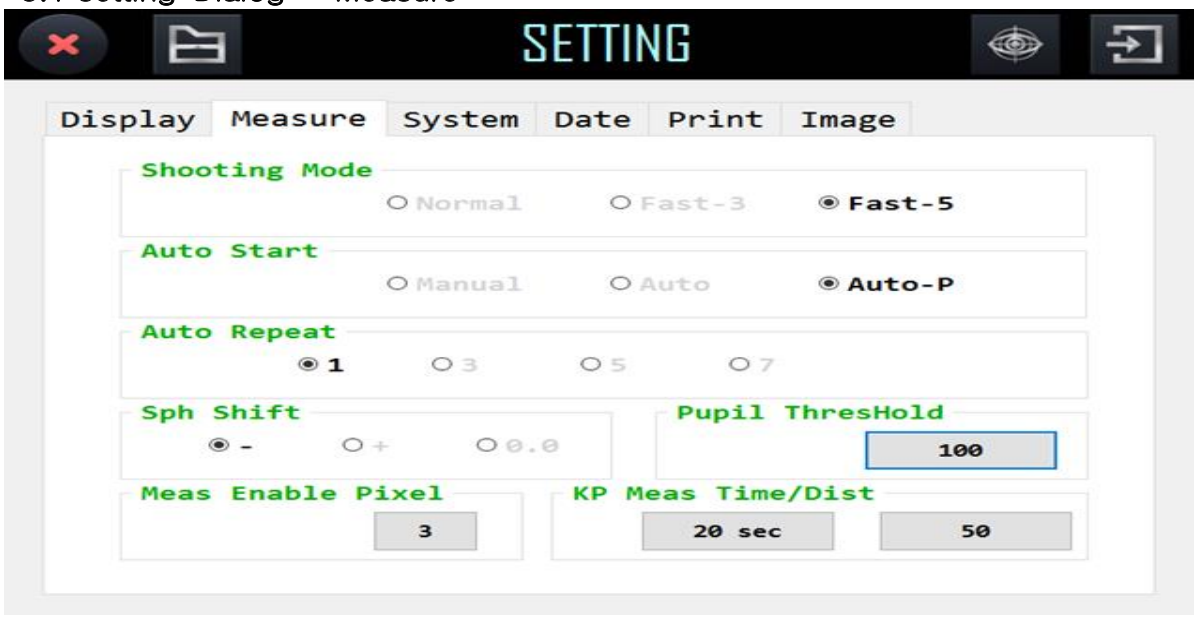
② It shows KER / REF / CLBC value.

8. setting Dialog - Display



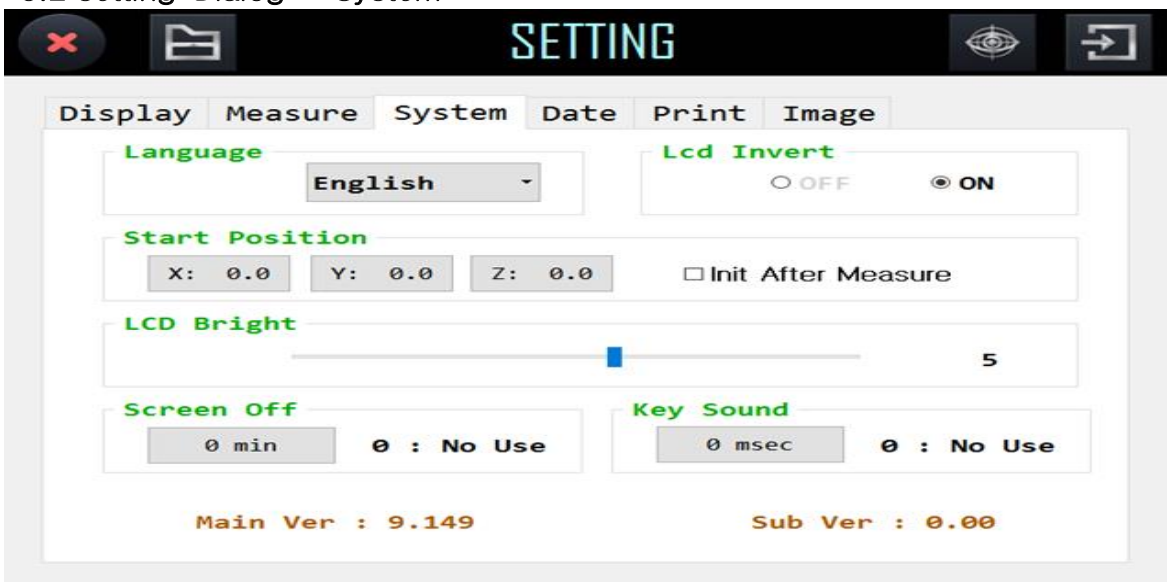
① STEP : Unit of measurement value.
② CYL Sign : Setting +, - or ±
③ VD : Setting : 0 / 10.0/ 12.0/ 13.5/ 15.0 VD value
④ KERATO Format : Setting format of Radius or Diopt
⑤ Map View : Showing motor position map.

8.1 setting Dialog – Measure



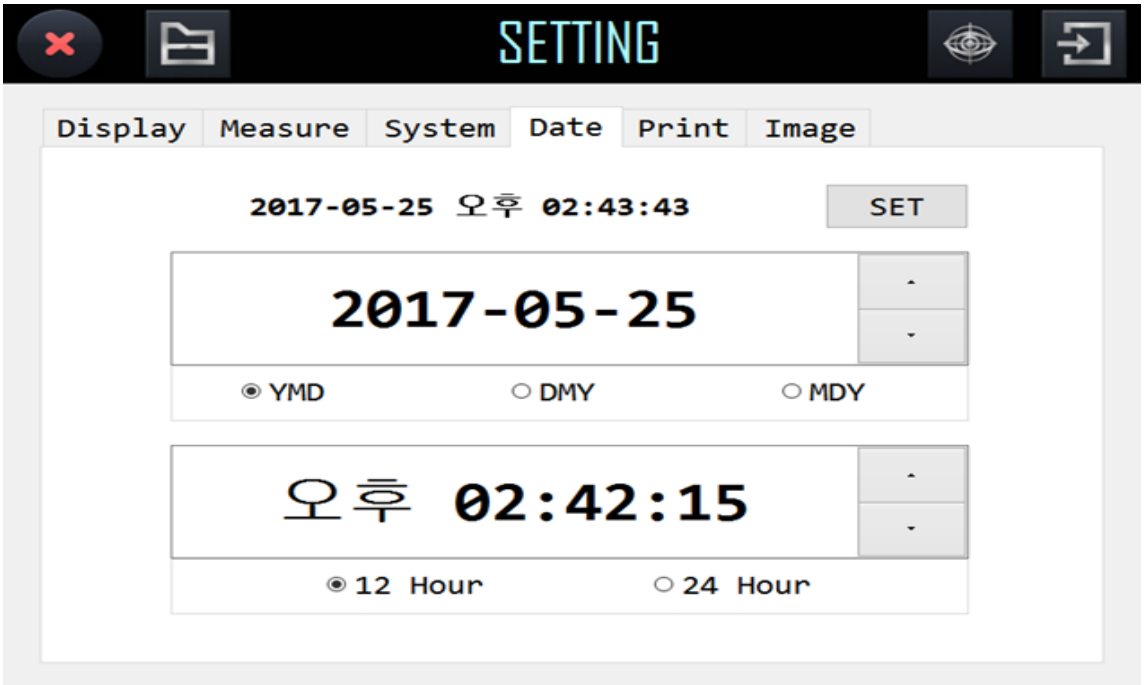
① Shooting Mode : Select Normal: 1 measure / Fast-3: 3 measure / Fast-5
② Auto Start: Select Manual / Auto / Auto-P
③ Auto Repeat: Select 1 / 3 / 5 / 7
④ SPH Shift Select - / + / Value
⑤ Pupil ThresHold : Input threshold value of pupil size
⑥ Meas Enable Pixel : Minimum size of aim LED
⑦ KP Meas Time / Dist : Measuring time / measuring distance in KP mode

8.2 setting Dialog – System



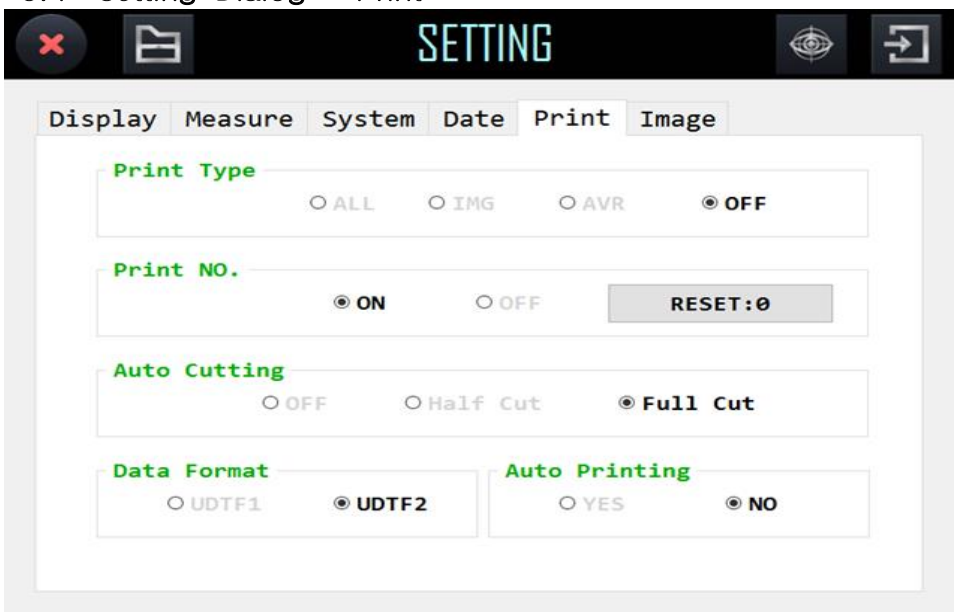
① Language: Setting Language
② Lcd Invert: Setting LCD invert on or off
③ Start Position: 3 axis motor initial position
④ Init After Measure: Select whether to move to initial position after measurement
⑤ LCD Bright: Setting LCD brightness5. Screen Off:
⑥ Key Sound: Setting beep sound time
⑦ Version : Showing main version.

8.3 setting Dialog – Date



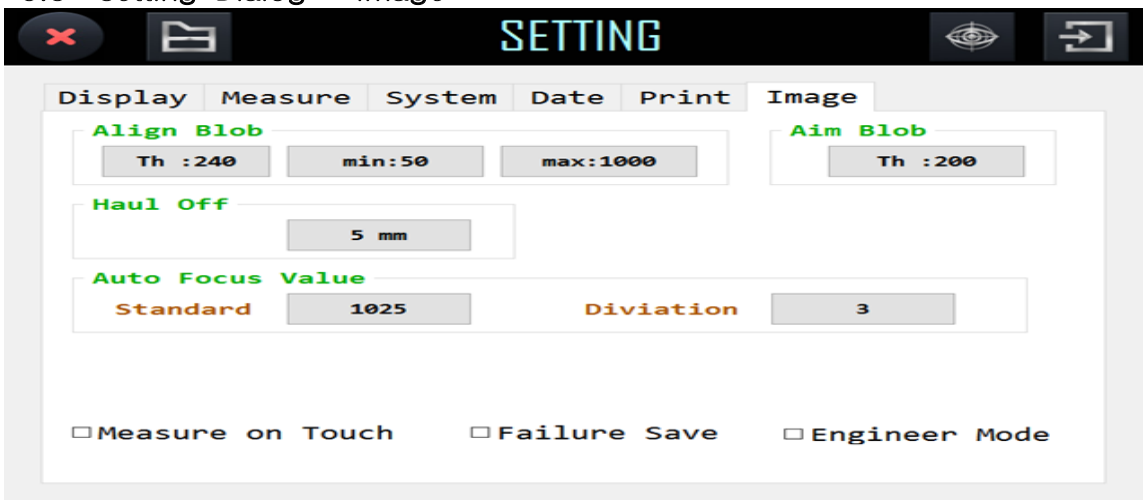
① SET: Set date and time.
② YMD, DMY, MDY: date display method
③ 12 Hour, 24 Hour: Time Display

8.4 setting Dialog – Print



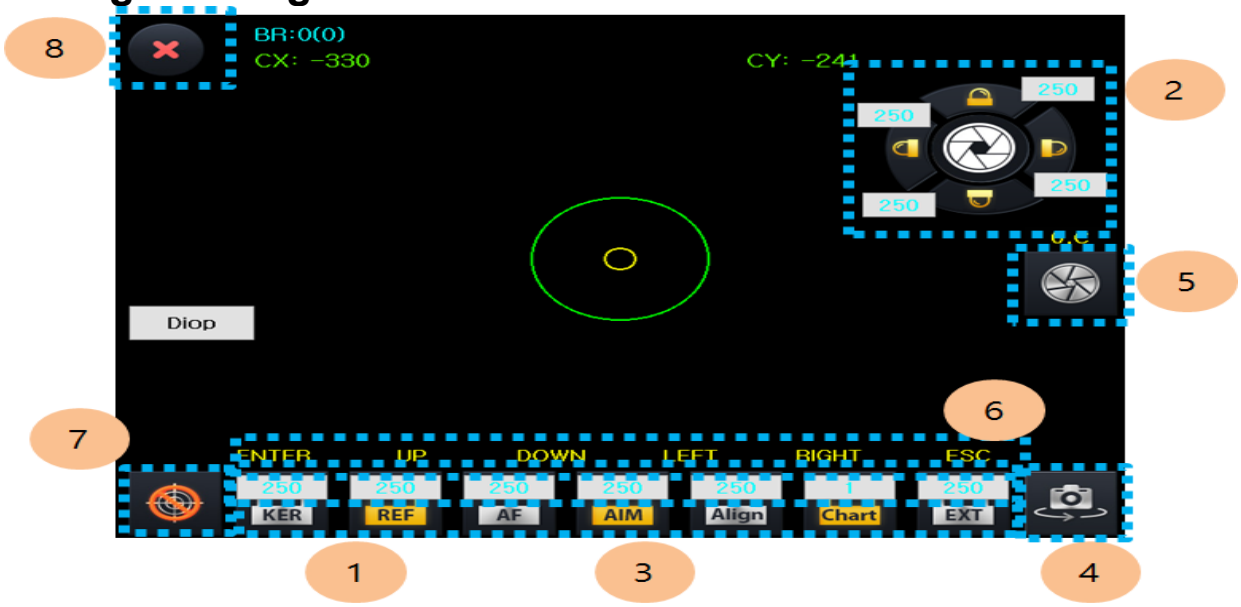
① Print Type : Setting All/ IMG/ AVR/ OFF
② Print No. : Print paper stack number
③ Auto Cutting : Setting OFF/ Half cut/ Full cut
④ Data Format : Setting of print date format.
⑤ Auto Printing : Setting of auto printing

8.5 setting Dialog – Image



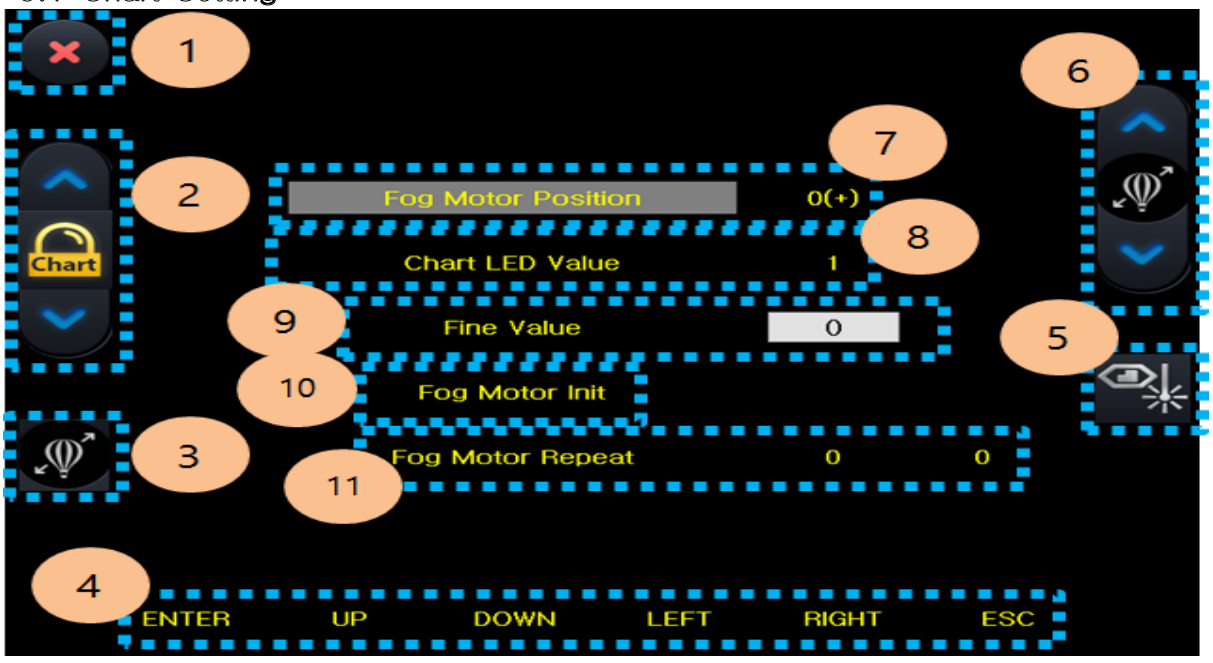
① Align Blob: Align Led Threshold value Set maximum / minimum size of Blob
② Aim Blob: Threshold value of Aim Led
③ Haul Off: The distance that one eye is measured and the other is taken back to measure the other eye.
④ Auto Focus Value: AF Module measured value / allowable range
⑤ Measure on Touch: Measurement starts when the screen is touched.
⑥ Failure Save: Determine whether to save the screen when measurement fails.
⑦ Engineer Mode: You can use the Engineer mode by entering the password.

9. Align Dialog



① LED status change button (Ker, Ref, Af, Aim, Align, Chart, Ext)
② LED status change button (Ker Peri Led)
③ LED brightness setting
④ Ker ⇔ Ref switch button
⑤ Shutter On / Off
⑥ Button Status Indicator (It will be highlighted when the button is pressed.)
⑦ Switch the display mode.
⑧ Exit

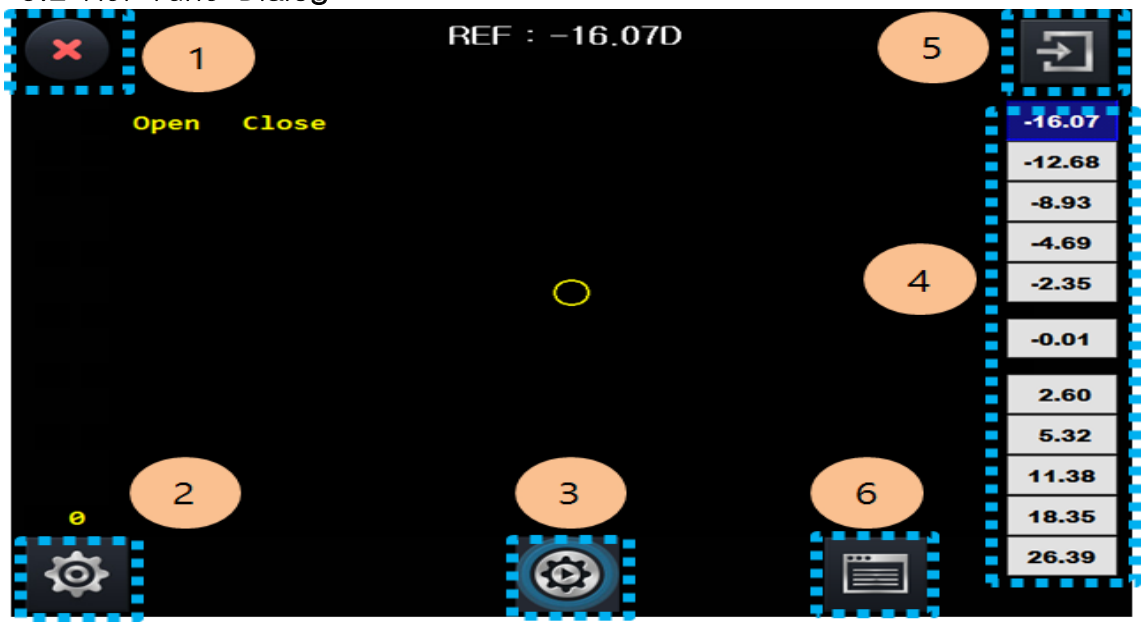
9.1 Chart Setting



① Exit the Chart Setting.
② Adjust the chart LED brightness value.

③ Test the Fog motor repeatedly.
④ Shows the current key status. (When pressed, it is reversed.)
⑤ Initialize the Fog motor.
⑥ Move the Fog motor.
⑦ Move the Fog motor.
⑧ Adjust the chart LED brightness value.
⑨ Fog Set the initial value of the motor.
⑩ Initialize the Fog motor.
⑪ Test the Fog motor repeatedly.

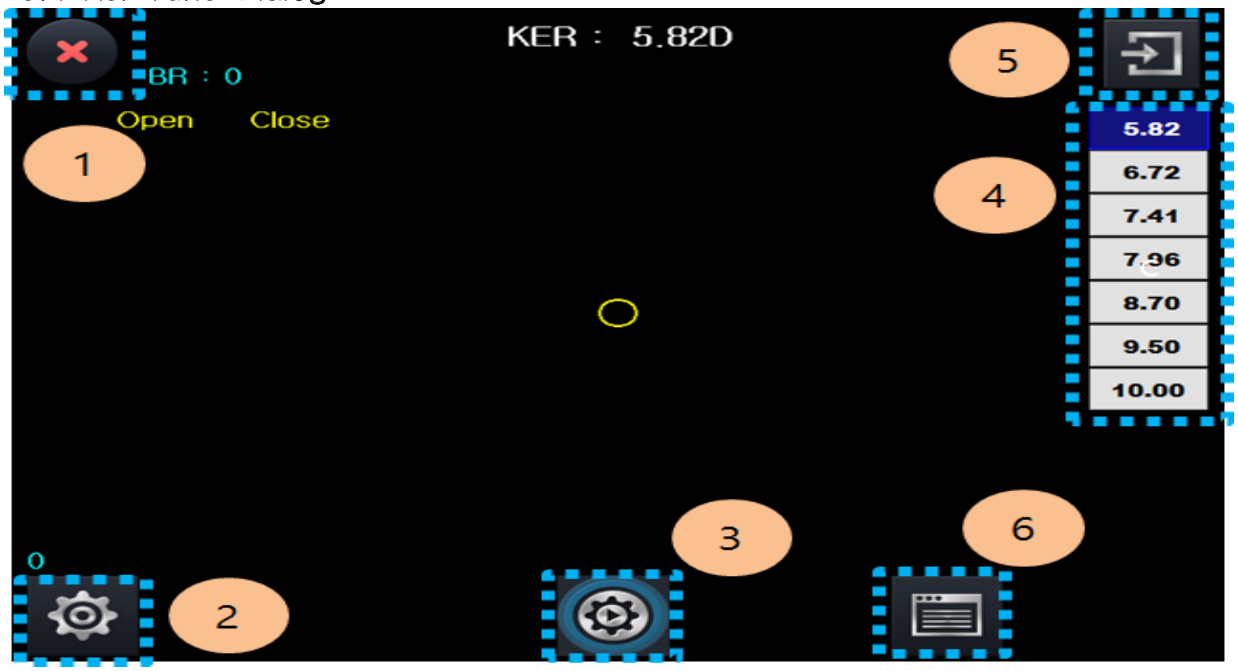
9.2 Ref Tune Dialog



① Exit without saving
② Setting the REF model eye value
③ Start Ref Tunning
④ Currently set model eye value
⑤ Save and close
⑥ View Ref Tune Result

9.3 Ref Tune Result

9.4 Ker Tune Dialog



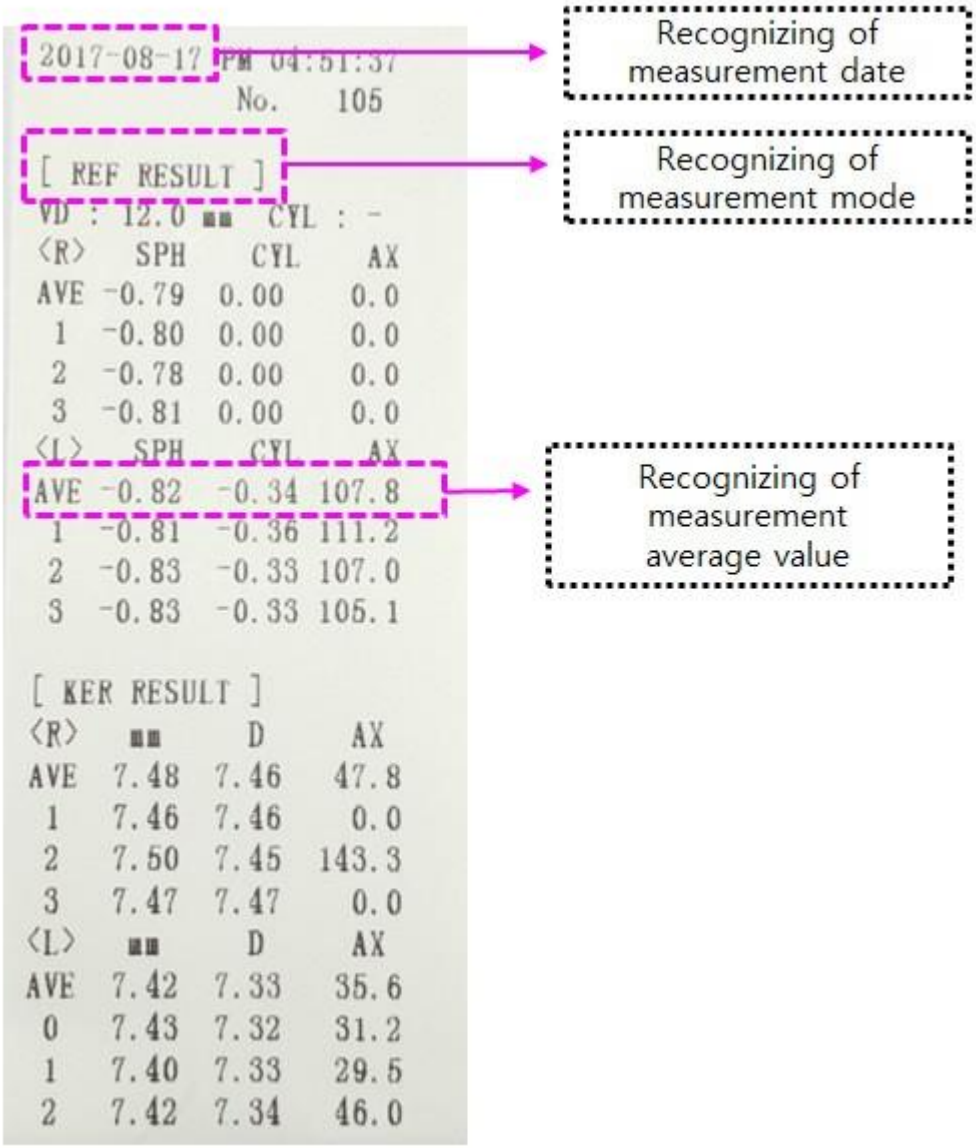
① Exit without saving
② Set the KER model eye value.
③ Start Ker Tuning button
④. Currently set model eye value
⑤ Save the set value and exit
⑥ View Ker Tune Result

9.5 Ker Tune Result

	Turn off the power after connecting or disconnecting the power cable. Do not operate the unit with wet hands. Otherwise, to cause death or serious injury can result in electric shock.

10. Print Mode

-. Pressing the touch button() to print the measured results. will be printed when you print.
-. Depending on the user setup mode is selected in different prints.



[Drawing 10] Print Sample

	Iris has damaged on Some of IOL patient. If damage is deep, measurement result may have some error.

11. Self Inspection and Maintenance

11.1 Before Calling a Service Person

Warning messages will be displayed on the monitor if some problems occur. It might be operation errors or problems of the machine. In this case, refer the following instructions. If the function is still not salvaged or recovered, disconnect the power supply and consult the dealer.

(1) Message When Power On

Message	Cause	Remedy
FOG MOTOR FAIL	Internal error	Turn OFF the power switch and turn on again after 10 seconds. If the message appears again, consult the dealer.
SHUT MOTOR FAIL		
AF Focus Error	The focus is not correct or there is a problem with the setting value.	- If the focus is not correct, focus and try again. -AF Check if the value is displayed normally. (Displayed only in Admin mode) - Setting - Image - Check the Auto Focus Value. (For details, contact your manager.)
Measure Error	Internal error	- Try to re-measure if measurement fails. - If frequency is frequent, contact the CS team by attaching the number.

(2) Message On Measuring

Message	Cause	Remedy
RETRY	Alignment is improper	Measure after aligning the pupil and the Alignment Mark properly.
	Eyelid or eyelashes are covering the pupil.	Instruct the examinee to open his or her eyes wide, or lift up the eyelid lightly with your fingers and measure again
	When the pupil is smaller than the Outer Alignment Mark.	The minimum pupil diameter that can be measured is 2.0 mm. Although it is possible to measure in the bright place, don't expose examinee's eyes to the direct sunlight or too bright indoor lights to prevent the contraction of the pupil.
	When the examinee has some illness like cataract.	Observe the eye in SIZE Mode. If cataract is not severe, measurement can be performed in the IOL mode.
	Examinee has IOL (intraocular lens) implanted.	Measure in the IOL mode.
	When the Mire Image is odd shaped because of tears.	Instruct the examinee to open and close his or her eyes several times and measure again.
	When the Mire Image is not clear because the cornea is dry.	
	Examinee has strong irregular astigmatism or corneal disease.	Impossible to measure

	AF Focus Error-	
AGAIN	Measurement result is not reliable.	Measure again.
OUT+ OUT-	Data was out of valid measurement range.	Measurement result is unreliable. Please measure again.

(3) Message On Printing

Message	Cause	Remedy
NO PAPER	Empty printer paper.	Replace the printer paper.

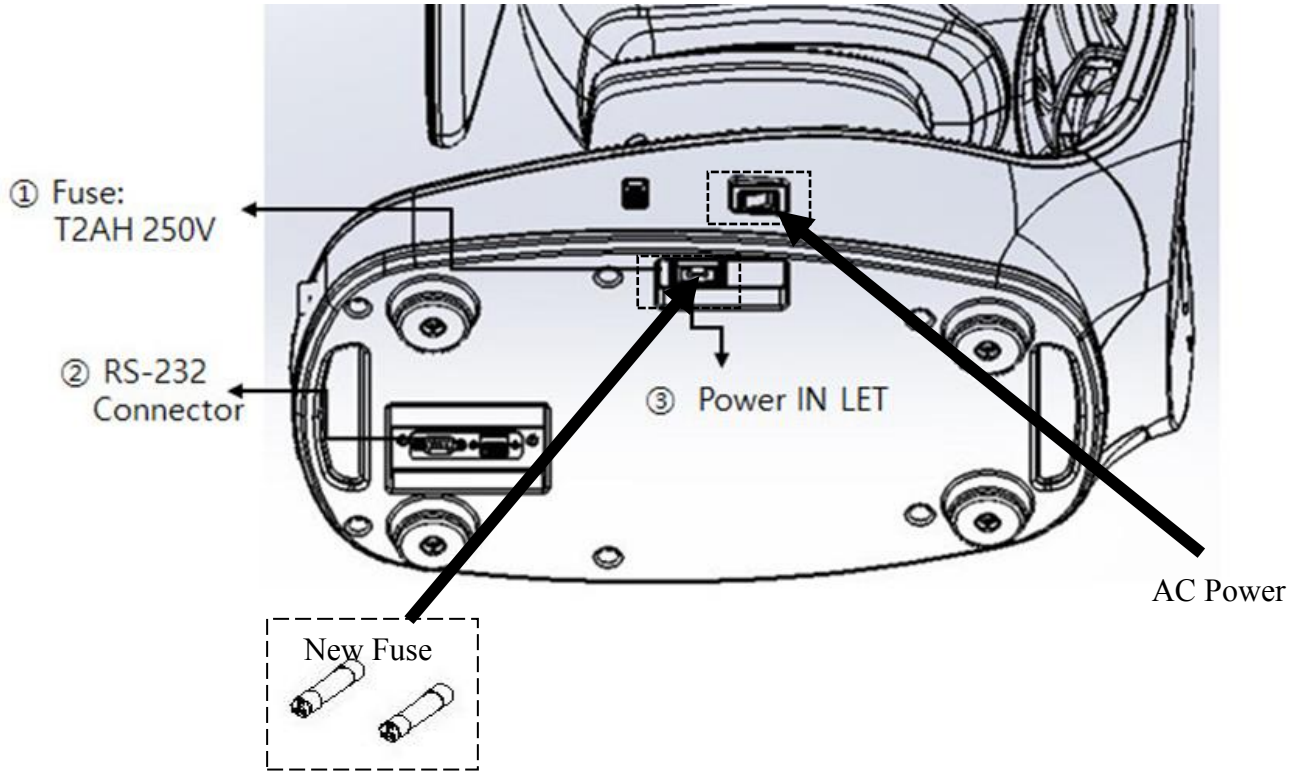
(4) Error during measurement

Error	Cause	Remedy
One eye measured and the other eye failed	-. If you pass the other eye -. You can not move to the other eye. -. The other eye is at the top or bottom. -. The other eye is out of focus.	Make sure that the user touches the forehead in a right and left balance.
When power is applied, only the viewlight logo is displayed.	Internal error	-. Insert the USB stick that stores the file (CosmosR9) needed for the update and reboot. - Ask the manufacturer or supplier for the file.

11.2 Fuse Replacement

The power protection fuse protects the product from excess current. If the power monitoring protection circuit detects excess current, it shut off the current to the equipment in order to prevent overheating and to restrict the SMPS power output.

	To avoid risk of electric shock, always disconnect the plug from the system prior to fuse replacement.



1. Turn off the system and disconnect the system power cord from the wall outlet.
2. Open the fuse cover.
3. Remove the old fuse and replace it with a new one.
4. After installing the new fuse, connect the plug to the product.

※ Fuse information is shown in the following table

Input Ratings	Fuse Ratings	Maker	Order No.
100~120 VAC	2AH/250V	Littelfuse	216_code002
200~240 VAC	2AH/250V	Littelfuse	216_code002

11.3 Service Information

(1) Repair

If problem cannot be solved even after taking the measures indicated in section 12.1, contact URK-900F representative or distributor for repair.

Please refer to the name plate and let us have the following information:

- Name of the instrument : URK-900F
- Serial Number : 9-digit characters indicated on the name plate
- Phenomenon : In detail
- Size : 79mm(W) x 31mm(D)

[Drawing 34] Labeling

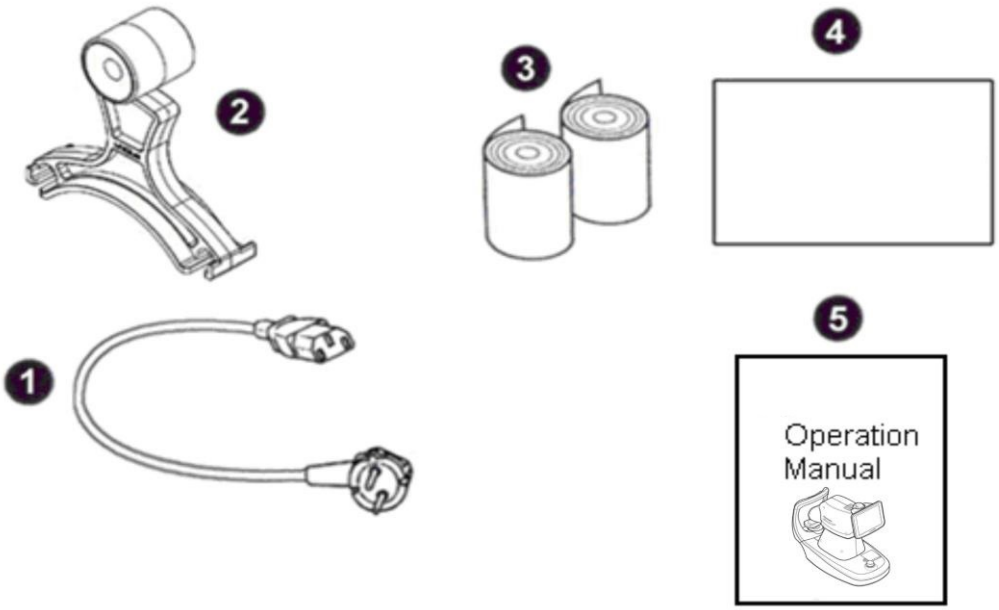
(2) Limit for Supplying Performance Parts for Repair

Performance part (required to maintain the functioning of the product) of this product will be stocked for six years after discontinuation of product, to allow for repair

12. Specifications

Refractometry		
Vertex Distance(VD)	0.0 , 10.0, 12.0, 13.5, 15.0mm	
Sphere(SPH)	-25.00 ~ +22D (VD 12mm)	Unit : 0.12 / 0.25 D
Cylinder(CYL)	0.00 ~ ±10.00D	Unit : 0.12 / 0.25 D
Axis(AX)	1 ~ 180˚	Unit : 1˚
Cylinder form	-, +, MIX	
Pupil Distance(PD)	10 ~ 85mm	
Minimum Pupil Diameter	Ø2.0mm	
Keratometry		
Radius of Curvature	5.0 ~ 10.2mm	Unit : 0.01mm
Corneal Power	33.00 ~ 67.50D	Unit : 0.12/ 0.25 D
Corneal Astigmatism	0.00 ~ -15.00D	Unit : 0.12/ 0.25 D
Axis	1 ~ 180˚	Unit : 1˚
Corneal Diameter		
Corneal Diameter	2.0 ~ 12.00mm	Unit : 0.1mm
ETC.		
Storage Memory	10 measurement each eyes	
Internal Printer	Thermal printer	
Display	8.0 inch TFT COLOR LCD Monitor, Touch	
Chin rest movement	Max 65mm, electrical movement	
Operation environment	Temperature : +10℃ ~ +40℃ Humidity : 30% ~ 90% RH Atmospheric pressure range : 70 kPa ~ 106 kPa Shock (without packaging) : 10g / 6ms	
Storage and Movement environment	Temperature : -40℃ ~ +70℃ Humidity : 10% ~ 95% RH Atmospheric pressure range : 50 kPa ~ 106 kPa Shock : 30g / 6ms Permanent shock : 10g / 6ms Oscillate(sine curve) : 10Hz ~ 500Hz, 0.5g	
Power supply	AC100V ~ 240V.50/60Hz	
Power consumption	70VA	
Dimension	285mm(W) x 522mm(D) x 438mm(H)	
Weight	19kg	

13. **ACCESSARY**



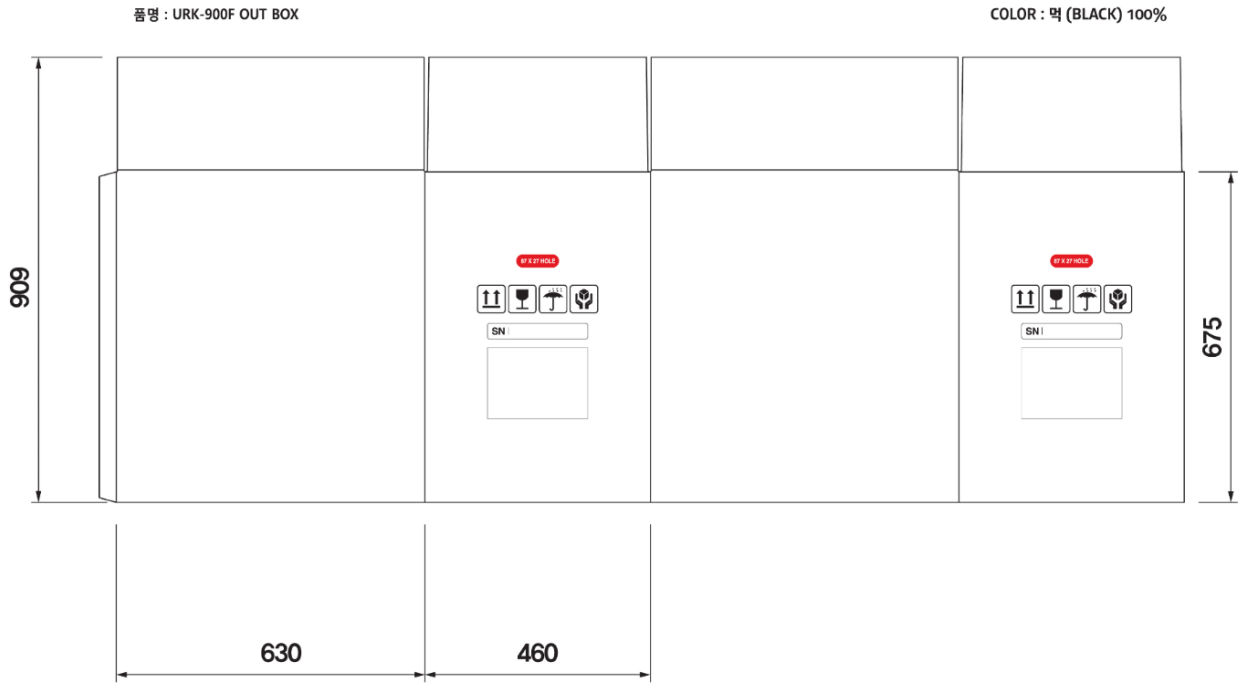
[Drawing 35] URK-900F Accessary

Name	Standard	Quantity
① Power Supply Cable	H05VV-F 175mm, 3G 0.75mm², 175mm	1EA
② Model Eye	Diopters : 1.5168, 110mm X 105mm X 35mm	1EA
③ Printing Paper	T 12 * 57 * 50 mm	2 rolls
④ Dust cover	260mm(W) X 490mm(D) X 475mm(H)	1EA
⑤ Operation Manual	B5(254mm X 180mm)	1EA

	"WARNING: Use of accessories, transducers and cables other than those specified or provided by the manufacturer of this equipment could result in increased electromagnetic emissions or decreased electromagnetic immunity of this equipment and result in improper operation."

14. Packing

14.1 Packing Foam Design



[Drawing 36] URK-900F Packing Box

[Drawing 37] URK-900F Packing Box Sticker

14.2 Packaging step

Step 1	Plastic bag packaging Material : PE Size : 0.4Tx750x1300 Color : transparency	
Step 2	Foamed polystyrene packaging Material : poly urethane Size : 585X415X646 (pair) Color : Silver	
Step 3	Paper box packaging Material : KLB225.CK.K.CK.KLB225 Size : 610X440X671 Color : 1 degree black, yellow	
Step 4	Rope packaging Material : P.P Size : 15mm Color : yellow	
Step 5	Paper box packaging Material : KLB225.CK.K.CK.KLB225 Size : 630X460X675 Color : 1 degree black, yellow	
Step 6	Finish packaging	

	1. To move alone, holding a fall or be dropped. 2. Holding the rope packing to move your fingers can get hurt. 3. The product is damaged packaging may be damaged, so you must contact manufacturer or dealer. 4. The product contaminated by rain damage or risk of electric shock, so you must contact the manufacturer or dealer.
	1. Packaging for the dissolution is opened by gloves. 2. The Cutting rope may be put injury keep both the line hold the demolition.
	1. Do not hold or store inside out move. 2. Do not put heavy things over 20Kg. 3. Do not throw it or fall or pick up from high.

15. EMC (ELECTROMAGNETIC COMPATIBILITY)

NOTICE	"Portable RF communications equipment (including peripherals such as antenna cables and external antennas) should be used no closer than 30 cm (12 inches) to any part of the URK-900F, including cables specified by viewlight. Otherwise, degradation of the performance of this equipment could result.".

The Electromagnetic Compatibility Directive sets the essential requirements for electrical and electronic equipment that may disturb or even be disturbed by other equipment. The URK-900F complies with these requirements as tabled below. Follow the guidance on the tables for use of the device in the electromagnetic environment.

EMC (Electromagnetic Compatibility) Information

Phenomenon	Basic EMC standard or test method	Port tested	Test leve/requirement
Mains terminal disturbance voltage	CISPR11:2015	AC Mains	Group1, Class A
Radiated disturbance	CISPR11:2015	Enclosure	Group1, Class A
Harmonic Current Emission	IEC 61000-3-2:2005 A1:2008 A2:2009	AC Mains	Class A
Voltage change, Voltage fluctuations and Flicker Emission	IEC 61000-3-3:2013	AC Mains	Pst: 1 Plt: 0.65 Tmax:0.5 dmax: 4% dc: 3.3%
Electrostatic Discharge Immunity	IEC 61000-4-2:2008	Enclosure	± 8 kV/Contact ± 2, ± 4, ± 8, ± 15 kV/Air
Radiated RF Electromagnetic Field Immunity	IEC 61000-4-3:2006 A1:2007+A2:2010	Enclosure	3 V/m 80 MHz-2.7 GHz 80% AM at 1 kHz
Immunity to Proximity Fields from RF wireless Communications Equipment	IEC 61000-4-3:2006 A1:2007+A2:2010	Enclosure	Table 9 in IEC 60601-1-2: 2014
Electrical Fast Transient/Burst Immunity	IEC 61000-4-4:2012	AC Mains	± 2 kV, 100 kHz repetition frequency
Surge Immunity	IEC 61000-4-5:2005	AC Mains	Line to Line ± 0.5 kV, ± 1 kV Line to Ground ± 0.5 kV, ± 1 kV, ± 2 kV
Immunity to Conducted Disturbances Induced by RF fields	IEC 61000-4-6:2013	AC Mains	3 V 0.15-80 MHz 6 V in ISM bands Between 0.15 MHz and 80 MHz 80% AM at 1 kHz
Power Frequency Magnetic Field Immunity	IEC 61000-4-8:2009	Enclosure	30 A/m 50 Hz & 60 Hz

Voltage dips	IEC 61000-4-11: 2004	AC Mains	0 % U_T: 0.5 cycle At 0°, 45°, 90°, 135°, 180°, 225°, 270° and 315°
			0 % U_T; 1 cycle and 70 % U_T; 25/30 cycles Single phase: at 0º
Voltage interruptions	IEC 61000-4-11: 2004	AC Mains	0 % U_T; 250/300 cycle

16. Disposal of waste products

When disposing of the products below to contact us

COMPANY : VIEWLIGHT LLC
Address 8380 NW 64 ST Miami Fl 33166 USA

Phone 305-406-3915
Fax 305-938-5012

	This instrument incorporates a lithium battery, which may pollute the environment if the instrument is disposed. Please ask a professional waste disposal company to handle disposal or your distributor before disposing of the instrument.