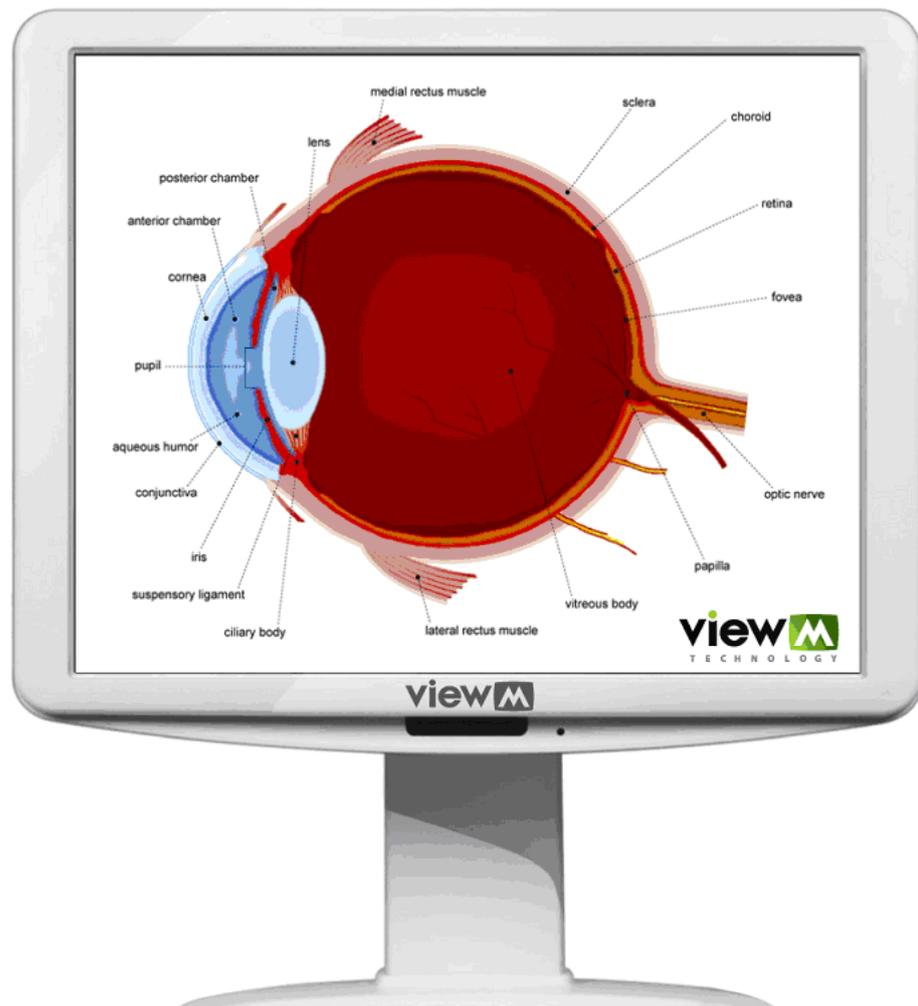


# VLC-1900

## (Visual Chart System)

# USER MANUAL

(Window Embedded CE)



## Visual Chart System

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### ■ IMPORTANT NOTICE

This product may malfunction due to the electromagnetic waves caused by cell phones, transceivers, radio-controlled toys, etc., be sure to avoid having objects such as, which affect this product brought near product.

The information in this publication has been carefully checked and is believed to be entirely accurate at the time of publication,

View-M Technology assumes no responsibility, however, for possible errors or omissions, or for any consequences resulting from the use of the information contained herein.

View-M Technology 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

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# 1. Introduction

## 1.1. Outline of product

VLC-1900 is an automatic visual acuity system, stand-alone type, which displays broad range of charts, based on LCD panel, including red /green for the eye optometry.

The chart rotation for VLC-1900 can be performed by either wired or wireless remote control or by external devices by control box of Digital Phoropter

Unlike existing chart projector, VLC-1900 is able to provide wider range of charts (more than 100 kinds of general and special charts) on LCD panel and the product can be adjusted at the level of the patients for precise examination.

## 1.2. Classification

\* Classification number : B06010 [ 1 ] – Class 1 equipment

## 1.3. Certification



# 2. Safety Information

## 2.1. Introduction

Safety is everyone's responsibility. The safe use of this equipment is largely dependent upon the installer, user, operator, and maintainer. It is imperative that personnel study and become familiar with this entire manual before attempting to install, use, clean, service or adjust this equipment and any associated accessories. It is paramount that the instructions contained in this manual are fully understood and followed to enhance safety to the patient and the user/operator. It is for this reason that the following safety notices have been placed appropriately within the text of this manual to highlight safety related information or information requiring special emphasis. All users, operators, and maintainers must be familiar with and pay particular attention to all Warnings and Cautions incorporated herein



"Warning" indicates the presence of a hazard that could result in severe personal injury, death or substantial property damage if ignored



"Note" describes information for the installation, operation, or maintenance of which is important but hazard related if ignored.



"Caution" indicates the presence of a hazard that could result in minor injury, or property damaged if ignored.

## 2.2. Safety Symbols

The International Electro-technical Commission (IEC) has established a set of symbols for medical electronic equipment which classify a connection or warn of any potential hazards.

The classifications and symbol are shown below

Save these instructions

	<p>I and O on power switch represent ON and OFF respectively.</p>
	<p>This symbol identifies a safety note. Ensure you understand the function of this control before using it. Control function is described in the appropriate User's or Service Manual.</p>
	<p>Hot surface</p>
	<p>Identifies the point where the system safety ground is fastened to the chassis. Protective earth connected to conductive parts of Class I equipment for safety purposes</p>
	<p>Manufactured by xxxx (year).</p>
	<p>Signal Input/ / Output Connection.</p>

## 2.3. Environmental Factors

### Avoid the following environments for operation or storage

	Where the equipment is exposed to water vapor. Don't operate an equipment with a wet hand
	Where the equipment is exposed to direct sunlight.
	Where the temperature changes extremely Normal operating temperature range is from 10°C to 40°C, Humidity is from 30% to 75%.
	Where it is near the heat equipment.
	Where the humidity is extremely high or there is a ventilation problem.
	Where the equipment is subject to excessive shocks or vibrations
	Where equipment is exposed to chemical material or explosive gas
	Be careful not to be inserted dust, especially, metal
	Don't disassemble the product or open. We aren't responsible for it for nothing.
	Be careful not to close the fan located on the lateral or back side of the equipment.
	Don't plug the AC power cord into the outlet before the connection between devices of the equipment is completed. This can generate the defect.
	Pull out the power cord with holding the plug, not the cord.

**Avoid places where the ambient temperature falls below 10°C or exceeds 40°C for normal operation, or below -10°C or exceeds 40°C (14°F-104°F) for transportation and storage. Humidity should be maintained between 30 and 75% for normal operation, transportation and storage. Avoid environments where the equipment is exposed to excessive shocks or vibrations.**

## 2.4. Safety Precautions

This equipment has been developed and tested according to safety standards as well as national and international standards. This guarantees a very high degree of safety for this device. The legislator expects us to inform the user expressively about the safety aspects in dealing with the device. The correct handling of this equipment is imperative for its safe operation. Therefore, please read carefully all instructions before switching on this device. For more detailed information, please contact our Customer Service Department or one of our authorized representatives.

1. This equipment must not be used (a) in an area that is in danger of explosions and (b) in the presence of flammable, explosive, or volatile solvent such as alcohol, benzene or similar chemicals.
2. Do not put or use this device in humid rooms. Humidity should be maintained between 30 and 75% for normal operation. Do not expose the device to water splashes, dripping water, or sprayed water. Do not place containers containing fluids, liquids, or gases on top of any electrical equipment or devices.
3. The equipment must be operated only by, or under direct supervision of a properly trained and qualified person.
4. Modifications of this equipment may only be carried out by View-M Technology's service technicians or other authorized persons.
5. Customer maintenance of this equipment may only be performed as stated in the User's Manual and Service Manual. Any additional maintenance may only be performed by View-M Technology's service technicians or other authorized persons.
6. The manufacturer is only responsible for effects on safety, reliability, and performance of this equipment when the following requirements are fulfilled: (1) The electrical installation in the respective room corresponds to the specifications stated in this manual and (2) This equipment is used, operated, and maintained according to this manual and Service Manual.
7. The manufacturer is not liable for damage caused by unauthorized tampering with the device(s). Such tampering will forfeit any rights to claim under warranty.
8. This equipment may only be used together with accessories supplied by View-M Technology". If the customer makes use of other accessories, use them only if their safe usability under technical safety aspects has been proved and confirmed by View-M Technology or the manufacturer of the accessory.
9. Only persons who have undergone proper training and instructions are authorized to install, use, operate, and maintain this equipment.

10. Keep the User's Manual and Service Manual in a place easily accessible at all times for persons operating and maintaining the equipment.
11. Do not force cable connections. If a cable does not connect easily, be sure that the connector (plug) is appropriate for the receptacle (socket). If you cause any damage to a cable connector(s) or receptacle(s), let the damage(s) be repaired by an authorized service technician.
12. Please do not pull on any cable. Always hold on to the plug when disconnecting cables.
13. Please do not force SD Card onto the slot. When SD Card is not connected with the slot smoothly, you are recommended to check if it is properly positioned. In the event that SD Card is damaged, the repair or service should be performed by an authorized service technician.
14. This equipment may be used for the international application related to (\*Usages of Device) according to this manual.
15. Before every operation, visually check the equipment for exterior mechanical damage(s) and for proper function.
16. Do not cover any ventilation grids or slits.
17. Immediately turn off and unplug any equipment that gives off smoke, sparks, strange noises or odors.

### 3. Features

Green & Red Reverse	VLC-1900 system enables a user to reverse all kinds of Red/Green chart by using Black & White reverse button on the remote control.
Animation Function	VLC-1900 system has a Animation function for making a child concentrated on the chart during the test and it easy to examine.
Contrast Adjustment	VLC-1900 can decrease the contrast level in order to examine eye-sight under low contrast condition. VLC-1900 system enables a user to select contrast sensitivity (75%, 50%, 40%, 30%, 20%, 10%, 7.5%, 5%, 3%, 1.5%) on a screen and also each strength of the contrast sensitivity can be shown on the screen of remote control that is used during a vision test with a cataract surgery patient by adjusting opto-type contrast sensitivity.
Black & White Reverse	VLC-1900 system enables a user to test conveniently by using Black & White function which lasik & cataract patients can recognize in bright & dark places.
Random Function	Random function of VLC-1900 system is designed to stop a visual test error, when an examinee memorizes specific test types and directions. A user can test conveniently by freely changing " Numbers, English, Korean, Landolt, Snellen, Children". Some charts such as Landolt, Number can be rotated by remote control.

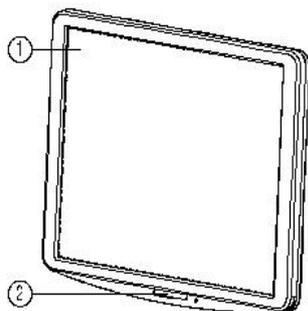
R/G Filter for Color Depth Adjustment	VLC-1900 system enables a user to adjust to R/G filter concentration from the 0 to the 31 steps. It applies to all kinds of R/G chart.
9. <small>veidrodzīo funkcija</small> Mirror Function	The Mirror function is added in VLC-1900 system to let it installed at less than 1.5m of narrow space and a user can easily select the function at his convenience.
Clock Dial Rotating	7 kinds of clock dials are rotating step by step by using Up/Down button on the remote control. It also reverses the Black & White by using the Black & White reverse button on the remote control.

## 4. Notes for Using the Instrument

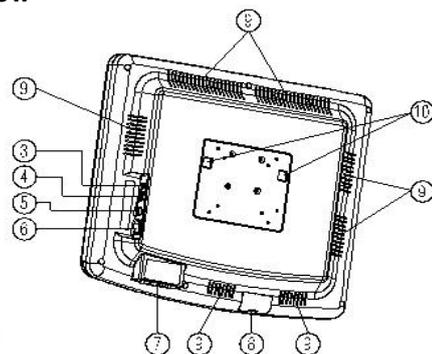
1. Do not hit or drop the instrument. The instrument may be damaged if it receives a strong impact. The impact can damage the function of this product. Handle it with care.
2. Keep this product from vibration.
3. Exposure the direct sunlight or very bright indoor lights can affect the result of measurements.
4. Don't use organic solution such as alcohol, thinner, benzene, etc. to clean the surface of this instrument. It may damage the product.
5. Disconnect the power supply and consult the dealer when there is smoke, strange odors, or noise while working.

## 5. Configurations

VLC-1900P is mainly consists of the components as below



[ Fig. 1 ]



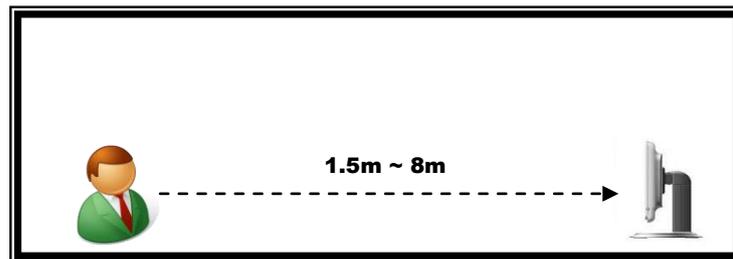
[ Fig. 2 ]

1. LCD SCREEN : Display charts (Opto-type).
2. IR COVER : Receive signal from remote control
3. POWER JACK : Connector for power supply.
4. USB JACK : Communicate with remote control and main control box.
5. CAN JACK : Connector for data communication .
6. POWER SWITCH : Power ON/OFF.
7. Function Button. : Set parameter on the screen.
8. SD CARD COVER : SD CARD is inside the cover. Keep the SD CARD Inside the cover except when it is necessary.

## 6. Installation

### 6.1. Viewing Distance (LCD Display Position)

1. As operation by remote control is available, an operator can examine the patient checking the proper change of the charts.
2. Please put the product so that the center of the LCD screen is at the level of patient's eyes as this product is not affected by illumination



## 7. Test Method

DIVISION	DESCRIPTION	TEST METHOD
Orthoptic Test ( Binocular Balance )	The test is for synchronizing the visual function with both left and right eye by using Red/Green filter.	<ol style="list-style-type: none"> <li>1) Show binocular test types to a patient.</li> <li>2) Let a patient wear Red/Green glasses(right eye : red filter, left eye : green filter)</li> <li>3) Ask a patient which line of both above and below lines is shown much clearer. If above line is clearer shown by the patient, +0.25D as much should be added at a right eye. On the contrary, if below line is clearer shown, +0.25D as much should be added at a left eye.</li> </ol>
Orthoptic Test ( Red/Green Binocular Balance )	The test is for adjusting to the balance of both right and left eye by using prism glasses.	<ol style="list-style-type: none"> <li>1) Show Red/Green binocular balance test type to a patient.</li> <li>2) Let the patient wear prism glasses in a left eye. (left : Down/right: Up)</li> <li>3) Ask a patient which one is clearer of green circle and red circle on Red/Green test type. If the patient saw the red circle clearer, +0.25D should be added in a left eye until he can see that Red/Green circles as below are just alike. But if the green circle was shown clearer, +0.25D should be added in a left eye, until the circles as below are equally shown.</li> </ol>

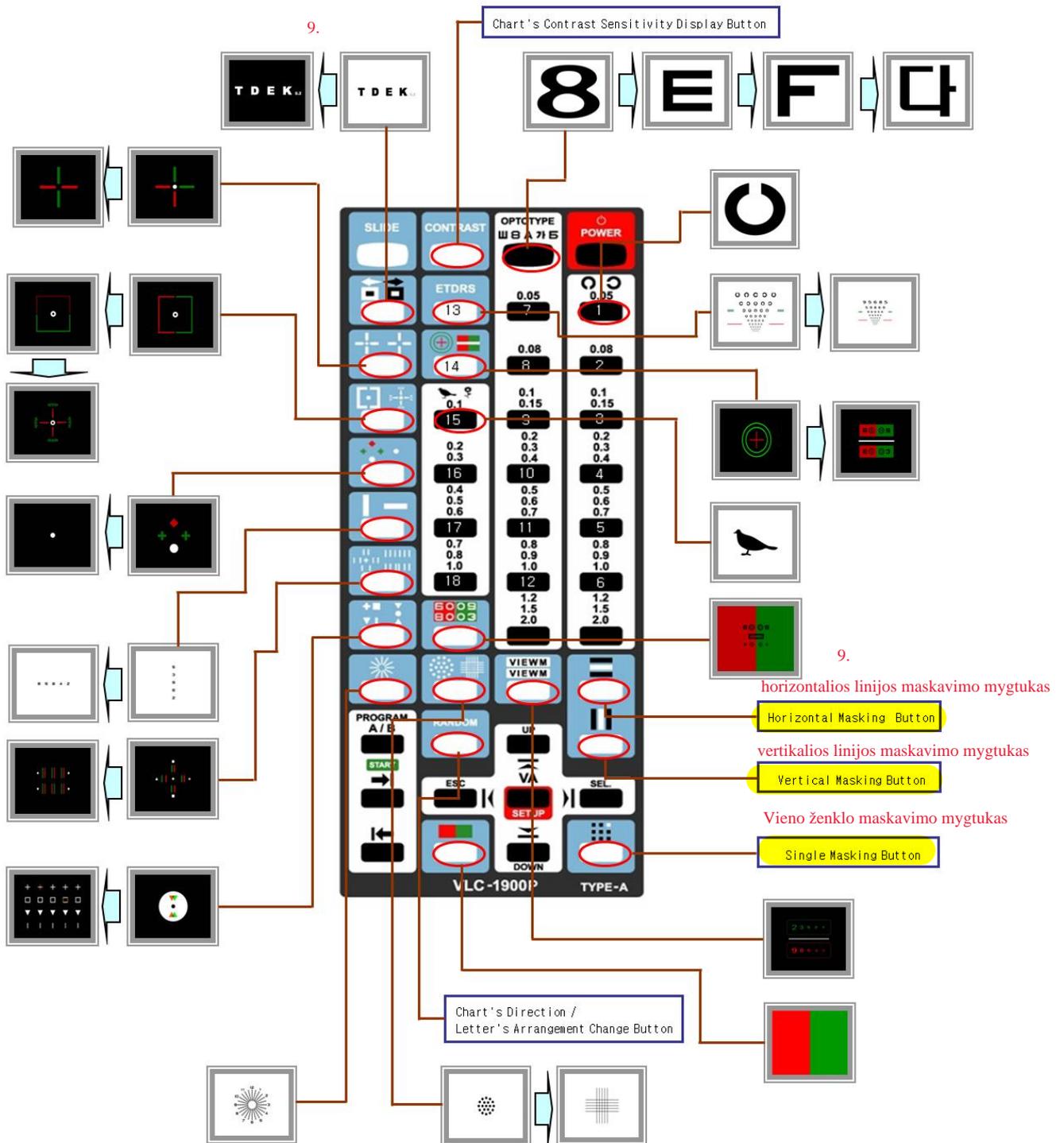
<p><b>Orthoptic Test</b>  ( Red/Green Binocular Balance )</p>	<p>The test is for adjusting to the balance of both right and left eye by using prism glasses.</p>	<p>4) Ask a patient which one is clearer of green circle and red circle on Red/Green test type. If the patient saw the red circle clearer, +0.25D should be added in a left eye until he can see that Red/Green circles as below are just alike. But if the green circle was shown clearer, +0.25D should be added in a left eye, until the circles as below are equally shown.</p>								
<p><b>Orthoptic Test</b>  ( Worth 4 Dots )</p>	<p>The test is for measuring which eye is better shown of left &amp; right eyes, by using Red/Green filter.</p>	<p>1) Show worth 4 dots test type.</p> <p>2) Let a patient wear Red/Green glasses (right eye : red filter, left eye : green filter). The patient sees (a) mark in a right eye and (b) mark in a left eye on Worth 4 Dots test type. The binocular condition would be ideal, if the patient could see (c) mark.</p> <p>3) Judge a patient's binocular function as below, while asking him how the type is seen.</p> <table border="1" data-bbox="655 1021 1417 1630"> <tr> <td data-bbox="655 1021 788 1171">  </td> <td data-bbox="788 1021 1417 1171"> <p>(a) Left eye's suppression ⇒ Left eye would be suppressed, if a patient saw only 2 red lights.</p> </td> </tr> <tr> <td data-bbox="655 1171 788 1321">  </td> <td data-bbox="788 1171 1417 1321"> <p>(b) Right eye's suppression ⇒ Right eye would be suppressed, if a patient saw only 3 green lights.</p> </td> </tr> <tr> <td data-bbox="655 1321 788 1485">  </td> <td data-bbox="788 1321 1417 1485"> <p>(c) Blending ⇒ If a patient saw 4 dots, binocular function would be normal.</p> </td> </tr> <tr> <td data-bbox="655 1485 788 1630">  </td> <td data-bbox="788 1485 1417 1630"> <p>(d) Diplopia ⇒ If a patient saw 5 dots, he/she would have diplopia.</p> </td> </tr> </table>		<p>(a) Left eye's suppression ⇒ Left eye would be suppressed, if a patient saw only 2 red lights.</p>		<p>(b) Right eye's suppression ⇒ Right eye would be suppressed, if a patient saw only 3 green lights.</p>		<p>(c) Blending ⇒ If a patient saw 4 dots, binocular function would be normal.</p>		<p>(d) Diplopia ⇒ If a patient saw 5 dots, he/she would have diplopia.</p>
	<p>(a) Left eye's suppression ⇒ Left eye would be suppressed, if a patient saw only 2 red lights.</p>									
	<p>(b) Right eye's suppression ⇒ Right eye would be suppressed, if a patient saw only 3 green lights.</p>									
	<p>(c) Blending ⇒ If a patient saw 4 dots, binocular function would be normal.</p>									
	<p>(d) Diplopia ⇒ If a patient saw 5 dots, he/she would have diplopia.</p>									
<p><b>Aniseikonia Test</b></p>	<p>The test is for whether aniseikonia of right or left eye or not, using Red/Green filter.</p>	<p>1) Show aniseikonia test type.</p> <p>2) Let a patient wear Red/Green glasses (right eye : red filter, left eye : green filter). The patient sees fixation target and “ ] “ in a right eye and fixation target and “ ] “ in a left eye.</p> <p>3) Ask a patient if he can see borders that have in between interval. Also asking if a left and a right border are alike or which one is shown smaller than the other.</p>								

Aniseikonia Test	The test is for whether aniseikonia of right or left eye or not, using red/green filter.		Ⓐ The patient's binocular condition is left > right and right eye < left eye.	
			Ⓑ The patient's binocular condition is left < right and right eye > left eye.	
		4) The reason of aniseikonia is heteropsia(when diopter's difference of both a right and a left eye is too big). And if the result were an axial heteropsia, glasses would be prescribed and if a refractive heteropsia, contact lenses prescribed.		
Phoria Test  ( Cross Phoria )	This test is for testing Horizontal/Vertical Phoria of right or left eye by using Red/Green filter.	1) Show cross phoria test type to a patient. 2) Let a patient wear Red/Green glasses (right eye : red filter, left eye : green filter). The patient sees “ $\overset{ }{\underset{ }{-}}$ ” mark in a right eye and “ $- -$ ” mark in a left eye on cross phoria test type. The binocular condition would be ideal, if the patient could see “ $\overset{ }{-}$ ” mark.		
		Patient's Visual Status	Phoria	Method
			Ⓐ Esophoria	Add B.O prism until a vertical line can come to the center of a horizontal line.
			Ⓑ Exophoria	Add B.I prism until a vertical line can come to the center of a horizontal line.
			Ⓒ Left Eye's Hyperphoria	Add B.U in a right eye and B.D in a left eye until a horizontal line can come to the center of a vertical line.
			Ⓓ Right Eye's Hyperphoria	Add B.U in a left eye and B.D prism in a right eye until a horizontal line can come to the center of a vertical line.
Phoria Test  ( Fixation point of Cross Phoria )	The test is for measuring vertical/horizontal fixation disparity of right or left eye by using Red/Green filter.	1) Show cross phoria test type to a patient. 2) Let a patient wear Red/Green glasses (right eye : red filter, left eye : green filter). The patient sees “ $\overset{\circ}{-}$ ” mark in a right eye and “ $- \overset{\circ}{-}$ ” mark in a left eye on cross phoria test type. The binocular condition would be ideal, if the patient could see “ $\overset{ }{-}$ ” mark. 3) Judge a patient's binocular function as below, while asking him how the type is seen.		

<p><b>Phoria Test</b>  ( Fixation point of Cross Phoria )</p>	<p>The test is for measuring vertical/horizontal fixation disparity of right or left eye by using Red/Green filter.</p>	<p><b>Patient's Visual Status</b></p> 	<p><b>Fixation Disparity</b></p> <p>Ⓐ Esodisparity</p>	<p><b>Method</b></p> <p>Add B.O prism until being no deviation.</p>
			<p>Ⓑ Exodisparity</p>	<p>Add B.I prism until being no deviation</p>
			<p>Ⓒ Left Eye's Hyperdisparity</p>	<p>Add B.U in a right eye and B.D in a left eye until being no deviation.</p>
			<p>Ⓓ Right Eye's Hyperdisparity</p>	<p>Add B.U in a left eye and B.D prism in a right eye until being no deviation</p>
		<p>1) Show Schober's test type to a patient. 2) Let a patient wear Red/Green glasses (right eye : red filter, left eye : green filter). The patient sees “ ⊙ ” mark in a right eye and “ + ” mark in a left eye on Schober's test type. The binocular condition would be ideal, if the patient could see “ ⊕ ” mark. 3) Judge a patient's binocular function as below, while asking him how the type is seen.</p>		
<p><b>Schober's Test</b>  ( Decussation Circle )</p>	<p>The test is for measuring vertical/horizontal phoria of right or left eye by using Red/Green filter.</p>	<p><b>Patient's Visual Status</b></p> 	<p><b>Fixation Disparity</b></p> <p>Ⓐ Esophoria</p>	<p><b>Method</b></p> <p>Add B.O prism until being no deviation.</p>
			<p>Ⓑ Exophoria</p>	<p>Add B.I prism until being no deviation</p>
			<p>Ⓒ Right Eye's Hypophoria / Left Eye's Hyperphoria</p>	<p>Add B.U in a right eye and B.D in a left eye until being no deviation.</p>
			<p>Ⓓ Right Eye's Hyperphoria / Left eye's Hypophoria</p>	<p>Add B.U in a left eye and B.D prism in a right eye until being no deviation</p>

## 8. Remote Control Function

### 8.1. General Function



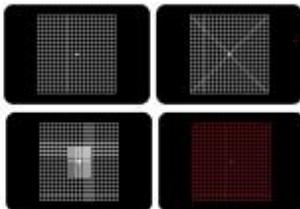
7 Charts can be selected when installed

## 8.2. SLIDE Function

- Select the function after push the slide button



- Eye movement : You can change the movement speed for 3 level



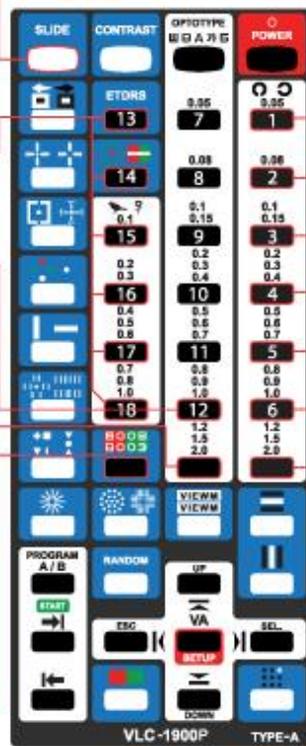
- You can display Amsler grid chart step by step



- You can display Contrast adjustment function for 10 steps



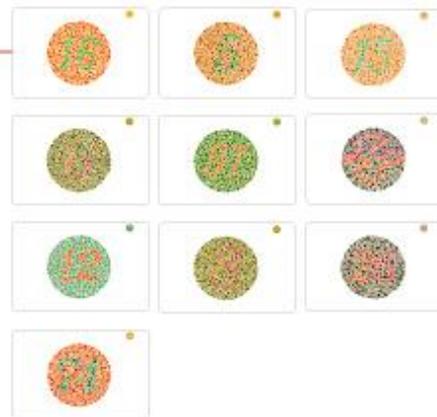
- Animation : When you push the button you can display following Image step by step



- When you push the slide button chart display a No. 1 key Image. Following Images are  
Key 1 : EMMETROPIA  
Key 2 : MYOPIA  
Key 3 : HYPEROPIA



- Key 4 : ASTIGMATISM  
Key 5 : CATARACT - GLAUCOMA - LASIK  
Key 6 : Red/Green Stereo chart



- There are 10 kinds of color blindness chart. when you push the button it can be changes step by step

Note : 1) Additional function can be selected after slide button press.

2) Charts can be changed for quality improvement without notice.

## 9. How to Recharge a Remote Control



Remote controller can be normally rechargeable by the USB Adapter

## 10. SPECIFICATON

LCD Type	19 Inch SXGA
Resolution	1280 X 1024 pixel
Chart Window Size	(H) 300 X (W) 375 mm
Brightness	80 ~ 320 cd / m (5 Level variable)
Chart	Snellen, Landolt, English, Korean, Russian, Japanese, Numeral, Color blindness Image, and Special charts ( Multi language support )
Vew Distance	1.5 m ~ 8 m (0.25 or 0.5m step adjustment )
Memory Card	SD Card
Power Source	DC +12V ---5A (Power Adaptor) <i>Maitinimo adapter</i>
Power Consumption	40W
Communication	* Wire : RS 232 Communication * Wireless : IRDA Communication
Dimension / Weight	(W) 436 X (H) 362 X (D) 59.5 mm / 5.5 Kg
Dimension / Weight ( Remote Control )	(W) 69.5 X (H) 235.5 X (D) 26 mm / 200 g
Standard Accessories	Remote Control, Wall Mounting Bracket and etc.
Optional Accessories	Floor Stand, Red/Green Glasses, Desk-top Stand

16.

## 11. Component List

### 11.1 Standard Accessories

- Main Body (LCD CHART) / Remote Control / Wall Mounting Bracket / Power Adapter / USB Adapter for Remote Control Recharge / USB Cable for Remoter Control / Power Cable / User Manual

### 11.2 Optional Accessories

- Floor Stand / Red/Green Glasses / Pola Glasses / Desk-top Stand

## 12. Service Information

If there are any problems with the product, please follow the below steps.

1. Turn off the power.
2. Remove the power cable connected to the equipment.
3. Remove SD CARD from the slot and install again.  
**\* Remark : Put SD CARD in right positon when connect the slot.**
4. Connect power adapter to the equipment and turn on the power.
5. Check if the equipment operates properly with remote control.
6. If the equipment does not operates properly, you are recommended to do as below.
  - Check model name and serial number of the equipment and contact the distributor who you purchased the equipment.
  - If you can not contact the distributor, please contact as described below.

## View-M Technology Co., Ltd.

3,4Fl., Beotkkot-ro 150, Seoul, South Korea 153-828

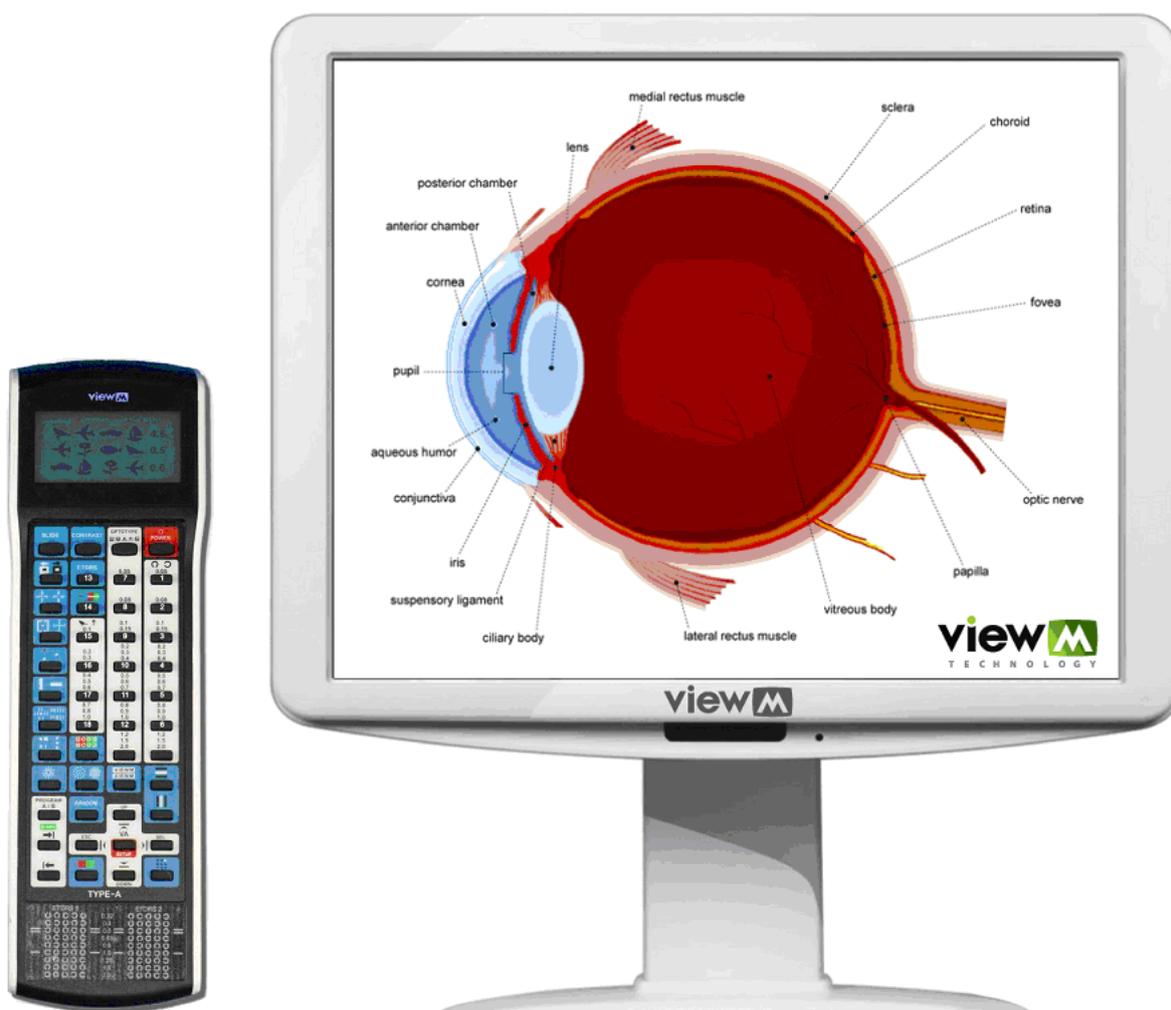
Tel : +82 2 866 2332 / Fax : +82 2 866 2399 / E-mail : sell@viewmtechnology.com

# VLC-1900 / VLC-1900P

(Digital Visual Acuity Chart System)

## Engineer Mode Manual

(Window Embedded CE)



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# C O N T E N T S

## A. How to set up ENGINEER MODE

- 1) ENGINEER MODE Menu
- 2) ENGINEER MODE starting

## B. SWITCH working description

- 1) LCD BODY
- 2) REMOTE CONTROL KEY

## C. How to disassemble ENGINEER MODE

## D. A setting-up outline in each function

- 1) REMOTE CHANNEL
- 2) DISTANCE
- 3) OPTOTYPE MODE
- 4) CHART TYPE
- 5) COLOR STRANGTH
- 6) BRIGHTNESS & BEEP SOUND
- 7) AUTO LIGHT OFF & SLIDE
- 8) CLOCK DIAL & PHORIA
- 9) MIRROR AND POLA
- 10) INTERFACE
- 11) Program A-B

## A. How to set up ENGINEER MODE

### 1) ENGINEER MODE Menu

**CHART SYSTEM CONFIGURATION**

Current Configuration Value	
Remote Channel	[ 1st Channel ]
Distance & Point	[ 3.00M (9.84ft) ] [ Square ]
Opto & Number Type	[ opto mode 2 ] [ square type ]
Chart Type	[ Eyesight :Display ] [ Type A ]
Color Strangth	[ Red 16 ] [ Green 16 ]
Brightness & Beep	[ Brightness 1 ] [ Low Sound ]
Auto off & Slide	[ 5minute ] [ 5second ]
Clock dial & Phoria	[ Clock dial type 1 ] [ Pharia type 2 ]
Mirror & Pola	[ Normal type ] [ Pola ]
Interface	[ Remote Mode ]
Program A. B	

### 2) How to set up ENGINEER MODE



(Photo: Located on the back of the body )

- Please, push switch no. 4 for more than 2 seconds that is located at the right bottom of the back and you will be to check ENGINEER MODE is changed. (Refer to a left photo)



(Photo1)



( Photo 2 )



( Photo 3 )

- Please, push the Remote controller set-up button(for more than 2 seconds), after wire cable is inserted into the USB port that is at the bottom of remote controller and the right side of the body shown by photo 1, 2 & 3 as above, and you can check ENGINEER MODE is changed.

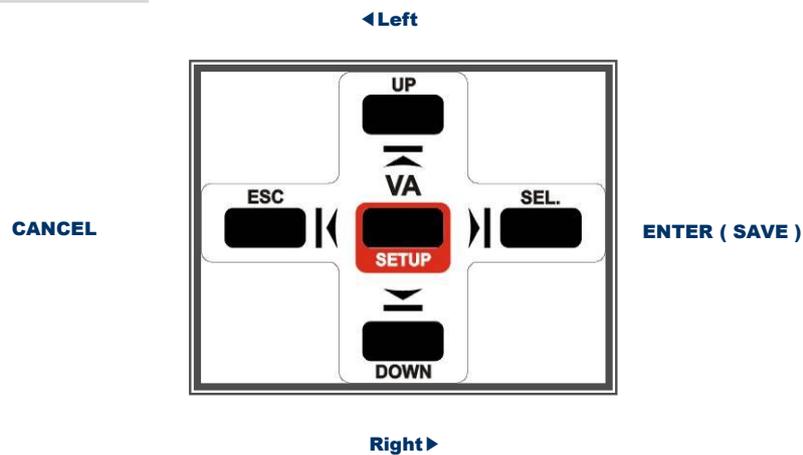
- But using a wire cable can be used only in **"REMOTE CONTROL CHANNEL , OPTO TYPE MODE, CHART TYPE"** and other setting-ups can be chosen with only a body key.

## B. SWITCH Working Description

### 1) LCD Window Body

No.1 S/W	[ 1.LEFT ]	Making a key moved left, when choosing function.
No.2 S/W	[ 2.RIGHT ]	Making a key moved right, when choosing function.
No.3 S/W	[ 3.ESC ]	When transferring chosen function to ex-stage.
No.4 S/W	[ 4. SELECT ]	When saving a function selection and selected function

### 2) REMOT CONTROL KEY



### 3. How to cancel ENGINEER MODE

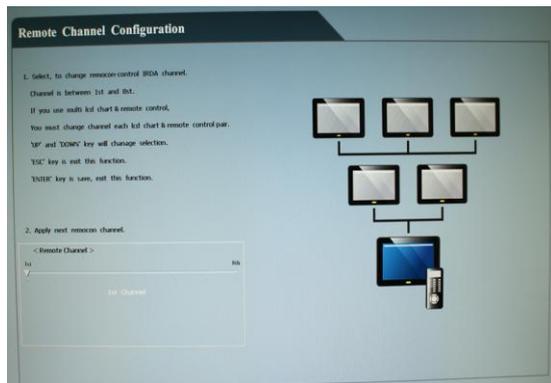
- Please, select a function and push 'SELECT(ENTER)' button, while being 'EXIT' with UP/DOWN S/W. And ENGINEER MODE is automatically canceled.

- And if SAVE were selected, saved value would be displayed and if ESC were selected, set-up value of previously saved function would be displayed.

<b>Configuration is changed.</b>	
<b>Do you want to apply changing the configuration?</b>	
[ Enetr : Yes ]	[ Cancel : No ]

## 4. Set-up Outline in each function

### 1) REMOTE CHANNEL

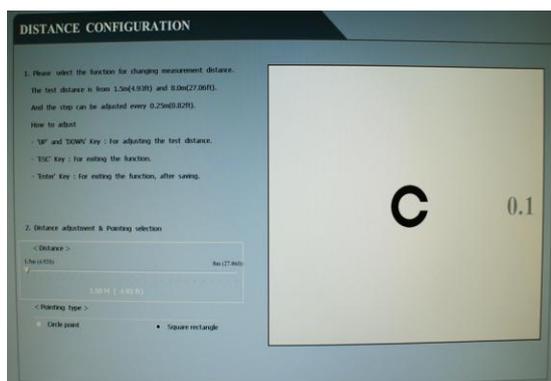


- This mode can be chosen for stopping communication error, in case several bodys and remotes are installed in a same place, after the channel no. of both remote and body is adjusted.

- The channel from 1 to 8 can be selected and the selected channel is saved in the remote.

- It can be set up in Engineer mode, after pushing the 'Set-up' button on the remote control, while it is connected with the LCD body with a cable.

### 2) DISTANCE & POINT



- This is the mode which the product installation distance is easily adjusted by eye test location.

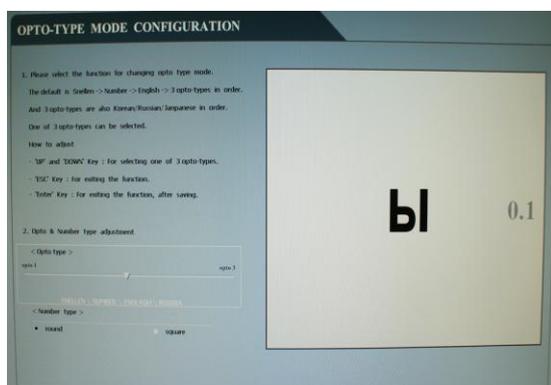
- Set-up RANGE : 1.5M ~ 8M ( VLC-1900 ) / 1.5M ~ 8M ( VLC-1900P )

- Adjustment STEP unit : 0.25M

- You can choose the point type of both 'Circle Point' and 'Square rectangle'.

- How to display the point : Push the set-up button on the remote control and then push the number button 1 ~ 12.

### 3) OPTO & NUMBER TYPE



#### < Opto Type & Number Type >

- This mode enables a user to select chart type

- MODE description

> MODE1: Snellen / Number / English / Korean

> MODE2: Snellen / Number / English / Russia

> MODE3: Snellen / Number / English / Japan

- Possibly changing optotype selected only in remocon

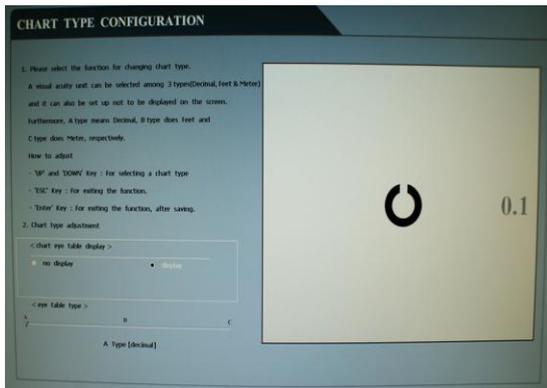
- Others

> Remote working order : Number → Snellen → English

→ Korean change

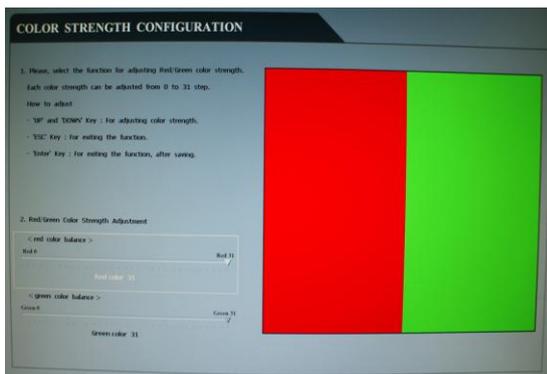
- This mode enables a user to select one of number types, Round or Square.

## 4) CHART TYPE



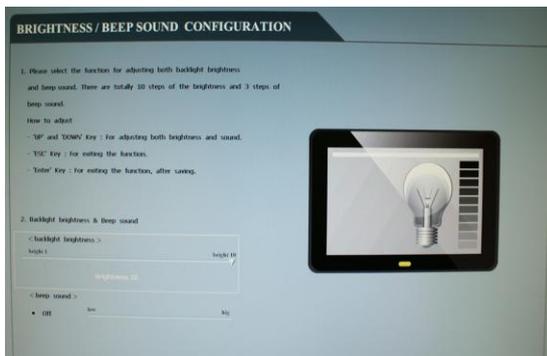
- This mode enables a user to select one of Visual Acuity Units.
- Set up CHART TYPE: A (Decimal) ,B (Feet), C (Meter) TYPE.
- The selected Visual Acuity unit can be also set up like Display or No Display.

## 5) COLOR STRENGTH



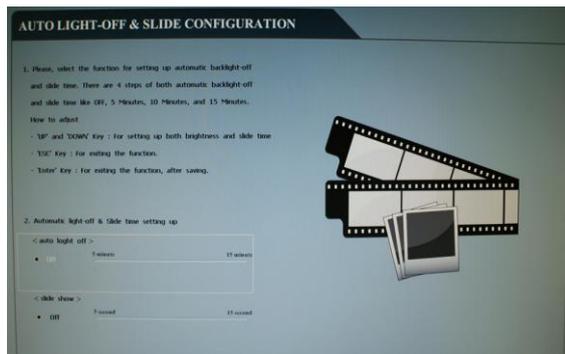
- This mode enables a user to correct the deviation conveniently, when using RED/GREEN filter.
- RED / GREEN color strength adjustment : Possibly adjusted to 0 ~ 31 with 1step.
- All kinds of Red/Green chart can be changed Red/Green position by using Black/White reverse button in remote controller.

## 6) BRIGHTNESS & BEEP



- This mode enables a user to select backlight brightness and beep sound.
- Backlight brightness adjustment : Possibly adjustment to 1 ~ 10 step
- Beep sound adjustment : Off, Low and High

## 7) AUTO OFF & SLIDE

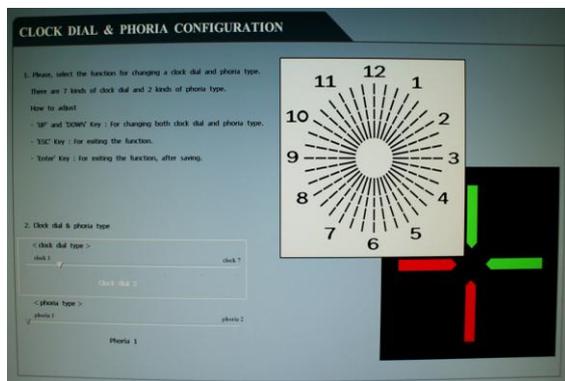


- If the system were not used for some time, this mode would work, transferring LIGHT OFF or AUTO IMAGE SLIDE SHOW.

- Auto light off : Off, 5 minutes, 10 minutes and 15 minutes.

- Slide show : Off, 5 seconds, 10 seconds and 15 seconds.

## 8) CLOCK DIAL & PHORIA



- This is basically set up to No.1 optotype and is used by selecting several radiation optotypes, according to user's selection.

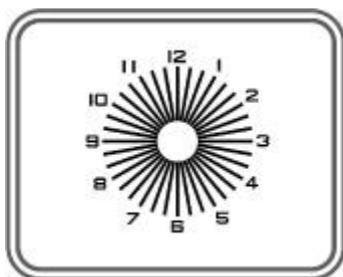
- Set-up Clock Dial type : 7 types

- Set-up Phoria type : 2 types.

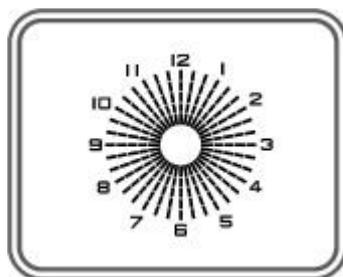
- A minute hand of each Clock dial, except for no.6 of Clock dial, can be rotated by using Up/Down button on the remote control.

- All kinds of Red/Green charts, including phoria charts, can be reversed by using Black and White reverse button on the remote control.

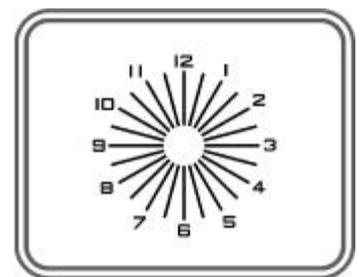
### < Radiation Opto-Types >



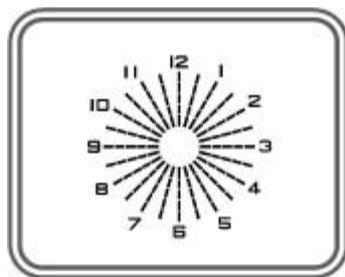
( No.1 )



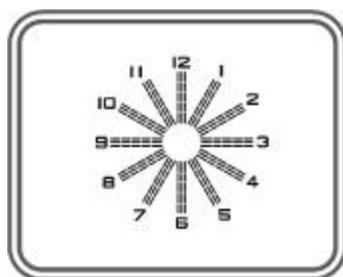
( No.2 )



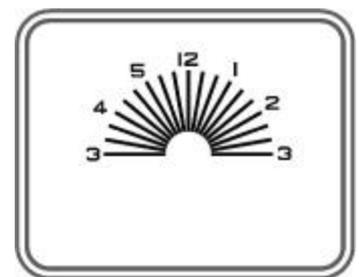
( No.3 )



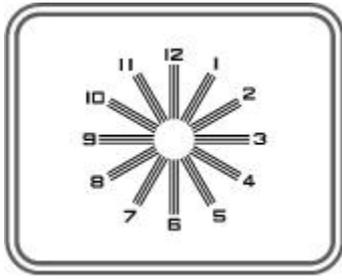
( No.4 )



( No.5 )

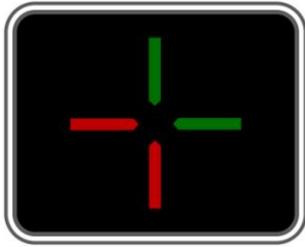


( No.6 )



( No.7 )

< Red/Green Color Reverse >

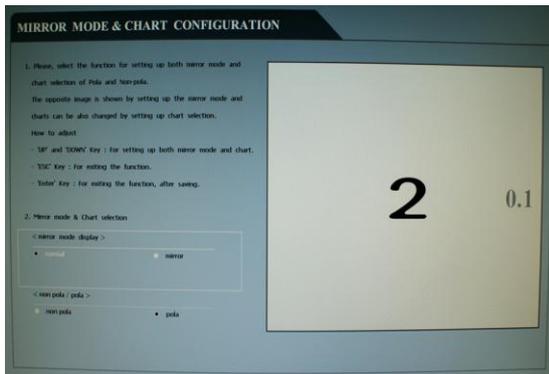


( No. 1 )



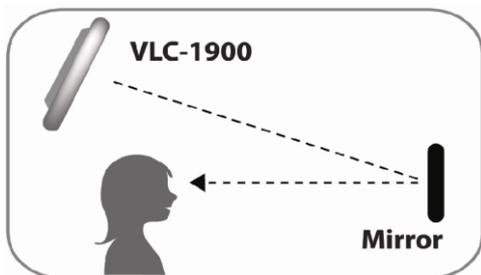
( No. 2 )

**9) MIRROR & POLA**



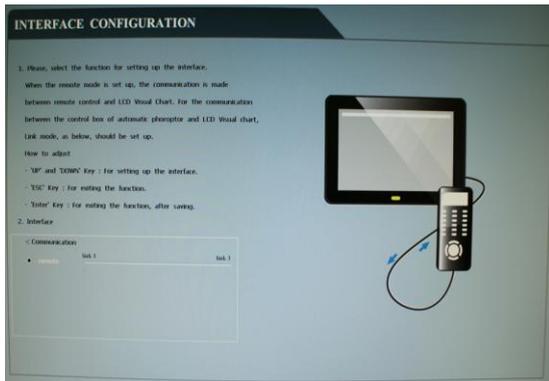
- Please, select the function for setting up both mirror mode and chart selection of Pola and Non-Pola. The opposite image is shown by setting up the mirror mode and charts can be also changed by setting up chart selection.

- You can set-up the chart type Pola or Non-Pola in this function.



- In case the product is needed to be installed in a narrow place of less than 1.5M (Minimum test distance), a user should change Mirror mode and then install it in a limited area by using a mirror like a left photo.

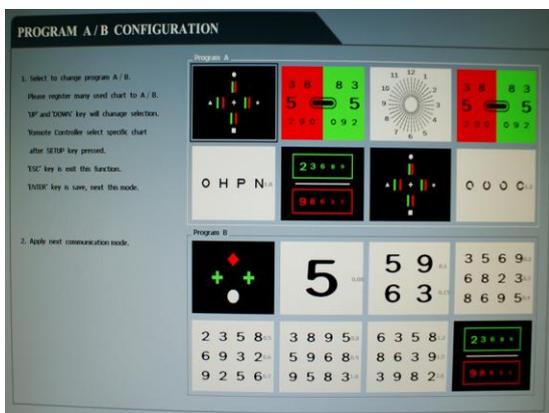
## 10) INTERFACE



- When selecting communication needed for system operation, this mode is used. And remote mode is basically set up.

- SET UP MODE : REMOCON, or MAIN CONTROL BOX - Selected in being used independently.

## 11) PROGRAM A - B



- This mode enables a user to save maximum 8 kinds of chart in each Program A and Program B.

- It can be set up in Engineer mode, after pushing remote setup button with a wire cable inserted into the remote control.

- How to save charts : First of all, push the set-up button in remote and then push any kind of chart button. You can see the charts, which you select, in a main screen.

- Notice : Every time you want to change different charts, push the set-up button first. And you can move the Left/Right by using Up/Down button on remote control. You can also move from Program A to Program B by using Select button.

## 12) EXIT



EXIT : Pls, push no.2 button, as below photo, for escaping the engineer mode, first of all.

If you want to save the configuration, you can push no. 1 button. And if you do not want to save, you can push no. 2 button.



(Photo: Located on the back of the body )