

**INSTRUCTION MANUAL
CHART SYSTEM**

CM-1800

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Preface

Thank you for choosing Chart Monitor CM1800.
Following are the specifications and test chart parameters.

Summary

This manual is an essential part of whole instrument, including the useage and technical instructions.

CM-1800 Chart Monitor shows you all kinds of charts and pictures in the LCD for testing, it is suitable for the tests of vision and other visual functions.

Performance parameters of chart monitor

LCD: 19-inch XGA Panel

Brightness: 250 cd/m²

Chart versions: Illiterate E, Landolt C, Alphabet ABC, Numerals 123,
Children pictures and other special version charts

Distance: 2.0 ~ 7.0m adjustable

Power supply: Input: AC110~220V AC±10%, 50/60Hz

Power consumption: ≤45w

Dimension: 455mm (L) x 420mm(W) x 110mm(H)

Weight: 4.2kg (Net Weight)

Remote: IR

Batteries for remote control: 3A

Operational environment

Temperature	+5°C ~ +30°C
Relative humidity	30% ~ 70%
Atmosphere pressure	800hPa~1060hPa

Storage environment

Temperature	-20°C ~ +55°C
Relative humidity	10% ~ 95%
Atmosphere pressure	700hPa~1060hPa

Transportation environment

Temperature	-20°C ~ +55°C
Relative humidity	10% ~ 95%
Atmosphere pressure	500hPa~1060hPa

Important safety precautions

Dear customers, please read carefully this manual before using, especially for the following important safety precautions. This will prevent the damage of instrument, personal injury and other possible danger and accident.

Please do not disassemble this instrument and, do not attempt to carry out operation in any method or procedure not described in this manual. If the instrument is out of order, please read the technical instruction of “troubleshooting” and try to solve the problem accordingly. If you still have a problem, please contact our service representative or authorized distributor.

This manual is an essential part of this product. The manufacturer will modify the design and the manual if and when necessary.

New manual is subject to change without prior notice.

Do not use this instrument in an inflammable, explosive, or dusty environments. It should be used in a reasonably clean room. Be careful to keep the product clean and dry.

Please note the rated values of all electric apparatus inputs.

Before using, please check and see if all electric wires have been connected, Make sure the instrument is grounded. Improper connections may cause short-circuit, In serious cases, it may damage the instrument and cause personnel injury.

Please use the proper batteries described in this manual when the batteries needs to be replaced.

Do not use a hard object to contact the LCD screen.

Please turn off the power while not being used.

In order to use this instrument safely, please read carefully all safety instructions and other graphical symbols.

1 Illustration of components of chart monitor



- 1 Outer casing of chart monitor
- 2 LCD display screen for charts and pictures
- 3 Control buttons of LCD display



On/Off

the switch to control LCD backlighting.

- 4 Infrared incepting region
- 5 Stand fixation region for fixing floor-stand and wall-stand
- 6 Electrical input.
- 7 Base

2 Installation

This manual is suitable for CM-1800 Chart Monitor. Please take out all components carefully before installation and then install it.

2.1 Accessories list

No.	Component name	Q'ty
1	Main machine of chart monitor (with stand)	1
2	Power wire	1
3	Remote control (general-purpose)	1
4	Red and green Filter	1
5	Wall hanging accessories	1

2.2 Installation procedures

2.2.1 Installation of base

1. Please spread a cushion or a soft fabric on a flat surface.
3. Refer to the picture, push the base to the limited position.



2. Put the monitor (face down) on a cushion or a soft fabric.



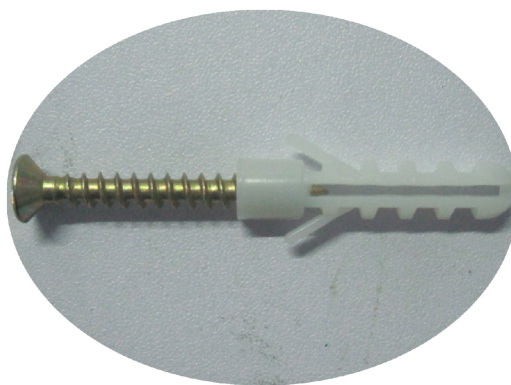
2.2.2 Installation of stand

User can choose either tabletop-stand or wall-stand. The option is tabletop-stand by default. If wall-stand is needed, please mount it as below:

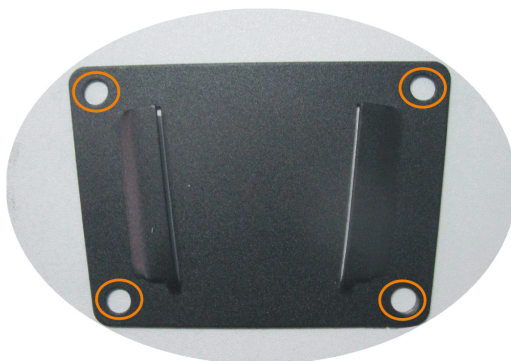
A Refer to picture break out 4 screws



C Refer to picture, drill holes in the wall according to the nail screws delivered, mount the parts to the wall.

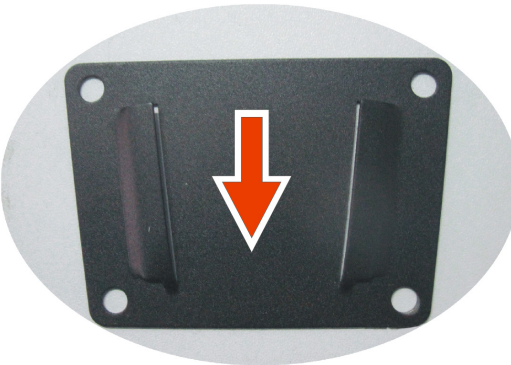


B Refer to picture, mount the parts (in the main machine's side of the wall-stand) to the back of this instrument.



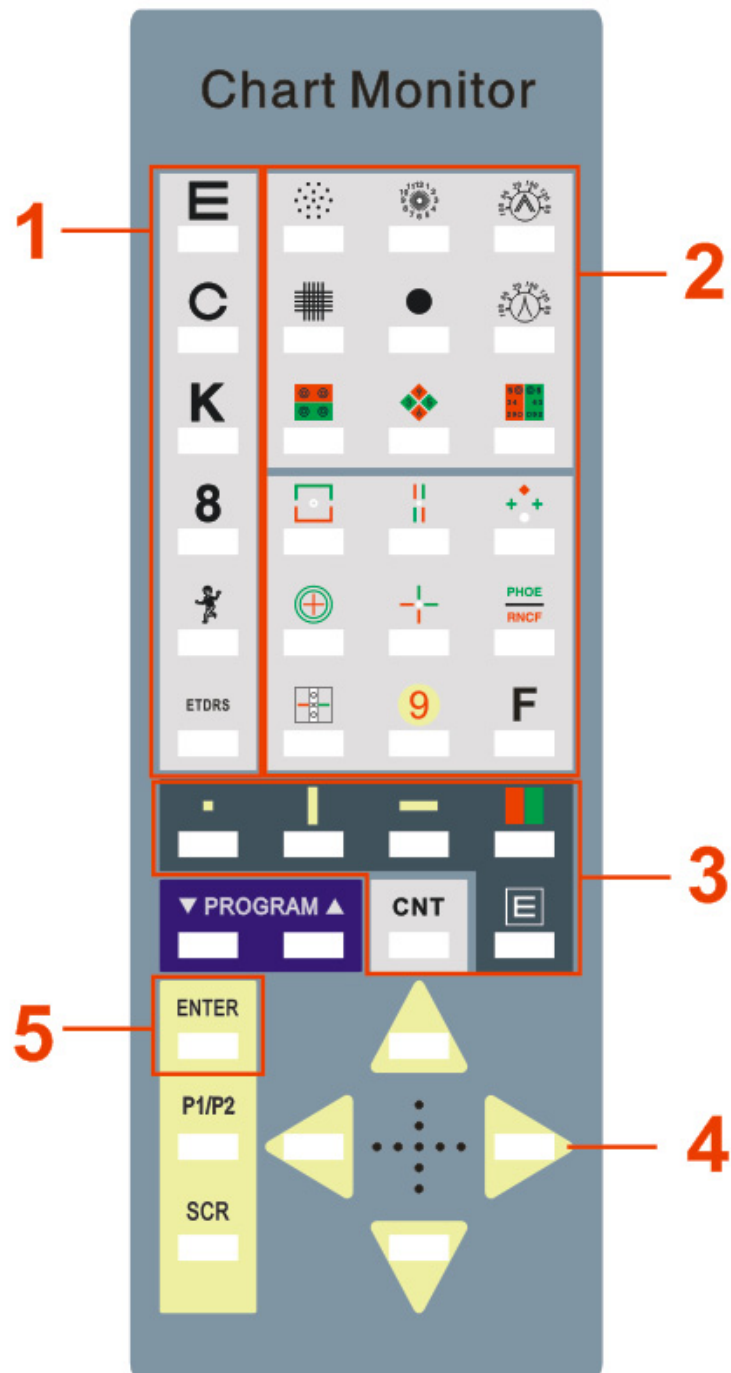
Screw M4 x 8 is delivered with the instrument, extra spring washers are needed.

D Refer to the picture, insert the main machine into the suspensions on the wall.



2.3 Operating procedures


2.3.1 Interface diagram of remote control




1. Chart selection
2. Testing function selection
3. Masking function selection
4. Direction button
5. Parameters setting (general-purpose)

2.3.2 Operating procedures

A Starting

insert the plug, and switch on the power, press the button  in the front panel of this instrument.











B Shutdown

press the button  in the front panel of this instrument and disconnect the power plug.







C The operation of testing function buttons

Please refer to the explanatory legend in this manual, select the buttons in the testing function region until you get the test item you need (if this button has other functions, please continue to press this button).


D Switch kinds of different charts:

Pressing the buttons of , , , ,  in the remote control, the charts will be switched to E, C, ABC, 123, child version charts. If you press the button of , and the buttons of  or  again, you can adjust the sizes of E version charts. And the direction buttons of  and  can get more E version charts. The similar operations for C, ABC, 123, child version charts accordingly.



H Masking setting:

After pressing the buttons of , , , it will show you single chart masking, horizontal masking and vertical masking by turns. At the masking mode, you can select masking region by 4 buttons of up/down and left/right. Press the buttons of , ,  again, the relative masking are cancelled respectively.

I Red and green background

Pressing the button of , red and green background appears, press it again, red and green background is cancelled.

J Invert color

Pressing the button of , black and white colours will switch between background colour and chart colour. Press this button  again, it returns.

K Contrast


Pressing the button of , it enters contrast testing mode.

L ETDRS

Pressing the button of ETDRS, it enters ETDRS interface to chart switching.

At ETDRS mode, it can carry out single-line masking testing by button .



M Achromatopsia chart

Pressing the button of , it enters colour vision testing and interface to chart switching.

N Stereopsis

Pressing button of , it enters stereopsis testing and interface to chart switching.

O Astigmatism chart

Pressing button of , it enters astigmatism testing interface. Pressing a “left” or “right” direction button, the pointer will move 1° forward or backward each time. Continuous pressing left and right button, then the continuous rotation. Pressing an “up” or “down” direction button, the pointer will move 45° forward or backward each time. Press  button Again, is used to view astigmatism block chart (in which case the rotation buttons will not function.).

P Screen saver


When you press button of “SCR”, the instrument will go to standby mode or, if no operation within 15 minutes the instrument will automatically go into standby mode. Press any buttons again except button of SCR, it will switch on the instrument again.

Q Set the environmental parameters:

Mode :General-purpose is default set by factory. If change the use of distance or to integrated with computer vision tester CV7000, press the remote control button ENTER



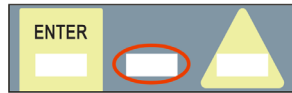
for a 5 seconds and enter into the parameter setting screen. When


setting parameter,  is used as select button,



the red circle button is as confirm button. Press ENTER button to continue the settings on as displayed on the screen until the icon automatically shows completed. Restart the instrument.

If the user change the user type (type A or B into type) in setting, want to switch back into the



General-purpose type, you need to press  key for a 5 seconds, (figure in the red circle) to enter the parameter setting interface, re-set to General-purpose type.



Note: 1. red and green is pre set from factory.

2. general-purpose type: Use separately. (with Standard remote control)

3. A type or B type: for the use of integrated with computer vision tester CV7000 (with remote control)



(Note: the type of setting, the new general L type, A-L and B-L type all should be changed with switch H-L in remote battery box and switch board, mainly to prevent multiple devices work together)

(I). LCD in the A or B type, if need to adjust the test distance or other projects, you can enter SFT + F on CV7000 keyboard to enter the LCD setup interface, according to the prompt instruction to set with the direction keys. After setting an item by SFT + F key, you can jump to the next setting item, and after all other items set finished, pressing SFT + F key again until the icon automatically shows completed, restart the instrument to use.

(II). (1) In general-purpose, A type, B type state, if need to adjust the common type, A type, B type state projects can operate on the keyboard of CV7000, press the SFT + F keys, enter to the setting screen to set following the keys. After setting an item by SFT + F key, you can jump to the next setting item, and after all other items set finished, pressing SFT + F key again until the icon automatically shows completed, restart the instrument.

(2) CV7000 keyboard in A or B type state, if need to adjust the status of A or B type projects, you can press the SFT + PRG key to enter to the CV7000 keyboard settings interface. Pressing the F2 for a while to enter the page 4. Switch CM-A or CM-B etc. in the charts in auto chart project, then press F4 to save.

4. When CV-7000 and CM-1800 while under the Type A or Type B mode, if you need

to adjust the icon  to test the axial astigmatism, you can press the SFT+  switch in CV7000 keyboard to switch, and operate with the arrow keys, SFT + up/down key for the 30 ° jump, SFT + left/right keys for the 10 ° jump, press only left/right key for 1 ° jump, press the

SFT +  key to view the degree of astigmatism. (the arrow keys failure at that time)

3 Cleaning and disinfection

This instrument should be used in a relative clean environment. You can clean its outer cover with a clean soft fabric every 2 months. If remote control needs disinfection, clean with a soft fabric dampened with soluble detergent, or clean dirt with water and then, sterilize with alcohol (concentration below 83%) every day.

Note: do not use any corrosive detergents for cleaning. Otherwise, it may damage the surface.

4 Troubleshooting

If maloperation or error occurred, please turn off the power switch. Restart the instrument after checking. If you meet other faults, please contact our service representative or authorized distributor directly.