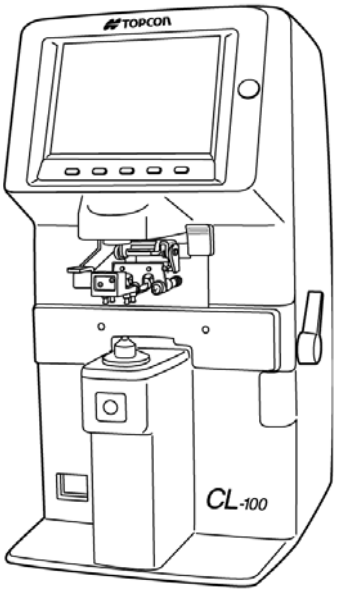
TOPCON



INSTRUCTION MANUAL

COMPUTERIZED LENSMETER

CL-100

INTRODUCTION

Thank you for purchasing the TOPCON Computerized Lensmeter CL-100.

This Instruction Manual covers an overview of the TOPCON Computerized Lensmeter CL-100's basic operations, troubleshooting, maintenance and cleaning.

To get the best usage from the instrument, please read the "Safety indications" and "Safety precautions".
Keep this Manual within reach for future reference.

Precautions

- This is a precision instrument. It is expected that the instrument is used under normal room temperature and humidity condition.
- Install the instrument on a level, stabilized desk. Do not exposed to direct sunlight.
- Instrument must be kept clean at all times. Turn off and cover the instrument when it is not in use.
- For accurate measurements, make sure there is no dust or oil on the lens to be tested or on any portion in which the lens comes into contact with.
- Topcon is not responsible for any unauthorized disassembling and remodeling of the instrument.
- If the equipment is used in a manner other than that specified by the manufacturer, the warranty provided for the equipment may be impaired.

DISPLAY FOR SAFE USE

In order to encourage the safe use of this product, important warnings are put on the product and written in the instruction manual.
We suggest that everyone understands the meaning of the following displays and icons before reading the “Safety Cautions” and text.

DISPLAY	MEANING
⚠ **CAUTION**	**Ignoring this display may lead to personal injury or property damage.**

- Personal injury refers to hurt, burn, electric shock, etc.
- Property damage refers to extensive damage to building or equipment and furniture.

ICONS	MEANING
△	**This icon indicates a Hazard Warning.** **Specific content is expressed with words or an icon either inserted in the icon itself or located close to the icon**

SAFETY CAUTIONS

⚠ **CAUTION**

Icons	Prevention item	Page
	To prevent electrical shock, turn off the power switch and disconnect power cord before replacing fuses. Replace fuses with the same rating and type.	***23***

USAGE AND MAINTENANCE

Usage:
The lensmeter is an electric equipment and the usage must be based on the Instruction Manual.

USER MAINTENANCE:

To maintain the safety and performance of the equipment, never attempt to do the maintenance of parts specified herein, which should be taken care of by our servicemen. The maintenance items that can be covered by users are the following; for details, follow the instructions.

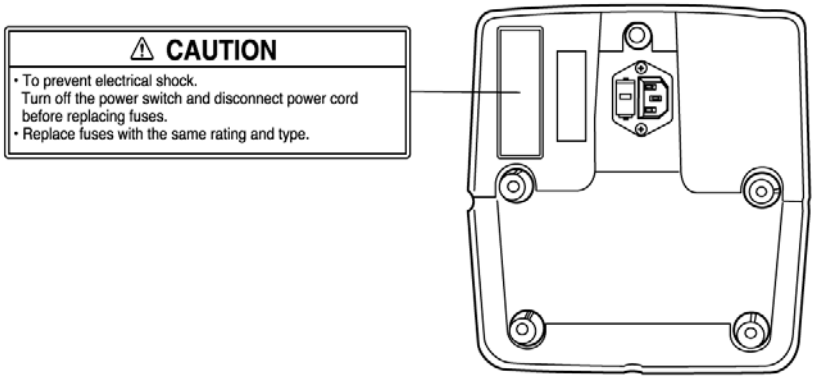
Operating the fuse:
The fuse is replaceable.
For details, see page 23 of this manual.

ESCAPE CLAUSE

- TOPCON shall not take any responsibility for damages due to fire, earthquake, actions by third person, or the negligence and missuse by the user and used under unusual conditions.
- TOPCON shall not take any responsibility for damage derived from the inability to use this equipment, such as a loss of business profit and suspension of business.
- TOPCON shall not take any responsibility for damage caused by operations other than those described in this Instruction Manual.

WARNING INDICATIONS AND POSITIONS

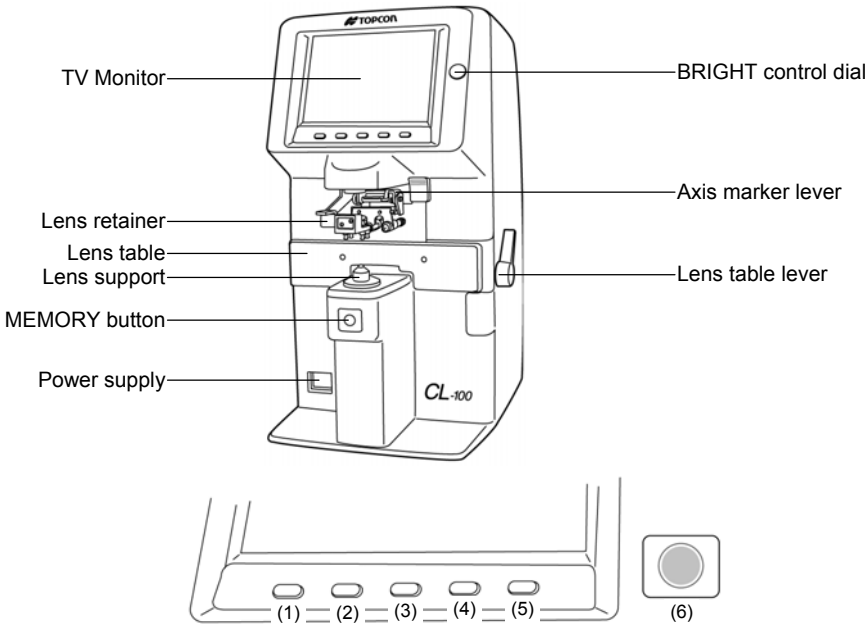
To insure safety, warning labels are provided.
Use the equipment correctly by following the warning instructions. If any of the following labels are missing, please contact us at the address stated on the back cover.



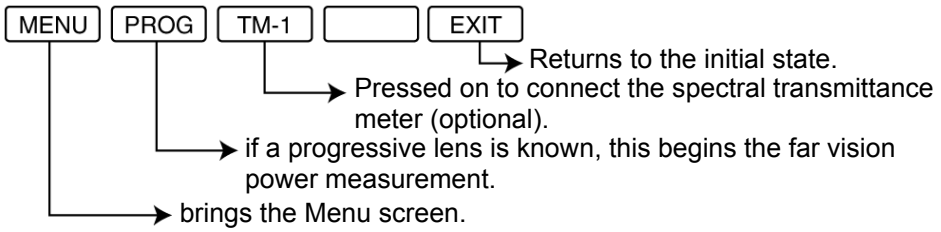
CONTENT

COMPONENTS

COMPONENT NAMES



(1) Mode buttons Pressed to change the mode, and when pressed;



(2) TRANS button Used to change (+) to (–) and vice versa in displayed cylinder value.

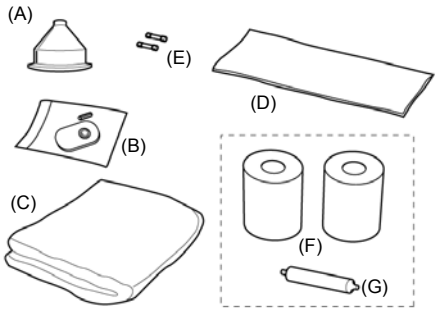
(3) R/L button Used to designate R for right lens or L for left lens.

(4) CLEAR button Used to delete memory data.

(5) PRINT button Press to output RC-232C data.
Press to print out the measurement data. (with printer-type)

(6) MEMORY button ● Used to store the measurement data.

ACCESSORIES



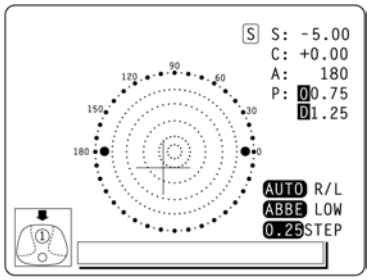
(A) Contact lens support ..... 1 set
(B) Lens protection pad ..... 1 set
(C) Dust cover ..... 1 pc.
(D) Silicon cloth ..... 1 pc.
(E) Fuse ..... 2 pcs.

WITH-PRINTER TYPE

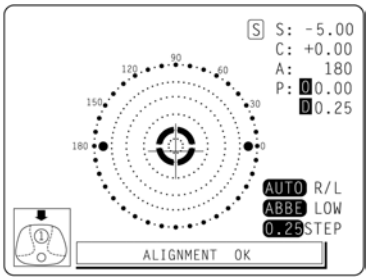
(F) Printer paper ..... 2 rolls
(G) Printer paper shaft ..... 1 pc.

TV MONITOR

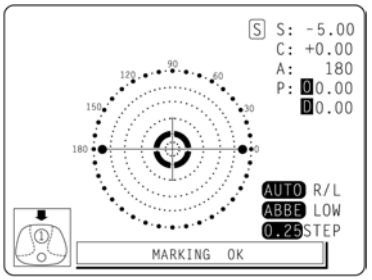
MONITOR SCREEN



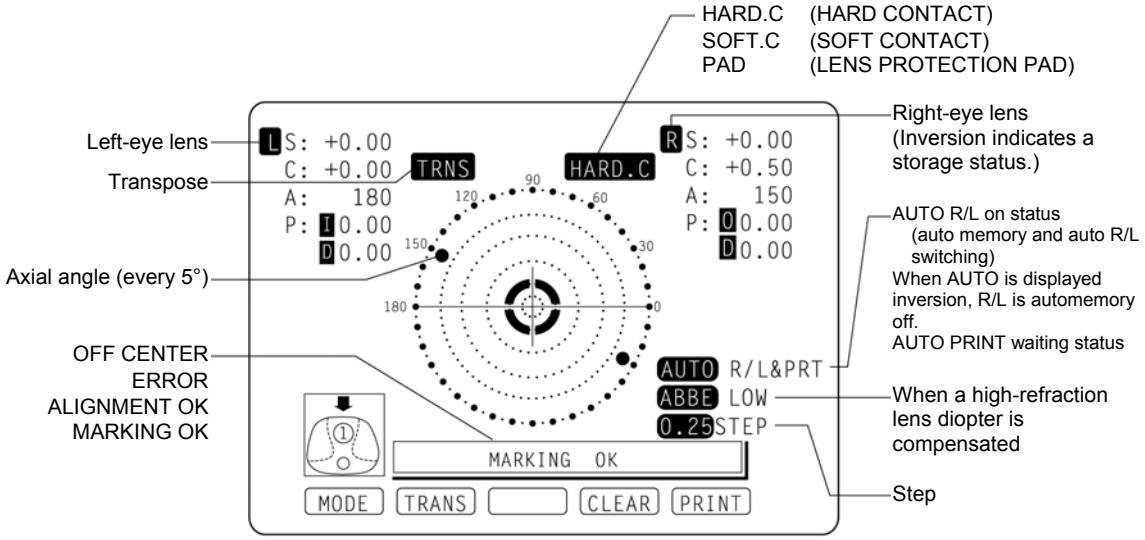
Optical center's off.
[OFF CENTER] is displayed when the optical center is off by 4Δ or more.



[ALIGNMENT OK] appears when the lens is ready for measurement.

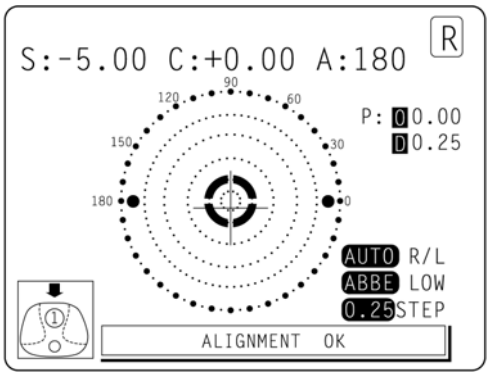


Place + in center [MARKING OK] appears, and the lateral line will extend, getting the instrument ready for marking.

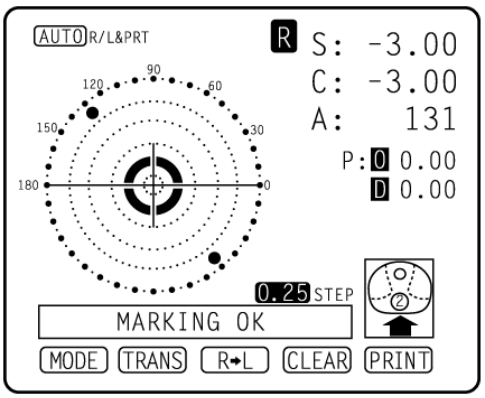


Enlargement:

When MENU/DISPLAY/HORIZONTAL LARGE is selected, the SCA display is horizontally enlarged to make it easier to see.

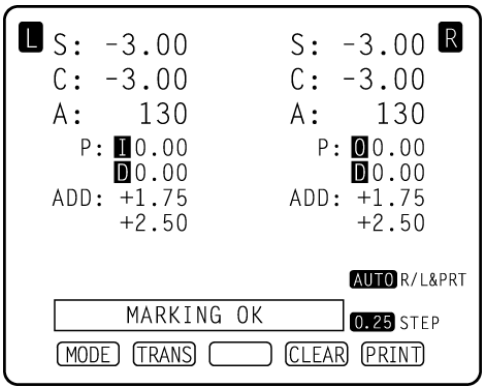


When MENU/DISPLAY/VERTICAL LARGE is selected, the SCA display is vertically enlarged to make it easier to see. The graphic moves to the opposite side.

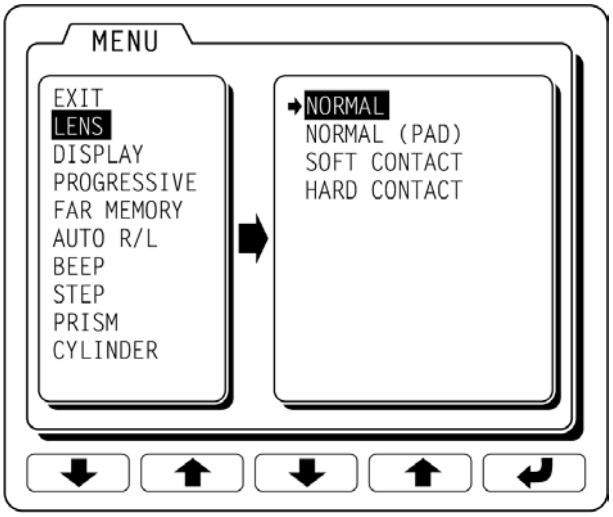


Screen print display: (when enlaraged)

For framed lenses, of which both R and L are memorized, pressing the PRINT button enlarges the SCA of both eyes. To return to the original state, press the EXIT button.



MENU SCREEN



To display the “MENU” screen, press the “MODE” button then the “MENU” button.
Icons will appear at the bottom of the screen.
Refer to the buttons at the bottom of the screen to scroll through the Menu.

Selects a menu.

Selects the contents of each menu.

Changes the setting, and return to the measurement screen.

MENU LIST

EXIT		Returns to the initial state without changing settings.
LENS	NORMAL	Measures a normal lens.
	NORMAL (PAD)	Measures a normal lens wearing a lens protection seal.
	SOFT CONTACT	Measures a soft contact lens.
	HARD CONTACT	Measures a hard contact lens.
DISPLAY	HORIZONTAL LARGE	Horizontally enlarges the SCA display.
	VERTICAL LARGE	Vertically enlarges the SCA display.
	NORMAL	Normal display
PROGRESSIVE	OFF	Auto progressive judgment mode OFF.
	AUTO	Auto progressive judgment mode ON.
	PROGRESSIVE ONLY	Always begins the far vision power measurement of a progressive lens.
	REVERSE	Measures the diopter power with the concave side up.
FAR MEMORY	ON	Auto memory of far vision power measurement.
	OFF	Manual memory of far vision power measurement.
AUTO R/L	ON-R/L	Measurement of framed lens: Auto R/L switching and auto memory.
	ON-S/R/L	Measurement of single lens/framed lens: Auto R/L switching and auto memory
	OFF	Auto memory OFF
BEEP	ON	Buzzer sounds when a measured value is stored and a button is pushed.
	OFF	Buzzer OFF
STEP	0.25	0.25-step measurement.
	0.12	0.12-step measurement.
PRISM	NO DISPLAY	No prism display.
	X-Y	Coordinate display
	P-B	Polar coordinate display
	mm	mm display
CYLINDER	MIX	Mixed display
	+	Plus-fixed display
	-	Minus-fixed display
ABBE	NORMAL	50-60 Abbe
	MID	40-50 Abbe
	LOW	30-40 Abbe
AUTO OFF	YES	Power save ON
	NO	Power save OFF
RS-232C	NEW FORMAT	External output (NEW FORMAT)
	OLD FORMAT	External output (OLD FORMAT)
	STD1	External output (STD FORMAT)
TM-1		Pressed on to connect the spectral transmittance meter (optional).
SEQ.NO.	SET	Serial No. print mode

with-printer Type (added to the above)

PRINTER	ON	Printer output ON
	OFF	Printer output OFF
AUTO PRINT	ON	Auto memory output (S: When the lens is removed R/L: When both lenses are the same class (1st/2nd near vision power of far vision power)
	OFF	Manual memory output
NAME	SET	Shop name print mode

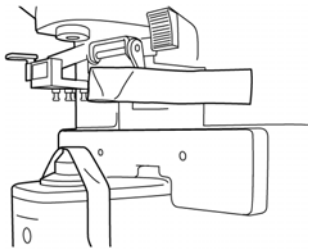
USING THE INSTRUMENT

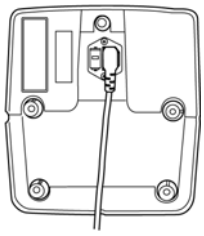
PREPARATION

1 Remove the tape from the lens support.

2 Remove the tape from the marking ink cartridge.

3 Connect the power cable to the body.





4 Turn on the power switch (O → –).

SETTING THE PAPER (WITH-PRINTER TYPE)

1 Remove the printer cover and slide the paper into the slit until it comes out from the outlet, as illustrated.

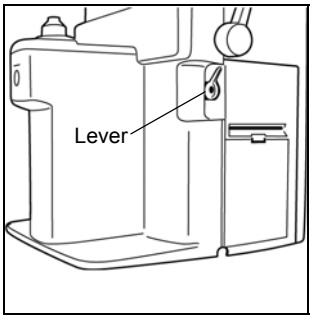
2 Keep the lever at the top position.

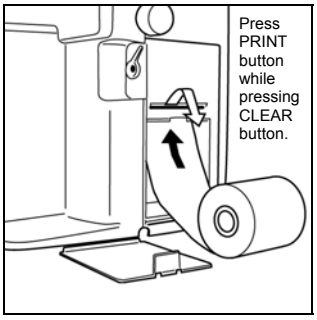
MEMO Take care of the roll direction.

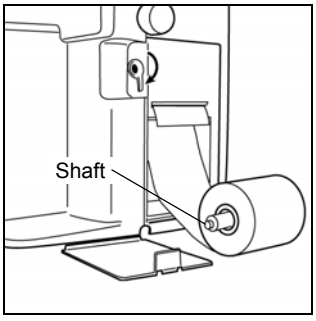
3 Pass the printer paper shaft through the paper to load the printer with paper.

4 Set the printer cover.

5 Lower the lever to the bottom position.







MEMO

- Do not install the instrument in a place which is exposed to direct sunlight, high temperature and humidity and dust.
- Do not install the instrument at a place exposed to intense light or on a glossy table.
- The instrument may not operate properly or “ERROR” may be displayed.
- Use a power of AC100, 120, 220, 240V/±10% (50/60Hz)

MEASURING

Checking before measuring

1 Connect the power plug with a power outlet.

2 Check to see that there is no lens on the lens support.

3 Turn on the power switch, and display will appear on the screen in a few seconds.

MEMO INITIAL ERROR will appear when power is turned on with a lens on the lens support.

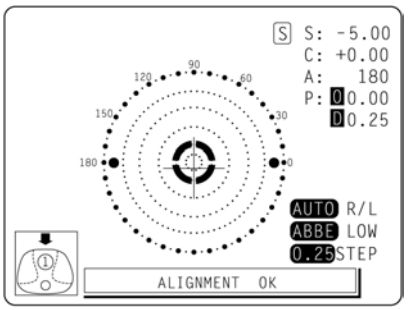
Measuring a single lens

1 Place the target lens with the concavity downward.

2 Lift and place down the lens retainer to retain the target lens with an accompanying hand.

3 ALIGNMENT OK will be displayed when the target image center is within the minimum circle (0.5Δ or smaller).

4 The ALIGNMENT OK mark is displayed when the target image center is reached. In the case of $ measurement wi AU R/L on (AUTO being inverted), “single lens” is memorized automatically. When BEEP is ON, the buzzer sounds.
(Note) The target may move in a contrary manner immediately after the lens is placed.



1 Changing measuring steps
Select on the menu screen [0.12] or [0.25].

2 When prism display is needed
Set as follows in the Menu screen:
[NO DISPLAY] ..... No display
[X-Y] ..... Orthogonal coordinates display
[P-B] ..... Polar coordinates display
[mm] ..... Display by mm

3 When diopter transposition is required

Press TRANS button, and the astigmatism symbols will change.
Press the button again, and the original data will reappear.

S: –1.50 ⇨ S: –1.00
C: +0.50 ⇨ C: –0.50
A: 90 ⇨ A: 180

4 When storing

Press the MEMORY button ●. [S] will turn to **S** .
When R/L designation is required
Press the R/L button.
In the screen, [S] ► [R] ► [L] appears in this order.

For example, [S ► R] [now ► after pressing] is displayed.

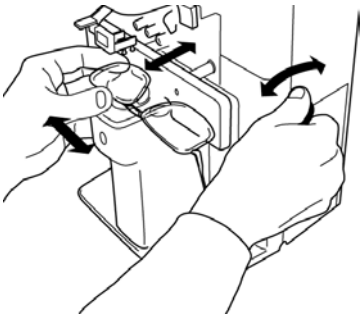
5 When printing

Press PRINT button.

Measuring a framed lens

1 Turn the lens table lever and bring it before you.

2 Gently, place the glass frame against the lens table for measurement.
Alignment
Right and left.....Place the frame against the lens table gently, and move the frame right and left finely.
Vertically .....Move the table easily with the lens table lever.

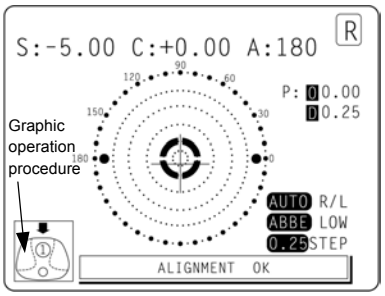


- When AUTO R/L is off (neither **AUTO** R/L nor [AUTO] R/L is displayed)
  Press the [S ► R] button.
  First align the right lens and press the Memory button ●.
  Press the [R ► L] button.
  Align the left lens and press the Memory button ●.
- When AUTO R/L ON-/R/L is set **AUTO** R/L is displayed):
  *Measurement of single lens.
  At first, align the right lense to display “MARKING OK”. Then the result is automatically memorized, when the right lense is hold.
  Removing the right lens will automatically move to the L measurement.
  Align & hold the left lens. The result is automatically memorized.
- When AUTO R/L ON-S/R/L is set (**AUTO** R/L is displayed):
  *Measurement of single lens/framed lens
  Press the [S ► R] button.
  At first, align the right lense to display “MARKING OK”. Then the result is automatically memorized, when the right lense is hold.
  Removing the right lens will automatically move to the L measurement.
  Align & hold the left lens. The result is automatically memorized.

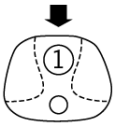
AUTO R/L: Both auto memory and auto R/L switching
[AUTO] R/L: Auto R/L switching only
To set **AUTO** R/L, set [PROGRESSIVE/OFF] and [AUTO R/L/ON-R/L] or [AUTO R/L/ON-S/R/L].

Judging a progressive lens

- Judging a progressive lens MENU screen/PROGRESSIVE/AUTO
  Judges a single focal lens or a progressive lens, which otherwise is difficult.
  Under this mode, a graphic operation procedure is displayed at the bottom left.

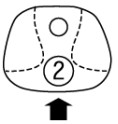


1 Select [PRGRSVE.] [PROGRESSIVE] with MENU button, and a single focal lens will be told from a progressive focal lens, which is not easy from appearance.



2 Under this mode, the graphic operation procedure appears at the lower left on the screen.

3 Measure the lower frame center (position (1)); do not move the frame during measurement.

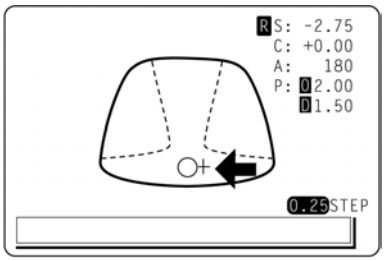


4 Measure the upper frame center (position (2)); do not move the frame during measurement.

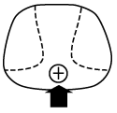
MEMO Pressing the Mode button and then the PROG button will omit the auto progressive judgment mode.

Or, when MENU screen/PROGRESSIVE/ PROGRESSIVE ONLY is designed, always the far vision power measurement for progressive lens begins.

- Measuring a progressive lens for far vision power (excluding prism prescription lens)



1 The initial screen for far vision measurement shows the right figure.
Move the glass frame to match + with ○.

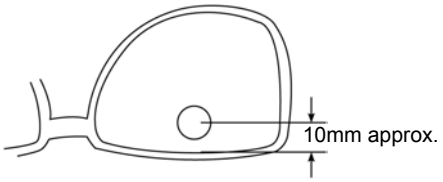


2 Move the glass frame according to the direction of the arrow.

3 After measuring the far vision region, the screen automatically switch itself to near vision power measurement. (To facilitate detecting the far vision region, hold the lens gently and more the lens slowly.)

MEMO Press the Memory button ●. Optionally store the result of far vision power measurement. The screen switches to the near vision power measurement.

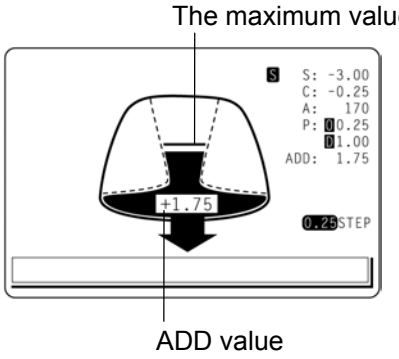
When MENU screen/FAR MEMORY/OFF is set, the result of far vision power measurement is not automatically stored. Press the Memory button ●.



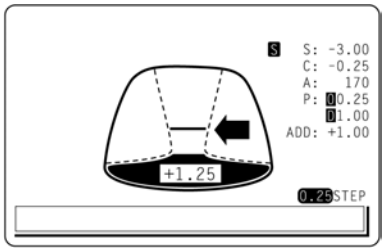
MEMO For high-power lenses, sometimes the far vision region cannot be detected so easily. In this case, do measurement around the position shown in the right figure, and press ADD button.

Measuring a progressive lens for near vision power

1 While watching the screen, bring the lens table foremost.

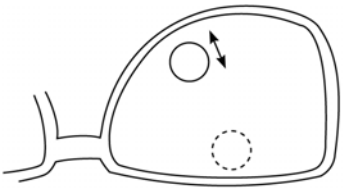


2 Under the condition illustrated below, a position off the progressive zone is being measured. Move the frame along the arrow.



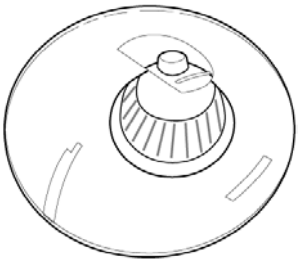
3 Within the progressive zone, press the Memory button at a position where the ADD value is the maximum.

MEMO When measuring a lens mounted in a large frame, ADD power may be higher because some lenses increase in ADD power at a position lower than the near vision region. If the lens is measured, accordingly, at a point lower than the near-vision eye point, ADD power may be higher. If you want to know the previous prescription, it is advisable to check the measurement position with *** mark.



Measuring a bi- and tri-focal lens

- When using progressive graphics from the auto progressive judgment mode:
  Set the bottom center of screen under the Auto progressive judgment mode (position (1)) to the near vision power region (near segment) and measure the lens at rest. Upon measuring the far vision power region at rest in like measuring a progressive lens, the screen automatically switches to the far vision power measurement.
  When measuring the 2nd near vision power of tri-focal lenses, memorizing the 1st near vision power changes the mode button to the ADD2 button. Pressing the button starts the 2nd diopter power measurement.



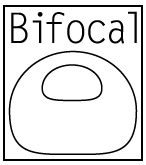
- When marking the optical center of far vision power region:

1 Align the far vision power region and press the MEMORY button ●.

2 Mark the optical center.

3 Set the screen to the near vision power region (near segment).

4 Press the MEMORY button ● (in this case the MEASUREMENT OK button of near vision power).

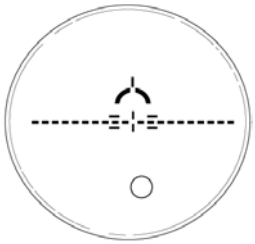


The mark shown left is displayed on the screen.

5 Measure the near vision power and press the MEMORY button ●.

Measuring an unprocessed progressive lens

As each unprocessed lens has a mark on the measuring point. Do measurement on the mark position. For measurement, follow the procedure of “Judging a progressive lens, measuring a progressive lens for far vision power” and “Measuring a progressive lens for near vision power”.



Far vision region marked

Near vision region marked

MEMO The measuring point for the far or near vision region may be narrowed by marks. Take care that the luminous flux may not be shaded during measurement.

ADD values will flicker when the luminous flux is shaded by marks or off the progressive zone at the time of measuring the near vision region. An EX lens may not be provided with accurate measurements when measured in the boundary.

Mode to measure the diopter power of lenses with the concave side up

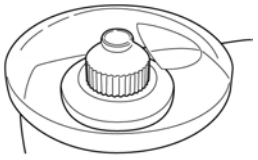
1 Set MENU/PROGRESSIVE/REVERSE.

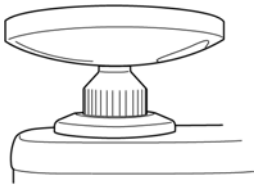
2 Set the lens with the concave side down as usual, align the far vision power region, and press the MEMORY button.

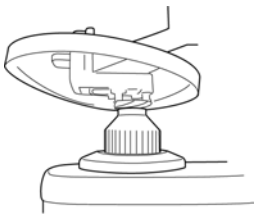
3 Set the lens with the concave side up, align the far vision power region, and press the MEMORY button.

4 Leaving the lens with the concave side up, align the near vision power region and press the MEMORY button.

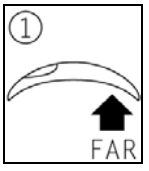
Lens position

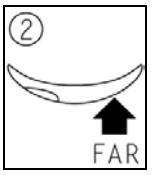


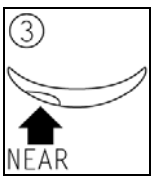




Screen



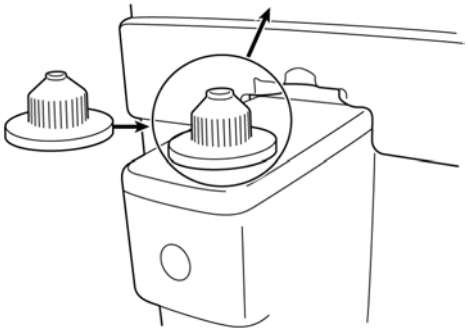




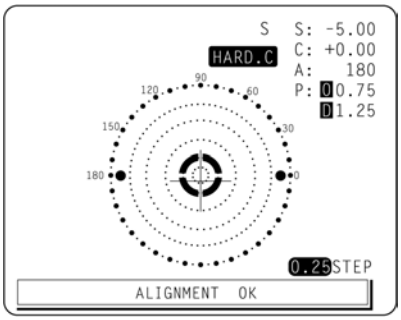
Measuring a contact lens

- Measuring a hard contact lens

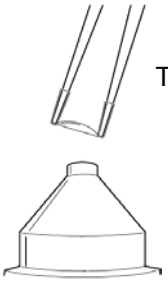
1 Replace the lens support with the contact lens support.



2 Select [LENS] [HARD CONTACT] from the menu, and HARD.C will be displayed on the screen.



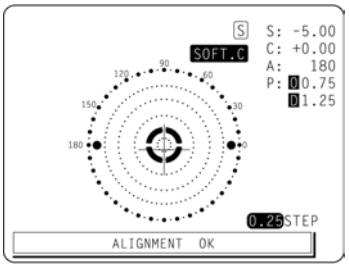
3 Carefully with a tweezer, place the target contact lens on the plate and fit it as is.



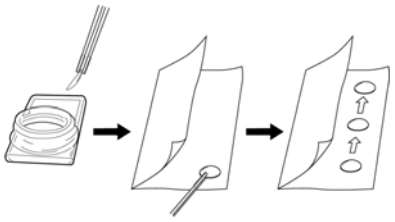
- Measuring a soft contact lens without astigmatism

1 Use the contact lens support for measuring as measuring a hard contact lens.

2 Select [LENS][SOFT CONTACT] from the menu, and SOFT CONTACT will appear on the screen.

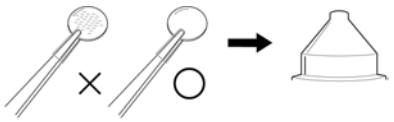


3 Pinch the target soft contact lens with special tweezers to swish off moisture from the lens. Put the lens between paper to remove moisture from the surface.



MEMO If you observe dews on the soft contact lens surface, measurement will not be possible because the luminous flux gets out of order.

4 If there are dews on the surface when the target contact lens is held to the light, put the lens in the special solution again, and repeat the above. If the lens is ready for measurement, put it on the contact lens holder and tell the shape (with tweezers) for alignment.



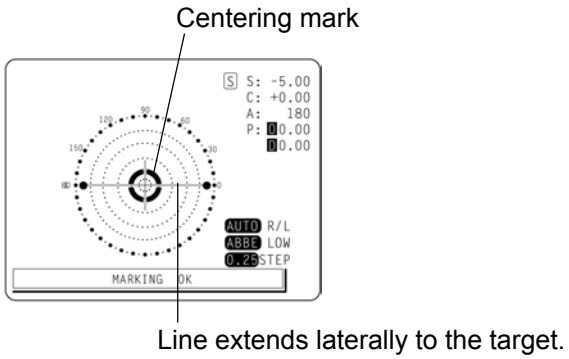
MEMO Use the hard contact mode when measuring a soft contact lens with astigmatism.

AXIS MARKING (CARTRIDGE SPECIFICATION/STEEL NEEDLE SPECIFICATION)

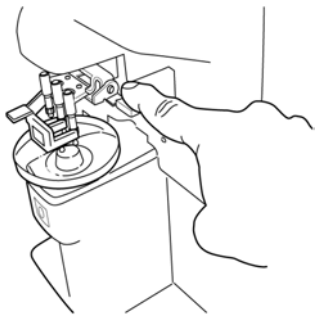
Using the cartridge, one light touch to the lens can put a clear ink mark.

Marking a lens without astigmatism

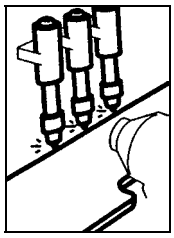
1 Move the target lens until the centering mark coincides with the target image completely, and MARKING OK will appear.



2 Depress the marking lever to mark the lens.



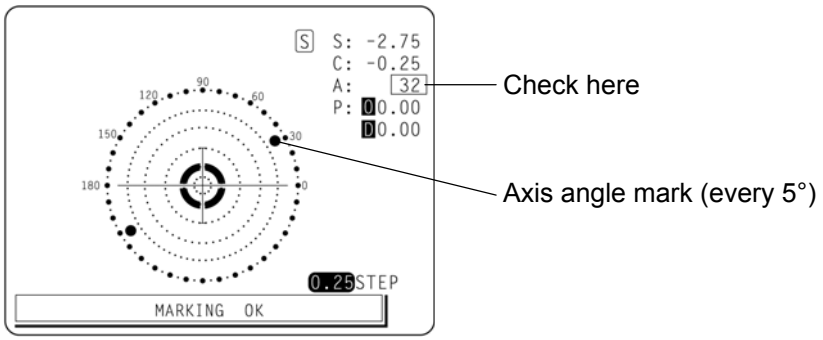
MEMO Ensure the ink cartridges do not interfere with the lens



Marking a lens with astigmatism

1 Axis marking, maintaining the axis as prescribed
Align the target image with the center mark, approximating the axis angle mark to the angle as prescribed.

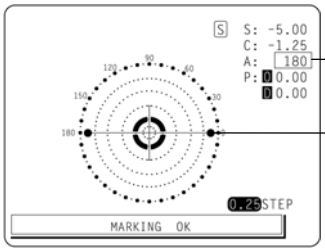
MEMO Do it with AUTO R/L off.



2 Marking a cylindrical axis

Match the center mark with the target image, approximating the axis angle mark to 180 degrees.

Adjust A of the axis angle to 180 degrees.

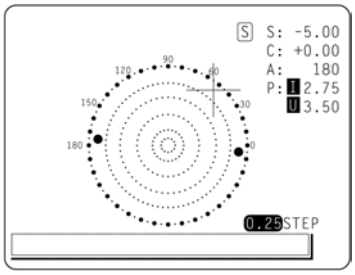


Adjust to 180°.

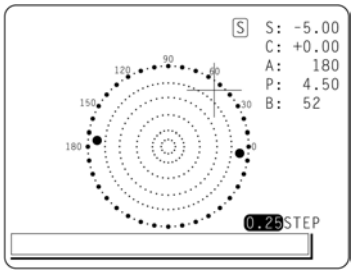
Axis angle mark (every 5°)

Marking a lens with prism power

- When the prescription is displayed with X-Y (orthogonal coordinates):
  Select [PRISM][X-Y] from the menu.
  Carry out aligning according to the prism value as prescribed and as displayed on the screen.
  - I in prism value: Base In
  - O in prism value: Base Out
  - U in prism value: Base Up
  - D in prism value: Base Down



- When the prescription is displayed with P-B (polar coordinates)
  Select [PRISM][P-B] from the menu.
  Carry out aligning according to the prism value as prescribed and as displayed on the screen.
  - P: Prism value
  - B: Base orientation

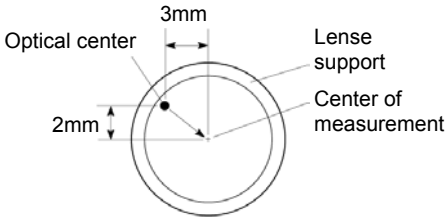


MEMO Take care that the polar coordinates are not the same as the value on the angular scale in the target image.

- When the unit is mm.

Select [PRISM][mm] from the menu.
The ↑ ↓ ← → marks show the optical center reaches the center of measurement by moving the target lens in the arrow directions by the distance as displayed.

→ 3.0mm
↓ 2.0mm

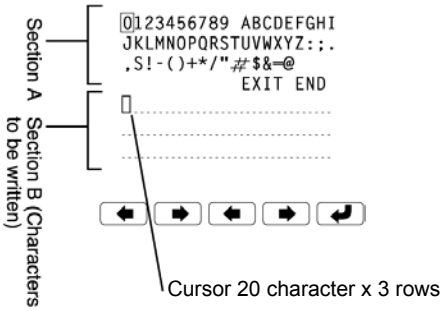


MEMO 0 will be displayed if the spherical power S is around 0.

PRINTING THE ADDITIONAL TEXTBOX (WITH-PRINTER TYPE)

On the print out with the measuring data, the user can input his own text, like the name of shop, address or special message. Available space is three line of 20 characters each.

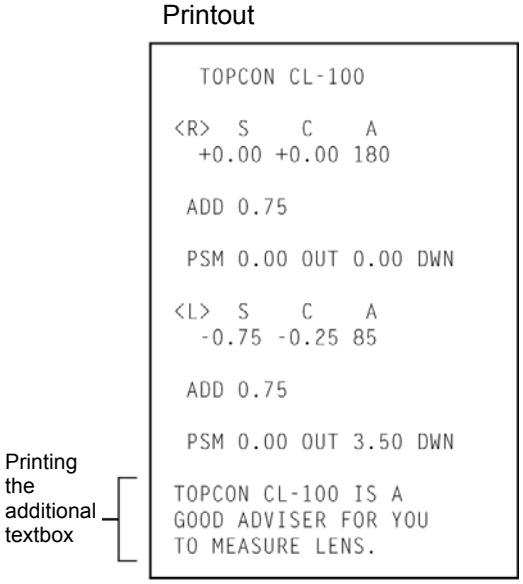
Select NAME SET from the menu and press the button below the icon , and the world of marking of text will appear (as shown at below).



: Moves to the left the cursor in Section A.
: Moves to the right the cursor in Section A.
: Moves to the left where to write in Section B.
: Moves to the right where to write in Section B.
: Writes the character in Section B.

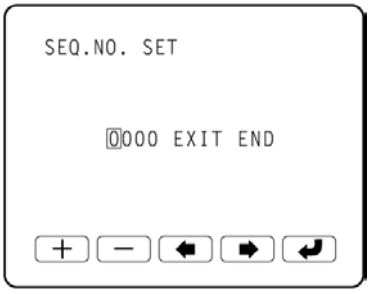
Upon completing Section B, move the cursor to END of Section A and press , and writing may be possible, returning the measurement screen. Once the characters are written, they will remain even after the instrument power is turned off.

Printout



SETTING A SEQUENCE NO.

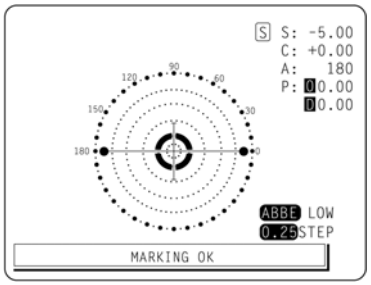
Setting is carried out when writing a sequence No. on printing paper and transferring the serial No., using RS232C.
Select SEQ. NO SET from the menu and press ↵, and the screen as shown below will appear.
[+] and [−] are used to change the cursor figure.
◄ and ► are used to change the cursor position.
Bring the cursor to END and press A to finish setting.
No printing or counting is carried out in case of 0000. Press MEMORY, PRINT. and CLEAR buttons in this order. and counting will be carried out. (except for S single lens).



ABBE COMPENSATION FUNCTION

When the Abbe number of lens is known:

In the menu screen ABBE, select any of the following according to the Abbe number of target lens:
Normal (50-60)
MID (40-50)
LOW (30-40)



Lens protection PAD

The attached lens protection pad allows a soft contact with the measuring lens.

1 Fit the lens protection pad according to the instructions.

2 Select [LENS][NORMAL(PAD)], and the measurement result will be automatically compensated.

MAINTENANCE

Auto shut-off

1 The monitor screen will shut off automatically if not in use for about 10 minutes.

2 Press any button, and the instrument will resume.

3 Select MENU screen/AUTO OFF/NO from the menu if it is not desirable.

Fuse

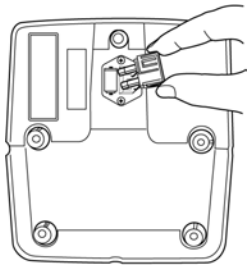
(Note) To prevent electrical shock, turn off the power switch and disconnect power cord before replacing fuses.

1 The fuse holder is provided at the bottom part of the instrument.

2 Disconnect the power cable.

3 To remove the cover, push the top and bottom pawls simultaneously, using 2 screw drivers.

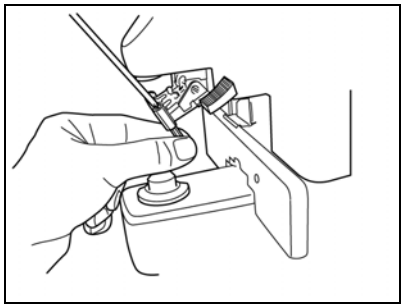
4 A 1.6A (250V) glass tube fuse is provided in the holder.



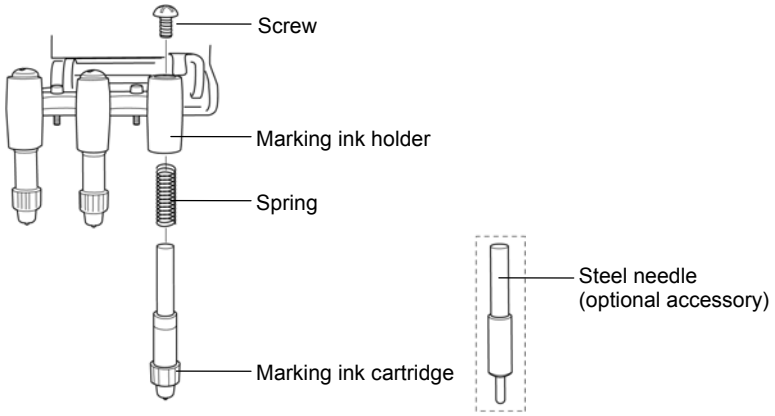
⚠ **CAUTION**	To prevent electrical shock, turn off the power switch and disconnect power cord before replacing fuses. Replace fuses with the same rating and type.

Replacing the marking ink cartridge (the same applies to the optional steel needle)

1 To replace the marking ink cartridge, remove the top screw does. Pull out the cartridge while applying pressure to it so as the spring not jump out from the inside. Work the lens holder/stopper under the lowered condition.



2 To set the cartridge, insert the spring and keep the cartridge top well above the marking ink holder, and then fasten the screw.



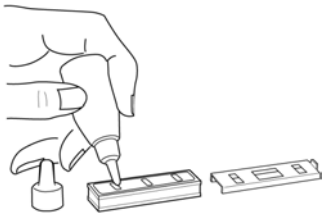
Supply of ink for the optional steel needle

1 Replenish ink when poor marking happens.

2 Slide laterally and pull out the inkpot.

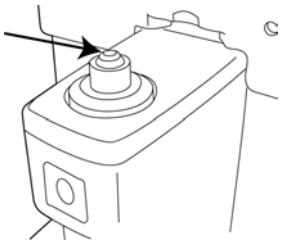
3 Slide off cover from the inkpot.

4 Infiltrate replenish ink into the sponge well.



Cleaning cover glasses

If the glass is dirty as indicated by arrows, it will affect measurement accuracy adversely.
If this occurs, clean them with the attached silicon cloth.
Remove the lens support before cleaning the cover glass.



Cleaning the instrument

1 Wipe cover with silicone or damp cloth, never use cleanser or other chemicals.

BEFORE REQUESTING SERVICE

CAUTION MESSAGES

DIOPTER OVER PRISM OVER' ERROR	Check to see that the target lens is in the measurable scope. Check to see that the target lens is free from any flaw, dust or oil. Clean both glasses and turn power on again. Check the lens value is not beyond the unit's measuring range.
INITIAL ERROR	Request repair service. Remove the lens from the lens support, and turn on power again.
PAPER END (with printer-type)	Printer paper is out. Load new paper.
PRINTER HEAD UP (with-printer type)	The printer lever is Up. Lower the printer lever.

CHECK ITEMS

The instrument does not get ready for operation even if the power switch is turned on.	Re-plug the power cord. Give a check to the fuse.
The monitor screen is not visible well.	Adjust the Bright adjustment dial.
S, C values are wrong.	Is the lens place with power off? Remove the lens and turn on power again. Is the beam blocked by an unusual flaw, dust, mark, grease, etc. in the measured lens?
Marking is poor.	Replace the marking ink cartridge. For a lens with sharp surface curve, use the optional steel needle marking set.
The screen went out all of a sudden.	The auto shut-off function is on. Press the any button ●, and the instrument will resume.
Pushed the Print button but the printer does not work. (with-printer type)	Is printer paper set properly? Not inside out?

SPECIFICATIONS

SPECIFICATIONS

Measurable scope	S: 0~±25D C: 0~±10D ADD: 0~+10D (0.12/0.25) P: 0~10Δ (0.12/0.25) A: 1~180° (1°)
Cylinder mode	MIX/–/+
Prism mode	No display / X-Y (orthogonal coordinates) / P-B (polar coordinates) / mm
Contact lens	Hard and soft contact lenses are measurable. A contact lens plate and a fine-movement ring provided.
Progressive focal lens	Single focal/progressive lens judgment, far vision power detection, ADD power bar-meter display
Compensating	Compensation of a lens different in Abbe number.
Display screen	LCD 300 × 240 dots S, C, A, P, ADD, ADD R/L display en bloc. Enlarged SCA display.
Frame	Auto R/L function
Menu screen	Easy-to-watch screen with icon display
Target lens diameter	Ø5 ~ 100mm
Power supply	100/120/220/240V 55VA (Auto shut-off in 10 minutes) (CE marking: only 230V)
Dimensions, weight	215 (W) × 220 (D) × 420 (H) 6.5kg approx.

* Subject to changes in design and/or specifications, without advanced notice.

Environment condition : Indoor use Altitude up to 2,000m
Pollution degree II Temperature 5~40°C
Maximum relative humidity 80% for temperatures up to 31°C decreasing linearly to 50% relative humidity at 40°C

WITH-PRINTER TYPE

Printer: Thermal printer, paper width 58mm

OPTIONAL ACCESSORIES

Steel needle marking set (steel needle, supply ink, ink bottle, holder)

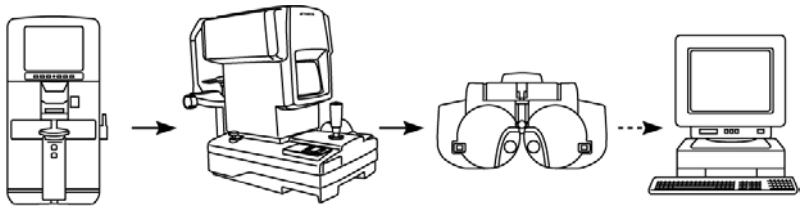
Ordering consumable supplies and spares

	Product name	Part code No.	Remark
Spare part	100~120V Fuse (250V, 1.6A)	0514111620	Standard accessory
	220~240V Fuse (250V, 1.0A)	0514110130	Standard accessory
Consumables	Marking ink cartridge (3 cartridges/set)	4203699500	Standard accessory
	Lens protection pad	4203656000	Standard accessory
	Steel needle marking set	4203625100	Optional accessory
	Supply ink	4203690060	Optional accessory
	Printer paper	4480040010	With-printer type

USING THE INSTRUMENT AS A SYSTEM

ON - LINE SYSTEM

The data of computerized lensmeter can be transfered to the instruments through RS-232C interface, and also measuring data of the instruments can be transfered to computerized visiontester.



CL **RM/KR** **CV** **COMPUTER**

COMPUTERIZED LENSMETER

CL-100

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