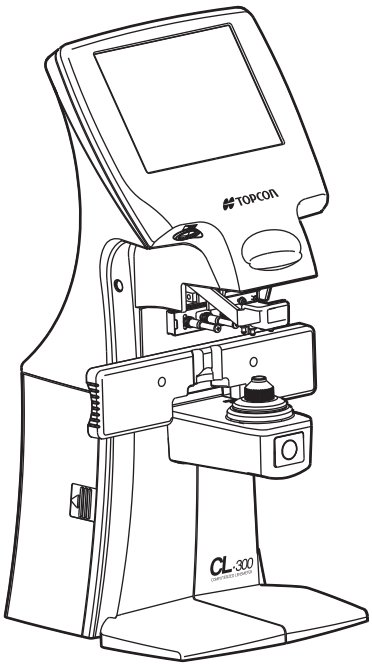
TOPCON



USER MANUAL
COMPUTERIZED LENSMETER

CL-300

INTRODUCTION

Thank you for purchasing the TOPCON Computerized Lensmeter CL-300.

INTENDED USE / INDICATIONS FOR USE

This product measures an optical performance of the glasses lens.

FEATURES

This instrument has the following features:

- An LCD touch panel that facilitates operation
- UV Transmission Measurement

PURPOSE OF THIS MANUAL

This Instruction Manual covers an overview of the TOPCON Computerized Lensmeter CL-300, basic operations, troubleshooting, maintenance and cleaning.
To ensure the efficient, safe use, read through "DISPLAYS AND SYMBOLS FOR SAFE USE" and "GENERAL SAFETY INFORMATION" and use the instrument correctly.
Keep this Instruction Manual within reach for future reference.

[CAUTION] Federal law restricts this device to the sale by or on the order of a physician.

CE

1. No part of this manual may be copied or reprinted, in whole or in part, without prior written permission.
2. The contents of this manual are subject to change without prior notice and without legal obligation.
3. The contents of this manual are correct to the best of our knowledge. Please inform us of any ambiguous or erroneous descriptions, missing information, etc.
4. Original Instructions
   This manual was originally written in English.

CONTENTS

DISPLAYS AND SYMBOLS FOR SAFE USE

In order to encourage the safe use of the instrument and to avoid danger to the operator and others as well as damage to properties, warnings are described in the User Manual and marked on the instrument body.
We suggest you thoroughly understand the meaning of the following displays/icons and Safety Cautions, as well as read the Manual, and strictly observe the instructions.

DISPLAY

DISPLAY	MEANING
WARNING	A WARNING is provided to alert the user to potential serious outcomes (death, injury, or serious adverse events) to the patient or the user.
CAUTION	A CAUTION is provided to alert the user to use special care necessary for the safe and effective use of the device. They may include actions to be taken to avoid effects on patients or users that may not be potentially life threatening or result in serious injury, but about which the user should be aware. Cautions are also provided to alert the user to adverse effects on this device of use or misuse and the care necessary to avoid such effects.
NOTE	A NOTE is provided when additional general information is applicable.

SYMBOL

Symbol	IEC/ISO Publication	Description	Description (French)
	IEC 60417-5032	Alternating Current	Courant alternatif
	IEC 60417-5008	Off (power: disconnection from the main power supply)	Éteint (courant: coupure avec le secteur)
	IEC 60417-5007	On (power: connection to the main power supply)	Allumé (courant: raccordement sur le secteur)
	IEC 60878-02-02	Type B applied part	Partie appliquée du Type B
	ISO 7010-W001	General warning sign	Symbole d'avertissement général
	ISO 7010-M002	Refer to instruction manual/booklet	Voir le manuel/la brochure
	ISO 7000-2497	Date of manufacture	Date de fabrication
	ISO 7000-2498	Serial number	Numéro de série
	ISO 7000-3082	Manufacturer	Fabricant
	ISO 15223-1	Authorised Representative in the European Community	Représentant autorité pour l'Union européenne

GENERAL SAFETY INFORMATION

⚠ WARNING

Preventing Electric Shocks and Fires
To avoid fire and electric shock, DO NOT not place any liquids containers near or on top of the instrument.
To avoid electric shock, DO NOT insert objects through vent holes or gaps or force them inside the machine body.
To avoid electric shock, DO NOT attempt disassembling, rebuilding or repairing. This instrument does not contain any user-serviceable parts. DO NOT remove the instrument covers. Refer servicing to a certified Topcon Service Engineer or qualified hospital personnel.
To avoid fire/electric shock, DO NOT install the instrument in a place where it may get wet.
To avoid fire in the event of an instrument malfunction, immediately turn OFF the power switch and disconnect the power plug from the outlet if you see smoke coming from the instrument, etc. Don't install the instrument where it is difficult to disconnect the power plug from the outlet. Ask your dealer for service.

⚠ CAUTION

Ensuring the Safety of Patients and Operators
To avoid injury by falling, do not install the instrument on a slope or in an unstable place.

Preventing Electric Shocks
Do not open the cover. For repairs, contact your Topcon dealer. [If the instrument cover is open, there is a risk of electric shock.]

Electromagnetic Compatibility (EMC)
This instrument has been tested (with120V/ 230V) and found to comply with IEC60601-1-2 Ed.3.0:2007. This instrument radiates radio frequency energy within standard and may affect other devices in its vicinity. If you have found out that by turning on/off the instrument other devices are affected, it is recommended that you change the direction, keep a proper distance from other devices or change the outlet. If you have additional questions, consult with the selling agent.

HOW TO READ THIS MANUAL

- Read the instructions on pages 5 to 8 before using the machine.
- Regarding connection to various devices, see "USING THE INSTRUMENT" on page 22.
- For setting various functions, see "SETTING FUNCTIONS ON THE SETUP SCREEN" on page 41.

GENERAL MAINTENANCE INFORMATION

USER MAINTENANCE

To maintain the safety and performance of the equipment, never attempt to repair or perform maintenance. These tasks should be performed by an authorized service representative.
Maintenance tasks that can be performed by the user are as follows; for details, follow the manual's instructions.

CLEANING COVER GLASSES

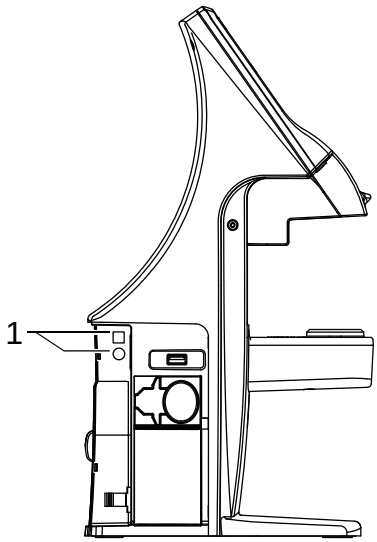
For details, see page 49 of this manual.

DISCLAIMERS

- TOPCON is not responsible for damage due to fire, earthquakes, actions or inactions of third persons or other accidents, or damage due to negligence and misuse by the user and any use under unusual conditions.
- TOPCON is not responsible for damage derived from inability to properly use this equipment, such as loss of business profits and suspension of business.
- TOPCON is not responsible for damage caused by operations other than those described in this User Manual.
- The device does not provide a diagnosis of any condition or lack thereof or any recommendations for appropriate treatment. The relevant healthcare provider is fully responsible for all diagnosis and treatment decisions and recommendations.

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 appropriate address stated on the back cover.

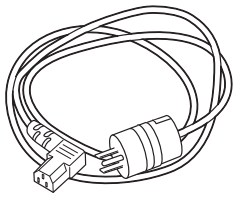
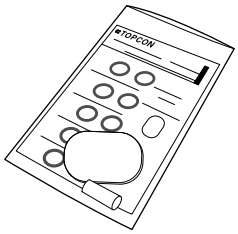
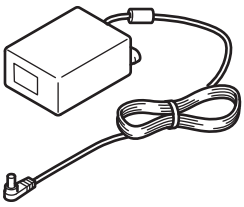
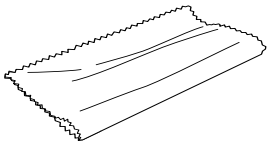
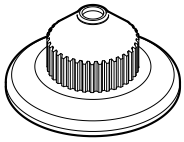
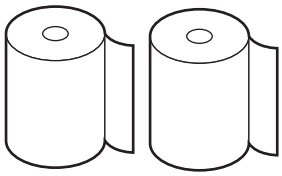
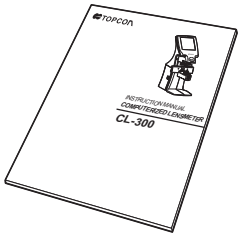


No.	Label	Meaning	Signification
1		**WARNING** To avoid injury caused by electric shock, do not open the cover. Ask your dealer for service.	**MISE EN GARDE** Ne pas ouvrir le couvercle pour éviter les blessures causées par un choc électrique. Demander au revendeur d'effectuer le service.
		**WARNING** To avoid injury, do not touch the AC adapter jack while using the AC adapter.	**MISE EN GARDE** Pour éviter les blessures, ne touchez pas la prise de l'adaptateur secteur lorsque vous utilisez l'adaptateur secteur.

COMPONENTS

ACCESSORIES

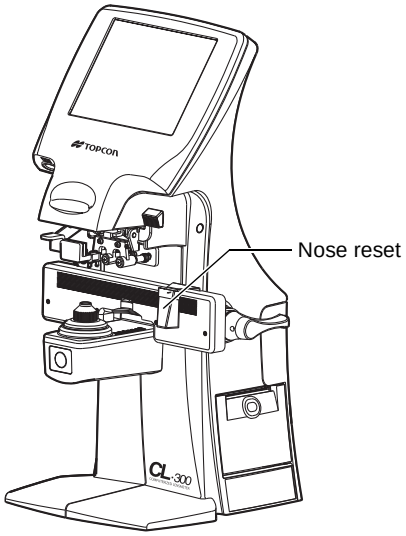
The following are standard accessories. Make sure that all these items are included (the quantity is indicated in parentheses).

Power cable (1)* 	Lens protection pad (1) 
AC adapter (1) Model name: BPM040S09F02 	Silicon cloth (1) 
Contact lens support (1) 	Dust cover (1) 
Printer paper (2) (with printer specification) 	User Manual (1) Instruction Manual (1) 

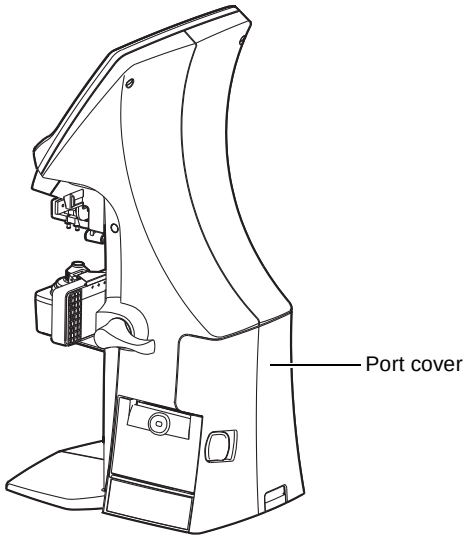
* More than one power cable can be included on certain occasions.

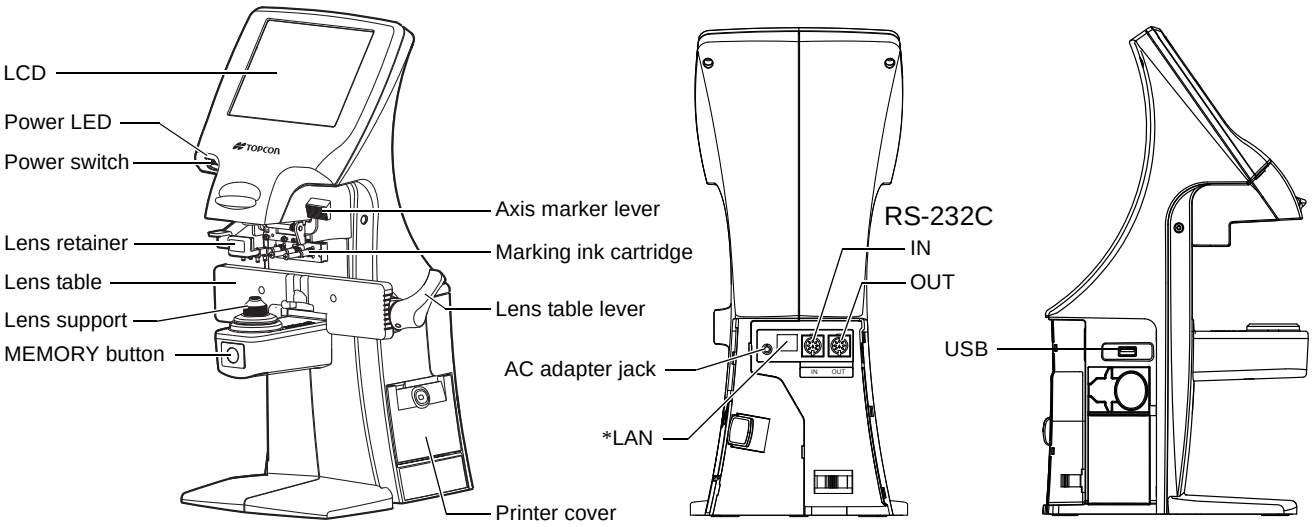
COMPONENT NAMES

with PD



Back side





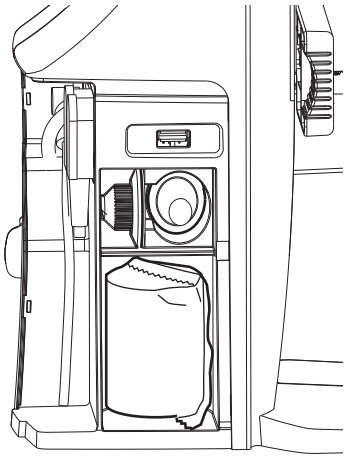
*The model without LAN is also provided.

NOTE

- Use a LAN cable within 30m.
- The USB is for maintenance, not normal use.
- Power LED
  - Orange lamp ON: Power OFF
  - Green lamp ON: Power ON
  - Green lamp blinks: In power save mode.
- The model without the PD and LAN functions is not provided with a nose-pad and LAN.

COMPARTMENT SPACE

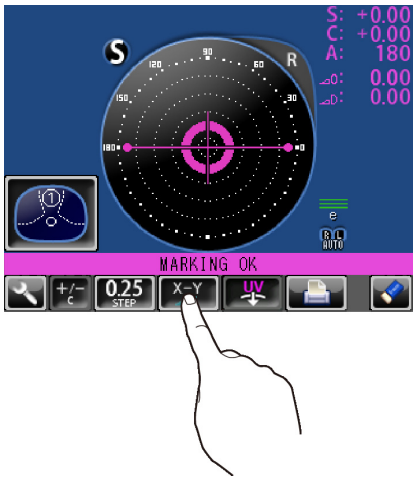
A space for keeping the contact lens holder, printer paper, etc. is secured in the back.



CONTROL PANEL OPERATION

NOTE	The control panel is a touch screen panel. Do not use any sharp tools; e.g. ball point pen to touch the screen.

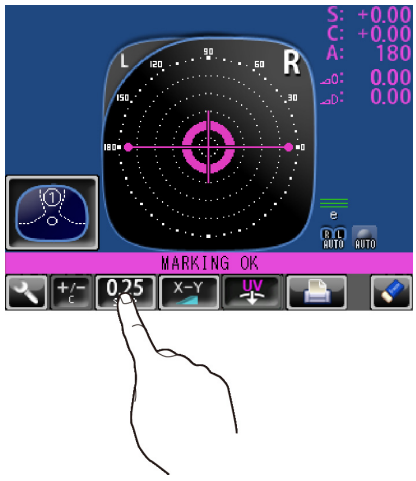
Tap → To select any relevant item.



Touch the screen softly with a finger.

Long button press

→ To select certain items, a long button press is required.



Continue to touch the screen softly with a finger.

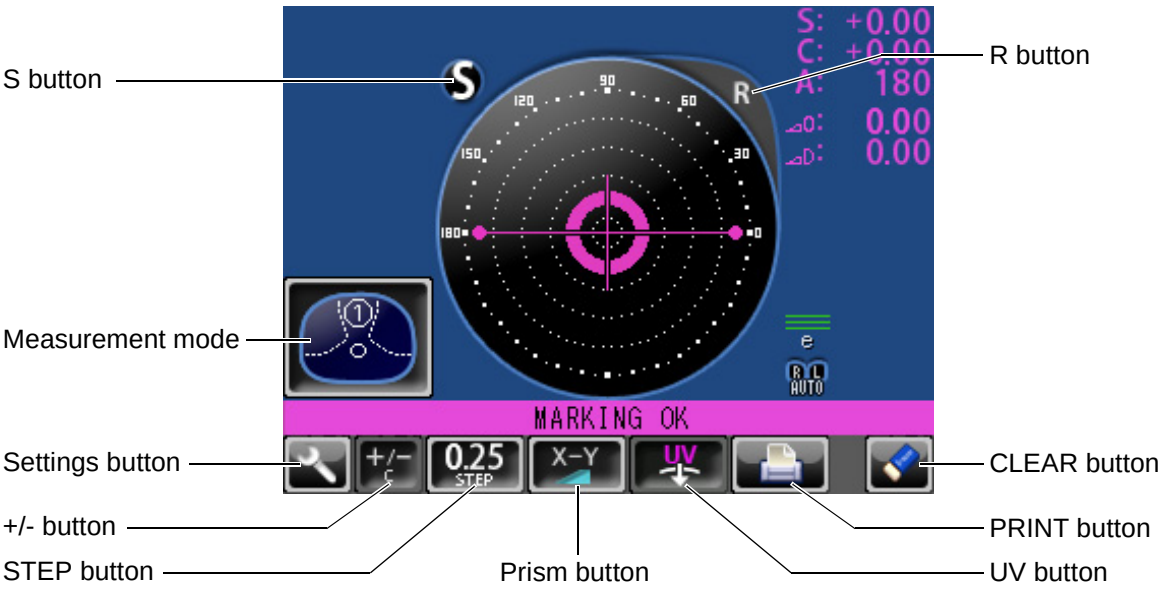
CONTROL PANEL COMPONENTS

THE FUNCTION BUTTONS

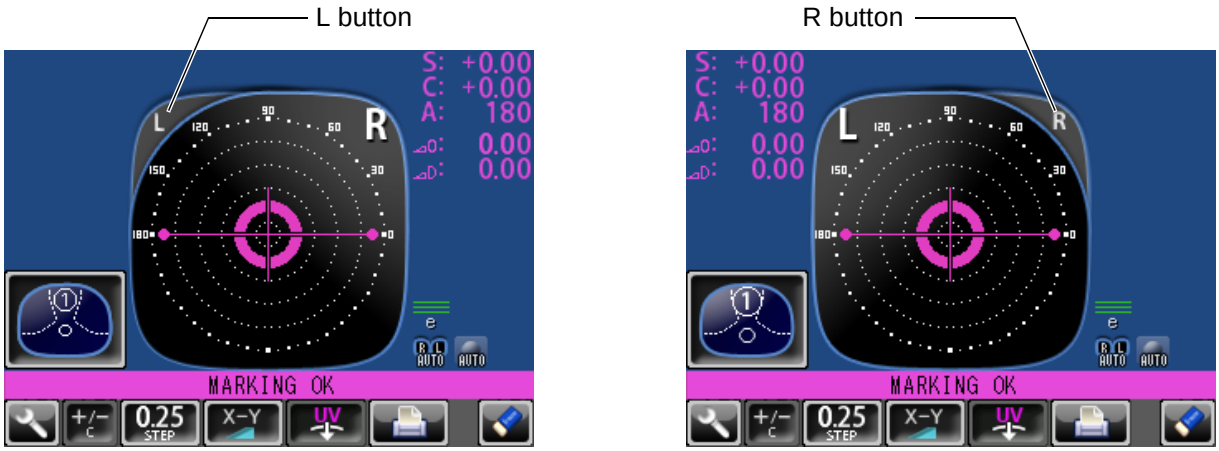
The control panel is designed as a touch screen panel for performing various operations and settings.

It displays images and shows information, including set conditions and measurement results.

SINGLE MODE



R/L MODE



BUTTON NAMES

 Settings button — Displays the SETUP screen.

 +/- button — Used to change the degree (performed when an orange frame is displayed).

 STEP button — Used to change the step of the measurement value.
(Press it continuously for A:step setting.)

Long button press: 

 Prism button — Used to change the prism display.

 UV button — Used to turn the UV measurement ON/OFF.

 PRINT button — Press to obtain a print out of the readings.
Press to output data through the RS-232C.

 CLEAR button — Used to delete all data in memory. To delete R and L separately when "ONE CLEAR" setting is ON, press and hold this button.

 Measurement mode button — Used to change the setting of the measurement mode.

NOTE	Some measurement results can be printed out in the QR code. Please ask your serviceman for how to set. The following specifications in the QR code can be printed out. Model: Model 2 Version: 1-40 * It is necessary for the customers to prepare a system that will make use of the QR code.

LAN ACCESS STATUS

As for the model with a LAN function, when the "LAN" setup is "ON", a LAN access status is displayed.

Blinking : Under a connection check

Lighting : Connection OK

: Connection NG (Re-connection will be started if tapping.)

: Under communication

NOTE	An error message is displayed when LAN access has an error. For details, refer to "LAN ERROR MESSAGES" on page 51.

MEASUREMENT SCREEN

SINGLE MODE

Message bar
OFF CENTER
ERROR
ALIGNMENT OK
MARKING OK

Lens measurement value

Target

Setup icon
Refer to
LIST OF SETUP ITEMS

R/L MODE

Measurement value of left-eye lens

Measurement value of right-eye lens

- When saved, S/R/L changes color and stops.
- When the measurement value turns white, the measurement is finished.
- When the measurement value is yellow, the measurement of a multi-focal lens is being performed.

TARGET

Optical center's off.
[OFF CENTER] is displayed when the optical center is off by 4Δ or more.
Blue: +, measurement value

ALIGNMENT OK]
◌ mark appears when the lens is ready for measurement.
Green: +, measurement value

[MARKING OK]
Place + in ◌ mark, the lateral line will extend, getting the instrument ready for marking.
Pink: +, measurement value

NOTE	The + target indicates optical center position. It varies depending on the symbol used in the spherical equivalent power. Please note that the target motion is different from that of Topcon telescopic lensmeters. For axis marking procedures, don't use the target position, instead use the prism value. Refer the instructions on Page 35.

RESULT DISPLAY

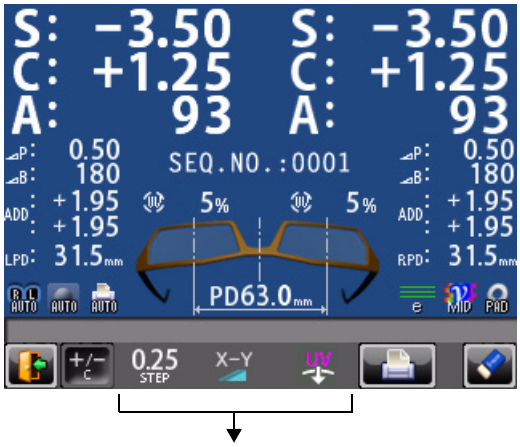
When INITIAL/DISPLAY/NORMAL is selected, the display is normal.

When INITIAL/DISPLAY/HORIZONTAL LARGE is selected, the SCA display is horizontally enlarged.

When INITIAL/DISPLAY/VERTICAL LARGE is selected, the SCA display is vertically enlarged. The graphic moves to the opposite side.

SCREEN PRINT DISPLAY: (WHEN ENLARGED)

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

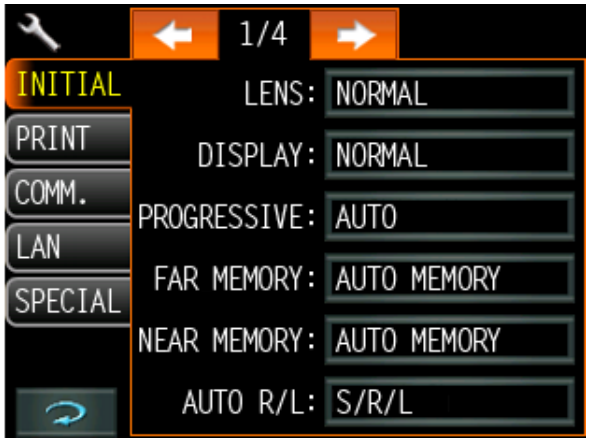


The grayed-out buttons are not selectable.

NOTE	• When the setting is PRINT/AUTO PRINT/ON, printing is performed automatically after saving the measurement value of both eyes. • By tapping the  button, the measurement screen returns, and the measurement values are saved. • By tapping the  button, the measurement screen returns, and the measurement values are cleared.

SETUP SCREEN

The Setup screen is displayed by tapping the Settings button  on the Measurement screen.



PREPARATIONS

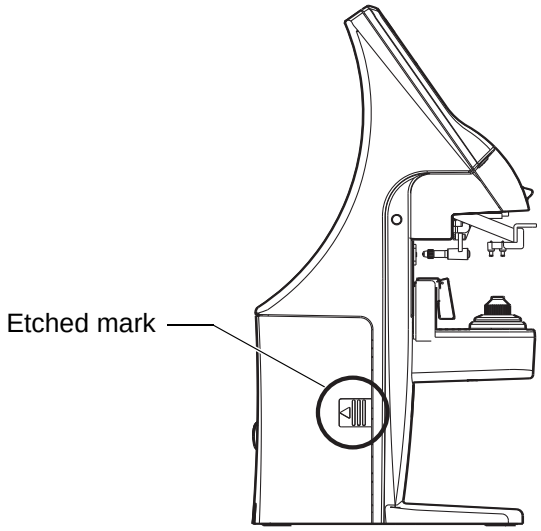
INSTALLATION

⚠ WARNING	• To avoid fire/electric shock, connect the power plug to a grounded 3P AC outlet and secure the grounding. • To avoid electric shock, use only the attached AC adapter.
⚠ CAUTION	• To avoid electric shocks, do not handle the power plug with wet fingers. • The power cable in standard accessories for this instrument cannot use besides this instrument.

1 Remove the tape from the lens support.

2 Remove the tape from the marking ink cartridge.

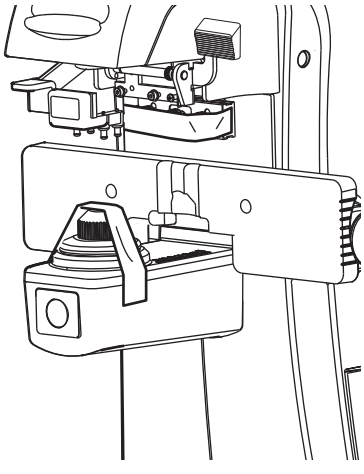
3 Remove the port cover. Push the etched mark and move the cover in the arrow direction.

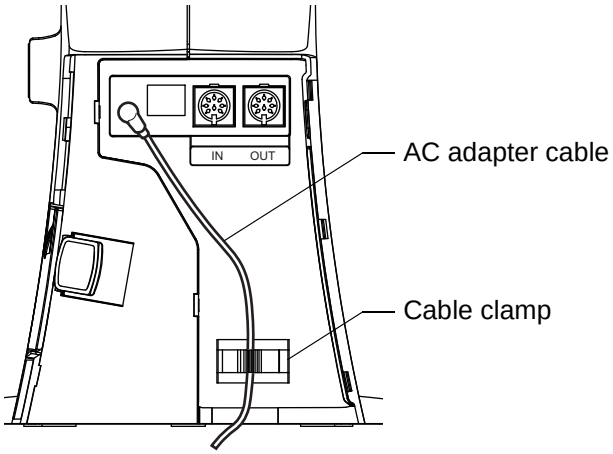


4 Plug in the power cable to the AC adapter.

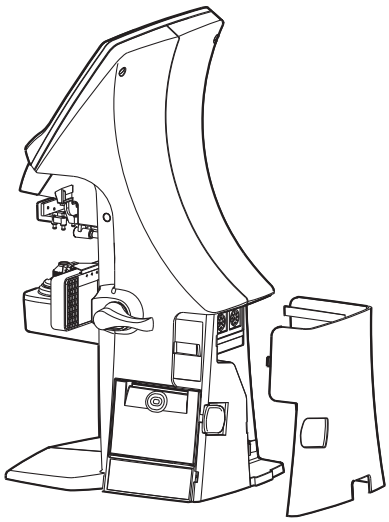
5 Pass the cable through the cable clamp.

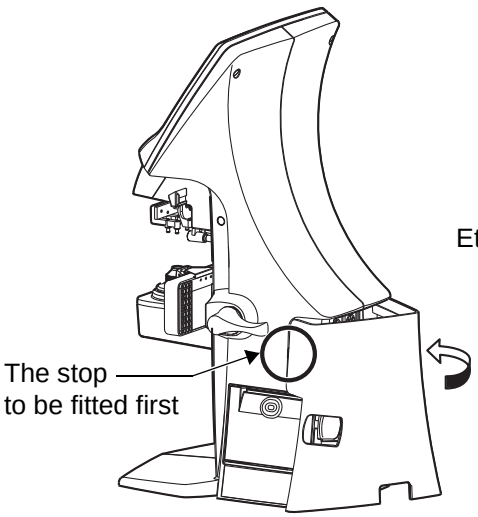
6 Connect the AC adapter plug to the AC adapter jack located on the rear panel of the main body.



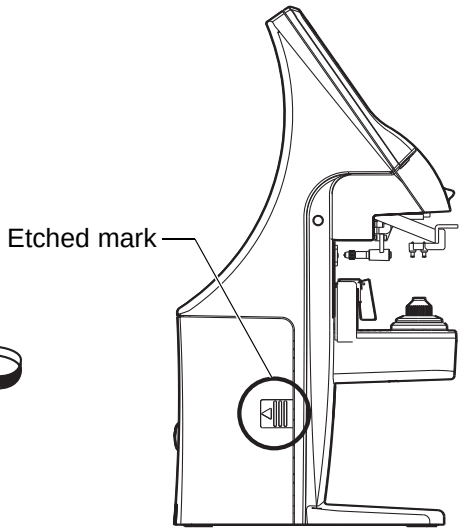


7 Setting the Port Cover.





Fit the stop of the figure above to the main body. After fitting the stop, turn the cover in the arrow direction.



Fit the stop by pushing the etched mark.

8 Insert the power cable plug into the 3-pin AC grounding receptacle.

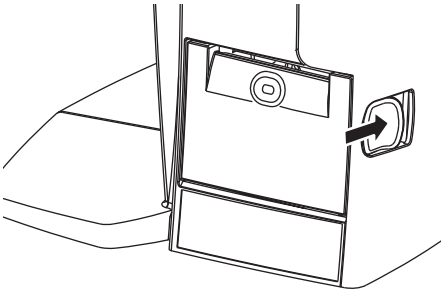
NOTE	By connecting an AC adapter, the main body starts automatically.

SETTING THE PAPER

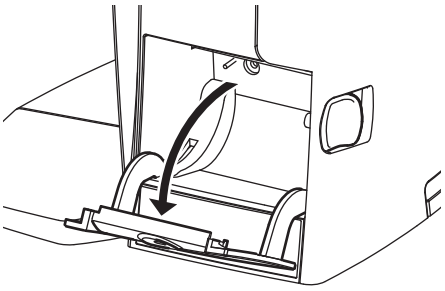
CAUTION	• To avoid failure or potential injury, do not open the printer cover while the printer is in operation. • To avoid potential injury in case of malfunction, including a paper jam, be sure to shut off the power before attempting to repair it. • To avoid potential injury, do not touch the printer body including metal parts or the paper cutter, while the printer is in operation or when replacing the printer paper. • Be sure to use the specified printer paper. If you use the paper other than the specified, the printer may be broken or the instrument may not be able to use.

NOTE	If you insert the printer paper backwards, nothing is printed.

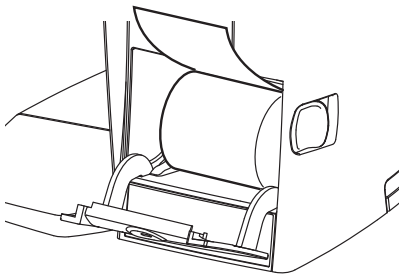
1 Press the PRINTER button and open the cover.



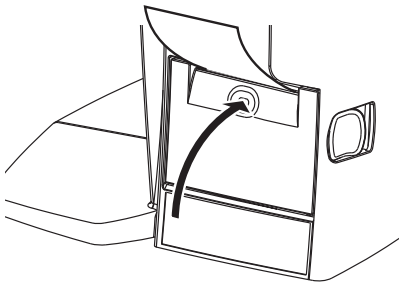
2 Open the printer cover to its limit.



3 Insert the printer paper in the direction shown below and pull 7-8cm of the paper end out towards you.



4 Bring the paper into the center, then close the printer cover.



NOTE	• Printer feed function: Hold the PRINTER button down. • In case the printer cover is not firmly closed, printing will not start. • A 58mm wide paper roll (example: TP-50KJ-R [Nippon Paper Co.]) is recommended. Other paper rolls may cause an abnormal printing noise or an unclear print.

REGION SELECTION OF THE INITIAL STARTUP

Please select a region in the initial startup of this instrument.

NOTE	• This operation is done only at initial startup. • For an area besides America, Asia, China, Europe and Japan, please choose the "General". • The setting of this operation can be reset at “SPECIAL” and "REGION". (see page 47)

1 The region screen appears after displaying the startup screen. Tap the NOT SELECTED button.

2 Select one from America/Asia/China/Europe/Japan/General, and then tap the Return button . The setting according to the selected region is applied to the instrument.

AUTO POWER SAVE FUNCTION

1 When switch/tap operations are not done for about 10 minutes, or if no patient lens is set, power save starts automatically.

2 During power save, the backlight of the monitor goes off and the Power switch LED blinks.

3 For reset, either tap the monitor, or press the MEMORY button , or press the Power switch . Make sure you press the Power switch quickly. If held down for too long, the power will shut off.

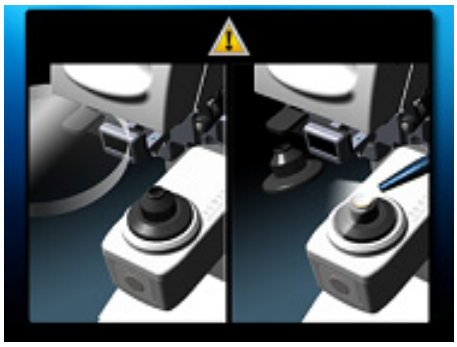
4 If the auto power save function is not required, select INITIAL/AUTO OFF/NO.

5 The screen saver is actuated manually by pressing the MEMORY button longer than 2 seconds. Furthermore, it becomes power save status by continuing pushing.

USING THE INSTRUMENT

CHECKING BEFORE MEASURING

1. Check to see that there is no lens on the lens support.
2. Turn on the power switch.
3. The display will appear on the screen in a few seconds.



NOTE	The ERROR screen will appear when there is a lens left on the lens support or dust left on the cover glass. Remove the lens or dust. By tapping the screen, the error screen is cleared.

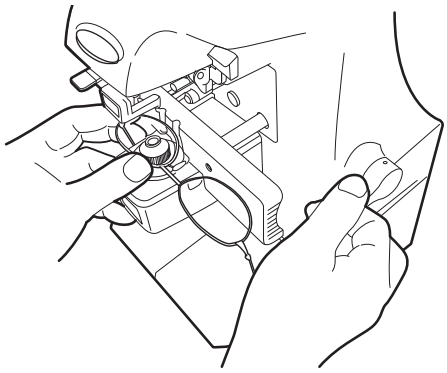
SETTING A LENS

A SINGLE LENS SETTING

1. Place the lens with the concave surface facing down on the lens support.
2. Lift and gently place down the lens retainer.
3. When holding a sharp-curve lens, keep your hand underneath in case the lens falls.

A FRAMED LENS SETTING

1. Place the framed lens on the lens support.
2. Turn the lens table lever and place the glass frame against the lens table for measurement.
   Alignment
   Right and left ... Place the frame against the lens table, and move the frame gently to the right and left.
   Vertically ..... Move the table gently with the lens table lever.
3. Lift and gently place down the lens retainer.



MEASURING A SINGLE FOCAL LENS

When the measurement mode button shown is  , a single focal lens can be measured.

INITIAL/PROGRESSIVE/AUTO , INITIAL/PROGRESSIVE/OFF

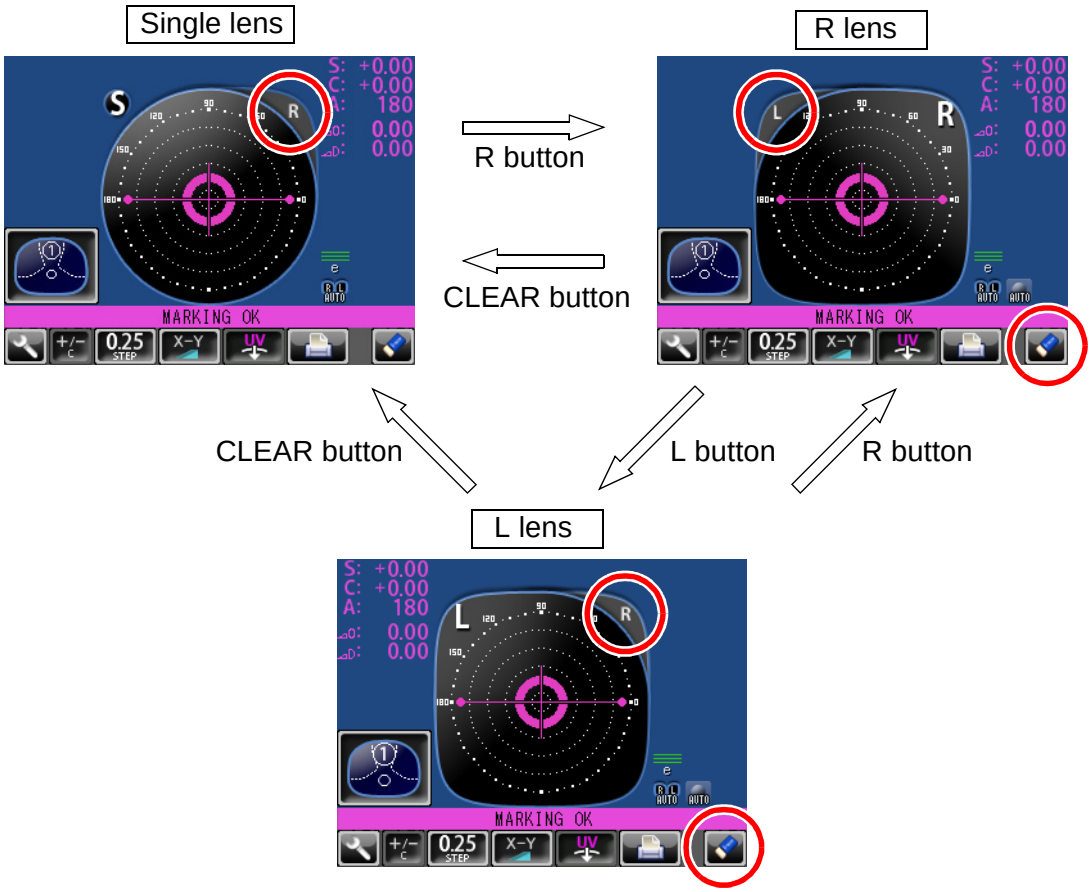
1 Move the lens and move the target near the center.

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

3 MARKING OK is displayed when the target image center is reached. If  is displayed, the "single focal lens" is memorized automatically.
When the BEEP function is ON, the buzzer will sound.
(Note) The target may move in a contrary manner immediately after the lens is placed.

WHEN R/L DESIGNATION IS REQUIRED:

Tap the R button. The R/L display screen is displayed.
By tapping the L button, L is displayed. By tapping the CLEAR button, S is returned.



NOTE	• When the setting is INITIAL/AUTO R/L/ R/L , the Single Lens screen returns by tapping the CLEAR button. • By tapping the CLEAR button, the saved measurement values are cleared.

MANUAL SAVING:

Press the MEMORY button . The flicker-zooming “S” stops in the zoomed in state and the color is changed. (When R/L is displayed, R and L are changed.)

- When printing

  Tap the PRINT button . When connected to a computer, data is transmitted.

MEASURING A FRAMED LENS

- When INITIAL/AUTO R/L/OFF is set. (is not displayed):

  Tap the R button.

  First align the right lens and press the MEMORY button .
  Tap the L button.

  Align the left lens and press the MEMORY button .

- When INITIAL/AUTO R/L / R/L & INITIAL/AUTO MEMORY/ON is set.

  (are displayed):

  *Measurement of a framed lens.
  First, align the right lens to display “MARKING OK”. Then the result is automatically memorized, when the right lens is held.
  Removing the right lens will automatically move to the L measurement.
  Align the left lens, then the result is automatically memorized, when the left lens is held.

- When INITIAL/AUTO R/L / R/L & INITIAL/AUTO MEMORY/ S:OFF R/L:ON is set.

  (are displayed):

  *Measurement of a single lens/framed lens

  Tap the R button. (is displayed)
  At first, align the right lens to display "MARKING OK". Then the result is automatically memorized, when the right lens is held.
  Removing the right lens will automatically move to the L measurement.
  Align & hold the left lens. The result is automatically memorized.

MEASURING A PROGRESSIVE LENS

When the measurement mode button is  or  , a progressive lens can be measured.

When auto progressive recognition mode is on.  INITIAL/PROGRESSIVE/AUTO

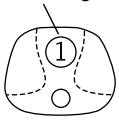
Discrimination of a single focal lens and progressive focal lens can be done, which is not easily possible with the naked eye.

When progressive only is set.  INITIAL/PROGRESSIVE/PROGRESSIVE ONLY

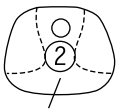
The auto progressive recognition measurement can be omitted. Start measurement from step 3 below.

1 Measure the lower frame center. (position in the measurement mode button ①);
If the measurement is finished, the Measurement mode button changes to  .

The figure blinks and the size changes.



2 Measure the frame center. (position in the measurement mode button ②);
If the difference is over 0.50D or more, the screen changes.



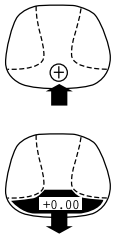
The figure blinks and the size changes.

3 Measure a progressive lens for distance vision. (Excluding horizontal prism prescription lenses)
By moving the frame in all directions along the arrow mark displayed on the screen, align + with ◯.

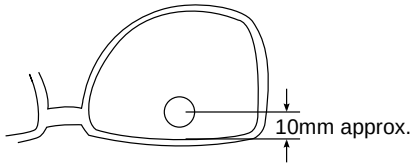
4 When the distance vision measurement is obtained and saved, the screen automatically changes to the near vision measurement display. (The distance vision region can be easily detected, as you repeat moving and stopping the lens little by little at measurement.)

NOTE

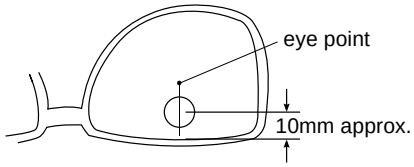
By pressing the MEMORY button  , you may manually store the result of the distance vision power measurement. The screen will switch to the near vision measurement.
When INITIAL/FAR MEMORY/OFF is selected as the default setting, the result of the distance vision measurement is not automatically stored. With this setting, you must press the MEMORY button  to save the distance vision.



NOTE	For high-power lenses, sometimes the distance vision region cannot be easily detected. In this case, obtain the measurement in the approximate position that is shown on the below diagram, and then press MEMORY button ◉.



NOTE	For horizontal prism prescription lenses, press the MEMORY button ◉ at the distance reference point.



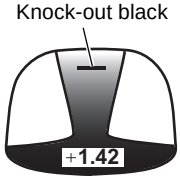
5 Measure progressive lenses for near vision.

While watching the screen, draw the lens table forward: the bar-meter extends and the “+” symbol appears. To bring this “+” symbol to the bar-meter center, swing the lens right-left and extend the bar-meter.

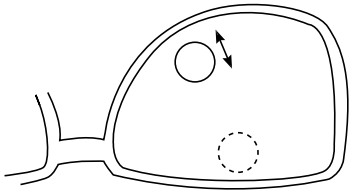
6 The condition illustrated below indicates that a position outside of the progressive zone is being measured. Move the lens in the direction of the arrow to bring the "+" into the center of the progressive zone.

7 The “+” becomes larger as it comes closer to the near vision position.

8 The ADD power is saved and the progressive lens measurement is completed.



NOTE	By pressing the MEMORY button , you may manually store the result of the near vision power measurement. When INITIAL/FAR MEMORY/OFF is selected as the default setting, the result of the near vision measurement is not automatically stored. With this setting, you must press the MEMORY button to save the near vision.

NOTE	When measuring a lens mounted in a large frame, the ADD power may be higher because some lenses increase the ADD power at a position below the near vision region. Accordingly, if the lens is measured at a point lower than the near vision eye point, the ADD power reading may be higher. If you want to know the accurate prescription, it is advisable to check the measurement position at the hidden mark. 

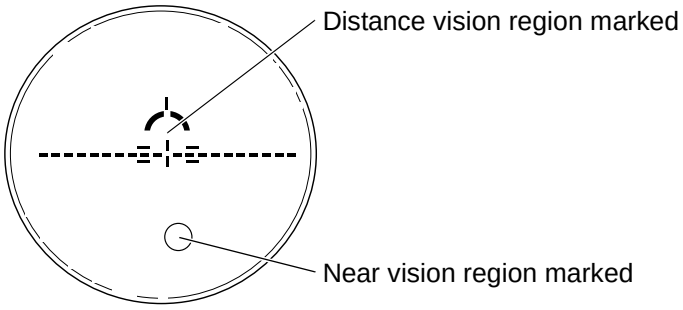
ASPHERICAL RANGE PROGRESSIVE RECOGNITION

If a progressive lens is in a position so that the lens is outside of the progressive zone, the icon at the bottom of the screen will change to . By tapping the button, the screen will automatically switch to the distance vision measurement screen.
This appears when measuring the aspherical range of the progressive lens.

NOTE	When the button is displayed, auto saving is not available.

MEASURING AN UNPROCESSED PROGRESSIVE LENS

As each unprocessed lens has a mark on the measuring point, perform measurement on the mark position.



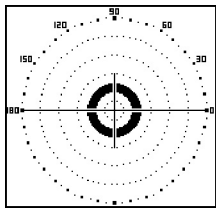
NOTE	• The measuring point for the distance or near vision region may be narrowed by marks. Take care that the luminous flux is not shaded during measurement. • ADD values will flicker when the luminous flux is shaded by marks or off the progressive zone at the time of measurement of the near vision region. • An EX lens may not be provided with accurate measurements when measured in the boundary. • When the Setup screen appears in the middle of measurement, the measurement values will be cleared when the Measurement screen returns.

MEASURING BI-FOCAL AND TRI-FOCAL LENSES

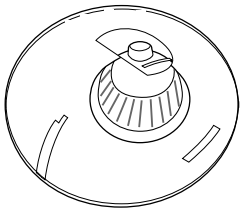
When the measurement mode button is  , bi-focal and tri-focal lenses can be measured.

INITIAL/PROGRESSIVE/AUTO , INITIAL/PROGRESSIVE/OFF

1 Align the distance vision in the center of the target image and press the MEMORY button  .



2 Move the lens into the near vision region (bi-focal segment).



3 Press the MEMORY button  (Near Vision Measurement Start button in this case).

The measurement mode button changes to  .

4 Measure the bi-focal power and press the MEMORY button  again.

To measure the 2nd near vision of tri-focal lenses, storing the 1st mid vision power automatically changes the  button to the  button. Tapping the button starts the near vision measurement.

ADD : +1.75
+2.50

NOTE	When the Setup screen appears in the middle of measurement, the measurement values will be cleared when the Measurement screen returns.

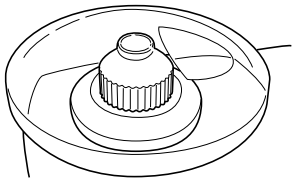
MEASURING BI-FOCAL AND TRI-FOCAL LENSES (MEASURING THE DIOPTER POWER OF LENSES WITH THE CONCAVE SIDE UP)

Measurement is possible when the measurement mode is  .

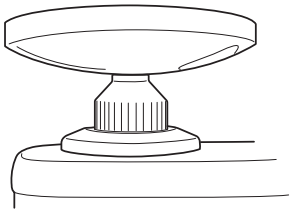
INITIAL/PROGRESSIVE/REVERSE

Lens position | Screen

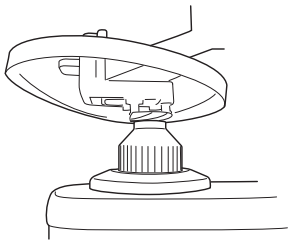
1 Set the lens with the concave side down as usual, align the distance vision region, and press the MEMORY button ◎.



2 Set the lens with the concave side up, align the distance vision region, and press the MEMORY button ◎.



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

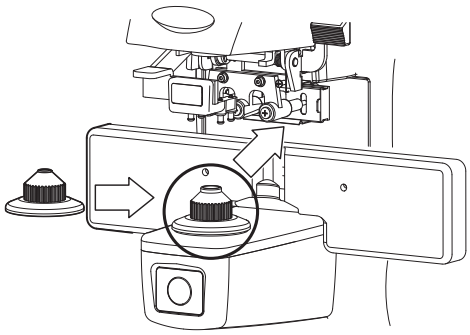


NOTE	When the Setup screen appears in the middle of measurement, the measurement values will be cleared when the Measurement screen returns.

MEASURING A CONTACT LENS

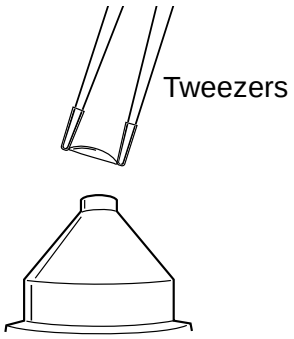
MEASURING A HARD CONTACT LENS

1 Replace the lens support with the contact lens support.



2 Select INITIAL/LENS/HARD CONTACT. The setup icon HARD will be displayed on the screen.

3 Put the contact lens on the contact lens support with special tweezers.



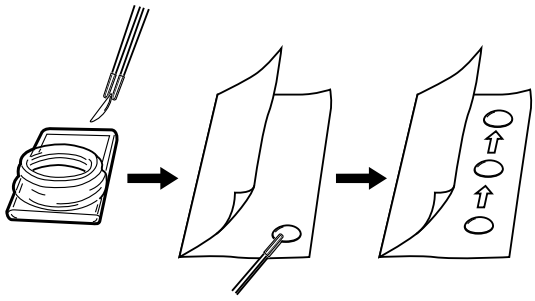
MEASURING A SOFT CONTACT LENS WITHOUT ASTIGMATISM

NOTE	A soft contact lens cannot be accurately measured because of its structure. Although you can measure a soft contact lens power in following way, consider the results an average and not the exact value.

1 Use the same contact lens support for measuring a soft contact lens that you used for measuring a hard contact lens.

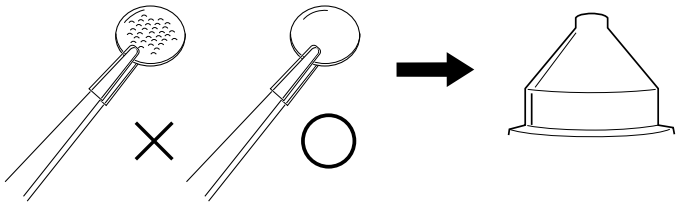
2 Select INITIAL/LENS/SOFT CONTACT. The setup icon SOFT will be displayed on the screen.

3 Pinch the soft contact lens with special tweezers to remove moisture from the lens. Put the lens between paper and move the lens three times to remove moisture from the surface.



NOTE	If there is moisture on the soft contact lens surface, it is not possible to measure because of luminous flux malfunctions.

4 If there is moisture or dew on the surface when the contact lens is held to the light, put the lens in the special solution again, and repeat the above procedure. Be careful when turning the lens inside out. When in the normal position, the lens looks like a bowl. However, when the lens is turned inside out, the rim looks warped. If the lens is ready for measurement, place it on the contact lens holder and observe the shape (with tweezers) for alignment. After 30 seconds or more, the lens power changes since the internal moisture evaporates. Be sure to measure it as quickly as possible.



NOTE	Use the hard contact mode when measuring a toric soft contact lens. When Contact Lens is selected, the measurement mode button changes to  , and this cannot be changed.

A:STEP MODE

Select INITIAL/A:STEP/5 and hold the STEP button down, change to the A:STEP  button.
The axial angle is rounded to 5°.
It is convenient for inputting the result to perform the measurement of the trial lens while still in the temporary frame.

For release, press the  button for a few seconds.

Return to the STEP button  , the 5° rounding is reset.

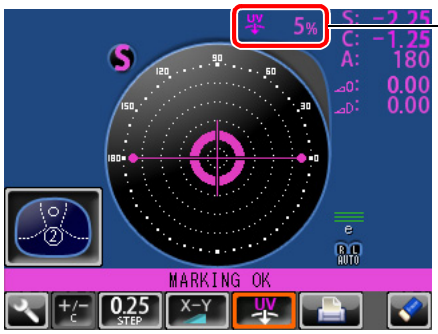
NOTE	STEP of the measurement value is the state before changing to the temporary frame (A:step).

UV TRANSMISSION MEASUREMENT

UV Transmission Measurement is available when the UV button is orange-framed 

.
If not orange-framed, tap the UV button to make it orange-framed.

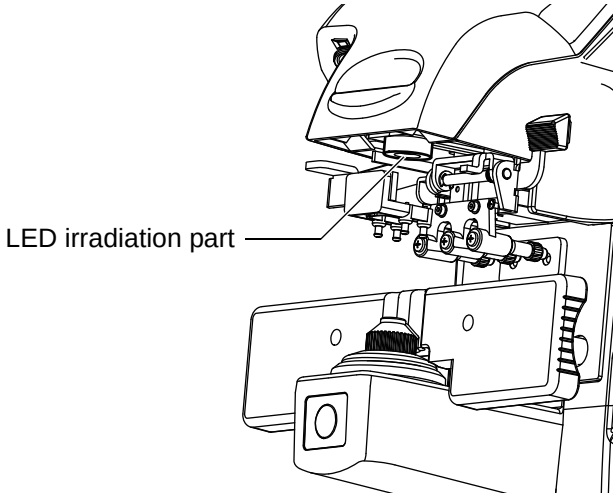
1. Move the lens and move the target near the center.
2. ALIGNMENT OK is displayed when the target image center is within the smallest circle (within 0.5Δ).
3. MARKING OK is displayed when the target image center is reached.
4. Press the Memory button  .
5. The SCA value is saved, and the UV transmission measurement value is displayed in a few seconds.

NOTE	After pressing the Memory button  , do not move the lens until an UV transmission measurement value is displayed. 

CORRECTING THE UV TRANSMISSION

If the UV transmission is not 100% after removing the lens, perform a correction.

1. Confirm that no lens is on the lens support.
2. Press and hold the UV button.
3. When the correction is finished, the buzzer beeps.

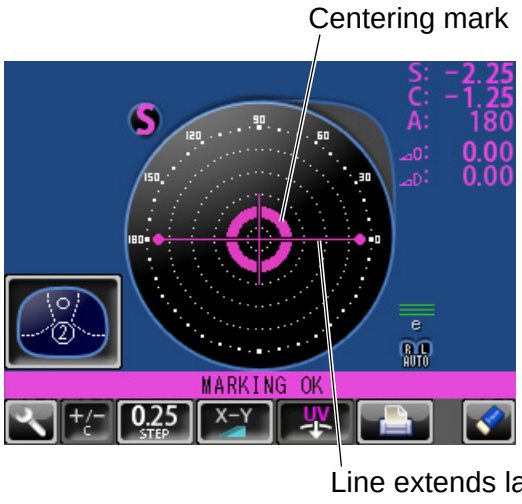
NOTE	During the UV transmission measurement/correction, do not look into the LED irradiation part. 

AXIS MARKING (CARTRIDGE SPECIFICATIONS/STEEL NEEDLE SPECIFICATIONS)

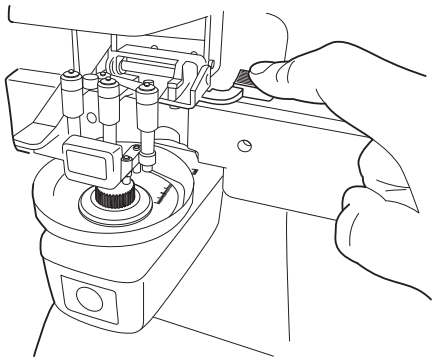
When using the cartridge, one light touch to the lens will make a clear ink mark.

MARKING A LENS WITHOUT ASTIGMATISM

1 Move the 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.



MARKING A LENS WITH ASTIGMATISM

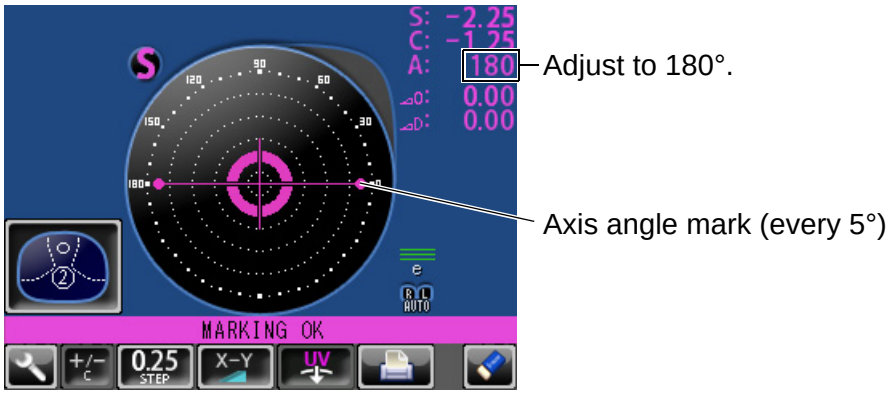
- Axis marking, maintaining the axis as prescribed

  Align the target image with the center mark, approximating the axis angle mark to the angle as prescribed. Finally, adjust the numerical display of the axis angle A.

NOTE	Before performing alignment, set the auto memory to off. Confirm  is not displayed at the setup icon. 

- Marking a cylindrical axis

  Match the center mark with the target image, approximating the axis angle mark to 180°.
  Adjust A of the axis angle to 180°.



MARKING A LENS WITH PRISM POWER

- When the prescription is displayed with X-Y (orthogonal coordinates) (INITIAL/PRISM/X-Y)

  Tap the prism button to get the 

display.

  Carry out aligning according to the prism value as prescribed and as displayed on the screen.

  ΔI in prism value: Base In
  ΔO in prism value: Base Out
  ΔU in prism value: Base Up
  ΔD in prism value: Base Down

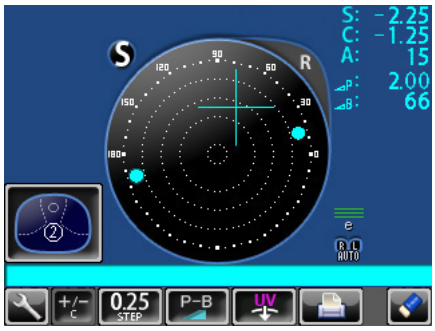
- When the prescription is displayed with P-B (polar coordinates) (INITIAL/PRISM/P-B)

  Tap the prism button to get the 

display.

  Carry out aligning according to the prism value as prescribed and as displayed on the screen.

  P: Prism value
  B: Base orientation



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

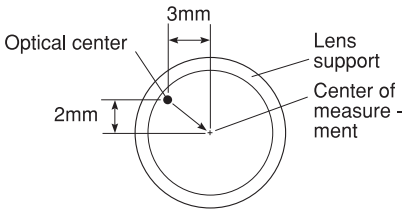
- When the unit is mm (INITIAL/PRISM/mm)

  Tap the prism button to get the 

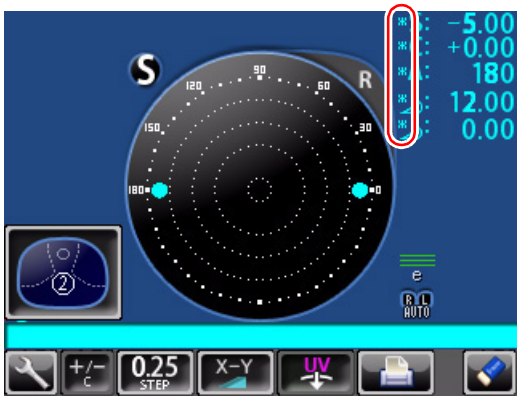
display.

  The ↑↓←→ marks show the optical center reaches the center of measurement by moving the lens in the arrow directions by the distance as displayed.

  → : 3.0mm
  ↓ : 2.0mm The position is shown in the right figure.



NOTE	• 0 will be displayed if the spherical power S is around 0. • When the prism value is more than 10Δ (vertical direction), the measurement value is recognized as a reference value. For reference value, * (asterisk) is displayed at the measurement result. Measurement values that are recognized as reference values include: SCA value, prism value, and ADD value.



PRINTING ADDITIONAL TEXTBOXES (WITH PRINTER SPECIFICATIONS)

On the print out with the measurement data, the user can input his own text, such as office name, address, or a special message. The available space is three lines of 24 characters each.

Tap the PRINT/NAME/INPUT.
The text enter screen will appear.

Tap the desired enter window, tap the AC button and input with the keyboard.
The setting is completed by tapping the OK button.

Printout

```
   TOPCON CL-300

<R>  S     C     A
  +0.00 +0.00 180

 ADD 0.75

 PSM 0.00 OUT 0.00 DWN

<L>  S     C     A
  -0.75 -0.25 85

 ADD 0.75

 PSM 0.00 OUT 3.50 DWN

THE TOPCON CL-300
PROVIDES ACCURATE LENS
MEASUREMENTS.
```

Printing the additional text box

SETTING A SEQUENCE NO.

The setting is carried out when writing a sequence No. on the printing paper and transferring the serial No., using RS-232C.

Tap the [INITIAL/SEQ.NO./INPUT] button, and the screen as shown below will appear.

Enter numerals and press the OK button.
No printing or counting is carried out in case of 0000.

Press the MEMORY button, PRINT button and CLEAR button in this order, and counting will be carried out. (except for a single lens).

NOTE	If the OK button is tapped without filling in all 4 digits, the empty digit is saved as a "0." Example) [1 2] → OK [0 0 1 2] is saved.

LENS PROTECTION PAD

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

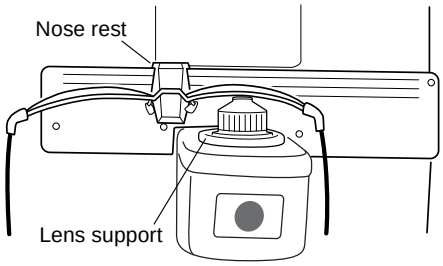
1 Fit the lens protection pad according to the instructions.

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

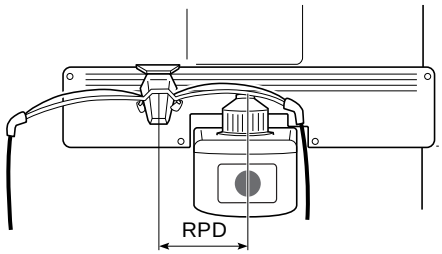
MEASURING PD (PD FITTING) (WITH PD SPECIFICATIONS)

1 Select INITIAL/PD/ON .

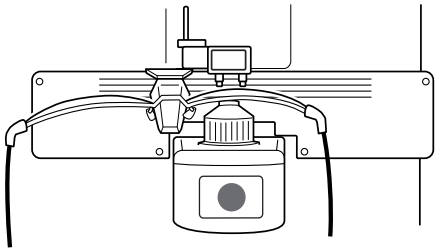
2 Put the spectacle frame onto the nose rest.



3 Align the lens until the marking is OK.
It is o.k. if the spectacle frame is horizontal along the lens table line. If the spectacle frame has a camber, align it horizontally.

NOTE	Errors will appear when the spectacle frame is not horizontally aligned. 

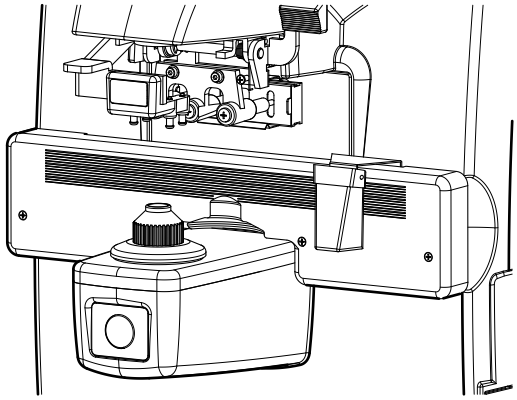
4 Press the lens retainer since the lens is in contact with the lens support sideways.
Allow your hand to move with the spectacle frame to prevent PD value shifting.



5 Press the Memory button.

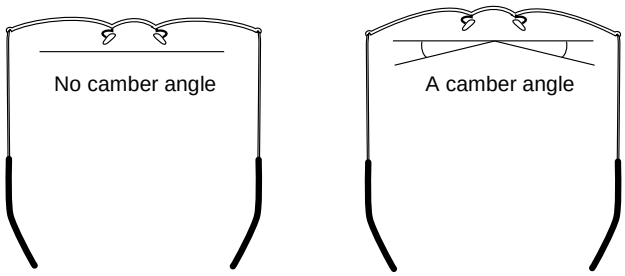
6 Follow the same steps to measure the lens on the opposite side.
The Total PD will be displayed.

7 Bring the nose rest to the extreme right and fold it. It will stick to the lens table by means of a magnet.
Range 20~45mm on one side (minimum 0.5mm)

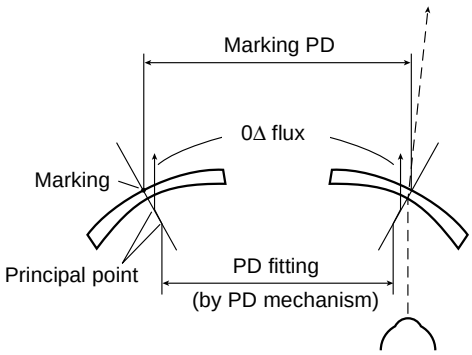


NOTE	If the measured PD value differs from that of the marking PD.

8 The difference may occur because of the measurement technique or when low-power lenses have a large camber angle.



Since the optical center of the glasses mounted for the infinite far is searched, the measured PD value of the CL-300 is called the PD/fitting value.



When the pupil is on the marking position in the case of a concave lens, a prism is added outside.

HOW TO OUTPUT DATA

OUTPUT USING RS232C

This instrument can output data to a PC, etc. via the RS232C interface.

1. Connect the RS232C cable to RS232C OUT.
2. Connect the other end of the cable to the PC, etc.
3. Confirm the set up of the data communication settings.
   For details, refer to “DATA COMMUNICATION (COMM.)” on page 46.
4. Perform measurements.
5. Tap the PRINT button  on the control panel.
   The data is outputted to the connected external device.

OUTPUT USING LAN

This instrument can output data to a PC, etc. via the LAN interface.

1. Connect the network cable to LAN OUT.
2. Connect the other end of the cable to the PC, etc.
3. Confirm the set up of the LAN connection settings.
   For details, refer to "LAN CONNECTION (LAN)" on page 46.
4. Perform measurements.
5. Tap the PRINT button  on the control panel.
   The data is outputted to the connected external device.

OPERATION AFTER USE

1. Turn off the power switch.
2. Unplug the power cable from a 3-pin AC inlet with grounding.

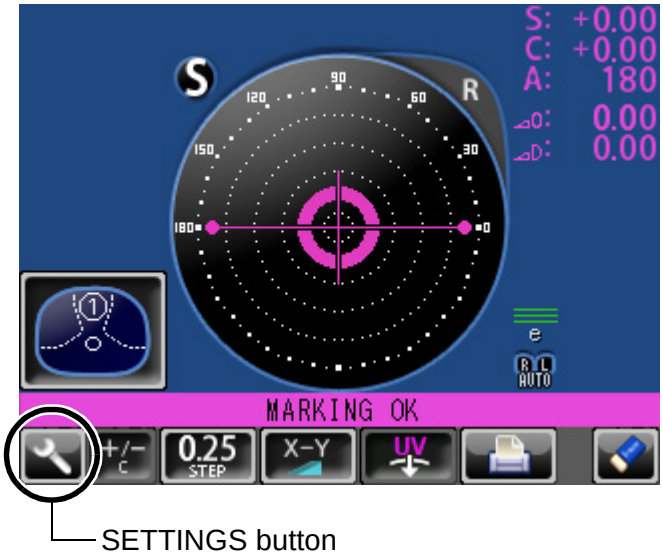
SETTING FUNCTIONS ON THE SETUP SCREEN

OPERATING THE SETUP SCREEN

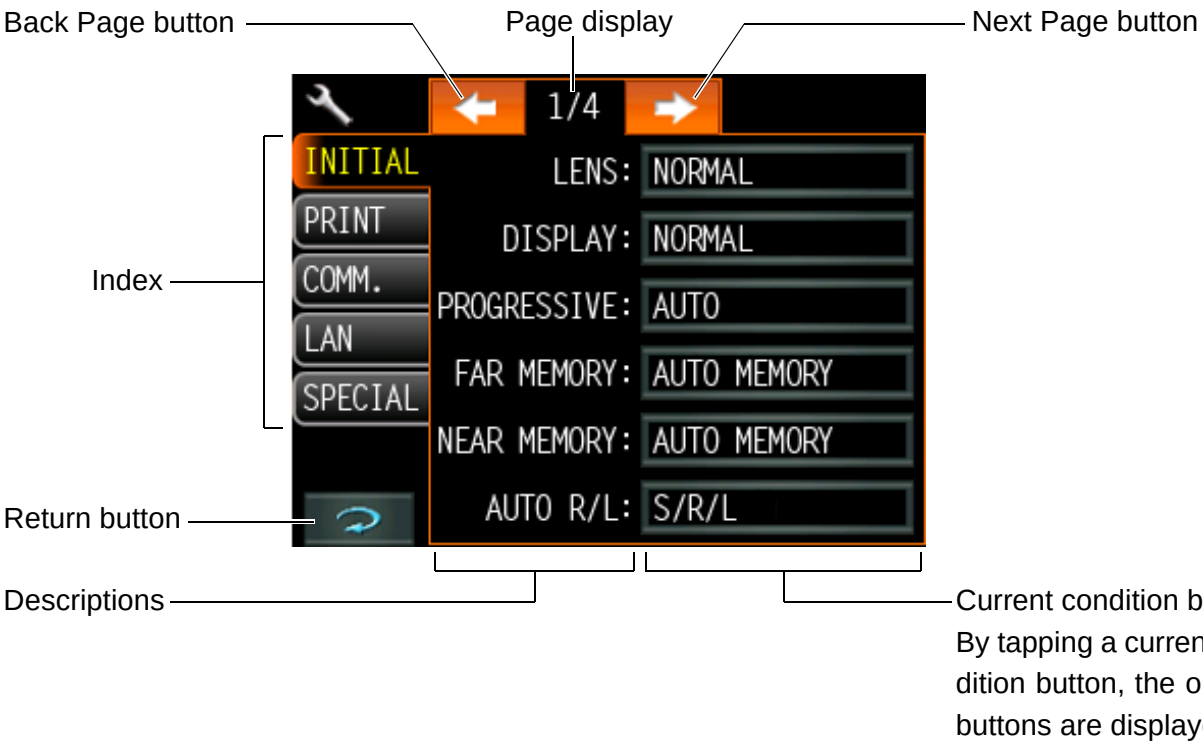
Various functions can be set on the SETUP screen.

PREPARATIONS FOR SETTING

1. Make sure that the power cable is connected.
   For connection, refer to “PREPARATIONS” on page 18.
2. Turn ON the POWER switch.
3. Tap the SETTINGS button on the control panel.

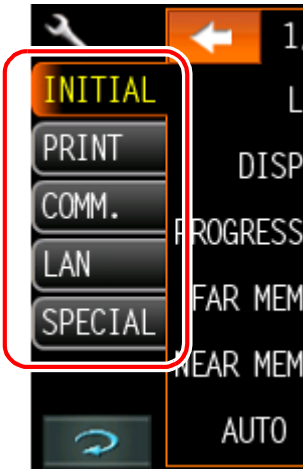


The SETUP screen is displayed.

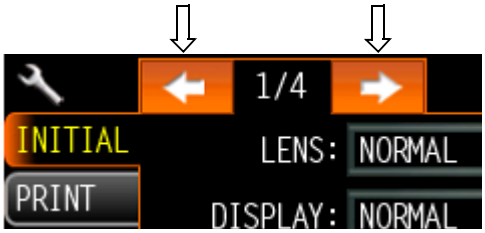


OUTLINE OF THE SETUP SCREEN OPERATIONS

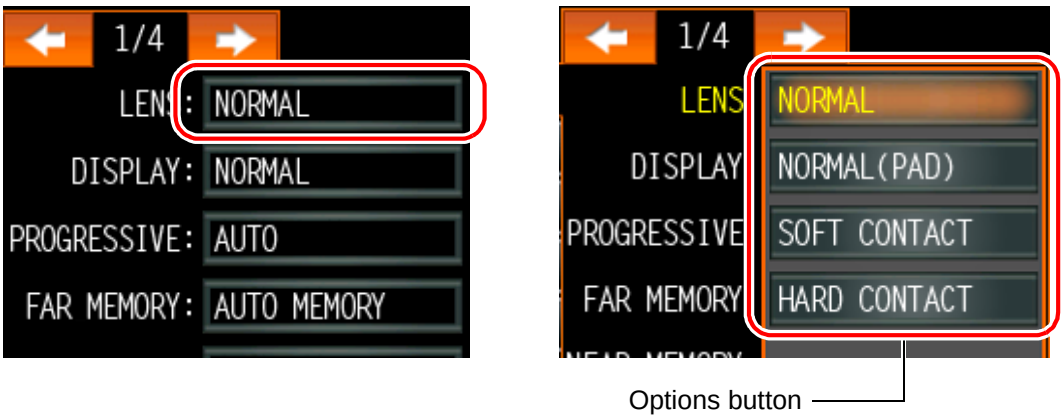
1 Tap INDEX and select the subject of setting.



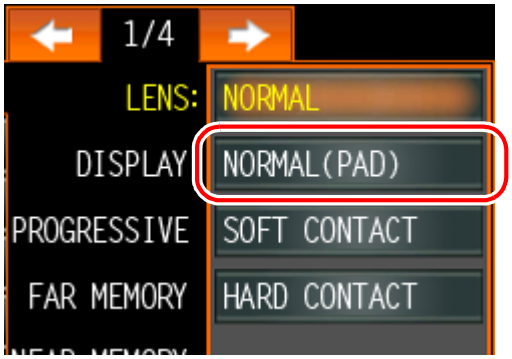
2 Operate the NEXT PAGE button or BACK PAGE button as necessary, and display the page to confirm/change.



3 Tap the Current condition button of the item to be changed and find the Options button.



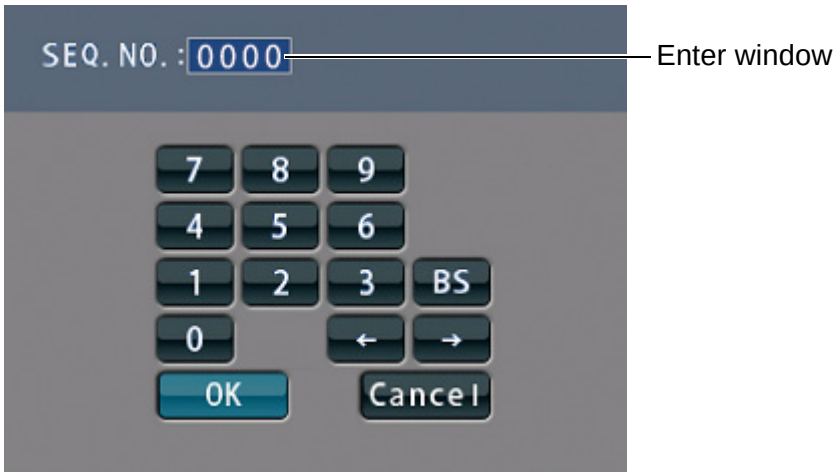
4 Tap the Options button and change the setting.



- Instead of the Options button, ten-key and keyboard will be displayed.

TEN-KEY:

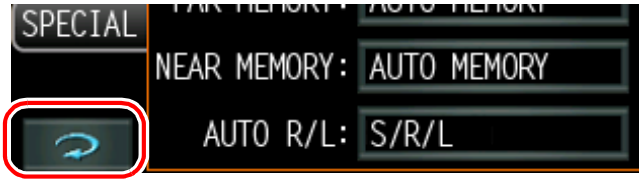
Tap ten-key on the screen and enter the figure. If there are several windows to enter, tap the window to enter the figure with the ten-key. The setting is complete by tapping [OK].



KEYBOARD:

Tap keyboard on the screen and enter characters. If there are several windows to enter, tap the desired window, then enter the character with the keyboard. The setting is complete by tapping [OK].

5 After entering all setting items, save the setting items and return to the Measurement screen by tapping the Return button  .



NOTE	To return the setting to the previous status, turn off the power before tapping the Return button  .

LIST OF SETUP ITEMS

Setup items are categorized into 5 large indexes.

"INITIAL"..... items related to the initial status after power on
"PRINT"..... items related to output from the internal printer
"COMM." ..... items related to data input/output with the external device
"LAN"..... items related to output using the LAN
"SPECIAL"..... only use when the resetting to the factory default is required.

INITIAL (INITIAL SETTING)

Initial contains settings related to the initial status after power on.
(Region: A=America, S=Asia, C=China, E=Europe, J=Japan, G=General)

Descriptions	Options button	Contents of setup	Display of Setup icon/ Display of button	Initial value (Region)					
				A	S	C	E	J	G
LENS	NORMAL	Measures a normal lens.	—			✓			
	NORMAL (PAD)	Measures a normal lens wearing the lens protection pad.							
	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 recognition mode OFF.							
	AUTO	Auto progressive recognition mode ON.					✓		
	PROGRESSIVE ONLY	Always begins with the Progressive zone center search mode of the progressive lens.							
	REVERSE	Measures the diopter power with the concave side up.							
FAR MEMORY	ON	Auto memory of distance vision measurement.	—				✓		
	OFF	Manual memory of distance vision measurement.	—						
NEAR MEMORY	ON	Auto memory of near vision measurement	—				✓		
	OFF	Manual memory of near vision measurement	—						
AUTO R/L	R/L	Measurement of framed lens: Auto R/L switching		✓					
	S/R/L	Measurement of single lens/framed lens: Auto R/L switching			✓	✓	✓	✓	✓
	OFF	S/R/L switching	—						
AUTO MEMORY	ON	Auto memory is ON when the lens optical axis is aligned.							
	S : OFF R/L : ON	Auto memory is OFF at measurement of single lens. It is ON at measurement of a framed lens.					✓		
	OFF	Auto memory OFF.	—						

UV	ON	UV measurement is ON							
	OFF	UV measurement is OFF		✓					
UV STEP	1% STEP	UV measurement is ON: Step 1%	—	✓					
	5% STEP	UV measurement is ON: Step 5%	—						
BEEP	ON	Buzzer sounds when a measured value is stored or a button is pushed.	—	✓					
	OFF	Buzzer OFF	—						
STEP	0.25	0.25-step measurement.		✓					
	0.12	0.12-step measurement.							
	0.01	0.01-step measurement.							
A:STEP	5	Rounds axial angle settings to 5°		✓					
	1		—						
PRISM	NO DISPLAY	No prism display.							
	X-Y	Rectangular coordinate display		✓					
	P-B	Polar coordinate display							
	mm	mm display at PD/OFF							
CYLINDER	MIX	Mixed display			✓	✓	✓	✓	✓
	+	Plus-fixed display							
	−	Minus-fixed display		✓					
AUTO OFF	YES	Power save ON	—	✓					
	NO	Power save OFF	—						
BRIGHTNESS	LEVEL1	Level of LCD brightness level 1 (dark) — level 6 (bright)	—						
	LEVEL2		—						
	LEVEL3		—						
	LEVEL4		—						
	LEVEL5		—						
	LEVEL6		—	✓					
ABBE	NORMAL	50-60 Abbe	—		✓	✓	✓	✓	✓
	MID	40-50 Abbe		✓					
	LOW	30-40 Abbe							
PD	ON	PD value display	—	✓					
	OFF	No PD value display	—						
SEQ.NO.	INPUT	Serial No. print mode	—	—					
CONFIG COPY	IMPORT	Read the configuration file stored on the USB memory and set up according to the file.	—	—					
	EXPORT	Export the current status of the instrument to USB memory for configuration file.	—	—					
ONE CLEAR	ON	Press and hold the CLEAR button to delete R and L separately.	—	✓					
	OFF	ONE CLEAR is not performed.	—						

NOTE	Please insert a USB memory* to the main body beforehand when you need to import/export the configuration file by "CONFIG COPY". * As the USB memory is not included with standard accessories, you are required to prepare by yourself.

SETTING OF THE INTERNAL PRINTER (PRINT)

Print contains settings related to output from the internal printer.

Descriptions	Options button	Contents of setup	Display of Setup icon/ Display of button	Initial value (Region)					
				A	S	C	E	J	G
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 of distance vision)							
	OFF	Manual memory output	—			✓			
NAME	SET	Printing additional text box	—			—			

DATA COMMUNICATION (COMM.)

Comm contains settings related to data input/output with the external device.

Descriptions	Options button	Contents of setup	Display of Setup icon/ Display of button	Initial value (Region)					
				A	S	C	E	J	G
RS-232C	NEW FORMAT	External output (NEW FORMAT)	—						
	OLD FORMAT	External output (OLD FORMAT)	—						
	STD1	External output (STD1 FORMAT)	—			✓			

LAN CONNECTION (LAN)

LAN contains settings related to data input/output via LAN.

Descriptions	Options button	Contents of setup	Display of Setup icon/ Display of button	Initial value (Region)					
				A	S	C	E	J	G
LAN	ON	LAN connection is on.				✓			
	OFF	LAN connection is off.	—						
IP ADDRESS	INPUT	Set the IP address of CL-300.	—			0.0.0.0			
		Set the subnet mask of CL-300.	—			255.255.255.0			
		Set the default gateway of CL-300. • When not used, set 0.0.0.0.	—			0.0.0.0			
SETTING1	INPUT	Set the IP address of the PC to output data.				192.168.1.200			
		Set the shared name of the PC to output data.				output			
SETTING2	INPUT	Set the folder name of the PC to output data. • The holder name which can be set up is in the directory under hierarchy of a shared name.				shared			
		Set the name of the user who has access to the PC to output data.				CL300user			
		Set a password to give access to the PC to output data.				0000			
XML	TOPCON	XML file is outputted in TOPCON format.				✓			
	JOIA	XML file is outputted in JOIA format.							

NOTE	For models without the LAN function, LAN connection is not possible.

SPECIAL

Only use when the resetting to the factory default is required.
If the factory default is carried out, clear the setting information of all users.

1 When you tap the "special" tab to display the password entry screen.

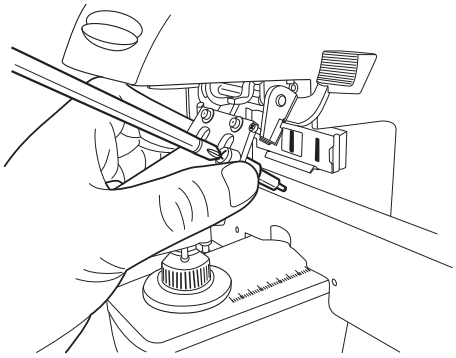
2 Enter "FACTORY RESET" to the password, and then tap OK.

3 So to display the screen for confirming whether to reset to factory default, and then tap the YES.
You can set the "REGION".

MAINTENANCE

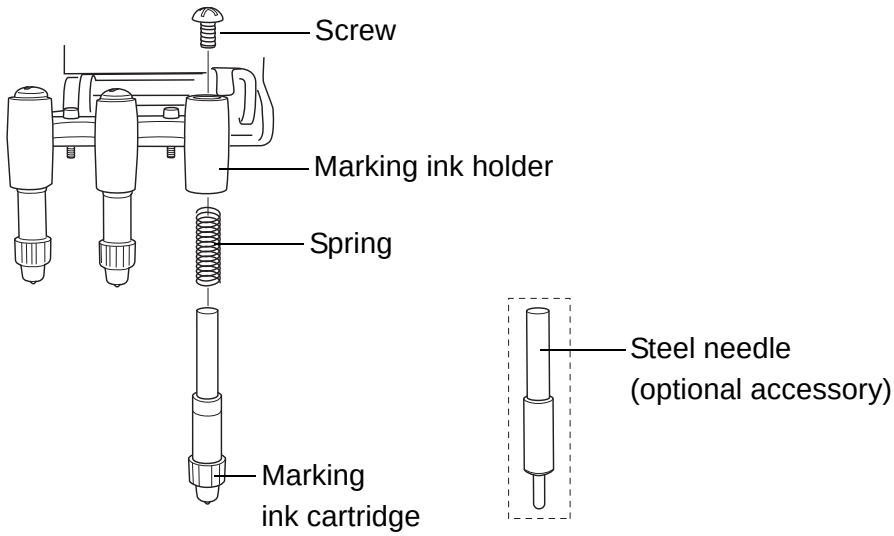
REPLACING THE MARKING INK CARTRIDGE (THE SAME APPLIES TO STEEL NEEDLE SPECIFICATION)

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

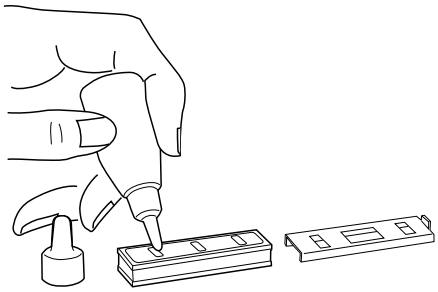


NOTE	When not in use, put the dust cover over the cartridge (to prevent insect damage).

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



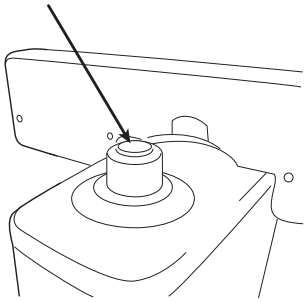
SUPPLY OF INK FOR THE STEEL NEEDLE



1. Replenish ink when poor marking occurs.
2. Slide laterally and pull out the inkpot.
3. Slide off the cover from the inkpot.
4. Infiltrate supply ink into the sponge well.

CLEANING COVER GLASSES

If the glass is dirty as indicated by the 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.



If the mark illustrated on the right appears in the lower part on the screen, it means that the cover glass is dirty.
Carry out the following operation:

1. Wipe off the cover glass for cleaning.
2. Press the CLEAR and TRANS buttons simultaneously and the instrument will restart. If the measurement screen appears, continue the operation.

CLEANING THE INSTRUMENT

1. Wipe the cover with a damp cloth at regular intervals. Never use cleanser or other chemicals.

BEFORE REQUESTING SERVICE

CAUTION MESSAGES

CLEAN THE COVER GLASS	Carry out cleaning of the cover glass.
DIOPTER OVER PRISM OVER ERROR	Check to see that the lens is in the measurable scope. Check to see that the lens is free from any flaw, dust or oil. Clean both glasses and turn the power on again.
PAPER END	Printer paper is out. Load new paper.
CLOSE PRINTER COVER	Close the printer cover.
UV CALIBRATION NG	Is the lens left on the lens support? Remove the lens from the lens support, and perform calibration again.
PRINTER HEAD OVER HEAT	It is possible that the temperature of the printer head is rising. Please turn off the power, and switch the power supply on again after waiting for a while.
PRINTER CUTTER ERROR	Please check whether the printer cover is closed or whether there is any foreign object in the printer.
PRINTER THERMISTOR NG	Call service engineer.
INITIAL ERROR (ERROR CODE)	Call service engineer. The 4-digit error code is displayed.

LAN ERROR MESSAGES

LAN ERROR MODULE NG	Module starting is not carried out.
LAN ERROR IP ADDR	No setup of an IP address.
LAN ERROR SOH	There is no response, although module starting is carried out.
LAN ERROR F1 0001	The form of a communication command is not correct.
LAN ERROR F1 0002	The communication command has been sent with the fragment at intervals of 1 second or more.
LAN ERROR F1 0101	The command not existing is received.
LAN ERROR F1 0102	The command not existing is received.
LAN ERROR F1 0103	The form of a communication command is not correct.
LAN ERROR F1 0104	Communication command capacity over.
LAN ERROR F1 0105	The specified address is outside the range.
LAN ERROR F1 0200	The command was received during initialization.
LAN ERROR F2 0002	When opening the file, there was no specified folder.
LAN ERROR F2 0005	It intercepted by the firewall or the LAN cable is not connected.
LAN ERROR F2 0006	The device of the specified address is not found.
LAN ERROR F2 0009	When writing in a file, there is no shared folder.
LAN ERROR F2 0011	Access to a shared folder is blocked.
LAN ERROR F2 0013	The right to access was refused.
LAN ERROR F2 0021	A write-in file name is the same as a folder name.
LAN ERROR F2 0022	¥ is used for the file name.
LAN ERROR F2 0026	Other devices are using a write-in file.
LAN ERROR F2 0028	There is no space area in a disk.
LAN ERROR F2 0110	Mount time out.
LAN ERROR F2 0111	Connection was refused.
LAN ERROR F2 0112	The host is downed.
LAN ERROR F2 0113	Host is unreachable.
LAN ERROR F2 1000	It does not connect, even if the time of INITIALMENU/TIMEOUT passes in file writing.
LAN ERROR F2 FFFF	The system error of others which Linux returns.

CHECK ITEMS

The instrument does not get ready for operation even if the power switch is turned on.	Re-plug in the power cord.
Operation of a button is not effective. Power supply cannot be turned off even if you push the power switch.	Press and hold the power switch for 10 seconds or more. Then, the power supply turns off.
S, C values are wrong.	Is the lens placed with power on? Remove the lens and turn on the power again. Is the measuring beam blocked by dust, marks, grease, etc. in the measured lens?
Marking is poor.	Replace the marking ink cartridge. For a lens with a 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. Tap the control power, and the instrument will resume.
Pushed the PRINT button but the printer does not work.	Is printer paper set properly? Not inside out?

SPECIFICATIONS

SPECIFICATIONS

Measurable scope	S: 0~±25D, C: 0~±10D, ADD: 0~+10D (0.01/0.12/0.25) P: 0~13Δ(horizontal) 0~18Δ(vertical) (0.01/0.12/0.25), A: 1~180° (1°)
Cylinder mode	MIX/–/+
Prism mode	No display / X-Y (Rectangular coordinates) / P-B (polar coordinates) / mm
Contact lens	Contact lenses are measurable.
Progressive focal lens	Single focal/progressive lens recognition, distance vision detection, ADD power bar-meter display
Display screen	Color LCD 320x240 dots 5.7 Type S, C, A, P, ADD, ADD R/L display, Enlarged SCA display.
Light source	Green light source, for UV measurement (365mm)
Frame	Auto R/L function
Menu screen	Easy-to-watch screen with icon display
Lens diameter	ϕ5-100mm
Dimensions, weight	197 (W)x220 (D)x404 (H) 3.8kg approx.

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

WITH PRINTER SPECIFICATIONS

Printer : Thermal printer, paper width 58mm, Printing additional text box, AUTO PRINT

OPTIONAL ACCESSORIES

Steel needle marking set (steel needle x3, supply ink, inkpot, holder)

ORDERING CONSUMABLE SUPPLIES AND SPARES

When ordering consumable supplies, please give us the Product name, Part code number, the necessary quantity and the Machine type.

	Product name	Part code No.	Remark
Consumables	Marking ink cartridge (3 cartridges/set, white)	42028 4020	Standard accessory
	Lens protection pad	42036 5500	Standard accessory
	Printer paper	44800 4001	Standard accessory
	Steel needle marking set	42039 4010	Optional accessory
	Supply ink	42039 4001	Optional accessory
	Marking ink cartridge (3 cartridges/set, red)	42039 4030	Optional accessory

GENERAL INFORMATION ON USAGE AND MAINTENANCE

ENVIRONMENTAL CONDITIONS OF USE

Temperature : +10°C to +40°C
Humidity : 30% to 90% RH(without condensation)
Pressure : 700hPa to 1060hPa

STORAGE, USAGE PERIOD

1. Environmental conditions (without package)
   *Temperature : 10°C to 40°C
   Humidity : 10% to 95% (without dew condensation)
   Pressure : 700hPa to 1060hPa
   * THIS INSTRUMENT DOES NOT MEET THE TEMPERATURE REQUIREMENTS OF ISO 15004-1 FOR STORAGE. DO NOT STORE THIS INSTRUMENT IN CONDITIONS WHERE THE TEMPERATURE MAY RISE ABOVE 40°C OR FALL BELOW 10°C.
2. When storing the instrument, ensure that the following conditions are met:
   (1) The instrument must not be splashed with water.
   (2) Store the instrument away from environments where air pressure, temperature, humidity, ventilation, sunlight, dust, salty/sulfurous air, etc. could cause damage.
   (3) Do not store or transport the instrument on a slanted or uneven surface or in an area where it is subject to vibrations or instability.
   (4) Do not store the instrument where chemicals are stored or gas is generated.
3. Normal life span of the instrument:
   8 years from delivery providing regular maintenance is performed [TOPCON data]

ENVIRONMENTAL CONDITIONS FOR PACKAGING IN STORAGE

(Product in its normal transport and storage container as provided by manufacturer)
Temperature : -20°C to +50°C
Humidity : 10% to 95%
Pressure : 700hPa to 1060hPa

ENVIRONMENTAL CONDITIONS FOR PACKAGING IN TRANSPORTATION

(Product in its normal transport and storage container as provided by manufacturer)
Temperature : -40°C to +70°C
Humidity : 10% to 95%
Pressure : 700hPa to 1060hPa

ELECTRIC RATING

Source voltage : 100-240V AC, 50-60Hz
Power input : 1.2A for AC adaptor

DIMENSIONS AND WEIGHT

Dimensions : 197mm(W) x 220mm(D) x 404mm(H)
Weight : 3.8kg

SAFETY DESIGNATIONS PER IEC 60601-1 STANDARD

- Type of protection against electric shocks: Class I equipment including AC adaptor

  Class I equipment does not depend on basic insulation only for protection against electric shocks. It can also be earthed; therefore, the metal parts with which one comes into contact with do not become conductive if the basic insulation fails.
- Degree of protection against harmful ingress of water: IPx0

  The CL-300 has no protection against ingress of water. (The degree of protection against harmful ingress of water defined in IEC 60529 is IPx0)
- Classification according to the method(s) of sterilization or disinfection recommended by the manufacturer: not applicable.
- Classification according to the degree of safety of application in the presence of a flammable anaesthetic mixture with air or with oxygen or nitrous oxide: Equipment not suitable for use in the presence of a flammable anaesthetic mixture with air or with oxygen or nitrous oxide. The CL-300 should be used in environments where no flammable anesthetics and/or flammable gases are present.
- Classification according to the mode of operation: Continuous operation.

  Continuous operation is operation under normal load for an unlimited period, without the specified limits of temperature being exceeded.

MAINTENANCE AND CHECKS

1. Regularly maintain and check all equipment and parts.
2. When using the instrument after a prolonged period of inactivity, confirm normal and safe operation beforehand.
3. Take care not to mar the cover glass with fingerprints and dirt.
4. When this instrument is not in use, apply the dust cover to it.
5. When the cover glass gets dirty, clean it following the "CLEANING COVER GLASSES" Section in the User Manual.

DISPOSAL

Dispose of the instrument according to local disposal and recycling laws.

This symbol is applicable for EU member countries only.
To avoid potential negative consequences for the environment and possibly human health, this instrument should be disposed of (i) for EU member countries - in accordance with WEEE (Directive on Waste Electrical and Electronic Equipment), or (ii) for all other countries, in accordance with local disposal and recycling laws.

INTENDED USER PROFILE

This lensmeter is an electric instrument and it must be used in accordance with its Instruction Manual.

ELECTROMAGNETIC COMPATIBILITY

This product conforms to the EMC Standard (IEC 60601-1-2 Ed.3.0 : 2007).

a) MEDICAL ELECTRICAL EQUIPMENT needs special precautions regarding EMC and needs to be installed and put into service according to the EMC information provided in the ACCOMPANYING DOCUMENTS.
b) Portable and mobile RF communications equipment can affect MEDICAL ELECTRICAL EQUIPMENT.
c) The use of ACCESSORIES, transducers and cables other than those specified, with the exception of transducers and cables sold by the manufacturer of the EQUIPMENT or SYSTEM as replacement parts for internal components, may result in increased EMISSIONS or decreased IMMUNITY of the EQUIPMENT or SYSTEM.
d) The EQUIPMENT or SYSTEM should not be used adjacent to or stacked with other equipment. If adjacent or stacked use is necessary, the EQUIPMENT or SYSTEM should be observed to verify normal operation in the configuration in which it will be used.
e) The use of the ACCESSORY, transducer or cable with EQUIPMENT and SYSTEMS other than those specified may result in increased EMISSION or decreased IMMUNITY of the EQUIPMENT or SYSTEM.

Item	Article code	Model No.	Length (m)
RS-232C cross cable	418460002	–	4.9
LAN CABLE	–	–	5.1

Guidance and manufacturer's declaration - electromagnetic emissions		
The CL-300 is intended for use in the electromagnetic environment specified below. The customer or the user of the CL-300 should assure that it is used in such an environment.		
Emissions test	**Compliance**	**Electromagnetic environment - guidance**
RF emissions CISPR 11	Group 1	The CL-300 uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class B	The CL-300 is suitable for use in all establishments other than domestic and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC61000-3-2	Complies	
Voltage fluctuations/ flicker emissions IEC61000-3-3	Complies	

Guidance and manufacturer's declaration - electromagnetic immunity			
The CL-300 is intended for use in the electromagnetic environment specified below. The customer or the user of the CL-300 should assure that it is used in such an environment.			
Immunity test	**IEC 60601 test level**	**Compliance level**	**Electromagnetic environment - guidance**
Electrostatic discharge(ESD) IEC 61000-4-2	± 6 kV contact ± 8 kV air	± 6 kV contact ± 8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst IEC 61000-4-4	± 2 kV for power supply lines ± 1 kV for input/output lines	± 2 kV for power supply lines ± 1 kV for input/output lines	The mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	± 1 kV differential mode ± 2 kV common mode	± 1 kV differential mode ± 2 kV common mode	The mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and Voltage variations on power supply input lines IEC 61000-4-11	<5% U_t (>95% dip in U_t) for 0, 5 cycle 40% U_t (60% dip in U_t) for 5 cycles 70% U_t (30% dip in U_t) for 25 cycles <5% U_t (>95% dip in U_t) for 5 sec.	<5% U_t (>95% dip in U_t) for 0, 5 cycle 40% U_t (60% dip in U_t) for 5 cycles 70% U_t (30% dip in U_t) for 25 cycles <5% U_t (>95% dip in U_t) for 5 sec.	The mains power quality should be that of a typical commercial or hospital environment. If the user or the CL-300 requires continued operation during power mains interruptions, it is recommended that the CL-300 be powered from an uninterruptible power supply or battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
NOTE U_t is the a.c. mains voltage prior to application of the test level.			

Guidance and manufacturer's declaration - electromagnetic immunity			
The CL-300 is intended for use in the electromagnetic environment specified below. The customer or the user of the CL-300 should assure that it is used in such an environment.			
Immunity test	**IEC 60601 test level**	**Compliance level**	**Electromagnetic environment - guidance**
Conducted RF IEC 61000-4-6 Radiated RF IEC 61000-4-3	3 Vrms 150kHz to 80MHz 3 V/m 80MHz to 2, 5GHz	3 V 3 V/m	Portable and mobile RF communications equipment should be used no closer to any part of the CL-300, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance $d = 1.2 \sqrt{P}$ $d = 1.2 \sqrt{P}$ 80MHz to 800MHz $d = 2.3 \sqrt{P}$ 800MHz to 2, 5GHz where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in meters (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, [a] should be less than the compliance level in each frequency range. [b] Interference may occur in the vicinity of equipment marked with the following symbol: 
NOTE 1 At 80 MHz and 800 MHz, the higher frequency range applies. NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.			
a Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the CL-300 is used exceeds the applicable RF compliance level above, the CL-300 should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the CL-300. b Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.			

Recommended separation distance between portable and mobile RF communications equipment and the CL-300

The CL-300 is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the CL-300 can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the CL-300 as recommended below, according to the maximum output power of the communications equipment.

Rated maximum output power of transmitter W	**Separation distance according to frequency of transmitter m**		
	150kHz to 80MHz $d = 1.2\sqrt{P}$	**80MHz to 800MHz** $d = 1.2\sqrt{P}$	**800MHz to 2.5GHz** $d = 2.3\sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

For transmitters rated at a maximum output power not listed above, the recommended separation distance *d* in metres (m) can be estimated using the equation applicable to the frequency of the transmitter, where *P* is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

NOTE 1 At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.

NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

SHAPE OF PLUG

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

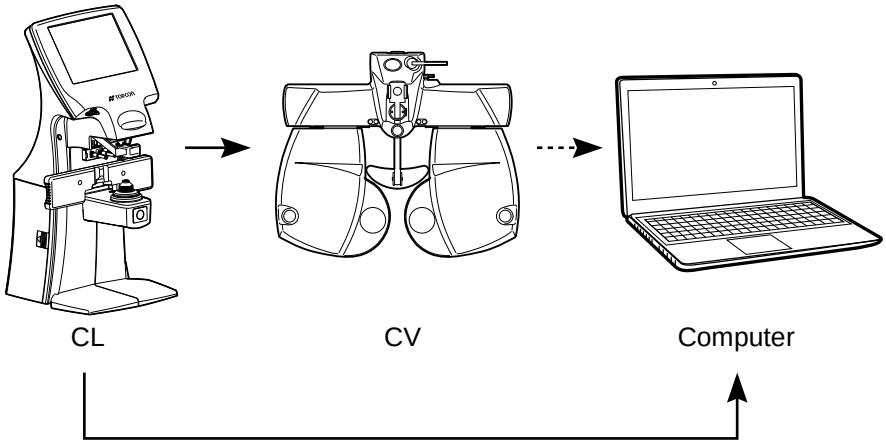
USING THE INSTRUMENT AS A SYSTEM

This product can perform data transfer with other devices.
For connectable devices and conditions for connection, ask your dealer/service engineer.

ON - LINE SYSTEM

The data from the computerized lensmeter can be transferred to the instruments through a RS-232C interface. In addition, the measuring data from the instruments can be transferred to a computerized vision tester.

Example of operation system



CONNECTING EXTERNAL I/O TERMINALS

NOTE	When connecting this product with a commercial personal computer, use one conforming to IEC60950-1, with a separation unit.

When calling please give us the following information about your unit:

- Model name: CL-300
- Serial No.: Marked on the rating nameplate.
- Period of use: Please inform us of the date of purchase.
- Defective condition: Please provide us with as much detail as possible.

COMPUTERIZED LENSMETER CL-300

USER MANUAL
Rev.5 July 21, 2016

Published by TOPCON CORPORATION

75-1 Hasunuma-cho, Itabashi-ku, Tokyo, 174-8580 Japan.

COMPUTERIZED LENSMETER

CL-300

TOPCON MEDICAL SYSTEMS,INC.
111 Bauer Drive, Oakland, NJ 07436, USA Phone:+1-201-599-5100 Fax:+1-201-599-5250 www.topconmedical.com

TOPCON CANADA INC.
110 Provencher Avenue, Boisbriand, QC J7G 1N1 CANADA Phone:+1-450-430-7771 Fax:+1-450-430-6457 www.topcon.ca

EC REP **TOPCON EUROPE MEDICAL B.V. (EU Importer)**
(European Representative)(European Sole Sales Company)
Essebaan 11; 2908 LJ Capelle a/d IJssel; P.O.Box145; 2900 AC Capelle a/d IJssel; THE NETHERLANDS
Phone:+31 -(0)10-4585077 FAX:+31 -(0)10-4585045 Email: medical@topcon.nl; www.topcon.eu

ITALY OFFICE
:Viale dell' Industria 60; 20037 Paderno Dugnano; (Milano), ITALY Phone:+39-02-9186671 Fax:+39-02-91081091 E-mail: info@topcon.it; www.topcon.it

DANMARK OFFICE
:Praestemarksvej 25; 4000 Roskilde, DANMARK Phone:+45-46-327500 Fax:+45-46-327555 E-mail: topcon@topcondanmark.dk www.topcondanmark.dk

IRELAND OFFICE
:Unit 276, Blanchardstown; Corporate Park 2 Ballycoolin Dublin 15, IRELAND Phone:+353-18975900 Fax:+353-18293915 E-mail: medical@topcon.ie; www.topcon.ie

TOPCON DEUTSCHLAND MEDICAL G.m.b.H.
Hanns-Martin-Schleyer Strasse 41; D-47877 Willich, GERMANY Phone:+49-(0)2154+8850 Fax:+49-(0)2154-885177 E-mail: med@topcon.de; www.topcon.de

TOPCON ESPAÑA S.A.
HEAD OFFICE:Frederic Mompou 4 Esc. A Bajos 3, 08960 Sant Just Desvern Barcelona, Spain Phone:+34-93-4734057 Fax:+34-93-4733932 E-mail: medica@topcon.es; www.topcon.es

TOPCON S.A.R.L.
BAT A1 3 route de la révolte 93206 SAINT DENIS CEDEX, FRANCE Phone:+33 1 49 21 23 23 Fax:+33 1 49 21 23 24 E-mail:topcon@topcon.fr; www.topcon.fr

TOPCON SCANDINAVIA A.B.
Neongatan 2; P.O.Box 25; 43151 Mölndal, SWEDEN Phone:+46-(0)31-7109200 Fax:+46-(0)31-7109249 E-mail:medical@topcon.se; www.topcon.se

TOPCON (GREAT BRITAIN) LTD.
Topcon House, Kennet Side, Bone Lane, Newbury, Berkshire RG14 5PX United Kingdom
Phone:+44-(0)1635-551120 Fax:+44-(0)1635-551170 E-mail:info@topcon.co.uk; www.topcon.co.uk

TOPCON POLSKA Sp. z. o. o.
ul. Warszawaka 23; 42-470 Siewierz, POLAND Phone:+48-(0)32-6705045 Fax:+48-(0)32-6713405 www.topcon-polska.pl

TOPCON SINGAPORE MEDICAL PTE. LTD.
1 Jalan Kilang Timor, Pacific Tech Centre #09-01 Singapore 159303 Phone:+65-68720606 Fax:+65-67736150 www.topcon.com.sg

TOPCON SINGAPORE REPRESENTATIVE OFFICE IN INDONESIA
Level 38, Tower A, Kota Kasablanka unit GH-04, Jl. Casablanca, Kav 88, Jakarta, Indonesia 12870 Phone:+62-21-2963-8004

TOPCON INSTRUMENTS (MALAYSIA) SDN.BHD.
No. D1, (Ground Floor), Jalan Excella 2, Off Jalan Ampang Putra, Taman Ampang Hilir, 55100 Kuala Lumpur, MALAYSIA Phone:+60(0)3-42709866 Fax:+60-(0)3-42709766

TOPCON INSTRUMENTS (THAILAND) CO.,LTD.
77/162 Sinnsathorn Tower, 37th Floor, Krungthonburi Rd., Klongtonsai, Klongsarn, Bangkok 10600,THAILAND Phone:+66(0)2-440-1152~7 Fax:+66-(0)2-440-1158

Manufacturer

TOPCON CORPORATION

75-1 Hasunuma-cho,Itabashi-ku,Tokyo,174-8580 Japan.
Phone:3-3558-2520 Fax:3-3960-4214 www.topcon.co.jp

4202890055
Printed in Japan 1607-100LW⑤