

USER MANUAL

COMPUTERIZED TONOMETER CT-800

INTRODUCTION

Thank you for purchasing the TOPCON COMPUTERIZED TONOMETER CT-800.

INTENDED USE / INDICATIONS FOR USE

Measured through the cornea based on the tension of the eye pressure within the eye ball, to provide information for diagnosis.

FEATURES

This instrument features the following:

- By spraying air, intraocular pressure can be measured in non-contact.
- Using Z alignment mark helps adjustment of distance with a patient's eye.

PURPOSE OF THIS MANUAL

This User Manual provides an overview of the basic operation, troubleshooting, checking and cleaning of the TOPCON COMPUTERIZED TONOMETER CT-800.

To get the best use of the instrument, read GENERAL SAFETY INFORMATION and DISPLAYS AND SYMBOLS FOR SAFE USE.

Keep this Manual at hand for future reference.

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



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- 3 This manual is original instructions.

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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
CONTRAINDICATION	Indicates a serious risk is more than the profits obtained by use of the instrument. A patient who should not be used according to a condition, a primary disease, complications, an anamnesis, family history and a predisposition is shown.
WARNING	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
CAUTION	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.
P NOTE	Useful functions to know. Paying attention to these will prevent the noted problems.

SYMBOL

Symbol	Description	Description (French)
\sim	Alternating Current	Courant alternatif
	Off (power: disconnection from the main	Éteint (courant: coupure avec le secteur)
	power supply)	,
	On (power: connection to the main power	Allumé (courant: raccordement sur le secteur)
	supply)	
†	Type B applied part	Partie appliquée du Type B
<u>^</u>	General warning sign	Symbole d'avertissement général
	Refer to instruction manual/booklet	Voir le manuel/la brochure
M	Date of manufacture	Date de fabrication
SN	Serial number	Numéro de série
\Rightarrow	Brake ON (Base fixed)	Freiner (Base fixée)
	Brake OFF (Base fixation releasing)	Desserrer le frein (Désengagement de la fixation de la base)
	Safety stopper setting position	Position de réglage de l'arrêt de sécurité
***	Manufacturer	Fabricant
EQ DES	Authorised Representative in the European	Représentant autorité pour l'Union euro-
EC REP	Community	péenne

UDI	Unique Device Identification (UDI)	Identification unique des dispositifs (IUD)
	Humidity limitation	Limite d'humidité
<u></u>	Atmospheric pressure limitation	Limite de pression atmosphérique
	Temperature limit	Limite de température
Ţ	Fragile, handle with care	Fragile manipuler avec soin
**	Keep dry	Garder au sec
<u> </u>	This way up	Vers le haut
2	Maximum number of identical packages which may be stacked on one another.	Nombre maximum d'emballages identiques pouvant être empilés les uns sur les autres.
	General symbol for recovery/recyclable. (for the package)	Symbole général de tri sélectif. (pour l'emballage)
043 PE-LD	Recycling symbol for plastic in the package. Low density polyethylene	Symbole de recyclage du plastique dans l'emballage. Polyéthylène basse densité
2053 PP	Recycling symbol for plastic in the package. Polypropylene	Symbole de recyclage du plastique dans l'emballage. Polypropylène
2065 PS	Recycling symbol for plastic in the package. Polystyrene	Symbole de recyclage du plastique dans l'emballage. Polystyrène
C E 0123	Indicates that the product conforms to the requirements of the Medical Device Regulation (EU) 2017/745 and of the other applicable Union legislation	Indique que le produit est conforme aux exigences du Règlement (UE) 2017/745 relatif aux dispositifs médicaux et des autres lois applicables de l'Union Européenne
©US 4824859	CSA listing mark	Marque de certification CSA
	WEEE label The symbol indicates that the product should not be discarded as unsorted waste but must be sent to separate collection facilities for recovery and recycling.	Marquage des DEEE Il s'agit d'un symbole indiquant que le produit ne doit pas être éliminé avec les déchets non triés, mais doit être envoyé dans des installa- tions de collecte séparées destinées à la valorisation et au recyclage.
A	EU Battery Directive Battery users must not dispose of batteries as unsorted general waste, but treat properly.	Directive européenne sur les batteries Les utilisateurs de batteries ne doivent pas jeter les batteries comme des déchets géné- raux non triés, mais les traiter correctement.

GENERAL SAFETY INFORMATION

⚠ CONTRAINDICATION

Ensuring the Safety of Patients and Operators

To prevent corneal damage, do not measure a patient with corneal disease or one who's had corneal surgery.

To prevent corneal damage, do not measure a patient wearing a contact lens. Tell the patient to remove the contact lens.



Ensuring the Safety of Patients and Operators

When operating the instrument, do not touch the patient's eye or nose.

Preventing Electric Shocks and Fires

To avoid fire and electric shock, install the instrument in a dry place free of water and other liquids.

To avoid fire and electric shock, do not put cups or other containers with liquids near the instrument.

To avoid electric shocks, do not insert metal objects into the instrument body through the vent holes or gaps.

To avoid injury by electric shock, do not open the cover. Ask your dealer for service.

To avoid fire in the event of an instrument malfunction, immediately turn OFF the power switch "O" 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.

Modification of this instrument is not permitted.



Important caution

The following patients need extra attention.

· Patients with infectious disease such as Keratoconjunctivitis Epidemica

Ensuring the Safety of Patients and Operators

To avoid injury when operating the chinrest up/down knob, be careful not to catch the patient's fingers.

Be sure to perform setting of safety stopper, to avoid injury caused by the instrument hitting the patient's eye or nose.

Preventing Electric Shocks

To avoid injury by electric shock, do not open the cover. For repair, call your service engineer.

Pay much attention not to touch the internal printer's body when the cover is open. If touched, it may result in trouble due to electrostatic discharge.

Ensuring Security

- When connecting this instrument to an external device through LAN, apply the security update to the external device, make use of anti-virus software and take other countermeasures against computer virus properly.
- Do not connect any USB storage device that is not checked with the anti-virus software to the USB port of this
 instrument.
- When connecting this instrument to an external device through LAN, set the ID and password of the user to the external device.
- When outputting data to the shared folder on an external device from this instrument, set a proper user ID and password to the shared folder.

Electromagnetic Compatibility (EMC)

This instrument has been tested (with 100/120/230V) and found to comply with IEC60601-1-2:Ed.4.0:2014. This instrument radiates radio frequency energy within standard and may affect other devices in the vicinity. If you have discovered that turning on/off the instrument affects other devices, we recommend you change its position, keep a proper distance from other devices, or plug it into a different outlet. Please consult your authorized dealer if you have any additional questions.

HOW TO USE THIS MANUAL

- Read the instructions on pages 1 to 11 before using the machine.
- Regarding connection to various devices, see "CONNECTING EXTERNAL I/O TERMINALS" on page 22.
- If you would like an overview of the system, begin by reading "BASIC OPERATIONS"(page 26).
- For setting various functions, see "SETTING FUNCTIONS ON SETUP SCREEN" on page 50.

GENERAL MAINTENANCE INFORMATION

Do not perform any maintenance work while the instrument is in use on a patient.

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 OF THE MEASURING WINDOW

For details, See "CLEANING THE MEASURING WINDOW" on page 58.

CLEANING THE MEASURING NOZZLE AND WINDOW GLASS INSIDE THE NOZZLE

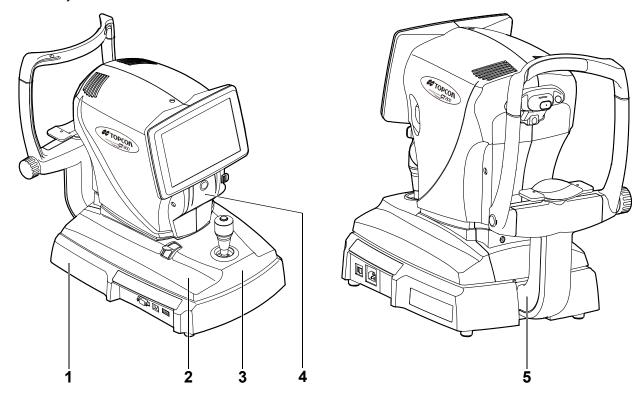
Regarding the measuring nozzle and the glass surface inside the measuring nozzle, cleaning is allowed. For details, see "CLEANING THE MEASURING NOZZLE AND THE GLASS INSIDE THE MEASURING NOZZLE" on page 59.

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.
- TOPCON is not responsible for any damage caused by unauthorized access from outside, malware or viruses.
- 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.

POSITIONS OF WARNING AND CAUTION INDICATIONS

To secure safety, this equipment provides warnings. Correctly use the equipment following these warning instructions. If any of the following marking labels are missing, please contact your dealer or TOPCON at the address stated on the back cover.



No.	Label	Label	Signification
1	A	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.
2	A	CAUTION Be sure to set the safety stop. If not, it may cause injury by touching the instrument to patient's eye or nose.	PRÉCAUTION Veillez à configurer l'arrêt de sécurité. Si non, cela peut provoquer des blessures en heurtant l'œil ou le nez du patient avec l'instrument.
3	A	CAUTION Be careful not to hit the patient's eyes or nose with the instrument during operation. The patient may be injured.	PRÉCAUTION Prendre garde de ne pas frapper les yeux ou le nez du patient avec l'instrument pendant l'opération.
4	A	CAUTION Pay much attention not to touch the internal printer's body when the cover is open. If touched, it may result in trouble due to electrostatic discharge.	PRÉCAUTION Faites très attention à ne pas toucher le corps interne de l'imprimante lorsque le couvercle est ouvert. En cas de contact, des problèmes peuvent survenir en raison de la décharge électrostatique.
5	†	Degree of protection against electric shock: TYPE B APPLIED PART	Degré de protection contre les chocs électriques: TYPE B PARTIE D'APPLICATION

STANDARD ACCESSORIES

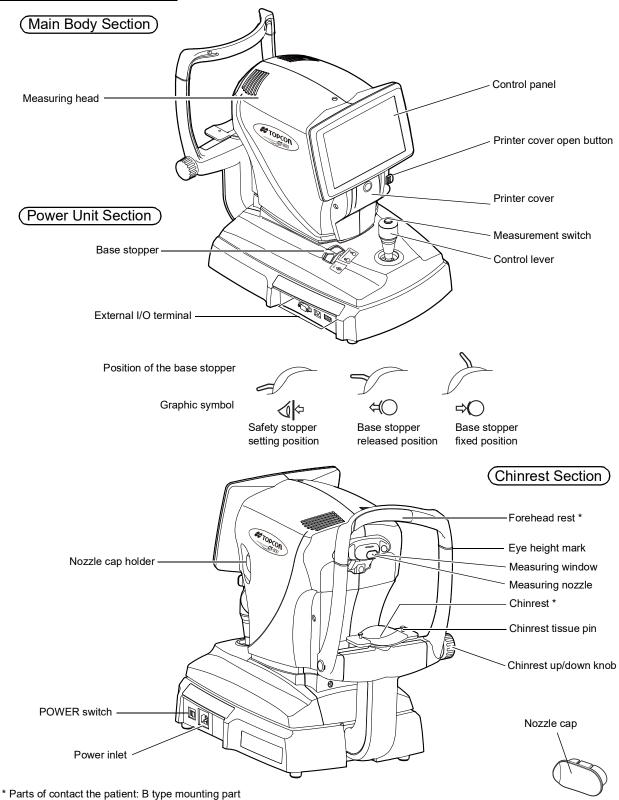
The following are standard accessories. Make sure that all these items are included (quantity).

The following are standard doodsones. Make	
Power cable (1)*	Chinrest tissue pin (2)
Printer paper (2)	Monitor cleaner (1)
Chinrest tissue (1)	Dust cover (1)
	# TOPCON
Accessory case (1)	User Manual, Instruction Manual, Unpacking and
	Assembling, Cleaning Procedure (1 each)
Nozzle cap (1)	Blower (1)
Applicator (1)	

^{*} By the case a plurality of power cables may have been packed.

COMPONENTS

COMPONENT NAMES



COMPOSITION OF PARTS WHICH CONTACT THE HUMAN BODY

Forehead rest: Silicone rubber

Chinrest : Acrylonitrile butadiene styrene resin

OPERATION METHOD OF CONTROL PANEL



- The control panel is a touch panel. Do not use any sharp tools; e.g. ball point pen.
- Do not touch two points on a control panel simultaneously.

Tap → To select any relevant item.



Touch the control panel softly with a finger.

CONTROL PANEL COMPONENTS

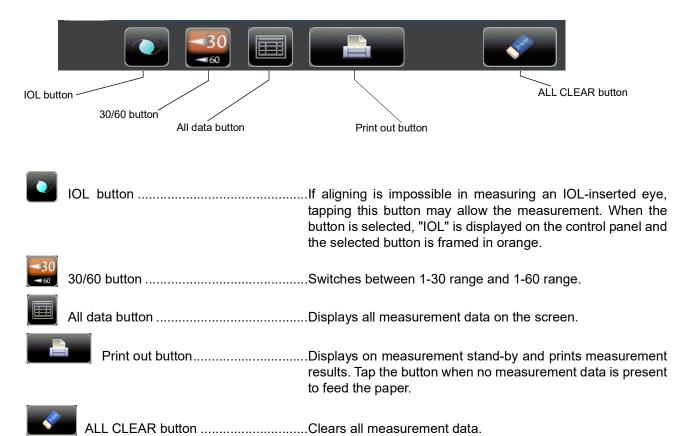
The control panel is designed as a touch panel for performing various operations and settings. It displays images and shows information, including set conditions and measurement results.



ID) ı	D button	Input the patient ID (up to 13 characters) and operator ID (up to 13 characters). However, if no patient ID is input, the patient No. is allocated automatically.
RL	R display/L display	.Shows the measured eye is R (Right eye) or L (Left eye). The measured eye is framed in orange.
Air	check button	.Checks that the measurement system of the instrument operates properly.

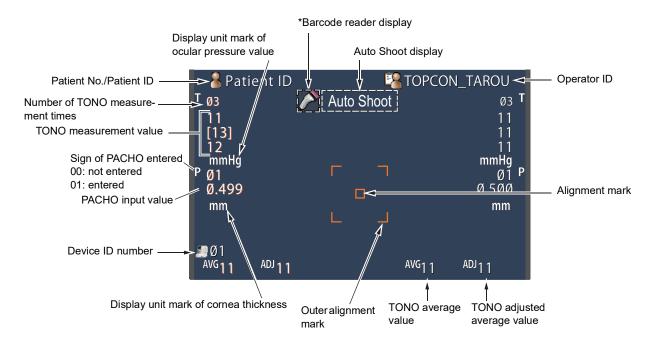
Auto Shoot button	Switches Auto Shoot mode on and Auto Shoot mode off. When Auto Shoot is selected, "Auto Shoot" is displayed on the control panel, and this button is framed in orange.
Settings button	Displays the Settings screen.

FUNCTION BUTTON



MONITOR SCREEN

MEASUREMENT SCREEN

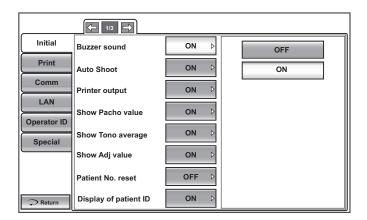


* Displayed when the barcode reader is connected.

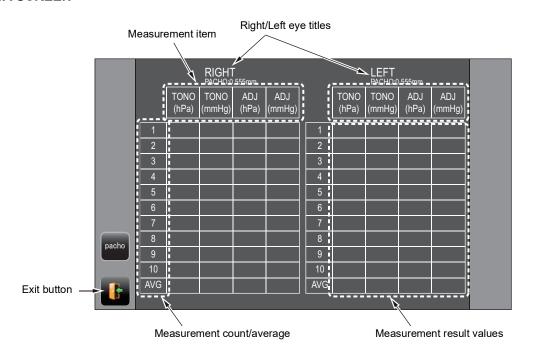
: Barcode reader is in readable.

: Barcode reader is inhibited to read. (During measurement, printing, data output)

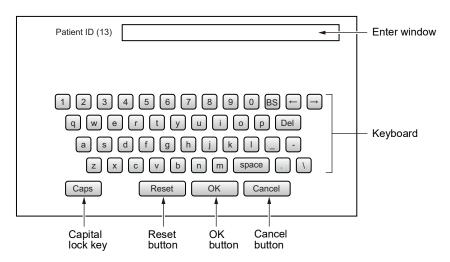
SETUP SCREEN



ALL DATA SCREEN

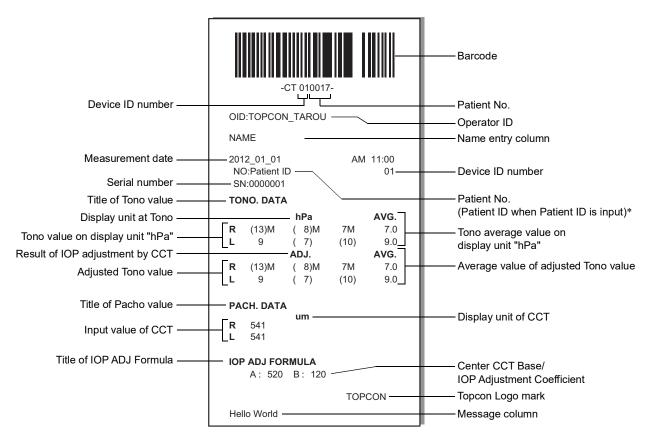


PATIENT ID INPUT SCREEN



PRINTER OUTPUT

Printed example when "Printer Layout" of "Print" is set to "SIMPLE"



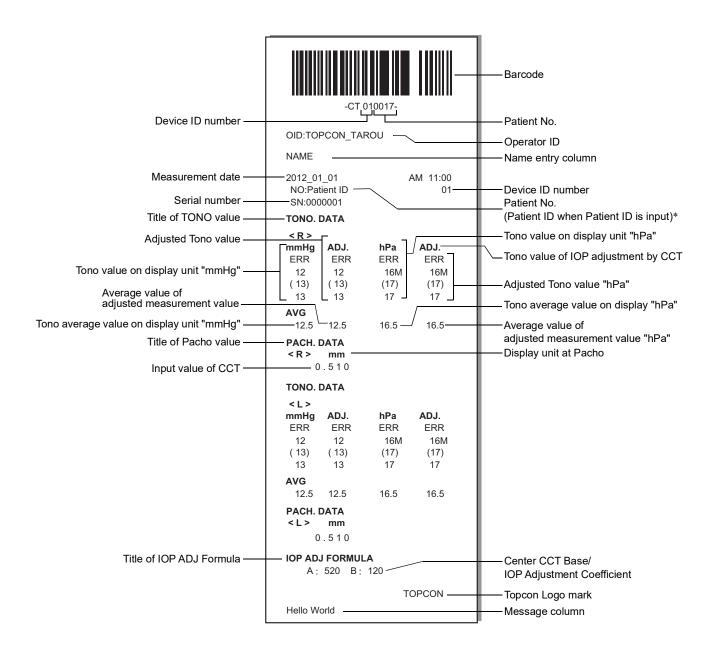
* As for the patient No., the result of the printing will differ depending on whether the patient ID is inputted or not inputted.

Input: Patient ID is printed.

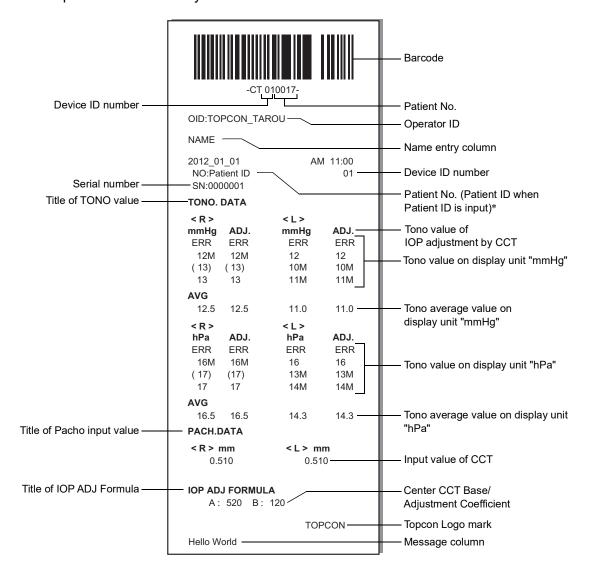
Not input : Patient No. (starts from 0001, automatically added +1 upon completion of measurement) is printed.



- The "M" mark is printed on the value measured by Manual mode or on the value measured by using the start button in Auto mode. (In the error of ERR, OVER, etc., the "M" mark is not printed.)
- The value with low reliability is outputted with the parenthesis notation.



Printed example when "Printer Layout" of "Print" is set to "DATA"



PREPARATIONS

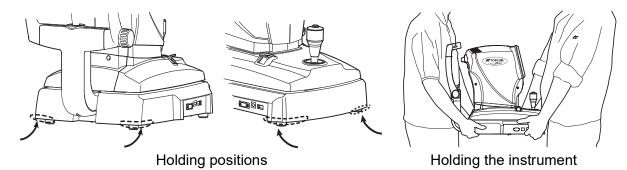
INSTALLATION



- When moving the instrument, two people should lift from the bottom of the device.
 - One person lifting the device may cause harm to his back or injury by falling parts. Also, holding areas other than the bottom and holding the External I/O terminal cover may cause injury, as well as damage to the instrument.
- To prevent damage and injuries, do not install the instrument on an uneven, unsteady or sloped surface.
- When setting an instrument on an instrument table, pay attention not to injury the fingers between the instrument and the table.
- **1** Use the base stopper to fix the main body.



2 Firmly hold the instrument at the position shown below and place it on the automatic instrument table.



3 After installation, turn the base stopper down. The main body can be moved.

CONNECTING POWER CABLE

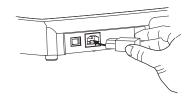


Be sure to connect the power plug to an AC 3-pin receptacle equipped with grounding. Connection with receptacle without grounding may cause fire and electric shock in case of short-circuiting.



- 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** Make sure the POWER switch of the instrument is OFF.

- 2 Connect the power cable to the power inlet at the right side of the instrument.
- **3** Insert the power cable plug into the 3-pin AC grounding receptacle.



CONNECTING EXTERNAL I/O TERMINALS



To avoid electric shock, do not touch the external connection terminal and the patient at the same time.

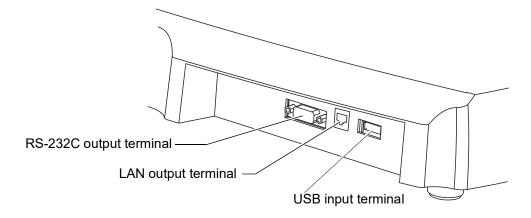


When connecting this product with a commercial personal computer, use one conforming to IEC62368-1, with a separation unit.

DATA OUTPUT

This product can be connected to a personal computer (PC) and other external devices via the RS-232C or LAN.

- **1** Connect the connection cable to the output terminal of the instrument
- **2** Connect the other end of the connection cable to the PC, etc.



DATA INPUT



- Do not operate a touch panel during barcode data entering by barcode reader. If you enter data when tapping the button on the touch panel, the barcode may not be read normally.
- Do not align, measure, or output data during barcode data entering by barcode reader. If you enter data during these operations, the barcode may not be read normally.
- Take care not to enter the wrong patient information. It may be mistaken for information from another patient.

This product can be connected to a bar-code reader and other external devices via USB.

1 Connect the connection cable to the USB input terminal of the instrument.

NOTE

• Please use a barcode reader with the following interface specifications.

Connector shape: USB (type A)

Interface: USB

Power supply: USB bus power

 Please connect USB devices while the power switch of this instrument is OFF. It may not correctly recognize USB devices if this instrument is in

operation.

• For questions about connections, contact your TOPCON dealer.

2 Connect the other end of the connection cable to the external device.

NOTE

For questions about connections, contact your TOPCON dealer.

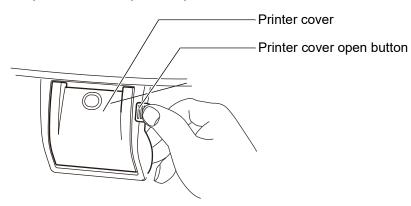
PRINTER PAPER SETTING



- When setting a printer paper, keep a patient's face away from the instrument. Some part of the instrument may touch the patient's lip or nose if the printer button is pressed.
- 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.



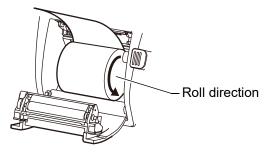
- Be sure to use the specified printer paper. If you use the paper other than the specified, the printer may be broken or the instrument may not be able to use.
- If you insert the printer paper backwards, printing will not start.
- Please push the printer cover OPEN button using your right thumb while placing your index and middle fingers on the projecting part which is in reverse side below the button. Unexpected movement is avoided when the printer cover OPEN button is pressed.
- **1** Press the printer cover open button to open the printer cover.



2 Open the printer cover to the limit.



3 Insert the printer paper in the direction shown below and pull out the paper end to your side by 7 to 8cm.



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





- Please close the printer cover using your right thumb while placing your index and middle fingers on the projecting part which is in reverse side below the printer cover OPEN switch. Unexpected movement is avoided when closing the printer cover.
- In case the printer cover is not firmly closed, printing will not start, and "CLOSE PRT COVER" will be displayed on the monitor screen.
- A 58mm wide paper roll (example: TP-50KJ-R [Nippon Paper Co.]) is recommended.

Other paper rolls may cause abnormal printing noise or unclear print.

REGION SELECTION OF THE INITIAL STARTUP

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



- This operation is done only at initial startup.
- For an area besides Canada/Latin America, China, Europe and Japan, please choose the "General".
- The setting of this operation can be reset at "Factory data Reset" of initial setting. (see page 55)
- If the operation of "Factory Data Reset" is carried out, clear the setting information of all users.
- **1** The region screen appears after displaying the startup screen.



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



RECOVERY FROM POWER SAVE STATUS

This instrument adopts the power save system for saving electric power. When the machine is not operated for a set time, the control panel becomes a screensaver.

1 Tap the control panel or operate the control lever.
In a few seconds, the measurement screen is displayed and measurement is enabled.

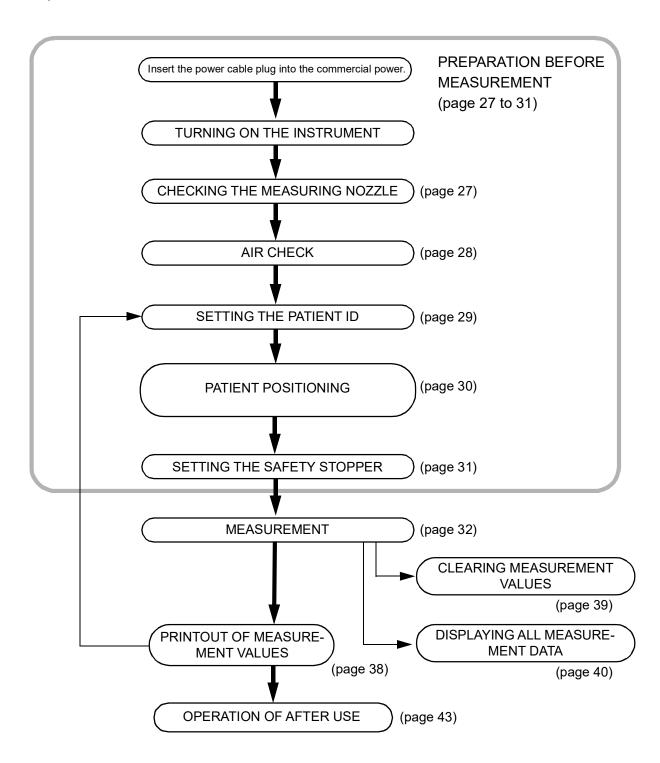


The time to start the power save status can be changed in the initial setting "Start time of sleep mode" (see page 54).

BASIC OPERATIONS

OPERATION FLOW CHART

Basic operation of this instrument is as follows:



PREPARATION BEFORE MEASUREMENT

TURNING ON THE INSTRUMENT

Insert the power cable plug into the commercial power (the 3-pin AC grounding receptacle.)
For the details of connection, refer to "CONNECTING POWER CABLE" on page 21.

Press on the POWER switch.

Make sure that the title screen is displayed and then the MEASUREMENT screen is displayed in a few seconds.

4 Release the base stopper.

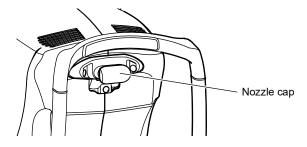
CHECKING THE MEASURING NOZZLE



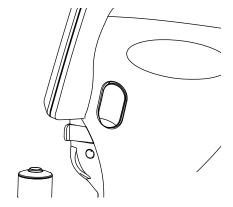
Before measuring, check if there is any foreign matter on and around the measuring nozzle.

If there is any, it may enter and damage the patient's eye during the measurement.

Remove the nozzle cap.



* The removed nozzle cap can be put into nozzle cap holder of the main body side. Please set bended rim side of the nozzle cap to the bottom.



Check if there is any foreign matter on and around the measuring nozzle. If there is any, turn OFF the POWER switch, clean it off and then turn ON the POWER switch. For cleaning, see "CLEANING THE MEASURING NOZZLE AND THE GLASS INSIDE THE MEASURING NOZZLE" on page 59.

AIR CHECK

This instrument is equipped with a function for checking correct operations of the measurement system inside the instrument.

1 Tap the Air o

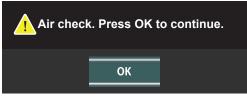
Tap the Air check button.



Then, the confirming message of Air check/End operation is displayed.



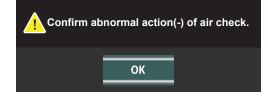
- Press the CHECK button. Then, air is out from the measuring nozzle automatically.
- Make sure the message box of "Air check. Press OK to continue." is displayed on the control panel.



Press the OK button, return to Measurement screen.



If abnormal action(+) or abnormal action(-) is displayed, the condition is not normal. Check if there is any object before the measuring nozzle. If there is any, remove it, press the OK button and do the check again. If there is no object, a failure is suspected. Turn the POWER switch to OFF, unplug the power cable, and call your dealer or TOPCON at the address printed on the back cover of this manual.

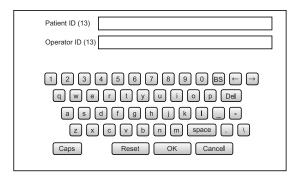


SETTING THE PATIENT ID

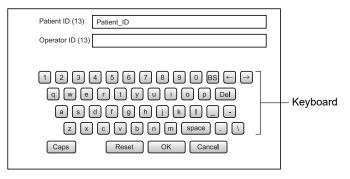
Tap the D button on the control panel.



2 The Patient ID Input screen is called up.



3 Enter the patient ID using the keyboard on the screen.



4 Return to the Measurement screen, and confirm that the patient ID is updated.





If "Display of patient ID" is set to "OFF" in the initial setting, the patient No./ patient ID is not displayed on the measurement screen.

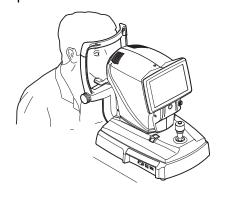
PATIENT POSITIONING



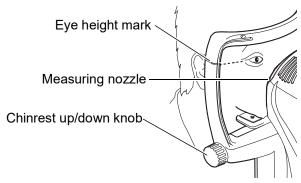
- To avoid electric shock, do not touch the external connection terminal and the patient at the same time.
- To avoid injury, do not insert fingers under the chinrest.
 To avoid injury when moving the chinrest down, be careful not to catch the patient's finger. Tell this to the patient, too.
- To avoid injury when operating the machine, be careful about the cover not to catch fingers of the patient. Tell this to the patient, too.
- To avoid injury by raising, falling or dropping the instrument, do not apply the strong power downward on the chinrest.
- When operating the instrument, be careful that the instrument does not touch the patient's lip or nose. If touched, clean the instrument following "CLEANING THE COMPONENTS THAT COME INTO CONTACT WITH THE PATIENT" on page 59.

FNOTE

- Adjust the height of the adjustable instrument table so that the patient can sit on the chair comfortably. Otherwise, correct measurement values may not be obtained.
- Before starting measurement, explain the functioning so patients are not surprised by the air puff.
- When operating the instrument, be careful that the instrument does not touch the patient's nose. If touched, clean the instrument following "CLEANING THE MEASURING WINDOW" on 58.
- If no patient ID is registered, a "patient No." is assigned automatically in order of examination.
- Check the measurement screen.
- Take off a chinrest tissue on the chinrest. If the tissue has run out, please supply new chinrest tissues.
- **3** Wipe the dirt form forehead rest.
- 4 Have the patient sit in front of the instrument.
- Adjust the adjustable instrument table or the chair height for the patient to put his/her chin on the chinrest comfortably.
- Hold the control lever, pull the main body towards operator side fully, place the patient's chin on the chinrest and touch patient's forehead to the forehead rest.



Adjust the chinrest height by chinrest up/down knob until the eye height mark of the chinrest reaches the same height as the patient's eye. At this moment, confirm that the measuring nozzle is at the height of the patient's visual line.



SETTING THE SAFETY STOPPER

A safety stop is set up by using a base stopper.



- Before measuring, be sure to set the safety stop.
 If not, it may cause injury by touching the measuring window glass to patient's eye. Set it respectively for the right and left eyes.
- Set the safety stop from the side of the instrument.
 Setting operation from other positions, where checking of the eye position or measureing window position is not easy, may cause injury by touching measureing window to the patient's eye.
- Hold the control lever and pull the machine body towards the operator fully.
- 2 Turn the control lever and adjust the height of the measuring nozzle to the center of the patient's cornea.
- 3 Keep depressing the base stopper, hold the control lever and push out the machine body slowly. "LOCKED" appears in the control panel.
- When the measuring nozzle reaches a position 8-9mm from the cornea, release the base stopper.

- Holding the control lever, try to slightly push out the machine body to make sure the stopper is working. If the machine body does not move forward any further, the setting is completed.
- Pull the machine body towards the operator fully.

 "LOCKED" disappears in the control panel, so measuring is possible.

MEASUREMENT (AUTO SHOOT MODE)



When operating the instrument (for measurement and control panel operation), be careful that the instrument does not touch the patient's lip or nose. If touched, clean the instrument as specified in "CLEANING THE INSTRUMENT" on page 58.

NOTE

- Auto Shoot mode measurement may not be possible, in case the eyelid and the eyelashes cover the pupil.
- If this occurs, the operator should tell the patient to open their eyes as wide as possible, or lift the eyelid to allow for measurement.
- Auto Shoot mode measurement may not be possible due to frequent blinks or existing abnormalities in the corneal surface caused corneal disease etc. In this case, measure in auto shoot mode off.
- The ocular pressure varies due to heart beats and tears. So, if it is not
 possible to obtain exact measurement values by measuring only once or
 twice, it is recommended to perform ocular pressure measurements several times.
- If the machine is moved before the measurement values are displayed, it might cause an incorrect measurement.

SETTING THE AUTO SHOOT MODE

Before shipment the default setting is Auto shoot mode (Auto).

- If Auto Shoot button of the measurement screen is framed in orange, it is in Auto Shoot mode.
- If Auto Shoot button is not framed in orange, it is in Auto shoot mode off. Tap the Auto Shoot button to change to Auto Shoot mode.



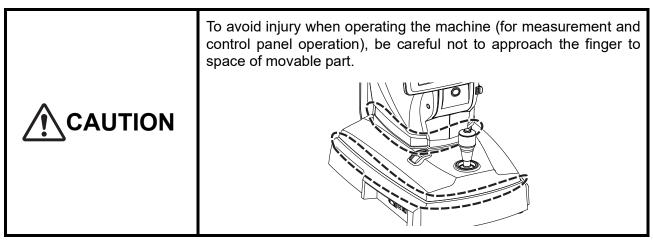
SETTING THE MEASURING RANGE

In this instrument, the measuring range can be switched in 2 steps between "1-30" and "1-60." Normally, "1-30" is used, but if the patient's ocular pressure is high, switch it to "1-60." The default setting is "1-30" upon power on.

Tap the 30/60 button of the measurement screen and set the measuring range.

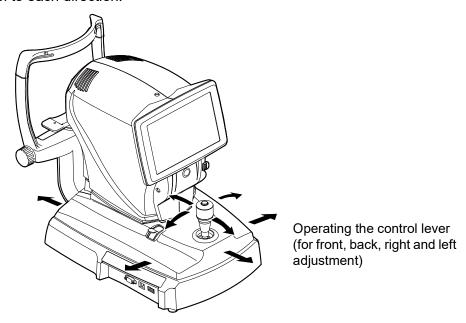


MEASUREMENT

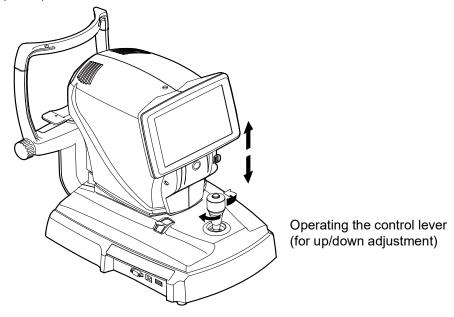


Alignment operations are done with the control lever.

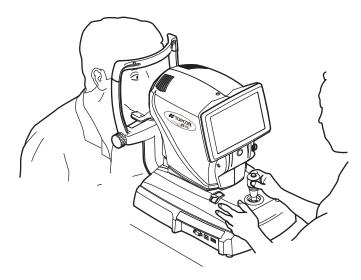
· The main body position can be fine-adjusted longitudinally and laterally by inclining the control level to each direction.



• The main body position can be fine-adjusted vertically by turning the control level right (up) and left (down).



Hold the control lever and move the main body to the operator side.

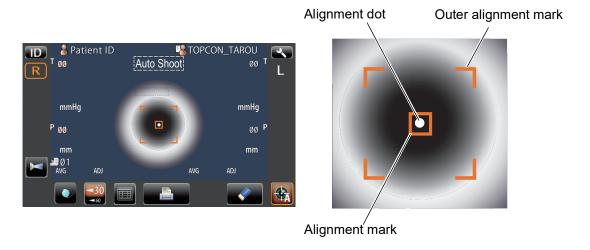


2 Operate the control lever laterally and vertically to obtain the target eye in the center of control panel screen. Then tell the patient to look at green luminous dot.



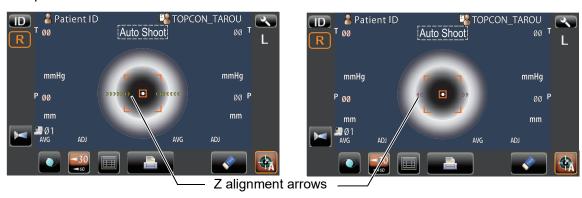
While moving the main body toward the patient, focus the target eye.

A vague, reflected alignment dot appears on the cornea.



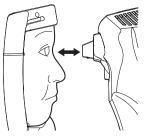
Fine-adjust the main body position in all directions so that the alignment dot point comes within the alignment mark.

Example 2 Keeping the alignment dot within the alignment mark, slowly move the main body toward the patient. When the main body approaches the target eye, Z alignment arrows appear to the control panel screen.





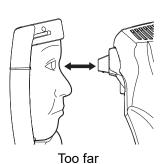
- Do not allow the eyelash and eyelid to cover outer alignment mark to ensure stable measurement.
- If the machine is too near to the patient in comparison with the optimal alignment position, the alignment arrows are displayed outward or if it is too far from the patient, the alignment arrows are displayed inward.



Too close

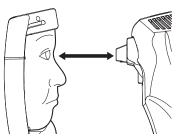


Outward Z alignment arrows (purple)





Inward Z alignment arrows (Green)



Positioning is incorrect at all.



Z alignment arrows are not appeared.

 When the measuring head approaches patient's eye too much, "TOO CLOSE" is displayed and when it keeps away from patient's eye too much, "TOO FAR" is displayed. Using the control lever, move the measuring head to a position where aligning is possible.







Limit of movement in the backward direction Limit of movement in the forward direction

Align to make the Z alignment arrows short, and the measurement is carried out when the Z alignment arrows reach minimum, and then the measurement value is displayed on the control panel. For displaying measurement values, refer to "DISPLAYING MEASUREMENT VALUES" on page 37.



- Hold the control lever and pull the main body to the operator side, then switch R or L and repeat the same procedure from "SETTING THE SAFETY STOPPER" on page 31 to previous item for the next eye measurement.
- Tell the patient a measuring is end and leave from the instrument.



- If Auto Shoot mode measurement does not work, press the measurement switch when the alignment dot becomes minimum within the alignment mark.
 - Auto Shoot mode measurement may not work depending on the cornea condition.
- If the machine is moved before measurement values are displayed, it might cause an incorrect measurement.

DISPLAYING MEASUREMENT VALUES

With regard to TONO measurement values, data of the latest three measurements are displayed on the control panel.

Figures only: Measurement was done correctly.

[] figures: When the reliability of measurement is low. ERROR: Measurement was not done correctly.

OVER: When the measurement range is exceeded.



 In TONO average value display, low-reliability numerical data with [] are not added to the average value calculation.

However, if all measurement data are numerical data with [], the average value calculation is done using these data.

- For explanation of the messages on the control panel screen, refer to "MESSAGE LIST" on page 64.
- When data is printed out by pushing the measurement switch, the "M" mark is printed at side of the value.



PRINTOUT OF MEASUREMENT VALUES



- To avoid a paper jam in the printer, do not feed the paper if it is partly cut or wrinkled.
- To avoid discoloring of the printer paper (particularly the recording area) during storage, use a polypropylene bag and not one containing plasticizer (PVC, etc.).
- To avoid discoloring of the printer paper (particularly the recording area) after pasting, use water-soluble glue and not one containing solvent.
- Since the printer paper is thermosensitive, it is not suitable for keeping records for a long period. If necessary, prepare copies separately.

This instrument can print out measurement values with a printer.

1

Tap the PRINT button on the control panel.

Measurement values on the control panel are printed out.

When measurement values are printed out, the displayed values disappear on the control
panel. At this moment, the internal measurement data still remains. The data is cleared by
tapping the <u>ALL CLEAR</u> button.





- When a red line is printed at the edge of the printer paper, replace it with a new one. For details about the replacement of the printer paper, see "PRINTER PAPER SETTING" on page 23. 58mm wide printer paper (example: TP-50KJ-R, Nippon Paper) is recommended.
- "Close printer cover." indicates that the printer cover is left opened, ensure that the printer cover is completely closed.
- If the print button is tapped again after printing of measurement value is carried out and all measurement value is cleared, the last measurement data is printed out.

If printing out of the measurement values is not required, be sure to clear the measurement values for a next patient. (Refer to "CLEARING MEASUREMENT VALUES" on page 39.)

CLEARING MEASUREMENT VALUES

If printing out of the measurement values is not required, be sure to clear the measurement values for a next patient.



Tap the ALL CLEAR button on the control panel.

All measurement values of both eyes are cleared.



DISPLAYING ALL MEASUREMENT DATA

Normally the latest measurement is displayed, but it is possible to display and confirm all measurement data.

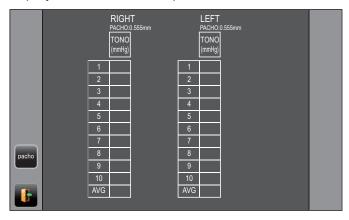
Tap the ALL DATA DISPLAY button.



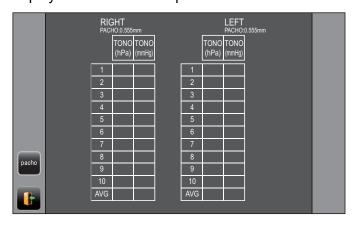
2 The Data Display screen is displayed.

The display unit is varied according to the Settings of setup.

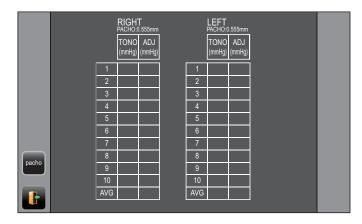
Setup item: Display unit in intraocular pressure measurement "mmHg"



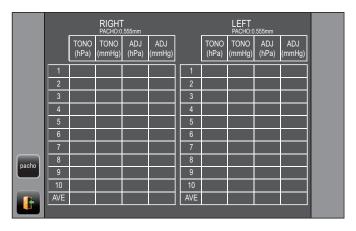
Setup item: Display unit in intraocular pressure measurement "hPa"



Setup setting: Display unit in intraocular pressure measurement "mmHg," IOP adjustment "ON"



Setup setting: Display unit in intraocular pressure measurement "hPa," intraocular pressure adjustment "ON"





For the value measured by auto shoot mode off and the value measured by using the measurement switch in auto shoot mode, the color of a character turns to yellow.

To exit the data display and return to the Measurement screen, tap the **EXIT** button.

		RIG PACE	HT HO:0.555	imm		LEF PACI	-T HO:0.555	imm		
		TONO (mmHg)		ADJ (mmHg)		TONO (mmHg)		ADJ (mmHg)		
	1				1					
	2				2					
	3				3					
	4				4					
	5				5					
	6				6					
	7				7					
pacho	8				8					
	9				9					
	10				10					
	AVG				AVG					

WHEN CORNEA THICKNESS IS REFLECTED ON MEASUREMENT DATA

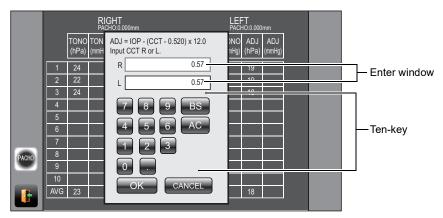
Measurement data calculated including cornea thickness can be displayed by inputting a PACHO (cornea thickness) data.

When carrying out this setup, it is required to select ON at "Show Adj value" of "Initial".

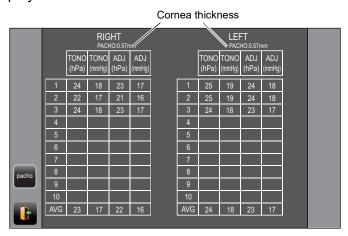
Tap the PACHO button on the Data Display screen.

			RIC PACE	HT HO:0.000	mm			LEF PACI	-T -HO:0.000)mm	
		TONO (hPa)		ADJ (hPa)	ADJ (mmHg)			TONO (mmHg)	ADJ (hPa)	ADJ (mmHg)	
	1	24	ERR	18	ERR	1	25	ERR	19	ERR	
	2	22	ERR	17	ERR	2	25	ERR	19	ERR	
	3	24	ERR	18	ERR	3	24	ERR	18	ERR	
	4					4					
	5					5					
	6					6					
	7					7					
pacho	8					8					
	9					9					
	10					10					
14	AVG	23		17		AVG	24		18		

The PACHO data input screen appears. Select enter window of "R" (right eye) or "L" (left eye) by tapping, and enter the cornea thickness value using ten key.



Tap the OK button and fix the input value. The entered cornea thickness value is displayed on the Data display screen and is reflected to the measurement data.



OPERATION OF AFTER USE

1

Use the base stopper to fix the main body.

2

Turn the (POWER) switch to off.



When external devices are connected to external I/O terminals, turn off the power of these devices too.

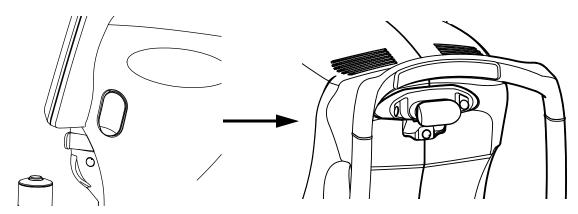
(If power switch is provided.)

3 Unplug the power cable from a 3-pin AC inlet with grounding.



When the instrument is not used for a long period, unplug the power supply cable, and detach the cable connected to the external I/O terminal.

4 Fit the nozzle cap to the measuring nozzle.



OPTIONAL OPERATIONS

MEASUREMENT IN AUTO SHOOT MODE OFF



- Adjust the height of the instrument table so that the patient can sit comfortably. Otherwise, correct measurement values may not be obtained.
- Do not perform measurement if the patient stops breathing or is nervous.
 Otherwise, correct measurement values may not be obtained.
- If the machine is moved before measurement values are displayed, it may cause incorrect measurement results.

SETTING OFF IN AUTO SHOOT MODE

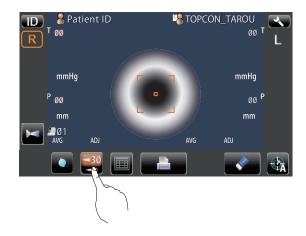
- 1 If the <u>Auto Shoot</u> button of the measurement screen is not framed in orange, it is in Auto Shoot mode off.
- **2** If <u>Auto Shoot</u> button is framed in orange, it is in Auto Shoot mode. In this case, tap the <u>Auto Shoot</u> button to change to Auto Shoot mode off.



SETTING THE MEASURING RANGE

In this instrument, the measuring range can be switched in 2 steps between "1-30" and "1-60." Normally, "1-30" is used, but if the patient's ocular pressure is high, switch it to "1-60." The default setting is "1-30" upon power on.

1 Tap the 30/60 button of the measurement screen and set the measuring range.

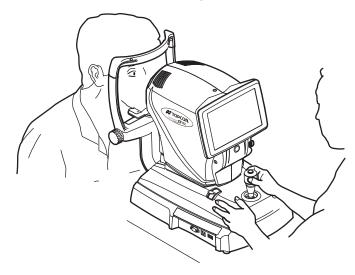


ALIGNMENT AND MEASUREMENT

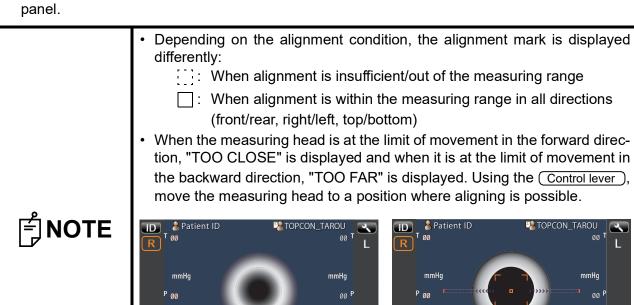
Alignment is operated on the control panel.

For the adjustment of main body using the control lever, refer to page 33.

- Use the base stopper to release the main body.
- Hold the control lever and move the main body to the operator side.



3 Operate the control lever laterally and vertically to obtain the target eye in the center of control



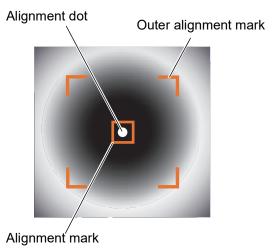
Limit of movement in the backward direction

changes.

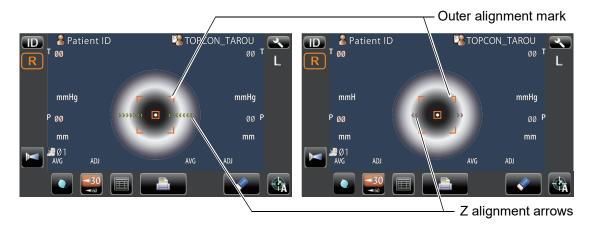
Limit of movement in the forward direction

4 While moving the main body toward the patient, focus the target eye. A vague, reflected alignment dot appears on the cornea.



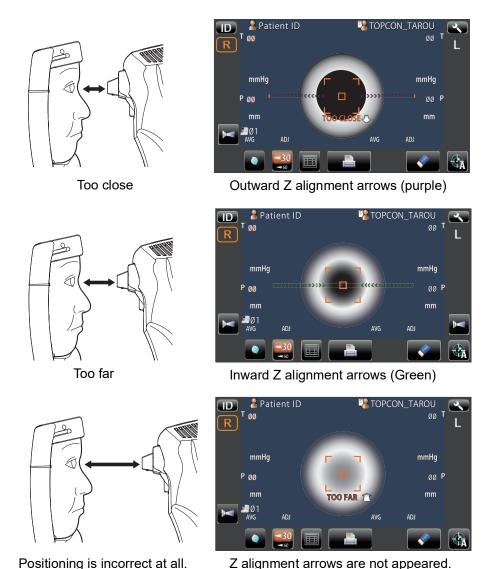


5 When the main body is brought closer to the patient's eye, Z alignment arrows appear on the control panel screen.





- Do not allow the eyelash and eyelid to cover the outer alignment mark to ensure stable measurement.
- If the machine is too close to the patient's eye in comparison with the optimal alignment position, outward magenta-colored Z alignment arrows blink with a message "TOO CLOSE," or if it is too far the arrows are changed to inward lime green color, and if the machine is completely off the alignment range, the message "TOO FAR" is displayed." The number of arrows are reduced accordingly as the optimal alignment reference position comes closer. If the alignment reaches the measuring range, the arrow is displayed in aqua color.



- Align to make the Z alignment arrows short, and press the MEASUREMENT switch when the Z alignment arrows reach minimum.
- Measurement is carried out, and the measurement value is displayed on the control panel.



Hold the control lever and pull the main body to the operator side, then switch R or L and repeat the same procedure from "SETTING THE SAFETY STOPPER" on page 31 to previous item for the next eye measurement.



- Even if an alignment is not correct under auto shoot mode off, the measurement can be performed by pressing the MEASUREMENT switch. To ensure correct measurement with high accuracy, try to get correct alignment.
- Even if you seem to get correct alignment, the alignment mark does not become
 ☐. In this case, please carry out a measurement after confirming surely that the alignment is performed correctly.
- The alignment mark may not become
 □ according to patient's cornea condition.

DISPLAYING MEASUREMENT VALUES

With regard to TONO measurement values, data of the latest three measurements are displayed on the control panel.

Figures only: Measurement was done correctly.

[] figures: When the reliability of measurement is low.
ERROR: Measurement was not done correctly.
OVER: When the measurement range is exceeded.



• In TONO average value display, low-reliability numerical data with [] are not added to the average value calculation.

However, if all measurement data are numerical data with [], the average value calculation is done using these data.

- When data is printed out, the "M" mark is printed on the value measured in auto shoot mode off.
- For explanation of the messages on the control panel screen, refer to "MESSAGE LIST" on page 64.



DISPLAYING THE PATIENT ID (PATIENT No.) OR OPERATOR ID

A patient ID or operator ID of up to 13 characters can be input and displayed on the control panel and printout.

However, if no patient ID is input, the patient No. is allocated automatically by the device.

1 Tap ID button.

2 Tap keyboard on the screen and enter characters. Tap OK button and fix the input value.



- Patient ID is reset when measurement values are printed or if the (ALL CLEAR) button is tapped.
- Patient No. reset condition can be selected such that the patient No. is reset upon power on or not, in the initial setting of setup screen.

OUTPUT USING RS-232C

This instrument can output data to a PC, etc. via the RS-232C interface.

- 1 Connect the interface cable to RS-232C OUT.

 Refer to "CONNECTING EXTERNAL I/O TERMINALS" on page 22.
- **2** Set up of data communication settings. For details, refer to "DATA COMMUNICATION (Comm)" on page 56.
- **3** Perform measurements.
- **4** Tap the PRINT OUT button of the control panel.
 When output is completed, "RS-232C SUCCESS" is displayed on the screen.

INPUT USING USB

This instrument can input ID numbers from a bar code reader, etc. via the USB.

- 1 Check the connection of USB IN.
 For connection, refer to "CONNECTING EXTERNAL I/O TERMINALS" on page 22.
- Input ID numbers from the external device.
 The inputted ID numbers are displayed on the screen.

OUTPUT USING LAN

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

- 1 Connect the network cable to LAN OUT.
 For connection, refer to "CONNECTING EXTERNAL I/O TERMINALS" on page 22.
- 2 Set up of LAN connection settings.
 For details, refer to "LAN CONNECTION (LAN)" on page 57.
- **3** Perform measurements.
- **4** Tap the PRINT OUT button of the control panel. Output is completed.



For explanation of messages during communication refer to the "MESSAGE LIST" on page 64.

SETTING FUNCTIONS ON SETUP SCREEN

OPERATING THE SETUP SCREEN

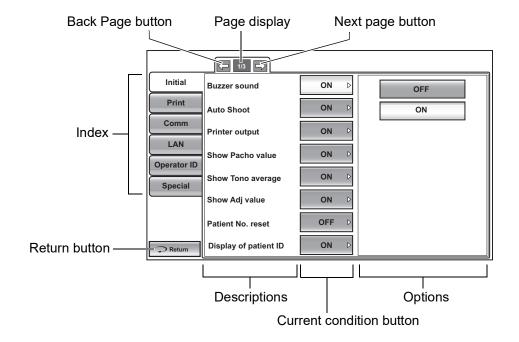
Various functions can be set on the SETUP screen.

PREPARATONS FOR SETTING

- Make sure that the power cable is connected.
 For connection, refer to "CONNECTING POWER CABLE" on page 21.
- **2** Turn ON the POWER switch.
- **3** Tap the <u>SETTINGS</u> button on the control panel.

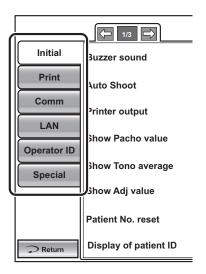


The SETUP screen is displayed.

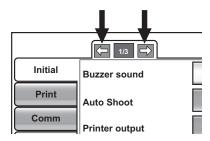


OUTLINE OF SETUP SCREEN OPERATIONS

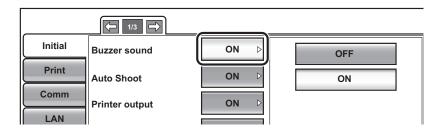
1 Tap INDEX and select the subject of setting.



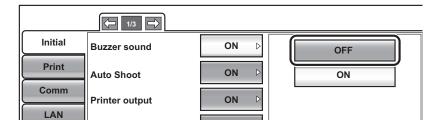
2 Operate the <u>NEXT PAGE</u> button or <u>BACK PAGE</u> button, as necessary, and display the page to confirm/change.



3 Tap the (CURRENT CONDITION) button of the item to be changed and find the (OPTIONS) button.



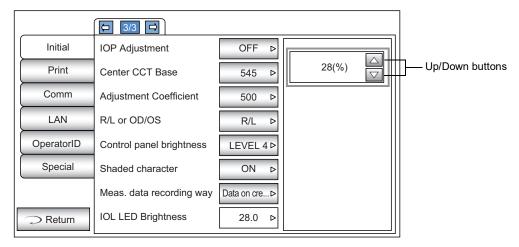
4 Tap the OPTIONS button and change the setting.



• Instead of the OPTIONS button, up/down buttons and ten-key would be displayed.

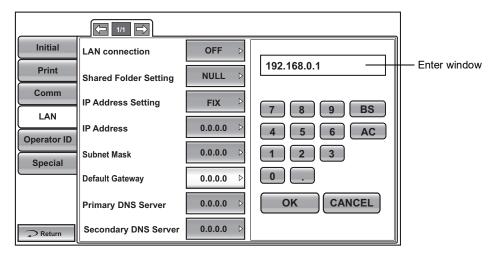
UP/DOWN BUTTON:

Tap the up or down button on the screen to change the setting.



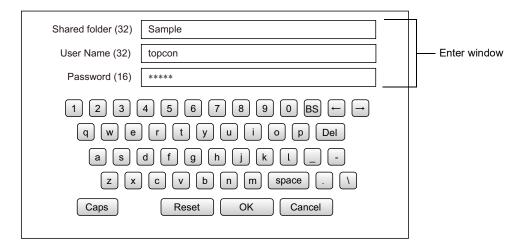
TEN-KEY:

Tap ten-key on the screen and enter the figure. If there are several windows to enter, tap the window to enter the figure by ten-key. Tap OK and fix the input value.



KEYBOARD:

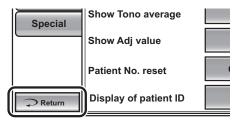
Tap keyboard on the screen and enter characters. If there are several windows to enter, tap the window to enter the figure by keyboard. Tap (OK) and fix the input value.



The set value is updated when an Options button is tapped.

RETURNING TO THE MEASUREMENT SCREEN

1 Tap the Return button.



2 The Measurement screen is displayed.



LIST OF SETUP ITEMS

Setup items are categorized into 6 large indexes.

"Initial"	items related to the initial status after power on
"Print"	items related to output from the internal print
"Comm"	items related to data output with the external device
"LAN"	items related to output using the LAN
"OperatorID"	items related to Operator ID
"Special"	items related to maintenance (for service engineer only)

INITIAL SETTINGS (Initial)

Initial contains settings related to the initial status after power on, clearing all measurement values, etc.

(Region: A=Canada / Latin America, C=China, E=Europe, J=Japan, G=General)

Descriptions	Options	Details	(R	al va egio	n)	
			A C	Е	J	G
Buzzer sound	OFF	Buzzer does not sound.				
Buzzer sound	ON	Buzzer sounds.		✓		
Auto Shoot	OFF	Default measurement mode is Auto shoot off.				
Auto onoot	ON	Default measurement mode is Auto Shoot.		✓		
Printer output	OFF	Internal printer is disabled.				
i filitei oatpat	ON	Internal printer is active.		✓		
Show Pacho value	OFF	Pacho value is not displayed.				
Show Facilo value	ON	Pacho value is displayed.		✓		
Chay Tana ayaraga	OFF	Tono average value is not displayed.				
Show Tono average	ON	Tono average value is displayed.		✓		
Chan Adinalus *	OFF	Adjusted value is not displayed.				
Show Adj value *	ON	Adjusted value is displayed.		✓		
Deficul No	OFF	Patient No. is not reset upon power on.	√ √	✓		,
Patient No. reset	ON	Patient No. is reset upon power on.			✓	
D: 1 (" 11D	OFF	Patient ID is not displayed.			✓	
Display of patient ID	ON	Patient ID is displayed.	√ ✓	✓		١,
D. (; ID. /M	OFF	Patient ID is not required.		✓		
Patient ID (Mandatory)	ON	Patient ID is required.				
Device ID number	1-99 Set by ten-key display	Sets the Device ID number.		1		
Diaplay of Daviso ID num	OFF	Device ID is not displayed.		✓		
Display of Device ID num.	ON	Device ID is displayed.				
	OFF	Power save function is not used.				
	1 min	Power save status in 1min after last operation.				
	5 min	Power save status in 5min after last operation.				
Start time of sleep mode	10 min	Power save status in 10min after last operation.		✓		
	20 min	Power save status in 20min after last operation.				
	30 min	Power save status in 30min after last operation.				
	60 min	Power save status in 60min after last operation.				_
Date/Time	Set by ten-key display	Sets year, month, day, time (24hrs), minute and second	Installation date/time			
	mmHg	Display in mmHg	√ √	✓	✓	
Tono dioplay Unit	digit	Display in digit				Γ
Tono display Unit	hPa	Display in hPa				_
	Torr	Display in Torr				
Dealer display the	mm	Display in mm		✓		
Pacho display Unit	μm	Display in μm				_

Descriptions	Options	Details	Initial value (Region)				
·	·		Α	С	Е	J	G
Press average Mode	Integer Display in Integer					✓	
Fress average Mode	Real	Display in Real	✓	✓	✓		✓
IOP Adjustment *	OFF	IOP adjustment type is OFF.					
TOF Adjustment	ON	IOP adjustment type is ON.					
Center CCT Base *	0-999 Set by ten-key display	Sets the central cornea thickness base value. (Used when IOP adjustment is "ON.") A : Center CCT Base	545	545	545	520	545
Adjustment Coefficient *	0-9999 Set by ten-key display	Sets the adjustment coefficient. (Used when IOP adjustment is "ON.") B : Adjustment Coefficient	500 120		500		
R/L or OD/OS	R/L	Right/left eyes is displayed by R/L.	✓				
R/E di OD/OS	OD/OS	Right/left eyes is displayed by OD/OS.					
	LEVEL 1 (dark)						
Control panel brightness (Setup of the brightness of	LEVEL 2	The brightness of control panel is set up.					
control panel)	LEVEL 3	The brightness of control panel is set up.					
, ,	LEVEL 4 (bright)		✓				
Shaded character	OFF	Font style of measurement values is not shaded.					
Siladed Cilalactei	ON	Font style of measurement values is shaded.			✓		
	Data on credibility	Measurement data is displayed in the order from low to high reliability.			✓		
Meas. data recording way	Data without error	The measurement data without error is displayed.					
	Data with error	All the measurement data (including data with error) is displayed.					
IOL LED Brightness	0 - 100% Set by up/down button	Sets brightness of alignment dot in IOL mode.	28(%)				
Factory data Reset	Execute	All setting is reset to the factory default settings, and power stops. Patient number is reset to 1. After the execution, please turn the power on again.	_				

^{*} The adjusted IOP can be determined by the equation below:

When display unit of input value of cornea thickness is set to " μm "

Adjusted IOP*1 = Measured IOP - (Measured CCT - A) x (B/10000) *2

A: Center CCT BASE [µm]

B: Adjustment Coefficient

IOP: Intraocular pressure [mmHg]

input value of cornea thickness :CCT [μm]

When display unit of input value of cornea thickness is set to "mm"

Adjusted IOP^{*1} = Measured IOP - (Measured CCT - A/1000) x (B/10) *2

A: Center CCT BASE [μm]

B: Adjustment Coefficient

IOP: Intraocular pressure [mmHg]

input value of cornea thickness: CCT [mm]

*1: The adjusted IOP that is calculated on A and B is just a reference value.

*2: A correction factor inputs a value integrally

INTERNAL PRINTER (Print)

Print contains settings related to output from the internal printer.

Descriptions	Options	Details		(F	ial v Regio	on)	
			Α	С	Е	J	G
Barcode	OFF	Barcode is not printed.			✓		
Baroode	ON	Barcode is printed.					
Operator ID	OFF	Operator ID is not printed.			✓		
operator ib	ON	Operator ID is printed.					
Name	OFF	"Name" space is not available.				✓	
Ivaille	ON	"Name" space is available.	✓	✓	✓		~
Date	OFF	Date is not printed.					
Dale	ON	Date is printed.			✓		
	YMD	Print in Year/Month/Day format.		✓		✓	Ī
Date style	MDY	Print in Month/Day/Year format.	✓				
	DMY	Print in Day/Month/Year format.			✓		,
Defendant /Defendant	OFF	Patient No./Patient ID is not printed.				✓	T
Patient No./Patient ID	ON	Patient No./Patient ID is printed.	✓	✓	✓		,
	OFF	Device ID number is not printed.			✓		
Device ID number	ON	Device ID number is printed.					_
	OFF	Serial No. is not printed.				✓	Τ
Serial number	ON	Serial No. is printed.	✓	✓	√		T.
	OFF	TOPCON logo is not printed.					_
TOPCON logo	ON	TOPCON logo is printed.			✓		_
	OFF	Message is not printed.			✓		_
Message print	ON	Message is not printed.					_
Input message	Set by keyboard display	String of up to 72 characters.			NUL	L	_
Line space	Set by keyboard display	Line space is set in dot units.			0		
<u> </u>	OFF	Auto cut is not carried out.					_
Auto Cut	ON	Auto cut is carried out.			√		_
	R/L	TONO measurement value and PACHO measurement value are separately printed.					
	DATA	The order is right eye and left eye regardless of the TONO measurement value and PACHO measurement value.					
Print Layout Print Layout Print in the SIMPLE Under SIMPLE format the measurem times are printed. Under SIMPLE format display unit of the		Print in the SIMPLE format. • Under SIMPLE format the measurement data up to the 3 latest times are printed. • Under SIMPLE format display unit of CCT is printed at "μm" even if selecting "mm".			✓		
mand by Diambers on ED-	OFF	mmHg is not printed on hPa.					
mmHg Display on hPa	ON	mmHg is printed on hPa.			✓		_
M	OFF	Corrected measurement value is not printed.					_
Measure correction	ON	Corrected measurement value is printed.			✓		
IOD AD I Formula	OFF	Center CCT Base and Adjustment Coefficient for IOP ADJ formula are not printed.					
IOP ADJ Formula	ON	Center CCT Base and Adjustment Coefficient for IOP ADJ formula are printed.			✓		

DATA COMMUNICATION (Comm)

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

Descriptions	Options	Details	Initial value (Region) A C E J G
	MODE1	Average value output format	✓
	MODE2	Latest value output format	
Communication Format	STD1	TOPCON STD1 format	
	STD2	TOPCON STD2 format	
	STD5	TOPCON STD5 format	
Use of Output port	OFF	Output port is disabled.	✓
Ose of Output port	ON	Output port is enabled.	
Paudrata aatting	2400bps	Baudrate value: 2400bps	
Baudrate setting	9600bps	Baudrate value: 9600bps	✓

LAN CONNECTION (LAN)

LAN contains settings related to data output via LAN.

Descriptions	Options	Details	Initial value (Region)
			A C E J G
LAN connection	OFF	LAN connection is off.	✓
EAN CONNECTION	ON	LAN connection is on.	
Shared Folder Setting	Shared folder: string up to 32+1 characters including terminated null char. User name: string up to 32+1 characters including terminated null char. Pass word: string up to 16+1 characters including terminated null char. Set by keyboard display	Path and permission to the shared folder is set.	NULL
IP Address Setting	FIX	Assign IP address manually.	✓
ii Addiess cetting	AUTO	Assign IP address automatically.	
IP Address	0. 0. 0. 0 Set by ten-key display	IP address of PC to output data.	0.0.0.0
Subnet Mask	0. 0. 0. 0 Set by ten-key display	Subnet mask address of CT-1P/CT-1.	0.0.0.0
Default Gateway	0. 0. 0. 0 Set by ten-key display	Default gateway address of CT-1P/CT-1.	0.0.0.0
Primary DNS Server	0. 0. 0. 0 Set by ten-key display	Primary DNS Server number.	0.0.0.0
Secondary DNS Server	0. 0. 0. 0 Set by ten-key display	Secondary DNS Server number.	0.0.0.0

OPERATOR SETTINGS (OperatorID)

OPERATOR contains settings related to Operator ID.

Descriptions	Options	Details		Initial value (Region)						
· ·			A C	Е	J	G				
Use of Operator ID	OFF	Operator ID will not be displayed on the control panel and printer output.		✓						
Ose of Operator ID	ON	Operator ID will be displayed on the control panel and printer output.								
Prefix of Ope. ID	ASCIIZ string up to 3+1 characters including terminated null char.	The Prefix of Operator ID can be registered.		NULI	-					
Operator ID (Mandatory)	OFF	Operator ID is not required.		✓						
Operator ID (Mandatory)	ON	Operator ID is required.								
Fixed Ope. ID setting	OFF	Operator ID is not fixed.			✓					
Fixed Ope. ID setting	ON	Operator ID is fixed.								
Fixed Ope. ID entry	ASCIIZ string up to 13 characters including terminated null char.	Input fixed operator ID.		NULI	-					

SPECIAL

SPECIAL is a mode for service engineers only; it can not be accessed.

MAINTENANCE

DAILY CHECKUPS

CLEANING THE INSTRUMENT

- Dust on measuring window Blow off dust with a blower.
- Fingerprints and oil spots on measuring window

Blow off dust with a blower and wipe the surface gently with a camera lens cleaner using clean gauze.

CLEANING THE MEASURING WINDOW

- To secure auto alignment and correct measurement values, clean the measuring window glass after each day's work.
- Clean the glass when "CLEAN THE MEASURING WINDOW GLASS" is displayed on the control panel screen.



To clean the measuring window glass, measuring nozzle and the glass inside the measuring nozzle, use ethanol. Using other chemicals may cause damage to the patient's eye during measurement.



- Do not apply unreasonable force to the measuring nozzle while cleaning.
- To avoid problems, do not leave the cotton fibers inside.
- · Be sure to use only the attached applicator.
- **1** Prepare the ethanol.
- **2** Using a blower, remove dust and dirt from the glass surface.
- **3** Moisten the applicator with ethanol.
- **4** Wipe the glass surface lightly with the applicator, from the center outward.



5 Use a new applicator and wipe the glass surface in a similar manner; repeat this several times.



To ensure thorough removal of grease from the measuring window, be sure to replace the applicator and use a new one for each of these repeated wiping operations.

6 The Cleaning is completed when grease is thoroughly removed. If stains cannot be removed easily, call your dealer.



When the measuring window becomes stained, "CLEAN THE MEASURING WINDOW GLASS" is displayed on the control panel screen.

CLEANING THE MEASURING NOZZLE AND THE GLASS INSIDE THE MEASURING NOZZLE

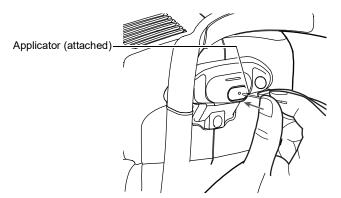
- If there is any foreign matter on or around the measuring nozzle, it may enter and damage the patient's eye during the measurement. If there is any, clean the measuring nozzle.
- When the glass inside the measuring nozzle becomes stained, it makes the fixation target unclear, causing errors in auto alignment and measurement values. If the fixation target is unclear or measurement values with parentheses are frequent, clean the glass inside the measuring nozzle.
- Clean the glass when "CLEAN INSIDE NOZZLE/GLASS" is displayed on the control panel screen.

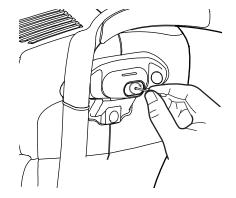


To clean the measuring window, measuring nozzle and the glass inside the measuring nozzle, use ethanol. Using other chemicals may cause damage to the patient's eye during measurement.



- Do not apply unreasonable force to the measuring nozzle while cleaning.
- To avoid problems, do not leave the cotton fibers inside.
- · Be sure to use only the attached applicator.
- **1** Prepare ethanol.
- **2** Moisten the applicator with ethanol.
- **3** Insert the applicator into the measuring nozzle, lightly touch the glass surface, and turn the applicator a few times.





4 Use a new applicator and wipe the glass surface in a similar manner; repeat this a few times.



The used applicator contains grease and it only scatters grease if used again; the light transmittance is not improved at all. Be sure to replace the applicator and use a new one for each of these repeated cleaning operations.

5 If the fixation target is clearly seen, cleaning is completed. If stains cannot be removed easily, call your dealer.



When the glass becomes stained, "CLEAN INSIDE NOZZLE/GLASS" is displayed on the control panel screen.

CLEANING THE COMPONENTS THAT COME INTO CONTACT WITH THE PATIENT

When the forehead rest and chinrest become stained, use a neutral tableware detergent and warm water. Dip a soft cloth in the solution, squeeze out the excess water and then wipe off the stain.

CLEANING OF EXTERNAL INPUT / OUTPUT DEVICE

Clean according to each instruction manual.

DAILY MAINTENANCE

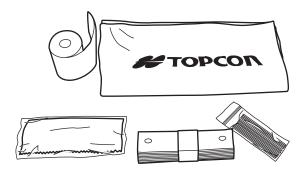
- For this instrument, dust may cause errors. When not in use, replace the nozzle cap and dust cover.
- When not in use, turn off the POWER switch.

ORDERING CONSUMABLE ITEMS

• When ordering consumable items, tell the product name, product code and quantity to your dealer or TOPCON at the address listed on the back cover.

Product name	Product code
Chinrest tissue	40310 4082
Monitor cleaner	44800 1001
Dust cover	42360 9002

Product name	Product code
Applicator	41601 8606
Printer paper	44800 4001



USER MAINTENANCE ITEM

Item	Inspection time	Contents
Inspection	Before using	 The instrument works properly. The Measuring window must be free of stains and/or flaws. Confirm whether the foreign object is attached to the measuring nozzle and the area around the measuring nozzle. Air check Confirm that the safety stopper setting and measuring nozzle do not move to the patient's side beyond the safety stopper setting position.
Cleaning	When the part is stained	Measuring windowExternal cover, control panel, etc.
Replacement	As required	Printer form

MANUFACTURER MAINTENANCE ITEMS

Item	Checking time	Contents
Cleaning each component	Within 12 months	Cleaning outer coversChecking the optical systemCleaning POWER unit
Operation check	Within 12 months	Checking the main body operationChecking switches
Accuracy check	Within 12 months	Confirming the ocular pressure measurement functions (using special tools)

PRINTER PAPER JAM

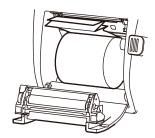


- When setting a printer paper, keep a patient's face away from the instrument. Some part of the instrument may touch the patient's lip or nose if the printer button is pressed.
- To avoid potential injury in case of malfunction, including a paper jam, be sure to shut off the power before attempting 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.



If the printer paper is jammed in the printer, printing will stop and the jam should be cleared.

1 Shut off the power and open the printer cover, take out the jammed paper pieces.

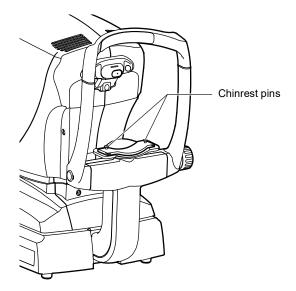


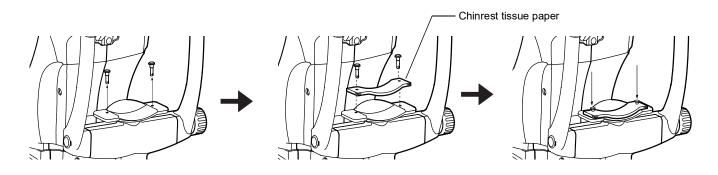


After shutting off the power and removing the jammed printer paper, tap the <a>PRINT OUT button to print out a blank sheet.

REPLACING THE CHINREST TISSUE PAPER

• When the chinrest tissue paper has run out, pull off the chinrest pins and replace it with new tissue paper.





MAINTENANCE

CLEANING THE EXTERNAL COVER



Do not use or apply any aerosol-type cleaner near the instrument. If a drop of cleaner remains inside the measuring nozzle, the patient's eye may be injured during measurement.



Do not clean plastic parts with solvents. Benzine, thinner, ether and gasoline may cause discoloring and decomposition.

- 1 If the external cover, control panel, etc. get soiled, wipe the surface clean with a dry cloth.
- **2** If the external cover is noticeably stained, wipe the surface with a damp cloth which is moistened in a tepid water solution of neutral detergent.

CLEANING THE CONTROL PANEL



- Since the control panel screen is a touch panel, be sure to turn off the POWER switch before wiping. The touch panel will react and malfunction.
- When the monitor cleaner has become dirty, wash it. When washing, rinse it thoroughly so no detergent is left. If any detergent remains, it may cause uneven wiping.

CONTAMINATION BY DUST

Remove the dust with a soft brush, and wipe with the attached monitor cleaner.

CONTAMINATION BY FINGERPRINTS

Wipe with the attached monitor cleaner.

If the stain still remains, moisten the monitor cleaner with water and then wipe off the stain.

TROUBLESHOOTING

TROUBLE-SHOOTING OPERATIONS

MESSAGE LIST

Displayed when the measurement is an arror	
Displayed when the measurement is an error. Tell the patient to open their eye as wide as possible.	
Displayed when the measurement is over. In the 30 range, switch to the 60 range. In the 60 range, measurement cannot be performed for out of measuring range.	
Displayed when a blot is detected on the measuring window during TONO measurement. Clean the measuring window by referring to "CLEANING THI MEASURING WINDOW" on page 58.	
Displayed when a blot is detected on the measuring window during TONO measurement. Clean the measuring nozzle and the glass inside the measuring nozzle by referring to "CLEANING THE MEASURING NOZZLE AND THE GLASS INSIDE THE MEASURING NOZZLE" on page 59.	
The printer cover is open. Close the cover until it clicks.	
Printer paper is used up. Supply printer paper.	
Displayed when the printer unit does not operate normally, such as the cutter does not work. Call the serviceman.	
Displayed when the output operation is requested when the setting "Patient ID (Mandatory)" is ON but the patient ID is not inputted. Enter the patient ID and then request the output operation.	
Displayed when the output operation is requested when the setting "Operator ID request" is ON but the operator ID is not inputted. Enter the operator ID and then request the output operation.	
Displayed when barcode reader is connected and the print out button is pushed without reading the barcode again in the readable state after reading barcode in the state to be inhibited to read. If this message is displayed, read the barcode again.	
Failed to resolve the host name of the destination (to be connected with the shared folder). Confirm the inputted host name or DNS server address.	
Failed to connect to the shared folder. Confirm the address, folder name, user name and password of the destination (to be connected with the share folder).	
Failed to create the file. Confirm that write permission to the share folder is set correctly.	
Failed to write to the file. Check the free space capacity at the save location.	
Failed to reset the LAN connection. Confirm that the LAN cable connection and the LAN setting are in the correct way.	
Failed to reset the LAN connection. Confirm that the LAN cable connection and the LAN setting are in the correct way.	
Failed in IP address auto assignment. Set a fixed IP address, or check if the DHCP server is running.	
Displayed in case of a LAN error other than the LAN errors mentioned previously. Call the serviceman.	
Displayed when the IP address is duplicated. Confirm that the IP address setting of main machine is in the correct way.	

Previous measurements are left. Please press the Clear button.	Displayed when the output of all output-set data fails. Previous measurements are left. Please tap the ALL CLEAR button.	
Output not set	Displayed when all output settings are OFF. Confirm that the output setting is in the correct way.	
RS-232C DATAOUT	RS-232C data output is in process.	
RS-232C SUCCESS	RS-232C data output is completed.	
RS-232C FAIL	Displayed when failed in RS-232C data transmission or failed in initialization for RS-232C connection. Confirm that the RS-232C cable connection and the RS-232C setting are in the correct way.	
TOO CLOSE	Warns that the measuring head is too close to the patient's eye. Move the machine as far from the patient's eye.	
TOO FAR	Warns that the measuring head is too far from the patient's eye. Move the machine as close to the patient's eye.	
Please check the DATE/TIME	The battery for the built-in clock has become worn out. • Before using, confirm the time and date on the SETUP menu. • If the message comes up frequently, call your service engineer.	
Perform air check?	Displayed to confirm whether to perform air check.	
Air checked. Press OK to continue.	Displayed when normal air check operation is confirmed. Press the OK button.	
Confirm abnormal action(-) of air check	Displayed when an anomaly occurred during air check. Check the measuring nozzle for any foreign matter.	
Confirm abnormal action(+) of air check	Displayed when an anomaly occurred during air check. Check the measuring nozzle for any foreign matter.	
First Octet is 1 - 223 Range	Displayed when the first octet of IP address, default gateway, primary DNS server or secondary DNS server is set to a value out of the specified input range.	
Value is irregular. Input valid value	Displayed when the octet is set to a value out of the specified input range. Enter a value within the input range.	
The IP address is 0 - 255 Range	Displayed when the subnet mask is set to a value off the input rule. Enter a value within the input rule.	
At least 3 characters are required for operator ID prefix.	Displayed when the input examiner ID prefix is less than 3 characters. Enter a prefix with 3 characters.	
Incorrect password	Displayed when the password inputted to select a special mode is incorrect.	
Cannot detect y position. Please turn the switch off/on.	Displayed when the auto alignment sensor and the machine are not correctly connected or not connected at all. Turn off the main power switch, turn it on again. When this message is displayed repeatedly, even if you turn the switch on again, please call your service engineer.	
"This will clear all user settings. Reset to the factory settings?"	When "Factory data reset" is executed, it displays as confirmation. When "OK" is chosen, reset is executed. When "CANCEL" is chosen, reset is canceled.	

AIR CHECK

If a problem is suspected, do the air check.

If the result is "abnormal action(+)" or "abnormal action(-)," call your dealer or TOPCON at the address printed on the back cover of this manual. For details about the air check, see "AIR CHECK" on page 28.

TROUBLE-SHOOTING OPERATIONS



To avoid electrical shock, do not open the instrument.

All service should be performed by a qualified service engineer.

If a problem is suspected, use the following check list.

If following instructions does not improve the condition, or if your problem is not included in the list, contact your dealer or TOPCON at the address on the back cover.

CHECK LIST

Trouble	Condition	Check	Page
Control panel does not turn on.		Is power cable unplugged?	21
		Is power cable connected to the instrument?	21
Control panel is not clear.	The image is dark.	Adjust the brightness by "Control panel Brightness Adjust".	55
Any trouble is found in a movable part.		Do not move it forcibly but call our service engineer.	-
Printing is not done.	Paper comes out without printing.	Confirm the direction of paper winding. If the direction is incorrect, reset paper to the proper direction.	23
	Paper does not come out.	If "PAPER END" displayed on control panel, replenish printer paper.	23

SPECIFICATIONS AND PERFORMANCE

SPECIFICATIONS AND PERFORMANCE

Ocular pressure	Measuring range: 1 to 60mmHg		
measurement	(Display unit: 1mmHg step display, Average value: 1mmHg/0.1mmHg		
	step display)		
	Measuring range: 1 to 30/1 to 60mmHg , 2 step display		
External I/O terminal	USB (for Import), RS-232C (for Export), LAN (for Export)		

GENERAL INFORMATION ON USAGE AND MAINTENANCE

INTENDED PATIENT POPULATION

The patient who undergoes an examination by this instrument must maintain concentration for a few minutes and keep to the following instructions:

- · To fix the face to the chinrest, forehead rest.
- To keep the eye open.
- To understand and follow instructions when undergoing an examination.

INTENDED USER PROFILE

Since the COMPUTERIZED TONOMETER CT-800 is a medical device, the operation should be supervised by a physician.

ENVIRONMENTAL CONDITIONS OF USE

Temperature : 10°C to 40°C

Humidity : 30% to 90% (without condensation)

Pressure : 800hPa to 1060hPa

STORAGE, USAGE PERIOD

1. Environmental conditions (without package)

*Temperature : 10°C to 40°C

Humidity: 10% to 95% (without 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 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 : AC100-240V

Frequency : 50-60Hz Power input : 30-70VA

SAFETY DESIGNATIONS PER IEC 60601-1 STANDARD

Type of protection against electric shocks: Class I

The Class I equipment provides means to connect itself to the protective grounding system of utilities to thereby independently provide protection against electric shocks by keeping connectable metal components nonconductive in case of a failure in the basic insulation.

- Degree of protection against electric shocks: B type applied component
 - The B type applied component provides the specified degree of protection against electric shocks with regard to the reliability particularly of leak current, patient measuring current and protective utility connection (in case of Class I equipment).
- Degree of protection against harmful intrusion of water (IEC 60529): IPX0 This product does not provide protection against intrusion of water.
 - (The degree of protection against harmful ingress of water defined in IEC 60529 is IPX0)
- Classification by sterilization/disinfection method specified by manufacturer
 This product does not have a component requiring sterilization/disinfection.
- Classification by safety of use in air/flammable anesthetic gas, oxygen or nitrous oxide/flammable anesthetic gas atmosphere
 - Equipment not suited for use in air/flammable anesthetic gas, oxygen or nitrous oxide/flammable anesthetic gas atmosphere
 - This product should be used in an environment free of flammable anesthetic gas and other flammable gases.
- · Classification by operation mode

Continuous operation refers to an operation under normal load conditions, within the specified temperature and without limitations on the operating time.

DIMENSIONS AND WEIGHT

Dimensions: 317~341mm(W) × 521~538mm(D) × 437~467mm(H)

Weight: 14.0kg

OPERATION PRINCIPLE

Ocular Pressure Measurement:

By ejecting air from the measuring nozzle to the cornea, detect by a pressure sensor the internal cylinder pressure required for the cornea to reach a prescribed deformed state (with a certain plane area), and calculate the ocular pressure value by computing. Detecting the applanation of cornea is performed, irradiating the cornea by near infrared light from a IOP measurement optical system (XY LED) and receiving the reflected beam by an applanation sensor.

CHECKPOINTS FOR MAINTENANCE

- 1. Regularly maintain and check the equipment and parts.
- 2. When resuming the use after a long period of storage, verify that the instrument operates correctly and safely.
- 3. To ensure the correct reading, do not mar the measuring window with finger prints, dust, etc.
- 4. If the measuring window is soiled, clean it following the "CLEANING THE MEASURING NOZZLE AND THE GLASS INSIDE THE MEASURING NOZZLE" instructions on page 59.

DISPOSAL

When disposing of the instrument and/or parts, follow local regulations for disposal and recycling.



This symbol is applicable for EU member countries only.

To avoid potential damage to 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.

This Product Contains a coin cell

You cannot replace batteries by yourself. When you need to replace and/or dispose batteries, contact your dealer or TOPCON listed on the back cover.



EU Battery Directive

This symbol is applicable for EU members states only.

Battery users must not dispose of batteries as unsorted general waste, but treat properly. If a chemical symbol is printed beneath the symbol shown above, this chemical symbol means that the battery or accumulator contains a heavy metal at a certain concentration. This will be indicated as follows:

Hg: mercury(0.0005%), Cd: cadmium(0.002%), Pb: lead(0.004%)

These ingredients may be seriously hazardous to human and the global environment.

[WARNING]

This Product Contains Mercury in the backlighting of the LCD display. Prior to disposal remove or otherwise ensure that this is disposed of in accordance with Local, State and Federal Laws. This information is applicable in U.S.A only.

This product contains a CR Lithium Battery which contains Perchlorate Material-special handling may apply.

See http://www.dtsc.ca.gov/hazardouswaste/perchlorate/

Note; This is applicable to California, U.S.A. only

ELECTROMAGNETIC COMPATIBILITY

This product conforms to the EMC standard (IEC 60601-1-2: 2014).

The expected electromagnetic environment for the whole life cycle is home medical treatment environment.

- 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.
- f)Do not use the devices generating electromagnetic waves within 30cm from all the parts of the instrument and system. Those devices may have influence on this instrument

Item	Shield	Length (m)
AC power cord for EUT	NO	1.5* ¹
AC power cord for EOT	NO	3.0*2
USB Cable	YES	1.5
LAN Cable	YES	3.0
Serial Cable	YES	3.0
AC power code for Computer	NO	2.9
RGB cable	YES	1.7
AC power code for (Display)	NO	1.7
Keyboard cable	NO	2.0
Mouse cable	NO	1.8
AC power code for ME ISOLATION	NO	1.5
TRANSFORMER	INO	1.5
FG Cable	NO	2.0

^{*1:} Used it for AC100V 50/60Hz and AC120V 50/60Hz.

^{*2:} Used it for AC230V 50/60Hz and AC240V 50Hz.

Guidance and manufacturer's declaration - electromagnetic emissions					
The CT-800 is intended for use in the electromagnetic environment specified below. The customer or the user of the CT-800 should assure that it is used in such an environment.					
Emissions test	Emissions test Compliance Electromagnetic environment - guidance				
RF emissions CISPR 11	Group 1	The CT-800 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				
Harmonic emissions IEC61000-3-2	Class A	The CT-800 is suitable for use in all establishments including domestic and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.			
Voltage fluctuations/ flicker emissions IEC61000-3-3	Complies	1			

Guidance and manufacturer's declaration - electromagnetic immunity

The CT-800 is intended for use in the electromagnetic environment specified below. The customer or the user of the CT-800 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	± 8 kV contact ± 15 kV air	± 8 kV contact ± 15 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 Repetition frequency 100kHz	± 2 kV for power supply lines ± 1 kV for input/output lines Repetition frequency 100kHz	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	± 1 kV line(s) to line(s) ± 2 kV line(s) to earth	± 1 kV line(s) to line(s) ± 2 kV line(s) to earth	Main 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	<0% U_t for 0.5 cycle (with phase angle 0°, 45°, 90°, 135°, 180°, 225°, 270° and 315°) 0% U_t for 1 cycle 0° 70% U_t for 25/30 cycles 0° 0% U_t for 250/300 cycles	<0% U_t for 0.5 cycle (with phase angle 0°, 45°, 90°, 135°, 180°, 225°, 270° and 315°) 0% U_t for 1 cycle 0° 70% U_t for 25/30 cycles 0° 0% U_t for 250/300 cycles	Main power quality should be that of a typical commercial or hospital environment. If the user or the CT-800 requires continued operation during main power interruptions, it is recommended that the CT-800 be powered from an uninterruptible power supply or battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	30 A/m	30 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercialor hospital environment.

INUITE U_t is the a.c. main voltage prior to application of the test level.

Guidance and manufacturer's declaration - electromagnetic immunity

The CT-800 is intended for use in the electromagnetic environment specified below. The customer or the user of the CT-800 should assure that it is used in such an environment.

tion and reflection from structures, objects and people. a The table below shows the proximity electromagnetic field from radio communication equipment.

Test frequency [MHz]	Band [MHz]	Equipment	Modulation	Maximum output (W)	Distance (m)	Immunity test value [V/m]
385	380-390	TETRA 400	Pulse modulation 18Hz	1.8	0.3	27
450	430-470	GMRS 460 FRS 460	FM ±5kHz 1kHz sine	2	0.3	28
710						
745	704-787	LTE Band 13, 17	Pulse modulation 217Hz	0.2	0.3	9
780						
810		GSM 800/900				
870	800-960	TETRA 800 iDEN820	Pulse modulation	2	0.3	28
930		CDMA850 LTE Band 5	18Hz	_	0.0	20
1720		GSM 1800				
1845		CDMA1900 GSM 1900	Pulse modulation	_		
1970	1700-1990	DECT LTE Band 1,3,4,25 UMTS	217Hz	2	0.3	28
2450	2400-2570	Bluetooth WLAN 802.11 b/g/n RFID 2450 LTE Band7	Pulse modulation 217Hz	2	0.3	28
5240		i100-5800 WLAN 802.11 a/n	Pulse modulation 217Hz	0.2	0.3	9
5500	5100-5800					
5785	1					

REQUIREMENTS FOR THE EXTERNAL DEVICE

The external device connected to the analog and digital interfaces must comply with the respective IEC or ISO standards (e.g. IEC 62368-1 for data processing equipment and IEC 60601-1 for medical equipment).

Anybody connecting additional equipment to medical electrical equipment configures a medical system and is therefore responsible that the system complies with the requirements for medical electrical systems. Attention is drawn to the fact that local laws take priority over the above mentioned requirements. If in doubt, contact your dealer or TOPCON (see the back cover).

IT NETWORK ENVIRONMENT

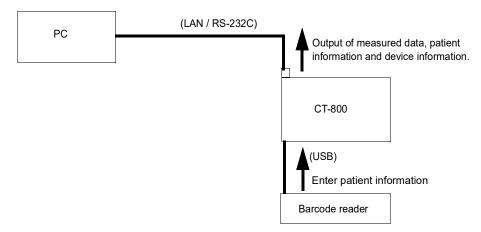


When connected with an IT network, ensure the appropriate and sufficient security to prevent the infection with malware and a computer virus, the leak of information, etc.

[There is a risk of data leakage]

- CT-800 can be connected to a personal computer to output measurement data by operating the main unit. In addition, patient information and device information can be output from a personal computer via network.
- Refer to the figure below for the characteristics, configuration, technical specification, intended information flow and route when connected with an IT network.
- When connected with an IT network, ensure the appropriate and sufficient security to prevent the infection with a computer virus, the leak of information, etc.
- · When any failure occurs in IT systems, some troubles may be caused by it.
 - Poor connection (USB) may cause a failure of software update. There is a risk that the device cannot be used if update is failed.
 - Poor connection (LAN/RS-232C/Wifi) may cause a failure of output of measured data, patient information and device information. There is a risk of data loss.
 - Poor connection (USB) may cause a failure of input of patient information with barcode reader. There is a risk that an examination with wrong patient information is done.
- When connected with an IT network with which a device other than CT-800 is connected, the patient, the operator or the third party may suffer unexpected and unacceptable risks. Before using CT-800, it is recommended to identify, analyze, evaluate and manage these risks.
- When the IT network has been changed after the connection, a new risk may occur. So an additional analysis is necessary.
- The change of IT network includes the following items:
 - Change in the IT network configuration;
 - Connection of additional items to IT network;
 - Removal of items from IT network;
 - Update of the device connected with IT network;
 - Upgrade of the device connected with IT network.

WHEN SAVING MEASUREMENT RESULTS FROM THE MAIN UNIT TO A SHARED FOLDER

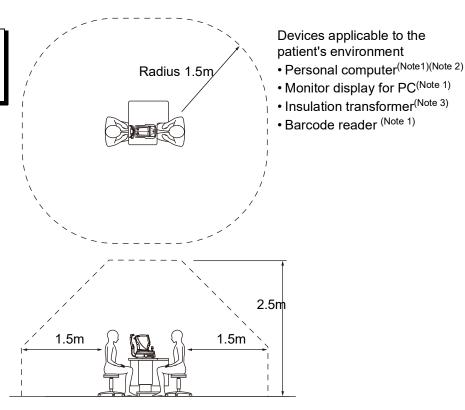


PATIENT'S ENVIRONMENT

When the patient or inspector may touch the devices (including the connecting devices) or when the patient or inspector may touch the person that comes into contact with the devices (including the connecting devices), the patient's environment is shown below.

In the patient's environment, use the device conforming to IEC60601-1. If you are compelled to use any device not conforming to IEC60601-1, use an insulation transformer.

Do not use the power strip in the patient's environment. Connect the power supply of the device to the commercial power supply.



- Note 1: Use the personal computer conforming to IEC 62368-1.
- Note 2: Do not remove the cover from the personal computer.

Note 3: Use the insulation transformer conforming to IEC 60601-1.



Connect only items that have been specified as part of the ME system or that have been specified as being compatible with the ME system.



- Do not connect an additional power strip or an extension cord to the system.
- The total 1kVA is the maximum allowable load of the auxiliary power supply socket for the insulation transformer, which is provided for the system. Do not connect the device exceeding this capacity.
- Use the auxiliary power supply socket of the insulation transformer to power only a device that will be a component of the system.
- It is dangerous to connect any device which is not used as a component of the system, to the insulation transformer.
- When the insulation transformer is not used, the personal computer and the monitor for the personal computer must be installed out of the patient's environment.

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)
Bollvia & Faragaay	220 4700112	Type H (Infrequently)
Chile	220V/60Hz	Type A
Colombia	110V/50Hz	Type C
Brazil	220V/60Hz	Type A
Diazii	127V/60Hz	Type C
Ecuador	110V/50Hz	Type C&E
United States	120V/60Hz	Type A (Hospital Grade)
Canada	120V/60Hz	Type A (Hospital Grade)

ABOUT THE BARCODE AND THE QR CODE OF THE USER MANUAL BACK COVER

The barcode and the QR code of the user manual back cover indicates the parts management code of the user manual.



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- 2. This Agreement shall be construed under the laws of Japan.

Please specify the following when contacting us regarding questions about this medical device.

• Model name: CT-800

• 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 TONOMETER CT-800

USER MANUAL Revision 6 Date of issue 2022-10-26 Published by TOPCON CORPORATION

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COMPUTERIZED TONOMETER

CT-800

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Parts management code of the user manual

