

**NIDEK**

A series of four horizontal lines of varying lengths, stacked vertically. The top line is the shortest, and each subsequent line below it is longer, creating a stepped effect.

*Fully Assisted Refraction System*

A series of four horizontal lines of varying lengths, stacked vertically. The top line is the longest, and each subsequent line below it is shorter, creating a stepped effect.

**OPERATOR'S MANUAL**

A series of two horizontal lines of varying lengths, stacked vertically. The top line is longer than the bottom line.

Original instructions

---

# NIDEK CO., LTD.

**NIDEK CO., LTD.**  
(Manufacturer) : 34-14 Maehama, Hiroishi-cho, Gamagori, Aichi 443-0038, JAPAN  
Telephone: +81-533-67-6611  
URL: <https://www.nidek.com/>

**NIDEK INC.**  
(United States Agent) : 2040 Corporate Court, San Jose, CA 95131, U.S.A.  
Telephone: +1-800-223-9044 (USA Only)  
URL: <https://usa.nidek.com/>

**NIDEK S.A.**  
(EU Authorized Representative) : Ecoparc, rue Benjamin Franklin, 94370 Sucy En Brie, FRANCE

---

2022-11-08  
RTP15-P902-A3  
Printed in Japan

© 2022 NIDEK CO., LTD.

## Before Use

---

Be sure to read the SOFTWARE LICENSE AGREEMENT (page 2) before using this product.

This operator's manual includes information such as the operating procedure and safety precautions. Be sure to read this operator's manual before using this product. Keep this manual handy for reference.

If you encounter any problems or have questions about this product, please contact Nidek or your authorized distributor.

Microsoft and Windows are registered trademarks or trademarks of Microsoft Corporation in the United States and other countries. Other company names and product names are registered trademarks or trademarks of each company. In this manual, registered trademark and trademark symbols are omitted.

**IMPORTANT - READ CAREFULLY**

THIS AGREEMENT APPLIES TO THE NIDEK SOFTWARE AND ACCOMPANYING DOCUMENTS. PLEASE READ THIS AGREEMENT CAREFULLY AND THOROUGHLY BEFORE USING SOFTWARE.

**SOFTWARE LICENSE AGREEMENT**

This SOFTWARE LICENSE AGREEMENT (this "Agreement") is an agreement between you, whether person or legal entity, and NIDEK CO., LTD., a Japanese corporation, ("NIDEK") for software (including but not limited to software linked dynamically or statically with other software) supplied by NIDEK or its designee pursuant to this Agreement, whether software alone or embedded software in a NIDEK hardware product, whether on disk or in read only memory, or on other media, or through an authorized website or network, and any accompanying documents or materials (including, but not limited to, operation manuals and electronic documents for such software, and other software for displaying or saving the data acquired from or through other NIDEK hardware product) (collectively, the "Software").

The Software and NIDEK hardware product (collectively, "NIDEK product") may include a third party's software which is linked, whether dynamically or statically, with the Software (the "Third-Party-Software"). The Third-Party-Software shall not be included in the definition of the "Software" in this Agreement. The rights and title of the Third-Party-Software belong to the third party, and the terms of use of the Third-Party-Software are set forth separately from this Agreement. The terms in this Agreement will not apply to the use of the Third-Party-Software except as expressly stipulated herein.

By using or installing the Software, you agree to be bound to the terms and conditions of this Agreement. If you do not agree with this Agreement, please do not use or install the Software and return the Software to the company from which you obtained the Software.

**1. GRANT OF LICENSE**

- 1.1. Subject to the terms and conditions set forth in this Agreement, NIDEK grants to you, and you accept, a limited, non-transferable and non-exclusive license to use the Software.
- 1.2. Unless otherwise agreed in writing by NIDEK or its designee, the license is limited to using the Software on a single computer or a single NIDEK hardware product and if you replace such computer or NIDEK hardware product, you may not use the Software without a new license of the Software.
- 1.3. Notwithstanding the provision of 1.2, if you connect a single server computer with the Software installed to a plurality of client computers, you may use the Software on such client computers; provided, however, that the upper limit of the number of said client computers will be determined by NIDEK in writing separately and individually from this Agreement.

- 1.4. Notwithstanding the provision of 1.2, if NIDEK permits you to install the Software on a plurality of computers using one license key of the Software, you may install and use the Software on such computers up to the upper limit of the number determined by NIDEK in writing separately and individually from this Agreement.
- 1.5. The Software is only to be used for its intended purpose provided in the specifications, operation manual or related documents in accordance with applicable laws and regulations. If the Software is embedded software in a NIDEK hardware product, you will use such Software only as embedded software for the use of such NIDEK hardware product.
- 1.6. For the license of the Software granted in this Agreement, unless the license is granted by NIDEK or its designee explicitly free of charge, you will pay to NIDEK or its designee the price for the Software, or if the Software is embedded software in a NIDEK hardware product, the price for the NIDEK hardware product in which the Software is embedded.

**2. INTELLECTUAL PROPERTY RIGHTS**

- 2.1. NIDEK, or an owner of the Third-Party-Software, retains any and all legal rights, title and interests in and to the Software or the Third-Party-Software. Any and all rights under copyright law, patent law, design law and other intellectual property laws not expressly granted herein are reserved by NIDEK or the owner of the Third-Party-Software. The license granted herein will not be intended as, or construed to be, any assignment of the rights of NIDEK or the owner of the Third-Party-Software. The Software and the Third-Party-Software are protected by copyright and other intellectual property laws and international treaties.

**3. LIMITATIONS**

- 3.1. You may not use the Software for any products without a license of the Software.
- 3.2. Unless otherwise permitted and other than the part specified by NIDEK in operation manuals or any accompanying documents for the Software, you may not analyze, reverse-engineer, decompile, disassemble or otherwise attempt to discover the source code of the Software.
- 3.3. You may not alter, reproduce, modify, translate, adapt, or divert the Software.
- 3.4. You may not remove, delete or change the copyright notice or other legends of the Software.
- 3.5. You may not sell, distribute, rent, license, sublicense, lease, assign or otherwise transfer the Software to third parties, or operate the Software for the benefit of third parties without prior written consent of NIDEK.
- 3.6. You may not create derivative works or cause or permit others to create derivative works based upon the Software without prior written consent of NIDEK.
- 3.7. You may not disclose operation manuals for the Software to any third party without prior written consent of NIDEK; provided, however, for the avoidance of doubt, the "third party" in this section will not include doctors, examiners, nurses, employees, patients and other persons who need to know the Software.
- 3.8. You may not use NIDEK's trademarks or trade names without prior written consent of NIDEK.

---

#### 4. CONDITIONS OF USE

- 4.1. You shall take necessary measures (including but not limited to antivirus software) to prevent failure of NIDEK product due to external factors; provided, however, that in the case where it is otherwise provided in the provisions of operation manuals for NIDEK product or other documents, you shall take such necessary measures to the extent not inconsistent with such provisions.
- 4.2. If you enter data into NIDEK product or obtain data by the use of NIDEK product, you shall obtain and save backup of such data.

#### 5. EXPORT RESTRICTIONS

- 5.1. If you export or re-export, directly or indirectly, the Software, you must comply with applicable export laws and regulations of Japan and other countries, and obtain any licenses or approvals required by governmental authorities.

#### 6. UPDATES

- 6.1. The Software and/or the Third-Party-Software may be, at NIDEK's own discretion, changed, updated or modified from time to time without any prior notice to you. If such changes, updates, and modifications are applied to the Software licensed to you under this Agreement, such changes, updates, and modifications will be deemed a constituent part of the Software, and the terms and conditions of this Agreement will apply to such changes, updates, and modifications.
- 6.2. NIDEK may, at its own discretion, make amendments to any provisions of this Agreement (the "Amendments"), if NIDEK deems that:
  - a) such Amendments are appropriate in terms of interests for customers of this Software; or
  - b) such Amendments are commercially reasonable and not contrary to the objective of this Agreement, even if such Amendments are disadvantageous to you.Prior to the amendments, NIDEK will notify you of the terms and the effective date of such Amendments on the website or by any other means.
- 6.3. If you use the Software after the effective date of such Amendments, you shall be deemed to have agreed to such Amendments.

#### 7. TERMINATION

- 7.1. This Agreement is effective until terminated. If you breach any term or condition of this Agreement, NIDEK may, without giving any prior notice to you, terminate this Agreement with immediate effect. Upon termination of this Agreement due to the breach of this Agreement, NIDEK reserves all the rights to claim damages resulting from such breach.
- 7.2. If this Agreement is terminated in accordance with the provision of 7.1., you must immediately cease the use of the Software, and delete, destroy and erase all the Software. Any fees paid by you for the license of the Software will not be refund for any reasons.

#### 8. NO WARRANTIES

- 8.1. NIDEK MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, CONCERNING THE SOFTWARE AND THE THIRD-

PARTY-SOFTWARE, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NON-INFRINGEMENT OF THIRD PARTY RIGHTS, INCLUDING, WITHOUT LIMITATION, THIRD PARTY INTELLECTUAL PROPERTY RIGHTS, ACCURACY, RELIABILITY OR AVAILABILITY, ABSENCE OF OR RECOVERY FROM ANY INTERRUPTION, ERROR-FREE OPERATION OR CORRECTION OF DEFECTS OR MALFUNCTIONS.

#### 9. LIMITATION OF LIABILITY

- 9.1. EXCEPT OTHERWISE EXPRESSLY STIPULATED IN THIS AGREEMENT, IN NO EVENT WILL NIDEK BE LIABLE FOR ANY INCIDENTAL, INDIRECT, SPECIAL, PUNITIVE, OR CONSEQUENTIAL DAMAGES, LOSS, CLAIMS OR COSTS WHATSOEVER, INCLUDING, WITHOUT LIMITATION, ANY LOST DATA, PROFITS, REVENUES, BUSINESS OPPORTUNITIES OR INFORMATION, LOSS OF USE OF ANY PRODUCT, PROPERTY OR EQUIPMENT, DOWNTIME COST, COST OF PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES, OR ANY CLAIMS BY A THIRD PARTY, ARISING OUT OF OR RELATED TO THE USE OR INABILITY TO USE THE SOFTWARE AND/OR THE THIRD-PARTY-SOFTWARE, CHANGES, UPDATES OR MODIFICATIONS OF THE SOFTWARE AND/OR THE THIRD-PARTY-SOFTWARE, OR MAINTENANCE OR REPAIR SERVICE OF THE SOFTWARE IF ANY (collectively, the "DAMAGES"). THE ABOVE LIMITATIONS WILL APPLY REGARDLESS OF THE FORM OF ACTION, WHETHER IN CONTRACT, TORT, STRICT PRODUCT LIABILITY, OR OTHERWISE, EVEN IF NIDEK IS NOTIFIED OF THE POSSIBILITY OF SUCH DAMAGES.
- 9.2. THE LIMITATIONS PROVIDED IN THE PROVISION OF 9.1. SHALL NOT APPLY IN THE CASE WHERE THE DAMAGES ARE ATTRIBUTABLE TO NIDEK OR NIDEK IS LIABLE FOR SUCH DAMAGES IN ACCORDANCE WITH THE LAWS. EVEN IN SUCH CASE, NIDEK SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL, INDIRECT, INCIDENTAL, PUNITIVE OR SPECIAL LOSS OR DAMAGE. NIDEK'S TOTAL AGGREGATE LIABILITY FOR THE DAMAGES SHALL NOT EXCEED AN AMOUNT ACTUALLY PAID BY YOU FOR PURCHASE OF NIDEK PRODUCT; PROVIDED, HOWEVER, THAT THE LIMITATION OF THE AMOUNT SHALL NOT APPLY IN THE CASE WHERE THE APPLICABLE LAW PROHIBITS SUCH LIMITATION OR THE DAMAGES ARISING FROM NIDEK'S GROSS NEGLIGENCE OR WILLFUL MISCONDUCT.

#### 10. GOVERNING LAW AND ARBITRATION

- 10.1. This Agreement will be governed by and construed in accordance with the laws of Japan.
- 10.2. All disputes arising between you and NIDEK relating to this Agreement or the interpretation or performance thereof will be finally settled by binding arbitration in Tokyo in accordance with the Commercial Arbitration Rules of The Japan Commercial Arbitration Association. Judgment upon the award rendered by arbitration will be final and may be entered in any court having jurisdiction thereof.

---

## 11. SEVERABILITY

11.1.If any provision or any portion of any provision of this Agreement will be held to be invalid or unenforceable, that provision will be severed from this Agreement and such invalidity or unenforceability will not affect the remaining provisions of this Agreement. The remaining provisions of this Agreement will continue in full force and effect.

## 12. SURVIVAL

12.1.The provisions of 2, 3, 5, 7, 8, 9, 10, 11, 13, 14, 15, 16, 17, 18, 19 and this provision will survive the termination of this Agreement and will be binding after the termination of the Agreement.

## 13. ASSIGNMENT

13.1.This Agreement or any part of this Agreement may not be assigned or transferred without prior written consent of NIDEK. The permitted assignee or transferee must agree to all the terms and conditions of this Agreement prior to the assignment or transfer.

13.2.This Agreement will be binding upon the permitted assignee or transferee and be enforceable by NIDEK.

## 14. ENTIRE AGREEMENT

14.1.This Agreement constitutes the entire agreement between you and NIDEK concerning the Software, and supersedes any prior written or oral agreement between you and NIDEK. No modification of this Agreement will be binding unless otherwise agreed in writing.

## 15. NO WAIVER

15.1.The failure of NIDEK to enforce at any time or for any period the provisions hereof in accordance with its terms will not be construed to be a waiver of such provisions or of the rights thereafter to enforce each and every provision.

## 16. NO THIRD PARTY RIGHTS

16.1.This Agreement is intended to be solely for the benefit of you and NIDEK and is not intended to confer any benefits upon or create any rights in favor of any person other than you and NIDEK.

## 17. HEADINGS

17.1.All headings are for convenience only and will not affect the meaning of any provision of this Agreement.

## 18. LANGUAGE

18.1.The license agreement for the Software may be provided in multiple languages. In such event, unless otherwise agreed in writing, the following shall apply:

- a) If you use the Software in any countries outside Japan, the license agreement for the Software shall be executed and delivered in a text using the English language. The text using the English language shall prevail and control; and
- b) If you use the Software in Japan, the license agreement for the Software shall be executed and delivered in a text using Japanese language. The text using the Japanese language shall prevail and control.

## 19. APPLICATION OF SOFTWARE LICENSE AGREEMENT



19.1.If the terms and conditions of the "Software License Agreement" included in operations manuals for NIDEK product are inconsistent with the terms and conditions of the "Software License Agreement" displayed on NIDEK product, the terms and conditions of the "Software License Agreement" included in operations manuals for NIDEK product prevail.

## Indications in This Manual

---

The following indications are used in this operator's manual.

- Repeatedly used descriptions are expressed with the following indications.

Indication	Meaning	Example
[XXX]	A term enclosed in brackets indicates a button, setting, and such.	[OK], [Next]
	For details, see the following page.	 "Indications in This Manual" (page 5)

- Information related to operations is indicated by the icon display.



### Check

Indicates items to be checked.



### Help

Indicates workarounds for when intended operation or intended results cannot be obtained.



### Tip

Indicates tips useful for product operation.



### Setting

Indicates information on settings.



### Knowledge

Indicates detailed information on the product.

# Table of Contents

---

## **1 BEFORE USE - - - 9**

---

- 1.1 For Safe Use - - - 9
- 1.2 Usage Precautions - - - 10
- 1.3 Symbols - - - 13

## **2 INTRODUCTION - - - 15**

---

- 2.1 Outline - - - 15
- 2.2 Packed Contents - - - 17
- 2.3 Joystick Controller Configuration and Functions - - - 18
- 2.4 Screen Configuration and Functions - - - 19
  - 2.4.1 Home screen - - - 19
  - 2.4.2 Measurement screen - - - 20
  - 2.4.3 Complete screen - - - 23
  - 2.4.4 Parameter setting screen - - - 24

## **3 INITIAL SETTINGS AND INSTALLATION - - - 25**

---

- 3.1 Connection between RT-6100 and Computer - - - 25
- 3.2 Joystick Controller Installation - - - 28
- 3.3 Enabling SMB 1.0 on Windows - - - 29
- 3.4 System Application Installation - - - 31
- 3.5 Network Configuration - - - 34
- 3.6 Parameter Setting for RT-6100 - - - 36
- 3.7 Operation Check - - - 37

## **4 OPERATING PROCEDURE - - - 39**

---

- 4.1 Startup and Shutdown - - - 39
  - 4.1.1 Starting the system application - - - 39
  - 4.1.2 Pre-use check - - - 40
  - 4.1.3 Exiting the system application - - - 41
  - 4.1.4 After-use check - - - 41
- 4.2 Measurement Flow - - - 42
- 4.3 Measurement Preparation - - - 43
  - 4.3.1 Cleaning the Joystick Controller - - - 43
  - 4.3.2 Data entry - - - 43
  - 4.3.3 Setting near vision test and voice guide - - - 45
- 4.4 Subjective Refraction - - - 47
- 4.5 Help Screen - - - 49
- 4.6 Refraction Programs - - - 50

## **5 PARAMETER SETTING - - - 53**

---

- 5.1 Parameter Setting - - - 53
- 5.2 Parameter Table - - - 55



---

5.2.1 Connected RT settings - - - 56

5.2.2 Shared folder settings - - - 56

## **6 MAINTENANCE AND SPECIFICATIONS - - - 57**

---

6.1 System Application Uninstallation - - - 57

6.2 Operation Test - - - 59

6.3 Connection Test - - - 60

6.4 Error Messages - - - 61

6.5 Specifications (Joystick Controller) - - - 62

6.6 License Information of Software Library - - - 63

6.7 Glossary and Abbreviations - - - 66

## **7 INDEX - - - 67**

---





# BEFORE USE


## 1.1 For Safe Use

1

In this manual, signal words are used to designate the degree or level of safety alerting. The definitions are as follows.

 **CAUTION**

Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or property damage accident.

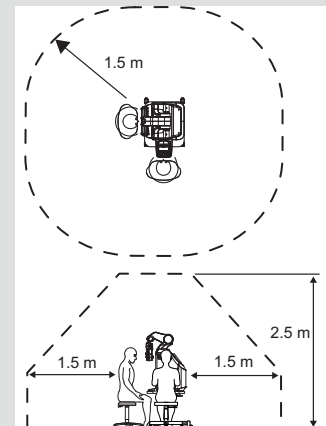
Even situations indicated by  CAUTION may result in serious injury under certain conditions. Safety precautions must be strictly followed at all times.

## 1.2 Usage Precautions

### Before use

#### CAUTION

- Do not use the device for other than the intended purpose.  
Nidek is not responsible for accidents or malfunctions caused by misuse.
- Be sure to read this operator's manual and the RT-6100 and SSC-100 Operator's Manuals before using the device to understand the safety precautions and operating procedures thoroughly.  
Using the device for purposes other than those specified in the operator's manual may cause unanticipated adverse events or adverse device effects.
- When connecting the device to peripheral equipment such as a computer through a LAN port via a medical facility network, insert an isolation transformer between the medical electrical equipment and network devices such as a network switch, and between the network devices and other electrical equipment.  
Electric shock may result. For installation of the network isolation transformer, consult Nidek or your authorized distributor.
- Do not use the device beyond its service life.  
Even with proper maintenance and inspection, after time, the device reliability or safety may become degraded and fail to achieve the target values.
- Equipment connected to the analog or digital interfaces must be certified according to the applicable international standards for safety such as IEC 60601-1: Medical electrical equipment.  
Furthermore, all configurations must comply with the system standard IEC 60601-1. Anyone who connects additional equipment to the signal input part or signal comes configures a medical system, and is therefore responsible that the system complies with the requirements of the system standard IEC 60601-1. If you have any questions, contact Nidek or your authorized distributor.
- The patient environment is the volume of space in which contact can occur between the patient and any part of the device (including connected devices) or between the patient and any other person(s) touching the device (including connected devices).  
IEC 60601-1 compliant products need to be used when the computer and AC adapter are placed in the patient environment.  
If the adapter that meets the Class II requirements of IEC 60950-1 or IEC 62368-1 is used, place the computer and AC adapter outside the patient environment, or place and monitor them so that the patient will not touch them.  
The operator should not touch the patient while operating the computer.



- If the device is connected to a computer that does not comply with IEC 60601-1 (except one that uses an AC adapter that meets the Class II requirements of IEC 60950-1 or IEC 62368-1), supply power to the device and computer through an isolation transformer.  
Electric shock may result. For installation of the network isolation transformer, consult Nidek or your authorized distributor.
- Wipe any part of the Joystick Controller where the patient may touch, using a cloth dampened with rubbing alcohol before using the Joystick Controller.
- Do not connect the USB cable of the Joystick Controller to any computer other than the one to be used.

## CAUTION

- For the location where the system application is installed, follow the operating environmental conditions (temperature, humidity, and atmospheric pressure) of the computer on which the system application is installed.
- In addition, use the device under the following conditions:
  - Free from harmful dust or smoke
  - Free from vibration or impact
  - Free from condensation
- Install, uninstall, or partially configure the system application by user accounts with Windows OS Administrator privileges.
- Connect the Joystick Controller before starting the system application.
 

The system application may not function properly.
- Use a wired LAN to connect the computer to the RT-6100.
- It is recommended to use anti-virus software to prevent unauthorized access to the computer.
- When connecting the connector, note the following points:
  - Connect the cables correctly according to the indications.
  - Connect the cables securely without excess force.

1

## During use

### CAUTION

- Read the operator's manual for the computer and Windows, and always follow the operating precautions.
- Set the Windows settings "Display resolution" and "Change the size of text, apps, and other items" so that the computer display can be shown vertically at Full HD (1920 × 1080 pixels) or higher.
 

The screen display may not be shown correctly.
- Set the computer power option to not enter sleep mode.
 

The computer may not operate properly when recovered from sleep mode.
- Incorrect network settings may cause network failures partly or throughout the network.
 

Confirm that settings are proper with the network administrator.
- Do not change Windows Themes while the system application is in use.
- If the RT-6100 is disconnected while the system application is used, restart both the RT-6100 and the system application.
- The operator needs to adjust the refraction position, vertex distance, and pupillary distance.
- Be careful not to pinch the patient's nose when adjusting the pupillary distance of the refractor.
- Instruct the patient to follow the instructions when the voice guide tells the patient to move their face away from the device.

## After use

### CAUTION

- Do not turn off the computer before exiting Windows.
 

Programs or data on the computer may be corrupted.

## Disposal

---

---

 **CAUTION**

- When disposing of the Joystick Controller and accessories, observe the local ordinances concerning disposal and recycling, and local recycling plans. Especially when disposing of the printed circuit board used internally and plastic parts containing brominated flame retardant, observe the instructions of local governments.

It is recommended to entrust the disposal to a designated industrial waste disposal contractor.  
Inappropriate disposal may contaminate the environment.

- When disposing of packaging materials, sort them by material and dispose of them according to the local ordinances and recycling plans.










Inappropriate disposal may contaminate the environment.

---

---

## 1.3 Symbols

The following symbols are provided on the product.

	Type B applied part		Direct current
	Manufacturer		Date of manufacture
	Follow the operator's manual. ➔ "1.2 Usage Precautions" (page 10)		Refer to the operator's manual. ➔ "6.5 Specifications (Joystick Controller)" (page 62)
	Serial number		Catalog number
	Unique Device Identifier		





# 2

## INTRODUCTION

### 2.1 Outline

The Fully Assisted Refraction System consists of the Joystick Controller and a dedicated system application.

The product can be used by connecting the Joystick Controller and the RT-6100 to a computer with the system application installed.

#### ◆ Intended use

In the conventional refraction, the patient responds to the operator's questions. According to their answers, the operator performs subjective refraction such as refining refractive errors (sphere, cylinder, prism, and such) and proceeding to the next test. In this system, the patient responds to refraction questions by themselves using the Joystick Controller in response to the voice guide from the computer. The system application enables subjective refraction according to patient operation to determine the full correction.

#### ◆ Intended patient population

The patients are assumed to meet the following general requirements.

Age	10 years and older
Health condition	<ul style="list-style-type: none"><li>• Able to sit on a chair for measurements</li><li>• Able to understand voice-guided questions and answer them with the Joystick Controller</li></ul>
Conditions	<ul style="list-style-type: none"><li>• One or both eyes are normal or diseased (eyes that have lost the visual function are not targeted)</li><li>• Those who want to wear glasses or contact lenses</li><li>• Able to understand Japanese, English, Chinese, French, German, or Spanish</li></ul>

#### ◆ Intended user profile

The product is intended for users with the following qualifications or skills.

- Operator
  - Any qualified personnel such as ophthalmologists, nurses, orthoptists, opticians, or optometrists (irrespective of nationality, culture, or style of dress)
  - Those who understand the display language of the operator's manual and the system application
- Patient (respondent using Joystick Controller)
  - Those who fall under the intended patient population

## ◆ Operating environment

The product operates under the following system requirements.

### ● System requirements

Computer	<ul style="list-style-type: none"><li>• Japanese/English Windows 10 (32-bit/64-bit) or Windows 11 (64-bit)</li><li>• Media player installed</li><li>• USB 2.0 port ×1 or more</li><li>• LAN port (100BASE-T or higher) ×1 or more</li><li>• Audio output terminal (recommended)</li></ul>
Display	Full HD (1920 × 1080) or higher
Disk device	CD-ROM drive (only for installation)

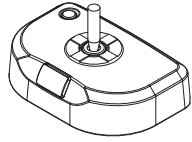
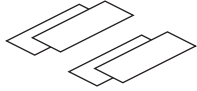
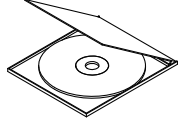

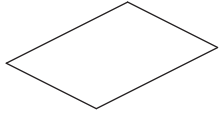


#### Check

- Windows 10 versions are 1809 and 1909 or later.
- Windows 11 versions are 21H2 and later.
- Operation on other than the specified Windows version is not guaranteed.
- Speakers or such for voice output that can be connected to a computer are required.
- This manual explains touch panel operations as an example, but mouse operation is also possible.

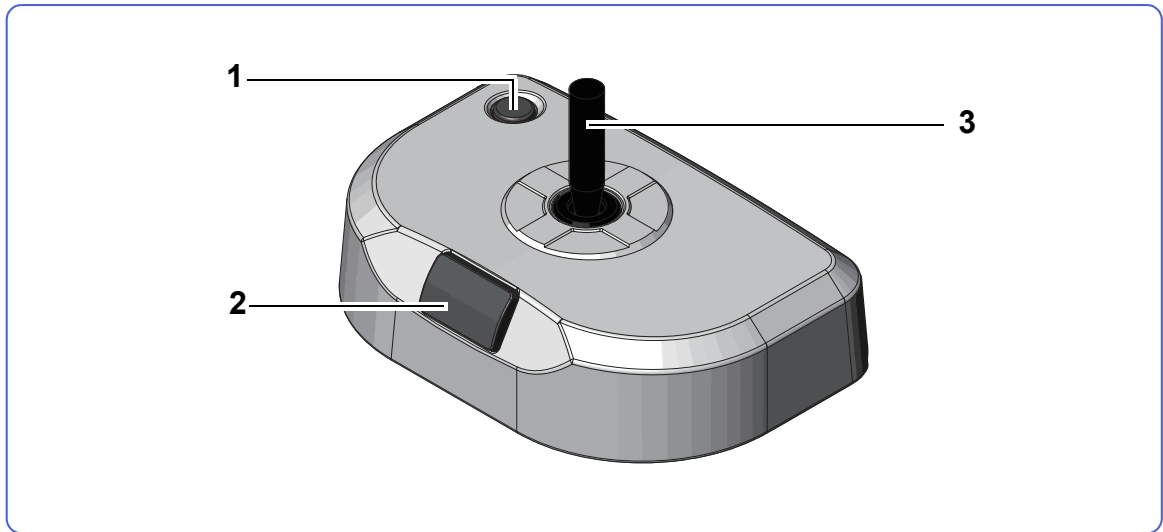
## 2.2 Packed Contents

The following accessories are included in the standard configuration. Check the contents before use. A computer and a LAN cable (commercially available category 5 or higher) are required separately.

Part name		Quantity	Appearance
<input type="checkbox"/>	Joystick Controller	1	
<input type="checkbox"/>	Velcro tape	2 sets	
<input type="checkbox"/>	Installation CD	1	
<input type="checkbox"/>	Operator's manual	1	
<input type="checkbox"/>	Quick reference guide	1	

## 2.3 Joystick Controller Configuration and Functions


The patient operates this controller.



### 1 Help button

Pressed when the patient has trouble with operations.

Pressing this button changes the system application screen to the help screen.

 “◆ Help screen” (page 22)

### 2 Answer button

Used to respond to questions during measurement.

If the patient is not able to read the presented chart or the answer is almost the same, the patient presses this button.

### 3 Answer lever

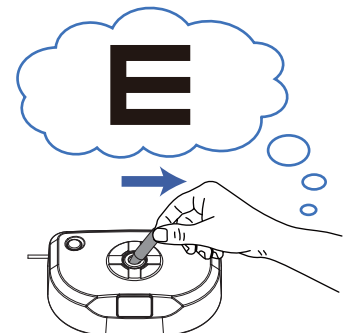
Used to respond to questions during measurement.

The direction in which the patient tilts the lever is the answer.



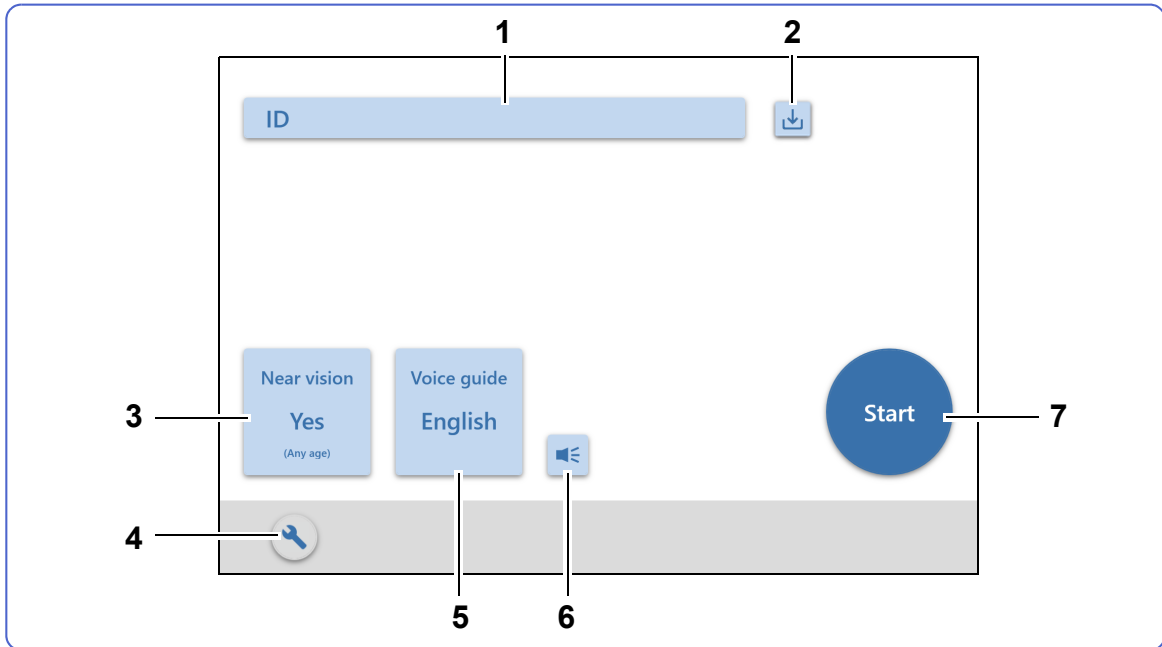
#### Tip

- How to use the answer lever  
Tilt the answer lever in the direction that letter E is facing or the direction indicated by the voice guide.



## 2.4 Screen Configuration and Functions

### 2.4.1 Home screen



#### 1 ID input button

Used to enter the patient ID.

#### 2 Import button

Imports AR or LM data of the entered patient ID.

#### 3 Near vision test button

Sets whether to perform the near vision test and/or the age of the patient.

#### 4 Setting button

Displays parameter settings.

[↪ "2.4.4 Parameter setting screen" \(page 24\)](#)

#### 5 Voice guide button

Selects the language of the voice guide.

#### 6 Volume test button

Plays a test voice to check the volume of the voice guide.

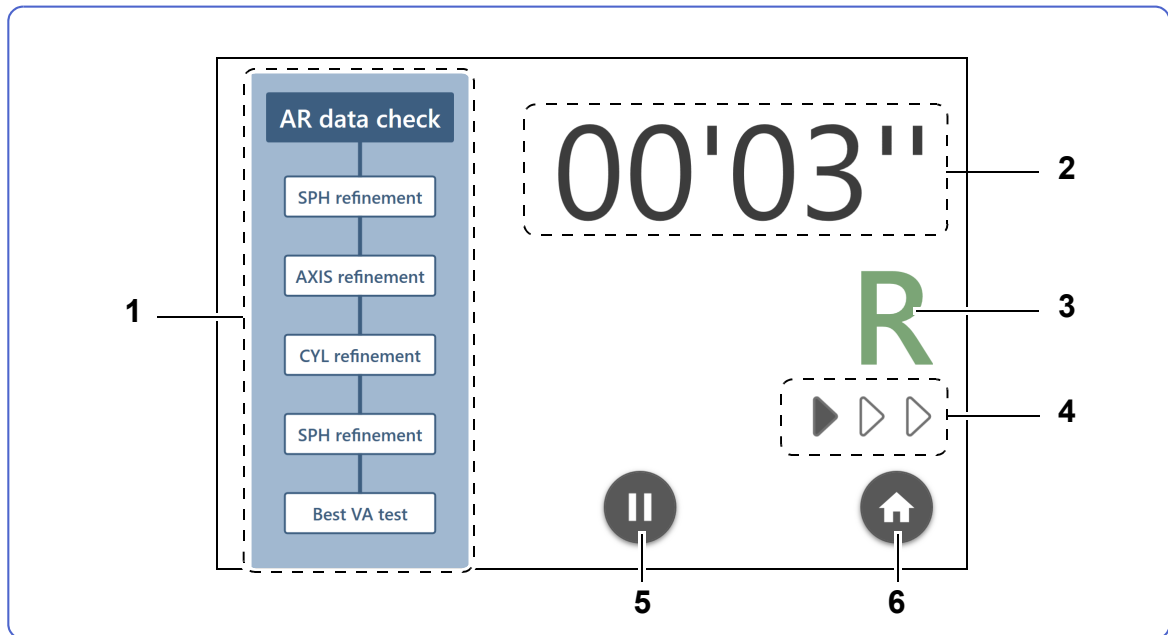
#### 7 Start button

Displays the measurement screen and starts measurement.

[↪ "2.4.2 Measurement screen" \(page 20\)](#)

## 2.4.2 Measurement screen

This is the screen displayed during measurement. Once measurement starts, input from the RT-6100 control box is disabled until measurement is paused or complete.



### 1 Measurement items

Up to 6 measurement items are displayed. The item being measured is displayed in a darker color.

### 2 Elapsed time

Displays the elapsed time since  was pressed on the home screen.

When the time set by the “Alert time 1” parameter has passed, the indication turns orange.

When the time set by the “Alert time 2” parameter has passed, the indication blinks in orange.

### 3 Eye being measured

“R” is shown while the right eye is measured. For the left eye, “L” is shown. For both eyes, “BIN” is shown.

### 4 Progress indicator

Shows the progress of measurement. The number of  increases as measurement progresses.

### 5 Pause button

Pauses measurement and displays the pause screen.

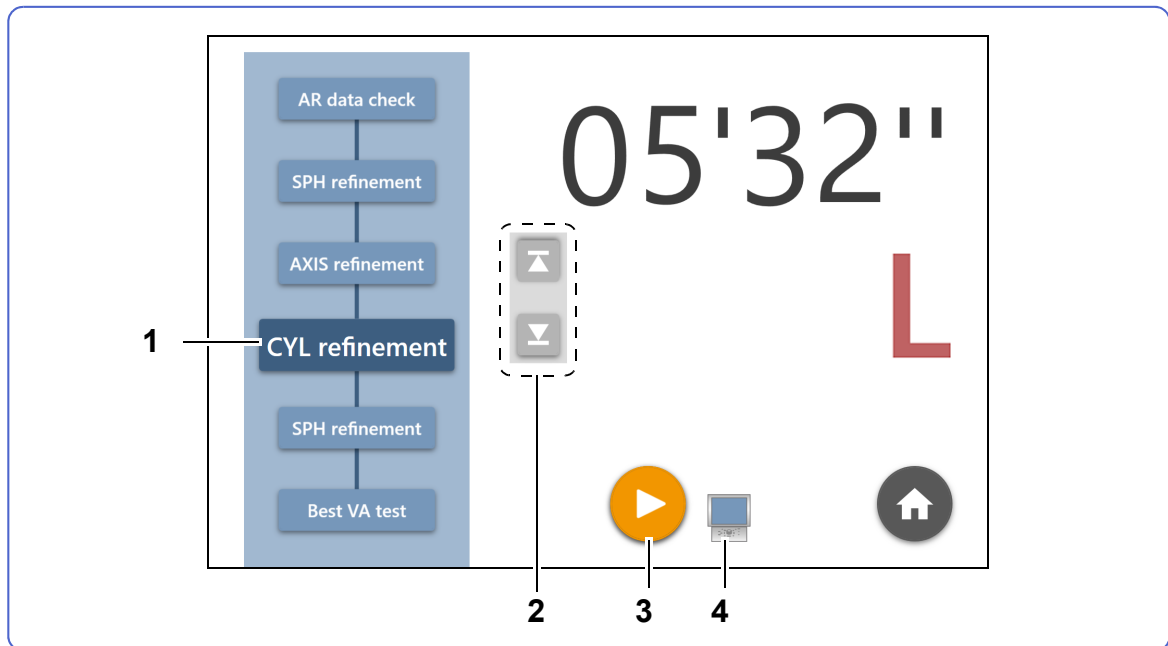
 [“Pause screen” \(page 21\)](#)

### 6 Home button

Completes measurement and displays the home screen.

Displaying the home screen resets the measurement conditions and measurement results.

## ◆ Pause screen





### 1 Measurement item button

The measurement item that was running before the pause is displayed in a darker color.

Pressing a measurement item button resumes measurement from that item.

Pressing the measurement item button that was running before the pause resumes measurement with the pre-pause answers reset.

### 2 Measurement item select buttons

 returns to the previous measurement item and  proceeds to the next measurement item.

### 3 Resume button

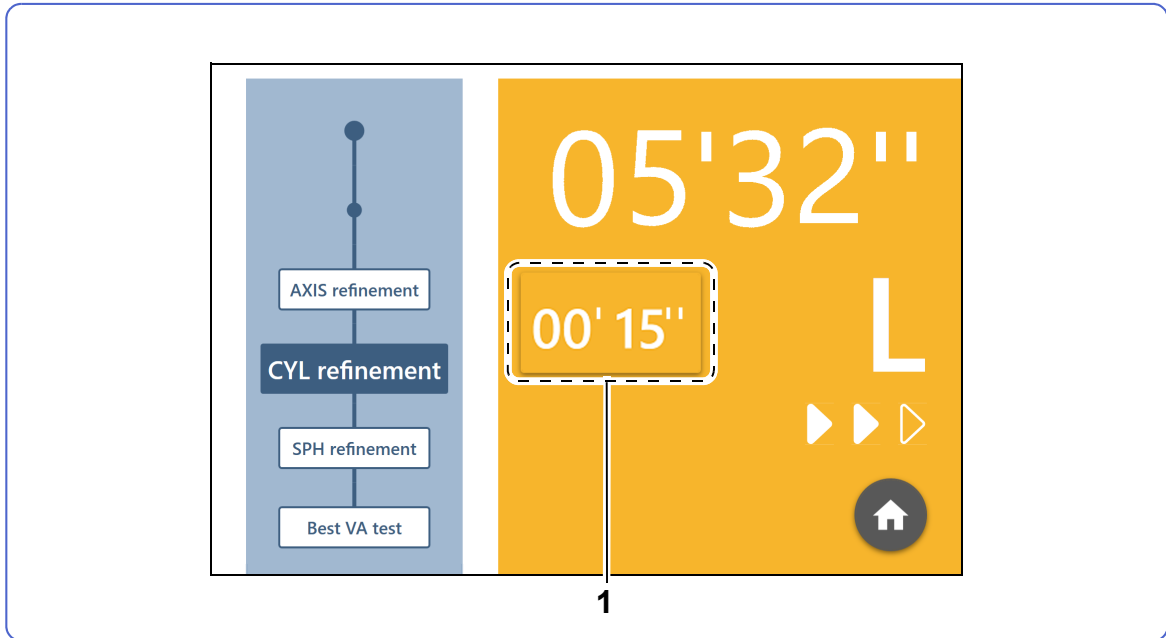
Resumes measurement from the measurement item that was running before the pause.

### 4 Control box indicator

The control box of the RT-6100 is operable while this icon is displayed.

## ◆ Help screen

This is the screen displayed when the patient presses the help button on the Joystick Controller. It is also displayed when there is no operation from the Joystick Controller for a certain period of time.



### 1 Response button 00'00\"/>

Cancels the help screen and displays the pause screen.

 ◆ *Pause screen* (page 21)

The number of seconds is the elapsed time since the help screen was displayed.



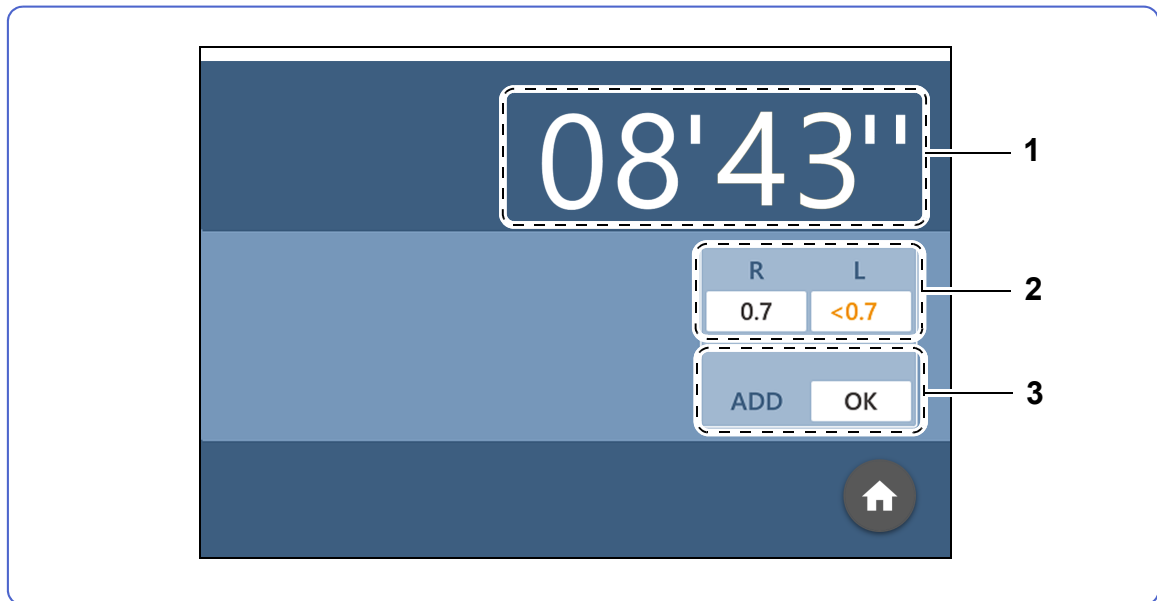
#### Knowledge

- Operation from the Joystick Controller is disabled while the help screen is displayed.
- While the help screen is displayed, the voice guide repeats “Our staff is coming. Please wait.” every 15 seconds.



### 2.4.3 Complete screen

This screen displays measurement results after measurement is complete.



#### 1 Measuring time

The time taken for measurement.

#### 2 Best-corrected visual acuity results

These are the measurement results of the best-corrected visual acuity.

If the value is lower than the minimum measurement value set by parameter, the field will be shown in orange with "<" added.

If the measurement of the best-corrected visual acuity is skipped, the field will be blank.


#### 3 Addition test result

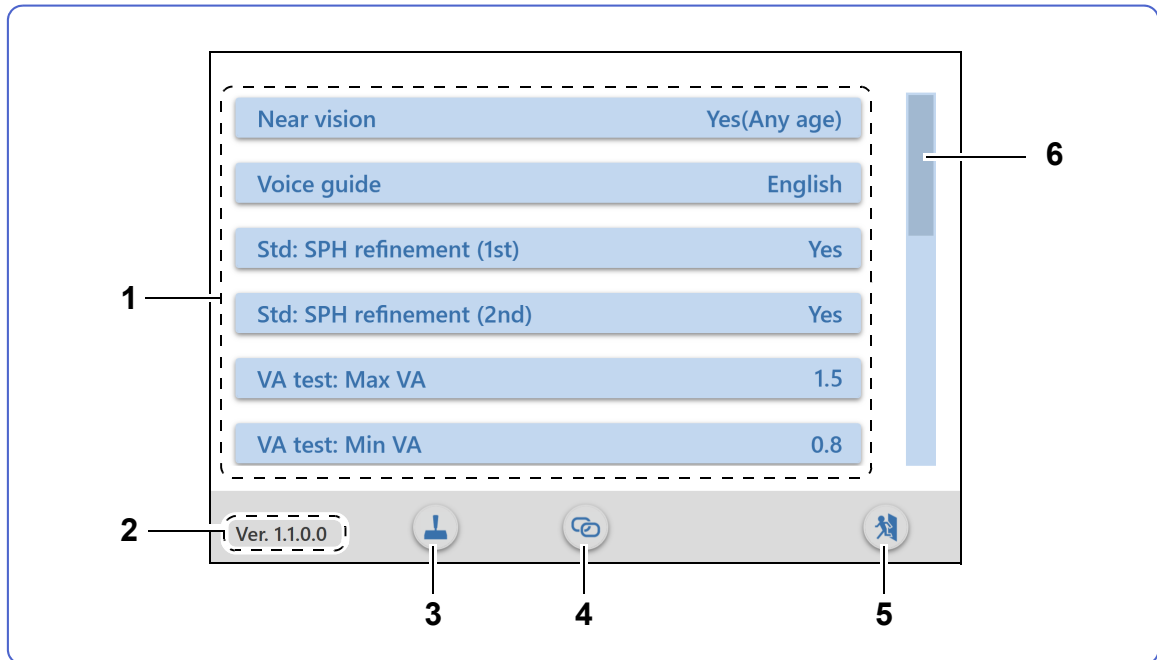
This is the result of the addition test.

If the patient was able to read the letters in the addition test, "OK" will be shown. If the patient was not able to read the letters or skipped the test, the field will be blank.

When the near vision test button is set to [No], this indication is not shown.

## 2.4.4 Parameter setting screen

This is the screen displayed by pressing  on the home screen. This screen allows parameter settings to be changed.



### 1 Parameter setting buttons

Set each parameter setting option.

[↩ "5.2 Parameter Table" \(page 55\)](#)

### 2 Version information

Shows the version of the system application.

### 3 Operation test button

Runs the operation test for the Joystick Controller.

[↩ "6.2 Operation Test" \(page 59\)](#)

### 4 Connection test button

Runs the network connection test.

[↩ "6.3 Connection Test" \(page 60\)](#)

### 5 Setting complete button

Saves the changed parameter settings and displays the home screen.

### 6 Scroll bar

Scrolls the screen.

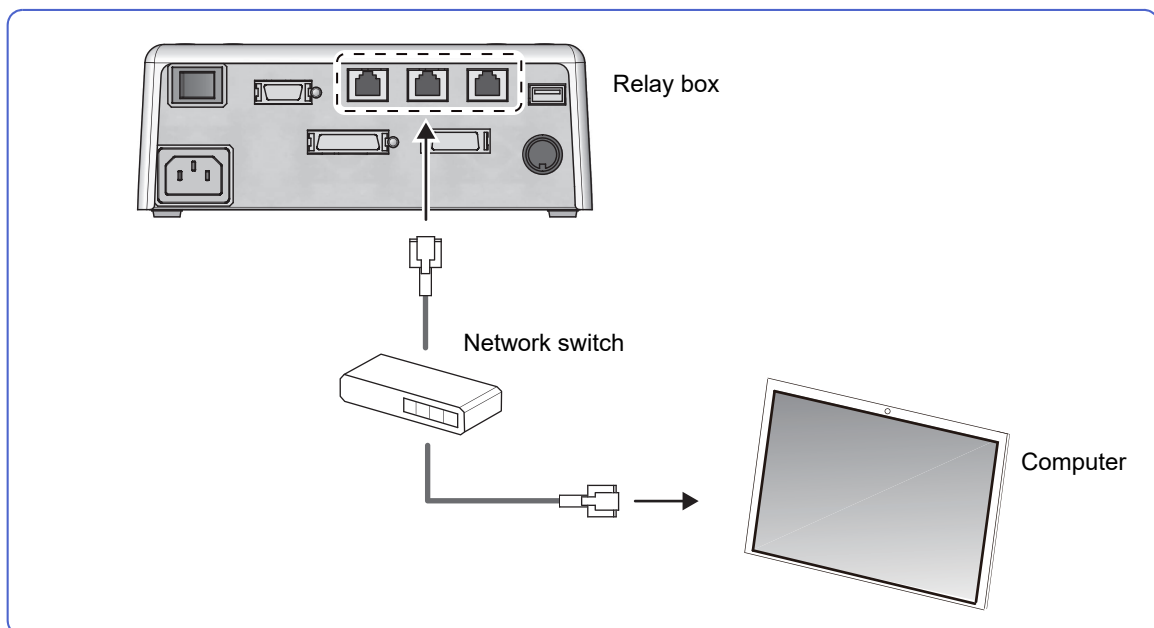
# 3

## INITIAL SETTINGS AND INSTALLATION

### 3.1 Connection between RT-6100 and Computer

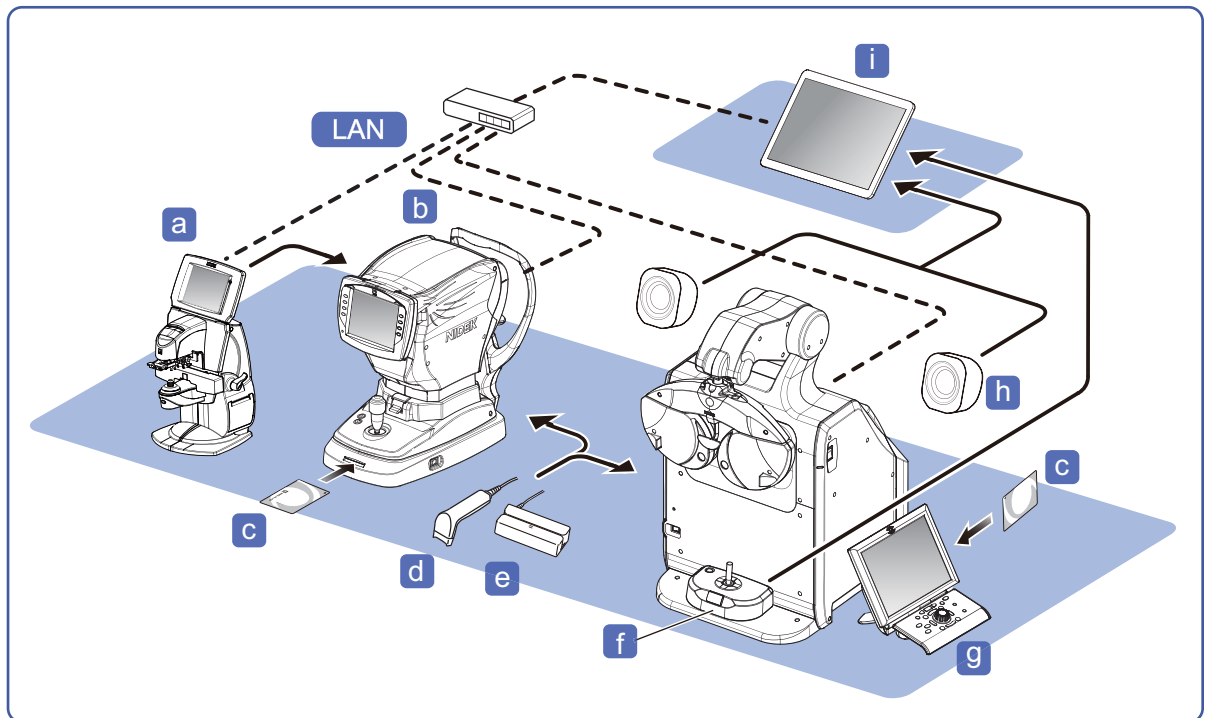
- 1 Confirm that the RT-6100, SSC-100, and computer are turned off.
- 2 Connect a LAN cable (commercially available category 5 or higher) to the LAN connector (one of the three connectors) on the RT-6100 relay box.  
For detailed operations, refer to the RT-6100 and SSC-100 Operator's Manuals.  
A network switch that is already used is also available for connection.
- 3 Connect a LAN cable to the computer.

- When connecting the RT-6100 and computer via network switch



### ◆ Example of connection with peripheral equipment

This is an example of connecting the product to the RT-6100. The auto refractometer and lensmeter are also connected via a LAN cable.

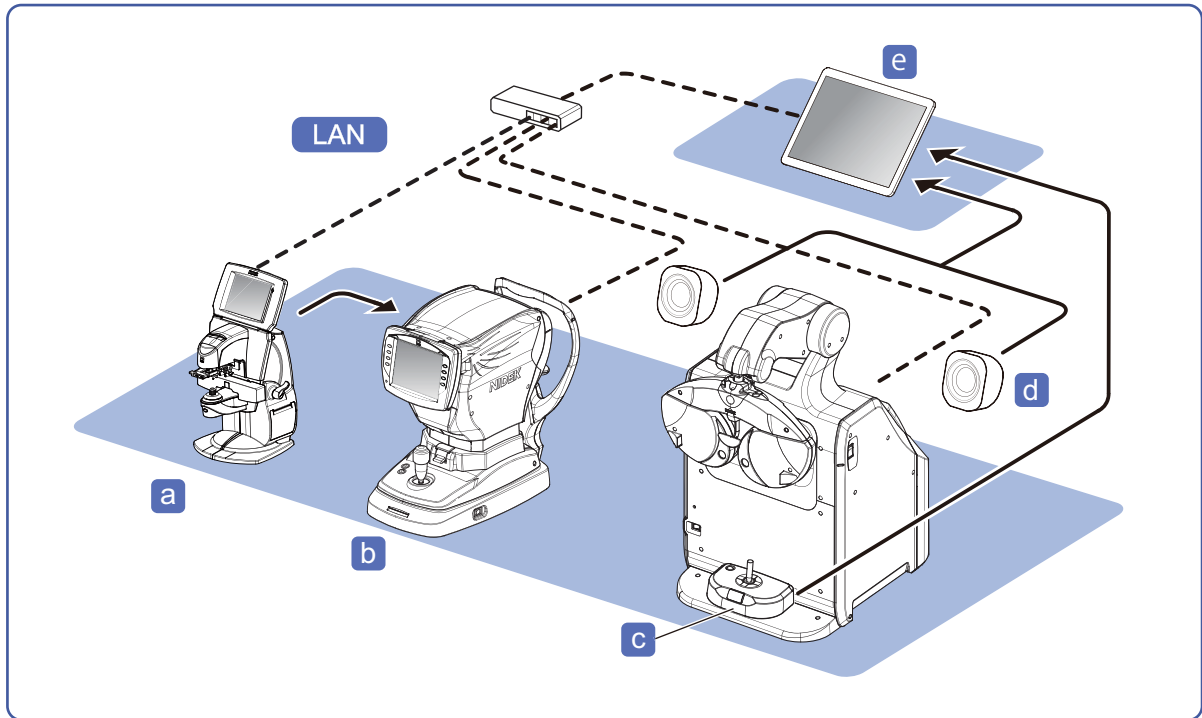


<b>a</b>	Lensmeter
<b>b</b>	Auto refractometer
<b>c</b>	Eye Care card
<b>d</b>	Barcode scanner
<b>e</b>	Magnetic card reader
<b>f</b>	Joystick Controller
<b>g</b>	Control box
<b>h</b>	Speaker
<b>i</b>	Computer with system application installed

### ◆ Example with RT-6100 CB for Windows installed

This is an example of connecting a computer installed with RT-6100 CB for Windows instead of the control box.

In this case, RT-6100 CB for Windows and the system application can be used on the same computer or on a different computer.

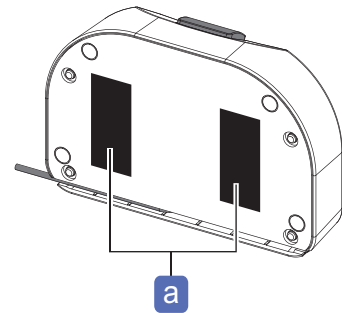


<b>a</b>	Lensmeter
<b>b</b>	Auto refractometer
<b>c</b>	Joystick Controller
<b>d</b>	Speaker
<b>e</b>	Computer with system application and RT-6100 CB for Windows installed

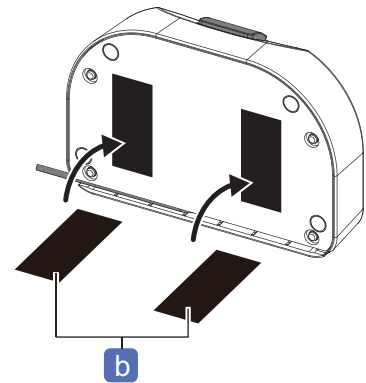
## 3.2 Joystick Controller Installation

- 1 Remove the backing paper from the hook (hard surface) **a** of each Velcro tape and attach it to the underside of the Joystick Controller.

If necessary, secure the cable to the groove on the underside of the Joystick Controller.



- 2 Attach the loops (soft surface) **b** to the hooks attached in Step 1.

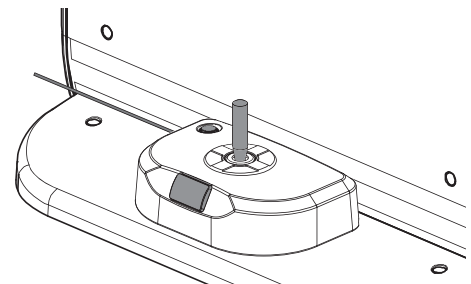


- 3 Remove the backing paper from the loops and attach the Joystick Controller to the SSC-100 body.

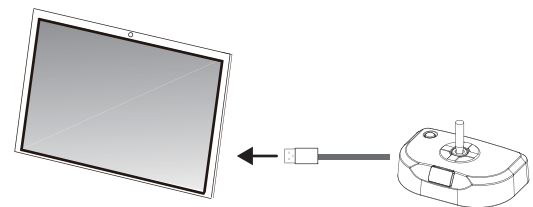


### Check

- Install the Joystick Controller so that the answer button is on the patient side.
- Run and secure the USB cable so that it will not be pulled when using the Joystick Controller.



- 4 Connect the Joystick Controller to the USB port on the computer.



### Check

- The Joystick Controller cannot be used by connecting it to the USB connector of the RT-6100 relay box or control box.
- Do not operate the system application with any device other than the designated Joystick Controller. Malfunctions may result.
- Do not connect more than one Joystick Controller. It may not be recognized properly.

## 3.3 Enabling SMB 1.0 on Windows

When auto refractometer or lensmeter data is acquired from the shared folder of the RT-6100 or MEM-200, SMB 1.0 needs to be enabled.

If data in the shared folder is not to be used, or if SMB 1.0 is already enabled, proceed to “3.4 System Application Installation” (page 31).



### Check

- Activate the system application with Windows Administrator privileges.  
If necessary, enter the password of the administrator account.
- Confirm that settings are proper with the network administrator.

### 1 Turn on the computer to start Windows.

Close all running applications.

### 2 Open [Control Panel].



### Tip

- Typing “con” in the search box  on the task bar displays [Control Panel].

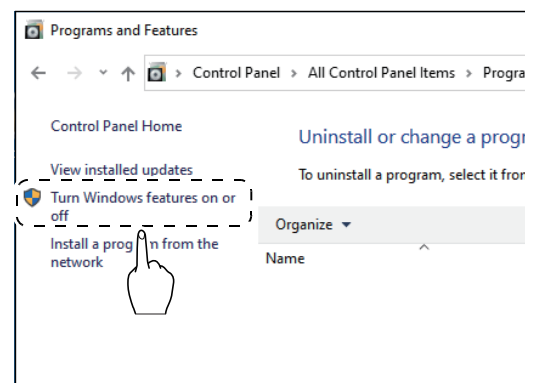
### 3 Press [Programs and Features].





### Tip

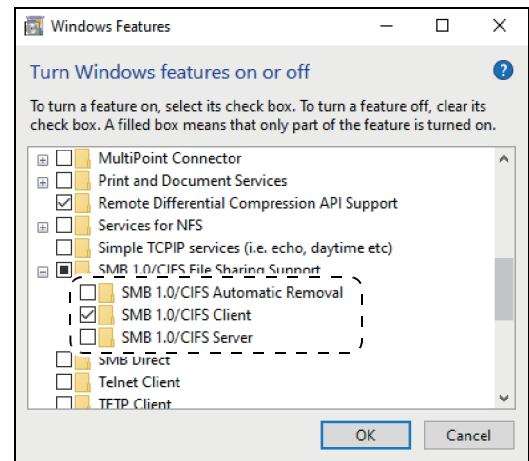
- When [Programs and Features] is not displayed, select [Large icons] or [Small icons] for [View by].


### 4 Press [Turn Windows features on or off].

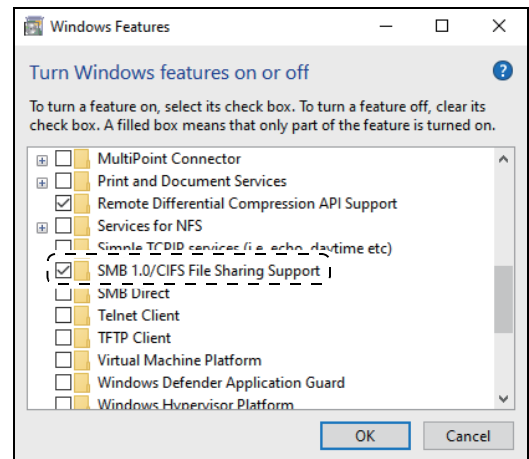


## 5 Check [SMB 1.0/CIFS File Sharing Support].

- For items with 
  - 1) Press , then check [SMB 1.0/CIFS Client].
  - 2) Clear [SMB 1.0/CIFS Automatic Removal] and [SMB 1.0/CIFS Server].
  - 3) Press [OK].



- For items without 
  - 1) Check [SMB 1.0/CIFS File Sharing Support].
  - 2) Press [OK].



## 6 Restart the computer.



## 3.4 System Application Installation



### Check

- Activate the system application under a user account with Windows Administrator privileges. If necessary, enter the password of the administrator account.
- If [Settings] > [Apps] > [Apps & features] > [Choose where to get apps] is set to “The Microsoft Store only”, the system application cannot be installed. Change the setting to an option other than “The Microsoft Store only”.
- Do not launch other applications during installation.
- Do not remove the installation CD during installation.
- The installation CD is required for uninstalling or reinstalling the system application. Keep the CD in a safe place.

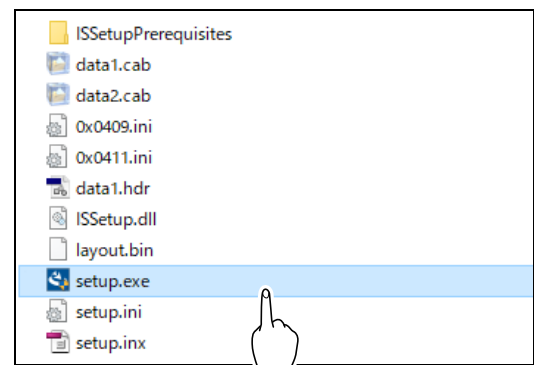
**1** Insert the installation CD into the CD-ROM drive, then open it via File Explorer.



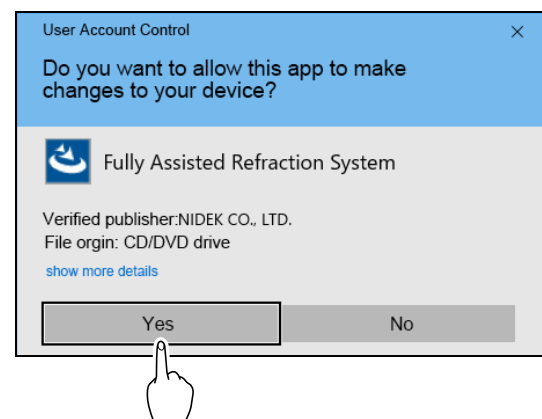
### Help

- For the computer that is not equipped with a CD-ROM drive, open the USB flash drive or such that contains the entire contents of the installation CD copied in advance using File Explorer.

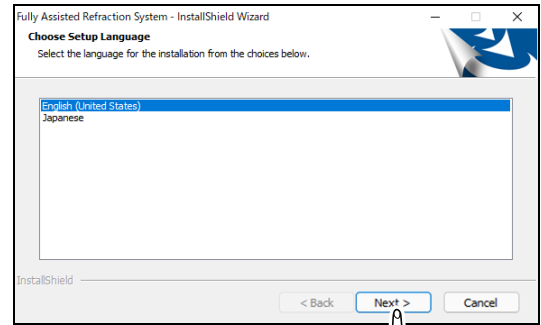
**2** Run [setup.exe].



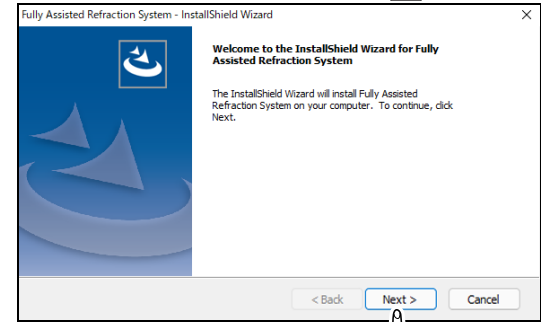
**3** Press [Yes].



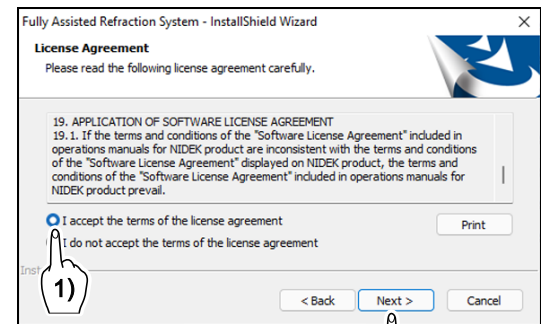
- 4** Select the desired language, then press [Next].



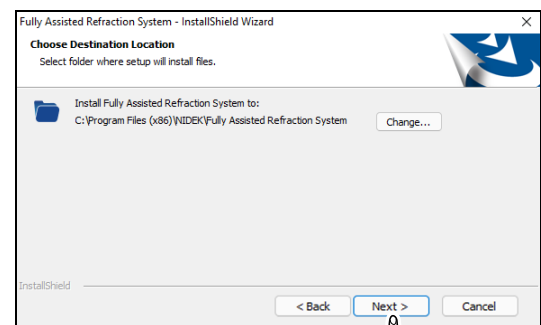
- 5** Press [Next].



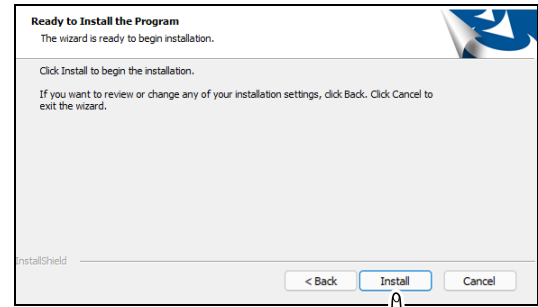
- 6** Read the license agreement.
- 1) Read the contents to the end, and if you agree, select [I accept the terms of the license agreement].
  - 2) Press [Next].



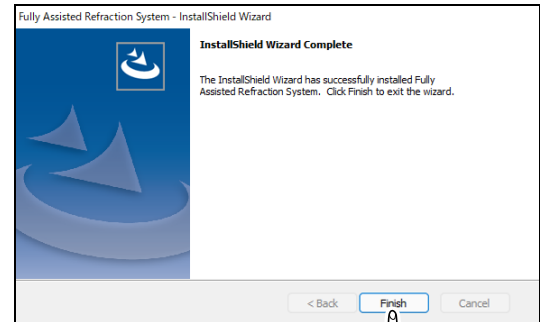
- 7** Press [Next].
- If the installation destination needs to be changed, press [Change] to specify the installation destination.



- 8** Press [Install].  
The software installation starts.



- 9** When the installation is complete, press [Finish].



- 10** Remove the installation CD from the CD-ROM drive.

## 3.5 Network Configuration

This is the procedure for setting up a computer with the system application installed so that it can communicate with the RT-6100.

This section describes the case where a computer is connected to the RT-6100 at the factory.



### Check

- Activate the system application with Windows Administrator privileges. If necessary, enter the password of the administrator account.
- Confirm that settings are proper with the network administrator.
- This procedure is explained based on the operation on Windows 10.

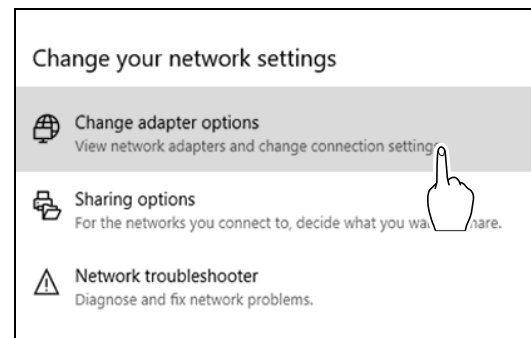
**1** Press [Start menu] > [SETTING] > [Network & Internet].

**2** Press [Change adapter options].



### Help

- For Windows 11, press [Advanced network settings] > [More network adapter options].



**3** Select the LAN adapter to be connected to the RT-6100 to open the menu.



### Help

- Press and hold for tap operation or right-click for mouse operation.

**4** Press [Properties].

**5** Press [Internet Protocol Version 4 (TCP/IPv4)].

**6** Press [Properties].

**7** Press [Use the following IP address].

**8** Enter the following values in [IP address], [Subnet mask], and [Default gateway].

IP address	192.168.0.150 (Set this value so that it does not overlap with the IP address of the connected device.)
Subnet mask	255.255.255.0
Default gateway	Blank

**Check**

- The values listed above are for reference only.  
If the values of the RT-6100 are different from the factory default values, enter the corresponding values.

**9** Press [OK].

**10** Shutdown Windows to turn off the computer.

## 3.6 Parameter Setting for RT-6100

To use the product, set the RT-6100 as follows.

For parameter settings of the RT-6100, refer to the RT-6100 Operator's Manual.

### ◆ Parameter settings

S/C/A	
SPH step	0.25 D
CYL mode	—
Cross cylinder / Prism	
Cross cylinder(XC) test	Auto
XC mode S.E fix	Yes
CYL mode S.E fix	No
XC mode AXIS 90° auto change	No
Near measurement	
Preset ADD	No
Print	
Print format	All data

### ◆ Network settings

Other: External output	
External control	To be used

## 3.7 Operation Check

---

Follow the steps below to check whether there are any problems with startup or connection.

**1** Check whether the system application starts.

↳ [“4.1.1 Starting the system application” \(page 39\)](#)

**2** Check the connection between the computer and the Joystick Controller.

↳ [“6.2 Operation Test” \(page 59\)](#)

**3** Check the connection with the RT-6100 and the shared folder.

↳ [“6.3 Connection Test” \(page 60\)](#)

**4** As necessary, set the display language, voice language, and connected chart by parameters.

The setting of the connected chart for the system application needs to match that for the RT-6100.

↳ [“5.1 Parameter Setting” \(page 53\)](#)

**5** Check whether voice guide is played correctly.

↳ [“◆ Checking volume” \(page 46\)](#)






# 4

## OPERATING PROCEDURE

### 4.1 Startup and Shutdown

#### 4.1.1 Starting the system application

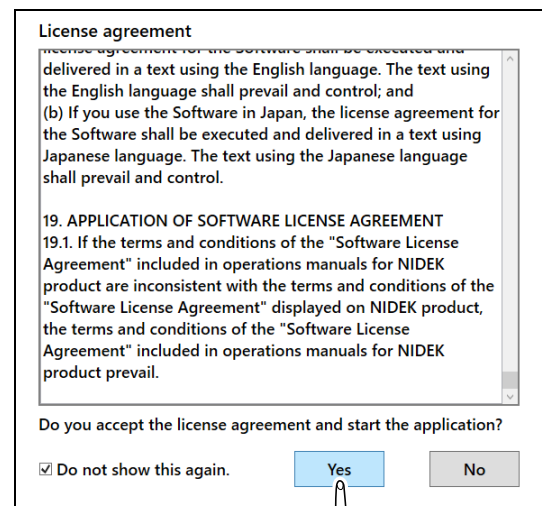
- 1 Turn on the SSC-100 to start the RT-6100 and SSC-100.  
For detailed operations, refer to the RT-6100 and SSC-100 Operator's Manuals.
- 2 Turn on the computer to start Windows.
- 3 After the startup of the RT-6100 and SSC-100 is complete, start [Fully Assisted Refraction System] .

- 4 Read the license agreement to the end, and if you agree, press [Yes].

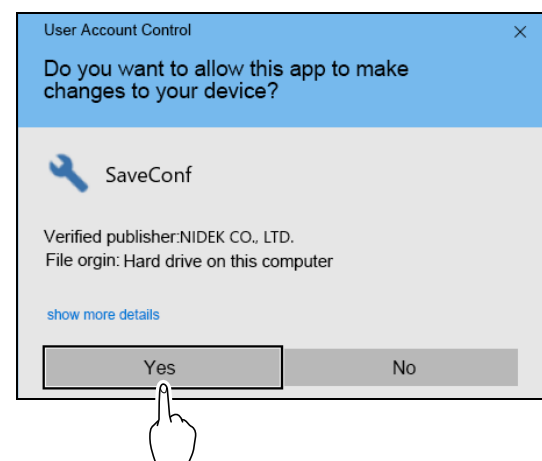
Checking "Do not show this again." omits the confirmation of the license agreement from the next time.

#### Check

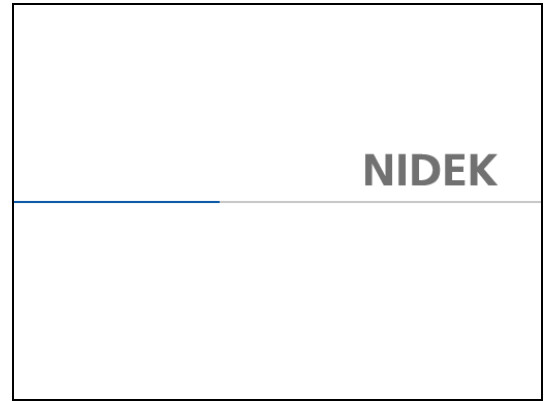
- If no Joystick Controller is connected to the USB connector, an error message will appear.
- When restarting the RT-6100, also restart the system application.



- 5 Checking "Do not show this again." in Step 4 may display the dialog box on the right. In this case, press [Yes].



After a moment, the startup screen of the system application is displayed.



### 4.1.2 Pre-use check

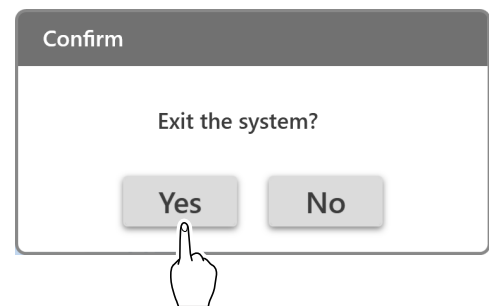
- 1** Visually check the Joystick Controller for damage or abnormalities.
- 2** Check that the Joystick Controller is stably installed.
- 3** Check the operation of the Joystick Controller in the operation test.  
[↪ "6.2 Operation Test" \(page 59\)](#)
- 4** Check the network connection in the connection test.  
[↪ "6.3 Connection Test" \(page 60\)](#)
- 5** Check that the speaker functions properly in the volume test.  
[↪ "◆ Checking volume" \(page 46\)](#)

### 4.1.3 Exiting the system application

**1** Press [ X ] in the upper right corner.



**2** Press [Yes].



**3** Shutdown Windows to turn off the computer.

**4** Turn off the SSC-100 (RT-6100).

For detailed operations, refer to the RT-6100 and SSC-100 Operator's Manuals.

### 4.1.4 After-use check

**1** Visually check the Joystick Controller for damage or abnormalities.

**2** Clean the Joystick Controller.

[↩](#) "4.3.1 Cleaning the Joystick Controller" (page 43)

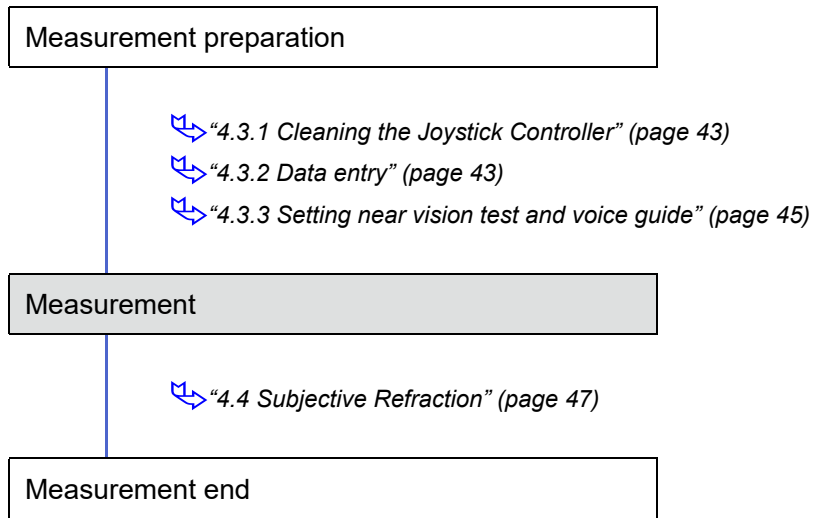
**3** Store the Joystick Controller.

Store the Joystick Controller with the Velcro tape attached, or store it in a stable place. Also, keep it away from dust.

## 4.2 Measurement Flow

---

---



## 4.3 Measurement Preparation

### 4.3.1 Cleaning the Joystick Controller

- 1 Soak a cloth in rubbing alcohol.
- 2 Wipe the buttons, answer lever, Joystick Controller, and other areas that the patient may touch.



#### Check

- Be careful not to allow rubbing alcohol to enter the interior of the Joystick Controller.

### 4.3.2 Data entry

This is the procedure for entering the objective data measured with an auto refractometer or glasses data measured with a lensmeter.

The following methods are available for data entry.

- Entering patient ID

 “◆ Entering data using patient ID” (page 44)

- Entering data input in the control box

- Import data from the connected auto refractometer or lensmeter.  
Refer to the procedure for importing data from the auto refractometer or lensmeter in the RT-6100 Operator's Manual.
- Enter data manually.  
Refer to the procedure for entering data manually in the RT-6100 Operator's Manual.
- Read data from the Eye Care card.  
Refer to the procedure for reading data from the Eye Care card in the RT-6100 Operator's Manual.



#### Check

- Be sure to set the sphere or cylinder increments of the auto refractometer or lensmeter data to 0.25 D.

## ◆ Entering data using patient ID


This is the procedure for obtaining auto refractometer or lensmeter data using patient ID to import subjective starting values.



### Check

- Depending on the security software settings, acquisition of AR/LM data may fail. In this case, acquire AR/LM data with the control box before starting subjective refraction. For security software settings, contact your system administrator.

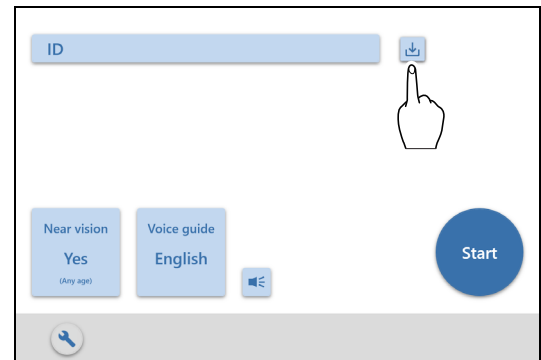
### ● Entering patient ID with barcode scanner

- 1) Read the patient ID with a barcode scanner.
- 2) Press .





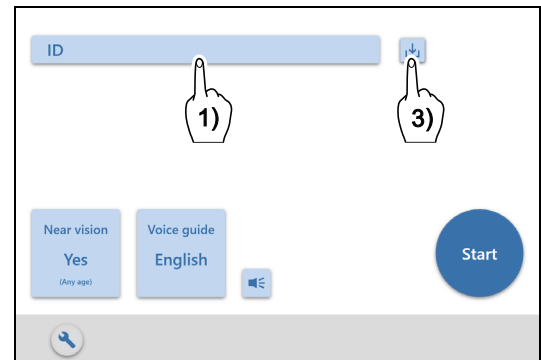
### Setting

- When the “AR/LM data import with ID” parameter is set to “Yes”, reading the patient ID in *Step 1*) automatically imports the subjective starting values.



### ● Entering patient ID manually

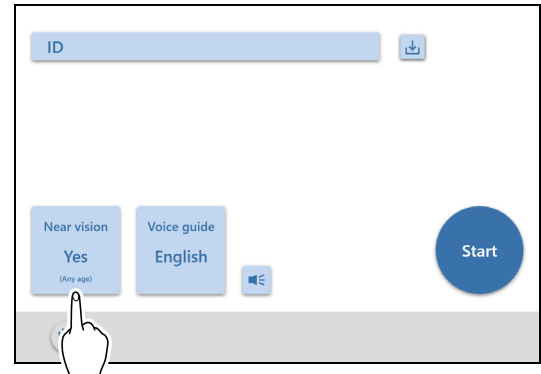
- 1) Press .
- 2) Enter the patient ID with the keyboard.  
For a tablet computer, a keyboard is displayed on the screen.
- 3) Press .



### 4.3.3 Setting near vision test and voice guide

#### ◆ Setting near vision test

**1** Press the near vision test button.

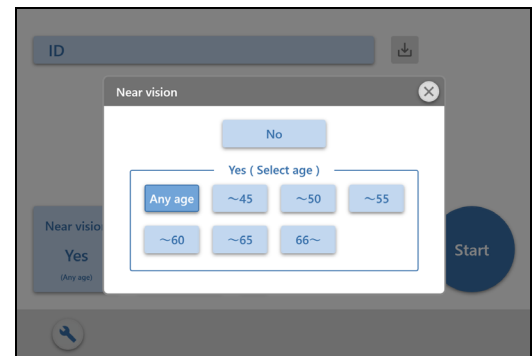


**2** For the near vision test, select the age according to the patient. To skip the near vision test, press [No].



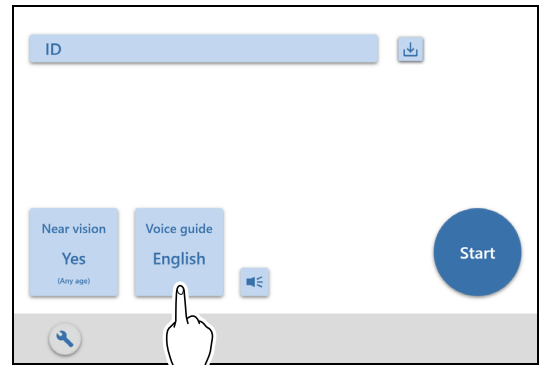
#### Knowledge

- As a general guide, selecting [Any age] is recommended for patients under 40 years old.

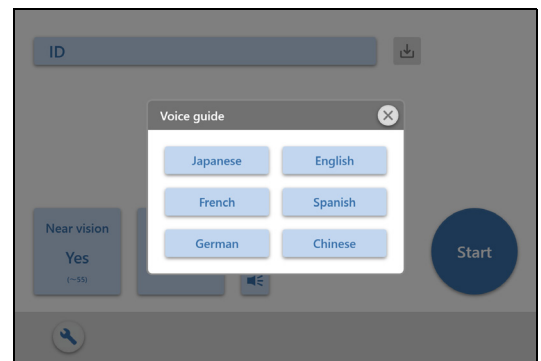


## ◆ Selecting voice guide language

**1** Press the voice guide button.




**2** Select the voice guide language used in measurements.

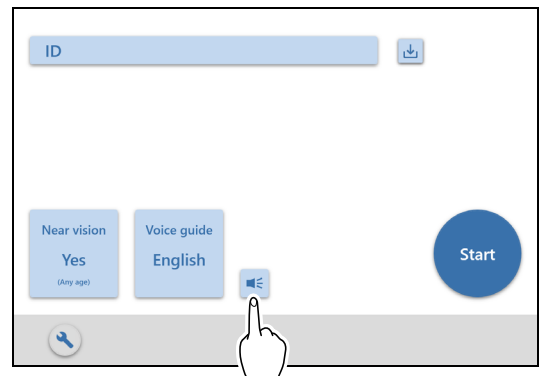


## ◆ Checking volume

**1** Press .

A test voice guide is played.

Pressing  again stops the voice guide.



**2** Adjust the volume as necessary.

Adjust the volume with a computer or speaker.



## 4.4 Subjective Refraction

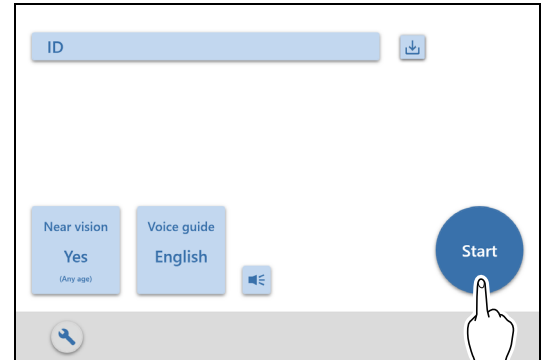
### 1 Prepare the refractor.

For detailed operations, refer to the RT-6100 and SSC-100 Operator's Manuals.

If necessary, instruct the patient how to operate the Joystick Controller.

### 2 Press .

The measurement screen is displayed and measurement starts.



### 3 The patient responds to questions using the Joystick Controller according to the voice guide.

The operator needs to note the following points.

- The operator does not need to accompany the patient all the time. Occasionally check the measurement status on the screen.
- The operation voice guide for each measurement item is played twice at intervals.
- If any of the answers for the orientation of the visual acuity chart is incorrect in the measurement item "AR data check", the measurement of that eye will be skipped.
- For both eyes, if any of the answers for the orientation of the visual acuity chart is incorrect in the measurement item "AR data check", the measurement will complete.

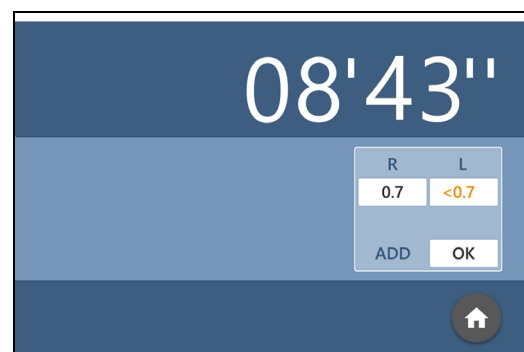
### 4 After all measurements are complete, check the measurement results.

For details on how to check the measurement results, see "2.4.3 Complete screen" (page 23).



#### Check

- Measurements other than visual acuity values are entered in the RT-6100. To enter the visual acuity values in the RT-6100, enter them manually.



## 5 Make a final prescription with a trial frame.

Raise the refractor head to test the final prescription through a trial frame.

If necessary, reflect the measurement results on the RT-6100, and output and print data.

For detailed operations, refer to the RT-6100 and SSC-100 Operator's Manuals.



### Check

- The Fully Assisted Refraction System determines subjective refraction based on the answers given by the patients. Therefore, the operator needs to make a final prescription of the vision with a trial frame.

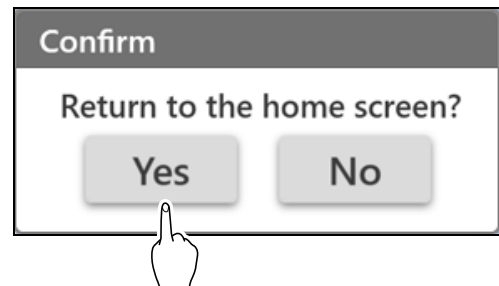
## 6 Press .

## 7 Press [Yes] to return to the home screen.



### Check

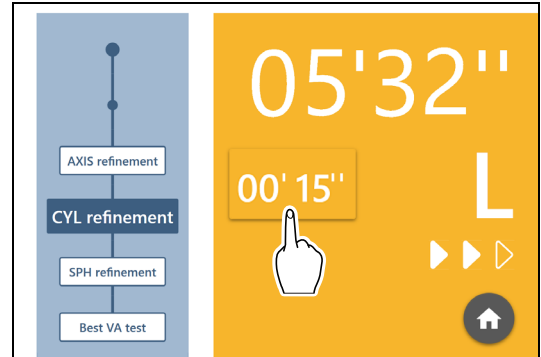
- Returning to the home screen erases the measurement data.



## 4.5 Help Screen

This is the procedure to be taken when the help screen is displayed.

- 1 When the help screen is displayed, press **00'00''** to display the pause screen.

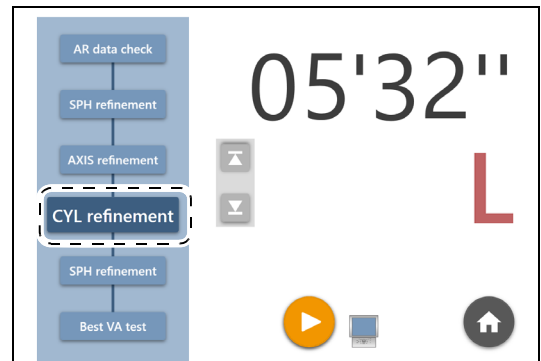


- 2 Check which item is in progress in the measurement items.




### Tip

- The item being measured is displayed in a darker color.
- The control box is operable while the pause screen is displayed.



- 3 Solve the issue of the patient.

- 4 Resume measurement.

- To resume from the same item, press .
- To resume from another item, press the desired measurement item button.
- To reset the answers given before the pause and resume from the same item, press the measurement item button in a darker color.

## 4.6 Refraction Programs

The standard refraction programs for the product are as follows.

Charts and visual acuity values presented vary depending on the chart type.



### Knowledge

- The measurement range is according to the RT-6100. However, power and cylinder axis measurements are limited to the following cases.
  - The range of sphere including addition is -19.00 to +16.50 D.
  - No prism power entry
- If the measurement range is exceeded, the measurement will complete and proceed to the next item.
- Only four-way visual acuity charts are used in the visual acuity test.
- If the amount of astigmatism is low (-0.50 D or less), the first sphere, cylinder axis, and cylinder refinements will be skipped.

Eye being measured	Order	Measurements	
Right eye	1	AR data check	Check of whether visual acuity of AR data is at least approx. 20/30 (0.63) with VA chart
	2	SPH refinement	Sphere refinement with Red-green chart (+0.5 D fogging) Refine until the letters on the red and green sides appear equally or the letters on the green side appear slightly clearer.
	3	AXIS refinement	Cylinder axis refinement with Dots chart and such Place the auto cross cylinder lens to refine the cylinder axis.
	4	CYL refinement	Cylinder refinement with Dots chart and such Place the auto cross cylinder lens to refine the cylinder.
	5	SPH refinement	Sphere refinement with Red-green chart (+0.5 D fogging) Refine until the letters on the red and green sides appear equally or the letters on the red side appear slightly clearer.
	6	Best VA test	Determination of best-corrected visual acuity with the most plus power with VA chart Determine the visual acuity while checking overcorrection or undercorrection by changing the sphere based on the patient's can-see or cannot-see determination.


Eye being measured	Order	Measurements	
Left eye	7	AR data check	Check of whether visual acuity of AR data is at least approx. 20/30 (0.63) with VA chart
	8	SPH refinement	Sphere refinement with Red-green chart (+0.5 D fogging) Refine until the letters on the red and green sides appear equally or the letters on the green side appear slightly clearer.
	9	AXIS refinement	Cylinder axis refinement with Dots chart or such Place the auto cross cylinder lens to refine the cylinder axis.
	10	CYL refinement	Cylinder refinement with Dots chart or such Place the auto cross cylinder lens to refine the cylinder.
	11	SPH refinement	Sphere refinement with Red-green chart (+0.5 D fogging) Refine until the letters on the red and green sides appear equally or the letters on the red side appear slightly clearer.
	12	Best VA test	Determination of best-corrected visual acuity with the most plus power with VA chart Determine the visual acuity while checking overcorrection or undercorrection by changing the sphere based on the patient's can-see or cannot-see determination.
Both eyes	13	ADD test	Addition test with Cross grid chart for near vision Performed only when the near vision test button is set to "Yes".
	14	ADD VA test	Addition check with near point chart Performed only when the near vision test button is set to "Yes".



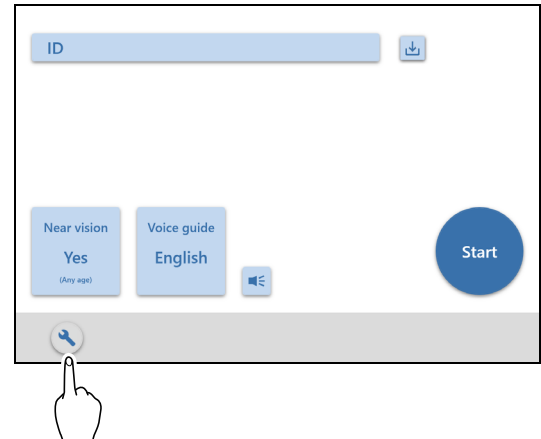
# 5

## PARAMETER SETTING

### 5.1 Parameter Setting

1 Press .

The parameter setting screen is displayed.



2 Scroll the screen with the scroll bar **a** to display the parameter setting to be changed.

3 Press the parameter setting button of a parameter to be changed.

- For 2 options

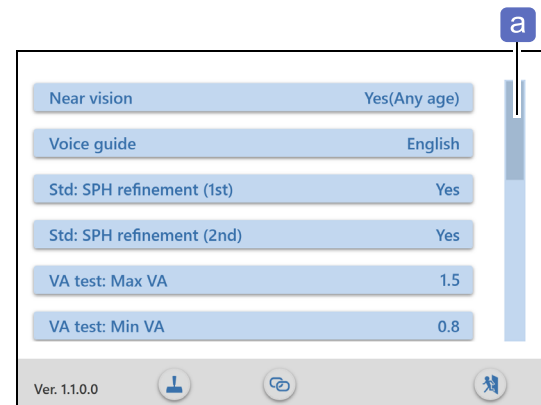
Pressing a parameter setting button toggles its options.

- For 3 options

- 1) Select the parameter setting to be changed.
- 2) A dialog box is displayed.
- 3) Select the desired option button.

- For entering values or characters


- 1) Select the parameter setting to be changed.
- 2) Enter values or characters using the keyboard.  
For a tablet computer, a keyboard is displayed on the screen.
- 3) After setting, press the [Enter] key.



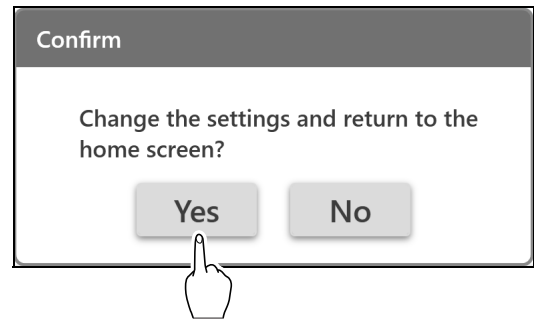
4 After setting, press .



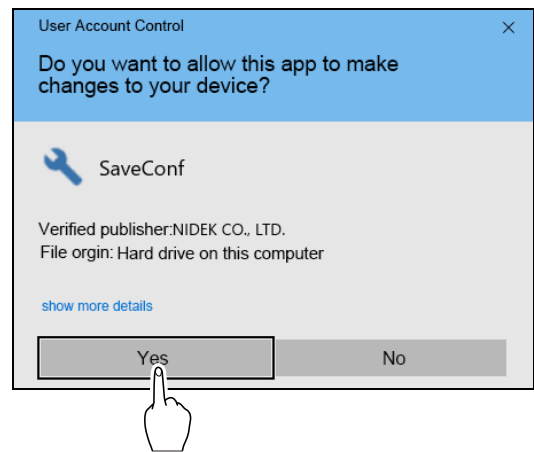
Knowledge

- Changing a parameter setting displays “!” in the setting complete button .

5 Press [Yes] to save the settings.






6 If the dialog box on the right is displayed, press [Yes].





## 5.2 Parameter Table

The underlined setting options in bold indicate the factory default settings.

Parameter	Setting options
Near vision	<u>Yes</u> ( <u>Any age</u> , ~45, ~50, ~55, ~60, ~65, 66~), No
	Sets whether to perform the near vision test. Selects the age when the near vision test is set to "Yes".
Voice guide	Japanese, <u>English</u> , French, Spanish, German, Chinese
	Selects the language of the voice guide.
Std: SPH refinement (1st)	<u>Yes</u> , No
	Sets whether to perform the first sphere refinement.
Std: SPH refinement (2nd)	<u>Yes</u> , No
	Sets whether to perform the second sphere refinement.
VA test: Max VA	0.5, 0.6, 0.7, 0.8, 0.9, 1.0, 1.2, <u>1.5</u>
	Selects the maximum visual acuity value when the best-corrected visual acuity is determined. A value smaller than the minimum acuity value cannot be selected. The value varies with the chart used.
VA test: Min VA	0.5, 0.6, 0.7, <u>0.8</u> , 0.9, 1.0, 1.2, 1.5
	Selects the minimum visual acuity value when the best-corrected visual acuity is determined. A value greater than the minimum acuity value cannot be selected. The value varies with the chart used.
AR/LM data import with ID	Yes, <u>No</u>
	Sets whether to automatically import AR or LM data of the patient when the patient ID is read by a barcode scanner.
Alert time 1	No, 6 min, <u>8 min</u> , 10 min, 12 min, 14 min, 16 min, 18 min, 20 min
	Selects the elapsed time for the indication to change from the normal state to an abnormal state. After the elapsed time, the indication turns orange. A value greater than "Alert time 2" cannot be selected.
Alert time 2	No, 6 min, 8 min, <u>10 min</u> , 12 min, 14 min, 16 min, 18 min, 20 min
	Selects the elapsed time for the indication to change from the abnormal state to an elevated abnormal state. After the elapsed time, the orange indication starts blinking. A value smaller than "Alert time 1" cannot be selected.
Home return confirmation	<u>Yes</u> , No
	Sets whether to display a confirmation message when  is pressed during measurement.
Connected RT setting	 "5.2.1 Connected RT settings" (page 56)
Shared folder setting	 "5.2.2 Shared folder settings" (page 56)
Display language	Japanese, <u>English</u> , French, Spanish, German, Chinese
	Selects the display language of the system application.

Connected chart	SSC-100 Type A, Type C-C, Type C-E, Type M, Type P, <b>Type I</b> , Type UK
	Selects the chart type of the connected SSC-100. <ul style="list-style-type: none"> <li>• Select Type C-C when the Landolt ring is used for the visual acuity test in Type C.</li> <li>• Select Type C-E when tumbling E is used for the visual acuity test in Type C.</li> </ul>
License agreement	<b>Yes</b> , No
	Sets whether to display the license agreement screen when the system application starts.

### 5.2.1 Connected RT settings

Parameter	Setting options
IP address	RT015_CB (keyboard input)
	Sets the computer name (NetBIOS name) or IP address (IPv4) of the connected RT-6100.
Port No.	62929 (keyboard input)
	Sets the port number of the connected RT-6100.

### 5.2.2 Shared folder settings

Parameter	Setting options
User name	NIDEK (keyboard input)
	Sets the user name to access the shared folder.
Password	***** (keyboard input)
	Sets the user password to access the shared folder.
Share name	DATA (keyboard input)
	Sets the name of the shared folder.
Domain	WORKGROUP (keyboard input)
	Sets the domain name to access the shared folder.
Shared folder location	RT015_RB (keyboard input)
	Sets the device containing the shared folder with a computer name or IP address.
Input folder type	<b>RT</b> , MEM-200
	Sets whether the shared folder for import is in the RT-6100 or MEM-200.

# 6

## MAINTENANCE AND SPECIFICATIONS

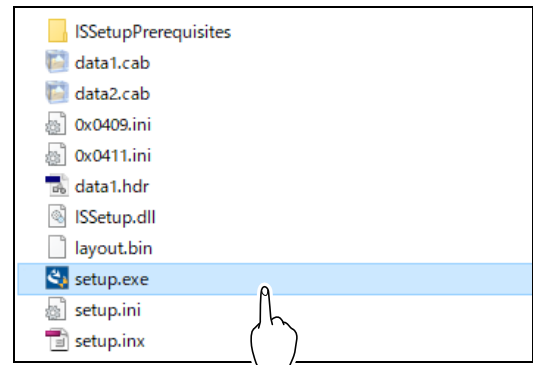
### 6.1 System Application Uninstallation

#### ✓ Check

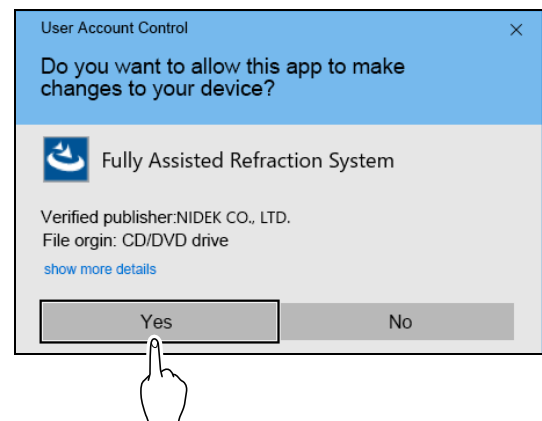
- Activate the system application under a user account with Windows Administrator privileges. If necessary, enter the password of the administrator account.
- Be sure to exit the system application before uninstallation.
- Do not launch other applications during uninstallation.
- Do not remove the installation CD during uninstallation.

**1** Insert the installation CD into the CD-ROM drive, then open it via File Explorer.

**2** Run [setup.exe].



**3** Press [Yes].

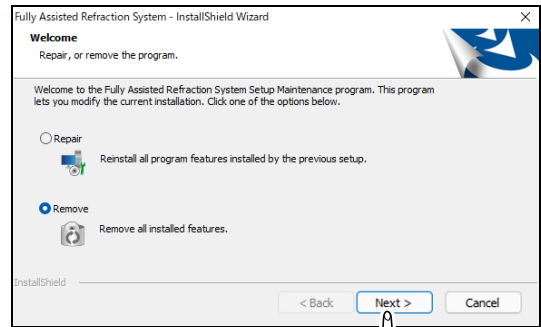


**4** Select [Remove], then press [Next].



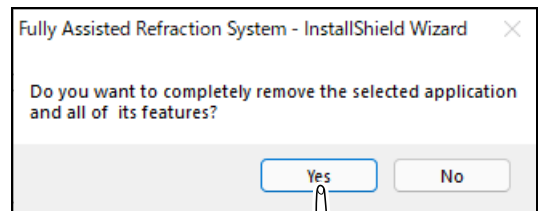
**Knowledge**

- Selecting [Repair] enables reinstallation. Select this option when the system application does not start normally.

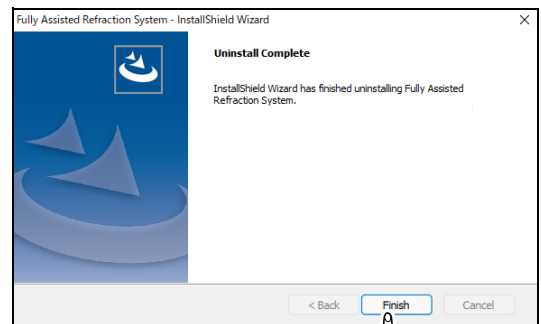


**5** Press [Yes].

The software uninstallation starts.




**6** When the uninstallation is complete, press [Finish].

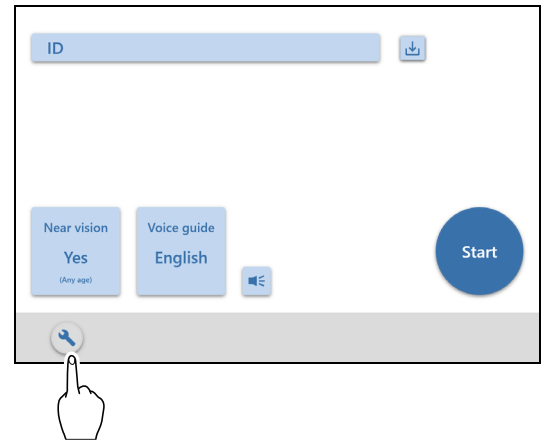



**7** Remove the installation CD from the CD-ROM drive.

## 6.2 Operation Test

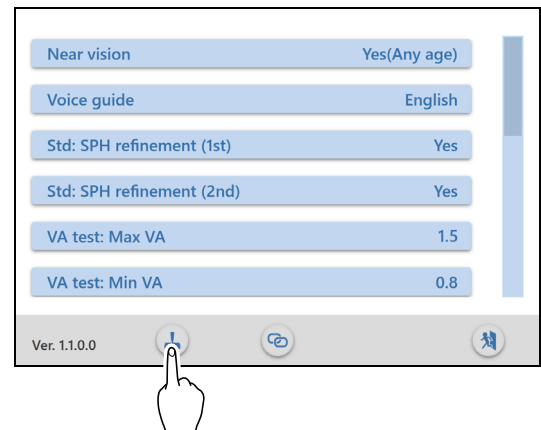
This is the procedure for checking the operation of the Joystick Controller.

1 Press .



2 Press .

The operation test screen is displayed.



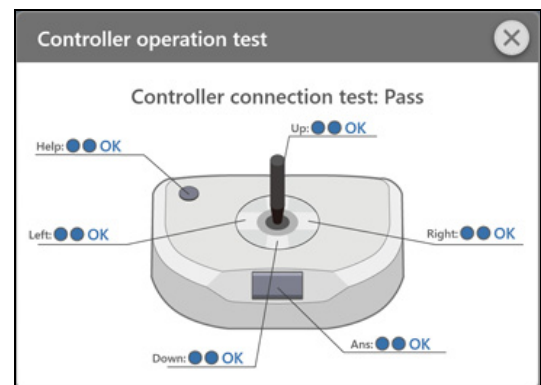
3 Operate the buttons and the answer lever twice each.

### Check

- To prevent malfunctions, continuous operation in a short time is not recognized. Leave an interval of about 1 second between operations.

### Tip

- If the operation is successful, a blue circle will appear.
- If the operation is successful twice, "OK" will also appear.
- If "OK" is displayed for all items, "Controller connection test: Pass" will also appear.

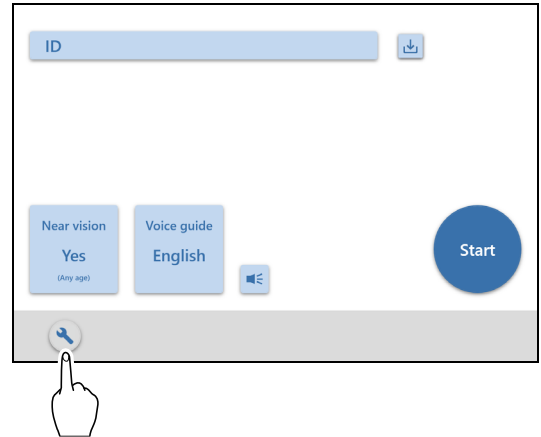



4 Press [X] in the upper right corner to exit the test.

## 6.3 Connection Test

This is the procedure for checking the network connection of the product.

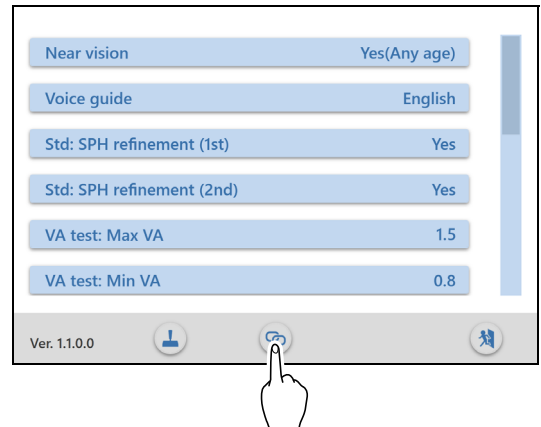
**1** Press .



**2** Press .

The icon is indicated in blue  while the connection test is performed.

When the test is complete, the results are displayed.



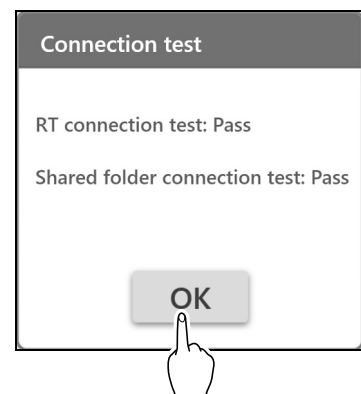
**3** Check the results.

**4** Press [OK] to exit the test.

 **Help**

- If the connection test fails, an error message will appear.

 [“6.4 Error Messages” \(page 61\)](#)




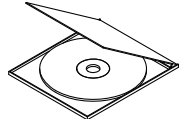
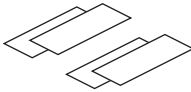
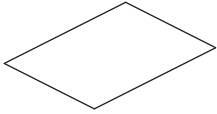
## 6.4 Error Messages

One of the following messages is displayed on the screen when an error occurs. Take actions according to the displayed message.

Error message
The controller is not connected. Check the connection of the controller.
RT is not connected. Check the connection of RT.
An unexpected error occurred. Contact your system administrator.
Because the configuration file values could not be obtained, the settings were initialized. Start the software, then check the values on the setting screen.
Could not read the configuration file. Contact your system administrator.
Could not write the configuration file. Contact your system administrator.
The number of characters read by the barcode exceeds 255. Use the barcode with the allowable number of characters.
The barcode contains invalid characters. Use the barcode with valid characters.
Voice guide could not be played. Contact your system administrator.
The AR data does not exist. Check the ID you entered.
The AR data could not be read. Check the file content.
The LM data does not exist. Check the ID you entered.
The LM data could not be read. Check the file content.
No AR or LM data found.
Cannot connect to RT. Check the connected RT settings.
RT cannot be operated. Check the RT settings.
Cannot connect to the shared folder. Check the shared folder settings.
One or more invalid characters were entered in {Items}. You cannot enter the following symbols: \ " [ ] :   < > + = ; , ? * % @ in {Items}.
One or more invalid characters were entered in {Items}. You cannot enter the following symbols: \ : * ? " < >   in {Items}.
The port number value is outside the permitted range. Only 0 to 65535 can be entered.
The option is blank. Set the value at the time of installation.

## 6.5 Specifications (Joystick Controller)

Dimensions and mass	
Dimensions	150 mm (W) x 100 mm (D) x 84 mm (H) (including answer lever (upright)) (with USB cable)
Mass	300 g
Power supply	
Input voltage	5 V DC
Input current	100 mA
Environmental conditions	
Follow the RT-6100.	
Other	
Expected service life	8 years from the date of initial operation (Proper maintenance is necessary.)

Standard accessories					
Part name	Quantity	Appearance	Part name	Quantity	Appearance
Operator's manual	1		Installation CD	1	
Velcro tape	2 sets		Quick reference guide	1	



## 6.6 License Information of Software Library

The following is license information for Silicon Labs USBXpress Host SDK for USB bridge products for Windows, ReactiveProperty, and BlowFish used in the Fully Assisted Refraction System.

### ◆ Silicon Labs USBXpress Host SDK for USB bridge products for Windows:

**IMPORTANT: READ CAREFULLY BEFORE AGREEING TO TERMS**

SILICON LABORATORIES INC., SILICON LABORATORIES INTERNATIONAL PTE. LTD., AND THEIR AFFILIATES (COLLECTIVELY, "SILICON LABS") HAVE DEVELOPED CERTAIN MATERIALS (E.G., DEVELOPMENT TOOLS, EXAMPLE CODE, EMBEDDABLE CODE, DLLs, SOFTWARE/COMPUTER PROGRAMS AND OTHER THIRD PARTY PROPRIETARY MATERIAL) ("LICENSED MATERIALS") THAT YOU MAY USE IN CONJUNCTION WITH SILICON LABS' MCU PRODUCTS. ANY USE OF THE LICENSED MATERIALS IS SUBJECT TO THIS END-USER LICENSE AGREEMENT. FURTHER, ANY USE OF THE LICENSED MATERIALS OR OTHER INDICATION OF YOUR AGREEMENT CONSTITUTES YOUR AND (IF APPLICABLE) YOUR COMPANY'S AGREEMENT TO AND ACCEPTANCE OF THIS END-USER LICENSE AGREEMENT (THE "LICENSE" OR "AGREEMENT"). IF YOU DO NOT AGREE WITH ALL OF THE TERMS, DO NOT USE ANY PORTION OF THE LICENSED MATERIALS. IF THESE TERMS ARE CONSIDERED AN OFFER BY SILICON LABS, ACCEPTANCE IS EXPRESSLY LIMITED TO THESE TERMS.

**LICENSE AND WARRANTY:** The Licensed Materials are either the property of Silicon Labs or a third party from whom Silicon Labs has the authorization to distribute to you subject to the terms of this Agreement. The Licensed Materials are protected by state, federal, and international law, including copyright laws. By accepting this License, Silicon Labs is granting you certain, limited rights to use the Licensed Materials. Except as may be modified by a license addendum Issued by Silicon Labs or as provided by this License, your rights and obligations with respect to the use of the Licensed Materials are as follows:

1. WITH RESPECT TO THE LICENSED MATERIALS, YOU MAY, SUBJECT TO THE ADDITIONAL TERMS AND CONDITIONS OF THIS AGREEMENT THAT MAY APPLY TO SPECIFIC PORTIONS OF THE LICENSED MATERIALS: (A) Use in conjunction with Silicon Labs MCU products only one copy of any version of the Licensed Materials, however or on from whatever medium obtained, on a single computer; (B) Install the Licensed Materials from its original distribution medium onto another computer so long as any other copies of the software are deleted or otherwise made irreversibly inoperative; (C) Make copies of the Licensed Materials for the sole purpose of incorporating the Licensed Materials into Licensee's products for use with Silicon Labs MCU products; (D) Distribute copies of the Software, provided the Software is incorporated into Licensee's product in conjunction with and for use with Silicon Labs MCU products and is not distributed as a stand alone product.
2. YOU MAY NOT: (A) Sublicense, assign, rent lease or use any portion of the Licensed Materials as a stand alone product; (B) Reverse engineer, decompile, disassemble, modify, translate, make any attempt to discover the source code of the Licensed Materials, or modify any portion of the Licensed Materials for the purpose of distributing same as a stand alone product; (C) Remove any product identification, copyright or other notices that appear on the Licensed Materials; or (D) use or permit the use of any portion of the Licensed Materials other than in combination with Silicon Labs MCU products.
3. Third Party Software; Limited Use: Use of any of the third party software included in the Licensed Materials may be subject to additional terms and conditions imposed by the third party.

4. Warranty and Disclaimer of Liability: The Licensed Materials are provided "AS IS" and without warranty. The entire risk as to all Licensed Materials, including without limitation all risks as to quality, performance, infringement or misappropriation is with Licensee. SILICON LABS MAKES NO WARRANTIES AS TO THE LICENSED MATERIALS AND EXPRESSLY DISCLAIMS ANY WARRANTIES, WHETHER EXPRESSED OR IMPLIED, STATUTORY OR OTHERWISE. INCLUDING, BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT. In no event shall Silicon Labs be liable to Licensee or any other person for any special, collateral, indirect, incidental, consequential, exemplary, punitive, or enhanced damages ("Excluded Damages") under any claim or liability by or against Licensee. Excluded Damages include costs of removal and reinstallation of products or other items, procurement costs (including administrative and personnel costs) or replacement or substitute items, loss of goodwill, loss of revenue or profits, and loss of use, without regard to whether Silicon Labs has been notified in advance of the possibility of any such claim or damage.

5. IN NO CASE SHALL SILICON LABS' LIABILITY EXCEED THE PURCHASE PRICE FOR THE LICENSED MATERIALS. The disclaimers and limitations set forth above will apply regardless of whether you accept or use the Licensed Materials.

6. Term and Termination: The term of this Agreement and the License granted herein shall begin upon use of the Licensed Materials and continue unless you breach any of the obligations set out under this Agreement. Upon your breach of this Agreement by you, the license granted hereunder shall terminate immediately and you shall cease all use of the Licensed Materials and return same as well as any copies of the Licensed Materials to Silicon Labs immediately. Termination of this License upon your breach is only one remedy available to Silicon Labs. In addition to termination of this Agreement upon your breach, Silicon Labs shall be entitled to seek any and all other available remedies, at law or at equity, arising from your breach, and further reserves the right to terminate or alter the terms of the Agreement and License in cases of intellectual property conflicts, or court/administrative sanctions or orders.

7. General: This Agreement shall be governed by the laws of the state of Texas, U.S.A, without regard to its conflict of laws or the United Nations' Convention on Contracts for International Sale of Goods. The waiver by either Party of any default or breach of this Agreement shall not constitute a waiver of any other or subsequent default or breach. This Agreement constitutes the complete and exclusive statement of the mutual understanding between you and Silicon Labs with respect to this subject matter herein. This Agreement may only be modified by a written addendum, which has been signed by both you and Silicon Labs. You agree to submit to the personal and exclusive jurisdiction and venue of the appropriate state and federal courts in Travis County, Austin, Texas, U.S.A. You shall comply with all applicable federal, provincial, state and local laws, regulations and ordinances, including but not limited to, applicable U.S. Export Administration Laws and Regulations. You acknowledge that any breach of the obligations herein will cause irreparable injury for which there are no adequate remedies at law, and therefore Silicon Labs shall be entitled to seek injunctive relief in addition to any other remedies available hereunder at law or in equity. The waiver by either party of any default or breach of this agreement shall not constitute a waiver of any other or subsequent default or breach. If any part of this Agreement is determined by any court or tribunal of competent jurisdiction to be wholly or partially unenforceable for any reason, such unenforceability shall not affect any other part of this Agreement. All rights conferred hereunder or by any other instrument or law shall be cumulative and may be exercised singularly or concurrently. You will not assign any of the rights or obligations under this Agreement without prior written consent of the Silicon Labs. For Silicon Labs' products or Licensed Materials that are sold or delivered to you in the United States, Silicon Labs Incorporated is the licensor of the Licensed Materials. In cases where the Silicon Labs' products or Licensed Materials that are sold or delivered to Licensee outside the United States, the licensor is Silicon Laboratories International Pte. Ltd. Neither Silicon Labs nor Licensee is authorized to oblige the other party or act in the name of the other party other than as stated in this Agreement. The Agreement does not create a joint venture, partnership or association between the Parties. All notices under this Agreement are to be sent by certified mail return receipt requested, electronic mail or facsimile with confirmation of receipt, or courier to the address indicated in the signature blocks below or any other address as the either party may designate. This Agreement expresses the entire understanding and agreement between the Parties with regard to the subject matter and supersedes all agreements, representations and understandings, whether written or oral, if any, previously entered into between the Parties with regard to the subject matter hereof. This Agreement shall not be subject to change or modification except by the execution of an instrument in writing signed by the Parties.

## ◆ ReactiveProperty:

The MIT License (MIT)

Copyright (c) 2018 neuecc, xin9le, okazuki

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## ◆ BlowFish:

MIT License

Copyright (c) 2018-2019 Els\_kom

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 6.7 Glossary and Abbreviations

- The following terms and abbreviations are used in this operator's manual.

Terms and abbreviations	
AR	Abbreviation for the Nidek auto refractometer such as AR-1
CB	Abbreviation for the control box
Eye Care card	Dedicated IC card for Nidek
Full correction	Refractive error correction with the most plus power
Joystick Controller	The controller used to respond to questions during refraction with this product
LM	Abbreviation for the Nidek lensmeter such as LM-1800
Maximum visual acuity value	The visual acuity value with the smallest optotype in the visual acuity test
Minimum visual acuity value	The visual acuity value with the largest optotype in the visual acuity test
System application	The software application for refraction with this product



# INDEX

---

<b>A</b>	
Addition test result	23
Answer button	18
Answer lever	18, 59
<b>B</b>	
Best-corrected visual acuity	23
<b>C</b>	
Complete screen	23
<b>E</b>	
Eye Care card	26, 43
<b>H</b>	
Help button	18, 22
Help screen	22
Home screen	19
<b>M</b>	
Measurement screen	20
<b>N</b>	
Near vision test	36
Near vision test button	19, 23
<b>O</b>	
Operation test	24, 40, 59
<b>P</b>	
Patient ID	43, 44
Pause screen	21, 22
<b>S</b>	
SMB1.0	29

