

D I G I T A L I N N O V A T I O N

Intraoral Sensor Wireless

User Manual



Dentium
For Dentists By Dentists

Table of Contents

1. Notice	06
1.1. Product description and purpose of use	06
1.1.1. Product description	06
1.1.2. Intraoral Sensor Wireless configuration	06
1.1.3. Purpose of use	06
1.1.4. Life cycle	06
1.2. Characteristic of the product	07
2. Precautions	07
2.1. Precautions before use	07
2.2. Use precautions	07
2.3. Electrical precautions	08
2.4. Warning and caution	08
3. Safety guide	09
3.1. Manual usage symbol	09
3.2. Product symbol	09
3.3. Packaging symbol	10
4. Product components	10
5. Technical information	12
5.1. System specifications	12
5.2. Recommended specifications of PC	12
6. Detail of component	13
6.1. Sensor	13
6.2. Controller	14
6.3. Charging module	14
6.4. USB flash memory	15
6.5. Clip sensor case	15
6.6. Clip case	15
6.7. Silicon cover	16
6.8. Battery	16
7. Installation	17
7.1. Install software	17
7.1.1. Installation preparation	17

7.1.2. Install IOXAcquisition and TWAIN	17
7.2. Wi-Fi(Wireless LAN) Connection	19
7.2.1. Wi-Fi Lan card	19
7.2.2. Wireless LAN adapter	19
7.2.3. Wireless LAN Connection	20
7.3. How to use multiple Wi-Fi controllers	22
7.3.1. Setting the device index	22
7.3.2. Configuring two or more device environments	23
7.4. How to set Wi-Fi password	23
7.5. How to reset the controller	24
7.6. Laptop PC power setting	24
8. X-ray Image acquisition	25
8.1. Device configuration	25
8.2. Image acquisition process	26
8.3. Capture program	27
8.4. How to use "Rainbow Image Viewer"	27
8.4.1. Controller power control	27
8.4.2. Wi-Fi connection	27
8.4.3. Sensor connection	28
8.4.4. Verifying the installation	28
8.4.5. Excute"rainbow Image viewer"	28
8.4.6. Prepare for capture	29
8.4.7. Run the capture program	29
8.4.8. Check Wi-Fi connection status	30
8.4.9. Check the 'Ready' status	30
8.4.10. Preparation of X-ray Generator	30
8.4.11. Set position	30
8.4.12. X-ray exposure	30
8.4.13. Status description	31
8.4.14. Image transmission	31
8.4.15. Image acquisition program	31
8.4.16. Preset step adjustment about image processing	32
8.4.17. Check the final image	33
8.5. Image acquisition using TWAIN	34
8.5.1. Run the TWAIN	34
8.5.2. TWAIN program	35
8.5.3. Check the final image	35

Table of Contents

9. X-ray exposure guide	36
9.1. X-ray exposure conditions	36
9.2. Check operating conditions	37
9.2.1. Sensor holder using a product box	37
9.2.2. Using the IoxPhantomCal program	38
10. How to use Accessory	44
10.1. Clip case	44
10.2. Clip sensor case	44
11. Consumables replacement	45
11.1. Replacement of sensor cable	45
11.1.1. Remove the screws	45
11.1.2. Remove the sealing gasket	45
11.1.3. Change new cable	46
11.1.4. Screw assembly	46
11.1.5. Assembly inspection	46
11.2. Battery replacement	46
11.2.1. Preparation for replacement	46
11.2.2. Remove the screws	47
11.2.3. Removal of cover	47
11.2.4. Battery replacement	47
11.2.5. Assembling the cover	48
11.2.6. Fastening the fixing screws	48
11.2.7. Check operation	48
12. Cleaning and storage	49
12.1. Cleaning	49
12.2. Storage	49
13. Maintenance	49
13.1. Inspection	50
14. Handling of errors during operation	50
15. Label location	51

15.1. Product box	51
15.2. Sensor module	51
15.3. Wireless controller	52
15.4. Battery, Adaptor	52
16. Electromagnetic compatibility information	52
16.1. Noise and interference immunity	53
16.2. Protection distance	53
17. System disposal precautions	54
17.1. Detailed description of disposal	54
18. Product warranty and service	54

Notice

Thank you for purchasing *the Dentium Intraoral Sensor Wireless* (Dental Image Acquisition Device).
This manual details the usage, handling, care and overall use.

Please read this manual in advance for smooth use of the equipment.

Please keep the Quick guide near the equipment so that you can refer to it at any time.

Manual be changed without notice, depending on product quality upgrade and specification change.

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Tel : 070-7098-4027, 6909

01 Introduction

1.1. Product description and purpose of use

1.1.1. Product Description

Dentium Intraoral Sensor Wireless is a medical device that acquires digital images by detecting information through X-rays and converting them into electrical image signals to identify teeth and tissues in the mouth. The product consists of the Intraoral Sensor, Controller, USB Memory, Sensor Holder, Silicon Cover and Quick Guide. The image data acquired from the Intraoral Sensor is wirelessly transmitted to the PC through the Controller, and the internal battery is charged through the Charging Module

1.1.2. Intraoral Sensor wireless Configuration

The intraoral Sensor Wireless consists of the Intraoral Sensor(IOXW1, IOXW) and the Controller(IOXW-C).

- 1) The intraoral Sensor(IOXW1, IOXW2) consists of housing(Top, Bottom and conver), Substrate plate, Control board, Sensor, FOS, and so on.
- 2) The Controller(IOXW-C) consists of housing(Top, Bottom, Front and Back), Control board, Button, Connector(Magnetic & USB C-type) and Battery.

1.1.3. Purpose of Use

The Intraoral Sensor Wireless is a medical device that uses 2 ~ 3 teeth in high resolution for precise diagnosis.

1.1.4. Life cycle

Control Board, Sensor and FOS are key components. Control Board and Sensor can be used semi-permanently, but FOS is vulnerable to shock and performance deteriorates as X-rays accumulated. In case of deterioration of images quality, please contact the Dentium branch.

The battery of the Controller may vary depending on the user's usage method, and care should be taken as the battery may discharge when the ambient temperature is low. If battery performance is degraded, contact the Dentium branch or the place of purchase.

1.2. Characteristic of the product

	High-resolution images based on CMOS
	Complete waterproof / dustproof construction with IP68
	Flexible cable made of silicon
	TWAIN(Standard for image acquisition devices) interface
	Wireless LAN 802.11 a/g/n standard
	USB C-type Magnetic charger Cable (for Controller battery charging)
	Application of cable replacement type (A/S improvement)

02 Precautions

2.1. Precautions before use

- ◆ Ensure that the Intraoral Sensor wireless is operated by a qualified person as a medical device.
- ◆ We recommend that you consult the “Intraoral Sensor Wireless User Manual” Before using Intraoral Sensor Wireless.
- ◆ Do not place similar medical electrical devices near Intraoral Sensor Wireless. This may degrades the performance of the device. Keep away from other sources of electromagnetic energy to avoid electromagnetic interference.
- ◆ Damage to the device due to user’s disassembly will not be covered under warranty.
- ◆ Pulling or twisting the cable connected to the product may cause performance degradation and failure.

2.2. Use precautions

- After use the Intraoral Sensor should be stored in the sensor holder.
- Dropping, jarring, bumping, or rough handling could result in damage affecting image quality.
- Do not use the device without the plastic cover.
- Patient does not bite the sensor when inserting the device into the mouth.

- Do not disconnect the PC while the device is in operation.
- Do not apply excessive load to the device, as excessive force may cause the equipment to malfunction or degrade performance.
- If you use the product for other use than the recommended one, it may cause the deterioration and malfunction.
- When acquiring images continuously for a long time, the sensor may generate heat. The temperature of the sensor module exceeds 41°C (reach up to 41.1°C). Do not directly touch the product for a long period of time with the power turned on.
- The plastic cover is disposable. Please throw it away after use.
- Use the silicon cover only to protect the device, and be sure to remove it when using it.
- X-ray exposure dose affects the image quality. Please adjust it according to Recommendation on exposure time.
- Depending on the PC or notebook specifications, the recognition error or the performance of the Intraoral Sensor may be degraded. Please use a product that meets the recommended specifications.
- Please contact Dentium branch or request a service inspection and repair of the device.
- If any error such as recognition error or overheating occurs during use, stop using the device immediately and contact your nearest Dentium Service Department or order a new sensor.
- When charging the battery, do not use any product other than an approved adapter.

2.3. Electrical Precautions

- Do not connect the USB terminal of the Sensor to any device other than the Controller.
- Do not install the Wi-Fi USB adapter and Battery charger in a water-contact location during product installation.
- Do not connect any product other than the included charging adapter to the Controller.
- If the device does not work properly, please contact Service Department or order a new sensor.

Warning

Battery charging of Intraoral sensor wireless is 5W (5V/1A), so please be careful when charging as it may cause overheating, malfunction, or shortening of the life of the product when an unauthorized charger is used.

2.4. Warning and caution

- Do not pour or spray liquid substances such as water or sprays onto this device.
- Do not store flammable materials near the device. It may cause fire or an explosion.
- In the event of an electrical fire, use a fire extinguisher marked for that purpose. Using water or liquids in an electrical fire can seriously damage and damage people and the device. You must disconnect the USB connector before extinguishing a fire to avoid risk of electric shock.
- Do not sterilize or disinfect with spray. There is a risk of firing the sprayed disinfectant.

Caution

Never disassemble or modify the product.
Damage may occur if an untrained person replace parts.

03

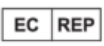
Safety guide

3.1. Manual Usage Symbol

In order to use the device efficiently, this manual uses the following symbols to fully understand and comply with the meanings of the symbols. To avoid personal injury and property damage, please observe the safety precautions specified in the documentation.

Symbol	Title	Description
	NOTE	Provides information and instructions for using the device.
	CAUTION	Important instructions for using the device. It can cause serious damage to the device and human body.
	WARNING	Important instructions for using the device. It can cause serious damage to the device and human body.
	WASTE	Indicates a product should not be disposed of in a landfill the black bar indicates that the equipment was manufactured after 2005.
	Non-ionizing radiation	Indicates that the Intraoral Sensor Wireless is a source for non-ionizing radiation.

3.1. Product Symbol

Symbol	Title	Description
	NOTE	It shows the information and precautions required to use the product.
	Type B applied part	Identifies a type B applied part complying with IEC 60601-1.
	WARNING	Indicate warnings and safety instructions. If not adhered to, there is a serious risk of injury to the patient and/or the operator.
IP68	IP Code	Protected against access to hazardous parts. Dust-tight. Protected against the effects of temporary submersion. Customer specification applies and specific testing may be required. (Only Sensor module)
	Date of Manufacture	Indicates the date when the medical device was manufactured.
	Manufacturer	Indicates the medical device manufacturer.
	Authorized European Representative	Indicates the Authorized Representative in the European Union
	Catalogue of model number	Indicates the manufacturer's catalogue number so the device can be identified.

SN	Serial Number	Indicates the manufacturer's serial number so that a specific device can be identified.
VA	Effective Power	Active electrical Power
	Electrostatic Sensitive devices	Handling procedures for Electro-Static Discharge (ESD).

3.3. Packaging Symbol

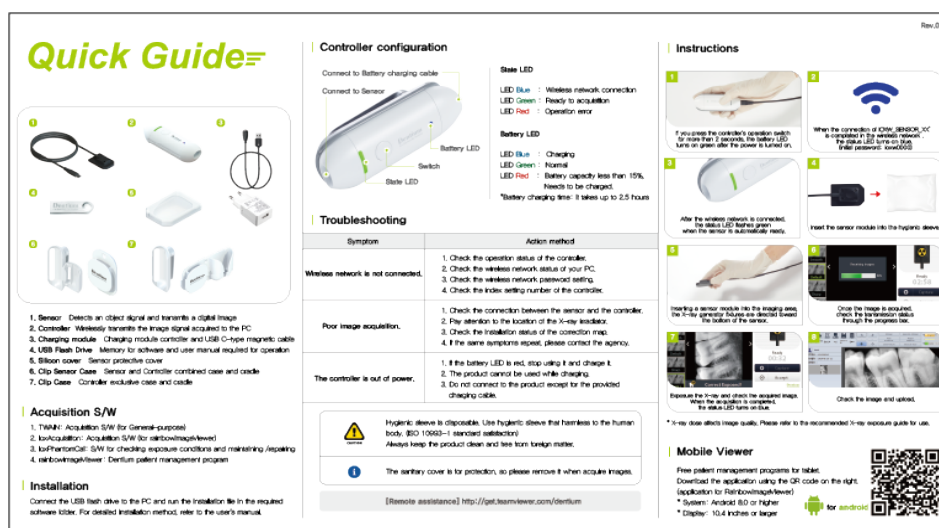
Symbol	Title	Description
	This way up	Indicate the correct upright position of a package
	Fragile	Indicate a medical device that can be broken or damaged if not handled carefully
	Handle with care	Indicate the package needs to be handled with care.
	Protect from moisture	Indicate a medical device that needs to be protected from moisture
	Storage temperature range	Indicates the temperature limits to which the medical device can be safely exposed (-10 ~ +35°C)

04

Product Components

The Intraoral Sensor Wireless consists of main product (a) Intraoral Sensor Module, (b) Controller) and accessories (c, d, e, f, g, h, i, j). The installer should check items listed in





No.	Title	Qty.	Description
a	Intraoral Sensor	1	Main device (Intraoral Sensor Module)
b	Controller	1	Main device (Wireless Control Module)
c	Charging module	1	AC/DC Adapter
d	USB flash driver	1	설치 파일, 드라이버, 보정맵, 사용자 매뉴얼 저장용 메모리
e	Clip sensor case	1	Case for controller and sensor
f	Clip sensor case holder	1	Holder for Clip sensor case
g	Clip case	1	Case for controller
h	Clip case holder	1	Holder for Clip case
i	Silicon cover	1	Sensor protection cover
j	Quick Guide	1	Instructions on how to install and use the device

The product codes are shown in the table below. Use them when purchasing product and accessories.

No.	Title	Product code
a	Intraoral Sensor	IOXW1 : Intraoral Sensor for children IOXW2 : Intraoral Sensor for adult
b	Controller	G31001
c	Charging module	G31002
d	USB flash driver	G31000
e	Clip sensor case	G31003
f	Clip sensor case holder	G31004
g	Clip case	G31005
h	Clip case holder	G31006
i	Silicon cover	IOXW1 : G30011 IOXW2 : G30012
j	Quick Guide	G31010
k	Product box	G31007

05

Technical Information

5.1. System specifications

Part	Item	IOX2	IOX2
Intraoral Sensor module	Pixel pitch	20 x 20 μm	
	Dimensions (W x L x T)	24 x 36.7 x 5.1 mm	29.1 x 42.6 x 5.1 mm
	Active area	20 mm X 30 mm	25.6 mm X 36 mm
	Number of pixel	1000 X 1500	1280 X 1801
	ADC	12 bit	
	Frame rate	1 fps	
	Data interface	USB 2.0 (USB C-type Connector)	
	USB cable length	1.0 m	
	Protection against Matter/Water	IP68	
Wireless Controller	Dimensions (W x L x T)	32 x 87.6 x 25.9 mm	
	Material	ABS resin (acrylonitrile butadiene styrene copolymer)	
	Weight	about 40 g	
	Wireless communication	Wi-Fi (802.11 a/g/n)	
	Battery	DC 3.7V, 1000 mAh	
	Active power	DC 5 V, 1 A	
Common	Temperature	10 °C to 30 °C (Usage) -10 °C to 35 °C (Transportation and storage)	
	Relative humidity	30 % to 85 % (Usage) 10 % to 85 % (Transportation and storage)	
	Air pressure	806 to 1060 hPa	

5.2. Recommended specifications of PC

Item	Minimum specifications	Recommended specifications
Operation system	Microsoft Windows 10 (32bit/64bit)	
Processor	Dual Core CPU 2.0 GHz or Higher	
RAM	2 GB	4 GB
HDD	10 GB free hard disk space	
VGA	Video Memory 256 MB	NVIDIA GeForce GTX660 D5 / 1GB
Display	1920 x 1080 x 32 bpp	
Wireless LAN	Wireless Wi-Fi adapter(Dual band)	

Caution



- The Intraoral Sensor does not guarantee normal operation in unregistered Microsoft Windows. Therefore, please use the registered genuine version of Microsoft Windows.
- Operating systems other than Windows are not supported.
- Disable the Windows firewall service for the database and file server to communicate files on the server network.

06

Detail of Component

6.1. Sensor module



IOXW1

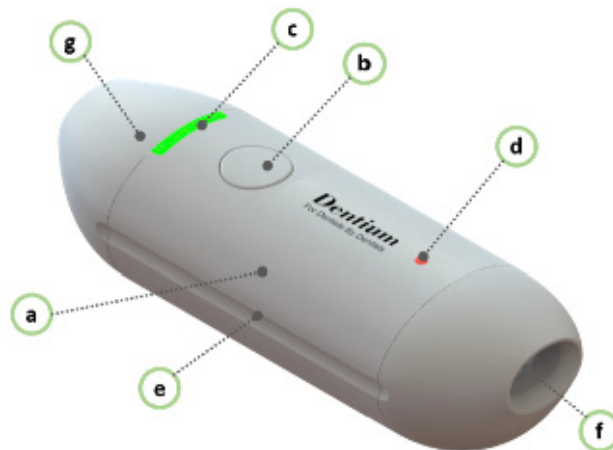
IOXW2

Designation	Description	Size
IOXW1	Univesally used children and adults with a small oral structure	1.0
IOXW2	Commonly used adult	2.0



No.	Desination	Description	Remark
(a)	Sensor module	Image acquisition device	
(b)	Relief	Connection with sensor module	
(c)	Cable	Communication cable	Length: 1.0 m
(d)	USB connector	Controller interface	USB C-type

6.2. Controller



No.	Designation	Description	Remark
(a)	Controller body	Communication control	
(b)	Switch	For control	
(c)	State LED	Check module operation status	
(d)	Battery LED	Check battery charging status	
(e)	Accessory	Accessory connection	
(f)	Magnetic connector	Connection to charger cable	
(g)	USB C-type connector	Connection to sensor module	

6.3. Charging module



No.	Designation	Description	Remark
(a)	Charging adaptor	USB A-type	5 V / 1 A (5 W)
(b)	Charging cable	Magnetic type	Length: 1.2m

- a) Charging adaptor
 - Manufacturer: Shenzhen Keyuantai Industrial Co., Ltd.
 - Model: KYT050100BC-06

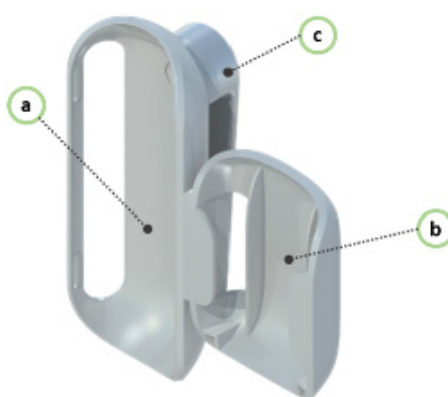
- b) Charging cable
 - Manufacturer: REDBEAN
 - Model: Core5 Magnetic Cable 1.2 M, Black

6.4. USB flash driver



Designation	Description	Remark
USB flash driver	Memory to store device installation file, calibration map and user manual	

6.5. Clip sensor case



No.	Description	Remark
(a)	Controller mount	
(b)	Sensor module mount	
(c)	Hanging clip	

6.6. Clip case



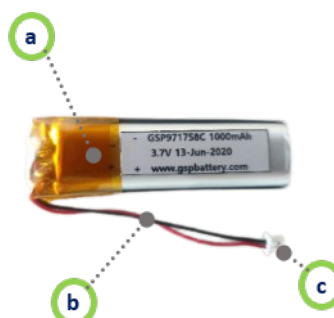
No.	Description	Remark
(a)	Controller mount	
(b)	Hanging clip	

6.7. Silicon cover



Designation	Description	Remark
Silicon cover	Sensor protection cable	

6.8. Battery



No.	Designation	Description	Remark
a)	Battery	3.7 VDC, 1000 mAh	
b)	Cable	Connection to module	55 mm
c)	Connector	Connection to module	2 pin

- 1) Manufacturer: GSP
- 2) Model: GSP903842

Caution



- Charge it using the charging cable provided.
- The controller does not operate during charging.
- If the battery condition is less than 30%, make sure to charge it before using it.
- Products that have not been used for a long time are discharged, so they must be charged before use.
- If the battery is over-discharged, its lifespan may be shortened and its characteristics may be reduced. In addition, if left unattended in this state, there is a risk of battery failure, explosion, or fire.
- If not used as specified in the product manual, the product life may be shortened, and the warranty service does not apply for damage caused by user carelessness.
- Storing the product at too high temperatures can leak battery fluid or shorten battery life.
- If you are wet with water, do not turn on the power, remove moisture with a dry towel while the battery is disconnected, and contact the Dentium branch or buyer.

3) LED status

- The battery condition is normal: Green LED



07 Installation

- The battery is charging: Blue LED



- Battery charging is required: Red LED



7.1. Install software

This step will guide you through the installation process of the Intraoral Sensor Wireless. Provides integrated installation programs for product use, and features an Image acquisition SW, TWAIN driver, and calibration map.

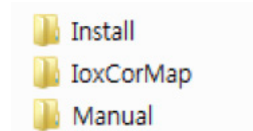
Warning



- To operate the Intraoral Sensor Wireless, you must install the Image acquisition.
- The installation PC must be connected to a product or device conforming to IEC60601-1 or IEC 60950-1.

7.1.1. Installation preparation

Connect the USB flash driver to the PC and open the folder.
The configuration of the folder is composed of "Installation", "Calibration" and "Manual".



7.1.2. Install IoxAcquisition and TWAIN

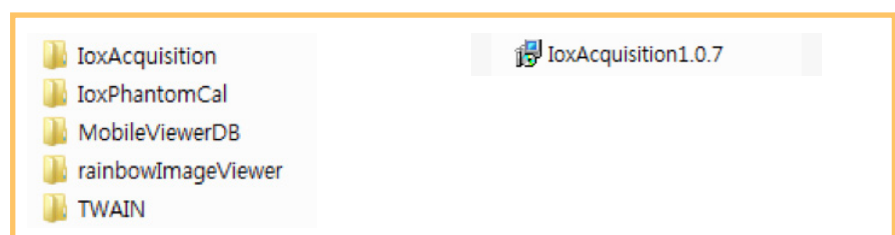
Warning



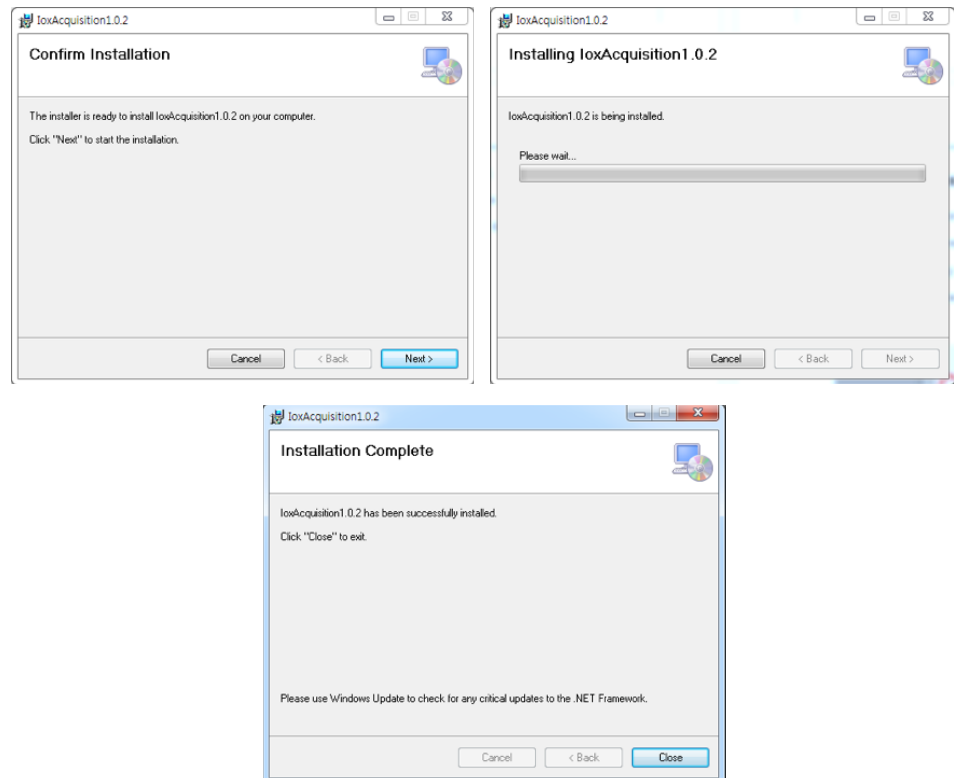
- Do not connect the Intraoral sensor Wireless to PC (Wireless LAN interface) until you have successfully installed.

1) IoxAcquisition: If you are using 'rainbowImageViewer' as a patient management program, you can install a dedicated version 'Iox Acquisition'. (For the installation program of rainbow image viewer, refer to its manual.)

Path: Install\IoxAcquisition\IoxAcquisitionx.x.x.msi.

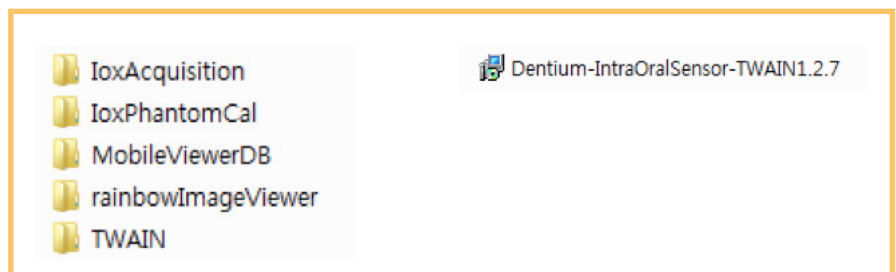


Continue to click the “Next” button to complete the installation.

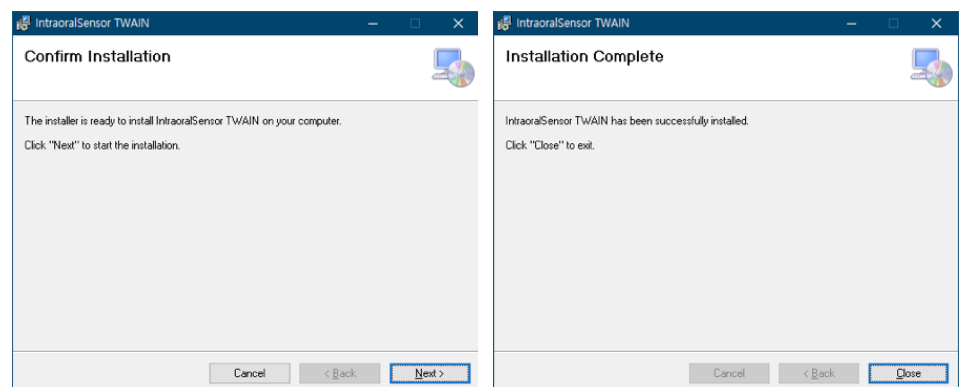


2) The Intraoral Sensor Wireless can acquire images using TWAIN-compliant applications. In order to use TWAIN, a patient management program must support the TWAIN interface.

Path : Install\TWAIN\Dentium-IntraoralSensor-TWAINx.x.x.msi



Continue to click the “Next” button to complete the installation.



7.2. Wi-Fi (Wireless LAN) Connction

7.2.1. Wi-Fi Lan card

After the program installation is complete, turn on the Intraoral Sensor wireless. It is recommended to use distance between the PC and the Intraoral Sensor wireless within 2 meter. Connect 'WIFI USB' to PC for WIFI communication. You only need to set Wi-Fi setting once for the first time, and after that the program automatically sets it up.



Warning

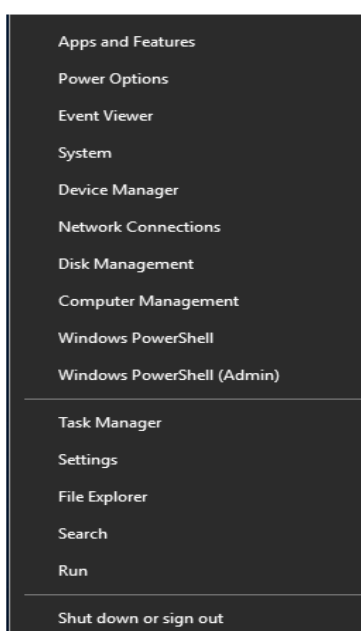


- Intral sensor wireless's wireless communication specifications use 802.11b and 802.11g, and other wireless communication specifications may not allow the connection between the PC and device.

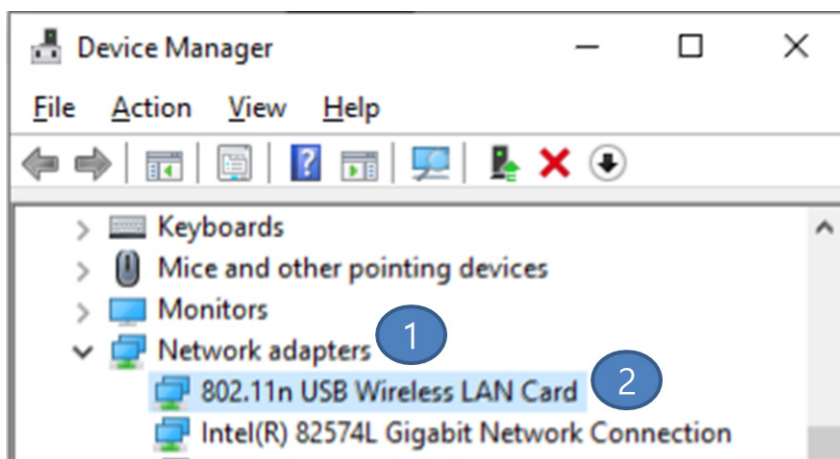
7.2.2. Wireless LAN adapter

To use wireless LAN (Wi-Fi), you need to make sure that the network adapter (wireless LAN adapter) is properly installed on your PC. Please check the device manager of your PC as shown in the figure below.

- 1) From the Windows menu, select Device Manager.

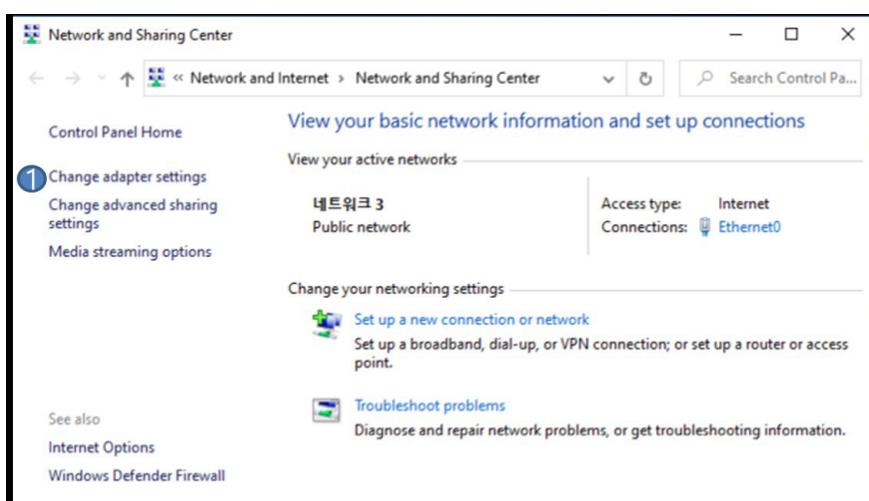
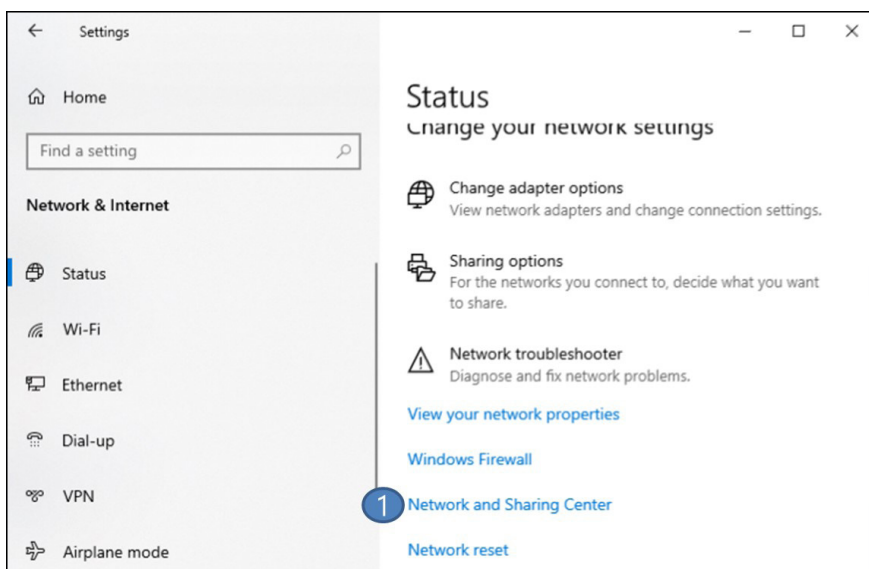


2) Check your wifi on your network adapter.

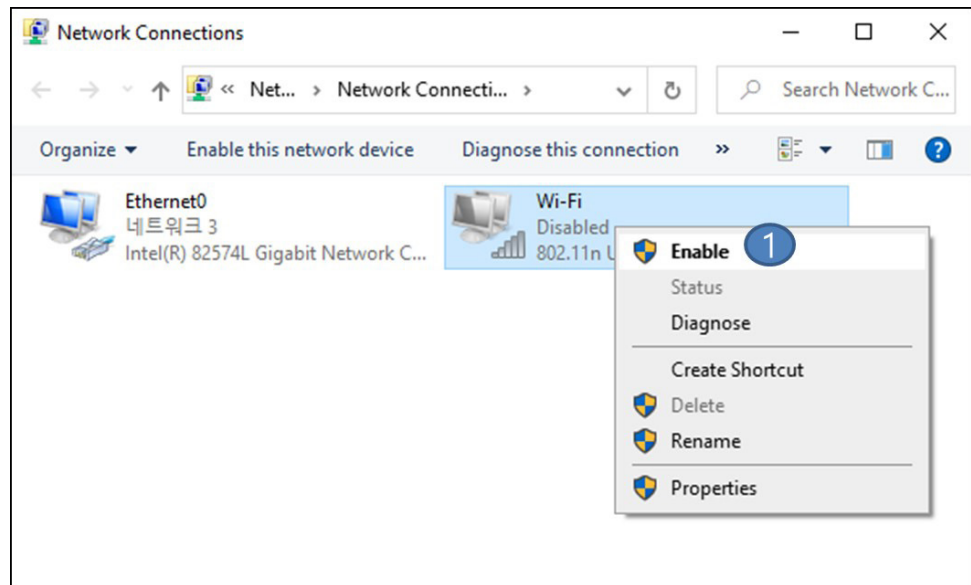


7.2.3. Wireless LAN connection

First of all, if your wireless network adapter is invalid(disabled) before connecting to a wireless LAN, you must reset it to valid(enabled).



Select “Network and Sharing Center” in Windows Settings, then click “Change adapter settings”. When the network connection window is displayed, right-click the mouse on “Wi-Fi adapter” that is invalid (disabled) and change it to “Enable”.

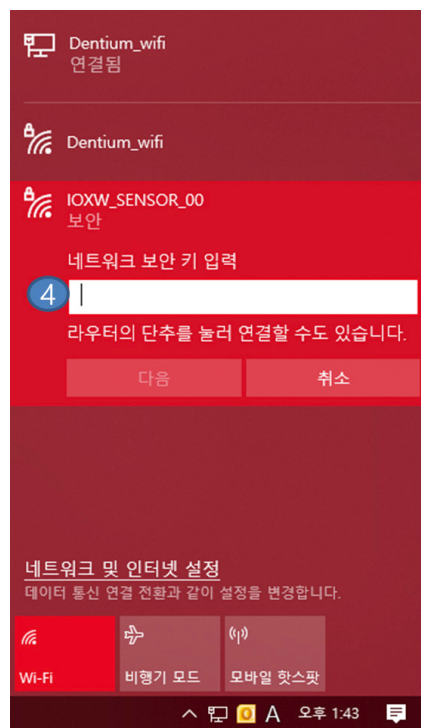


Caution



To check the Wi-Fi connection, please check while the power of the Controller is turned on.

Check and connect the “IOXW Sensor_00” in the “Wi-Fi Wireless LAN” list. (Recommended to enable ‘Auto Connect’ and connect.)



If this is your first time connecting the device, you must enter a security key. The security key can be changed using the setup window of the modality program.

- Security key initial value: ioxw0000

7.3. How to use multiple Wi-Fi controllers

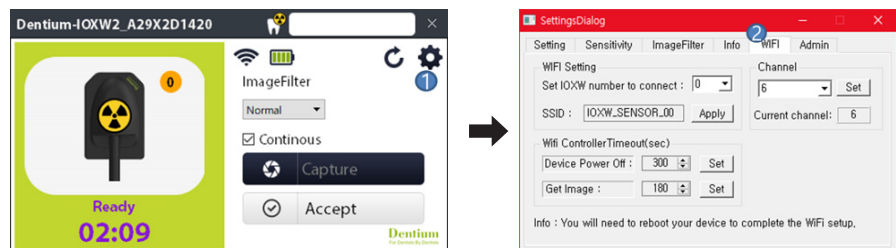
If you use more than one controller, you can use the device after changing the settings through a separate device index. When the controller is shipped, the default index value is set to '0'.

The controller's device index can be used by distinguishing up to 16 devices from '0' to '15'. The network device name (SSID) that can be used changes according to the index. The changed device name (SSID) can be checked in the wireless LAN list when searching for Wi-Fi.

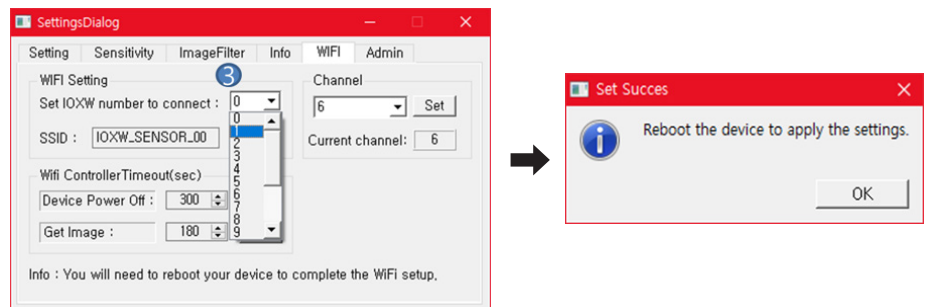
Index	SSID
0	IOXW_SENSOR_00
1	IOXW_SENSOR_01
⋮	⋮
14	IOXW_SENSOR_14
15	IOXW_SENSOR_15

7.3.1. Setting the device index

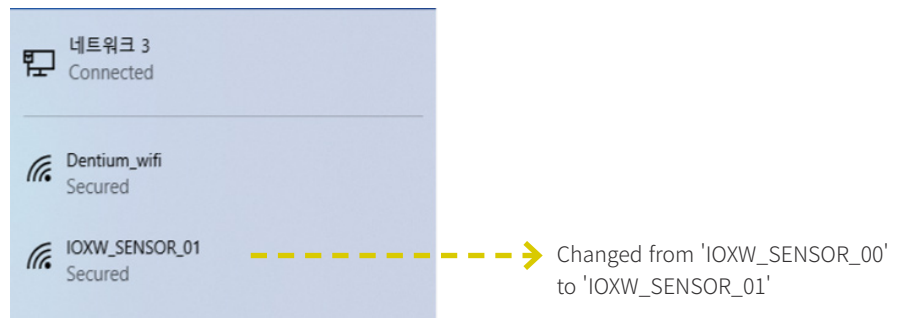
- 1) Power on the device for which you want to change the index (the initial value at the time of shipment is set to '0').
- 2) Entering the setup window after the program runs > Select the Wi-Fi tab



- 3) After setting the desired number (Index) in Set IOXW number to connect, click the "Apply" button to recall the message box that the Wi-Fi Controller needs to be restarted.

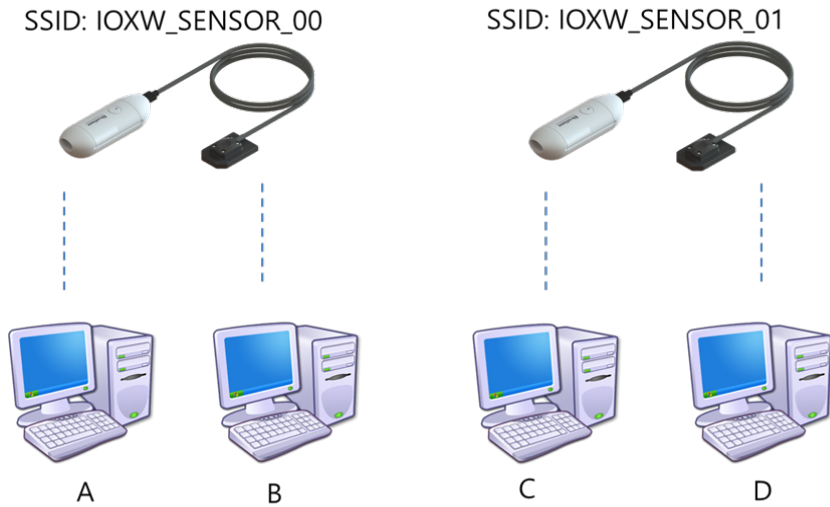


- 4) After turning on the power again, check if the device name (SSID) is applied according to the changed index.



7.3.2. Configuring two or more device environments

- 1) Power on the device whose Index you want to change. (The default is set to '00')
- 2) After running the program, select the setting window > Wi-Fi tab



Example of the environment for using two IOXW and four PC

PC	Controller
A, B	IOXW_SENSOR_00 connection
C, D	IOXW_SENSOR_01 connection

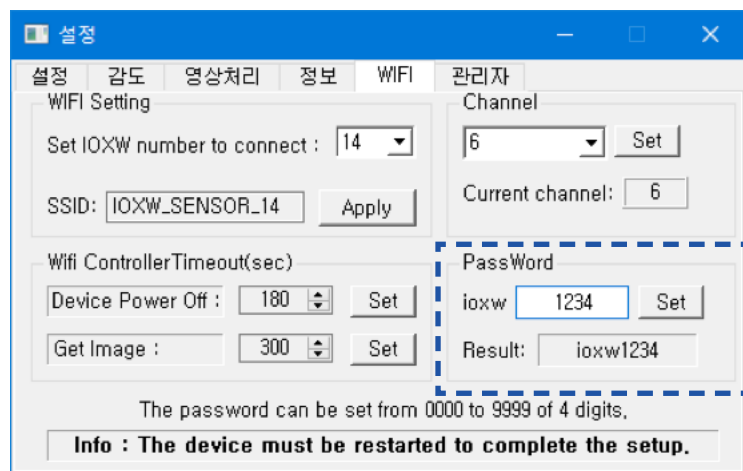
Depending on the configuration of the user environment, you can change the index setting of the device to be connected for each PC and use it. However, simultaneous use is not allowed.

7.4. How to set Wi-Fi password

If you need to change the password of the WIFI controller, you can change it through the program settings. The factory default value is 'ioxw0000'.

To change your password, follow the steps below.

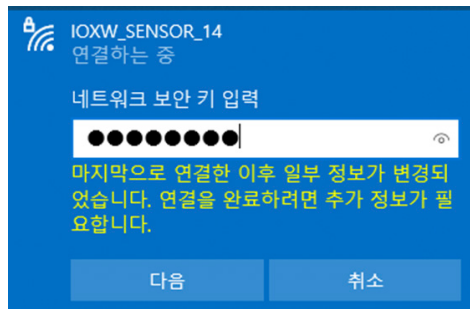
- 1) Enter the shooting program setting window > Select the Wi-Fi tab
- 2) Enter the password to be changed (0000~9999) in the text box of 'PassWord' and click the "Set" button.



* Password guidelines

- Unchangeable part : ioxw
- Changeable part : Last 4 digits (0000~9999)
- Ex) Password when setting 1234 : ioxw1234

- 3) Reboot the Controller (OFF > ON) and restart the program to complete the setting.
- 4) After the device is activated, if the Controller is activated in the Windows wireless LAN list, enter a new password to try to connect.



- 5) Execute the acquisition program and check if the connection is normal.

7.5. How to reset the Controller

If the default value (factory initialization) is required when the Controller is shipped from the product, it can be initialized through the following method. Settings that can be initialized are 'device index', 'password', 'wireless LAN channel number', etc.

- 1) Turn off the power of the controller.
- 2) Separate the sensor from the controller.
- 3) If the power turns on after 3 seconds of pressing the power button, do not release the button and keep holding it.
- 4) After the power is turned on, keep pressing the button and after 30 seconds, the power is turned off and initialized.

Please note the following when initializing.

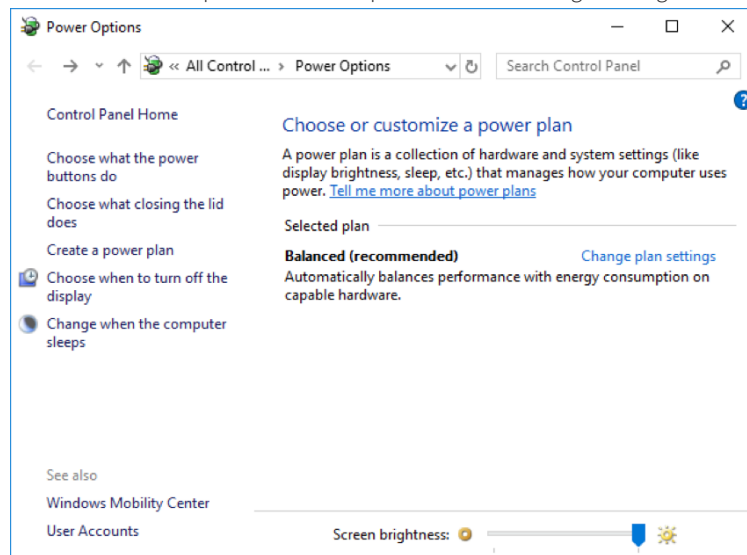
- 1) When the sensor is connected, it is not initialized even if the power button is pressed for 30 seconds.
- 2) Initialization is not executed when the power is on.

When initialization is completed, the index of the controller is changed to '0' and the password is changed to 'ioxw0000', and the existing setting value is changed to the

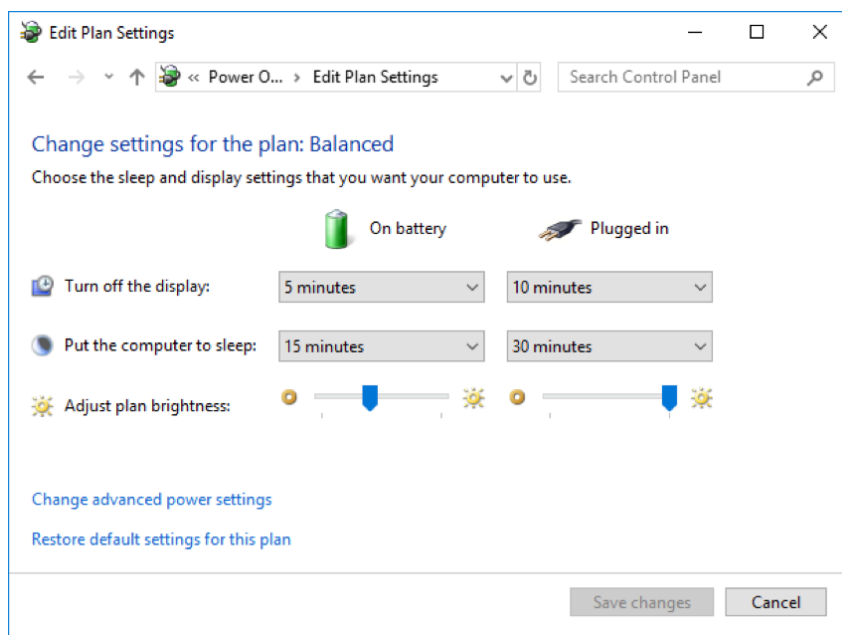
7.6. Laptop PC power setting

When using the Intraoral Sensor wireless through a laptop or tablet PC, the USB power supply may be unstable. In this case, you need to adjust your PC's USB power management options.

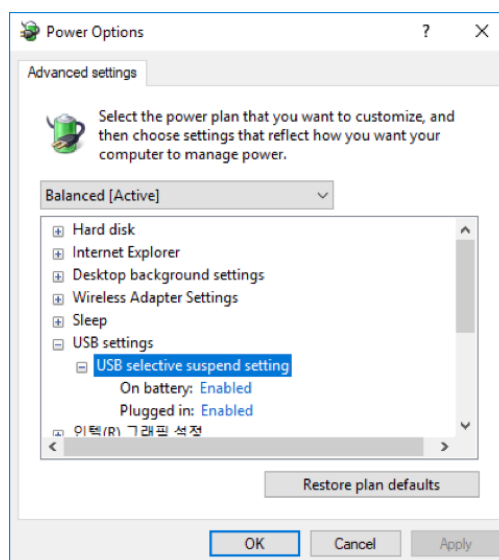
- 1) Control panel -> All Control Panel Items -> Power Options
- 2) Press Windows + R to launch the Run window. Write 'Powercfg.cpl' and press 'Enter'.
- 3) When the 'Power Options' window opens, click the 'Change Settings' button.



4) Click the 'Change advanced power settings' button.



5) Select 'USB selective suspend settings' in 'USB Settings'. Change the 'Disable' setting to 'Enable' and save.



08

X-ray Image Acquisition

8.1. Device configuration

In order to acquire images of Intraoral Sensor wireless, connect the wireless LAN to the PC that can control the device and check the image while the sensor and controller are connected. When X-ray is irradiated toward the sensor using the X-ray Generator, the image is automatically acquired and can be viewed on the PC.

Warning

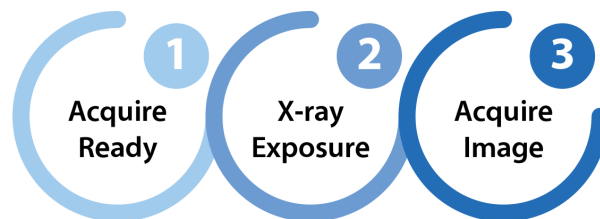


- For PC and X-ray Generator, use IEC60950-1 certified input power.
- Electric shock protection class: Type B applied parts
- Protection against matter/water: IP68



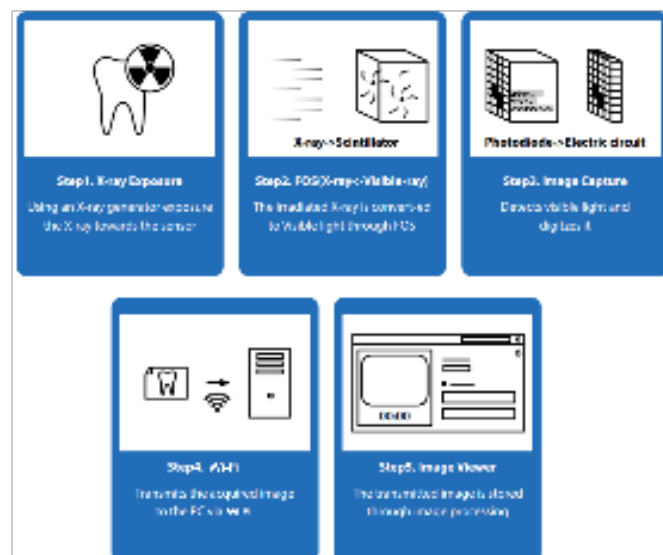
8.2. Image acquisition process

In order to acquire images of Intraoral Sensor wireless, connect the wireless LAN to a PC that can control the device and check the image while the sensor and controller are connected. When X-ray is irradiated toward the sensor using the X-ray Generator, the image is automatically acquired and checked on the PC.



Dentium Intraoral Sensor wireless allows you acquire images in three simple operations. When the Intraoral Sensor Wireless is ready to capture, it irradiated X-ray to acquire the image.

The process of acquiring the image is shown below. When the X-ray is irradiated to Intraoral Sensor Wireless, X-ray signal is converted into visible light through the FOS, and the image is detected by the sensor. The acquired image signal is transferred to a PC by Wi-Fi interface and can be viewed through the image management program.



8.3. Capture program

Image acquisition supports three methods: Intraoral Sensor Wireless exclusive acquisition program, TWAIN driver. The dedicated program is a method of acquiring images by interlocking with Dentium's patient management program "rainbow Image Viewer".

TWAIN is one of the industry standards for common image acquisition interface, and you can acquire images by supporting program. This manual describes how to acquire the images using Dentium's patient management program. If you use a third-party program, please refer to its manual.

8.4. How to use "Rainbow Image Viewer"

Please refer to the user manual for basic installation and usage of the "Rainbow Image Viewer". (rainbow image viewer Management Manual, Chapter 2.3, page 45 ~ 50)

8.4.1. Controller power control

To power on The Intraoral Sensor Wireless, press and hold the switch on the Controller for 2 Seconds or longer. When the power is on, you can check the Green in the Battery LED.



If the switch is pressed for 2 seconds or more while the Controller is powered on, the power is turned off.



8.4.2. Wi-Fi connection

When the Controller is powered on, it establishes a Wi-Fi connection with the PC. An existing PC connects to Wi-Fi automatically, and if a connection is required, register the product's password in the search list to connect (refer to procedure 7.2.3). The status LED blinks blue during Wi-Fi connection, and remains lit when the connection is complete.



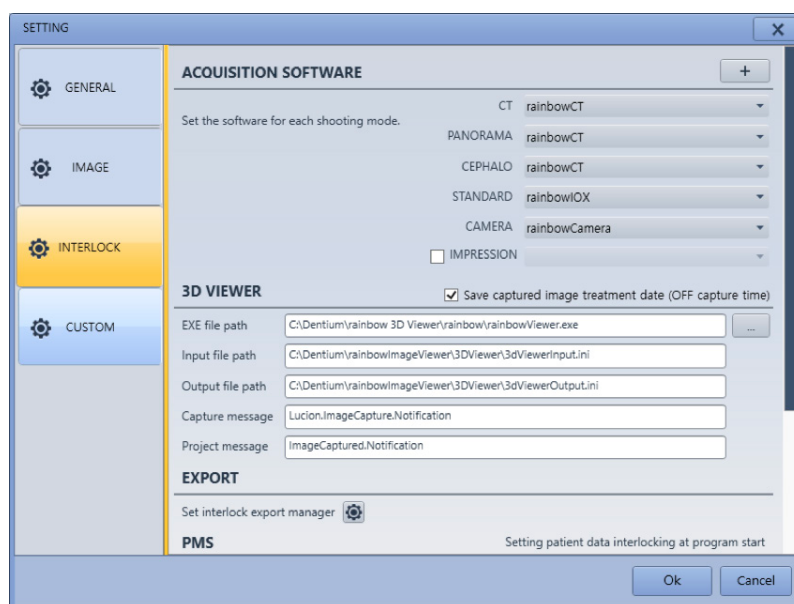
8.4.3. Sensor connection

When the Controller is connected to the PC via Wi-Fi, image acquisition is possible. While the Wi-Fi is connected, the LED blinks in green and remains lit when the connection is complete. Please execute the following procedure while the device is connected.



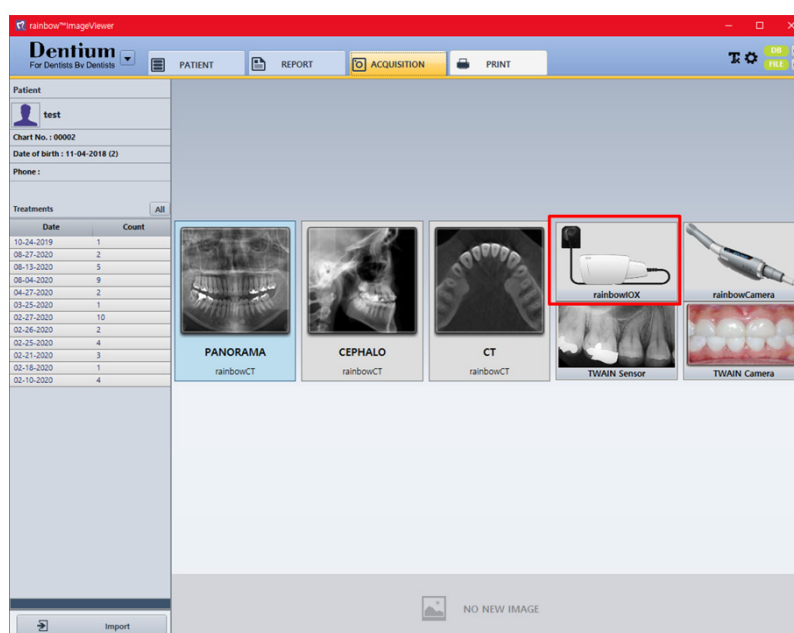
8.4.4. Verifying the installation

To check Intraoral Sensor Wireless installation, click the settings button of Rainbow Image Viewer. On the 'INTERLOCK' tab, check 'rainbow IOX' in the 'STANDARD'.



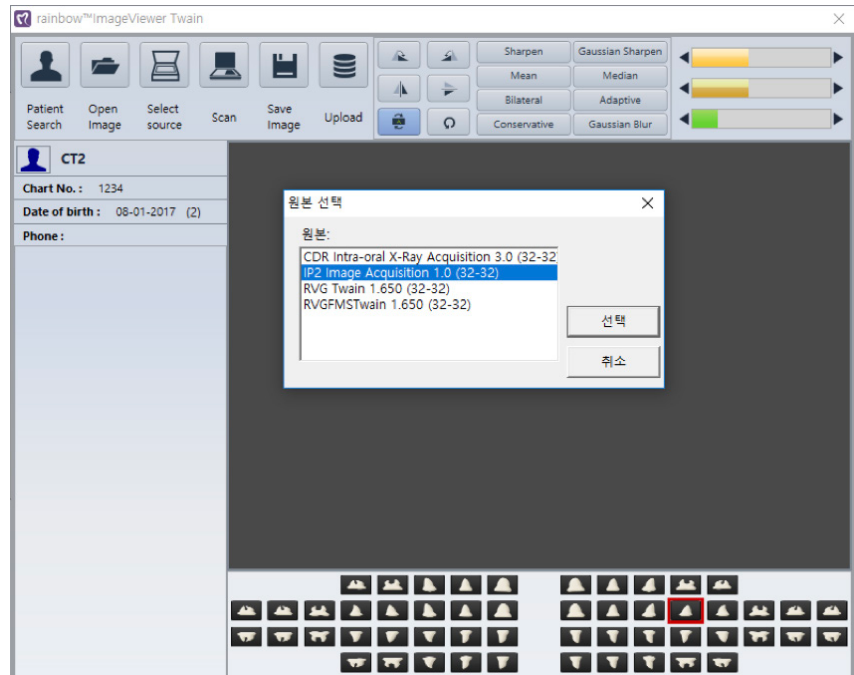
8.4.5. Excute “Rainbow Image Viewer”

After executing Rainbow Image Viewer, Select a patient. Click the 'Acquisition' tab and then double click on the 'STANDARD' button.



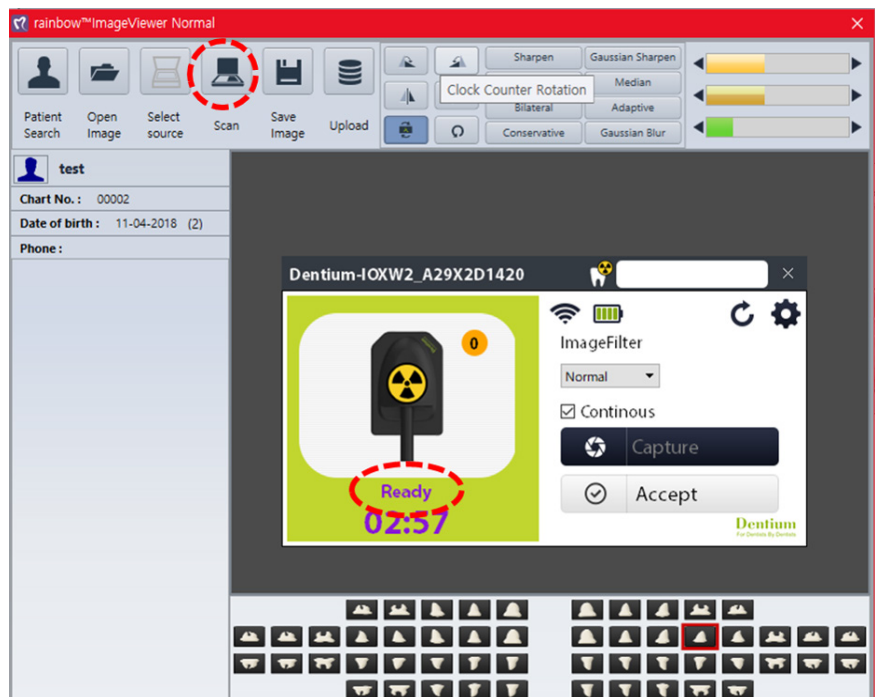
8.4.6. Preparation for capture

If you click the “Capture” button, you can select the desired device in “Rainbow Image Viewer”. Click “rainbow IOX” to go to the acquisition interface screen.



8.4.7. Run the capture program

With the sensor positioned on the patient's imaging area, click the “Scan” button to run the acquisition program. If you click the “Capture” button in the acquisition program, the Intraoral Sensor wireless is ready to acquire X-ray images as shown in the picture below.



8.4.8. Check Wi-Fi connection status

If the Wi-Fi connected normally, the icon is displayed in the acquisition program as shown below.



Connection OK. AVAILABLE.



Bad communication and disconnection.

8.4.9. Check the 'Ready' status

After running the program, the device automatically enters the ready state.



The acquisition program status changes to 'Ready', When the Status LED of the device flashes green, it is ready to take X-ray.

8.4.10. Preparation of X-ray Generator

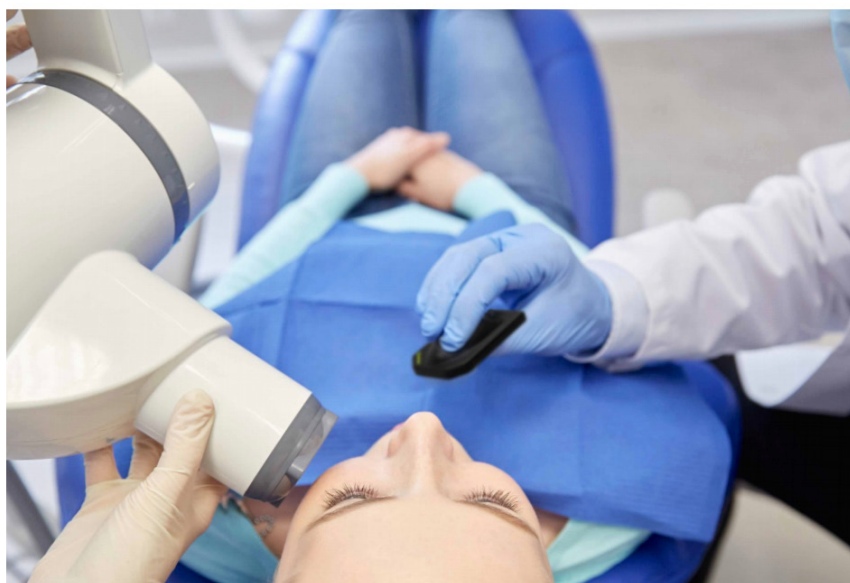
Prepare an X-ray generator for the exposure.

8.4.11. Set position

Place the Intraoral Sensor wireless in the patient's mouth to be capture, with the bottom plane of the device facing the x-ray generator.

8.4.12. X-ray exposure

When the device is properly positioned for the patients's capture area and clicks the 'Capture' button, the device is ready to acquire images. Exposure X-ray after setting the appropriate conditions according to the patient's condition.



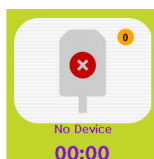
Caution



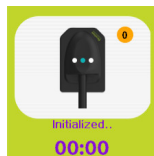
- Position the probe on the X-ray Generator exactly to the bottom of the device.
- Be careful not to move the patient while acquiring image.
- When Intraoral Sensor Wireless is placed in the patient's mouth, be careful not to bite or impact the product.

8.4.13. Status description

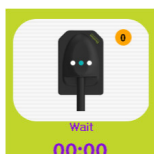
The status of device information is divided into 6 levels.



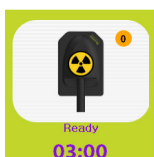
No Device: Indicate that the cable of the device is disconnected.



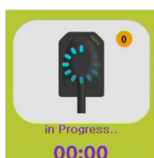
Initialize: Initialization is in progress after the device is connected to the PC. This step is omitted when reconnecting.



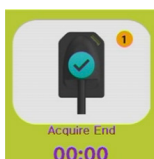
Wait: Device initialization is completed normally and preparing to acquisition.



Ready: If you click the 'Capture' button while connected, you can acquire an image by exposure X-ray.



In progress: Indicate the image acquisition step after X-ray exposure is completed.



Acquire End: The image has been acquired normally. As soon as image is acquired, it is transferred to the image management program(rainbowImageViewer)

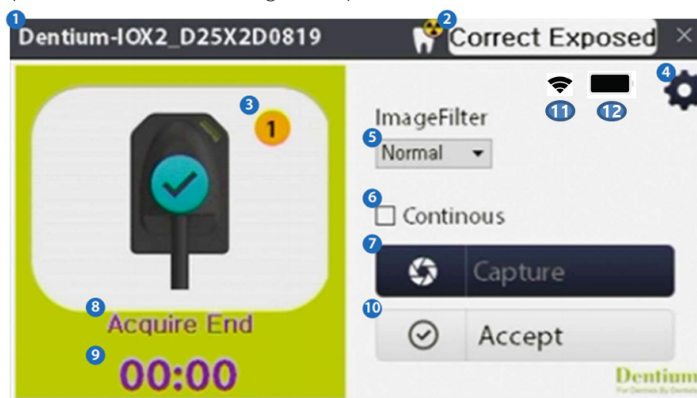
8.4.14. Image transmission

Image acquired from Intraoral Sensor wireless are automatically saved and sent to PC via Wi-Fi communication. The status LED blinks green while the image is being acquired.



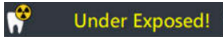
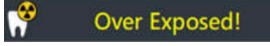
8.4.15. Image acquisition program

The image acquired from the Intraoral Sensor wireless is displayed on the screen as shown below. When device is properly positioned for the patient's exposure are and click the 'Capture' button, the device is ready to capture. Exposure X-ray after setting appropriate conditions according to the patient's condition.



- 1) If you click the “Capture” button, it will wait for 3 minutes, and then the capture will end automatically.
- 2) The captured image can be previewed, and the image processing preset step can be changed.
- 3) After the image is acquired, it become “Ready” again and continuous acquiring. The captured image can be previewed and can be viewed by clicking the left/right button.
- 4) The captured image can be saved by clicking the “Accept” button. (In continuous capture mode, all captured images are saved.)

The detailed fuctions of the acquisition program are as follow.

- ① Device Serial Number: Serial number and the name of the correction map folder must be matched.
- ② X-ray dose condition guide: Check X-ray dose irradiated in the exposing in 3 steps.
 - a.Under expose: 
 - b.Correct expose: 
 - c.Over expose: 
- ③ Number of acquired image: Check the number of acquired image.
- ④ Acquisition setting menu: Check and change detailed sensor settings. Do not use it other than the administrator.
- ⑤ Preset step adjustment: Five step of calibration setting can be selected.
- ⑥ Continuous acquisition: choose if you need continuous acquisition.
- ⑦ Capture: Image acquisition button.
- ⑧ Device status: Check the device status.
- ⑨ Acquisition waiting time: Wait up to 3 minutes for acquisition waiting time. If the X-ray is not irradiated during this time, it is changed to standby.
- ⑩ Accept: Save acquired images.
- ⑪ Wi-Fi signal strength icon(displayed according to signal strength).



- ⑫ Battery status icon.

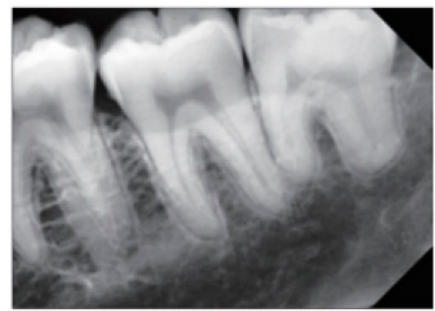


8.4.16. Preset step adjustment about image processing

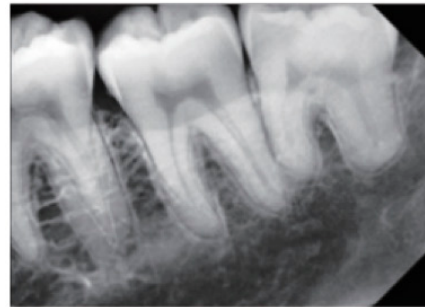
Acquired images can be selected from a total of five levels of image filters accoding to preference of user. The default value is set to ‘Default’, and you can set more sharply form Smooth+(Left) to Sharp+(Right). You can select the filter level before image capturing, and change the filter level after image capturing. In the case of continuous capture mode, the filter can be changed individually in the preview step, and the image is save as it is. Sample images with image processing filter applied are shown below.



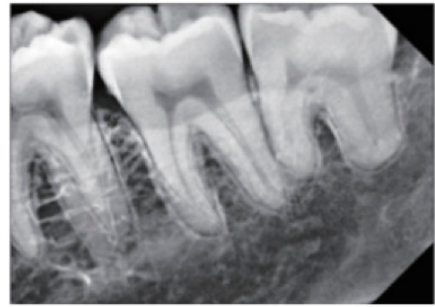
Smooth+



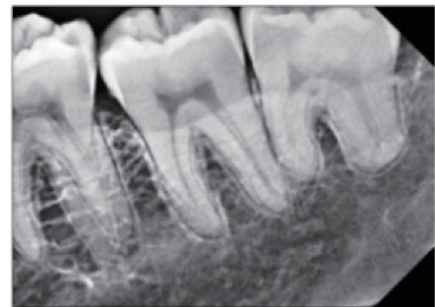
Smooth



Default



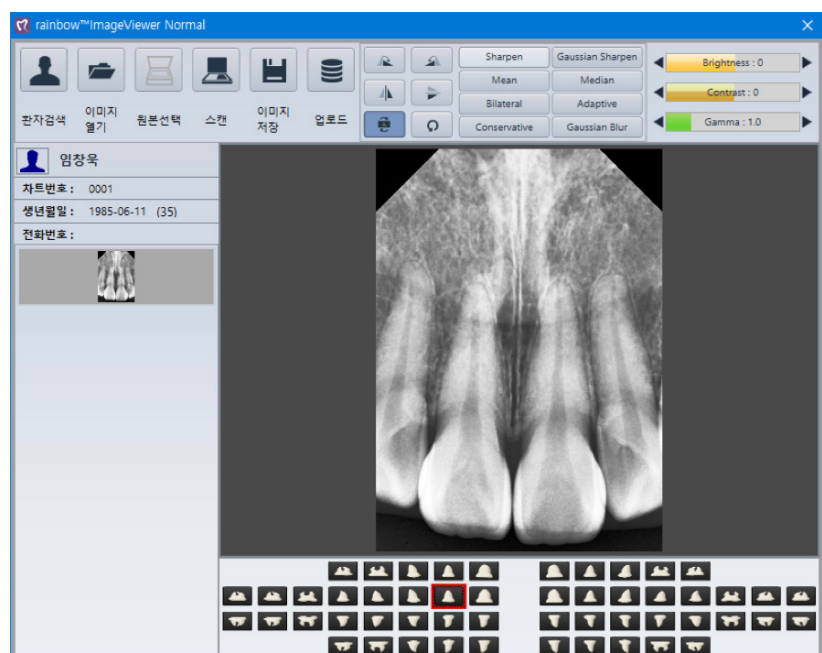
Sharp



Sharp+

8.4.17. Check the final image

You can view the saved image through the patient management program. The saved image can be edited by the functions supported by the patient management program. Please check the program's user manual for more details.

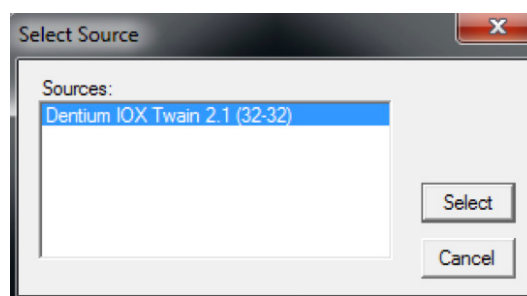


8.5. Image acquisition using TWAIN

Intraoral Sensor wireless supports TWAIN standard protocol. To use the TWAIN function, you must use a patient management program that supports TWAIN.

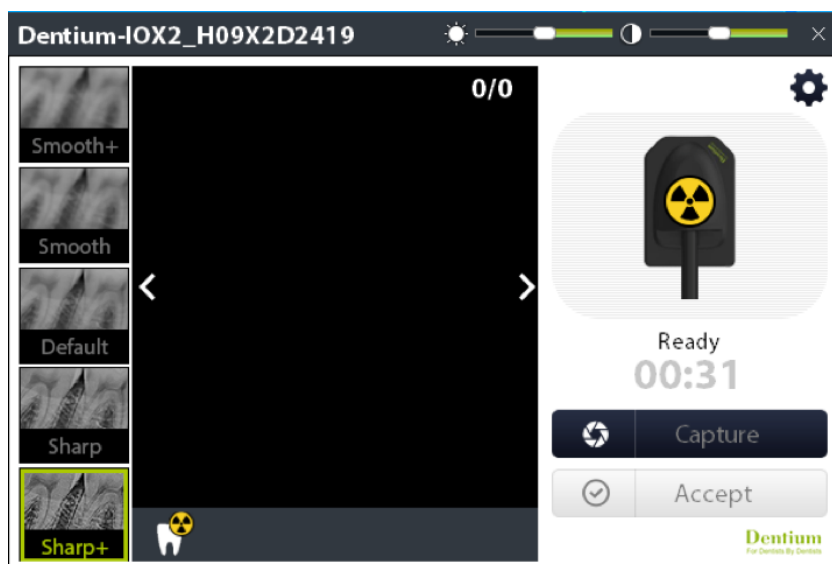
The TWAIN driver is installed normally and you need to select a data source to use the function.

If you run the patient management program that supports the TWAIN function and execute the related menu, you can easily check the data source selection window as shown in the figure below. (TWAIN source name: Dentium IOX TWAIN 2.1) If you need to check whether your patient management program supports TWAIN, please contact the Dentium customer support team or the developer of the program.



8.5.1. Execute a TWAIN

the method of using TWAIN differs depending on the video management program being used, please contact the Dentium customer support team for the correct usage. If the program you are using supports TWAIN, an image acquisition interface is called as shown in the figure below, and images can be acquired in the same way as rainbowimageViewr.



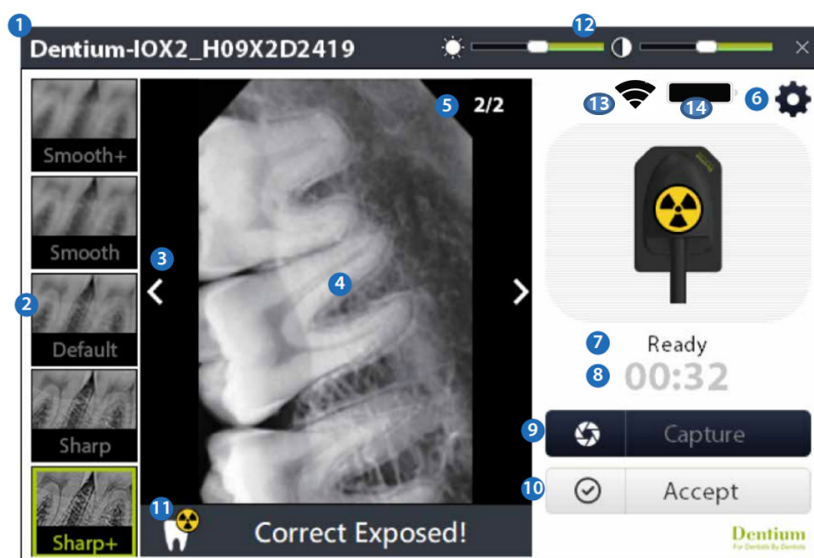
Warning



The setting button(⚙️) at the top right of the of the TWAIN program can only be used by the administrator. Users should never use it.

8.5.2. TWAIN program

The TWAIN program is similar to the interface and operation method of the 'IoxAcquisition' program.



① Product serial number: The serial number of the product and the serial number of the folder where the calibration map is installed must be the same.

② Adjustment of calibration steps: Select 5 calibration steps.

③ Continuous acquisition: Acquire images continuously.

④ Image preview: Preview the image before saving it.

⑤ Image control: Adjust the brightness and contrast of the image.

⑥ Setting menu: Check and change settings related to sensor operation. It must only be used by administrators.

⑦ Status: Check the operation status of the product.

⑧ Standby time: Sensor waits for capture 3 minutes. If X-ray is not irradiated during this time, it is changed to standby state.

⑨ Capture: Image acquisition button

⑩ Accept: Save the acquired image

⑪ X-ray condition guide: It expresses the X-ray exposure dose in 3 steps.

- 1) Under dose : Under Exposed!
- 2) Correct dose : Correct Exposed!
- 3) Over dose : Over Exposed!

⑫ Image control : Adjust the brightness and contrast of the image.

⑬ Wi-Fi signal strength icon(displayed according to signal strength)

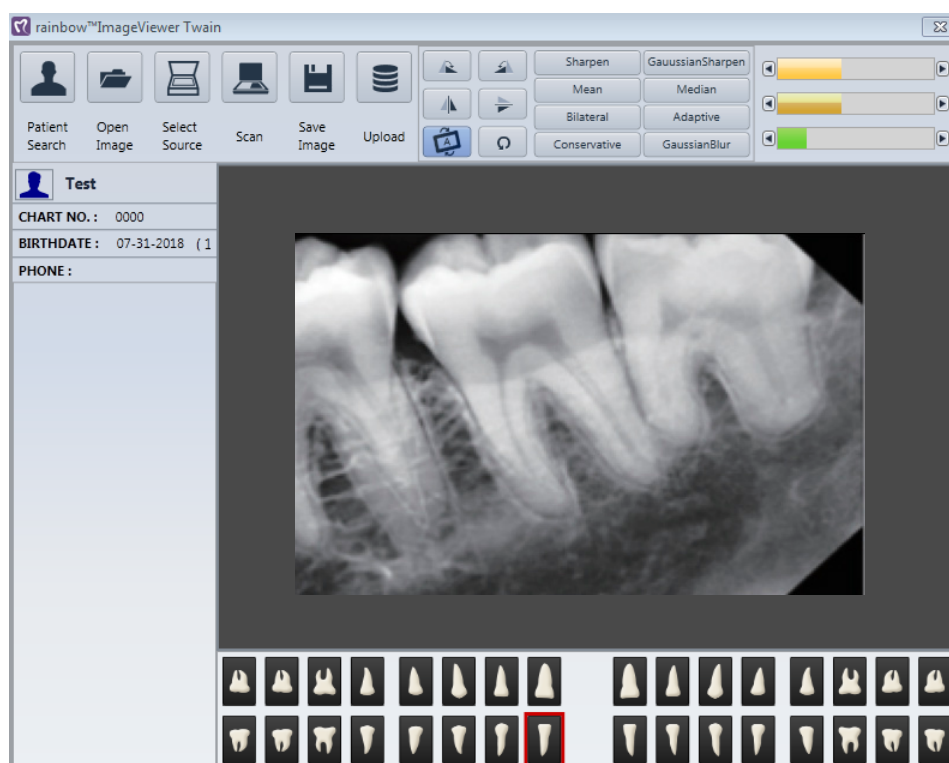


⑭ Battery status icon



8.5.3. Check the final image

You can check the saved images through the patient management program. The saved image can be edited by the functions supported by the patient management program. For details, please check the user manual of the program.



09

X-ray exposure guide

9.1. X-ray exposure conditions

The X-ray dose required for best image acquisition is determined by:

- ◆ X-ray source: tube voltage, tube current, tube assembly, etc.
- ◆ SID : The distance between the beam focus of the X-ray generator and the sensor.
- ◆ Target teeth and tissues
- ◆ Age of patient and bone density

X-ray dose affects image quality. If the dose is insufficient, the noise in the image increases and the discriminating power of detail decreases. Conversely, if the dose is excessively high, the discrimination power for dark areas is reduced. X-ray dose is determined by tube voltage (kVp), tube current (mA) and exposure time, and the exposure

Exposure condition	70 kVp, 2 mA	
Patient	Children	Adult
SID	200 mm	
Anterior / Canine	130 ~ 150 μ Gy	400 ~ 450 μ Gy
	0.02 ~ 0.03 s	0.06 ~ 0.10 s
Molar	150 ~ 200 μ Gy	500 ~ 600 μ Gy
	0.03 ~ 0.04 s	0.10 ~ 0.13 s

* SID: Source to Image Distance

* Recommendation on exposure time is limited to Intraoral Sensor Wireless in the above table.

Caution



- X-ray exposure condition can be changed by expert's judge.
- For larger body types: Increase the source current by 25 %
- For larger body types: Increase the source current by 25 %
- For larger body types: Increase the source current by 25 %
- The X-ray dose required to acquire the image may vary depending on the X-ray source and environmental conditions.

9.2. Check operating conditions

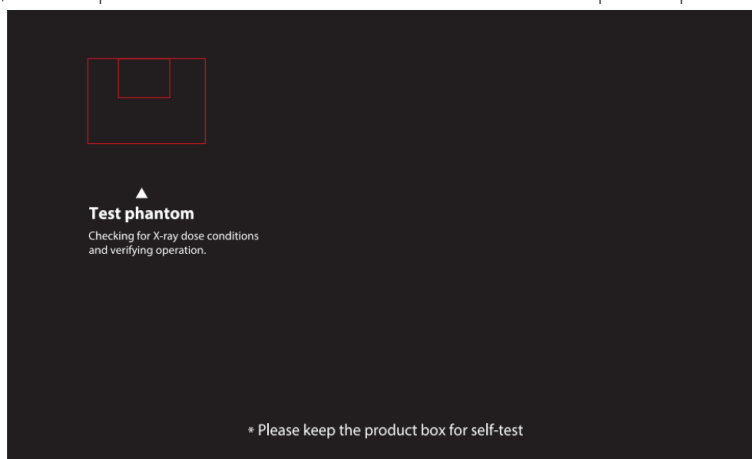
Even if the X-ray generator required for image acquisition has the same specifications, there may be differences in output depending on the product, period of use, battery charge status, and other factors. It supports to check the conditions of use of the X-ray Generator by utilizing the phantom inside the product box. The separately provided program is software that can check usage conditions and verify operation.

9.2.1. Sensor holder using a product box

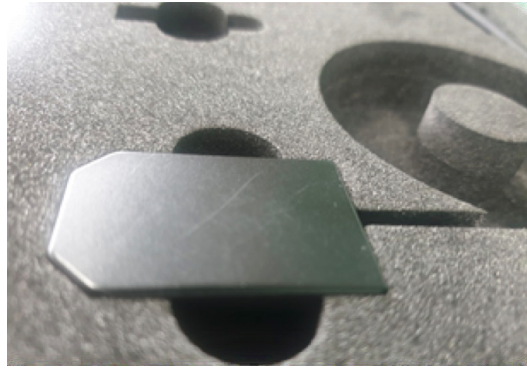
(1) The front of the top of the product box is marked with the 'X-ray Generator ▼' area at the bottom right as shown below. The X-ray Generator's irradiation tool can be located in close contact with the circular center.



(2) The test phantom location is indicated on the back of the top of the product.



(3) Turn the product upside down on the Inytraoral sensor seat in the product box with the bottom of the sensor facing up.



(4) Referring to the figure below, allow the Intraoral sensor to be connected to the Controller while it is mounted on the product box.

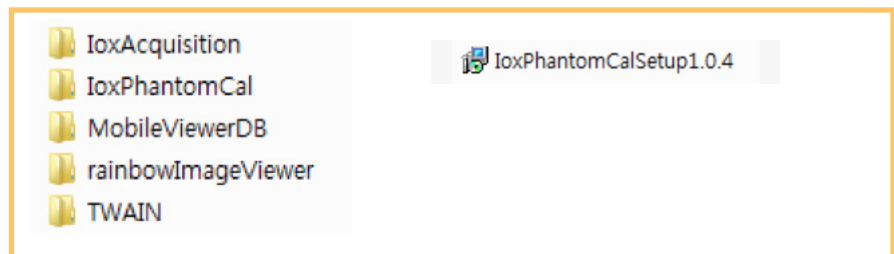


(5) With the Intraoral sensor connected to the Controller, close the cover of the product box and irradiate an X-ray to acquire an image.

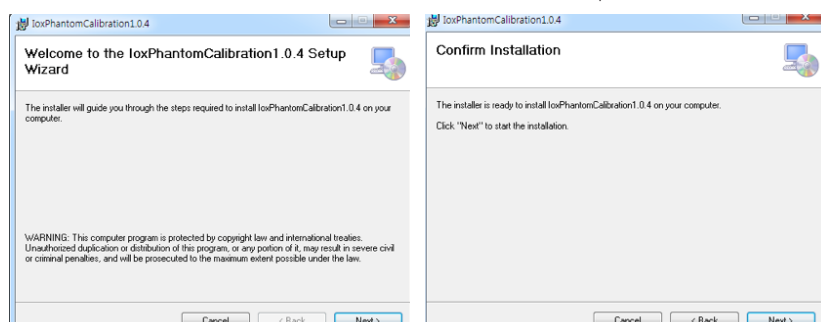
9.2.2. Using the IoxPhantomCal program

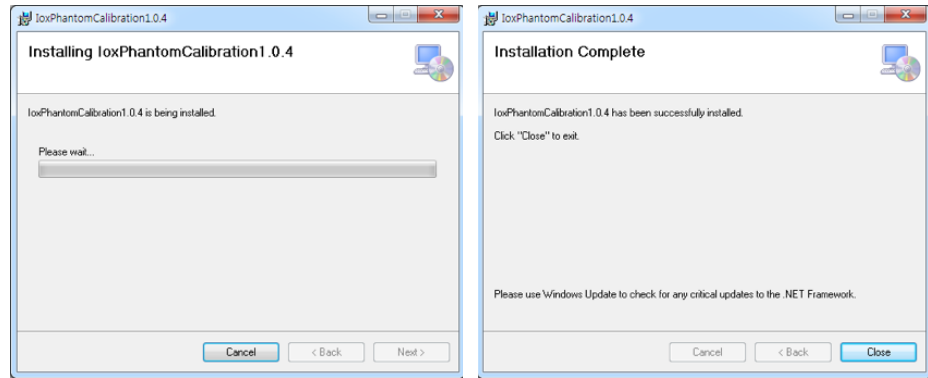
(1) Execute the 'IoxPhantomCalSetup.msi' file included in the USB flash drive to install the program.

Path: Run the installation\Install\IoxPhantomCal\IoxPhantomCalSetupx.x.x.msi file.



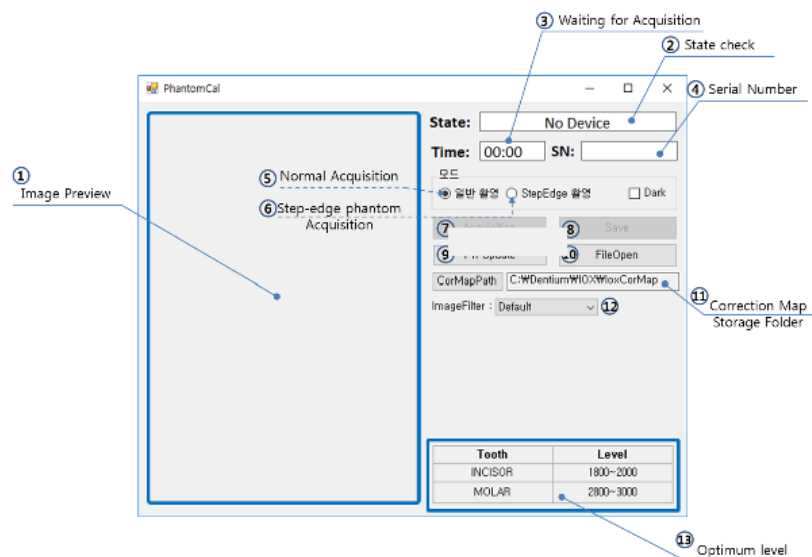
(2) Follow the instructions and click the 'Next' button to complete the installation.





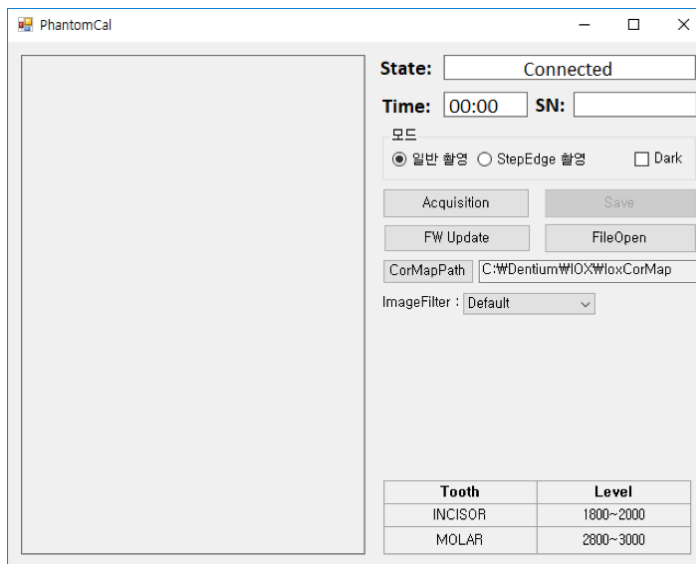
(3) Execute the installed program. Before running the program, connect the sensor to the PC, run the 'PhantomCal.exe' file in the path C:\Dentium\IOX\PhantomCal\.

(4) The function of the program is as follows.



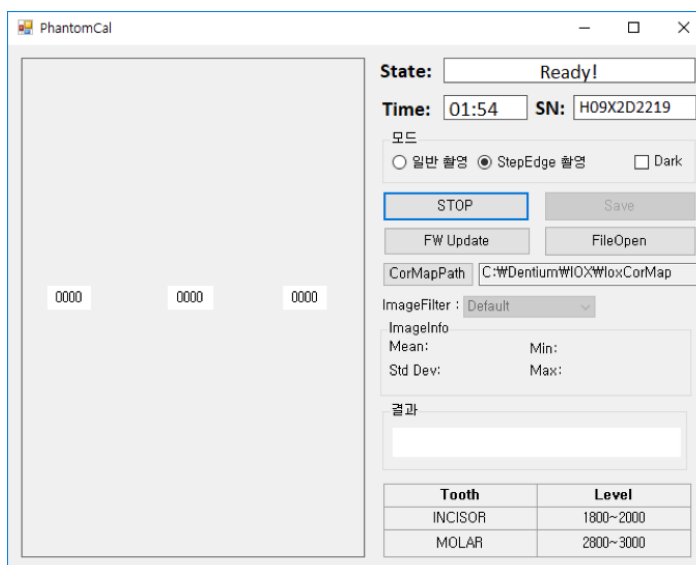
- ①Image Preview: Check the acquired image.
- ②State check: Check the operation status.
- ③Waiting for Acquisition: It watis up to 2 minutes for the waiting time for acquisition the image.
- ④Serial Number: The unique number of the connected device.
- ⑤Normal Acquisition: Acquire the corrected image in the same way as the image acquisition using TWAIN.
- ⑥ This is a dedicated function for test phantom to check the dose condition.
- ⑦Acquisition: Image acquisition button.
- ⑧Save: Save the acquired image.
- ⑨FileOpen: Open the acquired image
- ⑩Correction Map Storage Folder: Designate the folder where the correction map is saved.
- ⑪Image Filter: You can specify 5 levels of correction processing for the acquired image.
- ⑫Optimum level: The optimal image level for each tooth area. Please refer to this when checking the dose.

(5) When the Intraoral Sensor is connected, the status changes to 'Connected'.

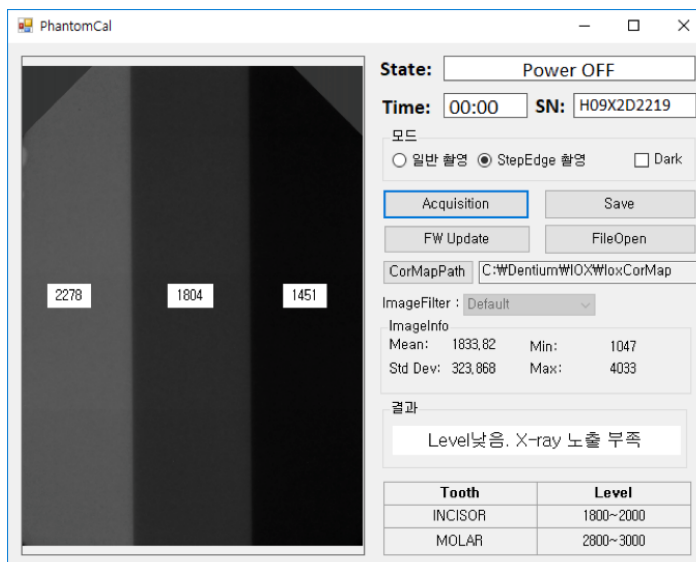


(6) Select 'StepEdge capture' in Mode.

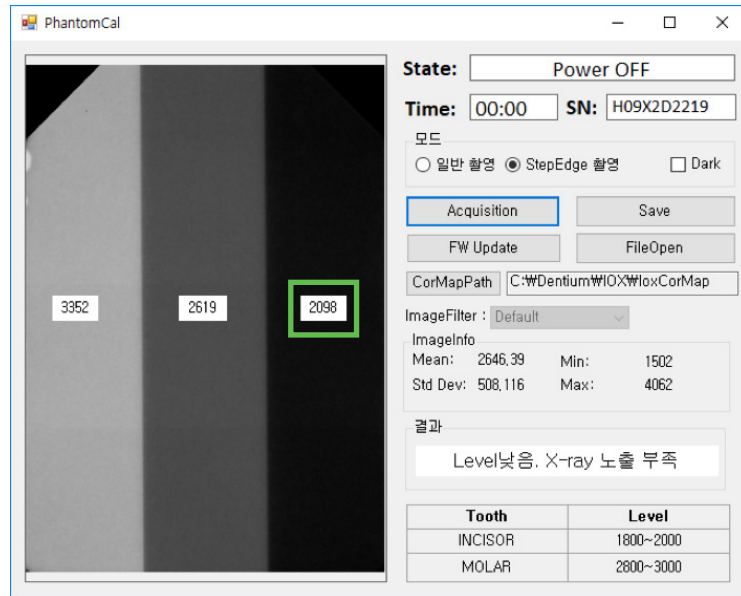
(7) Click the 'Acquisition' button, the status is changed to 'Ready' and the waiting time for acquisition is counted.



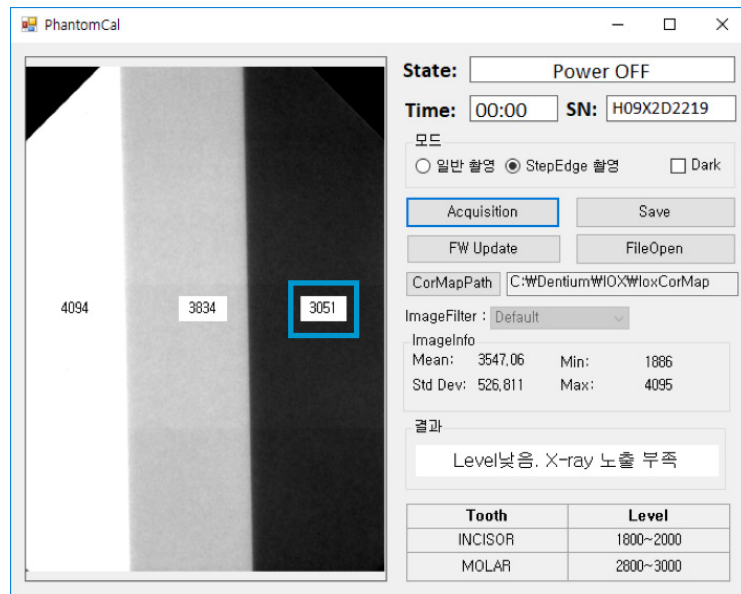
(8) When acquisition is complete, the status changes to 'Power OFF' and check the acquired image. The image level, detailed information, and result information for each area are displayed together.



(9) This is an appropriate image level for Incisor area.

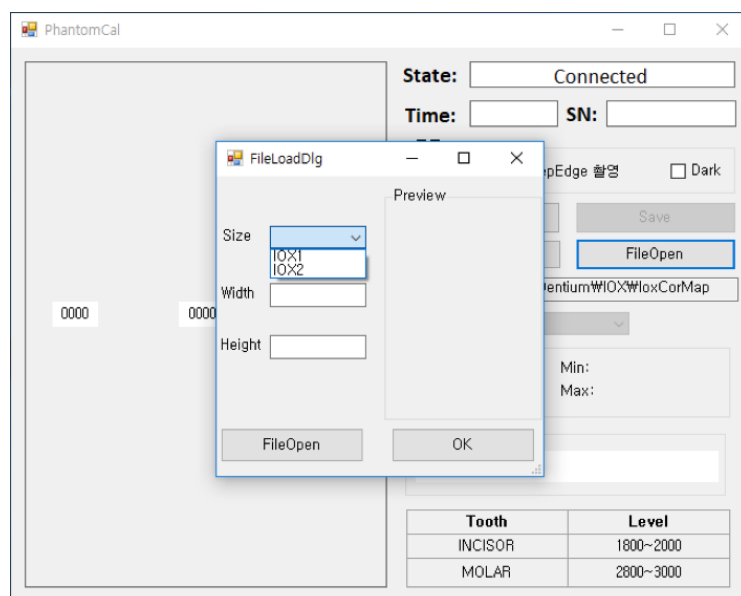


(10) This is an appropriate image level for Molar area.

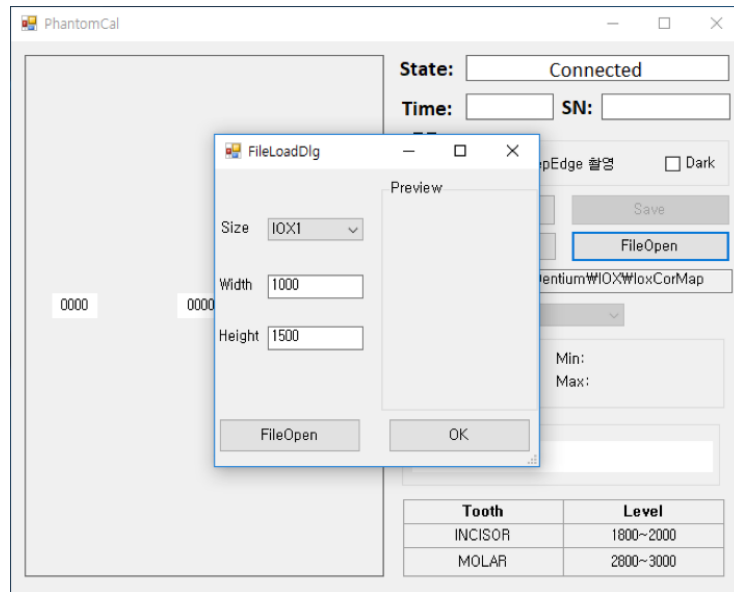


(11) Click the 'FileOpen' button to retrieve and check the acquired image.

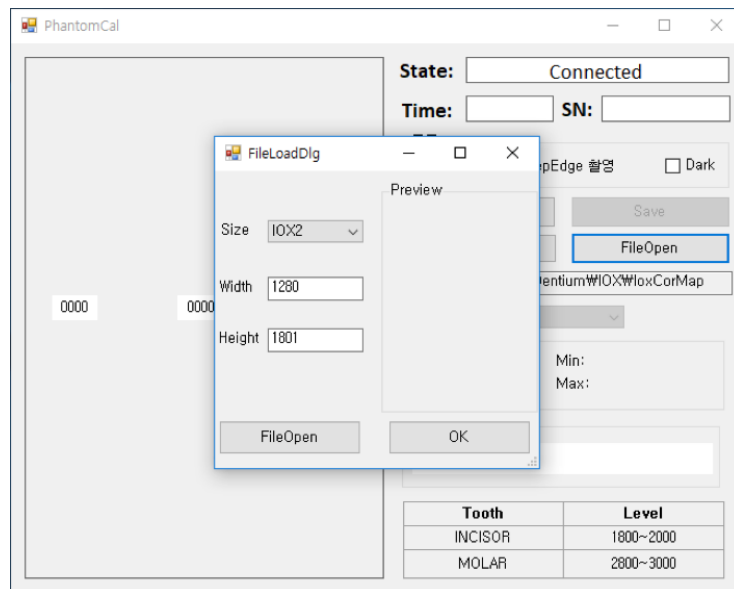
(12) Select IOX1 or IOX2 in 'Size'.



(13) The case of selecting IOX1 is as follows.

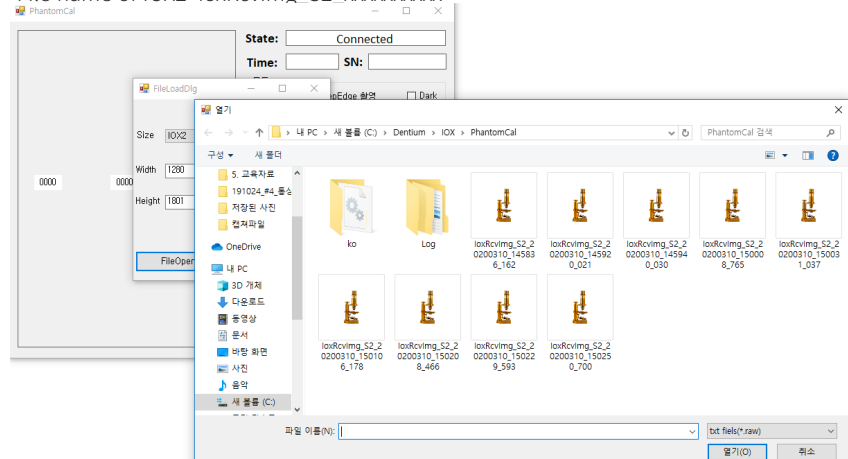


(14) The case of selecting IOX2 is as follows.

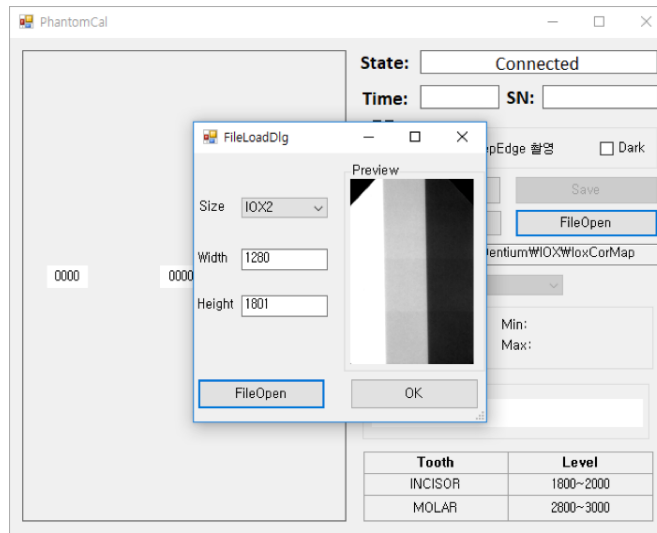


(15) Click the 'FileOpen' button in the lower left corner to select the file.

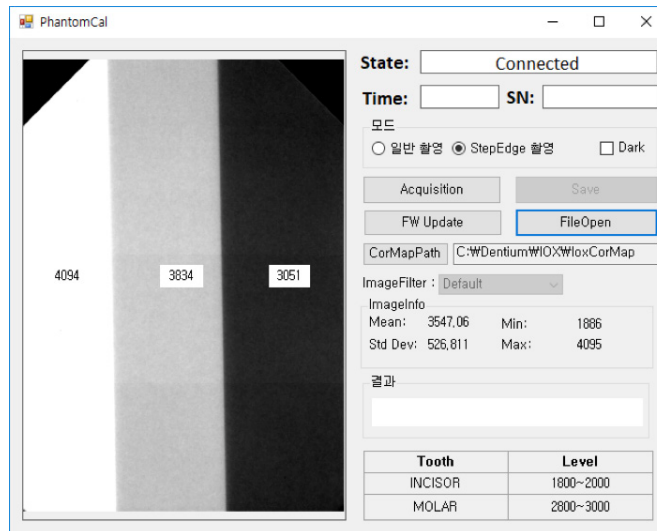
- File name of IOX1: IoxRcvImg_S1_xxxxxxxxx
- File name of IOX2: IoxRcvImg_S2_xxxxxxxxx



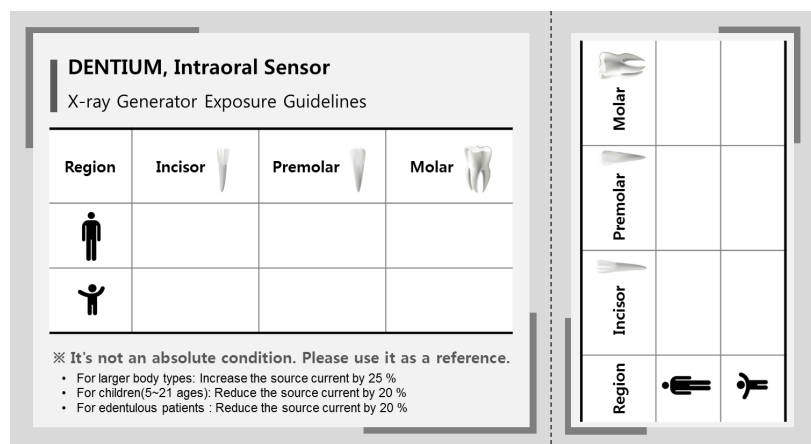
(16) Check the selected image by preview as below.



(17) Click the 'OK' button to check the image level for each area.



(18) Check the irradiation conditions that become the image level for each part based on the image in the right area.



10

How to use Accessory

The Intraoral Sensor Wireless supports accessories that protect your product from damage and increase ease of use. To use these items, refer to the appropriate section below.

10.1. Clip case

Clip type accessory that can be mounted with Controller and sensor module which is made for easy portability.



The sensor cable must be combined so that it faces side by side with the controller coupling. If you are removing the Controller, slide it slightly into the rear groove of the Clip case to remove it.

10.2. Clip sensor case

The controller and sensor module can be mounted together, and it is a clip-on accessory for easy portability.



Connect the sensor cable so that it faces the top of the clip case. When removing the controller from the sensor, gently push it into the rear groove of the clip case to separate it.

Caution



- When using a Clip case, carefully combine the orientation of the Controller.
- Be careful that the clip is firmly secured so that the product does not fall.

11

Consumables replacement

Be sure to read and use product safety precautions to protect your safety and prevent property damage. Dentium shall not be held liable for any loss caused by use or handling, carelessness, etc. without the instructions of this manual.

Warning



Do not disassemble, repair and modify arbitrarily. Product warranty is not available.

Do not repair this product in the following places and environments.

1. A place directly exposed to mechanical vibrations or shocks.
2. A place exposed to corrosive or combustible gases.
3. A place directly exposed to direct sunlight.
4. A place heavily affected by electromagnetic waves.
5. A place of high temperature or high humidity (where ambient humidity is 85% or higher).
6. A place rich in dust or salt.

11.1. Replacement of sensor cable

Caution



- Be sure to disconnect the sensor and controller before starting the cable replacement.
- During cable replacement, the interior of the sensor is exposed, so be careful not to infiltrate liquid, water, or other foreign matter.
- Always replace cables with tools and materials recommended by Dentium.
- Observe electrical safety standards and regulations.

11.1.1. Remove the screws

Step 1) Using a PH00 Phillips screwdriver, loosen the 4 fixing screws and remove them together with the O-ring.

Step 2) Discard the old and used screws and O-rings.



11.1.1.2. Remove the Sealing Gasket

Step 1) After removing the cable assembly, remove the sealing gasket.

Step 2) After removing the cable, clean the assembly part completely.

Step 3) Dispose of the used product.



11.1.3. Change new cable

Step 1) After positioning the sensor's inner connector to be visible, assemble a new sealing gasket.

Step 2) Assemble the new cable assembly. (The sensor module and cable assembly must be in close contact.)



11.1.4. Screw assembly

Step 1) Prepare new screws and O-ring.

Step 2) After inserting the O-ring the assembly position, assemble the set screw.



11.1.5. Assembly inspection

Step 1) Using a PH00 Phillips screwdriver, tighten the first set screw until some resistance is felt.

Step 2) Assemble the remaining 3 fixing screws in the same way.

Step 3) Tighten the fixing screws completely and make sure they are tight.

Step 4) Connect to the PC and check the operation status.



11.2. Battery replacement

11.2.1. Preparation for replacement

Step 1) Power off the Controller.

Step 2) Disconnect the sensor cable and the battery charging cable.

Step 3) Remove the bolt cover on the back.



11.2.2. Remove the screws

Step 1) Use a dedicated tool to remove the set screw.

(Screw standard: M2x8L TORX HEAD TAPPING SCREW)

Step 2) Discard the removed set screw.



11.2.3. Removal of cover

Step 1) Remove the back cover.

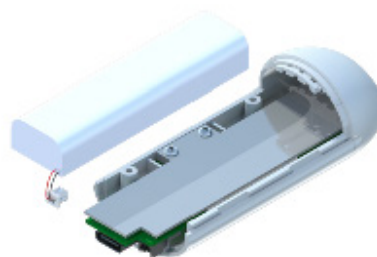
Step 2) Remove the top cover.



11.2.4. Battery replacement

Step 1) Disconnect the battery connector from the control board.

Step 2) Remove the used battery and connect the new battery.



11.2.5. Assembling the cover

Step 1) Assemble the top cover.

Step 2) Assemble the rear cover.



11.2.6. Fastening the fixing screws

Step 1) Fastening the fixing screw using a PH0+ ruler screwdriver.

Step 2) Assemble the rubber cover.



11.2.7. Check operation

Step 1) After connecting the charging cable, check the battery LED color.

Step 2) Press the action button the check the status indicator LED.



12

Cleaning and storage

Warning



- Be sure to turn off the power when cleaning the product.
- Do not spray compressed air to clean.

12.1. Cleaning

To prevent infection, the outer surface of the sensor is wiped and sterilized with cleaning solution. If you use a disinfectant other than the designated disinfectant or mix it with other disinfectants or ethanol, the product may be damaged. Use the disinfectant listed below to clean the Intraoral Sensor.

- Isopropyl Alcohol (70~90 %)
- Sodium hypochlorite (5.25 ~ 6.15%)

Clean the product surface with a soft swab moistened with one of the cleaning solutions listed above. Gently wipe the surface in a straight line without applying pressure. After cleaning the surface as necessary, clean and dry the surface with a clean, lint-free cloth. The Intraoral Sensor meets the IP68, but if it is exposed to alcohol, water, etc. for a long time, it may cause malfunction and damage to the device. Therefore, after washing, dry as quickly as possible.

Warning



- Do not clean the silicon cover as described above.
- Do not use hard brushes or scrapers, strong acids or alkalis.

12.2. Storage

If this medical device is not used for a long time, it must be kept turned off and stored in a place where there is no adverse effect due to external factors such as temperature, dust, salt, chemicals, and gas. Do not store it in places where there is risk of damage to the device, such as vibration or impact.

Caution



- Storing with power on for a long time can cause internal battery drain.

13

Maintenance

The Intraoral Sensor requires not only correct use, but also visual inspection and regular periodic inspection before use. These precautions will help keep your device running correctly, safely, and efficiently. Before use, the device should be checked for physical damage or defects. If you suspect a malfunction, please contact Dentium Service Department or request a Service Call.

- 1) Check if any cable is peeled off and keep it in a circular shape for storage.
- 2) If any abnormality occurs such as heat generation or device recognition failure during use, stop using it immediately and contact Dentium Service Department or request a Service Call.
- 3) When disposing of electronic device accessories, take care of parts that may affect the environment.
- 4) Place where it is not affected by temperature, ventilation, light, dust, salt, etc.
- 5) Avoid inclined or impacted areas
- 6) Do not place in chemical storage or gas storage areas.
- 7) When cleaning the device, lightly rub the surface with a soft, flat dry towel

14

Handling of errors during operation

13.1. Inspection

Period	Checklists
Daily	Is the Wi-Fi connection properly? Are there any damages on the surface of the sensor module? Are sensor surface and sensor cover clean? Is the battery charge status of the controller properly?
Monthly	Is there any damage to the cable sheath? Is there any damage to the cable connection(relief)? Is there any damage to the appearance of the controller?
Yearly	Are there any fixed defects on the image? Is there a difference in brightness in the image when the X-ray exposure conditions are the same? Is there Wi-Fi receive sensitivity degradation?

Caution



- The sanitary plastic cover must be used when using Intraoral Sensor and should be replaced every time the patient changes for single use.
- Use a FDA-approved, safe sanitary plastic cover.
- Keep it clean at all times to avoid getting foreign objects.
- The sensor cover is for protection, so be sure to remove it before use.

Caution



The following are the simple things you can do. If the problem persists, please contact Dentium Service Department or request a Service Call.

Error	Cause and solution		항목
Wi-Fi Connection failed	Cause	1) Defective wireless LAN card 2) Wi-Fi(Wireless LAN) connection error	7.2.
	Solution	1) Check the status of the wireless LAN card. 2) Check the wireless network activity. 3) Check the wireless LAN connection status. 4) If the symptom cannot be solved, contact Dentium Service Department	
There is no calibration map	Cause	1) The correction map file is deleted in the installation file folder 2) Calibration map file error	7.1.
	Solution	1) Check the existence of the file in the correction map folder. 2) Check if calibration map folder name and product S/N match. 3) If the symptom cannot be solved, contact Dentium Service Department or request a Service Call.	
Image are automatically acquired without X-ray exposure	Cause	1) Setting value error related to device operation	7.1.
	Solution	1) Remove the product from the PC and reconnect it. 2) Check if the same symptom is reproduced. 3) If the symptom cannot be solved, contact Dentium Service Department or request a Service Call.	
Images of certain areas (ex. Maxillary molar) are not acquired	Cause	1) Insufficient exposure dose 2) Location error of X-ray generator's exposure hole 3) Setting value error related to sensor sensitivity	8.4.9, 11
	Solution	1) Adjust the dose referring to the "X-ray Exposure Guide". 2) Adjust the position of X-ray Generator's exposure hole to face the bottom of sensor correctly. 3) If the symptom is not resolved, contact DentiumService Department.	

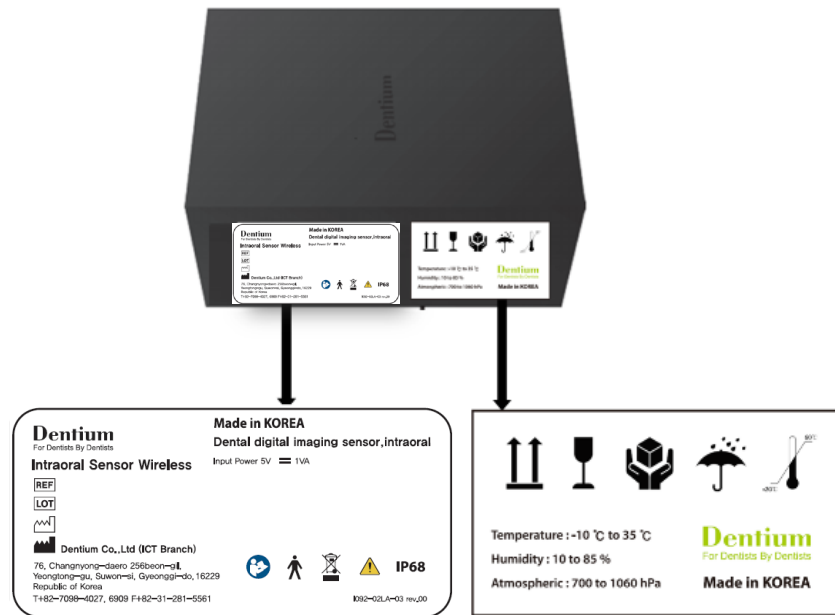
Controller inoperative	Cause	1) Poor battery charging status 2) Bad battery	8.4, 11.
	Solution	1) Charge the battery using the charging adapter. 2) Replace the battery. 3) If the symptom cannot be solved, contact Dentium Service Department or request a Service Call.	

15

Label location

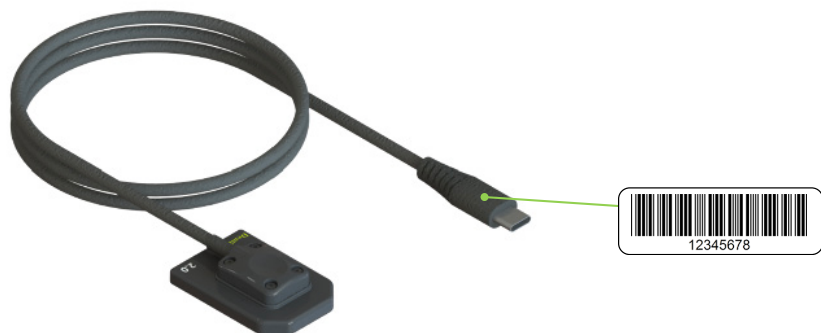
15.1. Sensor module

Product and packaging labels are affixed to the sides of the product box.



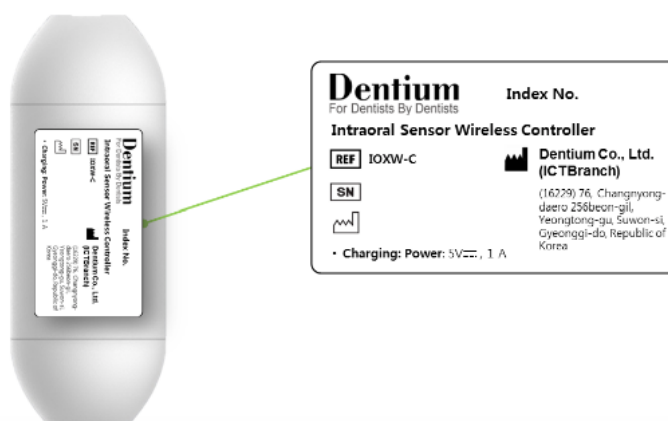
15.1. Sensor module

The serial number label is attached to the USB C-type connector of Intraoral Sensor wireless.



15.2. Wireless Controller

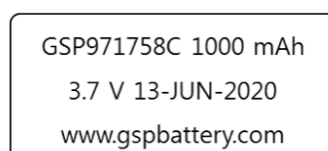
The label is attached to the Controller back of the **Intraoral Sensor wireless**.



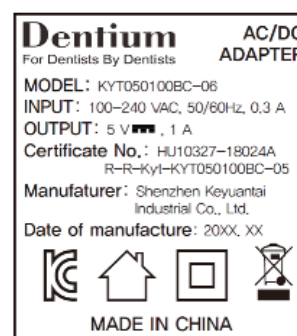
15.3. Battery, Adaptor

The label is attached to battery and adaptor.

(1) Battery



(2) Adaptor



16

Electromagnetic Compatibility Information

Guidance and manufacturer's declaration – electromagnetic emissions

The Intraoral sensor Wireless is intended for use in an electromagnetic environment as specified below. The customer or the user of the Product should ensure that it is used in such an environment.

Emissions test	Compliance	Electromagenetic environment - guidance
Radiated disturbance CISPR 11	Group 1 Class A	The Intraoral sensor wireless uses RF energy only for its internal functions. Therefore, its RF emissions are very low and are not likely to cause any interference to nearby electronic equipment.
Mains terminal disturbance voltage CISPR 11	Group 1 Class A	
Harmonics emission IEC 61000-3-2	Class A	
Voltage fluctuation IEC 61000-3-3	Complies	

NOTE The EMISSIONS characteristics of this equipment make it suitable for use in industrial areas and hospitals (CISPR 11 class A). If it is used in a residential environment (for which CISPR 11 class B is normally required) this equipment might not offer adequate protection to radio-frequency communication services. The user might need to take mitigation measures, such as relocating or re-orienting the equipment.

16.1. Noise and Interference Immunity

The Intraoral Sensor Wireless is intended for use in an electromagnetic environment as specified below. The customer or the user of the Product should ensure that it is used in such an environment.

Guidance and Manufacturer's Declaration - Electromagnetic Immunity			
Immunity test	IEC 60601 Test	Compliance level	Electromagnetic environment - guidance
Electrostatic discharge (ESD) IEC 61000-4-2	Discharge by 8 kV direct contact 15 kV of Air-gap discharge	Discharge by 8 kV direct contact 15 kV of Air-gap discharge	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity
Radiated RF electromagnetic field immunity IEC 61000-4-	3 V/m 80 MHz-2.7 GHz 80% AM at 1 kHz	3 V/m 80 MHz-2.7 GHz 80% AM at 1 kHz	The Intraoral sensor wireless is suitable to use in professional environment (General business, clinic and hospital)
Immunity to proximity fields from RF wireless communications equipment IEC 61000-4-3	28 V/m Max. 385-5785 MHz in according to table 9	28 V/m Max. 385-5785 MHz in according to table 9	Portable RF communications equipment (including peripherals such as antenna cables and external antennas) should be used no closer than 30 cm (12 inches) to any part of the Intraoral sensor Wireless, including cables specified by Dentium. Otherwise, degradation of the performance of this equipment could result
Electrical fast transient/Burst IEC 61000-4-4	± 2 kV for power supply lines ± 1 kV for I/O lines 100 kHz repetition frequency	± 2 kV for power supply lines ± 1 kV for I/O lines 100 kHz repetition frequency	The quality of supplied power should be suitable for general business site or hospital environment.
Surge IEC 61000-4-5	± 1 kV line to line ± 2 kV line to earth	± 1 kV line to line ± 2 kV line to earth	The quality of supplied power should be suitable for general business site or hospital environment.
Immunity to conducted disturbances induced by RF fields IEC 61000-4-6	3 V 0.15-80 MHz 6 V in ISM bands between 0.15 and 80 MHz 80% AM at 1kHz Power supply line & I/O lines	3 V 0.15-80 MHz 6 V in ISM bands between 0.15 and 80 MHz 80% AM at 1kHz Power supply line & I/O lines	The strength of RF field in the frequency range 150 kHz-80 MHz, the strength of the RF field should be smaller than 3 V. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the Intraoral sensor Wireless.
Voltage dips, Short interruptions and voltage variations on power supply input lines IEC 61000-4-11	0 % UT: 0.5 cycle At 0°, 45°, 90°, 135°, 180°, 225°, 270° and 315° 0 % UT; 1 cycle and 70 % UT; 25/30 Cycles Single phase: at 0° 0 % UT; 250/300 cycle	0 % UT: 0.5 cycle At 0°, 45°, 90°, 135°, 180°, 225°, 270° and 315° 0 % UT; 1 cycle and 70 % UT; 25/30 Cycles Single phase: at 0° 0 % UT; 250/300 cycle	The quality of supplied power should be suitable for general business site or hospital environment. For the user to operate the equipment continuously even the electric power supply is interrupted, it is recommended that the uninterruptable power supply device (UPS) or batter is prepared.
Magnetic field of supply frequency (50/60Hz) IEC 61000-4-8	30 A/m	30 A/m	If degradation of the essential performance occurs, it may be necessary to position the Intraoral sensor Wireless further from sources of power frequency magnetic fields or to install magnetic shielding. The power frequency magnetic field should be measured in the intended installation location to assure that it is sufficiently low.

Note UT is the A.C. voltage supply before the test level voltage.

16.2. Protection distance

This is the recommended protection distance between portable and mobile HF communication devices and this unit. This device is designed to operate in an electromagnetic environment where radiated HF disturbances are controlled. RF communication equipment should be at least 30cm (12inches) away from any part of the Intraoral Sensor wireless, including cables specified by Dentium.

17

System Disposal Precautions

When you dispose of the device and its accessories, you must dispose of them in accordance with the instructions applicable in your country.



This symbol means that electrical and electronic device waste cannot be disposed of because unsorted municipal waste must be collected separately. Before disposing of the product or parts, please contact Dentium branch or the place of purchase for disposal in a safe and proper manner. This device is basically designed to be disposed of without environmental pollution.

17.1. Detailed description of disposal

Recommended protection distance between portable and mobile HF communication devices and this device. The instrument is intended to operate in an electromagnetic environment where radiated HF disturbance is controlled.

Part name	Raw material	Hazardous substances
Frame	Aluminum + Steel	
Cover	Plastic	
Relief	Urethane	
Control Board	Electronic component + PC	
Calbe	Silicon	
Packaging	Carbon + Foam	
Battery	Li-ion cell	

Intraoral Sensor Wireless is designed according to medical device regulations and manufactured and inspected according to strict quality control system. Dentium Co., Ltd. warrants that this warranty is in compliance with the international warranty provisions of the Consumer Protection Act.

18

Product warranty and service

Dentium Co., Ltd warrants to customer that there are no defects in materials and workmanship under normal use and service for a certain period of one year from the date of purchase of Intraoral Sensor wireless and accessory.

The product warranty is conditioned on the correct use of the product by the customer. During the warranty period, Dentium Co., Ltd will repair or replace defective parts of the product free of charge to the customer. However, if Dentium Co., Ltd determines that the product warranty does not apply, customer shall pay all parts, shipping and labor costs for repair.

Please fill out the following form at the time of purchase and send it to the following fax number: (031-281-5561)

When you claim under this warranty, you must present the warranty to the manufacturer.

If you can't get free warranty

- 1) Defects or damages due to accident, misuse, abnormal use, abnormal condition, improper storage due to user's negligence.
- 2) Damage or damage caused by external causes such as collisions with objects, fire, flood, sand, earth, storm, lightning, earthquake, weather conditions.

- 3) Defects or damage caused by improper testing, operation, maintenance, installation, service or adjustment not provided or approved by Dentium Co., Ltd.
- 4) Defect or damage caused by disregarding the warning signs in the user's manual (instructions for use).

Product name	Intraoral Sensor wireless (IOXW1, IOXW2)	Customer Information (Please complete the form)	
Purchase date		Customer	
Manufacturing date		Address	
Serial Number		Contact	
Warranty			

User manual Languages

BG	ES	CS	DA	DE	ET	EL	EN
							●
FR	GA	HR	IT	LV	LT	HU	MT
NL	PL	PT	RO	SK	SL	FI	KR

Manufacturer

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