PROGENY CLEARVISION™

DIGITAL SENSOR SYSTEM

CE 0120

USER AND INSTALLATION GUIDE

00-02-1663 Rev. A (ECN P2510)

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GENERAL INFORMATION

Indications for Use

Progeny ClearVision™ is intended to be used by dentists and other qualified professionals for producing diagnostic x-ray radiographs of dentition, jaws and other oral structures.

Contraindications

None known.

Warnings/Precautions

Radiation Safety

- Only qualified and authorized personnel may operate this equipment observing all laws and regulations concerning radiation protection.
- The operator at all times must remain at a safe distance from the focal spot and the X-ray beam for operator protection.
- Full use must be made of all radiation safety features on the X-ray equipment.
- Full use must be made of all radiation protection devices, accessories and procedures available to protect the patient and operator from X-ray radiation.

Electrical Safety

- The Progeny ClearVision™ sensor cable should be handled with care. Do not sharply bend or crimp the sensor cable. Doing so could permanently damage the sensor.
- This equipment must only be used in rooms or areas that comply with all applicable laws and recommendations concerning electrical safety in rooms used for medical purposes, e.g., IEC, US National Electrical code, or VDE standards.
- Before cleaning or disinfecting, this equipment must always be disconnected from the electrical supply.
- The computer and any other associated equipment (like USB hub) shall be placed outside the patient's environment (i.e.: more than 1.5 meters away from the chair). The operator shall not access the patient and such devices at the same time.
- The computer and any other associated equipment shall be compliant with IEC 60950 or IEC 60601.

Patient Safety

- Prior to use **always** cover the sensor with a disposable hygienic protective cover. A new cover must be used for each patient. It is recommended to disinfect the sensor between uses.
- The Progeny ClearVision™, Computer, and provided cables comprise a Medical Electrical System. The Computer is not intended to be located in the patient environment (within a 1.5 m radius of the patient).
- System installation shall be in accordance with the requirements of IEC 60601-1, the Standard for Safety Requirements of Medical Electrical Systems

Product Description

Progeny ClearVision™ is a digital imaging system for dental radiographic application. The product is to be used for routine dental radiographic examinations such as bitewings, periapicals, etc. Two different sized sensors (size 1 and size 2) are utilized to image different anatomy and for different patient sizes. The CMOS sensor connects directly to a USB connection in a PC without the need for an intermediate electrical interface. Progeny ClearVision™ works with a standard dental intraoral x-ray source without any connection to the x-ray source. Progeny ClearVision™ captures an image automatically upon sensing the production of x-ray and after the x-ray is complete, transfers the image to an imaging software program on the PC. Disposable sheaths are used with each use to prevent cross-contamination between patients. Progeny ClearVision™ Sensor is a state of the art intraoral x-ray detector intended for digital imaging of teeth and the oral cavity. The system provides:

- Immediate production of an image
- Digital image storage and management
- Efficient archiving and recall of images
- Reduction of the X-ray dose to patient
- Elimination of film processing

The components of the Progeny ClearVision™ sensor system are the Digital Sensor internal USB Cables and, the Sensor Calibration Files.

Digital Sensor

The digital sensor is designed to transform a two dimensional X-ray picture into an electrical signal. The structure of the sensor is assembled with a first layer of phosphor material (scintillator) which, when exposed by incident X-rays, emits a luminous radiation. This light is then transferred to the photo sensitive elements of the Sensor where it is transformed to electrical potential. The electrical signal is sent to the computer for processing.

Sensor Calibration Files

During installation of the Progeny ClearVision™ sensor system, files specific to the sensor serial number are stored on each computer where the sensor will be used. For more details, refer to the Progeny ClearVision™ Installation section of this manual.

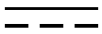
Software

Provides the user interface to acquire, store, retrieve, transmit, review and post process images acquired by the Progeny ClearVision™ sensor system. For more details refer to the Progeny ClearVision™ Installation section of this manual or the specific software user guide.

Note

The Progeny ClearVision™ digital sensor is sensitive to intense UV light. Therefore, the sensor should be stored in the box provided and never exposed to direct sunlight for extensive periods of time.

Explanation of Symbols on Technical Labels

	Caution, consult accompanying documents
	Refer to operating instructions
	Class II equipment – provides double Isolation to protect against electric shock
	Type BF – provides additional protection against electric shock
IP67	Degree of protection – IP67 means that sensor casting is : • totally protected against dust, • protected against the effect of immersion between 15 cm and 1 m.
	Direct current
	Serial number
	Catalogue number
	Date of manufacture
	Place of manufacture (manufacturer)

Compliance with Applicable Standards

The following regulatory documents apply:

General Safety	IEC 60601-1:1995 Protection against electrical shock – Class II Degree of protection against electrical shock – Type BF Applied Part Degree of protection against ingress of water – IP67 Not suitable for use in the presence of flammable anesthetic mixture with air or with oxygen or nitrous oxide.
EMI/EMC	IEC 60601-1-2:2007
Degree of Protection	IEC 60529: 2001 Degree of protection against ingress of water – IP67
Imaging Performance	IEC 61223-3-4:200 Line pair resolution – better than 8 lp/mm Low contrast resolution – all holes visible
EMC Statement	Information regarding potential EMC interference and advice for avoidance • The Progeny ClearVision™ sensor is considered as non-life-supporting equipment. While using Progeny ClearVision™ sensors adjacent to other equipment, configuration should be carefully adjusted to ensure that electromagnetic interference (EMI) does not degrade performance. Specifically, mobile RF communications equipment can effect medical electrical equipment. Please refer to the EMC table below. • Usage limitation: Progeny ClearVision™ sensors shall be used with IEC 60950 or IEC 60601 compliant computer. Also, any device between Progeny ClearVision™ sensors and the computer (USB Hub) shall be compliant with IEC 60950 or IEC 60601. If not, this may result in degraded electromagnetic compatibility.

Guidance and manufacturer's declaration - electromagnetic emissions		
The Progeny ClearVision™ is intended for use in the electromagnetic environment specified below. The customer or the user of the Progeny ClearVision™ should assure that it is used in such an environment.		
Emission test	Compliance	Electromagnetic environment – guidance
RF emission CISPR 11	Group 1	The Progeny ClearVision™ uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emission CISPR 11	Class B	The Progeny ClearVision™ is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emission IEC 61000-3-2	Not Applicable	
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Not Applicable	

Guidance and manufacturer's declaration - electromagnetic immunity			
The Progeny ClearVision™ is intended for use in the electromagnetic environment specified below. The customer or the user of the Progeny ClearVision™ should assure that it is used in such an environment.			
Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment – guidance
Electrostatic discharge (ESD) IEC 61000-4-2	± 6 kV contact ± 8 kV air	± 6 kV contact ± 8 kV air	Floors should be wood, concrete or ceramic tile. If the floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst IEC 61000-4-4	± 2 kV for power supply lines ± 1 kV for input/output lines	± 2 kV for power supply lines ± 1 kV for input/ output lines	Mains power quality should be that of a transient/ burst supply lines typical commercial or hospital environment.
Surge IEC 61000-4-5	± 1 kV line(s) to line(s) ± 2 kV line(s) to earth	Not Applicable.	
Voltage dips, interruptions, and voltage variations on power supply input lines IEC 61000-4-11	< 5% U_T (>95% dip in U_T) for 0.5 cycle < 40% U_T (60% dip in U_T) for 5 cycles < 70% U_T (30% dip in U_T) for 25 cycles < 5% U_T (>95% dip in U_T) for 5 s	Not Applicable.	
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
Note: U_T is the a.c. mains voltage prior to application of the test level.			

Guidance and manufacturer's declaration - electromagnetic immunity			
The Progeny ClearVision™ is intended for use in the electromagnetic environment specified below. The customer or the user of the Progeny ClearVision™ should assure that it is used in such an environment.			
Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment – guidance
Conducted RF IEC 61000-4-6 Radiated RF IEC 61000-4-3	3 V 150 kHz to 80 MHz 3 V/m 80 MHz to 2.5 GHz	3 V 3 V/m	Portable and mobile RF communications equipment should be used no closer to any part of the Progeny ClearVision™ equipment, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance: $d = [1.2]\sqrt{P}$ $d = [1.2]\sqrt{P}$ 80 MHz to 800 MHz $d = [2.3]\sqrt{P}$ 800 MHz to 2.5 GHz Where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacture and d is the recommended separation distance in meters (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, [a] should be less than the compliance level in each frequency range. [b] Interference may occur in the vicinity of equipment marked with the following symbol: 
NOTE 1: At 80 MHz and 800 MHz, the higher frequency range applies. NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and people.			
[a] Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the Progeny ClearVision™ is used exceeds the applicable RF compliance level above, the Progeny ClearVision™ should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the Progeny ClearVision™. [b] Over the frequency range 150 kHz to 80 MHz, field strengths should be less than [V_1] V/m.			

Recommended separation distances between portable and mobile RF communications equipment and the Progeny ClearVision™			
The Progeny ClearVision™ is intended for use in the electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the sensor can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the sensor as recommended below, according to the maximum output power of the communications equipment.			
Rated maximum output power of transmitter, W	Separation distance according to frequency of transmitter m		
	150 kHz to 80 MHz	80 MHz to 800 MHz	80 MHz to 2.5 GHz
0.01	0.12	0.12	0.23
0.1	0.37	0.37	0.74
1	1.17	1.17	2.34
10	3.69	3.69	7.38
100	11.67	11.67	23.34
For transmitters rated at a maximum output power not listed above, the recommended separation distance d in meters (m) can be determined using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer. NOTE 1: At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies. NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and people.			

Obtaining Technical Support

Contact

Midmark Corporation
675 Heathrow Drive
Lincolnshire, IL 60069
Phone: +1 (847) 415-9800 Toll free (888) 924-3800 (U.S. Only)
Fax: +1 (847) 415-9810

To facilitate your service call, the following information should be ready and available:

- Computer operating system
- Version of Progeny Imaging software
- Serial number of your sensor
- Type of Progeny Imaging installation (standalone, peer - to - peer network, client - server network)

NOTE: It is recommended that the installing technician review the complete instructions before attempting to install or upgrade any component

Authorized Representatives

Europe

CE Partner 4U
Esdoornlaah 13
3951DB Maarn
The Netherlands
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Fax: +31 (343) 442-162

INSTALLATION

Overview

The Progeny ClearVision™ Sensor System is an intraoral digital sensor used with an intraoral X-Ray generator to capture digital images of dentition and the surrounding skeletal structures.

The Sensor is available in two configurations:

- Standalone – Sensor, connected directly to a PC
- Integrated – Integrated into and part of the Preva Plus or VetPro® Complete system or provided separately and connected to Preva 2.0 or VetPro® DC.

NOTE: The integrated version of is available as a retrofit kit for certain existing Progeny products.

These steps are intended to serve as an Installation Guide for both the standalone and integrated configurations of the Progeny ClearVision™ Sensor System, using Progeny Imaging or other imaging software programs.

Before You Begin

Computer and Software

You must have a dedicated Computer with a 32-bit or 64-bit Windows operating system and have at least one **High-speed** USB port available. The requirements are listed in Table 1.

The performance of Progeny Imaging software is affected by the amount of RAM and storage memory available to the system for acquisition, displaying, storing, and printing digital X-Ray images. The recommended requirements are listed below as a guideline only.

NOTE: As you review these guidelines, be aware that your patient volume, and the specific demands of your practice, may require you to adjust these guidelines accordingly. The system requirements of other programs operating on the same computer or network may affect these guidelines as well.

Image capture and management software must be installed on the computer(s) that will host the Progeny ClearVision™ Sensor System. If you are using Progeny Imaging Software, it must be installed on every PC that will interface with the Sensor. If you are not using Progeny Imaging, then a compatible image capture and management software must be installed on all PC's to be used. Contact Technical Support for a list of compatible imaging software programs.

For installation and use of Progeny Imaging software, refer to the Progeny Imaging Installation Manual, or contact Technical Support.

Check System Contents

Verify that all items listed on the Packing List are contained in your system order. If any item appears to be missing, contact Technical Support immediately. For guidance refer to Figure 1.

Tools Required

No tools are required to install Progeny ClearVision™ Sensor System.

Additional Documentation

Complete, detailed instructions are found in Progeny's technical support documentation included with the flash drive. The manuals are identified as:

- Progeny ClearVision™ User Guide
- Progeny Imaging Installation Guide
- Progeny Imaging User Guide, Human Applications
- Progeny Imaging User Guide, Veterinary Applications

These documents can be provided upon request in either printed or electronic forms. Feel welcome to contact the Progeny Technical Support Group with any question.

Table 1: Recommended System Requirements

Component	Requirement
Computer Hardware	PC - compatible Pentium 4 / 1.4 GHz or greater computer
Memory System	2 GB RAM or higher recommended (minimum 1 GB)
Operating System	Microsoft Windows XP with Service Pack 2 Microsoft Vista (all editions) Microsoft Windows 7
Disk Space	450 MB minimum NOTE: You will need additional disk space depending on the size of your practice, and the number of images and other information you plan to store. Each image is approximately 4 MB. For example, if you plan to store 75 000 images, you will need approximately 300 GB.
Display Settings	1024 x 768 (16 - bit or higher) with 32 MB (or higher) of Video RAM NOTE: It is possible to increase these settings based on the actual video adapter installed. As a rule, the better your video adapter or capture card the better your images.

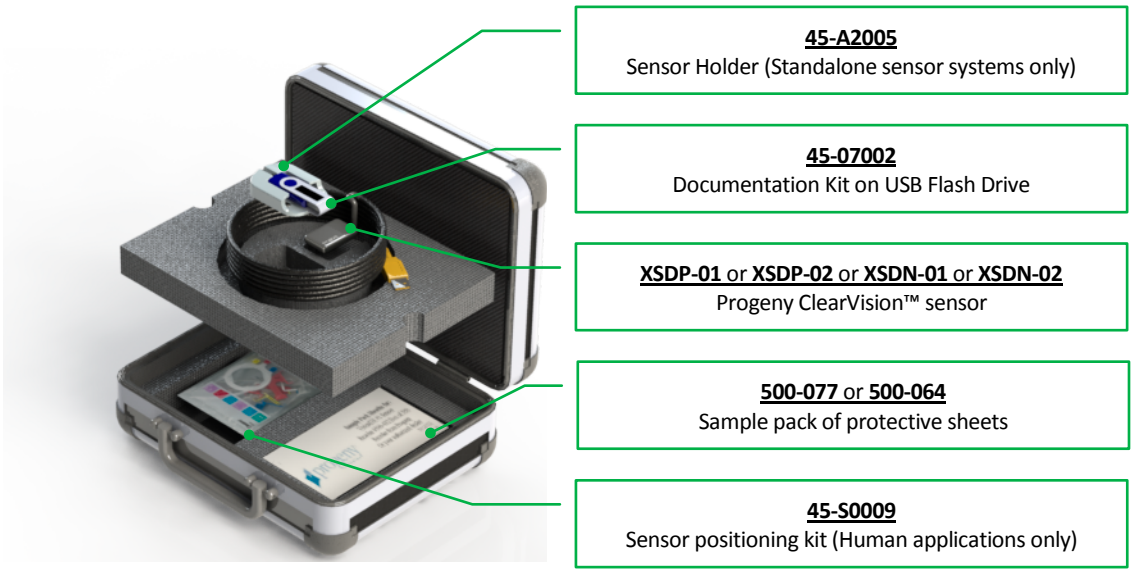

Figure 1: Contents of Progeny ClearVision™ Sensor System

Installation Procedure

Sensor Installation

NOTE: When installing the Clearvision sensor drivers and associated software, it is assumed that previous versions of the Progeny Device Suite and, Progeny Imaging image management software are not present. **Proper operation requires any previous version of these programs to be removed prior to this installation process**.

To install Progeny ClearVision™ Sensor System, execute the following steps:

- Insert the USB Flash Drive into an available USB port on your computer.
- Allow the computer to recognize the flash drive and navigate to it using Windows Explorer™. On the USB Flash Drive, you will find the Progeny Device Suite.
- Browse to the content of the flash drive and run “Setup.exe”.  This step begins the installation process.
- Start the installation of the device suite by pressing the “Install Progeny Device Suite” button.
- Follow the prompts on the screen to perform this portion of the installation.
- Choose the intended device, in this case Progeny ClearVision™.
- After device suite installation is completed, continue on to install Progeny Imaging by pressing the “Install Progeny Imaging” button.
- Follow the prompts on the screen to perform this portion of the installation.
- A Sensor Holder is provided with the Standalone version of Progeny ClearVision™. Attach the Sensor Holder to a secure location near the computer. It will be used as a storage location (In similar, a Sensor Holder is provided with the X-Ray source portion of the integrated version of Progeny ClearVision™. This holder has to be secured on the Articulated Arm)
- Place the sensor on the Sensor Holder.
- If a Standalone version is installed, plug the sensor into an available USB Port on the PC. If an Integrated version is installed, plug the sensor in the USB port available at the end of the Articulated Arm, near to the tube-head. Verify also that the USB hub embedded in the integrated system is connected to a PC and connect it if connection is not present.
- Launch Progeny Imaging image management software. Refer to Progeny Imaging User Manual for guidance.
- Enter a “test patient” following the instructions included with this application program. Refer to Progeny Imaging User Manual for guidance.
- Connect the Progeny ClearVision™ sensor to a high speed USB port. Select Progeny ClearVision™ sensor from the “Device Control Toolbar” (item 4, in the Progeny Imaging User Manual)
- This action will trigger a window device driver installation only during the first connection of the device into that particular port.

NOTE: Should this sensor be subsequently plugged into a different port, at a later time, this process will need to be repeated.

NOTE: For Windows XP users, an installation device wizard may appear during driver installation. In this case select “Yes, this time only” from the dialog box. Then press “Next”.

Figure 2: Found New Hardware Wizard in Windows XP (first screen)

On the next screen, select “Install the software automatically and continue. Follow the wizard instructions and prompts to complete the drive installation.

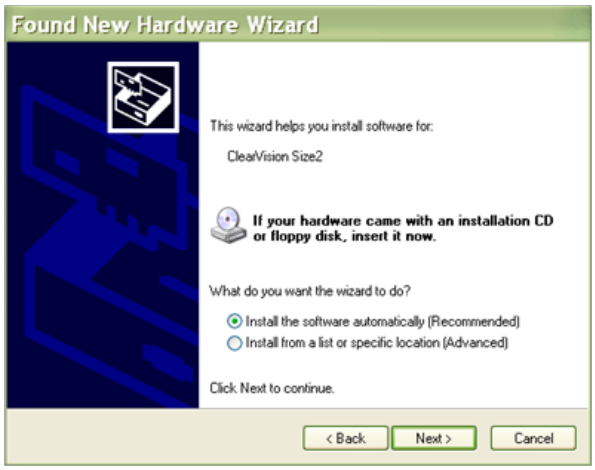

Figure 3: Found New Hardware Wizard in Windows XP (second screen)

Imaging Software Installation

Allow the sensor to be recognized by the PC.

If other imaging software is intended to be used, follow its installation instructions to install it.

NOTE: We recommend the use of Progeny Imaging image management software or compatible image management software. Contact Progeny technical support for addition information regarding compatible software. Incompatible software will not allow sensor operation.

OPERATING THE PROGENY CLEARVISION™ SENSOR

Acquiring Images

Prerequisites

- Install the imaging software following the installation steps provided with the product.
- Connect and calibrate the Progeny ClearVision™ as described in the Progeny ClearVision™ Installation Guide.
- It is recommended to use the RINN XCP-ORA sensor positioning device that is included in this package since that is the only positioning device that has been verified. Always follow the manufacturer's instructions for use and disinfection.

Connect the Sensor

1. Connect the Progeny ClearVision™ X-Ray Sensor to the computer (standalone configuration) or to the USB Interface connector on the Progeny Articulated Arm (in the case of the integrated system configuration).

NOTE: Always attach the sensor and the integrated system to an USB port that complies with the USB specification and supports **High-speed** transfer. Use only USB certified components that support **High-speed** transfer if an additional USB hub or USB cable is needed. Attaching the sensor to a different port or using different components and cables will degrade sensor performance. (Contact Progeny technical support or refer to the Service and Installation manual for further information).

Taking images

1. Refer to the specific imaging software manual for X-ray image acquisition.

NOTE: We recommend the use of Progeny Imaging image management software or compatible image management software. Contact Progeny technical support for addition information regarding compatible software. Incompatible software will not allow sensor operation.

2. Verify that the X-ray system exposure parameters are adequate for the desired examination.
3. Insert the X-ray sensor into a sensor sheath and then position the sensor inside the patient's mouth in the desired position.
4. Position the tube head of the X-ray system to the patient, using standard positioning procedures.
5. Activate the Progeny ClearVision™ via the imaging software (refer to the software guide).
6. Repeat steps 1-5 for additional images.

Using the Sensor Sheaths

A sample pack of sanitary sheaths are included with your sensor. Sheaths are necessary to avoid patient cross contamination. Care must be exercised when placing sheaths on sensors or in positioning device. If you suspect the sheath integrity has been compromised, discard and do not use. The sheaths are not sterile and are intended as a single use item.

Dispose of used sheaths appropriately. Never reuse a sanitary sheath. To order more sheaths, contact Progeny or your Progeny dealer.

1. Follow the procedure below prior to every use of Progeny ClearVision™. Hold sheath and insert sensor into opening between the white tab and the paper.
2. Gently slide the sensor into the sheath until it reaches the tip of the sheath. Do not force it.
3. Peel back the protective cover.
4. Peel away the paper backing. The sensor is now protected and ready for normal use.

Figure 4: Using protective sensor sheath

5. After use, slide the sensor out of the sheath delicately using the thumb. DO NOT pull the cable while removing the protective sheath.

Using a Sensor Positioning Device

To facilitate correct positioning of the Progeny ClearVision™ sensor in the patient's mouth it is **recommended** a positioning device be used. Refer to the manufacturer's manual for instructions for optimal usage.

Recommended Maintenance

Progeny ClearVision™ sensors do not require maintenance. Disinfection is recommended between every use.

Cleaning and Disinfecting

NOTICE: DISINFECTION OF THE PROGENY CLEARVISION™ SENSOR IS THE SOLE RESPONSIBILITY OF THE USER ACCORDING TO THEIR PRACTICE PROTOCOL AND THE INSTRUCTIONS, REQUIREMENTS AND LIMITATIONS OF THE DISINFECTING AGENT BEING USED, AS PER THE MANUFACTURER OF THE AGENT.

The Progeny ClearVision™ sensor should be cleaned according to the following procedure:

1. The Progeny ClearVision™ Sensor connectors and, associated cables may be disinfected by wiping with a high level EPA registered hospital disinfectant as per manufacturer's directions.
2. Use personal protection equipment during the disinfecting process.
3. Disinfect the sensor and the first 10 centimeters of the sensor cable only, before first use and, before any new patient.
4. Use a new sanitary sheath for each patient. The sheath must be biocompatible following the standard ISO 10993-1. Sheaths provided by Progeny meet this standard.
5. Wipe the sensor surface (not the cable) with a gauze sponge moistened with a disinfecting solution.
6. Disinfection by immersion with a disinfecting solution is preferred. Follow the disinfectant manufacturers recommended immersion time and, other instructions.
7. The sensor cable can be soaked in a disinfecting solution as long as there is no mechanical damage to the sensor or the cable. If mechanical damage is recognized, consult with Progeny technical support before attempting to immerse the sensor or cable.
8. Dry the sensor before placement in the next sanitary barrier.
9. Important:
    - Do not immerse the USB connector in a disinfecting solution.
    - Do not clean the sensor or cable with abrasive tools.
    - Do not use disinfectants that contain bleach or alcohol.
    - Do not heat sterilize or autoclave the sensor as this will damage the electronics and enclosure, thus voiding the warranty.

Preferred disinfecting liquids:

- CIDEX OPA (trademark of Johnson and Johnson)
- DENTASEPT (trademark of Anios Laboratories)
- RELYON (trademark of Phagogene Dec. Laborotories)

Never use:

- Alcohols (Isopropyl Alcohol, Methanol)
- SEKUSID-N (trademark of Ecolab Paragerm Laboratories
- SEKUSEPT Easy (trademark of Ecolab Paragerm Laboratories
- FD333 (trademark of Durr Dental Laboratories)
- FD322 (trademark of Durr Dental Laboratories)

Specifications

X-Ray Sensor

Film Size equivalent	Size 1 (37 mm x 24 mm) Size 2 (43 mm x 30 mm)
Active Area	(Size 1) 600 mm^2 (Size 2) 900 mm^2
Number of Pixels	1.65 million Pixels (Size 1) 2.59 million Pixels (Size 2)
Pixel Size	19 µm x 19 µm
Theoretical Resolution	27 lp/mm
Dynamic Range	72 dB
Sensor Cable	3 m or 0.9 m
Connection type	High Speed USB
Power Supply	+5 V, per USB 2.0 specification
Level of Protection	IP67 (sensor only, per IEC 60529)

Environmental

Operating Temperature	5 ºC/+40 ºC (+41 ºF/+104ºF)
Storage Temperature	-40 ºC/+70 ºC (-40 ºF/+158 ºF)
Operating humidity	5% to 85 % operating humidity
Storage humidity	10% to 90% non-condensing, storage humidity

Terms

Film Size Equivalent	The size of the X-ray sensor active area in relation to traditional film based X-ray systems available to the dentistry profession.
Active Area	The equivalent sensor area used to produce an image, measured in square millimeters (mm^2). The larger the number the larger the active area.
Number of Pixels	The total number of pixels in the sensor active area. It has no unit value; however, a larger number results in a finer image.
Pixel Size	The size of the smallest discrete picture element used in the process of image acquisition, measured in micrometers (µm). The smaller the pixel size the finer the image.
Theoretical Resolution	Measures the maximum level of detail that the sensor system is capable of acquiring, measured in line-pairs per millimeter (lp/mm). The larger the number the finer the image.
Dynamic Range	Represents the largest output of the device as a ratio to the smallest output, measured in decibels (dB). A larger number shows a greater X-ray exposure range in which the X-ray sensor system can produce an image without degradation.
Sensor Cable	Identifies the type and length of the sensor cable.
Connection Type	Specifies the connection type used to attach the sensor system to the computer.
Signal to Noise Ratio	A logarithmic ratio between output generated by the X-ray exposure and the output generated by the inherent system noise, expressed in decibels (db). The larger the number, the better the image quality.
Levels of gray	Measures the maximum number of X-ray intensity steps used to represent the image in levels of gray. It has no unit value; however, a larger number results in a finer image.

Warranty

A separate Limited Warranty form has been included with your system. Please complete and return it immediately to validate your warranty and receive technical support. **Progeny cannot offer technical support or assistance unless your product has been registered.**

Extended Warranty Options are available. For more details, contact Progeny or your dealer.