
DENTSPLY
GENDEX

AcuCam® Concept™ IV^{FWT}

DIGITAL INTRAORAL CAMERA

with FireWire® technology



Operation Manual and Installation Guide

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AcuCam Concept IV^{FWT} Intraoral Camera System: User Manual, P/N 032-0161P1

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Section 1: Safety Requirements

1.1. IMPORTANT INFORMATION

It is important that all personnel who intend to operate the AcuCam® Concept™ IV^{FWT} intraoral camera system read and understand this manual completely before using the device. Personnel operating the Concept IV^{FWT} system should follow all warnings and cautions outlined below for their safety and for the safety of those around them. Responsibility for safety when using the Concept IV^{FWT} Camera System resides with the healthcare professional using the device. The Concept IV^{FWT} Camera System is safe and effective when used as described in this manual.

The Concept IV^{FWT} Intraoral Camera System must be installed and serviced by an authorized service technician, service installer or DENTSPLY-Gendex representative.

Indications for use

The Concept IV^{FWT} intraoral camera systems is a compact, reliable dental instrument intended for taking intraoral and extraoral images:

1. To assist the dental practitioner in the assessment of the overall dental health of the patient by providing high quality, magnified images of the oral cavity which otherwise are difficult or impossible to view.
2. To allow the dental practitioner to provide educational information to the patient and to more effectively communicate a treatment plan.
3. To provide documented images for patient records, insurance companies, and health professionals.
4. To allow the practitioner to provide accurate before and after color images showing the results of the dental procedures performed.

1.2. WARNINGS, CAUTIONS, AND NOTES

This manual uses the following conventions for all **WARNING**, **CAUTION**, and **NOTE** statements:

“**WARNING:**” refers to any operation, procedure, or practice, which if not strictly observed, might result in death, injury or long-term health hazards to office personnel or patients.

“**CAUTION:**” refers to any operation, procedure, or practice, which if not strictly observed might result in damage and/or destruction of equipment, or forfeiture of remedies and/or warranties owed the owner.

“**NOTE:**” refers to any operation, procedure, or practice, which if not observed will result in decreased effectiveness of the product.

1.2.1 Warnings

WARNING: For use by trained professionals only. Federal law restricts the sale of this device except to physicians, dentists, and dental professionals. Use of the device in procedures other than those described in this manual may result in injury.

WARNING: Do not open the device to service it. All aspects of the Concept IV^{FWT} system that are meant to be attended to by the operator are accessible without opening the internal compartments of the device (metal chassis). If there is a service problem, please call a qualified dealer service representative, DENTSPLY-Gendex Technical Support at 1-800-769-2909, or your local DENTSPLY contact listed in Appendix A.

WARNING: Use only grounded electrical connections. Connect the Power Supply unit (coming with the Concept IV^{FWT} camera system) to grounded electrical outlets rated for voltage and amperage in accordance with the label ratings on the product data plate located on the back panel of the Power Supply unit. Use only Hospital Grade outlets. Refer to Section 2.8: Product Specifications, for additional information.

WARNING: Hot Surface exposure. The tip of the handpiece connector can temporarily become hot from the light source. Exercise caution when removing the handpiece from the docking station and avoid handling the tip-end until the connector has cooled to the touch.

WARNING: Use Only AcuCam Disposable Sheaths. AcuCam disposable sheaths were designed specifically for the Concept IV handpiece. It is recommended that only AcuCam sheaths be used in conjunction with the AcuCam handpiece in order to insure the greatest infection control.

WARNING: Equipment not suitable for use in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide.

1.2.2. Cautions

CAUTION: Do Not Place Objects on Docking Station. Do not place objects on top of docking station console. The surface is not flat and objects can slide off without warning.

CAUTION: Use Care When Handling Cables. Avoid extreme bends in cables or pulling on cables. Hold the connector housings when connecting or disconnecting cables.

CAUTION: Do Not Autoclave the Product. Do not autoclave the camera handpiece and monocoil cable. Autoclaving this component will cause irreparable damage.

1.2.3. Notes

NOTE: Please make sure your computer, imaging software, FireWire port or capture board are properly installed and operating prior to contacting DENTSPLY or Gendex for technical support.

NOTE: Unlike the fixed focus modes, in Macro view it's easier to position the camera first and then adjust the focus ring. Due to the high magnification, steadying the camera is paramount to obtaining a good image.

1.3. DEFINITION OF SYMBOLS

Below are the definitions of symbols used with this product.



NOTE:
Includes
Type BF
Applied Part



CAUTION:
Refer to
Manual



Medical equipment with respect to electric shock, fire and mechanical hazards only in accordance with UL 2601-1, CAN/CSA C22.2 No.60601.1 and IEC 60601-1-2.

1.4. ABBREVIATIONS

Abbreviations used in this manual are listed below along with their definitions.

AC	Alternating Current	CCD	Charge Coupled Device
Amps	Amperage	CCU	Camera Control Unit
V	Volts	LED	Light Emitting Diodes
mm	Millimeter — 1/1,000 of a Meter (25.4 mm = 1 inch)	NTSC	National Television Standards Committee
m	Meters — (0.305 m = 1 foot)	PAL	Phase Alternating Line
Hz	Hertz (cycles per second)		

Section 2: Product Introduction and General Description

2.1. PURPOSE OF MANUAL

Congratulations on the purchase of your AcuCam Concept IV^{FWT} Intraoral Camera System! This system was designed to meet the highest expectations of dental professionals for image quality, ease of use, and reliability. We are sure you will be delighted with this product for years to come. In addition to innovative designs, we back our products with strong customer service and competent technical support.

This manual provides essential information necessary for proper installation, operation, and routine servicing of the AcuCam Concept IV^{FWT} Intraoral Camera System. If more information is required, please contact DENTSPLY-Gendex Technical Support at 1-800-769-2909 or your local DENTSPLY contact listed in Appendix A

2.2. LIMITATION OF MANUAL AND PRODUCT

This manual provides suggestions on how to connect the AcuCam Concept IV^{FWT} to a computer via a FireWire connection. Refer to your imaging software's owner manual for detailed imaging capture and enhancement instructions. Refer to the printer's owner manual for proper installation, adjustment, and operation of that device.

The Concept IV^{FWT} is precisely factory set to produce high resolution, full-color video via FireWire transmission standards and video

standards. The only adjustments to this equipment are via the software. The computer, graphics card, and monitor all must be compatible and properly adjusted in order to reproduce the best quality images. Refer to your imaging software for approved hardware configurations.

NOTE: Please make sure your computer and imaging software are properly installed and operating prior to contacting Gendex for technical support.

2.3. PRODUCT INTRODUCTION

The AcuCam Concept IV^{FWT} intraoral camera system is the latest addition to the Concept IV product line. This product provides the best digital image quality and simplest installation and operation with a computer by eliminating the need for a video capture board. Video is transmitted losslessly directly to your imaging software. The Concept IV^{FWT} provides the conveniences of digital imaging with the same brilliant high-resolution images of the Concept

IV for analog environments. The Concept IV^{FWT} shares the same great camera handpiece design with the Concept IV, but now takes the image directly to the computer via a digital connection. The docking station generates a truly uncompressed digital live video output according to the IEEE1394 standard (also known as FireWire or i.LINK). The Concept IV^{FWT} also provides an analog output signal for video monitors.

2.3.1. Key features of the AcuCam Concept IV^{FWT} Camera System -----

- Ergonomically designed handpiece with slim distal end for complete intraoral access.
- State-of-the-art optical system with an adjustable focus range of 1 mm to infinity.
- A new level of portability with the CCU integrated into the camera head, and a lightweight camera cable.
- A compact versatile docking station, with a small footprint, that output digitally directly to a computer system through the fast **FireWire** or **i.LINK** connection (IEEE1394).
- Easily transportable between operatories, thanks to the “Hot Plug” connection, always ready to use.
- Modern looking docking station with wall mount, flush mount, under- or on-counter top configurations.
- Additional analog output for analog video networks and analog displays.
- Additional analog input for alternative video source.

2.4. INCORPORATING THE CAMERA INTO THE PRACTICE

The AcuCam Concept IV^{FWT} Intraoral Camera System makes it easy for you and your staff to engage your patients in their own oral health. Practitioner and patient together can ‘walk through’ the patient’s oral exam and discuss what they discover. Instantaneous, high-resolution video imagery makes the patient a participant in the examination process. AcuCam Concept IV^{FWT} helps you to achieve a high degree of patient interaction that is unattainable without this technology.

NOTE: Gendex understands that examination protocol is a highly individualized matter. This information is presented as an example of one possible protocol.

If you discover something positive, such as a particularly attractive anterior crown, onlay or veneer, mention it as an example of superior restorative dentistry. This will help to build patient confidence. Conversely, if you discover something negative, such as evidence of periodontal disease, report this also.

Begin with the upper or lower rear molar. Show the distal surface, then the buccal, then rotate the handpiece camera to show the occlusal, and finish with the lingual. Continue the examination from posterior to anterior. For best use results, it is important to rest the camera on a fulcrum point, such as an arch, and angle the camera. This procedure reduces jitter and facilitates focusing.

The illumination and magnification of the intraoral image on the monitor allows greater observation of the condition of the patient’s mouth. Typically, the patient will be observing the examination along with you and may ask questions.

When you have completed the intraoral portion of the video examination, use the extraoral setting to capture full smile and full-face views.

2.5. GETTING TO KNOW YOUR ACUCAM® CONCEPT IV^{FWT}

2.5.1. Unpacking System Components -----

The AcuCam Concept IV^{FWT} system is carefully inspected and packaged prior to shipment. If the Concept IV^{FWT} was shipped to you, please remove the contents of the shipping container and account for all the components listed on the packing list.

Retain all packing materials and the shipping container for future shipping or storage.

CAUTION: Report any damaged components to the shipping company and any missing components to your dealer within 24 hours of receiving the shipment.



2.5.2. AcuCam Concept IV^{FWT} System Components -----

In addition to the packing list, be sure to identify and locate each of the system components shown below.



Docking Station Assembly, including:
 - Camera Holster
 - Short Holster Connecting Cable



AcuCam Concept IV
 Camera Handpiece



Power Supply
 Module,
 with Power Cord



Disposable
 Sheaths (50 ct.)



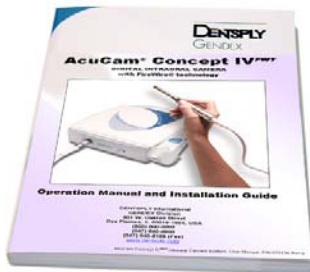
Triple Shielded
 FireWire Cable



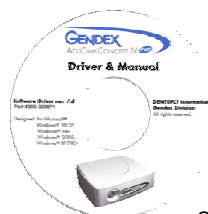
Holster Long
 Connecting Cable



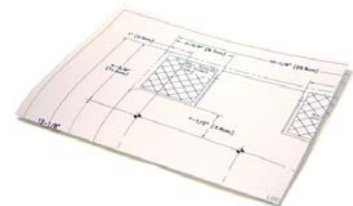
Wrench for
 Holster Adjust



User's
 Manual



Software
 Driver cd-rom



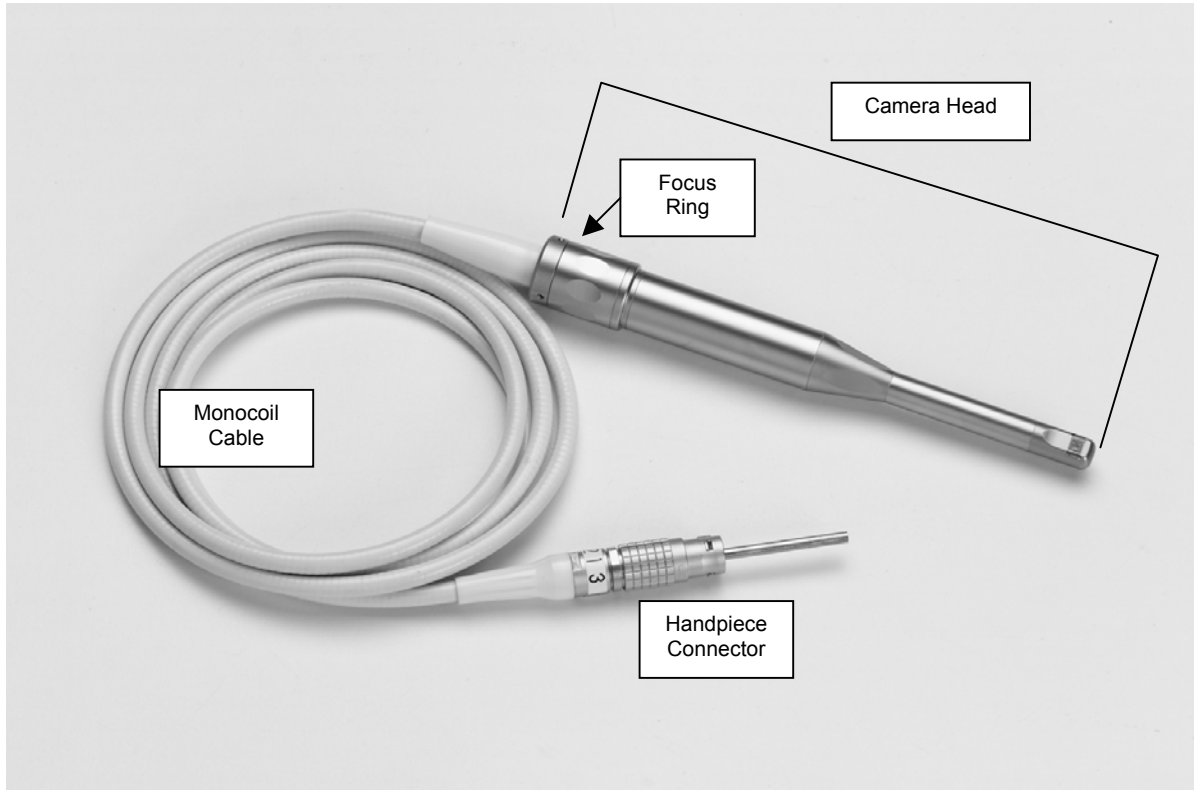
Mount
 Template

All the items shown here may appear slightly different in shape, dimensions, and color.

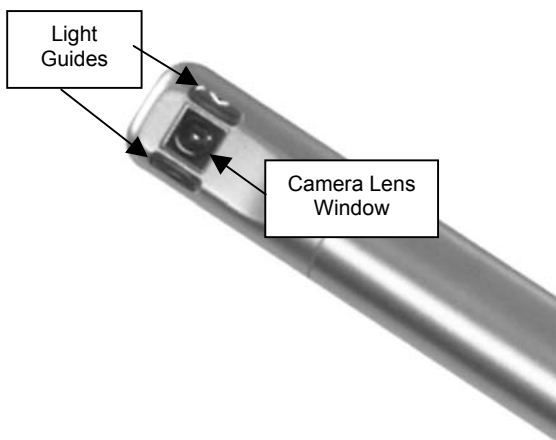
2.5.3. AcuCam Concept IV Handpiece

The AcuCam Concept IV camera handpiece is a sophisticated dental instrument designed to provide the highest quality intraoral and extra-oral images. The Concept IV camera integrates the latest in video electronics and an advanced

optical system into a lightweight and portable handpiece. The ergonomically designed handpiece is the product of 15 years of refinement. Please see the pictures below to identify the key elements of the handpiece.



Elements of the Concept IV Handpiece



Distal End of the Concept IV Camera Head

2.5.4. The Concept IV^{FWT} Docking Station

The Concept IV^{FWT} Docking Station is the system hub with which the camera connects to all other components of the system. The Docking Station must be powered with the Power Supply Unit.

CAUTION: Use the AcuCam Concept IV^{FWT} Power Supply Unit only.

Using other generic power supply products may cause damage.

The Docking Station processes the video stream and transmits it to the computer system through the FireWire port. The docking station is designed to provide easy access to all input and output connections. Please see the picture beside to identify the key features of the docking station.

All the connectors but the handpiece are situated in the backside of the Docking Station.



Concept IV^{FWT} Back Panel

Connection Type(*)	Purpose
S-Video IN (S-Video)	S-video signal input for alternative analog video sources.
Holster (8-Pin mini-DIN)	Holster connection for controlling the handpiece activation.
S-Video Out (S-Video)	S-video signal output for analog monitor.
Foot Switch (8-Pin mini-DIN)	Foot Switch connection for freezing and grabbing images hands free.
IEEE1394 (FireWire)	Digital data output for personal computers equipped with FireWire port.
Power Supply	Power connector . Use Gendex Concept IV ^{FWT} power supply unit ONLY.

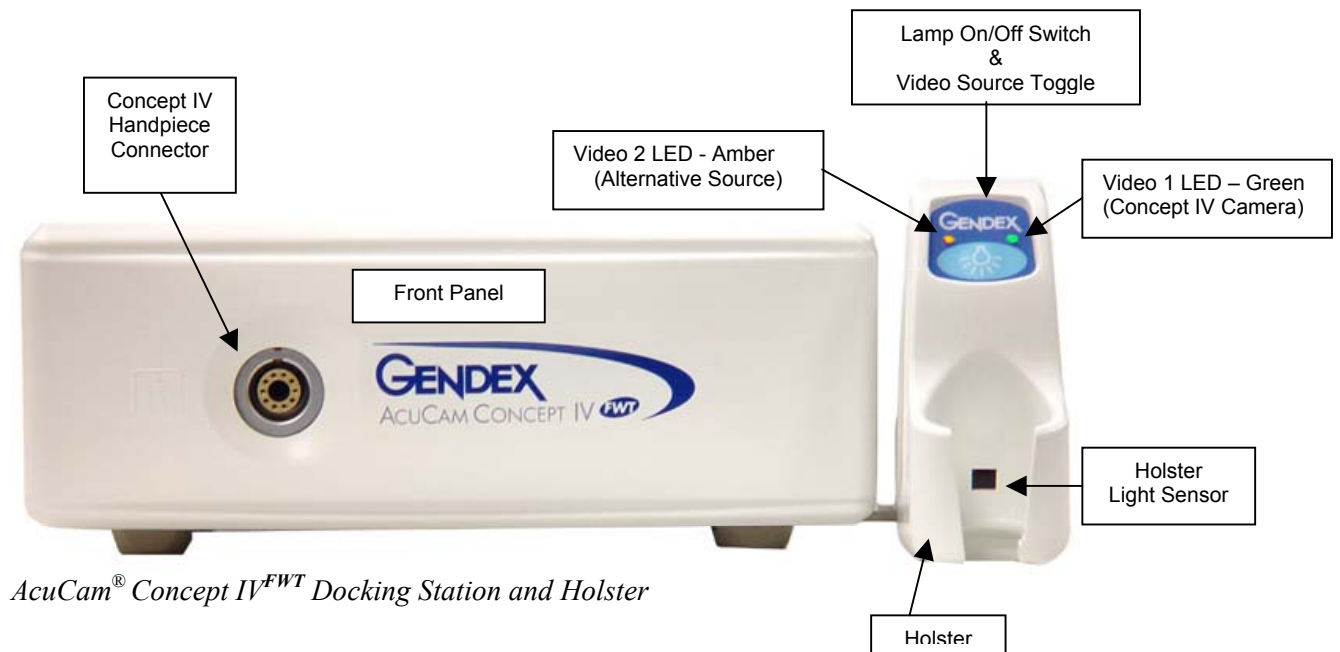
(*) In this order: from upper left to lower right.

NOTE: The docking station is conceived for digital video streaming, therefore it is intended for use with a computer system, through the FireWire connection. The analog video output is featured for additional analog monitor only, or for any analog recording or printing device capable of S-Video input. The analog video output reproduces the video stream coming from the handpiece only; it doesn't reproduce any video coming from the auxiliary input. The docking station allows freezing and saving images on the computer by pushing the supplied footswitch. **The docking station doesn't freeze or save images on or to any analog device connected to the analog video output.**

2.5.5. The Concept IV^{FWT} Holster -----

The Holster accommodates the Handpiece while not in use. It can be relocated near by the Docking Station or far from it, through the appropriate connecting cable. Two cables, of different length, are supplied. The Holster can be attached to the Docking Station, to the left or to the right, or it can be mounted beside a cabinet, connected to the dental chair delivery unit or anywhere nearby the patient area.

A button on the Holster allows to switch On and Off the Handpiece light source or, holding the button for two seconds, to select the video source. Two LEDs indicate the selected video source. The primary video source is the AcuCam Hanpiece (Green LED, right side of the button); the alternative video source is whatever is connected to the Video-IN input available on the Docking Station Back Panel (Amber LED, left side of the button).



AcuCam[®] Concept IV^{FWT} Docking Station and Holster

Meaning of the LED

GREEN BLINKING	The system is powered and in Standby mode.
GREEN ON	The AcuCam Hanpiece is streaming video.
AMBER ON	The system is powered and the alternative video source is selected.
AMBER BLINKING	The system is running the equipment diagnostic.
BOTH BLINKING	It happens for a few moments only, when powering up the system by plugging in the power connector.
BOTH ON	Faulty condition (the camera is in programming mode, used during the production phase only).

2.6. MOVING, STORAGE, AND SHIPPING

WARNING: Cart based systems present a tipping hazard. To reduce the risk of personal injury and property damage, always move a cart based system slowly and in a controlled manner. Do not attempt to tilt, lift or manipulate a cart over thresholds, cables, or other obstructions. Make sure all components are securely fastened to the cart prior to moving.

For prolonged periods of non-use, it is recommended the system and its accessories are covered and kept at room temperature in a dry dust-free environment.

Shipment of the system or any of its components and accessories should be done so using their original shipping containers. Do not reuse damaged shipping containers.

CAUTION: Originator assumes all liability for damages incurred to equipment during shipment to DENTSPLY-Gendex for warranty or non-warranty repairs.

2.7. SUPPORT EQUIPMENT AND SUPPLIES

Consumables/Software

Cat. Number	Description
C4DSH	Concept IV Disposable Sheaths (500 ct.)
602457	Lamp, 12V, 75W
032-0159P1	Template, Wall Mount, Cabinet Mount, Holster Mount
390-0008G1	Software Drivers and User Manual CD-ROM
VIXWINPRO	Imaging Software, VixWin Pro

Hardware

Cat. Number	Description
649-0007P1	IEEE 1394 Interface, PCI Card – It adds FireWire ports to a Desktop computer
649-0008P1	IEEE 1394 Interface, CardBus PCMCIA – It adds FireWire ports to a Laptop computer
301354	Footswitch, Digital Systems (8-Pin mini-DIN) - Cable attached, 3.05 m (10 feet)
643-0099P1	Cable, 3.05 m (10 feet) Footswitch Extension (8-Pin mini-DIN)
644-0026P2	Triple Shielded FireWire Cable, 4.572 m (15 feet) – may vary of 0.30 m (1 foot) less
600780P1	S-Video Cable, 1.83 m (6 feet) – see Note
600780P5	S-Video Cable, 3.66 m (12 feet) – see Note
600780P4	S-Video Cable, 30.5 m (100 feet) – see Note
644-0025P2	Long Holster Cable (8-Pin mini-DIN), 3.05 m (10 feet)
112-1113G1	Auxiliary Holster (no sensor, no LEDs and no button), to “park” the handpiece only
653-0001P1	Power Supply Unit

Training

Cat. Number	Description
TNG250	Training - Half Day
TNG500	Training - Full Day

Note: others commercial S-Video cables may not fit properly under the docking station top cover.

2.8. PRODUCT SPECIFICATIONS

Below are the specifications of the product at the time of printing. DENTSPLY-Gendex reserves

the right to change the design and specifications at anytime without notification.

Camera (handpiece)

Equipment Model	AcuCam Concept IV
Weight	0.4 Kg (0.9 lbs.)
Width of Handpiece	19.0 mm (0.75 inch)
Length of Handpiece	190.5 mm (7.5 inches)
Height of Handpiece	19.0 mm (0.75 inch)
Resolving Power	80 LP/mm
Angle of View	62°
Direction of View	97.5° to handpiece center line
Focal Range	1 mm to infinity
Charged Coupled Device	0.25 inches
CCD Pixels	PAL 437,600 NTSC 379,300

Power Supply

Input Voltage Range	Auto-range 100-120VAC / 200-240 VAC 47-63 Hz
Output Voltage	12 V
Input Power Rating	3.4 Amps MAX 3 Amps @ 115VAC 1.7 Amps @ 230 VAC

Docking Station

Equipment Model	AcuCam Concept IV ^{FWT}
Digital Output	IEEE-1394A, FireWire, i.LINK
Digital Output	480 TV Lines
Power Consumption	7 Amps @ 12 V
Lamp	12V 75W halogen bulb USHIO PN 1000835 Average bulb life: 2,000 hrs.
Weight	1.1 Kg (2.5 lbs.)
Width	165 mm (6.5 inches) Add 30 mm (1.2 inches) for Holster
Length	165 mm (6.5 inches)
Height	74 mm (3.0 inches)
Maximum FireWire cable length supported	4.5 m (15 feet)

FireWire is a registered trademark of Apple Computer Inc. registered in U.S. and other countries.

FireWire is a term Apple trademarked for technology that is defined in the IEEE-1394 specification. Similarly, Sony uses the term i.LINK to describe the same technology.

System—Environmental

U.S. Gov't. Classification— Ingress Protection	IPXO
U.S. Gov't. Classification— Console and Power Supply	Medical Grade
Classification— Handpiece	Cabled camera head, Medical Grade Type BF
Environmental conditions for transportation and storage	-25°C — 70°C
Relative humidity range	10% — 100%
Atmospheric pressure range	500 hPa — 1060 hPa
Environmental conditions for operation	+10°C — 40°C

System—Conformance

Evaluated to meet the Requirements of the Medical Device Directive (MDD) as a Class 1 Device, UL-C 2601-1 and IEC60601-1.	
Immunity testing was performed according to IEC 60601-1-2, Electromagnetic Compatibility	
Suitable for continuous operation	Yes
FDA/21 CFR 820	Class 1

Caution: System installation shall be in accordance with the requirements of IEC 60601-1-1, The Standard for Safety Requirements of Medical Electrical Systems. Patients should only be connected to applied parts of equipment complying with IEC 60601-1. Other equipment used in the system should comply with relevant IEC or ISO Standards.

Computer Requirements

	Minimum System Requirements (*)	Recommended System Requirements
Operating System	Microsoft® Windows® 98SE or ME or 2000-PRO or XP-PRO	Microsoft® Windows® XP-PRO
Processor	800 MHz (*) 1.3 GHz if a laptop computer is used (*)	1.3 GHz or higher 1.8+ GHz if a laptop computer is used
Memory	128 MB	256 MB
Hard Disk	10 GB	20+ GB
Display Setting	1024x768 at 32 bit true color	1024x768+ at 32 bit true color
Video memory	8 MB	8+ MB
Monitor	SVGA with 0.25mm/0.26mm dot pitch	SVGA with 0.25mm/0.26mm dot pitch
Ports	FireWire or i.LINK (IEEE-1394A standard)	FireWire or i.LINK (IEEE-1394A standard)
Drivers	Microsoft DirectX 9.0b or higher required	Microsoft DirectX 9.0b or higher required

(*) Note: “Minimum Requirements” are necessary to obtain a good live video stream in a window a quarter-of -screen big, while the “Recommended Requirements” are necessary to obtain a fluent live video stream without any “jittering” effect in full-screen mode.

Note: Processor Speed Requirements are higher if a laptop PC is being used. For the best performance with laptops, please make sure that the PC power supply is connected when the Concept IV^{FWT} is streaming video.

Section 3: Installation, Wiring and Setup

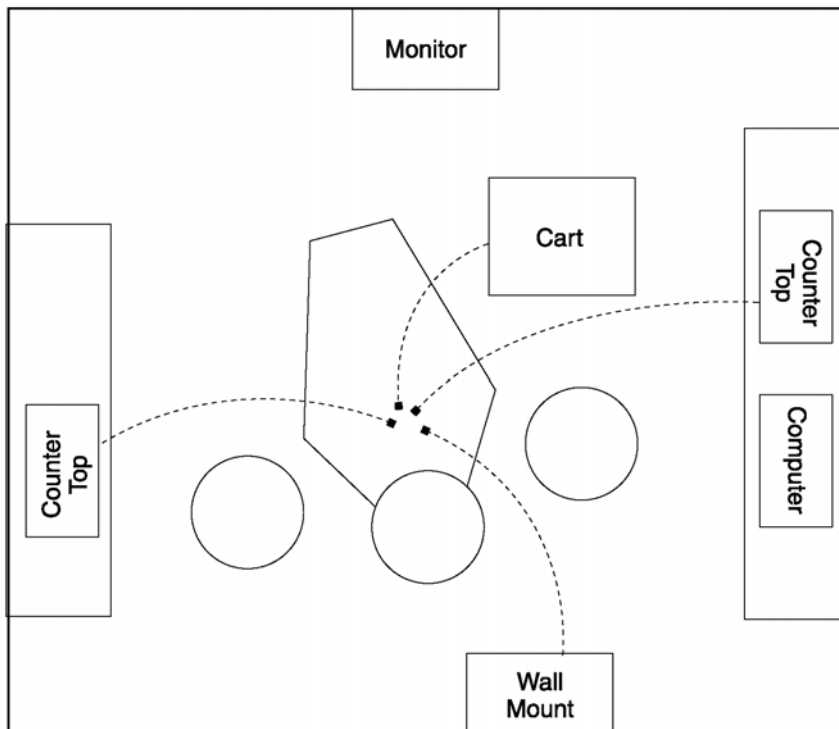
3.1. EQUIPMENT POSITIONING CONSIDERATIONS

There are as many ways to set up an intraoral camera system as there are dental offices. Each practitioner must decide which setup is most comfortable for them taking into account: office layout, operatory layout, budget, ergonomics, and work practices. This section will outline some general guidelines to consider when setting up your equipment.

The AcuCam Concept IV^{FWT} is designed to be an auxiliary input device to a computerized dental operatory. Therefore, it is important to be sure to locate the camera and computer system controls near where the operator can use them during an exam. This could mean the keyboard and mouse are located on the dentist side of the chair or on the assistant's side depending on who will be using it.

If a footswitch will be utilized, make sure the computer is located near the operator. Give careful consideration to wire-runs so as not to cause a tripping or electrical hazard.

The main monitor should be positioned where the practitioner can get the best view. A secondary monitor can be positioned in the ceiling, or on the wall at the foot of the chair for the patient's viewing. The Concept IV^{FWT} docking station should be positioned near the dentist's primary hand. Therefore, for a Right-handed dentist, it would most likely be positioned on the wall to the left side of the chair, or the 9 o'clock position. For a Left-handed dentist, a docking station mounted to the right of the chair, or 3 o'clock, position would be best. See diagram below for further clarification.



As with all imaging devices, lighting has a profound effect on the resulting images. Excessive outdoor or florescent lighting can impact the image quality of the extra-oral images, and degrade the contrast of the video monitor. Avoid excessive lighting conditions by providing shades to exterior windows with direct sunlight, and grids to overhead florescent lights.

3.2. DOCKING STATION INSTALLATION

Once you have determined where to place the equipment, follow the instructions below to properly install the docking station.

The Holster should be mounted a minimum of 90mm (3.5") above the floor, or in such a way to ensure the monocoil cable does not lie on the floor. It is recommended to mount the docking station inside a cabinet, under a countertop or on the wall in order to conserve precious counter-space.

CAUTION: If you're installing the docking station in an enclosed cabinet, consider that the docking station and the power supply must dissipate 150 watts of heat continuously while operating. Maintain a clearance of at least three inches from the back of docking station in order for the fan to function properly.

Remove the Concept IV^{FWT} Cover

All wiring connections are accessible on the back panel, therefore, for desktop installation, it is not necessary to remove the cover. For mounting the Concept IV^{FWT} docking station into a cabinet, under a countertop or on the wall, it is necessary to use the supplied mounting bracket. The first step necessary to access the mounting brackets is to remove the cover. Follow the instructions below for removing the cover.



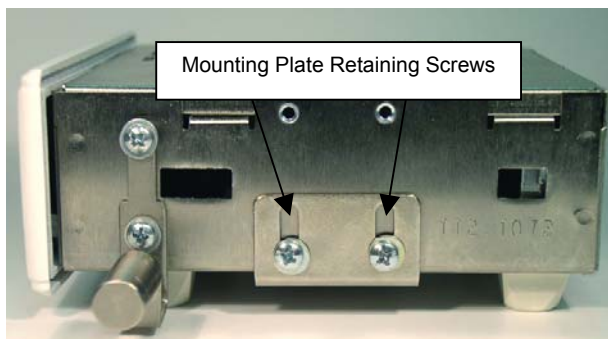
The Cover

Release the docking station cover by grasping the left and right bottom edge of the cover. Pull both edges outward and gently lift the cover.

Release the Mounting Bracket

The Concept IV^{FWT} docking station can be wall mounted or set under a countertop. The mounting bracket is included as part of the basic system, and is attached to the bottom of the docking station at time of shipment. For

countertop installations the wall bracket can be removed, however it is not necessary. If you do remove the bracket, it is recommended that you save it for future use.



The Brackets

To release the mounting brackets, locate the two retaining screws on both sides of the docking station chassis.

Lateral view of Docking Station

Mount the Wall Brackets -----

Use the mounting bracket or the wall-mounting template to find a suitable location for attaching to a wall.

WARNING: Electrical shock or fire hazard. Installation must comply with local ordinances governing electrical and cable installations. Consult a licensed electrical contractor for local building codes before proceeding.

Attach each wall bracket with two (2) #10 molly-bolts or toggle bolts to 1/2" (12.7 mm) thick or greater drywall. Use #10 wood screws greater than 1.5" (38.1 mm) long when going directly into wood studs. See wall mount template for additional information. Part # 032-0159P1.

Additional information on the **holster** wall-mounting is also available in the same mount template. Part # 032-0159P1.

Re-Attach the Docking Station Chassis -----

Once the mounting bracket is secured, reattach the docking station. Reinstall the two retaining

screws through the mounting bracket and into the chassis.

Wire the Docking Station -----

Complete the wiring of the docking station as described in Section 3.3 of this manual. Refer to your FireWire board's installation manual for complete wiring instructions. Replace the Cover



Straight Position

Position the cover over the chassis. While pulling the left and right edges outward slowly press the cover on to the chassis until the edges snap in to place.

Reversed Position

When mounting the docking station under a countertop, **do not put the chassis upside down**: the brackets can be attached facing up toward the countertop and the cover can be mounted on the chassis from the bottom!, it is reversible.



Caution: in case you need to remove the rubber feet from the chassis, 0.5" (12.7 mm) clearance is required between the chassis and the countertop for proper airflow.

Mount the Cabinet Brackets -----

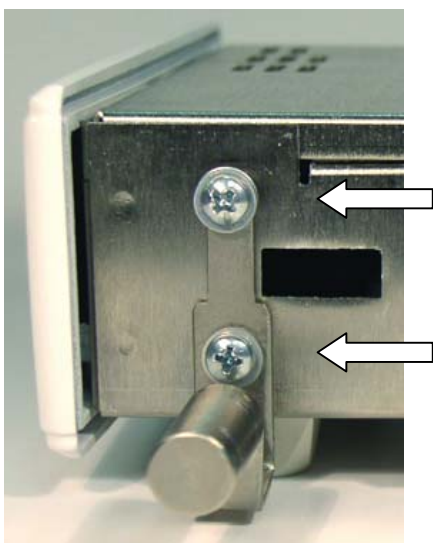
Use the mounting bracket or the cabinet-mounting template to find a suitable location for attaching to a cabinet.

The brackets for cabinet-mounting are the same used for wall mounting: they just need to be positioned differently, as shown in the following pictures.

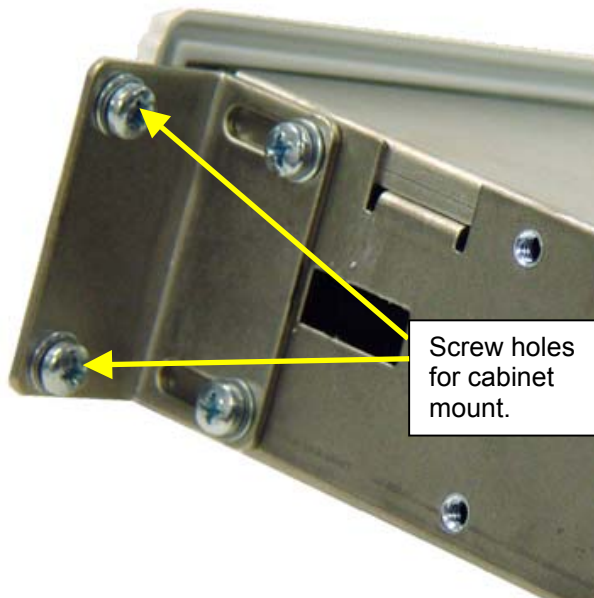
WARNING: Electrical shock or fire hazard. Consult the cabinet manufacturer for details on eventual electric cables hidden in the cabinet before proceeding.

Attach each bracket with two (2) #12 wood screws. Use the maximum wood screw length allowed by the cabinet. Do not exceed the cabinet panel thickness not to damage the cabinet esthetics. See cabinet mount template for additional information. Part # 032-0159P1.

Additional information on the **holster** cabinet-mounting is also available in the same mount template. Part # 032-0159P1.



Remove the Holster Bar



Move the bracket in the anterior position

3.3. HOLSTER INSTALLATION

The holster on the docking station is attached at the time of delivery. When installing the docking station under a countertop or inside a cabinet, you have to remove it. The holster can then be mounted on the wall, on a cabinet, on a delivery unit and wired to the docking station with the long or short cable supplied.



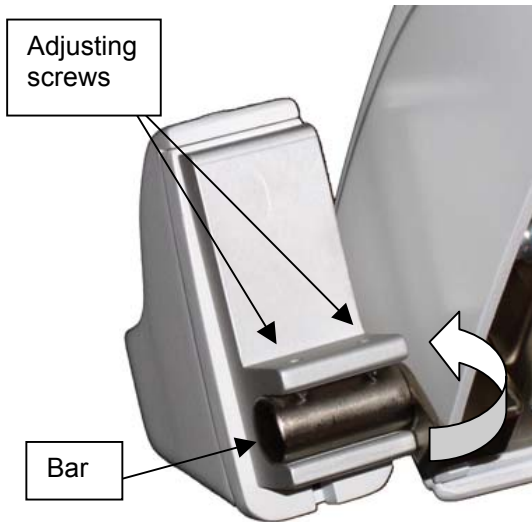
Wall Mount Installation



Countertop Mount Installation



Holster on a Delivery Unit



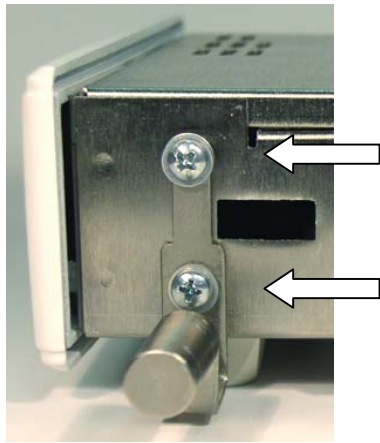
*Holster mounted on the Docking Station
(rear view)*

The Bar

The holster is attached to the docking station through a metal bracket (the Bar), as shown in the following pictures. The holster can be reclined at the desired angle by using the supplied wrench to release the two screws embedded in the holster.



Wrench for Holster Adjust



The Holster Bar and its Bracket

Removing The Bar

The Holster can be attached to the Docking Station chassis either on the left or on the right, connecting the apposite bracket in the desired position.

NOTE: When mounting the holster on a cabinet or attaching it to a dental chair delivery unit, the bracket (bar) is not necessary, and it can be removed releasing the two screws shown here. Store the bracket for future use.



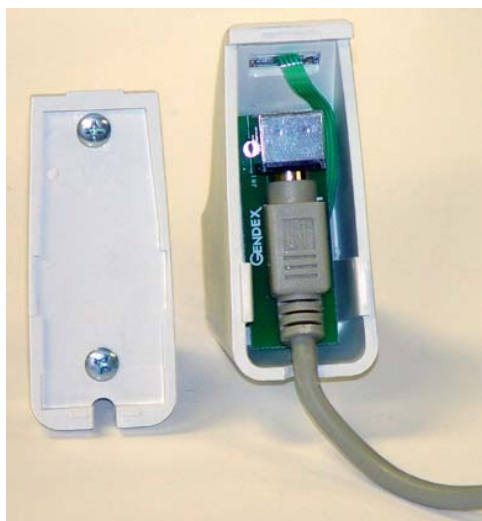
The Back-Plate

The Back-Plate

The Holster Back-Plate comes with a “hook” designed for connecting the Holster to the delivery unit of a common dental chair. The two embedded screws allow fixing the holster in a stable position.

NOTE: to align the camera handpiece to the others devices on the delivery unit, you may want to **FLIP VERTICALLY** the holster back-plate. The back plate is attached to the holster by means of two screws located **INSIDE** the holster.

To operate correctly, the holster must be wired to the Docking Station through its cable. Two cable lengths are available, for attaching the holster to the Docking Station or for positioning the holster far away (i.e. on the Delivery Unit, chair side). If the cable is not connected, both the holster button and the LEDs will not work. The cable connector is hidden **INSIDE** the holster. To replace the cable, it is necessary to open the holster.



To open the holster

Hold in one hand the frontal plastic part and with the other hand slide gently down the back-plate until the two parts are released.

NOTE: Do **NOT** try to open the holster while it's mounted on the delivery unit and do not use the **Concept IV handpiece or any other tool as a lever**. Where necessary, un-mount the holster first, by releasing the two embedded screws.

Holster: Wall or Cabinet Mounting -----

Use the holster back plate or the holster mount template to find a suitable location for attaching to a wall or to a cabinet.

WARNING: Electrical shock or fire hazard. Installation must comply with local ordinances governing electrical and cable installations. Consult a licensed electrical contractor for local building codes before proceeding. In case of cabinet-mounting, consult the cabinet manufacturer for details

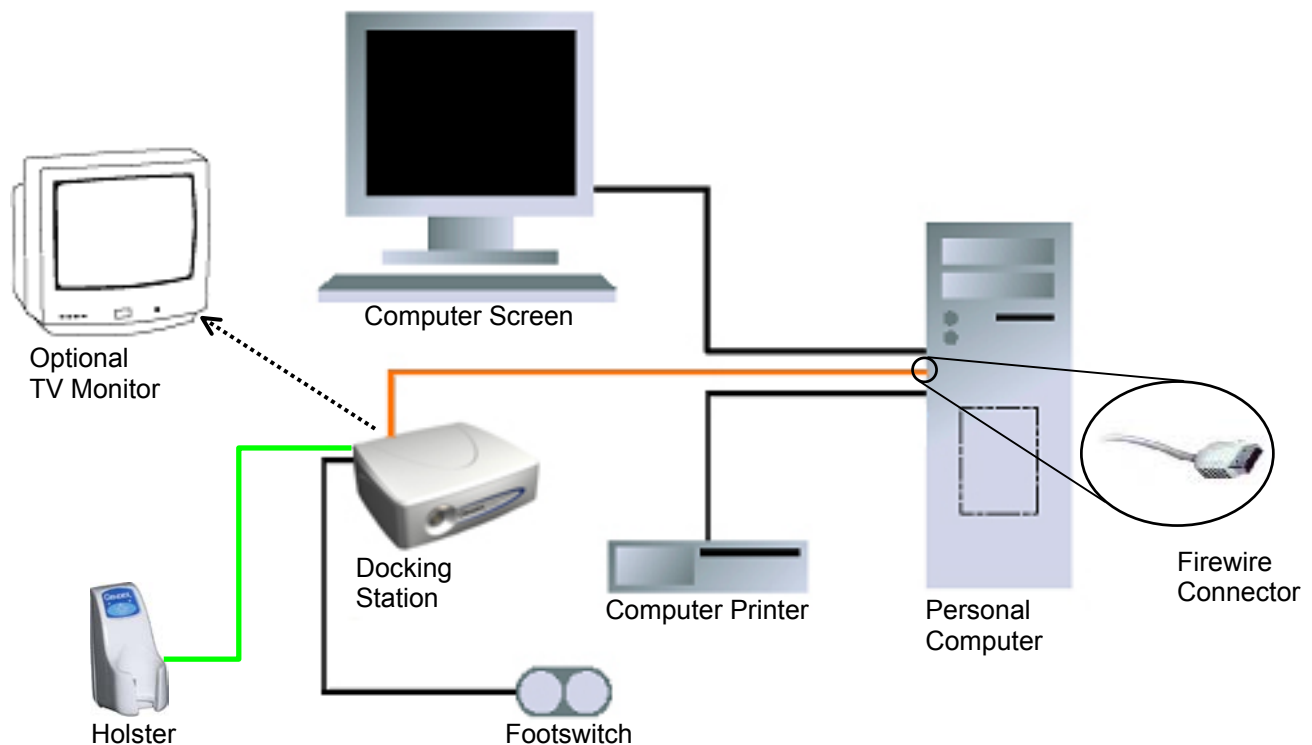
on eventual electric cables hidden in the cabinet before proceeding.

Attach the holster with two (2) #6 wood screws, at least 1' (25.4 mm) long. In case of a cabinet-mounting, use the maximum wood screw length allowed by the cabinet. Do not exceed the cabinet panel thickness not to damage the cabinet esthetics. See holster mount template for additional information. Part # 032-0159P1.

3.4. WIRING THE ACUCAM CONCEPT IV^{FWT} SYSTEM

Below is a simplified AcuCam Concept IV^{FWT} system wiring diagram. The docking station is connected to the computer via the FireWire connection. The image capture software displays the digital dataflow on the computer monitor.

The docking station can also be connected directly to a TV monitor; however, there will be no way to display images captured in the computer.

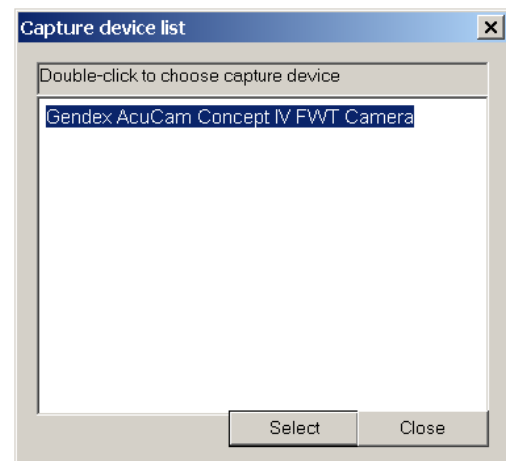
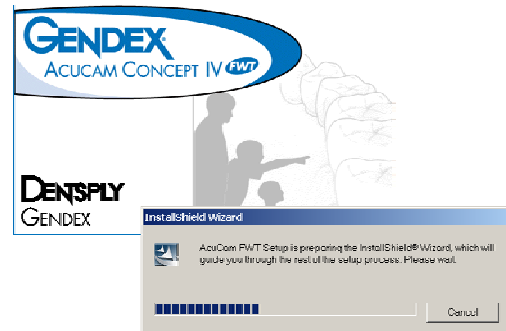


3.5. LOADING THE ACUCAM CONCEPT IV^{FWT} SOFTWARE DRIVER

Note: Do not plug in the AcuCam Concept IV^{FWT} before installing the software driver.

To install the AcuCam Concept IV^{FWT} software driver either as a new installation or as an upgrade, do the following:

1. If you're using Windows 2000 or XP, make sure you have the Administrator rights (it is necessary to install a new driver).
2. Disable any Antivirus software that may be running.
3. Insert the AcuCam Concept IV^{FWT} Driver CD into the CD-ROM Drive.
If the computer is configured to detect a newly inserted CD-ROM, the AutoPlay menu will appear. If the AutoPlay menu does not appear after a few moments, click on the **Start** button then select **Run**, and type **D:\setup.exe** (where **D** is the letter of the CD-ROM drive). If the CD-ROM's drive letter is not known, double click on the **'My Computer'** icon on the desktop, and make a note of the letter of the CD-ROM icon.
4. From the "Welcome" menu click **Next**.
5. Carefully read the "Software License Agreement" and click **Yes** to accept the Software License and continue, or click **No** to decline and exit the installation.
6. The AcuCam Concept IV^{FWT} installation program will copy the needed files onto your computer.
7. A message will appear prompting to connect the Docking Station. Make sure that the AcuCam Concept IV^{FWT} docking station is powered and PLUG THE FIREWIRE CABLE into your computer. Follow the instructions appearing on the screen.
8. A "Driver Signature" warning message may appear during the AcuCam driver installation, informing that the driver is unsigned. Please click "Ignore" to allow the driver to be installed.
9. The installation program will detect if the appropriate version of the Microsoft DirectX software is installed, and it will prompt you to install an upgrade if necessary. Just follow the instructions appearing on the screen.
10. After all the files are installed click on Finish to complete the installation and reboot your computer.
11. After the reboot, a message will appear on the screen notifying that the correct version of the DirectX software has been detected. Push OK.
12. A Capture Device List may appear allowing you to chose between input sources. Select Gendex AcuCam from the list to activate the video input.
13. Now that you have completed the installation procedure, the icon representing the software driver will appear in the Windows System Tray (also refer to section 4.8).



Section 4: Operating Instructions

4.1. ATTACHING/DETACHING THE CAMERA TO THE DOCKING STATION

The Concept IV handpiece connects to the docking station via a highly engineered, medical grade connector. This connector provides the interface for both the electrical connections and

the fiber optic cables. It is designed to provide maximum protection and reliability to the connectors and pins.

4.1.1. To Attach:-----



Firmly grasp the connector so that the red dot aligns at the upper most position with the embossed dot on the Docking Station front panel. Gently insert the light guide tip into center of the receptacle in the docking station. Once the connector housing reaches the receptacle, you may have to slightly rotate the connector in order to properly align it. You should hear a slight click, as the connector is fully engaged and locked into position.

4.1.2. To Detach:-----



Grasp the connector at the knurled ring and pull away from the docking station. As the ring slides, it will release the latches and the connector will easily slide out of its receptacle.

4.2. TURNING ON THE SYSTEM

The AcuCam Concept IV^{FWT} system has **NO POWER SWITCH**. To operate the camera, verify that the camera is properly connected to the Docking Station, then lift the handpiece from the cradle to activate the system. A sensor in the holster will detect that the handpiece has been removed from the holster, and the system will be activated. When activated, the light on the handpiece will power on and the video stream from the docking station will begin. When the handpiece is returned to the holster, the system is deactivated, and it will go into standby mode.

CAUTION: for long periods of inactivity (i.e. one month), it is strongly recommended that users turn off the main power supply or unplug the Power Supply Unit from the electrical outlet.

4.3. HOLDING THE HANDPIECE

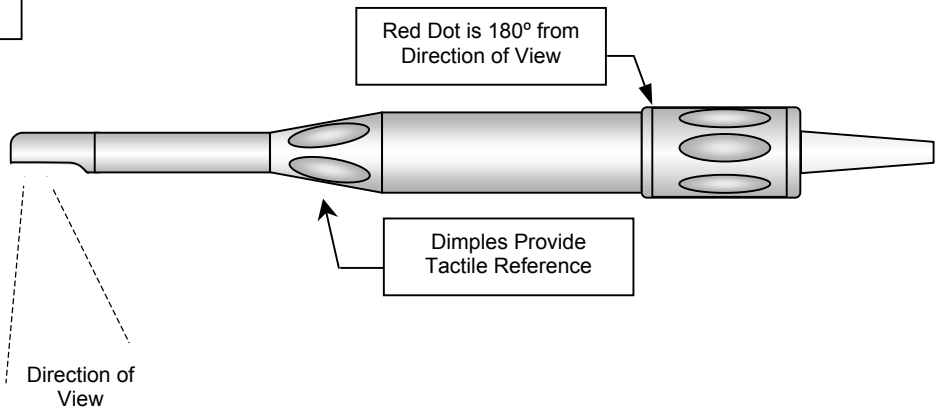
The AcuCam Concept IV handpiece is a sophisticated, ergonomically designed intraoral camera. It can be easily manipulated single-handedly while providing complete intraoral access. Further, the lightweight camera head and low torque monocoil cable ensure minimal hand fatigue.

The camera is designed to provide tactile and visual reference points to facilitate hand-eye coordination. First, dimples in the camera head provide tactile reference points to where the camera is aimed. Grasp the camera head like a

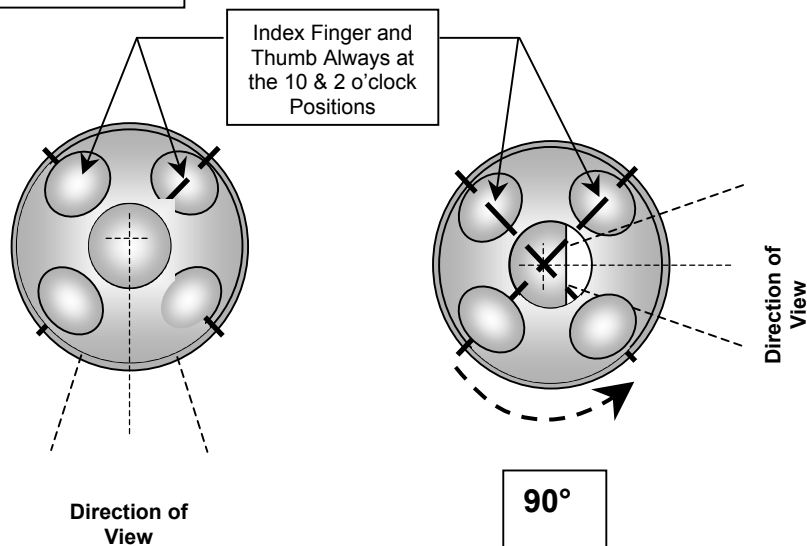
pencil or a mirror, with the barrel resting in the recess between your index finger and thumb. Your index finger and thumb should rest on the dimples at the 10 and 2 o'clock positions. These dimples will help you aim the camera in 90-degree increments. See diagrams below for further reference.

The red focus dot on the barrel of the camera head also provides a visual reference point. The dot is exactly opposite the direction of view. Therefore, it is always important to locate this point when starting an exam.

Handling the Camera



Axial View of Concept IV



4.4. FOCUSING THE HANDPIECE

The focal range of the Concept IV camera is divided into four focus settings controlled by the focus ring. The focus ring features three fixed positions corresponding to (E)xttraoral, (W)ide, and (C)lose-up settings. A fourth mode, not

labeled, corresponds to a variable macro setting. The table below shows each position with its respective focal range, average magnification, and clinical purpose

Focus Modes

Position	Focal Distance (mm)	Typical Magnification		Clinical Purpose
		13" Mon.	20" Mon.	
(E)xttraoral	40mm to infinity	5X	7.5X	Full Face / Smile / Full Arch
(W)ide angle	12mm to 40 mm	17X	26X	Examination Mode / Quadrant
(C)lose-up	8mm to 12 mm	32X	48X	Single Tooth
Macro	1mm to 8 mm	85X	110X	High magnification / Diagnostic Aid



Concept IV Focus Ring

The focus ring is easily adjusted without visual assistance. The Extraoral view is the very last setting when rotating the focus ring to the left. Use this position as the starting point for selecting any other setting. One click to the right is the Wide position. Two clicks to the right is the Close-up position and beyond that is the Macro view. It is best to select the focus position you desire first, then examine the patient (except in Macro view).

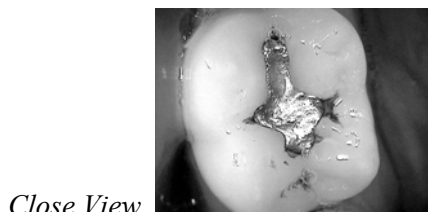
NOTE: Unlike the fixed focus modes, in Macro view it's easier to position the camera and then adjust the focus ring. Due to the high magnification, steadying the camera is paramount to obtaining a good image.



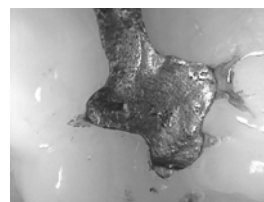
Extra-oral View



Wide View



Close View



Macro View

4.5. CONTROLLING THE LAMP POWER



Under normal operating conditions and if the Green LED is illuminated, when the handpiece is removed from the holster, the lamp turns on emitting light from the handpiece. Pressing the Lamp Power switch located on the holster turns the lamp off. This is useful for reading X-rays from a lightbox or if an alternative light source is being used to create an effect in the subject (i.e. trans-illumination).



Every time the handpiece light is switched ON, the cooling fan inside the Docking Station is automatically activated, generating an audible gentle noise that may vary according to camera operation and heat dissipation needs. The fan keeps spinning for a few moments after the handpiece has been put back in the holster.

NOTE: From time to time, the fan might be spinning at low speed even in standby mode.

CAUTION: If the handpiece light goes OFF during normal operation and if it doesn't work even on demand (removing the handpiece from the holster or pushing the light button), verify that the cooling fan is in action, by listening to its audible noise or by looking at the Docking Station rear panel, beside the connectors. The fan appears as shown in the picture on the left. If the fan is not working properly (extracting air), return the Docking Station to the nearest Gendex repair center for maintenance.

4.6. USING THE ALTERNATIVE INPUT CHANNEL



The Concept IV^{FWT} docking station is outfitted with alternative input video connection. This is useful for connecting other imaging devices to the computer system. Microscopes, video cameras, digital still cameras all typically have S-video output connections.

To toggle between the Concept IV camera and the alternative input video device, keep the holster button pressed two seconds. When the Concept IV camera is in use, the Green LED (on the right) must be illuminated. When the alternative video source is selected, the Amber LED (on the left) is illuminated.

4.7. USING THE FOOTSWITCH



The Concept IV^{FWT} docking station comes with a wired footswitch, featuring two switches. The "C" switch (blue) allows freezing the image on the computer screen. It toggles the live video stream and the freeze status. The "M" switch (red) allows saving the freeze image on the computer hard drive.

NOTE: the footswitch doesn't influence the analog video output.

4.8. USING THE SOFTWARE

The ACUCAM CONCEPT IV^{FWT} SOFTWARE DRIVER must be installed on the computer in order to see any video stream on the screen.

Even if not required for the live video streaming, some imaging software (i.e. VixWinPRO) may be used to handle the images saved on the hard drive. The imaging software allows to organize the acquired images into patient' folders, for documentation and patient education purposes.

NOTE: Refer to the operative manual and instructions supplied with the imaging software for a better understanding of the available features.

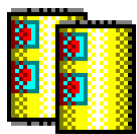
NOTE: The Concept IV^{FWT} software driver doesn't work properly when another Video Application tries to access the FireWire video stream directly or through the Microsoft DirectX functions.

Live video stream -----

Under normal operating conditions and if the Green LED is illuminated, when the handpiece is removed from the holster, the live video stream is shown on the computer screen. The video will be shown inside a window or full-screen depending on the last mode used. It is possible to toggle between windowed mode and full-screen mode by clicking with the mouse anywhere inside the live video area. The live video window is resizable by dragging the window border.

NOTE: The bigger the size of the live video stream, the higher the computer resources required. If you experience any "jittering" effect in full-screen mode or in windowed mode, reduce the window size and/or close unused software applications. Alternatively, a faster computer CPU may be required.

Icon and Menu -----



After the software driver installation, a new icon appeared in the System Tray (the area close to the Windows System Clock, usually in the lower right corner of the screen). Right clicking with the mouse on this icon will cause a menu to appear.

NOTE: Gendex is committed to the continuous improvement of the software driver. Menu, messages, features may change. For the latest documentation on the software features, please read the Help On-Line (right click on the icon, Information / Help).

Through this menu, you have access to:

- the information related to the software driver in use (version...),
- the configuration panel (brightness, contrast, horizontal or vertical flip...),
- the Help On-line.

Section 5: Cleaning and Infection Control

5.1. GENERAL

The AcuCam Concept IV^{FWT} camera handpiece is used for capturing images in the oral cavity and does not penetrate skin or mucous membrane. The following information on infection control is provided only as a guide. Users of the Concept IV^{FWT} intraoral camera system must follow appropriate infection control protocols and techniques outlined in the

exposure control plan for the individual dental practice.

CAUTION: It is the responsibility of the user to determine the appropriateness and effects of any cleaning, disinfecting, sterilizing agents, solutions, or equipment.

5.2. BARRIER METHOD

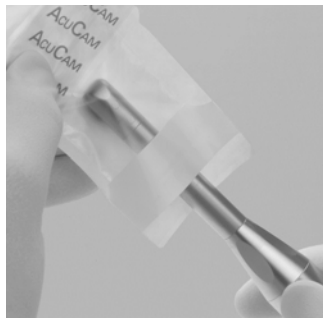
DENTSPLY-Gendex recommends the use of disposable, single-use sheaths as the primary method of minimizing cross-contamination between patients. Specially designed optically transparent plastic sheaths are available from DENTSPLY-Gendex, part number 301793.

DENTSPLY-Gendex only recommends the use of these sheaths as part of an office exposure control plan. In the event of a breach of the barrier during use of the handpiece, the user should replace the barrier immediately. Used sheaths must be appropriately disposed of.

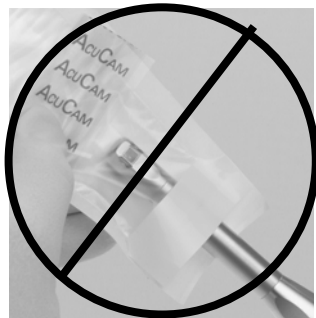
5.3. INSTALLING SHEATHS

The disposable sheaths are enclosed between two protective covers, specifically, a clear top cover and a paper backing. Care must be

exercised when installing the camera handpiece into the sheath to avoid placing the handpiece between the sheath and the cover.



Proper Insertion of Camera



Improper Orientation of Camera

Step 1 — Orient the Sheath

The protective top cover has a blue tab. This colored tab must face UP before inserting the camera handpiece. Place the distal end of the camera handpiece between the white tab and back of the sheath.

Step 2 — Insert the Camera Handpiece

Insert the camera handpiece such that the lens window is facing DOWN towards the paper backing. Gently slide the camera handpiece completely into sheath. Avoid excessive force when inserting the handpiece into the sheath to prevent rupturing.



Step 3: Remove Protective Covering

With the camera handpiece properly installed, hold the sheath at the monocoil connection. With your opposite hand, remove the protective cover by pulling the colored tab up and over the distal end of the handpiece, and down the back side in one continuous motion as shown. Discard the protective covering. The camera handpiece is barriered and ready for normal use.



WARNING: Before using the camera, examine the installed disposable sheath on the camera for evidence of rupture. If the sheath is ruptured or pierced, immediately remove and install a new sheath.



WARNING: The AcuCam barrier sheaths are designed with a large clearance in order to facilitate focus adjustments while sheathed. Lifting the sheath to adjust the focus ring compromises the barrier method of infection control.

Proper Focus Ring Adjustment

5.4. HEAT STERILIZATION

The camera handpiece is not heat tolerant. Placing the camera in a steam autoclave, dry heat sterilizer, chemiclave or similar device is expressly prohibited.

CAUTION: Do not autoclave the camera handpiece and monocoil cable. Autoclaving this component will cause irreparable damage.

5.5. USE OF DISINFECTANTS/CLEANERS

Wipe down the handpiece and monocoil cable after each use. Commonly available surface disinfectants/cleaners suitable for use in health care facilities are recommended. Always follow the instructions for use provided by the manufacturer including those related to rinsing.

Disinfectant solutions fall in one of the following classes:

Alcohols (such as isopropyl alcohol)

Glutaraldehyde Based Formulations (such as Cidex™)

Quaternary Ammonium Compounds (such as Cavicide™)

Inorganic Chlorine Solutions (e.g. bleach)

Phenolics (such as ProPhene™, Lysol® ICT™, etc.)

CAUTION: Do not use iodophor or phenolic compounds on the camera handpiece window.

Iodophors (such as Biocide™)

CAUTION: Products that contain iodophors can stain the surface of the Docking Station.

Iodophors are not recommended.

WARNING: Use of disinfectants for cleaning the camera handpiece does not insure sterilization. Gendex only recommends the barrier method as an effective infection control protocol.

5.6. CLEANING THE CAMERA SAPPHIRE WINDOW

Contaminants on the sapphire window can impair image quality. Use the following procedure to clean the sapphire window.

The following agents are acceptable camera and lens cleaners:

1. Low-water alcohol
2. Acetone

Cleaning Steps:

1. Moisten a cotton swab with acetone or alcohol. Swab must be moist, but not wet.

2. Shake handpiece to remove excess fluid.
3. Gently touch the center of the window with the swab, then using a spiraling motion, wipe the entire surface of the window.
4. Avoid contamination of the cleaning agent. Do not reuse swabs.
5. Inspect the window for loose fiber from swab. Remove any fiber that may be present.
6. Verify the quality of the image to ensure cleaning was effective.
7. Repeat this procedure until window is clean.

5.7. CLEANING THE DOCKING STATION

For regular maintenance of the docking station, clean by wiping with a damp cloth and mild detergent.

CAUTION: Do not spray solution or liquids directly onto docking station. If disinfection is required, spray disinfecting solution onto a clean cloth and wipe docking station thoroughly.

Section 6: Troubleshooting, Maintenance and Repair

6.1. TROUBLESHOOTING

See the Troubleshooting section in the Help On-Line (after installing the software driver onto your PC, right click on the FWT icon in the System Tray, then select Information / Help, as described in Section 4.8).

6.2. MAINTENANCE

AcuCam Concept IV^{FWT} Intraoral Camera System is designed for many years of trouble-free operation. These systems are manufactured from the highest quality components for superior performance. With exception to the lamp and

fuse replacement, the Concept IV^{FWT} contains no user-serviceable parts. Do not attempt to open any piece of the equipment, as it may cause a severe electrical shock.

6.2.1. Replacing the Camera Lamp -----

If you have followed the troubleshooting guide above, and determined that you need to replace the lamp, carefully follow the instructions below to replace the lamp. Replacement lamps, part number 602547, 12V 75W halogen bulb, are available from your local DENTSPLY-Gendex dealer. Replacement lamps have an average bulb life of 2,000 hours.

WARNING: Turn power OFF to the docking station and unplug the power cord from the electrical outlet. Do not attempt to open any piece of the equipment, as it may cause a severe electrical shock. If lamp is hot, allow the lamp to cool before removing.



Step 1 — Remove the Cover

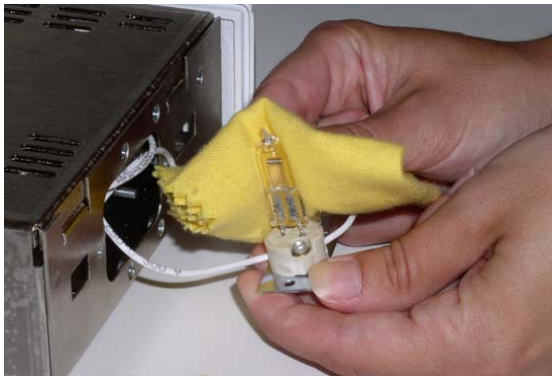
Remove the docking station cover by grasping the left and right bottom edges of the cover. Pull both edges outwards simultaneously to release cover from chassis.



Step 2 — Remove the Bulb Cover

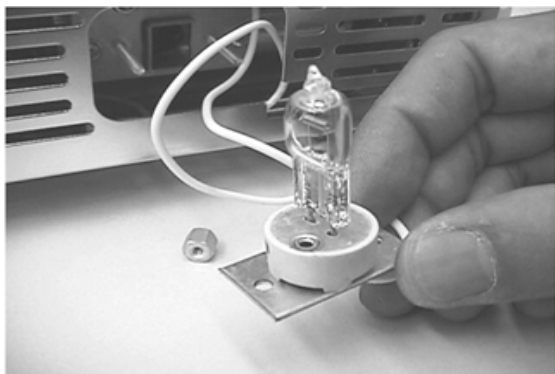


Step 3 — Locate the Lamp Holder



Step 4 — Remove Lamp Holder

Unscrew and remove the two metal lamp fasteners from the lamp holder. Slide the lamp holder out of the unit and place it on flat surface.



Step 5 — Lamp in Holder

Pull the old lamp out of the lamp holder.

Carefully remove the new replacement lamp from its packaging and place in holder. **Do not use unprotected hands.** Read Caution below.

CAUTION: Be sure **NOT** to touch the new lamp with unprotected hands. Use tissue, soft cloth, or non-powdered surgical glove to handle the lamp. Minute amounts of skin oils or other impurities with cause the lamp to fail prematurely.



Step 6 — Insert New Lamp

Insert the two prongs of the new lamp into the holes in the lamp holder and press the bulb into place.



Step 7 — Replace Lamp in Holder

Slide the lamp holder back into the light assembly, rotating the lamp holder to wrap the wires.



Line up the metal fasteners with the bolts on the unit and press them in place. Turn each retainer to the right until it is firmly seated. Do not exceed hand-tight.



Step 8 — Replace the Bulb Cover

Replace the cover by reversing Steps 1 and 2 of this procedure.

6.3. REPAIR

The Concept IV^{FWT} Intraoral Camera System is designed to provide years of trouble-free service, and carries a one-year limited warranty. If, however, your system does malfunction, contact your DENTSPLY-Gendex dealer service representative, DENTSPLY-Gendex technical

support, or your nearest DENTSPLY location for service.

Most repairs cannot be performed on-site. The unit must be sent back to DENTSPLY-Gendex for repair.

Section 7: DENTSPLY Gendex Limited Warranty

7.1. LIMITED WARRANTY

DENTSPLY-Gendex warrants to Buyer that any new dental intraoral video camera manufactured by DENTSPLY-Gendex bearing the AcuCam[®] Trademark ('Product') will (i) be free from defects in material and manufacturing workmanship and (ii) conform to applicable specifications in effect on the date of shipment. The criteria for all testing shall be the applicable specifications, utilizing factory-specified calibration and test procedures and instruments.

All product warranties and all remedies for warranty failures are limited in time as shown below.

DURATION OF WARRANTY

All DENTSPLY-Gendex dental intraoral video cameras and components thereof shall be warranted until the date which is one (1) year from the date of original installation or 1 1/2 (one and one-half) years from the date of shipment by DENTSPLY-Gendex, whichever comes first.

Any component furnished without charge to Buyer during the warranty period to correct a warranty failure shall be warranted only to the extent of the unexpired term of the warranty of the ORIGINAL PRODUCT.

WARRANTY EXCLUSIONS

The foregoing warranties are exclusive and in lieu of all other warranties, whether written, oral, express, implied or statutory. NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE SHALL APPLY.

THE WARRANTIES AND REMEDIES AVAILABLE TO THE BUYER ARE CONDITIONED UPON THE BUYER INSERTING THE DATE OF THE ORIGINAL INSTALLATION ON THE GENDEX WARRANTY CARD(S) AND RETURNING THIS CARD(S) TO GENDEX PROMPTLY (WITHIN 30 DAYS) AFTER THE INSTALLATION OF THE PRODUCT.

Warranty coverage does not include defect or deficiency (including failure to conform to Product descriptions or specifications) which result, in whole or in part, from (1) negligent storage or handling of the Product by Buyer, its employees, agents or contractors; (2) failure of Buyer to prepare the site or provide power requirements or operating environmental conditions in compliance with any applicable instructions or recommendations of DENTSPLY-Gendex; (3) the absence of any product, component, or accessory recommended by DENTSPLY-Gendex, but omitted at Buyer's direction; (4) any design, specification, or instruction furnished by Buyer, its employees, agents or contractors; (5) any alteration of the Product by any person other than DENTSPLY-Gendex; (6) combining DENTSPLY-Gendex's Product with any product furnished by others; (7) combining incompatible products of DENTSPLY-Gendex; (8) improper or extraordinary use of the Product, improper maintenance of the Product, or failure to comply with any applicable instructions or recommendations of DENTSPLY-Gendex; or (9) acts of God, acts of civil or military authority, fires, floods, strikes or other labor disturbances, war, riots, or other causes beyond the reasonable control of DENTSPLY-Gendex. DENTSPLY-Gendex does not warrant any product of others where DENTSPLY-Gendex serves sole as a distributor or resaler.

BUYER'S REMEDIES

If DENTSPLY-Gendex determines that any Product fails to meet any warranty during the applicable warranty periods, DENTSPLY-Gendex shall correct any such failure either, at its option (a) by repairing, adjusting, or replacing any defective or non-conforming Product, or defective or damaged part or parts of the Product or (b) by making available at the place of assembly any necessary repaired or replacement parts or assemblies. DENTSPLY-Gendex shall have the option to furnish either new or exchange replacement parts or assemblies.

Installation, troubleshooting or repair services are not included in this warranty. Warranty of service is the responsibility of the dealer selling the equipment.

The remedies set forth herein are conditioned upon Buyer promptly notifying DENTSPLY-Gendex within the applicable warranty period of any defect or non-conformance and making the Product available for correction at a mutually agreed upon time and place.

The preceding paragraph set forth Buyer's exclusive remedies and DENTSPLY-Gendex's sole liability for claims based upon failure of the Product to meet any warranty, whether the claim is in contract, warranty, tort (including negligence and strict liability) or otherwise and however instituted, and upon the expiration of the applicable warranty period, all such liability shall terminate. In no event shall DENTSPLY-Gendex be liable for special or consequential damages.

APPENDIX A

If You Need Assistance

If you need assistance, first contact your local DENTSPLY Gendex dealer. They have been trained to handle most technical service issues. If you cannot get the information you need there, simply call the Gendex or DENTSPLY office nearest to you.

North America

USA

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For Technical Service:

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