

# **Imagin Systems HotRod Compact Camera Reference Guide**

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## **Warning!**

- Your HotRod Console system requires an electrically grounded outlet. The power cord is equipped with a 3-wire grounding plug and only fits a grounded AC outlet. This is a safety feature; if you are unable to insert the plug into your outlet, contact a licensed electrician to replace the outlet with a properly grounded one. Do not defeat the purpose of the grounding plug.
- To prevent fire or shock hazard, do not expose the system to rain or moisture.
- With the exception of bulb replacement, there are no user serviceable components. Refer servicing to Imagin Systems Corporation personnel only.

# Imagin Systems Corporation

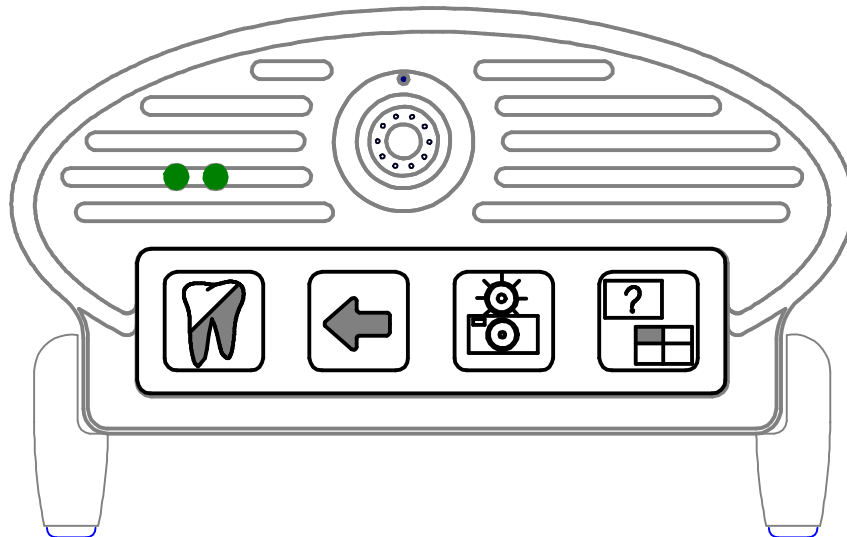
## Compact Console & HotRod Hand-piece Reference Guide

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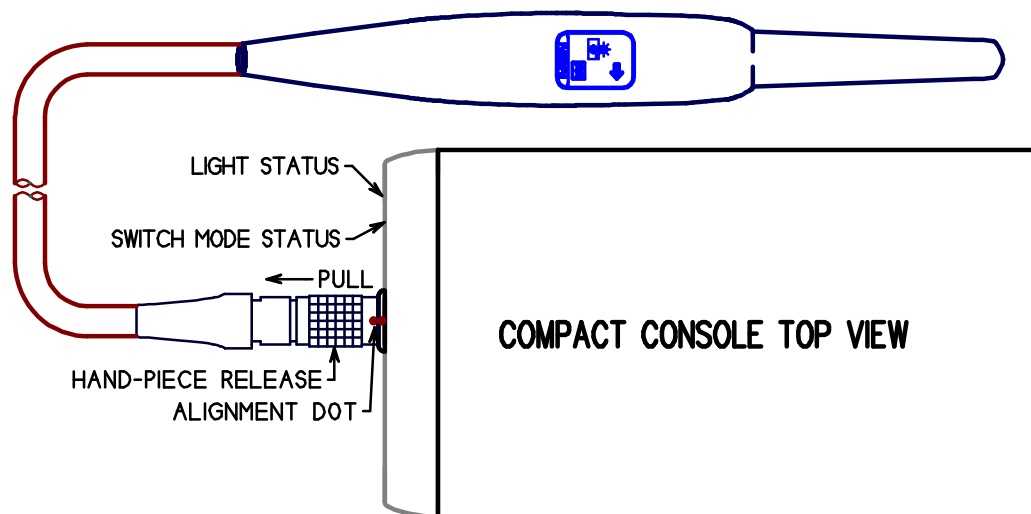
## Introduction

The Compact Console is available with many optional features which include: USB capture, Freeze-frame, Video printer support and with inter-oral and/or extra-oral hand-pieces. The hand-piece operation is covered first, followed by the Compact Console. Below is a view of the Compact Console's front.



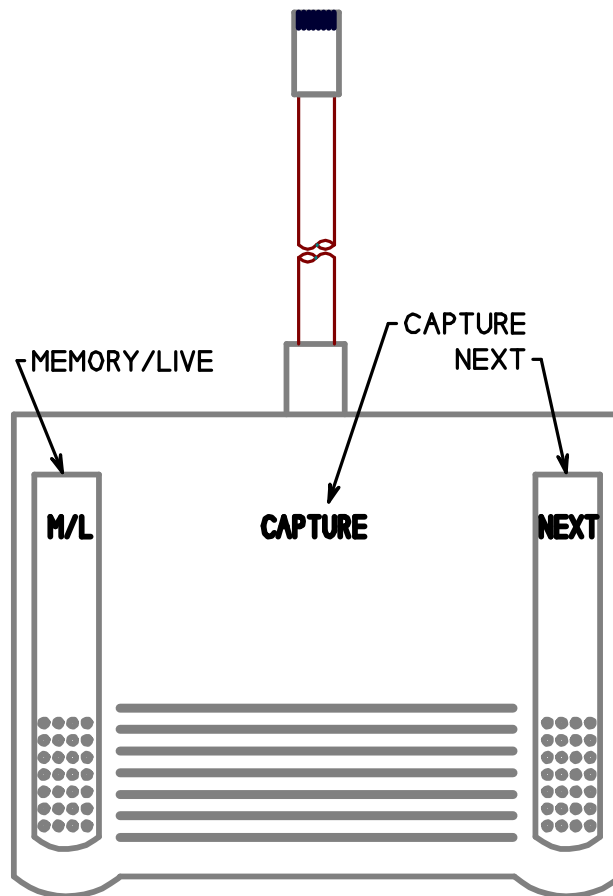
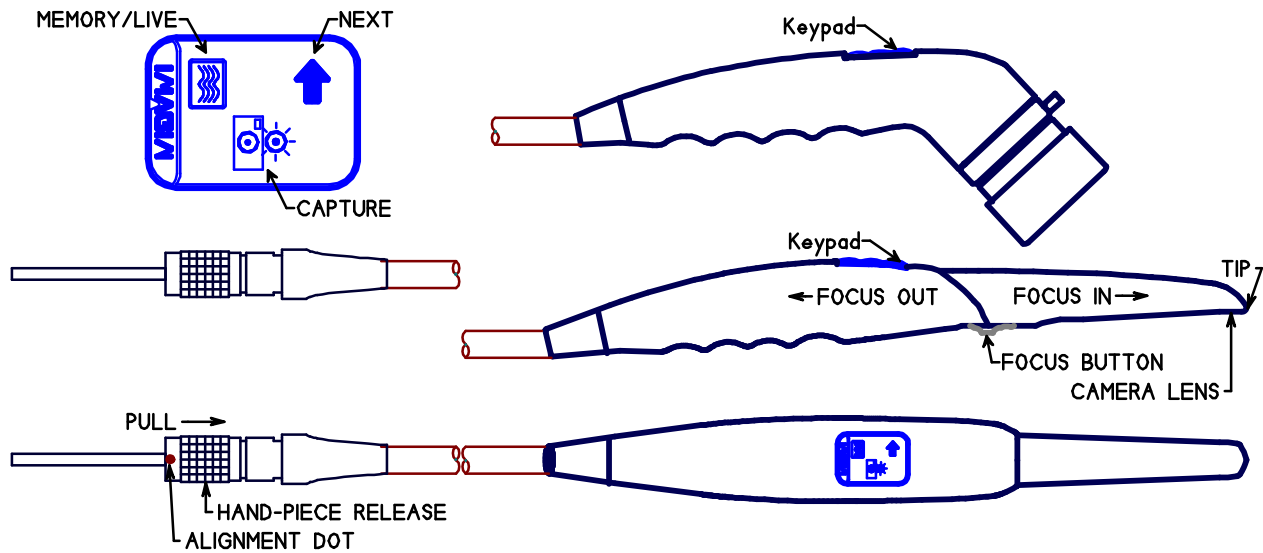
## HotRod Hand-piece

You can plug an intra-oral or an extra-oral hand-piece into the hand-piece connector. Carefully locate the red-dot on the hand-piece connector and align with the red-dot on the front-panel connector, then plug-in. To remove the hand-piece, pullback on the serrated section of the connector and pull to remove.



The switches on the Compact hand-piece and/or foot-switches can control the option freeze-frame, or a PC, or a video printer. When ordering your Compact Console, you must specify the type of video printer you want to control and if you want the PC control features enabled or disabled. This effects how the console is configured at the factory.

In the drawing below, you see the keypad location for both the extra-oral and intra-oral hand-pieces. On the intra-oral hand-piece, the focus button is located on the lens side of the hand-piece. To focus in close you move the button toward the tip, to focus out you move it away from the tip. Most likely you will find a position that generally works for you that you will leave at most of the time, but don't forget it is an adjustable focus intra-oral hand-piece. The switch functions are described below.



FOOT-SWITCH (OPTIONAL)

## HotRod Hand-piece and/or Foot-switch Operations

The hand-piece switches and foot-switches can be thought of as connected together, that is, if you press the capture switch on the hand-piece or the foot-switch the same action occurs. In the switch descriptions below, there are three different devices the switches may be controlling, depending on installed options and your specific configuration. E.G., freeze-frame, video printer, and/or computer, which is selected by a long operation with the Compact Consoles Color switch (see Compact Console Operations section) When you have the optional freeze-frame, the “Arrow” and Memory/Live” switches have two different functions each, based on the time the switch is depressed. Less than 1 second is defined as a short function, longer than 2 seconds is a long function. A quick description is in the tables below, followed by a more verbose description of each switches operation.

### HotRod Hand-piece & Foot-switch Operations quick reference (with Freeze-Frame)

Hand-piece or Foot-switches				
	Capture	Memory/Live	Next -->	
PC/Printer LED	OFF	OFF	OFF	
Short Press Live Video	FF Capture	Memory/Live	Not used	
Long Press Live Video	FF Capture	Clear Memory	Not used	
Short Press View Memory	FF Capture	Memory/Live	Next Screen	
Long Press View Memory	FF Capture	Clear Memory	Quad/Single	
PC/Printer LED	Green	Green	Green	
PC Functions	PC Capture	Not used	Alt PC Function	
PC/Printer LED	Yellow	Yellow	Yellow	
Hitachi Printer	PR Capture	Not used	Not used	
Sony Printer	PR Capture	Not used	Not used	
Mitsubishi Printer	PR Capture	Not used	Not used	
Compact Console Key-Pad switches				
	Color	Arrow	Light	Memory/Live
Short Press Live Video	B&W/Color	On/Off	Dim/Off/On	Memory/Live
Long Press Live Video	<i>FF/PC/PR mode</i>	<i>On/Off</i>	<i>Dim/Off/On</i>	Clear Memory
Short Press View Memory	B&W/Color	On/Off	Not used	Memory/Live
Long Press View Memory	<i>FF/PC/PR mode</i>	<i>Quad/Single</i>	<i>Mirror/Normal</i>	Clear Memory

### HotRod Hand-piece & Foot-switch Operations quick reference (NO Freeze-Frame)

Hand-piece or Foot-switches				
	Capture	Memory/Live	Next -->	
PC/Printer LED	OFF	OFF	OFF	
Short Press Live Video	PC/PR Capture	Not used	Alt Function	
PC/Printer LED	Green	Green	Green	
PC Functions	PC Capture	Not used	Alt PC Function	
PC/Printer LED	Yellow	Yellow	Yellow	
Hitachi Printer	PR Capture	Not used	Not used	
Sony Printer	PR Capture	Not used	Not used	
Mitsubishi Printer	PR Capture	Not used	Not used	
Compact Console Key-Pad switches				
	Color	Arrow	Light	Memory/Live
Short Press	B&W/Color	On/Off	Dim/Off/On	Not used
Long Press	<i>FF/PC/PR mode</i>	<i>On/Off</i>	<i>Dim/Off/On</i>	Not used

Note: Default settings in *Italics*. For supported printer and printer control modes see Printer Options section

## HotRod Hand-piece and/or Foot-switch Operations Detailed

The current switch mode can be determined by look at the PC/Printer status LED on the Compact Console front panel. Off=Freeze-frame, if installed, or both PC and Printer if not installed. Green=PC and Yellow=Printer. The mode can be switched by the Compact Console's Color switch (see Compact Console Operations section on the Color switch).

### Capture Switch:

Capture a live image to the specified device.

#### Freeze-frame:

Pressing selects a live image, if in memory mode, or keeps live image if not memory mode. Releasing captures the current live image, and reverts back to the previous memory or live mode, after a moment of processing time. Note: If the hand-piece is on its holder and there's no external video, display will go to memory and stay there, until active video is resumed.

#### PC:

How this is done depend on the PC's software and how it is setup.

#### Hitachi, Mitsubishi and Sony Printers:

Capture image to printer's memory.

### Next Switch:

#### Freeze-frame:

Pressing this switch shortly, with a memory image from the freeze-frame, tells the freeze frame to advance to the next image. In memory display mode and with the hand-piece out of its holder, holding this switch for longer than two seconds switches the display mode. That is, if in single display switches to quad, or if in quad switches to single display. Similar to the arrow switch on the Compact keypad.

#### PC:

Instructs the PC that you want an alternate function (e.g., transfer a captured image to the patients file). How this is done depend on the PC's software and how it is setup.

#### Hitachi, Mitsubishi and Sony Printers: Not Used

### Memory/Live Switch:

#### Freeze-frame:

Pressing this switch shortly, with the hand-piece out of its holder switches between live video and memory. That is if live video is being displayed pressing shortly will switch to displaying memory, pressing again shortly will go back to live video. Holding this switch for longer than two causes the memory to be cleared, and will go to live display, if the hand-piece is out of its holder, or external video is active. Similar to the Memory/Live switch on the Compact keypad.

#### PC, Hitachi, Mitsubishi and Sony Printers: Not Used



## Applying a Sheath (Intra-oral Camera)

Although OSHA standards state that a camera can be disinfected with the solution of your choice, patients and doctors alike prefer the use of sheaths for all asepsis concerns.

- A. Align the camera with the light facing toward the paper on the sheath. The camera slides between the bottom of the sheath and the white tab.
- B. Slide the camera all the way to the end of the sheath until it releases from the wrapper. This will ensure a good tight fit.
- C. Next peel away the paper from the top to ensure that no wrinkles are created in the process. If a *wrinkle does occur simply pull down on the sheath to stretch the plastic around the lens.*

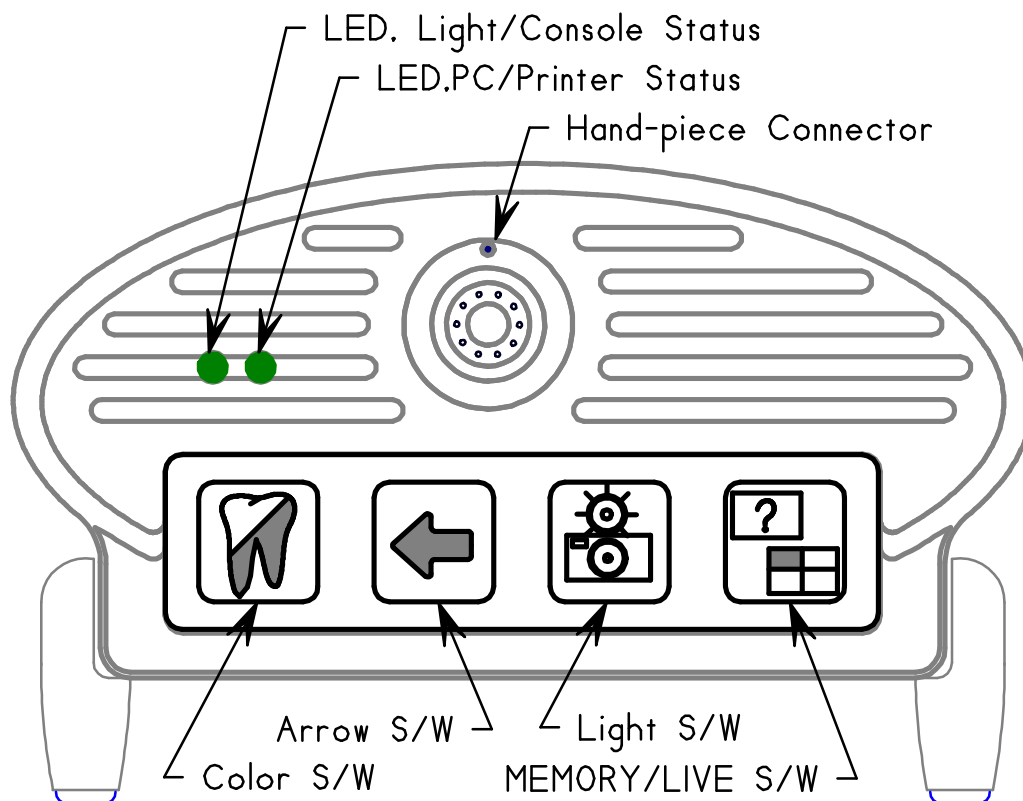
**Note:** *If you chose to forgo the sheath and disinfect between patients – **DO NOT USE SOLUTIONS CONTAINING IODINE.** This will stain the camera and is not covered by your warranty.*

## Compact Console Operations

The optional freeze-frame is a major differentiator in how the console operates and what features it supports. If you don't know if you have the optional freeze-frame, you can check by looking at the lower-left of the screen with the hand-piece off its holder. If you see an "L" or "M" you have the optional freeze-frame. Note: If this is the first time the hand-piece was removed from its holder after applying power to the Compact Console, you need to wait 30 seconds with the hand-piece off its holder for the freeze-frame to initialize.

The compact console front panel has one connector, two LED indicators to the left of the hand-piece connector and located below are four switches on the keypad. You can plug-in an intra-oral or an extra-oral hand-piece into the hand-piece connector.

The LED's indicate the Compact Console status. The left most LED shows power on and light mode/status. The LED to the right, closer to the hand-piece connector shows the hand-piece and foot switch operating mode status. Note: If the light and switch status LED's are flashing alternating green and yellow, the Compact Console is too hot!! Check that the vents are not blocked, which allow cooling of the halogen light source. NOTE: The halogen light will not come on while in this over temperature condition. Once the light has cooled down, the over temperature will automatically be reset and normal operations will resume.



### Color Switch:

This control has two functions, which are differentiated by a short pressing of the switch (less than a second), or a long pressing of the switch (greater than two seconds). The default for this switch displays the images in color. Without freeze-frame, the hand-piece and/or foot-switches control both a PC and video printer. With the optional freeze-frame, both switches control the freeze-frame.

With the hand-piece off its holder, pressing the color switch once shortly puts the displayed image in monochrome (i.e., black & white) and turns off the light. Pressing again shortly puts the display back in the color mode and turns on the fiber-optic light. If you put the hand-piece back on its holder this will automatically put the hand-piece back into color mode and the light will come on the next time you remove the hand-piece from its holder. Note: While in monochrome mode, you can turn the fiber-optic light back on by using the light switch.

Pressing the color switch for more than two seconds will change what the hand-piece and/or foot-switches control. The mode is indicated by the switch mode status LED. If you have a PC and video printer connected to the Compact Console, using the second function of the color switch can select which is being controlled. Pressing the color switch for more than two seconds once will select PC mode, indicated by the printer status LED going green. In this mode the hand-piece and foot switches are connected only to the PC. Press the color switch again for more than two seconds will select printer mode, indicated by the printer status LED going yellow. In this mode the hand-piece and foot switches are connected only to the printer. Pressing one more time for more than two second will place the mode back into default, indicated by the printer status LED being off.

### **Arrow Switch:**

This controls the on-screen arrow (pointer) function. Pressing the arrow switch once shortly will turn the on-screen arrow on. The arrow is located in the center of the screen. If you press the arrow switch again, it will turn off. The default is arrow off.

### **Arrow memory-mode: (freeze-frame installed)**

With the hand-piece off its holder and displaying the freeze-frame memory, indicted by a “M01” or “R M01” in the lower right of the screen, you can change how an imaged is displayed. If you press the arrow switch for more than two seconds, the displayed image will switch to quad mode (four images on the screen). Press again for more than two seconds will put the displayed imaged back in single image mode. The single/quad display only works on while in memory mode, displaying captured images. The display default at power-on is single image mode.

Note: When operating in the quad displayed memory mode, advancing is a screen at a time, i.e., advances four images at a time (i.e., images M01, M02, M03 and M04, pressing next will advance to show M05, M06, M07 and M08.

### **Light Switch:**

This control has two functions, which are differentiated by a short pressing of the switch (less than a second), or a long pressing of the switch (greater than two seconds). The defaults for this switch fiber-optic light on bright with hand-piece off its holder, and freeze-frame displayed image normal.

With the hand-piece off its holder and not in memory mode, this controls the hand-piece fiber-optic light, either bright, dim or off. The default is bright when the hand-piece is removed from its holder. To dim the light, press the light switch shortly. To turn off the light press once more. To get the light back on, bright, either press the light switch once more or place the hand-piece in its holder for a moment.

The LED on the far left indicates the status of the light and hand-piece. Solid yellow shows the Compact Console has power and the hand-piece is hung-up on its holder. Solid green shows the hand-piece is off its holder, and the fiber-optic light is on full bright. Solid amber shows the hand-piece is off its holder, and either the lamp has been dimmed or is turn-off by the light switch on the keypad. If the LED is green and there is no light coming out from the fiber optics, it's likely the halogen lamp has burned out, see the section replacing the halogen light.

### **Light memory-mode: (freeze-frame installed)**

With the hand-piece off its holder and displaying the freeze-frame memory, indicated by a “M01” or “R M01” in the lower right of the screen you can change how an imaged is displayed. If you press the light switch for more than two seconds the displayed image will mirror (left becomes the right side of the screen). Press again for more than two seconds will put the displayed imaged back in non-mirrored mode. The mirrored/normal display works on both live images and captured images. An “R” in the lower right of the screen indicates the mirrored mode. The displayed default at power-on is image displayed normal.

### **Memory/Live Switch: (freeze-frame installed)**

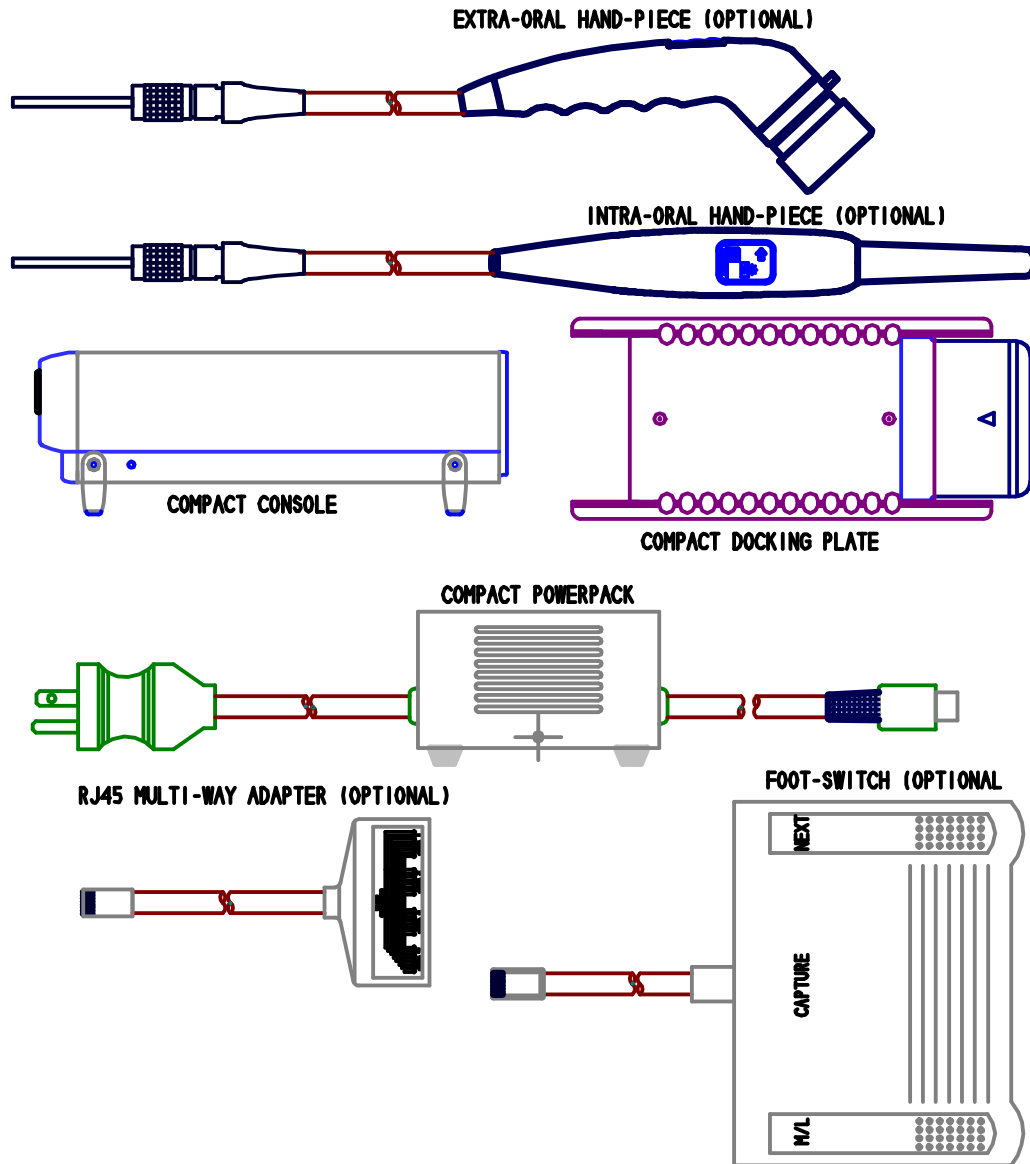
This switch does not function without the freeze-frame option. With the freeze-frame option installed, with the hand-piece off its holder pressing once shortly puts the Compact Console in memory mode, indicated by “M” in the lower right of the screen. Pressing again shortly go back into live video mode, indicated by “L” in the lower right of the screen. Note: Anytime the hand-piece is on its holder and there is no external video source, the Compact Console will default to displaying memory. Here the Memory/Live has no function other that to allow clearing of the freeze-frame memory.

Pressing the Memory/Live switch for more than two seconds will clear the freeze-frame memory, then go live if the hand-piece is off its holder, or display a cleared memory page (blue screen). Note: With the freeze-frame install anytime you press the Memory/Live switch for more than two seconds the freeze-frame memory will be cleared. This allows you to clear patient captures without having to disclose them.

Note: While displaying memory, if at anytime you want to go back to the beginning you can do so by going live for a moment and then back into memory mode, this resets the display pointer to 01. Also if you press capture with a camera off the cradle this will also reset the display pointer to the first image even if the capture memory is full. Also while displaying memory, if at anytime you want to go back to the beginning you can do so by going live for a moment and then back into memory mode, this resets the display pointer. Also if you press capture with a camera off the cradle this will also reset the display pointer to the first image even if the capture memory is full.

## Installing your Compact system

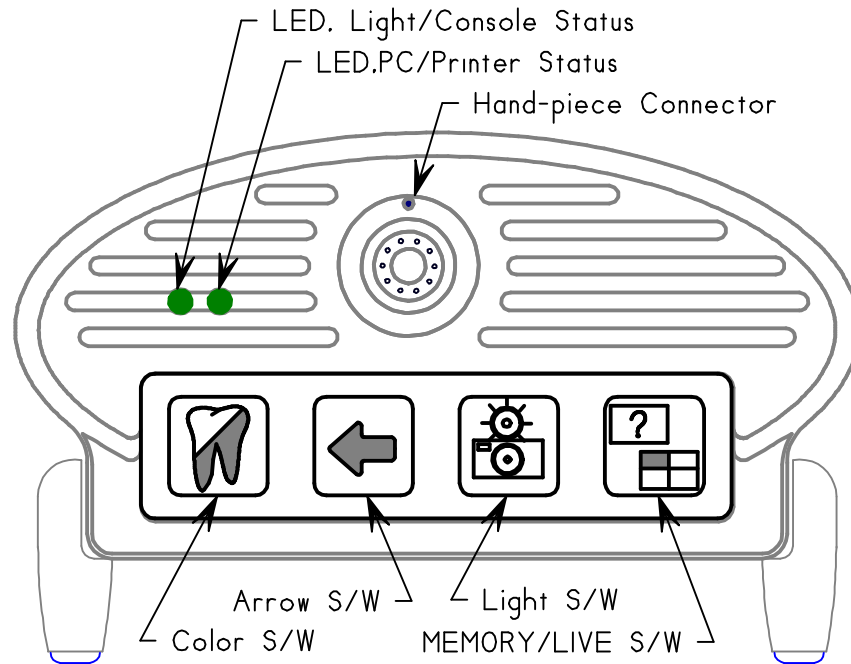
You should have received a box containing the Compact Console, Compact Console docking plate, and Compact power pack. Also, an intra-oral and/or extra-oral hand-piece(s) may have been included if they were ordered on the same order. Below is a drawing showing the pieces, so you can identify and verify them. We hope you enjoy your Compact system, let get started.



In planning the installation of your Compact system, first figure out where it's going to be placed and the orientation of the console. Some things to check; make sure the hand-piece will reach; you have room around the console for ventilation and access. If you are thinking of mounting the console on a wall or side of cabinet, it is recommended you do so horizontally, so you can get to the keypad and see the correct orientation when installing the hand-piece connector. As you get your cables in-place, make sure you label the S-video cable(s) as to which S-video connector they are going to. Remember there are two S-video connectors, an input (upper one) and an output (lower one). The other cables are self-identifying as they are all different from each other, but it would not hurt to label them also. It's very likely at some point in the Compact systems life the cables and console will have to be removed to replace the halogen light, so keep that in mind.

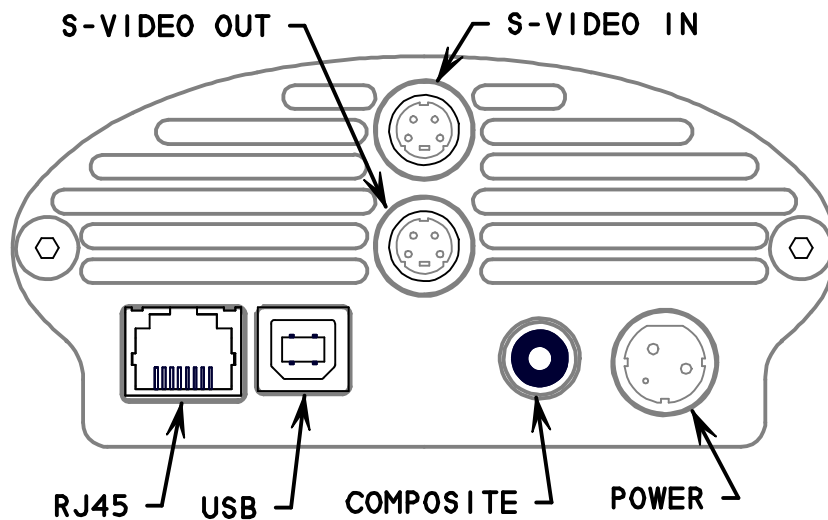
## Compact Console Front-panel

The details of the front panel functions are covered in the section Compact Console Operations.



## Compact Console Rear-panel

All connections, except for the hand-piece, are made at the rear of the Compact Console. Looking at the rear, the connectors from lower right to left are: RJ45 input/output, USB-2.0 output, composite video output and power input. Above and to the center are two four-pin mini-din connectors. The lower one is s-video output, and the upper one is s-video input. These connectors are described in more detail below.



## Compact Console Rear Panel

## RJ45:

This eight-pin RJ45 connector is for an optional foot-switch(s) to control the freeze-frame, or for the Compact to control capturing on a PC and/or a video printer from either the hand-piece switches and/or optional foot-switch(s).

## USB:

This is a USB type-B connection, which connects the optional USB capture to the PC. Note: There must be an USB-2.0 port on the PC for performance reasons.

## Composite video output:

This RCA connector is designed to drive a monitor or video printer that's terminated with 75 ohms.

## Power input:

This 3-pin connector connects the Compact Console to the Imagin supplied Compact power pack. Do not use any other power pack. The Compact power pack must be connected to a correctly grounded AC outlet. Do not use any adapters or extend the length of the power pack's output cable.

## Mini-Din output (lower connector):

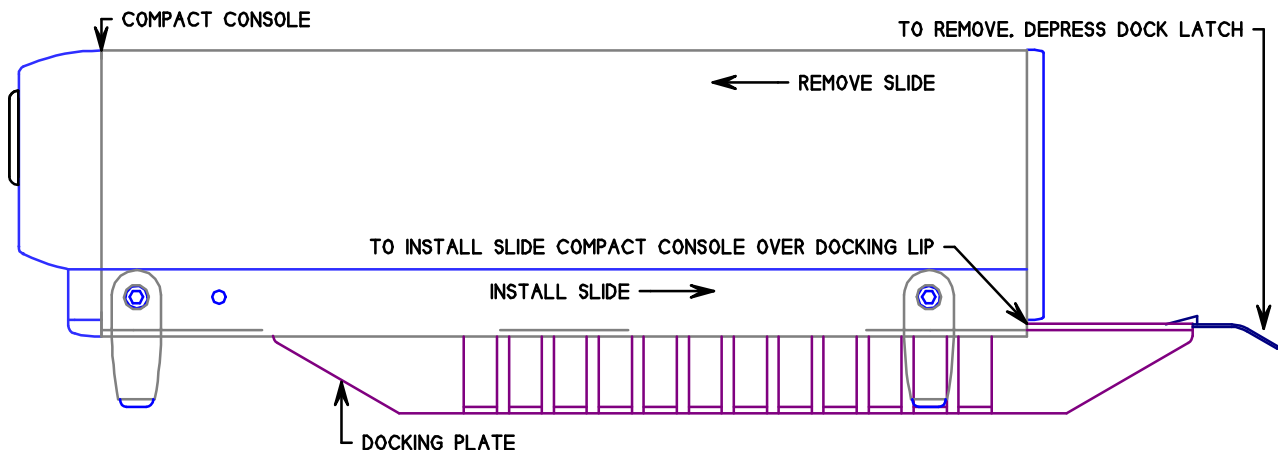
This 4-pin mini-din connector outputs s-video to be connected to the s-video input of a monitor, video printer or computer capture card input.

## Mini-Din input (upper connector):

This is an auxiliary s-video input to the Compact Console. This could be the s-video output from another Compact Console, DVD player or other s-video source. When there's no freeze-frame installed or the freeze-frame is not in memory mode, and the hand-piece is in its holder, this s-video input is routed to the composite video and s-video outputs. This can be used to display patient education for an example when the hand-piece is not in use.

## Docking/Un-docking the Compact Console

The Compact Console includes a mountable docking plate for locking the console in-place. The docking plate can be fixed using the two mounting holes in the docking plate. To install or remove the Compact Console on the docking plate, see the drawing below.



## **Supported Video Printers**

The Compact Console supports the following video printers and features.

**Hitachi Models: VY-170 & VY-190**

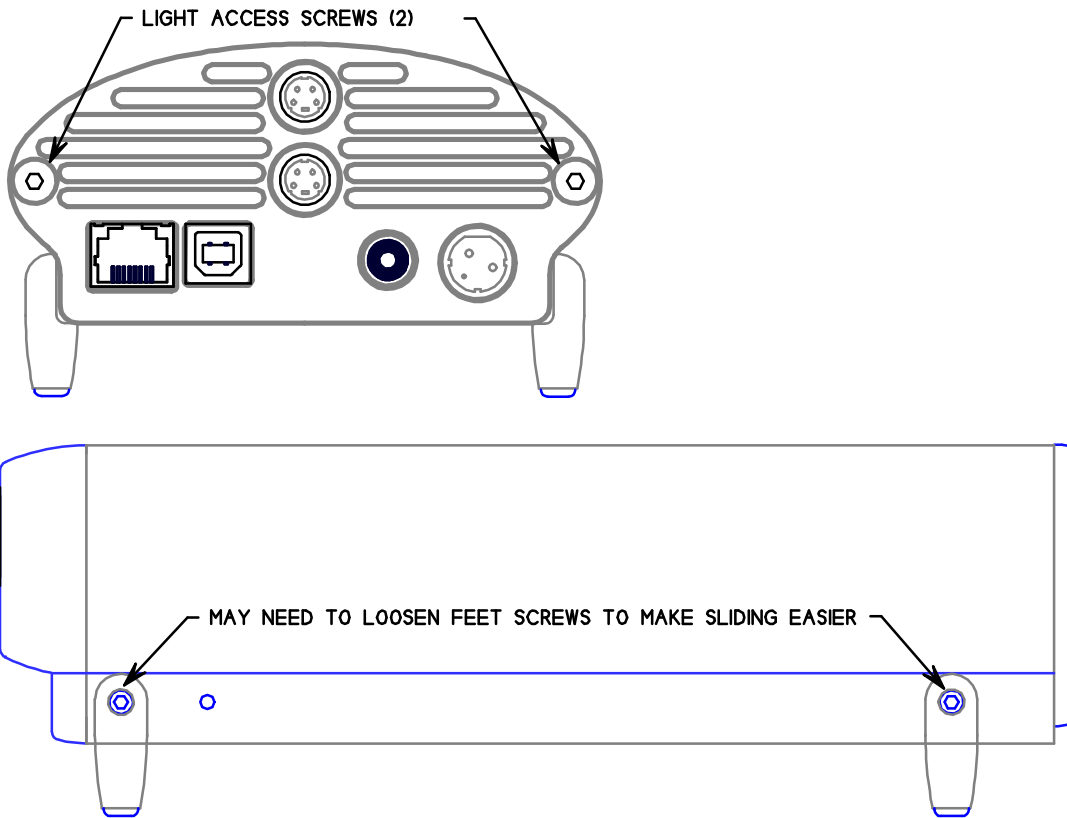
**Sony Models: UP-1200, UP-20 & UP-21**

**Mitsubishi Models: CP-910**

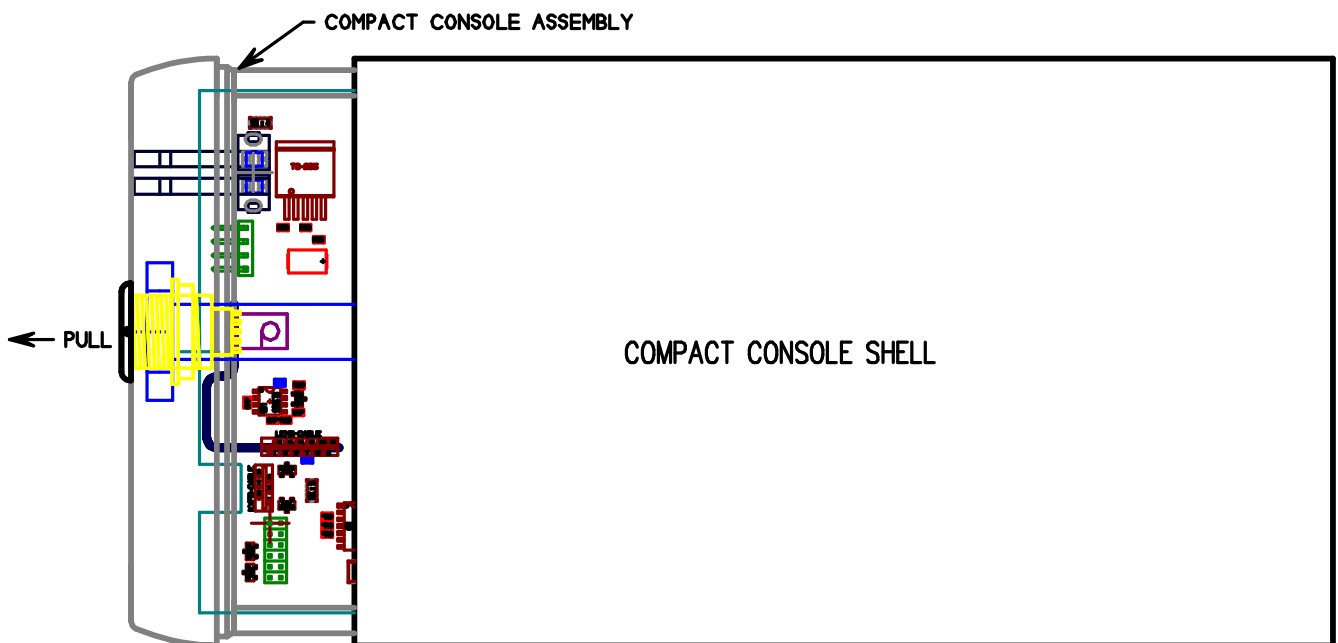


## Replacing the Compact Console Halogen Light

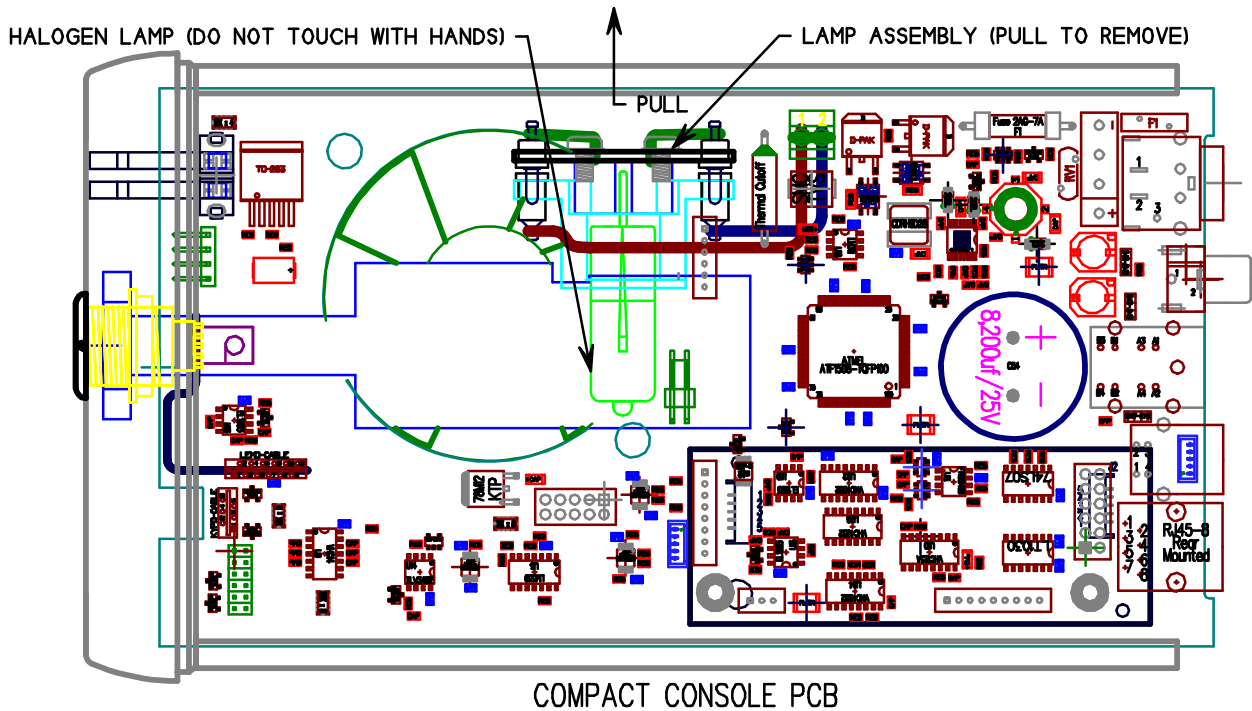
Remove the hand-piece, all cables, and slide the console out of the docking plate (if used). Then looking at the rear of the Compact Console, remove the two screws as shown below, using a screwdriver. Save screws for later re-assembly. You may also need to loosen the feet screws to make sliding easier. You do not need to remove them completely.



After removal of the screws, grab the faceplate of the Compact Console and slide it out of the shell as shown below.



After the shell is off, locate the halogen light assembly; making sure it's not hot. If it is, allow it to cool for sometime. Grab the light mounting plate and pull the assembly out. Using a tissue, grab the light and remove it from its socket. Install a new halogen light, using a clean tissue, making sure not to touch the light. Oil from ones fingers will cause the light to fail very quickly and could damage the light source, requiring a return to Imagin Systems for repair.



Carefully slide the Compact Console assembly back into its shell, and then re-install the screws in the rear. Re-install into the docking plate (if used) and re-attach the cables, being careful of the S-video cable(s) as there are two connectors (see docking/un-docking the Compact Console for more detail).

## Product Specifications

### Console

Equipment Model	Compact, Compact Plus Compact USB, Compact Plus USB
Weight	1.35Kg (3 lbs.)
Width of Console	108 mm (4.25 inches)
Height of Console	65 mm (2.55 inches)
Length of Console	200 mm (7.88 inches)
Power Consumption	6.0 Amps @ 12.6 Volts
Lamps (1 or 2)	12 Volt 50 Watt halogen bulbs
Video outputs	S-video 75 Ohm (NTSC or PAL) Composite Video 75 Ohm (NTSC or PAL)
Video input	S-video 75 Ohm (NTSC or PAL)
USB	USB-2.0

### Camera (Intra-oral hand-piece)

Equipment Model	HotRod
Width of Hand-piece	24.5 mm (1.00 inches)
Height of Hand-piece	24.5 mm (1.00 inches)
Length of Hand-piece	230 mm (9.00 inches)
Length of Hand-piece cable	2 meters (80 inches)
Resolving Power	200 LP/mm
Angle of View	80°
Direction of View	90° to hand-piece center
Focal Range	1mm to infinity
Charged Coupled Device	1/3 inch, High-resolution color

### Camera (Extra-oral hand-piece)

Equipment Model	HotRod
Width of Hand-piece	24.5 mm (1.00 inches)
Height of Hand-piece	24.5 mm (1.00 inches)
Length of Hand-piece	175 mm (6.875 inches)
Length of Hand-piece cable	2 meters (80 inches)
Direction of View	45° to hand-piece center
Focal Range	10 mm to infinity
Charged Coupled Device	1/3 inch, High-resolution color

## Power Pack

Equipment Model	Compact, Compact Plus Compact USB, Compact Plus USB
Weight	1.80Kg (4 lbs.)
Width of Power-Pack	110 mm (4.35 inches)
Height of Power-Pack	80 mm (3.15 inches)
Length of Power-Pack	110 mm (4.35 inches)
Input Voltage and Power	117 VAC @ 60Hz, 1.0 Amps, or 230 VAC @ 50Hz, 0.50 Amps

## Docking Station

Equipment Model	Compact, Compact Plus Compact USB, Compact Plus USB
Weight	0.12Kg (.25 lbs.)
Width of Docking Station	86 mm (3.375 inches)
Height of Docking Station	19 mm (.75 inches)
Length of Docking Station	200 mm (7.875 inches)

## Equipment and Supplies Part Numbers

### Consumables

Part Number	Description
90-1036	HotRod Disposable Sheaths (Quantity 500)
90-1026	Compact Console Lamp, 50 Watt, 12 Volt

### Hardware

98-2270	HotRod Intra-oral Hand-piece
98-2271	HotRod Extra-oral Hand-piece
98-2283	Compact Console
98-2284	Compact Console Plus (With freeze-frame)
98-2283-1	Compact Console USB (With USB-2.0 Interface)
98-2284-1	Compact Console Plus/USB (With freeze-frame and USB-2.0 Interface)
98-2206-1	Compact Console Foot-Switch (One Foot-Switch to a camera)
98-2285	Compact Console Docking Plate
98-2222-1	Compact Console Power-Pack 117VAC/60Hz USA
98-2286	Compact Console Integrated Docking Power Pack, 117VAC/60Hz USA

### To order call or fax:

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