1188HD
Video Camera

stryker®

User Guide

REF 1188-010-000
1188-210-105
1188-410-105
1188-710-105

℞ ONLY CE

1188HD Video Camera

User Guide

Contents

Warnings and Cautions

Please read this manual and follow its instructions carefully. The words **warning**, **caution**, and **note** carry special meanings and should be carefully reviewed:

Warning	**The personal safety of the patient or physician may be involved. Disregarding this information could result in injury to the patient or user.**
Caution	**Special service procedures or precautions must be followed to avoid damaging the instrument.**
Note	Special information to make maintenance easier or important information more clear.
	An exclamation mark within a triangle is intended to alert the user to the presence of important operating and maintenance instructions in the literature accompanying the product.
	A lightning bolt within a triangle is intended to warn of the presence of hazardous voltage. Refer all service to authorized personnel.

<u>IMPORTANT SAFETY NOTICE:</u> Before operating this device, please read this operating manual thoroughly and carefully. When using this device with a light source, fire and/or severe injury may result to the patient, user or inanimate objects if the instructions in this manual are not followed. All light sources can generate significant amounts of heat at the scope tip, the scope light post, the light cable tip, and/or near the light cable adapter. Higher levels of brightness from the light source result in higher levels of heat. Always adjust the brightness level of the camera and the monitor before adjusting the brightness level of the light source. Adjust the brightness level of the light source to the minimum brightness necessary to adequately illuminate the surgical site. In addition, adjust the internal shutter of the camera higher in order to run the light source at a lower intensity. Avoid touching the scope tip or the light cable tip to the patient, and never place them on top of the patient, as doing so may result in burns to the patient or user. In addition, never place the scope tip, the scope light post, the light cable adapter, or the light cable tip on the surgical drapes or other flammable material, as doing so may result in fire. Always place the light source in standby mode whenever the scope is removed from the light cable or the device is unattended. The scope tip, scope light post, light cable adapter, and light cable tip will take several minutes to cool off after being placed in standby mode, and therefore may still result in fire or burns to the patient, user, or inanimate objects.

To avoid potential serious injury to the user and patient, and/or damage to this device, the user must:

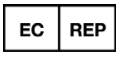
1. Carefully unpack this unit and check if any damage occurred during shipment. If damage is detected, refer to the "Service and Claims" section of this manual.
2. Read this operating manual thoroughly, especially the warnings, and be familiar with its contents before connecting and using this equipment.
3. Be a qualified physician, having complete knowledge of the use of this equipment.
4. Test this equipment prior to a surgical procedure. This unit was fully tested at the factory before shipment.
5. Never use this equipment in the presence of flammable or explosive gases.
6. The camera head surface may exceed 41°C (106°F) in operating conditions with high ambient temperatures and should be handled with caution.
7. Avoid dissembling any part of the camera head, as doing so may break the seals, causing leakage and/or electric shock.
8. Avoid removing covers on the control unit, as doing so may cause damage to electronics and/or electric shock.
9. To avoid risk of electric shock, this equipment must only be connected to a supply mains with protective earth.
10. Attempt no internal repairs or adjustments not specifically detailed in this operating manual.
11. Pay close attention to the care and cleaning instructions in this manual. Any deviation may cause damage.
12. The camera head and coupler are shipped non-sterile. Clean and sterilize these components prior to first use and after every subsequent use. Follow the cleaning, disinfection, and sterilization instructions provided in these instructions.
13. Never sterilize the camera console, because the delicate electronics can not withstand this procedure.
14. Never autoclave a camera head unless it is marked AUTOCLAVABLE. Autoclaving regular camera heads will result in permanent device damage for which Stryker will not be responsible.
15. Disconnect the control unit from the electrical outlet when inspecting the fuses.

16. Before each use, check the outer surface of the endoscope to ensure that there are no rough surfaces, sharp edges, or protrusions.
17. Avoid dropping the camera system. The camera system contains sensitive parts that are precisely aligned.
18. Ensure that readjustments, modifications, and/or repairs are carried out by persons authorized by Stryker Endoscopy. No modification of this equipment is allowed.
19. Ensure that the electrical installation of the relevant operating room complies with the NEC and CEC guidelines.
20. Do not position the console so that it is difficult to disconnect the power cord from the supply mains.

The warranty is void if any of these warnings are disregarded.

Symbol Definitions

In addition to the cautionary symbols already listed, other symbols found on the 1188HD Camera and in this manual have specific meanings that clarify the proper use and storage of the 1188HD Camera. The following list defines the symbols associated with this product.

	Refer to instruction manual.		
	Caution (consult instructions for use)		
	Cameras, couplers, and camera extension cable are shipped non-sterile and must be sterilized before use		
	Humidity range		Legal manufacturer
	Pressure range		Date of manufacture
	Temperature range		Serial number
	Country of origin		Catalogue number
	Stryker European representative		

CE	Device meets requirements for safety and effectiveness set forth in MDD 93/42/EEC		
Rx ONLY	Federal law (USA) restricts this device to use by, or on order of, a physician		
TÜV Rheinland of North America US C	Denotes compliance to CAN/CSA C22.2 No 601.1 and UL 60601-1		
	Power on/off (alternates when button is pushed)		
	Alternating current		1188 camera head connection
	Type BF applied part		Protective ground earth
	Class 1 laser product		FireWire
	Equipotentiality		Fuse rating
	Device recycling code (applicable to China)		
	This symbol indicates that the waste disposal of electrical and electronic equipment must not be disposed as unsorted municipal waste and must be collected separately. Please contact the manufacturer or other authorized disposal company to decommission your equipment.		
	Consult instructions for use		

Product Description and Intended Use

The Stryker Endoscopy 1188HD Medical Video Camera is a high-definition camera used to capture still and video images of endoscopic surgical applications. The 1188HD Medical Video Camera consists of three main components:

- Camera console (P/N 1188-010-000)
- Camera head (P/N 1188-210-105 45° cable; 1188-410-105 autoclavable; 1188-710-105 0° cable)
- C-mount coupler (P/N 1188-020-122; 1188-410-110 autoclavable)

The 1188HD also comes with various connection cables which, like the other components, can be purchased together or separately.

Part numbers 1188-210-105 and 1188-710-105 are not intended for sale in the European Union and do not bear a CE mark.

Warning 

Federal law (United States of America) restricts this device to use by, or on the order of, a physician.

Indications/Contraindications

The 1188HD Camera is indicated for use in general laparoscopy, nasopharyngoscopy, ear endoscopy, sinuscopy, and plastic surgery wherever a laparoscope/endoscope/arthroscope is indicated for use. A few examples of the more common endoscopic surgeries are laparoscopic cholecystectomy, laparoscopic hernia repair, laparoscopic appendectomy, laparoscopic pelvic lymph node dissection, laparoscopically assisted hysterectomy, laparoscopic and thorascopic anterior spinal fusion, anterior cruciate ligament reconstruction, knee arthroscopy, shoulder arthroscopy, small joint arthroscopy, decompression fixation, wedge resection, lung biopsy, pleural biopsy, dorsal sympathectomy, pleurodesis, internal mammary artery dissection for coronary artery bypass, coronary artery bypass grafting where endoscopic visualization is indicated and examination of the evacuated cardiac chamber during performance of valve replacement. The users of the camera are general surgeons, gynecologists, cardiac surgeons, thoracic surgeons, plastic surgeons, orthopedic surgeons, ENT surgeons and urologists.

There are no known contraindications.

Camera Console

The **camera console or Camera Control Unit (CCU)** is the control center for the 1188HD Medical Video Camera and processes the video and photographic images captured during the surgical procedure. The console front panel features controls for adjusting the enhancement level, light level, zoom, and white balance. The front panel allows selection of surgical specialty settings that optimize camera performance for specific surgical procedures. The front panel also allows activation of remote outputs.

The rear panel provides ports for connecting the 1188HD Camera to viewing and recording equipment, such as video monitors, the SDC Ultra, or photo printers.

The features of the front and rear panels are listed in Figure 1.

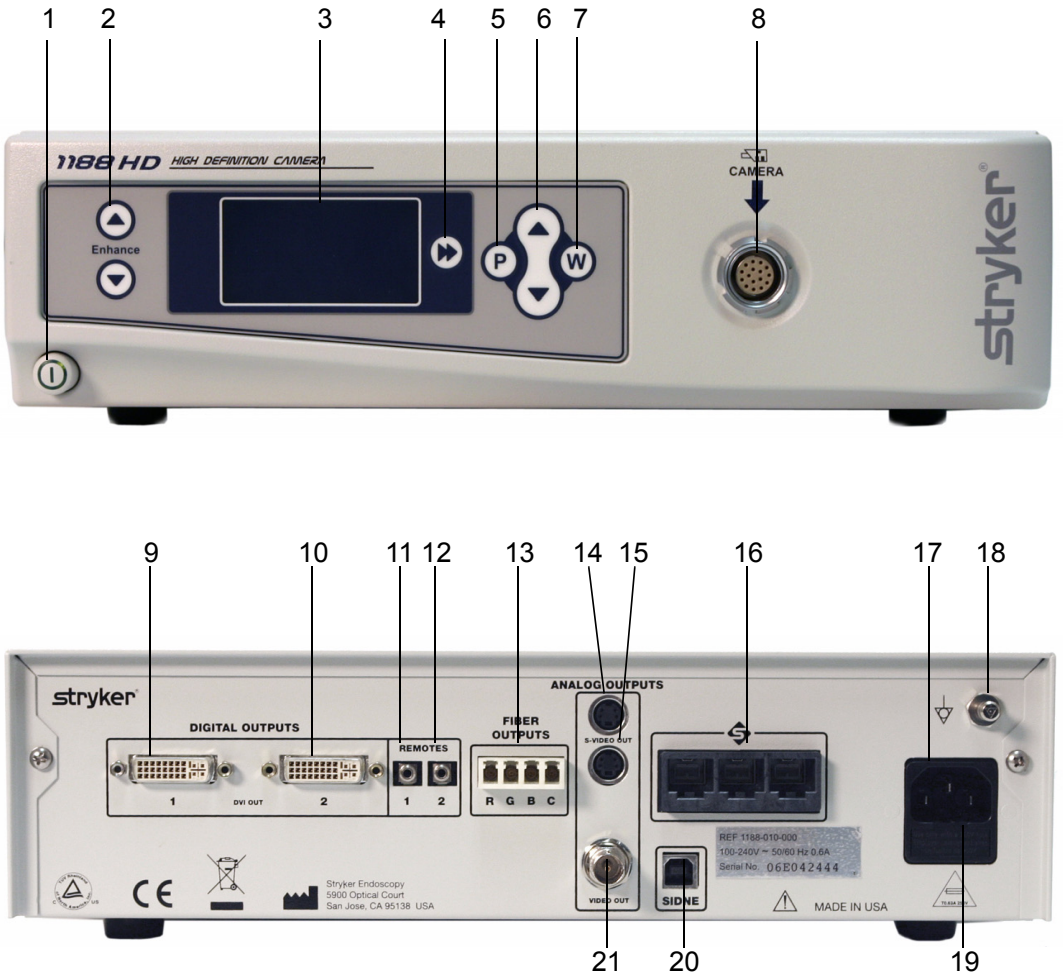


Figure 1: 1188HD Camera console, front (top) and rear (bottom) panels

1. **Power Switch:** Powers the camera on and off
2. **Enhance Buttons:** Increase or decrease image sharpness
3. **Specialty Screen**: Displays which surgical preset setting has been selected

4. **Specialty Button:** Selects different surgical settings
5. **P Button:** Controls image (picture) capture via remotes 1 and 2
6. **Up and Down Arrow Buttons:** Controls image light or zoom level
7. **W Button:** Controls white balance and image light or zoom level
8. **Camera Connector:** Connects to the 1188HD Camera Head
9. **DVI Out 1:** Digital video output
10. **DVI Out 2:** Digital video output
11. **Remote Out 1:** Connects to a video accessory remote switch
12. **Remote Out 2:** Connects to a video accessory remote switch
13. **Fiber Outputs (optical):** DVI output for connection to Lucent connector fibers
14. **S-Video 1 Out:** Analog video output
15. **S-Video 2 Out:** Analog video output
16. **SFB Connectors:** Enables FireWire connection with Stryker FireWire devices. Provides connection for remote diagnoses and future software upgrades.
17. **AC Power Inlet:** Connects to a separable power cord, which can be used for mains isolation
18. **Equipotential Ground Plug:** Connects to a potential equalization conductor. The resulting medical electrical system shall follow all applicable IEC 60601-1 requirements.
19. **Fuse Panel:** Contains two 1.6A 250V (slow-blow, high breaking capacity 1500A) fuses
20. **SIDNE® Port:** Connects to the SIDNE® Console to enable voice operation and/or graphic tablet control
21. **Composite Out:** Analog video output

Camera Head

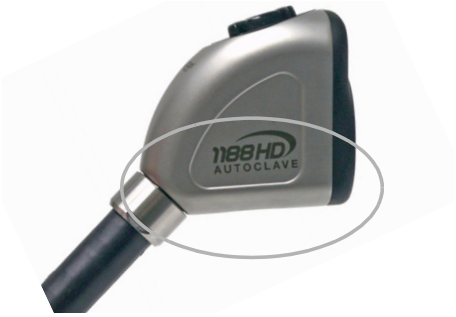
The **camera head** connects to the camera console and captures video and photographic images, which it relays to the camera console. It features several controls that are accessible through a button keypad located on the top of the camera head (see the "Operation Instructions" section of this manual).

Figure 2 below lists the features of the camera head.

Figure 2: 1188HD Camera Head

1. **Camera Cable**
2. **Camera Head:** Captures photographic and video images, provides camera controls, and connects with a focusing coupler
3. **Soaking Cap:** Protects the cable connector during cleaning and sterilization
4. **Cable Connector**: Connects the camera head to the camera console

The camera head is available in autoclavable and non-autoclavable models:



Autoclavable (1188-410-105) marked AUTOCLAVE

Non-autoclavable 1188-210-105 (45° cable) and 1188-710-105 (0° cable)

C-Mount Coupler

The **C-Mount coupler** threads onto the face of the camera head, enabling a scope to be attached to the camera. It provides a focusing ring to adjust image sharpness.

The features of the coupler are listed in Figure 3 below. Additional instructions are available in the "1188 C-Mount Coupler User Guide" (P/N 1000-400-905).

Figure 3: C-Mount coupler

1. **Rear Adapter:** Threads onto the camera head
2. **Focusing Ring:** Adjusts the coupler focus
3. **Endobody Clamp:** Secures the scope to the coupler
4. **Scope End:** Receives the endoscope

C-mount Couplers are available in autoclavable and non-autoclavable models:

Autoclavable

1188-410-110

(marked **AUTOCLAVE**)

Non-autoclavable

1188-020-122

Setup and Interconnection

Note — Stryker Endoscopy considers instructional training, or inservice, an integral part of the 1188HD Medical Video Camera. Your local Stryker Endoscopy sales representative will perform at least one inservice at your convenience to help set up your equipment and instruct you and your staff on its operation and maintenance. To schedule an inservice, contact your local Stryker Endoscopy representative after your equipment has arrived.

Setting Up the 1188HD Camera involves three steps:

1. Setting up the console
2. Setting up the camera head
3. Setting up the coupler

Setting Up the Console

Caution — **Equipment which employs RF communications may affect the normal function of the 1188HD Camera. When choosing a location for the 1188HD Camera, consult the "Electromagnetic Compatibility" section of this manual to ensure proper function.**

To set up the console, make the following connections:

1. Connect AC power.
   - Connect the AC power cord to the AC inlet on the rear console panel.
   - Connect the other end to a hospital-grade outlet.

Warning — **Always connect the camera to an appropriate power source, using a hospital-grade power cord. Loss of AC power will cause the camera to shut down and the surgical image to be lost.**

Caution — **Always set up the console in a location that allows adequate ventilation (airflow) to the console. Insufficient ventilation may cause the console to overheat and shut down.**

Warning — **Only connect items to the camera that have been specified for use with the camera. Connecting incompatible equipment may cause unexpected results.**

To avoid risk of electric shock, this equipment must only be connected to a supply mains with protective earth.

2. Connect the video output.
   - The rear panel provides three analog and three digital-video outputs, which can be used together or independently:

Output Type	Output	Cable	Connector
Analog	Composite	Composite	BNC (push-and-turn connectors)
	*S-VHS 1	S-VHS	4 pin Mini-Din (push-only connectors)
	*S-VHS 2	S-VHS	4 pin Mini-Din (push-only connectors)
Digital	**DVI-I 1	DVI	29-pin (push-only connectors, with two tightening knobs)
	**DVI-I 2	DVI	29-pin (push-only connectors, with two tightening knobs)
	DVI over optical FIBER	Fiber (×4)	Lucent connector fiber (×4) (push-only)

*On some monitors, S-VHS inputs may be labeled Y/C.

**The DVI connectors can also output analog SXGA signals through a DVI-I to VGA adapter.

   - Use the cables and outputs described above to connect the 1188HD to other operating-room equipment. Wiring Diagrams 1-3 on the following pages describe typical set-ups.
   - If desired, connect any remote outputs using the remote cables supplied with the 1188HD Camera. (See Wiring Diagram 2.) Devices connected to the remote outputs of the 1188HD Camera can be operated using the P buttons on the camera head and/or console. See the "Operation Instructions" section of this manual for details.
   - If desired, connect the SIDNE® interface as well. (See Wiring Diagram 2.)

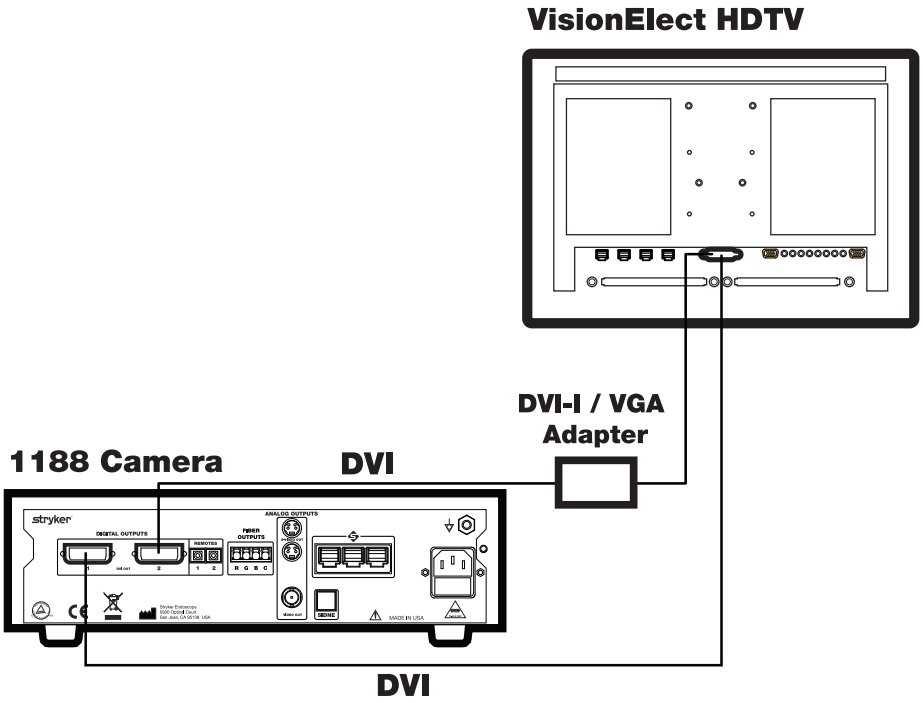
Warning 

When the 1188HD Camera is used with other equipment, leakage currents may be additive. Ensure that all systems are installed according to the requirements of IEC 60601-1-1.

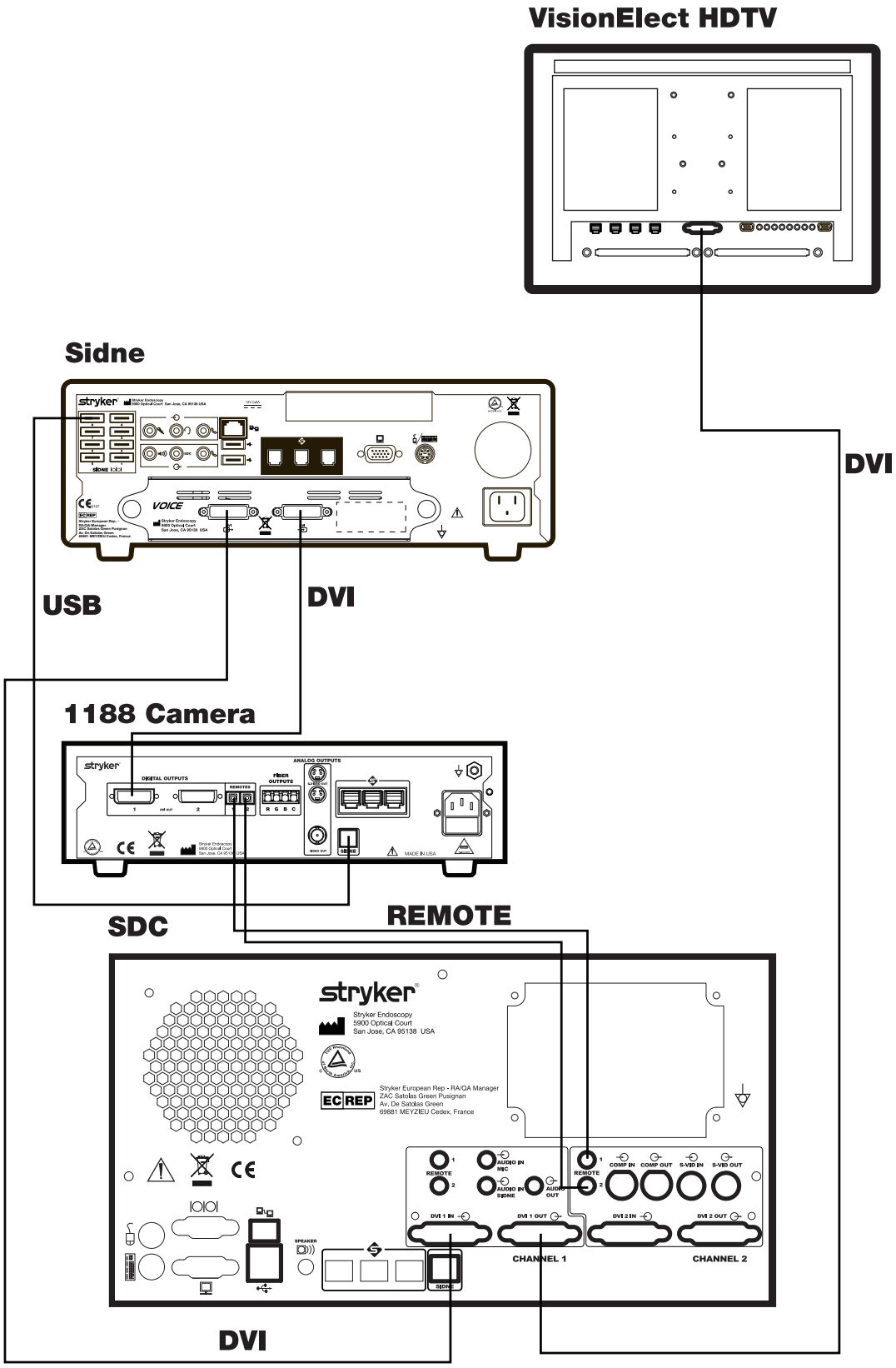
Warning 

Do not touch the internal pin of the VIDEO-OUT BNC jack and the patient simultaneously.

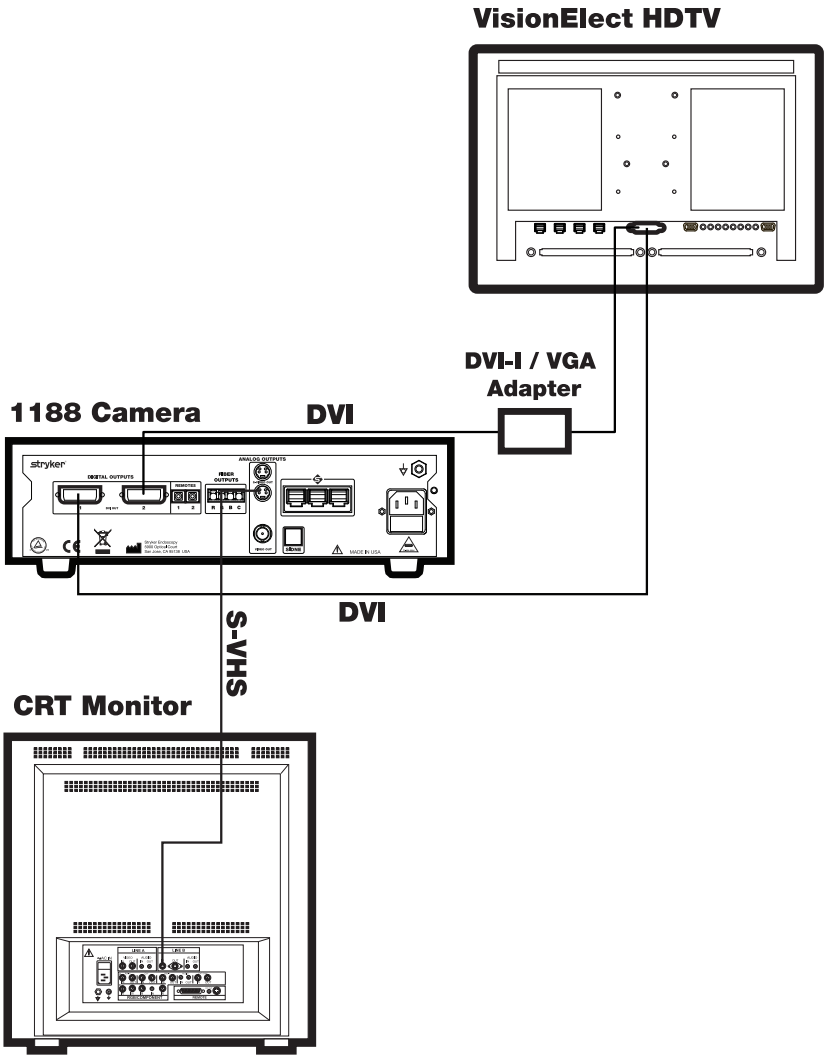
Wiring Diagram 1: Camera and Flat-Panel Monitor



Wiring Diagram 2: Camera, SDC, SIDNE®, and Flat-Panel Monitor



Wiring Diagram 3: Camera, Flat-Panel Monitor and CRT Monitor



Note — If you are using any device with unterminated analog video inputs, you must connect a cable from the VIDEO OUT of that device to the VIDEO IN on the monitor.

Note — An additional monitor may be connected using an open camera output.

Note — The camera console is shipped from the factory in NTSC video format. If necessary, the video format can be changed to PAL by using the "Options" submenu in the configuration menu. See the "Using the Configuration Menu" section of this manual.

1. Power on the monitor.
2. Power on the camera.

Note — A color bar pattern will appear on the monitor when the camera head is not connected to the camera console. Follow the instructions in the "Setting Up the Camera Head" section of this manual to connect the camera head to the console.

Setting Up the Camera Head

1. Connect the camera head to the console.
   - Unscrew the soaking cap from the cable connector if necessary.
   - Align the blue arrow on the cable connector with the blue arrow on the camera-connector port on the front console panel (see Figure 4).
   - Push in the connector until it locks in place.

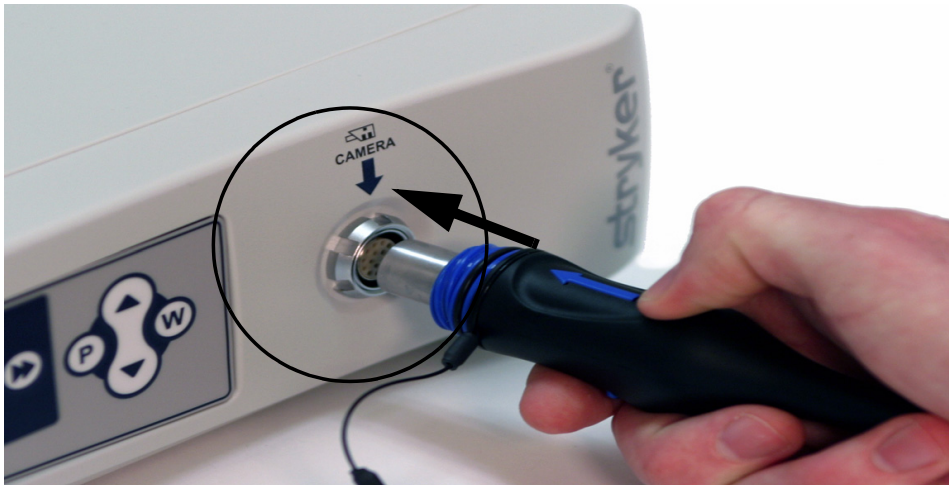


Figure 4: Connecting the camera head to the console

Note To unplug the camera from the control unit, grasp the knobbed portion of the connector and pull straight out.

Caution **Do not severely bend the camera cable or damage may result.**

Setting Up the Coupler

1. Attach the coupler to the camera head.
   - Grasping the rear adapter, screw the coupler onto the camera head (clockwise) until it forms a tight seal (see Figure 5).

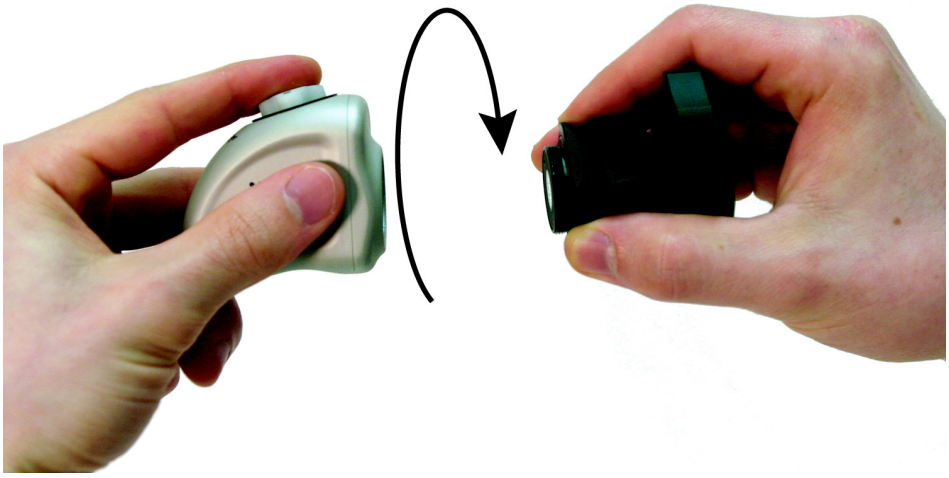


Figure 5: Attaching a coupler to the camera head

Caution **When attaching or removing the coupler, grip only the rear adapter, as twisting other parts of the coupler may result in mechanical damage.**

Caution **Do not overtighten the coupler, as this may damage the front window of the camera.**

Note For direct-coupled C-mount scopes (scopes that require no coupler), thread the endoscope directly into the camera head until it forms a tight seal.

Caution **Do not overtighten a direct-coupled C-mount scope, as this may damage the front window of the camera.**

2. Attach an endoscope to the coupler.
   - Remove the red dust cap if it is present.
   - Push down on the endobody clamp (a) and insert the scope into the scope end of the coupler (b). (See Figure 6.)
   - Release the endobody clamp.

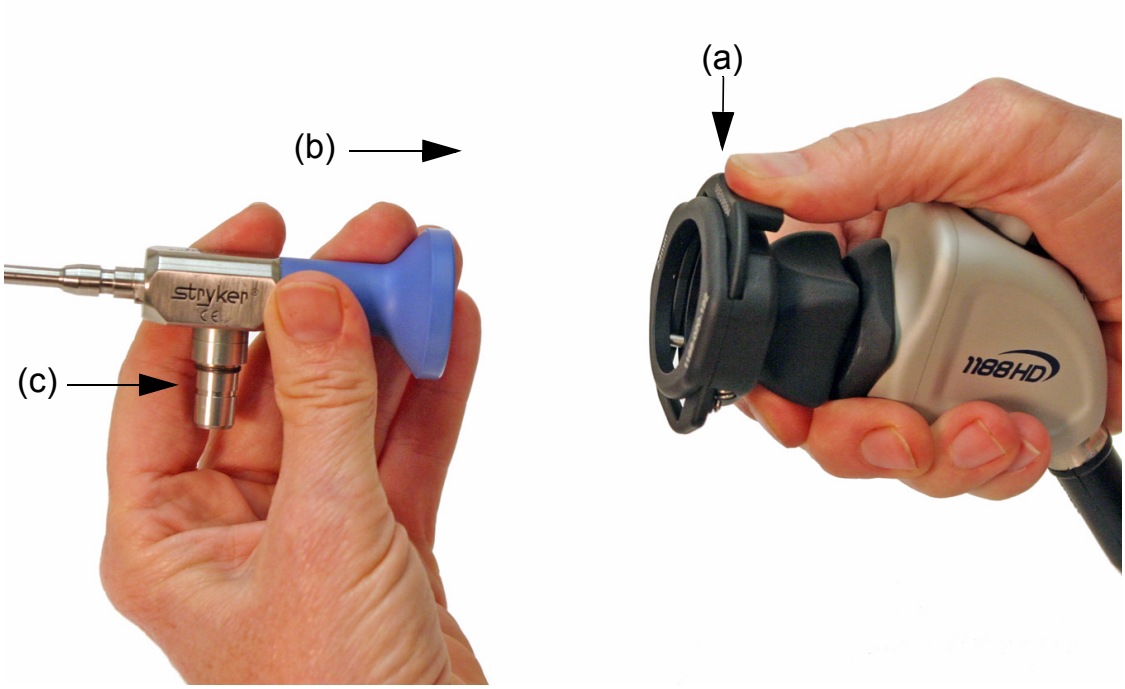


Figure 6: Attaching an endoscope to the camera head via the coupler

3. Attach a light cable from the light source to the light post on the endoscope (c) as seen in Figure 6.

Warning **Before each use, check the outer surface of the endoscope to ensure there are no rough surfaces, sharp edges, or protrusions.**

Operation Instructions

Note — Before operating the 1188HD Camera, ensure all components have been set up according to the instructions in the "Setup and Interconnection" section of this manual.

Warning — **Before using the 1188HD Camera in a surgical procedure, test all components to ensure proper function. Ensure that a video image appears on all video monitors before beginning any procedure.**

Powering the Camera On/Off

Press the power switch on the console to power the camera on or off.

Using the Camera Buttons

The camera console and camera head both feature a cross-shaped, four-button keypad for controlling the 1188 camera (see Figure 7). These buttons are labeled P, W, Up, and Down.

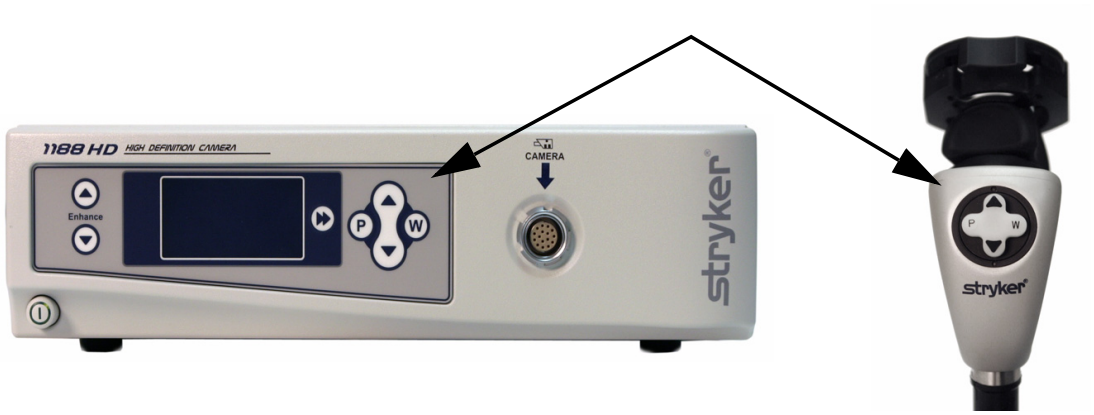


Figure 7: The four-button keypad

P (Picture) Button

The P button controls up to two remote video accessories.

- Press the P button for less than one second to select Remote 1. One beep will sound.
- Press the P button for more than one second to select Remote 2. Two beeps will sound.

W (White Balance) Button

The W button activates the white-balance function or the light/zoom function. The white balance function is used to correct slight color differences that exist between different light sources or endoscopes.

- Press the W button for more than one second to activate the white-balance function.
- Press the W button for less than one second to increase the light or zoom level. The camera console can be set to "light" mode or "zoom" mode using the Options submenu of the Configuration Menu. In "zoom" mode, each W button press will raise the light level in four steps. In "light" mode, each press will raise the zoom level in four steps. When either mode has reached its maximum, pressing the W button again will cycle the level back to the lowest setting.

Perform the white balance procedure before every surgical procedure.

Note Ensure that a scope and light source are attached to the camera, and that the camera, light source and monitor are powered on before adjusting the white balance.

1. Point the scope at several stacked 4 × 4 white gauze pads, a white laparoscopic sponge, or any clean white surface.
2. Look at the monitor and make sure that no glare is visible off of the white surface.
3. Press and hold the W button until "WHITE BALANCE" begins flashing on the video monitor.
4. Continue pointing the scope at the white surface until the video monitor indicates that white balance is "complete." The video picture may change color. If you cannot achieve an acceptable white balance, refer to the "Troubleshooting" section of this manual.

Up and Down Buttons

The up and down buttons work together to increase or decrease the light/zoom level.

The camera console can be set to "light" mode or "zoom" mode using the Options submenu of the Configuration Menu. In "light" mode, pressing the arrow buttons will raise or lower the automatic-shutter light-level setting in 29 steps. In "zoom" mode, pressing the arrow buttons will raise or lower the zoom level in 8 steps. Press the arrow button once to adjust the light level by one step or hold down the button for a quicker transition.

Enhancement Buttons

The enhancement buttons increase or decrease picture sharpness. There are 16 levels of enhancement. The current enhancement level will be displayed briefly on the monitor.

Surgical Specialty Button

The Surgical Specialty button selects one of nine pre-established camera settings. Each camera setting optimizes camera performance for a specific surgical application. The nine settings are:

- Arthroscopy
- Cystoscopy
- ENT
- Flexi-Scope
- Hysteroscopy
- Laparoscopy
- Laser
- Microscope
- Standard

The front panel LCD will display the current specialty.

Selecting the Display Language

The 1188HD has the capability of displaying text in the following languages:

Danish	German	Polish
Dutch	Greek	Portuguese
English	Italian	Simplified Chinese
Finnish	Japanese	Spanish
French	Korean	Swedish

To select a particular language, perform the following steps:

1. Hold down the Light/Zoom Up and Down buttons on the console until the current language identifier appears.
2. Use the Enhance Up button to scroll through the available languages.
3. Hold down the Light/Zoom Up and Down buttons to lock in the selected language. The LCD screen will then revert to the current specialty setting.

Using the Configuration Menu

The Configuration Menu allows adjustment of some camera settings. Settings can affect video quality, and care should be taken when altering them.

1. Enter the Configuration Menu by pressing the Enhance Up and Enhance Down buttons on the console simultaneously for more than three seconds. The menu will appear on the On-Screen Display (OSD).
2. Use the Enhance Up and Enhance Down buttons to scroll through the menus and submenus:
   - Shutter
   - Color
   - Options
3. Press the Specialty button to select an item from the Configuration menu.
4. Use the Up and Down buttons to adjust the selection.
5. Press the P button to return to the Configuration Menu.
6. Press the P button again to exit the Configuration Menu.

Controlling Remote Video Accessories

The 1188HD Camera can remotely control up to two video accessories (such as the SDC Ultra, a VCR, or a photo printer), enabling the user to capture images or start and stop video recording by pressing the P button. (See also the "Using the Camera Buttons" section of this manual.)

1. Connect the video accessory to one of the remote outputs on the rear console panel. Use the provided remote cables. (See Wiring Diagram 2 in the "Setting Up the Console" section of this manual.)
2. Press the P button for less than one second to select Remote 1. One beep will sound.
3. Press the P button for more than one second to select Remote 2. Two beeps will sound.

Using the SFB Serial Interface

The SFB serial connection on the console rear panel enables FireWire connection to the Stryker Endoscopy Software Management Site (SMS). Connecting to this site enables remote diagnostics and software updates.

Note — This system feature is not necessary for regular camera system operation.

Note — This system feature requires an additional device (that is, a computer) to connect to SMS.

Using the DVI Fiber Outputs

The 1188HD Camera contains four laser diodes to transmit a DVI output over fiberoptic cables.

1. Connect four individual fibers (terminated in Lucent connectors) to the red (R), green (G), blue (B) and clock (C) laser diodes on the console rear panel.
2. Connect the four fibers to a compatible fiberoptic DVI receiver.
   - The four fibers should be connected to the camera console in the labeled order: RGBC
   - The fibers should be connected to the monitor in one of two configurations: CBGR (reverse order) or BGRC (R/B switched).
3. Ensure the fiberoptic output is enabled (on) via the Options Submenu in the Configuration Menu. (See the section "Using the Configuration Menu".)

Note — The 1188HD Camera is a Class 1 laser product per IEC 60825-1 and 21CFR.

Warning — **Using controls or adjustments or performing procedures differently than specified in this manual may result in hazardous radiation exposure.**

Operating the Camera with a Light Source

Warning

<u>IMPORTANT SAFETY NOTICE:</u> Before operating this device, please read this operating manual thoroughly and carefully. When using this device with a light source, fire and/or severe injury may result to the patient, user or inanimate objects, if the instructions in this manual are not followed. All light sources can generate significant amounts of heat (41°C / 106°F) at the scope tip, the scope light post, the light cable tip, and/or near the light cable adapter. Higher levels of brightness from the light source result in higher levels of heat. Always adjust the brightness level of the camera and the monitor before adjusting the brightness level of the light source. Adjust the brightness level of the light source to the minimum brightness necessary to adequately illuminate the surgical site. In addition, adjust the internal shutter of the camera higher in order to run the light source at a lower intensity. Avoid touching the scope tip or the light cable tip to the patient, and never place them on top of the patient, as doing so may result in burns to the patient or user. In addition, never place the scope tip, the scope light post, the light cable adapter, or the light cable tip on the surgical drapes or other flammable material, as doing so may result in fire. Always place the light source in standby mode whenever the scope is removed from the light cable or the device is unattended. The scope tip, scope light post, light cable adapter, and light cable tip will take several minutes to cool off after being placed in standby mode, and therefore may still result in fire or burns to the patient, user, or inanimate objects.

Troubleshooting

Problem	Possible Solution
"System Error" message (Color bar background)	• Camera head temporarily shut down due to overcurrent. • Turn off the console, wait 3 seconds, and turn it back on. • After sterilization, ensure the camera head has cooled down before connecting it to the console.
"System Error" message (Light blue background)	• No video detected. • After sterilization, ensure the camera head has cooled down before connecting it to the console. • Return the system for repair.
No color bar	• Ensure the video-out from the console is connected to the video-in on the monitor. • Ensure all video systems are powered on. • Ensure that the camera head is not connected to the console. • Turn off the console, wait 3 seconds, and turn it back on.
No color bar (Optical DVI only)	• Same as above. • See the "Using the DVI Fiber Outputs" section of this manual.
Incorrect picture color	• Perform the white balance procedure. (See the "W Button" section of this manual.) • Check the color settings on the monitor.
White balance (WB) quality not good	• See the solution for "Picture is too dark." • See the solution for "Picture is too bright." • Perform the white-balance procedure with the light source connected to the scope. Use metal-halide or xenon lighting (no fluorescent lighting).
Picture is too dark	• Increase the camera light level with the camera head. • Increase the light-source output. • Check the fiber-optic light cable for excessive broken fibers.

Problem	Possible Solution
Picture is too bright	• Decrease the camera light level. • Decrease the light-source output. • Ensure that Shutter submenu in the Configuration menu has the following settings: AGC Auto Shutter On
Noise or snow on picture when using electrocautery probes	• Plug the electrocautery generator into a separate electrical outlet and separate the 1188HD power cord from the electrocautery power cord. • Separate the camera cable from the electrocautery cable. • Reposition the electrocautery grounding pad on the patient.
Noise or snow on picture when not using electrocautery probes	• Reduce Enhancement. • Check for and replace faulty video cables.
No video picture when the camera head is plugged in	• Check to ensure that all devices in the video system are plugged in and powered on. • Check the connector on the camera-head cable for broken pins. • Detach the camera head from console and reconnect or • Turn off the console, wait 3 seconds, and turn it back on.
Image is not well centered	• Release the scope from the coupler and then reconnect it. Make sure the scope is seated correctly in the coupler.
Variability in color reproduction between different light sources or peripherals	• Perform the white-balance procedure. (See the “W Button” section of this manual.) • Check the settings on video peripherals. • Ensure the light source has a proper infrared filter (check with manufacturer specifications).
Foggy picture (loss of definition and clarity)	• Refocus the camera. • Refocus the coupler. • Clean and dry both the scope and the coupler windows. • Remove the coupler from the camera head and remove any moisture that has built up between the two components.

Problem	Possible Solution
Optics are dirty	• Rotate the scope. If dust particles in the picture rotate, the dust is located on the scope itself. Follow the manufacturer's instructions for cleaning the eyepiece and negative lens. • If particles in the picture do not move when you rotate the scope, the particles are located on the coupler or camera. Remove the scope and clean the window on the front of the coupler with a dry or alcohol-tipped cotton swab. • If dust particles lie between the coupler and camera, remove the coupler and clean the coupler and camera windows. • Ensure all components are completely dry before reassembling them, or fogging may result.
Blurry picture	• Ensure the coupler or C-Mount scope is in focus. • Increase the enhancement. • Ensure the specialty switch is not set to FLEXI-SCOPE unless you are using a flexible scope.

Note If this troubleshooting guide does not resolve the problem, call Stryker Technical Support at 1-877-478-7953 (inside the U.S.) or refer to the "Service and Claims" section of this manual.

Cleaning and Sterilization

The camera console is not intended to come into contact with the patient. It may be cleaned, but not sterilized. The camera head and coupler may contact the patient and must both be cleaned and sterilized prior to every use.

Cleaning the Camera Console

Warning **Disconnect the console from the AC power source before cleaning.**

Should the camera console need cleaning, wipe it down with a sterile cloth and mild cleaning solution.

Caution **Never immerse or sterilize the camera console as this will damage the camera and void the warranty.**

Reprocessing the Camera Head

These reprocessing instructions are provided in accordance with ISO 17664. While they have been validated by the manufacturer of the medical device as being capable of preparing the device for re-use, it remains the responsibility of the processor to ensure that the reprocessing as actually performed, using equipment, materials, and personnel in the reprocessing facility, achieves the desired result. This normally requires validation and routine monitoring of the process.

Warnings

- This device must be cleaned and sterilized prior to the first use and after every subsequent use.
- Do not sterilize the autoclavable camera head (1188-410-105) with Steris/ Amsco V-Pro or Steris System 1E. Steam sterilization is recommended.
- Use only the sterilization cycles outlined in this document. Using unspecified sterilization cycles may damage the device or result in incomplete sterilization.
- Separate the camera head, coupler, and scope prior to cleaning, disinfection, or sterilization. If the coupler and camera head are cleaned, disinfected, or sterilized as a single unit, disconnecting the coupler during use will compromise the sterility of the two products. (Refer to the coupler and scope product manuals for reprocessing instructions.)
- Wear appropriate protective equipment: gloves, eye protection, etc.

Cautions

- Always install the soaking cap prior to processing the camera. Failure to properly tighten the soaking cap will corrode the connector pins and void the warranty.
- Inspect the camera cable for cuts and breaks before soaking in any fluid. Return any damaged camera to Stryker for service.
- Never soak the camera in the same tray with sharp instruments.
- Do not use brushes or pads with metal or abrasive tips during manual cleaning, as permanent scoring or damage could result.
- To minimize galvanic corrosion, avoid soaking dissimilar metals in close proximity.
- Only camera heads marked **AUTOCLAVE** can withstand steam sterilization. Autoclaving camera heads that do not bear this marking will result in product damage.
- Allow the device to air cool following steam sterilization. Rapid cooling or "quenching" in a liquid will damage the device and void the warranty.
- Allow the camera head to cool before connecting it to the console. Connecting the camera head while it is still hot may result in system error.

Limitations on Reprocessing

- Do not cross-sterilize the device. Using multiple sterilization methods may significantly reduce the performance of the device.
- Do not leave the device in solutions longer than necessary. This may accelerate normal product aging.
- Proper processing has a minimal effect on this device. End of life is normally determined by wear and damage due to use.
- Damage incurred by improper processing will not be covered by the warranty.

Instructions

Point of Use

- Wipe excess soil from the device using disposable paper towels.
- If an automated reprocessing method will be used, rinse any channels in the device with 50mL of sterile distilled water immediately after use.

Containment and Transportation

- Reprocess the device as soon as reasonably practical following use.
- Transport the device in a tray to avoid damage.

Preparation for Cleaning

1. Disassemble the coupler from the scope and camera head.
2. Prepare an enzymatic detergent according to the manufacturer's recommendations (one ounce per gallon of tap water at 35 - 40°C).
3. Wipe the entire device with the detergent, using a clean cloth.
4. Immerse the device in the detergent. Inject any inside regions of the device with 50mL of the detergent solution to remove loose debris.
5. Soak the device in the detergent for at least 15 minutes.

Cleaning: Manual

1. Brush

- Thoroughly brush the exterior of the device with a soft-bristled brush, focusing on any mated or rough surfaces.
- Inject any lumen or mated surface a minimum of five times with at least 50mL of the detergent.
- Brush any lumens a minimum of five times from each end, using an appropriate bottle brush.
- Brush any movable parts in their extreme open and closed positions.

2. Rinse

- Rinse the device with treated water at ambient temperature to remove all detergent residue. Flush any lumens or mated surfaces a minimum of 5 times. Once all detergent residues have been removed, continue to rinse for a minimum of 30 seconds.
- Drain excess water from the device and dry it using a clean cloth or pressurized air.
- Visually inspect the device for cleanliness, paying close attention to hard-to-reach areas. If visible soil remains, repeat steps 1 and 2.

3. Soak

- Prepare a non-enzymatic detergent, according to the manufacturer's recommendations of 0.25 ounces/gallon tap water at 35 - 40°C.
- Fully immerse the device and inject any lumens and mated surfaces with at least 50mL of the detergent.
- Soak the device for a minimum of 15 minutes.

4. Brush

- Thoroughly brush the exterior of the device using a soft-bristled brush.
- Inject the prepared detergent into any cannulae, lumens, or mated surfaces a minimum of 5 times.
- Brush any lumens a minimum of 5 times from each end, using an appropriate bottle brush.
- Actuate the device, brushing around any movable parts in all extreme positions.

5. Rinse

- Thoroughly rinse the device with treated water until all detergent residue is removed. Flush any lumens or crevices 5 times. After the detergent residue is removed, continue rinsing for a minimum of 30 seconds.
- Drain the excess water from the device and dry it with a clean cloth or pressurized air.

Cleaning: Automated

1. Brush

- Brush both ends of any lumens a minimum of five times, using an appropriate bottle brush.

2. Rinse

- Rinse the device with treated water at ambient temperature until there is no visible detergent residue. Continue to rinse for a minimum of 30 seconds after all detergent residue has been removed.
- Place the device in the washer on an incline to facilitate drainage.

3. Automated wash

- Program the washer using the following parameters:

Phase	Recirculation Time	Water Temperature	Detergent Type and Concentration (If applicable)
Pre Wash	2 minutes	Cold	N/A
Enzyme Wash	2 minutes	Hot	Enzymatic Detergent
Wash 1	2 minutes	Set Point (66° C)	Regular Detergent
Rinse 1	2 minutes	Hot	N/A
Dry Phase	7 minutes	115° C	N/A

* If necessary, use pressurized air to aid in drying. Visually inspect each device for cleanliness.

Disinfection (optional)

1. Disinfect the device by submerging it in a disinfection agent. Follow the disinfection agent manufacturer's recommended concentrations, temperatures, and exposure times.
2. Thoroughly rinse and flush all parts and lumens with running, demineralized water to remove the disinfectant.
3. Dry all parts with a lint-free towel immediately after rinsing.

Drying

- For automated drying, use the drying cycle provided with the washer/disinfector.
- For manual drying, use a lint-free cloth.
- Dry any lumens with compressed air.

Maintenance, Inspection, and Testing

- Inspect the device on a continual basis. If a problem is observed or suspected, the device should be returned for repair.
- Inspect all components for cleanliness. If fluid or tissue buildup is present, repeat the above cleaning and disinfection procedures.
- Inspect the camera cable for cuts and breaks. Return any damaged camera to Stryker for service.

Packaging

N/A

Sterilization

After performing the cleaning instructions specified above, perform one of the following sterilization cycles.

Steam

Note for United States users: For all autoclave-compatible devices, Stryker recommends using steam sterilization instead of liquid chemical sterilization.

- Steam sterilization is intended only for camera heads and couplers marked **AUTOCLAVE**.
- Rapid cooling, or "quenching," the coupler after autoclaving will result in product damage.
- The water used in the autoclave process must meet standards for clean steam per AAMI ST 79 Appendix M – Steam Quality requirements.

Sterilizer Type	**"Flash" Gravity**	**"Flash" Prevacuum**	**Gravity**	**Prevacuum**
Minimum Temperature	132 - 137°C (270 - 279°F)	132 - 137°C (270 - 279°F)	132 - 137°C (270 - 279°F)	132 - 137°C (270 - 279°F)
Minimum Cycle Time	10 minutes	3 minutes	10 minutes	3 minutes
Product Configuration	Unwrapped	Unwrapped	Double wrapped	Double wrapped
Drying Time	—	—	60 minutes	60 minutes

Ethylene Oxide (EO)

Preconditioning parameters	
Temperature	55 ± 2°C (131 ± 4°F)
Exposure	
Concentration (100% EO)	725 mg/L
Temperature	131 °F (55°C) ± 5 °F
Time	1 hour
Chamber Humidity	70% RH (50-80 %) ± 5%
Aeration parameters	
Aeration Time	12 hours
Temperature	35 – 55°C (95° - 131°F)

Steris System 1 / System 1E

Note: Steris® System 1™ is not intended for use in the United States.

Do not sterilize the autoclavable camera head (1188-410-105) with Steris System 1E.

1. Clean and prepare the camera head and cable as recommended in this user guide. Ensure the soaking cap is installed.
2. Sterilize the camera head and cable using Steris® System 1™ with Steris® 20 Sterilant, or System 1E™ with S40™ Sterilant. Follow the manufacturer's instructions.
3. Allow the camera head, cable, coupler, and scope to completely dry before reassembly. Any moisture on the threads will cause the camera and coupler windows to fog during use.

Steris/Amsco V-PRO 1

Do not sterilize the autoclavable camera head (1188-410-105) with V-PRO 1. Steam sterilization is recommended.

1. Clean and prepare the camera head and cable as recommended in this user guide. Ensure the soaking cap is installed.
2. If using a sterilization tray (optional), follow any additional instructions provided with the tray. Use only trays that are approved for sterilization with Steris/Amsco® V-PRO™ 1.
3. Double-wrap the camera head and cable (or tray, if being used) prior to sterilization.
4. Sterilize the camera head and cable using the V-PRO™ 1 Plus Sterilizer (Non-Lumen or Standard cycle) or the V-PRO™ 1 Sterilizer (Standard cycle).
5. Allow the camera head, cable, coupler, and scope to completely dry before reassembly. Any moisture on the threads will cause the camera and coupler windows to fog during use.

Sterrad

1. Clean and prepare the camera head and cable as recommended in this user guide. Ensure the soaking cap is installed.
2. Sterilize the camera head and cable using the Sterrad™ NX or 100s Sterilization System.
3. Allow the camera head, cable, coupler, and scope to completely dry before reassembly. Any moisture on the threads will cause the camera and coupler windows to fog during use.

Storage
N/A

Using Sterile Drapes

Using sterile drapes will ensure maximum longevity of your 1188HD Camera Head. For best results, follow the instructions provided by the drape manufacturer.

User Maintenance

Replacing the Fuses

1. Unplug the power cord from the wall outlet and remove the cord from the camera console.
2. Unlatch the fuse holder above the AC inlet and remove it. (You may need to press the tab on the fuse holder with a slender screwdriver to release the latch.)
3. Replace the fuse with the same value and rating.

Warning  **To avoid the risk of fire, use only fuses of the value specified on the fuse label located on the rear panel of the camera console.**

4. Reinstall the fuse holder until the tab snaps in place.

Periodic Maintenance Schedule

Warning  **To ensure safe operation of the Model 1188HD Medical Video Camera you should periodically perform the following procedure:**

Every 12 months, check the earth leakage current to <500µA (<300µA in U.S.A.), ground protective earth impedance to <0.1 ohms, and power consumption less than or equal to rated power. Use a true RMS digital multimeter and safety analyzer to perform this test.

Note Refer calibration and operating difficulties not detailed in this manual to your Stryker Endoscopy sales representative.

Disposing of the 1188HD

The 1188HD must be disposed of according to local laws and hospital practices.

This product is considered electronic equipment and must not be disposed of as unsorted municipal waste and must be collected separately. Please contact the manufacturer or other authorized disposal company to decommission your equipment.

Technical Specifications

60Hz settings are displayed first. (50Hz settings follow in parentheses.)

Imaging System

1/3" Progressive Scan CCDs
High Definition

Scanning System

Horizontal:	64.00 kHz (60.00 kHz)
Vertical:	60.02 Hz (50.00 Hz)

Video Outputs

Digital/Analog:	Two Digital Video Interface (DVI)/RGBHV 1280 × 1024 (HD), 720p (HDTV) format
Connector:	29-pin DVI-I
Composite:	One NTSC standard (PAL standard)
Connector:	BNC coaxial
Y/C:	Two S-VHS
Connector:	4-pin mini-DIN
Digital Fiber:	HD, HDTV (R, G, B, Clk)
Connector:	Four Lucent fiber connectors with 1.25 mm ferrules

Mounting

Endoscope eyepiece used with C-mount coupler
C-mount camera head used with C-mount scopes
(C-mount coupler/scope thread: 1"-32UN-2A)

Auto Shutter Range

1/60 (1/50) – 1/50,000 second

Operating Conditions

Temperature:	10 – 30°C
Relative Humidity:	30 – 75%

Transport and Storage Conditions

Temperature: -20 – 60°C
Relative Humidity: 10 – 75%
Atmospheric Pressure: 700 – 1060 hPa

Input Electrical Ratings

100 – 240VAC ± 10% (0.6A) @ 47 – 63Hz

Total Shipping Weight

13 lbs. (6.0 kg) Camera console
0.5 lbs. (0.226 kg) Coupler
1.5 lbs. (0.680 kg) Camera head

Dimensions

Camera Console: 12.5" w × 3.3" h × 15.25" d
(31.8 cm w × 8.4 cm h × 38.7 cm d)

Camera Head Cable to Camera Console:
10.3 ft (3.15 m) sealed cable
20.7 ft (6.30 m) cable extension available

Enhancement

16 levels (switchable)

Classification

Class I Equipment
Type BF Applied Part
Water Ingress Protection, IPX0—Ordinary Equipment
Continuous Operation

Complies with Laser Product Standards

Class 1 Laser Product
Contains four 850-nm laser diodes
This product complies with IEC 60825-1:1993+A1:1997+A2:2001.
This product complies with 21CFR, Subchapter J, Parts 1040.10 and 1040.11, except for deviations pursuant to Laser Notice No. 50, dated July 26, 2001.

Please contact your local Stryker Endoscopy sales representative for information on changes and new products.

Electromagnetic Compatibility

Like other electrical medical equipment, the 1188HD Camera requires special precautions to ensure electromagnetic compatibility with other electrical medical devices. To ensure electromagnetic compatibility (EMC), the 1188HD Camera must be installed and operated according to the EMC information provided in this manual.

Note — The 1188HD Camera has been designed and tested to comply with IEC 60601-1-2 requirements for EMC with other devices.

Caution — **Equipment which employs RF communications may affect the normal function of the 1188HD Camera.**

Warning — **Do not use cables or accessories other than those provided with the 1188HD Camera, as this may result in increased electromagnetic emissions or decreased immunity to such emissions.**

Warning — **If the 1188HD Camera is used adjacent to or stacked with other equipment, observe and verify normal operation of the 1188HD Camera in the configuration in which it will be used prior to using it in a surgical procedure. Consult the tables below for guidance in placing the 1188HD Camera.**

Guidance and Manufacturer's Declaration: Electromagnetic Emissions		
1188HD Camera is intended for use in the electromagnetic environment specified below. The customer or the user of 1188HD Camera should ensure that it is used in such an environment.		
Emissions test	**Compliance**	**Electromagnetic Environment - guidance**
RF emissions CISPR 11	Group 1	1188HD Camera 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 emissions CISPR 11	Class A	The 1188HD Camera is suitable for use in all establishments other than domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes, provided the following warning is heeded: **Warning:** This system is intended for use by healthcare professionals only. This system may cause radio interference or may disrupt the operation of nearby equipment. It may be necessary to take mitigation measures, such as reorienting or relocating the system or shielding the location.
Harmonic emissions IEC61000-3-2	Class A	
Voltage Fluctuations/ flicker emissions IEC61000-3-3	Complies	

Guidance and Manufacturer's Declaration: Electromagnetic Immunity			
1188HD Camera is intended for use in the electromagnetic environment specified below. The customer or the user of 1188HD Camera should ensure that it is used in such an environment.			
Immunity Test	**IEC 60601 Test Level**	**Compliance Level**	**Electromagnetic Environment: Guidance**
Electrostatic Discharge (ESD) IEC61000-4-2	±6kV contact ±8kV air	±2,4,6kV contact ±2,4,8kV air	Floors should be wood, concrete, or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/ burst IEC61000-4-4	±2kV for power supply lines ±1kV for input/ output lines	±2kV line to ground ±1kV line to line	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC61000-4-5	±1kV differential mode ±2kV common mode	±0.5, 1kV differential mode ±0.5, 1, 2kV common mode	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC61000-4-11	<5% Ut (>95% dip in Ut) for 0.5 cycle 40% Ut (60% dip in Ut) for 5 cycles 70% Ut (30% dip in Ut) for 25 cycles <5% Ut (>95% dip in Ut) for 5 sec.	<5% Ut (>95% dip in Ut) for 0.5 cycle 40% Ut (60% dip in Ut) for 5 cycles 70% Ut (30% dip in Ut) for 25 cycles <5% Ut (>95% dip in Ut) for 5 sec.	Mains power quality should be that of a typical commercial or hospital environment. If the user of 1188HD Camera requires continued operation during power mains interruptions, it is recommended that 1188HD Camera be powered from an uninterruptible power supply or a battery.
Power frequency (50/60Hz) magnetic field IEC 61000-4-8	3 A/m	N/A	Power-frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
NOTE: Ut is the AC mains voltage prior to application of the test level.			

Guidance and Manufacturer's Declaration: Electromagnetic Immunity			
1188HD Camera is intended for use in the electromagnetic environment specified below. The customer or the user of 1188HD Camera should ensure 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	3 Vrms 150 kHz to 80 MHz	3 V	Portable and mobile RF communications equipment should be used no closer to any part of the 1188HD Camera system, including its cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. **Recommended Separation Distance** $d = 1.17\sqrt{P}$
Radiated RF IEC 61000-4-3	3 V/m 80MHz to 2.5 GHz	3 V/m	$d = 1.17\sqrt{P}$ 80 MHz to 800 MHz $d = 2.33\sqrt{P}$ 800 MHz to 2.5 GHz where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer 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.			

Guidance and Manufacturer's Declaration: Electromagnetic Immunity
1188HD Camera is intended for use in the electromagnetic environment specified below. The customer or the user of 1188HD Camera should ensure that it is used in such an environment.
(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 1188HD Camera system is used exceeds the applicable RF compliance level above, the 1188HD Camera system should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the 1188HD Camera unit. (b) Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

Recommended Separation Distances Between Portable and Mobile RF Communications Equipment and the 1188HD Camera System

The 1188HD Camera system is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The user of the 1188HD Camera system can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the 1188HD Camera system as recommended below, according to the maximum output power of the communications equipment.

Rated maximum output power (W) of transmitter	Separation distance (m) according to frequency of transmitter		
	150 kHz to 80 MHz $d = 1.17\sqrt{P}$	80 MHz to 800 MHz $d = 1.17\sqrt{P}$	800 MHz to 2.5 GHz $d = 2.33\sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.37	0.37	0.74
1	1.17	1.17	2.33
10	3.70	3.70	7.37
100	11.70	11.70	23.30

For transmitters rated at a maximum output power not listed above, the recommended separation distance (d) in meters (m) can be estimated 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.

Warranty

Stryker Endoscopy warrants the 1188HD Medical Video Camera against defects in both materials and workmanship to the registered owner at the time of purchase. All components including the Charge Coupled Devices (CCDs) located in the camera head are covered by the warranty for a period of one year from the date of purchase.

This warranty does not apply to any unit which has been subject to misuse, neglect, improper installation or that which has been altered, adjusted, or tampered with by any person other than Stryker Endoscopy authorized personnel.

If upon examination by authorized service personnel, it is determined that the malfunction is due to misuse or abuse, warranty provisions will not apply. An estimate of the cost of repair work will be given to the customer prior to servicing and repairing the unit.

The customer is responsible for returning the defective equipment to the factory at his or her own expense. Stryker Endoscopy or its representative will service the unit, repair or replace any defective parts thereof, and return the unit.

If, upon examination, it is determined that the fault has been caused by misuse or abnormal conditions of operation, the repairs will be billed to the customer as out-of-warranty repairs.

Instruments repaired under Stryker Endoscopy's standard repair program will be issued a thirty-day warranty against defects in both materials and workmanship, provided the original warranty period has passed. Instruments submitted due to defects in materials and workmanship during the warranty period will be repaired at no charge to the customer.

The warranty as set forth herein is exclusive and in lieu of all other warranties, remedies, obligations and liabilities of Stryker Endoscopy Inc., expressed or implied, including the implied warranties of merchantability and fitness for use and of consequential damages. These products are being sold only for the purpose described herein, and such warranty only runs to the purchaser. In no event shall Stryker Endoscopy be liable for any breach of warranty in any amount exceeding the purchase price of the product.

No agent, employee or representative of Stryker Endoscopy has the authority to bind the Company to any other warranty, affirmation, or representation concerning this instrument.

This warranty is valid only to the original purchaser of Stryker Endoscopy products directly from Stryker Endoscopy or from a Stryker Endoscopy authorized agent. The warranty cannot be transferred or assigned by the original purchaser.

Service and Claims

Caution **Never open the camera head or cable, or attempt any service not described in this manual. These units have been factory sealed to prevent moisture from entering the electronic components. If the camera head or the cable seal is intentionally broken, the equipment warranty will be void. Furthermore, any repairs made to the camera system will require evaluation to the requirements of applicable electrical safety standards.**

If service is needed either during or after the warranty period:

1. Contact Stryker Endoscopy at 1-800-624-4422 or phone your local Stryker Endoscopy sales representative.
2. Package all the components carefully in the original shipping container if possible.
3. Ship the camera, prepaid and insured to:

   Stryker Endoscopy Customer Service
   Attention: Repair Department
   5900 Optical Court
   San Jose, CA 95138
   USA

stryker®

CE

Stryker Endoscopy
5900 Optical Court
San Jose, CA 95138 USA
1-800-624-4422

U.S. Patents: www.stryker.com/patents

1000400904M
2016/04