CAMX® Luna HD

HIGH DEFINITION INTRAORAL VIDEO CAMERA SYSTEM

PART NUMBER: G1000
WITH
HANDPIECE, PART NUMBER: G1100

OPERATOR’S MANUAL

equipped for life®
CONGRATULATIONS

Congratulations on your purchase of the Luna HD, the latest camera in the dental video imaging product line from Air Techniques, a leading manufacturer of dental equipment since 1962.

This high definition camera system design offers the flexible benefits of USB Plug-N-Play technology that is easily integrated into any practice. The very lightweight one-piece HD Camera Handpiece is an extremely maneuverable instrument, which produces crisp, clear images.

Review and follow the guidelines included in this Operator’s Manual to ensure that your Luna HD gives you the highest level of service.

For product support and information on how to expand your Luna HD, contact your dealer; call Technical Support at 1-800-AIR-TECH (1-800-247-8324) or visit the web site www.airtechniques.com.
This equipment has been designed to minimize exposure of personnel to hazards. While Luna HD is designed for safe operation, certain precautions must be observed. Use of Luna HD not in conformance with the instructions specified in this manual may result in permanent failure of the unit.

KNOWLEDGE OF WARNINGS AND CAUTIONS
Users must exercise every precaution to ensure personnel safety, and be familiar with the warnings and cautions presented throughout this manual and summarized below.

Warnings.
- To prevent fire or electrical shock, do not expose this equipment to rain or moisture.
- Do not spray cleaning liquids or disinfectants directly on the camera handpiece or the Handpiece Cable. Use care not to allow liquids to run into internal circuitry.

Cautions.
- There are no user-serviceable parts inside. Servicing should be performed by qualified dealer service representatives only.
- Connecting any device to Luna HD that does not meet the equivalent safety requirements of the system may reduce the safety effectiveness of the device.
- Do not autoclave the Camera Handpiece.
- Do not spray liquids directly on Luna HD or the cable.
- Do not immerse the Camera Handpiece in liquid of any kind.
- Do not allow liquids to run into internal circuitry.
- Cleaning products containing the ingredients listed below are prohibited for use with Luna HD. These chemicals can cause damage to the plastic parts used on the camera body.
  - Ammonia
  - CaviCide™
  - CaviWipes™
  - Ethanol
  - Iodine solutions
  - Methyl Ethyl Ketone
  - Ammonium Chloride
  - CaviCide1™
  - Denatured alcohol
  - Ethylene Glycol Monobutyl Ether
  - Isopropyl alcohol (higher than 70%)
  - Opti-Cide³®
  - Benzene
  - CaviWipes™
  - DisCide® Ultra
  - Glutaraldehyde
  - Lysol ®
  - Phenol based compounds

Contraindications.
- None known.

Use of Accessory Equipment.
Luna HD is intended to provide a level of safety consistent with the IEC 60601-1 standard for medical equipment. In order to achieve this, Luna HD must be used with a computer and any other accessory equipment that complies with the IEC 60950-1 standard for information technology equipment (ITE) and this equipment must be set-up outside the immediate patient environment. Use of ACCESSORIES or cables other than those specified or provided by Air Techniques may result in increased EMISSIONS or decreased IMMUNITY of Luna HD.

Do Not Attempt Internal Service.
The interior of the camera is only accessible by removing hardware with tools and should only be opened and serviced by an authorized service technician.

Contact your local Air Techniques authorized dealer for service. Failure to heed this directive may result in equipment damage and voiding the warranty.
GENERAL SAFETY

Markings.
The following terms or symbols are used on the equipment or in this manual to denote information of special importance:

- Indicates type BF equipment in accordance with IEC 60601-1
- Alerts users to important Operating and Maintenance instructions. Read included documents.
- Indicates that camera sheaths must be used for only one patient and disposed of properly in accordance with local code.
- Identifies the name of the manufacturer.
- Indicates that the unit conforms with WEEE Directive 2002/96/EC and must be disposed of only at the appropriate facilities for recovery and recycling.

IMPORTANT INFORMATION

General Notes.

- All instructions in this manual form an integral part of the unit. They must be kept close to the unit and in readiness whenever required. Precise observance of these instructions is a pre-condition for use of the unit for the intended purpose and for its correct operation. This manual should be passed on to any future purchaser or operator.

- Safety of the operator as well as trouble-free operation of the unit are only ensured if use is made of original equipment parts. Moreover, use may only be made of those accessories that are specified in the technical documentation or that have been expressly approved and released by the manufacturer for the intended purpose. The manufacturer cannot warranty for the safety or proper functioning of this unit in the case where parts or accessories are used that are not supplied by the manufacturer.

- There is no guarantee against damage arising where parts or accessories are used that are not supplied by the manufacturer.

- Observe the usage and storage conditions.

- Luna HD may only be operated using authorized software.

- The manufacturer regard themselves as being responsible for the equipment with regard to safety, reliability and proper functioning only if assembly, resetting, changes or modifications and repairs have been carried out by an authorized dealer and if the equipment is used in conformity with the instructions contained in this manual.

- The device conforms to the relevant safety standards valid at this time.

- Any reprinting of the technical documentation, in whole or in part, is subject to prior written approval by the manufacturer.

Incorrect Usage

- Any use that is not described in this manual as correct usage is considered as incorrect usage. The manufacturer is not to be held liable for any damage caused as a result of incorrect usage. The operator bears all risks.
**KEY PARTS IDENTIFICATION**

_Luna HD_ consists of a Camera Handpiece, a Camera Handpiece Cable and associated accessories. The handpiece, cable, accessories and software may be purchased together under part number G1000. Some of the items may be purchased individually by the part numbers listed on page 17. _Luna HD_, Part Number G1000, includes:

<table>
<thead>
<tr>
<th>Description</th>
<th>Qty</th>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Luna HD Camera Handpiece, P/N G1100</td>
<td>1</td>
<td><img src="handpiece.png" alt="Handpiece" /></td>
</tr>
<tr>
<td>Disposable Camera Sheaths Sample Pack for HD Handpiece</td>
<td>50</td>
<td><img src="sheaths.png" alt="Sheaths" /></td>
</tr>
<tr>
<td>USB/Handpiece Cable, 10 feet</td>
<td>1</td>
<td><img src="cable.png" alt="Cable" /></td>
</tr>
<tr>
<td>Handpiece Holder Mounting Kit</td>
<td>1</td>
<td><img src="holder.png" alt="Holder" /></td>
</tr>
<tr>
<td>CD containing - PDF version of Operator’s Manual, USB Device Drivers, TWAIN Interface, Demonstration Program and Utilities, Software Installation and Configuration Guide and Adobe Acrobat Reader</td>
<td>1</td>
<td><img src="cd.png" alt="CD" /></td>
</tr>
<tr>
<td>Quick Start Instructions</td>
<td>1</td>
<td><img src="instructions.png" alt="Instructions" /></td>
</tr>
</tbody>
</table>
**COMPONENT DESCRIPTION**

The components of Luna HD are described below.

**Luna HD Camera Handpiece** - The handpiece is a lightweight high definition digital video camera that sends a live video stream to a Windows based computer via USB. Software installed on the computer displays the live video stream on the computer monitor. The handpiece normally provides 1280x720 pixel HD video resolution but this can be changed, if needed, to 640x480, 720x576, 800x600, 1024x768 or 1280x960 resolution via the software. The software can capture frames from the live video as still images that can be displayed and saved. The handpiece focus can be manually adjusted by a focus ring on the camera body that moves the image sensor relative to the lens. This ring rotates continuously over a 120 degree range and allows the focus to be adjusted from 2mm to 300mm. This focus range allows the handpiece to image a small section of a tooth (macro setting), a single tooth (single tooth setting), multiple teeth (tour-of-mouth setting) or a full arch, smile or face (face/smile/arch setting). For ease of use, these focus settings are marked on the camera body.

Two 120-degree membrane switches on the handpiece enable the user to have precise control of Luna HD even when moving the device to access a certain area in the patient’s mouth. The specific functions performed by the membrane switches depend on the user-supplied streaming video capture software used.

**Camera Sheaths Sample Pack** - Provides a sample quantity of 50 disposable camera sheaths used as an effective barrier preventing any infection hazard to the patient.

**USB/Handpiece Cable** - A 10 foot cable that is used to connect the HD handpiece to the user’s computer. One end of the cable has a keyed, 5-pin quick disconnect connector for connection to the HD handpiece and the other end has a Type A USB connector for connection to a high power (500 mA) USB 2.0 port on the user’s computer. This cable carries all power, video and keypad button control signals for the handpiece.

**Tulip Handpiece Holder and Wall Mount** - The handpiece holder can be fastened using the supplied wall mount in a convenient location for safe storage of the Luna HD Handpiece when it is not in use.

**Compact Disk** - A compact disk (CD) included with Luna HD that includes:

1. USB Device Drivers, Demonstration Program and Utilities and TWAIN Interface
2. PDF version of Operator’s Manual and Software Installation and Configuration Guide
3. Adobe Acrobat Reader

Unpack each component of Luna HD and inspect for physical damage such as scratches, damaged connectors, etc. If any damage is noted, immediately notify your Air Techniques authorized dealer so corrective action can be taken.

Make sure to save all packaging material in case repackaging and shipment is necessary.

Verify that all listed items were received. If any item is missing, notify your Air Techniques dealer.
PRE-INSTALLATION INFORMATION

IMPORTANT: When operating Luna HD connected to the high power (500 mA) USB 2.0 port on a Computer System, the computer must also be loaded with Air Techniques Authorized TWAIN or DirectX 9 compliant streaming video software such as VISIX Pro. Contact your dealer for available Computer Systems and software options.

Minimum Computer System Requirements - The minimum computer system requirements necessary to operate Luna HD are listed below.

Operating System:
- Windows XP Professional with Service Pack 3 or later for an Intel 32-bit processor;
- Windows 7 Professional, Enterprise, or Ultimate with Service Pack 1 or later for an Intel 32-bit or an Intel 64-bit extended (x64) processor;
- Windows 8.1 Professional or Enterprise for an Intel 32-bit or an Intel 64-bit extended (x64) processor; or
- Windows 10 Pro or Enterprise for an Intel 32-bit or Intel 64-bit extended (x64) processor.

Imaging Software: Authorized third-party TWAIN or Direct9X compliant software.

CPU Speed: Intel Core i5 CPU @ 2.5GHz or higher (note: Intel Itanium not supported)

System RAM: 4GB (except 2GB for Windows XP)

Optical Drive: CD-ROM Capable

Monitor: Widescreen (16:9) monitor recommended with screen resolution same as or higher than selected camera output resolution

Video Display: Standalone video card with 256MB RAM that supports required screen resolution or Intel HD Graphics 3000 or later integrated video processor (on motherboard)

USB Port: USB 2.0 High-Speed, High-Power (500mA) Port

System Properties.
If unsure of the operating system version installed, check that it meets the necessary requirements by checking the System Properties window. This is done simply by right clicking the My Computer icon. Selecting Properties from the menu list displays the System Properties window as shown. The System Properties window can also be displayed from the Desktop Start button. Just press the Start button and select Settings→Control Panel and then System.
HANDPIECE FUNCTIONS

Image Control Membrane Switches - Each membrane switch provides the handpiece fingertip control over the PC streaming video capture software via the Handpiece Cable. The specific functions performed by the keypad buttons depend on the specific software installed on the user’s computer. Typical switch actions are provided below.

**NOTE:** Simultaneously depressing both keypad buttons for approximately 3 seconds deactivates the Handpiece LED light source. This is commonly used when imaging an X-ray on a light box.

(5) **Top Membrane Switch**
Press and release to send a Button 1 command to the PC. While the specific function performed depends on the setting of the video capture software application installed on the PC, this command typically freezes and unfreezes the image that is displayed on the computer monitor.

(6) **Bottom Membrane Switch**
Press and release to send a Button 2 command to the PC. While the specific action depends on the video capture software installed, it typically saves the image displayed on the computer monitor to the computer hard disk.
Installing **Luna HD** is as simple as making the necessary connections of the Handpiece Cable between a PC loaded with Air Techniques Authorized TWAIN or DirectX 9 compliant user-supplied streaming video software such as VISIX Pro and the Camera Handpiece. Perform the following procedures to set up **Luna HD**.

**NOTE:** Authorized Imaging Software, such as VISIX Pro, supplied by the dealer or other company, must be installed on the computer in order to operate **Luna HD**.

**Driver Installation** - The **Luna HD** is USB video class (UVC) compliant and uses the streaming video drivers that come with the Windows operating system. However, drivers provided on the **Luna HD** Drivers and Utilities CD included with **Luna HD** must be installed to provide support for TWAIN still image capture and for camera button freeze/save operation. Before connecting **Luna HD** to your computer or attempting to use it for the first time, run the Setup program on the **Luna HD** Drivers and Utilities disk to install these drivers. This must be completed before **Luna HD** will operate properly. Normally, this program runs automatically when the CD is inserted into the drive for the first time. If not, run the Setup program located in the root directory of the CD (typically **D:\Autorun.exe**).

Install the Standard Device Drivers by selecting Standard (default option) from the Setup program menu. If full device functionality is not present after the Standard Device Drivers are installed, the Legacy Device Drivers may need to be installed. More information can be found in the Software Installation and Configuration Guide on the **Luna HD** Drivers and Utilities Disk included with the system.

**Camera Handpiece Connection** - Carefully connect the HD Camera Handpiece to the supplied Handpiece Cable as follows:

1. Using the quick disconnect collar end of the Handpiece Cable, align the connector key with the keyway of the Handpiece connector.
2. Insert straight into Handpiece connector until it securely snaps into place.

![Camera Handpiece Connection Diagram]
**SYSTEM SETUP**

**IMPORTANT:** Use a High Power (500 mA) USB 2.0 Port Only

**USB Interface Connection** - Connect the USB Type A connector side of the Handpiece Cable to any available USB 2.0 High Speed, high power port on the user supplied Computer System. Always make sure to use the same USB port whenever re-connection of the USB cable is necessary.

A self-powered USB hub can be used to extend the handpiece cable length. Do not use a bus - powered hub or extension cable.

**Handpiece Holder Mounting** - The Handpiece Cable is designed to fit in a standard chair-side holder with or without the camera attached. The Tulip Handpiece Holder and Wall Mount included with your unit provides an alternative storage solution. If used, install the holder as follows.

1. Select a flat, clean dry wall surface convenient to where the handpiece is to be used.
2. Secure the molded mounting bracket to the wall using the two screws provided.
3. Carefully align the channel of the holder with the wall mount bracket.
4. Slide the holder all the way down on the wall mount bracket.
CAMERA PORTABILITY

Do not twist or turn the Handpiece Cable connector. The connector is keyed and mates straight on with Handpiece connector.

Whether detaching just the Camera Handpiece from the Handpiece Cable and using it with additional Luna HD Handpiece Cables installed on other computers or moving the complete system (handpiece and cable), Luna HD is easily shared among patient operatories.

Refer to the corresponding illustrations and perform the following steps when transporting only the handpiece.

1. Retract the collar of quick disconnect connector and simultaneously pull straight from the handpiece making sure not to twist or turn the cable connector.
2. Release the connector quick disconnect collar.
3. Store the USB/Handpiece Cable by placing the quick-disconnect collar into the Handpiece Holder.
4. Transport the handpiece to next operatory.
5. Connect the handpiece at new location by aligning the connector key of the cable with the keyway of the mating connector of the handpiece making sure not to twist or turn the connector.
6. Insert straight into the handpiece connector until it securely snaps into place.

When transporting the complete system (handpiece and cable) among patient operatories, simply disconnect the USB connector end of the Handpiece Cable, transport the system and reconnect to the new computer. Make sure that the computer in the new operatory is properly setup and using compliant software.

CAUTION: Always handle the handpiece carefully.
Do not drop and make sure to protect the optical window from scratches.
Do not pull handpiece from a standard chair-side holder. Always lift the handpiece straight up from the holder to avoid damage to the connector.
Disposable Sheath Installation - Install a new Sheath on the Handpiece for each patient as follows:

1. Remove the handpiece from the holder.
2. Insert the handpiece tip between the second and third layers (between the outer paper and plastic layers) with the camera/light facing towards the paper layer. See A and B.
3. Push the tip completely in until it is fully inserted into the narrow section of the sheath.
4. Gently squeeze the illuminated tip of the handpiece between the thumb and index finger to ensure that the optically clear area of the sheath is flat against the lens tip. See C.
5. Peel away and discard the top plastic layer and the bottom paper layer. See D.

IMPORTANT: Camera Lens and Sheath Alignment -
For optimum image clarity, the optically clear section of the sheath must be aligned with the camera lens by facing the camera/light source section of the handpiece down toward the paper layer.
Verify that the video capture software is running and correctly configured.

Luna HD is operated when connected directly to a computer system running various PC USB streaming video capture software applications such as VISIX Pro. The camera provides the image/video source while the computer and associated software are used to display and save the resultant images. Perform the following procedures to operate Luna HD when correctly connected to a computer:

1. Start the imaging software.
2. Remove the handpiece from the holder and press the ON/Standby button to activate the camera. Verify that the LED light source turns on and that the computer display shows the high-resolution live video images taken by the camera.
3. Adjust the red dot of the focusing ring to a focus setting appropriate to the object to be imaged. The camera body has indicator marks that correspond to four common focus settings. The red dot may be adjusted between these marks as desired.
   a. Face - Smile - Arch (50 to 300 mm)
   b. Intraoral Mouth Tour (15 mm)
   c. Single Tooth Intraoral (8 mm)
   d. Macro View (2 mm)
4. Position the camera lens window over the object to be imaged and view image on monitor. Make small adjustments to the focusing ring position as needed to adjust image clarity.
5. Press and release the handpiece top switch to freeze the displayed video on the monitor. If image is not suitable, proceed to step 6. When image is suitable, perform to step 7.
   **Minimizing Captured Image Blur:**
   The single tooth and macro focus settings have high magnification. It is important to brace the camera well to maintain the lens window steady when capturing images at these focus settings.
   Some video capture software applications allow the top membrane switch to be pressed and held while viewing live video and will freeze the video upon switch release. This also helps reduce captured image blur.
6. Press and release the top switch again to unfreeze the displayed image and return to a live video display. Return to step 5 to freeze video.
7. Press and release the handpiece bottom switch to save the frozen image to the computer hard drive and return to a live video display.
8. Repeat steps 3 through 7 as necessary.
9. When imaging an X-ray film on a light box, deactivate the LED light source by depressing both handpiece buttons simultaneously for approximately 3 seconds. Perform steps 3 through 7 to freeze and save the X-ray film image as desired.
   Depress both handpiece buttons simultaneously for approximately 3 seconds to turn ON the LED light source as desired.
10. Press the ON/Standby button to turn the camera OFF. Verify that the LED light source turns off and the camera goes into the Standby mode and return the handpiece to the holder.
USB Video Diagnostic - If live video is not displayed on the PC monitor of the Luna HD when the imaging software application is running, there could be a problem with the settings in the software application or with the handpiece. Close the imaging software application and perform the following USB Video Diagnostic procedure to check that the Luna HD handpiece is working correctly, the Luna HD Handpiece Cable is correctly connected between the Luna HD and the computer and the Luna HD USB driver files are installed correctly on the PC.

1. Go to the Start button and select All Programs.
2. Select the Air Techniques program option and click on Camera Demonstration Program and observe that the Camera Demonstration Program screen opens.
3. Depending on the outcome of the diagnostic, perform one of the following:
   a. If a live image is correctly displayed, exit from the demonstration program and make sure that the imaging software application is configured correctly.
   b. If a live image is displayed but the colors are not correct, go to step 4.
   c. If a live image is not displayed, exit from the demonstration program and check the handpiece, Luna HD Handpiece Cable and USB driver file installation.
4. Reset the driver's video settings by performing the following:
   a. On the Camera Demonstration Program screen, click the Properties button located on the lower left of the live image screen.
   d. On the Properties screen make sure the VIDEO PROC AMP tab is selected and then click the DEFAULT button. The image colors should now be correct. Click OK to close the Properties screen and exit from the demonstration program.

NOTE: If live video is displayed but the frame rate seems too low or fluctuates, verify the computer complies with the minimum requirements specified in this manual. It may be possible to address this by selecting one of the camera's lower image resolutions via controls (ie: drop down selection box, etc) on the imaging software's main screen.
INSPECTION AND CLEANING
Perform the following inspection and cleaning procedures periodically to keep Luna HD in optimal condition resulting in trouble-free operation producing crisp, clear images.

Do not attempt any internal service of Luna HD components. Contact your local authorized Air Techniques dealer for service. Failure to heed this warning may result in equipment damage and voiding the warranty.

**Inspection** - Routinely inspect each component of Luna HD for possible defects as follows:

1. **Camera Handpiece** -
   a. Check overall handpiece for chips, cracks or other irregularities.
   b. Check the lens window for debris or spots.
   c. Check the connector socket for damage.

2. **Cables and Connectors** -
   a. Check cables for damaged or deteriorated insulation kinking or twisting.
   b. Check connectors for loose, bent or missing pins.
   c. Check that the quick-disconnect plug end snaps into handpiece connector to snugly secure the cable to the handpiece.

   - Do not autoclave the Camera Handpiece.
   - Do not spray handpiece directly with liquids.
   - Do not rinse or immerse the handpiece in liquids.
   - Use care not to allow liquids to run into internal circuitry.
   - Do not wipe the surfaces using prohibited chemicals listed on page 3 as they may degrade the finish.
   - Do not apply excessive pressure when wiping; do not scrub.

**CAUTION:** Unplug Luna HD components before performing cleaning.

The Sheath must be used for only one patient and disposed of properly in accordance with local code.

**Surface Cleaning Instructions** - Clean the handpiece following each patient use. The cleaning instructions must be followed carefully to prevent damage to the camera housing, and internal components. Cleaning products containing active ingredients listed on page 3 are prohibited for use with Luna HD. These chemicals can cause damage to the camera and could void the warranty.

1. Disconnect the USB cable. Remove the Camera Sheath and dispose in accordance with local regulations and clean handpiece as follows.
2. Moisten a cloth with warm water and remove any excessive moisture from the cloth before wiping the handpiece.
3. Wipe outer camera body with the moist cloth to ensure no pooling of water surrounds capture switch, ON/Standby button or USB connection.
4. Window Lens may be cleaned with a cotton swab that is moistened with 70% isopropyl alcohol.
5. Allow the handpiece sufficient time to air dry.
**SPECIFICATIONS**

Input Power: USB powered device using less than 500 mA at 5 volts DC. No external power supply is required. No mains connection.

Video Output: High Speed USB 2.0 Video. UVC compliant. Drivers required for TWAIN and button operation support (supplied)

Sensor: \(\frac{1}{2.5}\) Inch, 1.3Mp CMOS sensor

Resolution: Selectable via PC software - (H X V)
- 1280 X 720 (16:9 aspect ratio default)
- 640 X 480, 720 X 576, 800 X 600, 1024 X 768 and 1280 X 960 (4:3 aspect ratio)

Frame Rate: 30 Fps (Frames/sec) Except 22 Fps for 1280 X 960

Illumination: Ultra-bright white LED lamps

Exposure Control: Automatic

Image: Normal, not mirrored

Focal Range:
- Manual 2 to 300 mm (0.08 to 12 inches)
  - Macro View 2mm (0.08 inches)
  - Single Tooth Intraoral 8mm (0.32 inches)
  - Intraoral Mouth Tour 15mm (0.59 inches)
  - Face - Smile - Arch 50 to 300mm (1.97 to 12 inches)

Operating Temperature: 50 to 104º F (10 to 40º C)

Storage Temperature: 32 to 158º F (0 to 70º C)

Humidity: 10 to 90% non-condensing

Compliance -
- Device Class: USA - FDA Class I Device, listing E197995
- Canada - MDR/Class I

Classifications: Portable, Continuous Operation, Type BF Applied Part no mains connection.

Flammable Atmosphere: Cannot use in the vicinity of flammable anesthetic mixtures of air, oxygen or nitrous oxide.

Water/Particulate Matter Ingress Protection: IP40

Electromagnetic Compatibility Conforms to IEC 60601-1-2 See Appendix A.

**PHYSICAL CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Item</th>
<th>Dimensions</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Handpiece:</td>
<td>Length 9.1 inches (23.11 cm)</td>
<td>3.4 oz. (96 g)</td>
</tr>
<tr>
<td></td>
<td>Diameter 1.2 inches (3.05 cm)</td>
<td></td>
</tr>
<tr>
<td>Handpiece Cable:</td>
<td>10 feet (3.05 m)</td>
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</tbody>
</table>
The following lists the ordering number and description for accessory components available to maintain and expand the Luna HD to meet your professional needs. Contact your Air Techniques Dealer for information.

<table>
<thead>
<tr>
<th>Order Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>G1000</td>
<td>Complete Luna HD System as listed on page 5.</td>
</tr>
<tr>
<td>G1010</td>
<td>Luna HD Handpiece</td>
</tr>
<tr>
<td>G1151</td>
<td>Luna HD Handpiece Cable</td>
</tr>
<tr>
<td>G4011</td>
<td>Handpiece Holder Mounting Kit (includes Holder and Wall Mount)</td>
</tr>
<tr>
<td>G1072</td>
<td>Box of 100</td>
</tr>
<tr>
<td>G1073</td>
<td>Box of 500</td>
</tr>
<tr>
<td>G74500</td>
<td>Comprehensive VISIX Pro Imaging Software, 5 licenses</td>
</tr>
<tr>
<td>D4040</td>
<td>VISIX Pro Support Package</td>
</tr>
</tbody>
</table>

**VISIX Pro Imaging Software**

Consider VISIX Pro, our comprehensive digital imaging software application, providing seamless integration with all Air Techniques digital imaging products.

**Key Features.**
- Easy to learn.
- Simple to use.
- Acquire, mount, view and store images with just a few mouse clicks.
- Exposure - Our Stop Light Exposure System is a unique indicator to ensure optimum data capture. It helps you acquire great images by monitoring X-ray exposure.
- Viewing - VISIX Pro provides automatic image mounting that is completely customizable.
- Flexibility - VISIX Pro includes a built-in bridging solution to over 35 Practice Management Software titles.

VISIX Pro is the superb software complement for Luna HD. Contact your authorized dealer for further information.
Luna HD is warranted to be free from defects in material and workmanship from the date of installation for a period of 2 years (24 months).

All part and component returns and replacement equipment under warranty require a Return Materials Authorization (RMA). Warranty returns must be received within three months of the RMA issue date. Items returned without an RMA, or included with other products for which an RMA has been issued, may be returned to the customer at the discretion of Air Techniques, Inc.

Any item returned under warranty will be repaired or replaced at our option at no charge provided that our inspection shall indicate it to have been defective. Air Techniques, Inc. is not liable for indirect or consequential damages or loss of any nature in connection with this equipment. Dealer labor, shipping and handling charges are not covered by this warranty.

Warranty credit will not be applied to product returns that exhibit damage due to shipping, misuse, careless handling or repairs by unauthorized personnel. Credit, or partial credit, will not be issued until products/parts have been received and assessed. Warranty is void if product is installed or serviced by anyone other than an authorized Air Techniques’ dealer or service personnel.

This warranty is in lieu of all other warranties expressed or implied. No representative or person is authorized to assume for us any liability in connection with the sale of our equipment.

Online Warranty Registration

Quickly and easily register your new Luna HD on-line. Just have your product model number and serial number available. Then go to the Air Techniques website, www.airtechniques.com, click the warranty registration link and complete the registration form. This on-line registration ensures a record for the warranty period and helps Air Techniques keep you informed of product updates and other valuable information.
Manufacturer’s Guidance and Declaration - Electromagnetic Emissions

The camera is intended to be used within the electromagnetic environment specified below. The user of the camera should assure that it is used in such an environment.

<table>
<thead>
<tr>
<th>Emissions test</th>
<th>Compliance</th>
<th>Electromagnetic Environment - Guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF emissions CISPR 11</td>
<td>Group 1</td>
<td>The camera uses radio-electrical energy only for its internal subsystems. Therefore, it emits very low energy and is not likely to interfere with nearby electronic devices.</td>
</tr>
<tr>
<td>RF emissions CISPR 11</td>
<td>Class A</td>
<td>The camera is suitable for use in all establishments other than domestic, and may be used in domestic establishments and those directly connected to the public low voltage power supply network that supplies buildings used for domestic purposes, provided that the following warning is heeded: <strong>Warning</strong>: This equipment is intended for use by healthcare professionals only. This equipment 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 camera or shielding the location.</td>
</tr>
<tr>
<td>Harmonic emissions EN 61000-3-2</td>
<td>Class A</td>
<td></td>
</tr>
<tr>
<td>Voltage fluctuations/flicker EN 61000-3-3</td>
<td>Complies</td>
<td></td>
</tr>
</tbody>
</table>
## Manufacturer’s Guidance and Declaration - Electromagnetic Immunity

The camera is intended to be used within the electromagnetic environment specified below. The user of the camera should assure that it is used in such an environment.

<table>
<thead>
<tr>
<th>Immunity Test</th>
<th>IEC 60601 Test Level</th>
<th>Compliance Level</th>
<th>Electromagnetic Environment - Guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrostatic Discharge (ESD)</td>
<td>± 6kV contact ± 8kV</td>
<td>± 6kV ± 8kV</td>
<td>Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.</td>
</tr>
<tr>
<td>IEC 61000-4-2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrical fast transient/burst</td>
<td>± 2 kV for power supply lines</td>
<td>± 2kV ± 1kV</td>
<td>Mains power quality should be that of typical commercial or hospital environment.</td>
</tr>
<tr>
<td>IEC 61000-4-4</td>
<td>± 1 kV for input/output lines</td>
<td>± 1kV N/A</td>
<td>Mains power quality should be that of typical commercial or hospital environment.</td>
</tr>
<tr>
<td>Surge</td>
<td>± 1 kV line(s) to line(s)</td>
<td>± 1kV N/A</td>
<td>Mains power quality should be that of typical commercial or hospital environment.</td>
</tr>
<tr>
<td>IEC 61000-4-5</td>
<td>± 2 kV line(s) to earth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voltage dips, short interruptions and voltage variations on power supply input lines</td>
<td>&lt;5% Ur (&gt;95% dip in Ur) for 0.5 cycle 40% Ur (60% dip in Ur) for 5 cycles 70% Ur (30% dip in Ur) for 25 cycles &lt;5% Ur (&gt;95% dip in Ur) for 5 s</td>
<td>&lt;5% Ur - 10ms 40% Ur - 100ms 70% Ur - 500ms &lt;5% Ur - 5 s</td>
<td>Mains power quality should be that of typical commercial or hospital environment. If the user of the camera requires continuous operation during power mains interruptions in the main power supply, it is recommended that the camera be powered from an un-interruptible power supply providing emergency power.</td>
</tr>
<tr>
<td>IEC 61000-4-11</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power frequency (50/60Hz) magnetic field</td>
<td>3 A/m</td>
<td>3A/m</td>
<td>Power frequency magnetic fields should be at levels characteristic of a typical location within a typical commercial or hospital environment.</td>
</tr>
<tr>
<td>IEC 61000-4-8</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Ur is the a. c. mains voltage prior to application of the test level.
Manufacturer’s Guidance and Declaration- Electromagnetic Immunity

The camera is intended to be used in the electromagnetic environment specified below. The user of the camera should assure that it is used in such an environment.

<table>
<thead>
<tr>
<th>Immunity Test</th>
<th>IEC 60601 Level</th>
<th>Compliance Level</th>
<th>Electromagnetic Environment - Guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portable and mobile RF communication equipment should be used no closer to any part of the camera, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conducted RF</td>
<td>IEC 61000-4-6 3 Vrms 150 kHz to 80 MHz</td>
<td>3 V</td>
<td>( d = 1.16 \sqrt{P} )</td>
</tr>
<tr>
<td>Radiated RF</td>
<td>IEC 61000-4-3 3V/m 80 MHz to 2.5 GHz</td>
<td>3 V/m</td>
<td>( d = 1.16 \sqrt{P} ) 80 MHz to 800 MHz 800 MHz to 2.5 GHz ( d = 2.33 \sqrt{P} ) 800 MHz to 2.5 GHz</td>
</tr>
<tr>
<td>Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, * should be less than the compliance level in each frequency **. Interference can occur nearby devices bearing the following symbol:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note 1: At 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.

* Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephone and land mobile radios, AM and FM radio broadcast, and TV broadcast can not 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 camera is used exceeds the applicable RF compliance level above, the camera should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the camera.

** Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.
Recommended Separation Distances Between the Camera and Portable and Mobile RF Communications Equipment

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

<table>
<thead>
<tr>
<th>Maximum assigned output power of the transmitter W</th>
<th>Separation distance as a function of the transmitter's frequency m</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>150 kHz to 80 MHz</td>
</tr>
<tr>
<td>0.01</td>
<td>0.116</td>
</tr>
<tr>
<td>0.1</td>
<td>0.366</td>
</tr>
<tr>
<td>1</td>
<td>1.16</td>
</tr>
<tr>
<td>10</td>
<td>3.66</td>
</tr>
<tr>
<td>100</td>
<td>11.6</td>
</tr>
</tbody>
</table>

For transmitters rated at a maximum output power not listed above, the recommended separation distance (d) in meters (m) can be established by 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 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.
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  - Intraoral Camera
  - Caries Detection Aid
  - Intraoral X-ray
  - Panoramic X-ray
  - Film Processors

- **Utility Room**
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  - Wet Vacuums
  - Air Compressors
  - Amalgam Separator
  - Utility Accessories
  - Utility Packages

- **Merchandise**
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  - Enzymatic Cleaner
  - Hand Sanitizer and Lotion
  - Waterline Cleaner
  - Evacuation System Cleaner
  - Imaging Accessories
  - Chemistry
  - Processor Accessories

**Corporate Headquarters**
1295 Walt Whitman Road | Melville, New York 11747-3062 | Phone: 800-247-8324 | Fax: 888-247-8481

**Western Facility**
291 Bonnie Lane, Suite 101 | Corona, CA 92880 - 2804 | Phone: 800-247-8324 | Fax: 951-898-7646

www.airtechniques.com