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DentLight

Setting New Standards through Innovation



iOCam

INSTRUCTIONS FOR USE

iOCam HD loupe Camera

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Product Information

Description and Indications for Use

iOCam HD Loupe Camera is engineered to meet the demand for capturing HD magnified videos and snapshots from the operator's line of view for enhanced patient/staff communication, patient referrals, insurance documentation, enhanced or remote professional training. It is custom designed to suit the needs in professional medical offices, dental offices, institutions, and hospitals. These operating instructions provide recommendations and guidelines for the intended use of the light. Please read them carefully.

System Components

iOCam HD Loupe Camera consists of iOCam Camera with custom thin and durable USB wire, 3.0x magnification lens, Wire Wrap, Wire Shirt Clip, a Loupe/Eyewear Mounting Adapter, USB extension cord, imaging software, instructions for use and a metal carrying case.

No.	Quantity	Description
1	1	iOCam Camera w. USB cord
2	1	3.0x Magnification Lens
3*	1	Universal Loupe/Eyewear Mounting Adapter
4	1	Wire Wrap
5	1	Wire Shirt Clip
6	1	USB Extension Cord
7	1	Imaging Software
8	1	Metal Carrying Case
9	1	Instructions for Use



*One compatible mounting adapter per kit of user's choice.

Default kit (if not specified) is Universal Clip-on.

Common optional accessories include Wifi battery pack including rechargeable battery (10), USB to micro-USB switch cord (11) and battery charger (not shown), as well as Bluetooth Foot Pedal (12).



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Product Safety Warnings and Cautions

Prior to installation and activation of the camera, please read these instructions carefully and follow safety procedures as well as the specific safety comments and recommendations presented throughout the instructions for use. The manufacturer accepts no liability for any damage resulting from the improper use of this unit and/or for any purpose other than those covered by these instructions.

1. Do not touch or open any electronics parts or circuit boards. Warranty void if seal broken.
2. Do not immerse iOCam Camera in water or solutions. Warranty void in case of liquid damage.
3. For Wi-Fi operation, charge batteries while not in use to extend the lifetime of the rechargeable battery.
   a. Do not short circuit battery.
   b. Do not store above 60 C (140 F).
   c. Dispose of unserviceable batteries according to the national rules and regulations. Batteries must not be incinerated.

Glossary of Symbols

A number of symbols are used on the device, accessories and throughout this manual, it is important that the user/operator of iOCam understands the meaning of each symbol to avoid possible injury to the operator or/and patient.

	Please read before using this device. Symbol is used to alert you to potential personal injuries and hazard.
	Waste Electrical and Electronics Equipment (WEEE)
	Attention, consult accompanying documents
	Manufacturer
	European Authorized Representative
	Date of Manufacturing
	Keep Dry
	For Licensed Dental Professional Use Only!
	DC Voltage
SN	Serial Number
REF	Product Number

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Start Up

Upon receiving your iOCam Camera, remove all components from the package and examine them. If damage is apparent, please contact your authorized DentLight distributor from whom your light was purchased.

Mounting

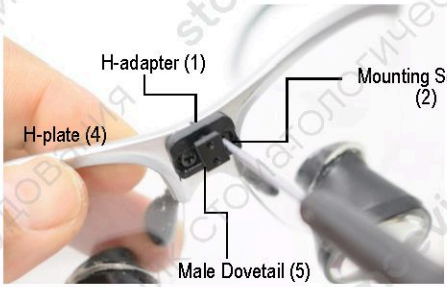
Cross reference your loupes/glass frame for the corresponding adapter. For TTL loupes, take out custom fixture/ logo plate at the center of the frame. Assemble camera using the loupe mounting adapter that you purchased with the kit. **Make sure the wire out of the camera is routed from the bottom of the camera to get the image with the same orientation as the operator**:



a) H-Adapter (see picture on the right)



H-adapter (1) mounts on frames with center mounting holes. For frames with two horizontal holes at the nose bridge, screw on Mounting Screw (2) or (3) directly or with a provided mounting plate/nut(s) placed at the back side of the frame using a Philips screw driver. Tighten the mounting screw(s). Slide the Female Dovetail adapter at the end of the lamp to the Male Dovetail adapter (5) at the frame center as shown before. Direct the light to the center of your field of vision.





b) Universal Clip-on Adapter

Universal Clip-on Adapter can be used on any frames with a relatively flat center bridge including most of the meta/titanium frames, prescription and safety glasses. Press thumb and index finger on the top front and back flanges to open the spring-loaded Clip-on. Slide into frame center then release for secure grip on the frame.

Route and bend the lamp wire to conform to the frame. Use Wire Wrap/clip to secure the lamp wire on the Frame Temple.



c) U-Adapter for Flip-up Loupes.

U-adapter is suitable for most flip-up loupes on the market. Slide-in the U-Adapter to the middle of the flip-up bar.

d) Flex-Adapter (see picture on the right)

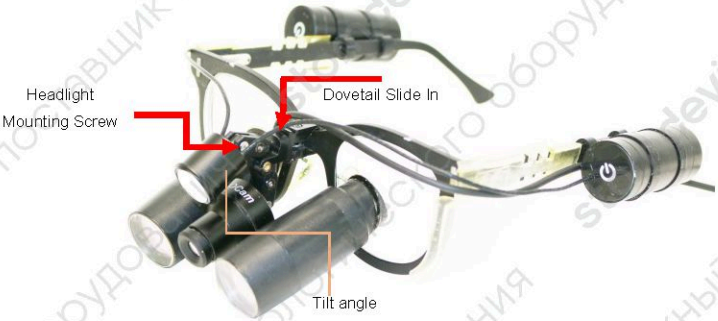
Flex-adapter (1) mounts to frames without center mounting holes and with a center bridge thickness from 4 to 10 mm. Open the variable center spacing enough to slide into the frame center bridge. Rotate and position it in place. Tighten the adjustment screw for secure mount. For thinner frames, use add-on insert (2) to shorten the center spacing for secure mount.



Flex-adapter covers DFV (Yoeman, Nike Pounce/Revolve/Curfew, Titanium, DVI, Steam, Skyview), Surgitel (Oakley), Heine Swivel and many other frames that meet the center bridge thickness range above.

e) Additional Headlight

A custom split adapter is designed to fit an additional headlight onto the camera with the regular dovetail fitting to any frames. Connect the headlight to the mounting arm through the mounting screw. Adjust the tilt angle of the light to overlap with the field of view from the focused camera image. Tighten the screw on the adapter. Route both wires on the same side of the frame temple and fix them with wire wrap.

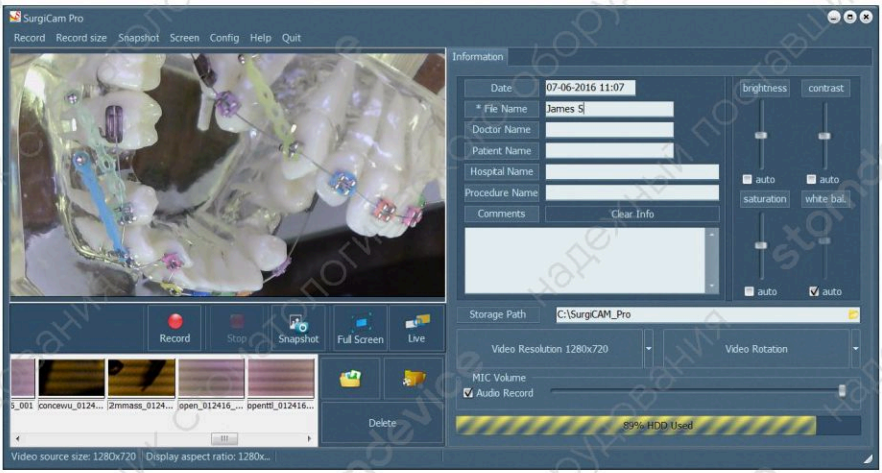


Mounting Summary: The camera mounting instructions above provides general guidance to camera assembly steps. Consult with DentLight for detailed instructions on custom loupe assembly and loupe adapters

Software Installation: For Windows operating system, install LiveCam 2-0-1 or iOCam software coming in the CD. For MAC operating system, use Quicktime directly in Mac or Parallels/ BootCamp via Windows.

General Operation: Route USB Extension Cord from the camera to your computer. Launch software SurgiCam in Windows or Quicktime in Mac. In Windows, select camera from Config -> Record Device -> Video Devices -> USB 2.0 Camera. Further select microphone if needed by Audio Device -> USB Microphone. In Mac, launch Quicktime. On the right of the record button, select the button ▼ then pick the Camera to USB 2.0 Camera and Microphone to USB Microphone if audio recording is desired. Adjust focus by turning the Magnification Lens either clockwise or counter clockwise to get a clear image within the field of view.

Adjust contrast, brightness, saturation and white balance either via auto or user settings. Select storage path to file directory of user's choice. Orient the video image via Video Rotation to the user's perspectives. For normal window operation, type in File Name, start video recording by selecting Record -> Record Start (or F5). Stop video recording by selecting Record -> Record Stop (or F4). Take still image by selecting Snapshot (or F7). For optional Foot Pedal or remote control operation, plug in foot pedal or remote control via USB or Bluetooth. USB Foot Pedal can preconfigure foot switch to the three shortcut keys: F5, F4, or F7 or a combination of all using multiple foot pedals using the Footswitch Software supplied.



Setting up optional Bluetooth Foot Pedal:

A Bluetooth foot pedal will enable ease of operation with preconfigured shortcut key to record, stop record and snapshot. If your computer is not Bluetooth enabled, purchase and install a Bluetooth Dongle as shown on the right.

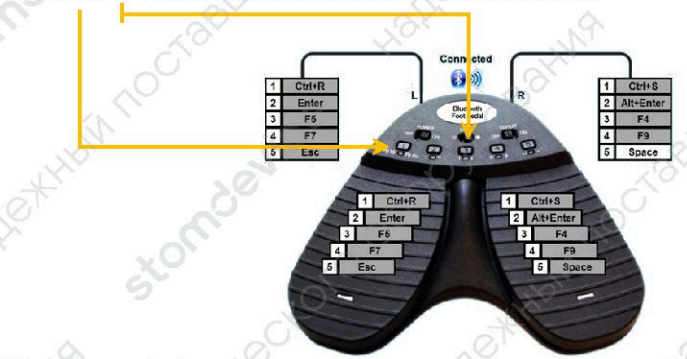


1. Place two AA batteries from the back of the foot pedal.

2. Turn on Bluetooth on your computer. Select Show Bluetooth Devices.

3. Power on foot pedal. Put it in pairing mode by pressing the rear "Bluetooth reset" button. Under Bluetooth Devices list, right click "Premium Pedal" and select "Properties": In the window that opens, "Keyboard Properties", wait a couple seconds for the services panel to load. Once it has loaded, check the box for "Drivers for keyboard, mice, etc. (HID)". Click on "OK" to close the window. Windows will load the drivers for your keyboard/pedal. After everything settles down, your pedal should be working with Windows.

4. Select 1, 2, 3, 4, or 5 for shortcut left and right foot pedals as shown below.



With Surgicam, select button 3 to start record (left pedal) and stop record (right pedal). Select button 4 for snapshot (left pedal) and full screen (right button).



Setting Up Regular Foot Pedal

For optional regular Foot Pedal operation, install Foot Switch software. Clear default setting and reconfigure short cut key with foot pedals to Control+R for start recording, Contrl+S for stop recording, and Enter for snapshot. Optionally, user can configure the foot pedal for other recording software with any other designated shortcut keys. Users can assign short cut to your preferred foot switch positions as shown below.

Changing Lens:

Users have the option to interchange the magnification lens unscrewing the lens off while replacing with another lens.

Wi-Fi Upgrades:

Optional Wireless operation is available by purchasing a Wi-Fi Battery Pack and software. Connect camera USB through a short micro-USB conversion cable. Press On/Off to start the Wi-Fi channel: ***DLxxx*** and connect your smart device to the channel. Download "**Wifi View**" App in your smart phone/ipad or install "iOCam Wifi Windows" in your desktop. Launch the App or the software after connecting the Wi-Fi channel for a minute. Use the Snapshot/Photography and Recording/Video button to document. To charge the battery, plug in the power adapter to the 3.5mm charging port on the battery. A green charging indicator lights up while charging and it goes out when fully charged. A fully charged battery will run over 2 hours nonstop.

TIPS

Wire routing –Route lamp wire to minimize stress. **DO NOT ROUTE OR BEND WIRE 90 DEGREES AT THE WIRE CONNECTOR JUNCTION!**

Make sure to install the camera wire side down for proper image orientation. Otherwise rotate screen from the software setting.

Battery – Charge Battery Pack while not in use to extend battery life.

Cleaning and Disinfecting

- Clean and disinfect Camera and Battery Pack with a soft cloth or tissue dampened with cleaning solution including: Cavicide, Lysol, Isopropyl or Ethyl alcohol and equivalent. ⚠ Do not spray, soak, or autoclave.
- Use Q-tips to clean lens and image sensor by slightly dampening the tip (do not soak) with Isopropyl alcohol. Use Dust-off or high pressure air stream to clean dust.
- Clean Soft Headband by washing machine.

Product Specification

Type of information		Specifications		
Image Resolution		1280x720		
Frame Rate (fps)		30		
Color depth		24bit		
Optical Performance (@ 16" working distance)		Field of view (inches)		Depth of field (inches)
3.0x		4x2.2		4
5.0x		2.6x1.5		1.3
Camera Size		Weight (grams)	Diameter (mm)	Length (mm)
	Imager	4	23	13
	Lens Housing	8	15	13
Image Control Functions		Auto gain control, white balance, and exposure control		

Limited Life-time WARRANTY

Register your iOCam Camera at www.dentlight.com. DentLight Inc. extends life-time warranty on the CMOS sensor and one-year warranty on the rest of the components including wire, extension cord and lens against defects in material and workmanship to the original purchaser of this product. This warranty is valid providing factory inspection indicates that any such defect was developed during normal and proper use. DentLight shall under no circumstances be liable for incidental, special, consequential damages from misuse including the following expressed or implied:

- Improper operation, accident or neglect, misuse or abuse, such as physical damage (drops, cuts, scratches, etc.);
- Liquid, water, rain, extreme humidity, ultrasonic, autoclaving;
- Tampering, improper repairs or modifications that have not been carried out by a certified Service Center;
- Use of other spare parts and accessories other than from the manufacturer such as incorrect power adapter;
- Other acts which are not the faults of DentLight.

For service, call 1-800-763-6901 (in US) to obtain RMA number. Fill out RMA form online and return as instructed. In case of a warranty claim, the complete apparatus must be returned. Alternatively, contact your dealer for service return.

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Troubleshooting Guide

Problem	Error Indication	Possible Solutions
Image not focused	Image not clear	Adjust lens by turning it clockwise or counter clockwise till the image becomes focused.
Image has fixed spot(s)	Blurred spot(s) on the image which doesn't change position when you move the camera	Clean image sensor and lens as instructed.
Software does not show image	No video capture hardware found or different image from the camera	Make sure USB is connected well. Check under Devices menu to make sure the USB 2.0 camera is selected.

Reorder and Optional Item Codes

REF	Description	REF	Description
8800110	iOCam system	8801005	Stationary mounting flex arm
8801001	Cordless wifi battery pack	8801006	3.0x magnification lens
8801002	USB extension cord	8801007	5.0x magnification lens
8801003	Foot pedal	8801008	Pico headlight adapter
8811003	Bluetooth foot pedal	8600115	Pico headlight system

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