

D620EF-CAM

Wireless Camera Set for the D620EF projector

User's Guide

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Getting Started

Federal Communications Commission (FCC) Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential installation. This equipment generates, use, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Notice: Any unauthorized change or modification that is not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Product Features

Get ready for high-quality “wireless” projection of real-object images. The D620EF-CAM wireless camera set can transmit real-time images from any corners of the home, the classroom, the meeting room, and the office to the D620EF projector. With the D620EF projector & the D620EF-CAM as an integrated solution, you will have a revolutionary projection system to project live images of any objects onto the projected screen with hassle-free setup. The D620EF-CAM wireless camera set offers the latest in real-time image capture & transfer technology, including:

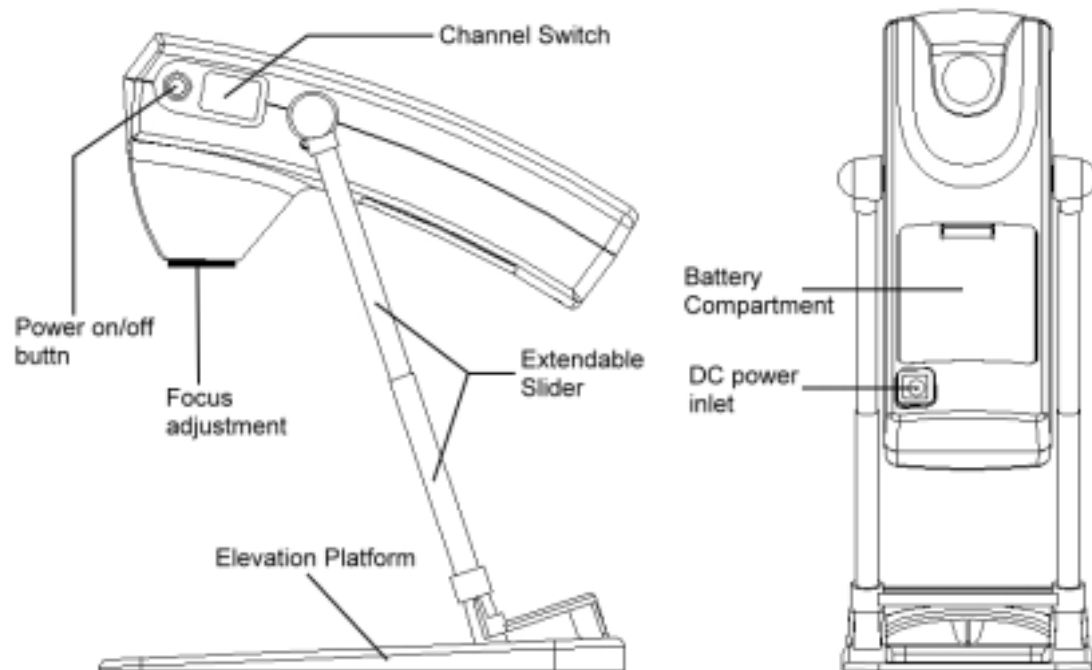
- A complete replacement for your document camera when operated with the D620EF projector
- High-quality image via Sony's high-performance HAD CCD technology
- Reliable 2.4GHz RF wireless technology for consistent transmission within 30 meters
- 16.7 million displayable colors
- Can be equipped with rechargeable batteries for easy movements
- 4 wireless channels available for switching to avoid signal interferences
- Can capture images of documents, people, and any other objects
- High performance focus lens
- Compact size

Applications

- Replacement for the common document cameras
- Replacement for *expensive* digital projectors with document cameras
- Deliver versatile presentations in which you can capture real-time images of any real-object from anywhere including data on your computer screen
- Make possible the real-time projection of facial images of the presenters and other participants in a meeting
- Easily share the projector between presenters without the fuss of plugging & unplugging the data cable
- Can broadcast outdoor activities to the projector indoors

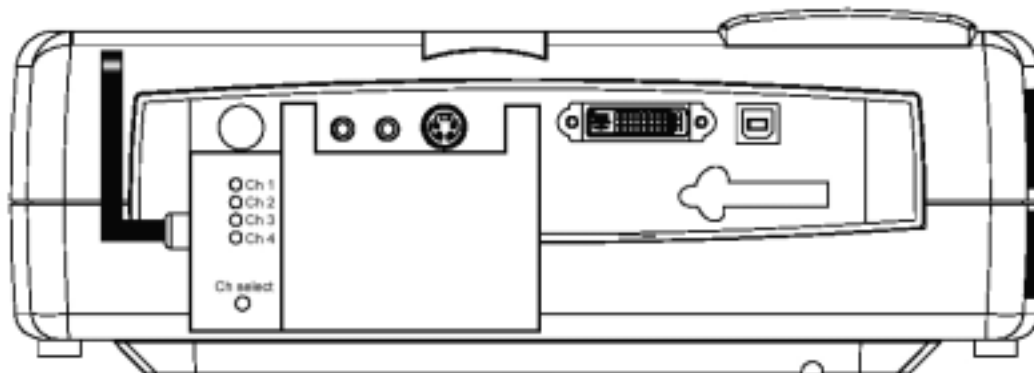
Identify the Product Controls

The Wireless Camera



Symbol	Control	Function
1	Power on/off Button	This button powers on and off the wireless camera
2	Channel Switch	This switch enables you to switch to different frequency channels.
3	Extendable slider	Extends the wireless camera to a height that allows it to view documents in an upright position.
4	Focus adjustment	This adjustment ring controls the focus on the image.
5.	DC power inlet	The adapter plugs in here to charge the batteries and provide power to the camera.
6	Elevation platform	
7	Battery Compartment	

The Wireless Receiver (mounted to the D620EF projector)



Symbol	Control	Function
1	Channel select button	This select button enables you to switch to different frequency channels.
2	Channel LEDs	When selecting a certain channel, its corresponding LED will light on.

Using the Wireless Camera set

Setting up the Wireless Camera set

Connect the Receiver module to the Projector

1. Attach the Receiver module to the two joints protruding from the D620PW projector.
2. Connect one end of the DC power cable to the D620PW projector's "Screen Control" port. Connect the other end of the DC power cable to the Receiver's "DC" port.
3. Connect one end of the RCA video cable to the D620PW projector's "Video" port. Connect the other end of the RCA video cable to the Receiver's "Video" port.

Load the batteries into the Wireless Camera

1. Open the hatch at the lower part of the wireless camera to reveal the battery storage area.
2. Load 8 rechargeable Ni-MH AA batteries into the battery storage area.
3. Close the hatch.

***DO NOT USE BATTERIES OTHER THAN AA RECHARGEABLE NI-MH (NICKEL METAL HYDRIDE) BATTERIES.**

Powering On the Wireless Camera set

1. Make sure the 8 batteries are loaded correctly into the wireless camera. If you have no batteries loaded, then please make sure the AC adapter is connected to the DC port of the wireless camera, and the adapter is plugged to an AC power outlet.
2. Press the power on/off button on the top left side of the wireless camera. If the LED light is on, then the power is on.

***If the camera does not power on after you have completed the above 2 steps, please check the "FAQ & Troubleshooting" section of the manual.**

Powering Off the Wireless Camera set

1. Press on the power on/off button on the top left side of the wireless camera. If the LED light is off, then the power is off.

***If the camera does not power off after you have completed the above step, please check the "FAQ & Troubleshooting" section of the manual.**

Switching frequency channels

1. Switch to the desired channel by using the channel switch on the wireless camera.
2. Switch to the desired channel by using the channel switch button on the Receiver.

***Make sure the channel set on the wireless camera and the receiver match. For example, channel 1 on the wireless camera, and channel 1 on the receiver.**

Recharging the batteries

1. Please make sure that the batteries in the wireless camera are "rechargeable" (common rechargeable batteries are Ni-MH, Li-Ion).
2. Please plug in the adapter to a power outlet, and connect the adapter to the wireless camera.
3. Recharge for 2 hours, and then disconnect the adapter from the wireless camera.

Adjusting the Captured Image

There are two ways to adjust the image being filmed by the wireless camera.

- Adjusting the wireless camera height
 - Adjusting the camera focus
-

Adjusting the Wireless Camera height

The wireless camera has a built-in extendable slider, which can increase its height. This height extension enables the camera to view documents at an optimal top-down view angle.

To adjust the height:

1. To increase height, hold the upper part of the camera, and lift upwards.
 2. To return to the normal height, hold the upper part of the camera, and push downwards.
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Adjusting the Camera Focus

The camera has a focus feature that allows you to focus onto the objects that is being filmed with the camera. To adjust the focus:

1. Turn the focus ring to the left or right until the projected image is clear.

Care and Maintenance

Protecting the camera

To protect your wireless camera from various types of the damages, please follow the suggestions below:

- Do not drop the wireless camera or the receiver
- Do not expose the wireless camera to rain and moisture
- Do not allow the wireless camera or the receiver to be exposed to extremely high temperatures
- Do not open the wireless camera or the receiver. If the product is not operating properly or damaged, please contact your Luxeon reseller, dealer, service provider or Luxeon's technical support team

Cleaning the lens

To clean the lens without damaging it, please follow this procedure.

1. Wipe the lens in the same single direction each time.
2. Do not wipe back and forth on the lens.

***CAUTION: Do not use a dirty cloth to wipe the lens.**

FAQ & Troubleshooting

Frequently Asked Questions (FAQ)

1. Why do I see some fading images on the projected screen when using the wireless camera?

Answer: Fading image is normal if people move around or between wireless camera and projector.

2. Is there any interference when using the wireless camera in a RC (reinforced concrete) building and in a SRC (steel reinforced concrete) building?

Answer: Basically, steel materials would absorb the RF (radio frequency) wave; as a result, the transmission range will be shorter. Therefore, users have to try to shorten the transmission distance between two units in a SRC (steel reinforced concrete) structure. However, in a RC (reinforced concrete) building, the transmission situation would be better.

3. How do I select channel to avoid interference?

Answer: You just need to choose an exact corresponding channel for the wireless camera and the receiver. If the channel you have selected is affected by interferences, then just change to other channels (the wireless camera & receiver must be on the same channel). There are 4 channels to choose from, and which are sufficient to avoid signal interferences.

4. What is the size of the batteries used in the wireless camera?

Answer: The required battery size is AA-type batteries.

5. What *rechargeable* batteries can be used to power the wireless camera?

Answer: The recommended type of batteries to be used to power the wireless camera is Ni-MH (Nickel Metal Hydride).

6. What *non-rechargeable* batteries can be used to power the wireless camera?

Answer: Luxeon prohibits the use of any non-rechargeable batteries for the wireless camera. The warranty does not cover damages incurred by using any non-rechargeable batteries.

7. My batteries are fully charged, but why is the power exhausted in less than 1 hour?

Answer: If the battery power is getting exhausted faster than the usual rate, it could be due to the following reasons.

- The rechargeable batteries could be near the end of their life cycle. Use a new set of batteries.
- One or several of the batteries could be defective, and this drains the power from

other healthy batteries. Replace the defective batteries with healthy batteries.

8. The wireless camera transfers bad quality images with horrible video noises, how can I solve this problem?

Answer: Normally, when the images have bad noises, it could be caused by the following reasons.

- Low power output from the batteries. Try recharging the current batteries or use full batteries.
- Signal interferences from cell-phones, microwave ovens, and cordless phones. Move cell-phones, microwave ovens, and cordless phones away from the receiver and transmitter.
- People & objects blocking the direct transmission path between the transmitter and receiver. Try to avoid having too many obstacles in between the wireless camera & the receiver during transmission.

9. How to orient the antennas for optimal performance?

Answer: To maximize operation range, try to minimize the number of obstacles between the wireless camera and receiver. Moreover, place the units as high as possible to avoid any possible interference due to people moving between transmitter and receiver. The antennas are designed to be able to turn around but have limited rotation in either clockwise or counter-clockwise directions. As every environment is different, user may need to rotate the antennas slightly to secure the best reception.

10. Can I use a different adapter to power the wireless camera?

Answer: Luxeon strictly advises that you use the adapter that is shipped with the wireless camera otherwise the warranty does not cover damages incurred by using a different adapter. In the case that a new adapter is required, please call your dealer or Luxeon's Technical Support Team.

Troubleshooting

If you find problems after installations, please refer to the following table. It will help you solve the problems. If you cannot find any solutions in this section, please contact Luxeon's Technical Support Team.

Problems	Solutions
No Images	1. Check if the batteries are loaded in the wireless camera or if the adapter is connected to the wireless camera. 2. Check the power on/off switch on the wireless camera. The

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	LED light will be on if the wireless camera is on. 3. Check if the projector is connected to a power source. 4. Check if the projector is switched on. 5. Check if the wireless camera and the receiver is set to the same channel. 6. Check all cable connections
Interference: Noisy images and sound	1. Adjust the antenna orientations on the wireless camera & the receiver. (See details on FAQ 9 "How to orient the antennas for optimal performance") 2. Set the wireless camera and the receiver is to the same channel. 3. Change to a different channel for both wireless camera and receiver (make sure both are using the same channel). 4. Turn off any move any microwave oven away from the receiver or the wireless camera. 5. Turn off or move any cell-phone away from the receiver or the wireless camera. 6. Turn off or move any cordless phone away from the receiver or the wireless camera.
The image is blurred	1. Adjust the focus on the wireless camera. 2. Adjust the focus on the projector. 3. Clean the lens on the wireless camera. 4. Clean the lens on the projector. 5. The distance between the camera and the object being filmed is too far.
The image is dark	1. The brightness level around the camera may be low. Use the camera in environments with good light condition.

Specifications

Wireless Camera

ITEM	SPECIFICATIONS	
Image pick-up Device	SONY COLOR 1/4" HAD CCD sensor	
	NTSC	PAL
Effective Picture Elements	510x492(H x V) Approx. 250K pixels	500x582(H x V) Approx. 290K pixels
Len Spec.	4.3mm F2.0 board lens	
TX Frequency	4 channels (2414,2432,2450,2468MHz)	
Modulation Type	FM	
Antenna Port	50Ω (Ohms) R-SMA connector	
Camera Power Supply	DC 12V/500mA	
Battery	AA-Type Ni-MH x 8	
Operating Temp.	0°C ~ 50°C	

Wireless Receiver

ITEM	SPECIFICATION
Frequency	4 channels (2414,2432,2450,2468MHz)
Demodulation Type	FM
Frequency Stability	±100KHz
Supply Voltage	5V
Current Consumption	150mA
Antenna Port	50Ω PCB Track
Baseband Interface	Half Pitch Pin Header
Operating Temperature	0~60°C