

# DLP Projector

## LV-HD420/LV-X420

### ■ Main Features

#### Outline of product

The LV-HD420 and LD-X420 are a part of the LV Series projectors featuring a maximum brightness of 4200 lumens from its compact body. Offering two different resolutions to choose from, these DLP projectors can be used in a variety of scenes.

#### 1. Maximum brightness of 4200 lumens

These are single-chip DLP projectors that offer a brightness of 4200 lumens, which is considered a high brightness in portable category projectors.

#### 2. Two models with different resolutions – 1080p and XGA

Native resolutions for the models are: 1920 x 1080 dots for the LV-HD420 and 1024 x 768 dots for the LV-X420. The two different resolution models enable users to choose from a variety of applications and scenes.

#### 3. An array of interfaces

Video signals can be received from different sources such as PC and Blu-ray players as these projectors provide a range of input terminals from mini Dsub 15 to HDMI and RCA.

## ■ Product specifications

(Specifications and appearance may change without prior notice for reasons such as manufacturing and changes of components.)

<b>Used power</b>	AC100 - 240 V 50Hz/60Hz
<b>Consumed power</b>	Standard: 410W / Quiet: 320W, Standby Low: 2.0W / Standby Off: 0.5W
<b>Picture element</b>	<LV-HD420> 0.65-type DMD device (aspect ratio 16:9) Number of pixels: 2073600 pixels (1920 dots x 1080 dots, 1080, Full HD) <LV-X420 > 0.55-type DMD device (aspect ratio 4:3) Number of pixels: 786432 pixels (1024 dots x 768 dots, XGA)
<b>Projection lens</b>	Varifocal lens <LV- HD420 > F value: 2.42 – 2.97, Focus distance: 20.7 – 31.1mm, 100-inch projection distance: 3.08 – 4.63m, Zoom ratio: 1.5 x (manual), Focus: manual <LV- X420 > F value: 2.42 – 2.97, Focus distance: 20.7 – 31.1mm, 100-inch projection distance: 3.72 – 5.59m, Zoom ratio: 1.5 x (manual), Focus: manual
<b>Light source lamp</b>	Ultra-high pressure mercury lamp
<b>Light source output</b>	Standard : 310W/Quiet:245W*1
<b>Projected image size</b>	<LV-HD420> W: 40-inch – 320-inch (1.23-9.85 m)/T: 30-inch – 210-inch (1.39–9.72 m) <LV-X420> W: 40-inch – 260-inch (1.49– 9.67m)/T: 30-inch – 170-inch (1.68– 9.50 m)
<b>Light output*</b>	Standard: 4200lm/Quiet: 3360lm*1
<b>Peripheral contrast*</b>	80%
<b>Contrast ratio*</b>	<LV-HD420> 8,000:1 <LV-X420> 10,000:1
<b>Input signal resolution</b>	WUXGA to VGA
<b>Corresponding scanning frequency</b>	See "List of supported signals"
<b>Lens shift</b>	<LV-HD420> 65%, fixed; <LV-X420> 64%, fixed
<b>Keystone correction range</b>	VH ±30°
<b>Projection method</b>	Front/Rear/Ceiling/Rear Ceiling
<b>Video signal</b>	Analog PC input: WUXGA/WSXGA+/UXGA/SXGA+/WXGA+/WXGA/SXGA/XGA/SVGA/VGA/MAC MHL input: 1080p/1080i/720p/576p/480p/576i/480i Component video input: 1080p/1080i/720p/576p/576i/480p/480i Video input/S-Video): NTSC/PAL/SECAM/NTSC4.43/PAL-M/PAL-N
<b>Connection terminal</b>	HDMI/MHL: Digital PC / Digital video/MHL input HDMI: Digital PC / Digital video input Mini D-sub 15 x2: Analog PC / Component video input Mini D-sub 15: Analog PC / Component video output Mini DIN4: S-video input RCA x3: Video input/Audio-L/Audio-R Mini jack x2: Audio input x 1, Audio output x 1 Dsub9: RS-232 connection RJ-45: Network connection (100BASE-TX / 10BASE-T) USB type B: Service port USB type A: Terminal for power feeding (1.5 A)
<b>Cabinet</b>	Molded plastic
<b>External dimensions</b>	Width 314 mm, Height 112 mm, Depth 231 mm
<b>Weight</b>	Approx. 3.4 kg
<b>Usage environment</b>	5°C - 40°C
<b>Supplied remote control</b>	Requires CR2025, Operation distance (for wireless): Approx. 5m (receiver front ±15°)

\*1: Quiet figure is a calculated value thus not guaranteed.

Note: This indicates the overall average value of the product at the time of shipping, and it is listed in accordance with pattern for data projectors JIS X 6911:2003. The measurement method and measurement conditions are based on the Annex.

Accessories ● Power cord ... 1 ● Computer connection cable (Mini Dsub 15-pin) ... 1  
● Wireless remote connector (LV-RC11) ... 1 ● CR2025 battery ... 1

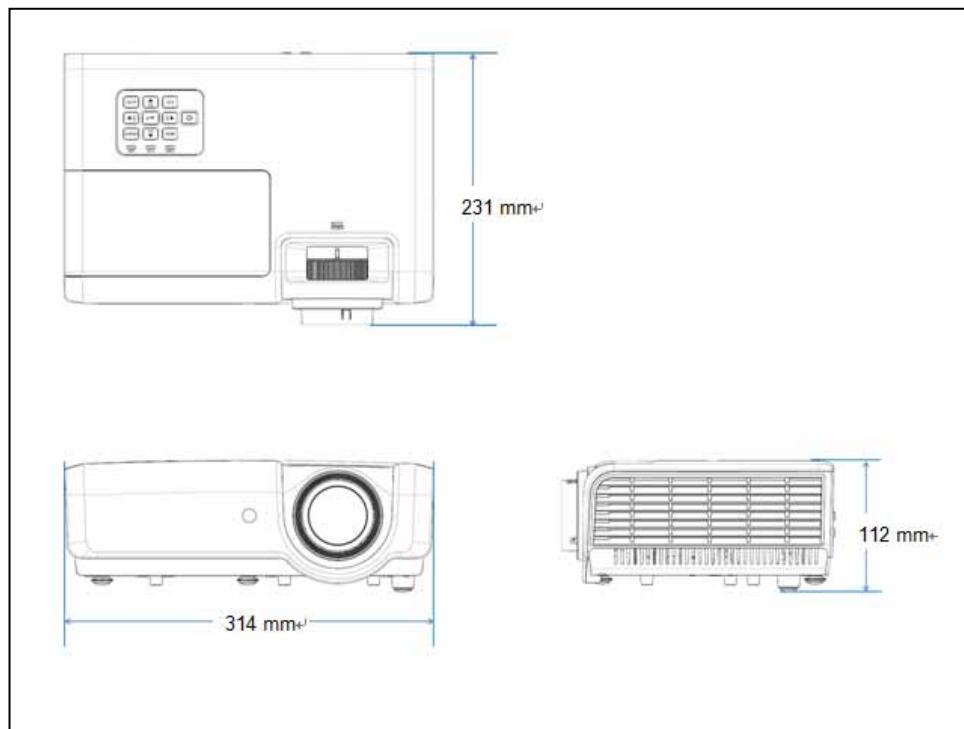
Sold separately ● Wireless remote connector (LV-RC11)

Replacement products ● Replacement-use lamp [Recommended replacement time\*; Standard 2500H/Quiet 3000H] (LV-P42)

\* The recommended replacement time does not guarantee the amount of the lamp life; It is when the lamp has a 50% survival rate and can maintain a 50% light retention ratio.

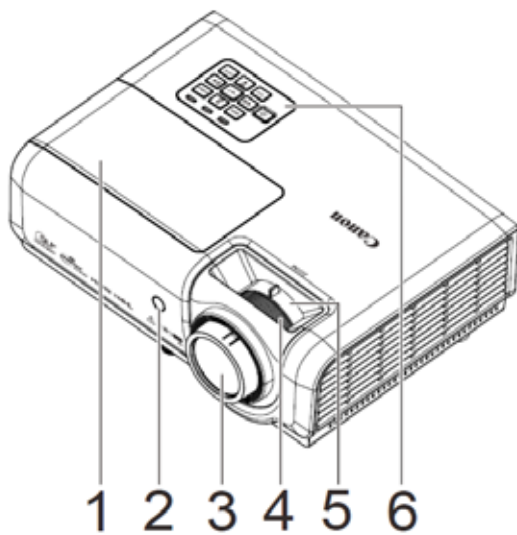
## ■ External dimensions diagram

(Unit: mm)



(Note) The above diagrams are not drawn to scale.

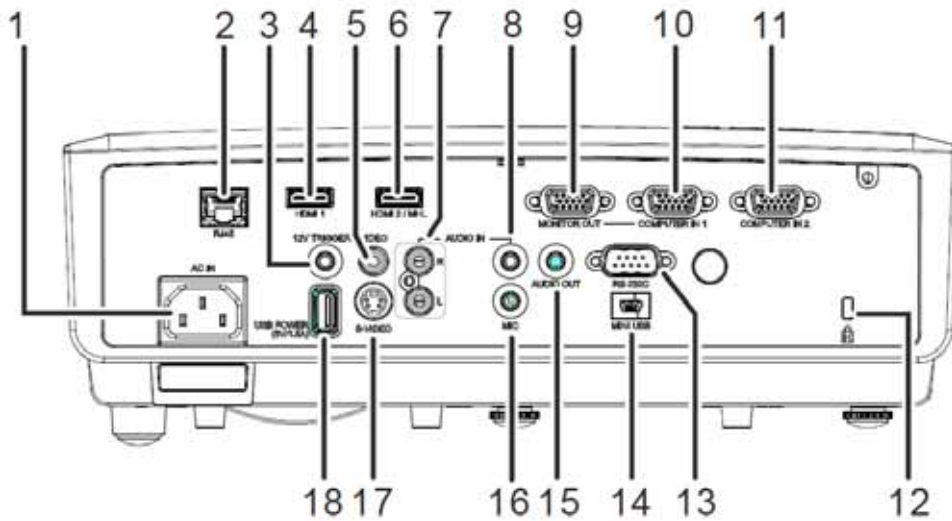
## ■ Part Names



1. Lamp Cover
2. IR Receiver (Also on the rear side)
3. Lens
4. Focus Ring
5. Zoom Ring
6. Function Keys

<Terminals>

(Unit: mm)

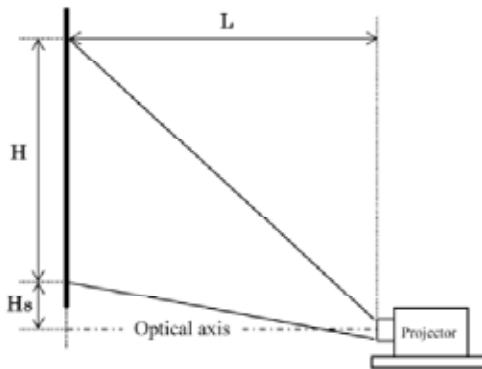


1. AC IN	Power Input
2. RJ-45	Network connection
3. Mini jack	12V output (trigger for screen operation)
4. HDMI	HDMI input
5. RCA	Video input
6. HDMI/MHL	HDMI/MHL input
7. 2RCA	Audio input(L/R)
8. Mini jack	Audio input(*1)
9. Mini Dsub15	Analog PC output
10. Mini Dsub15	Analog PC / Component input
11. Mini Dsub15	Analog PC / Component input
12. Antitheft lock hole	Connects antitheft wire
13. Dsub9	RS232C connection
14. USB mini B	Service port
15. Mini jack	Audio output
16. Mini jack	Microphone input(*1)
17. Mini DIN4	S-video input
18. USB type A	Power Supply

\*1 Either the audio or microphone input can be enabled at a time.

## Throw distance and image size

Image size can be adjusted manually within a zoom range of 1.5x using the zoom ring. The projector is equipped with a varifocal lens, so adjusting the zoom will also change the focus. When focus is adjusted, the image size will change slightly; thus, the user should adjust zoom and focus alternately in order to achieve the desired image size.



“L” in the diagram (left) represents throw distance. The same image size can be projected with the projector positioned anywhere between the shortest distance L(W) and the longest distance L(T). Here (W) indicates wide, and (T) stands for tele.

H is the vertical height of the image, and Hs indicates the distance between the optical axis of the lens and the bottom edge of the image.

For this projector the relationship between H and Hs is fixed:

LV-HD420 H:Hs=100:15

LV-X420 H:Hs=100:14

Image size and throw distance are as indicated below.

**LV-HD420**

Image size (16:9)			Projection distance	
Type	Width	Height	Wide lens	Tele lens
30	66	37	-	1.39
40	89	50	1.23	1.85
60	133	75	1.85	2.78
80	177	100	2.46	3.70
100	221	125	3.08	4.63
120	266	149	3.69	5.55
140	310	174	4.31	6.48
160	354	199	4.92	7.40
180	398	224	5.54	8.33
200	443	249	6.15	9.25
210	465	262	6.46	9.72
220	487	274	6.77	-
240	531	299	7.39	-
260	576	324	8.00	-
280	620	349	8.62	-
300	664	374	9.23	-
320	708	398	9.85	-

**LV-X420**

(Unit: m)

Image size (4:3)			Projection distance	
Type	Width	Height	Wide lens	Tele lens
30	61	46	-	1.68
40	81	61	1.49	2.24
60	122	91	2.23	3.35
80	163	122	2.97	4.47
100	203	152	3.72	5.59
120	244	183	4.46	6.71
140	284	213	5.21	7.82
160	325	244	5.95	8.94
170	345	249	6.32	9.50
180	366	274	6.69	-
200	406	305	7.44	-
220	447	335	8.18	-
230	467	351	8.55	-
240	488	366	8.92	-
260	528	396	9.67	-

Note: Figures in the above chart are approximate.

## ■ List of supported signals

The video signals that can be input in this product are described in the table below.

● Digital PC				● Digital video				
Signal format	Resolution	Horizontal sync (kHz)	Vertical sync (Hz)	Composite/S-Video	Component	RGB	DVI/HDMI	
NTSC	-	15.734	60.0	Yes	-	-	-	
PAL/SECAM		15.625	50.0	Yes	-	-	-	
VESA	720 x 400* <sup>1</sup>	37.9	85.0	-	-	Yes	Yes	
	640 x 480	31.5	60.0	-	-	Yes	Yes	
	640 x 480	37.9	72.8	-	-	Yes	Yes	
	640 x 480	37.5	75.0	-	-	Yes	Yes	
	640 x 480	43.3	85.0	-	-	Yes	Yes	
	800 x 600	35.2	56.3	-	-	Yes	Yes	
	800 x 600	37.9	60.3	-	-	Yes	Yes	
	800 x 600	46.9	75.0	-	-	Yes	Yes	
	800 x 600	48.1	72.2	-	-	Yes	Yes	
	800 x 600	53.7	85.1	-	-	Yes	Yes	
	800 x 600	76.3	120.0	-	-	Yes	Yes	
	1024 x 768	48.4	60.0	-	-	Yes	Yes	
	1024 x 768	56.5	70.1	-	-	Yes	Yes	
	1024 x 768	60.0	75.0	-	-	Yes	Yes	
	1024 x 768	68.7	85.0	-	-	Yes	Yes	
	1024 x 768	97.6	120.0	-	-	Yes	Yes	
	1280 x 720	45.0	60.0	-	-	Yes	Yes	
	1280 x 720	91.5	119.9	-	-	Yes	Yes	
	1280 x 800	49.7	59.8	-	-	Yes	Yes	
	1280 x 800	62.8	74.9	-	-	Yes	Yes	
	1280 x 800	71.6	84.8	-	-	Yes	Yes	
	1280 x 800	101.6	119.9	-	-	Yes	Yes	
	1280 x 1024	64.0	60.0	-	-	Yes	Yes	
	1280 x 1024	80.0	75.0	-	-	Yes	Yes	
	1280 x 1024	91.1	85.0	-	-	Yes	Yes	
	1280 x 960	60.0	60.0	-	-	Yes	Yes	
	1280 x 960	85.9	85.0	-	-	Yes	Yes	
	1400 x 1050	65.3	60.0	-	-	Yes	Yes	
	1440 x 900	70.6	75.0	-	-	Yes	Yes	
	1440 x 900	55.9	60.0	-	-	Yes	Yes	
		1600 x 1200* <sup>2</sup>	75.0	60.0	-	-	Yes	Yes
		1600 x 1050* <sup>2</sup>	64.7	60.0	-	-	Yes	Yes
	1680 x 1050* <sup>2</sup>	65.3	60.0	-	-	Yes	Yes	
	1920 x 1200* <sup>2</sup>	74.0	60.0	-	-	Yes	Yes	
Apple Mac	640 x 480	35.0	66.7	-	-	Yes	Yes	
	832 x 624	49.7	74.5	-	-	Yes	Yes	
	1024 x 768	60.2	74.9	-	-	Yes	Yes	
	1152 x 870* <sup>2</sup>	68.7	75.1	-	-	Yes	Yes	
SDTV	480i* <sup>2</sup>	15.734	60.0	-	Yes	-	Yes	
	567i* <sup>2</sup>	15.625	50.0	-	Yes	-	Yes	
EDTV	576p	31.3	50.0	-	Yes	-	Yes	
	480p	31.5	60.0	-	Yes	-	Yes	
HDTV	720p	37.5	50.0	-	Yes	-	Yes	
	720p	45.0	60.0	-	Yes	-	Yes	
	1080i* <sup>2</sup>	33.8	60.0	-	Yes	-	Yes	
	1080i* <sup>2</sup>	28.1	50.0	-	Yes	-	Yes	
	1080p* <sup>2</sup>	67.5	60.0	-	Yes	-	Yes	
	1080p* <sup>2</sup>	56.3	50.0	-	Yes	-	Yes	
	1080p* <sup>2</sup>	27.0	24.0	-	Yes	-	Yes	
	1080p* <sup>2</sup>	28.0	25.0	-	Yes	-	Yes	
	1080p* <sup>2</sup>	33.7	30.0	-	Yes	-	Yes	

Yes: Compatible frequency —: Incompatible frequency

Notes: Native resolution of LV-HD420 is 1920 x 1080. Native resolution of LV-X420 is 1024 x 768.

Resolution other than native resolution will appear when the text or line size is irregular. DVD player is used as a primary verification tool for HDTV timing, and VG828 for the second verification tool.

\*1: Only displayable is indicated (in 4:3 only).

\*2: Signals of grayish cell may have a little noise.

## ■ Accessories

Projector Remote Controller	LV-RC11	Power source: DC 3.0V (uses CR2025 battery) Operating range: Distance of approx. 5 m from the projector; angle of $\pm 15^\circ$ in any direction from directly in front of the infrared remote receiver.
Carrying Case	LV-SC02	Soft carrying case for the LV Series projectors
Replacement Lamp	LV-LP42	Ultra high-pressure mercury lamp Recommended replacement time* <sup>1</sup> : 2500H/3000H (Lamp mode: Normal/Eco)

\*1: The recommended replacement time does not guarantee the amount of the lamp life; It is when the lamp has a 50% survival rate and can maintain a 50% light retention ratio.

## ■ Precautions when installing/using

High wattage lamps are used in the projector, and it becomes very hot. Take care as follows.

- (1) This projector produces intense light from the projection lens. Do not stare directly into the lens, otherwise damage to eyes could result.
- (2) Do not set anything on top of the projector. Also do not project with projectors stacked directly on top of each other.
- (3) Do not place any object in front of the lens while the projector is in use as focused light projected to an object for a prolonged time may result in a fire.
- (4) Do not block the intake and exhaust vents of the projector.  
Also, install the projector so that the intake and exhaust vents are not subjected directly to warm air and cold air of air conditioning.
- (5) The projector uses high-pressure mercury lamp for its light source, which may deteriorate or reduce luminance owing to the characteristics and extensive use of the mercury lamp. Prolonged usage may also lead to breakage of the lamp. In such instances, immediately replace the lamp to a new lamp. Contact a local dealer for service and replacement of the lamp; such maintenance should be conducted at a service center by a qualified personnel.
- (6) When operating the projector inserted in a box, ensure that the ambient temperature within the box during operation is within the range of 5°C to 40°C. Also, do not block the intake and exhaust vents. Even when the ambient temperature is 40°C or lower, the protection circuit of the projector may function and shut down the projector due to internal retention of the exhaust heat. Sufficiently consider the ambient temperature environment when installing the projector.
- (7) Set the Fan Control mode (High altitude mode) to ON when using the projector in high altitudes (1,500 meters or more above sea level) where the atmospheric pressure is low.