



PX9210 / PU9220 / PU9220+

Digital Projector Installation Guide



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Product information

Type: DLP™ Technology

Dimensions (W x H x D): 431 x 167 x 320.5 mm

Weight: 8.5 kg (18.7 lbs)

Specifications	PX9210	PU9220/PU9220+
DMD size	0.7"	0.67"
Native resolution	XGA (1024 x 768)	WUXGA (1920 x 1200)
Aspect ratio	4:3	16:10
Brightness	6000 Lumens	5000 Lumens
Lamp Wattage	370W	
Power consumption(Max)	480W	

Lens information

Model Name	Lens Type	BenQ Part Number	Optical Spec	Screen Size
LS2ST3	Wide fix	5JJDH37.001	F=2.5, f=11.5mm	80"~180"
LS2ST1	Wide zoom	5JJDH37.011	F=2.05~2.27, f=16.64~19.5 mm	80"~350"
LS2SD	Standard	5JJDH37.021	F=2.46~2.56, f=22.8~28.5mm	80"~210"
LS2LT1	Semi Long	5JJDH37.031	F=2.5~3.1, f=28.5~42.75mm	80"~480"
LS2LT2	Long zoom I	5JJDH37.041	F=2.2~2.5, f=44.5~74.19mm	80"~300"

Notice (when edge blending)

- To avoid the image shaking or some pixels in the display may be misaligned, do not use the projector in the following location:
 - In a building close to a construction site.
 - In a room where an air conditioner unit is working and it vibrates.
 - In a place where the temperature changes dramatically that may cause thermal contraction.
- Before making any adjustment, leave the projector lit for at least 45 minutes after its lamp is turned on. This allows the internal temperature of the projector to stabilize.

Product information

PX9210 Formulas:

Definitions:

W = Image Width

H = Image Height (size)

C = Throw distance

4:3 Screen Formulas:

$W = H \times 4/3$

$H = W \times 3/4$

Diagonal = $W \times 5/4$

PX9210

Part Number						5JJDH37.001		5JJDH37.011				5JJDH37.021				5JJDH37.031			
Throw Ratio						LS2ST3 (Wide Fix Lens)		LS2ST1 (Wide Zoom Lens)				LS2SD (Standard Lens)				LS2LT1 (Semi Long Lens)			
						0.8		1.14-1.35				1.6-2.0				2.0-3.0			
Diagonal		Width		Height (B)		N/A		Wide		Tele		Wide		Tele		Wide		Tele	
(inch)	(m)	(inch)	(m)	(inch)	(m)	(inch)	(m)	(inch)	(m)	(inch)	(m)	(inch)	(m)	(inch)	(m)	(inch)	(m)	(inch)	(m)
80	2.03	64	1.63	48	1.22	51	1.3	73	1.85	86	2.18	102	2.6	128	3.25	128	3.25	192	4.88
100	2.54	80	2.03	60	1.52	64	1.63	91	2.32	107	2.72	128	3.25	160	4.06	160	4.06	240	6.1
120	3.05	96	2.44	72	1.83	77	1.95	109	2.78	129	3.27	154	3.9	192	4.88	192	4.88	288	7.32
150	3.81	120	3.05	90	2.29	96	2.44	137	3.47	161	4.08	192	4.88	240	6.1	240	6.1	360	9.14
200	5.08	160	4.06	120	3.05	-	-	182	4.63	214	5.45	256	6.5	320	8.13	320	8.13	480	12.19
300	7.62	240	6.1	180	4.57	-	-	274	6.95	322	8.17	-	-	-	-	480	12.19	720	18.29
400	10.16	320	8.13	240	6.1	-	-	-	-	-	-	-	-	-	-	640	16.26	960	24.38
500	12.7	400	10.16	300	7.62	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Part Number						5JJDH37.041			
Throw Ratio						LS2LT2 (Long Zoom Lens)			
						3.11-5.18			
Diagonal		Width		Height (B)		Wide		Tele	
(inch)	(m)	(inch)	(m)	(inch)	(m)	(inch)	(m)	(inch)	(m)
80	2.03	64	1.63	48	1.22	199	5.06	332	8.42
100	2.54	80	2.03	60	1.52	249	6.32	414	10.53
120	3.05	96	2.44	72	1.83	299	7.58	497	12.63
150	3.81	120	3.05	90	2.29	373	9.48	622	15.79
200	5.08	160	4.06	120	3.05	498	12.64	829	21.05
300	7.62	240	6.1	180	4.57	746	18.96	1243	31.58
400	10.16	320	8.13	240	6.1	-	-	-	-
500	12.7	400	10.16	300	7.62	-	-	-	-

PU9220/PU9220+ Formulas:

Definitions:

W = Image Width

H = Image Height (size)

C = Throw distance

16:10 Screen Formulas: $W = H \times 16/10$ $H = W \times 10/16$ Screen Diagonal = $W \times 18.868/16$ **PU9220/PU9220+**

Part Number						5JJDH37.001				5JJDH37.011				5JJDH37.021				5JJDH37.031			
						LS2ST3 (Wide Fix Lens)				LS2ST1 (Wide Zoom Lens)				LS2SD (Standard Lens)				LS2LT1 (Semi Long Lens)			
Throw Ratio						0.77ST				1.1~1.3				1.54~1.93				1.93~2.9			
Diagonal		Width		Height (B)		N/A		Wide		Tele		Wide		Tele		Wide		Tele			
(inch)	(m)	(inch)	(m)	(inch)	(m)	(inch)	(m)	(inch)	(m)	(inch)	(m)	(inch)	(m)	(inch)	(m)	(inch)	(m)	(inch)	(m)	(inch)	(m)
80	2.03	68	1.72	42	1.08	52	1.33	75	1.9	88	2.24	104	2.65	131	3.33	131	3.33	197	5		
100	2.54	85	2.15	53	1.35	65	1.66	93	2.37	110	2.8	131	3.32	164	4.16	164	4.16	246	6.25		
120	3.05	102	2.58	64	1.62	78	1.99	112	2.84	132	3.36	157	3.98	196	4.99	196	4.99	295	7.5		
150	3.81	127	3.23	79	2.02	98	2.49	140	3.55	165	4.2	196	4.98	245	6.24	245	6.24	369	9.37		
200	5.08	170	4.31	106	2.69	-	-	187	4.74	220	5.6	261	6.63	327	8.31	327	8.31	492	12.49		
300	7.62	254	6.46	159	4.04	-	-	280	7.11	331	8.4	-	-	-	-	491	12.47	738	18.74		
400	10.16	339	8.62	212	5.38	-	-	-	-	-	-	-	-	-	-	655	16.63	984	24.99		
500	12.7	424	10.77	265	6.73	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

Part Number						5JJDH37.041			
						LS2LT2 (Long Zoom Lens)			
Throw Ratio						3~5			
Diagonal		Width		Height (B)		Wide		Tele	
(inch)	(m)	(inch)	(m)	(inch)	(m)	(inch)	(m)	(inch)	(m)
80	2.03	68	1.72	42	1.08	204	5.17	339	8.62
100	2.54	85	2.15	53	1.35	254	6.46	424	10.77
120	3.05	102	2.58	64	1.62	305	7.75	509	12.92
150	3.81	127	3.23	79	2.02	382	9.69	636	16.15
200	5.08	170	4.31	106	2.69	509	12.92	848	21.54
300	7.62	254	6.46	159	4.04	763	19.39	1272	32.31
400	10.16	339	8.62	212	5.38	-	-	-	-
500	12.7	424	10.77	265	6.73	-	-	-	-

**Note:**

- Ceiling installation must be done by a qualified professional. Contact your dealer for more information. It is not recommended you install the projector yourself.
- Only use the projector on a solid, level surface. Serious injury and damage can occur if the projector is dropped.
- Do not use the projector in an environment where extreme temperature occurs. The projector must be used at temperatures between 41 degrees Fahrenheit (5 degrees Celsius) and 104 degrees Fahrenheit (40 degrees Celsius).
- Screen damage will occur if the projector is exposed to moisture, dust or smoke.
- Do not cover the vents on the projector. Proper ventilation is required to dissipate heat. Damage to the projector will occur if the vents are covered.

Lens shift range

Lens shift adjustable range

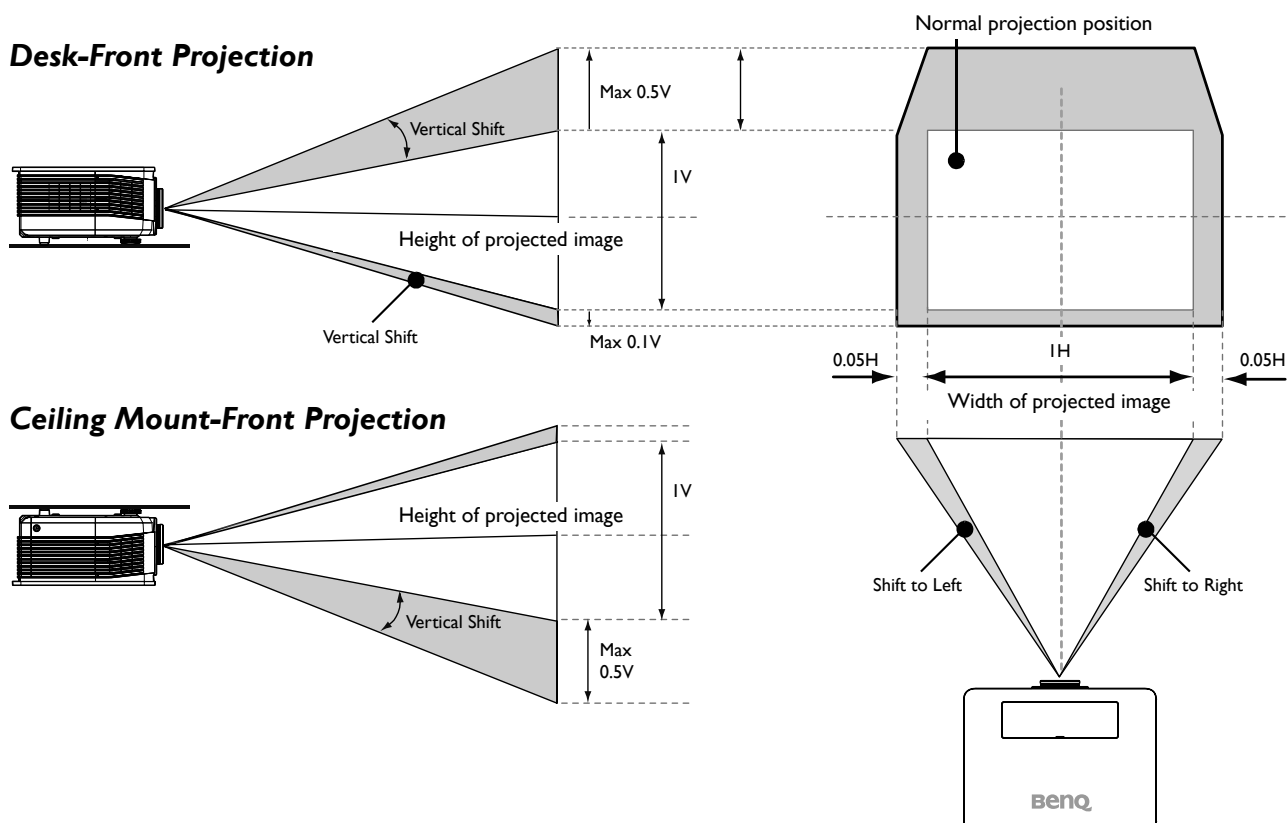
The adjustable range for lens shift is tabulated below and subject to the conditions listed.

Note:

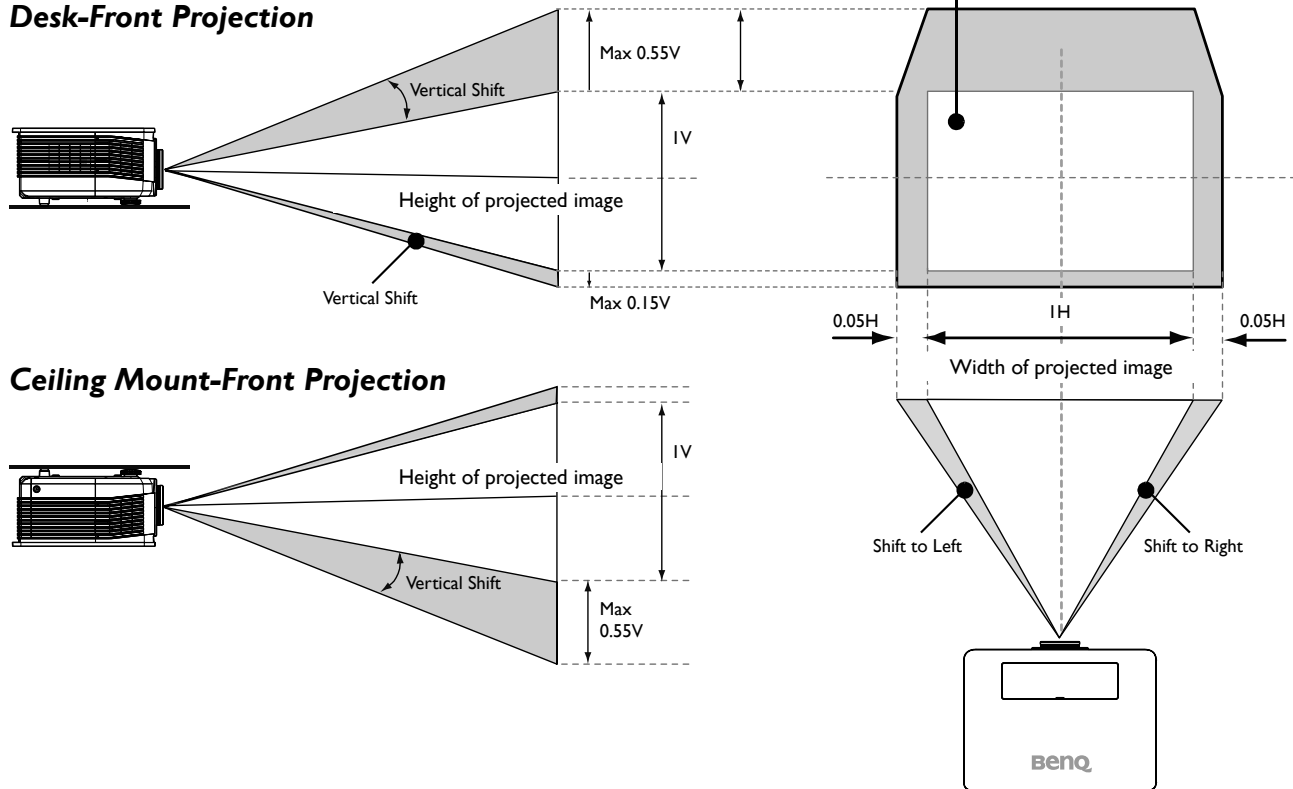
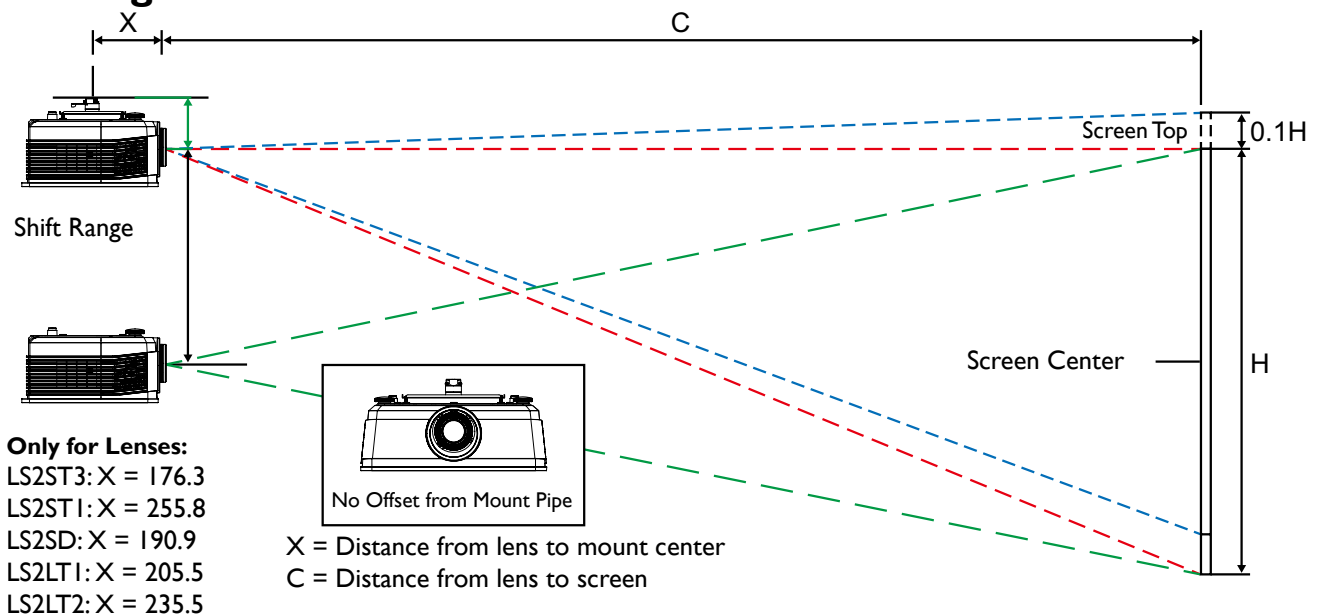
The drawings below apply to the standard lens only.

XGA

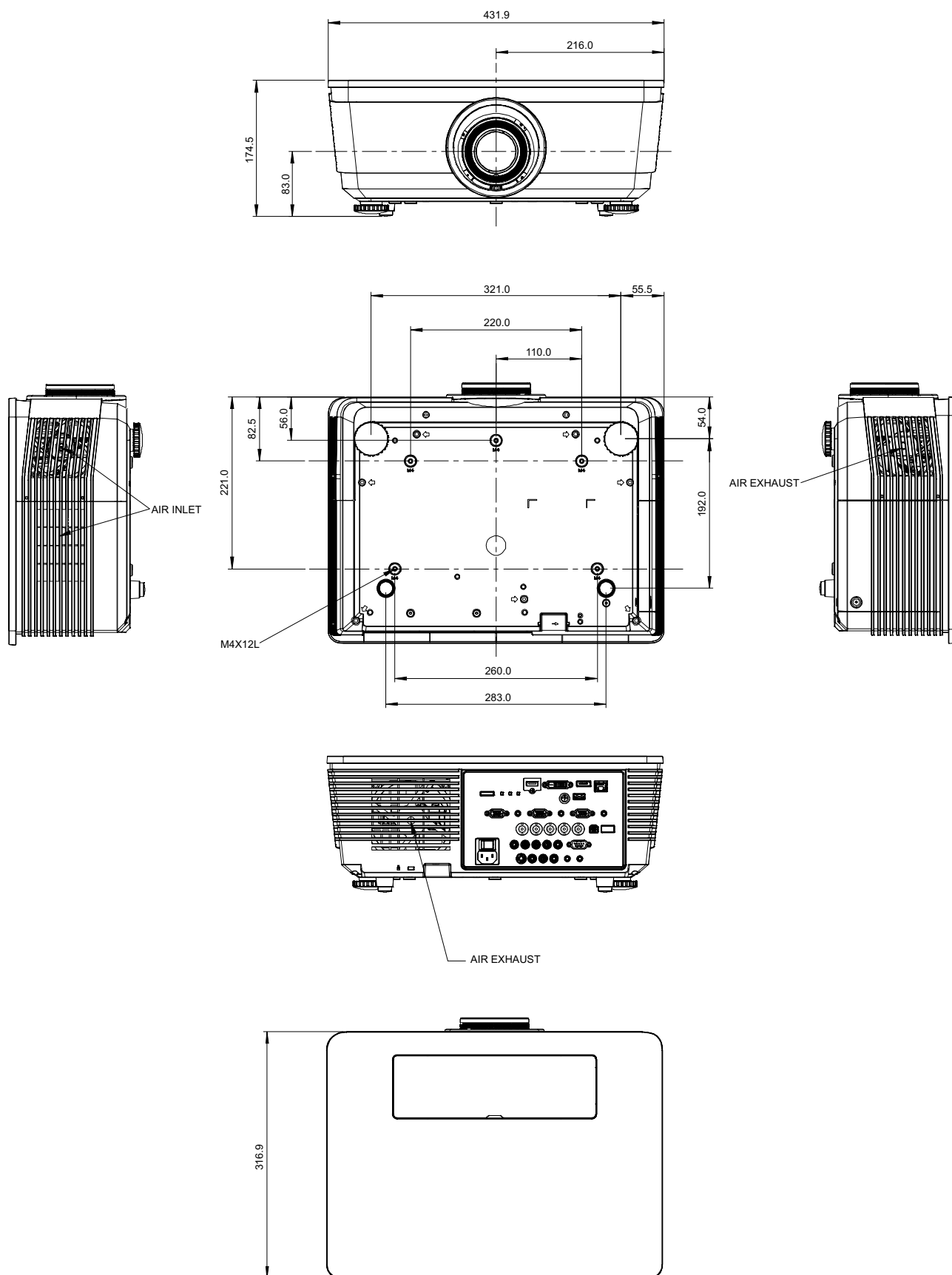
Desk-Front Projection



WUXGA

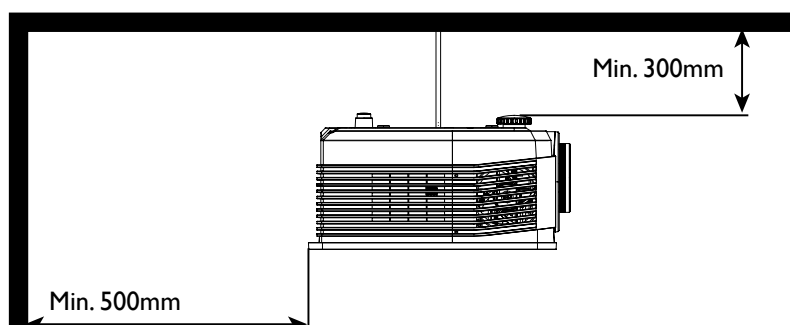
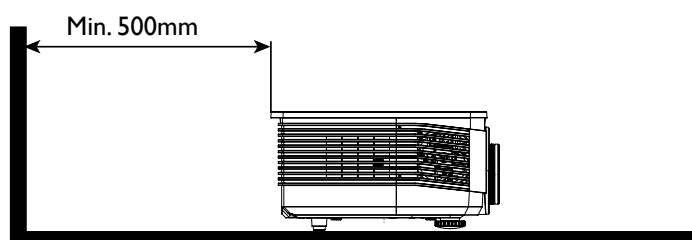
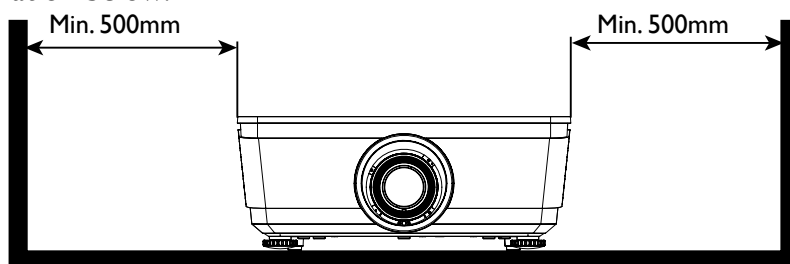
Desk-Front Projection**Ceiling Mount Installation**

Projector dimensions



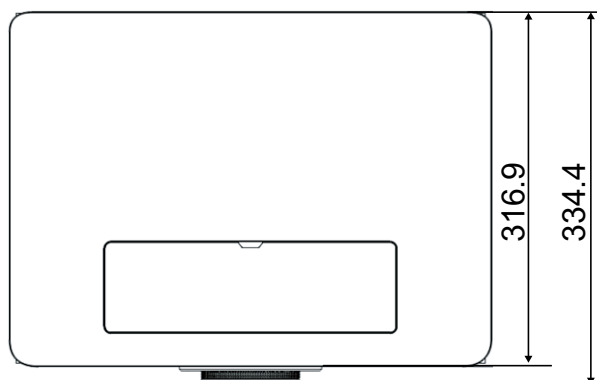
Clearance around the exhaust vent

For proper ventilation of the projector, make sure to leave some space around the projector as shown in the illustration below:



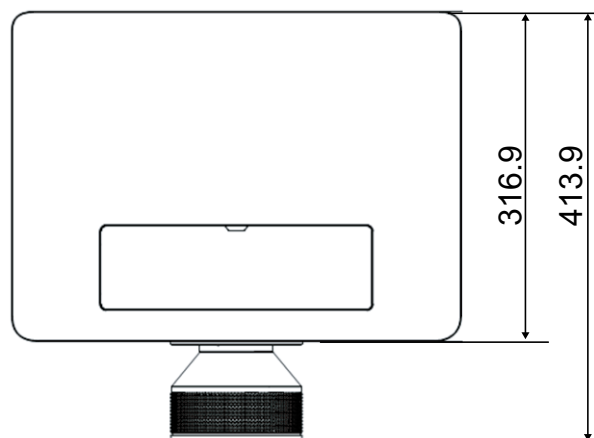
Lens dimensions

Optional Lens (Wide Fix: LS2ST3)



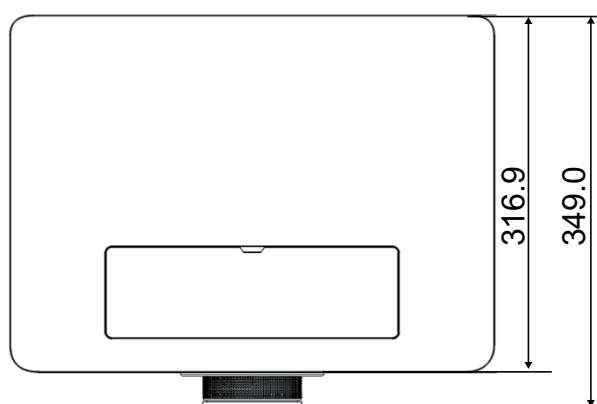
LS2ST3, Wide Fix lens

Optional Lens (Wide Zoom: LS2ST1)



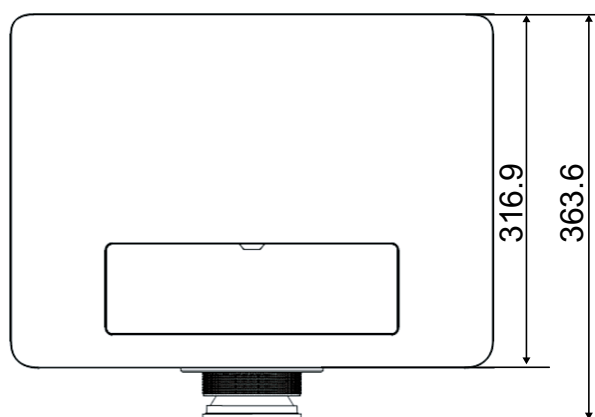
LS2ST1, Wide Zoom lens

Optional Lens (Standard: LS2SD)



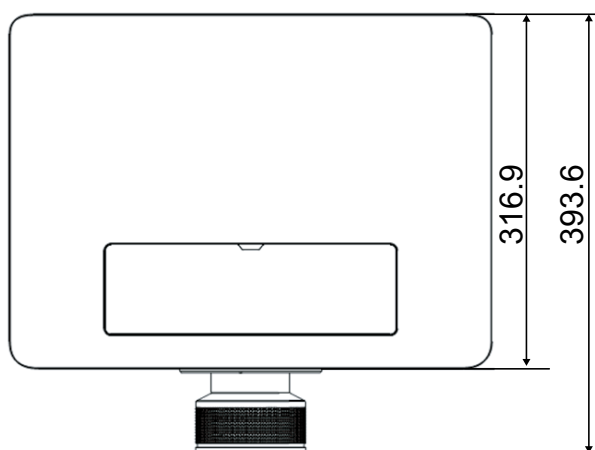
LS2SD, Standard lens

Optional Lens (Semi Long Throw: LS2LT1)



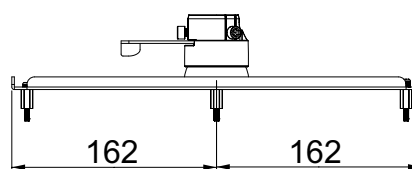
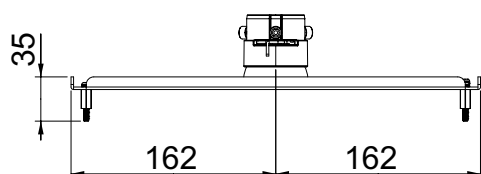
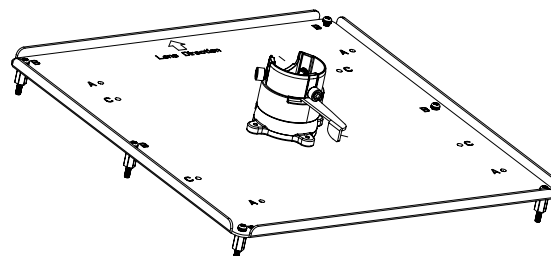
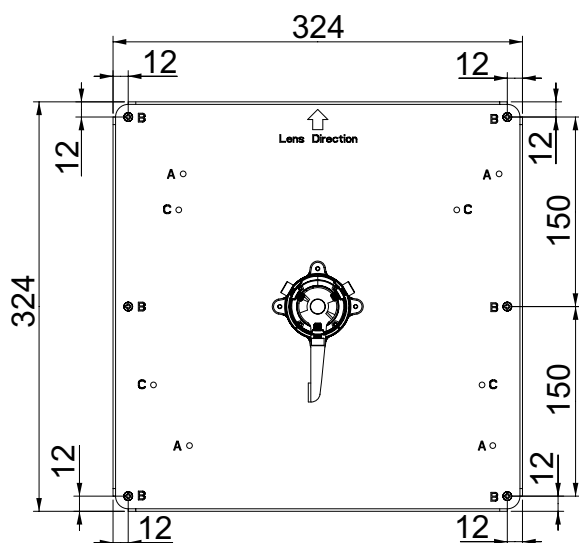
LS2LT1, Semi Long Throw lens

Optional Lens (Long Throw I: LS2LT2)

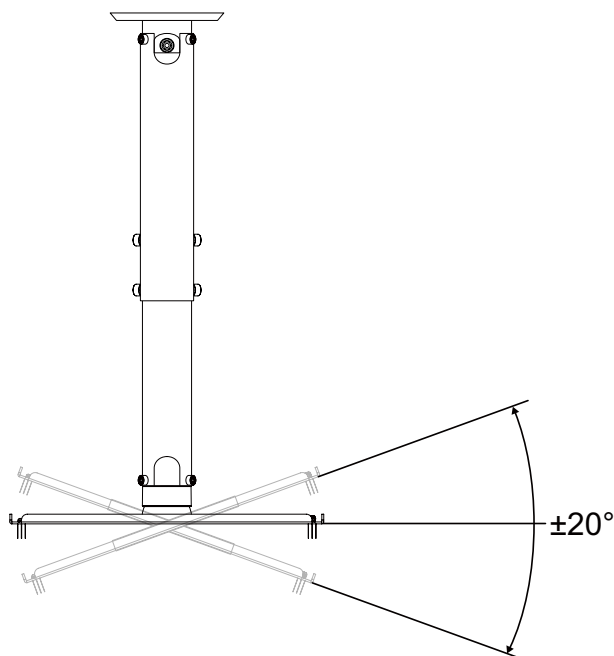


LS2LT2, Long Throw I lens

Ceiling mount dimensions

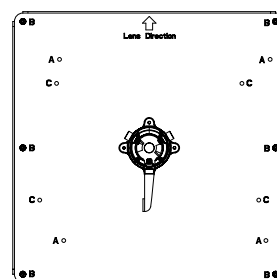


Ceiling Mount (Part Number: 5J.JCY10.001)

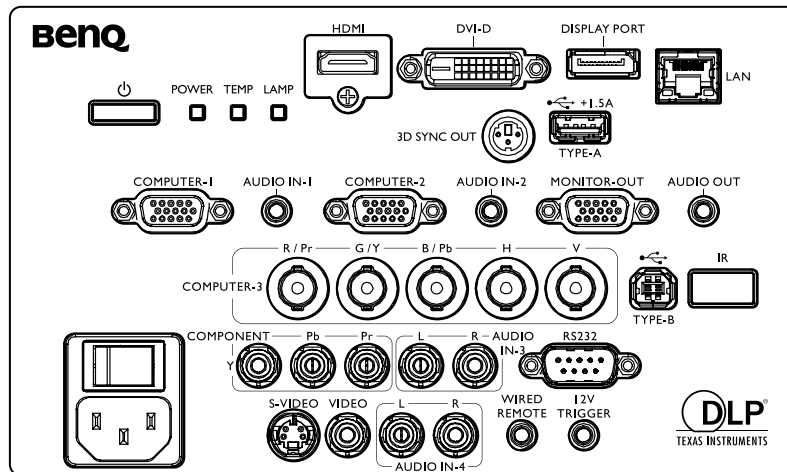


Note:

- Mark A: PW9500/PX9600
- Mark B: PU9730/PX9710/PW9620
- Mark C: PX9210/PU9220



IO panel



- **HDMI**
Connection to HDMI source.
- **DVI-D**
Connection to DVI source.
- **DisplayPort**
Connection to device or PC featuring DisplayPort.
- **LAN**
Connection to network (via router/access point).
- **USB (Type A)**
Support 5V/1.5A output.
- **3D Sync Out**
Connection to 3D IR sync signal transmitter.
- **Computer-1/Computer-2**
15-pin VGA port for connection to RGB, component HD source, or PC.
- **Audio In-1/Audio In-2/Audio In-3/Audio In-4**
Connection to an audio input source via an audio or audio L/R cable.
- **Monitor Out**
Connection to other display equipment for concurrent playback display.
- **Audio Out**
Connection to a speaker or headset.
- **Computer-3 (R/Pr, G/Y, B/Pb, H, V)**
Connection to RGB or YPbPr/YCbCr output signal with BNC type input terminal.
- **Component/S-Video/Video**
Connection to a video source.
- **USB (Type B)**
Connection to a PC using a USB cable.
- **RS-232**
Standard 9-pin D-sub interface for connection to PC control system and projector maintenance.
- **TRIGGER**
3.5mm mini earphone jack, employs 350mA display relay to provide 12(+/-1.5)V output and short circuit protection.
- **Wired Remote**
Connection to input Niles or Xantech compatible IR repeater system.

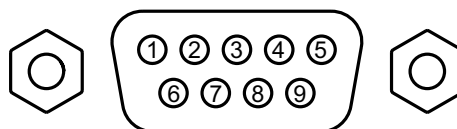
Caution:

Make sure the port is valid before inserting a wired remote controller. The remote controller may be damaged in case of an invalid port, e.g. a wired remote controller is connected to trigger output.

RS232 command

RS232 pin assignment

PIN	Signal
1	NC (Data carrier detect)
2	RX (Receive data)
3	TX (Transmit data)
4	NC (Data terminal ready)
5	GND (Signal ground)
6	NC (Data set ready)
7	RTSZ (Request to send)
8	CTSZ (Clear to send)
9	NC (Ring indicator)



Function	Type	Description	ASCII
Power	Write	Power On	<CR>*pow=on#<CR>
	Write	Power off	<CR>*pow=off#<CR>
	Read	Power Status	<CR>*pow=?#<CR>
Source Selection	Write	COMPUTER/YPbPr	<CR>*sour=RGB#<CR>
	Write	COMPUTER 2/YPbPr2	<CR>*sour=RGB2#<CR>
	Write	COMPUTER 3/YPbPr3	<CR>*sour=RGB3#<CR>
	Write	Component	<CR>*sour=ypbr#<CR>
	Write	DVI-D	<CR>*sour=dvid#<CR>
	Write	HDMI/MHL	<CR>*sour=hdmi#<CR>
	Write	Composite	<CR>*sour=vid#<CR>
	Write	S-Video	<CR>*sour=svid#<CR>
	Write	DisplayPort	<CR>*sour=dp#<CR>
	Read	Current source	<CR>*sour=?#<CR>
Audio Control	Write	Mute On	<CR>*mute=on#<CR>
	Write	Mute Off	<CR>*mute=off#<CR>
	Read	Mute Status	<CR>*mute=?#<CR>
	Write	Volume +	<CR>*vol=+#<CR>
	Write	Volume -	<CR>*vol=-#<CR>

Function	Type	Description	ASCII
Audio source select	Read	Volume Status	<CR>*vol=?#<CR>
	Write	Audio pass Through off	<CR>*audiosour=off#<CR>
	Write	Audio-Computer1	<CR>*audiosour=RGB#<CR>
	Write	Audio-Computer2	<CR>*audiosour=RGB2#<CR>
	Write	Audio-Video/S-Video	<CR>*audiosour=vid#<CR>
Audio source select	Write	Audio-Component	<CR>*audiosour=ypbr#<CR>
	Write	Audio-HDMI	<CR>*audiosour=hdmi#<CR>
	Read	Audio pass Status	<CR>*audiosour=?#<CR>
Picture Mode	Write	Dynamic	<CR>*appmod=dynamic#<CR>
	Write	Presentation	<CR>*appmod=preset#<CR>
	Write	sRGB	<CR>*appmod=srgb#<CR>
	Write	Cinema	<CR>*appmod=cine#<CR>
	Write	User1	<CR>*appmod=user1#<CR>
	Write	User2	<CR>*appmod=user2#<CR>
	Read	Picture Mode	<CR>*appmod=?#<CR>

Function	Type	Description	ASCII
Picture Setting	Write	Contrast +	<CR>*con=+#<CR>
	Write	Contrast -	<CR>*con=-#<CR>
	Read	Contrast value	<CR>*con=?#<CR>
	Write	Brightness +	<CR>*bri=+#<CR>
	Write	Brightness -	<CR>*bri=-#<CR>
	Read	Brightness value	<CR>*bri=?#<CR>
	Write	Color +	<CR>*color=+#<CR>
	Write	Color -	<CR>*color=-#<CR>
	Read	Color value	<CR>*color=?#<CR>
	Write	Sharpness +	<CR>*sharp=+#<CR>
	Write	Sharpness -	<CR>*sharp=-#<CR>
	Read	Sharpness value	<CR>*sharp=?#<CR>
	Write	Color Temperature-Warm	<CR>*ct=warm#<CR>
	Write	Color Temperature-Normal	<CR>*ct=normal#<CR>
	Write	Color Temperature-Cool	<CR>*ct=cool#<CR>
	Read	Color Temperature Status	<CR>*ct=?#<CR>
	Write	Aspect 4:3	<CR>*asp=4:3#<CR>
	Write	Aspect 16:9	<CR>*asp=16:9#<CR>
	Write	Aspect 16:10	<CR>*asp=16:10#<CR>
	Write	Aspect Auto	<CR>*asp=AUTO#<CR>
	Read	Aspect Status	<CR>*asp=?#<CR>
	Write	Digital Zoom In	<CR>*zoomI#<CR>
	Write	Digital Zoom out	<CR>*zoomO#<CR>
	Write	Auto	<CR>*auto#<CR>
	Write	Brilliant color on	<CR>*BC=on#<CR>
	Write	Brilliant color off	<CR>*BC=off#<CR>
	Read	Brilliant color status	<CR>*BC=?#<CR>

Function	Type	Description	ASCII
Operation Settings	Write	Projector Position-Front Table	<CR>*pp=FT#<CR>
	Write	Projector Position-Rear Table	<CR>*pp=RE#<CR>
	Write	Projector Position-Rear Ceiling	<CR>*pp=RC#<CR>
	Write	Projector Position-Front Ceiling	<CR>*pp=FC#<CR>
	Write	Quick auto search - on	<CR>*QAS=on#<CR>
	Write	Quick auto search - off	<CR>*QAS=off#<CR>
	Read	Quick auto search status	<CR>*QAS=?#<CR>
	Read	Projector Position Status	<CR>*pp=?#<CR>
	Write	Direct Power On-on	<CR>*directpower=on#<CR>
	Write	Direct Power On-off	<CR>*directpower=off#<CR>
	Read	Direct Power On-Status	<CR>*directpower=?#<CR>
	Write	Signal Power On-on	<CR>*autopower=on#<CR>
	Write	Signal Power On-off	<CR>*autopower=off#<CR>
	Read	Signal Power On-Status	<CR>*autopower=?#<CR>
	Write	Standby Settings-Network on	<CR>*standbynet=on#<CR>
	Write	Standby Settings-Network off	<CR>*standbynet=off#<CR>
	Read	Standby Settings-Network Status	<CR>*standbynet=?#<CR>
	Write	Standby Settings-Monitor Out on	<CR>*standbymnt=on#<CR>
	Write	Standby Settings-Monitor Out off	<CR>*standbymnt=off#<CR>
	Read	Standby Settings-Monitor Out Status	<CR>*standbymnt=?#<CR>
Baud Rate	Write	2400	<CR>*baud=2400#<CR>
	Write	4800	<CR>*baud=4800#<CR>
	Write	9600	<CR>*baud=9600#<CR>
	Write	14400	<CR>*baud=14400#<CR>
	Write	19200	<CR>*baud=19200#<CR>
	Write	38400	<CR>*baud=38400#<CR>
	Write	57600	<CR>*baud=57600#<CR>
	Write	115200	<CR>*baud=115200#<CR>
	Read	Current Baud Rate	<CR>*baud=?#<CR>
Lamp Control	Read	Lamp Hour	<CR>*ltim=?#<CR>
	Write	Normal mode	<CR>*lampm=lnor#<CR>
	Write	Eco mode	<CR>*lampm=eco#<CR>
	Read	Lamp Mode Status	<CR>*lampm=?#<CR>

Function	Type	Description	ASCII
Miscellaneous	Read	Model Name	<CR>*modelName=?#<CR>
	Write	Blank On	<CR>*blank=on#<CR>
	Write	Blank Off	<CR>*blank=off#<CR>
	Read	Blank Status	<CR>*blank=?#<CR>
	Write	Freeze On	<CR>*freeze=on#<CR>
	Write	Freeze Off	<CR>*freeze=off#<CR>
	Read	Freeze Status	<CR>*freeze=?#<CR>
	Write	Menu On	<CR>*menu=on#<CR>
	Write	Menu Off	<CR>*menu=off#<CR>
	Write	Up	<CR>*up#<CR>
	Write	Down	<CR>*down#<CR>
	Write	Right	<CR>*right#<CR>
	Write	Left	<CR>*left#<CR>
	Write	Enter	<CR>*enter#<CR>
	Write	3D Sync Off	<CR>*3d=off#<CR>
	Write	3D Auto	<CR>*3d=auto#<CR>
	Write	3D Sync Top Bottom	<CR>*3d=tb#<CR>
	Write	3D Sync Frame Sequential	<CR>*3d=fs#<CR>
	Write	3D Frame packing	<CR>*3d=fp#<CR>
	Write	3D Side by side	<CR>*3d=sbs#<CR>
	Write	3D inverter disable	<CR>*3d=da#<CR>
	Write	3D inverter	<CR>*3d=iv#<CR>
	Read	3D Sync Status	<CR>*3d=?#<CR>
	Write	Remote Receiver-front+rear	<CR>*rr=fr#<CR>
	Write	Remote Receiver-front	<CR>*rr=f#<CR>
	Write	Remote Receiver-rear	<CR>*rr=r#<CR>
	Read	Remote Receiver Status	<CR>*rr=?#<CR>
	Write	Instant On-on	<CR>*ins=on#<CR>
	Write	Instant On-off	<CR>*ins=off#<CR>
	Read	Instant On Status	<CR>*ins=?#<CR>

