

A155U & A175U Installation Guide

Rev 1.0

Desktop and Ceiling Mount

Contents

Product Description, Lens Specs, Screen/Aspect Ratio	Pg. 1
Distance Charts and Formulas	Pg. 2
Ceiling Mount/Desktop Installation	Pg. 3
Lens Shift Adjustable Range	Pg. 4
Geometric Ranges	Pg. 5-8
Cabinet Dimensions	Pg. 9-10
Ceiling Mount	Pg. 11
Ventilation Requirements/Portrait Requirements	Pg. 12
Cable Cover & Vent Cover	Pg. 13
Regulatory Labels and Input Panel	Pg. 14
Control Codes	Pg. 15



Product Description

Type:	3 panel LCD projector, 1.0" p-Si TFT w/MLA	Dimensions: 23.6"(W) x 9.4"(H) x 19.3"(D) Weight: 63.3 lbs
Resolution:	1920 x 1200 (16:10)	Brightness: A155U: 15,000 Center Lumens A175U: 17,000 Center Lumens
Fan Noise:	A155U: 39dB / 35dB @ 1 meter A175U: 43dB / 37dB @ 1 meter	Power Requirements: 100-240V AC 50/60 Hz A155U: 11.6A / A175U: 12.8A
Power Consumption:	A155U: 895W (max) A175U: 1030W (max)	BTU's: A155U: 3043 BTU/hour A175U: 3502 BTU/hour

Lens Specifications

NP51ZL / XP-51ZL:	Throw Ratio: 0.53 – 0.65:1 Screen Sizes: 60"-500"	Focal Length: 12.0 – 14.8mm F/#: 1.85 – 2.2	Weight: 11.7lbs. / 5.3kg
NP52FL / XP-52ZL:	Throw Ratio: 0.65 – 0.87:1 Screen Sizes: 60"-500"	Focal Length: 14.4 – 19.3mm F/#: 1.84 – 2.25	Weight: 11.5lbs. / 5.2kg
NP53ZL / XP-53ZL:	Throw Ratio: 0.86 – 1.25:1 Screen Sizes: 60" - 500"	Focal Length: 19.0 – 27.6mm F/#: 1.8 – 2.24	Weight: 11.2lbs. / 5.1kg
NP54ZL / XP-54ZL:	Throw Ratio: 1.24 – 2.01:1 Screen Sizes: 60" - 500"	Focal Length: 27.7 – 44.9mm F/#: 1.8 – 2.24	Weight: 9.0lbs. / 4.1kg
NP55ZL / XP-55ZL:	Throw Ratio: 1.98 – 3.95:1 Screen Sizes: 60" - 500"	Focal Length: 43.8 – 87.4mm F/#: 1.84 - 2.58	Weight: 11.0lbs. / 5.0kg
NP56ZL / XP-56ZL:	Throw Ratio: 3.95 – 7.51:1 Screen Sizes: 80"-500"	Focal Length: 76.6 – 116.5mm F/#: 2.0 - 2.5	Weight: 10.1lbs. / 4.6g

Screen/Aspect Ratio

4:3, 16:9 and 16:10 screens are fully supported with proper aspect ratio control using Sharp developed scaling technology. Menu selections have settings for each screen type and aspect ratio control for each source type.

A155U & A175U Installation Guide

Rev 1.0

Desktop and Ceiling Mount

Formulas: 16:10 Aspect Ratio (WUXGA)

The Projection Formulas use the image width for calculation. Image width is the same for all aspect ratios, only vertical image size varies. For proper projector placement, determine the image width for a desired screen size. Use the Screen Formulas below to calculate all screen dimensions. Plug in the image width for "W" in the Projection Formulas.

Refer to the diagrams and charts for popular screen sizes on page 2 and 3:

XP-51ZL:	$C(\text{Wide}) = 0.559W - 2.485$	$C(\text{Tele}) = 0.679W - 2.244$	$W = \text{Image Width}$	$W = H \times 16/10$
XP-52ZL:	$C(\text{Wide}) = 0.671W - 2.198$	$C(\text{Tele}) = 0.889W - 1.949$	$H = \text{Image Height (size)}$	$H = W \times 10/16$
XP-53ZL:	$C(\text{Wide}) = 0.877W - 1.808$	$C(\text{Tele}) = 1.279W - 1.970$	$C = \text{Throw distance}$	$\text{Diagonal} = W \times 18.868/16$
XP-54ZL:	$C(\text{Wide}) = 1.279W - 3.242$	$C(\text{Tele}) = 2.045W - 2.920$		
XP-55ZL:	$C(\text{Wide}) = 2.031W - 4.799$	$C(\text{Tele}) = 4.000W - 4.742$		
XP-56ZL:	$C(\text{Wide}) = 3.813W + 12.226$	$C(\text{Tele}) = 7.383W + 12.074$		

Horizontal Lens Shift Max (Right) = 0.20W (XP-51ZL, XP-52ZL)

Horizontal Lens Shift Max (Left) = 0.20W (XP-51ZL, XP-52ZL)

Horizontal Lens Shift Max (Right) = 0.25W (XP-53ZL, XP-54ZL, XP55-ZL, XP-56ZL)

Horizontal Lens Shift Max (Left) = 0.25W (XP-53ZL, XP-54ZL, XP55-ZL, XP-56ZL)

Vertical Lens Shift Max (Up) = 0.5H (XP-51ZL)

Vertical Lens Shift Max (Down) = 0.5H (XP-51ZL)

Vertical Lens Shift Max (Up) = 0.55H (XP-52ZL)

Vertical Lens Shift Max (Down) = 0.55H (XP-52ZL)

Vertical Lens Shift Max (Up) = 0.65H (XP-53ZL, XP-54ZL, XP55-ZL, XP-56ZL)

Vertical Lens Shift Max (Down) = 0.65H (XP-53ZL, XP-54ZL, XP55-ZL, XP-56ZL)

Distance Chart for popular 16:10 Screens (WUXGA)

Screen Size (16:10)			Zoom Lenses					
			XP-51ZL	XP-52ZL	XP-53ZL	XP-54ZL	XP-55ZL	XP-56ZL
Diagonal	Width(W)	Height (H)	0.53 - 0.65:1	0.65 - 0.87:1	0.86 - 1.25:1	1.24 - 2.01:1	1.98 - 3.95:1	3.95 - 7.51:1
inches	inches	inches	inches	inches	inches	inches	inches	inches
94	80	50	42.1 - 51.9	51.3 - 68.9	68.1 - 100.0	98.7 - 160.1	157.1 - 314.1	316.2 - 600.6
100	85	53	44.9 - 55.3	54.7 - 73.4	72.6 - 106.5	105.2 - 170.5	167.4 - 334.5	335.6 - 638.1
120	102	64	54.4 - 66.9	66.1 - 88.5	87.4 - 128.2	126.9 - 205.2	201.9 - 402.3	400.2 - 763.4
150	127	79	68.6 - 84.1	83.2 - 111.1	109.7 - 160.7	159.4 - 257.2	253.5 - 504.1	497.2 - 951.2
180	153	95	82.8 - 101.4	100.2 - 133.7	132.1 - 193.3	192.0 - 309.2	305.2 - 605.8	594.2 - 1139.0
210	178	111	97.1 - 118.7	117.3 - 156.4	154.4 - 225.8	224.5 - 361.3	356.9 - 707.6	691.2 - 1326.8
240	204	127	111.3 - 135.9	134.4 - 179.0	176.7 - 258.3	257.1 - 413.3	408.5 - 809.3	788.2 - 1514.7
270	229	143	125.5 - 153.2	151.4 - 201.6	199.0 - 290.9	289.6 - 465.3	460.2 - 911.1	885.2 - 1702.5
300	254	159	139.7 - 170.5	168.5 - 224.2	221.3 - 323.4	322.1 - 517.3	511.9 - 1012.9	982.2 - 1890.3
400	339	212	187.1 - 228.1	225.4 - 299.6	295.7 - 431.9	430.6 - 690.7	684.1 - 1352.1	1305.6 - 2516.4
500	424	265	234.5 - 285.7	282.3 - 375.0	370.0 - 540.3	539.1 - 864.2	856.3 - 1691.3	1628.9 - 3142.5

Notes

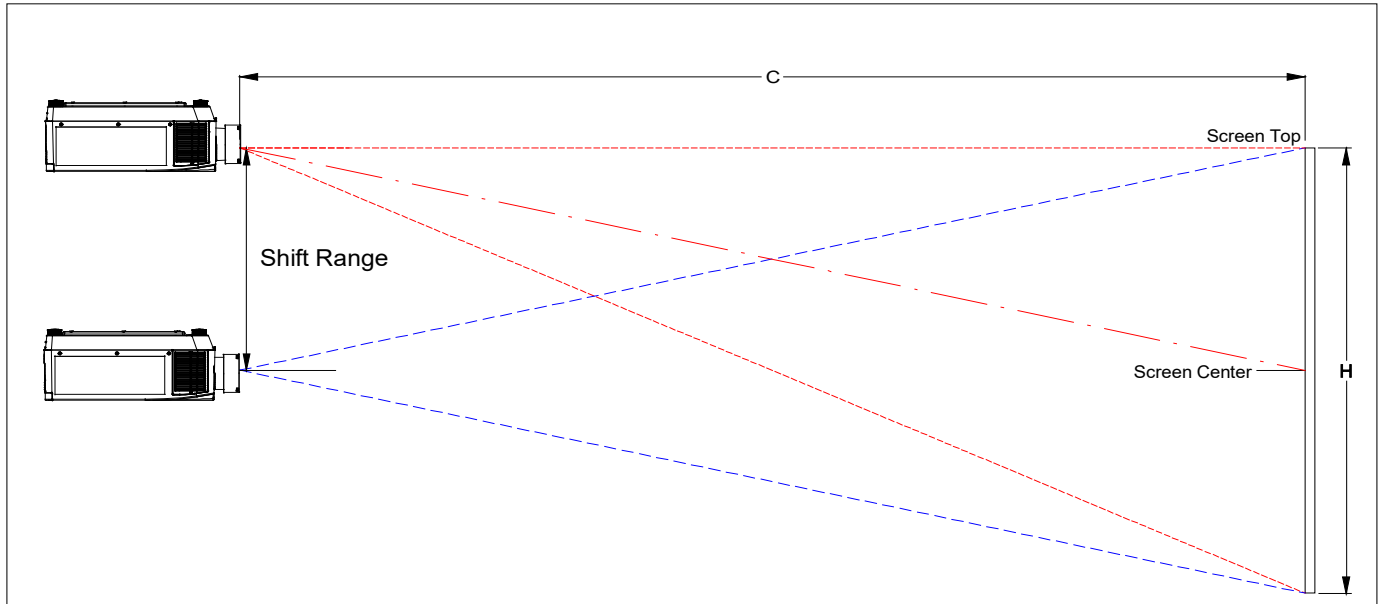
- For screen sizes not indicated on the projection tables, use the formulas above respective charts.
- If the figures on the tables do not match the results of formulas, use the figures in the table.
- Distances are in inches, for millimeters multiply by 25.4.
- Distances may vary $\pm 5\%$.

A155U & A175U Installation Guide

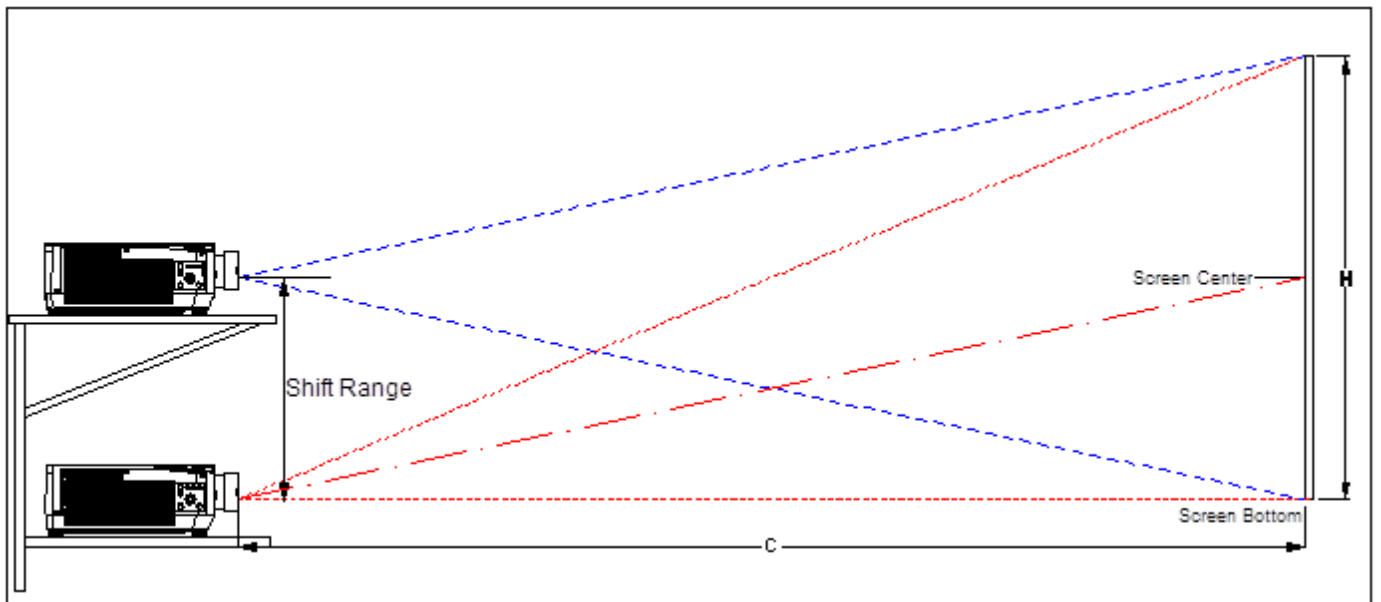
Desktop and Ceiling Mount

Rev 1.0

Ceiling Mount Installation



Desktop Installation

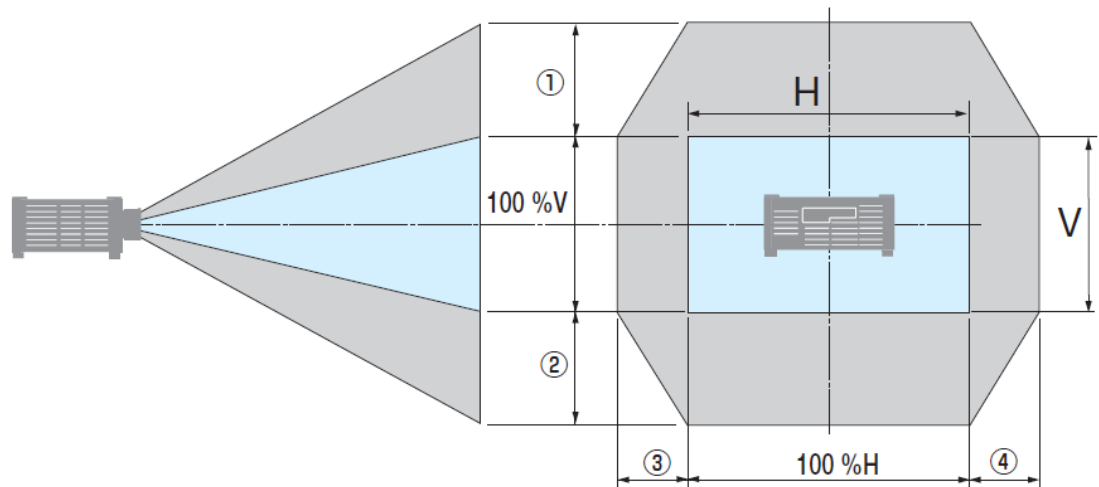


A155U & A175U Installation Guide
Desktop and Ceiling Mount

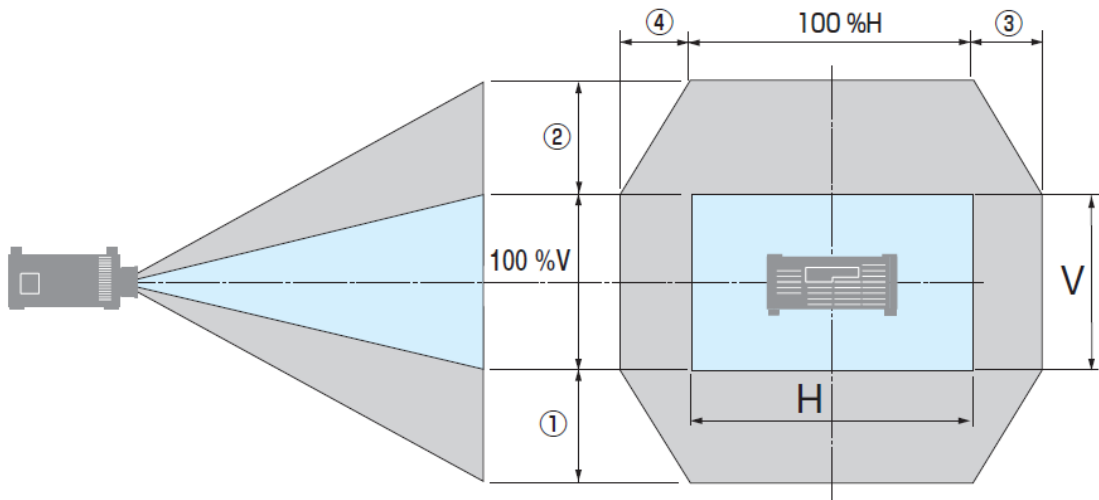
Rev 1.0

Lens Shift Adjustable Range

Desk/front projection



Ceiling/front projector



Number in the figure	Lens Unit					
	XP-51ZL	XP-52ZL	XP-53ZL	XP-54ZL	XP-55ZL	XP-56ZL
① ②	50%V	55%V	65%V			
③ ④	20%H		25%H			

A155U & A175U Installation Guide

Rev 1.0

Desktop and Ceiling Mount

Geometric Ranges**Keystone**

Lens Spec.					Lens shift center (0%)				Lens shift maximum (both horizontal and vertical)			
Lens	Throw Ratio		Shift Range		only (*1)		both (*2)		only (*1)		both (*2)	
	Wide	Tele	H	V	H	V	H	V	H	V	H	V
XP-51ZL	0.53	0.65	20%	50%	±24°	±30°	±23°	±17°	±24°	±30°	±15°	±11°
XP-52ZL	0.65	0.87	20%	55%	±29°	±30°	±27°	±20°	±28°	±30°	±17°	±13°
XP-53ZL	0.86	1.25	25%	65%	±40°	±30°	±35°	±26°	±35°	±30°	±20°	±15°
XP-54ZL	1.24	2.01	25%	65%	±40°	±30°	±40°	±30°	±40°	±30°	±27°	±20°
XP-55ZL	1.98	3.95	25%	65%	±40°	±30°	±40°	±30°	±40°	±30°	±32°	±24°
XP-56ZL	3.95	7.51	25%	65%	±40°	±30°	±40°	±30°	±40°	±30°	±40°	±30°

A155U & A175U Installation Guide

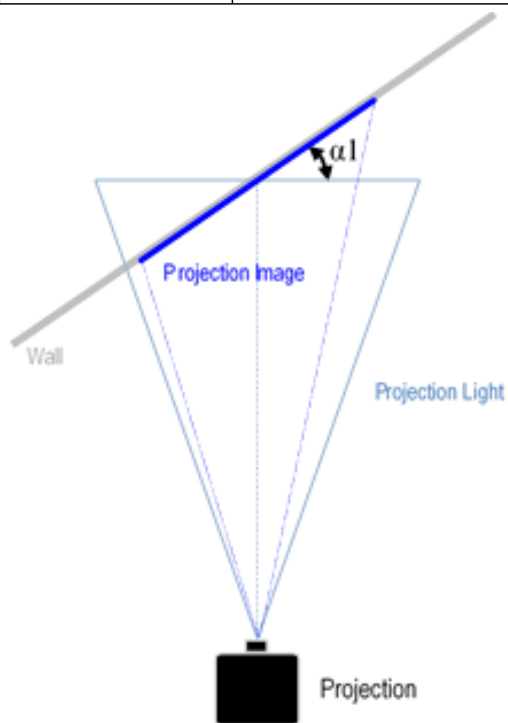
Desktop and Ceiling Mount

Rev 1.0

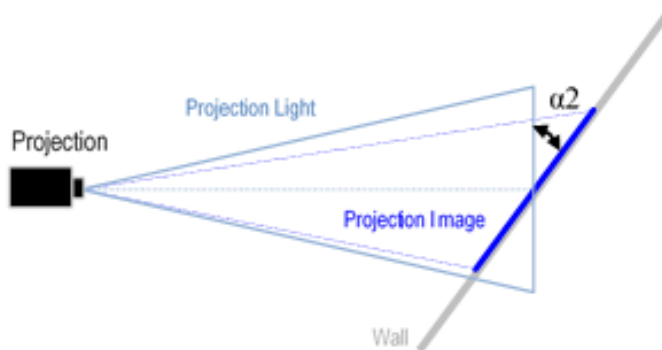
Geometric Ranges

Cornerstone

Lens Unit	Lens shift center (0%)		Lens shift maximum (both horizontal and vertical)	
	Image center is fixed		Image center is fixed	
	Horizontal ($\alpha 1$)	Vertical ($\alpha 2$)	Horizontal ($\alpha 1$)	Vertical ($\alpha 2$)
XP-51ZL	$\pm 25^\circ$	$\pm 33^\circ$	$\pm 10^\circ$	$\pm 21^\circ$
XP-52ZL	$\pm 28^\circ$	$\pm 37^\circ$	$\pm 11^\circ$	$\pm 23^\circ$
XP-53ZL	$\pm 34^\circ$	$\pm 41^\circ$	$\pm 14^\circ$	$\pm 27^\circ$
XP-54ZL	$\pm 40^\circ$	$\pm 46^\circ$	$\pm 21^\circ$	$\pm 34^\circ$
XP-55ZL	$\pm 46^\circ$	$\pm 51^\circ$	$\pm 36^\circ$	$\pm 41^\circ$
XP-56ZL	$\pm 52^\circ$	$\pm 54^\circ$	$\pm 49^\circ$	$\pm 50^\circ$



[Horizontal Diagonal Projection]



[Vertical Diagonal Projection]

A155U & A175U Installation Guide

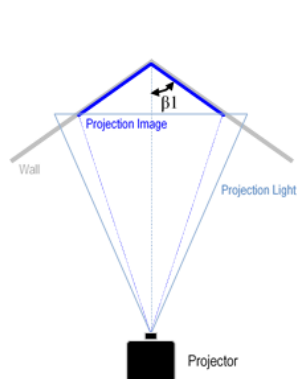
Desktop and Ceiling Mount

Rev 1.0

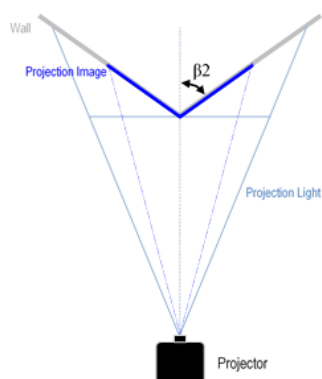
Geometric Ranges

Horizontal / Vertical Corner

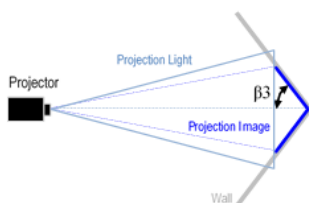
Lens Unit	Lens shift center (0%)				Lens shift maximum (both horizontal and vertical)			
	HORIZONTAL		VERTICAL		HORIZONTAL		VERTICAL	
	Inside (β_1)	Outside (β_2)	Inside (β_3)	Outside (β_4)	Inside (β_1)	Outside (β_2)	Inside (β_3)	Outside (β_4)
XP-51ZL	58°	58°	52°	52°	79°	78°	75°	67°
XP-52ZL	50°	50°	42°	43°	77°	76°	71°	62°
XP-53ZL	31°	45°	31°	41°	73°	73°	64°	59°
XP-54ZL	31°	41°	31°	37°	64°	64°	47°	52°
XP-55ZL	31°	38°	31°	35°	46°	46°	42°	45°
XP-56ZL	31°	34°	31°	33°	35°	38°	38°	39°



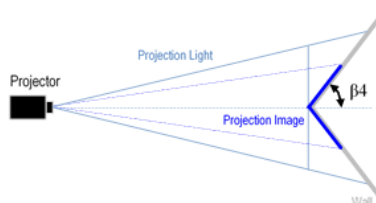
[Horizontal Corner Inside Projection]



[Horizontal Corner Outside Projection]



[Vertical Corner Inside Projection]



[Vertical Corner Outside Projection]

A155U & A175U Installation Guide

Rev 1.0

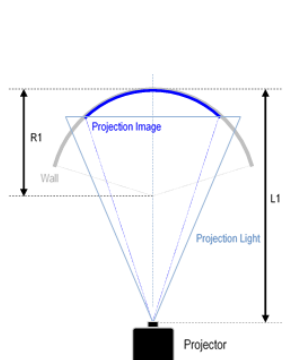
Desktop and Ceiling Mount

Geometric Ranges

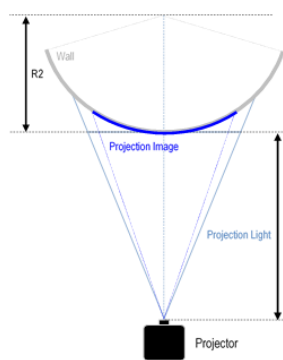
Warp

The following table specifies the ratio (R/L) on minimum radius (R) and throw distance (L) on a cylindrical screen.

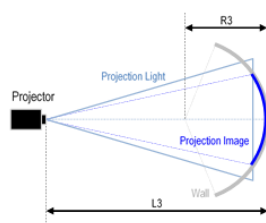
Lens Unit	Lens shift center (0%)				Lens shift maximum (both horizontal and vertical)			
	Horizontal		Vertical		Horizontal		Vertical	
	Inside (R1/L1)	Outside (R2/L2)	Inside (R3/L3)	Outside (R4/L4)	Inside (R1/L1)	Outside (R2/L2)	Inside (R3/L3)	Outside (R4/L4)
XP-51ZL	0.97	1.67	0.36	0.80	2.96	3.14	1.02	1.30
XP-52ZL	0.63	1.20	0.31	0.60	1.99	2.16	0.77	0.95
XP-53ZL	0.36	0.77	0.25	0.41	1.20	1.31	0.53	0.64
XP-54ZL	0.27	0.47	0.19	0.26	0.55	0.62	0.29	0.36
XP-55ZL	0.19	0.26	0.13	0.16	0.22	0.30	0.16	0.19
XP-56ZL	0.11	0.12	0.07	0.08	0.11	0.13	0.08	0.09



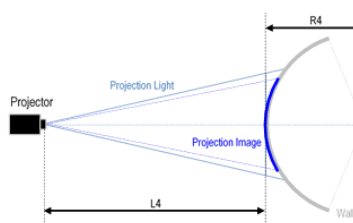
[Horizontal Cylindrical Inside Projection]



[Horizontal Cylindrical Outside Projection]



[Vertical Cylindrical Inside Projection]



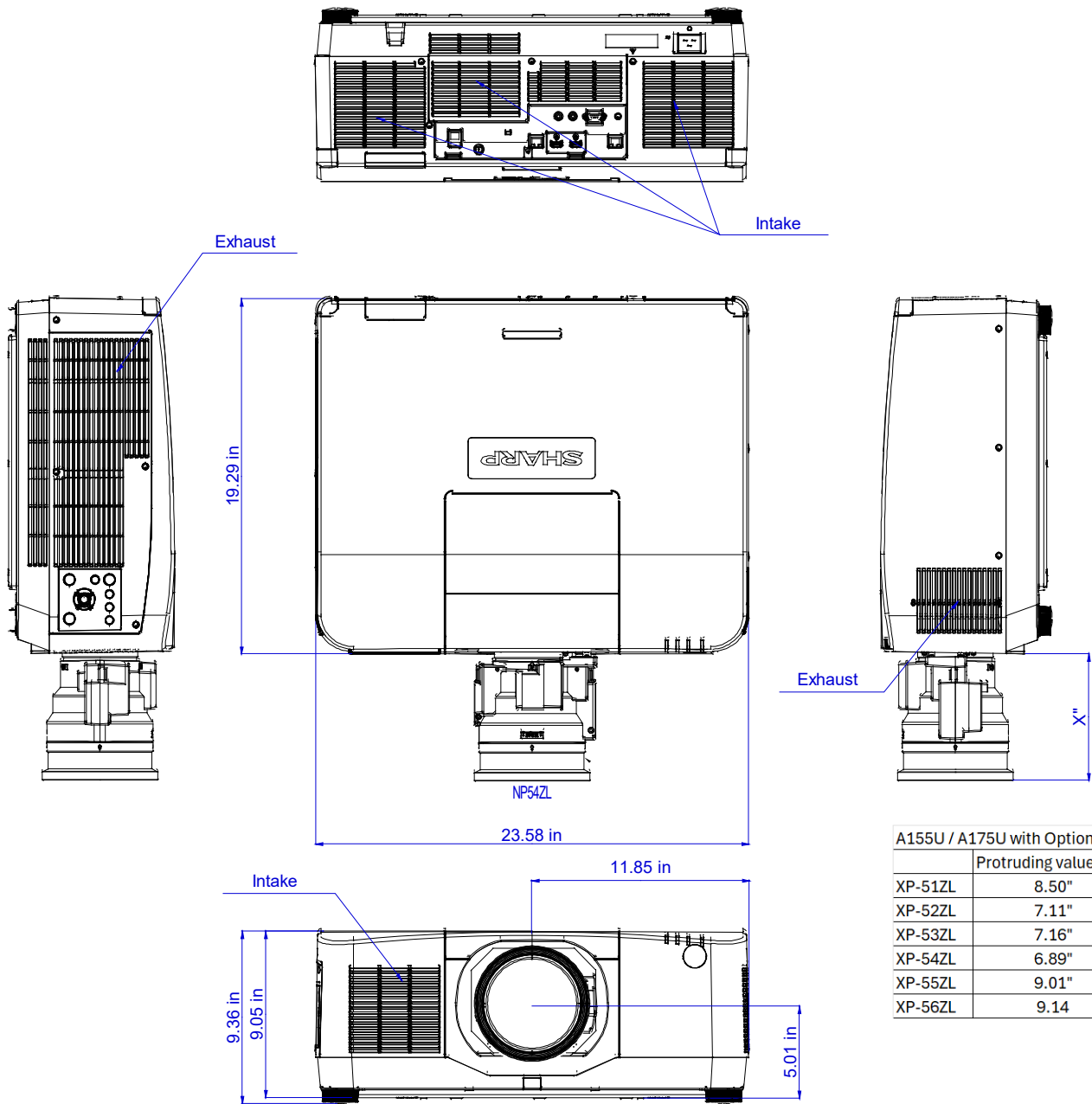
[Vertical Cylindrical Outside Projection]

A155U & A175U Installation Guide
Desktop and Ceiling Mount

Rev 1.0

Cabinet Dimensions

The following diagrams show the cabinet dimensions for the A155U/A175U.
Dimensions are in inches. For millimeters multiply by 25.4.
Note: Dimensions below shown with the NP54ZL/XP-54ZL lens



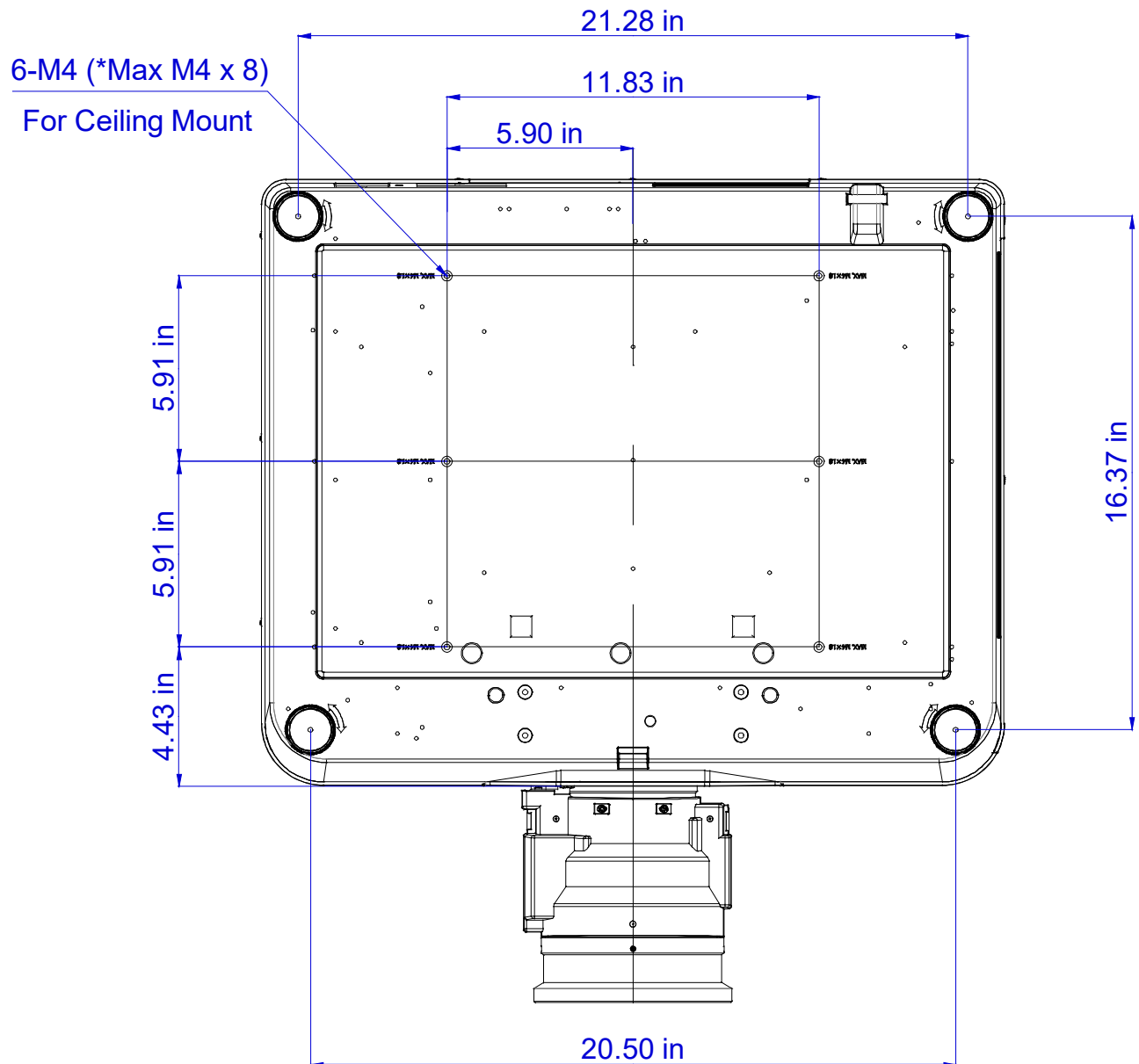
A155U / A175U with Option Lens	
	Protruding value (X)
XP-51ZL	8.50"
XP-52ZL	7.11"
XP-53ZL	7.16"
XP-54ZL	6.89"
XP-55ZL	9.01"
XP-56ZL	9.14"

A155U & A175U Installation Guide

Rev 1.0

Desktop and Ceiling Mount

Cabinet Dimensions

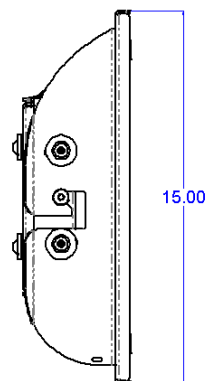
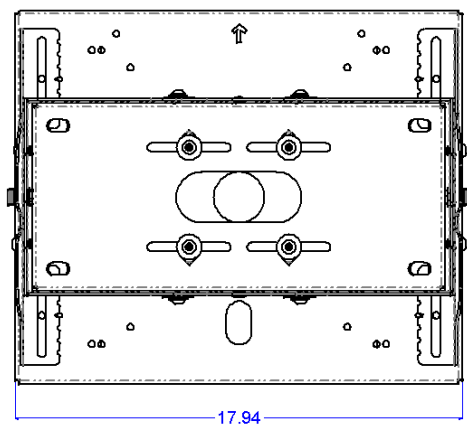
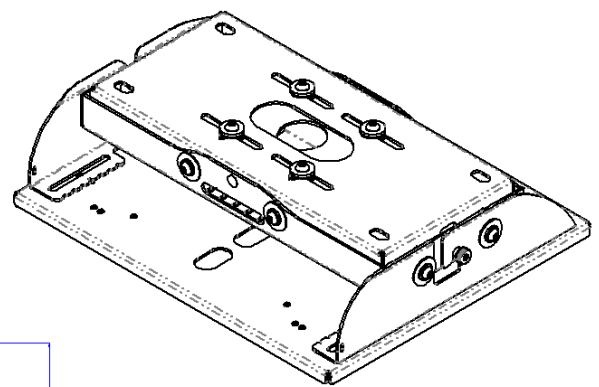
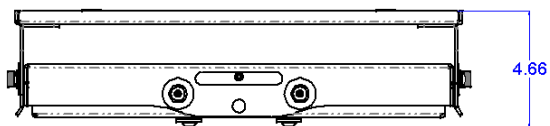


A155U & A175U Installation Guide

Rev 1.0

Desktop and Ceiling Mount

IPJ2000CM

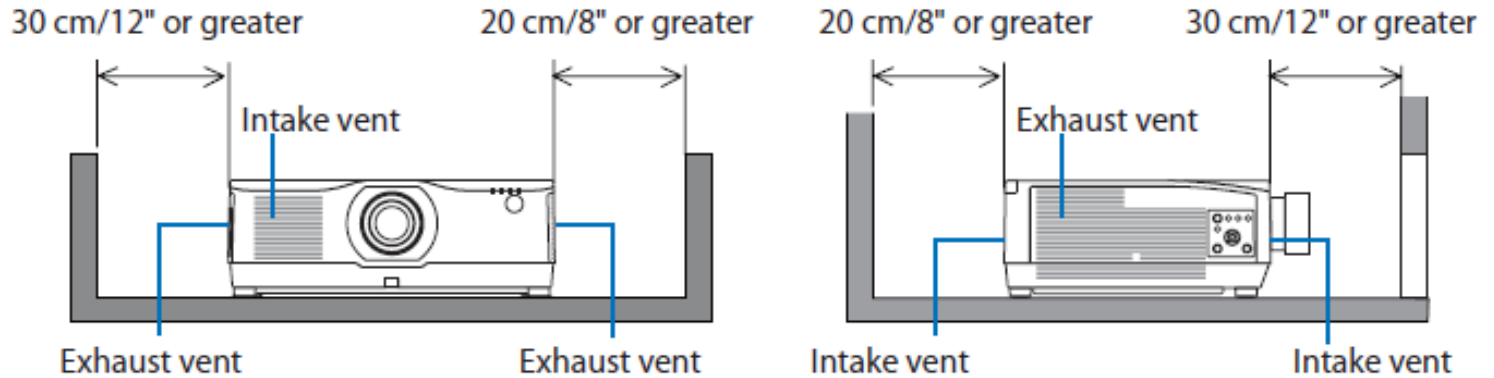


A155U & A175U Installation Guide

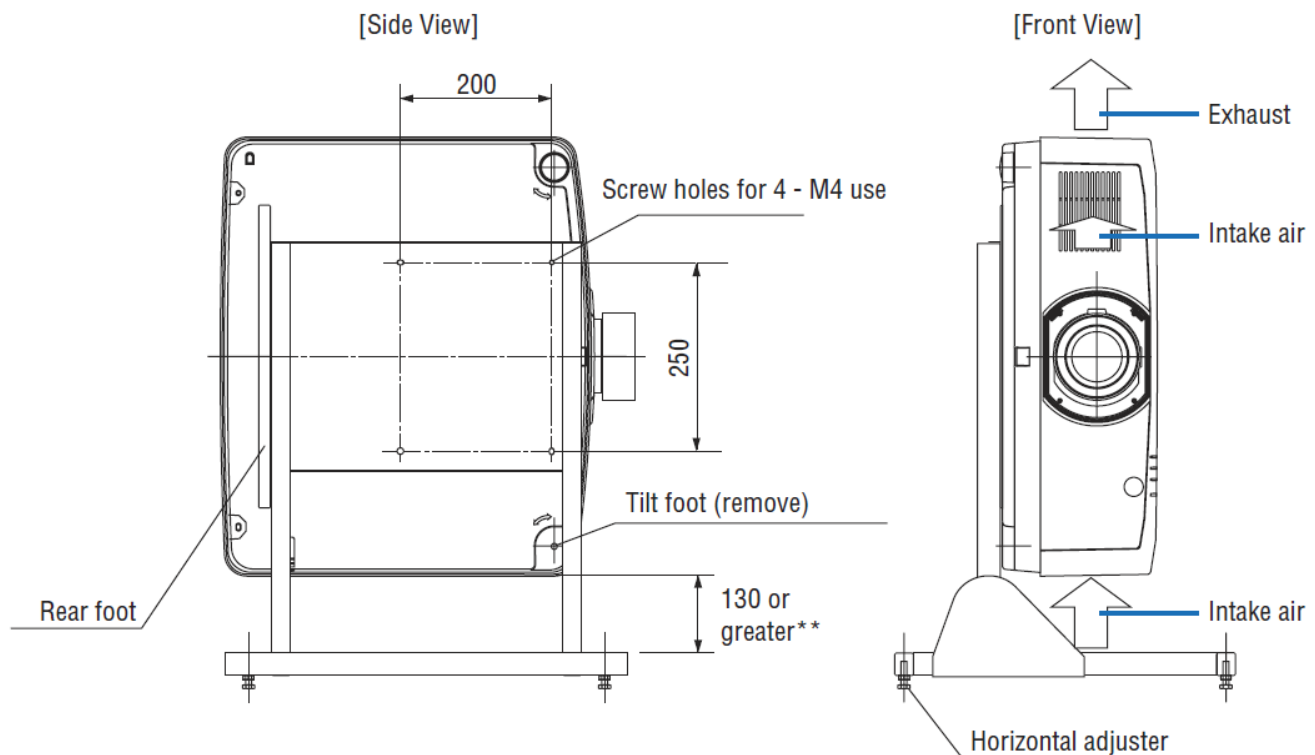
Desktop and Ceiling Mount

Rev 1.0

Ventilation Requirements



Portrait Requirements

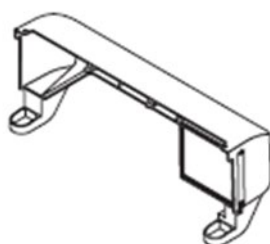


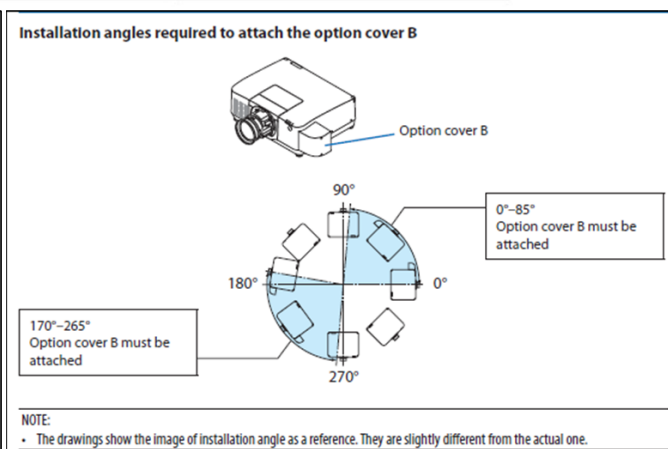
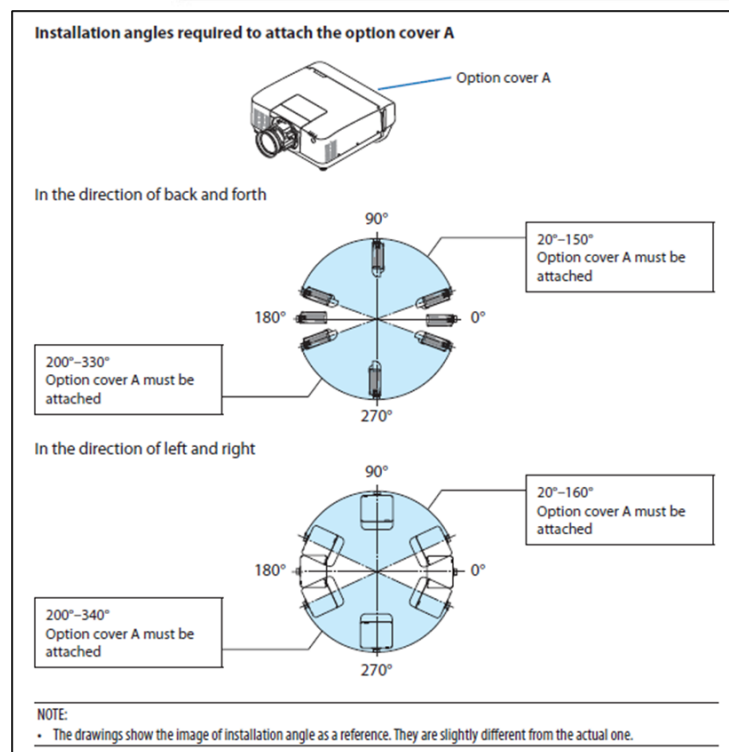
A155U & A175U Installation Guide

Desktop and Ceiling Mount

Rev 1.0

Cable Cover / Vent Cover (XP-13CV-W/B)

Option cover A - To make the appearance clean by covering the connected cables - To install the projector with its rear upward or downward	
Option cover B To install the projector with its exhaust vents upward or downward	



A155U & A175U Installation Guide

Desktop and Ceiling Mount

Rev 1.0

Regulatory Labels

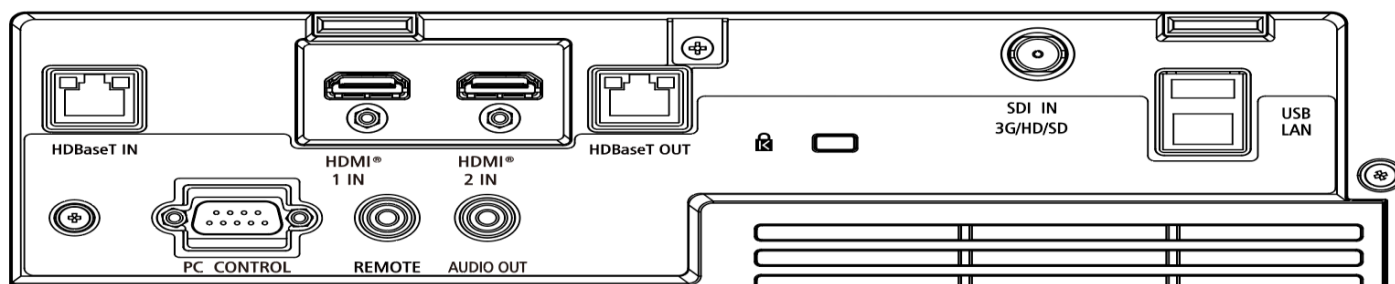
Label 1



Label 2



Input Panel



A155U & A175U Installation Guide

Desktop and Ceiling Mount

Rev 1.0

PC Control Codes

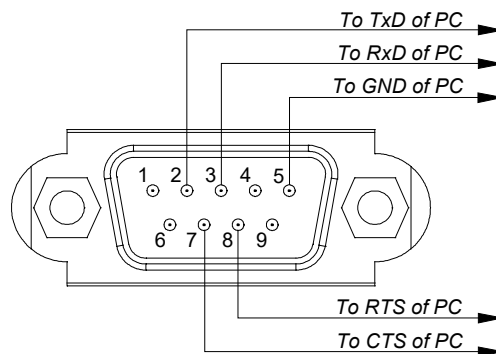
Function	Code Data							
POWER ON	02H	00H	00H	00H	00H	02H		
POWER OFF	02H	01H	00H	00H	00H	03H		
INPUT SELECT HDMI1	02H	03H	00H	00H	02H	01H	A1H	A9H
INPUT SELECT HDMI2	02H	03H	00H	00H	02H	01H	A2H	AAH
INPUT SELECT HDBaseT	02H	03H	00H	00H	02H	01H	BFH	C7H
INPUT SELECT SDI	02H	03H	00H	00H	02H	01H	C4H	CCH
PICTURE MUTE ON	02H	10H	00H	00H	00H	12H		
PICTURE MUTE OFF	02H	11H	00H	00H	00H	13H		
SOUND MUTE ON	02H	12H	00H	00H	00H	14H		
SOUND MUTE OFF	02H	13H	00H	00H	00H	15H		
ON SCREEN MUTE ON	02H	14H	00H	00H	00H	16H		
ON SCREEN MUTE OFF	02H	15H	00H	00H	00H	17H		
AUTO ADJUST	02H	0FH	00H	00H	02H	05H	00H	18H

Cable Connection

Communication Protocol:

Baud Rate: 38400 bps (for cable lengths longer than 20', it is recommended changing to 9600 bps in setup menu)
 Data Length: 8 bits
 Parity: No Parity
 Stop Bit: 1 bit
 X on/off: None
 Communications: Full duplex

PC Control Connector (D-Sub 9P)



NOTE 1: Pins 1, 4, 6, and 9 are used inside the projector.

NOTE 2: For long cable runs it is recommended to set communication speed within the projector to 9600 bps.

NOTE 3: Jumper "Request to Send" and "Clear to Send" together on both ends of the cable to simplify cable connection.