

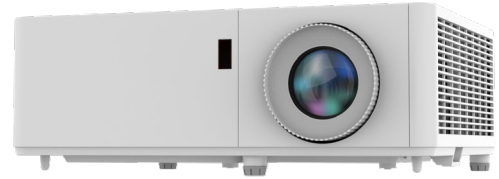
M380HL/M430WL Installation Guide

Ceiling Mounted and Desktop

Rev 1.2

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Product Description

Type:	1-Chip DLP Projector 0.65" DMD	Dimensions:	13.3" (W) x 4.7" (H) x 10.4" (D)
Resolution:	M380HL: 1920 x 1080 M430WL: 1280 x 800	Weight:	9.7 lbs
Fan Noise:	34dB / 31dB @ 1 meter	Brightness:	M380HL: 3800 Lumens M430WL: 4300 Lumens
Power Consumption:	250W (max) / 240W (typical)	BTU's:	853 BTU/hour

Lens Specifications

Throw Ratio:	M380HL: 1.4 – 2.2:1 (for 100" diagonal) M430WL: 1.5 – 2.3:1 (for 100" diagonal)	Focal Length:	M380HL: 19.2mm – 23.0mm M430WL: 17.4mm – 29.0mm
Offset Angle:	M380HL: 7.7° - 15.4° (for 100" diagonal) M430WL: 7.6° - 15.4° (for 100" diagonal)	F/#:	2.5 – 3.26
Screen Sizes:	30" - 300" diagonal (16:9) 30" - 300" diagonal (16:10)	Manual Focus/Manual Zoom/Manual Lens Shift	

Notes

- For screen sizes not indicated on the projection tables, use the formulas below.
If the figures on the tables do not match the results of formulas, use the figures in the table.
- All calculations are based on a 16:9 or 16:10 aspect ratio.
- Distances are in inches, for millimeters multiply by 25.4.
- Distances may vary $\pm 5\%$.

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Formulas: 16:9 Aspect Ratio

The Projection Formulas use the image width for calculation. For proper projection placement, determine the image width for the desired screen size. Use the Screen Formulas below to calculate all screen dimensions. Plug in the width for "W" in the Projection Formulas.

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

Definitions:

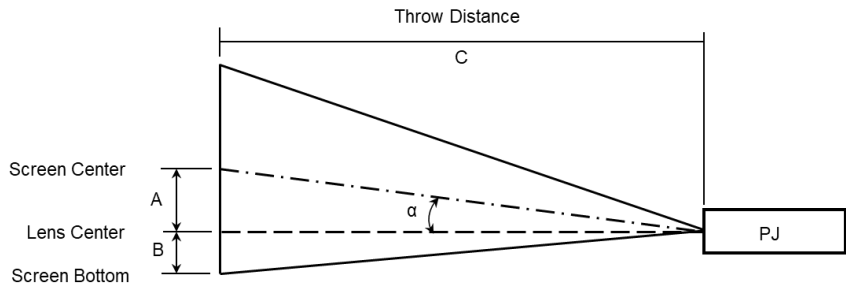
- W = Image Width
- H = Image Height (size)
- B = Vertical distance between lens center and screen center
- C = Throw distance
- D = Vertical distance between lens center and screen top
(screen bottom for desktop application)

16:9 1080p Screen Formulas:

- W = Image Width = H x 16/9
- H = Image Height = W x 9/16
- Screen Diagonal = W x 18.358/16

Projection Formulas:

- C (wide) = 1.4W
- C (tele) = 2.24W
- Vertical Lens Shift Max (Down) = -0.54H
- Vertical Lens Shift Max (Up) = 0.69H
- α (wide) = $\tan^{-1} (B/C(\text{wide}))$
- α (tele) = $\tan^{-1} (B/C(\text{tele}))$



Note: For screen sizes not indicated on the projection

Screen Size (16:9)			C wide - tele		Vertical Lens Shift Range (A)		Vertical Lens Shift Range (B)		α wide - tele (Lens Shift Min)		α wide - tele (Lens Shift Max)	
Diagonal inches	Width(W) inches	Height (H) inches	inches		inches		inches		degrees		degrees	
30	26	15	36.6	- 58.6	7.9	- 10.1	0.6	- 2.8	12.2	- 7.7	15.5	- 9.8
40	35	20	48.8	- 78.1	10.6	- 13.5	0.8	- 3.7	12.2	- 7.7	15.5	- 9.8
50	44	25	61.0	- 97.6	13.2	- 16.9	1.0	- 4.7	12.2	- 7.7	15.5	- 9.8
60	52	29	73.2	- 117.1	15.9	- 20.3	1.2	- 5.6	12.2	- 7.7	15.5	- 9.8
70	61	34	85.4	- 136.7	18.5	- 23.7	1.4	- 6.5	12.2	- 7.7	15.5	- 9.8
80	70	39	97.6	- 156.2	21.2	- 27.1	1.6	- 7.5	12.2	- 7.7	15.5	- 9.8
90	78	44	109.8	- 175.7	23.8	- 30.4	1.8	- 8.4	12.2	- 7.7	15.5	- 9.8
100	87	49	122.0	- 195.2	26.5	- 33.8	2.0	- 9.3	12.2	- 7.7	15.5	- 9.8
120	105	59	146.4	- 234.3	31.8	- 40.6	2.4	- 11.2	12.2	- 7.7	15.5	- 9.8
150	131	74	183.0	- 292.8	39.7	- 50.7	2.9	- 14.0	12.2	- 7.7	15.5	- 9.8
180	157	88	219.6	- 351.4	47.7	- 60.9	3.5	- 16.8	12.2	- 7.7	15.5	- 9.8
200	174	98	244.0	- 390.5	52.9	- 67.7	3.9	- 18.6	12.2	- 7.7	15.5	- 9.8
240	209	118	292.8	- 468.5	63.5	- 81.2	4.7	- 22.4	12.2	- 7.7	15.5	- 9.8
270	235	132	329.4	- 527.1	71.5	- 91.3	5.3	- 25.1	12.2	- 7.7	15.5	- 9.8
300	261	147	366.1	- 585.7	79.4	- 101.5	5.9	- 27.9	12.2	- 7.7	15.5	- 9.8

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Formulas: 16:10 Aspect Ratio

The Projection Formulas use the image width for calculation. For proper projection placement, determine the image width for the desired screen size. Use the Screen Formulas below to calculate all screen dimensions. Plug in the width for "W" in the Projection Formulas.

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

Definitions:

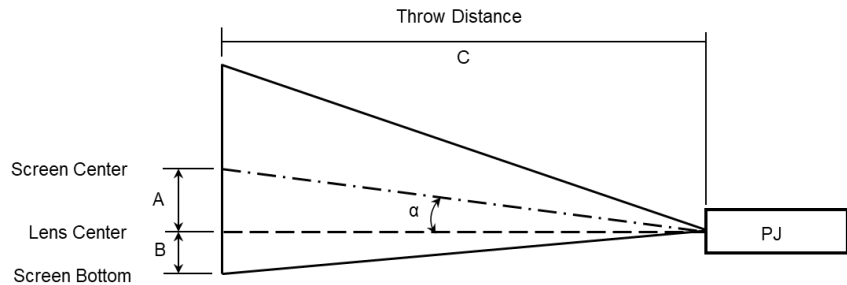
- W = Image Width
- H = Image Height (size)
- B = Vertical distance between lens center and screen center
- C = Throw distance
- D = Vertical distance between lens center and screen top
(screen bottom for desktop application)

16:10 WXGA Screen Formulas:

- W = Image Width = H x 16/10
- H = Image Height = W x 10/16
- Screen Diagonal = W x 18.868/16

Projection Formulas:

- C (wide) = 1.47W
- C (tele) = 2.35W
- Vertical Lens Shift Max (Down) = -0.5H
- Vertical Lens Shift Max (Up) = 0.65H
- α (wide) = $\tan^{-1}(B/C(\text{wide}))$
- α (tele) = $\tan^{-1}(B/C(\text{tele}))$



Note: For screen sizes not indicated on the projection

Screen Size (16:10)			C wide - tele inches	Vertical Lens Shift Range (A)		Vertical Lens Shift Range (B)		α wide - tele (Lens Shift Min) degrees		α wide - tele (Lens Shift Max) degrees							
Diagonal inches	Width(W) inches	Height (H) inches		Min	Max	Min	Max										
30	25	16	37.4	-	59.8	7.9	-	10.3	0.0	-	2.4	12.0	-	7.6	15.4	-	9.8
40	34	21	49.9	-	79.7	10.6	-	13.8	0.0	-	3.2	12.0	-	7.6	15.4	-	9.8
50	42	26	62.3	-	99.6	13.2	-	17.2	0.0	-	4.0	12.0	-	7.6	15.4	-	9.8
60	51	32	74.8	-	119.6	15.9	-	20.7	0.0	-	4.8	12.0	-	7.6	15.4	-	9.8
70	59	37	87.3	-	139.5	18.5	-	24.1	0.0	-	5.6	12.0	-	7.6	15.4	-	9.8
80	68	42	99.7	-	159.4	21.2	-	27.6	0.0	-	6.4	12.0	-	7.6	15.4	-	9.8
90	76	48	112.2	-	179.4	23.8	-	31.0	0.0	-	7.2	12.0	-	7.6	15.4	-	9.8
100	85	53	124.7	-	199.3	26.5	-	34.4	0.0	-	7.9	12.0	-	7.6	15.4	-	9.8
120	102	64	149.6	-	239.1	31.8	-	41.3	0.0	-	9.5	12.0	-	7.6	15.4	-	9.8
150	127	79	187.0	-	298.9	39.7	-	51.7	0.0	-	11.9	12.0	-	7.6	15.4	-	9.8
180	153	95	224.4	-	358.7	47.7	-	62.0	0.0	-	14.3	12.0	-	7.6	15.4	-	9.8
200	170	106	249.3	-	398.6	53.0	-	68.9	0.0	-	15.9	12.0	-	7.6	15.4	-	9.8
240	204	127	299.2	-	478.3	63.6	-	82.7	0.0	-	19.1	12.0	-	7.6	15.4	-	9.8
270	229	143	336.6	-	538.1	71.5	-	93.0	0.0	-	21.5	12.0	-	7.6	15.4	-	9.8
300	254	159	374.0	-	597.8	79.5	-	103.3	0.0	-	23.8	12.0	-	7.6	15.4	-	9.8

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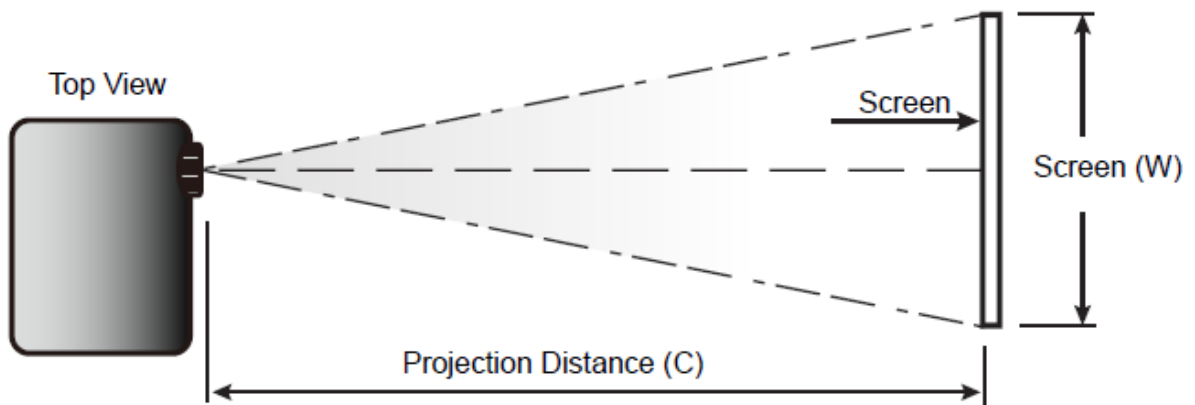
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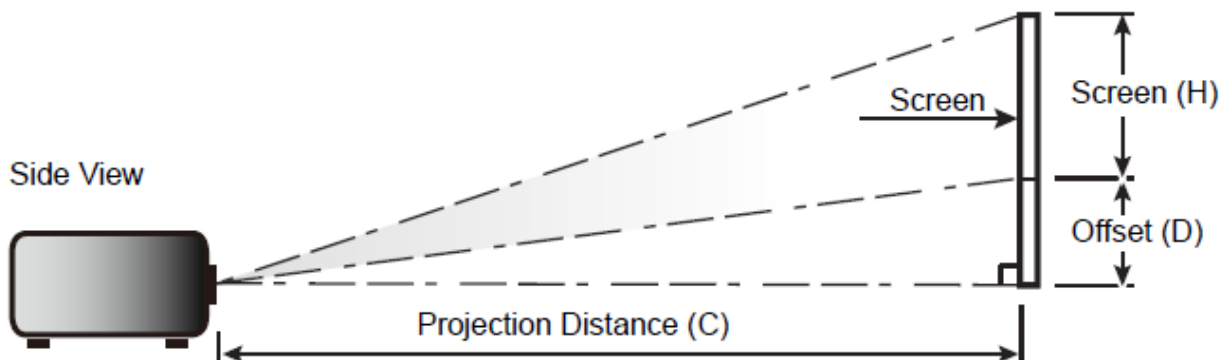
Diagrams (M430WL/M380HL)

The following shows the proper relative positions of the projector and screen. Refer to the table to determine the position of installation.

Top View



Side View

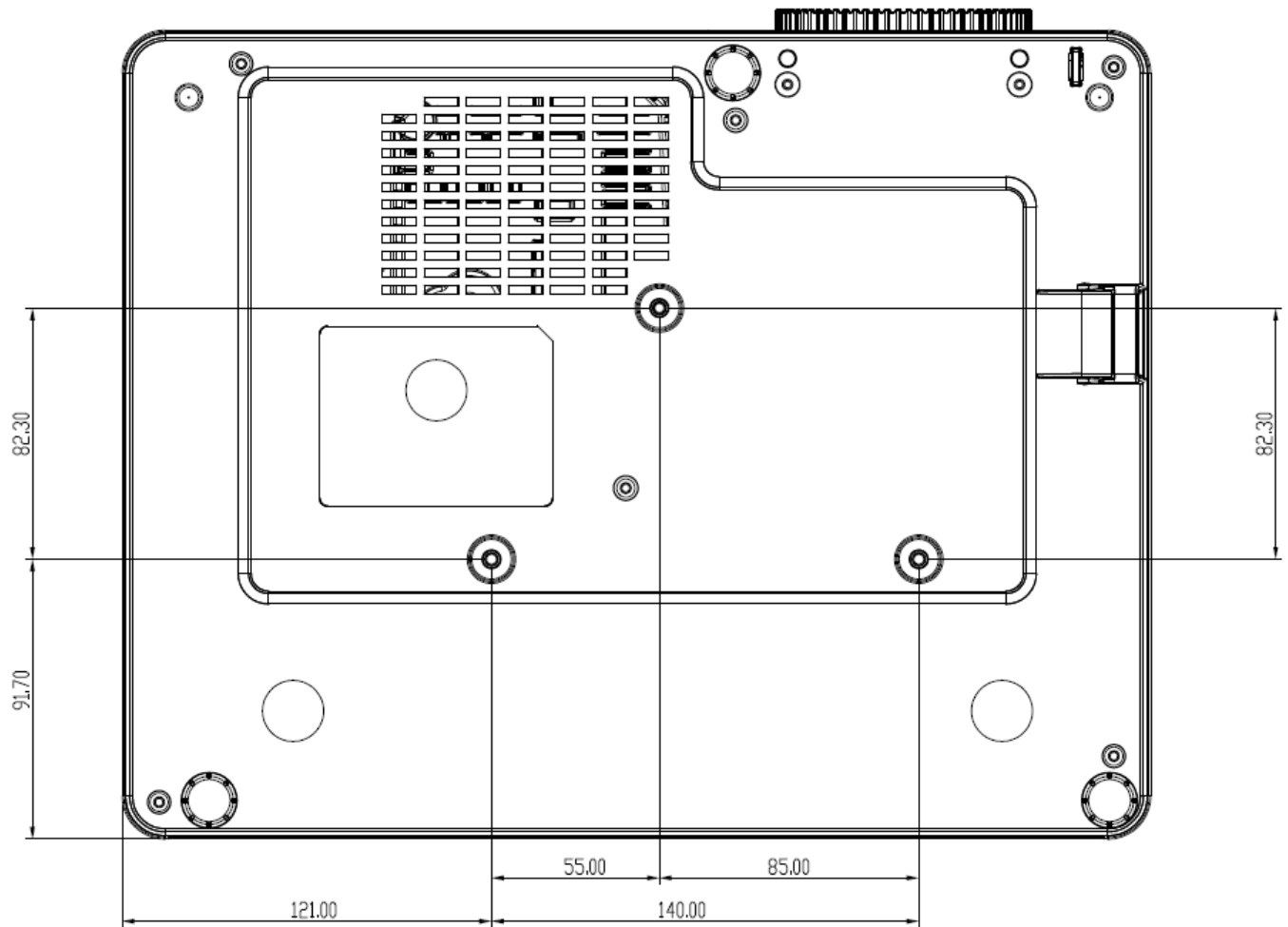


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Cabinet Dimensions

The following drawings show the cabinet dimensions.
Dimensions are in millimeters. For inches divide by 25.4.

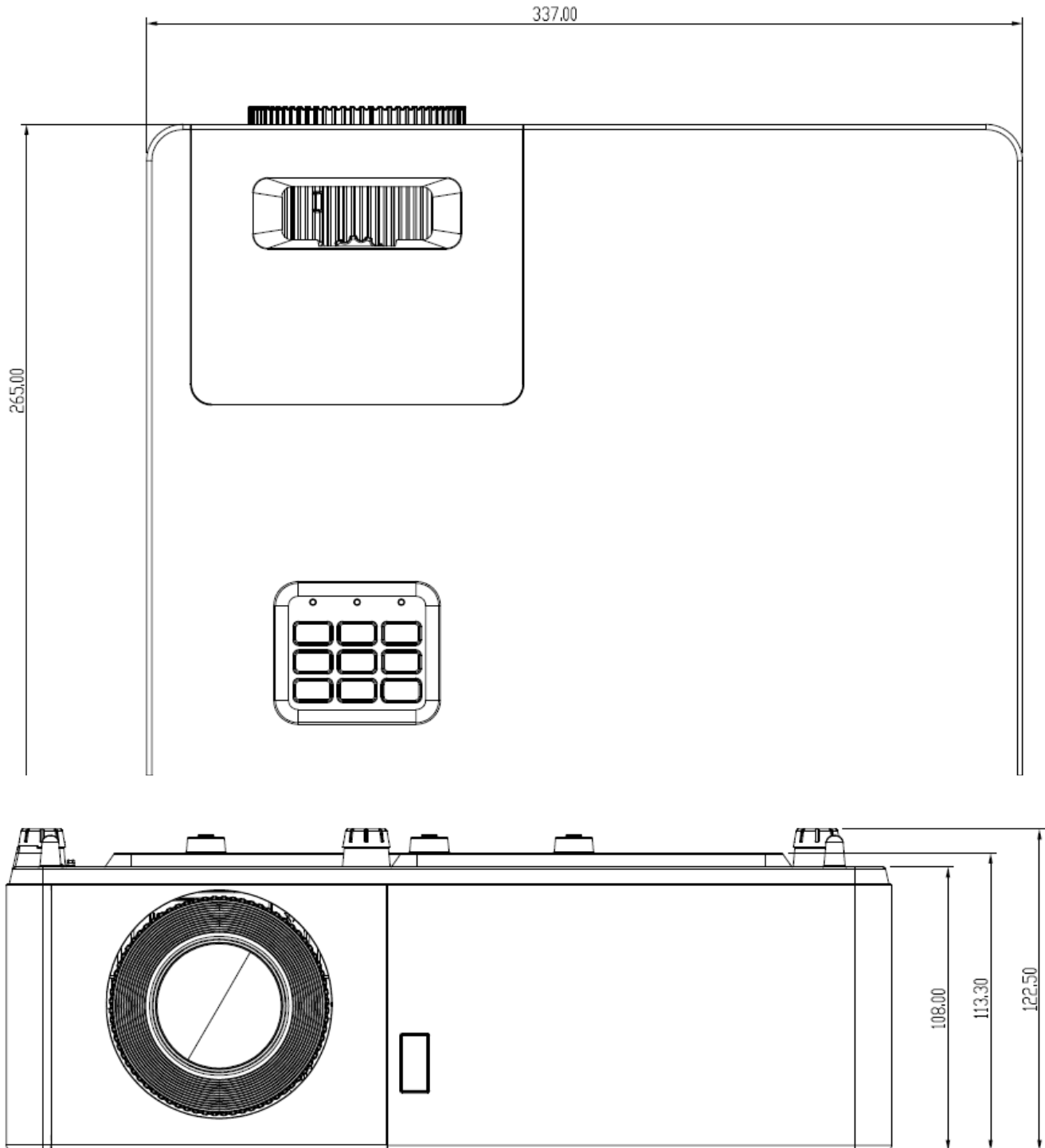


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Cabinet Dimensions (continued)

The following drawings show the cabinet dimensions.
Dimensions are in millimeters. For inches divide by 25.4.



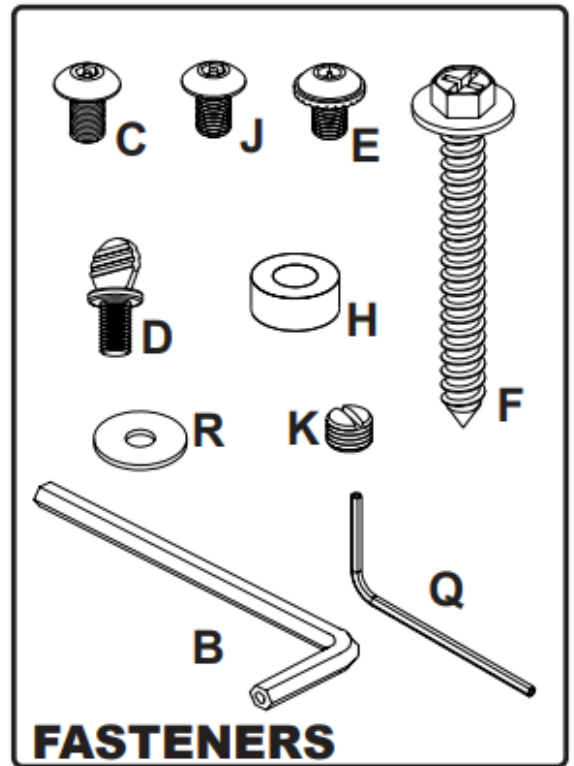
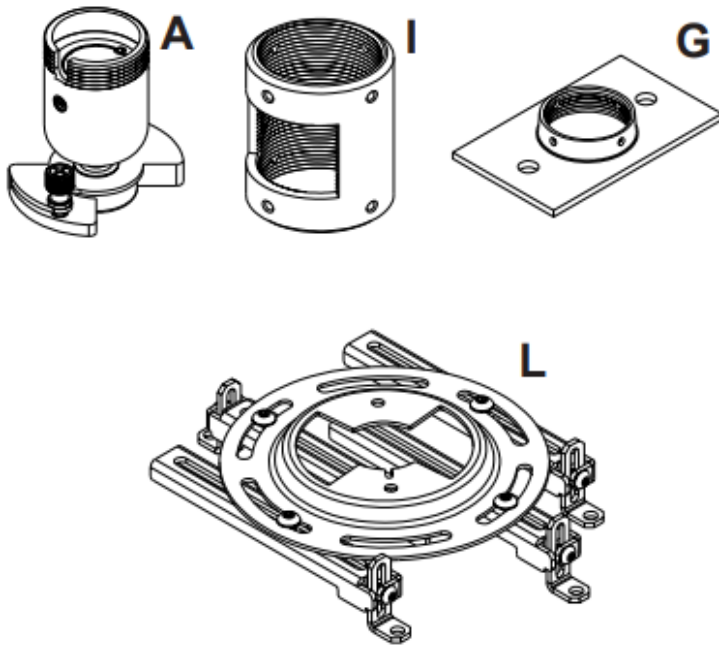
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Optional Universal Ceiling Mount Dimensions (Model #: NP01UCM)

The following drawings show the ceiling mount dimensions.
Dimensions are in inches. For millimeters multiply by 25.4.



Note: Actual parts may appear slightly different than illustrated.

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Input / Output Panel



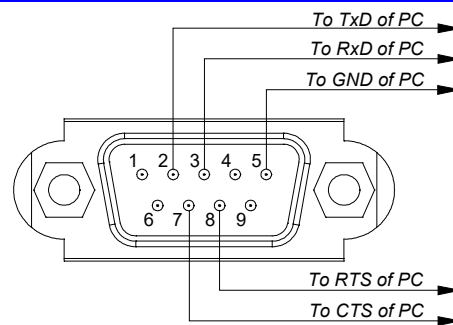
PC Control Codes

Function	Code Data
POWER ON	02H 00H 00H 00H 00H 02H
POWER OFF	02H 01H 00H 00H 00H 03H
INPUT SELECT COMPUTER	02H 03H 00H 00H 02H 01H 01H 09H
INPUT SELECT HDMI 1	02H 03H 00H 00H 02H 01H 1AH A9H
INPUT SELECT HDMI 2	02H 03H 00H 00H 02H 01H A2H AAH
INPUT SELECT VIDEO	02H 03H 00H 00H 02H 01H 06H 0EH
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

Cable Connection

Communication Protocol:

- Baud Rate: 38400 bps
- Data Length: 8 bits
- Parity: No Parity
- Stop Bit: One Bit
- X on/off: None
- Communications: Full duplex



PC Control Connector (D-Sub 9P)

NOTE 1: Pins 1, 4, 6, and 9 are not used inside the projector.

NOTE 2: Jumper "Request to Send" and "Clear to Send" together on both ends of the cable to simplify cable connection.