M401H & M421W Installation Guide

Rev 1.0

Desktop and Ceiling Mount

Contents

Product Description

Type:	1-Chip DLP Projector 0.65" DMD	**Dimensions:**	10.9" (W) x 4.5" (H) x 8.5" (D)
Resolution:	M401H: 1920 x 1080 M421W: 1280 x 800	**Weight:**	6.6 lbs
Fan Noise:	36dB / 26dB @ 1 meter	**Brightness:**	M401H: 4000 Lumens M421W: 4200 Lumens
Power Consumption:	195W (max) / 150W (eco)	**BTU's:**	666 BTU/hour

Lens Specifications

Throw Ratio:	M401H:	1.16 – 1.47:1 (for 100" diagonal)	**Focal Length:**	M401H:	17.3mm – 21.6mm
	M421W:	1.19 – 1.54:1 (for 100" diagonal)		M421W:	16.9mm – 21.6mm
Offset Angle:	M401H:	14.3° - 17.9° (for 100" diagonal)	**F/#:**	M401H:	2.45 – 2.78
	M421W:	14.3° - 18.3° (for 100" diagonal)		M421W:	2.43 – 2.78
Image Sizes:	40" - 120" diagonal (16:9)		**Manual Focus/Manual Zoom**		
(Guaranteed)	40" - 120" diagonal (16:10)				

Screen/Aspect Ratio

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

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Formulas for M401H

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 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 3:

Projection Formulas:

L (wide) = 1.160W – 0.831

L (tele) = 1.470W – 1.225

Definitions:

W = Image Width

H = Image Height (size)

L = Throw distance

16:10 Screen Formulas

W = H x 16/9

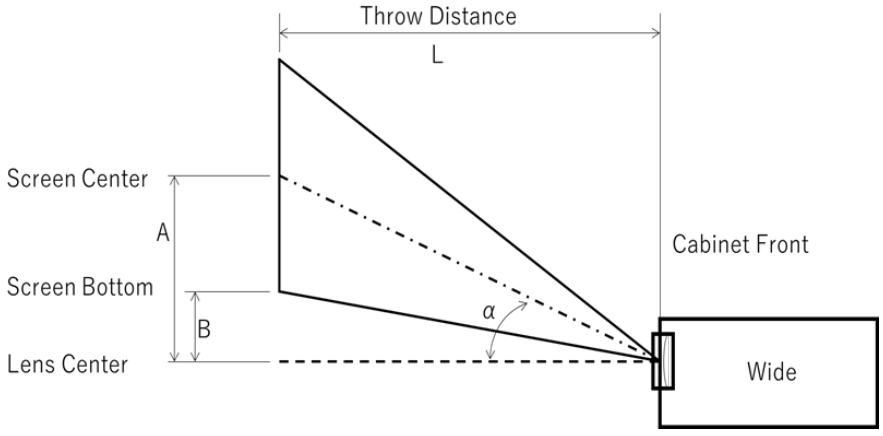
H = W x 9/16

Diagonal = W x 18.358/16

Diagrams and Distance Charts for M401H

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

Screen Size			Throw Distance L		A	B	α	
Diagonal	Width	Height	wide	tele			wide	tele
inch	inch	inch	inch	inch	inch	inch	deg	deg
40	35	20	39.6	50.0	12.9	3.1	18.1	14.5
60	52	29	59.8	75.6	19.4	4.7	18.0	14.4
80	70	39	80.1	101.3	25.9	6.3	17.9	14.3
100	87	49	100.3	126.9	32.4	7.8	17.9	14.3
120	105	59	120.5	152.5	38.8	9.4	17.9	14.3
150	131	74	150.8	191.0	48.5	11.8	17.8	14.3
180	157	88	181.2	229.4	58.2	14.1	17.8	14.2
200	174	98	201.4	255.0	64.7	15.7	17.8	14.2



Notes

- For screen sizes not indicated on the projection tables, use the formulas on page 2.
  If the figures in the table 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 ±5%.

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Formulas for M421W

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 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 3:

Projection Formulas:

L (wide) = 1.187W – 0.831

L (tele) = 1.544W – 1.225

Definitions:

W = Image Width

H = Image Height (size)

L = Throw distance

16:10 Screen Formulas

W = H x 16/10

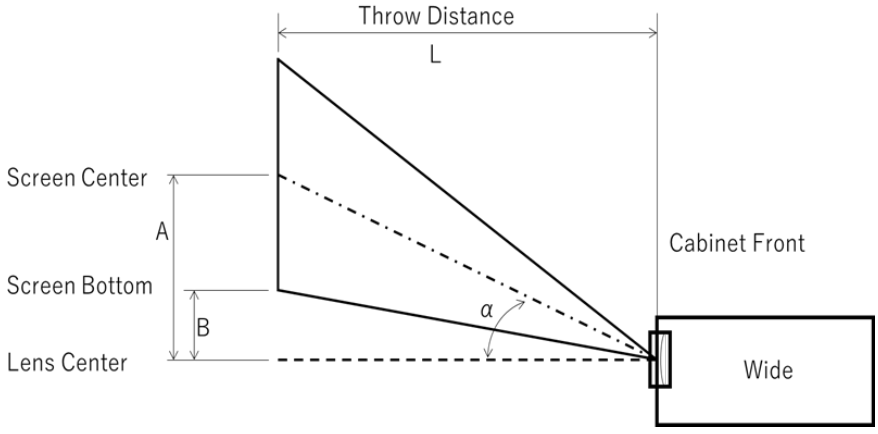
H = W x 10/16

Diagonal = W x 18.868/16

Diagrams and Distance Charts for M421W

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

Screen Size			Throw Distance L		A	B	α	
Diagonal	Width	Height	wide	tele			wide	tele
inch	inch	inch	inch	inch	inch	inch	deg	deg
40	34	21	39.4	51.1	13.2	2.6	18.5	14.5
60	51	32	59.6	77.3	19.8	3.9	18.4	14.4
80	68	42	79.7	103.5	26.5	5.3	18.4	14.3
100	85	53	99.8	129.7	33.1	6.6	18.3	14.3
120	102	64	120.0	155.9	39.7	7.9	18.3	14.3
150	127	79	150.2	195.2	49.6	9.9	18.3	14.3
180	153	95	180.4	234.5	59.5	11.8	18.3	14.2
200	170	106	200.5	260.6	66.1	13.1	18.3	14.2



Notes

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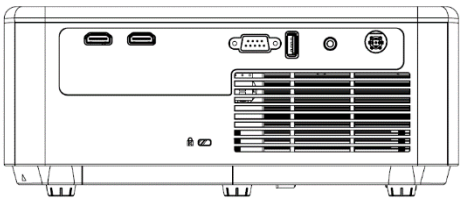
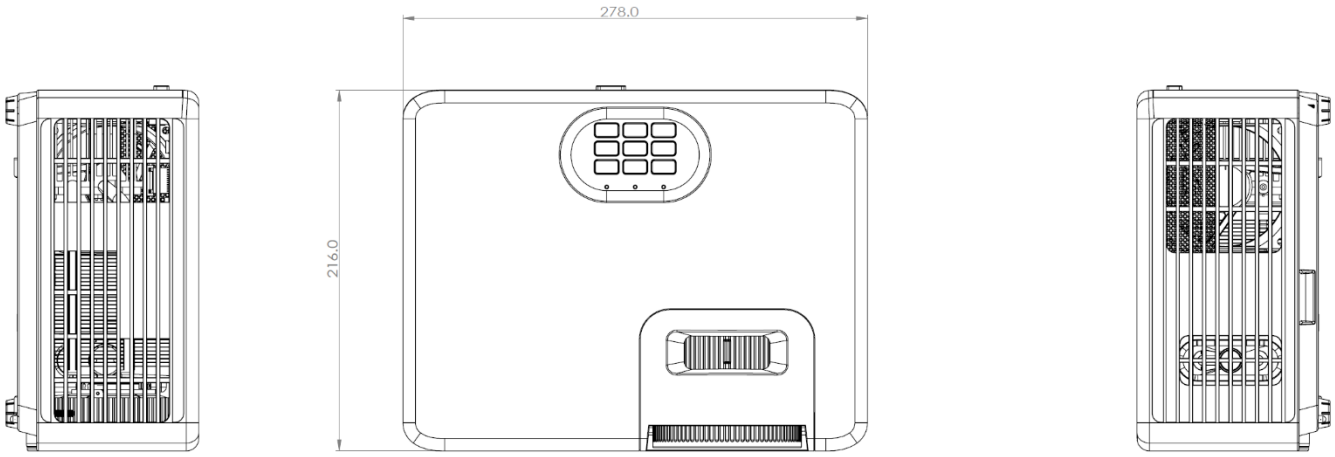
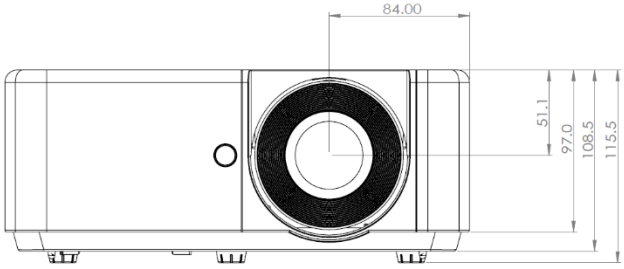
Cabinet Dimensions

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







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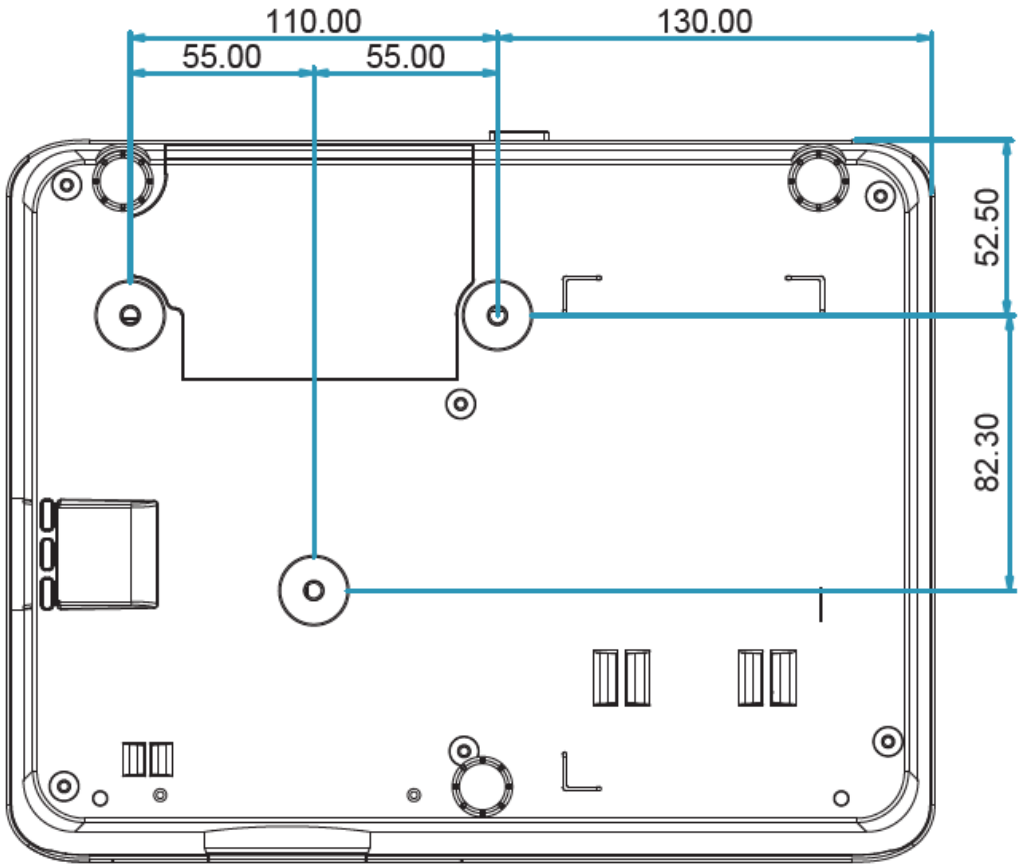
Cabinet Dimensions (continued)

The following drawing shows the mounting hole locations with mount pattern dimensions.



Unit: mm

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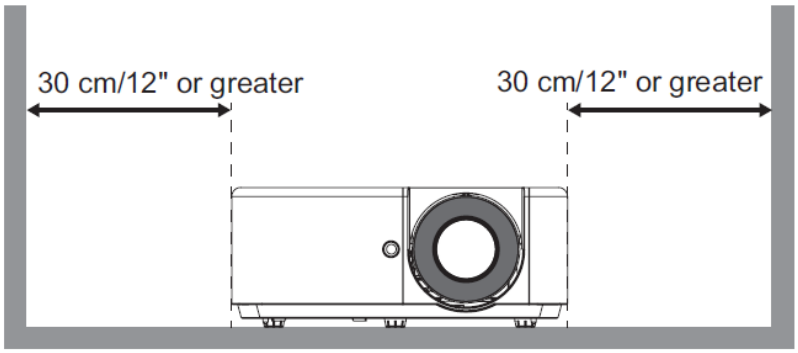
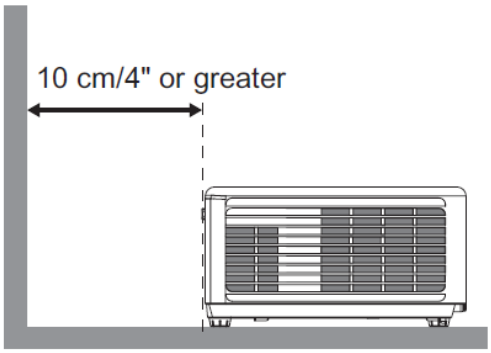
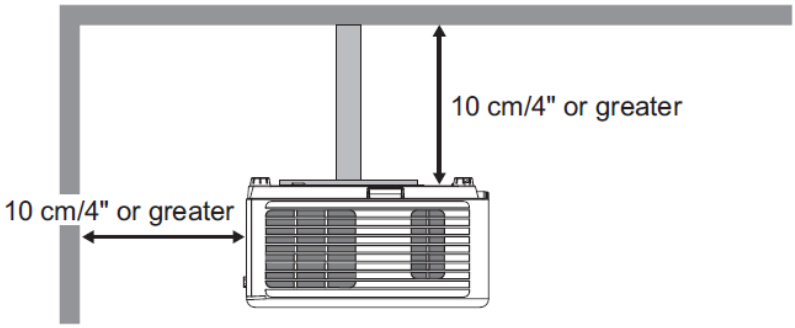
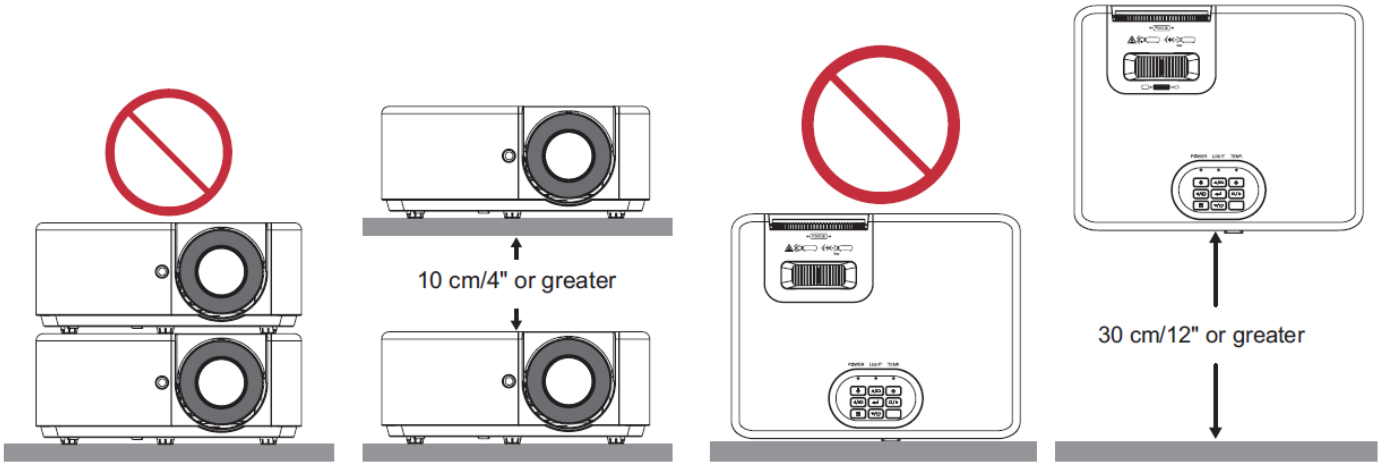
Ventilation Requirements









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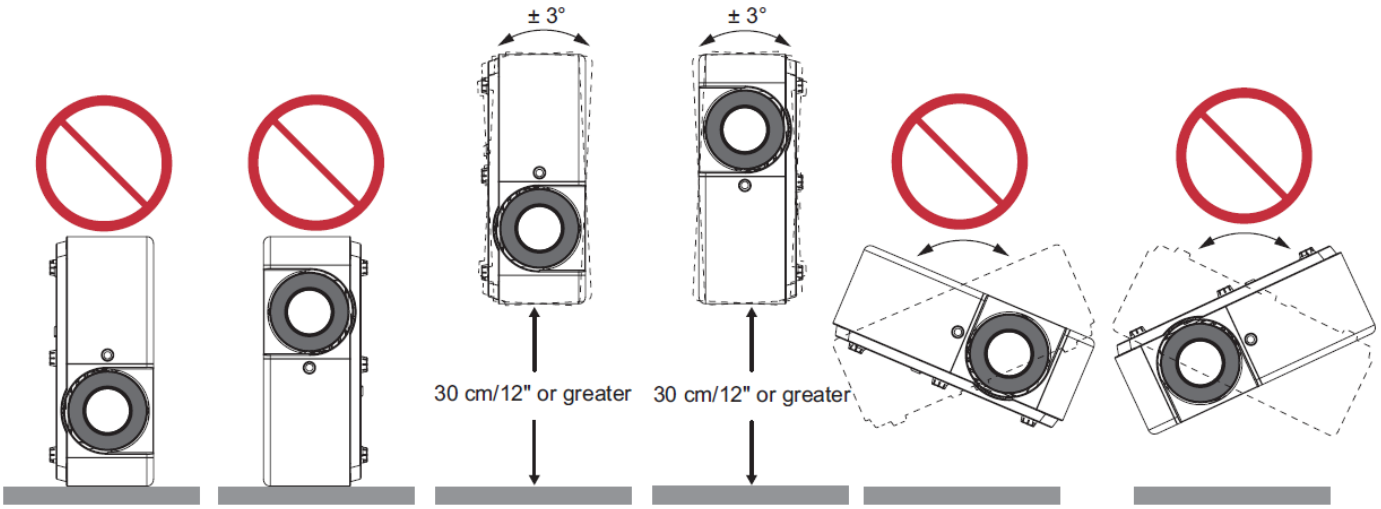
Ventilation Requirements (continued)



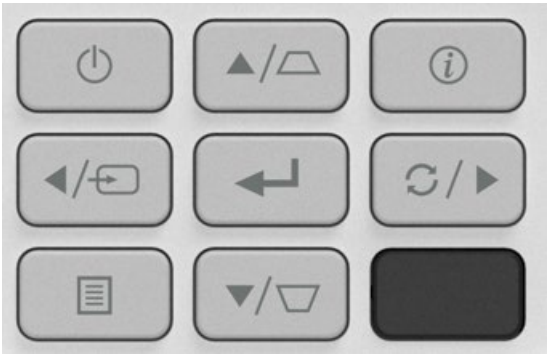
AC Adapter Notice

Place the AC adapter at least 30 cm away from the projector.

If the heat from the projector causes the AC adapter to become hot, the projector may not operate properly.

Input Panel

Control Panel



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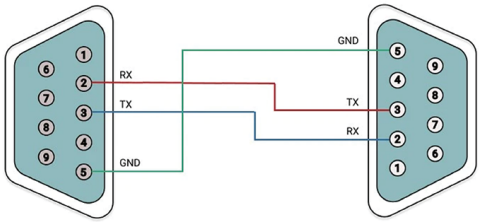
PC Control Codes

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
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 Contion

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: *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.*