

M402H Installation Guide Ceiling Mounted and Desktop

Rev 1.1

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Product Description

Type:	1 Chip DLP Projector 0.65" DMD	Dimensions:	14.5" (W) x 4.3" (H) x 11.5" (D) 368mm (W) x 108mm (H) x 291mm (D)
Resolution:	1920 x 1080	Weight:	8.2 lbs / 3.7kg
Fan Noise:	39 dB / 33dB @ 1 meter	Brightness:	4000 Lumens
Power Consumption:	335W (max)	BTU's:	1208 BTU/hour

Lens Specifications

Throw Ratio:	1.2 – 2.0:1 (for 100" diagonal)	Focal Length:	17.09mm – 29.05mm
Offset Angle:	10.1° - 17.2° (for 100" diagonal)	F/#:	2.4 - 3.1
Screen Sizes:	30" - 300" diagonal (16:9)	Manual Focus/Manual Zoom	

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 16:10 aspect ratio.
- Distances are in inches, for millimeters multiply by 25.4.
- Distances may vary $\pm 5\%$.

Formulas

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 Screen Formulas:

$W = H \times 16/9$
 $H = W \times 10/9$
Screen Diagonal = $W \times 18.358/16$

Projection Formulas:

$B = 0.371W - 0.01$
 $C \text{ (wide)} = 1.231W - 2.84$
 $C \text{ (tele)} = 2.134W - 3.678$
 $D = 0.09W + 0.01$
 $\alpha \text{ (wide)} = \tan^{-1} (B/C \text{ (wide)})$
 $\alpha \text{ (tele)} = \tan^{-1} (B/C \text{ (tele)})$

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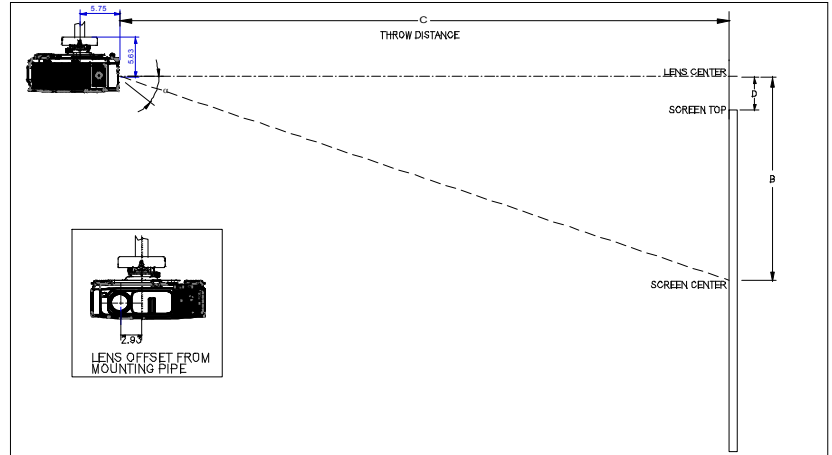
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Diagrams and Distance Charts

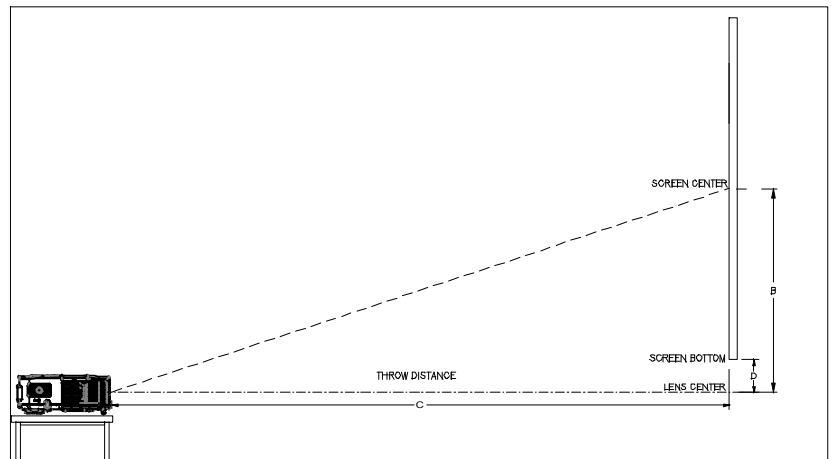
The following shows the proper relative positions of the projector and screen. Refer to the table to determine the position of installation.

Distances are in inches. For millimeters multiply by 25.4.

Ceiling Mounted



Desktop



Distance Chart for popular 16:9 screens

Screen Size (16:9)			B inches	C wide - tele inches		D inches	α wide - tele degrees	
Diagonal inches	Width(W) inches	Height (H) inches						
61	53	30	20	63	110	5	17.5	10.2
71	62	35	23	74	129	6	17.4	10.1
73	64	36	24	76	133	6	17.4	10.1
82	71	40	26	85	148	6	17.3	10.1
86	75	42	28	89	156	7	17.3	10.1
92	80	45	30	96	167	7	17.2	10.1
100	87	49	32	104	182	8	17.2	10.1
106	92	52	34	111	194	8	17.2	10.0
110	96	54	36	115	201	9	17.2	10.0
120	105	59	39	126	220	9	17.1	10.0
122	107	60	40	128	224	10	17.1	10.0
133	116	65	43	139	243	10	17.1	10.0
135	117	66	44	142	247	11	17.1	10.0
159	139	78	51	168	292	12	17.0	10.0
161	140	79	52	170	296	13	17.0	10.0
230	201	113	75	244	425	18	17.0	9.9
275	240	135	89	293	508	22	16.9	9.9

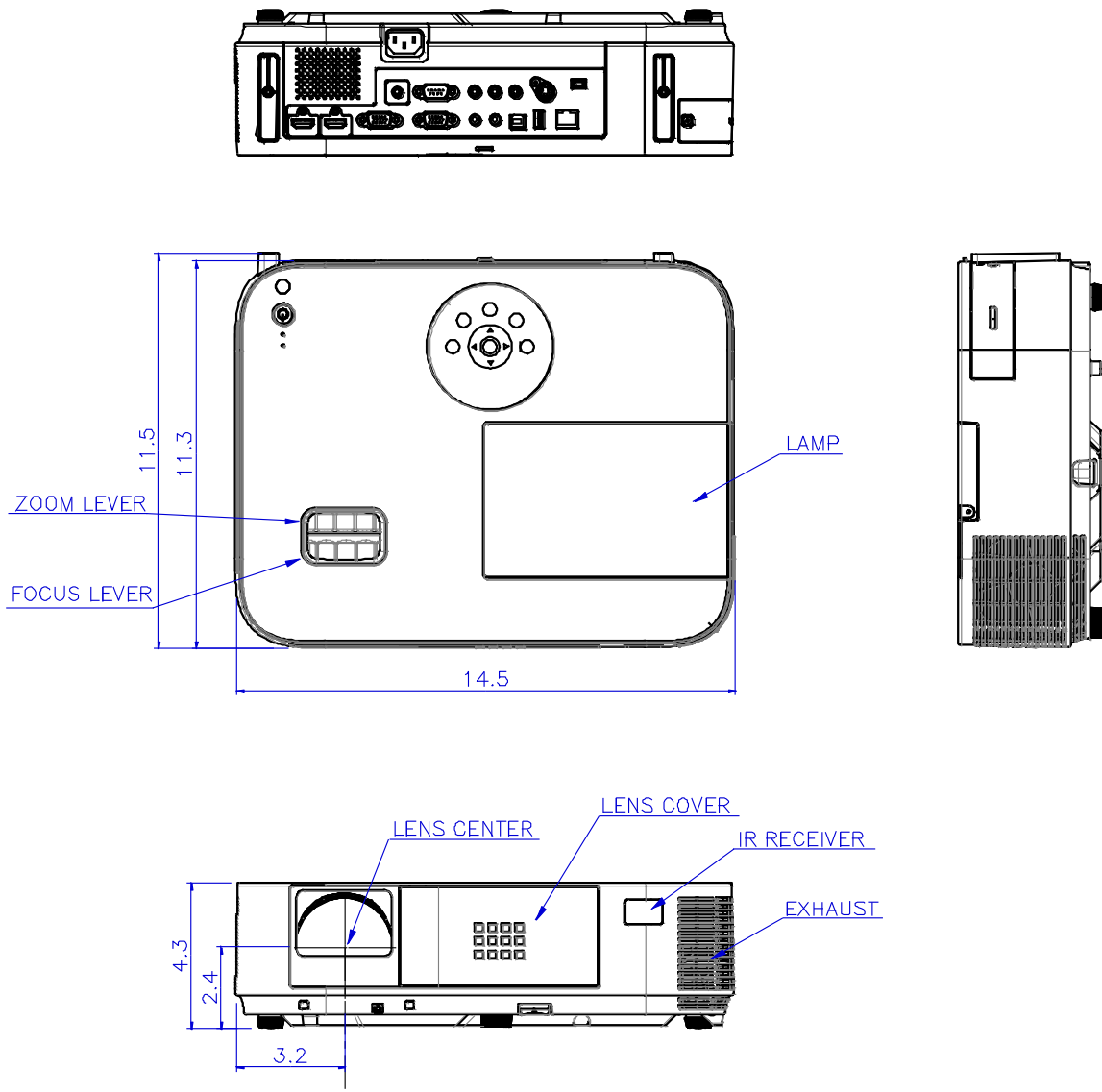
Note: For screen sizes not indicated on the projection tables, use the formulas on page 1.

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Cabinet Dimensions

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



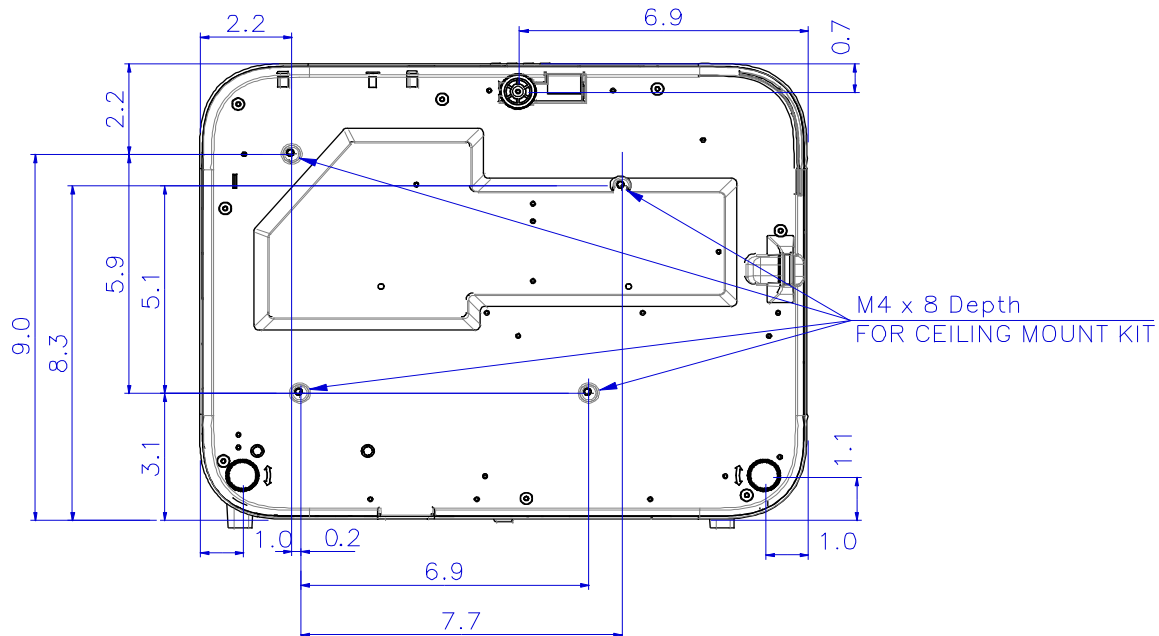
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Cabinet Dimensions (continued)

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



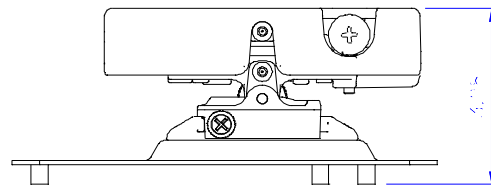
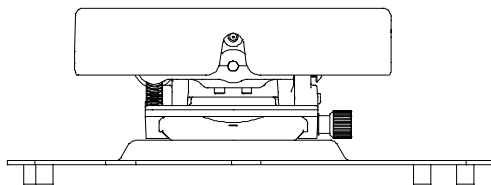
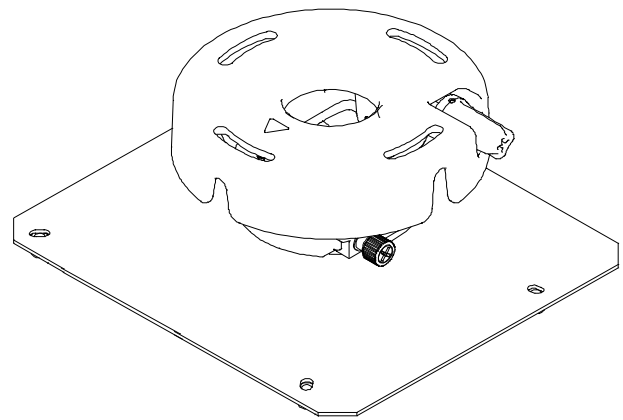
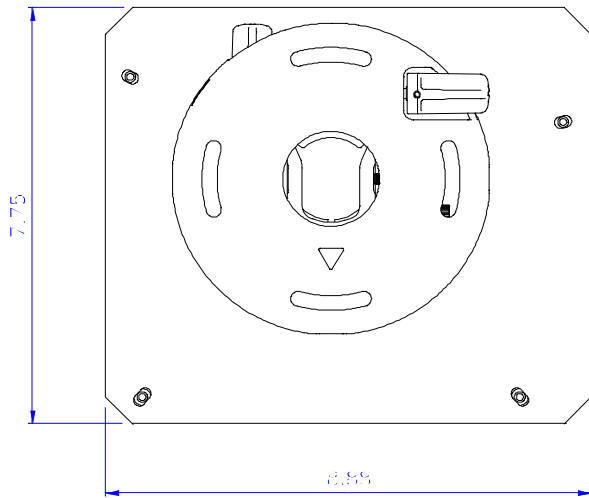
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Optional Ceiling Mount Dimensions (Model #: MP300CM)

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



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Input / Output Panel



PC Control Codes

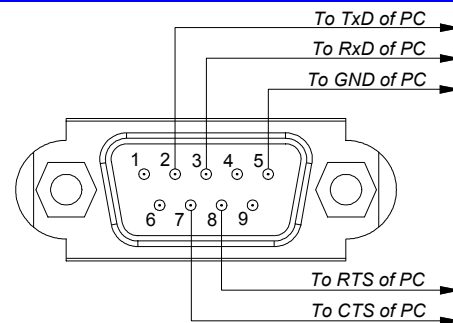
Function	Code Data
POWER ON	02H 00H 00H 00H 00H 02H
POWER OFF	02H 01H 00H 00H 00H 03H
INPUT SELECT COMPUTER1	02H 03H 00H 00H 02H 01H 01H 09H
INPUT SELECT HDMI 1	02H 03H 00H 00H 02H 01H 1AH 22H
INPUT SELECT HDMI 2	02H 03H 00H 00H 02H 01H 12H AAH
INPUT SELECT VIDEO	02H 03H 00H 00H 02H 01H 06H 0EH
INPUT SELECT VIEWER	02H 03H 00H 00H 02H 01H 1FH 27H
INPUT SELECT NETWORK	02H 03H 00H 00H 02H 01H 20H 28H
INPUT SELECT USB DISPLAY	02H 03H 00H 00H 02H 01H 22H 2AH
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
PROJECTOR INFORMATION REQUEST	00H BFH 00H 00H 01H 02H C2H
ERROR STATUS REQUEST	00H 88H 00H 00H 00H 88H
INFORMATION REQUEST	03H 8AH 00H 00H 00H 8DH

Note: Contact your NEC rep for codes not listed.

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 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.