

MC423W/ME423W/ME403U Installation Guide

Ceiling Mounted and Desktop

Rev 1.0

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Product Description

Type:	3 panel LCD Projector 0.64" p-Si TFT w/MLA	Dimensions:	13.6" (W) x 4.3" (H) x 10.3" (D) 13.6" (W) x 4.5" (H) x 11.2" (D) (ME403U)
Resolution:	MC423W/ME423W: 1280 x 800 ME403U: 1920 x 1200	Weight:	7.1 lbs 7.7 lbs (ME403U)
Fan Noise:	37dB / 29dB @ 1 meter	Brightness:	MC423W: 4200 Lumens ME423W: 4200 Lumens ME403U: 4000 Lumens
Power Consumption:	MC423W TBDW (max) ME423W: TBDW (max) ME403U: TBDW (max)	BTU's:	MC423W: 1040 BTU/hour ME423W: 1040 BTU/hour ME403U: 1088 BTU/hour

Lens Specifications

Throw Ratio:	MC423W: 1.4 – 1.6:1 (for 100" diagonal) ME423W: 1.2 – 2.1:1 (for 100" diagonal) ME403U: 1.2 – 2.0:1 (for 100" diagonal)	Focal Length:	MC423W: 19.2mm – 23.0mm ME423W: 17.4mm – 29.0mm ME403U: 17.2mm – 27.7mm
Offset Angle:	MC423W: 8.6° - 10.3° (for 100" diagonal) ME423W: 6.6° - 11.0° (for 100" diagonal) ME403U: 6.9° - 11.1° (for 100" diagonal)	F/#:	MC423W: 1.6 - 1.76 ME423W: 1.7 - 2.2 ME403U: 1.5 - 2.08
Screen Sizes:	30" - 300" diagonal (16:10)	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)

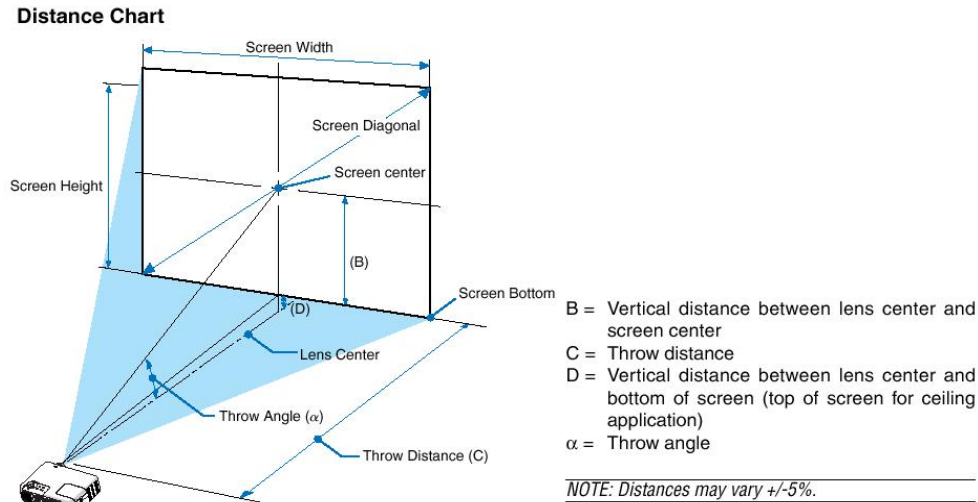
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Diagrams and Distance Charts for MC423W

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.



Distance Chart for popular 16:10 screens

16:10 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:

B = 0.2481W

C (wide) = 1.3798W - 0.9771

C (tele) = 1.6576W - 0.9812

D = -0.0644W

α (wide) = tan⁻¹ (B/C(wide))

α (tele) = tan⁻¹ (B/C(tele))

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

Screen Size (16:10)			B	C	D	α
Diagonal	Width(W)	Height (H)				
inches	inches	inches	inches	wide - tele	inches	degrees
30	25	16	6	34 - 41	-2	10.5 - 8.7
40	34	21	8	46 - 55	-2	10.4 - 8.7
60	51	32	13	69 - 83	-3	10.3 - 8.6
76	64	40	16	88 - 106	-4	10.3 - 8.6
77	65	41	16	89 - 107	-4	10.3 - 8.6
78	66	41	16	90 - 109	-4	10.3 - 8.6
80	68	42	17	93 - 111	-4	10.3 - 8.6
86	73	46	18	100 - 120	-5	10.3 - 8.6
88	75	47	19	102 - 123	-5	10.3 - 8.6
90	76	48	19	104 - 126	-5	10.3 - 8.6
100	85	53	21	116 - 140	-5	10.3 - 8.6
110	93	58	23	128 - 154	-6	10.3 - 8.6
120	102	64	25	139 - 168	-7	10.3 - 8.6
130	110	69	27	151 - 182	-7	10.3 - 8.6
150	127	79	32	175 - 210	-8	10.2 - 8.6
200	170	106	42	233 - 280	-11	10.2 - 8.5
300	254	159	63	350 - 421	-16	10.2 - 8.5

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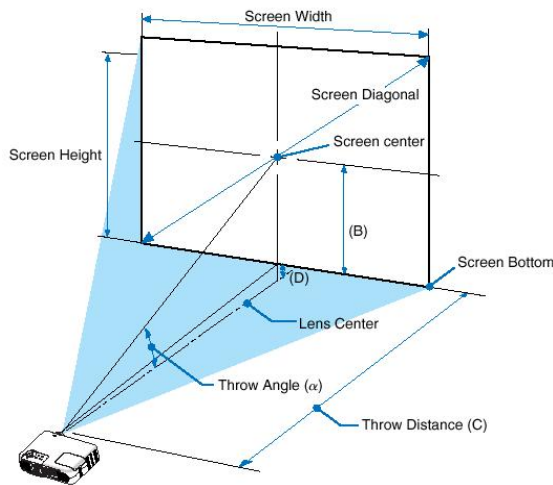
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Diagrams and Distance Charts for ME423W

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.

Distance Chart



- B = Vertical distance between lens center and screen center
- C = Throw distance
- D = Vertical distance between lens center and bottom of screen (top of screen for ceiling application)
- α = Throw angle

NOTE: Distances may vary +/-5%.

Distance Chart for popular 16:10 screens

16:10 Screen Formulas:

$W = \text{Image Width} = H \times 16/10$

$H = \text{Image Height} = W \times 10/16$

Screen Diagonal = $W \times 18.868/16$

Projection Formulas:

$B = 0.2387W$

$C (\text{wide}) = 1.254W - 1.8197$

$C (\text{tele}) = 2.0843W - 1.8197$

$D = -0.0738W$

$\alpha (\text{wide}) = \tan^{-1} (B/C(\text{wide}))$

$\alpha (\text{tele}) = \tan^{-1} (B/C(\text{tele}))$

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

Screen Size (16:10)			B	C		D	α	
Diagonal	Width(W)	Height (H)		wide - tele			degrees	
inches	inches	inches	inches	inches		inches		
30	25	16	6	30	- 51	-2	11.4	- 6.8
40	34	21	8	41	- 69	-3	11.2	- 6.7
60	51	32	12	62	- 104	-4	11.1	- 6.6
76	64	40	15	79	- 133	-5	11.0	- 6.6
77	65	41	16	80	- 134	-5	11.0	- 6.6
78	66	41	16	81	- 136	-5	11.0	- 6.6
80	68	42	16	83	- 140	-5	11.0	- 6.6
86	73	46	17	90	- 150	-5	11.0	- 6.6
88	75	47	18	92	- 154	-6	11.0	- 6.6
90	76	48	18	94	- 157	-6	11.0	- 6.6
100	85	53	20	105	- 175	-6	11.0	- 6.6
110	93	58	22	115	- 193	-7	10.9	- 6.6
120	102	64	24	126	- 210	-8	10.9	- 6.6
130	110	69	26	136	- 228	-8	10.9	- 6.6
150	127	79	30	158	- 263	-9	10.9	- 6.6
200	170	106	40	211	- 352	-13	10.9	- 6.6
300	254	159	61	317	- 528	-19	10.8	- 6.6

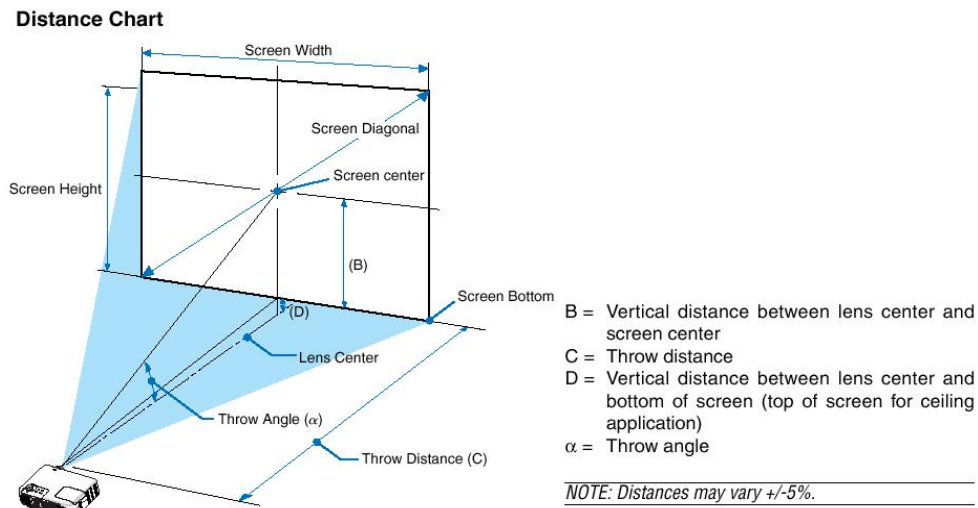
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Diagrams and Distance Charts for ME403U

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.



Distance Chart for popular 16:10 screens

16:10 Screen Formulas:

$W = \text{Image Width} = H \times 16/10$

$H = \text{Image Height} = W \times 10/16$

Screen Diagonal = $W \times 18.868/16$

Projection Formulas:

$B = 0.2387W$

$C (\text{wide}) = 1.2379W - 1.8181$

$C (\text{tele}) = 1.9993W - 1.7272$

$D = -0.0738W$

$\alpha (\text{wide}) = \tan^{-1} (B/C(\text{wide}))$

$\alpha (\text{tele}) = \tan^{-1} (B/C(\text{tele}))$

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

Screen Size (16:10)			B	C		D	α	
Diagonal	Width(W)	Height (H)		wide - tele			degrees	
inches	inches	inches	inches	inches		inches		
30	25	16	6	30	- 49	-2	11.6	- 7.0
40	34	21	8	40	- 66	-3	11.4	- 7.0
60	51	32	12	61	- 100	-4	11.2	- 6.9
76	64	40	15	78	- 127	-5	11.2	- 6.9
77	65	41	16	79	- 129	-5	11.2	- 6.9
78	66	41	16	80	- 131	-5	11.2	- 6.9
80	68	42	16	82	- 134	-5	11.1	- 6.9
86	73	46	17	88	- 144	-5	11.1	- 6.9
88	75	47	18	91	- 147	-6	11.1	- 6.9
90	76	48	18	93	- 151	-6	11.1	- 6.9
100	85	53	20	103	- 168	-6	11.1	- 6.9
110	93	58	22	114	- 185	-7	11.1	- 6.9
120	102	64	24	124	- 202	-8	11.1	- 6.9
130	110	69	26	135	- 219	-8	11.1	- 6.9
150	127	79	30	156	- 253	-9	11.0	- 6.9
200	170	106	40	208	- 337	-13	11.0	- 6.8
300	254	159	61	313	- 507	-19	11.0	- 6.8

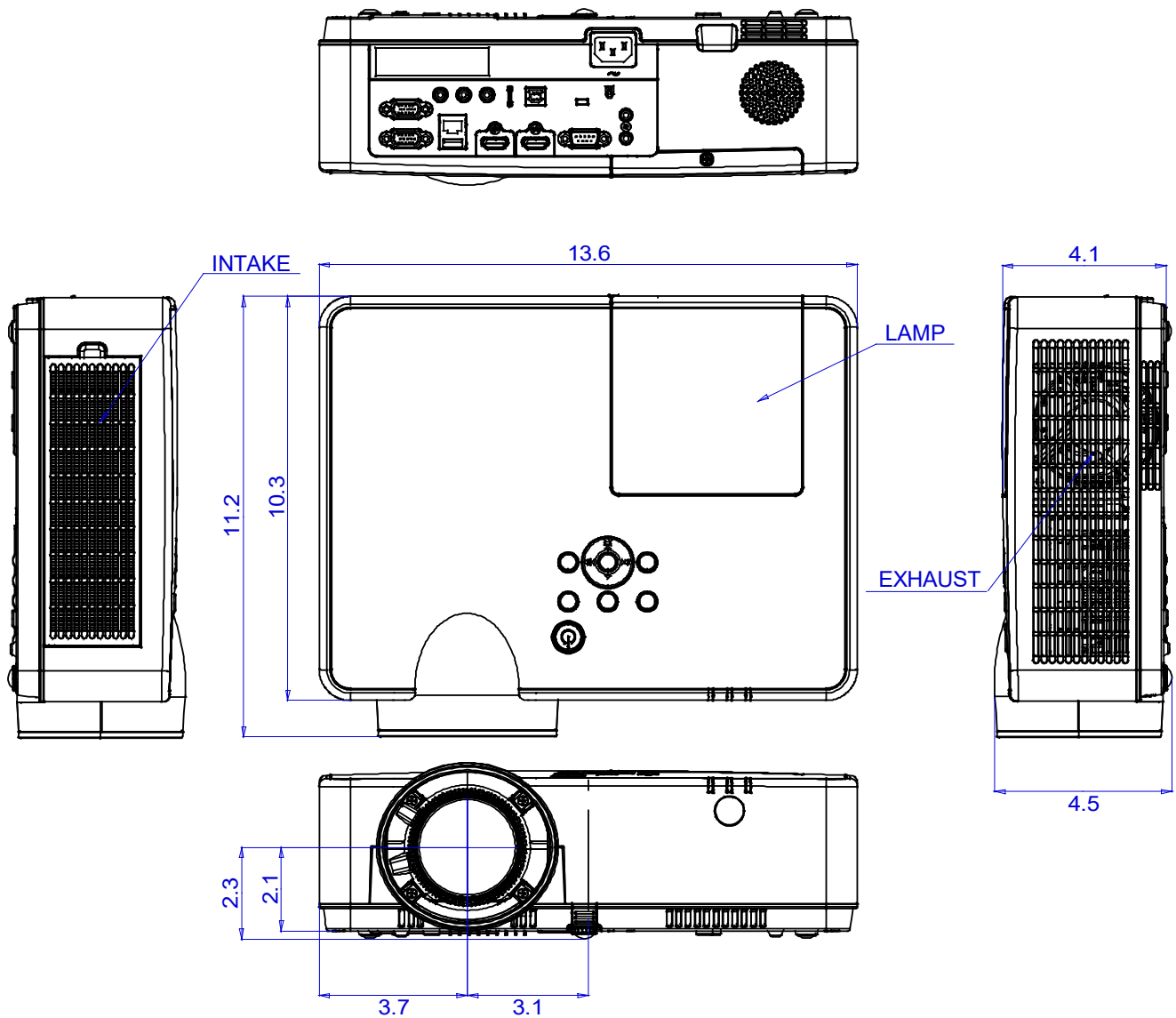
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Cabinet Dimensions

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



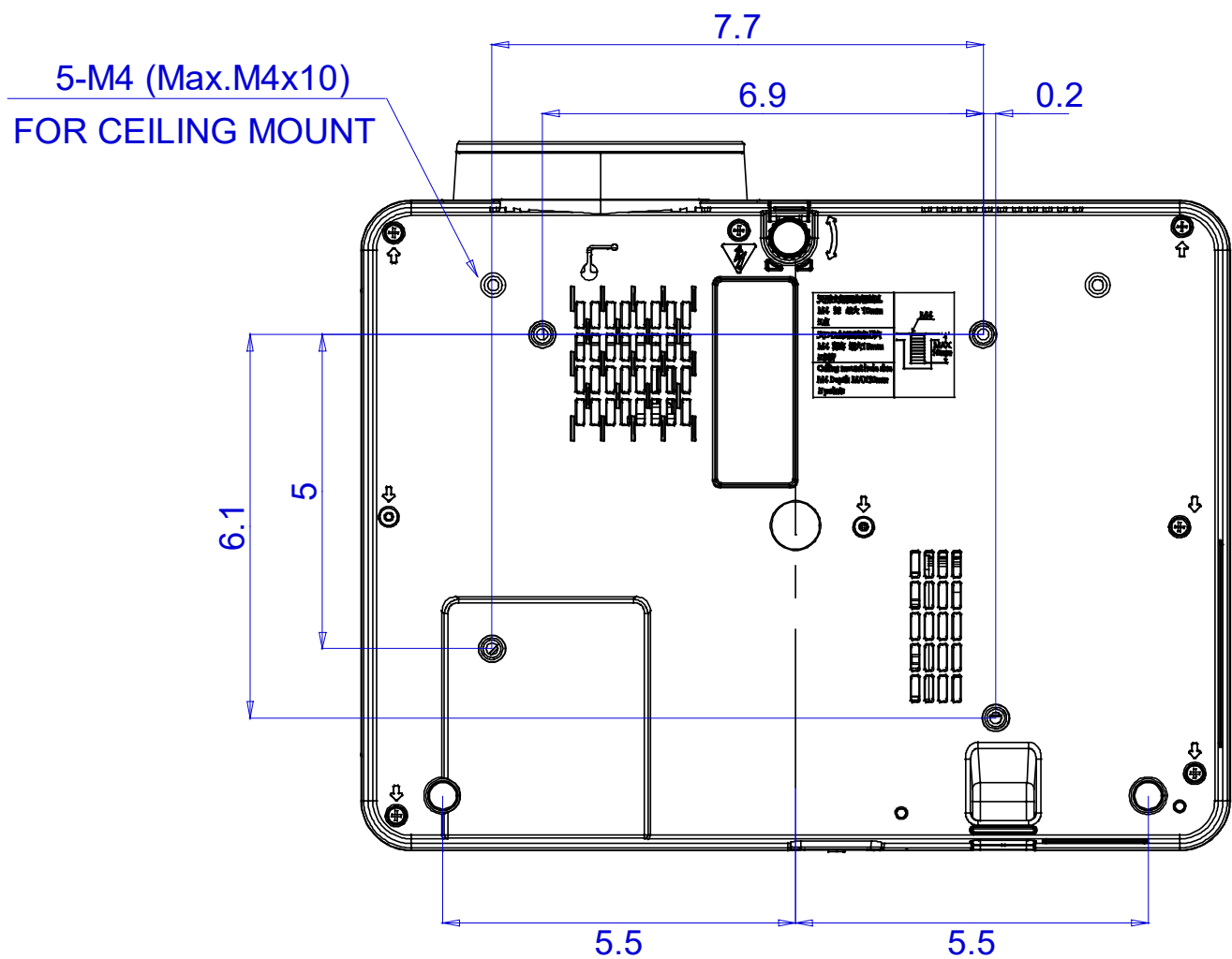
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Cabinet Dimensions (continued)

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



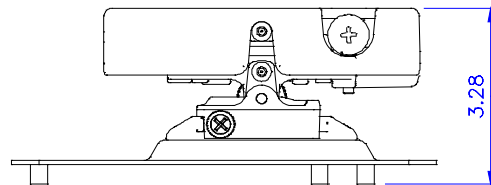
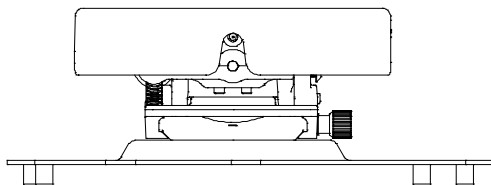
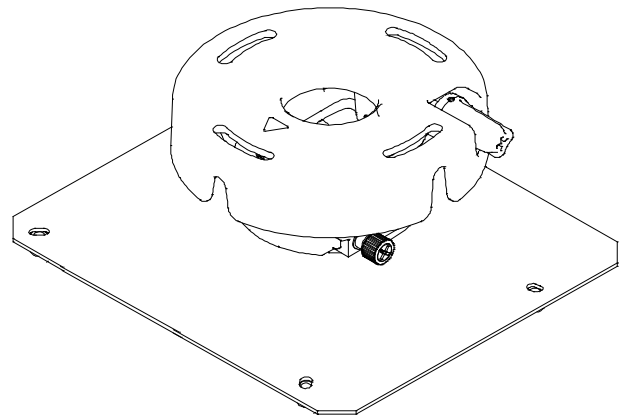
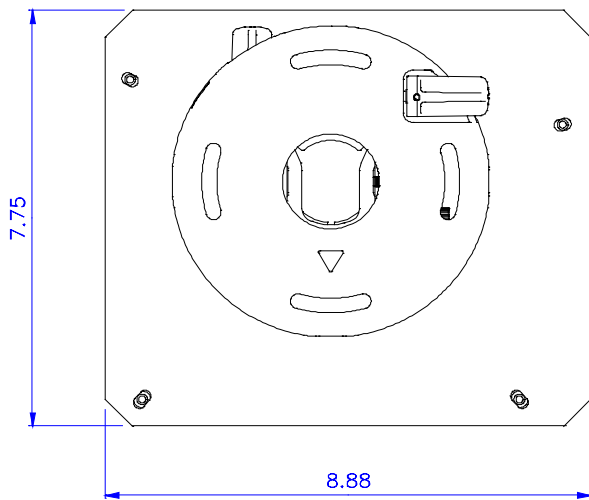
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Optional Ceiling Mount Dimensions (Model #: MP300CM)

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

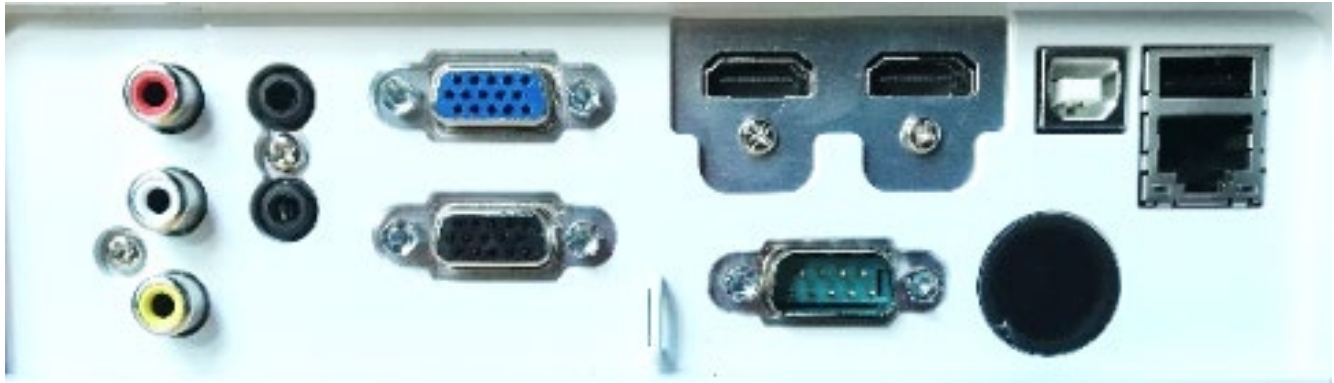


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Input / Output Panel



PC Control Codes

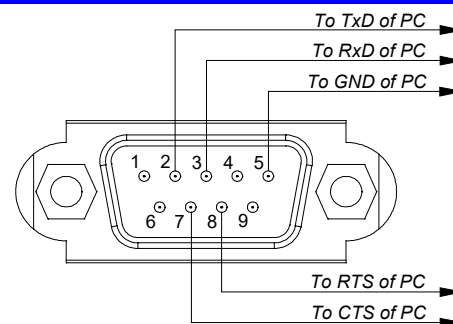
Function	Code Data
POWER ON	02H 00H 00H 00H 00H 02H
POWER OFF	02H 01H 00H 00H 00H 03H
INPUT SELECT COMPUTER1	02H 03H 00H 00H 02H 01H 01H 09H
INPUT SELECT HDMI 1	02H 03H 00H 00H 02H 01H 1AH 22H
INPUT SELECT HDMI 2	02H 03H 00H 00H 02H 01H 1BH 23H
INPUT SELECT VIDEO	02H 03H 00H 00H 02H 01H 06H 0EH
INPUT SELECT VIEWER (USB-A)	02H 03H 00H 00H 02H 01H 1FH 27H
INPUT SELECT NETWORK	02H 03H 00H 00H 02H 01H 20H 28H
INPUT SELECT USB DISPLAY (USB-B)	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.