WT610™ Installation Guide
Desktop and Ceiling Mount

Contents

Product Description

Type:	1 chip DMD™ Lens-less projector	Dimensions:	15.0"(W) x 12.3"(H) x 12.3"(D) w/final mirror up
	4 mirror bounce optical system	Weight:	14.1 lbs
Native Resolution:	1024 x 768 (1024x768 for 16:9 screens	Screen Range:	40" – 100" Diagonal (4:3)
Brightness:	2000 lumens (1500 ANSI)		

Screen/Aspect Ratio

Both 4:3 and 16:9 screens are fully supported with proper aspect ratio control for both type sources using NEC developed scaling technology. By selecting the screen type in the menus, Aspect Ratio control is reconfigured for that screen type.

- For a 4:3 screen; select "4:3" in the "Screen" menu for proper aspect ratio control of 4:3 and 16:9 sources.
- For a 16:9 screen; select "16:9" in the "Screen" menu for proper aspect ratio control of 4:3 and 16:9 sources. Factory default "Screen" setting is "4:3".

Notes

- For screen sizes not indicated on the projection charts, use the formulas below.
- The ceiling must be strong enough to support the projector and the installation must be in accordance with any local building codes.
- Distances are in inches, for millimeters multiply by 25.4.
- Distances may vary ±5%.

Formulas

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 the screen width in for "W" in the Projection Formulas.

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

Definitions:
W = Screen width
H = Screen height
B = Vertical distance between projector foot and screen center
C = Throw distance
D = Vertical distance between projector foot and screen bottom
   (screen top for ceiling mounted application)

4:3 Screen Formulas:
$W = H \times 4/3$
$H = W \times 3/4$
Screen Diagonal $= W \times 5/4$

16:9 Screen Formulas:
$W = H \times 16/9$
$H = W \times 9/16$
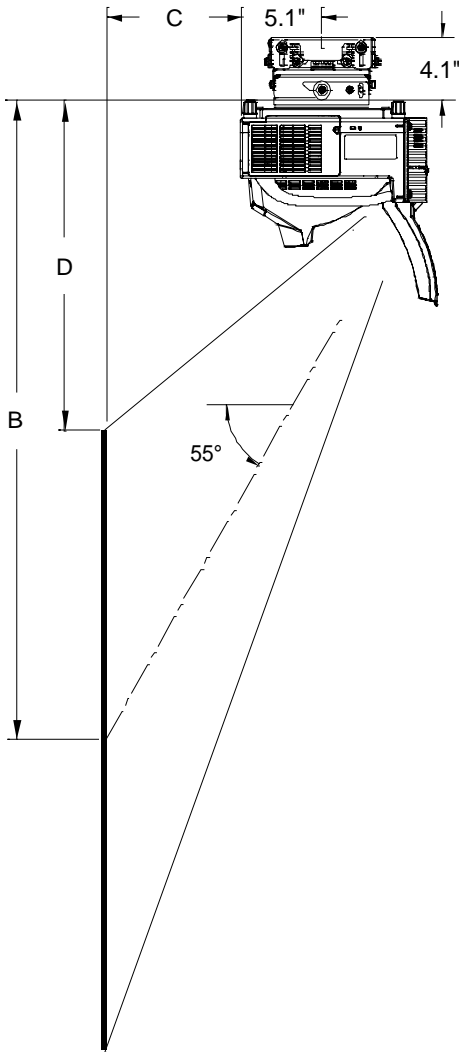**Screen Diagonal** $= W \times 18.358/16$

Projection Formulas:
$B = 0.6882W + 3.935$
$C = 0.4874W - 13.056$
$D(4:3) = 0.3132W + 3.935$
$D(16:9) = 0.407W + 3.935$

Vertical Position for a 16:9 screen: The Vertical Position adjustment moves the 16:9 image up and down in the unused portion of the 4:3 DLP panel. This adjustment is only available when the projector is set for 16:9 in the "Screen" menu. The range of Vertical Position is dependent on aspect ratio and 3D Reform used. If 3D Reform is not used, the approximate range of vertical position is +/-0.167H (H=Screen Height) when using a 16:9 screen. (See "Screen Type" and "Position" in user manual)

Ceiling Mounted Installation

The following diagram shows the relationship between projector position and the screen. Refer to the charts below for data. Distances are in inches. For millimeters multiply by 25.4.

Distance chart for popular 4:3 screen sizes

Image Size (4:3)			B	C	D(4:3)
Diagonal	Width(W)	Height(H)			
inches	inches	inches	inches	inches	inches
40	32	24	26.0	2.5	14.0
60	48	36	37.0	10.3	19.0
67	53.6	40.2	40.8	13.1	20.7
72	57.6	43.2	43.6	15.0	22.0
84	67.2	50.4	50.2	19.7	25.0
90	72	54	53.5	22.0	26.5
100	80	60	59.0	25.9	29.0

Distance chart for popular 16:9 screen sizes

Image Size (16:9)			B	C	D(16:9)
Diagonal	Width(W)	Height(H)			
inches	inches	inches	inches	inches	inches
37	32	18	26.0	2.5	17.0
40	35	19.7	28.0	4.0	18.2
83	72	40.5	53.5	22.0	33.2
92	80	45	59.0	25.9	36.5

Vertical Position for a 16:9 screen: The Vertical Position adjustment moves the 16:9 image up and down in the unused portion of the 4:3 DLP panel. This adjustment is only available when the projector is set for 16:9 in the "Screen" menu. The range of Vertical Position is dependent on aspect ratio and 3D Reform used. If 3D Reform is not used, the approximate range of vertical position is +/-0.167H (H=Screen Height) when using a 16:9 screen. (See "Screen Type" and "Position" in user manual)

Note: *For screen sizes not indicated in the distance charts, use the formulas on page 1.*

Desktop Setup

The following diagram shows the relationship between projector position and the screen. Refer to the charts below for data. Distances are in inches. For millimeters multiply by 25.4.

Distance chart for popular 4:3 screen sizes

Image Size (4:3)			B	C	D(4:3)
Diagonal	Width(W)	Height(H)			
inches	inches	inches	inches	inches	inches
40	32	24	26.0	2.5	14.0
60	48	36	37.0	10.3	19.0
67	53.6	40.2	40.8	13.1	20.7
72	57.6	43.2	43.6	15.0	22.0
84	67.2	50.4	50.2	19.7	25.0
90	72	54	53.5	22.0	26.5
100	80	60	59.0	25.9	29.0

55°

B

D

C

Distance chart for popular 16:9 screen sizes

Image Size (16:9)			B	C	D(16:9)
Diagonal	Width(W)	Height(H)			
inches	inches	inches	inches	inches	inches
37	32	18	26.0	2.5	17.0
40	35	19.7	28.0	4.0	18.2
83	72	40.5	53.5	22.0	33.2
92	80	45	59.0	25.9	36.5

Vertical Position for a 16:9 screen: The Vertical Position adjustment moves the 16:9 image up and down in the unused portion of the 4:3 DLP panel. This adjustment is only available when the projector is set for 16:9 in the "Screen" menu. The range of Vertical Position is dependent on aspect ratio and 3D Reform used. If 3D Reform is not used, the approximate range of vertical position is +/-0.167H (H=Screen Height) when using a 16:9 screen. (See "Screen Type" and "Position" in user manual)

Note: *For screen sizes not indicated in the distance charts, use the formulas on page 1.*
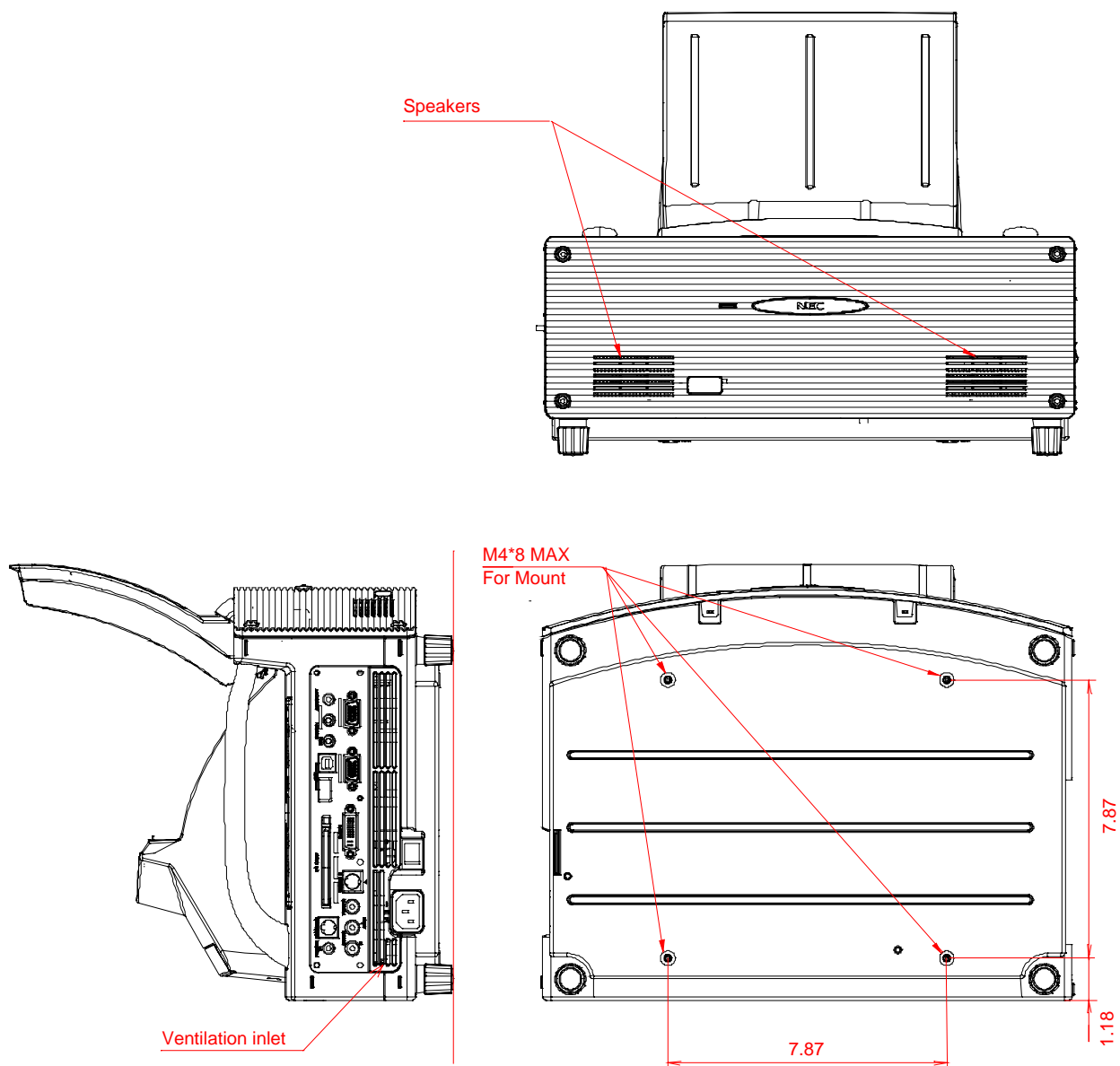
Cabinet Dimensions

The following drawings show the cabinet dimensions for the WT610.
Dimensions are in inches. For millimeters multiply by 25.4.

Mirrow cover open

12.32

Lamp cover

0.378
mount standoff

Ventilation outlet

12.32

12.32

Mirror cover lock switch

14.96

Mirrow cover closed

11.85

8.84

Final Mirror

Remote Sensor

Ventilation outlet
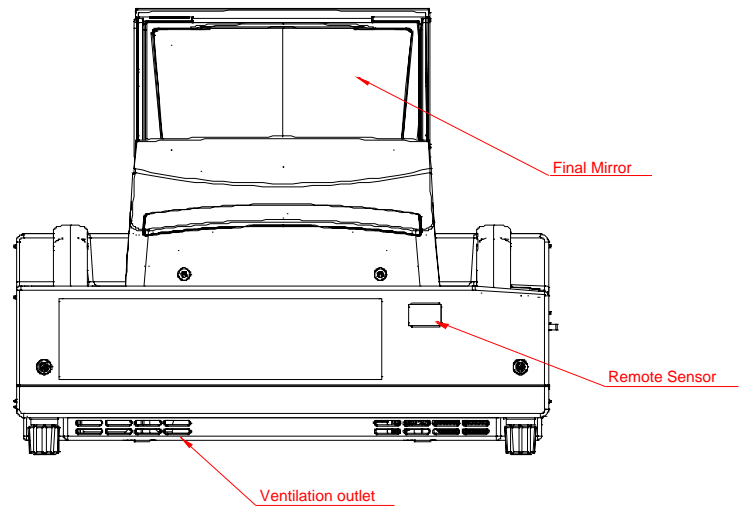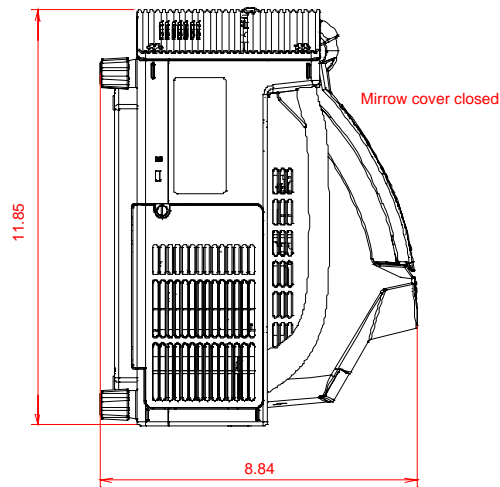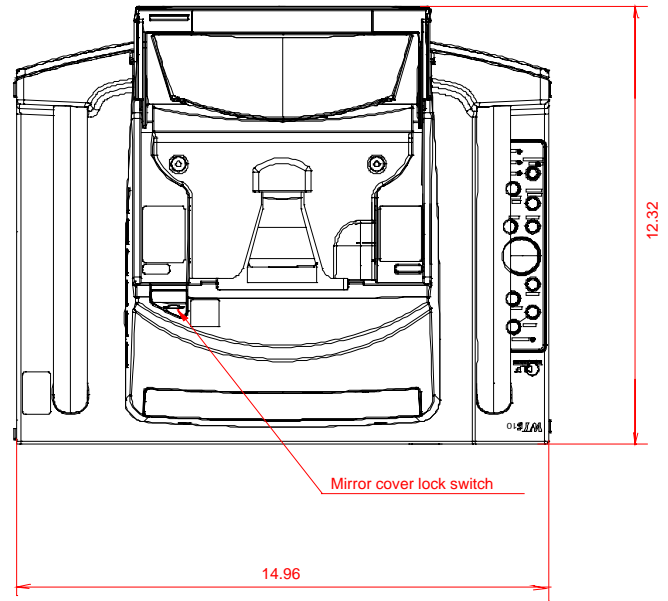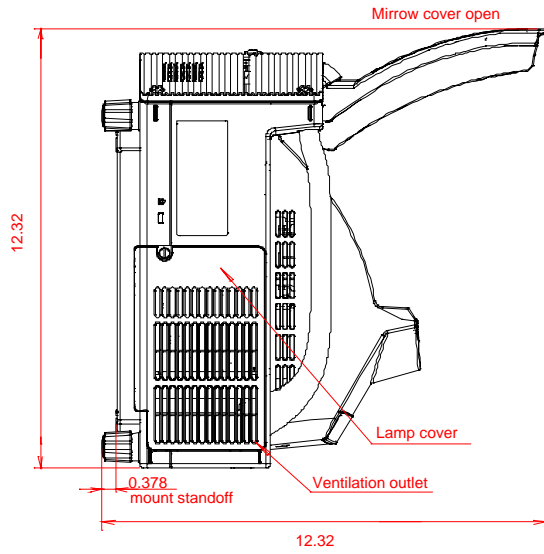
Cabinet Dimensions (continued)

The following drawings show the cabinet dimensions for the WT610.
Dimensions are in inches. For millimeters multiply by 25.4.

Speakers

Ventilation inlet
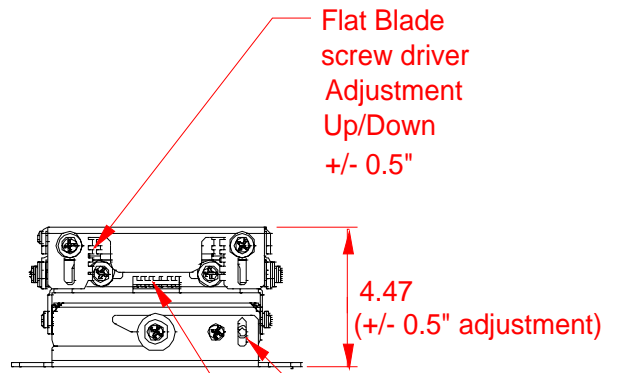
M4*8 MAX
For Mount

7.87

7.87

1.18

Optional Ceiling Mount Dimensions (Model #: WT60CM)

The following drawings show the ceiling mount dimensions for the WT610.
Dimensions are in inches. For millimeters multiply by 25.4.

9.88

6.60

4.5

4.5

1.5" NPT
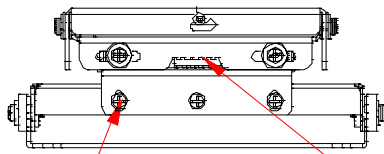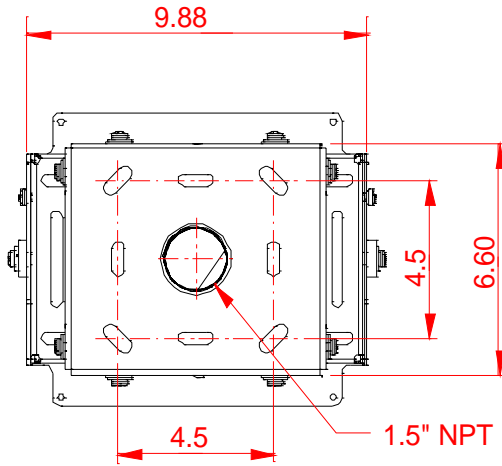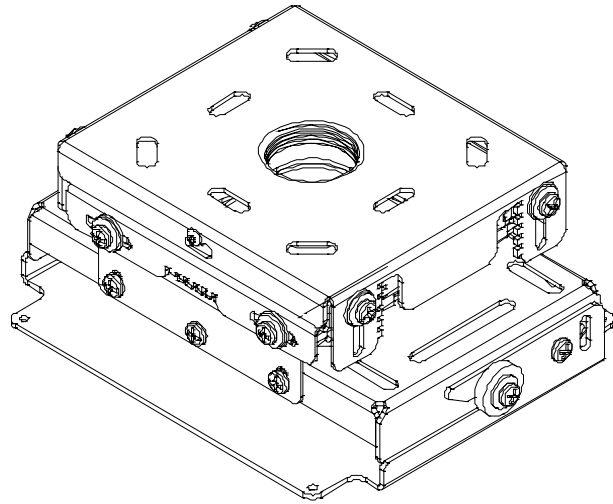
Roll

Flat blade
screw driver
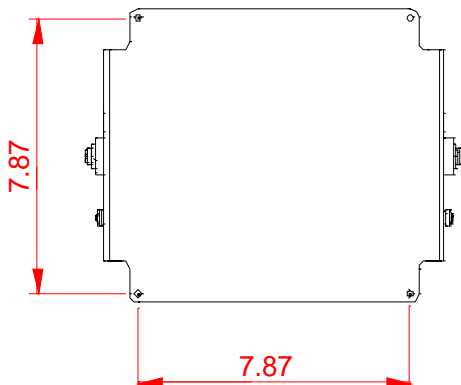adjustment
Left/Right
+/- 0.5"

7.87

7.87

Flat Blade
screw driver
Adjustment
Up/Down
+/- 0.5"

4.47
(+/- 0.5" adjustment)

Tilt

Flat blade
screw driver
adjustment
Forward/Back
+/- 0.5"

Control Codes

| Function	Code Data						
POWER ON	02H	00H	00H	00H	00H	02H	
POWER OFF	02H	01H	00H	00H	00H	03H	
INPUT SELECT RGB	02H	03H	00H	00H	02H	01H	01H	09H
INPUT SELECT DVI (ANALOG)	02H	03H	00H	00H	02H	01H	02H	0AH
INPUT SELECT DVI (DIGITAL)	02H	03H	00H	00H	02H	01H	1AH	22H
INPUT SELECT VIDEO	02H	03H	00H	00H	02H	01H	06H	0EH
INPUT SELECT S-VIDEO	02H	03H	00H	00H	02H	01H	0BH	13H
INPUT SELECT VIEWER	02H	03H	00H	00H	02H	01H	1FH	27H
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	

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 (DIN-8P)

To RxD of PC

8   7   6
5   4   3
2   1

To GND of PC   To TxD of PC
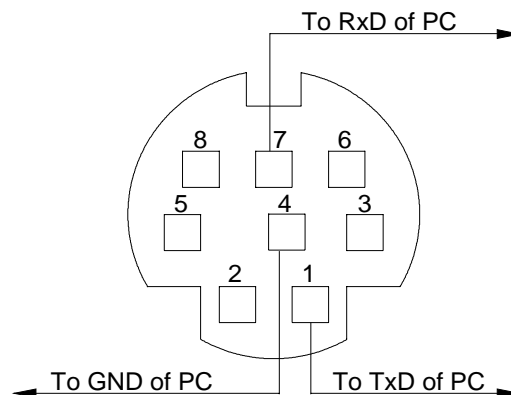
NOTE 1: *It is recommended to set the projector to "Idle Mode" in the Setup menu for best Power ON response.*
NOTE 2: *Pins 2, 3, 5, 6 and 8 are used inside the projector.*
NOTE 3: *For long cable runs it is recommended to set communication speed in the Setup menu to 9600 bps.*