

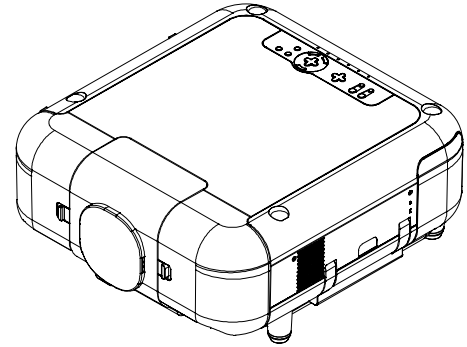
GT5000/6000 Installation Guide

Desktop and Ceiling Mount

v3.2

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Product Description

Type:	3 panel LCD/Dual Lamp Projector 1.4" p-Si TFT w/MLA	Dimensions:	20.4"(W) x 9.5"(H) x 21.8"(D)
Resolution:	GT5000: 1024x768 (4:3) / 1024x576 (16:9) GT6000: 1400x1050 (4:3) / 1400x788 (16:9)	Weight:	40.6 lbs w/o lens
Network Ready, integrated wired/optional wireless		Brightness:	GT5000: up to 6000 ANSI (6 modes available) GT6000: up to 5300 ANSI (6 modes available)
			Power Lens Shift/Power Zoom/Power Focus

Lens Specifications

GT06RLB: Throw Ratio: ~0.6:1 Screen Sizes: 40"-120"	Focal Length: 18.0mm F/#: 2.3	GT20ZL: Throw Ratio: ~2.0-2.6:1 Screen Sizes: 40"-300"	Focal Length: 57.4-74.7mm F/#: 1.8-2.5
GT10RLB: Throw Ratio: ~1.0:1 Screen Sizes: 40"-250"	Focal Length: 28.9mm F/#: 2.4	GT24ZLB: Throw Ratio: ~2.2-3.2:1 Screen Sizes: 60"-400"	Focal Length: 64.0-93.0mm F/#: 2.5-3.2
GT12ZLB: Throw Ratio: ~1.2-1.7:1 Screen Sizes: 40"-300"	Focal Length: 34.9-49.7mm F/#: 2.3 - 3.4	GT34ZLB: Throw Ratio: ~3.2-4.8:1 Screen Sizes: 80"-500"	Focal Length: 93.5-140.3mm F/#: 2.5-3.3
GT19ZLB: Throw Ratio: ~1.7-2.2:1 Screen Sizes: 40"-300"	Focal Length: 48.9-63.7mm F/#: 2.0-2.7	GT48ZLB: Throw Ratio: ~4.8-7.1:1 Screen Sizes: 80"-500"	Focal Length: 143.0-209.0mm F/#: 2.2-3.2

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. Menu selections have settings for each screen type and aspect ratio control for each source type.

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 in the image width for "W" in the Projection Formulas. Refer to the diagrams and charts for popular screen sizes on page 2 and 3.

Projection Formulas:

GT06RLB:	C=0.6178W-2.287
GT10RLB:	C=1.0034W-2.087
GT12ZLB:	C(Wide)=1.2029W-2.823 --- C(Tele)=1.7223W-2.788
GT19ZLB:	C(Wide)=1.7010W-3.385 --- C(Tele)=2.2392W-3.272
GT20ZL:	C(Wide)=2.0021W-3.987 --- C(Tele)=2.6237W-3.949
GT24ZLB:	C(Wide)=2.2181W-4.895 --- C(Tele)=3.2670W-4.836
GT34ZLB:	C(Wide)=3.2445W-7.016 --- C(Tele)=4.9132W-6.863
GT48ZLB:	C(Wide)=4.9390W-13.829 --- C(Tele)=7.2886W-13.586

Definitions:

W=Image Width
H=Image Height (Size)
C=Throw Distance

4:3 Screen Formulas:

W=Hx4/3
H=Wx3/4
Diagonal=Wx5/4

16:9 Screen Formulas:

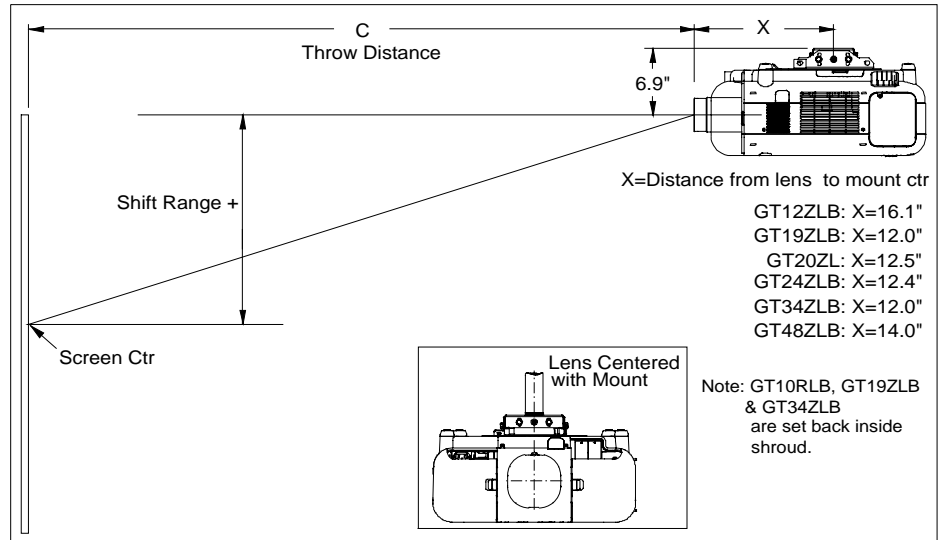
W=Hx16/9
H=Wx9/16
Diagonal=Wx18.358/16

Note: Tilting the front of the projector up or down by more than 45° from level could reduce lamp life by up to 20%.

4:3 Screens

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

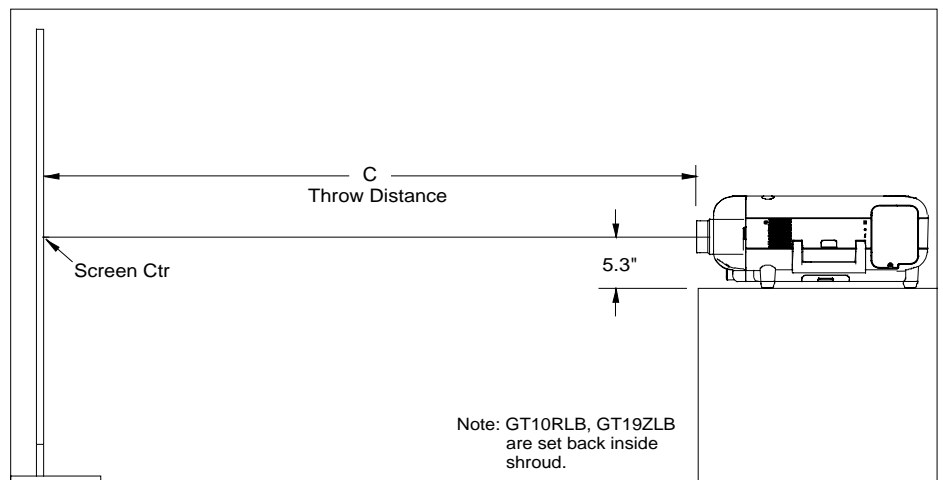
Ceiling Mounted Installation



Desktop Setup

Note: Lens shift is not available on GT06RLB & GT10RLB rear lenses, which should only be used for "zero degree/no-offset" applications.

Note: Tilting the front of the projector up or down by more than 45° from level could reduce lamp life by up to 20%.



Distance chart for popular 4:3 screens

Screen Size (4:3)			Rear Lenses		Zoom Lenses					
			GT06RLB	GT10RLB	GT12ZLB	GT19ZLB	GT20ZL	GT24ZLB	GT34ZLB	GT48ZLB
DIAG	W	H	0.6:1	1.0:1	1.2 - 1.7:1	1.7 - 2.2:1	2.0 - 2.6	2.2 - 3.2:1	3.2 - 4.8:1	4.8 - 7.1:1
inches	inches	inches	inches	inches	inches	inches	inches	inches	inches	inches
40	32	24	17.5	30.0	35.7 - 52.3	51.0 - 68.4	60.1 - 80.0	NA	NA	NA
60	48	36	27.4	46.1	54.9 - 79.9	78.3 - 104.2	92.1 - 122.0	101.6 - 152.0	NA	NA
72	57.6	43.2	33.3	55.7	66.5 - 96.4	94.6 - 125.7	111.3 - 147.2	122.9 - 183.3	NA	NA
84	67.2	50.4	39.2	65.3	78.0 - 113.0	110.9 - 147.2	130.6 - 172.4	144.2 - 214.7	211.0 - 323.3	318.1 - 476.2
90	72	54	42.2	70.2	83.8 - 121.2	119.1 - 158.0	140.2 - 185.0	154.8 - 230.4	226.6 - 346.9	341.8 - 511.2
100	80	60	47.1	78.2	93.4 - 135.0	132.7 - 175.9	156.2 - 205.9	172.6 - 256.5	252.5 - 386.2	381.3 - 569.5
120	96	72	57.0	94.2	112.7 - 162.6	159.9 - 211.7	188.2 - 247.9	208.0 - 308.8	304.5 - 464.8	460.3 - 686.1
150	120	90	NA	118.3	141.5 - 203.9	200.7 - 265.4	236.3 - 310.9	261.3 - 387.2	382.3 - 582.7	578.9 - 861.0
180	144	108	NA	142.4	170.4 - 245.2	241.6 - 319.2	284.3 - 373.9	314.5 - 465.6	460.2 - 700.6	697.4 - 1036.0
200	160	120	NA	158.5	189.6 - 272.8	268.8 - 355.0	316.3 - 415.8	350.0 - 517.9	512.1 - 779.2	776.4 - 1152.6
250	200	150	NA	198.6	237.8 - 341.7	336.8 - 444.6	396.4 - 520.8	438.7 - 648.6	641.9 - 975.8	974.0 - 1444.1
300	240	180	NA	NA	285.9 - 410.6	404.9 - 534.1	476.5 - 625.7	527.4 - 779.2	771.7 - 1172.3	1171.5 - 1735.7
400	320	240	NA	NA	NA	NA	NA	704.9 - 1040.6	1031.2 - 1565.4	1566.7 - 2318.8
500	400	300	NA	NA	NA	NA	NA	NA	1290.8 - 1958.4	1961.8 - 2901.9

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

Note: "NA" means it is outside the screen range for that lens. Refer to "Screen Sizes" in Lens Specifications on Page 1.

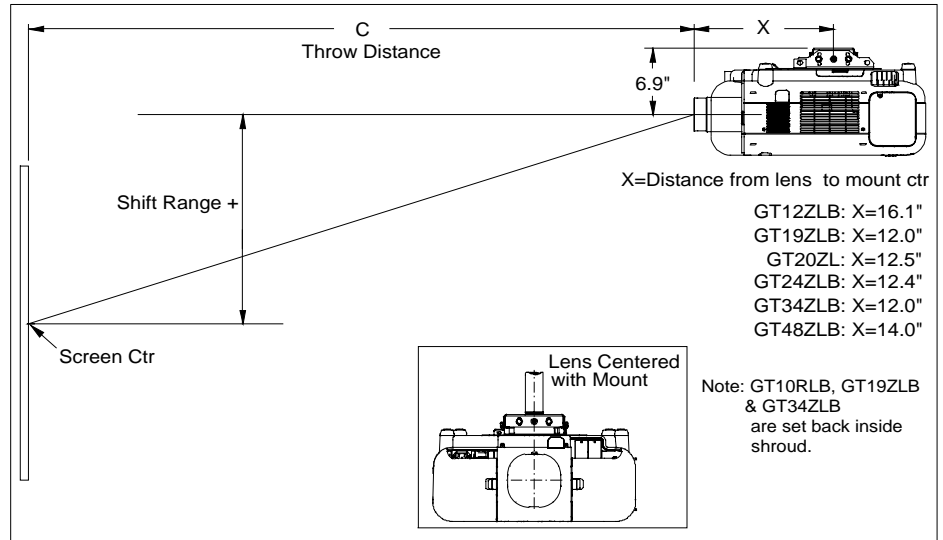
16:9 Screens

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

Ceiling Mounted Installation

Vertical Position for a 16:9 screen:

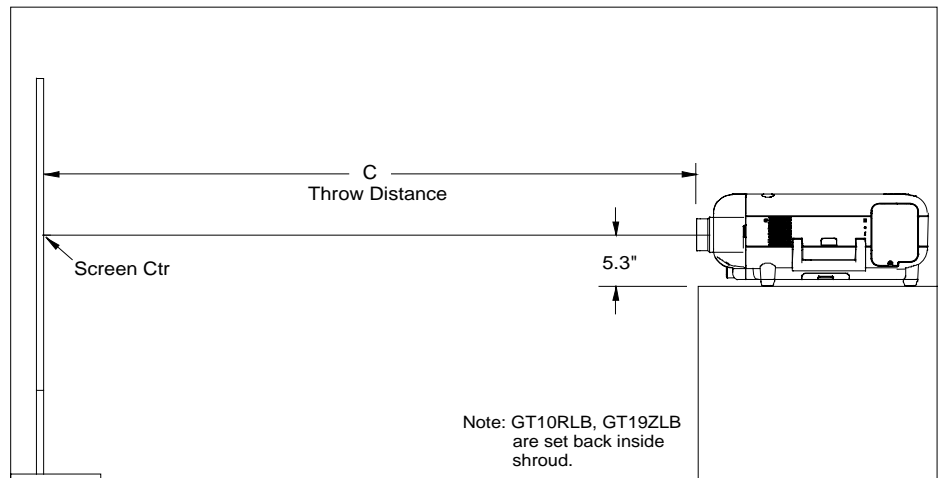
The Vertical Position adjustment moves 16:9 image up and down in the unused portion of the 4:3 panel. The range of Vertical Position is dependent on aspect ratio and 3D Reform used. If 3D Reform is not used, the approximate range of Vertical Position is $\pm 0.167H$ (H =Screen Height) when using a 16:9 screen. This adjustment is only available when the projector is set for '16:9', '1.85:1' or '2.35:1' in the 'Screen' menu.



Desktop Setup

Note: Lens shift is not available on GT06RLB & GT10RLB rear lenses, which should only be used for "zero degree/no-offset" applications.

Note: Tilting the front of the projector up or down by more than 45° from level could reduce lamp life by up to 20%.



Distance chart for popular 16:9 screens

Screen Size (16:9)			Rear Lenses		Zoom Lenses					
			GT06RLB	GT10RLB	GT12ZLB	GT19ZLB	GT20ZL	GT24ZLB	GT34ZLB	GT48ZLB
DIAG	W	H	0.6:1	1.0:1	1.2 - 1.7:1	1.7 - 2.2:1	2.0 - 2.6	2.2 - 3.2:1	3.2 - 4.8:1	4.8 - 7.1:1
inches	inches	inches	inches	inches	inches	inches	inches	inches	inches	inches
92	80	45	47.1	78.2	93.4 - 135.0	132.7 - 175.9	156.2 - 205.9	172.6 - 256.5	252.5 - 386.2	381.3 - 569.5
100	87	49	51.5	85.2	101.8 - 147.1	144.6 - 191.5	170.2 - 224.3	188.1 - 279.4	275.3 - 420.6	415.9 - 620.5
106	92	52	54.6	90.2	107.8 - 155.7	153.1 - 202.7	180.2 - 237.4	199.2 - 295.7	291.5 - 445.2	440.6 - 657.0
110	96	54	57.0	94.2	112.7 - 162.6	159.9 - 211.7	188.2 - 247.9	208.0 - 308.8	304.5 - 464.8	460.3 - 686.1
119	104	58.5	NA	102.3	122.3 - 176.3	173.5 - 229.6	204.2 - 268.9	225.8 - 334.9	330.4 - 504.1	499.8 - 744.4
123	107	60	NA	105.3	125.9 - 181.5	178.6 - 236.3	210.2 - 276.8	232.4 - 344.7	340.1 - 518.8	514.6 - 766.3
133	116	65	NA	114.3	136.7 - 197.0	193.9 - 256.5	228.3 - 300.4	252.4 - 374.1	369.3 - 563.1	559.1 - 831.9
135	118	66	NA	116.3	139.1 - 200.4	197.3 - 261.0	232.3 - 305.6	256.8 - 380.7	375.8 - 572.9	569.0 - 846.5
159	139	78	NA	137.4	164.4 - 236.6	233.1 - 308.0	274.3 - 360.7	303.4 - 449.3	444.0 - 676.1	672.7 - 999.5
161	140	79	NA	138.4	165.6 - 238.3	234.8 - 310.2	276.3 - 363.4	305.6 - 452.5	447.2 - 681.0	677.6 - 1006.8
229	200	113	NA	198.6	237.8 - 341.7	336.8 - 444.6	396.4 - 520.8	438.7 - 648.6	641.9 - 975.8	974.0 - 1444.1
275	240	135	NA	NA	285.9 - 410.6	404.9 - 534.1	476.5 - 625.7	527.4 - 779.2	771.7 - 1172.3	1171.5 - 1735.7
367	320	180	NA	NA	NA	NA	NA	704.9 - 1040.6	1031.2 - 1565.4	1566.7 - 2318.8
459	400	225	NA	NA	NA	NA	NA	NA	1290.8 - 1958.4	1961.8 - 2901.9

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

Note: "NA" means it is outside the screen range for that lens. Refer to "Screen Sizes" in Lens Specifications on Page 1.

Lens Shift Adjustable Range

The top right diagram shows the location of the image position in the lens. The lens can be shifted within the shaded area as shown using the normal projection position as a starting point.

Maximum Possible Range for GT12ZLB/GT20ZL/GT48ZLB lenses:

*Values for 16:9 screens in parentheses.

Up: 0.5H (0.67H)

Down: 0.5H (0.67H)

Right: 0.32W

Left: 0.32W

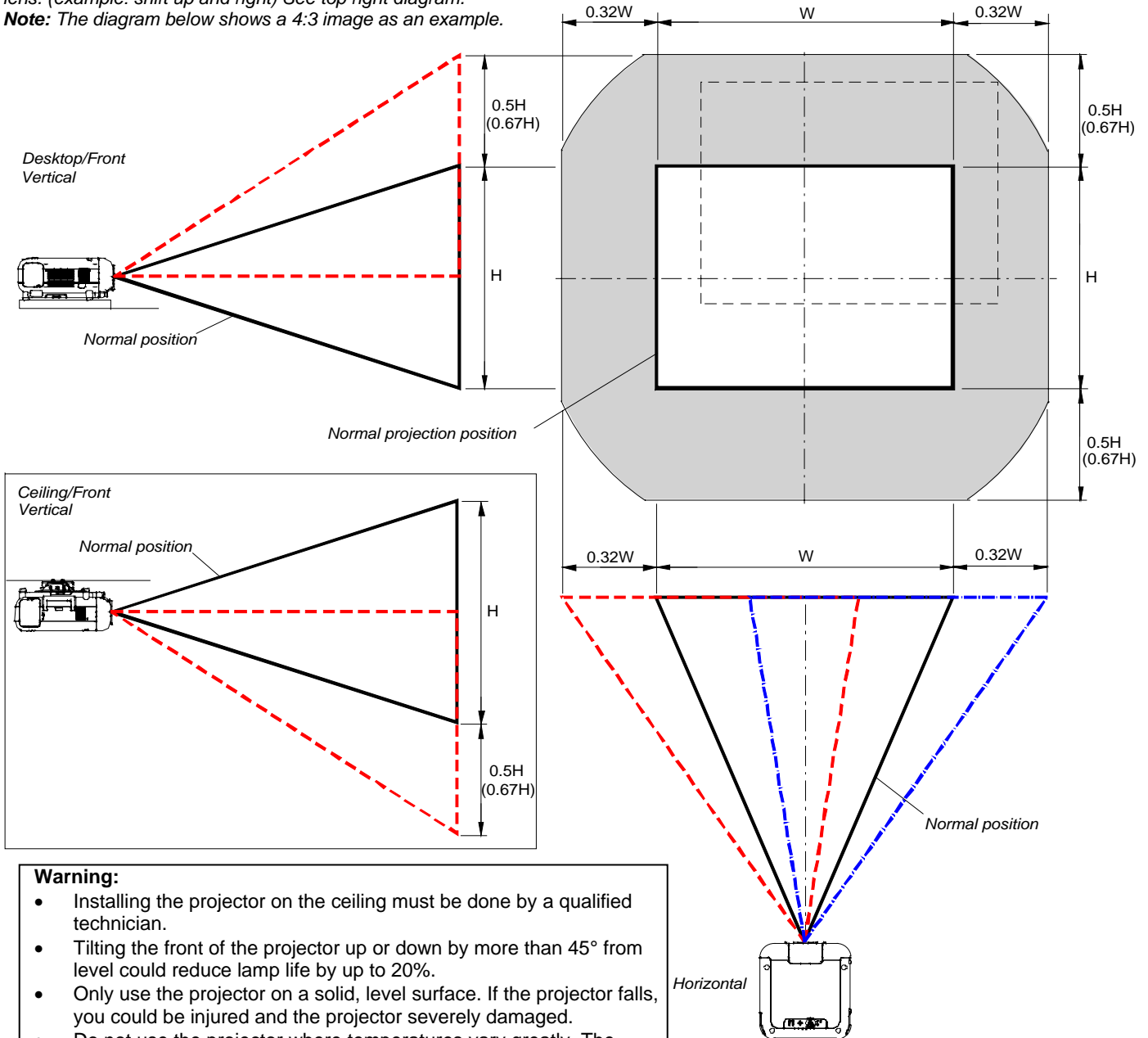
H=Height of image (take care to use appropriate value for 4:3 or 16:9 screens)

W=Width of image

Note: Lens shift is not available on GT06RLB & GT10RLB rear lenses, which should only be used for “zero degree/no-offset” applications.

Note: If the lens is shifted in two directions combined, maximum range in either direction cannot be obtained due to rounded off area of lens. (example: shift up and right) See top right diagram.

Note: The diagram below shows a 4:3 image as an example.



Warning:

- Installing the projector on the ceiling must be done by a qualified technician.
- Tilting the front of the projector up or down by more than 45° from level could reduce lamp life by up to 20%.
- Only use the projector on a solid, level surface. If the projector falls, you could be injured and the projector severely damaged.
- Do not use the projector where temperatures vary greatly. The projector must be used at temperatures between 32°F (0°C) and 95°F (35°C).
- Do not expose the projector to moisture, dust or smoke. This will reduce the quality of the image.
- Ensure that you have adequate ventilation around the projector so heat can dissipate. Do not cover any vents on the projector.

Lens Shift Adjustable Range (continued)

The top right diagram shows the location of the image position in the lens. The lens can be shifted within the shaded area as shown using the normal projection position as a starting point.

Maximum Possible Range for GT19ZLB/GT24ZLB/GT34ZLB lenses:

*Values for 16:9 screens in parentheses.

Up: 0.39H (0.52H)

Down: 0.39H (0.52H)

Right: 0.24W

Left: 0.24W

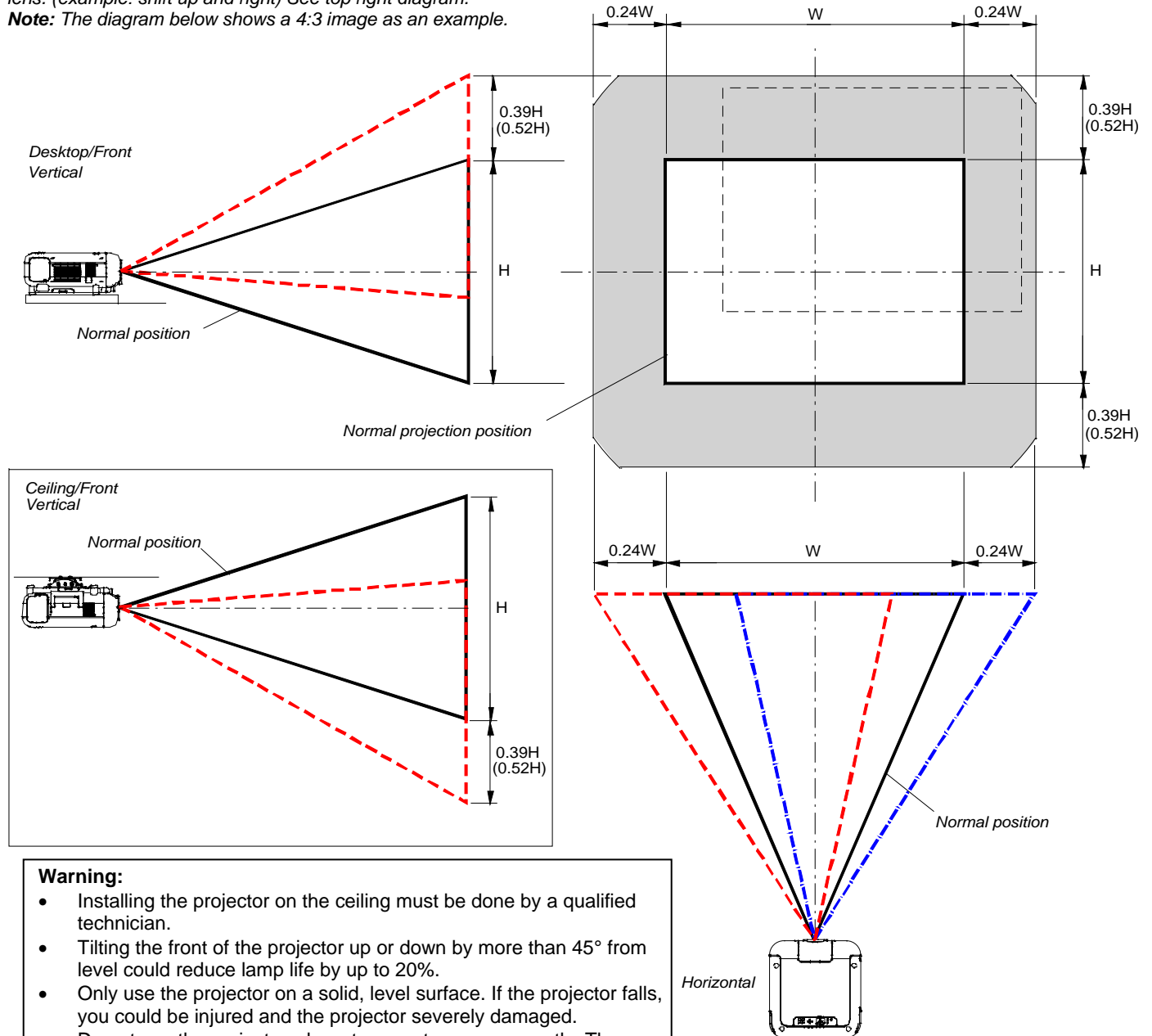
H=Height of image (take care to use appropriate value for 4:3 or 16:9 screens)

W=Width of image

Note: Lens shift is not available on GT06RLB & GT10RLB rear lenses, which should only be used for "zero degree/no-offset" applications.

Note: If the lens is shifted in two directions combined, maximum range in either direction cannot be obtained due to rounded off area of lens. (example: shift up and right) See top right diagram.

Note: The diagram below shows a 4:3 image as an example.

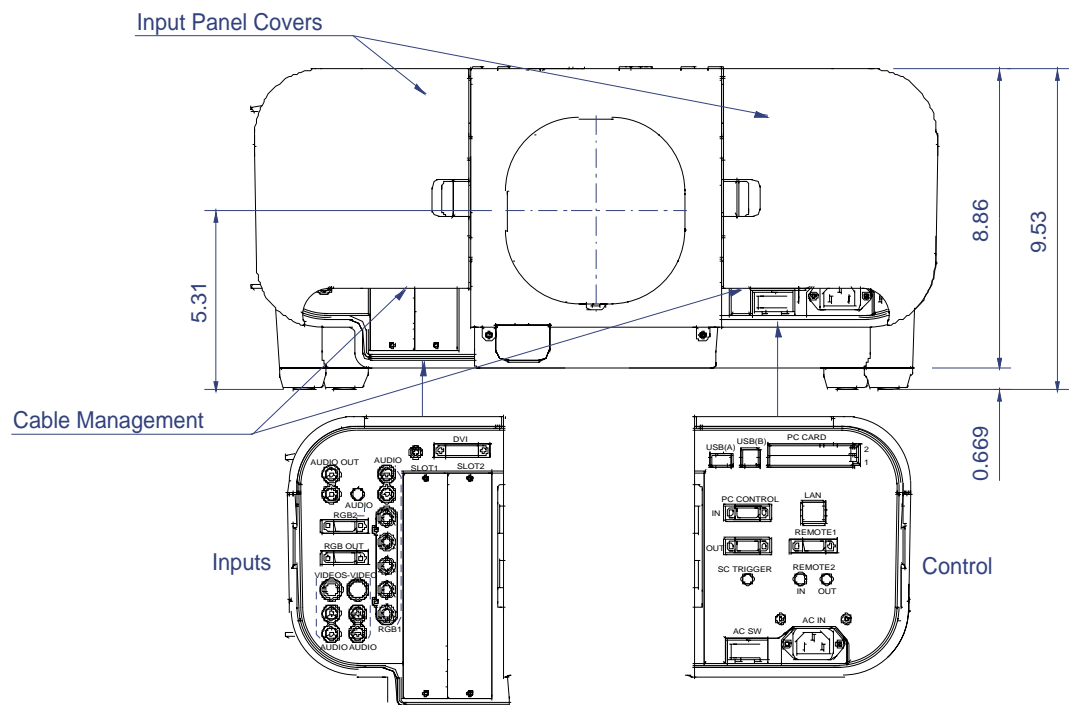
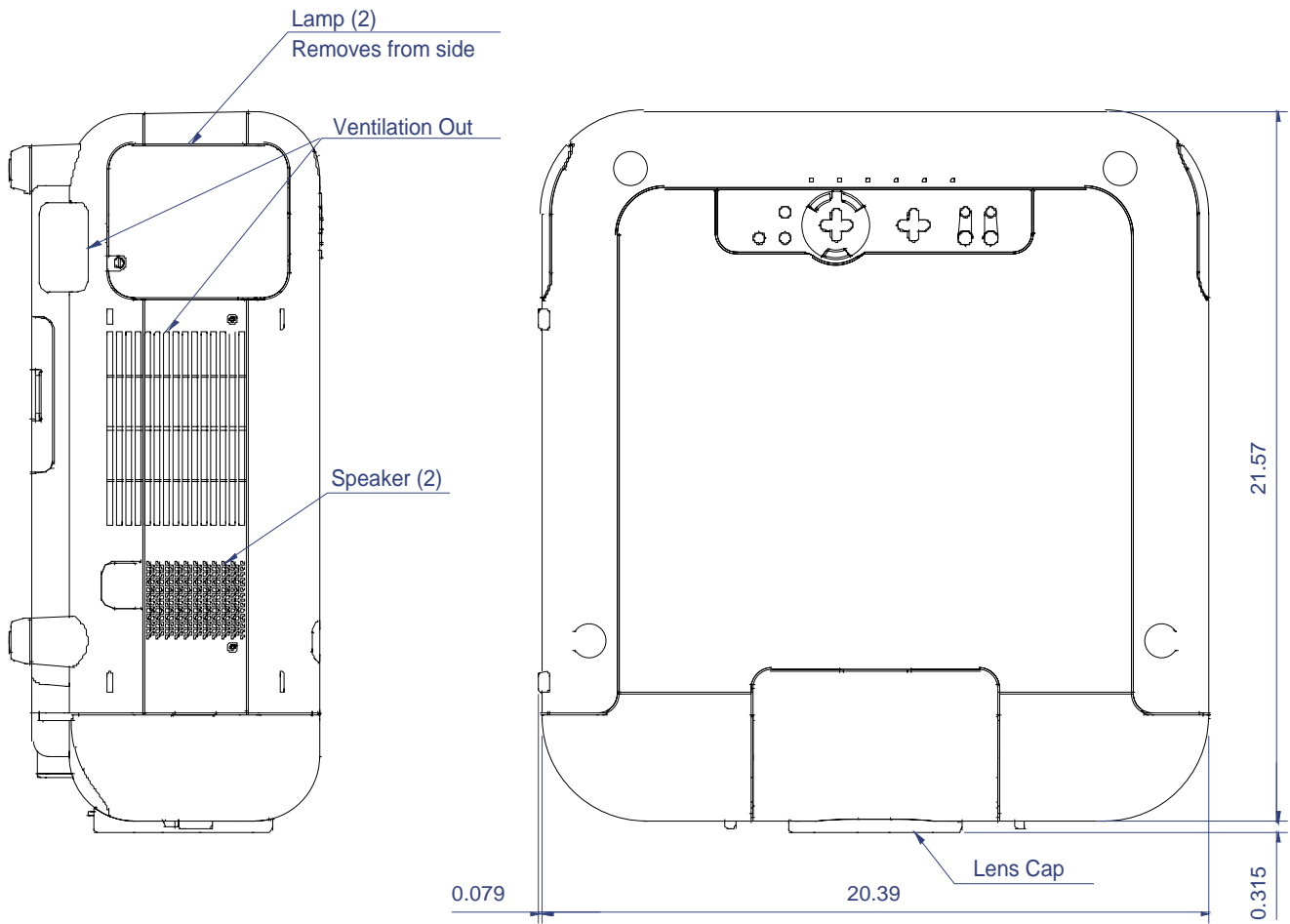


Warning:

- Installing the projector on the ceiling must be done by a qualified technician.
- Tilting the front of the projector up or down by more than 45° from level could reduce lamp life by up to 20%.
- Only use the projector on a solid, level surface. If the projector falls, you could be injured and the projector severely damaged.
- Do not use the projector where temperatures vary greatly. The projector must be used at temperatures between 32°F (0°C) and 95°F (35°C).
- Do not expose the projector to moisture, dust or smoke. This will reduce the quality of the image.
- Ensure that you have adequate ventilation around the projector so heat can dissipate. Do not cover any vents on the projector.

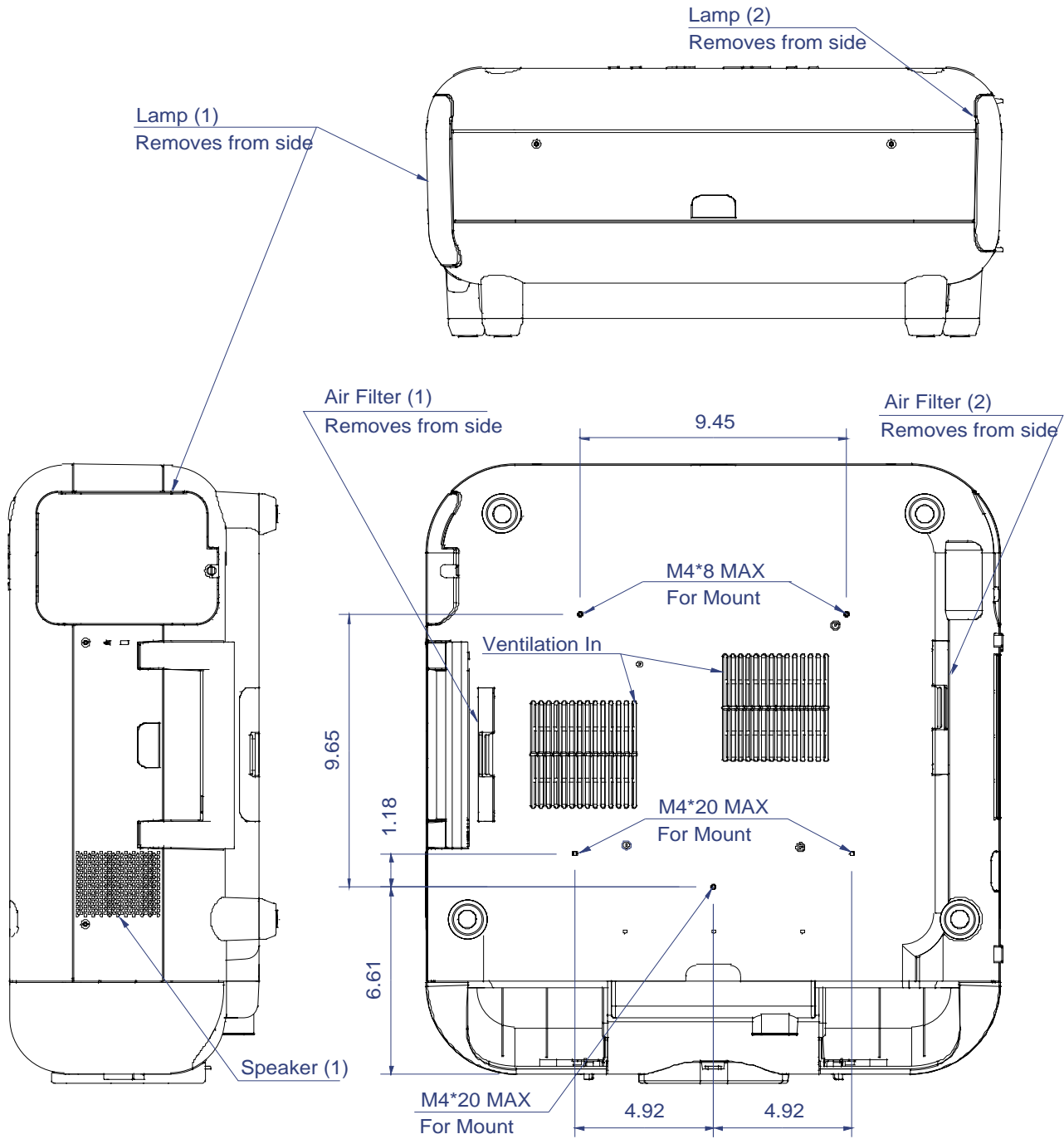
Cabinet Dimensions

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



Cabinet Dimensions (continued)

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

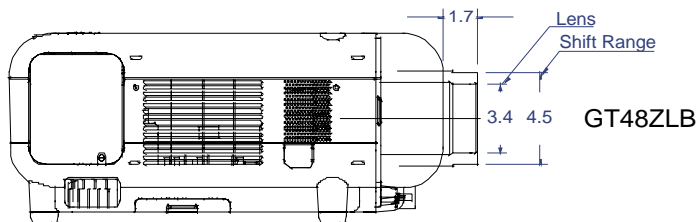
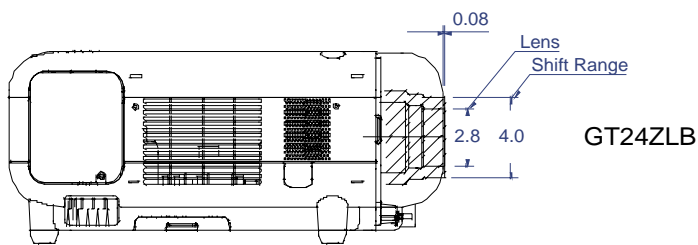
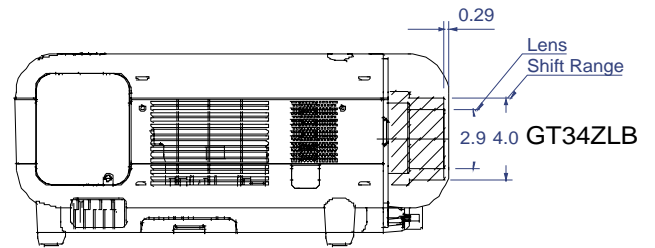
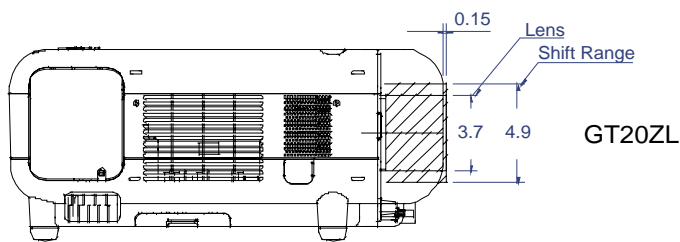
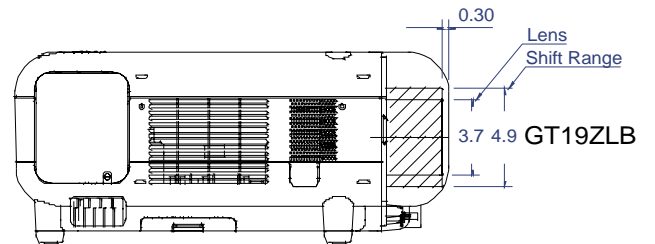
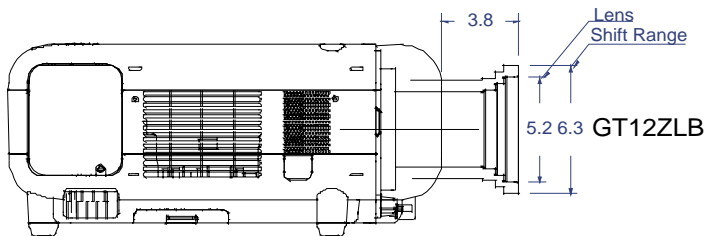
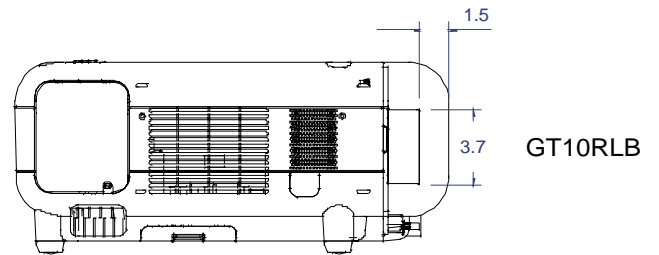
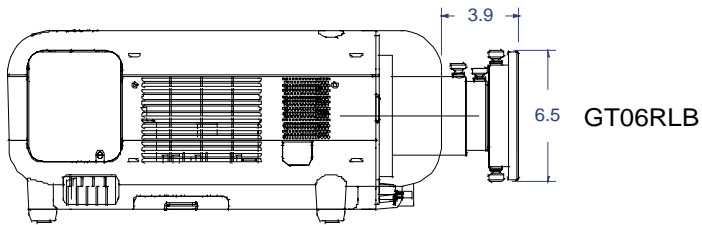


Lens Dimensions

The following drawings show the added lens dimensions for the lenses that protrude from the cabinet. Dimensions are in inches. For millimeters multiply by 25.4.

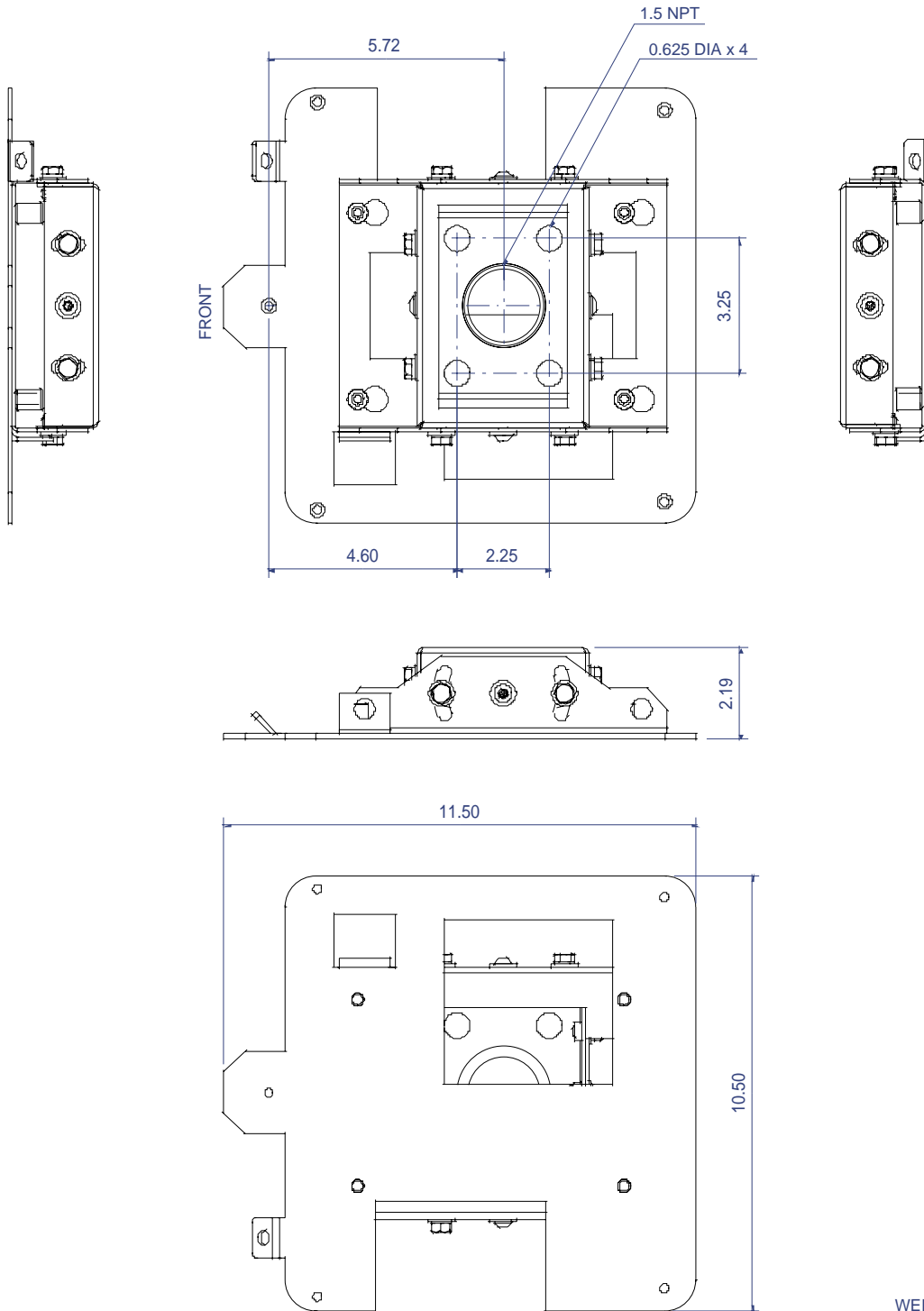
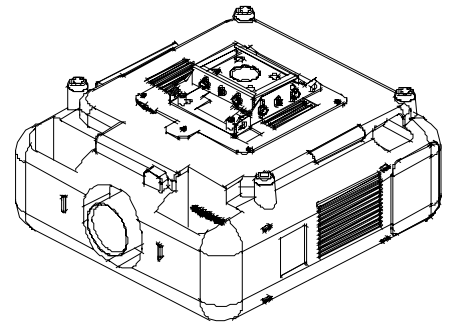
Lenses that stick out from the shroud

Lenses that are set back inside the shroud



Optional Ceiling Mount Dimensions (Model #: GT60CM)

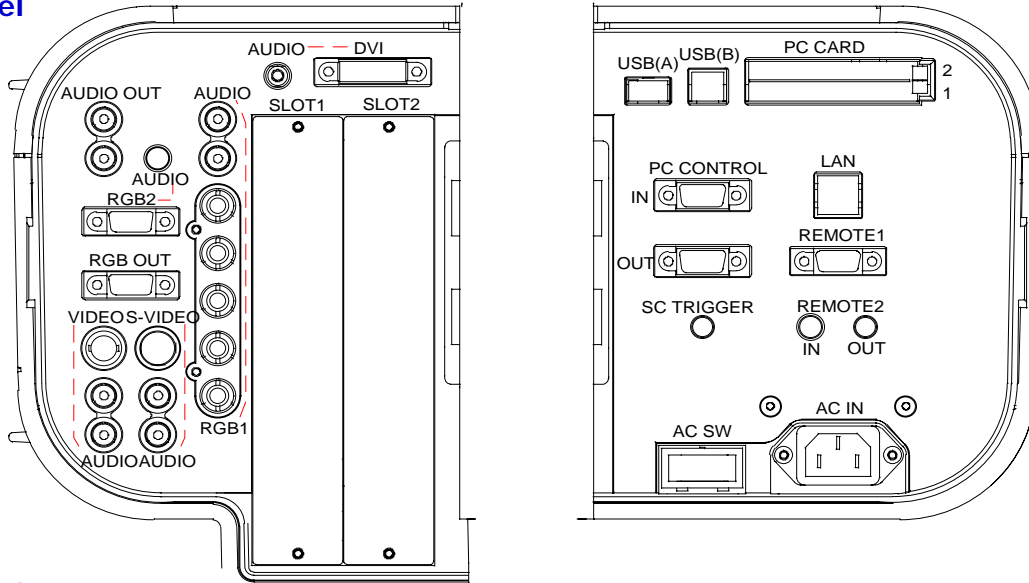
The following drawings show ceiling mount dimensions.
Dimensions are in inches. For millimeters multiply by 25.4.



WEIGHT: 8 LBS

Note: Ceiling mount kit comes with base mount, projector adapter plate and screws. Other hardware (treaded pipe, threaded rod, etc..) must be supplied by the installer. For hardware contact Display Devices at 303-412-0399.

Input Panel



Control Codes

Function	Code Data											
POWER ON	02H	00H	00H	00H	00H	02H						
POWER OFF	02H	01H	00H	00H	00H	03H						
INPUT SELECT RGB 1	02H	03H	00H	00H	02H	01H	01H	09H				
INPUT SELECT RGB 2	02H	03H	00H	00H	02H	01H	02H	0AH				
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 DVI (DIGITAL)	02H	03H	00H	00H	02H	01H	1AH	22H				
INPUT SELECT VIEWER	02H	03H	00H	00H	02H	01H	1FH	27H				
LAN	02H	03H	00H	00H	02H	01H	20H	28H				
SLOT 1-1	02H	03H	00H	00H	02H	01H	24H	2CH				
SLOT 1-2	02H	03H	00H	00H	02H	01H	25H	2DH				
SLOT 2-1	02H	03H	00H	00H	02H	01H	29H	31H				
SLOT 2-2	02H	03H	00H	00H	02H	01H	2AH	32H				
RGB1 (VIDEO)	02H	03H	00H	00H	02H	01H	07H	0FH				
RGB1 (S-VIDEO)	02H	03H	00H	00H	02H	01H	0CH	14H				
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						
ASPECT RATIO	1.25:1 (5:4)	03H	10H	00H	00H	05H	18H	00H	00H	00H	00H	30H
	1.33:1 (4:3)	03H	10H	00H	00H	05H	18H	00H	00H	01H	00H	31H
	1.78:1 (16:9)	03H	10H	00H	00H	05H	18H	00H	00H	02H	00H	32H
	1.85:1	03H	10H	00H	00H	05H	18H	00H	00H	03H	00H	33H
	2.35:1	03H	10H	00H	00H	05H	18H	00H	00H	04H	00H	34H
AUTO ADJUST		02H	0FH	00H	00H	02H	05H	00H	18H			

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

NOTE1: It is recommended to set the projector to "Idle Mode" in the Setup menu for best Power ON response.

NOTE2: Pins 1, 4, 6, and 9 are used inside the projector.

NOTE3: Jumper "Request to send" and "Clear to Send" together on both ends of the cable to simplify cable connection.

NOTE4: For long cable runs it is recommended to set communication speed to 9600 bps in the Setup menu.

PC Control Connector (D-Sub 9P)

