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Lens Titan 0.37:1

Part Number: 120-510 | Series: Titan



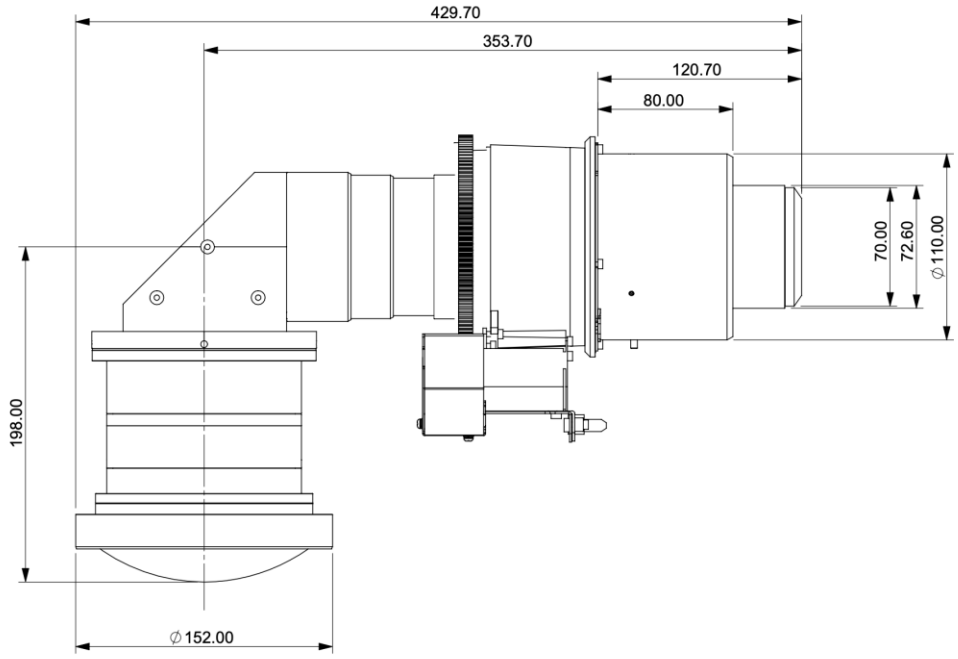
OPTICAL

Throw Ratio:	0.37:1 (WUXGA/ FHD) 0.35:1 (4K-UHD)
Focal length:	8 mm
Throw distance range:	1.6 - 4.9 m
F/#:	F/2.5 (center) F/4.5
Vertical offset:	WUXGA: 60% (up); 60% (down); 4K-UHD: 78% (up); 60% (down)
Horizontal offset:	WUXGA: 31% (left); 31% (right); 4K-UHD: 33% (left); 33% (right)

PHYSICAL

Size (W x D x H):	264.0 x 429.7 x 152.0 mm
Lens Extension:	215.0 mm
Weight:	9 kg
Lens material:	Optical Glass

MECHANICAL DRAWING



Compatible Projectors

Projector	Part Number
Titan Luma 35000 4K+	124-417
Titan Luma 37000 WUXGA	124-396

Aspect Ratio 16:10 (WUXGA)

W (m)	H (m)	Diag (in)	Dist Min	Dist Max	Base Off	V Up	V Down	H Left	H Right
4.33	2.71	201.03	1.60	1.60	0.00	1.62	1.62	1.34	1.34
4.50	2.81	208.92	1.67	1.67	0.00	1.69	1.69	1.40	1.40
5.00	3.13	232.14	1.85	1.85	0.00	1.88	1.88	1.55	1.55
5.50	3.44	255.35	2.04	2.04	0.00	2.06	2.06	1.71	1.71
6.00	3.75	278.56	2.22	2.22	0.00	2.25	2.25	1.86	1.86
6.50	4.06	301.78	2.41	2.41	0.00	2.44	2.44	2.02	2.02
7.00	4.38	324.99	2.59	2.59	0.00	2.63	2.63	2.17	2.17
7.50	4.69	348.20	2.78	2.78	0.00	2.81	2.81	2.33	2.33
8.00	5.00	371.42	2.96	2.96	0.00	3.00	3.00	2.48	2.48
8.50	5.31	394.63	3.15	3.15	0.00	3.19	3.19	2.64	2.64
9.00	5.63	417.84	3.33	3.33	0.00	3.38	3.38	2.79	2.79
9.50	5.94	441.06	3.52	3.52	0.00	3.56	3.56	2.95	2.95
10.00	6.25	464.27	3.70	3.70	0.00	3.75	3.75	3.10	3.10

W (m)	H (m)	Diag (in)	Dist Min	Dist Max	Base Off	V Up	V Down	H Left	H Right
11.00	6.88	510.70	4.07	4.07	0.00	4.13	4.13	3.41	3.41
12.00	7.50	557.12	4.44	4.44	0.00	4.50	4.50	3.72	3.72
13.00	8.13	603.55	4.81	4.81	0.00	4.88	4.88	4.03	4.03
13.24	8.28	614.69	4.90	4.90	0.00	4.97	4.97	4.10	4.10

Aspect Ratio 16:9 (FullHD)

W (m)	H (m)	Diag (in)	Dist Min	Dist Max	Base Off	V Up	V Down	H Left	H Right
4.33	2.44	195.59	1.60	1.60	0.00	1.46	1.46	1.34	1.34
4.50	2.53	203.27	1.67	1.67	0.00	1.52	1.52	1.40	1.40
5.00	2.81	225.86	1.85	1.85	0.00	1.69	1.69	1.55	1.55
5.50	3.09	248.44	2.04	2.04	0.00	1.86	1.86	1.71	1.71
6.00	3.38	271.03	2.22	2.22	0.00	2.03	2.03	1.86	1.86
6.50	3.66	293.61	2.41	2.41	0.00	2.19	2.19	2.02	2.02
7.00	3.94	316.20	2.59	2.59	0.00	2.36	2.36	2.17	2.17
7.50	4.22	338.78	2.78	2.78	0.00	2.53	2.53	2.33	2.33
8.00	4.50	361.37	2.96	2.96	0.00	2.70	2.70	2.48	2.48
8.50	4.78	383.95	3.15	3.15	0.00	2.87	2.87	2.64	2.64
9.00	5.06	406.54	3.33	3.33	0.00	3.04	3.04	2.79	2.79
9.50	5.34	429.13	3.52	3.52	0.00	3.21	3.21	2.95	2.95
10.00	5.63	451.71	3.70	3.70	0.00	3.38	3.38	3.10	3.10
11.00	6.19	496.88	4.07	4.07	0.00	3.71	3.71	3.41	3.41
12.00	6.75	542.05	4.44	4.44	0.00	4.05	4.05	3.72	3.72
13.00	7.31	587.23	4.81	4.81	0.00	4.39	4.39	4.03	4.03
13.24	7.45	598.07	4.90	4.90	0.00	4.47	4.47	4.10	4.10

Aspect Ratio 16:9 (4K-UHD)

W (m)	H (m)	Diag (in)	Dist Min	Dist Max	Base Off	V Up	V Down	H Left	H Right
4.58	2.58	206.88	1.60	1.60	0.00	1.55	1.55	1.42	1.42
5.00	2.81	225.86	1.75	1.75	0.00	1.69	1.69	1.55	1.55
5.50	3.09	248.44	1.93	1.93	0.00	1.86	1.86	1.71	1.71
6.00	3.38	271.03	2.10	2.10	0.00	2.03	2.03	1.86	1.86
6.50	3.66	293.61	2.28	2.28	0.00	2.19	2.19	2.02	2.02
7.00	3.94	316.20	2.45	2.45	0.00	2.36	2.36	2.17	2.17
7.50	4.22	338.78	2.63	2.63	0.00	2.53	2.53	2.33	2.33
8.00	4.50	361.37	2.80	2.80	0.00	2.70	2.70	2.48	2.48
8.50	4.78	383.95	2.98	2.98	0.00	2.87	2.87	2.64	2.64
9.00	5.06	406.54	3.15	3.15	0.00	3.04	3.04	2.79	2.79
9.50	5.34	429.13	3.33	3.33	0.00	3.21	3.21	2.95	2.95
10.00	5.63	451.71	3.50	3.50	0.00	3.38	3.38	3.10	3.10
11.00	6.19	496.88	3.85	3.85	0.00	3.71	3.71	3.41	3.41

W (m)	H (m)	Diag (in)	Dist Min	Dist Max	Base Off	V Up	V Down	H Left	H Right
12.00	6.75	542.05	4.20	4.20	0.00	4.05	4.05	3.72	3.72
13.00	7.31	587.23	4.55	4.55	0.00	4.39	4.39	4.03	4.03
14.00	7.88	632.40	4.90	4.90	0.00	4.73	4.73	4.34	4.34

Aspect Ratio 4:3

W (m)	H (m)	Diag (in)	Dist Min	Dist Max	Base Off	V Up	V Down	H Left	H Right
3.61	2.71	177.82	1.60	1.60	0.00	1.63	1.63	1.12	1.12
4.00	3.00	196.85	1.78	1.78	0.00	1.80	1.80	1.24	1.24
4.50	3.37	221.44	2.00	2.00	0.00	2.02	2.02	1.39	1.39
5.00	3.75	246.04	2.22	2.22	0.00	2.25	2.25	1.55	1.55
5.50	4.12	270.63	2.44	2.44	0.00	2.47	2.47	1.70	1.70
6.00	4.50	295.22	2.66	2.66	0.00	2.70	2.70	1.86	1.86
6.50	4.87	319.82	2.89	2.89	0.00	2.92	2.92	2.01	2.01
7.00	5.25	344.41	3.11	3.11	0.00	3.15	3.15	2.17	2.17
7.50	5.62	369.00	3.33	3.33	0.00	3.37	3.37	2.32	2.32
8.00	6.00	393.60	3.55	3.55	0.00	3.60	3.60	2.48	2.48
8.50	6.37	418.19	3.77	3.77	0.00	3.82	3.82	2.63	2.63
9.00	6.75	442.78	3.99	3.99	0.00	4.05	4.05	2.79	2.79
9.50	7.12	467.38	4.22	4.22	0.00	4.27	4.27	2.94	2.94
10.00	7.50	491.97	4.44	4.44	0.00	4.50	4.50	3.10	3.10
11.00	8.25	541.34	4.88	4.88	0.00	4.95	4.95	3.41	3.41
11.03	8.27	542.65	4.90	4.90	0.00	4.96	4.96	3.42	3.42

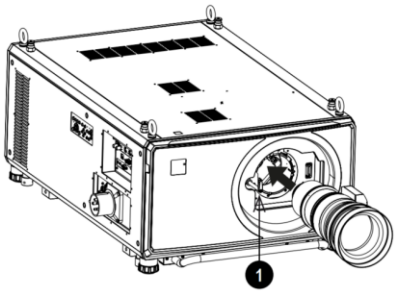
Throw Ratio Correction (TRC)

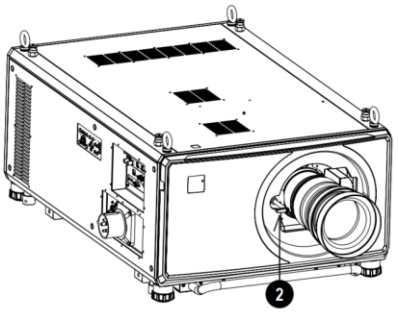
The throw ratio (TRC) of the projector is defined based on the full optical image width. When displaying content with a different aspect ratio, the active image width (W) may occupy only a portion of the projected image. To correctly calculate the throw ratio, a width utilization coefficient (k) must be applied: TRC = (TD x k) / W, where TD = Throw Distance, W = Active image width, k = Width utilization coefficient.

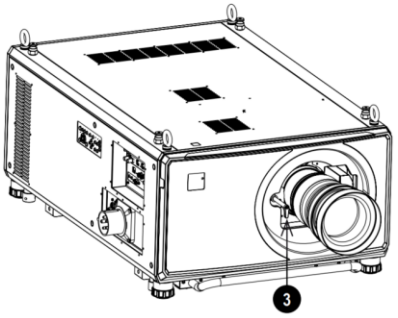
Aspect Ratio	Coefficient (k)	Notes
16:10 (native)	1.000	Full chip usage
16:9	0.900	Side margins
4:3	0.833	Pillarbox
2.35:1	1.469	Vertical crop required
1:1	0.625	Side margins
1.85:1	1.156	Slight vertical crop
1.25:1	0.781	Side margins

INSERTING A NEW LENS

1. Turn the lens release lever clockwise so that it is pointing upwards, to open the lock fully.
2. Remove the rear lens cap from the lens.
3. Insert the lens into the lens aperture, making sure that the plug on the zoom drive mechanism lines up with the socket on the front of the projector, then push the lens in firmly as far as it will go.
4. Turn the lens release lever anti-clockwise to the mid-position.
5. The lens can now be pushed in further. Push the lens in firmly as far as it will go.
6. Turn the lens release lever fully anti-clockwise so that it is pointing downwards, to close the lock fully.







REMOVING THE LENS

To remove the lens, reverse the procedure described in Inserting a new lens above:

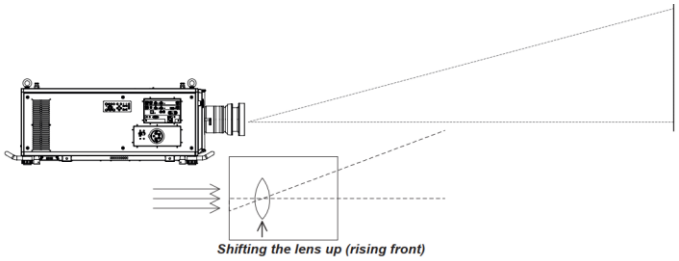
1. Turn the release lever up to the mid-position, then pull the lens out as far as it will go.
2. Turn the release lever clockwise so it is pointing upwards, then pull the lens out completely.

Important notes:

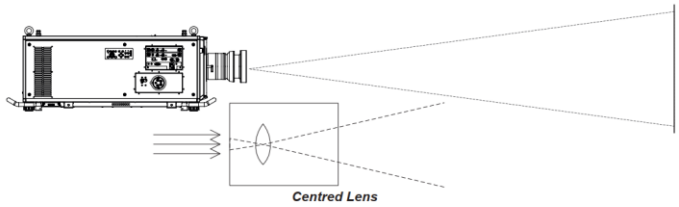
- Before changing the lens, always make sure the projector is switched off and fully disconnected from its power supply.
- When changing the lens, avoid using excessive force as this may damage the equipment.
- Center Lens feature has to be activated after every lens changing.
- The lens is shipped separately.
- Take care to preserve the original lens packaging and protective caps for future use.

POSITIONING THE IMAGE

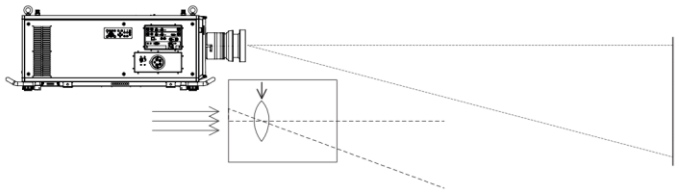
The normal position for the projector is at the centre of the screen. However, you can set the projector above or below the centre, or to one side, and adjust the image using the Lens shift feature (known as rising and falling front) to maintain a geometrically correct image.



Shifting the lens up (rising front)

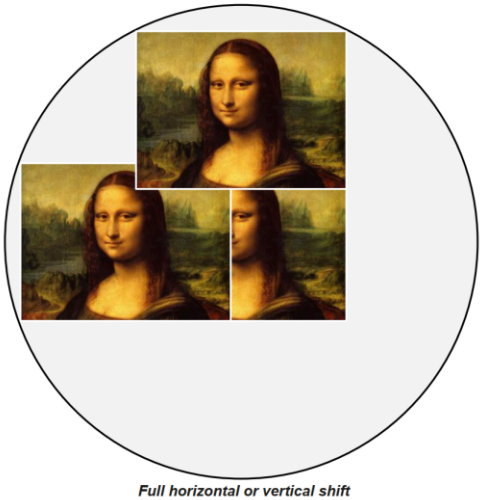


Centred Lens

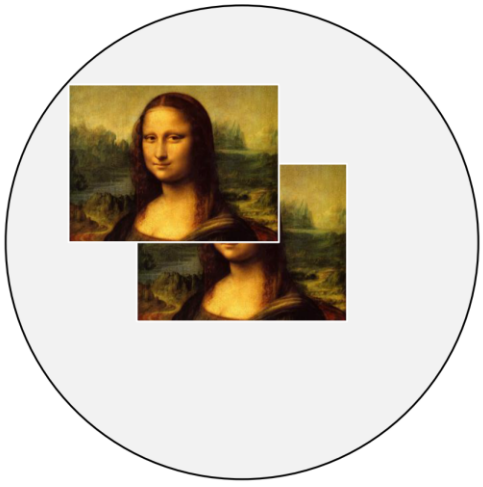


Shifting the lens down (falling front)

Any single adjustment outside the ranges specified on the following specs may result in an unacceptable level of distortion, particularly at the corners of the image, due to the image passing through the periphery of the lens optics. If the lens is to be shifted in two directions combined, the maximum range without distortion will be somewhat less, as can be seen in the illustrations.



Full horizontal or vertical shift



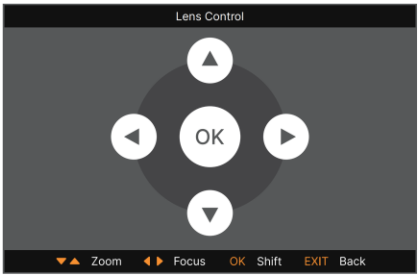
Combined shift is reduced

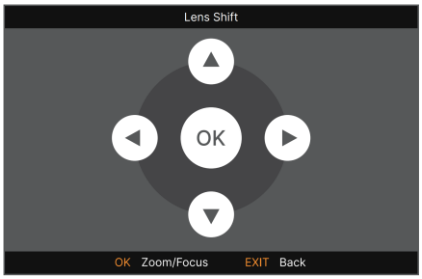
LENS ADJUSTMENTS

Lens menu

Lens Lock - When this feature is On, all other Lens menu items are disabled.
Lens Control - Opens a sub-menu, see below.
Center Lens - Centers the lens.
Lens Type - Choose from 1.4~1.9:1, 1.8~2.6:1, 2.5~4.2:1, 4.1~7.0:1, 0.7:1, 1.1:1, 1.2~1.5:1, 6.9~10.4:1. Select the lens that is installed on the projector.
Lens Memory - Opens a sub-menu, see next page.







Lens control

Lens Control settings operate in Zoom/Focus Adjustment and Shift Adjustment mode. Press ENTER/OK to switch between modes.

When in Zoom/Focus Adjustment mode:
- Use the UP and DOWN arrow buttons to adjust Zoom.
- Use the LEFT and RIGHT arrow buttons to adjust Focus.
When in Shift Adjustment mode, use the arrow buttons to adjust Shift.

Lens memory

This menu allows you to load, save and delete up to ten lens presets, containing position, zoom, focus and shift adjustment information.

For example, if using different screen sizes and aspect ratios, you can save zoom, focus and positioning for each screen size and aspect ratio in a dedicated preset.

Use Clear Memory to delete a memory preset if you need to save a new combination of lens settings in its place. Overwriting a saved memory preset is not possible.

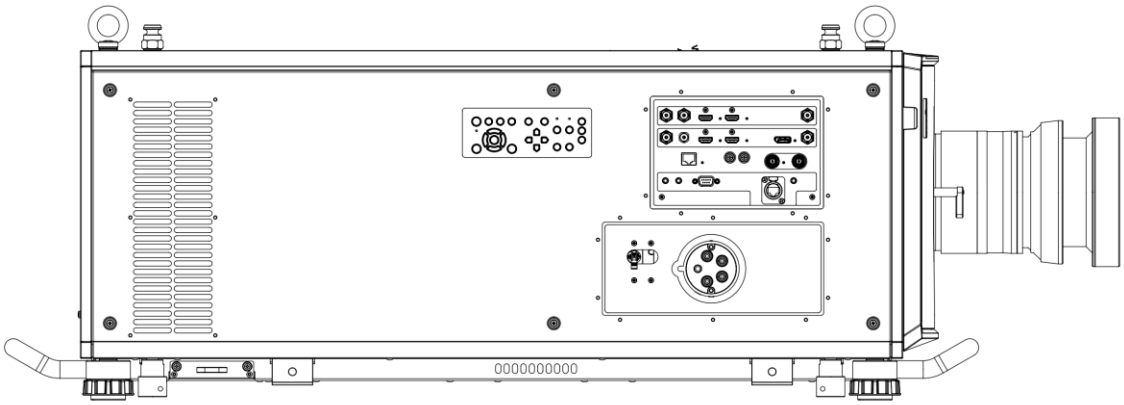








TITAN SERIES - LENS EXTENSION REFERENCE



Lens model	Part number	Lens extension dim, mm
0.65 - 0.85:1	120-511	281.0
0.67:1	105-607	141.0
0.8 - 1.16:1	120-512	235.0
1.12:1	105-608	205.0
1.16 - 1.49:1	109-236	162.5
1.39 - 1.87:1	105-610	130.5
1.87 - 2.56:1	105-611	95.3
2.56 - 4.16:1	105-612	88.7
4.16 - 6.96:1	105-613	55.0
6.92 - 10.36:1	109-235	105.0
0.37:1	**120-510**	**215.0**

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Specifications are subject to change without notice. All values are typical. Actual product appearance, colors, and features may vary.