

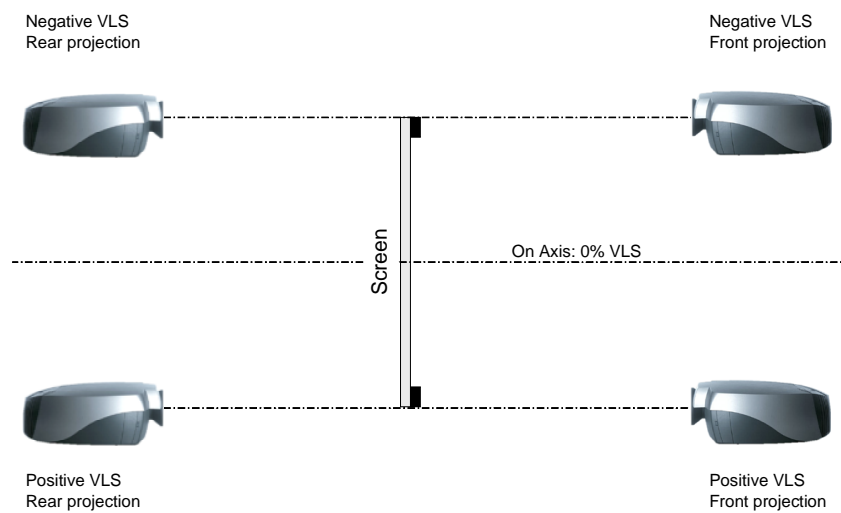
Calculating Projector Position

Projector topology

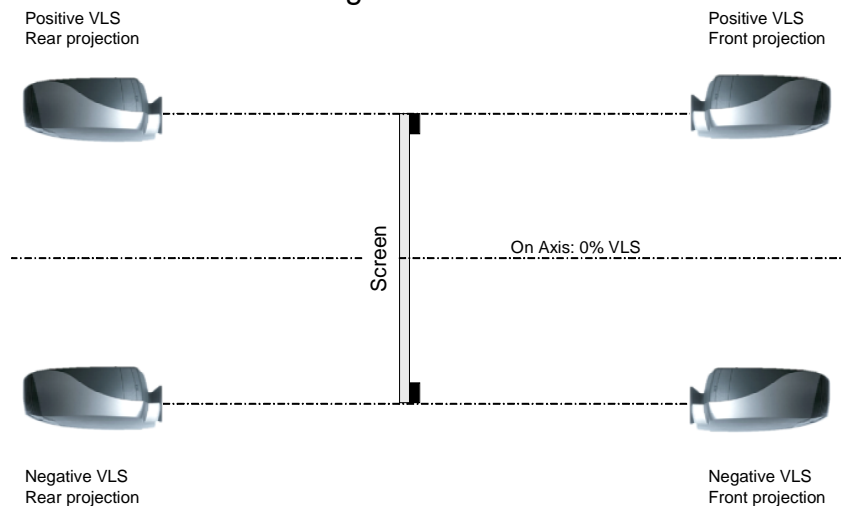
Positive lens shift is defined as the shift of the projected image towards the top or the right side of the projector (table mount, on axis) viewed in the same direction as the projected image.

Examples:

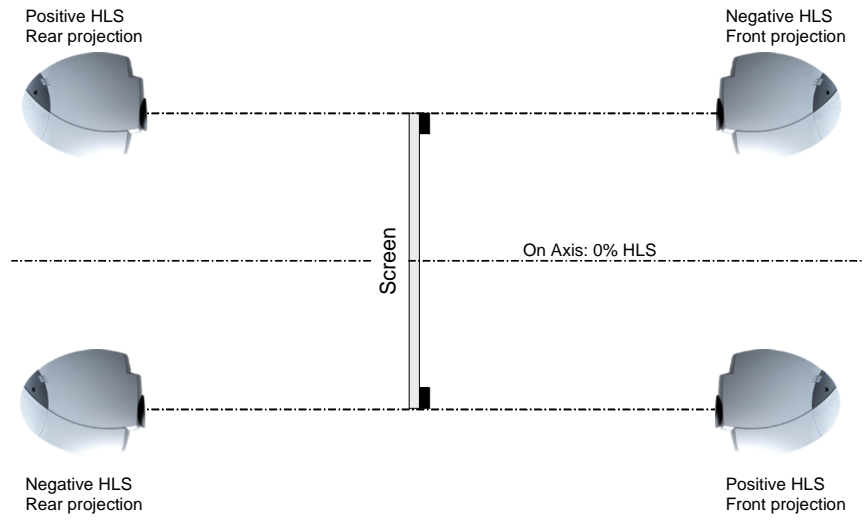
- Vertical lens shift: table mount



- Vertical lens shift: ceiling mount

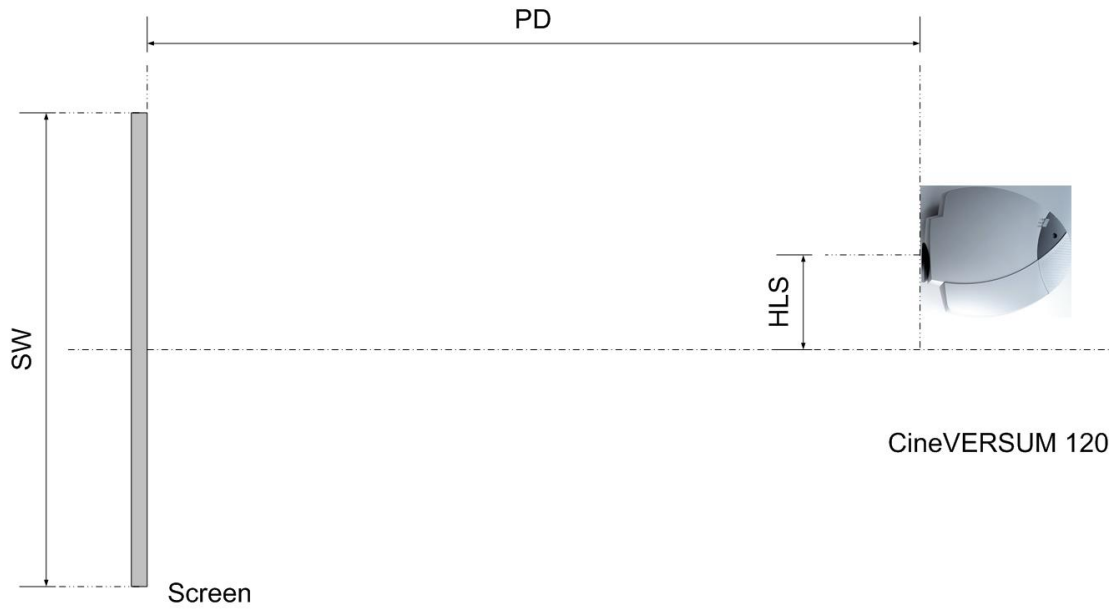


- Horizontal lens shift: table mount

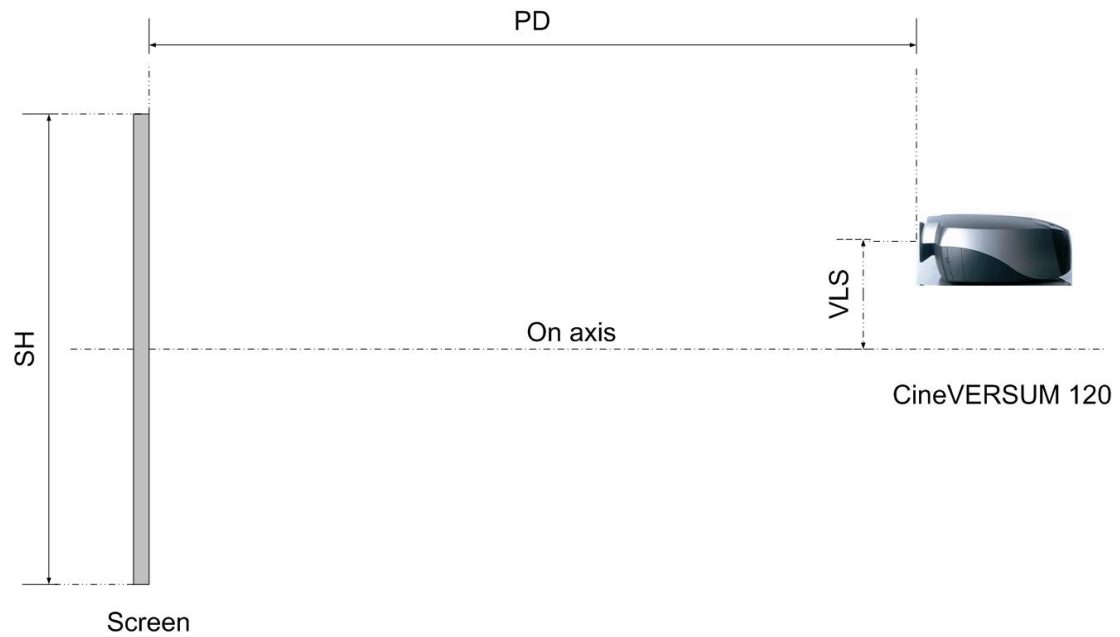


Calculating projection distance

Topview



Sideview

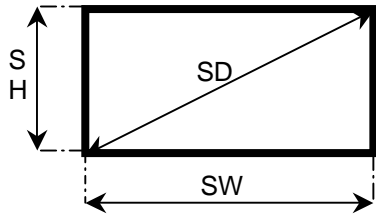


Abbeviation

- SW:** Screen width
- PD:** Projection distance (measured from the lens cover)
- HLS:** Horizontal Lens Shift
Distance from the middle of the lens to the horizontal centreline of the Screen
- VLS:** Vertical Lens Shift
Distance from the middle of the lens to the vertical centreline of the Screen

Calculation

Screen width / Screen height



- $\frac{SW}{SH} = \frac{16}{9}$
- $SW = \frac{SD}{1.147}$

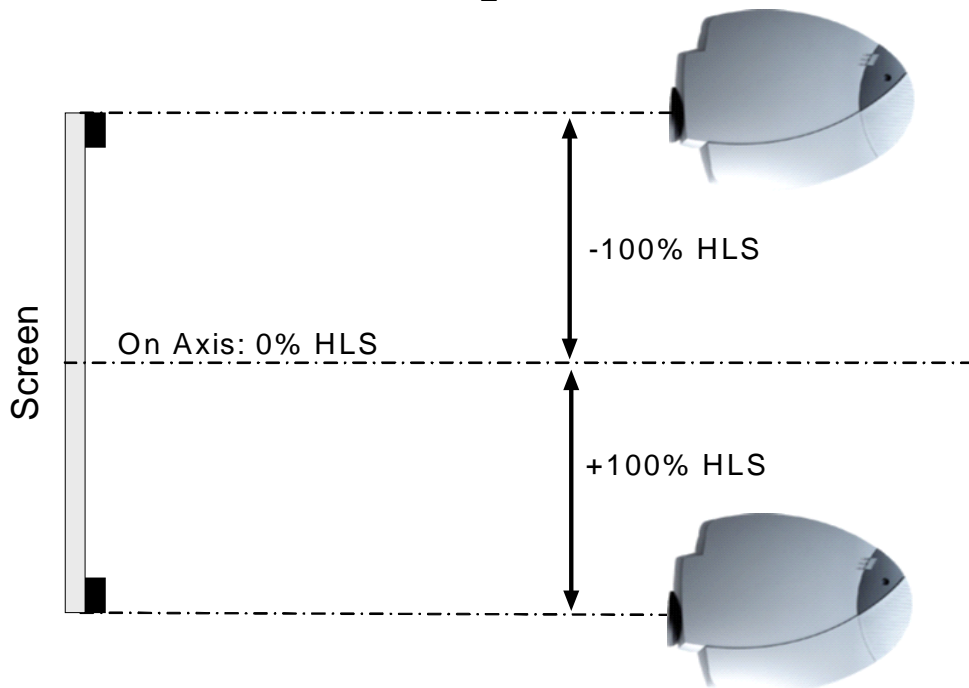
Projection distance

Projection distance = Throw Ratio x Screen width

(Tolerance: 10 cm / 4 inch)

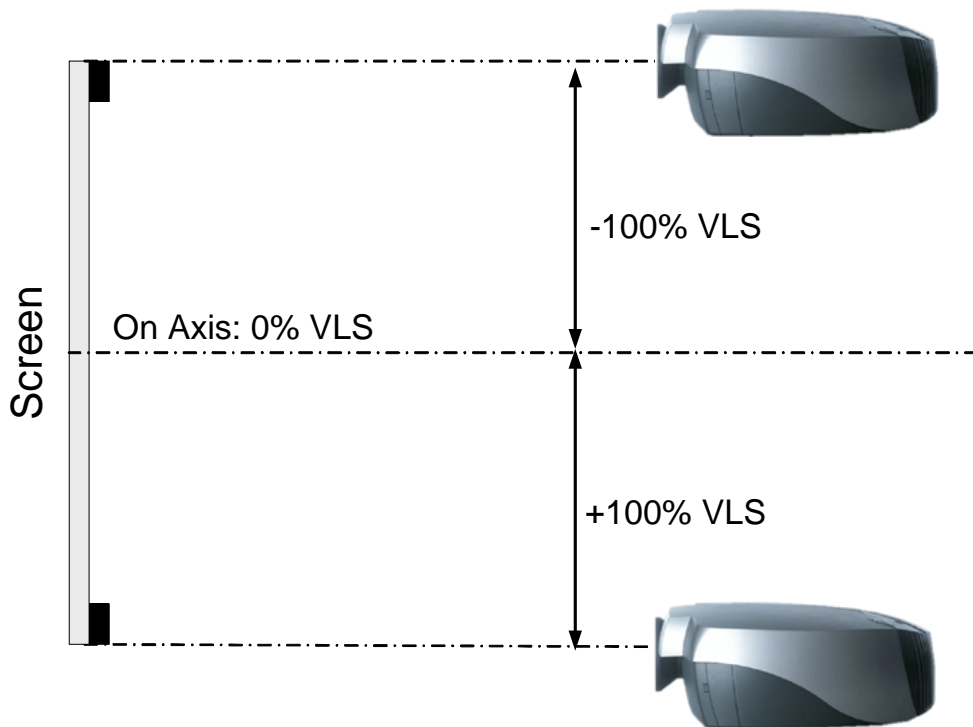
Horizontal Lens Shift

The HLS is specified in % of the $\frac{SW}{2}$



Vertical lens shift

The VLS is specified in % of the $\frac{SH}{2}$



Example:

If you have a diagonal screen width of 110" and a lens fitted on the projector with a throw ratio of 1.8-2.4, a VLS of -30% to +120% and HLS of -60% to +60% then the projection distance is calculated as following:

$$SW = \frac{110''}{1.147} = 95.90''$$

$$SH = \frac{9}{16} \times 95.90'' = 53.94''$$

$$PD_{\min} = 95.90'' \times 1.8 = 172.62''$$

$$PD_{\max} = 95.90'' \times 2.4 = 230.16''$$

$$HLS = (95.90''/2) \times (-0.6) / (95.90''/2) \times 0.6 = -28.77'' / +28.77''$$

$$VLS = (53.94''/2) \times (-0.3) / (53.94''/2) \times 1.2 = -8.09'' / +32.36''$$