

Pupil planes and principal planes of ULTRA-PRIME lenses



Lens type	focal length	Entrance pupil			Exit pupil		Principal planes		backfocal distance	optical length
		Position*	relative to PL-mount	Diameter	Position***	Diameter	HV*	HH***		
			**							
Distagon 2/10	10	44.4	-97.6	5.2	telecentric	776.6	54.8	18.9	29.3	164.7
Distagon 1.9/12	12	44.4	-94.6	6.5	telecentric	192.6	57.4	20.5	33.0	158.0
Distagon 1.8/14	14	40.1	-70.6	8.0	-30.2	34.0	51.2	16.9	31.3	131.5
Distagon 1.7/16	16	30.8	-61.2	9.0	-33.6	33.6	42.9	11.6	28.1	115.9
Distagon 1.7/20	20	40.6	-51.4	11.6	-36.5	38.4	54.6	10.1	30.1	114.0
Distagon 1.7/24	24	45.7	-46.4	13.6	-34.8	37.2	60.9	6.9	30.8	113.3
Distagon 1.7/28	28	42.9	-49.1	16.0	-40.9	42.5	60.4	5.6	33.6	110.4
Distagon 1.7/32	32	49.2	-42.8	17.8	-26.3	33.4	64.1	1.7	33.6	110.3
Distagon 1.7/40	40	53.6	-38.3	22.6	-34.3	36.8	69.1	-9.1	31.0	112.9
Planar 1.7/50	52	99.2	7.2	29.5	-38.6	39.6	112.5	-20.7	31.4	112.6
Planar 1.7/65	65	88.7	-1.3	36.7	-49.4	47.1	103.1	-30.0	34.5	107.5
Planar 1.7/85	83	100.2	10.2	47.4	-30.0	38.9	81.9	-45.1	38.3	103.7
Sonnar 1.7/100	102	98.5	6.5	57.2	-29.8	34.4	31.0	-70.4	31.3	112.7
Sonnar 1.7/135	135	193.3	75.3	75.3	-27.1	33.9	28.4	-101.3	33.7	136.4
Sonnar 1.8/180	180	204.4	36.4	97.7	-57.1	50.1	33.5	-144.7	35.3	184.7

All dimensions in mm, valid for lens set to ∞

* Position of entrance pupil and first principal plane is related to the 1st lens vertex.

** Position of the entrance pupil related to the flange of the PL-mount.

Pan and swivel movements of the lens with axis through the entrance pupil will preserve the perspective view.

*** Position of the exit pupil and the second principal plane is related to the last lens vertex..

All distances in the direction of light propagation are given by positive numbers.

(Example: the swivel axis through the entrance pupil of the UP14 should be located about 70 mm in front of the PL-mount outside of the camera)