

3.3.1.5 Cameras for BeamGage®

3.3.1.5.1 190-1100nm USB Silicon CCD Cameras

SP907 low resolution, SP928 and SP300 high resolution

Features

- 1/1.8" imager format
- 56dB true dynamic resolution
- Resolution:
 - High: SP928, SP300
 - Low: SP907
- Small camera size: SP907, SP928
- High speed: SP300

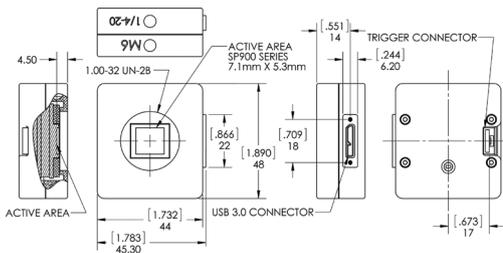


Item	Specification		
Model	SP907	SP928	SP300
Application	1/1.8" format	1/1.8" format	1/1.8" format
Spectral Response ⁽²⁾	190 - 1100nm	190 - 1100nm	190 - 1100nm
Active Area	7.1mm x 5.3mm	7.1mm x 5.3mm	7.1mm x 5.3mm
Pixel spacing	7.38µm	3.69µm	3.69µm
Number of effective pixels	964 x 724	1928 x 1448	1928 x 1448
Minimum system dynamic range	56 dB	56 dB	56 dB
Linearity with Power	±1%	±1%	±1%
Accuracy of beam width	±2%	±2%	±2%
Frame rates in 12 bit mode ⁽⁴⁾	23 fps at full resolution	13 fps at full resolution	26 fps at full resolution
Shutter duration	30µs to multiple frames	30µs to multiple frames	30µs to multiple frames
Gain control	0 dB to 24 dB	0 dB to 24 dB	0 dB to 24 dB
Trigger	Hardware/Software trigger & strobe out	Hardware/Software trigger & strobe out	Hardware/Software trigger & strobe out
Photodiode trigger	Si response: SP90408	Si response: SP90408	Si response: SP90408
Saturation intensity ⁽¹⁾	0.97µW/cm ²	0.97µW/cm ²	0.97µW/cm ²
Lowest measurable signal ⁽¹⁾	1.2nW/cm ²	1.2nW/cm ²	1.2nW/cm ²
Damage threshold ⁽³⁾	50W/cm ² / 0.1J/cm ² with all filters installed for < 100ns pulse width		
Dimensions	48 mm x 44 mm x 20.2 mm	48 mm x 44 mm x 20.2 mm	44 mm x 29 mm x 58 mm
CCD recess	4.5 mm	4.5 mm	17.5 mm
Image quality at 1064nm	Pulsed with trigger sync - excellent Pulsed with video trigger - good CW - good	Pulsed with trigger sync - excellent Pulsed with video trigger - good CW - good	Pulsed with trigger sync - excellent Pulsed with video trigger - good CW - good
Operation mode	Interline transfer CCD	Interline transfer CCD	Double tap interline transfer CCD
Software supported	BeamGage STD or PRO	BeamGage STD or PRO	BeamGage STD or PRO
PC interface	USB 3.0	USB 3.0	USB 3.0
OS Supported	Windows 7 (64) and Windows 10		

Notes:

- (1) Camera set to full resolution at maximum frame rate and exposure times, running CW at 632.8nm wavelength. Camera set to minimum useful gain for saturation test and maximum useful gain for lowest signal test.
- (2) Camera may be useable for wavelengths below 350nm but sensitivity is low and detector deterioration may occur. Therefore UV image converter is recommended. Although our silicon cameras have shown response out to 1320nm it can cause significant blooming which could lead to significant errors of beam width measurement. We would suggest our InGaAs cameras for these wavelengths to give the best measurements.
- (3) This is the damage threshold of the filter glass of the filters. Assuming all filters mounted with ND1 (red housing) filter in the front. Distortion of the beam may occur with average power densities as low as 5W/cm².
- (4) Highly dependent on PC processor and graphics adapter performance.

SP907/SP928



SP300

