

3.3.4.1 190-1100nm Cameras

3.3.4.1.1 USB Silicon High Resolution CMOS Cameras

SP932U

Features

- Specially optimized for NIR and Nd:YAG focused lasers below 100µm via “Blooming Correction” algorithm
- 72dB true dynamic resolution, high bitrate

SP204S

Features

- Highest resolution and accuracy measurement of focused and collimated laser beams
- Frame rate, up to 37fps at full resolution
- Highest quantum efficiency

SP932U



SP204S



| Model | SP932U | SP204S |
|--|--|---|
| Format | 1/1.8" | 1/1.8" |
| Wavelengths ⁽¹⁾ | 190-1100nm | 190-1100nm |
| Active area | 7.06mm x 5.3mm | 6.7mm x 5.6mm |
| Beam sizes ⁽²⁾ | 34.5µm - 5.3mm | 27.4µm - 5.6mm |
| Pixel spacing | 3.45µm x 3.45µm | 2.74µm x 2.74µm |
| Number of effective pixels | 2048 x 1536 | 2472 x 2064 |
| Dynamic range | 72 dB | 67 dB |
| Linearity with power | ±1% | ±1% |
| Accuracy of beam width ⁽³⁾ | ±2% | ±2% |
| Frame rates in 12 bit mode ⁽⁴⁾ | 24 fps at full resolution | 37 fps |
| Exposure Time | 25µs to 400ms | 10µs - 400ms |
| Gain control | 1.46 dB to 256 dB | 1.4 dB to 256 dB |
| Trigger | Hardware/Software Trigger & Strobe Out | Hardware/Software Trigger & Strobe Out |
| Photodiode trigger (Optional) ⁽⁵⁾ | Si response: SP90408 | Si response: SP90408 |
| Lowest measurable signal ⁽⁶⁾ | 0.2nW/cm ² at 633nm | 0.35nW/cm ² at 530nm |
| Damage threshold ⁽⁷⁾ | 50W/cm ² / 1J/cm ² for < 100ns pulse width | 50W/cm ² / 1J/cm ² for <100ns pulse width |
| Ambient operating temperature ⁽⁸⁾ | 10° C - 40° C | 10° C - 40° C |
| Dimensions | 45 mm x 45 mm x 22.5 mm | 45mm x 45mm x 22.5mm |
| Imager recess | 4.5±0.11mm | 4.5mm ±0.11mm |
| Operation mode | CMOS, Global shutter | CMOS, Global Shutter |
| PC interface | USB 3.1 | USB 3.0 |
| OS supported | Windows 10 (64) and Windows 11 | Windows 10 (64) and Windows 11 |
| Compliance | CE, UKCA, China RoHS | CE, UKCA, China RoHS |
| Ordering Information | | |
| Supported software | Item | Item |
| BeamGage Professional | BGP-USB3-SP932U | BGP-USB3-SP204S |
| BeamGage Standard | BGS-USB3-SP932U | BGS-USB3-SP204S |
| | P/N | P/N |
| | SP90607 ⁽⁹⁾ | SP90648 ⁽¹⁰⁾ |
| | SP90606 ⁽⁹⁾ | SP90647 ⁽¹⁰⁾ |

Notes: (1) Wavelength is typically specified down to 190nm, however the camera's natural response is from 300nm through 1100nm. To measure effectively below 300nm a UV converter is recommended, otherwise the measurement accuracy may degrade and long-term intensive irradiation at UV wavelengths may cause permanent damage to the imager.

(2) The maximal beam size refers to "Flat-top" laser beams. For Gaussian beams, reduce maximum beam size by 1/3.

(3) For SP204S camera, at NIR wavelengths above 900 nm and beam width below 100 µm , the accuracy would be lower.

(4) Dependent on PC processor and graphics card performance.

(5) For more information please see "Optical Camera Trigger" catalog page.

(6) Camera set to full resolution at maximum frame, 400ms exposure time and without any ND filter.

(7) This is the damage threshold of the filter glass. Assuming all filters are mounted with ND1 (red housing) filter in the front. Distortion of the beam may occur with average power densities of 5W/cm² for beam size 5mm, 10W/cm² for 2mm beam, and >30W/cm² for 1mm beam.

(8) The storage Temp is -30°C to 70°C and Operation Humidity is 5% to 90% (non-condensing).

(9) Comes with USB 3.0 cable, Trigger cable and 3 ND filters.

(10) Comes with USB 3.0 cables 0.5 & 3m, Trigger cable and 3 ND filters.

SP932U/SP204S

