

### 3.3.4.2.1 Phosphor Coated CMOS And CCD Cameras For NIR Response

## Features

- 1440-1605nm Wavelengths
  - NIR Telecom mode field analysis
  - NIR Laser beam analysis

## Available Models

- USB models: SP203P
  - Large Format: LT665-1550



Model	SP203P	LT665-1550
Application	SWIR wavelengths, 1/1.8" format	NIR wavelengths, 1" format
Wavelengths	1440 - 1605nm	1440 - 1605nm
Active area	7.06mm x 5.3mm	12.5mm x 10mm
Beam sizes <sup>(1)</sup>	600µm - 5.3mm	600µm - 9.9mm
Pixel spacing <sup>(2)</sup>	3.45µm x 3.45µm	4.54µm x 4.54µm
Number of effective pixels	2048 x 1536	2752 x 2192
Dynamic range <sup>(3)</sup>	~32 dB	~30 dB
Linearity with power	±5%	±5%
Accuracy of beam width	±5%	±5%
Frame rates in 12 bit mode <sup>(4)</sup>	24 fps at full resolution	27 fps at full resolution
Exposure	25µs - 400ms	31µs to multiple frames
Gain control	1.4 dB to 256 dB	0.8 dB to 50 dB
Trigger	Supports both trigger and strobe out	Supports both trigger and strobe out
Photodiode trigger (Optional) <sup>(5)</sup>	InGaAs response: SP90409	InGaAs response: SP90409
Saturation intensity	200mW/cm <sup>2</sup> at 1550nm For exposure time of 1 ms	
Lowest measurable signal	0.5µW/cm <sup>2</sup> at 1550nm For exposure time of 400 ms	
Damage threshold	50W/cm <sup>2</sup> / 1/J/cm <sup>2</sup> with all filters installed for < 100ns pulse width <sup>(6)</sup>	
Ambient operating temperature	10°C to 40°C	0 - 50 °C. Recommended to connect to heat sink
Dimensions	45mm x 45mm x 22.5mm	43mm x 43mm x 65mm
Imager recess	4.5mm ±0.11mm	17.5mm
Operation mode	CMOS, Global Shutter	Quad Tap interline transfer CCD
PC interface	USB 3.0	USB 3.0
OS supported	Windows 10 (64) and Windows 11	
Compliance	CE, UKCA, China RoHS	

Notes: (1) The maximal beam size refers to "Flat-top" laser beams. For Gaussian beams, reduce maximum beam size by 1/3. Below beam sizes of 1.5 mm, the measurement error increases due to the broadening created by the thickness of the phosphor layer.

(2) Despite the small pixel size, the spatial resolution will not exceed 50µm due to diffusion of the light by the phosphor coating.

(3) Signal to noise ratio is degraded due to the gamma of the phosphor. Averaging or summing of up to 256 frames improves dynamic range by up to  $16x = +24$  dB.

(4) In normal (non-shuttered) camera operation, the frame rate is the fastest rate at which the laser may pulse and the camera can still separate one pulse from the next. With electronic shutter operation, higher rate laser pulses can be split out by matching the laser repetition to the shutter speed.

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

(6) This is the damage threshold of the filter glass of the filters. Assuming all filters mounted with red housing filter in the front. Distortion of the beam may occur with filters mounted with 3040W filter.

average power densities of  $5\text{W}/\text{cm}^2$  for beam size 5mm,  $10\text{W}/\text{cm}^2$  for 2mm beam and  $>30\text{W}/\text{cm}^2$  for 1mm beam.  
(7) Comes with USB 3.0 cable, Trigger cable and 3 ND filters

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**SP203P**

