

3.3.4.1.3 Large Format USB & GigE Cameras

LT665

Features

- Large 1" imager format
- High resolution
- High speed
- 54dB true dynamic resolution

SP504S

Features

- 23mm x 23mm imager format
- Highest resolution
- CMOS, Global shutter
- 44.6 dB true dynamic resolution



Model	LT665	SP504S
Format	1"	APS-H
Wavelengths <sup>(1)</sup>	190 - 1100nm	340 - 1100nm
Active area	12.5mm x 10mm	23mm x 23mm
Beam sizes	46µm - 9.9mm	45µm - 23mm
Pixel spacing	4.54µm x 4.54µm	4.5µm x 4.5µm
Number of effective pixels	2752 x 2192	5120 x 5120
Dynamic range	54 dB	44.6 dB
Linearity with power	±1%	±1%
Accuracy of beam width	±2%	±2%
Frame rates <sup>(2)</sup>	27 fps at full resolution (12 bit mode)	4.5 fps (10 bit mode) <sup>(3)</sup>
Shutter duration	31µs to multiple frames	10µs – 400 ms
Gain control	0.8 dB to 56 dB	N/A
Trigger	Hardware/Software trigger & strobe out	Hardware/software & strobe out
Photodiode trigger (Optional) <sup>(4)</sup>	Si response: SP90408	Si response: SP90408
Saturation intensity	14µW/cm² <sup>(5)</sup>	1.68mW/cm² at 633nm <sup>(6)</sup>
Lowest measurable signal	0.3nW/cm² <sup>(5)</sup>	0.25nW/cm² at 633nm <sup>(6)</sup>
Damage threshold <sup>(7)</sup>	50W/cm² / 1J/cm² with all filters installed for < 100ns pulse width	50W/cm2 / 1J/cm2 with all filters installed for < 100ns pulse width
Ambient operating temperature	0 - 50° C. Recommended to connect to heat sink	10° C - 40° C
Dimensions	43mm x 43mm x 65mm	68mm x 68mm x 62.6mm
Imager recess	17.5mm	12.7mm
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
Operation mode	Quad Tap interline transfer CCD	CMOS, Global shutter
PC interface	USB 3.0	GigE (POE)
OS supported	Windows 7 (64) and Windows 10	Windows 10 (64) and Windows 11
Compliance	CE, UKCA, China RoHS	CE, UKCA, China RoHS
<b>Ordering Information</b>		
Supported software	Item	P/N
BeamGage Professional	BGP-USB3-LT665	SP90378 <sup>(8)</sup>
BeamGage Standard	BGS-USB3-LT665	SP90377 <sup>(8)</sup>
	Item	P/N
	BGP-G-SP504S	SP90618 <sup>(9)</sup>
	N/A	N/A

**Accessories**

LBS-400 to SM2 Adapter	SP98000
LBS-100 to SM2 Adapter	SP98001

Notes: (1) The camera's natural response is from 340nm through 1100nm. To measure effectively below 340nm, please make use of one of our UV converters. Otherwise the sensitivity is too low and the measurement accuracy may degrade. Without UV converter, long term intensive irradiation at UV wavelengths, may cause permanent damage to the imager due to UV ablation.  
(2) Highly dependent on PC processor and graphics adapter performance.  
(3) Value is for 2x2 binning. When in full frame format, the maximum frame rate is 2 fps.  
(4) For more information please see "Optical Camera Trigger" catalog page.  
(5) Camera set to full resolution at maximum frame rate at 633nm CW wavelength. Camera set to minimum useful gain and 1ms exposure time for saturation test and maximum useful gain and 35ms exposure time for lowest signal test.  
(6) Values derived from camera EMVA data for Saturation Capacity at minimum exposure and Absolute Sensitivity at maximum exposure. When in the default configuration, the Saturation Intensity is 0.42 mW/cm² and the Lowest Measurable Signal is 0.05 nW/cm².  
(7) 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 of 5W/cm² for beam size 5mm, 10W/cm² for 2mm beam and >30W/cm² for 1mm beam.  
(8) Comes with USB 3.0 cable, Power with Trigger cable and 3 ND filters.  
(9) Comes with Cat6 cable, Power with Trigger cable, SM2 adapter, and 3 ND filters:ND1, ND2, ND3 (ND3 mounted in camera)

Beam Analysis

3.3.4.1.3

