

sMAX6504B Series

sMAX6504B-VIS-U10-10G

sMAX6504B-UV-U10-10G

sMAX6504B-VIS-U20-CXP

sMAX6504B-UV-U20-CXP



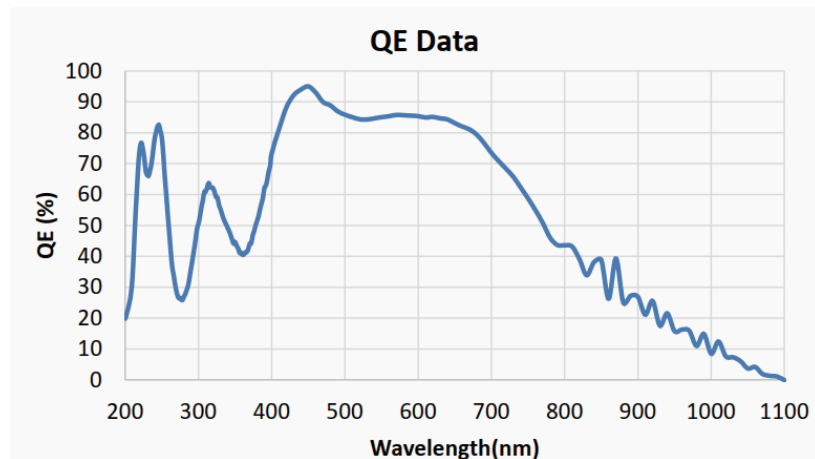
Model	Filter	Sensor Model/Type	pixel size (μm)	Target size	resolution	Frame rate	Data interface
sMAX6504B-VIS-U10-10G	AR1100nm protective glass	GSENSE6504BSI/ CMOS Image sensor	6.5×6.5	1.2"	2048×2048	10Gige: 248fps@8bit, 124fps@12bit, 124fps@16bit	USB3.2 Gen 2x1/ 10Gige
sMAX6504B-UV-U10-10G	Ultraviolet quartz glass					USB3.2 Gen 2x1: 224fps@8bit, 112fps@12bit, 112fps@16bit	
sMAX6504B-VIS-U20-CXP	AR1100nm protective glass					CXP: 298fps@8bit, 298fps@12bit, 170fps@16bit	USB3.2 Gen 2x2/ CXP 2.0x4
sMAX6504B-UV-U20-CXP	Ultraviolet quartz glass					USB3.2 Gen 2x2: 298fps@8bit, 298fps@12bit, 170fps@16bit	

Characteristics

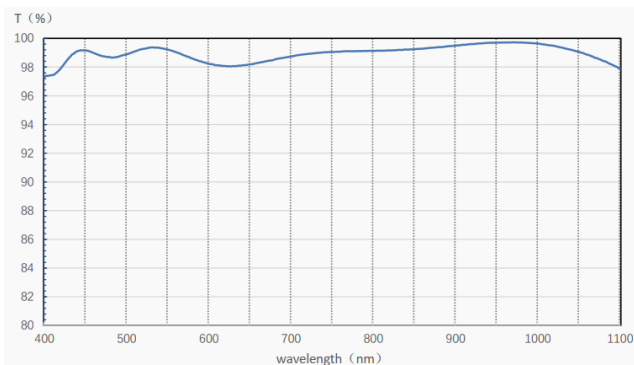
The sMAX6504B series is equipped with the GSENSE6504BSI 1.2-inch image sensor. To address the inherent thermal noise of the sensor, an efficient cooling module has been specially designed, enabling the camera sensor to operate at temperatures up to 40°C (air cooling) or 55°C (water cooling) lower than the ambient temperature. An anti-fogging mechanism has been designed to address the common issue of fogging at low temperatures in cooled cameras, ensuring that the surfaces of the sensor and filter do not fog at low temperatures. Video and image data from the sMAX6504B series can be transmitted via USB3.2 Gen 2x1, USB3.2 Gen 2x2, 10Gige, or CXP interfaces for quick preview.

- Equipped with GSENSE6504BSI scientific-grade CMOS sensor
- Wide spectral range of 200nm-1100nm
- Support UV and visible light band application scenarios
- Maximum signal-to-noise ratio: 41.3dB (high dynamic mode)
- Dynamic range: 86dB (high dynamic mode)
- Ultra-low dark current: $\leq 0.01e^{-}/s/pix@-20^{\circ}C$
- Support external IO trigger control
- Supports high sensitivity/high full well/balanced/high dynamic range (HDR) modes
- Ultra-low readout noise: 0.72e⁻ (high dynamic mode)/0.74e⁻ (high sensitivity mode)
- Precise temperature control, with air cooling below 40°C of room temperature and water cooling below 55°C of room temperature
- The frame rates of USB3.2 Gen 2x1/USB3.2 Gen 2x2/10Gige/CXP can reach 224fps/298fps/248fps/298fps respectively
- Resolution: 2048×2048
- 6.5μm pixel
- Rolling shutter/Global reset
- USB3.2 Gen 2x1/USB3.2 or Gen 2x2/10Gige/CXP interface
- Mono 8/Mono 12/Mono 16
- 8Gb memory

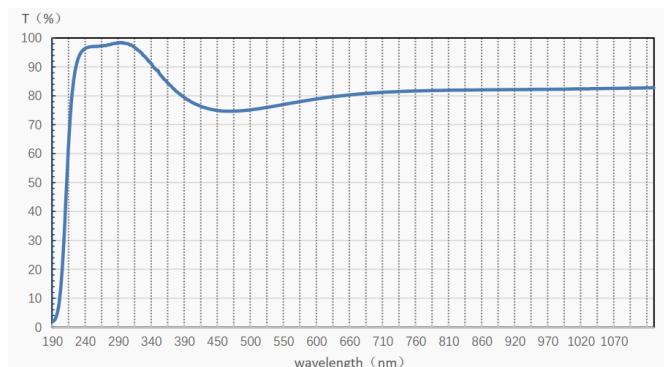
Curve



GSENSE6504BSI QE Curve



Transmittance curve of AR protective glass

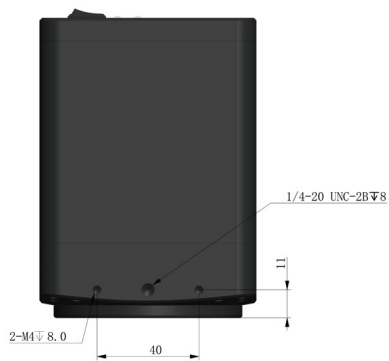


Transmittance curve of Ultraviolet quartz glass

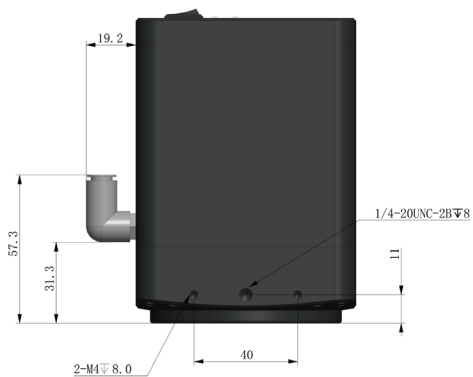
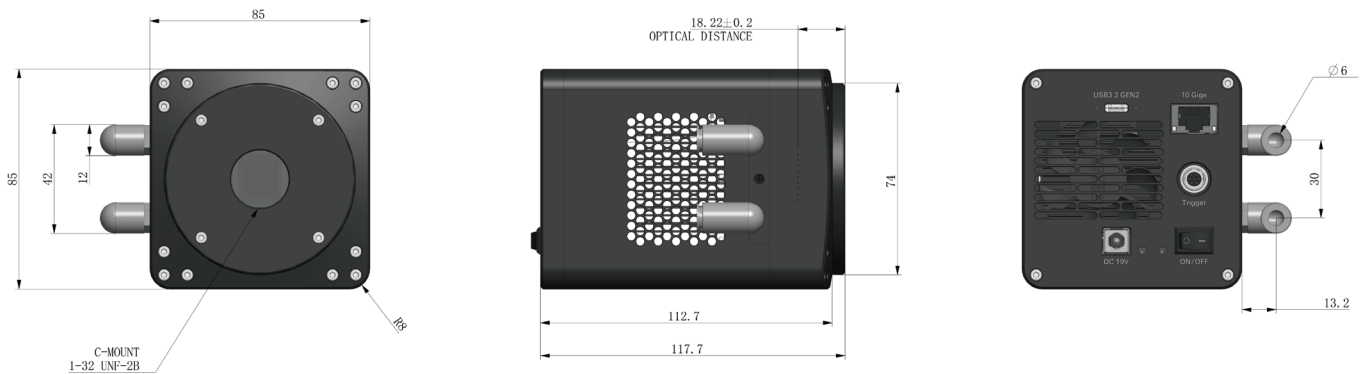
Parameters

Model parameter	sMAX6504B-VIS-U10-10G AR1100nm protective glass	sMAX6504B-UV-U10-10G Ultraviolet quartz glass	sMAX6504B-VIS-U10-10G AR1100nm protective glass	sMAX6504B-UV-U10-10G Ultraviolet quartz glass
Sensor Model	GSENSE6504BSI			
sensor type	CMOS Image sensor			
spectral range	200nm-1100nm			
pixel size	6.5μm×6.5μm			
Target size	1.2”			
resolution	2048×2048			
frame rate	10Gige:248fps@8bit, 124fps@12bit, 124fps@16bit USB3.2 Gen 2x1:224fps@8bit, 112fps@12bit, 112fps@16bit		CXP:298fps@8bit, 298fps@12bit, 170fps@16bit USB3.2 Gen 2x2:298fps@8bit, 298fps@12bit, 170fps@16bit	
memory	1024MB(8Gb)			
Conversion gain	0.26e-/DN(High Sensitivity Mode) 0.21e-/DN (HDR Mode)			
dynamic range	62.1dB(High Sensitivity Mode) 86dB(HDR Mode)			
Readout noise	0.74e-(High Sensitivity Mode) 0.72e-(HDR Mode)			
Full trap charge	1.03ke-(High Sensitivity Mode) 13.48ke-(HDR Mode)			
signal-to-noise ratio	30.1dB(High Sensitivity Mode) 41.3dB(HDR Mode)			
sensitivity	9.2x107e-/((W/m2).s)@450nm			
dark current	≤0.05e-/s/pix@-10°C , ≤0.01e-/s/pix@-20°C			
quantum efficiency	95%@450nm			
Exposure time range	12us-300s			
Shutter mode	Rolling shutter/Global reset			
Binning mode	Software Bining:2×2~8×8, Hardware Binning: 1x1, 1x2, 2x1, 2×2			
data interface	USB3.2 Gen 2x1/10Gige		USB3.2 Gen 2x2/CXP 2.0x4	
Digital I/O	1 channel optocoupler isolated input, 1 channel optocoupler isolated output, 2 channels non-isolated input/output ports			
data format	Mono 8/Mono 12/Mono 16			
Refrigeration temperature difference	Air cooling is 40°C lower than room temperature / Water cooling is 55°C lower than room temperature			
general parameters				
power supply method	1Powered by a 19V 4.74A power adapter			
power consumption	<46W@USB3.2 / <55W@10Gige / TBD@CXP			
temperature	Operating temperature: -30~60°C, storage temperature: -40~85°C			
humidity	20%-80%, no condensation			
Size	85*85*118mm			
weight	976g			
Lens mount	C interface			
software	SDK development kit and camera control software			

Size & Shape

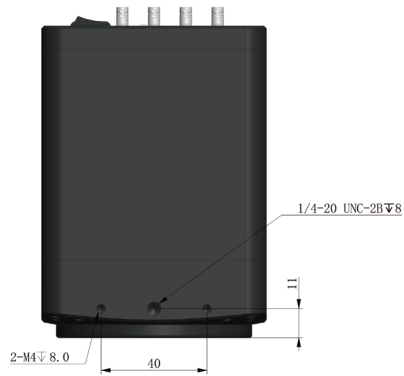
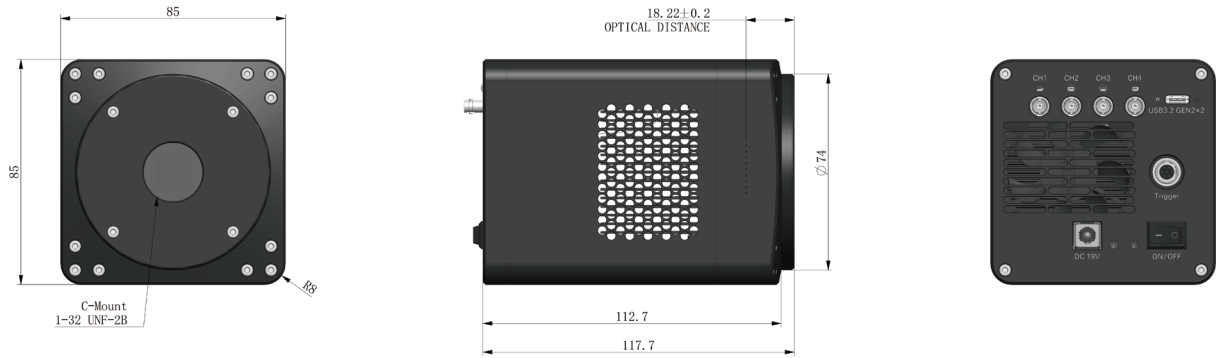


sMAX6504B-VIS/UV-U10-10G air-cooled dimensions and appearance

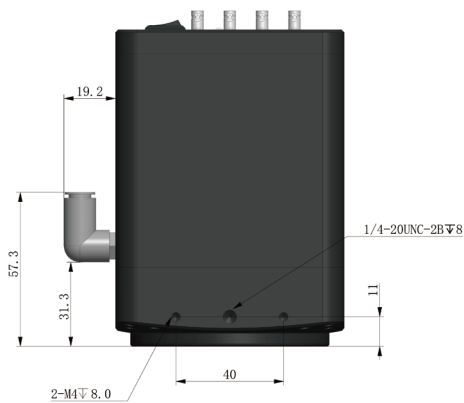
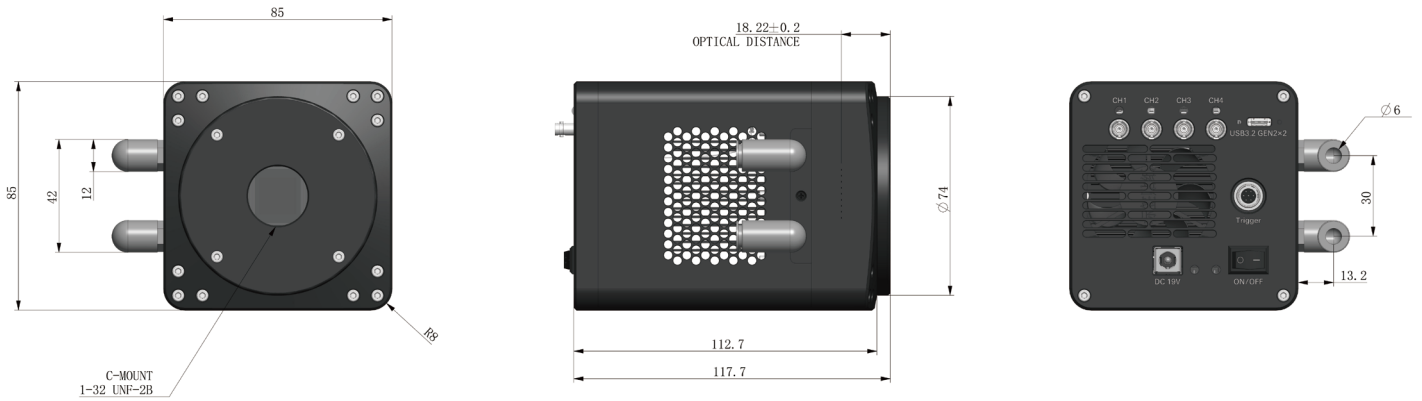


sMAX6504B-VIS/UV-U10-10G water-cooled dimensions and appearance

Size & Shape



sMAX6504B-VIS/UV-U20-CXP air-cooled dimensions and appearance



sMAX6504B-VIS/UV-U20-CXP water-cooled dimensions and appearance