

GHOPTO SWIR CAMERAS GH-SW640-U3

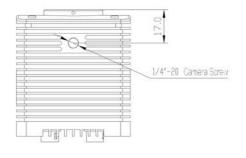


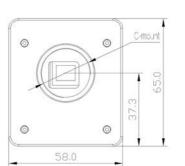


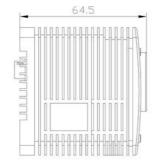
This SWIR camera independently developed and designed by GHOPTO has a resolution of 640×512, 15µm pixel pitch, and is equipped with a USB3.0 interface. It can achieve a high frame rate of 240fps and 14-bit digital output at the resolution of 640×512. Windowing (optional) realizes higher rate picture transmission. The camera has TE Cooler built in and lower dark current, and the readout noise is as low as 40e-. In addition, the camera has a variety of gain modes and non-uniformity correction, which can improve high-definition images in low light conditions at night, and can also image through fog and haze. Small in size and light in weight, it is easy to integrate in surveillance systems such as drones, shipborne, and airborne optoelectronic pods. It is widely used in wafer inspection, surveillance, hyperspectral imaging and other fields.

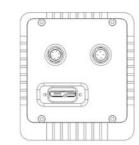
Features

- High frame rate, 240fps @ 640×512
- TEC
- Low read noise
- Low dark current
- USB3.0
- Low power dissipation
- SDK provided









▲ GH-SW640-U3 Camera structure

SPECIFICATION

Array Type InGaAs FPA Format 640 x 512 Active Area 9.6 mm × 7.68 mm Pixel Pitch 15 μm Lens mount M42 × 1 Spectral Response 0.9 μm ~ 1.7 μm (Optional 0.4 μm ~ 1.7 μm) Quantum Efficiency 1.8 Me- Cooling Capability TEC Dark current 30fA@0.1V&18°C Output USB3.0 Digital Output 14bit Frame Rate 240fps@640×512 Windowing Programmable Shutter mode Global shutter Readout modes IWR Exposure time 60 μs ~ Operating Temperature Weight Voltage 12V +-2V Dimension (D x W x H) Power Dissipation 7.5 M coreided Limage Correction SPK provided SPK provided SPK provided SPK provided	TYPE	GH-SW640-U3	
Active Area Pixel Pitch Lens mount M42 × 1 Spectral Response 0.9 μm ~ 1.7 μm (Optional 0.4 μm ~ 1.7 μm) Quantum Efficiency > 70% Full Well Capacity 1.8Me- Cooling Capability TEC Dark current 30fA@0.1V&18°C Output USB3.0 Digital Output 14bit Frame Rate 240fps@640×512 Windowing Shutter mode Global shutter Readout modes IWR Exposure time 60 μs ~ Operating Temperature Weight Voltage 12V + 2V Dimension (D x W x H) Power Dissipation Trigger Interface RS-422 / TTL compatible Noise with ROIC Image Correction	Array Type	InGaAs	
Pixel Pitch 15 μm Lens mount M42 × 1 Spectral Response 0.9 μm ~ 1.7 μm (Optional 0.4 μm ~ 1.7 μm) Quantum Efficiency > 70% Full Well Capacity 1.8Me- Cooling Capability TEC Dark current 30fA@0.1V&18°C Output USB3.0 Digital Output 14bit Frame Rate 240fps@640×512 Windowing Programmable Shutter mode Global shutter Readout modes IWR Exposure time 60 μs ~ Operating Temperature -20° ~ +70° Weight 280g (no lens) Voltage 12V + 2V Dimension (D x W x H) 65 mm × 58 mm × 65 mm Power Dissipation <5W (no TEC)	FPA Format	640 x 512	
Lens mount M42 × 1 Spectral Response 0.9 μm ~ 1.7 μm (Optional 0.4 μm ~ 1.7 μm) Quantum Efficiency > 70% Full Well Capacity 1.8Me- Cooling Capability TEC Dark current 30fA@0.1V&18°C Output USB3.0 Digital Output 14bit Frame Rate 240fps@640×512 Windowing Programmable Shutter mode Global shutter Readout modes IWR Exposure time Operating Temperature Weight 280g (no lens) Voltage Dimension (D x W x H) Power Dissipation Trigger Interface Noise with ROIC Image Correction	Active Area	9.6 mm × 7.68 mm	
Spectral Response 0.9 μm ~ 1.7 μm (Optional 0.4 μm ~ 1.7 μm) Quantum Efficiency > 70% Full Well Capacity 1.8Me- Cooling Capability TEC Dark current 30fA@0.1V&18°C Output USB3.0 Digital Output 14bit Frame Rate 240fps@640×512 Windowing Programmable Shutter mode Global shutter Readout modes IWR Exposure time 60 μs ~ Operating Temperature Weight 280g (no lens) Voltage 12V +-2V Dimension (D x W x H) Power Dissipation Trigger Interface RS-422 / TTL compatible < 40e- (CDS mode) Image Correction	Pixel Pitch	15 μm	
Quantum Efficiency > 70% Full Well Capacity 1.8Me- Cooling Capability TEC Dark current 30fA@0.1V&18°C Output USB3.0 Digital Output 14bit Frame Rate 240fps@640×512 Windowing Programmable Shutter mode Global shutter Readout modes IWR Exposure time 60 μs ~ Operating Temperature -20° ~ +70° Weight 280g (no lens) Voltage 12V +-2V Dimension (D x W x H) 65 mm × 58 mm × 65 mm Power Dissipation <5W (no TEC)	Lens mount	M42 × 1	
Full Well Capacity Cooling Capability TEC Dark current 30fA@0.1V&18°C Output USB3.0 Digital Output 14bit Frame Rate 240fps@640×512 Windowing Programmable Shutter mode Global shutter Readout modes IWR Exposure time 60 µs ~ Operating Temperature Weight Voltage 12V +-2V Dimension (D x W x H) Power Dissipation Trigger Interface Noise with ROIC Image Correction 1.8Me- 14bit 14bit 240fps@640×512 Programmable 14bit 14	Spectral Response	$0.9~\mu m ^{\sim}1.7~\mu m$ (Optional 0.4 $\mu m ^{\sim}$ 1.7 μm)	
Cooling Capability TEC Dark current 30fA@0.1V&18°C Output USB3.0 Digital Output 14bit Frame Rate 240fps@640×512 Windowing Programmable Shutter mode Global shutter Readout modes IWR Exposure time 60 μs ~ Operating Temperature -20° ~ +70° Weight 280g (no lens) Voltage 12V +-2V Dimension (D x W x H) 65 mm × 58 mm × 65 mm Power Dissipation <5W (no TEC)	Quantum Efficiency	> 70%	
Dark current 30fA@0.1V&18℃ Output USB3.0 Digital Output 14bit Frame Rate 240fps@640×512 Windowing Programmable Shutter mode Global shutter Readout modes IWR Exposure time 60 μs ~ Operating Temperature -20° ~ +70° Weight 280g (no lens) Voltage 12V +-2V Dimension (D x W x H) 65 mm × 58 mm × 65 mm Power Dissipation <5W (no TEC)	Full Well Capacity	1.8Me-	
Output USB3.0 Digital Output 14bit Frame Rate 240fps@640×512 Windowing Programmable Shutter mode Global shutter Readout modes IWR Exposure time 60 μs ~ Operating Temperature -20° ~ +70° Weight 280g (no lens) Voltage 12V +-2V Dimension (D x W x H) 65 mm × 58 mm × 65 mm Power Dissipation <5W (no TEC)	Cooling Capability	TEC	
Digital Output Frame Rate 240fps@640×512 Windowing Programmable Global shutter Readout modes IWR Exposure time 60 µs ~ Operating Temperature Weight Voltage Dimension (D x W x H) Power Dissipation Trigger Interface Noise with ROIC Image Correction Index 240fps@640×512 Programmable Authorized Programmable Blobal shutter IWR 60 µs ~ -20° ~ +70° 280g (no lens) 12V +-2V 65 mm × 58 mm × 65 mm <5W (no TEC) Trigger Interface RS-422 / TTL compatible <40e- (CDS mode) Image Correction	Dark current	30fA@0.1V&18℃	
Frame Rate 240fps@640×512 Windowing Shutter mode Readout modes Exposure time Operating Temperature Weight Voltage Dimension (D x W x H) Power Dissipation Trigger Interface Noise with ROIC Image Correction 240fps@640×512 Programmable Slobal shutter 60 µs ~ -20° ~ +70° 280g (no lens) 12V +-2V 65 mm × 58 mm × 65 mm <5W (no TEC) RS-422 / TTL compatible <40e- (CDS mode) Image Correction	Output	USB3.0	
Windowing Programmable Shutter mode Global shutter Readout modes IWR Exposure time 60 μs ~ Operating Temperature -20° ~ +70° Weight 280g (no lens) Voltage 12V +-2V Dimension (D x W x H) 65 mm × 58 mm × 65 mm Power Dissipation <5W (no TEC)	Digital Output	14bit	
Shutter mode Readout modes IWR Exposure time 60 μs ~ Operating Temperature Weight 280g (no lens) Voltage Dimension (D x W x H) Power Dissipation Trigger Interface Noise with ROIC Image Correction IWR 60 μs ~ 12V + 2V 280g (no lens) 12V + 2V 65 mm × 58 mm × 65 mm <5W (no TEC) RS-422 / TTL compatible <40e- (CDS mode) Image Correction	Frame Rate	240fps@640×512	
Readout modes IWR Exposure time 60 μs ~ Operating Temperature -20° ~ +70° Weight 280g (no lens) Voltage 12V +-2V Dimension (D x W x H) 65 mm × 58 mm × 65 mm Power Dissipation <5W (no TEC)	Windowing	Programmable	
Exposure time $60 \mu s^{-}$ Operating Temperature $-20^{\circ} \sim +70^{\circ}$ Weight $280g (no lens)$ Voltage $12V + -2V$ Dimension (D x W x H) $65 mm \times 58 mm \times 65 mm$ Power Dissipation $<5W (no TEC)$ Trigger Interface $RS-422 / TTL compatible$ Noise with ROIC $<40e-$ (CDS mode) Image Correction $1-point \& 2-point correction$	Shutter mode	Global shutter	
Operating Temperature -20° ~ +70° Weight 280g (no lens) Voltage 12V +-2V Dimension (D x W x H) Power Dissipation -5W (no TEC) Trigger Interface RS-422 / TTL compatible Noise with ROIC Image Correction -20° ~ +70° 85 mm × 65 mm -5W (no TEC) RS-422 / TTL compatible -40e- (CDS mode) 1-point & 2-point correction	Readout modes	IWR	
Weight 280g (no lens) Voltage 12V +-2V Dimension (D x W x H) 65 mm × 58 mm × 65 mm Power Dissipation <5W (no TEC) Trigger Interface RS-422 / TTL compatible Noise with ROIC <40e- (CDS mode) Image Correction 1-point & 2-point correction	Exposure time	60 μs ~	
Voltage 12V +-2V Dimension (D x W x H) 65 mm × 58 mm × 65 mm Power Dissipation <5W (no TEC) Trigger Interface RS-422 / TTL compatible Noise with ROIC <40e- (CDS mode) Image Correction 1-point & 2-point correction	Operating Temperature	-20° ∼ +70°	
Dimension (D x W x H) Power Dissipation CSW (no TEC) Trigger Interface RS-422 / TTL compatible Noise with ROIC Image Correction CSW (no TEC) RS-422 / TTL compatible 40e- (CDS mode) Image Correction	Weight	280g (no lens)	
Power Dissipation <5W (no TEC) Trigger Interface RS-422 / TTL compatible Noise with ROIC <40e- (CDS mode) Image Correction 1-point & 2-point correction	Voltage	12V +-2V	
Trigger Interface RS-422 / TTL compatible Noise with ROIC <40e- (CDS mode) Image Correction 1-point & 2-point correction	Dimension (D x W x H)	65 mm × 58 mm × 65 mm	
Noise with ROIC <40e- (CDS mode) Image Correction 1-point & 2-point correction	Power Dissipation	<5W (no TEC)	
Image Correction 1-point & 2-point correction	Trigger Interface	RS-422 / TTL compatible	
	Noise with ROIC	<40e- (CDS mode)	
Software SDK provided	Image Correction	1-point & 2-point correction	
Somware SDN provided	Software	SDK provided	

APPLICATIONS



Solar Cell Inspection



Laser Beam Profiling



Surveillance and Security



Plastics Sorting | Airborne Remote Sensing



Medical Imaging | Hyperspectral Imaging