



# Griffin 5-R Series MWIR Camera Core

VGA5-R™ and HD5-R™ MWIR Camera Cores with Low System SWaP-C



The Griffin 5-R Series camera cores includes the Griffin VGA5-R™ (640 x 512) and Griffin HD5-R™ (1280 x 1024), featuring the industry's smallest MWIR sensors made to enable the smallest of cryocooled infrared imaging systems. The Griffin 5-R Series captures snapshot MWIR imagery using Attollo Engineering's HOT Type-II Superlattice (T2SL) detector material. The extremely small pixel pitch of 5  $\mu\text{m}$  enables more pixels on target with a short focal length optic, reducing overall sensor size. The Griffin 5-R series uses a rotary cooler for fast cooldown and high power efficiency. The Griffin VGA5-R™ and Griffin HD5-R™ sensors are also capable of supporting broadband imaging along with day and night laser see-spot capabilities. The Griffin 5-R series MWIR Cores are built for low SWaP applications and offers a significant opportunity for cost savings at the system level compared to competing MWIR cameras. With a volume of 134  $\text{cm}^3$  and weight of 221 grams, these rotary cooled cameras are ideal for small gimbal integration as well as use in SWaP-constrained handheld and soldier-carried systems.

## Highlights

- Technology: HOT T2SL MWIR provides imagery with smaller cooler 3–5.2  $\mu\text{m}$  (MW) and 0.9–5.2  $\mu\text{m}$  (SW/MW) wavelength bands
- Small pitch: 640 x 512/5  $\mu\text{m}$  and 1280 x 1024/5  $\mu\text{m}$  pixel pitch reduces the lens size
- Small: 4.2 x 4.6 x 8.6 cm and 221 grams
- Fast cooldown: 2.5 minutes to operating temp
- Low power consumption: < 10 W cooldown and < 4.5 W with room temperature ambient
- Easy to talk to: Multiple output interfaces including USB3 and Camera Link
- Export friendly: has US Commerce classification as EAR 6A003.b.4.a

## Applications

- Thermal imaging
- Soldier Borne and handheld systems
- Security & surveillance
- Small gimbals and SUAS
- Laser See-Spot
- Precision agriculture
- Gas leak detection
- Microscopy
- Medical– tissue analysis
- Structural non-destructive fatigue assessment

The Griffin VGA5-R™ and Griffin HD5-R™ camera cores are designed and manufactured in Attollo's 34,000  $\text{ft}^2$  facility in Camarillo, California. Attollo Engineering specializes in sensors that combine infrared and laser imaging as well as standard and custom IDCA designs for your applications. Attollo is a merchant supplier of standard and custom format III-V detector arrays, hybridized focal plane arrays, and camera assemblies. Attollo Engineering is AS9100 certified.

# SYSTEM FEATURES

## Griffin 5-R Series:

## Griffin VGA5-R™

## Griffin HD5-R™

### Top Level

Sensor Type	HOT MWIR T2SL	
Sensor Size	640 x 512, 5 μm	1280 x 1024, 5 μm
Spectral Band	3.0—5.2 μm (Standard) 0.9—5.2 (Broadband) shorter wavelengths available	
Sensitivity	< 30 mK (50% well fill at T <sub>bb</sub> = 30°C)	
Frame Rate Options	Typical: 30Hz Max: 220Hz	Typical: 30Hz Max: 60Hz (HD720p)
Time to Image	< 2.5 min	

### Mechanical

Size (L x W x H)	8.6 cm x 4.2 cm x 4.6 cm	
f/#	f/1.8, f/1.4, f/1.2	
Cold Aperture Height	9.5 mm from FPA	
Weight	< 221 grams	

### FPA Characteristics

Shutter Mode	Snapshot	
Well Capacity	2.2 x 10 <sup>6</sup> electrons (effective)	
Quantum Efficiency	> 70%	
Readout Mode	Integrate then read	
Integration Time	0.1 uses — frame time less 4.5 msec	0.1 usec — frame time less 20.1 msec
Max Frame Rate	220 Hz full frame	60 Hz (HD720p)
Windowing Capable	Yes, max frame rate increases as a function of row reduction	
External Sync	Sync In and Sync Out	
Operability	> 99.5%	

### Video Interface

Parallel (16 bit)	Included	
UCS-C	With personality board	
Camera Link	With personality board	
Image Processing	AEC, AGC, averaging, histogram equalization, unsharp	

### Interfacing

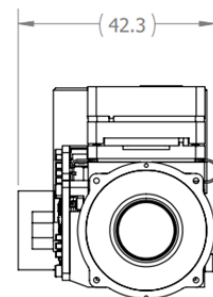
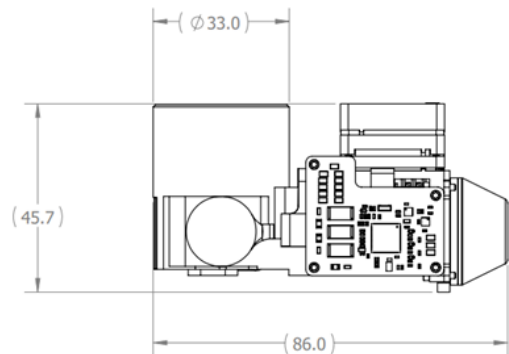
Parallel	50 pin Hirose DF40-50
Input Voltage	Camera: 5V±10%; Cooler: 12V±10%
Power Dissipation	< 10 W cooldown, < 4.5 W steady state (23°C)
Communication	USB (USB-C or Camera Link) UART, SPI or I2C (Parallel)
SDK and GUI Available	Yes

### Cooler Reliability

Cooler MTTF	>10,000 hours
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### Environmental

Operating Temperature	-40°C to +71°C
Storage Temperature	-50°C to +85°C
Max Attitude	40,000 feet
Humidity	5-95% relative humidity (non-condensing)



*See More*



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