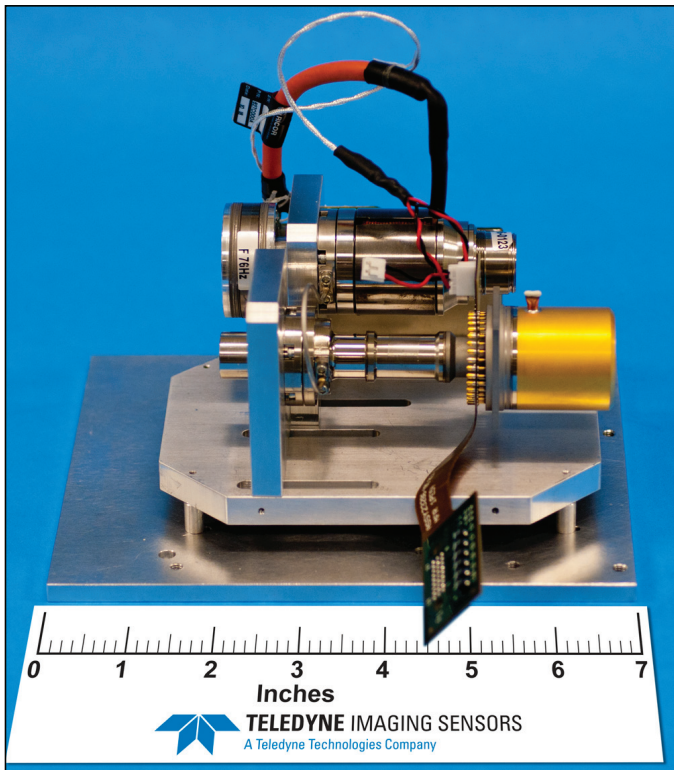
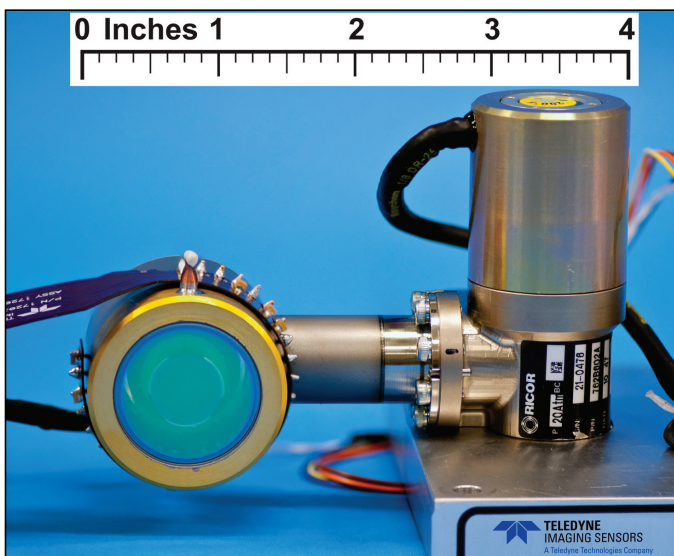


# High Temperature Midwave Infrared (HMIR) Camera Engine



*With K527 Cooler*



*With K562S Cooler*

The High Temperature Midwave Infrared (HMIR) Camera Engine is comprised of a high operating temperature Infrared Focal Plane Array (IRFPA) packaged in an Integrated Dewar Electronics Cooler Assembly (IDECA) with a RICOR K527 Split-Linear or K562S integral stirling cooler (Lens and mounting brackets shown in picture not part of HMIR engine).

With the optional compact low power electronics, and the high operating temperature of the FPA, the lifetime and total power are significantly improved over other technologies like InSb.

## Features and Benefits

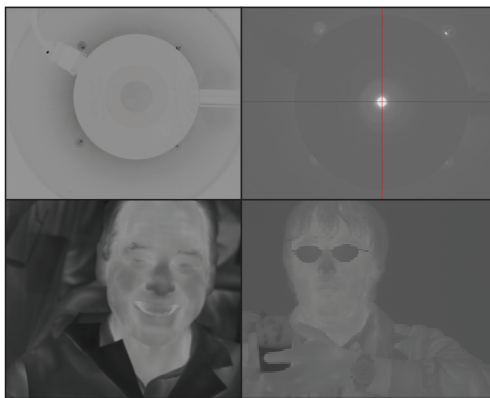
- **Lower Size, Weight, Power, (SWaP) and higher MTTF than InSb for the same performance**
- **Built in Video Processing:**
  - **Bad pixel replacement**
  - **Onboard NUC**
- **Field Tested Off the Shelf Read Out Integrated Circuit (ROIC):**
  - **IWR, ITR**
  - **Up to 120 Hz max frame rate at full frame**
  - **< 25 mK NE $\Delta$ T at 30 Hz for a 300 K scene**

## The HMIR camera engine has:

- **HgCdTe sensors operated between 120 K and 150 K**
- **640 x 512 format**
- **15  $\mu$ m pixel size**
- **Total Camera Steady State Power at ambient < 7 watts including FPA controller, NUC video processor and cryocooler**
- **Compact form factor for improved size and weight**
- **Cooler MTTF > 25,000 hours (split linear cooler)**



<b>HMIR Camera Engine Preliminary Specifications</b>	
<b>Performance Parameter</b>	<b>Expected Performance</b>
Spectral band	3 – 5.0 $\mu\text{m}$ nominal (0.4 – 5.0 $\mu\text{m}$ if required)
Array format	640 x 512
Pixel pitch ( $\mu\text{m}$ )	15
NEDT (for 300 K background)	25 mK @ F/4.5
FPA operating temperature	120 – 150 K
F/#	2.5 – 4.5
Pixel operability (%)	99.5 %
Frame rate (Hz)	30 or 60 Hz, 120 Hz max
Ambient temp range ( $^{\circ}\text{C}$ )	-40 to +70
Integration mode	ITR, IWR, snapshot and rolling shutter
Integration time to above NEDT	~ 17 ms
Size and weight (with Ricor K527L) without electronics	Dewar: 1.3: diameter x 5" length Cooler: 1.4" diameter x 3.2" length 600 grams total weight
Size and weight (with Ricor K562S) without electronics	2" (W) x 3" (H) x 4" (L) 350 grams
Steady state power	~ 3 W (IDCA only, without FPA control electronics)
Estimated cooler MTTF (hours)	> 25,000 (K527) > 8,000 (K562S)



Exceptional NUC stability, single frame saturation recovery, and antiblooming capability give HMIR additional versatility in multiple environments. The Imagery at left was taken with a NUC that was over two weeks old with multiple cooldown cycles. The hot spot in the aperture is at 650 $^{\circ}\text{C}$ , and does not bloom the detector.

For more information please contact:  
**Dave Edwards**  
 (805) 373-4881  
 dedwards@teledyne.com