

SWIR High Speed Camera

NIRvana® HS

Seize Power in the NIR!

» High Speed

- 250 fps at full 640 x 512 resolution
- 1200 fps at 200 x 200 resolution

» Flexible Readout Modes

- IWR provides maximum duty cycle
- Multiple ROI for increased speeds

» Advanced Thermal Design

- -55°C cooling (multi-stage TEC)
- Reduced ambient NIR radiation
- Low Noise electronics

» Unbeatable Reliability

- All-metal vacuum-sealed chamber
- Maintenance-free operation
- Lifetime vacuum guarantee

» Superior Imaging

- Excellent images right out of the box
- Non-uniformity correction (NUC)
- Advanced pixel correction algorithms



The NIRvana Revolution Lives On!

For decades, Teledyne Princeton Instruments has been designing and optimizing state-of-the-art detection systems to facilitate imaging and spectroscopy in the near-infrared spectral region.

Hundreds upon hundreds of leading-edge researchers have performed revolutionary NIR measurements using our robust, highly popular, and field-proven NIRvana line of quantitative InGaAs FPA cameras. With the NIRvana HS, we continue to redefine the possibilities for NIR imaging.

The new NIRvana HS offers an exciting, truly innovative set of world-class performance features to meet the increasingly diverse needs of today's scientific, industrial, and medical communities.



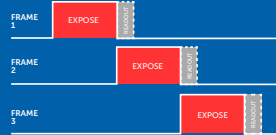
**TELEDYNE
PRINCETON INSTRUMENTS**
Everywhere you look™

PRIMARY APPLICATIONS

- Nanotube fluorescence
- Small-animal imaging
- Nondestructive testing
- Semiconductor analysis
- NIR probe development
- NIR-II imaging
- NIR spectroscopy
- 1064 nm Raman spectroscopy
- Astronomy (J band, H band)
- Adaptive optics
- Low-light / night vision
- Laser-illumination imaging



Multiple ROI feature for fast frame rates



Integrate While Read (IWR) mode for maximum duty cycle



Thermoelectric cooling and proprietary vacuum design for unrivaled performance and durability

SPECIFICATIONS*

Sensor	InGaAs FPA	
Imaging format	640 x 512	
Active area	12.8 mm x 10.24 mm	
Pixel pitch	20 μm x 20 μm	
Optical interface	C-mount; Spectrometer mount	
Spectral response	0.9 μm to 1.7 μm	
Quantum efficiency	>80% from 1 μm to 1.6 μm ; peak QE is 85%	
Pixel well capacity (e-)	High Gain $\geq 40,000$	High Capacity $\geq 550,000$
Nominal gain (e-/count)	1	11
Typical system read noise (e-)	<60 (High Gain)	
Response nonlinearity	<1% (High Gain)	
Cooling temp. @ +20°C ambient	-55°C liquid; -50°C air	
Cooling method	Air only, liquid only, or a combination of air and liquid	
Dark current (e-/p/s) @ -50°C	800	
Output interface	USB 3.0	
Digitization	16 bits	
Frame rate @ 640 x 512	250 fps	
Region of interest	Multiple regions of interest with increase in frame rate	
ROI frame rate	725 fps @ 300 x 300; 1200 fps @ 200 x 200	
Shutter	Global shutter	
Readout modes	Integrate Then Read (ITR); Integrate While Read (IWR)	
Cold shield	f#/1.5	
Exposure time	<2 μs to 1 min.	
Window material	Fused silica (AR coated)	
Thermostating precision	$\pm 0.05^\circ\text{C}$ across entire temperature range	
Operating temperature	0°C to +30°C	
Weight	7.2 lbs. (3.3 kg)	
Power supply	12 V DC $\pm 10\%$	
Dimensions (C-mount) (LxWxH)	7.25" x 4.5" x 4.5" (184 mm x 114 mm x 114 mm)	
Certification	CE	

* All specifications are typical performance and are subject to change. NOTE: Export of this camera outside of the United States is prohibited by law unless accompanied by a valid Export License as issued by the United States Department of Commerce.