

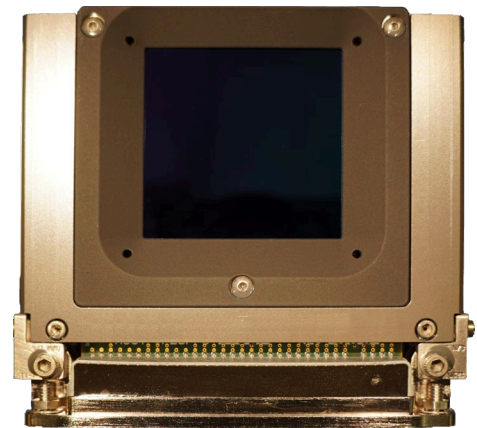


TELEDYNE IMAGING SENSORS
Everywhere you look™

GeoSnap-18 Focal Plane Array

The GeoSnap-18 is a state-of-the-art focal plane array with 18-micron pixel pitch, a digital interface, and the ability to image in both infrared and visible wavelengths. It is intended for Earth observation from space or any imaging applications in space, air, and ground environments.

- Compatible with Teledyne Imaging Sensors' (TIS) HgCdTe infrared (IR) and silicon PIN HyViSI™ visible detectors, providing sensing for a customer-specified spectral band from 0.4 μm to 15 μm .
- Substrate-removed HgCdTe enables simultaneous visible and infrared light detection.
- The 1K \times 512 stitch block enables arrays from 1024 \times 512 to 3072 \times 3072 pixels. ROIC formats fabricated include: 1K \times 512, 2K \times 512, 2K \times 2K and 3K \times 512.
- Snapshot Shutter, integrate-while-read architecture captures flux at nearly 100% duty cycle.
- Programmable windowing with up to 8 windows.
- Anti-blooming feature.
- Digital input and output, with primary and redundant interfaces.
- Analog on-chip and in-package temperature sensors.
- Capacitive Transimpedance Amplifier (CTIA) unit cell with 2 gains / full well.
- Technology Readiness Level (TRL) 9.
- As of 2022, GeoSnap-18 is being utilized in more than 12 space missions.
- Specific formats and configurations may also be referred to as CHROMA-D.



GeoSnap-18 2048 \times 2048 Configuration

Teledyne Imaging Sensors Focal Plane Arrays are optimized for customer specifications. Our products range from detectors suitable for highly sensitive, low noise, low light applications to fast frame rate detectors suitable for bright light applications. Contact Teledyne Imaging Sensors to discuss your requirements under Non-Disclosure Agreement.

www.teledyne-si.com

For more information please contact us at TIS_imagingsensors@teledyne.com

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GeoSnap-18 Focal Plane Array

Parameter	Example shown for 2K × 2K	Units
Array Size	2048 × 2048 ⁽¹⁾	Pixels
Detector Material	HgCdTe (visible-IR) or Silicon PIN HyViSI™ (visible)	n/a
Spectral Band (λ)	0.4 to 15 ⁽²⁾	μm
Pixel Pitch	18	μm
ADC Resolution	14 (maximum, programmable)	bits
Dark Current	Industry leading performance. Value is a function of cutoff wavelength and temperature.	nA/cm ²
Full Frame Rate	85 ⁽³⁾	Hz
Integration Efficiency	> 97 at 30 Hz frame rate	%
Operating Temp. (T)	45 – 300 ⁽⁴⁾	Kelvin
Output Ports	8 Primary, 8 Redundant	Ports
Output Data Rate	Programmable, 1.6 Gb/sec maximum	Gbps/port
Pixel Fill Factor	100	%
Power consumption	900 @ 50 Hz Frame Rate ⁽⁵⁾	mW
Quantum Efficiency	75 minimum, 85 typical ⁽²⁾	%
Number of Gains	2 Gains per pixel, programmable per row	n/a
Well Sizes	0.18 / 2.6 typical ⁽⁶⁾	Me-
ROIC Noise	40 / 400 (typical, ROIC Noise is correlated to well size)	e-
Shutter	Snapshot with all pixels integrating for the same period	n/a
Space Qualification	9	TRL

1. Arrays from 1024 × 512 (size of stitch block) to 3072 × 3072 (maximum) pixels are possible.
2. Lower and upper target cut-off wavelengths are customer specific. Anti-Reflective Coating (ARC) is optimized per customer. HyViSI detector can detect soft X-rays with energy up to 10keV (See SPIE Proceedings Vol. 7021 702102-1).
3. Maximum rate for full frames with 80MHz clock. Use reduced ADC resolution or windowing to increase frame rate.
4. Optimal operating temperature varies with spectral band.
5. Typical power consumption. Consumption affected by programming (timing, windowing settings, etc.) and configurable hardware selections.
6. Well sizes can be customized. For example, hyperspectral missions sometimes choose full wells of 90 ke- and 600 ke-.

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