
SPTX 星际光通
PRODUCT
MANUAL
Stellar Photonix Technology Co., Ltd. (Beijing)


An effective, easy-to-use
reliable, and affordable
space remote sensing camera


SPTX
星际光速

COMPANY PROFILE

Founded in early 2025 by senior remote sensing experts from the Fifth Academy of China Aerospace Science and Technology Corporation (CAST), Stellar Photonix Technology Co., Ltd. (Beijing) is headquartered in Beijing Haidian Joy Information Technology Park. We've established Interstellar Opto-Remote (Nanjing) Technology Co., Ltd. in Nanjing Jiangbei New Area as our production base.

Our core technical team – a 30-member group fully formed from CAST's Fifth Academy – boasts over 60% holding postgraduate degrees or higher, with years of experience in engineering product development and management at aerospace research institutions. Leveraging our core competitiveness in ultra-high resolution, intelligent multi-modality, and ultra-clear image quality assurance technologies, we possess end-to-end R&D and production capabilities (including design, simulation, integration, assembly, alignment, and testing), enabling us to mass-produce dozens of standardized optical remote sensing space cameras.

We closely focus on the commercial aerospace remote sensing market, remote sensing equipment systems, and remote sensing service systems to build market-aligned R&D capabilities. Guided by the philosophy of "effective, user-friendly, reliable, and affordable" remote sensing camera payloads, we have the R&D capacity for 0.5m/500km panchromatic multi-spectral remote sensing cameras, with our product line covering resolutions from 0.25m to 50m. We hold 15 pending patents spanning key domains such as opto-mechanical structure, assembly & alignment processes, and on-board processing.

We are committed to driving innovative applications of remote sensing technology, aiming to become a leader in China's commercial remote sensing payload technology and a pioneering enterprise in the commercial aerospace payload sector.

2025
Company Founded

3000m²
Design, R&D and Production Center

15
Intellectual Property Rights

30+ Team Members
Core technical personnel fully formed from CAST's Fifth Academy

PRDUCT CATALOG

01

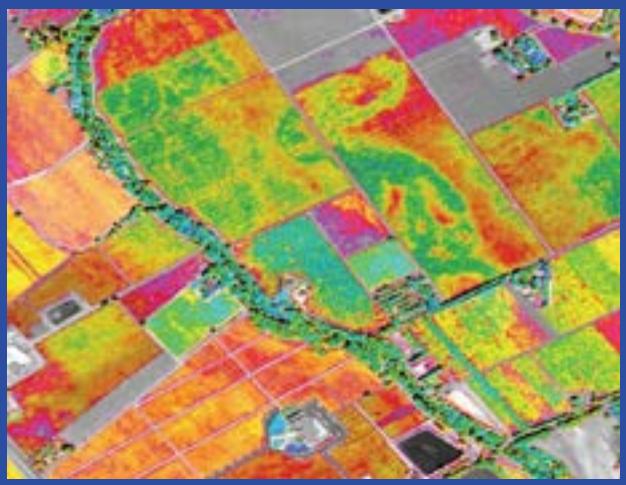
Aerospace Optical Remote Sensing Camera Product Line

- 0.25m Panchromatic/Multispectral Camera
- 0.5m Panchromatic/Multispectral Camera
- 0.75m Panchromatic/Multispectral Camera
- Compact Space Remote Sensing Camera
- Lightweight Visible-Infrared Integrated Camera
- Lightweight Visible-Laser Integrated Camera
- Space Situational Awareness (SSA) Payload

02

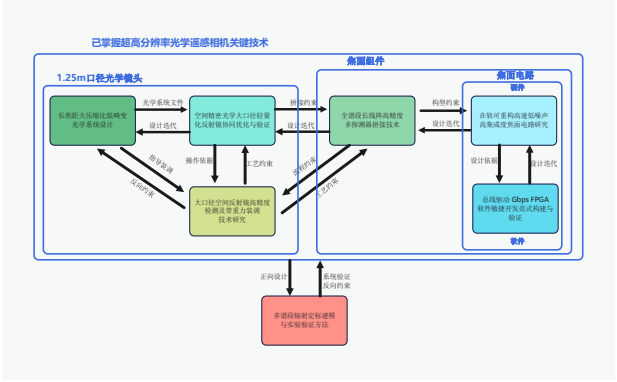
Sky Borne Remote/Push-Broom Compact Camera

- Aerial Binocular Camera
- Aerial On-Board Compact Video/Push-Broom Integrated Camera



0.25m Panchromatic/Multispectral Camera

- The first choice for high-precision applications. Ground GSD of 0.25 m panchromatic/1m multi-spectral @ 500 km, the Swath width is more than 10 km. The spectral range covers visible light to near-infrared and the comprehensive indicators are internationally leading.
- High-precision data is widely used in 3D real-time imaging, smart transportation, precision agriculture, detailed land surveys, digital twins, and other fields.



Product Parameters	
Spectral Bands (Customizable: 1+8, 1+16 bands)	1 Panchromatic + 4 Multispectral Bands: PAN: 450 ~ 800 nm B1: 450 ~ 520 nm B2: 520 ~ 590 nm B3: 630 ~ 695 nm B4: 770 ~ 890 nm
GSD	Panchromatic: 0.25m @ 500km orbit Multispectral: 1.0m @ 500km orbit
Swath Width	≥ 10.5km @ 500km orbit
Imaging Mode	TDI Push-Broom
Static Modulation Transfer Function (MTF)	Panchromatic: ≥ 0.15 Multispectral: ≥ 0.25
Signal-to-Noise Ratio (SNR)	Typical: 35 dB
Data Rate	21 Gbps
Supply Voltage	26 ~ 45V
Communication Interface	CAN2.0
Data Transmission Interface	CXP
Size	1800×1500×2800 mm
Weight	300 Kg
Power Consumption	Short-term: ≤ 320 W Long-term: ≤ 400 W
Service Life	5 years (reliability: 0.94)

* Specific specifications can be customized

0.5m Panchromatic/Multispectral Camera

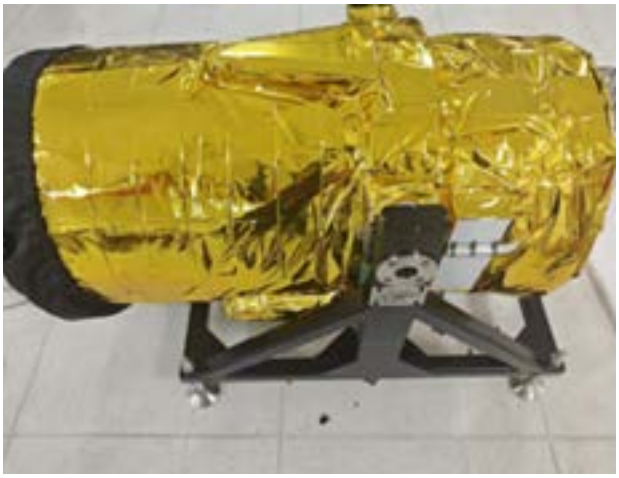
- The first choice for 200 kg class platforms. It is characterized by high GSD, high integration, and a compact and light weight design. Moreover, it has expandable compression storage and AI processing functions.
- The data has a high added value and finds extensive applications. It is commonly utilized in fields such as national land resources surveys. agricultural yield estimation, and emergency disaster mitigation.

Product Parameters	
Spectral Bands (Customizable: 1+8, 1+16 bands)	1 Panchromatic + 4 Multispectral Bands: PAN: 450 ~ 800nm B1: 450 ~ 520nm B2: 520 ~ 590nm B3: 630 ~ 695nm B4: 770 ~ 890nm
GSD	Panchromatic: 0.5m @ 500km orbit Multispectral: 2m @ 500km orbit
Swath Width	≥ 15km @ 500km orbit
Imaging Mode	TDI Push-Broom
Static Modulation Transfer Function (MTF)	Panchromatic: ≥ 0.15 Multispectral: ≥ 0.25
Signal-to-Noise Ratio (SNR)	Typical: 35 dB
Data Rate	7.04 Gbps
Supply Voltage	26 ~ 45V
Communication Interface	CAN2.0
Data Transmission Interface	CXP / Tlk2711
Size	1150×800×1600 mm
Weight	≤ 65 Kg
Power Consumption	Short-term: ≤ 130 W Long-term: ≤ 120 W
Service Life	5 years (reliability: 0.94)

* Specific specifications can be customized

0.75m Panchromatic/Multispectral Camera

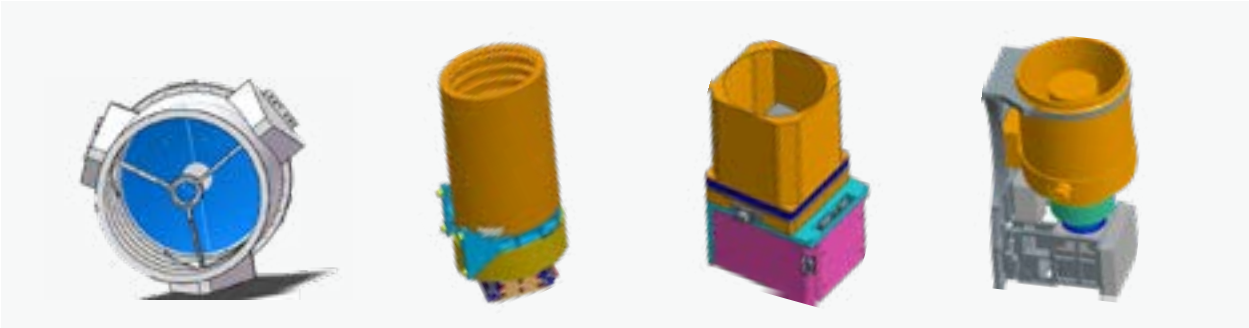
- The first choice for 100kg class, which can easily switch between push-broom imaging and video imaging. It's got high GSD, light-weight and small, and it's flexible to use. Plus, it can be set up to have functions like compression storage and target recognition.
- Sub-meter-level video images enable the identification and monitoring of moving targets. Color static images are applicable to fine -grained urban management, visual monitoring of the ecological environment, disaster emergency response and assessment, land use and planning, etc.



Product Parameters	
Spectral Bands (Customizable: 1+4, 1+8, or 1+16 bands)	Panchromatic: 400 ~ 700 nm Or 3 Multispectral Bands: 400 ~ 520 nm 480 ~ 600 nm 590 ~ 700 nm
GSD	0.75m @ 500km orbit
Swath Width	Push-broom: 6km @ 500km orbit Video: 6km×4.5km
Imaging Mode	Push-broom & Video Imaging
Static Modulation Transfer Function (MTF)	≥ 0.12
Signal-to-Noise Ratio (SNR)	Typical: 35 dB
Data Rate	Video: 11.5 Gbps Push-broom: 760 Mbps
Supply Voltage	10 ~ 13V
Communication Interface	CAN2.0
Data Transmission Interface	CXP/CameraLink/Ethernet Port
Size	640×600×1180 mm
Weight	≤ 30 Kg
Power Consumption	Short-term: ≤ 30 W Long-term: ≤ 50 W
Service Life	5 years (reliability: 0.92)

* Specific specifications can be customized

Compact Space Remote Sensing Camera



Product Parameters				
GSD	≤1m@500km	≤1.5m@500km	≤2m@500km	≤4m@500km
Spectral Bands	RGB: Blue: 400 ~ 520 nm Green: 480 ~ 600 nm Red: 590 ~ 700 nm		PAN: 450 ~ 800 nm B1: 450 ~ 520 nm B2: 520 ~ 590 nm B3: 630 ~ 695 nm B4: 770 ~ 890 nm	
Swath Width	Push-broom: 7.8 km Video: 7.8×5.6 km	Push-broom: 11.6 km Video: 11.6×8.4 km	Push-broom: 15 km	Push-broom: 16 km
Imaging Mode	Push-broom + Video Imaging		Push-broom Imaging	
Static Modulation Transfer Function (MTF)	≥ 0.12			
Signal-to-Noise Ratio (SNR)	Typical: ≥ 30 dB			
Supply Voltage	10~13V			
Communication Interface	CAN2.0			
Data Transmission Interface	CXP/CameraLink/Ethernet Port			
Weight	≤ 20kg	≤ 12kg	≤ 6kg	≤ 2kg
Size	540×520×840 mm	310×300×580 mm	210×180×400 mm	100×100×350 mm
Power Consumption	Short-term: ≤ 30 W Long-term: ≤ 20 W	Short-term: ≤ 25 W Long-term: ≤ 15 W	Short-term: ≤ 22 W Long-term: ≤ 12 W	Short-term: ≤ 20 W Long-term: ≤ 10 W
Service Life	3~5 years	3~5 years	3~5 years	3~5 years

* Specific specifications can be customized

Lightweight Visible/Infrared Integrated Camera

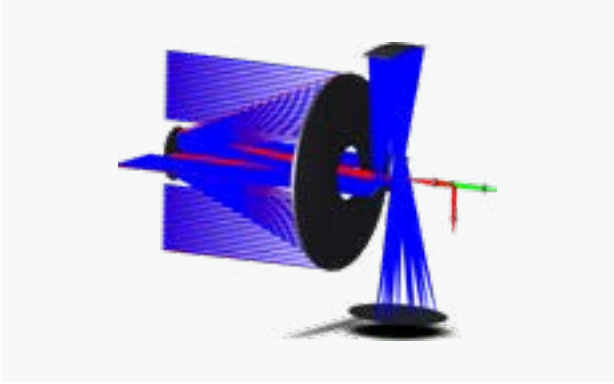
It is the prime selection for high-GSD all-time imaging. Visible light is employed to identify the texture and geometric features of ground objects, and infrared is utilized to analyze their temperature characteristics, thereby establishing a complete data chain that encompasses details-regions, morphology-function, and day-night scenarios. Typical applications span various fields such as environmental protection law enforcement, forest fire prevention, track identification and disaster monitoring.

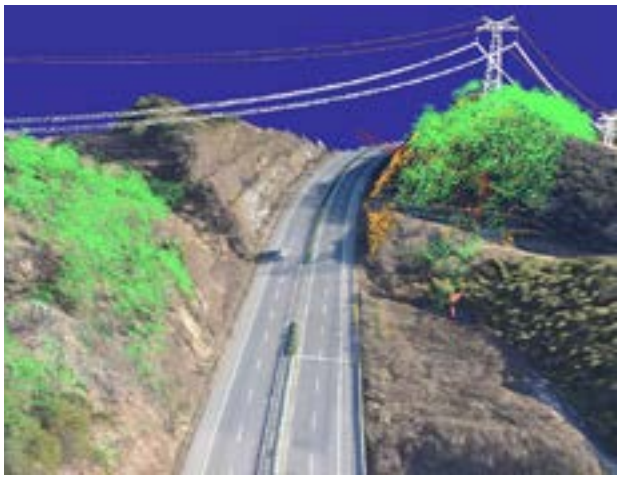
Product Parameters		
GSD	Infrared	5m@500km
	Visible	Panchromatic: 0.5m @ 500 km Multispectral: 2m @ 500 km
Spectral Band	Infrared	8~12 μm or 3~5 μm
	Visible	PAN：450 ~ 800 nm B1：450 ~ 520 nm B2：520 ~ 590 nm B3：630 ~ 695nm B4：770 ~ 890 nm or 1+8 spectral bands
Swath Width	≥ 12 km@500Km	
Static Transfer Function	Infrared	≥0.20
	Visible	Panchromatic ≥ 0.15 Multispectral ≥ 0.25
Signal-to-Noise Ratio	Typically 30 dB	
Data Rate	Visible: 5.28 Gbps Infrared: 65 Mbps	
Supply Voltage	26~45 V	
Communication Interface	CAN2.0	
Data Transmission Interface	CXP / Tlk2711	
Size	1280×850×1800 mm	
Weight	≤ 150 kg	
Power Consumption	Short-term ≤ 180 W Long-term ≤ 20 W	
Service Life	3~5 years	

* Specific specifications can be customized

Lightweight Visible/Laser Integrated Camera

- High-definition images of the target and relative position information can be acquired concurrently, thereby satisfying the requirements of elevation measurement and visible-light multiculturalism. It finds applications in a variety of academic and practical domains, including high-precision topographic mapping and modeling, urban three-dimensional real-scenario reconstruction, intelligent mining, and precise geological disaster prevention.



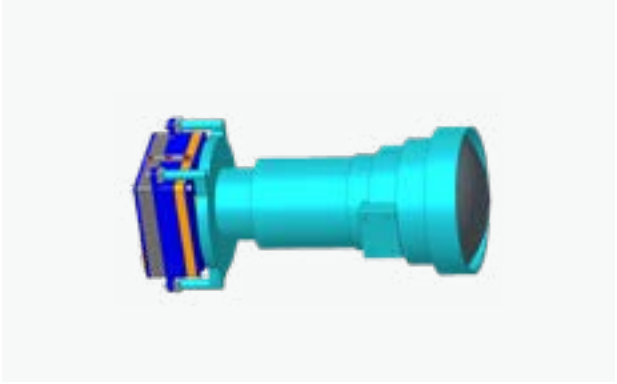


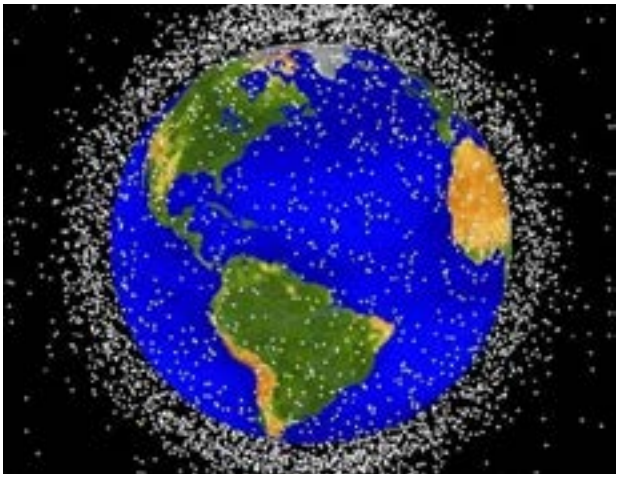
Product Parameters	
GSD	0.5m/2m @ 500km orbit
Spectral Bands	PAN: 450 ~ 800 nm B1: 450 ~ 520 nm B2: 520 ~ 590 nm B3: 630 ~ 695 nm B4: 770 ~ 890 nm Or 1+8 bands
Swath Width	≥ 15km @ 500km orbit
Static Modulation Transfer Function (MTF)	Panchromatic ≥ 0.15 Multispectral ≥ 0.25
Signal-to-Noise Ratio (SNR)	Typical: 48 dB
Laser Ranging Type	Full-Waveform Ranging
Number of Laser Beams	3
Laser Wavelength	1064.4nm
Distance Measurement Accuracy	≤ 1m
Laser Repetition Rate	20 Hz
Laser Ground Spot Size	25 m
Laser Ground Spot Spacing	Along-Track Direction: 360 m Cross-Track Direction: 5 km
Single-Pulse Laser Energy	100 mJ
Laser Echo Sampling Frequency	1.2 GHz
Data Rate	7.04 Gbps
Supply Voltage	26 ~ 45V
Communication Interface	CAN2.0
Data Transmission Interface	CXP/Blk2711
Size	1000×1200×2000 mm
Total Camera Weight	≤ 180 kg
Camera Service Life	5 years (reliability: 0.92)

* Specific specifications can be customized

Space Situational Awareness (SSA) Payload

- Characterized by multi-sensor fusion, AI data analysis, etc. It is applicable to space target monitoring (Orbital object tracking, threat identification), environmental perception(Space weather monitoring, electromagnetic spectrum analysis), and safety early warning(Collision warning, attack alert).



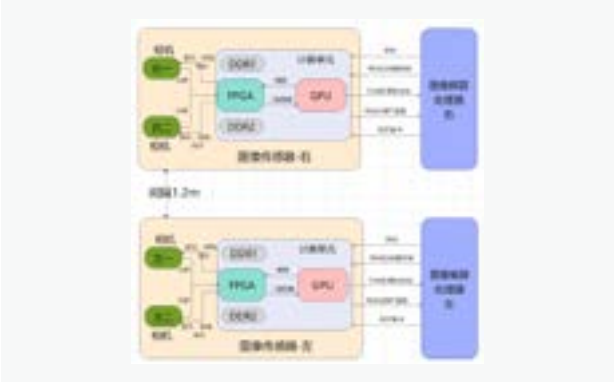


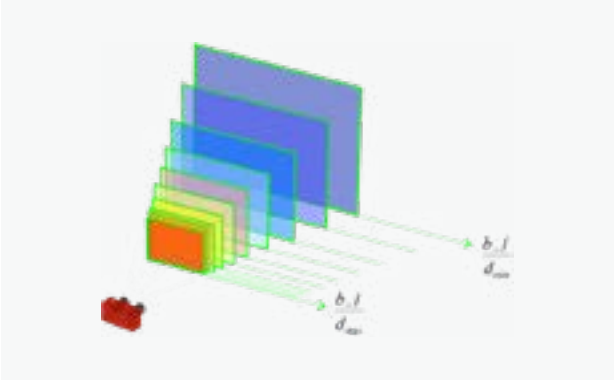
Product Parameters		
Parameter	Large Coverage (with Turntable)	High Sensitivity & High Precision
Detection Capability	Visual Magnitude Mv10 (Exposure Time: 100 ms)	Visual Magnitude Mv12 (Exposure Time: 200 ms)
Angle Measurement Accuracy	Better than 9 arcseconds	Better than 5 arcseconds
Field of View	8°×8°	10°×10°
GSD	2.4k×2.4k	4k×4k
Frame Rate	≥ 20fps	≥ 10fps
Computing Power	Integer Computing Power: ≥ 100 TOPS @ INT8 32-bit Floating-Point General Computing Power: ≥ 3 TFLOPS @ FP32 Digital Image Processing Capability: ≥ 400M pixels/s Storage Capacity: ≥ 1TB	
Algorithm Accuracy	Recognition Rate ≥ 95%, False Alarm Rate ≤ 5%; Target Centroid Positioning Error: ≤ 0.7 pixel	
Data Rate	1.15 Gbps	2.4 Gbps
Supply Voltage	10 ~ 13V (shared for both models)	
Communication Interface	CAN 2.0 (shared for both models)	
Data Transmission Interface	CXP / CameraLink / Ethernet Port (shared for both models)	
Size	170×170×350 mm	230×230×420 mm
Weight	10kg	17kg
Power Consumption	≤ 70 W	≤ 90 W

* Specific specifications can be customized

Aerial Binocular Camera

The Aerial binocular camera simulates the binocular parallax with dual lenses. It is characterized by generating high-precision 3D point clouds without ground control points, flexibly adapting to complex terrains, having low cost and real-time performance and can output DSM and DOM. It is applied in multiple fields such as engineering surveying, cultural relic protection and emergency.



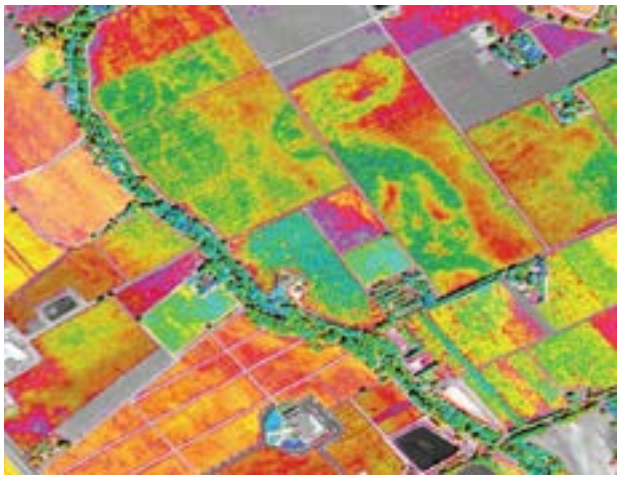


Product Parameters	
Imaging Method	Dual-Face Array
Spectral Band	RGB, 400~700 nm
Field of View	70° Circular Field of View (covers pitch ±30°, roll ±25°)
Quantization Bits	8 bit
Baseline Distance	1.2 m
GSD	≥ 1600×1200
Operating Temperature	-55℃ ~ 71℃
Defrost Function	Yes
Supply Voltage	10~13V
Communication Interface	RS422
Data Transmission Interface	Ethernet Port
Size	300×84×258 mm
Weight	≤ 5kg

* Specific specifications can be customized

Sky Borne Remote/Push-Broom Compact Camera

Provide multi-spectral data support for ecological protection, resource management, urban and rural planning and disaster response, etc. It is widely applied in fields such as precision agriculture management, identification of plant diseases and pests, crop yield prediction, forestry resource investigation, grassland ecological assessment and urban greening planning, land use classification, wetland protection monitoring, water environment management, mine ecological restoration, and disaster emergency assessment.



Product Parameters	
Imaging Method	Push-Broom / Video Imaging
Spectral Band	Visible Camera / Infrared Camera / Spectral Camera
GSD	≤ 0.1m @ 5Km
Swath Width	Push-Broom: ≥ 800m @ 1km Video: ≥ 800m×600m @ 1km
Quantization Bits	8bit / 10bit
Static Modulation Transfer Function (MTF)	≥ 0.12
Signal-to-Noise Ratio (SNR) / NETD	Typical ≥ 30dB / 50mK
Supply Voltage	12V
Communication Interface	RS232 / RS422 / I2C
Data Transmission Interface	SDI, CameraLink, USB, Ethernet Port
Weight	≤ 300g

* Specific specifications can be customized

Innovation Empowers
Building Dreams in Space

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