



长光卫星技术股份有限公司
CHANG GUANG SATELLITE TECHNOLOGY CO.,LTD.



制造类产品手册

Manufacturing Product Manual



团结

创新

拼搏

务实

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长光卫星技术股份有限公司成立于2014年12月1日，是我国第一家商业遥感卫星公司。公司由吉林省政府、中国科学院长春光学精密机械与物理研究所、社会资本以及技术骨干出资成立，总注册资本19.7亿元。

Chang Guang Satellite Technology Co., Ltd. (CGSTL), founded in December 1st, 2014, it is the first commercial remote sensing satellite company in China. With the total registered capital of 1.97 billion yuan, the company is composed of Jilin provincial government, CIOMP, social capital and technical backbone.

公司成立8年多来，始终坚持高端装备制造与信息服务融合发展的业务模式，专注于高性能、低成本卫星的研发与空天地一体化遥感信息服务，建立了从卫星研发制造、运营管理到遥感信息服务的完整产业链。公司凭借着在卫星平台和空间光学有效载荷方面的核心技术积累，能够为客户提供定制化的卫星制造及相关服务，包括卫星整星及部组件研制、试验与测试服务、搭载服务、冠名服务等。

For more than 8 years since its establishment, CGSTL has always adhered to the business model for the integrated development of high-end equipment manufacturing and information services, focusing on the research and development of high-performance, and low-cost satellites and the air-space-ground integrated remote sensing information services. It has established a complete industrial chain from satellite research and development and manufacturing, operation management to remote sensing information services. With the accumulation of core technology, CGSTL can provide customers with customized satellite manufacturing and related services, including satellite and component, testing services, carrying services, naming services, etc.

“吉林一号”星座是长光卫星在建的核心工程，其中一期工程由138颗涵盖高分辨、大带宽、视频、多光谱等系列的高性能光学遥感卫星组成。目前，公司已建成了目前全球最大的亚米级商业遥感卫星星座，具备了较强的服务能力。依靠“吉林一号”遥感卫星数据，可为客户提供高时间分辨率、高空间分辨率、高光谱分辨率、快速广域覆盖的卫星遥感数据以及以卫星遥感数据为基础的空间信息综合应用服务。

Jilin-1 satellite constellation is the core project under construction by CGSTL. The phase I project consists of 138 high performance optical remote sensing satellites covering high resolution, large width, video and multi-spectrum. At present, CGSTL built the largest sub meter commercial remote sensing satellite constellation in the world. Jilin-1 satellite constellation has the strong service ability. It can provide customers with satellite remote sensing data with high temporal resolution, high spatial resolution, high spectral resolution, fast wide-area coverage and comprehensive spatial information application services.

公司未来共规划两期“吉林一号”星座，实现约300颗卫星在轨。第一阶段，完成一期星座工程，实现138颗卫星组网，具备全球任意地点10分钟内重访的能力；第二阶段，完成由160颗卫星组成的二期星座工程，届时300颗卫星将具备全球任意地点3分钟内重访的能力，每天对地球覆盖1.5次。

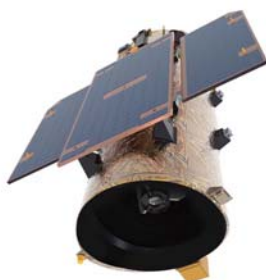
CGSTL plans two phases of the Jilin-1 constellation in the future, realizing a total of about 300 satellites in orbit. Phase one, the first phase of constellation project is expected to be completed, with 138 satellites forming a network capable of revisiting any location on earth within 10 minutes. Phase two, the second phase constellation project consisting of 160 satellites will be completed. At that time, 300 satellites will be equipped with the ability to revisit any location in the world within 3 minutes, covering the earth 1.5 times per day.



0.5m分辨率高分系列卫星 GF series satellites with 0.5m resolution

以“吉林一号”高分04A星为代表的0.5m分辨率高分系列卫星，具有星上任务自主规划、实时数传和星上AI功能，结合快速机动控制，可实现单轨多点目标成像和信息快速回传。该卫星可获取分辨率优于0.5m、幅宽15km的静态推扫影像，具备高分辨率、高集成度和智能化特点。

GF series satellites represented by Jilin-1 GF04A have the functions of independent on-satellite mission planning, real-time data transmission and on-satellite AI. Combined with fast maneuvering control, single-orbit multi-point target imaging and fast information return can be realized. The satellite can capture static push-broom images with a resolution of 0.5m and swath width better than 15km, and has the characteristics of high resolution, high integration and intelligence.



代表卫星 Name	“吉林一号” 高分04A星 Jilin-1GF 04A
成像模式 Imaging mode	推扫成像 Push-broom imaging
分辨率 Resolution	全色：优于0.5m Panchromatic: Better than 0.5m
谱 段 Spectral bands	全色：450nm~700nm Panchromatic: 450nm~700nm 蓝色：430nm~520nm Blue: 430nm~520nm 绿色：520nm~610nm Green: 520nm~610nm 红色：610nm~690nm Red: 610nm~690nm 近红外：770nm~895nm Near-infrared: 770nm~895nm
幅 宽 Swath width (at nadir)	15km
重 量 Weight	90kg重量级 ≈90kg



0.75m分辨率高分系列卫星 GF series satellites with 0.75m resolution

以“吉林一号”高分03D星为代表的0.75m分辨率高分系列卫星，是长光卫星自主研制的轻小型光学遥感卫星，采用轻量化结构设计、高度集成电子学系统、高分辨率超轻量化相机等创新技术，具有低成本、低功耗、低重量、高指标的特点。

GF series satellites represented by Jilin-1 GF03D are the new generation optical remote sensing satellites independently researched and developed by CGSTL. These satellites are designed with light weighted structure, highly integrated electronics system, high-resolution and ultra-light weighted camera and other innovative technologies. These satellites have the features of low cost, low power consumption, light weight and high indicator.

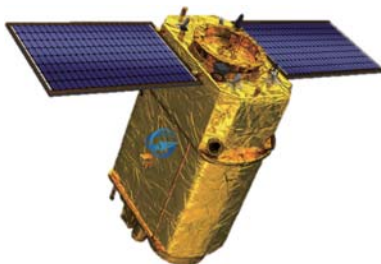


代表卫星 Name	“吉林一号” 高分03D星 Jilin-GF03D
成像模式 Imaging mode	推扫成像、惯性空间成像 Push-broom and inertial space imaging
分辨率 Resolution	全色: 0.75m Panchromatic: 0.75m
谱 段 Spectral bands	全色: 450nm~700nm Panchromatic: 450nm~700nm 蓝色: 430nm~520nm Blue: 430nm~520nm 绿色: 520nm~610nm Green: 520nm~610nm 红色: 610nm~690nm Red: 610nm~690nm 近红外: 770nm~895nm Near-infrared: 770nm~895nm
幅 宽 Swath width (at nadir)	17km
重 量 Weight	40kg重量级 ≈ 40kg

0.75m分辨率高分系列卫星 GF series satellites with 0.75m resolution

以“吉林一号”高分02星为代表的0.75m分辨率高分系列卫星，是长光卫星自主研发的高分辨光学遥感卫星，具备高分辨、大幅宽、高速数传等特点。

GF series satellites represented by Jilin-1 GF02 are the high-resolution remote sensing satellites independently developed by CGSTL. The satellites have the characteristics of high resolution, large width, and high-speed data transmission.



代表卫星 Name	“吉林一号” 高分02星 Jilin-1GF 02
成像模式 Imaging mode	推扫成像、惯性空间成像 Push-broom and inertial space imaging
分辨率 Resolution	全色: 0.75m Panchromatic: 0.75
谱 段 Spectral bands	全色: 450nm~800nm Panchromatic: 450nm~800nm 蓝色: 450nm~510nm Blue: 450nm~510nm 绿色: 510nm~580nm Green: 510nm~580nm 红色: 630nm~690nm Red: 630nm~690nm 近红外: 770nm~895nm Near-infrared: 770nm~895nm
幅 宽 Swath width (at nadir)	40km
重 量 Weight	200kg重量级 ≈200kg



0.75m分辨率高分系列卫星 GF series satellites with 0.75m resolution

以“吉林一号”高分06星为代表的0.75m分辨率高分系列卫星，是长光卫星面向亚米级高分辨光学遥感的批产卫星型号，具有“快速批产”、“智能运行”、“图美价廉”的优势。

GF series satellites represented by Jilin-1 GF-06 are the batch production satellite model of CGSTL oriented to sub-meter high resolution optical remote sensing. Jilin-1 GF06 have the advantages of “fast batch production”, “intelligent operation” and “brilliant image quality and low price”.

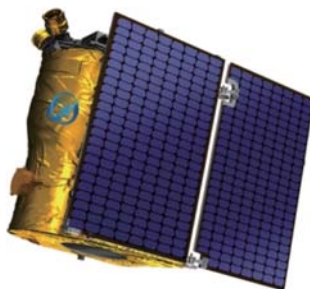


代表卫星 Name	“吉林一号” 高分06星 Jilin-1 GF06
成像模式 Imaging mode	推扫成像、视频成像 Push-broom、Video imaging
分辨率 Resolution	全色: 0.75m Panchromatic: 0.75m
谱 段 Spectral bands	全色: 450nm-700nm Panchromatic: 450nm~700nm 蓝色: 430nm-520nm Blue: 430nm-520nm 绿色: 520nm-610nm Green: 520nm-610nm 红色: 610nm-690nm Red: 610nm-690nm 近红外: 770nm-895nm Near-infrared: 770nm-895nm
幅 宽 Swath width (at nadir)	18km
重 量 Weight	20kg重量级 ≈20kg

1m分辨率视频系列卫星 Video series satellites with 1m resolution

以“吉林一号”高分03C星为代表的1m分辨率视频系列卫星，具备面阵视频成像功能，同时具有低成本、低功耗、低重量、高分辨的特点。

Jilin-1 GF03C satellites are video series optical remote sensing satellites with 1m resolution. It has the function of array video imaging, and has the characteristics of low cost, low power consumption, low weight and high resolution.



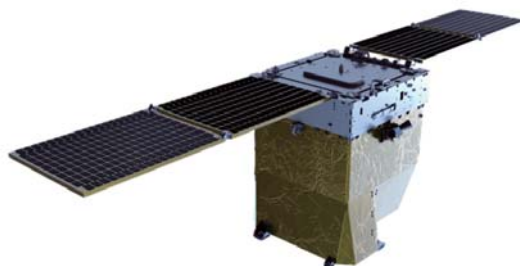
代表卫星 Name	“吉林一号” 高分03C星 Jilin-1 GF03C
成像模式 Imaging mode	凝视视频 Video
分辨率 Resolution	1m
谱 段 Spectral bands	RGB（贝尔编码彩色） 蓝色：437-512nm Blue: 437-512nm 绿色：489-585nm Green: 489-585nm 红色：580-723nm Red: 580-723nm
幅 宽 Swath width (at nadir)	14.4km*6km
重 量 Weight	40kg重量级 ≈40kg



150km幅宽宽幅系列卫星 KF series satellites with 150km swath width

以“吉林一号”宽幅02星为代表的150km幅宽宽幅系列卫星，是目前国际上幅宽最大的亚米级光学遥感卫星，具备高分辨、大幅宽、高速数传、低成本的特点。

KF series satellites represented by Jilin-1 KF02 are the sub-meter optical remote sensing satellites with the largest breadth in the world, having the features of high resolution, ultra-large breadth, high-speed data transmission and low-cost, etc.

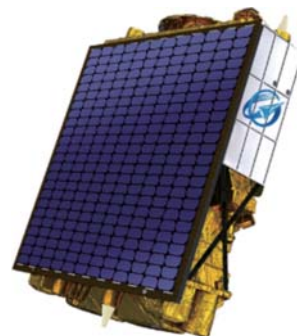


代表卫星 Name	“吉林一号”宽幅02星 Jilin-1KF02
成像模式 Imaging mode	推扫成像 Push-broom
分辨率 Resolution	全色: 0.5m Panchromatic: 0.5m
谱段 Spectral bands	全色: 450nm-700nm Panchromatic: 450 ~ 700nm 蓝色: 450nm-510nm Blue: 450 ~ 510nm 绿色: 510nm-580nm Green: 510 ~ 580nm 红色: 630nm-690nm Red: 630 ~ 690nm 近红外: 770nm-895nm Near-infrared: 770 ~ 895nm
幅宽 Swath width (at nadir)	150km
重量 Weight	200kg重量级 ≈200kg

5m分辨率光谱系列卫星 GP series satellites with 5m resolution

以“吉林一号”光谱星为代表的5m分辨率光谱系列卫星，搭载了多光谱成像仪，短波、中波、长波红外相机等载荷，具有宽波段、多光谱、大幅宽、超高速传输等特点。

GP series satellites represented by Jilin-1 GP carry imagers for multispectral imager, and the loads of infrared cameras for short wave, medium wave and long wave, etc. These satellites have the features of broadband, multispectrum, large breadth and ultra-high speed transmission, etc.



代表卫星 Name	“吉林一号”光谱星 Jilin-1GP	
成像模式 Imaging mode	推扫成像、微光成像、惯性空间成像 Push-broom, Night-time, Inertial space imaging	
分辨率 Resolution	可见光、近红外: 5m Visible light, near-infrared: 5m 短波、中波红外: 100m; Short-wave, medium-wave infrared: 100m; 长波红外: 150m Long-wave infrared: 150m	
谱段 Spectral bands	B0:450nm-800nm B2:433nm-453nm B4:525nm-600nm B6:784.5nm-899.5nm B8:615nm-625nm B10:698.75nm-718.75nm B12:773nm-793nm B14:660nm-670nm B16:750nm-757.5nm B18:935nm-955nm SW1:1195nm-1225nm SW3:1550nm-1590nm MW:3700nm-4950nm B1:403nm-423nm B3:450nm-515nm B5:630nm-680nm B7:485nm-495nm B9:650nm-680nm B11:732.5nm-747.5nm B13:855nm-875nm B15:677.5nm-685nm B17:758.75nm-762.75nm B19:1000nm-1040nm SW2:1360nm-1390nm SW4:1610nm-1690nm LW:7500nm-13500nm	
幅宽 Swath width (at nadir)	110km	
重量 Weight	200kg重量级 ≈ 200kg	



红外系列卫星 Infrared series satellites

以“吉林一号”红外A星为代表的红外系列卫星，搭载小型长波红外相机载荷，可对海洋、热点目标及大气层进行探测，获取目标的辐射度信息，具有集成度高、重量轻、体积小、高性价比的特点。

The infrared series satellites represented by the Jilin-1 HW A, equipped with a small long-wave infrared camera load, can detect the ocean, key objectives and atmosphere, and obtain the radiometric information of the target, which has the characteristics of high integration, light weight, small size and high cost performance.



代表卫星 Name	“吉林一号”红外A星 Jilin-1HW A
成像模式 Imaging mode	凝视视频、推扫成像 Video、Push-broom
分辨率 Resolution	141m
幅宽 Swath width (at nadir)	90km
重量 Weight	10kg重量级 ≈ 10kg



卫星图
Satellite image

纳米比亚-纳米布沙漠
Namib desert, Namibia

卫星图
Satellite image

阿联酋-法拉利主题公园
Ferrari theme park, U.A.E



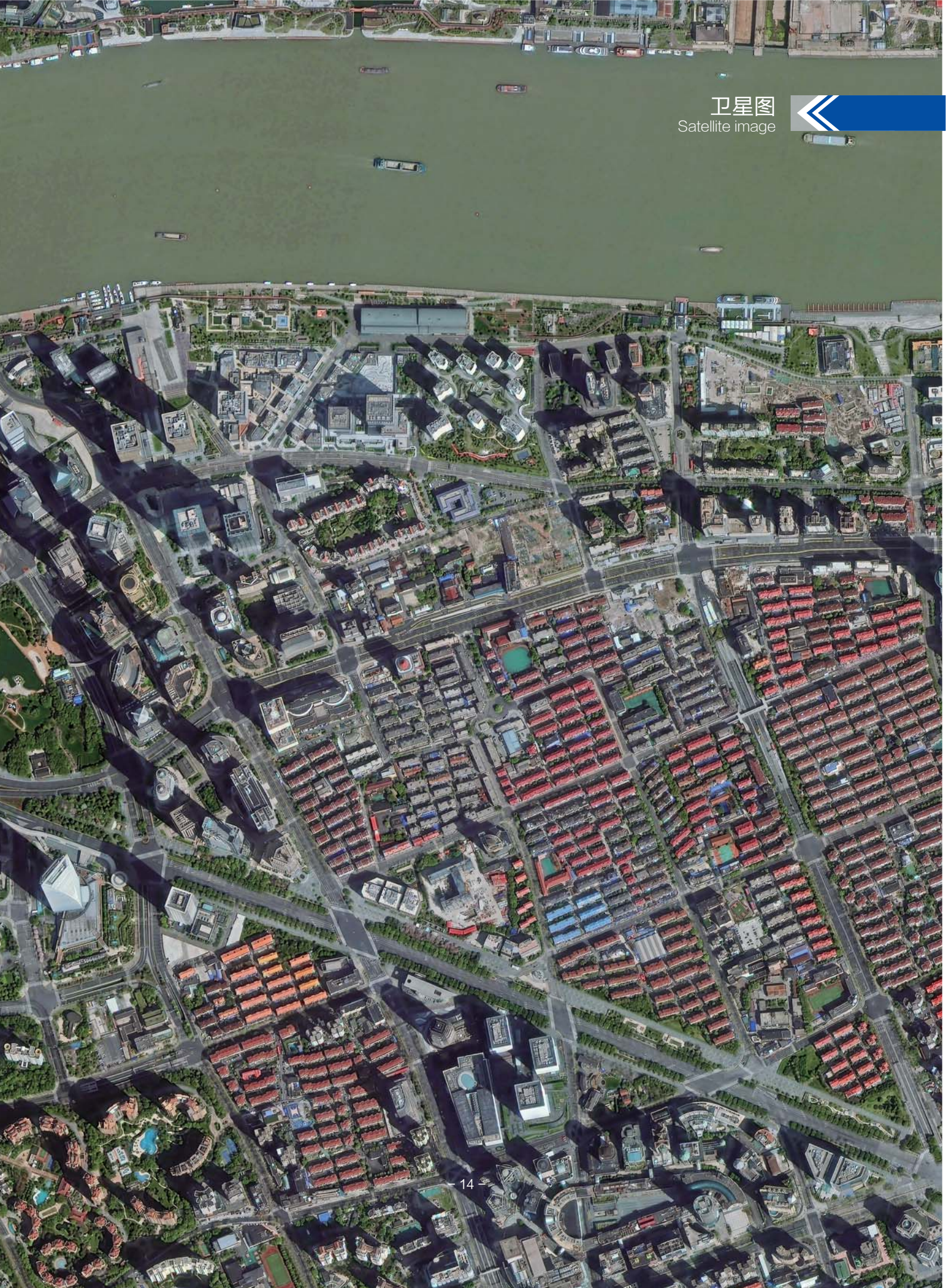


卫星图

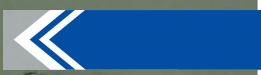
Satellite image

中国-上海

Shanghai, China



卫星图
Satellite image





月球
Moon





卫星图
Satellite image



中国-长春
Changchun, China



卫星图
Satellite image

加拿大-蒙特利尔
Montreal, Canada

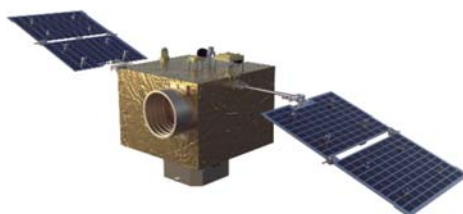




12V搭载卫星 12V satellite platform

12V搭载卫星定位于20kg级的多功能业务化卫星平台，支持载荷长期三轴对地工作，可适配遥感、通信、导航等多种载荷，兼具业务卫星的多功能、可靠性及研制快的优势。

12V satellite platform is a 20kg-class multi-functional satellite platform for business. It supports long-term three-axis works over the ground, and it can adapt to various loads, such as remote sensing, communication and navigation, etc. It has the advantages of multi-function, reliability and rapid development of satellites for business.



电源及功率 Power	提供10.5~12.3V不调节母线供电接口，单路最高功率60w，峰值总功率小于等于60w(工作时间30min/天)，长期功率小于等于10w Provide 10.5~12.3V unregulated bus power supply interfaces, with the highest 1-way power of 60w. The total peak power is less than or equal to 60w (the working time is 30min/ day) and the long-term power is less than or equal to 10w.
热控能力 Capacity of thermal control	提供可控加热带，单路最高功率10W Provide controllable heating belt, with the highest 1-way power of 60w
数据接口 Data interface	提供GTX收发（兼容TLK2711接口）高速数据接口； Provide 6-way high-speed data interfaces for GTX receiving and transmitting (compatible with TLK2711 interface), respectively; 提供四线制LVDS数据接口； Provide four-wire LVDS data interface; 提供RS422接口 Provide RS422 interfaces
通信控制 Communication control	CAN
存储能力 Storage	≤200GB
遥测速率 Telemetry rate	X频段：上行1Mbps，下行16384bps X-band: Uplink 1Mbps, downlink 16,384bps

28V搭载卫星 28V satellite platform

28V搭载卫星是一款低成本、高承载、高分辨率共享型遥感卫星，按照功能区域可划分为平台区及搭载区两部分，其中搭载区则充分考虑搭载载荷的不同使用需求，在布局上进行了分区设计，具有普适性、高散热及可扩展能力。

28V satellite platform is a shared remote sensing satellite of low cost, high load bearing and high resolution. It can be divided into two parts in accordance with the functional areas, i.e. platform area and flight area. The flight area fully considers the different use requirements of loads, and has divisional design in layout, resulting in universality, high heat dissipation and ability of extensibility.



电源及功率 Power	提供26~28.7V不调节母线供电接口，支持最大功率280W； Provide 26~28.7V unregulated bus power supply interfaces, with the highest power of 280w
热控能力 Capacity of thermal control	提供可控加热带，单路最大功率10W Provide controllable heating belt, with the highest 1-way power of 60w
数据接口 Data interface	提供GTX收发（兼容TLK2711接口）高速数据接口； Provide GTX (compatible with TLK2711) high-speed data interface; 提供四线制LVDS数据接口； Provide four-wire LVDS data interface; 提供RS422接口 Provide RS422 interfaces
通信控制 Communication control	CAN/RS422
存储能力 Storage capacity	≥880GB
遥测速率 Telemetry rate	X频段：上行262272bps，下行16384bps X-band: Uplink 262272bps, downlink 16384bps



0.5m分辨率推扫相机 Push-broom camera with 0.5m resolution

0.5m分辨率推扫相机可获取分辨率优于0.5m、幅宽15km的静态推扫影像，具备高分辨率、高集成度和智能化特点。该系列相机在轨工作稳定可靠，已开展一系列业务化应用。

The push-broom camera with a resolution of 0.5m can obtain static push-broom images with a resolution of 0.5m and a swath width of more than 15km. It has the characteristics of high resolution, high integration and intelligence, and the research and development period is one year.



成像模式 Imaging mode	推扫成像 Push-broom imaging
分辨率 Resolution	优于0.5m Better than 0.5m
幅宽 Swath width (at nadir)	15km
谱段 Spectral bands	全色: 450nm–700nm Panchromatic: 450nm–700nm 蓝色: 430nm–510nm Blue: 430nm–510nm 绿色: 510nm–580nm Green: 510nm–580nm 红色: 630nm–690nm Red : 630nm–690nm 近红外: 740nm–895nm Near-infrared: 740nm–895nm
信噪比 Signal-to-noise ratio	35dB
数据率 Data rate	6.62Gbps
外形尺寸 External dimension	Φ770mm × 1430mm
功耗 Power consumption	≤190W
重量 Weight	40kg重量级 ≈40kg

0.75m分辨率推扫相机 Push-broom camera with 0.75m resolution

0.75m分辨率推扫相机采用同轴折返光学系统，在535km轨道上可获取分辨率优于0.75m的高分辨率图像，有在轨飞行经历。

The push-broom camera with a resolution of 0.75m adopts the coaxial folding optical system, and can obtain high-resolution images with a resolution of 0.75m in 535km orbit. It has experience in orbital operation.



成像模式 Imaging mode	推扫成像 Push-broom imaging
分辨率 Resolution	0.75m
幅宽 Swath width (at nadir)	17km
谱段 Spectral bands	全色: 450nm–700nm Panchromatic: 450nm–700nm 蓝色: 430nm–510nm Blue: 430nm–510nm 绿色: 510nm–580nm Green: 510nm–580nm 红色: 630nm–690nm Red : 630nm–690nm 近红外: 740nm–895nm Near-infrared: 740nm–895nm
信噪比 Signal-to-noise ratio	38dB
数据率 Data rate	2.13Gbps
外形尺寸 External dimension	Φ440mmx710mm
功耗 Power consumption	85W
重量 Weight	10kg重量级 ≈ 10kg



0.75m分辨率推扫相机 Push-broom camera with 0.75m resolution

该款相机采用同轴两反加校正镜光学系统，具有推扫成像和视频成像两种成像模式，具备在轨AI识别功能，有在轨飞行经历。

The camera adopts a coaxial dual-reverse optical system with a corrective lens, with two imaging modes of push-scan imaging and video imaging, the function of in-orbit AI recognition and in-orbit flying experience.

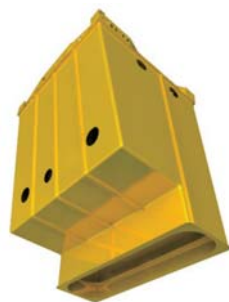


成像模式 Imaging mode	推扫成像、视频成像 Push-broom、Video imaging
分辨率 Resolution	0.75m
幅宽 Swath width (at Nadir)	18km
谱段 Spectral bands	全色: 450nm–700nm panchromatic: 450nm–700nm B1 蓝色: 430nm–520nm blue: 430nm–520nm B2 绿色: 520nm–610nm green: 520nm–610nm B3 红色: 610nm–690nm red : 610nm–690nm B4 近红外: 770nm–895nm Near-infrared: 770nm–895nm
信噪比 Signal-to-noise ratio	PAN:37dB; B1–B3:38dB B4:33dB
数据率 Data rate	2.6Gbps
外形尺寸 External dimension	235mmx240mmx450mm
功耗 Power consumption	≤70W
重量 Weight	≤6kg

150km幅宽宽幅相机 Camera with 150km swath width

150km幅宽宽幅相机采用离轴四返光学系统，具有高分辨、超大幅宽的特点，有在轨飞行经历。

The camera has a swath width of 150km, it adopts off-axis four-reflection optical system, having the characteristics of high resolution and extra-large width. The camera has experience in orbital operation.



成像模式 Imaging mode	推扫成像 Push-broom imaging
分辨率 Resolution	0.5m
幅宽 Swath width (at nadir)	150km
谱段 Spectral bands	全色: 450nm-700nm Panchromatic: 450nm-700nm 蓝色: 450nm-510nm Blue: 450nm-510nm 绿色: 510nm-580nm Green: 510nm-580nm 红色: 630nm-690nm Red : 630nm-690nm 近红外: 770nm-895nm Near-infrared:770nm-895nm
信噪比 Signal-to-noise ratio	40dB
数据率 Data rate	23Gbps
外形尺寸 External dimension	1086mmx1016mmx1092mm
功耗 Power consumption	≤715W
重量 Weight	100kg重量级 ≈ 100kg



5m分辨率多光谱相机 Multispectral camera with 5m resolution

5m分辨率多光谱相机是一款多光谱载荷，拥有19个谱段，采用cook型离轴三反光学系统，具有高传函、多谱段、高信噪比等优点。相机具有在轨调焦和在轨辐射定标功能，有在轨飞行经历。

The multispectral camera with a resolution of 5m has 19 spectral bands, adopts cook-type f-axis triple reflection optical system, and has the advantages of high transfer function, multi-spectral bands and high signal-to-noise ratio, etc. The camera has the functions of on-orbit focusing and radiation calibration. It has experience in orbital operation.

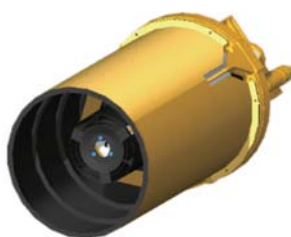


成像模式 Imaging mode	推扫成像、微光成像、惯性空间成像 Push-broom imaging, Low-light imaging, Inertial space imaging
分辨率 Resolution	全色: 5m Panchromatic: 5m 多光谱: 20m Multispectral: 20m
幅宽 Swath width (at Nadir)	58km
谱段 Spectral bands	全色: 403nm-1050nm, 19个多光谱谱段 Panchromatic: 403nm-1050nm, 19 Multispectral bands
信噪比 Signal-to-noise ratio	35dB
数据率 Data rate	2.5Gbps
外形尺寸 External dimension	391mmx333mmx722mm
功耗 Power consumption	20W
重量 Weight	20kg重量级 ≈ 20kg

2m分辨率微纳相机 Micro-nano camera with 2m resolution

2m分辨率微纳相机是地球观测卫星的核心部件之一，可用于立方星，具有体积小、重量轻、分辨率高等优点。

The micro-nano camera with a resolution of 2m is one of the core components of Earth observation satellites, which can be used for CubeSat, and has the advantages of small size, light weight and high resolution.



成像模式 Imaging mode	推扫成像 Push-broom imaging	
分辨率 Resolution	2m	
幅宽 Swath width (at nadir)	12km	
谱段 Spectral bands	全色: 450nm-700nm 蓝色: 430nm-510nm 绿色: 510nm-580nm 红色: 630nm-690nm 近红外: 740nm-895nm	Panchromatic: 450nm-700nm Blue: 430nm-510nm Green: 510nm-580nm Rred : 630nm-690nm Near-infrared:740nm-895nm
信噪比 Signal-to-noise ratio	35dB	
数据率 Data rate	0.72Gbps	
外形尺寸 External dimension	Φ280mm × 260mm	
功耗 Power consumption	≤13W	
重量 Weight	≈3kg	



50m分辨率夜光相机 Low-light camera with 50m resolution

50m分辨率夜光相机为升级版夜光载荷，具有体积小，重量轻，幅宽大等优点。在无云条件下，夜光相机可拍摄城镇灯光、渔船灯光等可见辐射源，获取夜间无云条件下的地区可见光影响的能力。

The low-light camera with 50m resolution is an upgraded load, which has the advantages of small size, light weight and wide width. In cloudless conditions, the low-light camera can capture visible radiation sources such as town lights and fishing boat lights, and obtain the ability to influence visible light in areas under cloudless conditions at night.

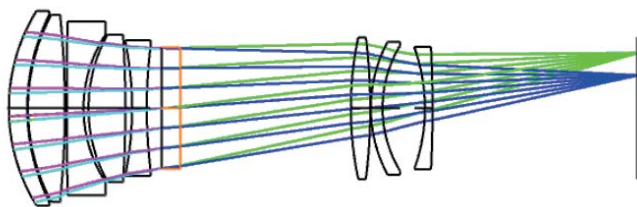


成像模式 Imaging mode	面阵成像 Array imaging
分辨率 Resolution	50m
幅 宽 Swath width (at Nadir)	200km
谱 段 Spectral bands	450nm–750nm
信噪比 Signal-to-noise ratio	20dB
数据率 Data rate	1.4Gbps
外形尺寸 External dimension	160mm × 160mm × 300mm
功耗 Power consumption	9W
重 量 Weight	≈5kg

大焦深镜头 Large depth of field lens

大焦深镜头在不使用调焦机构以及不降低光学系统的光通量与分辨率的前提下，可以大幅提升光学系统的焦深，已广泛应用于红外成像、显微成像、抗激光成像和航天成像等领域。

The large focal depth lens can significantly increase the focal depth of optical systems without using a focusing mechanism and without reducing the optical flux and resolution. They have been widely used in fields such as infrared imaging, microscopic imaging, anti-laser imaging, and aerospace imaging.



口径 Aperture	45mm
视场 Field of view	10.68° × 8°
谱段 Spectral bands	可见光450~850nm Visible light 450~850nm
角分辨率 Angular resolution	20urad
观测范围 Observation range	200m~∞
分辨率 Resolution	1m@100km



飞艇载荷 The airship's loads

飞艇载荷主要由高分辨相机、宽视场相机及红外相机构成，可通过宽视场相机进行大区域目标搜索后，切换高分辨相机进行长时间目标跟踪，能够完成飞机、舰船及固定目标的持续监控，并通过艇上的卫通、微波链路，实时的回传和显示在给地面系统上。

The airship's loads mainly consist of the high-resolution camera, WFOV camera and infrared camera. After the large-scale target searching conducted by the WFOV camera, the high-resolution camera can be switched to conduct long-term target tracking. It can realize continuous monitoring of a fixed target, aircraft and ship and transmit and display the data in the ground system through the links of satellite communication and microwaves on the airship.

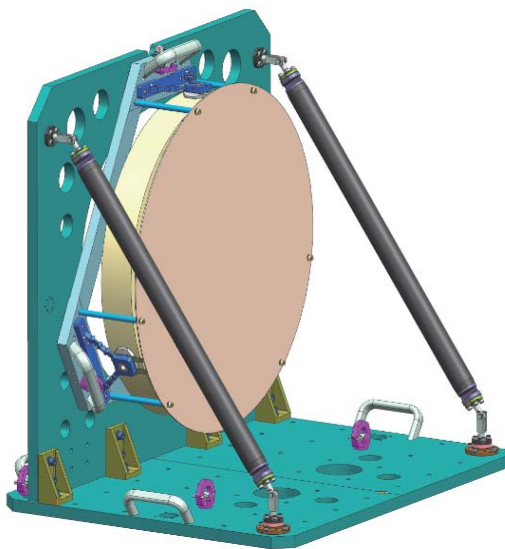


	宽视场相机 Wide Field of View Camera	高分辨相机 High Resolution Camera		红外相机 Infrared Camera
工作高度（km） Working Height (km)	20			
工作模式 Working Mode	视频 Video	拍照 Photograph	视频 Video	视频 Video
谱段 Spectral Band	RGB	RGB	RGB	中波 Medium wave
分辨率（m） Resolution (m)	1	0.05	0.05	1
幅宽（m ² ） Breadth (m ²)	3600*2000	300*250	200*100	600*500
帧频（fps） Frame Frequency (fps)	8	1~9	8	25
量化位数（bits） Quantification Digit (bits)	8	8	8	8
连续工作时间 Continuous Working Time	12h	10min		12h

基准平面反射镜 Reference Flat Mirror

基准平面反射镜用于在实验室环境内搭建自准直检测光路，其自身具备高精度面形质量及稳定性，是高性能光学仪器在装调、检测过程中必要的辅助设备。

The reference flat mirror is applied to establish the auto-collimation testing optical path in the laboratory environment, with characteristics of the high-precision surface quality and stability, and it is a necessary type of auxiliary equipment during the process of installment, commissioning and testing of high-performance optical instruments.



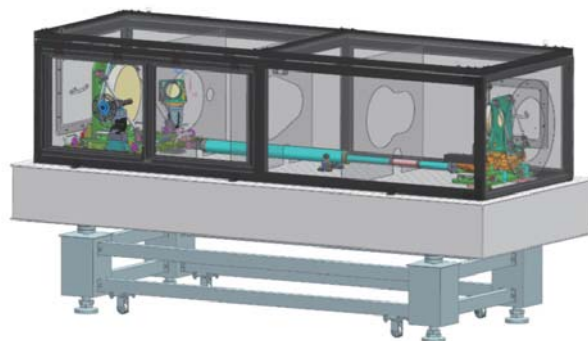
产品型号 Product Model	RFM530
通光口径 Lighting Aperture	Φ 530mm
设备重量 Equipment Weight	< 200kg
面形精度 Surface Accuracy	全口径RMS优于 $1/50 \lambda$ ($\lambda = 632.8\text{nm}$) Full-aperture RMS is better than $1/50 \lambda$ ($\lambda = 632.8\text{nm}$)



离轴平行光管 Off-axis Collimator

平行光管是现代光学仪器在装调、检测过程中必要的测试设备，主要用于实验室内光机装调、光学系统特征参数测量及像质评价等。根据使用靶标的不同，平行光管可以有许多的应用，比如检测光学系统目视分辨率、焦距、畸变、焦面位置，以及整机调制传递函数与信噪比、端到端图像测试等。

Collimator is a necessary testing instrument of modern optical instrument installment, commissioning and testing, and it is mainly used for optical machine installment and commissioning, optical system latent parameter measurement, image quality evaluation, etc. According to different targets adopted, collimator can be used for multiple purposes, such as the visual resolution, focal distance, distortion, position of the focal plane, as well as the modulation transfer function and signal-to-noise ratio of the whole machine, end-to-end image testing, etc.



产品型号 Product Model	C320F15_OA
通光口径 Lighting Aperture	Φ320mm
焦 距 Focal Distance	4.8m
系统波像差 System Wave Aberration	优于RMS $\lambda/20$ ($\lambda=632.8\text{nm}$, 中心视场) better than RMS $\lambda/20$ ($\lambda=632.8\text{nm}$, central field of view)
遮拦比 Obscuration Ratio	采用离轴抛物面式光路，系统无遮拦 An off-axis paraboloid-type optical path is adopted, without obstructions in the system
工作温度 Working temperature	$20 \pm 5^\circ\text{C}$
质 量 Mass	<1.5T
本体包络尺寸 Size of Main Body Envelopment	3.0m (L) × 1.3m (W) × 1.6m (H)

眼底成像仪 Fundus Imager

眼底成像仪的相机光学系统由照明系统和成像系统组成，其中照明系统设有固视光源、可见照明光源和近红外对焦光源，采用近红外光源对焦可以不用药物对眼睛进行散瞳处理。在成像系统中设置调焦镜，具备 $\pm 20\text{D}$ 的屈光度补偿功能。

The camera's optical system of the fundus imager consists of an illumination system and an imaging system. The illumination system is equipped with a fixation light source, visible illumination light source, and near-infrared focusing light source. Focusing with near-infrared light sources can be performed without pharmacologically dilating the eye. The imaging system is equipped with a focusing lens and provides a refractive compensation function of $\pm 20\text{D}$.



工作距离 Working distance	> 24mm
成像模式 Imaging mode	近红外观察、对焦，可见光拍照 Near-infrared observation, focusing, visible light photography
瞳孔大小 Pupil size	免散瞳3mm Dilation-free 3mm
视网膜分辨率 Retinal resolution	中心视场优于 $7\ \mu\text{m}$ ，边缘视场优于 $15\ \mu\text{m}$ Central field of view better than $7\ \mu\text{m}$, edge field of view better than $15\ \mu\text{m}$
屈光度补偿范围 Refractive compensation range	$-20\text{D} \sim +20\text{D}$
视场 Field of view	45°
成像谱段 Imaging spectrum	可见光：RGB彩色（450–700） Visible light: RGB color (450–700) 近红外：780nm Near Infrared: 780nm 固视光：650nm Fixation light: 650nm
调制传递函数 MTF	大于0.2@分辨率对应像方线对 Greater than 0.2@resolution corresponding image side line pairs



红外搜索跟踪仪 Infrared search and track system

红外搜索跟踪仪是利用低空来袭目标的发射辐射的红外特征，对目标进行探测、跟踪的一种被动式探测仪器。该仪器不受电子干扰，不受杂波影响，具有较强的穿透烟雾的能力，隐蔽性好、灵敏度高，能够全天时、全天候工作。

The infrared search and track (IRST) system is a passive detection instrument that detects and tracks targets based on the infrared characteristics of the low-altitude incoming targets. The instrument is not affected by electronic interference or clutter and has strong penetration through smoke, good concealment, high sensitivity, and can work all day and in all weather conditions.



指标 Index		中波红外 Mid-wave Infrared	长波红外 Long-wave Infrared
波段/ μm Wavelength/ μm		3.7—4.8	7.7—10.5
焦距/mm Focal length/mm	长焦 Long focus	520	520
	短焦 Short focus	260	260
视场/ $^{\circ}$ Field of view/ $^{\circ}$	长焦 Long focus	1.76 (水平) $\times$ 1.41 (垂直) 1.76 (Horizontal) $\times$ 1.41 (Vertical)	1.76 (水平) $\times$ 1.41 (垂直) 1.76 (Horizontal) $\times$ 1.41 (Vertical)
	短焦 Short focus	3.52 (水平) $\times$ 2.82 (垂直) 3.52 (Horizontal) $\times$ 2.82 (vertical)	3.52 (水平) $\times$ 2.82 (垂直) 3.52 (Horizontal) $\times$ 2.82 (vertical)
附加视场 Additional field of view	长焦 Long focus	0.72	0.12
	短焦 Short focus	0.48	0.08
相对孔径 Relative aperture		1/2	1/2
透过率 Transmittance		>0.76	>0.7
MTF		0.4@20lp/mm	0.3@20lp/mm
畸变 Distortion		$<1\%$	$<1\%$
光轴一致性 Optical axis consistency		25 μrad	

高精度一维转台 High-Precision one-dimensional rotary stage

高精度转台作为航天、航空项目中重要的测试设备，主要用于相机参数标定。长光卫星研制的高精度一维转台最大承载重量150kg，角度测量精度优于 $\pm 0.3''$ ，具备较高重复定位精度和精度保持能力，可保证转台连续工作，满足高分辨率、大口径、长焦距相机的标定需求。

The high-precision turntable, as an important test equipment in aerospace and aviation projects, is mainly used for camera parameter calibration. The high-precision one-dimensional turntable developed by CGSTL has a maximum load capacity of 150 kg, an angular measurement accuracy better than $\pm 0.3''$, and features high repetitive positioning precision and precision maintenance capabilities, ensuring continuous operation of the rotary stage and meeting the calibration needs of high-resolution, large-aperture, and long-focal length cameras.



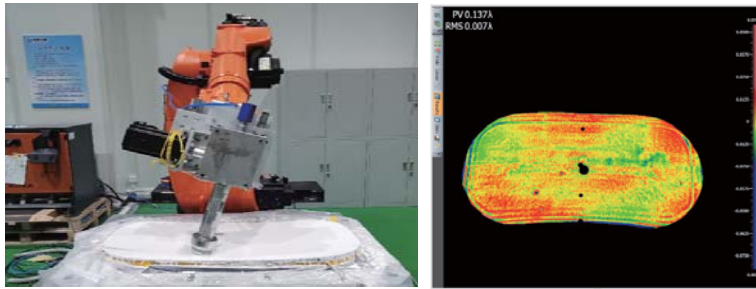
指标项 Indicator Item		指标要求 Indicator requirement
负载参数 Load parameters	最大承载重量 Maximum load capacity	150kg
转台机械参数 Rotary Stage mechanical parameters	负载安装台面大小 Load mounting table size	Φ 1500 mm
	台体外包络 External dimension	$\leq \Phi$ 1500 mm $\times$ 850 mm
	质量 Weight	$\leq$ 5000 kg
	结构形式 Structure style	气浮轴系 Air-floating shaft system
位置参数 Position parameters	转角运动范围 Angular range of motion	$\pm 150^\circ$
	角位置分辨率 Angular position resolution	电机直驱: 0.4" Direct driven by motor: 0.4" 微驱动机构驱动: 0.05" Driven by micro drive mechanism: 0.05"
	光栅测角系统分辨率和精度指标 Indicators of grating angle measurement system	绝对测量精度 ($\pm 30^\circ$ 测量范围): $\pm 0.3''$ Absolute measurement accuracy ($\pm 30^\circ$ measurement range): $\pm 0.3''$ 分辨率: 0.0003" Resolution: 0.0003" 重复测量精度: $\pm 0.2''$ Repetitive measurement accuracy: $\pm 0.2''$
角速度和角加速度参数 Angular velocity and acceleration parameters	角速度范围 Angular velocity range	$\pm (0 \sim 20)^\circ /s$, 可设置 $\pm (0 \sim 20)^\circ /s$, adjustable



智能高效机器人数控研抛系统 Intelligent and efficient robot CNC polishing system

本设备结合现代新型工业机器人成本低、体积小、精度高、可智能化控制、对光学反射镜面形抛修针对性强等特点，研制开发的智能高效机器人数控研抛系统。面形精度可快速达到 $1/100\lambda$ RMS($\lambda=632.8\text{nm}$)。可针对多种材料、同轴或离轴异形镜进行研抛。

This equipment is an intelligent and efficient robot CNC polishing system combined with the characteristics of modern new industrial robots, such as low cost, small size, high precision, intelligent control, and strong focus on optical reflection mirror shape polishing. The surface shape accuracy can quickly reach $1/100\lambda$ RMS ($\lambda=632.8\text{nm}$). It can be polished for a variety of materials, coaxial or off-axis special-shaped mirrors.



名称 Component	参数 Function
自重 Mass	665Kg
臂展 Arm span	2,033 mm
最大载荷 Maximum Load	400 N
最大转速 Maximum rotate speed	1000 Rpm
最大可加工口径 Maximum machined aperture	ϕ 1000 mm
重复定位精度 Repeated positioning accuracy	± 0.06 mm
连续运行时间 Maximum word period	40小时 40hour
工作环境温度 Operating ambient temperature	20-22℃
工作环境湿度 Operating ambient humidity	30-40%
误差收敛精度 Error convergence accuracy	0.01λ RMS

车载激光通信地面站 Vehicle-mounted Laser Communication Ground Station

激光通信地面站是实现卫星与地面之间高速激光通信的关键设施。它利用激光通信技术，突破了传统射频通信的限制，为现代航天应用提供了全新的通信解决方案。具有高带宽、小型化和车载便携等特点。

The laser communication ground station is a key facility to realize the high-speed laser communication between the satellite and the ground. It makes use of the technology of laser communication, breaks through the limitation of traditional radio frequency communication and provide a brand-new communication solution for modern aerospace application. It has characteristics of the high bandwidth, small size and vehicle-mounted and portable advantage.

产品示例:

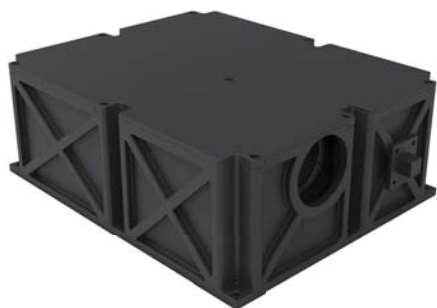
Product Demonstration:



产品代号 Product Code	JGZ1010
天线口径 Antenna Aperture	500mm
下行通信波长 Downlink Communication Wavelength	1550nm
下行通信带宽 Downlink Communication Bandwidth	10Gbps
上行通信波长 Uplink Communication Wavelength	808nm
上行通信带宽 Uplink Communication Bandwidth	10Mbps
信标激光功率 Beacon Laser Power	10W
整站构型 Whole-station Configuration	车载移动站 Vehicle-mounted Mobile Station
供货周期 Supply Cycle	10个月 10 months



激光通信载荷 Laser Communication Payload



产品名称 Product Name	星地激光通信终端 satellite-to-ground Laser Communication Terminal	星间激光通信终端 Inter-satellite Laser Communication Terminal
光学天线口径 Optical Antenna Aperture	35mm	50mm
发射激光束散角(全角) Transmit Laser Beam Divergence Angle (Full Angle)	$< 120 \mu \text{rad}(1/e^2)$	$< 70 \mu \text{rad}(1/e^2)$
通信距离 Communication Distance	不低于1000km Not less than 1000km	100km~1500km
调制探测方式 Modulation Detection Method	直接探测、强度调制 Direct Detection, Intensity Modulation	直接探测、强度调制 Direct Detection, Intensity Modulation
通信波长 Communication Wavelength	1550nm	1550nm
信标光波长 Beacon Light Wavelength	808nm	无信标光 No beacon light
通信速率 Communication Rate	2.5/5/10Gbps	1.25/2.5/5/10Gbps
通信误码率 Communication Bit Error Rate	$\leq 10^{-7}$	$\leq 10^{-7}$
建链时间 Link Establishment Time	$\leq 10\text{s}$	$\leq 10\text{s}$
跟踪精度 Tracking Accuracy	$\leq 10 \mu \text{rad}$	$\leq 5 \mu \text{rad}$
重量 Weight	$\leq 3.5\text{kg}$	$\leq 8\text{kg}$

微晶反射镜 Zerodur reflective mirror

采用先进的机器人数控加工为主，结合离子束、抛光机、铣磨机等设备，能够实现大口径、高精度、异形的球面、非球面微晶反射镜的定制、批量生产。

Using advanced robotic CNC processing as the primary method, combined with ion-beam, polishing, and milling machines, it can achieve customized and batch production of large-aperture, high-precision, asymmetric- spherical surface and aspherical microcrystalline reflective mirrors.

反射镜口径范围 Reflective mirror diameter range	Φ50mm-600mm
反射镜面形 Reflective mirror surface shape	RMS: 优于 $1/60\lambda$ ($\lambda=632.8\text{nm}$) RMS: Better than $1/60\lambda$ ($\lambda=632.8\text{nm}$)
表面粗糙度 Surface roughness	<2nm
供货周期 Supply cycle	1-2.5个月 1 - 2.5 months

产品示例: Product examples



反射镜口径 (D) Reflective mirror diameter (D)	Ø440mm
面型特征 Surface feature	同轴非球面 Coaxial aspherical surface
轻量化形式 Lightweight form	沉孔 Counterbore
周期 Supply cycle	2.5个月 2.5 months

反射镜口径 (D) Reflective mirror diameter (D)	Ø116mm
面型特征 Surface feature	凸非球面 Convex aspherical surface
轻量化形式 Lightweight form	筋格+异形外形 Ribbed + asymmetric shape
周期 Supply cycle	1.25个月 1.25 months



碳化硅反射镜 Silicon carbide reflective mirror

采用先进的机器人数控加工为主，结合离子束、抛光机、铣磨机等设备，能够实现大口径、高精度、异形的球面、非球面碳化硅反射镜的定制、批量生产。

Using advanced robotic CNC processing as the primary method, combined with ion-beam, polishing, and milling machines, it can achieve customized and batch production of large-aperture, high-precision, asymmetric- spherical surface and aspherical silicon carbide reflective mirrors.

反射镜口径范围 Reflective mirror diameter range	Φ 50mm-1200mm
反射镜面形 Reflective mirror surface shape	RMS: 优于1/60 λ (λ =632.8nm) RMS: Better than 1/60 λ (λ = 632.8 nm)
表面粗糙度 Surface roughness	<2.5 nm
供货周期 Supply cycle	2-6个月 2-6 months

产品示例:

Product Examples



反射镜口径 (D) Reflective mirror diameter (D)	ø440mm
面型特征 Surface feature	同轴非球面 Coaxial aspherical surface
轻量化形式 Lightweight form	背部 Back
周期 Supply cycle	3个月 3 months

反射镜口径 (D) Reflective mirror diameter (D)	1270 × 482mm
面型特征 Surface feature	离轴非球面 Off-axis aspherical surface
轻量化形式 Lightweight form	背部 Back
周期 Supply cycle	5.75个月 5.75 months

熔石英反射镜 Fused silica reflective mirror

采用先进的机器人数控加工为主，结合离子束、抛光机、铣磨机等设备，能够实现大口径、高精度、异形的球面、非球面熔石英反射镜的定制、批量生产。

Using advanced robotic CNC processing as the primary method, combined with ion-beam, polishing, and milling machines, we can achieve customized and batch production of large-aperture, high-precision, asymmetric- spherical surface and aspherical fused quartz reflective mirrors.

反射镜口径范围 Reflective mirror diameter range	Φ50mm-600mm
反射镜面形 Reflective mirror surface shape	RMS: 优于1/60 λ (λ =632.8nm) RMS: Better than 1/60 λ (λ = 632.8 nm)
表面粗糙度 Surface roughness	<2nm
供货周期 Supply cycle	2-4个月 2-4 months

产品示例: Product Examples



反射镜口径 (D) Reflective mirror diameter (D)	Ø450mm
面型特征 Surface feature	凹球面 Concave spherical surface
轻量化形式 Lightweight form	无 None
周期 Supply cycle	1.5个月 1.5 months

反射镜口径 (D) Reflective mirror diameter (D)	Ø220mm
面型特征 Surface feature	弯月型折反透镜 Crescent-shaped folded retroreflector
轻量化形式 Lightweight form	无 None
周期 Supply cycle	1.5个月 1.5 months



星敏感器镜头 Star sensor lens

公司具有多款透射式、反射式等星敏感器镜头研制经验，各型号产品具有视场大、相对孔径大、色散低、畸变小、杂光抑制性能高等技术优势，已在多颗在轨卫星上得到了飞行验证。

CGSTL has extensive experience in the development of various transmission-type and reflection-type star sensor lenses. Each product model has technical advantages such as large field of view, large relative aperture, low chromatic aberration, low distortion, and high stray light suppression performance. They have been flight-validated on multiple in-orbit satellites.

产品示例： Product examples



产品代号 Product codename	FDJX-BZ- 21-174	FdjX-BZ- -21-161	CG-DJ- SSJT-18.5°	CG-DJ- SSJT-15°	CG-DJ-S SJT-17°
全视场角 Full field angle	18°	4.5°	18.5°	15°	17°
工作波段 Working band	500nm ~ 850nm	400nm ~ 1000nm	500nm ~ 800nm	500nm ~ 800nm	500nm ~ 900nm
重量 Weight	240g	1200g	155g	66g	210g
供货周期 Supply cycle	4个月 4 months	4个月 4 months	4个月 4 months	4个月 4 months	4个月 4 months

分离螺母 Separating Nut

非火工分离螺母采用记忆合金触发解锁，具有冲击小、可重复使用等优点，可替代火工品用于天线驱动机构、激光通信转台、太阳翼等活动部件的压紧释放。

The non-pyrotechnic separating nut adopts release mode triggered by shape memory alloy, with the advantages of low shock, reusable, etc., and it can be used to replace the pyrotechnic device to hold-down and release of the antenna driving mechanism, laser communication turntable, solar arrays and other moving parts.



产品代号 Product Code	CG-JG-RSN-3	CG-JG-RSN-8	CG-JG-RSN-10
锁紧力 Preload Force:	3kN	8kN	10kN
螺母规格 Nut Specification	M5	M8	M10
重量 Weight	60g	170g	200g
主体包络 Main Body Envelopment	Φ29×27mm	Φ45×36mm	Φ61×38mm
温度范围 Temperature Range	-70~+70℃		
解锁时间 Release Time	60ms@10A,20℃		
解锁冲击 Release Shock	<600g (频域) <600g (frequency domain)		
使用寿命 Life Cycles	>20次 >20 times		
供货周期 Supply Cycle	3个月 3 months		



星箭分离机构 Satellite-rocket Separation Mechanism

星箭分离机构采用非火工分离螺母实现高刚度、可靠锁紧；采用分离弹簧完成解锁后的卫星推离，具有分离姿态稳定、机械接口简单等特点，适用于百公斤级小卫星的低冲击解锁分离。

The satellite-rocket separation mechanism adopts non-pyrotechnic separating nut to realize a high stiffness and reliable locking, adopts separating spring to push off the unlocked satellite, with the features of stable separation attitude, simple mechanical interface, etc., and it is suitable for low-shock release and separation of 100-kilogram small satellites.



产品代号 Product Code	CG-JG-SM-10	CG-JG-SM-20	CG-JG-SM-60
适用卫星载荷 Applicable Satellite Load	5~15kg	15~40kg	40~80kg
分离角速度 Separation Angular Velocity	$<5^{\circ}/s$	$<4^{\circ}/s$	$<2.5^{\circ}/s$
分离速度 Separation Velocity	0.4~0.6m/s	0.4~0.6m/s	0.4~0.6m/s
重量 Weight	1.2kg	1.8kg	3.3kg
主体包络 Main Body Envelopment	220×220×81mm	270×270×84mm	390×390×85mm
温度范围 Temperature Range	-70~+70℃		
解锁冲击 Release Shock	$<600g$ (频域) $<600g$ (frequency domain)		
供货周期 Supply Cycle	3个月 3 months		

多层隔热组件 Multi-layer Thermal Insulation Component

多层隔热组件具有极好的隔热性能，当量导热系数可低至 $10-5W/(m \cdot K)$ ，此外多层隔热组件质量轻，不挥发，无粉尘，安装方便，普遍用于各种航天器的隔热部位。

The multi-layer thermal insulation component owns great performance of thermal insulation, and its equivalent heat conductivity can be as low as $10-5W/(m \cdot K)$. In addition, the multi-layer thermal insulation component is light in the weight and is not easy for volatilization, without dust and can be installed easily. It is universally adopted to the thermal insulation part of various spacecrafts.



项目 Item	性能参数 Performance Parameter
使用温度/℃ Operating Temperature/℃	-110~150
每单元质量/g/m ² Mass per Unit/g/m ²	20
单元数 Number of Unit	5,10,15,20,30
每单元厚度/mm Thickness per Unit/mm	0.5
在轨数量 In-orbit Quantity	> 100套 >100 sets
累计工作时长 Accumulated Working Time	> 70000h
供货周期 Supply Cycle	15天 15 days



柔性导热索 Flexible Heat-conducting Cable

导热索主要应用于大功率活动组件散热，具有质量轻、刚度低（接近于零刚度）、导热性能强等特点。通过导热索这种高效热耦合连接方式将传递的热量通过散热器排散到空间环境中。

The flexible heat-conducting cable is mainly used for the heat dissipation of the high-power components, with the features of the light weight, low stiffness (close to 0), strong thermal conductivity, etc.

Through the efficient connection mode of thermal coupling of the heat-conducting cable, the delivered heat can be released to the spatial environment through the heat radiator.

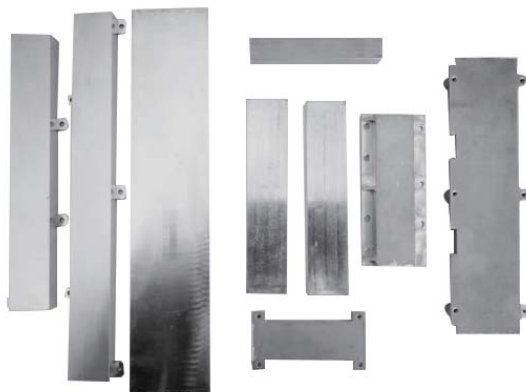


项目 Item	性能参数 Performance Parameter
使用温度/℃ Operating Temperature/℃	-150~150℃
导热性能/W/℃ Heat-conducting Property/W/℃	0.2~2
刚度/mN/mm Stiffness/mN/mm	≤3
隔振性能/振动衰减% Vibration Isolation Property/ Vibration Attenuation%	> 90
密度/kg/m ³ Density/kg/m ³	1800
在轨数量 In-orbit Quantity	> 10套 >10 sets
累计工作时长 Accumulated Working Time	> 43000h
供货周期 Supply Cycle	1个月 1 month

相变热管 Phase-transformation Heat Pipe

相变储能热管利用相变材料在相变过程中吸收（释放）大量潜热，实现热量的存储与释放，从而达到减小被控组件温度波动的目的。

The phase-transformation energy storage heat pipe makes use of plenty of latent heat absorbed (released) by phase-transformation materials during the process of phase transformation to store and release the heat to achieve the goal of the reduction of the controlled components' temperature fluctuation.



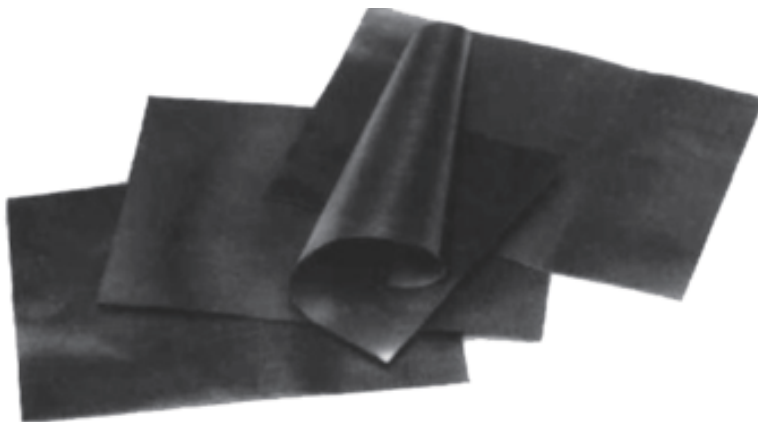
项目 Item	性能参数 Performance Parameter
相变温度/℃ Phase-transformation Temperature/℃	-30~150℃
相变潜热/J/g Phase-transformation Latent Heat/J/g	≥200
相变形态 Phase-transformation Form	固固 Solid-solid
导热系数/W/m·k Heat Conductivity Coefficient/W/m·k	0.5~3
膨胀率/% Expansion Rate/%	<3
在轨数量 In-orbit Quantity	>100
累计工作时长 Accumulated Working Time	>50000h
供货周期 Supply Cycle	2个月 2 months



石墨导热膜 Graphitic Heat-conducting Film

一种新型的石墨材料，具有导热率高，密度低，柔性等特点，可用增强导热性能，起到均温作用。

It is a new-type of graphitic material, with the features of the high thermal conductivity, low density, flexibility, etc., and it can be used to strengthen the property of heat conduction and play the role of temperature equalization.



项目 Item	性能参数 Performance Parameter
使用温度/℃ Operating Temperature/℃	-150~150
导热系数/W/m · K Heat Conductivity Coefficient/W/m · K	≥1500
厚度/mm Thickness/mm	0.07~0.2
密度/kg/m ³ Density/kg/m ³	1800
供货周期 Supply Cycle	10天 10 days

磁强计 Magnetometer



产品代号 Product code	CG-DJ-MT-1000nT
磁强计量程 Magnetometer range	-0.9Gauss ~ +0.9Gauss
磁强计精度 (25℃) Magnetometer accuracy (25℃)	1000nT
MEMS陀螺量程 MEMS gyroscope range	$\pm 125^{\circ} /s$
MEMS陀螺零偏稳定性 MEMS gyroscope bias stability	$12^{\circ} /h (1\sigma)$
包络尺寸 Envelope dimension	$\Phi 98mm \times 80mm$
重量 Weight	195g
功耗 Power consumption	0.54W
工作电压 Working voltage	+12V
工作电流 Working current	45mA
通信接口 Communication interface	RS422
数据更新率 Data update rate	10Hz
供货周期 Supply cycle	6个月 6 months

数字太阳敏 Digital sun sensor



产品代号 Product code	CG-DJ-DS-0.5°
包络尺寸 Envelope dimension	48mm × 36mm × 16.9mm
重量 Weight	50g
功耗 Power consumption	0.15W
工作电压 Working voltage	5.2V
精度 Precision	0.5°
理论视场 Theoretical field of view	$\pm 60^{\circ}$
通信接口 Communication interface	RS422
工作温度 Working temperature	-30℃ ~ +60℃
供货周期 Supply cycle	3个月 3 months



飞轮 Flywheel



产品代号 Product code	CG-DJ-FW-3mN · m	CG-DJ-FW-1.4mN · m	CG-DJ-FW-15mN · m	CG-DJ-FW-150mN · m
包络尺寸 Envelope dimension	139mm × 100 mm × 73.5 mm	单个轮体: Single wheel body: ≤71 mm × 71 mm × 40 mm 控制板: ≤94 mm × 94 mm × 15 mm Control board ≤94 mm × 94 mm × 15 mm	113 mm × 152 mm × 74 mm	Φ 252 mm × 125 mm
重量 Weight	0.83kg	单个轮: ≤160g Single wheel: ≤160g 控制板: ≤110g Control board: ≤110g	≤1.29kg	9 ± 0.3kg
功耗 Power consumption (三个飞轮) (Three flywheels)	稳态≤1.8W (@2000rpm) Steady state ≤1.8W (@2000rpm) 峰值≤7W (@5000rpm/3mNm) Peak ≤7W (@5000rpm/3mNm)	待机功耗: ≤1.2W Standby power consumption ≤1.2W 稳态功耗: ≤3.5W (@3000rpm) Steady state power consumption ≤3.5W (@3000rpm) 峰值功耗: ≤13.2W Peak power consumption ≤13.2W	待机功耗: ≤1.8W; Standby power consumption ≤1.8W; 稳态功耗: ≤4.1W (@3000rpm) ; Steady state power consumption ≤4.1W (@3000rpm) 峰值功耗: ≤23W。 Peak power consumption ≤23W	≤5W (@1000rpm) ≤75W
工作电压 Working voltage	12 ± 1V	9V~12.5V	12V ± 1.2V	30V ± 3V
通信接口 Communication interface	RS422	CAN	RS422	RS422
角动量 Angular momentum	≥0.1Nms (@ ± 6000rpm)	≥ 50mNms (@9000rpm)	≥ 0.5Nms (@6000rpm)	15Nms (@3100rpm)
输出力矩 Output torque	≥3mNm (0~ ± 6000rpm)	≥1.4mNm (0~ ± 6000rpm)	≥15mNm (0~ ± 5000rpm)	0.15Nm
工作模式 Working modes	待机模式、转速模式 Standby mode, speed mode	待机模式、转速模式 Standby mode, speed mode	转速模式、电流模式、待机模式 Speed mode, current mode, standby mode	待机模式、电流模式、转速模式 Standby mode, current mode, speed mode
精度 Precision	≤ ± 1rpm	≤ ± 1rpm	≤ ± 0.2 rpm (500rpm以上) (Over 500rpm) ≤ ± 1rpm (500rpm~100rpm) ≤ ± 5rpm (100rpm以下) (Below 100rpm)	\
供货周期 Supply cycle	3个月 3 months	3个月 3 months	3个月 3 months	3个月 3 months

磁力矩器 Magnetic torque



产品代号 Product code	CG-DJ-CJ-5	CG-DJ-CJ-15	CG-DJ-CJ-100	CG-DJ-CJ-1
重量 Weight	0.275kg	0.7kg	4kg	0.07kg
包络尺寸/mm Envelope dimension/mm	228 × 38 × 22.8	270 × 56 × 30.3	630 × 80 × 74	138 × 32 × 17
额定输出磁矩 Rated output magnetic moment	5Am ²	15Am ²	100Am ²	1Am ²
剩磁矩 Residual magnetic moment	0.02Am ²	0.1Am ²	0.1Am ²	0.01Am ²
建磁/退磁时间常数 Magnetization/ demagnetization Time constant	70ms	150ms	160ms	50ms
功耗 Power consumption	0.7W	2W	2.7W	0.3W
供货周期 Supply cycle	4个月 4 months	5个月 5 months	5个月 5 months	4个月 4 months



中心计算机 Central computer



产品代号 Product code	CG-DJ-OBC-L484S(D)
包络尺寸 Envelope dimension	94*94*16mm(94*94*31mm)
功耗 Power consumption	1.2W
重量 Weight	< 120g(200g)
供电 Power supply	5.2V(5.2V/12V)
主频 Main frequency	100MHz
通信接口 Communication Interface	2路CAN总线3.3V(兼容5V) 2 channel CAN buses 3.3V (compatible with 5V) 4路RS422总线3.3V(兼容5V) 4 channel RS422 buses 3.3V (compatible with 5V)
开关量采集 Digital input data collecting	6路 6 channel
时间精度 Time accuracy	优于10us Better than 10us
存储器容量 Memory capacity	8MB
在轨数量 Number of satellites in orbit	2
供货周期 Supply cycle	4个月 4 months

配电热控管理单元 Power distribution and thermal control management unit



产品代号 Product code	CG-DJ-PD-100	CG-DJ-PD-300
包络尺寸 Envelope dimension	94mm × 94mm × 46mm	150mm × 120mm × 57mm
重量 Weight	0.5kg	1.3kg
功耗 Power consumption	1W	8.5W(含DCDC静态功耗) 8.5W (including DCDC static power consumption)
配电 Power distribution	10路12V/7路5.2V 10 channel 12V/7 channel 5.2V	6路28V/8路12V/5路5.2V 6 channel 28V/8 channel 12V/5 channel 5.2V
加热带驱动 Driven by heater band	11路 单路最大2W 11 channel, maximum 2W per channel	15路 单路最大10W 15 channel, maximum 10W per channel
温度/模拟量采集 Temperature/analog Input data collecting	20路 12位采集 20 channel, 12-bit collecting	34路 12位采集 34 channel, 12-bit collecting
SADA驱动 SADA driving	2路 2 channel	\
熔断器控制 Fuse control	2路 电流4~6A 2 channel, current 4~6A	2路 电流5~6A 2 channel, current 5~6A
供货周期 Supply cycle	4个月 4 months	4个月 4 months

星敏感器 Star sensor



产品代号 Product code	CG-DJ-SS-5"
角精度 Angular accuracy	5"
四元数更新频率 Quaternion update rate	8Hz
功耗 Power consumption	≤2.5W
重量 Weight	≤0.4kg
供货周期 Supply cycle	12个月 12 months



CMOS焦面 CMOS focal plane



产品代号 Product code	CG-DJ-CM OS-3L-01	CG-DJ-CM OS-L-01	CG-DJ-CM OS-V-01	CG-DJ-CM OS-V-02	CG-DJ-CM OS-V-N	CG-DJ-CM OS-V-AI
成像模式 Imaging mode	推扫成像 Push-broom Imaging	推扫成像 Push-broom Imaging	视频成像 Video Imaging	视频成像 Video Imaging	夜光成像 Low-light Imaging	视频成像 Video Imaging
传感器类型 Sensor type	三片CMOS 机械拼接 Three CMOS chips mechanically stitched	单片CMOS 传感器 Single CMOS chip sensor	单片CMOS 传感器 Single CMOS chip sensor	单片CMOS 传感器 Single CMOS chip sensor	单片CMOS 传感器 Single CMOS chip sensor	单片CMOS 传感器 Single CMOS chip sensor
像元尺寸 Pixel size	4.25 μm	5.5 μm	5.5 μm	5.5 μm	4.25 μm	4.25 μm
单片传感器像元规模 Single chip sensor pixel scale	5056 $\times$ 2968	12000 $\times$ 5000	12000 $\times$ 5000	12000 $\times$ 5000	5056 $\times$ 2968	5056 $\times$ 2968
谱段 Spectral band	P/R/G/B/IR/ Red edge	20谱段 20 Spectral bands	R/G/B	R/G/B	R/G/B	IR
功耗 Power consumption	$\leq 22\text{W}$	$\leq 15\text{W}$	$< 9\text{W}$	$\leq 8.3\text{W}$	$\leq 10.5\text{W}$	$\leq 25\text{W}$
重量 Weight	1.5 kg	1kg	$\leq 1\text{kg}$	0.7kg	0.5kg	0.8kg
供货周期 Supply cycle	4个月 4 months	3个月 3 months	6个月 6 months	8个月 8 months	3个月 3 months	3个月 3 months

红外焦面 Infrared focal plane



产品代号 Product code	CG-DJ-IR-01	CG-DJ-IR-02	CG-DJ-IR-03
成像模式 Imaging mode	框幅式推扫成像 Frame-based push-broom Imaging	框幅式推扫成像 Frame-based push-broom Imaging	框幅式推扫成像 Frame-based push-broom Imaging
传感器类型 Sensor type	单片铟镓砷传感器 Single Ingaas sensor	单片碲铬汞传感器 Single hgcdte sensor	单片氧化钒传感器 Single vox sensor
像元尺寸 Pixel size	25 μ m	15 μ m	17 μ m
单片传感器像元规模 Single chip sensor pixel scale	640 × 512	640 × 512	640 × 512
谱段 Spectral band	短波红外 Shortwave Infrared	中波红外 Midwave Infrared	长波红外 Longwave Infrared
功耗 Power consumption	≤20W	≤16W	≤1.5W
重量 Weight	≈ 1.40kg	≈ 1.75kg	≈ 0.09kg
供货周期 Supply cycle	3个月 3 months	6个月 6 months	3个月 3 months



通用高可靠星载数据存储单元 General high-reliability satellite data storage



产品代号 Product code	CG-DJ-IPS-KF-Z	CG-DJ-IPS-KF-B
存储类型 Storage type	FLASH固存 FLASH Memory storage	FLASH固存 FLASH Memory storage
存储容量 Storage capacity	40Tbit	4Tbit
存储带宽 Storage bandwidth	22Gbps	22Gbps
压缩方式 Compression method	JPEG2000	JPEG2000
压缩能力 Compression capability	24级 24 levels	24级 24 levels
功耗 Power consumption	≤280W	≤200W
重量 Weight	≤15kg	≤13kg
尺寸 (mm) Size (mm)	318mm × 220mm × 220mm	318mm × 180mm × 220mm
供货周期 Supply cycle	8个月 8 months	8个月 8 months

测控数传一体机 Integrated TT&C and data transmission



产品代号 Product code	CG-DJ-CKSC-TD01
包络尺寸 Envelope dimension	94.45x90.6x44.65mm
重量 Weight	520g
功耗 Power consumption	存储≤3.5W；遥控≤5.5W；遥控+遥测≤11W；遥控+数传≤20W Storage ≤3.5W; Telecommand ≤5.5W; Telecommand + Telemetry ≤11W; Telecommand + data transmission ≤20W
配电 Power supply	12V
测控模式 TT&C Mode	扩频体制 Spread spectrum system
扩频方式 Spread spectrum method	直接序列扩频（DS） Direct sequence spread spectrum (DS)
数传发射功率 Data transmission power	33dBm ± 0.5dBm
数传编码方式 Data transmission encoding method	LDPC，编码率7/8； LDPC, Coding rate 7/8;
固存容量 Solid storage capacity	60GB
供货周期 Supply cycle	5个月 5 months



铰链 Hinge



产品代号 Product code	CG-JG-HG-10kg
适应太阳翼 Weight range for applicable solar arrays	0.1kg~10kg
重量 Weight	75g ± 5g
温度范围 Temperature range	-60℃~ + 100℃
展开角度 Deployment angle	90° ± 0.1°
驱动力矩 Driving torque	0.1Nm~5Nm
供货周期 Supply cycle	5个月 5 months

热刀 Thermal knife



产品代号 Product code	CG-JG-HK-10kg
适应太阳翼 Weight range for applicable solar arrays	0.1~1kg
重量 Weight	40g ± 5g
温度范围 Temperature range	-60℃~ + 100℃
解锁电流 Unlocking current	5A~6.5A
解锁时间 Unlocking time	6s~10s
供货周期 Supply cycle	4个月 4 months



SADA



产品代号 Product Code	CG-JG-SADA-20kg
适应太阳翼 Weight range for applicable solar arrays	0.1kg~20kg
重量 Weight	0.1kg~4kg
温度范围 Temperature Range	-20℃~ + 50℃
供货周期 Supply Cycle	4 ~ 12月 4~12 months



提供卫星独家冠名权，在卫星正面镌刻商标logo，展示冠名品牌；在卫星出征、发射重大节点进行媒体矩阵宣传；卫星发射现场观礼特权等。

Provide exclusive naming rights for the satellite. The logo can be engraved on the front of the satellite to display the brand. Media matrix publicity is carried out at the time of the satellite leaving the factory and launching. Watching satellite launch site privileges, etc.





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我们有丰富的整星、平台研制经验；

We have extensive experience in the research and development of satellite integration and platform;

我们有丰富的遥感、通信、导航单机研制经验；

We have extensive experience in the research and development of remote sensing,
communication, and navigation electronic equipment;

我们有丰富的科研、生产条件搭建经验；

We have extensive experience in establishing research and production conditions;

我们有丰富的数控、测试及数据处理系统的研制经验；

We have extensive experience in the development of
numerical control, testing, and data processing systems;

我们有丰富的卫星可供冠名选择；

We have a large number of satellites to name;

期待与您合作。

We look forward to working with you.

联系我们

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Contact information: 0431-86009683

传真：0431-81785192

Fax: 0431-81785192

公司地址：吉林省长春市北湖科技开发区明溪路1299号

Company address: No. 1299 Mingxi Road,
BeiHu Science and Technology Development Zone, Changchun, Jilin Province

CHANG GUANG SATELLITE



微信订阅号
WeChat Subscription



官方微博
Official Micro-blog



官方抖音
Official Tik Tok

官方网址
Web Site

<http://www.jl1.cn>

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Technology Development Zone, Changchun, Jilin Province

团结

创新

拼搏

务实