

## DATA SHEET

# NEWSAT MARK-IV

**NewSat Mark IV spacecraft are Earth Observation satellites designed for Low-Earth Orbits, equipped with three payloads for different applications, as well as extra space for hosted payloads and scientific experiments:**

- Multispectral camera with sub-meter GSD and 5 km swath
- Hyperspectral camera with 25-meter GSD and 125 km swath
- General purpose HD camera
- Hosted Payload bay

### MULTISPECTRAL IMAGE



Stripes

### CAPTURE MODES

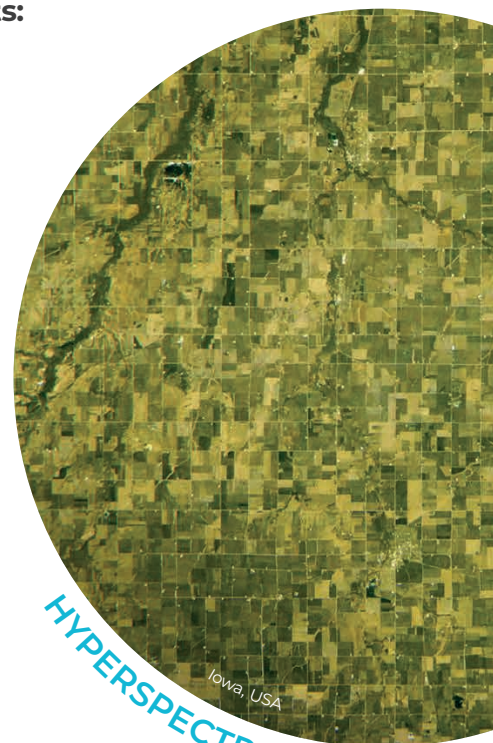


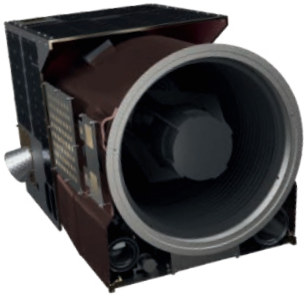
Oblique Stripes



Spotlight

### HYPERSPECTRAL IMAGE





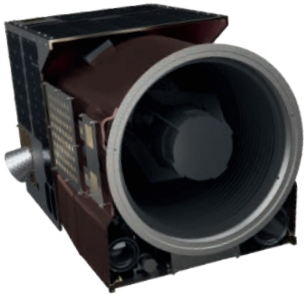
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### SPECIFICATIONS

#### Satellite BUS

	Parameter	Value	Comments
GENERAL	Operational life	3 years	
	Mass	38.5 kg dry 41.5 kg wet	With 3 kg of propellant
	Dimensions	508 mm x 575 mm x 813 mm	Overall envelope
POWER	Power generation	42 W OAP @ BOL 38 W OAP @ BOL	Yearly minimum in nominal cruising attitude mode on an SSO LTAN 10:30 500 km orbit
	Bus power consumption	19 W OAP	Nominal operations
	Battery capacity	127 Wh	20% DoD on nominal operations
	Bus voltage	9.4 V - 12.4 V	Unregulated battery bus
AOCS	Attitude control type	3 axis stabilized	With RW and MTQs, CSS, magnetometers, gyros and star trackers
	Attitude determination error	0.05 deg	90% percentile
	Pointing accuracy	0.08 deg	
	Jitter	0.05 deg/sec	
	Slew rate	0.9 deg/sec	
	Position knowledge error	250 m	In orbit, using GPS and without georeferencing
PROPULSION	Max thrust	17 mN	
	Delta V	52.3 m/s	With 3 kg of propellant
	ISP	75s	
	Total impulse	2096 Ns	With 3 kg of propellant
COMMS	Downlinks frequency band	X-band	TT&C and data download links
	Uplink frequency band	S-band	
	TT&C bit rate	100 kbps	
	TT&C avg. data per pass (LBR)*	2.8 Mbytes	On average pass. Up and down symmetrically
	Data downlink standard	DVB-S2	
	Data downlink max bandwidth	50 Mhz	



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## SPECIFICATIONS Satellite BUS

COMMS (cont)	Data downlink max bitrate*	106 Mbps	On average pass. Reference values for May 2019
	Data downlink avg. data per pass*	6 Gb	
OBCNS	Main bus computer	2 cold spare real-time uControllers, each in lock-step	
	General purpose computers	4 general purpose Linux computers 2 high-performance processing computers	
	Storage	2 TB solid state	

## Payloads

	Parameter	Value	Comments
MICRO	Spectral bands	Blue: 450-510 nm Green: 510-580 nm Red: 590-690 nm NIR: 750-900 nm	
	Ground sampling distance	0.99 m	@ 470 km
	Aperture	345 mm	
	Image swath	5 km	@ 470 km
	Dynamic range	8 bits	
	MTF @ nyquist	6-8%	
	SNR max	41.5 dB	
MACRO	Spectral bands	462-830 nm; 29 bands; 14 to 35 nm FWHM depending on the wavelength	
	Ground sampling distance	25 m	@ 470 km
	Aperture	25 mm	
	Image swath	125 km	@ 470 km
	Dynamic range	8 bits	
	MTF @ nyquist	From 4% to 10% depending on the band	