DMC3/TripleSat Constellation

Technical Specifications

Earth-i specialises in the provision of a range of end-to-end data acquisition and analytical services for clients across the world. Earth-i combines unique imaging capabilities with data from a range of global partners, and applies sophisticated in-house analytics services to deliver analytics and insights.

DMC3 is a constellation of three identical Earth Observation satellites manufactured in Britain by Surrey Satellite Technology Ltd, and operated by 21st Century Aerospace Technology Ltd. The very high-resolution data provides the level of detail needed to identify features, objects, activity and change anywhere on the Earth's surface, every day.

Specifications:

Product Resolution:	80cm pixel size, 1m GSD	
MTF at Nyquist:	Panchromatic: Multispectral:	10% 20%
Spectral Bands:	MS3 B: MS2 G: MS1 R: MS4 NIR: PAN:	435 - 510nm 508 - 588nm 599 - 669nm 759 - 910nm 449 - 651nm
Imaging Mode:	Strip Imaging Mode	
Swath:	23km	
Satellite Orbit:	Sun Synchronous, altitude of 651km	
LTAN:	10:30 Hrs	
Stereo slew capability:	+/- 30 degrees	
Image Data Format:	TIFF, GeoTIff 1.0	
Security:	128-bit AES encryption of all command, telemetry and payload data	

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Physical Characteristics				
	L1A	L2A	L3A	Ortho
Minimum orderable area	Single scene (529km²)	25km² (Image Library); 100km² (new tasking)		100km²
Product framing	Scene-based	AOI based		
Image width	23km			
Cloud cover	<15% default, other options available upon request			

Processing Specifications				
Absolute geolocation accuracy	Geometrically raw. Using supplied data can be processed to 23m CE90 at nadir, excluding terrain effects	23m CE90 at nadir, excluding terrain effects	6m – 25m CE90	1m – 25m CE90
Geometric corrections applied		Spacecraft orbit position and uncertainty; Earth rotation; Earth curvature; panoramic distortion	As L2A but with coarse elevation correction	As L3A with GCPs and fine elevation correction
Applied terrain information		Average base elevation or customer specified elevation		
Geolocation information applied		Images mosaicked to minimise seamlines – optional		
Tonal balance		Contiguous tonal balance across multi-image mosaics – optional		

Product Parameters			
Product options	Pan, 4 bands, bundle	Pan, 4 bands, bundle natural colour, colour infrared, 4 bands pan-sharpened	
Bit depth of delivered product	8 or 16		
Resampling options	4x4 cubic convolution, nearest neighbour, MTF		
Output file size options	None	None; tiling	Non; titled; product unities – customer specified (Mosaics only)
Output alignment	Swatch oriented	Rotating to map North Up	
Digital scaling method (8-bit only)	Linear with maximum value set to 225	Linear with maximum value set to 225 (if highest is <= 255, no scaling applied	
Dynamic range adjustment	–	Colour correction and contract enhancement (8-bit only) optional	
Map projections, ellipsoid and datums	–	UTM/WGS84	

Image Support Data		
ISD files suppliers to customer	Delivery (top level index) README file; shape files; browse image, product README, Image metadata file, ephemeris file; attitude file, geometric calibration file; RPC file; licence text file	Delivery (top level index) README file; Shapefiles; browse image, Product README, Image metadata file, license text file
Spacecraft telemetry	Refined attitude ephemeris (supplied with ISD)	Refined attitude/ ephemeris (used to create product)

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