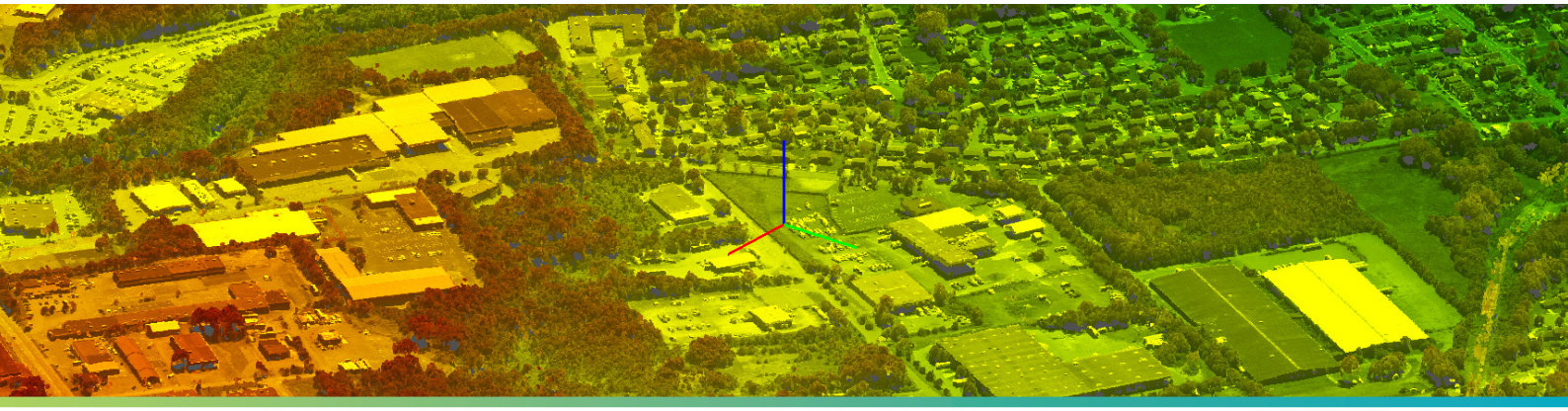
HxGN Content Program
Digital Surface Model (DSM) Specifications



Product	Full Resolution DSM	De-noised DSM	Intermediate Resolution DSM	Auto-filtered DEM
Resolution (nominal point spacing)	1X GSD	2X GSD	4X GSD	500 cm (5 m)
	All accuracy specs are based on flat, open terrain and on full resolution DSM.			
Accuracy Z	RMSEz = 2X GSD			
Accuracy XY (Wide Area Coverage)	RMSEx/y = 2X GSD			
Accuracy XY (Urban Area Coverage)	RMSEx/y = 2X GSD			
Delivery Medium	Custom Order			
Format	Compressed LAZ segmented per flight layout (ASPRS LAS 1.2 specification).			
Coordinate Reference System (CRS) and Vertical Datum	North America: Horizontal - UTM NAD83 (2011) epoch 2010 meters / Vertical - NAVD88 (Geoid12b) meters Europe: Horizontal - UTM IRTF2008 epoch 2005 (wgs84-g1674) / Vertical - EGM08 meters			
Delivery Time	Customer quoted with delivery via FTP or hard drive pending size.			
Comments	A buffer may be included around the original AOI to ensure full coverage.			

[1] Minimum orders apply
[2] Surface Extraction Methodology (DSM)
Full Resolution – High-resolution Semi-Global Matching (SGM) on imagery to extract points at the nominal GSD from flight planning.
De-noised - High-resolution Semi-Global Matching (SGM) on imagery to extract points at the nominal GSD from flight planning. Automatic de-noising reduces the nominal point spacing to 2X GSD.
Intermediate Resolution – High-resolution Semi-Global Matching (SGM) on imagery to extract points at 2X the nominal GSD from flight planning. Automatic de-nosing reduces the nominal point spacing to 4X GSD.
[3] Feature Characteristics (DSM) – Features represented are open terrain surface heights, roads, embankments, buildings, forest canopy top, and cultivated field tops.
[4] DSM Color Encoding – Color derived simultaneously during point extraction from the 4-band imagery. Natural Color RGB and false-color IR (NIR, R, G) encoding delivered in separate files.
[5] Thinned Key Points – DSM products are delivered with a corresponding keypoint file derived by intelligent thinning, which retains significant features with an average 90% reduction in DSM size.
[6] Model Format (DSM): Available as original vector point cloud or interpolated raster grid.
[7] Surface Extraction Methodology (DEM) – Grid interpolation from Triangulated Irregular Network (TIN) with a 7x7 smoothing kernel applied. Derived from the thinned key points with some automated ground classification.
[8] Feature Characteristics (DEM) – Features represented are open terrain surface heights, surface heights of roads and embankments, top of forest canopy or crops. Buildings, isolated trees and objects of similar size/extent removed through the automated process.
[9] Model Format (DEM): Available as interpolated raster grid

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