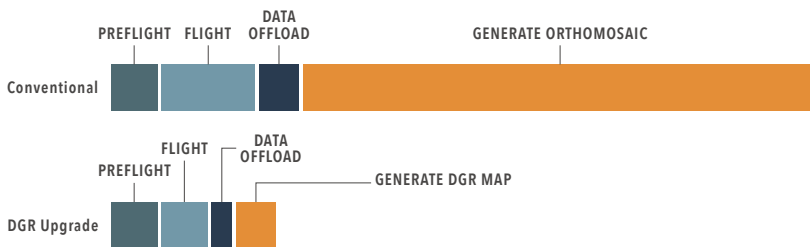# DGR System

Revolutionizing Precision Mapping with Direct Georeferencing

The Sentera Direct Georeferencing (DGR) System is a groundbreaking solution designed to enhance the accuracy and efficiency of aerial imagery collection. With sub-10-inch geolocation accuracy achieved through the seamless integration of RTK GPS, IMU, LiDAR, and synchronized system components, the DGR System eliminates the need for ground control points and post-processing, ensuring precise data directly from each captured image.

Total project time illustration shows how the DGR system can cut project time by 8X versus the conventional process (6 hours vs. 43 minutes).

Key Features

- Dual-antenna RTK GPS provides high-accuracy position data as part of the DGR system's integrated precision geolocation capabilities
- Tactical-grade IMU coupled directly with the camera sensor minimizes orientation errors
- Long-range single point Lidar accurately measures distance from the camera to the scene
- Compatible with Sentera 6X Multispectral, 6X Thermal, and 6X Thermal Pro multispectral sensors as well as the high resolution 65R
- Seamless integration with DJI M300 and other platforms without the need for tools or modifications
- Compact and portable design, easily transported in a rugged transit case

More Acres, Less Time

From pre-flight prep to field-edge action, aerial analysis that used to take as long as six hours is ready to support decision-making in less than 45 minutes.

88% TOTAL PROJECT TIME SAVINGS

| 43 min | vs | 6 hrs |

Cut Costs, Reduce Data Volume by Nearly 90%

Cut data storage fees by reducing the digital information you're saving for analysis by 88%. No stitching software subscriptions required.

88% DATA VOLUME SAVINGS

| 3.4 GB | vs | 29.0 GB |

Cut Post-Processing To Nearly Zero

With 9x fewer images and nearly 70% less image overlap required, offsite post-processing that takes 5+ hours can now be done at the field edge in 10 minutes.

97% POST-PROCESSING TIME SAVINGS

| 10 min | vs | 5 hrs |

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DGR System

SPECIFICATIONS**

Geolocation Accuracy	Sub-10 inches at 200 ft
RTK GPS	Dual-Antenna
IMU	Tactical-Grade
Lidar	Long-Range Single Point
Payload Weight	1125g
Flight Time	Up to 40 minutes (M300)
Operating Altitude	Flexible, Typically 200ft
Data Output	GeoTIFF, Other Standard Formats
Compatible Sensors	6X Multispectral, 6X Thermal, 6X Thermal Pro, 65R
Compatible Aircraft	DJI M300 / M350

COMPONENT SPECIFICATIONS**

Dual Antenna RTK GPS	5cm (2in)
Inertial Navigation Camera Orientation	0.5°
Laser Rangefinder Distance to Canopy	1%
Capture Rate	6X Series: 5 Hz 65R: 3 Hz

Never do another stitched orthomosaic!

The Sentera DGR System enables the creation of accurate, nearly seamless maps with minimal effort, ideal for large-scale agricultural monitoring and complex terrain mapping.

Image capture illustration. DGR requires 90% fewer images and data volume.

Coverage:
- 440 acres per flight @ 120m altitude
  (GSD: RGB = 2.0cm, Monochrome = 5.2cm)
- 220 acres per flight @ 60m altitude
  (GSD: RGB = 1.0cm, Monochrome = 2.6cm)

Real-World Field Analysis Example

	Conventional	DGR Upgrade
Acres	150	150
Altitude	120m	120m
Flight Time	45 mInutes	17.5 minutes
Image Captures	1,115	129
Data Volume	29.0 GB	3.4 GB
Post-Processing Time	5 hours	10 minutes
Total Project Time	6 hours	43 minutes

Key Benefits

- **Rapid Deployment:** Eliminate ground control setup and extensive flight planning, allowing for faster mission execution
- **Reduced Post-Processing:** Bypass the traditional stitching process and generate accurate georeferenced maps at the field edge
- **Optimized Data Management:** Lower data volume by reducing image overlap, decreasing the number of images needed for comprehensive coverage
- **Versatility:** Suitable for challenging environments where ground control points are impractical or where traditional orthomosaic methods are inefficient

Key Use Cases

- Efficient broad acre monitoring with reduced flight times and high geolocation accuracy
- Detailed plot trials analysis without the need for stitching
- Mapping of difficult terrains like wetlands and open water
- Immediate map generation and insights directly after flight

**Specifications are subject to change without notice