PRODUCT SHEET

DMC® II_{230} CAMERA SYSTEM

LARGE-FORMAT DIGITAL CAMERA INCLUDES FIVE CAMERA HEADS

Intergraph® is a world leader in providing photogrammetric solutions that support all your earth imaging requirements, from data acquisition to exploitation and data distribution. Our Digital Mapping Camera (DMC®) is the industry's most innovative turnkey large-format digital camera system. We developed the medium-format RMK D™ so more organizations can take advantage of the most advanced imaging technology available. Now, Intergraph offers the DMC II_{230}, the first large-format digital aerial camera (Figure 1) that uses a single monolithic camera head to produce extreme wide-ground coverage (Figure 2).

ONE SINGLE PAN CONE – ONE LARGE CCD

The DMC II_{230} includes one large 15.5k x 14.4k charge-coupled device (CCD), exclusively customized by DALSA for Z/I Imaging®'s digital camera technology. The DMC II_{230} camera design is an evolution of the proven DMC camera technology and includes a new customized lens design by Carl Zeiss, Germany, to produce an unmatched level of high-image quality.

The single monolithic PAN camera head achieves the ultimate design goal for digital aerial camera development with one single lens for large ground coverage, the basic optics design principle for all film cameras for many decades. By eliminating potential sources of errors for geometric accuracy and radiometric quality, this new approach delivers images that exceed your requirements for all mapping and remote sensing tasks. Fundamental design characteristics include a nadir-looking view and a single-lens projection center. The DMC II_{230} image data post-processing does not require CCD stitching or image mosaicking.

ADVANCED DESIGN

The DMC II_{230} is based on the DMC II camera family design. It includes five nadir-looking camera heads – four multispectral cameras for red, green, blue, (RGB) and near-infrared (NIR), and a fifth high-resolution PAN camera head. Each multispectral camera has a 42 MPixel CCD (6846 x 6096 pixel) with 7.2 micron pixel size and a dedicated color filter. The focal length for the multispectral cameras is 45 millimeters (mm).

Each camera head uses a unique piezo-driven customized airborne shutter that performs automatic self-calibration. This also ensures maximum synchronous behavior during the exposure cycle for all five camera heads.

The PAN camera includes a 230 MPixel CCD (15552 x 14144 pixel) with 5.6 micron pixel size and 92 mm focal length. The PAN camera has an infrared cut-off filter to remove the spectral wave length beyond 710 nm.

INCREASED PERFORMANCE

Our DMC II_{230} is a high-performance digital camera system. It has a 1.7 second frame rate to maintain high-air speed for high-forward overlap and high resolution (at 80 percent forward overlap and 6 centimeter [cm] ground sample distance [GSD], maximum air speed is 198 knots). The PAN/color ratio of 1:2.6 provides high-radiometric quality images for RGB and color-infrared (CIR). The long focal length and small pixel size delivers high-resolution image data 15 cm (6 inch) GSD at 8085 feet (2464 meters) above ground level. A strong base-to-height ratio of 0.35 provides excellent stereo measurement accuracy. The nadir-looking monolithic PAN camera offers unmatched radiometric and geometric quality.

IMAGE DATA POST-PROCESSING

Image data post-processing for DMC II_{230} is based on the DMC post-processing software. Development has implemented the DMC II_{230} sensor model. The user interface is unchanged, which eliminates any training effort for existing DMC customers. Final image format after post-processing is 15552 x 14144 pixels.

MODULAR AND COMPATIBLE

DMC II_{230} is compatible with all existing peripheral devices used for RMK TOP, DMC, and RMK D, which include Z/I Mission planning software, Z/I Inflight sensor management system, solid state disks (SSD) storage cartridges, Readout Station, T-AS mount and Z/I Mount. In addition, a new adapter plate for the new generation of Z/I Imaging cameras allows you to use a wide range of different inertial measurement unit (IMU) sensors. You can easily upgrade your RMK D into a DMC II_{230} by installing the PAN camera head.

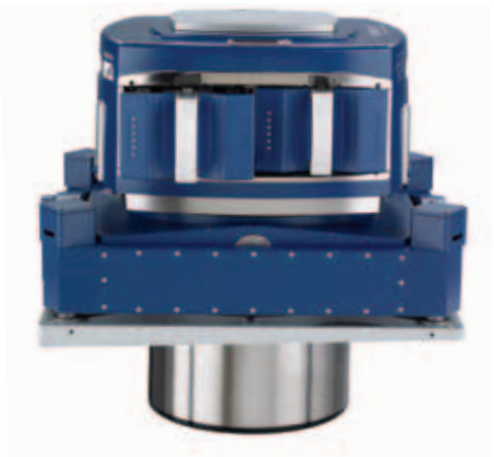

Figure 1: The DMC II camera design is an evolution of the proven DMC camera technology.

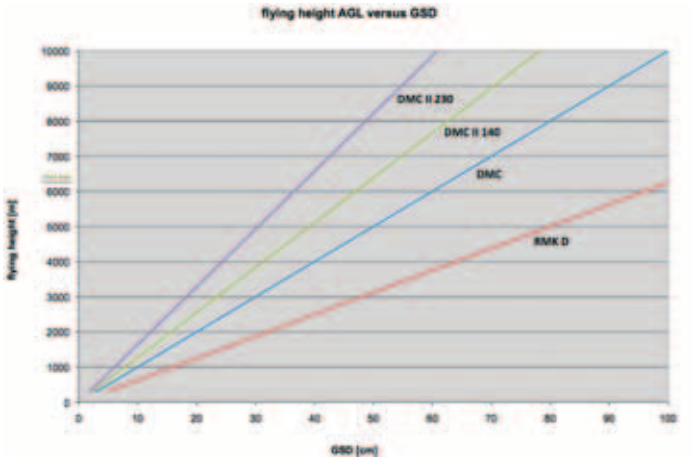

Figure 2: This chart compares flying height to ground sample distance (GSD).

DMC II_{230} Technical Specifications		
Feature	Value	Comment
Pixel across track (1)	15552	
Pixel along track (1)	14144	
FoV across track	50.7 °	
FoV along track	47.3 °	
Focal length	92 mm	
GSD@500m	3.0 cm	
B/H	0.35	
Pixel size	5.6 µm	
Number of camera heads	5	
PAN : Color resolution	1:2,6	
Frame rate	1.7 sec	PAN 16 read-outs, MS 2 readouts
Color channels	R,G,B, NIR	
Resolution per pixel	14 bit	
FMC	yes	via TDI
CCD dynamic range	>67 dB	
Onboard storage	1.5 Tbyte	1350 images
Weight	66 kg	Including storage
Power consumption	350 W	Including storage
Altitude non-pressur-ized	8000 m	
Operating temperature	-20°C - 40°C	(Electronic inside the aircraft : 0° - 40° C)
	(1) Number of pixels of the processed image	

ABOUT INTERGRAPH

Intergraph is the leading global provider of engineering and geospatial software that enables customers to visualize complex data. Businesses and governments in more than 60 countries rely on Intergraph's industry-specific software to organize vast amounts of data to make processes and infrastructure better, safer and smarter. The company's software and services empower customers to build and operate more efficient plants and ships, create intelligent maps, and protect critical infrastructure and millions of people around the world.

Intergraph operates through two divisions: Process, Power & Marine (PP&M) and Security, Government & Infrastructure (SG&I). Intergraph PP&M provides enterprise engineering software for the design, construction, operation and data management of plants, ships and offshore facilities. Intergraph SG&I provides geospatially powered solutions to the public safety and security, defense and intelligence, government, transportation, photogrammetry, and utilities and communications industries. Intergraph Government Solutions (IGS) is an independent subsidiary for SG&I's U.S. federal and classified business.

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