Airborne Imaging and Reconnaissance System (AIRS)

Features

- Line of sight stabilization < 5 µrad
- Large payload volume and capacity (~100 lbs.)
- Automatic video tracker (centroid and correlation)
- Real-time GPS inertial target tracking
- Rugged environment (60,000 feet altitude)
- Rack mount control electronics

Description and Operation

- The Airborne Imaging and Reconnaissance System (AIRS) is a four-axis stabilized turret designed for the collection of high-altitude airborne imagery. The turret system provides an operational platform where the line-of-sight stability is approximately 5 µrad. This level of stability allows for the use of high-resolution cameras and long focal-length lenses for increased standoff distance operations.

SOUTHERN RESEARCH

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- AIRS also provides a complete geolocation system to support extremely accurate target acquisition and real-time GPS tracking. The system provides automatic data collection based upon a GPS target deck. Additionally, ad hock points can be real-time uploaded to the system via the communications system, or the system can be completely operated manually via a man-in-the-loop.
- The AIRS gimbal is designed for ease of integration of payloads. To date, six different sensor packages have been integrated and flown within AIRS. This includes hyper spectral payloads as well and state-of-the-art imaging systems in various wavebands. The decade of experience with high altitude sensor packages has given Southern Research the expertise necessary to operate successful missions in this challenging regime.
- The years of experience and lessons learned working with the various sensors integrated and operated at high altitude have all been brought to bear in the latest generation EO sensor package designed by Southern Research, DyNAMITE. DyNAMITE is a dual band electro-optical sensor designed specifically for long-range visible and MWIR imagery collection from high altitudes. It is mounted and completely contained within the highly stable AIRS platform. The DyNAMITE visible sensor combines state-of-the-art zoom optics and HD camera to provide high definition (HD/SDI) FMV and still imagery.

Sample Imagery from AIRS/ DyNAMITE–Slant range 9.8 NM

March AFB MWIR Collection– Slant Range 28 NM

Edwards AFB–Slant Range 90 NM

March AFB Visible Collection– Slant Range 28 NM

DDG–Slant Range 22 NM

ABOUT SOUTHERN RESEARCH

Founded in 1941 in Birmingham, Alabama, Southern Research is a scientific and engineering research organization that conducts preclinical drug discovery and development, advanced engineering research in materials and systems development, and energy and environmental technologies research. SR supports clients and partners in the pharmaceutical, biotechnology, defense, aerospace, environmental, and energy industries.

We pursue entrepreneurial and collaborative initiatives to develop and maintain a pipeline of intellectual property and innovative technologies that contribute to the growth of the organization and positively impact real world problems.

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