

## TIPS Command Center (TIPS-CC)

### *Real-time Imagery Enhancement Hardware/Software Suite*

The TIPS Command Center from Brandes Associates, Inc. is a highly portable, self-contained imagery enhancement and processing system offering advanced performance and capabilities previously attainable only with far costlier high-end image processing products.

Ideal for small and mini-UAV missions, reconnaissance, and evidence gathering, the TIPS-CC accepts a complete range of video input formats to provide both day and night video image enhancement. Users can compare, analyze and record both unprocessed and enhanced streams. The TIPS-CC also includes an extensive set of networking and security features.



**Powerful Software.** TIPS-CC models are built around Brandes Associates' sophisticated Tactical Image Processing Software (TIPS) enhancement algorithms (also available as a standalone software package). TIPS enables penetration of fog, haze and mirage artifacts commonly found in the raw input video stream. The video image stream data can be stabilized in 4-dimensions (X and Y, rotation, scaling and zooming) to counter vibration often encountered with smaller UAV payloads. TIPS performs as a passthru system with a delay of no more than 2 frames.

TIPS will improve low-light performance of cameras up to several orders of magnitude, enabling UAV EO payloads to continue to operate into the early night, well outside their normal limits; of course, this is limited by the quality of the input video. The TIPS operator has full control over the process and can enhance night vision, color and drastically reduce noise. Coupled with long-range optics, TIPS can provide excellent imagery at distances up to 50km.

TIPS contains 4 separate modules that can be used in any combination to process live still images:

- ▶ 3-axis Stabilization Software (Translation in X and Y, Rotation)
- ▶ Super Stabilization (4-D and 1/10 pixel jitter control) and Resolution Enhancement
- ▶ Vision Enhancement Software
- ▶ Noise Reduction Software

**Flexible Hardware.** The TIPS-CC is packaged in a compact, field-usable Pelican 1490 case ideal for mobile applications or where a small footprint is essential. The package includes an IBM® ThinkPad®, a video shuttle control for easy editing and reviewing, a 2-4 hour rechargeable battery providing 12+ hours of continuous operation, and an optional TPR-5 digital recorder. Customization options such as data center rack-mount units are also available. The TIPS image enhancement software resides on an Intel® Pentium® 4 CPU with memory of 1Gb and 800Mb FSB. Video In/Out interfaces include RCA & BNC composite, S-video in and out, IEEE 1394 video inputs, and USB 2.0. TIPS supports both NTSC and PAL video formats.

