MIRAGE-H Dynamic Infrared Scene Projector

FEATURES
- 512 x 512 or 800 x 800 Resistive Emitter Array Size
- Advanced Micro-Emitter Array Technology
- Real-Time Automated Non-Uniformity Correction
- Proprietary Unit Cell Design Minimizes Thermal and Electrical Crosstalk
- 14 bit High Gray-Scale Resolution for any UUT Integration Time
- Windows™ based GUI Automates Setup and Operation of all MIRAGE Components
- Pixel Rise Time of 6.5 msec from 10-90%. < 5.0 msec Available with Scene Accelerator Upgrade *
- Accepts Digital (DVI) and Locally Stored Custom Image Inputs

OVERVIEW
MIRAGE™-H is a complete turnkey infrared scene projector that utilizes unique resistive emitter array technology to produce high definition dynamic IR scenes. Signal processing electronics, power supplies, emitter array cooling, calibration (non-uniformity correction) hardware, and user interface software are all integrated with the MIRAGE™ emitter engine. MIRAGE™-H accepts digital (DVI) or locally stored custom image input, and delivers a high-fidelity infrared scene to the user's or SBIR-supplied optics. Typical test applications include hardware-in-the-loop testing of missile seekers, FLIR testing, counter measure simulation and testing of tracking systems.

SYSTEM COMPONENTS

Command & Control Electronics
Thermal Support Subsystem & Chiller
Digital Emitter Engine

The C&CE provides the user interface, user control, signal processing/formatting, NUC and data/image input for all MIRAGE systems. The C&CE is a PC-based subsystem.

The TSS includes power supplies, refrigerated chiller, an ion pump controller for DEE operation and a top-level ICD. Custom length cables and hoses available.

The DEE is an advanced micro-emitter array. This state-of-the-art integrated circuit is constructed of thermally isolated mechanical structures with deposited thin film resistive heaters, fabricated on an advanced sub-micron silicon read-in integrated circuit (RIIC).

Solutions
for Every EO Test Requirement

30 S. Calle Cesar Chavez, Suite D • Santa Barbara, Ca. 93103
ph (805) 965-3669 • fax (805) 963-3858 • http://www.sbir.com

The product(s) described in this document will require an export license for shipment outside of the United States.
OPTIONS

Calibration Radiometry System (CRS)

The CRS compares emitter output on a pixel-by-pixel basis to the output of a blackbody, yielding a uniform and accurate radiant output over the full dynamic range of the emitter.

Real-time Image Playback System (RIPS)

SBIR’s Real Time Image Playback System (RIPS) is a low cost PC disk array based real-time digital image capture and playback system. The RIPS is designed to capture real-time digital image data from a DVI interface and store the image sequences on a high speed disk array for real-time playback into the MIRAGE™ dynamic infrared scene projector. A user friendly GUI provides DVR type functionality to RECORD, PLAY, STOP, and LOOP through a selected image sequence. The image data is output (played back) in the DVI format for driving the MIRAGE™-H and MIRAGE™-XL IR scene projection systems.

Collimators

SBIR can provide and integrate custom collimators based on a customer’s specifications.

Scene Accelerator

This upgrade is ideal for users running UUTs at very high frame rates. By increasing the drive of the first frame of a temperature transition, faster pixel rise times across all temperature transitions are achieved.

Real Time Translation & Rotation

This upgrade allows the user to apply geometric transformations to scene data in real time on a frame by frame basis. This is primarily used to reduce latency in closed loop HWIL simulation scenarios.

SPECIFICATIONS

Emitter Array Resolution.......................... 512 x 512 pixels or 800 x 800 pixels
Pixel Pitch ........................................... 48 microns
Apparent Temperature Range ..................... 285-675K (3-5 μm), 290-650K with NUC applied
                                             285-525K (8-12 μm), 290-500K with NUC applied
Thermal Resolution (MWIR) ...................... <40mK below 325K & <100mK above 325K MWIR apparent
Input Frame Rate .................................... 20-200 Hz
Non-Uniformity Correction ........................ Real-time correction up to 16 drive points
Max Pixels Change Per Frame ..................... Full frame (262,144 pixels or 640,000 pixels)
Pixel Rise Time (off to max drive) .............. 6.5 msec. <5.0 msec with Scene Accelerator upgrade
Dead Pixels .......................................... < 0.5%
DEE Size ............................................. 14.5" diameter x 13.5" long
DEE Weight ......................................... 54 pounds
Input Scene Data .................................... Accepts digital (DVI) and local memory image upload inputs

ORDER INFORMATION

Please contact the SBIR sales team at (805) 965-3669 to ensure proper part number and to receive a quotation.

*Solutions are subject to change without prior notice.

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