High sensitivity, high speed infrared detector with band matched optics

Detector Type : Indium Antimonide (InSb)

Spectral Range : 3.0 – 5.0 μm to allow calibration to 350C without use of filter or apertures
Resolution : 640 x 512
Detector Pitch : 25 μm or larger

Thermal Sensitivity/NETD : ≤ 20 mK

Well Capacity : 11.0 M electrons or higher for good dynamic range

Sensor Cooling : Closed cycle rotary

Electronics

Readout Type : Snapshot
Readout Modes : Asynchronous integrate while read , Asynchronous integrate then read

Synchronization Modes : Sync-in, Sync-out, Genlock (needed for exact sync with other detectors)
Image Time Stamp: Internal IRIG-B decoder clock, TSPI accurate time stamp

Frame Rate (Full Window) Programmable : 1000 Hz or faster
Sub-window Mode : Flexible windowing

Dynamic Range : 14-bit

On-Camera Image Storage RAM (volatile): 16 GB, up to 26000 frames, minimum

Full frame SSD (non-volatile): minimum 4 TB built into detector head to ensure that large data streams are lossless and can be made immediately available for access on any PC
Radiometric Data Streaming : Simultaneous Gigabit Ethernet (GigE Vision), Camera Link,as well as CoaxPress

Standard Video : HDMI,PAL for use with all displays
Command and Control : GigE, Camera Link and CXP (standard up to date computer interfaces required for flexibility and long term use)

Temperature Measurement and Standard Temperature Range (with band matched optics) - -20°C to 350°C without use of any warm filters or apertures

Accuracy ≤ 100°C : ±1° ; > 100°C : ±1%

Ambient Drift Compensation (with factory calibration)

Optics

Camera f/Number : f/2.5 or faster
Focus Manual
Filtering 4-position motorized filter wheel, standard 1-inch filters for upgrade of calibration at later date

Image/Video Presentation

Palettes Selectable 8-bit
Automatic Gain Control Manual, Linear, Plateau equalization, ROI, DDE

Overlay : Customizable
Video Modes HD: 720p/50Hz, 1080p,25Hz SD: PAL

Digital Zoom 1x, 4x

Lens 3-5 um , 50 mm f/2.5 , band matched to detector

Spectral band 3 - 5 microns
Focal length 50 mm
f /number 2.5
Average transmission > 90%
Focus type Manual
Distortion < 2%

Focus range 500 mm (or shorter) to Infinity

Calibration till 350 C with open slot with accuracy +/-1%

Software

Software features:
The software should be operable on any computer with a licenced dongle
Analysis of data should be possible on any computer without needing the dongle

Key features:
Display, record and store image at high speed
Post-processing of fast thermal events
Dynamic filtering
Generate time-temperature plots from live images or recorded sequences
Advanced start/stop conditions (triggering external condition, time/date)
Unlimited number of tools for analysis
Zoom and Pan for closer look (thermally and spatially)
Auto-executable file to redo the test and live reporting.
Customized calibration wizard with production of calibration files by user
Operation (subtraction, average, multiplication)
The software should include:

Camera and recording control. External Triggering

Superframing with independent exposure time to allow Dynamic Range extension in real time.

Intuitive image colorization control

User camera calibration and Non Uniformity Calculation

There should be direct Matlab connection to the software

SYSTEM INTEGRATION:

1. The vendor should have supported minimum of 10 cooled IR detectors in India in established laboratories, please provide user references of only cooled Infrared detectors

2. The system has to be set up with the experiment and testing and demonstration should include application interface, the system should be complete with a tripod and suitable high end PC for fast capture of data with Coaxpress interface inclusive of fast hard disk, and minimum 4TB hard disk for data storage

3. The detector should be a COTS product, provide a link to a video taken with the product offered that should demonstrate the key specifications, datasheet that is attached with the offer should be detailed and verifiable with datasheet available on the internet

Other terms

- 1 year comprehensive warranty with service and spare parts must be provided
- Installation and training must be done on site