

Miniature Multi-spectral LWIR Sensor Product Information Sheet

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Solid State Scientific Corporation (SSSC) is developing a miniature multi-spectral long-wave Infrared (LWIR) sensor supporting military Disturbed Earth (DE) detection requirements.

SSSC LWIR Concept

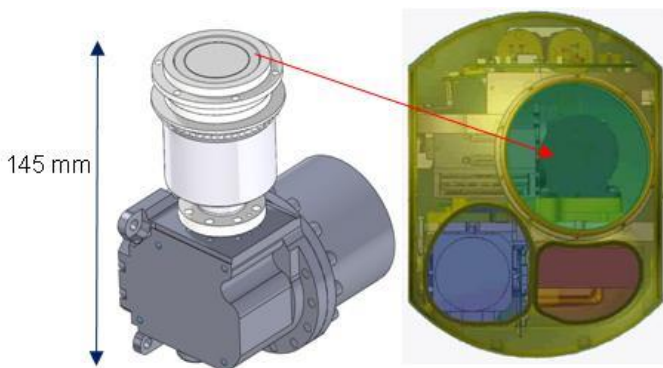
Designed for small airborne and ground based platforms, the sensor is a multispectral sensor designed with the following characteristics:

- Small Size, Weight, and Power (SWaP)
- No moving parts staring architecture
- Based on a COTS focal plane array (FPA)
- Integrated in gimbal

Current Configuration

The SSSC miniature multi-spectral LWIR sensor is based on Sofradir VLWIR Mars integrated dewar cooler assembly (IDCA). The custom optics package is integrated with the IDCA, creating a compact 4-color sensor with bands chosen from the LWIR specifically for DE detection. Each color image is approximately 128x128 pixels.

The small sensor will be integrated in a Cloud Cap TASE400 gimbal for use with small airborne platforms. The system is designed to operate at a low altitude and transmit video data to a ground station for real-time video processing. The resulting situational awareness will be provided to the vehicle ground station.



4-color multi-spectral LWIR sensor in 7" COTS gimbal

Selected sensor and gimbal specifications are shown in the following Tables:

Parameter	Value
Weight	~ 5 lbs
Cool Down Power	13W
Steady-State Power	7W
Size of IDCA	145x71x71mm
Well Capacity	1.2x10 ⁷ electrons
Noise Floor	180 uV
Spectral Band	Approximately 7.5-11.5 um
Format	320x256
Pixel Pitch	30x30 um
FPA Operating T	Up to 70K

Gimbal Parameter	Value
Size (mm)	178x178x259
Turret Diameter (mm)	178
Weight (kg)	~3.4
Operating Temp	-20° to -60°C
Rotation Limits	Continuous pan +40°/-220° tilt
Slew Rate	200°/sec

Additional hardware configurations including long focal length systems for higher altitude operations can be designed for application-specific missions. Complete software interface and algorithm solutions are available. Selected sensor specifications for the current low-altitude, short focal length system and the higher altitude (5000m), long focal length system are shown in the below tables:

Sensor Parameter	Short Focal Length System Value (Current)	Long Focal Length System Value
Field of View (°)	30	2-5
Spectral Bands (#)	4	4

Further Information

For additional information on the SSSC miniature multi-spectral VISNIR imager, please contact:

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