

Technical specifications for the medium-scale quad-rotor system with gimbaled infrared and visible range camera payloads

Application: Commercial-off-the-shelf quad-rotor system with gimbaled infrared and visible range camera payloads

Operation mode: Vertical take-off and landing

Ceiling: 3 km or higher

Hover: Pure hover for 30 minutes or more

Powerplant: IC engine or hybrid

Flight endurance: 4 hours or more

Flight range: At least 100 km

Operating Temperature: -5 deg C to 40 deg C

Maximum takeoff weight: Must be lesser than 15 kg

Payload weight: 4 kg or more

Payload bay: Sufficient volume to include gimbaled infrared and visible range camera payloads.

Integration with the infrared and visible range camera payloads (payload specifications given below) to be demonstrated

Redundancy: Battery backup in case of engine failure

Ground control station: Must be included with telemetry radio (communication must happen in the frequency range of 0.9 GHz to 2.4 GHz without any interference)

Remote control: Must be included

Battery and charger: Must be included

Flight controller: Must include inbuilt GPS-enabled flight controller

Payload: Infrared and visible range camera(s) with gimbal

Application: Long-wave infrared camera for thermal imaging that must be mountable on unmanned aerial vehicles. Imaging in the visible range also to be possible.

Number of units: 2

Operating wavelengths for IR imaging: minimum 7.5 μm or lesser, maximum 13.5 μm or larger

Lens: 35 mm and 13 mm lenses

Field of vision: Greater than 9° (horizontal) x greater than 7° (vertical)

Camera size: Less than 2.5 inches x 2.5 inches including the lens

Camera pixel pitch: 20 μm or lesser

Camera weight: 120 grams or lesser

Gimbal: Active 3-axis stabilized gimbal system

Gimbal control: manual tilt control to be possible

Gimbal weight: Less than 250 grams

Gimbal size: Less than 100 x 100 x 100 mm

Gimbal panning angle: +/- 150 degees

Gimbal tilt: Horizontal to 90 degrees vertically down

Tilting following rate: Minimum of 2 degrees/sec and a maximum of 45 degrees/sec

Panning following rate: Minimum of 3 degrees/sec and a maximum of 75 degrees/sec

Attitude tracking accuracy: +/-0.5 degree

Vibration: Must have an vibration isolation system

Accessories: Must include power/video module, voltage regulator, requisite USB cables, and a remote control interface

Additional Requirements:

1. Vendors should provide continuous technical support and maintenance of equipment.
2. Vendors have to provide warranty for a minimum of one year
3. Vendors must have sufficient experience in supplying equipment in reputed organizations for research purposes. They must provide references like Purchase order Copies of end users whom we can contact for their experience with the supplied machine. Performance Certificate and experience details of the end users will also be used as a criterion for the selection of bids that meet technical requirements.
4. Vendors must provide detailed documentation for the equipment.
5. Vendors may be called to visit and give presentation/demonstration on the equipment after opening the technical bid. They need to provide the approximate date for this presentation in the bid. The time period for this presentation will be intimated at a later date
6. Vendors must provide training to our technical staff for using the equipment.
7. All the expenses for installation, training and post sales technical support will be borne by the vendor