Vayu

Made for performance

Document : Technical Specification "Vayu"

Manufactured & marketed by

Qoptars Private Limited
Hyderabad, India, 502285

Qoptars.

#startupindia
DPIIT recognised startup

Specification of Micro UAV/UAS by OEM

1	**Micro UAV/UAS system contains below sub-systems :**	
1.1	UAV with battery pack	
1.2	Remote Control & Ground control system	
1.3	Daylight surveillance Camera Payload	
1.4	Universal Battery charger	
2	**Micro UAV Characteristics**	
2.1	Role	1. Close range surveillance 2. Monitoring and aerial visual collection 3. Aerial Survey 4. Asset Inspection 5. Disaster management
2.2	Launch and recovery Mode	Vertical Take Off and Landing (Quadcopter)
2.3	Aural Signature	~40dB at 50 feet Above Ground Level
2.4	Payload carrying Capability	High Resolution, Gimbal powered, Daylight payload With digital zoom
2.5	Flight Modes	A) 1 click takeoff & landing
		B) Hover at defined waypoint (Hold)
		C) GPS assisted stable flight
		D) Autonomous waypoint navigation (Pre-defined as well as dynamically Adjustable waypoints during flight)
		E) Remote piloted mode for video based user navigation
		F) Orbit mode : Circular movement around a subject
		G) Return to home
2.6	Endurance	25 minutes or more with all payloads at mean sea level
2.7	Operating altitude	120 feet from AGL(Above ground level)

2.8	Launch Altitude	2000m AMSL (Above mean sea level)
2.9	Range of operation	2 Kms line of sight (expandable upto ~5 Kms with Remote video)
2.11	Cruise speed	25 Km/h (upto 35 km/h)
2.12	Operating wind Conditions :	A) Take off : ~ 10 knots B) Landing : ~ 10 knots C) Gust : ~ 15 knots
2.13	Fail safe feature	A) Automatic Return to Home on communication Failure
		B) Automatic Return to Home/Land on low battery
2.14	Propulsion System	Electrical with Rechargeable Batteries
3	**Aircraft/UAV specification**	
3.1	Takeoff weight	1600g (Including battery and propellers)
3.2	Dimensions (LXWXH)	363 X 356 X 164 mm
3.3	Diagonal distance	494mm (without propellers) 680mm (with propellers)
3.4	Max ascent speed	7m/s(Position mode)
3.5	Max descent speed	0.6 m/s
3.6	Max speed	10 m/s (Position mode)
3.7	Max service ceiling	1000 m
3.8	Max flight time	30 mins (In a controlled environment)
3.9	Max Hover time	30 mins
3.11	Max flight distance	15 Km
3.12	Max wind speed	20 m/s
3.13	Operating temperature	-5° C to 50° C
3.14	Internal storage	8 GB
4	**Payload Characteristics**	
4.1	Payload Type	4k Resolution, 3 Axis gimbal stabilisation powered, Daylight camera with starlight night visibility with 6X digital zoom (Photo/Video)
4.2	Payload & Video Stabilisation	- Video output is stable at all ground levels - Quality of video doesn't affect by UAV vibrations/Wind

4.3	Payload/Camera Specifications	- Lens: Fixed Focal Length, 6X Digital - Equivalent Focal Length: 21 mm - Image Sensor: Sony 1/1.7-inch, 8 MP effective resolution - Aperture: F2.8
		FOV: - Diagonal 93° - Horizontal 81°
		TF Recording Resolution : (on-camera recording) - 4K (4096 x 2160) @ 25 fps - 2K (2560 x 1440) @ 30 fps - 1080p (1920 x 1080) @ 30 fps - 720p (1280 x 720) @ 30 fps
		Video Storage Bitrate (H.265 Codec): - 4K / 2K: 20 Mbps - 1080p / 720p: 15 Mbps
		Supported File System: - FAT32 - ExFAT
		Photography File Format: JPG
		Video File Format: MP4
		Supported MicroSD Cards: MicroSD Class10, max 512 GB
		Still Photography Mode: Single
5	**Gimbal Specifications :**	
5.1	Angular	Vibration Range : ±0.01°
5.2	Controllable	Pitch Angle : 135° ~ +45° Yaw Angle : 160° ~ +160°
5.3	Rotatable	Roll Angle 30° ~ +30°
6	**Remote controller Specification**	
6.1	Monitor	5.5-inch High Definition and High Brightness LCD Touchscreen System Android 9.0 2G RAM, 16G ROM
6.2	Dimension (Antenna Folded)	189 x 138 x 41 mm
6.3	Weight	850 g
6.4	Battery Capacity & Type	10200 mAh 7.4V 2S Li-on, 75.48 Wh

6.5	Protocol	PD 30W
6.6	Battery Life	15 hours
6.7	Ports Charging	Type-C Firmware Upgrade: DATA (4-Pin)
6.8	Mobile Network	SIM Card Slot
6.9	External Storage	TF Card Slot
6.11	Tripod Connect	1/4-inch Screw Hole
6.12	Video Output	Standard HDMI
6.13	External RTK	DATA (4-Pin)
6.14	Data Transfer:	USB-A
6.15	Waterproof Level	IP53
6.16	Temperature	-10℃ ~ 55℃
6.17	App	Qgroundcontrol, SIYI FPV
6.18	Capability	A) Transmit control commands to UAV B) Receive UAV flight and propulsion parameters C) Receive, display and record real time video from UAV D) Capability control UAV while on the move
	GCS Application Software	A) Geographic Map along with UAV location, UAV trajectory, Camera view polygon, waypoints and flight plan.
		B) Real time video from the UAV with on-screen display of important parameters like : i) Coordinates of target ii) Ground altitude of target iii) UAV position iv) Height of UAV above ground level v) Distance of UAV from GCS vi) Ground speed of UAV vii) UAV heading/True north indication viii)Mission time
		C) Geographic map and real-time video is displayed all the time during the flight
6.19		

		D) Geographic map and real-time video view window are resizable and/Or switchable to allow to switch between big map/small video and small map/big video views through a single click input
		E) Artificial horizon indicating UAV altitude
6.21	Map formats	A) Integrate Geo-referenced maps provided in digital map formats (GIF, TIFF, DTED and SRTM)
6.22	Payload control	A) Switchable from Photo/Video mode
		B) Pan/Tilt/ Zoom controls
		C) Recording on/Off
6.23	Joystick controls	i) Full camera control : a) Pan/Tilt b) Zoom in/Out ii) FPV mode iii) Altitude control
6.24	Pre-flight checks	Self-test of UAV system, Output : Go/No Go
6.25	Type of link	Secured digital uplink & downlink with AES encryption
6.26	Frequency Band	S & C frequency Band Uplink and Downlink, on licence free band 2.4Ghz & 5.8 Ghz
7	**General System Specification :**	
7.1	Assembly/Disassembly time :	<2 minutes
7.2	Life of UAV	Total technical life : ~ 1000 Flights (~ 500 Hours)
7.3	Life of AV battery	~ 250 charging cycles
7.4	Accessories	a) Waterproof Hard Carry Case IP66 : 1 set
		b) Field Repair kit : 1 No's
		c) Battery packs : 3 No's
		d) Spare Propeller sets : 2 Sets
		e) Associated Cables & Mountings : 1 set
		f) User, Technical & Maintenance manual : 1 set
		g) Log Book : 1 set

8	**Miscellaneous : (Addon)**	
8.1	Training	Training : 5 Days Pilot training will be provided to 04 pilots