ideaForge
Create. Inspire

A&S Creations
Go Discover

TECHNICAL SPECIFICATION

Q4i HD UAV

Q4i HD UAV

Sr. No.	Parameters	Specification
1	**Aerial Vehicle (AV) Characteristics**	
a	UAV Weight with battery and standard payloads	<3.5 kg
b	UAV Size with Propeller	< 80 cm x 80 cm
c	Endurance/ Flight time (up to 1000 m AMSL)	40 minutes
d	Range for live transmission (Radius)	4 km (8 km in diameter)
e	Typical Cruise Speed	7 m/s
f	Propulsion	Powered by Battery
g	Maximum operating altitude (AGL)	200 m AGL (Above Ground Level)
h	Maximum launch altitude (AMSL)	3000 m AMSL (Above Mean Sea Level)
i	Functional Temperature Range	0°C to +50°C (Self Certification)
j	Dust & Drizzle Resistance	IP53 rating (Self Certification)
k	Aural Signature	<40 Db @ 300 meters AGL
l	Wind Resistance	Minimum 12.5 m/s (45 km/h or 24.3 knots)
m	Technical Life of AV	Minimum 500 landings
n	Launch & Recovery	Autonomous Vertical Take-Off & Landing (VTOL)
o	Maximum space required for recovery	25 m x 25 m open area
p	Autonomy	Fully autonomous from Take-off to Landing without using any R/C controller
q	Operating Crew	Maximum 2
r	Deployment Time	< 10 minutes
s	Packaging and Storage	Waterproof Backpack that houses all the sub-systems which allows the complete system to be carried and operated on field by the crew, should have IP66 rating or better for dust and drizzle protection (Test results from any recognized/accredited Lab to be submitted)
t	Failsafe features	Return to Home on communication failure
		Return to Home/Land on low battery
		Multiple GPS on-board for GPS failure redundancy
		Return to home on high winds (more than 12.5m/s)
		Return home on battery imbalance
2	**Payload Characteristics**	
a	Payload Options	
	Day Payload	HD (1280 x 720 pixels) quality with 10x optical zoom video payload , Live transmission of HD (1280 x 720 pixels) quality video
	Night Payload	Thermal 320 x 240 pixels 19 mm (Optional), 1 axis gimbal
		Thermal 640 x 480 pixels 25 mm (Optional), 1 axis gimbal

Sr. No.	Parameters	Specification
b	Payload Characteristics (For Gimbal Stabilized Payloads)	Gyro based Stabilization
c	Payload Replacement Time	< 2 minutes
d	Payload Freedom/ Control (in flight)	Pan: 360° continuous Tilt: 90°
e	Target Detection Slant Range (Human Size Target)	Daylight: Minimum 600 m Thermal: Minimum 300 m
f	Night Recovery Beacon	Switchable (from GCS) LED light when operating with Night Payload
g	Ground Control Station (GCS) Software Features	
3	**Flight Modes**	Altitude Hold
		Hover at a defined waypoint
		Autonomous Waypoint Navigation (pre-defined as well as dynamically adjustable waypoints during flight)
		Remotely Piloted mode for video-based navigation (RPV Mode)
		Real-time Target Tracking of designated static and moving targets (Optional)
4	**3D Maps**	Switchable between 2D/3D map views, capability to tilt/rotate 3D map as per user input
5	**Electronic Stabilization of Video**	Electronic stabilization of video output at all zoom levels in real-time (SD video payload)
6	**GUI Display parameters**	Geographic Map along with UAV location, UAV trajectory, camera view polygon, waypoints and flight plan
		Real-time video from the UAV with on-screen display of important parameters like UAV co-ordinates, target (payload) co-ordinates and range from UAV, true North indication, Distance from HOME, etc.
		Real-time video displayed at all times during the flight
		Artificial Horizon indicating UAV attitude
7	**Maps**	Capability of working with Google Maps and/or other available open-source maps. Application has the capability to download maps automatically after specifying location GPS co-ordinates
		Capability to integrate geo-referenced raster maps provided in at least one of the commonly used digital map formats (gif, tiff etc.)
8	**User Controls**	One-click Take-off/Land/Hover
		Set altitude of the UAV
		Waypoint navigation
		Dynamic flight plan adjustment
		Point payload to ground co-ordinate function
		RPV Mode which allows UAV to be flown in semi-autonomous mode by looking at the on-board video
9	**Joystick Controls**	Full camera controls Pan/Tilt & Zoom In/Out
		RPV mode
		Altitude control

Sr. No.	Parameters	Specification
10	Video	Video recorded in commonly portable video format (AVI/MP4 etc.) on the GCS. The UAV does not do any on-board recording.
		Video of the full flight is recorded by default with option to turn recording off
		Capability of taking image snapshots with on-screen display parameters at any time during flight
11	Pre-flight checks	Capability to perform pre-flight checks of the complete system before every flight for confirming the suitability of flightworthiness
12	Others	Essential telemetry data logging
		Export of flight path in .kml format for reviewing in Google Earth
13	GCS Hardware Characteristics	
a	GCS Hardware	Laptop/Tab with pre-installed software (with drop protection, no certification)
		Port for data/video transfer to external storage devices
14	Communication link Characteristics	
a	Communication link capabilities	Transmit control commands from GCS to UAV
		Transmit telemetry data from UAV GCS
		Transmit day and night video from UAV to GCS
b	Data Link	Secure Communication link between UAV and GCS with minimum 128 bit encryption
c	Video Link	Digital and Encrypted
d	Frequency Band	2.4 GHz or 5.8 GHz up-link and down-link
15	Remote Video Terminal (RVT) Characteristics (Optional)	
a	Remote Video Terminal (RVT) (Optional)	Ability to overlap Ground video data with Geospatial Data
		Capable to record, instantaneous playback and freeze the imagery received from UAV
		Antiglare, sunlight readable and touch screen based RVT
16	Carrying case	Waterproof backpacks (Self Certification) + Hard case (Optional)
17	Charger	Dual Alternative Charger (no rugged case)