

**TECHNICAL SPECIFICATION FOR TACTICAL MINI UAV (ARMED)**

Ser	Fact/Parameters	Technical Specification	To be filled by the Principal/Manufacturer
<b>PART – 1 GENERAL SPECIFICATION</b>			
1.	<u>General</u>		
	a. Nomenclature	Tactical Mini UAV (Armed)	
	b. Brand Name	To be mentioned	
	c. Model	To be mentioned	
	d. Country of Origin	Group A and B	
	e. Country of Assembly and Manufacture	Group A and B	
	f. Year of Manufacture	Not before the calendar year of contract	
	g. Name of Manufacturer with complete address	To be mentioned	
	h. Name of Principal with complete address	To be mentioned	
	j. Name of Local Agent with complete address	To be mentioned	
	k. Model Validity	Minimum 10 years	
	l. Duration of after sales svc support	Minimum 10 years	
	m. Type of mission	Armed and ISR	
	n. <u>Planning Considerations</u> . The UAV is to be designed to support and assist in following specified mission specific tasks. Optional items (if available) are to be offered with details for clear understanding: (1) All weather Intelligence, Surveillance and Reconnaissance (ISR) capability for both day and night up to 10 km radius of operation including the option for pre-designated route. (2) Surveillance and Target Acquisition (SATA) for both day and night. (3) Target engagement (4) Target tracking (both mobile and static) (5) Anti jamming capability (6) Mapping (7) Route surveillance and monitoring	To be confirmed. All required catalogue/ brochure/ datasheets are to be given with the offer including the schematic diagram of the total system	
<b>PART – 2 TECHNICAL SPECIFICATION</b>			
2.	<u>Operational Specification</u>		
	a. Operational range of UAV (ISR)	10 km radius	
	b. Operational range of UAV (with load)	05 km radius	
	c. Endurance (ISR) (hour)	Minimum 1 hour	
	d. Endurance (with armament) (hour)	Minimum 45 minutes	
	e. Cruise speed (m/s)	Minimum 15 m/s	
	f. Maximum speed (m/s)	Minimum 20 m/s	
	g. Takeoff weight with payload	Maximum 40 kg	
	h. Total weight (excluding payload) with basic setup	Maximum 20 kg	
	j. Operating altitude	Minimum 1500 m (From Mean Sea Level)	
	k. Live Steaming both day and night (clear video transmission to GCS from max allowable distance. Real time location transmission)	Up to 10 Km	
	l. Location accuracy	± 1 m	
	m. Method of take off	VTOL	
	n. Method of landing	VTOL	
	p. Payload options (specify separately)	1. Thermal and EO camera. 2. Mortar Shell 3. Grenade Launcher Interchangeable bracket for ISR and Armament	



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Ser	Fact/Parameters	Technical Specification	To be filled by the Principal/Manufacturer
	q. Requirement of crew for operation	To be mentioned	
	r. 3D Mapping system	To be confirmed	
	s. GIS based mapping system	Compatible	
	t. Name & Version of GIS software (perpetual license to be provided)	To be mentioned	
	u. Types of info available in mapping software	Basic topographic features of the mapping area	
	v. Number of targets can track simultaneously	To be mentioned	
	w. Noise level at maximum speed at 100 meter Above Ground Level	Maximum 20db	
	x. Linking up with satellite for data transmission (Optional)	Details to be mentioned	
3.	<b>Payloads</b>		
	<b>a. EO Camera Module</b>		
	(1) Brand	To be mentioned	
	(2) Make and Model	To be mentioned	
	(3) Country of Origin	Group A and B	
	(4) Country of Manufacture	Group A and B	
	(5) Year of Manufacture	Not before the year of contract	
	(6) Validity of the model	Minimum 10 years	
	(7) After-sales service	Minimum 10 years	
	(8) Low light operation capability	To be available	
	(9) Full HD video output at minimum 30 fps	To be available	
	(10) Day and night capability at 0 lux	To be available	
	(11) Detection range	Minimum 5000 meter (Man target)	
	(12) Identification range	Minimum 1500 meter (Man target)	
	<b>b. Thermal Camera Module</b>		
	(1) Brand	To be mentioned	
	(2) Make and Model	To be mentioned	
	(3) Country of Origin	Group A and B	
	(4) Country of Manufacture	Group A and B	
	(5) Year of Manufacture	Not before the year of contract	
	(6) Validity of the model	Minimum 10 years	
	(7) After-sales service	Minimum 10 years	
	(8) Low light capability	To be available	
	(9) Detection range	Minimum 5000 meter (Man target)	
	(10) Identification range	Minimum 1500 meter (Man target)	
	(11) Image size	1280 x 1024 pixel	
	<b>c. Multisensor imaging/lasering payload</b>	Optional	
	(1) Continuous wide-angle zoom	To be mentioned	
	(2) High magnification step zoom spotter	To be mentioned	
	(3) High sensitivity color low light imaging	To be mentioned	
	(4) Compact, efficient, reliable laser target designator	To be mentioned	
	<b>d. Armament Capability.</b> Any one type of armament to be fired at a time.	1. Minimum 4x 60 mm or equivalent type Mortar Bomb. 2. Minimum 2x 82 mm or equivalent type Mortar Bomb. 3. Grenade Launcher. Interchangeable bracket for armament and ISR  To be confirmed by firing during PSI and JPSI.  Details to be mentioned.	
	(1) Mortar		



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Ser	Fact/Parameters	Technical Specification	To be filled by the Principal/Manufacturer
	(a) Firing System.	Details to be mentioned separately for 60mm and 82mm mortar bomb (or equivalent type)	
	(i) Name of the item	To be mentioned	
	(ii) Year of manufacture	Not before the year of contract	
	(iii) Type of mortar bomb that can be fired by this mortar bomb firing system	To be mentioned	
	(iv) Ammunition compatibility	Ammunition compatibly with firing system to be mentioned. Integration of other ammunition already existing in inventory of Bangladesh Army to be assessed	
	(v) Bracket life	To be mentioned	
	(vi) Warranty/Guaranty	To be mentioned	
	(vii) Model validity	10 Years	
	(viii) After sale service	10 Years	
	(ix) Release/firing mechanism of bombs	Details to be mentioned including diagram	
	(x) Single or Multiple fire at a time	To be mentioned	
	(xi) Type of targets (Static or Moving)	To be mentioned	
	(b) Mortar Bomb.	Details to be mentioned separately for 60mm and 82mm mortar bomb (or equivalent type)	
	(i) Name and detail contact address of manufacturer (including web address, e-mail address & contact number)	Details to be mentioned	
	(ii) Name and detail contact address of principal (including web address, e-mail address & contact number)	Details to be mentioned	
	(iii) Name and detail contact address of local agent (including web address, e-mail address & contact number)	Details to be mentioned	
	(iv) Firing Mechanism	Details to be mentioned including diagram	
	(v) Quantity of bombs (for each UAV)	To be mentioned	
	(vi) Name/brand/manufacture	To be mentioned	
	(vii) Make/model/type	To be mentioned	
	(viii) Country of origin	To be mentioned	
	(ix) Country of manufacture	To be mentioned	
	(x) Year of manufacture	Not before the contracted year	
	(xi) Shelf-life of the bomb	Minimum 15 years	
	(xii) Length of the complete bomb with fuze	To be mentioned	
	(xiii) Weight of the complete bomb with fuze	To be mentioned	
	(xiv) Maximum diameter of bomb body	To be mentioned	
	(xv) Lethal radius	To be mentioned	
	(xvi) Maximum distance at which the bomb can engage the target	To be mentioned	
	(xvii) Minimum distance at which the bomb can engage the target	To be mentioned	
	(xviii) Name of fuze	To be mentioned	
	(xix) Type of Fuze (i.e. disruptive or igniferous)	To be mentioned	
	(xx) Weight of Fuze	To be mentioned	
	(xxi) Minimum arming distance	To be mentioned	
	(xxii) Details functioning procedure of the fuze	To be mentioned	
	(xxiii) Environment Issue		



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	(1) Storage temperature	0° C to +50° C	
	(2) Operating temperature	-5° C to +55° C	
	(3) Storage humidity	Minimum 95%	
	(4) Operation humidity	Minimum 95%	
	(2) Grenade		
	(a) Grenade Launcher		
	(i) Name/brand	To be mentioned	
	(ii) Make/model/type	To be mentioned	
	(iii) Country of origin	To be mentioned	
	(iv) Country of manufacture	To be mentioned	
	(v) Year of manufacture	Not before the year of contract	
	(vi) Name of manufacturer with complete address (Office address, Telephone, Fax, Email and web web address)	Details to be mentioned	
	(vii) Name of principal with name and address (Office address, Telephone, Fax, Email and web web address)	Details to be mentioned	
	(viii) Name of local agent with complete address (Office address, Telephone, Fax, Email and web web address)	Details to be mentioned	
	(ix) Dimension of launcher (L x H x W)	To be mentioned	
	(x) Number of barrel	To be mentioned	
	(xi) Rate of fire (Combat)	To be mentioned	
	(xii) Range	To be mentioned	
	(xiii) Weight	To be mentioned	
	(xiv) Number of grenade can be carried	To be mentioned	
	(xv) Type of ammunition (Anti-tank/ Antipersonnel/Training or Blank etc)	To be mentioned	
	(xvi) Shelf life of ammunition (Each type)	Minimum 10 years	
	(xvii) Length of ammunition (Each type)	To be mentioned	
	(xviii) Weight of ammunition (Each type)	To be mentioned	
	(xix) Maximum diameter of ammunition (Each type)	To be mentioned	
	(xx) Lethal radius of ammunition (Each type)	To be mentioned	
	(xxi) Single or Multiple fire at a time	To be mentioned	
	(xxii) Type of target (Static or moving)	To be mentioned	
	(xxiii) Maximum distance at which the ammunition can engage the target	To be mentioned	
	(xxiv) Minimum distance at which the ammunition can engage the target	To be mentioned	
	(xxv) Any other payload option	Specify more options if available	
	(xxvi) Operational Demonstration in Bangladesh (Preferable)	To be mentioned	
	(xxvii) Caliber	To be mentioned	
	(xxviii) Body material composition	To be mentioned	
	(xxix) Ammunition Feeding System	To be mentioned	
	(xxx) Number of ammunition housing per weapon	To be mentioned	
	(xxxii) Number of ammunition belt per box	To be mentioned	
	(xxxii) Safety falling height	To be mentioned	
	(xxxiii) Barrel life	To be mentioned	
	(xxxiv) Detail of firing mechanism	To be mentioned	



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Ser	Fact/Parameters	Technical Specification	To be filled by the Principal/Manufacturer
	(xxxv) Water proof	To be mentioned	
	(xxxvi) Vibration proof	To be mentioned	
	(xxxvii) Drop proof	To be mentioned	
	(xxxviii) Operating/Storage Condition	To be mentioned	
	(1) Operating temperature range	To be mentioned	
	(2) Storage temperature range	To be mentioned	
	(3) Humidity permissible condition for operation	To be mentioned	
	(4) Maximum permissible humidity condition for storage	To be mentioned	
	(5) Operation during Fog, Rain and Snow (To be possible)	Operation during fog, rain and snow will be possible	
	(xxxix) Warranty	To be mentioned	
	(xxxx) Model validity	10 Years	
	(xxxxi) After sales service	10 Years	
	(b) Grenade		
	(i) Name and detail contact address of manufacturer (including web address, e-mail address & contact number)	Details to be mentioned	
	(ii) Name and detail contact address of principal (including web address, e-mail address & contact number)	Details to be mentioned	
	(iii) Name and detail contact address of local agent (including web address, e-mail address & contact number)	Details to be mentioned	
	(iv) Name/brand/manufacture	To be mentioned	
	(v) Make/model/type	To be mentioned	
	(vi) Country of origin	To be mentioned	
	(vii) Country of manufacture	To be mentioned	
	(viii) Year of manufacture	Not before the year of contract	
	(ix) Range	To be mentioned	
	(x) Type of ammunition (Anti-tank/Antipersonnel/Training or blank etc)	To be mentioned	
	(xi) Shelf-life of the ammunition (Each Type)	Minimum 10 years	
	(xii) Length of the ammunition (Each Type)	To be mentioned	
	(xiii) Weight of the ammunition (Each Type)	To be mentioned	
	(xiv) Maximum diameter of the ammunition (Each Type)	To be mentioned	
	(xv) Lethal radius of ammunition (Each Type)	To be mentioned	
	(xvi) Penetration capability of anti-tank ammunition	To be mentioned	
	(xvii) Single or Multiple fire at a time	To be mentioned	
	(xviii) Type of targets (Static and moving)	To be mentioned	
	(xix) Maximum distance at which the Ammunition can engage the target (Each Type)	To be mentioned	
	(xx) Minimum distance at which the Ammunition can engage the target (Each Type)	To be mentioned	
	(xxi) Any other payload option	Specify more options if available	
	(xxii) <u>Environment Issue</u>		
	(1) Storage temperature	0° C to +50° C	
	(2) Operating temperature	-5° C to +55° C	



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Ser	Fact/Parameters	Technical Specification	To be filled by the Principal/Manufacturer
	(3) Storage humidity	Minimum 95%	
	(4) Operation humidity	Minimum 95%	
	e. Any other payload option	Specify more options if available	
	f. Operational Demonstration in Bangladesh (Preferable)	To be mentioned	
<b>Maintenance and Structural Factors</b>			
4.	a. <u>Airframe Geometry</u> . The UAV is to be of such structure and design with essential features which will withstand its maximum speed. The airframe should be stable in nature. It would also be of such design that it can fly with longer endurance with minimal power consumption.	To be confirmed	
	b. <u>Environmental condition (Essential)</u> . Due to hot and humid environment in Bangladesh, all the equipment including payloads and compartment should be weather proof as per military standard 810G including following criteria.	To be mentioned	
	(1) Operation Temperature	Minimum -10 to +55 °C for 30 minutes	
	(2) Humidity	Minimum 95% and above	
	(3) Splash/Rain	To be sustained for 30 minutes at normal temperature and pressure	
	(4) Vibration	Minimum 5 minutes at 250 RPM	
	(5) Sustainable Wind Speed	Minimum 25 kts	
	(6) Must be capable for sustained high temperature and humid for costal/maritime operation	To be confirmed	
	c. <u>Structural Strength and Life</u> . The UAV is to meet the following requirements:		
	(1) The airframe should have sufficient strength to withstand stress of take-off, landing and required in flight maneuverability with maximum payload	To be confirmed	
	(2) The operation life	Minimum 10 years	
	(3) Calendar life of the UAV	To be mentioned	
	(4) Time before overhaul (TBO)	Minimum 2 years	
	d. <u>Aerial Platform</u>	Details to be mentioned	
	e. <u>Ground Control Station (GCS)</u>	Details to be mentioned	
	(1) Brand	To be mentioned	
	(2) Make and Model	To be mentioned	
	(3) Country of Origin	Group A and B	
	(4) Country of manufacture	Group A and B	
	(5) Year of manufacture	Not before year of contract	
	(6) Validity of the model	Minimum 10 years	
	(7) After-sales service	Minimum 10 years	
	(8) Type of GCS (Man portable)	To be mentioned	
	(9) Launch, Flight Control and Recovery	To be available	
	(10) Real-time telemetry	To be available	
	(11) Should be able to receive, display and exploit data from all payloads	To be available	
	(12) Recording capability	Capable to store data in HDD of GCS for at least 1 hour	
	(13) Warning system for any type of unsafe op or parameter set or failure	a. To be available b. The UAV must return to the previous location if it is jammed or communication is lost.	
	f. <u>Communication System</u>	RF communication	
	(1) Brand	To be mentioned	



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Ser	Fact/Parameters	Technical Specification	To be filled by the Principal/Manufacturer
	(2) Make and Model	To be mentioned	
	(3) Country of Origin	Group A and B	
	(4) Country of manufacture	Group A and B	
	(5) Year of manufacture	Not before year of contract	
	(6) Validity of the model	Minimum 10 years	
	(7) After-sales service	Minimum 10 years	
	(8) Communication Range	Minimum 10 km	
	(9) Type of communication	Communication from GCS to UAV must be secured.	
	<b>g. Training Simulator</b>		
	(1) Brand	To be mentioned	
	(2) Make and Model	To be mentioned	
	(3) Country of Origin	Group A and B	
	(4) Country of manufacture	Group A and B	
	(5) Year of manufacture	Not before year of contract	
	(6) List of items of simulator	To be submitted.	
	(7) Working procedure	The simulator system must be able to depict the all tasks mentioned in technical specification.	
	<b>Spare Parts Support</b>		
5.	a. Warranty Period for the complete system and its associated equipment/ systems	Minimum 2 year	
	b. Software Support (any up-gradation/ modification of the software for the entire service life to be provided free of cost)	Details to be confirmed	
	c. Time Requirement to deliver the product after agreement (Lead Time)	Maximum 9 months	
	<b>Maintenance / Logistic Support</b>		
6.	a. Repair / Overhaul Facility	To be mentioned	
	b. Supply of Spares (Fast Moving, Slow moving and other spares of maintenance) for entire service life	To be confirmed	
	c. Software Operability	To be confirmed and details to be mentioned	
	d. Service Support During Warranty	To be mentioned	
	e. After Sales Service Support	Minimum 10 years	
	f. Scope for Technology Transfer	To be mentioned	
	g. Transportability of the UAV	Man portable. Should be housed in two or more separate packs to be carried preferably in backpack with harness. (Maximum 10 kg per pack)	
	h. List of Standard Items / Accessories (For full range of operation)	Complete list to be mentioned	
	j. List of Optional Items / Accessories	Details to be mentioned	
7.	Emergency action plan in case of failure of any system	Emergency handling procedures if RF communication failed and other emergencies to be mentioned	
8.	Reliability	A certificate to be provided by manufacturer that the offered UAV is in service for minimum last one year.	
9.	<b>Battery for UAV</b>		
	a. Brand and Model	To be mentioned	
	b. Country of Origin	To be mentioned	
	c. Country of Manufacture	To be mentioned	
	d. Year of Production	Not before the year of contract	
	e. Capacity (Voltage, AH)	To be mentioned	



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Ser	Fact/Parameters	Technical Specification	To be filled by the Principal/Manufacturer
	f. Type (Rechargeable)	To be confirmed	
	g. Charging time	Maximum 2 hours to full charge in normal charging mode	
	h. Spare Battery	02	
	j. Charging facility (Must have the charging facility from 220V AC Power)	To be confirmed	
	k. Spare Charger	01	
10.	<u>Battery for GCS</u>		
	a. Brand and Model	To be mentioned	
	b. Country of Origin	To be mentioned	
	c. Country of Manufacture	To be mentioned	
	d. Year of Production	Not before the contract year	
	e. Capacity (Voltage, AH)	To be mentioned	
	f. Type (Rechargeable)	To be confirmed	
	g. Charging time	Maximum 2 hour to full charge in normal charging mode	
	h. Spare Battery	02	
	j. Charging facility (Must have the charging facility from 220V AC Power)	To be confirmed	
	k. Spare Charger	01	
11.	Colour	Off White/White/Grey/Metallic Grey	
12.	<u>Books and Publications</u>		
	a. Owners /Operators manual in English (Book type)	1x Hard copy with soft copy	
	b. Workshop/Repair and Maintenance manual in English (Book type)	1x Hard copy with soft copy	
	c. 100% updated masters spare parts catalogue in English (Book type)	1x Hard copy with soft copy	
	d. Troubleshooting Manual: Fault Isolation Manual.	1x Hard copy with soft copy	
	e. Manuals: all components / parts of the system	1x Hard copy with soft copy	

PART – 3 TRAINING REQUIREMENT

Ser	Description	Technical Specification	Remarks
1.	Operational Training	As per requirement of user Directorate	
2.	Repair and maintenance training	As per requirement of EME Directorate	
3.	Inventory control management training	As per requirement of Ordnance Directorate	

PART – 4 REPAIRS AND MAINTENANCE REQUIREMENT LESS LIST OF SPARES

Ser	Description	Technical Specification	Remarks
1.	Measuring & testing set, fault finding equipment and diagnostic set	List to be provided (As per requirement of EME Directorate)	
2.	Special Service Tools (SST)	List to be provided (As per requirement of EME Directorate)	
3.	Special Service Material (SSM)	To be provided (As per requirement of EME Directorate)	
4.	Maintenance tools requirement for 3 <sup>rd</sup> line maintenance	Details to be mentioned	
5.	Special offer related to the local assembly of different electronics, body, etc. (Optional)	Details to be mentioned	
6.	Repair and maintenance: Supply of spares cost to cost basis till the life time of the system	Details to be confirmed	

PART – 5 LISTS OF SPARES

Ser	Description	Technical Specification	Remarks
1.	Spare parts list (Fast and Slow Moving Spares)	To be provided	
2.	List of consumable items	To be provided	





PART – 6 TOOLS LIST FOR DIFFERENT LEVEL OF MAINTENANCE

Ser	Description	Technical Specification	Remarks
1.	Measuring & Testing set, Fault Finding equipment, Diagnostic Set, SST and SSM	To be provided as per the list of Part 4	

PART – 7 FINANCIAL ASPECTS

Ser	Description	Technical Specification	Remarks
1.	Financial Implication/Specifications	To be provided	

