

ASTUS

Unmanned Aerial System

Easily transportable and quickly deployable medium-range UAS.



Tellumat

REAL-TIME

INTELLIGENCE, SURVEILLANCE AND RECONNAISSANCE

ASTUS provides the user with a highly capable, modern, high-performance surveillance system which is not only durable and robust, but quickly and easily deployable by a small team. Features like HD video and ATOL ensure excellent value, delivering cost-effective acquisition and ownership.

Types of Missions

ASTUS can perform a wide range of missions:

▶ **Reconnaissance & Surveillance**

The system can perform a variety of mission during the day or night, as required by the user, using the EO or thermal payload capabilities.

▶ **Environmental Protection**

The system can be used to carry out monitoring and forensic recording of pollution, illegal fishing and poaching activities.

▶ **Training Missions**

The UAS can be used as a platform for tactical operational training (pilots, payload operators and ground crew) as a stepping-stone to larger systems.

▶ **Border & Coastal Security**

The system can perform missions to support border management, smuggling, police and security operations.

▶ **Peacekeeping**

The UAS is suited to extended monitoring missions to support peacekeeping and intervention within conflict regions.

The ASTUS System Minimum Crew Requirement

▶ **Pilot Operator**

The pilot operator is responsible for mission planning, coordination and control, communications, flight control and UAV monitoring.

▶ **Payload Operator**

The payload operator is responsible for payload control, target acquisition, data recording as well as Operating Control Unit (OCU) and antenna positioner maintenance.

▶ **Safety Pilot**

The safety pilot is responsible for the take-off and landing phases of the flight if Automatic Take-Off and Landing (ATOL) is not utilised as well as the UAV electrical maintenance.

▶ **Aircraft Technician**

The aircraft technician is responsible for the Unmanned Aerial Vehicle (UAV) airframe and engine maintenance as well as the taxiing of the UAV on the runway.



Avionics

ASTUS avionics components are the following:

▶ Flight Mission Computer

The FMC-2000 is an autopilot system incorporating mission and flight control providing flight stabilisation allowing for autonomous flight and full ATOL. The FMC provides flight via GPS waypoints and variable set points and assists with UAV recovery with return-to-base or glide flight mode. The FMC is modular in design, implements a RTOS and log flight data.

▶ Sensor Pack

The SP-3000 Sensor Pack is a high performance GPS enhanced Inertial Navigation System (INS) with integrated airspeed and altitude pressure sensors providing GPS aided navigation for the UAV. The SP-3000 sensors are temperature compensated and have incorporated a full world magnetic model. The SP-3000 stores all sensor data for post processing.

▶ Health and Control Unit

The HC-2000 Health and Control Unit provides the health monitoring and control interfaces for the UAV that are not catered for within the FMC. The HC-2000 provides a central interface for analogue to digital, thermocouple and relay functionality for monitoring and switching requirements on the UAV.

▶ Data link

The DL-5000 is a C-band video data link system utilised for UAV and payload control and incorporates multiple video channels. The DL-5000 provides 16 Mbps bandwidth with a low error rate over a wide dynamic range with a high sensitivity.

▶ UAV Power Management is Managed and Controlled by the Following Equipment

- Power Management Unit
- Alternator
- Backup Battery

▶ Payload

The ASTUS UAV has the capability of carrying numerous types of payloads.

The system provides the following payload capabilities:

- The optical / thermal payload with a maximum diameter of 250 mm.
- The payload must have a maximum mass of 10 kg.
- The avionics makes provision for payload interfaces of Ethernet, RS422 or RS232.
- The avionics can accept multiple video formats from the payload (Ethernet, SDI, PAL).



Ground Control Station (GCS)

The GCS is a portable solution for controlling and managing ASTUS.

▶ Operator Control Unit Pilot and Payload

The OCUs are robust units housed within a waterproof container that can be deployed anywhere. The units are fitted with sunlight readable, fully HD, touch screen monitors. They provide an adaptable solution for controlling either the UAV or payload.

▶ Ground Data Terminal

The AP-1100 is a robust two-axis automatic GPS monitoring system which provides a high precision monitoring capability within a very small form factor and allows real time control.

The AP-1100 is weatherproof and can be deployed almost anywhere. The AP-1100 is integrated with the DL-5000 GDT providing a perfect solution for UAVs.

▶ Auxiliary Equipment (Support Equipment and Spares)

The ASTUS system is provided with all the necessary support equipment and spares to allow for extended operations without external support.



Performance characteristics

Unmanned Aerial Vehicle	
UAV endurance	8 hrs @ 5,000 ft AMSL @ MTOW
Service ceiling	14,000 ft AMSL
Speed	40 kts take-off, 33 kts stall, 60 kts cruise, 80 kts dash
MTOW	92 kg including fuel & payload
Wing span	5.2 m
Propulsion	2 stroke 210cc fuel injection
Backup Data Link	
Frequency	UHF, frequency hopping
ATC Compatibility	
Transponder	Mode S / ADS-B
Air Band Radio	VHF Com

Flight Modes	
Manual	Utilising a RC control box to control UAV pitch, bank and rudder / nose-wheel angle and throttle within control limits
Set-point	Utilising software menu to set UAV altitude, airspeed and heading within control limits
Way-point	Utilising software menu to set UAV altitude, airspeed and geographical co-ordinates to control flight path
Return home	Utilised to automatically return UAV to safe position in the event of loss of both data-links
Primary Data Link	
Frequency	Lower C-band, 9 channels
Uplink	Jamming resistant
Downlink	16 Mbps, 2 x HD, 1 x PAL video
Security	AES encryption
Range	200 km LOS



Considering a Defence and Security project? **Talk to us today.**

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