

# ASTUS

Unmanned Aerial System

Easily transportable and quickly  
deployable tactical UAS



  
**ASTUS**

**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.

### System 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.

▶ **Technicians (2)**

The technicians are responsible for the GCS preparation and maintenance, 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

### ▶ Payloads

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 (OCU) – 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 (GDT)

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	10 hrs @ 5 000 ft AMSL
Service ceiling	16 000 ft AMSL
Speed	38 kt stall, 42 kt take-off, 60 kt cruise, 80 kt dash
MTOW	110 kg including fuel & payload
Wingspan	5.2 m
Propulsion	2 stroke 210 cc, fuel injected
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 controller to control UAV attitude, steering and throttle, within control limits
Set-point	Utilising software menu to set UAV altitude, airspeed and heading, within control limits
Waypoint	Utilising software menu to set UAV altitude, airspeed and geographical coordinates to control flight path
Return home	Utilised to automatically return UAV to safe position in the event of loss of both datalinks
Primary Data Link	
Frequency	Lower C-band, 9 channels
Uplink	Jamming Resistant
Downlink	Telemetry data, HD video and PAL video
Security	AES encryption
Range	200 km LOS



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

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