



AVIATOR UAV 200 Installation Manual

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DOCUMENT CHANGE HISTORY

ISSUE	DATE	ECP	DESCRIPTION OF CHANGE
1.0	24 Mar '17	15/083	Initial Release
1.1	18 Oct '19	19/259	Added non-disclosure statement in Section 5.1. Removed section 8.4.6.9 Remote Management (not a UAV200 requirement). Updated section 8.4.6.2 with more detail. Updated section 8.4.5.7 Note added. Updated Figure 8-25 conform to the latest GUI. Updated Figure 8-21 to conform to the latest GUI. Added Note to section 8.4.5.2. Updated Figure 8-20 to conform to the latest GUI. Updated Figure 8-19 to conform to the latest GUI. Updated Figure 8-19 to conform to the latest GUI. Updated Figure 8-5 to conform to the latest GUI. Updated Figure 8-4 to conform to the latest GUI. Added Note to Section 8.1.1 with more detail.
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DOCUMENT APPROVAL AND VALIDATION

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R Sagrestano (Configuration Manager)



Safety Summary

The following general safety precautions must be observed during all phases of operation, service and repair of this equipment. Failure to comply with these precautions or with specific warnings in this manual may violate the safety standards of design, manufacture and intended use of the equipment. Cobham assumes no liability for the customer's failure to comply with these requirements.

If the equipment is used in a manner not specified by the manufacturer, the protection may be impaired.



During transmission the AVIATOR UAV 200 SATCOM terminal can radiate microwave power in any direction not screened by the aircraft fuselage. High levels of radio frequency radiation are considered harmful to health. Although all countries have not agreed upon a single value, the American National Standards Institute (ANSI/IEEE C95.1-1999) recommends that according to General Public Requirements a person should not be exposed to radiation stronger than 1 mW/cm² at the frequencies used in this terminal. Accordingly, the operator of the system should ensure that no person should approach within 50 cm (1.6 ft) of the terminal when it is transmitting.



Electrostatic Discharge Caution

The terminal contains items that are electrostatic discharge (ESD) sensitive. Use approved industry precautions to keep the risk of damage to a minimum when you touch, remove or insert parts or assemblies.



Under extreme heat conditions or prolonged transmission periods, do not touch metal parts of the AVIATOR UAV 200, as this may result in injury.

FCC REGULATORY INFORMATION

EQUIPMENT IDENTIFICATION:

Model	FCC ID
AVIATOR UAV 200	2AS39-AVIATORUAV200

RADIOFREQUENCY RADIATION EXPOSURE INFORMATION:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 50 cm between the radiator and your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

NOTICES:

- 1) This device complies with Part 15 of the FCC Rules.
Operation is subject to the following two conditions:
 - a) this device may not cause harmful interference, and
 - b) this device must accept any interference received, including interference that may cause undesired operation.
- 2) Changes or modifications made to this equipment not expressly approved by Omnipless Manufacturing (PTY) Ltd may void the FCC authorization to operate this equipment.
- 3) This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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ABBREVIATIONS

ANSI	American National Standards Institute
ATCt	Ancillary Terrestrial Component
AWG	American Wire Gauge
BGAN	Broadband Global Area Network
CAC	Cobham Aerospace Communications
CG	Center of Gravity
cm	centimeter
CTS	Clear To Send
DC	Direct Current
DHCP	Dynamic Host Configuration Protocol
DLNA	Diplexer and Low Noise Amplifier
EIRP	Effective Isotropic Radiated Power
ESD	Electrostatic Discharge
FCC	Federal Communications Commission
ft	feet
GND	Ground
GNSS	Global Navigation Satellite System
GPS	Global Positioning System
HDR	High Data Rate
HMI	Human Machine Interface
HPA	High Power Amplifier
Hz	Hertz
IEEE	Institute of Electrical and Electronic Engineers
IMEI	International Mobile Equipment Identity
IMSI	International Mobile Subscriber Identity
INS	Inertial Navigation System
IP	Internet Protocol
kbps	Kilobits per second
kg	Kilogram
LAN	Local Area Network
lb	Pounds
LDR	Low Data Rate
LED	Light Emitting Diode
LGA	Low Gain Antenna
LNA	Low Noise Amplifier
NAT	Network Address Translation
OD	Outline Drawing
PDP	Packet Data Protocol
PPPoE	Point-to-Point Protocol over Ethernet
QoS	Quality of Service
RF	Radio Frequency
RHCP	Right Hand Circular Polarization
RTCA	Radio Technical Commission for Aeronautics
RTS	Request To Send
Rx	Receive signal
SBB	SwiftBroadband
SDU	Satellite Data Unit
SIP	Session Initiation Protocol
TBC	To Be Confirmed

TBD	To Be Determined
Tx	Transmit signal
UAV	Unmanned Aerial Vehicle
UDP	User Datagram Protocol
UMTS	Universal Mobile Telecommunications System
UNC	Unified Coarse
USIM	UMTS Subscriber Identify Module
V	Volts
XL	Extended L-Band

1. ABOUT THIS MANUAL

1.1 INTRODUCTION

This installation manual provides the general installation procedures for the AVIATOR UAV 200 and configuration of the terminal once installed in the aircraft.

AVIATOR UAV 200 has been tested but not formally qualified to RTCA DO-160G specifications. As such, Qualification Test Reports and other supporting documentation are not available.

NOTE: It is important that all safety requirements listed in the beginning of this manual are observed, and that the system is installed according to the guidelines in this manual.

1.2 PURPOSE

The information, drawings and wiring diagrams contained in this manual are intended as a reference for engineering planning only. It is the installer's responsibility to compose installation drawings specific to the aircraft.

2. APPLICABLE & REFERENCE DOCUMENTS

2.1 APPLICABLE DOCUMENTS

- [1] 677-A0219_OD, AVIATOR 200 UAV SATCOM Terminal, Outline Drawing
- [2] 870-A0618_ICD, AVIATOR UAV 200 Navigation Data Interface Control Document
- [3] 870-A0677_ICD, AVIATOR UAV 200, AT-Command Interface Control Document

2.2 REFERENCE DOCUMENTS

- [4] RTCA DO-160G, Environmental Conditions and Test Procedures for Airborne Equipment
- [5] RTCA DO-254, Design Assurance Guidance For Airborne Electronic Hardware, April 19, 2000
- [6] RTCA DO-178C, Software Considerations in Airborne Systems and Equipment Certification, December 13, 2011

Manuals can be found in the **Cobham SYNC Partner Portal** at <https://sync.cobham.com/satcom/> under **Technical Support ->Support** or **Downloads**.

3. INTRODUCTION

3.1 SCOPE

This installation manual provides the general installation instructions and mounting considerations for the AVIATOR UAV 200 SATCOM terminal.



Figure 3-1: AVIATOR UAV 200 SATCOM Terminal

3.2 SYSTEM OVERVIEW

The AVIATOR UAV 200 SATCOM Terminal is an aeronautical “single box solution” Inmarsat SwiftBroadband Class 4 SATCOM system. A Class 4 terminal provides the following SwiftBroadband connectivity on the Inmarsat network:

- Single channel operation, including extended L-band (XL) and Low Data Rate (LDR) bearers.
- Maximum standard background class throughput of 200 kbps (charged per Megabyte of data)¹, with actual throughput subject to network contention.
- Maximum assured access background class throughput of 240 kbps (charged per Megabyte of data)¹, with actual throughput subject to network contention.
- Maximum legacy streaming class throughput of 128 kbps (charged per minute)¹, limited by the network.
- Maximum Half High Data Rate (HDR) streaming class throughput of 120 kbps to ground station and 140 kbps to air vehicle (charged per minute)¹, limited by the network.
- Satellite coverage down to 5 degrees elevation.

The AVIATOR UAV 200 functional interfaces are listed in Table 3-1.

Table 3-1: AVIATOR UAV 200 Interfaces

Interface	Characteristic
Ethernet	2 x 10Base-T (IEEE 802.3) ports for connection of user or navigational input equipment.
Serial	2 x RS-232 ports for connection of user or navigational input equipment.
Power Input	Nominally 14 or 28 VDC.
Reset Input	System discrete reset input (Ground/Open) for the purpose of a manual or machine-to-machine reset.
USIM	SIM Card socket on underneath surface of unit
Mounting/Grounding/ Cooling Interface	Flanges on either side of the terminal are used to facilitate mounting, grounding, cooling as well as provide the antenna ground plane reference point.
Air Interface	Inmarsat SBB Class 4 air interface (incl. ATCt resilience)

¹ Contact your preferred SwiftBroadband Service Provider for further pricing information.

The terminal is designed to be internally mounted below a protective radome/dust cover or RF transparent fuselage section. A soft radome/dust cover is fitted for the purpose handling and environmental protection. The terminal has all the components of a traditional aeronautical SATCOM system namely a steerable phased array Low Gain Antenna (LGA), High Power Amplifier (HPA), Diplexer/Low Noise Amplifier (DLNA) with an ATCt resilient mode, and a Modem that manages the interaction with the satellite network, modulation/demodulation functions as well as providing the user interfaces.

The remaining airframe requirements for terminal operation are limited to DC power, navigation data (for antenna steering) and heat sinking or cooling into the aircraft structure or ambient environment.

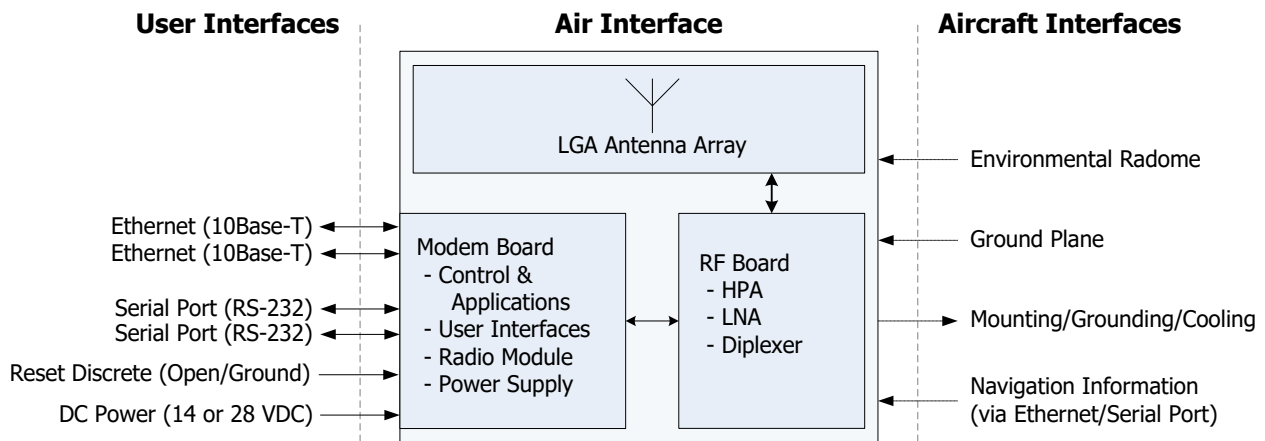


Figure 3-2: AVIATOR UAV 200 Functional Overview Block Diagram

3.3 EXTERNAL INTERFACES

The AVIATOR UAV 200 has a single connector (Refer to Table 3-2) for all external electrical interfaces. See Figure 3-3 for the connector layout and Table 3-4 for the Pin assignments for the external connector. Multiple variations of a suitable mating connector may be constructed in order to facilitate specific customer needs. Refer to Table 3-3 for the basic mating connector information.

Table 3-2: AVIATOR UAV 200 Connector Information

Reference	Part Number	Description	Manufacturer
J1	D221R34D56xx	34 Way, DMM Micro, Male	Nicomatic

Table 3-3: AVIATOR UAV 200 Mating Connector Information

Option	Part Number	Description	QTY
1	D222SP34D53	34 Way, Nicomatic DMM Micro, female connector supplied with 24 – 28 AWG Crimp Contacts.	1
	C13064-P	22 AWG, Crimp contact Recommended for power input pins 1, 2, 18 & 19.	4
2	D222CP34D53	34 Way, Nicomatic DMM Micro, female connector supplied with 22 AWG Crimp Contacts.	1

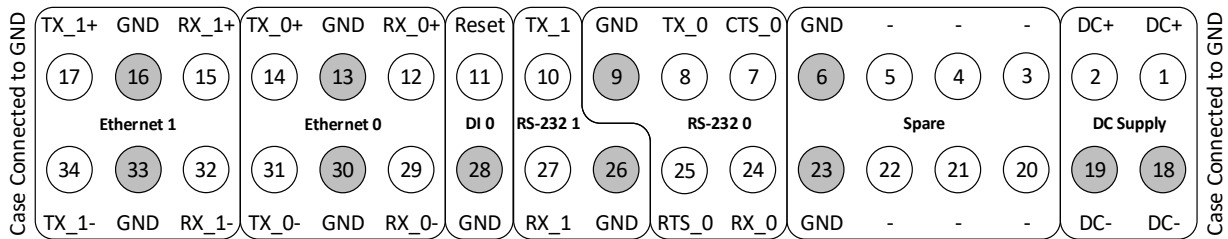


Figure 3-3: J1 External Connector Layout

Table 3-4: Wiring List Table

Pin	Name	Size (AWG)	Pin	Name	Size (AWG)
1	+28VDC	22	18	28VDC_GND	22
2	+28VDC	22	19	28VDC_GND	22
3	Reserved		20	Reserved	
4	Spare		21	Spare	
5	Spare		22	Spare	
6	Spare GND	22/24 ²	23	Spare GND	22/24
7	RS232_CTS0	22/24	24	RS232_RX0	22/24
8	RS232_TX0	22/24	25	RS232_RTS0	22/24
9	GND_RS0	22/24	26	GND_RS1	22/24
10	RS232_TX1	22/24	27	RS232_RX1	22/24
11	DIO_RESET	22/24	28	GND_DIO	22/24
12	ETH_RX0+	22/24	29	ETH_RX0-	22/24
13	GND_ETH0	22/24	30	GND_ETH0	22/24
14	ETH_TX0+	22/24	31	ETH_TX0-	22/24
15	ETH_RX1+	22/24	32	ETH_RX1-	22/24
16	GND_ETH1	22/24	33	GND_ETH1	22/24
17	ETH_TX1+	22/24	34	ETH_TX1-	22/24
CASE	Chassis Ground	Case			

² See options in Table 3-3.

4. INSTALLATION

4.1 GENERAL INFORMATION AND OVERVIEW

This chapter contains considerations and recommendations for installation of the AVIATOR UAV 200 SATCOM terminal.

The information and drawings contained in this manual are intended as a reference for engineering planning only. It is the installer's responsibility to compose installation drawings specific to the aircraft.

To ensure optimal performance from the AVIATOR UAV 200, strict adherence to the installation considerations found in this section must be maintained.

4.2 STORAGE AND TRANSPORTATION

Store the box in a dry area (< 50% RH) where the temperature does not exceed -40°C to +85°C.

4.3 UNPACKING & INITIAL INSPECTION

Inspect the shipping container immediately upon receipt for evidence of damage during transport. If the shipping container is severely damaged or water stained, request that the carrier's agent be present when opening the carton. Save the carton packing material for future use.

Unpack and check that the AVIATOR UAV 200 SATCOM terminal is present.

After unpacking the Terminal, inspect it thoroughly for shipping damage and loose components or fittings. If the contents has mechanical damage or defect, or if the system does not work properly, notify Cobham.

Retain the packing material and containers for future storage and/or shipping use.

4.4 INSTALLING THE USIM

The USIM is housed in the bottom of the AVIATOR UAV 200 under a cover plate as shown below in Figure 4-1. The cover plate is marked USIM.

Remove the two Pozidrive head screws in the lid of the USIM holder to gain access to the USIM.

Insert the USIM into its holder as shown in Figure 4-2.

Replace the holder cover plate and secure the screws correctly.

NOTE: The cover plate contains a resistive heater for the USIM operating in cold environments. Keying is provided to ensure correct orientation of the cover plate.



Figure 4-1: USIM Location

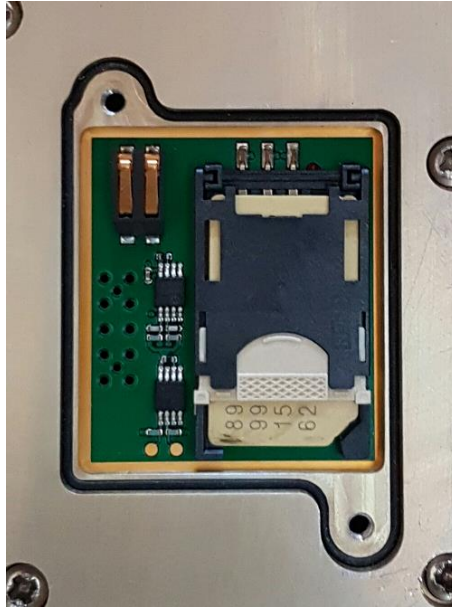


Figure 4-2: USIM Holder

4.5 INSTALLATION CONSIDERATIONS

Before you start to install the terminal, read the following sections carefully:

- Terminal location and mounting considerations
- Structural modifications, painting and sealing
- Wiring Diagram
- Grounding
- Alignment and installation limitations

4.5.1 Terminal Mass and CG

The mass of the AVIATOR UAV 200 is approximately 1.45 kg with a Centre of Gravity (CG) as shown in the mechanical outline drawing, 677-A0219_OD [2]. The mass and CG will need to be used in the CG calculation of the aircraft after installation.

4.5.2 Terminal Cooling Considerations

Install the terminal so that the flanges can dissipate heat into the mounting/airframe structure, or the surrounding air. The aircraft structure can be used to dissipate the heat into the air stream during flight. During standby mode (receive only) the terminal dissipates approximately 8 W of power. This increases up to 25 W while transmitting.

The terminal is capable of operating over the temperature range of -40 °C to +55 °C [-40 °F to +131 °F]. Operating the terminal outside of the operating temperature range may degrade its performance as part of self-protection mechanisms.

When operating the terminal on the ground where no or minimal airflow is available, additional cooling may be required for long test runs.

4.5.3 Terminal Location

The terminal must be installed under a radome/dust cover or RF transparent fuselage section with the greatest possible clear view of the sky.

Ensure that UAV 200 is installed such that aircraft components don't cause RF beam blockage. The installer must ensure the equipment is mounted so as to ensure minimal RF blockage.

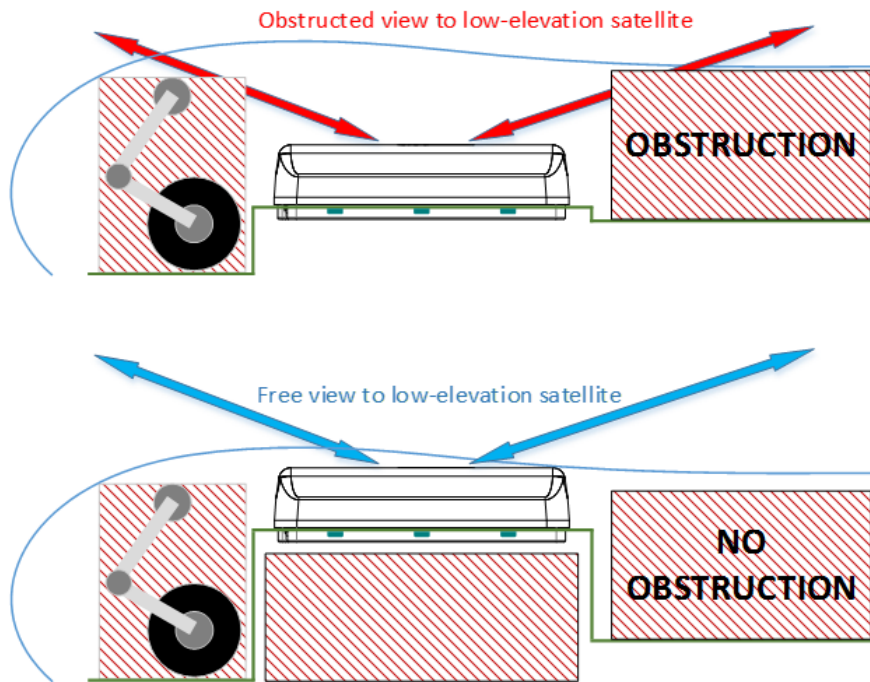


Figure 4-3: Unit Positioning to Avoid Obstacles between Antenna and Satellites

4.5.3.1 Co-location with Other Systems

The AVIATOR UAV 200 has been designed to pass relevant RTCA DO-160G Radiated Emission tests [refer to Table 7-1]. RF Transmissions from the terminal may still affect the operation of other RF systems in some cases.

The installer must evaluate the system RF susceptibility before deciding on the location of the SATCOM terminal.

4.5.3.2 Aircraft Structure

The terminal should be secured to the airframe using the six mounting holes provided. These mounting points are also used for electrical grounding.

The equipment must be mounted on a thermally conductive section of the aircraft structure or mounting plate that will provide cooling for the terminal.

4.5.4 Sealing

The UAV 200 terminal allows for pressure equalization with a breathable Gortex™ membrane. The breathable membrane prevents the ingress of fluids.

Mount the terminal so that water does not accumulate on the underside of the terminal. This ensures the Gortex™ membrane cannot become blocked by constant contact with water on the membrane.

4.5.5 Wiring the AVIATOR UAV 200

Connect the wiring for the AVIATOR UAV 200 terminal as described below.

1. Make sure that the aircraft wiring installation complies with the wiring requirements shown below in Figure 3-1 to achieve the DO-160G performance criteria. The cable length used during qualification is 3.3m.
2. Use screened twisted pair cable for the Ethernet and RS-232 interfaces.
3. Keep the shield termination wire length as short as practically possible. The maximum shield terminal wire length must be shorter than 50 mm.
4. In order to maximise terminal power efficiency, keep the series resistance of the power cabling as low as possible. The power cable resistance must be lower than 150 mΩ between the power source

and the terminal connector. Multiple DC power pins are provided to reduce the series resistance of the power cable bundle. If long power cable runs are required, a larger gauge wire will need to be used over the length of the cable, and reduced to the appropriate gauge wire at the connector pin.

5. The Power Source for the UAV 200 Terminal should be 12VDC to 32VDC of at least 28W.

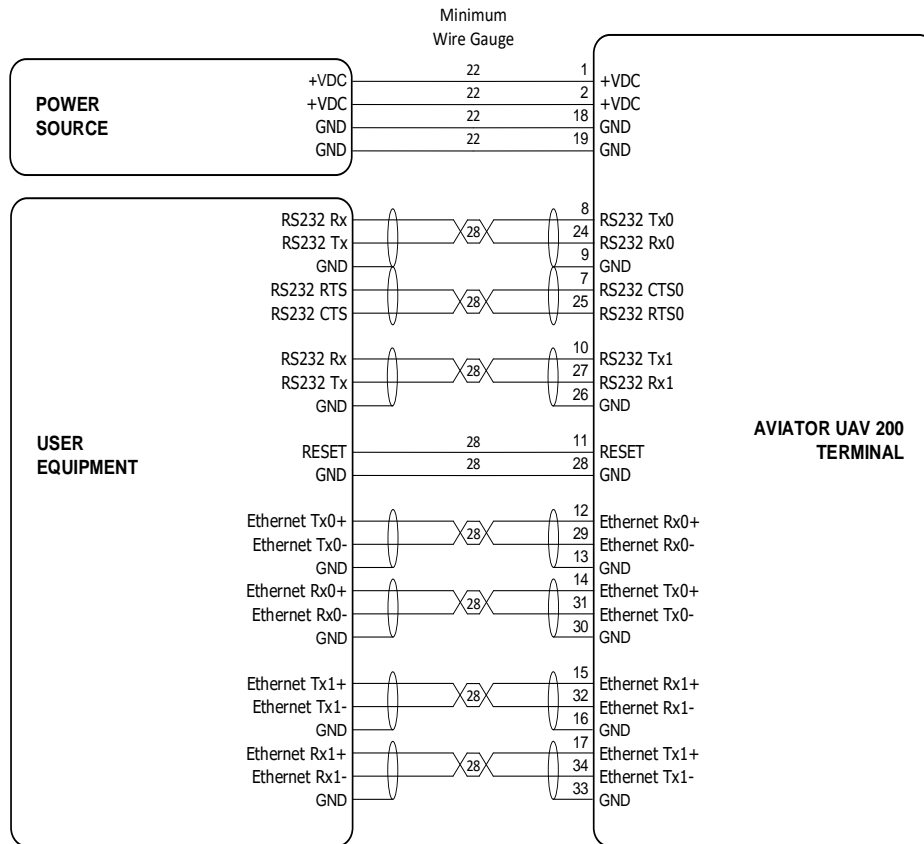


Figure 4-4: AVIATOR UAV 200 Wiring Diagram

4.5.6 Grounding

The AVIATOR UAV 200 terminal is grounded through the Alodined aluminium contact areas shown in Figure 4-5. The airframe attachment points should be free of paint and suitably protected against corrosion, providing the ground path when the terminal is mounted. The resistance between the terminal base and the airframe should be less than 5 mΩ.

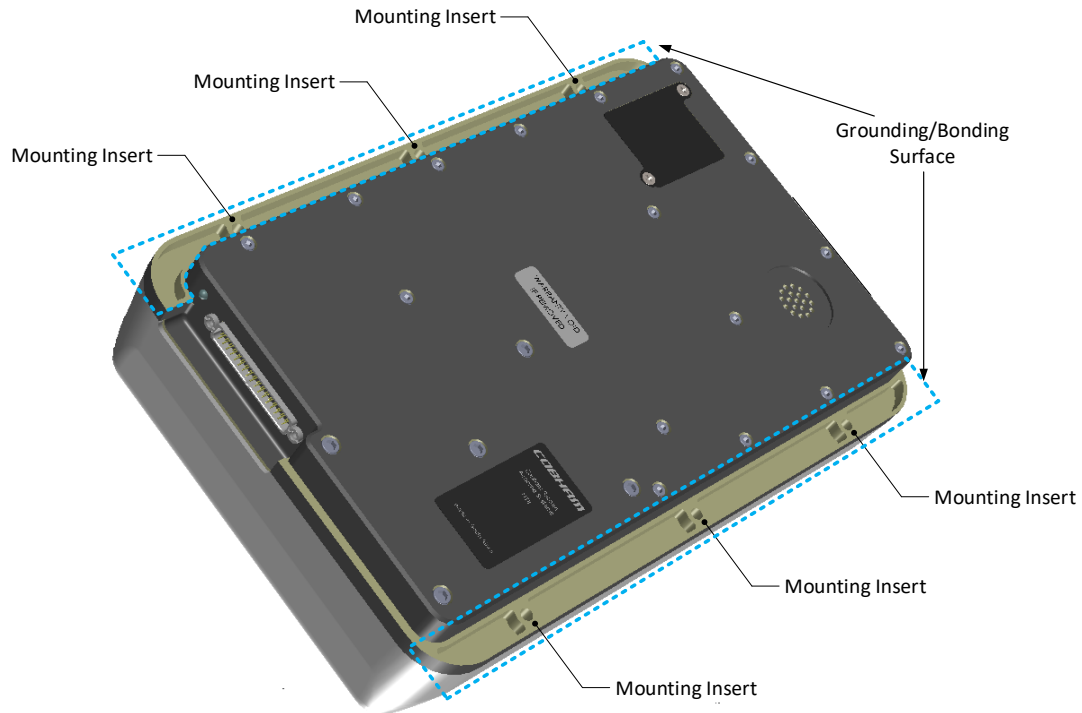


Figure 4-5: AVIATOR UAV 200 Grounding/Bonding Surface

The Installer must take galvanic corrosion effects into account when dissimilar materials are used for bonding.

4.5.7 Alignment and Installation Limitations

The installer must consider the following factors when installing the terminal:

- Alignment and installation offset angles
- RF blockage
- Co-location with other systems/antennas
- Aircraft structure

The terminal may be mounted with any side facing forward relative to the aircraft to facilitate compact installations. By default, side A is the side facing forward, see Figure 4-6.

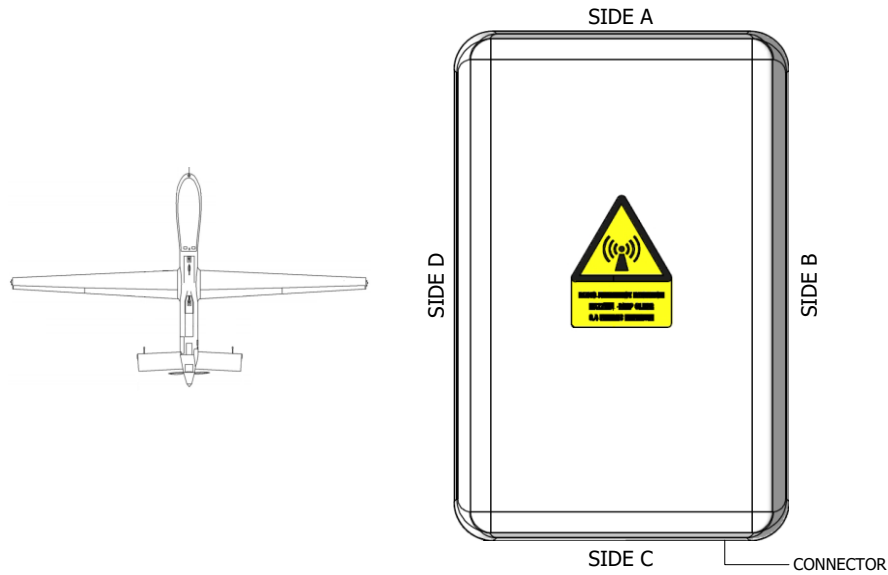


Figure 4-6: AVIATOR UAV 200 Orientation

The terminal may be slightly misaligned with the aircraft roll, pitch or yaw axes as shown below in Figure 4-7.

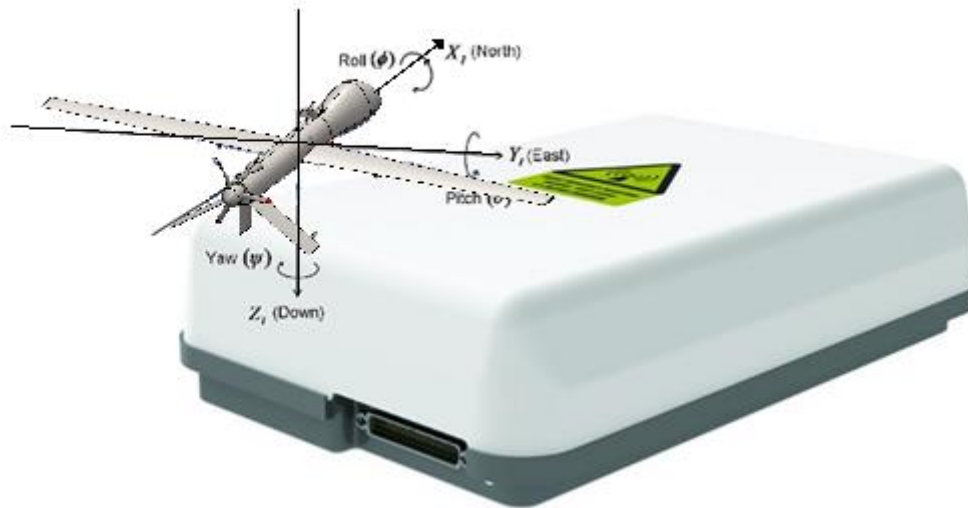


Figure 4-7: Axes Definitions.

The installation offset angles must be compensated for by the terminal to ensure optimal system performance.

Mounting the terminal as level as possible ensures the terminal has a symmetric view of the satellite.

Perform the following steps to measure and configure the installation offset angles:

1. Measure the roll, pitch and yaw offsets using a clinometer with measurement accuracy of better than 0.25°.
2. Roll and pitch attitude offsets of the antenna can be determined by subtracting the aircraft attitude angles from the terminal attitude angles.
3. Measure the aircraft attitude angles with the clinometer on an appropriate reference surface.
4. Measure the terminal attitude angles with the clinometer placed on the terminal mounting surface.
5. Measure the yaw installation offset angle using an accurate compass or protractor with reference to the centreline of the aircraft.
6. Programme these values into the UAV 200 terminal using the Web Interface DASHBOARD.

The overall pointing error of the antenna beam is dependent on the accuracy of the aircraft attitude data provided by the navigation system. The total pointing error must be less than 2.5° to ensure optimal performance.

The AVIATOR UAV 200 uses the installation angles as part of the beam steering calculations. See Section 8.1.1 – *Initial Configuration of the AVIATOR UAV 200* for details on how to configure the installation angles.

4.5.8 Lightning Strike

The AVIATOR UAV 200 is not protected against direct lightning strikes.

4.6 EQUIPMENT INSTALLATION

Use six 8-32 UNC x 1D, 0.164" [4.1656 mm] screws to mount the terminal. Each screw fits into a locking thread insert to ensure that the screws remain secure.

The mounting holes are used for bonding to the airframe for power dissipation and RF grounding.

The installer must ensure the correct length and type of mounting screws used. Refer to the Outline Drawing [1] for the required mounting screw insertion depth.

4.7 AVIATOR UAV 200 REMOVAL

To remove the AVIATOR UAV 200 as follows after gaining access to the terminal in the aircraft:

1. Disconnect the external interface cable
2. Remove the six mounting screws

5. MAINTENANCE

5.1 GENERAL

The AVIATOR UAV 200 does not require routine maintenance or adjustment apart from routine wiring installation checks.

Non-disclosure. By using the AVIATOR UAV 200 you recognize that the radome/dust cover is not designed to be a removable part and agree not to attempt its removal by any means. It is permanently bonded in order to cover the antenna sub-assembly. The antenna sub-assembly also contains proprietary design information that may not be accessed or disclosed without the express written consent of Omnipless Manufacturing (PTY) Ltd.

5.1.1 Maintenance Intervals

There are no specified inspection intervals of the SATCOM system. Refer to Table 5-1 for information on inspection actions applicable to the AVIATOR UAV 200.

Table 5-1: Inspection tasks for AVIATOR UAV 200

Inspection	Action
Check the radome/dust cover for cracks.	Return product to manufacturer (do not attempt to remove radome/dust cover from the product)
Check SATCOM-to-mounting structure ground resistance.	Tighten mounting screws.
Check cabling for broken or frayed wires.	Replace the damaged wires.

5.1.2 Repair and Servicing

The AVIATOR UAV 200 is not field-repairable, and must be returned to the supplier for repair. For information on how to return a unit for repair, see Section 9.2.

5.2 EVENTS GENERATED BY THE AVIATOR 200 UAV

If the AVIATOR 200 UAV malfunctions, it creates event logs stored in memory. The terminal can generate an event log file on demand via the Web Interface DASHBOARD which can be downloaded and stored on the attached computer. This event log file should be sent to the supplier to investigate the failure.

NOTE: The event log data is lost if the terminal is powered down, so any logs would need to be downloaded while it is still powered to capture any failure conditions.

The following events may be generated by the terminal during power-on self-test or continuous monitoring:

- Satellite information
- Channel information
- Satellite Connection information
- Signal metrics
- Temperature
- CPU status
- HPA status
- DSP status
- Memory information
- Data sent and received
- USIM status
- Position
- Orientation
- Power supply
- Executable Software information
- AT Commands

6. SPECIAL TOOLS, FIXTURES AND EQUIPMENT

Tools, fixtures and equipment necessary to perform the AVIATOR UAV 200 installation is described in this manual refer to Table 6-1, below. Equivalent substitutes may be used.

Table 6-1: Tools, Fixtures and Equipment Required for the AVIATOR UAV 200 Installation

	Name	Specification or part number	Source /CAGE code	Section
1	Milliohm meter	Extech 380460 Series (typical)	Extech Instruments Corporation, 285 Bear Hill Road, Waltham, MA 02451-1064 Cage code 0LTF4	Installation: To install the SATCOM system.
2	Torque driver	3.5 – 5 Nm (2.6-3.7 ft-lb)	Commercially available	Installation: To install the SATCOM system.
3	Crimp tool	DANIELS MH800 with K1692 positioner	Commercially available	External Interfaces: To install the SATCOM system.
4	Pin Insertion / Extraction Tool	Insert Tool C12935 Extraction Tip for female contact 13170 Extraction Tip for male contact 13242 Insertion Tip for AWG 24-28 (S) 13171 Insertion Tip for AWG 22 © 13172	Nicomatic	External Interfaces: To install the SATCOM system.

7. EQUIPMENT SPECIFICATIONS

7.1 AVIATOR UAV 200 SPECIFICATIONS

The AVIATOR UAV 200 overview of the technical specification are shown below.

Table 7-1: Equipment Specifications for AVIATOR UAV 200

Specification	Details
Power Requirements	12 to 32 VDC @ 28W
Dimensions (nominal)	L = 241 mm W = 157 mm H = 63 mm
Weight	1.45 kg
Temperature Range	-40 °C to + 55 °C
Max Altitude	6000 m (~20000ft) amsl amsl = Above Mean Sea Level
Frequency	Rx: 1518 MHz – 1559 MHz Tx: 1626.5 MHz – 1660.5 MHz and 1668.0 MHz – 1675. MHz
Compass Safe Distance	15 – 25cm (dependant on position)
GNSS Interference Distance	Dependent on the receiver antenna and LNA design. It is recommended to be more than 45cm.

7.2 ENVIRONMENTAL SPECIFICATIONS

7.2.1 DO-160 Tests

The terminal is designed and tested to meet the RTCA DO-160G [4] sections and categories as listed below in Table 7-2.

Table 7-2: DO-160G Environmental Requirements

Conditions	Section	Description of Tests Conducted
Temperature and Altitude	4	Category Z (Customised)
Operating Low Temperature	4.5.2	-40 °C
Operating High Temperature	4.5.4	+55 °C
Short Time Operating Low	4.5.1	-40 °C
Short Time Operating High	4.5.3	+55 °C
Ground survival low:	4.5.1	-55 °C
Ground survival high:	4.5.3	+85 °C
In-Flight Loss of Cooling	4.5.5	Category X (No test performed)
Altitude:	4.5.1	6000 m (20,000 ft.)
Decompression:	4.5.1	Category X (No test performed)
Overpressure:	4.5.1	Category X (No test performed)
Temperature Variation	5	Category B (5 °C /min)
Humidity	6	Category A (Standard Humidity Environment)
Shock & Crash Safety	7	Category D (Low frequency operational shock)
Vibration	8	Category S(LM): Aircraft zone 1 and 2 for fixed wing reciprocating and turboprop engines, multi-engine over 5,700 kg (12,500 lbs), multi-engine less than 5,700 kg (12,500 lbs), and single-engine less than 5,700 kg (12,500 lbs) using vibration test curves L and M.
Explosive Atmosphere	9	Category X (No test performed)
Waterproofness	10	Category Y (Condensing Test)
Fluids Susceptibility	11	Category F: <ul style="list-style-type: none"> Aviation Piston Engine Fuel Automotive Fuel Lubricating Oils: <ul style="list-style-type: none"> Mineral, Ester-based and 15W40 engine oil.
Sand & Dust	12	Category S
Fungus Resistance	13	Category X (No test performed)
Salt Fog	14	Category X (No test performed)
Magnetic Effect	15	Category Z (Less than 1 degree deflection at 0.3 m).
Power Input	16	Category Z <ul style="list-style-type: none"> Suitable for 14 VDC and 28 VDC systems Ripple and inrush current measure only Normal/abnormal operation 10.25 VDC to 32.5 VDC Emergency operation down to 8 VDC Surge 50 VDC for 50 ms and (Reset allowed, auto recover) 6 VDC for 30 ms (Reset allowed, auto recover) Abnormal Surge (No test performed) Power Interruption (No test performed)
Voltage Spike	17	Category X (No test performed)

Conditions	Section	Description of Tests Conducted
Audio Frequency Susceptibility	18	Category R
Induced Signal Susceptibility	19	Category X (No test performed)
Radio Frequency Susceptibility	20	Conducted Susceptibility to Category Y. Radiated Susceptibility to Category G (mod).
Radio Frequency Emission	21	Category Q
Lightning Induced Transient Susceptibility	22	Category X (No test performed)
Lightning Direct Effects	23	Category X (No test performed)
Icing	24	Category X (No test performed)
Electrostatic Discharge	25	Category X (No test performed)
Fire, Flammability	26	Category X (No test performed)

8. USING THE AVIATOR UAV 200

8.1 CONFIGURING THE TERMINAL

Having installed the AVIATOR UAV 200 System you must configure the terminal properly for use with the current setup, and configure the correct navigational input.

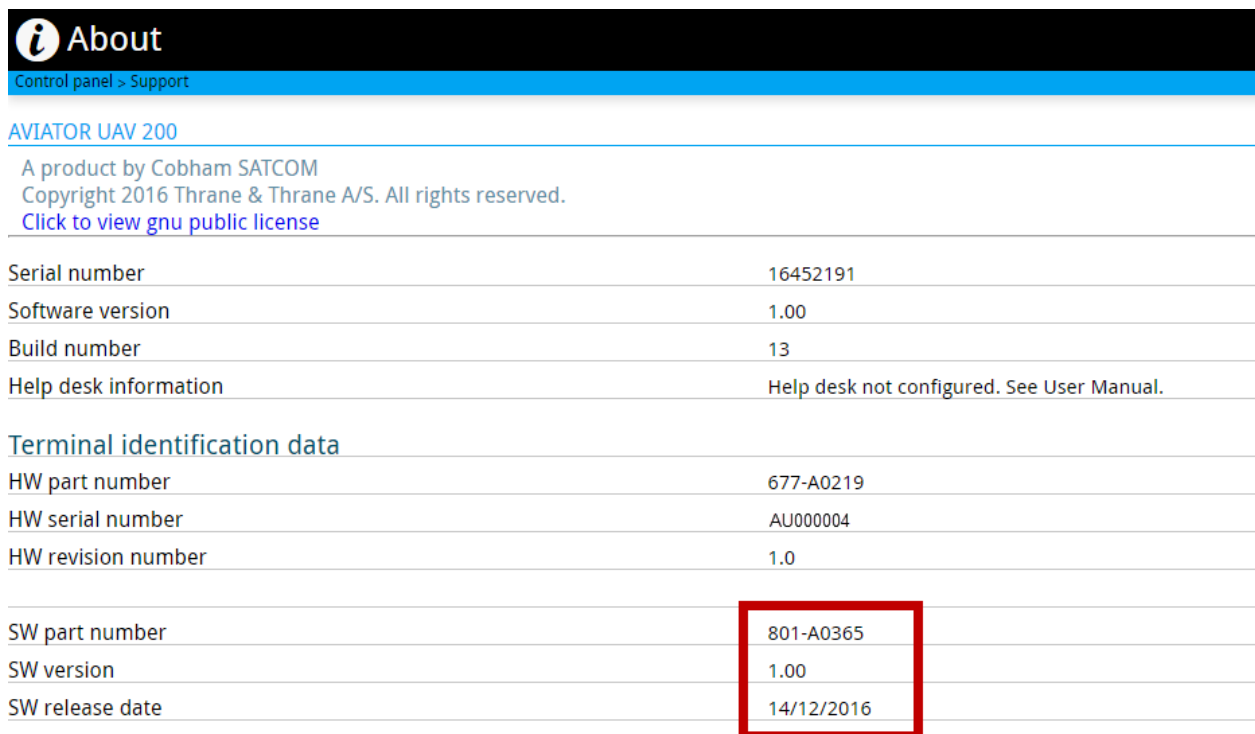
Furthermore the interfaces have to be set up and configured to the specific aircraft installation and application requirements. IP connections, network user groups and profiles for IP data usage including LAN network management must be configured so the required applications run smoothly on the system. For this purpose you use the built-in web interface Dashboard of the AVIATOR terminal.

Before you start configuring the AVIATOR UAV 200 make sure that the USIM is mounted in the terminal. See Figure 4-1 for the location of the USIM.
Ensure that the USIM is activated and airtime is loaded.

8.1.1 Initial Configuration of the AVIATOR UAV 200

As a minimum, you need to set up the following parameters in the built-in web interface of the UAV 200 terminal:

1. On the Web Interface **DASHBOARD** verify that you have the latest AVIATOR UAV 200 software version (see <https://sync.cobham.com/satcom/>, Cobham SYNC Partner Portal under **Technical Support -> Downloads**). Verify also that the latest firmware is up to date. For more information on the individual fields see *Web Interface Dashboard* on page 31.



About
Control panel > Support

AVIATOR UAV 200
A product by Cobham SATCOM
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[Click to view gnu public license](#)

Serial number	16452191
Software version	1.00
Build number	13
Help desk information	Help desk not configured. See User Manual.

Terminal identification data

HW part number	677-A0219
HW serial number	AU000004
HW revision number	1.0
SW part number	801-A0365
SW version	1.00
SW release date	14/12/2016

Figure 8-1: Basic configuraiton of the UAV 200, step 1/5

2. **Control Panel->Port Forwarding**, configure the port forwarding addresses.
3. **Note:** If in a case where Port Forwarding is used simultaneously with the Transparent mode feature, ensure that the port numbers configured are different in the Port forwarding configuration compared to the Transparent Mode Configuration.

Edit port forwarding
Control panel > Port forwarding

Enter new values and click Save

Active ☐

Incoming port start

Incoming port end

Destination IP address

Destination port start

Destination port end

Figure 8-2: Configure Port Forwarding, step 2/5

4. **Control Panel->RS-232 Settings**, configure the RS-232 serial interface if required. There are two RS-232 serial ports provided on the AVIATOR UAV 200 terminal. One of the RS-232 port can be set to accept AT Commands to allow navigation data to be sent to the AVIATOR UAV 200 terminal. The RS-232 port can also be set as a transparent serial port for sending user serial data.

Select the **Operating Mode** to **AT Command Mode** for sending navigation data or **Transparent Mode** for user data to enable the serial port.

192.168.0.1/#rs232settings x +

← → ↻ ⓘ Not secure | 192.168.0.1/#rs232settings

RS-232 settings
Control panel > RS-232

Enter new values and click Save

Port 0

Operational mode (requires reboot)

Baud rate

Data bits

Stop bits

Parity

Flow control

Port 1

Operational mode (requires reboot)

Baud rate

Data bits

Stop bits

Parity

Figure 8-3: Serial Port Settings, step 3/5

5. Enter the APN for the service provider for the Transparent serial port connection. This connection is automatically connected once configured. Every time the terminal powers up, this connection is automatically setup.

AVIATOR UAV 200 RS232 Proxy settings for Transparent RS232 mode. The proxy settings is required to send the serial data to the destination computer. Enter the IP address and port number for the destination computer. The Target packet payload is the target data packet size to be sent. The Idle ticks trigger is the time in milliseconds after which the packet will be sent anyway even if it has not reached the target payload size. The Static local port is primarily used if data has to be sent back to the AUAV200 transparent mode RS-232 port.

Note: When data is sent from the Proxy Server to the UT, the Proxy Server IP address must be the same as what is configured as Destination IP. If the Static port is set to zero the normal dynamic port allocation will be set. Enter the IP address and port number for the destination computer. Set the protocol to desired setting, either UDP or TCP. The Quality Of Service (QoS) of the connection type is configurable using the Connection type drop down. Check the checkbox at the **High priority pool** to send this user data over a High Priority buffer.

The screenshot shows a web browser interface for the AVIATOR UAV 200 Transparent mode. The browser address bar shows '192.168.0.1/#transparentmode'. The page title is 'Transparent mode' and the breadcrumb is 'Control panel > RS-232'. Below the title, there is a link 'Enter new values and click Save'. The main content area is divided into two sections: 'Proxy settings' and 'APN settings'. The 'Proxy settings' section includes fields for 'Destination IP' (196.212.99.96), 'Destination port' (55552), 'Protocol' (UDP), 'High priority pool' (checkbox), 'Target packet payload' (1380), 'Idle ticks trigger' (200), 'Static local port (UDP only)' (60001), and 'Connection type' (64 Streaming). The 'APN settings' section includes fields for 'APN' (User defined), 'User defined name' (bgan.inmarsat.com), 'User name' (Username_1), and 'Password' (Password_1). A red box highlights the 'Proxy settings' section, and a yellow box highlights the 'Static local port (UDP only)' field. At the bottom, there are 'Cancel' and 'Save' buttons.

Figure 8-4: Configure RS232 Proxy and APN Settings, step 4/5

6. **Control Panel->Terminal Settings->Installation Angles**, configure the installation angles for the offset from the autopilot reference angles compared to the terminal installation angles.

After carefully measuring the offset angles as described in Section 4.5.7, enter the angles in the **Installation Angles** section of the Terminal Settings page and click on the **Save** button.

Figure 8-5: Configure Installation Angles, step 5/5

8.2 USING THE NAVIGATION INTERFACE

The UAV 200 terminal requires and external navigation and Attitude Heading Reference System (AHRS) to provide the required information to steer the antenna and acquire the Inmarsat satellite. The navigation interface can be accessed through the serial port or the Ethernet port using AT Navigation Commands. For more detailed information refer to the Navigation Data Interface Control Document [2]. The format and data requirements are defined in this document.

Note: The AT_ITINS update rate should not exceed ten messages per second.

The AT Command used for the Navigation Interface is AT_ITINS with the following parameters comma separated:

<lat>,<lon>,<alt>,<height>,<utc>,<ns_vel>,<ew_vel>,<gnd_spd>,<track_angle>,<roll>,<pitch>,<heading>,<mag_heading>,<roll_rate>,<pitch_rate>,<heading_rate>

The mandatory parameters to send in the command string are:

<lat>,<lon>,<height>,<utc>,<ns_vel>,<ew_vel>,<roll>,<pitch>,<heading>

The unused parameters must be set to zero.

e.g. AT_ITINS=-34.0088,18.5009,0,180.5,2017.03.16-09:34:27,-24.5,34.5,0,0,0.8,2.3,276.0,0,0,0,0

8.3 USING THE AT COMMAND INTERFACE

Primarily the AT Command interface will be used to send navigation data to the UAV 200 terminal. This is required for antenna steering. The AT Commands can also be used to monitor and control the terminal during operation. See the AT Command Reference document [3] for details on the supported commands.

8.4 WEB INTERFACE DASHBOARD

The web interface is built into the terminal and is used for operating, setting up and configuring the system. You can access the web interface from a computer with a standard Internet browser.

The figure below shows the Home Page for the AVIATOR UAV 200 web interface. The default IP address is **192.168.0.1**. The different regions shown below in Figure 8-6 have different functions. These are:

1. Make a connection
2. Edit Connection Parameters
3. Terminal Status display
4. Position Information display
5. Status bar – Satellite receiver strength and Alerts
6. Go to **Home Page** Dashboard
7. Go to **Control Panel** Page

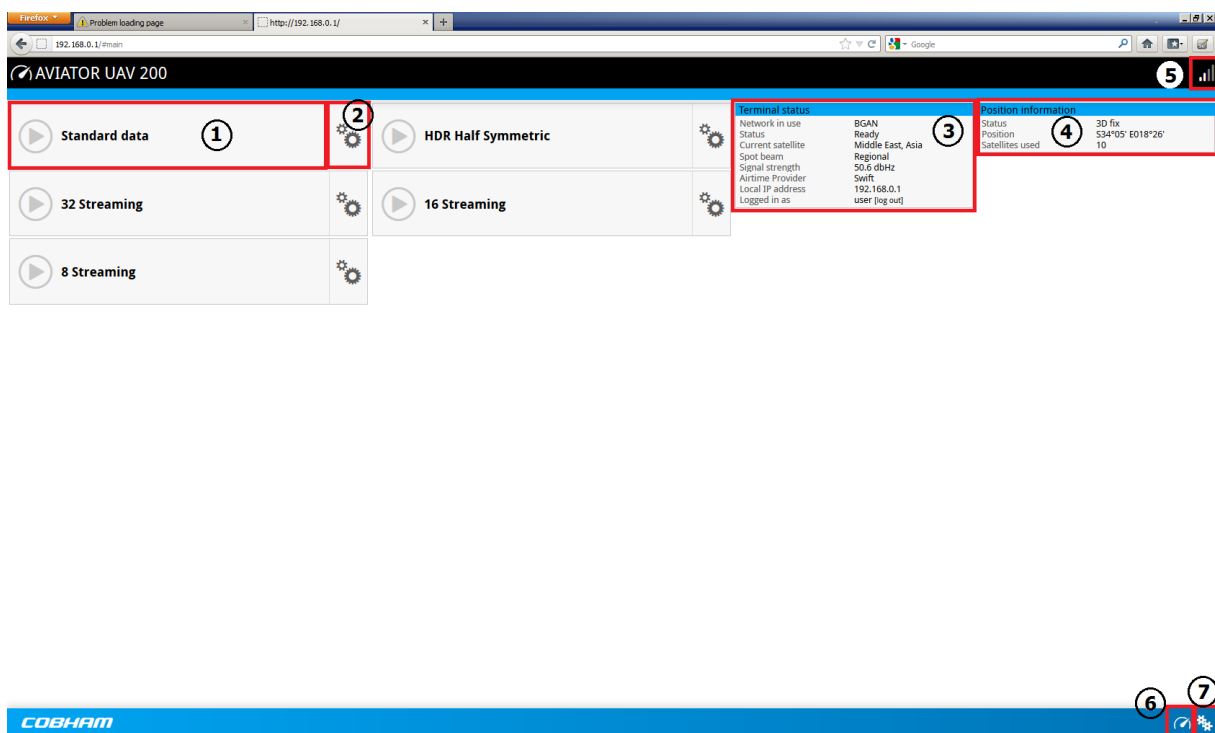


Figure 8-6: DASHBOARD Home Page

8.4.1 Check the connection to the web interface

To check whether you can connect to the web interface of the UAV 200 do the following:

1. Power up the AVIATOR UAV 200 terminal. Wait until the LED on the front panel shows the system is ready.
 - Status LED: Solid white.
2. Connect a PC to one of the Ethernet interfaces of the terminal using a LAN cable.
3. Open your browser and enter the IP address of the SBU. The default IP address is **192.168.0.1**.


Note: If the local IP address of the terminal has been changed and you do not have the new address, you can temporarily set the IP address to the default value by shorting the Reset discrete. For details about the Reset discrete see Section 4.5.5 – Wiring .

4. The web interface opens directly with the Web Interface **DASHBOARD** home page.

8.4.2 Status Bar Icons

The following icons may appear in the Status bar of the Web Interface DASHBOARD:

Table 8-1: Web Interface Status Icons

Icon	Explanation
	An event is active. Click the icon to see a list of active events. For explanations of the event messages, see the AVIATOR UAV 200 User Manual. Note that this icon will remain in the icon bar as long as the event is still active.

8.4.3 Menu Structure

Below in Figure 8-7 is the overview of the menu structure for the Web Interface DASHBOARD.

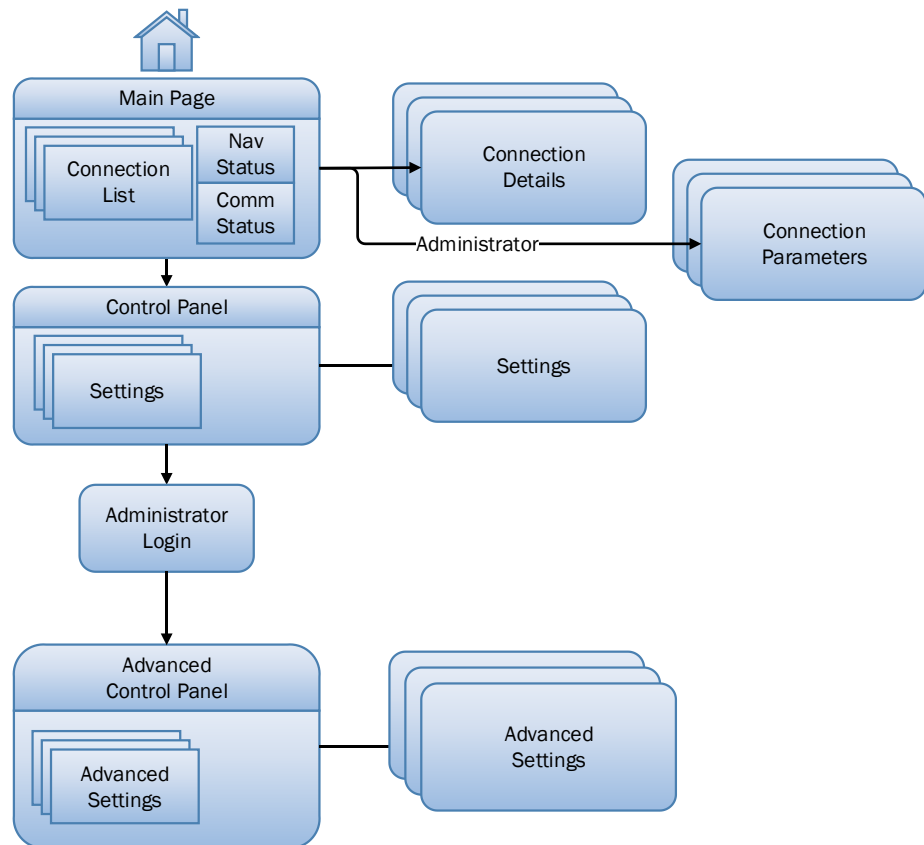


Figure 8-7: Web Interface Dashboard Main Page Overview

Below in Figure 8-8 is the overview of the Control Panel Menu structure and sub-functions.

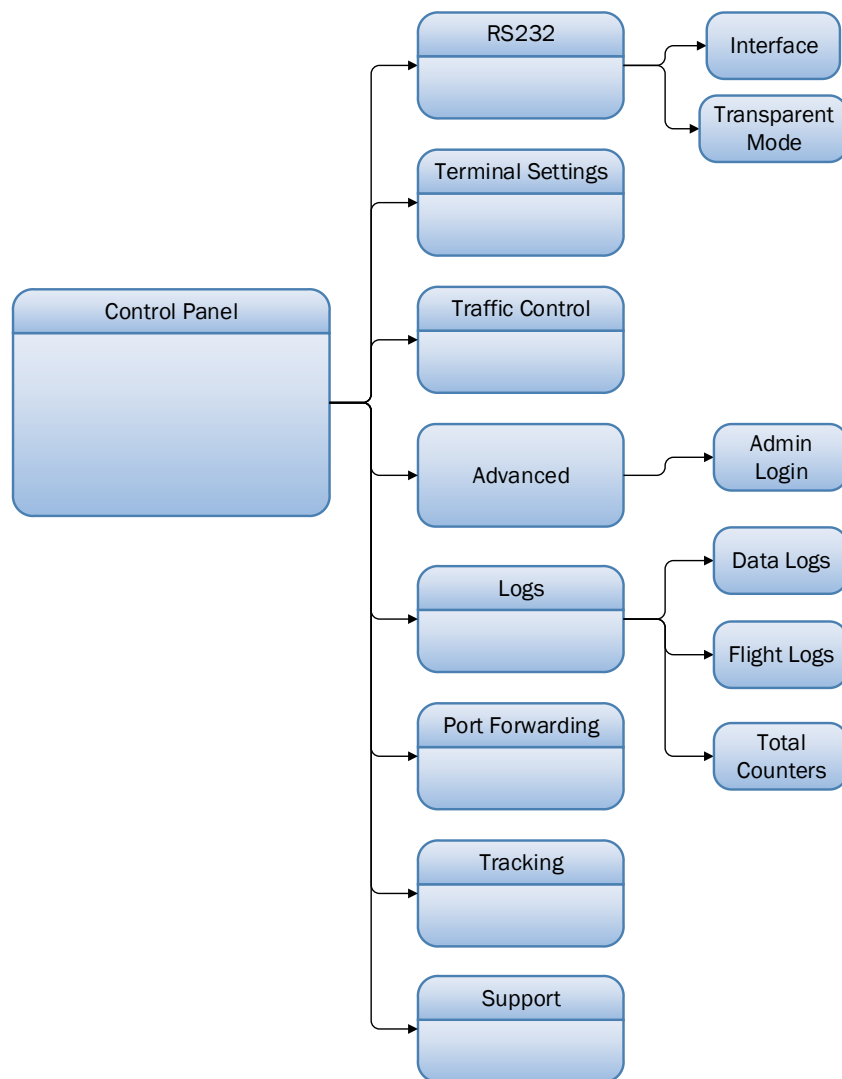


Figure 8-8: Control Panel Menu Overview

Below in Figure 8-9 is the overview of the Advanced Control Panel Menu structure and sub-functions.

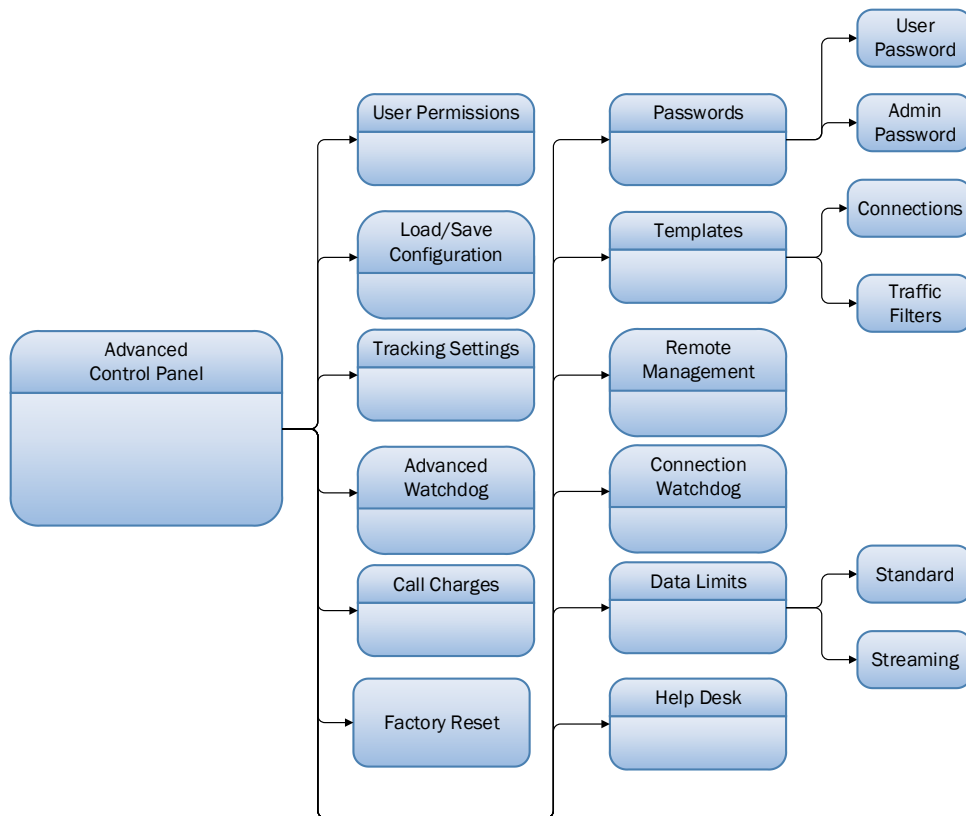


Figure 8-9: Advanced Control Panel Menu

8.4.4 Connection Settings

To change the **Connection Setting Parameters**, the user will need to login as an Administrator. See Section 8.4.5.4.



The click on the button shown below next to the connection the user wants to edit.

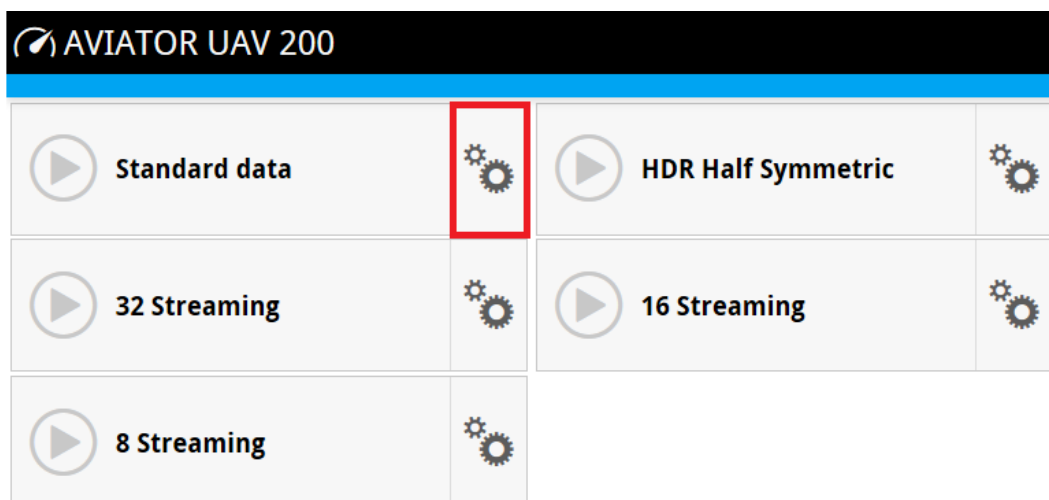
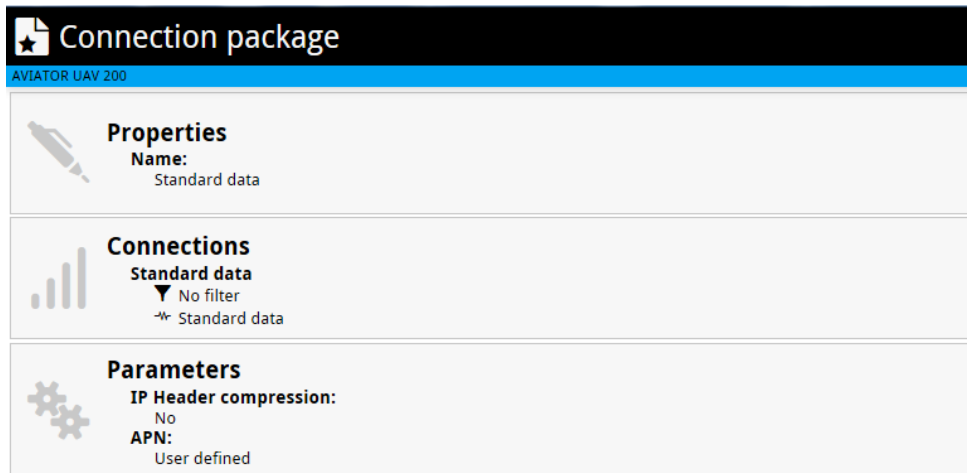


Figure 8-10: Connection Settings

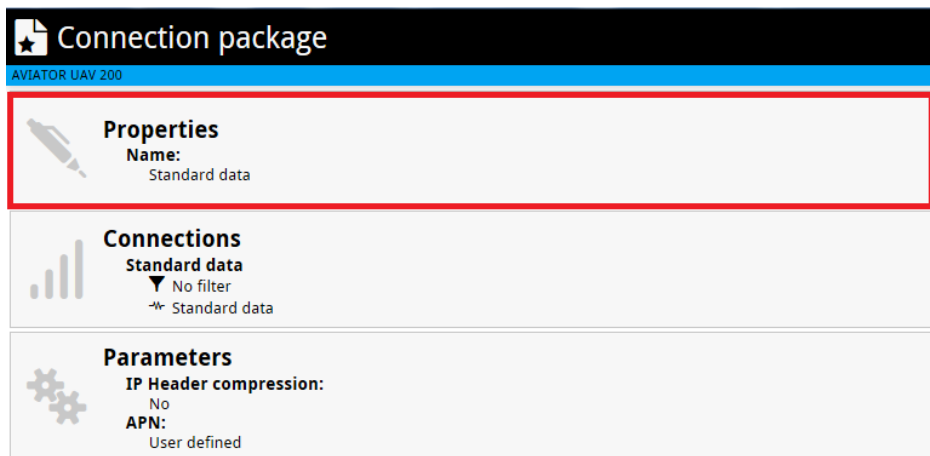
The **Connection Package** page is then displayed as shown below.



The screenshot shows the 'Connection package' page with a black header and a blue sub-header 'AVIATOR UAV 200'. The main content area is divided into three sections: 'Properties' with a pencil icon and 'Name: Standard data'; 'Connections' with a bar chart icon, 'Standard data', a dropdown menu set to 'No filter', and a radio button for 'Standard data'; and 'Parameters' with a gear icon, 'IP Header compression: No', and 'APN: User defined'.

Figure 8-11: Connection Package Page

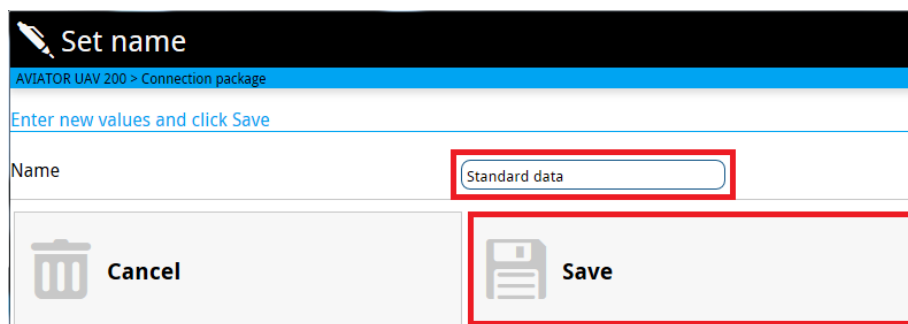
The name of the Connection can be changed by clicking on the **Properties** button as shown below.



This screenshot is identical to Figure 8-11, but the 'Properties' section is highlighted with a red rectangular border, indicating it is the target for the next action.

Figure 8-12: Edit Connection Name

Edit the **Name** and click on the **Save** button to accept the change.



The screenshot shows a 'Set name' dialog box with a black header and a blue sub-header 'AVIATOR UAV 200 > Connection package'. Below the header is a prompt 'Enter new values and click Save'. The 'Name' field contains 'Standard data' and is highlighted with a red box. At the bottom, there are two buttons: 'Cancel' with a trash icon and 'Save' with a floppy disk icon, both also highlighted with red boxes.

Figure 8-13: Edit Connection Name

The Connection Filter can be displayed by selecting the **Connections** button.

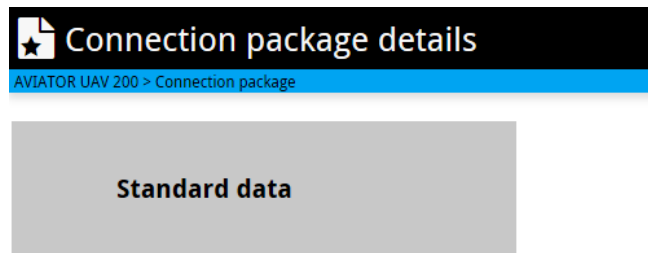


Figure 8-14: Display Connection Filter

Click on the **Parameters** button to edit the connection Parameters.

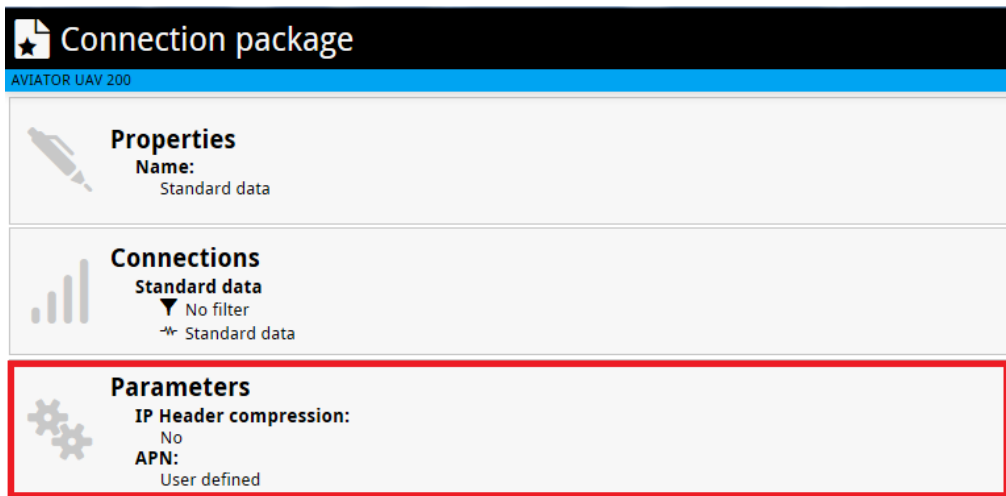



Figure 8-15: Connection Package Parameters


The APN details for the connection can be set using the **Set Parameters** page as shown below. Once the APN details have been entered and any applicable username and password is set in the space provided, click

on the **Save**  button to accept the changes.

Cancel reverts back to the previous settings and exits the page.

Figure 8-16: Connection Settings

8.4.5 Control Panel

By Clicking on the  icon on the bottom right corner of the DASHBOARD Main Page (see Figure 8-6) the Control Panel page is displayed as shown below.

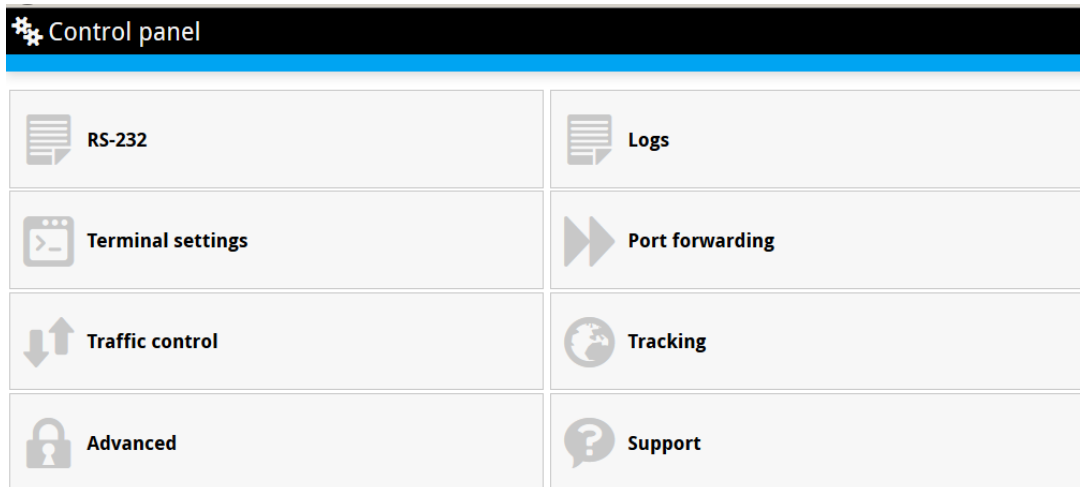


Figure 8-17: Control Panel

8.4.5.1 RS232

The AVIATOR UAV 200 has two serial ports to send user data or navigation data over the connection. The **Transparent Mode** of operation is for sending user data and the **AT Command Mode** is used for sending navigation data to the terminal.

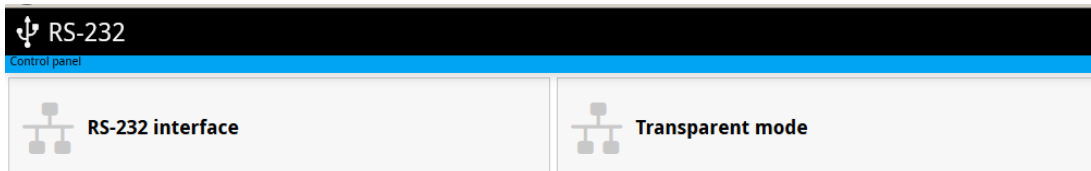


Figure 8-18: RS-232 Mode Selection

Select the **Operational Mode** dropdown list to either **Transparent Mode** or **AT Command Mode** to enable the RS232 serial port.
Set the RS232 serial port baud rate, number of data bits, start and stop bits and parity for the connection using the dropdown list.

Note: Flow control is only available on RS232 serial port0. If flow control is required for the serial port connection, this can be set using the **Flow Control** dropdown list.

Note: The RS232 serial port automatically creates a PDP context connection when it is enabled. Select

Port Not Used in the Operational Mode dropdown list if the RS232 serial port is not in use.

192.168.0.1/#rs232settings

Not secure | 192.168.0.1/#rs232settings

RS-232 settings

Control panel > RS-232

Enter new values and click Save

Port 0

Operational mode (requires reboot)

Baud rate

Data bits

Stop bits

Parity

Flow control

Port 1

Operational mode (requires reboot)

Baud rate

Data bits

Stop bits

Parity

Cancel Save

Figure 8-19: RS-232 Interface Settings

When configuring the serial for Transparent serial mode, the destination IP address and Port number must be configured to send the data to the destination computer. The protocol can either be **UDP** or **TCP** depending on the application.

192.168.0.1/#transparentmode

Not secure | 192.168.0.1/#transparentmode

Transparent mode

Control panel > RS-232

Enter new values and click Save

Proxy settings

Destination IP	196.212.99.96
Destination port	55552
Protocol	UDP
High priority pool	<input type="checkbox"/>
Target packet payload	1380
Idle ticks trigger	200
Static local port (UDP only)	60001
Connection type	64 Streaming

APN settings

APN	User defined
User defined name	bgan.inmarsat.com
User name	Username_1
Password	Password_1

Cancel Save

Figure 8-20: RS-232 Transparent Mode Settings

8.4.5.2 Terminal Settings

The Terminal Settings page allows you to configure the router mode and local IP address of the terminal. The default is **192.168.0.1**.

Note:

When selecting the internet connection as Modem Mode it is recommended that the Port Forwarding rules be disabled.

IP address 192.168.2.0/24 is reserved for the Radio Module.

In order to change the Automatic Context Activation quality of service, the user must be logged in as an administrator and any existing or establishment process of a Shared Packet Data context must be disconnected.

This page also allows the operator to configure the DHCP server settings, install angles of terminal installation and enabling or disabling the ATC mode.

192.168.0.1/#terminalsettings

Not secure | 192.168.0.1/#terminalsettings

Terminal settings

Control panel

Enter new values and click Save

Use Router mode when connecting more than one device to the terminal.

Internet connection mode (requires reboot) Router mode

Local IP address 192.168.0.1

Automatic Context Activation (ACA) of Standard data ☒

Shared connection type (requires reboot) Standard data

DHCP

DHCP can only be used in Router mode.

DHCP Enabled ☒

Network mask 255.255.255.0

DHCP range start 192.168.0.10

DHCP range end 192.168.0.40

Installation angles

Yaw 0.0 deg

Pitch 0.0 deg

Roll 0.0 deg

ATC

ATC mode Auto

Cancel Save

Figure 8-21: Terminal Settings

8.4.5.3 Traffic Control

Traffic Control restricts the type of data traffic for all devices connected to the terminal. Traffic Flow templates can be setup in the **Advanced Control Panel -> Templates** settings to control the traffic, see Section 8.4.6.8.

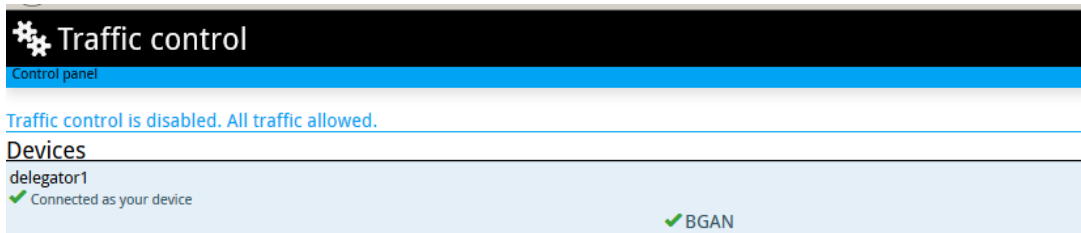


Figure 8-22: Traffic Control on Devices

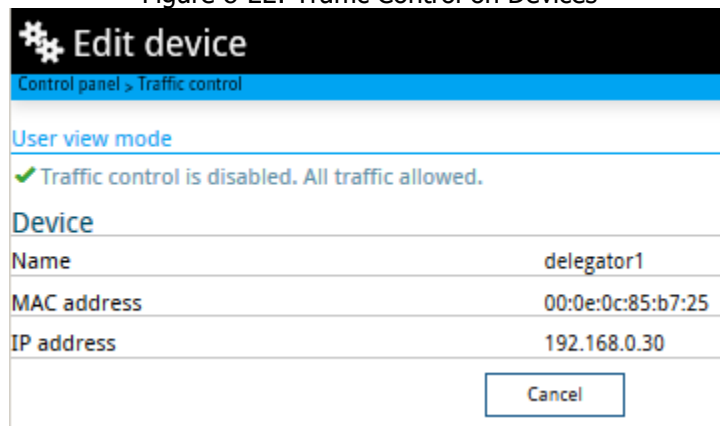


Figure 8-23: Edit Device Traffic Control

8.4.5.4 Advanced

Login in as an administrator to view the advanced menu options. The administrator password request page is shown after the Advanced menu button is pressed. Enter the password and click on the Login button to proceed. The default password is **admin**.

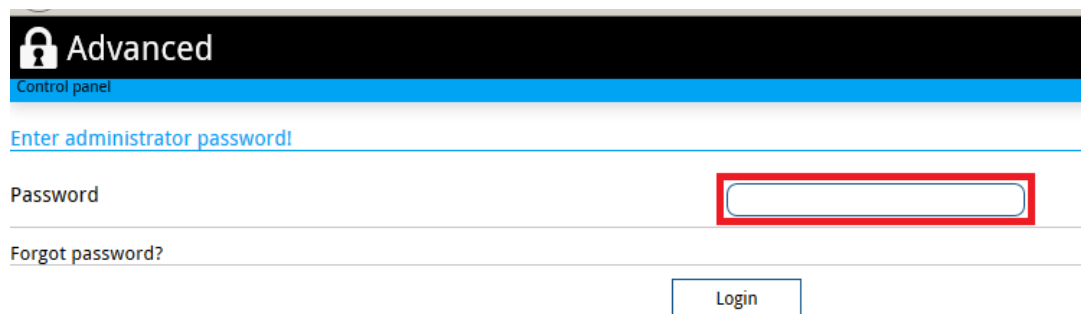


Figure 8-24: Admin Login

After the Admin login, the **Advanced Control Panel** menu will appear with the additional options as shown below. See Section 0 for further details on the Advanced Control Panel menu.

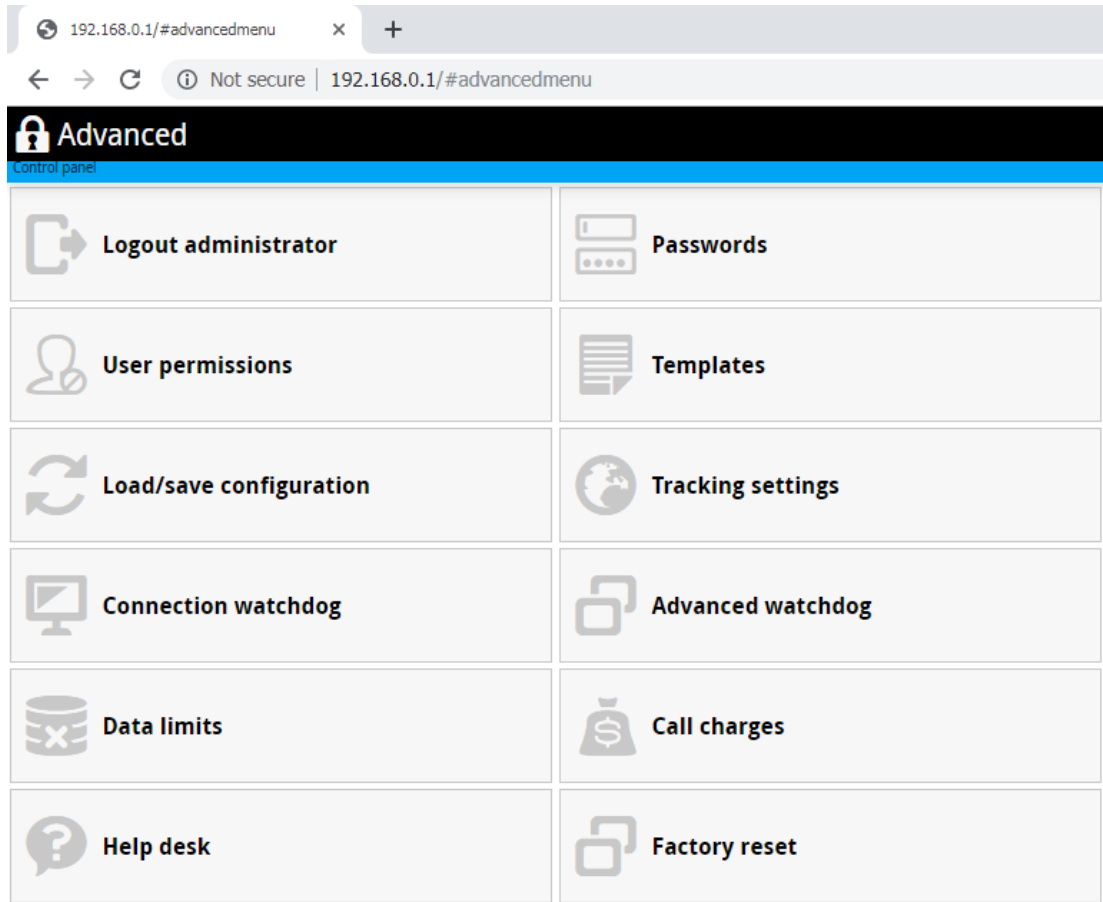


Figure 8-25: Advanced Menu Options

8.4.5.5 Logs

The UAV 200 terminal maintains various logs for Data, Flights and Total cost counters for the different types of data services.

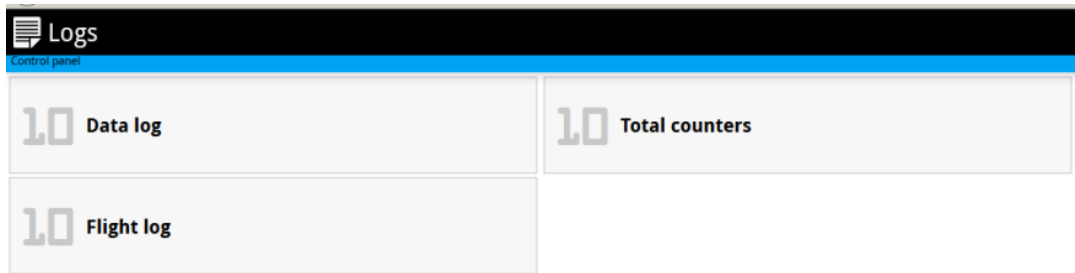


Figure 8-26: Event Logs Page

Flight logs must be generated before they can be downloaded from the web interface. Click on the **Generate flight log** button to generate the log and click on the **Download flight log** button to download the log to the local computer.



Click on the button to delete the log.

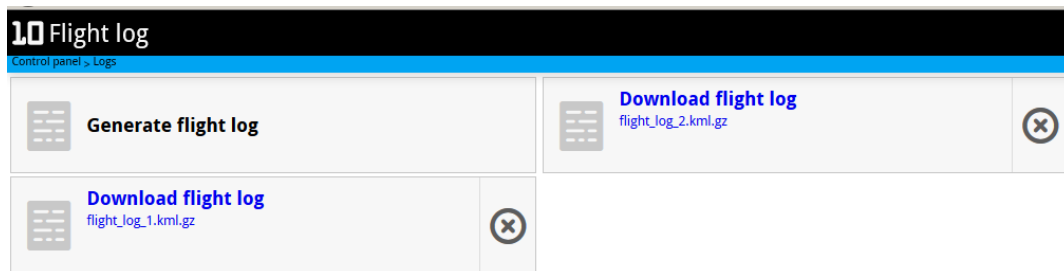


Figure 8-27: Flight Logs

10 Data log		
Control panel > Logs		
Standard data 16.0 kB	01/19 11:00	
Standard data 0 kB	01/19 10:13	
Standard data 244.9 MB	01/17 09:22	
Standard data 5.0 kB	01/17 09:21	
Standard data 10.0 kB	01/17 08:48	
Standard data 569.0 kB	01/17 08:07	
Standard data 12.6 MB	01/13 13:02	
Standard data 0 kB	01/11 12:34	
Standard data 0 kB	01/11 12:33	
Standard data 0 kB	01/11 12:11	
Standard data 0 kB	01/11 12:02	
Standard data 0 kB	01/11 12:01	
Standard data 0 kB	01/11 11:59	
Standard data 0 kB	01/11 11:56	
Standard data 0 kB	01/11 11:53	
Standard data 0 kB	01/11 11:49	
Standard data 0 kB	01/11 11:41	
Standard data 0 kB	01/11 11:39	
Standard data 0 kB	01/11 11:37	
Standard data 0 kB	01/11 11:37	
Standard data 0 kB	01/11 11:35	

Figure 8-28: Data Logs

10 Total counters		
Control panel > Logs		
Data session totals		
Standard data	661027 kB	~0.00 \$
8 Streaming	00:00:00	~0.00 \$
16 Streaming	00:00:00	~0.00 \$
32 Streaming	05:06:25	~0.00 \$
HDR Half Symmetric	05:46:57	~0.00 \$

Figure 8-29: Total Counters Logs

8.4.5.6 Port Forwarding

A Port Forwarding function is provided to translate the address and port to another. Click on the **Forward port** button to create a new port forwarding rule, or click on an existing one to edit it.

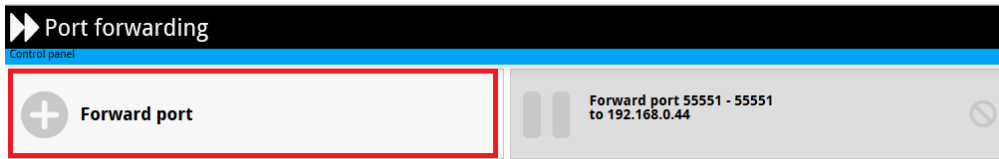


Figure 8-30: Add Port Forwarding

The Port Forwarding rule can be enabled or disabled. The incoming port range can be set as well as the outgoing IP address and port range.

Note: When a change is made to the Port forwarding configuration ensure that Shared Packet data connection is restarted.

A screenshot of the 'Edit port forwarding' form. The title bar shows a plus icon and 'Edit port forwarding', with a breadcrumb 'Control panel > Port forwarding'. Below the title, it says 'Enter new values and click Save'. The form contains several fields: 'Active' with a checkbox, 'Incoming port start' with a text box containing '55551', 'Incoming port end' with a text box containing '55551', 'Destination IP address' with a text box containing '192.168.0.44', 'Destination port start' with a text box containing '55551', and 'Destination port end' with a text box containing '55551'. A red rectangular box highlights the 'Active' checkbox and all five input fields. At the bottom right, there are 'Delete' and 'Save' buttons.

Figure 8-31: Port Forwarding Page

8.4.5.7 Tracking

Position Tracking can be enabled and the server settings for accepting the tracking data configured on the Control Panel Tracking page. The APN and report intervals can be set from this page.

Note: The navigation data from the navigation instrument used by the terminal is sent to the tracking server. Reboot the User Terminal if the server connection Host IP address is changed.

192.168.0.1/#tracking

Not secure | 192.168.0.1/#tracking

Tracking

Control panel

[Enter new values and click Save](#)

Enable tracking ☒

Tracking and HDR

Report type

Server connection

Host IP address

Server port

Client port

Encryption key

APN

Type

User defined name

Interval reports

Report interval (seconds)

Figure 8-32: Tracking Page

8.4.5.8 Support

Below is the main menu options of the Support page.

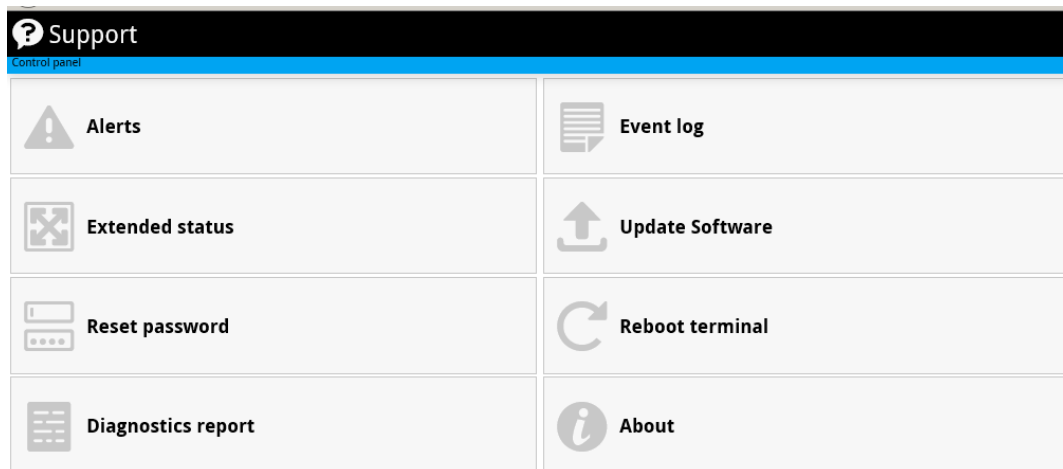


Figure 8-33: Support Page

8.4.5.8.1 Alerts

Any alerts from Built-In Test (BIT) failures are shown in this menu screen.

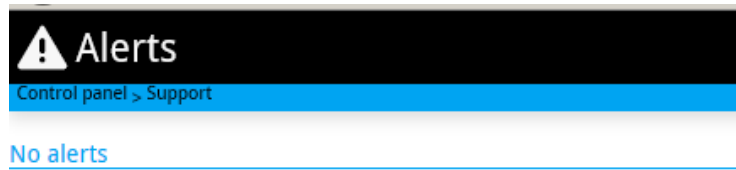


Figure 8-34: Support Alerts

8.4.5.8.2 Extended Status

The Extended Status shows the IMEI and IMSI numbers for the USIM and status of the terminal on the network.

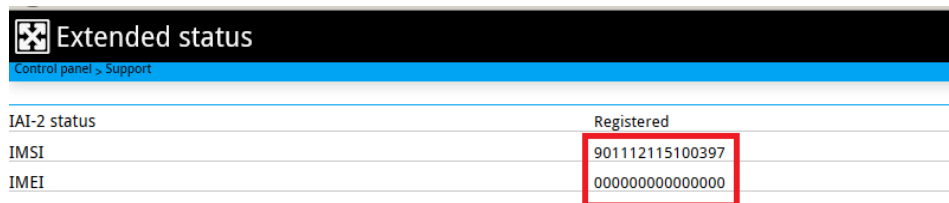


Figure 8-35: Support Extended Status

8.4.5.8.3 Reset Password

Reset the Administrator password to the default. A reset password code is required from the supplier.

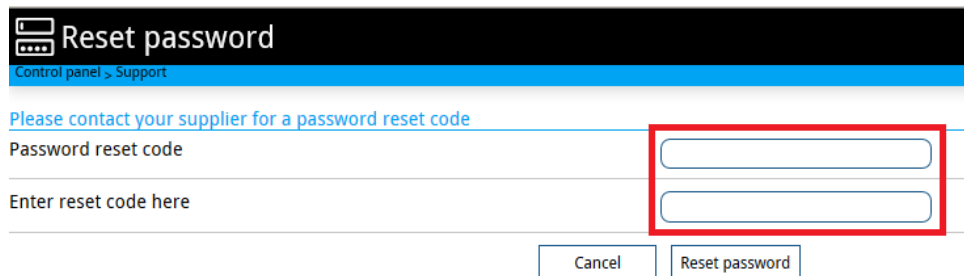



Figure 8-36: Reset Password

8.4.5.8.4 Diagnostic Report

The terminal can generate a diagnostic report for use by the supplier when debugging issues. First select the **Generate report** button, then click the on the report to download it to a location of your choice.

Click on the  button to delete the report.

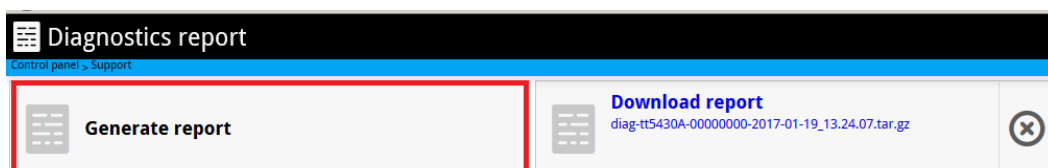


Figure 8-37: Generate Diagnostic Report

8.4.5.8.5 Event Log

All system, connection and navigation related events generated by the terminal are shown in this page.

Event log	
Control panel > Support	
Info <i>IAI-2 Adaptation Layer: Registered (0x8025)</i>	01/19 12:49
Cleared <i>IAI-2 Adaptation Layer: Registering (0x8024)</i>	01/19 12:49
Cleared <i>IAI-2 Adaptation Layer: Network found (0x8023)</i>	01/19 12:49
Info <i>IAI-2 Adaptation Layer: Registering (0x8024)</i>	01/19 12:49
Info <i>IAI-2 Adaptation Layer: Network found (0x8023)</i>	01/19 12:49
Cleared <i>IAI-2 Adaptation Layer: Searching for network (0x8022)</i>	01/19 12:49
Info <i>IAI-2 Adaptation Layer: Terminal camped on PSAB, ready for registration procedure (0x8028)</i>	01/19 12:49
Info <i>IAI-2 Adaptation Layer: Handover (0x8027)(19)</i>	01/19 12:49
Info <i>IAI-2 Adaptation Layer: Searching for network (0x8022)</i>	01/19 12:49
Info <i>3D GPS Fix (0x8074)</i>	01/19 12:49
Cleared <i>SIM missing (0x8057)</i>	
Info <i>SIM accepted (0x8055)</i>	
Info <i>EV_BDU_BP_USIM_TEMPERATURE_ENABLED (0x80A5)</i>	
Warning <i>SIM missing (0x8057)</i>	

Figure 8-38: Event Logs

8.4.5.8.6 Update Software

Support for Software updates are provided by clicking on the **Update software** button. This opens a **File open** dialog to select the file to update the software. Select the correct *.tif file to be uploaded.

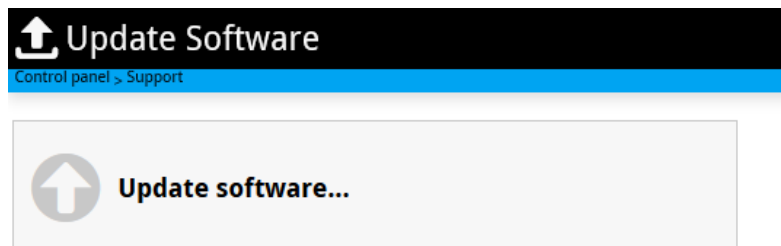


Figure 8-39: Software Update Menu

8.4.5.8.7 Reboot Terminal

After the reboot terminal is select, a confirmation is requested and then the terminal reboots and the connection to the web interface is lost until the reboot is complete.

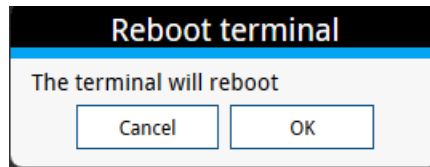
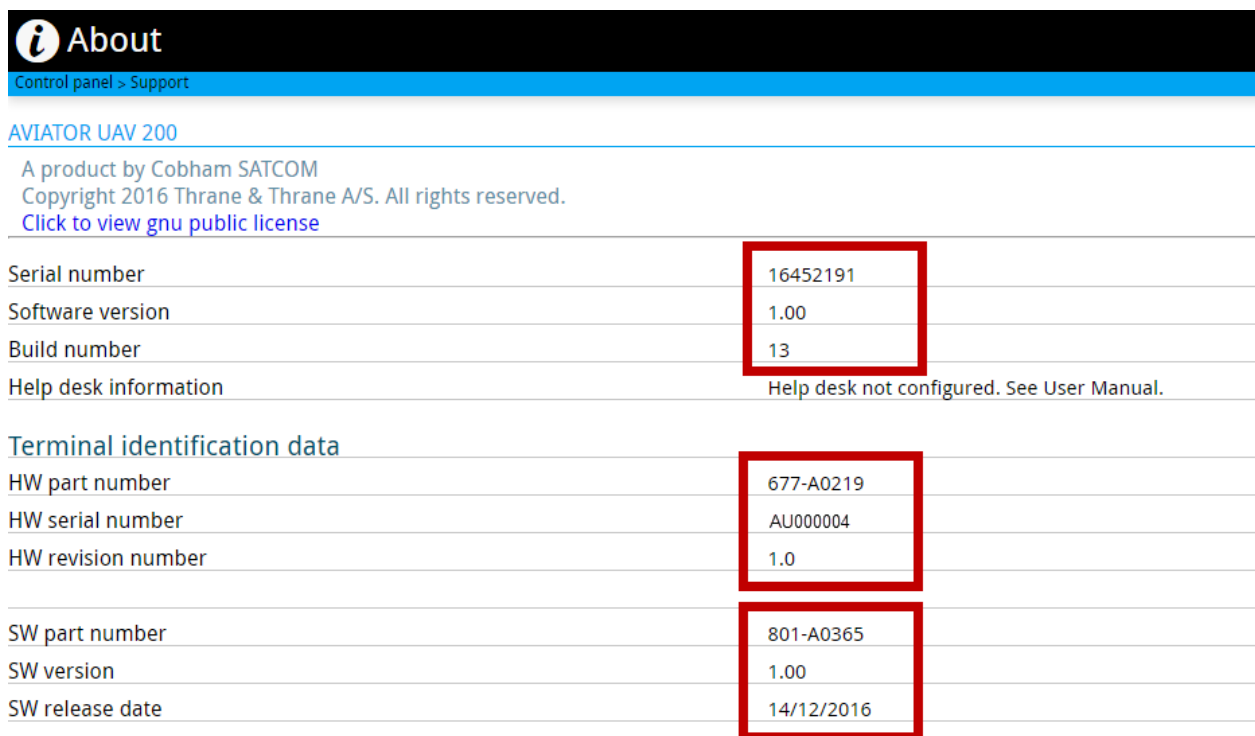


Figure 8-40: Confirm Reboot Menu

8.4.5.8.8 About

The About menu option displays the software and hardware version details of the terminal. This information is required when support is required by the customer.

A screenshot of the "About" page in the AVIATOR UAV 200 web interface. The page has a black header with an "i About" icon and text. Below the header is a blue navigation bar with "Control panel > Support". The main content area is white and contains the following information:
AVIATOR UAV 200
A product by Cobham SATCOM
Copyright 2016 Thrane & Thrane A/S. All rights reserved.
[Click to view gnu public license](#)

Serial number	16452191
Software version	1.00
Build number	13
Help desk information	Help desk not configured. See User Manual.

Terminal identification data

HW part number	677-A0219
HW serial number	AU000004
HW revision number	1.0

SW part number	801-A0365
SW version	1.00
SW release date	14/12/2016

Figure 8-41: Software Details About Page

Clicking on the **"Click to view gnu public license"** hyperlink to see the open source GNU license information for the software used on the terminal.

8.4.6 Advanced Control Panel

The **Advanced Control Panel** page is displayed after logging as the administrator user after clicking on the **Advanced** button on the Control Panel page shown in the previous section.

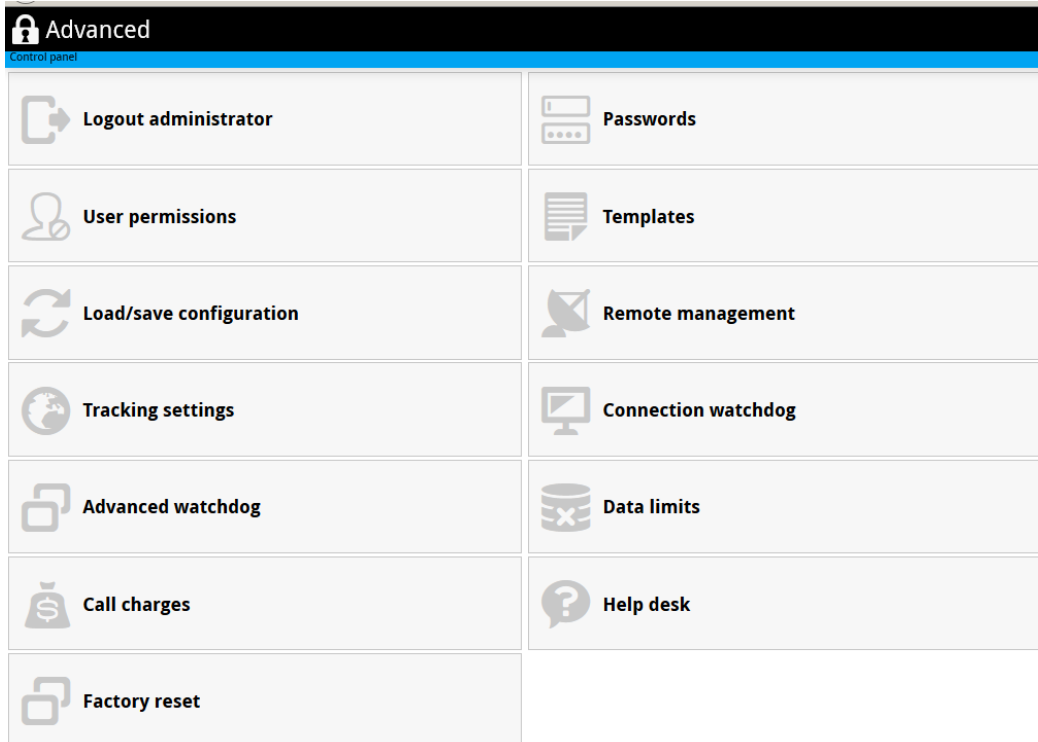


Figure 8-42: Advanced Control Panel

8.4.6.1 User Permissions

The settings for user permissions on the terminal are controlled by the **User Permissions** page.

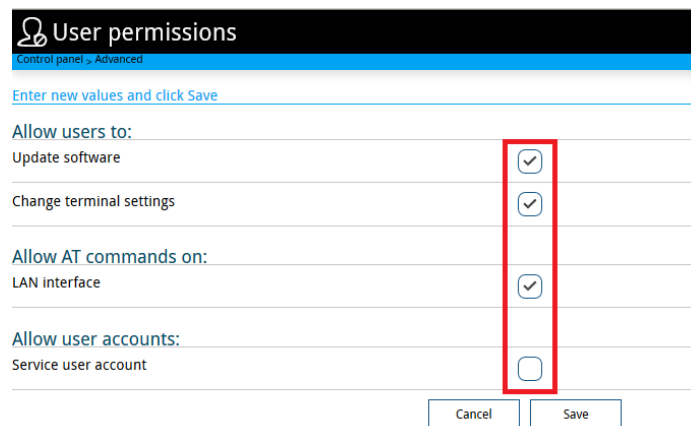


Figure 8-43: User Permissions Page

8.4.6.2 Load/Save Configuration

The Configuration of the terminal can be saved for backup purposes. By clicking on the **Save configuration** button, the configuration is generated as an *.enc file and listed as available on the web interface. Click on the **Download configuration** button to save the configuration to disk. Click on the



button to delete the configuration from memory.

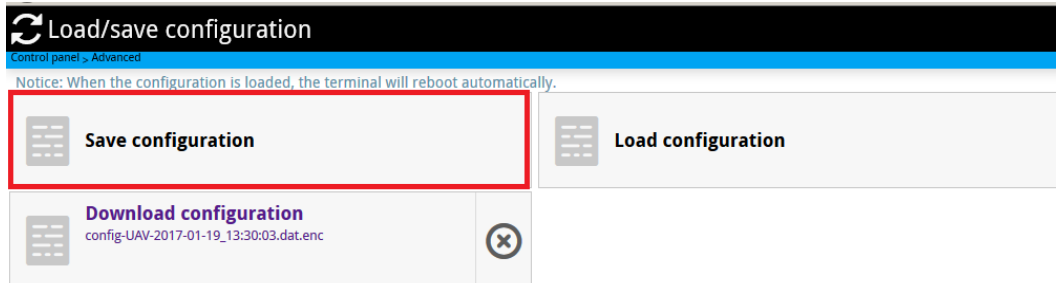


Figure 8-44: Save Terminal Configuration

The configuration from a previously saved settings file can be uploaded to the Terminal by clicking on the **Load configuration** button.

Note: Before saving or loading a configuration file, ensure that any Packet data Connections are disconnected and AT_ITINS data to the User Terminal are stopped.

8.4.6.3 Tracking Settings

The menu option controls whether remote control of tracking is enabled or not.

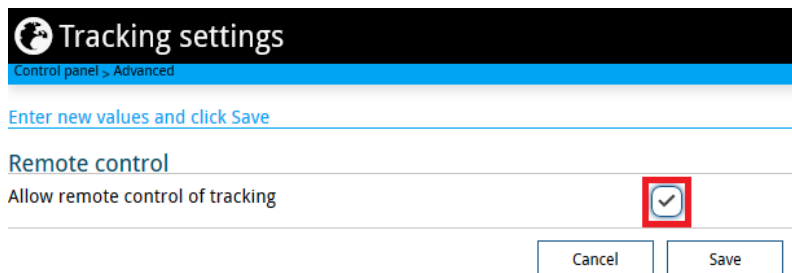


Figure 8-45: Enable Remote Tracking

8.4.6.4 Advanced Watchdog

The advanced watchdog monitors the terminal at predefined intervals. Up to three IP addresses can be used to Ping to ensure the terminal is connected. This function requires a reboot of the terminal to complete. The time interval for each Ping can also be set from this page.

Figure 8-46: Advanced Watchdog Settings

8.4.6.5 Call Charges

The Call Charges page allows the operator to configure the estimated call costs for the operation for the different types of services.

Figure 8-47: Call Charges

8.4.6.6 Factory Reset

The Factory Reset menu allows the operator to revert all software on the terminal to the default original software. A confirmation message popup is displayed to confirm resetting the terminal to the factory default.

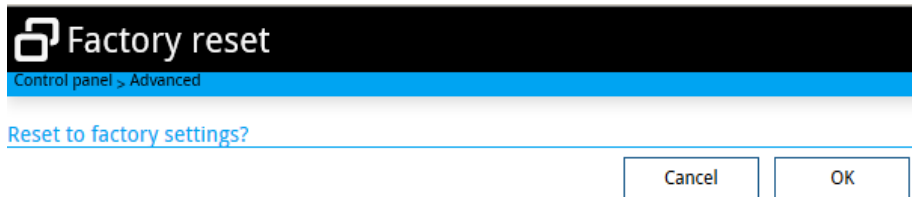


Figure 8-48: Factory Reset

8.4.6.7 Passwords

The passwords for the users and administrator can be changed from the Passwords menu.

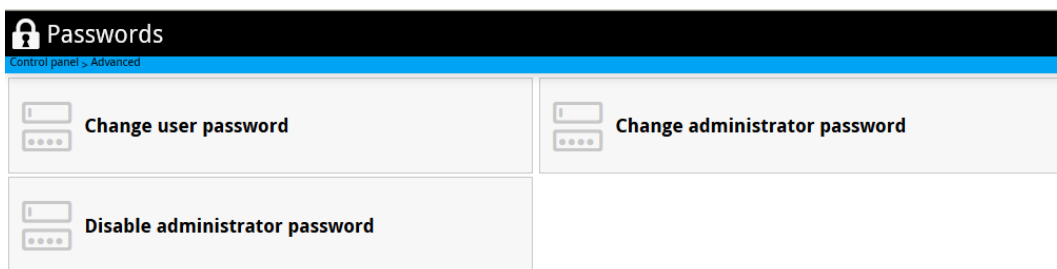


Figure 8-49: Passwords Menu

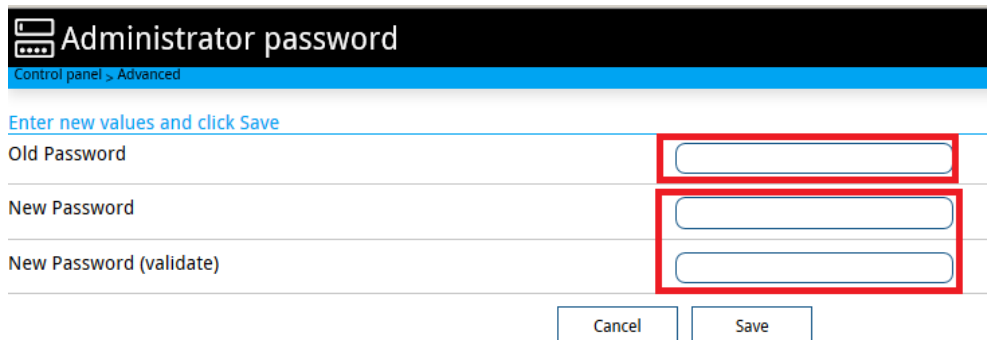


Figure 8-50: Administrator Password Change

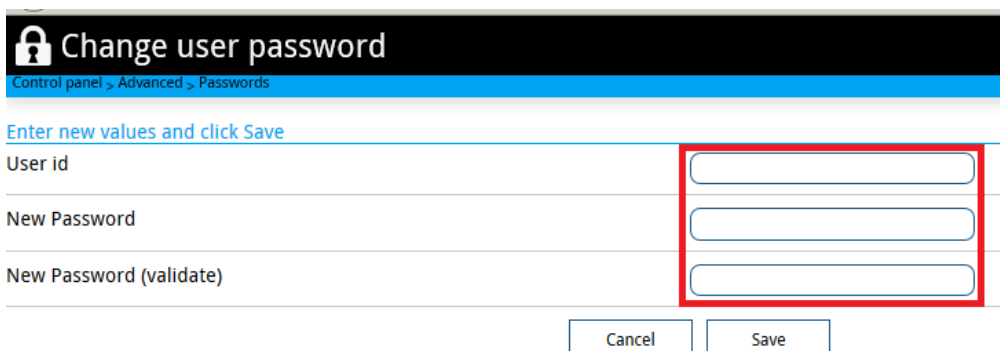


Figure 8-51: Change User Password

If the Administrator password has been disabled previously, this can be enabled again, where a new administrator password will be requested.

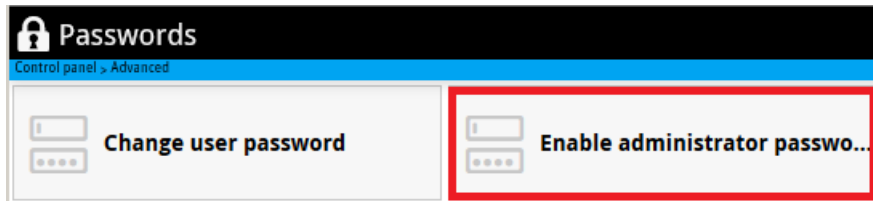


Figure 8-52: Enable Administrator Password

8.4.6.8 Templates

Connection and Traffic Flow templates can be created to manage the data flowing to/from the different connections. Traffic can also be managed on data type e.g. UDP or TCP by setting Traffic Flow Filters.

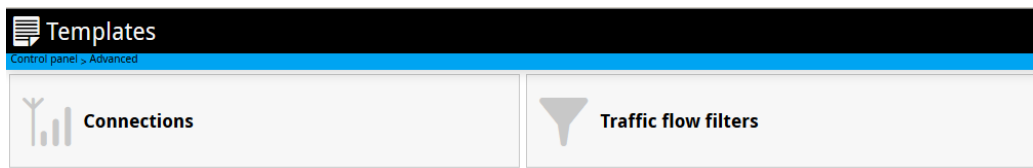


Figure 8-53: Connection and Traffic Template

The Connection Template page is shown below displaying the properties of the template.

The screenshot shows a web interface titled 'Edit connection' with a sub-header 'Control panel > Advanced > Templates > Connections'. Below the header is a link 'Enter new values and click Save'. The form contains several fields: 'Connection template' (dropdown menu), 'Name' (text input), 'Traffic class' (dropdown menu), 'Max. bit rate upload' (text input), 'Max. bit rate download' (text input), 'Guaranteed bit rate upload' (text input), 'Guaranteed bit rate download' (text input), and 'Transfer delay (error correction)' (dropdown menu). The dropdown menus are highlighted with a red rectangular box. At the bottom of the form are 'Cancel' and 'Save' buttons.

Figure 8-54: Connection Template

There are two standard types of Traffic Flow Filters for UDP and TCP type data. Additional custom Traffic Flow Filter templates may also be created.

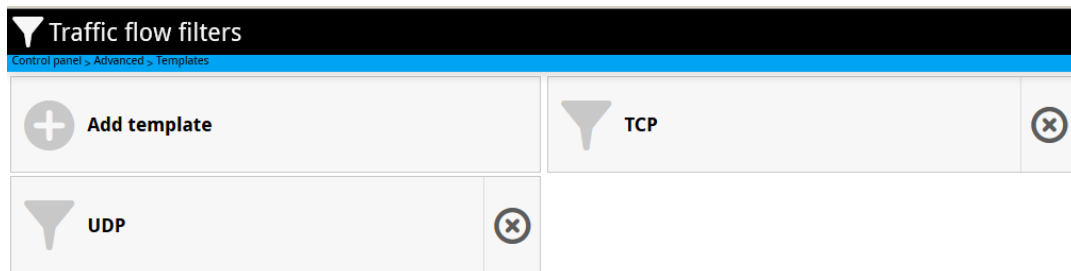


Figure 8-55: Traffic Flow Filters

Below is an example of a UDP Traffic Flow Filter template.

Edit filter

Control panel > Advanced > Templates > Traffic flow filters


[Enter new values and click Save](#)

Name	UDP
Use global IP filter	<input type="checkbox"/>
Global IP address	
Subnet mask	255.255.255.255
Use protocol number filter	<input checked="" type="checkbox"/>
Protocol number	UDP
	17
Use local port filter	<input type="checkbox"/>
Port start	
Port end	
Use global port filter	<input type="checkbox"/>
Port start	
Port end	
Use type of service filter	<input type="checkbox"/>
Type of service	
Type of service mask	
Use IPsec SPI filter	<input type="checkbox"/>
IPsec Security Parameter Index (hex)	

Cancel
Save

Figure 8-56: Edit Traffic Flow Filter

Below is an example of a blank Custom Traffic Flow Filter template. Enter a name for the filter and then fill in the filter properties for each of the options in the page. Selections for Global IP addresses, specific protocols, TCP port options, types of service and IPsec protocols. Once the filter is configured, click on the **Save** button to store the filter configuration.


Edit filter

Control panel > Advanced > Templates > Traffic flow filters

Enter new values and click Save

Name	<input type="text" value="New filter"/>
Use global IP filter	<input type="checkbox"/>
Global IP address	<input type="text"/>
Subnet mask	<input type="text" value="255.255.255.255"/>
Use protocol number filter	<input type="checkbox"/>
Protocol number	<input type="text" value="User defined"/>
	<input type="text"/>
Use local port filter	<input type="checkbox"/>
Port start	<input type="text"/>
Port end	<input type="text"/>
Use global port filter	<input type="checkbox"/>
Port start	<input type="text"/>
Port end	<input type="text"/>
Use type of service filter	<input type="checkbox"/>
Type of service	<input type="text"/>
Type of service mask	<input type="text"/>
Use IPsec SPI filter	<input type="checkbox"/>
IPsec Security Parameter Index (hex)	<input type="text"/>

Cancel

Save

Figure 8-57: Create Traffic Filter

8.4.6.9 Connection Watchdog

The Connection Watchdog performs a Ping at predefined intervals to specified IP addresses to ensure the connection is active.

Connection watchdog (Link monitoring)
Control panel > Advanced

Enter new values and click Save

Connection watchdog (Link monitoring)

Enable Connection watchdog ☒

Ping interval (minutes)

Number of retries

Ping mode

Primary IP address

Secondary IP address

Tertiary IP address

Cancel Save

Figure 8-58: Connection Watchdog

8.4.6.10 Data Limits

Data limits can be set for both Standard (Background) and Streaming type data classes of services.

Data limits
Control panel > Advanced

Standard data No limit

Streaming No limit

Figure 8-59: Data Limits Menu

Data limit
Control panel > Advanced > Data limits

Enter new values and click Save

Enable ☐

Data limit TB GB MB kB

Cancel Save

Figure 8-60: Standard Data Limits

Data limit
Control panel > Advanced > Data limits

[Enter new values and click Save](#)

Enable ☐

Time limit Days Hours Minutes

Cancel Save

Figure 8-61: Streaming Data Limits

8.4.6.11 Help Desk

The terminal allows the user to configure the Help Desk contact information. The email address of the supplier contact can be programmed into the contact information.

Help desk
Control panel > Advanced

[Enter new values and click Save](#)

Help desk
The help desk contact information is displayed on the About page.

Help desk contact information

Cancel Save

Figure 8-62: Help Desk Contact Information

9. SUPPORT

9.1 CONTACT FOR SUPPORT

AVIATOR UAV 200 purchased from a Cobham Aerospace Communications OEM.

- If you need assistance and you have purchased your SATCOM system from a Cobham OEM, contact the distributor's support line.

AVIATOR UAV 200 purchased directly from Cobham Aerospace Communications.

- If you need assistance and you have purchased your SATCOM system directly from Cobham Aerospace Communications, contact Cobham by telephone or send an e-mail to the Cobham support.
- Contact details:
Cobham Aerospace Communications, Cape Town
Tel: +27 21 700-7132/7000
Email: satcom.capetownsupport@cobham.com

9.2 RETURNING UNITS FOR REPAIR

9.2.1 Return Material Authorization (RMA)

To return equipment to Cobham Aerospace Communications for repair this RMA procedure must be followed. Failure to comply with this procedure may cause shipping delays and additional charges.

1. Have the following information ready before calling the Customer Service Center:
 - Part number: 677-A0219
 - Serial number: AUXXXXXX
 - A detailed description of the fault.
2. If you have purchased your AVIATOR UAV 200 from a Cobham dealer, please contact the relevant dealer to establish the relevant returns process.

If you have purchased your AVIATOR UAV 200 directly from Cobham Aerospace Communications, Cape Town contact at:
Tel: +27 21 700-7007
Email: satcom.capetownsupport@cobham.com
3. Describe the fault as thoroughly as possible and ask for assistance. In some cases, the error may be resolved over the phone.
4. If the unit has to be returned for repair, request an RMA number.
5. Request replacement/loan unit if required.
6. Pack the equipment or parts to be returned in approved shipping containers.
7. Write the RMA number on the outside of all shipping containers and ship to one of the following addresses:

Cobham Aerospace Communications, Westlake Drive, Westlake, Cape Town, South Africa

9.2.1.1 Warranty Returns

Equipment that qualifies for warranty repair can be returned to Cobham for repair or replacement at our discretion. The customer is charged for the shipping costs to Cobham, and Cobham will pay the shipping costs to return the repaired/replaced unit to the customer.

9.2.1.2 Non-Warranty Returns

Equipment that fails to work properly because of improper or negligent use, abuse, shipping damaged or any other condition can still be returned to Cobham for repair or replacement at our discretion. The customer will be notified of the cost to repair or replace the unit before invoicing for repair or replacement. The customer is charged for the shipping cost to and from Cobham.

9.2.1.3 Repackaging Requirements

The AVIATOR UAV 200 should be returned to Cobham in the original packaging. If the original packaging is not available, follow these guidelines when repacking the unit:

1. Protect the connector from physical damage and electrostatic discharge.
2. Wrap the unit in heavy paper or in bubble plastic sheets. Attach a tag with model number, serial number and return address.
3. Use a strong shipping container, e.g. double-walled carton or similar.
4. Protect the upper radome/dust cover surface with suitable material (cardboard, foam or bubble plastic sheets) and insert approximately a 7 cm layer of shock absorbing material between all surfaces of the equipment and the sides of the container.
5. Seal the shipping container securely.
6. Mark the shipping container FRAGILE to ensure careful handling. Failure to do so may invalidate the warranty.

10. DISPOSAL

In order to protect the environment the product owner should ensure correct disposal processes are followed. Products intended to be scrapped may also be shipped back to the manufacturer for disposal. A disposal certificate is then sent to the customer once disposed.

If disposed of by the product owners, products shall be mutilated to prevent re-use of parts in similar intended or non-intended ways by any third parties. A certificate of disposal is required to be sent to the manufacturer once the product has been disposed of.