

DSAT-300 USER GUIDE

DOCUMENT REVISION: 1.015

(DOC0594)

Applies to: DSAT-300 Mod None Firmware Version 00.01.10+

NOTE: Access the latest revision at www.skytrac.ca/support

Oct 31, 2016

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GREATER VISION
BETTER DECISIONS

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DOCUMENT REVISION HISTORY						
REV	ECO	PAGE	DESCRIPTION	DATE	AUTHOR	
01.000			Initial Release	18 Dec 2009	CB	
01.001			Added EMI Test	14 Jan 2010	CB	
01.002			Added storage detail	15 Jan 2010	CB	
01.003			BlackBerry OS Info updated	21 Jan 2010	CB	
01.004			Power requirements update	22 Jan 2010	CB	
01.005			Storage Temp update	23 Feb 2010	CB	
01.006			Antenna warnings	14 Jun 2010	CB	
01.007		All	Updated temp warnings	13 Jul, 2010	CB	
01.008	366	1-3	Added ECO column for ECO revision control. Added Warning and Warranty sections. Removed "Mod-None"	13 Dec, 2010	YL	
01.009	416	3,7,8	Added ESD Caution. Added note about connector covers. Removed AFF pricing plan.	25 Mar, 2011	JJ	
01.010	432	3,6	Changed "date of purchase" to "date of shipment" in warranty information. Corrected P/Ns on page 6. Removed approval column from revision history.	30 May, 2011	JJ	
01.011	500	6,7,12,24	Added description of external emergency switch and wiring diagram	6 Mar, 2012	MR	
01.012	525	3	Updated battery packs PN.	7 May, 2012	JJ	
01.013	560	3-8, 10, 12, 13, 16-18, 23-25	Updated warranty information. Removed STS0044 reference. Added references to RDA software and Wi-Fi Access Point. Added note to charge batteries before use. Updated operating temperature. Improved pictures.	22 May, 2013	KH, JJ	
01.014	871	20,23	Updated USB requirements for firmware programming.	3 Nov, 2015	MH	
01.015	958	All	DSAT-300 User's Guide Updates	31 Oct, 2016	JRR	

PROPRIETARY NOTICE:

The information contained in this document is proprietary and confidential to SKYTRAC Systems Ltd.

Warning

Changes or modifications not expressly approved by SKYTRAC Systems Ltd. could void the user's authority to operate the equipment.

Warranty Information

SKYTRAC Systems Ltd (STS) warrants this product to be free of defects in materials and workmanship, and that the product meets or exceeds approved factory acceptance test requirements. STS reserves the right to replace any warranted product at its sole discretion during the warranty period.

The DSAT-300 Airborne Data/Position Communicator (except for the Li-ion battery P/N: STS0065) is under warranty for one year from date of shipment from SKYTRAC Systems. For failed units caused by defective parts or workmanship, contact SKYTRAC Systems for an RMA #. Once an RMA # has been obtained, the unit should be returned to: SKYTRAC Systems will provide the return address to ship the equipment to at the time of issuing the RMA #.

ESD Caution

The DSAT-300 contains static sensitive circuitry that could be damaged from large electro static discharges directly into the connector pins. Use care when handling the DSAT-300 not to touch the connector pins unless properly grounded.

Disclaimer

Devices other than the DSAT-300 mentioned in this manual do not necessarily have regulatory approval for installation in your airframe and may require additional approvals. Please refer to the applicable STC for approval information.

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1 ABOUT THIS DOCUMENT

1.1 PURPOSE

The purpose of this document is to provide instructions on how to use the features of the DSAT-300.

1.2 GLOSSARY OF TERMS AND ABBREVIATIONS

ACRONYM	DESCRIPTION
STS	SKYTRAC Systems
DSAT-300	DataSat-300
SBD	Short Burst Data
HMC	Hardware Management Console (in SkyWeb)
RDA	Remote Display Application
SPST	Single Pole, Single Throw
SPDT	Single Pole, Double Throw

2 INTRODUCTION

2.1 DESCRIPTION OF EQUIPMENT

The DSAT-300 offers automatic position reporting and sending of messages via mobile devices running RDA or STS Messenger software (requires Bluetooth or Wi-Fi Access Point adapter). Data can be sent from the aircraft to any point in the world via Iridium® Low Earth Orbit (LEO) satellites. Present position and selectable operational messages from the aircraft can be displayed on any computer with Internet access and SKYTRAC software.

Position reporting intervals are user defined and configurable within the Hardware Management section of SkyWeb. Base software displays current and historical position data including latitude, longitude, GPS time, relative position (to a known way point), ground speed, altitude and heading, in tabular format and on a map.

NOTE: The DSAT-300 does **not** support voice communications

The DSAT-300 is available in two models:

- DSAT-300I (Model No 108-300-01) with an Integrated Combo (Dual) antenna
- DSAT-300E (Model No 108-300-02) with external Iridium and GPS antennas



DSAT-300E and DSAT-300I

The following lists the different DSAT-300 packages:

- DSAT-300I with the Integrated TSO GPS/Iridium Dual Antenna
- DSAT-300E with Portable GPS and Iridium Antennas
- DSAT-300E with Fixed TSO GPS/Iridium Antenna

All of these are provided with:

- Cigarette Lighter adapter for operation with aircraft mains power
- Wall power adapter for desktop charging

The DSAT-300 ships with protective covers on the Bluetooth and power connectors. These can be removed as necessary.

2.2 FEATURES

- Automatic position reports with configurable position reporting interval (via SkyWeb)
- Emergency Mode (set either by push button or BlackBerry, see note below)
- Mission On/Off reporting (see note below)
- Wheels On/Off (if GPS Speed is configured in SkyWeb)
- Messaging (see note below)

NOTE: CAN ONLY BE SET VIA BLACKBERRY WITH STS MESSENGER INSTALLED AND CONNECTED VIA THE BLUETOOTH OR WI-FI ADAPTER.

DSAT-300 ACTIVATION AND CONFIGURATION

3.1 UNIT ACTIVATION

Prior to first use the unit will need to be activated. The user's SKYTRAC Program Manager will normally do this using SkyWeb. By completing 'Step 2' in the SkyWeb Hardware Management section, they can activate the unit with the Iridium network. The unit does not need to be powered up at this stage. The activation process can take up to a maximum of 1 hour (but typically less).

When the DSAT is ready to be tested (fully charged, antennas connected and located where they have full visibility of the sky) it should be powered up. The DSAT-300 will then automatically start sending position reports at the default interval. This can be confirmed by the Program Manager on SkyWeb. The Program Manager can then continue the steps in the Hardware Management section to configure the relevant settings/position intervals etc.

NOTE: The default position reporting interval for the DSAT-300 is 120 secs, the minimum is 15 secs.

3.2 AFF PRICING PLAN

SKYTRAC Systems offers a configuration pricing package for operators who are using the DSAT-300 for contract compliance. The Program Manager can specify that they are on the AFF Pricing Plan during the activation process. Once activated and configured correctly the DSAT-300 will automatically send position reports every 2 minutes to the requested government agency. No other configuration is required.



Power Connection

4 EMI TEST

As with any electronic equipment, portable or installed, it is ultimately up the user to ensure there is no interference with existing aircraft electronic systems.

Please reference EMI/RFI Test Report DOC0593 Rev 01.000 or latest revision for testing procedures.

The purpose of this test report is to verify that the operation of the DSAT-300 does not interfere with basic aircraft systems and avionics.

Most of the EMI tests can be accomplished on the ground. In some cases flight-testing is required.

If the aircraft is approved for IFR operations, then it is mandatory that interference between the DSAT-300 and the approach aids be checked in-flight.

The existing on-board GPS should be operational and navigating with at least the minimum compliment of satellites.

The VHF Comm. should be set to commonly used frequencies with the squelch open. VOR/DME receivers should be selected for display.

If possible, set up a DME ramp test set on the frequencies indicated and adjust the output until the flags are out of view.

The transponder and encoder should be monitored with ramp test equipment. Set the output of the transponder test set to 3db above the output necessary to achieve 90% reply. If possible set the ADF to a nearby navigation station.

5 POWERING THE DSAT-300

5.1 OPERATION FROM BATTERY POWER

The DSAT-300 portable solution runs on two Lithium ION batteries (separately charged), each with its own integrated charger. The temperature and voltage are monitored separately for each battery. New, fully charged batteries operating at room temperature will allow operation for the following approximate timings (performance will reduce over time):

APPROXIMATE OPERATING TIME ON FULLY CHARGED BATTERIES		
Situation	Timing	Remarks
On a 2 minute reporting interval	60+ Hours	No Bluetooth connected
On a 1 minute reporting interval	40+ Hours	No Bluetooth connected
On a 15 second reporting interval	15+ Hours	
Bluetooth device (email connectivity)	15+ Hours	1 minute reporting
Temperatures below -10 °C	20% reduction	

NOTE: Use of Bluetooth or Wi-Fi will reduce overall operating time

If running on battery power alone, the processor will run in a 'sleep' mode to preserve power between reports. An automatic shutdown will occur when the battery voltage has reached its minimum recommended level for operation (6.0 volts). Whilst operating on battery power a press and hold of the push button will cause the DSAT to start-up or shutdown, if the battery has enough power to operate.

NOTE: New batteries are shipped at about 30 to 50% of capacity. Fully charge the batteries before first use and after battery replacement.

NOTE: Connecting aircraft mains power to charge the batteries and then disconnecting it whilst in this mode will cause the unit to shut down. If required the unit can be restarted via the push button to continue operating on battery.

5.1.1 BATTERY PRECAUTIONS

NOTE: The battery precautions are contained in the Panasonic_Lilon_Precautions document which is available via the 'Support link at www.skytrac.ca. However please note the following storage recommendations:

- The batteries should be stored at room temperature, charged to about 30 to 50% of capacity. It is recommended that batteries be charged about once per year to prevent overdischarge.
- Any form of storage other than the battery manufacturers recommended storage method can decrease battery service life.

5.2 OPERATION FROM AIRCRAFT MAINS POWER

The DSAT-300 can also be powered on/off by applying or removing power via the aircraft (cigarette lighter) adapter. The aircraft adapter will charge the battery whilst in operation and therefore allow for full power to the unit at the same time as sending position reports. The aircraft adapter cannot be used to only charge the battery, a separate desktop 'Recharge Adapter' is provided for this purpose. Applying or removing the power while in this mode will cause the DSAT to start-up or shutdown. The push button cannot be used for this purpose while connected to aircraft mains.

Warning: The DSAT-300 is designed to plug into the cigarette adapter on the aircraft. The nominal voltage is 12V to 30V. 120VAC is NOT Supported.

5.3 CHARGING FROM A WALL CHARGER

The unit can be plugged directly into a standard 120v power outlet in order to charge the batteries. The DSAT-300 will go into "Recharge Mode" and will not send position reports or support email communication whilst it is charging. Applying or removing the power whilst in this mode will cause the DSAT to start-up or shut down. The push button cannot be used for this purpose in this mode.

Warning: Use only the adapters delivered with the DSAT-300 to operate the unit or charge the batteries. Using an unapproved charger may damage your battery and pose risk of fire or explosion.

6 DSAT-300 MODES

6.1 NORMAL MODE (A/C MAINS OR BATTERY)

The DSAT-300 'Normal Mode' is for position reporting and/or messaging via BlackBerry/iPhone/Android and additional Bluetooth / Wi-Fi adapter. The unit will be operating on battery power alone or can have wired power connected to recharge the batteries whilst in operation.

If running on battery power alone (without a Bluetooth adapter connected), then the unit will transparently transition in and out of sleep mode between position reports and the battery charging circuits are turned off to extend battery life.

6.2 RECHARGE MODE (WALL CHARGER)

Using the recharge adapter the DSAT-300 will auto-detect when the wall charger is connected and operate in 'Recharge Mode'. In this mode the power LED flashes at a rate of two times per second. The DSAT will only charge the batteries and display the battery charge levels. No position reporting or BlackBerry communications can be performed in recharge mode.

6.3 EMERGENCY MODE

The 'Emergency Mode' can be activated / deactivated by either of the following methods:

- two short presses of the push button
- external emergency switch
- via mobile device running RDA or STS Messenger software

In Emergency mode the unit can transmit positions at an increased rate. If a unit is being viewed in the ground software (SkyWeb) in this mode then the positions reports will show in red and an audible alarm can be heard (if the user has configured it).

NOTE: The unit cannot be shut down in this mode. If external (A/C) mains power is lost whilst the unit is in 'Emergency Mode' the DSAT-300 will continue to operate on battery power until the batteries are expired or the emergency mode is cancelled by the user and the unit is turned off normally.

7 LED INDICATOR LIGHTS

There are four one-color LEDs on the side of the DSAT-300. Their brightness level is governed by the optical sensor on the unit. This will cause the LEDs to automatically adjust dim to bright depending on the ambient light conditions. The information indicated by the LEDs will depend what mode the unit is in at the time.



7.1 START UP

Five types of information are displayed by the LEDs at start-up (in the sequence GIVEN below):

- LED Test - All LEDs are blinked in sequence to show they are working
- Battery Level - The current level of battery charge is indicated for 5 secs as per the table in Section 7.3
- Factory Reset Indication (only seen if a reset was initiated) – A double blink of all LEDs simultaneously
- Operational Status - The LEDs show the current status for normal mode or charge mode
- Shutting down – Power LED intermediate dimming

7.2 NORMAL MODE

The 'Normal Mode' of operation is the mode that the unit will be in most of the time with the LEDs indicating the operational status of Power, SAT, GPS and Emerg.

7.2.1 PWR – GREEN

(Normally ON solid during operation)

Primarily used to indicate that the DSAT-300 is in an operational state or dimming/blinking intermittently at a slow rate whilst performing the shut down sequence.

7.2.2 SAT – AMBER (Normally OFF during operation)

In this mode the LED is primarily used to indicate a communication problem such as:

- Loss of communication with the Iridium Satellite network
- Position reports or messages are queued in the DSAT-300
- Failure of the registration process with the Iridium network

7.2.3 GPS – AMBER (Normally OFF during operation)

In this mode the LED is primarily used to indicate a problem with GPS data, such as:

- Loss of GPS signal/GPS lock
- Failure of the GPS module configuration

7.2.4 EMERG – AMBER (Normally OFF during operation, ON solid during Emergency mode)

Primarily used to indicate:

- Emergency Mode active (User initiated – LED on Solid)
- Slow blink (up to 4 seconds) – The user has pressed the push button once to activate/deactivate Emergency mode. A second press is required as confirmation of the activation/deactivation.

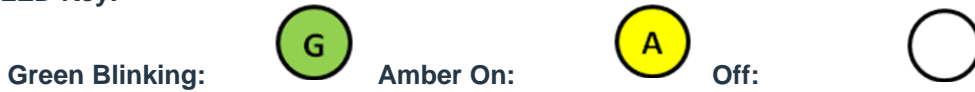
LED	INDICATION IN NORMAL MODE (RUNNING ON MAINS OR BATTERY)
PWR	This LED will be on solid indicating the unit is powered up
SAT	On solid whenever the unit is unable to connect to the satellite or send and receive messages via the Iridium network. Otherwise, it is off.
GPS	On solid if the unit has a GPS fault. Otherwise, it is off.
EMERG	Blinks when Emergency is requested (times out if not confirmed by 2 nd press). On solid when Emergency is enabled. Otherwise, it is off.

















7.3 RECHARGE MODE

After the DSAT-300 has completed initialization sequence and continuously whilst charging, the DSAT-300 will continuously display the estimated operational charge level by using the 3 amber LEDs as follows:

NOTE: The LED charge indications assume that BOTH batteries are present in the unit.

LED Key:



BATTERY CHARGE INDICATIONS				
PWR (BLINK)	SAT	GPS	EMERG	REMARKS
	(Blink) 			LESS THAN 1 HR OPERATIONAL CHARGE LEFT OR BATTERIES REMOVED
				1 TO 4 HRS OPERATIONAL CHARGE LEFT
				4 TO 8 HRS OPERATIONAL CHARGE LEFT
				AT LEAST 8 HRS OPERATIONAL CHARGE LEFT

NOTE: Battery removal instructions are contained in the Battery Pack Removal Instructions (DOC 0595) available from www.skytrac.ca, however please be aware of the following:

Except when it is in Emergency Mode, the DSAT-300 will automatically shut down when the remaining capacity reaches a critically low level and further drain could permanently damage the batteries.

When the DSAT-300 is powered down, it is still using a slight amount of battery power. If the unit will be stored without external power then either the unit should be regularly recharged or the battery pack removed to conserve battery power (see DOC 0595).

LiON Batteries have a shelf life of approx 2-3 years. Inaccurate handling of the batteries may cause deterioration of performance or even failure.

Removed batteries: The batteries should be stored at room temperature, charged to about 30-50% of capacity. It is recommended that the batteries are charged about once per year to prevent over discharge.

Installed batteries: It is recommended that the batteries are charged every 6 months (until two LEDs are on during charging).

8 PUSH BUTTON

The push button on top of the unit has 2 main functions:

- Press and hold (for greater than 4 secs) to turn the unit on/off whilst on battery power
- Press twice in succession for Emergency mode (not available when the unit is in recharge mode)

9 MESSAGING

The DSAT-300 does not have an interface to compose or read emails, but a mobile device running RDA or STS Messenger software (requires Bluetooth or Wi-Fi Access Point adapter) can be used to send and receive emails.

If there is an Iridium Satellite communication problem then the DSAT-300 will queue the incoming/outgoing messages until the queue is full. Once the problem has been resolved the messages will be transmitted in the order they were received.

If the DSAT is turned off whilst there are messages in the queue it will attempt to send the messages when the unit is next powered-up. This will continue until the messages are sent. If the message queue is full when another message is received, the DSAT will send 'Message rejected, Inbox is full' to the originator.

10 LOGGING

The DSAT-300 will automatically log and store the latest position data, unprocessed GPS and battery health data and error logs. This data can be retrieved by SKYTRAC Systems only.

11 FACTORY RESET

NOTE: A factory reset is not normally required to be performed by users.

All configuration parameters can be factory reset (returned to default values) by creating a jumper connected between pin 4 and 5/A1 (GND) of the power connector (see Section 15.1). This will reset the unit to factory default. This reset can only be detected and performed in the power up processing sequence, to avoid any potential accidental reset during operations. The factory reset is followed by a reboot which will include the factory reset indication (a double-blink of all LEDs).

12 BLUETOOTH / WI-FI

The DSAT-300 supports the use of the Parani SD200 Bluetooth Adapter and STS0062 Wi-Fi Access Point to interface to mobile devices running RDA or STS Messenger software. A mobile device connected via Bluetooth or Wi-Fi can:

- Receive, read, send, delete and reply/forward emails to/from any valid address
- Send emails directly to SkyMail (the mail program in SkyWeb)
- Create, edit, save, send and delete quick mail messages
- Display status and alert information and change Mission and Emergency status



Parani SD 200



Wi-Fi Access Point



DSAT-300I with Parani SD200 fitted

Notes:

- The DSAT-300 can only communicate with a single mobile device at one time
- The DSAT-300 will not transition into sleep mode if the Bluetooth / Wi-Fi device is active
- If email communication is not required the Bluetooth / Wi-Fi device should be disconnected to extend battery operating time
- Bluetooth adapters receive power directly from the DSAT-300 RS232(DB9) port (after approx. 1 minute) unless the charge level is too low
- Wi-Fi adapters do not receive power from the DSAT-300 RS232(DB9) port and require external power to function.
- See STS-RDA User Guide (DOC 1101) for connection and menu information.

13 ANTENNAS

13.1 EXTERNAL ANTENNA INSTALL

As already stated, the DSAT-300I has an integrated antenna. The DSAT-300E can use either a portable active L1 GPS antenna STS0039 and a separate portable passive Iridium antenna STS0040 or a single TSO Combination Antenna STS0021:

Top



Bottom



External Combination Antenna STS0021



GPS Portable Antenna STS0039

Iridium Portable Antenna STS0040

13.2 CONNECTIONS

The DSAT-300E antenna connections are on the side of the unit. They consist of a GPS (BNC) connection and an Iridium (TNC) connection. These are shown below (along with the USB Type B connection).



13.3 PORTABLE ANTENNAS

The two antennas must be installed **at least 18 inches** from one another in a location that has a clear view of the sky. SKYTRAC Systems also recommends that the cable length for each cable be no more than the provided 7.5 feet. The portable Iridium antenna must be located **at least three feet away** from any other GPS antenna.

The GPS antenna uses a BNC connector to connect to the DSAT-300E. The Iridium antenna uses a TNC connector to connect to the DSAT-300E

13.4 TSO COMBINATION ANTENNA

The DSAT-300E can also be utilized with a combination, active L1 GPS/Passive low profile, molded radome, Iridium antenna (P/N:STS0021). This recommended system antenna is only available directly from SKYTRAC Systems Ltd and is permanently installed on the outside of the aircraft. Please contact SKYTRAC Systems to discuss the feasibility of using an alternate antenna if required.

The combination antenna must also be installed at least three feet away from any other GPS antenna. It is imperative that the antenna be mounted outside, as high as possible and in a horizontal position on the aircraft, attempting to achieve a 360-degree view of the sky with minimal obstructions.

IMPORTANT NOTE:

This antenna uses an SMA and a BNC connector for the GPS jack and TNC connectors for the L Band or Iridium jack. Immediate damage will occur to the DSAT300E if either cable is connected to the wrong jack.

The use of RG-400 low-loss coaxial cable restricts the maximum length of the cable to 18 ft. If a longer run is required, use lower loss coax cable like EMTEQ PFLX240-500 (recommended) or ECS 311501 and refer to manufacturers' specifications for attenuation at 1.6 GHz. Attenuation of equal or less than 3dB is required. The bond between the airframe and the antenna needs to be 10 milliohms or less.

Prepare the mounting location by drilling holes in the aircraft skin or through a mounting plate. Use a doubler plate of 4 x 6 inches if antenna is installed on a non-metallic aircraft surface to create a ground plane. The plate must have an electrical connection to the antenna ground.

Installation of an antenna on the aircraft should be performed only as defined by the aircraft manufacturer or in accordance with TC or FAA approved engineering data. Special caution must be observed when installing antennae in pressurized aircraft.

NOTE: The combination antenna includes a rubber seal that must be properly installed into the groove on the underside of the antenna prior to mounting the antenna. This seal acts as an environmental seal from the outside atmosphere. Any connections that are not protected from the outside atmosphere by the rubber antenna seal should have an environmental seal applied to them during installation.

14 FIRMWARE UPGRADE

The USB programming port is used to install new or revised firmware in the DSAT-300. The DSAT-300 will go into programming mode automatically whenever the USB cable is connected and the DSAT-300 is powered on or charging.

14.1 REQUIRED HARDWARE

- Laptop or PC with one of the following USB port configurations:
 1. USB 2.0 port and chipset
 2. USB 3.0 port and chipset

NOTE: Programming will not work if the USB cable is connected to a USB 2.0 port on a computer that has a USB 3.0 chipset.

- Windows XP Operating System or higher
- Type A to Type B USB connector

14.2 USB DRIVER

NOTE: In order to use the DSAT-300 USB programming port, the user will be required to download the latest driver (as part of the upgrade process).

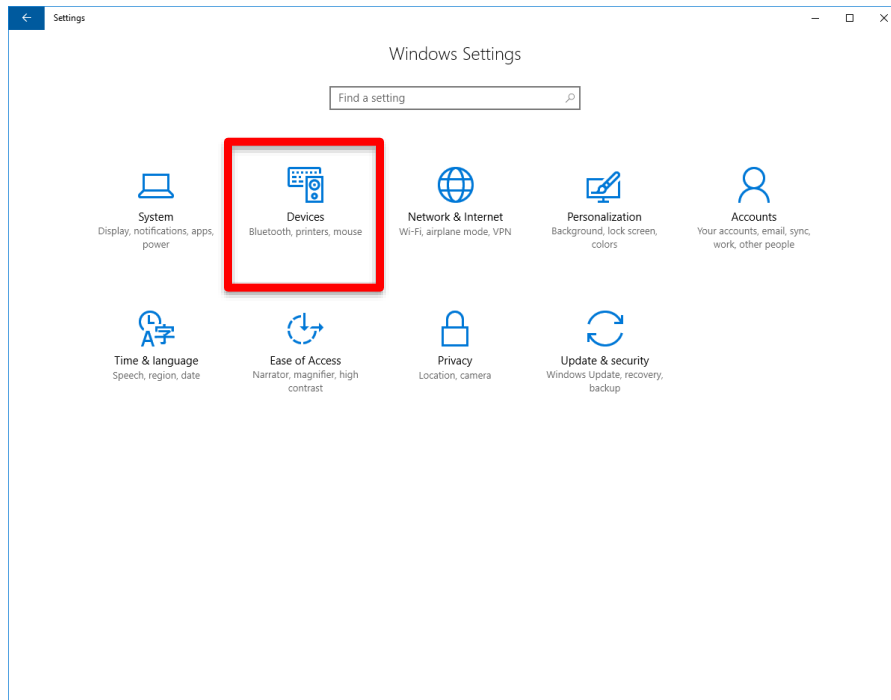
14.3 DETERMINING THE CORRECT COM PORT

For operating systems of Windows XP and higher, a Com Port will automatically be assigned when the USB cable is attached to the PC and the DSAT.

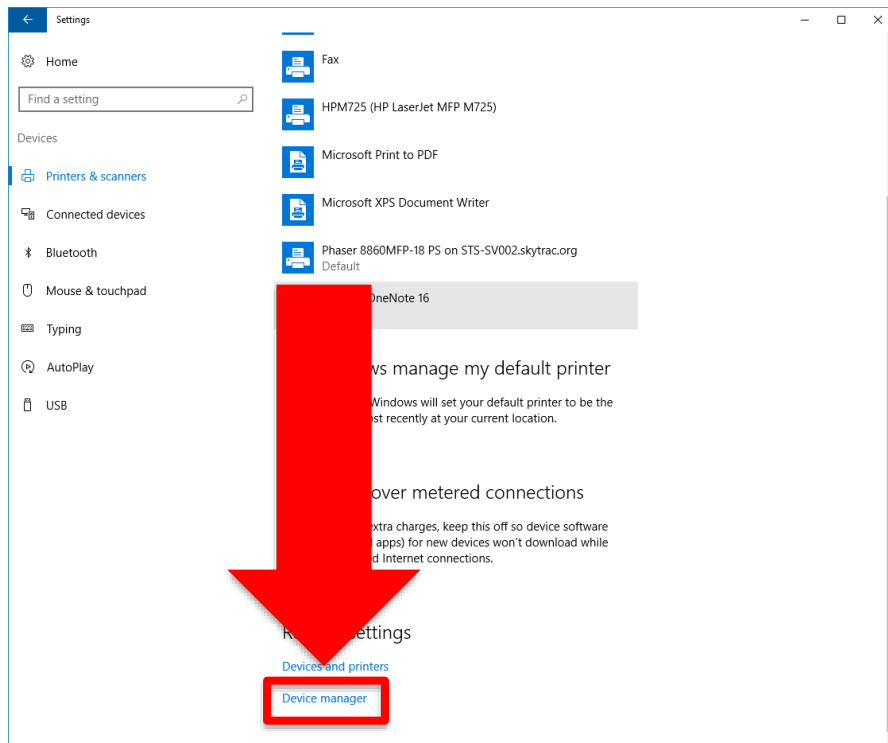
Once the cable has been connected from the PC to the DSAT-300, open Device Manager on the PC by clicking:

NOTE: The following instructions have been made with Windows 10, your operating system may differ.

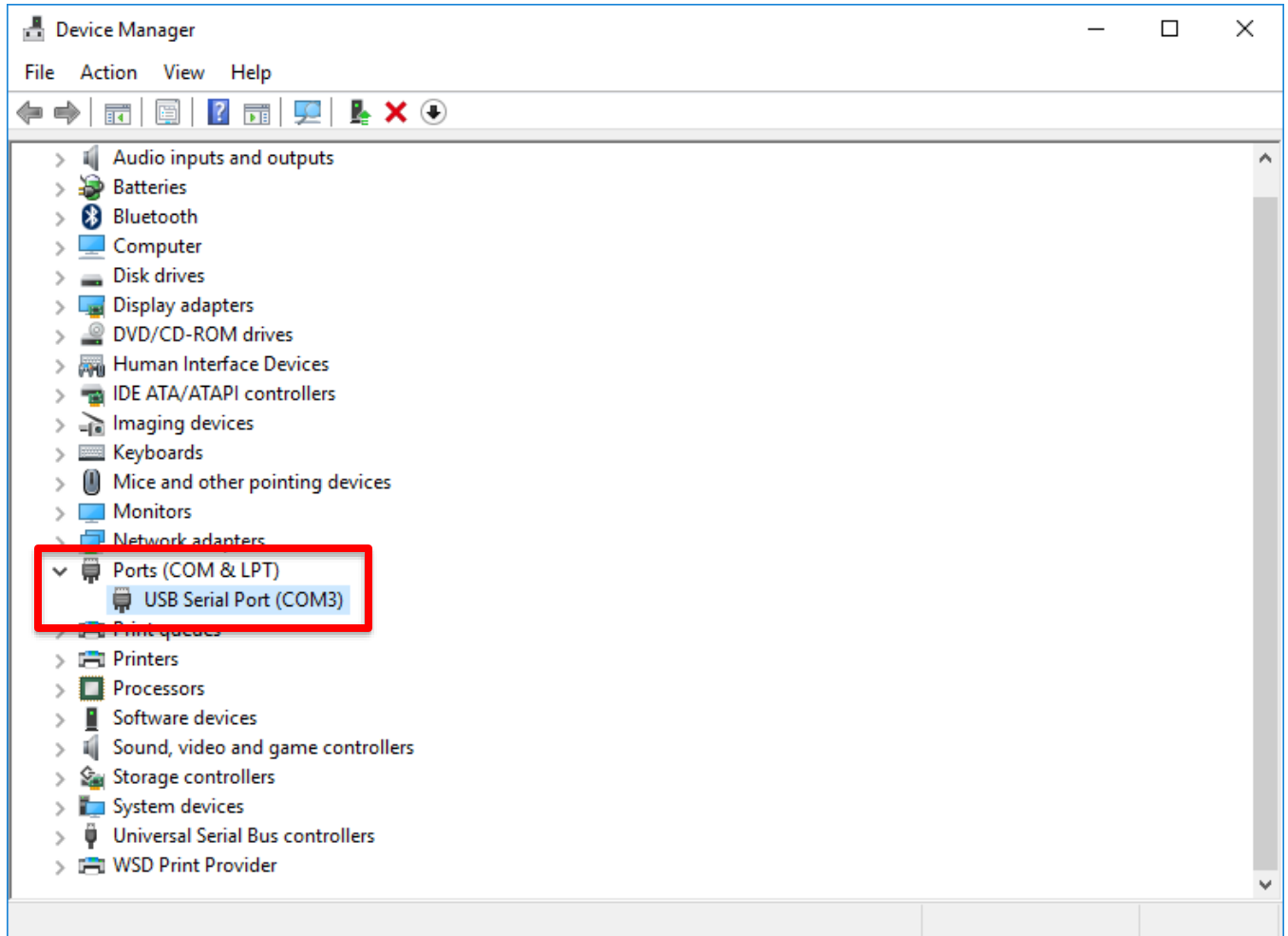
Start → Settings → Devices:



Scroll to the bottom of the page and select Device Manager:



Expand the “Ports (COM & LPT)” section on the right. The com port that the USB cable is using will be listed there. If multiple USB devices are indicated, disconnecting and reconnecting the USB cable will enable the user to identify the correct one. Enter that port number as part of Step 6 of the firmware upgrade instructions listed below.



NOTE: The com port number may change each time a device is connected depending on other device that are connected at the same time. Confirm the com port number before beginning the firmware upgrade each time.

14.4 FIRMWARE UPGRADE INSTRUCTIONS

1. Download the new firmware version from the SKYTRAC website (www.skytrac.ca) to the computer. This firmware is called DSAT-300-Rxx-xx-xx.zip (where xx.xx.xx is the Firmware version included in the zip file).
2. Extract the DSAT-300-Rxx-xx-xx.zip file to a directory on the Windows PC.
3. Apply power to the DSAT-300 using either the cigarette adapter, battery power or the recharge adapter.
4. Connect the Type A connector of the USB Cable to the Windows PC. Connect the other end of the USB Cable to the DSAT-300.
 - **NOTE:** Connect to a USB 2.0 port only if the PC has a USB 2.0 chipset.
 - Connect to a USB 3.0 port if the PC has a USB 3.0 chipset.
 - Do not connect to a USB 2.0 port if the computer has a USB 3.0 chipset as programming will not work.
5. If the chip driver is not already installed on the PC the user will be prompted and can follow the on-screen instructions to install it. The chip driver required is CP2103.
6. Run the firmware upgrade batch file by double-clicking the DSAT-300-xx.xx.xx- Upload.bat file that was extracted to the directory on the Windows PC.
7. Enter the appropriate com port as described above.
8. Type “y” and press Enter to run the upgrade program. It will take approximately one minute to install the upgrade.
9. When complete, press any key to close the DOS window.
10. Power down the DSAT-300.
11. Remove the USB cable from the DSAT and the PC.
12. Apply power to the DSAT-300 to run it with the newly installed firmware.

15 TECHNICAL DETAILS

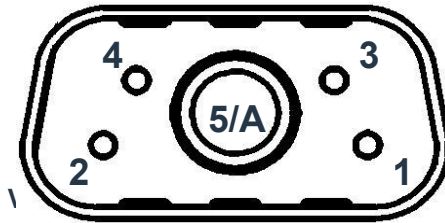
TECHNICAL DETAILS	
Voltage Requirements	11 to 30 VDC nominal (airplane power)
Absolute Maximum Voltage	40 VDC
Power Requirements	1 A at 14 VDC, 0.5A at 28 VDC when charging
TEMPERATURE RANGE – OPERATIONAL	
Batteries Installed	-20 °C to 60 °C
Batteries Removed	-30 °C to 60 °C
Batteries Charging	0 to 45 °C
TEMPERATURE RANGE – STORAGE	
Batteries Installed	-20 °C to 50 °C
Batteries Removed	-40 °C to 85 °C**

** Storage at high temperatures for an extended period of time will decrease the life time of onboard components including the internal battery.

NOTE: Operation with extended temperature range:

The limiting factor for the operational temperature range of the unit is the temperature rating of the Li-Ion batteries. When using the unit at extreme temperatures, STS recommends removing the batteries (see DOC 0595 Battery Removal Instructions) allowing the unit to run within a wider temperature window. Please also refer to DOC 0595 for proper handling procedures of the circuit board

15.1 POWER CONNECTOR



15.1.1 PINS

PIN #	CONNECTION
1+3	Positive (+) Aircraft power (nominal 12V/28V)
2	Short to ground (Pin 5/A1) to keep unit in charge mode only (no position reports) when powered through power connector
4	Short to ground (Pin 5/A1) to reset unit to factory default (normally not connected)
5/A1	Ground (Aircraft power return)

15.1.1 External Emergency Switch

Emergency Mode can be controlled through an external switch by simultaneously shorting pins 2 and 4 to ground (Pin 5/A1). This can be accomplished by using a SPST or SPDT switch, similar to the wiring diagram below. Firmware for the Emergency Switch feature must be 04.02 or greater. Users can “QUERY” the unit in the Hardware Management section of SkyWeb to determine the current firmware version.

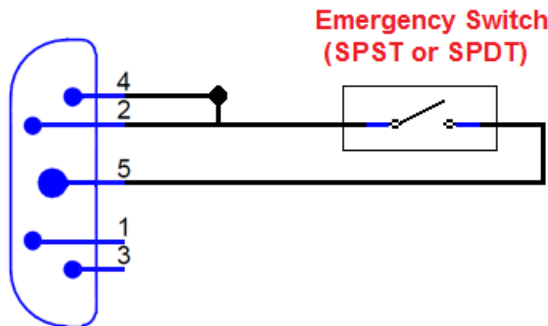


Figure 15 1 Example External Emergency Switch Wiring

NOTE: When wired as shown above, other functions controlled by pins 2 or 4 cannot be initiated. To use these functions, a separate wiring harness may be required.

15.1.2 P/NS OF MATING CONNECTOR (CRIMP VERSION)

MFR	MFR P/N	DESCRIPTION	QTY
Conec	3005W1SXX99A10X	Conec Connector Shell w/o contacts	1
Conec	132C15019X	Conec Crimp signal contact	4
Conec	132C11029X	Conec Crimp Power Contact	1
Conec	165X13369X	Conec Plastic Back Shell	1

15.1.3 P/NS OF MATING CONNECTOR (SOLDER CUP VERSION)

MFR	MFR P/N	DESCRIPTION	QTY
Conec	3005W1SCM99A10X	Conec Connector Shell incl. signal contacts (solder cup)	1
Conec	132C10029X	Conec Power Contact (Solder cup)	1
Conec	165X13369X	Conec Plastic Back Shell	1

15.2 RS232 (DB9) FOR BLUETOOTH

PIN #	CONNECTION
1	DCD
2	RxD
3	TxD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	150mA power supply for Bluetooth dongle Parani SD100/200 or similar

NOTE: Some Bluetooth adapters may require the use of a null modem.

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