





Congratulations on choosing Titan, a mission tested, field-validated C-UAS solution.

Titan is engineered for quick setup and fully autonomous operation to allow you to remain mission-focused. We put your safety first with multi-layer protection and escalating countermeasures that are adaptable to situational need and mission preferences.



CONTENTS

	SEC	PAGE
In the Box & System Overview	B	4
Setting up Your System	C	5
Antennas	D	6
Power	E	7
Connecting & Operating	F	8
Antenna Set	G	9
Multinode Connections	H	10
Dashboard / User Interface	I	11
Main Menu / Status Icons	J	12
Settings	K	13
Multinode Operations	L	14
Detections	M	15
Defeat Controls & Logging	N	16
Shutting Down	O	17
Mapping Display	P	18
Mapping with GL Sensor	Q	19
Spectrogram Viewer	R	20
General Information	S	22
Battery Life, Field Cable Repair	T	23
Software Updates	U	24
Support & Maintenance	V	25
RF Safety	W	26
Integration	X	27

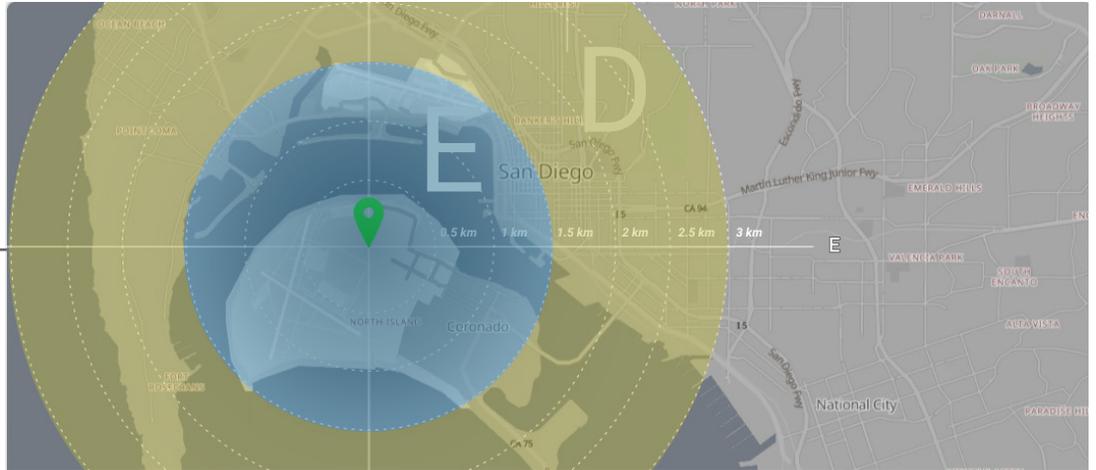


EXPORT WARNING

This document contains technical data whose export is restricted by the Arms Export Control Act (Title 22, U.S.C., Sec 2751, et seq.) - Violations of these export laws are subject to severe criminal penalties.

Titan monitors UAS control signals, using Radio Frequency (RF) spectral analysis to classify signal characteristics and alerts the operator, who can choose to mitigate by sending targeted power at the frequencies the UAS is operating on. The system's **detection range is greater than 3 km horizontal** with an **engagement range of approximately 1.5 km**, depending on conditions and drone type. The diagram below illustrates this ratio.

Detection Range vs Engagement Range



TRAVEL CASES

A Titan Kit is two units, each covering a different portion of the RF spectrum.

Standard Frequency Unit
2.4 / 5.8 GHz



QUICK START CARDS/
USER MANUAL

TABLET

TX A/B

RX A

RX B

Wi-Fi

GPS

TABLET POWER

TITAN POWER

ETHERNET CABLES

DUAL 5590
BATTERY CABLE

QUICK START CARDS/
USER MANUAL

RX C

RX D

TX D

TX C

GPS

Extended Frequency Unit
433/868/915 MHz, 1.2 GHz



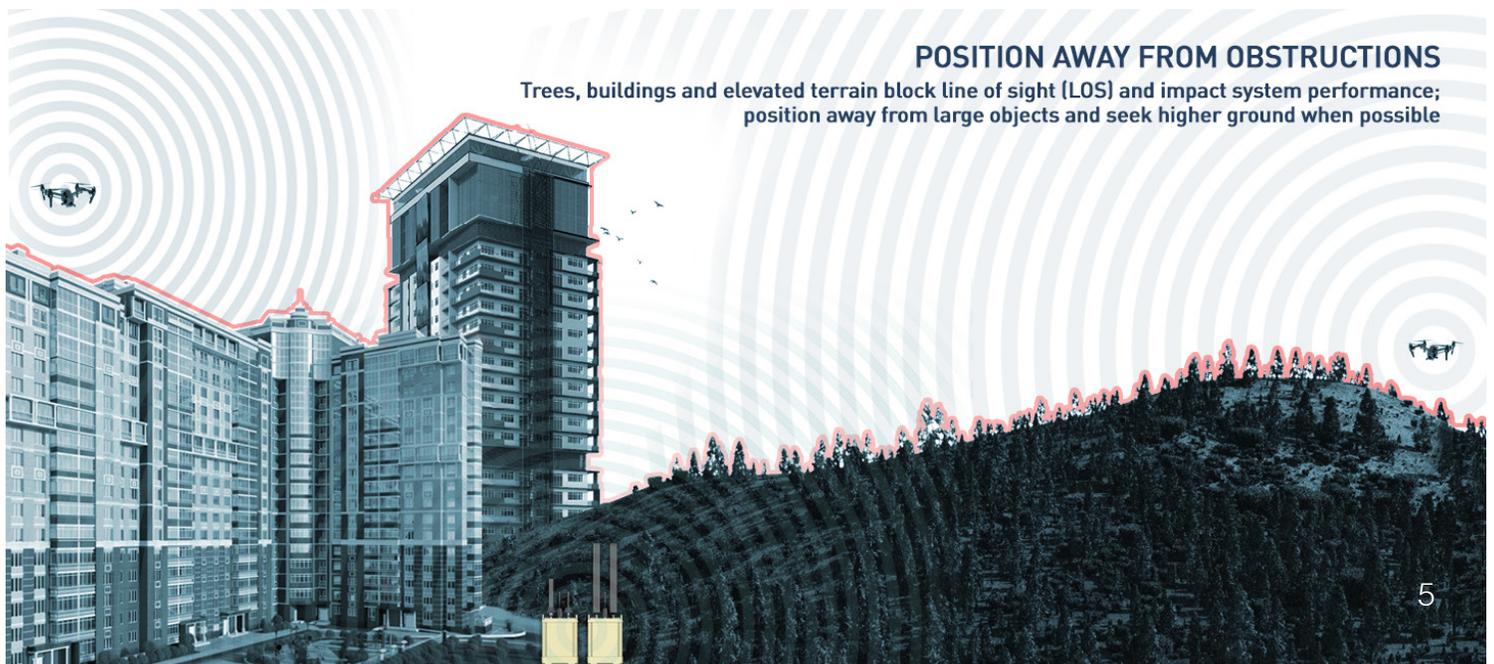
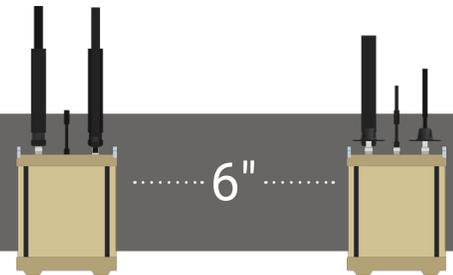
TITAN

SYSTEM PLACEMENT

Titan is a radio frequency-based (RF) sensor, so location and proximity to other devices is critical when choosing a deployment location. Clear line-of-sight between the signal source (drone/UAS or controller) and the Titan is ideal, but may not always be possible.

Since we can't always predict where a drone may come from or where an operator may be positioned, a good rule of thumb is to locate the system in a spot that minimized proximity to objects and sources of reflected or radiated energy. Place the system as far away from buildings and other large objects as practical to prevent unwanted signal reflections or attenuation (weakening) of RF signal. Electrical motors/generators, power lines, steel buildings, dense trees, and valleys should also be avoided wherever possible. Since the system is constantly scanning vertically and horizontally, minimizing noise and providing the widest view are important to obtaining best performance.

Titan units of **different frequency ranges** can be operated in close proximity without impacting the performance of either. A six-inch distance is the minimum separation needed.



A Titan kit has two units, labeled **Standard Frequency (SF)** and **Extended Frequency (EF)**. Each covers different RF control signal bands, and together they provide seamless full-spectrum coverage.

Remove the units from their cases, and connect the antennas that corresponds to the labeled ports. The SF unit has **RX A / B**, **Wi-Fi**, and **GPS** antennas. EF has **RX/TX C & D** and **GPS** (no Wi-Fi). Each antenna's label matches a corresponding port - double-check to ensure they're connected correctly. When the system starts up, the UI will show two verification screens to help ensure correct placement.

Please ensure each antenna is tightly seated on its correct port before proceeding.



RX A/B, TX A/B
2.4 GHz, 5.8GHz



RX C/D, TX C/D
433/868/915 MHz, 1.2 GHz





- 1 Connect power supplies to each unit's bottom DC input
- 2 Plug In power supply to AC source
- 3 Units will power on automatically; proceed to Tablet Section

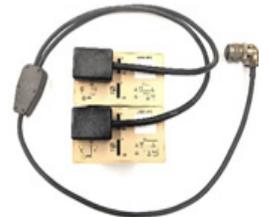
Units turns on automatically when a power source is connected, though the power switch can still be used to turn the system on and off *after* initial power-up



ALTERNATE POWER SOURCES | DIRECT DC & HIGH CURRENT BATTERIES

If Titan needs to be operated without access to AC power, a pair of high-current military 5590 batteries can run each unit using the provided DC battery cables. Four 10 amp-hour batteries in total are needed. Please note that batteries can only be used for a limited period; see **Section S** for specific battery requirements.

Titan Direct DC input devices are also available for 28 volt DC Military mobile installations. Vehicle power systems can damage sensitive electronics, so the Direct DC input has integrated over-voltage / spike / reverse polarity isolation to protect your system and are **MIL-STD-1275E** compliant.



Please do NOT connect your system to any DC power source without contacting your BlueHalo Titan rep first.



Titan's AC power supply can be used with a voltage inverter or generator if standard AC is not available. A full-frequency (dual-unit) system requires a current capacity of 1,200W minimum pure sine wave output.

- 1 Plug supplied Ethernet cable into each Titan, and connect opposite end to the tablet



- 2 Turn tablet on. Log in to Windows with the following credentials:

Login: Titan
Password: citadel2017

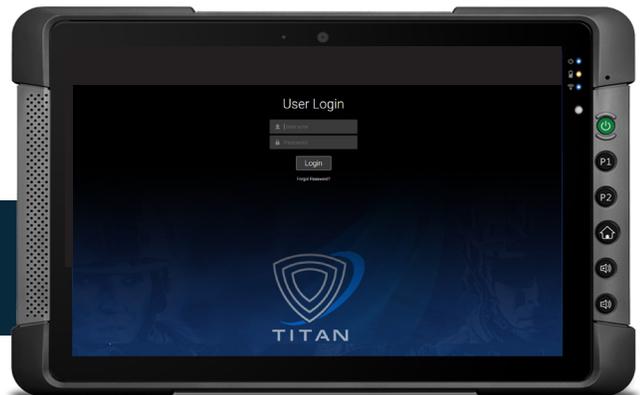


- 3 Click Citadel Dashboard icon to launch User Interface (UI)



- 4 Log in to the UI with the following credentials:

Username: Citadel321@dronecitadel.co
Password: 3Citadel21

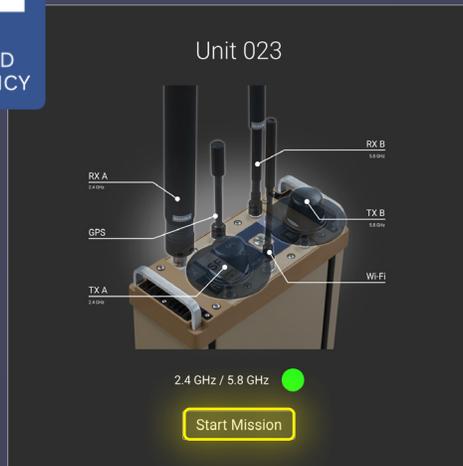


5 The system will perform a self-check. When complete, click CONTINUE to go to antenna verification.

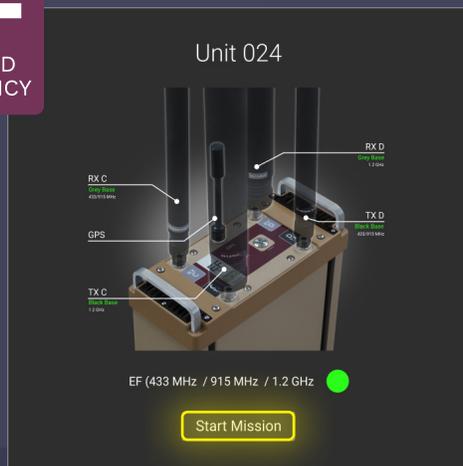


Antenna verification screens help ensure each antenna is on the correct port. After confirming the first unit's antennas the second will appear; confirm each before proceeding.

SF
STANDARD
FREQUENCY

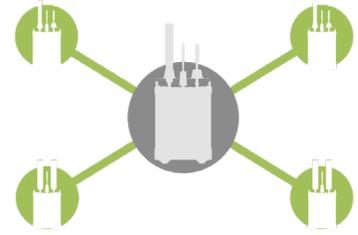


EF
EXTENDED
FREQUENCY



After clicking the second CONFIRM button the system is operational.

Both units in your Titan kit are networked together and controlled with a single tablet using its **SnapBack networking device**.



The SnapBack has several connections; Ethernet and USB cables should be visible and connected internally. Connect two additional Ethernet cables to the other Ethernet ports pictured below and to each of the Titan systems. Either Ethernet cable can go to either unit. Power on the systems and log in to each as described earlier, then continue with the instructions following this step for each unit.

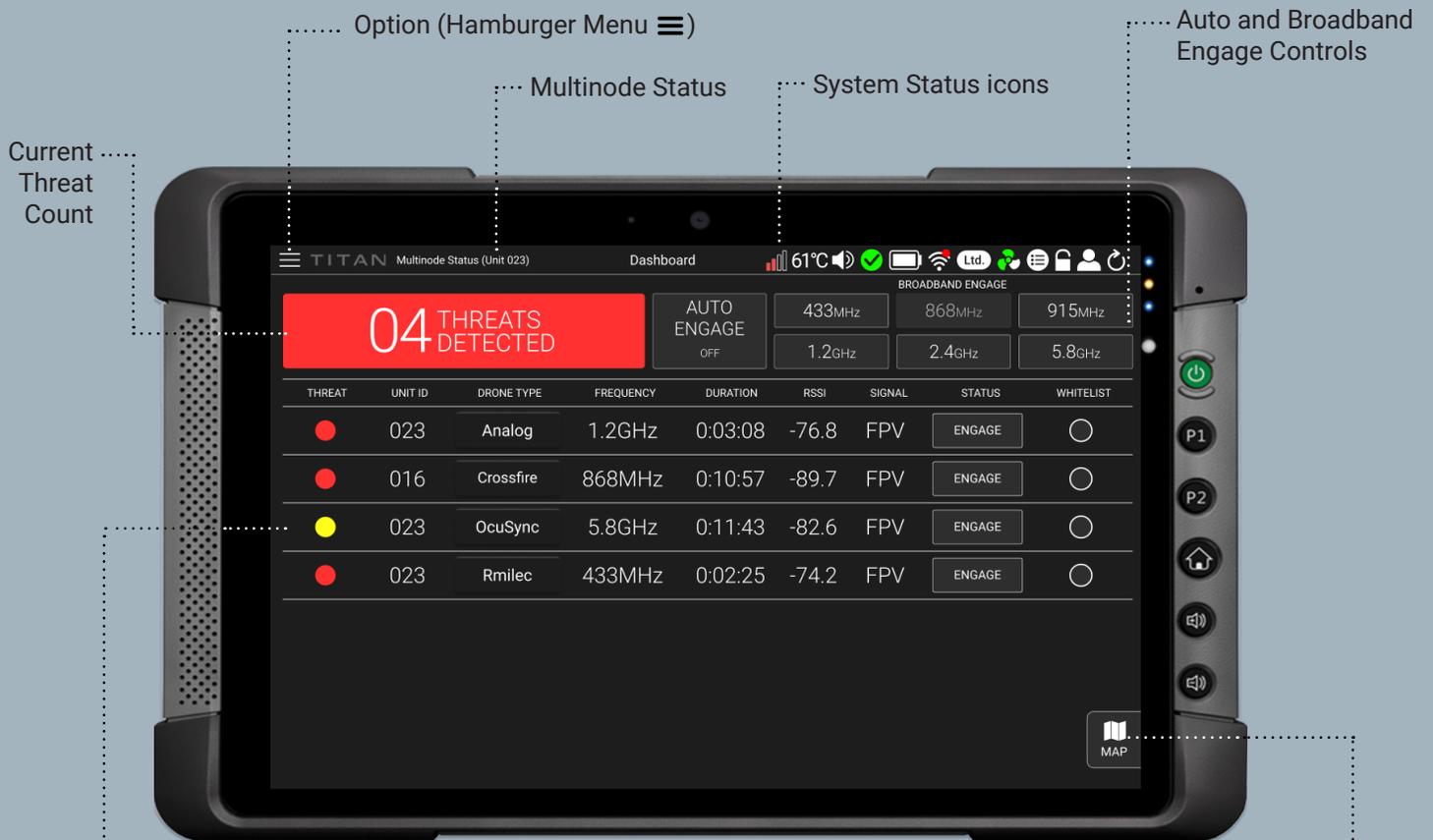
Please see **Section L - Multinode** for advanced Multinode settings & UI status.

TABLET WITH NETWORK SNAPBACK



On top of each tablet is a label with the matching Titan unit ID and a scannable QR code linking to a personalized tech support page with your direct contacts.

INITIAL DASHBOARD VIEW



The middle area communicates current and recent activity, including individual detections with selective engage capability, whitelisting, context-sensitive information, and threat level based on RSSI values.

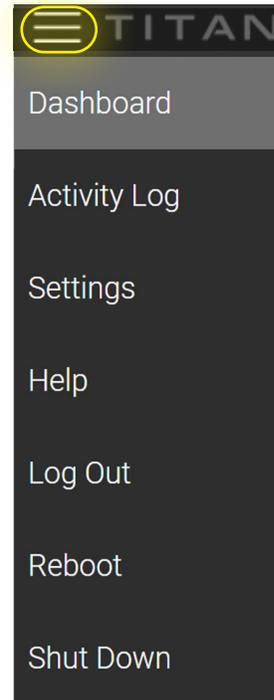
Changes the dashboard view to display system activity via a map overlay. When connected to an external directional sensor (TITAN-GL), real-time GPS information and other advanced tracking features are available.

See sections P & Q in this guide for detailed information.

TITAN

MAIN MENU

- Return to Main Screen
- Activity Log View/Export
- (See Section K for details)
- Quick Start Guide, User Manual, FAQ & Drone Coverage
- Exit Account/Lock Tablet
- Restart Citadel System
- Power Down Titan System



User Profile Account Levels

VIEWER: Permission to view UI and export reports. No access to engage controls. No ability to adjust settings.

OPERATOR: Viewer permissions + full operation of all engage controls. Settings permissions limited to Location & Maps and Operator Control > Whitelist Controls. Operator password protection optional.

ADMIN: Full access to UI. Full permission to adjust all settings. Admin password always required.

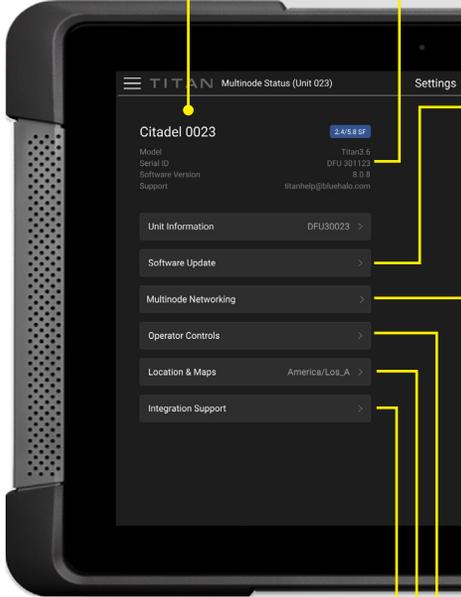
STATUS ICONS



- | | |
|-------------------------|---|
| RF Noise Environment | Relative level of RF noise nearby; excessive noise can impact performance |
| Operating Temp | Warning message if system temp exceeds 85°C (<i>safe shutdown to protect electronics</i>) |
| Alert Sound | Enable/disable audible detection alert from tablet speaker |
| System Status Check | Green - all systems OK, if red, click to determine which subsystem has an error |
| Tablet Battery | Tablet battery state of charge |
| Detected Wi-Fi Networks | Displays all Wi-Fi signals in range for selective engagement |
| Engage Profile | Toggle between minimal, limited and high RF spectral impact (<i>See Section N</i>) |
| Fan Mode | Cooling fan speed limit modes, in increasing order; Listening / Mission / Performance |
| Whitelist | Enables drone type exclusions – Icon is Green when enabled (<i>see Section K</i>) |
| Safe Mode | Protects sensitive electronics if other jammers are activated nearby - Red is enabled |
| User Profile | Selectable Viewer, Operator & Admin operating profiles (<i>password protected, see above</i>) |
| Reload User Interface | Reload the UI; will trigger a full display restart and antenna confirmations |

UNIT QUICK INFO

Unit Name | Mode
Serial ID
Software Version
Support Email



Unit Name

Unit Name: Save

Hardware

Build Number: 11.3.7.9.2.35.0.11-0654
Hardware Version: fw-5.1

Software

Citadel IP Address: 192.168.2.141
Custom DHCP IP Address: --
Last Update: 2022-09-19 21:47:53
Update

UNIT INFORMATION

- Change Unit Name
- Hardware Info
- Software Info

Software Update

Software Version: 8.0.8
Last Update: 2022-09-19 21:47:53
Select file for update
Upload

SOFTWARE UPDATE

- Software Release Upload

Multinode

Manual Configuration

Citadel IP Address or Custom IP Address: Add

Unit ID	Citadel IP Address	Custom IP Address	
033	192.168.2.33	192.168.2.247	X

Enable Multinode:

Auto-Connect Units:

IP Configuration

DHCP:

Static IP:

IP Address:

Subnet Mask:

Gateway:

DNS Server:

MULTINODE NETWORKING

Multinode:

- Manual Configuration (via Titan IP Address)
- Enable Multinode
- Auto-Connect Units

IP Configuration:

- DHCP
- Static IP
- IP Address
- Subnet Mask
- Gateway
- DNS Server

User Permissions

Password Protect Operator Mode:

Countermeasures

868MHz Countermeasures:

1.2GHz Countermeasures:

GNSS Denial:

Activity Log

Delete Activity Log: Delete

Threat Whitelist

Allow Whitelist:

Hide Dashboard Whitelisted Threats:

FPV/RC Threats

Analog 5.8:

FSky Tarantis 2.4:

OcuSync 2.4:

OcuSync 5.8:

Wi-Fi Threats

Analog 5.8:

FSky Tarantis 2.4:

OPERATOR CONTROLS

Password Protect Operator Mode

Countermeasures

- 868MHz Toggle
- 1.2GHz Toggle
- GNSS Denial

Delete Activity Log

Threat Whitelist

- Allow Whitelist
- Hide Dashboard Whitelist Threats
- FPV/RC Threats
- Wi-Fi Threats

Titan Location

GPS (MGRES): 115MS 85160 26462
Latitude/Longitude: 32.7760, -117.1585

Map

Whole World Map: Upload

Manual Location

Latitude: Longitude: Save

Date & Time

Auto Time Set:

Time Zone: America/Los_Angeles

LOCATION & MAPS

Titan Location

Map Upload

Manual Location

- Latitude & Longitude Input

Date & Time

- Auto Time Set
- Time Zone Select

API Token

API Token: Randomize Token

Reset Token

Web Hooks

Address: Port: Add

Add IP: Add URL:

INTEGRATION SUPPORT

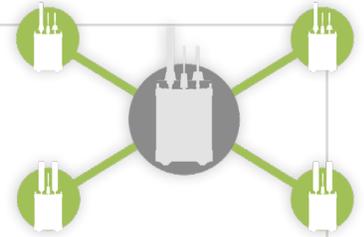
API Token Input

- Randomize/Reset Token

Web Hooks

- Address Input

Similar to your dual-unit SF/EF Titan kit, additional systems can be networked together and controlled via a single tablet for Multinode operation. Units with the same frequency capability can be linked to provide extended coverage over large areas, or units with both frequency ranges joined to provide a full spectrum solution. Multiple combinations can tailor coverage for mission need..



Multinode can be enabled on a system in use by elevating operator rights to **administrator**, found in **Section J**.

MULTINODE OPTIONS IN THE SETTINGS MENU

Multinode Enable: When multinode is enabled (on), a Network Status pop-up message appears showing connections as they are made to available “nodes” on the same network, showing frequency group, operational status, temperature, and a notification indicating which units joined.

Multinode Disable: When disabled, or (off), a Network Status message shows the nodes as they are disconnected.

Auto-Connect Units: When enabled (on), allows network discovery and addition of additional nodes. Turn (off) to manually assign IP addresses and/or prevent any units on the same network (subnet) from automatically joining if they need to be kept separate.

Available Units: Lists the IP addresses of all connected nodes; tap X to remove a node individually. Tapping anywhere in blank IP field brings up on-screen keypad to manually enter the IP addresses of nodes to add.

NETWORK STATUS

Status messages will appear any time there is a network change; new units leave, are added, or the network itself changes.

Tapping on *Multinode Status* in the top left of the Dashboard will also bring up this message.

The screenshot shows a dark-themed pop-up window titled "Multinode Network Status". It lists two units: Citadel 023 (Unit 023) and Citadel 024 (Unit 024). Each unit entry includes frequency information (e.g., 2.4/5.8 and 433/915/1.2 EF), a green checkmark indicating system health, a signal strength icon, and a temperature reading (62°C and 73°C respectively). A message below the list states "Citadel 024 (Unit 024) joined". A "Dismiss" button is at the bottom. Callouts point to "Unit Info", "System Health", "Noise Level", "Unit Temperature", and "Connection Message".

Unit Info	System Health	Noise Level	Unit Temperature
Citadel 023 (Unit 023)	2.4/5.8 (433/915/1.2 EF) ✓	Signal strength icon	62°C
Citadel 024 (Unit 024)	2.4/5.8 SF (433/915/1.2) ✓	Signal strength icon	73°C

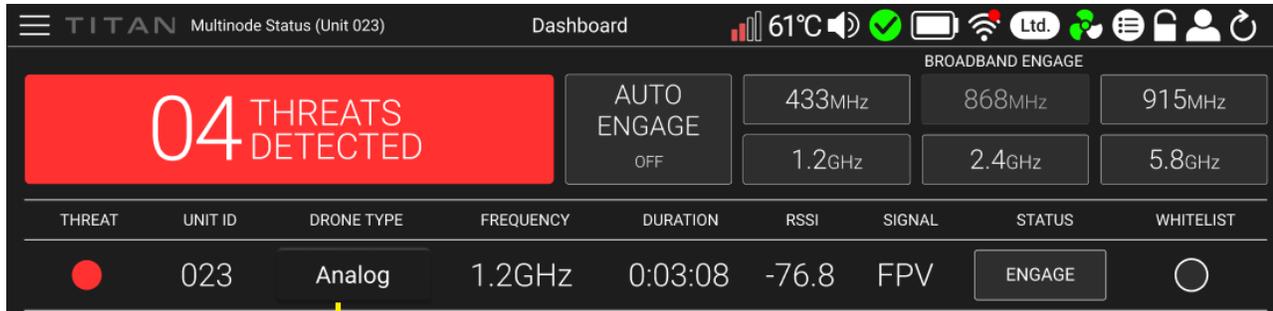
Citadel 024 (Unit 024) joined

Dismiss

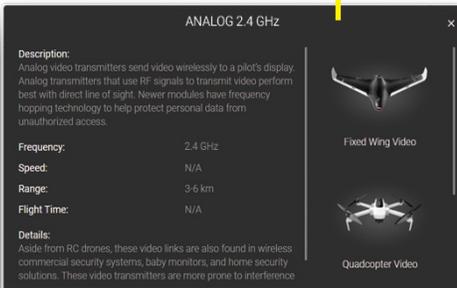
Immediately below the Status Icon row are **Active Detections**.

When the system detects drones the banner will turn red, indicate how many are present, provide data for each detection, and indicate the Unit ID where the alert was detected if in multinode mode.

There will also be an audible alert, adjustable by clicking the **Alert Sound Icon** in the top bar. 



Active alert for a 1.2 GHz Analog FPV Drone



DRONE EDUCATION DATABASE

Clicking the **Drone Type** for each active detection will provide an information pop-up detailing the characteristics of the specific make/model/protocol to aid in decision-making.

USING THE DASHBOARD TO DETECT AND DEFEAT DRONES

Titan can detect as far out as 3km horizontally in ideal conditions. Defeat range will vary by drone and the distance between Titan and the control source. In many cases the video link will be interrupted before the controller link is defeated. In this situation, the drone operator will lose video before the drone is disconnected and follows it's loss of link protocol, i.e. "return to home."

DETECTION INFORMATION

Threat Level	Estimated relative threat level based on RSSI value change; yellow to red based on signal strength increase
Unit ID:	The unit where the detection/mitigation is taking place
Drone Type	Drone Protocol (RC & FPV) or model (Wi-Fi) - clicking on <i>Type</i> will show additional information
Frequency	Drone control frequency band
Duration	Elapsed time since contact was first detected by the system
RSSI	Received Signal Strength Indicator (RSSI), expressed in decibels/dB
Detection	Type of control (FPV, RC, Wi-Fi)
Status	Engage & control indicator (ENGAGE, WAITING to engage, and ENGAGING)
Whitelist	Selectively disable Engage for a specific drone type / types

THREAT	UNIT ID	DRONE TYPE	FREQUENCY	DURATION	RSSI	SIGNAL	STATUS	WHITELIST
	033	FrSky Taranis	2.4GHZ	0:47:21	-84.1	RC	ENGAGE	

Titan has selectable countermeasure options (Auto and Manual) as well as broadband jam capability.

FOUR ENGAGE MODES

- A Auto Engage (recommended)** - Titan automatically transmits precision targeted engage waveforms when a drone is detected / reported. When signals are no longer detected the system will stop transmitting.
- B Broadband Jam** - If the targeted engage mode is not effective, RF energy will be transmitted throughout the selected band to overwhelm drone control signals. **The system will continue to jam until deselected** and nearby RF mobile devices will be negatively impacted. After 3 minutes of continuous operation Broadband Jam will stop automatically. Employ only when needed and disable when the threat is eliminated.
- C Manual (Targeted) Mitigation** – When multiple detections are present, selecting the **Engage** button will transmit a targeted engage signal for that specific protocol/detection.



DATA CAPTURED

The system continuously tracks & stores drone activity and can export reports for analysis. These are the data points logged:

Node	Unit ID of the detecting/engaging system
Date/Time	Date and time a specific activity is logged
Zone	Time zone the unit is in (based on GPS location)
Drone	Protocol the drone is operating on
Engage Profile	Current mitigation mode: Minimal, Limited, High
Whitelist	Shows if any detected drone(a) were whitelisted
Event	Specific system events (System on/off, Detection or Engage start/end)
Signal	Type of signal from drone (FPV, RC, Wi-Fi)
Band	Frequency band drone is operating on
Frequency	Specific frequency drone is operating on
Duration	Calculated time for an event (e.g. detect / engage duration for a drone)
Threat Level	Relative threat level based on signal strength and elapsed time
RSSI	Recorded RSSI (received signal strength indicator) from the system
ID	MAC address (for Wi-Fi drones)
Operator	Engage type used; FPV/RC auto or manual selection
Noise	RF noise detected in the unit's operating area
User Profile	System account logged in; viewer, operator, or admin
Lat & Long	Latitude and longitude coordinates reported from GPS

LOG EXPORT FUNCTIONS

Selecting **Export** (CSV or KML format) will generate file for the chosen date range, which can be copied from the tablet to a USB drive.

Selecting **Generate Report** will create a formatted PDF file that can also be copied to the tablet for offline analysis.

Users have the option to view drone flight playback videos if a GL sensor has is integrated with Titan.

Node	Date	Time	Zone	Drone	Event	Engage	Whitelist	Signal	Bat
033	2021-09-13	11:59:43	America/Los_Angeles	Holy Stone	Detect Start	High	No	FPV	5.8
033	2021-09-13	09:05:19	America/Los_Angeles	Spark/Mavic Air	Detect End	High	Yes	FPV/RC	2.4/5
033	2021-09-13	07:54:42	America/Los_Angeles	Spark/Mavic Air	Detect Start	High	No	FPV/RC	2.4/5
033	2021-09-13	07:51:59	America/Los_Angeles	Spark/Mavic Air	Detect End	High	No	FPV/RC	2.4/5
033	2021-09-13	07:32:03	America/Los_Angeles	Spark/Mavic Air	Detect Start	High	No	FPV/RC	2.4/5
033	2021-09-13	07:30:29	America/Los_Angeles	-	System On	-	-	-	-
033	2021-09-13	14:29:57	UTC	-	System Reboot	-	-	-	-
033	2021-09-13	07:27:39	America/Los_Angeles	Spark/Mavic Air	Detect End	High	Yes	FPV/RC	2.4/5
033	2021-09-13	07:25:46	America/Los_Angeles	OcuSync	Detect End	High	Yes	FPV/RC	2.4/5
033	2021-09-13	07:25:39	America/Los_Angeles	Spark/Mavic Air	Detect Start	High	Yes	FPV/RC	2.4/5
033	2021-09-10	18:30:21	America/Los_Angeles	Lightbridge	Detect End	High	No	RC	2.4
033	2021-09-10	18:11:25	America/Los_Angeles	Lightbridge	Detect Start	High	No	RC	2.4
033	2021-09-10	18:07:18	America/Los_Angeles	Lightbridge	Detect End	High	No	RC	2.4

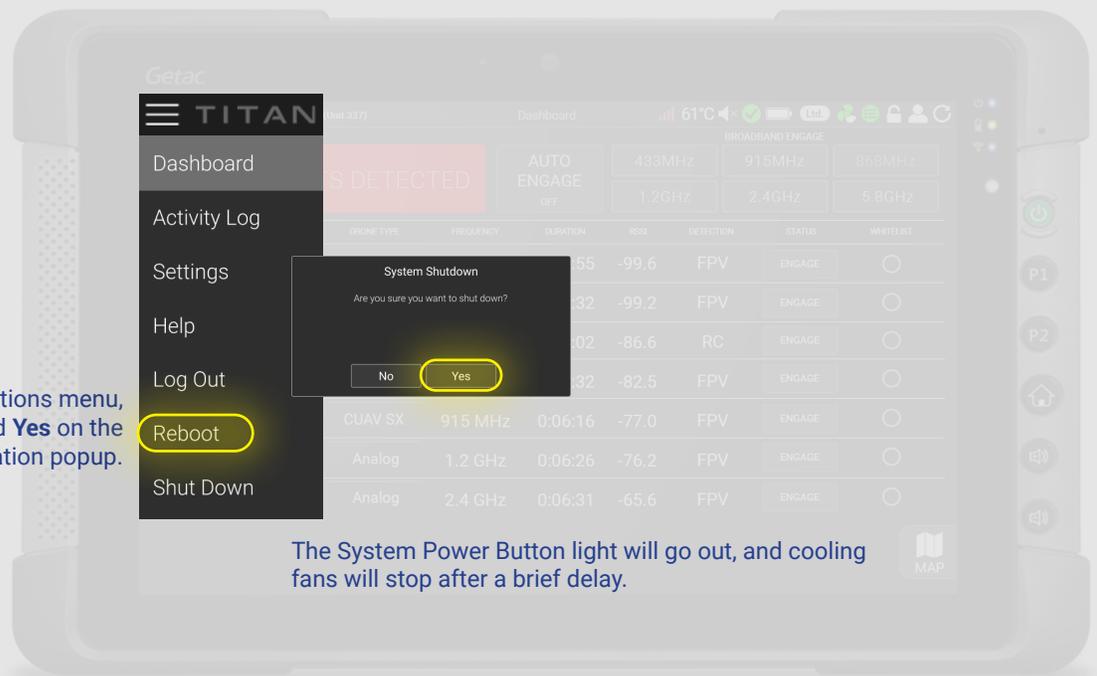
Activity Log Screen

SHUTDOWN

A best practice is to avoid abruptly disconnecting/pulling power.

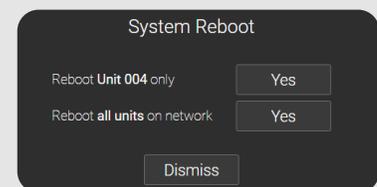
Using the **Shut Down** command will ensure Titan has time to perform file save activities needed to turn off and avoid data corruption.

From the main menu options menu, choose **Shut Down** and **Yes** on the confirmation popup.



The System Power Button light will go out, and cooling fans will stop after a brief delay.

Note that when controlling multiple units from the tablet, selecting **Reboot** or **Shut Down** from the main menu will show options for the current system OR all connected units.



Alternate Method: Momentarily depress the System Power Button; the system will turn off after a 10-20 second file write delay.

The mapping dashboard improves situational awareness, with real-time geolocation data when integrated with other sensors. **Section S Software Update** shows how to obtain map tile data for other regions.



ENABLING MAP DISPLAY

Clicking the **MAP** icon on the bottom right of the UI toggles the location display.

The protected coverage zone is shown as an approx. 3km radius; threat levels are estimated based on signal strength and direction of travel.

High threats are estimated to be within 1.5km and **medium** threats within 3km.



ACTIVE THREATS

All active threats are displayed in the expandable lefthand column. Threat detections will show the name, status, duration and RSSI, as well as Whitelist capability and a manual engage button.

 The HOME icon toggles the display back to the Titan detections dashboard.



ACTIVE THREATS (GL SENSOR CONNECTED)

Precise drone and pilot location data as well as additional map control features are available when Titan is integrated with GL sensors - see next page.

When Titan is Paired with a **GL sensor**, real-time directional threat tracking & defeat of all DJI drones is available.

Q | MAPPING WITH GL SENSOR

Step-by-step setup information is in the Quick Start Guide in each Titan case, but below is an overview of GL sensor operation.

Alert/Engage Controls

- AUTO ENGAGE (OFF)
- BROADBAND ENGAGE: 433MHz, 868MHz, 915MHz, 1.2GHz, 2.4GHz, 5.8GHz

Open Map Controls

- Map navigation controls (compass, zoom in/out, location pin)

Manual Engage

- ENGAGE button (next to drone icon)

Home/Map Toggle

- HOME button

Map Controls

- Home Pt
- Track
- MGRS
- Drone
- Pilot
- Set Radius
- Create Zone
- Friendly
- Watchlist

DJI Drone/Pilot Location

Non-DJI Detection(s)

Alert/Engage Controls (Left Panel):

- 04 THREATS DETECTED
- Crossfire 915MHz: Threat (Red), Duration: 4:54:33, RSSI: -80.5, Detection: FPV, Whitelist (Green), ENGAGE button
- Ocusync 5.8GHz: Threat (Red), Duration: 4:54:33, RSSI: -80.5, Detection: FPV, Whitelist (White), ENGAGE button
- More detections

Drone Info Pop-up:

- Mavic Air (Spark/Mavic Air)
- Duration: 02:17:19
- Drone Dist: 2029m
- Altitude: 515 ft AGL
- Speed: 9.8 mph
- Whitelist: On Diego
- Drone GPS: 32.7582, -117.1529

Engage Zones can be set to define a custom geographical boundary within which Titan will automatically engage detected threats.

Continue clicking to define the zone area, then click back on the first point to finish.

The new Engage Zone is now set and will remain until deleted via the Clear Zones button.

Note: this feature is only available when connected to a GL sensor.

VIEWING REAL-TIME SPECTRAL DATA

A spectrogram is a visual means of representing the strength of a signal over time at various frequencies. Titan has the ability to display RF spectrograms in real-time, providing additional information to support operator decision-making in high-noise environments.

Spectrograms can be viewed in each of the 6 bands of interest - 433 MHz, 868 MHz, 915 MHz, 1.2 GHz, 2.4 GHz, and 5.8 GHz. The images shown here are from two systems connected to a single Titan tablet to provide full-band coverage. Presence of excessive noise in a band can impact Titan’s detection range as it increases the overall RF noise level from which the system must distinguish and classify unique UAS signal characteristics.

There are two ways to access the **Spectrogram Viewer** in Titan’s UI:

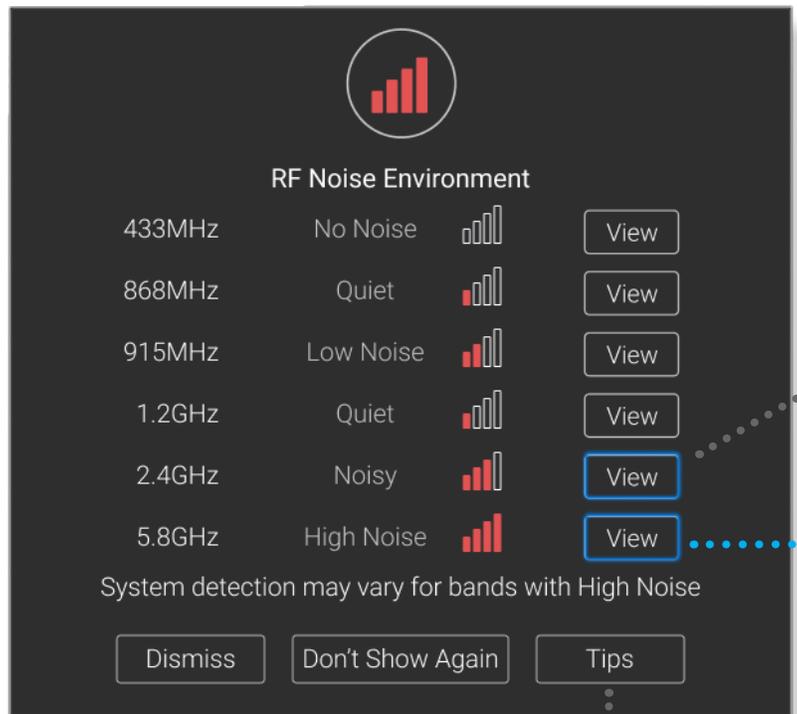
METHOD 1 - NOISE ALERT

When the system detects excessive RF noise, a pop-up will indicate the band(s) and relative noise level - **No Noise, Quiet, Low Noise, Noisy, High Noise**.

Bands with high noise levels (3-4 bars) will have a flashing blue outline surrounding their **View** button, with an icon indicating the relative noise level.

Clicking **View** will bring up the Spectrogram Viewer for that frequency band (see next page for more details).

Noise Alert on 2.4 and 5.8 GHz



Clicking **TIPS** in the Noise Environment pop-up will provide additional guidance for mitigating RF noise.

METHOD 2 - CLICK RF NOISE ICON

Clicking the RF Noise Environment icon in the top status bar will also open the Noise Environment pop-up shown above.



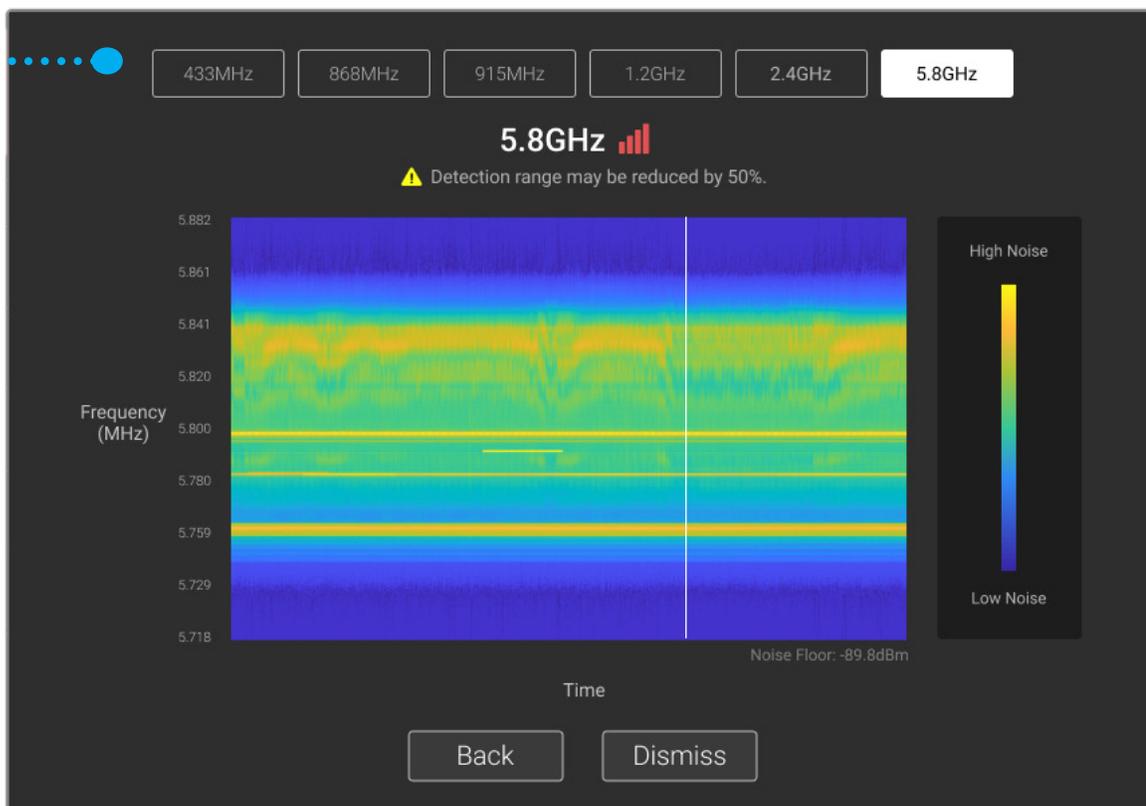
SPECTROGRAMS

The Y-axis shows frequency in a scale increasing vertically from low to high, and time is shown as a linear progression along the X-axis. A visible white line also travels from left to right on the X-axis, updating the display as it scans past. Operators can switch between band views using the buttons along the top edge. Selecting **Back** returns to the RF Noise Environment pop-up.



View 1

In this 1.2 GHz Spectrogram RF background noise level is very low, so Titan's detection sensitivity in that band is optimal.



View 2

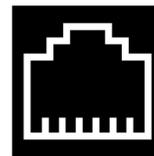
In this 5.8 GHz spectrogram the RF background noise level is unusually high, causing a reduction in detection range.

Operator awareness of this temporary limitation is important in interpreting detections and any actionable response to mitigate RF noise when possible.

TABLET & EXTERNAL NETWORK CONNECTIVITY

Every Titan system comes with a dedicated tablet, but an external network can be used to operate the user interface and view system activity.

Procedure: Ensure that you're in Admin Mode (see Section I, User Profile), and determine whether your network assigns IP addresses via a DHCP server or if you will need to provide a fixed IP address manually.



FIXED (STATIC) IP ADDRESS:

Connect the tablet and unit separately to your network with an Ethernet cable; open up the Titan UI on the tablet. From the main menu select **Settings > Multinode Networking > Static IP**. Enter an IP address for your local network (example 192.168.2.XX), along with the subnet mask and gateway.

If you don't know the subnet or gateway, open a command prompt on a nearby computer and type "ipconfig" to get it. Enter that data and click Apply Settings. Titan should now be available from any system on the same subnet. Type the assigned IP address into a compatible browser to access.*

The screenshot shows the 'IP Configuration' screen. At the top, 'DHCP' is selected with a radio button, and 'Static IP' is selected with a radio button and a green indicator dot. Below are four input fields: 'IP Address*' (empty), 'Subnet Mask*' (255 . 255 . 255 . 0), 'Gateway' (empty), and 'DNS Server' (empty). An 'Apply Settings' button is at the bottom right.

DHCP ADDRESS:

Connect the tablet and unit separately to your network via Ethernet cable and open the UI on the tablet. In the top-left menu select **Settings > Multinode Networking > DHCP**. Note the IP address that appears. The system's UI should now be available from any system on the same subnet by typing the assigned IP address into any compatible browser.

The screenshot shows the 'IP Configuration' screen. At the top, 'DHCP' is selected with a radio button and a green indicator dot, and 'Static IP' is unselected with a radio button and a grey indicator dot. Below are four input fields: 'IP Address' (192 . 168 . 2 . 199), 'Subnet Mask' (255 . 255 . 255 . 0), 'Gateway' (192 . 168 . 2 . 254), and 'DNS Server' (8 . 8 . 8 . 8). An 'Apply Settings' button is at the bottom right.



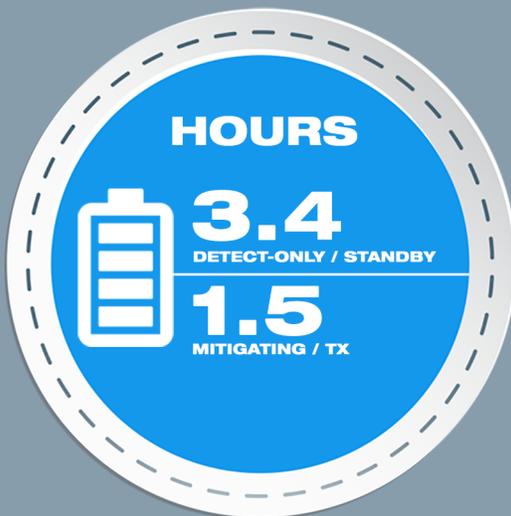
The User Interface requires the most recent version of the Chrome browser to operate correctly.

Titans are intended to be powered by the AC supplies, but batteries can be used as a temporary power source. **Two 10-amp hour equally charged 5590 batteries per Titan** are recommended, and a dual-battery power cable is included in each case. Check the current rating of any batteries you may have on hand to determine their current rating. Unequally charged / mismatched capacity will significantly shorten run time and is not recommended.

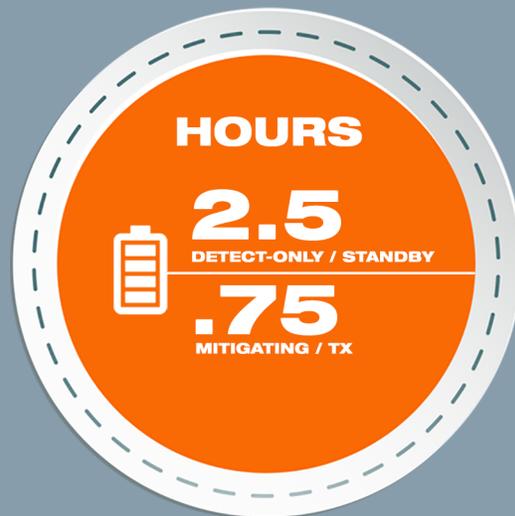


The more the system engages (transmits), the faster the batteries deplete. We've provided estimates below, but actual run time will vary with battery capacity, duty cycle, and ambient temperature. The batteries can be 'hot swapped' individually while the unit is operating to extend run time. Note that Titan does *not* recharge batteries - a separate charger is needed. Avoid running a unit on one battery unless very briefly for hot swapping.

MILITARY 5590 BATTERY RUN TIME / EQUALLY CHARGED PAIR



10 AMP HOUR BATTERIES
(RECOMMENDED)



7.5 AMP HOUR BATTERIES
(NOT RECOMMENDED)



WARNING: LI-ION batteries are safe under normal conditions but may become extremely hot and emit smoke/flame when punctured, damaged, misused or charged improperly. This can cause injury or equipment damage.

FIELD CABLE REPAIR

If Titan's power supply cabling becomes damaged the connector can be repaired in the field. We recommend obtaining Titan OEM replacement parts from your service rep, but temporary repairs can be made using the pin-out guide below.



	Power Supply DC Output	Brown/Brown [+] Pins 1 & 2, Blue/Blue [-] Pins 3 & 4
	Power Supply AC Input	Brown = Line, Blue = Neutral, Green/Yellow = Ground
	Main DC Power Cable (Unit Side Amphenol 5-pin)	A/B positive [+] C/D negative [-] E = NC

Titans can be updated remotely when new updates are released. To ensure reliable operation, please update ALL systems to the same software version.

Ensure Titan & tablet are on and connected together via Ethernet cable.

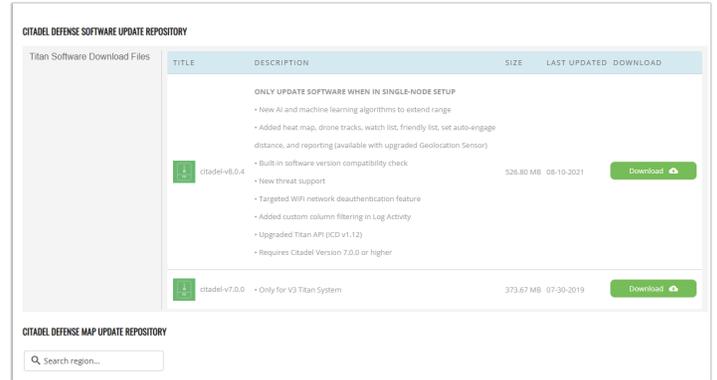
Connect the tablet to the Internet via Wi-Fi, and click the **Software Update icon** on the tablet desktop (or the secure link sent by your Titan account manager.)



1 Login to the update site - the username and pass should auto-fill; if not, contact Titan support.

Download the current software release; it will be saved to the tablet's **Downloads** folder when complete.

If Wi-Fi is unavailable nearby, disconnect tablet and move it to a location with connectivity. After downloading, reconnect tablet to Titan to finish updating.

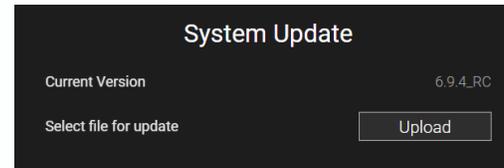


The Titan Software Update Website also has downloadable map data for different regions

2 From the Titan Dashboard's main menu choose **Settings > Software Update**.

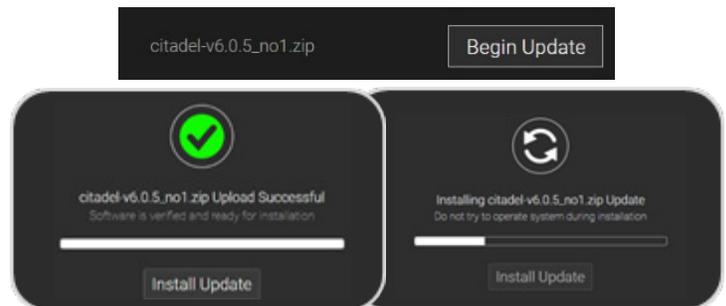
Select **Upload**.

*If you're asked to log in as administrator, enter **Citadeladmin321***



3 Find the file in the tablet's **Downloads** folder & select.

Click **Begin Update** - a green check pop-up will appear. Click **Install Update**.



4 After a successful update, Titan will restart. The Status Check will run, indicating a system reboot.



If there is an error in the update process, the system will provide a notification and reboot without installing the update, recovering to the previous version if necessary.

GETTING IN TOUCH

We're here to help ensure the best possible experience with our product.

Contact us directly at titansupport@bluehalo.com

Please provide your name / contact info, Titan serial number, and a brief description of your issue. We will contact you as soon as possible.

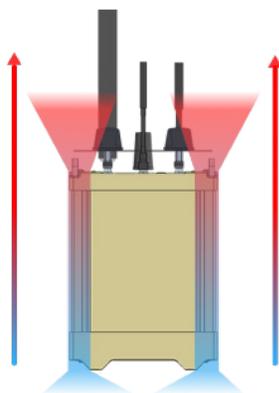


On top of each tablet and the bottom of each Titan is a label with the serial # and a scannable QR code linking directly to a personalized tech support page.

MAINTENANCE

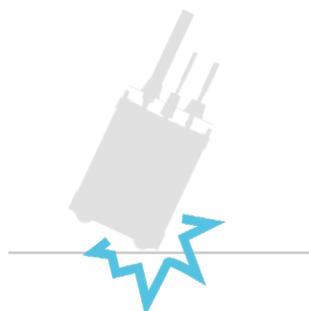
Titans are actively cooled through side panels, and filters in the base ensure no debris is sucked into the cooling fans. These filters should be checked & cleaned regularly. In a dusty/sandy environment they should be cleaned weekly, and in less challenging environments they should be inspected for debris monthly.

To clean: remove, rinse with water, and replace.



Titan Airflow Direction

The system contains sensitive electronics, and care should be taken not to drop or subject it to major impact - please use the padded case whenever possible.



Fan covers opened for filter access

Clean vs. Dirty Filters



Do not operate the unit with the fan covers or filters removed; fans operate up to 18,000 RPM.

If Titan is deployed in a marine environment, we recommend coating the system with corrosion inhibitor spray to keep saltwater and air from oxidizing the antenna terminals and metal surfaces.



RF transmitting / jamming technologies carry a risk of interference outside their intended mode of operation and can disrupt critical communications, particularly in **Limited** and **High** engage modes.



GENERAL SAFETY

As with any RF energy-emitting technology, care should be taken to avoid prolonged close exposure. Observe the safe distances outlined below for personnel, ordnance, and fuel.

Please note that the warnings apply only to systems when engaging (transmitting). In detect-only mode Titan radiates zero RF energy.

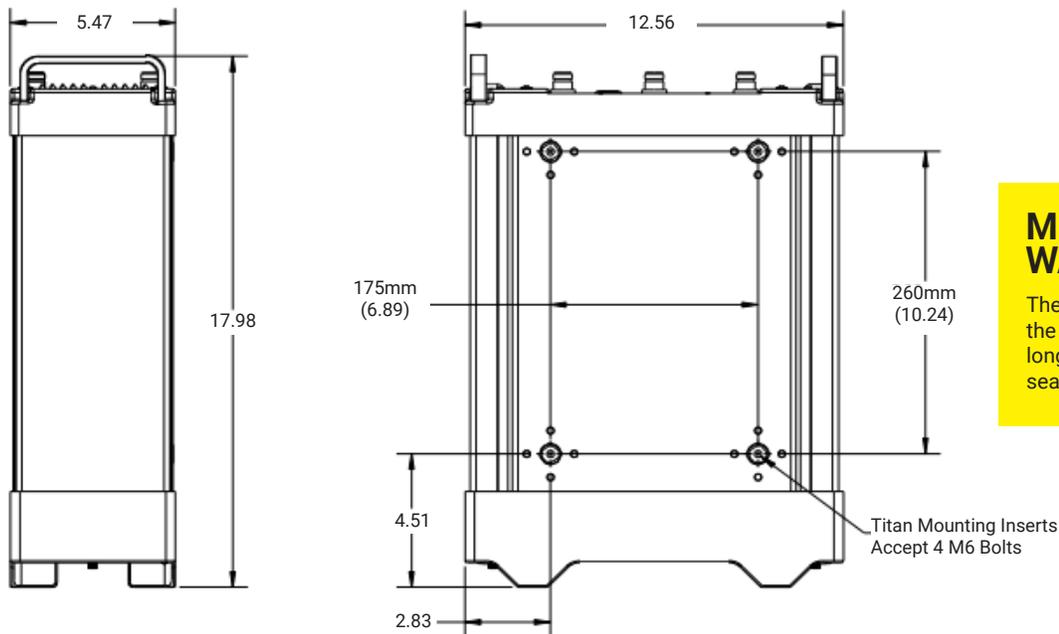
 <p>RAC: 4-D</p> <p>The minimum recommended HERP distance is two (2) feet.</p> <p>This distance disallows the maximum permissible exposure level to be reached during operations. There is a shock/burn hazard if the antennas are touched during transmit operation.</p> <p>This hazard has a Negligible-Remote (RAC 4-D) LOW Risk assessment.</p>	 <p>RAC: 1-E</p> <p>Titan should not be operated within ten (10) feet of HERO Unsafe or susceptible ordnance.</p> <p>Operating within 10 feet of a <i>HERO Unsafe</i> ordnance can result in the device's unintentionally functioning, causing severe injury or death. The vast majority of U.S. Ordnance is HERO safe.</p> <p>This hazard has a Catastrophic-Improbable (RAC 1-E) MEDIUM Risk assessment.</p>	 <p>RAC: NONE</p> <p>The Titan has minimal calculated HERF (fuel) distance impact, so no Risk Assessment Code (RAC) is assigned.</p> <p>However, as a best practice users should not deploy the system within five (5) feet of fueling operations.</p>
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(REF: Titan ATEC Safety Confirmation Recommendation Memorandum of 16 June 2020, US Army Evaluation Center IAW MIL-STD-882E)

TECHNICAL SPECS

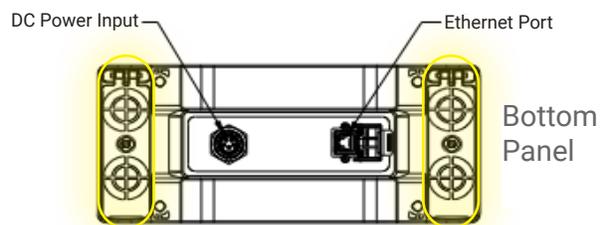
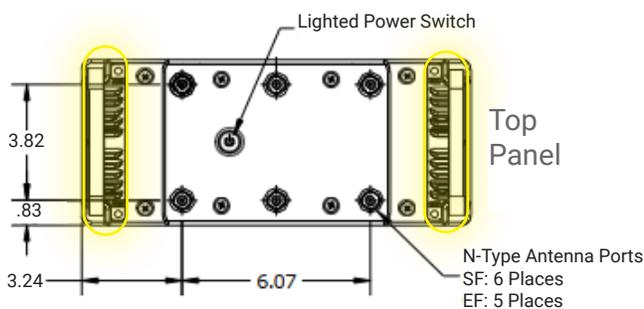
Weight / Dimensions Per Unit: 20lbs, 12.3" L / 5.1" W / 17.9" H
 Power / Current: 88-305 VAC and 18-36 VDC, 400 Watts per unit
 Operating Temperature Range: -20° to +50 ° C
 Detection Range: Up to 3 KM Horizontal
 Defeat Range: Up to 1.5 KM Horizontal
 Ingress Protection: IP 66 & IEC 60529, Salt/Fog, Vibration, Shock: MIL-STD-810

DIMENSIONS & MOUNTING



MOUNTING WARNING

The system has 4 M6 mounting inserts in the rear panel -do not exceed 6MM depth- longer bolts will pierce the environmental seal and damage the unit.



Titan can operate in any position provided the air intakes (below top handles) and fan exhaust (bottom of unit) are clear. The **Titan Integration Guide** has detailed information on remote antenna mounting; ask your BlueHalo rep for a copy.

POWER OPTIONS

If AC shore power is unavailable, a 120 VAC voltage inverter may be used provided it is A) true sine wave and B) capable of 1200W minimum current to support two units. A 26V direct-DC cable assembly with surge & polarity protection is available for military vehicle mobile installations - please ask your Titan rep.

If you wish to use batteries, see **Section R** for usage specifications.



TITAN

Designed & Built in San Diego, California

bluehalo.com/product/titan

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System characteristics & performance specifications subject to improvement or change without prior notice.