ZEUS TITAN

USER MANUAL

Zeus Titan | Desktop App

247 SECURITY
247securityinc.com
1.866.693.7492

Introduction

The Zeus Titan DVR captures your vehicle's video from multiple cameras and organizes the files allowing end-users to retrieve video with a few mouse clicks. Zeus Titan also makes it easy for you to access cameras and saved video in real-time.

Not just state-of-the-art, Zeus TITAN and the DVRViewer Pro software DEFINE the mobile video surveillance industry.

Zeus TITAN feature:

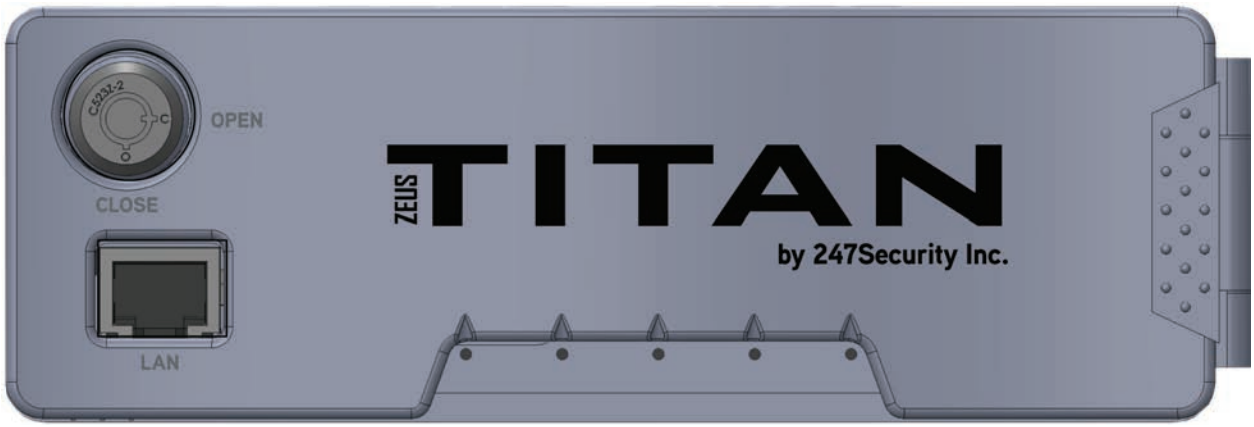
- A dynamic bit rate
- Configurable frame rate up to 30 fps per camera
- Image quality control
- Real-time previewing on all channels
- Alarm triggers
- Sensor configuration
- Easy retrieval and transfer of video files over Modem/WiFi/LAN
- GPS tracking

In addition, ZEUS allows end-users to independently manipulate these parameters for each camera if desired. Note that some parameters should only be adjusted if the user has specific knowledge or under the direction of 247 Security Inc tech support.

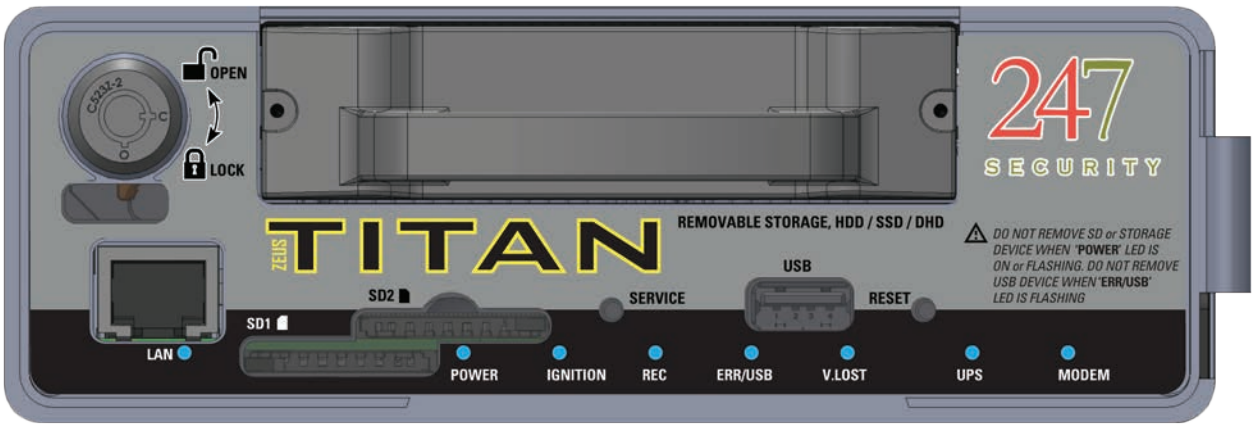
Table of Contents

Overview

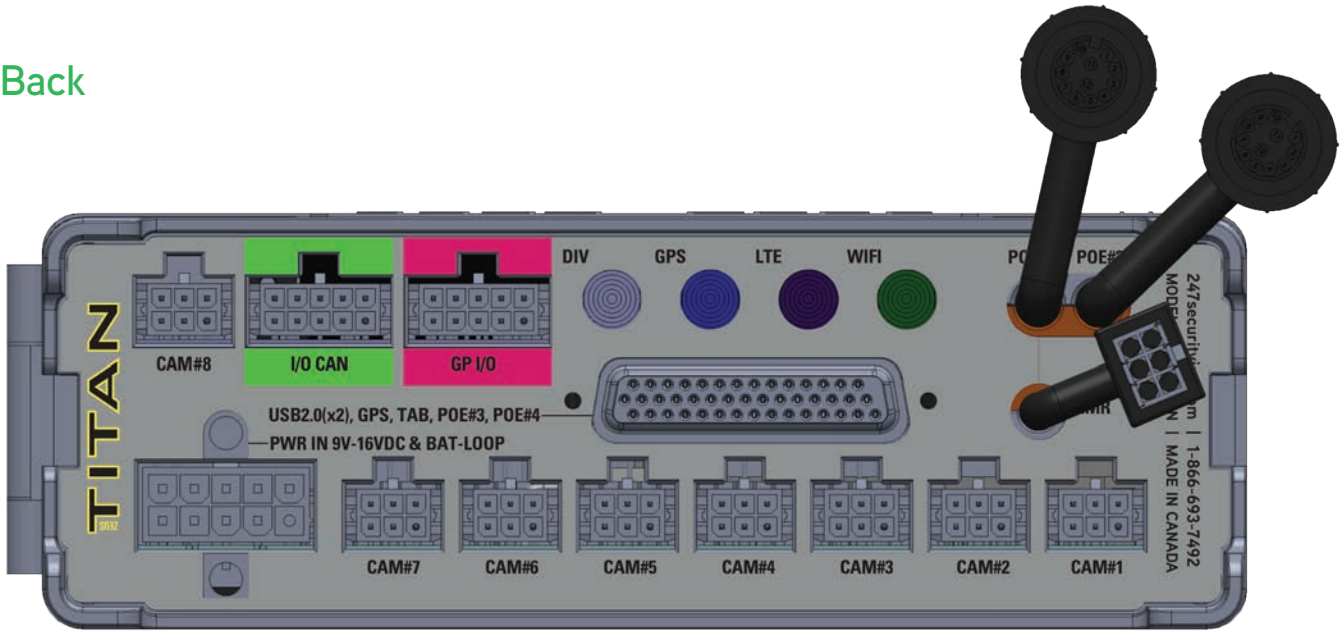
Front - Door Closed



Front - Door Open



Back



Retrofit Notes

If replacing a ZEUS PT with a ZEUS TITAN, there are a few important changes:

- TITAN uses a different power cable than PT
- SD Cards are not recommended as a storage media; use a DHD2

Operation

Once your Zeus TITAN has been installed, it's ready to start recording.

VIEWING VIDEOS

- To view videos, retrieve the DHD media storage tray from the DVR, connect it to your computer, and open DVRViewer Pro. Refer to the DVRViewer Pro User Guide for details.
  Go to pro.247securityinc.com for more information.

  If you have TouchDown, you can upload and view videos from your browser, you don't need to retrieve the media storage tray from the vehicle.

REMOVING THE MEDIA STORAGE TRAY

- The media storage tray (DHD – see below) can be removed and inserted without turning the vehicle ignition off, but the POWER and REC LEDs must be off. This process is necessary so that the ZEUS can properly close all video/audio files and safely turn the HDD (hard disc drive) power off. This process will take roughly 15 to 30 seconds to complete. The feature is helpful when access to video is needed but vehicle is required to remain running.

  For a full explanation of the Titan lights, refer to Status Indicators on **page 38**

- Turn the key to the "**Open**" position. Open the door and wait until all lights are off.

  Note: The ignition light will remain illuminated if the vehicle ignition is on.

- Gently pull media storage straight out from the bay until it is free from the rails.
- If swapping the drive, insert new media storage, and close the door.
- Turn the key to the "**Lock**" position.
- The ZEUS will now turn the HDD power on, detect the new media and start recording again.

- If viewing videos, connect the media tray to the computer with the supplied cable.
- Refer to the DVRViewer Pro User Manual for more information.

WIRELESS VIDEO RETRIEVAL

- You can retrieve video from the DVR wirelessly through a wireless network access point.

  Refer to the **TouchDown manual for more information or talk to your 247 Security Inc representative.**

Configuring Zeus Titan

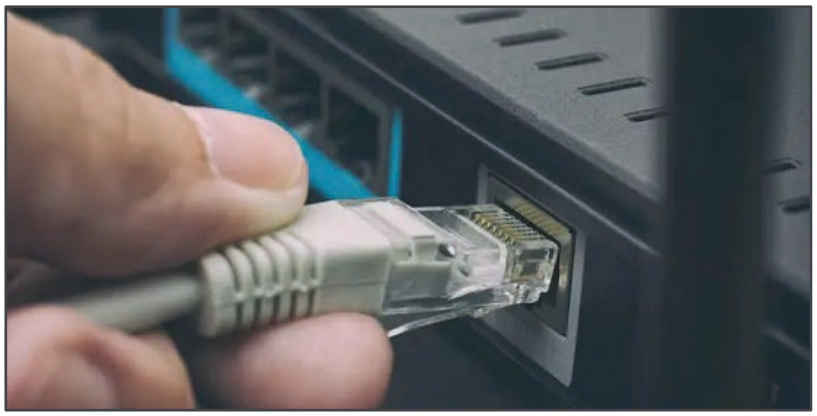
- Your 247 Security installer will configure your **TITAN DVR** as part of the installation process. Changes to the initial configuration can be made by following these steps.

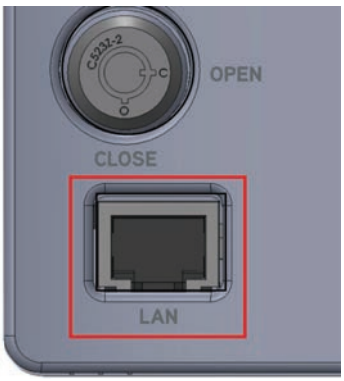
1. Connect TITAN to your PC or laptop, with the supplied Ethernet Crossover Cable
2. Set up your computer's Ethernet port (temporarily) with a static IP
3. Use **DVRViewer Pro** or a browser to access configuration settings (You can also use **DVRViewer**)
4. After disconnecting from TITAN, return your laptop/PC to dynamic IP settings as necessary

1. CONNECT TITAN TO PC/LAPTOP

An Ethernet Crossover Cable is included with the unit. This is how the installer views the cameras for aiming purposes. A crossover Ethernet cable is slightly different than a normal Ethernet cable: the connection is not between a PC and a network device per se, such as a router/switch/modem, but between two terminal devices on a LAN.

- Use the grey cross-over cable that shipped with the DVR. Attach one end to the LAN port on the laptop or PC,





...and the other end to the DVR port labeled **LAN**.

Verify that one end of the cable has a "**XOVER**" label. A standard Ethernet network cable will not work.

2. STATIC IP SETUP

Both your PC/Laptop and the TITAN need to be set up with **"static"** IP addresses to connect to each other. TITAN's default IP address is **192.168.1.100**

SETTING UP YOUR PC - WINDOWS 7

1. Click on the **Start** button in the lower left corner
2. Select **Control Panel**
3. Select and open **Network** and **Sharing Center**
4. Select **"Change adapter settings"**
5. Right click on **Local Area Connection**
6. Left click on **Properties**
7. Left click on **"Internet Protocol Version 4 (TCP/IPv4)"**
8. Left click on **Properties**
9. Record ANY numbers on this screen; you may need to return to these numbers when finished configuring TITAN
10. Left click on the **Use the following IP Address button**
11. In the **IP address window type 192.168.1.55**
12. Left click on **Subnet mask and 255.255.255.0** should display
13. There should be no other numbers in the **TCP/IP** properties window
14. Left click on **OK**
15. Left click on **Close**

SETTING UP YOUR PC - WINDOWS 8

1. Drag the mouse pointer to the top right or bottom right **"hot corner"** until the five Charms appear along the right edge of the screen. Drag the mouse pointer and click on **Search** (you can also access the Search charm through the keyboard shortcut Windows logo + Q), the search pane will open; type **"Control Panel"** and select it from the results to the left
2. Select and open **Network and Internet**
3. Select and open **Network and Sharing Center**
4. Select **Change adapter settings**
5. Right click on **Ethernet**
6. Select **Properties**
7. Left click on **Internet Protocol Version 4 (TCP/IPv4)**
8. Left click on **Properties**
9. Record ANY numbers on this screen; you may need to return to these numbers when finished configuring TITAN
10. Left click on **Use the following IP Address button**
11. In the IP address window type **"192.168.1.55"**
12. Left click on **Subnet mask "255.255.255.0"** should populate automatically
13. There should be no other numbers in the **TCP/IP properties** window
14. Left click on **OK**
15. Left click on **Close**

SETTING UP YOUR PC - WINDOWS 10

1. Right click on the **Start** button in the lower left corner
2. Select **Network Connections**
3. Select and open **Network and Sharing Center**
4. Select **Change adapter settings**
5. Right click on **Local Area Connection**
6. Select **Properties**
7. Left click on **Internet Protocol Version 4 (TCP/IPv4)**
8. Left click on **Properties**
9. Record ANY numbers on this screen; you may need to return to these numbers when finished configuring TITAN
10. Left click on **Use the following IP Address** button
11. In the **IP address window** type **"192.168.1.50"**
12. Left click on **Subnet mask** and **"255.255.255.0"** should populate automatically
13. There should be no other numbers in the **TCP/IP properties** window
14. Left click on **OK**
15. Left click on **Close**

SETTING UP YOUR PC - WINDOWS 11

1. Click the **Start button** in the lower left corner
2. Type **"network connections"**, click on **View Network Connections**
3. Right click **Local Area Connection and click Properties**
4. Left click on **Internet Protocol Version 4 (TCP/IPv4)**
5. Click the **Properties** button
6. Make sure that **"Use the following IP address:"** is selected
7. In the **IP address window type "192.168.1.50"**
8. Left click on **Subnet mask and "255.255.255.0"** should populate automatically
9. Click the **OK** button
10. Click **Close or OK**

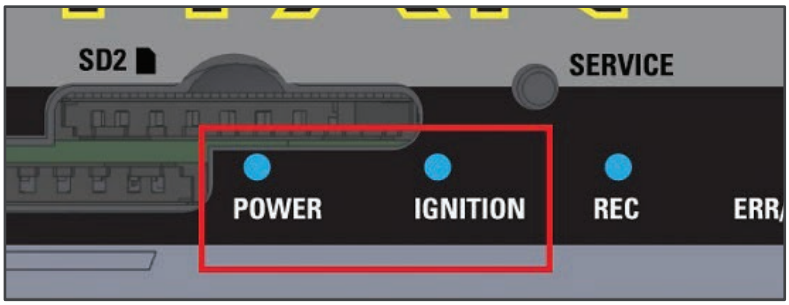
Note: If the steps in setting up your PC do not work, contact you IT department concerning your PC, this is a one-time setup to configure the Zeus Titan DVR.

You may need to return your computer to dynamic settings by selecting **"Obtain an IP address automatically"**. See Step 4 below.

3. RUN DVRVIEWER PRO

Refer to the **DVRViewer Pro User Manual** for details on downloading, installing, and launching the program on your PC or laptop.

- Verify that the DVR is powered up – the Power and Ignition LEDs should be on and solid. The bus can be idling or on "**Accessory**" without the engine running.



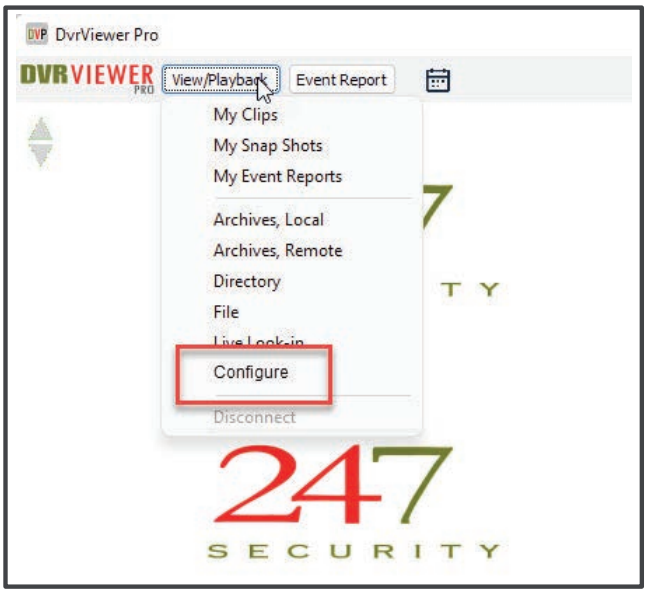
- Open **DVRViewer Pro** and login. The user "**admin**" has the password "**247SECURITYINC**"

- Click **View/Playback** and select **Configure**.

  Configure TITAN as needed.

  Note: Some settings should not be changed unless the user has specific knowledge, or is under the direction of 247SecurityInc tech support.

  If unsure, make no changes without contacting tech support.



4. RETURN THE IP SETTING TO DYNAMIC

You may not have to switch your Local Area Connection back to "**Obtain an IP address automatically**" if your setting was already set to "**Use the following IP address**" but it was blank. We recommend that you follow the previous instructions and delete the IP address.

Configuration Menus

- Verify that the DVR is powered up – the **Power and Ignition** LEDs should be on and solid. The bus can be idling or in "**Accessory**" mode.

- The DVR setup is divided into six major sections: System, Camera, Sensor, Network, Status and Tools.

- The TITAN DVR will already have been configured at the factory for your specific system requirements, but of course can be updated as needed.

Note that some settings can impact the proper functioning of the DVR and require specific knowledge before changing. If not certain, contact tech support first.

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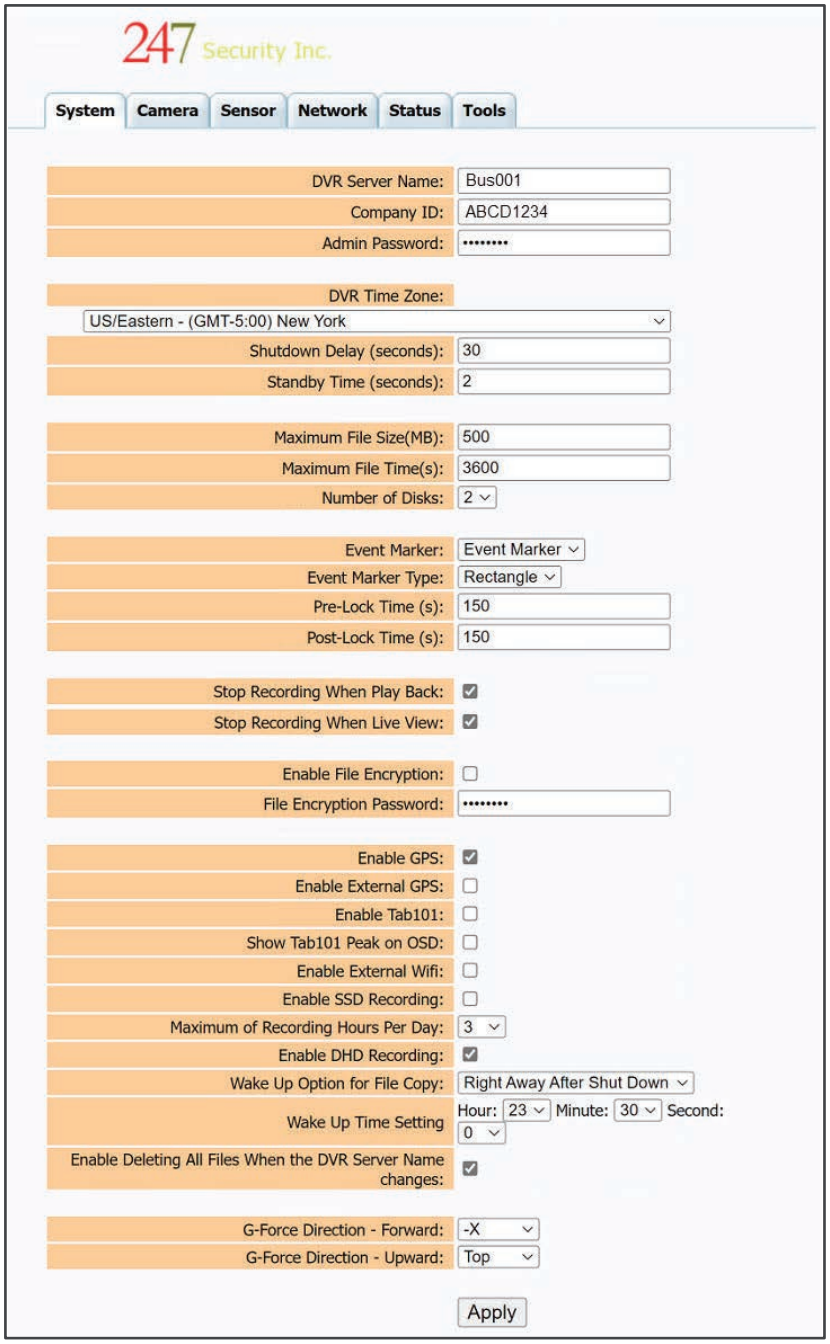
SYSTEM CONFIGURATION MENU



- The System menu is where you configure general parameters such as the name of the DVR, time zone, shutdown delay, etc.

  Also, the G-Force set-up parameters are here if the Drive-Safe module is attached to the DVR.

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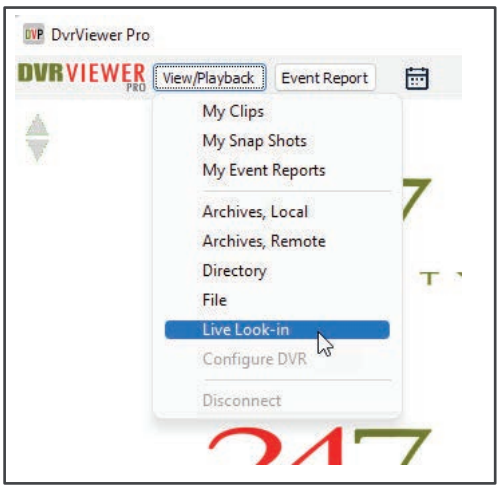
DVR SERVER NAME

- DVR Server Name allows the end-user to individually assign each ZEUS TITAN in their network a unique name. This practice makes it possible to differentiate and communicate with each individual DVR system. DVRViewer Pro can communicate and configure multiple ZEUS TITAN systems by scanning all ZEUS servers on the network, should they be connected via wireless network access points.

- A best practice is to include the bus number as part of the DVR Server Name. The field accepts letters & numbers with a maximum of 16 characters.

  Note: DO NOT USE spaces or symbols.



- When you open **Live Look-in** under the **View/Playback** menu in DVRViewer Pro, a list of all connected ZEUS TITAN DVRs will display. Click on any DVR server name, you gain access to the specific TITAN system.

COMPANY ID

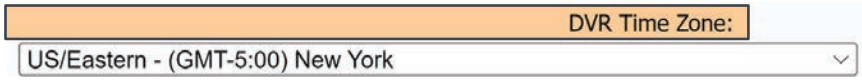
- The **Company ID** appears on all uploaded events and **Event Reports**. Company ID is assigned by 247SECURITY and shouldn't be changed. The field is used for identifying the DVR to **TouchDown Cloud** and for cellular modem services, including **Live Look-In** and **GPS** data.

ADMIN PASSWORD

- This is the "**admin**" password and can be changed to avoid unauthorized access.

  Note that 247Security cannot recover access to the DVR should you change the password from the default and misplace it. The default username is "**admin**" and cannot change.

DVR TIME ZONE



- Select the **time zone** where the vehicle is operating from the drop-down menu.

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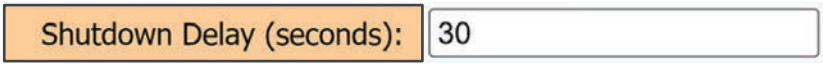
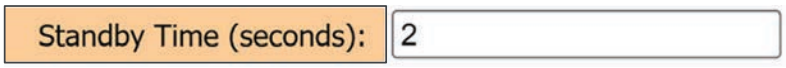
SHUTDOWN DELAY (S)



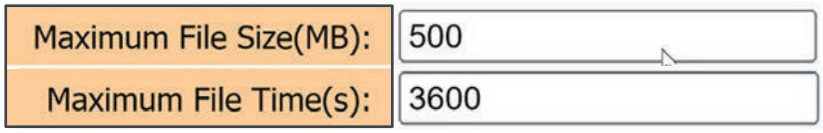
- This setting controls how long the TITAN will continue to operate and the cameras will continue to record after the ignition key is switched to the OFF position. For example, in situations where the bus is parked in a "**No idle zone**" but you want to continue to record video. The default value of 300 seconds (5 minutes) is pre-set in the DVR, with the range of values from 10s to 14400 (4 hours).

STANDBY TIME (S)



- This field determines how long after the Shutdown Delay that TITAN will be in "**Standby Mode**" before completely turning off. In **Standby Mode** the DVR enters a low-power consumption state so that after the vehicle's ignition has been turned off, DVR can still be accessed via a Wi-Fi connection for DVR configuration, **Live View** and play back of video. Video recording stops and **SmartServer** upload occurs. The recommended setting is 2400 seconds, or 4 hours.

MAXIMUM FILE SIZE (MB) & MAXIMUM FILE TIME (S)

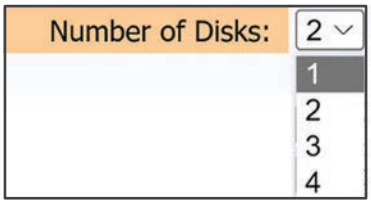


- These parameters determine the maximum size of the video files that are recorded and saved on the removable hard drive(s). In the field "**Maximum File Size (MB)**", you can enter values ranging from 10 MB to 500 MB . In the field "**Maximum File Time (s)**", you can enter values ranging from 60 seconds to 7200 seconds (2 hours).

  Recommended settings are shown here. Should the video recording reach either of these maximums, a new video file is automatically started to continue the recording process.

  There are pros and cons associated with larger or smaller settings; it can either slow down or speed up recording, searching, playback, and uploading video.

NUMBER OF DISKS



- This field tells TITAN the number of SD cards being used to store video. If the number of SDs detected doesn't match this setting, the **ERR/USB LED** will light. We strongly discourage the use of SD cards. This should be set to "**2**" to match the number of SD card slots.

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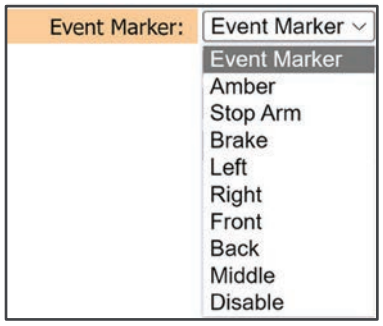
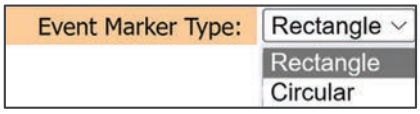
EVENT MARKER



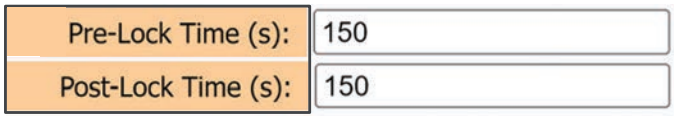
- This drop-down list selects the sensor to use for the event marker.
- The Event Marker (Sensor 1) is the default sensor to be used with the included event marker cable unless there is a required custom solution to use a different sensor.

EVENT MARKER



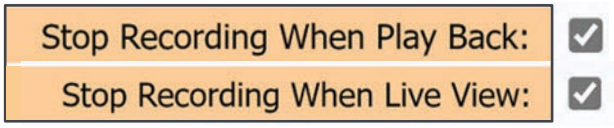
- This field tells TITAN what type of button configuration that is being used for the installed **Event Marker**. There are 2 types of Event Markers, each has a separate wiring configuration.

PRE-LOCK TIME (S) & POST-LOCK TIME (S)



- "**Pre-Lock Time**" and "**Post-Lock Time**" (in seconds) defines how many seconds are included in the event before and after the button push (or triggered event).
- For instance, with settings of "60" in both fields, if the Event Marker Button was pressed at 8:30am, the video event file is marked from 8:29am until 8:31am. It is recommended that both fields be set to 30 (seconds).

STOP RECORDING WHEN PLAY BACK / LIVE VIEW



- This option disables recording when the TITAN is accessed by DVRViewer Pro either to Play Back videos or for a Live View of cameras. Checking these boxes improves simultaneous multiple video channel viewing, however video content may be lost if it stops recording.

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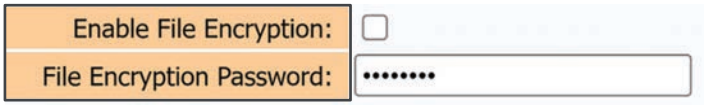
ENABLE FILE ENCRYPTION & FILE ENCRYPTION PASSWORD



- This is a global setting that, when enabled, password-protects saved video clips. When these encrypted files are opened, the password will be required. This is an additional security feature to keep unauthorized users from viewing the video.

  Note: If the password is lost, the video CANNOT be retrieved! If you forget your password, you will NOT be able to play back your recorded video / audio files.

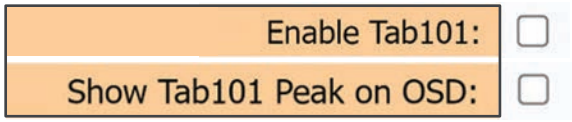
ENABLE GPS

- If this option is enabled and the GPS antenna is installed, GPS information is integrated and synchronized with video recordings. DVRViewer Pro will assist you in navigating videos.

ENABLE EXTERNAL GPS

- This enables an external third-party GPS system to input its information to TITAN, for inclusion with the video. In another scenario, TITAN may be replacing an older DVR that used an external GPS.

ENABLE Tab101 / SHOW TAB101 PEAK ON OSD



- If this option is enabled and Tab101 is installed, TITAN will collect G-Force information for integration with video. DVRViewer Pro can navigate videos based on Tab101 information. Parameters for the Drive-Safe G-Force sensors are listed below. If the Tab101 is installed and enabled, and if the second box is checked, g-force values will be shown on the OSD.

ENABLE EXTERNAL WiFi

- This option is only enabled for a DVR that does not have the internal WiFi connection. This allows for the connection of an external third-party WiFi Bridge to work with an otherwise “non-WiFi” DVR for use on the WiFi TouchDown system.

ENABLE SSD RECORDING

- This option must be **CHECKED** if you are using SD cards as storage. SD cards are not recommended. **Note:** Enable DHD Recording should be **UNCHECKED** if this is checked.

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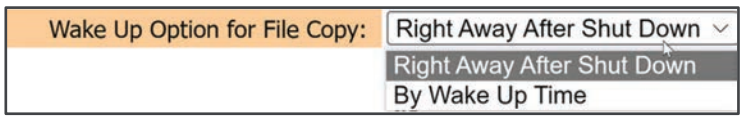
MAXIMUM OF RECORDING HOURS PER DAY

- It's safe to keep this set to 10 hours. Should the full day's recording exceed 10 hours, ZEUS TITAN will delete the oldest files from SSD disk

ENABLE DHD RECORDING

- Check this box for DHD removable drives. The default setting is checked. If this is not checked, secondary media must be used, such as SD cards, which is not recommended.

WAKE UP OPTION FOR FILE COPY



- This setting defines when TITAN will copy files from the SSD to the HDD (both are inside the DHD and DHD2 devices). "**Right Away After Shutdown**" occurs at the end of the Shut Down period as set in the **Shut Down Delay** field above, and before the TITAN enters Stand-by mode.

- If there is a TouchDown system, set this to "**By Wake Up Time**". It allows TouchDown processes to begin and finish before the SSD copies video to the HDD. Titan will turn on at the set time set in the next field, and copy SSD files to the HDD. If there's no **TouchDown** system, set this to "**Right Away After Shut Down**".

WAKE UP TIME SETTING

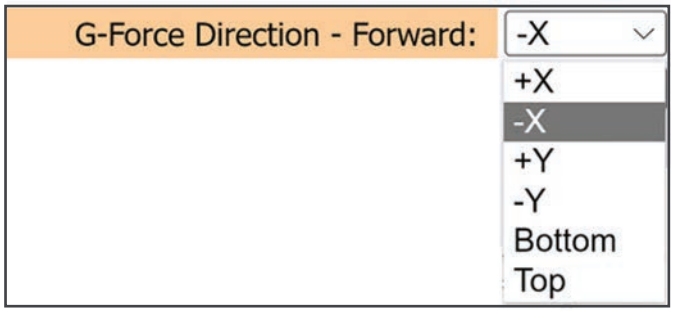
- If **By Wake Up Time** is selected above, this field sets the **Wake Up Time** when TITAN will turn on and start moving video from the SSD to the HDD. This is a 24-hour clock format.

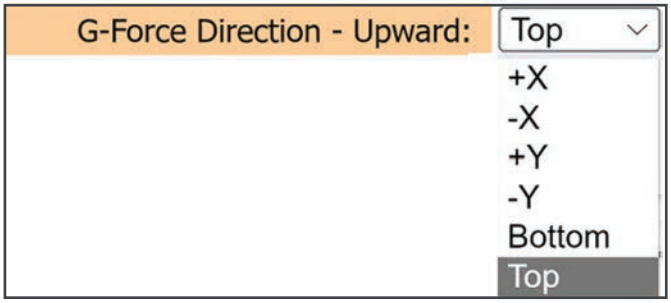
ENABLE DELETING ALL FILES WHEN DVR SERVER NAME CHANGES

- This option, when ticked, deletes all the recordings and files on the DHD media when the "**DVR Server Name**" changes, or if a DHD from a different DVR is inserted. "**DVR Server Name**" is the name of the TITAN DVR; each DVR within a fleet should have a unique name.

- For example, if a number of drives are taken from several buses, and are returned to different DVRs, all data will be erased if this is checked. If this is a concern, make sure that this box remains unchecked. Default is unchecked. **This is a security feature to prevent unauthorized access to video.**

DRIVE-SAFE G-FORCE SET-UP





- If the TAB101 option is checked as listed above, the G-Force parameters will then appear on the system set-up page after a system re-boot.
- The TAB101 detailed settings are not to be reset except by a qualified technician or installer.

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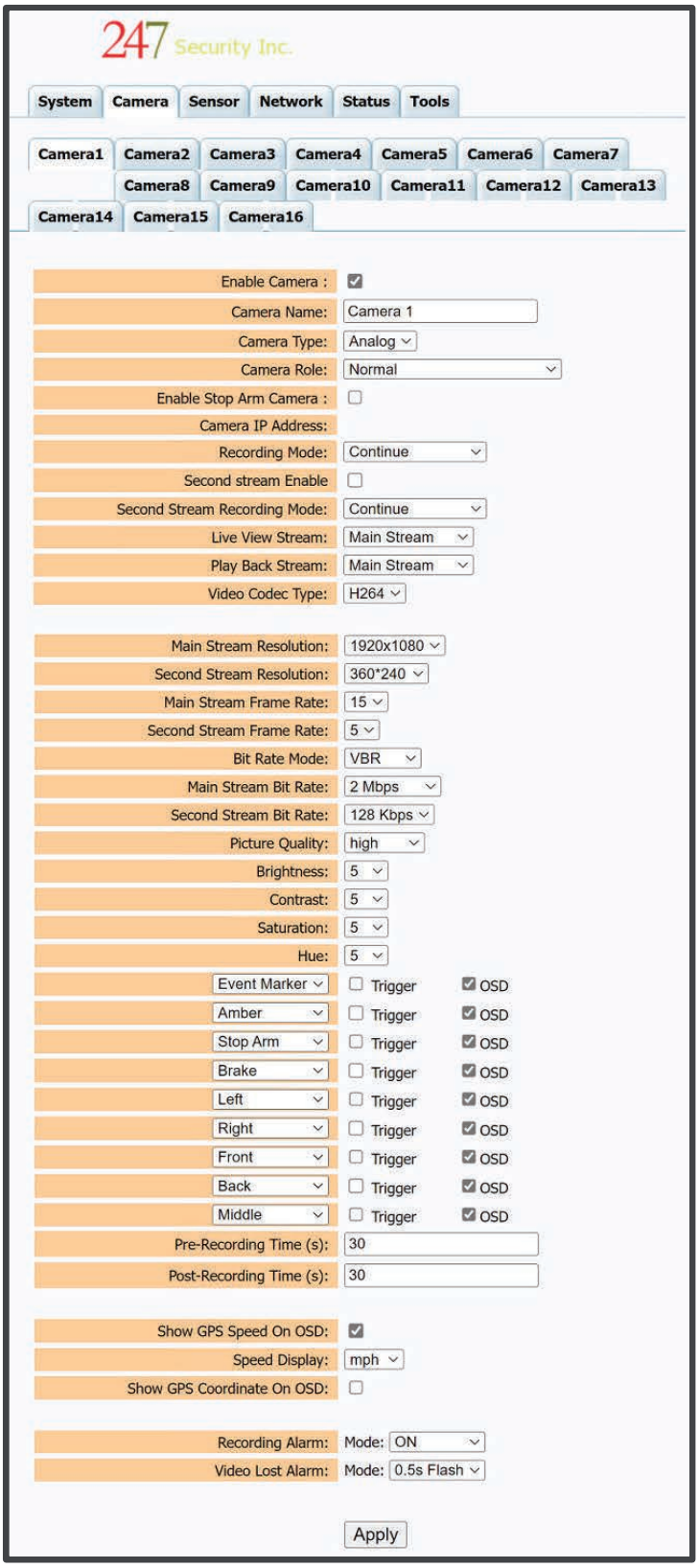
CAMERA CONFIGURATION MENU



- The TITAN DVR can record up to 16 cameras. Select a camera by clicking on its tab.

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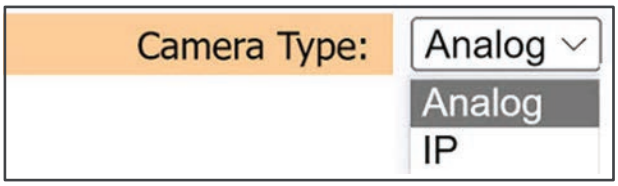
ENABLE CAMERA

- Click the check box to enable or disable the camera input.

CAMERA NAME

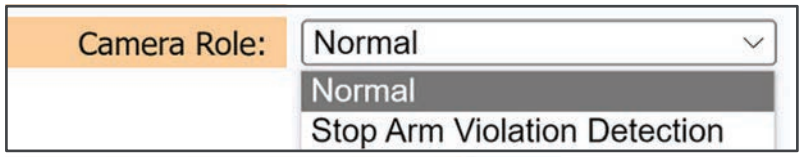
- Set each camera to have a different name, usually based on where it is located in the vehicle, up to 16 characters.

CAMERA TYPE



- Select the correct camera type: analog or IP. This is normally an installer-only setting, so if unsure, leave as default or set to Analog. Generally, cameras 1-8 are analog and 9-16 are IP.

CAMERA ROLE & ENABLE STOP ARM CAMERA

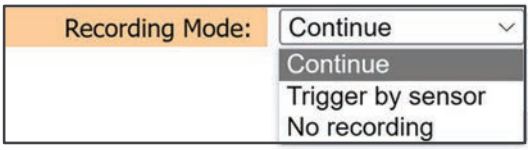


- Leave the setting as Normal, unless the camera is a stop-arm camera, and is to be used for automatic SAV detection. Check the box to enable. Consult with the installer and 247Security regarding automatic SAV detection.

CAMERA IP ADDRESS

- If Camera Type above is set to “Analog”, this field will be blank. If “IP” is selected, enter an IP address. This setting should be set by the installer. A best practice is to use 192.168.1.1xx with consecutive numbering.

RECORDING MODE



- Three modes: CONTINUE - The camera is recorded until the DVR is powered down or the storage media is removed from DVR. This is the typical and recommended mode for video recording.

TRIGGER BY SENSOR - In this mode, the camera is recorded if it detects an event trigger on one of the programmable sensors. If this mode is selected, the required sensors must be enabled.

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NO RECORDING - This mode disables recording of the camera input. The camera is still accessible through Live Look-In from DVRViewer Pro.

MAIN AND SECOND CAMERA STREAMS

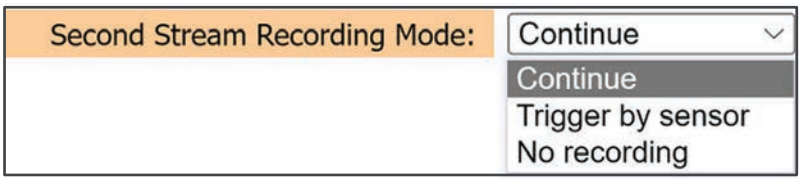
Note: It is best to leave these settings per the installer, or as indicated below. Second Stream functionality can affect aspects of the main stream.

- TITAN can take a camera feed and route it to two destinations. Systems are normally installed with the "**MAIN**" stream directed toward a high-quality recording on the DVR, and the "**SECOND**" stream to the **Live View** option. Since **Live View** will use cellular modems that incur bandwidth charges, the DVR can be configured with more cost-effective options.

SECOND STREAM ENABLE

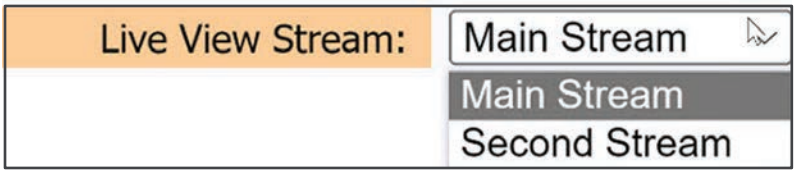
- Leave unchecked.

SECOND STREAM RECORDING MODE



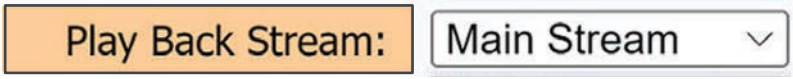
- Set to **No recording**.

LIVE VIEW STREAM



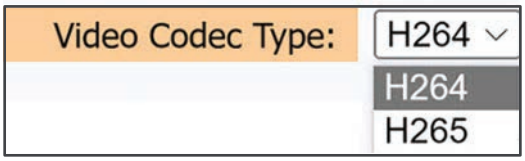
- Set to **Main Stream**.

PLAY BACK STREAM



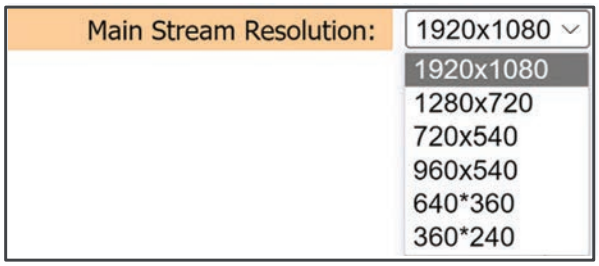
- Selects the **Main or Second** stream for the Play Back from **DVRViewer Pro**. Keep this set to "**Main Stream**".

VIDEO CODEC TYPE



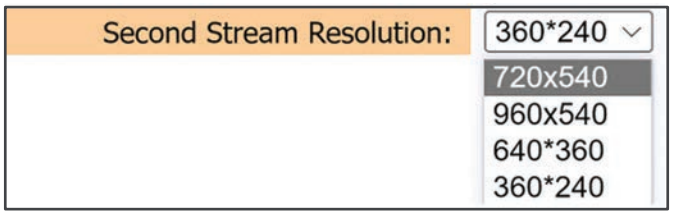
- You can choose the codec type based on your needs. Normally set to "**H264**".

MAIN STREAM RESOLUTION



- The highest resolution creates the best image but the largest file sizes. “1920x1080” is recommended, also known as “1080p”.

SECOND STREAM RESOLUTION



- A medium resolution is recommended.

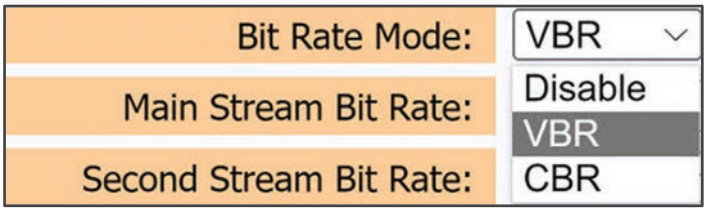
MAIN STREAM FRAME RATE

- Frame rate defines the level of detail in the recorded video, and like RESOLUTION above, the higher the detail = larger files sizes. Frame rate is adjustable from a minimum 1 fps to 30 fps maximum for each individual camera. TITAN can process a maximum of 300fps at full resolution 1920x 1080 over all cameras. To conserve video storage, it is recommended to select 20FPS for camera1-4 and 15 FPS for camera 5-8.

SECOND STREAM FRAME RATE

- Frame rate is adjustable from 1fps to 5fps for each camera. The recommended setting is 2fps.

BIT RATE MODE



- “VBR” (variable bit rate) is the recommended encoder setting, providing maximum compression and maintaining picture quality.

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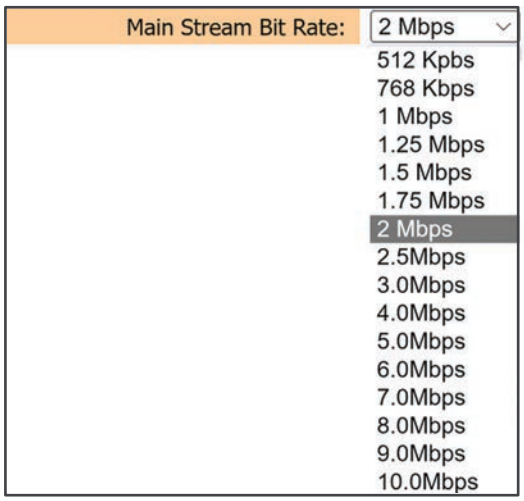
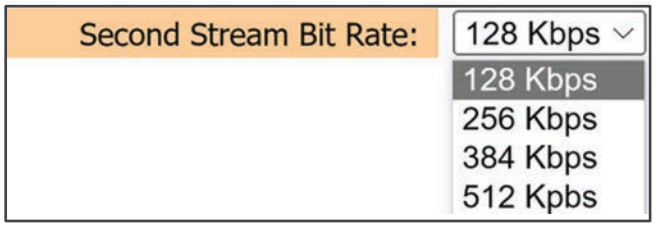
MAIN STREAM BIT RATE



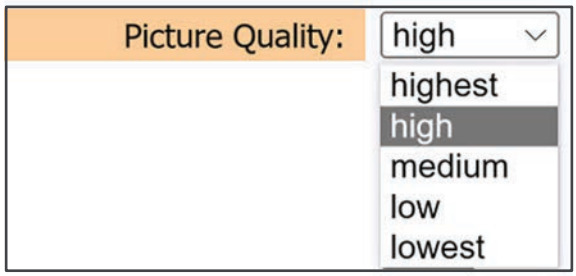
- The default and recommended bit rate is 4.0Mbps for cameras 1 and 3, 2.0Mbps for cameras 2 and 4, and 1.75Mbps for cameras 5-8.
- Bit rates are affected by other resolution settings: higher resolutions require higher bit rates to maintain picture quality.
- Higher rates can improve picture quality, but with larger file sizes; smaller bit rates result in smaller file sizes, but less picture quality.
- If unsure, go with the recommended setting above.

SECOND STREAM BIT RATE



- It is recommended to leave this setting as the default for **Live View** purposes (128 Kbps).

PICTURE QUALITY

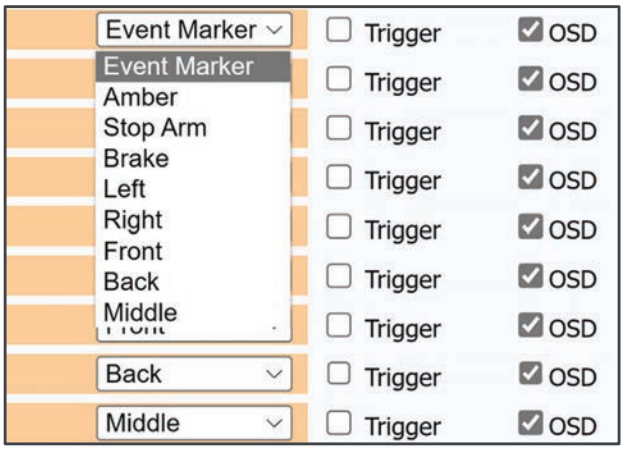


- The default setting of "**high**" is recommended. As with other settings, a higher setting provides better picture and larger file sizes.

BRIGHTNESS, CONTRAST, HUE AND SATURATION

- Each camera can be individually adjusted for Brightness, Contrast, Hue and Saturation to enhance the recorded video based on the location of the camera. Values range from 1 to 10, 1 being the lowest and 10 being highest. These settings have minimal impact on file sizes.

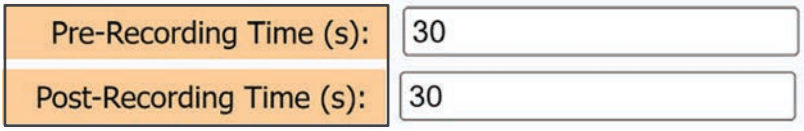
TRIGGERS



- TITAN has 9 digital inputs available to connect to sensors. Selecting "**Trigger**" will signal TITAN to start recording when that sensor is activated. I.e., TITAN will not record until one of these sensors triggers. Normally these are left unchecked.

- "**OSD**" stands for "**On-Screen-Display**"; this feature embeds the sensor name (assignable by end-user) into the video files. When playing back video, the sensor(s) can be identified by the embedded text on the video. Placing a check mark on the OSD box enables this feature.

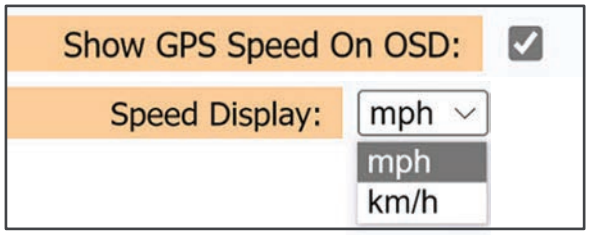
PRE-RECORDING & POST-RECORDING TIME



- The "Pre-Recording Time" field defines how many seconds of video to include in a triggered event prior to the time the trigger occurred. "Post-Recording Time" defines how many seconds of video are included in the triggered event after the time the trigger occurred.

- For the above example, if the sensor got triggered at 12:00:00, the event would include 30 seconds of video before the trigger and 30 seconds after the trigger, from 11:59:30 to 12:00:30 creating a marked event containing 60 seconds of video. Values can be from 1 second to 600 seconds (10 minutes).

SHOW GPS SPEED ON OSD



- If so equipped, TITAN will record GPS data as a separate stream, as well as embed the data onto the video. Place a check mark in the box to display and record the vehicle GPS speed in the video. If this option is not enabled, GPS data is still recorded in a log file on the video storage media.

  Speed can be displayed in "**mph**" or "**km/h**".

  Contact 247Security Inc. for further information on GPS products.

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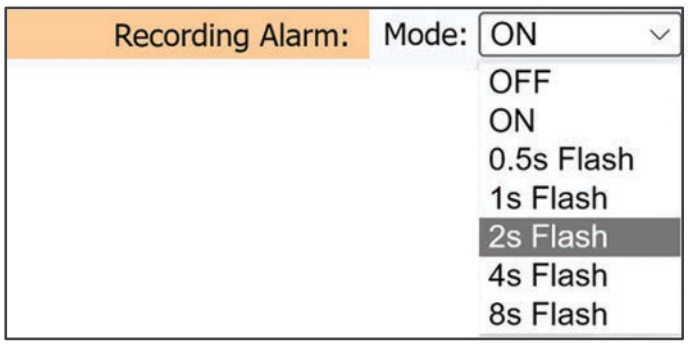
SHOW GPS COORDINATE ON OSD

- Checking this box will add the vehicle's GPS coordinates to the video stream, displayed as longitude and latitude. If this option is not enabled, GPS coordinates are still recorded in a log file on the video storage media.

RECORDING NOTIFICATION

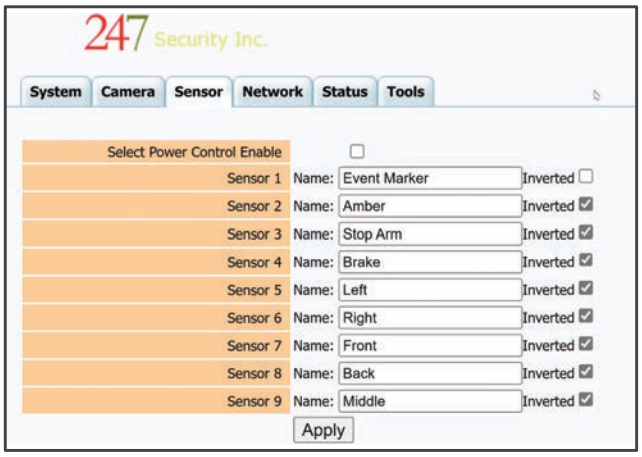


- TITAN has four digital outputs that can be used to configure alarms. By default, **Recording** status is sent to Digital Output 1, **Video Lost** status is sent to Digital Output 2.

- You can control the LED mode by clicking on the "**Mode**" drop menu and selecting either flashing by interval, on or off when the event occurs.

- Digital Output 3 and 4 can be connected to external LEDs inside the vehicle using the ZEUS sensor/alarm cable harness.

SENSOR CONFIGURATION MENU



- TITAN has 9 sensor inputs that can be recorded and displayed on-screen. For example: the Event Marker, turn signals, brakes, etc. A unique name can be assigned to any sensors listed in the menu. This diagram shows the factory default settings.

- "**Inverted**" defines how the sensor works. For instance, if you check the box "**Inverted**" then TITAN detects "**0**" as the active state of the sensor. If the check box is not checked then TITAN detects "**1**" as the active state of the sensor. Please make sure you understand how your sensors work before connecting them to the digital inputs.

POWER CONTROL ENABLE

- **This option is intended for trained installers only.** Do not adjust unless you have specific knowledge of this setting.

  When checked TITAN will assign Sensor 9 as Power Ignition after rebooting. This means that the sensor 9 input (pin 8 on IO/ CANBUS) will behave identically to the Ignition input and cause the DVR to power up and record if sensor is triggered high.

  The system will reboot every time this option is enabled or disabled.

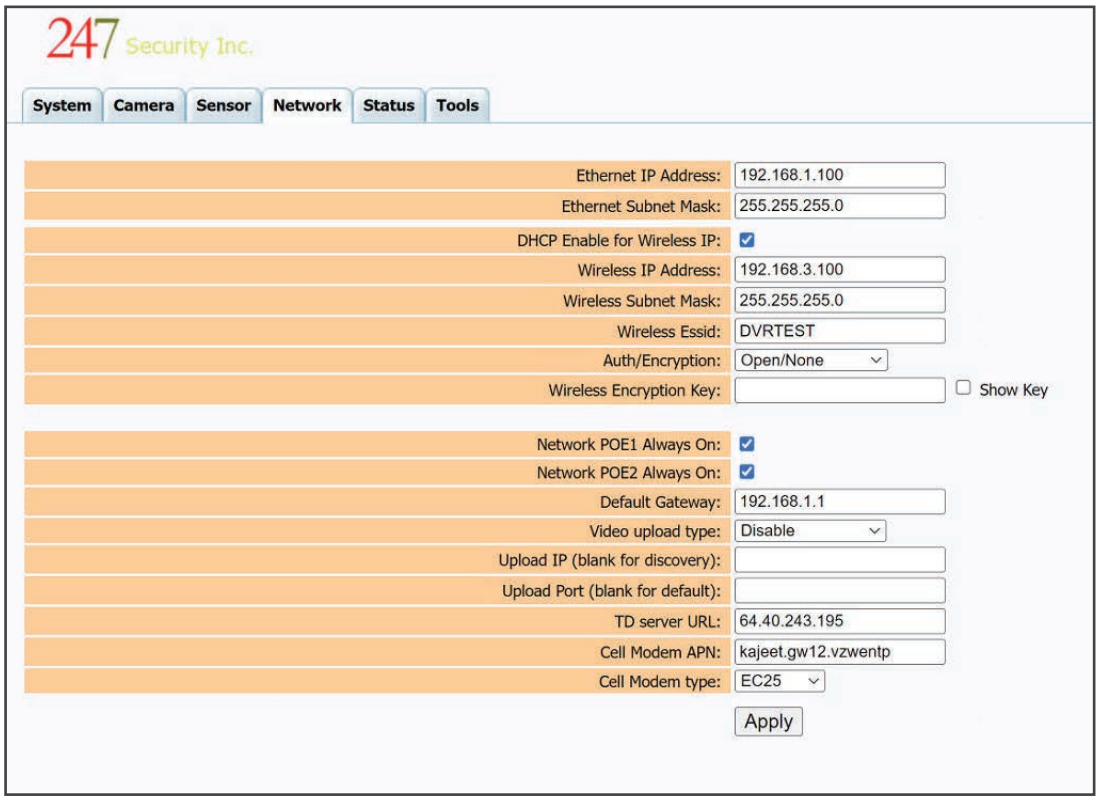
SENSOR NAME 1 - 9

- These fields let you enter the sensor name for the specified digital input and select what the active state of the sensor should be when triggered.

NETWORK MENU

It is important that only qualified technicians make changes to the installed settings. Incorrect settings may cause TITAN to be inaccessible and require servicing. Should you have any questions regarding this, please contact Tech Support.

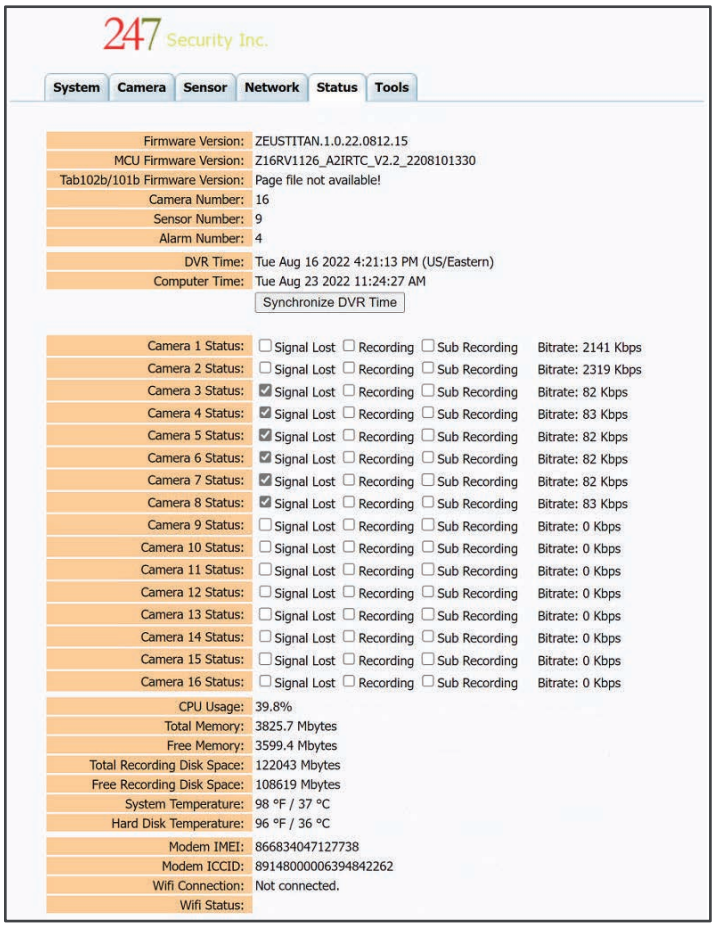
Do not make changes unless you have specific knowledge of each setting.



- The default Ethernet IP address of ZEUS TITAN is "**192.168.1.100**". It must be modified if there are more than two vehicles with DVRs, or if there is an external WiFi bridge.
- If this IP address is modified the user will **NOT** be able to access the DVR if the IP address is lost.
- The "**Network POE1/2 Always On**" option is used to send constant power to TITAN over the POE ("**Power Over Ethernet**") interface. If the box is left unchecked, power will only be provided when the ignition signal is switched off.

  If the box is checked, power will always be provided to the POE interface and the AP/Client will be functioning during recording and running time.

STATUS MENU



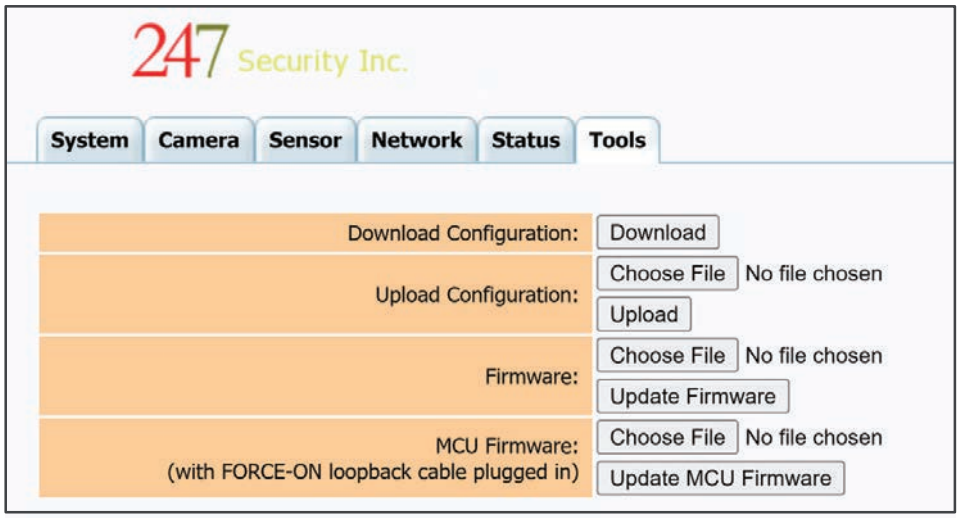
- This tab displays the current system configuration and a real time heath status summary of the DVR. There are no actionable or optional fields on this page. Users will only access this page under the direction of Tech Support.

- Starting from the top, this tab informs the user which firmware versions are currently loaded, version of Tab101, number of cameras, sensors and alarms the DVR currently supports and the current DVR time as well as your local computer time. The local computer time is extracted from the computer currently connected to the DVR.

- The "**Synchronize DVR Time**" button will synchronize the DVR time with the local time on the connected laptop or computer.

- The information below the **Synchronize DVR Time** button provides the user a general system health snapshot of the DVR as well as indication of all camera inputs status.

TOOLS MENU

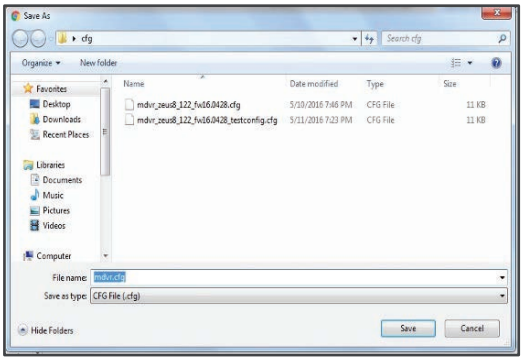


- The Tools tab has a few options to assist in your DVR configurations, and to update DVR and MCU firmware. There may be future firmware releases that contain new features or improvements. Contact 247 Security Inc for the latest information on firmware updates.

DOWNLOAD CONFIGURATION

- This option will save you time if multiple ZEUS systems need to be configured. You can download a configuration file from one TITAN, and then upload and apply it onto another. Much like copying and pasting, you can then alter only the required settings to make that TITAN unique.

- Once the DVR has been configured, click the "**Download**" button to save your settings to a file on your desktop or a location of your choice.



- Navigate to the location on your computer where you want to save the file.
- Click the "**Save**" button.
- A file named "**mdvr.cfg**" will be saved to the chosen location.
- From **Windows Explorer**, you can rename the file to better identify which DVR/vehicle it came from.

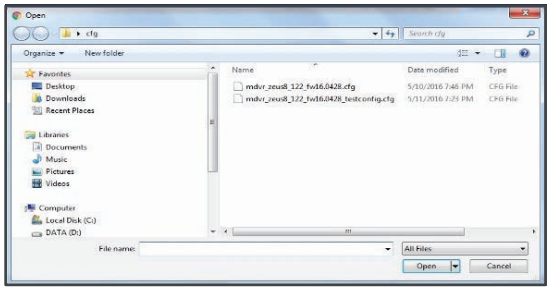
- For example, you can rename the file to incorporate the vehicle name and the date it was configured, like the following example: "**mdvr_ZEUS TITAN_bus122_2022-06-16.cfg**".

UPLOAD CONFIGURATION

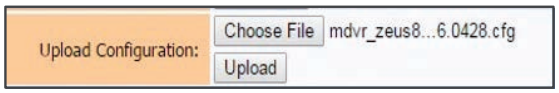
- This option selects a backup configuration file, uploads it to the DVR, and overwrites all the current settings with the settings from the configuration file. The only value you may need to change is the "**DVR Server name**" under the System tab.

Note: All video data on the DVR may be lost if the DVR Name is changed if the **ENABLE DELETING ALL FILES WHEN DVR SERVER NAME CHANGES** is selected.

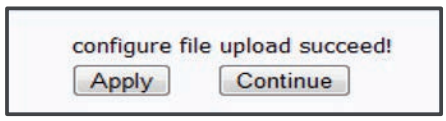
Note: The Download - Upload Configuration feature is not compatible between different versions of firmware; this feature can only be used when deploying multiple DVRs with same hardware and software. Generally, the installer configures the first DVR and then uses the configuration file to quickly make the changes to other DVRs in the fleet.



- To upload a configuration file, click the "**Choose File**" button, navigate to the configuration file you wish to upload, and click "**Open**".



- Click the "**Upload**" button to start the process. The following message will display.



- Click "**Apply**" to apply the new settings or "**Continue**" to review your new settings before applying.

  Once the uploaded configuration file has been applied, the previous settings will be lost. It is recommended to click "**Continue**"so that you can verify all the new settings.

- After clicking Apply, this confirmation message will display.

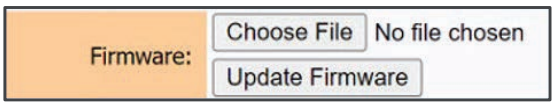
- Click "**Close**" to close the DVR setup or "Continue" to make additional changes.

NOTE: Change the "**DVR Server Name**" at this point, as well as other settings unique to the new vehicle.

FIRMWARE UPDATE

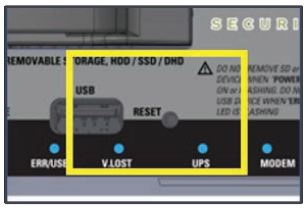
NOTE: THIS INFORMATION IS FOR REFERENCE ONLY!

The update process should only be done by a qualified technician under the direction of technical support. You can seriously impair the functionality of your TITAN.



- Firmware updates may contain new features and improvements. If the update process is not done correctly, your DVR may fail to start or function properly and must be returned to your dealer for repair.

1. **Remove Hard Drive / DHD**
   a. If DVR is running, turn the key lock to **OPEN** postion and wait until DVR shits down. Both **POWER and REC LEDs** must be off. If the vehicle is idling or on **Accessory**, the **IGNITION** light will be on.
   b. Open the door (Note: Leave it open during upgrading process).
   c. Remove hard drive by pulling the tray straight out from the DVR until it's free from the rails.
   d. Turn the key lock to the **LOCK** postion and wait until TITAN boots up. The DVR has finished booting when both **IGNITION and POWER LEDs** (green) are on solid. The engine can be idling or in **Accessory** mode.
2. **Connect to DVR and Save Current Configuration**
   a. Follow the first 2 steps from "**CONNECT TITAN TO PC/LAPTOP" on page 8.**
   b. Launch your browser and delete all browsing history including history, temp files, cookies and web form information; or go to Configure DVR in DVRVIewer Pro.
   c. Go to "**http://192.168.1.100/**" to access DVR setup.
   d. At the login page, type "**admin**" as the User Name and "**admin**" as the Password.
   e. Go through each page and manually record on paper all the settings, it is very important to record the correct DVR Server Name.
   f. Download the configuration file, see **DOWNLOAD CONFIGURATION on page 30**.
3. **Choose the Firmware Update File**
   a. Click the "**Choose File**" button and browse to the location on your computer where you have the firmware file saved.
   A brief reminder, if Tech Support did not send you an update, **DO NOT PROCEED**. The name of the firmware update file will always start with "**HOST_DEP**".
   Note: the firmware update will set DVR to factory default settings.
4. **Update Firmware**
   a. Click the "**Update Firmware**" button. After about 10 seconds you should see the message "**Updating firmware...DVR will reboot itself please wait for 300 seconds**", and the time will be counting down to 0 seconds.
   b. Once the web page shows 0 seconds, press **RESET** on the TITAN front panel and wait for DVR to boot-up.
   c. After DVR boot-up, both **ignition LED (green)** and **Power LED (green)** should be on solid.



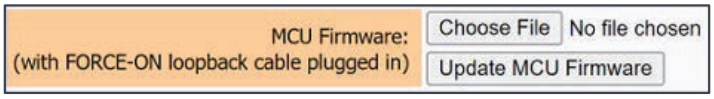
5. **Verify Firmware Update**
   a. From your browser, **go to http://192.168.1.100/, or use DVRViewer Pro.**
   b. Verify the new firmware version on the **Status** page.
6. **Reconfigure TITAN**
   a. Change all settings to the original fields, as you have recorded, or…
   b. Upload the saved configuration file, see **UPLOAD CONFIGURATION on page 31**.
   c. Ensure the DVR name is exactly what it was before.
   d. Make sure DVR Server Name on system configuration page is the same name on hard drive.
7. **Verify Functionality**
   a. Turn the key lock to the OPEN position and wait until DVR powers off.
   b. Insert hard drive (DHD).
   c. Turn the key lock to the LOCK position and wait until the DVR boots up.
   d. Reconnect to the DVR at http://192.168.1.100/ using your browser or DVRViewer Pro.
   e. Verify new settings by comparing to what you recorded at Step 2e.
   f. Download a new configuration file.
   g. Launch DVRViewer Pro, click on View/Playback, and select Live Look-in.
   h. Verify the live view of cameras.
   i. Verify the "Record" LED on the Event Marker is on, indicating that DVR is currently recording video.
   j. Turn the key lock to the **OPEN** position and wait for TITAN to shut down.
   Close your browser and **DVRViewer Pro**, disconnect crossover cable, close and lock the door.

MCU (MicroController Unit) FIRMWARE UPDATE

NOTE: THIS INFORMATION IS FOR REFERENCE ONLY!

The update process should only be done by a qualified technician under the direction of technical support. You can seriously impair the functionality of your TITAN.

- Firmware updates may contain new features and improvements. If the update process is not done correctly, your DVR may fail to start or function properly and must be returned to your dealer for repair.

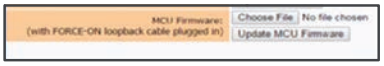


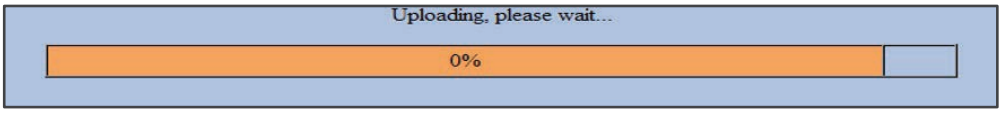
- Follow these steps to update your ZEUS MCU firmware. Read all steps before beginning and have everything you need ready before you start.

- **Remove Hard Drive / DHD**
  a. If DVR is running, turn the key lock to the OPEN position and wait until DVR shuts down. Both POWER and REC LEDs must be off. If the vehicle is idling, the IGNITION light will be on.
  b. Open the door (**Note:** Leave it open during upgrade process).
  c. Remove hard drive by pulling the tray straight out from the DVR until it's free from the rails.
  d. Turn the key lock to the **LOCK** position and wait until DVR boots up. TITAN has finished booting when both **IGNITION and POWER LEDs (green)** are on solid. The vehicle can be idling or in **Accessory** mode.

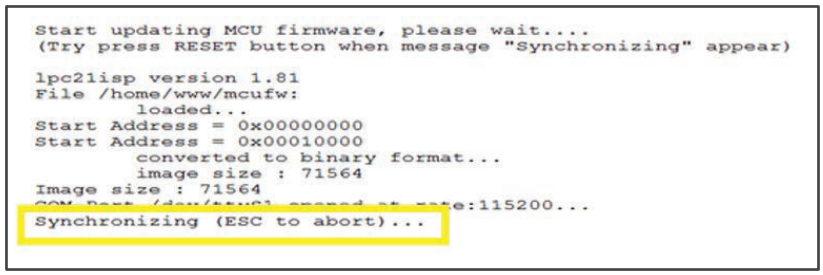
- **Connect to TITAN and Save Current Configuration**
  a. Follow the first 2 steps from "**CONNECT TITAN TO PC/LAPTOP**" **on page 8**.
  b. Launch your browser. Delete all browsing history including: history, temp files, cookies and web form information.
  c. Go to "**http://192.168.1.100/**" to access DVR setup. You should now be at the login page.
  d. Type "**admin**" as the User Name and "**admin**" as the password.
  e. Go through each page and manually record on paper all the settings; it is very important to record the correct DVR Server Name.
  f. Download the configuration file, see **DOWNLOAD CONFIGURATION on page 30.**

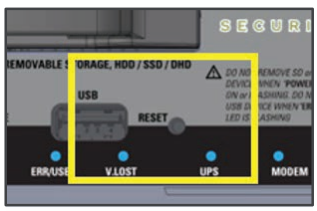
- **Upgrading MCU (1 to 2 minutes)**
  a. Go to the **Tools** tab in the setup page.
  b. Insert Force **Power-on** plug into the **I/O CANBUS** port on the rear of the system.
  c. Click **Choose File** to browse your computer for the MCU file. A brief reminder, if Tech Support did not send you an update, **DO NOT PROCEED**.
  d. Click **Update MCU Firmware**. This popup will display:



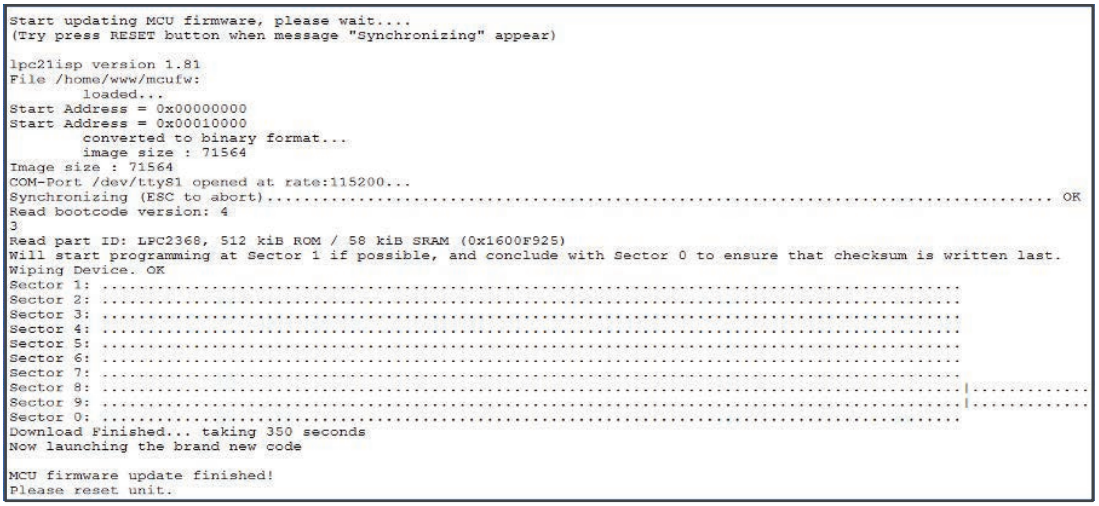


  e. The popup will close. Follow instruction on screen.
  f. When "**Synchronizing (ESC to abort)...**" displays, immediately press the **RESET** button on the front panel of TITAN:





g. After about 6 minutes, more messages will display, such as:



```
Start updating MCU firmware, please wait....
(Try press RESET button when message "Synchronizing" appear)

lpc21isp version 1.81
File /home/www/mcufw:
        loaded...
Start Address = 0x00000000
Start Address = 0x00010000
        converted to binary format...
        image size : 71564
Image size : 71564
COM-Port /dev/ttyS1 opened at rate:115200...
Synchronizing (ESC to abort)..... OK
Read bootcode version: 4
3
Read part ID: LPC2368, 512 kiB ROM / 58 kiB SRAM (0x1600F925)
Will start programming at Sector 1 if possible, and conclude with Sector 0 to ensure that checksum is written last.
Wiping Device. OK
Sector 1: ..........
Sector 2: ..........
Sector 3: ..........
Sector 4: ..........
Sector 5: ..........
Sector 6: ..........
Sector 7: ..........
Sector 8: ..........|..........
Sector 9: ..........|..........
Sector 0: ..........
Download Finished... taking 350 seconds
Now launching the brand new code

MCU firmware update finished!
Please reset unit.
```

h. Remove the **Force Power-on** plug and wait for 60 seconds until TITAN restarts.
i. Click "**Close**" to close the browser page.
j. Re-open your browser, clear the cache and browsing history.
k. Go to **http://192.168.1.100/** again, to access DVR setup.
l. Verify the new MCU version on the status page.

SET-UP EXTERNAL WiFi FOR SMART UPLOAD / TOUCHDOWN

The following steps are required to enable wireless uploading of videos and data to the TouchDown server.

1. **Connect to TITAN**
   a. Follow the steps in the section **CONNECT TITAN TO PC/LAPTOP on page 8.**
2. **Configure TITAN**
   a. On the System menu, check the boxes for Enable Smart Upload and Enable External Wi-Fi.
   b. Click the Apply button and wait for the changes to be initiated.
3. **Restart TITAN**
   a. Disconnect your laptop/PC from TITAN.
   b. Hard restart TITAN by unplugging the power cable. Wait 5 seconds, then reconnect power cable.
4. **Verify Connection to TouchDown**
   a. Use the **POE cable, (see 10/100BASET-LAN CONNECTOR and POE Connector on page 42)** and with the **Client AP** connect to the TITAN.
   b. Check the **WiFi** communication between TD and the Zeus TITAN: Connect to the bus through the TD server and open **Live View**.

If step 4b is successful, then external WiFi is correctly configured.

Reference Appendix

This section includes "**nice-to-know**" information and technical details that will help you fully understand the Zeus TITAN.

THE DHD (DUAL-STAGE HYBRID DRIVE) MEDIA

- The Dual-Stage Hybrid Drive (DHD or DHD2) has been specifically designed by 247 Security Inc to accommodate the rigors of the road that vehicles experience. Regular mechanical drives are prone to vibration and bumps, and SSD drives are not as robust as mechanical drives regarding frequent read/write routines. The Zeus TITAN and DHD media address these issues. Here's a brief description of how it works.

- Inside a DHD are two disks: a SSD (solid state drive) and a HDD (hard disk drive, a mechanical spinning disk). The SSD is formatted in FAT32, and the HDD is formatted in EXT3. DHD and DHD2 are available in 1 or 2 terabyte sizes.

- For DHD recording, Enable DHD Recording must be selected on the System configuration menu.
See page 18 for details.

DHD Recording Process

- The cameras are only recorded on to the SSD part of the DHD; once the vehicle has stopped, the content begins to transfer to the HDD part of the drive. That's why the POWER and REC lights must be off before removing the DHD media. Also, during configuration, the Enable DHD Recording field must be checked, otherwise Zeus Titan will record straight to the SSD part of the DHD storage.

At the boot up stage

- When the system boots up, Zeus Titan will do a self-check to make sure all systems are operational. If DHD recording is enabled, the SSD will be selected as recording disk and the HDD will be powered off if detected.

- If the SSD is corrupted, then the DVR will attempt to recover the SSD for up to 4 minutes. If the SSD can't be recovered, it will be formatted (FAT32).

Shutdown

There is a built-in delay during shutdown, during which the files recorded to the SSD will copy to the HDD. When the file copy is completed, the SDD is re-formatted to FAT32, erasing all data on the SSD and preparing it for the next session. Should something interrupt this transfer, and the files from the SSD are not completely copied to the HDD, the SSD will not be formatted. This preserves the integrity of the video and data, until it can be copied to the HDD.

If the media is removed from the DVR before the file transfer completes (I.e., If the POWER or REC LEDs are on), or if Live View or Play Archive is accessed, the file copy from SSD to HDD is paused. After Live View or Play Archive is disconnected, the file copy from SSD to HDD will resume.

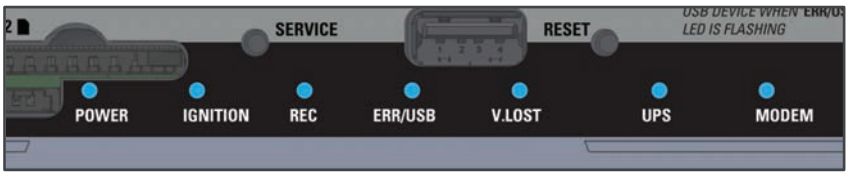
If you are set up with TouchDown, Zeus TITAN will start uploading requested video and data from the HDD to your TouchDown server. Note that this feature can be enabled/disabled on the setup page.

Unlocking the door

Unlocking the door will initiate a shut-down procedure:

1. Zeus TITAN stops recording or transferring data, all resources are released.
2. All disks are un-mounted.
3. Power is turned off.

STATUS INDICATORS



POWER

This LED indicates that system power is on (when lit).

IGNITION

When lit solid this LED indicates that the vehicle's ignition has been turned on, which will then turn on the DVR. If this LED is blinking slowly, the ignition has been turned on and the DVR is powering on. The LED will blink very quickly when ignition is turned off and the DVR is powering off.

REC

When lit this LED indicates the DVR is recording.

ERR/USB

When lit this LED notifies the operator that the system has encountered an error and cannot continue normal operation. Please call tech support for troubleshooting procedures.

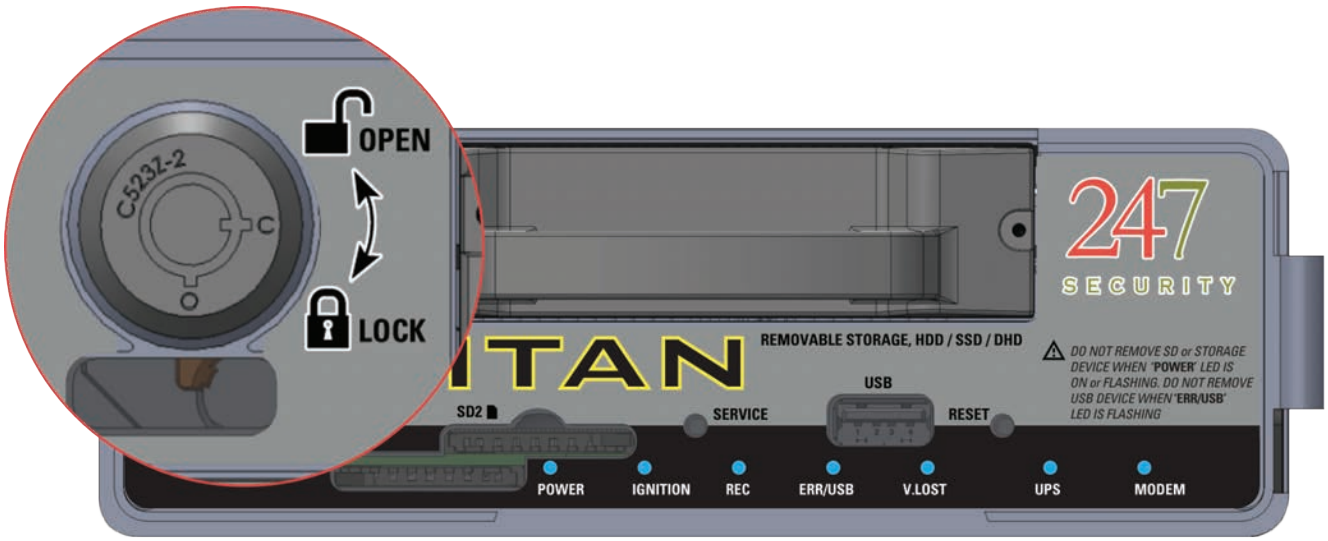
V.LOST

This LED indicates that TITAN has lost a video signal. For example, a camera cable is damaged or is not securely connected, or a camera failure has occurred.

- **UPS**
  The internal battery is charging and will go out when fully charged.

- **MODEM**
  Indicates that the cellular modem is active. Requires a data contract and DVP2.

LOCK AND DHD ON/OFF



- **The OPEN/LOCK mechanism has two functions:**

  - It secures the hard drive (DHD) to prevent unauthorized access.
  - Internal circuitry will safely shut down TITAN before removing the hard drive. **Users MUST wait until all lights are off on DVR before removing the hard drive.**

Turn the key to position "**LOCK**" to lock media storage or "**OPEN**" to unlock.

NOTE: TITAN will not record video if the lock mechanism is in the "**OPEN**" position.

MEDIA STORAGE REMOVAL

Before swapping DHD drives, refer to "**ENABLE DELETING ALL FILES WHEN DVR SERVER NAME CHANGES**" **on page 18.** Depending on settings, you may lose video on the replacement DHD.

The media storage (DHD) is hot swappable and can be removed and inserted without turning the vehicle ignition off. This process will take roughly 15 to 30 seconds to complete. The feature is helpful when access to video is needed but vehicle is required to remain running. The user can remove the media storage and insert another one so that the needed video can be retrieved right away.

1. Turn the key to the "**OPEN**" position. TITAN will close all video/audio files and safely turn the hard drive power off. Open the door and wait until all lights are off. **Note:** the ignition light will remain illuminated if the vehicle is running.
2. Gently pull the drive out from the bay until it is free from the rails.
3. Insert new media storage, close the door.
4. Turn the key to the "**LOCK**" position. TITAN will mount the drive, detect the new media and start recording again.

WIRELESS VIDEO RETRIEVAL

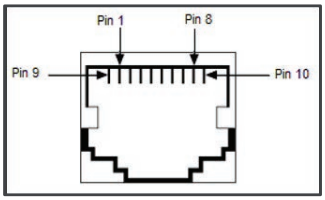
Refer to the TouchDown manual.

247 SECURITY
247securityinc.com
1.866.693.7492

Connections

10/100BASE-T LAN CONNECTOR and POE Connector

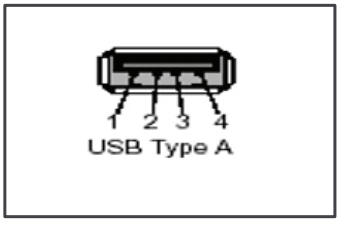
The DVR has a 10-pin RJ50 port, labeled as "**LAN**" and has a **default static IP address of 192.168.1.100.** The port is used to connect to the DVR for Setup, Live View and Video PlayBack.

Pin Number	Signal	Description	Pin Out
1	TX+	Transmit Data +	
2	TX-	Transmit Data -	
3	RX+	Receive Data +	
4	COM	Common	
5	N/C	Not connected	
6	RX-	Receive Data -	
7	COM	Common	
8	COM	Common	
9*	GND	POE Ground	
10*	VCC	POE 12VDC	

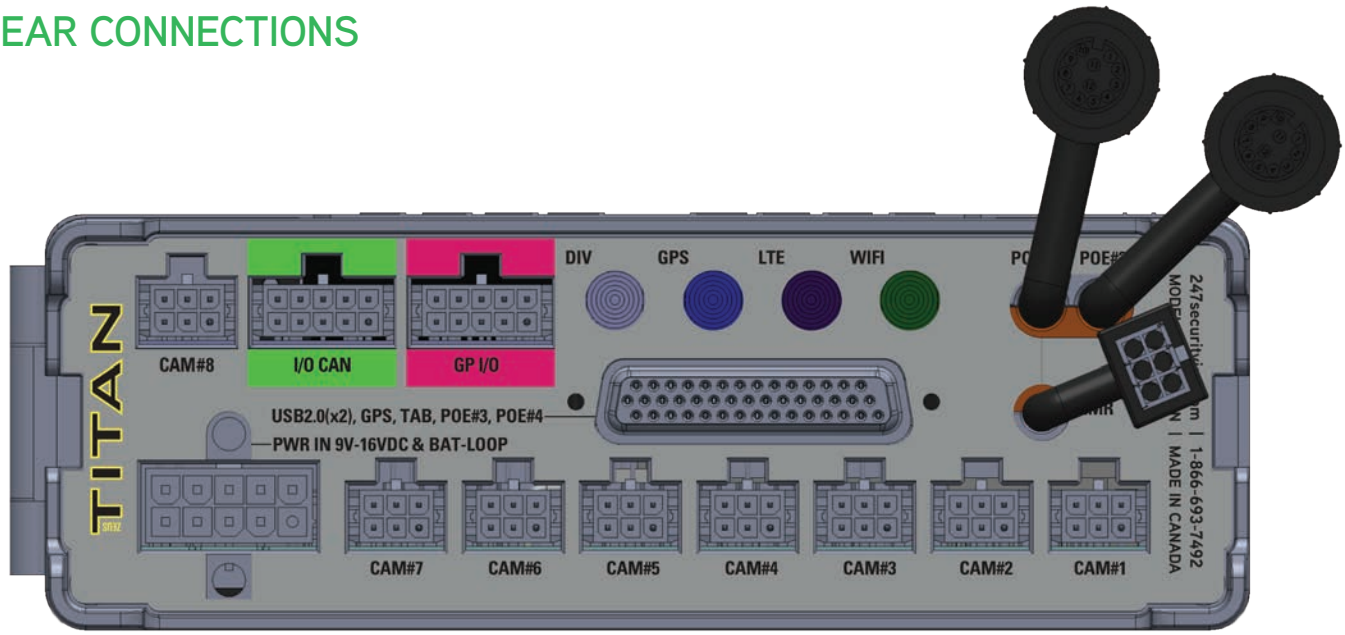
USB 2.0 CONNECTOR

Note: The USB port is for future functionality.

Connector type: 4-pin friction-lock header

Pin Number	Signal	Description	Pin Out
1	VCC	Cable Power +5 V	
2	-Data	Balanced Data Line -	
3	+Data	Balanced Data Line +	
4	GND	Cable Ground	

REAR CONNECTIONS



- **POWER and BATTERY Loopback** (UPS operation)
  The ZEUS TITAN has a built-in intelligent power circuit that can operate from +6.5v ~ +16V DC-IN. A constant 12v Ignition and Ground are required. The DVR is energized by the vehicle's ignition signal and triggers start up, power shut-down delay and the timing circuitry. TITAN will remain ON until the ignition signal has been turned off and the shut-down delay time has been reached. The system will then go into Standby mode for the set period, then through its normal shutdown procedures before completely powering down.

  TITAN has an on-board battery system ("UPS" or uninterruptable power supply) for providing backup power for up to 15 minutes after the main power has been lost. The UPS battery will also keep the DVR running in case of voltage spikes (greater then 16VDC) and voltage drops (less then 8VDC).

  The Battery Loopback must be connected so the UPS battery can charge. Installers connect the battery loopback to the DVR after the device has been fully installed and connected to the vehicle power source.

  Remove the loopback plug and store with the DVR when removing the DVR from the vehicle or disconnecting the vehicle's battery for extended periods of time.

- **Camera Connectors**
  The ZEUS TITAN supports a maximum of 16 cameras. Eight cameras use Micro-fit connectors that carry video, audio, and infrared illumination. Also included in each camera connection is DV12V Out to power the camera. You can refer to the rear cover of the DVR for the camera assignments of each connector. When any of the cameras are not connected properly – for instance, loose cables, unplugged etc. – TITAN notifies the end-users with "blue screen and OSD info" on the preview screen. Camera inputs are labeled "CAM#1 – CAM#8".
  The remaining 8 cameras must be IP cameras connected to the POE connections.

- **I/O CAN**
  This optional connector provides 3 additional digital inputs, labeled as DI_6, DI_7 and DI_8. These can be assigned to any sensors, up to 3 sensors can be wired to this connector. This connector also provides +12VDC OUT on pin 4 with a built-in 0.75A fuse. An optional second I/O cable is required.

- **GP I/O (General Purpose Input/Output)**
  This connector provides 5 digital inputs and 1 digital output. The digital inputs are labeled as DI_1, DI_2, DI_3, DI_4 and DI_5. The digital output is labeled as DO_3. End-users can assign any sensors to one of these digital input signals. Up to 5 sensors can be wired to this connector. Alternatively, one alarm (LED, Siren, etc.) is available on the digital output.

- **D-SUB 44PIN Connector**
  This multi-function connection carries several I/O connections, including:
  - GPS receiver
  - USB
  - TAB101
  - Additional POE

- **DIV, GPS, LTE, WIFI**
  The "DIV" connection is for future use. The remaining three are individual antenna connections as indicated.

- **POE#1 and #2**
  For IP cameras.

- **EMR – Event Marker input**
  This connection is for the included Event Marker cable.

Specifications

VIDEO

- **Recording Resolution**
  Each camera channel can be set independently using AHD (1920x1080), AHD 720P(1280x720), D1 (720x480), CIF (360x240), DCIF (640x480) configurations.

- **Compression**
  The ZEUS TITAN uses a modified h.266 high performance video compression standard to optimize the video/audio data stream so that it can be sent over a network or stored directly on a local disk. The compression algorithm runs on a DSP Engine, freeing up valuable resources within the system to do other jobs.

- **Frame Rate**
  Channels can be independently set to record a maximum 30 fps.

- **Simultaneous channels**
  Up to 8 channels can record simultaneously at 30fps with AHD1080p (1920xx1080) resolution, plus 8 IP Camera channels (additional equipment required)

AUDIO

- Recording Channels: Up to 10 audio channels
- Cameras have built-in microphones with noise-reduction processing
- Each audio recording channel synchronizes to its own video recording channel

VIDEO STORAGE

- A removable dual-stage hybrid drive: "**DHD**". **See "The DHD..." on page 6** for more information about DHD operation.

WIRELESS NETWORK

- TITAN uses an external WLAN 802.11g and can support external Wi-Fi 802.11gn or 802.11bg. This requires additional equipment, such as an external wireless connection.

GPS

- A GPS module can be connected to TITAN using one cable, up to 40' in length.

ETHERNET

- 10/100 Base-T Ethernet port
- IEEE 802.3u 100BASE-T Fast Ethernet compatible
- POE (Power Over Ethernet)

SENSORS

- Up to 9 sensors can be connected (Five Standard).

ALARMS

- Up to 4 alarms can be connected.

PHYSICAL SPECIFICATIONS

- **Housing**
  - Ionized Aluminum for rugged applications
- **Form Factor**
  - Depth: 184 mm (7.25 inches)
  - Width: 159 mm (6.25 inches)
  - Height: 51 mm (2 inches)
  - Not including shock and vibration isolator
- **Weight**
  - Approximately 1.3 kg (2.8 lb.)
  - Not including shock and vibration isolator

POWER

- **Power Supply**
  - 12V Intelligent Power Circuit
  - ESD Protected
  - UPS battery backup
- **Battery**
  - Lithium Coin Cell CR2032 (20.0 x 3.2 mm)
  - 3 V / 235 mAh

- **Input Power Range**
  - +8 VDC ~ +16 VDC normal operating voltage
  - UPS for out of range backup power
  - Over voltage protection up to 110VDC

- **Ignition Signal / Power Down Timer**
  - Software configurable delay power off signal from 1- 14400 seconds (4 hours)
  - Software configurable sleep mode after power down 50mA current draw

- **Power Consumption**
  - Typical 10W
  - DVR draws less than 24ma when off

ENVIRONMENT

- **Temperature Range**
  - -30˚C to +55˚C (-22˚F to +131˚F) operating temperature

- **Relative Humidity**
  - 10% to 90% non-condensing

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ZEUS TITAN

USER MANUAL