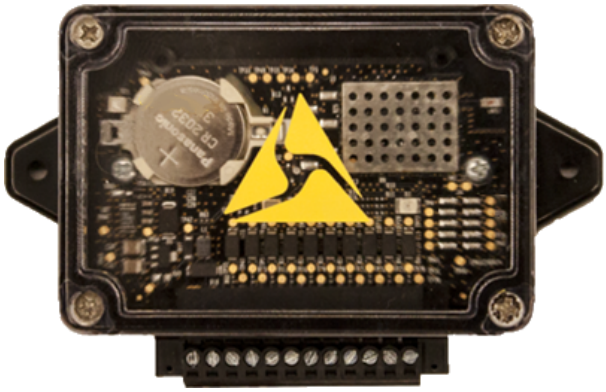
Signal Vehicle User and Installation Guide



Model: T00504

Rev: 08 Nov 2023

Axon Enterprise, Inc.
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USA

Contents

Introduction

Axon Signal Vehicle is part of a communications platform that, when certain hardware is activated, transmits a message recognizable by Axon Signal compatible equipment. For example, when the vehicle light bar is activated, Axon Signal Vehicle can signal all properly equipped Axon systems within range to begin recording.

Axon systems that work with Axon Signal Vehicle include the Axon Body 2 Camera, Axon Flex 2 system, Axon Fleet 2 system, and all later versions.

Additional reading

If Axon Signal Vehicle is part of an Axon Fleet installation, refer to the appropriate Axon Fleet Installation Manual for addition information and guidance.

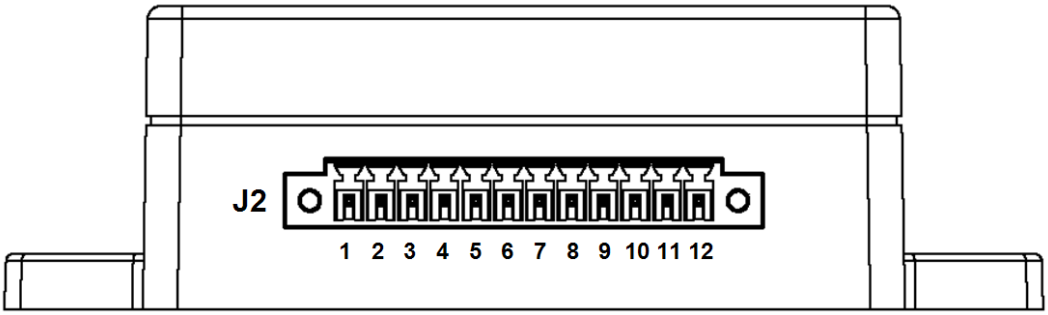
See the Evidence.com User and Administrator Guide for information on *Signal configuration* and *Axon Body Camera Settings* for use with Axon Signal products.

Specifications

Secure Bluetooth transmission	30 seconds
Range of alerted cameras	30+ ft. (9.1+)
Operation input voltage	5.0 VDC – 14.4 VDC
Ignition enable voltage	3.6 VDC – 14.4 VDC
Trigger input voltage	3.6 VDC – 14.4 VDC
Stand-by current	
- Ignition on	25 mA (typ)
- Ignition off	25 µA (typ)
Trigger input timing (positions J2-5 thru J2-10)	
- Low to high transition	200 ms
- High to low transition	200 ms
Trigger input timing (positions J2-11 thru J2-12)	
- Low to high transition	200 ms
- High to low transition	2.5 s*

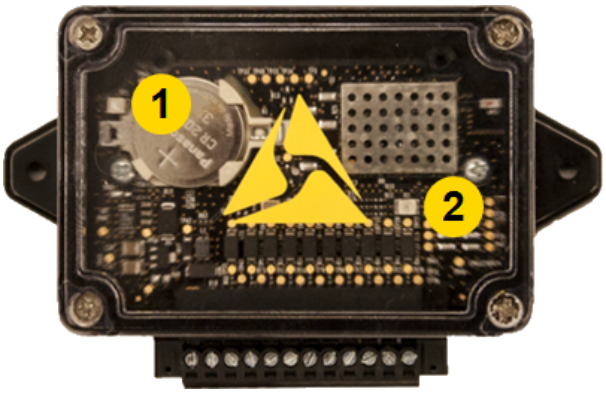
* This feature is intended to reduce the likelihood of nuisance videos from extraneous triggers caused by some progressive slide switch control modules. These controllers can cause the input voltage of Axon Signal Vehicle to drop below 3.6 VDC when transitioning between switch positions.

Pinout table



J2 Position	Description
1	Power +12VDC (fuse @ 1A)
2	Ground
3	Ignition enable
4	Auxiliary enable
5–10	Trigger Input
11–12	Trigger input, delayed turn-off

LED indicators



1. Power LED
2. Status LED

Power LED

Color	Information
Solid green (on)	Axon Signal Vehicle is powered and enabled
Off	Axon Signal Vehicle is either not powered or not enabled

Status LED

Color	Information
Solid green (on)	Operational state (successful boot-up)
Off	Check the Power LED • Off – check power connections • On – reboot the device (see Testing and Troubleshooting) efix
Blinking green*	Axon Signal Vehicle is transmitting a detected input signal

* Axon Signal Vehicle must have firmware version 4.2.1 or later for this function.

Installation

Warnings

Failure to follow the instructions in this manual may result in Axon Signal Vehicle not working properly or cause damage to the device or the vehicle. Save these instructions.

The technician who installs Axon Signal Vehicle must be qualified to work with automotive electronics.

If mounting Axon Signal Vehicle requires drilling holes, ensure drilling will not damage the emergency vehicle's equipment or other vital parts. Remove all burrs and debris after drilling. Install grommets into all wire passage holes.

Ensure there is a good electrical ground to the vehicle chassis.

If Axon Signal Vehicle is installed in the cab of the vehicle (in a location other than under the center console), it should be permanently mounted to avoid injury.

Do not install Axon Signal Vehicle anywhere that will interfere with airbag deployment.

Do not install Axon Signal Vehicle where it will be exposed to the elements or extreme heat.

Do not install Axon Signal Vehicle in the vehicle's engine compartment.

Guidelines

Axon Signal Vehicle is typically installed near the siren or light bar controller (trunk or console).

Axon Signal Vehicle can be installed using robust double-sided tape, VELCRO® type hook and loop fastener, or by bolting the device through its mounting flanges (mounting hardware and electrical supply wiring not included). If using an adhesive to mount the equipment, thoroughly clean the surface with a 50/50 mixture of isopropyl alcohol and water before installation.

Axon recommends using gauge 18 AWG wires.

All wires should be connected to the GPIO terminal block interface.

Axon recommends installing a 1-amp fuse, either inline or on a fuse block, for the J2-1 position.

No programming of Axon Signal Vehicle is required for operation. However, have the input settings reviewed by an Evidence.com administrator. See the Evidence.com User and Administrator Guide for information on signal configuration.

Wiring instructions

System power (positions 1-2)

Axon recommends using a red wire for the power connection and a black wire for ground connection.

1. Connect J2-1 to a Positive (+) 12 VDC source from the vehicle battery using an 18 AWG red wire. Axon recommends installing a 1A fuse, either inline or on a fuse block, for this position.
2. Connect J2-2 to the vehicle's chassis ground using an 18 AWG black wire. This is typically adjacent to the battery.

Ignition enable (position 3)

Connect J2-3 terminal to the vehicle's ignition voltage. This will allow Axon Signal Vehicle to be turned on with the ignition switch.

Optional auxiliary enable (position 4)

The J2-4 input provides an alternate signal to Axon Signal Vehicle for enabling the system.

Either the *Ignition enable* or *Optional auxiliary enable* input is required for the device to turn on. Both inputs may be used simultaneously to allow for greater flexibility in enabling options. Axon Signal Vehicle must be wired in a manner such that voltage for either *enable* position is removed prior to removal of system power. Consequently, *system power* and *enable* nodes must not be wired from the same source.

Trigger input (positions 5–12)

1. Turn on the trigger source, such as light bar control signal.
2. Using a voltmeter, ensure the wire connected to the trigger source has 3.6–14.4 VDC present while the trigger is enabled.
3. Turn the trigger off and verify that the voltage drops to zero. For Axon Signal Vehicle to work optimally, the trigger should provide a constant voltage to the device when it is activated.
4. Connect the trigger source to one of the input terminals on the Axon Signal Vehicle J2 connector.
5. Up to eight independent trigger sources can be wired directly to Axon Signal Vehicle. Wire inputs that originate from progressive slide switches to inputs J2-11 or J2-12.

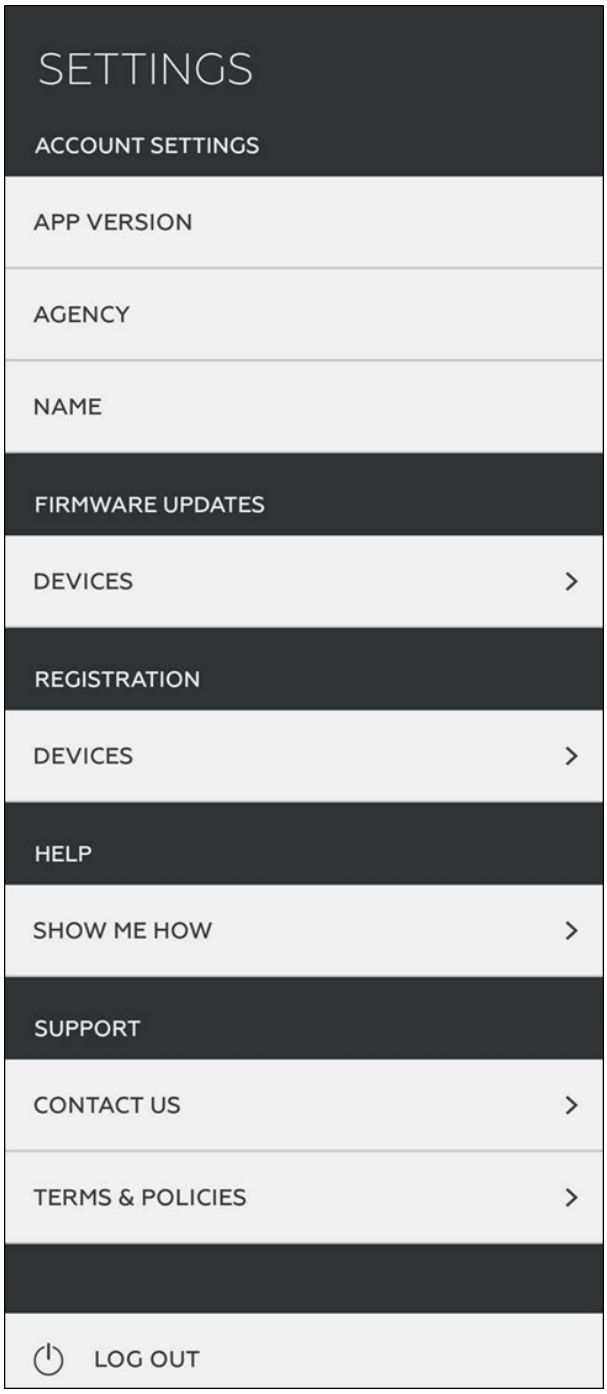
Update firmware

Axon periodically releases updates for the firmware of all Axon devices. Maintain the latest firmware on your Axon Signal Vehicle devices to achieve optimal performance and device stability.

Update Axon Signal Vehicle firmware Axon Device Manager (ADM) for Android. ADM for iOS does not yet support Axon Signal Vehicle firmware updates.

1. Open the ADM app.
2. Sign in to your agency's Evidence.com account.
3. In ADM, tap the **Settings** menu in the upper left.

4. Under **Firmware Updates**, **tap Device**.



5. Tap **Axon Signal Unit** in the device list.
6. Place the phone near an enabled Axon Signal Vehicle device and tap **Start Scan**. Select the device from the list of available devices and tap **Connect** to initiate Bluetooth pairing.
7. If the Axon Signal Vehicle device's firmware is outdated, an update will automatically begin after pairing. A status bar shows the progress of the update.

8. When the firmware update is complete, tap **Clear Completed**. ADM disconnects from the Axon Signal Vehicle device.
9. Optionally, connect again to send the Axon Signal Vehicle device logs to Axon Evidence:
   - Tap **Send Logs**. A status bar shows the progress of the upload.
   - Tap **Disconnect** to disconnect from the Axon Signal Vehicle device.

Testing

Axon Signal Vehicle is thoroughly tested prior to shipment. However, should an issue be encountered during installation or during the life of the product, follow these steps to troubleshoot.

1. Verify Axon Signal Vehicle has power and turn on the ignition or alternate enabling source.
2. Monitor the diagnostic LED indicators:
   - A green Power LED indicates Axon Signal Vehicle is powered up.
   - A green Status LED indicates a successful start-up.
     - If both lights are illuminated, Axon Signal Vehicle is ready and working properly.
     - If neither light is on, use a voltmeter to verify voltage at the system power input J2-1 and the enabling source(s) J2-3 and/or J2-4.
     - If only the Status LED is not illuminated, turn off Axon Signal Vehicle by removing the enabling signal (ignition or auxiliary). Verify the Power LED turns off when this action is performed. Reactivate the enabling signal and allow the system to boot for a few seconds. If this does not cause the Status LED to turn on, cycle power for Axon Signal Vehicle by disconnecting system power at J2-1 and reconnecting it.
     - If either light remains off, contact Axon Technical Support.
3. Turn on the trigger (for example, activate the vehicle's light bar).
4. Verify the Status LED is blinking (requires firmware version 4.2.1 or later for this functionality).
5. Listen for the two beeps that indicate the Axon camera system now is in EVENT (recording) mode. If you do not hear the beeps:
   - The camera may not be enabled for Axon Signal activation. See the Evidence.com User and Administrator Guide for information on *Signal configuration* and *Axon Body Camera settings* for use with Axon Signal products.
   - The camera might be in stealth mode. See the Fleet camera's user manual for instructions on deactivating stealth mode.

Technical support

Visit www.axon.com to view support options or call 1-800-978-2737.

Warranty

Axon Enterprise warranty provisions are applicable on Axon Signal Vehicle products. See www.axon.com for detailed warranty information.

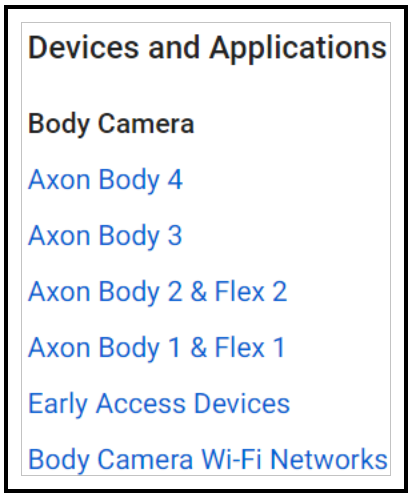
Settings in Evidence.com

Enable Signal Vehicle

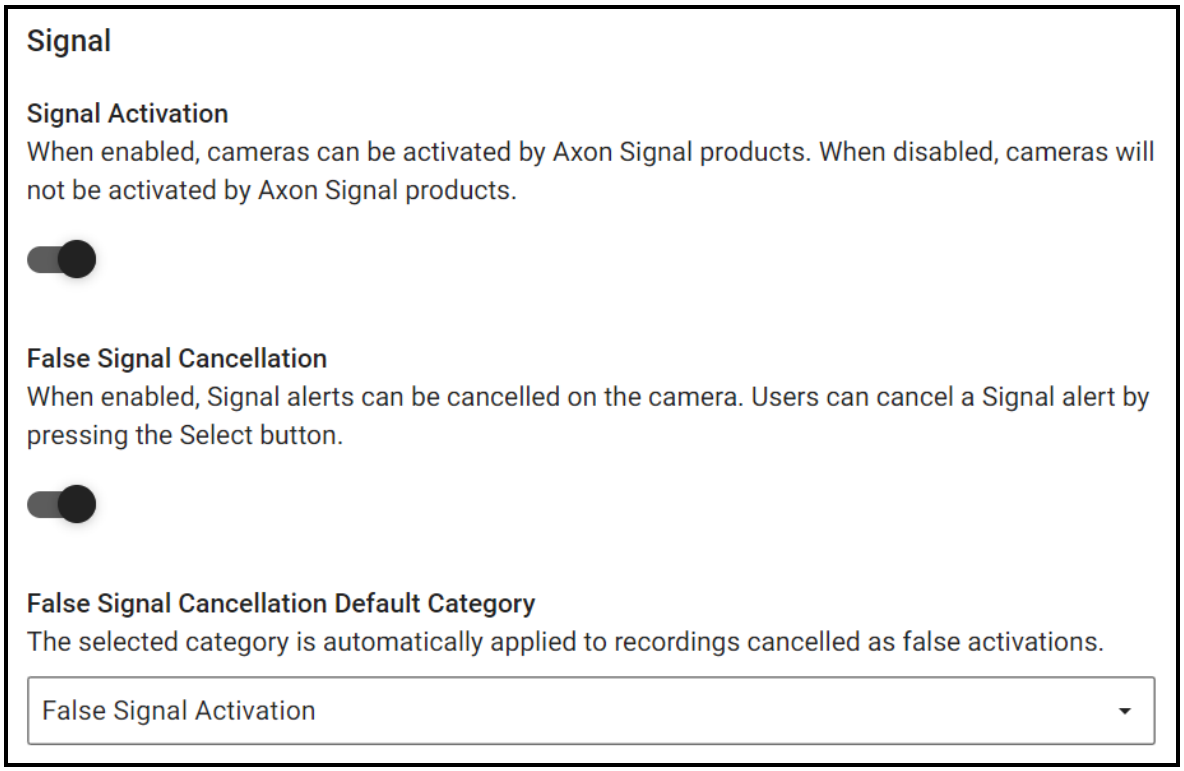
To enable the Axon Signal feature for your camera:

1. Sign into your Axon Evidence account and select **Admin** on the menu bar.

2. In the **Devices and Applications** select the body camera used by your agency.



3. Scroll down to the **Signal** section.



- **Signal activation** – Toggle on to enable cameras to be activated by Axon Signal products.
- **False signal cancelation** – Toggle on to allow alerts to be cancelled, and thereby stop recording, at the camera.
- **False signal cancelation default category** – If you enabled false signal cancelation, set a default category here.

4. Scroll to the bottom and select **Save settings**.

You have now enabled cameras at your agency to detect a Bluetooth signal from Axon Signal Vehicle and SPPM. The next time the camera is connected to either an Axon Dock or Evidence Sync, it will update to this new setting.

Configure Signal Vehicle

If your camera still does not record even after activating the Axon Signal setting, check your Signal Vehicle Configuration.

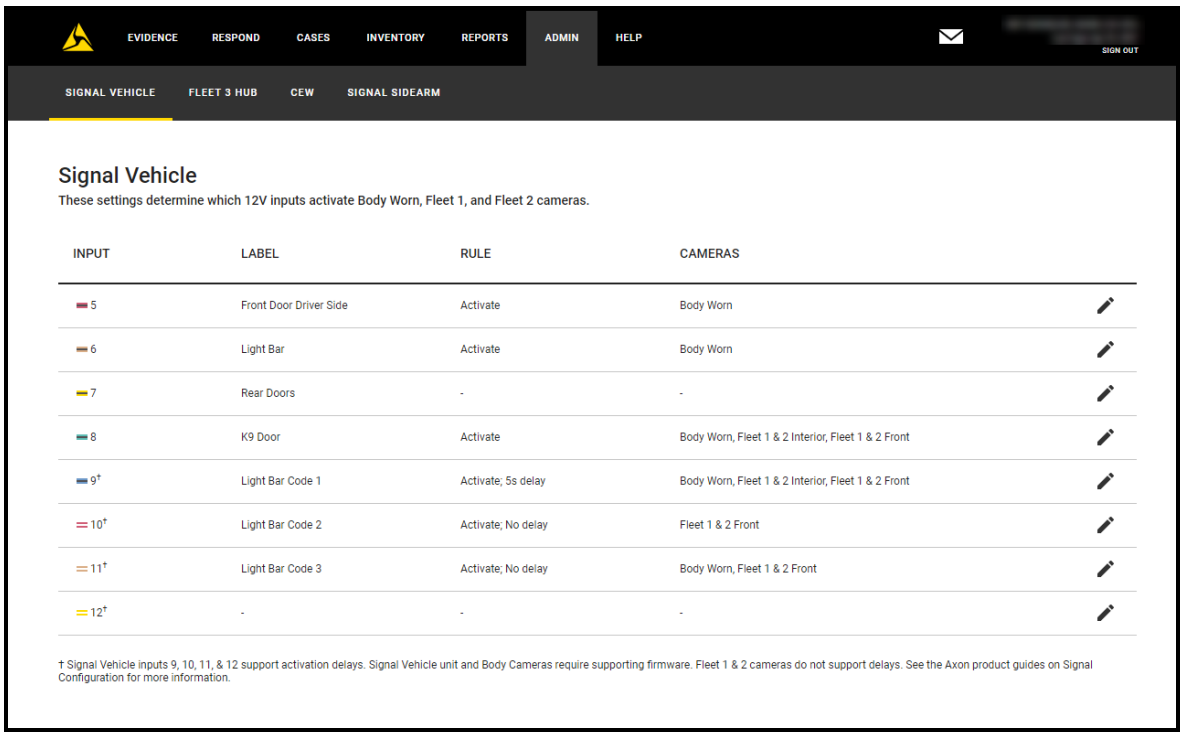
If you already have a configuration setup in your Axon Evidence account, ensure the trigger you use to test the camera is enabled.

To check the signal configuration for your agency:

1. Sign into your Axon Evidence account and select **Admin** on the menu bar.

2. Select **Signal Vehicle**.

3. Ensure the trigger you're using to test the camera is listed as an event trigger.



4. If it isn't listed, select **Edit** on an unused row.
5. Select the appropriate trigger the Axon Signal Vehicle device is wired to in the installation, such as Front Door or Light Bar.
6. Repeat steps 4–5 for other trigger inputs.
7. Select **Save**.

Verify you enabled your cameras to detect selected event triggers from Axon Signal. The next time the camera is connected to either an Axon Dock or Evidence Sync, it will update to this new setting.

Signal reactivation and delay

Signal reactivation sensitivity determines if Signal will activate nearby cameras. The default behavior is **less sensitive**.

For example, a K9 unit responding to a call turns on the light bar, which activates the Fleet 3 and Body 3 cameras. They are 30 minutes from the location and do not want to record the entire time. The officer ends the recordings, but the light bar stays on. When they arrive at the call 30 minutes later, the situation escalates, and the officer uses the door popper to open the K9 door. The door popper is also configured to activate the Fleet 3 and Body 3 cameras. At **less sensitive**, since the light bar is still on, it is still the same Axon Signal session, so the Fleet 3 and Body 3 cameras do not activate.

With **more sensitive** selected, in the above scenario the Fleet 3 and Body 3 cameras **will** activate when the officer uses the door popper even though the light bar is already on.

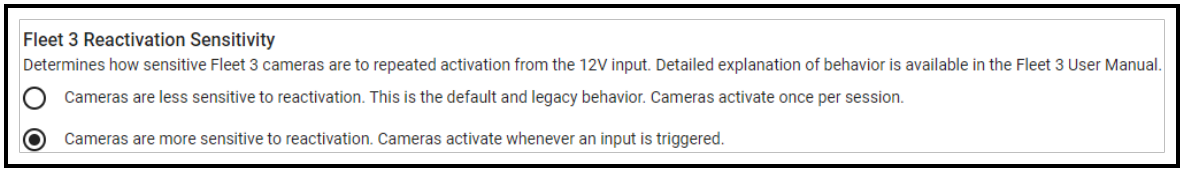
Signal reactivation

To set signal reactivation:

1. Sign into your Axon Evidence account and select **Admin** on the menu bar.

2. Select **Fleet 3** (to set body cameras, select **Signal Vehicle**).

3. Select the desired sensitivity.



Signal delay

The delay feature, individually configurable for Fleet 3 and body cameras, allows 12V input signals to be active for a short period of time without activating camera recordings.

For example, you want officers to test the vehicle light bar prior to the start of each shift without creating unnecessary evidence recordings. To do so, add a five-second delay to Fleet cameras. At the beginning of a shift, if the officer tests the light bar for less than five seconds, body and Fleet cameras will not activate.

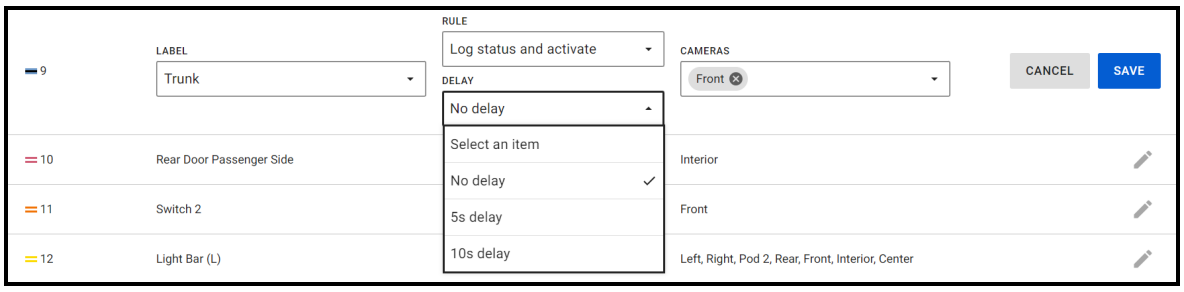
Delay is only available on pins 9–12 for Axon Signal Vehicle (BWC activations) and can be set for 5 or 10 seconds.

To set a delay:

1. Sign into your Axon Evidence account and select **Admin** on the menu bar.

2. Select **Fleet 3**: (to set body cameras, select **Signal Vehicle**).

3. Select **Edit** on the row to change.



4. Select the **Rule** and **Delay** time, and make other edits as needed.
5. Select **Save**.

Compliance

Radio waves

An Axon Signal Vehicle system transmission is in the frequency range of 2402–2480 MHz.

Changes or modifications to the equipment not expressly approved by the manufacturer could void the product warranty and your authority to operate the equipment.

Your wireless device is a radio transmitter and receiver. It is designed and manufactured not to exceed the emission limits for exposure to radio frequency (RF) energy set by the Federal Communications Commission (FCC) of the U.S. Government. These limits are part of comprehensive guidelines and establish permitted levels of RF energy for the general population. The guidelines are based on standards that were developed by independent scientific organizations through periodic and thorough evaluation of scientific studies. The standards include a substantial safety margin designed to assure the safety of all persons, regardless of age and health. Before a device model is available for sale to the public, it must be tested and certified to the FCC that it does not exceed the limit established by the government-adopted requirement for safe exposure.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult Axon Enterprise Technical Support for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

To comply with FCC RF exposure limits for general population / uncontrolled exposure, the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

Section 8.4 of RSS-GEN

This Device complies with Industry Canada License-exempt RSS standard(s). Operation is subject to the following two conditions: 1) this device may not cause interference, and 2) this device must accept any interference, including interference that may cause undesired operation of the device.

Cet appareil est conforme aux normes d'exemption de licence RSS d'Industrie Canada. Son utilisation est soumise aux conditions suivantes : 1) cet appareil ne doit pas causer de brouillage, et 2) doit accepter tout brouillage, y compris le brouillage pouvant entraîner un fonctionnement indésirable.

Section 8.3 of RSS-GEN

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be chosen so that the equivalent isotropically radiated power (e.i.r.p.) is not greater than necessary for successful communication.

To comply with IC RF exposure limits for general population/uncontrolled exposure, the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio ne peut fonctionner qu'au moyen d'une antenne d'un seul type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique pour les autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas celle requise pour établir une communication satisfaisante.

Pour se conformer aux limites d'exposition aux radiofréquences fixées par Industrie Canada relativement aux limites d'exposition humaine, l'antenne utilisée pour cet émetteur doit être installée à une distance d'au moins 20 cm de toutes les personnes et ne doit pas être installée ou exploitée conjointement avec d'autres antennes ou émetteurs.

Section 6.8 of RSS-GEN

This radio transmitter IC: 8803A-S00831 has been approved by Innovation, Science and Economic Development Canada to operate with the antenna type listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

Axon Signal Vehicle uses a Surface Mount Chip Antenna. Antenna gain is <0.5dBi. The required impedance for this antenna is 50 ohms.

Declaration of conformity

Axon declares that this Axon system is compliant with the requirements of the Radio Equipment Directive (RED) 2014/53/EU. A copy of the original Declaration of Conformity can be found at www.axon.com.

Compliance marks

NOM NYCE

RCPAXT018-0159

Complies with IMDA Standards DA106455

ICASA

TA-2017/3335 APPROVED

09688-19-10342 ANATEL

Este equipamento não tem direito à proteção contra interferência prejudicial e não pode causar interferência em sistemas devidamente autorizados".

AGREE PAR L'ANRT MAROCNuméro d'agrément : MR00039816ANRT2023Date d'agrément : 05/09/2023

ANATEL (Brazil) Compliance Information

Este equipamento não tem direito à proteção contra interferência prejudicial e não pode causar interferência em sistemas devidamente autorizados.

MSIP (South Korea) Compliance Information

Applicant Name: Axon Enterprise, Inc.
Manufacturer/Manufacturer Country: Axon Enterprise, Inc. / USA
Name of equipment/model name: Axon Signal Vehicle / T00504
Certification Numbers: MSIP-CRM-CEW-T00504
Year of manufacture: separate marking