

Idrive X1 Installation and Operation Guide

From Idrive

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Idrive X1 Basics



Warnings

Please read the following carefully regarding proper use of the product and ensuring the user's safety.

1. Use the idrive device only for its intended purpose.
2. Do not disassemble, attempt to repair, or alter the idrive device. When malfunctions, errors, or other damage is found to be attributable to a user, said user may not be eligible for after sale service.
3. When cleaning the inside of a vehicle, do not spray water or any other cleaning product directly onto the idrive device. It may cause damage, fire, or electric shock.
4. Keep the idrive device away from chemicals or detergents as they may change the surface of the product or ruin internal components.
5. Do not insert any foreign objects into the idrive device. Severe impact, shock, or other foreign matter may cause damage to the idrive device.
6. When foreign matter blocks the lens, normal operation is impossible. Always ensure that the lens is free of any contaminants or obstruction. Other objects placed around the camera may be reflected off of the window and included in the image, so please do not leave unnecessary objects around the idrive device.
7. The product will not operate properly if its position changes. Make sure the product is installed securely and do not expose the device to excessive shock. Do not move the device after installation.
8. Staring at or operating the product while driving is dangerous and may cause an accident.
9. Keep the product away from excessively humid and salty environments.
10. This product uses high definition cameras. Sudden changes in light levels, such as entering or exiting a tunnel, may result in temporary image quality degradation. Excessive or insufficient light may also degrade image quality.
11. Excessively tinted windshields may result in poorly defined or distorted images.
- 12. Use ONLY the enclosed cable to connect the idrive device to the power source, and only as directed in the manual. This product should be connected only to the power inside a vehicle. Any other power source is unacceptable and may cause malfunction or fire and may render the idrive device ineligible for after sale service.**
13. If power to the idrive device is lost (i.e due to an accident), an image may not be recorded.
14. To ensure quality GPS reception, the GPS POD should have the side with the mounting tape facing the sky. Windshields that have a more vertical orientation may degrade performance.

Idrive X1 Installation Instructions

Before you start

- Read this installation guide completely before beginning the installation.
- Ensure the idrive Base Station and wireless access point(s) are working. This is so you can test the camera installation and so the cameras do not fill up with events.
- Before installation, check the contents of the package and make sure all parts are accounted for and in good condition.
- Since part of the installation process is setting the angle of the device, it is important to choose a workspace where the vehicle is level and stable, and can remain so throughout the installation.
- Ensure that the mounting location chosen for the device will not interfere with the driver's line of sight when operating the vehicle.
- Use the included installation hardware to make sure that the wiring for the system is secure, and will not interfere with the safe operation of the vehicle

NOTE: The idrive units should only be installed by a qualified technician.

Select the mounting location

WARNING: Do not peel the backing from the adhesive strip until instructed to do so.

- Hold the device against the windshield just below and behind the rear view mirror
- The lens must have an unobstructed view of the interior and the device must not interfere with the driver's field of view.
- Make sure the mirror in all positions does not interfere with the field of view of the device and that the device does not interfere with the field of view of the driver.



The idrive mounting base will adjust to accommodate any angle windshield.



Correct positioning

Permits clear view from the idrive device to the occupant cabin, unobstructed by the rear view mirror



Too high

Blocks the driver and occupants faces showing eye and head positions during events



Too low

Reduces cabin view and low hand placement during events. Also places forward viewing camera too low to the front hood reducing field of vision during events.



Wrong angle

Obscures horizon for front viewing and cabin viewing cameras and reduces field of vision at outer edges of the event

Attach the mounting bracket to the windshield

WARNING: The adhesive is very sticky. Once applied to the windshield, it will not come off easily. See page 21 for bracket removal instructions.

-
- Clean the installation area on the inside of the windshield using the supplied alcohol wipe and wait until the windshield is completely dry. Make sure the glass is clean, dry and the air temperature is at least 50oF (10oC).
 - Mark the top and the side of the bracket using a fine point pencil while holding the bracket up against the windshield in the proper position.
 - Remove the liner from the foam tape.
 - Start by placing only the top edge of the bracket against the windshield, aligned with the guide marks, and make sure that the device is fully vertical.
 - Press the bracket firmly against the windshield starting at the top and pressing the side downward. (Do not apply excessive pressure as it may cause the windshield to break)
 - Make sure there are no large air bubbles under the bracket. You may need to (carefully) apply additional pressure to the bracket and remove any large air bubbles. Use a small pin to create an escape path for the air if the problem is persistent.
 - Remove the markings using alcohol wipe.
 - Make sure the unit hangs vertically (plumb).
 - Tighten the two fasteners on the bracket to hold the unit in place.

Route the Idrive X1 Cable

WARNING: When installing the Idrive X1 Cable in a vehicle with side or curtain airbags, be certain that neither the cable nor your installation activities interfere with any airbag related mechanisms or might otherwise affect airbag deployment.

Starting just above the rear view mirror, route the cable under the window trim or headliner across to the door pillar.

Route the cable down the door pillar underneath the vertical door / window trim.

Route the cable out from underneath the trim and under the dashboard.

Note: You may need to remove the trim to route the cable. When reinstalling, be careful not to damage the trim clips or the cable. Keep the cable away from sharp edges and moving parts.



Idrive X1 Wiring Diagram

The Idrive X1 Cable is 14 feet long with a 6PIN connector at one end and special automotive terminals on the other. One end of the cable - the 6PIN connector- plugs into the idrive device. It is then routed and secured under the dashboard.

The routing of the power cable will vary greatly depending on vehicle type. Choose a routing that will work the best for your particular application.

Attach the wires to the sources in the vehicle as shown below:



Required Connections

There are 3 required connections for the idrive device to function properly.

- Connect the BLACK WIRE to negative or to a clean GROUND.
- The RED power wire must be connected through the supplied fuse to a continuous +12V power source. This power must never shut off for proper device function.

- The WHITE ignition wire must be connected through the supplied fuse to a 12V power source that is ignition switched. This wire tells the camera to boot up or to enter transfer mode to download events.

Optional Connections

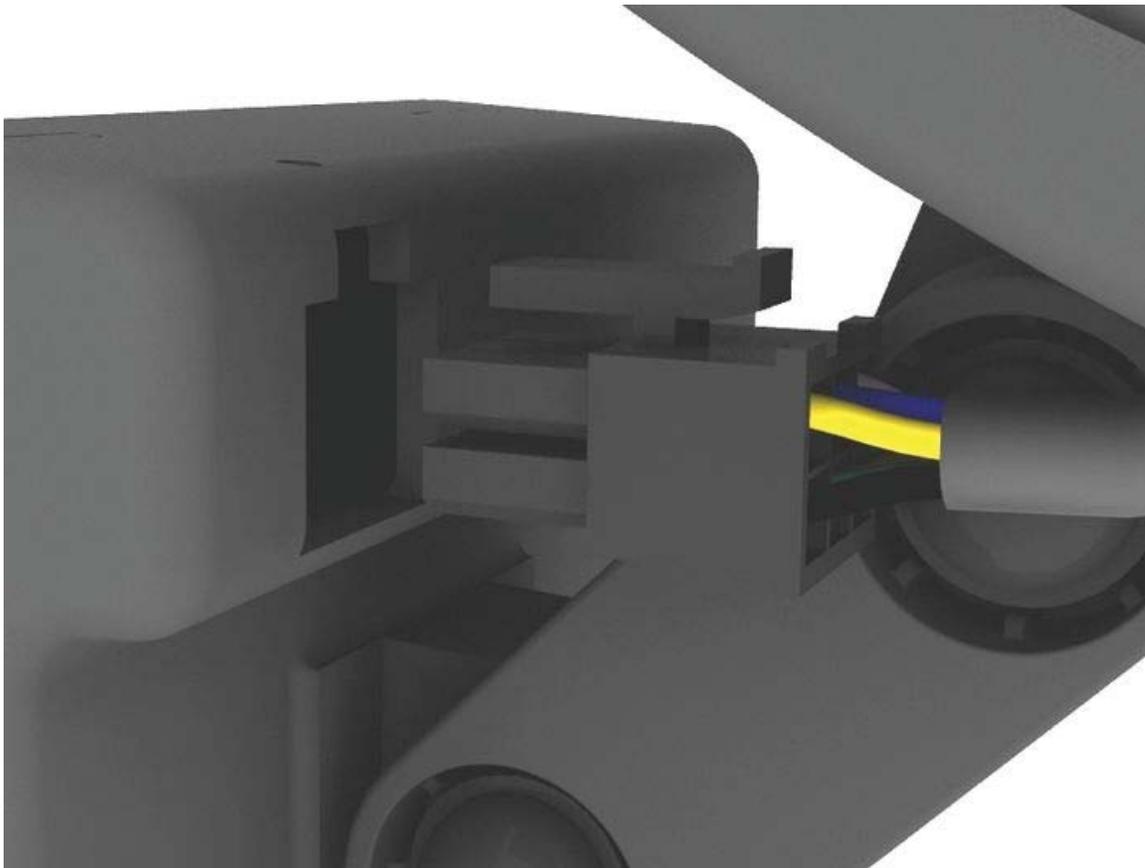
There are 3 optional wire connections which when properly connected, will trigger an event on the idrive device. The description of the usage shown is suggested however each wire may be connected to the trigger point of your choice so long as electrical parameters are met. If you chose not to use the optional wires ensure that they are secured properly to prevent shorting.

- Connect the GREEN wire to an Alarm Button (or trigger method of your choice).(This wire requires a 0V to 12V RISING edge level transition pulse of at least 50ms duration)
- Connect the YELLOW wire to a Door Open (or trigger method of your choice).(This wire requires a 0V to 12V FALLING edge level transition pulse of at least 50ms duration)
- Connect the BLUE wire to a Wired Panic Button (or trigger method of your choice). (This wire requires a MOMENTARY 0V FALLING edge level transition pulse of at least 50ms duration.) e.g. a momentary ground through the wired panic button.

Test Cable Connections

IMPORTANT! Use a voltmeter to verify the proper connection of each wire prior to plugging in the idrive device.

Plug the cable into the Device



Mount the GPS Pod to the windshield

(Applicable only to Idrive X1 models. In the newer generation X1P and X1-3G cameras the GPS module is inside the camera.)

WARNING: The GPS pod must be mounted in a manner that does not interfere with the driver's vision. Mount it near the top right corner of the windshield. Leave approximately 4 inches from the top edge and right side edge of the windshield for clearance to improve the pod's line of sight to the sky.

NOTES: Some vehicles having metal or fiberglass "ball cap" sun visors and /or factory or after market tint may interfere with the GPS reception and require the GPS puck to be mounted lower on the windshield to be effective. before permanently applying GPS puck perform a test to see the area that works best for your type vehicle.

- Route the GPS cable up and under the window trim or headliner and as far towards the passenger side of the windshield as the cable will allow and then out from under the window trim or headliner near the location it is to be mounted.
- Make sure the glass is clean and dry and the air temperature is at least 50oF (10oC).
- Remove the liner from the foam tape.
- Press the GPS Pod firmly against the windshield starting at the top and pressing the side downward.
- Stow any excess cable in the headliner

Idrive X1 Functionality Modes and LED Behavior

The idrive X1 device has three major modes of operation:

Event Monitoring Mode

Initially after ignition energizing, the idrive device will display  (Red/Green LEDs) for approximately 30 seconds during initialization. The Event Monitoring Mode will then start when the camera is fully initialized .

- The idrive device will be continually recording but not saving data
 - When an event occurs the device will save data to internal memory
- Starting from a time interval prior to the event trigger
 - Ending at a time interval after the event trigger
 - The time interval is set in the idrive Control Center
- If set in the Control Center, the idrive device will display a Left RED Event LED  (Red/Green LEDs) for the duration of that event.

Transfer Mode (WiFi or USB)

The idrive device enters Transfer Mode when the vehicle's ignition switch is turned OFF .

The transfer of events to the idrive Base Station can be done with either the built in WiFi network (Default) or with the supplied mini-USB Stick.

Wifi events transfer

The device will search for the idrive wireless network  (Flashing Amber/ Solid Green LEDs)

- The idrive device will attempt to make a connection 15 times over approximately 3.5 minutes
- When the idrive device is able to successfully connect to the idrive wireless network  (Solid Amber/Solid Green LEDs) it will begin downloading all recorded events to the idrive Base Station
- Once all of the event data has been successfully transferred, the idrive device will shut  off (Both LEDs Off)

OR

- If it cannot connect within that time period the idrive device will shut off  (Both LEDs Off)

OR

- If set in the Control Center, The X1 device will record events after the ignition is turned OFF.
 - Left LED Off and the Right LED will remain steady Green  (Off/Green)(See Sleep Mode Below)

USB Stick events transfer

Two methods to insert the USB properly Ignition ON or Ignition OFF

Ignition ON

- Make sure the LEDs are Green Green
- Insert the USB stick into the left side of the camera having the gold fingers on the USB stick facing away from you
- Make sure you wait more than 60 seconds prior to the ignition switch being turned off
- USB transfer will begin  (Solid Amber/Solid Green LEDs)

- The camera will not search for the idrive wireless network

OR

Ignition OFF

- Make sure the LEDs are OFF Green or OFF OFF
- Insert the USB stick into the left side of the camera having the gold fingers on the USB stick facing away from you
- Turn the Ignition ON and let the Camera Boot up to Green Green
- Wait 30 seconds and turn the Ignition OFF
- USB transfer will begin  (Solid Amber/Solid Green LEDs)

- The camera will not search for the idrive wireless network

Note: The USB Stick **MUST HAVE** your idrive.cert file on it to be authorized (this prevents unauthorized download of events)

Note: The USB stick **MUST NOT** be removed prior to transfer completion or data loss may occur

- Completion is indicated by both LEDs being Off  (See the “idrive Control Center Manual” for instructions on how to IMPORT the events into the Base Station with the USB stick)

OR

- If set in the Control Center, The X1 device will record events after the ignition is turned OFF.

- Left LED Off and the Right LED will remain steady Green   (Off/Green)(See Sleep Mode Below)
-

WARNING: Do not unplug the idrive USB Stick during the transfer   (Solid Amber/Solid Green), as it may damage internal flash memory in the idrive device or the USB Stick.

Sleep Mode

After the ignition is turned Off and the Transfer Mode is complete (either WiFi or USB) the Left Amber LED will flash (OFF-ON-OFF) and the Right LED will remain steady Green   (Off/Green)

This device is now in Sleep Mode. The duration of Sleep Mode (before turning off) is set in the Control Center per device.

During Sleep Mode, if an event takes place that is enabled for a specific Device (e.g. Shock Event, Door Event, Panic Event, other Wire Event) the left LED will turn RED, and the Right LED will remain Green   for the duration of the Event as set in the Control Panel for that device.

- Once the timer has expired for Sleep Mode, the idrive device will turn both LEDs Off  

Idrive Event Types

G-Force (Shock) Event

By default the idrive device will save video from 8 seconds before the event to 8 seconds after the event trigger (16 seconds total). (G-Force levels and default event lengths can be changed in the idrive Control Center.)

Door Open Event

When a door is opened, the idrive device will record from 5 seconds before the event to 5 seconds after the event (10 seconds total). The idrive device uses the existing circuitry of the automobile to detect that the door has been opened. The download of door open events may be disabled in the control center. Door events that are not downloaded from the device will be deleted from the device after 3 days.

Wireless Panic Event

By default when the wireless panic button is pressed, the device will save 15 seconds prior to and 15 seconds after the event trigger. (The default event lengths can be changed in the idrive Control Center.)

Wired Panic Event

By default when a wired panic button is pressed, the idrive device will save from 15 seconds before the event to 15 seconds after the event trigger. (The default event lengths can be changed in the idrive Control Center.)

Alarm Event

By default when the wireless panic button is pressed, the idrive device will save from 15 seconds before the event to 15 seconds after the event trigger. (The default event lengths can be changed in the idrive Control Center.)

The video together with the G-Force values, the GPS coordinates, date and time form an “Idrive Event File”. The Event File is saved on an internal flash memory.

Basic LED behavior

Before Start Up				
Left LED			Right LED	
Off			Off	Ignition OFF (Camera completely off)
Solid Red			Solid Amber	Camera initializing after powering up first 10 seconds of 30
Solid Red			Solid Green	Powering up last 20 seconds of 30
Solid Green			Solid Green	Working Properly (waiting to record an Event)
After Start Up				
Solid Red			Solid Green	Event Recording - An event was triggered and is being recorded.
Flashing Red/Green			Solid Green	Camera functioning but internal storage Card is full or close to over writing oldest data
Blinking/Solid Amber			Solid Green	WiFi search/transfer mode
Solid Amber			Solid Green	WiFi transfer mode
Blinking Red			Off	Memory full (start to override oldest data)
Off			Solid Green	Sleep Mode (client settable 30 to 1440 min)
Off			Off	Sleep Timer ended Camera Off

Understanding GPS

NOTE: On the very first use, the idrive X1 unit must be outside of a garage for up to 10 minutes to acquire a line of sight GPS signal and become fully functional. The idrive device's internal Date and Time are obtained from GPS. Vehicle speed is calculated by the GPS coordinates as are the mapping functions. Events will record during this time without GPS information.

- GPS used for commercial purposes inherently has the average range error of more than 5 meters. Near buildings, underground, underpasses, or roadside trees, the range error may be more than 15 meters.
- For GPS to triangulate the location of the vehicle there must be signals received from 3 of the 4 satellites “visible” in the sky. (GPS is line of sight). It can take some time in the open for this to happen.
- A certain amount of time is needed from when the engine of a vehicle is started until GPS satellite reception begins, and this time may vary depending on weather and environmental conditions.
- Do not use GPS with other products that send electromagnetic waves or that use GPS. This may reduce the performance of the GPS reception in this product.
- Depending on GPS satellite reception, the accuracy of the mapping may not always show the shape of the road or a current location. Some examples of conditions that may affect GPS performance might include: Tall buildings, tree canopies, overpasses tunnels etc.

Uninstalling a device

- Unplug the power cable (Insert a pin into the hole on top of the device above the 6 pin power connector. Press in with the pin and carefully pull the cable out).
- Remove the GPS Pod from the windshield. (X1 Models had an external GPS puck, the X1-P utilizes an internal GPS)
- Unscrew the fastener from the bracket end of the mounting arm.
- Remove the bracket from the windshield – use a label-off product and carefully pull the bracket from the windshield. Note: If you are returning the device for repair or replacement, skip this step.

Wired Panic Button Setup

If you have chosen to install the Wired Panic Button as an option to your idrive device installation, please follow the instructions below:

1. Choose the location to mount the Wired Panic Button carefully
 - *Listed below are just a few scenarios when the location for the wired Panic Button:*
 - Is the location for driver access within or outside of visual range
 - Is the location for driver access within or outside of arms reach
 - Is the location potentially hazardous to safe vehicle operation
 - If hidden, (e.g. in a glove box or under a seat) accidental activation may occur due to movement of clip boards or miscellaneous in-cab utilities
 - An exposed Panic Button may call to much attention to itself
 - If surface mounted, you have the option to route the wiring to exit through the side or the back of the Wired Panic Button housing
 - You may wish to install more than one Wired Panic Button (wired in parallel)
1. After mounting the Wired Panic Button, route the cable safely toward the location that you terminated the cable harness from the idrive device
2. Connect the Black wire from the Wired Panic Button to the same ground location that you terminated the Black Ground wire from the idrive device
3. Securely connect the Red wire from Wired Panic Button to the Blue wire from the idrive Camera harness using either a wire nut, solder, or other wire connector
4. Check that all connections are correct using a voltmeter
5. Provide proper electrical insulation against short circuits using shrink tubing and/or electrical tape
6. **Suspend any unused cable out of reach and from possible abrasion with cable-ties or electrical tape**

Note: if more than one Wired Panic Button is to be installed, simply parallel all Black wires from the Panic button to ground and parallel all Red wires from each Wired Panic Button to the Blue wire on the idrive Camera Harness as in items 3 and 4

Optional IR Illuminator

Placement options

Infrared Illuminators provide additional interior cabin lighting for event recording during non-daylight or indoor recording (e.g. evening, bad weather, tunnel, etc.).

- Placement should be considered on a per install basis as to what area of the cabin to illuminate

- Location must not interfere with safe operation of the vehicle and cannot obstruct the operator's vision
- Mount the IR Illuminator using the provided adhesive found on the back of the Illuminator, keeping in mind that glass and plastic trim provide a better surface selection for long-term adhesion than fabric
- Do not orient the Illuminators so that they point toward the idrive device

Wiring

The IR Illuminator requires only 2 wire connections, Black to un-switched vehicle ground and the other colored wire (might be red or blue) to a +12Vdc location that is energized only while the vehicle ignition is on.

1. After mounting of the IR Illuminator safely route the cable under the vehicle trim from the mounting location to the ignition switched +12Vdc and Ground of your choosing
2. Make sure the connections are correct using a volt meter. IR Illumination is not visible with the human eye, and proper connection will only show up in the recorded night events or those events in a poorly lit environment

Note: It is not necessary to route the IR Illuminator wires back to the idrive device connections unless convenient. The IR Illuminator only requires ignition switched +12Vdc and Ground.

You may place as many IR Illuminators within visual range of the idrive device inside the cabin as needed to provide clear low light events.

Uninstalling a device

1. Unplug the power cable by inserting a straightened paperclip into the hole located on top of the device above the 6 pin power connector
 - Press in with the paperclip and carefully pull the cable out.
1. Remove the GPS Pod from the windshield
2. Unscrew the fastener from the bracket end of the mounting arm

Note: If you are returning the device for repair or replacement, skip the next step

1. If permanently removing the device, remove the bracket from the windshield -
 - Use a "label-off" product and carefully pull the bracket from the windshield

Appendix A : Specifications

Video resolution	2 Mega pixel, 1600 x 1200 pixels (internal) 2 Mega pixel, 1600 x 1200 pixels (external)
Horizontal Field of View	168 (internal) / 168 (external)
Infrared Illuminator for low light conditions	Yes
Audio recording	Internal microphone
Accelerometers	3 Axis
Manual Trigger / Alarm System Trigger / Taximeter Trigger	Yes
Speed heading and location through GPS	Yes
Memory available for event and data storage	4GB
Wireless Panic Button (Note: Wireless Panic Buttons were available on earlier models of the drive device and may not pertain to your current model)	Yes, up to 7 remote panic buttons
Wired Panic Button	Yes

Power

Standard input Voltage	12VDC (9VDC min and 24VDC max)
Power Input Connector	6 PIN Automotive connector

Connectivity

Wireless	Wi-Fi (802.11g)
USB	Dedicated USB slim flash drive

Environmental

Dimensions (excludes mounting bracket)	4.9 x 2.6 x1.5 in. (W/H/D) 12.5 x 6.7 x 3.9 cm (W/H/D)
Operating Temperature	-40 to 165 F (-40 to 74 C)
Dimensions (excludes mounting bracket)	4.9 x 2.6 x1.5 in. (W/H/D) 12.5 x 6.7 x 3.9 cm (W/H/D)
Operating Temperature	-40 to 165 F (-40 to 74 C)
Environmental Requirements	Relative humidity: 5% to 95% noncondensing Maximum operating altitude: 10,000 feet (3000 m)
Weight	220g

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