SMARTWITNESS ®

Installation Guide

CP4-NA-LTE
4 Channel HD Recorder

SMARTWITNESS

Version 1.2

smartwitness.com

CP4-NA-LTE -Table of Contents

CP4

4 Channel HD Recorder

Installation Guide

MODEL: CP4-NA-LTE

Version: 1.2

Warning

SmartWitness installations should be performed by a qualified individual or installation professional only. Working with a vehicle's power system can be dangerous to both you and your vehicle. This installation is intended only to be a guide since vehicle designs and power/input sources can vary significantly from vehicle to vehicle.

If you need to schedule a professional installation service in the USA for your SmartWitness device(s), please visit smartwitness.com/scheduleinstall and submit the online form.

All cellular-enabled CP4 devices must use the installation wizard for proper onboarding and activation, please visit install.smartwitness.com to register, login, and use the SmartInstall wizard.

Introduction

The SmartWitness CP4 is the world's smallest 4 channel LTE-enabled vehicle recorder. CP4 is small, lightweight, easy to use, and simple to install. CP4 can be easily installed inside a glove box or purchased with a locking case to prevent unauthorized access to the recorded data. An LCD monitor is not required for use, but can be added to provide added visibility in and around the vehicle for added security and safer operation.

Features

Recording

- 720P recording on channels 1-3 D1 (720x480) recording on channel 4.
- CP4 features 4 camera inputs for connecting 1, 2, 3, or 4 cameras: wide angle, weatherproof, infrared, dome, side view, rugged, reverse cameras, etc.
- Connects directly to vehicle ignition power, automated operation.
- GPS data records full time to provide location data, vehicle speed, and accurate time/date.
- Delay power shutdown feature enables recording for up to 24 hours after ignition off.
- Adjustable Resolution & Frame Rate. Built-in G-Shock Sensor and Gyro (adjustable sensitivity).
- 128GB SD storage capacity, record up to 150 hours of footage on 4 camera setup.
- Dual Record mode (Continuous + Event). Optional Audio Recording.
- Tamper-Resistant locking case available; Key required to access SD card Data.
- Three 12V alarm input triggers for advanced event recording.
- Built-in temperature logic for improved performance in high-temp environments.
- Auto SD card format feature. CP4 automatically detects SD error/corruption and auto-formats itself and begins recording again.

Playback and Analysis

- PC Analysis Software Included, which can be downloaded at: support.smartwitness.com
- Filter Data Search by Time/Date, Event, Vehicle Speed, G-Force level.
- Google Maps Integration for Route Tracking.
- Privacy masking feature for blurring out faces or license plate numbers.
- Optional LCD monitor connected, view all four cameras at once or playback recorded videos in the vehicle
- Compatible with SmartWitness Smart API for AVL/Telematics Integration.
- MP4 Conversion Tool. Data Remains Watermarked.
- Google Earth Export Tool for Advanced Route Tracking and Archiving.
- 31-day Vehicle Tracking History, showing vehicle location, speed and driving style regardless if event video was recorded or not.
- OTA Software & Firmware Updates. Save/Print Event Reports.

Package Contents

Product Name	Image
CP4-NA-LTE Vehicle Recorder **SD and SIM cards pre-inserted** **(if applicable)**	
Power Cable BAT(+), IGN+, BAT(-)	
Remote Controller (Panic Button) with 3M adhesive	
Video Output Cable and I/O triggers	
Camera Input Cable (4x Aviator input for Ch. 1-4)	
GPS Antenna Module	
Audio Microphone	
Torx Screw (x2) and Torx T screwdriver	
Velcro tape (x4) and Wire Splice clip (x5)	
External 3G/LTE Antenna	
Locking Enclosure/Mounting Bracket **(Optional Accessory)**	
External Wi-Fi Modem **(Optional Accessory)**	

Hardware Overview
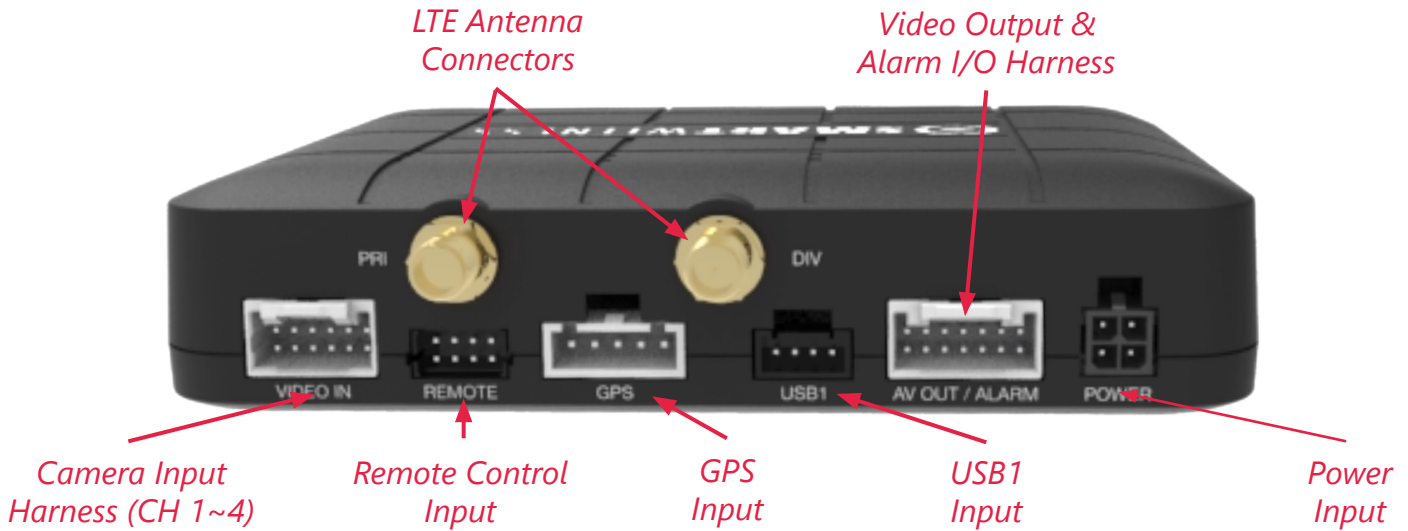
Watch the CP4-NA-LTE 360° Hardware Overview Video here:

Dimensions

Built in Microphone

3.55"

4.75"

Front View

Torx Screw

Serial Port

Debug Port

SD Card Slot

Slide Lock

Microphone Input

USB Input 2

Rear View

LTE Antenna Connectors

Video Output & Alarm I/O Harness

PRI   DIV

VIDEO IN   REMOTE   GPS   USB1   AV OUT / ALARM   POWER

Camera Input Harness (CH 1~4)   *Remote Control Input*   *GPS Input*   *USB1 Input*   *Power Input*
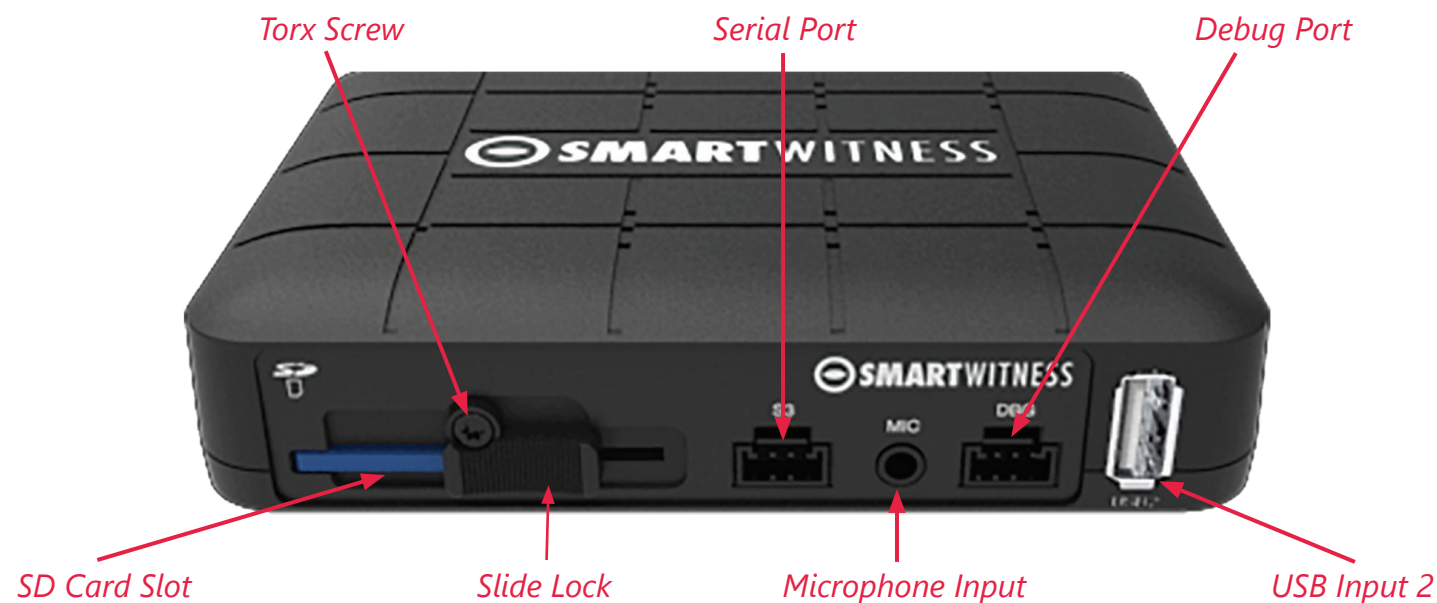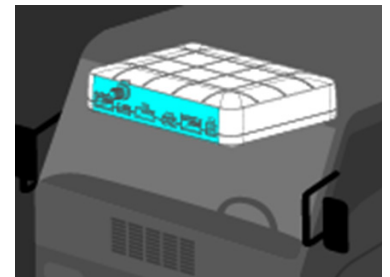
Installation

1. Park the vehicle on a flat service.
2. Turn off the engine before installing the CP4.
   - The SD card and SIM is usually pre-inserted. If it's not, insert card(s) in the unit, cover and tighten the torx screw, locking the unit.

✏️ *Note: Please contact your service provider if the SIM or SD was not included in your package.*

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3. Find installation location for recorder and locking case (if applicable).
   - The default axis adjustments by device position is set as shown on the right.
4. Install all the interior and exterior cameras with 3M dual sided adhesive or hard mounting screws (confirm with customer as to the desired installation method and locations).
   - All four cameras will be connected to the CP4 recorder via the **Camera Input Cable.**

Accessory Camera Types

The CP4 has various accessory camera models available which should be installed in the appropriate location. In the table below is a reference guide for the common camera models.

Model	Image	Installation Location	Notes
SVA032-A		Road facing on Windshield	IP68 Weatherproof rated. L bracket included for various mounting options.
SVA040-A		Driver Facing, on Windshield	Infrared LEDs.
SVA045-AM		Road facing, on Windshield	No IR LEDs.
SVA035-A		Outside of vehicle, either side mount or rear backup view.	IP 69 Weatherproof. Camera module can rotate 360° and tilt up and down as needed.
SVA036-C		Outside of vehicle. Rear backup view	IP 69 Weatherproof. Sun/ rain shield included.
SVA033-C		Versatile camera, may be mounted as driver facing (inside), side view (outside), or rear view (outside)	IP 68 Weatherproof. L bracket included for various mounting options.

5. Install remote control onto dash next to the steering wheel and within reach of the driver.

6. Run camera cable(s) and secure in headliner and or other area so no cables are exposed. Use provided wire clips if necessary.
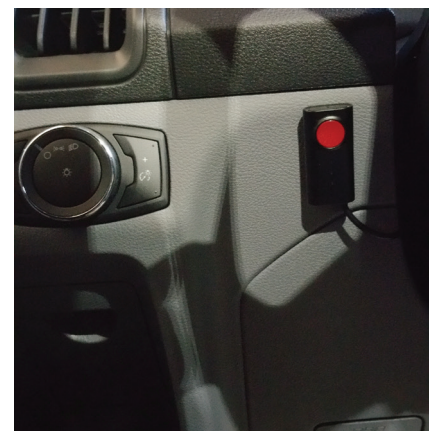
7. Connect all cables to CP4 Recorder. Secure the windshield mounted camera cables into the headliner and down the A-Pillar.

Ch1   Ch2   Ch3   Ch4   Required

Camera Channel Inputs

The CP4 has some restrictions on which cameras can be connected to which channel inputs.

Restrictions

1. You cannot connect an "A" camera to channel 4.

2. Channel 2 and channel 3 must have the same camera type (either both "C" cameras or both "A" cameras.

Acceptable Configurations

The table below shows **acceptable** camera input configurations:

Channel 1	Channel 2	Channel 3	Channel 4
A	A	A	C
A	A	A	-
A	A	-	C
A	C	C	C
C	A	A	C
A	A	-	-
C	C	C	C

Unacceptable Configurations

The table below shows **unacceptable** camera configurations:

Channel 1	Channel 2	Channel 3	Channel 4
A	A	A	A
A	A	C	-
A	C	A	A
A	C	C	A
A	C	A	C
A	A	C	C
C	C	C	A

3. Route the GPS cable and LTE Antenna cable (if applicable) up the side panel and on the dashboard, in view of the windshield (so it can have a view of the sky to acquire GPS signal).

   • Activate the product in an area without large buildings to improve GPS reception.

   • The temperature ranges for optimum operation of the GPS receiver in your car is -10 ~ 50°C.
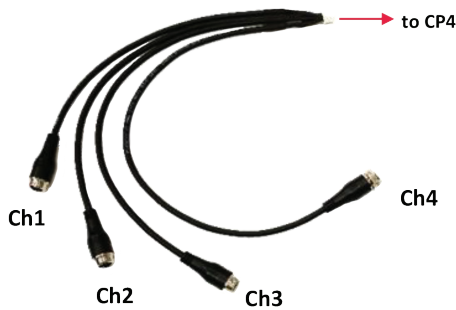
LCD Camera Channel Display order (Quad View)

GPS Reception

GPS reception may be impaired under the following circumstances:

1. If there is an object at the end of the GPS antenna.

2. If your vehicle has metallic elements on the windsheilds.

3. If equipment generating electromagnetic waves that interfere with the GPS signal is installed in the vehicle e.g. other GPS devices,such as a certain type of wireless activated alarms, MP3, CD players and/or alarms using GPS.

4. If you are using a receiver connected by cable, electric interference can be avoided by simply changing the location of the receiver (antenna).

5. On heavily overcast or cloudy days, if the vehicle is in a covered location such as under a bridge or raised roadway, in a tunnel, an underground roadway or parking area, inside a building or surrounded by high-rise buildings.

6. If GPS signal reception is poor, it may take longer to locate your current position when the vehicle is moving than when it is stationary.

CP4 GPS and LTE antenna properly installed on the the vehicle dash.

DO NOT ATTACH THE LTE ANTENNA ONTO A METAL SURFACE

(Provide a minimum of 5 inches of separation between the antennas)

Power Cable and Wiring

Lay out the power cable roughly where it will run once hidden behind the vehicle's interior panels. This gives you an idea of where to route the cable and how much slack to leave on the way down to the vehicle's power source.

Power Connection

Red	Power (BAT+)	
Black	Ground (BAT-)	**Required**
White	Ignition (IGN +)	

Power Specifications
Input: DC 12~24V, 3A

Video Output Cable and I/O Harness (optional)

White	Alarm In1, Voltage On/Off (3~70V)
Purple	Alarm In2, Voltage On/Off (3~70V)
Green	Alarm In3, Voltage On/Off (3~70V)
Orange	Alarm In4, NC/NO (Open/Close)
Blue	Speed (TACHO)
Gray	RPM (TACHO)
Brown	Alarm Out, Low (OV) to High (5V)
Black	Ground for Alarm In4 (NC/NO Circuit)
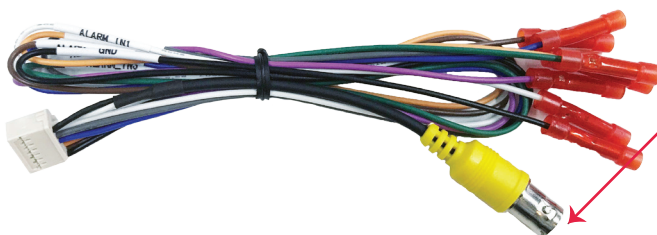
Video Output for connecting LCD Monitor (BNC Female)

Locking Enclosure (Optional)

Front View (open)

Screw holes for mounting

Rear View (closed)
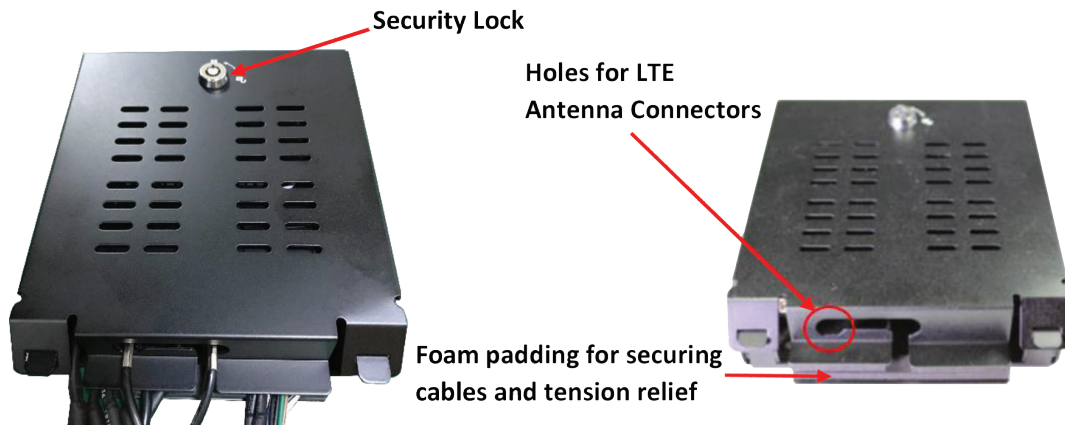
Security Lock

Holes for LTE Antenna Connectors

Foam padding for securing cables and tension relief

Wifi Modem Connection (Optional)

1. Connect external modem to only the USB1 input on the back of the CP4 unit.
2. The CP4 remote should have a solid blue and green LED to indicate network connection after bootup.

USB 1

LCD Monitor Connection (Optional)

The LCD Monitor enable live display of up to four cameras.

1. Connect the 8-pin LCD monitor connector to the LCD monitor harness
2. Connect the 4pin female aviation connector to the video input cable on the LCD monitor
3. Connect the BNC female to the video out cable (BNC Male) on the CP4 harness

Black 8-pin Male (to LCD)   Fuse 2A

Video Input from DVR
*(BNC Male to 4 pin
Aviator Female Connection)*

4. Make sure the CP4 video out/trigger harness is inserted into the "AV/OT Alarm Input" port on the rear of the CP4

Remote Panic Button

The default display is Quad view (2x2) with all cameras shown, to change the video display channel, press the [M2] button (see below) on the CP4 Remote Panic Button to select which camera to view. Each press will change the camera on display with the last option being all camera views. Trigger inputs are associated to live channel display. In other words, the backup camera is full screen, when the vehicle is in reverse. Contact SmartWitness support for assistance with configuring device.

Green LED Network   Red LED Warning

M1 Button

M2 Button

Blue LED Record   Panic Button
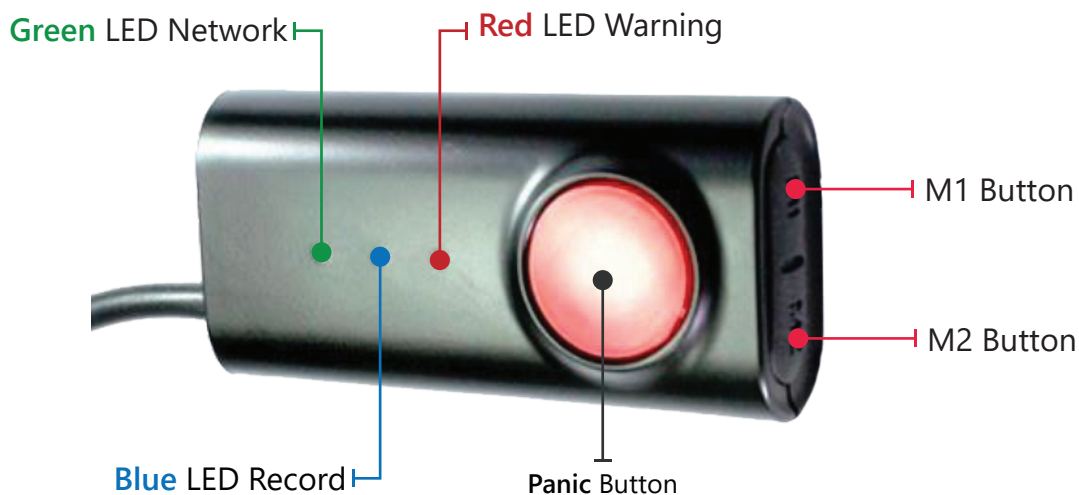
Completion & Power-up

After installation of the CP4 and accessories into the vehicle you can turn on the ignition and CP4 recorder will power on.

1. There will be a sequence of red, blue & green LED lights on the Remote/Panic Button during the boot-up process.

2. Once boot-up is complete:
   - The red light will turn off and there will be only a solid blue and green (only for connected device) light on. This indicates proper operation and recording.
   - There is an error when the red light is blinking (see "LED Status" on page 17). Contact your supplier or visit support.smartwitness.com to create a support ticket.

3. Login to install.smartwitness.com and complete the installation wizard to validate the installation and generate the installation report.

NOTE: You must first go through mandatory training with SmartWitness to access install.smartwitness.com. One you complete the training (about a 30-minute webinar), you will be provided login credentials. To schedule training, please complete the online form at: smartwitness.com/become-installer.html.

G-Sensor Calibration

G-sensor calibration is needed after installing the CP4.

1. Turn on the unit and wait until it starts recording.

2. Press and hold M1 button (located on the remote controller) for more than 2 seconds.

3. You will hear a beep when you press M1, and then you will hear another beep after 2 seconds. Upon the second beep, you can release M1 button.

M1 Button for G-Sensor Calibration

4. The calibration is completed within 2 seconds.

Troubleshooting

1. **The CP4 has a solid red light on as well as solid green and blue.**

   - Solid red LED indicates that one of the connected cameras is not receiving video signal.
   - » Please check the camera's connection.

2. **The CP4 red LED is blinking**

   - There is an SD card error/corruption.
   - » Please replace the SD card or contact SmartWitness.
   - The new SD card must be initialized with the CP4 Configuration Tool for the device to function properly, and the right settings must be applied.
   - IF SD card is not initialized (blank), the CP4 will automatically initialize the SD card
   - » Apply the latest NAND settings, during the rebooting process.

3. **CP4 red LED is solid.**

   - Please verify proper voltage and amperage is being supplied to the Red (BAT+) & White (IGN+) cables on the power harness and that the black cable is properly connected to BAT(-).

4. **The CP4 green LED is blinking or off.**

   - Verify the SIM card is registered with the cellular network.
   - Remove and re-insert the SIM card, verifing the SIM is inserted correctly
   - Cycle power to the camera.

LED Status

Status / Step		Warning **Red** 🟥	Record **Blue** 🟦	Network **Green** 🟩	Buzzer	Voice [Remark] to hear the voice, audio output cable to speaker
Startup	Booting step1(0~20)	On	Off	Off		
Startup	Booting step 2 (20~30)	On	On and Off	Off		
Startup	Booting finished (30, 1 sec.)	On	On	On	Beep (1000 Hz, 200 ms.)	Beep (1 time)
Power Off	During power off	Off	Simultaneous flashing (blink rate: fast)			
Power Off	Power off finished	Off	Off	Off	Beep (500 Hz, 150 ms.)	
Record	Continuous Record — Recording			On		
Record	Event Record — Stand By			On		
Record	Event Record — Recording			Flashing (blink rate: fast)		
Record	Dual Record — Continuous Recording			On		
Record	Dual Record — Event Recording			Flashing (blink rate: fast)		
Record	No Record — Not Recorded			Off		
Network	3G Network Device Ready			On		
Network	Communication			On		
Function	SD Initialize (format)	Off	On and Off	Off and On		Beep, 1 time (continuously)
Function	G-Sensor Calibration					Beep (after 2 sec.) Beep - Beep
Function	FW Upgrade		On and On, Off and Off	On and On, Off and Off		
Function	Button Press				Beep (1000 Hz, 200 ms.)	Beep
Warning	System Warning — SD card full	Flashing (blink rate: fast)	Off			Beep x 4 (3 times)
Warning	System Warning — Video loss Video STD error	On				
Error	Record Error — SD error, No SD, Write Fail	Flashing (blink rate: slow)	Off			Beep x 4 (3 times)
Error	Network Error — 3G Network device error, SIM error			Off		
Error	Network Error — Data Network connection error			Flashing (blink rate: slow)		
Error	Network Error — DMS communicate error			Flashing (blink rate: slow)		
Event Trigger	G-Sensor, Panic Button, Alarm-In					DingDong x2 (1 time)
Event Trigger	Over Speed					Beep-Beep x2 (1 time)

Notes

SMART**WITNESS** ®

SmartWitness is a world leading designer, manufacturer, and supplier of in-vehicle cameras, recorders, and software. Our lineup of IOT dash cameras and accompanying REST API have allowed SmartWitness' video and data to be seamlessly integrated with GPS tracking, telematics and fleet management software, ushering in the new era of Video Telematics. Our industry-leading safety technology has produced exceptional results for our clients and solutions which undeniably redefine the way vehicle risk is analyzed.

Video Evidence Capture

High-Resolution cameras capture images of the road, inside and outside the vehicles' sides and rear views.

GPS Location Recorded

Built-in GPS/Glonass provides precise event location, route, vehicle speed and direction.

Network Connected

Cellular connectivity provides real-time images, live-location, and on-demand HD video upload.

Events & Driver Analyzed

Detailed telemetry data enables accurate scoring for the purpose of driver coaching and reducing claims.

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