D310F Connected Vehicle Camera User Manual

ABOUT THIS GUIDE

THE CONTENT IN THIS DOCUMENT IS FOR INFORMATION PURPOSE AND IS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE. WE MADE EVERY EFFORT TO ENSURE THAT THIS USER MANUAL IS ACCURATE AND COMPLETE, HOWEVER, NO LIABILITY IS ASSUMED FOR ANY ERRORS AND OMISSIONS THAT MAY HAVE OCCURRED.

BATTERY WARNING

- ALWAYS CHARGE USING THE PROVIDED SYSTEM. IMPROPER HANDLING OF THE BATTERY MAY RESULT IN EXPLOSION.
- NEVER DISMANTLE OR PIERCE THE BATTERY OR ALLOW THE BATTERY TO SHORT-CIRCUIT.
- BATTERIES MAY EXPLODE IF EXPOSED TO NAKED FIRE. NEVER DISPOSE OF BATTERIES IN A FIRE.
- DISPOSED OF USED BATTERIES OBSERVING LOCAL REGULATIONS.
- NEVER REPLACE THE BATTERY ON YOUR OWN, HAVE THE DEALER DO IT FOR YOU.

NOTES ON INSTALLATION

- THIS PRODUCT SHALL BE INSTALLED NEAR THE REAR VIEW MIRROR, AT THE CENTER OF WINDSHIELD, IF POSSIBLE, FOR OPTIMAL VIEWING.
- MAKE SURE THAT THE LENS IS WITHIN THE WIPING RANGE OF THE WINDSCREEN WIPER TO ENSURE A CLEAR VIEW EVEN WHEN IT RAINS.
- A PROTECTIVE FILM (IF ANY) ON THE LENS WILL AFFECT THE VIDEO OR PHOTOGRAPHIC EFFECT, REMOVE THE PROTECTIVE FILM BEFORE USING THE DEVICE.
- DO NOT TOUCH THE LENS WITH YOUR FINGERS. FINGER GREASE MAY BE LEFT ON THE LENS AND WILL RESULT IN UNCLEAR VIDEOS OR SNAPSHOTS. CLEAN THE LENS ON A REGULAR BASIS.
- DO NOT INSTALL THE DEVICE ON A TINTED WINDOW. DOING SO MAY DAMAGE THE TINT FILM.
- MAKE SURE THAT THE INSTALLATION POSITION IS NOT HINDERED BY THE TINTED WINDOW.
- TO USE THE CONTAINED CAR POWER ADAPTOR ONLY. IN ORDER TO AVOID EQUIPMENT BURN OR CAUSE THE BATTERY EXPLOSION, PLEASE DO NOT USE OTHER BRAND CAR POWER ADAPTOR.

CAUTION

- THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE. AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.
- DUE TO LOCAL LAWS AND VEHICLES SAFETY CONSIDERATIONS, DO NOT OPERATE THE DEVICE WHILE DRIVING.
- SETUP TIME AND DATE ACCURATELY BEFORE YOU USE THIS DEVICE.
- THIS PRODUCT GETS WARM WHEN IN USE, THIS IS NORMAL.
- DO NOT PLACE THE DEVICE NEAR A HEAT SOURCE OR DIRECTLY EXPOSE IT TO FLAME OR HEAT.
- NEVER PLACE THE DEVICE IN VICINITY OF EQUIPMENT GENERATING STRONG ELECTROMAGNETIC FIELDS. EXPOSURE TO STRONG MAGNETIC FIELDS MAY CAUSE MALFUNCTIONS OR DATA CORRUPTION AND LOSS.
- THE SYSTEM IS USED ONLY FOR NON-COMMERCIAL USE, WITHIN THE MAXIMUM LIMITS PERMITTED BY APPLICABLE LAW. OUR COMPANY DOES NOT ACCEPT ANY RESPONSIBILITY FOR ANY DATA LOSS DURING THE OPERATION.
- IMPROPER USE OR OPERATION OF THE PRODUCT MAY RESULT IN DAMAGE OF THE PRODUCT OR ITS ACCESSORIES AND VOID THE WARRANTY.
- THE RECORDED VIDEO/AUDIO DATA IS FOR INFORMATION PURPOSE ONLY. OUTS DECLAIMS THE LIABILITY OF DATA CORRUPTION OR LOSS CAUSED BY THE ABNORMAL USE OF THE PRODUCT.
- ANY ATTEMPT TO DISASSEMBLE OR ALTER ANY PART OF THE PRODUCT MAY LEAD TO MALFUNCTIONS AND VOID THE WARRANTY.

TRADEMARK

BRAND NAME AND TRADEMARKS ARE THOSE IF THEIR RESPECTIVE OWNERS

User shall comply with this Guide, and modifications or parts not approved by OTUS Imaging Corporation may violate related Rules and void authority to operate this equipment. Operation is subject to the condition that this device does not cause harmful interference.

1. Product Overview

Package Contents
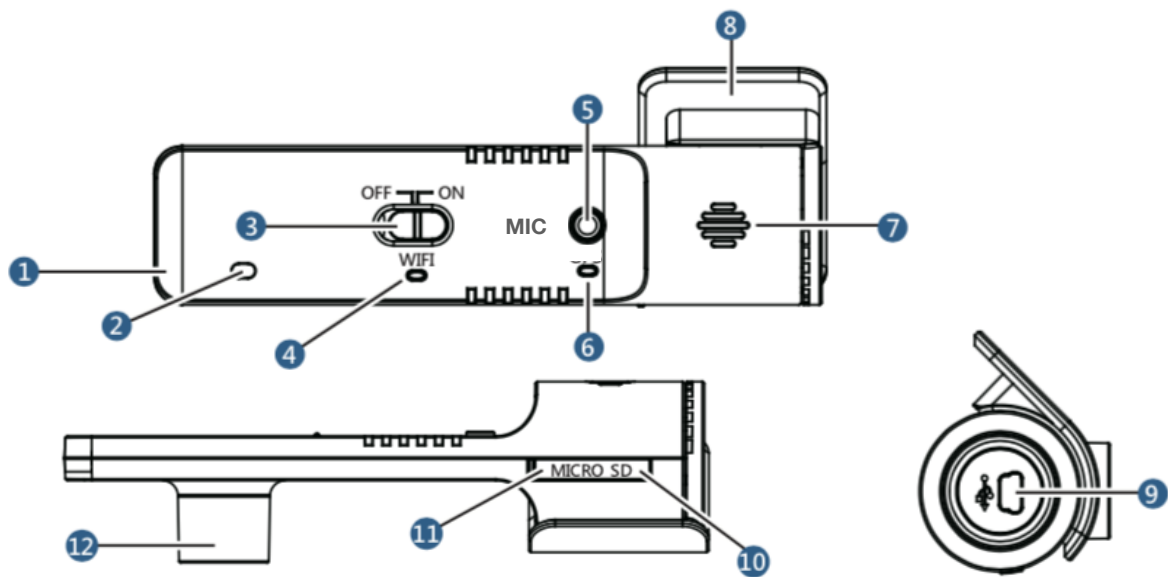

Car Charger

RS232 Main Cable

AHD Rear CAMERA

Base holder bracket

Product Outlook

| 1. Touch Key (Disabled)	5. MIC On/Off	9. Mini USB Port
2. Microphone	6. Recording Status LED	10. Memory Card Slot
3. Wi-Fi Switch (Disabled)	7. Speaker	11. Reset Button
4. Wi-Fi Status LED	8. Mounting Bracket	12. Camera Lens

2. Installation

Make sure the car is parked and follow the instructions to install the product in order to ensure the best shooting angle and quality.

MOUNT

Buckle the device with base hold bracket. Find the suitable installation position, clean up the glass and peel off the cover of red sticker on the base holder bracket. Stick the base holder bracket to the glass slowly and FIRMLY.

NOTE: THE STICKER MAY LOSE THE STICKINESS DUE TO LONG-TERM SUNLIGHT EXPOSURE OR OTHER HUMAN FACTOR.
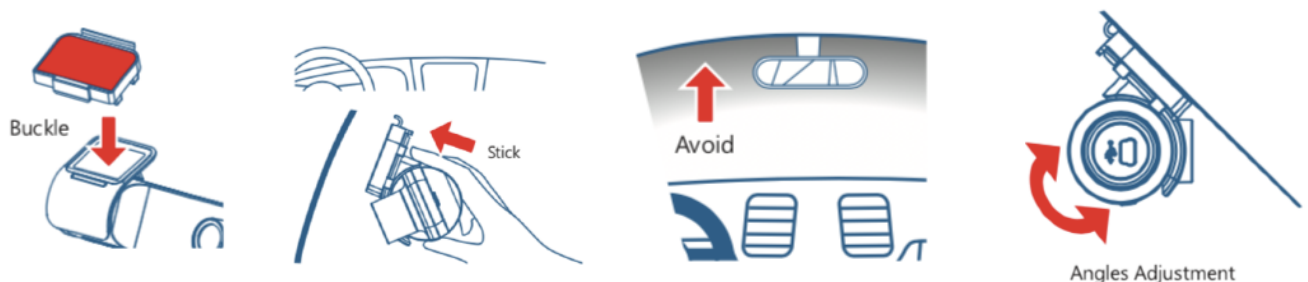
ADJUST THE LENS

Adjust lens position to have a perfect viewing coverage after installation.

POWER ON & START RECORDING

Insert the micro-SD card into the card slot of device. Connect power cable (the other side connecting to cigarette lighter plug) to mini USB port of the device. The device will power on and start recording automatically after the car engine starts. When the car is powered off, it automatically stops recording and saves the recorded file.
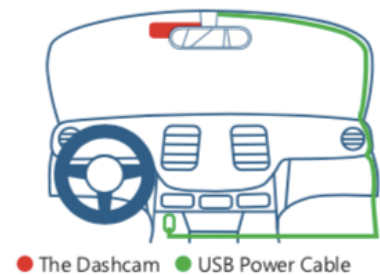
NOTE: PLEASE USE THE SD CARD WITH CLASS 10 LEVEL OR ABOVE; CAPACITY NO LESS THAN 8GB, AND THE PRODUCT CAN SUPPORT UP-TO 256GB

CABLE CONNECTION

Install and tuck away the cable properly to avoid obstructing driver's viewing. In most vehicles, probably to tuck and hide the cables into the headliner. Professional installation is recommended. Please also refer to Chapter 6 for more cable information.

3. Basic Operation

Video recording starts automatically and continuously after the D310F device power is on and complete the initialization. And then it can take input instructions from external device (usually Vehicle Tracker) via RS232 port. Main cable features a RS232 connection port for connecting to Vehicle Tracker.

Typical user scenarios include setting Wi-Fi connection of D310F to nearby Wi-Fi AP, triggering an event to D310F for a short event video clip recording and uploading to cloud server, taking an immediate snapshot and so on from vehicle tracker. D310F provides a set of instructions (OTUS Fleet Communication Protocol, OFCP) for vehicle tracker to issue command, take response, receive notification and return acknowledgment with D310F. Please refer to OTUS Fleet

Communication Protocol document for the complete OFCP instructions information. In some cases, Wi-Fi connection may be broken due to bad Wi-Fi signal or interference. D310F would report the connection fail status to external device. Then external device can resume the connection by issuing re-connection command.

Event Video/Live Video (Wi-Fi -> 4G LTE)

D310F Network Connected Camera

RS232

Vehicle Tracker

3G/4G GSM

Cloud Server

RTMP/HTTP/FTP Server
Fleet Mgmt. Center

Typical User Scenario:

① Fleet Mgmt. Platform Communicates with Vehicle Tracker through 3G/4G channel
② Vehicle Tracker sends Event Triggers to D310F Camera via RS232, and D310F can detect driving behavior events as well
③ D310F uploads video upon Event Triggered and Remote Requests

Dash Cam also integrates a few LED indicators to help users catch the system status easily. The indicators include Wi-Fi ON/OFF/Connection, MIC ON/OFF, Recording ON/OFF.

LED Indicators

Wi-Fi	Orange	ON / OFF / Blinking (Connecting to AP)
MIC	Green	ON / OFF / Blinking (Uploading to Cloud)
Recording	Blue	Blinking (Normal Recording) / ON (Event Recording) / OFF

4. Introduction to Development Tool and Demo Environment for fast D310F Evaluation

As described previously, D310F starts loop video recording automatically and continuously after power is on until power is cut off or Vehicle tracker instructs D310F to execute other missions. A comprehensive command sets have been implemented and deployed on D310F. A demo and evaluation tool - "FleetDemo.exe" is provided for system designer to quick examine functionalities supported by D310F

### 4.1 OTUS FLEET COMMUNICATION PROTOCOL (OFCP)

OTUS Fleet Communication Protocol (OFCP) is designed to be used in the communication between Vehicle Tracker and Dash Camera (Vehicle Video Recorder). In the role play of OFCP target user scenarios, Vehicle Tracker is defined as Protocol Master, and Dash Camera (D310F) is defined as Protocol Slave.

In typical use case of Video Telematics, Dash Camera plays the roles of loop video recording at local storage, as well as the creation of event triggered video clips and then uploading these event video clips to the Cloud Server. Events can be triggered either by Dash Camera internally based on its built-in sensors or intelligence video analysis or externally by Vehicle Tracker based on external connected sensors or remote commands from Cloud Server.

Please refer to OTUS Fleet Communication Protocol document for the complete information of instruction usage, instruction contents as well as examples.

4.2 TYPICAL SCENARIO

The following figure (Figure 1) shows a typical use case of video telematics, except the role of Vehicle Tracker is replaced by the a RS232 CMD Tool - FleetDemo.exe. It provides a quick way for Vehicle tracker system designer to examine all functionalities supported by D310F.
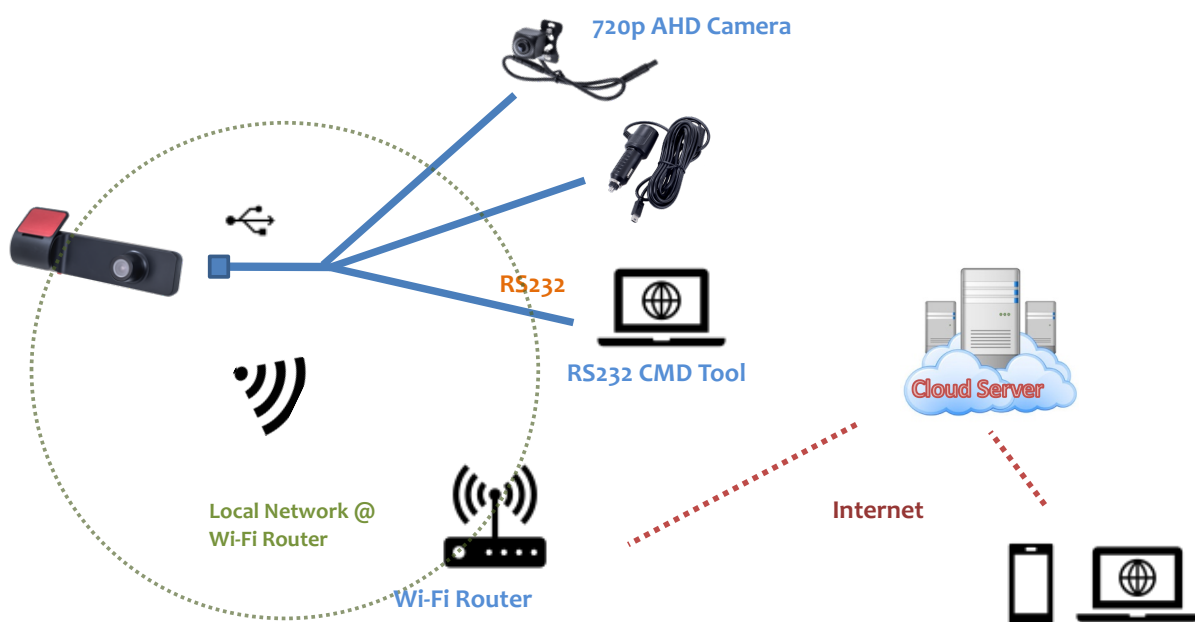
4.3 RS232 CMD TOOL

Figure 2 shows the user interface of OTUS RS232 CMD tool - FleetDemo.exe. It is running on Windows OS. The most core functionalities of D310F are Wi-Fi HotSpot connection, triggering event video recording, live video streaming, snapshot taking as well as video recording parameters setting.

Please refer to the FleetDemo User Guide for the detail information of how to use FleetDemo tool to examine all the functionalities supported by D310F.

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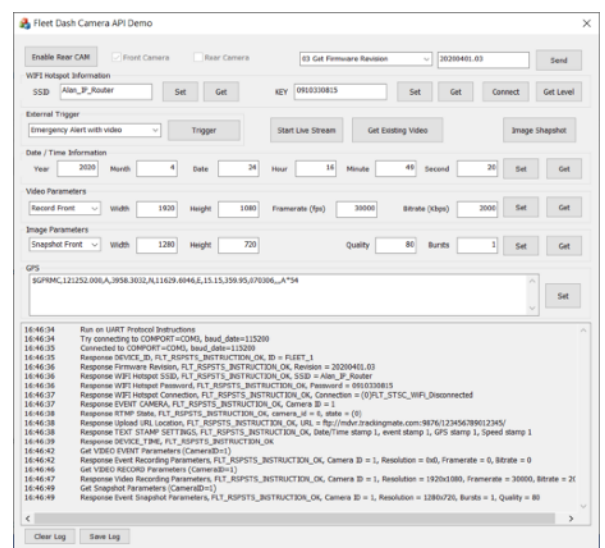
5. Product Parameters

Note: This product retains the right for any modification on ID, features and hardware without prior notice.

HARDWARE		FEATURES	
Screen	N/A	Recording	Seamless loop recording
Image Sensor	1x 2Mega CMOS	Parking Mode	N/A
FOV	145°	Low Car Battery	N/A
Video Format	MP4	Night Vision	Advanced HDR
Picture Format	JPEG	HDMI	N/A
Microphone	Built-in	Storage Format	H.264
Speaker	Built-in	File Protection	Emergency Lock/Event
USB port	Mini USB 2.0	Audio Recording	Yes
Storage	Micro SD (up to 256G, FAT32)		
Wi-Fi	802.11 b/g/n	Operating Power	USB 5V 2.0A;
G-Sensor	Yes	Operating Temperature	-10°C ~ 60°C

TROUBLESHOOTING

Below are parts of solutions for common troubleshooting subject to normal product operations.

Issue	Possible Causes/Solutions
Device shows "Memory Full" and stops recording	Check if loop recording setting is off
Device cannot record, frame loss or video freeze at preview screen	1. Please format the SD card on device before use 2. Please use the SD card with class 10 level or higher
Video preview not smooth or slow video download speed	1. Please check the Wi-Fi connection quality 2. Bluetooth may affect the Wi-Fi connection quality