CV200 User Manual

Intelligent 4G Dash Camera with All-In-One Telematics

QSZCAMCV200UM0107

Version: 1.7



Driving Smarter IoT

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0. Revision history

Revision	Date	Author	Description of change
1.00	2023-03-09	Gavin Jiang	Initial version
1.01	2023-06-13	Gavin Jiang	Modified some descriptions
1.02	2023-06-25	Gavin Jiang	Add blinking frequency value in the table of LED Description
1.03	2023-07-03	Gavin Jiang	Add the section “3.4 & 5.5” about DMS related features Add section “10” to indicate the event recording types supported
1.04	2023-07-31	Gavin Jiang	Add the section ”9” to describe the memory card selection
1.05	2023-09-06	Gavin Jiang	Add the OTA updating instruction for platform patch in Chapter “6” Modify the estimated recording time for different capacity cards in Chapter “9” Add new event recoding type in Chapter “10”
1.06	2024-01-08	Gavin Jiang	Add the section “3.5 & 5.6” about ADAS related features
1.07	2024-03-14	Gavin Jiang	Add the section “3.6” about Parking safeguard

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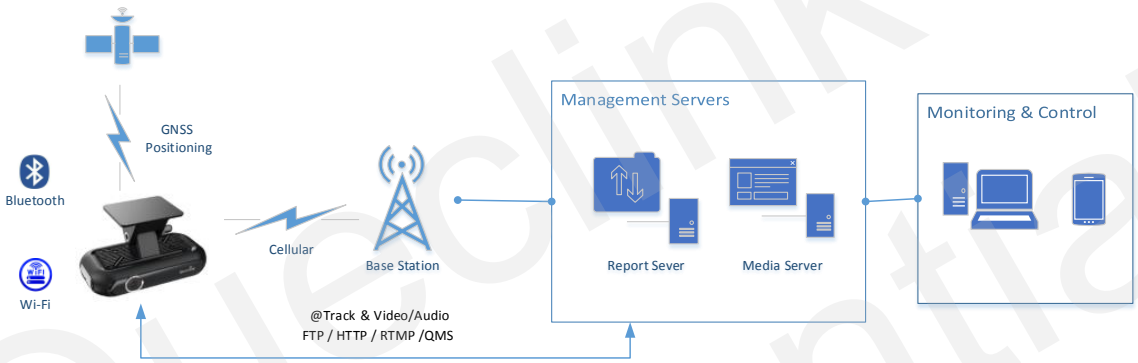
1. Introduction

The CV200 series is the 2nd generation dashcam product, developed upon the Qualcomm™ IOT platform, it's an all-in-one device combining high-definition recording with full telematics features.

It depends on discrete design, builds in front-facing camera, and accepts the additional plug & play 2nd camera to extend the field of view, e.g., in-cab view or cargo view, Thanks to the powerful performance, it provides ADAS/DMS AI features to enhance the product competitiveness. In addition, it offers rich IOT scalability by connecting various peripheral accessories to the wired physical I/O or wireless RF interfaces.

It is suitable for applications such as insurance claim negotiations, driver coach, passenger compartment monitoring and accident reporting.



1.1. Reference

Table 1. Reference

SN	Document name	Remark
[1]	CV200 @Track Air Interface Firmware Update Protocol	The air protocol interface between CV200 and backend server.
[2]	CV200 @Track Air Interface Protocol	

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1.2. Terms and abbreviations

Table 2. Terms and Abbreviations

Abbreviation	Description
GNSS	Global Navigation Satellite System
GPS	Global Position System
Glonass	Russian High Orbit Satellite Navigation System
G-SENSOR	Gravity Sensor
AP	Access Point
STA	Station
CAT6	LTE Category 6
BLE	Bluetooth Low Energy
SIM	Subscriber Identity Module
TF	Trans Flash
APN	Access Point Name
UHS	Ultra-High Speed
COM	Communication Port
NTP	Network Time Protocol
FTP	File Transfer Protocol
RTMP	Real-Time Messaging Protocol
HTTP	Hypertext Transport Protocol
OTA	Over-the-air
FOTA	Firmware Over-the-air
FOV	Field of View
MCU	Microprogrammed Control Unit
ADAS	Advanced Driver Assistance System
DMS	Driver Monitoring System

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2. Product overview

2.1. Standard Package list



DASH CAM (*1)



Function Cable (*1)



Adhesive Tape (*2)



Torx Screw (*4)



Warranty Card (*1)

2.2. Accessories



TF Card



Debug Cable



BLE WKF300



Film Panic Button



Screw Drivers



Interior Camera



DMS Camera

2.3. Rear view



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Number	Definition	Feature
1	Multi-function Button	SOS alarm, Wi-Fi switch, Panic alarm
2	LED Indicator	Indicate device states
3	Microphone	Pick up cabin audio
4	Speaker	Virtual voice alerts
5	Bracket Base	With adhesive pad to install the unit over windshield
6	Bracket Shaft	Adjust the camera facing view

2.4. Front view



Number	Definition	Feature
1	Front Camera	Capture front-facing view
2	Cable Outlet	Connect function cable
3	Bracket Base	With adhesive pad to install the unit over windshield
4	Bracket Shaft	Adjust the camera facing view
5	Brand Logo	Customizable

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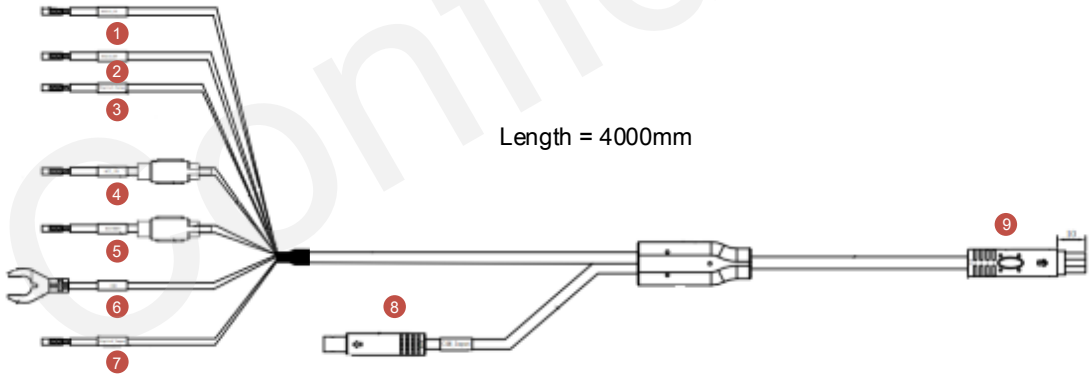
2.5. Interface view



Number	Definition	Feature
1	Tamper-Resistant Cover	Prevent the SIM & TF cards from theft
2	USB-C Slot	For debugging and data communication
3	TF Card Slot	For TF card
4	SIM Card Slot	For nano SIM
5	Reboot Button	Click to reboot the device

2.6. Function cable

The products supply the hardwired connection with your vehicle, please plug the proper cables as the descriptions.



Number	Definition	Feature
1	RS232_TX (Blue_White)	Serial Communication for peripheral devices
2	RS232_RX (Blue_Black)	Serial Communication for peripheral devices
3	Digital_Output (Yellow_White)	Open drain, software-defined feature

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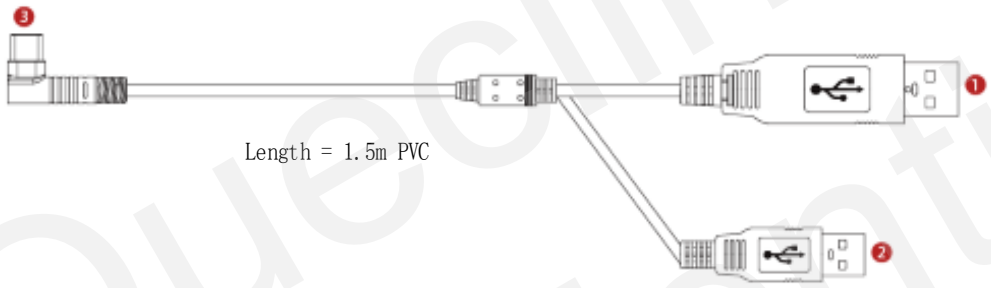
4	ACC_IN (White)	Connect it to the ignition signal output slot of fuse box
5	BATTERY+ (Red)	Connect it to the power source slot of fuse box
6	GND (Black)	Connect it to the ground wire of your vehicle
7	Digital_Input (Gray)	Monitor the external switch on/off signal
8	CAM_Input	Connect the addition camera for interior or rear views
9	Main Connector	Connect to the dash camera unit

2.7. Debug cable

This 2-in-1 cable is requisite accessory provided with the product, it's used to initialize the configuration and debug the application by specific tools for the installers.



Number	Definition	Feature
1	USB_COM	For parameters configuration and MCU updating
2	USB_ADB	For main firmware updating
3	Type-C (L type)	Connect to the debug port of dashcam

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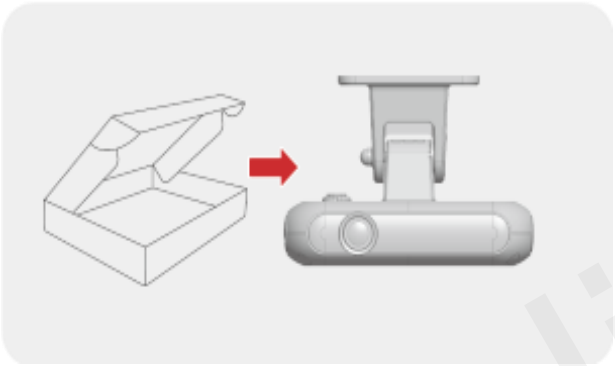
3. In-vehicle installation

3.1. Configurating the parameters

Follow the steps to setup the dashcam.

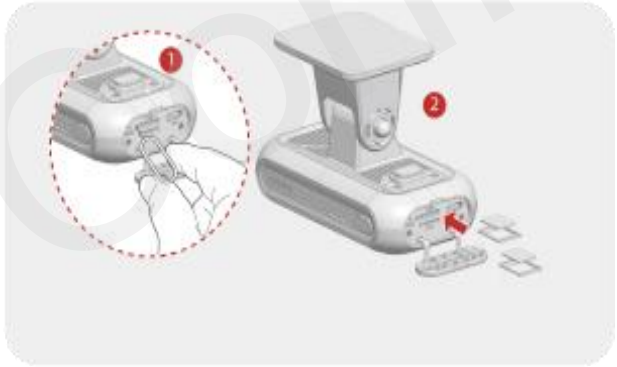
1. Take out the dashcam from the package box.



2. Open the tamper-resistant cover by screw driver.



3. Place SIM card and memory card into slots gently.



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*Before inserting the TF card, ensure that the metal contacts on the TF card are facing towards the mount connector of the product.

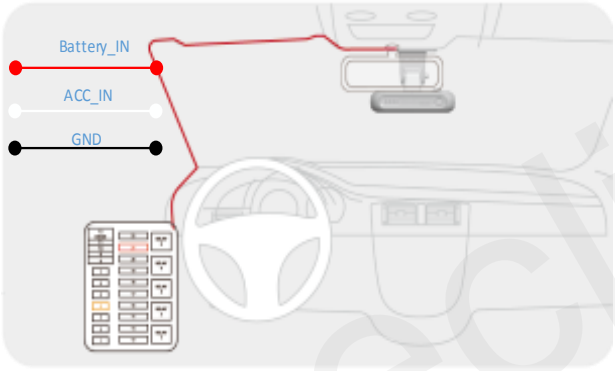
*The product only accepts the MicroSD (TF) type cards.

*UHS type TF cards provide high speed write and read performance.

*We strongly recommend to use a storage capacity of 64GB or above for longer recording time

* Metal tray is provided to mount SIM card correctly.

4. Connect the vehicle battery from fuse box to power on the dashcam via function cable.

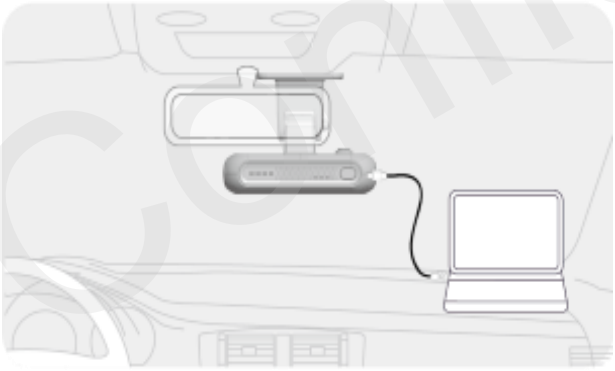


*Using a fuse removal tool can make the hardwiring process easier.

*Location of Battery + and ACC_IN power source may differ by car manufacturers and models. It may result in fire risk if wired incorrectly.

*The product is running correctly while all 4 pieces LED indicator stay solid.

5. Plug the USB-C connector into dashcam and plug both USB-A connectors into computer



*Need to install the cable driver probably for USB_COM communication

*Need to install ADB driver for USB_ADB communication.

Please inquire them from technical support team if there is any problem.

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6. Decompress the “Manage Tool” package and run it to setup the parameters. Mount the Tamper-Resistant cover back after completing configuration.

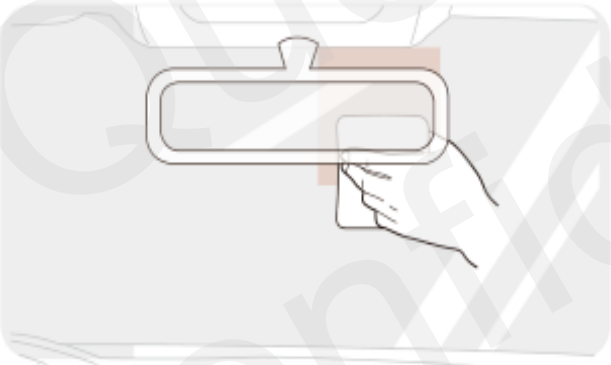


*Debug cable isn’t included into standard package, please contact the supplier if necessary
*After the product is powered on, wait for 30-60 seconds until it’s fully started

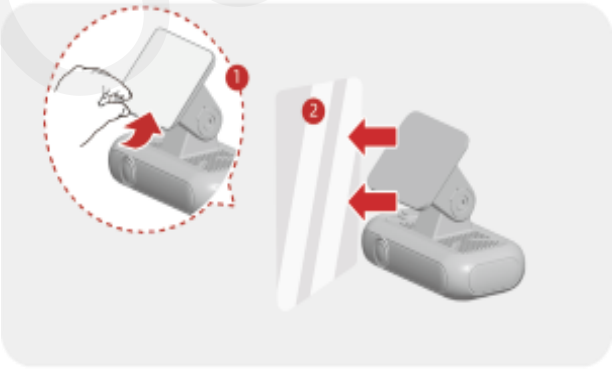
3.2. Mounting the dashcam

Follow the steps to mount the dashcam into vehicle correctly.

1. Install the dashcam behind the rear-view mirror. Clean the windshield by wiper and make sure there is no stain.



2. Peel off the protective film from the double-sided tape and attach the dashcam to the windshield.



3. Use the pry tool to lift the edges of the windshield trim/molding and tuck in the power cord.

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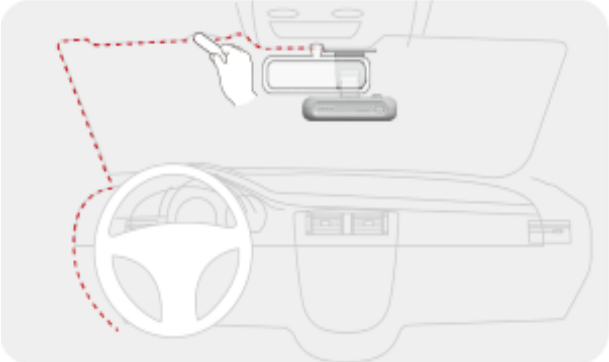

4. Click the function button twice to activate Wi-Fi hotspot after the dash camera is running.



5. Download Qucam mobile application, search the Wi-Fi hotspot of product and connect to it.



*Default hotspot SSID / Password: queclink / 12345678

6. Login the “Live” tab of mobile application to get the live view of front-facing camera.

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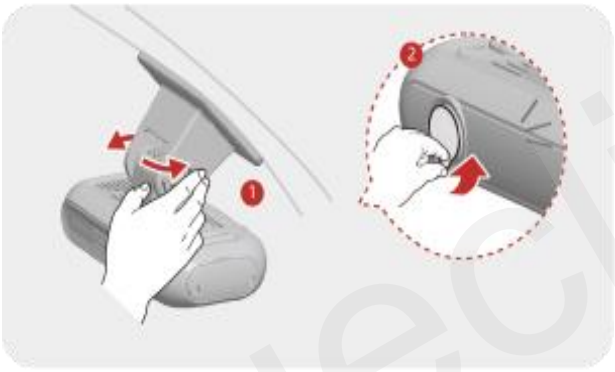
7. Unscrew the bracket shaft by hex drive. Adjust the angle until approx. 30% view of your vehicle bonnet is showing at the bottom of view, and then remove the protection film of lens.



8. Screw the bracket shaft to complete the installation.



*The dashcam should record the entire view in front of the vehicle without obstructing the drivers view

* If the adhesive tape is with stickiness lost, please change new tape.

*Press down the bracket base for a while until it bonds under windshield firmly (3-5 mins recommended)

*The dashcam automatically starts hotspot and only keeps 5 mins waiting for connection, please activate the hotspot manually if it can't be found by mobile phone.

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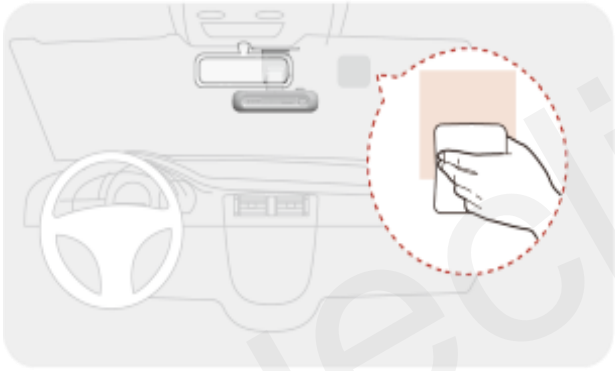
3.3. Installing the Interior camera

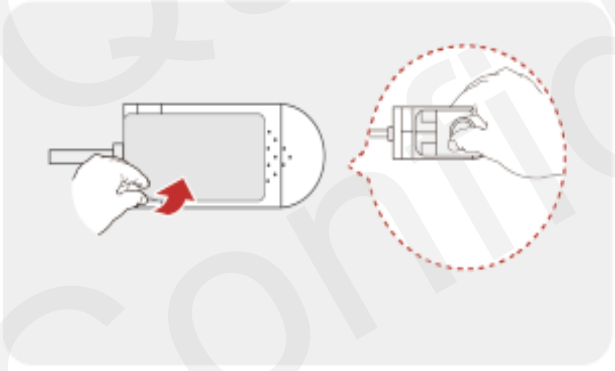
Follow the steps to install the interior camera properly.



1. Select a location on the windshield that can record the entire cabin view.



2. Peel off the protective film from the double-sided tape and attach the interior camera to the windshield.



3. Plug the connector of interior camera into the function cables and attach it on the surface of windshield

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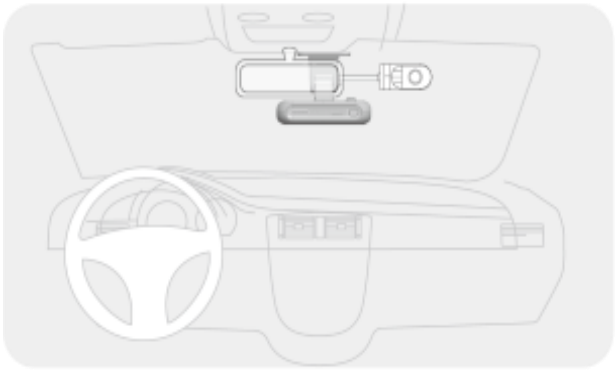
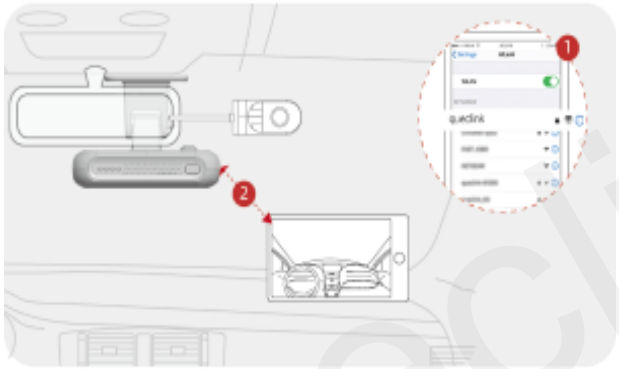
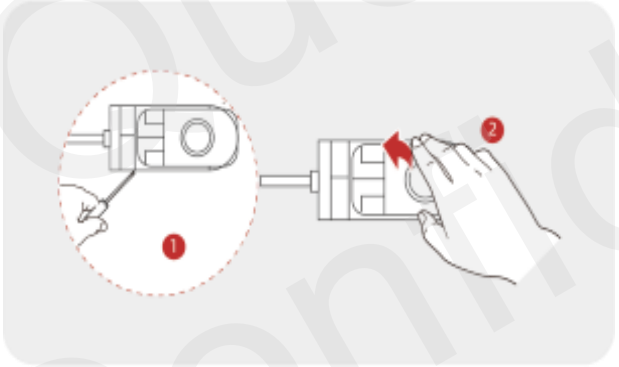


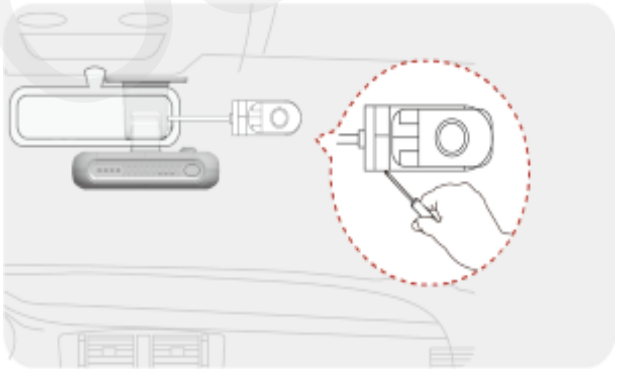
4. Login the “Live” tab of mobile application to get the live view of interior camera.



5. Unscrew the bracket shaft by Philips driver, adjust the angle of interior camera.



6. Remove the protection film of lens, and screw the shaft to complete the installation.



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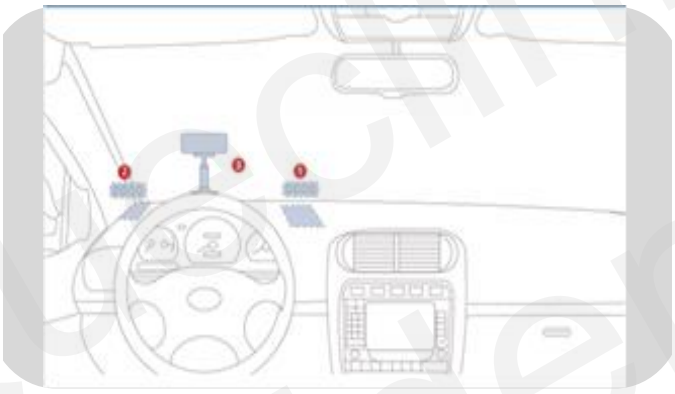
3.4. Installing the DMS camera

Follow the steps to install the DMS-feature camera properly.



1. Select a location on the dashboard to place the camera. For best accuracy of DMS, install the DMS camera in the recommended area.

* Do not install the product in a location where it obstructs the driver's field of vision.
* Be careful not to interfere with the product when operating the vehicle handle.



2. Place the camera far way from driver face 50-90cm and mount it under dashboard.
3. Plug the connector of DMS-feature camera into the function cables, the camera will be powered on.

Step #1 DMS feature Activation

Normally, it requires to activate the DMS module online when you would like to use DMS related features. The steps are as following:

1. Query the activation state if needed, you can input **"AT+DSS"** command over local serial port. Or send RTO command 21 to request online.
2. You need to purchase a "User_Key" that is a MUST to the activation command from sales managers
3. Input the requested User Key into **RTO command 20**. The camera will send the request to the hosted server and receive the permission to activate immediately
4. Query the activation states again as the methods above.

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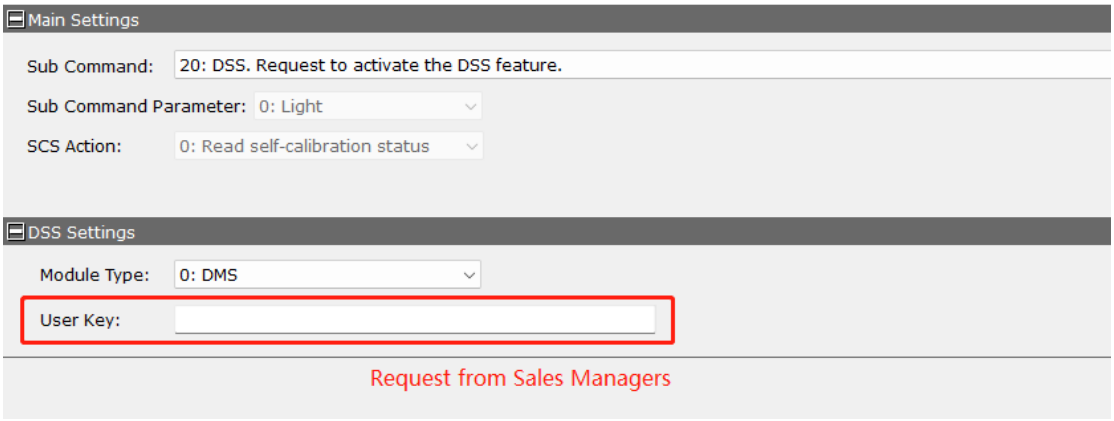
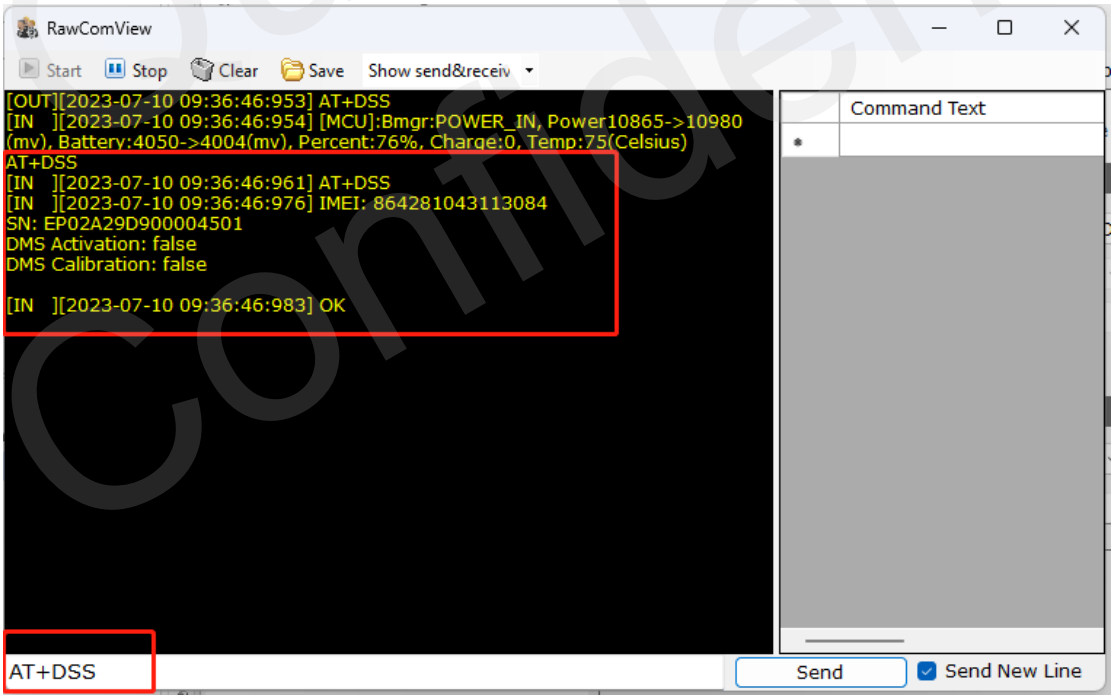
AT+GTRTO is used to fetch information from device or have the device execute a certain series of actions



Step #2 DMS feature calibration

The DMS module offers "dynamic self-calibration" essentially, but firstly it needs to initialize the "calibration done" state manually to assure the camera is installed on the correct position to avoid faulty/false alarms. The steps are as following:

1. Query the calibration state if needed, you can input **"AT+DSS"** command over local serial port. Or send **RTO command 21** to request online.
2. Log in the "Live" tab of mobile application to get the live view of DMS camera.
3. Loose the bracket to rotate the camera lens and adjust the driver seat position. Make sure the driver's face to stay in the middle of face frame and then tighten the bracket.
4. Click button to calibrate the field of view and remove the protection film of lens, and screw the shaft to complete the installation. (Refer to the section "5.5")
5. Query the calibration state again as the methods above.



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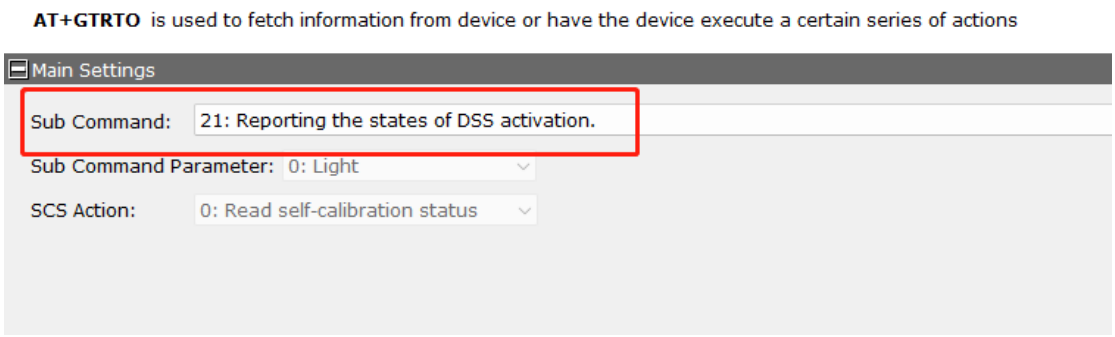


3.5. Configuring the ADAS features

ADAS features depends on the capture of front-facing camera, so firstly please mount the camera as the guide above and next follow the steps to configure the ADAS features properly.

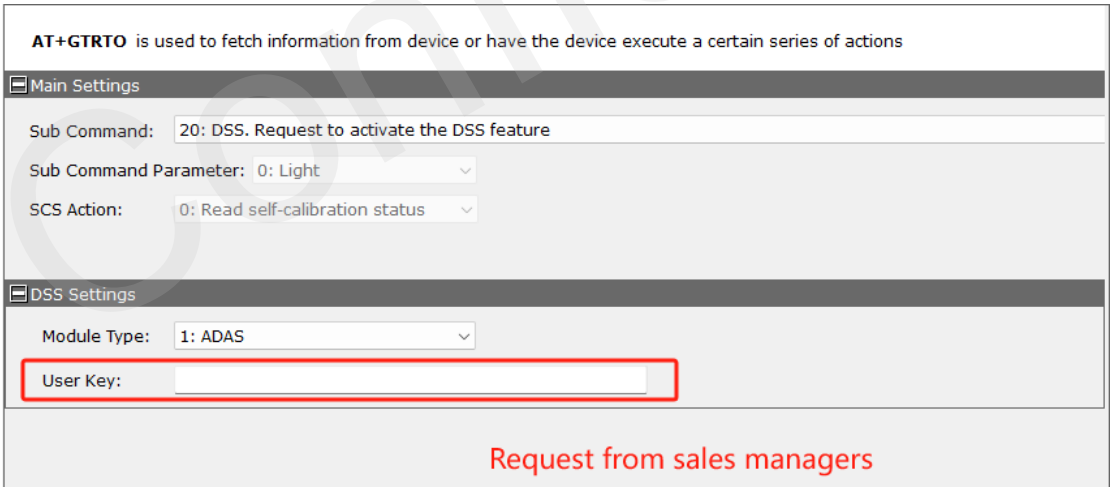
Preparation

1. Park the vehicle to the level ground and keep the ignition on.
2. Mount the camera horizontally on the windshield and power it on.

Step #1 ADAS feature Activation

Normally, it requires to activate the ADAS module online when you would like to use ADAS related features. The steps are as following:

1. Query the activation state if needed, you can input **"AT+DSS"** command over local serial port. Or send RTO command 21 to request online.
2. You need to purchase a "User_Key", which is a MUST to the activation command from sales managers
3. Input the requested User Key into **RTO command 20**. The camera will send the request to the hosted server and receive the permission to activate immediately
4. Query the activation state again as the method above.



Step #2 ADAS feature calibration

1. Connect the camera over Wi-Fi hotspot.
2. Run Qucam Mobile App and open Live page. It will prompt the Wizard to calibrate the

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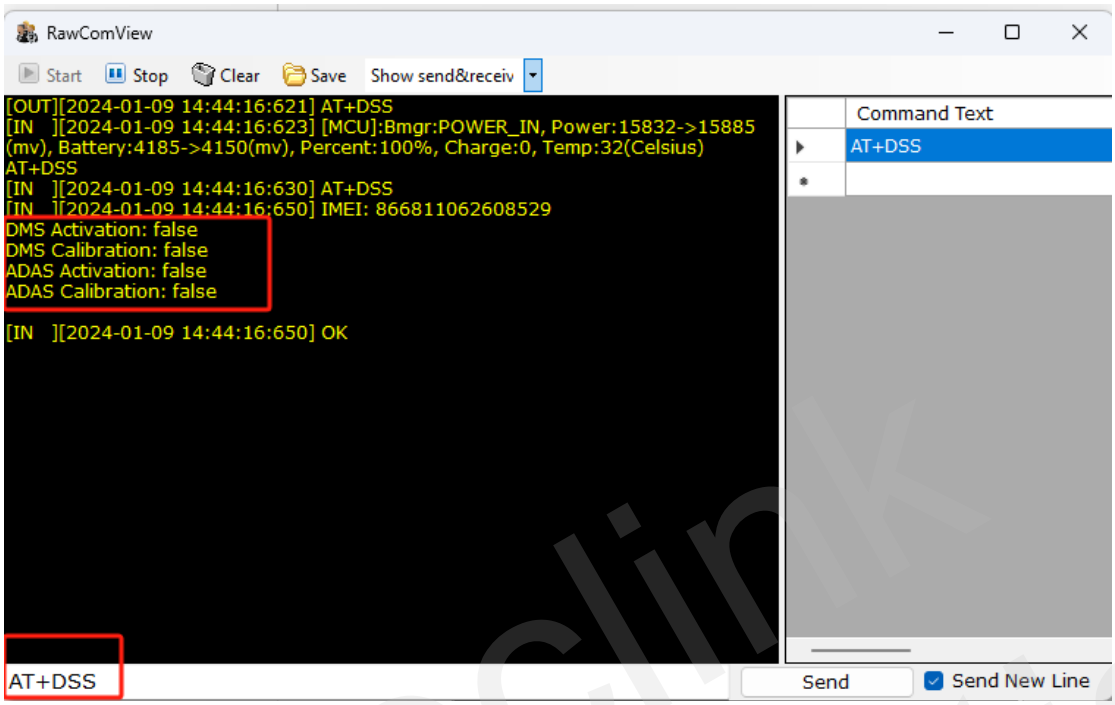
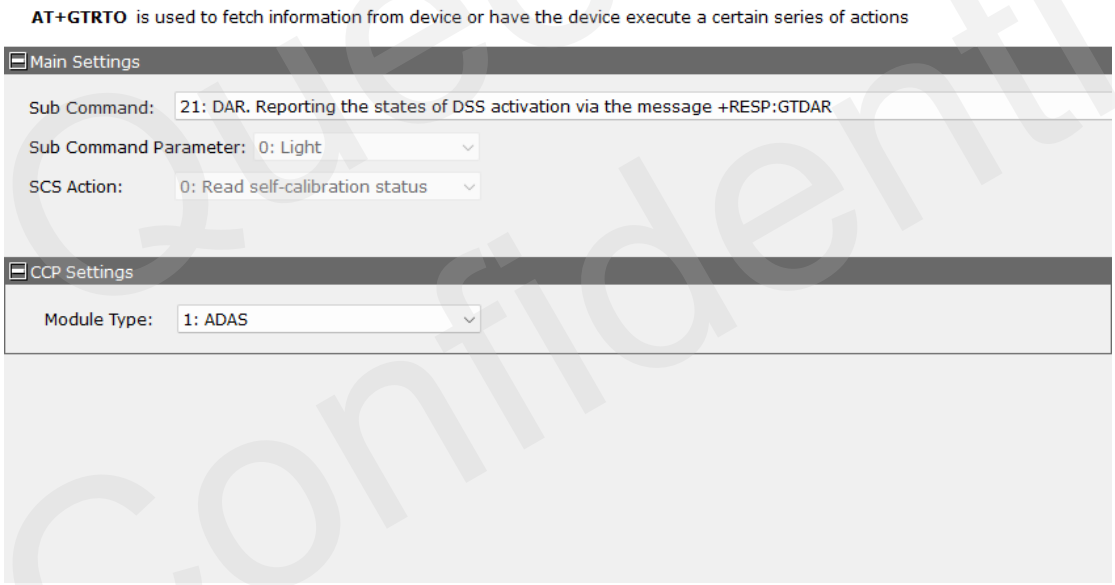
installation parameters. (Refer to the section “5.6”)

3. Query the calibration state again as the method above.





3.6. Configuring the parking safeguard

If you would like to monitor vehicle states even when it is parked and the ignition is off, parking safeguard is what you want. For example, somebody hit-and-run, the camera will wake up instantly, start recording/take snapshot and notify the platform.

In current mode, the parking mode only can be triggered under "sleep mode" after ignition turning off.

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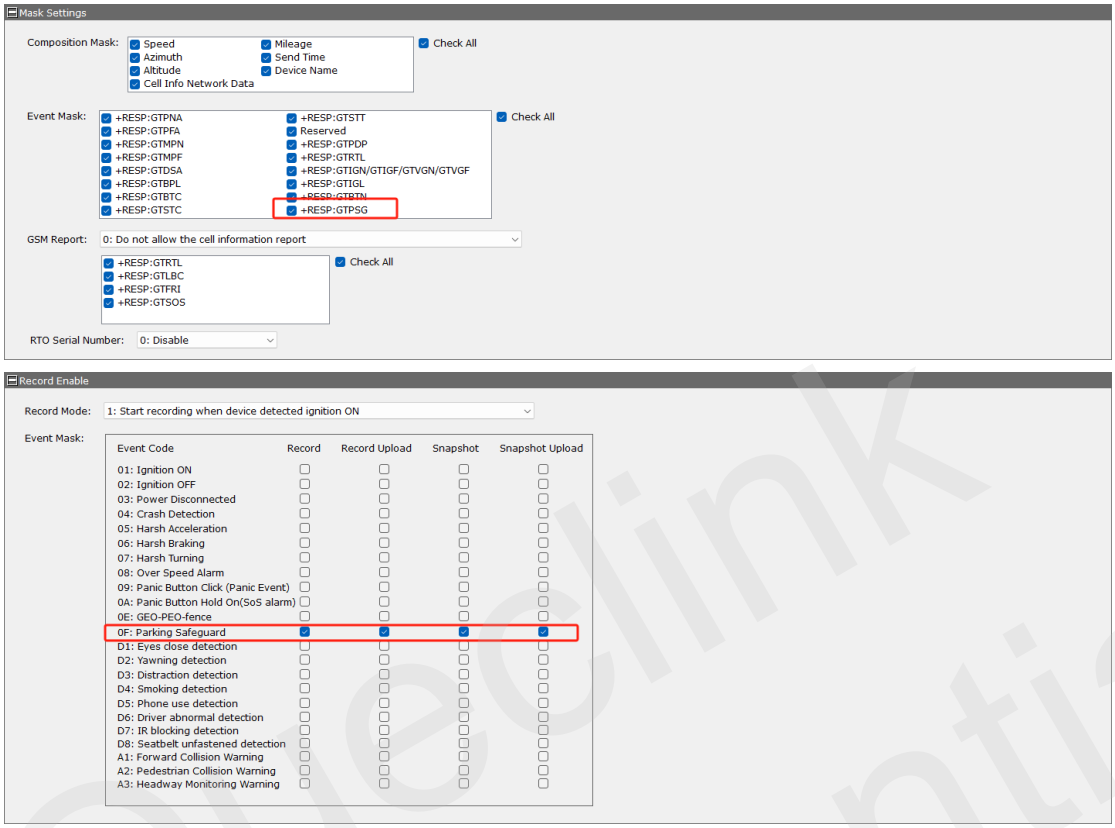
How it works?

First of all, you need to enable “+RESP: GTPSG” in the “GTCFG” configuration. Tick the checkbox in “GTREC” to enable the events linkage to record and take a photo.



1. The dashcam detects IGF/VGF signal from physical or virtual ignition signal and lasts for several minutes (3-5mins), as defined by "GTREC" configuration, it enters into sleep mode.

2. When dashcam monitors the vibration over G-sensor, for example, someone hit the vehicle, it will wake up and cache the event data, including the reports, snapshot, recording firstly.

   * The sensitivity threshold is fixed to 100mG and can't be configured.

3. After waiting for 1 minute, if no ignition on is detected (No driver turns the engine on), it determines this is a valid impact event and sends all buffered data to server, after that, enters into sleep mode again.

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4. Manage the local storage

4.1. TF card contents

The product only accepts the TF card that is running the FAT32 file system. All folders will be generated automatically after the TF card is mounted successfully. Follow the steps to operate the folders and files.

1) Insert the TF card into card reader, and place it into the computer's USB port.
2) Open the TF card 's disk path, check the folder content.

* Insert the TF card into computer and format it. You may install the specified tools (e.g., Disk genius) to format it due to the latest windows 10 doesn't support that filesystem formatting.
*Format the TF card into MS-DOS (FAT) filesystem by "Disk Utility" tool if you are using Mac-OS'.
*We strongly recommend you to format the TF card by QuCam mobile app for more reliable performance.
*It's better to format the TF card periodically (e.g., 1 month) to avoid the unknow storage exception.
*All data will be erased after formatting, please carry out the operation with caution.

4.2. Folder definition

1) /queclink/bin

The folder stores the updating applications files, and the file types are shown as below:

File type	Description
enc	MCU software
apk	Application firmware

*The files will be removed automatically from the TF card folder after updating successfully.

2) /queclink/config

The folder stores the configuration files that is generated after clicking "send all to device" button by Manage Tool. File format: CV200_MT_CONFIG_YYYYMMDD.txt.

Symbol	Description
YYYYMMDD	indicates year, month, and day

3) /queclink/event

The folder stores the related data of all events. File format: YYYYMMDD_hhmmss_tt.qdat, each file is generated and separated per event.

Symbol	Description
YYYYMMDD	indicates year, month, and day
hhmmss	indicates hour, minutes and second
tt	indicates event types

4) /queclink/track

The folder stores the GPS and G-sensor compositive data.

File format: YYYYMMDD_hhmmss.qsen, a file is generated per hour.

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Symbol	Description
YYYYMMDD	indicates year, month, and day
hhmmss	indicates hour, minutes and second

5) /queclink/video

The folder stores all continuous and events recordings circularly.

File format: YYYYMMDD_hhmmss_tt_c.mp4, each file is generated per minute.

Symbol	Description
YYYYMMDD	indicates year, month, and day
hhmmss	indicates hour, minutes and second
tt	indicates event types
c	indicates video source

6) /queclink/protected

The folder stores all crucial events recordings circularly.

File format: YYYYMMDD_hhmmss_tt_c.mp4, each file is generated per minute. The storage space of "protected" is controlled by "Storage space assignment" feature. The more space preset, the longer saving time to avoid overwriting.

Symbol	Description
YYYYMMDD	indicates year, month, and day
hhmmss	indicates hour, minutes and second
tt	indicates event types
c	indicates video source

7) /queclink/pic

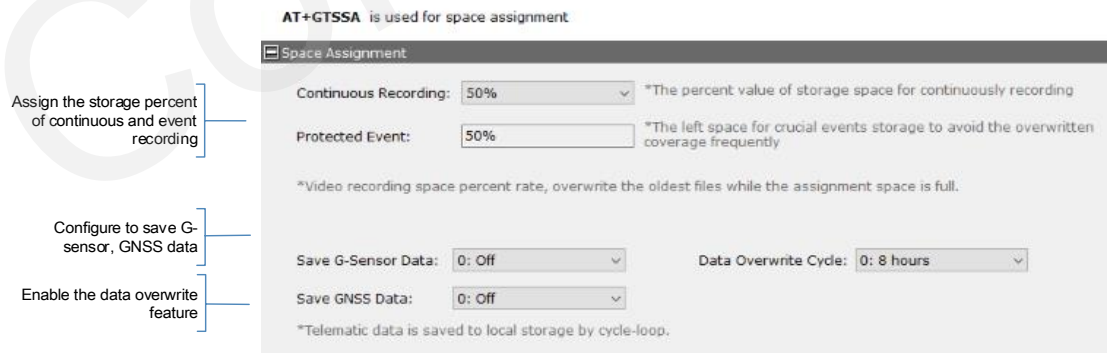
The folder stores all crucial events snapshots circularly.

File format: YYYYMMDD_hhmmss_tt_c.jpg, each file is generated per event.

Symbol	Description
YYYYMMDD	indicates year, month, and day
hhmmss	indicates hour, minutes and second
tt	indicates event types
c	indicates video source

4.3. Storage space assignment

The local storage is overwritten circularly, and the oldest files will be removed automatically while the capacity is full.



* It offers the storage space assignment feature to divide the whole local storage into "continuous" and "protected" sections as specified percent rate. The recordings of crucial events will be copied to "protected" section to avoid the frequent overwritten operation.
* Enable the option to record the real-time GNSS and G-sensor data into local storage. Please inquiry the data format design document in order to analyze it.

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5. Using QuCam mobile App

Qucam Mobile App is a management tool specifically designed for viewing and managing recorded videos and configure various product features on your smartphone.

Please download Mobile app by scanning the QR-CODE.

* Compatible with mobile phone that is running Android OS 5.0 or later.



Available @ Android OS

Scan the QR-Code to download

5.1. Connecting the product to mobile phone

The instruction to show how to connect the product by WiFi AP mode.

1) Enable Wi-Fi AP hotspot

Turn on the Wi-Fi Feature of product by double click the function button at the side. It means the Wi-Fi is enable after the speaker sounds voice prompt. (After Double-click once again, Wi-Fi will be disable).

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*The WiFi of product automatically enables the “AP mode” and keep waiting for connections. it will be closed if no connected client after 5 minutes.
*The WiFi of product may be staying “STA mode” if there is no dash camera hotspot found, please switch the working mode of your product to “AP mode” and enable the feature once again.

2) Join the Wi-Fi network

Connect the dash camera hotspot in the Wi-Fi setting. Enter correct Wi-Fi password to connect the dash camera.

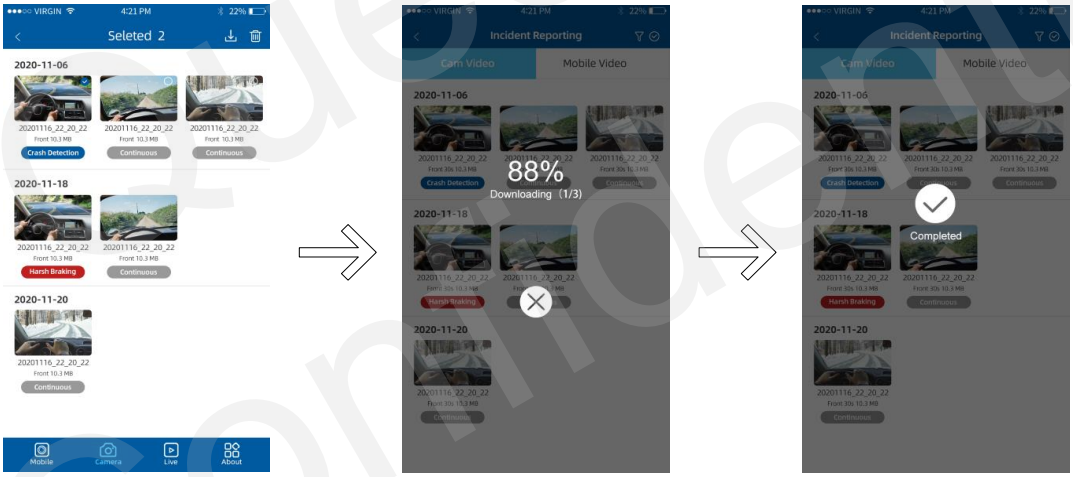
* The Wi-Fi name and password at AP mode is “queclink” and “12345678”, please modify it by Manage Tool if necessary.

3) Connect the QuCam to the product

Launch Mobile App, follow the on-screen instructions to connect the product to your mobile phone.

5.2. Downloading the recorded videos

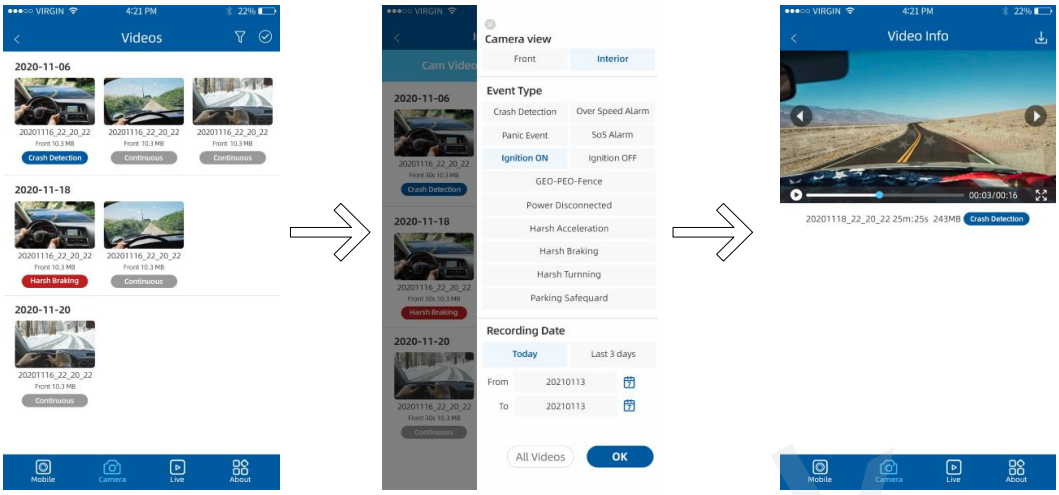
Follow the steps to download videos from the camera.



1) Tap the select button and check-boxes will appear next to each video, tap the videos that you wish to download and a tick will appear next to each selected video. You can tap the check-boxes to deselect it.
2) QuCam will display the progress of your video downloads on screen after starting downloading.
3) Once videos have finished downloading, they will appear in the Mobile window.

5.3. Playing the recordings

The videos screen layout as follow:



Follow the steps to play recorded videos.

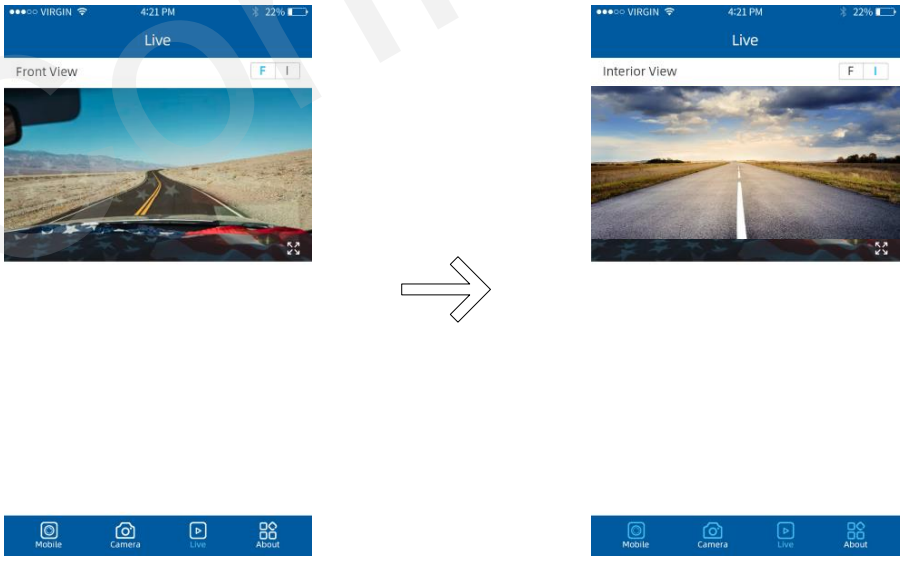
1) Open the Mobile window or Camera window, tap “filter” icon to open filter page.
2) Select the filter options according to “Front / Interior”, “Event Type”, “Recording Time” options
3) Select the desired videos to playback.

* Mobile: List the recorded videos download from the camera, QuCam plays the videos offline.

*Camera: List the recorded videos stored at the local TF card of camera. QuCam must connect the camera to play online.

5.4. Monitoring the live view

Follow the steps to preview the real-time videos.



Open the Live window, tap “Front/Interior” button to switch the video source. Adjust the angle of front and interior for best view at first installation.

* While installing the front and interior facing camera, use the Live window to help you adjust your product in the most effective position.
* The recording will be paused while you open the live view.

5.5. Calibrate the DMS features

It requires to calibrate the DMS feature after activating the module. The QuCam app provides the way to complete the operation visually.



* The Calibration wizard will be shown only after the DMS module is activated. Please follow section 3.4 to activate it firstly.

5.6. Calibrate the ADAS features

It requires to calibrate the ADAS feature after activating the module. The QuCam app provides the way to complete the operation visually.

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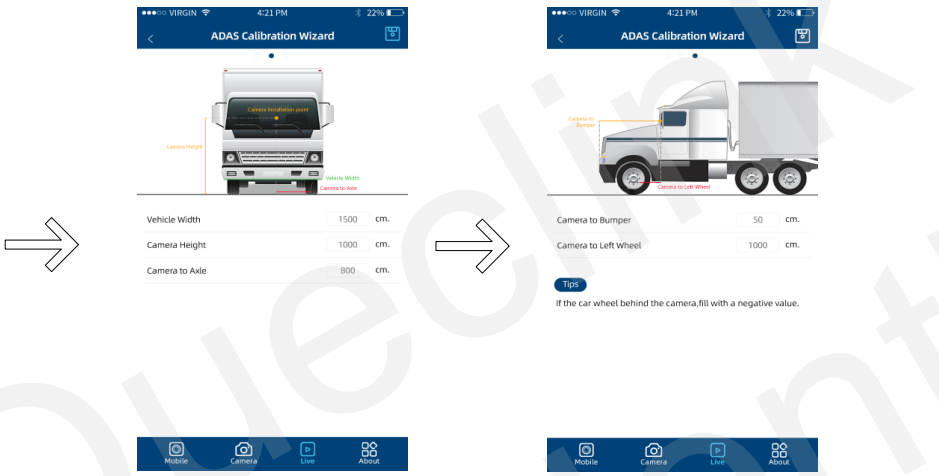

* The Calibration wizard will be shown only after the ADAS module is activated. Please follow section 3.5 to activate it firstly.
* You need the tapeline to measure the parameters.

5.7. Formatting the TF card

To clear your TF card or initialize the installation, please follow the steps to format the local storage.

1) Plug the TF card into the product
2) Power on the product
3) Connect the QuCam mobile app to the product
4) Open the Local Storage page, it shows the current status of TF card
5) Tap the “Format SD Card” button to start formatting
6) Confirm the REC indicator stays solid after formatting finished

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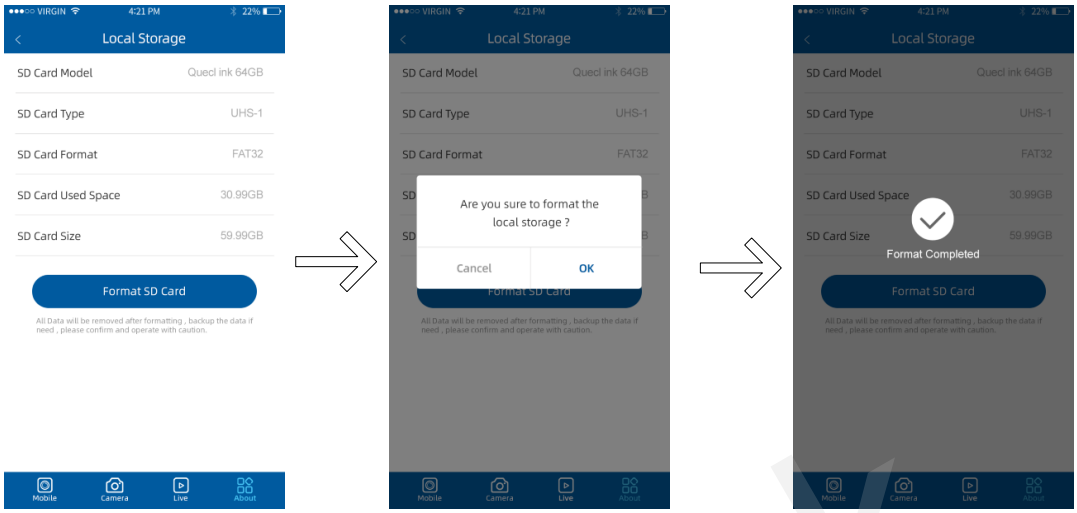

* The product identifies the FAT32 filesystem of TF card restrictedly.
* The product sounds beep once formatting is started or completed.
* The REC indictor turns off during formatting and turns on after TF card is mounted again.

5.8. Connecting by IP/Port mode (for demonstration purpose)

The product affords the Point-to-Point connection while it is accessible to mobile phone directly.

At the local network, the product and mobile phone connect into the same segment, input the IP and port into QuCam to connect.

While going through the internet, make sure the IP address of product is of public type, input the public IP address and connect.

The steps show as below:

1) Open the App window and tap the Add button.
2) Input the reachable IP address and confirm.

* The default communication port is 2345, it cannot be modified.
* If there is no public IP address for the connection, the remote view is invalid at your scenes.

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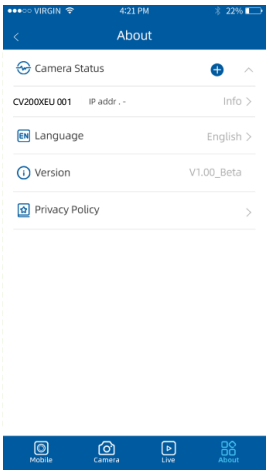
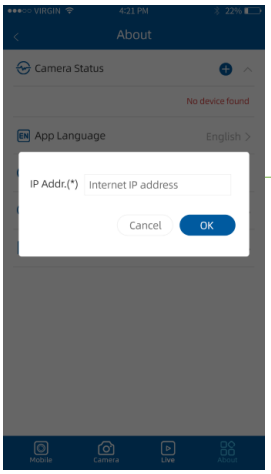


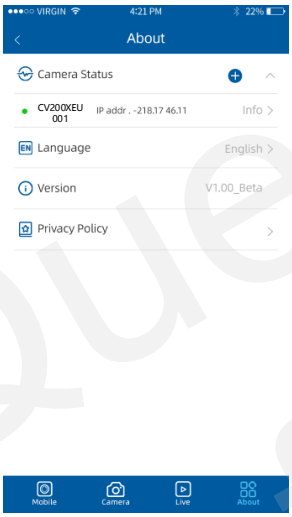
Add the camera manually

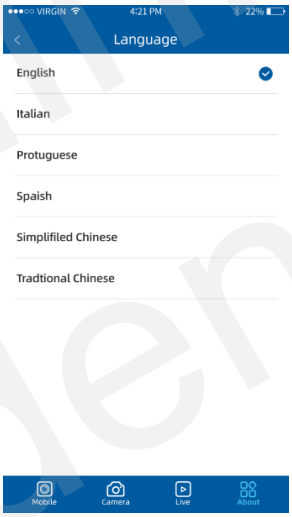


Input the IP address that is accessible by mobile app

5.9. Querying information

Open the About window to show all camera and mobile app information.





1) Camera Status

List the connection status of product. Tap **info** button for further information.

a) Firmware version

Show the firmware version number

b) SSID

Show the hotspot name of product's Wi-Fi

c) Password

Show the password of product's Wi-Fi

d) IMEI

Show the IMEI number of 4G module

e) 4G Signal

Show the signal strength of cellular network

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f) Local Storage

Show the capacity of local storage and provide the “formatting” feature

2) Language

The QuCam app provides multiple language options, English language default.

3) Version

Show the QuCam app version.

4) Privacy Policy

Display the related policies and disclaimer.

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6. Updating the product

The continuous update enhances the product's features, operation or to increase stability. For optimal operation of the product, ensure that you keep your product up to date.

*Don't' recommend to downgrade all applications If not necessary, it may result the features exception.
*The recommended sequences of updating are "MCU"," platform", "firmware".

6.1. Updating over OTA

You can update the product's application in batches. The product will download and update after receiving the FOTA commands from server as schedules, follow the steps to upgrade the application.

6.1.1. Preparation before operations

1) MCU Application "CV200_MCU_RxxAxxVxx.enc"

2) Firmware Application "CV200_RxxAxxVxx.apk"

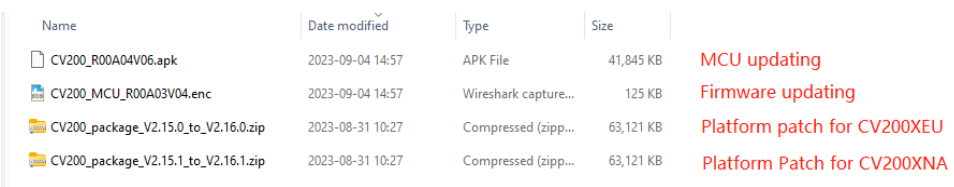
3) Platform package "CV200_package_Vx.xx.x_to_Vx.xx.x.zip" (must be in incremental order)

4) Updating Tools

Item	Function
FOTA http server	It is named 'FotaTool V0.06' from Queclink.
FTP server (FileZilla recommended)	Open-source server downloaded from internet. E.g., FileZilla
Platform server	After the TCP socket established between server and product, it's used to trigger the updating process by typing the command remotely.

6.1.2. FOTA based on HTTP service

1) Copy the application file into software path '.\project\CV200\deltabin\'.



2) Open the configuration file path '.\conf\svr.ini ', confirm the supported file type and FOTA service path.

Run the FOTA tool "wxFotaSvr.exe" as administrator.

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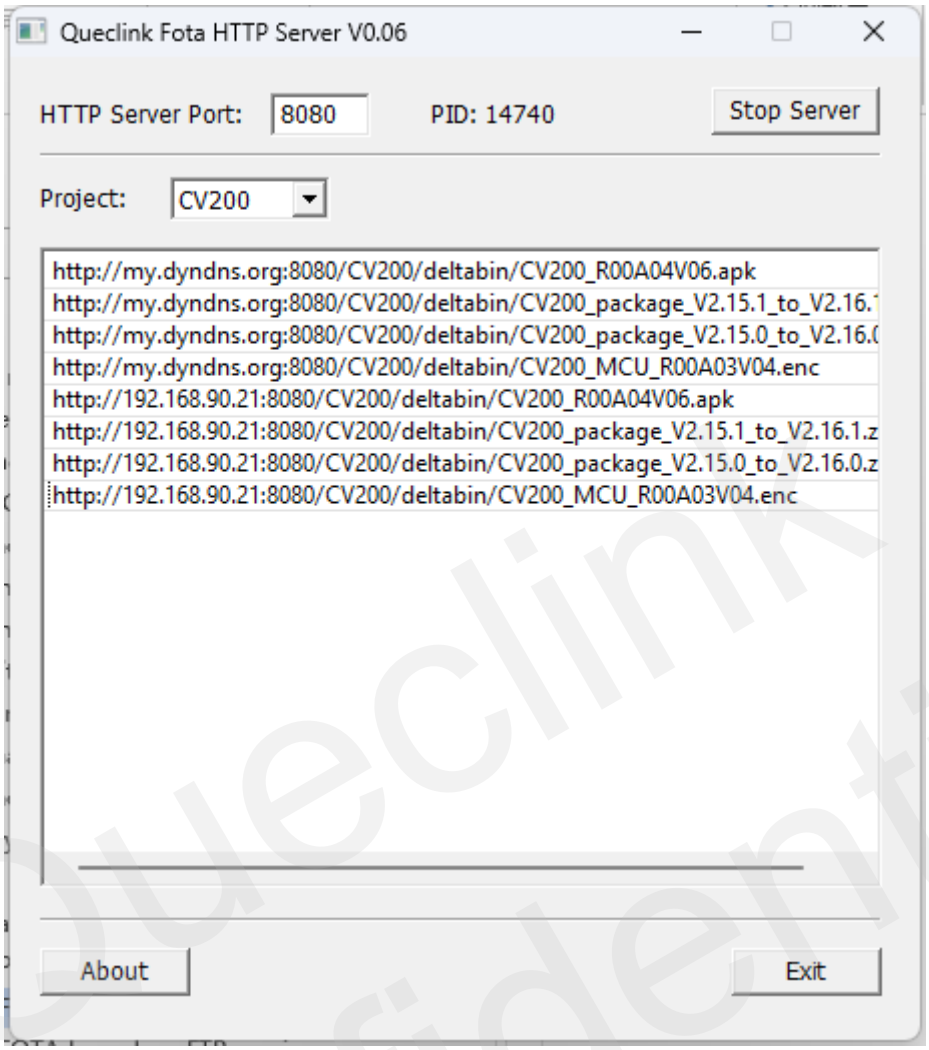
3) Input the service port to start the HTTP server, switch to the folder of CV200 project.



*All available links will be auto-generated and listed.

Copy the corresponding URL to add into 'GTUPD' command. For example:

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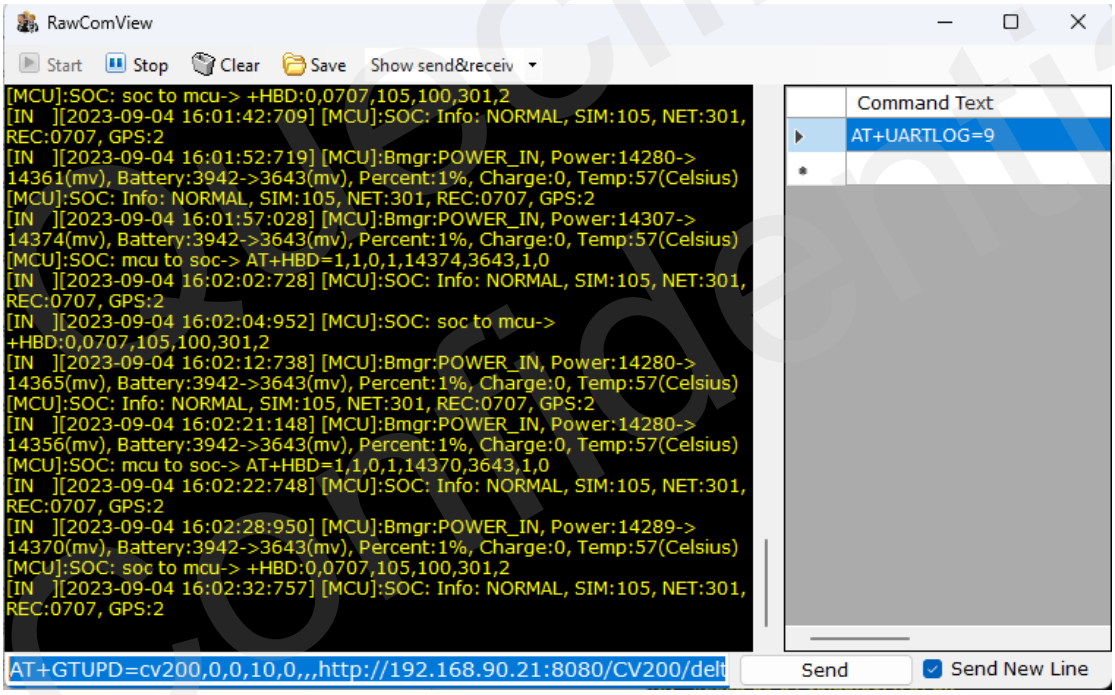
AT+GTUPD=cv200,0,0,10,0,,,http://192.168.90.21:8080/CV200/deltabin/CV200_MCU_R00A01V15.enc,,1,,,,0001$
AT+GTUPD=cv200,0,0,10,0,,,http://192.168.90.21:8080/CV200/deltabin/CV200_R00A02V07.apk,,0,,,,0001$
AT+GTUPD=cv200,0,0,10,0,,,http://192.168.90.21:8080/CV200/deltabin/CV200_package_V2.15.0_to_V2.16.0.zip,,11,,,,0001$ (CV200XEU for example)

Symbol #1 (red color): it indicates the transmission protocol.
Value "0" means HTTP

Symbol #2 (yellow color): it indicates the application type.
Value "0" means .apk file.
Value "1" means .enc file
Value"11" means .zip file
*Notice: the platform updating package is of "incremental" type, and the file name indicates the present version to target version. Please confirm it carefully before performing.

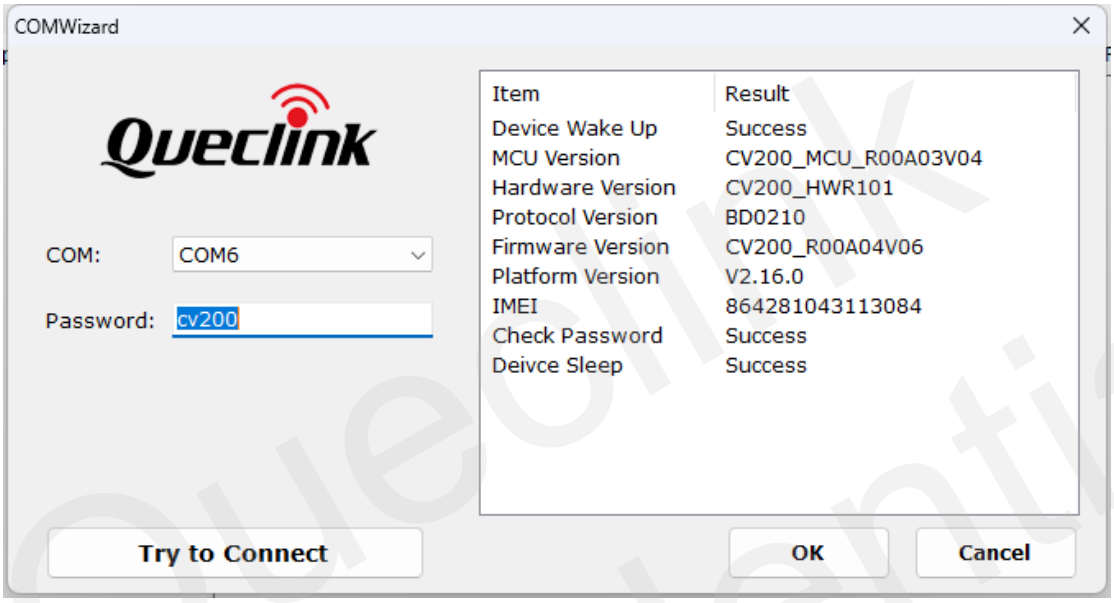
4) Send the GTUPD command by TCP socket to start the updating process



5) Monitor the report feedback on the server or debug window of Manage tool, the local Power indicator is fast flashing during updating. The updating is completed after hear the beep sound.

The “Status Code” of updating will be reported to display the process from starting to completing. The reference code changes as below:
Updating “. enc”: 110-210-211-310-311
Updating “.zip”: 1110-2110-2111-3110-3111
*Query the document “CV200 @Track Air Interface Firmware Update Protocol” to get more information

6) Double check the current version of applications.

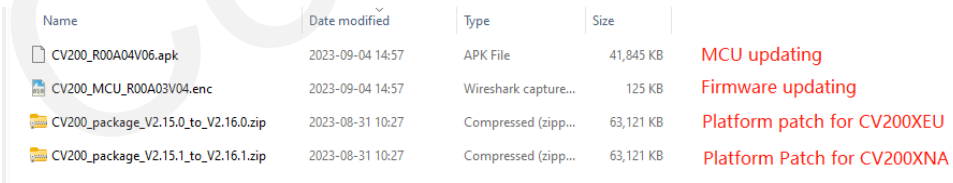


6.1.3. FOTA based on FTP service

1) Run the FileZilla FTP server, create users and assign the root folder.

For example:
Account: cv200 / cv200; Root folder: D:\FTP

2) Copy the application file into root folder ‘D:\FTP\DASHCAM\deltabin’.



3) Copy the corresponding URL to add into ‘GTUPD’ command. For example:

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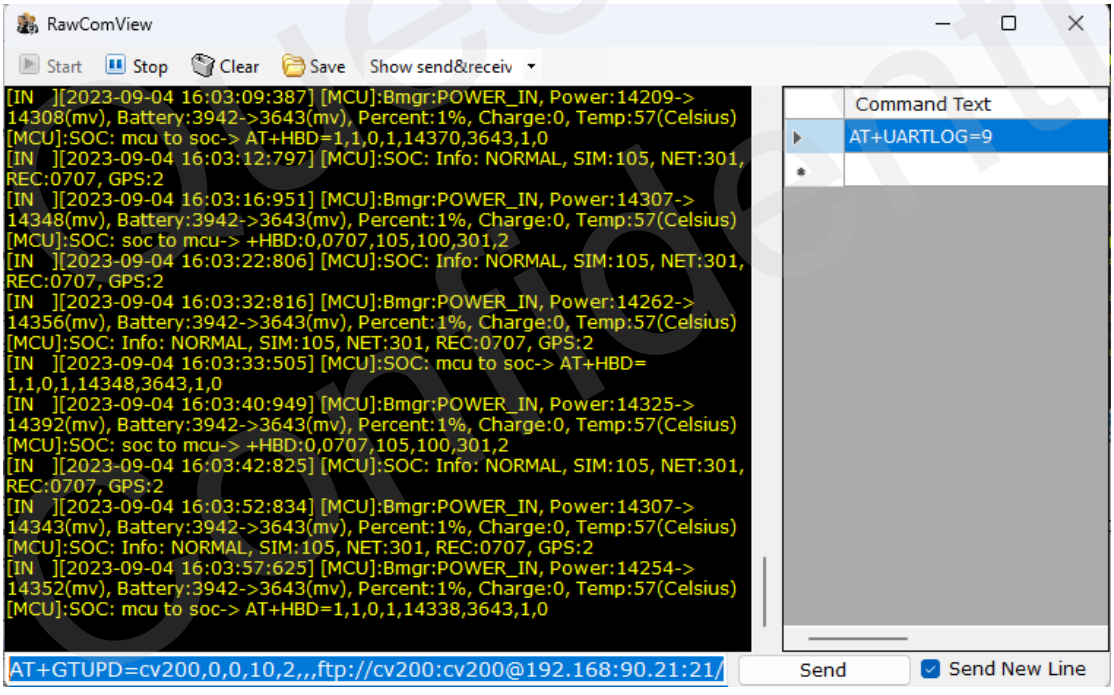
AT+GTUPD=cv200,0,0,10,2,,,ftp://cv200:cv200@192.168.90.21:21/DASHCAM/deltabin/CV200_MCU_R00A01V15.enc,,1,,,,0001$
AT+GTUPD=cv200,0,0,10,2,,,ftp://cv200:cv200@192.168:90.21:21/DASHCAM/deltabin/CV200_R00A02V07.apk,,0,,,,0001$
AT+GTUPD=cv200,0,0,10,2,,,ftp://cv200:cv200@192.168:90.21:21/DASHCAM/deltabin/CV200_package_V2.15.0_to_V2.16.0.zip,,11,,,,0001$ (CV200XEU for example)

Symbol #1 (red color): it indicates the transmission protocol.
Value "2" means FTP

Symbol #2 (yellow color): it indicates the application type.
Value "0" means .apk file.
Value "1" means .enc file
Value"11" means .zip file
*Notice: the platform updating package is of "incremental type", and the file name indicates the present version to target version. Please operate it carefully.

4) Send the GTUPD command by TCP socket to start the updating process. Confirm the report feedback on the server or local Power indicator (fast flashing).



5) Monitor the report feedback on the server or debug window of Manage tool, the local Power indicator is fast flashing during updating. The updating is completed after hear the beep sound.

The “Status Code” of updating will be reported to display the process from starting to completing. The reference code changes as below:
Updating “. enc”:110-210-211-310-311
Updating “. apk”:100-200-201-300-301
Updating “.zip”: 1110-2110-2111-3110-3111
*Query the document “CV200 @Track Air Interface Firmware Update Protocol” to get more information

6) Double check the current version of applications.

Item	Result
Device Wake Up	Success
MCU Version	CV200_MCU_R00A01V15
Hardware Version	CV200_HWR101
Protocol Version	BD0207
Firmware Version	CV200_R00A02V07
Platform Version	V2.11.0
IMEI	864281043113084
Check Password	Success
Deivce Sleep	Success

6.2. Updating over TF card

The way is used to upgrade MCU application, firmware application and platform patch by external TF card. The product only identifies the **FAT32** file system, please confirm and format the card at firstly.

6.2.1. Preparation before operations

1) TF Card, SDHC or SDXC, FAT32, w/ card reader
2) MCU Application “CV200_MCU_RxxAxxVxx.enc”
3) Firmware Application “CV200_ RxxAxxVxx.apk”

*The default updating path is “queclink/bin”, the path folder will auto be generated by the product if the card has been used to record. Please create the folder path if the card is brand-new.

6.2.2. MCU updating

1) Confirm the current firmware version by Manage tool if needed.
2) Copy the CV200_MCU_RxxAxxVxx.enc file into card path “queclink/bin”.
3) Plug the card into product, confirm the power indicator status while updating. (The indicator is starting fast blinking)
4) The product will auto reboot and load the new firmware after updating finished.
5) Run Manage tool to login the product and check the version information from the bottom of software.

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6.2.3. Firmware updating

1) Confirm the current application version by mobile app.
2) Copy the CV200_RxxAxxVxx.apk file into card path “queclink/bin”.
3) Plug the card into product, confirm the power indicator status while updating. (The indicator is starting fast blinking)
4) The product will auto reboot and load the new application after updating finished.
5) Run Manage tool to login the product and check the version information from the bottom of software.

*Don’t remove the power supply while updating, it probably causes a long time to update the platform application.

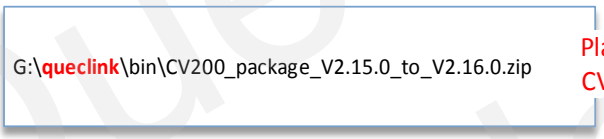
6.2.4. Platform updating

Platform isn’t updated frequently generally. Before updating, you must assure the present version and target version.

1) Take the patch file from technical team, and rename it according to the current platform version and target platform version.

For example, the platform would be updated from V2.15.0 (present version) to V2.16.0 (target version), the updating file must be named “CV200_package_V2.15.0_to_V2.16.0.zip”.

2) Copy the patch file into the folder path “\queclink\bin\” of memory card.



3) Plug the card into product, confirm the PWR indicator status while updating. (The indicator is starting fast blinking once it detects the patch file)
4) The product will auto reboot and load the new application after updating finished, it may cost 5 minutes around.
5) Run Manage tool to login the product and check the version information from the bottom of software.

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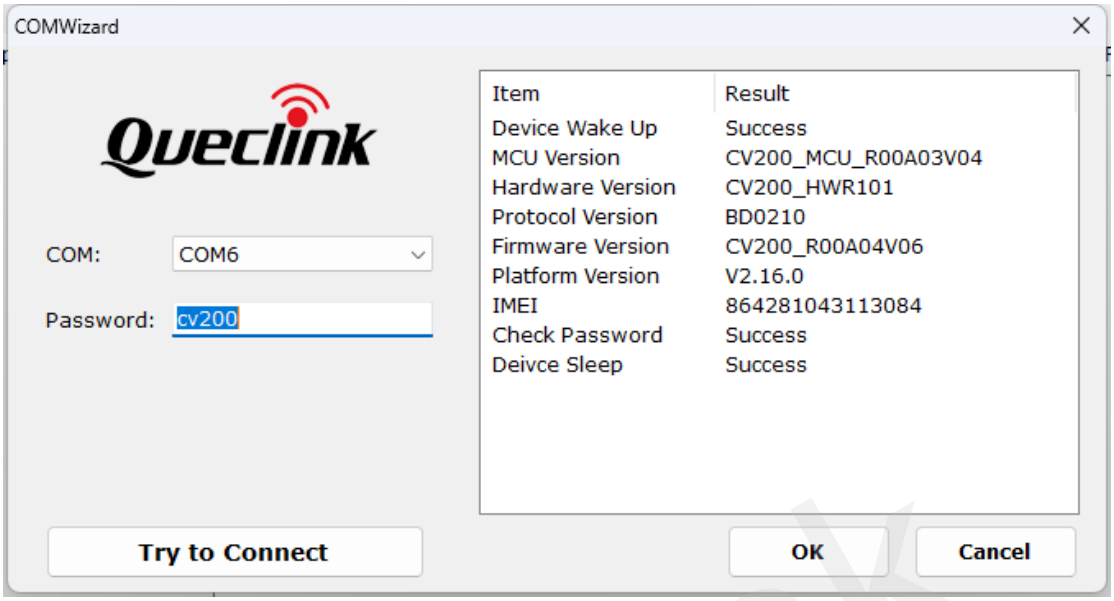


*Don't remove the power supply while updating, it probably takes a long time to update the platform patch.
*Regarding the platform version, for example V2.15.0 and V2.15.1, it indicates the version is 2.15 and last code 0/1 means XEU/XNA type.

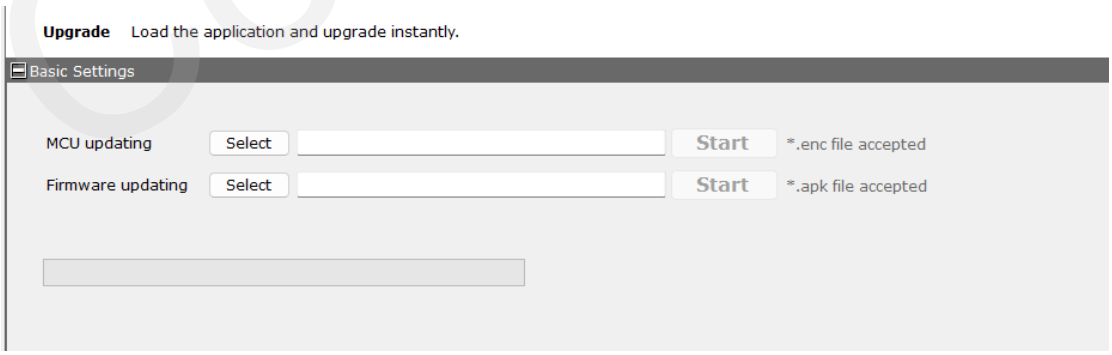
6.3. Updating over debug cable

6.3.1. Preparation before operations

1) MCU Application "CV200_MCU_RxxAxxVxx.enc"
2) Firmware Application "CV200_RxxAxxVxx.apk"
3) Manage Tool with debug cable
4) Cable drivers, includes "USB-COM" and "Google ADB" drivers.

6.3.2. Operate over Manage tool

1) Install both drivers above and plug the USB-A connector into computer to connect with the product.
2) Login the manage tool and open the "Upgrade" window.
3) Import the application and click Start button to upgrade instantly.



4) Check the version information from the bottom of software.

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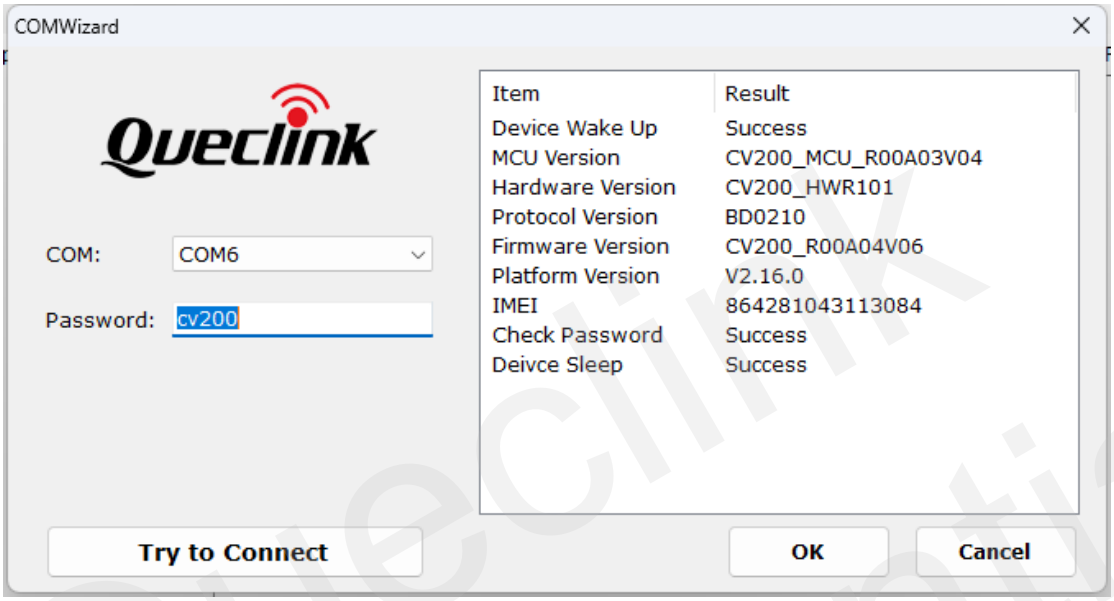
*Confirm the updating files are latest and newest.
*Confirm the file type for MCU and firmware, make sure the file path is proper to access.
*Update the MCU and firmware one by one, the product cannot load both simultaneously.
*DO NOT power off or reboot the product in updating process.
*It needs to install “USB-COM” and “Google ADB “driver on the computer firstly, please contact for help if needed.



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7. Maintenance

7.1. Reboot the product

7.1.1. Reboot button

Follow the steps to reboot the product by hardware button.

1) Ensure that the product is turned on.
2) Short-click the reboot button by ejection pin until all LED indicator turns off and on.
3) You hear the beep sound after the rebooting is completed, all LED indicators light on generally.

7.1.2. Reboot command

The product provides the remote operation command line to reboot it by serial communication or network transmission.

Query the Queclink CV200 @Track Protocol for more information about “RTO sub command: 3”.

*Response to the rebooting request may be delayed due to the device needs to finish processing unfinished tasks first.

7.2. Retrieve the logs

The log is used for monitoring the running status and analyzing the issues effectively. The printed log can be sent back to manufacturer to speed up the improvement and optimization of product.

We can request the logs from device by network:

1) Assure the device is configured to a file storage server (e.g., FTP server).
2) Send the command “RTO-PSL” to device.
3) The device will pack and transfer the log files to the file storage server.

*Please inquiry the detailed information of logs filter with your supplier.

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8. LED description



Status	Power (Red)	GPS (Blue)	Record (White)	Cell (Green)
ON	Power on or sleep	GPS fix normal	Record normal	Network connected
OFF	Power off or lost	Not defined	Record is stopped	Not defined
Fast Blinking 100ms ON / 200ms OFF	Firmware updating	GPS is fixing	Event Recording	Network connecting
Slow Blinking 200ms ON / 1000ms OF	Low power voltage	GPS fix abnormal	Record abnormal	Network abnormal

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9. TF card selection

	Continuous Recording	Event Recording
Folder	/queclink/video	/queclink/video & /queclink/protected
File Length	1 minute	30 seconds (default, configurable)
Definition	Record while ignition on and driving	Record while events are triggered

What's the bitrate difference of image quality? (For reference only)

Image Quality	30fps + 15fps (kbps)	15fps + 15fps (kbps)
High	10500 + 3300	5500 + 3300
Medium	8500 + 2500	4500 +2500
Low	6500+ 1650	3300+ 1650

Please use a memory card with a higher storage capacity for longer recording time. The estimated recording time depending on the framerate, file size and recording time shows as below:

High Quality

Frame Rate (Front + Interior)	File Size (Front + Interior)	One Hour	64GB Card	128GB Card	256GB Card
30fps + 15fps	76MB + 24MB	5.8GB	11 Hrs.	22 Hrs.	44 Hrs.
15fps + 15fps	40MB+ 24MB	3.8GB	17 Hrs.	34 Hrs.	68 Hrs.

Medium Quality

Frame Rate (Front + Interior)	File Size (Front + Interior)	One Hour	64GB Card	128GB Card	256GB Card

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30fps + 15fps	62MB + 18MB	4.7 GB	13 Hrs.	26 Hrs.	48 Hrs.
15fps + 15fps	33MB + 18MB	2.9 GB	22 Hrs.	44 Hrs.	88 Hrs.

Low Quality

Frame Rate (Front + Interior)	File Size (Front + Interior)	One Hour	64GB Card	128GB Card	256GB Card
30fps + 15fps	48MB + 12MB	3.5 GB	18 Hrs.	36 Hrs.	72 Hrs.
15fps + 15fps	24MB + 12MB	2.1 GB	30 Hrs.	60 Hrs.	120 Hrs.

*The file size is relative with many factors, such as day/night, frame rate, image quality and so on.
*Not all capacity of TF card is used to record or snap, the product allocates a part of space to store the additional necessary files.
*The continuous recording must be enabled. Otherwise, event recordings won't be generated.
* Samsung Pro endurance 256GB has been verified, please order it from Queclink or other distribution channels.

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What kind of speed of TF card should be used?

We strongly suggest you use high-quality with high-speed class card, such as the **endurance series** of SanDisk, Samsung, Transcend or Toshiba. Purchase them from reliable manufacturer or reputable vendors. The list below showing the card types we recommend:

Min. Sequential Write Speed	Speed Class	UHS Speed Class	Video Speed Class	Choose or not
90MB/s			V90	YES
60MB/s			V60	YES
30MB/s		U3	V30	YES
10MB/s	C10	U1	V10	Min. requirement
6MB/s	C6		V6	Can't work correctly
4MB/s	C4			Can't work correctly
2MB/s	C2			Can't work correctly

*It's better to format the TF card at least once every 6 months.
*Replace the TF card periodically if it shows instability after long-term running.
*Turn off the product while the vehicle isn't in use to prevent it recording invalidly.

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10. Event recording type

Event Code	Recording Type
00	Normal Record
01	Ignition ON
02	Ignition OFF
03	Power Disconnected
04	Crash Detection
05	Harsh Acceleration
06	Harsh Braking
07	Harsh Turning
08	Over Speed Alarm
09	Panic Button Clicking (Panic Event)
0A	Panic Button Hold On (SOS Alarm)
0E	GEO-PEO-Fence
0F	Parking Safeguard
F0	Manual Record
F1	SOD Time Range Record File
D1	Eyes close detection
D2	Yawning detection
D3	Distraction detection
D4	Smoking detection
D5	Phone use detection
D6	Driver abnormal detection
D7	IR blocking detection
D8	Seatbelt unfastened detection

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11. Warranty

This product is supplied with 1-year warranty. The warranty excludes product that have been misused, (including accidental damage) and damage caused by normal wear and tear. In the unlikely event that you encounter a problem with this product, it should be returned to the place of purchase.

Before contacting your supplier, please back up all important data stored in the TF card. The data in the TF card may be deleted during repair. Every product requested for repair is regarded as a device that has had its data backed up. The after-sale service does not back up your data. Queclink is not responsible for any data loss.

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