

Truly Wireless Backup Camera Kit

English

User Manual

Introduction

Thank you for purchasing this digital wireless backup camera kit.

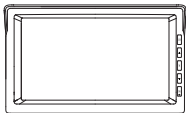
Please read all of the installation instructions carefully before installing the product. Improper installation will void the manufacturer's warranty.

The installation instructions do not apply to all types of vehicles, and are written as guidelines to assist in installing the backup camera kit.

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Package Contents



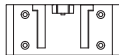
7 Inches Monitor



Mount Holder with Rotary Knob
(Double-side adhesive tape)



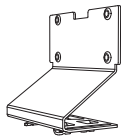
Backup Camera



Camera Bracket Base



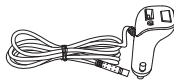
Antenna*2



Camera Z-shaped
Bracket



Solar Panel(Double-side
adhesive tape)



Car Charger with Camera Activation
Button(3.5 meters cable)



Extended Antenna Base



User Manual



USB-Micro Charging
Cable(1.5 meters cable)



Camera Base Screw*4



Anti-theft Screw*2



Screwdriver

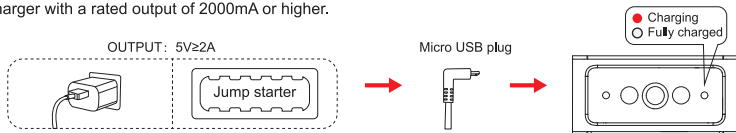
Pre-installation Note

1. Please follow the manual to install the product, and do not impair the equipment, control units and systems inside the vehicle. Follow local applicable laws and safety regulations for vehicles!
2. Park on an even and safe location and then install the product.
3. Before installing the backup camera on your vehicle, please must test the product following the steps. If there is no problem after the test, charge the camera and prepare for installation.
 - a. Supply power to the monitor. If the indicator light of (OK) flashes once and the monitor displays the power logo, the monitor is on and functioning.
 - b. Press the power button to turn on the rear camera.
 - c. When the monitor connects with the rear camera and displays the image, the blue indicator light on the rear camera will always be on.
 - d. When the screen turns off, you can press the button on the car charger or the monitor to activate the system. If there is no image on the monitor, refer to the troubleshooting section.

Charge the Backup Camera

Charge your camera before you install it on your vehicle. It takes 6.5 hours to fully charge. When the camera is charged, the red indicator light is lit. After fully charged, the red indicator light is not on.

Note: Please use a standard USB charger with a rated output of 2000mA or higher.



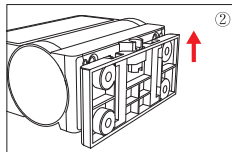
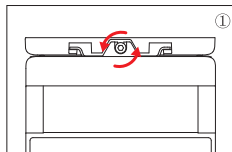
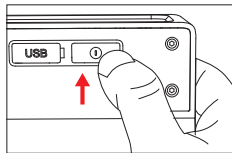
Note:

1. If the camera is not used for more than two weeks, press the power button on the bottom of the camera to turn off the camera(As shown right). This can extend the life of the camera.
2. The fully charged the camera can work continuously without the solar panel for about 15 hours in day mode and 7.5 hours in night mode. If the backup camera is used 3 times per day for 120 seconds per time then a fully charged camera can last about 3 months.

When a low battery icon appears on the monitor, charge the camera promptly to maintain functionality. (Operating times are for reference only and actual times depend on individual operating conditions.)

Tip: By default, the monitor will stop displaying and go into standby mode after 240 seconds.

3. If you use a power bank to charge the device, make sure that its battery capacity is no less than 6600mAh.
4. The camera may be charged while installed in the vehicle using the USB cable or you may remove it for charging by following these instructions:
 - ① Unscrew the anti-theft screw of the camera with the supplied screwdriver.
 - ② Remove the camera from the camera bracket base. Hold the camera. Slide the camera towards the anti-theft screw hole until it disconnects from the camera bracket base.



Installation

Install the Monitor

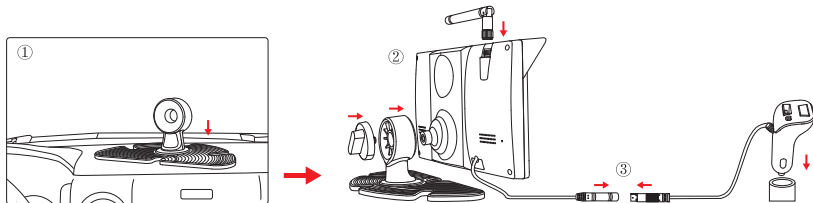
1. Clean and dry the area of the dashboard where you would like to mount your monitor. Tear off the sticker from the base of the mount holder and stick it to the dashboard. Press the base against the mounting surface for 15 seconds and let it stand for 2 hours to ensure the sticker adheres firmly.

- The mount holder should be installed on a flat surface of the dashboard otherwise the installation may not be secure.
- Take care to ensure that the mounting location does not impair the visibility of the driver.
- Rotate the rotary knob clockwise to tighten the monitor to the mount holder.
- Loosen the rotary knob on the rear of the monitor to adjust to the desired angle then retighten the rotary knob to lock the monitor.
- Do not remove the mount holder once it is attached as the adhesive may lose its adhesion capability.
- If necessary, the monitor may be removed by unscrewing the rotary screw on the rear of the monitor.

2. Attach the antenna to the monitor.

3. Connect the monitor cable with the car charger cable. Plug the car charger into the cigarette lighter port in your car.

Note: In order to ensure good electrical contact confirm that the monitor cable is fully inserted into the car charger cable, leaving no gap.



Note:

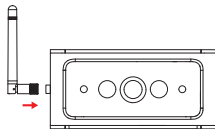
- If the power outlet socket of the vehicle is permanently powered(i.e. powered after the engine/ignition is turned off), the charger should be removed from the power source before leaving the vehicle in order to prevent draining the vehicle battery.
- If the signal is weak, please use an extension antenna to strengthen the signal.

Install the Backup Camera

Note: This product supports two cameras. The kit contains one camera. If you require a second camera, please ensure that you purchase a camera of the same specification as the one supplied.

1. The installation location of the backup camera

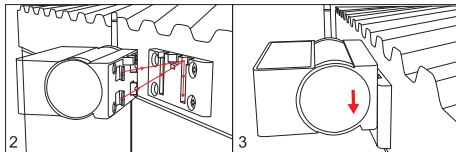
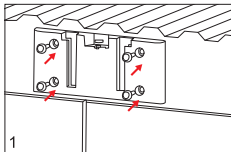
The installation location of the backup camera is flexible. Find the best installation location depending on the vehicle models to install it. We would like to recommend installing it on the rear upper part of the vehicle, or the roof of the vehicle.



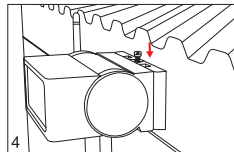
2. Install the backup camera

- ① Install the antenna on the camera before installation.
- ② If you install the camera on the rear of the vehicle, please follow the steps to install.

- A. Use the electric drill or other professional equipment to install the camera bracket base on the vehicle with 4 screws. As figure 1 shows:
- B. First, align the two buckles at the bottom of the camera bracket with the slot above the camera bracket base (As figure 1 shows); then push down the camera (As figure 2 shows).
- C. Insert the anti-theft screw into the holes, then tighten the anti-theft screw with the equipped screwdriver. (As figure 4 shows)



3



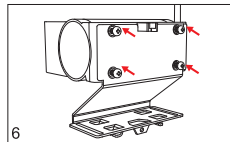
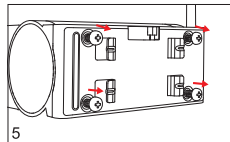
③ If you install the camera on the roof of the vehicle, please follow the steps below.

A. Remove the 4 screws which are holding the original mounting bracket to the camera.(As figure 5 shows)

Note: The screws need to be kept in a safe place to avoid losing them.

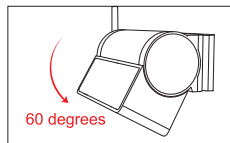
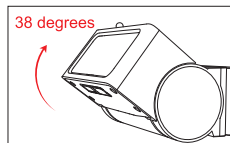
B. Tighten the 4 screws to fix the camera z-shaped bracket to the camera.(As figure 6 shows)

C. Please refer to the figure 1、2、3.



3. Adjust the angle of the camera

The camera angle may be adjusted by 38 degrees Upwards and 60 degrees Downwards.



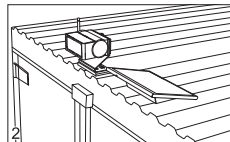
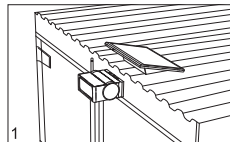
Install the Solar Panel

1. Installation location

If the camera is installed on the roof of the vehicle it is recommended that the solar panel is also installed on the roof.(As picture 1&2 show)

2. Installation steps

- Choose a location with a flat surface where the solar panel will be fully exposed to sunlight without shadows from other objects.
- Clean and dry the location thoroughly before pasting the sticker.
- Remove the sticker from the rear of the solar panel and stick it in the location chosen.

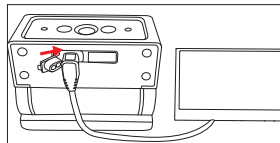
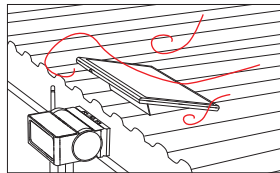


- Press the base of the solar panel against the mounting surface for at least 15 seconds then allow it to stand for 2 hours to ensure it sticks firmly.
- Once installed, do not remove it otherwise the adhesion properties will be lost.

Note: If installed on the vehicle roof, the leading edge of the solar panel must be downwards, facing forwards to reduce wind resistance and avoid being blown off while the vehicle is travelling. (As shown right)

3. Plug the cable of the solar panel into the charging port on the camera.

Note: When washing the car, please unplug the solar panel and cover the camera charging port with the cap to prevent water from entering and affecting the charging. (As shown right)



Operate Instructions

Display the Rearview Image

1. Press the button on the backup camera to turn it on, the blue indicator light will stay on. (Please make sure the camera is fully charged, see "Charge the Backup Camera")
2. Power on the monitor, and it will display the image automatically. (If no image is displayed, press the button on the car charger or any buttons on the screen to activate the system.)

Camera Status Light Quick Reference:

Status	Description	
● ● ● ● ● ●	Off	Camera off, or camera in standby mode
● ● ● ● ● ●	Glows 10s then off	No operation or connection, automatically enter standby mode

Status	Description	
● ● ● ● ● ●	Flash	Paring
● ● ● ● ● ●	Solid On	Connecting with monitor(Rear view is displaying)
● ● ● ● ● ●	Flash Once	Turn on/off

Monitor Operations

CH: Switch Cam1/Cam2 Channel.

▲: Forward/Increase.

M: Menu/Return/Confirm.

▼: Back/Decrease.

OK: Confirm.

Menu Settings

1) Press (**M**) to access menu mode.

2) Press (**▲**) and (**▼**) to advance the following menu items:

Pair: pair the monitor with the backup camera.

Brightness: adjust the monitor brightness.

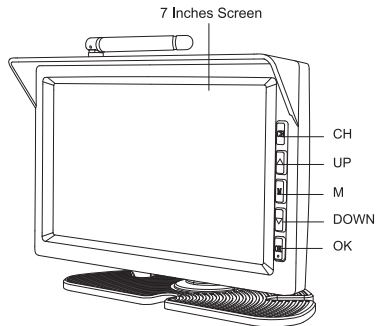
M/U Control: switch to Mirror/Normal/Up/Down image.

- **Contrast:** adjust monitor contrast.

- **Reset:** return to factory settings.

- **Support:** Scan the QR code to contact us for technical support.

Display sleep: Select "120S/240S" to enter sleep mode, or "Never" to remain on constantly.



Guideline: activate or deactivate guideline.

Press **(M)** or **(OK)** to confirm the settings and exit the menu.

Basic Functions

1. Choose the Sizes of Guidelines

- 1) Set the guideline "ON" on the menu.
- 2) Activate the monitor to show rear view image, and enter into non-menu mode.
- 3) Press and hold the **(M)** button for about 3 seconds until the guidelines flicker.
- 4) Press **(▲)** or **(▼)** to choose from 6 different sizes. Press **(M)/(OK)** to confirm.

Note: The setting screen will close automatically if no operation is performed for about 5 seconds, then the settings will be saved.

2. Pair the Camera

Cam1 uses CH1 channel by default and is paired before leaving the factory, no need to pair again.

If you need to re-paire/change the camera or install the Cam2, please follow the steps:

- 1) Press **(M)** to enter the menu setting, select **"Pair"**.
- 2) Select **Cam1/Cam2**, press the **(M)/(OK)** to enter into the selected channel pairing interface, and the indicator light of **(OK)** will flash fast.
- 3) Long press the button on camera for 8 seconds until its blue indicator light flashes, and the pairing will proceed automatically. If paired successfully, the screen will automatically display rear view image, and the blue indicator on the camera will be on continuously.

Note:

- Please turn the camera on after completing the step 1-2, or the pairing will fail.
- The pairing timeout is the default 30 seconds. If the pairing is not completed in 30 seconds, the pairing screen will close automatically and the monitor will enter standby mode. Follow the steps to pair the camera again. If the pairing fails after several attempts, please contact Customer Support for assistance.(Customer support email: **service@auto-vox.com**)

3. Switch Between Cam1/Cam2 Channel or Split Screen

If the monitor has been paired with Cam1&Cam2, and the monitor is not on any setting interface, press **(CH)** to switch between Cam1 display, Cam2 display and split screen.

Note:

- The monitor will show the full image of the CH1 channel as a priority when both cameras are powered.
- Contrast, M/U Control, Guidelines and Reset can be changed separately by channels. For example, if the Guidelines for Cam1 are changed on CH1 or the split screen, they will only be saved in the current channel, not in both channels.
Brightness will however be saved on both channels if it is changed.

4. Day and Night Mode

Day mode

The camera automatically switches to the color mode when the ambient light conditions are good during the day, and the screen displays the color screen.

Night mode

The camera automatically switches to Night Mode at night or under low light conditions. The infrared lights turn on to provide light and the screen displays black and white images.

Note: When the ambient light suddenly changes from dark to bright for more than 5 seconds, the black and white image will switch to the color image. This can avoid being illuminated by the lights behind when driving at night causing the image to constantly jump from black and white to color images.

5. Standby Mode

When the camera and monitor work normally, long press the **(OK)**, the monitor turns off and enters into standby mode, press the **(OK)** again to exit standby mode.

Battery Condition Indicator

Indication of Battery Power(The parameters are tested under 25°C without IR night vision and solar panel charging.)

Note: Low temperature may drastically decrease the performance of the built-in battery, and the working time will be halved if the IR night vision is operating.

The battery icon is located in the upper right corner of the display, representing the relative power of the built-in lithium battery.

Battery power status	Relative power	Estimated duration	Note
	≈100%	≈90 days	Fully charged
	≈50%	≈45 days	----
	≈20%	≈20 days	----
	≈5%	≈5 days	Need to charge

Prerequisite: The following data are based on the fully charged camera at different temperatures on a cycle of 120seconds/time and 3 times per day in daytime mode and no solar charging.

Temperature(°F/°C)	77°F/25°C	32°F/0°C	14°F/-10°C	-4°F/-20°C	-22°F/-30°C
Battery Working Days	≈90 days	≈56 days	≈40 days	≈22 days	≈0 days
Battery Performance(%)	100%	86%	77%	44%	0%

Note: The table is for reference only. The specific battery performance will vary according to local temperature and actual use.

Technical Specifications

Note:

1. The data for the battery working time are based on lab testing at 25°C on a cycle of 120seconds/time and 3 times per day with the camera in daytime mode and no solar charging.
2. The data for the battery working time are based on lab testing at 25°C on a cycle of 120seconds/time and 3 times per day with the camera in daytime mode and solar charging with the solar panel exposed to sufficient sunlight for an average of 2 hours per day.
3. The optimum temperature range for charging is 5°C ~ 40°C(41°F ~ 104°F). If the battery cell is not within this range the battery should be conditioned in an appropriate location prior to charging until the temperature falls within these parameters.
4. In a low temperature environment(-20°C/-4°F ~ 5°C/41°F) the battery performance will be significantly decreased, resulting in a reduction in useable time.
5. The communication data for the monitor is obtained under conditions of unobstructed outdoor transmission and insignificant electromagnetic interference.

Backup camera					
Working Voltage	DC 3.4-4.2V	Working Current	Max 900mA(@4.2V)	Standby Current	360uA
Battery Capacity	6600mAh	Vertical View Angle	50°±5°	Horizontal View Angle	90°±5°
Sensor	1920*1080 Pixel	USB Charge Current	2000mA(5V)	Charge Time	6.5 hours
Conversion Efficiency of Solar Panel	21%	PV CURR		>320mA(light intensity 21000Lux)	
Working Time 1	3 months(without solar charging)		Working Time 2	12 months(with solar charging)	
Working Temperature	-4° to 149°F(-20° to 65°C)		Storage Temperature	-4° to 149°F(-20° to 65°C)	

Monitor					
Screen Size	7.0 inches	Working Voltage	DC 12 -24 V	Display Brightness	500 cd/m ² (Typ.)
Transmission Frame Rate	25 FPS		RF Transmission Distance	230ft(70M)	
Working Temperature	-4° to 149°F(-20° to 65°C)		Storage Temperature	-4° to 149°F(-20° to 65°C)	

Troubleshooting

Q1: The monitor doesn't show image after pressing the button on car charge.

① **Reason:** The monitor or the car charger is broken.

Solution: A. Plug the car charger in the cigarette lighter. If the red light on the car charger doesn't light up which indicates the car charger is broken, please contact us to replace the car charger.

B. Power the monitor, if the red light on (**OK**) is always on which indicates the monitor is broken, please replace the monitor; if the red light doesn't light up, please check if the connection between the monitor cable and car charger cable is poor contact, if the connection is good which indicates the car charger is broken, please contact us to replace the car charger.

② **Reason:** The monitor is not connected with the rearview camera.

Solution: When press the button on the car charger, the indicator light of (**OK**) on the display flashes twice, but the display does not show image. And no image shows when press any buttons on the monitor, it may be caused by the signal disconnection between the monitor and the camera. Please troubleshoot as following steps:

A. Turn on the backup camera.

The camera power may be off. Press the power button on the camera to turn on the camera.

B. Charge the backup camera.

The camera may be low on power, please charge the camera.

C. Re-pair the monitor with the camera. Please follow the steps:

- 1) Press **(M)** to enter the Menu setting, select "Pair".
- 2) Select Cam1/Cam2, press the **(M)/(OK)** to enter into the selected channel pairing interface, and the indicator lights of **(OK)** will flash fast.
- 3) Long press the button on the camera for 8 seconds until its blue indicator light flashes, and the pairing will proceed automatically. If paired successfully, the screen will automatically display rear view image, and the blue indicator on the camera will remain on.

Note:

- Please turn the camera on after completing the step 1-2, or the pair will fail.
- The pairing timeout is the default 30s. If the pairing does not finish in 30s, the pairing screen will close automatically, then the monitor enters standby mode, please follow the steps to pair the camera again.

③ **Reason:** The signal reception of the monitor is weak.

Solution: The monitor has a weak signal. It is recommended to change the location of monitor or use an extension antenna for help.

If it is still no image showing after above tempts, please contact customer support for help.

(Email: service@auto-vox.com)

Q2. The image shakes when you are driving the car.

Reason: The camera mounting screws may be loose.

Solution: Check the the condition of the screws, and tighten the screws according to the situation.

Note: You can scan the QR code to watch the detailed troubleshooting video on YouTube.



Care and Maintenance

For maintaining its condition and performance, please follow the guidelines below.

1. Power off the monitor and unplug the car charger before cleaning the monitor.
2. Clean the backup camera kit with a soft, dry cloth only.
 - Do not use any liquids or harsh cleaners as these may cause discoloration and/or damage to the surface of the equipment.
 - Do not immerse or allow liquids to enter the equipment.
 - Only operate the backup camera when the equipment is dry.
3. Always store the backup camera system in a dry, dust-free environment as moisture may damage the electronics.
4. Avoid storage under extreme temperature fluctuations as condensation, possibly generated under these conditions, could damage the electronics.
5. Check the camera and monitor fasteners periodically to ensure they are secure and tightened, if necessary.

Note: Before cleaning the monitor, please make sure to cut off the car charging source. Never use solvents such as benzene, thinner or cleaners available commercially to clean the system.

Warranty and Service

You(as the end-user) receive a 12 months guarantee from the date of purchase. In addition, you can contact our service representative via the email address on the warranty card to extend the warranty for 6 months. If we repair or replace a product, the repaired or replaced product shall be warranted for the remaining time of the original warranty period. If you are not satisfied with your purchase for any quality problem, you shall return the item in its original condition within 30 days of receipt and we will gladly provide a refund, replacement, or an exchange. Any items received after 30 days will not be accepted for refund. For any items received after 30 days, we will provide repair service during the warranty period.

Our warranty does NOT cover the following situations:

1. Warranty expired.
2. Damage caused by human factors, accident, misuse of the product.
3. Products purchased from unauthorized channels.
4. Unauthorized alternation to change of parts or components of the product.
5. Fail to provide a receipt or proof of purchase.
6. Malfunctions caused by phenomena such as fire, natural disasters.

For speedy processing of your warranty claim you will need:

- Copy of the receipt showing the purchase date.
- Reason for the claim (description of the defect).

For more information or support, see **www.auto-vox.com**.

Alternatively, send an e-mail to a service representative at **service@auto-vox.com**.

FCC Statement

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

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

- Consult the dealer or an experienced radio/TV technician for help.

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.

IC warning

This device complies with Industry Canada licence-exempt RSS standard(s).

Operation is subject to the following two conditions: (1) This device may not cause interference, and (2) This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

- (1) l'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radio électrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement

RF Exposure Statement

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.