

# Clarion®

## Digital Wireless Camera System Installation/Owner's Manual

- Thank you for purchasing this Clarion product.
- Please fully read this Installation/Owner's Manual before operating this equipment.
- In accordance with FCC Rules and Regulations, Title 47, Part 15, Subpart C, this Clarion wireless local area network (WLAN) camera systems may experience momentary signal interruption due to RF interference and/or environmental surroundings. If continued interruption occurs, please check and/or adjust the antenna on the camera and receiver.

### SAFETY PRECAUTIONS

When using this system, follow the precautions listed below.

#### ⚠ WARNING

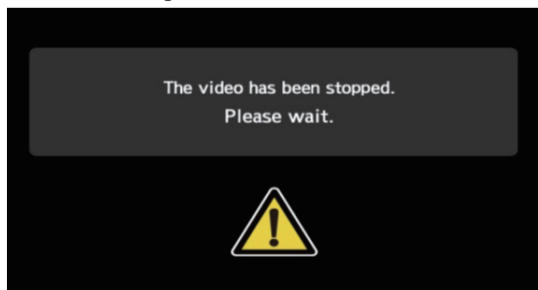
- **This device is a rear view camera intended for vehicle installation. Do not use it in any way other than its intended use.**  
Doing so may result in smoke, fire, electric shock or injury.
- **Drive slowly while reversing.**
- **Do not disassemble and/or modify the device.**  
Doing so may result in accident, fire, electric shock or malfunction.
- **Do not damage the camera cable.**  
Moisture or water may get inside the camera through the damaged part, possibly resulting in a malfunction or fire.
- **Never use the parts that are critical to the vehicle's safety\* for mounting or grounding the device.**  
\* Nuts and bolts in the steering system, seat rails, brake system, fuel tank, etc.  
Doing so may result in loss of control, fire or traffic accident.
- **Never drive looking solely at the monitor.**  
This is an auxiliary device to supplement the driver's rear field of vision; it does not show all hazards or obstacles. Actual distances and perceptions may differ and video images may be delayed, so be sure to visually check safety while driving. Failure to do so creates the risk of hitting a person or object in the camera's blind spot, causing a serious accident.
- **Do not use the device in a malfunctioning or abnormal state.**  
If no image is displayed, smoke is emitted or there is a strange smell, stop using the device immediately. Continued use may result in an accident, fire or electric shock.
- **Do not allow any water or foreign objects to get inside the device.**  
If a foreign object or water gets inside the device, smoke or a strange smell is produced, or any other abnormality occurs, stop using the device immediately and consult the dealer where it was purchased. Continued use may result in an accident, fire or electric shock.
- **Disconnect the negative terminal of the battery before connecting the cables.**  
Failure to do so may result in electric shock or injury due to short-circuit.
- **Route the cables to avoid high-temperature areas.**  
The covering of the cables may melt, causing a short-circuit and resulting in an accident or fire. Pay particular attention when routing the cables inside the engine compartment.
- **Mounting and removal of the device should be performed by a professional service technician.**  
Failure to do so may result in an accident or fire. Contact the dealer where the device was purchased.
- **After installing and connecting the device, check operation of the vehicle's electrical components\*.**  
\* Brakes, lights, horn, hazard lamps, blinkers, etc.  
Malfunction may result in fire, electric shock or traffic accident.
- **If mounting of the device requires making a hole in the chassis, check the position of the pipes, tanks, electrical wires, etc. and be sure to avoid interference or contact.**  
Damage to the pipes etc. may lead to fire or malfunction.
- **Route the cables and bundle them so that they do not interfere with driving operation.**  
If a cable coils round the steering column, gear lever, brake pedals, etc., it may lead to an accident.
- **Use the device on a DC12V negative earth vehicle.**  
The device must not be used on a DC24V vehicle. Doing so may result in fire or malfunction.
- **When connecting the cables to a vehicle equipped with air bags, do not route the cables where they will affect operation of the air bag system.**  
If the air bags do not work properly, it may result in an accident or injury.
- **Keep screws and other small parts out of the reach of small children.**  
Small parts may be swallowed accidentally. If there is any suspicion that this may have happened, seek medical advice immediately.

#### ⚠ CAUTION

- **The receiver is designed to be installed inside the vehicle's cabin. Do not install it in areas where it can get wet.**  
Doing so may result in smoke, fire, electric shock or injury.
- **Do not subject the receiver to strong impact such as dropping it or hitting it.**  
This receiver utilizes precision electronic parts. Subjecting it to strong impact may result in malfunction or damage, leading to fire or electric shock.
- **Remove the camera from the vehicle before using an automatic car wash (high pressure water).**  
Failure to do so may result in the camera becoming detached or getting damaged. If water gets inside the camera, it may result in fire, electric shock or malfunction.
- **Check the mounting screws occasionally and tighten any that have come loose.**  
If the screws are loose, the device may become detached and fall off, hitting a passer-by and causing an accident.
- **Follow the instructions in the manual when mounting and connecting the camera and receiver.**  
Incorrect connection may result in fire or accident.
- **After mounting the camera and receiver, check that the monitor image is a mirror image.**  
Incorrect setup may mean that the monitor image is not horizontally flipped, resulting in accident.
- **The rear-view monitor image has the same right-left inversion as your vehicle's rearview mirrors. Depending on the vehicle, the field and angle of view may differ.**
- **Be sure to use the supplied accessories and specified components.**  
Using components other than those specified may lead to damage of the parts inside the device or the inability to secure them firmly, resulting in them becoming detached and leading to an accident or malfunction.
- **After connecting the cables, secure them with clamps or insulating tape.**  
If the cables come into contact with the chassis, they will fray and short-circuit, leading to an accident or fire.
- **If a hole is made in the chassis to route the cables, use protective tubing or insulating grommet.**  
If the cables come into contact with the openings, they will fray and short-circuit, leading to an accident or fire.
- **If a hole is made in the chassis to mount the device or route the cables, seal the gap in the hole and the gap between the hole and the cable with silicon adhesive or similar.**  
If exhaust gas or water gets inside the vehicle through the gap, it may result in an accident.
- **Route the cables so that they do not get caught in the chassis, screws, seat rails or other moving parts.**  
Damaged or short-circuited cables may result in an accident, electric shock or fire.
- **When mounting the camera on the vehicle, make sure that it does not protrude from the side or front/rear end of the vehicle.**  
A protruding camera may hit a passer-by and cause an accident.
- **If the screws in the chassis are used to mount the device, be sure to tighten them securely.**  
Loose screws may result in an accident or malfunction.
- **Check the effect on medical electrical equipment.**  
This device is equipped with a wireless function.  
If you use a cardiac pacemaker or other medical electronic device, be sure to check with the manufacturer or retailer of the medical electrical device concerning the effect of radio waves.

#### Disclaimer

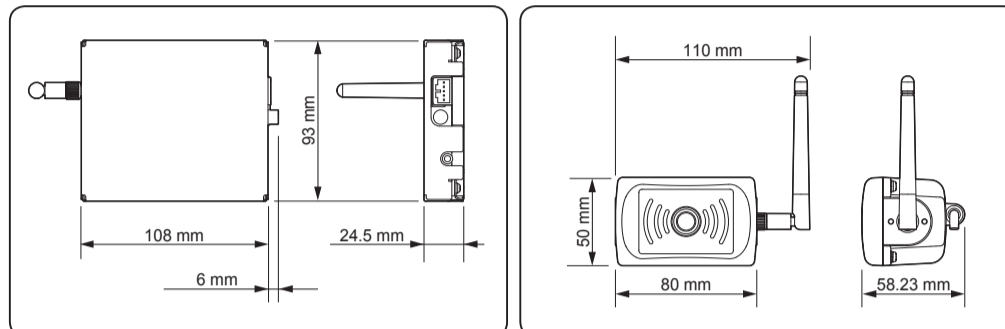
- This product is intended to improve blind spot viewing while operating the vehicle and promoting safe driving.
- When signal interruption occurs due to the RF interference and/or environmental surroundings, the Clarion wireless camera systems may experience image jump or/and video signal loss. When video signal loss occurs, the following caution screen is displayed or sometimes black screen will be interrupt to inform drivers that the radio wave environment is not in good condition.



- Clarion is not liable under any circumstances for the following.
  - Incidental, special, or consequential damage or loss that occurs directly or indirectly to this wireless camera system.
  - Inconveniences, damages and/or losses (including those due to the user's improper use or incaution) caused by the inability to view the camera image due to reasons/causes including the malfunctioning/defect of this wireless camera system.

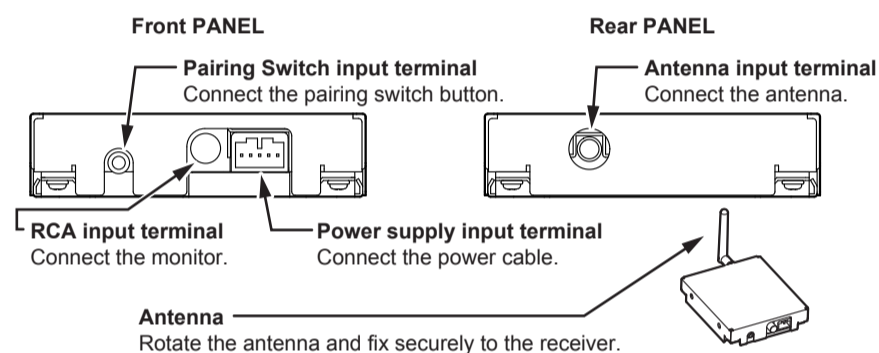
### SPECIFICATIONS

	Receiver (EE-2178)	Camera With Transmitter(CC-3500)
Power supply voltage	12VDC (10.8V ~ 15.6V)	
Current consumption	less than 200mA	less than 250mA
Image sensor	-	1/3.7" CMOS camera
Angle of view	-	Horizontal 115°/ Vertical 85°
Wireless standard	IEEE802.11b/g	
Modulation system	11b : DSSS, 11g : OFDM	
Transmission/Reception frequency	2.4GHz band	
Encryption	128bit WEP	
Video output	NTSC	-
Operating temperature range	-20°C ~ +70°C	-30°C ~ +70°C
Storage temperature range	-40 ~ +85°C	
Watertightness	Non-watertight	IP67
Vibration resistance	4.4G	6.8G
External Dimensions (Width x Depth x Height)	W: 93 mm (3-5/32") x D: 108 mm (4-1/4") x H: 24.5 mm (63/64")	W: 80 mm (3-5/32") x D: 58.23 mm (2-19/32") x H: 50 mm (1-31/32")
Weight	236g (0.52lbs)	300g (0.66lbs)

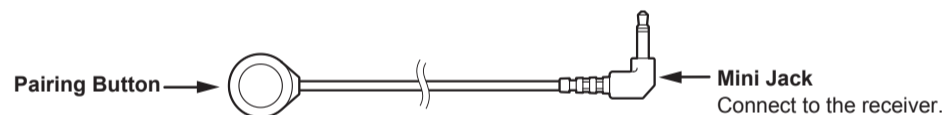


### NAMES AND FUNCTIONS OF PARTS

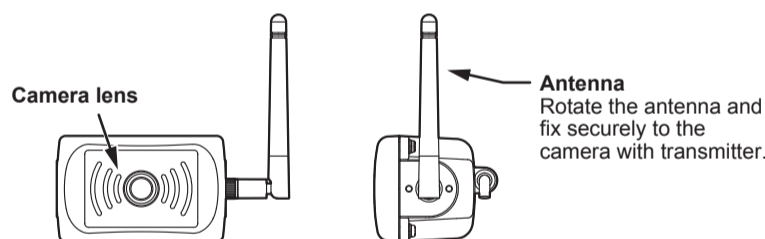
#### ■ Receiver (EE-2178)



#### ■ Pairing Switch



#### ■ Camera with transmitter (CC-3500)

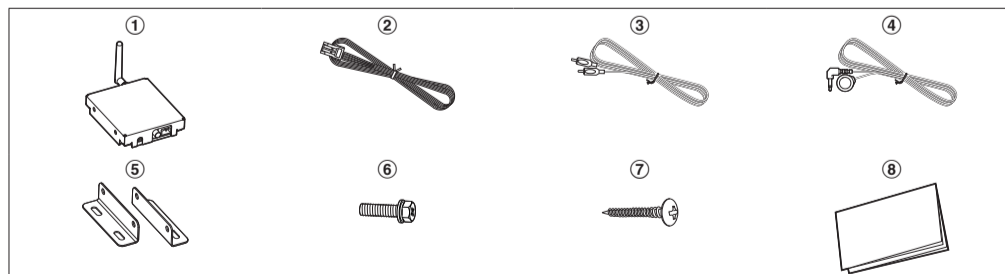


### PACKAGE CONTENTS (Camera and Receiver packed separately)

This product (system) consists of the following components. In the event of any missing parts, please contact the retailer where purchased.

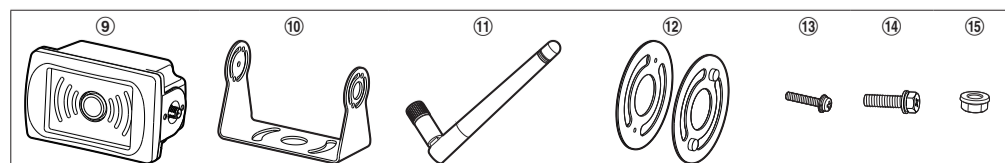
#### ■ Receiver (EE-2178) included parts

① Receiver	1
② Power supply cord (2.9 m / 9.514 ft)	1
③ RCA cord (2.6 m / 8.53 ft)	1
④ Pairing Switch	1
⑤ Mounting Bracket	2
⑥ Hexagon head bolts with built-in washer (M5 mm x 8 mm)	4
⑦ Self tapping screw (M5 mm x 16 mm)	4
⑧ Installation/Owner's Manual	1



#### ■ Camera with transmitter (CC-3500) included parts

⑨ Camera with transmitter (Cable: 2.9 m / 9.514 ft)	1
⑩ Mounting bracket	1
⑪ Antenna	2
⑫ Gasket	2
⑬ Hexagon head bolts with built-in washer (M3 mm X 8 mm)	5
⑭ Hexagon head bolts with built-in washer (M5 mm X 8 mm)	2
⑮ Flanged nuts (M5 mm)	2



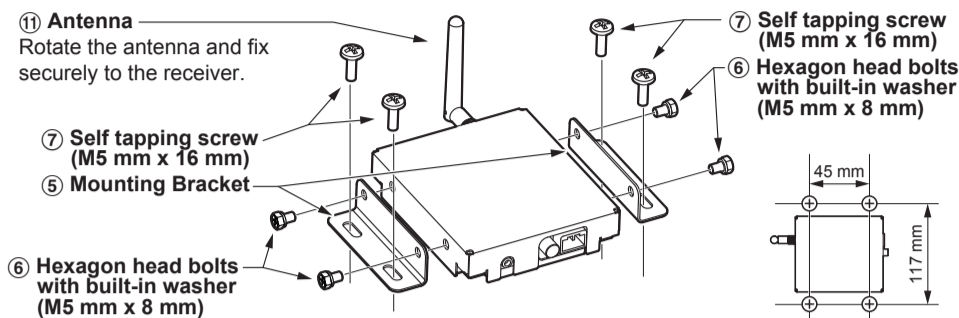
# HOW TO INSTALL

## How to attach the receiver

### Precautions for attachment

- Be sure to use the specified screws when attaching the receiver. Use of other screws may result in malfunction.

1. Please install the receiver at stable position according to the following diagram.



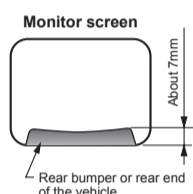
## How to mount the camera with transmitter

### Precautions for attachment

- Never swing the camera by the cable or pull the cable. Doing so may impair the camera's watertightness or break the cable, resulting in malfunction.
- Avoid mounting the camera where the lens will be exposed to dirt (mud splashes, exhaust fumes, etc.).

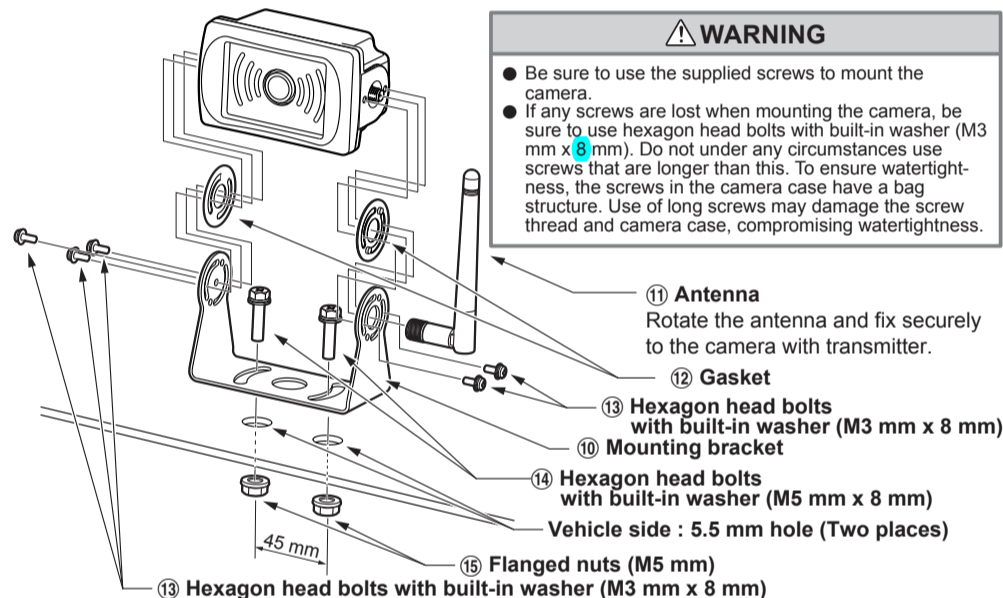
1. To prevent camera shake, make a hole in a rigid panel and mount the camera as shown in the figure below. If the panel is not rigid enough, carry out appropriate reinforcement.

2. After connecting the cables, adjust the mounting angle of the camera so that the rear bumper or back end of the vehicle appears in the monitor.



### WARNING

- Be sure to use the supplied screws to mount the camera.
- If any screws are lost when mounting the camera, be sure to use hexagon head bolts with built-in washer (M3 mm x 8 mm). Do not under any circumstances use screws that are longer than this. To ensure watertightness, the screws in the camera case have a bag structure. Use of long screws may damage the screw thread and camera case, compromising watertightness.



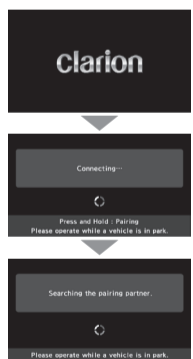
## PAIRING

When using the system for the first time, the camera must be paired with the receiver. Please follow the instructions below for the pairing process.

Press [pairing switch button] : Move the cursor

Press [pairing switch button] for at least 3 seconds : Enter or start pairing

- Turn on the power.
  - The [Clarion] welcoming screen appears and then the screen changes in sequence.
- When the [Connecting] screen appears, press the [pairing switch button] for at least 3 seconds.
  - The [Searching] screen appears.



### Advice

- You cannot pair an already paired camera with another receiver.
- Once paired, the pairing information is saved when the power is turned off.
- If repeated searching fails to find the device you want to pair, it may be due to poor radio wave reception. Replace the antenna on the receiver with the optional long antenna and try again.

3. The system is searching for a compatible camera. When searching is finished, the pairing selection screen appears.

4. Move the cursor to the camera number you want to pair and press the [pairing switch button] for at least 3 seconds.
 

- The selected camera is connected and the camera screen appears.

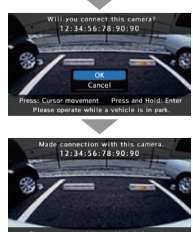


### Advice

- If the camera you want to pair does not appear on the pairing selection screen or if the pairing selection screen is not displayed, follow the steps on the right to repeat the search.
- If multiple camera numbers appear and you do not know which to choose, select each number in turn to find the right one.

5. If there is no problem with the displayed camera image, point the cursor to [OK] and press the pairing switch button for at least 3 seconds.
 

- [OK] disappears from the screen and only the camera image is displayed. Pairing is completed.



**Repeat Search**  
Check that the camera is turned on and the antenna is connected. Point the cursor to [ Search again ] and press the pairing button for at least 3 seconds.  
→ Searching starts again.

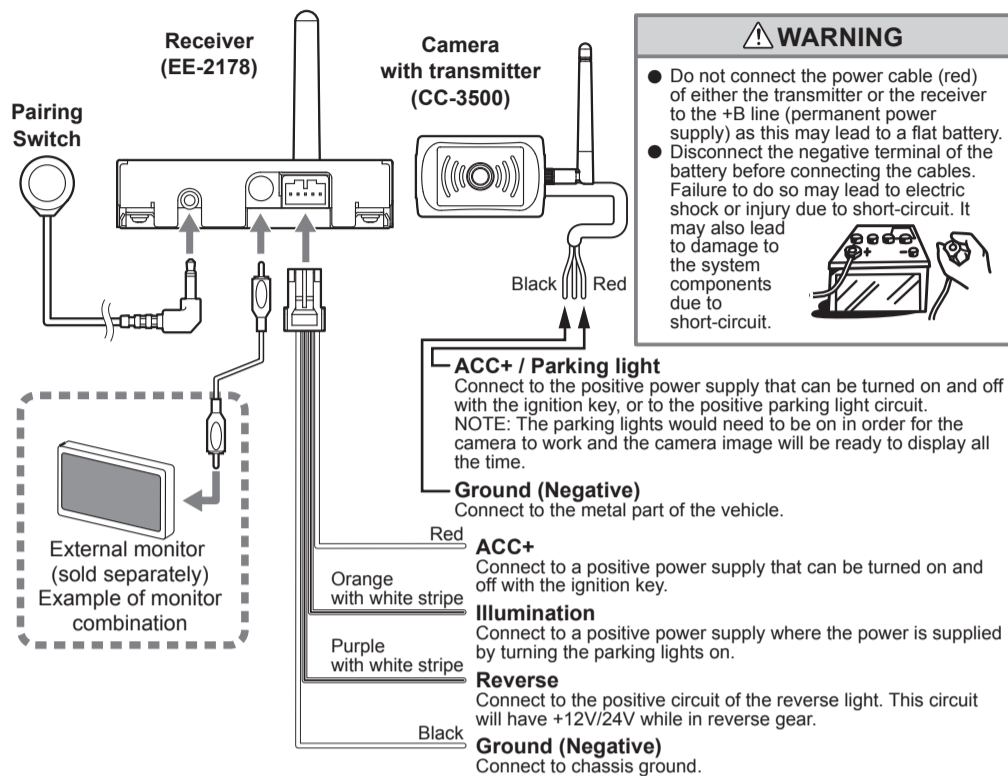
### Advice

- If the wrong image is displayed, point the cursor to [Cancel] and press the pairing switch button for at least 3 seconds.  
→ Searching starts again and the Searching screen appears.

# WIRING AND CONNECTIONS

### Precautions when connecting the cables

- When the power cable (red) of the transmitter is connected to the ACC line, connect the illumination signal (orange/white) from the receiver to the ACC line along with the ACC signal (red).
- If there is no ACC power for the transmitter, connect the transmitter's ACC to the illumination circuit. At the same time, be sure to connect the illumination signal from the receiver to the illumination circuit. In this case, the camera image is displayed only when the driver turns on the illumination.
- To prevent short-circuiting, check the connections again before connecting the battery.



### WARNING

- Do not connect the power cable (red) of either the transmitter or the receiver to the +B line (permanent power supply) as this may lead to a flat battery.
- Disconnect the negative terminal of the battery before connecting the cables. Failure to do so may lead to electric shock or injury due to short-circuit. It may also lead to damage to the system components due to short-circuit.

## TROUBLE SHOOTING

The following situations may not be malfunctions. Check once more before requesting repairs.

Symptom	Cause	Remedy
There is no image (Nothing appears on the monitor)	The receiver is not connected correctly	Check the receiver's connections and connect the receiver correctly
There is no image ("Connecting..." is continuously displayed on the monitor)	The camera is not connected correctly	Check the camera's connections and connect the camera correctly
	The surrounding radio wave signal strength is weak	Move to a different place and check if the image appears
	The radio wave reception of the camera is poor	Change the position of the antenna on the receiver or replace with the optional long antenna and check again.
The image cuts out ("The video has been stopped" appears)	The surrounding radio wave signal strength is weak	Move to a different place and check if the image appears
	The radio wave reception of the camera is poor	Change the position of the antenna on the receiver or replace with the optional long antenna and check again.
Communication has been disconnected appears on the monitor	The camera has been disconnected	Depending on the state of the surrounding radio waves, the camera is disconnected. Reconnection is automatic.
The camera you want to pair does not appear on the pairing selection screen	The camera is not connected correctly	Check the camera's connections and connect the camera correctly
	The surrounding radio wave signal strength is weak	Move to a different place and check if the image appears
	The radio wave reception of the camera is poor	Change the position of the antenna on the receiver or replace with the optional long antenna and check again.
The button has been pressed for more than 10 seconds. appears	The camera you want to pair has been paired with another receiver.	Turn off the receiver to which the camera you want to pair is connected and wait a while (30 seconds) before pairing again.
	The pairing switch button has been pressed for more than 10 seconds	Check that there is nothing on top of the pairing switch button pressing it down, and then press the pairing button once to return to the original screen.
The pairing switch button does not respond when pressed	The pairing switch button is not connected correctly	Check the pairing switch button's connections and connect the button correctly.

## OTHER

- IC Number : 419C-EE2178, 419C-CC3500**
- FCC CAUTION:**  
Changes or modifications not express.
- This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.
- This device complies with Part 15 of FCC Rules and 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 this device.
- Le présent appareil est conforme aux parties 15 des règles de la FCC et 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 radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.
- This equipment complies with FCC/IC radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines and RFF-102 of the IC radio frequency (RF) Exposure rules. This equipment should be installed in center of dashboard and operated keeping the radiator at least 20cm or more away from person's body (excluding extremities: hands, wrists, feet and ankles).
- Cet équipement est conforme aux limites d'exposition aux rayonnements énoncés pour un environnement non contrôlé et respecte les règles d'exposition aux fréquences radioélectriques (RF) CNR-102 de l'IC. Cet équipement doit être installé en utilisant gardant une distance de 20 cm ou plus entre le dispositif rayonnant et le corps (à l'exception des extrémités : mains, poignets, pieds et chevilles).
- Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.
- Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émission par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.
- This radio transmitter (IC : 419C-EE2178, 419C-CC3500) has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.
- Le présent émetteur radio (IC:419C-EE2178, 419C-CC3500) a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.
- Antenna type: Dipole Gain: 2.4dBi Model: CC3500, EE2178
- Antenna type: Dipole Gain: 2dBi (5dBi + Cable Loss 3dB) Model: CC3500, EE2178
- Antenna type: Dipole Gain: 1dBi (7dBi + Cable Loss 6dB) Model: CC3500
- This equipment has been tested and found to comply with the limits, 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 reception, which can be determined by turning the equipment off and on, the user is encouraged to consult the dealer or an experienced radio technician for help.
- INFORMATION FOR USERS:**  
CHANGES OR MODIFICATIONS TO THIS PRODUCT NOT APPROVED BY THE MANUFACTURER WILL VOID THE WARRANTY AND WILL VIOLATE FCC

### Declaration of conformity

We Clarion declares that the product CC-3500 and EE-2178 are following the provision of Directive 1999/5/EC with the essential requirements and the other relevant regulations.

Clarion Europe S.A.S.

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