



**APPLIED** STREETVIEW

# Original 360 Camera Manual



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# Overview

This manual is for the **Original 360 Camera** with the **Car Mount**.

## Mount Manuals

For the other mounts, **read this manual** and in addition:

[Backpack Mount Manual](#)

Railway Mount Manual (Work in progress)

Ferry Mount (Work in progress)

## App and Program Manuals

Please see the [Remote Control Manual](#) for how to operate the camera.

Please see the [Creator 2 Manual](#) for how to process the footage recorded.

## Programs of Interest

[Privacy Keeper](#)

[Visualizer](#)

[Facades](#)

[AS Server](#)

[Photogram](#)

[Android Player](#)

[Railway Editor](#)

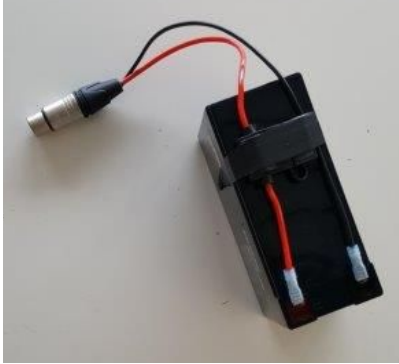


# What's in the Camera Case

## Original 360 Camera



- Camera
- Power cable
- Data cable
- Quick-release (mounted)
- Six lens protectors (mounted)
- 120GB SSD



7Ah Battery with battery cable



Battery Monitor



Charger for 7Ah battery with plugs for:

- USA
- UK
- Germany



Navigation device



Snap-in holder for navigation device



GNSS antenna



Programming cable for navigation device



Remote Control tablet with cable and charger



Mini SD card for tablet with adapter



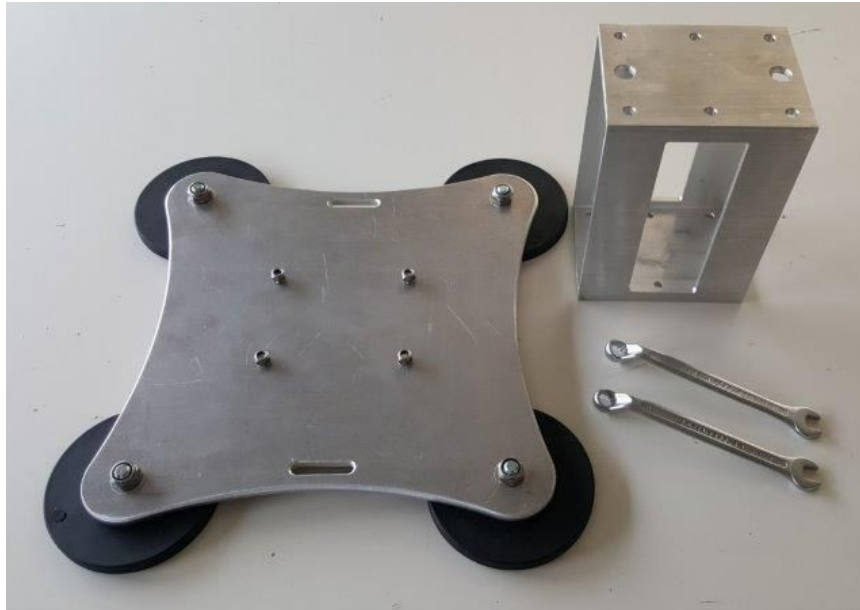


SSD case



SSD to USB cable  
For copying the data to the PC in the office.

## Car Mount



Magnetic Car Mount  
disassembled to fit into  
the camera case

2 spanners



OBD2 adapter cable



Set of six lens protectors



Quick-release connector  
(mounted to the camera)



Spare parts

# Safety

## **Rigging the Car and Dismounting the Camera**

- Make sure to work in a safe place  
E.g. not on a public road where traffic might endanger the rigger
- If needed, use a short stepladder to reach the camera comfortably
- Apply the car's handbrake
- Switch the car's engine off

## **Remote Control**

Operating the remote control while driving the car at the same time is not allowed by law in most countries. Always stop the car before operating the remote control

# Accessories

## Camera

- Depending on your workflow, a few additional **Samsung EVO** 850 or 860 SSDs might be needed. Supported capacities: 120GB, 250GB, 500GB 750GB, 1TB
- Newly purchased SSDs must be formatted in-camera with the remote control before first usage: Settings -> Format
- Also before re-using an SSD, format it in-camera to empty it: Settings -> Format
- **Hint:** Never format or delete an SSD with a PC! If you accidentally have, format it again in-camera

## Tablet

- A **windscreen holder with a suction cup** to mount the tablet with the remote control. The tablet should be mounted in portrait orientation.
- A **USB power supply** for the car's cigarette lighter to extend the tablet's operating time.

## Car

- **Air conditioning** - strongly recommended
- **OBD2** - The optional OBD2 wheel sensor improves the positioning accuracy in demanding situations like urban canyons and overhanging trees. For this, the car needs to have an OBD2 socket. Check the car's manual to see if one exists in your car.
- **Base rack** - In some countries, the law does not consider magnets to be sufficient to secure a roof load. A base rack is therefore required for legal reasons. One which fits your car will secure the magnetic mount for the camera. We recommend **Thule** base racks with a square profile. A base rack with locks will prevent theft, so look for this feature.
- **Snap-in holder** - A mount is needed for the white snap-in holder for the black navigation device. It should be mounted between the two front seats in the middle of the car. One custom made from a piece of wood will do fine. Ensure that it doesn't move or vibrate.

# Workflow

## Helpful Hints

### Plan

- The day of the week when the dustbins are out for collection is not really an ideal day for recording beautiful footage for tourism
- Footage shots for tourism should usually show tourists in them
- Consider weekday vs weekend when recording e.g. a city center or an industrial area

### Height

- With the camera mounted, the height of the car increases by about 60cm
- Depending on the car's height without the camera, the driver needs to consider low hanging tree branches, clotheslines, electrical wires and the clearance of parking garages
- It is recommended to measure the total height of the vehicle after rigging the camera to it. Placing a note in the car to alert the driver to the increased height is recommended

### Windscreen Washer

- Do not use the car's windscreen washer once the camera is mounted to the car, since water droplets might reach the camera
- Consider cleaning or washing the car before rigging it

### Rain

- One is unable to record Streetviews properly when it's raining
- Water drops on the lens protectors make the recorded footage unusable
- In case it does rain, the car camera is splash proof, but not rain proof
- If you feel the need to use the windscreen wipers, you'll need to unmount the camera
- All raindrops contain dust particles. So, for the best image quality always replace the lens protectors for clean ones even when there's only been a few raindrops

## Remote Control App

- Consider installing the remote control app to your Android mobile phone in addition to the tablet. In case something goes wrong with the tablet, this way you can still operate the camera.
- Even with map tiles and recording areas etc. missing, the remote control still works fine.

## Prepare

- At least a day before the recording:
  - a. Place an SSD into the camera
  - b. Place a spare SSD in the blue SSD case of the camera case
  - c. Charge the camera's battery
  - d. Charge the remote control's tablet
  - e. Prepare map tiles, recording areas (kml/kmz) and road overlays (MBTiles) for the remote control and copy them to the the tablet. Nb. all of these are optional and the remote control works fine without them.
  - f. Assemble the magnetic mount using the provided spanners. Make sure the 4 bolts are inserted from the bottom to the top.

**WARNING**  
When inserting the four bolts incorrectly from top to bottom, the bolts might scratch or dent the car's rooftop. Always insert the bolts from the **bottom to the top.**
- Usually, the magnetic mount should not be disassembled between recordings. Most users leave the magnetic mount on the car's rooftop to reuse the same leveling adjustment settings with the Creator program



## Rigging

Rigging the car only takes about 5 minutes and can be done by a single person

- **ONCE ONLY**, carry out the following:
  - a. Place the magnetic mount onto the car's rooftop. Usually it is placed between the front and rear doors, right in the center
  - b. Make sure the magnetic mount points straight forward
  - c. Mount the base rack to secure the magnetic mount to the car
  - d. Make sure the front door does not pinch the data and power cables attached to the base rack
  - e. Reposition if necessary

Incorrect:



Correct:



- **Camera**

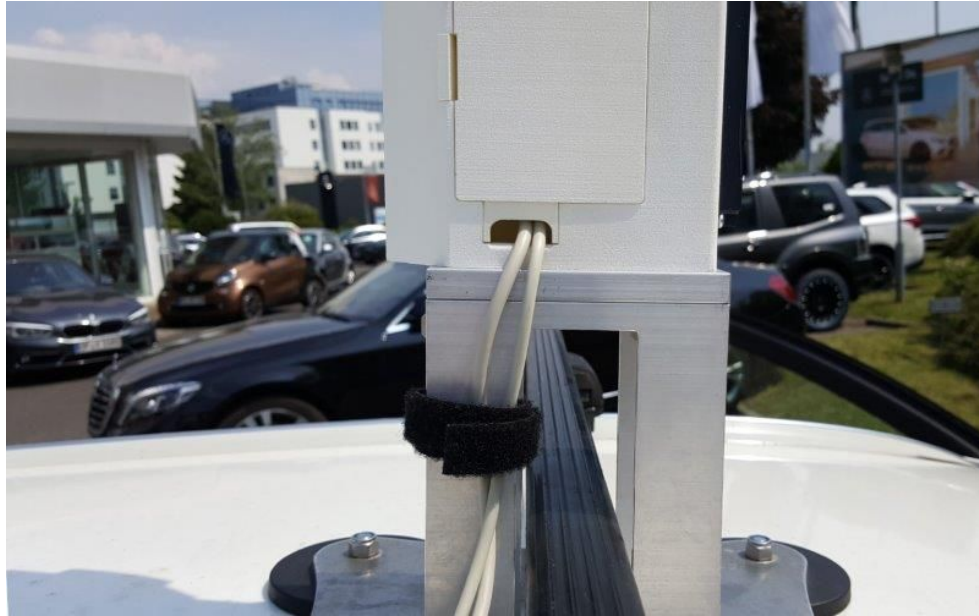
Roll the car's right rear window down 3cm

- a. Open the car's front door (this way you can be closer to the car)
- b. Optional: Place the stepladder at the open front door as close as possible to the car:



- c. Remove the two silver knurled nuts from the quick-release of the camera
- d. Lift the camera, and the data and power cables
- e. The large black heat sink of the camera is to point forward
- f. Insert the two bolts of the camera into the magnetic mount
- g. Secure the camera with the two washer springs and the two silver knurled nuts

- h. For tension relief, secure the two cables to the Magnetic Mount with a velcro strap



- i. Uncoil the data and power cables  
j. Secure the cables to the base rack with two velcro straps:



- k. Insert the data cable and power cable through the right rear window into the car

- **GNSS antenna**

- a. Place the magnetic GNSS antenna onto the car's rooftop
- b. Position it in the center, at least one meter behind and away from the camera
- c. Insert the antenna cable through the window into the car
- d. Keep the antenna cable separate from the data and power cable:



- **Navigation device**

- a. Mount the holder for the white snap-in holder for the navigation device to the car
- b. Make sure the release of the white snap-in holder points backwards
- c. Insert the navigation device with the two sockets pointing forward into the snap-in holder
- d. Press the navigation device down until it snaps in place - do not use force

Rear



Front

- e. Connect the antenna cable to the golden socket of the navigation device. Tighten it by hand - do not use force
  - f. Lastly, connect the power cable to the black socket of the navigation device. Red markers to align.
- **OBD2 adapter cable (optional)**
    - a. Plug the OBD2 adapter cable into the car's OBD2 socket (see the car's manual where to find it. It's usually found on the driver's side, below the instruments)
    - b. Connect the other end of the OBD2 adapter cable to the data cable and secure it with the two thumbscrews
    - c. Place the battery with the attached battery monitor cable into the car. e.g. onto the floor, ensuring the battery can't move
    - d. Connect the camera's power cable to the battery monitor cable to power on the camera
    - e. Start the car



- **Remote control**

- a. Place the tablet, in portrait orientation, in to the optional suction-cup holder on the windscreen
- b. Connect the optional power supply to the cigarette lighter port
- c. Switch on the tablet



- d. The camera needs about one minute to power on and show up as a WiFi device on the tablet  
The WiFi default name is: **camera**  
The WiFi password is: **wireless**
- e. Connect
- f. Close all other apps and the WiFi window

## Record

1. Close all other apps and windows on the tablet to save energy
  2. Start the Remote Control app
- Please see the [Remote Control Manual](#) for how to operate the camera.
  - In case the optional OBD2 adaptor cable is showing as missing on the **Status** tab, this might be because the car is still standing still. Check again after driving 20 meters.

## Dismount

1. Stop recording
2. Disconnect the camera's power cable from the battery monitor cable
3. Disconnect the antenna cable and the data cable from the navigation device
4. Press down the white release of the snap-in holder and remove the navigation device
5. Place the navigation device in the black camera case
6. Unplug the OBD2 adapter cable from the car
7. Unplug the OBD2 adapter cable from the data cable. Place it near the black camera case
8. Grab the GNSS antenna by its housing, not the cable, and remove it from the car's roof. Carefully pull the cable out of the car and place it in the black camera case
9. Remove the two velcro straps from the base rack
10. Carefully pull the data cable out of the car. Coil and secure it with a velcro strap
11. Carefully pull the power cable out of the car. Coil and secure it with a velcro strap
12. Remove the tension-release velcro strap from the magnetic mount
13. Remove the two silver knurled nuts from the magnetic mount
14. Take the camera off the magnetic mount. Remember to always lift the camera and the cables together
15. Reattach the two washer springs and the silver knurled nuts to the camera. This way they do not get lost and are at hand for the next recording.
16. Remove the SSD from the camera
17. Close the camera's SSD compartment
18. Place the camera in the black camera case
19. Arrange the data cable next to the camera
20. Arrange the power cable next to the camera
21. Arrange the OBD2 adapter cable on top of the camera
22. Make sure the connectors are positioned away from the camera's lens protectors to not scratch them
23. Don't forget to close the right rear window of the car
24. **Hint:** The data cable and power cable stay connected to the camera all the time
25. Power off the tablet
26. Dismount the tablet and put it into the camera case
27. The windscreen suction-cup holder not to be removed daily
28. Send the SSD to your office for processing



## Maintenance

- **Cleaning the camera**
  - a. Clean the camera with a damp cloth and a bit of warm water
  - b. A nail brush works well to clean the black, front heatsink
  
- **Clean lens protectors**
  - a. Replace the six lens protectors with clean ones
  - b. Clean the dirty lens protectors with warm water and soap
  - c. Dry them with a cloth like you would for spectacles
  - d. Dry them overnight
  - e. Place them in the black camera case the next day
  
- **Charge the camera's battery and the tablet**
  
- **Remote Control**
  - a. Back up the project and save it off the tablet for safekeeping
  - b. Once in a while, connect the tablet to the internet to check for Android updates
  - c. How to check for updates:  
**Settings → About Device → Software Update: Update now**

## Storage

- Store the closed camera case and the batteries safely, dry and at room temperature until the next use
- Charge the batteries and the tablet every 3 months when not in use

# SSD handling

## Newly purchased SSD

We strongly recommend Samsung EVO 850 or EVO 860 SSDs with 120GB, 250GB, 500GB, 750GB or 1TB capacity. The size depends on your workflow.

Before the first usage the SSD must be formatted in-camera with the Remote Control. See the [Remote Control manual](#), chapter **Format the SSD** (page 42).

## Reusing a SSD

To reuse SSD it must be delete first.

Deleting is done by formatting the SSD with the Remote Control.

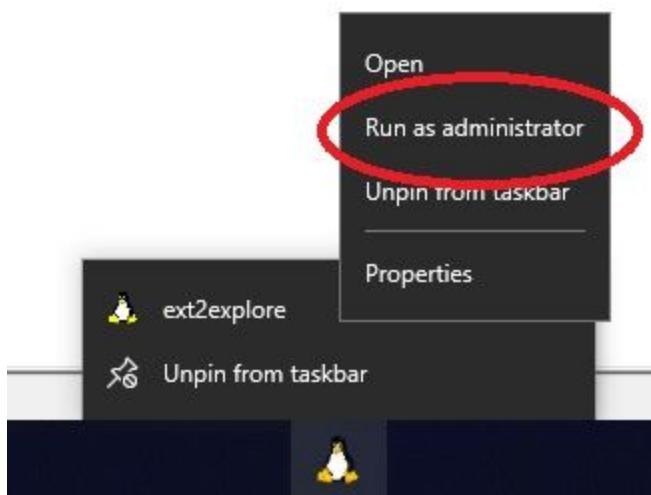
See the [Remote Control manual](#), chapter **Format the SSD** (page 42).

**Do NOT delete or format the SSD with a PC.**

## Copy data off the SSD

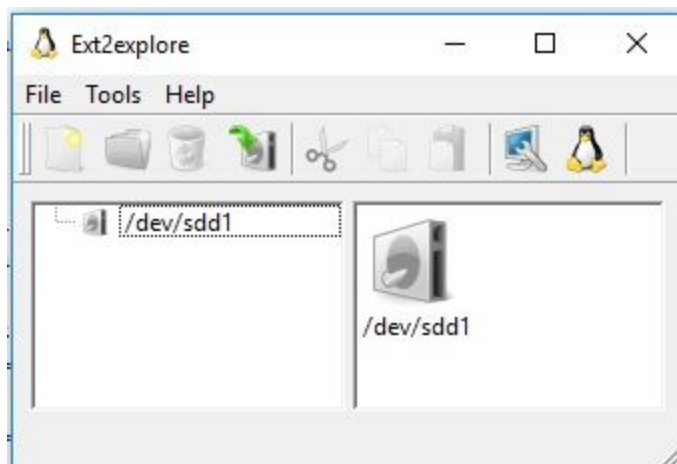
For efficiency the camera formats the SSD as ext3. Unfortunately Windows 10 can not read a ext3 formatted SSD by default. A helper program is needed to access the SSD and to copy the data.

We recommend the free [ext2read](#) program:

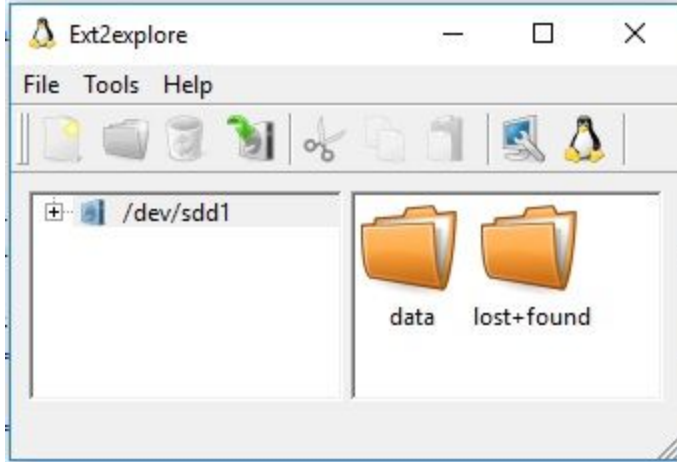


Right-click the **icon** in the Taskbar.  
Right-click **ext2explore**.  
Click **Run as administrator**.

You then see this Window:



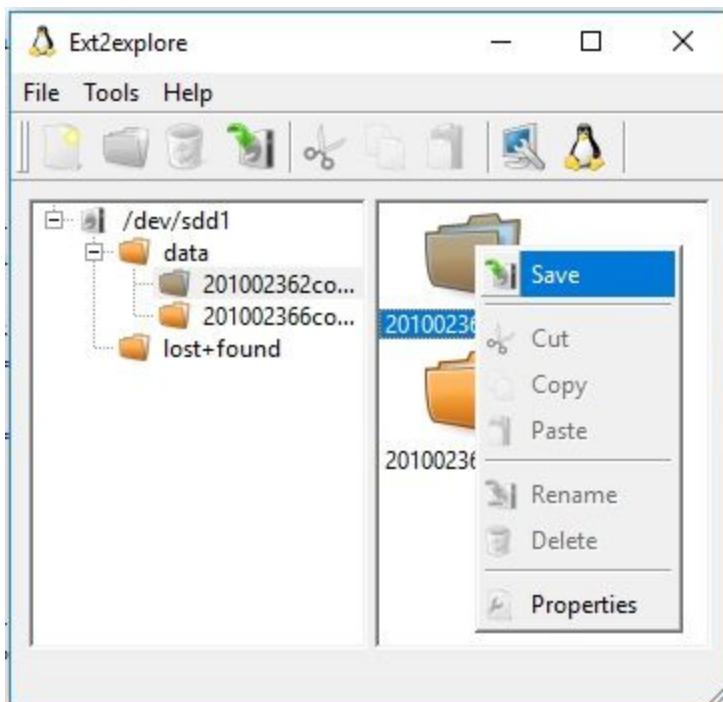
Double-click **/dev/sdd1**



The **data** folder holds all your **project** folders.

Right-click the data folder to **save all projects** to the PC. This might need a while. Make sure to connect the SSD adapter cable to a USB 3.0 socket.

Double-click the **data** folder to open it.



Right-click a **project folder** to save a single **project** to the PC.

**Do NOT try to delete with ext2explore.**

Some customers of ours tried these programs:

<https://www.diskinternals.com/linux-reader/>

<http://www.paragon-drivers.com/extfs-windows/>

# Support

Support is available in English:

**Helpdesk:** [support.applied-streetview.com](http://support.applied-streetview.com)  
**E-Mail:** [support@applied-streetview.com](mailto:support@applied-streetview.com)  
**Skype ID:** applied-streetview  
**Phone:** +49 (0)6103 - 37 27 494

# Consulting

We are available to be hired for consulting.

Please contact:

**E-Mail:** [jan.martin@applied-streetview.com](mailto:jan.martin@applied-streetview.com)  
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