

Safety Cameras for Cyclists - Hints and Tips

What sort of Camera?

It's important to distinguish between two types available on the market. Most common are "sport" cameras, typically the popular GoPro (and similar). These do an excellent job for their intended purpose and are used by many, including professionals for short action sequences. However most have major shortcomings which make them much less effective as a dedicated safety camera.

An **ideal safety camera** is one that can be switched on at the start of the ride and left continuously running **without intervention** until the end of the ride. Even over a long extended day, there should be no need to swap/recharge batteries or replace memory cards. Listed below are **essential (or at the very least highly desirable)** features to consider when selecting the perfect **Safety Camera**:

Essential Feature	Detail	Notes
Waterproof, compact, unobtrusive and lightweight.	The camera needs to be totally waterproof (Not just splash proof)	At the very least rated IP66, but better IP67 (i.e. capable of briefly surviving immersion into water)
Longevity of battery run time	Virtually all cameras have a very limited runtime using their own internal battery (as little as an hour and rarely more than two). Many stop working without warning when the battery runs flat.	Unless you only do short rides, choose a camera that has the facility to run on an external battery power pack – but make sure the connection doesn't compromise camera water resistance! Lithium Ion/Polymer rechargeable batteries have higher energy densities than older technologies.
Unlimited capacity by employing continuous "Loop Recording".	Most cameras use solid state SD or Micro SD cards. Make sure the camera is compatible with cards of capacity 32 GB or more. SD Cards need to be faster "Class 10" versions.	Loop recording is where the camera automatically records to storage in a continuous series of fixed length files. Once the card is full, oldest files are overwritten by the most recent.
Time and Date Stamp	The camera continually records time and date on the video image.	Particularly important if video is needed for evidential reasons.
High quality Image	Ideally, consider nothing less than High Definition. Minimum 720p, but better 1080p. Higher definitions record more detail, but fill the storage card more quickly.	Each video frame recorded is a series of "dots" the more dots the better the detail. 720p records 1280 dots across and 720 dots down. 1080p records 1920 dots across and 1080 dots down.
Fast frame rate for a smooth judder free image	Absolute minimum 25 frames per second. Better 30 FPS or more	High frame rates will fill the storage card more quickly.
Wide Angle Lens.	The wider the angle of view the better, 110 degrees or more. Typically sport cameras have a more restricted field of view.	Wide angle lenses tend to distort or "Fisheye" the image, not a big issue for a safety camera.
Sound Recording	Ability to record sound continuously without needing a separate external microphone.	Make sure any attachments don't compromise waterproof integrity of the camera.

Attaching a Forward Facing Safety Camera.

By far the most effective option is to **locate a camera on your head**, either on helmet, headband or hat (bullet type cameras are especially effective, lightweight and unobtrusive). The camera records virtually everything that you see, as an evidential record it is able to capture many more situations than if fitted on your handlebars. It also remains with you recording when you are separated from your bike. A headcam will record side approaching hazards with a quick glance, (including the driver's face and vehicle registration). It also records your own actions and will prove that you did look right or left and you did clearly hand signal your intentions! Tip - get used to swivelling your head rather than just moving your eyes – that way the camera sees what you see!

Locating a Rearward Facing Safety Camera.

Best on the bike itself, either on the frame, seat post or on top of a fairly rigid (wire stay) mudguard.

What's my current Setup?

I use two identical cameras, one forward facing attached on the side of my helmet, one rearward facing on top of the back mudguard. I use "RoadHawk Rides", simply because their specification ticks **every box** in the table above at an affordable price. At 720p, 30 FPS the image and sound quality is reasonably good. Two compact external lithium ion 5200 mAh USB battery packs (one attached to the back of my helmet the other to the back of the seat) run both cameras for up to 14 continuous hours if necessary.

USB battery packs are available cheaply on line from Amazon:

http://www.amazon.co.uk/Portable-External-Built-In-Flashlight-Motorola-Black/dp/B005NFOA0S/ref=sr_1_33?s=electronics&ie=UTF8&qid=1415907862&sr=1-33&keywords=usb+battery+pack

Alternatively the following smaller pack will run one camera for approx. 7 hours

https://www.amazon.co.uk/gp/product/B005Q11A8C/ref=oh_aui_detailpage_o09_s00?ie=UTF8&psc=1

You can see examples of video footage from these cameras on the following YouTube link:

<https://www.youtube.com/user/RecumbentTrikeRider>

DogCamSport stock a wide range of headcams:

<http://www.dogcamsport.co.uk/>

Including the RoadHawk Ride which is currently being heavily discounted (I understand they are about to launch a full 1080p version soon):

<http://www.dogcamsport.co.uk/roadhawk-ride.html>

Notes:

- Most USB battery packs are not water resistant – a plastic bag, cling film or similar will suffice.
- The YouTube quality is a little inferior to that originally recorded.
- SD cards need formatting regularly or recording may occasionally fail.
- I use Adobe Premiere Pro to merge the two camera recordings into one image. The time chips in each camera tend to drift at different rates and **ideally** need to be synchronized on a computer at the start of each ride.