A 360⁰ camera provides the opportunity to capture a panoramic view of a landscape. Using these cameras is a great way of illustrating a site, specific feature, or significant pressure on a river. Plus, these images can be shared with a range of stakeholders to highlight survey sites.

How to use 360⁰ camera to take photos

To capture an image or video, you will need a smart handheld device such as a smartphone or tablet. You will need to download the relevant **RICOH THETA** application applicable to your Android or iPhone device or tablet from the App Store. This is a free application.

Turn on your camera and click the Wifi button on the side of the device to turn on the Wifi.

Example of a RICOH Theta 360º camera

The Ricoh Theta is equipped with forward and rear facing cameras. The rear face of the camera contains a large shutter release button below the lens, as well as indicator lights for power (above the button), and for WiFi status and photo or video mode (below the button). 3 small buttons on the edge of the camera control power (also illuminated), WiFi and shooting mode as indicated by the lights on the rear face.
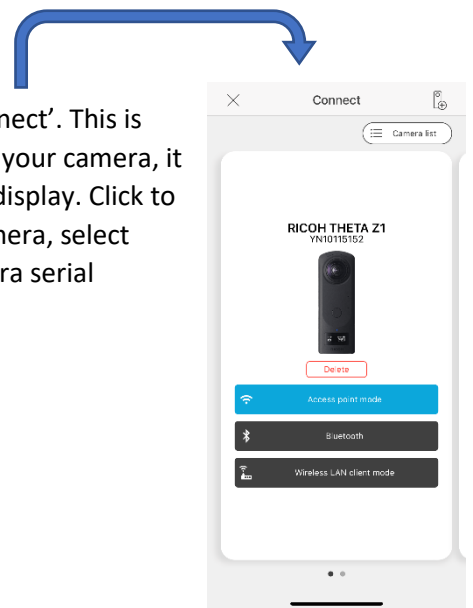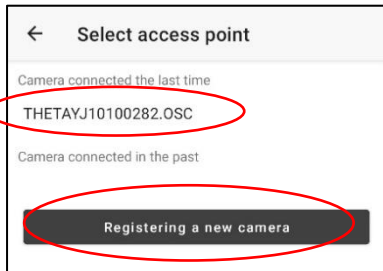
Connect your smart device to the camera on the Theta app

1. Turn on the camera using the button on the side of the camera, at the top. The power button will illuminate and also the rear face power and camera mode lights will illuminate. Check that the lower light is indicating the desired photo or video mode and toggle the lower button on the camera edge to correct if necessary.
2. Click the WiFi button on the edge in the middle to turn on the WiFi connection to the camera. The WiFi indicator light on the face of the camera will start flashing. The camera is now ready to pair with the smart handheld device.
3. Open the RICOH THETA application on your smart device.
4. On the bottom right-hand corner (on Android), or the middle of the bottom bar (on iPhone) there is a circular symbol with a horizontal black oval shape through the middle. Click this symbol.
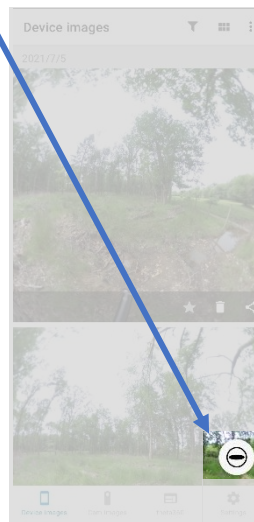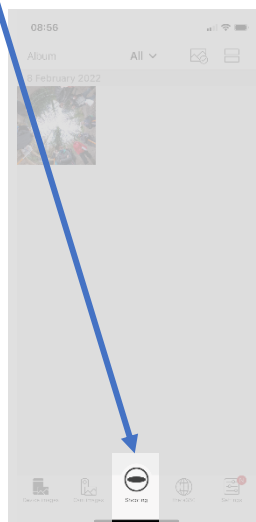
This will open a screen giving you options to 'Select access point' or 'Connect'. This is where you will connect to a camera. If you have previously connected to your camera, it will be listed under 'Camera connected the last time' or show up on the display. Click to connect to this camera again. If you have not previously connected a camera, select 'Registering a new camera' and follow the instructions to input the camera serial number (found on the base of the camera).

During pairing and any other interaction between the smart handheld device and camera, the caption 'Communicating' will appear on your smart device. The WiFi light on the camera will go steady once pairing is achieved.

5. Once the camera is connected, when you select the circular Theta symbol again, it will connect you to the view of the camera. This is the camera status screen, where you can adjust camera settings and capture images.

Taking a photograph

It can be useful to use a 360⁰ camera with a selfie stick of pole which allows you to secure the camera to the end, and hold away from you, in order to get a better representation of your surroundings.

1. Hold the camera over the area you would like to capture a photograph. On your smart device you will see an image of what you are capturing. The image is a 360⁰ photo, reduced into a flat surface display on your smart device, so don't worry if it appears blurry on your phone or tablet. The resulting 360⁰ image will not appear blurry when viewed as a 360⁰ image.
2. Click the white circle button in the middle of the option bar, to capture an image. You will hear a click sound from the camera, notifying you the image has been captured. The image may take a moment to fully capture and the screen might say 'Image synthesising'. This should take no longer than 10 seconds.

Depending on your smart device settings, your images can be saved in your phone gallery or just onto the camera. You can change these settings in the app.

3. Continue to capture images along your survey site to get a representative image of the site.

Viewing photos

You can view photos in the Theta application on your smart device. Use the bar options at the bottom of the application to view:

- 'Device images' saved to your mobile device, or
- 'Cam images' to view images saved on the Theta camera, when connected to the camera
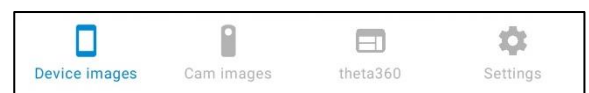
Scroll through the images, and click on an image to be able to interact with it and spin side-to-side on the screen.

You can also download the free RICOH Theta desktop software to view photos on your computer. Follow this link and make sure you download the correct software for your Computer or Mac, compatible with you Theta camera - https://support.theta360.com/en/download/

Where can I buy a 360° camera?

You can purchase a camera direct from the Theta website. A RICOH THETA SC2 is approximately £300 - https://theta360.com/uk/

Tips for capturing 360° photos

- For an effective overall walkover of the site, try to capture 360° photographs every 10m, or as frequently as possible, taking into account access and safety.
- For recording an overall walkover of the site, the camera is best mounted on the end of a selfie stick to reduce intrusion of the operator's body into the image and to 'overhang' the riverbank. Make sure the camera is mounted securely to the ball joint at the end of the stick and adjusted so that with the stick held horizontally out to the side over the riverbank, the camera will be vertical and the front lens pointing along the direction of travel.
- Try to face in the same direction for each photo to standardise orientation.
- If possible, take a portable battery with you to charge your phone and camera in the field, especially if you are planning to be out in the field all day.
- Most devices don't work well in the rain. Check the weather forecast before survey and prepare. Waterproof cases are available to purchase, which can cover the camera in wet conditions. If possible try not to use cameras in the rain as photo quality may be poor and you risk damaging the camera.
- The camera settings are best left on auto but the exposure value (EV) setting can be adjusted to offset excessively dark or light images due to sun conditions.