

### Auk 3 Startup Sheet

This document contains basic information needed to connect and use the Auk 3 or AWC 3 (Agricultural Wireless Camera 3). The Auk 3 is a wireless, Linux-based, NIR/R/G multi-spectral camera designed for vegetation analysis. A 6 to 24 VDC 3W minimum power source is required for power input. The controller is a powerful quad core system and along with the camera module is housed in a protective enclosure appropriate for outdoor use. An ILS (incident light sensor) is attached to the housing to increase remote sensing accuracy and is operating whenever the camera is powered up. Mount the ILS so that the white diffuser is positioned with a clear view of the sky.

To begin using the Auk 3 camera, attach the provided 6 pin power adapter cable to the camera. Make sure to align the arrows on the 6 pin plugs and press gently until the connectors lock together. To remove the 6 pin cable, gently pull the connector shell on the adapter cable to release the connector lock and then remove the cable. Do not attempt to twist or rotate the cable in the cable housing as damage to the cable connections may occur.

Connect the provided 12 VDC power supply to the AC wall outlet and plug the 12 VDC power cable into the 6 pin power adapter cable on the camera. The LED indicator on the camera will turn green when power is connected, and will then turn to orange during camera initialization. When the LED is green again, the Auk 3 camera is initialized and ready to operate. This process typically takes from 60 to 90 seconds to complete.

To access the camera's web browser interface, connect it to a Wi-Fi enabled device, such as a PC, tablet, or smartphone. Open the Wi-Fi network settings on your device and search for the Auk 3 camera's Wi-Fi hotspot, indicated by the following hostname: AUK3XXXX, where XXXX represents the last four digits of your camera serial number. Once you have successfully connected to the Auk 3 Wi-Fi hotspot, open up a web browser on your device. In the web browser URL navigation field enter 192.168.1XX.1, where XX is the last two digits of your camera serial number. You should now see the AWC controls page appear in your browser. Only Google Chrome and Mozilla Firefox browsers are currently supported.

Take a picture with the web browser interface by pressing the Trigger button. You may also take a picture by pressing and quickly releasing the white button on the Auk 3 housing. The status LED will turn red and will change back to green when the picture has been saved. See a live video feed of the sensor by pressing the Live View button. Click the Review button to return to the Review page. Review mode is the recommended screen for operating the Auk 3 unless live video is needed.

By clicking the Settings button, you can change the camera operation. Useful functions in the Camera Settings page include Capture Mode, Auto Capture Delay, Index Extractions, ILS Adjustments, and Disable Raw Data options. See help details by pressing the Help button next to each item. Save changes to the settings by clicking the Save Changes button. Click Back to return to the previous page.

After you've taken a few pictures, click the Refresh button to see the complete list of images in the camera. Click on the drop down list that contains image file names and select an image. The selected image will now be displayed. If Index Extractions are enabled, you will also be able to click the drop down list below the image display area of the page to select and view one of the index extractions defined in the Edit Veg. Index page.

Using a Windows PC, you can directly access the files in the Auk 3 by connecting with the Samba file sharing service that runs in the camera. Open the Windows File Explorer and type \\192.168.1XX.1 where XX represents the last two digits of your camera serial number. TTCAUK should come up as a

network folder. Opening TTCAUK will provide access to images, settings, log files, extractions, and the DOCS folder.

In order to be processed and analyzed, the original images saved by the camera in the AUKJPGS folder must be converted to RAW format using PixelWrench2. Under the PW2 File menu, use the Convert Auk Jpeg to RAW function. To process multiple images, use the Convert Auk Jpeg to RAW function found in the Batch tab of the IndexTools form. IndexTools can be launched from the "Index Tools" selection under the View menu, or by right clicking in the PixelWrench2 active window and selecting "Index Tools". Refer to PixelWrench Help in the Help menu for detailed instructions.

As mentioned above, if the Index Extractions setting is enabled the Auk 3 has the capability to internally process and save images to TIF format under the EXTRACTIONS folder. Most common would be to enable the RGB Extractions in the Edit Veg. Index page to process and save NIR/R/G rendered images. Vegetation index extractions such as NDVI can also be created and saved in TIF format if those extraction types are enabled. Although camera performance and file storage space will be reduced, processing images in the camera can greatly simplify the data collection and management of images captured by the system.

There is a protective cover installed over the Auk 3 micro SD card. This micro SD card contains the Auk 3 system as well as stored images, settings, and log files. It is highly recommended to not remove this micro SD card under normal use, as there are multiple partitions on this micro SD card that will not be recognized properly on a Windows PC. To access images, settings, and log files, please use Samba as directed in the previous paragraphs.

There is a folder called DOCS located in TTCAUK, accessible via Samba. The DOCS folder contains this document as well as other documents and software. Please note that if you use the Format Disk function in the Auk 3 web browser interface, this folder will be permanently lost. The documents and software in the DOCS folder are also provided in a Tetracam CD.

The Auk 3 has Ethernet and USB ports. A protective cover is installed over both the Ethernet and USB connectors. For certain uses such as testing or hard-wired only installs, it may be necessary to use the Ethernet connection instead of Wi-Fi. To access the Ethernet connector remove the protective cover from the Ethernet connector and USB port by gently sliding the cover until it is clear of the guides on the camera body. Plug an Ethernet cable into the camera Ethernet connector to allow the Auk 3 to communicate on a network via DHCP, and connect power to the Auk 3. Once you have looked up the private IP address assigned to the Auk 3, you can access the Auk 3 web browser interface and Samba using this new IP address as well as the IP address associated with the Wi-Fi hotspot. A typical Ethernet IP address may be something like 192.168.1.XX, where XX are the two digits assigned by your modem or router.

The Auk 3 USB port is intended only for use with an optional USB type GPS. If a GPS has been provided by Tetracam, before installing the GPS, make sure the Auk 3 is powered down. As noted above, slide and remove the protective cover to expose the Ethernet connector and USB port. Install the GPS into the USB port. You may now power on the Auk 3. When the GPS blinks a blue LED, it has obtained a GPS location fix, and will transmit position data to the Auk 3. The GPS data is visible in the Auk 3 through the Auk 3 web browser interface, log files, and image metadata.

To power down the Auk 3 system from the web browser interface, select the Shutdown button. You may also power down the system by holding down the white button on the Auk 3 housing until the LED blinks red and green rapidly; upon witnessing this, release the white button. The Auk 3 LED will turn red, orange, and then green. At this point, green indicates it is safe to unplug power from the system. The Auk 3 User's Guide should be consulted for more detailed product information.